SUPERIOR

Valve Technical Catalogue

SUPERIOR PIPELINE FITTINGS LTD

SPF

SUPERIOR PIPELINE FITTINGS

Butterfly Valve

EN 593 / MSS SP-67 ◊ WAFER Type

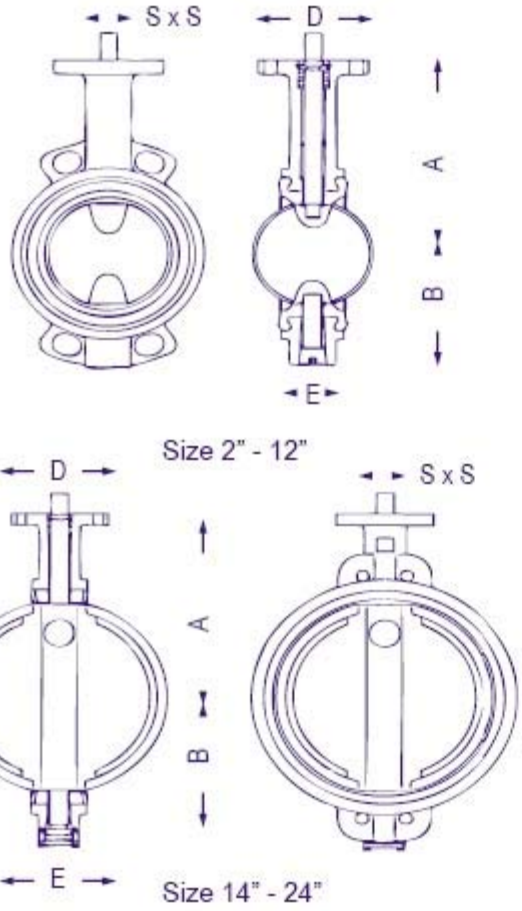


Figure Number

SV1E	Stainless Steel Disc, EPDM Liner
SV1N	Stainless Steel Disc, NBR Liner
SV2E	Bronze Disc, EPDM Liner
SV2N	Bronze Disc, NBR Liner
SV3E	DI Disc, Chrome or Nickel plated, EPDM Liner
SV3N	DI Disc, Chrome or Nickel plated, NBR Liner

Pressure and Temperature

Nominal Pressure	DN50-DN300 : 16 Bar DN350-DN600 : 10 Bar
	2"-12": 200psi 14"-24:150psi
Working Temperature	EPDM: -10˚C to 120 ˚C NBR : -10˚C to 82 ˚C

Materials List

Part Name	Materials	ASTM Spec.	BS Spec.
Body	Cast Iron	A126 Class B	EN-JL1040
Shaft	Stainless Steel	ASI416	970 416S21
Disc	Stainless Steel	A351 CF8M	970 316S16
	Cast Bonze	B62 C83600	1400LG2
	Ductile Iron	A536 65-45-12	EN-JS1050
Bushing	PTFE	Commercial	Commercial
Liner	EPDM/NBR	Commercial	Commercial
O-Ring	EPDM/NBR	Commercial	Commercial

Dimensions (Inch / mm)

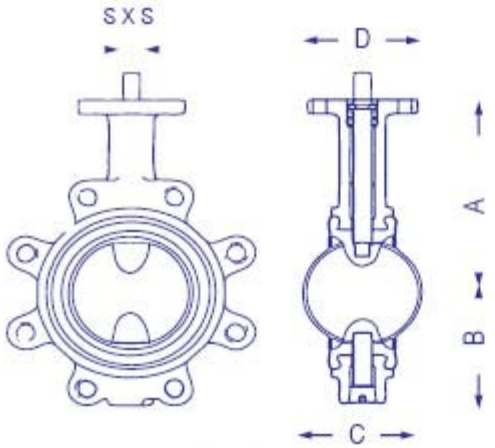
Size	2" (50)	2.5" (65)	3" (80)	4" (100)	5" (125)	6" (150)	8" (200)	10" (250)	12" (300)	14" (350)	16" (400)	18" (450)	20" (500)	24" (600)
A	6-1/3 (161)	6-7/8 (175)	7-1/8 (181)	7-7/8 (200)	8-7/16 (215)	8-7/8 (225)	9/-1/2 (241)	11-5/8 (296)	13-1/4 (336)	14-1/2 (368)	15-3/4 (400)	16-5/8 (422)	18-7/8 (480)	22-18 (562)
B	3-1/8 (80)	3-9/16 (91)	3-3/4 (95)	4-1/2 (115)	5-1/4 (134)	5-7/16 (138)	6-7/8 (174)	7-13/16 (198)	9-3/16 (234)	11 (280)	12-3/16 (310)	13-3/8 (340)	15-1/4 (388)	17-11/16 (450)
D	3-9/16 (90)	3-9-16 (90)	3-9/16 (90)	3-9/16 (90)	3-9/16 (90)	3-9/16 (90)	4-15/16 (125)	4-15/16 (125)	4-15/16 (125)	5-15/16 (150)	6-7/8 (175)	6-7/8 (175)	8-1/4 (210)	8-1/4 (210)
E	1-11/16 (43)	1-3/4 (45)	1-13/16 (46)	2-1/16 (51.5)	2-3/16 (56)	2-1/4 (56.5)	2-3/8 (60)	2-11/16 (68.5)	3-1/8 (79.5)	3-1/16 (78)	3-1/2 (88)	4-5/16 (109)	5 (127)	6-1/16 (154)
S x S	7/16x7/16 (11 x 11)			9/16 x 9/16 (14 x 14)		43/64x43/64 (17 x 17)		7/8 x 7/8 (22 x 22)			1-1/16x1-1/16 (27 x 27)		1-57/64 (ϕ48)	

Notes :

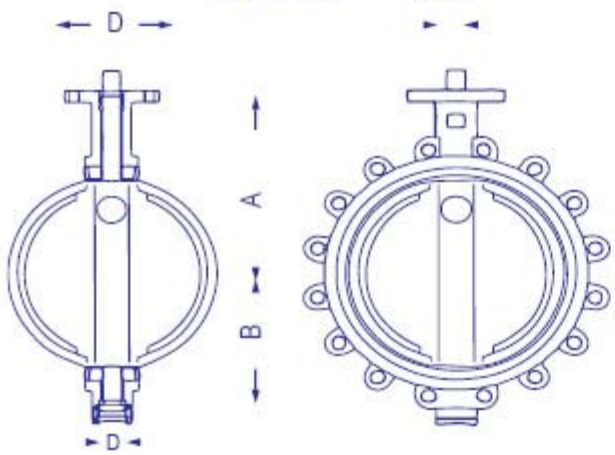
1) Designed and Tested in Accordance with EN593 or MSS SP-67.
2) Bolt Circle dimension comply with EN1092-2PN10/16, ANSI 125 Flanges, Other flange types are available
3) Top flange conforms to ISO5211/1.

Butterfly Valve

EN 593 / MSS SP-67 ◊ Lug Type



Size 2" - 12"



Size 14" - 24"

Figure Number

SV4E	Stainless Steel Disc, EPDM Liner
SV4N	Stainless Steel Disc, NBR Liner
SV5E	Bronze Disc, EPDM Liner
SV5N	Bronze Disc, NBR Liner
SV6E	DI Disc, Chrome or Nickel plated, EPDM Liner
SV6N	DI Disc, Chrome or Nickel plated, NBR Liner

Pressure and Temperature

Nominal Pressure	DN50-DN300 : 16 Bar DN350-DN600 : 10 Bar
	2"-12": 200psi 14"-24:150psi
Working Temperature	EPDM: -10˚C to 120 ˚C NBR : -10˚C to 82 ˚C

Materials List

Part Name	Materials	ASTM Spec.	BS Spec.
Body	Cast Iron	A126 Class B	EN-JL1040
Shaft	Stainless Steel	ASI416	970 416S21
Disc	Stainless Steel	A351 CF8M	970 316S16
	Cast Bonze	B62 C83600	1400LG2
	Ductile Iron	A536 65-45-12	EN-JS1050
Bushing	PTFE	Commercial	Commercial
Liner	EPDM/NBR	Commercial	Commercial
O-Ring	EPDM/NBR	Commercial	Commercial

Dimensions (Inch / mm)

Size	2" (50)	2-1/2" (65)	3" (80)	4" (100)	5" (125)	6" (150)	8" (200)	10" (250)	12" (300)	14" (350)	16" (400)	18" (450)	20" (500)	24" (600)
A	5-1/2 (140)	6 (152)	6-5/16 (160)	7-1/16 (180)	7-1/2 (191)	7-15/16 (202)	9/-1/2 (241)	10-13/16 (274)	12-3/8 (315)	14-1/2 (368)	15-3/4 (400)	16-5/8 (422)	18-7/8 (480)	22-18 (562)
B	2-11/16 (68)	3 (76)	3-3/8 (85)	3-15/16 (100)	4-3/4 (120)	5-3/16 (132)	6-5/16 (160)	7-7/8 (200)	9-1/16 (230)	11 (280)	12-3/16 (310)	13-3/8 (340)	15-1/4 (388)	17-3/4 (450)
D	3-9/16 (90)	3-9-16 (90)	3-9/16 (90)	3-9/16 (90)	3-9/16 (90)	3-9/16 (90)	4-15/16 (125)	4-15/16 (125)	4-15/16 (125)	5-15/16 (150)	6-7/8 (175)	6-7/8 (175)	8-1/4 (210)	8-1/4 (210)
E	1-11/16 (43)	1-3/4 (45)	1-13/16 (46)	2-1/16 (51.5)	2-3/16 (56)	2-1/4 (56.5)	2-3/8 (60)	2-11/16 (68.5)	3-1/8 (79.5)	3-1/16 (78)	3-1/2 (88)	4-5/16 (109)	5 (127)	6-1/16 (154)
S x S	7/16x7/16 (11 x 11)			9/16 x 9/16 (14 x 14)		43/64x43/64 (17 x 17)		7/8 x 7/8 (22 x 22)			1-1/16x1-1/16 (27 x 27)		1-57/64 (ϕ48)	

Notes :

1.) Designed and Tested in Accordance with EN593 or MSS SP-67.

2.) Bolt Circle dimension comply with EN1092-2PN10/16, ANSI 125 Flanges, Other flange types are available

3.) Top flange conforms to ISO5211/1.

Flanged End Butterfly Valve

AWWA C504

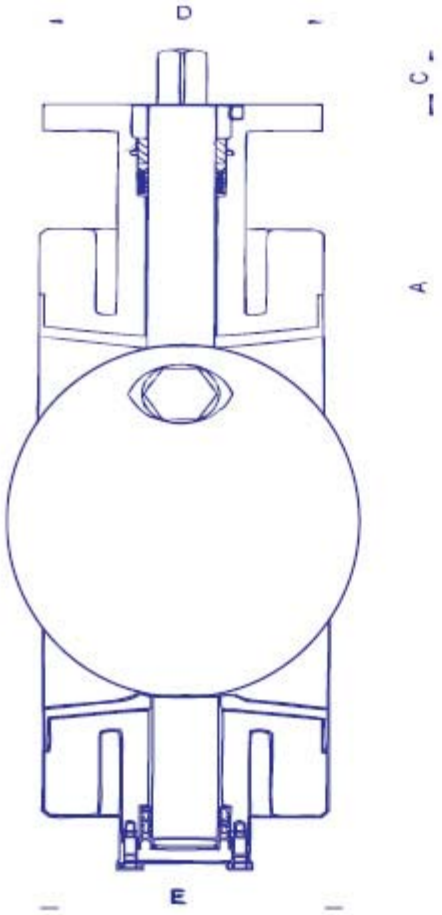


Figure Number

SV7E	Stainless Steel Disc, EPDM Seat
SV7N	Stainless Steel Disc, NBR Seat
SV8E	Ductile Iron Disc, EPDM Seat
SV8N	Ductile Iron Disc, NBR Seat

Pressure and Temperature

Nominal Pressure	150psi
Working Temperature	EPDM: -10˚C to 120 ˚C NBR : -10˚C to 82 ˚C

Materials List

Part Name	Materials	ASTM Spec.
Body	Cast Iron	A126 Class B
Seat	EPDM/NBR	Commercial
Disc	Stainless Steel	A351 CF8M
	DI with SS316 edge	A536 65-45-12
Stem	Stainless Steel	AISI 420
V-Packing	EPDM/NBR	Commercial
Cover Plate	Ductile Iron	A536 65-45-12

Dimensions (Inch / mm)

Size	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
A	6-5/16 (160)	7-1/16 (179)	8-3/8 (213)	9-5/8 (245)	10-15/16 (277)	12-1/2 (318)	14-1/16 (357)	16-1/16 (408)	17-1/4 (438)	18-9/16 (472)	22-9/16 (573)
C	1-3/16 (30)	1-3/16 (30)	1-3/16 (30)	1-3/16 (30)	1-3/16 (30)	1-3/16 (30)	1-3/4 (45)	1-3/4 (45)	1-3/4 (45)	1-3/4 (45)	1-3/4 (45)
D	3-9/16 (90)	3-9-16 (90)	4-15/16 (125)	4-15/16 (125)	4-15/16 (125)	4-15/16 (125)	5-15/16 (150)	6-7/8 (175)	6-7/8 (175)	8-5/16 (210)	8-5/16 (210)
E	5 (127)	5 (127)	5 (127)	6 (152)	8 (203)	8 (203)	8 (203)	8 (203)	8 (203)	8 (203)	8 (203)

Notes :

1.) Designed and Manufactured to AWWA C504.
2.) Flanges comply with ANSIB16.1 Class 125.Other flange types are available
3.) Top flange conforms to ISO5211.
4.) Valve may be operated by lever handle or gear operator.
5.) Ductile iron body valves are rated at 250PSI with flanges drilled to ANSI B16.2 Class 250.

Butterfly Valve

EN 593 Rubber Seat Double Eccentric ◊ Gear Operated

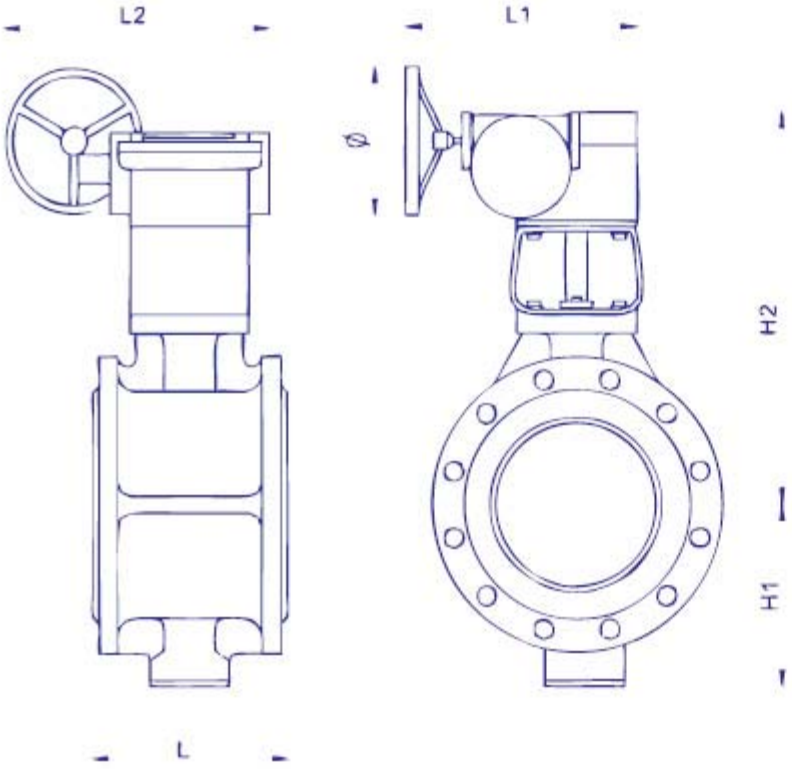


Figure Number

SV9 SS/DI/AL Bronze /Duplex SS
SV10 SS/DI/AL Bronze /Duplex SS

Pressure and Temperature

Nominal Pressure	DN100-DN2000 : 16 Bar DN100-DN1000: 10 Bar
Working Temperature	EPDM: -10˚C to 120 ˚C

Materials List

Part Name	Materials	BS Spec.
Body	Ductile Iron GGG40/50/450-10	
Stem	970316S21/416S21	
Disc	DI/SS/ALU BR/DUPLEX SS	
Seat	EPDM	Commercial
O-Ring	EPDM	Commercial

Dimensions (mm)

Size	100	150	200	250	300	350	400	450	500	600
L	190	210	230	250	270	290	310	330	350	390
L1	164	164	268	268	289	289	420	420	460	520
L2	136	136	268	268	289	435	435	545	545	545
ø	180	180	300	300	300	300	300	300	400	400
H1	115	143	233	243	245	253	325	355	368	419
H2	262	287	302	328	339	357	598	629	665	750
Size	700	800	900	1000	1200	1400	1600	1800	200	
L	430	470	510	550	630	710	790	870	950	
L1	580	580	660	660	713	713	713	1089	1089	
L2	638	638	716	716	1050	1050	1050	1270	1270	
ø	450	450	500	500	550	550	550	550	550	
H1	508	560	637	707	955	991	112	1426	1486	
H2	816	900	1010	1140	1153	1288	1418	2044	2115	

Notes :

1.) Designed and Tested in Accordance with EN593.

