

Hepworth

+GF+

GEORG FISCHER
PIPING SYSTEMS



PVC-U Plastics Pressure Pipe Systems (Inch Sizes)

Fittings, Valves and Accessories

Hepworth



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PVC-U Plastic Pressure Pipe Systems



PVC-U Plastic Pressure Pipe Systems

PVC-U Pressure Pipe Systems

Properties

Of all plastics, by far the most widely used in pipe installation is unplasticised polyvinyl chloride (PVC-U). It is highly suitable for both interior and exterior applications as well as for buried pipelines. It has excellent chemical resistance which, combined with smoothness of bore, eliminates build-up of scale and gives good flow characteristics which remain constant throughout its working life. Being odourless and tasteless, it is suitable for conveying drinking water and many food products. It has good abrasion resistance and weathering qualities and affords good thermal and electrical insulation. PVC-U is light and clean to handle and can be easily jointed.

Material

Tin stabilised compound conforming to the EEC safety levels for vinyl chloride monomer (VCM) and the WRC requirements for use with potable water.

WRC Approval

Water Bylaws Scheme - approved product for potable water.

Chemical Resistance

The chemical resistance properties of PVC-U are excellent: it is resistant to most solutions of acids, alkalis and salts and to solvents that can be mixed with water. PVC-U is not resistant to aromatic and Chlorinated hydrocarbons. Detailed information on this subject is contained in Georg Fischer chemical resistance guide which gives a guide to the resistance of PVC-U (as well as PP, PE and PVDF) to over 400 chemical substances in various concentrations and temperature. It also gives the resistance of elastomeric materials used in seals and diaphragms, since it is important to know the chemical resistance of every component in a pipe system which is likely to come into contact with the line fluid. The information given is relevant primarily to the materials used in the manufacture of Georg Fischer plastics fittings and valves.

In the case of solenoid valves, however, not all recommendations should necessarily be regarded as equally applicable to the seals and diaphragms, particularly in reference to the more aggressive substances, and intending users are advised to seek further guidance from the Hepworth / Georg Fischer Technical Advisory service.

Sizes

Most fittings and many of the valves in this catalogue are in imperial sizes. Some valves, however, are in metric sizes for which a range of millimeter/inch adaptor fittings is available. For those unfamiliar with metric sizes the following note may be helpful.

In imperial systems, the sizes of pipe fittings and other components such as valves are identified throughout by reference to the nominal size of the bore of the pipe expressed in millimetres.

The table below shows the metric sizes which are regarded for practical purposes as being generally equivalent to imperial sizes up to 8 inches. It should, however, be understood that metric sizes are not simply inch sizes which have been converted into millimetres and called metric, their actual dimensions are slightly different and they are not interchangeable.

IMPERIAL SIZES Nominal bore (Ins)	METRIC SIZES Pipe outside diameter (mm)
1/4	12
3/8	16
1/2	20
3/4	25
1	32
1 1/4	40
1 1/2	50
2	63
2 1/2	75
3	90
4	110
5	140
6	160
8	225

PVC-U Plastic Pressure Pipe Systems

Temperature and Pressure

The permissible working temperature range for PVC-U pipe system is from 0°C to 60°C. The pressure ratings for the PVC-U fittings in this catalogue are listed table A. Pressure ratings of pipe and fittings are always quoted with and subject to a given temperature, usually 20°C. They can be used at higher temperatures but it is a fundamental principle in plastics pipework that if the temperature is increased then the pressure must be reduced. The table B shows the maximum permissible pressures at various temperatures up to maximum of 60°C. It will be seen that at temperatures above 20°C the recommended pressure are progressively reduced.

Solvent Cements

A satisfactory solvent cement must be used for jointing PVC-U pipe and fittings. We recommend TANGIT (or other cements to BS 4346: Part 3) which is a gap-filling cement of characteristically thick consistency. Non gap-filling cements must never be used with +GF+ fittings and valves.

The cement creates a chemical bond between the pipe and the fitting: it is a simple and effective method of jointing and because it is also permanent it is important to follow the correct procedure.

Joints made with TANGIT remain unaffected by almost all fluids for which PVC-U pipe is suitable. However, prolonged exposure of the inside joint edge to any of the following acid concentrations may eventually cause some deterioration of the cement bonding.

Sulphuric acid over 70%

Hydrochloric acid over 25%

Nitric acid over 20%

Hydrofluoric acid in all concentrations.

In order, therefore, to ensure maximum service life from pipelines conveying these fluids, we recommend the use of DYTEX which offers a high degree of resistance.

Pressure Ratings Table A

Unless otherwise indicated the pressure ratings are as follows

Product	Size	Pressure Rating
Fittings Solvent Cement	3/8-6"	15 bar (217lbf/in)
	8"	9 bar (130lbf/in)
Fittings Threaded	1/4-2"	10 bar (145lbf/in)
Valves Ball Type 346	3/8-2"	16 bar (232 lbf/in)
All other Valves	all	see individual valve
Actuated Valves	all	see individual valve
Solenoid Valves	all	see individual valve

All pressure ratings are at 20°C

Temperature & Pressure Relationship Table B

Temp °C	Class C		Class D		Class E	
	bar	lbf/in ²	bar	lbf/in ²	bar	lbf/in ²
0	9.0	130	12.0	173	15.0	217
20	9.0	130	12.0	173	15.0	217
30	8.1	117	10.8	155	13.5	195
35	7.2	104	9.6	138	12.0	173
40	6.3	91	8.4	121	10.5	152
45	5.4	78	7.2	104	9.0	130
50	4.0	58	5.4	78	6.7	97
55	2.7	39	3.6	52	4.5	65
60	1.3	19	1.8	26	2.2	32

Standards

PVC-U fittings in imperial sizes for solvent cement jointing are manufactured in accordance with BS EN 1452 (Formerly BS 4346 : Part1) under Kite Mark Licence No. 84221 and are suitable for jointing PVC-U pipe.

Technical Advisory Service

Our Specialist Sales engineers will be pleased to help with the solution of technical problems and to give advisory assistance in the planning and installation of plastics pipeline systems.

Abbreviations

The following is a list of abbreviations used in this catalogue.

ABS	Acrylonitrile-Butadiene-Styrene
ASA	American Standards Association
BSP	British Standard Pipe (Thread)
CSM	Chlorine Sulphonyl Polyethylene (e.g. Hypalon)
CR	Chloroprene Rubber (e.g. Neoprene*)
DIN	Deutsche Industrie Normen (German Industrial Standards)
EPDM	Ethylene Propylene Rubber
FPM	Fluorine Rubber (e.g. Viton*)
g	Weight in grammes
GP	Carton (Gross Pack)
GRP	Unsaturated Polyester resin glass-fibre reinforced
IIR	Butyl Rubber
ISO	International Standardisation Organisation
kg	Weight in kilogrammes
NBR	Nitrile Rubber
NP	Nominal Pressure
NR	Natural Rubber
PE	Polyethylene
POM	Polyoxymethylene(e.g. Kematal**)
PP	Polypropylene
PTFE	Polytetrafluoroethylene (e.g. Teflon*)
PVDF	Polyvinyliden Fluoride
PVC-C	Chlorinated Polyvinylchloride
PVC-U	Unplasticised Polyvinyl Chloride
SP	Standard Pack

The technical data given in this catalogue is for preliminary information purposes only, and is published without guarantee. All line drawings are for illustrative purposes only and should not be regarded as wholly accurate in every detail.

We reserve the right to withdraw or to alter the specification of any product without notice.

Where fittings such as some unions are shown as available with O-rings gaskets of two alternative materials, that listed first will be supplied unless the alternative is specially asked for

*Dupont's registered trade name

**ICI's registered trade name



PVC-U Pipe

PVC-U Pipe 6 metre lengths (minimum order one length)

Class E(15 Bar, 217 lbf/in² at 20° C)

NB (min)	Wall (min) mm		Code No.	kg. per metre
3/8	1.9		161.018.080	0.114
1/2	1.9		161.018.082	0.161
3/4	2.1		161.018.083	0.225
1	2.5		161.018.084	0.325
1 1/4	3.1		161.018.085	0.503
1 1/2	3.7		161.018.086	0.659
2	4.5		161.018.087	1.038
3	6.7		161.018.088	2.245
4	8.6		161.018.089	3.667
6	12.6		161.018.092	

Class C (9 bar, 130 lbf/in² at 20° C)

NB (min)	Wall (min) mm		Code No.	kg. per metre
2	2.8		161.018.036	0.694
3	4.1		161.018.038	1.434
4	5.3		161.018.039	2.358
6	7.8		161.018.042	5.058
8	8.8		161.018.045	8.330

Class D (12 bar, 173 lbf/m² at 20° C)

NB (min)	Wall (min) mm		Code No.	kg. per metre
1 1/4	2.6		161.018.059	0.415
1 1/2	2.9		161.018.060	0.548
2	3.7		161.018.061	0.900
3	5.4		161.018.063	1.930
4	7.0		161.018.064	3.230
6	10.2		161.018.067	7.070
8	11.6		161.018.070	10.860

Class 7 (T) (12 bar, 173 lbf/in² at 20° C)

NB (min)	Wall (min) mm		Code No.	kg. per metre
3/8	3.8		161.018.255	0.210
1/2	4.0		161.018.256	0.310
3/4	4.2		161.018.257	0.420
1	4.8		161.018.258	0.620
1 1/4	5.2		161.018.259	0.860
1 1/2	5.5		161.018.260	1.050
2	6.0		161.018.261	1.430

Class T is a thick wall pipe to allow for threading.

Note: Other pressure classes available on request.

Pipe fittings for solvent cement jointing

Bend 90°

21.00.11

Size	PN	Code No	D	I	z	g	SP	GP
1/2	15	721.001.106	29	58	40	36	10	
3/4	15	721.001.107	35	71	50	65	10	
1	15	721.001.108	43	88	64	88	10	
1 1/4	15	721.001.109	54	109	80	141	5	
1 1/2	15	721.001.110	64	131	100	256	5	
2	15	721.001.111	76	163	126	511	10	
2 1/2	15	721.000.112	95	194	150	1073	1	
3	15	721.001.113	113	231	180	1780	5	
4	15	721.001.115	137	284	220	2730	2	
5	15	721.000.116	168	356	280	5100	1	
6	15	721.001.117	201	411	320	7700	1	

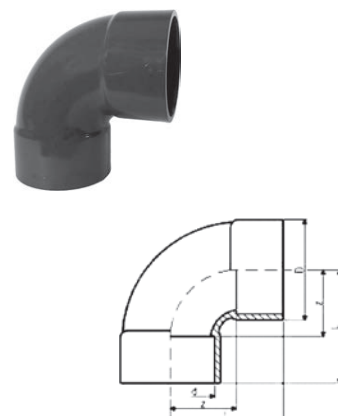


Bend 90°

21.01.11 (Short Pattern)

Size	PN	Code No	D	I	z	g	SP	GP
8	9	721.011.120	256	287	168	9275	1	

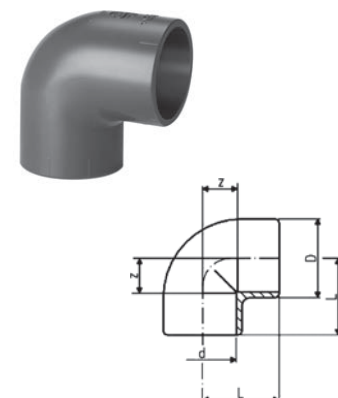
Maximum working pressure: 9 bar (130 lbf/in²) at 20°C



Elbow 90°

21.10.11

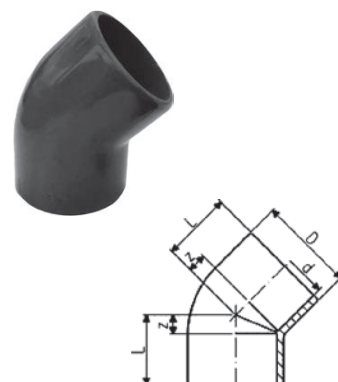
Size	PN	Code No	D	I	z	g	SP	GP
3/8	15	721.101.105	24	25	10	14	10	
1/2	15	721.101.106	28	30	13	16	10	
3/4	15	721.101.107	34	37	16	26	10	
1	15	721.101.108	42	43	19	44	10	
1 1/4	15	721.101.109	52	51	22	76	10	
1 1/2	15	721.101.110	58	56	26	125	10	
2	15	721.101.111	73	68	32	250	5	
2 1/2	15	721.100.112	90	84	40	390	1	
3	15	721.101.113	107	97	46	690	5	
4	15	721.101.115	137	122	59	1190	2	
5	15	721.100.116	168	147	71	2350	1	
6	15	721.101.117	201	176	86	3560	2	



Elbow 45°

21.15.11

Size	PN	Code No	D	I	z	g	SP	GP
3/8	15	721.151.105	23	20	4	12	5	
1/2	15	721.151.106	28	24	7	15	10	
3/4	15	721.151.107	33	29	8	26	10	
1	15	721.151.108	41	33	10	45	10	
1 1/4	15	721.151.109	51	40	11	80	10	
1 1/2	15	721.151.110	57	41	11	135	10	
2	15	721.151.111	72	51	15	257	10	
2 1/2	15	721.150.112	95	62	18	421	1	
3	15	721.151.113	105	72	21	570	10	
4	15	721.151.115	135	89	26	1170	10	
5	15	721.150.116	164	108	32	1630	1	
6	15	721.151.117	198	129	38	2520	2	
8*	9	721.151.120	250	168	49	5800	1	

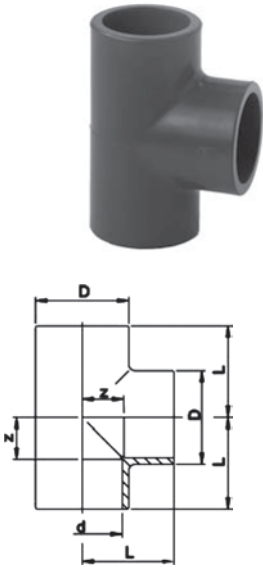


*Maximum working pressure for size 8 inch: 9 bar (130 lbf/in²) at 20°C

PVC-U Plastic Pressure Pipe Systems

Tee 90°

21.20.11

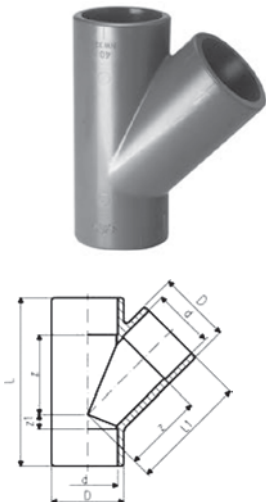


Size	PN	Code No	D	I	z	g	SP	GP
3/8	15	721.201.105	25	25	10	18	10	
1/2	15	721.201.106	30	30	13	25	10	
3/4	15	721.201.107	35	37	16	40	10	
1	15	721.201.108	43	43	19	75	10	
1 1/4	15	721.201.109	53	51	22	110	10	
1 1/2	15	721.201.110	60	56	26	200	5	
2	15	721.201.111	73	68	32	366	5	
2 1/2	15	721.200.112	92	84	40	586	1	
3	15	721.201.113	107	97	46	970	5	
4	15	721.201.115	138	122	59	1640	2	
5	15	721.200.116	172	147	71	3260	1	
6	15	721.201.117	202	176	86	4790	2	
8*	9	721.201.120	256	233	114	11600	1	

*Maximum working pressure for size 8 inch 9 bar (130 lbf/in²) at 20°C

Tee 45°

21.25.11



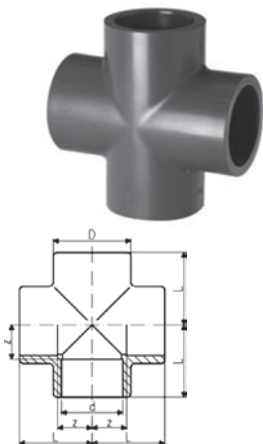
Size	PN	Code No	D	I	I ₁	z	z ₁	g	SP	GP
1/2	9	721.251.106	28	68	46	30	6	36	5	
3/4	9	721.251.107	33	83	55	35	8	50	5	
1	9	721.251.108	41	99	67	43	8	90	5	
1 1/4	6	721.251.109	50	118	82	55	9	163	5	
1 1/2	6	721.251.110	60	140	97	67	13	240	5	
2	6	721.251.111	74	175	123	87	16	500	5	
2 1/2	6	721.250.112	91	207	145	101	18	940	1	
3	6	721.251.113	107	245	173	122	20	1246	1	
4	6	721.251.115	134	298	210	147	25	2380	1	

*Maximum working pressure

Size 1/4 - 2: 9 bar (130 lbf/in²) at 20°C. Sizes 2 1/2 - 4: 6 bar (87 lbf/in²) of 20°C.

Cross

21.30.11



Size	PN	Code No	D	I	z	g	SP	GP
3/4	12	721.301.107	36	33	14	50	2	
1	12	721.301.108	44	39	17	100	2	
1 1/4	12	721.301.109	53	49	22	150	2	
1 1/2	12	721.301.110	64	60	30	300	2	
2	12	721.301.111	80	74	37	560	2	

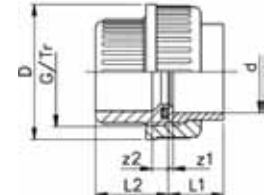
Maximum working pressure 12 bar (173 lbf/in²) at 20°C.

PVC-U Plastic Pressure Pipe Systems

Union 21.51.11

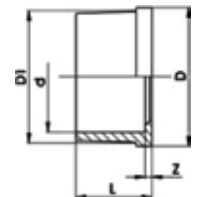
Size	PN	Code No	D	I ₁	I ₂	z ₁	z ₂	g	SP	GP
3/8	15	721.511.105	35	19	24	3	8	25	10	
1/2	15	721.511.106	43	21	26	3	9	43	10	
3/4	15	721.511.107	53	24	29	3	9	65	10	
1	15	721.511.108	60	27	32	3	9	95	10	
1 1/4	15	721.511.109	74	32	38	3	10	168	10	
1 1/2	15	721.511.110	83	33	40	3	10	220	5	
2	15	721.511.111	103	40	46	3	10	400	5	
2 1/2	15	721.510.112	135	47	62	3	18	615	2	

With EPDM O - ring Can also be supplied with FPM O - ring See page 48-49



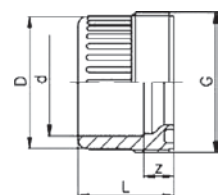
Union End 21.60.11

Size	PN	Code No	I	a	b	z	g	SP	GP
3/8	15	721.601.105	19	24	22	3	5	1	
1/2	15	721.601.106	21	30	27	3	9	1	
3/4	15	721.601.107	24	38	36	3	15	1	
1	15	721.601.108	27	44	41	3	25	1	
1 1/4	15	721.601.109	32	56	53	3	47	1	
1 1/2	15	721.601.110	33	62	59	3	56	1	
2	15	721.601.111	40	78	74	3	104	1	



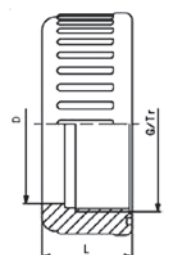
Union Bush 21.64.11

Size	PN	Code No	G ₁	I	a	z	g	SP	GP
3/8	15	721.641.105	3/4	24	24	8	10	1	
1/2	15	721.641.106	1	26	28	9	13	1	
3/4	15	721.641.107	1 1/4	29	34	9	22	1	
1	15	721.641.108	1 1/2	32	42	9	30	1	
1 1/4	15	721.641.109	2	38	52	10	54	1	
1 1/2	15	721.641.110	2 1/4	40	62	10	72	1	
2	15	721.641.111	2 3/4	46	78	10	140	1	



Union Nut 21.69.00

Size	PN	Code No	G ₁	D	I	g	SP	GP
3/8		721.690.005	3/4	35	21	21	1	
1/2		721.690.006	1	43	23	20	1	
3/4		721.690.007	1 1/4	53	25	28	1	
1		721.690.008	1 1/2	60	27	40	1	
1 1/4		721.690.009	2	74	30	62	1	
1 1/2		721.690.010	2 1/4	83	34	100	1	
2		721.690.011	2 3/4	103	38	160	1	

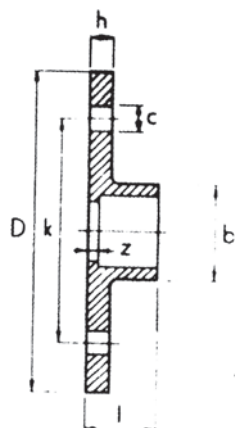


Full Face Flange (drilled) Drilled to BS 10 table D and E 21.73.11



Size	PN	Code No	D	k	c	Holes	h	b	z	l	g	SP	GP
1/2	15	721.731.106	95	67	15	4	10	27	3	21	60	2	
3/4	15	721.731.107	105	73	15	4	10	33	3	24	100	2	
1	15	721.731.108	115	83	15	4	10	41	3	27	134	2	
1 1/4	15	721.731.109	140	88	15	4	10	50	3	32	356	2	
1 1/2	15	721.731.110	150	98	15	4	10	61	3	33	242	2	
2	15	721.731.111	165	115	18	4	10	77	3	40	312	2	
3	15	721.731.113	200	146	18	4	12	108	5	56	590	2	
4 E	15	721.731.114	220	178	18	8	17	136	5	69	1030	2	
4* D	15	721.731.164	220	178	18	4	17	136	5	69	1030	2	
6	15	721.731.117	285	235	22	8	22	198	5	96	2500	2	

*Table D 4 holes.



