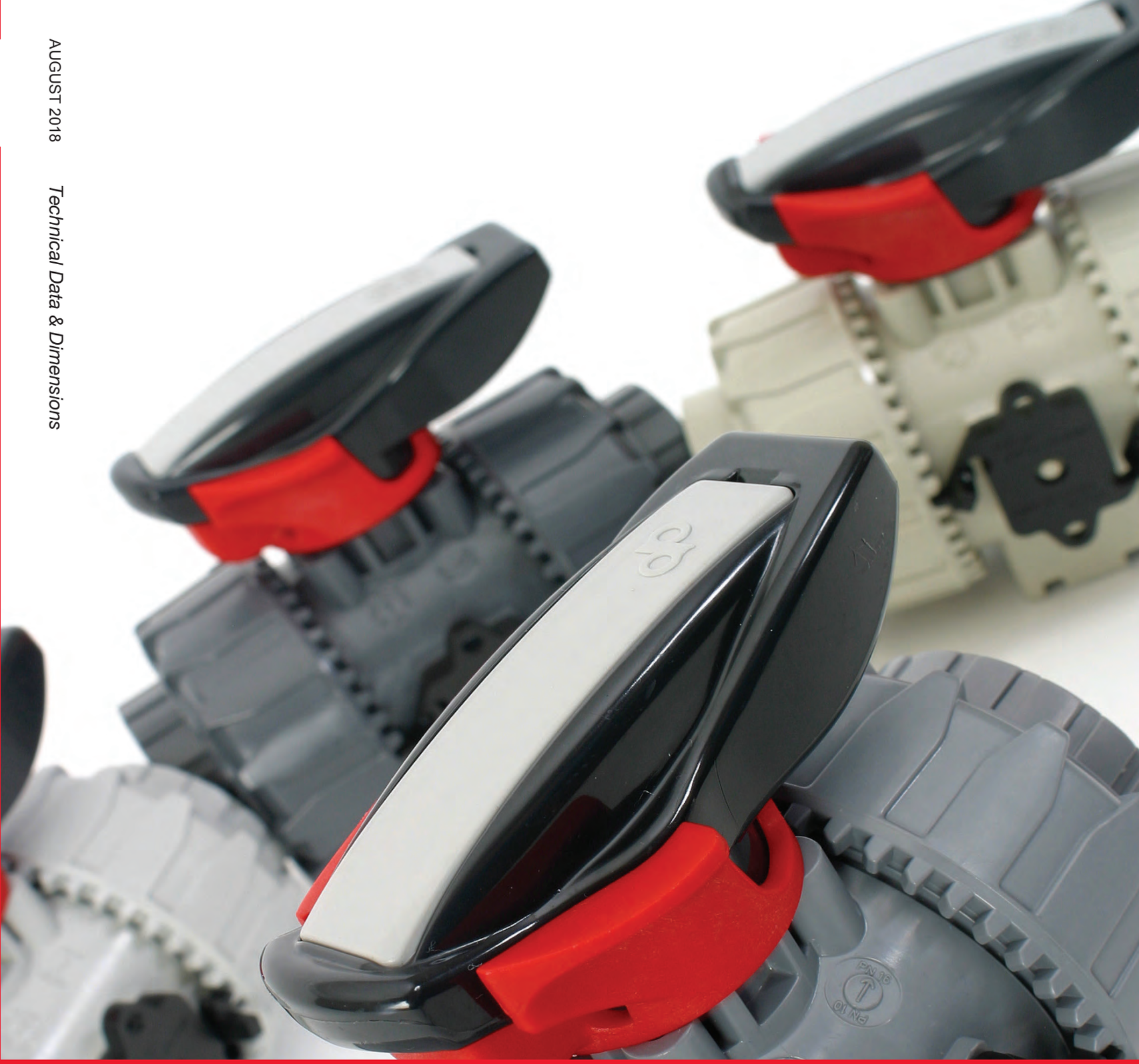
AUGUST 2018

Technical Data & Dimensions



Durapipe FIP

Manual & Actuated Valves

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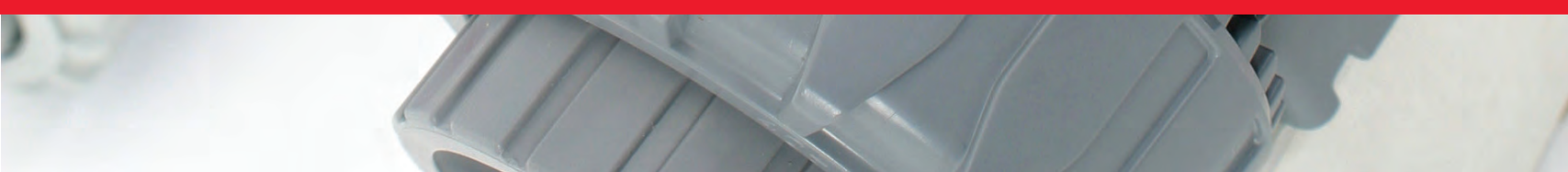

INTRODUCTION 4-5

VALVE PRODUCT CODE SELECTOR 6

MANUAL VALVES

	VKD DualBlock® 2-way Ball Valve	3/8" - d16 to 2" - d63	7
	VKD DualBlock® 2-way Ball Valve	2 1/2" - d75 to 4" - d110	23
	TKD DualBlock® 3-way Ball Valve	3/8" - d16 to 2" - d63	33
	VXE Easyfit® 2-way Ball Valve	3/8" - d16 to 2" - d63	49
NEW	VXE Easyfit® 2-way Ball Valve	2 1/2" - d75 to 4" - d110	59
	VKR DualBlock® Metering Ball Valve	3/8" - d16 to 2" - d63	67
NEW	SXE Easyfit® Ball Check Valve	1/2" - d16 to 2" - d63	81
	SXE Easyfit® Ball Check Valve	2 1/2" - d75 to 4" - d110	89
	SR Ball Check Valve	d20 to d63	97
	FK Butterfly Valve	1 1/2" - d50 to 12" - d315	101
	FE Butterfly Valve	1 1/2" - d50 to 8" - d225	117
	UM/VM Diaphragm Valve	1/2" - d20 to 4" - d110	125
	CM Compact Diaphragm Valve	1/2" - d20	133
	RV Sediment Strainer		137
	VM/RM Mini Diaphragm Valve & Cock	1/4" to 1/2"	145
	VV Angle Seat Valve	1/2" to 2"	149
	VR Check Valve	3/8" - d16 to 4" - d110	155
	CR Wafer Check Valve	1 1/2" - d50 to 12" - d315	163
	SXA Easyfit® Air Relief Valve	1/2" - d20 to 2" - d63	167

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ACTUATED VALVES - Electric

	VKD DualBlock® 2-way Ball Valve	3/8" - d16 to 2" - d63	175
	VKD DualBlock® 2-way Ball Valve	2 1/2" - d75 to 4" - d110	187
	TKD DualBlock® 3-way Ball Valve	3/8" - d16 to 2" - d63	199
NEW	VKR DualBlock® Metering Ball Valve	3/8" - d16 to 2" - d63	207
	FK Butterfly Valve	1 1/2" - d50 to 12" - d315	217
	S1-S2 2-way Solenoid Valve	3/8" - d16	237

ACTUATED VALVES - Pneumatic

	VKD DualBlock® 2-way Ball Valve	3/8" - d16 to 2" - d63	245
	VKD DualBlock® 2-way Ball Valve	2 1/2" - d75 to 4" - d110	257
	TKD DualBlock® 3-way Ball Valve	3/8" - d16 to 2" - d63	267
	FK Butterfly Valve	1 1/2" - d50 to 12" - d315	277
	VM Diaphragm Valve - NC	1/2" - d20 to 4" - d110	291
	VM Diaphragm Valve - NO/DA	1/2" - d20 to 4" - d110	301
	CM Compact Diaphragm Valve	1/2" - d20	315

FLOW X3 CONTROL

	Variable Area Flowmeter	⅜" – d16 to 2½" – d75	323
NEW	FLS Flow Monitoring range		329

World class Valves and Flow Control

Durapipe UK offers an unrivalled portfolio of manual and actuated valves including ball, angle seat, diaphragm, butterfly and 3-way valves available in PVC-U, ABS, Polypropylene and Corzan C-PVC materials to meet a diverse range of applications.

Manufactured by market leader and fellow Aliaxis partner, FIP, our valve offering boasts the latest technological developments, innovative features and high performance characteristics. FIP has been a world leader in the development and production of valve products since it produced the first plastic valve in 1954.

Investing heavily in research and development means FIP is always the first manufacturer to bring the latest innovations to the market. Benefiting from FIP's unrivalled expertise in the development of valves, Durapipe UK can offer a high performing comprehensive product range that is manufactured in world class facilities to the highest quality.

Durapipe Valve Department

Our dedicated in-house valve and flow control department offers technical support and assembly advice on our wide range of manual and actuated valves as well as state-of-the-art flow control and monitoring solutions.

The valve team often operates on a rapid response basis with both manual and actuated valves being shipped to customers on a next day basis, sometimes to very precise requirements.

Furthermore, the Valve Department can offer system sizing, valve and actuation advice with every product fully tested and carrying an individual serial number. All products are fully quality assurance tested to BS EN ISO 9001.

The team have a wealth of experience and expert knowledge of valves and flow control solutions, and their expertise can be invaluable when helping customers to select the appropriate valve.

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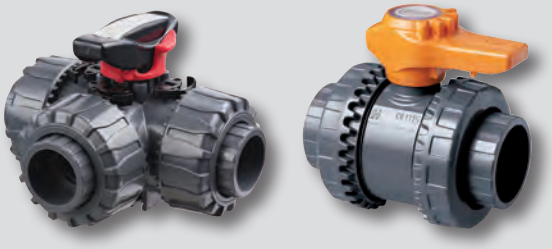
products for plastic pipework systems

Ball Valves

The manual ball valve is the most frequently used valve in industrial installations, used for standard isolations to enable sections of a plant to be shut down for maintenance and is the most effective product for pure isolation requirements. Our range of plastic ball valves is the most technically advanced on the market, including the innovative VKD 2-way ball valve and the TKD 3-way valve that both include many patented features (including DualBlock®, Seat Stop® and PowerQuick®) that are each designed with the users benefit in mind. The range is further complemented by the VXE valve that itself provides many pioneering features (Easyfit®) that can enhance the valve offering to a pipe system.

The VKD and TKD ranges of ball valves can be actuated either electrically or pneumatically.



Butterfly Valves

Our technically engineered butterfly valves are often used as the ideal solution for water applications.

Butterfly valves offer a compact installation solution even on large diameter piping systems. Our range offers a flanged body with oval holes for ease of installation where the central disc changes based on the plastic material of choice.

The butterfly valve range can be operated by lever handle, gearbox (gearbox only available in 10" & 12") or via an electric or pneumatic actuator.

Diaphragm Valves

Our diaphragm valve is particularly suitable for regulation or on-off operations with dirty or abrasive fluids. The hand-wheel operator and the diaphragm type sealing allow precise regulation and can reduce water hammer.

A diaphragm valve is suitable for fluids containing foreign objects because it is very forgiving as the rubber seal flexes around the object. As the areas are smooth, there is nowhere for the foreign body to become lodged.

FlowX3

Our range of FlowX3 products consists of a selection of blind, panel or field mounted sensors utilising the following technologies:

Paddle Wheel

A simple and reliable flow sensor designed for use with every kind of solid-free liquids.

The sensor can measure flow from 0.15 m/s (0.5 ft/s) producing a highly repeatable frequency output signal.

A rugged construction and a proven technology guarantee exceptional performances with little or no maintenance required.

Magmeter

The Insertion Magmeters are suitable to measure flowrate in both metal and thermoplastic pipelines. No moving mechanical parts and the high quality materials allow the measurement of liquids where suspended solids can be present, or of abrasive liquids as long as they are conductive and homogeneous.

The sensor can be assembled into the standard Durapipe FLS fitting range, so it is perfectly interchangeable with the paddlewheel sensors.

ChemX3

ChemX3 is a complete range of electrodes, sensors, monitors, controllers and transmitters for pH and ORP measurement:

- **pH and ORP Monitor and Controller**
- **pH and ORP 2-Wire Transmitters**
- **Conductivity Monitor and Controller**
- **Conductivity 2-Wire Transmitters**
- **A comprehensive range of electrodes and sensors**

Valve Product Code Selector

Operation/Actuation

0 = Standard Manual Valve
Electric Actuation
1 = 100-240vAC
2 = 24v AC/DC
3 = 100-240vAC - Fail Safe Closed
4 = 24v AC/DC - Fail Safe Closed
5 = 100-240vAC - Fail Safe Open
6 = 24v AC/DC - Fail Safe Open
7 = 100-240vAC - Positioning (4-20mA)
8 = 24vAC/DC - Positioning (4-20mA)
Pneumatic Actuation
P = Pneu, Fail Safe Closed
Q = Pneu, Fail Safe Open
R = Pneu, Double Acting
S = Pneu, Fail Safe Closed + Switch Box
T = Pneu, Fail Safe Open + Switch Box
U = Pneu, Double Acting + Switch Box
Other
V = Gearbox Operated

Valve Type

Ball Valves
DK = VKD Ball Valve
DL = VKD Ball Valve (c/w lockable handle)
XE = VXE Ball Valve
LT = TKD 3-way 'L' Port Valve
TT = TKD 3-way 'T' Port Valve
Butterfly Valves
FK = FK Valve
FE = FE Butterfly Valve
Diaphragm Valves
VM = VM Diaphragm Valve
UM = VM Diaphragm Valve (Union Ended)
CM = Compact Diaphragm Valve
CU = Compact Diaphragm Valve (Union Ended)
RM = Mini Diaphragm & Cock
Check Valves
SX = Double Union Ball Check Valve
SR = Single Union Ball Check Valve
VR = Angle Seat Check Valve
UR = Angle Seat Check Valve (Union Ended)
CR = Wafer Check Valve
Strainers
RV = RV Sediment Strainer
UV = RV Sediment Strainer (Union Ended)
RT = RV Sediment Strainer - Transparent
UT = RV Sediment Strainer - Transparent (Union Ended)
Angle Seat Valves
VV = VV Angle Seat Valve
VU = VV Angle Seat Valve (Union Ended)
Strainers
SA = SXA Double Union Air Release Valve
PR = PR Pressure Relief Valve

Body/Seal Material

ABS Options
A = ABS / EPDM
B = ABS / FPM
C = ABS / PTFE
PVC-U Options
E = PVC-U / EPDM
F = PVC-U / FPM
G = PVC-U / PTFE
PVC-C Options
J = PVC-C / EPDM
K = PVC-C / FPM
L = PVC-C / PTFE
PP Options
N = PP / EPDM
P = PP / FPM
Q = PP / PTFE
PVDF Options
S = PVDF / EPDM
T = PVDF / FPM
U = PVDF / PTFE

Size/Ends

Plain Socket	Plain Spigot
101 = $^{3}/_{8}$"	201 = $^{3}/_{8}$"
102 = $^{1}/_{2}$"	202 = $^{1}/_{2}$"
103 = $^{3}/_{4}$"	203 = $^{3}/_{4}$"
104 = 1"	204 = 1"
105 = $1^{1}/_{4}$"	205 = $1^{1}/_{4}$"
106 = $1^{1}/_{2}$"	206 = $1^{1}/_{2}$"
107 = 2"	207 = 2"
108 = $2^{1}/_{2}$"	208 = $2^{1}/_{2}$"
109 = 3"	209 = 3"
110 = 4"	210 = 4"
111 = 5"	211 = 5"
112 = 6"	212 = 6"
113 = 8"	213 = 8"
114 = 10"	214 = 10"
115 = 12"	215 = 12"
Plain Socket	**Plain Spigot**
304 = 12mm	404 = 12mm
305 = 16mm	405 = 16mm
306 = 20mm	406 = 20mm
307 = 25mm	407 = 25mm
308 = 32mm	408 = 32mm
309 = 40mm	409 = 40mm
310 = 50mm	410 = 50mm
311 = 63mm	411 = 63mm
312 = 75mm	412 = 75mm
313 = 90mm	413 = 90mm
314 = 110mm	414 = 110mm
315 = 125mm	415 = 125mm
316 = 140mm	416 = 140mm
317 = 160mm	417 = 160mm
319 = 225mm	419 = 225mm
320 = 250mm	420 = 250mm
323 = 315mm	423 = 315mm

DN (nominal bore)	Metric Size	Imperial Size
10	16mm	$^{3}/_{8}$"
15	20mm	$^{1}/_{2}$"
20	25mm	$^{3}/_{4}$"
25	32mm	1"
32	40mm	$1^{1}/_{4}$"
40	50mm	$1^{1}/_{2}$"
50	63mm	2"
65	75mm	$2^{1}/_{2}$"
80	90mm	3"
100	110mm	4"
125	140mm	5"
150	160mm	6"
200	225mm	8"
250	250mm	10"
300	315mm	12"

For different end options, change the first digit of size/ end code (imperial only) to the following
B = Threaded BSP
F = Flanged BS4504, PN10 /PN16 (DIN2501)
X = Flanged ANSI 150

For different end options, change the first digit of size/ end code (metric only) to the following
M = PE Long Male Spigot Ended, for Butt Fusion
P = PP Long Male Spigot Ended, for Butt Fusion

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VKD DualBlock® 2-way Ball Valve

The **VKD DualBlock® ball valve** is a fully unionised valve that stands up to the most severe industrial applications.

- Size range from 3/8" / d16mm up to 2" / d63mm
- Pressure rating: Maximum working pressure: 16 bar at 20ºC (PP = 10Bar at 20ºC)
- Patented **DualBlock®** system: The locking device ensures the union nuts are retained in position, even under the most arduous conditions: ie. vibration or thermal expansion
- Easy removal of the valve body from the pipe system, allowing replacement of the valve seals and seats without any additional equipment
- The pipeline downstream of the valve can be disconnected, with the valve in the closed position, without leakage
- Patented Seat Stop® ball seat carrier, with micro adjustment of the ball seats and 'take up' of axial pipe loads, which can all be done without the need to drain the system
- VKD 'style' ergonomically designed handle with removable ball seat adjusting tool
- Possibility to fit an electric or pneumatic actuator with a GR-PP Mounting kit with standard drillings (ISO 5211 F03, F04, F05, F07)
- Jointing by solvent welding, threaded or flanged connections, or socket fusion
- For more information, please visit our website **www.durapipe.co.uk**

Legend

d	Nominal outside diameter
DN	Nominal internal diameter in mm
R	Nominal size or the thread size in inches
PN	Nominal pressure in bar (max. working pressure at 20°C - water)
gms	Weight in grams
PVC-U	Polyvinyl chloride unplasticised
ABS	Acrylontrile Butadiene Styrene
PP	Polypropylene
PVC-C	Polyvinyl chloride chlorinated
HIPVC	High impact PVC
PE	Polyethylene
PTFE	Polytetrafluoroethylene
EPDM	Ethylene Propylene Diene Monomer (M-class) rubber
FPM	Fluorocarbon rubber
s	Wall thickness (mm)
SDR	Standard dimension ratio = d/s

Dimensions and Standards

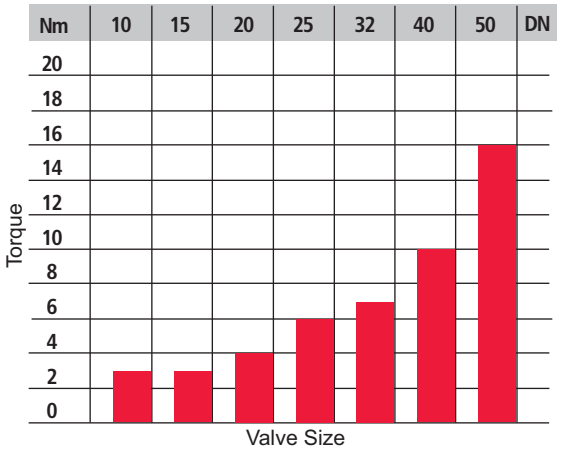
Imperial
The Imperial System is manufactured in accordance with the relevant British Standards: BS 5392 fittings.

Metric
The Metric System is manufactured generally in accordance with the relevant International Standards: ISO 15493, KIWA 49 and 549, DIN 8062 and 8063.

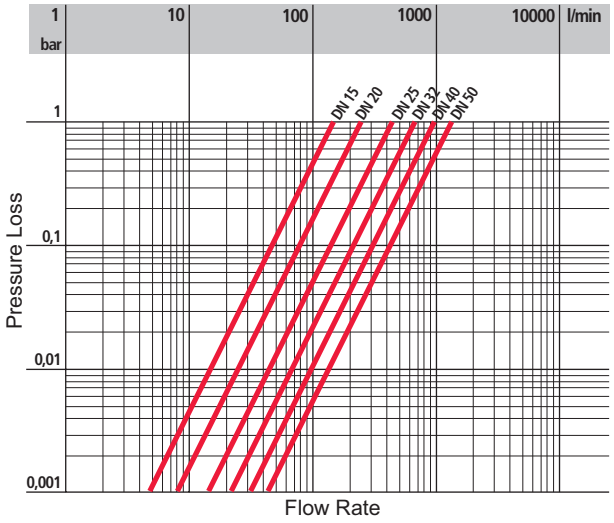
BSP Thread
Threaded fittings conform to the requirements of BS 21/DIN 2999/ISO7. Socket dimensions of metric fittings for solvent welding comply with ISO/DIS 727-1.

Interchangeability
Components in the imperial and metric ranges are not interchangeable.

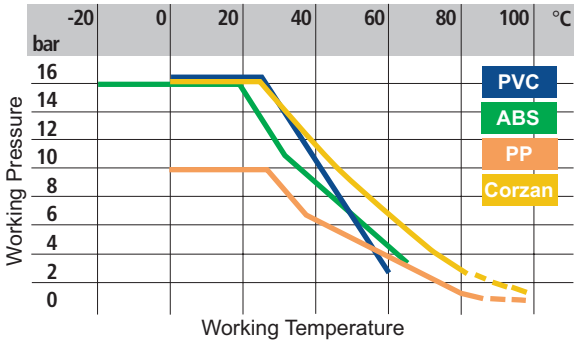
Technical Data



Torque at max. working pressure: 16 Bar.



Pressure loss chart.



Pressure/temperature rating for water and harmless fluids to which the material is RESISTANT. In other cases a reduction of the PN is required. (25 years with safety factor).

DN	10	15	20	25	32	40	50
k_{v100}	80	200	385	770	1100	1750	3400

Flow coefficient k_{v100}

k_{v100} is the number of litres per minute of water at a temperature of 20°C that will flow through a valve with a one bar pressure differential at a specified rate. The k_{v100} values shown in the table are calculated with the valve fully open.

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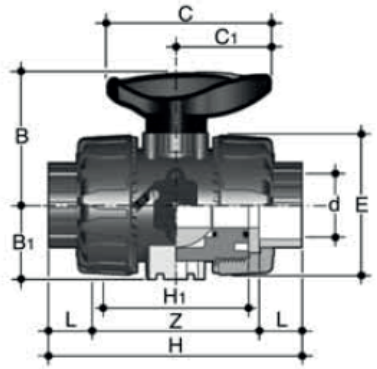
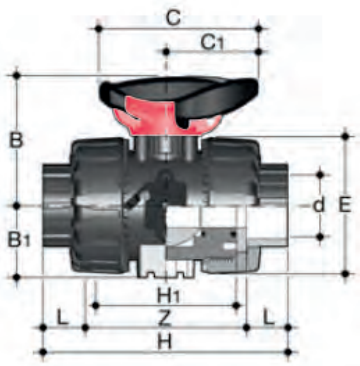
BS Series Female Ends



VKDLV PVC-U
VKDLA ABS

DualBlock® ball valve with BS series female ends for solvent welding

												PVC-U			ABS		
d	DN	PN	L	Z	H	H_1	E	B	B_1	C	C_1	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
1/2	15	16	16.5	70	103	65	54	54	29	67	40	205	H0 DKE 102	H0 DKF 102	160	H0 DKA 102	H0 DKB 102
3/4	20	16	19	77	115	70	65	65	34.5	85	49	335	H0 DKE 103	H0 DKF 103	265	H0 DKA 103	H0 DKB 103
1	25	16	22.5	83	128	78	73	69.5	39	85	49	433	H0 DKE 104	H0 DKF 104	345	H0 DKA 104	H0 DKB 104
1 1/4	32	16	26	94	146	88	86	82.5	46	108	64	703	H0 DKE 105	H0 DKF 105	550	H0 DKA 105	H0 DKB 105
1 1/2	40	16	30	104	164	91	98	89	52	108	64	925	H0 DKE 106	H0 DKF 106	730	H0 DKA 106	H0 DKB 106
2	50	16	36	127	199	111	122	108	62	134	76	1577	H0 DKE 107	H0 DKF 107	1280	H0 DKA 107	H0 DKB 107



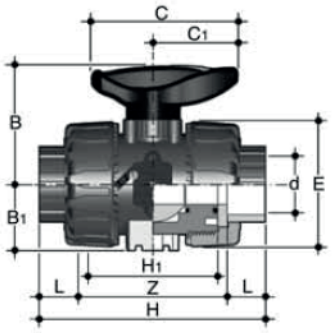
VKDLV - SH PVC-U
VKDLA - SH ABS

DualBlock® ball valve with BS series female ends for solvent welding - with lockable handle

												PVC-U			ABS		
d	DN	PN	L	Z	H	H_1	E	B	B_1	C	C_1	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
1/2	15	16	16.5	70	103	65	54	54	29	67	40	215	H0 DLE 102	H0 DLF 102	170	H0 DLA 102	H0 DLB 102
3/4	20	16	19	77	115	70	65	65	34.5	85	49	345	H0 DLE 103	H0 DLF 103	275	H0 DLA 103	H0 DLB 103
1	25	16	22.5	83	128	78	73	69.5	39	85	49	443	H0 DLE 104	H0 DLF 104	355	H0 DLA 104	H0 DLB 104
1 1/4	32	16	26	94	146	88	86	82.5	46	108	64	713	H0 DLE 105	H0 DLF 105	560	H0 DLA 105	H0 DLB 105
1 1/2	40	16	30	104	164	91	98	89	52	108	64	935	H0 DLE 106	H0 DLF 106	740	H0 DLA 106	H0 DLB 106
2	50	16	36	127	199	111	122	108	62	134	76	1587	H0 DLE 107	H0 DLF 107	1290	H0 DLA 107	H0 DLB 107

Metric Series Female Ends

VKDIV PVC-U
VKDIA ABS
VKDIM PP
VKDIC Corzan



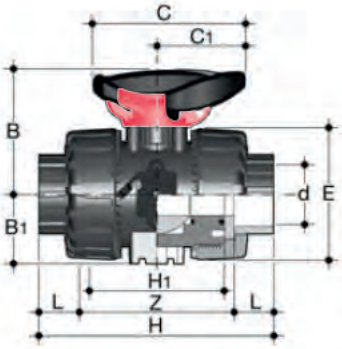
DualBlock® ball valve with Metric series female ends

d	DN	PN**	L	Z	H	H_1	E	B	B_1	C	C_1	L*	Z*	H*
16	10	16	14	75	103	65	54	54	29	67	40	-	-	-
20	15	16	16	71	103	65	54	54	29	67	40	14.5	73	102
25	20	16	19	77	115	70	65	65	34.5	85	49	16	82	114
32	25	16	22	84	128	78	73	69.5	39	85	49	18	90	126
40	32	16	26	94	146	88	86	82.5	46	108	64	20.5	100	141
50	40	16	31	102	164	91	98	89	52	108	64	23.5	117	164
63	50	16	38	123	199	111	122	108	62	134	76	27.5	144	199

**For PP all sizes are PN10. L*, Z* and H* sizes relate to PP only.

	PVC-U			ABS			PP			Corzan		
d	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
16	195	H0 DKE 305	H0 DKF 305	160	H0 DKA 305	H0 DKB 305	-	-	-	234	H0 DKJ 305	H0 DKK 305
20	195	H0 DKE 306	H0 DKF 306	160	H0 DKA 306	H0 DKB 306	145	H0 DKN 306	H0 DKP 306	223	H0 DKJ 306	H0 DKK 306
25	315	H0 DKE 307	H0 DKF 307	265	H0 DKA 307	H0 DKB 307	218	H0 DKN 307	H0 DKP 307	358	H0 DKJ 307	H0 DKK 307
32	435	H0 DKE 308	H0 DKF 308	345	H0 DKA 308	H0 DKB 308	298	H0 DKN 308	H0 DKP 308	476	H0 DKJ 308	H0 DKK 308
40	655	H0 DKE 309	H0 DKF 309	550	H0 DKA 309	H0 DKB 309	480	H0 DKN 309	H0 DKP 309	753	H0 DKJ 309	H0 DKK 309
50	880	H0 DKE 310	H0 DKF 310	730	H0 DKA 310	H0 DKB 310	682	H0 DKN 310	H0 DKP 310	1007	H0 DKJ 310	H0 DKK 310
63	1560	H0 DKE 311	H0 DKF 311	1280	H0 DKA 311	H0 DKB 311	1166	H0 DKN 311	H0 DKP 311	1717	H0 DKJ 311	H0 DKK 311

VKDIV - SH PVC-U
VKDIA - SH ABS
VKDIM - SH PP
VKDIC - SH Corzan



DualBlock® ball valve with Metric series female ends for solvent welding - with lockable handle

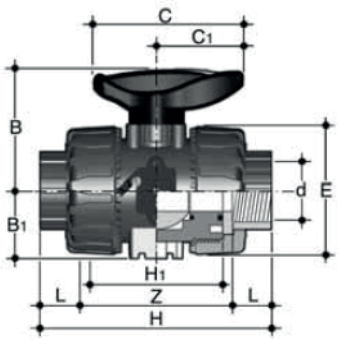
d	DN	PN**	L	Z	H	H_1	E	B	B_1	C	C_1	L*	Z*	H*
16	10	16	14	75	103	65	54	54	29	67	40	-	-	-
20	15	16	16	71	103	65	54	54	29	67	40	14.5	73	102
25	20	16	19	77	115	70	65	65	34.5	85	49	16	82	114
32	25	16	22	84	128	78	73	69.5	39	85	49	18	90	126
40	32	16	26	94	146	88	86	82.5	46	108	64	20.5	100	141
50	40	16	31	102	164	91	98	89	52	108	64	23.5	117	164
63	50	16	38	123	199	111	122	108	62	134	76	27.5	144	199

**For PP all sizes are PN10. L*, Z* and H* sizes relate to PP only.

	PVC-U			ABS			PP			Corzan		
d	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
16	205	H0 DLE 305	H0 DLF 305	250	H0 DLA 305	H0 DLB 305	-	-	-	244	H0 DLJ 305	H0 DLK 305
20	205	H0 DLE 306	H0 DLF 306	170	H0 DLA 306	H0 DLB 306	155	H0 DLN 306	H0 DLP 306	233	H0 DLJ 306	H0 DLK 306
25	325	H0 DLE 307	H0 DLF 307	275	H0 DLA 307	H0 DLB 307	228	H0 DLN 307	H0 DLP 307	368	H0 DLJ 307	H0 DLK 307
32	445	H0 DLE 308	H0 DLF 308	355	H0 DLA 308	H0 DLB 308	308	H0 DLN 308	H0 DLP 308	486	H0 DLJ 308	H0 DLK 308
40	665	H0 DLE 309	H0 DLF 309	560	H0 DLA 309	H0 DLB 309	490	H0 DLN 309	H0 DLP 309	763	H0 DLJ 309	H0 DLK 309
50	890	H0 DLE 310	H0 DLF 310	740	H0 DLA 310	H0 DLB 310	692	H0 DLN 310	H0 DLP 310	1017	H0 DLJ 310	H0 DLK 310
63	1570	H0 DLE 311	H0 DLF 311	1290	H0 DLA 311	H0 DLB 311	1176	H0 DLN 311	H0 DLP 311	1727	H0 DLJ 311	H0 DLK 311

BSP Threaded Socket Ends

VKDFV PVC-U
VKDFA ABS
VKDFM PP



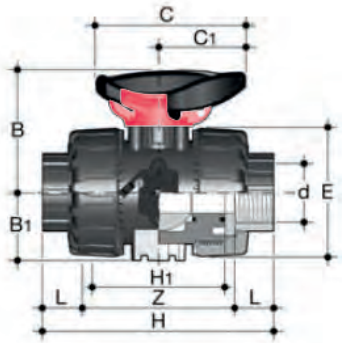
DualBlock® ball valve with BSP parallel female threaded ends

d	DN	PN**	L	Z	H	H_1	E	B	B_1	C	C_1	Z***
3/8	10	16	11.4	80.2	103	65	54	54	29	67	40	80.2
1/2	15	16	15	80	110	65	54	54	29	67	40	73
3/4	20	16	16.3	83.4	116	70	65	65	34.5	85	49	82.4
1	25	16	19.1	95.8	134	78	73	69.5	39	85	49	89.8
1 1/4	32	16	21.4	110.2	153	88	86	82.5	46	108	64	103.2
1 1/2	40	16	21.4	113.2	156	91	98	89	52	108	64	121.2
2	50	16	25.7	134.6	186	111	122	108	62	134	76	147.6

For PP all sizes are PN10. Z* For ABS sizes only.

	PVC-U			ABS			PP		
d	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
3/8	200	-	-	200	H0 DKA B01	H0 DKB B01	-	-	-
1/2	210	H0 DKE B02	H0 DKF B02	165	H0 DKA B02	H0 DKB B02	145	H0 DKN B02	H0 DKP B02
3/4	335	H0 DKE B03	H0 DKF B03	265	H0 DKA B03	H0 DKB B03	220	H0 DKN B03	H0 DKP B03
1	448	H0 DKE B04	H0 DKF B04	350	H0 DKA B04	H0 DKB B04	298	H0 DKN B04	H0 DKP B04
1 1/4	678	H0 DKE B05	H0 DKF B05	545	H0 DKA B05	H0 DKB B05	488	H0 DKN B05	H0 DKP B05
1 1/2	955	H0 DKE B06	H0 DKF B06	740	H0 DKA B06	H0 DKB B06	682	H0 DKN B06	H0 DKP B06
2	1667	H0 DKE B07	H0 DKF B07	1295	H0 DKA B07	H0 DKB B07	1181	H0 DKN B07	H0 DKP B07

VKDFV - SH PVC-U
VKDFA - SH ABS
VKDFM - SH PP



DualBlock® ball valve with BSP parallel female threaded ends - with lockable handle

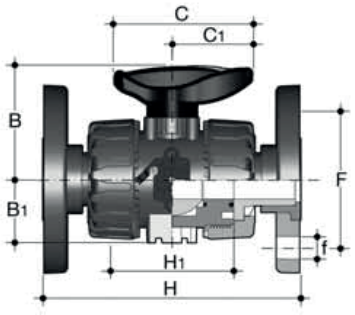
d	DN	PN**	L	Z	H	H_1	E	B	B_1	C	C_1	Z***
3/8	10	16	11.4	80.2	103	65	54	54	29	67	40	80.2
1/2	15	16	15	80	110	65	54	54	29	67	40	73
3/4	20	16	16.3	83.4	116	70	65	65	34.5	85	49	82.4
1	25	16	19.1	95.8	134	78	73	69.5	39	85	49	89.8
1 1/4	32	16	21.4	110.2	153	88	86	82.5	46	108	64	103.2
1 1/2	40	16	21.4	113.2	156	91	98	89	52	108	64	121.2
2	50	16	25.7	134.6	186	111	122	108	62	134	76	147.6

For PP all sizes are PN10. Z* For ABS sizes only.

	PVC-U			ABS			PP		
d	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
3/8	200	-	-	210	H0 DLA B01	H0 DLB B01	-	-	-
1/2	220	H0 DLE B02	H0 DLF B02	175	H0 DLA B02	H0 DLB B02	155	H0 DLN B02	H0 DLP B02
3/4	345	H0 DLE B03	H0 DLF B03	275	H0 DLA B03	H0 DLB B03	230	H0 DLN B03	H0 DLP B03
1	458	H0 DLE B04	H0 DLF B04	360	H0 DLA B04	H0 DLB B04	308	H0 DLN B04	H0 DLP B04
1 1/4	688	H0 DLE B05	H0 DLF B05	555	H0 DLA B05	H0 DLB B05	498	H0 DLN B05	H0 DLP B05
1 1/2	965	H0 DLE B06	H0 DLF B06	750	H0 DLA B06	H0 DLB B06	692	H0 DLN B06	H0 DLP B06
2	1677	H0 DLE B07	H0 DLF B07	1305	H0 DLA B07	H0 DLB B07	1191	H0 DLN B07	H0 DLP B07

Flanged Ends to BS EN1092-1 PN10/16

VKDOV PVC-U
VKDOA ABS
VKDOM PP
VKDOC Corzan



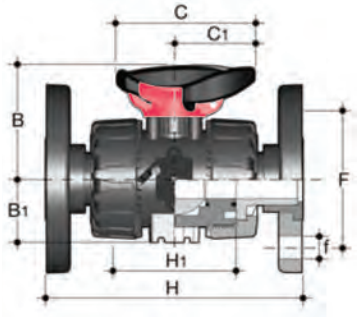
DualBlock® ball valve with flanged ends, to BS EN1092-1 PN10/16

d	DN	PN*	H	H_1	B	B_1	C	C_1	F	f	U**
1/2	15	16	130	65	54	29	67	40	65	14	4
3/4	20	16	150	70	65	34.5	85	49	75	14	4
1	25	16	160	78	69.5	39	85	49	85	14	4
1 1/4	32	16	180	88	82.5	46	108	64	100	18	4
1 1/2	40	16	200	91	89	52	108	64	110	18	4
2	50	16	230	111	108	62	134	76	125	18	4

*For PP all sizes are PN10. **No. of Holes.

	PVC-U			ABS			PP			Corzan		
d	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
1/2	375	H0 DKE F02	H0 DKF F02	340	H0 DKA F02	H0 DKB F02	387	H0 DKN F02	H0 DKP F02	481	H0 DKJ F02	H0 DKK F02
3/4	590	H0 DKE F03	H0 DKF F03	545	H0 DKA F03	H0 DKB F03	504	H0 DKN F03	H0 DKP F03	663	H0 DKJ F03	H0 DKK F03
1	713	H0 DKE F04	H0 DKF F04	685	H0 DKA F04	H0 DKB F04	697	H0 DKN F04	H0 DKP F04	896	H0 DKJ F04	H0 DKK F04
1 1/4	1108	H0 DKE F05	H0 DKF F05	1050	H0 DKA F05	H0 DKB F05	1075	H0 DKN F05	H0 DKP F05	1379	H0 DKJ F05	H0 DKK F05
1 1/2	1485	H0 DKE F06	H0 DKF F06	1380	H0 DKA F06	H0 DKB F06	1346	H0 DKN F06	H0 DKP F06	1761	H0 DKJ F06	H0 DKK F06
2	2347	H0 DKE F07	H0 DKF F07	2195	H0 DKA F07	H0 DKB F07	2060	H0 DKN F07	H0 DKP F07	2741	H0 DKJ F07	H0 DKK F07

VKDOV - SH PVC-U
VKDOA - SH ABS
VKDOM - SH PP
VKDOC - SH Corzan



DualBlock® ball valve with flanged ends, to BS EN1092-1 PN10/16 - with lockable handle

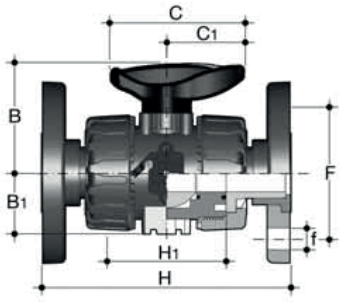
d	DN	PN*	H	H_1	B	B_1	C	C_1	F	f	U**
1/2	15	16	130	65	54	29	67	40	65	14	4
3/4	20	16	150	70	65	34.5	85	49	75	14	4
1	25	16	160	78	69.5	39	85	49	85	14	4
1 1/4	32	16	180	88	82.5	46	108	64	100	18	4
1 1/2	40	16	200	91	89	52	108	64	110	18	4
2	50	16	230	111	108	62	134	76	125	18	4

*For PP all sizes are PN10. **No. of Holes.

	PVC-U			ABS			PP			Corzan		
d	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
1/2	385	H0 DLE F02	H0 DLF F02	350	H0 DLA F02	H0 DLB F02	397	H0 DLN F02	H0 DLP F02	491	H0 DLJ F02	H0 DLK F02
3/4	600	H0 DLE F03	H0 DLF F03	555	H0 DLA F03	H0 DLB F03	514	H0 DLN F03	H0 DLP F03	673	H0 DLJ F03	H0 DLK F03
1	723	H0 DLE F04	H0 DLF F04	695	H0 DLA F04	H0 DLB F04	707	H0 DLN F04	H0 DLP F04	906	H0 DLJ F04	H0 DLK F04
1 1/4	1118	H0 DLE F05	H0 DLF F05	1150	H0 DLA F05	H0 DLB F05	1085	H0 DLN F05	H0 DLP F05	1389	H0 DLJ F05	H0 DLK F05
1 1/2	1495	H0 DLE F06	H0 DLF F06	1390	H0 DLA F06	H0 DLB F06	1356	H0 DLN F06	H0 DLP F06	1771	H0 DLJ F06	H0 DLK F06
2	2357	H0 DLE F07	H0 DLF F07	2205	H0 DLA F07	H0 DLB F07	2070	H0 DLN F07	H0 DLP F07	2751	H0 DLJ F07	H0 DLK F07

Flanged Ends to ANSI 150

VKDOAV PVC-U
VKDOAM PP
VKDOAC Corzan



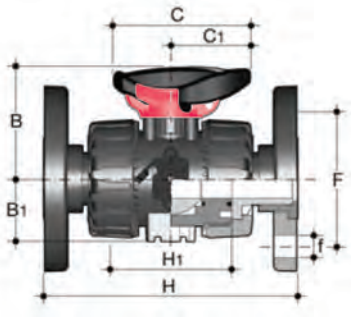
DualBlock® ball valve with flanged ends, to ANSI 150

d	DN	PN*	H	H_1	B	B_1	C	C_1	F	f	U**
1/2	15	16	143	65	54	29	67	40	60.5	16	4
3/4	20	16	172	70	65	34.5	85	49	70	16	4
1	25	16	187	78	69.5	39	85	49	79.5	16	4
1 1/4	32	16	190	88	82.5	46	108	64	89	16	4
1 1/2	40	16	212	91	89	52	108	64	98.5	16	4
2	50	16	234	111	108	62	134	76	121	19	4

*For PP all sizes are PN10. **No. of Holes.

	PVC-U			PP			Corzan		
d	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
1/2	375	H0 DKE X02	H0 DKF X02	387	H0 DKN X02	H0 DKP X02	481	H0 DKJ X02	H0 DKK X02
3/4	590	H0 DKE X03	H0 DKF X03	504	H0 DKN X03	H0 DKP X03	663	H0 DKJ X03	H0 DKK X03
1	713	H0 DKE X04	H0 DKF X04	697	H0 DKN X04	H0 DKP X04	896	H0 DKJ X04	H0 DKK X04
1 1/4	1108	H0 DKE X05	H0 DKF X05	1075	H0 DKN X05	H0 DKP X05	1379	H0 DKJ X05	H0 DKK X05
1 1/2	1485	H0 DKE X06	H0 DKF X06	1346	H0 DKN X06	H0 DKP X06	1761	H0 DKJ X06	H0 DKK X06
2	2347	H0 DKE X07	H0 DKF X07	2060	H0 DKN X07	H0 DKP X07	2741	H0 DKJ X07	H0 DKK X07

VKDOAV - SH PVC-U
VKDOAM - SH PP
VKDOAC - SH Corzan



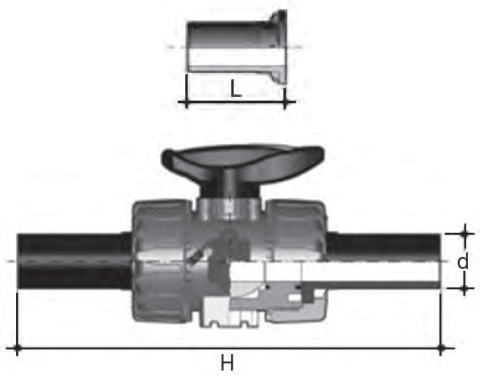
DualBlock® ball valve with flanged ends, to ANSI 150 - with lockable handle

d	DN	PN*	H	H_1	B	B_1	C	C_1	F	f	U**
1/2	15	16	143	65	54	29	67	40	60.5	16	4
3/4	20	16	172	70	65	34.5	85	49	70	16	4
1	25	16	187	78	69.5	39	85	49	79.5	16	4
1 1/4	32	16	190	88	82.5	46	108	64	89	16	4
1 1/2	40	16	212	91	89	52	108	64	98.5	16	4
2	50	16	234	111	108	62	134	76	121	19	4

*For PP all sizes are PN10. **No. of Holes.

	PVC-U			PP			Corzan		
d	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
1/2	385	H0 DLE X02	H0 DLF X02	397	H0 DLN X02	H0 DLP X02	471	H0 DLJ X02	H0 DLK X02
3/4	600	H0 DLE X03	H0 DLF X03	514	H0 DLN X03	H0 DLP X03	673	H0 DLJ X03	H0 DLK X03
1	723	H0 DLE X04	H0 DLF X04	707	H0 DLN X04	H0 DLP X04	906	H0 DLJ X04	H0 DLK X04
1 1/4	1118	H0 DLE X05	H0 DLF X05	1085	H0 DLN X05	H0 DLP X05	1389	H0 DLJ X05	H0 DLK X05
1 1/2	1495	H0 DLE X06	H0 DLF X06	1356	H0 DLN X06	H0 DLP X06	1771	H0 DLJ X06	H0 DLK X06
2	2357	H0 DLE X07	H0 DLF X07	2070	H0 DLN X07	H0 DLP X07	2751	H0 DLJ X07	H0 DLK X07

Accessories

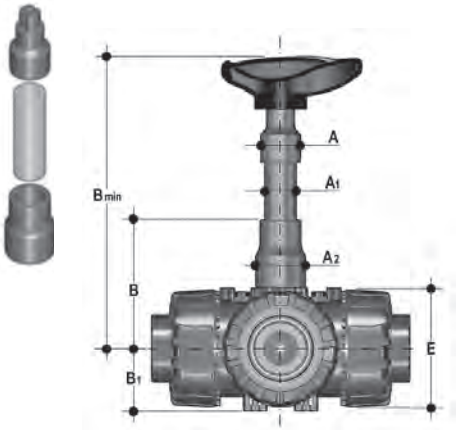


CVDE

End connector in PE100, long spigot, for electrofusion or butt welding (SDR11)

d	DN	L	H	Product Code
20	15	55	175	HZ PEE M06
25	20	70	210	HZ PEE M07
32	25	74	226	HZ PEE M08
40	32	78	243	HZ PEE M09
50	40	84	261	HZ PEE M10
63	50	91	293	HZ PEE M11

End connectors also available in PP, please speak to the Durapipe Valve Department for details.

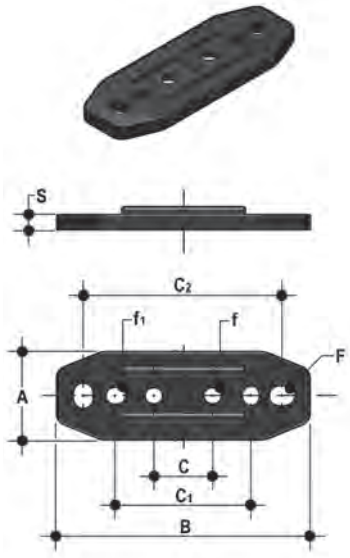


PSKD

Stem extension kit (In PVC-U, pipe not included)

d	DN	A	A_1*	A_2	E	B	B_1	B_{min}	Product Code
3/8 - 16	10	32	25	32	54	70	29	139.5	KTPSKDEF
1/2 - 20	15	32	25	32	54	70	29	139.5	KTPSKDEF
3/4 - 25	20	32	25	40	65	89	34.5	164.5	KTPSKDGG
1 - 32	25	32	25	40	73	93.5	39	169	KTPSKDHH
1 1/4 - 40	32	40	32	50	86	110	46	200	KTPSKDII
1 1/2 - 50	40	40	32	50	98	116	52	206	KTPSKDJJ
2 - 63	50	40	32	50	122	122	62	225	KTPSKDLL

*A1 is the size of standard pipe needed (not included in kit) and can be cut to suit.



RMKD

Mounting plate

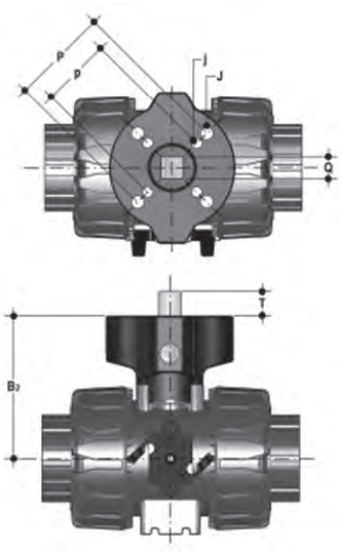
d	DN	A	B	C	C_1	C_2	F	f	f_1	S	Product Code
3/8 - 16	10	30	86	20	46	67.5	6.5	5.3	5.35	5	PMKD01
1/2 - 20	15	30	86	20	46	67.5	6.5	5.3	5.5	5	PMKD01
3/4 - 25	20	30	86	20	46	67.5	6.5	5.3	5.5	5	PMKD01
1 - 32	25	30	86	20	46	67.5	6.5	5.3	5.5	5	PMKD01
1 1/4 - 40	32	40	122	30	72	102	6.5	6.3	6.5	6	PMKD02
1 1/2 - 50	40	40	122	30	72	102	6.5	6.3	6.5	6	PMKD02
2 - 63	50	40	122	30	72	102	6.5	6.3	6.5	6	PMKD02

SHKD

Handle Locking Kit 0°- 90° - with option to fit padlock

d	DN	Product Code
3/8 - 16	10	KTSHKDEF
1/2 - 20	15	KTSHKDEF
3/4 - 25	20	KTSHKDGH
1 - 32	25	KTSHKDGH
1 1/4 - 40	32	KTSHKDIJ
1 1/2 - 50	40	KTSHKDIJ
2 - 63	50	KTSHKDLL

Accessories



PowerQuick

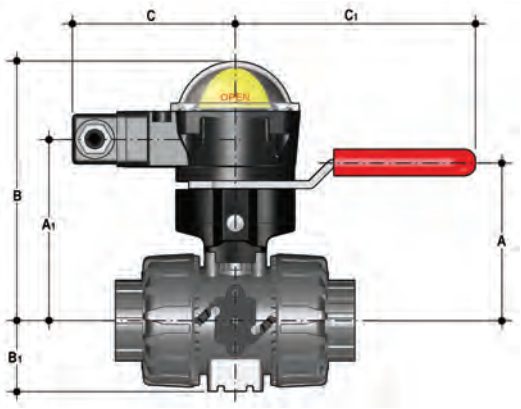
The valve can be supplied actuated, pneumatic or electric, by Durapipe Valve Department.
The GR-PP mounting bracket (with standard ISO 5211 drillings) can be supplied for self-actuation and/or retrofitting of actuators to installed valves.

d	DN	B_2	Q	T	P x J	P x J	Product Code
3/8 - 16	10	58	11	12	F03 x 5.5	F04 x 5.5	KTPQCPEF
1/2 - 20	15	58	11	12	F03 x 5.5	F04 x 5.5	KTPQCPEF
3/4 - 25	20	69	11	12	F03 x 5.5	F05 x 6.5	KTPQCPGG
3/4 - 25	20	69	11	12	–	F04 x 5.5	KTPQCPG4
1 - 32	25	74	11	12	F03 x 5.5	F05 x 6.5	KTPQCPHH
1 - 32	25	74	11	12	–	F04 x 5.5	KTPQCPH4
1 1/4 - 40	32	91	14	16	F05 x 6.5	F07 x 7.5	KTPQCPII
1 1/2 - 50	40	97	14	16	F05 x 6.5	F07 x 7.5	KTPQCPJJ
2 - 63	50	114	14	16	F05 x 6.5	F07 x 7.5	KTPQCPLL

Accessories

MSKD

The MSKD is a limit switch box with either mechanical or proximity switches. The switchbox can be used to indicate back to a control panel the position of the valve, fully open/fully closed (max. rotation = 90º). This can be fitted onto the valve using the the relevant PowerQuick actuation module. For further details, please contact the Durapipe Valve Department.



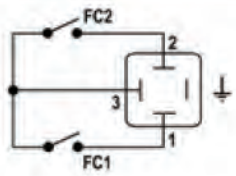
d	DN	A	A_1	B	B_1	C	C_1
3/8 - 16	10	58	85	132.5	29	88.5	134
1/2 - 20	15	58	85	132.5	29	88.5	134
3/4 - 25	20	70.5	96	143.5	34.5	88.5	134
1 - 32	25	74	101	148.5	39	88.5	134
1 1/4 - 40	32	116	118	165.5	46	88.5	167
1 1/2 - 50	40	122	124	171.5	52	88.5	167
2 - 63	50	139	141	188.5	62	88.5	167

d	DN	Product Code Electro-mechanical	Inductive	Namur
3/8 - 16 to 1 - 20	10 to 25	KTMSKD1	KTMSKD1I	KTMSKD1N
1 1/4 - 25 to 2 - 32	32 to 50	KTMSKD2	KTMSKD2I	KTMSKD2N

	Switch Type	Rating	Operating Voltage	Nom. Voltage	Operating Current	Voltage Drop	No-load supply current
1	Electro-mechanical	250v - 5A	-	-	-	-	-
2	Inductive DC PNP/NPN	-	5 to 36V DC	-	4 to 200 mA	<4.6V	<0.8 mA
3	Namur *	-	7.5 to 30V DC**	8.2V DC	<30 mA**	-	-

*To be used with an amplificator.
**When used outside the hazardous area.

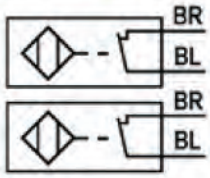
1



2

WH = White
BK = Black

3

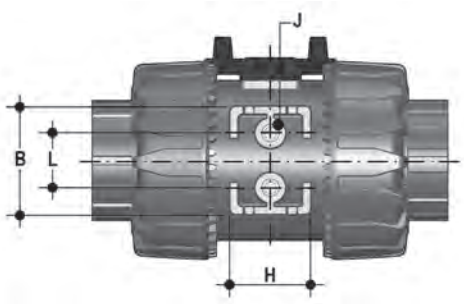


BL = Blue
BR = Brown

Valve Bracketing and Supporting

In some applications manual or actuated valves are required to be supported by hangers or anchors. Supports must be capable of withstanding the valve weight as well as the stresses transmitted through the valve body during service operations. All VKD valves are provided with an integrated support on the valve body for a simple anchoring. By using threaded inserts, available in brass or stainless steel. M4 for sizes $^{3}/_{8}$"- d16 to 1" - d32 and M6 for sizes $1^{1}/_{4}$" - d40 to 2" - d63. Caution must be taken when using these support systems because the ball valve now acts as a pipe anchor and all thermal end loads developed by adjacent pipes could damage the valve components under conditions of large variation in operating temperature. Systems should be designed to accommodate pipes expansion and contraction, see the Durapipe technical catalogues for details of thermal expansion and pipework design.

For wall or 'blind' installations, the PMKD mounting plate can be used. The plate has to be fixed to the base of the valve prior to fixing to the wall.



d	DN	B	H	L	J*
$^{3}/_{8}$ - 16	10	31.5	27	20	M4 x 6
$^{1}/_{2}$ - 20	15	31.5	27	20	M4 x 6
$^{3}/_{4}$ - 25	20	40	30	20	M4 x 6
1 - 32	25	40	30	20	M4 x 6
$1^{1}/_{4}$ - 40	32	50	35	30	M6 x 10
$1^{1}/_{2}$ - 50	40	50	35	30	M6 x 10
2 - 63	50	60	40	30	M6 x 10

*with Brass or Stainless Steel inserts fitted.

Brass or Stainless Steel inserts can be ordered on the following codes:

Size (to fit valve)	Material	Product Code
$^{1}/_{2}$ - 1"	Brass	SINSM04O
$1^{1}/_{4}$ - 2"	Brass	SINSM06O
$^{1}/_{2}$ - 1"	Stainless Steel	SINSM04X
$1^{1}/_{4}$ - 2"	Stainless Steel	SINSM06X

Connection to the System

Before proceeding with the installation, please read and familiarise yourself with these instructions.

1. Check that the pipes either side of the valve are axially aligned, in order to avoid mechanical stress on the threaded union joints.
2. Unscrew the union nuts (13 on p21) from the valve body and slide them onto the pipe.
3. Solvent weld, socket fuse or screw the valve end connectors (12 on p21) onto the pipe ends. For correct jointing see the Durapipe material technical catalogues.
4. Position the valve between the two end connectors (Fig. 2) and screw the union nuts clockwise by hand until a resistance is felt; do not use keys or other tools which may damage the nut surface.
5. Check the DualBlock® device (16 on p21) is fitted to the valve body (Fig. 1). DualBlock® is the patented system that allows the union nuts to be locked in position. The locking device ensures the nuts are retained in position, even under the most arduous conditions: i.e. vibration or thermal expansion.

   The nuts are now locked in position. To unlock them push in the lever on the DualBlock® device (away from the teeth of the union nut) and unscrew the nut anti-clockwise.

   If the VKD valve is fitted with the locking handle (supplied separately), to operate the valve it is required to lift the locking device (15 on p21) before being able to turn the handle (Fig. 3). The fitting of a padlock is possible so the valve can be locked in the open or closed position (Fig. 4)


Fig.1


Fig.2


Fig.3


Fig.4


Fig.5


Fig.6

Seat Adjustment

The seat adjustment is undertaken using the removable insert tool in the handle (Fig. 5).

The removable insert tool can be used to tighten the ball carrier (Fig. 6) to achieve the correct sealing. Ideally use the Easytorque kit to ensure the seat is tightened to the recommended torque.

Micro-adjustment of the ball seats can be carried out whilst the valve is installed in-line by tightening the union nut with the valve in the fully closed position. With the patented Seat Stop® system it is possible to compensate wear on the PTFE seats due to excessive valve operations.

Warning: It is essential to avoid rapid closing of valves, to avoid the possibility of water hammer which may cause damage to the pipe system. When using volatile liquids such as Hydrogen Peroxide, they may vaporise causing a pressure increase in the void between the ball and the body. Please contact Durapipe Technical Support for further advice.

Easytorque Kit

1. Torque wrench for use with VKD/TKD ball valves from $^{3}/_{8}$" - d16 to 2" - d63.
2. Insert for attaching the torque wrench to the valve for adjusting the ball seat carrier
   The inserts are manufactured from PA50 material with sintered steel bush inserts.

The Easytorque kit allows the tightness of the ball seat carrier to be set to the correct manufacturer recommended torque settings, optimising the operation efficiency of the valve. It also avoids damaging the valve components by the use of incorrect tools.

d	DN	Product Code
$^{3}/_{8}$" - $^{1}/_{2}$" - 16-20	10 - 15	KET01
to	to	
2" - 63	50	

Disassembly

1. Isolate the valve from the flow and drain down the pipeline.
2. Push in the lever on the DualBlock® device (16 on p21), away from the teeth of the union nut and unscrew the union nuts (13 on p21) anti-clockwise to remove them (Fig. 1). It is also possible to completely remove the DualBlock® devices from the valve body, to enable the union nuts to be removed. Remove the valve body (7 on p21) out of the line.
3. Before disassembling hold the valve in a vertical position and open the valve to 45º, to drain any residual fluid inside the valve. Catch the fluid in a suitable container.
4. Remove the handle (2 on p21) from the valve stem.
5. Close the valve, then remove the handle insert tool (12 on p21) (Fig. 2) and insert the 'prongs' on the underside of the tool into the slots on the ball seat carrier (11 on p21). Rotate the support anti-clockwise (Fig. 3) and remove the seat carrier.
6. Remove the ball (6 on p21) by pushing it from the opposite side of the valve that is marked 'REGOLARE-ADJUST', taking care not to mark or damage the ball.
7. Press the stem (4 on p21) out through the valve body (7 on p21).
8. All the O-rings (3, 8, 9 & 10 on p21) and PTFE ball seats (5 on p21) can be removed from their grooves, as shown in the exploded view.

Fig.1

Fig.2

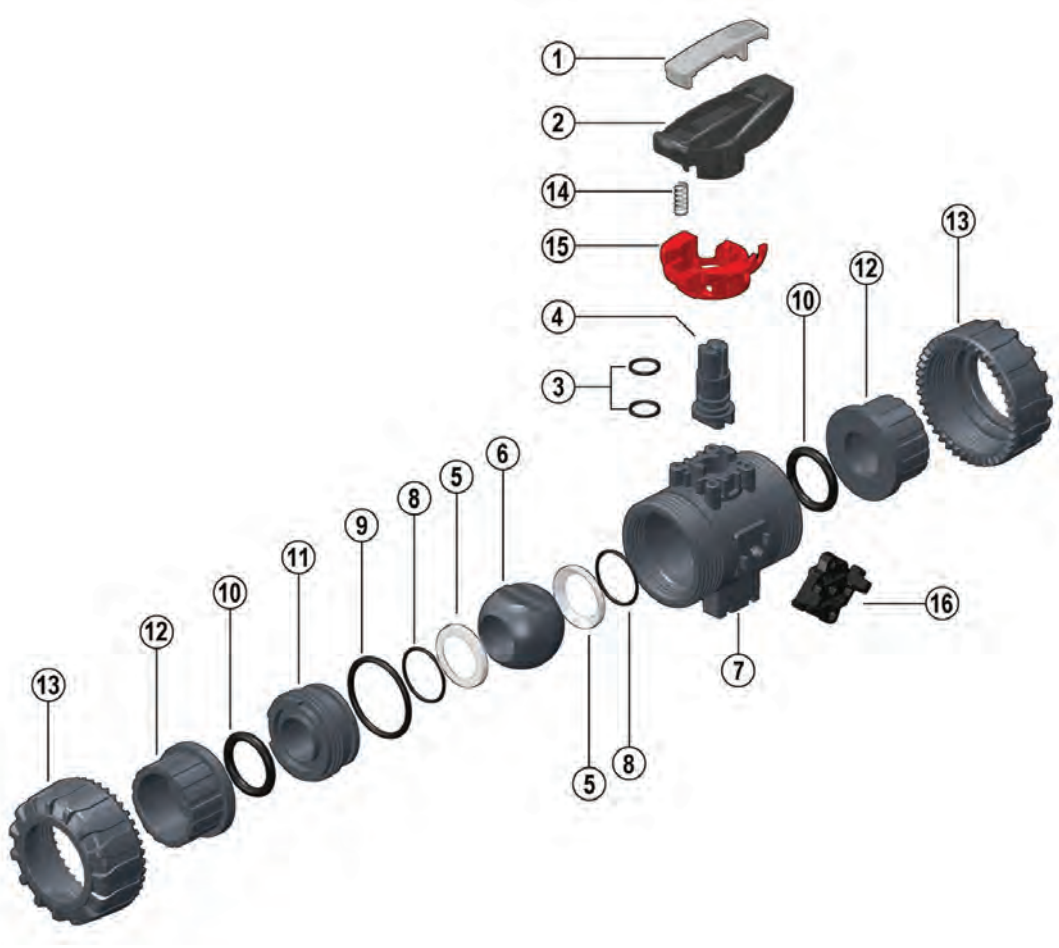
Fig.3

Assembly

1. All the O-rings (3, 8, 9 & 10 on p21) and ball seats (5 on p21) can be fitted into their grooves, as shown in the exploded view.
2. Insert the stem (4 on p21) from inside the valve body (7 on p21).
3. Insert the ball (6 on p21).
4. Locate the ball seat carrier (11 on p21) and tighten clockwise using the handle insert tool (1 on p21). Ideally use the Easytorque kit to ensure the seat is tightened to the recommended torque.
5. Fit the insert tool (1 on p21) into the handle body (2 on p21) Re-fit the handle (1 & 2 on p21) onto the valve stem (4 on p21).
6. Re-fit the valve end connectors (12 on p21) and the union nuts (13 on p21), taking care that the socket O-rings (10 on p21) do not come out of their grooves.

Note: When assembling the valve components, it is advisable to lubricate the O-rings. Do not use mineral oils as they attack EPDM rubber.

Tel: +44 (0)1543 471680 Fax: +44 (0)1543 471682



Position	Components	Material
1	Handle insert tool	PVC-U
2	Handle	HIPVC
3*	Stem O-ring	EPDM/FPM
4	Stem	Valve Material
5*	Ball seat	PTFE
6	Ball	Valve Material
7	Body	Valve Material
8*	Ball seat O-ring	EPDM/FPM
9*	Carrier O-ring	EPDM/FPM
10*	Socket seal O-ring	EPDM/FPM
11	Ball seat carrier	Valve Material
12*	End connector	Valve Material
13*	Union nut	Valve Material
14**	Spring (SHKD)	Stainless steel
15**	Safety handle block (SHKD)	PP-GR
16*	DualBlock®	POM

*Spare Parts **Accessories

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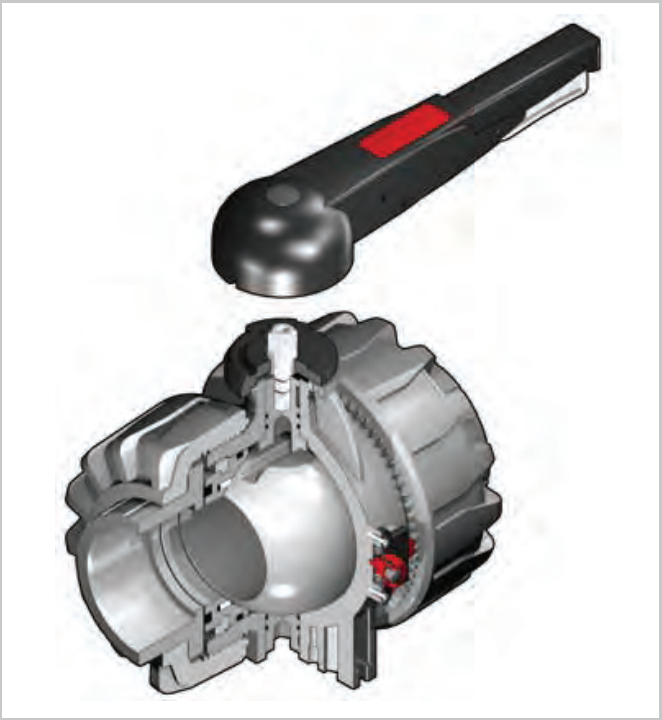
VKD DualBlock® 2-way Ball Valve

The **VKD DualBlock® ball valve** is a fully unionised valve that stands up to the most severe industrial applications.

- Size range from $2^{1}/_{2}$" / d75mm up to 4" / d110mm
- Pressure rating: Maximum working pressure: 16 bar at 20°C (PP = 10Bar at 20°C)
- Patented **DualBlock®** system: The locking device ensures the union nuts are retained in position, even under the most arduous conditions: ie. vibration or thermal expansion
- Lockable handle as standard feature
- Easy removal of the valve body from the pipe system, allowing replacement of the valve seals and seats without any additional equipment
- The pipeline downstream of the valve can be disconnected, with the valve in the closed position, without leakage
- Patented Seat Stop® design ball seat carrier, with micro adjustment of the ball seats and 'take up' of axial pipe loads
- VKD 'style' ergonomically designed handle with removable ball seat adjusting tool
- Possibility to fit an electric or pneumatic actuator with a GR-PP mounting plate with standard drillings (F07)
- For more information, please visit our website **www.durapipe.co.uk**

Legend

d	Nominal outside diameter
DN	Nominal internal diameter in mm
R	Nominal size of the thread in inches
PN	Nominal pressure in bar (max. working pressure at 20°C - water)
gms	Weight in grams
PVC-U	Polyvinyl chloride unplasticised
ABS	Acrylontrile Butadiene Styrene
PP	Polypropylene
PVC-C	Polyvinyl chloride chlorinated
HIPVC	High impact PVC
PE	Polyethylene
PTFE	Polytetrafluoroethylene
EPDM	Ethylene Propylene Diene Monomer (M-class) rubber
FPM	Fluorocarbon rubber
s	Wall thickness (mm)
SDR	Standard dimension ratio = d/s



Dimensions and Standards

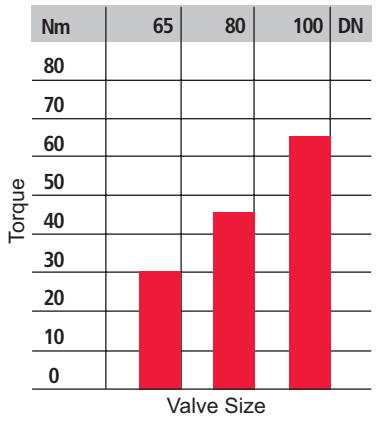
Imperial
The Imperial System is manufactured in accordance with the relevant British Standards: BS 5392 fittings.

Metric
The Metric System is manufactured generally in accordance with the relevant International Standards: ISO 15493, KIWA 49 and 549, DIN 8062 and 8063.

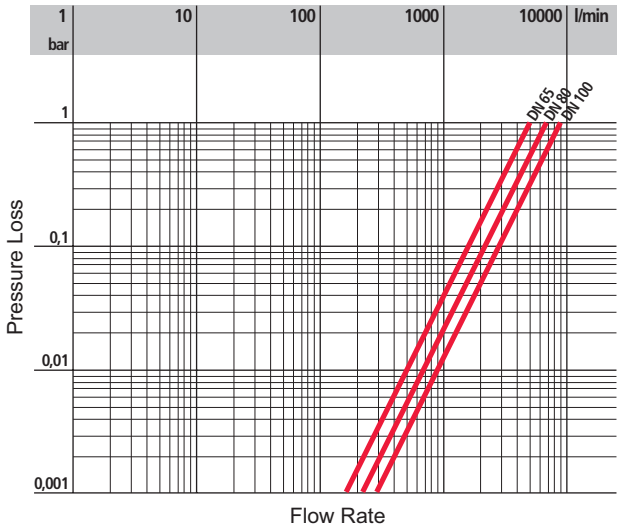
BSP Thread
Threaded fittings conform to the requirements of BS 21/DIN 2999/ISO7. Socket dimensions of metric fittings for solvent welding comply with ISO/DIS 727-1.

Interchangeability
Components in the imperial and metric ranges are not interchangeable.

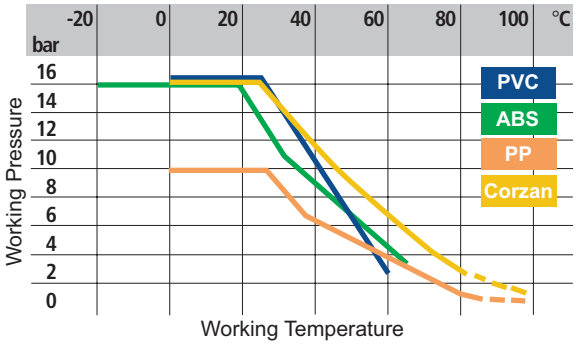
Technical Data



Torque at max working pressure. 16 Bar.



Pressure loss chart.



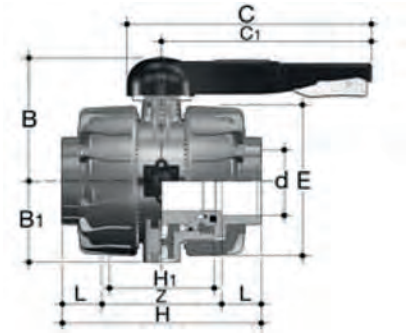
Pressure/temperature rating for water and harmless fluids to which the material is RESISTANT. In other cases a reduction of the PN is required. (25 years with safety factor).

DN	65	80	100
k_{v100}	5250	7100	9500

Flow coefficient k_{v100}

k_{v100} is the number of litres per minute of water at a temperature of 20°C that will flow through a valve with a one bar pressure differential at a specified rate. The k_{v100} values shown in the table are calculated with the valve fully open.

BS Series Female Ends

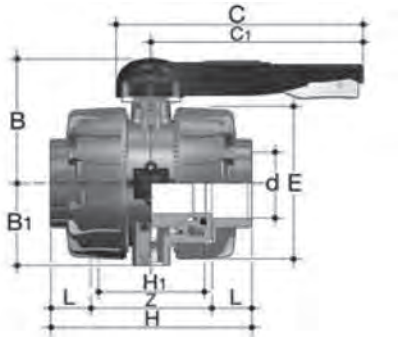


VKDLV PVC-U
VKDLA ABS

DualBlock® ball valve with BS series female ends for solvent welding

												PVC-U			ABS		
d	DN	PN	L	Z	H	H_1	E	B	B_1	C	C_1	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
$2^1/_2$	65	16	44	147	235	133	164	164	87	225	175	4380	H0 DKE 312	H0 DKF 312	3725	H0 DKA 312	H0 DKB 312
3	80	16	51	168	270	149	203	177	105	327	272	7260	H0 DKE 109	H0 DKF 109	5700	H0 DKA 109	H0 DKB 109
4	100	16	63	182	308	167	238	195	129	385	330	11300	H0 DKE 110	H0 DKF 110	8660	H0 DKA 110	H0 DKB 110

Metric Series Female Ends



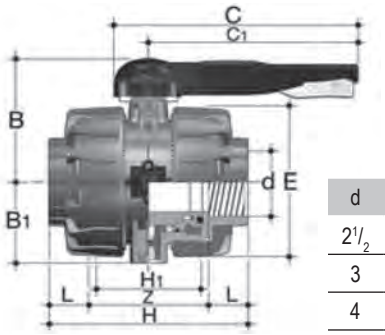
VKDIV PVC-U
VKDIA ABS
VKDIM PP
VKDIC Corzan

DualBlock® ball valve with metric series female ends

d	DN	PN	L	Z	H	H_1	E	B	B_1	C	C_1
75	65	16	44	147	235	133	164	164	87	225	175
90	80	16	51	168	270	149	203	177	105	327	272
110	100	16	63	182	308	167	238	195	129	385	330

	PVC-U			ABS			PP			Corzan		
d	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
75	4380	H0 DKE 312	H0 DKF 312	3725	H0 DKA 312	H0 DKB 312	3090	H0 DKN 312	H0 DKP 312	4750	H0 DKJ 312	H0 DKK 312
90	7260	H0 DKE 313	H0 DKF 313	5700	H0 DKA 313	H0 DKB 313	5080	H0 DKN 313	H0 DKP 313	7838	H0 DKJ 313	H0 DKK 313
110	11300	H0 DKE 314	H0 DKF 314	8660	H0 DKA 314	H0 DKB 314	7725	H0 DKN 314	H0 DKP 314	12137	H0 DKJ 314	H0 DKK 314

BSP Threaded Socket Ends

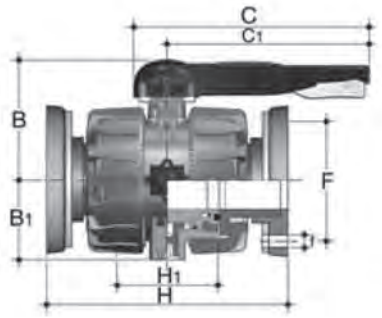


VKDFV PVC-U

DualBlock® ball valve with BSP parallel female threaded ends

												PVC-U		
d	DN	PN	L	Z	H	H_1	E	B	B_1	C	C_1	gms	EPDM Code	FPM Code
$2^1/_2$	65	16	30.2	174.6	235	133	164	164	87	225	175	4395	H0 DKE B08	H0 DKF B08
3	80	16	33.3	203.4	270	149	203	177	105	327	272	7260	H0 DKE B09	H0 DKF B09
4	100	16	39.3	229.4	308	167	238	195	129	385	330	11100	H0 DKE B10	H0 DKF B10

Flanged Ends to BS EN1092-1 PN10/16



VKDOV PVC-U
VKDOM PP
VKDOC Corzan

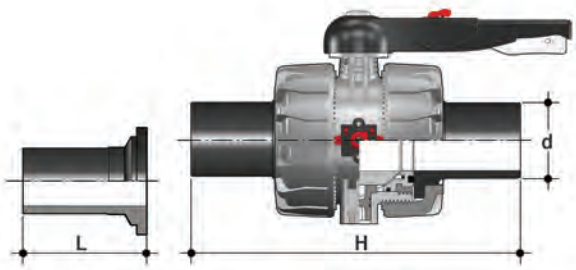
DualBlock® ball valve with flanged ends, to BS EN1092-1 PN10/16 and ANSI 150*

d	DN	PN	H	H_1	B	B_1	C	C_1	F_{min}	F_{max}	f_{min}	f_{max}	U
$2^1/_2$	65	16	290	133	164	87	225	175	139.7	145	17	18	4
3	80	16	310	149	177	105	327	272	152.4	160	17	18	8
4	100	16	350	167	195	129	385	330	180	190.5	17	18	8

	PVC-U			PP			Corzan		
d	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
$2^1/_2$	6610	H0 DKN F08	H0 DKP F08	4500	H0 DKN F08	H0 DKP F08	6413	H0 DKJ F08	H0 DKK F08
3	9330	H0 DKN F09	H0 DKP F09	6455	H0 DKN F09	H0 DKP F09	9669	H0 DKJ F09	H0 DKK F09
4	13815	H0 DKN F10	H0 DKP F10	9090	H0 DKN F10	H0 DKP F10	14697	H0 DKJ F10	H0 DKK F10

*Flanges on these sizes are slotted, single code covers both specifications.

Accessories



CVDE

End connector in PE100, long spigot, for electrofusion or butt welding (SDR11).

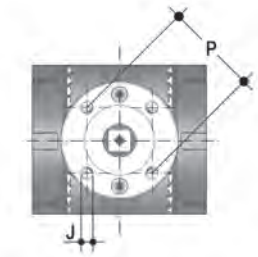
d	DN	L	H	Product Code
75	65	111	356	HZ PEE M12
90	80	118	390	HZ PEE M13
110	100	132	431	HZ PEE M14

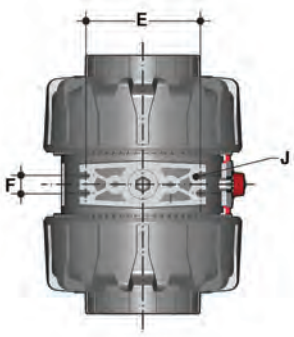
End connectors also available in PP, please speak to the Durapipe Valve Department for details.

WTOOL

Wrench tool for ball seat carrier adjustment.

DN	Product Code
65	HZ WTOOL1
80	
100	

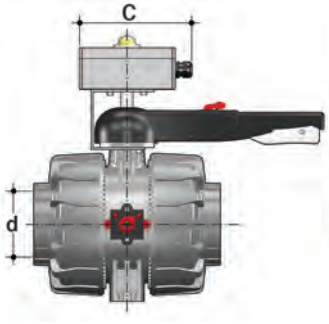


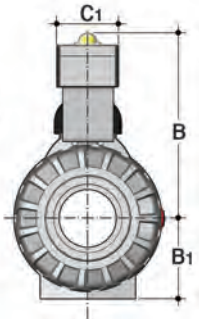


ACTUATOR MOUNTING

The valve can be supplied actuated, pneumatic or electric, by the Durapipe Valve Department. The GR-PP mounting plate (with standard ISO 5211 F07 drillings) can be supplied for self-actuation and/or retrofitting of actuators to installed valves.

d	J	P	Q	T	Product Code
$2^1/_2$ - 75	9	70	14	16	03 699 167
3 - 90	9	70	14	16	03 699 167
4 - 110	9	70	17	19	03 699 167

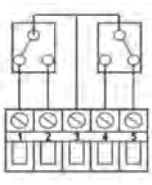




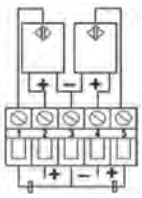
VKD - MS

The VKD - MS is a limit switch box with either mechanical or proximity switches. The switchbox can be used to indicate back to a control panel the position of the valve fully; open/fully closed (max. rotation = 90º). For further details, please contact the Durapipe Valve Department.

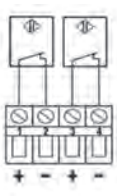
d	B	B_1	C	C_1
$2^1/_2$ - 75	266	87	150	80
3 - 90	279	105	150	80
4 - 110	297	129	150	80



Electro-mechanical



Inductive

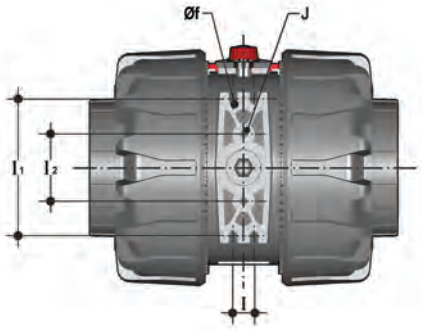


Namur

d	DN	Product Code		
		Electro-mechanical	Inductive	Namur
$2^1/_2$ - 75	65	FKM1M	FKMS1I	FKMS1N
to	to			
4 - 110	100			

Valve Bracketing and Supporting

In some applications manual or actuated valves are required to be supported by hangers or anchors. Supports must be capable of withstanding the valve weight as well as the stresses transmitted through the valve body during service operations. All VKD valves are provided with an integrated support on the valve body for a simple anchoring. Caution must be taken when using these support systems because the ball valve now acts as a pipe anchor and all thermal end loads developed by adjacent pipes could damage the valve components under conditions of large variation in operating temperature. Systems should be designed to accommodate pipes expansion and contraction, see the Durapipe material technical catalogues for details of thermal expansion and pipework design.



d	DN	J	f	l_1	l_2	*J
$2^1/_2$ - 75	65	M6	6.3	17.4	90	51.8
3 - 90	80	M6	8.4	21.2	112.6	63
4 - 110	100	M6	8.4	21.2	137	67

LCE

Transparent Service Plug with tag holder

d	DN	Product Code
$^3/_8$"-$^1/_2$" - 16 - 20	10 - 15	LCE020
$^3/_4$" - 25	20	LCE025
1" - 32	25	LCE032
$1^1/_4$" - 40	32	LCE040
$1^1/_2$" - 50	40	LCE050
2" - 63	50	LCE063

LSE

Label design and print kit

d	DN	Product Code
$^3/_8$"-$^1/_2$" - 16 - 20	10 - 15	LSE020
$^3/_4$" - 25	20	LSE025
1" - 32	25	LSE032
$1^1/_4$" - 40	32	LSE040
$1^1/_2$" - 50	40	LSE050
2" - 63	50	LSE063

Connection to the System

Before proceeding with the installation, please read and familiarise yourself with these instructions.

1. Check that the pipes either side of the valve are axially aligned, in order to avoid mechanical stress on the threaded union joints.
2. Unscrew the union nuts (13 on p31) from the valve body and slide them onto the pipe.
3. Solvent weld/socket fuse the valve end connectors (12 on p31) onto the pipe ends. For correct jointing see the relevant Durapipe material technical catalogues.
4. Position the valve between the two end connectors (Fig. 3) and screw the union nuts clockwise by hand until a resistance is felt; do not use keys or other tools which may damage the nut surface.
5. Lock the union nuts by turning the DualBlock® knob (27 on p31) clockwise (Fig. 1)

DualBlock® is the patented system that allows the union nuts to be locked in position. The locking device ensures the nuts are retained in position, even under the most arduous conditions: ie. vibration or thermal expansion.

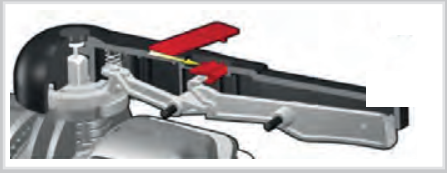
The ratchet plate has twelve stops to position the ball, to provide quarter turn shut – off and flow throttling. The lever can be locked in any of the twelve positions by using the 'lock' function on the top of the lever. The valve can be padlocked through the lever hand grip where padlocking is required.


Fig.1

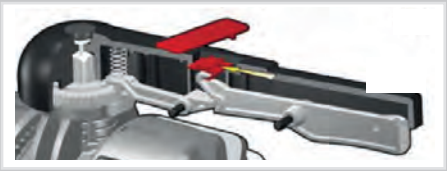
FREE

LOCKED

FREE



LOCKED



Seat Adjustment

The seat adjustment is undertaken using the supplied WTOOL adjustment tool. The tool can be used to tighten the ball carrier (Fig. 2) to achieve the correct sealing.

Micro-adjustment of the ball seats can be carried out whilst the valve is installed in-line by tightening the union nut with the valve in the fully open position.

With the patented Seat Stop® system it is possible to compensate wear on the PTFE seats due to excessive valve operations.


Fig.2

Warning: It is essential to avoid rapid closing of valves, to avoid the possibility of water hammer, which may cause damage to the pipe system. When using volatile liquids such as Hydrogen Peroxide, they may vaporise causing a pressure increase in the void between the ball and the body. Please contact Durapipe Technical Support for further advice.

Disassembly

1. Isolate the valve from the flow and drain down the pipeline.
2. Unlock the nuts by turning the DualBlock® knob (27 on p31) counter clockwise (Fig. 3) and unscrew the union nuts (13 on p31) anti-clockwise to remove them (Fig. 4). It is also possible to completely remove the DualBlock® devices from the valve body, to enable the union nuts to be removed. Remove the valve body (7 on p31) out of the line.
3. Before disassembling hold the valve in a vertical position and open the valve to 45º, to drain any residual fluid inside the valve. Catch the fluid in a suitable container.
4. Open the valve, then using the supplied WTOOL adjustment tool insert the 'prongs' on the underside of the tool into the slots on the ball seat carrier (16/17 on p31) Rotate the support anti-clockwise (Fig. 5) and remove the seat carrier.
5. Remove the protection cap (1 on p31), unscrew the screw (3 on p31) and remove with the washer (4 on p31) and remove the handle (2 on p31) from the valve stem.
6. Remove the ball (6 on p31) by pushing it from the opposite side of the valve that is marked 'REGOLARE-ADJUST', taking care not to mark or damage the ball.
7. Press the upper stem (20 on p31) and lower stem (21 on p31) through into the valve body (7 on p31). Then remove the friction reducing bushes (19 on p31).
8. All the O-rings (8, 9, 10 & 18 on p31) and PTFE ball seats (5 on p31) can be removed from their grooves, as shown in the exploded view.

Fig.3

Fig.4

Fig.5

Assembly

1. All the O-rings (8, 9, 10 & 18 on p31) and ball seats (5 on p31) can be fitted into their grooves, as shown in the exploded view.
2. Fit the friction bushes (19 on p31) onto the valve stems and insert the upper stem (20 on p31) and lower stem (21 on p31) from inside the valve body (7 on p31).
3. Insert the ball (6 on p31).
4. Locate the ball seat carrier (11 on p31) and tighten clockwise using the adjusting tool.
5. Locate the ratchet plate (22 on p31) onto the body and fix in place using the screws (11 on p31), nuts (15 on p31) and washers (14 on p31).
6. Refit the handle (2 on p31) onto the valve stem (20 on p31), fasten the screw (3 on p31) with the washer (4 on p31) in place and push in the protection cap (1 on p31).
7. Refit the valve end connectors (12 on p31) and the union nuts (13 on p31), taking care that the socket O-rings (10 on p31) do not come out of their grooves.
8. Lock the union nuts by turning the DualBlock® knob (27 on p31) clockwise (Fig. 1).

Note: When assembling the valve components, it is advisable to lubricate the O-Rings. Do not use mineral oils as they attack EPDM rubber.

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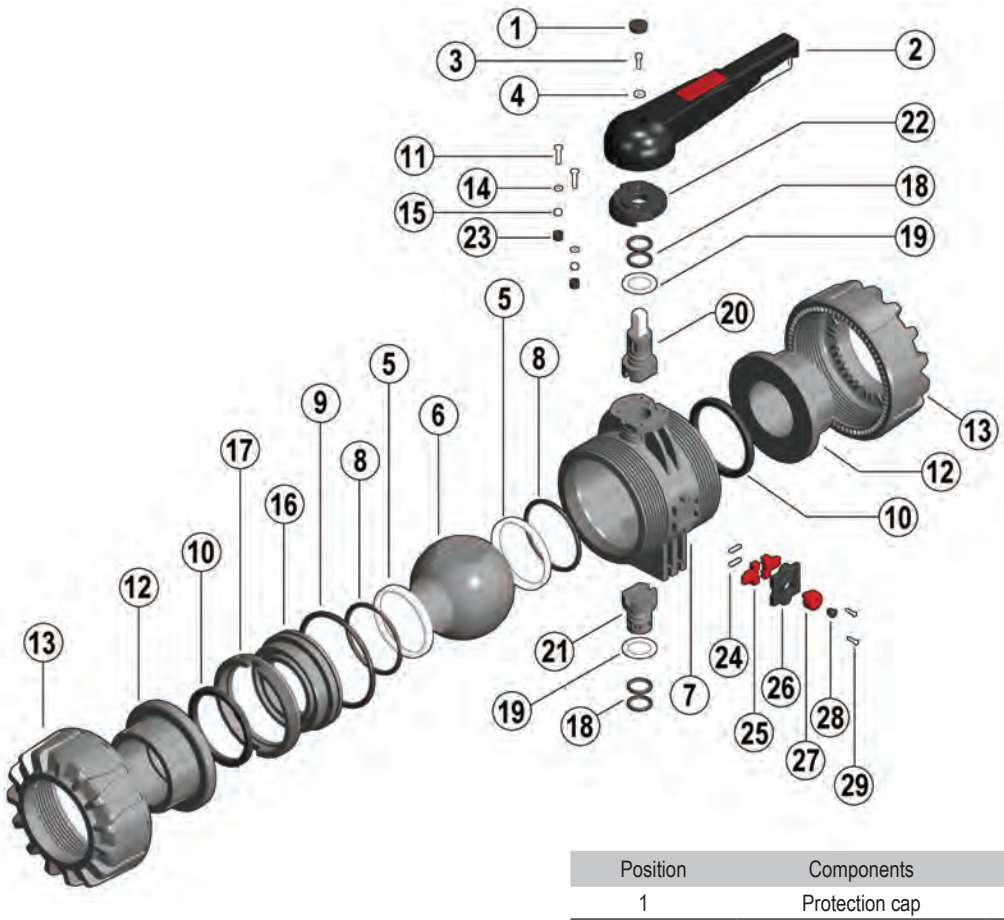

Position	Components	Material
1	Protection cap	PE
2	Handle	HIPVC
3	Screw	Stainless steel
4	Washer	Stainless steel
5*	Ball seat	PTFE
6	Ball	Valve Material
7	Body	Valve Material
8*	Ball seat O-ring	EPDM/FPM
9*	Carrier O-ring	EPDM/FPM
10*	Socket seal O-ring	EPDM/FPM
11	Screw	Stainless steel
12*	End connector	Valve Material
13*	Union nut	Valve Material
14	Washer	Stainless steel
15	Nut	Stainless steel
16	Ball seat carrier	ABS
17	Carrier 'stop ring'	ABS
18*	Stem O-ring	EPDM/FPM
19*	Friction reducing bush	PTFE
20	Upper stem	Valve Material/Stainless steel
21	Lower stem	Valve Material
22	Ratchet plate	PP-GR
23	Protection cap	PE
24	Spring	Stainless steel
25	Nut block	PP-GR
26	Cover	PP
27	Nut block button	PP-GR
28	Protection cap	PE
29	Screw	Nylon

*Spare Parts

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TKD DualBlock® 3-way Ball Valve

The **TKD DualBlock®** 3 way ball valve, is a fully unionised valve used for diverting or mixing.

- Size range from $^{3}/_{8}$" / d16mm up to 2" / d63mm
- Pressure rating: Maximum working pressure: 16 bar at 20°C
- Patented **DualBlock®** system: The locking device ensures the union nuts are retained in position, even under the most arduous conditions: ie. vibration or thermal expansion
- Easy removal of the valve body from the pipe system, allowing replacement of the valve seals and seats without any additional equipment
- 'T' port or 'L' Port configurations available
- Patented Seat Stop® design ball seat carrier, with micro adjustment of the ball seats and 'take up' of axial pipe loads, all done without needing to drain the system
- VKD 'style' ergonomically designed handle with removable ball seat adjusting tool
- Possibility to fit an electric or pneumatic actuator with a GR-PP Mounting kit with standard drillings (ISO 5211 F03, F04, F05, F07)
- For more information, please visit our website **www.durapipe.co.uk**

Legend

d	Nominal outside diameter
DN	Nominal internal diameter in mm
R	Nominal size or the thread in inches
PN	Nominal pressure in bar (max.working Pressure at 20°C - water)
gms	Weight in grams
PVC-U	Polyvinyl chloride unplasticised
ABS	Acrylontrile Butadiene Styrene
PP	Polypropylene
PVC-C	Polyvinyl chloride chlorinated
HIPVC	High impact PVC
PE	Polyethylene
PTFE	Polytetrafluoroethylene
EPDM	Ethylene Propylene Diene Monomer (M-class) rubber
FPM	Fluorocarbon Rubber
s	Wall thickness (mm)
SDR	Standard dimension ratio = d/s

Dimensions and Standards

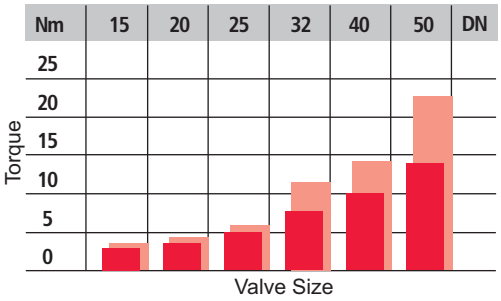
Imperial
The Imperial System is manufactured in accordance with the relevant British Standards: BS 5392 fittings.

Metric
The Metric System is manufactured generally in accordance with the relevant International Standards: ISO 15493, KIWA 49 and 549, DIN 8062 and 8063.

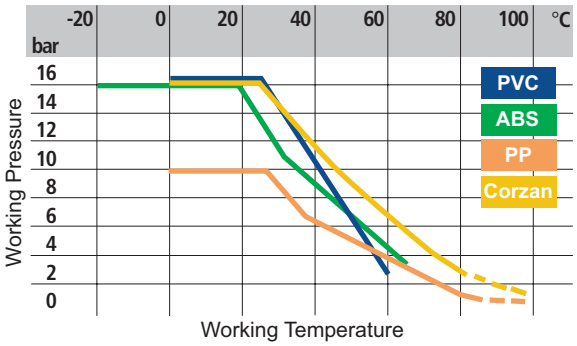
BSP Thread
Threaded fittings conform to the requirements of BS 21/DIN 2999/ISO7. Socket dimensions of metric fittings for solvent welding comply with ISO/DIS 727-1.

Interchangeability
Components in the imperial and metric ranges are not interchangeable.

Technical Data



Torque at working pressure. 10 Bar (Red) and 16 Bar (Pink).



Pressure/temperature rating for water and harmless fluids to which the material is RESISTANT. In other cases a reduction of the PN is required. (25 years with safety factor).

	DN	10	15	20	25	32	40	50
k_{v100} l/m	A	37	55	135	205	390	475	900
	B	25	35	95	140	270	330	620
	C	40	65	145	245	460	600	1200
	D	78	195	380	760	1050	1700	3200
	E	48	73	150	265	475	620	1220

Flow coefficient k_{v100}

k_{v100} is the number of litres per minute of water at a temperature of 20°C that will flow through a valve with a one bar pressure differential at a specified rate. The k_{v100} values shown in the table are calculated with the valve fully open.

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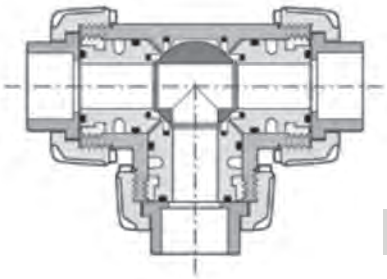
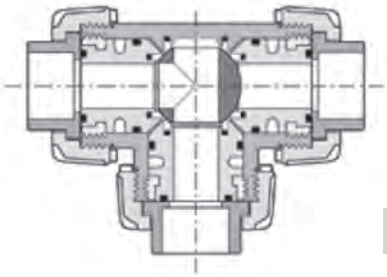
Technical Data – Working Positions

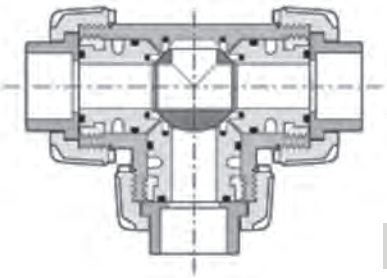
'T' Port



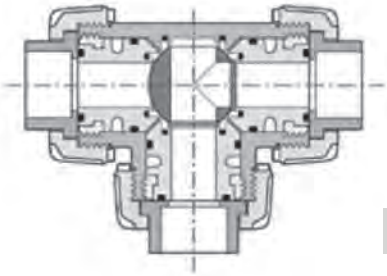
0° Mixing



90° Diverting

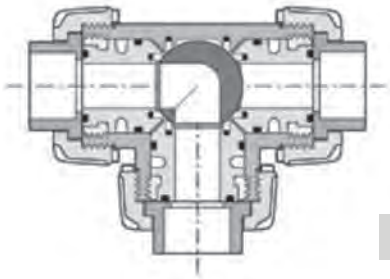


180° Branch closed/ straight through

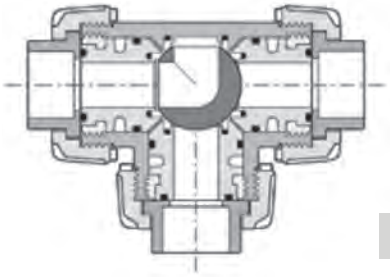


270° Diverting

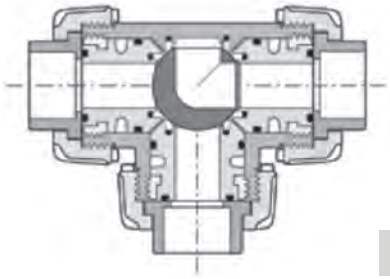
'L' Port



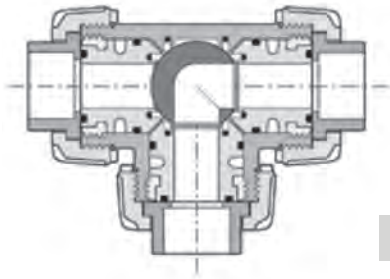
0° Diverting



90° Closed



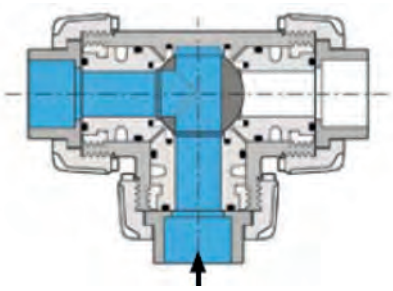
180° Closed

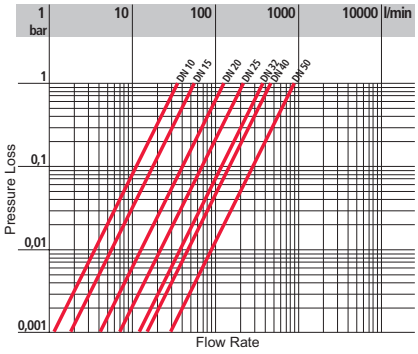


270° Diverting

Technical Data – Working Positions

A





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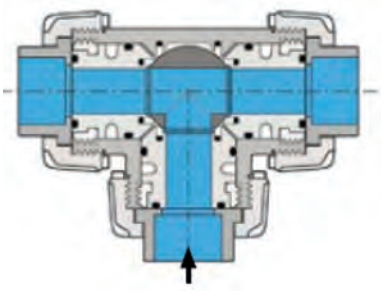

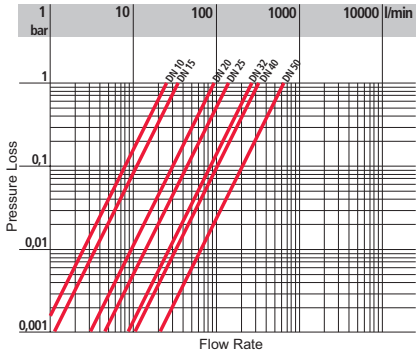

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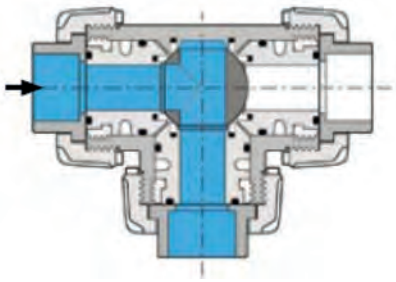

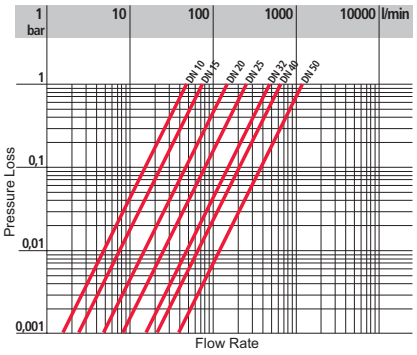

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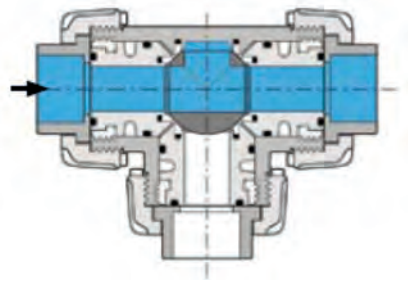

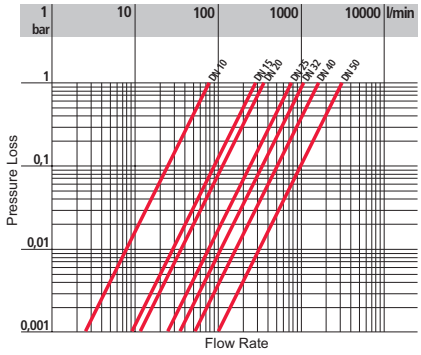

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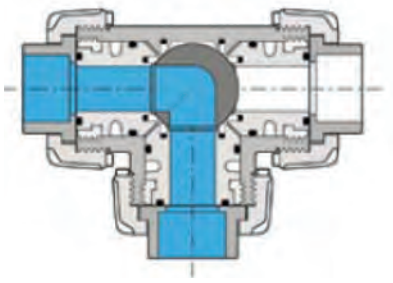
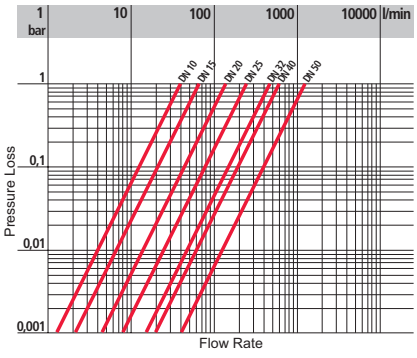
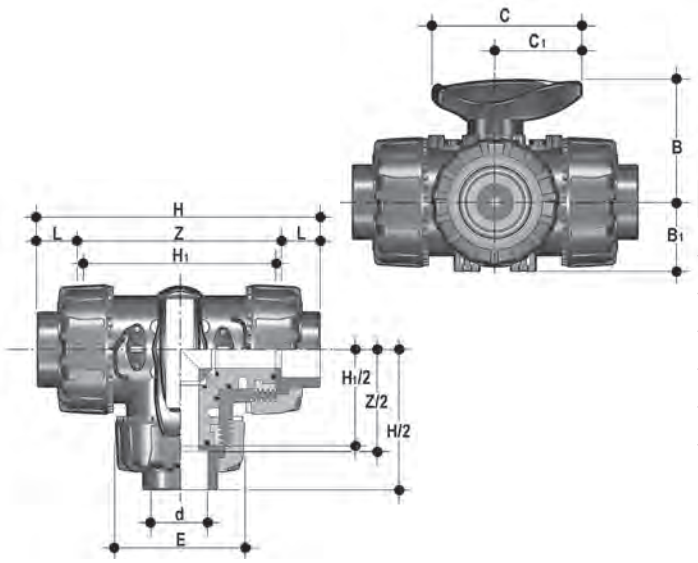




Pressure loss charts

BS Series Female Ends



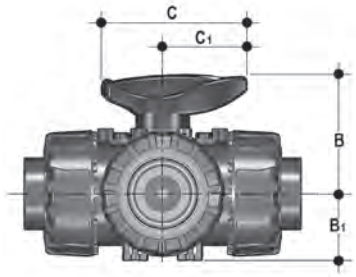
TKDLV - 'T' Port PVC-U **TKDLA - 'T' Port** ABS
LKDLV - 'L' Port PVC-U **LKDLA - 'L' Port** ABS

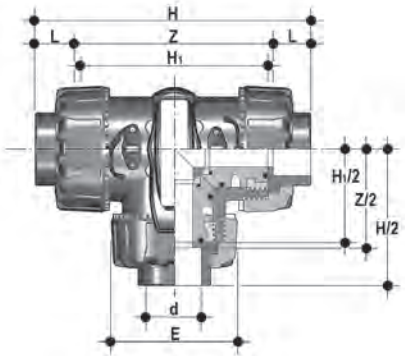
DualBlock® 3-way ball valve with BS series female ends for solvent welding

d	DN	PN	E	B	B_1	C	C_1	H	H_1	L	Z
1/2	15	16	54	54	29	67	40	118	80	17	85
3/4	20	16	65	65	34.5	85	49	144.8	100	19	106.8
1	25	16	73	69.5	39	85	49	160	110	22.5	115
1 1/4	32	16	86	82.5	46	108	64	188.6	131	26	136.6
1 1/2	40	16	98	89	52	108	64	219.4	148	30.2	159
2	50	10	122	108	62	134	76	266.6	179	36.2	194.2

	PVC-U - 'T' Port			PVC-U - 'L' Port		ABS - 'T' Port			ABS - 'L' Port	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	EPDM Code	FPM Code
1/2	305	H0 TTE 102	H0 TTF 102	H0 LTE 102	H0 LTF 102	235	H0 TTA 102	H0 TTB 102	H0 LTA 102	H0 LTB 102
3/4	535	H0 TTE 103	H0 TTF 103	H0 LTE 103	H0 LTF 103	415	H0 TTA 103	H0 TTB 103	H0 LTA 103	H0 LTB 103
1	725	H0 TTE 104	H0 TTF 104	H0 LTE 104	H0 LTF 104	570	H0 TTA 104	H0 TTB 104	H0 LTA 104	H0 LTB 104
1 1/4	1170	H0 TTE 105	H0 TTF 105	H0 LTE 105	H0 LTF 105	895	H0 TTA 105	H0 TTB 105	H0 LTA 105	H0 LTB 105
1 1/2	1600	H0 TTE 106	H0 TTF 106	H0 LTE 106	H0 LTF 106	1250	H0 TTA 106	H0 TTB 106	H0 LTA 106	H0 LTB 106
2	2845	H0 TTE 107	H0 TTF 107	H0 LTE107	H0 LTF 107	2225	H0 TTA 107	H0 TTB 107	H0 LTA 107	H0 LTB 107

Metric Series Female Ends





TKDIV - 'T' Port PVC-U
LKDIV - 'L' Port PVC-U
TKDIM - 'T' Port PP
LKDIM - 'L' Port PP
TKDIA - 'T' Port ABS
LKDIA - 'L' Port ABS
TKDIC - 'T' Port Corzan
LKDIC - 'L' Port Corzan

DualBlock® 3-way ball valve with Metric series female ends

d	DN	PN**	B	B_1	C	C_1	E	H	H_1	L	Z	H*	L*	Z*
16	10	16	54	29	67	40	54	118	80	14	90	117	14.5	88
20	15	16	54	29	67	40	54	118	80	16	86	144	16	112
25	20	16	65	34.5	85	49	65	145	100	19	107	158	18	122
32	25	16	69.5	39	85	49	73	160	110	22	116	183.5	20.5	142.5
40	32	16	82.5	46	108	64	86	188.5	131	26	136.5	219	23.5	172
50	40	16	89	52	108	64	98	219	148	31	157	266.5	27.5	211.5
63	50	16	108	62	134	76	122	266.5	179	38	190.5	-	-	-

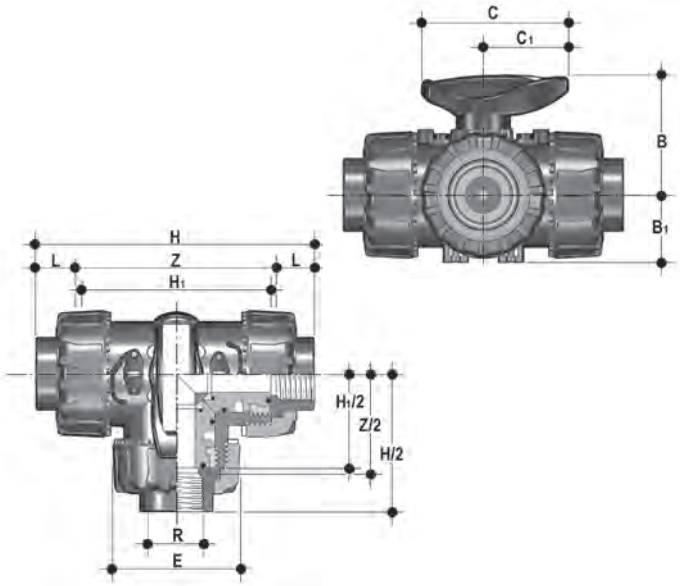
**For PP all sizes are PN10. H*, L* and Z* sizes relate to PP valves only.

	PVC-U - 'T' Port			PVC-U - 'L' Port		ABS - 'T' Port			ABS - 'L' Port	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	EPDM Code	FPM Code
16	305	H0 TTE 305	H0 TTF 305	H0 LTE 305		-	-	-	-	-
20	305	H0 TTE 306	H0 TTF 306	H0 LTE 306	H0 LTF 306	235	H0 TTA 306	H0 TTB 306	H0 LTA 306	H0 LTB 306
25	535	H0 TTE 307	H0 TTF 307	H0 LTE 307	H0 LTF 307	415	H0 TTA 307	H0 TTB 307	H0 LTA 307	H0 LTB 307
32	725	H0 TTE 308	H0 TTF 308	H0 LTE 308	H0 LTF 308	570	H0 TTA 308	H0 TTB 308	H0 LTA 308	H0 LTB 308
40	1170	H0 TTE 309	H0 TTF 309	H0 LTE 309	H0 LTF 309	875	H0 TTA 309	H0 TTB 309	H0 LTA 309	H0 LTB 309
50	1600	H0 TTE 310	H0 TTF 310	H0 LTE 310	H0 LTF 310	1250	H0 TTA 310	H0 TTB 310	H0 LTA 310	H0 LTB 310
63	2845	H0 TTE 311	H0 TTF 311	H0 LTE 311	H0 LTF 311	2225	H0 TTA 311	H0 TTB 311	H0 LTA 311	H0 LTB 311

	PP - 'T' Port			PP- 'L' Port		Corzan - 'T' Port			Corzan - 'L' Port	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	EPDM Code	FPM Code
16	-	-	-	-	-	310	H0 TTJ 305	H0 TTK 305	H0 LTJ 305	H0 LTK 305
20	310	H0 TTN 306	H0 TTP 306	H0 LTN 306	H0 LTP 306	310	H0 TTJ 306	H0 TTK 306	H0 LTJ 306	H0 LTK 306
25	550	H0 TTN 307	H0 TTP 307	H0 LTN 307	H0 LTP 307	550	H0 TTJ 307	H0 TTK 307	H0 LTJ 307	H0 LTK 307
32	790	H0 TTN 308	H0 TTP 308	H0 LTN 308	H0 LTP 308	790	H0 TTJ 308	H0 TTK 308	H0 LTJ 308	H0 LTK 308
40	1275	H0 TTN 309	H0 TTP 309	H0 LTN 309	H0 LTP 309	1275	H0 TTJ 309	H0 TTK 309	H0 LTJ 309	H0 LTK 309
50	1660	H0 TTN 310	H0 TTP 310	H0 LTN 310	H0 LTP 310	1660	H0 TTJ 310	H0 TTK 310	H0 LTJ 310	H0 LTK 310
63	2800	H0 TTN 311	H0 TTP 311	H0 LTN 311	H0 LTP 311	2800	H0 TTJ 311	H0 TTK 311	H0 LTJ 311	H0 LTK 311

Flanged ends or locking options also available, please contact the Valve Department.

BSP Threaded Socket Ends



TKDFV - 'T' Port PVC-U
LKDFV - 'L' Port PVC-U
TKDFA - 'T' Port ABS
LKDFA - 'L' Port ABS
TKDFM - 'T' Port PP
LKDFM - 'L' Port PP

DualBlock® 3-way ball valve with BSP parallel female threaded ends

d	DN	PN**	B	B_1	C	C_1	E	H	H_1	L	Z	Z***
1/2	15	16	54	29	67	40	54	118	80	15	95	73
3/4	20	16	54	29	67	40	65	146	100	16.3	114	82.4
1	25	16	65	34.5	85	49	73	166	110	19.1	129	89.8
1 1/4	32	16	69.5	39	85	49	86	195.5	131	21.4	151	103.2
1 1/2	40	16	82.5	46	108	64	98	211	148	21.4	166	121.2
2	50	16	89	52	108	64	122	253.5	179	25.7	199	147.6

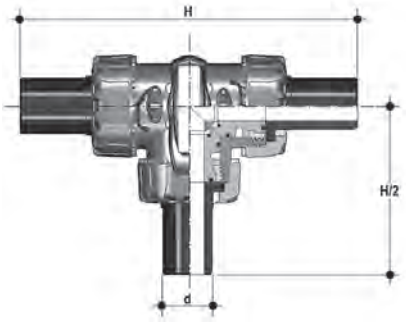
For PP all sizes are PN10. Z* For ABS sizes only.

	PVC-U - 'T' Port			PVC-U - 'L' Port		ABS - 'T' Port			ABS - 'L' Port	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	EPDM Code	FPM Code
1/2	240	H0 TTE B02	H0 TTF B02	H0 LTE B02	H0 LTF B02	240	H0 TTA B02	H0 TTB B02	H0 LTA B02	H0 LTB B02
3/4	540	H0 TTE B03	H0 TTF B03	H0 LTE B03	H0 LTF B03	415	H0 TTA B03	H0 TTB B03	H0 LTA B03	H0 LTB B03
1	745	H0 TTE B04	H0 TTF B04	H0 LTE B04	H0 LTF B04	570	H0 TTA B04	H0 TTB B04	H0 LTA B04	H0 LTB B04
1 1/4	1180	H0 TTE B05	H0 TTF B05	H0 LTE B05	H0 LTF B05	895	H0 TTA B05	H0 TTB B05	H0 LTA B05	H0 LTB B05
1 1/2	1660	H0 TTE B06	H0 TTF B06	H0 LTE B06	H0 LTF B06	1260	H0 TTA B06	H0 TTB B06	H0 LTA B06	H0 LTB B06
2	2845	H0 TTE B07	H0 TTF B07	H0 LTE B07	H0 LTF B07	2250	H0 TTA B07	H0 TTB B07	H0 LTA B07	H0 LTB B07

Flanged ends or locking options also available, please contact the Valve Department.

	PP - 'T' Port			PP- 'L' Port	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code
1/2	310	H0 TTN B02	H0 TTP B02	H0 LTN B02	H0 LTP B02
3/4	550	H0 TTN B03	H0 TTP B03	H0 LTN B03	H0 LTP B03
1	790	H0 TTN B04	H0 TTP B04	H0 LTN B04	H0 LTP B04
1 1/4	1275	H0 TTN B05	H0 TTP B05	H0 LTN B05	H0 LTP B05
1 1/2	1660	H0 TTN B06	H0 TTP B06	H0 LTN B06	H0 LTP B06
2	2800	H0 TTN B07	H0 TTP B07	H0 LTN B07	H0 LTP B07

Accessories

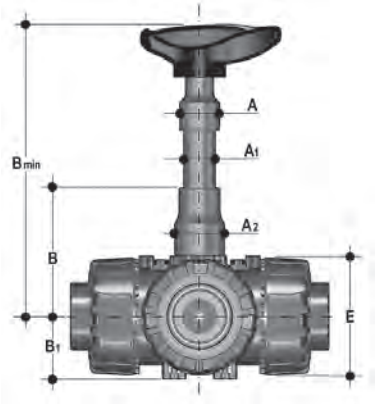


CVDE

End Connector in PE100, long spigot, for electrofusion or butt welding (SDR11)

d	DN	L	H	Product Code
20	15	15	15	HZ PEE M06
25	20	20	20	HZ PEE M07
32	25	25	25	HZ PEE M08
40	32	32	32	HZ PEE M09
50	40	40	40	HZ PEE M10
63	50	50	50	HZ PEE M11

End connectors also available in PP, please speak to the Durapipe Valve Department for details.

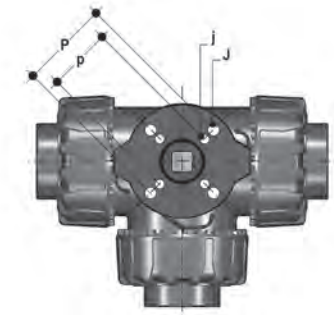


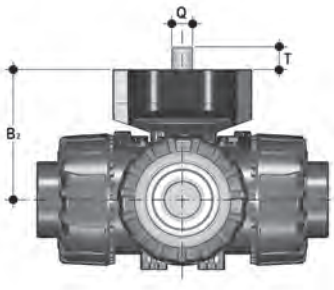
PSKD

Stem Extension Kit. (In PVC-U, Pipe not included)

d	DN	A	A_1	A_2	E	B	B_1	B_{min}	Product Code
3/8 - 16	10	32	25	32	54	70	29	139.5	KTP SKD EF
1/2 - 20	15	32	25	32	54	70	29	139.5	KTP SKD EF
3/4 - 25	20	32	25	40	65	89	34.5	164.5	KTP SKD GG
1 - 32	25	32	25	40	73	93.5	39	169	KTP SKD HH
1 1/4 - 40	32	40	32	50	86	110	46	200	KTP SKD II
1 1/2 - 50	40	40	32	50	98	116	52	206	KTP SKD JJ
2 - 63	50	40	32	50	122	122	62	225	KTP SKD LL

A1 is the size of the standard pipe needed (not included in kit) and can be cut to suit.





PowerQuick

The valve can be supplied actuated, pneumatic or electric, by Durapipe Valve Department. The GR-PP mounting bracket (with standard ISO 5211 drillings) can be supplied for self-actuation and/or retro-fitting of actuators to installed valves.

d	DN	B_1	Q	T	p x j	P x J	Product Code
1/2 - 20	15	58	11	12	F03 x 5.5	F04 x 5.5	KTP QCP EF
3/4 - 25	20	69	11	12	F03 x 5.5	F05 x 6.5	KTP QCP GG
3/4 - 25	20	69	11	12	-	F04 x 5.5	KTP QCP G4
1 - 32	25	74	11	12	F03 x 5.5	F05 x 6.5	KTP QCP HH
1 - 32	25	74	11	12	-	F04 x 5.5	KTP QCP H4
1 1/4 - 40	32	91	14	16	F05 x 6.5	F07 x 7.5	KTP QCP II
1 1/2 - 50	40	97	14	16	F05 x 6.5	F07 x 7.5	KTP QCP JJ
2 - 63	50	114	14	16	F05 x 6.5	F07 x 7.5	KTP QCP LL

Accessories

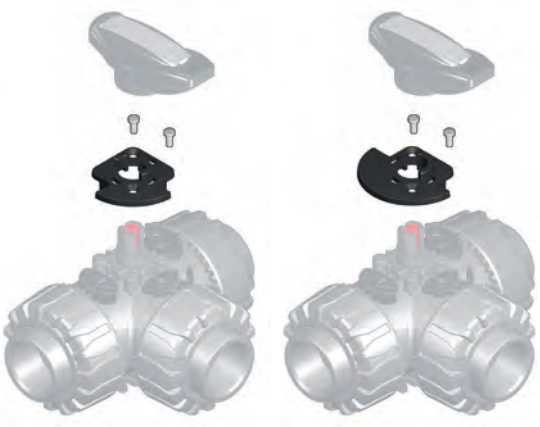
SHKD

Handle Locking Kit - with option to fit padlock

d	DN	Product Code
3/8" - 16	10	KTSHKDEF
1/2" - 20	15	KTSHKDEF
3/4" - 25	20	KTSHKDGH
1" - 32	25	KTSHKDGH
1 1/4" - 40	32	KTSHKDIJ
1 1/2" - 50	40	KTSHKDIJ
2" - 63	50	KTSHKDLL

LTKD (90º-180º)

The rotational stroke limiter LTKD is designed to restrict the valve turning to either 90º or 180º. The rotational stroke limiter is manufactured in one piece to be fitted directly onto the top works of the valve. It is fitted using the fixings supplied in the kit.

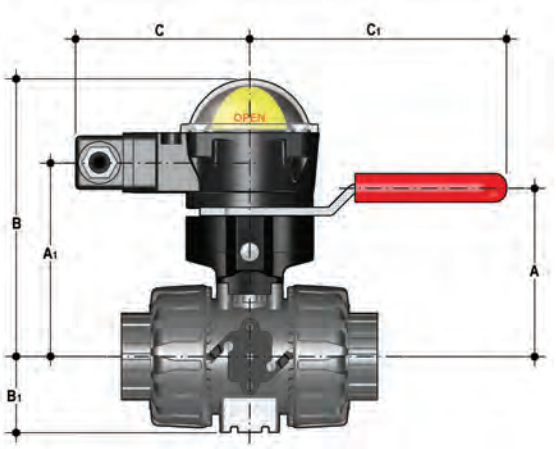


d	DN	Product Code (90º)	Product Code (180º)
3/8" - 16	10	LTKD9020	LTKD8020
1/2" - 20	15	LTKD9020	LTKD8020
3/4" - 25	20	LTKD9032	LTKD8032
1" - 32	25	LTKD9032	LTKD8032
1 1/4" - 40	32	LTKD9050	LTKD8050
1 1/2" - 50	40	LTKD9050	LTKD8050
2" - 63	50	LTKD9063	LTKD8063

Accessories

MSKD

The MSKD is a limit switch box with either mechanical or proximity switches. The switchbox can be used to indicate back to a control panel the position of the valve (max. rotation = 90°). This can be fitted onto the valve using the relevant PowerQuick actuation module. For further details please contact the Durapipe Valve Department.



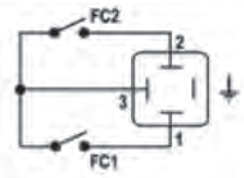
d	DN	A	A_1	B	B_1	C	C_1
1/2 - 20	15	58	85	132.5	29	88.5	134
3/4 - 25	20	70.5	96	143.5	34.5	88.5	134
1 - 32	25	74	101	148.5	39	88.5	134
1 1/4 - 40	32	116	118	165.5	46	88.5	167
1 1/2 - 50	40	122	124	171.5	52	88.5	167
2 - 63	50	139	141	188.5	62	88.5	167

d	DN	Product Code		
		Electro-mechanical	Inductive	Namur
3/8 - 16 1 to 20	10 to 25	KTMSKD1	KTMSKD1I	KTMSKD1N
1 1/4 - 25 2 - 32	32 to 50	KTMSKD2	KTMSKD2I	KTMSKD2N

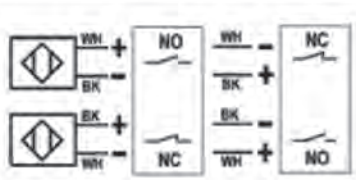
	Switch Type	Rating	Operating Voltage	Nom. Voltage	Operating Current	Voltage Drop	No-load supply current
1	Electro-mechanical	250v - 5A	-	-	-	-	-
2	Inductive DC PNP/NPN	-	5 to 36V DC	-	4 to 200 mA	<4.6V	<0.8 mA
3	Namur *	-	7.5 to 30V DC**	8.2V DC	<30 mA**	-	-

* To be used with an amplificator
** When used outside the hazardous area

1

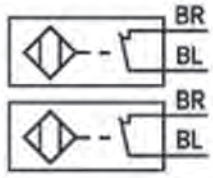


2



WH = White
BK = Black

3

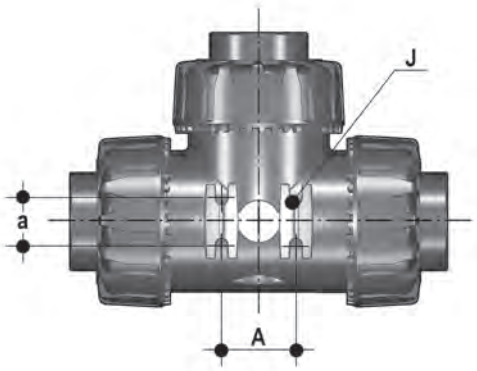


BL = Blue
BR = Brown

Valve Bracketing and Supporting

In some applications manual or actuated valves are required to be be supported by hangers or anchors. Supports must be capable of withstanding the valve weight as well as the stresses transmitted through the valve body during service operations. All TKD valves are provided with an integrated support on the valve body for a simple anchoring. By using standard threaded nuts, as per the following M5 ($^{3}/_{8}$" -d16 to 1" - d32) and M6 ($1^{1}/_{4}$" - d40 to 2" - d63), it is possible to anchor the valve by the 4 fixing points (Fig. 1) Caution must be taken when using these support systems because the ball valve now acts as a pipe anchor and all thermal end loads developed by adjacent pipes could damage the valve components under conditions of large variation in operating temperature. Systems should designed to accommodate pipes expansion and contraction. See the Durapipe technical catalogues for details of thermal expansion and pipework design.

Note: Threaded nuts are not included



d	DN	a	A	J
$^{3}/_{8}$ - 16	10	20	31	M5
$^{1}/_{2}$ - 20	15	20	31	M5
$^{3}/_{4}$ - 25	20	20	31	M5
1 - 32	25	20	31	M5
$1^{1}/_{4}$ - 40	32	30	50	M6
$1^{1}/_{2}$ - 50	40	30	50	M6
2 - 63	50	30	50	M6

Connection to the System

Before proceeding with the installation, please read and familiarise yourself with these instructions.

1. Check that the pipes either side of the valve are axially aligned, in order to avoid mechanical stress on the threaded union joints.
2. Unscrew the union nuts (13 on p48) from the valve body and slide them onto the pipe.
3. Solvent weld, socket fuse or screw the valve end connectors 12 on p48) onto the pipe ends. For correct jointing see the relevant Durapipe material technical catalogues.

Check the three DualBlock® components (26 on p48) are fitted to the valve body (Fig. 2).

DualBlock® is the patented system that allows the union nuts to be locked in position. The locking device ensures the nuts are retained in position, even under the most arduous conditions: i.e. vibration or thermal expansion.

4. Position the valve between the three end connectors (Fig. 3) and screw the union nuts clockwise by hand until a resistance is felt; do not use keys or other tools which may damage the nut Surface.

   The nuts are now locked in position. To unlock them push in the lever on the DualBlock® device (away from the teeth of the union nut and unscrew the nut anti-clockwise (Fig. 4)

If the TKD valve is fitted with the Handle Locking device (supplied separately), to operate the valve it is required to lift the block device (17 on p48) before being able to turn the handle (Fig. 5).

The fitting of a padlock is possible so the valve can be locked in a choice of four positions. (Fig. 6)


Fig.2


Fig.3


Fig.4


Fig.5


Fig.6

Seat Adjustment

The seat adjustment is undertaken using the removable insert tool in the handle (Fig. 7)


Fig.7

Position the ball as per in the diagram below (Fig. 8) the removable insert tool can be used to tighten the ball carrier to achieve the correct sealing. ideally use the Easytorque kit to ensure the seat is tightened to the recommended torque. Ensure the seat carriers are tightened as per the sequence indicated below (Fig. 8).

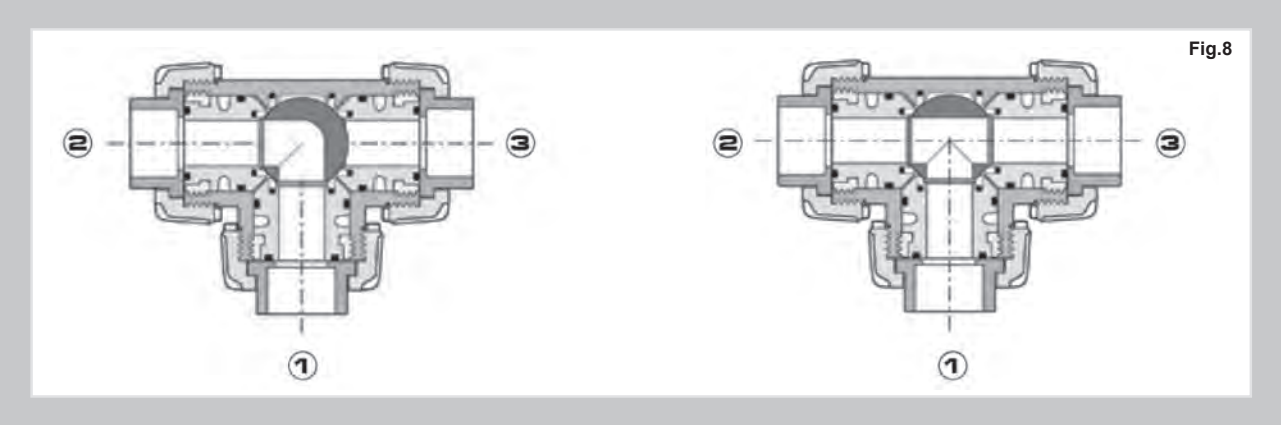


Fig.8

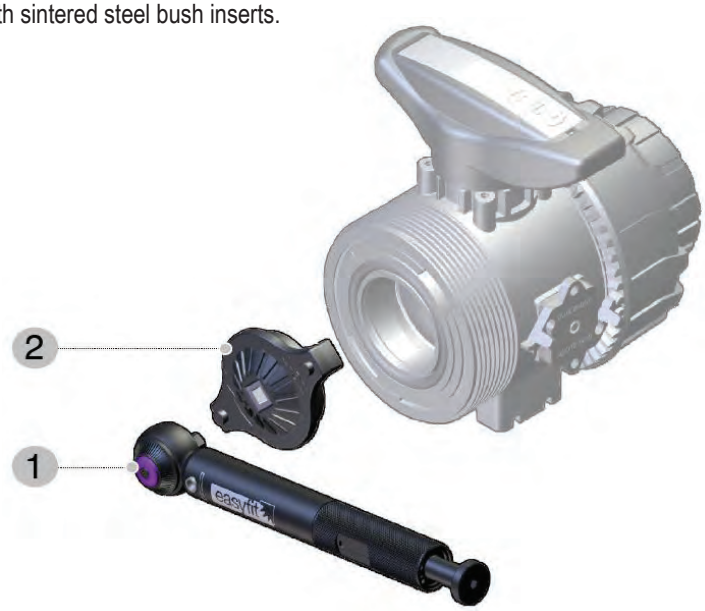
Micro-Adjustment of the ball seats can be carried out whilst the valve is installed in-line, by tightening the union nut.

With the patented 'Seat Stop' system it is possible to compensate wear on the PTFE seats due to excessive valve operations.

Warning: It is essential to avoid rapid closing of valves, to avoid to possibility of water hammer. Which may cause damage to the pipe system.

Easytorque Kit

1. Torque wrench for use with VKD/TKD ball valves from $^{3}/_{8}$" - d16 to 2" - d63.
2. Insert for attaching the torque wrench to the valve for adjusting the ball seat carrier
   The inserts are manufactured from PA50 material with sintered steel bush inserts.



The Easytorque kit allows the tightness of the ball seat carrier to be set to the correct manufacturers recommended torque settings. Optimising the operation efficiency of the valve. It also avoids damaging the valve components by the use of incorrect tools.

d	DN	Product Code
$^{3}/_{8}$"-$^{1}/_{2}$" - 16-20	10 - 15	KET01
to	to	
2" - 63	50	

Disassembly

1. Isolate the valve from the flow and drain down the pipeline.
2. Push in the lever on the DualBlock® device (26 on p48), away from the teeth of the union nut and unscrew the union nuts (13 on p48) anti-clockwise to remove them. It is also possible to completely remove the DualBlock® devices from the valve body, to enable the union nuts to be removed. Remove the valve body (7 on p48) out of the line.
3. Position the handle (2 on p48) so that the flow indication arrows are aligned with the three valve ports (Fig. 9). With the 'L' Port ball the two arrows are to be aligned with the ports a & b (Fig. 10), then remove the handle insert tool (1 on p48) and insert the 'prongs' on the underside of the adjusting tool into the slots on the ball seat carrier stop ring (15 on p48) Rotate the support carriers (11 on p48) anti-clockwise and remove the seat carrier along with the stop ring. Then remove the ball from the branch port.
4. Remove the PTFE seats (5 on p48) and the O-rings (8, 9 & 10 on p48) and ball seats (9 on p48) from their seats.
5. Pull the handle (2 on p48) upwards and remove it from the valve stem (4 on p48).
6. Press the stem out through the valve body (7 on p48).
7. Remove the '4th' PTFE seat (5 on p48) and O-ring (8 on p48) from the valve body.
8. Remove the O-rings (3 on p48) from the valve stem.