2.) Flanges comply with EN1092 PN10/PN16 or ANSI B16.1 Class 125.

Resilient-Seated Gate Valve

BS5163 Type A&B /DIN3352/AWWA C509

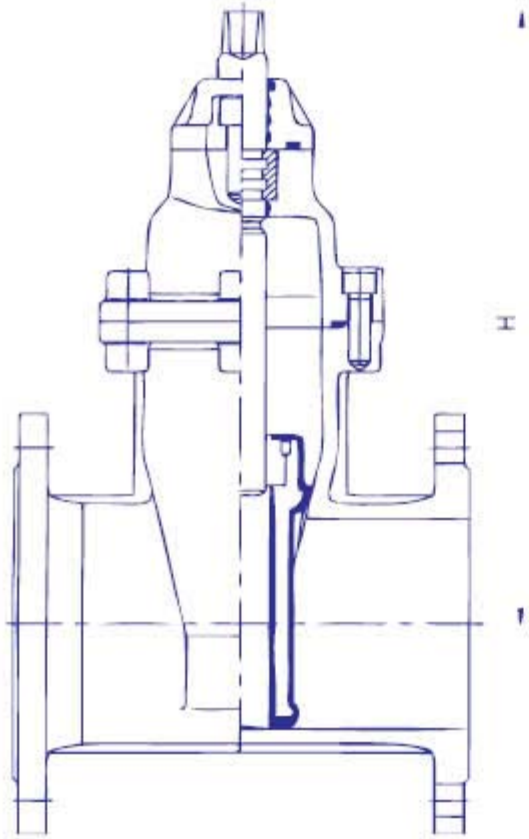


Figure Number

SV11	Conforms to BS5163 Type A& B
SV12	Conforms to DIN3352, DI3202-1 F4
SV13	Conforms to DIN3352, DI3202-1 F5
SV14	Conforms to AWWA C509

Pressure and Temperature

Nominal Pressure	200psi / 16 bar
Working Temperature	-10˚C to 82 ˚C

Materials List

Part Name	Materials	ASTM Spec.	BS Spec.
Body	Ductile Iron	A536 65-45-12	EN-JS1050
Bonnet	Ductile Iron	A536 65-45-12	EN-JS1050
Wedge	DI with EPDM Encapsulated	A536 65-45-12	EN-JS1050
Thrust Collar	Brass	B16 C36000	2874 CZ 124
Stem Nut	Brass	B16 C36000	2874 CZ 124
Stem	Stainless Steel	ANSI 420	970 420S37
Gland	Ductile Iron	A536 65-45-12	EN-JS1050
Wrench Nut	Ductile Iron	A536 65-45-12	EN-JS1050
Hand Wheel	Ductile Iron	A536 65-45-12	EN-JS1050

Dimensions (Inch / mm)

Size		2" (50)	2.5" (65)	3" (80)	4 (100)	5" (125)	6 (150)	8" (200)	10" (250)	12" (300)
L	BS5163 EN558-1, Series-3	7 (178)	7-1/2 (191)	8 (203)	9 (229)	10 (254)	10-1/2 (267)	11-1/2 (292)	13 (330)	14 (356)
	DIN3352 DIN3202-1-F4 EN558-1, Series-14	5-7/8 (150)	6-11/16 (170)	7-1/16 (180)	7-1/2 (190)	7-7/8 (200)	8-1/4 (210)	9-1/16 (230)	9-13/16 (250)	10-5/8 (270)
	DIN3352 DIN3202-1-F5 EN558-1, Series-15	3-9/16 (90)	10-5/8 (270)	11 (280)	11-13/16 (300)	11-13/16 (325)	13-3/4 (350)	15-3/4 (400)	17-11/16 (450)	19-11/16 (500)
	AWWA-C509 ANSI/ASME-B16.10	7 (178)	7-1/2 (191)	8 (203)	9 (229)	10 (254)	10-1/2 (267)	11-1/2 (292)	13 (330)	14 (356)
H		8-7/8 (225)	9-7/16 (240)	10-7/16 (265)	11-7/16 (290)	14-3/8 (365)	15-13/16 (402)	19-15/16 (507)	23-3/4 (603)	27-5/16 (693)

Notes :

1.) Flanges comply with ANSIB16.1 Class 125
2.) Wedge is fully encapsulated with EPDM.
3.) Three O-Rings for stem sealing are replaceable under pressure.
4.) All Bolts are sealed with Wax
5.) Minimum 300 microns Fusion Bonded Epoxy for protection against corrosion.
6.) Straight through full bore prevents pressure loss caused by turbulence.
7.) Operated by hand wheel or wrench nut.
8.) For BS5163 Type B gate valves, the stem materials is stainless steel BS970 431S29.

Resilient-Seated Gate Valve

BS5163 Type A&B / AWWA C509

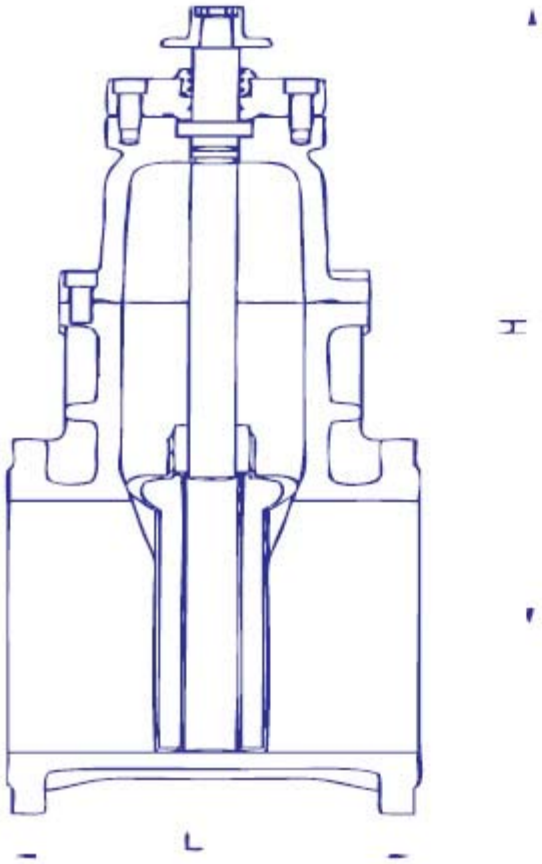


Figure Number

SV15	Conforms to BS5163 Type A& B
SV16	Conforms to AWWA C509

Pressure and Temperature

Nominal Pressure	150psi / 16 bar
Working Temperature	-10˚C to 82 ˚C

Materials List

Part Name	Materials	ASTM Spec.	BS Spec.
Body	Ductile Iron	A536 65-45-12	EN-JL1050
Bonnet	Ductile Iron	A536 65-45-12	EN-JL1050
Wedge	DI with EPDM Encapsulated	A536 65-45-12	EN-JL1050
Sealing Nut	Brass	B16 C36000	2874 CZ 124
Stem Nut	Brass	B16 C36000	2874 CZ 124
Stem	Stainless Steel	ANSI 420	970 420S37
Gland	Ductile Iron	A536 65-45-12	EN-JL1050
Wrench Nut	Ductile Iron	A536 65-45-12	EN-JL1050
Hand Wheel	Ductile Iron	A536 65-45-12	EN-JL1050

Dimensions (Inch / mm)

Size	14" (350)	16" (400)	18" (450)	20" (500)	24" (600)
L	15 (381)	16 (406)	17 (432)	18 (457)	20 (508)
H	34 (865)	40 (1020)	40-9/16 (1030)	47-1/4 (1200)	53-1/4 (1355)

Notes :

1.) Flanges comply with EN1092 PN10/PN16 or ANSI B16.1 Class 125.
2.) Wedge is fully encapsulated with EPDM.
3.) Three O-Rings for stem sealing are replaceable under pressure.
4.) All Bolts are sealed with Wax
5.) Minimum 300 microns Fusion Bonded Epoxy for protection against corrosion.
6.) Straight through full bore prevents pressure loss caused by turbulence.
7.) Operated by hand wheel or wrench nut.
8.) For BS5163 Type B gate valves, the stem materials is stainless steel BS970 431S29.

Resilient-Seated Gate Valve

AWWA C509

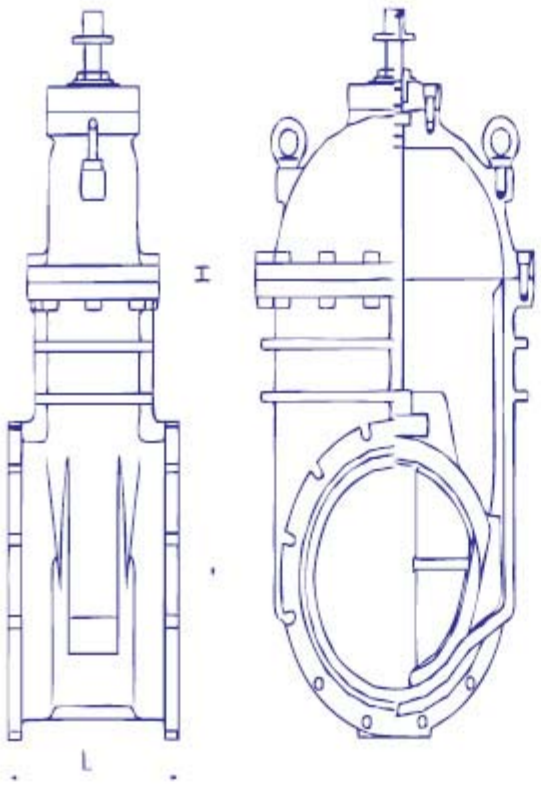


Figure Number

SV 23	Mechanical joint

Pressure and Temperature

Nominal Pressure	150psi / 16 bar
Working Temperature	-10˚C to 82 ˚C

Materials List

Part Name	Materials	ASTM Spec.
Body	Ductile Iron	A536 65-45-12
Bonnet	Ductile Iron	A536 65-45-12
Wedge	DI with EPDM Encapsulated	A536 65-45-12
Thrust Collar	Brass	B16 C36000
Stem Nut	Brass	B16 C36000
Gasket	EPDM	-
Stem	Stainless Steel	ANSI 420
Gland	Ductile Iron	A536 65-45-12
Wrench Nut	Ductile Iron	A536 65-45-12
Hand Wheel	Ductile Iron	A536 65-45-12

Dimensions (Inch / mm)

Size	14"	16"	18"	20"	24"
L	17 (432)	17 (432)	18 (457)	18 (457)	20-1/2 (521)
H	34-1/16 (865)	40-3/16 (1021)	40-15/16 (1040)	47-1/4 (1200)	53-3/8 (1356)

Notes :

1.) Mechanical Joint comply with C111/A21.10
2.) Wedge is fully encapsulated with EPDM.
3.) Three O-Rings for stem sealing are replaceable under pressure.
4.) All Bolts are sealed with Wax
5.) Minimum 300 microns Fusion Bonded Epoxy for protection against corrosion.
6.) Straight through full bore prevents pressure loss caused by turbulence.
7.) Operated by hand wheel or wrench nut.

Resilient-Seated Gate Valve

AWWA C509

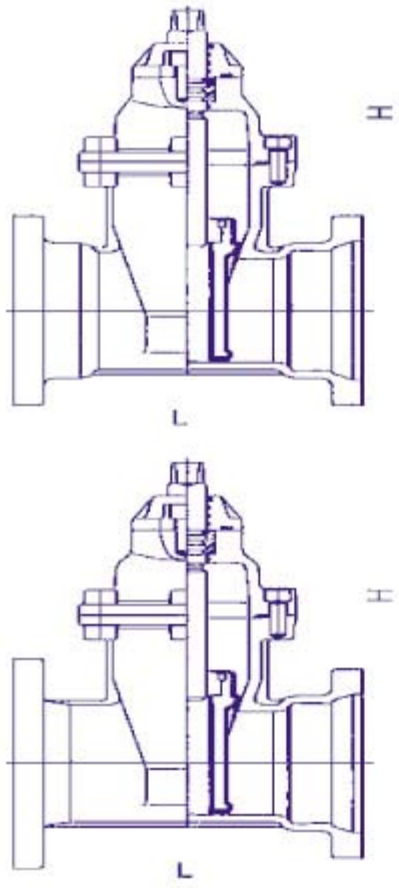


Figure Number

SV11	Mechanical Joint
SV12	Fig & Mechanical Joint

Pressure and Temperature

Nominal Pressure	200psi
Working Temperature	-10˚C to 82 ˚C

Materials List

Part Name	Materials	ASTM Spec.
Body	Ductile Iron	A536 65-45-12
Bonnet	Ductile Iron	A536 65-45-12
Wedge	DI with EPDM Encapsulated	A536 65-45-12
Thrust Collar	Brass	B16 C36000
Stem Nut	Brass	B16 C36000
Gasket	EPDM	-
Stem	Stainless Steel	ANSI 420
Gland	Ductile Iron	A536 65-45-12
Wrench Nut	Ductile Iron	A536 65-45-12
Hand Wheel	Ductile Iron	A536 65-45-12

Dimensions (Inch / mm)

Size		2"	3"	4"	6"	8"	10"	12"
L	3648	8-1/4 (210)	9 (229)	10 (254)	11.5 (292)	12.5 (318)	14.75 (375)	14.88 (378)
	3649	-	8-1/4 (210)	9-1/4 (235)	10-1/4 (260)	11 (279)	12-1/2 (317.5)	13-1/2 (343)
H		8-7/8 (225)	10-1/2 (267)	11-1/2 (292)	15-1/2 (394)	20 (508)	23-3/4 (603)	27-1/4 (692)

Notes :

1.) Flanges comply with EN1092 PN10/PN16 or ANSI B16.1 Class 125
2.) Wedge is fully encapsulated with EPDM.
3.) Three O-Rings for stem sealing are replaceable under pressure.
4.) All Bolts are sealed with Wax
5.) Minimum 300 microns Fusion Bonded Epoxy for protection against corrosion.
6.) Straight through full bore prevents pressure loss caused by turbulence.
7.) Operated by hand wheel or wrench nut.