Drilled to BS 4504 / BS EN 1092 NP 10/16 21.73.01

Size	PN	Code No	D	k	c	Holes	h	b	z	l	g	SP	GP
1/2	15	721.731.106	95	65	14	4	10	27	3	21	60	2	
3/4	15	721.731.107	105	75	14	4	10	33	3	24	100	2	
1	15	721.731.108	115	85	14	4	10	41	3	27	134	2	
1 1/4	15	721.730.109	140	100	18	4	10	50	3	32	356	2	
1 1/2	15	721.730.110	150	110	18	4	10	61	3	33	242	2	
2	15	721.730.111	165	125	18	4	10	77	3	40	312	2	
3	15	721.730.113	200	160	18	8	12	108	5	56	590	2	
4	15	721.731.114	220	180	18	8	17	136	5	69	1030	2	
6	15	721.730.117	285	240	22	8	22	198	5	96	2500	2	

Drilled to ASA 150 21.73.21

Size	PN	Code No	D	k	c	Holes	h	b	z	l	g	SP	GP
1/2	15	721.732.106	95	60	16	4	10	27	3	21	60	2	
3/4	15	721.732.107	105	70	16	4	10	33	3	24	100	2	
1	15	721.732.108	115	79	16	4	10	41	3	27	134	2	
1 1/4	15	721.731.109	140	89	16	4	10	50	3	32	356	2	
1 1/2	15	721.731.110	150	98	16	4	10	61	3	33	242	2	
2	15	721.732.111	165	121	19	4	10	77	3	40	312	2	
3	15	721.732.113	200	152	19	4	12	108	5	56	590	2	
4	15	721.732.114	220	190	19	8	17	136	5	69	1030	2	
6	15	721.730.117	285	241	22	8	22	198	5	96	2500	2	

Undrilled 21.73.00

Size	PN	Code No	D	h	b	z	l	g	SP	GP
1/2	15	721.730.006	95	10	27	3	21	65	1	
3/4	15	721.730.007	105	10	33	3	24	110	1	
1	15	721.730.008	115	10	41	3	27	145	1	
1 1/4	15	721.730.009	140	10	50	3	32	400	1	
1 1/2	15	721.730.010	150	10	61	3	33	280	1	
2	15	721.730.011	165	10	77	3	40	352	1	
3	15	721.730.013	200	12	108	5	56	630	1	
4	15	721.730.014	220	17	136	5	69	1080	1	
6	15	721.730.017	285	22	198	5	96	2600	1	

It is recommended that backing rings should be used in conjunction with all Full Face Flanges.

For pressure ratings over 2 bar backing rings must be used.

All full face flanges are manufactured with outside diameters to BS 4504.

Note: For flat gaskets see pages 46-49

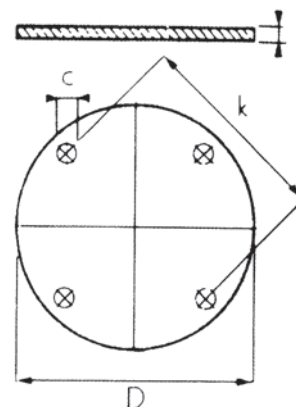
Blanking Flange

Drilled to BS 10 table D and E

21.70.12

Size	PN	Code No	D	k	c	Holes	h	g	SP	GP
1/2	15	721.701.206	95	67	15	4	10	80	1	
3/4	15	721.701.207	105	73	15	4	10	105	1	
1	15	721.701.208	115	83	15	4	10	120	1	
1 1/4	15	721.701.209	140	88	16	4	10	185	1	
1 1/2	15	721.701.210	150	98	16	4	10	235	1	
2	15	721.701.211	165	115	18	4	10	370	1	
3	15	721.701.213	200	146	18	4	12	520	1	
4 E	15	721.701.214	220	178	18	8	17	730	1	
4* D	15	721.701.215	220	178	18	4	17	730	1	
6	15	721.701.217	285	235	22	8	22	1700	1	

*Table D 4 holes.



Drilled to BS 4504 / BS EN 1092 NP 10/16

21.70.11

Size	PN	Code No	D	k	c	Holes	h	g	SP	GP
1/2	15	721.701.106	95	65	14	4	10	80	1	
3/4	15	721.701.107	105	75	14	4	10	105	1	
1	15	721.701.108	115	85	14	4	10	120	1	
1 1/4	15	721.701.109	140	100	18	4	10	185	1	
1 1/2	15	721.701.110	150	110	18	4	10	235	1	
2	15	721.701.111	165	125	18	4	10	370	1	
3	15	721.701.113	200	160	18	8	12	520	1	
4	15	721.701.115	220	180	18	8	17	730	1	
6	15	721.701.117	285	240	22	8	22	1700	1	

Drilled to ASA 150

21.70.23

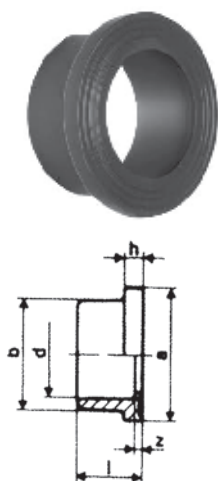
Size	PN	Code No	D	k	c	Holes	h	g	SP	GP
1/2	15	721.702.306	95	60	16	4	10	80	1	
3/4	15	721.702.307	105	70	16	4	10	105	1	
1	15	721.702.308	115	79	16	4	10	120	1	
1 1/4	15	721.702.309	140	89	16	4	10	185	1	
1 1/2	15	721.702.310	150	98	16	4	10	235	1	
2	15	721.702.311	165	121	19	4	10	370	1	
3	15	721.702.313	200	152	19	4	12	520	1	
4	15	721.702.315	220	190	19	8	17	730	1	
6	15	721.702.317	285	241	22	8	22	1700	1	

Undrilled

21.70.10

Size	PN	Code No	D	h	g	SP	GP
1/2	15	721.701.006	95	10	90	1	
3/4	15	721.701.007	105	10	120	1	
1	15	721.701.008	115	10	160	1	
1 1/4	15	721.701.009	140	10	225	1	
1 1/2	15	721.701.010	150	10	280	1	
2	15	721.701.011	165	10	415	1	
3	15	721.701.013	200	12	565	1	
4	15	721.701.015	220	17	820	1	
6	15	721.701.017	285	22	2500	1	

PVC-U Plastic Pressure Pipe Systems



Flange Adaptor (Serrated Face) 21.79.11

Size	PN	Code No	h	l	a	b	z	g	SP	GP
1/2	15	721.791.106	6	21	34	27	3	9	10	
3/4	15	721.791.107	7	24	41	33	3	15	10	
1	15	721.791.108	7	27	50	41	3	23	10	
1 1/4	15	721.791.109	8	32	61	50	3	36	10	
1 1/2	15	721.791.110	8	33	73	61	3	63	10	
2	15	721.791.111	9	40	91	77	3	105		5
2 1/2	15	721.790.112	10	47	106	91	3	158	1	
3	15	721.791.113	11	56	125	108	5	225	1	20
4	15	721.791.115	12	69	155	136	5	400	1	10
5	15	721.790.116	14	81	188	165	5	766	1	
6	15	721.791.117	16	96	217	198	5	1040	1	2
8*	9	721.791.120	20	122	274	248	6	1710	1	
10*	6	721.791.122								
12*	6	721.791.123								

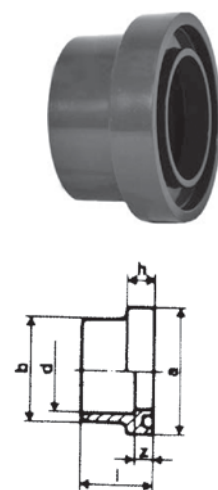
Counterpart: Same Flange Adaptor. Gasket: Order separately _ Flat gasket 48.40.01 EPDM or 49.40.01 FPM
Backing Flange: Order separately - see Pages 44-45 for materials and drillings available.



Flange Adaptor (Flat Face) 21.80.11 (Pairs with 21.81.11 below)

Size	PN	Code No	h	l	a	b	z	g	SP	GP
1/2	15	721.801.106	6	21	34	27	3	9	10	
3/4	15	721.801.107	7	24	41	33	3	15	10	
1	15	721.801.108	7	27	50	41	3	23	10	
1 1/4	15	721.801.109	8	32	61	50	3	36	10	
1 1/2	15	721.801.110	8	33	73	61	3	63	10	
2	15	721.801.111	9	40	91	77	3	115	5	
2 1/2	15	721.800.112	10	47	106	91	3	159	1	
3	15	721.801.113	11	56	125	108	5	265	1	
4	15	721.801.115	12	69	155	136	5	435	1	
5	15	721.800.116	14	81	188	165	5	766	1	
6	15	721.801.117	16	96	217	198	5	1145	1	
8*	9	721.801.120	20	122	274	248	6	1710	1	

Counterpart: Flange Adaptor 21.81.11 below. Gasket: See Counterpart. Backing Flange: Order separately see Pages 44 - 45 for materials and drillings available.



Flange Adaptor (With O-ring groove) 21.81.11 (Pairs with 21.80.11 above)

Size	PN	Code No	h	l	a	b	z	g	SP	GP
1/2	15	721.811.106	9	24	34	27	6	11	10	
3/4	15	721.811.107	10	27	41	33	6	17	10	
1	15	721.811.108	10	30	50	41	6	28	10	
1 1/4	15	721.811.109	13	37	61	50	8	43	5	
1 1/2	15	721.811.110	13	38	73	61	8	74	5	
2	15	721.811.111	14	44	91	77	8	120	5	
2 1/2	15	721.810.112	15	52	106	91	8	184	1	
3	15	721.811.113	16	61	125	108	10	305	1	
4	15	721.811.115	18	75	155	136	11	490	1	
5	15	721.810.116	20	87	188	165	11	841	1	
6	15	721.811.117	22	102	217	198	11	1245	1	
8*	9	721.811.120	26	128	274	248	12	1830	1	

Counterpart: Flange Adaptor 21.80.11 above. Gasket: Order separately - O-ring 48.41.11 EPDM or 49.41.11 FPM. Backing Flange: Order separately - see Pages: 44-45 for materials and drillings available.

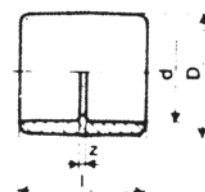
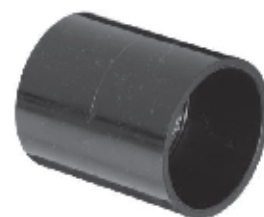
*Max working pressure for size 8 inch - 9 bar (130lbs/in²) at 20°C 10" and 12" 6 bar (87 PSI at 20°C)

PVC-U Plastic Pressure Pipe Systems

Socket 21.91.11

Size	PN	Code No	D	l	z	g	SP	GP
3/8	15	721.911.105	23	35	3	10	10	
1/2	15	721.911.106	27	38	3	10	10	
3/4	15	721.911.107	33	45	3	16	10	
1	15	721.911.108	41	51	3	28	10	
1 1/4	15	721.911.109	51	60	3	60	10	
1 1/2	15	721.911.110	58	64	3	65	10	
2	15	721.911.111	72	78	5	125	5	
2 1/2	15	721.910.112	88	92	4	280	1	
3	15	721.911.113	104	108	7	340	5	
4	15	721.911.115	134	135	8	860	5	
5	15	721.910.116	164	159	7	1190	1	
6	15	721.911.117	197	192	11	2570	2	
8*	9	721.911.120	253	248	10	4140	1	

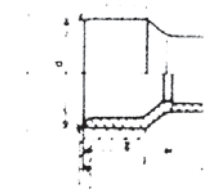
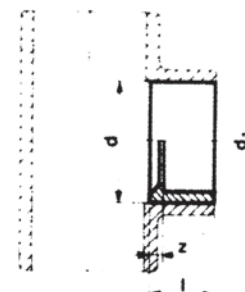
*Maximum working pressure for size 8 inch: 9 bar (130 lbf/in²) of 20°C.



Reducing Bush 21.90.13 (Short Pattern)

Size	PN	Code No	l	z	g	SP	GP
1/2 x 3/8	15	721.901.334	18	2	4	10	
3/4 x 3/8	15	721.901.338	21	5	12	10	
3/4 x 1/2	15	721.901.337	21	3	6	10	
1 x 3/8	15	721.901.343	24	8	13	10	
1 x 1/2	15	721.901.342	24	6	15	10	
1 x 3/4	15	721.901.341	24	3	11	10	
1 1/4 x 3/8	15	721.901.349	29	13	24	10	
1 1/4 x 1/2	15	721.901.348	29	11	25	10	
1 1/4 x 3/4	15	721.901.347	29	8	22	10	
1 1/4 x 1	15	721.901.346	29	5	18	10	
1 1/2 x 1/2	15	721.901.355	30	13	45	10	
1 1/2 x 3/4	15	721.901.354	30	10	37	10	
1 1/2 x 1	15	721.901.353	30	6	36	10	
1 1/2 x 1 1/4	15	721.901.352	30	2	14	10	
2 x 3/4	15	721.901.361	37	16	66	10	
2 x 1	15	721.901.360	37	13	64	10	
2 x 1 1/4	15	721.901.359	37	8	70	10	
2 x 1 1/2	15	721.901.358	37	6	52	10	
2 1/2 x 2	15	721.901.364	45	8	100	5	
3 x 2 1/2	15	721.901.370	51	6	124	5	
3 x 1	16	721.901.374	90		180		
3 x 1 1/2	16	721.901.372	50.5		172		
3 x 2	16	721.901.371	50.5		183		
4 x 3	15	721.901.381	64	13	350	1	
5 x 4	15	721.901.384	76	13	734	1	
6 x 5	15	721.901.388	91	15	800	1	
8 x 6*	9	721.901.396	119	33	1780	1	

*Maximum working pressure for size 8 inch: 9 bar (130 lbf/in²) at °C.

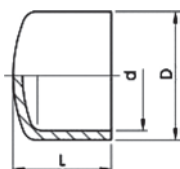


Reducing Bush 21.91.13 (Long Pattern)

Size	PN	Code No	l	z	g	SP	GP
5 x 3	15	721.911.386	162	111	783	1	
6 x 4	15	721.911.389	197	133	1392	2	

PVC-U Plastic Pressure Pipe Systems

Cap 21.96.11



Size	PN	Code No	D	I	g	SP	GP
3/8	15	721.961.105	26	23	6	10	
1/2	15	721.961.106	30	25	9	10	
3/4	15	721.961.107	37	30	15	10	
1	15	721.961.108	44	34	26	10	
1 1/4	15	721.961.109	55	41	44	10	
1 1/2	15	721.961.110	62	44	80	10	
2	15	721.961.111	78	54	146	10	
2 1/2	15	721.960.112	97	66	216	1	
3	15	721.961.113	112	77	350	1	
4	15	721.962.115	145	101	800	1	
5	15	721.960.116	164	92	990	2	

Hose Connector 21.96.13



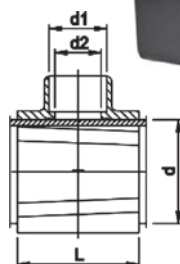
Size	PN	Code No	d	I	g	SP	GP
1/4	15	721.961.304	12	51	8	1	

Hose Connector 21.96.14



Size	PN	Code No	d	I	g	SP	GP
1/8	15	721.961.403	8	47	3	1	
1/4	15	721.961.404	12	51	5	1	

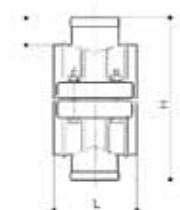
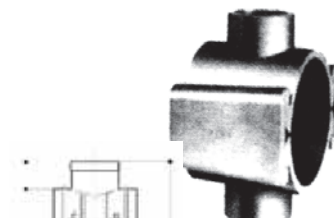
Saddle single branch (Rubber gasket joint to main) 21.117



Size	PN	Code No	L	L ₁	g	SP	GP
3 x 1 1/4	10	161.117.055	106	80	710	1	
3 x 1 1/2	10	161.117.056	106	81	730	1	
3 x 2	10	161.117.057	106	88	740	1	
4 x 1 1/4	10	161.117.065	106	93	820	1	
4 x 1 1/2	10	161.117.066	106	94	830	1	
4 x 2	10	161.117.067	106	101	870	1	
6 x 1 1/4	10	161.117.095	120	120	1210	1	
6 x 1 1/2	10	161.117.096	120	121	1240	1	
6 x 2	10	161.117.097	120	128	1280	1	

*Maximum working pressure: 10 bar (145 lbf/in²) at 20°C.

Saddle double branch (Rubber gasket joint to main) 21.137



Size	PN	Code No	L	L ₁	g	SP	GP
3 x 1 1/4	10	161.137.055	106	160	730	1	
3 x 1 1/2	10	161.137.056	106	162	750	1	
3 x 2	10	161.137.057	106	176	760	1	
4 x 1 1/4	10	161.137.065	106	186	850	1	
4 x 1 1/2	10	161.137.066	106	188	860	1	
4 x 2	10	161.137.067	106	202	900	1	
6 x 1 1/4	10	161.137.095	120	240	1250	1	
6 x 1 1/2	10	161.137.096	120	242	1290	1	
6 x 2	10	161.137.097	120	236	1330	1	

*Maximum working pressure: 10 bar (145 lbf/in²) at 20°C.

NOTE: When fitting a double branch saddle, allowance should be made for the possible weakening effect on the main of two diametrically opposed tappings. Particular attention should therefore be given to the class of pipe used in relation to the expected maximum working pressures.

Orders placed for Saddles may be subject to minimum manufacturing quantities. Please enquire before ordering

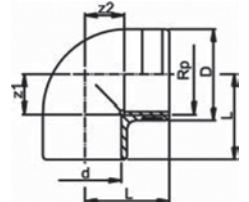
Adaptor fittings

Elbow 90°

21.10.12 (PVC-U plain x PVC-U threaded)

Size	PN	Code No	D	I	z ₁	z ₂	Rp	g	SP	GP
1/2	15	721.101.206	30	27	10	15	1/2	16	10	
3/4	15	721.101.207	35	33	13	19	3/4	28	10	
1	15	721.101.208	45	39	16	24	1	82	10	

Thread BSP parallel female, reinforced with cadmium plated metal band

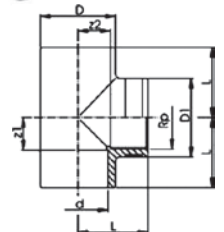


Tee 90°

21.20.12 (PVC-U plain x PVC-U threaded branch)

Size (Rp)	PN	Code No	D	I	z ₁	z ₂	Rp	g	SP	GP
3/8	15	721.201.205	25	26	10	14	3/8	28	10	
1/2	15	721.201.206	30	30	13	17	1/2	43	10	
3/4	15	721.201.207	35	37	16	21	3/4	60	10	
1	15	721.201.208	45	43	19	23	1	111	10	

Thread BSP parallel female, reinforced with cadmium plated metal band

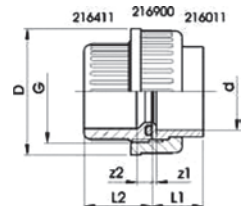


Adaptor Union

21.51.12 (PVC-U plain x PVC-U threaded)

Size (Rp)	PN	Code No	D	I ₁	I ₂	z ₁	z ₂	Rp	g	SP	GP
3/8	15	721.511.205	35	19	24	3	13	3/8	25	10	
1/2	15	721.511.206	43	21	26	3	13	1/2	43	10	
3/4	15	721.511.207	53	24	29	3	14	3/4	65	10	
1	15	721.511.208	60	27	32	3	15	1	95	10	
1 1/4	15	721.511.209	74	32	38	3	19	1 1/4	168	5	
1 1/2	15	721.511.210	83	33	45	3	26	1 1/2	220	5	
2	15	721.511.211	103	40	56	3	33	2	400	2	

Thread BSP parallel female with EPDM O-ring. Can also be supplied with FPM O-ring. See Page 88.