Fig.9

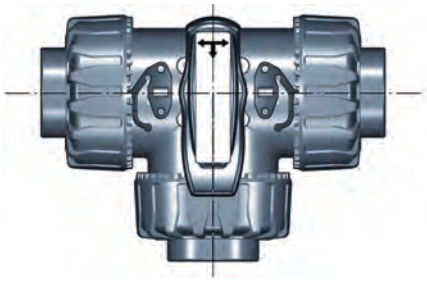
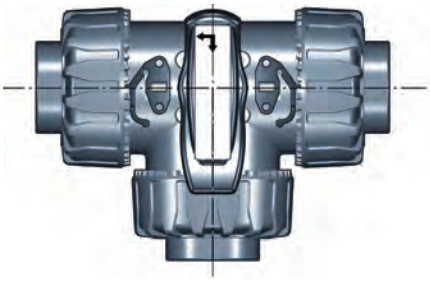


Fig.10

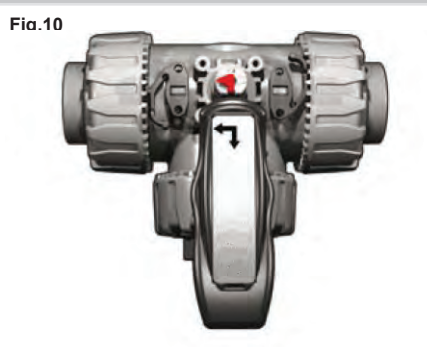


Assembly

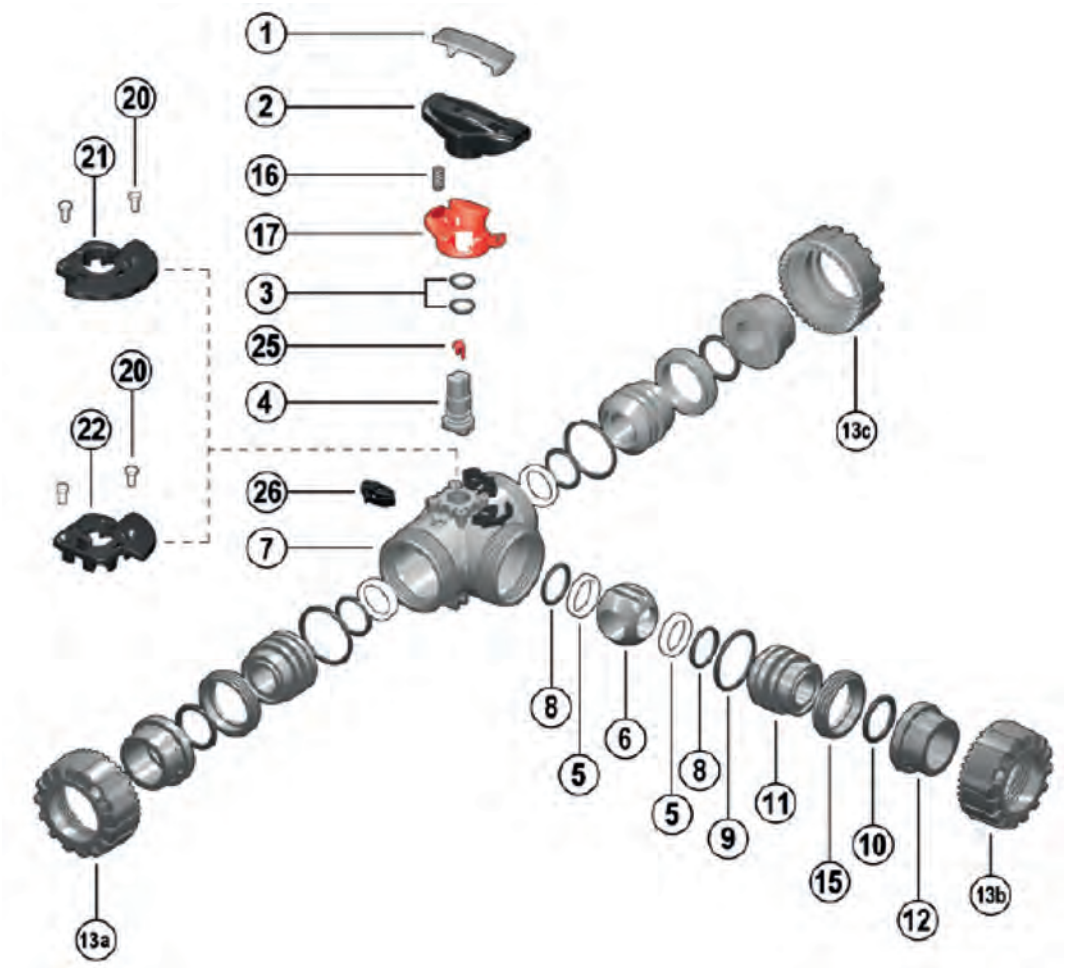
1. Fit the O-rings (3 on p48) into the grooves on the valve stem.
2. Fit the '4th' PTFE seat (5 on p48) and O-ring (8 on p48) inside the valve body.
3. Insert the stem (4 on p48) in through the valve body (7 on p48) ensuring that the three moulded lines on top of the stem align the valve ports.
4. Slide the ball (6 on p48) into the valve body, ensuring the holes in the ball line up with the valve ports. For 'L' Port valves line the two holes up with ports a and b (Fig. 10)
5. Fit the O-rings (8 on p48), the ball seats (5 on p48), the socket O-rings (10 on p48) and the carrier O-rings (9 on p48) into their corresponding grooves on the carrier assembly (11 & 15 on p48).
6. Commencing with the centre carrier, position b (Fig. 10) screw the carriers (11 & 15 on p48) clockwise into the valve body by using either the insert tool (1 on p48) or ideally use the Easytorque kit to ensure the seat is tightened to the recommended torque. Ensure the seat carriers are tightened as per the sequence indicated (Fig. 8).
7. Fit the insert tool (1 on p48) into the handle body (2 on p48) Re-fit the handle (1 & 2 on p48) onto the valve stem, ensuring it is correctly positioned with the handle indicator arrows lined up with the insert (25 on p48) on the top of the stem (4 on p48).
8. Screw the union nuts clockwise by hand until a resistance is felt; do not use keys or other tools which may damage the nut surface.

Fig.9

Fig.10



Note: When assembling the valve components, it is advisable to lubricate the O-rings. Do not use mineral oils as they attack EPDM rubber.



Position	Components	Material
1	Handle insert tool	PVC-U
2	Handle	HIPVC
3*	Stem O-ring	EPDM/FPM
4	Stem	Valve material
5*	Ball seat	PTFE
6	Ball	Valve material
7	Body	Valve material
8*	Ball seat O-ring	EPDM/FPM
9*	Carrier O-ring	EPDM/FPM
10*	Socket seal O-ring	EPDM/FPM
11	Ball seat carrier	Valve material
12*	End connector	Valve material
13*	Union nut	Valve material
15	Ball seat carrier stop ring	Valve material
16**	Spring (SHKD)	Stainless steel
17**	Safety handle block (SHKD)	PP-GR
20**	Drive fastener for LTKD	POM
21**	LTKD – 180º	POM
22**	LTKD – 90º	POM
25	Position indicator	POM

*Spare Parts **Accessories

The Durapipe Easyfit® valve allows customers to brand or label the valve through specialist software that is provided with the product. This innovative technology means that companies can easily 'own-brand' or alternatively label the valve with the chemical that the pipework is carrying, increasing plant efficiency as pipelines are instantly identifiable.

Durapipe Easyfit also simplifies the installation process through the versatile nature of the valve handle. In addition to opening and closing the valve itself, the handle can also be used to tighten the double union nuts during installation. This makes it an ideal solution for installations that require a valve to be fitted into tight corners as minimum space is needed to install it; the handle uses the valve stem as a pivot in order to tighten the valve ends.

VXE Easyfit® 2-way Ball Valve (DN15 - DN50)

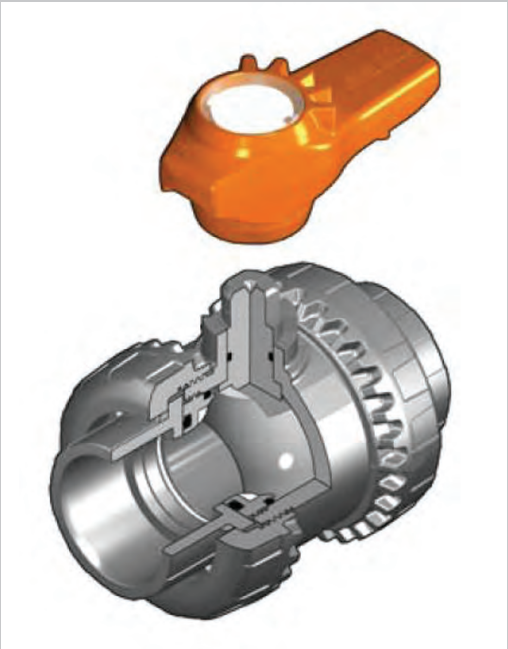
The **VXE Easyfit ball valve**, is a fully unionised valve that stands up to the most severe industrial applications.

- In conjunction with Giugiaro Design we have designed and developed the **VXE Easyfit ball valve**, the innovative true union geared ball valve introducing an advanced method of installation for a long trouble free service
- Size range from $^{3}/_{8}$" / d16mm up to 2" / d63mm
- Pressure rating: Maximum working pressure: 16 bar at 20°C
- New patented **Easyfit** system: The bevel gear pairing principle has been used as a mechanism to control the rotation of the union nuts during the installation of the valve

  The use of the Easyfit multifunctional handle is the ideal way to carry out maintenance operations in small spaces with limited access to the valve
- Easy removal of the valve body from the pipe system, allowing replacement of the valve seals and seats without any additional equipment
- Compact true union design. With installation dimensions to EN1452 'Short Series'
- The pipeline downstream of the valve can be disconnected, with the valve in the closed position, without leakage
- Blocked seat carrier with adjustment of the ball seats
- **Easyfit** ergonomically designed multifunctional handle with integrated union nut tightening/untightening tool and ball seat adjusting tool
- Maintenance can be carried out while the valve body is installed in line
- For more information, please visit our website **www.durapipe.co.uk**

Legend

d	Nominal outside diameter
DN	Nominal internal diameter in mm
R	Nominal size or the thread in inches
PN	Nominal pressure in bar (max. working pressure at 20°C - water)
gms	Weight in grams
PVC-U	Polyvinyl chloride unplasticised
C-PVC	Polyvinyl chloride chlorinated
ABS	Acrylontrile Butadiene Styrene
PP	Polypropylene
HIPVC	High impact PVC
PE	Polyethylene
PTFE	Polytetrafluoroethylene
EPDM	Ethylene Propylene Diene Monomer (M-class) rubber
FPM	Fluorocarbon rubber
s	Wall thickness (mm)
SDR	Standard dimension ratio = d/s



Dimensions and Standards

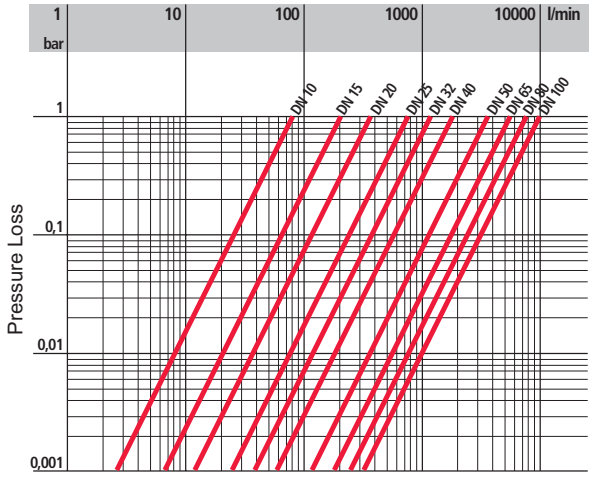
Imperial
The Imperial System is manufactured in accordance with the relevant British Standards: BS 5392 fittings.

Metric
The Metric System is manufactured generally in accordance with the relevant International Standards: ISO 15493, KIWA 49 and 549, DIN 8062 and 8063.

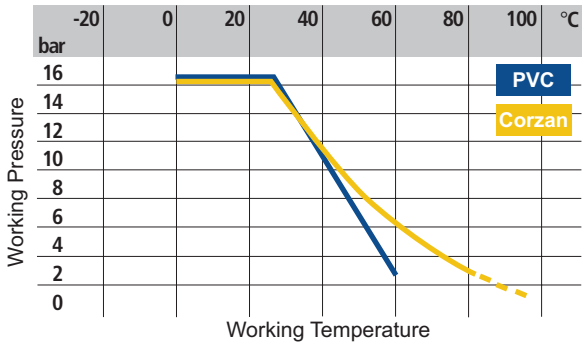
BSP Thread
Threaded fittings conform to the requirements of BS 21/DIN 2999/ISO7. Socket dimensions of metric fittings for solvent welding comply with ISO/DIS 727-1.

Interchangeability
Components in the imperial and metric ranges are not interchangeable.

Technical Data



Pressure loss chart.

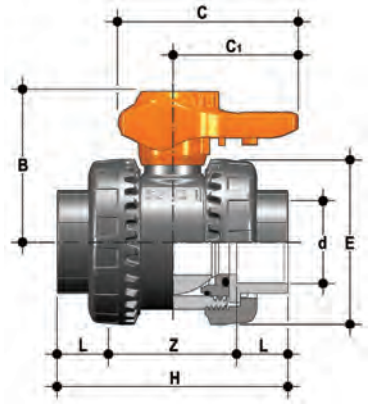


Pressure/temperature rating for water and harmless fluids to which the material is RESISTANT. In other cases a reduction of the PN is required. (25 years with safety factor).

DN	10	15	20	25	32	40	50
k_{v100}	80	200	385	770	1100	1750	3400

Flow coefficient k_{v100}
k_{v100} is the number of litres per minute of water at a temperature of 20ºC that will flow through a valve with a one bar pressure differential at a specified rate. The k_{v100} values shown in the table are calculated with the valve fully open.

BS Series Female Ends

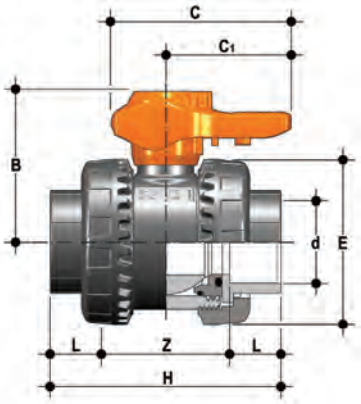


VXELV PVC-U
VXELA ABS

Easyfit 2-way ball valve with BS series female ends for solvent welding

										PVC-U			ABS		
d	DN	PN	L	Z	H	E	B	C	C_1	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
1/2	15	16	16.5	49	82	54	49	64	20	175	H0 XEE 102	H0 XEF 102	170	H0 XEA 102	H0 XEB 102
3/4	20	16	19	53	91	63	62	78	23	260	H0 XEE 103	H0 XEF 103	252	H0 XEA 103	H0 XEB 103
1	25	16	22.5	58	103	72	71	87	27	365	H0 XEE 104	H0 XEF 104	354	H0 XEA 104	H0 XEB 104
1 1/4	32	16	26	68	120	85	82	102	30	565	H0 XEE 105	H0 XEF 105	548	H0 XEA 105	H0 XEB 105
1 1/2	40	16	30	79	139	100	92	109	33	795	H0 XEE 106	H0 XEF 106	771	H0 XEA 106	H0 XEB 106
2	50	16	36	102	174	118	110	133	39	1325	H0 XEE 107	H0 XEF 107	1285	H0 XEA 107	H0 XEB 107

Metric Series Female Ends



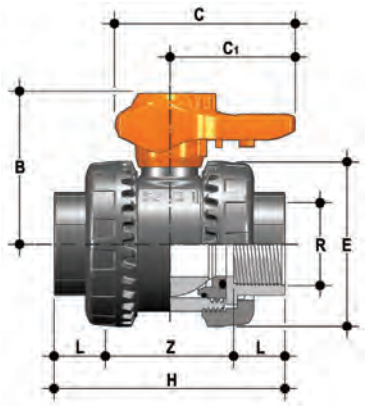
VXEIV PVC-U
VXEIA ABS
VXEIC Corzan

Easyfit 2-way ball valve with Metric series female ends for solvent welding

d	DN	PN	L	Z	H	E	B	C	C_1
16	10	16	14	54	82	54	49	64	20
20	15	16	16	50	82	54	49	64	20
25	20	16	19	53	91	63	62	78	23
32	25	16	22	59	103	72	71	87	27
40	32	16	26	68	120	85	82	102	30
50	40	16	31	77	139	100	92	109	33
63	50	16	38	98	174	118	110	133	39

	PVC-U			ABS			Corzan		
d	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
16	180	H0 XEE 305	H0 XEF 305	175	H0 XEA 305	H0 XEB 305	180	H0 XEJ 305	H0 XEK 305
20	175	H0 XEE 306	H0 XEF 306	170	H0 XEA 306	H0 XEB 306	175	H0 XEJ 306	H0 XEK 306
25	260	H0 XEE 307	H0 XEF 307	252	H0 XEA 307	H0 XEB 307	260	H0 XEJ 307	H0 XEK 307
32	365	H0 XEE 308	H0 XEF 308	354	H0 XEA 308	H0 XEB 308	365	H0 XEJ 308	H0 XEK 308
40	565	H0 XEE 309	H0 XEF 309	548	H0 XEA 309	H0 XEB 309	565	H0 XEJ 309	H0 XEK 309
50	795	H0 XEE 310	H0 XEF 310	771	H0 XEA 310	H0 XEB 310	795	H0 XEJ 310	H0 XEK 310
63	1325	H0 XEE 311	H0 XEF 311	1285	H0 XEA 311	H0 XEB 311	1325	H0 XEJ 311	H0 XEK 311

BSP Threaded Socket Ends



VXEFV PVC-U
VXEFA ABS

Easyfit 2-way ball valve with BSP parallel female threaded ends

d	DN	PN	L	Z	H	E	B	C	C_1	Z*** gms
1/2	15	16	15	60	82	54	49	64	20	73
3/4	20	16	16.3	60.4	91	63	62	78	23	82.4
1	25	16	19.1	71.8	103	72	71	87	27	89.8
1 1/4	32	16	21.4	84.2	120	85	82	102	30	103.2
1 1/2	40	16	21.4	88.2	139	100	92	109	33	121.2
2	50	16	25.7	109.6	174	118	110	133	39	147.6

Z*** For ABS sizes only.

PVC-U			ABS		
gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
175	H0 XEE B02	H0 XEF B02	170	H0 XEA B02	H0 XEB B02
260	H0 XEE B03	H0 XEF B03	252	H0 XEA B03	H0 XEB B03
365	H0 XEE B04	H0 XEF B04	354	H0 XEA B04	H0 XEB B04
565	H0 XEE B05	H0 XEF B05	548	H0 XEA B05	H0 XEB B05
795	H0 XEE B06	H0 XEF B06	771	H0 XEA B06	H0 XEB B06
1325	H0 XEE B07	H0 XEF B07	1285	H0 XEA B07	H0 XEB B07

LCE

Transparent Service Plug with tag holder

d	DN	Product Code
3/8"-1/2" - 16 -20	10-15	LCE020
3/4" - 25	20	LCE025
1" - 32	25	LCE032
1 1/4" - 40	32	LCE040
1 1/2" - 50	40	LCE050
2" - 63	50	LCE063

LSE

Label design and print kit

d	DN	Product Code
3/8"-1/2" - 16 -20	10-15	LSE020
3/4" - 25	20	LSE025
1" - 32	25	LSE032
1 1/4" - 40	32	LSE040
1 1/2" - 50	40	LSE050
2" - 63	50	LSE063

Connection to the System

easyfit System

Before proceeding with the installation, please read and familiarise yourself with these instructions.

1. Check that the pipes either side of the valve are axially aligned, in order to avoid mechanical stress on the threaded union joints.
2. Unscrew the union nuts (13 on p57) from the valve body and slide them onto the pipe.
3. Solvent weld or screw the valve end connectors (7 on p57) onto the pipe ends. For correct jointing see the relevant Durapipe material technical catalogues.
4. Position the valve between the two end connectors (Fig. 1) and screw the union nuts clockwise by hand until a resistance is felt; do not use keys or other tools which may damage the nut surface (Fig. 2).

Caution: when testing under high pressure levels, the "ADJUST" mark on the valve must be installed facing upstream.

5. Pull the handle (12 on p57) upwards to remove it from the valve and remove the transparent cover (1a on p57) (Fig. 3)
6. Turn the handle upside-down and insert it on the valve stem in order to match the gear of the handle with the gear of the nut (Fig. 4-5)
7. Turn the handle ANTICLOCKWISE to fully tighten the nut (Fig. 5). On the handle the direction of rotation to tighten (TIGHTEN) and to loosen (UNTIGHTEN) the nuts is shown (Fig. 6). Usually, if the pipeline is correctly aligned, one rotation could be enough to tighten the nut.
8. Repeat step 7 for the other union nut.
9. Push in the transparent 'service plug' (1a on p57) into the handle, aligning the two male connections one large and one small into the matching slots in the handle.
10. Fit the handle (12 on p57) onto the valve stem (3 on p57).

Note: the first time the Easyfit system is used, it is advised to try to loosen the nut just tighten, by hand, in order to understand the efficiency of the mechanism: a low input torque on the handle generates a much higher output torque than simple hand tightening. It is also possible, using the Easytorque kit, supplied by Durapipe (see page 54), to do the nut tightening with the supplied Torque wrench, so as to apply the correct force on the thermoplastic threads according to the installation guideline supplied with the Easytorque kit.

Fig.1

Fig.2

Fig.3

Fig.4

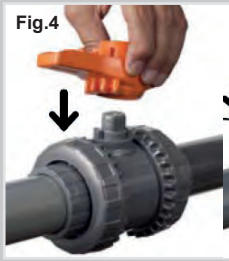


Fig.5

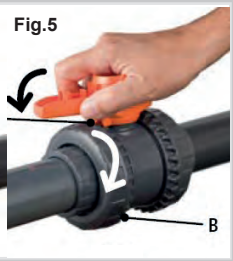


Fig.6

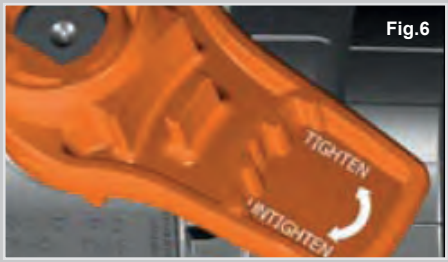
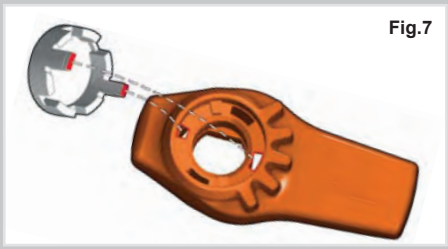
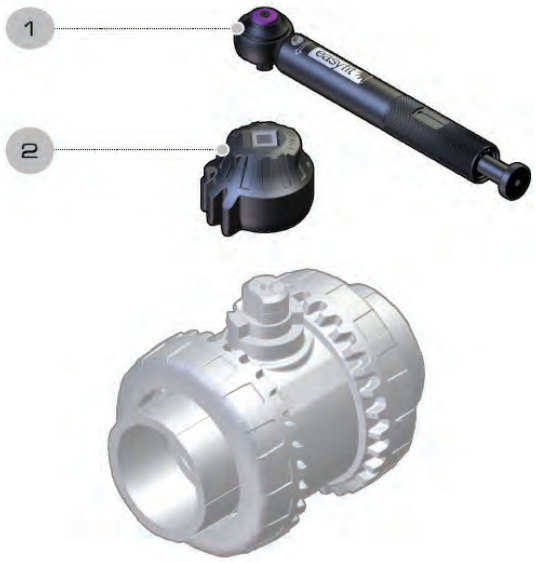


Fig.7



Easytorque Kit

1. Torque wrench for use with Easyfit ball valves from $^1/_2$" - d20 to 2" - d63.
2. Insert for attaching the torque wrench to the valve for tightening the union nuts.
   The inserts are manufactured from PA50 material with sintered steel bush inserts.
3. Insert for attaching the torque wrench to the valve for adjusting the ball seat carrier.
   The inserts are manufactured from PA50 material with sintered steel bush inserts.



The Easytorque kit allows the tightness of the union nuts and ball seat carrier to be set to the correct manufacturers recommended torque settings. Optimising the operation efficiency of the valve. It also avoids damaging the valve components by the use of incorrect tools.

d	DN	Product Code
$^1/_2$" - 16-20 to 2" - 63	10 - 15 to 50	KET01

Disassembly

1. Isolate the valve from the flow and drain down the pipeline.
2. Unscrew both the union nuts (13 on p57) it is recommended to utilise the Easyfit mechanism using the handle to loosen the nuts (see page 53) and remove the valve body from the line.
3. Before disassembling hold the valve in a vertical position and open the valve to 45º, to drain any residual fluid inside the valve. Catch the fluid in a suitable container.
4. Close the valve, then remove the handle (12 on p57) (Fig. 8) and insert the 'prongs' on the underside of the handle into the slots on the ball seat carrier (8 on p57) Rotate the support anti-clockwise (Fig. 9) and remove the seat carrier. Then remove the ball.
5. Press the stem out through the valve body (4 on p57).
6. All the O-rings (2, 6 & 10 on p57) and ball seats (9 on p57) can be removed from their grooves, as shown in the exploded view.

Fig.8

Fig.9

Assembly

1. All the O-rings (2, 6 & 10 on p57) and ball seats (9 on p57) can be fitted into their grooves, as shown in the exploded view.
2. Insert the stem (3 on p57) from inside the valve body (4 on p57).
3. Insert the ball (5 on p57).
4. Locate the ball seat carrier (8 on p57) and tighten clockwise using the tool moulded into the handle (12 on p57). ideally use the Easytorque kit to ensure the seat is tightened to the recommended torque.
5. Position the valve between the end connectors (7 on p57) and tighten the union nuts (13 on p57) with the easyfit mechanism built into the valve handle (12 on p57). Taking care that the socket O-rings remain in their grooves. Ideally use the Easytorque kit to ensure that the union nuts are tightened to the recommended torque.
6. Press the handle (12 on p57) onto the valve stem (3 on p57).

Note: When assembling the valve components, it is advisable to lubricate the O-rings. Do not use mineral oils as they attack EPDM rubber.

Customise the VXE Easyfit

The VXE Easyfit valve is equipped with the LCE water resistant set housed in the valve handle. It is made up from a transparent PVC service plug (1a on p57) and a white circular tag (14 on p57), Durapipe or FIP branded on one side depending on material. The tag is fitted into the transparent service plug and can be removed for self labelling on its reverse blank side. To affix the label, printed with the EASYFIT software, see below:

1. Remove the handle (12 on p57) from the valve body (4 on p57) and remove the transparent service plug (1a on p57) (Fig. 10).
2. Remove the tag (14 on p57) (Fig. 11).
3. Affix the pre-printed self-adhesive label onto the tag (14 on p57) aligning the tabs on the label and tag.
4. Insert the Tag (14 on p57) into the transparent service plug (1a on p57) ensuring it 'clicks' into place.
5. Insert the transparent service plug (1a on p57) into the handle (12 on p57) matching the two wedges (wide and narrow) with the corresponding slots in the handle (Fig. 7 on p53).

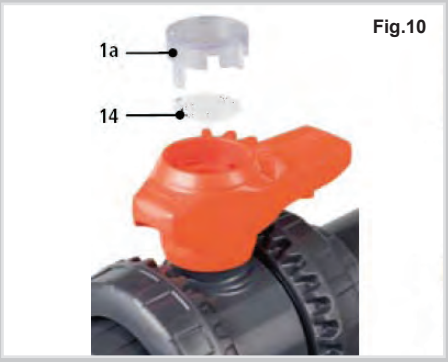
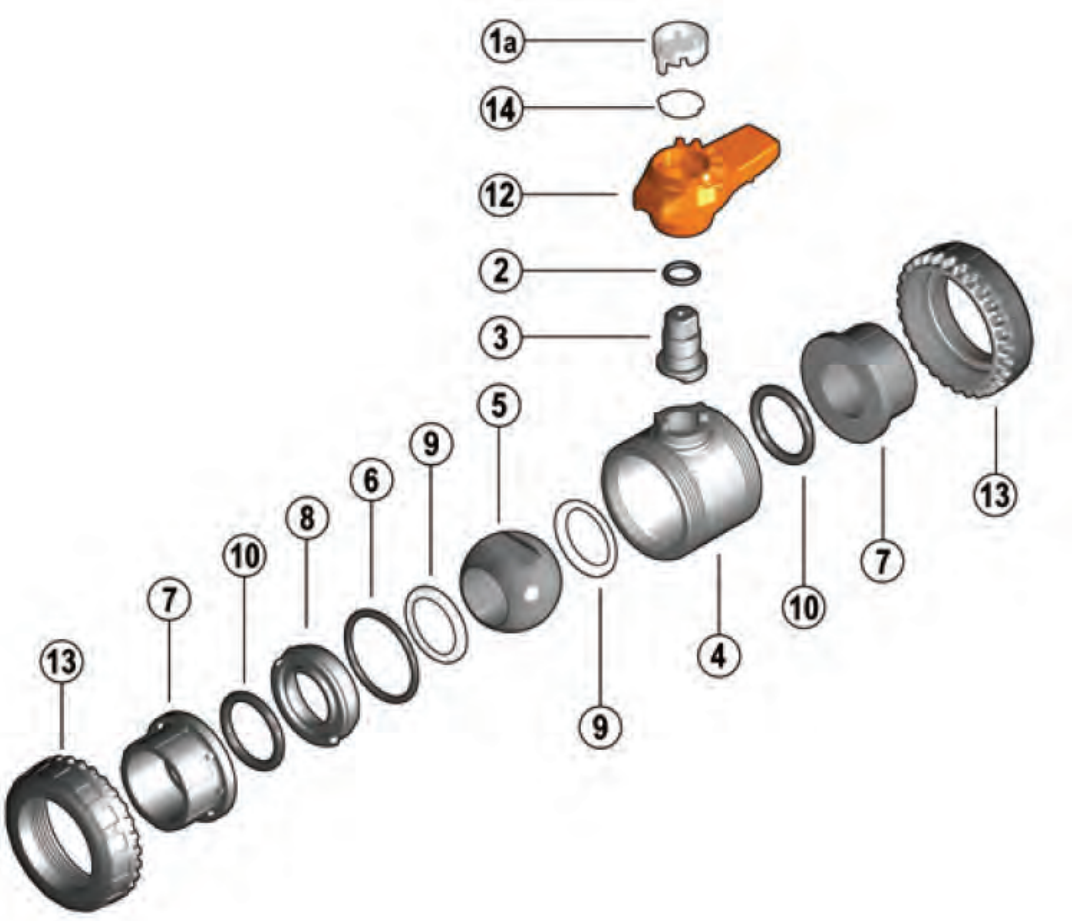


Fig.10


Fig.11


Fig.12

Note: When assembling the valve components, it is advisable to lubricate the O-rings. Do not use mineral oils as they attack EPDM rubber.



Position	Components	Material
1a	Transparent service plug	PVC
2*	Stem O-ring	EPDM/FPM
3	Stem	Valve Material
4	Body	Valve Material
5	Ball	Valve Material
6*	Radial seal O-ring	EPDM/FPM
7	End connector	Valve Material
8	Ball seat carrier	Valve Material
9*	Ball seat	PTFE
10	Socket seal O-ring	EPDM/FPM
12	Handle	HIPVC
13	Union nut	Valve Material
14	Tag	PVC

*Spare Parts

Tel: +44 (0)1543 471680 Fax: +44 (0)1543 471682

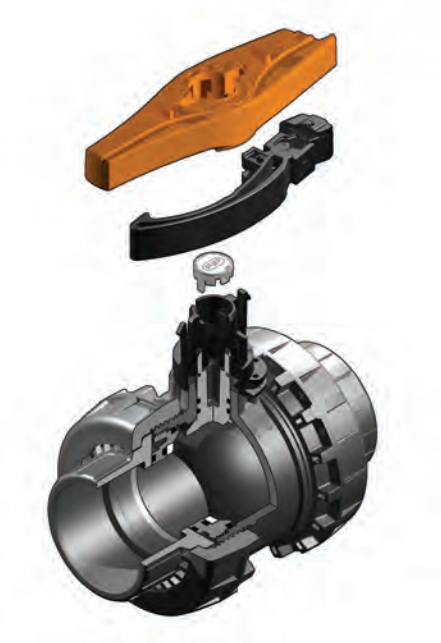
VXE Easyfit® 2-way Ball Valve (DN65 - DN100)

The **VXE Easyfit ball valve**, is a fully unionised valve that stands up to the most severe industrial applications.

- FIP has extended the VXE Easyfit ball valve range to cover the larger sizes, the innovative true union installation with union nut rotation control a new advanced method of installation
- Size range from 2½" / d75mm up to 4" / d110mm
- Pressure rating: Maximum working pressure: 16 bar at 20°C
- New patented **Easyfit** system: the innovative quick release multifunctional handle, allows the installer to easily tighten nuts and adjust the ball seat carrier
- Innovative handle composes of a central hub coupled to the valve stem which houses the transparent module for self branding, the double spoke handle that can be released from the hub with a simple operation and by utilising a hooked insert housed in the handle, is transformed into a key for tightening union nuts
- Easyfit custom labelling system
- In the closed position the pipeline can be disconnected downstream from the valve without leakage
- Threaded insert block for the adjustment of the ball seal
- Handle can be locked with the installation of a padlock
- The valve is available in PVC-U and Corzan C-PVC and is suitable for conveying a variety of chemicals, foodstuffs and drinking water and meets the necessary standards and regulations
- For more information, please visit our website **www.durapipe.co.uk**

Legend

d	Nominal outside diameter
DN	Nominal internal diameter in mm
R	Nominal size or the thread in inches
PN	Nominal pressure in bar (max. working pressure at 20°C - water)
gms	Weight in grams
PVC-U	Polyvinyl chloride unplasticised
C-PVC	Polyvinyl chloride chlorinated
HIPVC	High impact PVC
PE	Polyethylene
PTFE	Polytetrafluoroethylene
PP-GR	polypropylene fibre glass reinforced
EPDM	Ethylene Propylene Diene Monomer (M-class) rubber
FPM	Fluorocarbon rubber
s	Wall thickness (mm)
SDR	Standard dimension ratio = d/s



Dimensions and Standards

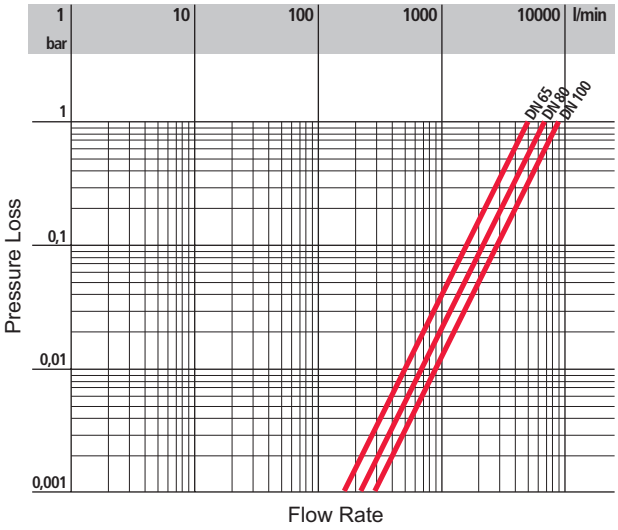
Imperial
The Imperial System is manufactured in accordance with the relevant British Standards: BS 5392 fittings.

Metric
The Metric System is manufactured generally in accordance with the relevant International Standards: ISO 15493, KIWA 49 and 549, DIN 8062 and 8063.

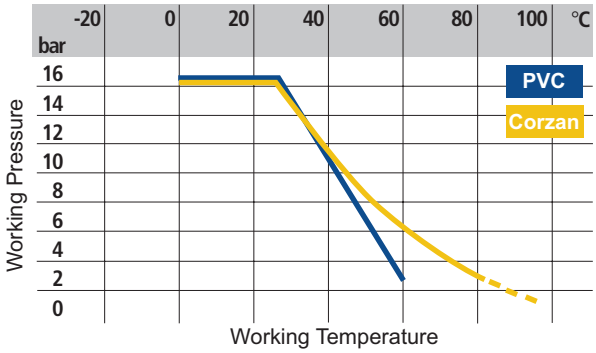
BSP Thread
Threaded fittings conform to the requirements of BS 21/DIN 2999/ISO7. Socket dimensions of metric fittings for solvent welding comply with ISO/DIS 727-1.

Interchangeability
Components in the imperial and metric ranges are not interchangeable.

Technical Data



Pressure loss chart.



Pressure/temperature rating for water and harmless fluids to which the material is RESISTANT. In other cases a reduction of the PN is required (25 years with safety factor).

DN	65	80	100
Nm (PN16)	20-25	25-30	50-55
Nm (PN10)	15-20	20-25	35-40
Nm (PN6)	15-20	15-20	20-25

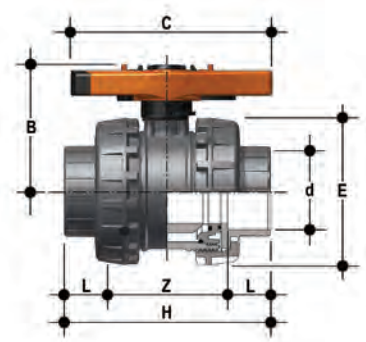
Torque.

DN	65	80	100
k_{v100}	5000	7000	9400

Flow coefficient k_{v100}

k_{v100} is the number of litres per minute of water at a temperature of 20ºC that will flow through a valve with a one bar pressure differential at a specified rate. The k_{v100} values shown in the table are calculated with the valve fully open.

BS Series Female Ends

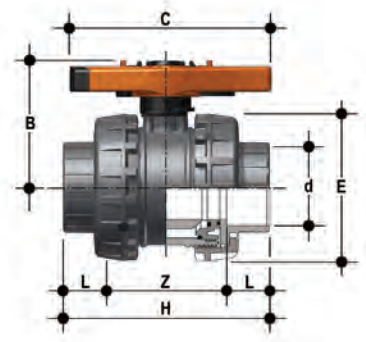


VXELV PVC-U

Easyfit 2-way ball valve with BS series female ends for solvent welding

										PVC-U		
d	DN	PN	L	Z	H	E	B	C	C_1	gms	EPDM Code	FPM Code
$2^1/_2$	65	16	44	123	211	157	142	214	115	2750	H0 XEE 312	H0 XEF 312
3	80	16	51	146	248	174	151	239	126	3432	H0 XEE 109	H0 XEF 109
4	100	16	63	157	283	212	174.5	270	145	5814	H0 XEE 110	H0 XEF 110

Metric Series Female Ends



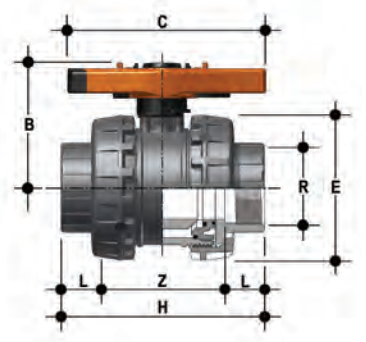
VXEIV PVC-U

VXEIC Corzan

Easyfit 2-way ball valve with Metric series female ends for solvent welding

										PVC-U			Corzan		
d	DN	PN	L	Z	H	E	B	C	C_1	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
75	65	16	44	123	211	157	142	214	115	2750	H0 XEE 312	H0 XEF 312	2998	H0 XEJ 312	H0 XEK 312
90	80	16	51	146	248	174	151	239	126	3432	H0 XEE 313	H0 XEF 313	3741	H0 XEJ 313	H0 XEK 313
110	100	16	63	161	283	212	174.5	270	145	5814	H0 XEE 314	H0 XEF 314	6337	H0 XEJ 314	H0 XEK 314

BS Series Female Ends



VXEFV PVC-U

Easyfit 2-way ball valve with BSP parallel female threaded ends

										PVC-U		
d	DN	PN	L	Z	H	E	B	C	C_1	gms	EPDM Code	FPM Code
$2^1/_2$	65	16	30.2	150.6	211	157	142	214	115	2750	H0 XEE B08	H0 XEF B08
3	80	16	33.3	181.4	248	174	151	239	126	3432	H0 XEE B09	H0 XEF B09
4	100	16	39.3	204.4	283	212	174.5	270	145	5814	H0 XEE B10	H0 XEF B10

Accessories

LCE

Transparent Service Plug with tag holder

d - R	DN	Product Code
75 - $2^1/_2$"	65	LCE040
90 - 3"	80	LCE040
110 - 4"	100	LCE040

LSE

Label design and print kit

d - R	DN	Product Code
75 - $2^1/_2$"	65	LSE040
90 - 3"	80	LSE040
110 - 4"	100	LSE040

PSE

PVC-U Stem extension

d	DN	A	A_1	B	B_{min}	Product Code
75 - $2^1/_2$"	65	76	63	159	364	PSE090
90 - 3"	80	76	63	166	371	PSE090
110 - 4"	100	76	63	186	433	PSE110

Connection to the System

easyfit System

Before proceeding with the installation, please read and familiarise yourself with these instructions.

1. Check the pipes to be connected to the valve are axially aligned in order to avoid mechanical stress on the threaded union joints.
2. Unscrew the union nuts (13 on p66) from the valve body (7 on p66) and slide them onto the pipe.
3. Solvent weld or screw the valve end connectors (12 on p66) onto the pipe ends.
4. Position the valve between the two end connectors (Fig. 1).

Caution: When testing under high pressure levels, the "ADJUST" mark on the valve must be installed facing upstream.

5. Fit the nuts on the valve body and manually start the union nuts tightening clockwise until a resistance to the rotation is perceived. To complete the tightening, quick release the multifunctional Easyfit® handle (2 on p66) by applying a pressure towards the centre on the engagement harpoons of the central hub (15 on p66) (Fig. 3 and 4).
6. Remove the hooked insert (1 on p66) housed inside the handle (Fig. 5), turn it over and engage in the underside of the handle (Fig. 6).
7. Engage the tool (7 on p66) on the outer profile of the ring nut (Fig. 7) obtaining a firm hold that allows you to perform the adequate torque without damaging the ring nut (Fig. 8).
8. Repeat point 7 for the other nut.
9. When the tightening is completed, remove the hooked insert and put it back in its seat within the handle (Fig. 9).
10. Replace the Easyfit multifunctional tool in the the handle on the central hub, applying a gentle downward pressure until the two hooks are engaged. Make sure to match the two internal grooves of the central hole of the handle with the two ribs present on one side of the hub.

    The valve VXE is equipped with a simple system to protect the system from tampering, by the insertion of a padlock.

Warning: For safety reasons please contact technical services when using volatile liquids such as hydrogen peroxide (H_2O_2) and Sodium Hypochlorite (NaClO).
These liquids may vaporise causing a dangerous pressure increase in the dead space between the ball and the body.
- It is important to avoid rapid closure of valves to eliminate the possibility of water hammer causing damage to the pipeline.


Fig.1


Fig.3


Fig.4


Fig.5


Fig.6


Fig.7


Fig.8


Fig.9

Disassembly

1. Isolate the valve from the line (release the pressure and empty the pipeline).
2. Unscrew both union nuts (13 on p66) (it is suggested to exploit the Easyfit mechanism located on the nuts employing the handle as a tool. See Easyfit section in this sheet) and drop the valve body out of the line.
3. Before disassembling, hold the valve in a vertical position and open it 45° to drain any possible liquid left; catch the medium in appropriate vessel.
4. After turning the valve into the open position, remove the ball seat support (11 on p66) using the multifunction Easyfit handle. Release the handle from the central hub (Fig. 12), enter the two upper protrusions on the upper side of the handle into the appropriate slots of the seat carrier (11 on p66) and proceed unscrewing and extracting it with an anticlockwise rotation (Fig. 13).
5. Push the ball (6 on p66) from the opposite side to the “ADJUST” marking, taking care not to score it, then remove it.
6. Remove the central hub (15 on p66) strongly pulling from the valve stem (4 on p66). Push inward on the stem to remove it from the valve body then remove the antifriction disc (16 on p66).
7. Remove O-rings (3, 8, 9 & 10 on p66) and the ball seat seals (5 on p66) by pulling it from their seats, as shown in the exploded view.


Fig.12


Fig.13

Assembly

1. All the O-rings (3, 8, 9 & 10 on p66) must be inserted in their grooves as shown in the exploded view.
2. Place the anti-friction disc (16 on p66) on the stem (3 on p66) and insert it from inside the valve body (4 on p66).
3. Insert the ball seat carriers (5 on p66) in their seats inside the body valve and the support (11 on p66).
4. Insert the ball (6 on p66) and turn it to the closed position.
5. Insert the ball seat carrier (11 on p66) in the body valve, screwing it clockwise using the Easyfit multifunctional handle.
6. Place the central hub onto the stem, applying a firm pressure down and enter the key inside the hub in one of the slots on the stem.
7. Insert the valve between the end connectors (12 on p66) and tighten clockwise the union nuts (13 on p66) using the Easyfit multifunctional handle, taking care the socket seal O-rings (10 on p66) do not come out of their seats.
8. Replace the Easyfit multifunctional handle, placing the handle on the central hub, pushing slightly downward until the complete locking of the hooks. Make sure that the two grooves inside the central hole match with the two ribs on one side of the hub.

Note: When assembling the valve components, it is advisable to lubricate the O-rings. Do not use mineral oils as they attack EPDM rubber.

Customise VXE Easyfit

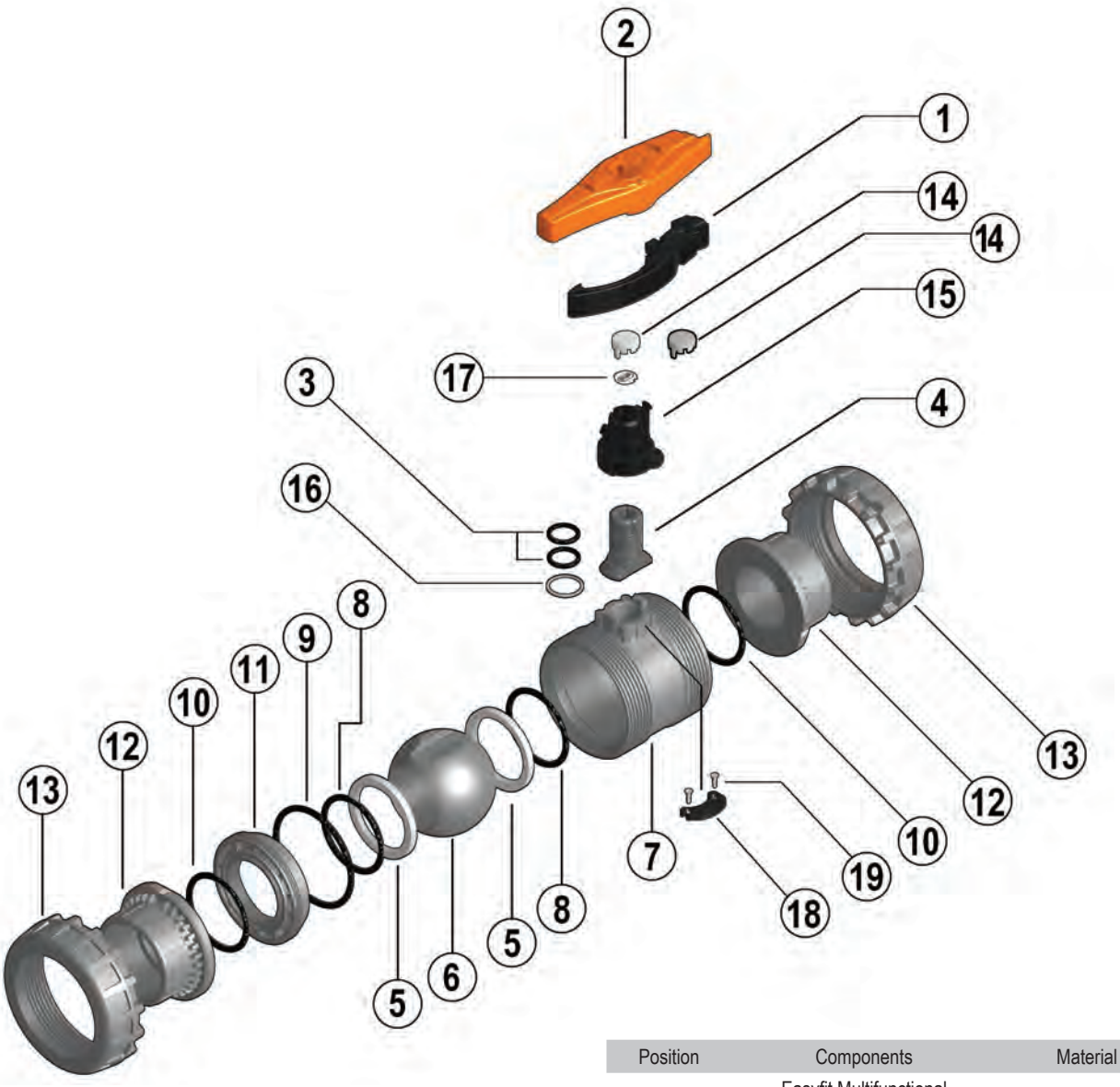
VXE Easyfit valve is equipped with the water resistant LCE set, housed in the handle. It's made from a plastic transparent PVC service plug (14 on p66) and a white circle tag holder (17 on p66), FIP branded on one side (Fig. 14). The tag holder (17 on p66) is embedded in the transparent plug (14 on p66) and can be easily removed to be used for self labelling on its blank side. To fix the label, previously printed with the Easyfit software, see the following instructions:

1. Release the handle from the central hub (15 on p66) and remove the transparent plug (14 on p66).
2. Remove the support (17 on p66) (Fig.15).
3. Lay upon the adhesive label on the support (17 on p66), aligning the flaps of the label and support.
4. Insert the support (17 on p66) into the transparent plug (14 on p66) to protect the label from weather exposure.
5. Push down the transparent plug (14 on p66) into the central hub (15 on p66) matching the two wedges (wide and narrow) with the corresponding holes.

Fig.14

Fig.15

Fig.16



Position	Components	Material
1	Easyfit Multifunctional Handle Hooked Insert	PP-GR
2	Easyfit Multifunctional Handle	HIPVC
3*	Stem O-ring	EPDM, FPM
4	Stem	PVC-C
5*	Ball Seat	PTFE
6*	Ball	PVC-C
7	Body	PVC-C
8*	Ball Seat O-ring	EPDM, FPM
9*	Radial Seal O-ring	EPDM, FPM
10*	Socket Seal O-ring	EPDM/FPM
11	Support for Ball Seat	PVC-C
12	End Connector	PVC-C
13	Union Nut	PVC-C
14	Transparent Service Plug	PVC
15	Central Hub	HIPVC
16*	Friction Reducing Bush	PTFE
17	Tag Holder	PVC-U
18	Tamperproof Plate	HIPVC
19	Self-tapping Screw	Stainless Steel

*Spare Parts

VKR DualBlock® Metering Ball Valve (DN10 - DN50)

The **VKR DualBlock® Metering Ball Valve** combines VKD Ball Valve reliability, with a new accurate flow regulation function, suitable for a wide range of industrial applications.

- Size Range: $^{3}/_{8}$" / d16mm up to 2" / d63mm
- Pressure Rating: Maximum working pressure: 16 bar @ 20ºc
- Patented Ball Design: Providing linear flow regulation throughout the range of operation, with low pressure loss
- Fitted with a graduated positioning indicator at 5º intervals, for accurate reading and quick adjustment
- Patented **DualBlock® System**: The DualBlock addition prevents the locking nuts working loose even under the most extreme operating conditions: i.e. vibration or thermal expansion
- Patented **SeatStop®** Design: Allowing micro adjustments to be made to the ball seats and 'take up' of axial pipe loads, which can be done effectively without the need to drain the system.
- Easily Removable Valve Body: Allowing easy access when changing valve seals and ball seats without any requirement for additional tooling
- The pipeline downstream of the valve can be disconnected with the valve in the closed position eliminating any leakages
- VKD Style handle: Ergonomically designed handle with removable tool to tighten union nuts and adjust the ball seat carrier as and when required
- Possibility to fit an electric positioning actuator with a **Powerquick®** mounting kit with standard drillings (ISO 5211 F03, F04, F05, F07) see P207.
- For more information, please visit our website **www.durapipe.co.uk**

Legend

d	Nominal outside diameter of the pipe in mm
DN	Nominal internal diameter in mm
R	Nominal size of threads in inches
PN	Nominal pressure in bar (max. working pressure at 20°C)
g	Weight in grams
U	Number of holes
s	Wall thickness (mm)
SDR	Standard dimension ratio = d/s
PVC-U	Unplasticised Polyvinyl chloride
PVC-C	Polyvinyl chloride chlorinated
HIPVC	High impact PVC
EPDM	Ethylene Propylene rubber
FPM (FKM)	Vinylidene fluoride rubber
PTFE	Polytetrafluoroethylene
PE	Polyethylene
SP	Flange Thickness

Dimensions and Standards

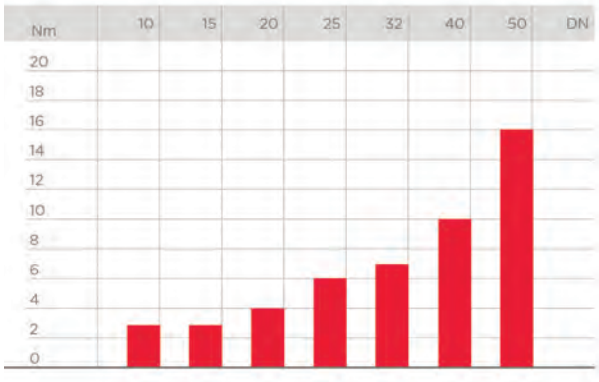
Imperial
The Imperial System is manufactured in accordance With the relevant British Standards: BS 5392 fittings

Metric
The Metric System is manufactured generally in Accordance with the relevant International Standards: ISO 15493, KIWA 49 and 549, DIN 8062 and 8063

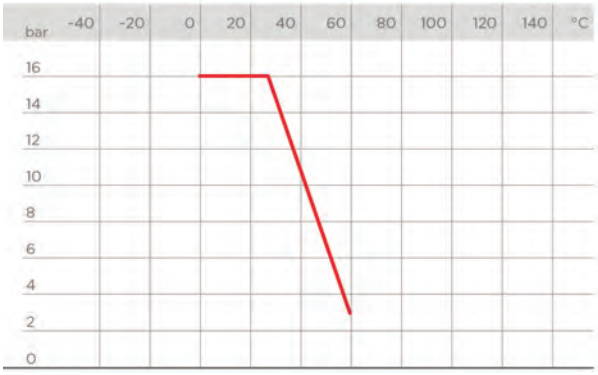
BSP Thread
Threaded fittings conform to the requirements of BS 21/DIN 2999/ISO7. Socket dimensions of metric fittings for solvent welding comply with ISO/DIS 727-1.

Interchangeability
Components in the imperial and metric ranges are not interchangeable

Technical Data

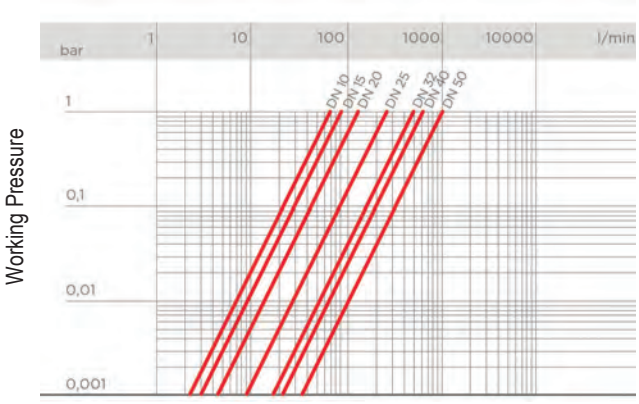


Torque at maximum working pressure @ 16Bar

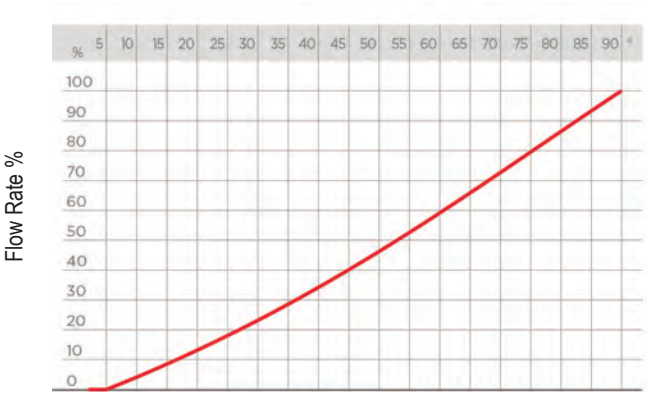


Working Temperature

Pressure/temperature rating for water and harmless fluids to which the material is RESISTANT. In other cases a reduction of the PN is required. (25 years with safety factor).



Relative Flow Chart, Flow Opening



Valve Opening Angle

DN	15	20	25	32	40	50
k_{v100}	88	135	256	478	592	1068

Flow coefficient k_{v100}

k_{v100} is the number of litres per minute of water at a temperature of 20ºC that will flow through a valve with a one bar pressure differential at a specified rate. The k_{v100} values shown in the table are calculated with the valve fully open.

Metering Flow Addition

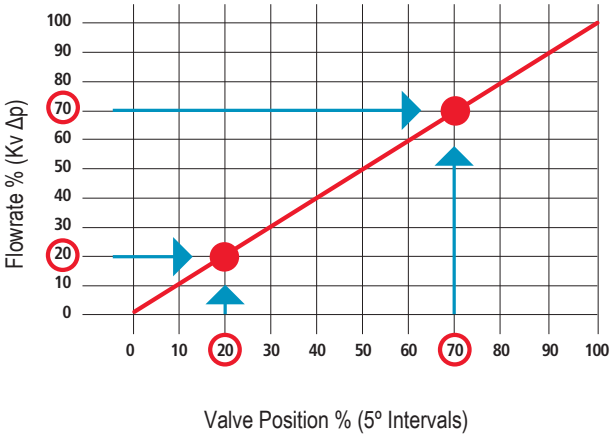
The **VKR Metering Ball Valve** combines VKD Ball Valve reliability, with a new accurate flow regulation function, Suitable for a wide range of industrial applications.

- The VKR features the innovative Metering Control Indicator **(FIG 1)**. The indicator can be used to set flow rate at 5º intervals providing greater measure of flow control
- The patented "fin-shaped" ball design **(FIG 2)** helps provide market leading linear flow regulation throughout the range of operation and guarantees minimal pressure loss
- The VKR Metering Ball Valve is unique in its ability to provide excellent flow regulation compared with that of a standard ball, diaphragm valve or other metering ball valves currently on the market. Where the flow is usually greater or smaller at the point of open or close, the VKR has provides the excellent flow regulation throughout the full operating cycle **(FIG 3)**

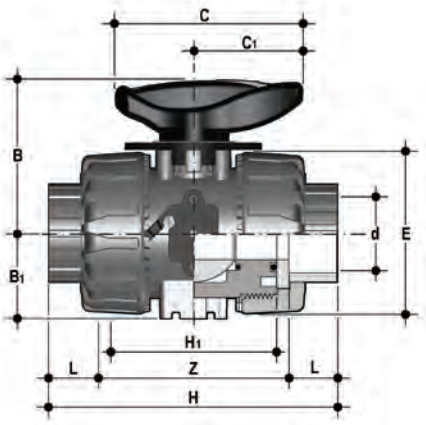
Fig.1

Fig.2

Fig.3



BS Series Female Ends



VKRLV PVC-U
VKRLA ABS

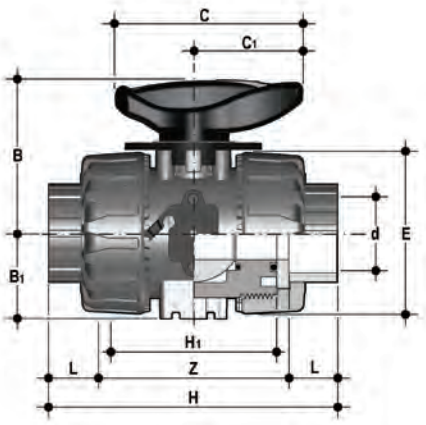
VKR Metering Ball Valve – BS series female ends for solvent welding

d	DN	PN	L	Z	H	H_1	E	B	B_1	C	C_1
3/8	10	16	16.5	70	103	65	54	54	29	67	40
1/2	15	16	16.5	70	103	65	54	54	29	67	40
3/4	20	16	19	77	115	70	65	65	34.5	85	49
1	25	16	22.5	83	128	78	73	70	39	85	49
1 1/4	32	16	26	94	146	88	86	83	46	108	64
1 1/2	40	16	30	104	164	91	98	89	52	108	64
2	50	16	36	127	199	111	122	108	62	134	76

	PVC-U			ABS		
d	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
3/8	205	H0 MBE 101	H0 MBF 101	205	H0 MBA 101	H0 MBB 101
1/2	205	H0 MBE 102	H0 MBF 102	205	H0 MBA 102	H0 MBB 102
3/4	335	H0 MBE 103	H0 MBF 103	335	H0 MBA 103	H0 MBB 103
1	433	H0 MBE 104	H0 MBF 104	433	H0 MBA 104	H0 MBB 104
1 1/4	703	H0 MBE 105	H0 MBF 105	703	H0 MBA 105	H0 MBB 105
1 1/2	925	H0 MBE 106	H0 MBF 106	925	H0 MBA 106	H0 MBB 106
2	1577	H0 MBE 107	H0 MBF 107	1577	H0 MBA 107	H0 MBB 107

Metric Series Female Ends

VKRIV PVC-U
VKRIA ABS



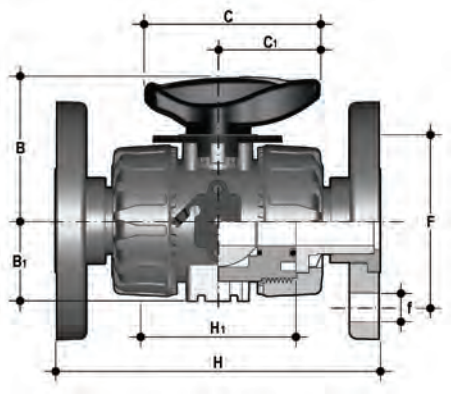
VKR Metering Ball Valve – Metric female ends for solvent welding

d	DN	PN	L	Z	H	H_1	E	B	B_1	C	C_1
16	10	16	16	71	103	65	54	54	29	67	40
20	15	16	16	71	103	65	54	54	29	67	40
25	20	16	19	77	115	70	65	65	34.5	85	49
32	25	16	22	84	128	78	73	70	39	85	49
40	32	16	26	94	146	88	86	83	46	108	64
50	40	16	31	102	164	91	98	89	52	108	64
63	50	16	38	123	199	111	122	108	62	134	76

	PVC-U			ABS		
d	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
16	215	H0 MBE 305	H0 MBF 305	215	H0 MBA 305	H0 MBB 305
20	215	H0 MBE 306	H0 MBF 306	215	H0 MBA 306	H0 MBB 306
25	330	H0 MBE 307	H0 MBF 307	330	H0 MBA 307	H0 MBB 307
32	438	H0 MBE 308	H0 MBF 308	438	H0 MBA 308	H0 MBB 308
40	493	H0 MBE 309	H0 MBF 309	493	H0 MBA 309	H0 MBB 309
50	925	H0 MBE 310	H0 MBF 310	925	H0 MBA 310	H0 MBB 310
63	1577	H0 MBE 311	H0 MBF 311	1577	H0 MBA 311	H0 MBB 311

Flanged Ends to BS EN1092-1 PN 10/16

VKROV PVC-U
VKROA ABS

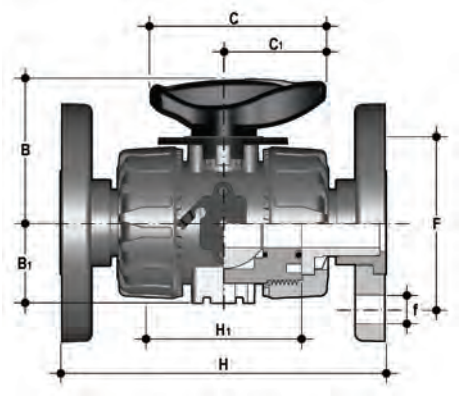


VKR Metering Ball Valve with flanged ends, to BS EN1092-1 PN 10/16

d	DN	PN	B	B_1	C	C_1	F	H	H_1	U	f
1/2	15	16	54	29	67	40	65	130	65	4	14
3/4	20	16	65	34.5	85	49	75	150	70	4	14
1	25	16	69.5	39	85	49	85	160	78	4	14
1 1/4	32	16	82.5	46	108	64	100	180	88	4	18
1 1/2	40	16	89	52	108	64	110	200	93	4	18
2	50	16	108	62	134	76	125	230	111	4	18

	PVC-U			ABS		
d	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
1/2	375	H0 MBE F02	H0 MBF F02	375	H0 MBA F02	H0 MBB F02
3/4	590	H0 MBE F03	H0 MBF F03	590	H0 MBA F03	H0 MBB F03
1	713	H0 MBE F04	H0 MBF F04	713	H0 MBA F04	H0 MBB F04
1 1/4	1108	H0 MBE F05	H0 MBF F05	1108	H0 MBA F05	H0 MBB F05
1 1/2	1485	H0 MBE F06	H0 MBF F06	1485	H0 MBA F06	H0 MBB F06
2	2347	H0 MBE F07	H0 MBF F07	2347	H0 MBA F07	H0 MBB F07

Flanged Ends to ANSI 150



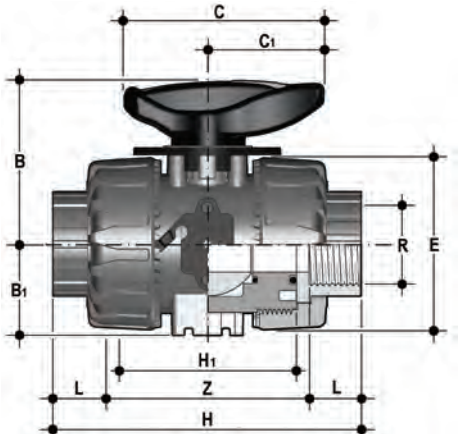
VKROAV PVC-U

VKR Metering Ball Valve with flanged ends, to ANSI 150

d	DN	PN	B	B_1	C	C_1	F	H	H_1	U	f
1/2	15	16	54	29	67	40	65	130	65	4	14
3/4	20	16	65	34.5	85	49	75	150	70	4	14
1	25	16	69.5	39	85	49	85	160	78	4	14
1 1/4	32	16	82.5	46	108	64	100	180	88	4	18
1 1/2	40	16	89	52	108	64	110	200	93	4	18
2	50	16	108	62	134	76	125	230	111	4	18

	PVC-U		
d	gms	EPDM Code	FPM Code
1/2	375	H0 MBE X02	H0 MBF X02
3/4	590	H0 MBE X03	H0 MBF X03
1	713	H0 MBE X04	H0 MBF X04
1 1/4	1108	H0 MBE X05	H0 MBF X05
1 1/2	1485	H0 MBE X06	H0 MBF X06
2	2347	H0 MBE X07	H0 MBF X07

BSP Threaded Socket Ends



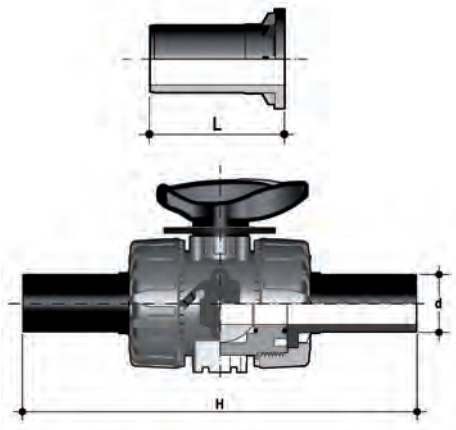
VKRNV PVC-U
VKRNA ABS

VKR Metering Ball Valve with BSP parallel female threaded ends

d	DN	PN	L	Z	H	H_1	E	B	B_1	C	C_1
3/8	10	16	16.5	70	103	65	54	54	29	67	40
1/2	15	16	16.5	70	103	65	54	54	29	67	40
3/4	20	16	19	77	115	70	65	65	34.5	85	49
1	25	16	22.5	83	128	78	73	70	39	85	49
1 1/4	32	16	26	94	146	88	86	83	46	108	64
1 1/2	40	16	30	104	164	91	98	89	52	108	64
2	50	16	36	127	199	111	122	108	62	134	76

	PVC-U			ABS		
d	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
3/8	205	H0 MBE B01	H0 MBF B01	205	H0 MBA B01	H0 MBB B01
1/2	205	H0 MBE B02	H0 MBF B02	205	H0 MBA B02	H0 MBB B02
3/4	335	H0 MBE B03	H0 MBF B03	335	H0 MBA B03	H0 MBB B03
1	433	H0 MBE B04	H0 MBF B04	433	H0 MBA B04	H0 MBB B04
1 1/4	703	H0 MBE B05	H0 MBF B05	703	H0 MBA B05	H0 MBB B05
1 1/2	925	H0 MBE B06	H0 MBF B06	925	H0 MBA B06	H0 MBB B06
2	1577	H0 MBE B07	H0 MBF B07	1577	H0 MBA B07	H0 MBB B07

Accessories

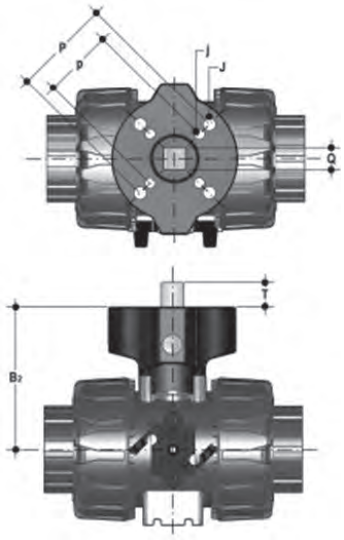


CVDE

End connector in PE100, long spigot, for electrofusion or butt welding (SDR11)

d	DN	L	H	Product Code
20	15	55	175	HZ PEE M06
25	20	70	210	HZ PEE M07
32	25	74	226	HZ PEE M08
40	32	78	243	HZ PEE M09
50	40	84	261	HZ PEE M10
63	50	91	293	HZ PEE M11

End connectors also available in PP, please speak to the Durapipe Valve Department for details.



PowerQuick

The Valve can be easily actuated, pneumatic or electric by Durapipe Valve Department, The GR- PP mounting bracket (with standard ISO 5211 drillings) can be supplied for self-actuation and/or retrofitting of actuators to installed valves

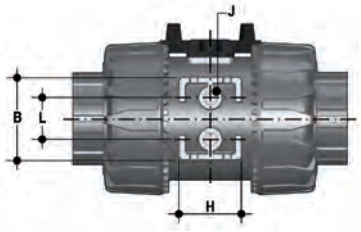
d	DN	B_2	Q	T	P x J	P x J	Product Code
3/8 - 16	10	58	11	12	F03 x 5.5	F04 x 5.5	KTPQCPEF
1/2 - 20	15	58	11	12	F03 x 5.5	F04 x 5.5	KTPQCPEF
3/4 - 25	20	73.5	11	12	F03 x 5.5	F04 x 6.5	KTPQCPGG
3/4 - 25	20	73.5	11	12	–	F04 x 6.5	KTPQCPGG
1 - 32	25	74	11	12	F03 x 5.5	F04 x 6.5	KTPQCPHH
1 - 32	25	74	11	12	–	F04 x 5.5	KTPQCPH4
1 1/4 - 40	32	97	14	16	F05 x 6.5	F07 x 8.5	KTPQCPII
1 1/2 - 50	40	104	14	16	F05 x 6.5	F07 x 8.5	KTPQCPJJ
2 - 63	50	114	14	16	F05 x 6.5	F07 x 8.5	KTPQCPLL

Valve Bracketing and Supporting

In certain applications manual or actuated valves are required to be supported by hangers or anchors. Supports must be capable of withstanding the valve weight as well as the stresses transmitted through the valve body during service operations. All VKR valves are provided with an integrated support on the valve body for simple anchoring, this can be achieved by using threaded inserts available in brass or stainless steel, M4 for sizes $^{3}/_{8}$" – d16 and M6 for sizes $1^{1}/_{4}$" d40 to 2" – d63. Caution must be taken when using these support systems as the ball valve will now act as a pipe anchor and all thermal end loads developed by adjacent pipes could damage the valve components under conditions of large changes in operating temperature.

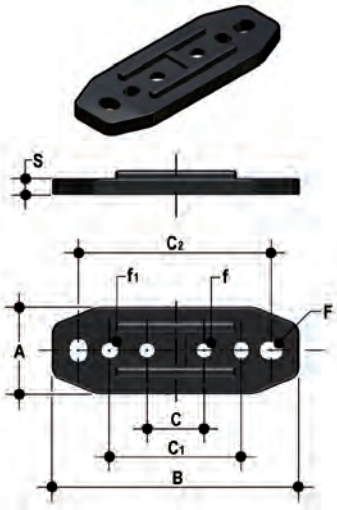
Systems should therefore be designed to accommodate pipe expansion and contraction. Please see the **Durapipe Technical Catalogue Range** for further information on thermal expansion and pipework design.

For wall or "blind" installations, the PMKD mounting plate can be used. The plate must be fixed to the base of the valve prior to fixing the valve in situ.



d	DN	B	H	L	J*
$^{3}/_{8}$ - 16	10	31.5	27	20	M4 x 6
$^{1}/_{2}$ - 20	15	31.5	27	20	M4 x 6
$^{3}/_{4}$ - 25	20	40	30	20	M4 x 6
1 - 32	25	40	30	20	M4 x 6
$1^{1}/_{4}$ - 40	32	50	35	30	M6 x 10
$1^{1}/_{2}$ - 50	40	50	35	30	M6 x 10
2 - 63	50	60	40	30	M6 x 10

*Fitted with Brass or Stainless Steel inserts.



PMKD

Mounting plate

d	DN	A	B	C	C_1	C_2	F	f	f_1	S	Product Code
$^{3}/_{8}$ - 16	10	30	86	20	46	67.5	6.5	5.3	5.35	5	PMKD1
$^{1}/_{2}$ - 20	15	30	86	20	46	67.5	6.5	5.3	5.5	5	PMKD1
$^{3}/_{4}$ - 25	20	30	86	20	46	67.5	6.5	5.3	5.5	5	PMKD1
1 - 32	25	30	86	20	46	67.5	6.5	5.3	5.5	5	PMKD1
$1^{1}/_{4}$ - 40	32	40	122	30	72	102	6.5	6.3	6.5	6	PMKD2
$1^{1}/_{2}$ - 50	40	40	122	30	72	102	6.5	6.3	6.5	6	PMKD2
2 - 63	50	40	122	30	72	102	6.5	6.3	6.5	6	PMKD2

Brass or Stainless Steel inserts can be ordered on the following codes:

Size (to fit valve)	Material	Product Code
$^{1}/_{2}$ "	Brass	SINSMO40
$1^{1}/_{4}$"	Brass	SINSMO60
$^{1}/_{2}$"	Stainless Steel	SINSMO4X
$1^{1}/_{4}$"	Stainless Steel	SINSMO6X

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Connection to the System

Before proceeding with the installation, please read and familiarise yourself with these instructions.

1. Check that the pipes either side of the valve are axially aligned, in order to avoid mechanical stress on the threaded union joints.
2. Unscrew the union nuts from the valve body and slide them onto the pipe
3. Solvent weld or screw the valve end connectors onto the pipe end. For correct jointing guidelines and techniques please refer to the Durapipe PVC-U Technical Brochure.
4. Please ensure the **DualBlock®** device is fitted correctly onto the valve body.
5. The **DualBlock®** device (Fig 1) is a patented system that allows the union nuts to be locked into position. The locking device ensures the nuts are always locked into position, even under the most arduous conditions.
6. Position the valve between the two end connectors, ensuring the direction of flow corresponds with the arrow on the indicator plate (Fig. 2). Screw the union nuts tight by hand until resistance is felt. Do not use any keys or other tools to tighten the union nuts as this may damage the nut surface
7. The nuts are now locked into position. In order to remove and adjust, firstly the **DualBlock®** device will need to be released, by pushing the lever on the device away from the teeth on the union nuts and then release the nuts by turning anti- clockwise


Fig.1


Fig.2

Easytorque Kit

1. Torque wrench for use VKR/VKD/TKD/VXE/SXE Valves from $^{3}/_{8}$" - d16 to 2" - d63.
2. Insert for attaching the torque wrench to the valve for adjusting the ball seat carrier The inserts are manufactured from PA50 material with sintered steel bush inserts.

The Easytorque kit facilitates the correct torque setting of the ball seat carrier, thus ensuring maximum efficiency and optimisation of the valve.

The Easytorque kit avoids potential damage to the valve components form the use of incorrect tools

d	DN	Product Code
$^{1}/_{2}$" - 20	15	KET01
to	to	
2" - 63	50	

Disassembly

Please see Fig 3 Exploded View on page 79 for component clarification.

1. Isolate the valve from the flow and drain down the pipeline
2. Push in the lever on the DualBlock device away from the teeth on the union nuts and turn the nuts anti-clockwise to release. The DualBlock device can be removed completely allowing removal of the union nuts from the valve body.
3. Before disassembly please hold the valve in a vertical position and open the valve to 45ºC to drain any residual fluid from the valve. It is advisable to catch the fluid in a suitable container
4. Close the valve and remove the handle insert tool and insert the “teeth” from the underside of the tool into the slots on the ball seat carrier Rotate the support anti-clockwise in order to remove the ball seat carrier
5. Remove the handle from the stem, ensuring the metering positioning indicator remains attached to the handle
6. Remove the ball by pushing from the opposite side of the valve body that is marked “REGOLERE- ADJUST”, take care not to mark or damage the ball upon removal
7. Press the stem out through the valve body
8. All the o-rings and PTFE ball seats can be removed from their grooves as indicated within the exploded view on the adjacent page

Assembly

1. All O-rings and ball seats can be fitted into their grooves easily as shown within the exploded view
2. Insert the stem from inside of the valve body.
3. Insert the ball into the valve body ensuring the ball fits into the grooves at the bottom of the valve stem
4. Attach the ball seat carrier and tighten clockwise using the handle insert tool. Ideally use the Easytorque Kit to ensure the seat is tighented to the recommened torque
5. Fit the insert tool into the handle body and re-fit the handle and metering positioning indicator on to the valve stem, ensuring the positioning indicator is set to 0º
6. Re-fit the valve end connectors and the union nuts, ensuring extra care is taken to ensure the socket O-rings do not become loose from their grooves

Note: When assembling the valve components, it is advisable to lubricate the O-rings. Do not use mineral oils as they attack EPDM rubber.

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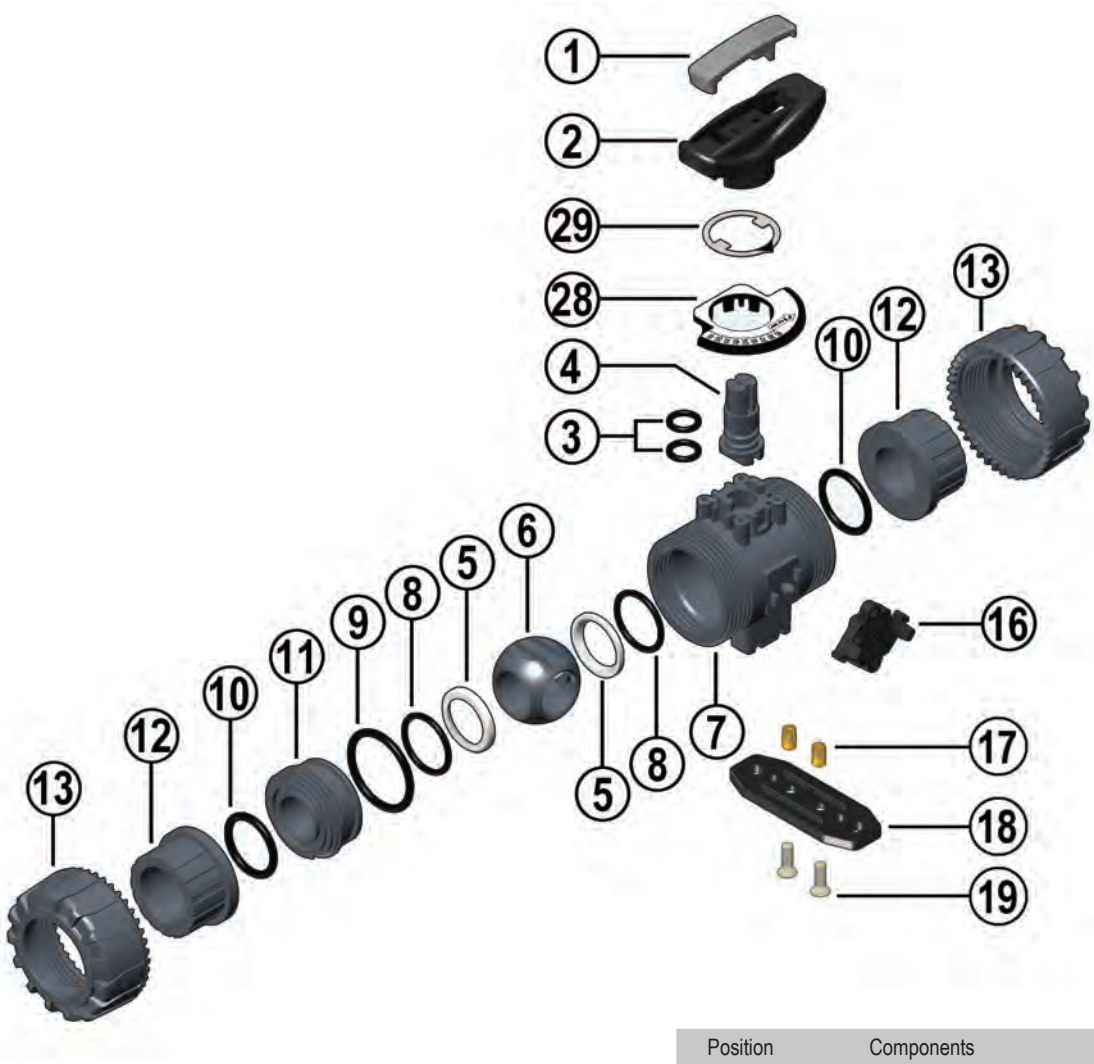

Position	Components	Material
1	Handle Insert Tool	PVC-U
2	Handle	HIPVC
3*	Stem O-ring	EPDM/FPM
4	Stem	Valve Material
5*	Ball Seat	PTFE
6	Ball	Valve Material
7	Body	Valve Material
8*	Ball Seat O-ring	EPDM/FPM
9*	Carrier O-ring	EPDM/FPM
10	Socket Seal O-ring	EPDM/FPM
11	Ball Seat Carrier	Valve Material
12*	End Connector	Valve Material
13	Union Nuts	Valve Material
16*	DualBlock®	POM
17**	Threaded Insert	Stainless Steel/Brass
18**	Spacer	PP-GR
19**	Screw	Stainless steel
28	Metering Plate	POM - PVC
29	Metering Indicator	PVC-U

*Spare Parts **Accessories

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Incorporating a threaded ball seat carrier, the new SXE double union design valve is more reliable and safer than other options available on the market. Designed with a spherical shutter, the SXE offers complete flexibility so the valve can be installed either vertically or horizontally.

Furthermore the SXE valve includes the multifunctional Easyfit handle and the Easyfit labelling system for tagging or branding the valve.

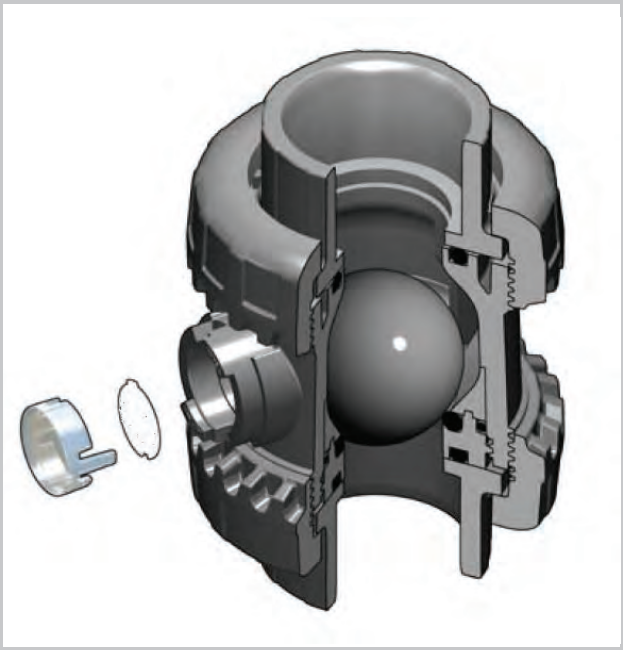
SXE Easyfit® Ball Check Valve

- In conjunction with Giugiaro Design we have designed and developed the **SXE Easyfit ball check valve**, the innovative true union geared ball check valve introducing an advanced method of installation for a long trouble free service
- The SXE check valve allows liquids to flow through in one direction only
- Size range from $^{1}/_{2}$" / d16mm up to 2" / d63mm
- Pressure rating: Maximum working pressure: 16 bar at 20°C
- New patented **Easyfit** system: The bevel gear pairing principle has been used as a mechanism to control the rotation of the union nuts during the installation of the valve

  The use of the **Easyfit** multifunctional handle or easytorque kit (KET01) is the ideal way to carry out maintenance operations in small spaces with limited access to the to the valve (ordered separately)
- Easy removal of the valve body from the pipe system, allowing replacement of the valve seals and seats without any additional equipment
- Compact true union design. With installation dimensions to EN1452 'Short Series'
- Blocked seat carrier with adjustment of the ball seats
- **Easyfit** ergonomically designed multifunctional handle with integrated union nut tightening/untightening tool and ball seat adjusting tool
- Maintenance can be carried out while the valve body is installed in line
- For more information, please visit our website **www.durapipe.co.uk**

Legend

d	Nominal outside diameter
DN	Nominal internal diameter in mm
R	Nominal size or the thread in inches
PN	Nominal pressure in bar (max.working Pressure at 20°C - water)
gms	Weight in grams
PVC-U	Polyvinyl chloride unplasticised
ABS	Acrylontrile Butadiene Styrene
PP	Polypropylene
PVC-C	Polyvinyl chloride chlorinated
HIPVC	High impact PVC
PE	Polyethylene
PTFE	Polytetrafluoroethylene
EPDM	Ethylene Propylene Diene Monomer (M-class) rubber
FPM	Fluorocarbon Rubber
s	Wall thickness (mm)
SDR	Standard dimension ratio = d/s



Dimensions and Standards

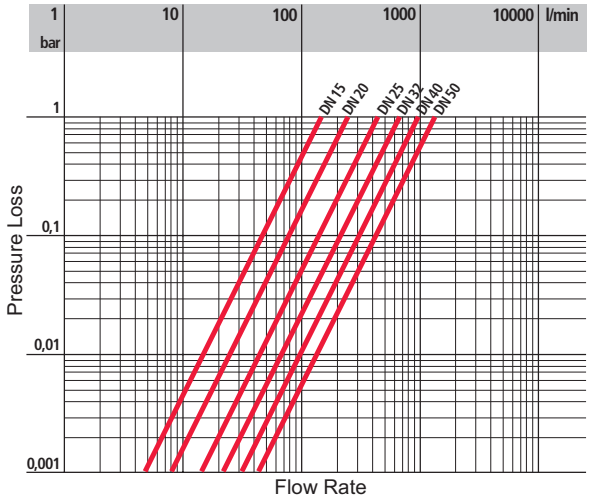
Imperial
The Imperial System is manufactured in accordance with the relevant British Standards: BS 5392 fittings.

Metric
The Metric System is manufactured generally in accordance with the relevant International Standards: ISO 15493, KIWA 49 and 549, DIN 8062 and 8063.

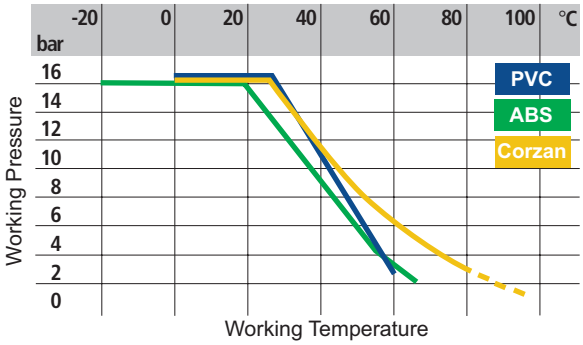
BSP Thread
Threaded fittings conform to the requirements of BS 21/DIN 2999/ISO7. Socket dimensions of metric fittings for solvent welding comply with ISO/DIS 727-1.

Interchangeability
Components in the imperial and metric ranges are not interchangeable.

Technical Data



Pressure loss chart.



Pressure/temperature rating for water and harmless fluids to which the material is RESISTANT. In other cases a reduction of the PN is required. (25 years with safety factor).

DN	10	15	20	25	32	40	50
bar	0.2	0.2	0.2	0.2	0.2	0.2	0.2

Minimum back pressure for leak tight service (valve in the horizontal position).

DN	10	15	20	25	32	40	50
k_{v100}	80	200	385	770	1100	1750	3400

Flow coefficient k_{v100}
k_{v100} is the number of litres per minute of water at a temperature of 20ºC that will flow through a valve with a one bar pressure differential at a specified rate. The k_{v100} values shown in the table are calculated with the valve fully open.

BS Series Female Ends

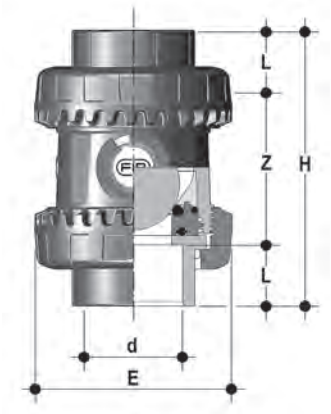
SXELV PVC-U
SXELA ABS

Easyfit ball check valve with BS series female ends for solvent welding

d	DN	PN	L	Z	H	E
1/2	15	16	16.5	50	82	54
3/4	20	16	19	53	91	63
1	25	16	22.5	59	103	72
1 1/4	32	16	26	68	120	85
1 1/2	40	16	30	77	139	100
2	50	16	36	98	174	118

PVC-U			ABS		
gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
148	H0 SXE 102	H0 SXF 102	133	H0 SXA 102	H0 SXB 102
190	H0 SXE 103	H0 SXF 103	171	H0 SXA 103	H0 SXB 103
300	H0 SXE 104	H0 SXF 104	270	H0 SXA 104	H0 SXB 104
460	H0 SXE 105	H0 SXF 105	414	H0 SXA 105	H0 SXB 105
675	H0 SXE 106	H0 SXF 106	608	H0 SXA 106	H0 SXB 106
1080	H0 SXE 107	H0 SXF 107	972	H0 SXA 107	H0 SXB 107

Metric Series Female Ends



SXEIV PVC-U
SXEIA ABS
SXEIC Corzan

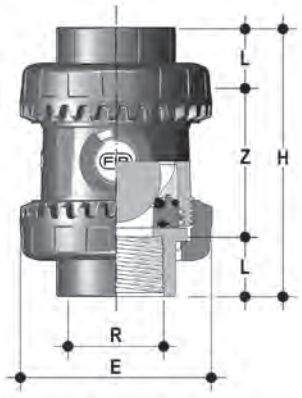
Easyfit ball check valve with Metric series female ends for solvent welding

d	DN	PN	L	Z	H	E
16	10	16	14	54	82	54
20	15	16	16	50	82	54
25	20	16	19	53	91	63
32	25	16	22	59	103	72
40	32	16	26	68	120	85
50	40	16	31	77	139	100
63	50	16	38	98	174	118

	PVC-U			ABS			Corzan		
d	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
16	131	H0 SXE 305	H0 SXF 305	145	H0 SXA 305	H0 XEB 305	131	H0 SXJ 305	H0 SXK 305
20	133	H0 SXE 306	H0 SXF 306	148	H0 SXA 306	H0 XEB 306	133	H0 SXJ 306	H0 SXK 306
25	171	H0 SXE 307	H0 SXF 307	190	H0 SXA 307	H0 XEB 307	171	H0 SXJ 307	H0 SXK 307
32	270	H0 SXE 308	H0 SXF 308	300	H0 SXA 308	H0 XEB 308	270	H0 SXJ 308	H0 SXK 308
40	414	H0 SXE 309	H0 SXF 309	460	H0 SXA 309	H0 XEB 309	414	H0 SXJ 309	H0 SXK 309
50	608	H0 SXE 310	H0 SXF 310	675	H0 SXA 310	H0 XEB 310	608	H0 SXJ 310	H0 SXK 310
63	972	H0 SXE 311	H0 SXF 311	1080	H0 SXA 311	H0 XEB 311	972	H0 SXJ 311	H0 SXK 311

BS Series Female Ends

SXEFV PVC-U
SXEFA ABS



Easyfit ball check valve with BSP parallel female threaded ends

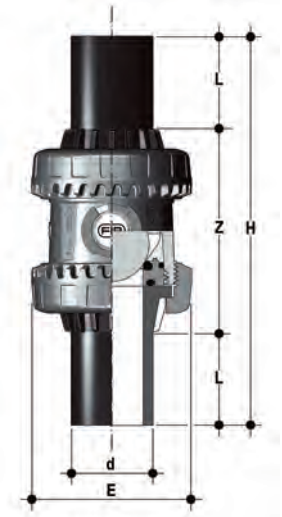
d	DN	PN	L	Z	H	E	Z***
1/2	15	16	15	60	90	54	73
3/4	20	16	16.3	60.4	93	63	82.4
1	25	16	19.1	71.8	110	72	89.8
1 1/4	32	16	21.4	84.2	127	85	103.2
1 1/2	40	16	21.4	88.2	131	100	121.2
2	50	16	25.7	109.6	161	118	147.6

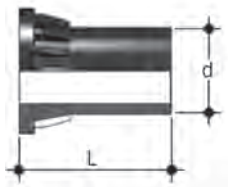
Z*** For ABS sizes only.

PVC-U			ABS		
gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
148	H0 SXE B02	H0 SXF B02	170	H0 SXA B02	H0 SXB B02
190	H0 SXE B03	H0 SXF B03	252	H0 SXA B03	H0 SXB B03
300	H0 SXE B04	H0 SXF B04	354	H0 SXA B04	H0 SXB B04
460	H0 SXE B05	H0 SXF B05	548	H0 SXA B05	H0 SXB B05
675	H0 SXE B06	H0 SXF B06	771	H0 SXA B06	H0 SXB B06
1080	H0 SXE B07	H0 SXF B07	1285	H0 SXA B07	H0 SXB B07

CVDE

End Connector in PE100, long spigot, for electrofusion or butt welding (SDR11)





d	DN	L	H	Product Code
20	15	55	154	HZ PEE M06
25	20	70	186	HZ PEE M07
32	25	74	199	HZ PEE M08
40	32	78	217	HZ PEE M09
50	40	84	236	HZ PEE M10
63	50	91	268	HZ PEE M11

End connectors also available in PP, please speak to the Durapipe Valve Department for details.

LCE

Transparent Service Plug with tag holder

d		DN	Product Code
3/8"-1/2"	- 16 - 20	10 - 15	-
3/4"	- 25	20	-
1"	- 32	25	LCE020
1 1/4"	- 40	32	LCE025
1 1/2"	- 50	40	LCE032
2"	- 63	50	LCE032

*No plug is installed below 1"/32mm.

LSE

Label design and print kit

d			DN	Product Code
3/8"-1/2"	- 16 -	20	10 - 15	-
3/4"	-	25	20	-
1"	-	32	25	LSE020
1 1/4"	-	40	32	LSE025
1 1/2"	-	50	40	LSE032
2"	-	63	50	LSE032

*No plug is installed below 1"/32mm.

Easyfit Tool

Easy fit installation tool

d			DN	Product Code
3/8"-1/2"	- 16 -	20	10 - 15	HA VXE 020
3/4"	-	25	20	HA VXE 025
1"	-	32	25	HA VXE 032
1 1/4"	-	40	32	HA VXE 040
1 1/2"	-	50	40	HA VXE 050
2"	-	63	50	HA VXE 063

Connection to the System

The SXE ball check valve may be installed either in the vertical position (with upwards flow) or horizontally with a minimum back pressure of 0.2 bar.

Before proceeding with the installation, please read and familiarise yourself with these instructions.

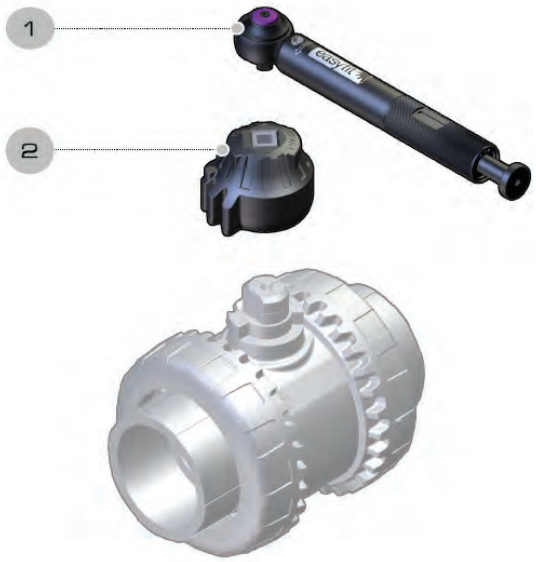
1. Check that the pipes either side of the valve are axially aligned, in order to avoid mechanical stress on the threaded union joints.
2. Unscrew the union nuts (1 on p88) from the valve body and slide them onto the pipe.
3. Solvent weld, heat fuse or screw the valve end connectors (2 on p88) onto the pipe ends. For correct jointing see the relevant Durapipe material technical catalogues.
4. Position the valve between the two end connectors (and screw the union nuts clockwise by hand until a resistance is felt. After the union nuts have been hand tightened it is recommended to utilise the the Easytorque wrench to finalise the union nut tightening to the recommended torques.

easyfit System

Easytorque Kit

1. Torque wrench for use with Easyfit ball valves from $^{3}/_{8}$" - d16 to 2" - d63.
2. Insert for attaching the torque wrench to the valve for tightening the union nuts.The inserts are manufactured from PA50 material with sintered steel bush inserts.
3. Insert for attaching the torque wrench to the valve for adjusting the ball seat carrier.

The inserts are manufactured from PA50 material with sintered steel bush inserts.



The Easytorque kit allows the tightness of the union nuts and ball seat carrier to be set to the correct manufacturers recommended torque settings. Optimising the operation efficiency of the valve. It also avoids damaging the valve components by the use of incorrect tools.

d	DN	Product Code
$^{3}/_{8}$"- $^{1}/_{2}$" - 16-20 to 2" - 63	10 - 15 to 50	KET01

Disassembly

1. Isolate the valve from the flow and drain down the pipeline.
2. Unscrew both the union nuts (1 on p88) it is recommended to utilise the Easyfit tool using the tool to loosen the nuts and remove the valve body from the line.
3. Using the Easyfit tool insert the 'prongs' on the underside of the tool into the slots on the ball seat carrier (10 on p88) Rotate the support anti-clockwise (Fig. 2) and remove the seat carrier. Then remove the ball.
4. The packing ring (8 on p88) can be removed and all the O-rings (3, 9 & 11 on p88) can be removed from their grooves, as shown in the exploded view.

Fig.1

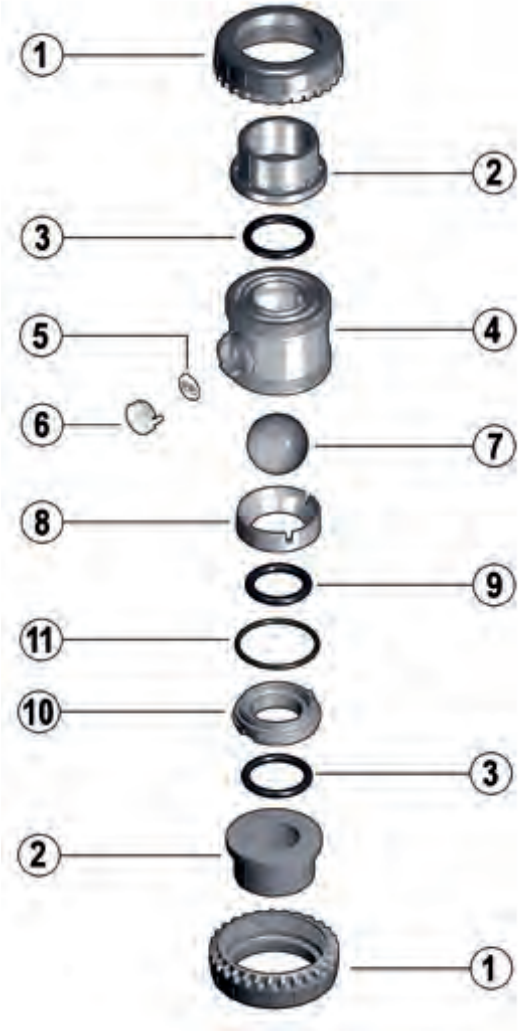
Fig.2

Assembly

1. All the O-rings (3, 9 & 11 on p88) and packing ring (8 on p88) can be fitted into their grooves, as shown in the exploded view.
2. Insert the ball (5 on p88).
3. Locate the ball seat carrier (10 on p88) and tighten clockwise using the Easyfit tool. Ideally use the Easytorque kit to ensure the seat is tightened to the recommended torque. (Fig. 3).
4. Position the valve between the end connectors (7 on p88) and tighten the union nuts (13 on p88) with the easyfit tool. Taking care that the socket O-rings remain in their grooves. Ideally use the Easytorque kit to ensure that the union nuts are tightened to the recommended torque.

Fig.3

Note: When assembling the valve components, it is advisable to lubricate the O-rings. Do not use mineral oils as they attack EPDM rubber.



Position	Components	Material
*1	Union Nut	Valve Material
*2	End Connector	Valve Material
*3	Socket Seal O-ring	EPDM/FPM
4	Body	Valve Material
*5	Tag	PVC
*6	Transparent Service Plug	PVC
7	Ball	PVC-U (PVC-U & ABS Valve) PVC-C (PVC-C Valve)
8	Packing Ring	Valve Material
*9	Ball Seal O-ring	EPDM/FPM
10	Ball Seat Support	Valve Material
*11	Radial Seal O-ring	EPDM/FPM

*Spare Parts

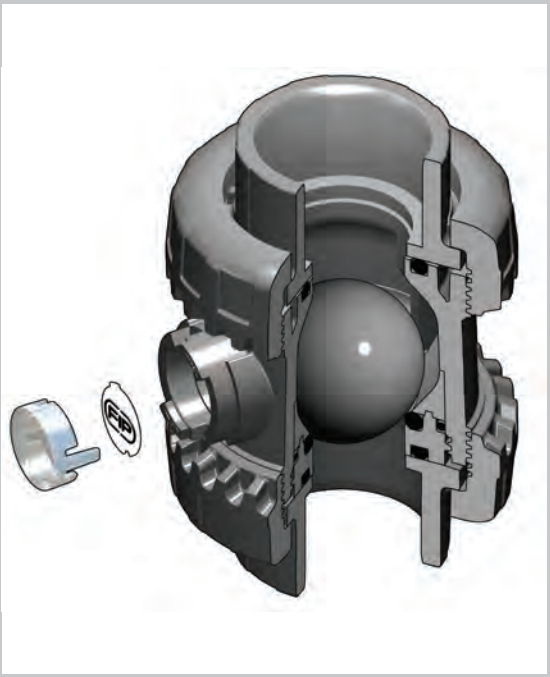
SXE Easyfit® Ball Check Valve (DN65 - DN100)

In conjunction with Giugiaro Design, we have developed the **SXE Easyfit® Ball Check Valve** in the larger sizes, the true union geared ball check valve incorporating an advanced method of installation for a long trouble free service.

- The SXE Ball Check Valve allows liquid to flow through the valve in one direction only
- Size range from 2 $^{1}/_{2}$" / d75mm up to 4" / d110mm
- Pressure rating: Maximum working pressure: 16 bar at 20°C
- New patented **Easyfit** system: The bevel gear pairing principle has been used as a mechanism to control the rotation of the union nuts during the installation of the valve
- The use of the **Easyfit** multifunctional handle is the ideal way to carry out maintenance operations in small spaces with limited access to the to the valve
- Easy removal of the valve body from the pipe system, allowing replacement of the valve seals and seats without any additional equipment
- Compact true union design. With installation dimensions to EN1452' Short Series'
- Blocked seat carrier with adjustment of the ball seats
- **Easyfit** ergonomically designed multifunctional handle with integrated union nut tightening/untightening tool and ball seat adjusting tool
- Maintenance can be carried out while the valve body is installed in line
- For more information, please visit our website **www.durapipe.co.uk**

Legend

d	Nominal outside diameter of the pipe in mm
DN	Nominal internal diameter in mm
R	Nominal size of threads in inches
PN	Nominal pressure in bar (max. working pressure at 20°C)
gms	Weight in grams
U	Number of holes
s	Wall thickness (mm)
SDR	Standard dimension ratio = d/s
PVC-U	Unplasticised Polyvinyl chloride
HIPVC	High impact PVC
EPDM	Ethylene Propylene rubber
FPM (FKM)	Vinylidene fluoride rubber
PTFE	Polytetrafluoroethylene
PE	Polyethylene
SP	Flange Thickness



Dimensions and Standards

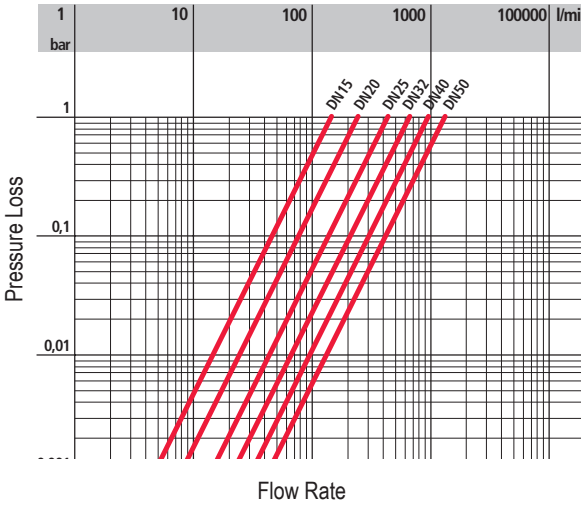
Imperial
The Imperial System is manufactured in accordance with the relevant British Standards: BS 5392 fittings.

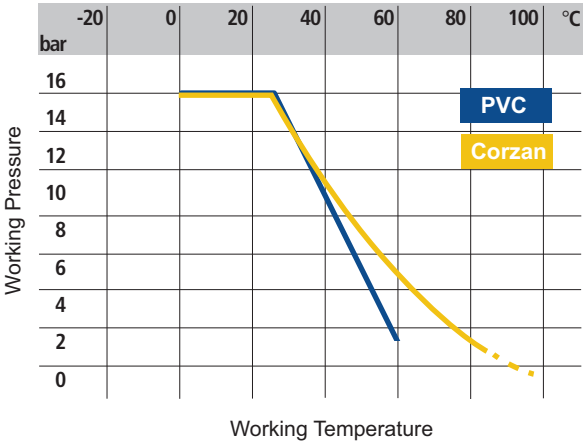
Metric
The Metric System is manufactured generally in Accordance with the relevant International Standards: ISO 15493, KIWA 49 and 549, DIN 8062 and 8063

BSP Thread
Threaded fittings conform to the requirements of BS 21/DIN 2999/ISO7. Socket dimensions of metric fittings for solvent welding comply with ISO/DIS 727-1.

Interchangeability
Components in the imperial and metric ranges are not interchangeable

Technical Data





Pressure temperature rating for water and harmless fluids to which the material is resistant. In other cases a reduction of the PN is required.

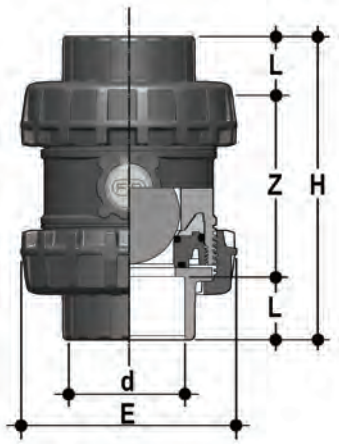
DN	65	80	110
k_{v100}	2586	200	385

Flow coefficient k_{v100}
k_{v100} is the number of litres per minute of water at a temperature of 20ºC that will flow through a valve with a one bar pressure differential at a specified rate. The k_{v100} values shown in the table are calculated with the valve fully open.

DN	65	80	110
bar	0.2	0.2	0.2

Minimum back pressure for leak tight service (valve in the horizontal position)

BS Series Female Ends

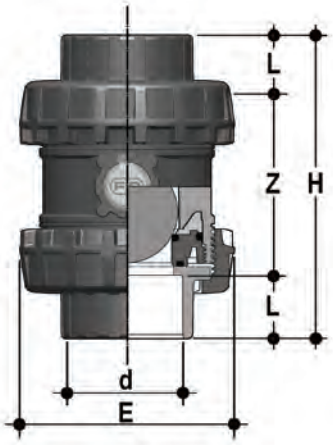


SXELV PVC-U

Easyfit Ball Check Valve with BS Series female end for solvent welding

							PVC-U		
d	DN	PN	L	Z	H	E	gms	EPDM Code	FPM Code
2 1/2"	65	16	44	123	211	157	2605	H0 SXE 312	H0 SXF 312
3"	80	16	51	146	248	174	3300	H0 SXE 109	H0 SXF 109
4"	100	16	63	157	283	212	5570	H0 SXE 110	H0 SXF 110

Metric Series Female Ends

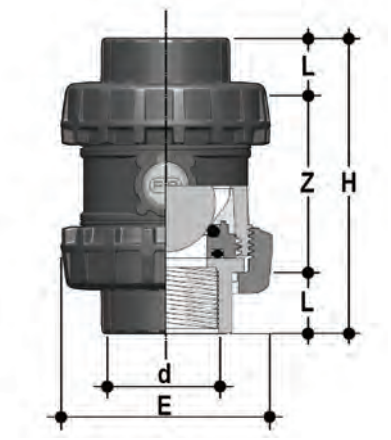


SXEIV PVC-U
SXEIC Corzan

Easyfit Ball Check Valve with Metric Series female end for solvent

							PVC-U			Corzan		
d	DN	PN	L	Z	H	E	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
75	65	16	44	123	211	157	2605	H0 SXE 312	H0 SXF 312	2839	H0 SXJ 312	H0 SXF 312
90	80	16	51	146	248	174	3300	H0 SXE 313	H0 SXF 313	3597	H0 SXJ 313	H0 SXF 313
110	100	16	63	157	283	212	5570	H0 SXE 314	H0 SXF 314	6289	H0 SXJ 314	H0 SXF 314

BSP Threaded Socket Ends



SXEFV PVC-U

Easyfit Ball Check Valve with BSP parallel female treaded ends

							PVC-U		
d	DN	PN	L	Z	H	E	gms	EPDM Code	FPM Code
$2^1/_2$"	65	16	44	123	211	157	2605	H0 SXE B12	H0 SXF B12
3"	80	16	51	146	248	174	3300	H0 SXE B09	H0 SXF B09
4"	100	16	63	157	283	212	5570	H0 SXE B10	H0 SXF B10

LCE

Transparent service plug with tag holder

d	DN	Product Code
2½" - 75	65	LCE040
3" - 90	80	LCE040
4" - 110	100	LCE040

LSE

Label design and print kit

d	DN	Product Code
2 1/2" - 75	65	LSE040
3" - 90	80	LSE040
4" - 110	100	LSE040

EasyFit® Tool

EasyFit® Handle – Installation Tool

d	DN	Product Code
2 1/2" - 75	65	HA VXE 075
3" - 90	80	HA VXE 090
4" - 110	100	HA VXE 110

Connection to the System

easyfit System

The SXE Ball Check Valve may be installed either in the vertical position (with upwards flow) or horizontally with a minimum back pressure of 0.2 bar.

Before proceeding with the installation, please read and familiarise yourself with these instructions

1. Check that the pipes either side of the valve are axially aligned, in order to avoid mechanical stress on the union joints.
2. Unscrew the Union nuts from the valve body and slide onto the pipe
3. Solvent weld, heat fuse or screw the valve end connectors onto the pipe ends. For further jointing information please see the relevant Durapipe Technical Catalogues
4. Position the valve between the two end connectors (Fig 1) and screw the union nuts clockwise by hand until a resistance is felt.

Caution: when testing under high pressure levels, the "ADJUST" mark on the valve must be installed facing upstream.

5. Fit the nuts on to the valve body and manually tighten the union nuts clockwise until a resistance to the rotation is perceived. To complete tightening use the multifunctional Easyfit® handle by applying pressure towards to the centre of the engagement harpoons of the central hub (Fig 3 and 4)
6. Remove the hooked insert housed inside the handle (Fig 5), turn it over and engage the underside of the handle (Fig 6)
7. Engage the tool on the outer profile of the ring nut (Fig 7) obtaining a firm hold that allows you to perform the adequate torque without damaging the ring nut
8. Repeat point 7 for the remaining nut
9. When the tightening is complete remove the hooked insert and return to the seat within the underside of the handle (Fig 8)

Warning: For safety reasons please contact technical services when using volatile liquids such as hydrodgen peroxide (H_2O_2) and Sodium Hypochlorite (NaClO)

These liquids may vaporise causing a dangerous pressure increase in the dead space between the ball and the body.

- It is important to avoid rapid closure of valves to eliminate the possibility of water hammer causing damage to the pipeline

Fig.1

Fig.2

Fig.3

Fig.4

Fig.5

Fig.6

Fig.7

Fig.8

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Disassembly

1. Isolate the valve from the line (release the pressure and empty the pipeline).
2. Unscrew both union nuts, it is recommended to utilise the Easyfit tool (Fig 9) to loosen the nuts from the valve body and then remove the valve from the line,
3. Using the Easyfit tool insert the “prongs” on the underside of the tool into the slots on the ball seat carrier. Then remove the ball.
4. The packing ring can be removed and all the o-rings can be removed from their grooves, as shown within the exploded view

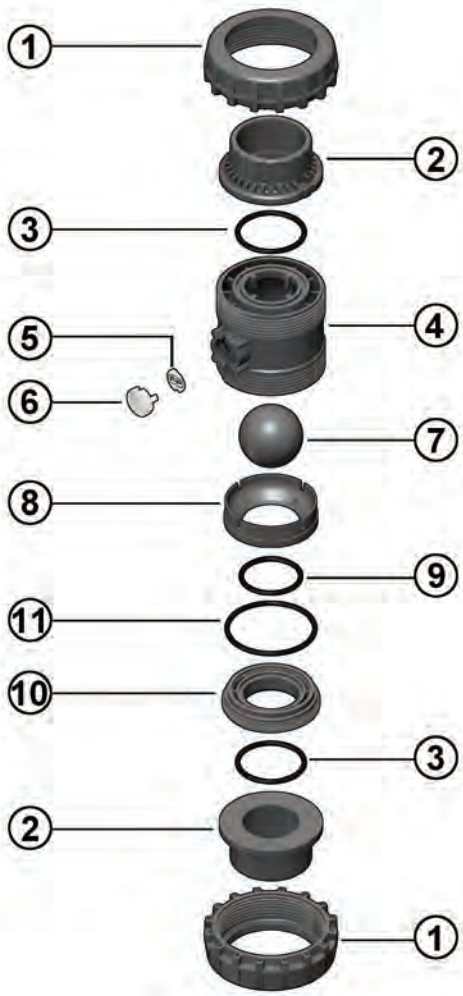
Fig.9

Assembly

1. All the O-rings and packing rings can be fitted into their grooves, as shown in the exploded view.
2. Insert the ball
3. Locate the ball seat carrier and tighten clockwise using the Easyfit tool. Which is located on p93
4. Position the valve between the end connectors and tighten the union nuts with the Easyfit tool. Taking care that the socket O-rings remain in their grooves (Fig 10).

Fig.10

Note: When assembling the valve components, it is advisable to lubricate the O-rings. Do not use mineral oils as they attack EPDM rubber.



Position	Components	Material
1*	Union nut	Valve Material
2*	End connector	Valve Material
3*	Socket seal O-ring	EPDM/FPM
4	Body	Valve Material
5*	Tag	PVC
6*	Transparent service plug	PVC
7	Ball	PVC-U (PVC-U & ABS Valve) PVC-C (PVC-C Valve)
8	Packing ring	Valve Material
9*	Ball seal O-ring	EPDM/FPM
10*	Ball seal support	Valve Material
11*	Radial seal O-ring	EPDM/FPM

SR Ball Check Valve

- The SR check valve allows liquids to flow through in one direction only
- Size range from d20mm up to d63mm
- Pressure rating : Maximum working pressure: 10 bar at 20°C
- Maintenance can be carried out with the valve body installed in line
- The valve is only suitable for liquids with a specific gravity of less than 1.2g/cm^3
- Blocked seat carrier with anti-blowout design
- Talc filled PP Ball
- For more information, please visit our website **www.durapipe.co.uk**

Legend

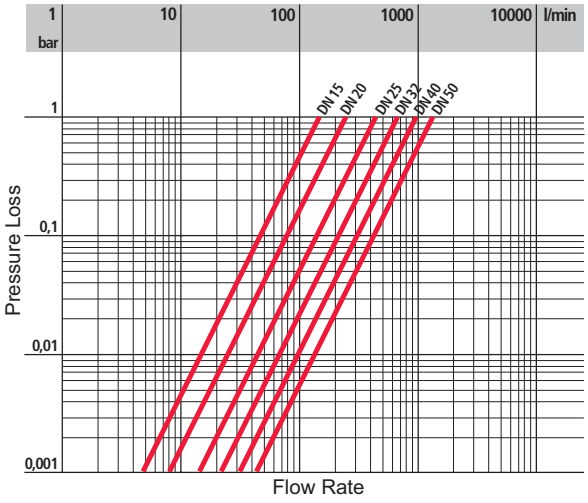
d	Nominal outside diameter
DN	Nominal internal diameter in mm
R	Nominal size or the thread in inches
PN	Nominal pressure in bar (max.working Pressure at 20°C - water)
gms	Weight in grams
PP	Polypropylene
EPDM	Ethylene Propylene Diene Monomer (M-class) rubber
FPM	Fluorocarbon Rubber

Dimensions and Standards

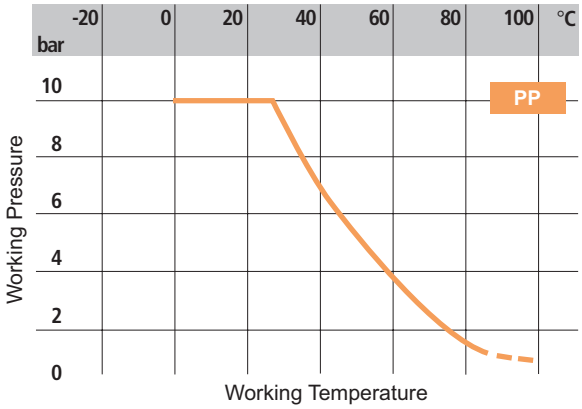
Metric
The Metric System is manufactured generally in accordance with the relevant International Standards: ISO 15493, KIWA 49 and 549, DIN 8062 and 8063.

Interchangeability
Components in the imperial and metric ranges are not interchangeable.

Technical Data



Pressure loss chart.



Pressure/temperature rating for water and harmless fluids to which the material is RESISTANT. In other cases a reduction of the PN is required. (25 years with safety factor).

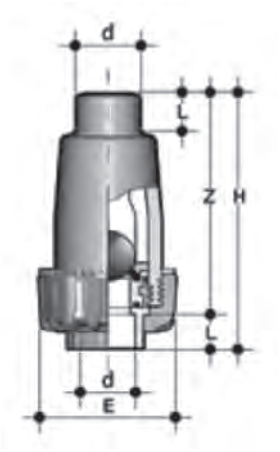
DN	15	20	25	32	40	50
bar	0.4	0.4	0.4	0.4	0.4	0.4

Minimum back pressure for leak tight service (valve in the horizontal position).

DN	15	20	25	32	40	50
k_{v100}	110	205	240	410	650	840

Flow coefficient k_{v100}
k_{v100} is the number of litres per minute of water at a temperature of 20ºC that will flow through a valve with a one bar pressure differential at a specified rate. The k_{v100} values shown in the table are calculated with the valve fully open.

Metric Series Female Ends



SRIM PP

Ball check valve with Metric series female ends

							PP		
d	DN	PN	L	Z	H	E	gms	EPDM Code	FPM Code
20	15	10	16	91	105	55	75	H0 SRN 306	H0 SRP 306
25	20	10	19	110	126	66	140	H0 SRN 307	H0 SRP 307
32	25	10	22	131	150	74	215	H0 SRN 308	H0 SRP 308
40	32	10	26	153	173	86	320	H0 SRN 309	H0 SRP 309
50	40	10	31	166	188	99	440	H0 SRN 310	H0 SRP 310
63	50	10	38	195	222	120	750	H0 SRN 311	H0 SRP 311

Connection to the System

The SR ball check valve may be installed either in the vertical position (with upwards flow) or horizontally with a minimum back pressure of 0.4 bar.

Before proceeding with the installation, please read and familiarise yourself with these instructions.

1. Check that the pipes either side of the valve are axially aligned, in order to avoid mechanical stress on the threaded union joints.
2. Unscrew the union nut (4) from the valve body and slide it onto the pipe.
3. Heat fuse the valve end connector (3) and valve end onto the pipeline For correct jointing see the relevant Durapipe material technical catalogues.

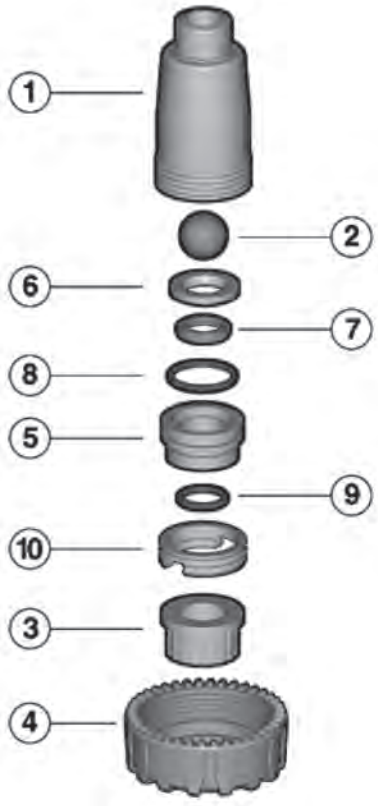
Disassembly

1. Isolate the valve from the flow and drain down the pipeline.
2. Unscrew the union nut (4).
3. Using the Easyfit tool insert the 'prongs' on the underside of the tool into the slots on the ball seat carrier (5) Rotate the support anti-clockwise and remove the seat carrier. Then remove the ball.
4. The packing ring (6) can be removed and all the O-rings (9, 10 & 11) can be removed from their grooves, as shown in the exploded view.

Assembly

1. All the O-rings (9, 10 & 11) and packing ring (8) can be fitted into their grooves, as shown in the exploded view.
2. Insert the ball (2).
3. Locate the ball seat carrier (5) and tighten clockwise using the Easyfit tool. Ideally use the Easytorque kit to ensure the seat is tightened to the recommended torque.
4. Position the valve between the end connectors (3) and tighten the union nuts (4) with the easyfit tool. Taking care that the socket O-rings remain in their grooves. Ideally use the Easytorque kit to ensure that the union nuts are tightened to the recommended torque.

Note: When assembling the valve components, it is advisable to lubricate the O-rings. Do not use mineral oils as they attack EPDM rubber.

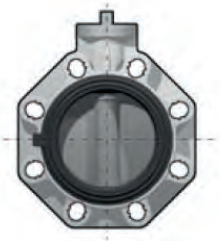


Position	Components	Material
1	Body	PP
2*	Ball	Talc filled PP
3	End Connector	PP
4	Union Nut	PP
5	Ball Seat Support	PP
6*	Packing Ring	PP
9*	Ball Seal O-ring	EPDM/FPM
10*	Radial Seal O-ring	EPDM/FPM
11*	Socket Seal O-ring	EPDM/FPM

*Spare Parts

FK Butterfly Valve (DN40 - DN300)

- Used for On/Off and control operation
- Size range from DN40 up to DN300
- Pressure rating: Maximum working pressure: up to 16 bar at 20°C (water) - DN50 and above up to 10 bar at 20°C (water)
- Body material GR-PP; UV resistant
- Full flanged body with oval holes to fit various flanging standards. Supplied with hole inserts for bolt hole centralising (up to DN 200; DN 250 & 300 are drilled according to the flange drilling required)
- Lever operated versions are fitted with a handle locking device (with 10 ratchet positions at 10º intervals for regulating flow)
- Option to install gearbox or actuator to the valve upper flange with standard ISO drillings
- Optional fully lugged version with threaded 316 Stainless steel inserts to BS-EN 1092 PN10 (Formally BS4504) or ANSI 150
- Maintenance can be carried out while the valve body is installed in line
- For more information, please visit our website **www.durapipe.co.uk**

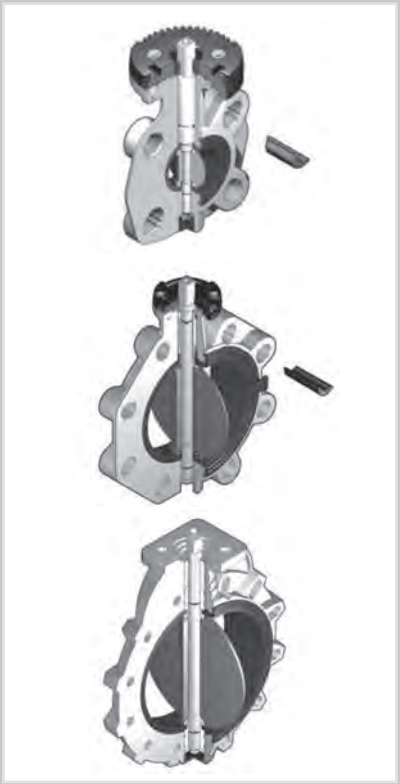


Gearbox

Handle

Legend

d	Nominal outside diameter
DN	Nominal internal diameter in mm
R	Nominal size or the thread in inches
PN	Nominal pressure in bar (max.working Pressure at 20°C - water)
gms	Weight in grams
PVC-U	Polyvinyl chloride unplasticised
ABS	Acrylontrile Butadiene Styrene
PP	Polypropylene
PVC-C	Polyvinyl chloride chlorinated
PP-GR	Glass reinforced Polypropylene
HIPVC	High impact PVC
PE	Polyethylene
PTFE	Polytetrafluoroethylene
EPDM	Ethylene Propylene Diene Monomer (M-class) rubber
FPM	Fluorocarbon Rubber
s	Wall thickness (mm)
SDR	Standard dimension ratio = d/s

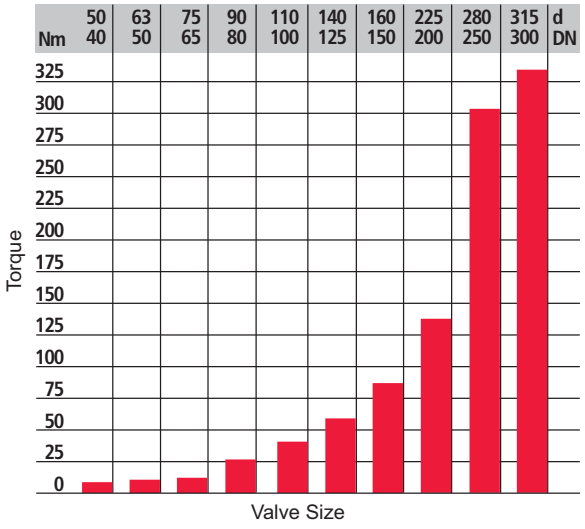


Dimensions and standards

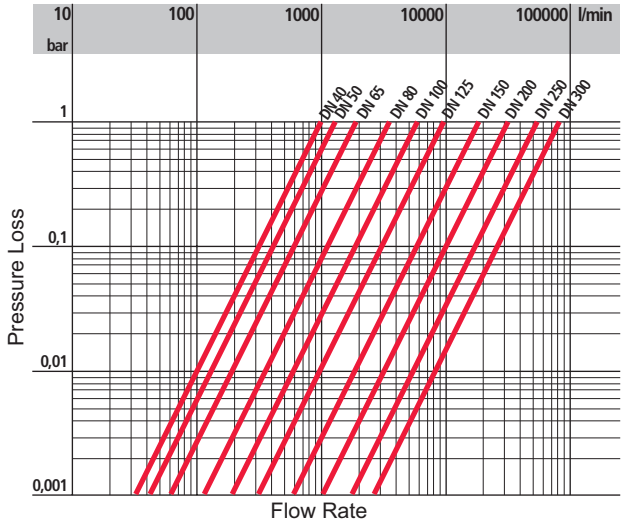
The overall dimensions of the FK Butterfly valve comply with the following standards:
ISO5752 (DN40 to DN200) Medium 25 series
ISO5752 (DN250 to DN300) Long 16 series
DIN 3202 (DN65 to DN 200) K2
DIN 3202 (DN250 to DN3000) K3

The oval holes in the valve body (DN50 to DN200) allow connection to the following flange drilling standards:
BS-EN 1092 PN10 (Formally BS4504 PN10)
ASA B16.5 class 150
BS10, Table D/E

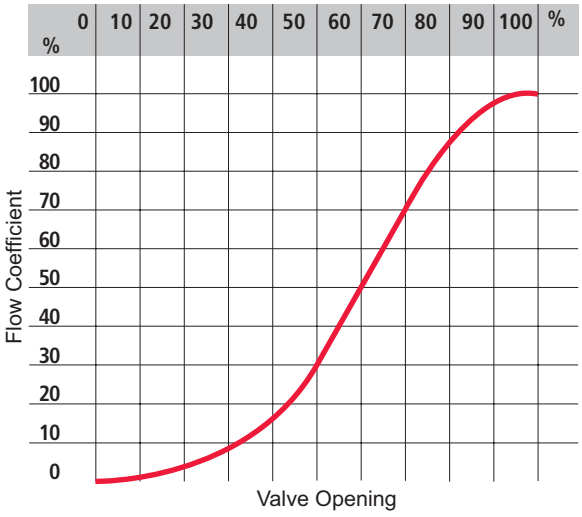
Technical Data



Maximum torque at maximum working pressure.



Pressure loss chart.



Relative flow chart.

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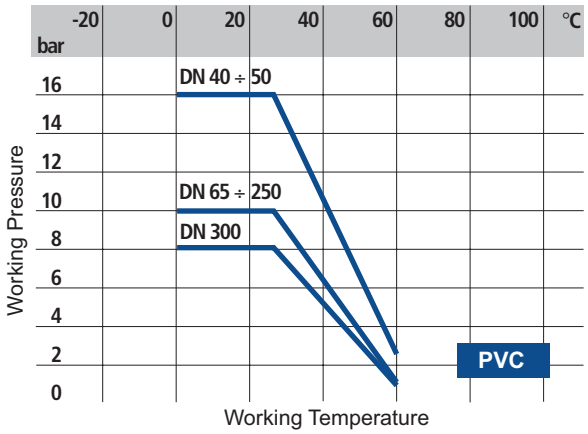
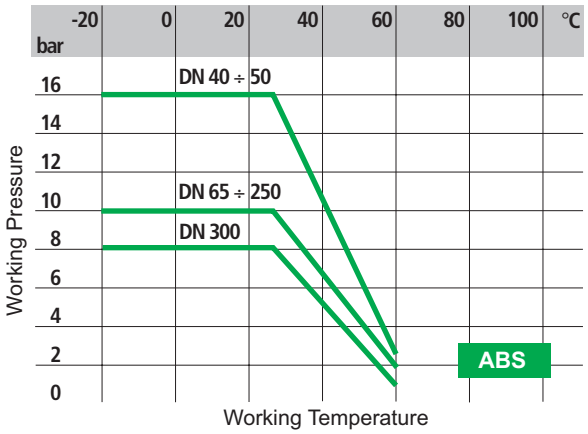
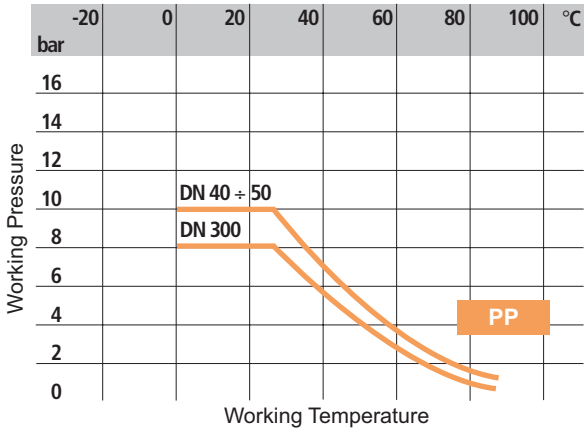
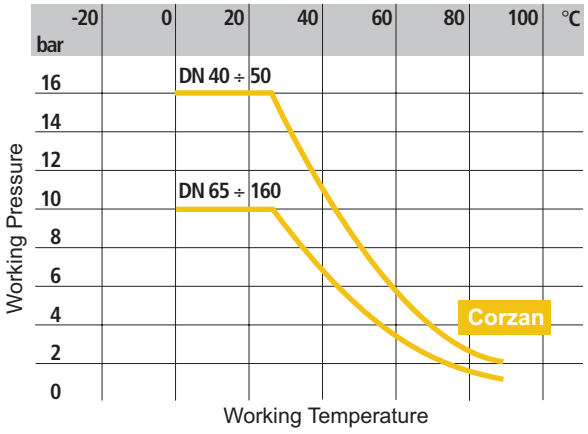
Technical Data









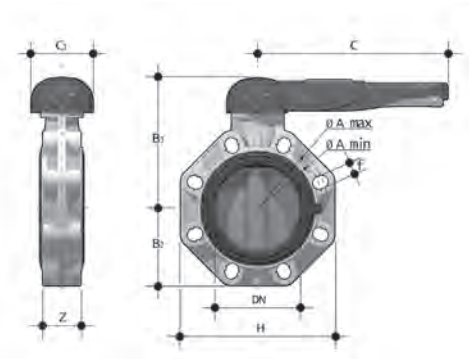
Pressure/temperature rating for water and harmless fluids to which the material is RESISTANT.
In other cases a reduction of the PN is required. (25 years with safety factor).