Metal-Seated Gate Valve

BS5163 Type B /DIN3352/AWWA C500-02

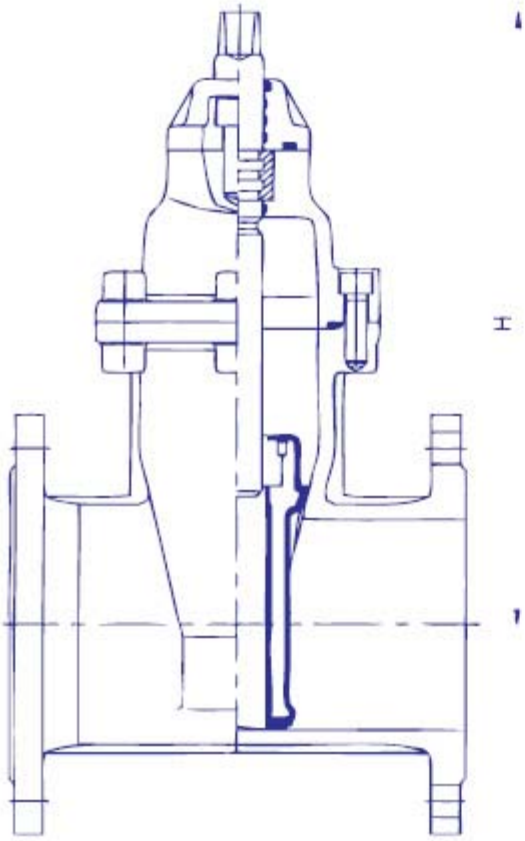


Figure Number

SV17	Conforms to BS5163 Type B
SV18	Conforms to DIN3352, DI3202-1 F4
SV19	Conforms to DIN3352, DI3202-1 F5
SV20	Conforms to AWWA C509

Pressure and Temperature

Nominal Pressure	200psi / 16 bar
Working Temperature	-10˚C to 82 ˚C

Materials List

Part Name	Materials	ASTM Spec.	BS Spec.
Body	Ductile Iron	A536 65-45-12	EN-JL1050
Bonnet	Ductile Iron	A536 65-45-12	EN-JL1050
Wedge	DI with EPDM Encapsulated	A536 65-45-12	EN-JL1050
Thrust Collar	Brass	B16 C36000	2874 CZ 124
Stem Nut	Brass	B16 C36000	2874 CZ 124
Stem	Stainless Steel	ANSI 420	970 420S37
Gland	Ductile Iron	A536 65-45-12	EN-JL1050
Wrench Nut	Ductile Iron	A536 65-45-12	EN-JL1050
Hand Wheel	Ductile Iron	A536 65-45-12	EN-JL1050

Dimensions (Inch / mm)

Size		2" (50)	2.5" (65)	3" (80)	4 (100)	5" (125)	6 (150)	8" (200)	10" (250)	12" (300)
L	BS5163 EN558-1, Series-3	7 (178)	7-1/2 (191)	8 (203)	9 (229)	10 (254)	10-1/2 (267)	11-1/2 (292)	13 (330)	14 (356)
	DIN3352 DIN3202-1-F4 EN558-1, Series-14	5-7/8 (150)	6-11/16 (170)	7-1/16 (180)	7-1/2 (190)	7-7/8 (200)	8-1/4 (210)	9-1/16 (230)	9-13/16 (250)	10-5/8 (270)
	DIN3352 DIN3202-1-F5 EN558-1, Series-15	9-13/16 (250)	10-5/8 (270)	11 (280)	11-13/16 (300)	11-13/16 (325)	13-3/4 (350)	15-3/4 (400)	17-11/16 (450)	19-11/16 (500)
	AWWA-C509 ANSI/ASME-B16.10	7 (178)	7-1/2 (191)	8 (203)	9 (229)	10 (254)	10-1/2 (267)	11-1/2 (292)	13 (330)	14 (356)
H		8-7/8 (225)	9-7/16 (240)	10-7/16 (265)	11-7/16 (290)	14-3/8 (365)	15-13/16 (402)	19-15/16 (507)	23-3/4 (603)	27-5/16 (693)

Notes :

1.) Flanges comply with EN1092-2 PN10/16 or ANSIB16.1 Class 125
2.) Wedge is fully encapsulated with EPDM.
3.) Three O-Rings for stem sealing are replaceable under pressure.
4.) All Bolts are sealed with Wax
5.) Minimum 300 microns Fusion Bonded Epoxy for protection against corrosion.
6.) Straight through full bore prevents pressure loss caused by turbulence.
7.) Operated by hand wheel or wrench nut.
8.) For BS5163 Type B gate valves, the stem materials is stainless steel BS970 431S29.

Metal-Seated Gate Valve

BS5163 Type B / AWWA C509

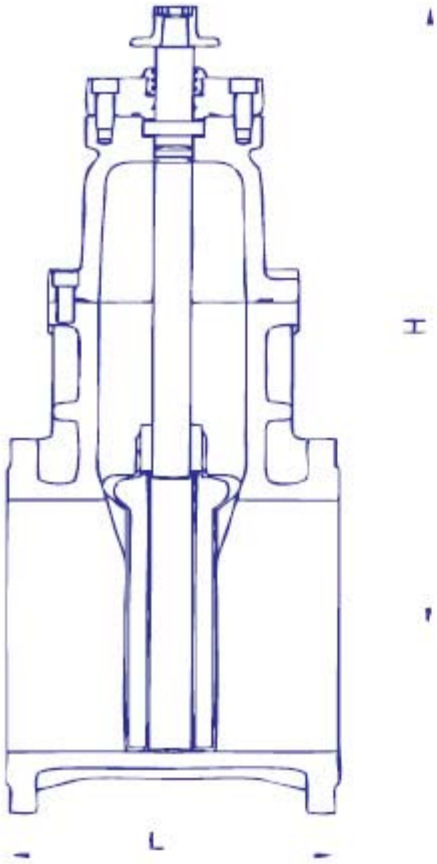


Figure Number

SV21	Conforms to BS5163 Type B
SV22	Conforms to AWWA C509

Pressure and Temperature

Nominal Pressure	150psi / 16 bar
Working Temperature	-10˚C to 82 ˚C

Materials List

Part Name	Materials	ASTM Spec.	BS Spec.
Body	Ductile Iron	A536 65-45-12	EN-JS1050
Bonnet	Ductile Iron	A536 65-45-12	EN-JS1050
Wedge	DI with EPDM Encapsulated	A536 65-45-12	EN-JS1050
Sealing Nut	Brass	B16 C36000	2874 CZ 124
Stem Nut	Brass	B16 C36000	2874 CZ 124
Stem	Stainless Steel	ANSI 420	970 420S37
Gland	Ductile Iron	A536 65-45-12	EN-JS1050
Wrench Nut	Ductile Iron	A536 65-45-12	EN-JS1050
Hand Wheel	Ductile Iron	A536 65-45-12	EN-JS1050

Dimensions (Inch / mm)

Size	14" (350)	16" (400)	18" (450)	20" (500)	24" (600)
L	15 (381)	16 (406)	17 (432)	18 (457)	20 (508)
H	34 (865)	40 (1020)	40-9/16 (1030)	47-1/4 (1200)	53-1/4 (1355)

Notes :

1.) Flanges comply with EN1092-2 PN10/16 or ANSIB16.1 Class 125
2.) Wedge is fully encapsulated with EPDM.
3.) Three O-Rings for stem sealing are replaceable under pressure.
4.) All Bolts are sealed with Wax
5.) Minimum 300 microns Fusion Bonded Epoxy for protection against corrosion.
6.) Straight through full bore prevents pressure loss caused by turbulence.
7.) Operated by hand wheel or wrench nut.
8.) For BS5163 Type B gate valves, the stem materials is stainless steel BS970 431S29.

Swing Check Valve
EN 12334/ DIN 32002 F6

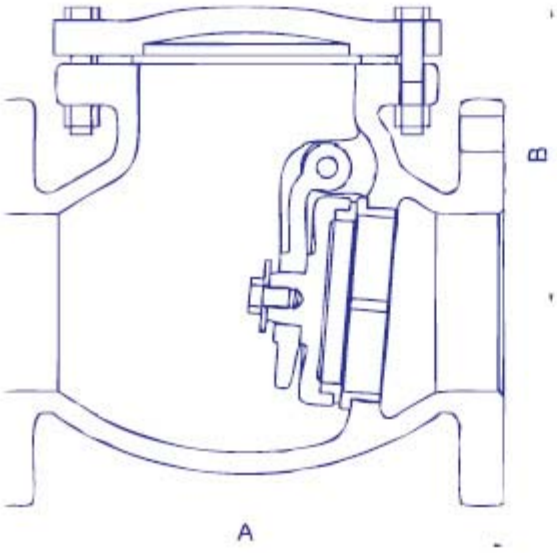


Figure Number

SV23	Bronze Disc Ring
SV24	EPDM Disc Ring
SV25	NBR Disc Ring

Pressure and Temperature

Nominal Pressure	200psi / 16 bar
Working Temperature	EPDM: -10˚C to 120 ˚C NBR : -10˚C to 82 ˚C

Materials List

Part Name	Materials	ASTM Spec.	BS Spec.
Bonnet	Cast Iron	A126 Class B	EN-JL1040
Side Plug	Brass	B16 C36000	2874 CZ 124
Hanger Pin	Brass	B16 C36000	2874 CZ 124
Hanger	Ductile Iron	A536 65-45-12	EN-JS1050
Disc Ring	Cast Bonze	B62 C83600	1400 LG2
	EPDM/NBR	Commercial	Commercial
Seat Ring	Cast Bronze	B62 C83600	1400 LG2
Body	Cast Iron	A126 Class B	EN-JL1040

Dimensions (Inch / mm)

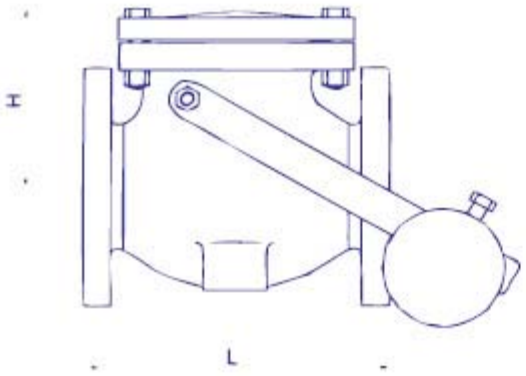
Size	2" (50)	2.1/2 " (65)	3" (80)	4" (100)	5" (125)	6" (150)	8" (200)
A	8 (203)	8 1/2 (216)	9 1/2 (241)	11-1/2 (292)	13 (330)	14 (356)	19/-1/2 (495)
B	4-3/4 (121)	5-5/16 (135)	5-9/16 (141)	6-5/8 (168)	7-3/16 (182)	8-7/16 (215)	10-1/2 (267)

Size	10" (250)	12" (300)	14" (350)	16" (400)	18" (450)	20" (500)	24" (600)
A	24-1/2 (622)	27-1/2 (699)	31 (787	36 (914)	36 (914)	40 (1016))	48 (1219)
B	12 (305)	13-1/2 (343)	17-11/16 (450)	20-1/2 (520)	21-5/8 (550)	23-1/4 (590)	26-3/4 (680)

Notes :

1) Designed in accordance with EN12334, MSS SP-71.
2) Flanges comply with EN1092-2 PN10/16 or ANSI B16 Class 125. Other Flanges types are available.
3) Testing BS 6755

Check Valve with Lever & Weight (Spring)
EN 12334 / MSS SP-71



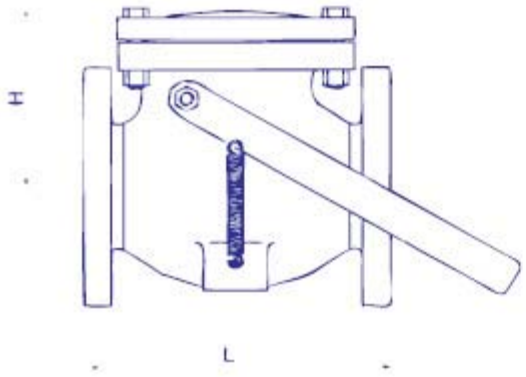


Figure Number

5108	

Pressure and Temperature

Nominal Pressure	200psi / 16 bar
Working Temperature	EPDM: -10˚C to 120 ˚C NBR : -10˚C to 82 ˚C

Materials List

Part Name	Materials	ASTM Spec.	BS Spec.
Bonnet	Cast Iron	A126 Class B	EN-JL1040
Side Plug	Brass	B16 C36000	2874 CZ 124
Hanger Pin	Stainless Steel	ANSI 420	970 420S37
Hanger	Ductile Iron	A536 65-45-12	EN-JS1050
Disc	Cast Iron	A126 Class B	EN-JL1040
Disc Ring	Cast Bonze	B62 C83600	1400 LG2
Seat Ring	Cast Bronze	B62 C83600	1400 LG2
Body	Cast Iron	A126 Class B	EN-JL1040
Lever	Carbon steel	AISI 1020	970 050A20
Weight	Cast Iron	A126 Class B	EN-JL1040
Spring	Stainless Steel	ANSI 304	970 304S15

Dimensions (Inch / mm)

Size	2" (50)	2.1/2 " (65)	3" (80)	4" (100)	5" (125)	6" (150)	8" (200)
L	8 (203)	8 1/2 (216)	9 1/2 (241)	11-1/2 (292)	13 (330)	14 (356)	19/-1/2 (495)
H	4-3/4 (121)	5-5/16 (135)	5-9/16 (141)	6-5/8 (168)	7-3/16 (182)	8-7/16 (215)	10-1/2 (267)

Size	10" (250)	12" (300)	14" (350)	16" (400)	18" (450)	20" (500)	24" (600)
L	24-1/2 (622)	27-1/2 (699)	31 (787	36 (914)	36 (914)	40 (1016))	48 (1219)
H	12 (305)	13-1/2 (343)	17-11/16 (450)	20-1/2 (520)	21-5/8 (550)	23-1/4 (590)	26-3/4 (680)

Notes :

1) Designed in accordance with EN12334, MSS SP-71.
2) Flanges comply with EN1092-2 PN10/16 or ANSI B16 Class 125. Other Flanges types are available.

Swing Flex Check Valve

EN 12334

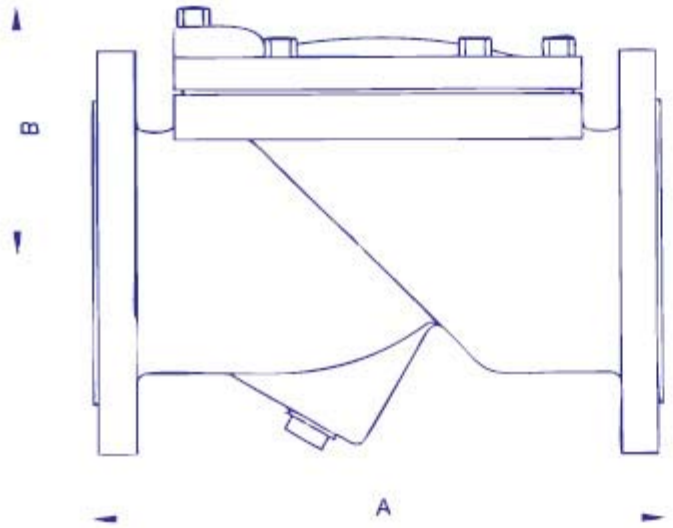


Figure Number

SV7E	Stainless Steel Disc, EPDM Seat
SV7N	Stainless Steel Disc, NBR Seat

Pressure and Temperature

Nominal Pressure	200psi / 16 bar
Working Temperature	EPDM: -10˚C to 120 ˚C NBR : -10˚C to 82 ˚C

Materials List

Part Name	Materials	ASTM Spec .	ASTM Spec.
Body*	Cast Iron	A126 Class B	EN-JL1040
Cover"	Cast Iron	A126 Class B	EN-JL1040
Disc	DI with EPDM/NBR Coated	A536 65-45-12	EN-JS1050
Gasket	NBR/EPDM		
Plug	Malleable Iron		

Dimensions (Inch / mm)

Size	2" (50)	2-1/2" (65)	3" (80)	4" (100)	5" (125)	6" (150)	8" (200)	10" (250)	12" (300)	14" (350)	16" (400)	18" (454)	20" (500)	24" (600)
A	8 (203)	8-/16 (216)	9-9/16 (243)	11-1/2 (292)	13-3/4 (349)	15 (381)	19-1/2 (495)	24-1/2 (6227)	27-1/2 (699)	31 (787)	32 (813)	36 (914)	40 (1016)	48 (1219)
B	3-3/4 (95)	3-3/4 (95)	4-1/3 (110)	4-3/4 (121)	5-13/16 (147)	5-13/16 (147)	8-3/4 (222)	10-1/4 (260)	11-1/2 (292)	13-1/8 (333)	15-3/8 (391)	17-1/8 (435)	19-1/8 (486)	22-3/4 (578)

Notes :

1.) Flanges comply with ANSI B16 Class 125 or EN1092-2 PN10/16. other flange types are available
2.) Minimum 200 microns Fusion Bonded Epoxy for Protection against corrosion.
3.) Body and cover materials for valves over 12" (300) are Ductile iron.