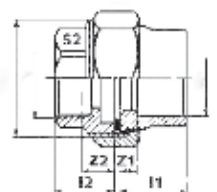


Adaptor Union

21.53.12 (PVC-U plain x galvanised malleable iron threaded)

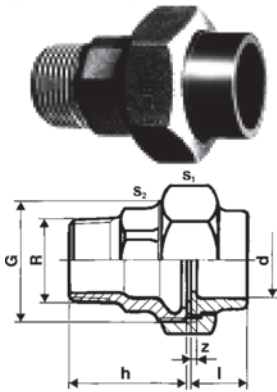
Size (Rp)	PN	Code No	I ₁	I ₂	z ₁	z ₂	S ₁	S ₂	Rp	g	SP	GP
3/8	15	721.531.205	19	23	3	13	31	22	3/8	75	1	
1/2	15	721.531.206	21	25	3	12	38	25	1/2	120	1	
3/4	15	721.531.207	24	28	3	13	47	31	3/4	190	1	
1	15	721.531.208	27	31	3	14	53	38	1	250	1	
1 1/4	15	721.531.209	32	33	3	14	66	47	1 1/4	400	1	
1 1/2	15	721.531.210	33	36	3	17	72	53	1 1/2	510	1	
2	15	721.531.211	40	42	3	18	89	66	2	780	1	
2 1/2	15	721.530.212	47	46	3	19	109	82	2 1/2	1361	1	
3	15	721.531.213	56	52	5	22	123	96	3	1740	1	

Thread BSP parallel female with EPDM flat gasket. Dimension s is across flats



Adaptor Union

21.53.17 (PVC-U plain x galvanised malleable iron threaded)

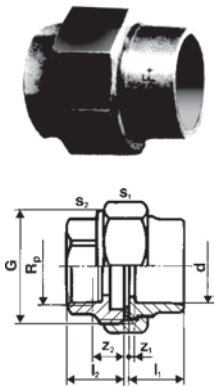


Size (RP)	PN	Code No	h	l	z	s ₁	s ₂	R	g	SP	GP
3/8	15	721.531.705	39	19	3	31	22	3/8	95	1	
1/2	15	721.531.706	43	21	3	38	25	1/2	140	1	
3/4	15	721.531.707	49	24	3	47	31	3/4	230	1	
1	15	721.531.708	53	27	3	53	38	1	330	1	
1 1/4	15	721.531.709	58	32	3	66	47	1 1/4	480	1	
1 1/2	15	721.531.710	62	33	3	72	53	1 1/2	630	1	
2	15	721.531.711	71	40	3	89	66	2	960	1	
2 1/2	15	721.530.712	78	47	3	109	82	2 1/2	1640	1	
3	15	721.531.713	87	56	5	123	96	3	2090	1	

Thread BSP taper male. With EPDM flat gasket. Dimension s is across flats

Adaptor Union

21.55.12 (PVC-U plain x brass threaded)

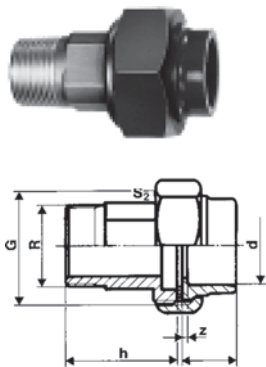


Size (RP)	PN	Code No	l ₁	l ₂	z ₁	z ₂	S ₁	S ₂	Rp	g	SP	GP
3/8	15	721.551.205	19	17	3	7	30	27	3/8	95	1	
1/2	15	721.551.206	21	20	3	7	38	27	1/2	135	1	
3/4	15	721.551.207	24	23	3	8	47	32	3/4	230	1	
1	15	721.551.208	27	26	3	9	52	38	1	290	1	
1 1/4	15	721.551.209	32	28	3	9	66	47	1 1/4	484	1	
1 1/2	15	721.551.210	33	29	3	10	72	53	1 1/2	528	1	
2	15	721.551.211	40	34	3	10	87	65	2	895	1	
2 1/2	15	721.550.212	47	38	3	11	110	82	2 1/2	1576	1	
3	15	721.551.213	56	45	5	15	120	95	3	1720	1	

Thread: BSP parallel female with EPDM flat gasket. Dimension s is across flats

Adaptor Union

21.55.17 (PVC-U plain x brass threaded)

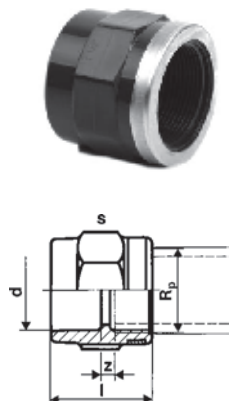


Size (RP)	PN	Code No	h	l	z	s ₁	s ₂	Rp	g	SP	GP
3/8	15	721.531.705	29	19	3	30	27	3/8	105	1	
1/2	15	721.551.706	32	21	3	38	27	1/2	150	1	
3/4	15	721.551.707	50	24	3	47	27	3/4	310	1	
1	15	721.551.708	54	27	3	52	34	1	360	1	
1 1/4	15	721.551.709	54	32	3	66	43	1 1/4	582	1	
1 1/2	15	721.551.710	62	33	3	72	50	1 1/2	720	1	
2	15	721.551.711	69	40	3	87	61	2	995	1	
2 1/2	15	721.550.712	76	47	3	110	80	2 1/2	2095	1	
3	15	721.551.713	84	56	5	120	80	3	2335	1	

Thread: BSP taper male. With EPDM flat gasket. Dimension s is across flats

Socket

21.91.10 (PVC-U plain x PVC-U threaded)



Size	PN	Code No	l	z	s	Rp	g	SP	GP
3/8	15	721.911.005	31	4	27	3/8	16	10	
1/2	15	721.911.006	35	4	32	1/2	30	10	
3/4	15	721.911.007	40	3	36	3/4	32	10	
1	15	721.911.008	45	3	46	1	53	10	
1 1/4	15	721.911.009	51	3	55	1 1/4	75	10	
1 1/2	15	721.911.010	59	8	65	1 1/2	186	10	
2	15	721.911.011	69	8	80	2	215	10	

Thread: BSP parallel female, reinforced with cadmium plated metal band.
Dimension s is across flats.

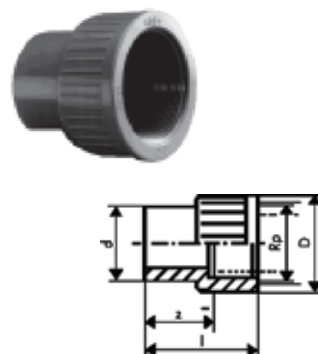
PVC-U Plastic Pressure Pipe Systems

Adaptor

21.90.14 (Plain male spigot x female BSP)

Size	PN	Code No	D	l	z	Rp	g	SP	GP
1/2	15	721.901.406	28	37	21	1/2	30	10	
3/4	15	721.901.407	34	41	23	3/4	32	10	
1	15	721.901.408	42	48	27	1	53	10	
1 1/4	15	721.901.409	52	56	33	1 1/4	75	10	
1 1/2	15	721.901.410	62	61	38	1 1/2	186	10	
2	15	721.901.411	77	74	47	2	215	10	

Thread BSP parallel female

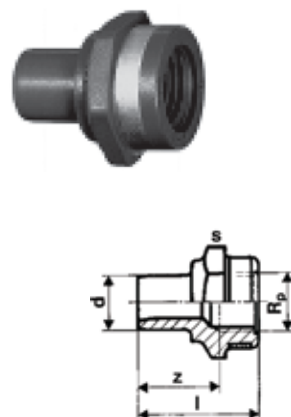


Reducing Bush

21.91.14 (PVC-U plain spigot x PVC-U threaded socket)

Size	PN	Code No	l	z	Rp	g	SP	GP
3/8 plain x 1/2 BSP	15	721.911.434	40	26	1/2	20	10	

Thread : BSP parallel female, reinforced with cadmium plated metal band.

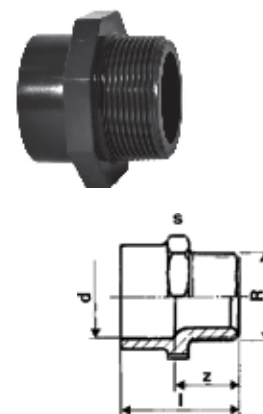


Adaptor Bush

21.91.17 (PVC-U plain socket x PVC-U threaded spigot)

Size	PN	Code No	l	z	s	R	g	SP	GP
3/8	15	721.911.705	34	20	27	3/8	13	1	
1/2	15	721.911.706	40	24	32	1/2	19	1	
3/4	15	721.911.707	44	25	36	3/4	25	1	
1	15	721.911.708	50	28	46	1	41	1	
1 1/4	15	721.911.709	57	31	55	1 1/4	63	1	
1 1/2	15	721.911.710	63	32	65	1 1/2	90	1	
2	15	721.911.711	76	38	80	2	180	1	
1/2 x 3/4	15	721.911.737	40	22	36	3/4	20	1	
3/4 x 1	15	721.911.741	48	27	46	1	36	1	
1 x 1 1/4	15	721.911.746	53	29	55	1 1/4	52	1	
1 1/4 x 1 1/2	15	721.911.752	58	29	65	1 1/2	60	1	
1 1/2 x 2	15	721.911.758	64	34	80	2	135	1	

Thread: BSP taper male Dimension S is across flats.

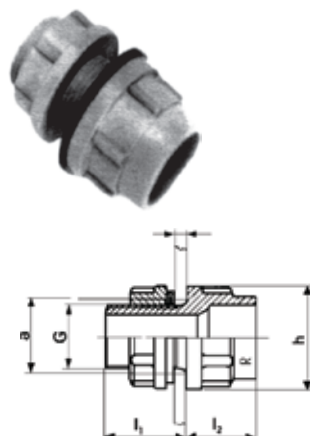


Tank Connector (PVC-U plain socket x PVC-U threaded spigot)

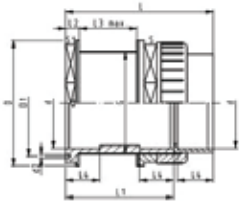
End Connection: **solvent cement socket and spigot, ISO/DIN**

Gasket: **Flat gasket EPDM**

d	d ₁	Code	z ₁	z ₂	b	c	d	s	Rp/M	kg
1/2	25	161.108.706	13	0.23	16	19	42	32	3/4"	0.040
3/4	32	161.108.707	15	0.23	19	22	45	40	1"	0.070



PVC-U Plastic Pressure Pipe Systems

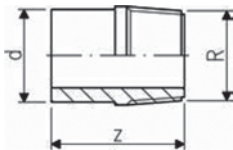


Tank Adaptors (PVC-U)

End Connection: **union with solvent cement socket, ISO**

Gasket: **Flat gasket EPDM**

d	Code	d1	L	L ₁	L ₂	L ₃ max	L ₄	G	s	Diameter of bore in tank side	Weight kg
3/8	161.050.225	44	85	65	10	32	14	3/4	33	28	0.073
1/2	161.050.226	56	89	67	11	30	16	1	46	35	0.131
3/4	161.050.227	65	97	72	12	32	19	1 1/4	50	43	0.194
1	161.050.228	70	103	75	12	33	22	1 1/2	60	49	0.255
1 1/4	161.050.229	95	111	78	12	32	26	2	80	61	0.446
1 1/2	161.050.230	95	119	82	13	32	31	2 1/4	80	67	0.455
2	161.050.231	115	131	87	13	33	38	2 3/4	95	83	0.674

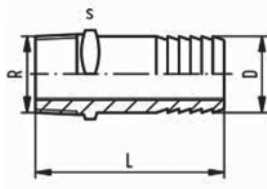


Nipple

21.91.39 (PVC-U plain spigot x PVC-U threaded spigot)

Size	PN	Code No	I	R	g	SP	GP
3/8	9	721.913.905	43	3/8	10	10	
1/2	9	721.913.906	50	1/2	15	10	
3/4	9	721.913.907	56	3/4	20	10	
1	9	721.913.908	63	1	30	10	
1 1/4	9	721.913.909	75	1 1/4	40	5	
1 1/2	9	721.913.910	88	1 1/2	60	5	
2	9	721.913.911	88	2	80	5	
3	9	721.913.913	128	3	300	2	
4	9	721.913.915	153	4	560	2	

Thread: BSP taper male. Maximum working pressure: 9 bar (130 lbf/in²) at 20°C.

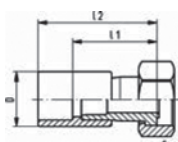


Hose Connector

21.96.07

Size	PN	Code No	d1	I	s	R	g	SP	GP
1/4	10	721.960.704	12	59	14	1/4	5	1	
3/8	10	721.960.705	16	67	19	3/8	11	10	
1/2	10	721.960.706	20	86	22	1/2	19	10	
3/4	10	721.960.707	25	92	27	3/4	28	5	
1	10	721.960.708	30	103	36	1	48	5	
1 1/4	10	721.960.709	40	115	46	1 1/4	79	5	

Thread: BSP taper male. Dimension s is across flats.
Maximum working pressure: 10 bar (145 lbf/in²) at 20°C



Tap Connector

21.55.14

Size	PN	Code No	D	I ₁	I ₂	s	g	SP	GP
3/8 X 1/2	15	721.551.405	23	39	55	24	1	5	
1/2 X 3/4	15	721.551.406	27	43	60	31	1	5	

PVC-U plain socket x BSP brass nut and washer. Dimension s is across flats.

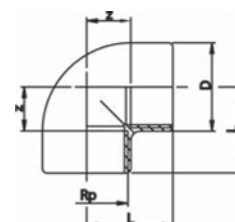
BSP threaded fittings

For connection to plastic threads only. Do not use thread sealing pastes as they may be harmful to PVC-U. PTFE tapes is recommended.
Note: All threaded fittings are 10 bar 20°C pressure rated unless otherwise stated.

Elbow 90° 21.10.16

Size	PN	Code No	D	I	z	g	SP	GP
3/8	16	721.101.605	23	23	9	15	10	
1/2	16	721.101.606	27	27	12	21	10	
3/4	16	721.101.607	33	33	15	32	10	
1	16	721.101.608	39	39	19	52	10	
1 1/4	16	721.101.609	48	49	27	85	10	
1 1/2	16	721.101.610	61	59	35	197	10	
2	16	721.101.611	75	72	44	260	5	
2 1/2	16	721.101.612	90	84	56	398	1	
3	16	721.101.613	108	99	68	670	1	
4	16	721.101.614	132	119	82	1156	1	

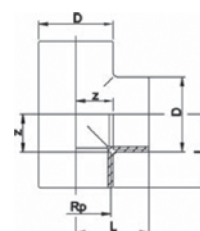
Threads: BSP parallel female



Tee 90° 21.20.16

Size	PN	Code No	D	I	z	g	SP	GP
3/8	16	721.201.605	24	23	9	21	10	
1/2	16	721.201.606	28	27	12	31	10	
3/4	16	721.201.607	33	33	15	46	10	
1	16	721.201.608	41	39	19	80	10	
1 1/4	16	721.201.609	50	49	27	130	10	
1 1/2	16	721.201.610	62	60	36	283	10	
2	16	721.201.611	77	72	44	510	5	
2 1/2	16	721.201.612	92	84	56	578	1	
3	16	721.201.613	110	99	68	964	1	
4	16	721.201.614	133	119	82	1690	1	

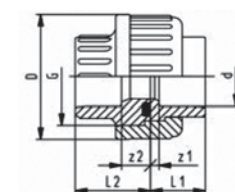
Threads: BSP parallel female



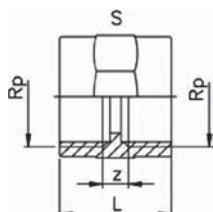
Union 21.51.06

Size	PN	Code No	D	I ₁	I ₂	z ₁	z ₂	g	SP	GP
1/4	10	721.510.604	31	15	22	5	12	16	1	
3/8	10	721.510.605	35	17	24	6	13	25	10	
1/2	10	721.510.606	43	19	26	6	13	40	10	
3/4	10	721.510.607	53	22	29	7	14	65	10	
1	10	721.510.608	60	25	32	8	15	95	10	
1 1/4	10	721.510.609	74	29	38	10	19	180	5	
1 1/2	10	721.510.610	83	34	45	15	26	220	5	
2	10	721.510.611	103	41	56	18	33	400	5	

Threads: BSP parallel female. With EPDM O -ring Can also be supplied with FMPO O - ring.
See Pages: 48 - 49



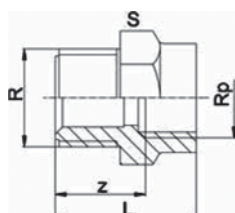
PVC-U Plastic Pressure Pipe Systems



Socket 21.91.06

Size	PN	Code No	l	z	s	g	SP	GP
1/4	10	721.910.604	27	7	22	11	1	
3/8	10	721.910.605	29	7	27	16	10	
1/2	10	721.910.606	35	9	32	25	10	
3/4	10	721.910.607	39	9	36	27	10	
1	10	721.910.608	45	11	46	54	10	
1 1/4	10	721.910.609	49	11	55	78	5	
1 1/2	10	721.910.610	49	11	65	105	5	
2	10	721.910.611	57	11	80	175	5	

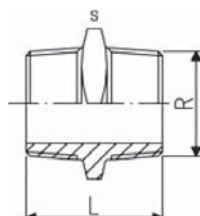
Threads: BSP parallel female. Dimension S is across flats.



Reducing Bush 21.91.08

Size	PN	Code No	l	z	s	g	SP	GP
1/2 x 3/8	10	721.910.834	36	25	27	15	5	
3/4 x 1/2	10	721.910.837	39	25	32	22	5	
1 x 1/2	10	721.910.842	45	31	32	28	5	
1 x 3/4	10	721.910.841	45	29	36	31	5	
1 1/4 x 1	10	721.910.846	50	32	46	60	5	
1 1/2 x 1 1/4	10	721.910.852	55	35	55	72	5	
2 x 1 1/2	10	721.910.858	65	45	65	123	5	

Threads: BSP taper male x taper female. Dimension S is across flats.



Hexagon Nipple 21.91.19

Size	PN	Code No	l	s	g	SP	GP
3/8	10	721.911.905	37	19	7	10	
1/2	10	721.911.906	45	22	12	10	
3/4	10	721.911.907	49	27	19	10	
1	10	721.911.908	57	36	35	10	
1 1/4	10	721.911.909	62	46	53	5	
1 1/2	10	721.911.910	67	50	71	5	
2	10	721.911.911	76	65	127	5	

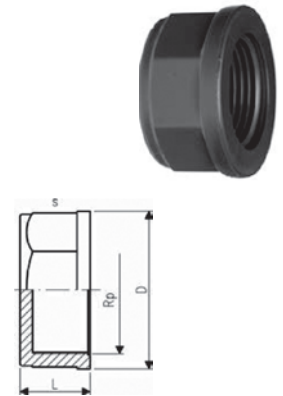
Threads: BSP taper male. Dimension S is across flats.

PVC-U Plastic Pressure Pipe Systems

Cap 21.96.06

Size	PN	Code No	D	I	s	g	SP	GP
¼	10	721.960.604	26	16	22	7	1	
3/8	10	721.960.605	31	19	27	12	10	
½	10	721.960.606	37	21	32	18	10	
¾	10	721.960.607	42	24	36	25	10	
1	10	721.960.608	50	26	46	40	10	
1¼	10	721.960.609	60	29	55	60	5	
1½	10	721.960.610	65	31	60	71	5	
2	10	721.960.611	81	36	75	140	5	

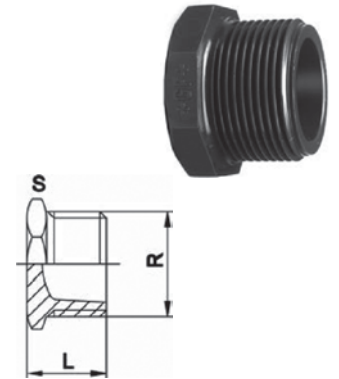
Threads: BSP taper male. Dimension S is across flats.



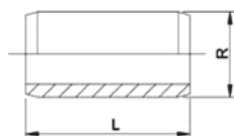
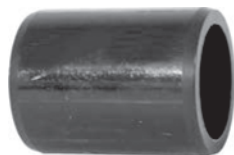
Plug 21.96.19

Size	PN	Code No	I	s	g	SP	GP
3/8	10	721.961.905	20	22	6	5	
½	10	721.961.906	25	27	10	5	
¾	10	721.961.907	28	36	19	5	
1	10	721.961.908	32	41	30	5	
1¼	10	721.961.909	35	50	48	2	
1½	10	721.961.910	36	60	70	2	
2	10	721.961.911	42	75	118	2	

Threads: BSP taper male. Dimension S is across flats.



PVC-U Plastic Pressure Pipe Systems

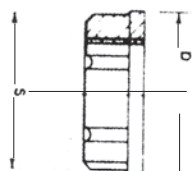


Barrel Nipple

21.91.15 (PVC-U Threaded Spigot)

Size	PN	Code No	I	G	SP	GP
3/8	10	721.911.505	43	5	10	
1/2	10	721.911.506	50	12	10	
3/4	10	721.911.507	56	23	10	
1	10	721.911.508	63	30	10	
1 1/4	10	721.911.509	75	55	5	
1 1/2	10	721.911.510	88	70	5	
2	10	721.911.511	88	105	5	
3	10	721.911.513	128	280	1	
4	10	721.911.515	153	510	1	

Thread: BSP taper male



Backnut

21.28.00

Size	PN	Code No	D	s	g	SP	GP
1/2	10	161.280.026	37	31	10	5	
3/4	10	161.280.027	42	36	16	5	
1	10	161.280.113	55	46	25	5	
1 1/4	10	161.280.114	59	50	25	5	
1 1/2	10	161.280.115	70	60	45	5	
2	10	161.280.116	94	79	83	5	

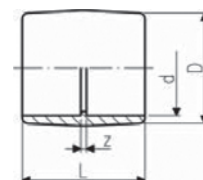
Thread: BSP parallel female. Dimensions is across flats.