DN	40	50	65	80	100	125	150	200	250	300
bar	1000	1285	1700	3350	5900	9850	18700	30500	53200	81600

Flow coefficient k_{v100}

k_{v100} is the number of litres per minute of water at a temperature of 20°C that will flow through a valve with a one bar pressure differential at a specified rate. The k_{v100} values shown in the table are calculated with the valve fully open.

FKOV/LM PVC-U **FKOM/LM** PP
FKOA/LM ABS **FKOC/LM** Corzan

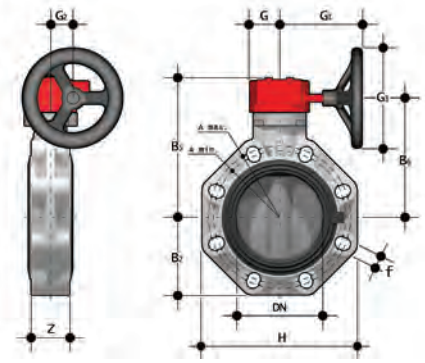


FK Butterfly valve - Lever operated

d	DN	PN	B_2	B_3	H	z	A_{min}	A_{max}	F	U	C	C_1
1½" - 50	40	16	60	137	132	33	99	109	19	4	175	100
2" - 63	50	16	70	143	147	43	115	126	19	4	175	100
2½" - 75	65	10	80	164	165	46	128	144	19	8	175	110
3" - 90	80	10	93	178	185	49	145	160	19	8	272	110
4" - 110	100	10	107	192	211	56	165	190	19	8	272	110
5" - 140	125	10	120	212	240	64	204	215	23	8	330	110
6" - 160	150	10	134	225	268	70	230	242	23	8	330	110
8" - 225	200	10	161	272	323	114	280	298	23	8	420	122

	PVC-U			ABS			PP			Corzan		
d	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
1½" - 50	900	H0 FKE 106	H0 FKF 106	900	H0 FKA 106	H0 FKB 106	900	H0 FKN 106	H0 FKP 106	900	H0 FKJ 106	H0 FKK 106
2" - 63	1080	H0 FKE 107	H0 FKF 107	1080	H0 FKA 107	H0 FKB 107	1080	H0 FKN 107	H0 FKP 107	1080	H0 FKJ 107	H0 FKK 107
2½" - 75	1470	H0 FKE 108	H0 FKF 108	1470	H0 FKA 108	H0 FKB 108	1470	H0 FKN 108	H0 FKP 108	1470	H0 FKJ 108	H0 FKK 108
3" - 90	1870	H0 FKE 109	H0 FKF 109	1870	H0 FKA 109	H0 FKB 109	1870	H0 FKN 109	H0 FKP 109	1870	H0 FKJ 109	H0 FKK 109
4" - 110	2220	H0 FKE 110	H0 FKF 110	2220	H0 FKA 110	H0 FKB 110	2220	H0 FKN 110	H0 FKP 110	2220	H0 FKJ 110	H0 FKK 110
5" - 140	3100	H0 FKE 111	H0 FKF 111	3100	H0 FKA 111	H0 FKB 111	3100	H0 FKN 111	H0 FKP 111	3100	H0 FKJ 111	H0 FKK 111
6" - 160	3850	H0 FKE 112	H0 FKF 112	3850	H0 FKA 112	H0 FKB 112	3850	H0 FKN 112	H0 FKP 112	3850	H0 FKJ 112	H0 FKJ 112
8" - 225	6750	H0 FKE 113	H0 FKF 113	6750	H0 FKA 113	H0 FKB 113	6750	H0 FKN 113	H0 FKP 113	-	-	-

FKOV/RM PVC-U **FKOM/RM** PP
FKOA/RM ABS **FKOC/RM** Corzan

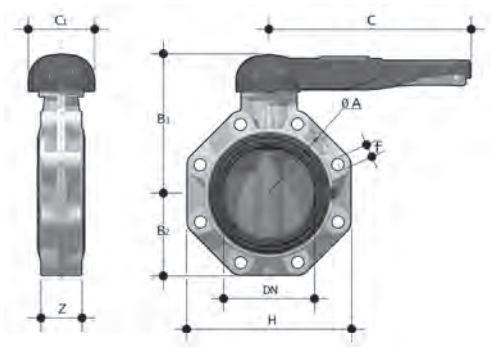


FK Butterfly valve - Gearbox operated

d	DN	PN	B_2	B_3	B_3	H	z	A_{min}	A_{max}	F	U	G	G_1	G_2	G_3
2½" - 75	65	10	80	174	146	165	46	128	144	19	8	48	135	39	125
3" - 90	80	10	93	188	160	185	49	145	160	19	8	48	135	39	125
4" - 110	100	10	107	202	174	211	56	165	190	19	8	48	135	39	125
5" - 140	125	10	120	222	194	240	64	204	215	23	8	48	144	39	200
6" - 160	150	10	134	235	207	268	70	230	242	23	8	48	144	39	200
8" - 225	200	10	161	287	256	323	71	280	298	23	8	65	204	60	200
10" -250	250	10	210	317	281	405	114	350	-	22	12	88	236	76	250
12" -315	300	8	245	374	338	475	114	432	-	25	12	88	236	76	250

	PVC-U			ABS			PP			Corzan		
d	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
2½" - 75	2400	HV FKE 108	HV FKF 108	2400	HV FKA 108	HV FKB 108	2400	HV FKN 108	HV FKP 108	2400	HV FKJ 108	HV FKK 108
3" - 90	2800	HV FKE 109	HV FKF 109	2800	HV FKA 109	HV FKB 109	2800	HV FKN 109	HV FKP 109	2800	HV FKJ 109	HV FKK 109
4" - 110	3150	HV FKE 110	HV FKF 110	3150	HV FKA 110	HV FKB 110	3150	HV FKN 110	HV FKP 110	3150	HV FKJ 110	HV FKK 110
5" - 140	4450	HV FKE 111	HV FKF 111	4450	HV FKA 111	HV FKB 111	4450	HV FKN 111	HV FKP 111	4450	HV FKJ 111	HV FKK 111
6" - 160	5200	HV FKE 112	HV FKF 112	5200	HV FKA 112	HV FKB 112	5200	HV FKN 112	HV FKP 112	5200	HV FKJ 112	HV FKK 112
8" - 225	9300	HV FKE 113	HV FKE 113	9300	HV FKA 113	HV FKB 113	9300	HV FKN 113	HV FKP 113	-	-	-
10" -250	18600	HV FKE 114	HV FKF 114	18600	HV FKA 114	HV FKB 114	18600	HV FKN 114	HV FKP 114	-	-	-
12" -315	25600	HV FKE 115	HV FKF 115	25600	HV FKA 115	HV FKB 115	25600	HV FKN 115	HV FKP 115	-	-	-

FKOV/LM LUG ISO-DIN PVC-U
FKOA/LM LUG ISO-DIN ABS
FKOM/LM LUG ISO-DIN PP
FKOC/LM LUG ISO-DIN Corzan

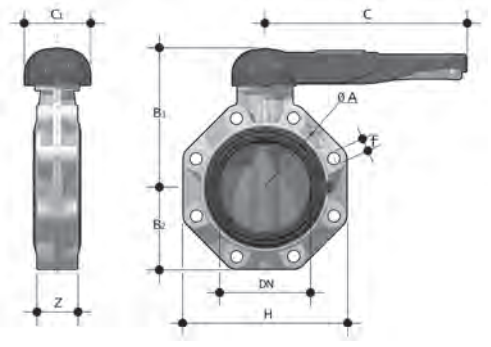


FK Fully Lugged Butterfly valve to BS EN1092 PN10 - Lever operated

d	DN	PN	B_2	B_3	H	z	ØA	F	U	C	C_1
2½" - 75	65	10	80	164	165	46	128	M19	8	175	110
3" - 90	80	10	93	178	185	49	145	M19	8	272	110
4" - 110	100	10	107	192	211	56	165	M19	8	272	110
5" - 140	125	10	120	212	240	64	204	M23	8	330	110
6" - 160	150	10	134	225	268	70	230	M23	8	330	110
8" - 225	200	10	161	272	323	114	280	M23	8	420	122

	PVC-U			ABS			PP			Corzan		
d	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
2½" - 75	1870	H0 FKE F08	H0 FKF F08	1870	H0 FKA F08	H0 FKB F08	1870	H0 FKN F08	H0 FKP F08	1870	H0 FKJ F08	H0 FKK F08
3" - 90	2670	H0 FKE F09	H0 FKF F09	2670	H0 FKA F09	H0 FKB F09	2670	H0 FKN F09	H0 FKP F09	2670	H0 FKJ F09	H0 FKK F09
4" - 110	3020	H0 FKE F10	H0 FKF F10	3020	H0 FKA F10	H0 FKB F10	3020	H0 FKN F10	H0 FKP F10	3020	H0 FKJ F10	H0 FKK F10
5" - 140	4700	H0 FKE F11	H0 FKF F11	4700	H0 FKA F11	H0 FKB F11	4700	H0 FKN F11	H0 FKP F11	4700	H0 FKJ F11	H0 FKK F11
6" - 160	5450	H0 FKE F12	H0 FKF F12	5450	H0 FKA F12	H0 FKB F12	5450	H0 FKN F12	H0 FKP F12	5450	H0 FKJ F12	H0 FKK F12
8" - 225	8350	H0 FKE F13	H0 FKF F13	8350	H0 FKA F13	H0 FKB F13	8350	H0 FKN F13	H0 FKP F13	-	-	-

FKOV/LM LUG ANSI PVC-U
FKOA/LM LUG ANSI ABS
FKOM/LM LUG ANSI PP
FKOC/LM LUG ANSI Corzan

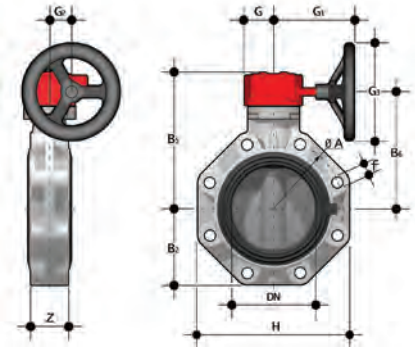


FK Fully Lugged Butterfly valve to ANSI150

d	DN	PN	B_2	B_3	H	z	ØA	F	U	C	C_1
2½" - 75	65	10	80	164	165	46	140	5/8" UNC	8	175	110
3" - 90	80	10	93	178	185	49	153	5/8" UNC	8	272	110
4" - 110	100	10	107	192	211	56	190	5/8" UNC	8	272	110
5" - 140	125	10	120	212	240	64	216	3/4" UNC	8	330	110
6" - 160	150	10	134	225	268	70	241	3/4" UNC	8	330	110
8" - 225	200	10	161	272	323	114	298	3/4" UNC	8	420	122

	PVC-U			ABS			PP			Corzan		
d	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
2½" - 75	1870	H0 FKE X08	H0 FKF X08	1870	H0 FKA X08	H0 FKB X08	1870	H0 FKN X08	H0 FKP X08	1870	H0 FKJ X08	H0 FKK X08
3" - 90	2670	H0 FKE X09	H0 FKF X09	2670	H0 FKA X09	H0 FKB X09	2670	H0 FKN X09	H0 FKP X09	2670	H0 FKJ X09	H0 FKK X09
4" - 110	3020	H0 FKE X10	H0 FKF X10	3020	H0 FKA X10	H0 FKB X10	3020	H0 FKN X10	H0 FKP X10	3020	H0 FKJ X10	H0 FKK X10
5" - 140	4700	H0 FKE X11	H0 FKF X11	4700	H0 FKA X11	H0 FKB X11	4700	H0 FKN X11	H0 FKP X11	4700	H0 FKJ X11	H0 FKK X11
6" - 160	5450	H0 FKE X12	H0 FKF X12	5450	H0 FKA X12	H0 FKB X12	5450	H0 FKN X12	H0 FKP X12	5450	H0 FKJ X12	H0 FKK X12
8" - 225	8350	H0 FKE X13	H0 FKF X13	8350	H0 FKA X13	H0 FKB X13	8350	H0 FKN X13	H0 FKP X13	-	-	-

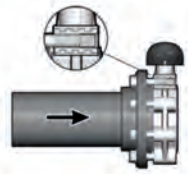
FKOV/RM LUG ISO-DIN PVC-U
FKOA/RM LUG ISO-DIN ABS
FKOM/RM LUG ISO-DIN PP
FKOC/RM LUG ISO-DIN Corzan



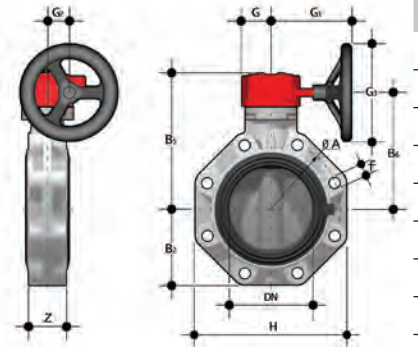
FK Fully Lugged Butterfly valve to BS EN1092 PN10 - Gearbox operated

d	DN	PN	B_2	B_5	B_6	H	z	ØA	F	U	G	G_1	G_2	G_3
2½" - 75	65	10	80	174	146	165	46	140	M16	8	48	135	39	125
3" - 90	80	10	93	188	160	185	49	153	M16	8	48	135	39	125
4" - 110	100	10	107	202	174	211	56	190	M16	8	48	135	39	125
5" - 140	125	10	120	222	194	240	64	216	M20	8	48	144	39	200
6" - 160	150	10	134	235	207	268	70	241	M20	8	48	144	39	200
8" - 225	200	10	161	287	256	323	71	298	M20	8	65	204	60	200
10" - 250	250	10	210	317	281	405	114	362	M20	12	88	236	76	250
12" - 315	300	8	245	374	338	475	114	432	M20	12	88	236	76	250

	PVC-U			ABS			PP			Corzan		
d	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
2½" - 75	2800	HV FKE X08	HV FKF X08	2800	HV FKA X08	HV FKB X08	2800	HV FKN X08	HV FKP X08	2800	HV FKJ X08	HV FKK X08
3" - 90	3600	HV FKE X09	HV FKF X09	3600	HV FKA X09	HV FKB X09	3600	HV FKN X09	HV FKP X09	3600	HV FKJ X09	HV FKK X09
4" - 110	3950	HV FKE X10	HV FKF X10	3950	HV FKA X10	HV FKB X10	3950	HV FKN X10	HV FKP X10	3950	HV FKJ X10	HV FKK X10
5" - 140	6050	HV FKE X11	HV FKF X11	6050	HV FKA X11	HV FKB X11	6050	HV FKN X11	HV FKP X11	6050	HV FKJ X11	HV FKK X11
6" - 160	6800	HV FKE X12	HV FKF X12	6800	HV FKA X12	HV FKB X12	6800	HV FKN X12	HV FKP X12	6800	HV FKJ X12	HV FKK X12
8" - 225	10900	HV FKE X13	HV FKE X13	10900	HV FKA X13	HV FKB X13	10900	HV FKN X13	HV FKP X13	-	-	-
10" - 250	23400	HV FKE X14	HV FKF X14	23400	HV FKA X14	HV FKB X14	23400	HV FKN X14	HV FKP X14	-	-	-
12" - 315	30400	HV FKE X15	HV FKF X15	30400	HV FKA X15	HV FKB X15	30400	HV FKN X15	HV FKP X15	-	-	-



FKOV/RM LUG ANSI PVC-U
FKOA/RM LUG ANSI ABS
FKOM/RM LUG ANSI PP
FKOC/RM LUG ANSI Corzan



FK Fully Lugged Butterfly valve to ANSI 150 - Gearbox operated

d	DN	PN	B_2	B_5	B_6	H	z	ØA	F	U	G	G_1	G_2	G_3
2½" - 75	65	10	80	174	146	165	46	145	5/8" UNC	8	48	135	39	125
3" - 90	80	10	93	188	160	185	49	160	5/8" UNC	8	48	135	39	125
4" - 110	100	10	107	202	174	211	56	180	5/8" UNC	8	48	135	39	125
5" - 140	125	10	120	222	194	240	64	210	3/4" UNC	8	48	144	39	200
6" - 160	150	10	134	235	207	268	70	240	3/4" UNC	8	48	144	39	200
8" - 225	200	10	161	287	256	323	71	295	3/4" UNC	8	65	204	60	200
10" - 250	250	10	210	317	281	405	114	350	1" UNC	12	88	236	76	250
12" - 315	300	8	245	374	338	475	114	402	1" UNC	12	88	236	76	250

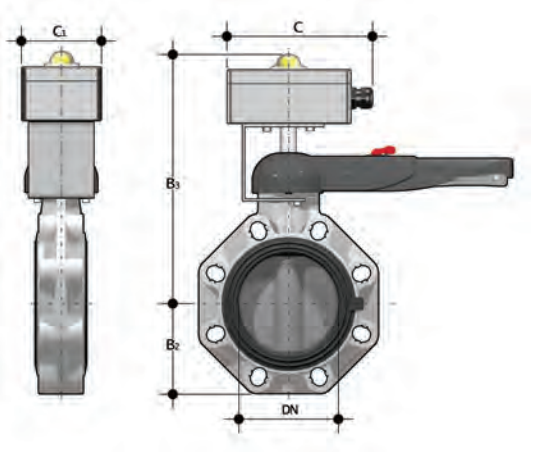
	PVC-U			ABS			PP			Corzan		
d	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
2½" - 75	2800	HV FKE F08	HV FKF F08	2800	HV FKA F08	HV FKB F08	2800	HV FKN F08	HV FKP F08	2800	HV FKJ F08	HV FKK F08
3" - 90	3600	HV FKE F09	HV FKF F09	3600	HV FKA F09	HV FKB F09	3600	HV FKN F09	HV FKP F09	3600	HV FKJ F09	HV FKK F09
4" - 110	3950	HV FKE F10	HV FKF F10	3950	HV FKA F10	HV FKB F10	3950	HV FKN F10	HV FKP F10	3950	HV FKJ F10	HV FKK F10
5" - 140	6050	HV FKE F11	HV FKF F11	6050	HV FKA F11	HV FKB F11	6050	HV FKN F11	HV FKP F11	6050	HV FKJ F11	HV FKK F11
6" - 160	6800	HV FKE F12	HV FKF F12	6800	HV FKA F12	HV FKB F12	6800	HV FKN F12	HV FKP F12	6800	HV FKJ F12	HV FKK F12
8" - 225	10900	HV FKE F13	HV FKE F13	10900	HV FKA F13	HV FKB F13	10900	HV FKN F13	HV FKP F13	-	-	-
10" - 250	23400	HV FKE F14	HV FKF F14	23400	HV FKA F14	HV FKB F14	23400	HV FKN F14	HV FKP F14	-	-	-
12" - 315	30400	HV FKE F15	HV FKF F15	30400	HV FKA F15	HV FKB F15	30400	HV FKN F15	HV FKP F15	-	-	-

Tel: +44 (0)1543 471680 Fax: +44 (0)1543 471682

Accessories

FKMS

The FKMS is a limit switch box kit with either mechanical or proximity switches. The switchbox can be used to indicate back to a control panel the position of the valve (max. rotation = 90º). The kit can be retro fitted onto an FK valve that has already been installed. For further details please contact the Durapipe Valve Department.



d	DN	B	B_1	C_1
1½" - 50	40	60	253	80
2" - 63	50	70	259	80
2½" - 75	65	80	266	80
3" - 90	80	93	280	80
4" - 110	100	107	294	80
5" - 140	125	120	314	80
6" - 160	150	134	327	80
8" - 225	200	161	374	80

d	DN	Product Code Electro-mechanical	Inductive	Namur
1½" - 50 to 2½" - 75	40 to 65	FKMSK0M	FKMSK0I	FKMSK0N
3" - 90 to 6" - 160	80 to 150	FKMSK1M	FKMSK1I	FKMSK1N
8" - 225	200	FKMSK2M	FKMSK2I	FKMSK2N

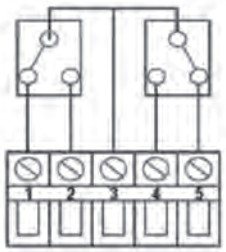


Fig. 1

Electro-Mechanical

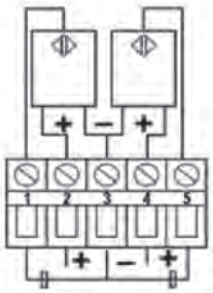


Fig. 2

Inductive

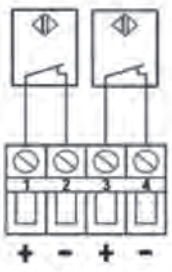


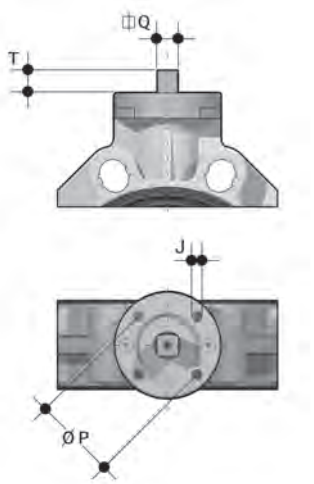
Fig. 3

Namur

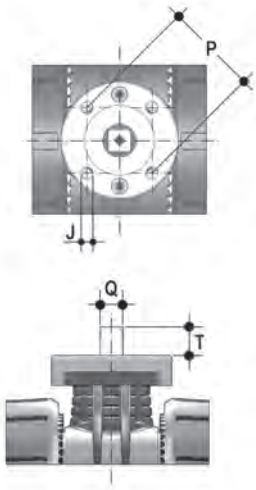
LCE custom labelling information can be found on Page 52.

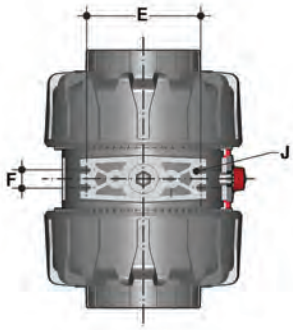
Actuators

The valve can be supplied actuated, pneumatic or electric, by the Durapipe Valve Department. The GR-PP mounting plate (with standard ISO 5211 drillings) can be supplied for self-actuation and/or retro-fitting of actuators to installed valves.



d	DN	J	P		T	Q
1½" - 50	40	7	50	F05	12	11
2" - 63	50	7	50	F05	12	11
2½" - 75	65	7/9	50/70	F05/F07	12	11
3" - 90	80	9	70	F07	16	14
4" - 110	100	9	70	F07	16	14
5" - 140	125	9	70	F07	19	17
6" - 160	150	9	70	F07	19	17
8" - 225	200	11	102	F10	24	22
10" - 250	250	11/13/17	102/125/140	F10/F12/F14	29	27
12" - 315	300	11/13/17	102/125/140	F10/F12/F14	29	27



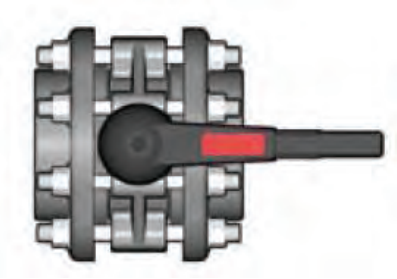


Actuator Mounting

The valve can be supplied actuated, pneumatic or electric, by the Durapipe Valve Department. The GR-PP mounting plate (with standard ISO 5211 F07 drillings) can be supplied for self-actuation and/or retrofitting of actuators to installed valves.

d	J	P	Q	T	Product Code
$2^1/_2$ - 75	9	70	14	16	03 699 167
3 - 90	9	70	14	16	03 699 167
4 - 110	9	70	17	19	03 699 167

Flange Bolting

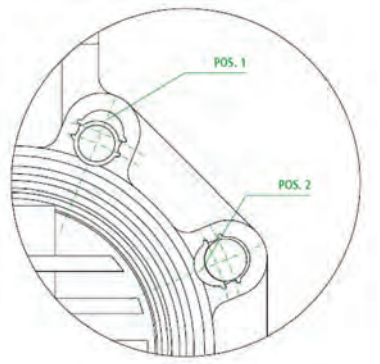


d	DN	J	*Nm
1½" - 50	40	M16	9
2" - 63	50	M16	12
2½" - 75	65	M16	15
3" - 90	80	M16	18
4" - 110	100	M16	20
5" - 140	125	M16	35
6" - 160	150	M20	40
8" - 225	200	M20	55
10" -	250	M24	70
12" -	300	M24	70

*Nominal torque required for the tightening of bolts for the flanged joints.
Torque required for watertight joints (1.5xPN at 20°C

Insert Positioning

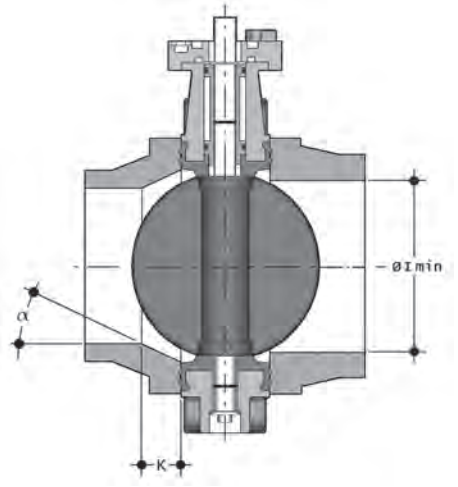
The inserts are to be fitted into the holes from the side of the valve body with the valve diameter embossing on it and the position of the inserts is determined by the drilling standard of the connecting flanges. As per the table below.



d	BS EN1092 PN10	BS EN1092 PN16	BS 10 Table D – E	ASA B 16.5 (ANSI 150)
1½" - 50	Pos. 2	Pos. 2	Pos. 1	Pos. 1
2" - 63	Pos. 2	Pos. 2	Pos. 1	No Inserts
2½" - 75	Pos. 2	Pos. 2	Pos. 1	Pos. 2
3" - 90	Pos. 2	Pos. 2	Pos. 1	Pos. 2
4" - 110	Pos. 2	Pos. 2	Pos. 1	Pos. 2
5" - 140	Pos. 2	Pos. 2	Pos. 1	Pos. 2
6" - 160	Pos. 2	Pos. 2	Pos. 1	Pos. 2
8" - 225	Pos. 2	x	Pos. 2	Pos. 2

Jointing

For Installation with Inch System Socket Weld, Stub and Full Face flanges.



d	DN	l min.
1½" - 50	40	25
2" - 63	50	28
2½" - 75	65	47
3" - 90	80	64
4" - 110	100	84
- 125		108
5" - 140	125	108
6" - 160	150	134
- 200		187
8" - 225	200	187
- 250	250	225
- 315	300	280
10" -	250	225
12" -	300	280

For Installation with Inch System Socket Weld, Stub and Full Face flanges:
PVC-U & ABS

Pipe Size d	DN	Valve Size 1½" 50	2" 63	2½" 75	3" 90	4" 110	5" 140	6" 160	8" 200	10" 250	12" 315
1½"	40	✓ ✓									
2"	50		✓ ✓								
2½"	65			✓ ✓							
3"	80				✓ ✓						
4"	100					✓ ✓					
5"	125						✓ ✓				
6"	150							✓ ✓			
8"	200								✓ ✓		
10"	250									✓	
12"	300										✓

Jointing

For Installation with Metric System Socket Weld, Stub and Full Face Flanges PVC-U, ABS, Corzan & PP

Pipe/Fitting Size d	DN	Valve Size 1½" 50	2" 63	2½" 75	3" 90	4" 110	5" 140	6" 160	8" 200	10" 250	12" 315
50	40	✓ ✓ ✓ ✓									
63	50		✓ ✓ ✓ ✓								
75	65			✓ ✓ ✓ ✓							
90	80				✓ ✓ ✓ ✓						
110	100					✓ ✓ ✓ ✓					
125	-						✓ ✓				
140	125						✓				
160	150							✓ ✓ ✓			
200	-								× ×			*
225	200								✓ ✓		
250	250									✓ ✓	
315	300										✓ ✓

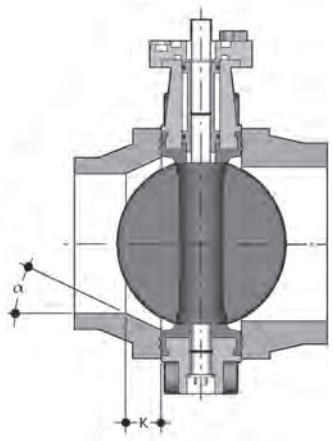
For use with DN200 Valve it is advised to use a d225 stub flange and d225 x d200 reducing bush

For Installation with Metric System Butt Weld, Stub Flanges: PP

Pipe Size d	DN	Valve Size 1½" 50	2" 63	2½" 75	3" 90	4" 110	5" 140	6" 160	8" 200	10" 250	12" 315
50	40	✓									
63	50		✓								
75	65			✓							
90	80				✓						
110	100					✓					
125	-					✓					
140	125						✓				
160	150							* (1)			
200	-								* (2)		
225	200								* (3)		
250	-									* (4)	
280	250									✓	
315	300										* (5)

For the disc to open on these pipe sizes the stub is required to be chamfered as detailed below:

(1) d160	PN6 - SDR 17.6	No chamfer required	
	PN10 - SDR 11	k = 26.5	a = 20°
(2) d200	PN6 - SDR 17.6	k = 35	a = 20°
	PN10 - SDR 11	k = 35	a = 25°
(3) d225	PN6 - SDR 17.6	No chamfer required	
	PN10 - SDR 11	k = 40	a = 15°
(4) d250	PN6 - SDR 17.6	k = 15.5	a = 25°
	PN10 - SDR 11	k = 32.5	a = 25°
(5) d315	PN6 - SDR 17.6	k = 12	a = 25°
	PN10 - SDR 11	k = 35	a = 25°



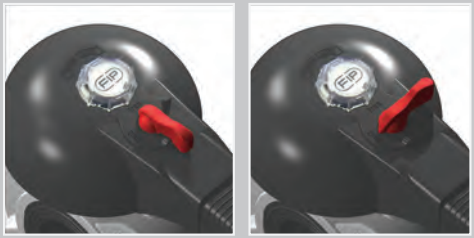
Connection to the System

1. Attach the handle to the valve body and fix using the screw supplied. Ensure the sub flange assemblies allow the disc to be fully opened.
2. Fit the centring inserts into the slots, as per the positions indicated on the table (see page 108), from the side of the valve with the d & DN markings on the body. To ensure the valve is fitted centrally.
3. Fit the valve between the two flanges, it is advised to install the valve with the disc in the partially closed position and to ensure the flanges are aligned correctly. Misalignment of the flanges may cause leaks.
4. Before tightening the bolts it is recommended to open the disc, so as not to damage the valve liner. Connecting bolts must be tightened uniformly. Do not exceed the torque as indicated in the table (see page 108).
5. The valve is bi-directional and may be installed in any position.
6. If the pipe is horizontal and the medium passing through the valve:

   a) Is 'dirty'; It is advised to install the valve at 45º

   b) Contains solids or suspended solids; it is advised to install the valve horizontally

   c) Clean; it is advised to install the valve vertically
7. To lock the valve, In any of the ratchet stop positions, Rotate the switch on the lever from the FREE position to the LOCK position.



FREE LOCK

Note: When assembling the valve components, it is advisable to lubricate the O-rings. Do not use mineral oils as they attack EPDM rubber.

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Disassembly
(1½"- d40 to 2"- d63)

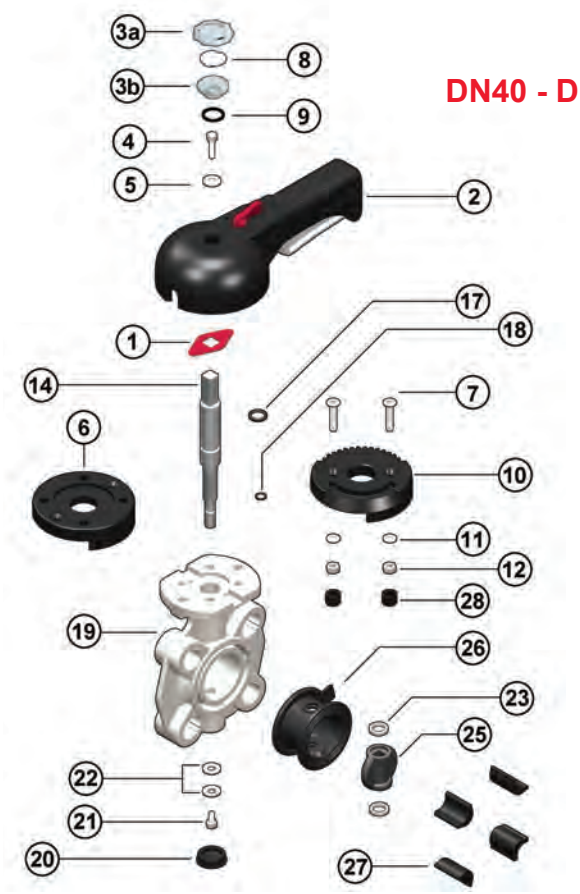
1. Remove the protection cap (3) and undo and remove the retaining screw (4) and washer (5).
2. Remove the handle (2).
3. Remove the screws, nuts, protection caps and washers (7, 11, 12 & 28) and the ratchet plate (10).
4. Remove the protection cap (20) and undo & remove the screw and washer (21 & 22).
5. Extract the shaft (14) and remove the disc (25).
6. Remove the shaft O-rings (17 & 18) from the shaft (14).
7. Remove the anti-friction rings (23)
8. Remove the primary liner (26) from the valve body (19).

Assembly
(1½" - d40 to 2"- d63)

1. Fit the primary liner (26) to the valve body (19).
2. Refit the shaft O-rings (17 & 18) onto the shaft (14).
3. Fit the anti-friction rings (23) onto the disc (25)
4. Lubricate the liner and insert the disc into the valve body (19) / liner (26).
5. Push the shaft (14) into the body (19) and through the disc (25).
6. Refit the screw (21) and washer (21) and tighten. Push in the protection cap (20).
7. Place the ratchet plate (10) onto the body (19) and hold in place with the screws, nuts and washers (7, 11 & 12) push on the protection caps (28).
8. Push the handle (2) onto the stem (14).
9. Fit the screw (4) and washer (5) and tighten. Push in the protection cap (3)

Note: When assembling the valve components, it is advisable to lubricate the O-rings. Do not use mineral oils as they attack EPDM rubber.

DN40 - DN50



Position	Components	Material
1	Position Indicator	PA
2*	Handle	HIPVC
3a	Plug Upper Part	PVC
3b	Plug Lower Part	PVC
4	Screw	Stainless Steel
5	Washer	Stainless Steel
6	Flange	PP-GR
7	Screw	Stainless Steel
8	Tag Holder	PVC-U
9	Seal (O-ring)	NBR
10*	Pad	PP-GR
11	Washer	Stainless Steel
12	Nut	Stainless Steel
13	Seeger Ring	Stainless Steel
14	Shaft	Stainless Steel
15	Bush O-ring	EPDM or FPM
16	Bush	Nylon
17*	Shaft O-ring	EPDM or FPM
18*	Shaft O-ring	EPDM or FPM
19	Body	PP-GR
20	Protection Cap	PE
21	Screw	Stainless Steel
22	Washer	Stainless Steel
23*	Anti-friction Ring	PTFE
24	Disc O-ring	EPDM or FPM
25	Disc	Valve Material
26*	Primary Liner	EPDM or FPM
27	Inserts	ABS
28	Protection Cap	PE

*Spare Parts

Disassembly (2½"- d75 to 8"- d225)

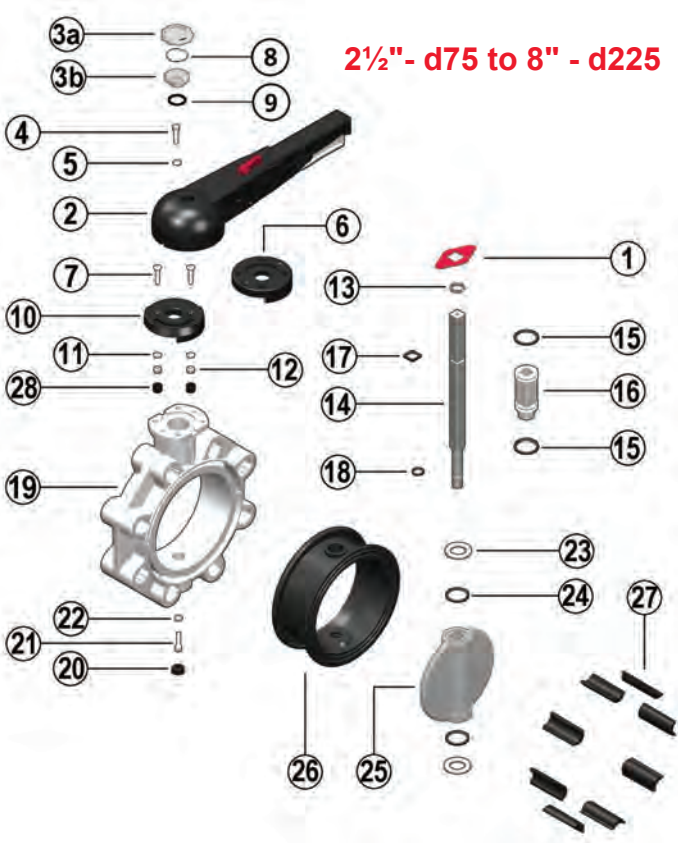
1. Remove the protection cap (3) and undo and remove the retaining screw (4) and washer (5).
2. Remove the handle (2).
3. Remove the screws, nuts, protection caps and washers (7, 11, 12 & 28) and the ratchet plate (10).
4. Remove the protection cap (20) and undo & remove the screw and washer (21 & 22).
5. Extract the shaft (14) and remove the disc (25
6. Remove the shaft O-rings (17 & 18) from the shaft (14).
7. Remove the anti-friction rings (23) and the O-rings (24).
8. Remove the circlip (13) and the bush (16) and bush O-rings (15).
9. Remove the primary liner (26) from the valve body (19).

Assembly (2½"- d75 to 8"- d225)

1. Fit the primary liner (26) to the valve body (19).
2. Refit the shaft O-rings (17 & 18) onto the shaft (14).
3. Fit the O-rings (15) to the bush (16). Fit the bush onto the shaft (14) and fix in place with the circlip (13).
4. Fit the anti-friction rings (23) and O-rings (24) onto the disc (25).
5. Lubricate the liner and insert the disc into the valve body (19) / liner (26).
6. Push the shaft (14) into the body (19) and through the disc (25).
7. Refit the screw (21) and washer (21) and tighten. Push in the protection cap (20).
8. Place the ratchet plate (10) onto the body (19) and hold in place with the screws, nuts and washers (7, 11 & 12) push on the protection caps (28).
9. Push the handle (2) onto the shaft (14).
10. Fit the screw (4) and washer (5) and tighten. Push in the protection cap (3)

Note: When assembling the valve components, it is advisable to lubricate the O-rings. Do not use mineral oils as they attack EPDM rubber.

2½"- d75 to 8" - d225



Position	Components	Material
1	Position Indicator	PA
2*	Handle	HIPVC
3a	Plug Upper Part	PVC
3b	Plug Lower Part	PVC
4	Screw	Stainless Steel
5	Washer	Stainless Steel
6	Flange	PP-GR
7	Screw	Stainless Steel
8	Tag Holder	PVC-U
9	Seal (O-ring)	NBR
10*	Pad	PP-GR
11	Washer	Stainless Steel
12	Nut	Stainless Steel
13	Seeger Ring	Stainless Steel
14	Shaft	Stainless Steel
15	Bush O-ring	EPDM or FPM
16	Bush	Nylon
17*	Shaft O-ring	EPDM or FPM
18*	Shaft O-ring	EPDM or FPM
19	Body	PP-GR
20	Protection Cap	PE
21	Screw	Stainless Steel
22	Washer	Stainless Steel
23*	Anti-friction Ring	PTFE
24	Disk O-ring	EPDM or FPM
25	Disc	Valve Material
26*	Primary Liner	EPDM or FPM
27	Inserts	ABS
28	Protection Cap	PE

*Spare Parts

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Disassembly (10"- d250 to 12"- d315)

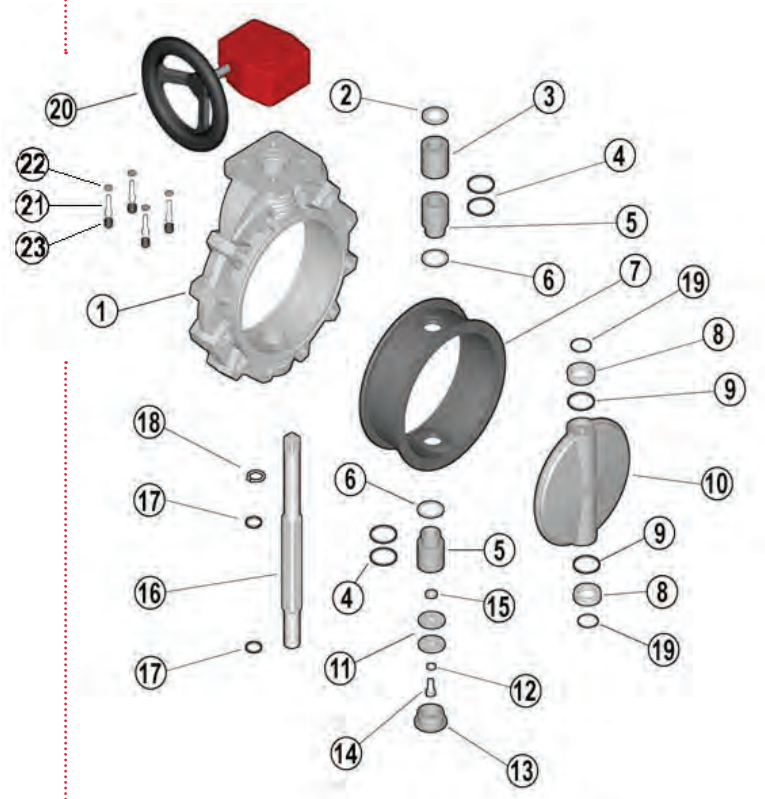
1. Remove the protection caps (23) and undo and remove the screws (21) and washers (22).
2. Extract the gearbox (20) from the shaft (16).
3. Remove the protection cap (13) and undo and remove the retaining screw (14) and washers (11, 12 & 15).
4. Extract the shaft (16) and remove the disc (10).
5. Remove the shaft O-rings (17) from the shaft (16)
6. Remove the anti-friction rings (8) and the O-rings (9 & 19).
7. Remove the circlip (18) and the bushes (3 & 5) with the washer (2).
8. Remove the O-rings (4) and washers (6).
9. Remove the primary liner (7) from the valve body (1).

Assembly (10"- d250 to 12"- d315)

1. Fit the primary liner (7) to the valve body (1).
2. Refit the O-rings (4) and the washers (6) onto the bushes (5).
3. Refit the shaft O-rings (17) onto the shaft (16). Fit the upper bus (5), bush (3) and washer (2) onto the shaft (16) and fix in place with the circlip (18).
4. Fit the anti-friction rings (8) and O-rings (9 & 8) onto the disc (10).
5. Lubricate the liner and insert the disc into the valve body (1) / liner (7).
6. Push the shaft (16) into the body (1) and through the disc (10).
7. Refit the washer (6) and bottom bush (5) into the valve body (1), from the underside.
8. Refit the screw (14) and washers (11, 12 & 15) and tighten. Push in the protection cap (13).
9. Refit the gearbox (20) to the shaft (16), ensuring the gearbox opening position and disc position match.
10. Insert the screws (21) and washers (22) then tighten. Push on the protective caps (23).

Note: When assembling the valve components, it is advisable to lubricate the O-rings. Do not use mineral oils as they attack EPDM rubber.

10"- d250 to 12"- d315



Position	Components	Material
1	Body	PP-GR
2	Washer	Stainless steel
3	Bush	PP
4	Bush O-ring	EPDM or FPM
5	Bush	PP
6	Washer	Stainless steel
7	Primary Liner	EPDM or FPM
8	Anti-friction Ring	PTFE
9	Disc O-ring	EPDM or FPM
10	Disc	Valve Material
11	Washer	Stainless steel
12	Washer	Stainless steel
13	Protection Cap	PE
14	Screw	Stainless steel
15	Washer	Stainless steel
16	Shaft	Stainless steel
17	Shaft O-ring	EPDM or FPM
18	Circlip	Stainless steel
19	O-ring	EPDM or FPM
20	Gearbox	-
21	Screw	Stainless steel
22	Washer	Stainless steel
23	Protection Cap	PE

*Spare Parts

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FE Butterfly Valve (DN40 - DN200)

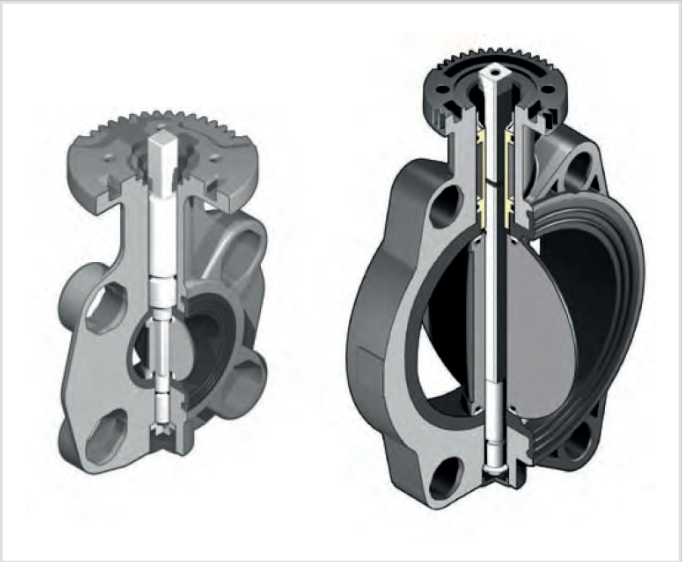
- Used for On/Off and control operation
- Size range from DN40 up to DN200
- Pressure rating: Maximum working pressure: up to 16 bar at 20°C (water) - DN50 up to 10 bar at 20°C (water)
- One piece body and disc material: PVC-U
- Body with oval holes to fit various flanging standards
- Lever operated versions are padlockable, with ratchet position intervals for regulating flow
- Option to install a gearbox to the valve upper flange with standard ISO drillings
- Optional end of line version with threaded zinc plated inserts
- For more information, please visit our website **www.durapipe.co.uk**

Gearbox

Handle

Legend

d	Nominal outside diameter
DN	Nominal internal diameter in mm
R	Nominal size or the thread in inches
PN	Nominal pressure in bar (max.working Pressure at 20°C - water)
gms	Weight in grams
PVC-U	Polyvinyl chloride unplasticised
HIPVC	High impact PVC
PE	Polyethylene
PTFE	Polytetrafluoroethylene
EPDM	Ethylene Propylene Diene Monomer (M-class) rubber
s	Wall thickness (mm)
SDR	Standard dimension ratio = d/s

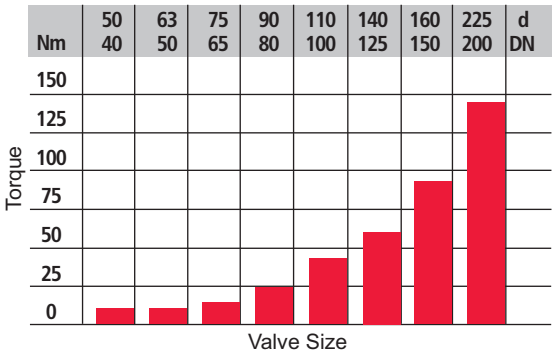


Dimensions and Standards

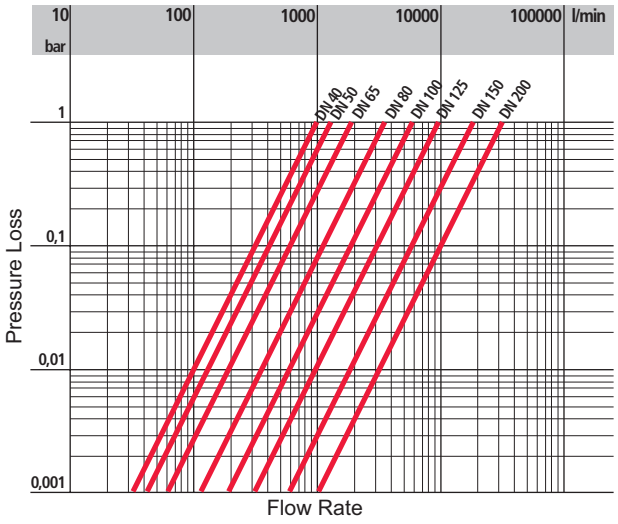
The overall dimensions of the FK Butterfly valve comply with the following standards:
ISO5752 (DN40 to DN200) Medium 25 series
ISO5752 (DN250 to DN300) Long 16 series
DIN 3202 (DN65 to DN 200) K2
DIN 3202 (DN250 to DN3000) K3

The oval holes in the valve body (DN50 to DN200) allow connection to the following flange drilling standards:
BS-EN 1092 PN10 (Formally BS4504 PN10)
ASA B16.5 class 150
BS10, Table D/E

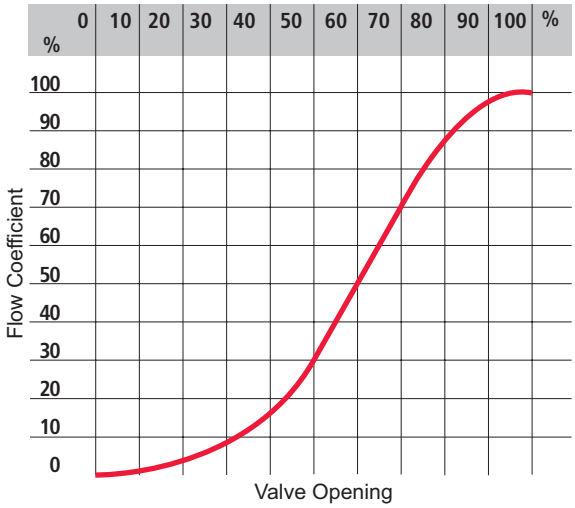
Technical Data



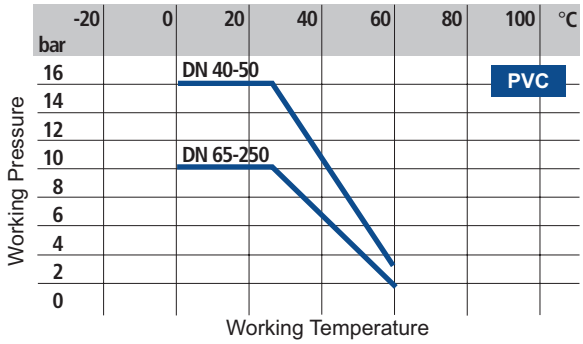
Maximum torque at maximum working pressure.



Pressure loss chart.



Relative flow chart.



Pressure/temperature rating for water and harmless fluids to which the material is RESISTANT. In other cases a reduction of the PN is required. (25 years with safety factor).

DN	40	50	65	80	100	125	150	200
k_{v100}	1000	1285	1700	3350	5900	9850	18700	30500

Flow coefficient k_{v100}
k_{v100} is the number of litres per minute of water at a temperature of 20ºC that will flow through a valve with a one bar pressure differential at a specified rate. The k_{v100} values shown in the table are calculated with the valve fully open.

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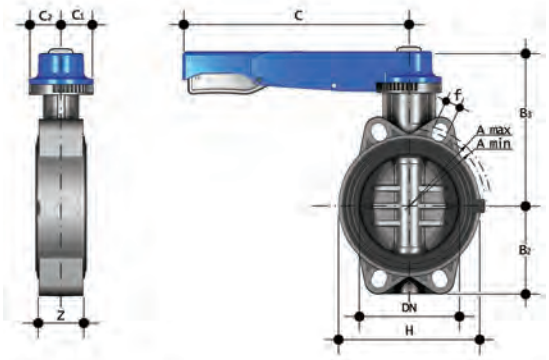
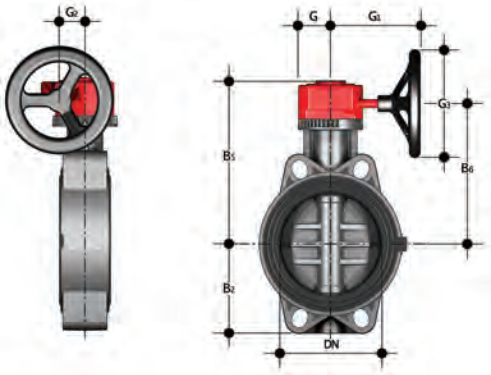


FEOV/LM PVC-U

FK Butterfly valve - Lever operated

														PVC-U	
d	DN	PN	B_2	B_3	H	z	A_{min}	A_{max}	F	U	C	C_1	C_2	gms	EPDM Code
1½" - 50	40	16	60	136	132	33	93.5	109	19	4	175	45	42	827	H0 FEE 106
2" - 63	50	16	70	143	147	43	108	124	19	4	175	45	42	1012	H0 FEE 107
2½" - 75	65	10	80	168	165	46	128	144	19	4	175	45	45	1420	H0 FEE 108
3" - 90	80	10	93	182	130	49	145	159	19	4	250	45	45	1640	H0 FEE 109
4" - 110	100	10	107	196	150	56	165	190	19	4	250	45	45	1990	H0 FEE 110
5" - 140	125	10	120	215	185	64	204	215	23	4	335	45	45	3030	H0 FEE 111
6" - 160	150	10	134	229	210	70	230	242	23	4	335	45	45	3730	H0 FEE 112
8" - 225	200	10	161	309	325		280	298	23	8	425	65	82	8240	H0 FEE 113



FEOV/RM PVC-U

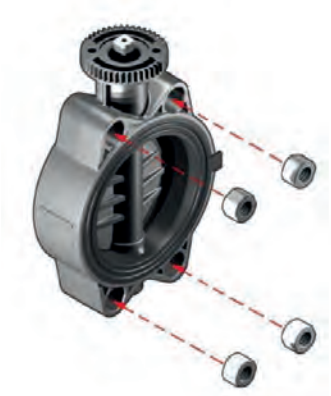
FK Butterfly valve - Gearbox operated

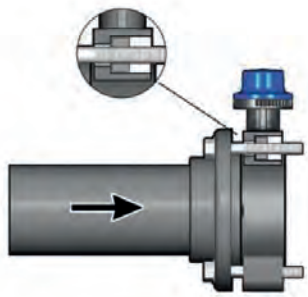
															PVC-U	
d	DN	PN	B_2	B_5	B_6	H	z	A_{min}	A_{max}	F	U	G	G_1	G_2	G_3	gms	EPDM Code
2½" - 75	65	10	80	173	145	165	46	128	144	19	8	48	135	39	125	2400	HV FEE 108
3" - 90	80	10	90	187	159	185	49	145	160	19	8	48	135	39	125	2800	HV FEE 109
4" - 110	100	10	105	201	173	211	56	165	190	19	8	48	135	39	125	3150	HV FEE 110
5" - 140	125	10	121	220	192	240	64	204	215	23	8	48	144	39	200	4450	HV FEE 111
6" - 160	150	10	132	235	207	268	70	230	242	23	8	48	144	39	200	5200	HV FEE 112
8" - 225	200	10	161	288	257	323	71	280	298	23	8	65	204	60	200	9300	HV FEE 113

FE LUG INSERT

The threaded lug inserts are available to convert the FE butterfly valve to a lugged version. The zinc plated steel inserts can be retrofitted. The FE butterfly valve with the Lug Inserts fitted is unidirectional, when used for end of line service.

Range: DN40 to DN200
Standard: BS EN1092 PN10
PN: 4 to 6 Bar (see below) with water @ 20ºC

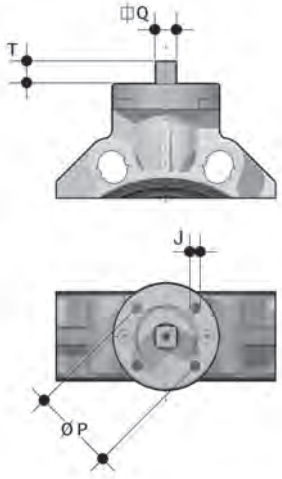




d	DN	PN (std)	PN (lug)	Part code
1½" - 50	40	16	6	INS04JNZ
2" - 63	50	16	6	INS04LNZ
2½" - 75	65	10	6	INS04NNZ
3" - 90	80	10	6	INS04PNZ
4" - 110	100	10	6	INS04QNZ
5" - 140	125	10	6	INS04SNZ
6" - 160	150	10	4	INS04TNZ
8" - 225	200	10	4	INS04VNZ

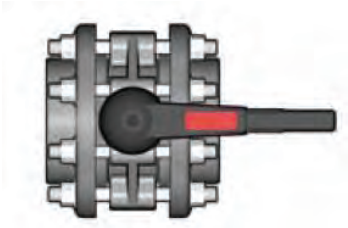
Actuators

The valve can be supplied actuated, pneumatic or electric, by Durapipe.



d	DN	J	P		T	Q
1½" - 50	40	7	50	F05	12	11
2" - 63	50	7	50	F05	12	11
2½" - 75	65	7	50	F05	12	11
3" - 90	80	9	70	F07	16	14
4" - 110	100	9	70	F07	16	14
5" - 140	125	9	70	F07	19	17
6" - 160	150	9	70	F07	19	17
8" - 225	200	11	102	F10	24	22

Flange Bolting

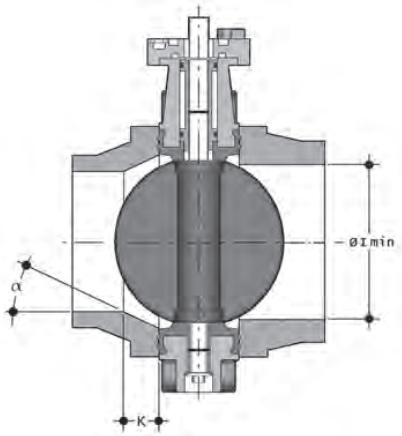


d	DN	J	*Nm
1½" - 50	40	M16	9
2" - 63	50	M16	12
2½" - 75	65	M16	15
3" - 90	80	M16	18
4" - 110	100	M16	20
5" - 140	125	M16	35
6" - 160	150	M20	40
8" - 225	200	M20	55

*Nominal torque required for the tightening of bolts for the flanged joints. Torque required for watertight joints (1.5xPN at 20°C.

Jointing

Before installing the FE it is recommended to check that the assembled pipe/stub flange internal diameter allows the FE disc to be fully opened. (see Table A - l min.)



d	DN	l min.
1½" - 50	40	25
2" - 63	50	28
2½" - 75	65	47
3" - 90	80	64
4" - 110	100	84
5" - 140	125	108
6" - 160	150	134
8" - 225	200	187

For Installation with Inch System Socket Weld, Stub and Full Face flanges: PVC-U

Pipe Size d	DN	Valve Size 1½" 50	2" 63	2½" 75	3" 90	4" 110	5" 140	6" 160	8" 200	10" 250	12" 315
1½"	40	✓									
2"	50		✓								
2½"	65			✓							
3"	80				✓						
4"	100					✓					
5"	125						✓				
6"	150							✓			
8"	200								✓		
10"	250									✓	
12"	300										✓

For Installation with Metric System Socket Weld, Stub and Full Face flanges: PVC-U

Pipe Size d	DN	Valve Size 1½" 50	2" 63	2½" 75	3" 90	4" 110	5" 140	6" 160	8" 200	10" 250	12" 315
50	40	✓									
63	50		✓								
75	75			✓							
90	75				✓						
110	100					✓					
125	125						✓				
160	160							✓			
200	-								✗		*
225	200								✓		
250	250									✓	
250	250										✓

For use with DN200 Valve it is advised to use a d225 stub flange and d225 x d200 reducing bush

Connection to the System

1. Attach the handle to the valve body and fix using the screw supplied. Ensure the sub flange assemblies allow the disc to be fully opened.
2. Fit the valve between the two flanges, it is advised to install the valve with the disc in the partially closed position and to ensure the flanges are aligned correctly. Misalignment of the flanges may cause leaks.
3. Before tightening the bolts it is recommended to open the disc, so as not to damage the valve liner. Connecting bolts must be tightened uniformly. Do not exceed the torque as indicated in the table (see pg 118).
4. The valve is bi-directional and may be installed in any position.
5. If the pipe is horizontal and the medium passing through the valve:

   a) Is 'dirty'; It is advised to install the valve at 45º

   b) Contains solids or suspended solids; it is advised to install the valve horizontally

   c) Clean; it is advised to install the valve vertically

Disassembly (DN40 - DN50)

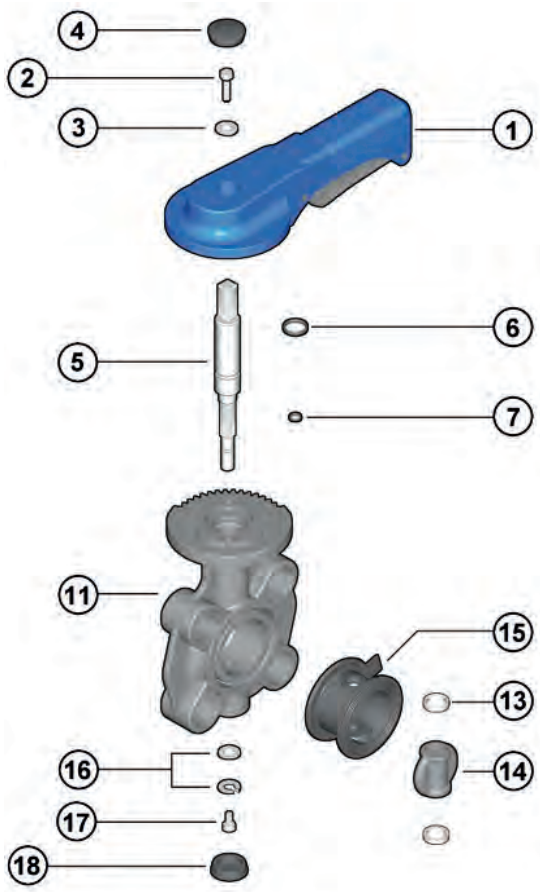
1. Remove the protection cap (4) and undo and remove the retaining screw (2) and washer (3).
2. Remove the handle (1).
3. Remove the protection cap (18) and undo & remove the screw and washer (17 & 18).
4. Extract the shaft (5) and remove the disc (14).
5. Remove the shaft O-rings (6 & 7) from the shaft (5).
6. Remove the anti-friction rings (13).
7. Remove the primary liner (15) from the valve body (11).

Assembly (DN40 - DN50)

1. Fit the primary liner (15) to the valve body (11).
2. Refit the shaft O-rings (6 & 7) onto the shaft (5).
3. Fit the anti-friction rings (13) onto the disc (14)
4. Lubricate the liner and insert the disc into the valve body (1) / liner (15).
5. Push the shaft (5) into the body (11) and through the disc (14).
6. Refit the screw (17) and washers (16) and tighten. Push in the protection cap (18).
7. Push the handle (1) onto the stem (5).
8. Fit the screw (2) and washer (3) and tighten. Push in the protection cap (4).

Note: When assembling the valve components, it is advisable to lubricate the O-rings. Do not use mineral oils as they attack EPDM rubber.

DN40 - DN50



Position	Components	Material
1*	Handle	HIPVC
2	Screw	Stainless steel
3	Washer	Stainless steel
4	Protection Cap	PE
5	Shaft	Zinc plated steel
6*	Shaft O-ring	EPDM
7*	Shaft O-ring	EPDM
11	Body	PVC-U
12*	Disc O-ring	EPDM
13*	Anti-friction Ring	PTFE
14	Disc	PVC-U
15*	Primary Liner	EPDM
16	Washer	Stainless steel
17	Screw	Stainless steel
18	Protection Cap	PE

*Spare Parts

Disassembly (DN65 - DN200)

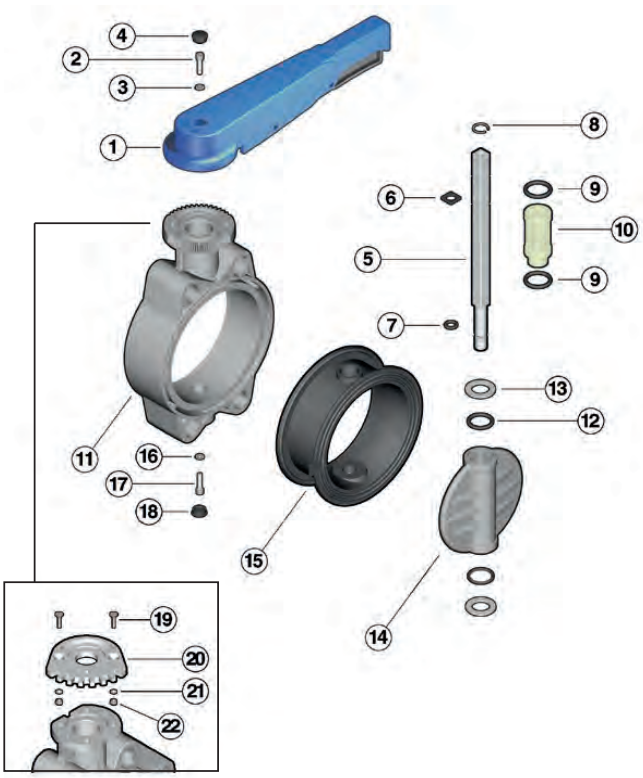
1. Remove the protection cap (4) and undo and remove the retaining screw (2) and washer (3).
2. Remove the handle (1).
3. Remove the protection cap (18) and undo & remove the screw and washer (17 & 18).
4. Extract the shaft (5) and remove the disc (14).
5. Remove the shaft O-rings (6 & 7) from the shaft (5).
6. Remove the anti-friction rings (13).
7. Remove the primary liner (15) from the valve body (11).

Assembly (DN65 - DN200)

1. Fit the primary liner (15) to the valve body (11).
2. Refit the shaft O-rings (6 & 7) onto the shaft (5).
3. Fit the O-rings (9) to the bush (10). Fit the bush onto the shaft (5) and fix in place with the circlip (8).
4. Fit the anti-friction rings (13) and O-rings (12) onto the disc (14).
5. Lubricate the liner and insert the disc into the valve body (11) / liner (15).
6. Push the shaft (5) into the body (11) and through the disc (14).
7. Refit the screw (17) and washer (18) and tighten. Push in the protection cap (18).
8. DN 200 Only - Place the ratchet plate (20) onto the body (11) and hold in place with the screws, nuts and washers (19, 21 & 22).
9. Push the handle (1) onto the shaft (5).
10. Fit the screw (2) and washer (3) and tighten. Push in the protection cap (4).

Note: When assembling the valve components, it is advisable to lubricate the O-rings. Do not use mineral oils as they attack EPDM rubber.

(DN65 - DN200)



DN 200 Only

Position	Components	Material
1*	Handle	HIPVC
2	Screw	Stainless steel
3	Washer	Stainless steel
4	Protection Cap	PE
5	Shaft	Zinc plated steel
6*	Shaft O-ring	EPDM
7*	Shaft O-ring	EPDM
8	Circlip	Stainless steel
9*	Bush O-ring	EPDM
10	Bush	Nylon
11	Body	PVC-U
12*	Disc O-ring	EPDM
13*	Anti-friction Ring	PTFE
14	Disc	PVC-U
15*	Primary Liner	EPDM
16	Washer	Stainless steel
17	Screw	Stainless steel
18	Protection Cap	PE
19	Screw	Stainless steel
20	Ratchet Plate	PVC-U
21	Washer	Stainless steel
22	Nut	Stainless steel

*Spare Parts

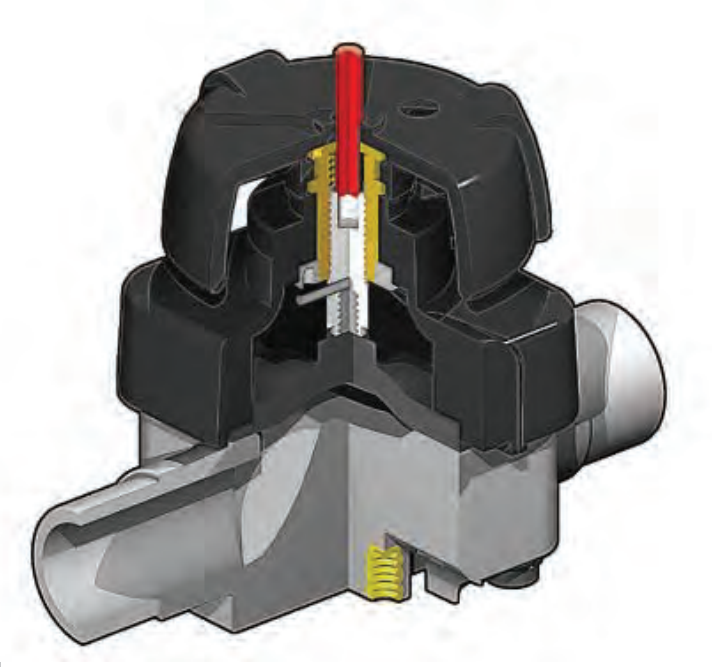
Tel: +44 (0)1543 471680 Fax: +44 (0)1543 471682

UM/VM Diaphragm Valve

- The Diaphragm Valve is manually operated by a non-rising handwheel. The metal spindle and sleeve ensure reliabity. The POM compression bearing reduces friction and wear
- Rising spindle extension to indicate the valve position
- Threaded inserts moulded in the bonnet, allowing the fixing bolts to be inserted from the bottom. This allows a cavity free bonnet, avoiding the accumulation of impurities and solids
- The valve can be used with liquids and gaseous fluids, and is suitable for dirty or abrasive media
- The 'CDSA' (Circular Diaphragm Sealing Area), in valves up to and including DN50, offers the following
  - Uniform pressure distribution of the compressor on to the diaphragm.
  - Reduction of up to 20% of the bolt tightening torque.
  - Reduced mechanical stress on the valve components.
  - Easier internal cleaning.
  - Lower chance of accumulation of deposits and fluid contamination, reducing the possibility of damage caused by crystallisation.
  - Reduced torque to the handwheel operation, by up to 40%. The handwheel operation allows a good regulation and reduces the possibility of water hammer.
- Pressure rating: Maximum working pressure: up to 10 bar at 20°C (water)
- High K_v value and reduced pressure losses
- Modular range: 5 Bonnet/Diaphragm sizes for 9 valve sizes
- Easy replacement of the sealing diaphragm
- Position indicator as standard
- For more information, please visit our website **www.durapipe.co.uk**

Legend

d	Nominal outside diameter
DN	Nominal internal diameter in mm
R	Nominal size or the thread in inches
PN	Nominal pressure in bar (max.working Pressure at 20°C - water)
g	Weight in grams
PmsVC-U	Polyvinyl chloride unplasticised
ABS	Acrylontrile Butadiene Styrene
PP	Polypropylene
PVC-C	Polyvinyl chloride chlorinated
PP-GR	Glass reinforced Polypropylene
HIPVC	High impact PVC
PE	Polyethylene
PTFE	Polytetrafluoroethylene
EPDM	Ethylene Propylene Diene Monomer (M-class) rubber
FPM	Fluorocarbon Rubber
s	Wall thickness (mm)
SDR	Standard dimension ratio = d/s



Dimensions and Standards

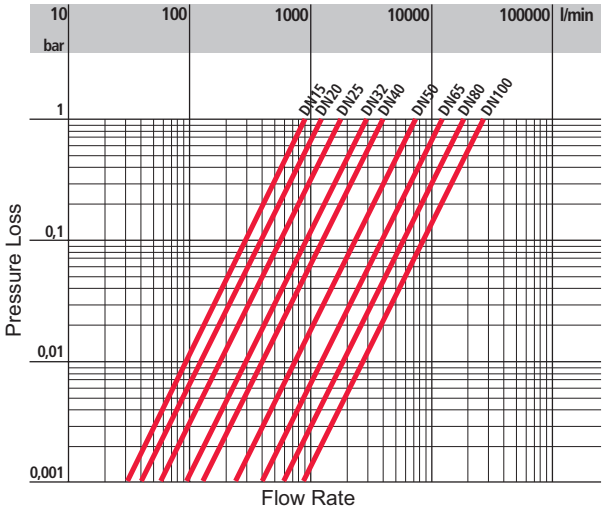
Imperial
The Imperial System is manufactured in accordance with the relevant British Standards: BS 5392 fittings.

Metric
The Metric System is manufactured generally in accordance with the relevant International Standards: ISO 15493, KIWA 49 and 549, DIN 8062 and 8063.

BSP Thread
Threaded fittings conform to the requirements of BS 21/DIN 2999/ISO7. Socket dimensions of metric fittings for solvent welding comply with ISO/DIS 727-1.

Interchangeability
Components in the imperial and metric ranges are not interchangeable.

Technical Data

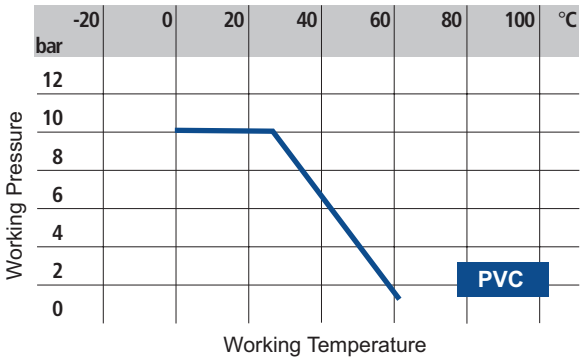


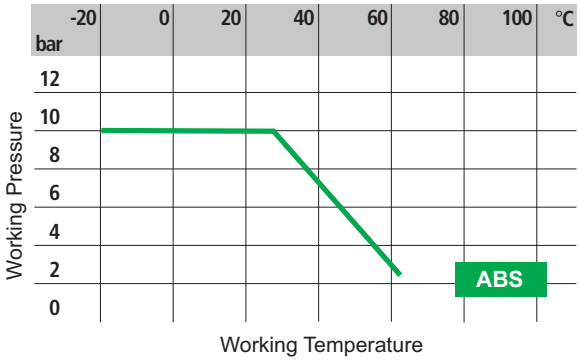
Pressure loss chart.

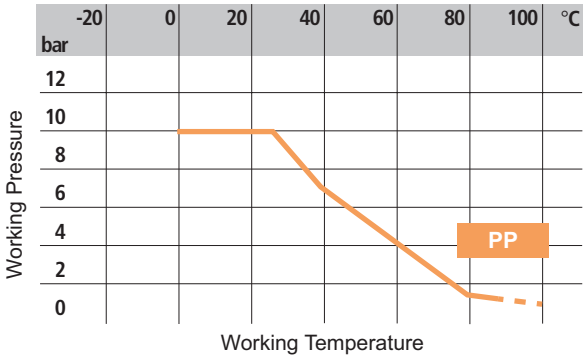
DN	10	15	20	25	32	40	50	65	80	100
k_{v100}	93	93	136	175	300	416	766	1300	2000	2700

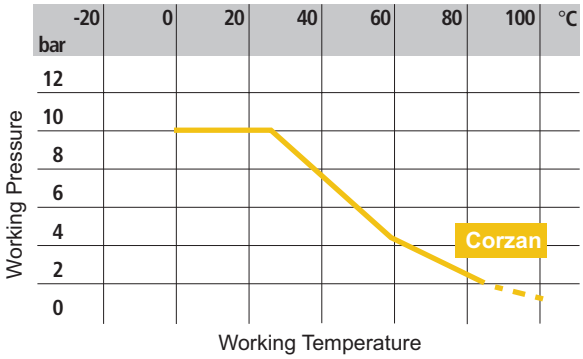
Flow coefficient k_{v100}

k_{v100} is the number of litres per minute of water at a temperature of 20ºC that will flow through a valve with a one bar pressure differential at a specified rate. The k_{v100} values shown in the table are calculated with the valve fully open.



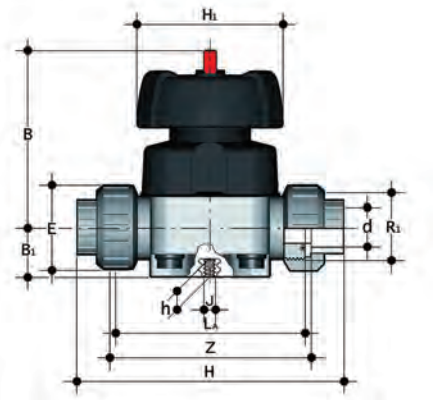






Pressure/temperature rating for water and harmless fluids to which the material is RESISTANT.
In other cases a reduction of the PN is required. (25 years with safety factor).

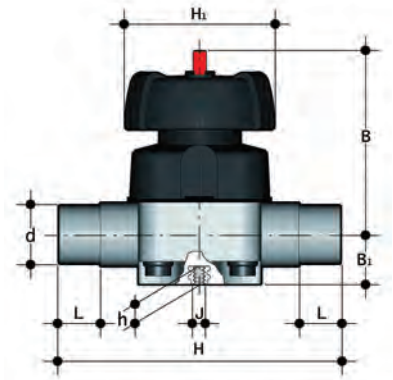
BS Series Female Ends

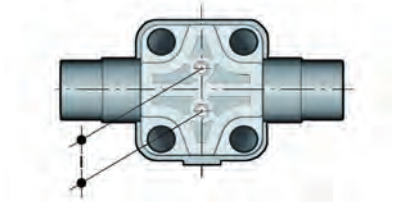


VMULV PVC-U
VMULA ABS

Diaphragm valve with BS series female ends for solvent welding

													PVC-U				ABS			
d	DN	PN	B	B_1	H	h	H_1	I	L_A	J	Z	E	R_1	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code
½	15	10	95	26	147	12	90	25	108	M6	115	41	1	830	H0 UME 102	H0 UMF 102	H0 UMG 102	690	H0 UMA 102	H0 UMB 102	H0 UMC 102
¾	20	10	95	26	154	12	90	25	108	M6	116	50	1¼	860	H0 UME 103	H0 UMF 103	H0 UMG 103	690	H0 UMA 103	H0 UMB 103	H0 UMC 103
1	25	10	95	26	168	12	90	25	116	M6	124	58	1½	895	H0 UME 104	H0 UMF 104	H0 UMG 104	720	H0 UMA 104	H0 UMB 104	H0 UMC 104
1¼	32	10	126	40	192	16	115	44.5	134	M8	140	72	2	1650	H0 UME 105	H0 UMF 105	H0 UMG 105	1520	H0 UMA 105	H0 UMB 105	H0 UMC 105
1½	40	10	126	40	222	16	115	44.5	154	M8	160	79	2¼	1730	H0 UME 106	H0 UMF 106	H0 UMG 106	1545	H0 UMA 106	H0 UMB 106	H0 UMC 106
2	50	10	148	40	266	16	140	44.5	184	M8	190	98	2¾	2800	H0 UME 107	H0 UMF 107	H0 UMG 107	2275	H0 UMA 107	H0 UMB 107	H0 UMC 107





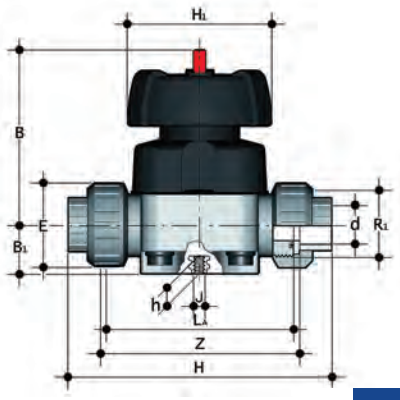
VMMV PVC-U
VMMA ABS

Diaphragm valve with BS series female ends for solvent welding

											PVC-U				ABS			
d	DN	PN	B	B_1	H	h	H_1	I	J	L	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code
2½	65	10	225	55	284	23	200	100	M12	44	7000	H0 VME 412	H0 VMF 412	H0 VMG 412	6225	H0 VMA 412	H0 VMB 412	H0 VMC 412
3	80	10	225	55	300	23	200	100	M12	51	7000	H0 VME 209	H0 VMF 209	H0 VMG 209	6440	H0 VMA 209	H0 VMB 209	H0 VMC 209
4	100	10	295	69	300	23	200	120	M12	61	10500	H0 VME 210	H0 VMF 210	H0 VMG 210	9015	H0 VMA 210	H0 VMB 210	H0 VMC 210

Metric Series Female Ends

VMUIV PVC-U
VMUIA ABS
VMUIM PP
VMUIC Corzan



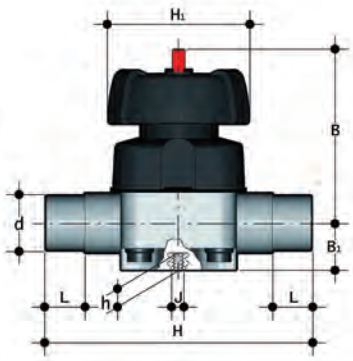
Diaphragm valve with Metric series female ends

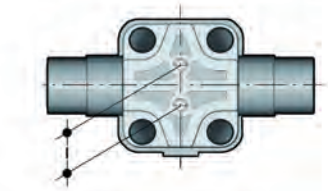
d	DN	PN	B	B_1	H	h	H_1	l	L_A	J	Z	E	R_1
20	15	10	95	26	147	12	90	25	108	M6	115	41	1
25	20	10	95	26	154	12	90	25	108	M6	116	50	1¼
32	25	10	95	26	168	12	90	25	116	M6	124	58	1½
40	32	10	126	40	192	16	115	44.5	134	M8	140	72	2
50	40	10	126	40	222	16	115	44.5	154	M8	160	79	2¼
63	50	10	148	40	266	16	140	44.5	184	M8	190	98	2¾

	PVC-U				ABS			
d	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code
20	830	H0 UME 306	H0 UMF 306	H0 UMG 306	690	H0 UMA 306	H0 UMB 306	H0 UMC 306
25	860	H0 UME 307	H0 UMF 307	H0 UMG 307	690	H0 UMA 307	H0 UMB 307	H0 UMC 307
32	895	H0 UME 308	H0 UMF 308	H0 UMG 308	720	H0 UMA 308	H0 UMB 308	H0 UMC 308
40	1650	H0 UME 309	H0 UMF 309	H0 UMG 309	1520	H0 UMA 309	H0 UMB 309	H0 UMC 309
50	1730	H0 UME 310	H0 UMF 310	H0 UMG 310	1545	H0 UMA 310	H0 UMB 310	H0 UMC 310
63	2800	H0 UME 311	H0 UMF 311	H0 UMG 311	2275	H0 UMA 311	H0 UMB 311	H0 UMC 311

	PP				Corzan			
d	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code
20	710	H0 UMN 306	H0 UMP 306	H0 UMQ 306	860	H0 UMJ 306	H0 UMK 306	H0 UML 306
25	750	H0 UMN 307	H0 UMP 307	H0 UMQ 307	895	H0 UMJ 307	H0 UMK 307	H0 UML 307
32	780	H0 UMN 308	H0 UMP 308	H0 UMQ 308	930	H0 UMJ 308	H0 UMK 308	H0 UML 308
40	1420	H0 UMN 309	H0 UMP 309	H0 UMQ 309	1720	H0 UMJ 309	H0 UMK 309	H0 UML 309
50	1730	H0 UMN 310	H0 UMP 310	H0 UMQ 310	1800	H0 UMJ 310	H0 UMK 310	H0 UML 310
63	2800	H0 UMN 311	H0 UMP 311	H0 UMQ 311	2915	H0 UMJ 311	H0 UMK 311	H0 UML 311

VMIV PVC-U
VMIA ABS
VMDV PP
VMIC Corzan





Diaphragm valve with Metric series male ends

d	DN	PN	B	B_1	H	h	H_1	l	J	L
75	65	10	225	55	284	23	200	100	M12	44
90	80	10	225	55	300	23	200	100	M12	51
110	100	10	295	69	300	23	200	120	M12	61

	PVC-U				ABS			
d	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code
75	7000	H0 VME 412	H0 VMF 412	H0 VMG 412	6225	H0 VMA 412	H0 VMB 412	H0 VMC 412
90	7000	H0 VME 209	H0 VMF 209	H0 VMG 209	6440	H0 VMA 209	H0 VMB 209	H0 VMC 209
110	10500	H0 VME 210	H0 VMF 210	H0 VMG 210	9015	H0 VMA 210	H0 VMB 210	H0 VMC 210

	PP				Corzan			
d	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code
75	6000	H0 VMN 412	H0 VMP 412	H0 VMG 412	7260	H0 VMJ 412	H0 VMK 412	H0 VML 412
90	6000	H0 VMN 209	H0 VMP 209	H0 VMG 209	7260	H0 VMJ 209	H0 VMK 209	H0 VML 209
110	9000	H0 VMN 210	H0 VMP 210	H0 VMG 210	10860	H0 VMJ 210	H0 VMK 210	H0 VML 210

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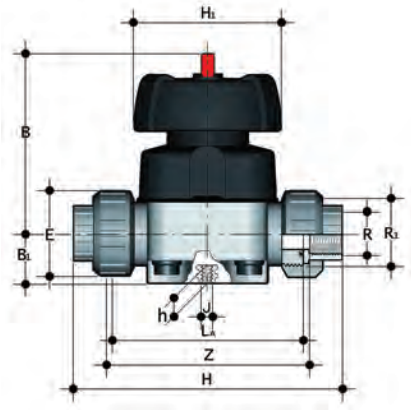
BSP Threaded Socket Ends

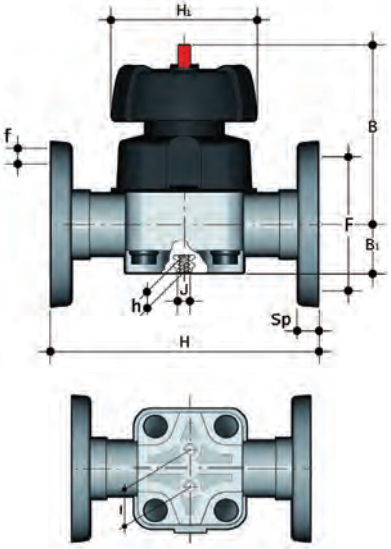


VMUFV PVC-U

Diaphragm valve with BSP parallel female threaded ends.

														PVC-U			
d	DN	PN	B	B_1	H	h	H_1	l	L_A	J	Z	E	R_1	gms	EPDM Code	FPM Code	PTFE Code
½	15	10	95	26	148	12	90	25	108	M6	118	41	1	830	H0 UME B02	H0 UMF B02	H0 UMG B02
¾	20	10	95	26	151	12	90	25	108	M6	118	50	1¼	860	H0 UME B03	H0 UMF B03	H0 UMG B03
1	25	10	95	26	165	12	90	25	116	M6	127	58	1½	895	H0 UME B04	H0 UMF B04	H0 UMG B04
1¼	32	10	126	40	188	16	115	44.5	134	M8	145	72	2	1650	H0 UME B05	H0 UMF B05	H0 UMG B05
1½	40	10	126	40	208	16	115	44.5	154	M8	165	79	2¼	1730	H0 UME B06	H0 UMF B06	H0 UMG B06
2	50	10	148	40	246	16	140	44.5	184	M8	195	98	2¾	2800	H0 UME B07	H0 UMF B07	H0 UMG B07

Flanged Ends to BS EN1092-1 PN10/16



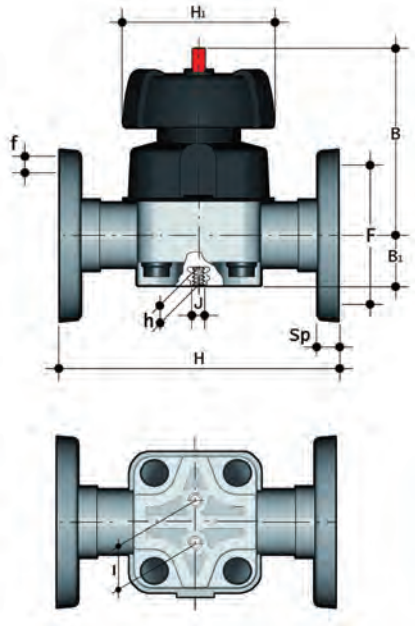
VMOV PVC-U
VMOM PP
VMOC Corzan

Diaphragm valve with Flanged ends, to BS EN1092-1 PN10/16.

d	DN	PN	B	B_1	H	h	H_1	l	J	F	f	S_P
½	15	10	95	26	130	12	90	25	M6	65	14	11
¾	20	10	95	26	150	12	90	25	M6	75	14	13.5
1	25	10	95	26	160	12	90	25	M6	85	14	14
1¼	32	10	126	40	180	18	115	44.5	M8	100	18	14
1½	40	10	126	40	200	18	115	44.5	M8	110	18	16
2	50	10	148	40	230	18	140	44.5	M8	125	18	16
2	65	10	225	55	290	23	200	100	M12	145	18	21
3	80	10	225	55	310	23	200	100	M12	160	18	21.5
4	100	10	225	69	350	23	250	120	M12	180	18	21.5

	PVC-U				PP				Corzan			
d	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code
½	840	H0 VME F02	H0 VMF F02	H0 VMG F02	740	H0 VMN F02	H0 VMP F02	H0 VMQ F02	910	H0 VMJ F02	H0 VMK F02	H0 VML F02
¾	900	H0 VME F03	H0 VMF F03	H0 VMG F03	800	H0 VMN F03	H0 VMP F03	H0 VMQ F03	970	H0 VMJ F03	H0 VMK F03	H0 VML F03
1	990	H0 VME F04	H0 VMF F04	H0 VMG F04	890	H0 VMN F04	H0 VMP F04	H0 VMQ F04	1060	H0 VMJ F04	H0 VMK F04	H0 VML F04
1¼	1960	H0 VME F05	H0 VMF F05	H0 VMG F05	1660	H0 VMN F05	H0 VMP F05	H0 VMQ F05	2120	H0 VMJ F05	H0 VMK F05	H0 VML F05
1½	2075	H0 VME F06	H0 VMF F06	H0 VMG F06	1775	H0 VMN F06	H0 VMP F06	H0 VMQ F06	2225	H0 VMJ F06	H0 VMK F06	H0 VML F06
2	3170	H0 VME F07	H0 VMF F07	H0 VMG F07	2670	H0 VMN F07	H0 VMP F07	H0 VMQ F07	3320	H0 VMJ F07	H0 VMK F07	H0 VML F07
2	8100	H0 VME F08	H0 VMF F08	H0 VMG F08	7100	H0 VMN F08	H0 VMP F08	H0 VMQ F08	8500	H0 VMJ F08	H0 VMK F08	H0 VML F08
3	8500	H0 VME F09	H0 VMF F09	H0 VMG F09	7500	H0 VMN F09	H0 VMP F09	H0 VMQ F09	9150	H0 VMJ F09	H0 VMK F09	H0 VML F09
4	12400	H0 VME F10	H0 VMF F10	H0 VMG F10	11350	H0 VMN F10	H0 VMP F10	H0 VMQ F10	13200	H0 VMJ F10	H0 VMK F10	H0 VML F10

Flanged Ends to ANSI 150



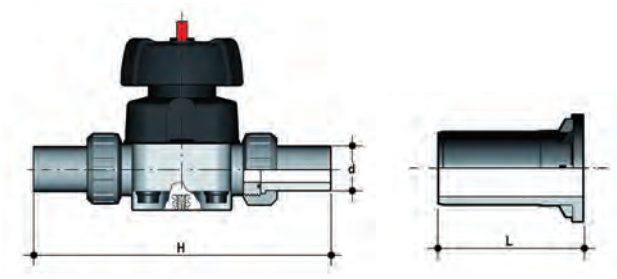
VMOAV PVC-U
VMOAM PP
VMOAC Corzan

Diaphragm valve with Flanged ends, to ANSI 150.

d	DN	PN	B	B_1	H	h	H_1	I	J	F	f	S_P
½	15	10	95	26	130	12	90	25	M6	60.5	16	11
¾	20	10	95	26	150	12	90	25	M6	70	16	13.5
1	25	10	95	26	160	12	90	25	M6	79.5	16	14
1¼	32	10	126	40	180	18	115	44.5	M8	89	16	14
1½	40	10	126	40	200	18	115	44.5	M8	98.5	16	16
2	50	10	148	40	230	18	140	44.5	M8	121	19	16
2	65	10	225	55	290	23	200	100	M12	140	19	21
3	80	10	225	55	310	23	200	100	M12	152.5	19	21.5
4	100	10	225	69	350	23	250	120	M12	190.5	19	21.5

	PVC-U				PP				Corzan			
d	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code
½	840	H0 VME X02	H0 VMF X02	H0 VMG X02	740	H0 VMN X02	H0 VMP X02	H0 VMQ X02	910	H0 VMJ X02	H0 VMK X02	H0 VML X02
¾	900	H0 VME X03	H0 VMF X03	H0 VMG X03	800	H0 VMN X03	H0 VMP X03	H0 VMQ X03	970	H0 VMJ X03	H0 VMK X03	H0 VML X03
1	990	H0 VME X04	H0 VMF X04	H0 VMG X04	890	H0 VMN X04	H0 VMP X04	H0 VMQ X04	1060	H0 VMJ X04	H0 VMK X04	H0 VML X04
1¼	1960	H0 VME X05	H0 VMF X05	H0 VMG X05	1660	H0 VMN X05	H0 VMP X05	H0 VMQ X05	2120	H0 VMJ X05	H0 VMK X05	H0 VML X05
1½	2075	H0 VME X06	H0 VMF X06	H0 VMG X06	1775	H0 VMN X06	H0 VMP X06	H0 VMQ X06	2225	H0 VMJ X06	H0 VMK X06	H0 VML X06
2	3170	H0 VME X07	H0 VMF X07	H0 VMG X07	2670	H0 VMN X07	H0 VMP X07	H0 VMQ X07	3320	H0 VMJ X07	H0 VMK X07	H0 VML X07
2	8100	H0 VME X08	H0 VMF X08	H0 VMG X08	7100	H0 VMN X08	H0 VMP X08	H0 VMQ X08	8500	H0 VMJ X08	H0 VMK X08	H0 VML X08
3	8500	H0 VME X09	H0 VMF X09	H0 VMG X09	7500	H0 VMN X09	H0 VMP X09	H0 VMQ X09	9150	H0 VMJ X09	H0 VMK X09	H0 VML X09
4	12400	H0 VME X10	H0 VMF X10	H0 VMG X10	13500	H0 VMN X10	H0 VMP X10	H0 VMQ X10	13200	H0 VME X10	H0 VMK X10	H0 VML X10

Accessories



End Connector in PE100, long spigot, for electrofusion or butt welding (SDR11)

d	DN	L	H	Product Coide
20	15	95	298	HZ PVE M06
25	20	95	298	HZ PVE M07
32	25	95	314	HZ PVE M08
40	32	95	330	HZ PVE M09
50	40	95	350	HZ PVE M10
63	50	95	380	HZ PVE M11

End connectors also available in PP, please speak to the Durapipe Valve Department for details.

Connection to the System

Before proceeding with the installation, please read and familiarise yourself with these instructions.

Union Ended Version

1. Check that the pipes either side of the valve are axially aligned, in order to avoid mechanical stress on the threaded union joints.
2. Unscrew the union nuts (15) from the valve body and slide them onto the pipe.
3. Solvent weld, Socket Fuse or screw the valve end connectors (14) onto the pipe ends. For correct jointing see the Durapipe material technical catalogues.
4. Position the valve between the two end connectors and screw the union nuts clockwise by hand until a resistance is felt; do not use keys or other tools which may damage the nut Surface.

Spigot Ended Version

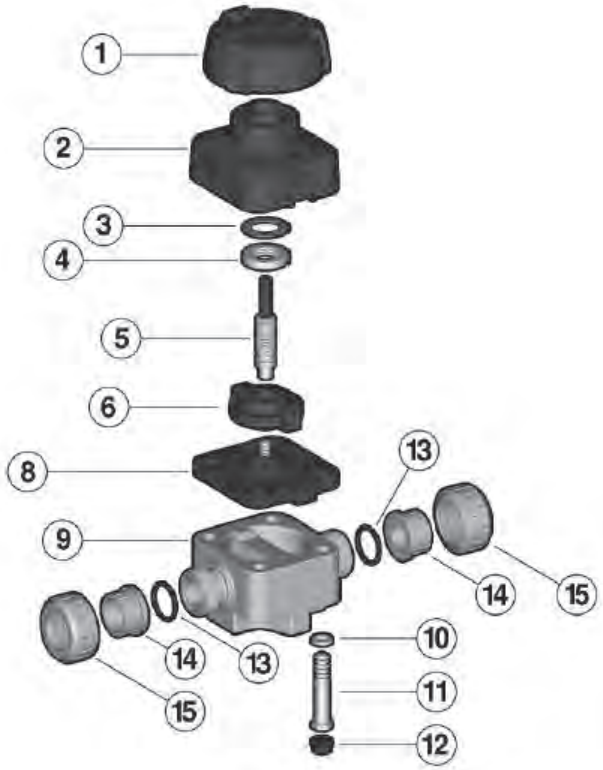
1. Check that the pipes either side of the valve are axially aligned, in order to avoid mechanical stress on the threaded union joints.
2. Solvent weld or Socket Fuse the valve body (9) into the fitting socket. For correct jointing see the Durapipe material technical catalogues. Take care when solvent welding to ensure that no solvent runs into the valve body.

Disassembly

1. Isolate the valve from the flow and drain down upstream of the valve.
2. Unscrew the four bolts (11) and separate the headworks (1 to 6) from the body (9).
3. Unscrew the diaphragm (8) from the compressor (6).
4. Clean or replace the diaphragm, if necessary.

Assembly

1. Screw the diaphragm (8) into the compressor (6), to hand tight, then rotate anti-clockwise to line up the diaphragm holes with the bonnet drillings.
2. Place the bonnet/diaphragm assembly onto the valve body. Bolt together with the four bolts, tightening in a diagonally opposite sequence. Fit the plastic protective caps (12).



Position	Components	Material
1	Handwheel	PP/Glass reinforced
2	Bonnet	PP/Glass reinforced
3	Compression Bearing	POM
4	Security Ring	Brass
5	Indicator / Stem	Stainless steel
6	Compressor	PP/Glass reinforced
7	Diaphragm	EPDM/FPM/PTFE
8*	Valve Body	Valve Material
9	Washer	Zinc plated steel
10	Bolt	Zinc plated steel
12	Protective Cap	PE
13	Socket Seal O-ring	EPDM/FPM
14*	Union End	Valve Material
15*	Union Nut	Valve Material

*Spare Parts

Tel: +44 (0)1543 471680 Fax: +44 (0)1543 471682

CM Diaphragm Valve

- The CM is a manually operated diaphragm valve, with a very small footprint that enables easy installation even where space is at a premium
- The spindle, not in contact with the fluid, is manufactured in metal
- The innovative CDSA - Circular Diaphragm Sealing Area - system offers the following mechanical advantages:
  - uniform distribution of the pressure made by the compressor on the sealing diaphragm
  - easy internal cleaning
  - lower risk of deposit build up, fluid contamination and damaging of the diaphragm due to the eventual crystallization
  - Torque reduction of the hand-wheel

Characteristics

- Compact Design
- Position indicator
- Floating diaphragm suspension
- Rotation symmetric diaphragm clamping with defined sealing circle
- Adjustable Travel Stop
- Easy replacement of sealing diaphragm
- Bottom Entry Stainless Steel Bolts or as option from the top
- Corrosion resistant internal Components
- Sealed Handwheel
- Rising Handwheel
- For more information, please visit our website **www.durapipe.co.uk**

Legend

d	Nominal outside diameter
DN	Nominal internal diameter in mm
R	Nominal size or the thread in inches
PN	Nominal pressure in bar (max.working Pressure at 20°C - water)
gms	Weight in grams
ABS	Acrylontrile Butadiene Styrene
PVC-U	Unplasticised polyvinyl chloride
PP	Polypropylene
EPDM	Ethylene Propylene Diene Monomer (M-class) rubber
FPM	Fluorocarbon Rubber

Dimensions and Standards

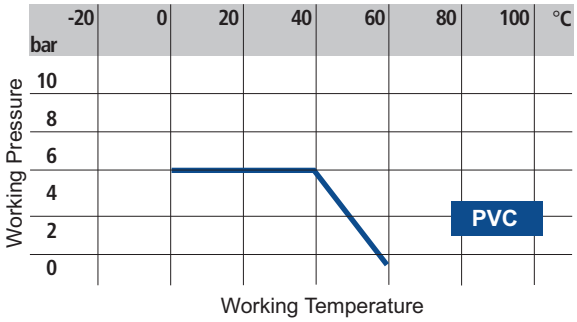
Imperial
The Imperial System is manufactured in accordance with the relevant British Standards: BS 5392 fittings.

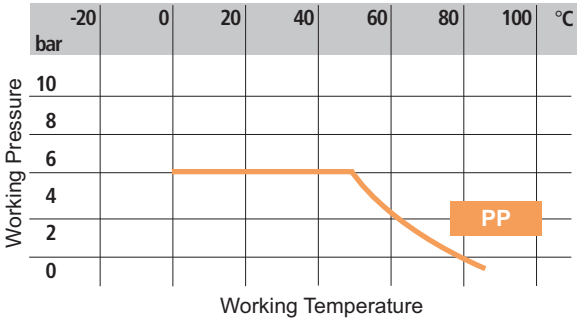
Metric
The Metric System is manufactured generally in accordance with the relevant International Standards: ISO 15493, KIWA 49 and 549, DIN 8062 and 8063.

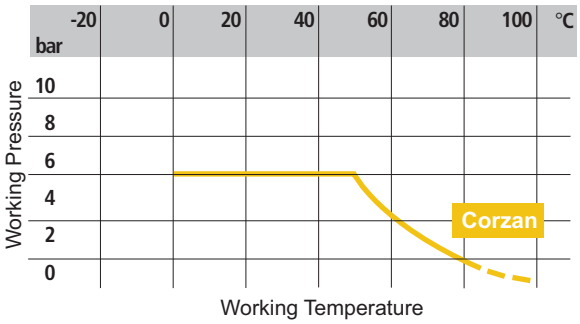
BSP Thread
Threaded fittings conform to the requirements of BS 21/DIN 2999/ISO7. Socket dimensions of metric fittings for solvent welding comply with ISO/DIS 727-1.

Interchangeability
Components in the imperial and metric ranges are not interchangeable.

Technical Data





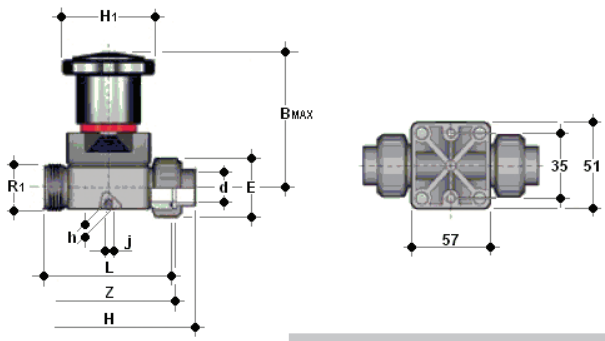


Pressure/temperature rating for water and harmless fluids to which the material is RESISTANT.
In other cases a reduction of the PN is required. (25 years with safety factor).

DN	15
k_{v100}	60

Flow coefficient k_{v100}
k_{v100} is the number of litres per minute of water at a temperature of 20°C that will flow through a valve with a one bar pressure differential at a specified rate. The k_{v100} values shown in the table are calculated with the valve fully open.

BS Series Female Ends

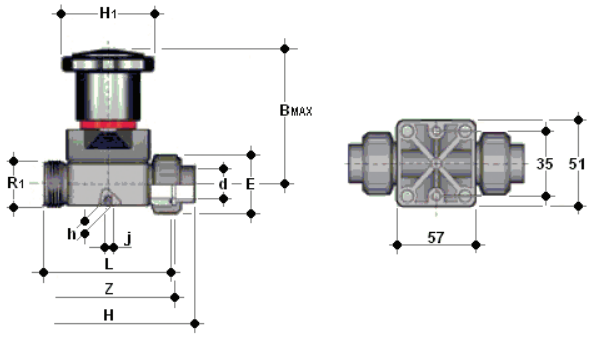


CMULV PVC-U

Diaphragm valve with BS series female ends

												PVC-U			
d	DN	PN	B_{MAX}	E	R_1	H	H_1	L	Z	h	j	gms	EPDM Code	FPM Code	PTFE Code
½	15	6	86	41	1"	129.5	58.5	90	97.5	8	M5	285	H0 CUE 102	H0 CUF 102	H0 CUG 102

BSP Threaded Socket Ends



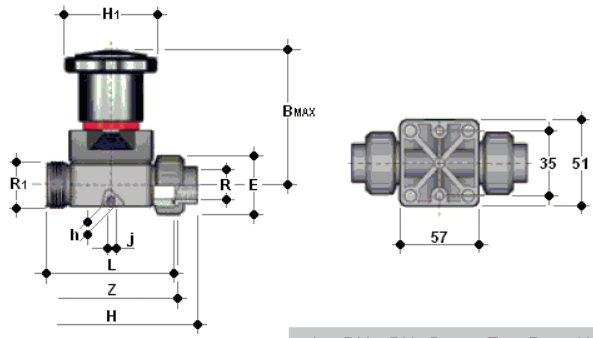
CMUIV PVC-U
CMUIM PP
CMUIC Corzan

Diaphragm valve with Metric series female ends

d	DN	PN	B_{MAX}	E	R_1	H	H_1	L	Z	h	j
20	15	6	86	41	130	12	90	25	M6	65	14

	PVC-U				PP				Corzan			
d	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code
20	285	H0 CUE 306	H0 CUF 306	H0 CUG 306	285	H0 CUG 306	H0 CUG 306	H0 CUQ 306	285	H0 CUJ 306	H0 CUK 306	H0 CUL 306

BS Threaded Socket Ends



CMUFV PVC-U

Diaphragm valve with BSP parallel female threaded

												PVC-U			
d	DN	PN	B_{MAX}	E	R_1	H	H_1	L	Z	h	j	gms	EPDM Code	FPM Code	PTFE Code
½	15	6	86	41	1"	129.5	58.5	90	97.5	8	M5	285	H0 CUE B02	H0 CUF B02	H0 CUG B02

Connection to the System

Before proceeding with the installation, please read and familiarise yourself with these instructions.

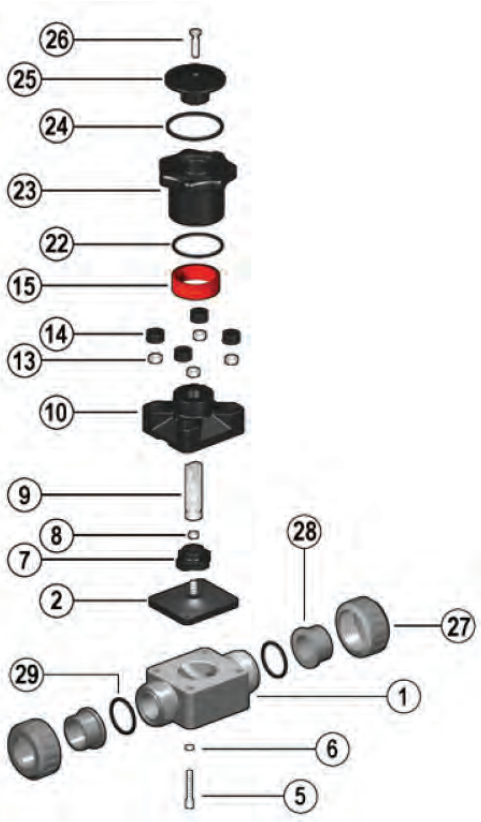
1. Check that the pipes either side of the valve are axially aligned, in order to avoid mechanical stress on the threaded union joints.
2. Unscrew the union nuts (27) from the valve body and slide them onto the pipe.
3. Solvent weld, Socket Fuse or screw the valve end connectors (28) onto the pipe ends. For correct jointing see the Durapipe material technical catalogues.
4. Position the valve between the two end connectors and screw the union nuts clockwise by hand until a resistance is felt; do not use keys or other tools which may damage the nut Surface.

Disassembly

1. Isolate the valve from the flow and drain down upstream of the valve.
2. Unscrew and remove the four screws (5) in order to separate the body (1) from the actuator handwheel assembly.
3. Unscrew the diaphragm (2) from the compressor (7).
4. If needed clean or exchange the diaphragm (2) see the assembly description.
4. Lubricate the stem (9), if necessary.

Assembly

1. The diaphragm (2) should be screwed on the compressor (7) clockwise until resistance is felt, upon which the diaphragm should be screwed anti-clockwise until alignment of the bolt hole centre is achieved.
2. Fix the manual actuator handwheel assembly (10) with the screws (5) onto the body (1). Tighten the bolts (5) cross over wise and make sure the diaphragm is not over pressed.

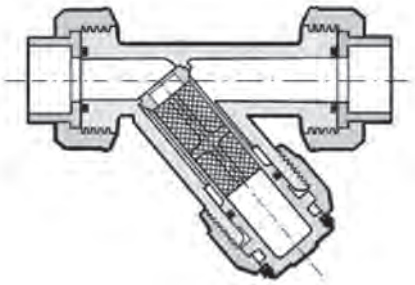


Position	Components	Material
1	Valve Body	PVC-U
2*	Diaphragm	EPDM/FPM/PTFE
5	Fixing Screw	Stainless Steel
6	Washer	Stainless Steel
7	Compressor	PA-GR
8	Nut	Stainless Steel
9	Stem	Stainless Steel
10	Bonnet	PA-GR
13	Nut	Stainless Steel
14	Protection Cap	PDM
15	Visual Indicator	PVDF
22	O-ring	NBR
23	Handwheel	PA-GR
24	O-ring	NBR
25	Cap	PA-GR
26	Fixing Screw	Stainless Steel
27*	Union Nut	PVC-U
28*	Union End	PVC-U
29	Socket Seal O-Ring	EPDM/FPM

*Spare Parts

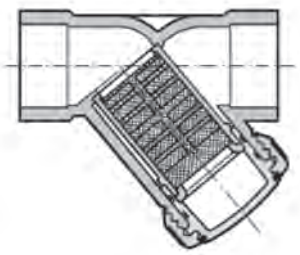
RV Sediment Strainer

- The RV sediment strainer removes solid impurities in suspension in the fluid conveyed by means of a filter screen
- Size range from DN15 up to DN 100
- Pressure rating: Maximum working pressure: up to 16 bar at 20°C (water)
- Maintenance can be carried out while the valve body is installed in line
- For more information, please visit our website **www.durapipe.co.uk**



DN20 - DN50

DN65 - DN90



DN100

Legend

d	Nominal outside diameter
DN	Nominal internal diameter in mm
R	Nominal size or the thread in inches
PN	Nominal pressure in bar (max.working Pressure at 20°C - water)
gms	Weight in grams
PVC-U	Polyvinyl chloride unplasticised
ABS	Acrylontrile Butadiene Styrene
PP	Polypropylene
PVC-C	Polyvinyl chloride chlorinated
EPDM	Ethylene Propylene Diene Monomer (M-class) rubber
FPM	Fluorocarbon Rubber
s	Wall thickness (mm)
SDR	Standard dimension ratio = d/s

Dimensions and Standards

Imperial
The Imperial System is manufactured in accordance with the relevant British Standards: BS 5392 fittings.

Metric
The Metric System is manufactured generally in accordance with the relevant International Standards: ISO 15493, KIWA 49 and 549, DIN 8062 and 8063.

BSP Thread
Threaded fittings conform to the requirements of BS 21/DIN 2999/ISO7. Socket dimensions of metric fittings for solvent welding comply with ISO/DIS 727-1.

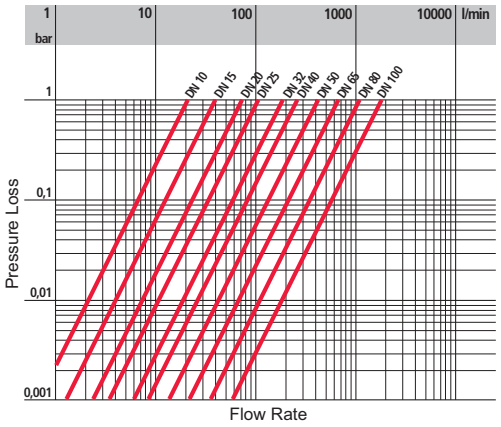
Interchangeability
Components in the imperial and metric ranges are not interchangeable.

Technical Data

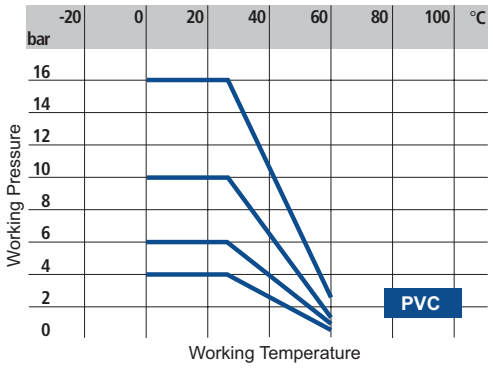
Strainer Material	PVC-U	ABS	PP	Corzan
Hole Pitch (mm)	1.5	1.5	1.5	1.5
Holes per CM²	100	42	42	42
Equivalent ASTM mesh size	35	20	20	20
Ø Equivalent µm	500	600	600	600
Screen Material	PVC	PP	PP	PP

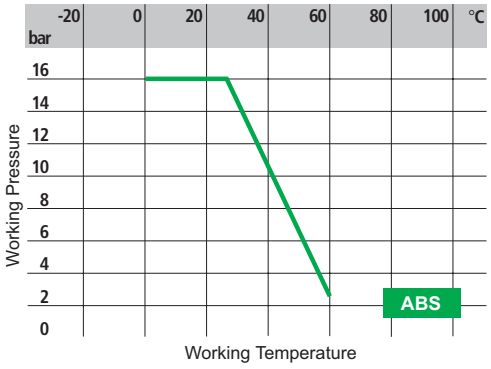
Note: Stainless steel screen also available
Other mesh sizes are available

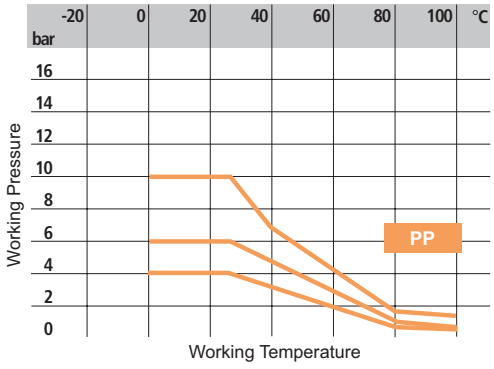
Filter screen sizes.

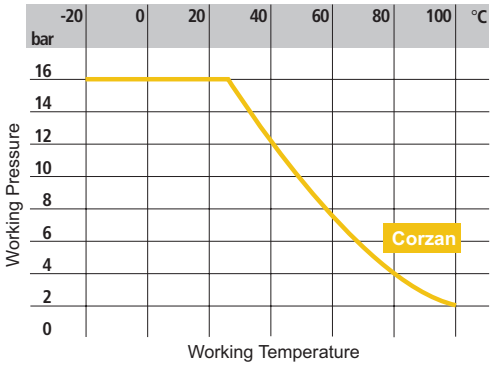


Pressure loss chart.









Pressure/temperature rating for water and harmless fluids to which the material is RESISTANT.
In other cases a reduction of the PN is required. (25 years with safety factor).

DN	10	15	20	25	32	40	50	65	80	100
k_{v100}	16	16	23.5	36	53	69	101	197	247	396

Total filtering screen area (CM²).

DN	10	15	20	25	32	40	50	65	80	100
k_{v100}	22	40	70	103	188	255	410	650	1050	1700

Flow coefficient k_{v100}
k_{v100} is the number of litres per minute of water at a temperature of 20°C that will flow through a valve with a one bar pressure differential at a specified rate. The k_{v100} values shown in the table are calculated with the valve fully open.

Spare filter screens for RV type sediment strainers

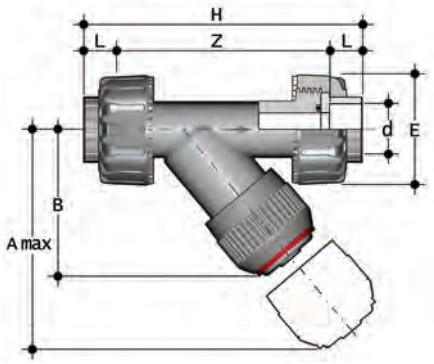
Spare filter screens for RV type sediment strainers

Diameter	DN	PVC (500µm)*	PP (600µm)
16/20	20	RT1959V	RT1959M
25	20	RT1991V	RT1991M
32	25	RT2023V	RT2023M
40	32	RT2242V	RT2242M
50	40	RT2273V	RT2273M
63	50	RT2304V	RT2304M
75	65	RT6891V	RT6891M
90	80	RT6892V	RT6892M
110	100	RT6893V	RT6893M

*300µm, 600µm and 900µm availiable on request.

BS Series Female Ends

RVULV PVC-U
RVULT TRANSPARENT PVC-U
RVULA ABS



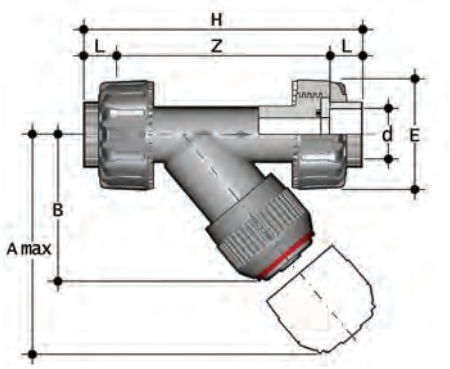
Sediment strainer with BS series female ends for solvent welding

d	DN	PN	A_{max}	B	E	L	Z	H
1/2	15	16	125	72	55	16	103	135
3/4	20	16	145	84	66	19	120	158
1	25	16	165	95	75	22	132	176
1 1/4	32	16*	190	111	87	26	155	207
1 1/2	40	16*	210	120	100	31	181	243
2	50	16**	240	139	120	38	222	298

* PN10 for transparent PVC-U
** PN10 for ABS & transparent PVC-U

	PVC-U			TRANSPARENT PVC-U			ABS		
d	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
1/2	211	H0 UVE 102	H0 UVF 102	211	H0 UTE 102	H0 UTF 102	211	H0 UVA 102	H0 UVB 102
3/4	358	H0 UVE 103	H0 UVF 103	358	H0 UTE 103	H0 UTF 103	358	H0 UVA 103	H0 UVB 103
1	526	H0 UVE 104	H0 UVF 104	526	H0 UTE 104	H0 UTF 104	526	H0 UVA 104	H0 UVB 104
1 1/4	733	H0 UVE 105	H0 UVF 105	733	H0 UTE 105	H0 UTF 105	733	H0 UVA 105	H0 UVB 105
1 1/2	1095	H0 UVE 106	H0 UVF 106	1095	H0 UTE 106	H0 UTF 106	1095	H0 UVA 106	H0 UVB 106
2	1843	H0 UVE 107	H0 UVF 107	1843	H0 UTE 107	H0 UTF 107	18433	H0 UVA 107	H0 UVB 107

Metric Series Female Ends



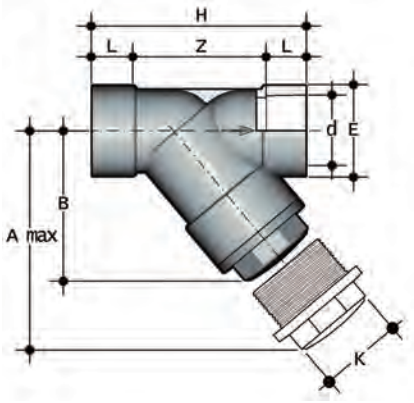
RVUIV PVC-U
RVUIT TRANSPARENT PVC-U
RVUIA ABS
RVUIM PP
RVUIC Corzan

Sediment strainer with Metric series female ends

									PVC-U			TRANSPARENT PVC-U		
d	DN	PN	A_{max}	B	E	L	Z	H	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
16	10	16*	125	72	55	14	107	135	203	H0 UVE 305	H0 UVF 305	203	H0 UTE 305	H0 UTF 305
20	15	16*	125	72	55	16	103	135	211	H0 UVE 306	H0 UVF 306	211	H0 UTE 306	H0 UTF 306
25	20	16*	145	84	66	19	120	158	358	H0 UVE 307	H0 UVF 307	358	H0 UTE 307	H0 UTF 307
32	25	16*	165	95	75	22	132	176	526	H0 UVE 308	H0 UVF 308	526	H0 UTE 308	H0 UTF 308
40	32	16*	190	111	87	26	155	207	733	H0 UVE 309	H0 UVF 309	733	H0 UTE 309	H0 UTF 309
50	40	16*	210	120	100	31	181	243	1095	H0 UVE 310	H0 UVF 310	1095	H0 UTE 310	H0 UTF 310
63	50	16*	240	139	120	38	222	298	1843	H0 UVE 311	H0 UVF 311	1843	H0 UTE 311	H0 UTF 311

* PN10 for transparent PVC-U, ABS & Polypropylene

	ABS			PP			Corzan		
d	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
20	211	H0 UVA 306	H0 UVB 306	148	H0 UVN 306	H0 UVP 306	231	H0 UVJ 306	H0 UVK 306
25	358	H0 UVA 307	H0 UVB 307	195	H0 UVN 307	H0 UVP 307	392	H0 UVJ 307	H0 UVK 307
32	526	H0 UVA 308	H0 UVB 308	297	H0 UVN 308	H0 UVP 308	576	H0 UVJ 308	H0 UVK 308
40	733	H0 UVA 309	H0 UVB 309	475	H0 UVN 309	H0 UVP 309	802	H0 UVJ 309	H0 UVK 309
50	1095	H0 UVA 310	H0 UVB 310	675	H0 UVN 310	H0 UVP 310	1199	H0 UVJ 310	H0 UVK 310
63	1843	H0 UVA 311	H0 UVB 311	1100	H0 UVN 311	H0 UVP 311	2018	H0 UVJ 311	H0 UVK 311



RVIV PVC-U
RVIT TRANSPARENT PVC-U
RVIM PP

Sediment strainer with Metric series female ends

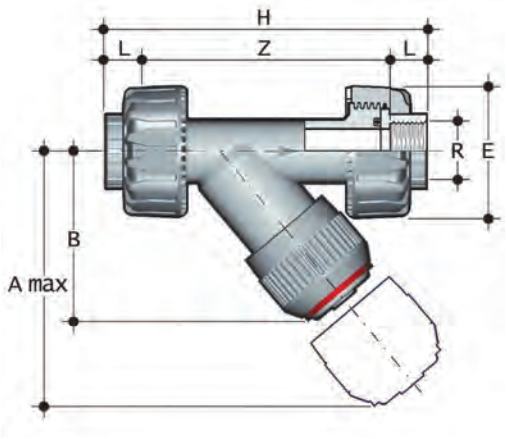
d	DN	PN	A_{max}	B	E	L	Z	H	K
75	65	10**	300	179	104	44	96	243	96
90	80	6***	325	192	116	51	103	262	105
110	100	6***	385	231	138	61	120	325	-

** PN6 for transparent PVC-U & Polypropylene
*** PN4 for transparent PVC-U & Polypropylene

	PVC-U			TRANSPARENT PVC-U			PP		
d	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
75	2385	H0 RVE 312	H0 RVF 312	2385	H0 RTE 312	H0 RTF 312	1580	H0 RVN 312	H0 RVP 312
90	2975	H0 RVE 313	H0 RVF 313	2975	H0 RTE 313	H0 RTF 313	1920	H0 RVN 313	H0 RVP 313
110	4610	H0 RVE 314	H0 RVF 314	4610	H0 RTE 314	H0 RTF 314	3000	H0 RVN 314	H0 RVP 314

BSP Threaded Socket Ends

RVUFV PVC-U
RVUFT TRANSPARENT PVC-U
RVUFA ABS
RVUFM PP



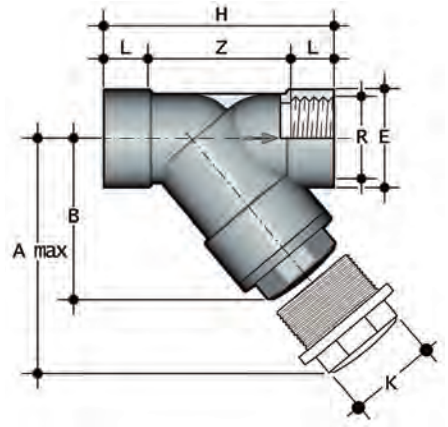
Sediment strainer with BSP parallel female threaded ends

d	DN	PN	A_{max}	B	E	L	Z	H	Z***
1/2	15	16*	125	72	55	16	103	135	73
3/4	20	16*	145	84	66	19	120	158	82.4
1	25	16*	165	95	75	22	132	176	89.8
1 1/4	32	16*	190	111	87	26	155	207	103.2
1 1/2	40	16*	210	120	100	31	181	243	121.2
2	50	16*	240	139	120	38	222	298	147.6

* PN10 for transparent PVC-U, ABS & Polypropylene

Z*** For ABS sizes only.

	PVC-U			TRANSPARENT PVC-U			ABS			PP		
d	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
1/2	210	H0 UVE B02	H0 UVF B02	210	H0 UTE B02	H0 UTF B02	211	H0 UVA B02	H0 UVB B02	148	H0 UVN B02	H0 UVP B02
3/4	355	H0 UVE B03	H0 UVF B03	355	H0 UTE B03	H0 UTF B03	358	H0 UVA B03	H0 UVB B03	195	H0 UVN B03	H0 UVP B03
1	522	H0 UVE B04	H0 UVF B04	522	H0 UTE B04	H0 UTF B04	526	H0 UVA B04	H0 UVB B04	297	H0 UVN B04	H0 UVP B04
1 1/4	742	H0 UVE B05	H0 UVF B05	742	H0 UTE B05	H0 UTF B05	733	H0 UVA B05	H0 UVB B05	475	H0 UVN B05	H0 UVP B05
1 1/2	1106	H0 UVE B06	H0 UVF B06	1106	H0 UTE B06	H0 UTF B06	1095	H0 UVA B06	H0 UVB B06	675	H0 UVN B06	H0 UVP B06
2	1873	H0 UVE B07	H0 UVF B07	1873	H0 UTE B07	H0 UTF B07	1843	H0 UVA B07	H0 UVB B07	1100	H0 UVN B07	H0 UVP B07



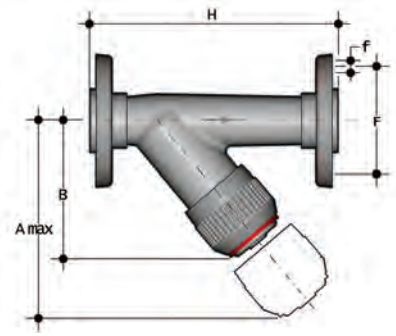
RVFV PVC-U
RVFT TRANSPARENT PVC-U

Sediment strainer with BSP parallel female threaded ends

										PVC-U			TRANSPARENT PVC-U		
d	DN	PN	A_{max}	B	E	L	Z	H	K	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
2 1/2	65	10**	300	179	104	30.2	182.6	243	96	2385	H0 RVE B08	H0 RVF B08	2385	H0 RTE B08	H0 RTF B08
3	80	6***	325	192	116	33.3	195.4	262	105	2975	H0 RVE B09	H0 RVF B09	2975	H0 RTE B09	H0 RTF B09
4	100	6***	385	231	138	39.3	246.4	325	-	4610	H0 RVE B10	H0 RVF B10	4610	H0 RTE B10	H0 RTF B10

** PN6 for transparent PVC-U
*** PN4 for transparent PVC-U

Flanged Ends to BS EN1092-1 PN10/16



RVUOV PVC-U
TRANSPARENT PVC-U
RVUOA ABS
RVUOM PP
RVUOC Corzan

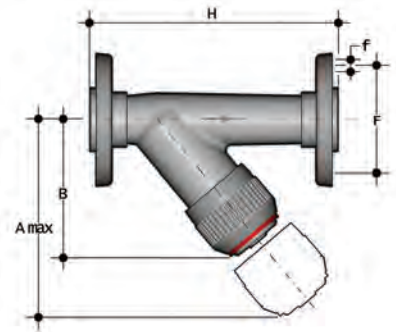
Sediment strainer with Flanged ends, to BS EN1092-1 PN10/16

								PVC-U			TRANSPARENT PVC-U		
d	DN	PN	A_{max}	B	H	f	F	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
1/2	15	16*	125	72	162.5	14	65	376	H0 UVE F02	H0 UVF F02	376	H0 UTE F02	H0 UTF F02
3/4	20	16*	145	84	193	14	75	613	H0 UVE F03	H0 UVF F03	613	H0 UTE F03	H0 UTF F03
1	25	16*	165	95	210.5	14	85	791	H0 UVE F04	H0 UVF F04	791	H0 UTE F04	H0 UTF F04
1 1/4	32	16*	190	111	243.5	18	100	1163	H0 UVE F05	H0 UVF F05	1163	H0 UTE F05	H0 UTF F05
1 1/2	40	16*	210	120	277	18	110	1585	H0 UVE F06	H0 UVF F06	1585	H0 UTE F06	H0 UTF F06
2	50	16*	240	139	330.5	18	125	2613	H0 UVE F07	H0 UVF F07	2613	H0 UTE F07	H0 UTF F07

* PN10 for transparent PVC-U, ABS & Polypropylene

	ABS			PP			Corzan		
d	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
1/2	391	H0 UVA F02	H0 UVB F02	390	H0 UVN F02	H0 UVP F02	489	H0 UVJ F02	H0 UVK F02
3/4	638	H0 UVA F03	H0 UVB F03	481	H0 UVN F03	H0 UVP F03	697	H0 UVJ F03	H0 UVK F03
1	866	H0 UVA F04	H0 UVB F04	696	H0 UVN F04	H0 UVP F04	996	H0 UVJ F04	H0 UVK F04
1 1/4	1233	H0 UVA F05	H0 UVB F05	1070	H0 UVN F05	H0 UVP F05	1428	H0 UVJ F05	H0 UVK F05
1 1/2	1745	H0 UVA F06	H0 UVB F06	1339	H0 UVN F06	H0 UVP F06	1953	H0 UVJ F06	H0 UVK F06
2	2758	H0 UVA F07	H0 UVB F07	1994	H0 UVN F07	H0 UVP F07	3042	H0 UVJ F07	H0 UVK F07

Flanged Ends to ANSI 150



RVUOAV PVC-U
RVUOAT TRANSPARENT PVC-U
RVUOAM PP
RVUOAC Corzan

Sediment strainer with Flanged ends, to ANSI150

d	DN	PN	A_{max}	B	H	f	F
1/2	15	16*	125	72	162.5	16	60.5
3/4	20	16*	145	84	193	16	70
1	25	16*	165	95	210.5	16	79.5
1 1/4	32	16*	190	111	243.5	16	89
1 1/2	40	16*	210	120	277	16	98.5
2	50	16*	240	139	330.5	19	121

* PN10 for transparent PVC-U, ABS & Polypropylene

	PVC-U			TRANSPARENT PVC-U			PP			Corzan		
d	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
1/2	376	H0 UVE X02	H0 UVF X02	376	H0 UVE X02	H0 UVF X02	390	H0 UVN X02	H0 UVP X02	489	H0 UVJ X02	H0 UVK X02
3/4	613	H0 UVE X03	H0 UVF X03	613	H0 UVE X03	H0 UVF X03	481	H0 UVN X03	H0 UVP X03	697	H0 UVJ X03	H0 UVK X03
1	791	H0 UVE X04	H0 UVF X04	791	H0 UVE X04	H0 UVF X04	696	H0 UVN X04	H0 UVP X04	996	H0 UVJ X04	H0 UVK X04
1 1/4	1163	H0 UVE X05	H0 UVF X05	1163	H0 UVE X05	H0 UVF X05	1070	H0 UVN X05	H0 UVP X05	1428	H0 UVJ X05	H0 UVK X05
1 1/2	1585	H0 UVE X06	H0 UVF X06	1585	H0 UVE X06	H0 UVF X06	1339	H0 UVN X06	H0 UVP X06	1953	H0 UVJ X06	H0 UVK X06
2	2613	H0 UVE X07	H0 UVF X07	2613	H0 UVE X07	H0 UVF X07	1994	H0 UVN X07	H0 UVP X07	3042	H0 UVJ X07	H0 UVK X07

Connection to the System

1. The strainer may be installed in any position in the pipeline with the arrow on the body in the direction of the line flow and with the bonnet facing downwards
2. When installing the strainer in a vertical line. Extreme care must be taken to ensure no solvent cement runs into the body of the strainer, as this could severely damage the internal parts and render the strainer inoperative.
3. To eliminate any possible damage to the filter screen, the pipeline design should ensure that reverse. Flow conditions cannot occur.