Eccentric Plug Valve

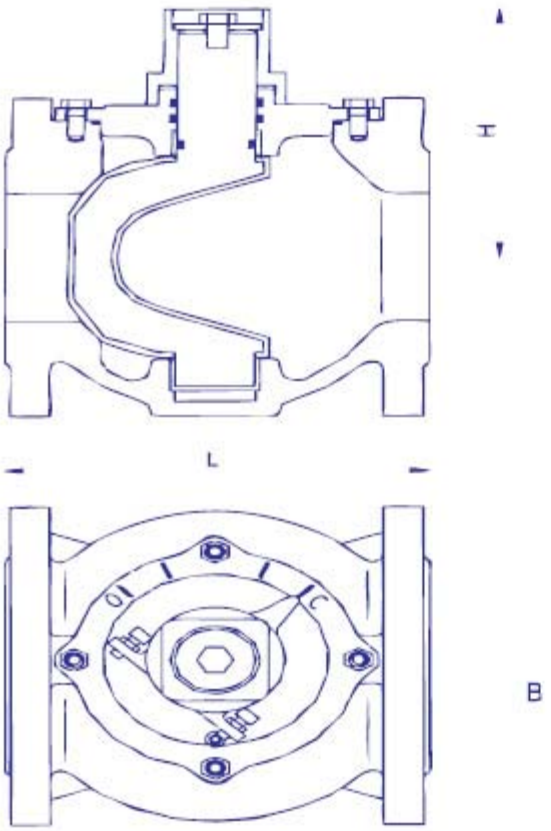


Figure Number

SV 11

Pressure and Temperature

Nominal Pressure	200psi / 16 bar
Working Temperature	EPDM: -10˚C to 120 ˚C NBR : -10˚C to 82 ˚C

Materials List

Part Name	Materials	ASTM Spec.	BS Spec.
Body	Cast Iron	A126 Class B	EN-JL1040
Body Seat	Nickle, Welded overlay		
Bonnet	Cast Iron	A126 Class B	EN-JL1040
Plug	DI with EPDM/NBR Coated	A536 65-45-12	EN-JS1050
Thrust Bearing	Stainless Steel	ANSI 316	970 316S16
Bus Bearing	Stainless Steel	ANSI 316	970 316S16
O-ring	EPDM Rubber		
Nut	Ductile Iron	A536 65-45-12	EN-JS1050

Dimensions (mm)

Size	2-1/2" (65)	3" (80)	4" (100)	5" (125)	6" (150)	8" (200)	10" (250)	12" (300)
L	7-1/2 (191)	8 (203)	9 (229)	10 (254)	10-1/2 (267)	11-1/2 (292)	13 (330)	14 (356)
H	6-5/16 (160)	6-5/16 (160)	7-5/16 (185)	8-7/16 (215)	8-7/16 (215)	10-13/16 (275)	11-7/16 (290)	13 (330)

Note :

Flanges comply with ANSI B16.1 Class 125 or EN1092-2 PN10/16. Other flanges types are available.

Eccentric Plug Valve

Mechanical Joint End

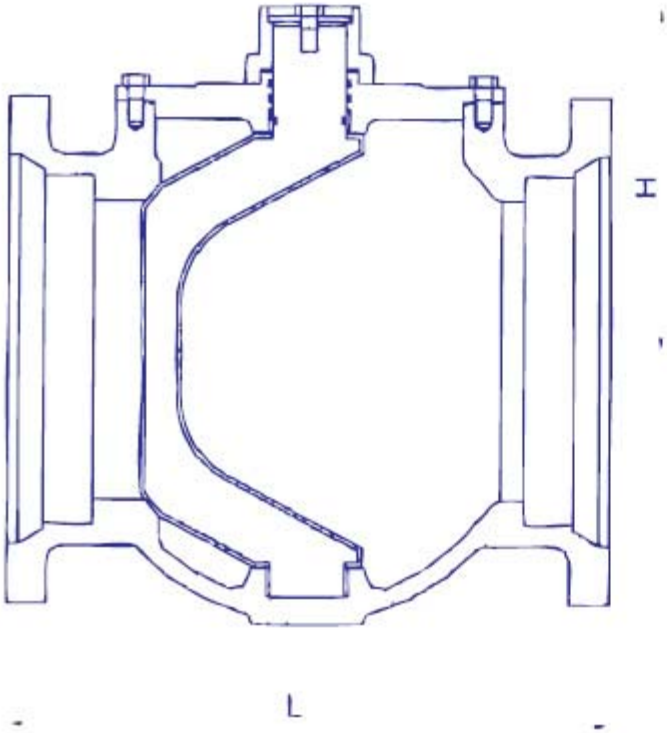


Figure Number

SV 16

Pressure and Temperature

Nominal Pressure	200psi / 16 bar
Working Temperature	EPDM: -10˚C to 120 ˚C NBR : -10˚C to 82 ˚C

Materials List

Part Name	Materials	AST Spec.
Body	Cast Iron	A126 Class B
Body Seat	Nickle, Welded overlay	
Bonnet	Cast Iron	A126 Class B
Plug	DI with EPDM/NBR Coated	A536 65-45-12
Thrust Bearing	Stainless Steel	AISI 316
Bush Bearing	Stainless Steel	AISI 316
O-Ring	EPDM/NBR	Commercial
Nut	Ductile Iron	A536 65-45-12

Dimensions (mm)

Size	3"	4"	6"	8"	10"	12"
L	11-7/8 (302)	12-1/4 (311)	14-1/8 (359)	17-1/2) (444.5)	19-3/8 (492)	20-3/4 (527)
H	6-5/16 (160)	7-5/16 (185)	8-7/16 (215)	10-13/16 (275)	11-17/16 (275)	13 (330)

Note :

Mechanical joints comply with ANSI/AWWA C111/A21.10.

Y- Strainer

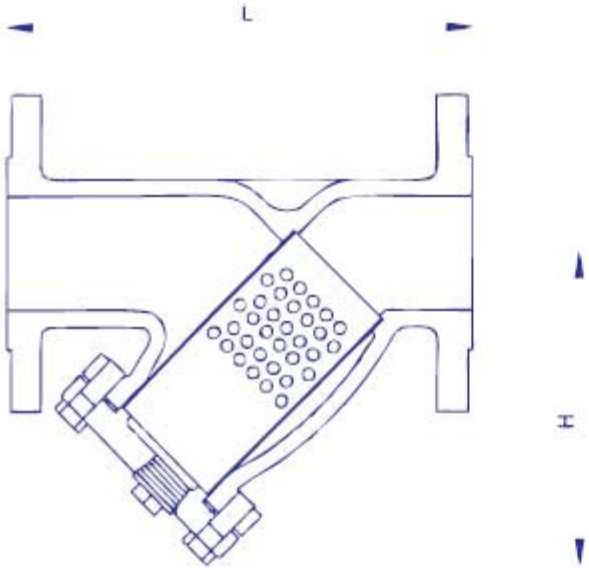


Figure Number

SV 7111

Pressure and Temperature

Nominal Pressure	200psi / 16 bar
Working Temperature	EPDM: -10˚C to 120 ˚C NBR : -10˚C to 82 ˚C

Materials List

Part Name	Materials	ASTM Spec.	BS Spec.
Bonnet	Cast Iron	A126 Class B	EN-JL1040
Cover	Cast Iron	A126 Class B	EN-JL1040
Screen	Stainless Steel	ASI304	970 304 S15
Gasket	PTFE / Graphite		
Plug	Cast Iron	A126 Class B	EN-JL1040

Standars Screens

Size	Hole Dia	Free Flow Area
2"-3 (50-600)	1.5mm	32.6%
4"-24" (100-600)	3.0mm	40%

Dimensions (Inch / mm)

Size	2" (50)	2.5 " (65)	3" (80)	4" (100)	5" (125)	6" (150)	8" (200)
L	9-1/16 (230)	10-3/4 (273)	11-5/8 (295)	13-7/8 (352)	16-3/8 (416)	18-1/2 (470)	21-3/8 (543)
H	5-3/4 (146)	6-7/8 (174)	7-13/16 (198)	9-1/8 (232)	11-1/4 (285)	12 (305)	15-13/16 (401)

Size	10" (250)	12" (300)	14" (350)	16" (400)	18" (450)	20" (500)	24" (600)
L	26 (660)	30-5/16 (770)	37-13/16 (960)	42-1/2 (960)	46 (1168)	50-1/5 (1275)	57-1/16 (1450)
H	18-5/8 (473)	21-13/16 (554)	29-1/8 (740)	33-1/16 (840)	35-1/2 (902)	39 (990)	44-5/8 (1134)

Note :

Flanges comply with EN1092-2 PN10/16 or ANSI B16 Class 125. Other Flanges types are available.

Y- Strainer

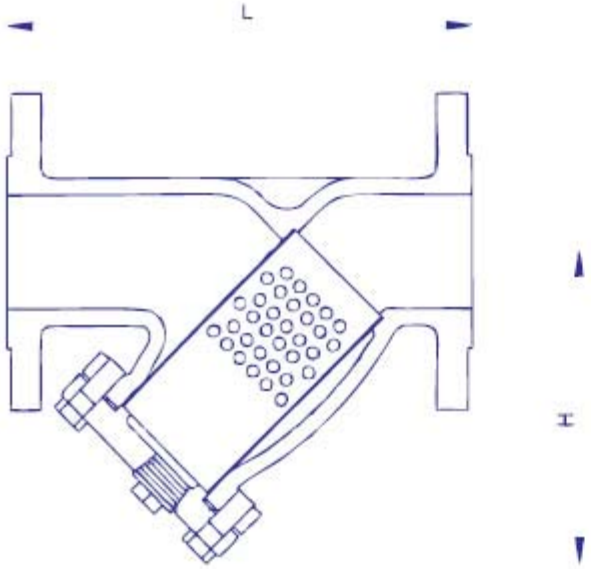


Figure Number

SV 7112

Pressure and Temperature

Nominal Pressure	200psi / 16 bar
Working Temperature	EPDM: -10˚C to 120 ˚C NBR : -10˚C to 82 ˚C

Materials List

Part Name	Materials	EN Spec.
Body	Cast Iron	EN-J1040
Cover	Cast Iron	EN-J1040
Screen	Stainless Steel	10088x5CrNi18-10
Gasket	PTFE / Graphite	
Plug	Cast Iron	EN-J1040

Standars Screens

Size	Hole Dia	Free Flow Area
20-40	1.0mm	22.6%
50-80	1.5mm	32.6%
100-400	3.0mm	40%

Dimensions (Inch / mm)

Size	20	25	32	40	50	65	80	100
L	150	160	180	200	230	290	310	350
H	79	87	128	137	137	165	186	226

Size	125	150	200	250	300	350	400
L	400	480	600	730	850	980	1100
H	267	305	358	495	530	740	840

Notes :

1). Flanges comply with EN1092-2 PN10/16. Other Flanges types are available.

2). Face to face dimensions conform to EN558-1, 1 Series.

Basket Strainer

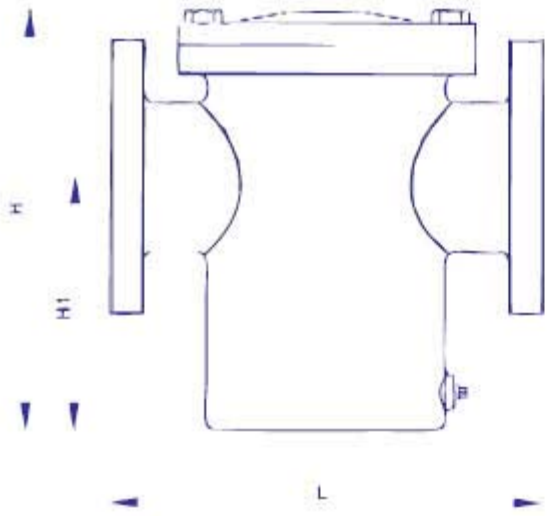


Figure Number

SV 7113

Pressure and Temperature

Nominal Pressure	200psi / 16 bar
Working Temperature	-10˚C to 120 ˚C

Material List

Part Name	Materials	ASTM Spec.	BS Spec.
Body	Cast Iron	A126 Class B	EN-JL1040
Cover	Cast Iron	A126 Class B	EN-JL1040
Screen	Stainless Steel	ASI304	970 304 S15
Gasket	PTFE / Graphite		
Plug	Cast Iron	A126 Class B	EN-JL1040

Standard Screens

Size	Hole Dia	Free Flow Area
2"-3 (50-600)	1.5mm	32.6%
4"-24" (100-600)	3.0mm	40%

Dimensions (Inch / mm)

Size	2" (50)	2.5 " (65)	3" (80)	4" (100)	5" (125)	6" (150)	8" (200)
L	8-1/8 (206.5)	8-1/4 (210)	9-7/8 (251)	11-1/2 (292)	13-1/8 (334)	14-7/8 (378)	18-11/16 (475)
H	8-3/4 (223	9-3/4 (248)	11-5/8 (295)	13-1/6 (332)	14-1/2 (368)	15-3/4 (400)	19-15/16 (507)
H1	5-3/16 (132.5)	6-1/8 (155.5)	7-5/16 (186)	8 (203)	8-3/8 (213)	9-1/4 (235)	11-5/8 (235)

Size	10" (250)	12" (300)	14" (350)	16" (400)	18" (450)	20" (500)	24" (600)
L	20-1/8 (511)	26-3/4 (680)	30-1/4 (768.5)	33-1/8 (841.5)	33-1/8 (841.5)	33-1/8 (841.5)	41-1/2 (1054)
H	26-1/16 (662)	30 (762)	36-5/8 (930)	39-9/16 (980)	39-11/16 (1008)	43-11/16 (1110)	66-7/16 (1687)
H1	13-3/8 (340)	15-7/8 (404)	23-1/16 (585)	23-1/4 (590)	23-1/4 (590)	23-1/2 (597)	46-1/4 (1174)

Note :

Flanges comply with EN1092-2 PN10/16 or ANSI B16 Class 125. Other Flanges types are available.