Millimetre x Inch adaptor fittings

Adaptor Socket

21.91.31 (mm plain x inch plain)

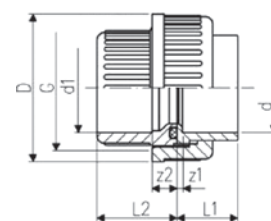
Size	PN	Code No	D	I	z	g	SP	GP
16mm x 3/8	15	721.913.105	23	35	5	10	10	
20mm x 1/2	15	721.913.106	27	38	5	14	10	
25mm x 3/4	15	721.913.107	33	45	5	20	10	
32mm x 1	15	721.913.108	41	51	5	30	10	
40mm x 1 1/4	15	721.913.109	51	60	5	54	10	
50mm x 1 1/2	15	721.913.110	59	65	4	77	10	
63mm x 2	15	721.913.111	75	79	5	170	5	
75mm x 2 1/2	15	721.910.112	88	92	4	280	5	
90mm x 3	15	721.913.113	104	108	6	330	1	
110mm x 4	15	721.913.115	134	135	7	860	2	



Adaptor Union

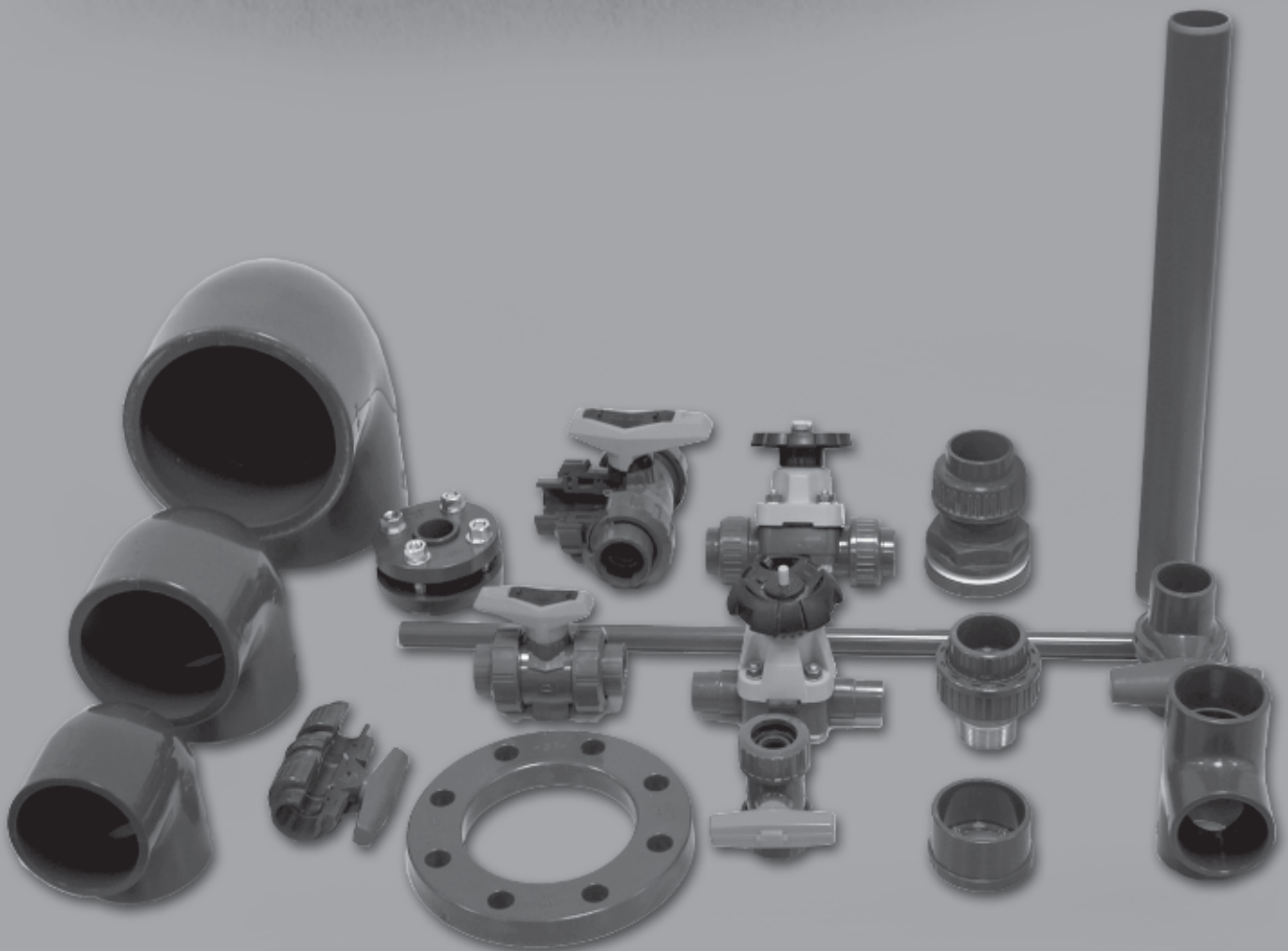
21.51.31 (mm plain x inch plain)

Size	PN	Code No	D	l ₁	l ₂	z ₁	z ₂	g	SP	GP
16mm x 3/8	15	721.513.105	35	17	24	3	8	25	5	
20mm x 1/2	15	721.513.106	43	19	26	3	9	40	5	
25mm x 3/4	15	721.513.107	53	22	29	3	9	65	5	
32mm x 1	15	721.513.108	60	25	32	3	9	90	5	
40mm x 1 1/4	15	721.513.109	74	29	38	3	10	155	2	
50mm x 1 1/2	15	721.513.110	83	34	40	3	10	200	2	
63mm x 2	15	721.513.111	103	41	46	3	10	355	2	



With EPDM O - ring can also be supplied with FPM O - ring See page 48-49

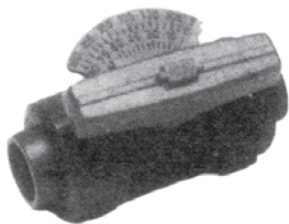
PVC-U Plastic Pressure Pipe Systems



Valves

Hand operated & Actuated

Type 323 Metering Ball Valve



Double Union Ends Plain Sockets 21.323.500

EPDM seals

Size	PN	Code No	SP	GP
3/8	10	161.323.501	1	
1/2	10	161.323.502	1	

21.323.510

FPM seals

Size	PN	Code No	SP	GP
3/8	10	161.323.511	1	
1/2	10	161.323.512	1	

Threaded Sockets (BSP parallel) 21.323.420

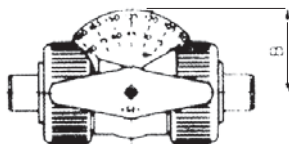
EPDM seals

Size	PN	Code No	SP	GP
3/8	10	161.323.421	1	
1/2	10	161.323.422	1	

21.323.430

FPM seals

Size	PN	Code No	SP	GP
3/8	10	161.323.431	1	
1/2	10	161.323.432	1	

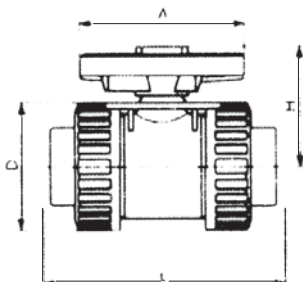


Dimensions

Size	Dimensions in millimeters					kg
	L	D	H	A	B	
3/8	99	46	50	78	37	0/15
1/2	102	46	50	78	37	0/15

Pressure Rating 12 bar (173 lbf/in²) at 20°C

Further technical information available on request



Other Types Available

Metric : With metric spigot or socket ends (details on request)

Special clean valves silicon free

PF socket fusion ends

Type 322 Laboratory Ball Cock

Socket Ends

21.324.000

EPDM seals

Size	PN	Code No	SP	GP
1/8	10	161.324.150	1	
1/4	10	161.324.200	1	

21.324.025

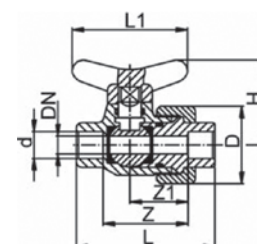
FPM seals

Size	PN	Code No	SP	GP
1/8	10	161.324.199	1	
1/4	10	161.324.249	1	



Dimensions

Size	Dimensions in millimeters						kg
	A	D	H	L	Z	B	
1/8	45	34	38	52	26	15	0.04
1/4	45	34	38	60	36	25	0.05



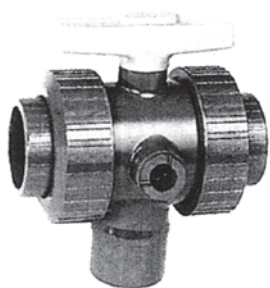
Pressure Rating: 12 bar (173 lbf/in²) at 20°C

Further technical information available on request

Other Types Available

Metric : With metric or socket ends (details on request)

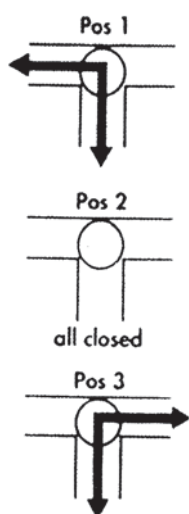
Type 343 PVC-U 3-Way Ball Valve



Solvent Cement Sockets Inch

EPDM seals				
Size	PN	Code No	SP	GP
3/8 - 16	10	161.343.601		
1/2 - 20	10	161.343.602		
3/4 - 25	10	161.343.603		
1 - 32	10	161.343.604		
1 1/4 - 40	10	161.343.605		
1 1/2 - 50	10	161.343.606		
2 - 63	10	161.343.607		

FPM seals				
Size	PN	Code No	SP	GP
3/8 - 16	10	161.343.611		
1/2 - 20	10	161.343.612		
3/4 - 25	10	161.343.613		
1 - 32	10	161.343.614		
1 1/4 - 40	10	161.343.615		
1 1/2 - 50	10	161.343.616		
2 - 63	10	161.343.617		



Threaded Sockets ISO / DIN with BSP Parallel Female Thread (RP)

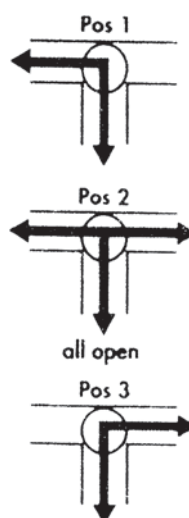
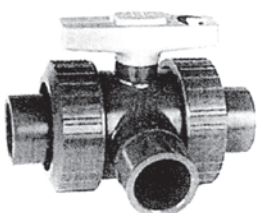
EPDM seals				
Size	PN	Code No	SP	GP
3/8 - 16	10	161.343.421		
1/2 - 20	10	161.343.422		
3/4 - 25	10	161.343.423		
1 - 32	10	161.343.424		
1 1/4 - 40	10	161.343.425		
1 1/2 - 50	10	161.343.426		
2 - 63	10	161.343.427		

FPM seals				
Size	PN	Code No	SP	GP
3/8 - 16	10	161.343.431		
1/2 - 20	10	161.343.432		
3/4 - 25	10	161.343.433		
1 - 32	10	161.343.434		
1 1/4 - 40	10	161.343.435		
1 1/2 - 50	10	161.343.436		
2 - 63	10	161.343.437		

Solvent Cement Sockets Inch

EPDM seals				
Size	PN	Code No	SP	GP
3/8 - 16	10	161.343.641		
1/2 - 20	10	161.343.642		
3/4 - 25	10	161.343.643		
1 - 32	10	161.343.644		
1 1/4 - 40	10	161.343.645		
1 1/2 - 50	10	161.343.646		
2 - 63	10	161.343.647		

FPM seals				
Size	PN	Code No	SP	GP
3/8 - 16	10	161.343.651		
1/2 - 20	10	161.343.652		
3/4 - 25	10	161.343.653		
1 - 32	10	161.343.654		
1 1/4 - 40	10	161.343.655		
1 1/2 - 50	10	161.343.656		
2 - 63	10	161.343.657		



Threaded Sockets ISO with BSP Parallel Female Thread (RP)

EPDM seals				
Size	PN	Code No	SP	GP
3/8 - 16	10	161.343.541		
1/2 - 20	10	161.343.542		
3/4 - 25	10	161.343.543		
1 - 32	10	161.343.544		
1 1/4 - 40	10	161.343.545		
1 1/2 - 50	10	161.343.546		
2 - 63	10	161.343.547		

FPM seals				
Size	PN	Code No	SP	GP
3/8 - 16	10	161.343.551		
1/2 - 20	10	161.343.552		
3/4 - 25	10	161.343.553		
1 - 32	10	161.343.554		
1 1/4 - 40	10	161.343.555		
1 1/2 - 50	10	161.343.556		
2 - 63	10	161.343.557		

Type 546 Ball Valve Double Union Ends

Solvent Cement Sockets

21.546.200

EPDM seals

Size	PN	Code No	SP	GP
3/8	16	161.546.201	1	
1/2	16	161.546.202	1	
3/4	16	161.546.203	1	
1	16	161.546.204	1	
1 1/4	16	161.546.205	1	
1 1/2	16	161.546.206	1	
2	16	161.546.207	1	

21.546.210

FPM seals

Size	PN	Code No	SP	GP
3/8	16	161.546.211	1	
1/2	16	161.546.212	1	
3/4	16	161.546.213	1	
1	16	161.546.214	1	
1 1/4	16	161.546.215	1	
1 1/2	16	161.546.216	1	
2	16	161.546.217	1	



Threaded Sockets (BSP Parallel)

21.546.020

EPDM seals

Size	PN	Code No	SP	GP
3/8	10	161.546.021	1	
1/2	10	161.546.022	1	
3/4	10	161.546.023	1	
1	10	161.546.024	1	
1 1/4	10	161.546.025	1	
1 1/2	10	161.546.026	1	
2	10	161.546.027	1	

21.546.030

FPM seals

Size	PN	Code No	SP	GP
3/8	10	161.546.031	1	
1/2	10	161.546.032	1	
3/4	10	161.546.033	1	
1	10	161.546.034	1	
1 1/4	10	161.546.035	1	
1 1/2	10	161.546.036	1	
2	10	161.546.037	1	

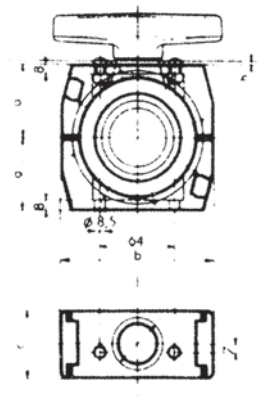
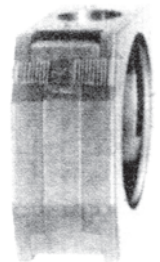
Valve Bracket

For ball valves types 346 & 343

21.126

Size	Code No.	Dimensions (mm)			Control Panel Mounting Drilling Panel thickness		SP	GP
		a	b	c	e	g		
3/8	161.126.005	24	118	55	30	3	264	1
1/2	161.126.006	24	118	55	30	3	264	1
3/4	161.126.007	29	118	55	30	3	284	1
1	161.126.008	34	118	55	30	3	300	1
1 1/4	161.126.009	43	118	55	30	4	326	1
1 1/2	161.126.010	50	118	55	36	4	354	1
2	161.126.011	61	130	55	42	6	384	1

*Not suitable for L port valves, with horizontal port



PVC-U 2-Way Ball Valves for Water (Coloro)

Type 353 with Two Socket Ends



Solvent Cement Sockets BS / ANSI Inch

EPDM seals				
Size	PN	Code No	SP	GP
½	16	161.353.302		
¾	16	161.353.303		
1	16	161.353.304		
1 ¼	16	161.353.305		
1 ½	16	161.353.306		
2	16	161.353.307		

FPM seals				
Size	PN	Code No	SP	GP

Threaded Sockets ISO with BSP Parallel Female Thread (RP)

EPDM seals				
Size	PN	Code No	SP	GP
½	10	161.353.022		
¾	10	161.353.023		
1	10	161.353.024		
1 ¼	10	161.353.025		
1 ½	10	161.353.026		
2	10	161.353.027		

FPM seals				
Size	PN	Code No	SP	GP

Type 354 with One Union End



EPDM seals				
Size	PN	Code No	SP	GP
½	16	161.354.302		
¾	16	161.354.303		
1	16	161.354.304		
1 ¼	16	161.354.305		
1 ½	16	161.354.306		
2	16	161.354.307		

FPM seals				
Size	PN	Code No	SP	GP

Threaded Sockets ISO with BSP Parallel Female Thread (RP)

EPDM seals				
Size	PN	Code No	SP	GP
½	10	161.354.022		
¾	10	161.354.023		
1	10	161.354.024		
1¼	10	161.354.025		
1½	10	161.354.026		
2	10	161.354.027		

FPM seals				
Size	PN	Code No	SP	GP

Type 355 Coloro Ball Valves

with Inch Solvent Cement Socket PN 16 (16 bar)

d	DN mm	Code	PN	SP	g	A mm	D mm	H mm	L mm	Z mm	Z1 mm
½	15	161.355. 202	16	12	130	78	49	51	95	60	
¾	20	161.355. 203	16	12	182	92	54	58	107.2	66	
1	25	161.355. 204	16	12	258	92	64	62.5	116.6	69	
1 ¼	32	161.355. 205	16	6	452	116	78	76.5	137	80	
1 ½	40	161.355. 206	16	6	586	116	90	83	145	85	
2	50	161.355. 207	16	6	1079	140	112	101.5	170	97	



d BSP	DN mm	Code	PN	SP	g	A mm	D mm	H mm	L mm	Z mm	Z1 mm
½	15	161.355.022	10	12	130	78	49	51	92		66
¾	20	161.355.023	10	12	182	92	54	58	104		74
1	25	161.355.024	10	12	262	92	64	62.5	113		79
1 ¼	32	161.355.025	10	6	452	116	78	76.5	132		94
1 ½	40	161.355.026	10	6	606	116	90	83	147		109
2	50	161.355.027	10	6	1139	140	112	101.5	173		127

Type 370 Ball Valves

PVC-U Flanges drilled to BS4504

21.370.000

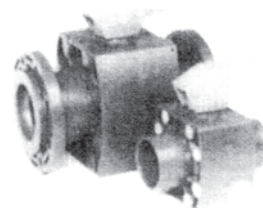
EPDM seals

Size	PN	Code No	SP	GP
2½	10	161.370.012	1	
3	10	161.370.013	1	
4	10	161.370.014	1	
6	10	161.370.016	1	

21.370.025

FPM seals

Size	PN	Code No	SP	GP
2½	10	161.370.037	1	
3	10	161.370.038	1	
4	10	161.370.039	1	
6	10	161.370.041	1	



Solvent Cement Sockets

21.370.200* & 21.370.250

EPDM seals

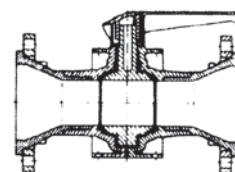
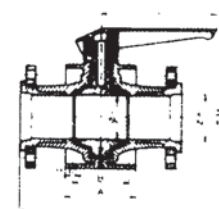
Size	PN	Code No	SP	GP
2½	10	161.370.212	1	
3	10	161.370.263	1	
4	10	161.370.264	1	

21.370.225* & 21.370.275

FPM seals

Size	PN	Code No	SP	GP
2½	10	161.370.237	1	
3	10	161.370.288	1	
4	10	161.370.289	1	

* Metric Valve



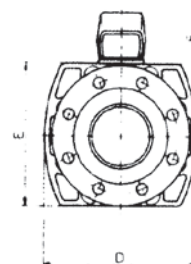
Dimensions

Nominal Size	Dimensions in millimetres										PVC-U Flange kg	No Flange kg
	L	A	B	C	D	E	F	H	L ₁	L ₂		
2½	290	102	84	205	160	148	74	10	208	53	40	27
3	310	120	102	205	188	176	74	10	244	62	55	38
4	350	152	122	250	225	223	78	12	274	61	97	73
6	480	152	122	250	225	223	78	12	-	-	121	-

Pressure Rating: 10 bar (145 lbf/in²) at 20°C

Further technical information available on request

6" valve made from 4" valve with belled ends to suit 6" flanges

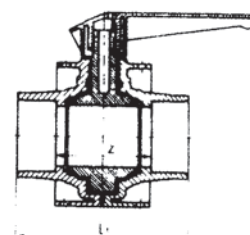


2½" - 4"

Other Types Available

GRP flanges drilled to BS 4504

Metric: With metric solvent sockets 75mm too 110mm (details on request)



Diaphragm Valves, New Version

Type 314, PVC-U Diaphragm Valve

PVC-U with Solvent Cement Sockets



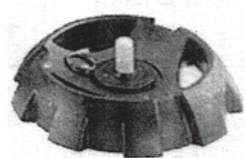
Size	EPDM Diaphragm		NBR DIAPHRAGM			FPM DIAPHRAGM		
	Code	PN	Code	PN	Code	Code		
1/2	161.314.602	10	161.314.602	10	161.314.662			
3/4	161.314.603	10	161.314.603	10	161.314.663			
1	161.314.604	10	161.314.604	10	161.314.664			
1 1/4	161.314.605	10	161.314.605	10	161.314.665			
1 1/2	161.314.606	10	161.314.606	10	161.314.666			
2	161.314.607	10	161.314.607	10	161.314.667			
PTFE with EPDM supp. Diaphragm CSM								
1/2	161.314.632	10	161.314.647	10				
3/4	161.314.633	10	161.314.648	10				
1	161.314.634	10	161.314.649	10				
1 1/4	161.314.635	10	161.314.650	10				
1 1/2	161.314.636	10	161.314.651	10				
2	161.314.637	10	161.314.652	10				

Type 315, PVC-U Diaphragm Valve

PVC-U with Solvent Cement Spigot Standard Size

Size	EPDM Diaphragm		NBR DIAPHRAGM			FPM DIAPHRAGM		
	PN	Code	PN	Code	PN	Code		
1/2	10	161.315.617	10	161.315.602	10	161.315.662		
3/4	10	161.315.618	10	161.315.603	10	161.315.663		
1	10	161.315.619	10	161.315.604	10	161.315.664		
1 1/4	10	161.315.620	10	161.315.605	10	161.315.665		
1 1/2	10	161.315.621	10	161.315.606	10	161.315.666		
2	10	161.315.622	10	161.315.607	10	161.315.667		
PTFE with EPDM supp. Diaphragm CSM								
1/2	10	161.315.632	10	161.315.647	10			
3/4	10	161.315.633	10	161.315.648	10			
1	10	161.315.634	10	161.315.649	10			
1 1/4	10	161.315.635	10	161.315.650	10			
1 1/2	10	161.315.636	10	161.315.651	10			
2	10	161.315.637	10	161.315.652	10			