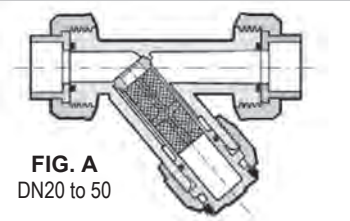


FIG. A
DN20 to 50

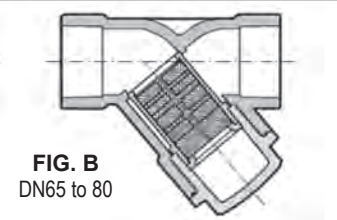


FIG. B
DN65 to 80

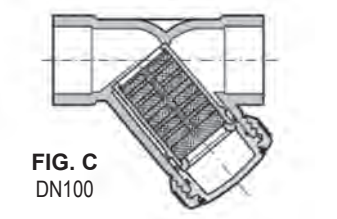


FIG. C
DN100

Disassembly

FIG. A

1. Isolate the strainer from the flow and drain down upstream of the strainer
2. Unscrew the locknut (7) and separate the screen support housing (4) from the body (1)
3. Remove the retaining ring (6) from the screen support housing (4)
4. Remove the split ring (8) to release the screen support housing (4) from the lock nut (7)
5. Remove the sealing O-ring (5)

FIG. B

1. Isolate the strainer from the flow and drain down upstream of the strainer
2. Unscrew the bonnet (3) from the body (1)
3. Remove the screen support housing (4) from the bonnet (3)
4. Remove the retaining ring (6) from the bonnet (3) and the o-ring seal (5) from its seat in the body (1)

FIG. C

1. Isolate the strainer from the flow and drain down upstream of the strainer
2. Unscrew the locknut (7) and separate the bonnet/screen support assembly (3 & 4) from the body (1)
3. Remove the retaining ring (6) from the bonnet/screen support assembly (3-4)
4. Remove the split ring (8) to release the bonnet (3) from the lock nut (7)
5. Remove the bonnet sealing rings (5)

Assembly

FIG. A

1. Fit the O-ring (5) into the groove on the bonnet (3)
2. Slip the lock nut (7) over the screen support housing (4) and fix it in its position by snapping the split ring (8) into the top Groove on the screen support housing (4)
3. Insert the filter screen (2) into the screen support housing (4) and secure it with the retaining ring (6)
4. Insert the screen support housing (4) into the body (1) and screw the lock nut (7)

FIG. B

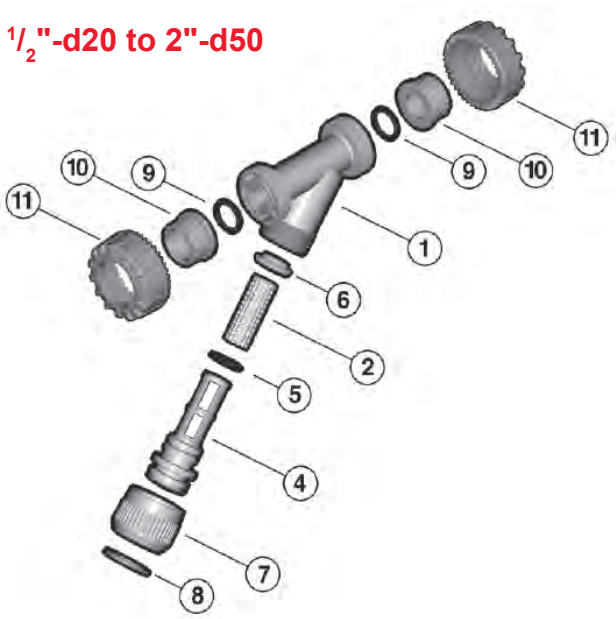
1. Fit the O-ring seal (5) into the body (1)
2. Fit the retaining ring (6) into the bonnet (3) with the cone part facing upwards
3. Insert the filter screen (2) into the screen housing (3)
4. Insert the screen support housing (4) into the bonnet (3)
5. Screw the bonnet assembly into the body (1)

FIG. C

1. Fit the O-rings (5) into the grooves on the bonnet (3)
2. Slip the lock nut (7) over the screen bonnet (3) and fix it in its position by snapping the split ring (8) into the top Groove on the bonnet (3)
3. Insert the filter screen (2) into the screen housing/bonnet assembly (3-4) and secure it with the retaining ring (6)
4. Insert the screen housing/bonnet assembly (3-4) into the body (1) and screw the lock nut (7)

Note: Maintenance operations may be carried out with the strainer body in-line. When assembling the valve components it is advisable to lubricate the O-rings. Do not use mineral oils as they attack EPDM rubber.

1/2"-d20 to 2"-d50

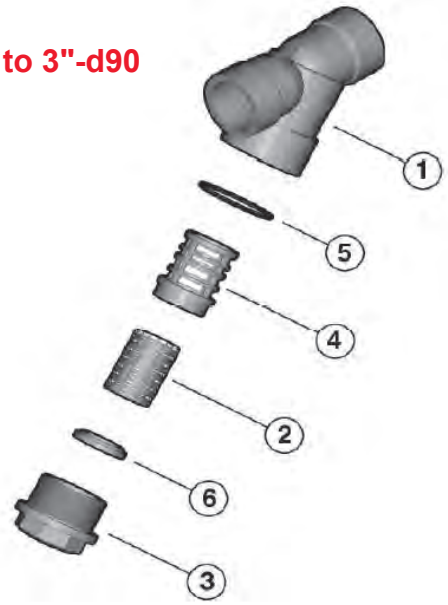


Position	Components	Material
1	Body	Valve Material
2*	Screen	PVC (PVC-U & Transparent PVC strainer)# PP (ABS, PP & Corzan strainer)#
4	Screen Support Housing	Valve Material
5*	O-ring Seal	EPDM/FPM
6	Retaining Ring	Valve Material
7	Lock Nut	Valve Material
8	Split Ring	PVC-U
9*	Socket Seal O-ring	EPDM/FPM
10*	End Connector	Valve Material
11	Union Nut	Valve Material

*Spare Parts

Stainless steel screen also available

2 1/2"-d75 to 3"-d90

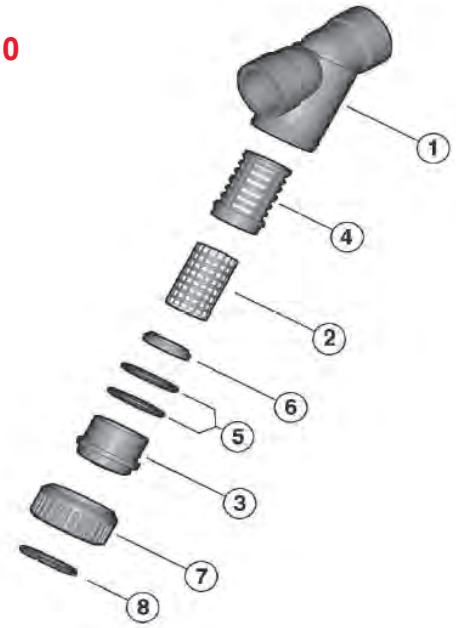


Position	Components	Material
1	Body	Valve Material
2*	Screen	PVC (PVC-U & Transparent PVC strainer) # PP (ABS, PP & Corzan strainer) #
3*	Bonnet	Valve Material
4	Screen Support Housing	Valve Material
5*	O-ring Seal	EPDM/FPM
6	Retaining Ring	Valve Material

*Spare Parts

Stainless steel screen also available

4"-d110



Position	Components	Material
1	Body	Valve Material
2*	Screen	PVC (PVC-U & Transparent PVC strainer) # PP (ABS, PP & Corzan strainer) #
3	Bonnet	Valve Material
4	Screen support housing	Valve Material
5*	O-ring seal	EPDM/FPM
6	Retaining Ring	Valve Material
7	Lock nut	Valve Material
8	Split ring	PVC-U

*Spare Parts

Stainless steel screen also available

VM/RM Diaphragm Valve & Cock

- The VM Mini Diaphragm Valve and RM Mini Diapragm Cock are used for fast control and on/off operation. They are both compact valves, particularly suitable for use in laboratories
- Pressure rating: Maximum working pressure: 10 bar at 20°C (water) (VM)
- Pressure rating: Maximum working pressure: 4 bar at 20°C (water) (RM)
- The various connection options allow this valve to be used with Rigid PVC-U and Plastic or rubber tubing
- For more information, please visit our website **www.durapipe.co.uk**

Legend

d	Nominal outside diameter
DN	Nominal internal diameter in mm
R	Nominal size or the thread in inches
PN	Nominal pressure in bar (max.working Pressure at 20°C - water)
gms	Weight in grams
PVC-U	Polyvinyl chloride unplasticised
POM	Polyoxymethylene
EPDM	Ethylene Propylene Diene Monomer (M-class) rubber
FPM	Fluorocarbon Rubber

Dimensions and Standards

The Metric System is manufactured generally in accordance with the relevant international standards: ISO 15493, KIWA 49 and 549, DIN 8062 and 8063

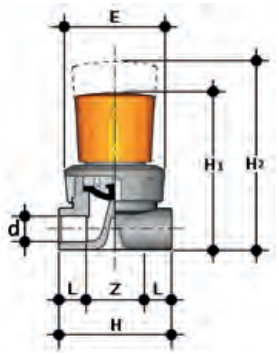
BSP Thread

Threaded fittings conform to the requirements of BS 21/DIN 2999/ISO7. Socket dimensions of metric fittings for solvent welding comply with ISO/DIS 727-1.

Interchangeability

Components in the imperial and metric ranges are not interchangeable.

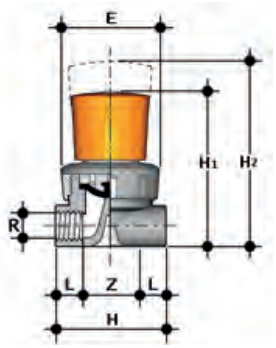
VM Mini Diaphragm Valves



VMIV PVC-U

Diaphragm valve with Metric series female ends for solvent welding

									PVC-U	
d	DN	PN	L	H_1	H_2	H	E	Z	gms	EPDM Code
12	8	10	12	72	81	48	43	24	70	H0 CME 304



VMFV PVC-U

Diaphragm valve with BSP female threaded ends

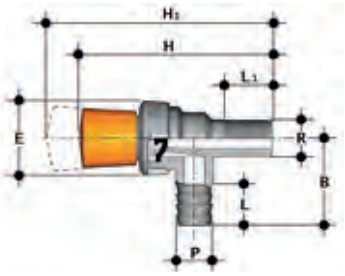
									PVC-U	
d	DN	PN	L	H_1	H_2	H	E	Z	gms	EPDM Code
1/4	8	10	10.5	72	81	48	43	27	70	H0 VME B00

Dimensions and Standards

BSP Thread

Threaded fittings conform to the requirements of BS 21/DIN 2999/ISO7. Socket dimensions of metric fittings for solvent welding comply with ISO/DIS 727-1.

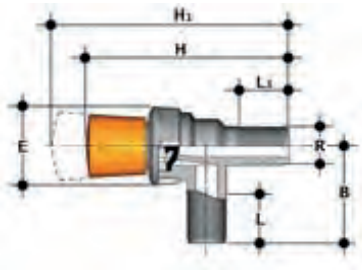
RM Mini Diaphragm Cocks



RMRPV PVC-U

Diaphragm cock with BSP parallel female threaded end / Hose tail connection

										PVC-U	
R	P	DN	PN	H_1	H_1	H_1	H	E	Z	gms	EPDM Code
1/2	20	15	4	12	72	81	48	43	24	70	H0 CME 102



RMRV PVC-U

Diaphragm valve with BSP parallel female threaded ends

									PVC-U	
d	DN	PN	H	H_1	L_1	L	E	B	gms	EPDM Code
1/2	15	4	110	119	28	16	43	50	70	H0 RME T02

Connection to the System

Before proceeding with the installation, please read and familiarise yourself with these instructions.

The mini diaphragm valve or the diaphragm cock may be installed in any position/orientation. Note :When the mini diaphragm valve VMIV is installed on a vertical pipe , care must be taken to ensure that no solvent cement runs into the valve body, as this would damage the seat and seal and the valve would not operate.

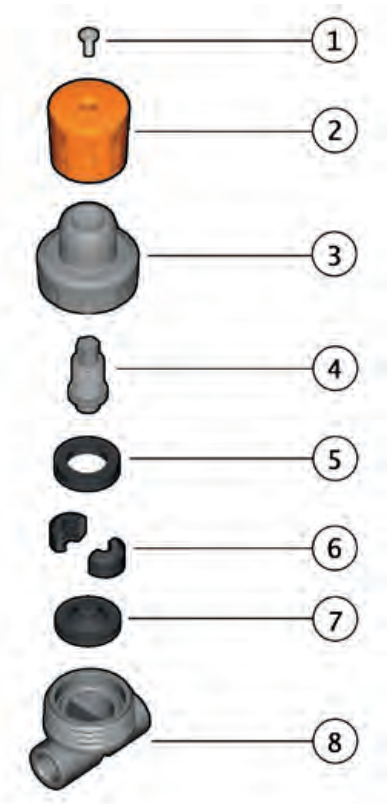
For correct solvent cementing procedure. See the Durapipe PVC-U technical catalogue

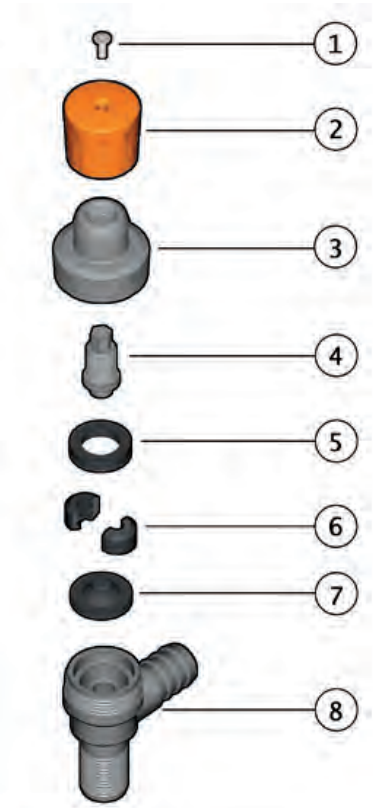
Disassembly

1. Isolate the valve from the flow and drain down upstream of the valve.
2. Unscrew the bonnet (3) clockwise from the body (8)
3. Unscrew the screw (1) and remove the handwheel (2)
4. Remove the stem (4) to gain access to the closing ring (5), the split collar (6) and the diaphragm (7).

Assembly

1. Assemble the split collar (6), the closing ring (5) and the diaphragm (7) onto the stem (4), ensuring the stem is located in the larger hole on the split collar and the diaphragm located in the smaller hole.
2. Screw the stem assembly into the bonnet (3).
3. Position the handwheel (2) on the bonnet (3) and tighten the retaining screw (1).
4. Tighten the valve bonnet (3) ant-clockwise, using a strap wrench.





Position	Components	Material
1	Screw	Stainless Steel
2	Handwheel	PVC-U
3	Bonnet	PVC-U
4	Stem	PVC-U
5	Closing Ring	POM
6	Split Collar	POM
7	Diaphragm	EPDM
8	Valve Body	PVC-U

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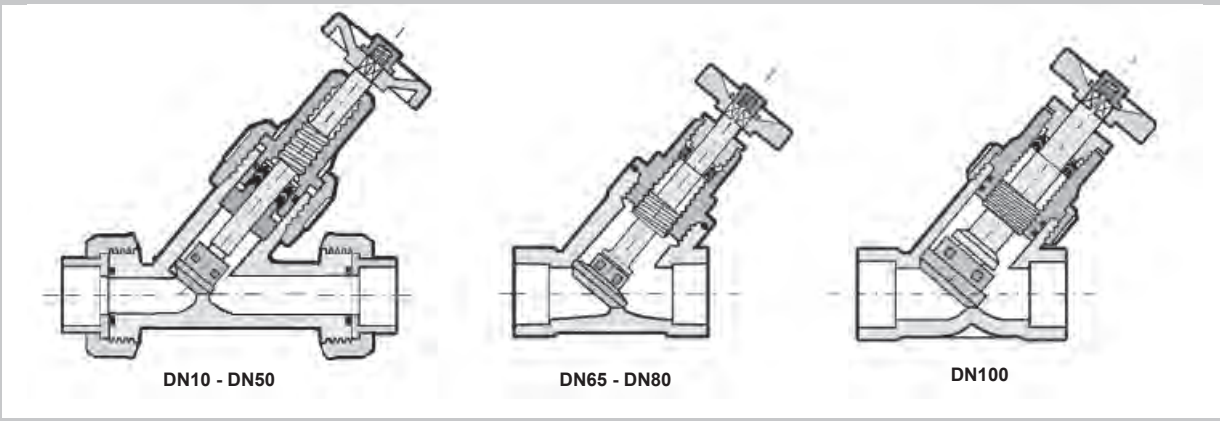
VV Angle Seat Valve

- The VV Angle seat Valve is manually operated by a handwheel. It is particularly suited for the control of flow of clean fluids
- Size range from DN10 up to DN100
- Pressure rating: Maximum working pressure up to 16 bar @ 20°C (Water)
- The valve may be installed in any orientation
- Maintenance can be carried whilst the valve body is in line
- For more information, please visit our website **www.durapipe.co.uk**



Legend

d	Nominal outside diameter
DN	Nominal internal diameter in mm
R	Nominal size or the thread in inches
PN	Nominal pressure in bar (max.working Pressure at 20°C - water)
gms	Weight in grams
ABS	Acrylontrile Butadiene Styrene
PVC-U	Polyvinyl chloride unplasticised
PP	Polypropylene
EPDM	Ethylene Propylene Diene Monomer (M-class) rubber
s	Wall thickness (mm)
SDR	Standard dimension ratio = d/s

Dimensions and Standards

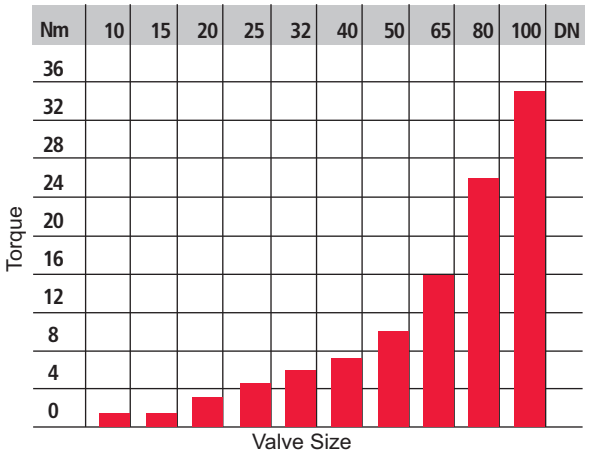
Imperial
The Imperial System is manufactured in accordance with the relevant British Standards: BS 5392 fittings.

Metric
The Metric System is manufactured generally in accordance with the relevant International Standards: ISO 15493, KIWA 49 and 549, DIN 8062 and 8063.

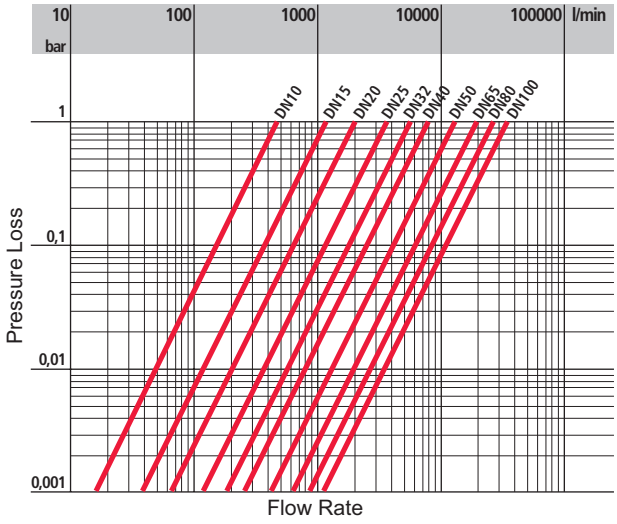
BSP Thread
Threaded fittings conform to the requirements of BS 21/DIN 2999/ISO7. Socket dimensions of metric fittings for solvent welding comply with ISO/DIS 727-1.

Interchangeability
Components in the imperial and metric ranges are not interchangeable.

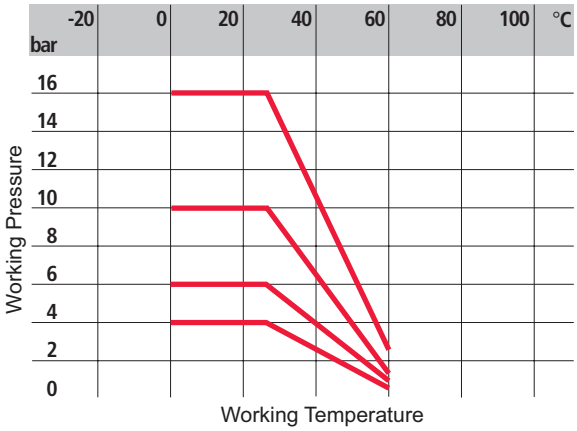
Technical Data



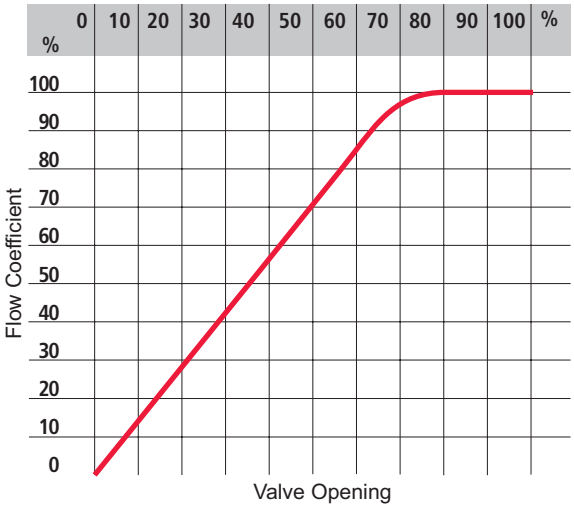
Maximum torque at maximum working pressure.



Pressure loss chart.



Pressure/temperature rating for water and harmless fluids to which the material is RESISTANT. In other cases a reduction of the PN is required. (25 years with safety factor).



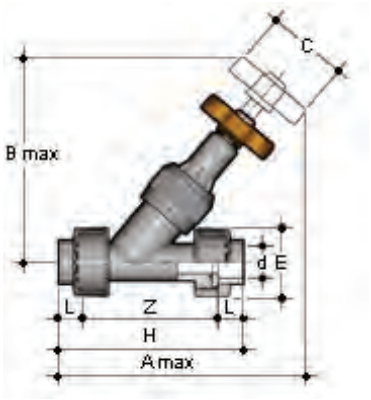
Relative flow coefficient .

DN	10	15	20	25	32	40	50	65	80	100
k_{v100}	47	110	205	375	560	835	1300	1950	2600	3500

Flow coefficient k_{v100}

k_{v100} is the number of litres per minute of water at a temperature of 20°C that will flow through a valve with a one bar pressure differential at a specified rate. The k_{v100} values shown in the table are calculated with the valve fully open.

BS Series Female Ends

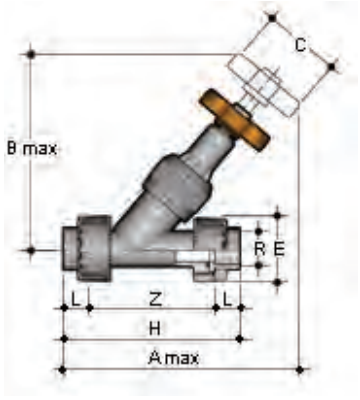


VVULV PVC-U

Diaphragm valve with BS series female ends for solvent welding

										PVC-U	
d	DN	PN	B_{max}	C	E	L	Z	H	A_{max}	gms	EPDM Code
½	15	16	124	60	55	16.5	102	135	173	251	H0 VUE 102
¾	20	16	146	60	66	19	120	158	197	413	H0 VUE 103
1	25	16	173	70	75	22.5	131	176	223	621	H0 VUE 104
1¼	32	10	195	85	87	26	155	207	258	903	H0 VUE 105
1½	40	10	222	105	100	30	183	243	295	1320	H0 VUE 106
2	50	10	269	130	120	36	226	298	359	2238	H0 VUE 107

BSP Threaded Series Female Ends

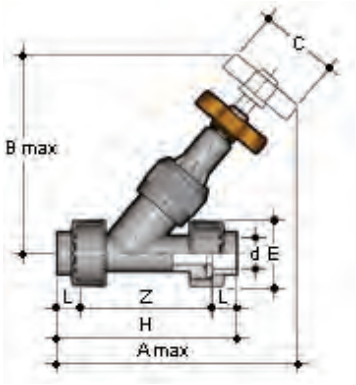


VVUFV PVC-U

Diaphragm valve with BSP parallel female threaded ends

										PVC-U	
d	DN	PN	B_{max}	C	E	L	Z	H	A_{max}	gms	EPDM Code
½	15	16	124	60	55	15	113	143	173	251	H0 VUE B02
¾	20	16	146	60	66	16.3	127.4	160	197	413	H0 VUE B03
1	25	16	173	70	75	19.1	144.8	183	223	621	H0 VUE B04
1¼	32	10	195	85	87	21.4	171.2	214	258	903	H0 VUE B05
1½	40	10	222	105	100	21.4	192.2	235	295	1320	H0 VUE B06
2	50	10	269	130	120	25.7	233.6	285	359	2238	H0 VUE B07

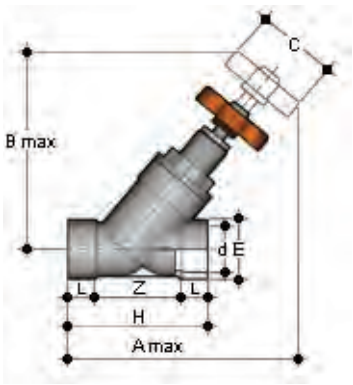
Metric Series Female Ends



VVUIV PVC-U

Diaphragm valve with Metric series female ends for solvent welding

										PVC-U	
d	DN	PN	B_{max}	C	E	L	Z	H	A_{max}	gms	EPDM Code
16	10	16	124	60	55	14	107	135	170	238	H0 VUE 305
20	15	16	124	60	55	16	103	135	173	251	H0 VUE 306
25	20	16	146	60	66	19	120	158	197	413	H0 VUE 307
32	25	16	173	70	75	22	132	176	223	621	H0 VUE 308
40	32	10	195	85	87	26	155	207	258	903	H0 VUE 309
50	40	10	222	105	100	31	181	243	295	1320	H0 VUE 310
63	50	10	269	130	120	38	222	298	359	2238	H0 VUE 310



VVIV PVC-U

Diaphragm valve with Metric series female ends for solvent welding

										PVC-U	
d	DN	PN	B_{max}	C	E	L	Z	H	A_{max}	gms	EPDM Code
75	65	10	326	174	104	44	155	243	347	3190	H0 VVE 312
90	80	6	368	174	116	51	160	262	423	4110	H0 VVE 313
110	100	6	420	174	138	61	203	325	498	6040	H0 VVE 314

Connection to the System

Before proceeding with the installation, please read and familiarise yourself with these instructions.

Union Ended Version

1. Check that the pipes either side of the valve are axially aligned, in order to avoid mechanical stress on the threaded union joints.
2. Unscrew the union nuts (15) from the valve body and slide them onto the pipe.
3. Solvent weld or screw the valve end connectors (14) onto the pipe ends. For correct jointing see the Durapipe PVC-U technical catalogue
4. Position the valve between the two end connectors and screw the union nuts clockwise by hand until a resistance is felt; do not use keys or other tools which may damage the nut Surface.

Plain Socket Ended Version

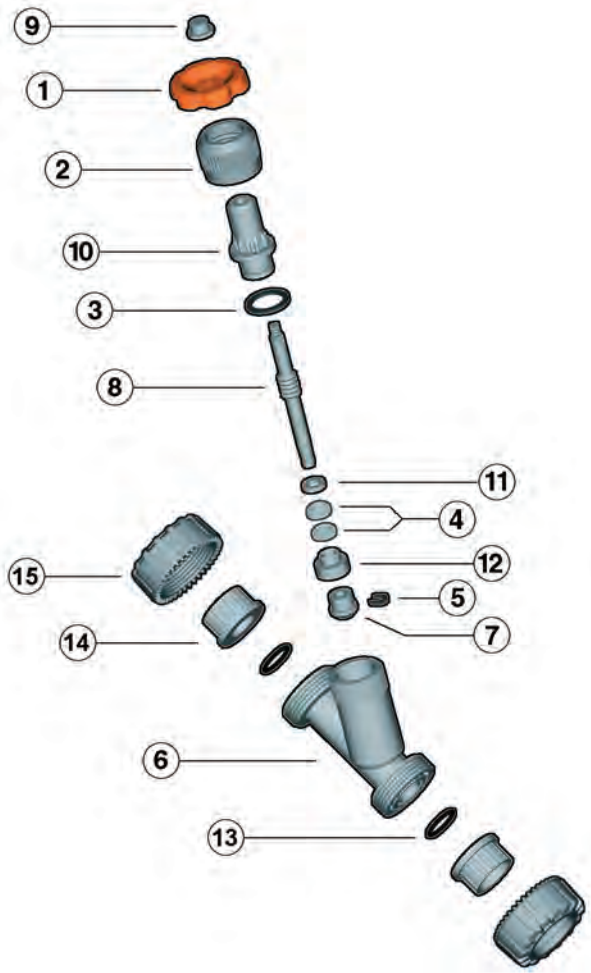
1. Check that the pipes either side of the valve are axially aligned, in order to avoid mechanical stress on the threaded union joints.
2. Solvent weld the valve body (9) onto the pipe. For correct jointing see the Durapipe PVC-U technical catalogue. Take care when solvent welding to ensure that no solvent runs into the valve body.

Disassembly (1/2" - d20 to 2" - d50)

1. Isolate the valve from the line flow.
2. Unscrew the lock nut (2) and remove the entire valve mechanism from the body (6).
3. Remove the fork (5) and release the swivel plug (7).
4. Remove the gland (12).
5. Unscrew the hand-wheel lock nut (9), and remove the hand-wheel (1) and the body lock nut (2).
6. Unscrew the stem (8) clock wise until it comes right out of the bonnet (10). The gland packing (4) and the bottom bush (11) and the O-ring (3) are then accessible and may be easily removed.

Assembly (1/2" - d20 to 2" - d50)

1. Insert the stem (8) into the bonnet (10) and screw down until the base of the thread has entered the body housing.
2. Fit the O-ring (3), the bottom bush (11) and the gland packing (4) onto the stem (8). Rotate the stem until the square section has completely emerged from the top of the bonnet.
3. Screw the body union nut (2) over the bonnet (10). Fit the hand-wheel (1) and retain in place by screwing the hand-wheel locknut (9) on the stem.
4. Fit the gland (12) and the swivel plug (7) onto the stem, inserting the fork (5) to hold it in place.
5. Fully tighten the body lock nut (2).



Position	Components	Material
1	Handwheel	PVC-U
2	Body Union Nut	PVC-U
3*	O-Ring	EPDM
4*	Gland Packing	PE
5	Fork	PVC-U
6	Body	PVC-U
7	Swivel Plug	PVC-U
8	Stem	PVC-U
9	Hand-Wheel Lock Nut	PVC-U
10	Bonnet	PVC-U
11	Bottom Bush	PVC-U
12	Gland	PE
13*	Socket seal O-ring	EPDM
14*	Union end	PVC-U
15*	Union nut	PVC-U

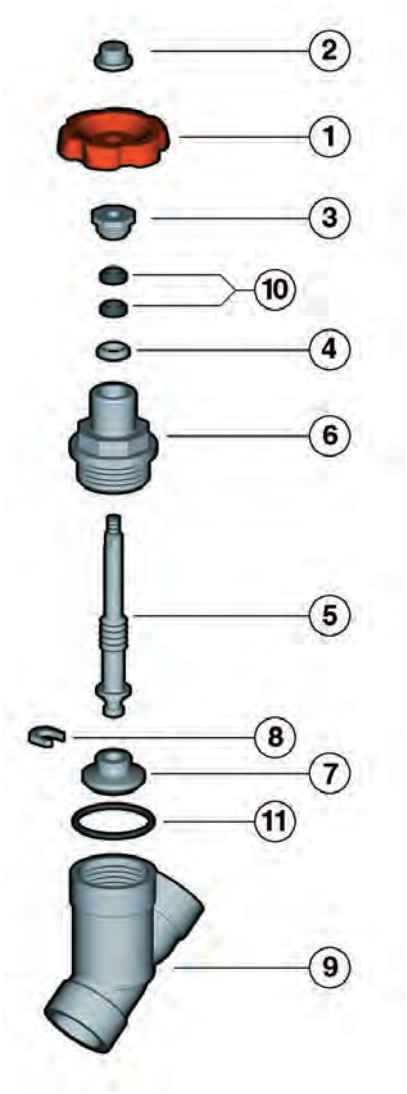
* Spare Parts

Disassembly ($2^1/_2$" - d75 to 3" - d80)

1. Isolate the valve from the flow and drain down upstream of the valve.
2. Unscrew the Bonnet (6) and remove the complete internal mechanism from the valve body (9).
3. Remove the fork (8) and release the swivel plug (7).
4. Unscrew the hand-wheel lock nut (2) and remove the hand-wheel (1).
5. Unscrew the gland (3). Unscrew the stem (5) clockwise until it can be removed from the bonnet (6) and giving access to the gland packing.
6. Remove the gland packing (10) by applying pressure to the bottom bush (4).

Assembly ($2^1/_2$" - d75 to 3" - d80)

1. Screw the stem (5) into the bonnet (6).
2. Slide the bottom bush (4) and the gland packing (10) onto the stem (5).
3. Insert the gland (3) into the stem (5) and screw it into the bonnet (6).
4. Fit the hand-wheel (1) and tighten the locknut (2)
5. Assemble the swivel plug (7) onto the stem, inserting the fork (5) to hold it in place.
6. Fit the bonnet seal in place in screw the bonnet (6) into the body (9).



Position	Components	Material
1	Handwheel	PVC-U
2	Lock Nut	PVC-U
3	Gland	PVC-U
4	Bottom Bush	PVC-U
5	Stem	PVC-U
6	Bonnet	PVC-U
7	Swivel Plug	PVC-U
8	Fork	PVC-U
9	Body	PVC-U
10*	Gland Packing	PE
11*	Bonnet Seal	PVC-U

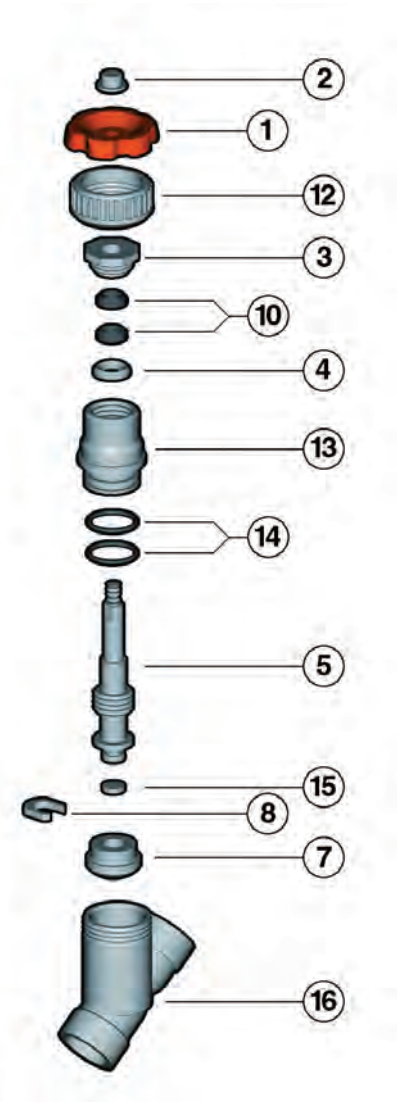
* Spare Parts

Disassembly (4" - d110)

1. Isolate the valve from the flow and drain down upstream of the valve.
2. Unscrew the Union Nut (12) and remove the complete internal mechanism from the valve body (16).
3. Remove the fork (8) and release the swivel plug (7) and slide off the anti-friction disc (15).
4. Unscrew the hand-wheel lock nut (2) and remove the hand-wheel (1).
5. Unscrew the bonnet (13).
6. Unscrew the gland (3). Unscrew the stem (5) clockwise until it can be removed from the bonnet (13) and giving access to the gland packing.
7. Remove the gland packing (10) by applying pressure to the bottom bush (4).

Assembly (4" - d110)

1. Screw the stem (5) into the bonnet (13).
2. Slide the bottom bush (4) and the gland packing (10) onto the stem (5).
3. Insert the gland (3) into the stem (5) and screw it into the bonnet (13).
4. Fit the O-rings (14) onto the bonnet (13).
5. Place the union nut (12) onto the bonnet (13).
6. Fit the hand-wheel (1) and tighten the locknut (2).
7. Assemble the swivel plug (7) and anti-friction disc (15) onto the stem, inserting the fork (5) to hold it in place.
8. Screw the union nut (12) onto body (16).

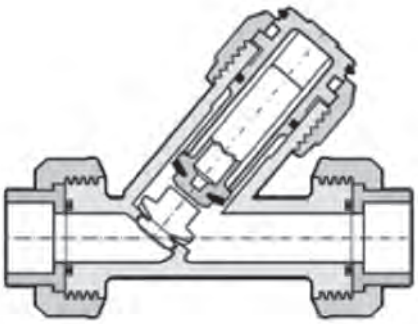


Position	Components	Material
1	Handwheel	PVC-U
2	Body Union Nut	PVC-U
3	Gland	PVC-U
4	Bottom Bush	PVC-U
5	Stem	PVC-U
7	Swivel Plug	PVC-U
8	Fork	PVC-U
10*	Gland Packing	PE
12	Union nut	PVC-U
13	Bonnet	PVC-U
14*	Bonnet seal O-ring	EPDM
15*	Anti-Friction Disc	PP
16	Body	EPDM

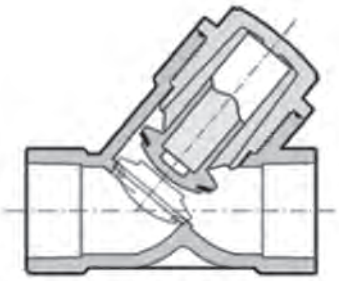
* Spare Parts

VR Check Valve

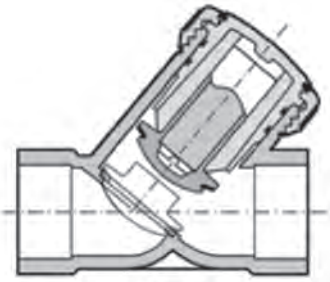
- The VR check valve allows liquids to flow through in one direction only
- Size range from $^{3}/_{8}$" - d16mm up to 4" - d110mm
- Pressure rating: Maximum working pressure: 16 bar at 20°C
- Maintenance can be carried out with the valve body installed in line
- For more information, please visit our website **www.durapipe.co.uk**



DN20 to 50



DN65 to 80



DN100

Legend

d	Nominal outside diameter
DN	Nominal internal diameter in mm
R	Nominal size or the thread in inches
PN	Nominal pressure in bar (max.working Pressure at 20°C - water)
gms	Weight in grams
PVC-U	Polyvinyl chloride unplasticised
PP	Polypropylene
PE	Polyethylene
PTFE	Polytetrafluoroethylene
EPDM	Ethylene Propylene Diene Monomer (M-class) rubber
FPM	Fluorocarbon Rubber
s	Wall thickness (mm)
SDR	Standard dimension ratio = d/s

Dimensions and Standards

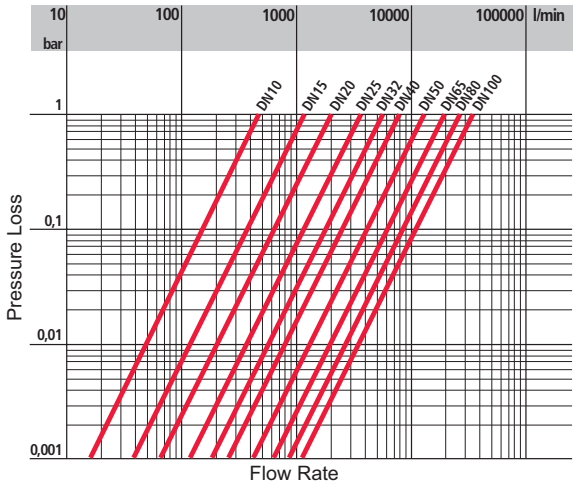
Imperial
The Imperial System is manufactured in accordance with the relevant British Standards: BS 5392 fittings.

Metric
The Metric System is manufactured generally in accordance with the relevant International Standards: ISO 15493, KIWA 49 and 549, DIN 8062 and 8063.

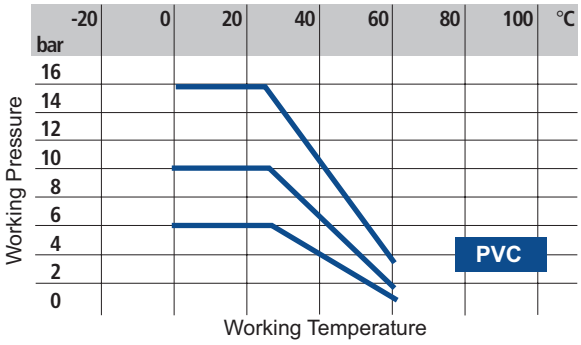
BSP Thread
Threaded fittings conform to the requirements of BS 21/DIN 2999/ISO7. Socket dimensions of metric fittings for solvent welding comply with ISO/DIS 727-1.

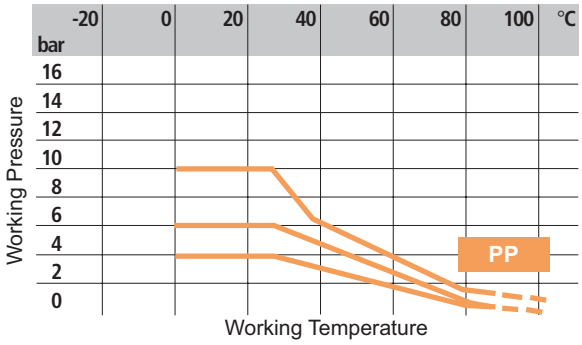
Interchangeability
Components in the imperial and metric ranges are not interchangeable.

Technical Data



Pressure loss chart.





Pressure/temperature rating for water and harmless fluids to which the material is RESISTANT.
In other cases a reduction of the PN is required. (25 years with safety factor).

DN	10	15	20	25	32	40	50	65	80	100
bar	0.008	0.008	0.009	0.014	0.017	0.018	0.021	0.022	0.022	0.024

Minimum pressure differential required to allow the valve to pass fluid.

DN	10	15	20	25	32	40	50	65	80	100
k_{v100}	0.015	0.015	0.020	0.035	0.035	0.035	0.035	0.035	0.035	0.035

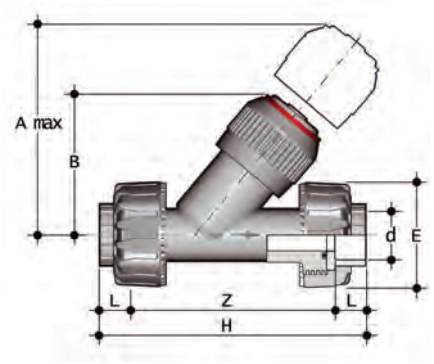
Flow coefficient k_{v100}

k_{v100} is the number of litres per minute of water at a temperature of 20°C that will flow through a valve with a one bar pressure differential at a specified rate. The k_{v100} values shown in the table are calculated with the valve fully open.

DN	10	15	20	25	32	40	50	65	80	100
bar	0.008	0.008	0.009	0.014	0.017	0.018	0.021	0.022	0.022	0.024

Minimum back pressure required for leak tight service. Figures based on new seals.

BS Series Female Ends

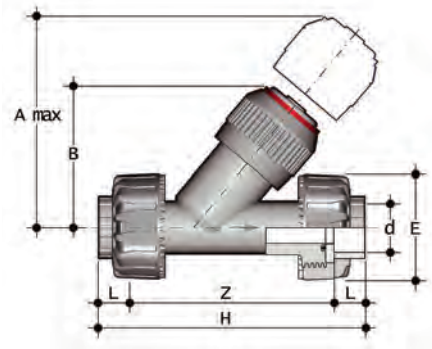


VRULV PVC-U

Check valve with BS series female ends for solvent welding

									PVC-U		
d	DN	PN	A_{max}	B	E	L	Z	H	gms	EPDM Code	FPM Code
1/2	15	16	125	72	55	16	103	135	226	H0 URE 102	H0 URF 102
3/4	20	16	145	84	66	19	120	158	388	H0 URE 103	H0 URF 103
1	25	16	165	95	75	22	132	176	606	H0 URE 104	H0 URF 104
1 1/4	32	16	190	111	87	26	155	207	923	H0 URE 105	H0 URF 105
1 1/2	40	16	210	120	100	31	181	243	1335	H0 URE 106	H0 URF 106
2	50	16	240	139	120	38	222	298	2313	H0 URE 107	H0 URF 107

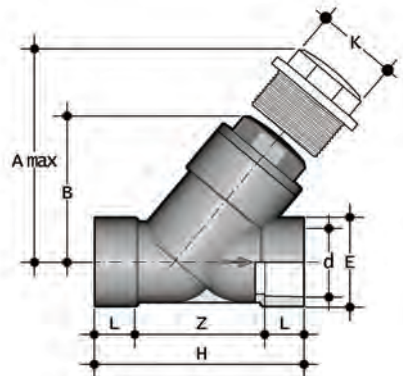
Metric Series Female Ends



VRUIV PVC-U
VRUIM PP

Check valve with Metric series female ends

									PVC-U			PP		
d	DN	PN	A_{max}	B	E	L	Z	H	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
16	10	16	125	72	55	14	107	218	218	H0 URE 305	H0 URF 305	-	-	-
20	15	16	125	72	55	16	103	226	226	H0 URE 306	H0 URF 306	165	H0 URN 306	H0 URP 306
25	20	16	145	84	66	19	120	388	388	H0 URE 307	H0 URF 307	227	H0 URN 307	H0 URP 307
32	25	16	165	95	75	22	132	606	606	H0 URE 308	H0 URF 308	380	H0 URN 308	H0 URP 308
40	32	16	190	111	87	26	155	923	923	H0 URE 309	H0 URF 309	645	H0 URN 309	H0 URP 309
50	40	16	210	120	100	31	181	1335	1335	H0 URE 310	H0 URF 310	915	H0 URN 310	H0 URP 310
63	50	16	240	139	120	38	222	2313	2313	H0 URE 310	H0 URF 311	1555	H0 URN 310	H0 URP 311

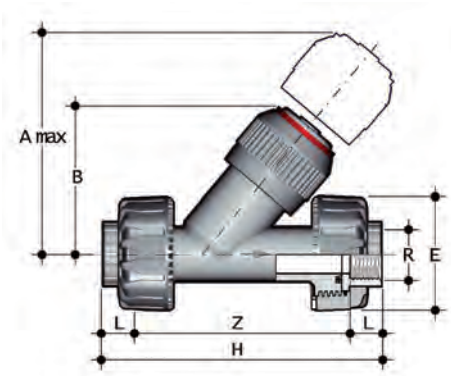


VRIV PVC-U
VRIM PP

Check valve with Metric series female ends

										PVC-U			PP		
d	DN	PN	A_{max}	B	E	L	Z	H	K	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
75	65	10	300	179	104	44	96	243	96	3485	H0 VRE 312	H0 VRF 312	2450	H0 VRN 312	H0 VRP 312
90	80	6	325	192	116	51	103	262	105	4530	H0 VRE 313	H0 VRF 313	3130	H0 VRN 313	H0 VRP 313
110	1000	6	385	231	138	61	120	325	-	7170	H0 VRE 314	H0 VRF 314		H0 VRN 314	H0 VRP 314

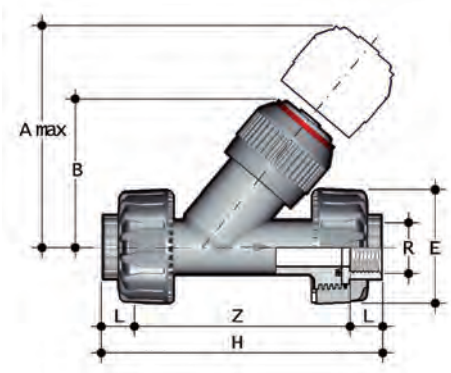
BSP Threaded Socket Ends



VRUFV PVC-U
VRUFM PP

Check valve with BSP parallel female threaded ends

									PVC-U			PP		
d	DN	PN	A_{max}	B	E	L	Z	H	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
1/2	15	16	125	72	55	15	112	142	230	H0 URE B02	H0 URF B02	165	H0 URN B02	H0 URP B02
3/4	20	16	145	84	66	16.3	126.4	159	390	H0 URE B03	H0 URF B03	227	H0 URN B03	H0 URP B03
1	25	16	165	95	75	19.1	144.8	183	602	H0 URE B04	H0 URF B04	380	H0 URN B04	H0 URP B04
1 1/4	32	16	190	111	87	21.4	171.2	214	932	H0 URE B05	H0 URF B05	645	H0 URN B05	H0 URP B05
1 1/2	40	16	210	120	100	21.4	192.2	235	1341	H0 URE B06	H0 URF B06	915	H0 URN B06	H0 URP B06
2	50	10	240	139	120	25.7	233.6	285	2348	H0 URE B07	H0 URF B07	1555	H0 URN B07	H0 URP B07

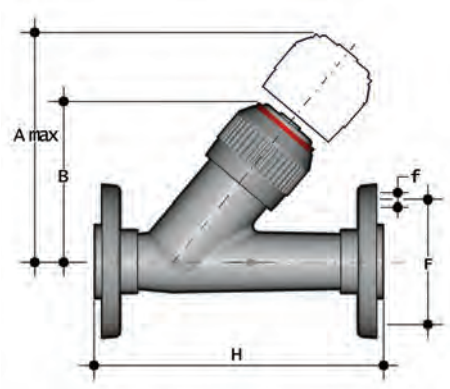


VRFV PVC-U

Check valve with BSP parallel female threaded ends

										PVC-U		
d	DN	PN	A_{max}	B	E	L	Z	H	K	gms	EPDM Code	FPM Code
2 1/2	65	10	300	179	104	30.2	182.6	243	96	3485	H0 VRE B08	H0 VRF B08
3	80	6	325	192	116	33.3	195.4	262	105	4520	H0 VRE B09	H0 VRF B09
4	100	6	385	231	138	39.3	246.4	325	-	6965	H0 VRE B10	H0 VRF B10

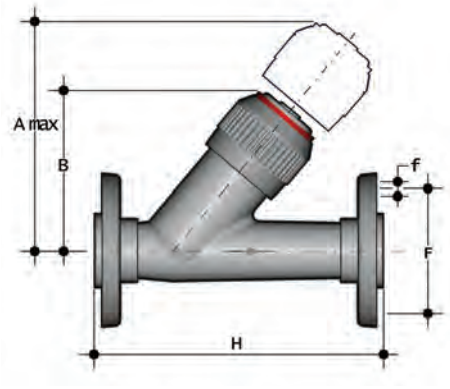
Flanged Ends to BS EN1092-1 PN10/16



VRUOV PVC-U
VRUOM PP

Check valve with Flanged ends, to BS EN1092-1 PN10/16

								PVC-U			PP		
d	DN	PN	A_{max}	B	H	f	F	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
1/2	15	16	125	72	162.5	14	65	391	H0 URE F02	H0 URF F02	265	H0 URN F02	H0 URP F02
3/4	20	16	145	84	193	14	75	643	H0 URE F03	H0 URF F03	327	H0 URN F03	H0 URP F03
1	25	16	165	95	210.5	14	85	871	H0 URE F04	H0 URF F04	480	H0 URN F04	H0 URP F04
1 1/4	32	16	190	111	243.5	18	100	1353	H0 URE F05	H0 URF F05	795	H0 URN F05	H0 URP F05
1 1/2	40	16	210	120	277	18	110	18.25	H0 URE F06	H0 URF F06	1065	H0 URN F06	H0 URP F06
2	50	16	240	139	330.5	18	125	3083	H0 URE F07	H0 URF F07	1705	H0 URN F07	H0 URP F07



VRUOAV PVC-U
VRUOAM PP

Check valve with Flanged ends, to ANSI150.

								PVC-U			PP		
d	DN	PN	A_{max}	B	H	f	F	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
1/2	15	16	125	72	162.5	16	60.5	391	H0 URE X02	H0 URF X02	265	H0 URN X02	H0 URP X02
3/4	20	16	145	84	193	16	70	643	H0 URE X03	H0 URF X03	327	H0 URN X03	H0 URP X03
1	25	16	165	95	210.5	16	79.5	871	H0 URE X04	H0 URF X04	480	H0 URN X04	H0 URP X04
1 1/4	32	16	190	111	243.5	16	89	1353	H0 URE X05	H0 URF X05	795	H0 URN X05	H0 URP X05
1 1/2	40	16	210	120	277	16	98.5	18.25	H0 URE X06	H0 URF X06	1065	H0 URN X06	H0 URP X06
2	50	16	240	139	330.5	19	121	3083	H0 URE X07	H0 URF X07	1705	H0 URN X07	H0 URP X07

Connection to the System

1. The VR check valve may be installed on vertical or horizontal pipework. The piston housing must be installed upright as the piston is worked by gravity.
2. When installing the strainer in a vertical line. Extreme care must be taken to ensure no solvent cement runs into the body of the strainer, as this could severely damage the internal parts and render the strainer inoperative.
3. Ensure the valve is positioned in line with the arrow on the body in the direction of flow. Flow conditions cannot occur.

DN10 to DN50

4. Unscrew the union nuts (10) and slide them onto the pipe ends.
5. Solvent weld, heat fuse or screw (for correct jointing procedure see the relevant Durapipe material technical catalogues) the valve end connectors (9) onto the pipe ends.
6. Position the valve between the end connectors and re-fit the union nuts.

DN65 to DN100

7. Solvent weld, heat fuse or screw (for correct jointing procedure see the relevant Durapipe material technical catalogues) the valve body sockets onto the pipe ends.

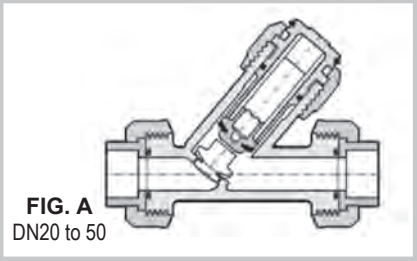


FIG. A
DN20 to 50

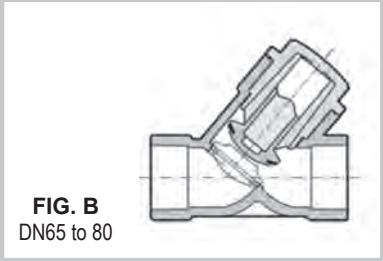


FIG. B
DN65 to 80

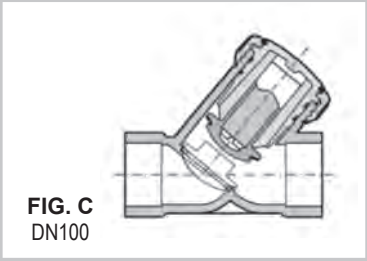


FIG. C
DN100

Disassembly

FIG. A

1. Isolate the valve from the flow and drain down upstream of the strainer
2. Unscrew the locknut (6) and separate the bonnet (4) from the body (1)
3. Remove the piston (2) and the piston sealing gasket (5)
4. Remove the split ring (7) to release the bonnet (3) from the lock nut (6)
5. Remove the sealing O-ring (5)

FIG. B

1. Isolate the valve from the flow and drain down upstream of the strainer
2. Unscrew the bonnet (3) from the body (1)
3. Remove the o-ring seal (5) from its seat in the body (1)
4. Remove the piston (2) and the piston sealing gasket (5)

FIG. C

1. Isolate the valve from the flow and drain down upstream of the strainer
2. Unscrew the locknut (6) and separate the bonnet (3) from the body (1)
3. Remove the piston (2) and the piston sealing gasket (5)
4. Remove the split ring (7) to release the bonnet (3) from the lock nut (6)
5. Remove the sealing O-ring (5)

Assembly

FIG. A

1. Fit the O-ring (4) into the groove on the bonnet (3)
2. Slip the lock nut (6) over the bonnet (3) and fix it in its position by snapping the split ring (7) into the top groove on the bonnet (3)
3. Insert the piston (2) with the flat gasket (5) fitted into the bonnet (3) and insert the assembly into the body (1) screw the lock nut (7)

FIG. B

1. Insert the piston (2) with the flat gasket (5) fitted into the bonnet (3)
2. Fit the O-ring (4) into the groove in the body (3)
3. Screw the bonnet assembly into the body (1)

FIG. C

1. Fit the O-ring (4) into the groove on the bonnet (3)
2. Slip the lock nut (6) over the bonnet (3) and fix it in its position by snapping the split ring (7) into the top groove on the bonnet (3)
3. Insert the piston (2) with the flat gasket (5) fitted into the bonnet (3) and insert the assembly into the body (1) screw the lock nut (7)

Note: Maintenance operations may be carried out with the strainer body in-line. When assembling the valve components it is advisable to lubricate the O-rings. Do not use mineral oils as they attack EPDM rubber.

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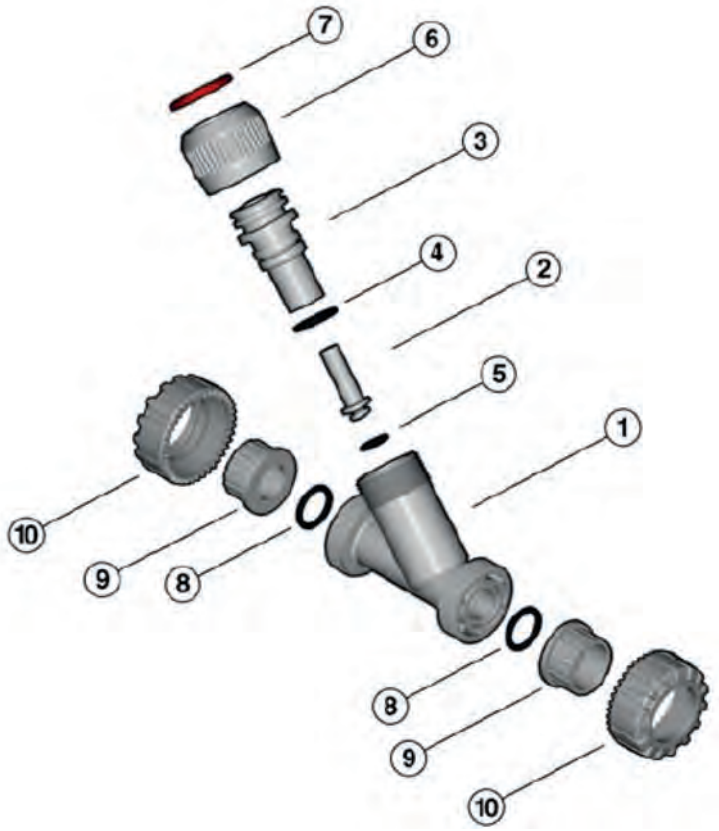
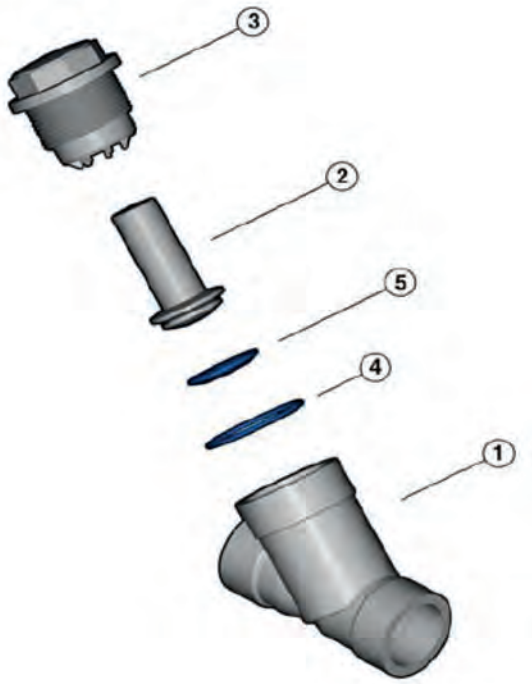




1/2" - d20 to 2" - d50

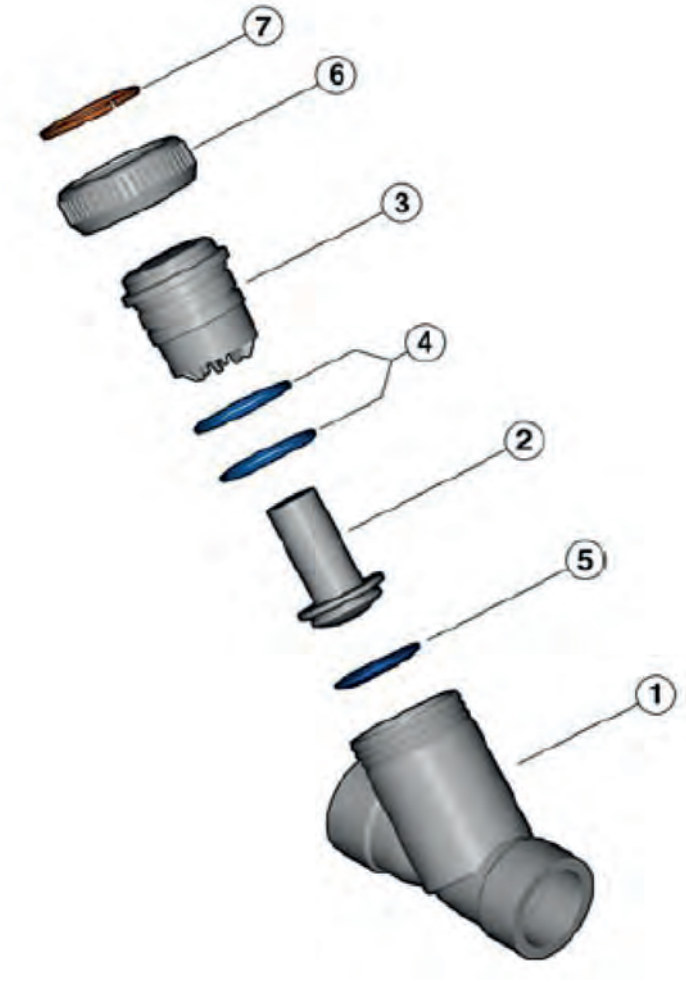
Position	Components	Material
1	Body	Valve Material
2*	Piston	Valve Material
3	Bonnet	Valve Material
4*	O-ring Seal	EPDM/FPM
5	Flat Gasket	EPDM/FPM
6	Lock Nut	Valve Material
7	Split Ring	PVC-U
8*	Socket Seal O-ring	EPDM/FPM
9	End Connector	Valve Material
10	Union Nut	Valve Material

* Spare Parts

2 1/2" - d75 to 3" - d90

Position	Components	Material
1	Body	Valve Material
2*	Piston	Valve Material
3*	Bonnet	Valve Material
4	O-ring Seal	EPDM/FPM
5*	Flat Gasket	EPDM/FPM

* Spare Parts



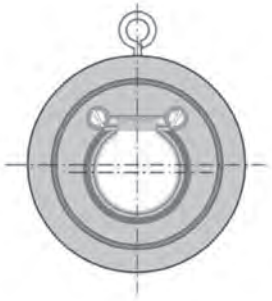
4" - d110

Position	Components	Material
1	Body	Valve Material
2*	Piston	Valve Material
3	Bonnet	Valve Material
4*	O-ring Seal	EPDM/FPM
5	Flat Gasket	EPDM/FPM
6	Lock Nut	Valve Material
7	Split Ring	Valve Material

* Spare Parts

CR Wafer Check Valve

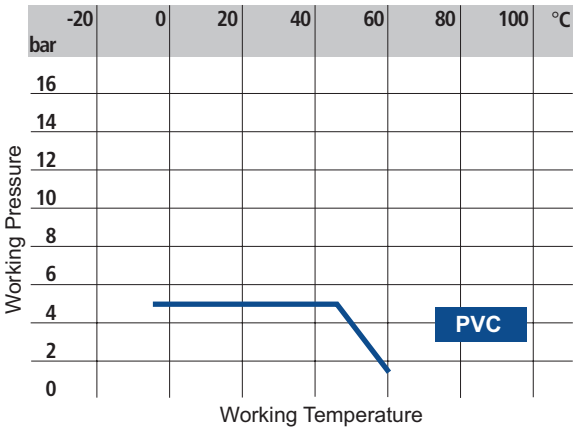
- The CR check valve allows liquids to flow through in one direction only
- Size range from $1^1/_2$" - d50mm up to 12" - d315mm
- Pressure rating: Maximum working pressure: 5 bar at 20°C
- For more information, please visit our website **www.durapipe.co.uk**



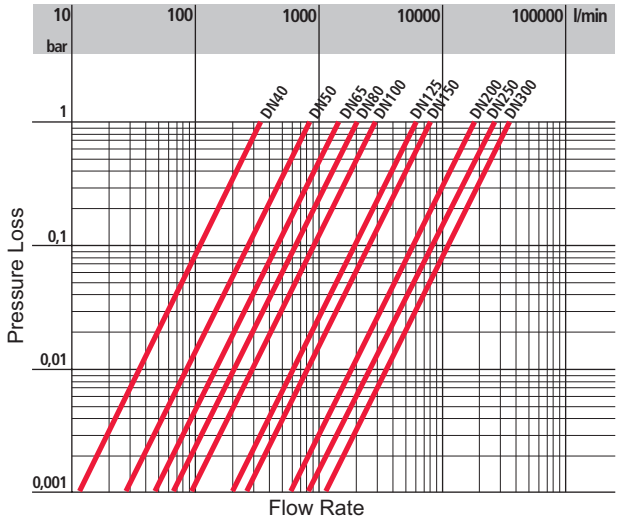
Legend

d	Nominal outside diameter
DN	Nominal internal diameter in mm
R	Nominal size or the thread in inches
PN	Nominal pressure in bar (max.working Pressure at 20°C - water)
gms	Weight in grams
ABS	Acrylontrile Butadiene Styrene
PVC-U	Polyvinyl chloride unplasticised
EPDM	Ethylene Propylene Diene Monomer (M-class) rubber

Technical Data



Pressure/temperature rating for water and harmless fluids to which the material is RESISTANT. In other cases a reduction of the PN is required. (25 years with safety factor).



Pressure loss chart.

DN	40	50	65	80	100	125	150	200	250	300
bar	0.002	0.003	0.003	0.003	0.003	0.003	0.005	0.005	0.008	0.008

Minimum opening pressure with upward flow direction.

DN	40	50	65	80	100	125	150	200	250	300
k_{v100}	370	900	1250	1867	2867	5700	8167	18800	25000	31900

Flow coefficient k_{v100}

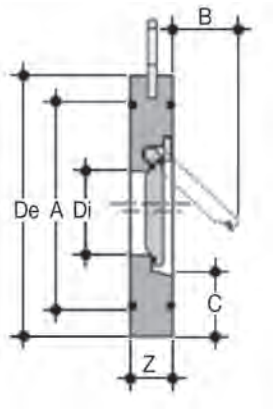
k_{v100} is the number of litres per minute of water at a temperature of 20ºC that will flow through a valve with a one bar pressure differential at a specified rate. The k_{v100} values shown in the table are calculated with the valve fully open.

DN	40	50	65	80	100	125	150	200	250	300
bar	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2

Minimum back pressure required for leak tight service.

CROV PVC-U

Wafer check valve



d	DN	PN	$De_{ISO/DIN}$	Z	Di	A	B	C	PVC-U gms	PVC-U EPDM Code
50 - $1^1/_2$"	40	5	95	16	22	72	25	28	160	H0 CRE 106
63 - 2"	50	5	109	20	32	86	37	29	260	H0 CRE 107
75 - $2^1/_2$"	65	5	129	20	40	105	50	31	330	H0 CRE 108
90 - 3"	80	5	144	20	54	119	61	32	400	H0 CRE 109
110 - 4"	100	5	164	22	70	146	77	31	560	H0 CRE 110
140 - 5"	125	5	195	23	92	173	94	35	760	H0 CRE 111
160 - 6"	150	5	220	25	105	197	100	40	1120	H0 CRE 112
225 - 8"	200	5	275	35	154	255	152	38	2130	H0 CRE 113
280 - 10"	250	5	330	40	192	312	180	41	3540	H0 CRE 114
315 - 12"	280	5	380	45	227	363	215	41	5350	H0 CRE 115

Connection to the System

1. A minimum of 5 x the pipe diameter is required upstream and downstream of the valve. Do NOT install the valve directly on to a pump flange.
2. When installing between serrated stub flanges, it is advised to use flat gaskets between the valve and stub flanges.
3. Do not use with pipes having a wall thickness greater than a PN10 pipe.
4. For use in the vertical position, ensure the flow is upwards through the valve.
5. Install the valve concentrically on the flanges and tighten the flange bolts in a diagonally opposite sequence, to the recommended torque figure (below)

DN	40	50	65	80	100	125	150	200	250	300
Nm	8	10	10	10	10	15	20	38	45	50

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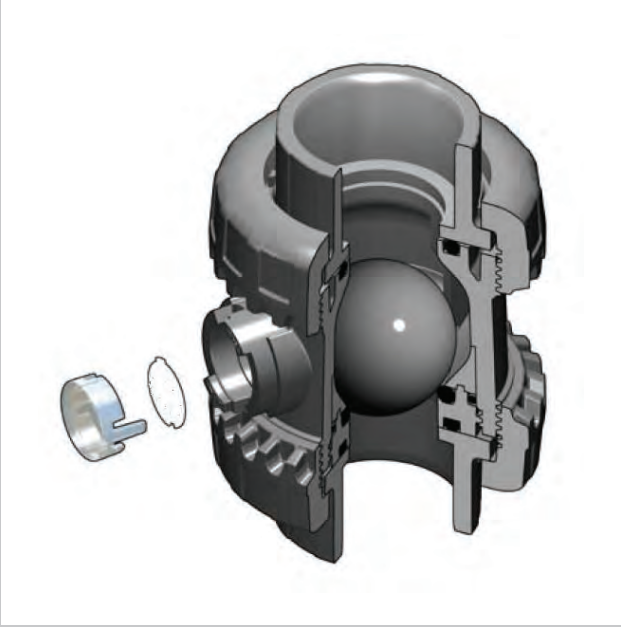
SXA Easyfit Air Relief Valve

- In conjunction with Giugiaro Design we have designed and developed the **SXA Easyfit air relief valve**, the innovative true union geared relief valve introducing an advanced method of installation for a long trouble free service

  The SXA air relief valve is designed to eliminate any air present in a pipeline
- Size range from $^{1}/_{2}$" / d20mm up to 2" / d63mm
- Pressure rating: Maximum working pressure: 16 bar at 20°C
- New patented **Easyfit** system: The bevel gear pairing principle has been used as a mechanism to control the rotation of the union nuts during the installation of the valve. The use of the Easyfit multifunctional handle is the ideal way to carry out maintenance operations in small spaces with limited access to the to the valve
- Easy removal of the valve body from the pipe system, allowing replacement of the valve seals and seats without any additional equipment
- Compact true union design. With installation dimensions to EN1452 'Short Series'
- Blocked seat carrier with adjustment of the ball seats
- Maintenance can be carried out while the valve body is installed in line
- For more information, please visit our website **www.durapipe.co.uk**

Legend

d	Nominal outside diameter
DN	Nominal internal diameter in mm
R	Nominal size or the thread in inches
PN	Nominal pressure in bar (max.working Pressure at 20°C - water)
gms	Weight in grams
PVC-U	Polyvinyl chloride unplasticised
ABS	Acrylontrile Butadiene Styrene
PP	Polypropylene
PE	Polyethylene
PTFE	Polytetrafluoroethylene
EPDM	Ethylene Propylene Diene Monomer (M-class) rubber
FPM	Fluorocarbon Rubber
s	Wall thickness (mm)
SDR	Standard dimension ratio = d/s



Dimensions and Standards

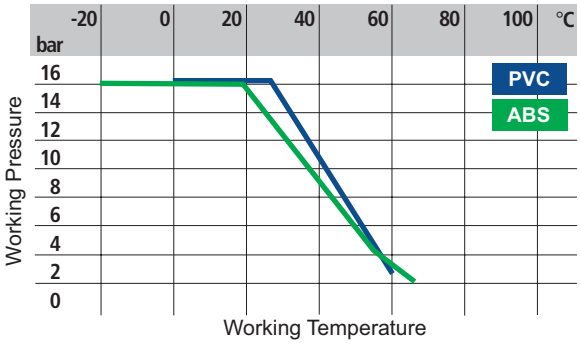
Imperial
The Imperial System is manufactured in accordance with the relevant British Standards: BS 5392 fittings.

Metric
The Metric System is manufactured generally in accordance with the relevant International Standards: ISO 15493, KIWA 49 and 549, DIN 8062 and 8063.

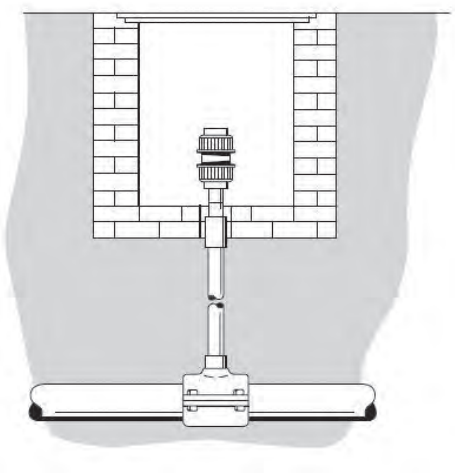
BSP Thread
Threaded fittings conform to the requirements of BS 21/DIN 2999/ISO7. Socket dimensions of metric fittings for solvent welding comply with ISO/DIS 727-1.

Interchangeability
Components in the imperial and metric ranges are not interchangeable.

Technical Data

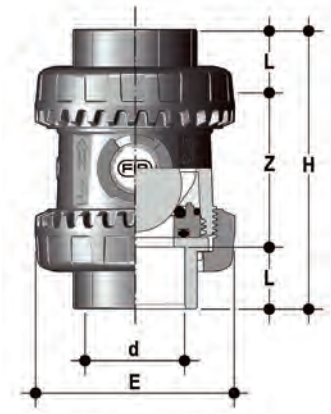


Pressure/temperature rating for water and harmless fluids to which the material is RESISTANT. In other cases a reduction of the PN is required. (25 years with safety factor).



Example of typical installation.

BS Series Female Ends

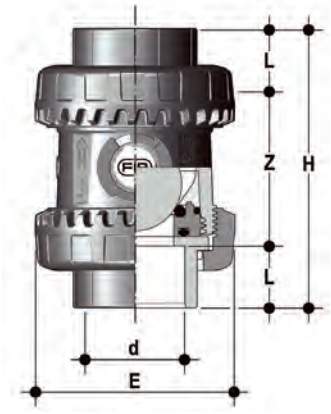


SXALV PVC-U
SXALA ABS

Easyfit air relief valve with BS series female ends for solvent welding

							PVC-U			ABS		
d	DN	PN	L	Z	H	E	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
1/2	15	16	16.5	50	82	54	148	H0 SAE 102	H0 SAF 102	133	H0 SAA 102	H0 SAB 102
3/4	20	16	19	53	91	63	190	H0 SAE 103	H0 SAF 103	171	H0 SAA 103	H0 SAB 103
1	25	16	22.5	59	103	72	300	H0 SAE 104	H0 SAF 104	270	H0 SAA 104	H0 SAB 104
1 1/4	32	16	26	68	120	85	460	H0 SAE 105	H0 SAF 105	414	H0 SAA 105	H0 SAB 105
1 1/2	40	16	30	77	139	100	675	H0 SAE 106	H0 SAF 106	608	H0 SAA 106	H0 SAB 106
2	50	16	36	98	174	118	1080	H0 SAE 107	H0 SAF 107	972	H0 SAA 107	H0 SAB 107

Metric Series Female Ends



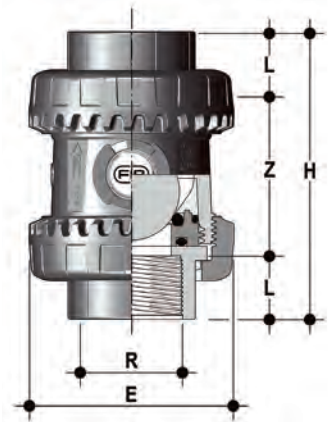
SXAIV PVC-U
SXAIA ABS

Easyfit air relief valve with Metric series female ends for solvent welding

							PVC-U			ABS		
d	DN	PN	L	Z	H	E	gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
20	15	16	16	50	82	54	133	H0 SAE 306	H0 SAF 306	148	H0 SAA 306	H0 SAB 306
25	20	16	19	53	91	63	171	H0 SAE 307	H0 SAF 307	190	H0 SAA 307	H0 SAB 307
32	25	16	22	59	103	72	270	H0 SAE 308	H0 SAF 308	300	H0 SAA 308	H0 SAB 308
40	32	16	26	68	120	85	414	H0 SAE 309	H0 SAF 309	460	H0 SAA 309	H0 SAB 309
50	40	16	31	77	139	100	608	H0 SAE 310	H0 SAF 310	675	H0 SAA 310	H0 SAB 310
63	50	16	38	98	174	118	972	H0 SAE 311	H0 SAF 311	1080	H0 SAA 311	H0 SAB 311

BSP Threaded Socket Ends

SXAFV PVC-U
SXAFA ABS



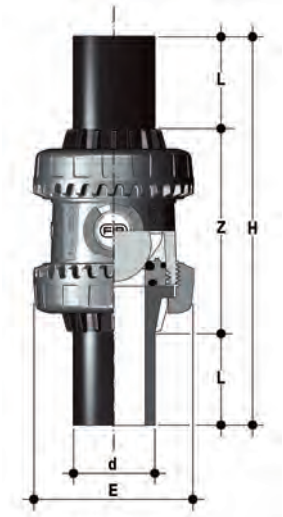
Easyfit air relief valve with BSP parallel female threaded ends

d	DN	PN	L	Z	H	E	Z***
1/2	15	16	15	60	90	54	73
3/4	20	16	16.3	60.4	93	63	82.4
1	25	16	19.1	71.8	110	72	89.8
1 1/4	32	16	21.4	84.2	127	85	103.2
1 1/2	40	16	21.4	88.2	131	100	121.2
2	50	16	25.7	109.6	161	118	147.6

Z*** For ABS sizes only.

PVC-U			ABS		
gms	EPDM Code	FPM Code	gms	EPDM Code	FPM Code
148	H0 SAE B02	H0 SAF B02	170	H0 SAA B02	H0 SAB B02
190	H0 SAE B03	H0 SAF B03	252	H0 SAA B03	H0 SAB B03
300	H0 SAE B04	H0 SAF B04	354	H0 SAA B04	H0 SAB B04
460	H0 SAE B05	H0 SAF B05	548	H0 SAA B05	H0 SAB B05
675	H0 SAE B06	H0 SAF B06	771	H0 SAA B06	H0 SAB B06
1080	H0 SAE B07	H0 SAF B07	1285	H0 SAA B07	H0 SAB B07

CVDE



End Connector in PE100, long spigot, for electrofusion or butt welding (SDR11)

d	DN	L	H	Product Code
20	15	55	154	HZ PEE M06
25	20	70	186	HZ PEE M07
32	25	74	199	HZ PEE M08
40	32	78	217	HZ PEE M09
50	40	84	236	HZ PEE M10
63	50	91	268	HZ PEE M11

LCE

Transparent Service Plug with tag holder

d			DN	Product Code
3/8"-1/2"	-	16 - 20	10 - 15	-
3/4"	-	25	20	-
1"	-	32	25	LCE020
1 1/4"	-	40	32	LCE025
1 1/2"	-	50	40	LCE032
2"	-	63	50	LCE032

LSE

Label design and print kit

d			DN	Product Code
3/8"-1/2"	- 16 -	20	10 - 15	-
3/4"	-	25	20	-
1"	-	32	25	LSE020
1 1/4"	-	40	32	LSE025
1 1/2"	-	50	40	LSE032
2"	-	63	50	LSE032

Easyfit Tool

Easy fit installation tool

d			DN	Product Code
3/8"-1/2"	- 16 -	20	10 - 15	HA VXE 020
3/4"	-	25	20	HA VXE 025
1"	-	32	25	HA VXE 032
1 1/4"	-	40	32	HA VXE 040
1 1/2"	-	50	40	HA VXE 050
2"	-	63	50	HA VXE 063

Connection to the System

easyfit System

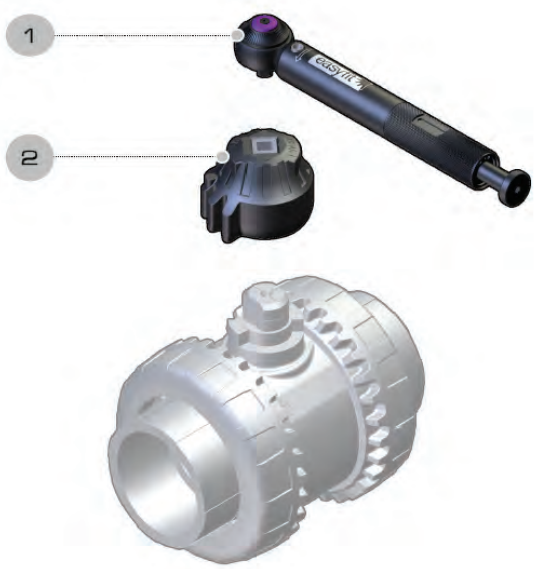
The SXA air release valve may be installed either in the vertical position (with upwards flow) or horizontally with a minimum back pressure of 0.2 bar.

Before proceeding with the installation, please read and familiarise yourself with these instructions.

1. Check that the pipes either side of the valve are axially aligned, in order to avoid mechanical stress on the threaded union joints.
2. Unscrew the union nuts (1 on p174) from the valve body and slide them onto the pipe.
3. Solvent weld, heat fuse or screw the valve end connectors (2 on p174) onto the pipe ends. For correct jointing see the relevant Durapipe material technical catalogues.
4. Position the valve between the two end connectors (and screw the union nuts clockwise by hand until a resistance is felt. After the union nuts have been hand tightened it is recommended to utilise the the Easytorque wrench to finalise the union nut tightening to the recommended torques.

Easytorque Kit

1. Torque wrench for use with Easyfit ball valves from $^{3}/_{8}$" - d16 to 2" - d63.
2. Insert for attaching the torque wrench to the valve for tightening the union nuts.
   The inserts are manufactured from PA50 material with sintered steel bush inserts.
3. Insert for attaching the torque wrench to the valve for adjusting the ball seat carrier.
   The inserts are manufactured from PA50 material with sintered steel bush inserts.



The Easytorque kit allows the tightness of the union nuts and ball seat carrier to be set to the correct manufacturers recommended torque settings. Optimising the operation efficiency of the valve. It also avoids damaging the valve components by the use of incorrect tools.

d	DN	Product Code
$^{3}/_{8}$"- $^{1}/_{2}$" - 16-20 to 2" - 63	10 - 15 to 50	KET01

Disassembly

1. Isolate the valve from the flow and drain down the pipeline.
2. Unscrew both the union nuts (1 on p174) it is recommended to utilise the Easyfit tool using the tool to loosen the nuts and remove the valve body from the line.
3. Using the Easyfit tool insert the 'prongs' on the underside of the tool into the slots on the ball seat carrier (10 on p174) Rotate the support anti-clockwise (Fig. 2) and remove the seat carrier. Then remove the ball.
4. The packing ring (8) can be removed and all the O-rings (3, 9 & 11 on p174) can be removed from their grooves, as shown in the exploded view.

Fig.1

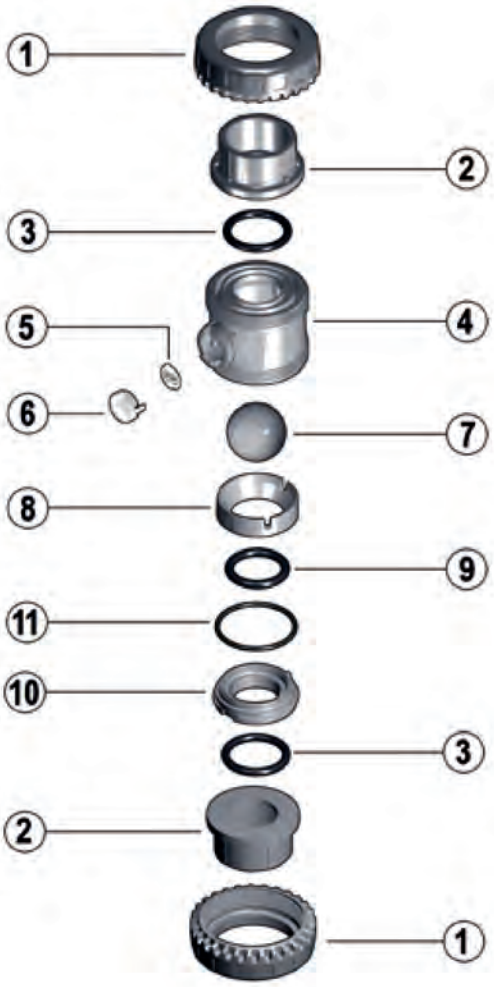
Fig.2

Assembly

1. All the O-rings (3, 9 & 11 on p174) and packing ring (8 on p174) can be fitted into their grooves, as shown in the exploded view.
2. Insert the ball (5 on p174).
3. Locate the ball seat carrier (10 on p174) and tighten clockwise using the Easyfit tool. Ideally use the Easytorque kit to ensure the seat is tightened to the recommended torque (Fig 3).
4. Position the valve between the end connectors (7 on p174) and tighten the union nuts (13 on p174) with the easyfit tool. Taking care that the socket O-rings remain in their grooves. Ideally use the Easytorque kit to ensure that the union nuts are tightened to the recommended torque.

Fig.3

Note: When assembling the valve components, it is advisable to lubricate the O-rings. Do not use mineral oils as they attack EPDM rubber.



Position	Components	Material
1*	Union Nut	Valve Material
2*	End Connector	Valve Material
3*	Socket Seal O-ring	EPDM/FPM
4	Body	Valve Material
5*	Tag	PVC
6*	Transparent Service Plug	PVC
7	Ball	PP
8	Packing Ring	Valve Material
9*	Ball Seal O-ring	EPDM/FPM
10	Ball Seat Support	Valve Material
11*	Radial Seal O-ring	EPDM/FPM

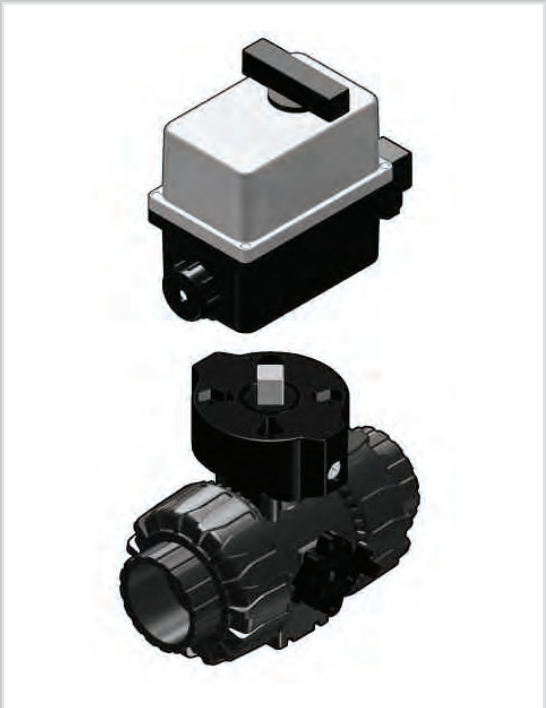
* Spare Parts

VKD Electrically Actuated VKD DualBlock® 2-way Ball Valve (DN10 - DN50)

- The **VKD DualBlock® ball valve**, is a fully unionised valve that stands up to the most severe industrial applications
- Size range from $^{3}/_{8}$" / d16mm up to 2" / d63mm
- Pressure rating: Maximum working pressure: 16 bar at 20°C (PP = 10Bar at 20ºC)
- Patented **DualBlock®** system: The locking device ensures the union nuts are retained in position, even under the most arduous conditions: ie. vibration or thermal expansion
- Easy removal of the valve body from the pipe system, allowing replacement of the valve seals and seats without any additional equipment
- The pipeline downstream of the valve can be disconnected, with the valve in the closed position, without leakage
- Fully blocked Seat Stop® design ball seat carrier, with micro adjustment of the ball seats and 'take up' of axial pipe loads
- VKD 'style' ergonomically designed handle with removable ball seat adjusting tool
- For more information, please visit our website **www.durapipe.co.uk**

Legend

d	Nominal outside diameter
DN	Nominal internal diameter in mm
R	Nominal size or the thread in inches
PN	Nominal pressure in bar (max.working Pressure at 20°C - water)
gms	Weight in grams
PVC-U	Polyvinyl chloride unplasticised
ABS	Acrylontrile Butadiene Styrene
PP	Polypropylene
PVC-C	Polyvinyl chloride chlorinated
GRPP	Glass reinforced polypropylene
POM	Polyoxymethylene
PE	Polyethylene
PTFE	Polytetrafluoroethylene
EPDM	Ethylene Propylene Diene Monomer (M-class) rubber
FPM	Fluorocarbon Rubber
s	Wall thickness (mm)
SDR	Standard dimension ratio = d/s



Dimensions and Standards

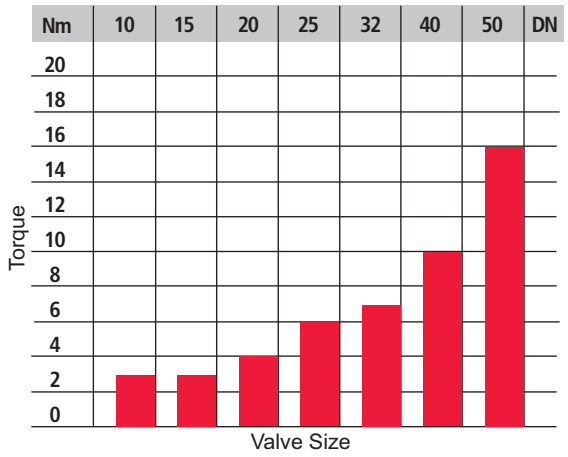
Imperial
The Imperial System is manufactured in accordance with the relevant British Standards: BS 5392 fittings.

Metric
The Metric System is manufactured generally in accordance with the relevant International Standards: ISO 15493, KIWA 49 and 549, DIN 8062 and 8063.

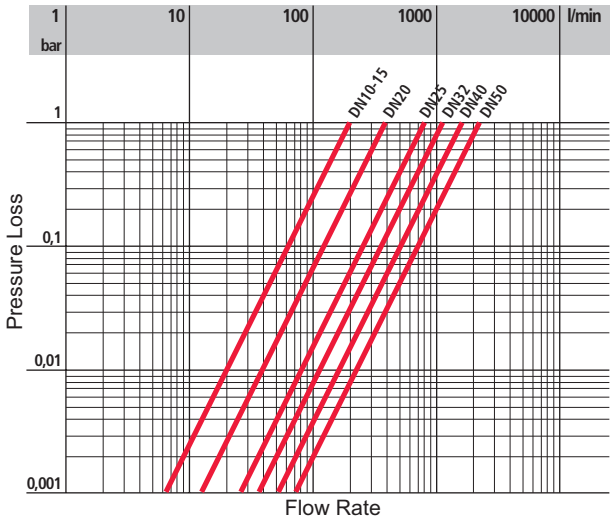
BSP Thread
Threaded fittings conform to the requirements of BS 21/DIN 2999/ISO7. Socket dimensions of metric fittings for solvent welding comply with ISO/DIS 727-1.

Interchangeability
Components in the imperial and metric ranges are not interchangeable.

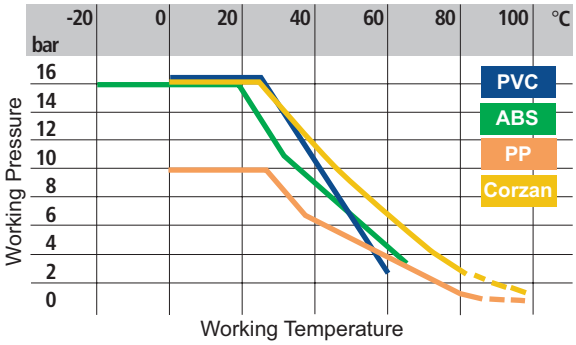
Technical Data



Torque at max working pressure. 16 Bar .



Pressure loss chart.



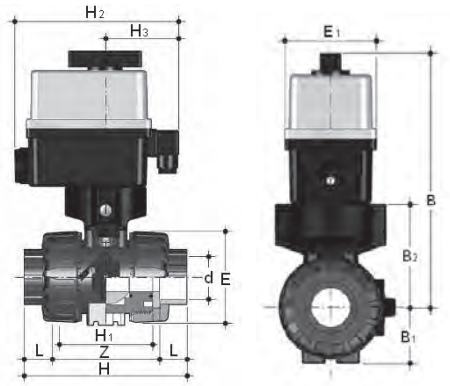
Pressure/temperature rating for water and harmless fluids to which the material is RESISTANT. In other cases a reduction of the PN is required. (25 years with safety factor).

DN	10	15	20	25	32	40	50
k_{v100}	80	200	385	770	1100	1750	3400

Flow coefficient k_{v100}

k_{v100} is the number of litres per minute of water at a temperature of 20°C that will flow through a valve with a one bar pressure differential at a specified rate. The k_{v100} values shown in the table are calculated with the valve fully open.

BS Series Female Ends



VKDLV/CE PVC-U
VKDLA/CE ABS

DualBlock® ball valve with BS series female ends for solvent welding

d	DN	PN	H	E	H_1	H_2	H_3	L	Z	B	B_1	B_2	E_1
3/8	10	16	103	54	65	187	82	14.5	74	205	29	58	92
1/2	15	16	103	54	65	187	82	16.5	70	205	29	58	92
3/4	20	16	115	65	70	187	82	19	77	220.5	34.5	73.5	92
1	25	16	128	73	78	187	82	22.5	83	221	39	74	92
1 1/4	32	16	146	86	88	187	82	26	94	244	46	97	92
1 1/2	40	16	164	98	93	187	82	30	104	251	52	104	92
2	50	10*	199	122	111	187	82	36	127	261	62	114	92

PVC-U

100 to 240vAC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
1/2	1775	H1 DKE 102	H1 DKF 102	H3 DKE 102	H3 DKF 102	H5 DKE 102	H5 DKF 102	H7 DKE 102	H7 DKF 102
3/4	1903	H1 DKE 103	H1 DKF 103	H3 DKE 103	H3 DKF 103	H5 DKE 103	H5 DKF 103	H7 DKE 103	H7 DKF 103
1	2011	H1 DKE 104	H1 DKF 104	H3 DKE 104	H3 DKF 104	H5 DKE 104	H5 DKF 104	H7 DKE 104	H7 DKF 104
1 1/4	2369	H1 DKE 105	H1 DKF 105	H3 DKE 105	H3 DKF 105	H5 DKE 105	H5 DKF 105	H7 DKE 105	H7 DKF 105
1 1/2	2601	H1 DKE 106	H1 DKF 106	H3 DKE 106	H3 DKF 106	H5 DKE 106	H5 DKF 106	H7 DKE 106	H7 DKF 106
2	3218	H1 DKE 107	H1 DKF 107	H3 DKE 107	H3 DKF 107	H5 DKE 107	H5 DKF 107	H7 DKE 107	H7 DKF 107

24vAC/DC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
1/2	1775	H2 DKE B02	H2 DKF 102	H4 DKE B02	H4 DKF 102	H6 DKE B02	H6 DKF 102	H8 DKE B02	H8 DKF 102
3/4	1903	H2 DKE B03	H2 DKF 103	H4 DKE B03	H4 DKF 103	H6 DKE B03	H6 DKF 103	H8 DKE B03	H8 DKF 103
1	2011	H2 DKE B04	H2 DKF 104	H4 DKE B04	H4 DKF 104	H6 DKE B04	H6 DKF 104	H8 DKE B04	H8 DKF 104
1 1/4	2369	H2 DKE B05	H2 DKF 105	H4 DKE B05	H4 DKF 105	H6 DKE B05	H6 DKF 105	H8 DKE B05	H8 DKF 105
1 1/2	2601	H2 DKE B06	H2 DKF 106	H4 DKE B06	H4 DKF 106	H6 DKE B06	H6 DKF 106	H8 DKE B06	H8 DKF 106
2	3218	H2 DKE B07	H2 DKF 107	H4 DKE B07	H4 DKF 107	H6 DKE B07	H6 DKF 107	H8 DKE B07	H8 DKF 107

ABS

100 to 240vAC

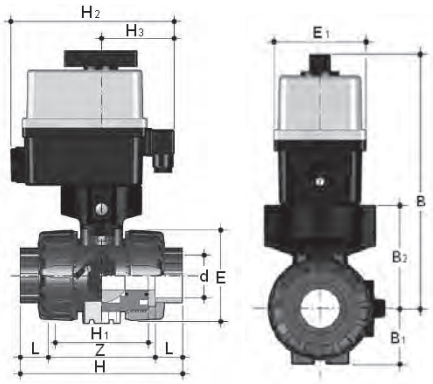
d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
3/8	1760	H1 DKA 101	H1 DKB 101	H3 DKA 101	H3 DKB 101	H5 DKA 101	H5 DKB 101	H7 DKA 101	H7 DKB 101
1/2	1755	H1 DKA 102	H1 DKB 102	H3 DKA 102	H3 DKB 102	H5 DKA 102	H5 DKB 102	H7 DKA 102	H7 DKB 102
3/4	1883	H1 DKA 103	H1 DKB 103	H3 DKA 103	H3 DKB 103	H5 DKA 103	H5 DKB 103	H7 DKA 103	H7 DKB 103
1	2009	H1 DKA 104	H1 DKB 104	H3 DKA 104	H3 DKB 104	H5 DKA 104	H5 DKB 104	H7 DKA 104	H7 DKB 104
1 1/4	2321	H1 DKA 105	H1 DKB 105	H3 DKA 105	H3 DKB 105	H5 DKA 105	H5 DKB 105	H7 DKA 105	H7 DKB 105
1 1/2	2556	H1 DKA 106	H1 DKB 106	H3 DKA 106	H3 DKB 106	H5 DKA 106	H5 DKB 106	H7 DKA 106	H7 DKB 106
2	3201	H1 DKA 107	H1 DKB 107	H3 DKA 107	H3 DKB 107	H5 DKA 107	H5 DKB 107	H7 DKA 107	H7 DKB 107

24vAC/DC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
3/8	1760	H2 DKA 101	H2 DKB 101	H4 DKA 101	H4 DKB 101	H6 DKA 101	H6 DKB 101	H8 DKA 101	H8 DKB 101
1/2	1755	H2 DKA 102	H2 DKB 102	H4 DKA 102	H4 DKB 102	H6 DKA 102	H6 DKB 102	H8 DKA 102	H8 DKB 102
3/4	1883	H2 DKA 103	H2 DKB 103	H4 DKA 103	H4 DKB 103	H6 DKA 103	H6 DKB 103	H8 DKA 103	H8 DKB 103
1	2009	H2 DKA 104	H2 DKB 104	H4 DKA 104	H4 DKB 104	H6 DKA 104	H6 DKB 104	H8 DKA 104	H8 DKB 104
1 1/4	2321	H2 DKA 105	H2 DKB 105	H4 DKA 105	H4 DKB 105	H6 DKA 105	H6 DKB 105	H8 DKA 105	H8 DKB 105
1 1/2	2556	H2 DKA 106	H2 DKB 106	H4 DKA 106	H4 DKB 106	H6 DKA 106	H6 DKB 106	H8 DKA 106	H8 DKB 106
2	3201	H2 DKA 107	H2 DKB 107	H4 DKA 107	H4 DKB 107	H6 DKA 107	H6 DKB 107	H8 DKA 107	H8 DKB 107

Metric Series Female Ends

VKDIV/CE PVC-U **VKDIM/CE** PP
VKDIA/CE ABS **VKDIC/CE** Corzan



DualBlock® ball valve with Metric series female ends

d	DN	PN	H	E	H_1	H_2	H_3	L	Z	L*	Z*	B	B_1	B_2	E_1
16	10	16	103	54	65	187	82	14	75	-	-	205	29	58	92
20	15	16	103	54	65	187	82	16	71	15	73	205	29	58	92
25	20	16	115	65	70	187	82	19	77	17	82	220.5	34.5	73.5	92
32	25	16	128	73	78	187	82	22	84	19	90	221	39	74	92
40	32	16	146	86	88	187	82	26	94	23	100	244	46	97	92
50	40	16	164	98	93	187	82	31	102	24	117	251	52	104	92
63	50	10*	199	122	111	187	82	38	123	28	144	261	62	114	92

PN16 also available on request. L & Z* are for PP only.

PVC-U

100 to 240vAC

		STANDARD		FAIL SAFE CLOSED		FAIL SAFE OPEN		4 TO 20mA POSITIONING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
16	-	H1 DKE 305	H1 DKF 305	H3 DKE 305	H3 DKF 305	H5 DKE 305	H5 DKF 305	H7 DKE 305	H7 DKF 305
20	1775	H1 DKE 306	H1 DKF 306	H3 DKE 306	H3 DKF 306	H5 DKE 306	H5 DKF 306	H7 DKE 306	H7 DKF 306
25	1903	H1 DKE 307	H1 DKF 307	H3 DKE 307	H3 DKF 307	H5 DKE 307	H5 DKF 307	H7 DKE 307	H7 DKF 307
32	2011	H1 DKE 308	H1 DKF 308	H3 DKE 308	H3 DKF 308	H5 DKE 308	H5 DKF 308	H7 DKE 308	H7 DKF 308
40	2369	H1 DKE 309	H1 DKF 309	H3 DKE 309	H3 DKF 309	H5 DKE 309	H5 DKF 309	H7 DKE 309	H7 DKF 309
50	2601	H1 DKE 310	H1 DKF 310	H3 DKE 310	H3 DKF 310	H5 DKE 310	H5 DKF 310	H7 DKE 310	H7 DKF 310
63	3218	H1 DKE 311	H1 DKF 311	H3 DKE 311	H3 DKF 311	H5 DKE 311	H5 DKF 311	H7 DKE 311	H7 DKF 311

24vAC/DC

		STANDARD		FAIL SAFE CLOSED		FAIL SAFE OPEN		4 TO 20mA POSITIONING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
16	-	H2 DKE 305	H2 DKF 305	H4 DKE 305	H4 DKF 305	H6 DKE 305	H6 DKF 305	H8 DKE 305	H8 DKF 305
20	1775	H2 DKE 306	H2 DKF 306	H4 DKE 306	H4 DKF 306	H6 DKE 306	H6 DKF 306	H8 DKE 306	H8 DKF 306
25	1903	H2 DKE 307	H2 DKF 307	H4 DKE 307	H4 DKF 307	H6 DKE 307	H6 DKF 307	H8 DKE 307	H8 DKF 307
32	2011	H2 DKE 308	H2 DKF 308	H4 DKE 308	H4 DKF 308	H6 DKE 308	H6 DKF 308	H8 DKE 308	H8 DKF 308
40	2369	H2 DKE 309	H2 DKF 309	H4 DKE 309	H4 DKF 309	H6 DKE 309	H6 DKF 309	H8 DKE 309	H8 DKF 309
50	2601	H2 DKE 310	H2 DKF 310	H4 DKE 310	H4 DKF 310	H6 DKE 310	H6 DKF 310	H8 DKE 310	H8 DKF 310
63	3218	H2 DKE 311	H2 DKF 311	H4 DKE 311	H4 DKF 311	H6 DKE 311	H6 DKF 311	H8 DKE 311	H8 DKF 311

ABS

100 to 240vAC

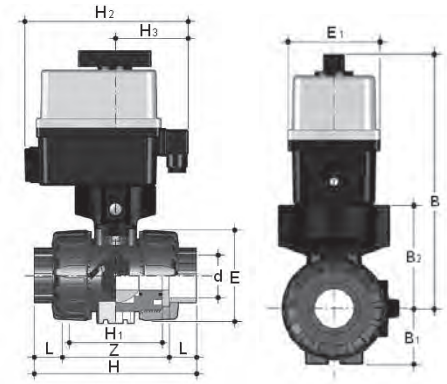
		STANDARD		FAIL SAFE CLOSED		FAIL SAFE OPEN		4 TO 20mA POSITIONING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
16	1760	H1 DKA 305	H1 DKB 305	H3 DKA 305	H3 DKB 305	H5 DKA 305	H5 DKB 305	H7 DKA 305	H7 DKB 305
20	1755	H1 DKA 306	H1 DKB 306	H3 DKA 306	H3 DKB 306	H5 DKA 306	H5 DKB 306	H7 DKA 306	H7 DKE 306
25	1883	H1 DKA 307	H1 DKB 307	H3 DKA 307	H3 DKB 307	H5 DKA 307	H5 DKB 307	H7 DKA 307	H7 DKB 307
32	2009	H1 DKA 308	H1 DKB 308	H3 DKA 308	H3 DKB 308	H5 DKA 308	H5 DKB 308	H7 DKA 308	H7 DKB 308
40	2321	H1 DKA 309	H1 DKB 309	H3 DKA 309	H3 DKB 309	H5 DKA 309	H5 DKB 309	H7 DKA 309	H7 DKB 309
50	2556	H1 DKA 310	H1 DKB 310	H3 DKA 310	H3 DKB 310	H5 DKA 310	H5 DKB 310	H7 DKA 310	H7 DKB 310
63	3201	H1 DKA 311	H1 DKB 311	H3 DKA 311	H3 DKB 311	H5 DKA 311	H5 DKB 311	H7 DKA 311	H7 DKB 311

24vAC/DC

		STANDARD		FAIL SAFE CLOSED		FAIL SAFE OPEN		4 TO 20mA POSITIONING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
16	1760	H2 DKA 305	H2 DKB 305	H4 DKA 305	H4 DKB 305	H6 DKA 305	H6 DKB 305	H8 DKA 305	H8 DKB 305
20	1755	H2 DKA 306	H2 DKB 306	H4 DKA 306	H4 DKB 306	H6 DKA 306	H6 DKB 306	H8 DKA 306	H8 DKB 306
25	1883	H2 DKA 307	H2 DKB 307	H4 DKA 307	H4 DKB 307	H6 DKA 307	H6 DKB 307	H8 DKA 307	H8 DKB 307
32	2009	H2 DKA 308	H2 DKB 308	H4 DKA 308	H4 DKB 308	H6 DKA 308	H6 DKB 308	H8 DKA 308	H8 DKB 308
40	2321	H2 DKA 309	H2 DKB 309	H4 DKA 309	H4 DKB 309	H6 DKA 309	H6 DKB 309	H8 DKA 309	H8 DKB 309
50	2556	H2 DKA 310	H2 DKB 310	H4 DKA 310	H4 DKB 310	H6 DKA 310	H6 DKB 310	H8 DKA 310	H8 DKB 310
63	3201	H2 DKA 311	H2 DKB 311	H4 DKA 311	H4 DKB 311	H6 DKA 311	H6 DKB 311	H8 DKA 311	H8 DKB 311

Metric Series Female Ends

VKDIV/CE PVC-U **VKDIM/CE** PP
VKDIA/CE ABS **VKDIC/CE** Corzan



PP

100 to 240vAC

		STANDARD		FAIL SAFE CLOSED		FAIL SAFE OPEN		4 TO 20mA POSITIONING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
20	1715	H1 DKN 306	H1 DKP 306	H3 DKN 306	H3 DKP 306	H5 DKN 306	H5 DKP 306	H7 DKN 306	H7 DKP 306
25	1791	H1 DKN 307	H1 DKP 307	H3 DKN 307	H3 DKP 307	H5 DKN 307	H5 DKP 307	H7 DKN 307	H7 DKP 307
32	1871	H1 DKN 308	H1 DKP 308	H3 DKN 308	H3 DKP 308	H5 DKN 308	H5 DKP 308	H7 DKN 308	H7 DKP 308
40	2156	H1 DKN 309	H1 DKP 309	H3 DKN 309	H3 DKP 309	H5 DKN 309	H5 DKP 309	H7 DKN 309	H7 DKP 309
50	2358	H1 DKN 310	H1 DKP 310	H3 DKN 310	H3 DKP 310	H5 DKN 310	H5 DKP 310	H7 DKN 310	H7 DKP 310
63	2807	H1 DKN 311	H1 DKP 311	H3 DKN 311	H3 DKP 311	H5 DKN 311	H5 DKP 311	H7 DKN 311	H7 DKP 311

24vAC/DC

		STANDARD		FAIL SAFE CLOSED		FAIL SAFE OPEN		4 TO 20mA POSITIONING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
20	1715	H2 DKN 306	H2 DKP 306	H4 DKN 306	H4 DKP 306	H6 DKN 306	H6 DKP 306	H8 DKN 306	H8 DKP 306
25	1791	H2 DKN 307	H2 DKP 307	H4 DKN 307	H4 DKP 307	H6 DKN 307	H6 DKP 307	H8 DKN 307	H8 DKP 307
32	1871	H2 DKN 308	H2 DKP 308	H4 DKN 308	H4 DKP 308	H6 DKN 308	H6 DKP 308	H8 DKN 308	H8 DKP 308
40	2156	H2 DKN 309	H2 DKP 309	H4 DKN 309	H4 DKP 309	H6 DKN 309	H6 DKP 309	H8 DKN 309	H8 DKP 309
50	2358	H2 DKN 310	H2 DKP 310	H4 DKN 310	H4 DKP 310	H6 DKN 310	H6 DKP 310	H8 DKN 310	H8 DKP 310
63	2807	H2 DKN 311	H2 DKP 311	H4 DKN 311	H4 DKP 311	H6 DKN 311	H6 DKP 311	H8 DKN 311	H8 DKP 311

Corzan

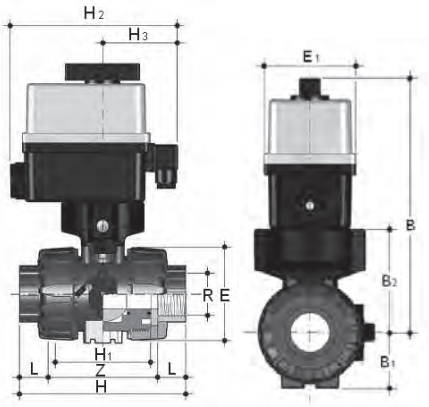
100 to 240vAC

		STANDARD		FAIL SAFE CLOSED		FAIL SAFE OPEN		4 TO 20mA POSITIONING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
16	-	H1 DKJ 305	H1 DKK 305	H3 DKJ 305	H3 DKK 305	H5 DKJ 305	H5 DKK 305	H7 DKJ 305	H7 DKK 305
20	1792	H1 DKJ 306	H1 DKK 306	H3 DKJ 306	H3 DKK 306	H5 DKJ 306	H5 DKK 306	H7 DKJ 306	H7 DKK 306
25	1923	H1 DKJ 307	H1 DKK 307	H3 DKJ 307	H3 DKK 307	H5 DKJ 307	H5 DKK 307	H7 DKJ 307	H7 DKK 307
32	2043	H1 DKJ 308	H1 DKK 308	H3 DKJ 308	H3 DKK 308	H5 DKJ 308	H5 DKK 308	H7 DKJ 308	H7 DKK 308
40	2400	H1 DKJ 309	H1 DKK 309	H3 DKJ 309	H3 DKK 309	H5 DKJ 309	H5 DKK 309	H7 DKJ 309	H7 DKK 309
50	2688	H1 DKJ 310	H1 DKK 310	H3 DKJ 310	H3 DKK 310	H5 DKJ 310	H5 DKK 310	H7 DKJ 310	H7 DKK 310
63	3311	H1 DKJ 311	H1 DKK 311	H3 DKJ 311	H3 DKK 311	H5 DKJ 311	H5 DKK 311	H7 DKJ 311	H7 DKK 311

24vAC/DC

		STANDARD		FAIL SAFE CLOSED		FAIL SAFE OPEN		4 TO 20mA POSITIONING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
16	-	H2 DKJ 305	H2 DKK 305	H4 DKJ 305	H4 DKK 305	H6 DKJ 305	H6 DKK 305	H8 DKJ 305	H8 DKK 305
20	1792	H2 DKJ 306	H2 DKK 306	H4 DKJ 306	H4 DKK 306	H6 DKJ 306	H6 DKK 306	H8 DKJ 306	H8 DKK 306
25	1923	H2 DKJ 307	H2 DKK 307	H4 DKJ 307	H4 DKK 307	H6 DKJ 307	H6 DKK 307	H8 DKJ 307	H8 DKK 307
32	2043	H2 DKJ 308	H2 DKK 308	H4 DKJ 308	H4 DKK 308	H6 DKJ 308	H6 DKK 308	H8 DKJ 308	H8 DKK 308
40	2400	H2 DKJ 309	H2 DKK 309	H4 DKJ 309	H4 DKK 309	H6 DKJ 309	H6 DKK 309	H8 DKJ 309	H8 DKK 309
50	2688	H2 DKJ 310	H2 DKK 310	H4 DKJ 310	H4 DKK 310	H6 DKJ 310	H6 DKK 310	H8 DKJ 310	H8 DKK 310
63	3311	H2 DKJ 311	H2 DKK 311	H4 DKJ 311	H4 DKK 311	H6 DKJ 311	H6 DKK 311	H8 DKJ 311	H8 DKK 311

BSP Threaded Socket Ends



VKDFV/CE PVC-U
VKDFA/CE ABS
VKDFM/CE PP

DualBlock® ball valve with BSP parallel female threaded ends

d	DN	PN	H	E	H_1	H_2	H_3	L	L*	Z*	Z	B	B_1	B_2	E_1	Z***
3/8	10	16	103	54	65	187	82	14	-	-	75	205	29	58	92	80.2
1/2	15	16	103	54	65	187	82	16	15	73	71	205	29	58	92	73
3/4	20	16	115	65	70	187	82	19	17	82	77	220.5	34.5	73.5	92	82.4
1	25	16	128	73	78	187	82	22	19	90	84	221	39	74	92	89.8
1 1/4	32	16	146	86	88	187	82	26	23	100	94	244	46	97	92	103.2
1 1/2	40	16	164	98	93	187	82	31	24	117	102	251	52	104	92	121.2
2	50	10*	199	122	111	187	82	38	28	144	123	261	62	114	92	147.6

PN16 also available on request. L & Z* are for PP only. Z*** For ABS sizes only.

PVC-U

100 to 240vAC

		STANDARD		FAIL SAFE CLOSED		FAIL SAFE OPEN		4 TO 20mA POSITIONING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
1/2	1775	H1 DKE B02	H1 DKF B02	H3 DKE B02	H3 DKF B02	H5 DKE B02	H5 DKF B02	H7 DKE B02	H7 DKF B02
3/4	1903	H1 DKE B03	H1 DKF B03	H3 DKE B03	H3 DKF B03	H5 DKE B03	H5 DKF B03	H7 DKE B03	H7 DKF B03
1	2011	H1 DKE B04	H1 DKF B04	H3 DKE B04	H3 DKF B04	H5 DKE B04	H5 DKF B04	H7 DKE B04	H7 DKF B04
1 1/4	2369	H1 DKE B05	H1 DKF B05	H3 DKE B05	H3 DKF B05	H5 DKE B05	H5 DKF B05	H7 DKE B05	H7 DKF B05
1 1/2	2601	H1 DKE B06	H1 DKF B06	H3 DKE B06	H3 DKF B06	H5 DKE B06	H5 DKF B06	H7 DKE B06	H7 DKF B06
2	3218	H1 DKE B07	H1 DKF B07	H3 DKE B07	H3 DKF B07	H5 DKE B07	H5 DKF B07	H7 DKE B07	H7 DKF B07

24vAC/DC

		STANDARD		FAIL SAFE CLOSED		FAIL SAFE OPEN		4 TO 20mA POSITIONING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
1/2	1775	H2 DKE B02	H2 DKF B02	H4 DKE B02	H4 DKF B02	H6 DKE B02	H6 DKF B02	H8 DKE B02	H8 DKF B02
3/4	1903	H2 DKE B03	H2 DKF B03	H4 DKE B03	H4 DKF B03	H6 DKE B03	H6 DKF B03	H8 DKE B03	H8 DKF B03
1	2011	H2 DKE B04	H2 DKF B04	H4 DKE B04	H4 DKF B04	H6 DKE B04	H6 DKF B04	H8 DKE B04	H8 DKF B04
1 1/4	2369	H2 DKE B05	H2 DKF B05	H4 DKE B05	H4 DKF B05	H6 DKE B05	H6 DKF B05	H8 DKE B05	H8 DKF B05
1 1/2	2601	H2 DKE B06	H2 DKF B06	H4 DKE B06	H4 DKF B06	H6 DKE B06	H6 DKF B06	H8 DKE B06	H8 DKF B06
2	3218	H2 DKE B07	H2 DKF B07	H4 DKE B07	H4 DKF B07	H6 DKE B07	H6 DKF B07	H8 DKE B07	H8 DKF B07

ABS

100 to 240vAC

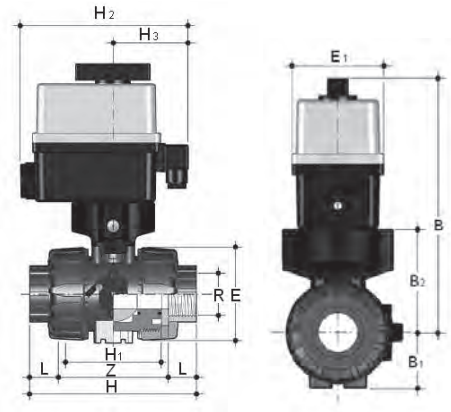
		STANDARD		FAIL SAFE CLOSED		FAIL SAFE OPEN		4 TO 20mA POSITIONING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
1/2	1755	H1 DKA B02	H1 DKB B02	H3 DKA B02	H3 DKB B02	H5 DKA B02	H5 DKB B02	H7 DKA B02	H7 DKE B02
3/4	1883	H1 DKA B03	H1 DKB B03	H3 DKA B03	H3 DKB B03	H5 DKA B03	H5 DKB B03	H7 DKA B03	H7 DKB B03
1	2009	H1 DKA B04	H1 DKB B04	H3 DKA B04	H3 DKB B04	H5 DKA B04	H5 DKB B04	H7 DKA B04	H7 DKB B04
1 1/4	2321	H1 DKA B05	H1 DKB B05	H3 DKA B05	H3 DKB B05	H5 DKA B05	H5 DKB B05	H7 DKA B05	H7 DKB B05
1 1/2	2556	H1 DKA B06	H1 DKB B06	H3 DKA B06	H3 DKB B06	H5 DKA B06	H5 DKB B06	H7 DKA B06	H7 DKB B06
2	3201	H1 DKA B07	H1 DKB B07	H3 DKA B07	H3 DKB B07	H5 DKA B07	H5 DKB B07	H7 DKA B07	H7 DKB B07

24vAC/DC

		STANDARD		FAIL SAFE CLOSED		FAIL SAFE OPEN		4 TO 20mA POSITIONING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
1/2	1755	H2 DKA B02	H2 DKB B02	H4 DKA B02	H4 DKB B02	H6 DKA B02	H6 DKB B02	H8 DKA B02	H8 DKB B02
3/4	1883	H2 DKA B03	H2 DKB B03	H4 DKA B03	H4 DKB B03	H6 DKA B03	H6 DKB B03	H8 DKA B03	H8 DKB B03
1	2009	H2 DKA B04	H2 DKB B04	H4 DKA B04	H4 DKB B04	H6 DKA B04	H6 DKB B04	H8 DKA B04	H8 DKB B04
1 1/4	2321	H2 DKA B05	H2 DKB B05	H4 DKA B05	H4 DKB B05	H6 DKA B05	H6 DKB B05	H8 DKA B05	H8 DKB B05
1 1/2	2556	H2 DKA B06	H2 DKB B06	H4 DKA B06	H4 DKB B06	H6 DKA B06	H6 DKB B06	H8 DKA B06	H8 DKB B06
2	3201	H2 DKA B07	H2 DKB B07	H4 DKA B07	H4 DKB B07	H6 DKA B07	H6 DKB B07	H8 DKA B07	H8 DKB B07

BSP Threaded Socket Ends

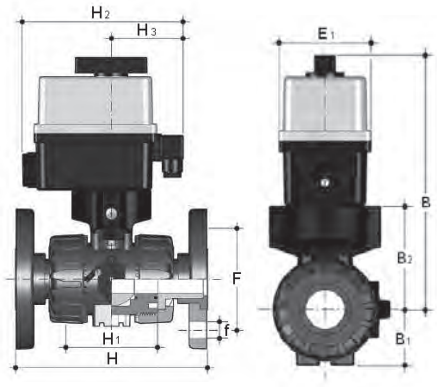
VKDFV/CE PVC-U
VKDFA/CE ABS
VKDFM/CE PP



		PP							
		100 to 240vAC							
		STANDARD		FAIL SAFE CLOSED		FAIL SAFE OPEN		4 TO 20mA POSITIONING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
1/2	1715	H1 DKN B02	H1 DKP B02	H3 DKN B02	H3 DKP B02	H5 DKN B02	H5 DKP F02	H7 DKN B02	H7 DKP B02
3/4	1791	H1 DKN B03	H1 DKP B03	H3 DKN B03	H3 DKP B03	H5 DKN B03	H5 DKP B03	H7 DKN B03	H7 DKP B03
1	1871	H1 DKN B04	H1 DKP B04	H3 DKN B04	H3 DKP B04	H5 DKN B04	H5 DKP B04	H7 DKN B04	H7 DKP B04
1 1/4	2156	H1 DKN B05	H1 DKP B05	H3 DKN B05	H3 DKP B05	H5 DKN B05	H5 DKP B05	H7 DKN B05	H7 DKP B05
1 1/2	2358	H1 DKN B06	H1 DKP B06	H3 DKN B06	H3 DKP B06	H5 DKN B06	H5 DKP B06	H7 DKN B06	H7 DKP B06
2	2807	H1 DKN B07	H1 DKP B07	H3 DKN B07	H3 DKP B07	H5 DKN B07	H5 DKP B07	H7 DKN B07	H7 DKP B07
		24vAC/DC							
		STANDARD		FAIL SAFE CLOSED		FAIL SAFE OPEN		4 TO 20mA POSITIONING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
1/2	1715	H2 DKN B02	H2 DKP B02	H4 DKN B02	H4 DKP B02	H6 DKN B02	H6 DKP B02	H8 DKN B02	H8 DKP B02
3/4	1791	H2 DKN B03	H2 DKP B03	H4 DKN B03	H4 DKP B03	H6 DKN B03	H6 DKP B03	H8 DKN B03	H8 DKP B03
1	1871	H2 DKN B04	H2 DKP B04	H4 DKN B04	H4 DKP B04	H6 DKN B04	H6 DKP B04	H8 DKN B04	H8 DKP B04
1 1/4	2156	H2 DKN B05	H2 DKP B05	H4 DKN B05	H4 DKP B05	H6 DKN B05	H6 DKP B05	H8 DKN B05	H8 DKP B05
1 1/2	2358	H2 DKN B06	H2 DKP B06	H4 DKN B06	H4 DKP B06	H6 DKN B06	H6 DKP B06	H8 DKN B06	H8 DKP B06
2	2807	H2 DKN B07	H2 DKP B07	H4 DKN B07	H4 DKP B07	H6 DKN B07	H6 DKP B07	H8 DKN B07	H8 DKP B07

Flanged Ends to BS EN1092-1 PN10/16

VKDOV/CE PVC-U
VKDOA/CE ABS
VKDOM/CE PP
VKDOC/CE Corzan



DualBlock® ball valve with Flanged ends, to BS EN1092-1 PN10/16

d	DN	PN	H	H_1	H_2	H_3	F	f	U	B	B_1	B_2	E_1
1/2 - 20	15	16	130	65	187	82	65	14	4	205	29	58	92
3/4 - 25	20	16	150	70	187	82	75	14	4	205	29	58	92
1 - 32	25	16	160	78	187	82	85	14	4	220.5	34.5	73.5	92
1 1/4 - 40	32	16	180	88	187	82	100	18	4	221	39	74	92
1 1/2 - 50	40	16	200	93	187	82	110	18	4	244	46	97	92
2 - 63	50	10*	230	111	187	82	125	18	4	251	52	104	92

*PN16 also available on request.

PVC-U

100 to 240vAC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
1/2	1775	H1 DKE F02	H1 DKF F02	H3 DKE F02	H3 DKF F02	H5 DKE F02	H5 DKF F02	H7 DKE F02	H7 DKF F02
3/4	1903	H1 DKE F03	H1 DKF F03	H3 DKE F03	H3 DKF F03	H5 DKE F03	H5 DKF F03	H7 DKE F03	H7 DKF F03
1	2011	H1 DKE F04	H1 DKF F04	H3 DKE F04	H3 DKF F04	H5 DKE F04	H5 DKF F04	H7 DKE F04	H7 DKF F04
1 1/4	2369	H1 DKE F05	H1 DKF F05	H3 DKE F05	H3 DKF F05	H5 DKE F05	H5 DKF F05	H7 DKE F05	H7 DKF F05
1 1/2	2601	H1 DKE F06	H1 DKF F06	H3 DKE F06	H3 DKF F06	H5 DKE F06	H5 DKF F06	H7 DKE F06	H7 DKF F06
2	3218	H1 DKE F07	H1 DKF F07	H3 DKE F07	H3 DKF F07	H5 DKE F07	H5 DKF F07	H7 DKE F07	H7 DKF F07

24vAC/DC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
1/2	1775	H2 DKE F02	H2 DKF F02	H4 DKE F02	H4 DKF F02	H6 DKE F02	H6 DKF F02	H8 DKE F02	H8 DKF F02
3/4	1903	H2 DKE F03	H2 DKF F03	H4 DKE F03	H4 DKF F03	H6 DKE F03	H6 DKF F03	H8 DKE F03	H8 DKF F03
1	2011	H2 DKE F04	H2 DKF F04	H4 DKE F04	H4 DKF F04	H6 DKE F04	H6 DKF F04	H8 DKE F04	H8 DKF F04
1 1/4	2369	H2 DKE F05	H2 DKF F05	H4 DKE F05	H4 DKF F05	H6 DKE F05	H6 DKF F05	H8 DKE F05	H8 DKF F05
1 1/2	2601	H2 DKE F06	H2 DKF F06	H4 DKE F06	H4 DKF F06	H6 DKE F06	H6 DKF F06	H8 DKE F06	H8 DKF F06
2	3218	H2 DKE F07	H2 DKF F07	H4 DKE F07	H4 DKF F07	H6 DKE F07	H6 DKF F07	H8 DKE F07	H8 DKF F07

ABS

100 to 240vAC

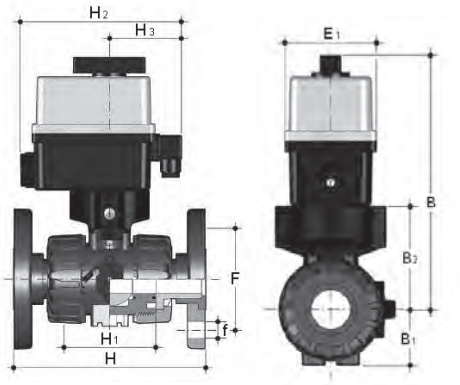
d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
1/2	1790	H1 DKA F02	H1 DKB F02	H3 DKA F02	H3 DKB F02	H5 DKA F02	H5 DKB F02	H7 DKA F02	H7 DKB F02
3/4	1858	H1 DKA F03	H1 DKB F03	H3 DKA F03	H3 DKB F03	H5 DKA F03	H5 DKB F03	H7 DKA F03	H7 DKB F03
1	1983	H1 DKA F04	H1 DKB F04	H3 DKA F04	H3 DKB F04	H5 DKA F04	H5 DKB F04	H7 DKA F04	H7 DKB F04
1 1/4	2311	H1 DKA F05	H1 DKB F05	H3 DKA F05	H3 DKB F05	H5 DKA F05	H5 DKB F05	H7 DKA F05	H7 DKB F05
1 1/2	2496	H1 DKA F06	H1 DKB F06	H3 DKA F06	H3 DKB F06	H5 DKA F06	H5 DKB F06	H7 DKA F06	H7 DKB F06
2	3066	H1 DKA F07	H1 DKB F07	H3 DKA F07	H3 DKB F07	H5 DKA F07	H5 DKB F07	H7 DKA F07	H7 DKB F07

24vAC/DC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
1/2	1790	H2 DKA F02	H2 DKB F02	H4 DKA F02	H4 DKB F02	H6 DKA F02	H6 DKB F02	H8 DKA F02	H8 DKB F02
3/4	1858	H2 DKA F03	H2 DKB F03	H4 DKA F03	H4 DKB F03	H6 DKA F03	H6 DKB F03	H8 DKA F03	H8 DKB F03
1	1983	H2 DKA F04	H2 DKB F04	H4 DKA F04	H4 DKB F04	H6 DKA F04	H6 DKB F04	H8 DKA F04	H8 DKB F04
1 1/4	2311	H2 DKA F05	H2 DKB F05	H4 DKA F05	H4 DKB F05	H6 DKA F05	H6 DKB F05	H8 DKA F05	H8 DKB F05
1 1/2	2496	H2 DKA F06	H2 DKB F06	H4 DKA F06	H4 DKB F06	H6 DKA F06	H6 DKB F06	H8 DKA F06	H8 DKB F06
2	3066	H2 6 DKA F07	H2 DKB F07	H4 DKA F07	H4 DKB F07	H6 DKA F07	H6 DKB F07	H8 DKA F07	H8 DKB F07

Flanged Ends to BS EN1092-1 PN10/16

VKDOV/CE PVC-U
VKDOA/CE ABS
VKDOM/CE PP
VKDOC/CE Corzan



PP

100 to 240vAC

		STANDARD		FAIL SAFE CLOSED		FAIL SAFE OPEN		4 TO 20mA POSITIONING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
1/2	1787	H1 DKN F02	H1 DKP F02	H3 DKN F02	H3 DKP F02	H5 DKN F02	H5 DKP F02	H7 DKN F02	H7 DKP F02
3/4	1817	H1 DKN F03	H1 DKP F03	H3 DKN F03	H3 DKP F03	H5 DKN F03	H5 DKP F03	H7 DKN F03	H7 DKP F03
1	1995	H1 DKN F04	H1 DKP F04	H3 DKN F04	H3 DKP F04	H5 DKN F04	H5 DKP F04	H7 DKN F04	H7 DKP F04
1 1/4	2336	H1 DKN F05	H1 DKP F05	H3 DKN F05	H3 DKP F05	H5 DKN F05	H5 DKP F05	H7 DKN F05	H7 DKP F05
1 1/2	2462	H1 DKN F06	H1 DKP F06	H3 DKN F06	H3 DKP F06	H5 DKN F06	H5 DKP F06	H7 DKN F06	H7 DKP F06
2	2931	H1 DKN F07	H1 DKP F07	H3 DKN F07	H3 DKP F07	H5 DKN F07	H5 DKP F07	H7 DKN F07	H7 DKP F07

24vAC/DC

		STANDARD		FAIL SAFE CLOSED		FAIL SAFE OPEN		4 TO 20mA POSITIONING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
1/2	1787	H2 DKN F02	H2 DKP F02	H4 DKN F02	H4 DKP F02	H6 DKN F02	H6 DKP F02	H8 DKN F02	H8 DKP F02
3/4	1817	H2 DKN F03	H2 DKP F03	H4 DKN F03	H4 DKP F03	H6 DKN F03	H6 DKP F03	H8 DKN F03	H8 DKP F03
1	1995	H2 DKN F04	H2 DKP F04	H4 DKN F04	H4 DKP F04	H6 DKN F04	H6 DKP F04	H8 DKN F04	H8 DKP F04
1 1/4	2336	H2 DKN F05	H2 DKP F05	H4 DKN F05	H4 DKP F05	H6 DKN F05	H6 DKP F05	H8 DKN F05	H8 DKP F05
1 1/2	2462	H2 DKN F06	H2 DKP F06	H4 DKN F06	H4 DKP F06	H6 DKN F06	H6 DKP F06	H8 DKN F06	H8 DKP F06
2	2931	H2 DKN F07	H2 DKP F07	H4 DKN F07	H4 DKP F07	H6 DKN F07	H6 DKP F07	H8 DKN F07	H8 DKP F07

Corzan

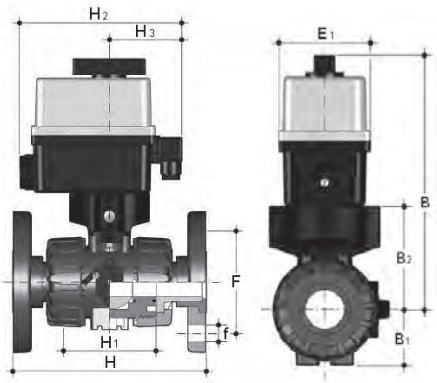
100 to 240vAC

		STANDARD		FAIL SAFE CLOSED		FAIL SAFE OPEN		4 TO 20mA POSITIONING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
1/2	1792	H1 DKJ F02	H1 DKK F02	H3 DKJ F02	H3 DKK F02	H5 DKJ F02	H5 DKK F02	H7 DKJ F02	H7 DKK F02
3/4	1923	H1 DKJ F03	H1 DKK F03	H3 DKJ F03	H3 DKK F03	H5 DKJ F03	H5 DKK F03	H7 DKJ F03	H7 DKK F03
1	2043	H1 DKJ F04	H1 DKK F04	H3 DKJ F04	H3 DKK F04	H5 DKJ F04	H5 DKK F04	H7 DKJ F04	H7 DKK F04
1 1/4	2400	H1 DKJ F05	H1 DKK F05	H3 DKJ F05	H3 DKK F05	H5 DKJ F05	H5 DKK F05	H7 DKJ F05	H7 DKK F05
1 1/2	2688	H1 DKJ F06	H1 DKK F06	H3 DKJ F06	H3 DKK F06	H5 DKJ F06	H5 DKK F06	H7 DKJ F06	H7 DKK F06
2	3311	H1 DKJ F07	H1 DKK F07	H3 DKJ F07	H3 DKK F07	H5 DKJ F07	H5 DKK F07	H7 DKJ F07	H7 DKK F07

24vAC/DC

		STANDARD		FAIL SAFE CLOSED		FAIL SAFE OPEN		4 TO 20mA POSITIONING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
1/2	1792	H2 DKJ F02	H2 DKK F02	H4 DKJ F02	H4 DKK F02	H6 DKJ F02	H6 DKK F02	H8 DKJ F02	H8 DKK F02
3/4	1923	H2 DKJ F03	H2 DKK F03	H4 DKJ F03	H4 DKK F03	H6 DKJ F03	H6 DKK F03	H8 DKJ F03	H8 DKK F03
1	2043	H2 DKJ F04	H2 DKK F04	H4 DKJ F04	H4 DKK F04	H6 DKJ F04	H6 DKK F04	H8 DKJ F04	H8 DKK F04
1 1/4	2400	H2 DKJ F05	H2 DKK F05	H4 DKJ F05	H4 DKK F05	H6 DKJ F05	H6 DKK F05	H8 DKJ F05	H8 DKK F05
1 1/2	2688	H2 DKJ F06	H2 DKK F06	H4 DKJ F06	H4 DKK F06	H6 DKJ F06	H6 DKK F06	H8 DKJ F06	H8 DKK F06
2	3311	H2 DKJ F07	H2 DKK F07	H4 DKJ F07	H4 DKK F07	H6 DKJ F07	H6 DKK F07	H8 DKJ F07	H8 DKK F07

Flanged Ends to ANSI 150



VKDOAV/CE PVC-U **VKDOAM/CE** PP **VKDOAC/CE** Corzan

DualBlock® ball valve with Flanged ends, to ANSI 150

d	DN	PN	H	H_1	H_2	H_3	F	f	U	B	B_1	B_2	E_1
1/2 - 20	15	16	130	65	187	82	60.5	16	4	205	29	58	92
3/4 - 25	20	16	150	70	187	82	70	16	4	205	29	58	92
1 - 32	25	16	160	78	187	82	79.5	16	4	220.5	34.5	73.5	92
1 1/4 - 40	32	16	180	88	187	82	89	16	4	221	39	74	92
1 1/2 - 50	40	16	200	93	187	82	98.5	16	4	244	46	97	92
2 - 63	50	10*	230	111	187	82	121	19	4	251	52	104	92

*PN16 also available on request.