Fire Hydrant DN80

BS 750 Type II

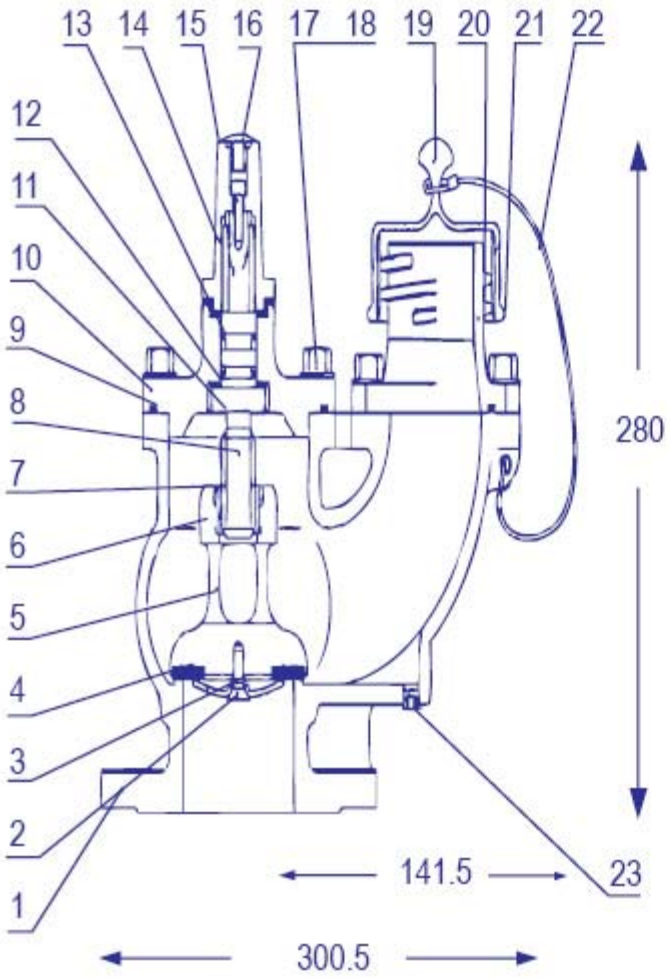


Figure Number

SV FH	London Round Thread

Material List

Item	Part Name	Materials	BS Spec.
1	Body	Ductile Iron	EN-JS1050
2	Bolt	Stainless Steel	970 304S15
3	Holder	Stainless Steel	970 304S15
4	Gasket	EPDM/NBR	
5	Disc	Ductile Iron	EN-JS1050
6	Stem Nut	Brass	2874 CZ121
7	Screw	Steel	
8	Stem	Stainless Steel	970 420S37
9	O-Ring	EPDM/NBR	
10	Cover	Ductile Iron	EN-JS1050
11	Washer	Brass	2874 CZ121
12	O-Ring	EPDM/NBR	
13	Cap Gasket	Plastic	
14	Driver Cap	Ductile Iron	EN-JS1050
15	Bolt	Stainless Steel	970 304S15
16	Indicator Cap	Plastic	
17	Bolt	Stainless Steel	970 304S15
18	Washer	Stainless Steel	970 304S15
19	Dust Cap	Plastic	
20	Outlet	Bronze	1400LG2
21	O-Ring	EPDM/NBR	
22	Rope	Stainless Steel	
23	Plug	Plastic	

Notes

1) Produced in accordance with the British National Water Council requirements .
2) The inlet flange is DN80 drilled to EN1092-2 Pn10, PN16 and ANSI B16.1 Class 125.
3) The outlet is 2-1/2" London Round Thread. Othe outlets are available.
4) Hydrostatic test
   Body – 24 Bar, Seat – 16 Bar.
5) Minimum 200 microns Fusion Bonded Epoxy for protection against corrosion

Double Orifice Air Relief Valve

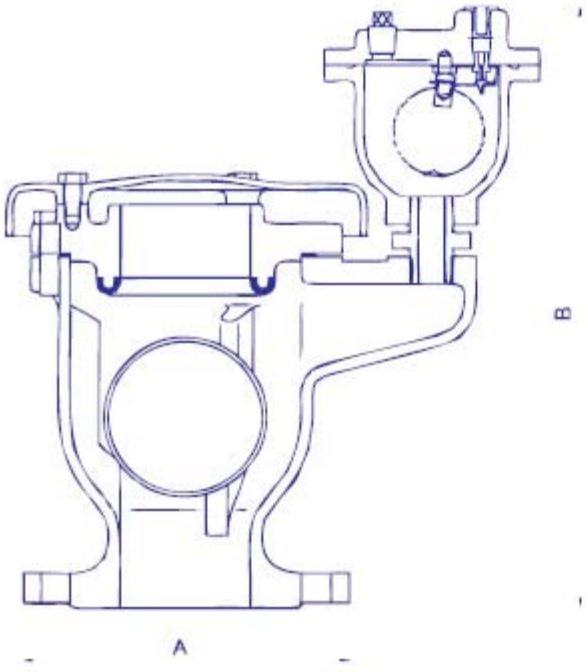


Figure Number

SV 91

Pressure and Temperature

Nominal Pressure	200psi / 16 bar
Working Temperature	EPDM: -10˚C to 120 ˚C

Materials List

Part Name	Materials	ASTM Spec.	BS Spec
Body	Cast Iron	A126 Class B	EN-JL1040
Cover	Cast Iron	A126 Class B	EN-JL1040
Large Ball	SS304 or Aluminum with Rubber – Coated		
Cap	Cast Iron	A126 Class B	EN-JL1040
Gasket	PTFE	Commercial	Commercial
Smaller ball	Stainless Steel	AISI 304	970 304S15

Dimensions (Inch / mm)

Size	2" (50)	3" (80)	4" (100)	6" (150)	8" (200)
L	6-1/2 (165)	7-7/8 (200)	8-11/16 (220)	11-1/4 (285)	13-3/8 (340)
H	13-1/4 (337)	14-13/16 (376)	15-1/4 (388)	16-9/16 (420)	18-1/8 (450)

Note :

1). Flanges comply with EN1092-2 PN10/16 or ANSI B16 Class 125. Other Flanges types are available.

AUTOMATIC FLOW CONTROL VALVE

Technical Advantages of Automatic Flow control Valves

For The Designer

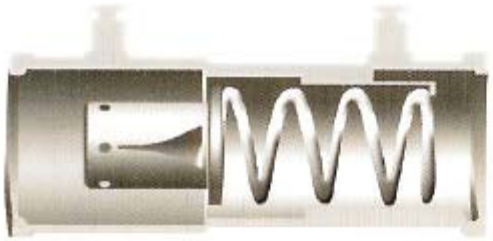
Automatic Balancing Benefits

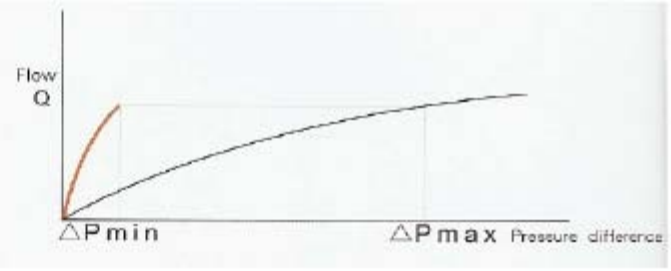
By specifying SPF automatic balancing valves, the designer is assured that the system is accurately and dynamically balanced. This means that all components will perform as specified regardless of changes. With automatic flow regulators, the terminal units will not exceed design flow even after modifications or additions to the system. Additionally, SPF automatic balancing offers important expense reductions both at installation and over the life of the facility through less balancing labor expenditures, reduced pump energy usage and lower head.

There are a number of important benefits the designer must consider.

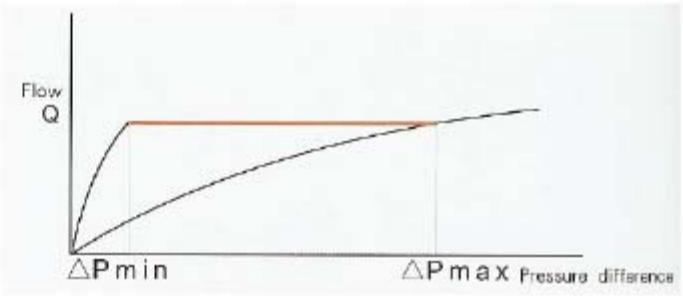
- Pump Energy savings
- Lower Head requirements
- Labour
- Variable speed pumping
- Tamperproof
- Space saving
- Design flexibility

WORKING PRINCIPLE SPF
AUTOMATIC FLOW CONTROL VALVE

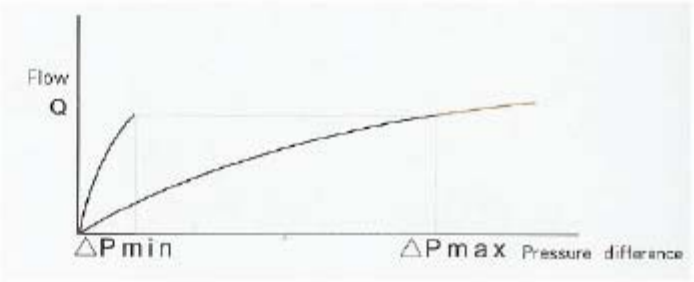




1. SPF Automatic flow control valves are high accuracy valves which automatically control the working pressure within the network. Automatic balancing uses flow limiters to prevent wasteful overflow in the system. The limiters only become active when overflow occurs and do not interfere with the operation of modulating control valves.

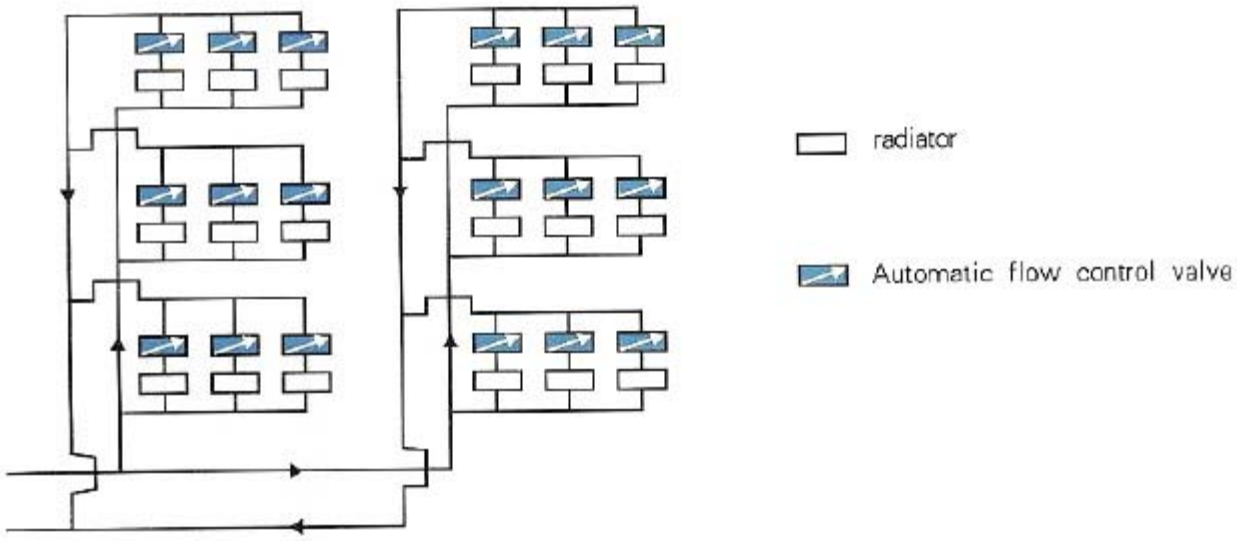


2. Before and after pressure differential the Automatic flow control valve is in the range of Pmin – Pmax. The spring is partly compressed and the water flows through the single orifice end hole and the curved side port. The output flow remains constant.

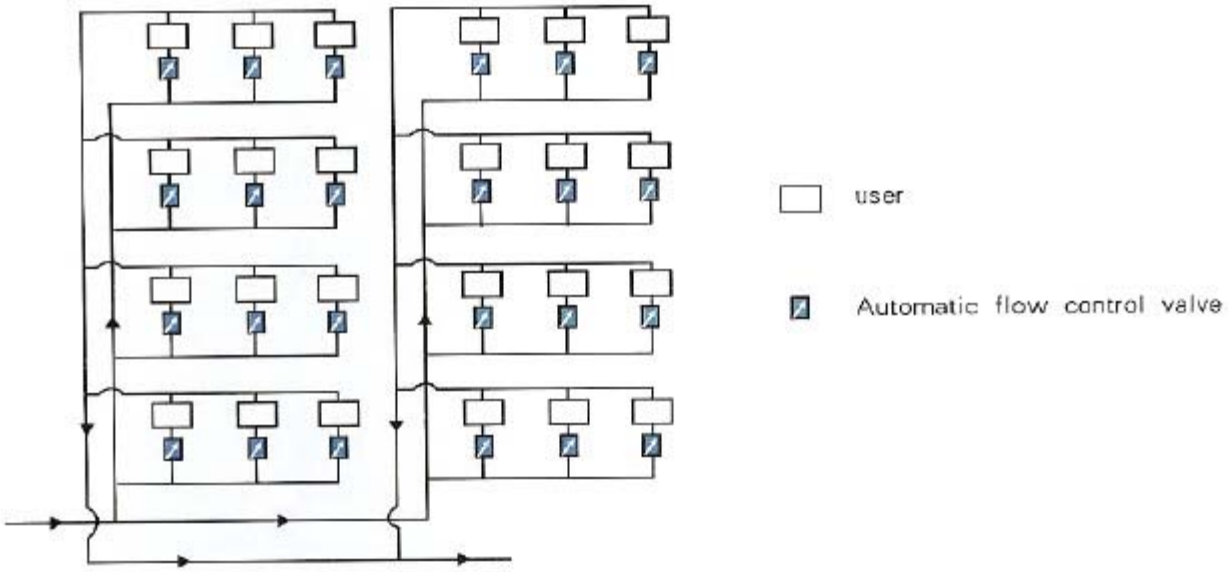


3. The curved side port and single orifice end hole provide the maximum orifice size and minimum flow restriction at a given pressure differential. The large end port boosts the low pressure flow through the cartridge.

APPLICATION INSTRUCTION SPF
AUTOMATIC FLOW CONTROL VALVE



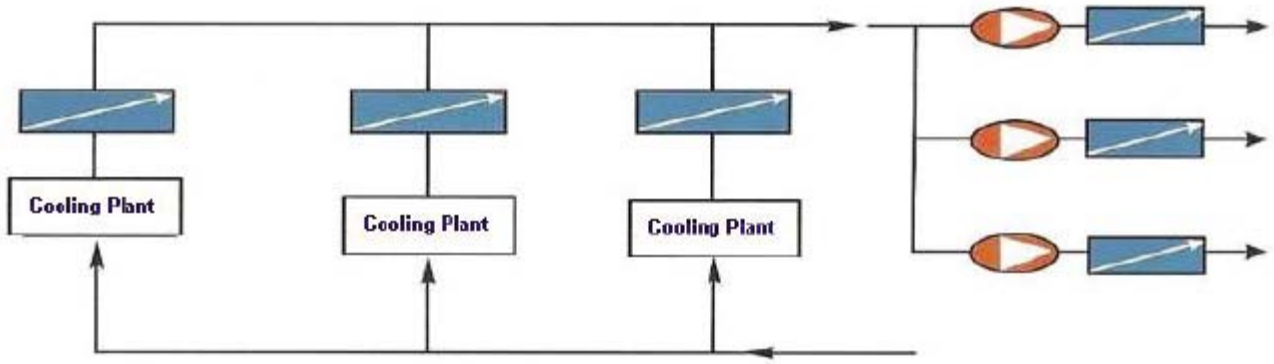
District Heating Systems
Automatic Flow Control valves can be fitted to evenly distribute heat for every user.



City Water Supply

Fitting Automatic Flow Control valves to end users in urban distribution systems will stabilize the dynamic flow disorder between the floors of multi storey towers incorporating homes and offices. The valves should be fitted on every floor.
They are equally suitable for single family residences on housing complexes to ensure water quality.