Handwheel with built-in locking mechanism



d	20	25	32	40	50	63	75
DN	15	20	25	32	40	50	65
Inch	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"
Code	167 481 943	167 481 943	167 481 944	167 481 945	167 481 945	167 481 946	167 481 946
E	13.80	13.80	14.05	14.85	14.85	15.15	15.15

Note : Valve Lock not available on sizes 90, 110 & 160

Type 317, PVC-U Diaphragm Valve

PVC-U Flange ISO/BS4346 Standard Size

	EPDM Diaphragm		NBR Diaphragm		FPM Diaphragm			
Size	PN	Code		Code	PN	Code		
20	10	161.317.517		161.317.502	10	161.317.562		
25	10	161.317.518		161.317.503	10	161.317.563		
32	10	161.317.519		161.317.504	10	161.317.564		
40	10	161.317.520		161.317.505	10	161.317.565		
50	10	161.317.521		161.317.506	10	161.317.566		
63	10	161.317.522		161.317.507	10	161.317.567		
75	10	161.317.523		161.317.508	10	161.317.568		
*90	10	161.317.524		161.317.009	10	161.317.569		
*110	10	161.317.525		161.317.010	10	161.317.070		
*160	10	161.317.527		161.317.012	10			
	PTFE with EPDM supp. Diaphragm			CSM				
20	10	161.317.532		161.317.547	10			
25	10	161.317.533		161.317.548	10			
32	10	161.317.534		161.317.549	10			
40	10	161.317.535		161.317.550	10			
50	10	161.317.536		161.317.551	10			
63	10	161.317.537		161.317.552	10			
75	10	161.317.538		161.317.553	10			
*90	10	161.317.039		161.317.054	10			
*110	10	161.317.040		161.317.055	10			
*160	10	161.317.042		161.317.057	10			



DN 15-65
Option: lockable



DN 80-150

Type 300 Angle Seat Valve

Plain Spigots mm sizes

21.300.000

Polyethylene Seals

Size	PN	Code No	SP	GP
16mm (3/8)	10	161.300.250	1	
20mm (1/2)	10	161.300.300	1	
25mm (3/4)	10	161.300.350	1	
32mm (1)	10	161.300. 00	1	
40mm (1 1/4)	10	161.300.450	1	
50mm (1 1/2)	10	161.300.500	1	
63 (2)	10	161.300.550	1	
75mm (2 1/2)	10	161.300.600	1	
90mm (3)	10	161.300.650	1	

21.300.025

PTFE Seals

Size	PN	Code No	SP	GP
16mm (3/8)	10	161.300.299	1	
20mm (1/2)	10	161.300.349	1	
25mm (3/4)	10	161.300.399	1	
32mm (1)	10	161.300.449	1	
40mm (1 1/4)	10	161.300.499	1	
50mm (1 1/2)	10	161.300.549	1	
63 (2)	10	161.300.599	1	
75mm (2 1/2)	10	161.300.649	1	
90mm (3)	10	161.300.699	1	

Dimensions

Size	Dimensions in millimetres					
	L	L1*	D	H	A	kg
16	114	120	50	105	24	0.12
20	124	130	63	126	28	0.18
25	144	150	63	140	37	0.25
32	154	160	80	166	37	0.38
40	174	180	80	191	44	0.58
50	194	200	100	233	48	0.97
63	224	230	100	264	60	1.47
75	284	290	160	335	74	2.61
90	300	310	200	390	85	3.94

*L₁ - Overall length when used with flange adaptors (stub flanges) or adaptor unions.

Pressure Rating 10 bar (145 lbf/in²) at 20°C

Further technical information available on request

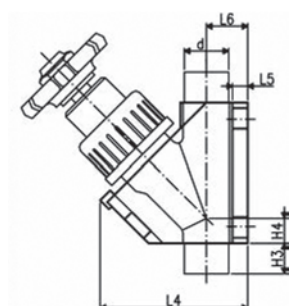
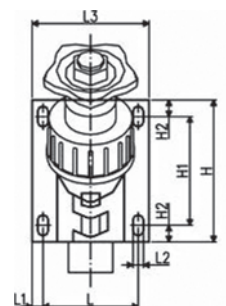
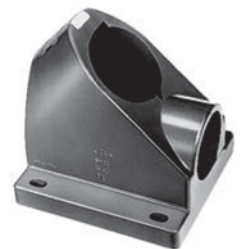
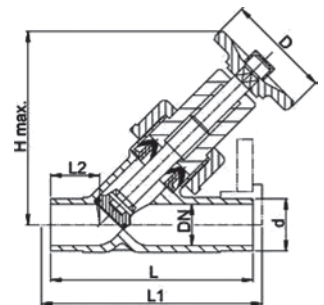
Note : This valve has mm spigot ends for mm/inch adaptor fittings see page 22.

Valve Bracket

For angle seat valves types 300, 211 & 155

21.123

Size	Code No.	H	c	e	l	g	h	i	k	l	g	SP	GP
3/8	161.123.250	67	78	62	55	11	22	10	8	76	115	1	
1/2	161.123.300	74	82	65	65	11	25	10	8	86	150	1	
3/4	161.123.350	87	91	73	76	12	30	11	8	100	230	1	
1	161.123.400	104	102	84	78	12	35	13	8	102	310	1	
1 1/4	161.123.450	122	107	90	85	16	42	15	8	116	380	1	



Butterfly Valve

PVC-U Butterfly Valve, Type 367

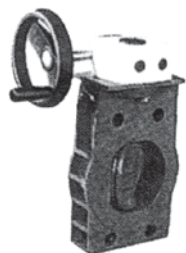
Lever Handle, ratchet settings



EPDM seals				
Size	PN	Code No	SP	GP
2½	10	161.367.005		
3	10	161.367.006		
4	10	161.367.007		
5	10	161.367.008		
6	6	161.367.009		
8	6	161.367.010		
10	10	161.367.011		
12	4	161.367.012		

FPM seals				
Size	PN	Code No	SP	GP
2½	10	161.367.025		
3	10	161.367.026		
4	10	161.367.027		
5	10	161.367.028		
6	6	161.367.029		
8	6	161.367.030		
10	10	161.367.031		
12	4	161.367.032		

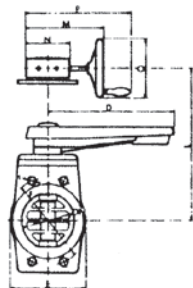
Handwheel with Reduction Gear



EPDM seals				
Size	PN	Code No	SP	GP
2½	10	161.367.085		
3	10	161.367.086		
4	10	161.367.087		
5	10	161.367.088		
6	6	161.367.089		
8	6	161.367.090		
10	10	161.367.091		
12	4	161.367.092		

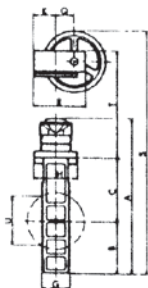
FPM seals				
Size	PN	Code No	SP	GP
2½	10	161.367.105		
3	10	161.367.106		
4	10	161.367.107		
5	10	161.367.108		
6	6	161.367.109		
8	6	161.367.110		
10	10	161.367.111		
12	4	161.367.112		

Dimensions



Flange drilling	Standard	On request
ISO/DIN ANSI		BSI 10 ANSI
ISO/DIN		
ISO/DIN-BSI 10 ANSI		
ISO/DIN-BSI 10 ANSI		
ISO/DIN-BSI 10 ANSI		
ISO/DIN-BSI 10 ANSI		ANSI
ISO/DIN		
ISO/DIN		

d mm	DN mm	inch	A* mm	B* mm	C* mm	D mm	E* mm	F mm	G mm	H* mm	I mm	K mm	L* mm	M mm	N mm
75	65	2½	264	80	110	190	112	142	46	74	22	55	147	218	120
90	80	3	290	92	120	230	132	160	49	77	18	55	157	218	120
110	100	4	338	108	138	270	160	186	56	92	24	55	175	218	120
140	125	5	374	120	156	310	190	215	64	108	23	55	193	218	120
160	150	6	415	140	170	355	216	240	70	116	24	55	207	218	120
225	200	8	497	175	215	410	272	297	71	128	24	55	252	218	120
280	250	10	557	220	248	410	420	350	76	152	22	62	302	249	134
315	300	12	645	266	290	410	508	400	83	152	22	62	344	249	134



d mm	DIN		O mm	P mm	Q mm	R mm	S* mm	T mm	U mm	Weight with lever handle kg	Handwheel kg
75	65	2½	160	284	46	132	307	68	49	1.3	3.4
90	80	3	160	284	46	132	329	68	66	1.8	4.0
110	100	4	160	284	46	132	363	68	85	2.5	4.6
140	125	5	160	284	46	132	393	68	110	3.6	5.8
160	150	6	160	284	46	132	427	68	135	4.9	6.7
225	200	8	160	284	46	132	507	68	189	7.0	9.1
280	250	10	160	315	60	150	602	85	238	13.0	19.1
315	300	12	160	315	60	190	690	85	286	20.5	25.5

*Tolerance +0mm - 6mm max

*can be installed to all standards listed herein

Butterfly valve type 567 PVC-U Hand lever with ratchet settings

Model :

* Connecting dimension: ISO 7005 PN 10, EN 1092 PN 10, DIN 2501 PN 10, ANSI B

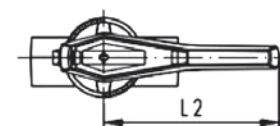
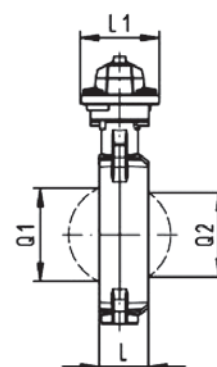
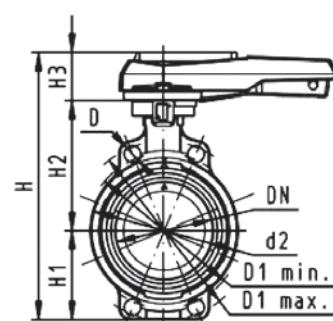
16.5 Class 150, BS 1560: 1958, JIS B 2220

* Overall length according to EN 558-1, ISO 5752



d (mm)	DN (mm)	Inch	PN	kv-value ($\Delta p=1\text{bar}$) (1/mm)	EPDM Code	FPM Code	
63	50	2	10	1470	161.567.002	161.567.022	
75	65	2½	10	2200	161.567.003	161.567.023	
90	80	3	10	3000	161.567.004	161.567.024	
110	100	4	10	6500	161.567.005	161.567.025	
140	125	5	10	11500	161.567.006	161.567.026	
160	150	6	10	16600	161.567.007	161.567.027	
225	200	8	10	39600	161.567.008	161.567.028	

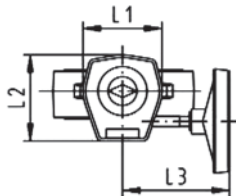
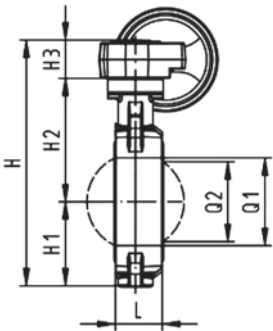
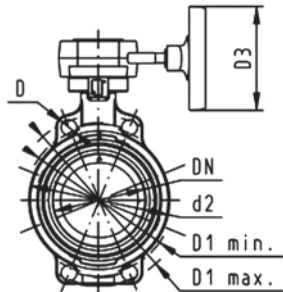
d (mm)	D (mm)	D1 min. (mm)	D1 max. (mm)	d2 (mm)	H (mm)	H1 (mm)	H2 (mm)	H3 (mm)	L (mm)	L1 (mm)	L2 (mm)	Q1 (mm)	Q2 (mm)
63	19	120.0	125.0	104	264	77	134	54	45	106	205	35.74	
75	19	139.7	145.0	115	277	83	140	54	46	106	205	50.93	30.62
90	19	150.0	160.0	131	289	89	146	54	49	106	205	64.01	46.24
110	19	175.0	190.5	161	325	104	167	55	56	106	255	84.46	69.96
140	23	210.0	215.9	187	352	117	181	55	64	106	255	110.71	94.50
160	24	241.3	241.3	215	373	130	189	55	72	106	255	136.08	121.54
225	23	290.0	295.0	267	435	158	210	67	73	140	408	175.62	166.23



Butterfly valve 567 PVC-U Reduction gear with handwheel

Model:

- Connecting dimension: ISO 7005 PN 10, EN 1092 PN 10, DIN 2501 PN 10, ANSI B 16.5 Class 150, BS 1560: 1958, JIS B 2220
- Overall length according to EN 558-1, ISO 5752



d (mm)	DN (mm)	Inch	PN	kv-value ($\Delta p=1$ bar) (1/min)	EPDM Code	FPM Code	
63	50	2	10	1470	161.567.042	161.567.062	
75	65	2½	10	2200	161.567.043	161.567.063	
90	80	3	10	3000	161.567.044	161.567.064	
110	100	4	10	6500	161.567.045	161.567.065	
140	125	5	10	11500	161.567.046	161.567.066	
160	150	6	10	16600	161.567.047	161.567.067	
225	200	8	10	39600	161.567.048	161.567.068	

d (mm)	D (mm)	D1 min. (mm)	D1 max. (mm)	d2 (mm)	D3 (mm)	H (mm)	H1 (mm)	H2 (mm)	H3 (mm)	L (mm)	L1 (mm)	L2 (mm)	L3 (mm)
63	19	120.0	125.0	104	160.0	278	77	134	68	45	120	132	236
75	19	139.7	145.0	115	160.0	291	83	140	68	46	120	132	236
90	19	150.0	160.0	131	160.0	303	89	146	68	49	120	132	236
110	19	175.0	190.5	160	160.0	339	104	167	68	56	120	132	236
140	23	210.0	215.9	187	160.0	365	117	181	68	64	120	132	236
160	24	241.3	241.3	215	160.0	387	130	189	68	72	120	132	236
225	23	290.0	295.0	267	160.0	436	158	210	68	73	120	132	236

d (mm)	Q1 (mm)	Q2 (mm)	
63	35.74		
75	50.93	30.62	
90	64.01	46.24	
110	84.46	69.96	
140	110.71	94.50	
160	136.08	121.54	
225	175.62	166.23	

Type 360 Non-Return Ball(Check) Valve

Plain Sockets

21.360.520

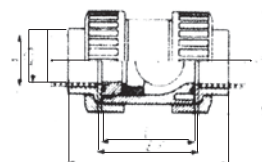
EPDM seals

Size	PN	Code No	SP	GP
3/8	16	161.360.521	1	
1/2	16	161.360.522	1	
3/4	16	161.360.523	1	
1	16	161.360.524	1	
1 1/4	16	161.360.525	1	
1 1/2	16	161.360.526	1	
2	16	161.360.527	1	
3* (90mm)	16	161.360.013	1	

21.360.530

FPM seals

Size	PN	Code No	SP	GP
3/8	16	161.360.531	1	
1/2	16	161.360.532	1	
3/4	16	161.360.533	1	
1	16	161.360.534	1	
1 1/4	16	161.360.535	1	
1 1/2	16	161.360.536	1	
2	16	161.360.537	1	
3* (90mm)	16	161.360.038	1	



*Spigot Ends Only

BSP Threaded Ends

21.360.420

EPDM seals

Size	PN	Code No	SP	GP
3/8	10	161.360.421	1	
1/2	10	161.360.422	1	
3/4	10	161.360.423	1	
1	10	161.360.424	1	
1 1/4	10	161.360.425	1	
1 1/2	10	161.360.426	1	
2	10	161.360.427	1	

21.360.430

FPM seals

Size	PN	Code No	SP	GP
3/8	10	161.360.431	1	
1/2	10	161.360.432	1	
3/4	10	161.360.433	1	
1	10	161.360.434	1	
1 1/4	10	161.360.435	1	
1 1/2	10	161.360.436	1	
2	10	161.360.437	1	

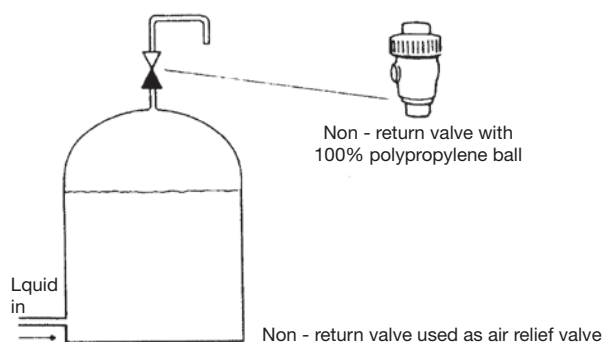
Dimensions

d in	DN mm	Z mm	Z ₁	D mm	L mm	L ₁ mm	kg
3/8	10	71	67	46	99	63	0.123
1/2	15	70	67	46	102	63	0.123
3/4	20	82	79	56	120	75	0.205
1	25	87	83	67	131	79	0.318
1 1/4	32	98	96	82	150	89	0.524
1 1/2	40	101	109	98	163	95	0.841
2	50	121	135	120	197	115	1.495

Pressure Rating: Plain Sockets 3/8 - 2 = 16 bar, Plain Spigots 3(90) - 16 bar, Threaded Sockets 3/8 - 2 = 10 bar

Ball Materials:

The valve has a PVC-U ball with a density of 1.4 where a non return valve is to be used as an air release valve (see sketch) a 100% PP ball with a density of 0.9 will be supplied at extra cost.





Type 303 Non Return Angle Seat Valve (Check) Valve

Plain Spigots mm sizes

21.303.000

EPDM seals				
Size	PN	Code No	SP	GP
16mm (3/8)	10	161.303.005	1	
20mm (1/2)	10	161.303.006	1	
25mm (3/4)	10	161.303.007	1	
32mm (1)	10	161.303.008	1	
40mm (1 1/4)	10	161.303.009	1	
50mm (1 1/2)	10	161.303.010	1	
63mm (2)	10	161.303.011	1	
75mm (2 1/2)	10	161.303.012	1	
90mm (3)	10	161.303.013	1	

21.303.025

FPM seals				
Size	PN	Code No	SP	GP
16mm (3/8)	10	161.303.030	1	
20mm (1/2)	10	161.303.031	1	
25mm (3/4)	10	161.303.032	1	
32mm (1)	10	161.303.033	1	
40mm (1 1/4)	10	161.303.034	1	
50mm (1 1/2)	10	161.303.035	1	
63mm (2)	10	161.303.036	1	
75mm (2 1/2)	10	161.303.037	1	
90mm (3)	10	161.303.038	1	

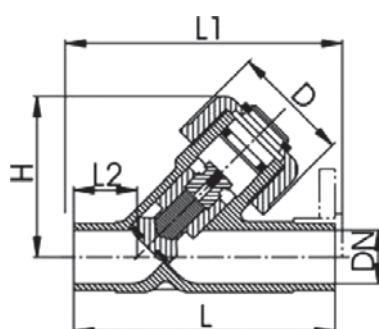
Dimensions

Size d	Dimensions in millimetres				
	L	L1	H	A	kg
16	114	120	58	24	0.10
20	124	130	65	28	0.14
25	144	150	75	37	0.20
32	154	160	90	37	0.35
40	174	180	102	44	0.50
50	194	200	123	48	0.87
63	224	230	144	60	1.43
75	284	290	186	74	2.45
90	300	310	204	85	3.50

*L1 - Overall length when used with flange adaptors (stub flanges) or adaptor unions

Pressure Rating: 10 bar {145 lbf/in²} at 20°C

Further technical information available on request



Type 305 Line Strainer

Grey Body Plain Spigots mm sizes

21.305.000

EPDM seals				
Size	PN	Code No	SP	GP
20mm (½)	10	161.305.300	1	
25mm (¾)	10	161.305.350	1	
32mm (1)	10	161.305.400	1	
40mm (1 ¼)	10	161.305.450	1	
50mm (1 ½)	10	161.305.500	1	
63mm (2)	10	161.305.550	1	
75mm (2 ½)	10	161.305.600	1	
90mm (3)	10	161.305.650	1	

21.305.025

FPM seals				
Size	PN	Code No	SP	GP
20mm (½)	10	161.305.349	1	
25mm (¾)	10	161.305.399	1	
32mm (1)	10	161.305.449	1	
40mm (1 ¼)	10	161.305.499	1	
50mm (1 ½)	10	161.305.549	1	
63mm (2)	10	161.305.599	1	
75mm (2 ½)	10	161.305.649	1	
90mm (3)	10	161.305.699	1	



Transparent Body Plain Spigots mm sizes

52.305.000

EPDM seals				
Size	PN	Code No	SP	GP
20mm (½)	10	192.305.300	1	
25mm (¾)	10	192.305.350	1	
32mm (1)	10	192.305.400	1	
40mm (1 ¼)	10	192.305.450	1	
50mm (1 ½)	10	192.305.500	1	
63mm (2)	10	192.305.550	1	
75mm (2 ½)	10	192.305.600	1	
90mm (3)	10	192.305.650	1	

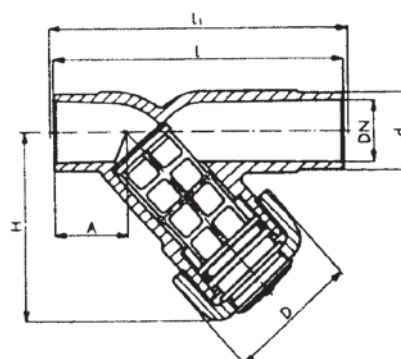
52.305.025

FPM seals				
Size	PN	Code No	SP	GP
20mm (½)	10	192.305.349	1	
25mm (¾)	10	192.305.399	1	
32mm (1)	10	192.305.449	1	
40mm (1 ¼)	10	192.305.499	1	
50mm (1 ½)	10	192.305.549	1	
63mm (2)	10	192.305.599	1	
75mm (2 ½)	10	192.305.649	1	
90mm (3)	10	192.305.699	1	