PVC-U

100 to 240vAC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
3/8	-	-	-	-	-	-	-	-	-
1/2	1775	H1 DKE X02	H1 DKF X02	H3 DKE X02	H3 DKF X02	H5 DKE X02	H5 DKF X02	H7 DKE X02	H7 DKF X02
3/4	1903	H1 DKE X03	H1 DKF X03	H3 DKE X03	H3 DKF X03	H5 DKE X03	H5 DKF X03	H7 DKE X03	H7 DKF X03
1	2011	H1 DKE X04	H1 DKF X04	H3 DKE X04	H3 DKF X04	H5 DKE X04	H5 DKF X04	H7 DKE X04	H7 DKF X04
1 1/4	2369	H1 DKE X05	H1 DKF X05	H3 DKE X05	H3 DKF X05	H5 DKE X05	H5 DKF X05	H7 DKE X05	H7 DKF X05
1 1/2	2601	H1 DKE X06	H1 DKF X06	H3 DKE X06	H3 DKF X06	H5 DKE X06	H5 DKF X06	H7 DKE X06	H7 DKF X06
2	3218	H1 DKE X07	H1 DKF X07	H3 DKE X07	H3 DKF X07	H5 DKE X07	H5 DKF X07	H7 DKE X07	H7 DKF X07

24vAC/DC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
3/8	-	-	-	-	-	-	-	-	-
1/2	1775	H2 DKE X02	H2 DKF X02	H4 DKE X02	H4 DKF X02	H6 DKE X02	H6 DKF X02	H8 DKE X02	H8 DKF X02
3/4	1903	H2 DKE X03	H2 DKF X03	H4 DKE X03	H4 DKF X03	H6 DKE X03	H6 DKF X03	H8 DKE X03	H8 DKF X03
1	2011	H2 DKE X04	H2 DKF X04	H4 DKE X04	H4 DKF X04	H6 DKE X04	H6 DKF X04	H8 DKE X04	H8 DKF X04
1 1/4	2369	H2 DKE X05	H2 DKF X05	H4 DKE X05	H4 DKF X05	H6 DKE X05	H6 DKF X05	H8 DKE X05	H8 DKF X05
1 1/2	2601	H2 DKE X06	H2 DKF X06	H4 DKE X06	H4 DKF X06	H6 DKE X06	H6 DKF X06	H8 DKE X06	H8 DKF X06
2	3218	H2 DKE X07	H2 DKF X07	H4 DKE X07	H4 DKF X07	H6 DKE X07	H6 DKF X07	H8 DKE X07	H8 DKF X07

PP

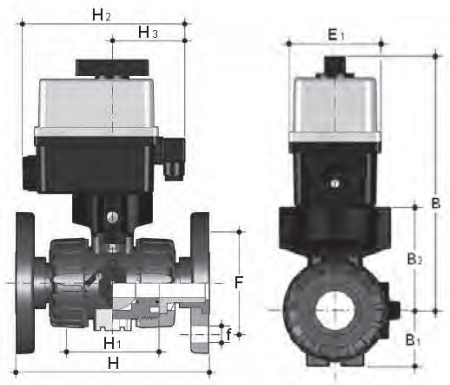
100 to 240vAC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
3/8	-	-	-	-	-	-	-	-	-
1/2	1715	H1 DKN X02	H1 DKP X02	H3 DKN X02	H3 DKP X02	H5 DKN X02	H5 DKP X02	H7 DKN X02	H7 DKP X02
3/4	1791	H1 DKN X03	H1 DKP X03	H3 DKN X03	H3 DKP X03	H5 DKN X03	H5 DKP X03	H7 DKN X03	H7 DKP X03
1	1871	H1 DKN X04	H1 DKP X04	H3 DKN X04	H3 DKP X04	H5 DKN X04	H5 DKP X04	H7 DKN X04	H7 DKP X04
1 1/4	2156	H1 DKN X05	H1 DKP X05	H3 DKN X05	H3 DKP X05	H5 DKN X05	H5 DKP X05	H7 DKN X05	H7 DKP X05
1 1/2	2358	H1 DKN X06	H1 DKP X06	H3 DKN X06	H3 DKP X06	H5 DKN X06	H5 DKP X06	H7 DKN X06	H7 DKP X06
2	2807	H1 DKN X07	H1 DKP X07	H3 DKN X07	H3 DKP X07	H5 DKN X07	H5 DKP X07	H7 DKN X07	H7 DKP X07

24vAC/DC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
3/8	-	H2 DKN X01	H2 DKP X01	H4 DKN X01	H4 DKP X01	H6 DKN X01	H6 DKN X01	H8 DKN X01	H8 DKP X01
1/2	1715	H2 DKN X02	H2 DKP X02	H4 DKN X02	H4 DKP X02	H6 DKN X02	H6 DKN X02	H8 DKN X02	H8 DKP X02
3/4	1791	H2 DKN X03	H2 DKP X03	H4 DKN X03	H4 DKP X03	H6 DKN X03	H6 DKN X03	H8 DKN X03	H8 DKP X03
1	1871	H2 DKN X04	H2 DKP X04	H4 DKN X04	H4 DKP X04	H6 DKN X04	H6 DKN X04	H8 DKN X04	H8 DKP X04
1 1/4	2156	H2 DKN X05	H2 DKP X05	H4 DKN X05	H4 DKP X05	H6 DKN X05	H6 DKN X05	H8 DKN X05	H8 DKP X05
1 1/2	2358	H2 DKN X06	H2 DKP X06	H4 DKN X06	H4 DKP X06	H6 DKN X06	H6 DKN X06	H8 DKN X06	H8 DKP X06
2	2807	H2 DKN X07	H2 DKP X07	H4 DKN X07	H4 DKP X07	H6 DKN X07	H6 DKN X07	H8 DKN X07	H8 DKP X07

Flanged Ends to ANSI 150



VKDOAV/CE PVC-U **VKDOAM/CE** PP **VKDOAC/CE** Corzan

		Corzan							
		100 to 240vAC							
		STANDARD		FAIL SAFE CLOSED		FAIL SAFE OPEN		4 TO 20mA POSITIONING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
3/8	-	-	-	-	-	-	-	-	-
1/2	1792	H1 DKJ X02	H1 DKK X02	H3 DKJ X02	H3 DKK X02	H5 DKJ X02	H5 DKK X02	H7 DKJ X02	H7 DKK X02
3/4	1923	H1 DKJ X03	H1 DKK X03	H3 DKJ X03	H3 DKK X03	H5 DKJ X03	H5 DKK X03	H7 DKJ X03	H7 DKK X03
1	2043	H1 DKJ X04	H1 DKK X04	H3 DKJ X04	H3 DKK X04	H5 DKJ X04	H5 DKK X04	H7 DKJ X04	H7 DKK X04
1 1/4	2400	H1 DKJ X05	H1 DKK X05	H3 DKJ X05	H3 DKK X05	H5 DKJ X05	H5 DKK X05	H7 DKJ X05	H7 DKK X05
1 1/2	2688	H1 DKJ X06	H1 DKK X06	H3 DKJ X06	H3 DKK X06	H5 DKJ X06	H5 DKK X06	H7 DKJ X06	H7 DKK X06
2	3311	H1 DKJ X07	H1 DKK X07	H3 DKJ X07	H3 DKK X07	H5 DKJ X07	H5 DKK X07	H7 DKJ X07	H7 DKK X07
		24vAC/DC							
		STANDARD		FAIL SAFE CLOSED		FAIL SAFE OPEN		4 TO 20mA POSITIONING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
3/8	-	-	-	-	-	-	-	-	-
1/2	1792	H2 DKJ X02	H2 DKK X02	H4 DKJ X02	H4 DKK X02	H6 DKJ X02	H6 DKK X02	H8 DKJ X02	H8 DKK X02
3/4	1923	H2 DKJ X03	H2 DKK X03	H4 DKJ X03	H4 DKK X03	H6 DKJ X03	H6 DKK X03	H8 DKJ X03	H8 DKK X03
1	2043	H2 DKJ X04	H2 DKK X04	H4 DKJ X04	H4 DKK X04	H6 DKJ X04	H6 DKK X04	H8 DKJ X04	H8 DKK X04
1 1/4	2400	H2 DKJ X05	H2 DKK X05	H4 DKJ X05	H4 DKK X05	H6 DKJ X05	H6 DKK X05	H8 DKJ X05	H8 DKK X05
1 1/2	2688	H2 DKJ X06	H2 DKK X06	H4 DKJ X06	H4 DKK X06	H6 DKJ X06	H6 DKK X06	H8 DKJ X06	H8 DKK X06
2	3311	H2 DKJ X07	H2 DKK X07	H4 DKJ X07	H4 DKK X07	H6 DKJ X07	H6 DKK X07	H8 DKJ X07	H8 DKK X07

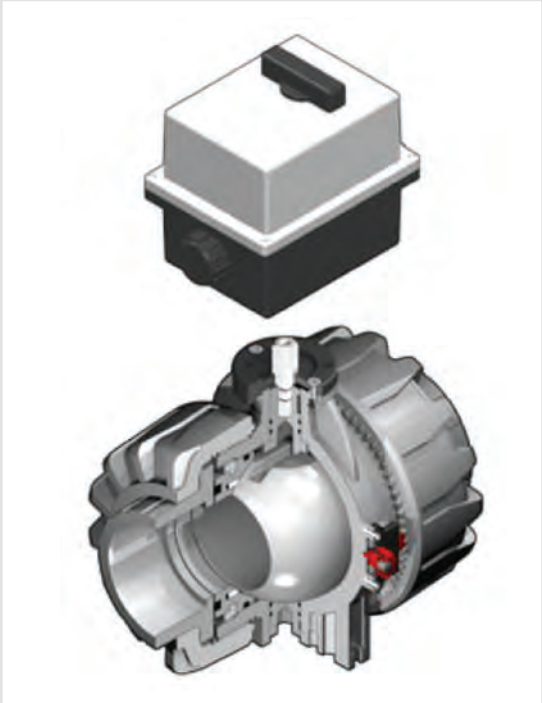
Tel: +44 (0)1543 471680 Fax: +44 (0)1543 471682

VKD Electrically Actuated VKD DualBlock® 2-way Ball Valve (DN65-DN100)

- The **VKD DualBlock® ball valve**, is a fully unionised valve that stands up to the most severe industrial applications
- Size range from $2^{1}/_{2}$" / d75mm up to 4" / d110mm
- Pressure rating : Maximum working pressure: 16 bar at 20°C except for 4" which is available upon request (PP = 10Bar at 20ºC).
- Patented **DualBlock®** system: The locking device ensures the union nuts are retained in position, even under the most arduous conditions: ie. vibration or thermal expansion
- Easy removal of the valve body from the pipe system, allowing replacement of the valve seals and seats without any additional equipment
- The pipeline downstream of the valve can be disconnected, with the valve in the closed position, without leakage
- Fully blocked Seat Stop® design ball seat carrier, with micro adjustment of the ball seats and 'take up' of axial pipe loads
- For more information, please visit our website **www.durapipe.co.uk**

Legend

d	Nominal outside diameter
DN	Nominal internal diameter in mm
R	Nominal size or the thread in inches
PN	Nominal pressure in bar (max.working Pressure at 20°C - water)
gms	Weight in grams
PVC-U	Polyvinyl chloride unplasticised
ABS	Acrylontrile Butadiene Styrene
PP	Polypropylene
PVC-C	Polyvinyl chloride chlorinated
GRPP	Glass reinforced polypropylene
POM	Polyoxymethylene
PE	Polyethylene
PTFE	Polytetrafluoroethylene
EPDM	Ethylene Propylene Diene Monomer (M-class) rubber
FPM	Fluorocarbon Rubber
s	Wall thickness (mm)
SDR	Standard dimension ratio = d/s



Dimensions and Standards

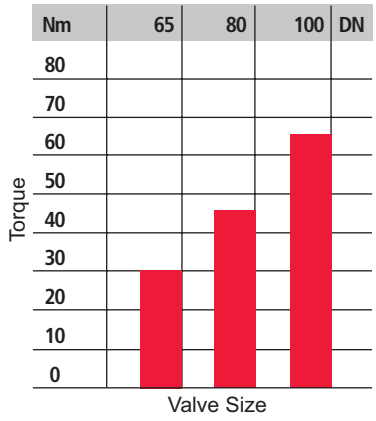
Imperial
The Imperial System is manufactured in accordance with the relevant British Standards: BS 5392 fittings.

Metric
The Metric System is manufactured generally in accordance with the relevant International Standards: ISO 15493, KIWA 49 and 549, DIN 8062 and 8063.

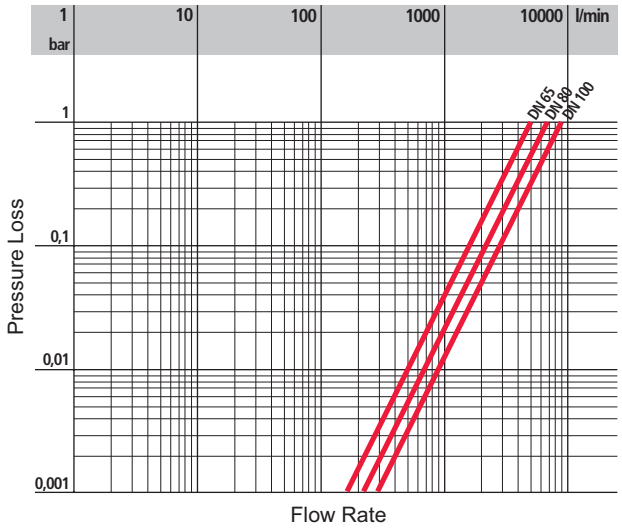
BSP Thread
Threaded fittings conform to the requirements of BS 21/DIN 2999/ISO7. Socket dimensions of metric fittings for solvent welding comply with ISO/DIS 727-1.

Interchangeability
Components in the imperial and metric ranges are not interchangeable.

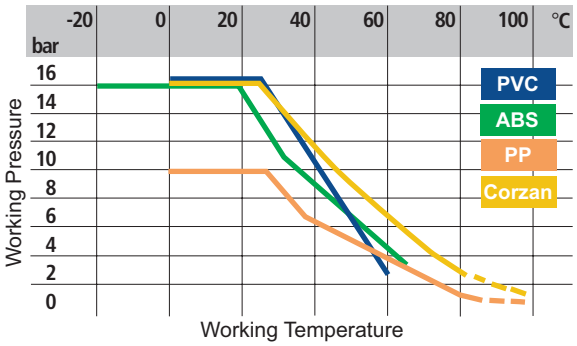
Technical Data



Torque at max working pressure. 16 Bar.



Pressure loss chart.



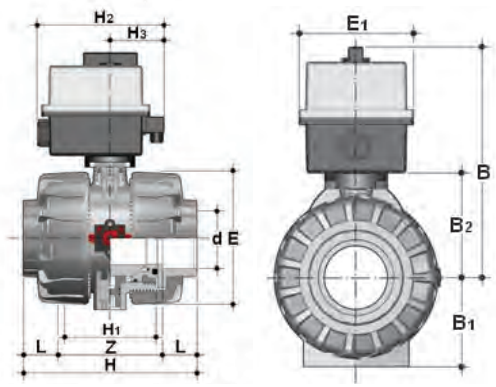
Pressure/temperature rating for water and harmless fluids to which the material is RESISTANT. In other cases a reduction of the PN is required. (25 years with safety factor).

DN	65	80	100
k_{v100}	5250	7100	9500

Flow coefficient k_{v100}

k_{v100} is the number of litres per minute of water at a temperature of 20°C that will flow through a valve with a one bar pressure differential at a specified rate. The k_{v100} values shown in the table are calculated with the valve fully open.

BS Series Female Ends



VKDLV/CE PVC-U
VKDLA/CE ABS

DualBlock® ball valve with BS series female ends

d	DN	PN	L	Z	H	H_1	E	H_2	H_3	B	B_1	B_2	E_1
$2^1/_2$	65	16	44	147	235	133	164	188	93	295	87	119	128
3	80	16	51	168	270	149	203	188	93	308	105	132	128
4	100	10*	63	186	308	167	238	188	93	325	129	150	128

*PN16 available on request.

PVC-U

100 to 240vAC

		STANDARD		FAIL SAFE CLOSED		FAIL SAFE OPEN		4 TO 20mA POSITIONING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
$2^1/_2$	6800	H1 DKE 312	H1 DKF 312	H1 DKF 312	H3 DKF 312	H5 DKE 312	H5 DKB 312	H7 DKE 312	H7 DKF 312
3	9620	H1 DKE 109	H1 DKF 109	H1 DKF 109	H3 DKF 109	H5 DKE 109	H5 DKF 109	H7 DKE 109	H7 DKF 109
4	13460	H1 DKE 110	H1 DKF 110	H1 DKF 110	H3 DKF 110	H5 DKE 110	H5 DKF 110	H7 DKE 110	H7 DKF 110

24vAC/DC

		STANDARD		FAIL SAFE CLOSED		FAIL SAFE OPEN		4 TO 20mA POSITIONING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
$2^1/_2$	6800	H2 DKE 312	H2 DKF 312	H4 DKE 312	H4 DKF 312	H6 DKE 312	H6 DKF 312	H8 DKE 312	H8 DKF 312
3	9620	H2 DKE 109	H2 DKF 109	H4 DKE 109	H4 DKF 109	H6 DKE 109	H6 DKF 109	H8 DKE 109	H8 DKF 109
4	13460	H2 DKE 110	H2 DKF 110	H4 DKE 110	H4 DKF 110	H6 DKE 110	H6 DKF 110	H8 DKE 110	H8 DKF 110

ABS

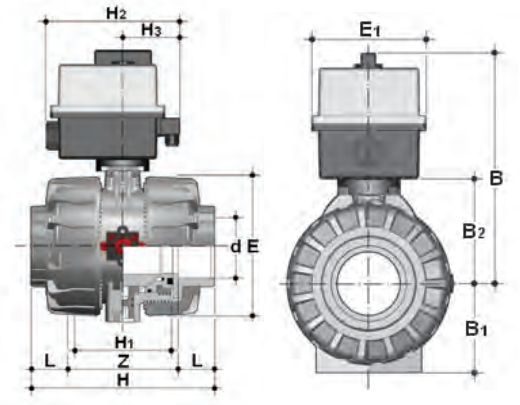
100 to 240vAC

		STANDARD		FAIL SAFE CLOSED		FAIL SAFE OPEN		4 TO 20mA POSITIONING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
$2^1/_2$	6145	H1 DKA 312	H1 DKB 312	H3 DKA 312	H3 DKB 312	H5 DKA 312	H5 DKB 312	H7 DKA 312	H7 DKB 312
3	8540	H1 DKA 109	H1 DKB 109	H3 DKA 109	H3 DKB 109	H5 DKA 109	H5 DKB 109	H7 DKA 109	H7 DKB 109
4	11770	H1 DKA 110	H1 DKB 110	H3 DKA 110	H3 DKB 110	H5 DKA 110	H5 DKB 110	H7 DKA 110	H7 DKB 110

24vAC/DC

		STANDARD		FAIL SAFE CLOSED		FAIL SAFE OPEN		4 TO 20mA POSITIONING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
$2^1/_2$	6145	H2 DKA 312	H2 DKB 312	H4 DKA 312	H4 DKB 312	H6 DKA 312	H6 DKB 312	H8 DKA 312	H8 DKB 312
3	8540	H2 DKA 109	H2 DKB 109	H4 DKA 109	H4 DKB 109	H6 DKA 109	H6 DKB 109	H8 DKA 109	H8 DKB 109
4	11770	H2 DKA 110	H2 DKB 110	H4 DKA 110	H4 DKB 110	H6 DKA 110	H6 DKB 110	H8 DKA 110	H8 DKB 110

Metric Series Female Ends



VKDIV/CE PVC-U VKDIA/CE ABS
VKDIM/CE PP VKDIC/CE Corzan

DualBlock® ball valve with Metric series female ends

d	DN	PN	L	Z	H	H_1	E	H_2	H_3	B	B_1	B_2	E_1
75	65	16	44	147	235	133	164	188	93	295	87	119	128
90	80	16	51	168	270	149	203	188	93	308	105	132	128
110	100	10*	63	186	308	167	238	188	93	325	129	150	128

*PN16 available on request.

PVC-U

100 to 240vAC

		STANDARD		FAIL SAFE CLOSED		FAIL SAFE OPEN		4 TO 20mA POSITIONING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
75	6800	H1 DKE 312	H1 DKF 312	H3 DKE 312	H3 DKF 312	H5 DKE 312	H5 DKF 312	H7 DKE 312	H7 DKF 312
90	9620	H1 DKE 313	H1 DKF 313	H3 DKE 313	H3 DKF 313	H5 DKE 313	H5 DKF 313	H7 DKE 313	H7 DKF 313
110	13460	H1 DKE 314	H1 DKF 314	H3 DKE 314	H3 DKF 314	H5 DKE 314	H5 DKF 314	H7 DKE 314	H7 DKF 314

24vAC/DC

		STANDARD		FAIL SAFE CLOSED		FAIL SAFE OPEN		4 TO 20mA POSITIONING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
75	6800	H2 DKE 312	H2 DKF 312	H4 DKE 312	H4 DKF 312	H6 DKE 312	H6 DKF 312	H8 DKE 312	H8 DKF 312
90	9620	H2 DKE 313	H2 DKF 313	H4 DKE 313	H4 DKF 313	H6 DKE 313	H6 DKF 313	H8 DKE 313	H8 DKF 313
110	13460	H2 DKE 314	H2 DKF 314	H4 DKE 314	H4 DKF 314	H6 DKE 314	H6 DKF 314	H8 DKE 314	H8 DKF 314

ABS

100 to 240vAC

		STANDARD		FAIL SAFE CLOSED		FAIL SAFE OPEN		4 TO 20mA POSITIONING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
75	6145	H1 DKA 312	H1 DKB 312	H3 DKA 312	H3 DKB 312	H5 DKA 312	H5 DKB 312	H7 DKA 312	H7 DKB 312
90	8540	H1 DKA 313	H1 DKB 313	H3 DKA 313	H3 DKB 313	H5 DKA 313	H5 DKB 313	H7 DKA 313	H7 DKB 313
110	11770	H1 DKA 314	H1 DKB 314	H3 DKA 314	H3 DKB 314	H5 DKA 314	H5 DKB 314	H7 DKA 314	H7 DKB 314

24vAC/DC

		STANDARD		FAIL SAFE CLOSED		FAIL SAFE OPEN		4 TO 20mA POSITIONING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
75	6145	H2 DKA 312	H2 DKB 312	H4 DKA 312	H4 DKB 312	H6 DKA 312	H6 DKB 312	H8 DKA 312	H8 DKB 312
90	8540	H2 DKA 313	H2 DKB 313	H4 DKA 313	H4 DKB 313	H6 DKA 313	H6 DKB 313	H8 DKA 313	H8 DKB 313
110	11770	H2 DKA 314	H2 DKB 314	H4 DKA 314	H4 DKB 314	H6 DKA 314	H6 DKB 314	H8 DKA 314	H8 DKB 314

PP

100 to 240vAC

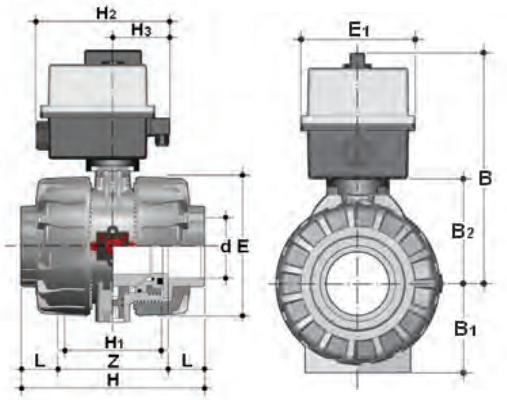
		STANDARD		FAIL SAFE CLOSED		FAIL SAFE OPEN		4 TO 20mA POSITIONING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
75	5510	H1 DKN 312	H1 DKP 312	H3 DKN 312	H3 DKP 312	H5 DKN 312	H5 DKP 312	H7 DKN 312	H7 DKP 312
90	7500	H1 DKN 313	H1 DKP 313	H3 DKN 313	H3 DKP 313	H5 DKN 313	H5 DKP 313	H7 DKN 313	H7 DKP 313
110	10045	H1 DKN 314	H1 DKP 314	H3 DKN 314	H3 DKP 314	H5 DKN 314	H5 DKP 314	H7 DKN 314	H7 DKP 314

24vAC/DC

		STANDARD		FAIL SAFE CLOSED		FAIL SAFE OPEN		4 TO 20mA POSITIONING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
75	5510	H2 DKN 312	H2 DKP 312	H4 DKN 312	H4 DKP 312	H6 DKN 312	H6 DKP 312	H8 DKN 312	H8 DKP 312
90	7500	H2 DKN 313	H2 DKP 313	H4 DKN 313	H4 DKP 313	H6 DKN 313	H6 DKP 313	H8 DKN 313	H8 DKP 313
110	10045	H2 DKN 314	H2 DKP 314	H4 DKN 314	H4 DKP 314	H6 DKN 314	H6 DKP 314	H8 DKN 314	H8 DKP 314

continued >>

Metric Series Female Ends



VKDIV/CE PVC-U
VKDIM/CE PP
VKDIA/CE ABS
VKDIC/CE Corzan

Corzan

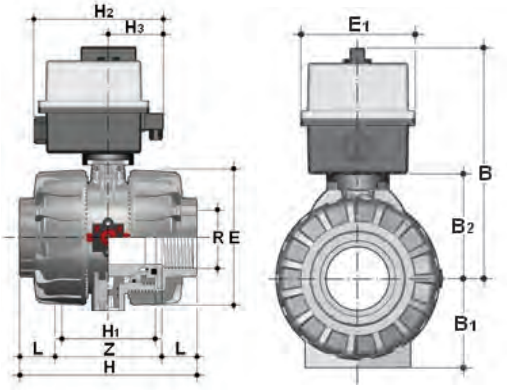
100 to 240vAC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
75	7170	H1 DKJ 312	H1 DKK 312	H3 DKJ 312	H3 DKK 312	H5 DKJ 312	H5 DKK 312	H7 DKJ 312	H7 DKK 312
90	10258	H1 DKJ 313	H1 DKK 313	H3 DKJ 313	H3 DKK 313	H5 DKJ 313	H5 DKK 313	H7 DKJ 313	H7 DKK 313
110	14457	H1 DKJ 314	H1 DKK 314	H3 DKJ 314	H3 DKK 314	H5 DKJ 314	H5 DKK 314	H7 DKJ 314	H7 DKK 314

24vAC/DC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
75	7170	H2 DKJ 312	H2 DKK 312	H4 DKJ 312	H4 DKK 312	H6 DKJ 312	H6 DKK 312	H8 DKJ 312	H8 DKK 312
90	10258	H2 DKJ 313	H2 DKK 313	H4 DKJ 313	H4 DKK 313	H6 DKJ 313	H6 DKK 313	H8 DKJ 313	H8 DKK 313
110	14457	H2 DKJ 314	H2 DKK 314	H4 DKJ 314	H4 DKK 314	H6 DKJ 314	H6 DKK 314	H8 DKJ 314	H8 DKK 314

BSP Threaded Socket Ends



VKDFV/CE PVC-U

DualBlock® ball valve with BSP parallel female threaded ends

d	DN	PN	L	Z	H	H_1	E	H_2	H_3	B	B_1	B_2	E_1
$2^1/_2$	65	16	30.2	174.6	235	133	164	188	93	295	87	119	128
3	80	16	33.3	203.4	270	149	203	188	93	308	105	132	128
4	100	10*	39.3	229.4	308	167	238	188	93	325	129	150	128

*PN16 available on request.

PVC-U

100 to 240vAC

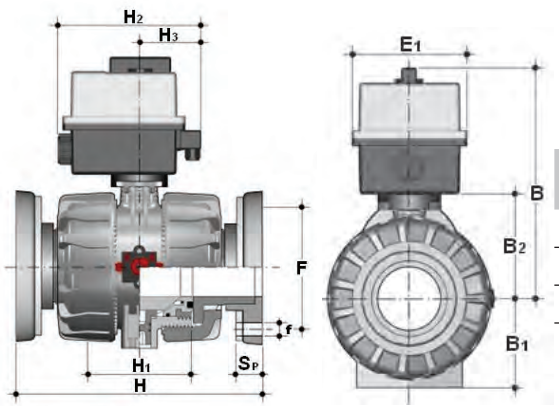
d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
$2^1/_2$	6800	H1 DKE B08	H1 DKF B08	H3 DKE B08	H3 DKF B08	H5 DKE B08	H5 DKB B08	H7 DKE B08	H7 DKF B08
3	9620	H1 DKE B09	H1 DKF B09	H3 DKE B09	H3 DKF B09	H5 DKE B09	H5 DKF B09	H7 DKE B09	H7 DKF B09
4	13460	H1 DKE B10	H1 DKF B10	H3 DKE B10	H3 DKF B10	H5 DKE B10	H5 DKF B10	H7 DKE B10	H7 DKF B10

24vAC/DC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
$2^1/_2$	6800	H2 DKE B08	H2 DKF B08	H4 DKE B08	H4 DKF B08	H6 DKE B08	H6 DKF B08	H8 DKE B08	H8 DKF B08
3	9620	H2 DKE B09	H2 DKF B09	H4 DKE B09	H4 DKF B09	H6 DKE B09	H6 DKF B09	H8 DKE B09	H8 DKF B09
4	13460	H2 DKE B10	H2 DKF B10	H4 DKE B10	H4 DKF B10	H6 DKE B10	H6 DKF B10	H8 DKE B10	H8 DKF B10

Flanged Ends to BS EN1092-1 PN10/16

VKDOV/CE PVC-U
VKDOM/CE PP
VKDOV/CE Corzan



DualBlock® ball valve with Flanged ends, to BS EN1092-1 PN10/16 and ANSI 150

d	DN	PN	H	H_1	F min	F max	f min	f max	U	S_P	H_2	H_3	S_P PP	B	B_1	B_2	E_1
$2^1/_2$	65	16	235	133	139.7	145	17	18	4	21	188	93	24	295	87	119	128
3	80	16	270	149	152.4	160	17	18	8	21.5	188	93	24.5	308	105	132	128
4	100	10	308	167	180	190.5	17	18	87	21.5	188	93	24.5	325	129	150	128

PVC-U

100 to 240vAC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
$2^1/_2$	6800	H1 DKE F08	H1 DKF F08	H3 DKE F08	H3 DKF F08	H5 DKE F08	H5 DKB F08	H7 DKE F08	H7 DKF F08
3	9620	H1 DKE F09	H1 DKF F09	H3 DKE F09	H3 DKF F09	H5 DKE F09	H5 DKF F09	H7 DKE F09	H7 DKF F09
4	13460	H1 DKE F10	H1 DKF F10	H3 DKE F10	H3 DKF F10	H5 DKE F10	H5 DKF F10	H7 DKE F10	H7 DKF F10

24vAC/DC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
$2^1/_2$	6800	H2 DKE F08	H2 DKF F08	H4 DKE F08	H4 DKF F08	H6 DKE F08	H6 DKF F08	H8 DKE F08	H8 DKF F08
3	9620	H2 DKE F09	H2 DKF F09	H4 DKE F09	H4 DKF F09	H6 DKE F09	H6 DKF F09	H8 DKE F09	H8 DKF F09
4	13460	H2 DKE F10	H2 DKF F10	H4 DKE F10	H4 DKF F10	H6 DKE F10	H6 DKF F10	H8 DKE F10	H8 DKF F10

PP

100 to 240vAC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
$2^1/_2$	5510	H1 DKN F08	H1 DKP F08	H3 DKN F08	H3 DKP F08	H5 DKN F08	H5 DKP F08	H7 DKN F08	H7 DKP F08
3	7500	H1 DKN F09	H1 DKP F09	H3 DKN F09	H3 DKP F09	H5 DKN F09	H5 DKP F09	H7 DKN F09	H7 DKP F09
4	10045	H1 DKN F10	H1 DKP F10	H3 DKN F10	H3 DKP F10	H5 DKN F10	H5 DKP F10	H7 DKN F10	H7 DKP F10

24vAC/DC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
$2^1/_2$	5510	H2 DKN F08	H2 DKP F08	H4 DKN F08	H4 DKP F08	H6 DKN F08	H6 DKP F08	H8 DKN F08	H8 DKP F08
3	7500	H2 DKN F09	H2 DKP F09	H4 DKN F09	H4 DKP F09	H6 DKN F09	H6 DKP F09	H8 DKN F09	H8 DKP F09
4	10045	H2 DKN F10	H2 DKP F10	H4 DKN F10	H4 DKP F10	H6 DKN F10	H6 DKP F10	H8 DKN F10	H8 DKP F10

Corzan

100 to 240vAC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
$2^1/_2$	7170	H1 DKJ F08	H1 DKK F08	H3 DKJ F08	H3 DKK F08	H5 DKJ F08	H5 DKK F08	H7 DKJ F08	H7 DKK F08
3	10258	H1 DKJ F09	H1 DKP F09	H3 DKJ F09	H3 DKK F09	H5 DKJ F09	H5 DKK F09	H7 DKJ F09	H7 DKK F09
4	14457	H1 DKJ F10	H1 DKP F10	H3 DKJ F10	H3 DKK F10	H5 DKJ F10	H5 DKK F10	H7 DKJ F10	H7 DKK F10

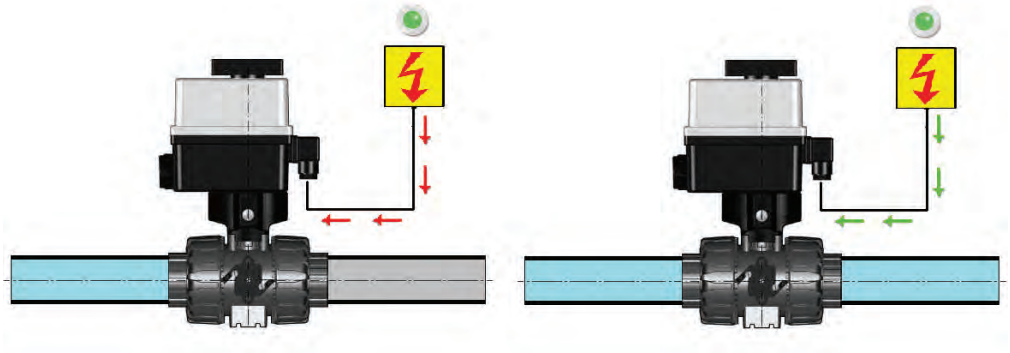
24vAC/DC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
$2^1/_2$	7170	H2 DKJ F08	H2 DKK F08	H4 DKJ F08	H4 DKK F08	H6 DKJ F08	H6 DKK F08	H8 DKJ F08	H8 DKK F08
3	10258	H2 DKJ F09	H2 DKK F09	H4 DKJ F09	H4 DKK F09	H6 DKJ F09	H6 DKK F09	H8 DKJ F09	H8 DKK F09
4	14457	H2 DKJ F10	H2 DKK F10	H4 DKJ F10	H4 DKK F10	H6 DKJ F10	H6 DKK F10	H8 DKJ F10	H8 DKK F10

Operating Principle

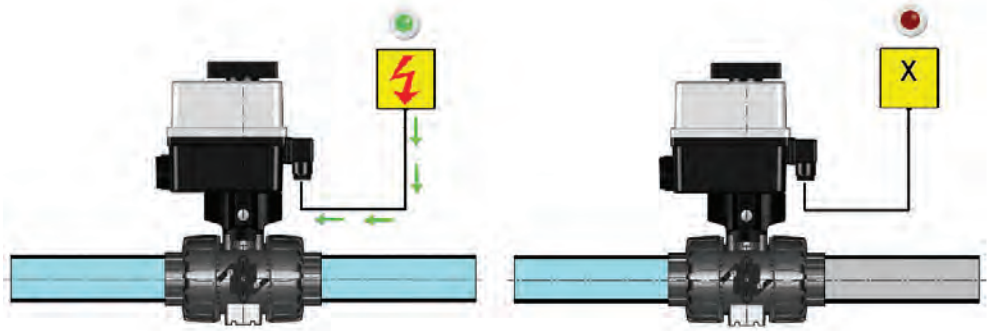
STD Standard

Power is required to drive the actuator to the open and closed position. If there is an interruption in the power supply, the actuator will remain in its position at the point of power failure.



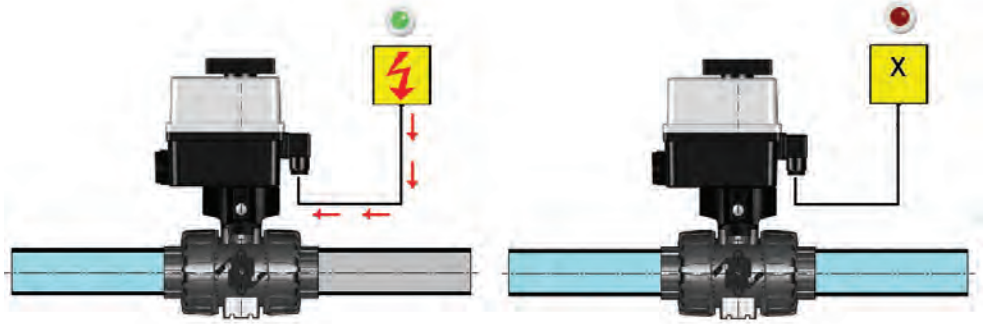
FAIL SAFE Fail Safe Closed

Power is required to drive the actuator to the open and closed position. If there is an interruption in the power supply, the actuator will drive to the closed position under its own internal battery power.



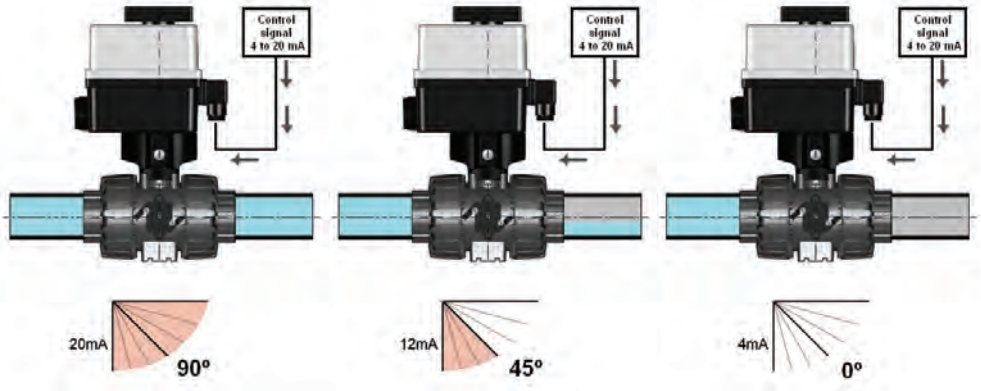
FAIL SAFE Fail Safe Open

Power is required to drive the actuator to the open and closed position. If there is an interruption in the power supply, the actuator will drive to the open position under its own internal battery power.

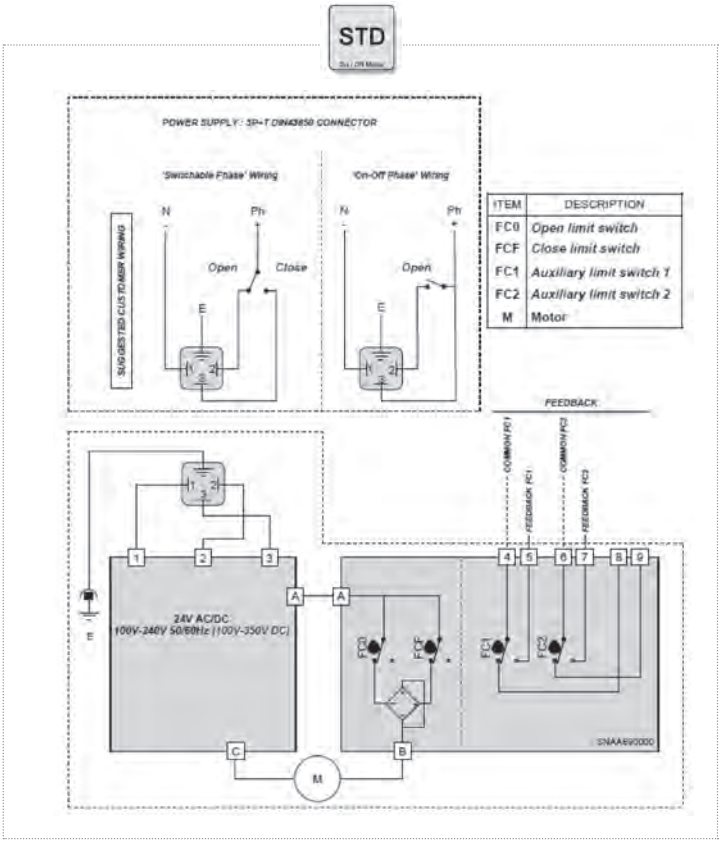


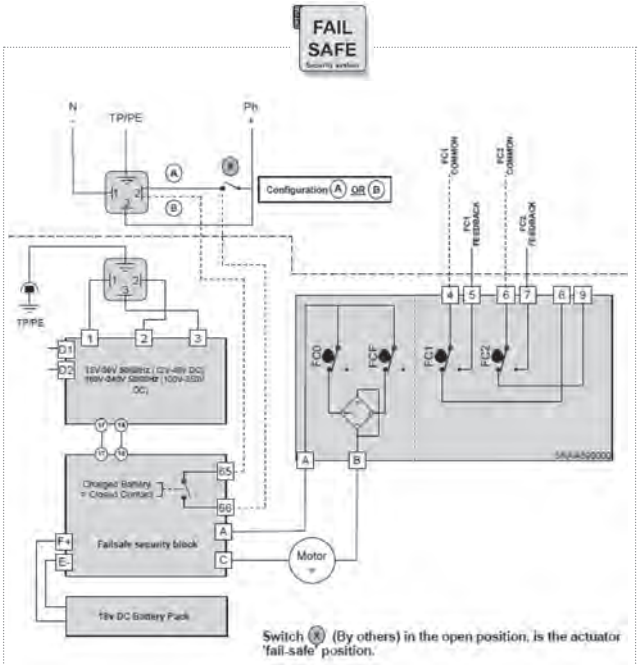
POSI 4 to 20 mA Positioning

Power is required to be supplied to the actuator. The actuator opens/closes when control signal is applied. Valve position is in relation to the mA/voltage signal provided.

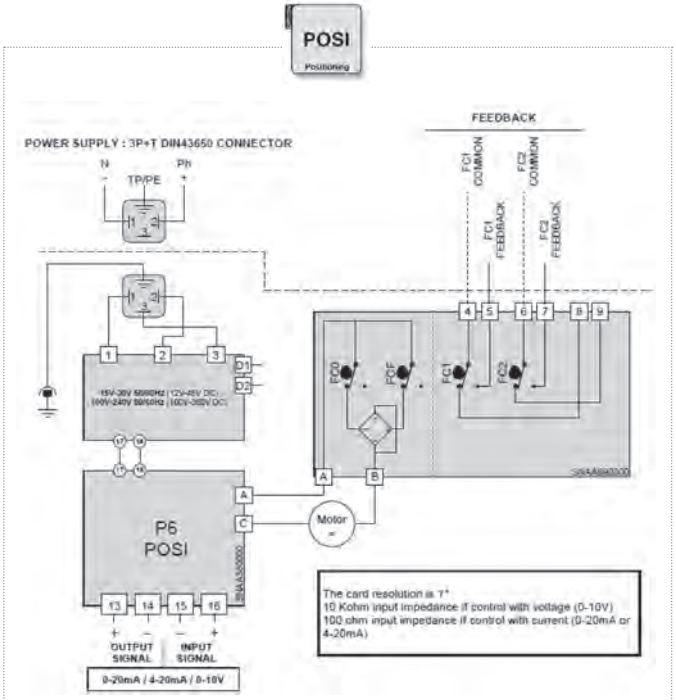


Wiring Diagrams

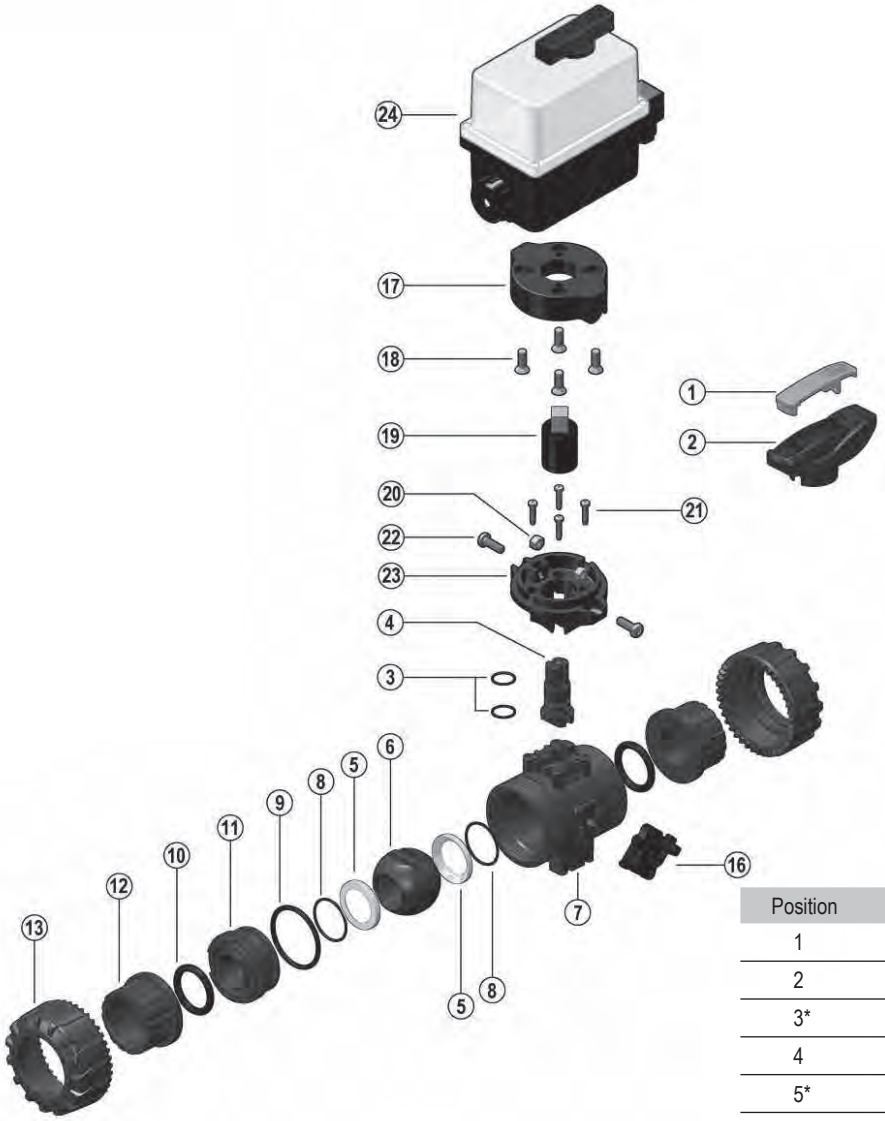




Configuration A or B :
A - Standard mode: Terminals 65 and 66 can be connected to indicate the battery status.
B - Full safety mode: Connecting the feedback relay terminals 65 and 66, as per the option B wiring diagram: The actuator will only open if the security block is functioning (sufficient charge, initialized card).



DN10 - DN50

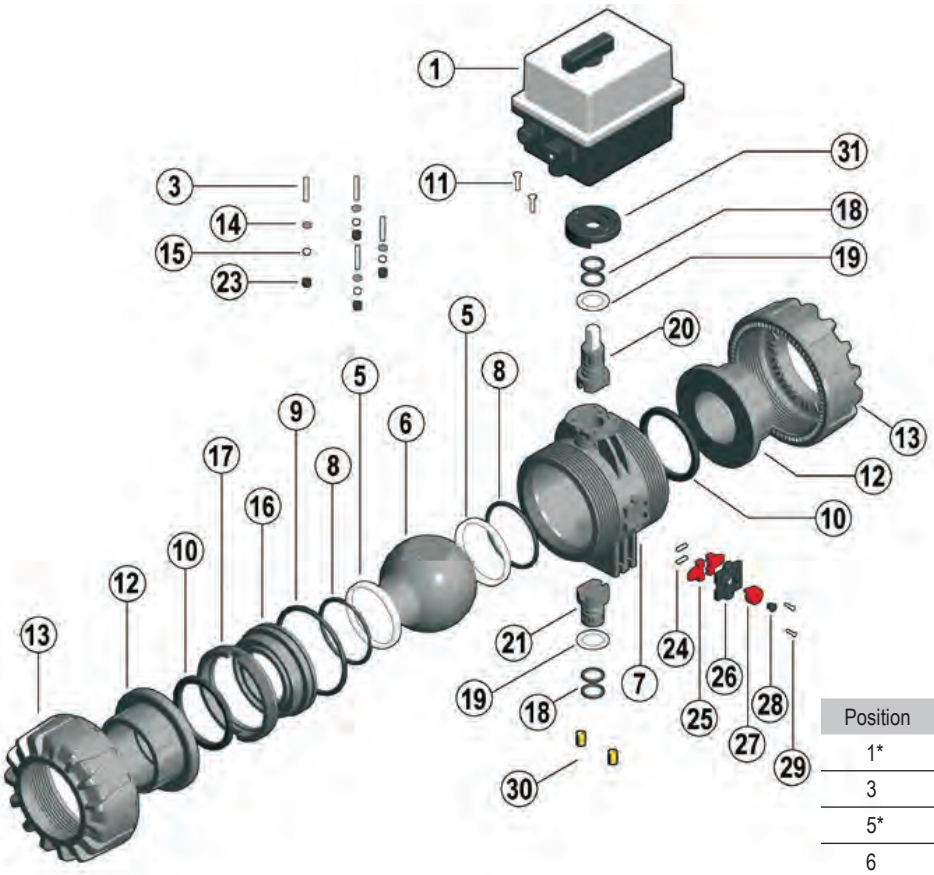


Position	Components	Material
1	Handle Insert Tool	PVC-U
2	Handle	HIPVC
3*	Stem O-ring	EPDM/FPM
4	Stem	Valve Material
5*	Ball Seat	PTFE
6	Ball	Valve Material
7	Body	Valve Material
8*	Ball Seat O-ring	EPDM/FPM
9*	Carrier O-ring	EPDM/FPM
10*	Socket Seal O-ring	EPDM/FPM
11	Ball Seat Carrier	Valve Material
12*	End Connector	Valve Material
13*	Union Nut	Valve Material
16*	DualBlock®	POM
17**	Powerquick Upper Plate	PP-GR
18**	Screw	Stainless steel
19**	Coupling Spindle	PP-GR/Stainless steel
20**	Nut	Stainless steel
21**	Screw	Stainless steel
22**	Screw	Stainless steel
23**	Powerquick Lower Plate	PP-GR
24*	Electric Actuator	PA6.6

*Spare Parts **Accessories

Note: For technical information on valve bracketing and supports, connections to a system, assembly and disassembly refer to page 20 within the manual valves section.

DN65 - DN100



Position	Components	Material
1*	Electric Actuator	PA6.6
3	Screw	Stainless steel
5*	Ball Seat	PTFE
6	Ball	Valve Material
7	Body	Valve Material
8*	Ball Seat O-ring	EPDM/FPM
9*	Carrier O-ring	EPDM/FPM
10*	Socket Seal O-ring	EPDM/FPM
11	Screw	Stainless steel
12*	End Connector	Valve Material
13*	Union Nut	Valve Material
14	Washer	Stainless steel
16	Ball Seat Carrier	ABS
17	Carrier 'Stop ring'	ABS
18*	Stem O-ring	EPDM/FPM
19*	Friction Reducing Bush	PTFE
20	Upper Stem	Valve Material/ Stainless steel
21	Lower Stem	Valve Material
23	Protection Cap	PE
24	Spring	Stainless steel
25	Nut Block	PP-GR
26	Cover	PP
27	Nut Block Button	PP-GR
28	Protection Cap	PE
29	Screw	Nylon
30	Bracketing Bush	Brass
31	Actuation Pad	PP-GR

*Spare Parts

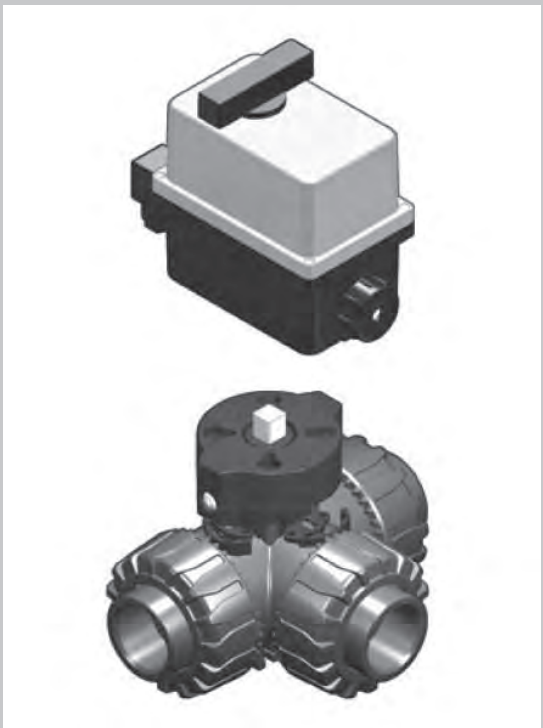
Note: For technical information on valve bracketing and supports, connections to a system, assembly and disassembly refer to page 20 within the manual valves section.

TKD Electrically Actuated TKD DualBlock® 3-way Ball Valve (DN10 - DN50)

- The **TKD DualBlock® ball valve**, is a fully unionised valve that stands up to the most severe industrial applications
- Size range from $^{3}/_{8}$" / d16mm up to 2" / d63mm
- Pressure rating: Maximum working pressure: 16 bar at 20°C (PP = 10Bar at 20°C).
- Patented **DualBlock®** system: The locking device ensures the union nuts are retained in position, even under the most arduous conditions: ie. vibration or thermal expansion
- Easy removal of the valve body from the pipe system, allowing replacement of the valve seals and seats without any additional equipment
- The pipeline downstream of the valve can be disconnected, with the valve in the closed position, without leakage
- Fully blocked Seat Stop® design ball seat carrier, with micro adjustment of the ball seats and 'take up' of axial pipe loads
- For more information, please visit our website **www.durapipe.co.uk**

Legend

d	Nominal outside diameter
DN	Nominal internal diameter in mm
R	Nominal size or the thread in inches
PN	Nominal pressure in bar (max.working Pressure at 20°C - water)
gms	Weight in grams
PVC-U	Polyvinyl chloride unplasticised
ABS	Acrylontrile Butadiene Styrene
PP	Polypropylene
PVC-C	Polyvinyl chloride chlorinated
GRPP	Glass reinforced polypropylene
POM	Polyoxymethylene
PE	Polyethylene
PTFE	Polytetrafluoroethylene
EPDM	Ethylene Propylene Diene Monomer (M-class) rubber
FPM	Fluorocarbon Rubber
s	Wall thickness (mm)
SDR	Standard dimension ratio = d/s



Dimensions and Standards

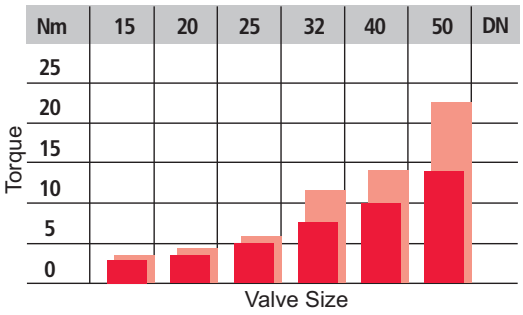
Imperial
The Imperial System is manufactured in accordance with the relevant British Standards: BS 5392 fittings.

Metric
The Metric System is manufactured generally in accordance with the relevant International Standards: ISO 15493, KIWA 49 and 549, DIN 8062 and 8063.

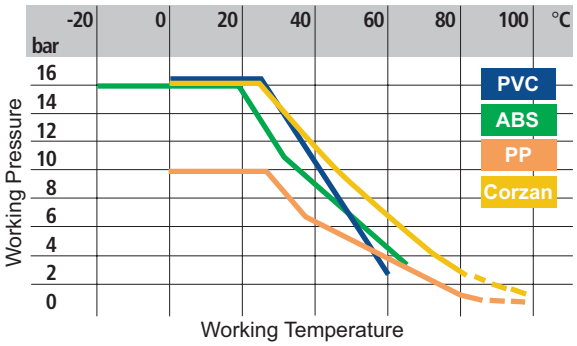
BSP Thread
Threaded fittings conform to the requirements of BS 21/DIN 2999/ISO7. Socket dimensions of metric fittings for solvent welding comply with ISO/DIS 727-1.

Interchangeability
Components in the imperial and metric ranges are not interchangeable.

Technical Data



Torque at working pressure. 10 Bar (Red) and 16 Bar (Pink).



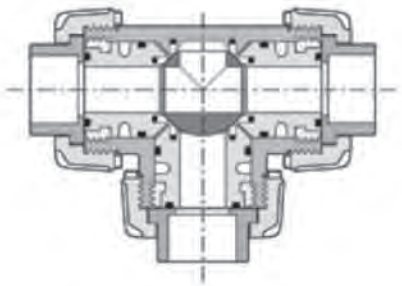
Pressure/temperature rating for water and harmless fluids to which the material is RESISTANT. In other cases a reduction of the PN is required. (25 years with safety factor).

'L' Port

Assembly configuration for 'L' Port valve.

Technical Data

'T' Port



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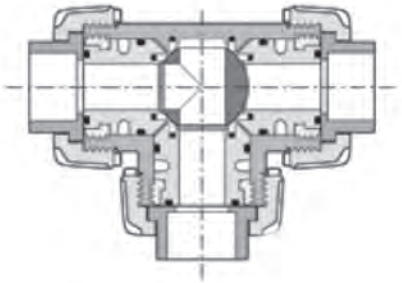
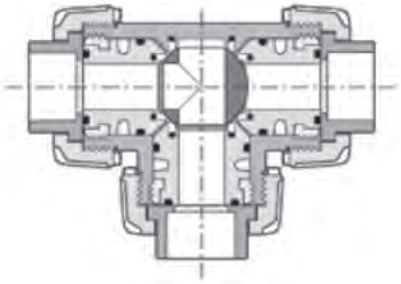


90°

Configuration 1



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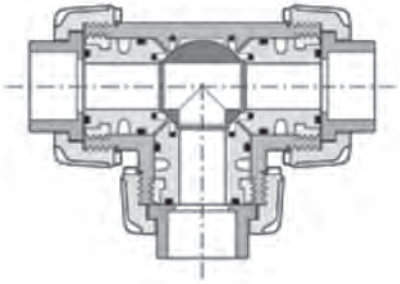

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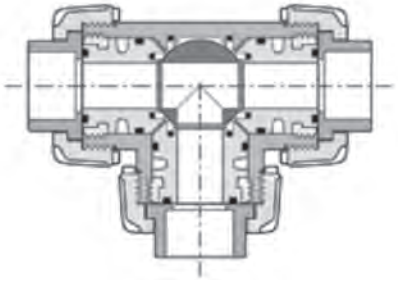
Configuration 2



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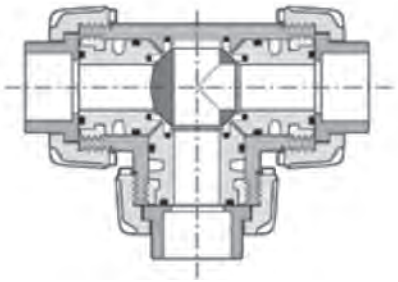

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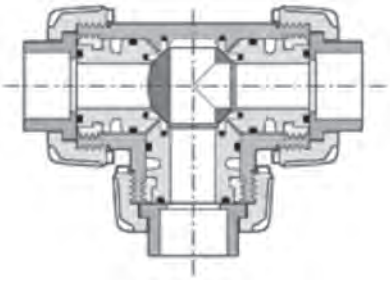
Configuration 3



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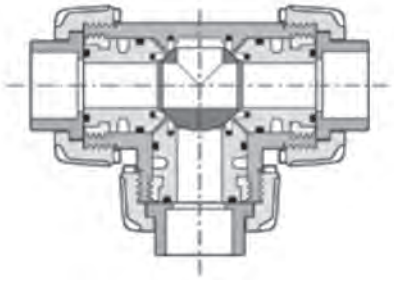


90°

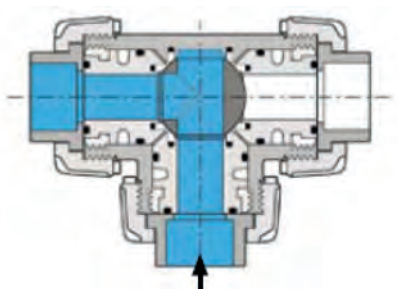
Configuration 4

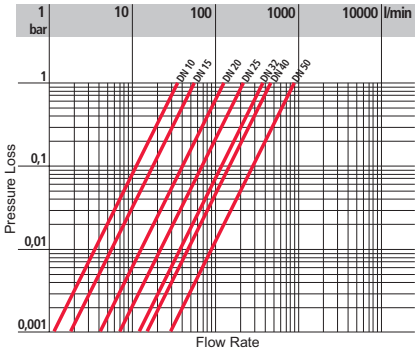
Assembly configuration options for 'T' Port valve.

Unless otherwise advised the valve will be supplied as configuration 1.

Technical Data – Working Positions

A





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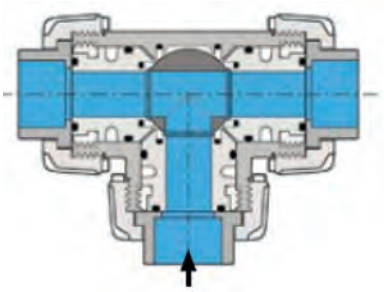
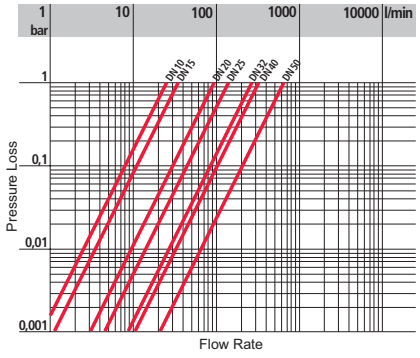
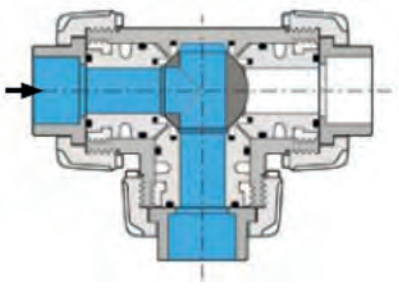
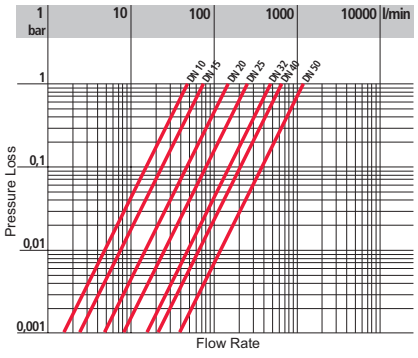




C





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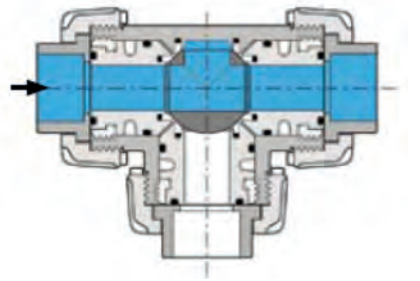

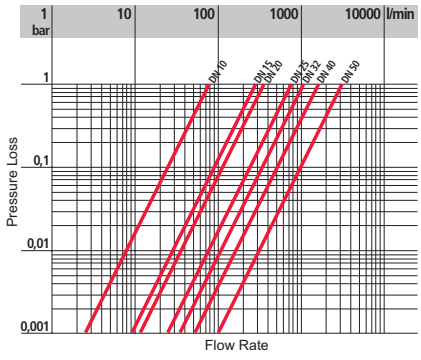

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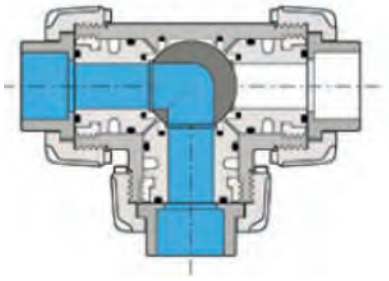
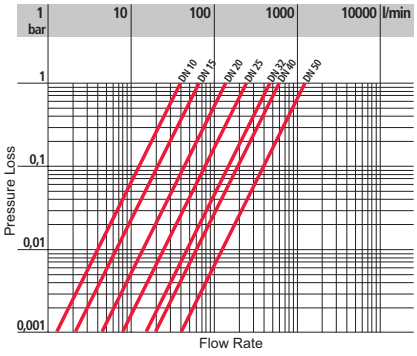




Pressure loss charts

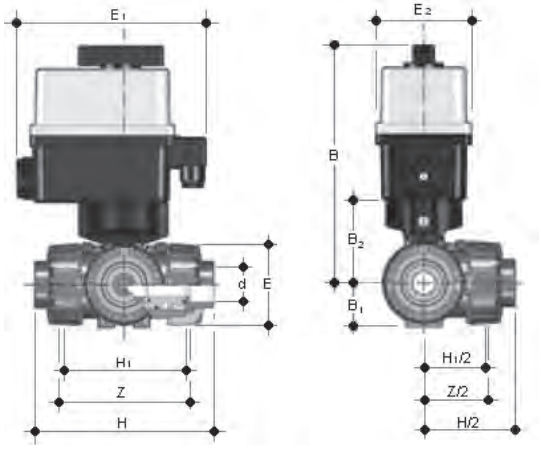
	DN	10	15	20	25	32	40	50
	A	37	55	135	205	390	475	900
	B	25	35	95	140	270	330	620
k_{v100} l/m	C	40	65	145	245	460	600	1200
	D	78	195	380	760	1050	1700	3200
	E	48	73	150	265	475	620	1220

Flow coefficient k_{v100}

k_{v100} is the number of litres per minute of water at a temperature of 20°C that will flow through a valve with a one bar pressure differential at a specified rate. The k_{v100} values shown in the table are calculated with the valve fully open.

Tel: +44 (0)1543 471680 Fax: +44 (0)1543 471682

BS Series Female Ends



TKDLV - 'T' Port PVC-U **TKDLA - 'T' Port** ABS
LKDLV - 'L' Port PVC-U **LKDLA - 'L' Port** ABS

DualBlock® 3-way ball valve with BS series female ends for solvent welding

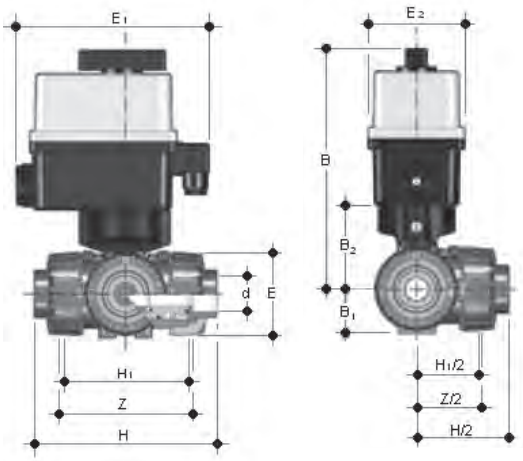
d	DN	PN	H	E	H_1	E_1	Z	B	B_1	B_2	E_1
1/2	15	16	118	54	80	187	70	205	29	58	92
3/4	20	16	145	65	100	187	77	220.5	34.5	73.5	92
1	25	16	160	73	110	187	83	221	39	74	92
1 1/4	32	16	188.5	86	131	187	94	244	46	97	92
1 1/2	40	16	219	98	148	187	104	251	52	104	92
2	50	10*	266.5	122	179	187	127	261	62	114	92

*PN16 available on request.

	PVC-U - 'T' Port			PVC-U - 'L' Port		ABS - 'T' Port			ABS - 'L' Port	
	100 to 240vAC					100 to 240vAC				
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	EPDM Code	FPM Code
1/2	1843	H1 TTE 102	H1 TTF 102	H1 LTE 102	H1 LTF 102	1843	H1 TTA 102	H1 TTB 102	H1 LTA 102	H1 LTB 102
3/4	2076	H1 TTE 103	H1 TTF 103	H1 LTE 103	H1 LTF 103	2076	H1 TTA 103	H1 TTB 103	H1 LTA 103	H1 LTB 103
1	2299	H1 TTE 104	H1 TTF 104	H1 LTE 104	H1 LTF 104	2299	H1 TTA 104	H1 TTB 104	H1 LTA 104	H1 LTB 104
1 1/4	2880	H1 TTE 105	H1 TTF 105	H1 LTE 105	H1 LTF 105	2880	H1 TTA 105	H1 TTB 105	H1 LTA 105	H1 LTB 105
1 1/2	3242	H1 TTE 106	H1 TTF 106	H1 LTE 106	H1 LTF 106	3242	H1 TTA 106	H1 TTB 106	H1 LTA 106	H1 LTB 106
2	4362	H1 TTE 107	H1 TTF 107	H1 LTE107	H1 LTF 107	4362	H1 TTA 107	H1 TTB 107	H1 LTA 107	H1 LTB 107

	24vAC/DC					24vAC/DC				
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	EPDM Code	FPM Code
1/2	1843	H2 TTE 102	H2 TTF 102	H2 LTE 102	H2 LTF 102	1843	H2 TTA 102	H2 TTB 102	H2 LTA 102	H2 LTB 102
3/4	2076	H2 TTE 103	H2 TTF 103	H2 LTE 103	H2 LTF 103	2076	H2 TTA 103	H2 TTB 103	H2 LTA 103	H2 LTB 103
1	2299	H2 TTE 104	H2 TTF 104	H2 LTE 104	H2 LTF 104	2299	H2 TTA 104	H2 TTB 104	H2 LTA 104	H2 LTB 104
1 1/4	2880	H2 TTE 105	H2 TTF 105	H2 LTE 105	H2 LTF 105	2880	H2 TTA 105	H2 TTB 105	H2 LTA 105	H2 LTB 105
1 1/2	3242	H2 TTE 106	H2 TTF 106	H2 LTE 106	H2 LTF 106	3242	H2 TTA 106	H2 TTB 106	H2 LTA 106	H2 LTB 106
2	4362	H2 TTE 107	H2 TTF 107	H2 LTE107	H2 LTF 107	4362	H2 TTA 107	H2 TTB 107	H2 LTA 107	H2 LTB 107

Metric Series Female Ends



TKDIV/CE - 'T' Port PVC-U
LKDIV/CE - 'L' Port PVC-U
TKDIM/CE - 'T' Port PP
LKDIM/CE - 'L' Port PP
TKDIA/CE - 'T' Port ABS
LKDIA/CE - 'L' Port ABS
TKDIC/CE - 'T' Port Corzan
LKDIC/CE - 'L' Port Corzan

DualBlock® 3-way ball valve with Metric series female ends

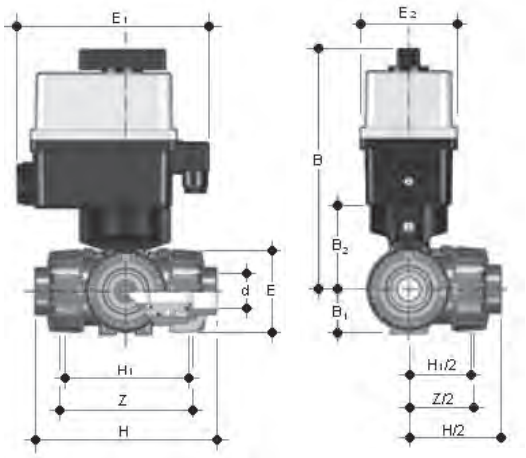
d	DN	PN	H	E	H_1	E_1	Z	B	B_1	B_2	E_1
20	15	16	118	54	80	187	70	205	29	58	92
25	20	16	145	65	100	187	77	220.5	34.5	73.5	92
32	25	16	160	73	110	187	83	221	39	74	92
40	32	16	188.5	86	131	187	94	244	46	97	92
50	40	16	219	98	148	187	104	251	52	104	92
63	50	10*	266.5	122	179	187	127	261	62	114	92

*PN16 available on request.

	PVC-U - 'T' Port			PVC-U - 'L' Port		ABS - 'T' Port			ABS - 'L' Port	
	100 to 240vAC					100 to 240vAC				
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	EPDM Code	FPM Code
20	1843	H1 TTE 306	H1 TTF 306	H1 LTE 306	H1 LTF 306	1843	H1 TTA 306	H1 TTB 306	H1 LTA 306	H1 LTB 306
25	2076	H1 TTE 307	H1 TTF 307	H1 LTE 307	H1 LTF 307	2076	H1 TTA 307	H1 TTB 307	H1 LTA 307	H1 LTB 307
32	2299	H1 TTE 308	H1 TTF 308	H1 LTE 308	H1 LTF 308	2299	H1 TTA 308	H1 TTB 308	H1 LTA 308	H1 LTB 308
40	2880	H1 TTE 309	H1 TTF 309	H1 LTE 309	H1 LTF 309	2880	H1 TTA 309	H1 TTB 309	H1 LTA 309	H1 LTB 309
50	3242	H1 TTE 310	H1 TTF 310	H1 LTE 310	H1 LTF 310	3242	H1 TTA 310	H1 TTB 310	H1 LTA 310	H1 LTB 310
63	4362	H1 TTE 311	H1 TTF 311	H1 LTE 311	H1 LTF 311	4362	H1 TTA 311	H1 TTB 311	H1 LTA 311	H1 LTB 311
	24vAC/DC					24vAC/DC				
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	EPDM Code	FPM Code
20	1843	H2 TTE 306	H2 TTF 306	H2 LTE 306	H2 LTF 306	1843	H2 TTA 306	H2 TTB 306	H2 LTA 306	H2 LTB 306
25	2076	H2 TTE 307	H2 TTF 307	H2 LTE 307	H2 LTF 307	2076	H2 TTA 307	H2 TTB 307	H2 LTA 307	H2 LTB 307
32	2299	H2 TTE 308	H2 TTF 308	H2 LTE 308	H2 LTF 308	2299	H2 TTA 308	H2 TTB 308	H2 LTA 308	H2 LTB 308
40	2880	H2 TTE 309	H2 TTF 309	H2 LTE 309	H2 LTF 309	2880	H2 TTA 309	H2 TTB 309	H2 LTA 309	H2 LTB 309
50	3242	H2 TTE 310	H2 TTF 310	H2 LTE 310	H2 LTF 310	3242	H2 TTA 310	H2 TTB 310	H2 LTA 310	H2 LTB 310
63	4362	H2 TTE 311	H2 TTF 311	H2 LTE 311	H2 LTF 311	4362	H2 TTA 311	H2 TTB 311	H2 LTA 311	H2 LTB 311

	PP - 'T' Port			PP - 'L' Port		Corzan - 'T' Port			Corzan - 'L' Port	
	100 to 240vAC					100 to 240vAC				
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	EPDM Code	FPM Code
20	1728	H1 TTN 306	H1 TTP 306	H1 LTN 306	H1 LTP 306	1872	H1 TTJ 306	H1 TTK 306	H1 LTJ 306	H1 LTK 306
25	1876	H1 TTN 307	H1 TTP 307	H1 LTN 307	H1 LTP 307	2126	H1 TTJ 307	H1 TTK 307	H1 LTJ 307	H1 LTK 307
32	2014	H1 TTN 308	H1 TTP 308	H1 LTN 308	H1 LTP 308	2372	H1 TTJ 308	H1 TTK 308	H1 LTJ 308	H1 LTK 308
40	2425	H1 TTN 309	H1 TTP 309	H1 LTN 309	H1 LTP 309	2992	H1 TTJ 309	H1 TTK 309	H1 LTJ 309	H1 LTK 309
50	2652	H1 TTN 310	H1 TTP 310	H1 LTN 310	H1 LTP 310	3392	H1 TTJ 310	H1 TTK 310	H1 LTJ 310	H1 LTK 310
63	3357	H1 TTN 311	H1 TTP 311	H1 LTN 311	H1 LTP 311	4622	H1 TTJ 311	H1 TTK 311	H1 LTJ 311	H1 LTK 311
	24vAC/DC					24vAC/DC				
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	EPDM Code	FPM Code
20	1728	H2 TTN 306	H2 TTP 306	H2 LTN 306	H2 LTP 306	1872	H2 TTJ 306	H2 TTK 306	H2 LTJ 306	H2 LTK 306
25	1876	H2 TTN 307	H2 TTP 307	H2 LTN 307	H2 LTP 307	2126	H2 TTJ 307	H2 TTK 307	H2 LTJ 307	H2 LTK 307
32	2014	H2 TTN 308	H2 TTP 308	H2 LTN 308	H2 LTP 308	2372	H2 TTJ 308	H2 TTK 308	H2 LTJ 308	H2 LTK 308
40	2425	H2 TTN 309	H2 TTP 309	H2 LTN 309	H2 LTP 309	2992	H2 TTJ 309	H2 TTK 309	H2 LTJ 309	H2 LTK 309
50	2652	H2 TTN 310	H2 TTP 310	H2 LTN 310	H2 LTP 310	3392	H2 TTJ 310	H2 TTK 310	H2 LTJ 310	H2 LTK 310
63	3357	H2 TTN 311	H2 TTP 311	H2 LTN 311	H2 LTP 311	4622	H2 TTJ 311	H2 TTK 311	H2 LTJ 311	H2 LTK 311

BSP Threaded Socket Ends



TKDFV/CE - 'T' Port PVC-U **TKDFA/CE - 'T' Port** ABS
LKDFV/CE - 'L' Port PVC-U **LKDFA/CE - 'L' Port** ABS
TKDFM/CE - 'T' Port PP
LKDFM/CE - 'L' Port PP

DualBlock® 3-way ball valve with BSP parallel female threaded ends

d	DN	PN	H	E	H_1	E_1	Z	B	B_1	B_2	E_1	Z***
1/2	15	16	125	54	80	187	95	205	29	58	92	73
3/4	20	16	146	65	100	187	114	220.5	34.5	73.5	92	82.4
1	25	16	166	73	110	187	129	221	39	74	92	89.8
1 1/4	32	16	195.5	86	131	187	151	244	46	97	92	103.2
1 1/2	40	16	211	98	148	187	166	251	52	104	92	121.2
2	50	10*	253.5	122	179	187	199	261	62	114	92	147.6

Z*** For ABS sizes only.

	PVC-U - 'T' Port			PVC-U - 'L' Port		ABS - 'T' Port			ABS - 'L' Port	
	100 to 240vAC					100 to 240vAC				
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	EPDM Code	FPM Code
1/2	1843	H1 TTE B02	H1 TTF B02	H1 LTE B02	H1 LTF B02	1843	H1 TTA B02	H1 TTB B01	H1 LTA B02	H1 LTB B02
3/4	2076	H1 TTE B03	H1 TTF B03	H1 LTE B03	H1 LTF B03	1843	H1 TTA B03	H1 TTB B02	H1 LTA B03	H1 LTB B03
1	2299	H1 TTE B04	H1 TTF B04	H1 LTE B04	H1 LTF B04	2076	H1 TTA B04	H1 TTB B03	H1 LTA B04	H1 LTB B04
1 1/4	2880	H1 TTE B05	H1 TTF B05	H1 LTE B05	H1 LTF B05	2299	H1 TTA B05	H1 TTB B04	H1 LTA B05	H1 LTB B05
1 1/2	3242	H1 TTE B06	H1 TTF B06	H1 LTE B06	H1 LTF B06	2880	H1 TTA B06	H1 TTB B05	H1 LTA B06	H1 LTB B06
2	4362	H1 TTE B07	H1 TTF B07	H1 LTE B07	H1 LTF B07	3242	H1 TTA B07	H1 TTB B06	H1 LTA B07	H1 LTB B07
	24vAC/DC					24vAC/DC				
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	EPDM Code	FPM Code
1/2	1843	H2 TTE B02	H2 TTF B02	H2 LTE B02	H2 LTF B02	1843	H2 TTA B02	H2 TTB B02	H2 LTA B02	H2 LTB B02
3/4	2076	H2 TTE B03	H2 TTF B03	H2 LTE B03	H2 LTF B03	2076	H2 TTA B03	H2 TTB B03	H2 LTA B03	H2 LTB B03
1	2299	H2 TTE B04	H2 TTF B04	H2 LTE B04	H2 LTF B04	2299	H2 TTA B04	H2 TTB B04	H2 LTA B04	H2 LTB B04
1 1/4	2880	H2 TTE B05	H2 TTF B05	H2 LTE B05	H2 LTF B05	2880	H2 TTA B05	H2 TTB B05	H2 LTA B05	H2 LTB B05
1 1/2	3242	H2 TTE B06	H2 TTF B06	H2 LTE B06	H2 LTF B06	3242	H2 TTA B06	H2 TTB B06	H2 LTA B06	H2 LTB B06
2	4362	H2 TTE B07	H2 TTF B07	H2 LTE B07	H2 LTF B07	4362	H2 TTA B07	H2 TTB B07	H2 LTA B07	H2 LTB B07

	PP - 'T' Port			PP - 'L' Port	
	100 to 240vAC				
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code
1/2	1728	H1 TTN B02	H1 TTP B02	H1 LTN B02	H1 LTP B02
3/4	1876	H1 TTN B03	H1 TTP B03	H1 LTN B03	H1 LTP B03
1	2014	H1 TTN B04	H1 TTP B04	H1 LTN B04	H1 LTP B04
1 1/4	2425	H1 TTN B05	H1 TTP B05	H1 LTN B05	H1 LTP B05
1 1/2	2652	H1 TTN B06	H1 TTP B06	H1 LTN B06	H1 LTP B06
2	3357	H1 TTN B07	H1 TTP B07	H1 LTN B07	H1 LTP B07
	24vAC/DC				
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code
1/2	1728	H2 TTN B02	H2 TTP B02	H2 LTN B02	H2 LTP B02
3/4	1876	H2 TTN B03	H2 TTP B03	H2 LTN B03	H2 LTP B03
1	2014	H2 TTN B04	H2 TTP B04	H2 LTN B04	H2 LTP B04
1 1/4	2425	H2 TTN B05	H2 TTP B05	H2 LTN B05	H2 LTP B05
1 1/2	2652	H2 TTN B06	H2 TTP B06	H2 LTN B06	H2 LTP B06
2	3357	H2 TTN B07	H2 TTP B07	H2 LTN B07	H2 LTP B07

Actuators (DN10 - DN100)

Electric actuator with plastic housing

Voltage: 100 to 240vAC
24vAC/DC

Temperature: -10ºC to +40ºC

Electrical connections

Power supply: DIN 43650 3P+T Plug
Feedback: ISO M20 Gland

Standard equipment

- Emergency manual override
- Visual position indicator
- 2 Auxiliary (and adjustable) limit switches
- Electronic torque limiter
- Anti-condensation heater
- IP66 ingress protection

Actuator options

Power to Open / Power to Cose

Fail Safe Closed / Fail Safe Open

4 to 20 mA Positioning

Additional options

- IP 67 Actuator
- ATEX EExd Actuator

Please contact the Durapipe Valve Department for further information.

	DC	AC/DC
Power supply	24V	100 to 240V
Power	15W	15W
Working time	12 sec	12 sec
Duty rating	50%	50%
Protection	IP66	IP66

Tel: +44 (0)1543 471680 Fax: +44 (0)1543 471682

VKR Electrically Actuated DualBlock® Metering Ball Valve (DN10 – DN50)

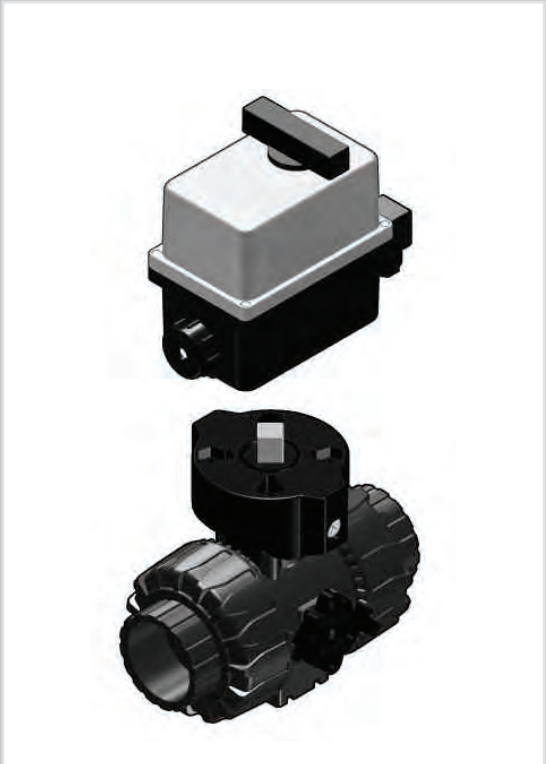
The **VKR Electrically Actuated DualBlock® Metering Ball Valve** provides VKD Ball Valve reliability, with a new accurate flow regulation function suitable for a wide range of industrial applications.

- Size Range: $^{3}/_{8}$" / d16mm up to 2" / d63mm
- Pressure Rating: Maximum working pressure: 16 bar @ 20ºc (PN10 for 2"/63mm)
- Patented Ball Design: Providing linear flow regulation throughout the range of operation, with limited pressure loss
- Patented **DualBlock® System:** The DualBlock addition prevents the locking nuts working loose even under the most extreme operating conditions: i.e. vibration or thermal expansion
- Patented **SeatStop®** Design: Allowing micro adjustments to be made to the ball seats and 'take up' of axial pipe loads, which can be done effectively without the need to drain the system.
- Easily Removable Valve Body: Allowing easy access when changing valve seals and ball seats without any requirement for additional tooling
- The pipeline downstream of the valve can be disconnected with the valve in the closed position eliminating any leakages
- Installed into any system supported by a reliable power source
- For more information, please visit our website **www.durapipe.co.uk**

Pneumatic Positioning Actuation available upon request please contact our valve and flow department on **01543 272 424**

Legend

d	Nominal outside diameter of the pipe in mm
DN	Nominal internal diameter in mm
R	Nominal size of threads in inches
PN	Nominal pressure in bar (max. working pressure at 20°C)
gms	Weight in grams
U	Number of holes
s	Wall thickness (mm)
SDR	Standard dimension ratio = d/s
PVC-U	Unplasticised Polyvinyl chloride
PVC-C	Polyvinyl chloride chlorinated
HIPVC	High impact PVC
EPDM	Ethylene Propylene rubber
FPM (FKM)	Vinylidene fluoride rubber
PTFE	Polytetrafluoroethylene
PE	Polyethylene
SP	Flange Thickness



Dimensions and Standards

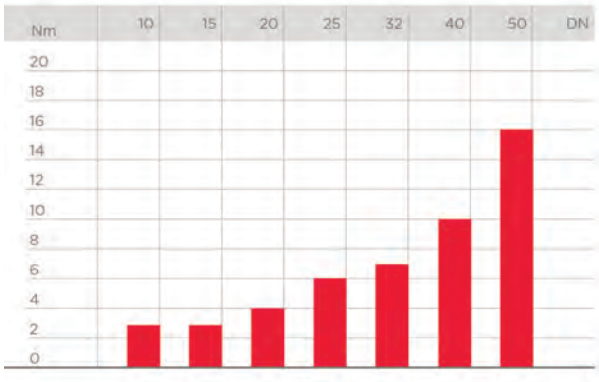
Imperial
The Imperial System is manufactured in accordance with the relevant British Standards: BS 5392 fittings.

Metric
The Metric System is manufactured generally in Accordance with the relevant International Standards: ISO 15493, KIWA 49 and 549, DIN 8062 and 8063

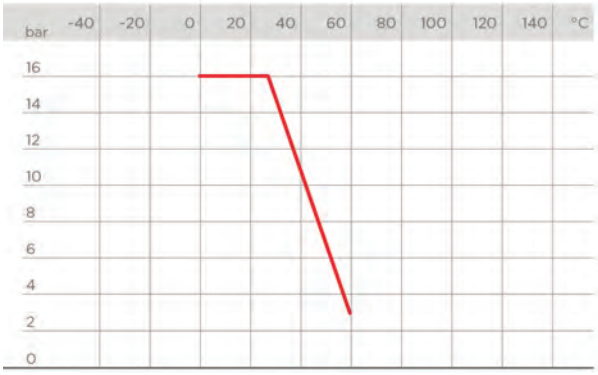
BSP Thread
Threaded fittings conform to the requirements of BS 21/DIN 2999/ISO7. Socket dimensions of metric fittings for solvent welding comply with ISO/DIS 727-1.

Interchangeability
Components in the imperial and metric ranges are not interchangeable.

Technical Data

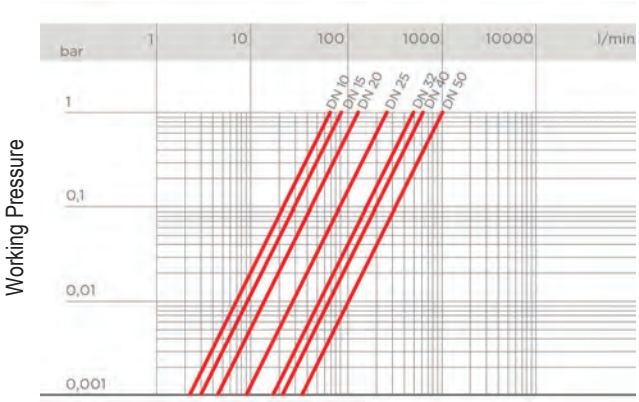


Torque at maximum working pressure @ 16Bar

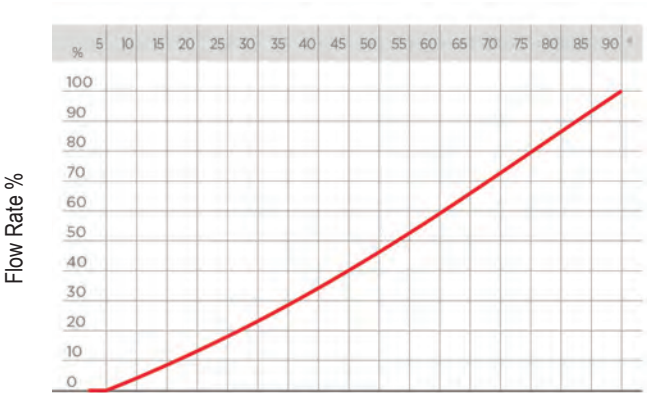


Working Temperature

Pressure/temperature rating for water and harmless fluids to which the material is RESISTANT. In other cases a reduction of the PN is required. (25 years with safety factor).



Relative Flow Chart, Flow Opening

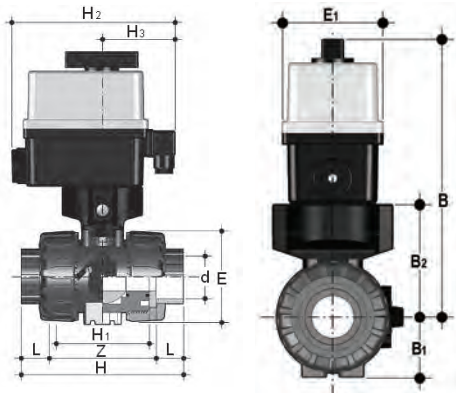


Valve Opening Angle

DN	15	20	25	32	40	50
k_{v100}	88	135	256	478	592	1068

Flow coefficient k_{v100}
k_{v100} is the number of litres per minute of water at a temperature of 20°C that will flow through a valve with a one bar pressure differential at a specified rate. The k_{v100} values shown in the table are calculated with the valve fully open.

BS Series Female Ends



VKDLV/CE PVC-U
VKRLA/CE ABS

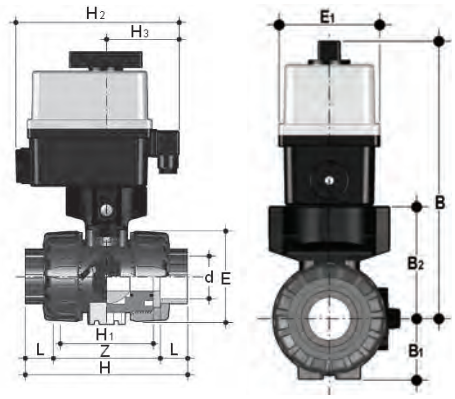
DualBlock® ball valve with BS series female ends for solvent welding

d	DN	PN	H	E	H_1	H_2	H_3	B	B_1	B_2	B_3
3/8	10	16	103	54	65	187	82	205	29	58	58
1/2	15	16	103	54	65	187	82	205	29	58	58
3/4	20	16	115	65	70	187	82	205	29	58	58
1	25	16	128	73	78	187	82	220.5	34.5	73.5	73.5
1 1/4	32	16	146	86	88	187	82	224	29	74	74
1 1/2	40	16	164	98	93	187	82	244	46	97	97
2	50	10	199	122	111	187	82	251	52	104	104

	PVC-U				
		100 to 240vAC		24vAC/DC	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code
3/8	1760	H7 MBE 101	H7 MBF 101	H8 MBE 101	H8 MBF 101
1/2	1775	H7 MBE 102	H7 MBF 102	H8 MBE 102	H8 MBF 102
3/4	1903	H7 MBE 103	H7 MBF 103	H8 MBE 103	H8 MBF 103
1	2011	H7 MBE 104	H7 MBF 104	H8 MBE 104	H8 MBF 104
1 1/4	2369	H7 MBE 105	H7 MBF 105	H8 MBE 105	H8 MBF 105
1 1/2	2601	H7 MBE 106	H7 MBF 106	H8 MBE 106	H8 MBF 106
2	3218	H7 MBE 107	H7 MBF 107	H8 MBE 107	H8 MBF 107

	ABS				
		100 to 240vAC		24vAC/DC	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code
3/8	1760	H7 MBA 101	H7 MBB 101	H8 MBA 101	H8 MBB 101
1/2	1775	H7 MBA 102	H7 MBB 102	H8 MBA 102	H8 MBB 102
3/4	1903	H7 MBA 103	H7 MBB 103	H8 MBA 103	H8 MBB 103
1	2011	H7 MBA 104	H7 MBB 104	H8 MBA 104	H8 MBB 104
1 1/4	2369	H7 MBA 105	H7 MBB 105	H8 MBA 105	H8 MBB 105
1 1/2	2601	H7 MBA 106	H7 MBB 106	H8 MBA 106	H8 MBB 106
2	3218	H7 MBA 107	H7 MBB 107	H8 MBA 107	H8 MBB 107

Metric Series Female Ends



VKRDIV/CE PVC-U
VKRIA/CE ABS

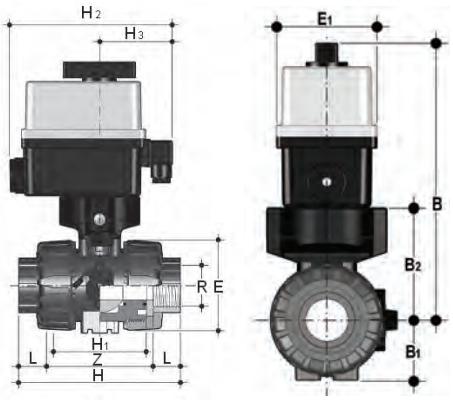
DualBlock® ball valve with metric series female ends for solvent welding

d	DN	PN	H	E	H_1	H_2	H_3	B	B_1	B_2	B_3
16	10	16	103	54	65	187	82	205	29	58	58
20	15	16	103	54	65	187	82	205	29	58	58
25	20	16	115	65	70	187	82	205	29	58	58
32	25	16	128	73	78	187	82	220.5	34.5	73.5	73.5
40	32	16	146	86	88	187	82	224	29	74	74
50	40	16	164	98	93	187	82	244	46	97	97
63	50	10	199	122	111	187	82	251	52	104	104

	PVC-U				
		100 to 240vAC		24vAC/DC	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code
16	1760	H7 MBE 305	H7 MBF 305	H8 MBE 305	H8 MBF 305
20	1775	H7 MBE 306	H7 MBF 306	H8 MBE 306	H8 MBF 306
25	1903	H7 MBE 307	H7 MBF 307	H8 MBE 307	H8 MBF 307
32	2011	H7 MBE 308	H7 MBF 308	H8 MBE 308	H8 MBF 308
40	2369	H7 MBE 309	H7 MBF 309	H8 MBE 309	H8 MBF 309
50	2601	H7 MBE 310	H7 MBF 310	H8 MBE 310	H8 MBF 310
63	3218	H7 MBE 311	H7 MBF 311	H8 MBE 311	H8 MBF 311

	ABS				
		100 to 240vAC		24vAC/DC	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code
16	1760	H7 MBA 305	H7 MBB 305	H8 MBA 305	H8 MBB 305
20	1775	H7 MBA 306	H7 MBB 306	H8 MBA 306	H8 MBB 306
25	1903	H7 MBA 307	H7 MBB 307	H8 MBA 307	H8 MBB 307
32	2011	H7 MBA 308	H7 MBB 308	H8 MBA 308	H8 MBB 308
40	2369	H7 MBA 309	H7 MBB 309	H8 MBA 309	H8 MBB 309
50	2601	H7 MBA 310	H7 MBB 310	H8 MBA 310	H8 MBB 310
63	3218	H7 MBA 311	H7 MBB 311	H8 MBA 311	H8 MBB 311

BSP Threaded Socket Ends



VKRFV/CE PVC-U
VKRFA/CE ABS

DualBlock® ball valve with BSP threaded ends

d	DN	PN	H	E	H_1	H_2	H_3	B	B_1	B_2	B_3
3/8	10	16	103	54	65	187	82	205	29	58	58
1/2	15	16	103	54	65	187	82	205	29	58	58
3/4	20	16	115	65	70	187	82	205	29	58	58
1	25	16	128	73	78	187	82	220.5	34.5	73.5	73.5
1 1/4	32	16	146	86	88	187	82	224	29	74	74
1 1/2	40	16	164	98	93	187	82	244	46	97	97
2	50	10	199	122	111	187	82	251	52	104	104

		PVC-U			
		100 to 240vAC		24vAC/DC	
		4 TO 20mA POSITIONING		4 TO 20mA POSITIONING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code
3/8	1760	H7 MBE B01	H7 MBE B01	H8 MBE B05	H8 MBF B05
1/2	1775	H7 MBE B02	H7 MBE B02	H8 MBE B06	H8 MBF B06
3/4	1903	H7 MBE B03	H7 MBE B03	H8 MBE B07	H8 MBF B07
1	2011	H7 MBE B04	H7 MBE B04	H8 MBE B08	H8 MBF B08
1 1/4	2369	H7 MBE B05	H7 MBE B05	H8 MBE B09	H8 MBF B09
1 1/2	2601	H7 MBE B06	H7 MBE B06	H8 MBE B10	H8 MBF B10
2	3218	H7 MBE B07	H7 MBE B07	H8 MBE B11	H8 MBF B11

		ABS			
		100 to 240vAC		24vAC/DC	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code
3/8	1760	H7 MBA B01	H7 MBB B01	H8 MBA 305	H8 MBB 305
1/2	1775	H7 MBA B02	H7 MBB B02	H8 MBA 306	H8 MBB 306
3/4	1903	H7 MBA B03	H7 MBB B03	H8 MBA 307	H8 MBB 307
1	2011	H7 MBA B04	H7 MBB B04	H8 MBA 308	H8 MBB 308
1 1/4	2369	H7 MBA B05	H7 MBB B05	H8 MBA 309	H8 MBB 309
1 1/2	2601	H7 MBA B06	H7 MBB B06	H8 MBA 310	H8 MBB 310
2	3218	H7 MBA B07	H7 MBB B07	H8 MBA 311	H8 MBB 311

Actuators

Electric actuator with plastic housing

Voltage: 100 to 240vAC
24vAC/DC

Temperature: -10ºC to +40ºC

Electrical connections

Power supply: DIN 43650 3P+T Plug
Feedback: ISO M20 Gland

Standard equipment

- Emergency manual override
- Visual position indicator
- 2 Auxiliary (and adjustable) limit switches
- Electronic torque limiter
- Anti-condensation heater
- IP66 ingress protection

Actuator options

POSI 4 to 20 mA Positioning

Additional options

- IP 67 Actuator
- ATEX EExd Actuator
- Electro-Pneumatic/Pneumatic Positioning also available

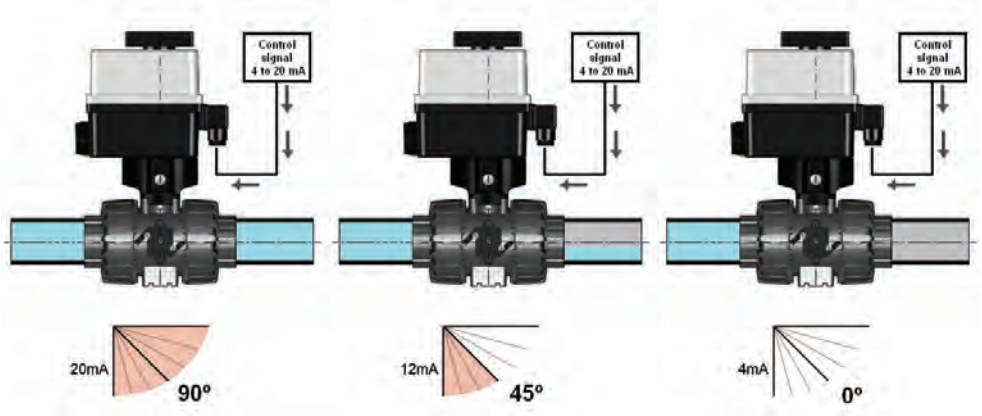
	DC	AC/DC
Power supply	24V	100 to 240V
Power	15W	15W
Working time	12 sec	12 sec
Duty rating	50%	50%
Protection	IP66	IP66

Please contact the Durapipe Valve Department for further information.

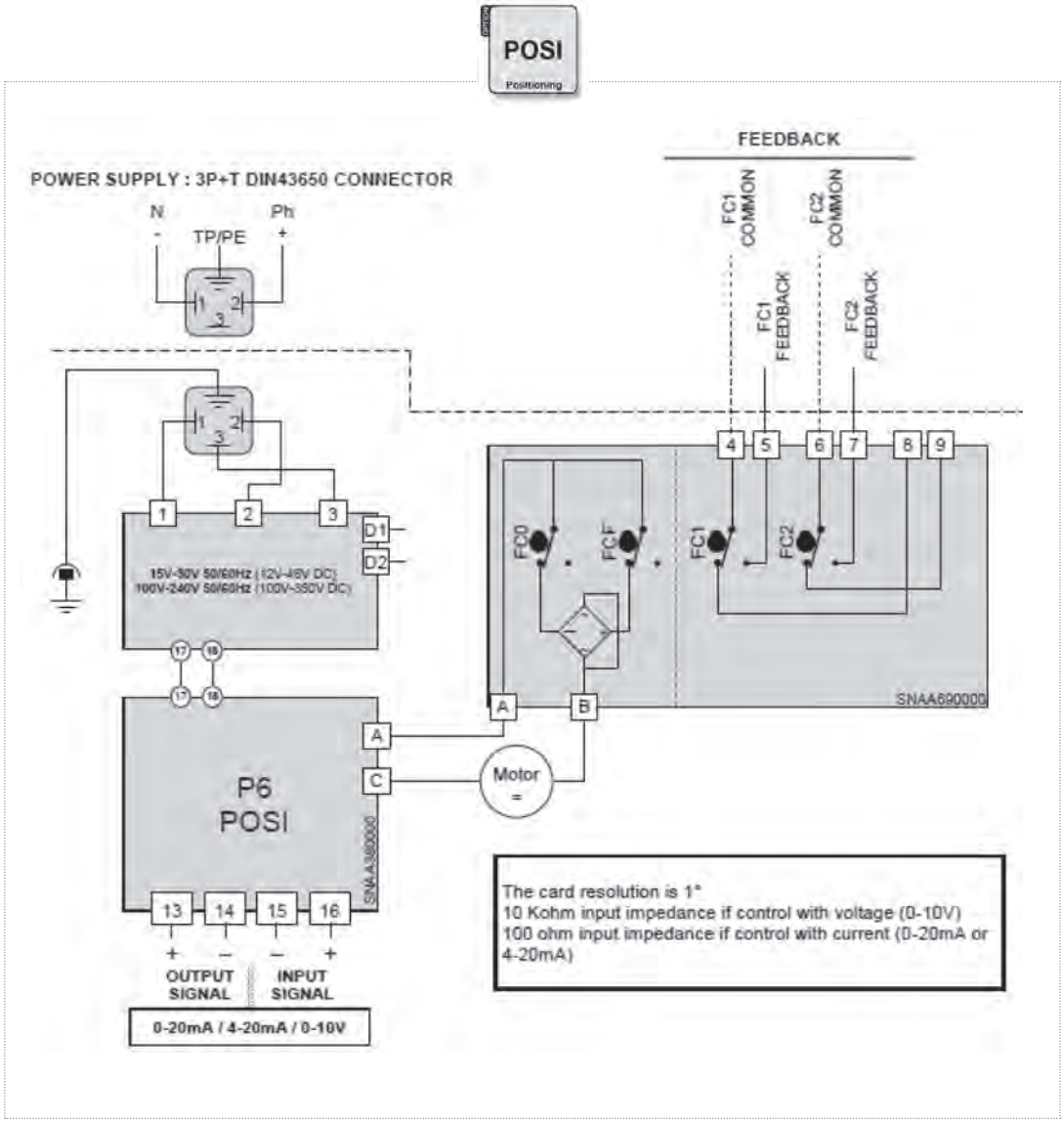
Operating Principle

POSI 4 to 20 mA Positioning

Power is required to be supplied to the actuator. The actuator opens/closes when control signal is applied. Valve position is in relation to the mA/voltage signal provided.



Wiring Diagrams



Easytorque Kit

1. Torque wrench for use VKR/VKD/TKD/VXE/SXE Valves from $^{3}/_{8}$" - d16 to 2" - d63.
2. Insert for attaching the torque wrench to the valve for adjusting the ball seat carrier
   The inserts are manufactured from PA50 material with sintered steel bush inserts.

The Easytorque kit facilitates the correct torque setting of the ball seat carrier, thus ensuring maximum efficiency and optimisation of the valve.

The Easytorque kit avoids potential damage to the valve components form the use of incorrect tools

d	DN	Product Code
$^{1}/_{2}$" - 20	15	KET01
to	to	
2" - 63	50	

Disassembly

Please see Fig 3 Exploded View on p216 for component clarification.

1. Isolate the valve from the flow and drain down the pipeline
2. Push in the lever on the **DualBlock** device away from the teeth on the union nuts and turn the nuts anti-clockwise to release. The **DualBlock** device can be removed completely allowing removal of the union nuts from the valve body.
3. Before disassembly please hold the valve in a vertical position and open the valve to 45ºC to drain any residual fluid from the valve. It is advisable to catch the fluid in a suitable container
4. Close the valve and remove the handle insert tool and insert the “teeth” from the underside of the tool into the slots on the ball seat carrier Rotate the support anti-clockwise in order to remove the ball seat carrier
5. Remove the handle from the stem, ensuring the metering positioning indicator remains attached to the handle
6. Remove the ball by pushing from the opposite side of the valve body that is marked “REGOLERE- ADJUST”, take care not to mark or damage the ball upon removal
7. Press the stem out through the valve body
8. All the o-rings and PTFE ball seats can be removed from their grooves as indicated within the exploded view on p216

Assembly

1. All O-rings and ball seats can be fitted into their grooves easily as shown within the exploded view
2. Insert the stem from inside of the valve body.
3. Insert the ball into the valve body ensuring the ball fits into the grooves at the bottom of the valve stem
4. Attach the ball seat carrier and tighten clockwise using the handle insert tool. Ideally use the Easytorque Kit to ensure the seat is tighented to the recommened torque
5. Fit the insert tool into the handle body and re-fit the handle and metering positioning indicator on to the valve stem, ensuring the positioning indicator is set to 0º
6. Re-fit the valve end connectors and the union nuts, ensuring extra care is taken to ensure the socket O-rings do not

Note: When assembling the valve components, it is advisable to lubricate the O-rings. Do not use mineral oils as they attack EPDM rubber.

DN10 - DN50

Position	Components	Material
1	Handle Insert Tool	PVC-U
2	Handle	HIPVC
3	*Stem O-ring	EPDM/FPM
4	Stem	Valve Material
5	*Ball Seat	PTFE
6	Ball	Valve Material
7	Body	Valve Material
8*	Ball Seat O-ring	EPDM/FPM
9*	Carrier O-ring	EPDM/FPM
10	Socket Seal O-ring	EPDM/FPM
11	Ball Seat Carrier	Valve Material
12*	End Connector	Valve Material
13	Union Nuts	Valve Material
16	*DualBlock®	POM
17	**Powerquick torque plate	PP-GR
18**	Screw	Stainless steel
19**	Coupling Spindle	PP-GR/Stainless steel
20**	Nut	Stainless steel
21**	Screw	Stainless steel
22**	Screw	Stainless steel
23**	Powerquick Lower Plates	PP-GR
24*	Electric Actuator	PA6.6

*Spare Parts **Accessories

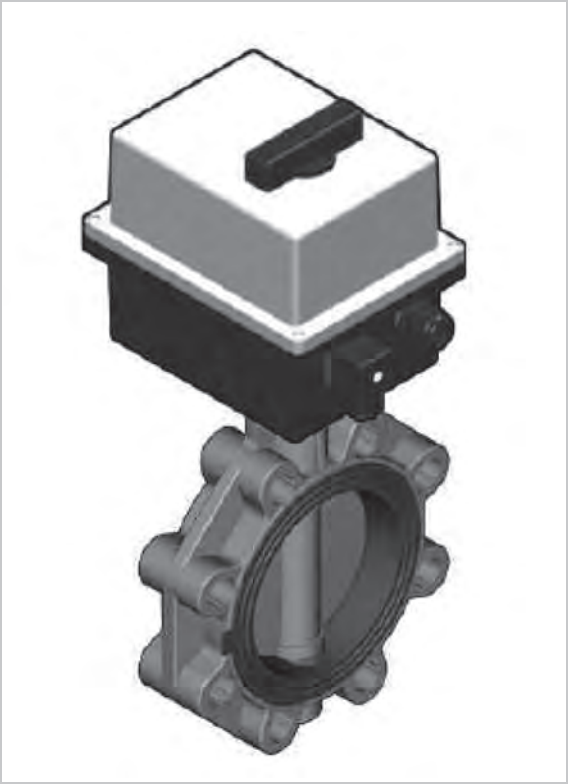
Note: For technical information on valve bracketing and supports, connections to a system, assembly and disassembly refer to page 20 within the manual valves section.

FK Electrically Actuated FK Butterfly Valve (DN40 - DN300)

- Used for On/Off and control operation
- Size range from DN40 up to DN300
- Pressure rating: Maximum working pressure:
  - up to DN50 16 bar at 20°C (water)
  - DN65-250 10 bar at 20°C (water)
  - DN300 8 bar at 20°C (water)
- Body material GR-PP; UV resistant
- Full flanged body with oval holes to fit various flanging standards. Supplied with hole inserts for bolt hole centralising (up to DN 200; DN 250 & 300 are drilled according to the flange drilling required)
- Optional fully lugged version with threaded 316 Stainless steel inserts to BS-EN 1092 PN10 (Formally BS4504) or ANSI 150
- For more information, please visit our website **www.durapipe.co.uk**

Legend

d	Nominal outside diameter
DN	Nominal internal diameter in mm
R	Nominal size or the thread in inches
PN	Nominal pressure in bar (max.working Pressure at 20°C - water)
gms	Weight in grams
PVC-U	Polyvinyl chloride unplasticised
ABS	Acrylontrile Butadiene Styrene
PP	Polypropylene
PVC-C	Polyvinyl chloride chlorinated
GRPP	Glass reinforced polypropylene
POM	Polyoxymethylene
PE	Polyethylene
PTFE	Polytetrafluoroethylene
EPDM	Ethylene Propylene Diene Monomer (M-class) rubber
FPM	Fluorocarbon Rubber
s	Wall thickness (mm)
SDR	Standard dimension ratio = d/s

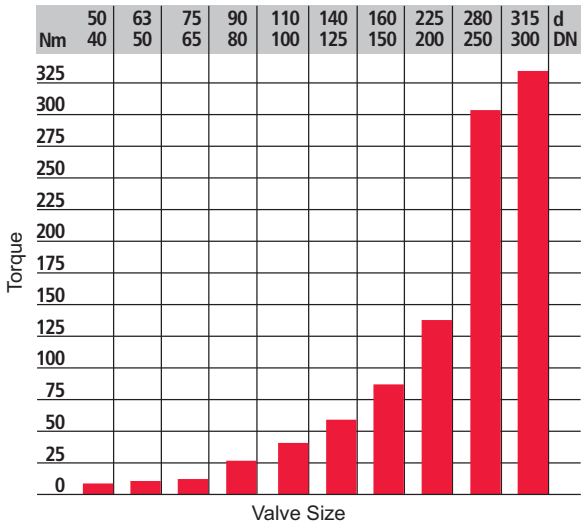


Dimensions and Standards

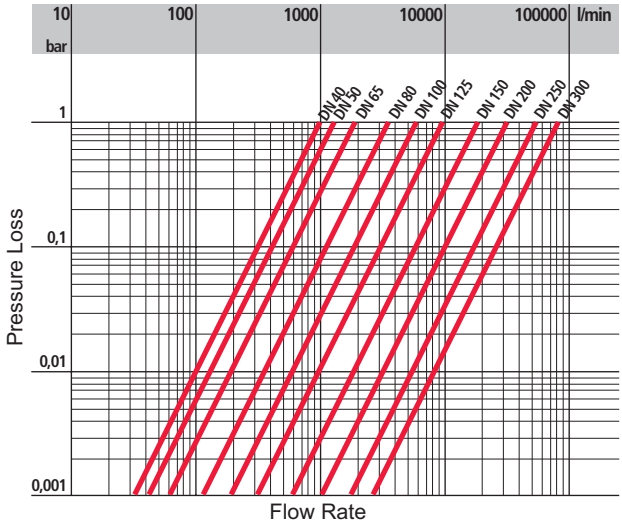
The overall dimensions of the FK Butterfly valve comply with the following standards:
ISO5752 (DN40 to DN200) Medium 25 series
ISO5752 (DN250 to DN300) Long 16 series
DIN 3202 (DN65 to DN 200) K2
DIN 3202 (DN250 to DN3000) K3

The oval holes in the valve body (DN50 to DN200) allow connection to the following flange drilling standards:
BS-EN 1092 PN10 (Formally BS4504 PN10)
ASA B16.5 class 150
BS10, Table D/E

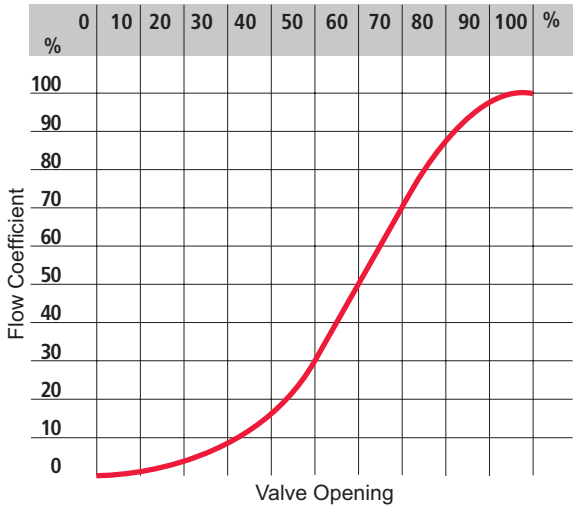
Technical Data



Maximum torque at maximum working pressure.



Pressure loss chart.



Relative flow chart.

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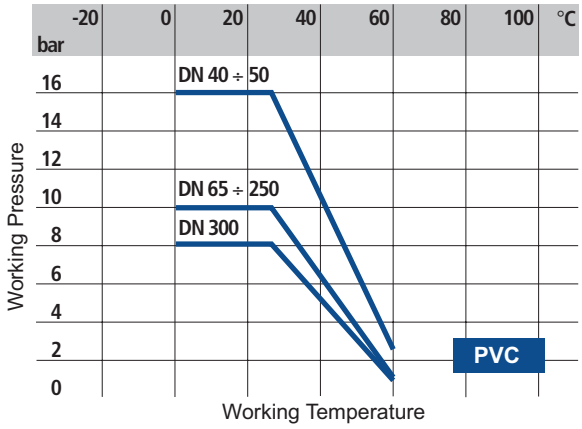
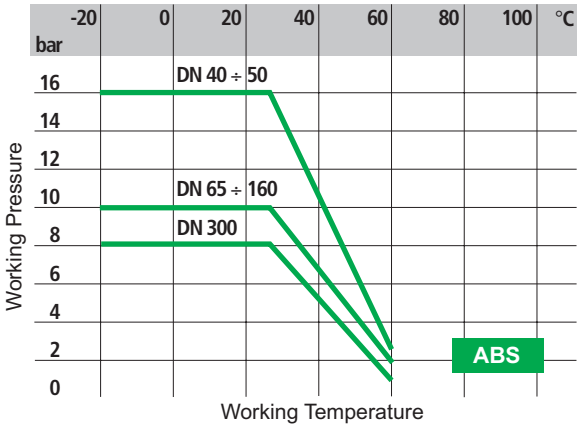
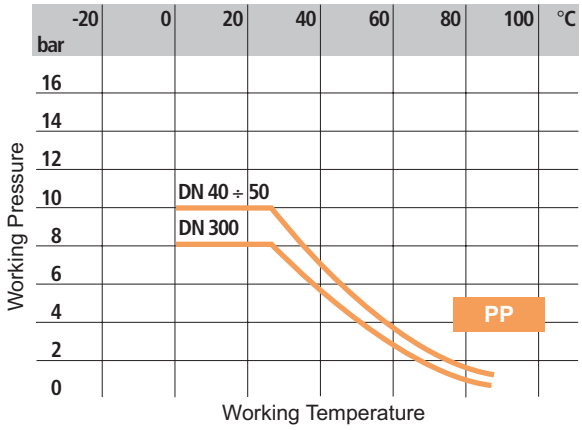
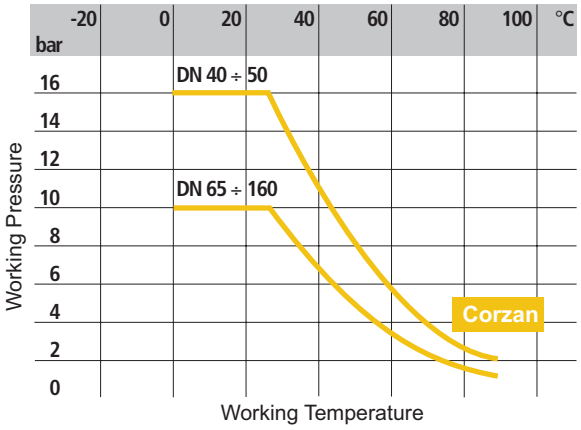








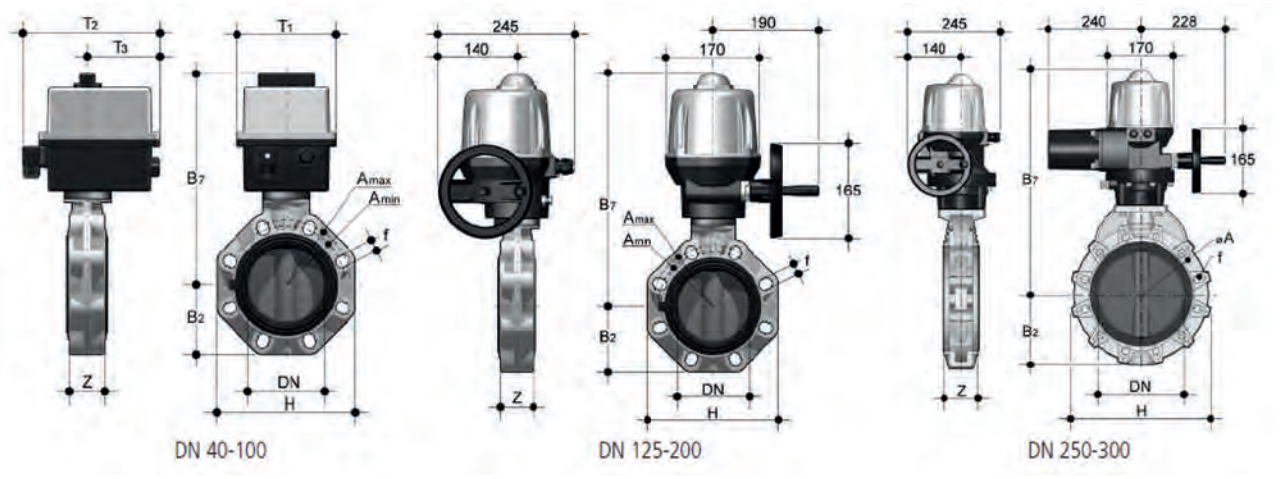
Pressure/temperature rating for water and harmless fluids to which the material is RESISTANT.
In other cases a reduction of the PN is required. (25 years with safety factor).

DN	40	50	65	80	100	125	150	200	250	300
bar	1000	1285	1700	3350	5900	9850	18700	30500	53200	81600

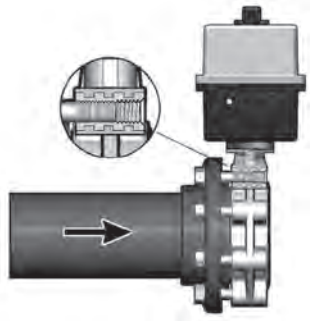
Flow coefficient k_{v100}

k_{v100} is the number of litres per minute of water at a temperature of 20°C that will flow through a valve with a one bar pressure differential at a specified rate. The k_{v100} values shown in the table are calculated with the valve fully open.

FKOV/CE PVC-U **FKOA/CE** ABS **FKOM/CE** PP **FKOC/CE** Corzan



FK Butterfly valve - Electrically actuated Disc



d	DN	PN	B_2	B_7	T_1	T_2	T_3	H	Z	A_{min}	A_{max}	ØA	f	g	u
1½" - 50	40	16	60	253	92	189	91	132	33	99	109	-	19	2074	4
2" - 63	50	16	70	259	92	189	91	147	43	115	125.5	-	19	2254	4
2½" - 75	65	10	80	266	92	189	91	165	46	128	144	-	19	2500	4
3" - 90	80	10	93	308	128	204	92.5	185	49	145	160	-	19	4200	8
4" - 110	100	10	107	322	128	204	92.5	211	56	165	190	-	19	4550	8
5" - 140	125	10	120	425	-	-	-	240	64	204	215	-	23	8150	8
6" - 160	150	10	134	438	-	-	-	268	70	230	242	-	23	8900	8
8" - 225	200	10	161	485	-	-	-	323	71	280	298	-	23	11600	8
*10" - 250	250	10	210	597	-	-	-	405	114	-	-	335	25.4	32000	12
*12" - 315	300	8	245	654	-	-	-	475	114	-	-	390	29	39000	12
**10" - 250	250	10	210	597	-	-	-	405	114	-	-	362	25.4	32000	12
**12" - 315	300	8	245	654	-	-	-	475	114	-	-	432	29	39000	12

PVC-U

100 to 240vAC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
1½" - 50	2074	H1 FKE 106	H1 FKF 106	H3 FKE 106	H3 FKF 106	H5 FKE 106	H5 FKF 106	H7 FKE 106	H7 FKF 106
2" - 63	2254	H1 FKE 107	H1 FKF 107	H3 FKE 107	H3 FKF 107	H5 FKE 107	H5 FKF 107	H7 FKE 107	H7 FKF 107
2½" - 75	2500	H1 FKE 108	H1 FKF 108	H3 FKE 108	H3 FKF 108	H5 FKE 108	H5 FKF 108	H7 FKE 108	H7 FKF 108
3" - 90	4200	H1 FKE 109	H1 FKF 109	H3 FKE 109	H3 FKF 109	H5 FKE 109	H5 FKF 109	H7 FKE 109	H7 FKF 109
4" - 110	4550	H1 FKE 110	H1 FKF 110	H3 FKE 110	H3 FKF 110	H5 FKE 110	H5 FKF 110	H7 FKE 110	H7 FKF 110
5" - 140	8150	H1 FKE 111	H1 FKF 111	H3 FKE 111	H3 FKF 111	H5 FKE 111	H5 FKF 111	H7 FKE 111	H7 FKF 111
6" - 160	8900	H1 FKE 112	H1 FKF 112	H3 FKE 112	H3 FKF 112	H5 FKE 112	H5 FKF 112	H7 FKE 112	H7 FKF 112
8" - 225	11600	H1 FKE 113	H1 FKF 113	H3 FKE 113	H3 FKF 113	H5 FKE 113	H5 FKF 113	H7 FKE 113	H7 FKF 113

240VAC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
*10" - 250	32000	H1 FKE 114	H1 FKF 114	-	-	-	-	-	-
*12" - 315	39000	H1 FKE 115	H1 FKF 115	-	-	-	-	-	-
**10" - 250	32000	H1 FKE A14	H1 FKF A14	-	-	-	-	-	-
**12" - 315	39000	H1 FKE A15	H1 FKF A15	-	-	-	-	-	-

* = PN10 ** = ANSI 150

continued >>

FKOV/CE PVC-U **FKOA/CE** ABS **FKOM/CE** PP **FKOC/CE** Corzan

		24VAC/DC							
		STANDARD		FAIL SAFE CLOSED		FAIL SAFE OPEN		4 TO 20m A POSITIONING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
1½"- 50	2074	H2 FKE 106	H2 FKF 106	H4 FKE 106	H4 FKF 106	H6 FKE 106	H6 FKF 106	H8 FKE 106	H8 FKF 106
2" - 63	2254	H2 FKE 107	H2 FKF 107	H4 FKE 107	H4 FKF 107	H6 FKE 107	H6 FKF 107	H8 FKE 107	H8 FKF 107
2½" - 75	2500	H2 FKE 108	H2 FKF 108	H4 FKE 108	H4 FKF 108	H6 FKE 108	H6 FKF 108	H8 FKE 108	H8 FKF 108
3" - 90	4200	H2 FKE 109	H2 FKF 109	H4 FKE 109	H4 FKF 109	H6 FKE 109	H6 FKF 109	H8 FKE 109	H8 FKF 109
4" - 110	4550	H2 FKE 110	H2 FKF 110	H4 FKE 110	H4 FKF 110	H6 FKE 110	H6 FKF 110	H8 FKE 110	H8 FKF 110
5" - 140	8150	H2 FKE 111	H2 FKF 111	H4 FKE 111	H4 FKF 111	H6 FKE 111	H6 FKF 111	H8 FKE 111	H8 FKF 111
6" - 160	8900	H2 FKE 112	H2 FKF 112	H4 FKE 112	H4 FKF 112	H6 FKE 112	H6 FKF 112	H8 FKE 112	H8 FKF 112
8" - 225	11600	H2 FKE 113	H2 FKF 113	H4 FKE 113	H4 FKF 113	H6 FKE 113	H6 FKF 113	H8 FKE 113	H8 FKF 113

*Also available in 24V versions.

		ABS							
		100 to 240vAC							
		STANDARD		FAIL SAFE CLOSED		FAIL SAFE OPEN		4 TO 20mA POSITIONING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
1½" - 50	2074	H1 FKA 106	H1 FKB 106	H3 FKA 106	H3 FKB 106	H5 FKA 106	H5 FKB 106	H7 FKA 106	H7 FKB 106
2" - 63	2254	H1 FKA 107	H1 FKB 107	H3 FKA 107	H3 FKB 107	H5 FKA 107	H5 FKB 107	H7 FKA 107	H7 FKB 107
2½" - 75	2500	H1 FKA 108	H1 FKB 108	H3 FKA 108	H3 FKB 108	H5 FKA 108	H5 FKB 108	H7 FKA 108	H7 FKB 108
3" - 90	4200	H1 FKA 109	H1 FKB 109	H3 FKA 109	H3 FKB 109	H5 FKA 109	H5 FKB 109	H7 FKA 109	H7 FKB 109
4" - 110	4550	H1 FKA 110	H1 FKB 110	H3 FKA 110	H3 FKB 110	H5 FKA 110	H5 FKB 110	H7 FKA 110	H7 FKB 110
5" - 140	8150	H1 FKA 111	H1 FKB 111	H3 FKA 111	H3 FKB 111	H5 FKA 111	H5 FKB 111	H7 FKA 111	H7 FKB 111
6" - 160	8900	H1 FKA 112	H1 FKB 112	H3 FKA 112	H3 FKB 112	H5 FKA 112	H5 FKB 112	H7 FKA 112	H7 FKB 112
8" - 225	11600	H1 FKA 113	H1 FKB 113	H3 FKA 113	H3 FKB 113	H5 FKA 113	H5 FKB 113	H7 FKA 113	H7 FKB 113
		240VAC							
		STANDARD		FAIL SAFE CLOSED		FAIL SAFE OPEN		4 TO 20mA POSITIONING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
*10" - 250	32000	H1 FKA 114	H1 FKB 114	-	-	-	-	-	-
*12" - 250	39000	H1 FKA 115	H1 FKB 115	-	-	-	-	-	-
**10" - 250	32000	H1 FKA A14	H1 FKB A14	-	-	-	-	-	-
**12" - 315	39000	H1 FKA A15	H1 FKB A15	-	-	-	-	-	-
		24VAC/DC							
		STANDARD		FAIL SAFE CLOSED		FAIL SAFE OPEN		4 TO 20mA POSITIONING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
1½"- 50	2074	H2 FKA 106	H2 FKB 106	H4 FKA 106	H4 FKB 106	H6 FKA 106	H6 FKB 106	H8 FKA 106	H8 FKB 106
2" - 63	2254	H2 FKA 107	H2 FKB 107	H4 FKA 107	H4 FKB 107	H6 FKA 107	H6 FKB 107	H8 FKA 107	H8 FKB 107
2½" - 75	2500	H2 FKA 108	H2 FKB 108	H4 FKA 108	H4 FKB 108	H6 FKA 108	H6 FKB 108	H8 FKA 108	H8 FKB 108
3" - 90	4200	H2 FKA 109	H2 FKB 109	H4 FKA 109	H4 FKB 109	H6 FKA 109	H6 FKB 109	H8 FKA 109	H8 FKB 109
4" - 110	4550	H2 FKA 110	H2 FKB 110	H4 FKA 110	H4 FKB 110	H6 FKA 110	H6 FKB 110	H8 FKA 110	H8 FKB 110
5" - 140	8150	H2 FKA 111	H2 FKB 111	H4 FKA 111	H4 FKB 111	H6 FKA 111	H6 FKB 111	H8 FKA 111	H8 FKB 111
6" - 160	8900	H2 FKA 112	H2 FKB 112	H4 FKA 112	H4 FKB 112	H6 FKA 112	H6 FKB 112	H8 FKA 112	H8 FKB 112
8" - 225	11600	H2 FKA 113	H2 FKB 113	H4 FKA 113	H4 FKB 113	H6 FKA 113	H6 FKB 113	H8 FKA 113	H8 FKB 113

* = PN10 ** = ANSI 150

FKOV/CE PVC-U **FKOA/CE** ABS **FKOM/CE** PP **FKOC/CE** Corzan

PP

100 to 240vAC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
1½" - 50	2074	H1 FKN 106	H1 FKP 106	H3 FKN 106	H3 FKP 106	H5 FKN 106	H5 FKP 106	H7 FKN 106	H7 FKP 106
2" - 63	2254	H1 FKN 107	H1 FKP 107	H3 FKN 107	H3 FKP 107	H5 FKN 107	H5 FKP 107	H7 FKN 107	H7 FKP 107
2½" - 75	2500	H1 FKN 108	H1 FKP 108	H3 FKN 108	H3 FKP 108	H5 FKN 108	H5 FKP 108	H7 FKN 108	H7 FKP 108
3" - 90	4200	H1 FKN 109	H1 FKP 109	H3 FKN 109	H3 FKP 109	H5 FKN 109	H5 FKP 109	H7 FKN 109	H7 FKP 109
4" - 110	4550	H1 FKN 110	H1 FKP 110	H3 FKN 110	H3 FKP 110	H5 FKN 110	H5 FKP 110	H7 FKN 110	H7 FKP 110
5" - 140	8150	H1 FKN 111	H1 FKP 111	H3 FKN 111	H3 FKP 111	H5 FKN 111	H5 FKP 111	H7 FKN 111	H7 FKP 111
6" - 160	8900	H1 FKN 112	H1 FKP 112	H3 FKN 112	H3 FKP 112	H5 FKN 112	H5 FKP 112	H7 FKN 112	H7 FKP 112
8" - 225	11600	H1 FKN 113	H1 FKP 113	H3 FKN 113	H3 FKP 113	H5 FKN 113	H5 FKP 113	H7 FKN 113	H7 FKP 113

240VAC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
*10" - 250	32000	H1 FKN 114	H1 FKP 114	-	-	-	-	-	-
*12" - 250	39000	H1 FKN 115	H1 FKP 115	-	-	-	-	-	-
**10" - 250	32000	H1 FKN A14	H1 FKP A14	-	-	-	-	-	-
**12" - 315	39000	H1 FKN A15	H1 FKP A15	-	-	-	-	-	-

24VAC/DC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
1½" - 50	2074	H2 FKN 106	H2 FKP 106	H4 FKN 106	H4 FKP 106	H6 FKN 106	H6 FKP 106	H8 FKN 106	H8 FKP 106
2" - 63	2254	H2 FKN 107	H2 FKP 107	H4 FKN 107	H4 FKP 107	H6 FKN 107	H6 FKP 107	H8 FKN 107	H8 FKP 107
2½" - 75	2500	H2 FKN 108	H2 FKP 108	H4 FKN 108	H4 FKP 108	H6 FKN 108	H6 FKP 108	H8 FKN 108	H8 FKP 108
3" - 90	4200	H2 FKN 109	H2 FKP 109	H4 FKN 109	H4 FKP 109	H6 FKN 109	H6 FKP 109	H8 FKN 109	H8 FKP 109
4" - 110	4550	H2 FKN 110	H2 FKP 110	H4 FKN 110	H4 FKP 110	H6 FKN 110	H6 FKP 110	H8 FKN 110	H8 FKP 110
5" - 140	8150	H2 FKN 111	H2 FKP 111	H4 FKN 111	H4 FKP 111	H6 FKN 111	H6 FKP 111	H8 FKN 111	H8 FKP 111
6" - 160	8900	H2 FKN 112	H2 FKP 112	H4 FKN 112	H4 FKP 112	H6 FKN 112	H6 FKP 112	H8 FKN 112	H8 FKP 112
8" - 225	11600	H2 FKN 113	H2 FKP 113	H4 FKN 113	H4 FKP 113	H6 FKN 113	H6 FKP 113	H8 FKN 113	H8 FKP 113

* = BS EN1092 PN10 ** = ANSI 150

Corzan

100 to 240vAC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
1½" - 50	2074	H1 FKJ 106	H1 FKK 106	H3 FKJ 106	H3 FKK 106	H5 FKJ 106	H5 FKK 106	H7 FKJ 106	H7 FKK 106
2" - 63	2254	H1 FKJ 107	H1 FKK 107	H3 FKJ 107	H3 FKK 107	H5 FKJ 107	H5 FKK 107	H7 FKJ 107	H7 FKK 107
2½" - 75	2500	H1 FKJ 108	H1 FKK 108	H3 FKJ 108	H3 FKK 108	H5 FKJ 108	H5 FKK 108	H7 FKJ 108	H7 FKK 108
3" - 90	4200	H1 FKJ 109	H1 FKK 109	H3 FKJ 109	H3 FKK 109	H5 FKJ 109	H5 FKK 109	H7 FKJ 109	H7 FKK 109
4" - 110	4550	H1 FKJ 110	H1 FKK 110	H3 FKJ 110	H3 FKK 110	H5 FKJ 110	H5 FKK 110	H7 FKJ 110	H7 FKK 110
5" - 140	8150	H1 FKJ 111	H1 FKK 111	H3 FKJ 111	H3 FKK 111	H5 FKJ 111	H5 FKK 111	H7 FKJ 111	H7 FKK 111
6" - 160	8900	H1 FKJ 112	H1 FKK 112	H3 FKJ 112	H3 FKK 112	H5 FKJ 112	H5 FKK 112	H7 FKJ 112	H7 FKK 112

24VAC/DC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
1½" - 50	2074	H2 FKJ 106	H2 FKK 106	H4 FKJ 106	H4 FKK 106	H6 FKJ 106	H6 FKK 106	H8 FKJ 106	H8 FKK 106
2" - 63	2254	H2 FKJ 107	H2 FKK 107	H4 FKJ 107	H4 FKK 107	H6 FKJ 107	H6 FKK 107	H8 FKJ 107	H8 FKK 107
2½" - 75	2500	H2 FKJ 108	H2 FKK 108	H4 FKJ 108	H4 FKK 108	H6 FKJ 108	H6 FKK 108	H8 FKJ 108	H8 FKK 108
3" - 90	4200	H2 FKJ 109	H2 FKK 109	H4 FKJ 109	H4 FKK 109	H6 FKJ 109	H6 FKK 109	H8 FKJ 109	H8 FKK 109
4" - 110	4550	H2 FKJ 110	H2 FKK 110	H4 FKJ 110	H4 FKK 110	H6 FKJ 110	H6 FKK 110	H8 FKJ 110	H8 FKK 110
5" - 140	8150	H2 FKJ 111	H2 FKK 111	H4 FKJ 111	H4 FKK 111	H6 FKJ 111	H6 FKK 111	H8 FKJ 111	H8 FKK 111
6" - 160	8900	H2 FKJ 112	H2 FKK 112	H4 FKJ 112	H4 FKK 112	H6 FKJ 112	H6 FKK 112	H8 FKJ 112	H8 FKK 112

* = PN10 ** = ANSI 150

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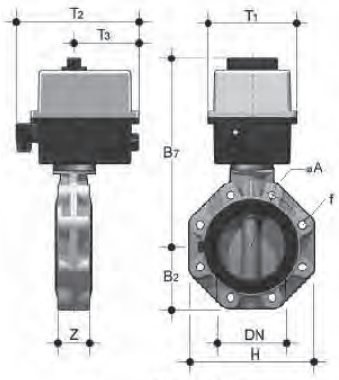
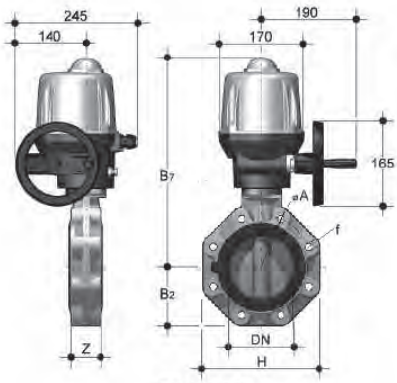
Product is lugged so can be used for end of line installation.