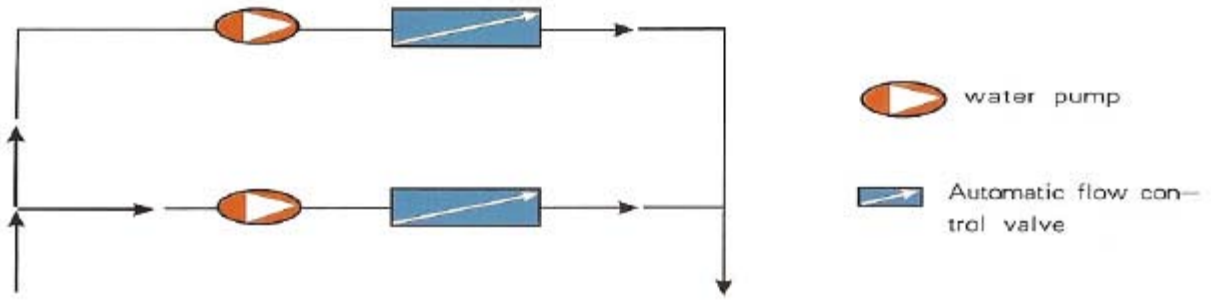
APPLICATION INSTRUCTION SPF
AUTOMATIC FLOW CONTROL VALVE



District Cooling Chilled Water Systems

Superior Valves for Superior fluid Control
Basically, a district cooling system (DCS) distributes thermal energy in the form of chilled water or other media from a central source to multiple buildings through a network of underground pipes for use in space and process cooling. The cooling or heat rejection is usually provided from a central cooling plant, thus eliminating the need for separate systems in individual buildings.

A DCS consists of three primary components: the central plant, the distribution network and the consumer system. The central plant may include the cooling equipment, power generation and thermal storage. The distribution or piping network is often the most expensive portion of the DCS and warrants careful design to optimize its use. The consumer system would usually comprise of air handling units and chilled water piping in the building. Automatic flow control valves are used after the chillers and throughout the consumer system to ensure the quality of the A.C



Parallel Water Pump System

Automatic flow control valves are only required at the terminal units. No controls are needed on the risers, and the system does not have to be rebalanced when a new unit is added. This can reduce installation costs 60% or more, depending on the configuration.

In any tower with varying cooling requirements in diverse locations, the HVAC system can reduce pump speed to meet only the chilled water needs for warmer locations, again enabling a substantial energy savings.

SPF automatic valves save money by providing the correct flow to protect much more expensive equipment downstream such as chillers and cooling towers, water source heat pumps, fan coils, air handlers, and other heating and cooling systems.

AGENT

SUPERIOR PIPELINE FITTINGS

P.O.Box 9298, Saif Zone, Sharjah, United Arab Emirates
Tel.: +971 4 3684029, Fax: +971 4 3684031

Washington United Kingdom	AVT Blue Island USA	Zhucheng City China	Qingdao City China	Abu Dhabi U.A.E.	Saif Zone, Sharjah U.A.E.

www.superiorpipelinefittings.com

SUPERIOR
Technical Catalogue

SUPERIOR PIPELINE FITTINGS Ltd.

Introduction

Superior Pipeline Fittings Limited was estblished in the UK in 1984 as a manufacturer and supplier of pipe, fittings, couplings, flange adaptors and dismantling joints in steel and ductile Iron. Through acquisition and a commitment to new product development we have added a range of gate butterfly, check air relief and plug valves, strainers and fire hydrants.

Our sister company in the USA produces a range of under pressure drilling and line stopping equipment and the world wide patented EZ Valve which can be installed into a live pipeline without shutting down the supply.

For the information on our valves and under pressure equipment please request seperate catalogues.

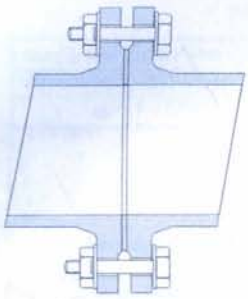
CONTENTS

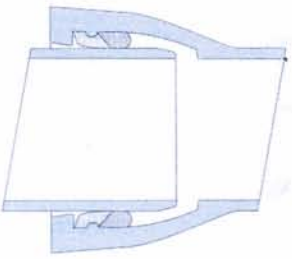
DUCTILE IRON PIPES & FITTINGS
to EN 545 & EN 598 (ISO 2531/BS 4772)

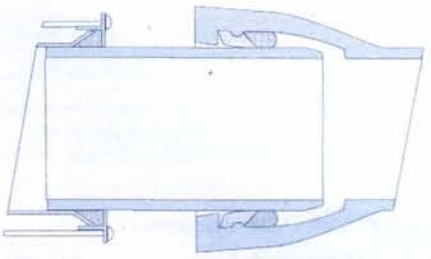
STANDARDS

In recent years there have been changes in the standards relating to ductile iron pipes and fittings. In Europe, EN 545 and EN 598 were introduced to replace the national standards of each European member, such as BS 4772 and DIN 28600.

EN 545: 2002 Ductile iron pipes and fittings for clean water pipelines
EN 598: 1995 Ductile iron pipes and fittings for sewage applications
ISO 2531:1998 Ductile iron pipes and fittings (International standard)
BS EN 1563:1997 Pipe couplings and flange adaptors in D.I.







FLANGED PIPES & FITTINGS

See pages 6 to 17

Size Range

DN 50-1600 (Fixed flange)

Application

For use above ground, in water and sewage treatment works, pumping stations etc.

Characteristics

Rigid, self anchoring joints. Easy installation and removal of valves, hydrants etc.

Notes

Flanges are supplied to PN16 as standard. Other flanges to BS EN 1092-2-1997, (PN 10, 25 and 40) are available on request.

Special fittings may also be supplied to BS 10:1962 Tables A, D, E and F, and to ASA 125.

* BS 4504 is to be replaced by BS EN 1092-2:1997

SOCKETED PIPES & FITTINGS

See pages 21 to 26

Size Range

DN 80-1200

Application

For use below ground, e.g. water and pressure sewage pipelines

Characteristics

Flexible joint allowing some angular deflection and longitudinal withdrawal.

Notes

Where self anchored joints are required anchor gaskets may used for certain sizes. Tied socket joints are available on request for all sizes.

COMBINATION FLANGE/PLAIN ENDED FITTINGS

See pages 18 to 20

Size Range

DN 80-1600

Applications

For use both above and below ground. Ideal for use with socket pipes DN 400 and above as a replacement for socketed fittings because of easy assembly

Characteristics

A machined spigot to exact tolerances. Used in conjunction with tyton sockets, couplings and flange adaptors to give a flexible joint.

Notes

Fitting may be double spigot or flange and spigot. Flanges shall be fixed PN16 as standard.

Spigots are machined to suit ductile iron pipes as standard. On request they may be machined to suit other materials e.g. AC, steel or GRP.

Wall Thickness of Ductile Iron Pipes & Fittings

DN		50	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900	1000	1100	1200	1400	1600
Mean thickness s(mm)	K9	6.0	6.0	6.1	6.2	6.3	6.4	6.8	7.2	7.7	8.1	8.6	9.0	9.9	10.8	11.7	12.6	13.5	14.4	15.3	17.1	18.9
	K12	6.6	7.0	7.2	7.5	7.8	8.4	9.0	9.6	10.2	10.8	11.4	12.0	13.2	14.4	15.6	16.8	18.0	19.2	20.4	22.8	25.2
	K14	8.0	8.1	8.4	8.7	9.1	9.8	10.5	11.2	11.9	12.6	13.3	14.0	15.4	16.8	18.2	19.6	21.0	22.4	23.8	26.6	29.4

PRESSURE RATINGS

Please note that the figures given in the tables below do not apply to all fittings. Limitations are shown against individual products.

1 bar = 10.2 metres head

Maximum Hydraulic Working Pressures

DN	80	100	150	200	250	300	350	400	450	500	600	700	800	900	1000	1100	1200	1400	1600
K9 pipes & K12 fittings	60			60	53	47	43	40	* 38	36	33	31	29	28	27	26	25		
K14 fittings	60			50	40		25										25		

For flanged joints, maximum working pressures are:
PN10 = 10 bar, PN16 = 16 bar, PN25 = 25 bar, PN40 = 40 bar

Works Hydrostatic Test Pressures

DN	K9 Centrifugally cast pipes					* K12 pipes with integral flanges, K12 & K14 fittings
	With flexible joints	With welded flanges				
		PN10	PN16	PN25	PN40	
mm	bar	bar	bar	bar	bar	bar
80 - 300	50	16	25	32	40	25
350 - 600	40	16	25	32	40	16
700 - 800	32	16	25	32	-	10
900 -1200	32	16	25	25	-	10
1400 - 1600	25	16	25	25	-	2

* The hydrostatic test pressure applied to fittings is a leak tightness test only.
Higher test pressures are not applied because of the risk of distortion resulting from high restraining loads imposed on the fittings by the test apparatus

Maximum Site Hydrostatic Test Pressures

DN	Pipes and fittings with flexible joints	Flanged Joints		
		PN10	PN16	PN25
mm	bar	bar	bar	bar
80 - 150	65	16	25	40
200	55	16	25	40
250 - 300	45	16	25	40
350 - 600	30	16	25	40
700 - 1600	30	16	25	30

The site test pressure should not be less than the greater of the following:

a) The working pressure plus 5 bar
b) The calculated surge pressure

It should not exceed the values in the table above

CUTTING OF PIPES ON SITE

Pipes may be cut on site using an abrasive disc cutter.

The pipe should be placed on level ground or square timbers and the cutting line marked.

The pipe should be cut through completely at one point and then cut along the marked line in a single operation.

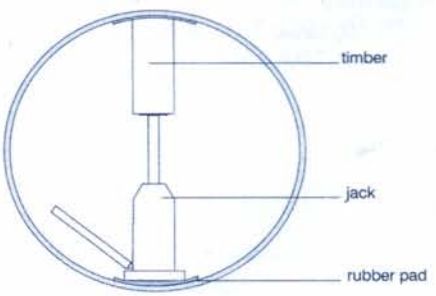
The cut end must be filed to remove sharp edges and when jointing into a socket the chamfer should be restored with an angle grinder. (For dimensions see page 21.)

The bare metal surface should be recoated with bitumen. With careful cutting, the cement lining should not be damaged. If necessary, guidelines for repair are available upon request.

Ovality correction

When ductile pipes, particularly those over DN 450, are cut, the release of stress may cause the pipe to become oval. This can be corrected by the use of a jack and timber strut as shown.

The jack can be removed once a joint has been made.



INTERNAL & EXTERNAL FINISHES

The internal and external finishes of ductile iron pipework and fittings are generally determined by the specification and application of the product. EN 545 relates to clean water; EN 598 to sewage.

STANDARD		Coating / Lining Options	Pipes	Fittings	Notes
EN 545	External	Bitumen coated - black	○	●	WRC approved materials, mean thickness 70 microns DFT
		Zinc & bitumen coated	●	○	WRC approved materials, mean thickness 70 microns DFT
		Fusion bonded epoxy coated - blue	○	○	WRC approved materials, 150 microns minimum to WIS 4-52-01
	Internal	Bitumen coated - black	○	○	WRC approved materials, mean thickness 70 microns DFT
		Cement mortar lined	●	●	WRC approved materials, thickness as specified in EN 545 (see below)
		Cement mortar lined & bitumen seal coated	○	○	WRC approved materials, seal coat mean thickness 70 microns DFT
		Fusion bonded epoxy coated - blue	○	○	WRC approved materials, 150 microns minimum to WIS 4-52-01
EN 598	External	Bitumen coated - black or red/brown	○	○	Coating should be average 70 microns DFT
		Zinc & bitumen coated - black or red/brown	●	○	Coating should be average 70 microns DFT
		Zinc & 2 pack epoxy coated - red/brown	●	●	Pipes - 50 microns average, fittings - 250 microns average DFT
	Internal	High alumina cement lined	●	○	Not recommended for fittings
		High alumina cement lined & bitumen sealed	○	○	Seal coating should be 50 microns minimum
		Zinc & 2 pack epoxy coated - red/brown	N/A	●	Fittings only - 250 microns average thickness
		Bitumen coated - black or red/brown	○	○	Coating should be 70 microns minimum

● Standard coating/lining. Supplied unless otherwise specified

○ Optional coating/lining where specified

Cement mortar lining

DN	Nominal thickness	Tolerance (negative only)	Max. crack width & radial displacement
mm	mm	mm	mm
40 - 300	3.5	-1.5	0.8
350 - 600	5	-2	1.0
700 - 1200	6	-2.5	1.2

The lining at pipe ends may have a chamfer of maximum length 50 mm.

The width and corresponding radial displacement of shrinkage cracks shall not exceed the values given in the table above.

NB. Storage of pipes and fittings in a hot, dry environment can cause metal expansion and mortar shrinkage which may result in the dry lining developing areas of disbondment and shrinkage cracks. When the lining is re-exposed to water, it will swell by absorption of moisture and the cracks will eventually heal by an autogenous process and rebonding to the metal will occur.

Additional Notes

The zinc on pipe barrels is sprayed; on fittings zinc rich paint is applied.

Bitumen coatings are cold applied in accordance with BS 3416:1991.

For bitumen coatings to EN 598, the colour should be specified as black or red/brown.

Fusion bonded epoxy coatings are normally applied to give a minimum 150 microns, but generally 250-300 microns is obtained.

Note:
For large pipes & fittings, particularly those above DN 300, the specification of holiday free epoxy coating is not a sensible option as, because of the weight of the castings, transit and handling damage is difficult to avoid. Minor site repairs of fusion bonded epoxy coatings can be expected on such fittings.

POLYTHENE SLEEVING

Where Tyton pipes and fittings are to be buried in aggressive ground conditions the use of polythene sleeving is recommended. It is standard practice to have blue sleeving for water pipelines and black for sewage.

Factory applied sleeving

Full length pipes may have sleeving factory applied.

Site applied sleeving to BS 6076

This is supplied in rolls which can be easily fitted on site.

PVC tape is used to join the sleeving.

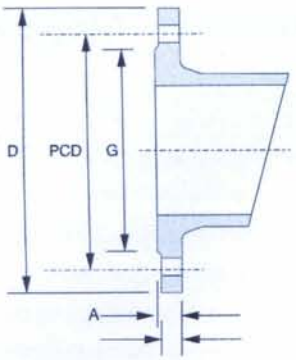
Tape roll size 50 mm x 33 metres long

Sizes of Sleeving Roll

DN	Layflat Width	Roll Length	Weight
mm	mm	m	Kg
80	280	87	11
100	280	87	11
150	400	87	16
200	550	87	22
250	650	87	26
300	700	87	28
350	800	87	33
400	1100	87	45
450	1100	87	45
500	1350	44	28
600	1350	44	28
700	1750	44	36
800	1750	44	36
900	2000	44	41
1000	2000	44	41

TAPE WRAPPING

Where conditions are particularly aggressive, pipes and fittings may be protected by spiral wrapping with mastic backed PVC tape. Pipes and fittings may be factory or site wrapped. Joints are wrapped on site.



PN16 flanges are supplied as standard on pipes and fittings for working pressures up to and including 16 bar.

PN10 flanges are supplied on request for pipes and fittings for working pressures up to and including 10 bar.

PN25 flanges are supplied to special order for pipes and fittings for working pressures over 16 bar and up to and including 25 bar.

PN40 flanges are supplied to special order for pipes and fittings for working pressures over 25 bar and up to and including 40 bar.

Working pressures are applicable within the temperature range -10°C to 120°C.