Dimensions

Size	Dimensions in millimetres					kg
	L	L1*	D	H	A	
20	124	130	48	65	28	0.11
25	144	150	54	76	37	0.17
32	154	160	62	90	37	0.25
40	174	180	71	104	44	0.38
50	194	200	88	124	48	0.63
63	224	230	103	148	60	1.00
75	284	290	106	188	74	1.83
90	300	310	120	205	85	2.56



*L1 - Overall length when used with flange adaptors (stub flanges) or adaptor unions

Pressure Rating 10 bar {145 lbf/in²} at 20°C

Further technical information available on request

Note: This valve has mm spigots ends. For mm/inch adaptor fittings see page 22

All line strainers are delivered with 0.8mm screens as standard

If screens of other perforations are required, they should be ordered separately See page 38

Screens



for line strainers type 305

0.5mm diameter

Size		Code No	SP	GP
20mm (½)		161.305.339	1	
25mm (¾)		161.305.389	1	
32mm (1)		161.305.439	1	
40mm (1 ¼)		161.305.489	1	
50mm (1 ½)		161.305.539	1	
63mm (2)		161.305.589	1	
75mm (2 ½)		161.305.639	1	
90mm (3)		161.305.689	1	

0.8mm diameter

Size		Code No	SP	GP
20mm (½)		161.305.338	1	
25mm (¾)		161.305.388	1	
32mm (1)		161.305.438	1	
40mm (1 ¼)		161.305.488	1	
50mm (1 ½)		161.305.538	1	
63mm (2)		161.305.588	1	
75mm (2 ½)		161.305.638	1	
90mm (3)		161.305.688	1	

1.4mm diameter

Size		Code No	SP	GP
20mm (½)		161.305.337	1	
25mm (¾)		161.305.387	1	
32mm (1)		161.305.437	1	
40mm (1 ¼)		161.305.487	1	
50mm (1 ½)		161.305.537	1	
63mm (2)		161.305.587	1	
75mm (2 ½)		161.305.637	1	
90mm (3)		161.305.687	1	

2.2mm diameter

Size		Code No	SP	GP
20mm (½)		161.305.336	1	
25mm (¾)		161.305.386	1	
32mm (1)		161.305.436	1	
40mm (1 ¼)		161.305.486	1	
50mm (1 ½)		161.305.536	1	
63mm (2)		161.305.586	1	
75mm (2 ½)		161.305.636	1	
90mm (3)		161.305.686	1	

Variable area flow meters

Standard range PVDF float

Union ends plain sockets

Size	Type	Measurement range l/h	Trogamid-T tube EPDM O - ring		Polysulphone tube EPDM O - ring		SP	GP
				Code No		Code No		
1	SK 10	50 - 500		198.802.790		198.802.791	1	
1	SK 11	100 - 1000		198.802.792		198.802.793	1	
1½	SK 20	300 - 3000		198.802.794		198.802.795	1	
1½	SK 21	600 - 6000		198.802.796		198.802.797	1	
2	SK 30	1000 - 10000		198.802.798		198.802.799	1	
2	SK 31	1500 - 15000		198.802.800		198.802.801	1	
2½	SK 40	2000 - 20000		198.802.330		198.802.331	1	
2½	SK 41	3000 - 30000		198.802.332		198.802.333	1	



Standard range PVDF float with magnet

Union ends plain sockets

Size	Type	Measurement range l/h	Trogamid-T tube EPDM O - ring		Polysulphone tube EPDM O - ring		SP	GP
				Code No		Code No		
1	SK 100	50 - 500		198.802.802		198.802.803	1	
1	SK 110	100 - 1000		198.802.804		198.802.805	1	
1½	SK 200	300 - 3000		198.802.806		198.802.807	1	
1½	SK 210	600 - 6000		198.802.808		198.802.809	1	
2	SK 300	1000 - 10000		198.802.810		198.802.811	1	
2	SK 310	1500 - 15000		198.802.812		198.802.813	1	
2½	SK 400	2000 - 20000		198.801.334		198.801.335	1	
2½	SK 401	3000 - 30000		198.801.336		198.801.337	1	

Short Version PVDF float

Union ends plain sockets

Size	Type	Measurement range l/h	Polysulphone tube EPDM O - ring			GP
				Code No	SP	
3/8	SK 50	2.5 - 25		198.807.000	1	
3/8	SK 51	5 - 50		198.807.001	1	
3/8	SK 52	10 - 100		198.807.002	1	
½	SK 60	8 - 80		198.807.003	1	
½	SK 61	15 - 150		198.807.004	1	
½	SK 62	20 - 200		198.807.005	1	
1	SK 70	15 - 150		198.807.006	1	
1	SK 71	30 - 300		198.807.007	1	
1	SK 72	50 - 500		198.807.008	1	
1	SK 73	100 - 1000		198.807.009	1	

Short Version PVDF float with magnet

Union ends plain sockets

Size	Type	Measurement range l/h	Polysulphone tube EPDM O - ring			GP
				Code No	SP	
3/8	SK 500	2.5 - 25		198.807.010	1	
3/8	SK 510	5 - 50		198.807.011	1	
3/8	SK 520	10 - 100		198.807.012	1	
½	SK 600	8 - 80		198.807.013	1	
½	SK 610	15 - 150		198.807.014	1	
½	SK 620	20 - 200		198.807.015	1	
1	SK 700	15 - 150		198.807.016	1	
1	SK 710	30 - 300		198.807.017	1	
1	SK 720	50 - 500		198.807.018	1	
1	SK 730	100 - 1000		198.807.019	1	

PVC-U Plastic Pressure Pipe Systems

Accessories



Note:
When connecting to inductive loads eg: load relays, timer relays or solenoid valves the limit switch (models GK01, GK03 and GK04) should always be used with a contact protective relay.

Type	Material		Code No
GK 01	Limit Switches (bistable)		198.801.936
GK 03	Limit switches (maximum for short versions)		198.801.878
GK 04	Limit switches (minimum for short versions)		198.801.879
KSR 02	Relays to protect the contacts type KSR02 (only for GK02)		198.801.935
Scale	Special scales for water (listed below)		-
Scale	Special scales for chemicals and air		-

Special scales for water (standard range only)

Type		Water at 20°C m ³ /hr	Water at 20°C Imp GPM	Water at 20°C US GPM
without magnet	with magnet			
SK 10	SK 100	0.05 - 0.5	0.183 - 1.83	0.22 - 2.20
SK 11	SK 110	0.10 - 1.0	0.366 - 3.66	0.44 - 4.40
SK 20	SK 200	0.30 - 3.0	1.09 - 10.90	1.32 - 13.20
SK 21	SK 210	0.60 - 6.0	2.19 - 21.90	2.64 - 26.41
SK 30	SK 300	1.00 - 10.0	3.66 - 36.60	4.40 - 44.02
SK 31	SK 310	1.50 - 15.0	5.49 - 54.90	6.60 - 66.04

Special scales for chemicals and air (standard range only)

Type		HCL 30 - 33% L/hr 20°C	NaOH 30% L/hr 20°C	NaOH 50% L/hr 20°C
without magnet	with magnet			
SK 10	SK 100	60 - 470	12 - 165	2 - 65
SK 11	SK 110	115 - 890	38 - 590	6 - 210
SK 20	SK 200	310 - 2800	210 - 2000	45 - 1100
SK 21	SK 210	780 - 5500	380 - 4200	200 - 3500
SK 30	SK 300	950 - 9200	650 - 7000	250 - 5500
SK 31	SK 310	1500 - 14000	1100 - 12500	400 - 10000

Dimensions

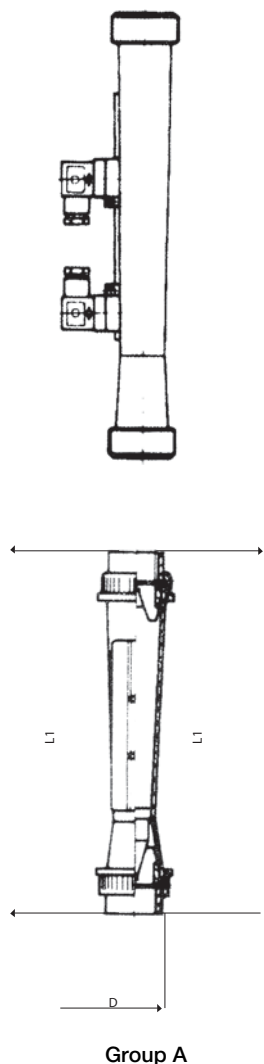
Standard range

Type		Size NB	Dimensions (mm)				
without magnet	with magnet		L	L ₁	L ₂	D	Kg
SK 10	SK 100	1	335	341	385	60	
SK 11	SK 110	1	335	341	385	60	
SK 20	SK 200	1½	335	341	403	83	
SK 21	SK 210	1½	335	341	403	83	
SK 30	SK 300	2	335	341	412	103	
SK 31	SK 310	2	335	341	412	103	

Short version

Type		Size NB	Dimensions (mm)				
without magnet	with magnet		L	L ₁	L ₂	D	Kg
SK 50	SK 500	3/8	165	171	199	35	
SK 51	SK 510	3/8	165	171	199	35	
SK 52	SK 520	3/8	165	171	199	35	
SK 60	SK 600	½	185	191	223	43	
SK 61	SK 610	½	185	191	223	43	
SK 62	SK 620	½	185	191	223	43	
SK 70	SK 700	1	200	206	250	60	
SK 71	SK 710	1	200	206	250	60	
SK 72	SK 720	1	200	206	250	60	
SK 73	SK 730	1	200	206	250	60	

Pressure rating 10 bar



Group A

Further technical information available on request

Type 001 Inspection Glass

Double Union Ends Plain Sockets 001 Plain

EPDM seals

Size	PN	Code No	SP	GP
1/2	10	999.950.001	1	
3/4	10	999.950.002	1	
1	10	999.950.003	1	
1 1/4	10	999.950.004	1	
1 1/2	10	999.950.005	1	
2	10	999.950.006	1	

001 Plain

FPM seals

Size	PN	Code No	SP	GP
1/2	10	999.950.007	1	
3/4	10	999.950.008	1	
1	10	999.950.009	1	
1 1/4	10	999.950.010	1	
1 1/2	10	999.950.011	1	
2	10	999.950.012	1	



Threaded Sockets (BSP parallel) 001 Threaded

EPDM seals

Size	PN	Code No	SP	GP
1/2	10	999.950.013	1	
3/4	10	999.950.014	1	
1	10	999.950.015	1	
1 1/4	10	999.950.016	1	
1 1/2	10	999.950.017	1	
2	10	999.950.018	1	

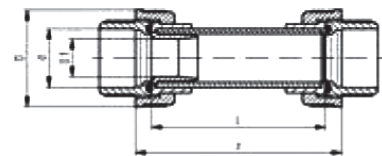
001 Threaded

FPM seals

Size	PN	Code No	SP	GP
1/2	10	999.950.019	1	
3/4	10	999.950.020	1	
1	10	999.950.021	1	
1 1/4	10	999.950.022	1	
1 1/2	10	999.950.023	1	
2	10	999.950.024	1	

Dimensions

Size	Dimensions (mm)				kg
	G	D	L	L ₁	
1/2	8.5	43	130	148	
3/4	12.0	53	150	168	
1	16.5	60	160	178	
1 1/4	26.0	74	180	200	
1 1/2	27.5	83	200	220	
2	35.0	103	230	250	

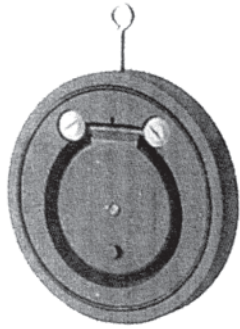


Pressure Rating 1/2 - 1, 10 bar (145 lbf/in²) at 20 °C
1 1/4 - 2, 6 bar (87 lbf/in²) at 20 °C

Other Types Available

Non standard lengths (allow 4 weeks delivery)

Type 369 PVC-U Wafer Check Valve



Without Springs

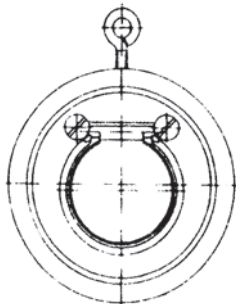
EPDM seals				
Size	PN	Code No	SP	GP
2½	6	161.369.005		
3	6	161.369.006		
4	6	161.369.007		
5	6	161.369.009		
6	6	161.369.010		
8	6	161.369.011		
10	6	161.369.012		
12	6	161.369.013		

FPM seals				
Size	PN	Code No	SP	GP
2½	6	161.369.025		
3	6	161.369.026		
4	6	161.369.027		
5	6	161.369.029		
6	6	161.369.030		
8	6	161.369.031		
10	6	161.369.032		
12	6	161.369.033		

With V4A Springs

EPDM seals				
Size	PN	Code No	SP	GP
2½	6	161.369.045		
3	6	161.369.046		
4	6	161.369.047		
5	6	161.369.049		
6	6	161.369.050		
8	6	161.369.051		
10	6	161.369.052		
12	6	161.369.053		

FPM seals				
Size	PN	Code No	SP	GP
2½	6	161.369.065		
3	6	161.369.066		
4	6	161.369.067		
5	6	161.369.069		
6	6	161.369.070		
8	6	161.369.071		
10	6	161.369.072		
12	6	161.369.073		



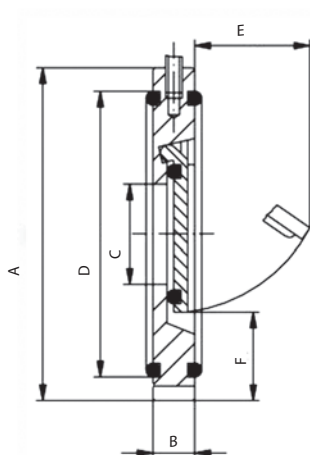
without springs

With Hastelloy Springs

EPDM seals				
Size	PN	Code No	SP	GP
2½	6	161.369.085		
3	6	161.369.086		
4	6	161.369.087		
5	6	161.369.089		
6	6	161.369.090		
8	6	161.369.091		
10	6	161.369.092		
12	6	161.369.093		

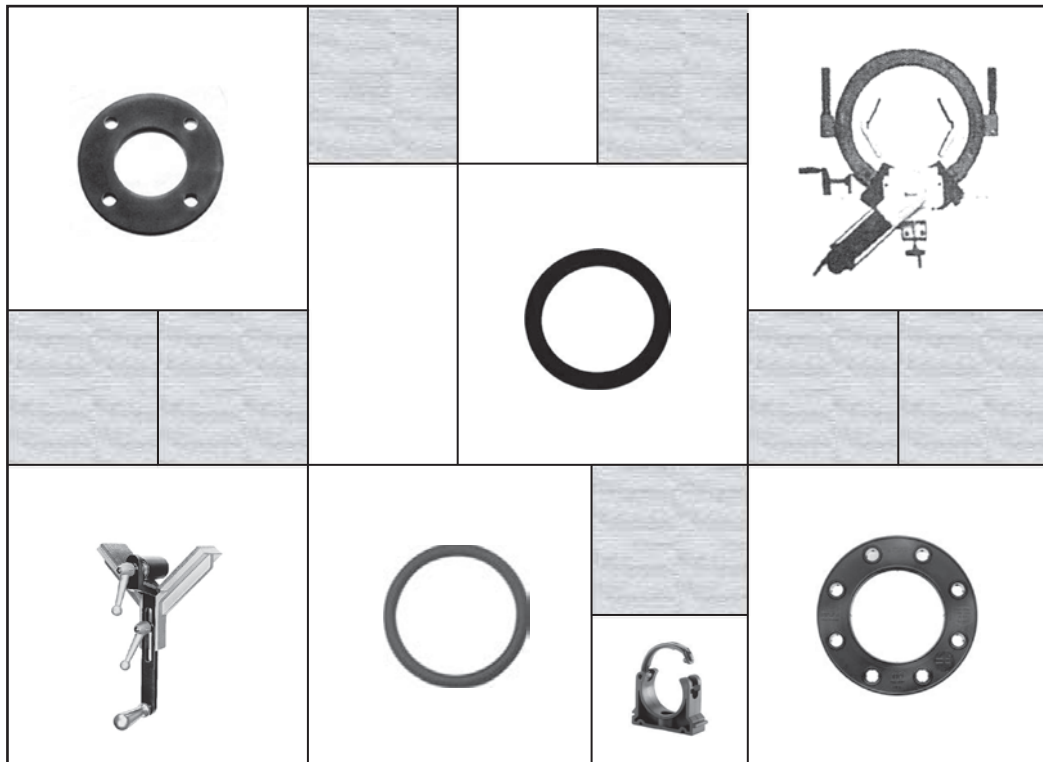
FPM seals				
Size	PN	Code No	SP	GP
2½	6	161.369.105		
3	6	161.369.106		
4	6	161.369.107		
5	6	161.369.109		
6	6	161.369.110		
8	6	161.369.111		
10	6	161.369.112		
12	6	161.369.113		

Dimensions, Opening Pressure, Tightness



Dimensions									Opening pressure in mbar			Tightness from water column in m
G	d	DN	A	B	C	D	E	F	vertical without spring	horizontal without spring	horizontal with spring	PVC
1 ¼	40	32	85	15	18	59	22	25	10	1	20	2
1 ½	50	40	95	16	22	72	25	28	10	1	20	2
2	63	50	109	18	32	86	37	29	10	1	20	2
2 ½	75	65	129	20	40	105	50	31	10	1	20	2
3	90	80	144	20	54	119	61	32	10	1	20	2
4	110	100	164	23	70	146	77	31	10	1	20	2
5	140	125	195	23	92	173	94	35	10	1	20	2
6	160	150	220	26	112	197	115	35	10	1	20	2
8	225	200	275	35	154	255	152	38	18	1	20	2
10	280	250	330	40	192	312	180	41	18	1	20	2
12	305	300	380	45	227	363	215	41	18	1	20	2

Accessories



Accessories

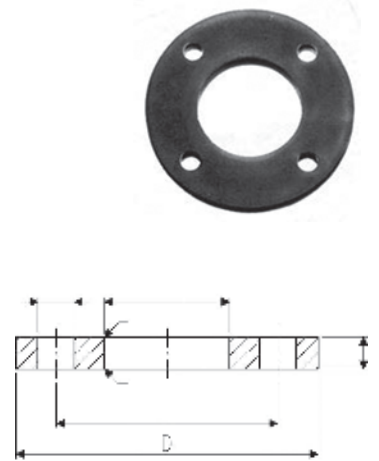
Backing flange

Galvanised mild steel drilled to BS 10:1962 table D & E

24.70.14

Size	PN	Code No	D	a	k	b	l	holes	g	SP	GP
½	16	724.701.406	96	28	67	7	15	4	220	1	
¾	16	724.701.407	102	34	73	7	15	4	320	1	
1	16	724.701.408	115	42	83	7	15	4	410	1	
1 ¼	16	724.701.409	121	51	88	8	15	4	820	1	
1 ½	16	724.701.410	134	62	99	8	15	4	1040	1	
2	16	724.701.411	153	78	115	10	18	4	1220	1	
2 ½	16	724.701.412	165	92	127	10	18	4	1400	1	
3	16	724.701.413	184	110	146	10	18	4	1530	1	
4E	16	724.701.415	216	138	178	10	18	8	1840	1	
4D*	16	724.701.414	216	138	178	10	18	4	1840	1	
5	16	724.701.416	254	167	210	10	18	8	2070	1	
6	16	724.701.417	280	200	235	10	22	8	2330	1	
8	10	724.701.419	337	250	292	10	22	8	2750	1	

*Table D 4 holes

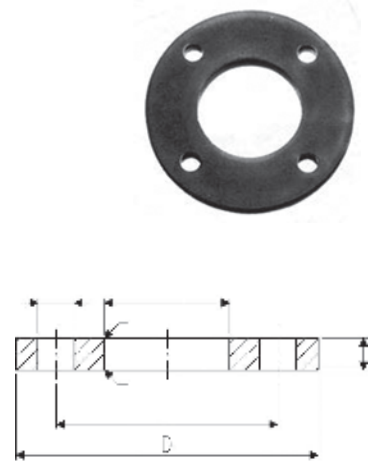


Backing flange

Galvanised mild steel drilled to BS 4504:1969/BS EN 1092 NP 10/16

24.70.16

Size	PN	Code No	D	a	k	b	l	holes	g	SP	GP
½	16	724.701.606	95	28	65	7	14	4	220	1	
¾	16	724.701.607	105	34	75	7	14	4	320	1	
1	16	724.701.608	115	42	85	7	14	4	410	1	
1 ¼	16	724.701.609	140	51	100	8	18	4	820	1	
1 ½	16	724.701.610	150	62	110	8	18	4	1040	1	
2	16	724.701.611	165	78	125	10	18	4	1220	1	
2 ½	16	724.701.612	185	92	145	10	18	4	1400	1	
3	16	724.701.613	200	110	160	10	18	8	1530	1	
4	16	724.701.615	220	138	180	10	18	8	1840	1	
5	16	724.701.616	250	167	210	10	18	8	2070	1	
6	16	724.701.617	285	200	240	10	22	8	2330	1	
8 (NP 10)	10	724.701.620	340	250	295	10	22	8	2750	1	
8 (NP 16)	16	724.701.720	340	250	295	10	22	12	2750	1	