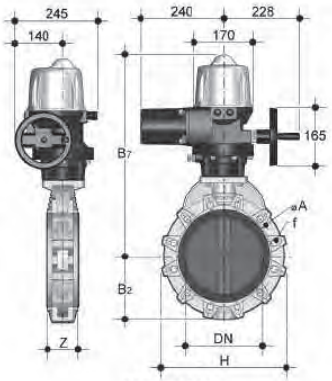
FKOV/CE LUG ISO-DIN PVC-U
FKOM/CE LUG ISO-DIN PP
FKOA/CE LUG ISO-DIN ABS
FKOC/CE LUG ISO-DIN Corzan



DN 40-100

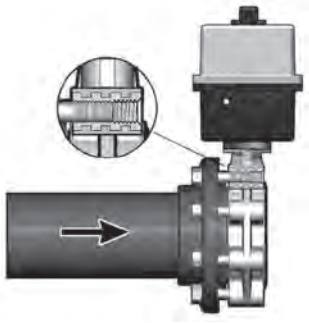


DN 125-200



DN 250-300

FK Butterfly valve - Electrically actuated Disc



d	DN	PN	B_2	B_7	T_1	T_2	T_3	H	Z	ØA	f	g	u
1½" - 50	-	-	-	-	-	-	-	-	-	-	-	-	-
2" - 63	-	-	-	-	-	-	-	-	-	-	-	-	-
2½" - 75	65	16	80	266	92	189	91	165	46	145	M16	2500	4
3" - 90	80	16	93	308	128	204	92.5	185	49	160	M16	4200	8
4" - 110	100	10	107	322	128	204	92.5	211	56	180	M20	4550	8
5" - 140	125	10	120	425	-	-	-	240	64	210	M20	8150	8
6" - 160	150	10	134	438	-	-	-	268	70	240	M20	8900	8
8" - 225	200	10	161	485	-	-	-	323	71	295	M20	11600	8
10" - 250	250	10	210	597	-	-	-	405	114	350	M20	32000	12
12" - 315	300	8	245	654	-	-	-	475	114	4025	M20	39000	12

PVC-U

100 to 240vAC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
1½" - 50	50	H1 FKE F06	H1 FKF F06	H3 FKE F06	H3 FKF F06	H5 FKE F06	H5 FKF F06	H7 FKE F06	H7 FKF F06
2" - 63	63	H1 FKE F07	H1 FKF F07	H3 FKE F07	H3 FKF F07	H5 FKE F07	H5 FKF F07	H7 FKE F07	H7 FKF F07
2½" - 75	2500	H1 FKE F08	H1 FKF F08	H3 FKE F08	H3 FKF F08	H5 FKE F08	H5 FKF F08	H7 FKE F08	H7 FKF F08
3" - 90	4200	H1 FKE F09	H1 FKF F09	H3 FKE F09	H3 FKF F09	H5 FKE F09	H5 FKF F09	H7 FKE F09	H7 FKF F09
4" - 110	4550	H1 FKE F10	H1 FKF F10	H3 FKE F10	H3 FKF F10	H5 FKE F10	H5 FKF F10	H7 FKE F10	H7 FKF F10
5" - 140	8150	H1 FKE F11	H1 FKF F11	H3 FKE F11	H3 FKF F11	H5 FKE F11	H5 FKF F11	H7 FKE F11	H7 FKF F11
6" - 160	8900	H1 FKE F12	H1 FKF F12	H3 FKE F12	H3 FKF F12	H5 FKE F12	H5 FKF F12	H7 FKE F12	H7 FKF F12
8" - 225	11600	H1 FKE F13	H1 FKF F13	H3 FKE F13	H3 FKF F13	H5 FKE F13	H5 FKF F13	H7 FKE F13	H7 FKF F13

240VAC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
10" - 250	32000	H1 FKE F14	H1 FKF F14	-	-	-	-	-	-
12" - 315	39000	H1 FKE F15	H1 FKF F15	-	-	-	-	-	-

24VAC/DC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
1½" - 50	50	H2 FKE F06	H2 FKF F06	H4 FKE F06	H4 FKF F06	H6 FKE F06	H6 FKF F06	H8 FKE F06	H8 FKF F06
2" - 63	63	H2 FKE F07	H2 FKF F07	H4 FKE F07	H4 FKF F07	H6 FKE F07	H6 FKF F07	H8 FKE F07	H8 FKF F07
2½" - 75	2500	H2 FKE F08	H2 FKF F08	H4 FKE F08	H4 FKF F08	H6 FKE F08	H6 FKF F08	H8 FKE F08	H8 FKF F08
3" - 90	4200	H2 FKE F09	H2 FKF F09	H4 FKE F09	H4 FKF F09	H6 FKE F09	H6 FKF F09	H8 FKE F09	H8 FKF F09
4" - 110	4550	H2 FKE F10	H2 FKF F10	H4 FKE F10	H4 FKF F10	H6 FKE F10	H6 FKF F10	H8 FKE F10	H8 FKF F10
5" - 140	8150	H2 FKE F11	H2 FKF F11	H4 FKE F11	H4 FKF F11	H6 FKE F11	H6 FKF F11	H8 FKE F11	H8 FKF F11
6" - 160	8900	H2 FKE F12	H2 FKF F12	H4 FKE F12	H4 FKF F12	H6 FKE F12	H6 FKF F12	H8 FKE F12	H8 FKF F12
8" - 225	11600	H2 FKE F13	H2 FKF F13	H4 FKE F13	H4 FKF F13	H6 FKE F13	H6 FKF F13	H8 FKE F13	H8 FKF F13

FKOV/CE LUG ISO-DIN PVC-U
FKOM/CE LUG ISO-DIN PP
FKOA/CE LUG ISO-DIN ABS
FKOC/CE LUG ISO-DIN Corzan

ABS

100 to 240vAC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
1½" - 50	50	H1 FKA F06	H1 FKB F06	H3 FKA F06	H3 FKB F06	H5 FKA F06	H5 FKB F06	H7 FKA F06	H7 FKB F06
2" - 63	63	H1 FKA F07	H1 FKB F07	H3 FKA F07	H3 FKB F07	H5 FKA F07	H5 FKB F07	H7 FKA F07	H7 FKB F07
2½" - 75	2500	H1 FKA F08	H1 FKB F08	H3 FKA F08	H3 FKB F08	H5 FKA F08	H5 FKB F08	H7 FKA F08	H7 FKB F08
3" - 90	4200	H1 FKA F09	H1 FKB F09	H3 FKA F09	H3 FKB F09	H5 FKA F09	H5 FKB F09	H7 FKA F09	H7 FKB F09
4" - 110	4550	H1 FKA F10	H1 FKB F10	H3 FKA F10	H3 FKB F10	H5 FKA F10	H5 FKB F10	H7 FKA F10	H7 FKB F10
5" - 140	8150	H1 FKA F11	H1 FKB F11	H3 FKA F11	H3 FKB F11	H5 FKA F11	H5 FKB F11	H7 FKA F11	H7 FKB F11
6" - 160	8900	H1 FKA F12	H1 FKB F12	H3 FKA F12	H3 FKB F12	H5 FKA F12	H5 FKB F12	H7 FKA F12	H7 FKB F12
8" - 225	11600	H1 FKA F13	H1 FKB F13	H3 FKA F13	H3 FKB F13	H5 FKA F13	H5 FKB F13	H7 FKA F13	H7 FKB F13

240VAC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
10" - 250	32000	H1 FKA F14	H1 FKB F14	-	-	-	-	-	-
12" - 315	39000	H1 FKA F15	H1 FKB F15	-	-	-	-	-	-

24VAC/DC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
1½" - 50	50	H2 FKA F06	H2 FKB F06	H4 FKA F06	H4 FKB F06	H6 FKA F06	H6 FKB F06	H8 FKA F06	H8 FKB F06
2" - 63	63	H2 FKA F07	H2 FKB F07	H4 FKA F07	H4 FKB F07	H6 FKA F07	H6 FKB F07	H8 FKA F07	H8 FKB F07
2½" - 75	2500	H2 FKA F08	H2 FKB F08	H4 FKA F08	H4 FKB F08	H6 FKA F08	H6 FKB F08	H8 FKA F08	H8 FKB F08
3" - 90	4200	H2 FKA F09	H2 FKB F09	H4 FKA F09	H4 FKB F09	H6 FKA F09	H6 FKB F09	H8 FKA F09	H8 FKB F09
4" - 110	4550	H2 FKA F10	H2 FKB F10	H4 FKA F10	H4 FKB F10	H6 FKA F10	H6 FKB F10	H8 FKA F10	H8 FKB F10
5" - 140	8150	H2 FKA F11	H2 FKB F11	H4 FKA F11	H4 FKB F11	H6 FKA F11	H6 FKB F11	H8 FKA F11	H8 FKB F11
6" - 160	8900	H2 FKA F12	H2 FKB F12	H4 FKA F12	H4 FKB F12	H6 FKA F12	H6 FKB F12	H8 FKA F12	H8 FKB F12
8" - 225	11600	H2 FKA F13	H2 FKB F13	H4 FKA F13	H4 FKB F13	H6 FKA F13	H6 FKB F13	H8 FKA F13	H8 FKB F13

FKOV/CE LUG ISO-DIN PVC-U
FKOM/CE LUG ISO-DIN PP
FKOA/CE LUG ISO-DIN ABS
FKOC/CE LUG ISO-DIN Corzan

PP

100 to 240vAC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
1½" - 50	50	H1 FKN F06	H1 FKP F06	H3 FKN F06	H3 FKP F06	H5 FKN F06	H5 FKP F06	H7 FKN F06	H7 FKP F06
2" - 63	63	H1 FKN F07	H1 FKP F07	H3 FKN F07	H3 FKP F07	H5 FKN F07	H5 FKP F07	H7 FKN F07	H7 FKP F07
2½" - 75	2500	H1 FKN F08	H1 FKP F08	H3 FKN F08	H3 FKP F08	H5 FKN F08	H5 FKP F08	H7 FKN F08	H7 FKP F08
3" - 90	4200	H1 FKN F09	H1 FKP F09	H3 FKN F09	H3 FKP F09	H5 FKN F09	H5 FKP F09	H7 FKN F09	H7 FKP F09
4" - 110	4550	H1 FKN F10	H1 FKP F10	H3 FKN F10	H3 FKP F10	H5 FKN F10	H5 FKP F10	H7 FKN F10	H7 FKP F10
5" - 140	8150	H1 FKN F11	H1 FKP F11	H3 FKN F11	H3 FKP F11	H5 FKN F11	H5 FKP F11	H7 FKN F11	H7 FKP F11
6" - 160	8900	H1 FKN F12	H1 FKP F12	H3 FKN F12	H3 FKP F12	H5 FKN F12	H5 FKP F12	H7 FKN F12	H7 FKP F12
8" - 225	11600	H1 FKN F13	H1 FKP F13	H3 FKN F13	H3 FKP F13	H5 FKN F13	H5 FKP F13	H7 FKN F13	H7 FKP F13

240VAC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
10" - 250	32000	H1 FKN F14	H1 FKP F14	-	-	-	-	-	-
12" - 315	39000	H1 FKN F15	H1 FKP F15	-	-	-	-	-	-

24VAC/DC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20m A POSITIONING EPDM Code	4 TO 20m A POSITIONING FPM Code
1½" - 50	50	H2 FKN F06	H2 FKP F06	H4 FKN F06	H4 FKP F06	H6 FKN F06	H6 FKP F06	H8 FKN F06	H8 FKP F06
2" - 63	63	H2 FKN F07	H2 FKP F07	H4 FKN F07	H4 FKP F07	H6 FKN F07	H6 FKP F07	H8 FKN F07	H8 FKP F07
2½" - 75	2500	H2 FKN F08	H2 FKP F08	H4 FKN F08	H4 FKP F08	H6 FKN F08	H6 FKP F08	H8 FKN F08	H8 FKP F08
3" - 90	4200	H2 FKN F09	H2 FKP F09	H4 FKN F09	H4 FKP F09	H6 FKN F09	H6 FKP F09	H8 FKN F09	H8 FKP F09
4" - 110	4550	H2 FKN F10	H2 FKP F10	H4 FKN F10	H4 FKP F10	H6 FKN F10	H6 FKP F10	H8 FKN F10	H8 FKP F10
5" - 140	8150	H2 FKN F11	H2 FKP F11	H4 FKN F11	H4 FKP F11	H6 FKN F11	H6 FKP F11	H8 FKN F11	H8 FKP F11
6" - 160	8900	H2 FKN F12	H2 FKP F12	H4 FKN F12	H4 FKP F12	H6 FKN F12	H6 FKP F12	H8 FKN F12	H8 FKP F12
8" - 225	11600	H2 FKN F13	H2 FKP F13	H4 FKN F13	H4 FKP F13	H6 FKN F13	H6 FKP F13	H8 FKN F13	H8 FKP F13

Corzan

100 to 240vAC

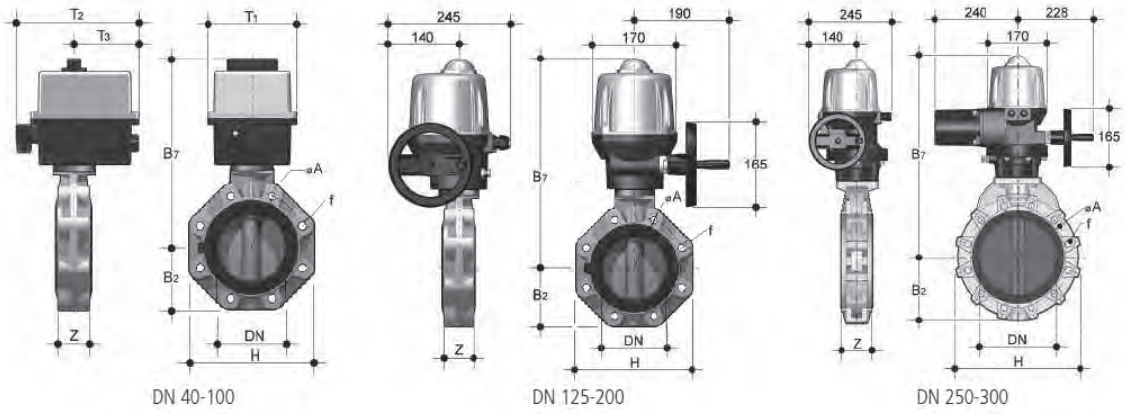
d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
1½" - 50	50	H1 FKJ F06	H1 FKK F06	H3 FKJ F06	H3 FKK F06	H5 FKJ F06	H5 FKK F06	H7 FKJ F06	H7 FKK F06
2" - 63	63	H1 FKJ F07	H1 FKK F07	H3 FKJ F07	H3 FKK F07	H5 FKJ F07	H5 FKK F07	H7 FKJ F07	H7 FKK F07
2½" - 75	2500	H1 FKJ F08	H1 FKK F08	H3 FKJ F08	H3 FKK F08	H5 FKJ F08	H5 FKK F08	H7 FKJ F08	H7 FKK F08
3" - 90	4200	H1 FKJ F09	H1 FKK F09	H3 FKJ F09	H3 FKK F09	H5 FKJ F09	H5 FKK F09	H7 FKJ F09	H7 FKK F09
4" - 110	4550	H1 FKJ F10	H1 FKK F10	H3 FKJ F10	H3 FKK F10	H5 FKJ F10	H5 FKK F10	H7 FKJ F10	H7 FKK F10
5" - 140	8150	H1 FKJ F11	H1 FKK F11	H3 FKJ F11	H3 FKK F11	H5 FKJ F11	H5 FKK F11	H7 FKJ F11	H7 FKK F11
6" - 160	8900	H1 FKJ F12	H1 FKK F12	H3 FKJ F12	H3 FKK F12	H5 FKJ F12	H5 FKK F12	H7 FKJ F12	H7 FKK F12

24VAC/DC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
1½" - 50	50	H2 FKJ F06	H2 FKK F06	H4 FKJ F06	H4 FKK F06	H6 FKJ F06	H6 FKK F06	H8 FKJ F06	H8 FKK F06
2" - 63	63	H2 FKJ F07	H2 FKK F07	H4 FKJ F07	H4 FKK F07	H6 FKJ F07	H6 FKK F07	H8 FKJ F07	H8 FKK F07
2½" - 75	2500	H2 FKJ F08	H2 FKK F08	H4 FKJ F08	H4 FKK F08	H6 FKJ F08	H6 FKK F08	H8 FKJ F08	H8 FKK F08
3" - 90	4200	H2 FKJ F09	H2 FKK F09	H4 FKJ F09	H4 FKK F09	H6 FKJ F09	H6 FKK F09	H8 FKJ F09	H8 FKK F09
4" - 110	4550	H2 FKJ F10	H2 FKK F10	H4 FKJ F10	H4 FKK F10	H6 FKJ F10	H6 FKK F10	H8 FKJ F10	H8 FKK F10
5" - 140	8150	H2 FKJ F11	H2 FKK F11	H4 FKJ F11	H4 FKK F11	H6 FKJ F11	H6 FKK F11	H8 FKJ F11	H8 FKK F11
6" - 160	8900	H2 FKJ F12	H2 FKK F12	H4 FKJ F12	H4 FKK F12	H6 FKJ F12	H6 FKK F12	H8 FKJ F12	H8 FKK F12

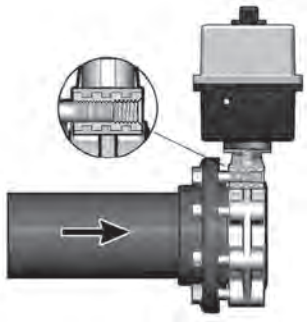
Product is lugged so can be used for end of line installation.

FKOV/CE LUG ANSI PVC-U
FKOM/CE LUG ANSI PP
FKOA/CE LUG ANSI ABS
FKOC/CE LUG ANSI Corzan



DN 40-100 DN 125-200 DN 250-300

FK Butterfly Valve - Electrically actuated Disc



d	DN	PN	B_2	B_7	T_1	T_2	T_3	H	Z	ØA	f	g	u
1½" - 50	-	-	-	-	-	-	-	-	-	-	-	-	-
2" - 63	-	-	-	-	-	-	-	-	-	-	-	-	-
2½" - 75	65	16	80	266	92	189	91	165	46	140	5/8" UNC	2500	4
3" - 90	80	16	93	308	128	204	92.5	185	49	153	5/8" UNC	4200	8
4" - 110	100	10	107	322	128	204	92.5	211	56	190	5/8" UNC	4550	8
5" - 140	125	10	120	425	-	-	-	240	64	216	3/4" UNC	8150	8
6" - 160	150	10	134	438	-	-	-	268	70	241	3/4" UNC	8900	8
8" - 225	200	10	161	485	-	-	-	323	71	298	3/4" UNC	11600	8
10" - 250	250	10	210	597	-	-	-	405	114	362	1" UNC	32000	12
12" - 315	300	8	245	654	-	-	-	475	114	432	1" UNC	39000	12

PVC-U

100 to 240vAC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
1½" - 50	50	H1 FKE X06	H1 FKF X06	H3 FKE X06	H3 FKF X06	H5 FKE X06	H5 FKF X06	H7 FKE X06	H7 FKF X06
2" - 63	63	H1 FKE X07	H1 FKF X07	H3 FKE X07	H3 FKF X07	H5 FKE X07	H5 FKF X07	H7 FKE X07	H7 FKF X07
2½" - 75		H1 FKE X08	H1 FKF X08	H3 FKE X08	H3 FKF X08	H5 FKE X08	H5 FKF X08	H7 FKE X08	H7 FKF X08
3" - 90		H1 FKE X09	H1 FKF X09	H3 FKE X09	H3 FKF X09	H5 FKE X09	H5 FKF X09	H7 FKE X09	H7 FKF X09
4" - 110		H1 FKE X10	H1 FKF X10	H3 FKE X10	H3 FKF X10	H5 FKE X10	H5 FKF X10	H7 FKE X10	H7 FKF X10
5" - 140		H1 FKE X11	H1 FKF X11	H3 FKE X11	H3 FKF X11	H5 FKE X11	H5 FKF X11	H7 FKE X11	H7 FKF X11
6" - 160		H1 FKE X12	H1 FKF X12	H3 FKE X12	H3 FKF X12	H5 FKE X12	H5 FKF X12	H7 FKE X12	H7 FKF X12
8" - 225		H1 FKE X13	H1 FKF X13	H3 FKE X13	H3 FKF X13	H5 FKE X13	H5 FKF X13	H7 FKE X13	H7 FKF X13

240VAC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
10" - 250	250	H1 FKE X14	H1 FKF X14	-	-	-	-	-	-
12" - 315	300	H1 FKE X15	H1 FKF X15	-	-	-	-	-	-

24VAC/DC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
1½" - 50		H2 FKE X06	H2 FKF X06	H4 FKE X06	H4 FKF X06	H6 FKE X06	H6 FKF X06	H8 FKE X06	H8 FKF X06
2" - 63		H2 FKE X07	H2 FKF X07	H4 FKE X07	H4 FKF X07	H6 FKE X07	H6 FKF X07	H8 FKE X07	H8 FKF X07
2½" - 75	65	H2 FKE X08	H2 FKF X08	H4 FKE X08	H4 FKF X08	H6 FKE X08	H6 FKF X08	H8 FKE X08	H8 FKF X08
3" - 90	80	H2 FKE X09	H2 FKF X09	H4 FKE X09	H4 FKF X09	H6 FKE X09	H6 FKF X09	H8 FKE X09	H8 FKF X09
4" - 110	100	H2 FKE X10	H2 FKF X10	H4 FKE X10	H4 FKF X10	H6 FKE X10	H6 FKF X10	H8 FKE X10	H8 FKF X10
5" - 140	125	H2 FKE X11	H2 FKF X11	H4 FKE X11	H4 FKF X11	H6 FKE X11	H6 FKF X11	H8 FKE X11	H8 FKF X11
6" - 160	150	H2 FKE X12	H2 FKF X12	H4 FKE X12	H4 FKF X12	H6 FKE X12	H6 FKF X12	H8 FKE X12	H8 FKF X12
8" - 225	200	H2 FKE X13	H2 FKF X13	H4 FKE X13	H4 FKF X13	H6 FKE X13	H6 FKF X13	H8 FKE X13	H8 FKF X13

FKOV/CE LUG ANSI PVC-U
FKOM/CE LUG ANSI PP
FKOA/CE LUG ANSI ABS
FKOC/CE LUG ANSI Corzan

ABS

100 to 240vAC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
1½" - 50		H1 FKA X06	H1 FKB X06	H3 FKA X06	H3 FKB X06	H5 FKA X06	H5 FKB X06	H7 FKA X06	H7 FKB X06
2" - 63		H1 FKA X07	H1 FKB X07	H3 FKA X07	H3 FKB X07	H5 FKA X07	H5 FKB X07	H7 FKA X07	H7 FKB X07
2½" - 75	65	H1 FKA X08	H1 FKB X08	H3 FKA X08	H3 FKB X08	H5 FKA X08	H5 FKB X08	H7 FKA X08	H7 FKB X08
3" - 90	80	H1 FKA X09	H1 FKB X09	H3 FKA X09	H3 FKB X09	H5 FKA X09	H5 FKB X09	H7 FKA X09	H7 FKB X09
4" - 110	100	H1 FKA X10	H1 FKB X10	H3 FKA X10	H3 FKB X10	H5 FKA X10	H5 FKB X10	H7 FKA X10	H7 FKB X10
5" - 140	125	H1 FKA X11	H1 FKB X11	H3 FKA X11	H3 FKB X11	H5 FKA X11	H5 FKB X11	H7 FKA X11	H7 FKB X11
6" - 160	150	H1 FKA X12	H1 FKB X12	H3 FKA X12	H3 FKB X12	H5 FKA X12	H5 FKB X12	H7 FKA X12	H7 FKB X12
8" - 225	200	H1 FKA X13	H1 FKB X13	H3 FKA X13	H3 FKB X13	H5 FKA X13	H5 FKB X13	H7 FKA X13	H7 FKB X13

240VAC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
10" - 250	250	H1 FKA X14	H1 FKB X14	-	-	-	-	-	-
12" - 315	315	H1 FKA X15	H1 FKB X15	-	-	-	-	-	-

24VAC/DC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
1½" - 50		H2 FKA X06	H2 FKB X06	H4 FKA X06	H4 FKB X06	H6 FKA X06	H6 FKB X06	H8 FKA X06	H8 FKB X06
2" - 63		H2 FKA X07	H2 FKB X07	H4 FKA X07	H4 FKB X07	H6 FKA X07	H6 FKB X07	H8 FKA X07	H8 FKB X07
2½" - 75	65	H2 FKA X08	H2 FKB X08	H4 FKA X08	H4 FKB X08	H6 FKA X08	H6 FKB X08	H8 FKA X08	H8 FKB X08
3" - 90	80	H2 FKA X09	H2 FKB X09	H4 FKA X09	H4 FKB X09	H6 FKA X09	H6 FKB X09	H8 FKA X09	H8 FKB X09
4" - 110	100	H2 FKA X10	H2 FKB X10	H4 FKA X10	H4 FKB X10	H6 FKA X10	H6 FKB X10	H8 FKA X10	H8 FKB X10
5" - 140	125	H2 FKA X11	H2 FKB X11	H4 FKA X11	H4 FKB X11	H6 FKA X11	H6 FKB X11	H8 FKA X11	H8 FKB X11
6" - 160	150	H2 FKA X12	H2 FKB X12	H4 FKA X12	H4 FKB X12	H6 FKA X12	H6 FKB X12	H8 FKA X12	H8 FKB X12
8" - 225	200	H2 FKA X13	H2 FKB X13	H4 FKA X13	H4 FKB X13	H6 FKA X13	H6 FKB X13	H8 FKA X13	H8 FKB X13

FKOV/CE LUG ANSI PVC-U
FKOM/CE LUG ANSI PP
FKOA/CE LUG ANSI ABS
FKOC/CE LUG ANSI Corzan

PP

100 to 240vAC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
1½" - 50		H1 FKN 106	H1 FKP X06	H3 FKN X06	H3 FKP X06	H5 FKN X06	H5 FKP X06	H7 FKN X06	H7 FKP X06
2" - 63		H1 FKN X07	H1 FKP X07	H3 FKN X07	H3 FKP X07	H5 FKN X07	H5 FKP X07	H7 FKN X07	H7 FKP X07
2½" - 75	65	H1 FKN X08	H1 FKP X08	H3 FKN X08	H3 FKP X08	H5 FKN X08	H5 FKP X08	H7 FKN X08	H7 FKP X08
3" - 90	80	H1 FKN X09	H1 FKP X09	H3 FKN X09	H3 FKP X09	H5 FKN X09	H5 FKP X09	H7 FKN X09	H7 FKP X09
4" - 110	100	H1 FKN X10	H1 FKP X10	H3 FKN X10	H3 FKP X10	H5 FKN X10	H5 FKP X10	H7 FKN X10	H7 FKP X10
5" - 140	125	H1 FKN X11	H1 FKP X11	H3 FKN X11	H3 FKP X11	H5 FKN X11	H5 FKP X11	H7 FKN X11	H7 FKP X11
6" - 160	150	H1 FKN X12	H1 FKP X12	H3 FKN X12	H3 FKP X12	H5 FKN X12	H5 FKP X12	H7 FKN X12	H7 FKP X12
8" - 225	200	H1 FKN X13	H1 FKP X13	H3 FKN X13	H3 FKP X13	H5 FKN X13	H5 FKP X13	H7 FKN X13	H7 FKP X13

240VAC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
10" - 250	250	H1 FKN X14	H1 FKP X14	-	-	-	-	-	-
12" - 315	315	H1 FKN X15	H1 FKP X15	-	-	-	-	-	-

24VAC/DC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
1½" - 50		H2 FKN X06	H2 FKP X06	H4 FKN X06	H4 FKP X06	H6 FKN X06	H6 FKP X06	H8 FKN X06	H8 FKP X06
2" - 63		H2 FKN X07	H2 FKP X07	H4 FKN X07	H4 FKP X07	H6 FKN X07	H6 FKP X07	H8 FKN X07	H8 FKP X07
2½" - 75	65	H2 FKN X08	H2 FKP X08	H4 FKN X08	H4 FKP X08	H6 FKN X08	H6 FKP X08	H8 FKN X08	H8 FKP X08
3" - 90	80	H2 FKN X09	H2 FKP X09	H4 FKN X09	H4 FKP X09	H6 FKN X09	H6 FKP X09	H8 FKN X09	H8 FKP X09
4" - 110	100	H2 FKN X10	H2 FKP X10	H4 FKN X10	H4 FKP X10	H6 FKN X10	H6 FKP X10	H8 FKN X10	H8 FKP X10
5" - 140	125	H2 FKN X11	H2 FKP X11	H4 FKN X11	H4 FKP X11	H6 FKN X11	H6 FKP X11	H8 FKN X11	H8 FKP X11
6" - 160	150	H2 FKN X12	H2 FKP X12	H4 FKN X12	H4 FKP X12	H6 FKN X12	H6 FKP X12	H8 FKN X12	H8 FKP X12
8" - 225	200	H2 FKN X13	H2 FKP X13	H4 FKN X13	H4 FKP X13	H6 FKN X13	H6 FKP X13	H8 FKN X13	H8 FKP X13

Corzan

100 to 240vAC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
1½" - 50		H1 FKJ X06	H1 FKK X06	H3 FKJ X06	H3 FKK X06	H5 FKJ X06	H5 FKK X06	H7 FKJ X06	H7 FKK X06
2" - 63		H1 FKJ X07	H1 FKK X07	H3 FKJ X07	H3 FKK X07	H5 FKJ X07	H5 FKK X07	H7 FKJ X07	H7 FKK X07
2½" - 75	65	H1 FKJ X08	H1 FKK X08	H3 FKJ X08	H3 FKK X08	H5 FKJ X08	H5 FKK X08	H7 FKJ X08	H7 FKK X08
3" - 90	80	H1 FKJ X09	H1 FKK X09	H3 FKJ X09	H3 FKK X09	H5 FKJ X09	H5 FKK X09	H7 FKJ X09	H7 FKK X09
4" - 110	100	H1 FKJ X10	H1 FKK X10	H3 FKJ X10	H3 FKK X10	H5 FKJ X10	H5 FKK X10	H7 FKJ X10	H7 FKK X10
5" - 140	125	H1 FKJ X11	H1 FKK X11	H3 FKJ X11	H3 FKK X11	H5 FKJ X11	H5 FKK X11	H7 FKJ X11	H7 FKK X11
6" - 160	150	H1 FKJ X12	H1 FKK X12	H3 FKJ X12	H3 FKK X12	H5 FKJ X12	H5 FKK X12	H7 FKJ X12	H7 FKK X12

24VAC/DC

d	gms	STANDARD EPDM Code	STANDARD FPM Code	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	4 TO 20mA POSITIONING EPDM Code	4 TO 20mA POSITIONING FPM Code
1½" - 50		H2 FKJ X06	H2 FKK X06	H4 FKJ X06	H4 FKK X06	H6 FKJ X06	H6 FKK X06	H8 FKJ X06	H8 FKK X06
2" - 63		H2 FKJ X07	H2 FKK X07	H4 FKJ X07	H4 FKK X07	H6 FKJ X07	H6 FKK X07	H8 FKJ X07	H8 FKK X07
2½" - 75	65	H2 FKJ X08	H2 FKK X08	H4 FKJ X08	H4 FKK X08	H6 FKJ X08	H6 FKK X08	H8 FKJ X08	H8 FKK X08
3" - 90	80	H2 FKJ X09	H2 FKK X09	H4 FKJ X09	H4 FKK X09	H6 FKJ X09	H6 FKK X09	H8 FKJ X09	H8 FKK X09
4" - 110	100	H2 FKJ X10	H2 FKK X10	H4 FKJ X10	H4 FKK X10	H6 FKJ X10	H6 FKK X10	H8 FKJ X10	H8 FKK X10
5" - 140	125	H2 FKJ X11	H2 FKK X11	H4 FKJ X11	H4 FKK X11	H6 FKJ X11	H6 FKK X11	H8 FKJ X11	H8 FKK X11
6" - 160	150	H2 FKJ X12	H2 FKK X12	H4 FKJ X12	H4 FKK X12	H6 FKJ X12	H6 FKK X12	H8 FKJ X12	H8 FKK X12

Actuators: 1½" - d50 to 2½" - d75

Electric actuator with plastic housing

Voltage: 100 to 240vAC
24vAC/DC

Temperature: -10ºC to +40ºC

Electrical connections

Power supply: DIN 43650 3P+T Plug
Feedback: ISO M20 Gland

Standard equipment

- Emergency manual override
- Visual position indicator
- 2 Auxiliary (and adjustable) limit switches
- Electronic torque limiter
- Anti-condensation heater
- IP66 ingress protection

Actuator options

Power to Open / Power to Close

Fail Safe Closed / Fail Safe Open

4 to 20 mA Positioning

Additional options

- IP 67 Actuator
- ATEX EExd Actuator

Please contact the Durapipe Valve Department for further information.

	DC	AC/DC
Power supply	24V	100 to 240V
Power	15W	15W
Working time	12 sec	12 sec
Duty rating	50%	50%
Protection	IP66	IP66

Actuators: 3" - d90 to 4" - d110

Electric actuator with plastic housing

Voltage: 100 to 240vAC
24vAC/DC

Temperature: -10ºC to +40ºC

Electrical connections

Power supply: DIN 43650 3P+T Plug
Feedback: ISO M20 Gland

Standard equipment

- Emergency manual override
- Visual position indicator
- 2 Auxiliary (and adjustable) limit switches
- Electronic torque limiter
- Anti-condensation heater
- IP66 ingress protection

Actuator options

Power to Open / Power to Close

Fail Safe Closed / Fail Safe Open

4 to 20 mA Positioning

Additional options

- IP 67 Actuator
- ATEX EExd Actuator

Please contact the Durapipe Valve Department for further information.

	DC	AC/DC
Power supply	24V	100 to 240V
Power	15W	15W
Working time	12 sec	12 sec
Duty rating	50%	50%
Protection	IP66	IP66

Actuators: 5" - d125 to 6" - d160

Electric actuator with plastic housing

Voltage: 100 to 240vAC
24vAC/DC

Temperature: -20°C to +70°C (Fail Safe -10°C to +40°C)

Electrical connections

Power supply: ISO M20 Gland
Feedback: ISO M20 Gland

Standard equipment

- Emergency manual override
- Visual position indicator
- 2 Auxiliary (and adjustable) limit switches
- Electronic torque limiter
- Anti-condensation heater
- IP67 ingress protection

Actuator options

Power to Open / Power to Close

Fail Safe Closed / Fail Safe Open

4 to 20 mA Positioning

Additional options

• ATEX EExd Actuator

Please contact the Durapipe Valve Department for further information.

	DC	AC/DC
Power supply	24V	100 to 240V
Power	45W	45W
Working time	30 sec	30 sec
Duty rating	50%	50%
Protection	IP66	IP66

Actuators: 8" - d200/d225

Electric actuator with plastic housing

Voltage: 100 to 240vAC
24vAC/DC

Temperature: -20°C to +70°C (Fail Safe -10°C to +40°C)

Electrical connections

Power supply: ISO M20 Gland
Feedback: ISO M20 Gland

Standard equipment

- Emergency manual override
- Visual position indicator
- 2 Auxiliary (and adjustable) limit switches
- Electronic torque limiter
- Anti-condensation heater
- IP67 ingress protection

Actuator options

Power to Open / Power to Cose

Fail Safe Closed / Fail Safe Open

4 to 20 mA Positioning

Additional options

• ATEX EExd Actuator

Please contact the Durapipe Valve Department for further information.

	DC	AC/DC
Power supply	24V	100 to 240V
Power	45W	45W
Working time	30 sec	30 sec
Duty rating	50%	50%
Protection	IP66	IP66

Actuators: 10" - d250 to 12" - d315

Electric actuator with plastic housing

Voltage: 240vAC
Temperature: -20°C to +70°C

Electrical connections

Power supply: ISO M20 Gland
Feedback: ISO M20 Gland

Standard equipment

- Emergency manual override
- Visual position indicator
- 2 Auxiliary (and adjustable) limit switches
- Electronic torque limiter
- Anti-condensation heater
- IP67 ingress protection

Actuator options

Power to Open / Power to Close

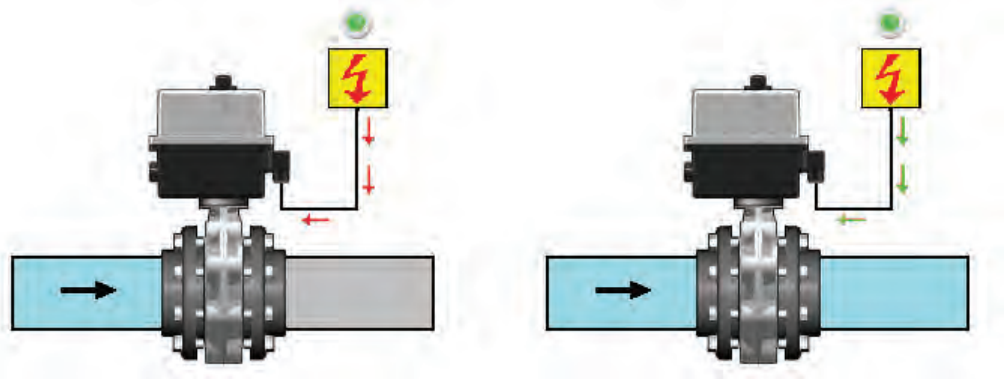
Please contact the Durapipe Valve Department for further information.

	AC
Power supply	240V
Power	250W
Working time	38 sec
Duty rating	50%
Protection	IP66

Operating Principle

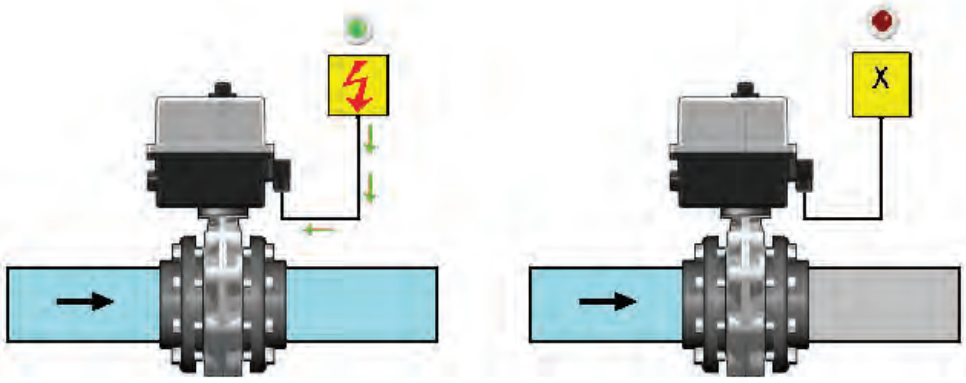
STD Standard

Power is required to drive the actuator to the open and closed position. If there is an interruption in the power supply, the actuator will remain in its position at the point of power failure.



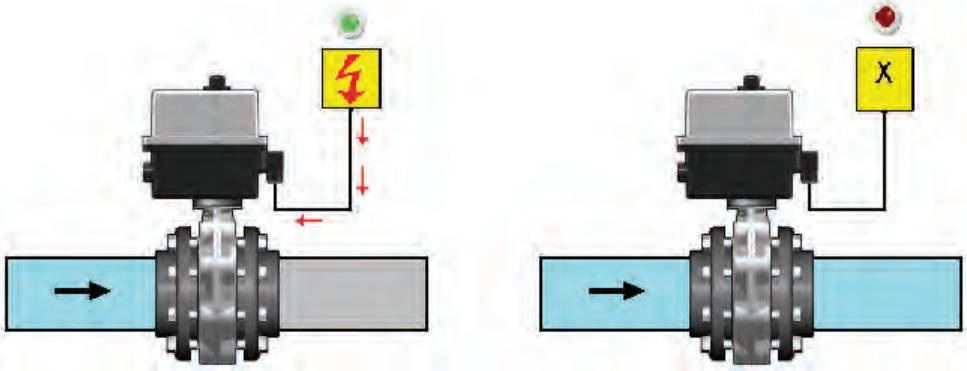
FAIL SAFE Fail Safe Closed

Power is required to drive the actuator to the open and closed position. If there is an interruption in the power supply, the actuator will drive to the closed position under its own internal battery power.



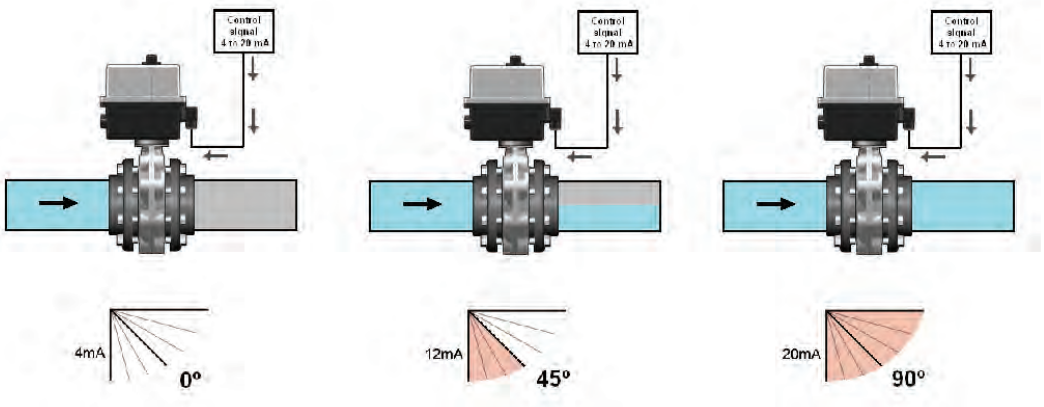
FAIL SAFE Fail Safe Open

Power is required to drive the actuator to the open and closed position. If there is an interruption in the power supply, the actuator will drive to the open position under its own internal battery power.



POSI 4 to 20 mA Positioning

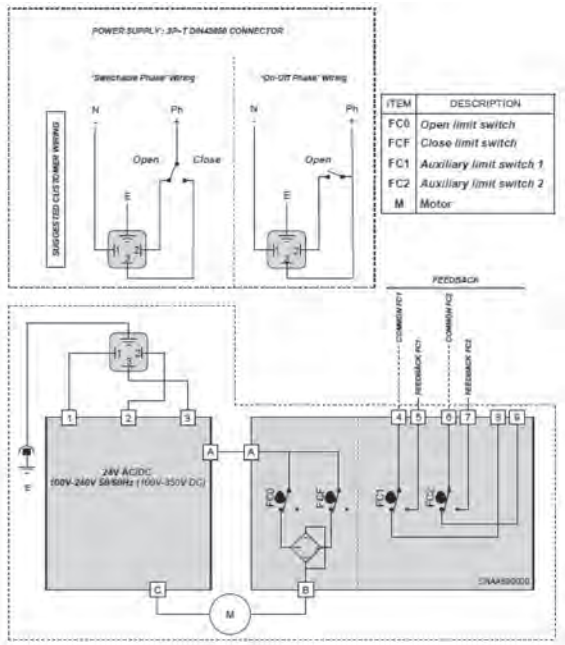
Power is required to be supplied to the actuator. The actuator opens/closes when control signal is applied. Valve position is in relation to the mA/voltage signal provided.



Wiring Diagrams

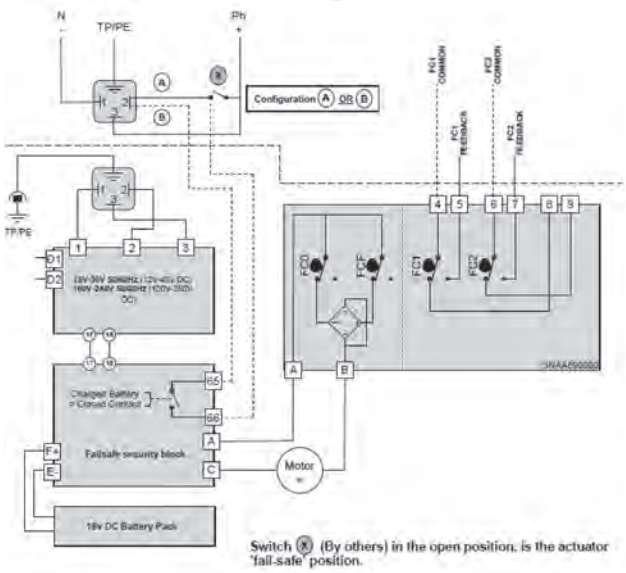
1½" - d40 to 8" - d200/d225

STD



1½" - d40 to 8" - d200/d225

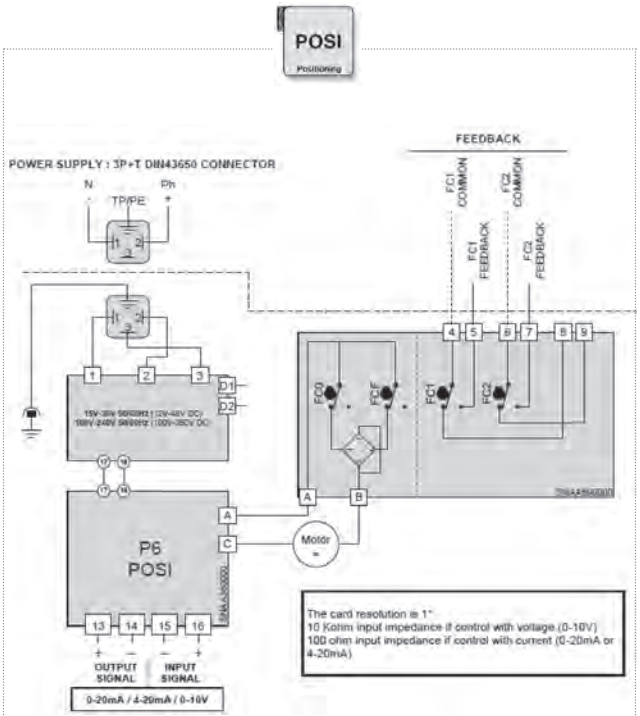
FAIL SAFE



Configuration A or B :
A - Standard mode: Terminals 65 and 66 can be connected to indicate the battery status.
B - Full safety mode: Connecting the feedback relay terminals 65 and 66, as per the option B wiring diagram: The actuator will only open if the security block is functioning (sufficient charge, initialized card).

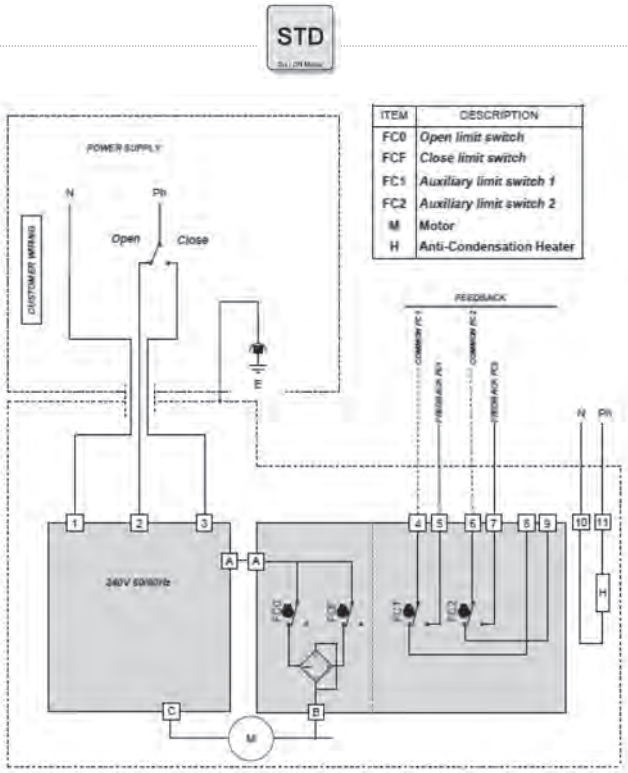
1½" - d40 to 8" - d200/d225

POSI



10" - d250 to 12" - d315

STD



Disassembly (1½" - d40 to 2" - d63)

1. Remove the protection cap (5) and undo and remove the retaining screw (4) and washer (3).
2. Remove the Actuator (1) and mounting plate (2) from the body (6).
3. Remove the protection cap (9) and undo & remove the screw and washer (8 & 7).
4. Extract the shaft (15) and remove the disc (17).
5. Remove the shaft O-rings (13 & 14) from the shaft (15).
6. Remove the anti-friction rings (19).
7. Remove the primary liner (16) from the valve body (6).

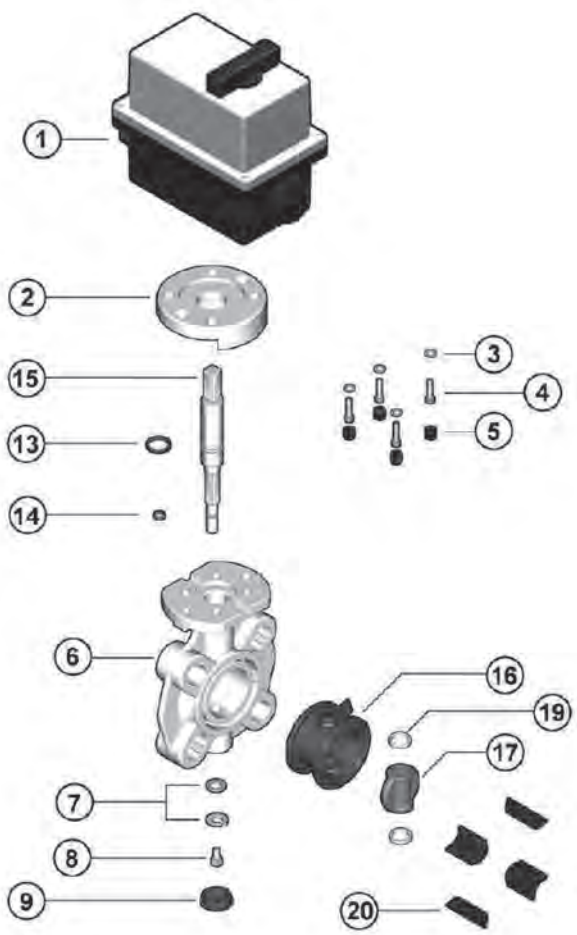
Assembly (1½" - d40 to 2" - d63)

1. Fit the primary liner (16) to the valve body (6).
2. Refit the shaft O-rings (13 & 14) onto the shaft (15).
3. Fit the anti-friction rings (19) onto the disc (17)
4. Lubricate the liner and insert the disc into the valve body (6) / liner (16).
5. Push the shaft (15) into the body (6) and through the disc (17).
6. Refit the screw (8) and washer (7) and tighten. Push in the protection cap (9).
7. Place the mounting plate (2) onto the body (6) then the actuator (2) onto the plate and hold in place with the screws and washers (4 & 13) push on the protection caps (5).

Note: For technical information on valve bracketing and supports, connections to a system, assembly and disassembly refer to page 112 within the manual valves section.

Note: When assembling the valve components, it is advisable to lubricate the O-rings. Do not use mineral oils as they attack EPDM rubber.

1½" - d40 to 2" - d63



Position	Components	Material
1*	Actuator	PA6.6
2*	Mounting Plate	PP-GR
3	Washer	Stainless steel
4	Screw	Stainless steel
5	Protection Cap	PE
6	Body	PP-GR
7	Washer	Stainless steel
8	Screw	Stainless steel
9	Protection Cap	PE
13*	Shaft O-ring	EPDM or FPM
14*	Shaft O-ring	EPDM or FPM
15	Shaft	Stainless steel
16*	Primary Liner	EPDM or FPM
17	Disc	Valve Material
19	Anti-friction Ring	PTFE
20	Cantering Inserts	ABS

*Spare Parts

Disassembly (2½"- d75 to 8" - d225)

1. Remove the protection cap (5) and undo and remove the retaining screw (4) and washer (3).
2. Remove the Actuator (1) and mounting plate (2) from the body (6).
3. Remove the protection cap (9) and undo & remove the screw and washer (8 & 7).
4. Extract the shaft (15) and remove the disc (17).
5. Remove the shaft O-rings (13 & 14) from the shaft (15).
6. Remove the anti-friction rings (19) and the O-rings (18).
7. Remove the circlip (10) and the bush (12) and bush O-rings (11).
8. Remove the primary liner (16) from the valve body (6).

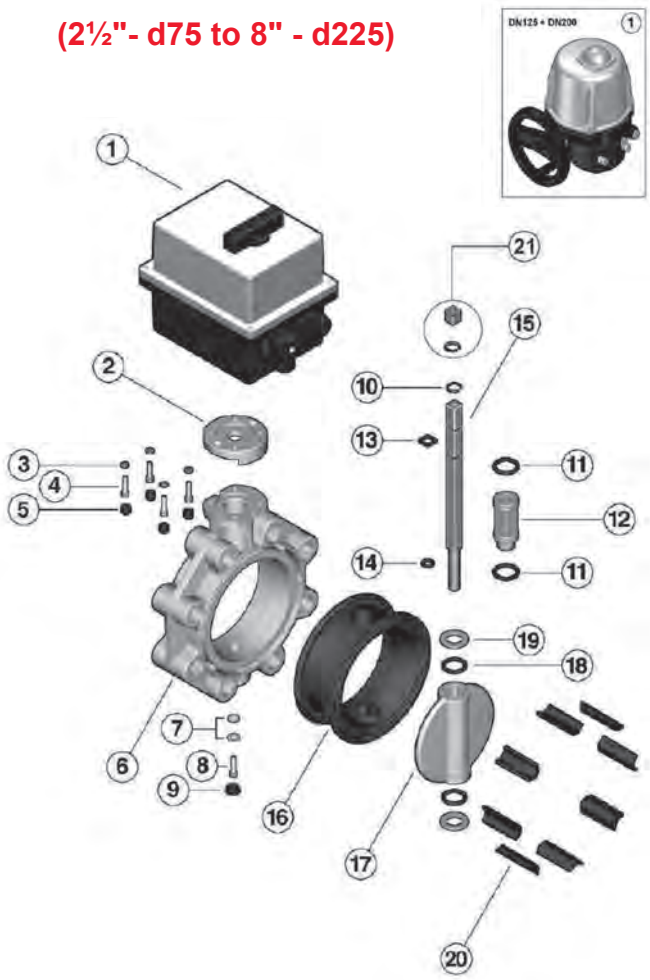
Assembly (2½"- d75 to 8" - d225)

1. Fit the primary liner (16) to the valve body (6).
2. Refit the shaft O-rings (13 & 14) onto the shaft (15).
3. Fit the O-rings (11) to the bush (12). Fit the bush onto the shaft (15) and fix in place with the circlip (10).
4. Fit the anti-friction rings (19) and O-rings (18) onto the disc (17)
5. Lubricate the liner and insert the disc into the valve body (6) / liner (16).
6. Push the shaft (15) into the body (6) and through the disc (17).
7. Refit the screw (8) and washer (7) and tighten. Push in the protection cap (9).
8. Place the mounting plate (2) onto the body (6) then the actuator (2), with reducing bush (21) onto the plate and hold in place with the screws and washers (4 & 13) push on the protection caps (5).

Note: For technical information on valve bracketing and supports, connections to a system, assembly and disassembly refer to page 112 within the manual valves section.

Note: When assembling the valve components, it is advisable to lubricate the O-rings. Do not use mineral oils as they attack EPDM rubber.

(2½"- d75 to 8" - d225)



Position	Components	Material
1*	Actuator	PA6.6
2*	Mounting Plate	PP-GR
3	Washer	Stainless Steel
4	Screw	Stainless Steel
5	Protection Cap	PE
6	Body	PP-GR
7	Washer	Stainless Steel
8	Screw	Stainless Steel
9	Protection Cap	PE
10	Circlip	Stainless Steel
11*	Bush O-ring	EPDM or FPM
12	Bush	Nylon
13*	Shaft O-ring	EPDM or FPM
14*	Shaft O-ring	EPDM or FPM
15	Shaft	Stainless steel
16*	Primary Liner	EPDM or FPM
17	Disc	Valve Material
18*	Disc O-ring	EPDM or FPM
19	Anti-friction Ring	PTFE
20	Inserts	ABS
21	Reducing Bush	Stainless Steel

*Spare Parts

Disassembly
(10"- d250 to 12" - d315)

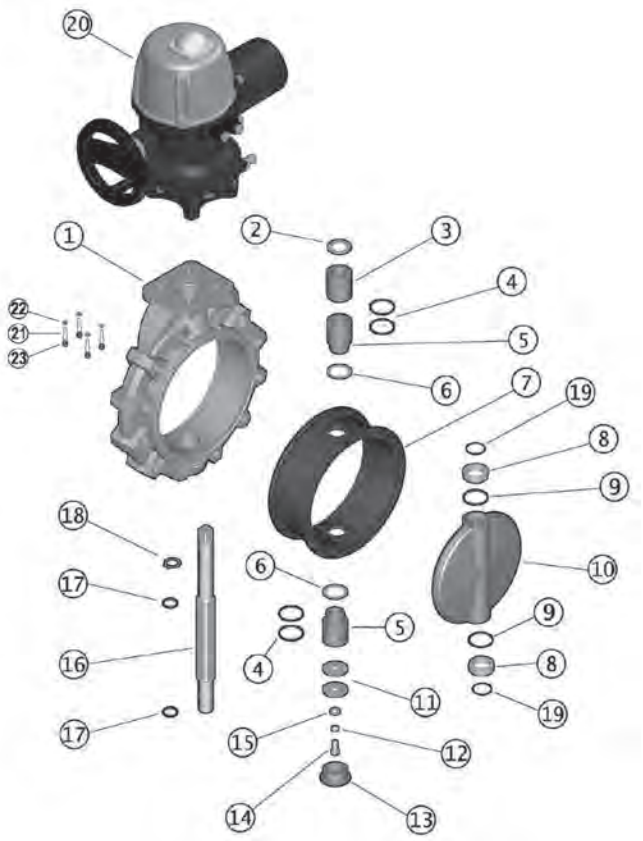
1. Remove the protection caps (23) and undo and remove the screws (21) and washers (22).
2. Extract the Actuator (20) from the shaft (16).
3. Remove the protection cap (13) and undo and remove the retaining screw (14) and washers (11, 12 & 15).
4. Extract the shaft (16) and remove the disc (10).
5. Remove the shaft O-rings (17) from the shaft (16).
6. Remove the anti-friction rings (8) and the O-rings (9 & 19).
7. Remove the circlip (18) and the bushes (3 & 5) with the washer (2).
8. Remove the O-rings (4) and washers (6).
9. Remove the primary liner (7) from the valve body (1).

Assembly
(10"- d250 to 12" - d315)

1. Fit the primary liner (7) to the valve body (1).
2. Refit the O-rings (4) and the washers (6) onto the bushes (5).
3. Refit the shaft O-rings (17) onto the shaft (16). Fit the upper bus (5), bush (3) and washer (2) onto the shaft (16) and fix in place with the circlip (18).
4. Fit the anti-friction rings (8) and O-rings (9 & 8) onto the disc (10).
5. Lubricate the liner and insert the disc into the valve body (1) / liner (7).
6. Push the shaft (16) into the body (1) and through the disc (10).
7. Refit the washer (6) and bottom bush (5) into the valve body (1), from the underside.
8. Refit the screw (14) and washers (11, 12 & 15) and tighten. Push in the protection cap (13).
9. Refit the actuator (20) to the shaft (16), ensuring the actuator opening position and disc position match.
10. Insert the screws (21) and washers (22) then tighten. Push on the protective caps (23).

Note: When assembling the valve components, it is advisable to lubricate the O-rings. Do not use mineral oils as they attack EPDM rubber.

(10"- d250 to 12" - d315)



Position	Components	Material
1	Body	PP-GR
2	Washer	Stainless Steel
3	Bush	PP
4	Bush O-ring	EPDM or FPM
5	Bush	PP
6	Washer	Stainless Steel
7	Primary Liner	EPDM or FPM
8	Anti-friction Ring	PTFE
9	Disc O-ring	EPDM or FPM
10	Disc	Valve Material
11	Washer	Stainless Steel
12	Washer	Stainless Steel
13	Protection Cap	PE
14	Screw	Stainless Steel
15	Washer	Stainless Steel
16	Shaft	Stainless Steel
17	Shaft O-ring	EPDM or FPM
18	Circlip	Stainless Steel
19	O-ring	EPDM or FPM
20	Actuator	Aluminium
21	Screw	Stainless Steel
22	Washer	Stainless Steel
23	Protection Cap	PE

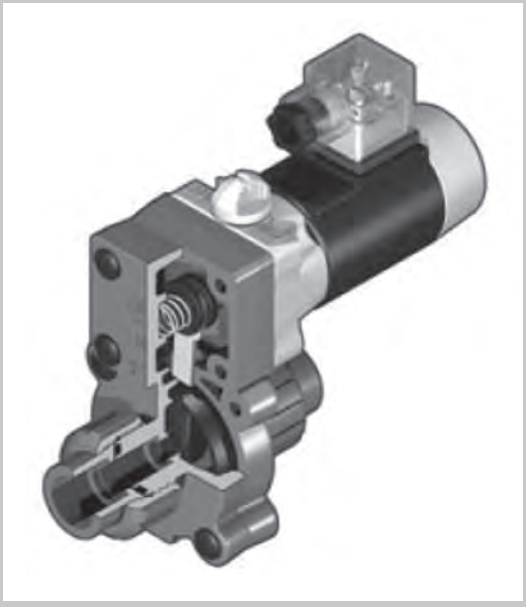
Tel: +44 (0)1543 471680 Fax: +44 (0)1543 471682

S1 - S2 2-way Solenoid Valve

- PVC-U double union body
- Two body sizes available : S1 Small body, S2 Large body
- Easy to install and maintain. Designed to exceed 5 million cycles without maintenance
- IP65 Protection class
- Intergrated manual override
- EPDM or FPM Lever type shutter with stainless steel lever
- DIN 43650 Electrical connector supplied as standard with LED indicator and built in rectifier (for AC coil)
- Corrosion resistant: Metallic parts isolated from fluids and external environment. All fixings are protected by PE caps
- For more information, please visit our website **www.durapipe.co.uk**

Legend

d	Nominal outside diameter
DN	Nominal internal diameter
R	Nominal size or the thread in inches
PN	Nominal pressure in bar (max.working Pressure at 20°C - water)
gms	Weight in grams
PVC-U	Polyvinyl chloride unplasticised
GRPP	Glass reinforced polypropylene
PE	Polyethylene
PTFE	Polytetrafluoroethylene
EPDM	Ethylene Propylene Diene Monomer (M-class) rubber
FPM	Fluorocarbon Rubber



Dimensions and Standards

Imperial
The Imperial System is manufactured in accordance with the relevant British Standards: BS 5392 fittings.

Metric
The Metric System is manufactured generally in accordance with the relevant International Standards: ISO 15493, KIWA 49 and 549, DIN 8062 and 8063.

BSP Thread
Threaded fittings conform to the requirements of BS 21/DIN 2999/ISO7. Socket dimensions of metric fittings for solvent welding comply with ISO/DIS 727-1.

Interchangeability
Components in the imperial and metric ranges are not interchangeable.

Technical Data

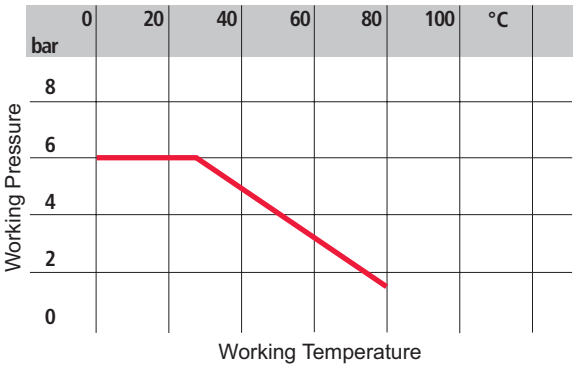
S1 - Small body series			
DN	4	6	8
PN	6	4	2
K_V (l/min)*	6.7	12.1	15.3

* ΔP 1 bar

Flow coefficient K_V. S1 - small body series
K_V (l/min) is the number of litres per minute of water at a temperature of 20ºC that will flow through a valve with a one bar pressure differential at a specified rate. The K_V (l/min) values shown in the table are calculated with the valve fully open.

S2 - Large body series			
DN	8	10	15
PN	6	4	2
K_V (l/min),	27.5	34.2	58.3

Flow coefficient K_V. S2 - large body series
K_V (l/min) is the number of litres per minute of water at a temperature of 20ºC that will flow through a valve with a one bar pressure differential at a specified rate. The K_V (l/min) values shown in the table are calculated with the valve fully open.



Pressure/temperature rating for water and harmless fluids to which the material is RESISTANT. In other cases a reduction of the PN is required. (25 years with safety factor).

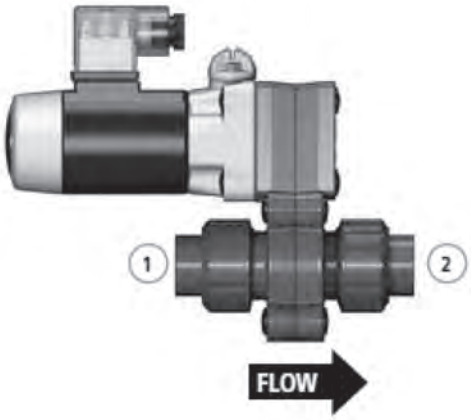
Position	Components
Operating principle	Lever type shutter
Control Function	Normally closed
Body material	PVC-U
Seal material	EPDM or FPM
Maximum allowable ambient temperature	50°C
Maximum allowable fluid viscosity	38 cSt
Duty cycle	100% ED
Closing time	~ 20 ms
Opening time	~ 20 ms
Available AC operating voltages	24V, 110V, 240V
Frequency	50/60 Hz
Available DC operating voltages	12V, 24V
Voltage allowance	± 10%
Power consumption: S1 series (small body)	10W
Power consumption: S2 series (large body)	20W
Protection class	IP65
Electrical connection	DIN 43650 connector with LED(1)
Coil thermal class	F (155°C)

(1) Connector with integrated rectifier for AC voltage input

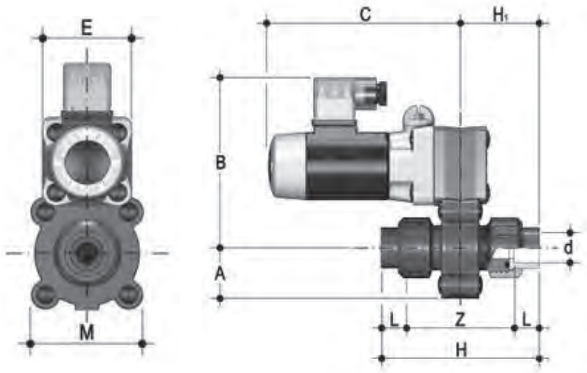
Control Function

De-energised solenoid coil

Energised solenoid coil



BS Series Female Ends



S12LV - S22LV PVC-U

2/2-way solenoid valve with BS series female ends for solvent welding

S1 Series - Small body

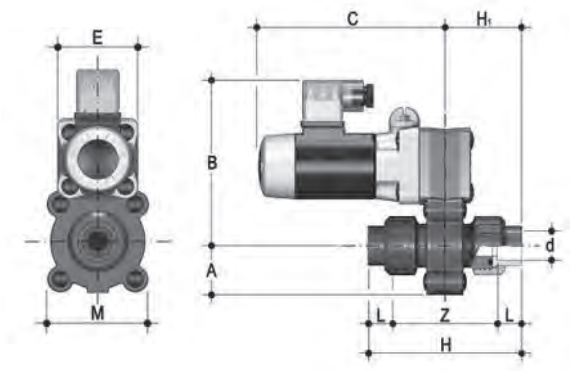
												PVC-U		
d	DN	Voltage	A	B	C	E	H	H_1	L	M	Z	gms	EPDM Code	FPM Code
3/8"	4	240V AC	24	100	103	42	88	44	14	52	60	400	H1A04A01	H1B04A01
3/8"	4	110V AC	24	100	103	42	88	44	14	52	60	400	H1A04B01	H1B04B01
3/8"	4	24V AC	24	100	103	42	88	44	14	52	60	400	H1A04C01	H1B04C01
3/8"	4	24V DC	24	100	103	42	88	44	14	52	60	400	H1A04E01	H1B04E01
3/8"	4	12V DC	24	100	103	42	88	44	14	52	60	400	H1A04F01	H1B04F01
3/8"	6	240V AC	24	100	103	42	88	44	14	52	60	400	H1A06A01	H1B06A01
3/8"	6	110V AC	24	100	103	42	88	44	14	52	60	400	H1A06B01	H1B06B01
3/8"	6	24V AC	24	100	103	42	88	44	14	52	60	400	H1A06C01	H1B06C01
3/8"	6	24V DC	24	100	103	42	88	44	14	52	60	400	H1A06E01	H1B06E01
3/8"	6	12V DC	24	100	103	42	88	44	14	52	60	400	H1A06F01	H1B06F01
3/8"	8	240V AC	24	100	103	42	88	44	14	52	60	400	H1A08A01	H1B08A01
3/8"	8	110V AC	24	100	103	42	88	44	14	52	60	400	H1A08B01	H1B08B01
3/8"	8	24V AC	24	100	103	42	88	44	14	52	60	400	H1A08C01	H1B08C01
3/8"	8	24V DC	24	100	103	42	88	44	14	52	60	400	H1A08E01	H1B08E01
3/8"	8	12V DC	24	100	103	42	88	44	14	52	60	400	H1A08F01	H1B08F01

1/4" Available on request please contact the Valve Department for details.

S2 Series - Large body

												PVC-U		
d	DN	Voltage	A	B	C	E	H	H_1	L	M	Z	gms	EPDM Code	FPM Code
3/8"	8	240V AC	34	115	130	54	99	50	14	67	71	1000	H2A08A01	H2B08A01
3/8"	8	110V AC	34	115	130	54	99	50	14	67	71	1000	H2A08B01	H2B08B01
3/8"	8	24V AC	34	115	130	54	99	50	14	67	71	1000	H2A08C01	H2B08C01
3/8"	8	24V DC	34	115	130	54	99	50	14	67	71	1000	H2A08E01	H2B08E01
3/8"	8	12V DC	34	115	130	54	99	50	14	67	71	1000	H2A08F01	H2B08F01
3/8"	10	240V AC	34	115	130	54	99	50	14	67	71	1000	H2A10A01	H2B10A01
3/8"	10	110V AC	34	115	130	54	99	50	14	67	71	1000	H2A10B01	H2B10B01
3/8"	10	24V AC	34	115	130	54	99	50	14	67	71	1000	H2A10C01	H2B10C01
3/8"	10	24V DC	34	115	130	54	99	50	14	67	71	1000	H2A10E01	H2B10E01
3/8"	10	12V DC	34	115	130	54	99	50	14	67	71	1000	H2A10F01	H2B10F01
1/2"	10	240V AC	34	115	130	54	104	52	16.5	67	71	1000	H2A10A02	H2B10A02
1/2"	10	110V AC	34	115	130	54	104	52	16.5	67	71	1000	H2A10B02	H2B10B02
1/2"	10	24V AC	34	115	130	54	104	52	16.5	67	71	1000	H2A10C02	H2B10C02
1/2"	10	24V DC	34	115	130	54	104	52	16.5	67	71	1000	H2A10E02	H2B10E02
1/2"	10	12V DC	34	115	130	54	104	52	16.5	67	71	1000	H2A10F02	H2B10F02
1/2"	15	240V AC	34	115	130	54	104	52	16.5	67	71	1000	H2A15A02	H2B15A02
1/2"	15	110V AC	34	115	130	54	104	52	16.5	67	71	1000	H2A15B02	H2B15B02
1/2"	15	24V AC	34	115	130	54	104	52	16.5	67	71	1000	H2A15C02	H2B15C02
1/2"	15	24V DC	34	115	130	54	104	52	16.5	67	71	1000	H2A15E02	H2B15E02
1/2"	15	12V DC	34	115	130	54	104	52	16.5	67	71	1000	H2A15F02	H2B15F02

Metric Series Female Ends



S12IV - S22IV PVC-U

2/2-way solenoid valve with Metric series female ends for solvent welding

S1 Series - Small body

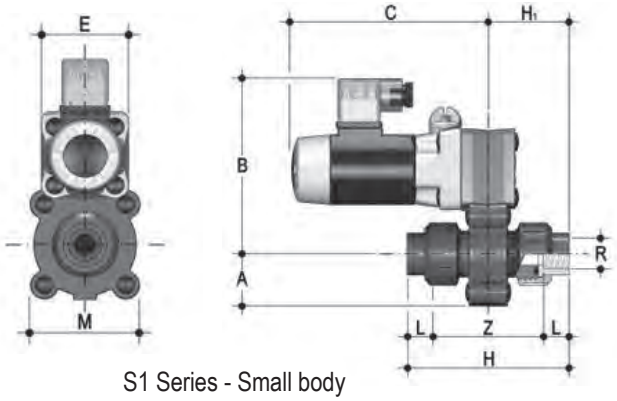
												PVC-U		
d	DN	Voltage	A	B	C	E	H	H_1	L	M	Z	gms	EPDM Code	FPM Code
16mm	4	240V AC	24	100	103	42	88	44	14	52	60	400	H1A04A05	H1B04A05
16mm	4	110V AC	24	100	103	42	88	44	14	52	60	400	H1A04B05	H1B04B05
16mm	4	24V AC	24	100	103	42	88	44	14	52	60	400	H1A04C05	H1B04C05
16mm	4	24V DC	24	100	103	42	88	44	14	52	60	400	H1A04E05	H1B04E05
16mm	4	12V DC	24	100	103	42	88	44	14	52	60	400	H1A04F05	H1B04F05
16mm	6	240V AC	24	100	103	42	88	44	14	52	60	400	H1A06A05	H1B06A05
16mm	6	110V AC	24	100	103	42	88	44	14	52	60	400	H1A06B05	H1B06B05
16mm	6	24V AC	24	100	103	42	88	44	14	52	60	400	H1A06C05	H1B06C05
16mm	6	24V DC	24	100	103	42	88	44	14	52	60	400	H1A06E05	H1B06E05
16mm	6	12V DC	24	100	103	42	88	44	14	52	60	400	H1A06F05	H1B06F05
16mm	8	240V AC	24	100	103	42	88	44	14	52	60	400	H1A08A05	H1B08A05
16mm	8	110V AC	24	100	103	42	88	44	14	52	60	400	H1A08B05	H1B08B05
16mm	8	24V AC	24	100	103	42	88	44	14	52	60	400	H1A08C05	H1B08C05
16mm	8	24V DC	24	100	103	42	88	44	14	52	60	400	H1A08E05	H1B08E05
16mm	8	12V DC	24	100	103	42	88	44	14	52	60	400	H1A08F05	H1B08F05

10mm and 12mm options are available on request please contact the Valve Department for details.

S2 Series - Large body

												PVC-U		
d	DN	Voltage	A	B	C	E	H	H_1	L	M	Z	gms	EPDM Code	FPM Code
16mm	8	240V AC	34	115	130	54	99	50	14	67	71	1000	H2A08A05	H2B08A05
16mm	8	110V AC	34	115	130	54	99	50	14	67	71	1000	H2A08B05	H2B08B05
16mm	8	24V AC	34	115	130	54	99	50	14	67	71	1000	H2A08C05	H2B08C05
16mm	8	24V DC	34	115	130	54	99	50	14	67	71	1000	H2A08E05	H2B08E05
16mm	8	12V DC	34	115	130	54	99	50	14	67	71	1000	H2A08F05	H2B08F05
16mm	10	240V AC	34	115	130	54	99	50	14	67	71	1000	H2A10A05	H2B10A05
16mm	10	110V AC	34	115	130	54	99	50	14	67	71	1000	H2A10B05	H2B10B05
16mm	10	24V AC	34	115	130	54	99	50	14	67	71	1000	H2A10C05	H2B10C05
16mm	10	24V DC	34	115	130	54	99	50	14	67	71	1000	H2A10E05	H2B10E05
16mm	10	12V DC	34	115	130	54	99	50	14	67	71	1000	H2A10F05	H2B10F05
20mm	10	240V AC	34	115	130	54	104	52	16.5	67	71	1000	H2A10A06	H2B10A06
20mm	10	110V AC	34	115	130	54	104	52	16.5	67	71	1000	H2A10B06	H2B10B06
20mm	10	24V AC	34	115	130	54	104	52	16.5	67	71	1000	H2A10C06	H2B10C06
20mm	10	24V DC	34	115	130	54	104	52	16.5	67	71	1000	H2A10E06	H2B10E06
20mm	10	12V DC	34	115	130	54	104	52	16.5	67	71	1000	H2A10F06	H2B10F06
20mm	15	240V AC	34	115	130	54	104	52	16.5	67	71	1000	H2A15A06	H2B15A06
20mm	15	110V AC	34	115	130	54	104	52	16.5	67	71	1000	H2A15B06	H2B15B06
20mm	15	24V AC	34	115	130	54	104	52	16.5	67	71	1000	H2A15C06	H2B15C06
20mm	15	24V DC	34	115	130	54	104	52	16.5	67	71	1000	H2A15E06	H2B15E06
20mm	15	12V DC	34	115	130	54	104	52	16.5	67	71	1000	H2A15F06	H2B15F06

BSP Threaded Socket Ends



S12FV - S22FV PVC-U

2/2-way solenoid valve with BSP parallel female threaded ends

S1 Series - Small body

												PVC-U		
R	DN	Voltage	A	B	C	E	H	H_1	L	M	Z	gms	EPDM Code	FPM Code
3/8"	4	240V AC	24	100	103	42	86	43	16.5	52	71	400	H1A04AB1	H1B04AB1
3/8"	4	110V AC	24	100	103	42	86	43	16.5	52	71	400	H1A04BB1	H1B04BB1
3/8"	4	24V AC	24	100	103	42	86	43	16.5	52	71	400	H1A04CB1	H1B04CB1
3/8"	4	24V DC	24	100	103	42	86	43	16.5	52	71	400	H1A04EB1	H1B04EB1
3/8"	4	12V DC	24	100	103	42	86	43	16.5	52	71	400	H1A04FB1	H1B04FB1
3/8"	6	240V AC	24	100	103	42	86	43	16.5	52	71	400	H1A06AB1	H1B06AB1
3/8"	6	110V AC	24	100	103	42	86	43	16.5	52	71	400	H1A06BB1	H1B06BB1
3/8"	6	24V AC	24	100	103	42	86	43	16.5	52	71	400	H1A06CB1	H1B06CB1
3/8"	6	24V DC	24	100	103	42	86	43	16.5	52	71	400	H1A06EB1	H1B06EB1
3/8"	6	12V DC	24	100	103	42	86	43	16.5	52	71	400	H1A06FB1	H1B06FB1
3/8"	8	240V AC	24	100	103	42	86	43	16.5	52	71	400	H1A08AB1	H1B08AB1
3/8"	8	110V AC	24	100	103	42	86	43	16.5	52	71	400	H1A08BB1	H1B08BB1
3/8"	8	24V AC	24	100	103	42	86	43	16.5	52	71	400	H1A08CB1	H1B08CB1
3/8"	8	24V DC	24	100	103	42	86	43	16.5	52	71	400	H1A08EB1	H1B08EB1
3/8"	8	12V DC	24	100	103	42	86	43	16.5	52	71	400	H1A08FB1	H1B08FB1

1/4" Available on request please contact the Valve Department for details.

S2 Series - Large body

												PVC-U		
R	DN	Voltage	A	B	C	E	H	H_1	L	M	Z	gms	EPDM Code	FPM Code
3/8"	8	240V AC	34	115	130	54	97	48.5	11.5	67	74	1000	H2A08AB1	H2B08AB1
3/8"	8	110V AC	34	115	130	54	97	48.5	11.5	67	74	1000	H2A08BB1	H2B08BB1
3/8"	8	24V AC	34	115	130	54	97	48.5	11.5	67	74	1000	H2A08CB1	H2B08CB1
3/8"	8	24V DC	34	115	130	54	97	48.5	11.5	67	74	1000	H2A08EB1	H2B08EB1
3/8"	8	12V DC	34	115	130	54	97	48.5	11.5	67	74	1000	H2A08FB1	H2B08FB1
3/8"	10	240V AC	34	115	130	54	97	48.5	11.5	67	74	1000	H2A10AB1	H2B10AB1
3/8"	10	110V AC	34	115	130	54	97	48.5	11.5	67	74	1000	H2A10BB1	H2B10BB1
3/8"	10	24V AC	34	115	130	54	97	48.5	11.5	67	74	1000	H2A10CB1	H2B10CB1
3/8"	10	24V DC	34	115	130	54	97	48.5	11.5	67	74	1000	H2A10EB1	H2B10EB1
3/8"	10	12V DC	34	115	130	54	97	48.5	11.5	67	74	1000	H2A10FB1	H2B10FB1
1/2"	10	240V AC	34	115	130	54	105	52.5	15	67	75	1000	H2A10AB2	H2B10AB2
1/2""	10	110V AC	34	115	130	54	105	52.5	15	67	75	1000	H2A10BB2	H2B10BB2
1/2""	10	24V AC	34	115	130	54	105	52.5	15	67	75	1000	H2A10CB2	H2B10CB2
1/2""	10	24V DC	34	115	130	54	105	52.5	15	67	75	1000	H2A10EB2	H2B10EB2
1/2""	10	12V DC	34	115	130	54	105	52.5	15	67	75	1000	H2A10FB2	H2B10FB2
1/2""	15	240V AC	34	115	130	54	105	52.5	15	67	75	1000	H2A15AB2	H2B15AB2
1/2""	15	110V AC	34	115	130	54	105	52.5	15	67	75	1000	H2A15BB2	H2B15BB2
1/2""	15	24V AC	34	115	130	54	105	52.5	15	67	75	1000	H2A15CB2	H2B15CB2
1/2""	15	24V DC	34	115	130	54	105	52.5	15	67	75	1000	H2A15EB2	H2B15EB2
1/2""	15	12V DC	34	115	130	54	105	52.5	15	67	75	1000	H2A15FB2	H2B15FB2

Connection to the System

Before proceeding with the installation, please read and familiarise yourself with these instructions.

1. Check that the pipes either side of the valve are axially aligned, in order to avoid mechanical stress on the threaded union joints.
2. Unscrew the union nuts (13) from the valve body and slide them onto the pipe.
3. Solvent weld or screw the valve end connectors (12) onto the pipe ends. For correct jointing see the Durapipe PVC-U technical catalogue.
4. Position the valve between the two end connectors and screw the union nuts clockwise by hand until a resistance is felt; do not use keys or other tools which may damage the nut Surface.

Note: For the valve to seal correctly and long term reliability. The fluid must be clean and contain no undissolved particles. It is recommended a Durapipe/FIP sediment strainer should be installed downstream of the valve.

Disassembly

1. Isolate the valve from the flow and drain down the pipeline.
2. Unscrew the union nuts (13) anti-clockwise to remove them. Remove the valve out of the line and remove the O-rings (11).
3. Remove the coil protection cap (26), unscrew the coil retaining screw (24) and remove the coil end cover (23).
4. Remove the coil (1) and the O-ring (2).
5. Remove the protective caps (18) and unscrew the screws (14).
6. Separate the actuator/manual override assembly from the valve body, remove the control spindle (17) and O-ring (20). bush (11) and the O-ring (3) can be removed.
7. Unscrew the screw (4) and remove the manual override lever (21) and O-ring (5). Remove the operator (19) from the manual override housing (3).
8. Remove the protection caps (18), unscrew the four screws (16) and separate the two halves of the body (6 & 10) and remove the shutter (8).
9. Remove the spring (9) from the spring slide (7). And the spring slide from the shutter (8).

Assembly

1. Insert the spring slide (7) onto the shutter (8) and the spring (9) onto the spring slide housing (7).
2. Fit the shutter (8) into the upper body (6) ensuring that the spring (9) is properly positioned into its groove.
3. Assemble the two body halves (6 & 10) and fit and tighten the four screws (16).
4. Insert the operator (19) into the manual override housing (3) up to the stop.
5. Fit the O-ring (5) onto the manual override lever (21) and tighten the screw (4). Ensure the manual override lever is free to rotate. Set it lever to the ‘close’ position.
6. Insert the control spindle (17) into the hole of the operator (19), place the O-ring (20) into the groove on the manual override housing (3).
7. Fit the actuator/manual override assembly to the body and fit and tighten the four screws (14).
8. Insert the protection caps (18). Fit the O-ring (2), coil (1), O-ring (2), and coil end cover. Fit and tighten the retaining screw (24). Push in the protective cover (26).

Note: When assembling the valve components, it is advisable to lubricate the O-rings. Do not use mineral oils as they attack EPDM rubber.

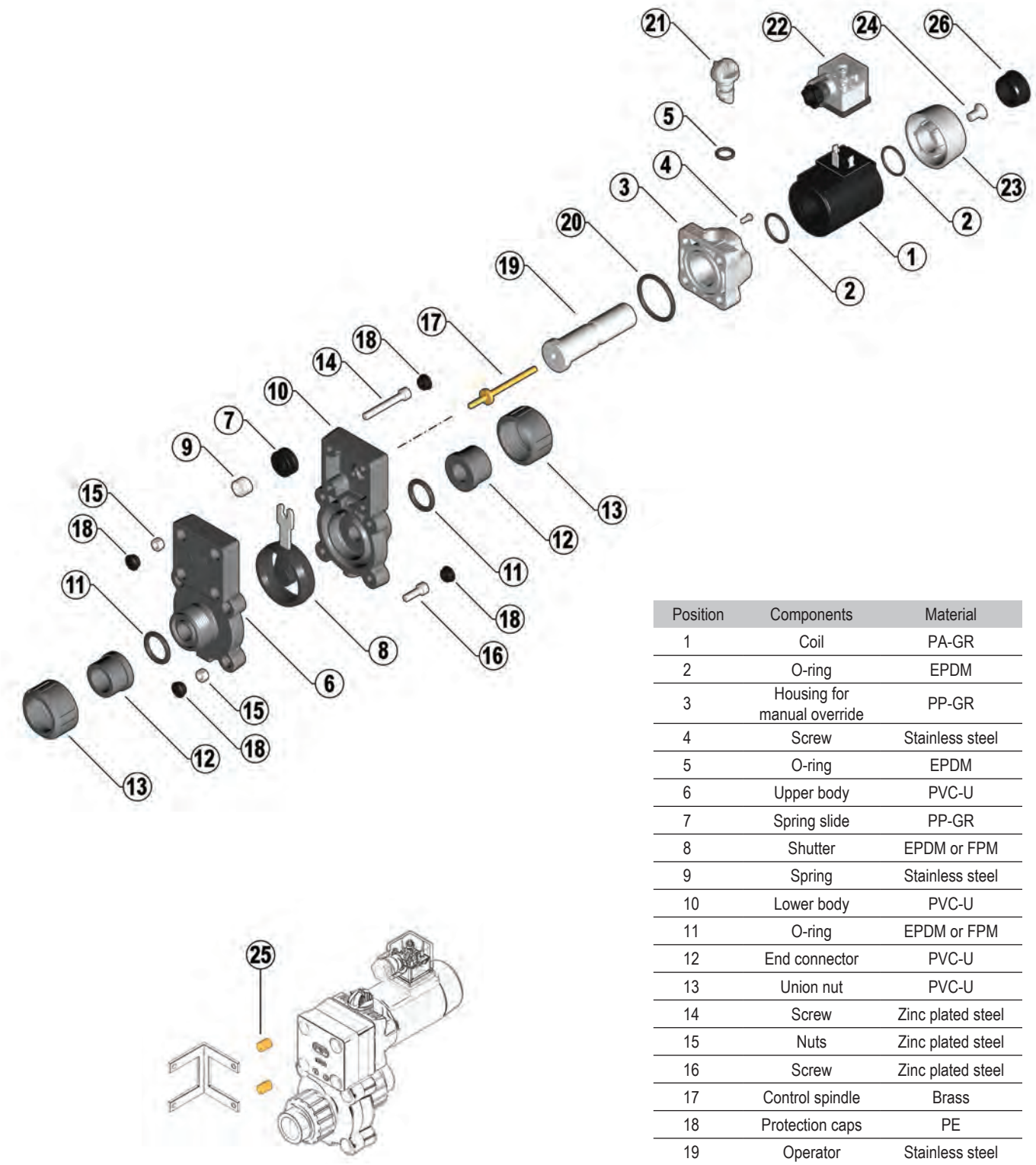


Fig.1: Example of valve bracketing
(bracket not available from Durapipe).

Position	Components	Material
1	Coil	PA-GR
2	O-ring	EPDM
3	Housing for manual override	PP-GR
4	Screw	Stainless steel
5	O-ring	EPDM
6	Upper body	PVC-U
7	Spring slide	PP-GR
8	Shutter	EPDM or FPM
9	Spring	Stainless steel
10	Lower body	PVC-U
11	O-ring	EPDM or FPM
12	End connector	PVC-U
13	Union nut	PVC-U
14	Screw	Zinc plated steel
15	Nuts	Zinc plated steel
16	Screw	Zinc plated steel
17	Control spindle	Brass
18	Protection caps	PE
19	Operator	Stainless steel
20	O-ring	EPDM
21	Manual override	PP-GR
22	Connector	-
23	Coil cap	PP-GR
24	Screw	Stainless steel
25	Bracket nuts	Brass
26	Protection cap	PE

VKD Pneumatically Actuated VKD DualBlock® 2-way Ball Valve (DN10 - DN50)

- The **VKD DualBlock® ball valve**, is a fully unionised valve that stands up to the most severe industrial applications
- Size range from $^{3}/_{8}$" / d16mm up to 2" / d63mm
- Pressure rating: Maximum working pressure: 16 bar at 20°C (PP = 10Bar at 20ºC).
- Patented **DualBlock®** system: The locking device ensures the union nuts are retained in position, even under the most arduous conditions: ie. vibration or thermal expansion
- Easy removal of the valve body from the pipe system, allowing replacement of the valve seals and seats without any additional equipment
- The pipeline downstream of the valve can be disconnected, with the valve in the closed position, without leakage
- Fully blocked Seat Stop® design ball seat carrier, with micro adjustment of the ball seats and 'take up' of axial pipe loads
- For more information, please visit our website **www.durapipe.co.uk**

Legend

d	Nominal outside diameter
DN	Nominal internal diameter in mm
R	Nominal size or the thread in inches
PN	Nominal pressure in bar (max.working Pressure at 20°C - water)
gms	Weight in grams
PVC-U	Polyvinyl chloride unplasticised
ABS	Acrylontrile Butadiene Styrene
PP	Polypropylene
PVC-C	Polyvinyl chloride chlorinated
GRPP	Glass reinforced polypropylene
POM	Polyoxymethylene
PE	Polyethylene
PTFE	Polytetrafluoroethylene
EPDM	Ethylene Propylene Diene Monomer (M-class) rubber
FPM	Fluorocarbon Rubber
s	Wall thickness (mm)
SDR	Standard dimension ratio = d/s

Dimensions and Standards

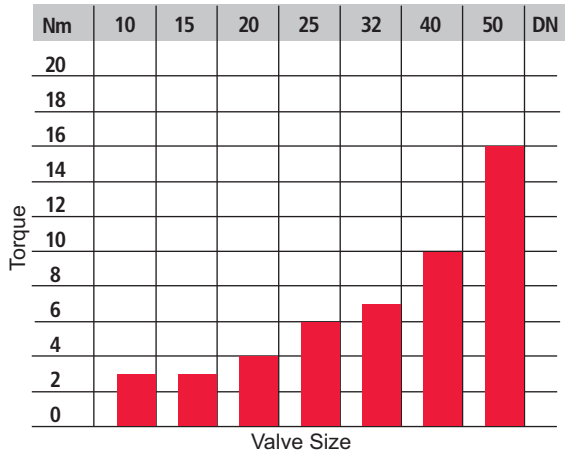
Imperial
The Imperial System is manufactured in accordance with the relevant British Standards: BS 5392 fittings.

Metric
The Metric System is manufactured generally in accordance with the relevant International Standards: ISO 15493, KIWA 49 and 549, DIN 8062 and 8063.

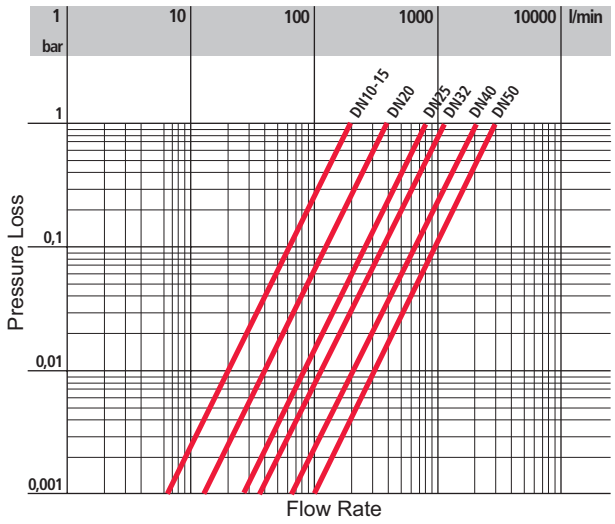
BSP Thread
Threaded fittings conform to the requirements of BS 21/DIN 2999/ISO7. Socket dimensions of metric fittings for solvent welding comply with ISO/DIS 727-1.

Interchangeability
Components in the imperial and metric ranges are not interchangeable.

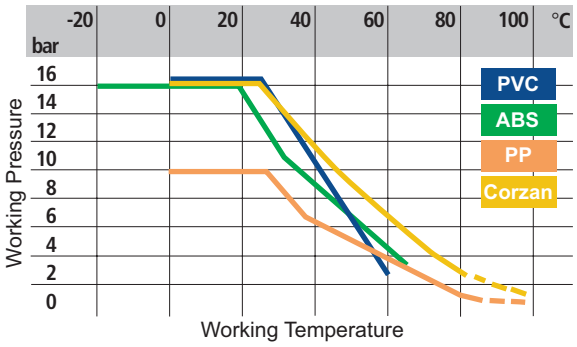
Technical Data



Torque at max working pressure. 16 Bar .



Pressure loss chart.



Pressure/temperature rating for water and harmless fluids to which the material is RESISTANT. In other cases a reduction of the PN is required. (25 years with safety factor).

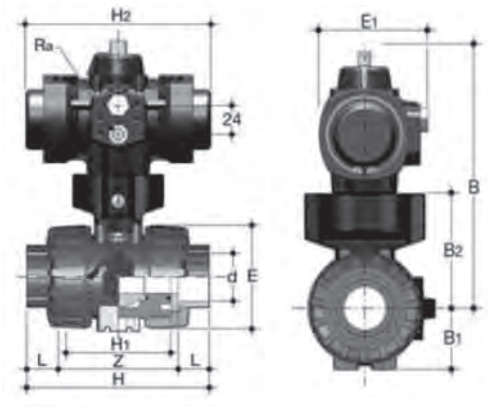
DN	10	15	20	770	32	40	50
k_{v100}	80	200	385	0.035	1100	1750	3400

Flow coefficient k_{v100}

k_{v100} is the number of litres per minute of water at a temperature of 20°C that will flow through a valve with a one bar pressure differential at a specified rate. The k_{v100} values shown in the table are calculated with the valve fully open.

Tel: +44 (0)1543 471680 Fax: +44 (0)1543 471682

BS Series Female Ends



VKDLV/CP PVC-U
VKDLA/CP ABS

DualBlock® ball valve with BS series female ends for solvent welding

d	DN	PN	H	E	H_1	H_2 FSC FSO	H_2 DA	L	Z	B FSC FSO	B DA	B_1	B_2	E_1 FSC FSO	E_1 DA
3/8	10	16	103	54	65	142	107	14.5	74	143	143	29	58	68.5	68.5
1/2	15	16	103	54	65	142	107	16.5	70	143	143	29	58	68.5	68.5
3/4	20	16	115	65	70	142	107	19	77	158.5	158.5	34.5	73.5	68.5	68.5
1	25	16	128	73	78	155	107	22.5	83	184	159	39	74	80	68.5
1 1/4	32	16	146	86	88	155	125	26	94	207	207	46	97	80	80
1 1/2	40	16	164	98	93	230	125	30	104	229	214	52	104	102	80
2	50	16	199	122	111	230	182	36	127	239	239	62	114	102	102

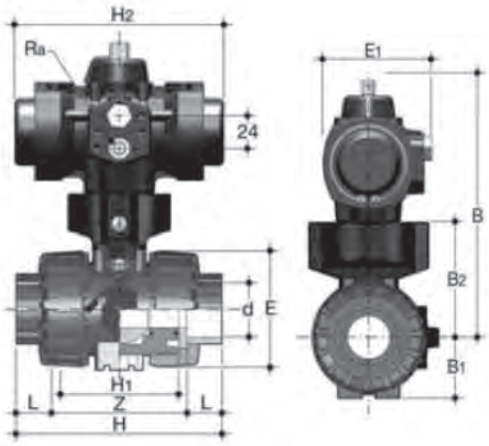
PVC-U

d	gms	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	DOUBLE ACTING EPDM Code	DOUBLE ACTING FPM Code
1/2	745	HP DKE 102	HP DKF 102	HQ DKE 102	HQ DKF 102	HR DKE 102	HR DKF 102
3/4	873	HP DKE 103	HP DKF 103	HQ DKE 103	HQ DKF 103	HR DKE 103	HR DKF 103
1	981	HP DKE 104	HP DKF 104	HQ DKE 104	HQ DKF 104	HR DKE 104	HR DKF 104
1 1/4	1899	HP DKE 105	HP DKF 105	HQ DKE 105	HQ DKF 105	HR DKE 105	HR DKF 105
1 1/2	2131	HP DKE 106	HP DKF 106	HQ DKE 106	HQ DKF 106	HR DKE 106	HR DKF 106
2	3868	HP DKE 107	HP DKF 107	HQ DKE 107	HQ DKF 107	HR DKE 107	HR DKF 107

ABS

d	gms	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	DOUBLE ACTING EPDM Code	DOUBLE ACTING FPM Code
3/8	730	HP DKA 101	HP DKB 101	HQ DKA 101	HQ DKB 101	HR DKA 101	HR DKB 101
1/2	725	HP DKA 102	HP DKB 102	HQ DKA 102	HQ DKB 102	HR DKA 102	HR DKB 102
3/4	803	HP DKA 103	HP DKB 103	HQ DKA 103	HQ DKB 103	HR DKA 103	HR DKB 103
1	979	HP DKA 104	HP DKB 104	HQ DKA 104	HQ DKB 104	HR DKA 104	HR DKB 104
1 1/4	1851	HP DKA 105	HP DKB 105	HQ DKA 105	HQ DKB 105	HR DKA 105	HR DKB 105
1 1/2	2086	HP DKA 106	HP DKB 106	HQ DKA 106	HQ DKB 106	HR DKA 106	HR DKB 106
2	3851	HP DKA 107	HP DKB 107	HQ DKA 107	HQ DKB 107	HR DKA 107	HR DKB 107

Metric Series Female Ends



VKDIV/CP PVC-U **VKDIM/CP** PP
VKDIA/CP ABS **VKDIC/CP** Corzan

DualBlock® ball valve with Metric series female ends

d	DN	PN*	H	E	H_1	H_2 FSC FSO	H_2 DA	L PVC-U ABS	L PP	Z PVC-U ABS	Z PP	B FSC FSO	B DA	B_1	B_2	E_1 FSC FSO	E_1 DA
16	10	16	103	54	65	142	107	14	-	75	-	143	143	29	58	68.5	68.5
20	15	16	103	54	65	142	107	16	15	71	73	143	143	29	58	68.5	68.5
25	20	16	115	65	70	142	107	19	17	77	82	158.5	158.5	34.5	73.5	68.5	68.5
32	25	16	128	73	78	155	107	22	19	84	90	184	159	39	74	80	68.5
40	32	16	146	86	88	155	125	26	23	94	100	207	207	46	97	80	80
50	40	16	164	98	93	230	125	31	24	102	117	229	214	52	104	102	80
63	50	16	199	122	111	230	182	38	28	123	144	239	239	62	114	102	102

*All PP valves are rated as PN10.

PVC-U

d	gms	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	DOUBLE ACTING EPDM Code	DOUBLE ACTING FPM Code
16	755	HP DKE 305	HP DKF 305	HQ DKE 305	HQ DKF 305	HR DKE 305	HR DKF 305
20	745	HP DKE 306	HP DKF 306	HQ DKE 306	HQ DKF 306	HR DKE 306	HR DKF 306
25	873	HP DKE 307	HP DKF 307	HQ DKE 307	HQ DKF 307	HR DKE 307	HR DKF 307
32	981	HP DKE 308	HP DKF 308	HQ DKE 308	HQ DKF 308	HR DKE 308	HR DKF 308
40	1899	HP DKE 309	HP DKF 309	HQ DKE 309	HQ DKF 309	HR DKE 309	HR DKF 309
50	2131	HP DKE 310	HP DKF 310	HQ DKE 310	HQ DKF 310	HR DKE 310	HR DKF 310
63	3868	HP DKE 311	HP DKF 311	HQ DKE 311	HQ DKF 311	HR DKE 311	HR DKF 311

ABS

d	gms	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	DOUBLE ACTING EPDM Code	DOUBLE ACTING FPM Code
16	730	HP DKA 305	HP DKB 305	HQ DKA 305	HQ DKB 305	HR DKA 305	HR DKB 305
20	725	HP DKA 306	HP DKB 306	HQ DKA 306	HQ DKB 306	HR DKA 306	HR DKB 306
25	803	HP DKA 307	HP DKB 307	HQ DKA 307	HQ DKB 307	HR DKA 307	HR DKB 307
32	979	HP DKA 308	HP DKB 308	HQ DKA 308	HQ DKB 308	HR DKA 308	HR DKB 308
40	1851	HP DKA 309	HP DKB 309	HQ DKA 309	HQ DKB 309	HR DKA 309	HR DKB 309
50	2086	HP DKA 310	HP DKB 310	HQ DKA 310	HQ DKB 310	HR DKA 310	HR DKB 310
63	3851	HP DKA 311	HP DKB 311	HQ DKA 311	HQ DKB 311	HR DKA 311	HR DKB 311

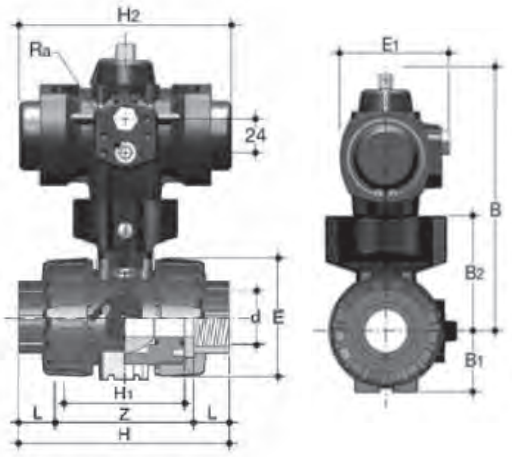
PP

d	gms	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	DOUBLE ACTING EPDM Code	DOUBLE ACTING FPM Code
20	685	HP DKN 306	HP DKP 306	HQ DKN 306	HQ DKP 306	HR DKN 306	HR DKP 306
25	761	HP DKN 307	HP DKP 307	HQ DKN 307	HQ DKP 307	HR DKN 307	HR DKP 307
32	841	HP DKN 308	HP DKP 308	HQ DKN 308	HQ DKP 308	HR DKN 308	HR DKP 308
40	1686	HP DKN 309	HP DKP 309	HQ DKN 309	HQ DKP 309	HR DKN 309	HR DKP 309
50	1888	HP DKN 310	HP DKP 310	HQ DKN 310	HQ DKP 310	HR DKN 310	HR DKP 310
63	3457	HP DKN 311	HP DKP 311	HQ DKN 311	HQ DKP 311	HR DKN 311	HR DKP 311

Corzan

d	gms	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	DOUBLE ACTING EPDM Code	DOUBLE ACTING FPM Code
20	762	HP DKJ 306	HP DKK 306	HQ DKJ 306	HQ DKK 306	HR DKJ 306	HR DKK 306
25	893	HP DKJ 307	HP DKK 307	HQ DKJ 307	HQ DKK 307	HR DKJ 307	HR DKK 307
32	1013	HP DKJ 308	HP DKK 308	HQ DKJ 308	HQ DKK 308	HR DKJ 308	HR DKK 308
40	1930	HP DKJ 309	HP DKK 309	HQ DKJ 309	HQ DKK 309	HR DKJ 309	HR DKK 309
50	2218	HP DKJ 310	HP DKK 310	HQ DKJ 310	HQ DKK 310	HR DKJ 310	HR DKK 310
63	3961	HP DKJ 311	HP DKK 311	HQ DKJ 311	HQ DKK 311	HR DKJ 311	HR DKK 311

BSP Threaded Socket Ends



VKDFV/CP PVC-U
VKDFA/CP ABS
VKDFM/CP PP

DualBlock® ball valve with BSP parallel female threaded ends

d	DN	PN*	H	E	H_1	L PVC-U ABS	L PP	Z PVC-U ABS	Z PP	B FSC FSO	B DA	B_1	B_2	E_1 FSC FSO	E_1 DA
1/2	15	16	103	54	65	16	15	71	73	143	143	29	58	68.5	68.5
3/4	20	16	115	65	70	19	17	77	82	158.5	158.5	34.5	73.5	68.5	68.5
1	25	16	128	73	78	22	19	84	90	184	159	39	74	80	68.5
1 1/4	32	16	146	86	88	26	23	94	100	207	207	46	97	80	80
1 1/2	40	16	164	98	93	31	24	102	117	229	214	52	104	102	80
2	50	16	199	122	111	38	28	123	144	239	239	62	114	102	102

*All PP valves are rated as PN10.

PVC-U

d	gms	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	DOUBLE ACTING EPDM Code	DOUBLE ACTING FPM Code
1/2	755	HP DKE B02	HP DKF B02	HQ DKE B02	HQ DKF B02	HR DKE B02	HR DKF B02
3/4	745	HP DKE B03	HP DKF B03	HQ DKE B03	HQ DKF B03	HR DKE B03	HR DKF B03
1	873	HP DKE B04	HP DKF B04	HQ DKE B04	HQ DKF B04	HR DKE B04	HR DKF B04
1 1/4	981	HP DKE B05	HP DKF B05	HQ DKE B05	HQ DKF B05	HR DKE B05	HR DKF B05
1 1/2	1899	HP DKE B06	HP DKF B06	HQ DKE B06	HQ DKF B06	HR DKE B06	HR DKF B06
2	2131	HP DKE B07	HP DKF B07	HQ DKE B07	HQ DKF B07	HR DKE B07	HR DKF B07

ABS

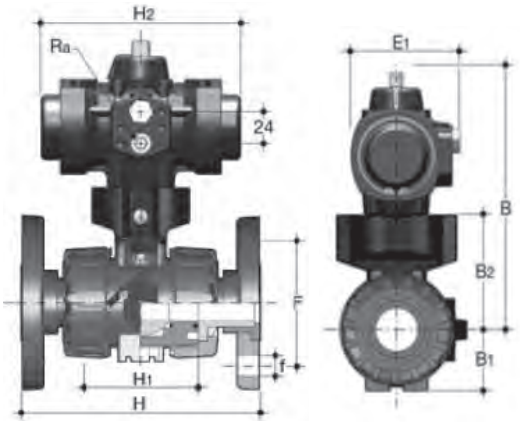
d	gms	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	DOUBLE ACTING EPDM Code	DOUBLE ACTING FPM Code
1/2	730	HP DKA B02	HP DKB B02	HQ DKA B02	HQ DKB B02	HR DKA B02	HR DKB B02
3/4	725	HP DKA B03	HP DKB B03	HQ DKA B03	HQ DKB B03	HR DKA B03	HR DKB B03
1	803	HP DKA B04	HP DKB B04	HQ DKA B04	HQ DKB B04	HR DKA B04	HR DKB B04
1 1/4	979	HP DKA B05	HP DKB B05	HQ DKA B05	HQ DKB B05	HR DKA B05	HR DKB B05
1 1/2	1851	HP DKA B06	HP DKB B06	HQ DKA B06	HQ DKB B06	HR DKA B06	HR DKB B06
2	2086	HP DKA B07	HP DKB B07	HQ DKA B07	HQ DKB B07	HR DKA B07	HR DKB B07

PP

d	gms	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	DOUBLE ACTING EPDM Code	DOUBLE ACTING FPM Code
1/2	685	HP DKN B02	HP DKP B02	HQ DKN B02	HQ DKP B02	HR DKN B02	HR DKP B02
3/4	761	HP DKN B03	HP DKP B03	HQ DKN B03	HQ DKP B03	HR DKN B03	HR DKP B03
1	841	HP DKN B04	HP DKP B04	HQ DKN B04	HQ DKP B04	HR DKN B04	HR DKP B04
1 1/4	1686	HP DKN B05	HP DKP B05	HQ DKN B05	HQ DKP B05	HR DKN B05	HR DKP B05
1 1/2	1888	HP DKN B06	HP DKP B06	HQ DKN B06	HQ DKP B06	HR DKN B06	HR DKP B06
2	3457	HP DKN B07	HP DKP B07	HQ DKN B07	HQ DKP B07	HR DKN B07	HR DKP B07

Flanged Ends to BS EN1092-1 PN10/16

VKDOV/CP PVC-U **VKDOM/CP** PP
VKDOA/CP ABS **VKDOC/CP** Corzan



DualBlock® ball valve with Flanged ends, to BS EN1092-1 PN10/16

d	DN	PN	H	H_1	H_2 FSC FSO	H_2 DA	F	f	U	B FSC FSO	B DA	B_1	B_2	E_1 FSC FSO	E_1 DA
1/2 - 20	15	16	103	65	142	107	65	14	4	143	143	29	58	68.5	68.5
3/4 - 25	20	16	115	70	142	107	75	14	4	143	143	29	58	68.5	68.5
1 - 32	25	16	128	78	155	107	85	14	4	158.5	158.5	34.5	73.5	68.5	68.5
1 1/4 - 40	32	16	146	88	155	125	100	18	4	184	159	39	74	80	68.5
1 1/2 - 50	40	16	164	93	230	125	110	18	4	207	207	46	97	80	80
2 - 63	50	16	199	111	230	182	125	18	4	229	214	52	104	102	80

PVC-U

d	gms	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	DOUBLE ACTING EPDM Code	DOUBLE ACTING FPM Code
1/2	755	HP DKE F02	HP DKF F02	HQ DKE F02	HQ DKF F02	HR DKE F02	HR DKF F02
3/4	745	HP DKE F03	HP DKF F03	HQ DKE F03	HQ DKF F03	HR DKE F03	HR DKF F03
1	873	HP DKE F04	HP DKF F04	HQ DKE F04	HQ DKF F04	HR DKE F04	HR DKF F04
1 1/4	981	HP DKE F05	HP DKF F05	HQ DKE F05	HQ DKF F05	HR DKE F05	HR DKF F05
1 1/2	1899	HP DKE F06	HP DKF F06	HQ DKE F06	HQ DKF F06	HR DKE F06	HR DKF F06
2	2131	HP DKE F07	HP DKF F07	HQ DKE F07	HQ DKF F07	HR DKE F07	HR DKF F07

ABS

d	gms	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	DOUBLE ACTING EPDM Code	DOUBLE ACTING FPM Code
1/2	735	HP DKA F02	HP DKA F02	HQ DKA F02	HQ DKB F02	HR DKA F02	HR DKB F02
3/4	675	HP DKA F03	HP DKA F03	HQ DKA F03	HQ DKB F03	HR DKA F03	HR DKB F03
1	871	HP DKA F04	HP DKA F04	HQ DKA F04	HQ DKB F04	HR DKA F04	HR DKB F04
1 1/4	933	HP DKA F05	HP DKA F05	HQ DKA F05	HQ DKB F05	HR DKA F05	HR DKB F05
1 1/2	1854	HP DKA F06	HP DKA F06	HQ DKA F06	HQ DKB F06	HR DKA F06	HR DKB F06
2	2114	HP DKA F07	HP DKA F07	HQ DKA F07	HQ DKB F07	HR DKA F07	HR DKB F07

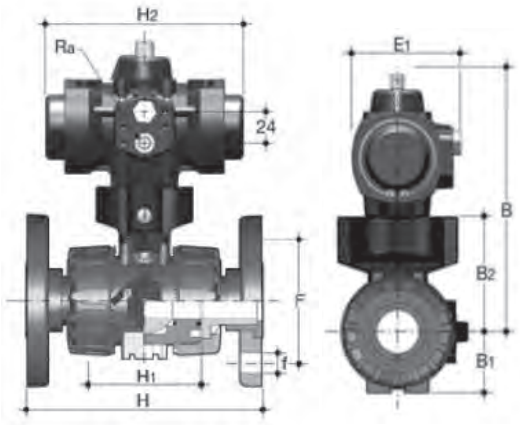
PP

d	gms	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	DOUBLE ACTING EPDM Code	DOUBLE ACTING FPM Code
1/2	685	HP DKN F02	HP DKP F02	HQ DKN F02	HQ DKP F02	HR DKN F02	HR DKP F02
3/4	761	HP DKN F03	HP DKP F03	HQ DKN F03	HQ DKP F03	HR DKN F03	HR DKP F03
1	841	HP DKN F04	HP DKP F04	HQ DKN F04	HQ DKP F04	HR DKN F04	HR DKP F04
1 1/4	1686	HP DKN F05	HP DKP F05	HQ DKN F05	HQ DKP F05	HR DKN F05	HR DKP F05
1 1/2	1888	HP DKN F06	HP DKP F06	HQ DKN F06	HQ DKP F06	HR DKN F06	HR DKP F06
2	3457	HP DKN F07	HP DKP F07	HQ DKN F07	HQ DKP F07	HR DKN F07	HR DKP F07

Corzan

d	gms	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	DOUBLE ACTING EPDM Code	DOUBLE ACTING FPM Code
20	762	HP DKJ F02	HP DKK F02	HQ DKJ F02	HQ DKK F02	HR DKJ F02	HR DKK F02
25	893	HP DKJ F03	HP DKK F03	HQ DKJ F03	HQ DKK F03	HR DKJ F03	HR DKK F03
32	1013	HP DKJ F04	HP DKK F04	HQ DKJ F04	HQ DKK F04	HR DKJ F04	HR DKK F04
40	1930	HP DKJ F05	HP DKK F05	HQ DKJ F05	HQ DKK F05	HR DKJ F05	HR DKK F05
50	2218	HP DKJ F06	HP DKK F06	HQ DKJ F06	HQ DKK F06	HR DKJ F06	HR DKK F06
63	3961	HP DKJ F07	HP DKK F07	HQ DKJ F07	HQ DKK F07	HR DKJ F07	HR DKK F07

Flanged Ends to ANSI 150



VKDOAV/CP PVC-U
VKDOAM/CP PP
VKDOAC/CP Corzan

DualBlock® ball valve with Flanged ends, to ANSI 150

d	DN	PN	H	H_1	H_2 FSC FSO	H_2 DA	F	f	U	B FSC FSO	B DA	B_1	B_2	E_1 FSC FSO	E_1 DA
1/2 - 20	15	16	130	65	142	107	60.5	16	4	143	143	29	58	68.5	68.5
3/4 - 25	20	16	150	70	142	107	70	16	4	143	143	29	58	68.5	68.5
1 - 32	25	16	160	78	155	107	79.5	16	4	158.5	158.5	34.5	73.5	68.5	68.5
1 1/4 - 40	32	16	180	88	155	125	89	16	4	184	159	39	74	80	68.5
1 1/2 - 50	40	16	200	93	230	125	98.5	16	4	207	207	46	97	80	80
2 - 63	50	16	230	111	230	182	121	19	4	229	214	52	104	102	80

PVC-U

d	gms	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	DOUBLE ACTING EPDM Code	DOUBLE ACTING FPM Code
1/2	755	HP DKE X02	HP DKF X02	HQ DKE X02	HQ DKF X02	HR DKE X02	HR DKF X02
3/4	745	HP DKE X03	HP DKF X03	HQ DKE X03	HQ DKF X03	HR DKE X03	HR DKF X03
1	873	HP DKE X04	HP DKF X04	HQ DKE X04	HQ DKF X04	HR DKE X04	HR DKF X04
1 1/4	981	HP DKE X05	HP DKF X05	HQ DKE X05	HQ DKF X05	HR DKE X05	HR DKF X05
1 1/2	1899	HP DKE X06	HP DKF X06	HQ DKE X06	HQ DKF X06	HR DKE X06	HR DKF X06
2	2131	HP DKE X07	HP DKF X07	HQ DKE X07	HQ DKF X07	HR DKE X07	HR DKF X07

PP

d	gms	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	DOUBLE ACTING EPDM Code	DOUBLE ACTING FPM Code
1/2	685	HP DKN X02	HP DKP X02	HQ DKN X02	HQ DKP X02	HR DKN X02	HR DKP X02
3/4	761	HP DKN X03	HP DKP X03	HQ DKN X03	HQ DKP X03	HR DKN X03	HR DKP X03
1	841	HP DKN X04	HP DKP X04	HQ DKN X04	HQ DKP X04	HR DKN X04	HR DKP X04
1 1/4	1686	HP DKN X05	HP DKP X05	HQ DKN X05	HQ DKP X05	HR DKN X05	HR DKP X05
1 1/2	1888	HP DKN X06	HP DKP X06	HQ DKN X06	HQ DKP X06	HR DKN X06	HR DKP X06
2	3457	HP DKN X07	HP DKP X07	HQ DKN X07	HQ DKP X07	HR DKN X07	HR DKP X07

Corzan

d	gms	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	DOUBLE ACTING EPDM Code	DOUBLE ACTING FPM Code
20	762	HP DKJ X02	HP DKK X02	HQ DKJ X02	HQ DKK X02	HR DKJ X02	HR DKK X02
25	893	HP DKJ X03	HP DKK X03	HQ DKJ X03	HQ DKK X03	HR DKJ X03	HR DKK X03
32	1013	HP DKJ X04	HP DKK X04	HQ DKJ X04	HQ DKK X04	HR DKJ X04	HR DKK X04
40	1930	HP DKJ X05	HP DKK X05	HQ DKJ X05	HQ DKK X05	HR DKJ X05	HR DKK X05
50	2218	HP DKJ X06	HP DKK X06	HQ DKJ X06	HQ DKK X06	HR DKJ X06	HR DKK X06
63	3961	HP DKJ X07	HP DKK X07	HQ DKJ X07	HQ DKK X07	HR DKJ X07	HR DKK X07

Actuators

Pneumatic actuator with plastic housing

Air pressure required to operate: 6 Bar
Maximum allowable air pressure: 8 Bar
Working temperature: -32°C to +90°C
Pneumatic connections: 2 x ¼" BSP
Standard Namur mounting for solenoid valves

Actuator options

Double Acting

Fail Safe Closed / Fail Safe Open

Standard equipment

- Visual position indicator

CYCLE TIME AND CAPACITY

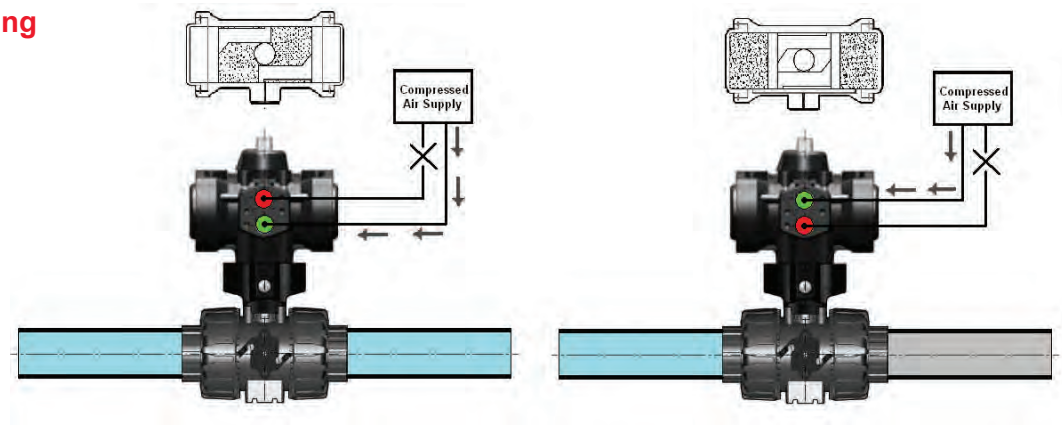
d	CYCLE TIME (Seconds)					
	DOUBLE ACTING		FAIL SAFE CLOSED		FAIL SAFE OPEN	
	To Open	To Close	To Open	To Close	To Open	To Close
3/8 - 16	0.1	0.1	0.15	0.15	0.15	0.15
1/2 - 20	0.1	0.1	0.15	0.15	0.15	0.15
3/4 - 25	0.1	0.1	0.15	0.15	0.15	0.15
1 - 32	0.1	0.1	0.2	0.2	0.2	0.2
1 1/4 - 40	0.15	0.15	0.2	0.2	0.2	0.2
1 1/2 - 50	0.15	0.15	0.3	0.3	0.3	0.3
2 - 63	0.25	0.25	0.3	0.3	0.3	0.3

d	CAPACITY (Litres)					
	DOUBLE ACTING		FAIL SAFE CLOSED		FAIL SAFE OPEN	
	To Open	To Close	To Open	To Close	To Open	To Close
3/8 - 16	0.075	0.05	0.075	-	-	0.075
1/2 - 20	0.075	0.05	0.075	-	-	0.075
3/4 - 25	0.075	0.05	0.075	-	-	0.075
1 - 32	0.075	0.05	0.15	-	-	0.15
1 1/4 - 40	0.15	0.10	0.15	-	-	0.15
1 1/2 - 50	0.15	0.10	0.35	-	-	0.35
2 - 63	0.35	0.32	0.35	-	-	0.35

Operating Principle

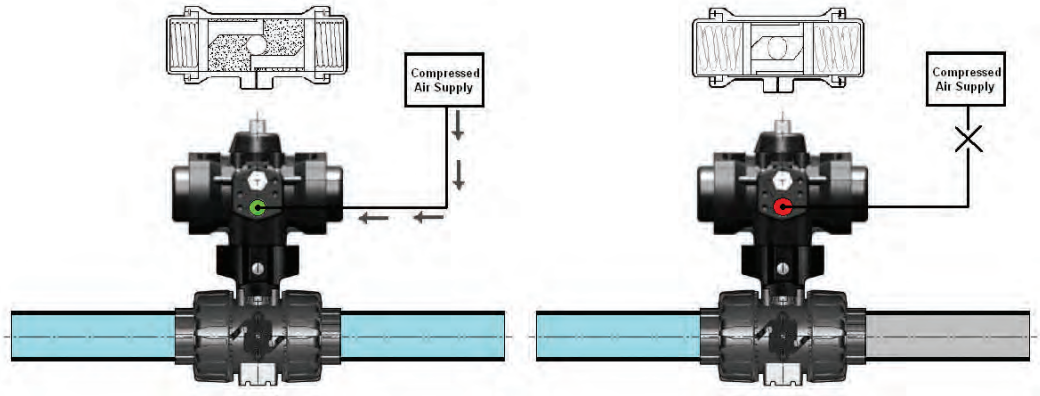
Double Acting

Compressed air is required to drive the actuator to the open and closed positions.



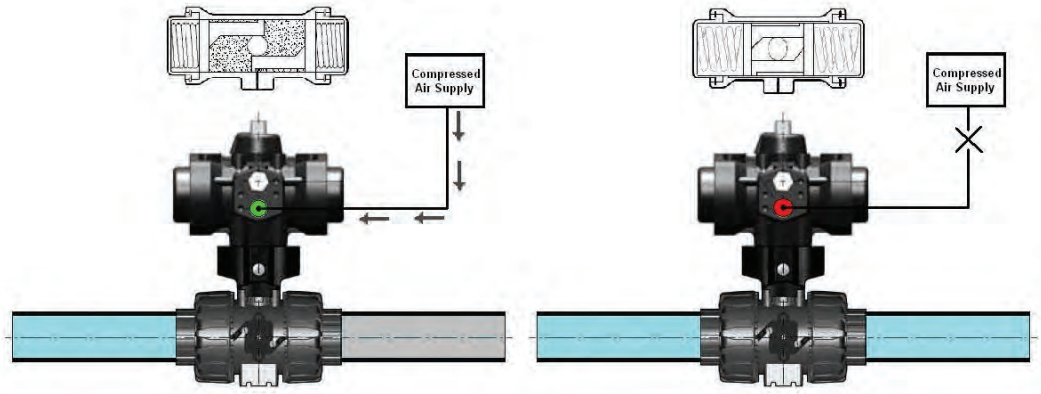
Fail Safe Closed

Compressed air is required to drive the actuator to the open position. With no air being supplied to the actuator the springs within the actuator drive it to the closed position.



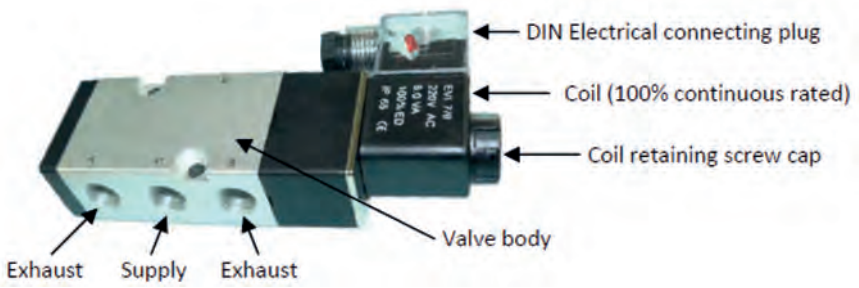
Fail Safe Open

Compressed air is required to drive the actuator to the closed position. With no air being supplied to the actuator the springs within the actuator drive it to the open position.

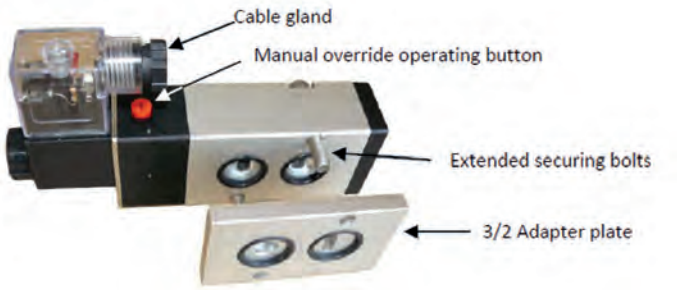


Accessories

Namur Mounted Pilot Solenoid Valve*



*Design of the solenoid valve supplied may vary based on individual requirements.