* Please note that bolt lengths are measured from the underside of the head

** Bolting torques using 3mm thick IHRD rubber gaskets

*** Flanges to BS EN 1092 : 1 2002 (Formerly) BS 4504)

PN 16 FLANGES (supplied as standard)

DN	D	G	A	B	Holes			*Bolt size and length	Spanner size across flats	**Approx. bolting torque to seal @				DN
					PCD	Nr	Dia.			10 bar	16 bar	20 bar	25 bar	
mm	mm	mm	mm	mm	mm		mm	mm	mm	Nm	Nm	Nm	Nm	mm
50	165	98	19.0	16.0	125	4	19	M16 x 65	24					**50**
80	200	132	19.0	16.0	160	8	19	M16 x 65	24	70	70	75	75	**80**
100	*220*	*156*	*19.0*	*16.0*	*180*	*8*	*19*	*M16 x 65*	*24*	*75*	*80*	*80*	*80*	***100***
125	250	184	19.0	16.0	210	8	19	M16 x 65	24					**125**
150	285	211	19.0	16.0	240	8	23	M20 x 70	30	115	120	125	135	**150**
200	340	266	20.0	17.0	295	12	23	M20 x 70	30	110	115	120	130	**200**
250	400	319	22.0	19.0	355	12	28	M24 x 85	36	155	165	175	180	**250**
300	455	370	24.5	20.5	410	12	28	M24 x 85	36	165	180	190	210	**300**
350	520	432	26.5	22.5	470	16	28	M24 x 85	36	160	175	185	200	**350**
400	580	480	28.0	24.0	525	16	31	M27 x 100	41	200	220	235	270	**400**
450	640	548	30.0	26.0	585	20	31	M27 x 100	41	195	215	230	260	**450**
500	715	609	31.5	27.5	650	20	34	M30 x 110	46	240	270	295	345	**500**
600	840	720	36.0	31.0	770	20	37	M33 x 120	50	305	365	425	505	**600**
700	910	794	39.5	34.5	840	24	37	M33 x 130	50	350	465	540	635	**700**
800	1025	901	43.0	38.0	950	24	40	M36 x 140	55	470	630	735	870	**800**
900	1125	1001	46.5	41.5	1050	28	40	M36 x 140	55	475	645	760	900	**900**
1000	1255	1112	50.0	45.0	1170	28	43	M39 x 160	60	605	835	985	1175	**1000**
1100	1355	1218	53.5	48.5	1270	32	43	M39 x 160	60	610	850	1005	1205	**1100**
1200	1485	1328	57.0	52.0	1390	32	49	M45 x 180	70	810	1140	1360	1630	**1200**
1400	1685	1530	60.0	55.0	1590	36	49	M45 x 180	70	915	1300	1555	1875	**1400**

BOLTS

Bolts are supplied in bagged sets containing the appropriate number of bolts, nuts and washers for each flanged joint.

Standard

Black or galvanised to BS 4190

Options

Rilsan coated
Stainless steel
Sheradised
Zinc plated

GASKETS

Gaskets are supplied either as Full Face or IBC

Standard

EPDM to BS EN 681-1 1996 (Formerly BS 2494) Type W (for potable water and pressure sewage

Options

Nitrile
Neoprene
Commercial rubber

PN 10 FLANGES

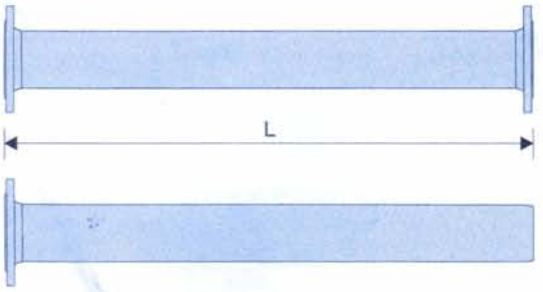
DN	D	G	A	B	Holes			Bolt size and length	Spanner size across flats	Appx. bolting torque to seal @			DN
					PCD	Nr.	Dia.			5 bar	10 bar	16 bar	
mm	mm	mm	mm	mm	mm		mm	mm	mm	Nm	Nm	Nm	mm
50	165	98	19.0	16.0	125	4	19	M16 x 65	24				50
80	200	132	19.0	16.0	160	8	19	M16 x 65	24	70	70	70	80
100	220	156	19.0	16.0	180	8	23	M16 x 65	24	70	75	80	100
150	285	211	19.0	16.0	240	8	23	M20 x 70	30	110	115	120	150
200	340	266	20.0	17.0	295	8	23	M20 x 70	30	120	130	140	200
250	400	319	22.0	19.0	350	12	23	M20 x 80	30	110	120	130	250
300	455	370	24.5	20.5	400	12	23	M20 x 80	30	120	130	145	300
350	505	429	24.5	20.5	460	16	23	M20 x 80	30	115	125	135	350
400	565	480	24.5	20.5	515	16	26	M24 x 85	36	155	170	185	400
450	615	530	25.5	21.5	565	20	28	M24 x 85	36	150	165	180	450
500	670	582	26.5	22.5	620	20	28	M24 x 90	36	155	170	195	500
600	780	682	30.0	25.0	725	20	31	M27 x 100	41	200	225	275	600
700	895	794	32.5	27.5	840	24	31	M27 x 110	41	200	230	295	700
800	1015	901	35.0	30.0	950	24	34	M30 x 110	46	250	300	405	800
900	1115	1001	37.5	32.5	1050	28	34	M30 x 120	46	250	300	415	900
1000	1230	1112	40.0	35.0	1160	28	37	M33 x 130	50	300	390	535	1000
1100	1340	1218	42.5	37.5	1270	32	37	M33 x 130	50	300	395	550	1100
1200	1455	1328	45.0	40.0	1380	32	40	M36 x 140	55	360	495	695	1200
1400	1675	1530	46.0	41.0	1590	36	43	M39 x 150	60	420	590	840	1400
1600	1915	1750	49.0	44.0	1820	40	49	M45 x 160	70	530	765	1095	1600

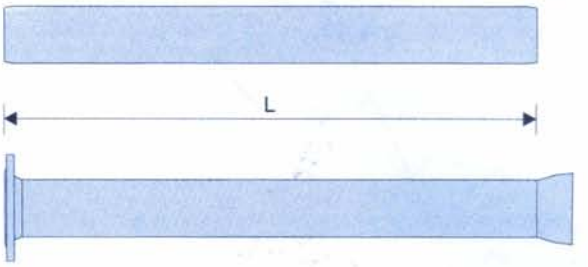
PN25 FLANGES

DN	D	G	A	B	Holes			*Bolt size and length	Spanner size across flats	**Approx. bolting torque to seal @					DN
					PCD	Nr.	Dia.			20 bar	25 bar	30 bar	35 bar	40 bar	
mm	mm	mm	mm	mm	mm		mm	mm	mm	Nm	Nm	Nm	Nm	Nm	mm
50	165	98	19.0	16.0	125	4	19	M16 x 65	24						50
80	200	132	19.0	16.0	160	8	19	M16 x 65	24	80	85	85	85	90	80
100	235	156	19.0	16.0	190	8	23	M20 x 70	30	120	125	130	130	135	100
150	300	211	20.0	17.0	250	8	28	M24 x 85	36	180	185	195	210	230	150
200	360	274	22.0	19.0	310	12	28	M24 x 85	36	170	180	190	205	220	200
250	425	330	24.5	21.5	370	12	31	M27 x 100	41	230	250	275	305	335	250
300	485	389	27.5	23.5	430	16	31	M27 x 100	41	220	235	265	295	325	300
350	555	448	30.0	26.0	490	16	34	M30 x 110	46	290	330	375	415	460	350
400	620	503	32.0	28.0	550	16	37	M33 x 120	50	380	435	495	555	615	400
450	670	548	34.5	30.5	600	20	37	M33 x 120	50	355	410	470	525	580	450
500	730	609	36.5	32.5	660	20	37	M33 x 120	50	415	485	555	625	695	500
600	845	720	42.0	37.0	770	20	40	M36 x 140	55	595	700	800	905	1010	600
700	960	820	46.5	41.5	875	24	43	M39 x 150	60	675	795	915	1040	1160	700
800	1085	928	51.0	46.0	990	24	49	M45 x 160	70	965	1150	1330	1510	1690	800
900	1185	1028	55.5	50.5	1090	28	49	M45 x 180	70	990	1185	1375	1565	1755	900
1000	1320	1140	60.0	55.0	1210	28	56	M52 x 200	80	1355	1620	1885	2155	2420	1000
1100	1420	1240	64.5	59.5	1310	32	56	M52 x 200	80	1380	1655	1930	2205	2480	1100
1200	1530	1350	69.0	64.0	1420	32	56	M52 x 200	80	1610	1940	2265	2595	2920	1200
1400	1755	1560	74.0	69.0	1640	36	62	M56 x 220	85	1980	2395	2805	3215	3625	1400
1600	1975	1780	81.0	76.0	1860	40	62	M56 x 240	85	2265	2745	3225	3705	4185	1600

PN40 FLANGES

DN	D	G	A	B	Holes			*Bolt size and length	Spanner size across flats	**Approx. bolting torque to seal @					DN
					PCD	Nr.	Dia.			25 bar	30 bar	35 bar	40 bar	45 bar	
mm	mm	mm	mm	mm	mm		mm	mm	mm	Nm	Nm	Nm	Nm	Nm	mm
50	165	98	19.0	16.0	125	4	19	M16 x 65	24						50
80	200	133	19.0	16.0	160	8	19	M16 x 65	24	70	75	75	80	80	80
100	235	159	19.0	16.0	190	8	23	M20 x 70	30	105	110	115	120	120	100
150	300	214	26.0	23.0	250	8	28	M24 x 85	36	160	170	180	185	195	150
200	375	281	30.0	27.0	320	12	31	M27 x 100	41	195	205	215	230	240	200
250	450	343	34.0	31.0	385	12	34	M30 x 110	46	260	280	305	345	380	250
300	515	406	39.5	35.5	450	16	34	M30 x 120	46	290	325	365	405	440	300
350	580	465	44.0	40.0	510	16	37	M33 x 140	50	390	445	500	550	605	350
400	660	535	48.0	44.0	585	16	40	M36 x 150	55	530	610	685	760	840	400
450	685	560	50.0	46.0	610	20	40	M36 x 150	55	475	545	610	680	745	450
500	755	615	52.0	48.0	670	20	43	M39 x 160	60	595	685	770	860	945	500
600	890	735	58.0	53.0	795	20	49	M45 x 180	70	930	1070	1215	1355	1500	600





Minimum & Maximum Lengths of Class K9 Fabricated Pipes

DN	mm	50	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900	1000	1200
L Minimum	mm	100	100	100	100	100	130	150	175	200	200	200	250	250	300	300	350	400	500
L Maximum	mm	2500	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5250	5000	5000	5000	5000	5000	5000

Weight Estimation Guide for Class K9 Fabricated Pipes

DN	mm	50	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900	1000	1200
Iron	Kg/m	8.0	12.8	15.8	20.0	23.8	32.2	42.5	54.0	66.9	81	96	111	147	184	227	271	324	444
Iron + CML	Kg/m	9.0	15.8	19.5	23.6	29.5	39.6	52.0	65.3	80.2	96	112	130	169	216	263	311	369	498
PN16 flange	Kg	4.0	4.5	6	7	8	10	15	19	28	33	43	58	89	100	116	144	200	255
Socket	Kg	3.2	4.1	4.8	5.1	5.4	9.1	12.8	18	22	26	31	38	54	59	66	85	130	166

WELDED PUDDLE FLANGES

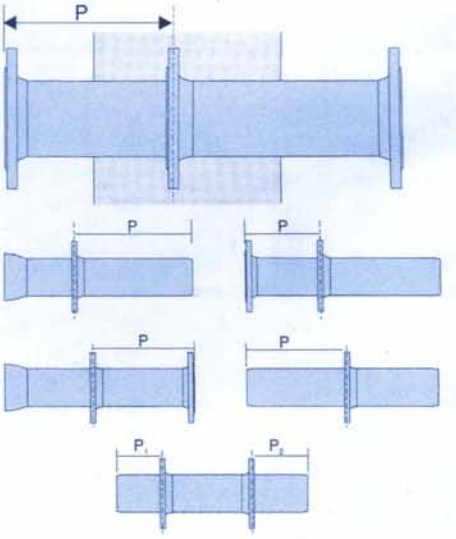
When a pipe passes through the wall of a tank below the level of the liquid in the tank, seepage of liquid between the outside of the pipe and the surrounding concrete may be prevented by the use of a puddle flange.

Puddle flanges may be welded to any of the pipe configurations shown.

The position of the puddle flange should be specified using dimension, P, the distance from the end flange or spigot to the centre of the puddle flange.

Loose Puddle Flanges (see page 17)

If the exact position of the puddle flange is not known, loose puddle flanges may be used on centrifugally spun pipes where no end thrust is expected.

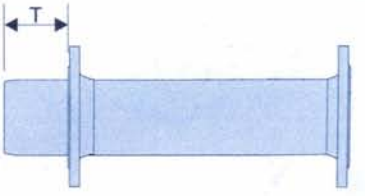


TIE FLANGES

A tie flange may be used with a flange adaptor to secure the integrity of the joint. Tie flanges shall be drilled PN16 as standard.

The distance T as standard is:

175 mm u.t.i. DN 600
200 mm DN 700-1000



DOUBLE FLANGED CHANGE PIECES

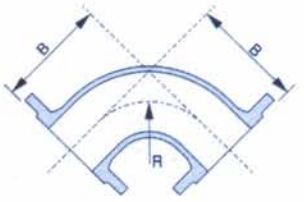
Change pieces can be fabricated for the conversion of metric flanged pipes to exisiting imperial pipes. Minimum and maximum lengths are as in the table above; flanges are detailed right.

Flange Options

Specification		Size range
BS 4504	PN10, PN16, PN25, PN 40	50 - 1200 mm
BS 10	Tables A,D,E ,F	2 - 48 in
ANSI 125, ASA 125/250		2 - 48 in

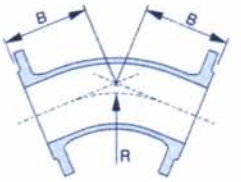
BOSS CONNECTIONS

Drilled and tapped sockets and bosses can be added to all ductile iron pipes. See page 17.



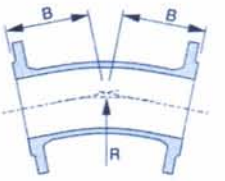
Double Flanged 90° Short Radius Bends, Class K12

DN	B	R approx.	*Weight	
			Iron	CML
mm	mm	mm	Kg	Kg
80	165	115	10	0.8
100	180	120	12	1.2
150	220	155	20	2.1
200	260	190	31	3.1
250	350	275	49	5.5
300	400	315	69	7.5
350	450	360	96	10
400	500	405	126	12
450	550	450	160	15
500	600	490	210	18
600	700	580	324	26
700	800	685	423	40
800	900	785	571	52
900	1000	875	750	64
1000	1100	965	990	79
1100	1200	1055	1233	94
1200	1300	1145	1573	112
1400	1270	1075	1943	192
1600	1270	1075	2524	220



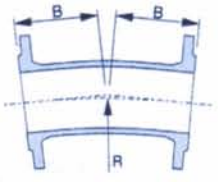
Double Flanged 45° Bends, Class K12

DN	B	R approx.	*Weight	
			Iron	CML
mm	mm	mm	Kg	Kg
80	130	190	9.5	0.7
100	140	200	11.5	1.0
150	160	230	19	1.7
200	180	265	27	2.6
250	350	660	54	6.5
300	400	765	76	8.5
350	298	505	82	7.0
400	324	550	106	9.0
450	349	595	132	11
500	375	645	174	13
600	426	735	264	18
700	478	875	335	28
800	529	1000	444	36
900	581	1100	576	44
1000	632	1200	757	53
1100	683	1300	931	64
1200	735	1400	1187	74
1400	835	1600	1599	148
1600	940	1800	2273	190



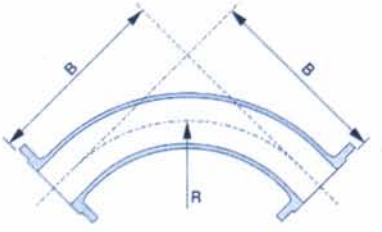
Double Flanged 22½° Bends, Class K12

DN	B	R approx.	*Weight	
			Iron	CML
mm	mm	mm	Kg	Kg
80	130	395	9.5	0.7
100	140	410	11.5	1.0
150	160	480	19	1.7
200	180	555	27	2.6
250	350	1370	55	6.5
300	400	1595	78	6.5
350	298	1050	83	8
400	324	1145	107	10
450	349	1240	135	11
500	375	1340	176	14
600	426	1535	267	19
700	478	1825	342	29
800	529	2080	448	37
900	581	2295	588	45
1000	632	2500	773	55
1100	683	2705	952	65
1200	735	2915	1213	76
1400	875	3300	1635	153
1600	940	3700	2325	197