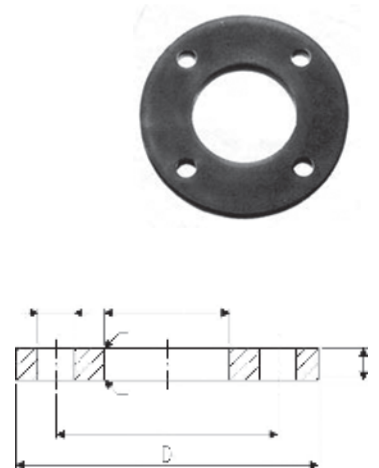


Backing flange

Galvanised mild steel drilled to BS 1560:1958 (ASA 150)

24.70.18

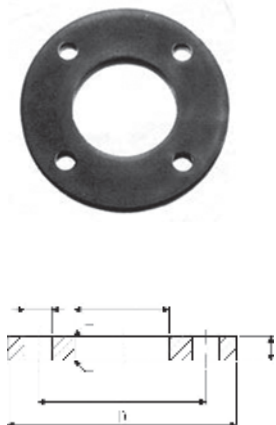
Size	PN	Code No	D	a	k	b	l	holes	g	SP	GP
½	16	724.701.806	89	28	60	7	16	4	220	1	
¾	16	724.701.807	98	34	70	7	16	4	320	1	
1	16	724.701.808	108	42	79	7	16	4	410	1	
1 ¼	16	724.701.809	117	51	89	8	16	4	820	1	
1 ½	16	724.701.810	127	62	98	8	16	4	1040	1	
2	16	724.701.811	152	78	121	10	19	4	1220	1	
2 ½	16	724.701.812	178	92	140	10	19	4	1400	1	
3	16	724.701.813	190	110	152	10	19	4	1530	1	
4	16	724.701.815	229	138	190	10	19	8	1840	1	
5	16	724.701.816	254	167	216	10	22	8	2070	1	
6	16	724.701.817	279	200	241	10	22	8	2330	1	
8	16	724.701.820	343	250	298	10	22	8	2750	1	



PVC-U Plastic Pressure Pipe Systems

Backing Flange

PVC-U ISO/BS 4504 : 1969/BS EN 1092 NP 10/16



Size	PN	Code No	D	a	k	b	L	r	Bolts	g	SP	GP
3/8	10	721.700.005	90	23	60	10	14	1	M 12 x 55	69	90	90
1/2	10	721.700.006	95	28	65	11	14	1	M 12 x 55	69	90	90
3/4	10	721.700.007	105	34	75	12	14	1.5	M 12 x 60	90	50	50
1	10	721.700.008	115	42	85	14	14	1.5	M 12 x 60	127	40	40
1 1/4	10	721.700.009	140	51	100	15	18	2	M 16 x 70	193	25	25
1 1/2	10	721.700.010	150	62	110	16	18	2	M 16 x 75	233	20	20
2	10	721.700.011	165	78	125	18	18	2.5	M 16 x 80	309	30	30
2 1/2	10	721.700.012	185	92	145	19	18	2.5	M 16 x 85	384	27	27
3	10	721.700.013	200	110	160	20	18	3	M 16 x 90	473	20	20
4	10	721.700.014	220	133	180	22	18	3	M 16 x 95	555	30	30
	10	721.700.615	220	138	180	22	18	3	M 16 x 95	555	30	30
5	10	721.700.015	250	150	210	26	18	5	M 16 x 110	892	12	12
	10	721.700.016	250	167	210	26	18	4	M 16 x 110	749	12	12
6	10	721.700.017	285	190	240	28	22	4	M 20 x 120	1004	9	9
	10	721.700.617	285	200	240	28	22	4	M 20 x 120	1004	9	9
8	10	721.700.019	340	226	295	32	22	4	M 20 x 130	1362	8	8
	10	721.700.020	340	250	295	32	22	4	M 20 x 150	1362	8	8
10	6	721.700.137	395	310	350	36	22	4	M 20 x 240	1730	1	1
12	6	721.700.138	445	348	400	36	22	4	M 20 x 260	2350	1	1

PP-V Backing Flange

Butt fusion systems metric

Connection dimensions according to ISO 7005, EN1092, DIN 2501; bolt circle PN10



d	DN	Inch	PN	Code No	D	D1	D2	D3	H	AL	SC	kg
20	15	1/2"	16	727.700.406	95	65	28	14	16	4	M12	0.08
25	20	3/4"	16	727.700.407	105	75	34	14	17	4	M12	0.12
32	25	1"	16	727.700.408	115	85	42	14	18	4	M12	0.15
40	32	1 1/4"	16	727.700.409	140	100	51	18	20	4	M16	0.25
50	40	1 1/2"	16	727.700.410	150	110	62	18	22	4	M16	0.30
63	50	2"	16	727.700.411	165	125	78	18	24	4	M16	0.38
75	65	2 1/2"	16	727.700.412	185	145	92	18	26	4	M16	0.52
90	80	3"	16	727.700.513	200	160	108	18	27	8	M16	0.57
110	100	4"	16	727.700.514	220	180	128	18	28	8	M16	0.67
125	100		16	727.700.515	220	180	135	18	28	8	M16	0.63
140	125	5"	16	727.700.516	250	210	158	18	30	8	M16	0.86
160	150	6"	16	727.700.517	285	241	178	22	32	8	M20	1.20
180	150		16	727.700.518	285	240	188	22	32	8	M20	1.10
200	200		16	727.700.519	340	296.5	235	22	34	8	M20	1.59
225	200	8"	16	727.700.520	340	296.5	238	22	34	8	M20	1.55
250	250		16	727.700.521	395	350	288	22	38	12	M20	2.13
280	250	10"	16	727.700.522	395	350	294	22	38	12	M20	2.02
315	300	12"	16	727.700.523	445	400	338	22	42	12	M20	2.74

Socket Systems Metric

Connection dimensions according to ISO 7005, EN1092, DIN 2501; bolt circle PN10

d	DN	Inch	PN	Code No	D	D1	D2	D3	H	AL	SC	kg
20	15	1/2"	16	727.700.406	95	65	28	14	16	4	M12	0.08
25	20	3/4"	16	727.700.407	105	75	34	14	17	4	M12	0.12
32	25	1"	16	727.700.408	115	85	42	14	18	4	M12	0.15
40	32	1 1/4"	16	727.700.409	140	100	51	18	20	4	M16	0.25
50	40	1 1/2"	16	727.700.410	150	110	62	18	22	4	M16	0.30
63	50	2"	16	727.700.411	165	125	78	18	24	4	M16	0.38
75	65	2 1/2"	16	727.700.412	185	145	92	18	26	4	M16	0.52
90	80	3"	16	727.700.413	200	160	110	18	27	8	M16	0.56
110	100	4"	16	727.700.414	220	180	133	18	28	8	M16	0.65
140	125	5"	16	727.700.416	250	210	167	18	30	8	M16	0.79
160	150	6"	16	727.700.417	285	241	190	22	32	8	M20	1.09
225	200	8"	16	727.700.420	340	296.5	250	22	34	8	M20	1.39
280	250	10"	16	727.700.422	395	350	310	22	38	12	M20	1.71
315	300	12"	16	727.700.423	445	400	348	22	42	12	M20	2.50

PVC-U Plastic Pressure Pipe Systems

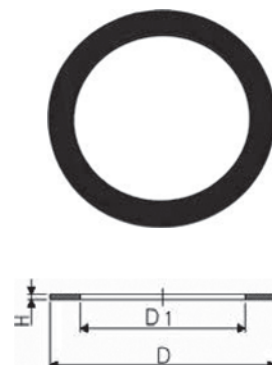
Flat gasket for Adaptor Unions

EPDM

48.40.00

Size		Code No	i	D	b	g	SP	GP
1/4		748.400.004	13	20	2	2	1	
3/8		748.400.005	17	24	2	2	1	
1/2		748.400.006	21	30	3	3	1	
3/4		748.400.007	27	38	3	5	1	
1		748.400.008	32	44	3	8	1	
1 1/4		748.400.009	42	55	3	10	1	
1 1/2		748.400.010	46	62	3	10	1	
2		748.400.011	60	78	3	15	1	
2 1/2		748.400.012	75	97	3	20	1	
3		748.400.013	88	110	3	25	1	

For adaptor unions 21.53.12, 21.53.17, 21.55.12, 21.55.17



Flat gasket for all Flange Adaptors

EPDM

48.40.01

Size		Code No	D	i	b					
3/8		748.400.014	27	16	2					
1/2		748.400.015	32	20	2					
3/4		748.400.016	39	25	2					
1		748.400.017	48	32	2					
1 1/4		748.400.018	59	40	3					
1 1/2		748.400.019	71	50	3					
2		748.400.020	88	63	3					
2 1/2		748.400.021	104	75	3					
3		748.400.022	123	90	3					
4		748.400.023	148	110	4					
		748.400.024	168	125	4					
5		748.400.025	186	140	4					
6		748.400.026	211	160	4					
8		748.400.027	272	220	5					
12		748.400.033	378	305	5					



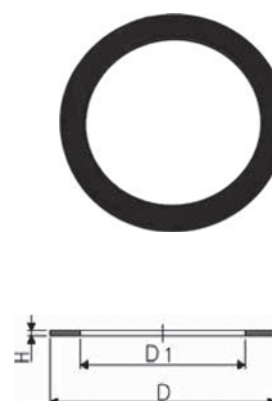
Flat gasket for all Flange Adaptors

FPM

49.40.01

Size		Code No	i	D	b	g	SP	GP
1/2		749.400.015	20	32	2	3	1	
3/4		749.400.016	25	39	2	5	1	
1		749.400.017	32	48	2	8	1	
1 1/4		749.400.018	40	59	3	10	1	
1 1/2		749.400.019	50	71	3	10	1	
2		749.400.020	63	88	3	15	1	
2 1/2		749.400.021	75	104	3	20	1	
3		749.400.022	90	123	3	25	1	
4		749.400.023	110	148	4	50	1	

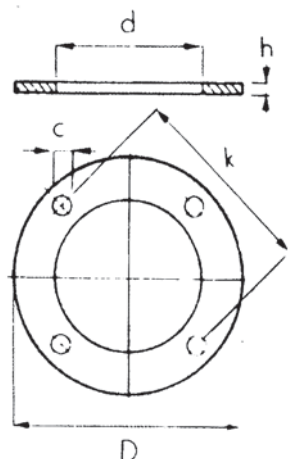
For Flange Adaptor 21.80.11 (sizes 1/2 - 1 1/2) and Flange Adaptor 21.79.11 (sizes 2 - 4)



Flat gasket for Full Face Flanges

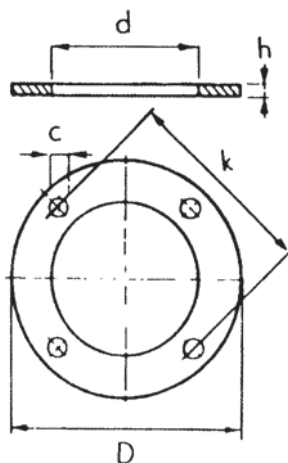
EPDM drilled to BS 10 tables D & E

48.40.10



Size		Code No	D	d	k	c	holes	h	g	SP	GP
1/2		748.401.006	95	17	67	15	4	3	31	1	
3/4		748.401.007	105	22	73	15	4	3	37	1	
1		748.401.008	115	28	83	15	4	3	37	1	
1 1/4		748.401.009	140	36	88	15	4	3	41	1	
1 1/2		748.401.010	150	45	98	15	4	3	55	1	
2		748.401.011	165	58	115	18	4	3	56	1	
3		748.401.013	200	83	146	18	4	3	98	1	
4E		748.401.014	220	109	178	18	8	3	112	1	
4*D		748.401.064	220	109	178	18	4	3	112	1	
6		748.401.017	285	161	235	22	8	3	162	1	

*Table D 4 holes



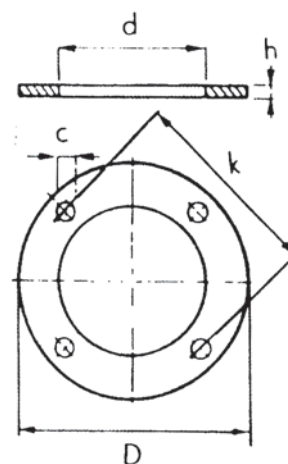
Flat gasket for Full Face Flanges

FPM drilled to BS 10 tables D & E

49.40.10

Size		Code No	D	d	k	c	holes	h	g	SP	GP
1/2		749.401.006	95	17	67	15	4	3	31	1	
3/4		749.401.007	105	22	73	15	4	3	37	1	
1		749.401.008	115	28	83	15	4	3	37	1	
1 1/4		749.401.009	140	36	88	15	4	3	41	1	
1 1/2		749.401.010	150	45	98	15	4	3	55	1	
2		749.401.011	165	58	115	18	4	3	56	1	
3		749.401.013	200	83	146	18	4	3	98	1	
4E		749.401.014	220	109	178	18	8	3	112	1	
4*D		749.401.064	220	109	178	18	4	3	112	1	
6		749.401.017	285	161	235	22	8	3	162	1	

*Table D 4 holes



Flat gasket for Full Face Flanges

EPDM drilled to BS 4504 / BS 1092 NP 10/16

48.40.11

Size		Code No	D	d	k	c	holes	h	g	SP	GP
1/2		748.401.006	95	17	65	14	4	3	31	1	
3/4		748.401.007	105	22	75	14	4	3	37	1	
1		748.401.008	115	28	85	14	4	3	37	1	
1 1/4		748.401.109	140	36	100	18	4	3	41	1	
1 1/2		748.401.110	150	45	110	18	4	3	55	1	
2		748.401.111	165	58	125	18	4	3	56	1	
3		748.401.113	200	83	160	18	8	3	98	1	
4		748.401.114	220	109	180	18	8	3	112	1	
6		748.401.117	285	161	240	22	8	3	162	1	

PVC-U Plastic Pressure Pipe Systems

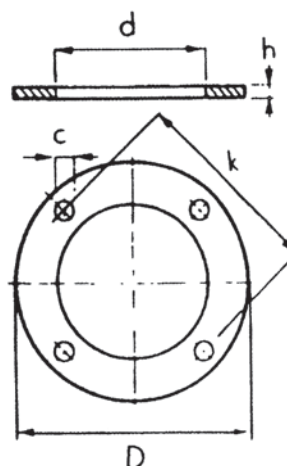
Flat gasket for Full Face Flanges

FPM drilled to BS 4504 / BS EN 1092 NP 10/16

49.40.11

Size		Code No	D	d	k	c	holes	h	g	SP	GP
1/2		749.401.006	95	17	65	14	4	3	31	1	
3/4		749.401.007	105	22	75	14	4	3	37	1	
1		749.401.008	115	28	85	14	4	3	37	1	
1 1/4		749.401.109	140	36	100	18	4	3	41	1	
1 1/2		749.401.110	150	45	110	18	4	3	55	1	
2		749.401.111	165	58	125	18	4	3	56	1	
3		749.401.113	200	83	160	18	8	3	98	1	
4		749.401.014	220	109	180	18	8	3	112	1	
6		749.401.117	285	161	240	22	8	3	162	1	

All flat gaskets for full face flanges are manufactured with outside Diameter to BS 4504



Flat gasket for Full Face Flanges

EPDM drilled to BS 1560:1958 (ASA 150)

48.40.12

Size		Code No	D	d	k	c	holes	h	g	SP	GP
1/2		748.401.206	95	17	60	16	4	3	31	1	
3/4		748.401.207	105	22	70	16	4	3	37	1	
1		748.401.208	115	28	79	16	4	3	37	1	
1 1/4		748.401.009	140	36	89	16	4	3	41	1	
1 1/2		748.401.010	150	45	98	16	4	3	55	1	
2		748.401.211	165	58	121	19	4	3	56	1	
3		748.401.213	200	83	152	19	4	3	98	1	
4		748.401.214	220	109	190	19	8	3	112	1	
6		748.401.117	285	161	241	22	8	3	162	1	

Flat gasket for Full Face Flanges

FPM drilled to BS 1560:1958 (ASA 150)

49.40.12

Size		Code No	D	d	k	c	holes	h	g	SP	GP
1/2		749.401.206	95	17	60	16	4	3	31	1	
3/4		749.401.207	105	22	70	16	4	3	37	1	
1		749.401.208	115	28	79	16	4	3	37	1	
1 1/4		749.401.009	140	36	89	16	4	3	41	1	
1 1/2		749.401.010	150	45	98	16	4	3	55	1	
2		749.401.211	165	58	121	19	4	3	56	1	
3		749.401.213	200	83	152	19	4	3	98	1	
4		749.401.214	220	109	190	19	8	3	112	1	
6		749.401.217	285	161	241	22	8	3	162	1	

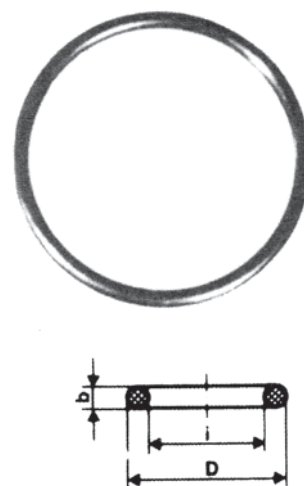
O-ring gasket

EPDM

48.41.00

Size		Code No	i	D	b	g	SP	GP
3/8		748.410.005	15.5	20.8	2.6	2	1	
1/2		748.410.006	20.2	27.3	3.5	2	1	
3/4		748.410.007	28.2	35.2	3.5	3	1	
1		748.410.008	32.9	40.0	3.5	3	1	
1 1/4		748.410.009	40.6	51.3	5.3	5	1	
1 1/2		748.410.010	47.0	57.7	5.3	8	1	
2		748.410.011	59.7	70.4	5.3	8	1	

For unions and adaptor unions 21.51.11, 21.51.06, 21.51.31, 21.51.12 and 21.51.02



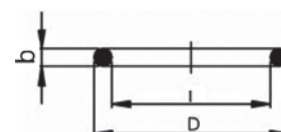
O-ring gasket

FPM

49.41.00

Size		Code No	i	D	b	g	SP	GP
3/8		749.410.005	15.5	20.8	2.6	2	1	
1/2		749.410.006	20.2	27.3	3.5	2	1	
3/4		749.410.007	28.2	35.2	3.5	3	1	
1		749.410.008	32.9	40.0	3.5	3	1	
1 1/4		749.410.009	40.6	51.3	5.3	5	1	
1 1/2		749.410.010	47.0	57.7	5.3	8	1	
2		749.410.011	59.7	70.4	5.3	8	1	

For unions and adaptor unions 21.51.11, 21.51.06, 21.51.31, 21.51.12, and 21.51.02



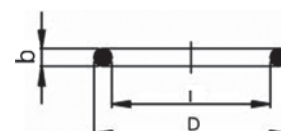
O-ring gasket

EFPM

48.41.11

Size		Code No	i	D	b	g	SP	GP
1/2		748.410.001	23.4	30.5	3.5	2	1	
3/4		748.410.007	28.2	35.2	3.5	3	1	
1		748.410.002	36.1	43.2	3.5	3	1	
1 1/4		748.410.003	43.8	54.5	5.3	5	1	
1 1/2		748.410.012	53.3	64.0	5.3	8	1	
2		748.410.013	69.2	79.9	5.3	8	1	
2 1/2		748.410.014	81.9	92.6	5.3	9	1	
3		748.410.015	101.0	111.6	5.3	10	1	
4		748.410.020	126.4	140.4	7.0	20	1	
5		748.410.018	151.8	165.8	7.0	30	1	
6		748.410.021	189.9	203.9	7.0	50	1	
8		748.410.022	240.7	254.7	7.0	80	1	

For Flange Adaptor 21.81.11



O-ring gasket

FPM

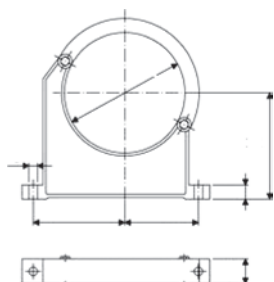
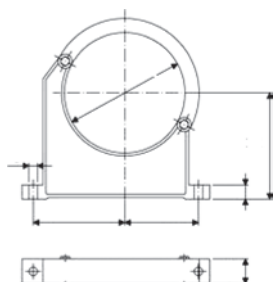
49.41.11

Size		Code No	i	D	b	g	SP	GP
1/2		749.410.001	23.4	30.5	3.5	2	1	
3/4		749.410.007	28.2	35.2	3.5	3	1	
1		749.410.002	36.1	43.2	3.5	3	1	
1 1/4		749.410.003	43.8	54.5	5.3	5	1	
1 1/2		749.410.012	53.3	64.0	5.3	8	1	
2		749.410.013	69.9	79.9	5.3	8	1	
2 1/2		749.410.014	81.9	92.6	5.3	9	1	
3		749.410.015	101.0	111.6	5.3	10	1	
4		749.410.020	126.4	140.4	7.0	20	1	
5		749.410.018	151.8	165.8	7.0	30	1	
6		749.410.021	189.9	203.9	7.0	50	1	
8		749.410.022	240.7	254.7	7.0	80	1	

For Flange Adaptor 21.81.11



Pipe Bracket



d 10-32 (1")



d 40-75 (1 1/4 - 2 1/4")