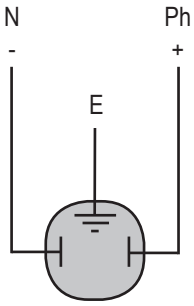
Mounting:
Direct mounts to Namur interface of pneumatic actuator with supplied O-rings and bolts. They are supplied with both a 3/2 adaptor plate (spring return actuators) and a 5/2 adaptor plate (double acting actuators)

Electrical supply:
The pilot solenoid valves are available as: 240VAC, 110VAC, 24VAC and 24VDC

Air connections:
1/4" BSP female

Air supply:
Lubricated filtered compressed air (3.0 to 8.0 Bar)

Electrical wiring:
2 Wire (& earth) connection to DIN plug



Manual overide:
With air applied, but no power, the valve can be operated by hand by using the red push down and hold, or turn down (with a screwdriver) & lock manual button

Voltage	Product Code
240VAC	HZ PS1 240
110VAC	HZ PS1 110
24VAC	HZ PS1 24A
24VDC	HZ PS1 24D

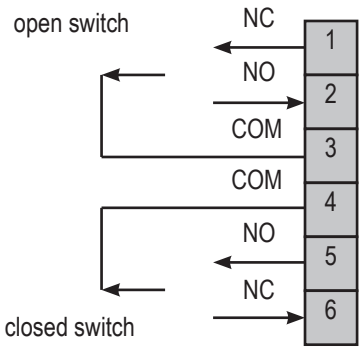
Auxiliary Limit Switch Box

Mounting:

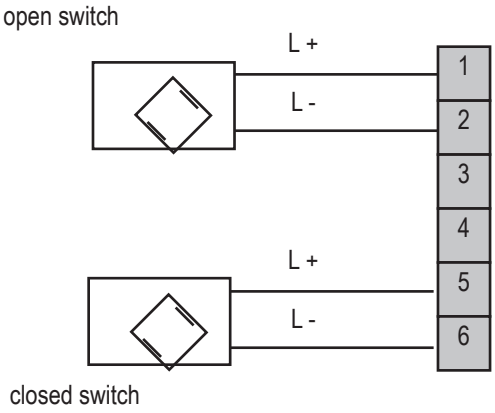
Direct mounts to ISO top mounting of pneumatic actuator with supplied plates and bolts

Electrical wiring:

The switch box is provided with two M20 conduit entries, for connection of cable glands either end



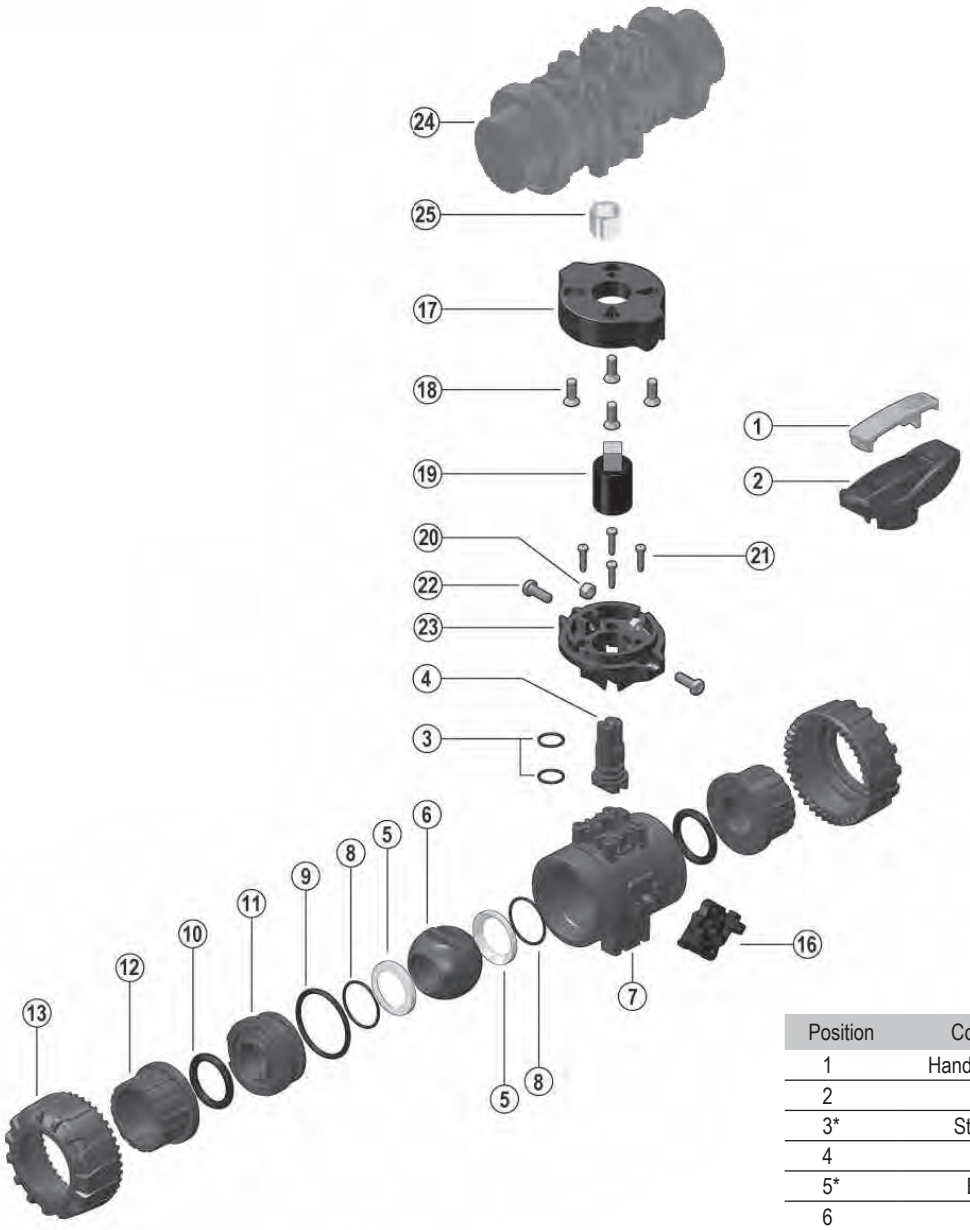
With mechanical limit switches



With intinsically safe proximty switches

For ordering codes and full product specification please contact the Durapipe Valve Department.

VKD DualBlock® 2-way Ball Valve (DN10 - DN50)



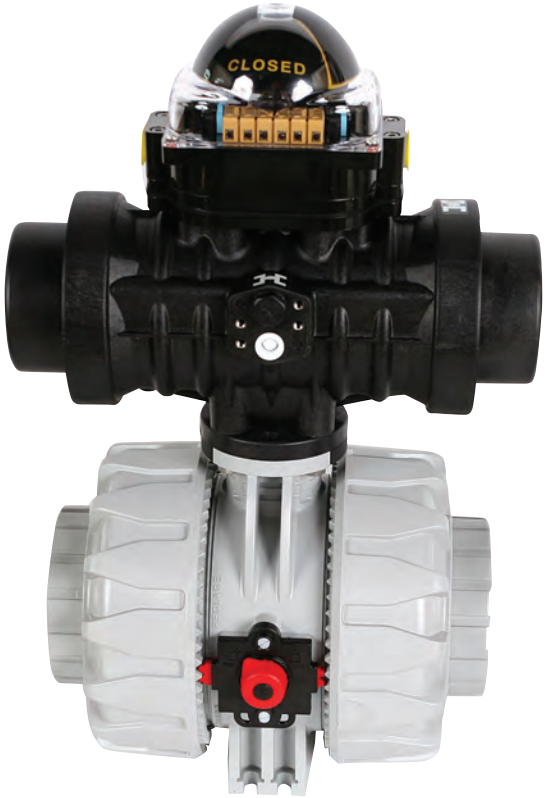
Position	Components	Material
1	Handle Insert Tool	PVC-U
2	Handle	HIPVC
3*	Stem O-ring	EPDM/FPM
4	Stem	Valve Material
5*	Ball Seat	PTFE
6	Ball	Valve Material
7	Body	Valve Material
8*	Ball Seat O-ring	EPDM/FPM
9*	Carrier O-ring	EPDM/FPM
10*	Socket Seal O-ring	EPDM/FPM
11	Ball Seat Carrier	Valve Material
12*	End Connector	Valve Material
13*	Union Nut	Valve Material
16*	DualBlock®	POM
17**	Powerquick Upper Plate	PP-GR
18**	Screw	Stainless Steel
19**	Coupling Spindle	PP-GR/Stainless Steel
20**	Nut	Stainless Steel
21**	Screw	Stainless Steel
22**	Screw	Stainless Steel
23**	Powerquick Lower Plate	PP-GR
24*	Pneumatic Actuator	Polyamide
25	Reducing Bush	Stainless Steel

*Spare Parts **Accessories

Tel: +44 (0)1543 471680 Fax: +44 (0)1543 471682

VKD Pneumatically Actuated VKD DualBlock® 2-way Ball Valve DN65 - DN100)

- The **VKD DualBlock® ball valve**, is a fully unionised valve that stands up to the most severe industrial applications
- Size range from 2 $^{1}/_{2}$" / d75mm up to 4" / d110mm
- Pressure rating: Maximum working pressure: 16 bar at 20°C (PP = 10Bar at 20ºC).
- Patented **DualBlock®** system: The locking device ensures the union nuts are retained in position, even under the most arduous conditions: i.e. vibration or thermal expansion
- Easy removal of the valve body from the pipe system, allowing replacement of the valve seals and seats without any additional equipment
- The pipeline downstream of the valve can be disconnected, with the valve in the closed position, without leakage
- Fully blocked Seat Stop® design ball seat carrier, with micro adjustment of the ball seats and 'take up' of axial pipe loads
- For more information, please visit our website: **www.durapipe.co.uk**



Legend

d	Nominal outside diameter
DN	Nominal internal diameter in mm
R	Nominal size or the thread in inches
PN	Nominal pressure in bar (max.working Pressure at 20°C - water)
gms	Weight in grams
PVC-U	Polyvinyl chloride unplasticised
ABS	Acrylontrile Butadiene Styrene
PP	Polypropylene
PVC-C	Polyvinyl chloride chlorinated
GRPP	Glass reinforced polypropylene
POM	Polyoxymethylene
PE	Polyethylene
PTFE	Polytetrafluoroethylene
EPDM	Ethylene Propylene Diene Monomer (M-class) rubber
FPM	Fluorocarbon Rubber
s	Wall thickness (mm)
SDR	Standard dimension ratio = d/s

Dimensions and Standards

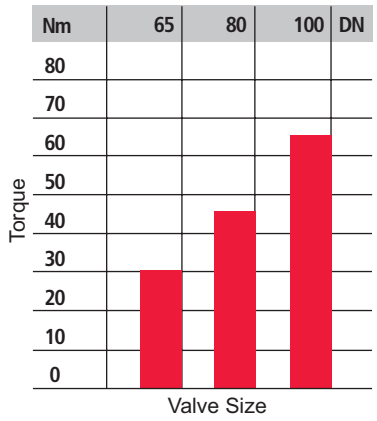
Imperial
The Imperial System is manufactured in accordance with the relevant British Standards: BS 5392 fittings.

Metric
The Metric System is manufactured generally in accordance with the relevant International Standards: ISO 15493, KIWA 49 and 549, DIN 8062 and 8063.

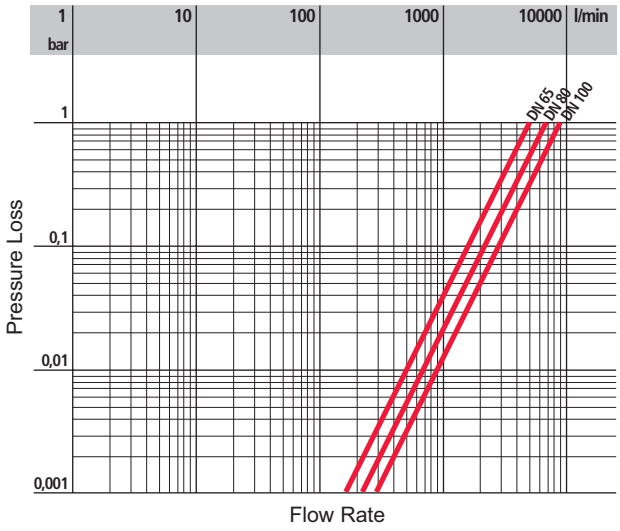
BSP Thread
Threaded fittings conform to the requirements of BS 21/DIN 2999/ISO7. Socket dimensions of metric fittings for solvent welding comply with ISO/DIS 727-1.

Interchangeability
Valves in the imperial and metric ranges are not interchangeable, but some of the components are the same for equivalent sizes (ie. 1" and 32mm).

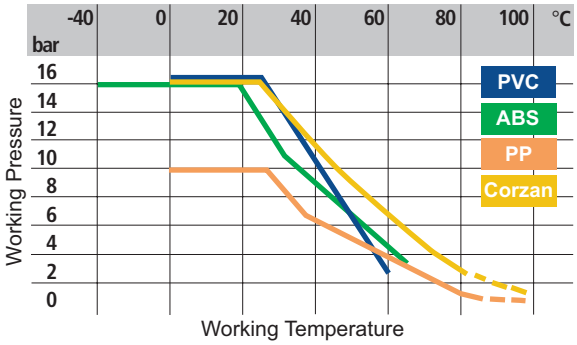
Technical Data



Torque at max working pressure. 16 Bar.



Pressure loss chart.



Pressure/temperature rating for water and harmless fluids to which the material is RESISTANT. In other cases a reduction of the PN is required. (25 years with safety factor).

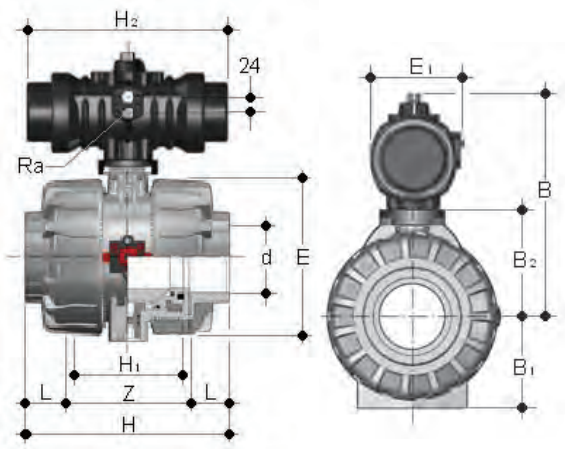
DN	65	80	100
k_{v100}	5250	7100	9500

Flow coefficient k_{v100}

k_{v100} is the number of litres per minute of water at a temperature of 20ºC that will flow through a valve with a one bar pressure differential at a specified rate. The k_{v100} values shown in the table are calculated with the valve fully open.

BS Series Female Ends

VKDLV/CP PVC-U
VKDLA/CP ABS



DualBlock® ball valve with BS series female ends

d	DN	PN	H	E	H_1	H_2 FSC FSO	H_2 DA	L	Z	B FSC FSO	B DA	B_1	B_2	E_1 FSC FSO	E_1 DA
$2^1/_2$	65	16	235	164	133	304	182	44	147	281	247	87	119	125	102
3	80	16	270	203	149	304	233	51	168	294	294	105	132	125	125
4	100	16	308	238	167	304	233	63	182	312	312	129	150	125	125

PVC-U

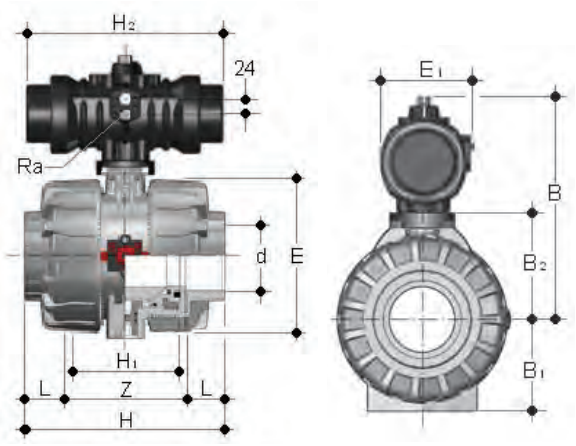
d	gms FSC FSO	gms DA	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	DOUBLE ACTING EPDM Code	DOUBLE ACTING FPM Code
$2^1/_2$	9330	5790	HP DKE 312	HP DKF 312	HQ DKE 312	HQ DKF 312	HR DKE 312	HR DKF 312
3	12150	10140	HP DKE 109	HP DKF 109	HQ DKE 109	HQ DKF 109	HR DKE 109	HR DKF 109
4	16090	14081	HP DKE 110	HP DKF 110	HQ DKE 110	HQ DKF 110	HR DKE 110	HR DKF 110

ABS

d	gms FSC FSO	gms DA	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	DOUBLE ACTING EPDM Code	DOUBLE ACTING FPM Code
$2^1/_2$	8675	5135	HP DKA 312	HP DKB 312	HQ DKA 312	HQ DKB 312	HR DKA 312	HR DKB 312
3	11070	9060	HP DKA 109	HP DKB 109	HQ DKA 109	HQ DKB 109	HR DKA 109	HR DKB 109
4	14400	12390	HP DKA 110	HP DKB 110	HQ DKA 110	HQ DKB 110	HR DKA 110	HR DKB 110

Metric Series Female Ends

VKDIV/CP PVC-U **VKDIM/CP** PP
VKDIA/CP ABS **VKDIC/CP** Corzan



DualBlock® ball valve with Metric series female ends

d	DN	PN	H	E	H_1	H_2 FSC FSO	H_2 DA	L	Z	B FSC FSO	B DA	B_1	B_2	E_1 FSC FSO	E_1 DA
75	65	16	235	164	133	304	182	44	147	281	247	87	119	125	102
90	80	16	270	203	149	304	233	51	168	294	294	105	132	125	125
110	100	16	308	238	167	304	233	61	186	312	312	129	150	125	125

PVC-U

d	gms FSC FSO	gms DA	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	DOUBLE ACTING EPDM Code	DOUBLE ACTING FPM Code
75	9330	5790	HP DKE 312	HP DKF 312	HQ DKE 312	HQ DKF 312	HR DKE 312	HR DKF 312
90	12150	10140	HP DKE 313	HP DKF 313	HQ DKE 313	HQ DKF 313	HR DKE 313	HR DKF 313
110	16090	14081	HP DKE 314	HP DKF 314	HQ DKE 314	HQ DKF 314	HR DKE 314	HR DKF 314

ABS

d	gms FSC FSO	gms DA	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	DOUBLE ACTING EPDM Code	DOUBLE ACTING FPM Code
75	8675	5135	HP DKA 312	HP DKB 312	HQ DKA 312	HQ DKB 312	HR DKA 312	HR DKB 312
90	11070	9060	HP DKA 313	HP DKB 313	HQ DKA 313	HQ DKB 313	HR DKA 313	HR DKB 313
110	14400	12390	HP DKA 314	HP DKB 314	HQ DKA 314	HQ DKB 314	HR DKA 314	HR DKB 314

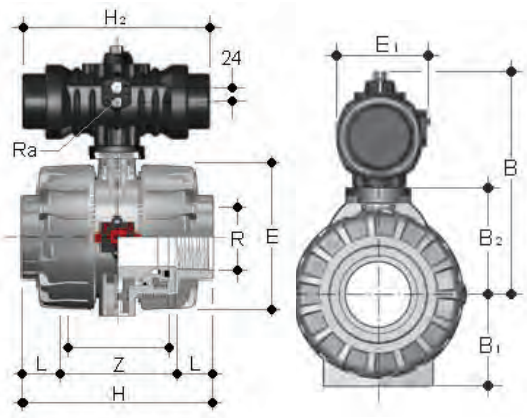
PP

d	gms FSC FSO	gms DA	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	DOUBLE ACTING EPDM Code	DOUBLE ACTING FPM Code
75	8040	4500	HP DKN 312	HP DKP 312	HQ DKN 312	HQ DKP 312	HR DKN 312	HR DKP 312
90	10030	8020	HP DKN 313	HP DKP 313	HQ DKN 313	HQ DKP 313	HR DKN 313	HR DKP 313
110	12675	10665	HP DKN 314	HP DKP 314	HQ DKN 314	HQ DKP 314	HR DKN 314	HR DKP 314

Corzan

d	gms FSC FSO	gms DA	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	DOUBLE ACTING EPDM Code	DOUBLE ACTING FPM Code
75	9700	6160	HP DKJ 312	HP DKK 312	HQ DKJ 312	HQ DKK 312	HR DKJ 312	HR DKK 312
90	12790	10780	HP DKJ 313	HP DKK 313	HQ DKJ 313	HQ DKK 313	HR DKJ 313	HR DKK 313
110	17090	15080	HP DKJ 314	HP DKK 314	HQ DKJ 314	HQ DKK 314	HR DKJ 314	HR DKK 314

BSP Threaded Socket Ends



VKDFV/CP PVC-U

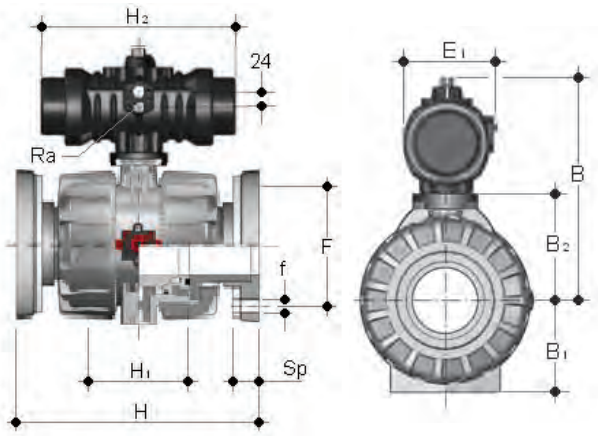
DualBlock® ball valve with BSP parallel female threaded ends

d	DN	PN	H	E	H_1	H_2 FSC FSO	H_2 DA	L	Z	B FSC FSO	B DA	B_1	B_2	E_1 FSC FSO	E_1 DA
$2^1/_2$	65	16	235	164	133	304	182	30.2	174.6	281	247	87	119	125	102
3	80	16	270	203	149	304	233	33.3	203.4	294	294	105	132	125	125
4	100	16	308	238	167	304	233	39.3	229.4	312	312	129	150	125	125

	PVC-U							
	gms FSC FSO	gms DA	FAIL SAFE CLOSED		FAIL SAFE OPEN		DOUBLE ACTING	
d			EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
$2^1/_2$	9330	5790	HP DKE B08	HP DKF B08	HQ DKE B08	HQ DKF B08	HR DKE B08	HR DKF B08
3	12150	10140	HP DKE B09	HP DKF B09	HQ DKE B09	HQ DKF B09	HR DKE B09	HR DKF B09
4	16090	14081	HP DKE B10	HP DKF B10	HQ DKE B10	HQ DKF B10	HR DKE B10	HR DKF B10

Flanged Ends to BS EN1092-1 PN10/16

VKDOV/CP PVC-U
VKDOM/CP PP
VKDOC/CP Corzan



DualBlock® ball valve with Flanged ends, to BS EN1092-1 PN10/16

d	DN	PN	H	H_1	F	f	U	Sp PVC-U ABS	Sp PP	H_2 FSC FSO	H_2 DA	B FSC FSO	B DA	B_1	B_2	E_1 FSC FSO	E_1 DA
$2^1/_2$	65	16	235	133	145	17	4	21	24	304	182	281	247	87	119	125	102
3	80	16	270	149	160	17	4	21.5	24.5	304	233	294	294	105	132	125	125
4	100	16	308	167	180	17	4	21.5	24.5	304	233	312	312	129	150	125	125

PVC-U

d	gms FSC FSO	gms DA	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	DOUBLE ACTING EPDM Code	DOUBLE ACTING FPM Code
$2^1/_2$	9330	5790	HP DKE F08	HP DKF F08	HQ DKE F08	HQ DKF F08	HR DKE F08	HR DKF F08
3	12150	10140	HP DKE F09	HP DKF F09	HQ DKE F09	HQ DKF F09	HR DKE F09	HR DKF F09
4	16090	14081	HP DKE F10	HP DKF F10	HQ DKE F10	HQ DKF F10	HR DKE F10	HR DKF F10

PP

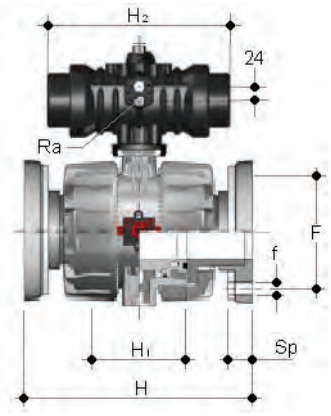
d	gms FSC FSO	gms DA	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	DOUBLE ACTING EPDM Code	DOUBLE ACTING FPM Code
$2^1/_2$	8040	4500	HP DKN F08	HP DKP F08	HQ DKN F08	HQ DKP F08	HR DKN F08	HR DKP F08
3	10030	8020	HP DKN F09	HP DKP F09	HQ DKN F09	HQ DKP F09	HR DKN F09	HR DKP F09
4	12675	10665	HP DKN F10	HP DKP F10	HQ DKN F10	HQ DKP F10	HR DKN F10	HR DKP F10

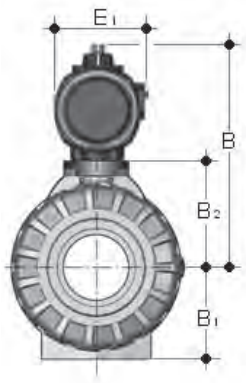
Corzan

d	gms FSC FSO	gms DA	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	DOUBLE ACTING EPDM Code	DOUBLE ACTING FPM Code
$2^1/_2$	9700	6160	HP DKJ F08	HP DKK F08	HQ DKJ F08	HQ DKK F08	HR DKJ F08	HR DKK F08
3	12790	10780	HP DKJ F09	HP DKK F09	HQ DKJ F09	HQ DKK F09	HR DKJ F09	HR DKK F09
4	17090	15080	HP DKJ F10	HP DKK F10	HQ DKJ F10	HQ DKK F10	HR DKJ F10	HR DKK F10

Flanged Ends to ANSI 150

VKDOAV/CP PVC-U
VKDOAM/CP PP
VKDOAC/CP Corzan





DualBlock® ball valve with Flanged ends, to ANSI 150

d	DN	PN	H	H_1	F	f	U	Sp PVC-U ABS	Sp PP	H_2 FSC FSO	H_2 DA	B FSC FSO	B DA	B_1	B_2	E_1 FSC FSO	E_1 DA
$2^1/_2$	65	16	235	133	139.7	17	4	21	24	304	182	281	247	87	119	125	102
3	80	16	270	149	152.4	17	4	21.5	24.5	304	233	294	294	105	132	125	125
4	100	16	308	167	190.5	17	4	21.5	24.5	304	233	312	312	129	150	125	125

PVC-U

d	gms FSC FSO	gms DA	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	DOUBLE ACTING EPDM Code	DOUBLE ACTING FPM Code
$2^1/_2$	9330	5790	HP DKE X08	HP DKF X08	HQ DKE X08	HQ DKF X08	HR DKE X08	HR DKF X08
3	12150	10140	HP DKE X09	HP DKF X09	HQ DKE X09	HQ DKF X09	HR DKE X09	HR DKF X09
4	16090	14081	HP DKE X10	HP DKF X10	HQ DKE X10	HQ DKF X10	HR DKE X10	HR DKF X10

PP

d	gms FSC FSO	gms DA	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	DOUBLE ACTING EPDM Code	DOUBLE ACTING FPM Code
$2^1/_2$	8040	4500	HP DKN X08	HP DKP X08	HQ DKN X08	HQ DKP X08	HR DKN X08	HR DKP X08
3	10030	8020	HP DKN X09	HP DKP X09	HQ DKN X09	HQ DKP X09	HR DKN X09	HR DKP X09
4	12675	10665	HP DKN X10	HP DKP X10	HQ DKN X10	HQ DKP X10	HR DKN X10	HR DKP X10

Corzan

d	gms FSC FSO	gms DA	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	DOUBLE ACTING EPDM Code	DOUBLE ACTING FPM Code
$2^1/_2$	9700	6160	HP DKJ X08	HP DKK X08	HQ DKJ X08	HQ DKK F08	HR DKJ X08	HR DKK X08
3	12790	10780	HP DKJ X09	HP DKK X09	HQ DKJ X09	HQ DKK X09	HR DKJ X09	HR DKK X09
4	17090	15080	HP DKJ X10	HP DKK X10	HQ DKJ X10	HQ DKK X10	HR DKJ X10	HR DKK X10

Actuators

Pneumatic actuator with plastichousing

Air pressure required to operate: 6 Bar
Maximum allowable air pressure: 8 Bar
Working temperature: -32°C to +90°C
Pneumatic connections: 2 x ¼" BSP
Standard Namur mounting for solenoid valves

Actuator options

STD Double Acting

FAIL SAFE Fail Safe Closed / Fail Safe Open

Standard equipment

- Visual position indicator

CYCLE TIME AND CAPACITY

d	CYCLE TIME (Seconds)					
	DOUBLE ACTING		FAIL SAFE CLOSED		FAIL SAFE OPEN	
	To Open	To Close	To Open	To Close	To Open	To Close
$2^1/_2$ - 75	0.1	0.1	0.15	0.15	0.15	0.15
3 - 90	0.1	0.1	0.15	0.15	0.15	0.15
4 - 110	0.1	0.1	0.15	0.15	0.15	0.15

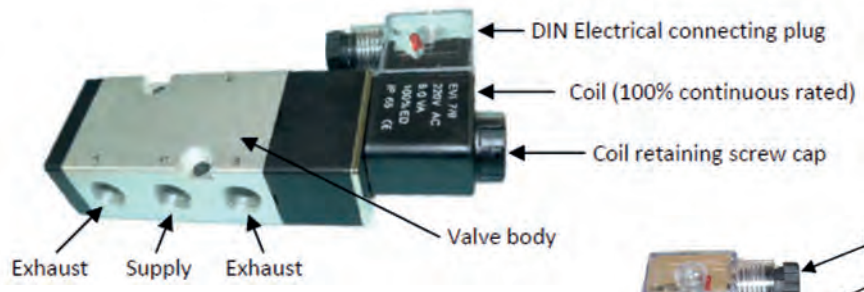
d	CAPACITY (Litres)					
	DOUBLE ACTING		FAIL SAFE CLOSED		FAIL SAFE OPEN	
	To Open	To Close	To Open	To Close	To Open	To Close
$2^1/_2$ - 16	0.075	0.05	0.075	-	-	0.075
3 - 20	0.075	0.05	0.075	-	-	0.075
4 - 25	0.075	0.05	0.075	-	-	0.075

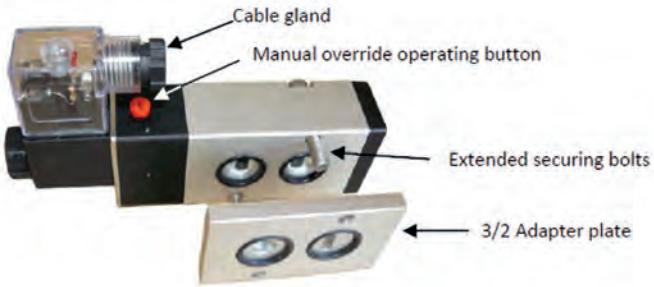
The actual actuator air consumption is calculated by multiplying the capacity (above) by the actual working air pressure.

Note: For Bracketing, Disassembly etc, refer to the Manual Section.

Accessories

Namur Mounted Pilot Solenoid Valve*





*Design of the solenoid valve supplied may vary based on individual requirements.

Accessories

Mounting:
Direct mounts to Namur interface of pneumatic actuator with supplied O-rings and bolts. They are supplied with both a 3/2 adaptor plate (spring return actuators) and a 5/2 adaptor plate (double acting actuators)

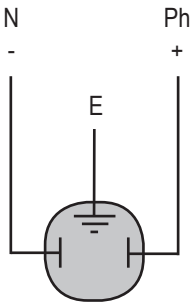
Electrical supply:
The pilot solenoid valves are available as: 240VAC, 110VAC, 24VAC and 24VDC

Air connections:
1/4" BSP female

Air supply:
Lubricated filtered compressed air (3.0 to 8.0 Bar)

Electrical wiring:
2 Wire (& earth) connection to DIN plug

Manual overide:
With air applied, but no power, the valve can be operated by hand by using the red push down and hold, or turn down (with a screwdriver) & lock manual button

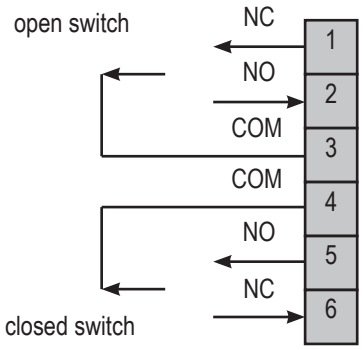


Voltage	Product Code
240VAC	HZ PS1 240
110VAC	HZ PS1 110
24VAC	HZ PS1 24A
24VDC	HZ PS1 24D

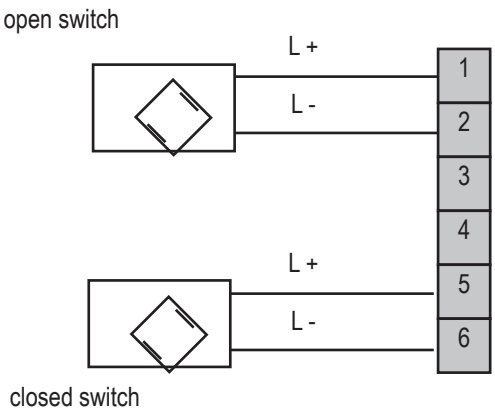
Auxiliary Limit Switch Box

Mounting:
Direct mounts to ISO top mounting of pneumatic actuator with supplied plates and bolts.

Electrical wiring:
The switch box is provided with two M20 conduit entries, for connection of cable glands either end.



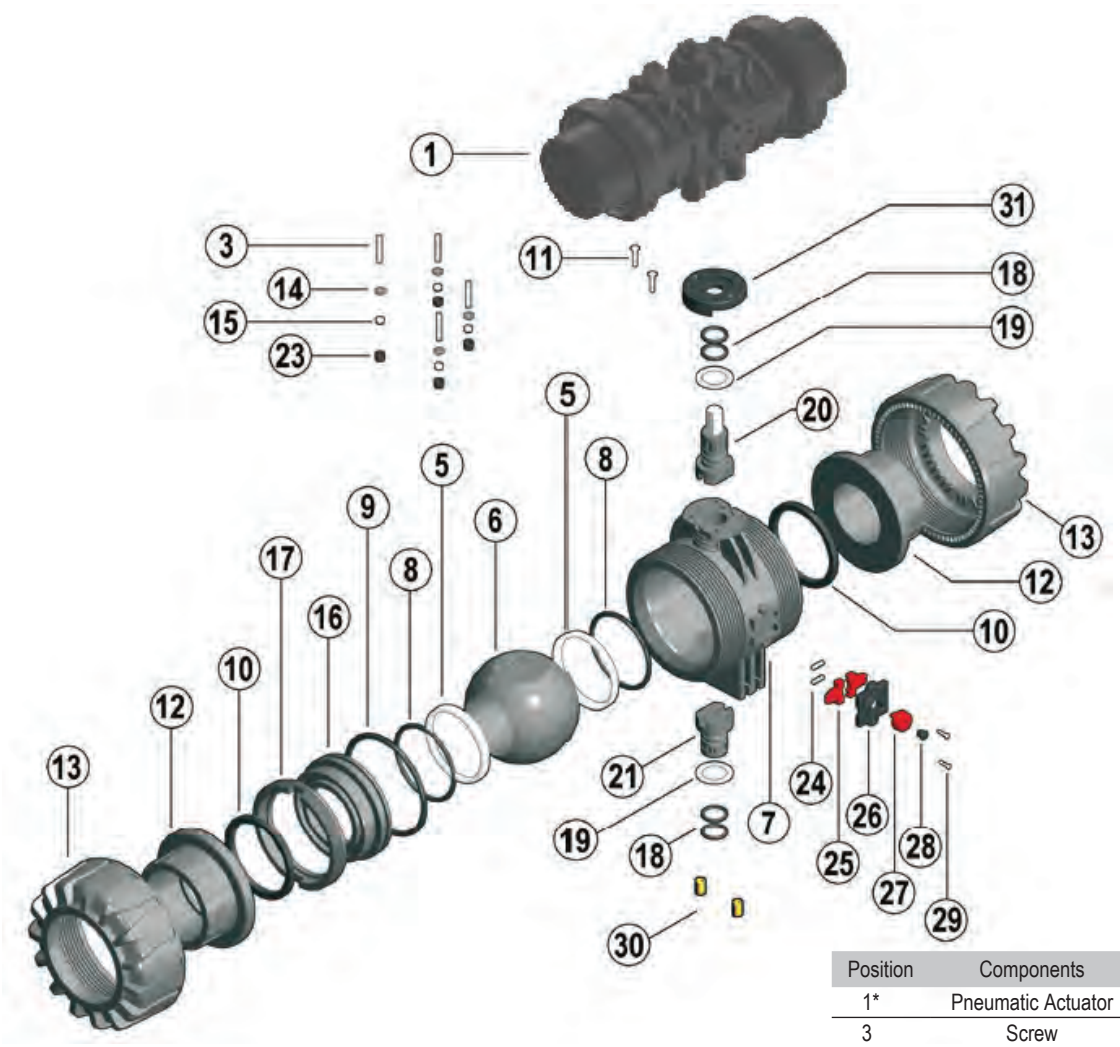
With mechanical limit switches



With intinsically safe proximty switches

For ordering codes and full product specification please contact the Durapipe Valve Department.

VKD DualBlock® 2-way Ball Valve (DN65 - DN100)



Position	Components	Material
1*	Pneumatic Actuator	PA-GR
3	Screw	Stainless Steel
5*	Ball Seat	PTFE
6	Ball	Valve Material
7	Body	Valve Material
8*	Ball Seat O-ring	EPDM/FPM
9*	Carrier O-ring	EPDM/FPM
10*	Socket Seal O-ring	EPDM/FPM
11	Screw	Stainless steel
12*	End Connector	Valve Material
13*	Union Nut	Valve Material
14	Washer	Stainless Steel
16	Ball Seat Carrier	ABS
17	Carrier 'Stop Ring'	ABS
18*	Stem O-ring	EPDM/FPM
19*	Friction Reducing Bush	PTFE
20	Upper Stem	Valve Material/ Stainless Steel
21	Lower Stem	Valve Material
23	Protection Cap	PE
24	Spring	Stainless Steel
25	Nut Block	PP-GR
26	Cover	PP
27	Nut Block Button	PP-GR
28	Protection Cap	PE
29	Screw	Nylon
30	Bracketing Bush	Brass
31	Actuation Pad	PP-GR

*Spare Parts

Tel: +44 (0)1543 471680 Fax: +44 (0)1543 471682

TKD Pneumatically Actuated TKD DualBlock® 3-way Ball Valve (DN10 - DN50)

- The **TKD DualBlock® ball valve**, is a fully unionised valve that stands up to the most severe industrial applications
- Size range from $^{3}/_{8}$" / d16mm up to 2" / d63mm
- Pressure rating: Maximum working pressure: 16 bar at 20°C (PP = 10Bar at 20ºC)
- Patented **DualBlock®** system: The locking device ensures the union nuts are retained in position, even under the most arduous conditions: i.e. vibration or thermal expansion
- Easy removal of the valve body from the pipe system, allowing replacement of the valve seals and seats without any additional equipment
- The pipeline downstream of the valve can be disconnected, with the valve in the closed position, without leakage
- Fully blocked Seat Stop® design ball seat carrier, with micro adjustment of the ball seats and 'take up' of axial pipe loads
- For more information, please visit our website: **www.durapipe.co.uk**

Legend

d	Nominal outside diameter
DN	Nominal internal diameter in mm
R	Nominal size or the thread in inches
PN	Nominal pressure in bar (max.working Pressure at 20°C - water)
gms	Weight in grams
PVC-U	Polyvinyl chloride unplasticised
ABS	Acrylontrile Butadiene Styrene
PP	Polypropylene
PVC-C	Polyvinyl chloride chlorinated
GRPP	Glass reinforced polypropylene
POM	Polyoxymethylene
PE	Polyethylene
PTFE	Polytetrafluoroethylene
EPDM	Ethylene Propylene Diene Monomer (M-class) rubber
FPM	Fluorocarbon Rubber
s	Wall thickness (mm)
SDR	Standard dimension ratio = d/s

Dimensions and Standards

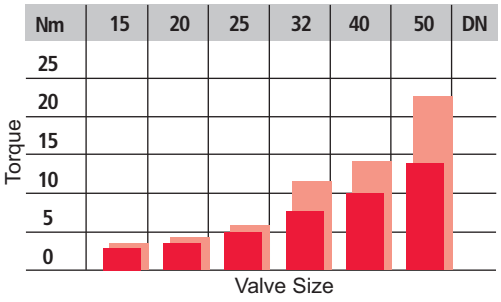
Imperial
The Imperial System is manufactured in accordance with the relevant British Standards: BS 5392 fittings.

Metric
The Metric System is manufactured generally in accordance with the relevant International Standards: ISO 15493, KIWA 49 and 549, DIN 8062 and 8063.

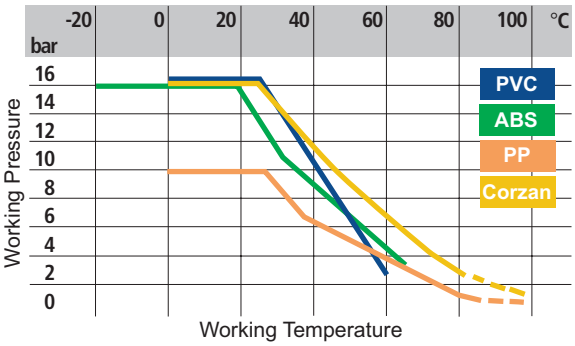
BSP Thread
Threaded fittings conform to the requirements of BS 21/DIN 2999/ISO7. Socket dimensions of metric fittings for solvent welding comply with ISO/DIS 727-1.

Interchangeability
Components in the imperial and metric ranges are not interchangeable.

Technical Data



Torque at working pressure. 10 Bar (Red) and 16 Bar (Pink).



Pressure/temperature rating for water and harmless fluids to which the material is RESISTANT. In other cases a reduction of the PN is required. (25 years with safety factor).

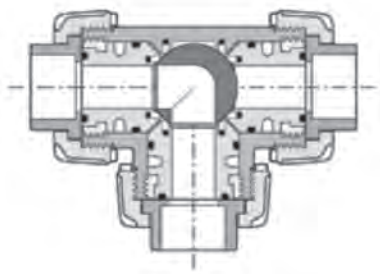
	DN	10	15	20	25	32	40	50
	A*	37	55	135	205	390	475	900
	B*	25	35	95	140	270	330	620
k_{v100} l/m	C*	40	65	145	245	460	600	1200
	D*	78	195	380	760	1050	1700	3200
	E*	48	73	150	265	475	620	1220

Flow coefficient k_{v100}

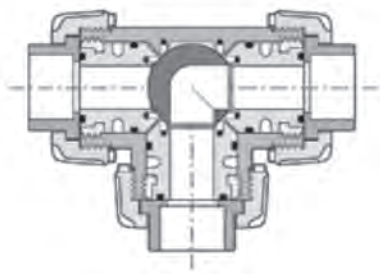
k_{v100} is the number of litres per minute of water at a temperature of 20ºC that will flow through a valve with a one bar pressure differential at a specified rate. The k_{v100} values shown in the table are calculated with the valve fully open.

* The letters A-E refer to the various orientation options detailed on page 270.

'L' Port



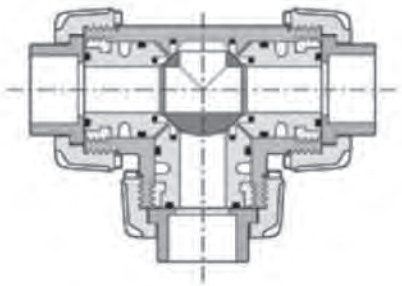
0°



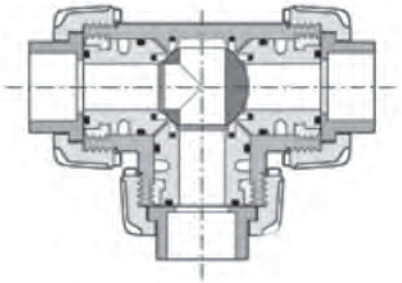
90°

Assembly configuration for 'L' Port valve.
When fitted with spring return actuator, the 0° position is the 'Fail Safe' position. If the 90° position is the required 'Fail Safe' position, please discuss with the Durapipe Valve Department.

'T' Port

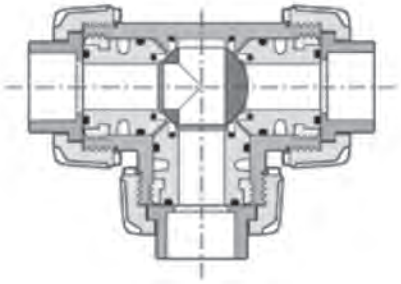


0°

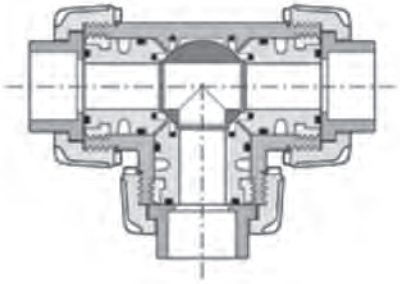


90°

Configuration 1

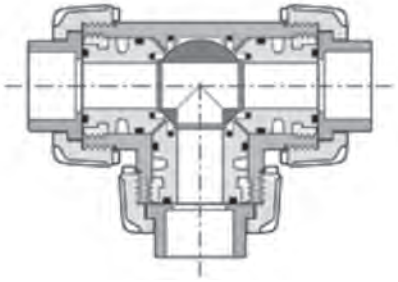


0°

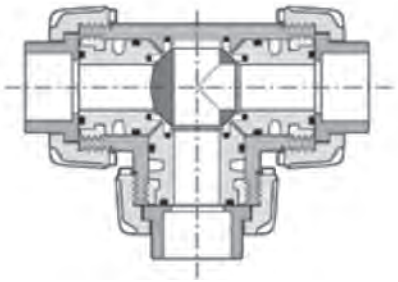


90°

Configuration 2

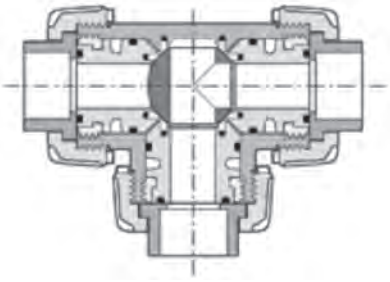


0°

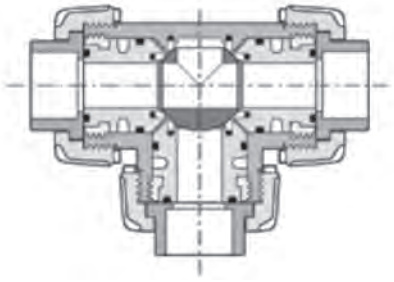


90°

Configuration 3



0°



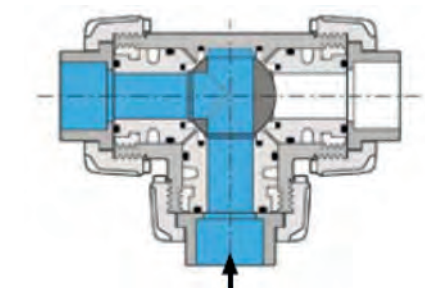
90°

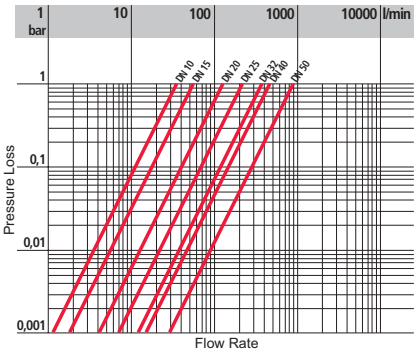
Configuration 4

Assembly configuration options for 'T' Port valve.
Unless otherwise advised the valve will be supplied as 'configuration 1'.
When fitted with spring return actuator, the 0° position is the 'Fail Safe' position.

Technical Data

A





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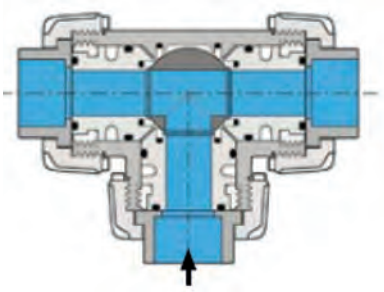
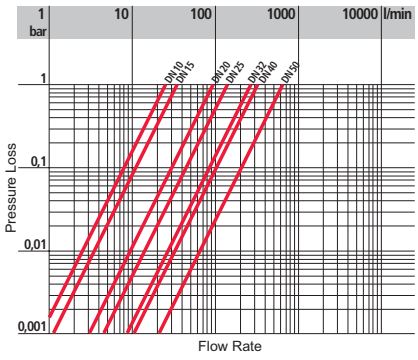
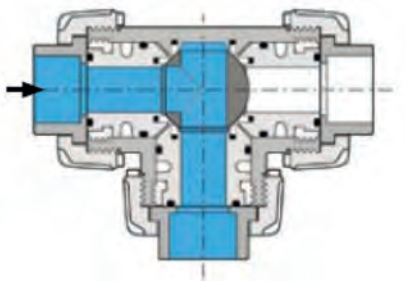
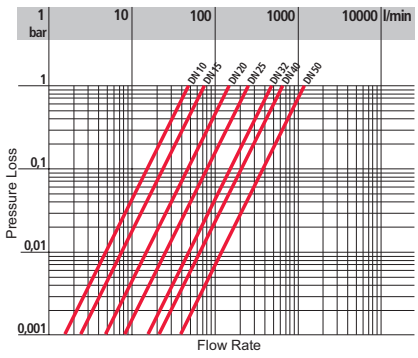


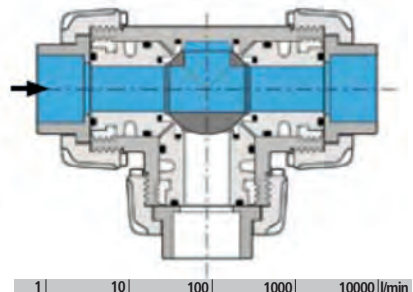


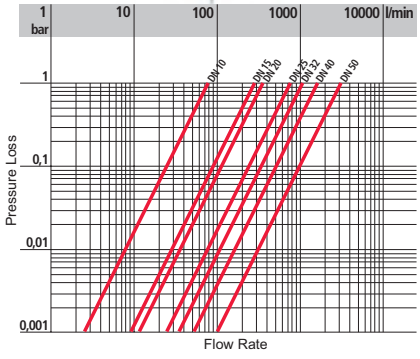
C





D





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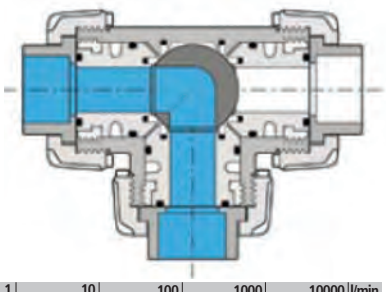
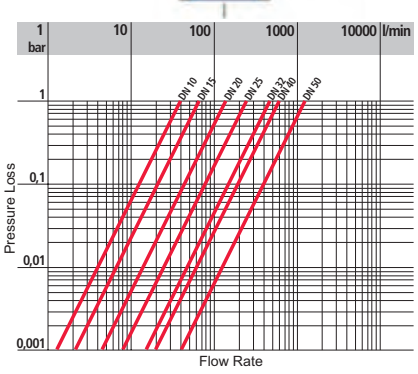
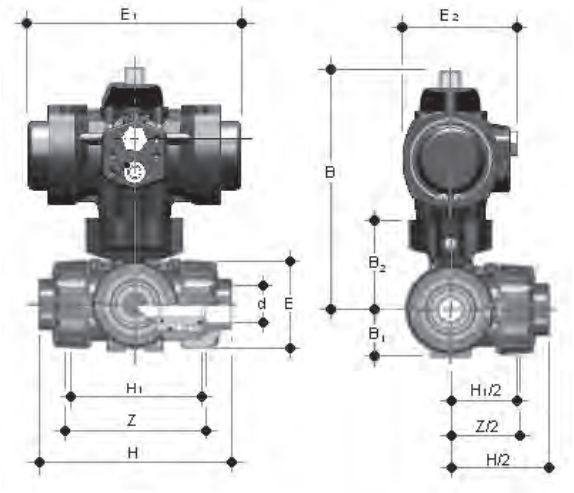




Pressure loss charts

BS Series Female Ends



TKDLV/CP - 'T' Port PVC-U **TKDLA/CP - 'T' Port** ABS
LKDLV/CP - 'L' Port PVC-U **LKDLA/CP - 'L' Port** ABS

DualBlock® 3-way ball valve with BS series female ends for solvent welding

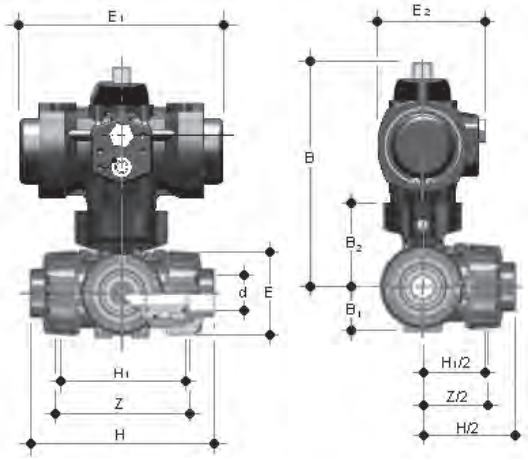
d	DN	PN	H	E	H_1	E_1 SR	E_1 DA	Z	B SR	B DA	B_1	B_2	E_2 SR	E_2 DA
3/8	10	16	118	54	80	142	107	74	143	143	29	58	68.5	68.5
1/2	15	16	118	54	80	142	107	70	143	143	29	58	68.5	68.5
3/4	20	16	145	65	100	142	107	77	158.5	158.5	34.5	73.5	68.5	68.5
1	25	16	160	73	110	155	107	83	184	159	39	74	80	68.5
1 1/4	32	16	188.5	86	131	155	125	94	207	207	46	97	80	80
1 1/2	40	16	219	98	148	230	125	104	229	214	52	104	102	80
2	50	10*	266.5	122	179	230	182	127	239	23	62	114	102	102

	PVC-U - 'T' Port			PVC-U - 'L' Port		PVC-U - 'T' Port			PVC-U - 'L' Port	
	SPRING RETURN			SPRING RETURN		DOUBLE ACTING			DOUBLE ACTING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	EPDM Code	FPM Code
1/2	1313	HP TTE 102	HP TTF 102	HP LTE 102	HP LTF 102	1313	HR TTE 102	HR TTF 102	HR LTE 102	HR LTF 102
3/4	1546	HP TTE 103	HP TTF 103	HP LTE 103	HP LTF 103	1546	HR TTE 103	HR TTF 103	HR LTE 103	HR LTF 103
1	2329	HP TTE 104	HP TTF 104	HP LTE 104	HP LTF 104	2329	HR TTE 104	HR TTF 104	HR LTE 104	HR LTF 104
1 1/4	2910	HP TTE 105	HP TTF 105	HP LTE 105	HP LTF 105	2910	HR TTE 105	HR TTF 105	HR LTE 105	HR LTF 105
1 1/2	4392	HP TTE 106	HP TTF 106	HP LTE 106	HP LTF 106	4392	HR TTE 106	HR TTF 106	HR LTE 106	HR LTF 106
2	5512	HP TTE 107	HP TTF 107	HP LTE 107	HP LTF 107	5512	HR TTE 107	HR TTF 107	HR LTE107	HR LTF 107

	ABS - 'T' Port			ABS- 'L' Port		ABS - 'T' Port			ABS - 'L' Port	
	SPRING RETURN			SPRING RETURN		DOUBLE ACTING			DOUBLE ACTING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	EPDM Code	FPM Code
1/2	1243	HP TTA 102	HP TTB 102	HP LTA 102	HP LTB 102	1243	HR TTA 102	HR TTB 102	HR LTA 102	HR LTB 102
3/4	1426	HP TTA 103	HP TTB 103	HP LTA 103	HP LTB 103	1426	HR TTA 103	HR TTB 103	HR LTA 103	HR LTB 103
1	2174	HP TTA 104	HP TTB 104	HP LTA 104	HP LTB 104	2174	HR TTA 104	HR TTB 104	HR LTA 104	HR LTB 104
1 1/4	2635	HP TTA 105	HP TTB 105	HP LTA 105	HP LTB 105	2635	HR TTA 105	HR TTB 105	HR LTA 105	HR LTB 105
1 1/2	4042	HP TTA 106	HP TTB 106	HP LTA 106	HP LTB 106	4042	HR TTA 106	HR TTB 106	HR LTA 106	HR LTB 106
2	4892	HP TTA 107	HP TTB 107	HP LTA 107	HP LTB 107	4892	HR TTA 107	HR TTB 107	HR LTA 107	HR LTB 107

Pneumatic 3-way valves can be set up in various ways (see page 269) depending on the orientation and setup of the actuator. This should be specified when the valve is ordered. For more information please contact the Durapipe Valve Department.

Metric Series Female Ends



TKDIV/CP - 'T' Port PVC-U
LKDIV/CP - 'L' Port PVC-U
TKDIA/CP - 'T' Port ABS
LKDIA/CP - 'L' Port ABS
TKDIM/CP - 'T' Port PP
LKDIM/CP - 'L' Port PP
TKDIM/CP - 'T' Port Corzan
LKDIM/CP - 'L' Port Corzan

DualBlock® 3-way ball valve with Metric series female ends

d	DN	PN	H	E	H_1	E_1 SR	E_1 DA	Z	B SR	B DA	B_1	B_2	E_2 SR	E_2 DA
16	10	16	118	54	80	142	107	74	143	143	29	58	68.5	68.5
20	15	16	118	54	80	142	107	70	143	143	29	58	68.5	68.5
25	20	16	145	65	100	142	107	77	158.5	158.5	34.5	73.5	68.5	68.5
32	25	16	160	73	110	155	107	83	184	159	39	74	80	68.5
40	32	16	188.5	86	131	155	125	94	207	207	46	97	80	80
50	40	16	219	98	148	230	125	104	229	214	52	104	102	80
63	50	10*	266.5	122	179	230	182	127	239	23	62	114	102	102

	PVC-U - 'T' Port			PVC-U - 'L' Port		PVC-U - 'T' Port			PVC-U - 'L' Port	
	SPRING RETURN			SPRING RETURN		DOUBLE ACTING			DOUBLE ACTING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	EPDM Code	FPM Code
20	1248	HP TTE 306	HP TTF 306	HP LTE 306	HP LTF 306	1248	HR TTE 306	HR TTF 306	HR LTE 306	HR LTF 306
25	1551	HP TTE 307	HP TTF 307	HP LTE 307	HP LTF 307	1551	HR TTE 307	HR TTF 307	HR LTE 307	HR LTF 307
32	2349	HP TTE 308	HP TTF 308	HP LTE 308	HP LTF 308	2349	HR TTE 308	HR TTF 308	HR LTE 308	HR LTF 308
40	2920	HP TTE 309	HP TTF 309	HP LTE 309	HP LTF 309	2920	HR TTE 309	HR TTF 309	HR LTE 309	HR LTF 309
50	4392	HP TTE 310	HP TTF 310	HP LTE 310	HP LTF 310	4392	HR TTE 310	HR TTF 310	HR LTE 310	HR LTF 310
63	5512	HP TTE 311	HP TTF 311	HP LTE 311	HP LTF 311	5512	HR TTE 311	HR TTF 311	HR LTE 311	HR LTF 311

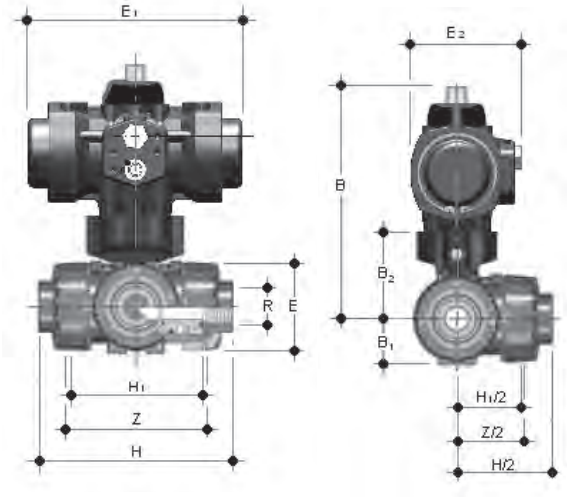
	ABS - 'T' Port			ABS- 'L' Port		ABS - 'T' Port			ABS - 'L' Port	
	SPRING RETURN			SPRING RETURN		DOUBLE ACTING			DOUBLE ACTING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	EPDM Code	FPM Code
20	1248	HP TTA 306	HP TTB 306	HP LTA 306	HP LTB 306	1248	HR TTA 306	HR TTB 306	HR LTA 306	HR LTB 306
25	1426	HP TTA 307	HP TTB 307	HP LTA 307	HP LTB 307	1426	HR TTA 307	HR TTB 307	HR LTA 307	HR LTB 307
32	2174	HP TTA 308	HP TTB 308	HP LTA 308	HP LTB 308	2174	HR TTA 308	HR TTB 308	HR LTA 308	HR LTB 308
40	2655	HP TTA 309	HP TTB 309	HP LTA 309	HP LTB 309	2655	HR TTA 309	HR TTB 309	HR LTA 309	HR LTB 309
50	4052	HP TTA 310	HP TTB 310	HP LTA 310	HP LTB 310	4052	HR TTA 310	HR TTB 310	HR LTA 310	HR LTB 310
63	4892	HP TTA 311	HP TTB 311	HP LTA 311	HP LTB 311	4892	HR TTA 311	HR TTB 311	HR LTA 311	HR LTB 311

	PP - 'T' Port			PP - 'L' Port		PP - 'T' Port			PP - 'L' Port	
	SPRING RETURN			SPRING RETURN		DOUBLE ACTING			DOUBLE ACTING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	EPDM Code	FPM Code
20	1318	HP TTN 306	HP TTP 306	HP LTN 306	HP LTP 306	1318	HR TTN 306	HR TTP 306	HR LTN 306	HR LTP 306
25	1561	HP TTN 307	HP TTP 307	HP LTN 307	HP LTP 307	1561	HR TTN 307	HR TTP 307	HR LTN 307	HR LTP 307
32	2394	HP TTN 308	HP TTP 308	HP LTN 308	HP LTP 308	2394	HR TTN 308	HR TTP 308	HR LTN 308	HR LTP 308
40	3015	HP TTN 309	HP TTP 309	HP LTN 309	HP LTP 309	3015	HR TTN 309	HR TTP 309	HR LTN 309	HR LTP 309
50	4452	HP TTN 310	HP TTP 310	HP LTN 310	HP LTP 310	4452	HR TTN 310	HR TTP 310	HR LTN 310	HR LTP 310
63	5467	HP TTN 311	HP TTP 311	HP LTN 311	HP LTP 311	5467	HR TTN 311	HR TTP 311	HR LTN 311	HR LTP 311

	Corzan - 'T' Port			Corzan - 'L' Port		Corzan - 'T' Port			Corzan - 'L' Port	
	SPRING RETURN			SPRING RETURN		DOUBLE ACTING			DOUBLE ACTING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	EPDM Code	FPM Code
20	1318	H0 TTJ 306	H0 TTK 306	H0 LTJ 306	H0 LTK 306	1318	HR TTJ 306	HR TTK 306	HR LTJ 306	HR LTK 306
25	1561	H0 TTJ 307	H0 TTK 307	H0 LTJ 307	H0 LTK 307	1561	HR TTJ 307	HR TTK 307	HR LTJ 307	HR LTK 307
32	2394	H0 TTJ 308	H0 TTK 308	H0 LTJ 308	H0 LTK 308	2394	HR TTJ 308	HR TTK 308	HR LTJ 308	HR LTK 308
40	3015	H0 TTJ 309	H0 TTK 309	H0 LTJ 309	H0 LTK 309	3015	HR TTJ 309	HR TTK 309	HR LTJ 309	HR LTK 309
50	4452	H0 TTJ 310	H0 TTK 310	H0 LTJ 310	H0 LTK 310	4452	HR TTJ 310	HR TTK 310	HR LTJ 310	HR LTK 310
63	5467	H0 TTJ 311	H0 TTK 311	H0 LTJ 311	H0 LTK 311	5467	HR TTJ 311	HR TTK 311	HR LTJ 311	HR LTK 311

BSP Threaded Socket Ends

TKDFV/CP - 'T' Port PVC-U **TKDFA/CP - 'T' Port** ABS **TKDFM/CP - 'T' Port** PP
LKDFV/CP - 'L' Port PVC-U **LKDFA/CP - 'L' Port** ABS **LKDFM/CP - 'L' Port** PP



DualBlock® 3-way ball valve with BSP parallel female threaded ends

d	DN	PN	H	E	H_1	E_1 SR	E_1 DA	Z	B SR	B DA	B_1	B_2	E_2 SR	E_2 DA
3/8	10	16	118	54	80	142	107	95	143	143	29	58	68.5	68.5
1/2	15	16	125	54	80	142	107	95	143	143	29	58	68.5	68.5
3/4	20	16	146	65	100	142	107	114	158.5	158.5	34.5	73.5	68.5	68.5
1	25	16	166	73	110	155	107	129	184	159	39	74	80	68.5
1 1/4	32	16	195.5	86	131	155	125	151	207	207	46	97	80	80
1 1/2	40	16	211	98	148	230	125	166	229	214	52	104	102	80
2	50	10*	253.5	122	179	230	182	199	239	23	62	114	102	102

	PVC-U - 'T' Port			PVC-U - 'L' Port		PVC-U - 'T' Port			PVC-U - 'L' Port	
	SPRING RETURN			SPRING RETURN		DOUBLE ACTING			DOUBLE ACTING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	EPDM Code	FPM Code
1/2	1183	HP TTE B02	HP TTF B02	HP LTE B02	HP LTF B02	1183	HR TTE B02	HR TTF B02	HR LTE B02	HR LTF B02
3/4	1556	HP TTE B03	HP TTF B03	HP LTE B03	HP LTF B03	1556	HR TTE B03	HR TTF B03	HR LTE B03	HR LTF B03
1	2369	HP TTE B04	HP TTF B04	HP LTE B04	HP LTF B04	2369	HR TTE B04	HR TTF B04	HR LTE B04	HR LTF B04
1 1/4	2930	HP TTE B05	HP TTF B05	HP LTE B05	HP LTF B05	2930	HR TTE B05	HR TTF B05	HR LTE B05	HR LTF B05
1 1/2	4452	HP TTE B06	HP TTF B06	HP LTE B06	HP LTF B06	4452	HR TTE B06	HR TTF B06	HR LTE B06	HR LTF B06
2	5512	HP TTE B07	HP TTF B07	HP LTEB07	HP LTF B07	5512	HR TTE B07	HR TTF B07	HR LTEB07	HR LTF B07

	ABS - 'T' Port			ABS- 'L' Port		ABS - 'T' Port			ABS - 'L' Port	
	SPRING RETURN			SPRING RETURN		DOUBLE ACTING			DOUBLE ACTING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	EPDM Code	FPM Code
1/2	1248	HP TTA B02	HP TTB B02	HP LTA B02	HP LTB B02	1248	HR TTA B02	HR TTB B02	HR LTA B02	HR LTB B02
3/4	1421	HP TTA B03	HP TTB B03	HP LTA B03	HP LTB B03	1421	HR TTA B03	HR TTB B03	HR LTA B03	HR LTB B03
1	2174	HP TTA B04	HP TTB B04	HP LTA B04	HP LTB B04	2174	HR TTA B04	HR TTB B04	HR LTA B04	HR LTB B04
1 1/4	2655	HP TTA B05	HP TTB B05	HP LTA B05	HP LTB B05	2655	HR TTA B05	HR TTB B05	HR LTA B05	HR LTB B05
1 1/2	4052	HP TTA B06	HP TTB B06	HP LTA B06	HP LTB B06	4052	HR TTA B06	HR TTB B06	HR LTA B06	HR LTB B06
2	4892	HP TTA B07	HP TTB B07	HP LTA B07	HP LTB B07	4892	HR TTA B07	HR TTB B07	HR LTA B07	HR LTB B07

	PP - 'T' Port			PP- 'L' Port		PP - 'T' Port			PP - 'L' Port	
	SPRING RETURN			SPRING RETURN		DOUBLE ACTING			DOUBLE ACTING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	gms	EPDM Code	FPM Code	EPDM Code	FPM Code
1/2	1323	HP TTN B02	HP TTP B02	HP LTN B02	HP LTP B02	1323	HR TTN B02	HR TTP B02	HR LTN B02	HR LTP B02
3/4	1561	HP TTN B03	HP TTP B03	HP LTN B03	HP LTP B03	1561	HR TTN B03	HR TTP B03	HR LTN B03	HR LTP B03
1	2394	HP TTN B04	HP TTP B04	HP LTN B04	HP LTP B04	2394	HR TTN B04	HR TTP B04	HR LTN B04	HR LTP B04
1 1/4	3015	HP TTN B05	HP TTP B05	HP LTN B05	HP LTP B05	3015	HR TTN B05	HR TTP B05	HR LTN B05	HR LTP B05
1 1/2	4462	HP TTN B06	HP TTP B06	HP LTN B06	HP LTP B06	4462	HR TTN B06	HR TTP B06	HR LTN B06	HR LTP B06
2	5492	HP TTN B07	HP TTP B07	HP LTN B07	HP LTP B07	5492	HR TTN B07	HR TTP B07	HR LTN B07	HR LTP B07

Actuators

Pneumatic actuator with plastic housing

Air pressure required to operate: 6 Bar
Maximum allowable air pressure: 8 Bar
Working temperature: -32°C to +90°C
Pneumatic connections: 2 x ¼" BSP
Standard Namur mounting for solenoid valves

Actuator options

STD Double Acting

FAIL SAFE Spring Return

Standard equipment

- Visual position indicator

CYCLE TIME AND CAPACITY

d	CYCLE TIME (Seconds) DOUBLE ACTING Air To Open	DOUBLE ACTING Spring To Close	SPRING RETURN Air To Open	SPRING RETURN Spring To Close
3/8 - 16	0.1	0.1	0.15	0.15
1/2 - 20	0.1	0.1	0.15	0.15
3/4 - 25	0.1	0.1	0.15	0.15
1 - 32	0.1	0.1	0.2	0.2
1 1/4 - 40	0.15	0.15	0.2	0.2
1 1/2 - 50	0.15	0.15	0.3	0.3
2 - 63	0.25	0.25	0.3	0.3

CYCLE TIME AND CAPACITY

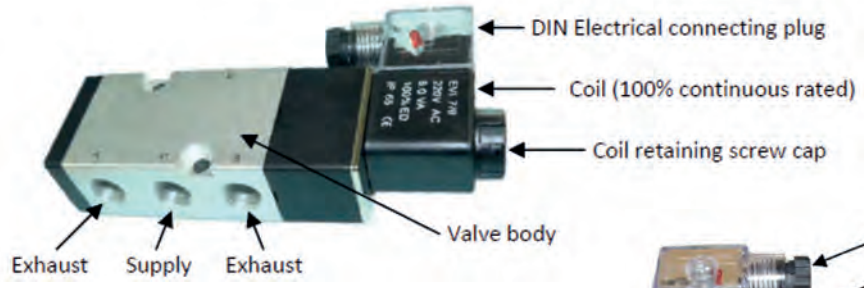
d	CAPACITY (Litres) DOUBLE ACTING Air To Open	DOUBLE ACTING Spring To Close	SPRING RETURN Air To Open	SPRING RETURN Spring To Close
3/8 - 16	0.075	0.05	0.075	-
1/2 - 20	0.075	0.05	0.075	-
3/4 - 25	0.075	0.05	0.075	-
1 - 32	0.075	0.05	0.15	-
1 1/4 - 40	0.15	0.10	0.15	-
1 1/2 - 50	0.15	0.10	0.35	-
2 - 63	0.35	0.32	0.35	0.3

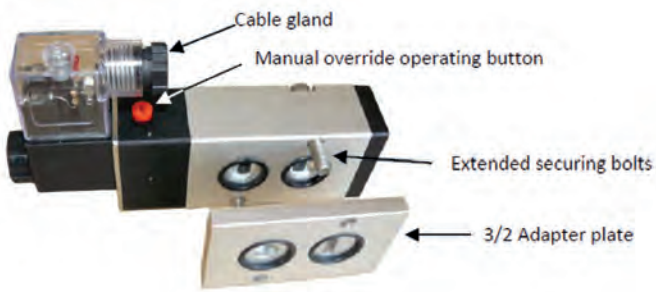
The actual actuator air consumption is calculated by multiplying the capacity (above) by the actual working air pressure.

Note: For Bracketing, Disassembly etc, refer to the Manual Section.

Accessories

Namur Mounted Pilot Solenoid Valve*





*Design of the solenoid valve supplied may vary based on individual requirements.

Accessories

Mounting:
Direct mounts to Namur interface of pneumatic actuator with supplied O-rings and bolts. They are supplied with both a 3/2 adaptor plate (spring return actuators) and a 5/2 adaptor plate (double acting actuators)

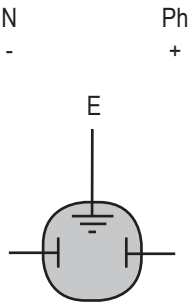
Electrical supply:
The pilot solenoid valves are available as : 240VAC, 110VAC, 24VAC and 24VDC

Air connections:
1/4" BSP female

Air supply:
Lubricated filtered compressed air (3.0 to 8.0 Bar)

Electrical wiring:
2 Wire (& earth) connection to DIN plug

Manual overide:
With air applied, but no power, the valve can be operated by hand by using the red push down and hold, or turn down (with a screwdriver) & lock manual button

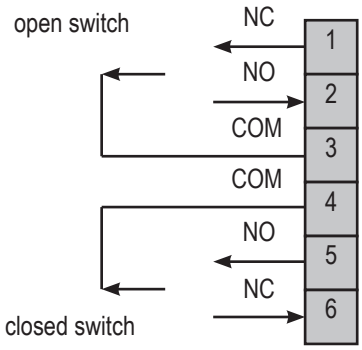


Voltage	Product Code
240VAC	HZ PS1 240
110VAC	HZ PS1 110
24VAC	HZ PS1 24A
24VDC	HZ PS1 24D

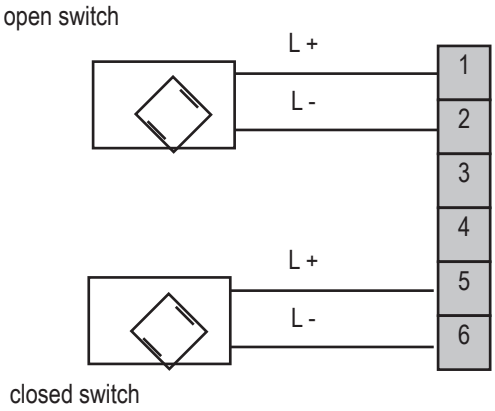
Auxiliary Limit Switch Box

Mounting:
Direct mounts to ISO top mounting of pneumatic actuator with supplied plates and bolts

Electrical wiring:
The switch box is provided with two M20 conduit entries, for connection of cable glands either end

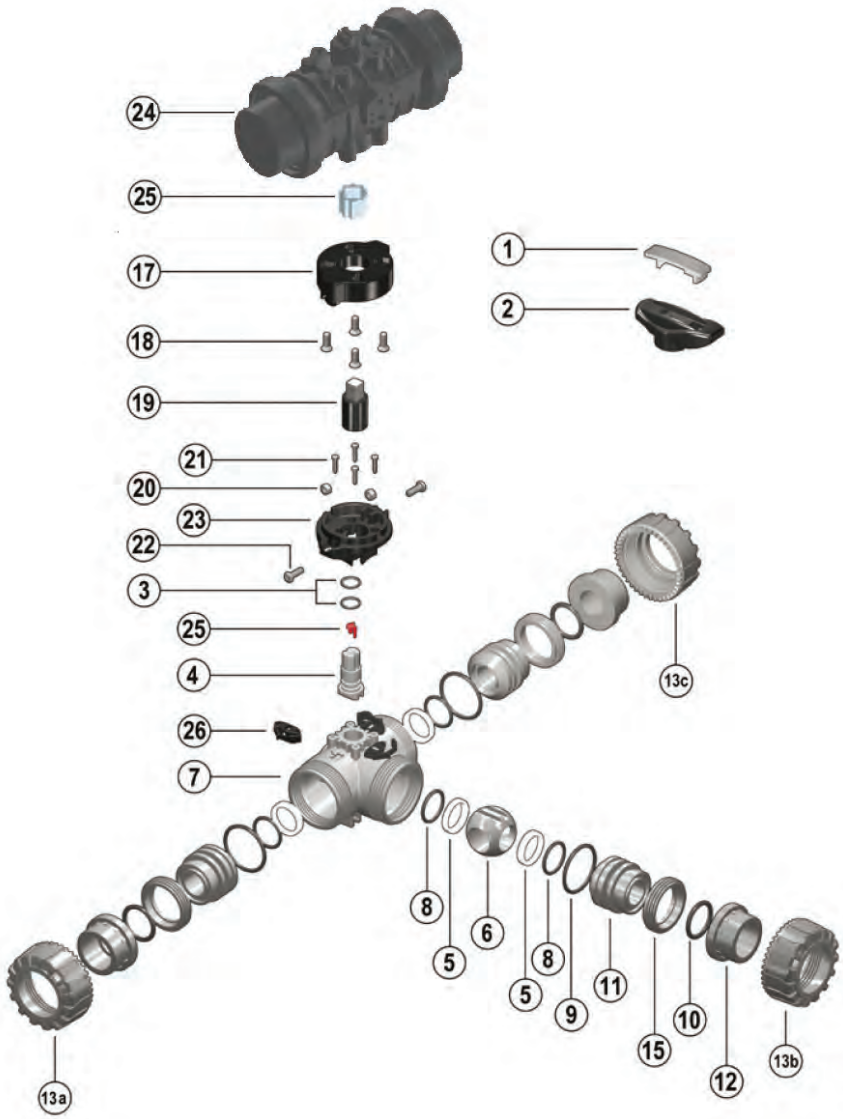


With mechanical limit switches



With intinsically safe proximty switches

For ordering codes and full product specification please contact the Durapipe Valve Department.



Position	Components	Material
1	Handle Insert Tool	PVC-U
2	Handle	HIPVC
3*	Stem O-ring	EPDM/FPM
4	Stem	Valve Material
5*	Ball Seat	PTFE
6	Ball	Valve Material
7	Body	Valve Material
8*	Ball Seat O-ring	EPDM/FPM
9*	Carrier O-ring	EPDM/FPM
10*	Socket Seal O-ring	EPDM/FPM
11	Ball Seat Carrier	Valve Material
12*	End Connector	Valve Material
13*	Union Nut	Valve Material
16*	DualBlock®	POM
17**	PowerQuick Upper Plate	PP-GR
18**	Screw	Stainless Steel
19**	Coupling Spindle	PP-GR/Stainless Steel
20**	Nut	Stainless Steel
21**	Screw	Stainless Steel
22**	Screw	Stainless Steel
23**	PowerQuick Lower Plate	PP-GR
24*	Pneumatic Actuator	PA-GR
25	Reducing Bush	Stainless Steel

*Spare Parts ** Accessories

Tel: +44 (0)1543 471680 Fax: +44 (0)1543 471682

FK Pneumatically Actuated Butterfly Valve (DN40 - DN300)

- Used for On/Off and control operation
- Size range from DN40 up to DN300
- Pressure rating: Maximum working pressure: up to 16 bar at 20°C (water) - DN50 up to 10 bar at 20°C (water)
- Body material GR-PP; UV resistant
- Full flanged body with oval holes to fit various flanging standards. Supplied with hole inserts for bolt hole centralising (up to DN 200; DN 250 & 300 are drilled according to the flange drilling required)
- Optional fully lugged version with threaded Stainless steel AISI 316 inserts to BS-EN 1092 PN10 (Formally BS4504) or ANSI 150

Legend

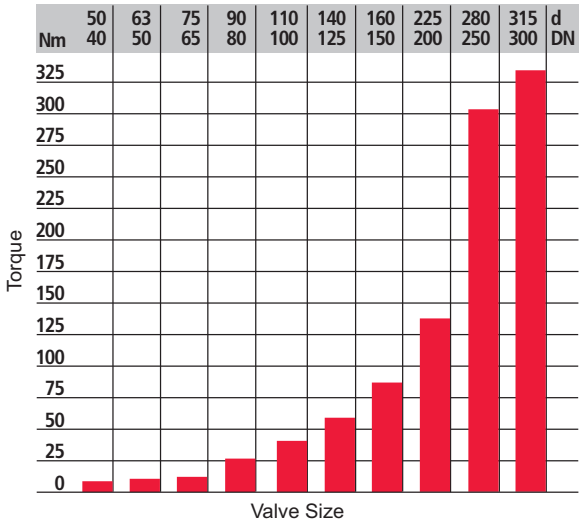
d	Nominal outside diameter
DN	Nominal internal diameter in mm
R	Nominal size or the thread in inches
PN	Nominal pressure in bar (max.working Pressure at 20°C - water)
gms	Weight in grams
PVC-U	Polyvinyl chloride unplasticised
ABS	Acrylontrile Butadiene Styrene
PP	Polypropylene
PVC-C	Polyvinyl chloride chlorinated
GRPP	Glass reinforced polypropylene
POM	Polyoxymethylene
PE	Polyethylene
PTFE	Polytetrafluoroethylene
EPDM	Ethylene Propylene Diene Monomer (M-class) rubber
FPM	Fluorocarbon Rubber
s	Wall thickness (mm)
SDR	Standard dimension ratio = d/s

Dimensions and Standards

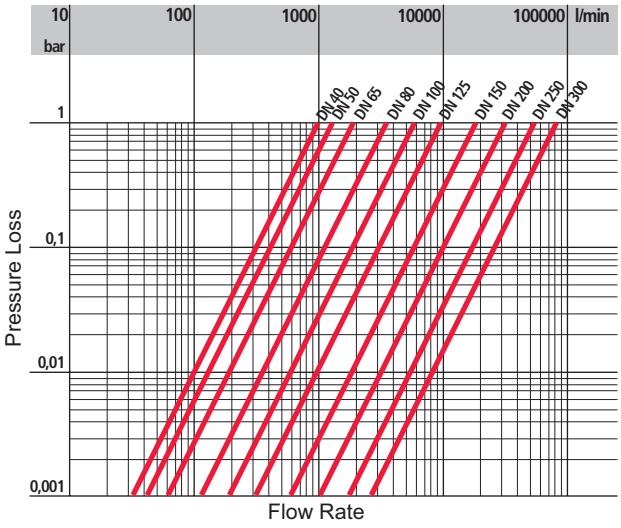
The overall dimensions of the FK Butterfly valve comply with the following standards:
ISO5752 (DN40 to DN200) Medium 25 series
ISO5752 (DN250 to DN300) Long 16 series
DIN 3202 (DN65 to DN 200) K2
DIN 3202 (DN250 to DN3000) K3

The oval holes in the valve body (DN50 to DN200) allow connection to the following flange drilling standards:
BS-EN 1092 PN10 (Formally BS4504 PN10)
ASA B16.5 class 150
BS10, Table D/E

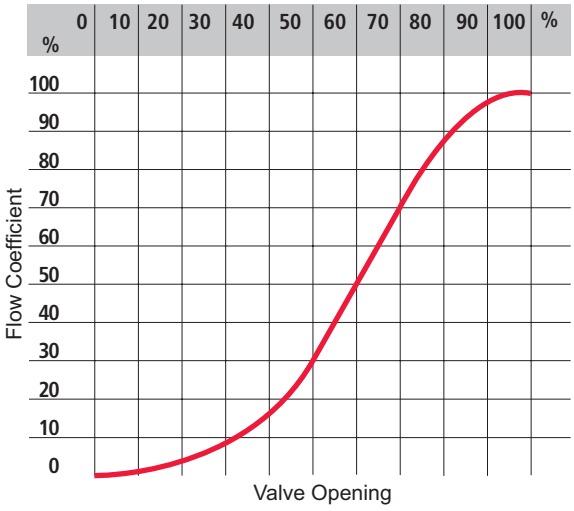
Technical Data



Maximum torque at maximum working pressure.



Pressure loss chart.



Relative flow chart.

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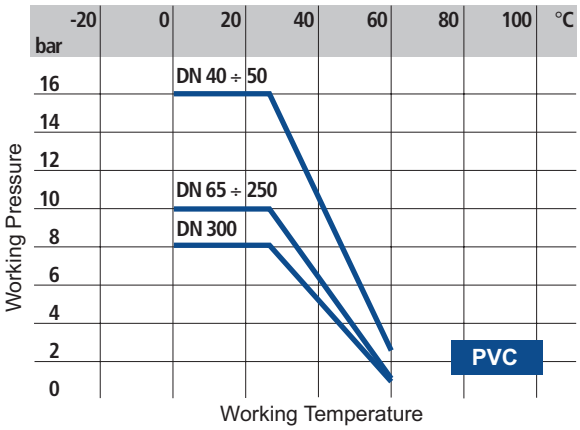
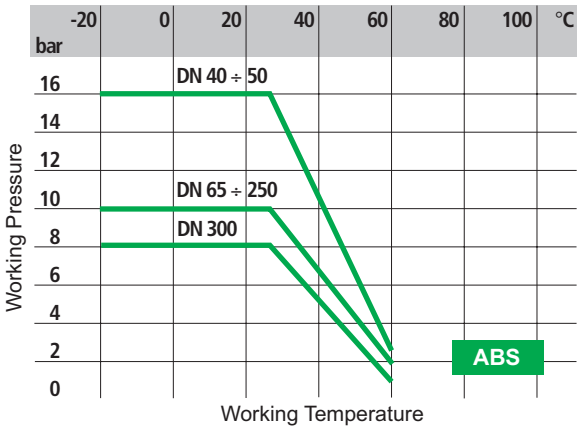
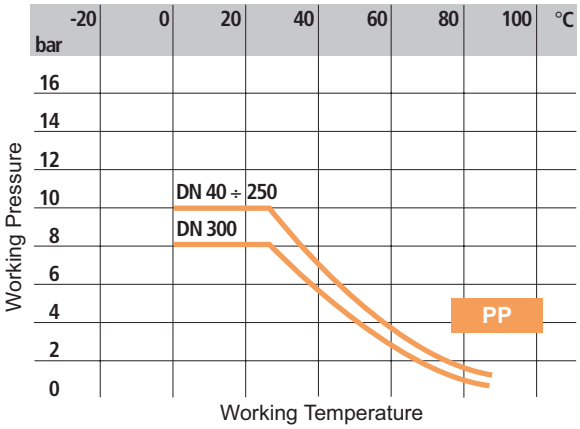
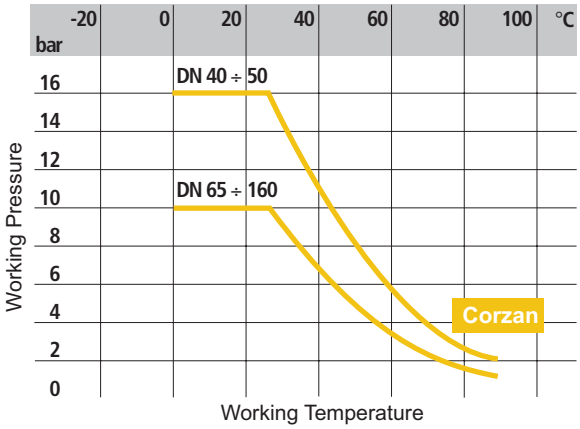








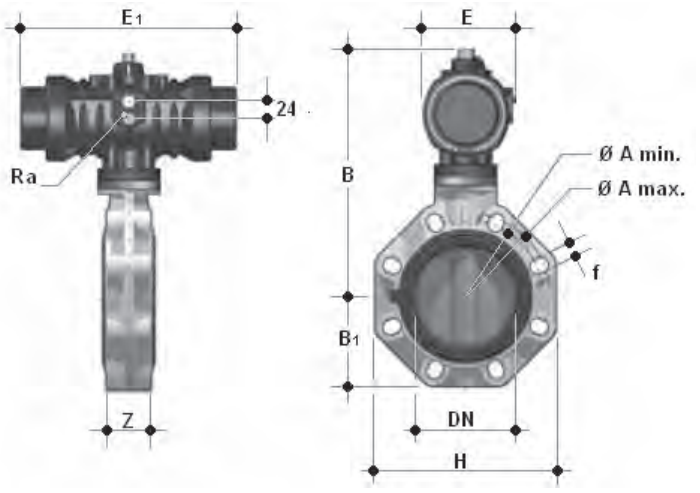
Pressure/temperature rating for water and harmless fluids to which the material is RESISTANT.
In other cases a reduction of the PN is required. (25 years with safety factor).

DN	40	50	65	80	100	125	150	200	250	300
bar	1000	1285	1700	3350	5900	9850	18700	30500	53200	81600

Flow coefficient k_{v100}

k_{v100} is the number of litres per minute of water at a temperature of 20°C that will flow through a valve with a one bar pressure differential at a specified rate. The k_{v100} values shown in the table are calculated with the valve fully open.

FKOV/CE PVC-U **FKOA/CP** ABS **FKOM/CP** PP **FKOC/CP** Corzan



FK Butterfly valve - Pneumatically actuated

d	DN	PN	B_1	B NC NO	B DA	E NC NO	E DA	E_1 NC NO	E_1 DA	H	Z	A_{min}	A_{max}	ØA	f	g	U
1½ - 50	40	16	60	234	216	102	80	230	125	132	33	99	109	-	19	2725	4
2 - 63	50	16	70	240	222	102	80	230	125	147	43	115	125.5	-	19	2905	4
2½ - 75	65	10	80	247	247	102	102	230	182	165	46	128	144	-	19	3130	4
3 - 90	80	10	93	295	261	125	102	304	182	185	49	145	160	-	19	6350	8
4 - 110	100	10	107	309	275	125	102	304	182	211	56	165	190	-	19	6700	8
5 - 140	125	10	120	329	295	177	102	479	182	240	64	204	215	-	23	18450	8
6 - 160	150	10	134	342	342	177	125	479	233	268	70	230	242	-	23	19200	8
8 - 225	200	10	161	438	418	177	152	479	276	323	71	280	298	-	23	21900	8
*10 - 250	250	10	210	520	520	226	226	479	276	405	114	-	-	335	25.4	48400	12
*12 - 315	300	8	245	577	577	226	226	598	444	475	114	-	-	390	29	55400	12
**10 - 250	250	10	210	520	520	226	226	598	-	405	114	-	-	362	25.4	48400	12
**12 - 315	300	8	245	577	577	226	226	598	-	475	114	-	-	432	29	55400	12

*To BS EN 1092 PN10 ** To ANSI 150

		PVC-U					
		FAIL SAFE CLOSED		FAIL SAFE OPEN		DOUBLE ACTING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
1½ - 50	2725	HP FKE 106	HP FKF 106	HQ FKE 106	HQ FKF 106	HR FKE 106	HR FKF 106
2 - 63	2905	HP FKE 107	HP FKF 107	HQ FKE 107	HQ FKF 107	HR FKE 107	HR FKF 107
2½ - 75	3130	HP FKE 108	HP FKF 108	HQ FKE 108	HQ FKF 108	HR FKE 108	HR FKF 108
3 - 90	6350	HP FKE 109	HP FKF 109	HQ FKE 109	HQ FKF 109	HR FKE 109	HR FKF 109
4 - 110	6700	HP FKE 110	HP FKF 110	HQ FKE 110	HQ FKF 110	HR FKE 110	HR FKF 110
5 - 140	18450	HP FKE 111	HP FKF 111	HQ FKE 111	HQ FKF 111	HR FKE 111	HR FKF 111
6 - 160	19200	HP FKE 112	HP FKF 112	HQ FKE 112	HQ FKF 112	HR FKE 112	HR FKF 112
8 - 225	21900	HP FKE 113	HP FKF 113	HQ FKE 113	HQ FKF 113	HR FKE 113	HR FKF 113
10* - 250	48400	HP FKE 114	HP FKF 114	HQ FKE 114	HQ FKF 114	HR FKE 114	HR FKF 114
10** - 250	48400	HP FKE A14	HP FKF A14	HQ FKE A14	HQ FKF A14	HR FKE A14	HR FKF A14
12* - 315	55400	HP FKE 115	HP FKF 115	HQ FKE 115	HQ FKF 115	HR FKE 115	HR FKF 115
12** - 315	55400	HP FKE A15	HP FKF A15	HQ FKE A15	HQ FKF A15	HR FKE A15	HR FKF A15

FKOV/CE PVC-U **FKOA/CP** ABS **FKOM/CP** PP **FKOC/CP** Corzan

ABS

d	gms	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	DOUBLE ACTING EPDM Code	DOUBLE ACTING FPM Code
1½ - 50	2725	HP FKA 106	HP FKB 106	HQ FKA 106	HQ FKB 106	HR FKA 106	HR FKB 106
2" - 63	2905	HP FKA 107	HP FKB 107	HQ FKA 107	HQ FKB 107	HR FKA 107	HR FKB 107
2½ - 75	3130	HP FKA 108	HP FKB 108	HQ FKA 108	HQ FKB 108	HR FKA 108	HR FKB 108
3 - 90	6350	HP FKA 109	HP FKB 109	HQ FKA 109	HQ FKB 109	HR FKA 109	HR FKB 109
4 - 110	6700	HP FKA 110	HP FKB 110	HQ FKA 110	HQ FKB 110	HR FKA 110	HR FKB 110
5 - 140	18450	HP FKA 111	HP FKB 111	HQ FKA 111	HQ FKB 111	HR FKA 111	HR FKB 111
6 - 160	19200	HP FKA 112	HP FKB 112	HQ FKA 112	HQ FKB 112	HR FKA 112	HR FKB 112
8 - 225	21900	HP FKA 113	HP FKB 113	HQ FKA 113	HQ FKB 113	HR FKA 113	HR FKB 113
10* - 250	48400	HP FKA 114	HP FKB 114	HQ FKA 114	HQ FKB 114	HR FKA 114	HR FKB 114
10** - 250	48400	HP FKA A14	HP FKB A14	HQ FKA A14	HQ FKB A14	HR FKA A14	HR FKB A14
12* - 315	55400	HP FKA 115	HP FKB 115	HQ FKA 115	HQ FKB 115	HR FKA 115	HR FKB 115
12** - 315	55400	HP FKA A15	HP FKB A15	HQ FKA A15	HQ FKB A15	HR FKA A15	HR FKB A15

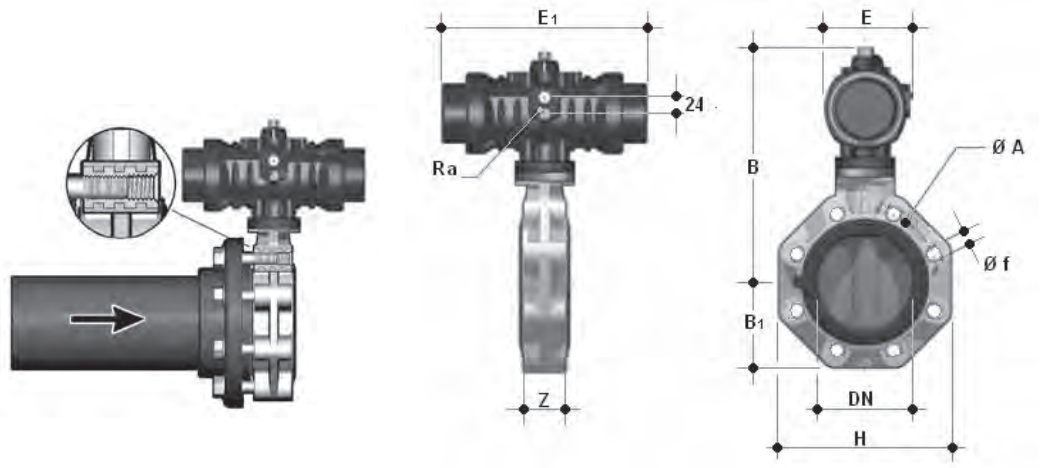
PP

d	gms	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	DOUBLE ACTING EPDM Code	DOUBLE ACTING FPM Code
1½ - 50	2725	HP FKN 106	HP FKP 106	HQ FKN 106	HQ FKP 106	HR FKN 106	HR FKP 106
2 - 63	2905	HP FKN 107	HP FKP 107	HQ FKN 107	HQ FKP 107	HR FKN 107	HR FKP 107
2½ - 75	3130	HP FKN 108	HP FKP 108	HQ FKN 108	HQ FKP 108	HR FKN 108	HR FKP 108
3 - 90	6350	HP FKN 109	HP FKP 109	HQ FKN 109	HQ FKP 109	HR FKN 109	HR FKP 109
4 - 110	6700	HP FKN 110	HP FKP 110	HQ FKN 110	HQ FKP 110	HR FKN 110	HR FKP 110
5 - 140	18450	HP FKN 111	HP FKP 111	HQ FKN 111	HQ FKP 111	HR FKN 111	HR FKP 111
6 - 160	19200	HP FKN 112	HP FKP 112	HQ FKN 112	HQ FKP 112	HR FKN 112	HR FKP 112
8 - 225	21900	HP FKN 113	HP FKP 113	HQ FKN 113	HQ FKP 113	HR FKN 113	HR FKP 113
10* - 250	48400	HP FKN 114	HP FKP 114	HQ FKN 114	HQ FKP 114	HR FKN 114	HR FKP 114
10** - 250	48400	HP FKN A14	HP FKP A14	HQ FKN A14	HQ FKP A14	HR FKN A14	HR FKP A14
12* - 315	55400	HP FKN 115	HP FKP 115	HQ FKN 115	HQ FKP 115	HR FKN 115	HR FKP 115
12** - 315	55400	HP FKN A15	HP FKP A15	HQ FKN A15	HQ FKP A15	HR FKN A15	HR FKP A15

Corzan

d	gms	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	DOUBLE ACTING EPDM Code	DOUBLE ACTING FPM Code
1½ - 50	2725	HP FKJ 106	HP FKK 106	HQ FKJ 106	HQ FKK 106	HR FKJ 106	HR FKK 106
2 - 63	2905	HP FKJ 107	HP FKK 107	HQ FKJ 107	HQ FKK 107	HR FKJ 107	HR FKK 107
2½ - 75	3130	HP FKJ 108	HP FKK 108	HQ FKJ 108	HQ FKK 108	HR FKJ 108	HR FKK 108
3 - 90	6350	HP FKJ 109	HP FKK 109	HQ FKJ 109	HQ FKK 109	HR FKJ 109	HR FKK 109
4 - 110	6700	HP FKJ 110	HP FKK 110	HQ FKJ 110	HQ FKK 110	HR FKJ 110	HR FKK 110
5 - 140	18450	HP FKJ 111	HP FKK 111	HQ FKJ 111	HQ FKK 111	HR FKJ 111	HR FKK 111
6 - 160	19200	HP FKJ 112	HP FKK 112	HQ FKJ 112	HQ FKK 112	HR FKJ 112	HR FKK 112
8 - 225	21900	HP FKJ 113	HP FKK 113	HQ FKJ 113	HQ FKK 113	HR FKJ 113	HR FKK 113

FKOV/LM LUG ISO-DIN PVC-U
FKOM/LM LUG ISO-DIN PP
FKOA/LM LUG ISO-DIN ABS
FKOC/LM LUG ISO-DIN Corzan



FK Butterfly valve - Pneumatically actuated Disc

d	DN	PN	B_1	B NC NO	B DA	E NC NO	E DA	E_1 NC NO	E_1 DA	H	Z	ØA	Øf	g	u
2½ - 75	65	10	80	247	247	102	102	230	102	165	46	145	M16	3130	4
3 - 90	80	10	93	295	261	125	102	304	102	185	49	160	M16	6350	8
4 - 110	100	10	120	309	275	125	102	304	102	211	56	180	M20	6700	8
5 - 140	125	10	134	329	295	177	102	479	102	240	64	210	M20	18450	8
6 - 160	150	10	134	342	342	177	125	479	125	268	70	240	M20	19200	8
8 - 225	200	10	161	438	418	177	152	479	152	323	71	295	M20	21900	8
*10 - 250	250	10	210	520	520	226	226	598	226	405	114	350	M20	48400	12
*12 - 315	300	8	245	577	577	226	226	598	226	475	114	402	M20	55400	12

*To BS EN 1092 PN10

		PVC-U					
		FAIL SAFE CLOSED		FAIL SAFE OPEN		DOUBLE ACTING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
1½ - 50		HP FKE F06	HP FKF F06	HQ FKE F06	HQ FKF F06	HR FKE F06	HR FKF F06
2 - 63		HP FKE F07	HP FKF F07	HQ FKE F07	HQ FKF F07	HR FKE F07	HR FKF F07
2½ - 75	3130	HP FKE F08	HP FKF F08	HQ FKE F08	HQ FKF F08	HR FKE F08	HR FKF F08
3 - 90	6350	HP FKE F09	HP FKF F09	HQ FKE F09	HQ FKF F09	HR FKE F09	HR FKF F09
4 - 110	6700	HP FKE F10	HP FKF F10	HQ FKE F10	HQ FKF F10	HR FKE F10	HR FKF F10
5 - 140	18450	HP FKE F11	HP FKF F11	HQ FKE F11	HQ FKF F11	HR FKE F11	HR FKF F11
6 - 160	19200	HP FKE F12	HP FKF F12	HQ FKE F12	HQ FKF F12	HR FKE F12	HR FKF F12
8 - 225	21900	HP FKE F13	HP FKF F13	HQ FKE F13	HQ FKF F13	HR FKE F13	HR FKF F13
10* - 250	48400	HP FKE F14	HP FKF F14	HQ FKE F14	HQ FKF F14	HR FKE F14	HR FKF F14
12* - 315	55400	HP FKE F15	HP FKF F15	HQ FKE F15	HQ FKF F15	HR FKE F15	HR FKF F15

FKOV/LM LUG ISO-DIN PVC-U
FKOM/LM LUG ISO-DIN PP
FKOA/LM LUG ISO-DIN ABS
FKOC/LM LUG ISO-DIN Corzan

ABS

d	gms	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	DOUBLE ACTING EPDM Code	DOUBLE ACTING FPM Code
1½ - 50	2725	HP FKA F06	HP FKB F06	HQ FKA F06	HQ FKB F06	HR FKA F06	HR FKB F06
2 - 63	2905	HP FKA F07	HP FKB F07	HQ FKA F07	HQ FKB F07	HR FKA F07	HR FKB F07
2½ - 75	3130	HP FKA F08	HP FKB F08	HQ FKA F08	HQ FKB F08	HR FKA F08	HR FKB F08
3 - 90	6350	HP FKA F09	HP FKB F09	HQ FKA F09	HQ FKB F09	HR FKA F09	HR FKB F09
4 - 110	6700	HP FKA F10	HP FKB F10	HQ FKA F10	HQ FKB F10	HR FKA F10	HR FKB F10
5 - 140	18450	HP FKA F11	HP FKB F11	HQ FKA F11	HQ FKB F11	HR FKA F11	HR FKB F11
6 - 160	19200	HP FKA F12	HP FKB F12	HQ FKA F12	HQ FKB F12	HR FKA F12	HR FKB F12
8 - 225	21900	HP FKA F13	HP FKB F13	HQ FKA F13	HQ FKB F13	HR FKA F13	HR FKB F13
10* - 250	48400	HP FKA F14	HP FKB F14	HQ FKA F14	HQ FKB F14	HR FKA F14	HR FKB F14
12* - 315	55400	HP FKA F15	HP FKB F15	HQ FKA F15	HQ FKB F15	HR FKA F15	HR FKB F15

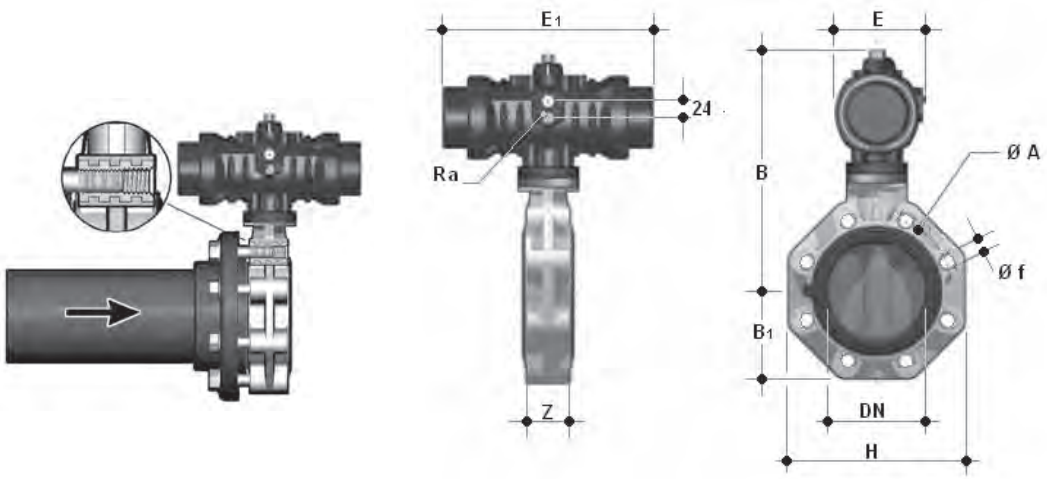
PP

d	gms	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	DOUBLE ACTING EPDM Code	DOUBLE ACTING FPM Code
1½ - 50	2725	HP FKN F06	HP FKP F06	HQ FKN F06	HQ FKP F06	HR FKN F06	HR FKP F06
2 - 63	2905	HP FKN F07	HP FKP F07	HQ FKN F07	HQ FKP F07	HR FKN F07	HR FKP F07
2½ - 75	3130	HP FKN F08	HP FKP F08	HQ FKN F08	HQ FKP F08	HR FKN F08	HR FKP F08
3 - 90	6350	HP FKN F09	HP FKP F09	HQ FKN F09	HQ FKP F09	HR FKN F09	HR FKP F09
4 - 110	6700	HP FKN F10	HP FKP F10	HQ FKN F10	HQ FKP F10	HR FKN F10	HR FKP F10
5 - 140	18450	HP FKN F11	HP FKP F11	HQ FKN F11	HQ FKP F11	HR FKN F11	HR FKP F11
6 - 160	19200	HP FKN F12	HP FKP F12	HQ FKN F12	HQ FKP F12	HR FKN F12	HR FKP F12
8 - 225	21900	HP FKN F13	HP FKP F13	HQ FKN F13	HQ FKP F13	HR FKN F13	HR FKP F13
10* - 250	48400	HP FKN F14	HP FKP F14	HQ FKN F14	HQ FKP F14	HR FKN F14	HR FKP F14
12* - 315	55400	HP FKN F15	HP FKP F15	HQ FKN F15	HQ FKP F15	HR FKN F15	HR FKP F15

Corzan

d	gms	FAIL SAFE CLOSED EPDM Code	FAIL SAFE CLOSED FPM Code	FAIL SAFE OPEN EPDM Code	FAIL SAFE OPEN FPM Code	DOUBLE ACTING EPDM Code	DOUBLE ACTING FPM Code
1½ - 50	2725	HP FKJ F06	HP FKK F06	HQ FKJ F06	HQ FKK F06	HR FKJ F06	HR FKK F06
2 - 63	2905	HP FKJ F07	HP FKK F07	HQ FKJ F07	HQ FKK F07	HR FKJ F07	HR FKK F07
2½ - 75	3130	HP FKJ F08	HP FKK F08	HQ FKJ F08	HQ FKK F08	HR FKJ F08	HR FKK F08
3 - 90	6350	HP FKJ F09	HP FKK F09	HQ FKJ F09	HQ FKK F09	HR FKJ F09	HR FKK F09
4 - 110	6700	HP FKJ F10	HP FKK F10	HQ FKJ F10	HQ FKK F10	HR FKJ F10	HR FKK F10
5 - 140	18450	HP FKJ F11	HP FKK F11	HQ FKJ F11	HQ FKK F11	HR FKJ F11	HR FKK F11
6 - 160	19200	HP FKJ F12	HP FKK F12	HQ FKJ F12	HQ FKK F12	HR FKJ F12	HR FKK F12
8 - 225	21900	HP FKJ F13	HP FKK F13	HQ FKJ F13	HQ FKK F13	HR FKJ F13	HR FKK F13

FKOV/LM LUG ANSI PVC-U **FKOA/LM LUG ANSI** ABS
FKOM/LM LUG ANSI PP **FKOC/LM LUG ANSI** Corzan



FK Butterfly valve - Pneumatically actuated Disc

d	DN	PN	B_1	B NC NO	B DA	E NC NO	E DA	E_1 NC NO	E_1 DA	H	Z	ØA	f	g	u
2½ - 75	65	10	80	247	247	102	102	230	125	165	46	145	5/8" UNC	3130	4
3 - 90	80	10	93	295	261	125	102	304	125	185	49	160	5/8" UNC	6350	8
4 - 110	100	10	120	309	275	125	102	304	182	211	56	180	5/8" UNC	6700	8
5 - 140	125	10	134	329	295	177	102	479	182	240	64	210	3/4" UNC	18450	8
6 - 160	150	10	134	342	342	177	125	479	182	268	70	240	3/4" UNC	19200	8
8 - 225	200	10	161	438	418	177	152	479	233	323	71	295	3/4" UNC	21900	8
*10 - 250	250	10	210	520	520	226	226	598	276	405	114	350	1" UNC	48400	12
*12 - 315	300	8	245	577	577	226	226	598	276	475	114	402	1" UNC	55400	12

*To BS EN 1092 PN10

		PVC-U					
		FAIL SAFE CLOSED		FAIL SAFE OPEN		DOUBLE ACTING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
1½ - 50		HP FKE X06	HP FKF X06	HQ FKE X06	HQ FKF X06	HR FKE X06	HR FKF X06
2 - 63		HP FKE X07	HP FKF X07	HQ FKE X07	HQ FKF X07	HR FKE X07	HR FKF X07
2½ - 75	3130	HP FKE X08	HP FKF X08	HQ FKE X08	HQ FKF X08	HR FKE X08	HR FKF X08
3 - 90	6350	HP FKE X09	HP FKF X09	HQ FKE X09	HQ FKF X09	HR FKE X09	HR FKF X09
4 - 110	6700	HP FKE X10	HP FKF X10	HQ FKE X10	HQ FKF X10	HR FKE X10	HR FKF X10
5 - 140	18450	HP FKE X11	HP FKF X11	HQ FKE X11	HQ FKF X11	HR FKE X11	HR FKF X11
6 - 160	19200	HP FKE X12	HP FKF X12	HQ FKE X12	HQ FKF X12	HR FKE X12	HR FKF X12
8 - 225	21900	HP FKE X13	HP FKF X13	HQ FKE X13	HQ FKF X13	HR FKE X13	HR FKF X13
10* - 250	48400	HP FKE X14	HP FKF X14	HQ FKE X14	HQ FKF X14	HR FKE X14	HR FKF X14
12* - 315	55400	HP FKE X15	HP FKF X15	HQ FKE X15	HQ FKF X15	HR FKE X15	HR FKF X15

FKOV/LM LUG ANSI PVC-U **FKOA/LM LUG ANSI** ABS
FKOM/LM LUG ANSI PP **FKOC/LM LUG ANSI** Corzan

		ABS					
		FAIL SAFE CLOSED		FAIL SAFE OPEN		DOUBLE ACTING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
1½ - 50	-	HP FKA X06	HP FKB X06	HQ FKA X06	HQ FKB X06	HR FKA X06	HR FKB X06
2 - 63	-	HP FKA X07	HP FKB X07	HQ FKA X07	HQ FKB X07	HR FKA X07	HR FKB X07
2½ - 75	3130	HP FKA X08	HP FKB X08	HQ FKA X08	HQ FKB X08	HR FKA X08	HR FKB X08
3 - 90	6350	HP FKA X09	HP FKB X09	HQ FKA X09	HQ FKB X09	HR FKA X09	HR FKB X09
4 - 110	6700	HP FKA X10	HP FKB X10	HQ FKA X10	HQ FKB X10	HR FKA X10	HR FKB X10
5 - 140	18450	HP FKA X11	HP FKB X11	HQ FKA X11	HQ FKB X11	HR FKA X11	HR FKB X11
6 - 160	19200	HP FKA X12	HP FKB X12	HQ FKA X12	HQ FKB X12	HR FKA X12	HR FKB X12
8 - 225	21900	HP FKA X13	HP FKB X13	HQ FKA X13	HQ FKB X13	HR FKA X13	HR FKB X13
10* - 250	48400	HP FKA X14	HP FKB X14	HQ FKA X14	HQ FKB X14	HR FKA X14	HR FKB X14
12* - 315	55400	HP FKA X15	HP FKB X15	HQ FKA X15	HQ FKB X15	HR FKA X15	HR FKB X15

		PP					
		FAIL SAFE CLOSED		FAIL SAFE OPEN		DOUBLE ACTING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
1½ - 50	-	HP FKN X06	HP FKP X06	HQ FKN X06	HQ FKP X06	HR FKN X06	HR FKP X06
2 - 63	-	HP FKN X07	HP FKP X07	HQ FKN X07	HQ FKP X07	HR FKN X07	HR FKP X07
2½ - 75	3130	HP FKN X08	HP FKP X08	HQ FKN X08	HQ FKP X08	HR FKN X08	HR FKP X08
3 - 90	6350	HP FKN X09	HP FKP X09	HQ FKN X09	HQ FKP X09	HR FKN X09	HR FKP X09
4 - 110	6700	HP FKN X10	HP FKP X10	HQ FKN X10	HQ FKP X10	HR FKN X10	HR FKP X10
5 - 140	18450	HP FKN X11	HP FKP X11	HQ FKN X11	HQ FKP X11	HR FKN X11	HR FKP X11
6 - 160	19200	HP FKN X12	HP FKP X12	HQ FKN X12	HQ FKP X12	HR FKN X12	HR FKP X12
8 - 225	21900	HP FKN X13	HP FKP X13	HQ FKN X13	HQ FKP X13	HR FKN X13	HR FKP X13
10* - 250	48400	HP FKN X14	HP FKP X14	HQ FKN X14	HQ FKP X14	HR FKN X14	HR FKP X14
12* - 315	55400	HP FKN X15	HP FKP X15	HQ FKN X15	HQ FKP X15	HR FKN X15	HR FKP X15

		Corzan					
		FAIL SAFE CLOSED		FAIL SAFE OPEN		DOUBLE ACTING	
d	gms	EPDM Code	FPM Code	EPDM Code	FPM Code	EPDM Code	FPM Code
1½ - 50	-	HP FKJ X06	HP FKK X06	HQ FKJ X06	HQ FKK X06	HR FKJ X06	HR FKK X06
2 - 63	-	HP FKJ X07	HP FKK X07	HQ FKJ X07	HQ FKK X07	HR FKJ X07	HR FKK X07
2½ - 75	3130	HP FKJ X08	HP FKK X08	HQ FKJ X08	HQ FKK X08	HR FKJ X08	HR FKK X08
3 - 90	6350	HP FKJ X09	HP FKK X09	HQ FKJ X09	HQ FKK X09	HR FKJ X09	HR FKK X09
4 - 110	6700	HP FKJ X10	HP FKK X10	HQ FKJ X10	HQ FKK X10	HR FKJ X10	HR FKK X10
5 - 140	18450	HP FKJ X11	HP FKK X11	HQ FKJ X11	HQ FKK X11	HR FKJ X11	HR FKK X11
6 - 160	19200	HP FKJ X12	HP FKK X12	HQ FKJ X12	HQ FKK X12	HR FKJ X12	HR FKK X12

Actuators - Plastic Body

Pneumatic actuator with plastic (Polyamid) housing

Air pressure required to operate: 6 Bar
Maximum allowable air pressure: 8 Bar
Working temperature: -32°C to +90°C
Pneumatic connections: 2 x ¼" BSP
Standard Namur mounting for solenoid valves

Actuator options

Double Acting

Fail Safe Closed / Fail Safe Open

Standard equipment

- Visual position indicator

CYCLE TIME AND CAPACITY

d	CYCLE TIME (Seconds)					
	DOUBLE ACTING		FAIL SAFE CLOSED		FAIL SAFE OPEN	
	To Open	To Close	To Open	To Close	To Open	To Close
1½ - 50	0.15	0.15	0.30	0.30	0.30	0.30
2 - 63	0.15	0.15	0.30	0.30	0.30	0.30
2½ - 75	0.25	0.25	0.30	0.30	0.30	0.30
3 - 90	0.25	0.25	0.50	0.50	0.50	0.50
4 - 110	0.25	0.25	0.50	0.50	0.50	0.50
4 - 125	0.25	0.25				
5 - 140	0.25	0.25				
6 - 160	0.40	0.40				

d	CAPACITY (Litres)					
	DOUBLE ACTING		FAIL SAFE CLOSED		FAIL SAFE OPEN	
	To Open	To Close	To Open	To Close	To Open	To Close
1½ - 50	0.15	0.10	0.35	-	-	-
2 - 63	0.15	0.10	0.35	-	-	-
2½ - 75	0.35	0.32	0.35	-	-	-
3 - 90	0.35	0.32	0.80	-	-	-
4 - 110	0.35	0.32	0.80	-	-	-
4 - 125	0.35	0.32				
5 - 140	0.35	0.32				
6 - 160	0.80	0.70				

The actual actuator air consumption is calculated by multiplying the capacity (above) by the actual working air pressure.

For accessories please see pages 254-255.

Actuators - Aluminium Body

Pneumatic actuator with Aluminium housing - Rilsan coated

Air pressure required to operate: 6 Bar
Maximum allowable air pressure: 8 Bar
Working temperature: -32ºC to +90ºC
Pneumatic connections: 2 x ¼" BSP
Standard Namur mounting for solenoid valves

Actuator options

Double Acting

Fail Safe Closed / Fail Safe Open

Standard equipment

- Visual position indicator

CYCLE TIME AND CAPACITY

d	CYCLE TIME (Seconds)					
	DOUBLE ACTING		FAIL SAFE CLOSED		FAIL SAFE OPEN	
	To Open	To Close	To Open	To Close	To Open	To Close
- 125	-	-	1.20	1.20	1.20	1.20
5 - 140	-	-	1.20	1.20	1.20	1.20
6 - 160	-	-	1.20	1.20	1.20	1.20
- 200	-	-	1.20	1.20	1.20	1.20
8 - 225	0.50	0.50	1.20	1.20	1.20	1.20
10 - 250	1.2	1.2	2.0	2.0	2.0	2.0
12 - 315	1.2	1.2	2.0	2.0	2.0	2.0

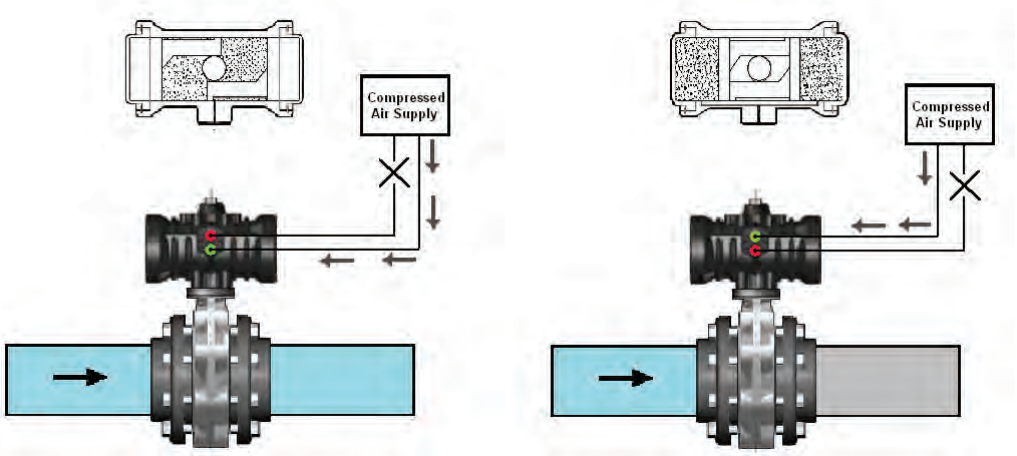
d	CAPACITY (Litres)					
	DOUBLE ACTING		FAIL SAFE CLOSED		FAIL SAFE OPEN	
	To Open	To Close	To Open	To Close	To Open	To Close
- 125	-	-	2.05	-	-	2.05
5 - 140	-	-	2.05	-	-	2.05
6 - 160	-	-	2.05	-	-	2.05
- 200	-	-	2.05	-	-	2.05
8 - 225	1.50	2.02	2.05	-	-	2.05
10 - 250	5.30	5.30	5.30	-	-	5.30
12 - 315	5.30	5.30	5.30	-	-	5.30

The actual actuator air consumption is calculated by multiplying the capacity (above) by the actual working air pressure.

Operating Principle

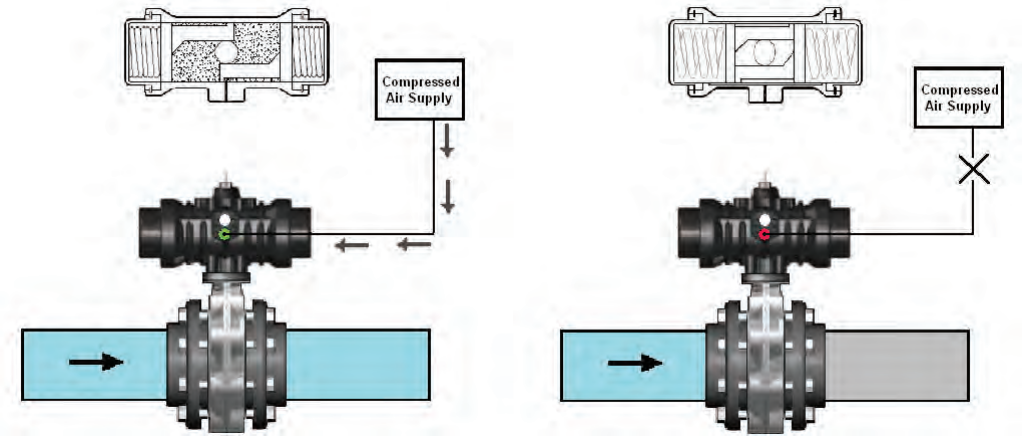
Double Acting

Compressed air is required to drive the actuator to the open and closed positions.



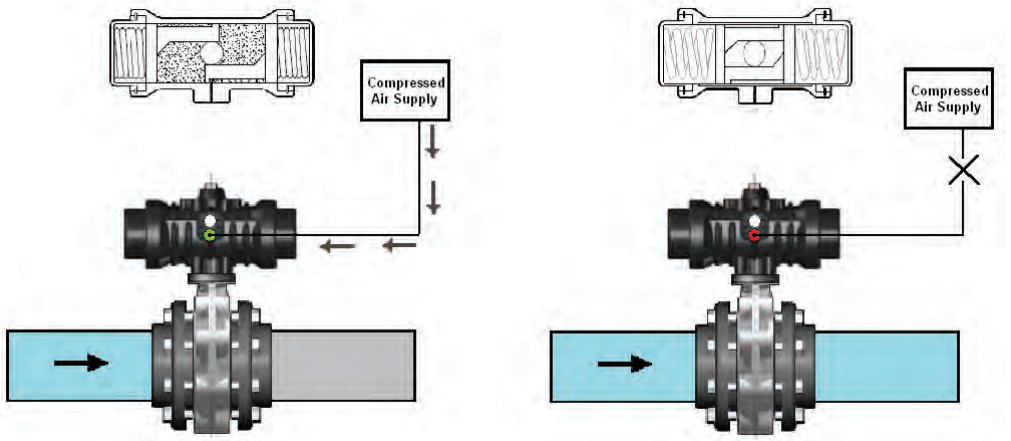
Fail Safe Closed

Compressed air is required to drive the actuator to the open position. With no air being supplied to the actuator the springs within the actuator drive it to the closed position.

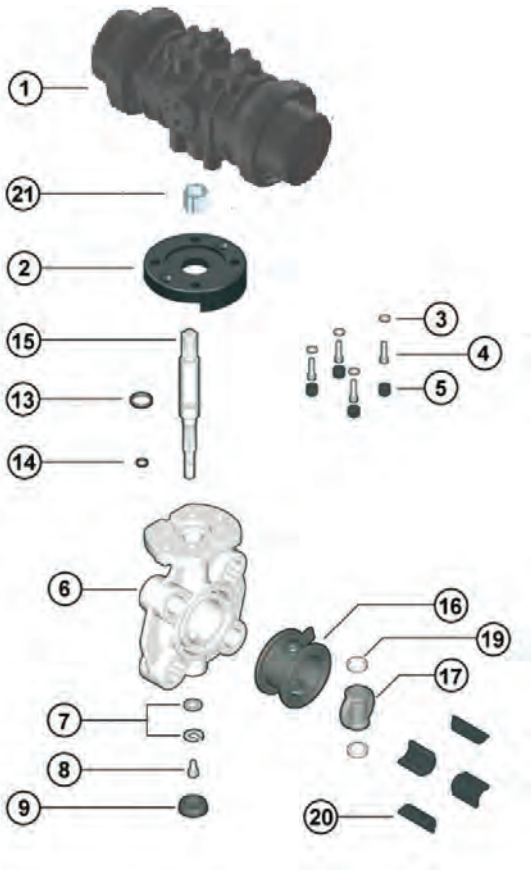


Fail Safe Open

Compressed air is required to drive the actuator to the closed position. With no air being supplied to the actuator the springs within the actuator drive it to the open position.



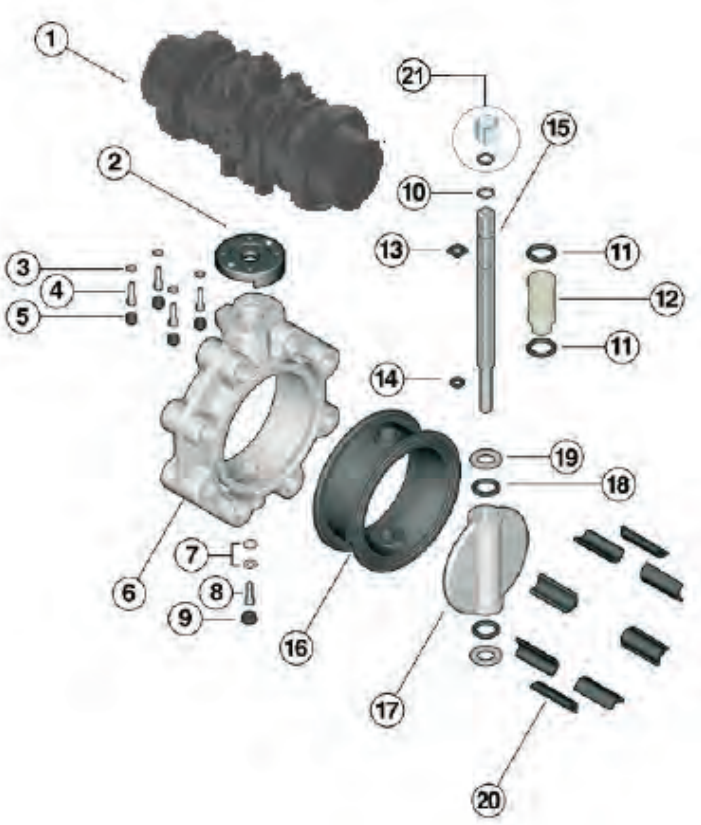
1½" - d40 to 2" - d63



Position	Components	Material
1*	Pneumatic actuator	PA-GR
2*	Mounting Plate	PP-GR
3	Washer	Stainless Steel
4	Screw	Stainless Steel
5	Protection Cap	PE
6	Body	PP-GR
7	Washer	Stainless Steel
8	Screw	Stainless Steel
9	Protection Cap	PE
13*	Shaft O-ring	EPDM or FPM
14*	Shaft O-ring	EPDM or FPM
15	Shaft	Stainless Steel
16*	Primary Liner	EPDM or FPM
17	Disc	Valve Material
19	Anti-friction Ring	PTFE
20	Cantering Inserts	ABS

*Spare Parts

2½" - d75 to 8" - d225



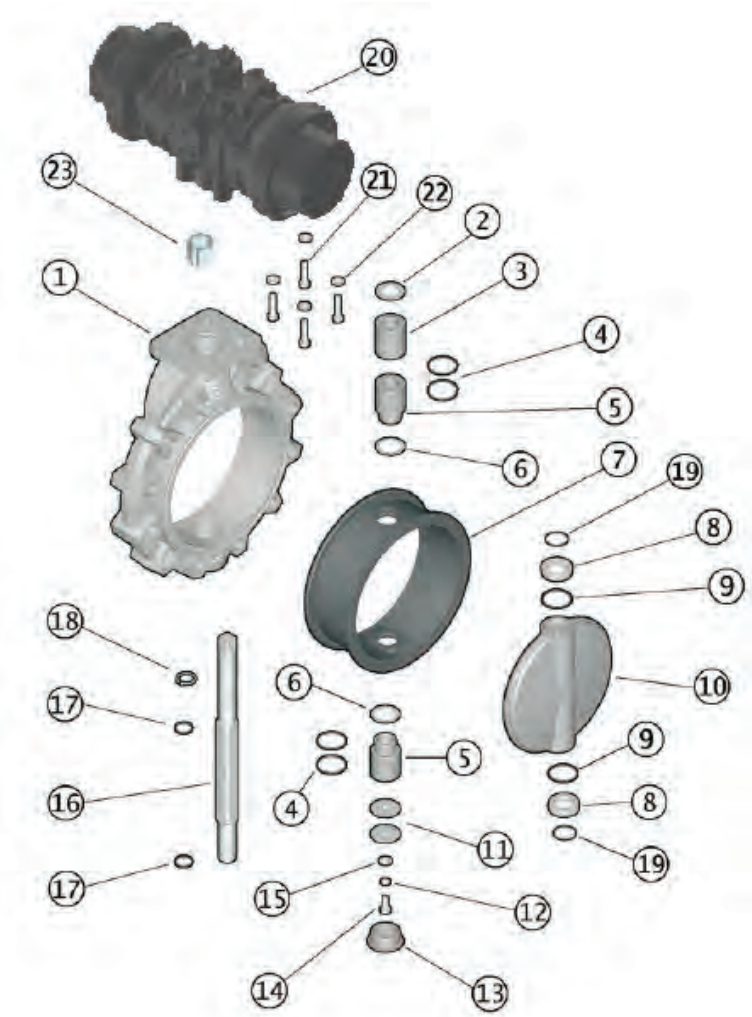
Position	Components	Material
1*	Actuator	PA-GR (1)
2*	Mounting Plate	Aluminium - Rilsan Coated (2)
3	Washer	PP-GR
4	Screw	Stainless Steel
5	Protection Cap	Stainless Steel
6	Body	PE
7	Washer	PP-GR
8	Screw	Stainless Steel
9	Protection Cap	Stainless Steel
10	Circlip	PE
11*	Bush O-ring	Stainless Steel
12	Bush	EPDM or FPM
13*	Shaft O-ring	Nylon
14*	Shaft O-ring	EPDM or FPM
15	Shaft	EPDM or FPM
16*	Primary Liner	Stainless Steel
17	Disc	EPDM or FPM
18*	Disc O-ring	Valve Material
19	Anti-friction Ring	EPDM or FPM
20	Inserts	PTFE
21	Reducing Bush	ABS

*Spare Parts

(1) PA-GR Actuator for 1½" to 6" Double Acting & 1½" to 4" Fail Safe Closed / Open

(2) Aluminium - Rilsan coated Actuator for 8" to 12" Double Acting & 5" to 12" Fail Safe Closed / Open

10" - d250 to 12" - d315



Position	Components	Material
1	Body	PP-GR
2	Washer	Stainless Steel
3*	Bush	PP
4*	Bush O-ring	EPDM or FPM
5*	Bush	PP
6	Washer	Stainless Steel
7*	Primary Liner	EPDM or FPM
8*	Anti-friction Ring	PTFE
9*	Disc O-ring	EPDM or FPM
10	Disc	Valve Material
11	Washer	Stainless Steel
12	Washer	Stainless Steel
13	Protection Cap	PE
14	Screw	Stainless Steel
15	Washer	Stainless Steel
16	Shaft	Stainless Steel
17*	Shaft O-ring	EPDM or FPM
18	Circlip	Stainless Steel
19*	O-ring	EPDM or FPM
20*	Actuator	Aluminium - Rilsan Coated
21	Screw	Stainless Steel
22	Washer	Stainless Steel
23	Bush	Polypropylene

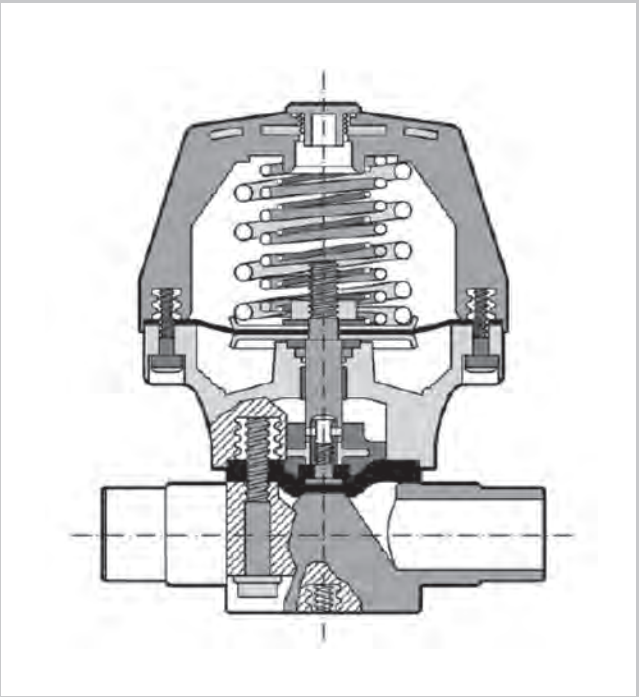
*Spare Parts

VM Pneumatically Actuated VM Diaphragm Valve (Normally Closed)

- The VM Diaphragm Valve is equipped with a maintenance free single acting normally closed (diaphragm type) actuator. The valve can be installed in any position
- The valve can be used with liquids and gaseous fluids, and is suitable for dirty or abrasive media
- The 'CDSA' (Circular Diaphragm Sealing Area), in valves up to and including DN50, offers the following
  - Uniform distribution of the pressure of the compressor on to the diaphragm
  - Reduction of up to 20% of the bolt tightening torque
  - Reduced mechanical stress on the valve components.
  - Easier internal cleaning
  - Lower chance of accumulation of deposits and fluid contamination, reducing the possibility of damage caused by crystallisation
- Pressure rating: Maximum working pressure: up to 10 bar at 20°C (water)
- High K_v value and reduced pressure losses
- Modular range: 5 Actuator/Diaphragm sizes for 9 valve sizes
- Easy replacement of the sealing diaphragm
- For more information, please visit our website: **www.durapipe.co.uk**

Legend

d	Nominal outside diameter
DN	Nominal internal diameter in mm
R	Nominal size or the thread in inches
PN	Nominal pressure in bar (max.working Pressure at 20°C - water)
gms	Weight in grams
PVC-U	Polyvinyl chloride unplasticised
ABS	Acrylontrile Butadiene Styrene
PP	Polypropylene
PVC-C	Polyvinyl chloride chlorinated
GRPP	Glass reinforced polypropylene
HIPVC	High Impact PVC
POM	Polyoxymethylene
PE	Polyethylene
PTFE	Polytetrafluoroethylene
EPDM	Ethylene Propylene Diene Monomer (M-class) rubber
FPM	Fluorocarbon Rubber
s	Wall thickness (mm)



Dimensions and Standards

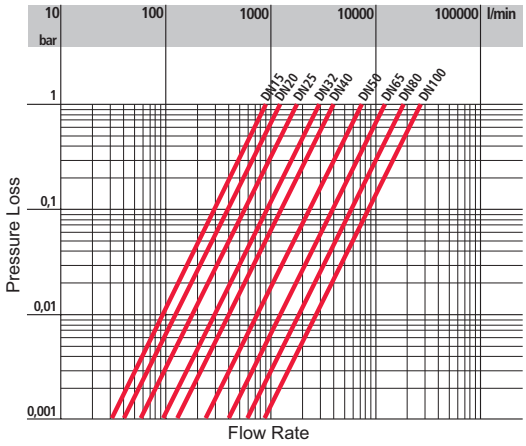
Imperial
The Imperial System is manufactured in accordance with the relevant British Standards: BS 5392 fittings.

Metric
The Metric System is manufactured generally in accordance with the relevant International Standards: ISO 15493, KIWA 49 and 549, DIN 8062 and 8063.

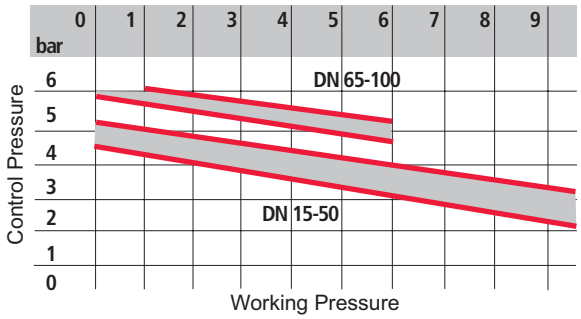
BSP Thread
Threaded fittings conform to the requirements of BS 21/DIN 2999/ISO7. Socket dimensions of metric fittings for solvent welding comply with ISO/DIS 727-1.

Interchangeability
Components in the imperial and metric ranges are not interchangeable.

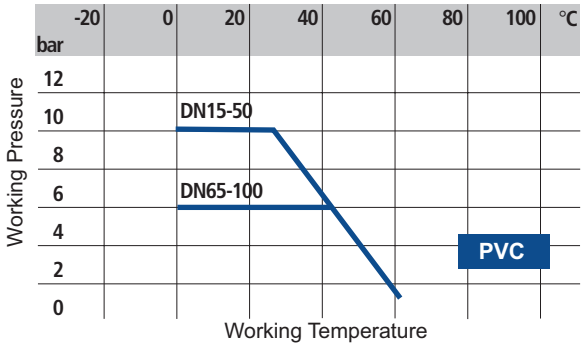
Technical Data

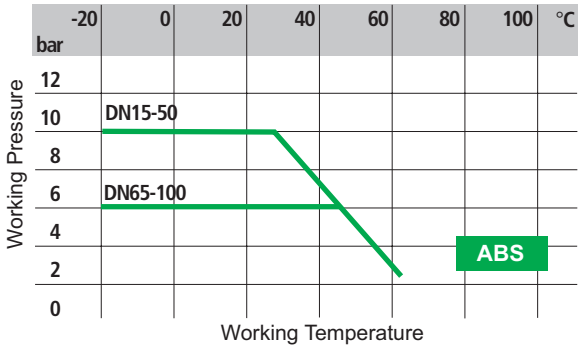


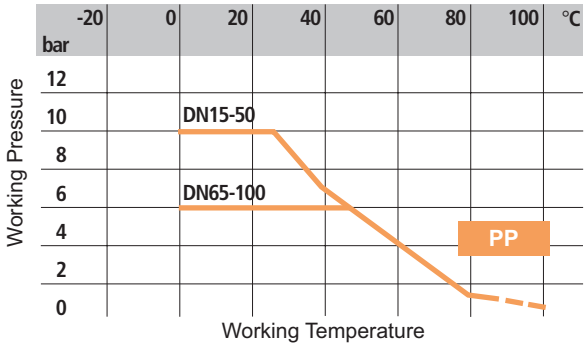
Pressure loss chart.

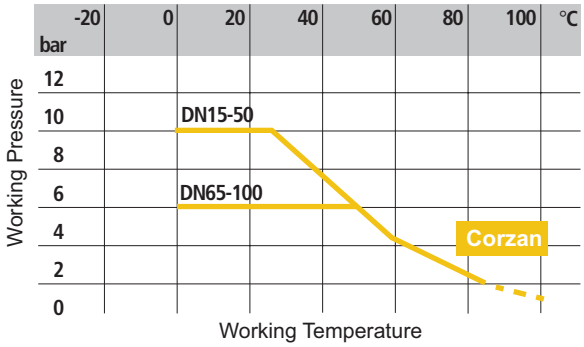


Control pressure relative to working pressure.







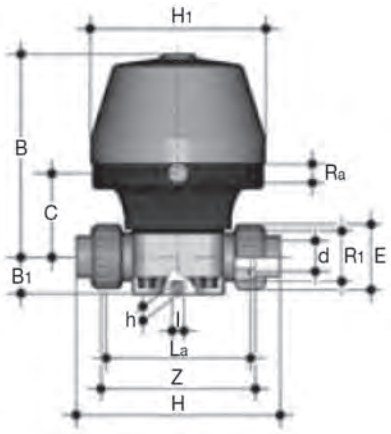


Pressure/temperature rating for water and harmless fluids to which the material is RESISTANT. In other cases a reduction of the PN is required. (25 years with safety factor).

DN	10	15	20	25	32	40	50	65	80	100
k_{v100}	93	93	136	175	300	416	766	1300	2000	2700

Flow coefficient k_{v100}
k_{v100} is the number of litres per minute of water at a temperature of 20ºC that will flow through a valve with a one bar pressure differential at a specified rate. The k_{v100} values shown in the table are calculated with the valve fully open.

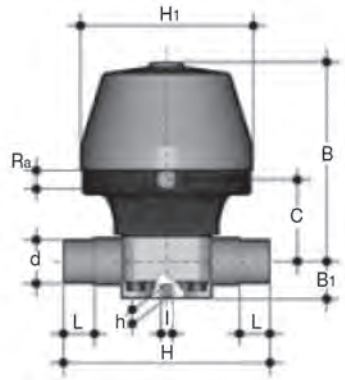
BS Series Female Ends



VMULV/NC PVC-U
VMULA/NC ABS

Diaphragm valve with BS series female ends

													PVC-U				ABS			
d	DN	PN	B	B_1	H	h	H_1	l	L_A	C	Z	E	R_1	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code
½	15	10	180	26	147	12	126	25	108	66	115	41	1	1980	HP UME 102	HP UMF 102	HP UMG 102	1980	HP UMA 102	HP UMB 102	HP UMC 102
¾	20	10	180	26	154	12	126	25	108	66	116	50	1¼	1980	HP UME 103	HP UMF 103	HP UMG 103	1980	HP UMA 103	HP UMB 103	HP UMC 103
1	25	10	180	26	168	12	126	25	116	66	124	58	1½	1980	HP UME 104	HP UMF 104	HP UMG 104	1980	HP UMA 104	HP UMB 104	HP UMC 104
1¼	32	10	249	40	192	16	155	44.5	134	103	140	72	2	4200	HP UME 105	HP UMF 105	HP UMG 105	4200	HP UMA 105	HP UMB 105	HP UMC 105
1½	40	10	249	40	222	16	155	44.5	154	103	160	79	2¼	4200	HP UME 106	HP UMF 106	HP UMG 106	4200	HP UMA 106	HP UMB 106	HP UMC 106
2	50	10	297	40	266	16	210	44.5	184	125	190	98	2¾	7350	HP UME 107	HP UMF 107	HP UMG 107	7350	HP UMA 107	HP UMB 107	HP UMC 107

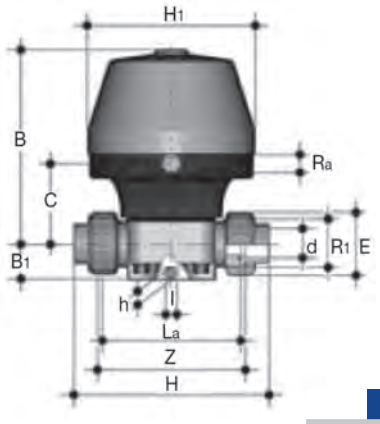


VMMV/NC PVC-U
VMMA/NC ABS

Diaphragm valve with BS series male ends

											PVC-U				ABS			
d	DN	PN	B	B_1	H	h	H_1	l	C	L	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code
2½	65	10	325	55	284	23	258	100	187	44	15000	HP VME 412	HP VMF 412	HP VMG 412	15000	HP VMA 412	HP VMB 412	HP VMC 412
3	80	10	325	55	300	23	258	100	187	51	15000	HP VME 209	HP VMF 209	HP VMG 209	15000	HP VMA 209	HP VMB 209	HP VMC 209
4	100	10	355	69	340	23	258	120	268	61	25500	HP VME 210	HP VMF 210	HP VMG 210	25500	HP VMA 210	HP VMB 210	HP VMC 210

Metric Series Female Ends



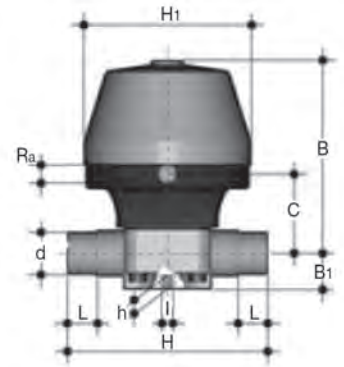
VMUIV/NC PVC-U **VMUIA/NC** ABS
VMUIM/NC PP **VMUIC/NC** Corzan

Diaphragm valve with Metric series female ends

d	DN	PN	B	B_1	H	h	H_1	l	L_A	C	Z	E	R_1
20	15	10	180	26	147	12	126	25	108	66	115	41	1
25	20	10	180	26	154	12	126	25	108	66	116	50	1¼
32	25	10	180	26	168	12	126	25	116	66	124	58	1½
40	32	10	249	40	192	16	155	44.5	134	103	140	72	2
50	40	10	249	40	222	16	155	44.5	154	103	160	79	2¼
63	50	10	297	40	266	16	210	44.5	184	125	190	98	2¾

	PVC-U				ABS			
d	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code
20	1980	HP UME 306	HP UMF 306	HP UMG 306	1980	HP UMA 306	HP UMB 306	HP UMC 306
25	1980	HP UME 307	HP UMF 307	HP UMG 307	1980	HP UMA 307	HP UMB 307	HP UMC 307
32	1980	HP UME 308	HP UMF 308	HP UMG 308	1980	HP UMA 308	HP UMB 308	HP UMC 308
40	4200	HP UME 309	HP UMF 309	HP UMG 309	4200	HP UMA 309	HP UMB 309	HP UMC 309
50	4200	HP UME 310	HP UMF 310	HP UMG 310	4200	HP UMA 310	HP UMB 310	HP UMC 310
63	7350	HP UME 311	HP UMF 311	HP UMG 311	7350	HP UMA 311	HP UMB 311	HP UMC 311

	PP				Corzan			
d	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code
20	1980	HP UMN 306	HP UMP 306	HP UMQ 306	1980	HP UMJ 306	HP UMK 306	HP UML 306
25	1980	HP UMN 307	HP UMP 307	HP UMQ 307	1980	HP UMJ 307	HP UMK 307	HP UML 307
32	1980	HP UMN 308	HP UMP 308	HP UMQ 308	1980	HP UMJ 308	HP UMK 308	HP UML 308
40	4200	HP UMN 309	HP UMP 309	HP UMQ 309	4200	HP UMJ 309	HP UMK 309	HP UML 309
50	4200	HP UMN 310	HP UMP 310	HP UMQ 310	4200	HP UMJ 310	HP UMK 310	HP UML 310
63	7350	HP UMN 311	HP UMP 311	HP UMQ 311	7350	HP UMJ 311	HP UMK 311	HP UML 311



VMDV/NC PVC-U **VMDA/NC** ABS
VMDM/NC PP **VMDC/NC** Corzan

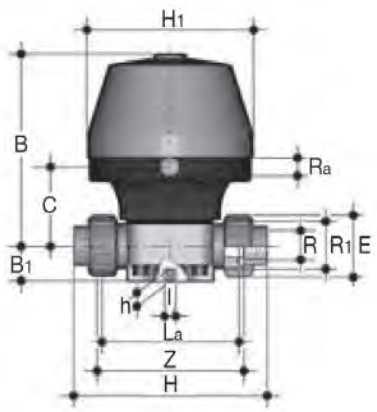
Diaphragm valve with Metric series male ends

d	DN	PN	B	B_1	H	h	H_1	l	J	L
2½	65	10	325	55	284	23	258	100	M12	44
3	80	10	325	55	300	23	258	100	M12	51
4	100	10	355	69	340	23	258	120	M12	61

	PVC-U				ABS			
d	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code
75	15000	HP VME 412	HP VMF 412	HP VMG 412	15000	HP VMA 412	HP VMB 412	HP VMC 412
90	15000	HP VME 413	HP VMF 413	HP VMG 413	15000	HP VMA 413	HP VMB 413	HP VMC 413
110	25500	HP VME 414	HP VMF 414	HP VMG 414	25500	HP VMA 414	HP VMB 414	HP VMC 414

	PP				Corzan			
d	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code
75	15000	HP VME 412	HP VMF 412	HP VMG 412	15000	HP VMJ 412	HP VMK 412	HP VML 412
90	15000	HP VME 413	HP VMF 413	HP VMG 413	15000	HP VMJ 413	HP VMK 413	HP VML 413
110	25500	HP VME 414	HP VMF 414	HP VMG 414	25500	HP VMJ 414	HP VMK 414	HP VML 414

BSP Threaded Socket Ends



VMUFV/NC PVC-U

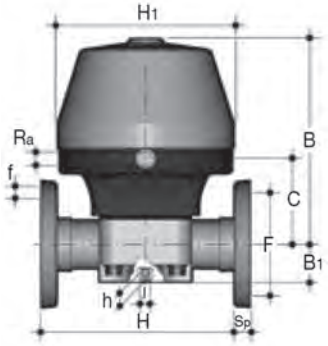
Diaphragm valve with BSP parallel female threaded ends

														PVC-U			
R	DN	PN	B	B_1	H	h	H_1	l	L_A	C	Z	E	R_1	gms	EPDM Code	FPM Code	PTFE Code
½	15	10	180	26	147	12	126	25	108	66	118	41	1	1980	HP UME B02	HP UMF B02	HP UMG B02
¾	20	10	180	26	154	12	126	25	108	66	118	50	1¼	1980	HP UME B03	HP UMF B03	HP UMG B03
1	25	10	180	26	168	12	126	25	116	66	127	58	1½	1980	HP UME B04	HP UMF B04	HP UMG B04
1¼	32	10	249	40	192	16	155	44.5	134	103	145	72	2	4200	HP UME B05	HP UMF B05	HP UMG B05
1½	40	10	249	40	222	16	155	44.5	154	103	165	79	2¼	4200	HP UME B06	HP UMF B06	HP UMG B06
2	50	10	297	40	266	16	210	44.5	184	125	195	98	2¾	7350	HP UME B07	HP UMF B07	HP UMG B07

Flanged Ends to BS EN1092-1 PN10/16

VMOV/NC PVC-U
VMOM/NC PP
VMOC/NC Corzan

Diaphragm valve with Flanged ends, to BS EN1092-1 PN10/16

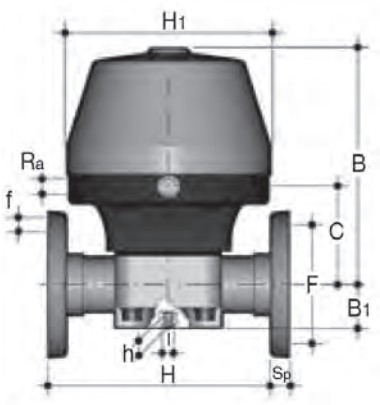


d	DN	PN	B	B_1	H	h	H_1	l	J	F	f	S_P	U
½	15	10	175	26	130	12	126	25	M6	65	14	11	4
¾	20	10	175	26	150	12	126	25	M6	75	14	13.5	4
1	25	10	175	26	160	12	126	25	M6	85	14	14	4
1¼	32	10	244	40	180	18	155	44.5	M8	100	18	14	4
1½	40	10	244	40	200	18	155	44.5	M8	110	18	16	4
2	50	10	392	40	230	18	210	44.5	M8	125	18	16	4
2	65	10	325	55	290	23	258	100	M12	145	18	21	4
3	90	10	325	55	310	23	258	100	M12	160	18	21.5	4
4	110	10	355	69	350	23	258	120	M12	180	18	21.5	4

	PVC-U				PP				Corzan			
d	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code
½	1990	HP VME F02	HP VMF F02	HP VMG F02	1990	HP VMN F02	HP VMP F02	HP VMQ F02	1990	HP VMJ F02	HP VMK F02	HP VML F02
¾	2050	HP VME F03	HP VMF F03	HP VMG F03	2050	HP VMN F03	HP VMP F03	HP VMQ F03	2050	HP VMJ F03	HP VMK F03	HP VML F03
1	2130	HP VME F04	HP VMF F04	HP VMG F04	2130	HP VMN F04	HP VMP F04	HP VMQ F04	2130	HP VMJ F04	HP VMK F04	HP VML F04
1¼	4460	HP VME F05	HP VMF F05	HP VMG F05	4460	HP VMN F05	HP VMP F05	HP VMQ F05	4460	HP VMJ F05	HP VMK F05	HP VML F05
1½	4575	HP VME F06	HP VMF F06	HP VMG F06	4575	HP VMN F06	HP VMP F06	HP VMQ F06	4575	HP VMJ F06	HP VMK F06	HP VML F06
2	7720	HP VME F07	HP VMF F07	HP VMG F07	7720	HP VMN F07	HP VMP F07	HP VMQ F07	7720	HP VMJ F07	HP VMK F07	HP VML F07
2	16100	HP VME F08	HP VMF F08	HP VMG F08	16100	HP VMN F08	HP VMP F08	HP VMQ F08	16100	HP VMJ F08	HP VMK F08	HP VML F08
3	17000	HP VME F09	HP VMF F09	HP VMG F09	17000	HP VMN F09	HP VMP F09	HP VMQ F09	17000	HP VMJ F09	HP VMK F09	HP VML F09
4	27900	HP VME F10	HP VMF F10	HP VMG F10	27900	HP VMN F10	HP VMP F10	HP VMQ F10	27900	HP VMJ F10	HP VMK F10	HP VML F10

Flanged Ends to ANSI 150

VMOAV/NC PVC-U
VMOAM/NC PP
VMOAC/NC Corzan



Diaphragm valve with Flanged ends, to ANSI 150

d	DN	PN	B	B_1	H	h	H_1	I	J	F	f	S_p
½	15	10	175	26	130	12	126	25	M6	65	14	11
¾	20	10	175	26	150	12	126	25	M6	75	14	13.5
1	25	10	175	26	160	12	126	25	M6	85	14	14
1¼	32	10	244	40	180	18	155	44.5	M8	100	18	14
1½	40	10	244	40	200	18	155	44.5	M8	110	18	16
2	50	10	392	40	230	18	210	44.5	M8	125	18	16
2	65	10	325	55	290	23	258	100	M12	145	18	21
3	90	10	325	55	310	23	258	100	M12	160	18	21.5
4	110	10	355	69	350	23	258	120	M12	180	18	21.5

	PVC-U				PP				Corzan			
d	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code
½	1990	HP VME X02	HP VMF X02	HP VMG X02	1990	HP VMN X02	HP VMP X02	HP VMQ X02	1990	HP VMJ X02	HP VMK X02	HP VML X02
¾	2050	HP VME X03	HP VMF X03	HP VMG X03	2050	HP VMN X03	HP VMP X03	HP VMQ X03	2050	HP VMJ X03	HP VMK X03	HP VML X03
1	2130	HP VME X04	HP VMF X04	HP VMG X04	2130	HP VMN X04	HP VMP X04	HP VMQ X04	2130	HP VMJ X04	HP VMK X04	HP VML X04
1¼	4460	HP VME X05	HP VMF X05	HP VMG X05	4460	HP VMN X05	HP VMP X05	HP VMQ X05	4460	HP VMJ X05	HP VMK X05	HP VML X05
1½	4575	HP VME X06	HP VMF X06	HP VMG X06	4575	HP VMN X06	HP VMP X06	HP VMQ X06	4575	HP VMJ X06	HP VMK X06	HP VML X06
2	7720	HP VME X07	HP VMF X07	HP VMG X07	7720	HP VMN X07	HP VMP X07	HP VMQ X07	7720	HP VMJ X07	HP VMK X07	HP VML X07
2	16100	HP VME X08	HP VMF X08	HP VMG X08	16100	HP VMN X08	HP VMP X08	HP VMQ X08	16100	HP VMJ X08	HP VMK X08	HP VML X08
3	17000	HP VME X09	HP VMF X09	HP VMG X09	17000	HP VMN X09	HP VMP X09	HP VMQ X09	17000	HP VMJ X09	HP VMK X09	HP VML X09
4	27900	HP VME X10	HP VMF X10	HP VMG X10	27900	HP VMN X10	HP VMP X10	HP VMQ X10	27900	HP VMJ X10	HP VMK X10	HP VML X10

Actuators

Pneumatic actuator with plastic housing

Air pressure required to operate: See table 4 on page 292
Maximum allowable air pressure: 6 Bar
Control air temperature: -Max. 40ºC *
Pneumatic connections: 1 x ¼" BSP

Actuator options

FAIL SAFE Fail Safe Closed

Please contact the Durapipe Valve Department for further information.

	Capacity (Nl**) Fail Safe Closed	
d	To Open	To Close
$^3/_8$ - 16	0.16	-
$^1/_2$ - 20	0.16	-
$^3/_4$ - 25	0.16	-
1 - 32	0.16	-
$1^1/_4$ - 40	0.36	-
$1^1/_2$ - 50	0.36	-
2 - 63	1.15	-
$2^1/_2$ - 75	2.10	-
3 - 90	2.10	-
4 - 110	2.10	-

• Lubricated filtered compressed air
** Nl: Volume (Litres) at atmospheric pressure

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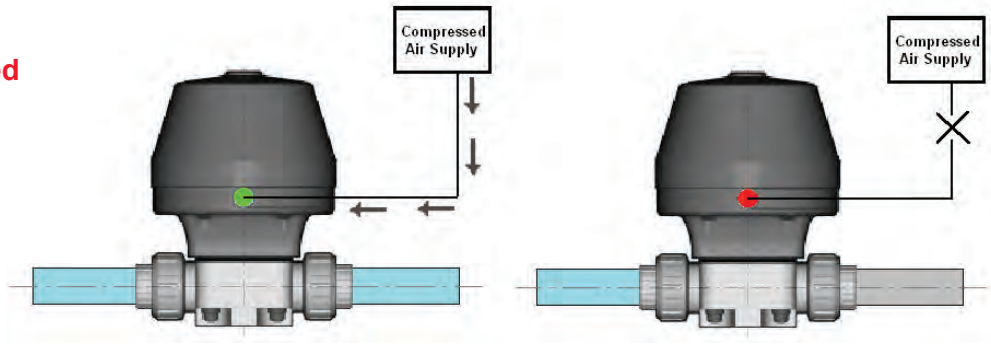
Operating Principle

FAIL SAFE

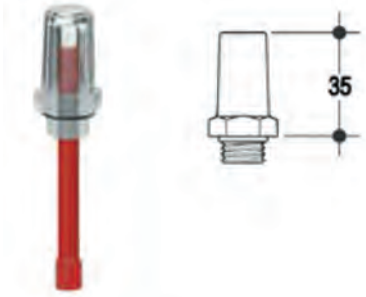
Fail Safe Closed

Compressed air is required to drive the actuator to the open position. With no air being supplied to the actuator the springs within the actuator drive it to the closed position.



Accessories

Optical Position Indicator

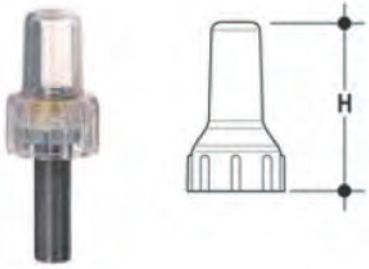


d		DN	Product Code
1/2" to 2"	20 to 63	15 - 50	HZ OPI 001
2 1/2" to 4"	75 to 110	65 to 100	HZ OPI 002

To order an actuated Diaphragm valve with the Optical Position Indicator. Change the middle digit of the valve size code to 'V' eg.

HP UME 1**V**4 = 1" N/C PVC/EPDM c/w Position indicator
HP UME 3**V**8 = d32 N/C PVC/EPDM c/w Position indicator

Stroke Limiter



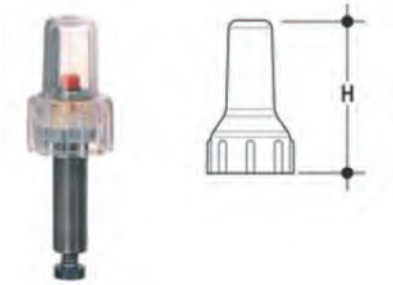
d		DN	H	Product Code
1/2" to 1 1/2"	20 to 50	15 - 40	60	HZ SL1 001
2"	63	50	60	HZ SL1 003
2 1/2" to 4"	75 to 110	65 to 100	110	HZ SL1 004*

To order an actuated Diaphragm valve with the Stroke Limiter. Change the middle digit of the valve size code to 'S' eg.

HP UME 1**S**4 = 1" N/C PVC/EPDM c/w Stroke Limiter
HP UME 3**S**8 = d32 N/C PVC/EPDM c/w Stroke Limiter

• Only available as assembled to valve by Durapipe.

Stroke Limiter with Optical Position Indicator



d		DN	H	Product Code
1/2" to 1"	20 to 32	15 - 25	60	HZ SL2 001
1 1/4" to 1 1/2"	40 to 50	32 - 40	60	HZ SL2 003
2"	63	50	110	HZ SL2 004
2 1/2" to 4"	75 to 110	65 to 100	110	HZ SL2 005*

To order an actuated Diaphragm valve with the Stroke Limiter and Position Indicator. Change the middle digit of the valve size code to 'P' eg.

HP UME 1**P**4 = 1" N/C PVC/EPDM c/w Stroke Limiter and Position Indicator
HP UME 3**P**8 = d32 N/C PVC/EPDM c/w Stroke Limiter and Position Indicator

• Only available as assembled to valve by Durapipe.

Stroke Limiter with Optical Position Indicator and Manual Override

d		DN	H	Product Code
1/2" to 1"	20 to 32	15 - 25	60	HZ SL3 001*
1 1/4" to 2"	40 to 50	32 - 40	60	HZ SL3 002*

To order an actuated Diaphragm valve with the Stroke Limiter with Position Indicator and Emergency Manual Override. Change the middle digit of the valve size code to 'M' eg.

HP UME 1**M**4 = 1" N/C PVC/EPDM c/w Stroke Limiter and Position Indicator
HP UME 3**M**8 = d32 N/C PVC/EPDM c/w Stroke Limiter and Position Indicator

• Only available as assembled to valve by Durapipe.

Accessories

Direct Mounted Pilot Solenoid Valve

Mounting:
Direct mounts to 1/4" air inlet of the pneumatic actuator

Function:
3/2 Normally closed

Ingress protection:
IP65

Electrical supply:
The pilot solenoid valves are available as: 240VAC, 110VAC, 24VAC and 24VDC

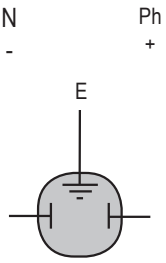
Duty rating:
100% ED

Air connections:
1/8" BSP female

Air supply:
Lubricated filtered compressed air (3.0 to 8.0 Bar)

Electrical wiring:
2 Wire (& earth) connection to DIN plug

Manual overide:
With air applied, but no power, the valve can be operated by hand by using the red turn (with a screwdriver) manual switch



Voltage	Product Code
240VAC	HZ PS2 240
110VAC	HZ PS2 110
24VAC	HZ PS2 24A
24VDC	HZ PS2 24D

Limit Switch Box

Limit switch box with two electro-mechanical switches

Technical details

Switch type:
SPDT

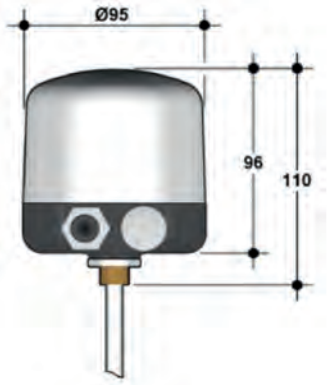
Contacts rating:
5A, 250VAC

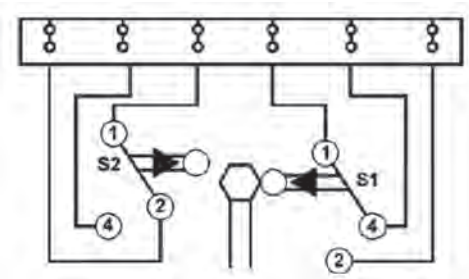
Ingress protection:
IP65

Temperature range:
-5° to 85°C

Cable inlet:
1 x PG13.5 Gland

Materials:
Body: PPGR
Cover: Polycarbonate





d	DN	Product Code
1/2" to 1 1/2" - 20 to 50	15 - 40	HZ SB5 100
2" to 4" - 63 to 110	50 to 100	HZ SB6 100

Note: Other options are available; Switch Box with 2 inductive switches, Combined stroke limiter and switch box, Pneumatic positioned. For more details contact our valve and flow control department.

Connection to the System

Before proceeding with the installation, please read and familiarise yourself with these instructions.

Union Ended Version

1. Check that the pipes either side of the valve are axially aligned, in order to avoid mechanical stress on the threaded union joints.
2. Unscrew the union nuts (15) from the valve body and slide them onto the pipe.
3. Solvent Weld, Socket Fuse or screw the valve end connectors (14) onto the pipe ends. For correct jointing see the Durapipe material technical catalogues.
5. Position the valve between the two end connectors (Fig. 3) and screw the union nuts clockwise by hand until a resistance is felt; do not use keys or other tools which may damage the nut surface.

Spigot Ended Version

1. Check that the pipes either side of the valve are axially aligned, in order to avoid mechanical stress on the threaded union joints.
3. Solvent weld or Socket Fuse the valve body (9) into the fitting socket For correct jointing see the Durapipe material technical catalogues. Take care when solvent welding to ensure that no solvent runs into the valve body.

Disassembly

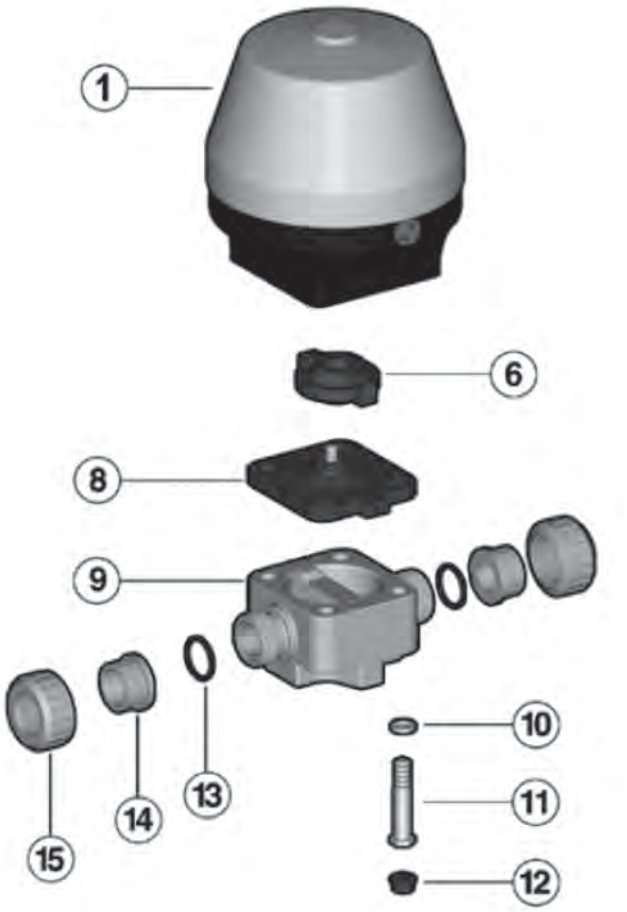
1. Isolate the valve from the flow and drain down upstream of the valve.
2. Unscrew the four bolts (7) and separate the headworks (1 to 6) from the body (9).
3. Unscrew the diaphragm (8) from the compressor (6).
4. Clean or replace the diaphragm, if necessary.

Assembly

FIG. A

1. Screw the diaphragm (8) into the compressor (6), to hand tight, then rotate anti-clockwise to line up the diaphragm holes with the bonnet drillings.
2. Place the actuator assembly onto the valve body. Bolt together with the four bolts, tightening in a diagonally opposite sequence. Fit the plastic protective caps (12).

Note: Due to the internal forces of the compressed springs within the actuators. The actuator is not to be disassembled in any circumstances. Durapipe will not be held liable for any injury or death caused by attempting to disassemble the actuator. None of the actuator internal components are available as spare items.



Position	Components	Material
1	Actuator Assembly	PP/Glass reinforced
6	Compressor	PA/Glass reinforced
8*	Diaphragm	EPDM/FPM/PTFE
9	Valve body	Valve Material
10	Washer	Zinc plated steel
11	Bolt	Zinc plated steel
12	Protective cap	PE
13	Socket seal O-ring	EPDM/FPM
14*	Union end	Valve Material
15*	Union nut	Valve Material

*Spare Parts

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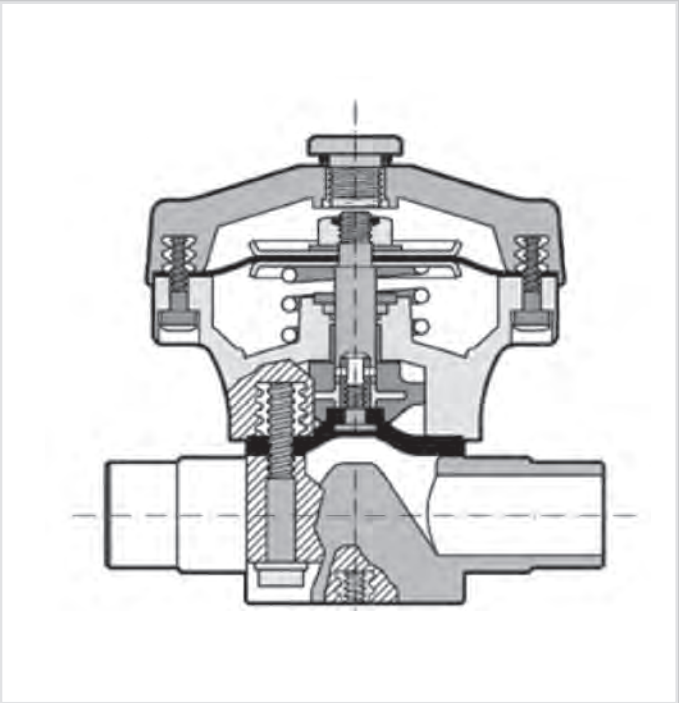
VM Pneumatically Actuated VM Diaphragm Valve (Normally Open) (Double Acting)

- The VM Diaphragm Valve is equipped with a maintenance free single acting normally closed (diaphragm type) actuator. The valve can be installed in any position
- The valve can be used with liquids and gaseous fluids, and is suitable for dirty or abrasive media
- The 'CDSA' (Circular Diaphragm Sealing Area), in valves up to and including DN50, offers the following
  - Uniform distribution of the pressure of the compressor on to the diaphragm
  - Reduction of up to 20% of the bolt tightening torque
  - Reduced mechanical stress on the valve components
  - Easier internal cleaning
  - Lower chance of accumulation of deposits and fluid contamination, reducing the possibility of damage caused by crystallisation
- Pressure rating: Maximum working pressure: up to 10 bar at 20°C (water)
- High K_v value and reduced pressure losses
- Modular range: 5 Actuator/Diaphragm sizes for 9 valve sizes
- Easy replacement of the sealing diaphragm
- For more information, please visit our website: **www.durapipe.co.uk**

Legend

d	Nominal outside diameter
DN	Nominal internal diameter in mm
R	Nominal size or the thread in inches
PN	Nominal pressure in bar (max.working Pressure at 20°C - water)
gms	Weight in grams
PVC-U	Polyvinyl chloride unplasticised
ABS	Acrylontrile Butadiene Styrene
PP	Polypropylene
PVC-C	Polyvinyl chloride chlorinated
GRPP	Glass reinforced polypropylene
HIPVC	High Impact PVC
POM	Polyoxymethylene
PE	Polyethylene
PTFE	Polytetrafluoroethylene
EPDM	Ethylene Propylene Diene Monomer (M-class) rubber
FPM	Fluorocarbon Rubber
s	Wall thickness (mm)



Dimensions and Standards

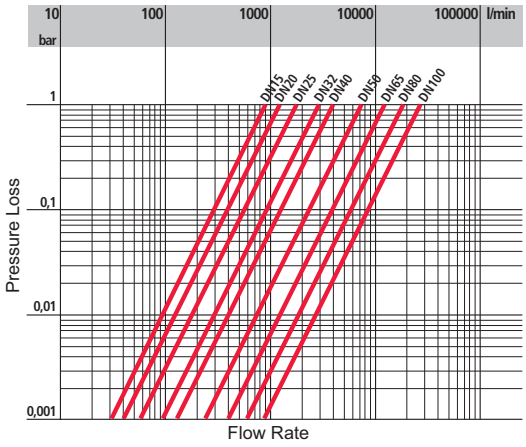
Imperial
The Imperial System is manufactured in accordance with the relevant British Standards: BS 5392 fittings.

Metric
The Metric System is manufactured generally in accordance with the relevant International Standards: ISO 15493, KIWA 49 and 549, DIN 8062 and 8063.

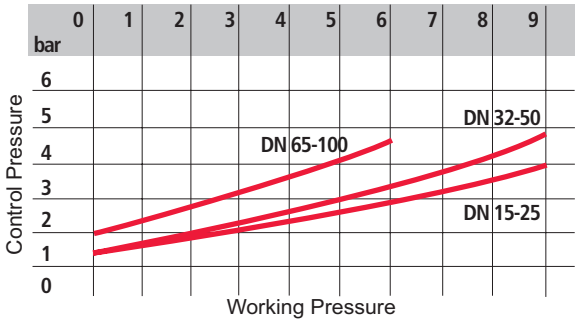
BSP Thread
Threaded fittings conform to the requirements of BS 21/DIN 2999/ISO7. Socket dimensions of metric fittings for solvent welding comply with ISO/DIS 727-1.

Interchangeability
Components in the imperial and metric ranges are not interchangeable.

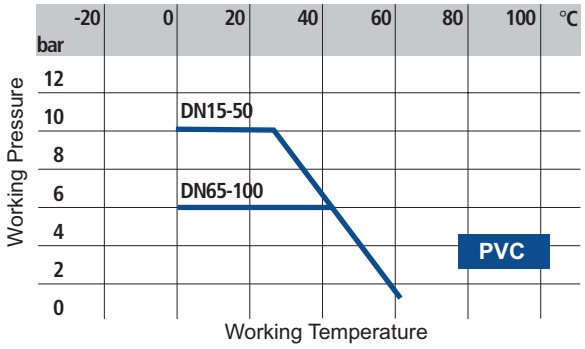
Technical Data

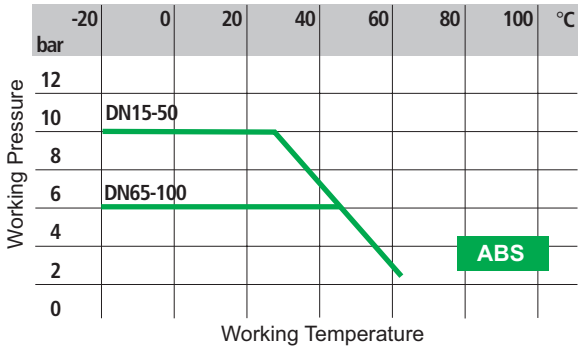


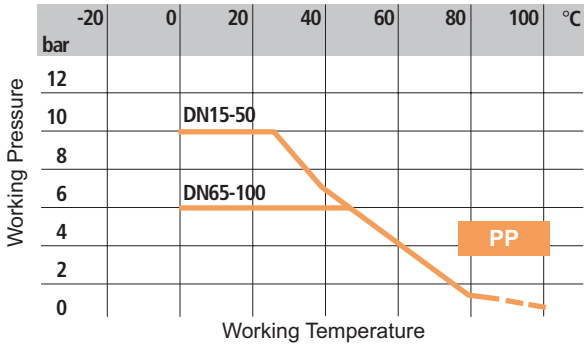
Pressure loss chart.

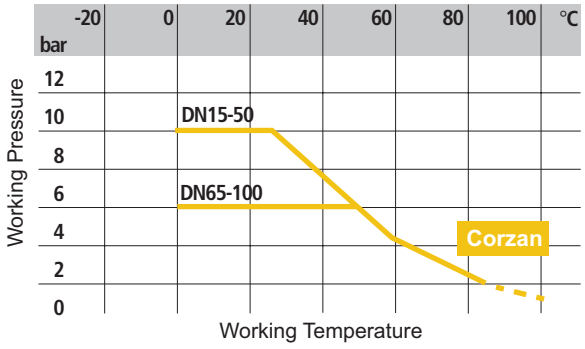


Control pressure relative to working pressure.









Pressure/temperature rating for water and harmless fluids to which the material is RESISTANT. In other cases a reduction of the PN is required. (25 years with safety factor).

DN	10	15	20	25	32	40	50	65	80	100
k_{v100}	93	93	136	175	300	416	766	1300	2000	2700

Flow coefficient k_{v100}

k_{v100} is the number of litres per minute of water at a temperature of 20°C that will flow through a valve with a one bar pressure differential at a specified rate. The k_{v100} values shown in the table are calculated with the valve fully open.

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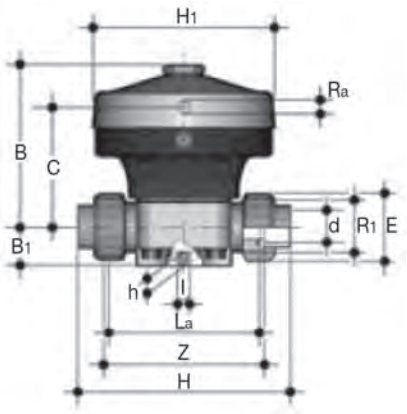
BS Series Female Ends



VMULV/NO PVC-U **VMULA/NO** ABS
VMULV/DA PVC-U **VMULA/DA** ABS

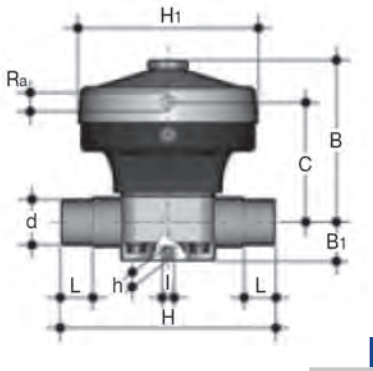
Diaphragm valve with BS series female ends

d	DN	PN	B	B_1	H	h	H_1	l	L_A	C	Z	E	R_1
½	15	10	144	26	147	12	126	25	108	120	115	41	1"
¾	20	10	144	26	154	12	126	25	108	120	116	50	1¼"
1	25	10	144	26	168	12	126	25	116	120	124	58	1½"
1¼	32	10	201	40	192	16	155	44.5	134	133	140	72	2"
1½	40	10	201	40	222	16	155	44.5	154	133	160	79	2¼"
2	50	10	237	40	266	16	210	44.5	184	156	190	98	2¾"

	PVC-U (NO)				PVC-U (DA)			
d	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code
½	1980	HQ UME 102	HQ UMF 102	HQ UMG 102	1980	HR UME 102	HR UMF 102	HR UMG 102
¾	1980	HQ UME 103	HQ UMF 103	HQ UMG 103	1980	HR UME 103	HR UMF 103	HR UMG 103
1	1980	HQ UME 104	HQ UMF 104	HQ UMG 104	1980	HR UME 104	HR UMF 104	HR UMG 104
1¼	4200	HQ UME 105	HQ UMF 105	HQ UMG 105	4200	HR UME 105	HR UMF 105	HR UMG 105
1½	4200	HQ UME 106	HQ UMF 106	HQ UMG 106	4200	HR UME 106	HR UMF 106	HR UMG 106
2	7350	HQ UME 107	HQ UMF 107	HQ UMG 107	7350	HR UME 107	HR UMF 107	HR UMG 107

	ABS (NO)				ABS (DA)			
d	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code
½	1980	HQ UMA 102	HQ UMB 102	HQ UMC 102	1980	HR UMA 102	HR UMB 102	HR UMC 102
¾	1980	HQ UMA 103	HQ UMB 103	HQ UMC 103	1980	HR UMA 103	HR UMB 103	HR UMC 103
1	1980	HQ UMA 104	HQ UMB 104	HQ UMC 104	1980	HR UMA 104	HR UMB 104	HR UMC 104
1¼	4200	HQ UMA 105	HQ UMB 105	HQ UMC 105	4200	HR UMA 105	HR UMB 105	HR UMC 105
1½	4200	HQ UMA 106	HQ UMB 106	HQ UMC 106	4200	HR UMA 106	HR UMB 106	HR UMC 106
2	7350	HQ UMA 107	HQ UMB 107	HQ UMC 107	7350	HR UMA 107	HR UMB 107	HR UMC 107

BS Series Female Ends



VMMV/NO PVC-U **VMMA/NO** ABS
VMMV/DA PVC-U **VMMA/DA** ABS

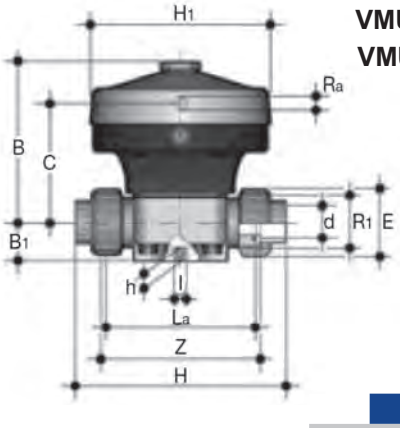
Diaphragm valve with BS series male ends

d	DN	PN	B	B_1	H	h	H_1	l	C	L
2½	65	10	325	55	284	23	305	100	252	44
3	80	10	325	55	300	23	305	100	252	51
4	100	10	355	69	340	23	330	120	268	61

	PVC-U (NO)				PVC-U (DA)			
d	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code
2½	15000	HQ VME 412	HQ VMF 412	HQ VMG 412	15000	HR VME 412	HR VMF 412	HR VMG 412
3	15000	HQ VME 209	HQ VMF 209	HQ VMG 209	15000	HR VME 209	HR VMF 209	HR VMG 209
4	25500	HQ VME 210	HQ VMF 210	HQ VMG 210	25500	HR VME 210	HR VMF 210	HR VMG 210

	ABS (NO)				ABS (DA)			
d	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code
2½	15000	HQ VMA 412	HQ VMB 412	HQ VMC 412	15000	HR VMA 412	HR VMB 412	HR VMC 412
3	15000	HQ VMA 209	HQ VMB 209	HQ VMC 209	15000	HR VMA 209	HR VMB 209	HR VMC 209
4	25500	HQ VMA 210	HQ VMB 210	HQ VMC 210	25500	HR VMA 210	HR VMB 210	HR VMC 210

Metric Series Female Ends



VMUIV/NO PVC-U **VMUIA/NO** ABS **VMUIM/NO** PP **VMUIC/NO** Corzan
VMUIV/DA PVC-U **VMUIA/DA** ABS **VMUIM/DA** PP **VMUIC/DA** Corzan

Diaphragm valve with Metric series female ends

d	DN	PN	B	B_1	H	h	H_1	l	L_A	C	Z	E	R_1
20	15	10	180	26	147	12	126	25	108	120	115	41	1"
25	20	10	180	26	154	12	126	25	108	120	116	50	1¼"
32	25	10	180	26	168	12	126	25	116	120	124	58	1½"
40	32	10	249	40	192	16	155	44.5	134	133	140	72	2"
50	40	10	249	40	222	16	155	44.5	154	133	160	79	2¼"
63	50	10	297	40	266	16	210	44.5	184	156	190	98	2¾"

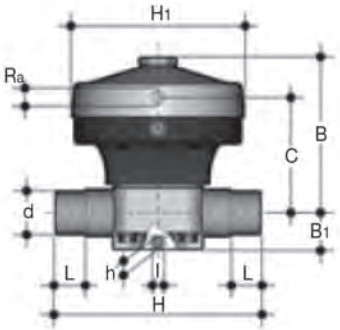
	PVC-U (NO)				PVC-U (DA)			
d	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code
20	1980	HQ UME 306	HQ UMF 306	HQ UMG 306	1980	HR UME 306	HR UMF 306	HR UMG 306
25	1980	HQ UME 307	HQ UMF 307	HQ UMG 307	1980	HR UME 307	HR UMF 307	HR UMG 307
32	1980	HQ UME 308	HQ UMF 308	HQ UMG 308	1980	HR UME 308	HR UMF 308	HR UMG 308
40	4200	HQ UME 309	HQ UMF 309	HQ UMG 309	4200	HR UME 309	HR UMF 309	HR UMG 309
50	4200	HQ UME 310	HQ UMF 310	HQ UMG 310	4200	HR UME 310	HR UMF 310	HR UMG 310
63	7350	HQ UME 311	HQ UMF 311	HQ UMG 311	7350	HR UME 311	HR UMF 311	HR UMG 311

	ABS (NO)				ABS (DA)			
d	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code
20	1980	HQ UMA 306	HQ UMB 306	HQ UMC 306	1980	HR UMA 306	HR UMB 306	HR UMC 306
25	1980	HQ UMA 307	HQ UMB 307	HQ UMC 307	1980	HR UMA 307	HR UMB 307	HR UMC 307
32	1980	HQ UMA 308	HQ UMB 308	HQ UMC 308	1980	HR UMA 308	HR UMB 308	HR UMC 308
40	4200	HQ UMA 309	HQ UMB 309	HQ UMC 309	4200	HR UMA 309	HR UMB 309	HR UMC 309
50	4200	HQ UMA 310	HQ UMB 310	HQ UMC 310	4200	HR UMA 310	HR UMB 310	HR UMC 310
63	7350	HQ UMA 311	HQ UMB 311	HQ UMC 311	7350	HR UMA 311	HR UMB 311	HR UMC 311

	PP (NO)				PP (DA)			
d	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code
20	1980	HQ UMN 306	HQ UMP 306	HQ UMQ 306	1980	HR UMN 306	HR UMP 306	HR UMQ 306
25	1980	HQ UMN 307	HQ UMP 307	HQ UMQ 307	1980	HR UMN 307	HR UMP 307	HR UMQ 307
32	1980	HQ UMN 308	HQ UMP 308	HQ UMQ 308	1980	HR UMN 308	HR UMP 308	HR UMQ 308
40	4200	HQ UMN 309	HQ UMP 309	HQ UMQ 309	4200	HR UMN 309	HR UMP 309	HR UMQ 309
50	4200	HQ UMN 310	HQ UMP 310	HQ UMQ 310	4200	HR UMN 310	HR UMP 310	HR UMQ 310
63	7350	HQ UMN 311	HQ UMP 311	HQ UMQ 311	7350	HR UMN 311	HR UMP 311	HR UMQ 311

	Corzan (NO)				Corzan (DA)			
d	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code
20	1980	HQ UMJ 306	HQ UMK 306	HQ UML 306	1980	HR UMJ 306	HR UMK 306	HR UML 306
25	1980	HQ UMJ 307	HQ UMK 307	HQ UML 307	1980	HR UMJ 307	HR UMK 307	HR UML 307
32	1980	HQ UMJ 308	HQ UMK 308	HQ UML 308	1980	HR UMJ 308	HR UMK 308	HR UML 308
40	4200	HQ UMJ 309	HQ UMK 309	HQ UML 309	4200	HR UMJ 309	HR UMK 309	HR UML 309
50	4200	HQ UMJ 310	HQ UMK 310	HQ UML 310	4200	HR UMJ 310	HR UMK 310	HR UML 310
63	7350	HQ UMJ 311	HQ UMK 311	HQ UML 311	7350	HR UMJ 311	HR UMK 311	HR UML 311

Metric Series Female Ends



VMDV/NO PVC-U **VMDA/NO** ABS **VMDM/NO** PP **VMDC/NO** Corzan
VMDV/DA PVC-U **VMDA/DA** ABS **VMDM/DA** PP **VMDC/DA** Corzan

Diaphragm valve with Metric series male ends

d	DN	PN	B	B_1	H	h	H_1	l	J	L
75	65	10	325	55	284	23	305	100	M12	44
90	80	10	325	55	300	23	305	100	M12	51
110	100	10	355	69	340	23	330	120	M12	61

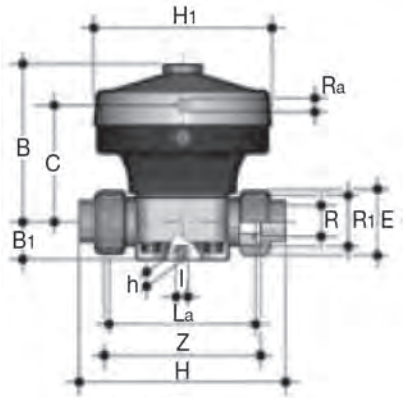
	PVC-U (NO)				PVC-U (DA)			
d	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code
75	15000	HQ VME 412	HQ VMF 412	HQ VMG 412	15000	HR VME 412	HR VMF 412	HR VMG 412
90	15000	HQ VME 413	HQ VMF 413	HQ VMG 413	15000	HR VME 413	HR VMF 413	HR VMG 413
110	25500	HQ VME 414	HQ VMF 414	HQ VMG 414	25500	HR VME 414	HR VMF 414	HR VMG 414

	ABS (NO)				ABS (DA)			
d	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code
75	15000	HQ VMA 412	HQ VMB 412	HQ VMC 412	15000	HR VMA 412	HR VMB 412	HR VMC 412
90	15000	HQ VMA 413	HQ VMB 413	HQ VMC 413	15000	HR VMA 413	HR VMB 413	HR VMC 413
110	25500	HQ VMA 414	HQ VMB 414	HQ VMC 414	25500	HR VMA 414	HR VMB 414	HR VMC 414

	PP (NO)				PP (DA)			
d	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code
75	15000	HQ VMN 412	HQ VMP 412	HQ VMQ 412	15000	HR VMN 412	HR VMP 412	HR VMQ 412
90	15000	HQ VMN 413	HQ VMP 413	HQ VMQ 413	15000	HR VMN 413	HR VMP 413	HR VMQ 413
110	25500	HQ VMN 414	HQ VMP 414	HQ VMQ 414	25500	HR VMN 414	HR VMP 414	HR VMQ 414

	Corzan (NO)				Corzan (DA)			
d	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code
75	15000	HQ VMJ 412	HQ VMK 412	HQ VML 412	15000	HR VMJ 412	HR VMK 412	HR VML 412
90	15000	HQ VMJ 413	HQ VMK 413	HQ VML 413	15000	HR VMJ 413	HR VMK 413	HR VML 413
110	25500	HQ VMJ 414	HQ VMK 414	HQ VML 414	25500	HR VMJ 414	HR VMK 414	HR VML 414

BSP Threaded Socket Ends



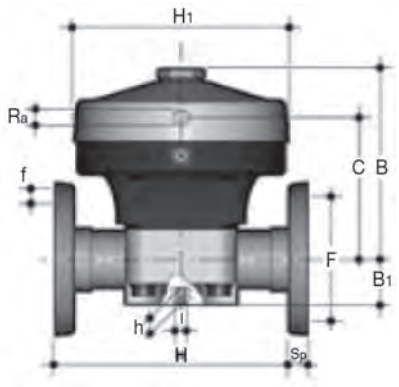
VMUFV/NO PVC-U **VMUFV/DA** PVC-U

Diaphragm valve with BSP parallel female threaded ends

d	DN	PN	B	B_1	H	h	H_1	l	L_A	C	Z	E	R_1
½	15	10	180	26	147	12	126	25	108	120	118	41	1"
¾	20	10	180	26	154	12	126	25	108	120	118	50	1¼"
1	25	10	180	26	168	12	126	25	116	120	127	58	1½"
1¼	32	10	249	40	192	16	155	44.5	134	133	145	72	2"
1½	40	10	249	40	222	16	155	44.5	154	133	165	79	2¼"
2	50	10	297	40	266	16	210	44.5	184	156	195	98	2¾"

	PVC-U (NO)				PVC-U (DA)			
d	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code
½	1980	HQ UME B02	HQ UMF B02	HQ UMG B02	1980	HR UME B02	HR UMF B02	HR UMG B02
¾	1980	HQ UME B03	HQ UMF B03	HQ UMG B03	1980	HR UME B03	HR UMF B03	HR UMG B03
1	1980	HQ UME B04	HQ UMF B04	HQ UMG B04	1980	HR UME B04	HR UMF B04	HR UMG B04
1¼	4200	HQ UME B05	HQ UMF B05	HQ UMG B05	4200	HR UME B05	HR UMF B05	HR UMG B05
1½	4200	HQ UME B06	HQ UMF B06	HQ UMG B06	4200	HR UME B06	HR UMF B06	HR UMG B06
2	7350	HQ UME B07	HQ UMF B07	HQ UMG B07	7350	HR UME B07	HR UMF B07	HR UMG B07

Flanged Ends to BS EN1092-1 PN10/16



VMOV/NO PVC-U **VMOM/NO** PP **VMOC/NO** Corzan
VMOV/DA PVC-U **VMOM/DA** PP **VMOC/DA** Corzan

Diaphragm valve with Flanged ends, to BS EN1092-1 PN10/16

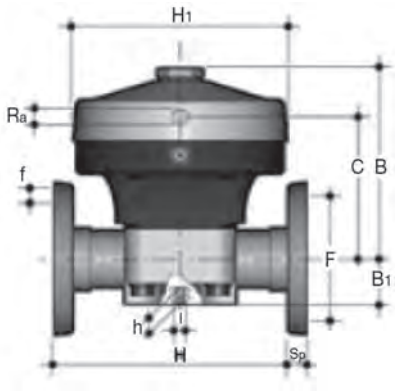
d	DN	PN	B	B_1	H	h	H_1	l	J	F	f	S_p
½	15	10	175	26	130	12	126	25	M6	65	14	11
¾	20	10	175	26	150	12	126	25	M6	75	14	13.5
1	25	10	175	26	160	12	126	25	M6	85	14	14
1¼	32	10	244	40	180	18	155	44.5	M8	100	18	14
1½	40	10	244	40	200	18	155	44.5	M8	110	18	16
2	50	10	392	40	230	18	210	44.5	M8	125	18	16
2	65	10	325	55	290	23	305	100	M12	145	18	21
3	90	10	325	55	310	23	305	100	M12	160	18	21.5
4	110	10	355	69	350	23	330	120	M12	180	18	21.5

	PVC-U (NO)				PVC-U (DA)			
d	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code
½	1990	HQ VME F02	HQ VMF F02	HQ VMG F02	1990	HR VME F02	HR VMF F02	HR VMG F02
¾	2050	HQ VME F03	HQ VMF F03	HQ VMG F03	2050	HR VME F03	HR VMF F03	HR VMG F03
1	2130	HQ VME F04	HQ VMF F04	HQ VMG F04	2130	HR VME F04	HR VMF F04	HR VMG F04
1¼	4460	HQ VME F05	HQ VMF F05	HQ VMG F05	4460	HR VME F05	HR VMF F05	HR VMG F05
1½	4575	HQ VME F06	HQ VMF F06	HQ VMG F06	4575	HR VME F06	HR VMF F06	HR VMG F06
2	7720	HQ VME F07	HQ VMF F07	HQ VMG F07	7720	HR VME F07	HR VMF F07	HR VMG F07
2½	16100	HQ VME F08	HQ VMF F08	HQ VMG F08	16100	HR VME F08	HR VMF F08	HR VMG F08
3	17000	HQ VME F09	HQ VMF F09	HQ VMG F09	17000	HR VME F09	HR VMF F09	HR VMG F09
4	27900	HQ VME F10	HQ VMF F10	HQ VMG F10	27900	HR VME F10	HR VMF F10	HR VMG F10

	PP (NO)				PP (DA)			
d	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code
½	1990	HQ VMN F02	HQ VMP F02	HQ VMQ F02	1990	HR VMN F02	HR VMP F02	HR VMQ F02
¾	2050	HQ VMN F03	HQ VMP F03	HQ VMQ F03	2050	HR VMN F03	HR VMP F03	HR VMQ F03
1	2130	HQ VMN F04	HQ VMP F04	HQ VMQ F04	2130	HR VMN F04	HR VMP F04	HR VMQ F04
1¼	4460	HQ VMN F05	HQ VMP F05	HQ VMQ F05	4460	HR VMN F05	HR VMP F05	HR VMQ F05
1½	4575	HQ VMN F06	HQ VMP F06	HQ VMQ F06	4575	HR VMN F06	HR VMP F06	HR VMQ F06
2	7720	HQ VMN F07	HQ VMP F07	HQ VMQ F07	7720	HR VMN F07	HR VMP F07	HR VMQ F07
2½	16100	HQ VMN F08	HQ VMP F08	HQ VMQ F08	16100	HR VMN F08	HR VMP F08	HR VMQ F08
3	17000	HQ VMN F09	HQ VMP F09	HQ VMQ F09	17000	HR VMN F09	HR VMP F09	HR VMQ F09
4	27900	HQ VMN F10	HQ VMP F10	HQ VMQ F10	27900	HR VMN F10	HR VMP F10	HR VMQ F10

	Corzan (NO)				Corzan (DA)			
d	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code
½	1990	HQ VMJ F02	HQ VMK F02	HQ VML F02	1990	HR VMJ F02	HR VMK F02	HR VML F02
¾	2050	HQ VMJ F03	HQ VMK F03	HQ VML F03	2050	HR VMJ F03	HR VMK F03	HR VML F03
1	2130	HQ VMJ F04	HQ VMK F04	HQ VML F04	2130	HR VMJ F04	HR VMK F04	HR VML F04
1¼	4460	HQ VMJ F05	HQ VMK F05	HQ VML F05	4460	HR VMJ F05	HR VMK F05	HR VML F05
1½	4575	HQ VMJ F06	HQ VMK F06	HQ VML F06	4575	HR VMJ F06	HR VMK F06	HR VML F06
2	7720	HQ VMJ F07	HQ VMK F07	HQ VML F07	7720	HR VMJ F07	HR VMK F07	HR VML F07
2½	16100	HQ VMJ F08	HQ VMK F08	HQ VML F08	16100	HR VMJ F08	HR VMK F08	HR VML F08
3	17000	HQ VMJ F09	HQ VMK F09	HQ VML F09	17000	HR VMJ F09	HR VMK F09	HR VML F09
4	27900	HQ VMJ F10	HQ VMK F10	HQ VML F10	27900	HR VMJ F10	HR VMK F10	HR VML F10

Flanged Ends to ANSI 150



VMOAV/NO PVC-U **VMOAM/NO** PP **VMOAC/NO** Corzan
VMOAV/DA PVC-U **VMOAM/DA** PP **VMOAC/DA** Corzan

Diaphragm valve with Flanged ends to ANSI 150

d	DN	PN	B	B_1	H	h	H_1	l	J	F	f	S_p
½	15	10	175	26	130	12	126	25	M6	65	14	11
¾	20	10	175	26	150	12	126	25	M6	75	14	13.5
1	25	10	175	26	160	12	126	25	M6	85	14	14
1¼	32	10	244	40	180	18	155	44.5	M8	100	18	14
1½	40	10	244	40	200	18	155	44.5	M8	110	18	16
2	50	10	392	40	230	18	210	44.5	M8	125	18	16
2	65	10	325	55	290	23	305	100	M12	145	18	21
3	90	10	325	55	310	23	305	100	M12	160	18	21.5
4	110	10	355	69	350	23	330	120	M12	180	18	21.5

	PVC-U (NO)				PVC-U (DA)			
d	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code
½	1990	HQ VME X02	HQ VMF X02	HQ VMG X02	1990	HR VME X02	HR VMF X02	HR VMG X02
¾	2050	HQ VME X03	HQ VMF X03	HQ VMG X03	2050	HR VME X03	HR VMF X03	HR VMG X03
1	2130	HQ VME X04	HQ VMF X04	HQ VMG X04	2130	HR VME X04	HR VMF X04	HR VMG X04
1¼	4460	HQ VME X05	HQ VMF X05	HQ VMG X05	4460	HR VME X05	HR VMF X05	HR VMG X05
1½	4575	HQ VME X06	HQ VMF X06	HQ VMG X06	4575	HR VME X06	HR VMF X06	HR VMG X06
2	7720	HQ VME X07	HQ VMF X07	HQ VMG X07	7720	HR VME X07	HR VMF X07	HR VMG X07
2½	16100	HQ VME X08	HQ VMF X08	HQ VMG X08	16100	HR VME X08	HR VMF X08	HR VMG X08
3	17000	HQ VME X09	HQ VMF X09	HQ VMG X09	17000	HR VME X09	HR VMF X09	HR VMG X09
4	27900	HQ VME X10	HQ VMF X10	HQ VMG X10	27900	HR VME X10	HR VMF X10	HR VMG X10

	PP (NO)				PP (DA)			
d	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code
½	1870	HQ VMN X02	HQ VMP X02	HQ VMQ X02	1870	HR VMN X02	HR VMP X02	HR VMQ X02
¾	1950	HQ VMN X03	HQ VMP X03	HQ VMQ X03	1950	HR VMN X03	HR VMP X03	HR VMQ X03
1	2015	HQ VMN X04	HQ VMP X04	HQ VMQ X04	2015	HR VMN X04	HR VMP X04	HR VMQ X04
1¼	4230	HQ VMN X05	HQ VMP X05	HQ VMQ X05	4230	HR VMN X05	HR VMP X05	HR VMQ X05
1½	4575	HQ VMN X06	HQ VMP X06	HQ VMQ X06	4575	HR VMN X06	HR VMP X06	HR VMQ X06
2	7720	HQ VMN X07	HQ VMP X07	HQ VMQ X07	7720	HR VMN X07	HR VMP X07	HR VMQ X07
2½	15100	HQ VMN X08	HQ VMP X08	HQ VMQ X08	15100	HR VMN X08	HR VMP X08	HR VMQ X08
3	16000	HQ VMN X09	HQ VMP X09	HQ VMQ X09	16000	HR VMN X09	HR VMP X09	HR VMQ X09
4	26400	HQ VMN X10	HQ VMP X10	HQ VMQ X10	26400	HR VMN X10	HR VMP X10	HR VMQ X10

	Corzan (NO)				Corzan (DA)			
d	gms	EPDM Code	FPM Code	PTFE Code	gms	EPDM Code	FPM Code	PTFE Code
½	2020	HQ VMJ X02	HQ VMK X02	HQ VML X02	2020	HR VMJ X02	HR VMK X02	HR VML X02
¾	2085	HQ VMJ X03	HQ VMK X03	HQ VML X03	2085	HR VMJ X03	HR VMK X03	HR VML X03
1	2195	HQ VMJ X04	HQ VMK X04	HQ VML X04	2195	HR VMJ X04	HR VMK X04	HR VML X04
1¼	4530	HQ VMJ X05	HQ VMK X05	HQ VML X05	4530	HR VMJ X05	HR VMK X05	HR VML X05
1½	4645	HQ VMJ X06	HQ VMK X06	HQ VML X06	4645	HR VMJ X06	HR VMK X06	HR VML X06
2	7835	HQ VMJ X07	HQ VMK X07	HQ VML X07	7835	HR VMJ X07	HR VMK X07	HR VML X07
2½	16350	HQ VMJ X08	HQ VMK X08	HQ VML X08	16350	HR VMJ X08	HR VMK X08	HR VML X08
3	17260	HQ VMJ X09	HQ VMK X09	HQ VML X09	17260	HR VMJ X09	HR VMK X09	HR VML X09
4	28260	HQ VMJ X10	HQ VMK X10	HQ VML X10	28260	HR VMJ X10	HR VMK X10	HR VML X10

Actuators

Pneumatic actuator with plastic housing

Air pressure required to operate: See table 4 on page 292 (control pressure relative to working pressure)
Maximum allowable air pressure: 6 Bar
Control air temperature: -Max. 40ºC*
Pneumatic connections: 1 x ¼" BSP

Actuator options

Direct Acting

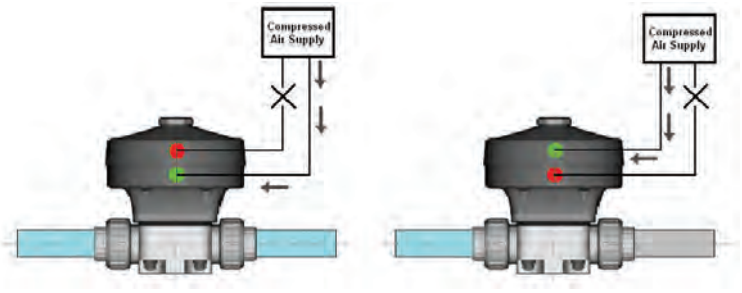
Fail Safe Open

Please contact the Durapipe Valve Department for further information.

	Capacity (Nl**)			
	Fail safe closed		Double Acting	
d	To Open	To Close	To Open	To Close
3/8 - 16	-	0.13	0.13	0.13
1/2 - 20	-	0.13	0.13	0.13
3/4 - 32	-	0.13	0.13	0.13
1 - 40	-	0.13	0.13	0.13
1 1/4 - 50	-	0.28	0.28	0.28
1 1/2 - 63	-	0.28	0.28	0.28
2 - 50	-	0.50	0.50	0.50
2 1/2 - 75	-	2.20	2.20	2.20
3 - 90	-	2.20	2.20	2.20
4 - 110	-	2.20	2.20	2.20

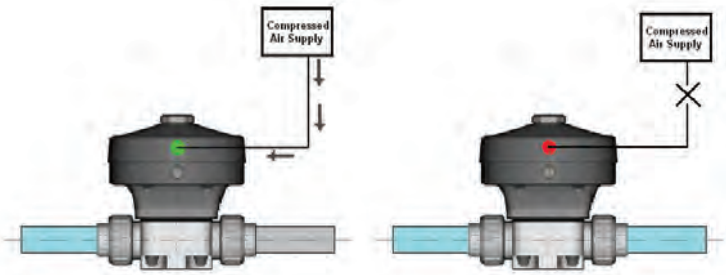
• Lubricated filtered compressed air
** Nl : Volume (Litres) at atmospheric pressure

Operating Principle



Double Acting

Compressed air is required to drive the actuator to the open and closed positions.

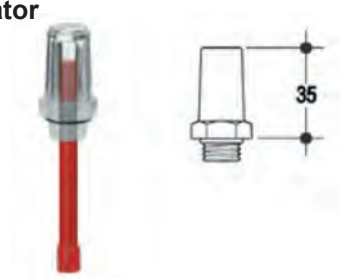


Fail Safe Open

Compressed air is required to drive the actuator to the closed position. With no air being supplied to the actuator the springs within the actuator drive it to the open position.

Accessories

Optical Position Indicator

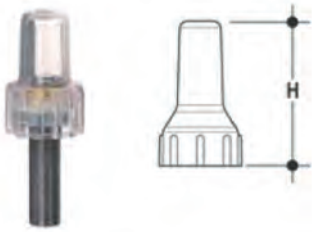


d	DN	Product Code
1/2" to 2" - 20 to 63	15 - 50	HZ OPI 001
2 1/2" to 4" - 75 to 110	65 to 100	HZ OPI 002

To order an actuated Diaphragm valve with the Optical Position Indicator. Change the middle digit of the valve size code to 'V' eg.

HP UME 1**V**4 = 1" N/C PVC/EPDM c/w Position indicator
HP UME 3**V**8 = d32 N/C PVC/EPDM c/w Position indicator

Stroke limiter



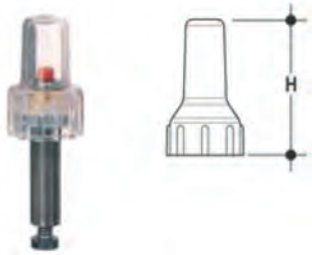
d	DN	H	Product Code
2 1/2" to 4" - 75 to 110	65 to 100	110	HZ SL1 005 *

To order an actuated Diaphragm valve with the Stroke Limiter. Change the middle digit of the valve size code to 'S' eg.

HP UME 1**S**4 = 1" N/C PVC/EPDM c/w Stroke Limiter
HP UME 3**S**8 = d32 N/C PVC/EPDM c/w Stroke Limiter

• Only available as assembled to valve by Durapipe.

Stroke Limiter with Optical Position Indicator



d		DN	H	Product Code
1/2" to 2"	20 to 63	15 - 50	60	HZ SL1 002
2 1/2" to 4"	75 to 110	65 to 100	110	HZ SL1 006*

To order an actuated Diaphragm valve with the Stroke Limiter and Position Indicator. Change the middle digit of the valve size code to 'P' eg.

HP UME 1**P**4 = 1" N/C PVC/EPDM c/w Stroke Limiter and Position Indicator
HP UME 3**P**8 = d32 N/C PVC/EPDM c/w Stroke Limiter and Position Indicator

• Only available as assembled to valve by Durapipe.

Stroke Limiter with Optical Position Indicator and Emergency Manual Override

d		DN	H	Product Code
1/2" to 1"	20 to 32	15 - 25	60	HZ SL3 002*
1 1/4" to 2"	40 to 50	32 - 40	60	HZ SL3 004*

To order an actuated Diaphragm valve with the Stroke Limiter with Position Indicator and Emergency Manual Override. Change the middle digit of the valve size code to 'M' eg.

HP UME 1**M**4 = 1" N/C PVC/EPDM c/w Stroke Limiter and Position Indicator
HP UME 3**M**8 = d32 N/C PVC/EPDM c/w Stroke Limiter and Position Indicator

• Only available as assembled to valve by Durapipe.

Direct Mounted Pilot Solenoid Valve

Mounting:
Direct mounts to 1/4" air inlet of the pneumatic actuator

Function:
3/2 Normally closed

Ingress protection:
IP65

Electrical supply:
The pilot solenoid valves are available as: 240VAC, 110VAC, 24VAC and 24VDC

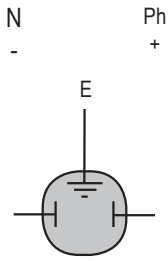
Dutyrating:
100% ED

Air connections:
1/8" BSP female

Air supply:
Lubricated filtered compressed air (3.0 to 8.0 Bar)

Electrical wiring:
2 Wire (& earth) connection to DIN plug.

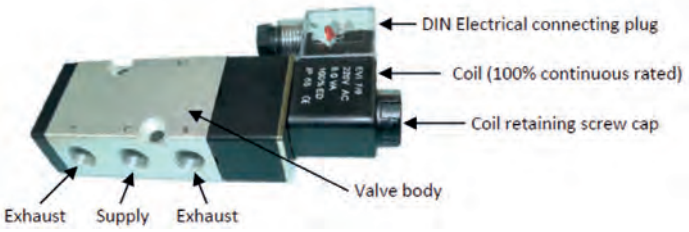
Manual overide:
With air applied, but no power, the valve can be operated by hand by using the red turn (with a screwdriver) manual switch



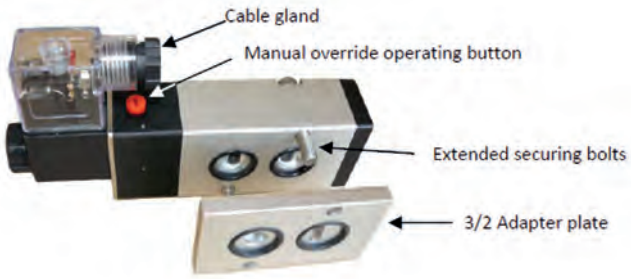
Voltage	Product Code
240VAC	HZ PS2 240
110VAC	HZ PS2 110
24VAC	HZ PS2 24A
24VDC	HZ PS2 24D

Note: For Direct acting (D/A) operation, 2 direct mounting solenoid valves would be required.

Namur Mounted Pilot Solenoid Valve*



*Design of the solenoid valve supplied may vary based on individual requirements.



Mounting:
Direct mounts to Namur interface of pneumatic actuator with supplied O-rings and bolts. They are supplied with both a 3/2 adaptor plate (spring return actuators) and a 5/2 adaptor plate (double acting actuators)

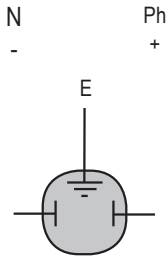
Electrical supply:
The pilot solenoid valves are available as: 240VAC, 110VAC, 24VAC and 24VDC

Air connections:
1/4" BSP female.

Air supply:
Lubricated filtered compressed air (3.0 to 8.0 Bar)

Electrical wiring:
2 Wire (& earth) connection to DIN plug

Manual overide:
With air applied, but no power, the valve can be operated by hand by using the red push down and hold, or turn down (with a screwdriver) & lock manual button



Voltage	Product Code
240VAC	HZ PS1 240
110VAC	HZ PS1 110
24VAC	HZ PS1 24A
24VDC	HZ PS1 24D

Accessories

Namur Conversion Plate

Adaptor plate to enable Namur mount solenoid valves to be fitted to VM NO-DA Actuators

d		DN	Product Code
1/2" to 1"	20 to 32	15 - 25	HZ MP5 001
1 1/4" to 1 1/2"	40 to 50	32 - 40	HZ MP5 002
2"	63	50	HZ MP5 003
2 1/2" to 3"	75 to 90	65 to 80	HZ MP5 004
4"	110	100	HZ MP5 005

Limit Switch Box

Limit switch box with two electro-mechanical switches

Technical details

Switch type:
SPDT

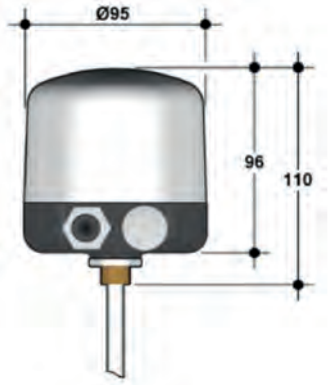
Contacts rating:
5A, 250VAC

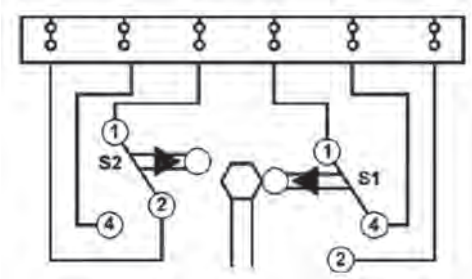
Ingress protection:
IP65

Temperature range:
-5° to 85°C

Cable inlet:
1 x PG13.5 Gland

Materials:
Body: PPGR
Cover: Polycarbonate





d		DN	Product Code
1/2" to 4"	20 to 100	15 - 40	HZ SB7 100

Note: Other options are available; Switch Box with 2 inductive switches, Combined stroke limiter and switch box, Pneumatic positioned. For more details contact our valve and flow control department.

Tel: +44 (0)1543 471680 Fax: +44 (0)1543 471682

Connection to the System

Before proceeding with the installation, please read and familiarise yourself with these instructions.

Union Ended Version

1. Check that the pipes either side of the valve are axially aligned, in order to avoid mechanical stress on the threaded union joints.
2. Unscrew the union nuts (15) from the valve body and slide them onto the pipe.
3. Solvent weld, Socket Fuse or screw the valve end connectors (14) onto the pipe ends. For correct jointing see the Durapipe material technical catalogues
4. Position the valve between the two end connectors and screw the union nuts clockwise by hand until a resistance is felt; do not use keys or other tools which may damage the nut Surface.

Spigot Ended Version

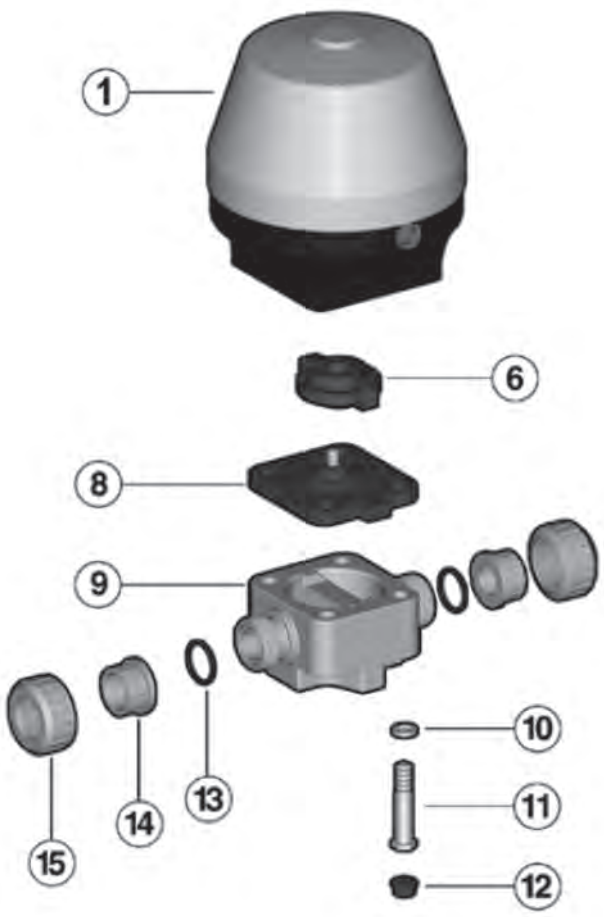
1. Check that the pipes either side of the valve are axially aligned, in order to avoid mechanical stress on the threaded union joints.
2. Solvent weld or Socket Fuse the valve body (9) into the fitting socket For correct jointing see the Durapipe material technical catalogues. Take care when solvent welding to ensure that no solvent runs into the valve body.

Disassembly

1. Isolate the valve from the flow and drain down upstream of the valve.
2. Unscrew the four bolts (7) and separate the headworks (1 to 6) from the body (9)
3. Unscrew the diaphragm (8) from the compressor (6).
4. Clean or replace the diaphragm, if necessary.

Assembly

1. Screw the diaphragm (8) into the compressor (6), to hand tight, then rotate anti-clockwise to line up the diaphragm holes with the bonnet drillings.
2. Place the actuator assembly onto the valve body. Bolt together with the four bolts, tightening in a diagonally opposite sequence. Fit the plastic protective caps (12).



Position	Components	Material
1	Actuator Assembly	PP/Glass reinforced
6	Compressor	PA/Glass reinforced
8*	Diaphragm	EPDM/FPM/PTFE
9	Valve body	Valve Material
10	Washer	Zinc plated steel
11	Bolt	Zinc plated steel
12	Protective cap	PE
13	Socket seal O-ring	EPDM/FPM
14*	Union end	Valve Material
15*	Union nut	Valve Material

*Spare Parts

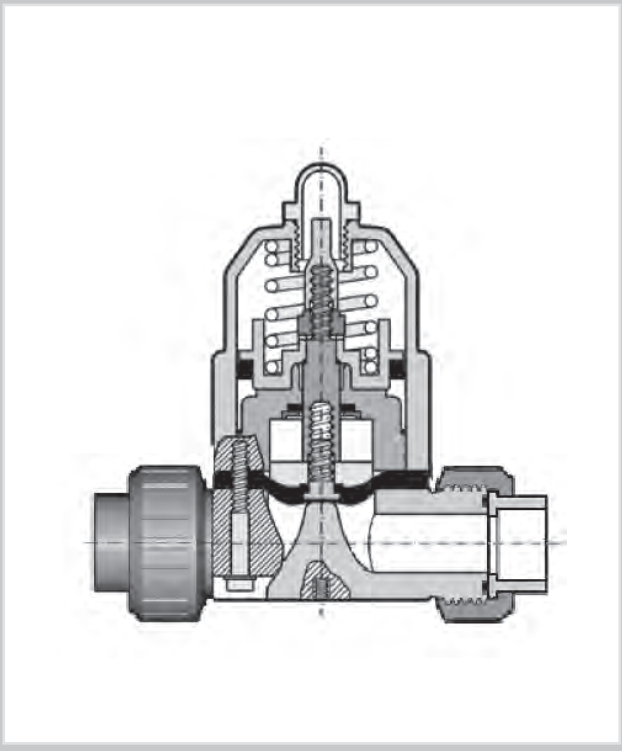
CM Pneumatically Actuated CM Compact Diaphragm Valve

- The CM Diaphragm Valve is a compact actuated Diaphragm Valve with excellent flow characteristics and tight sealing. The valve is fitted with a maintenance free actuator which can be used with liquids and gaseous fluids, and is suitable for dirty or abrasive media.

  With the Normally Closed (NC) and Normally Open (NO) operating functions springs are incorporated within the actuator. Direct acting product is also available.
- The Compact design allows it to be mounted where space is restricted or limited. It can also be installed in any orientation
- Pressure rating: Maximum working pressure: 6 bar at 20°C (water)
- High K_v value and reduced pressure losses
- Easy replacement of the sealing diaphragm
- Position indicator as standard
- For more information, please visit our website: **www.durapipe.co.uk**

Legend

d	Nominal outside diameter
DN	Nominal internal diameter in mm
R	Nominal size or the thread in inches
PN	Nominal pressure in bar (max.working Pressure at 20°C - water)
gms	Weight in grams
PVC-U	Polyvinyl chloride unplasticised
ABS	Acrylontrile Butadiene Styrene
PP	Polypropylene
PVC-C	Polyvinyl chloride chlorinated
GRPP	Glass reinforced polypropylene
HIPVC	High Impact PVC
POM	Polyoxymethylene
PE	Polyethylene
PTFE	Polytetrafluoroethylene
EPDM	Ethylene Propylene Diene Monomer (M-class) rubber
FPM	Fluorocarbon Rubber
s	Wall thickness (mm
SDR	Standard dimension ratio = d/s



Dimensions and Standards

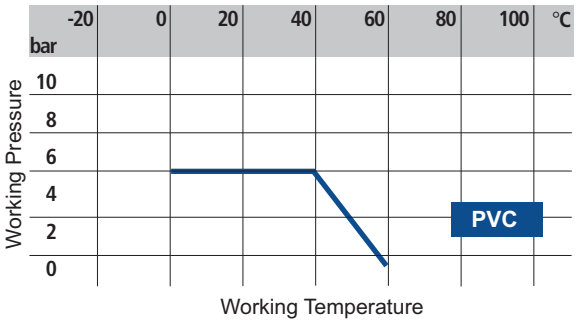
Imperial
The Imperial System is manufactured in accordance with the relevant British Standards: BS 5392 fittings.

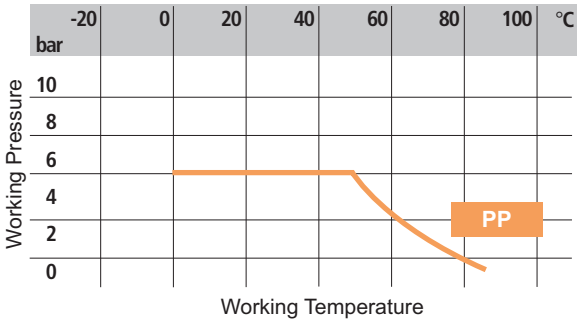
Metric
The Metric System is manufactured generally in accordance with the relevant International Standards: ISO 15493, KIWA 49 and 549, DIN 8062 and 8063.

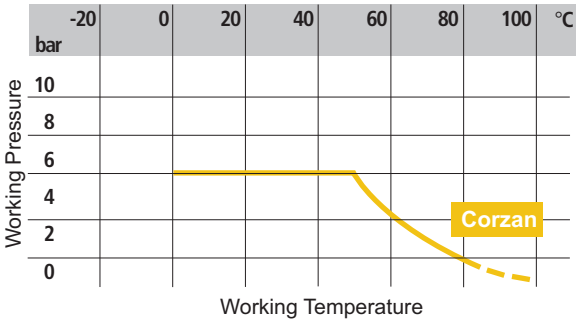
BSP Thread
Threaded fittings conform to the requirements of BS 21/DIN 2999/ISO7. Socket dimensions of metric fittings for solvent welding comply with ISO/DIS 727-1.

Interchangeability
Components in the imperial and metric ranges are not interchangeable.

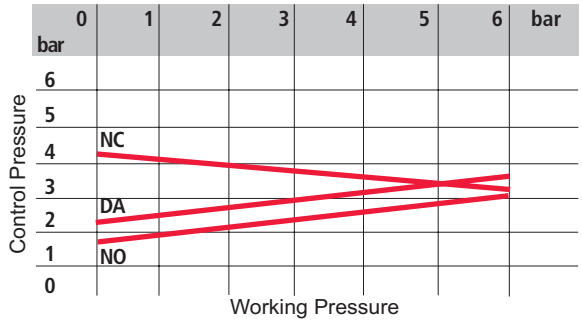
Technical Data







Pressure/temperature rating for water and harmless fluids to which the material is RESISTANT.
In other cases a reduction of the PN is required. (25 years with safety factor).

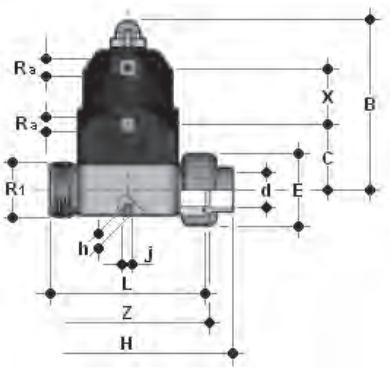


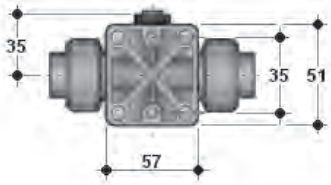
Control pressure relative to working pressure.

DN	15
k_{v100}	58

Flow coefficient $k_{v1\,0}$
k_{v100} is the number of litres per minute of water at a temperature of 20ºC that will flow through a valve with a one bar pressure differential at a specified rate. The k_{v100} values shown in the table are calculated with the valve fully open.

BS Series Female Ends





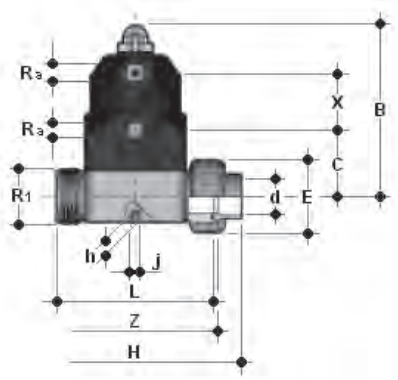
CMULV/NC PVC-U
CMULV/NO PVC-U
CMULV/DA PVC-U

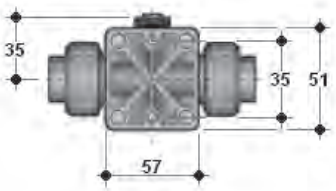
Diaphragm valve with BS series female ends

d	DN	PN	B	C	E	R_1	X	R_a	H	L	Z	h	j
½	15	6	98	38	41	1"	34	½"	129.5	90	97.5	8	M5

	PVC-U (NC)				PVC-U (NO)			PVC-U (DA)		
d	gms	EPDM Code	FPM Code	PTFE Code	EPDM Code	FPM Code	PTFE Code	EPDM Code	FPM Code	PTFE Code
½	340	HP CUE 102	HP CUF 102	HP CUG 102	HQ CUE 102	HQ CUF 102	HQ CUG 102	HR CUE 102	HR CUF 102	HR CUG 102

Metric Series Female Ends





CMUIV/NC PVC-U **CMUIM/NC** PP **CMUIC/NC** Corzan
CMUIV/NO PVC-U **CMUIM/NO** PP **CMUIC/NO** Corzan
CMUIV/DA PVC-U **CMUIM/DA** PP **CMUIC/DA** Corzan

Diaphragm valve with Metric series female ends

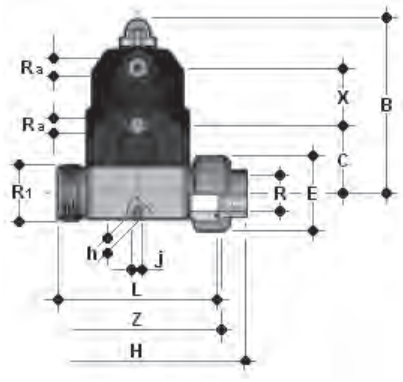
d	DN	PN	B	C	E	R_1	X	R_a	H	L	Z	h	j
20	15	6	98	38	41	1"	34	¼"	129.5	90	97.5	8	M5

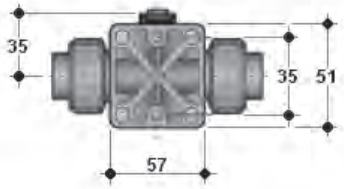
	PVC-U (NC)				PVC-U (NO)			PVC-U (DA)		
d	gms	EPDM Code	FPM Code	PTFE Code	EPDM Code	FPM Code	PTFE Code	EPDM Code	FPM Code	PTFE Code
20	340	HP CUE 306	HP CUF 306	HP CUG 306	HQ CUE 306	HQ CUF 306	HQ CUG 306	HR CUE 306	HR CUF 306	HR CUG 306

	PP (NC)				PP (NO)			PP (DA)		
d	gms	EPDM Code	FPM Code	PTFE Code	EPDM Code	FPM Code	PTFE Code	EPDM Code	FPM Code	PTFE Code
20	340	HP CUN 306	HP CUP 306	HP CUQ 306	HQ CUN 306	HQ CUP 306	HQ CUQ 306	HR CUN 306	HR CUP 306	HR CUQ 306

	Corzan (NC)				Corzan (NO)			Corzan (DA)		
d	gms	EPDM Code	FPM Code	PTFE Code	EPDM Code	FPM Code	PTFE Code	EPDM Code	FPM Code	PTFE Code
20	340	HP CUJ 306	HP CUK 306	HP CUL 306	HQ CUJ 306	HQ CUK 306	HQ CUL 306	HR CUJ 306	HR CUK 306	HR CUL 306

BSP Threaded Socket Ends





CMUFV/NC PVC-U
CMUFV/NO PVC-U
CMUFV/DA PVC-U

Diaphragm valve with BS series female ends

d	DN	PN	B	C	E	R_1	X	R_a	H	L	Z	h	j
½	15	6	98	38	41	1"	34	¼"	129.5	90	97.5	8	M5

	PVC-U (NC)				PVC-U (NO)			PVC-U (DA)		
d	gms	EPDM Code	FPM Code	PTFE Code	EPDM Code	FPM Code	PTFE Code	EPDM Code	FPM Code	PTFE Code
½	340	HP CUE B02	HP CUF B02	HP CUG B02	HQ CUE B02	HQ CUF B02	HQ CUG B02	HR CUE B02	HR CUF B02	HR CUG B02

Actuators

Pneumatic Actuator with Plastic hHousing

Air pressure required to operate: See table 4 on page 316
(control pressure relative to working temperature)
Maximum allowable air pressure: 6 Bar
Control air temperature: -Max. 40ºC*
Pneumatic connections: 2 x ¼" BSP

Actuator options

Fail Safe Closed (NC)

Fail Safe Open (NO)

Double Acting (DA)

Please contact the Durapipe Valve Department for further information.

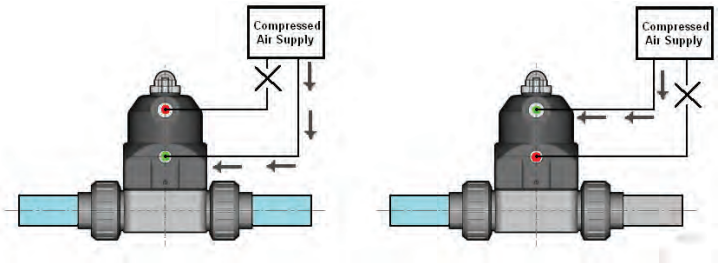
	Capacity (Nl**)					
	Fail safe closed		Fail safe open		Double Acting	
d	To Open	To Close	To Open	To Close	To Open	To Close
1/2 - 20	0.027	-	-	0.027	0.027	0.027

• Lubricated filtered compressed air
** Nl: Volume (Litres) at atmospheric pressure

Operating Principle

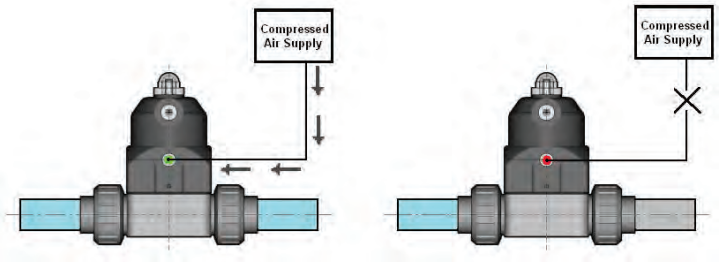
Double Acting

Compressed air is required to drive the actuator to the open or closed positions.



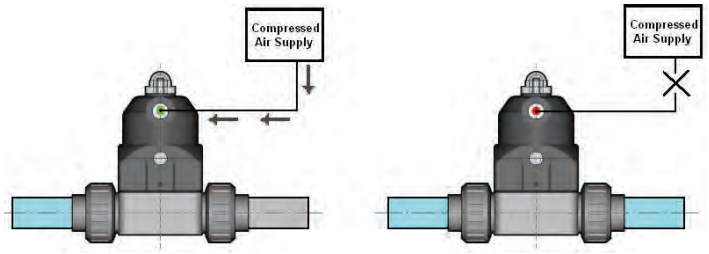
Fail Safe Closed

Compressed air is required to drive the actuator to the open position. With no air being supplied to the actuator the springs within the actuator drive it to the closed position.



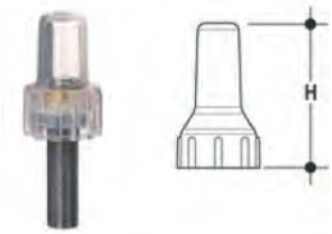
Fail Safe Open

Compressed air is required to drive the actuator to the closed position. With no air being supplied to the actuator the springs within the actuator drive it to the open position.



Accessories

Stroke Limiter

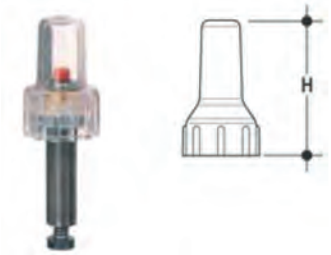


d	DN	H	Product Code
1/2" - 20	15	45	HZ SL1 008

To order an actuated Diaphragm valve with the Stroke Limiter. Change the middle digit of the valve size code to 'S' eg.

HP CUE 1**S**2 = ½" N/C PVC/EPDM c/w Stroke Limiter
HQ CUE 3**S**8 = d20 N/C PVC/EPDM c/w Stroke Limiter

Stroke Limiter with Optical Position Indicator



d	DN	H	Product Code
1/2" - 20	15	45	HZ SL2 008

To order an actuated Diaphragm valve with the Stroke Limiter and Position Indicator. Change the middle digit of the valve size code to 'P' eg.

HP CUE 1**P**2 = ½" N/C PVC/EPDM c/w Stroke Limiter
HQ CUE 3**P**8 = d20 N/C PVC/EPDM c/w Stroke Limiter

Accessories

Limit Switch Box

Limit switch box with two electro-mechanical switches

Technical details

Switch type:
SPDT

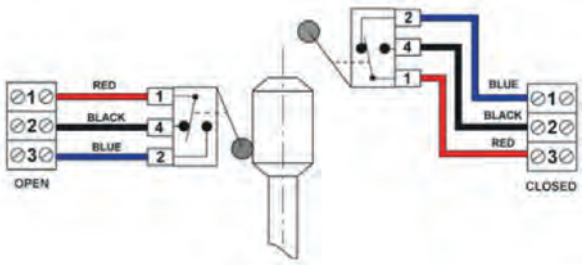
Contacts rating:
5A, 250VAC

Ingress protection:
IP65

Temperature range:
-5° to 85°C

Cable inlet:
1 x PG13.5 Gland

Materials:
Body: PPGR
Cover: Polycarbonate



d	DN	Product Code
1/2" - 20	15	HZ SB8 100

Direct Mounted Pilot Solenoid Valve

Mounting:
Direct mounts to 1/4" air inlet of the pneumatic actuator. For Double acting actuators two pilot solenoid valves are required

Function:
3/2 Normally closed

Ingress protection:
IP65

Electrical supply:
The pilot solenoid valves are available as: 240VAC, 110VAC, 24VAC and 24VDC

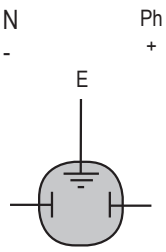
Duty rating:
100% ED

Air connections:
1/8" BSP female

Air supply:
Lubricated filtered compressed air (3.0 to 8.0 Bar)

Electrical wiring:
2 Wire (& earth) connection to DIN plug.

Manual overide:
With air applied, but no power, the valve can be operated by hand by using the red turn (with a screwdriver) manual switch



Voltage	Product Code
240VAC	HZ PS2 240
110VAC	HZ PS2 110
24VAC	HZ PS2 24A
24VDC	HZ PS2 24D

Connection to the System

Before proceeding with the installation, please read and familiarise yourself with these instructions.

1. Check that the pipes either side of the valve are axially aligned, in order to avoid mechanical stress on the threaded union joints.
2. Unscrew the union nuts (27) from the valve body and slide them onto the pipe.
3. Solvent weld, Socket Fuse or screw the valve end connectors (28) onto the pipe ends. For correct jointing see the Durapipe material technical catalogues.
4. Position the valve between the two end connectors and screw the union nuts clockwise by hand until a resistance is felt; do not use keys or other tools which may damage the nut Surface.

Disassembly

1. Isolate the valve from the flow and drain down upstream of the valve.
2. Unscrew and remove the four screws (5) and washers (6). Separate the actuator (3) from the body (1). This operation can be made easier, on the normally closed version, if air pressure is applied to the actuator.
3. Unscrew the diaphragm (2) from the stem of the actuator and remove the compressor (13).
4. Clean or replace the diaphragm, if necessary.

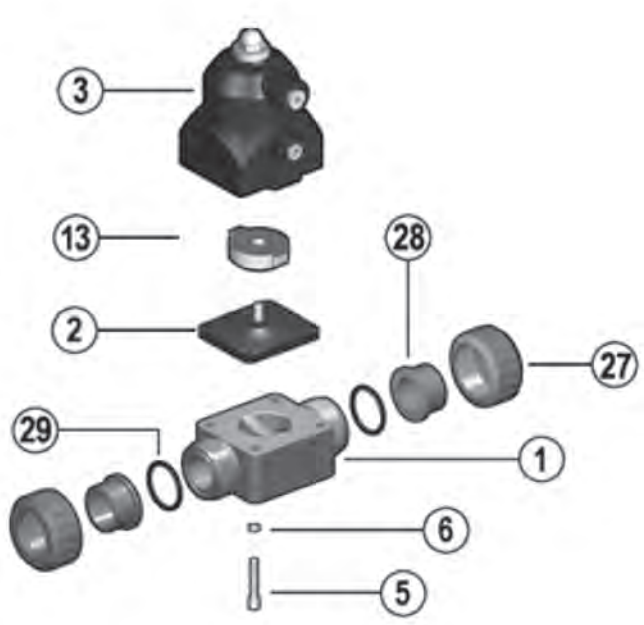
Assembly

1. Position the compressor (13) onto the stem of the actuator (3). Screw the diaphragm (2) into the actuator stem to hand tight, then rotate anti-clockwise to line up the diaphragm holes with the bonnet drillings.

1a. **Fail Safe Closed Actuator only:** Apply air pressure to the actuator, to position the actuator to the 'open' position'.

2. Place the actuator assembly onto the valve body. Bolt together with the four screw (5) & washers (6), tightening in a diagonally opposite sequence.

Note: Due to the internal forces of the compressed springs within the actuators. The actuator is not to be disassembled in any circumstances. Durapipe will not be held liable for any injury or death caused by attempting to disassemble the actuator. None of the actuator internal components are available as spare items.



Position	Components	Material
1	Valve body	Valve Material
2*	Diaphragm	EPDM/FPM/PTFE
3	Actuator Assembly	PA - MXD6 **
5	Screw	Stainless steel
6	Washer	Stainless steel
13	Compressor	PA - MXD6
27*	Union nut	Valve Material
28*	Union end	Valve Material
29*	Socket seal 0-ring	EPDM/FPM

*Spare Parts ** PP/Glass reinforced available, on request

Variable Area Flowmeter

The flowmeter operates on the variable area principle, where a float is suspended in an upward flowing liquid within a tapered tube. The vertical position of the float within the metering tube is dependant on the flow rate of the liquid.

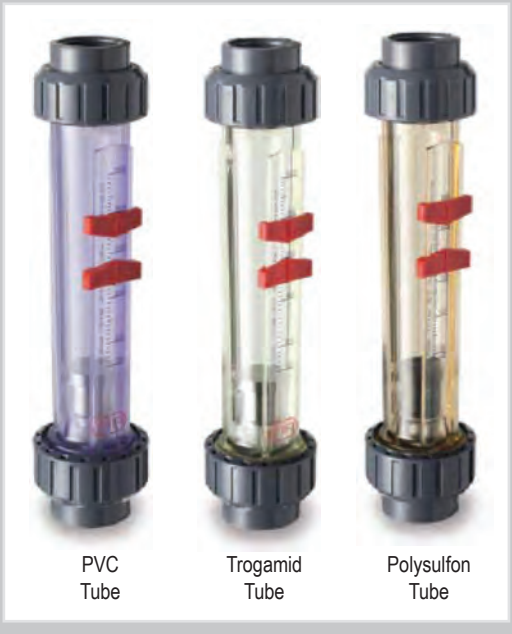
The metering tube is graduated in suitable flow units (normally with 10:1 flow range) and the flow rate reading is taken from the scale at the position of the top face of the float.

Applications

- Water treatment
- Industrial wastewater treatment
- Textile finishing
- Water distribution
- Processing and manufacturing industry
- Filtration systems
- Chemical production
- Liquid delivery systems
- Monitoring of cooling water
- Heat exchangers
- Swimming pools
- Pump protection - when limit switches are fitted

Technical Features

- Wide choice of measuring scales
- Wide choice of end connections
- Eight different diameters
- Three different tube materials: PVC, Polysulfon or Trogamid
- Polypropylene or Stainless Steel floats
- The measuring scale is based on water as the medium, special scales to suit other media are available on request
- Good level of accuracy with simple operation
- Negligible maintenance required
- Fully adjustable Minimum-Maximum visual flow indicators
- The flowmeters can be fitted with Minimum-Maximum flow switches. NB. When fitting flow switches a float with magnet must be used.



PVC Tube | Trogamid Tube | Polysulfon Tube

Pressure/Temperature Correlation

Temperature		-20	-10	0	5	10	20	25	30	40	50	60	70	80	90
Tube Material	End Material	Operating Pressure (bar)													
PVC	PVC-U				10.0	10.0	10.0	10.0	8.0	6.0	3.5	1.5			
	ABS				10.0	10.0	10.0	9.0	8.0	6.0	3.5	1.5			
	PP				10.0	10.0	10.0	10.0	8.0	6.0	3.5	1.5			
	PVC-C				10.0	10.0	10.0	10.0	8.0	6.0	3.5	1.5			
Trogamid	PVC-U				10.0	10.0	10.0	10.0	8.0	6.0	3.5	1.5			
	ABS	10.0	10.0	10.0	10.0	10.0	10.0	9.0	8.5	7.0	6.5	4.5			
	PP				10.0	10.0	10.0	10.0	8.5	7.0	5.5	4.0			
	PVC-C				10.0	10.0	10.0	10.0	8.5	6.5	5.0	3.5			
Polysulfon	PVC-U				10.0	10.0	10.0	10.0	8.0	6.0	3.5	1.5			
	ABS	10.0	10.0	10.0	10.0	10.0	10.0	9.0	8.5	7.0	6.5	4.5	3.0		
	PP			10.0	10.0	10.0	10.0	10.0	8.5	7.0	5.5	4.0	2.7	1.5	0.8
	PVC-C				10.0	10.0	10.0	10.0	8.5	6.5	5.0	3.5	2.5	1.5	

Pressure Loss

Size	3/8"- d16 DN10	1/2"- d20 DN15	3/4"- d25 DN20	1"- d32 DN25	1 1/4"- d40 DN32	1 1/2"- d50 DN40	2"- d63 DN50	2 1/2"- d75 DN65
Float Material	Pressure Loss (mbar)							
PP	4	5	7	8	17	20	29	35
PP+Magnet	4	5	7	8	17	20	29	35

Flow Ranges

Size	3/8"- d16 DN10	1/2"- d20 DN15	3/4"- d25 DN20	1"- d32 DN25	1 1/4"- d40 DN32	1 1/2"- d50 DN40	2"- d63 DN50	2 1/2"- d75 DN65
Flow Range (Water - l/h)	1.5-15	2.0-25	8.0-80	20-200	100-1000	150-1600	250-2500	1000-8000
	2.0-20	5.0-50	15-150	30-300	160-1600	200-2200	350-3500	1000-10000
	5.0-50	10-100	20-200	60-600	200-2000	250-2500	500-5000	5000-25000
	10-100	15-150	30-350	100-1000				
		20-200	50-650					

Installation Guidelines

The Flowmeter must be installed vertically with the flow upwards through the flowmeter. When the flowmeter is installed in a system with control valves, the following should be observed:

- Isolating or control valves may be mounted upsteam or downstream of the flowmeter.
- All control valves must be opened slowly and gradually, due to the high sensitivity of the float to flow variations.

Technical Data

General

- Pipe size range: DN10 (3/8") to DN65 (2 1/2").
- Standard media: Water
- Materials

  Tube: Transparent PVC-U; Trogamid (PA) or Polysulfon (PSU)

  Float: PP or PP with Magnet (SS available on request)

  Union nuts/ends:

  PVC-U; ABS; PP or Corzan™ PVC-C

  O-rings: EPDM or FPM
- Accuracy Class. To VDI/VDE 3513 sheet 2

  3/8" - d16 to 1"- d32: ± 3% of reading; + 1% of full scale - Class 4

  1 1/4" - d40 to 2 1/2"- d75: ± 1.875% of reading; + 0.625% of full scale - Class 2.5

Standards and Approvals

- Manufactured under ISO 9001 (Quality)
- Manufactured under ISO 14001 (Environmental Management)
- CE

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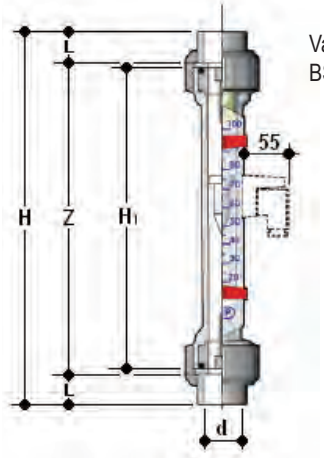
Dimensions

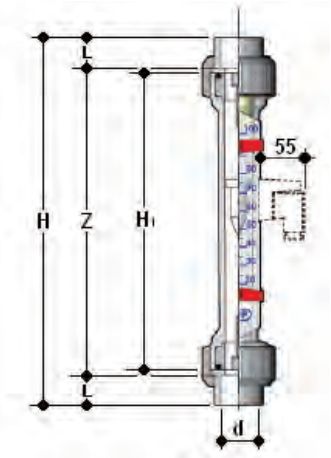
BS Series Female Ends



Variable Area Flowmeter with BS series female ends

d	DN	PN	H PVC-U	H ABS	H_1 PVC-U ABS	L PVC-U	L ABS	Z PVC-U	Z ABS
3/8	10	10	-	199	165	-	14	-	171
1/2	15	10	208	208	170	16	16	176	176
3/4	20	10	229	229	185	19	19	191	191
1	25	10	250	250	200	22	22	206	206
1 1/4	32	10	408	408	350	26	26	356	356
1 1/2	40	10	418	418	350	31	31	356	356
2	50	10	432	432	350	38	38	356	356
2 1/2	65	10	444	444	350	44	44	356	356

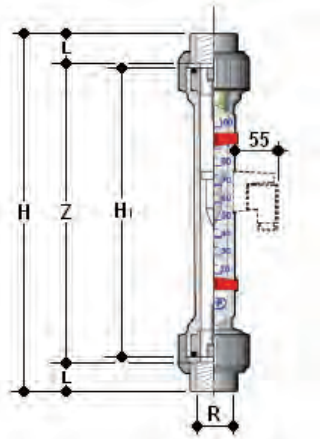
Metric Series Female Ends



Variable Area Flowmeter with Metric series female ends

d	DN	PN	H PVC-U PP Corzan	H ABS	H_1 PVC-U ABS PP Corzan	L PVC-U PP Corzan	L ABS	Z PVC-U PP Corzan	Z ABS
16	10	10	199	199	165	14	14	171	171
20	15	10	208	209	170	16	16.5	176	176
25	20	10	229	230	185	19	19.5	191	191
32	25	10	250	261	200	22	22.5	206	216
40	32	10	408	425	350	26	27.5	356	370
50	40	10	418	438	350	31	32	356	374
63	50	10	432	456	350	38	39	356	378
75	65	10	444	444	350	44	44	356	356

BSP Threaded Ends (PVC-U only)



Variable Area Flowmeter with BSP series female ends, available in PVC-U.

R	DN	PN	H	H_1	L	Z
1/2	15	10	208	170	16	176
3/4	20	10	229	185	19	191
1	25	10	250	200	22	206
1 1/4	32	10	408	350	26	356
1 1/2	40	10	418	350	31	356
2	50	10	432	350	38	356
2 1/2	65	10	444	350	44	356

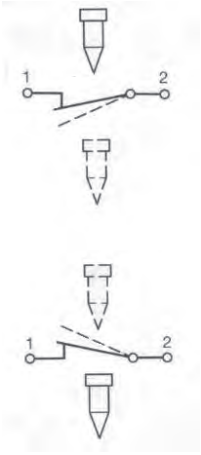
Accessories

Micro Switches

The micro switches are clamped onto the guide of the flowmeter measuring tube. A bi-stable reed contact is built into the switch and is activated by the magnet in the float. The micro switches are available for MIN or MAX flow rate indication with a different design according to the flowmeter size.

MAX Flow switch:
The switch closes when the magnet in the float passes upwards past the switch.
The switch opens when the magnet in the float passes downwards past the switch.

MIN Flow switch:
The switch closes when the magnet in the float passes downwards past the switch.
The switch opens when the magnet in the float passes upwards past the switch.



The micro switch can be on one side of the tube, or both sides for a small flow range.

Technical Data

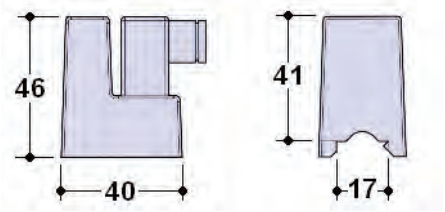
- Body material: PP GRP
- Contact material: Rhodium with inert protective gas
- Connection: DIN 43650
- Ingress protection: IP65
- Contact resistance: 0.1
- Contact insulation resistance: from 10^{11}
- Closing time: 2 msec
- Opening time: 0.07 msec
- Working temperature: -40°C to 80°C
- Maximum operating power: 10w
- Maximum operating voltage: 250V AC/DC
- Maximum input peak current: 0.5A
- Maximum current:
  22mA @ 220V
  45mA @ 110V
  0.2A @ 24V
  0.5A @ 10V
- Standards
  CE conformity
  RoSH conformity

Product Codes

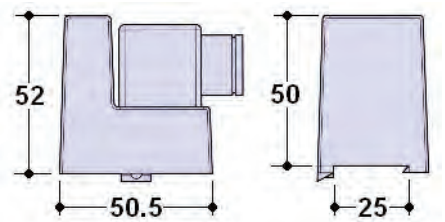
d	DN	Product Code	
		MAX Flowswitch	MIN Flowswitch
$^3/_8$ - 16	10 to 20	F1 LSF MAX	F1 LSF MIN
$^3/_4$ - 25	10 to 20	F1 LSF MAX	F1 LSF MIN
1 - 32	32 to 65	F2 LSF MAX	F2 LSF MIN
$2^1/_2$ - 75	32 to 65	F2 LSF MAX	F2 LSF MIN

Dimensions

F1 LSF MAX
F1 LSF MIN



F2 LSF MAX
F2 LSF MIN



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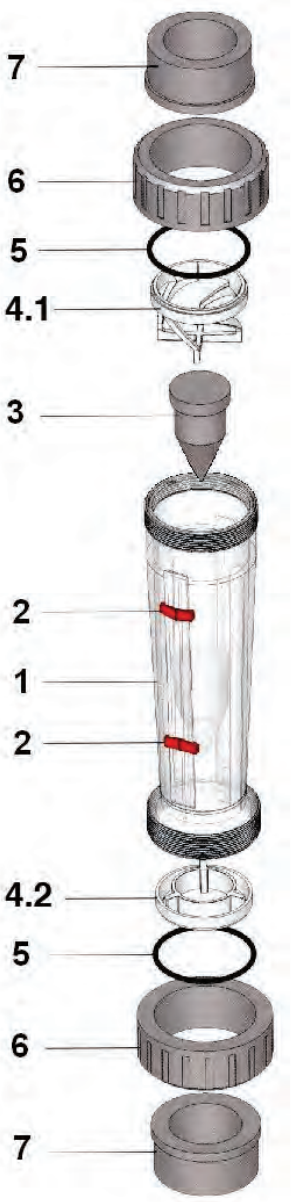


Position	Components	Material
1	Tube	Transparent PVC-U Trogamid Polysulfon
2	Visual Flow Indicator	PVDF
3	Float	PP/SS
4.1 4.2	Upper Float Stop Lower Float Stop*	PP
5	O-ring	EPDM FPM
6	Union Nut	PVC-U ABS PP Corzan™ PVC-C
7	End Connector	PVC-U ABS PP Corzan™ PVC-C

*1¼" - d40 to 2½" - d75 only

Product Codes – Key

F	a	b	c	d	e
	Tube Length	Tube/Float Material	Scale Range	End/Seal Material	Size/Ends

Example = FSABE104

Pos	Description	Specification		Code
a	Tube Length	Short Version : $^{3}/_{8}$"- d16 to 1"-d32 Long Version : $1^{1}/_{4}$"- d40 to $2^{1}/_{2}$"-d32		S L
b	Tube / Float Material	PVC Tube / PP Float PVC Tube / PP Float + Magnet Trogamid Tube / PP Float Trogamid Tube / PP Float + Magnet Polysulfon Tube / PP Float Polysulfon Tube / PP Float + Magnet		A B F G J K
c	Scale Range	$^{3}/_{8}$"- d16	1.5 to 15 l/h 2.0 to 20 l/h 5.0 to 50 l/h 10 to 100 l/h	A B C D
		$^{1}/_{2}$"- d20	2.0 to 25 l/h 5.0 to 50 l/h 10 to 100 l/h 15 to 150 l/h 20 to 200 l/h	A B C D E
		$^{3}/_{4}$"- d25	8.0 to 80 l/h 15 to 150 l/h 20 to 200 l/h 30 to 350 l/h 50 to 650 l/h	A B C D E
		1"- d32	20 to 200 l/h 30 to 300 l/h 60 to 600 l/h 100 to 1,000 l/h	A B C D
		$1^{1}/_{4}$"- d40	100 to 1,000 l/h 160 to 1,600 l/h 200 to 2,500 l/h	A B C
		$1^{1}/_{2}$"- d50	150 to 1,600 l/h 200 to 2,200 l/h 250 to 2,500 l/h	A B C
		2"- d63	250 to 2,500 l/h 350 to 3,500 l/h 500 to 5,000 l/h	A B C
		$2^{1}/_{2}$"- d75	1,000 to 8,000 l/h 1,000 to 10,000 l/h 5,000 to 25,000 l/h	A B C
d	End / Seal Material	ABS / EPDM ABS / FPM PVC-U / EPDM PVC-U / FPM Corzan™ PVC-C / EPDM Corzan™ PVC-C / FPM PP / EPDM PP / FPM		A B E F J K N P
e	Size / End	Plain Socket (BS Series)	$^{3}/_{8}$" $^{1}/_{2}$" $^{3}/_{4}$" 1" $1^{1}/_{4}$" $1^{1}/_{2}$" 2" 2"	101 102 103 104 105 107 107 312
		Plain Socket (Metric Series)	d16 d20 d25 d32 d40 d50 d63 d75	305 306 307 308 309 310 311 312
		BSP Threaded Socket	$^{1}/_{2}$" $^{3}/_{4}$" 1" $1^{1}/_{4}$" $1^{1}/_{2}$" 2" 2"	B02 B03 B04 B05 B07 B07 B08

New range of flow control and measurement products coming soon.

NEW FLS RANGE

Instruments for Flow, pH/ORP, Conductivity Measurement and Control

NEW FLS M9.00 RANGE

INSTRUMENTS FOR FLOW, PH/ORP, CONDUCTIVITY MEASUREMENT AND CONTROL

New FLS M9.00 range of monitors and transmitters includes single and dual channel interfaces for different parameters such as Flow, pH, ORP, Conductivity and various combinations.

The new instruments are powered by a new generation fool-proof software and are characterized by a 4” full graphic display combined with the traditional 5 push-button keypad.

MAXIMISED PERFORMANCE FOR MAXIMISED SATISFACTION

New input combinations for dual-parameter measurement, more output options.

- **Single and dual parameter monitors**
  New FLS M9.00 range includes upgraded single-parameter monitors and advanced dual parameter devices for the combined measurement of Flow, pH, ORP and Conductivity.
- **Efficient and cost-effective solution**
  New FLS monitors connected to all FLS insertion paddlewheel sensors, magmeters or in-line sensors as well as to a full range of pH/ORP and conductivity electrodes provide the most efficient and cost-effective solution for a wide range of applications.
- **Useful combinations of output options**
  The different combination of output options enables the user to manage several remote functions and devices based on one measured value.

A broad range of products for a multitude of applications!

SO POWERFUL, SO SIMPLE

Quick calibration with a foolproof walkthrough guide, product customising has never been easier.

- Guided calibration procedure
  The new software has been designed to allow quick and easy set-up whilst following the simple tutorial calibration procedure minimizes the risk of mistakes.
- No need for instruction manual
  A dedicated set-up procedure for first time use.
- Mistake free setting
  The different menus for basic setting and advanced calibrations are fully supported by instruction and indications are displayed on the screen to clearly show the different options.

Setting operation is simple

WIDEN YOUR VIEW

A wider screen to get more information, more visibility, more calibration support.

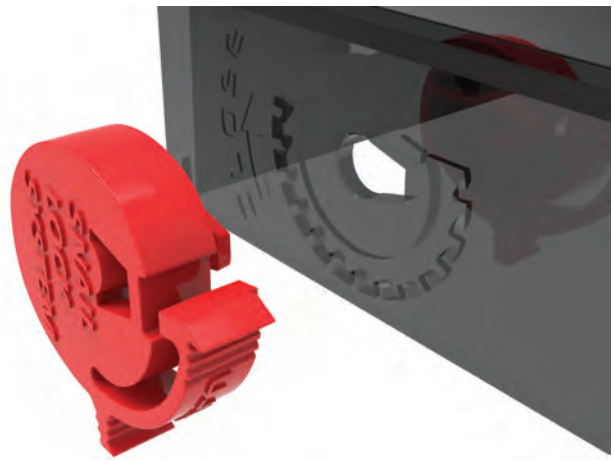
- Long distance visible screen
  The 4-inch full graphic display can show up to 3 different measuring parameters at the same time or a single full screen visualization.
- Leading-edge alert message
  A multicolor backlight will indicate the status of the monitor: normal working condition, calibration mode and an innovative, efficient, red full screen alarm status alert.
- More info displayed
  The on-screen suggestions are clearly readable on the screen and the instructions are easy to understand.

Bright and smart to simplify your life!

ALL YOU NEED IN ANY SITUATION

A rock solid construction with a wide screen suitable for compact, panel or wall mounting installation.

- Quickest fix
  Compact installation, recommended for flow monitors. A new water-proof case and a handy fixing system without the need for screws or any other metal parts subject to corrosion.
- Innovative new fixing snail
  Panel installation is simplified by the new concept fixing “snail”. No other installation components are needed.
- Larger wiring space
  Wall installation is possible using a special large box perfect for completing safe wiring.



Installation is simple

Tel: +44 (0)1543 471680 Fax: +44 (0)1543 471682

1. DEFINITIONS:

'Seller' shall mean Glynwed Pipe Systems Limited, registered in England under number 1698059. 'Buyer' shall mean any company, organisation or individual to whom a quotation is offered, or whose order is accepted by the Seller.

2. CONDITIONS:

All offers, quotations, estimates, acceptances and contracts are subject to these Conditions of Business and any terms or conditions which any other person shall seek to impose or make part of any contract shall, so far as is inconsistent with these Conditions of Business, not apply unless expressly agreed by the Seller in writing. The headings in these conditions are for convenience only and shall not affect their interpretation.

3. QUOTATIONS, PRICE VARIATIONS AND MADE TO ORDER GOODS:

a) Any quotation given by the Seller is an invitation to the Buyer to make an offer only and no order of the Buyer placed with the Seller in pursuance of a quotation or otherwise shall be binding on the Seller unless and until it is accepted in writing by the Seller.

b) Unless stated otherwise, all quotations and published price lists are ex works, exclusive of VAT and shall remain valid for 30 days or such period as may be quoted but nevertheless the Seller may amend or withdraw any quotation by written or oral notice. Quotations may be varied if the Buyer makes variations in his specifications but see special conditions relating to Made to Order Goods.

c) Certain products are denoted 'MTO' in the Seller's published price lists. These products are Made to Order Goods and the Seller manufactures or procures these goods on a bespoke basis only. Where a Buyer has made an offer for "MTO" products that the Seller has accepted in writing the Buyer forfeits their right to cancel their offer unless the Seller confirms in writing that it will accept cancellation by the Buyer. Where the Seller does not provide written confirmation of the Buyer's cancellation the Buyer remains liable for the full contractual value of all 'MTO' products.

4. STATEMENTS OR REPRESENTATIONS TO THE BUYER:

If any statement or representation has been made to the Buyer upon which the Buyer relies other than in the documents enclosed with the Seller's quotation, the Buyer must set out that statement or representation in a document to be attached to or endorsed on the order in which case the Seller may submit a new quotation.

5. DELIVERY - TIME:

a) Any period for delivery given at any time and in any manner by the Seller is an estimate only and is not binding on the Seller. Delivery periods are normally calculated from the later of:

i) acceptance of order; or

ii) where applicable, the receipt by the Seller of a detailed specification or drawings.

b) Time shall not be deemed to be of the essence of the contract. Failure by the Seller to meet any quoted delivery period for any part or the whole of the order shall not entitle the Buyer to rescind the contract or to claim damages of any nature.

c) The Seller will endeavour to comply with reasonable requests by the Buyer for postponement of delivery but shall be under no obligation to do so. Where delivery is postponed otherwise than due to default by the Seller the Buyer shall pay all costs and expenses including a reasonable charge for storage and transportation occasioned thereby and an extra charge for split delivery if applicable.

d) The Buyer will receive delivery of any consignment between the hours of 8.00am and 4.00pm Monday to Friday inclusive, unless otherwise agreed in writing. Cost incurred by the Seller arising from the Buyer's refusal to accept consignments within the agreed hours shall be borne by the Buyer.

6. DELIVERY AND RISK:

a) Except where stated to the contrary in the contract, delivery shall be made as follows:

i) where the Buyer provides the transport, delivery shall be made ex the Seller's works;

ii) where the Seller provides the transport, delivery shall be made to the premises of the Buyer, or the premises of the Buyer's customer or works site if the Buyer has requested delivery to be so made but where the Buyer has made such a request the Seller will make a first delivery to the Buyer's customer or works site as so much of the goods as is available for that delivery but subsequent deliveries will be made to the premises of the Buyer.

b) The Seller may at its discretion make partial delivery of orders and invoice the same.

c) Risk in the goods shall pass on delivery.

d) Where goods are sent FOB the Seller's responsibility shall cease when the goods are placed on board ship or aircraft without the need for the Seller to give notice to the Buyer and the provisions of Section 32(3) of the Sale of Goods Act 1979 shall not apply.

7. OWNERSHIP OF GOODS:

a) The goods shall remain the sole and absolute property of the Seller as legal and equitable owner until such time as the Buyer shall have paid to the Seller the contract price together with the full price of any other goods the subject of any contract between the Seller and the Buyer.

b) The Buyer acknowledges that until such time as the property in the goods passes to the Buyer he is in possession of the goods as a bailee and fiduciary agent for the Seller and the Purchaser shall store the goods in such a manner that they are clearly identifiable as the property of the Seller.

c) Until payment due under all contracts between the Buyer and the Seller had been made in full, in the event of sale of the goods by the Buyer:

i) the Seller shall be entitled to trace all proceeds of sale received by the Buyer through any bank or other account maintained by the Buyer; and

ii) the Buyer shall if requested by the Seller in writing to so assign its rights to recover the selling price of the goods from the third parties concerned. Such monies to be held separately by the Buyer as agent on behalf of the Seller.

d) The Seller may for the purpose of recovery of its goods enter upon any premises where they are stored or where they are reasonably thought to be stored and may repossess the same.

8. TERMS OF PAYMENT:

In the event of default in payment according to the agreed payment terms between the Seller and the Buyer – i.e. by the end of the month following the month of despatch of the goods the Seller shall be entitled without prejudice to any other right or remedy to suspend all further deliveries and to charge interest on any amount outstanding at the rate of 2% per month until payment in full is made (a part of a month being treated as a full month for the purpose of calculating interest).

9. SHORTAGES AND DEFECTS APPARENT ON DELIVERY:

a) It shall be the responsibility of the Buyer to inspect or arrange for an inspection of the goods on delivery whether the goods are delivered to the Buyer's premises or to the premises of the Buyer's customer or to a works site. If no such inspection is made the Buyer shall be deemed to have accepted the goods.

b) The Buyer shall have no claim for shortages or defects apparent on inspection unless:

i) a written complaint is made to the Seller within three days of receipt of the goods specifying the shortage or defect; and

ii) the Seller is within seven days of receipt of the complaint given an opportunity to inspect the goods and investigate the complaint before any use is made of the goods.

c) If a complaint is not made to the Seller as herein provided then in respect of such shortages or defects the goods shall be deemed to be in all respects in accordance with the contract and the Buyer shall be bound to pay for the same accordingly.

10. CLAIMS FOR DEFECTS NOT APPARENT ON INSPECTION:

a) The Buyer shall have no claim for defects not apparent on inspection unless the Seller is notified of defective workmanship or materials within twelve months from delivery of the goods. Provided that the goods have been installed and applied in accordance with any relevant recommendations made by the Seller, the Seller will at its option replace the goods or refund the net invoiced price in respect of the goods which have been shown to be defective. If the Seller does so supply substitute goods the Buyer shall be bound to accept such substituted goods in full satisfaction of the obligations of the Seller under the contract.

b) The Buyer shall in any event have no claim or set-off in respect of defects unless a written complaint is sent to the Seller as soon as the defect is noticed and no use is made of the goods thereafter or alteration made thereto by the Buyer before the Seller is given an opportunity to inspect the goods.

c) The Buyer is responsible for ensuring that the goods are fit for any particular purpose, and no warranty or condition of fitness for any particular purpose is to be implied into the contract.

11. LIABILITY:

Save as stated in Conditions 9 and 10 (and save in respect of death or personal injury resulting from the negligence of the Seller its servants or agents) the Seller shall not be liable for any claim or claims for direct or indirect consequential or incidental injury loss or damage made by the Buyer against the Seller whether in contract or in tort (including negligence on the part of the Seller its servants or agents) arising out of or in connection with any defect in the goods or their fitness or otherwise for any particular purpose or any act omission neglect or default of the Seller its servants or agents in the performance of the contract.

12. FORCE MAJEURE:

Notwithstanding anything herein contained neither the Buyer nor the Seller is to be held liable for any delay or failure to carry out the contract due wholly or in part to an act of God action by any Government whether British or foreign civil war strikes and/or lockouts wheresoever occurring fire trade disputes floods or unfavourable weather or any material becoming unavailable or irreplaceable (whether at all or at commercially acceptable prices) or any other circumstances beyond the control of the Seller.

13. SUB-CONTRACTING:

The Seller reserves the right to sub-contract the fulfilment of any order or any part thereof.

14. INSOLVENCY AND BREACH OF CONTRACT:

In the event that:

a) the Buyer commits any breach of the contract and fails to remedy such breach (if capable of remedy) within a period of thirty days from receipt of a notice in writing from the Seller requesting such remedy; or

b) any distress or execution is levied upon any of the goods or property of the Buyer; or

c) the Buyer offers to make any arrangements with or for the benefit of its creditors or

(if an individual) becomes subject to a petition for a bankruptcy order or (being a limited company) has a receiver appointed of the whole or any part of its undertaking property or assets; or

d) an order is made or a resolution is passed or analogous proceedings are taken for the winding up of the Buyer (save for the purpose of reconstruction or amalgamation with insolvency and previously approved in writing by the Seller) the Seller shall thereupon be entitled without prejudice to its other rights hereunder forthwith to suspend all further deliveries until the default has been made good or to determine the contract and any unfulfilled part thereof or at the Seller's option to make partial deliveries. Notwithstanding any such termination the Buyer shall pay to the Seller at the contract rate for all the goods delivered up to and including the date of termination.

15. INDUSTRIAL PROPERTY RIGHTS:

If goods supplied by the Seller to the Buyer's design or specifications infringe or are alleged to infringe any patent or registered design right or copyright the Buyer will indemnify the Seller against all damages, costs and expenses incurred by the Seller as a result of the infringement or allegation. The Buyer will give the Seller all possible help in meeting any infringement claim brought against the Seller.

16. BUYER'S ERROR IN ORDERING:

In the event the Buyer orders incorrectly the Seller will be under no obligation to the Buyer to rectify or assist in rectifying the error.

17. LAW AND JURISDICTION:

The contract shall be subject in all respects to English Law and to the jurisdiction of the English Courts.

For further information on all Durapipe UK products and services contact our Customer Services Department as detailed below.

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