Pipe Clips, PP, Type 060 for mm pipes

Size	Code No	b	c	e	h	h1	d1	kg	SC	SP	SP
90	167.060.038	32.5	89	71	105	15	9	0.163	M 8	10	
110	167.060.039	32.5	94	79.5	115	15	9	0.179	M 8	10	
125	167.060.040	35	115.5	91	130	20	11	0.300	M 10	10	
140	167.060.041	35	120.5	97.5	130	20	11	0.309	M 10	10	
160	167.060.042	35	130.5	106.5	147.5	25	11	0.348	M 10	10	
200	167.060.019	39	151.5	119.5	175	25	13	0.582	M 12	5	
225	167.060.020	39	164.5	131.5	175	25	13	0.612	M 12	5	
250	167.060.021	39	182.5	142.5	200	25	13	0.698	M 12	5	
280	167.060.022	39	197.5	155.5	200	25	13	0.722	M 12	5	
315	167.060.023	39	218.5	171.5	225	25	13	0.842	M 12	5	

Pipe Clips, PP, Type 060 for inch pipes

Size	Code No	b	c	e	h	h1	d1	kg	SC	SP	SP
3	167.060.038	32.5	89	71	105	15	9	0.163	M 8	10	
4	167.060.039	32.5	94	79.5	115	15	9	0.179	M 8	10	
6	167.060.042	35	130.5	106.5	147.5	25	11	0.348	M 10	10	
8	167.060.020	39	164.5	131.5	175	25	13	0.612	M 12	5	

Pipe Clips for all inch pipes

Size	Code No	b	c	e	h	h1	k	l	m	SP	GP
1/4	165.101.201	11	19	8.5	10	15.5	18	13	2.5		
3/8	165.101.251	14	21	8.5	12.5	15.5	18	13	2.5		
1/2	165.101.301	16	24	8.5	15	17	19	13	2.5		
3/4	165.101.351	19	28	11	18.5	19	22	15	2.5		
1	165.101.401	23	34	11	22.5	20	23	15	2.5		
1 1/4	165.101.451	28	40	11	27	21.5	24	15	2.5		
1 1/2	165.101.501	32	45	12	32	23.5	32	23	2.5		
2	165.101.551	39	52	13	39	25	32	23	2.5		

Pipe Clips for all inch pipes

Size	Code No	d1	d2	L1	L2	H	H1	H2	B	SC	SP	GP
1/4	167.061.054	4.5	8.3	11	13.5	21	6	10	12	M5	10	
3/8	167.061.055	5.5	10.5	14	16.5	23	6	10	16	M5	10	
1/2	167.061.056	5.5	10.5	16.5	19	25	6	10	16	M5	10	
3/4	167.061.007	5.5	10.5	19	21.5	27.5	6	10	16	M5	10	
1	167.061.058	5.5	10.5	24	26.5	31	6	10	16	M5	10	
1 1/4	167.061.059	6.5	14	33.5	33.5	35	6.5	10	22	M6	10	
1 1/2	167.061.050	6.5	14	37	37	40	6.5	10	22	M6	10	
2	167.061.051	8.5	17	44.5	44.5	51.5	10	10	25	M8	10	
2 1/2	167.061.012	8.5	17	52	52	57.5	10	10	25	M8	10	

Tools & Brushes (Accessories and special parts)

Chamfering Tool

Size		Code No		SP	GP
Size 1 16 - 75mm		799.495.145			
Size 2 32 - 250mm		799.495.146			



Plastic Pipe Cutter KRT 250

Size		Code No	g		SP	GP
110 - 250		790.201.001	29.000		1	
110 - 250		790.201.002	29.000		1	
110 - 250		790.201.003	29.000		1	



Pipe Cutter

Size		Code No	g	type	e max	SP	GP
10 - 63		790.109.001	710	KRA 63	7.2 mm	1	
50 - 110		790.101.002	1390	KRA 110	12.7 mm	1	
110 - 160		790.101.003	1880	KRA 160	12.7 mm	1	



Round Brushes

Size		Code No		SP	GP
4mm (for fittings 6-10mm)		799.299.001			
8mm (for fittings 12-32mm)		799.299.002			



Flat Brushes

Size		Code No		SP	GP
25x3mm (for fittings 40 - 63 mm)		799.299.003			
50x5mm (for fittings 75 - 225mm)		799.299.004			
75x6mm (for fittings 250 315mm)		799.299.005			

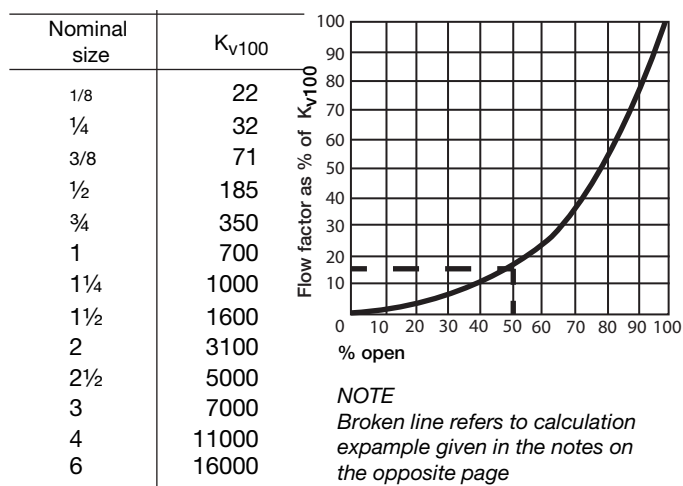


FLOW VALUES AND CHARACTERISTICS

BALL VALVES 353, 354, 355, 346

Manual Types 370

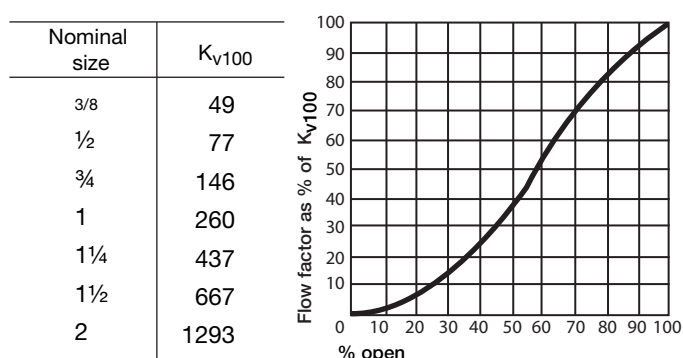
Actuated Types 106, 107, 108, 111, 130, 208, 220, 230



L - PORT VALVES

Manual Types 370

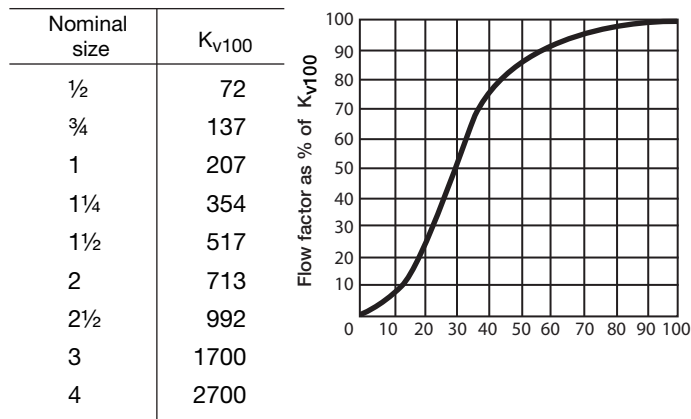
Manual type 343, Actuated Type 106, 115



DIAPHRAGM VALVES

Manual types 314, 315, 317

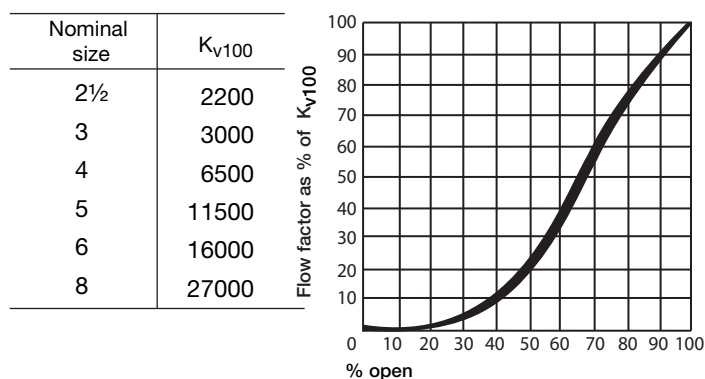
Actuated Types 018, 025, 028



BUTTERFLY VALVES

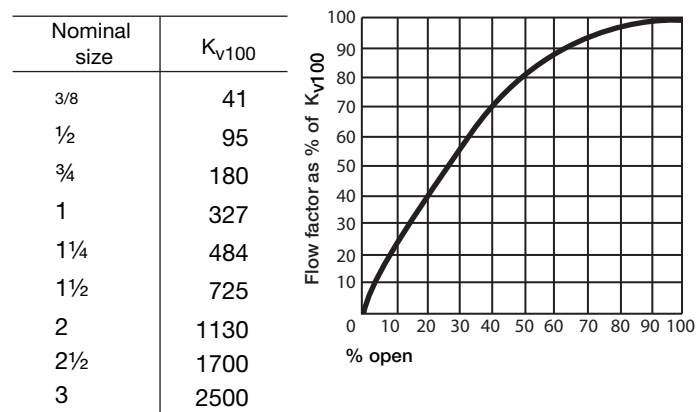
Manual Types 367, 567

Actuated Types 140, 240



ANGLE SEAT VALVES

Type 300



NON-RETURN BALL

(check)

VALVE Type 360

Nominal size	K _{v100}
3/8	68
1/2	118
3/4	220
1	250
1 1/4	422
1 1/2	680
2	880
3	1200

NON-RETURN BALL

ANGLE SEAT

(check) VALVE

Type 303

Nominal size	K _{v100}
3/8	41
1/2	95
3/4	180
1	327
1 1/4	484
1 1/2	725
2	1130
2 1/2	1700
3	-

Flow values for solenoid valves, pneumatically actuated angle seat valves, metering ball valve Type 323 and the line strainer. Type 305 may be found on the data pages for those components.

PVC-U Plastic Pressure Pipe Systems

The flow value or k_v factor is a convenient means of calculating flow rates in hydraulics. It allows for all internal resistances and for practical purposes is regarded as reliable. The k_v factor is defined as the flow rate of water (specific gravity = 1) in litres per minute with a pressure drop of 1 kg/cm² across the valve.

The relationship between k_v factor, flow rate (Q) and pressure drop (Δp) is given in the following formula.

$$k_v = Q \sqrt{\frac{\gamma}{\Delta p}} \text{ or } Q = k_v \sqrt{\frac{\Delta p}{\gamma}}$$

Where Q = flow rate in litres per minute
 = specific gravity of liquid in kg/dm³
 Δp = pressure drop in kg/cm²

Where there are several flow factors in series, the resultant k_v factor is

$$\frac{1}{k_{v_x}^2} = \frac{1}{k_{v_1}^2} + \frac{1}{k_{v_2}^2} + \frac{1}{k_{v_3}^2} + \dots + \frac{1}{k_{v_n}^2}$$

Where the flow factors are in parallel, the resultant k_v factor is

$$k_{v_x} = k_{v_1} + k_{v_2} + k_{v_3} + \dots + k_{v_n}$$

The k_v factor for +GF+ plastics valves are given in the tables on the opposite page. The designation k_{v100} denotes the factor for a valve in the fully (i.e. 100%) open position. The k_v factor for valves in any other position can be determined from the adjacent graphs.

Example

The table for ball valves show that the k_{v100} factor for a 1½" valve is 1000. The graph shows that the factor for the same valve when only half (i.e. 50%) open is 15% of the factor when it is in the fully open position.

$$\text{Thus } k_{v50} = 15\% \text{ of } 1000 = 150$$

In these notes all references are in metric (k_v) units. For imperial (f) or American (C_v) units the following conversion may be used.

FLOW VALUE CONVERSION TABLE			
	K_v	C_v	f
K_v	1	14.28	17.09
C_v	0.07	1	1.1966
f	0.0585	0.8357	1

K_v = metric units in litres/min, kg/cm²

f = imperial units in galls/min, lb/in²

C_v = American units in US galls/min, lb/in²

Examples of typical calculations

EXAMPLE 1

What size angle seat valve is required to handle 250 litres per minute of water assuming that the maximum acceptable pressure drop is given as 0.3 kg/cm²

Given flow rate Q = 250 litres/min
 Specific gravity γ = 1 kg/dm³
 Pressure drop Δp = 0.3 kg/cm²
 Flow value k_{v100} = ?

$$K_{v100} = Q \sqrt{\frac{\gamma}{\Delta p}}$$

$$= 250 \sqrt{\frac{1}{0.3}}$$

$$K_{v100} \quad \underline{456}$$

(or, from the nomograph overleaf, 450)

The k_v table for angle seat valves gives a k_{v100} factor of 327 for size 1". 484 for size 1¼" and 725 for size 1½"

In this example the correct size to use is 1¼"

EXAMPLE 2

Part 1

What is the k_v factor for a 1¼" water pipeline with a flow of 300 litres/min, an inlet pressure of 0.5 bar and an outlet pressure of 0 bar?

Part 2

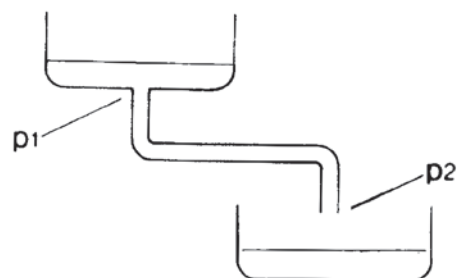
If a valve has to be fitted and the minimum acceptable flow rate in the pipeline is 250 litres/min, which type of valve should be used?

Part 3

Having established which type of valve should be used, what will be the true flow rate of the system?

Solution to Part 1

Calculate the k_v for the pipeline (k_{vp}).



continued overleaf

Given $Q = 300$ litres/min
 $\gamma = 1 \text{ kg/dm}^3$
 $\Delta p = p_1 - p_2 = 0.5 - 0 = 0.5 \text{ kg/cm}^2$
 $k_{vp} = ?$

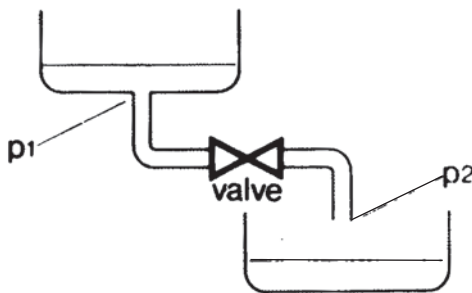
$$k_{vp} = Q \sqrt{\frac{\gamma}{\Delta p}}$$

$$= 300 \sqrt{\frac{1}{0.5}}$$

$$k_{vp} = \underline{424}$$

Solution to Part 2

First it is necessary to calculate the k_v factor for the total system (k_{vt})



Given $Q = 250$ litres/min
 $\gamma = 1 \text{ kg/dm}^3$
 $\Delta p = p_1 - p_2 = 0.5 - 0 = 0.5 \text{ kg/cm}^2$
 $k_{vt} = ?$

$$k_{vt} = Q \sqrt{\frac{1}{\Delta p}}$$

$$= 250 \sqrt{\frac{1}{0.5}}$$

$$k_{vt} = \underline{354}$$

The k_v factor for the valve (k_{vv}) can now be established by subtracting the k_v factor for the pipeline (k_{vp}) from the k_v factor for the total system (k_{vt}). For this purpose, the formula for calculating flow factors in series should be used, which is

$$\frac{1}{k_v^2} = \frac{1}{k_v^2_1} + \frac{1}{k_v^2_2} + \dots + \frac{1}{k_v^2_n}$$

$$\text{thus } \frac{1}{k_v^2_t} = \frac{1}{k_v^2_v} + \frac{1}{k_v^2_p}$$

$$\therefore \frac{1}{k_v^2_v} = \frac{1}{k_v^2_t} - \frac{1}{k_v^2_p}$$

$$k_v^2_v = \frac{1}{354^2} - \frac{1}{424^2}$$

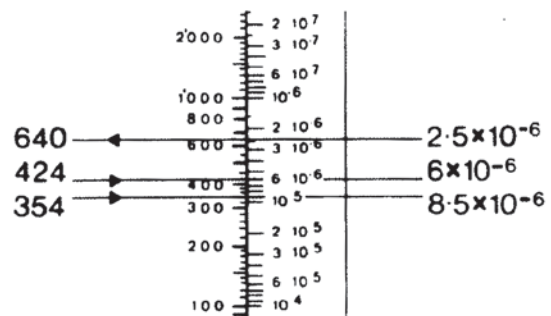
$$= 7.98 \times 10^{-6} - 5.56 \times 10^{-6}$$

$$= 2.42 \times 10^{-6}$$

$$\therefore k_{vv} = \sqrt{\frac{1}{2.42 \times 10^{-6}}}$$

$$= \underline{643}$$

In this example, the k_v factor for the valve has been determined by calculation. It may also be found by the simpler method of reading off the nomograph on the opposite page.



$$\frac{1}{k_v^2_v} = \frac{1}{354^2} - \frac{1}{424^2}$$

$$= 8.5 \times 10^{-6} - 6 \times 10^{-6}$$

$$= 2.5 \times 10^{-6}$$

$$\therefore k_{vv} = \underline{640}$$

The calculation shows that the valve used must be one with a minimum k_{v100} factor of 640.

From the k_v tables it can be seen that a 1¼" ball valve has a k_{v100} factor of 1000, a 1¼" angle seat valve has a k_{v100} factor of 484 and a 1¼" diaphragm valve a k_{v100} factor of 332.

Therefore only 1¼" ball valve can be used

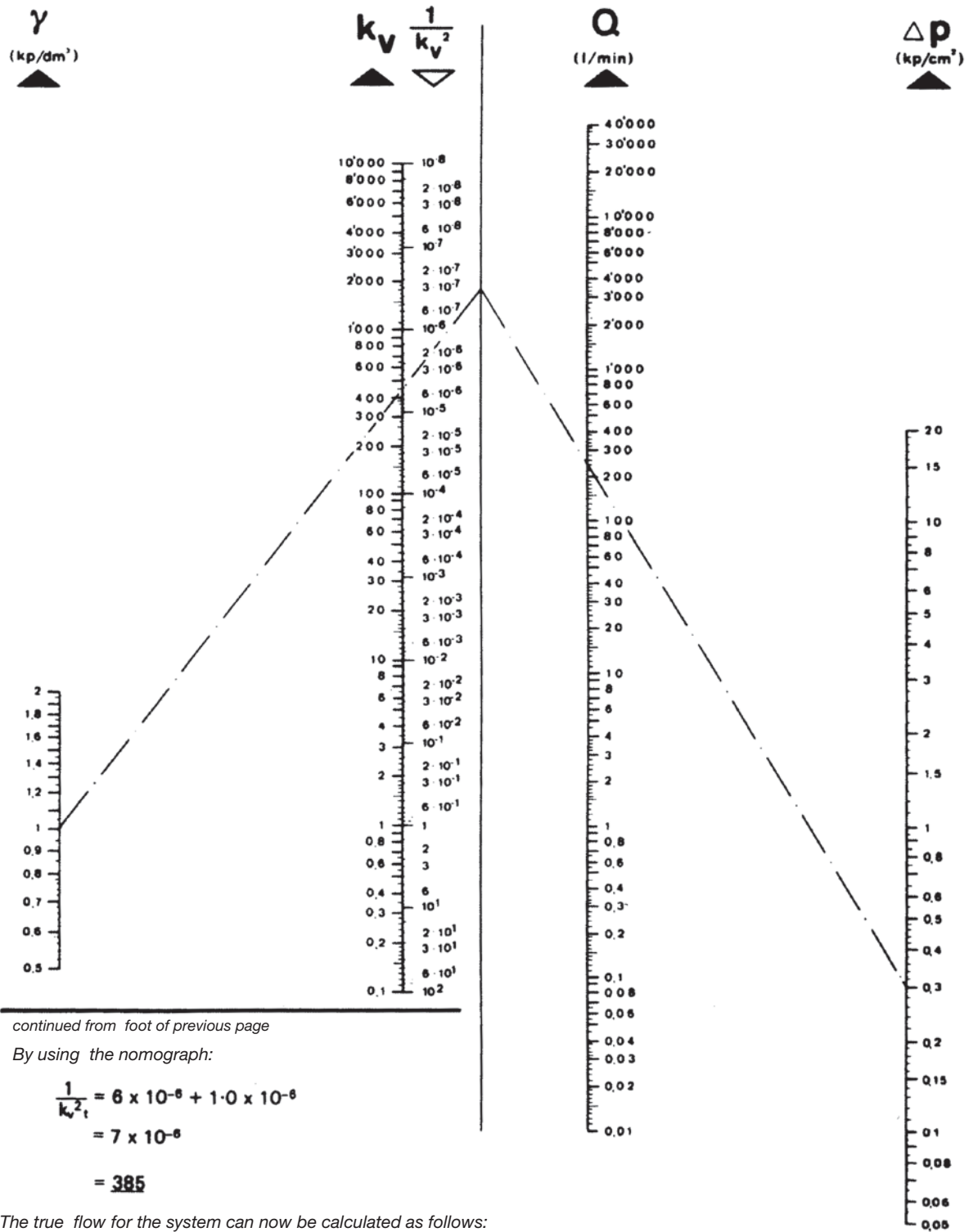
Solution to Part 3

First, calculate the k_v factor for the pipeline with the 1¼" ball valve installed.

$$\frac{1}{k_v^2_t} = \frac{1}{k_v^2_p} + \frac{1}{k_v^2_{(ball\ valve)}} = \frac{1}{424^2} + \frac{1}{1000^2}$$

continued at foot of next page

NOMOGRAPH



PVC-U Plastic Pressure Pipe Systems

NOTES

PVC-U Plastic Pressure Pipe Systems

NOTES

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