Double Flanged 11¼° Bends, Class K12

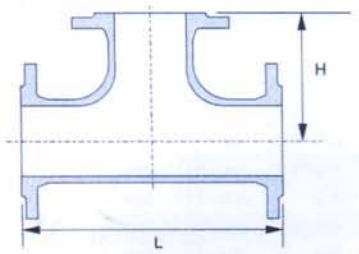
DN	B	R approx.	*Weight	
			Iron	CML
mm	mm	mm	Kg	Kg
80	130	800	9.5	0.7
100	140	830	11.5	1.1
150	160	975	19	1.8
200	180	1115	28	2.6
250	350	2770	55	6.5
300	400	3220	78	8.5
350	298	2120	84	8
400	324	2315	108	10
450	349	2505	135	12
500	375	2710	177	14
600	426	3095	268	19
700	478	3685	343	29
800	529	4200	451	37
900	581	4630	592	46
1000	632	5045	778	55
1100	683	5460	957	66
1200	735	5890	1220	77
1400	835	6700	1643	154
1600	940	7600	2338	198



Double Flanged 90° Long Radius Bends, Class K12

DN	B	R approx.	*Weight	
			Iron	CML
mm	mm	mm	Kg	Kg
80	380	330	14	1.8
100	400	340	18	2.5
150	450	385	30	4.1
200	500	430	46	6.0
250	550	475	65	8.5
300	600	515	90	11
350	650	560	121	14
400	700	605	157	17
450	750	650	197	20
500	800	690	252	24
600	900	780	379	33
700	100	880	670	56
800	1100	970	920	70
900	1200	1060	1195	80
1000	1300	1155	1556	98
1100	1400	1250	1940	118
1200	1500	1350	2420	130

* With PN16 flange
Iron - estimated minimum weight
CML - additional estimated weight for cement mortar lining



All Flanged Tees, DN 80-450
Class K14

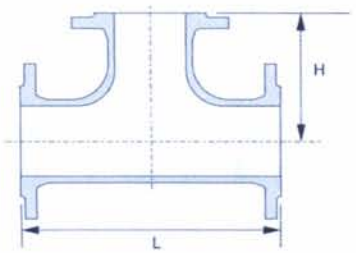
DN		L	H	* Weight	
Body	Branch			Iron	CML
mm	mm	mm	mm	Kg	Kg
80	80	330	165	15.6	1.3
100	80	360	175	18.4	1.7
	100	360	180	19.3	1.9
150	80	440	205	28.5	2.8
	100	440	210	29.5	3.0
	150	440	220	32.5	3.3
200	80	520	235	41.5	4.3
	100	520	240	42.5	4.4
	150	520	250	45.5	4.7
	200	520	260	49	5
250	80	700	265	65	7
	100	700	275	67	7
	150	700	300	70	7.5
	200	700	325	75	8
	250	700	350	81	8.5
300	80	800	290	91	9.5
	100	800	300	93	9.5
	150	800	325	95	10
	200	800	350	101	11
	250	800	375	108	11
	300	800	400	117	12
350	80	850	325	120	11
	100	850	325	122	12
	150	850	325	123	12
	200	850	325	128	12
	250	850	325	132	12
	300	850	425	144	14
	350	850	425	153	14
400	80	900	350	152	14
	100	900	350	154	14
	150	900	350	155	14
	200	900	350	159	14
	250	900	350	161	15
	300	900	450	177	16
	350	900	450	185	17
	400	900	450	194	17
450	80	950	375	187	16
	100	950	375	188	16
	150	950	375	190	17
	200	950	375	193	17
	250	950	375	197	17
	300	950	475	213	19
	350	950	475	221	19
	400	950	475	229	19
	450	950	475	237	20

All Flanged Tees, DN 500-800
Class K14

DN		L	H	* Weight	
Body	Branch			Iron	CML
mm	mm	mm	mm	Kg	Kg
500	80	1000	400	237	18
	100	1000	400	241	19
	150	1000	400	241	19
	200	1000	400	245	19
	250	1000	400	246	20
	300	1000	500	258	21
	350	1000	500	274	21
	400	1000	500	284	21
	450	1000	500	290	21
	500	1000	500	304	21
600	80	1100	450	349	25
	100	1100	450	350	25
	150	1100	450	352	25
	200	1100	450	358	26
	250	1100	450	358	26
	300	1100	550	369	27
	350	1100	550	376	27
	400	1100	550	401	27
	450	1100	550	404	27
	500	1100	550	408	27
	600	1100	550	447	28
700	80**	600	390	261	18
	100**	600	395	263	18
	150**	600	395	265	19
	200	650	525	299	21
	250	720	530	322	24
	300	780	530	342	26
	350	830	555	363	27
	400	870	555	379	28
	450	920	560	401	30
	500	990	560	448	32
	600	1200	590	536	40
	700	1200	600	548	41
800	80**	670	440	340	24
	100**	670	445	342	24
	150**	670	445	344	24
	200**	690	585	384	26
	250	770	585	414	29
	300	820	585	435	31
	350	880	600	461	32
	400	910	615	478	34
	450	980	615	508	36
	500	1030	620	538	38
	600	1350	645	699	50
	700	1350	645	706	52
	800	1350	675	741	53

* With PN16 flange
Iron - estimated minimum weight
CML - additional estimated weight for cement mortar lining

** These fittings may be supplied with a facing instead of a branch at the discretion of the manufacturer



All Flanged Tees, DN 900-1100 Class K14

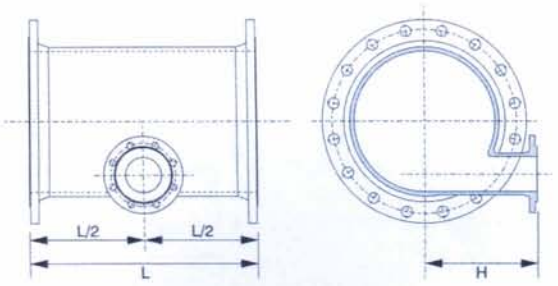
DN		L	H	* Weight	
Body	Branch			Iron	CML
mm	mm	mm	mm	Kg	Kg
900	80**	720	490	432	28
	100**	720	495	434	28
	150**	720	495	436	29
	200**	730	495	440	29
	250	820	645	522	34
	300	880	650	550	37
	350	930	655	576	38
	400	950	675	591	39
	450	1030	680	630	42
	500	1080	680	662	44
	600	1500	705	898	62
	700	1500	705	904	63
	800	1500	720	932	64
	900	1500	750	974	66
1000	80**	770	545	561	34
	100**	770	550	563	34
	150**	770	705	565	35
	200**	770	705	567	35
	250	880	710	677	41
	300	930	710	703	43
	350	980	725	733	45
	400	990	735	746	45
	450	1080	745	798	50
	500	1130	755	833	52
	600	1650	765	1107	75
	700	1650	765	1167	77
	800	1650	770	1189	77
	900	1650	800	1231	79
	1000	1650	825	1289	81
1100	80**	800	959	669	39
	100**	800	600	671	39
	150**	800	600	672	39
	200**	850	600	687	41
	250	900	760	798	45
	300	950	760	829	48
	350	1000	760	861	50
	400	1050	770	895	52
	450	1100	780	929	55
	500	1150	790	970	58
	600	1250	800	1066	63
	700	1350	800	1124	69
	800	1450	820	1282	74
	900	1550	840	1372	80
	1000	1650	875	1487	87
	1100	1780	890	1642	95

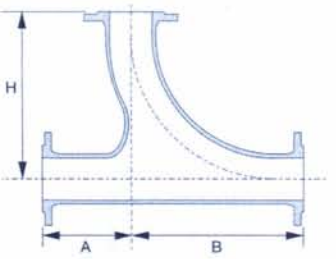
All Flanged Tees, DN 1200-1600 Class K14

DN		L	H	Weight (PN16 flange)	
Body	Branch			Iron	*CML
mm	mm	mm	mm	Kg	Kg
1200	80**	800	645	824	42
	100**	800	650	826	42
	150**	800	650	828	43
	200**	850	650	848	45
	250	900	825	973	50
	300	950	825	1009	53
	350	1000	825	1046	54
	400	1070	855	1099	59
	450	1100	850	1124	60
	500	1150	860	1168	63
	600	1250	885	1259	69
	700	1350	885	1329	76
	800	1450	885	1515	81
	900	1550	900	1610	87
	1000	1680	935	1734	96
	1100	1780	940	1836	102
	1200	1950	975	2055	114
1400	80**	1150	745	1281	106
	100**	1150	750	1285	106
	150**	1150	760	1298	106
	200**	1150	760	1308	106
	250**	1150	760	1320	106
	300	1150	960	1421	106
	350	1150	960	1426	108
	400	1200	960	1472	112
	450	1250	960	1519	117
	500	1300	960	1572	121
	600	1400	1000	1692	131
	700	1500	1000	1772	141
	800	1600	1010	1877	150
	900	1700	1030	1992	160
	1000	1800	1070	2133	171
	1100	1900	1070	2250	180
	1200	2000	1100	2433	191
	1400	2250	1125	2730	229
1600	80**	1150	845	1686	122
	100**	1150	850	1689	122
	150**	1150	860	1702	121
	200**	1150	860	1713	121
	250**	1150	860	1726	21
	300	1150	1080	1861	125
	350	1200	1080	1919	128
	400	1250	1080	1976	134
	450	1300	1080	2034	139
	500	1350	1080	2089	144
	600	1450	1125	2240	155
	700	1550	1125	2420	167
	800	1650	1140	2522	178
	900	1750	1160	2603	188
	1000	1850	1200	2765	200
	1100	1950	1200	2903	211
	1200	2050	1225	3105	223
	1400	2300	1225	3428	262
	1600	2500	1225	3578	283

* With PN16 flange
Iron - estimated minimum weight
CML - additional estimated weight for cement mortar lining

** These fittings may be supplied with a facing instead of a branch at the discretion of the manufacturer





All Flanged Level Invert Tees
Class K14

DN		L	H	* Weight	
Body	Branch			Iron	CML
mm	mm	mm	mm	Kg	Kg
100	80	360	195	19.5	1.8
150	80	440	220	29.5	2.9
200	80	520	250	42.5	4.4
	100	520	250	43.5	4.5
250	80	700	275	66	7
	100	700	275	68	7
300	80	800	305	92	9.5
	100	800	305	95.5	10
	150	800	305	99	10
350	80	850	340	121	12
	100	850	340	123	12
	150	850	340	128	12
400	80	900	365	153	14
	100	900	365	156	14
	150	900	365	162	14
	200	900	365	167	15
450	80	950	380	188	17
	100	950	380	189	17
	150	950	380	197	17
	200	950	380	202	17
500	80	1000	400	237	19
	100	1000	400	241	19
	150	1000	400	248	19
	200	1000	400	255	20
600	80	1100	435	350	25
	100	1100	435	351	25
	150	1100	450	360	26
	200	1100	450	370	26
700	150	600	500	262	20
	200	650	500	268	22
800	150	670	540	379	25
	200	690	540	388	26
900	150	720	580	481	30
	200	730	580	483	31
1000	150	770	630	625	36
	200	770	630	627	36
1100	150	800	660	743	41
	200	850	660	773	44
1200	150	800	700	910	45
	200	850	700	945	48

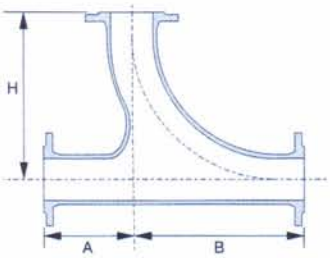
* With PN16 flange
Iron, estimated minimum weight
CML, additional estimated weight for cement mortar lining

All Flanged Radial Tees, DN 80-450
Class K14 u.t.i. DN 350

DN		A	B	H	* Weight	
Body	Branch				Iron	CML
mm	mm	mm	mm	mm	Kg	Kg
80	80	165	380	380	24	2.8
100	80	180	390	390	28	3.5
	100	180	400	400	31	4.0
150	80	220	395	415	40	5.2
	100	220	405	425	43	5.6
	150	220	450	450	52	6.5
200	80	220	400	440	53	6.9
	100	220	410	450	56	7.3
	150	260	455	475	67	8.5
	200	260	500	500	80	10
250	80	220	405	465	70	8.5
	100	220	415	475	74	9
	150	300	460	500	91	11
	200	300	5051	525	104	12
	250	350	550	550	124	13
300	80	220	415	490	90	10
	100	300	425	500	101	11
	150	300	470	525	114	12
	200	400	515	550	137	14
	250	400	560	575	154	18
	300	400	600	600	174	18
350	100	300	430	525	126	12
	150	300	475	550	140	13
	200	400	520	575	166	15
	250	400	565	600	185	17
	300	400	605	625	206	19
	350	450	650	650	235	22
400	100	300	435	550	160	13
	150	300	480	575	170	14
	200	400	525	600	200	16
	250	400	570	625	218	17
	300	450	610	650	246	19
	350	450	655	675	272	22
	400	500	700	700	307	25
450	100	300	440	575	185	15
	150	300	485	600	197	16
	200	400	530	625	230	18
	250	450	575	650	260	21
	300	450	615	675	282	23
	350	450	660	700	310	25
	400	550	705	725	355	28
	450	550	750	750	387	31

For radial tees DN 400 and above

Maximum working pressure = 10 bar
Recommended maximum site test pressure = 16 bar



All Flanged Radial Tees, DN 500-900

DN		A	B	H	* Weight	
Body	Branch				Iron	CML
mm	mm	mm	mm	mm	Kg	Kg
500	150	300	495	625	241	19
	200	400	540	650	278	22
	250	450	585	675	310	25
	300	450	625	700	335	27
	350	450	670	725	364	29
	400	550	715	750	413	33
	450	550	760	775	446	35
	500	600	800	800	497	40
600	150	330	505	675	330	23
	200	400	550	700	375	26
	250	450	595	725	413	29
	300	450	635	750	441	31
	350	45	680	775	473	33
	400	550	725	800	532	37
	450	600	770	825	580	41
	500	600	810	850	626	44
	600	700	900	900	748	52
700	200	400	550	750	500	33
	250	450	595	775	554	36
	300	450	635	800	591	38
	350	450	680	825	632	41
	400	550	725	850	715	46
	450	600	770	875	779	51
	500	600	810	900	835	54
	600	700	900	950	995	65
	700	800	1000	1000	1154	75
800	250	450	595	825	678	41
	300	450	635	850	719	43
	350	450	680	875	765	46
	400	550	725	900	861	52
	450	600	770	925	934	56
	500	600	810	950	995	60
	600	700	900	1000	1174	71
	700	800	1000	1050	1353	81
	800	900	1100	1100	1565	94
900	300	450	640	900	851	47
	350	450	685	925	907	50
	400	550	730	950	1013	55
	450	600	775	975	1101	60
	500	600	815	1000	1167	65
	600	700	905	1050	1366	75
	700	800	1005	1100	1568	85
	800	900	1105	1150	1802	99
	900	1000	1200	1200	2047	113

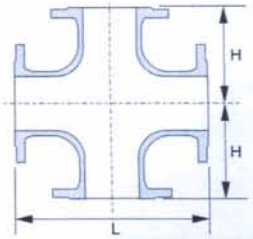
All Flanged Radial Tees, DN 1000-1200

DN		A	B	H	* Weight	
Body	Branch				Iron	CML
mm	mm	mm	mm	mm	Kg	Kg
1000	350	450	695	975	1103	55
	400	550	740	1000	1224	61
	450	600	785	1025	1323	64
	500	600	825	1050	1394	69
	600	700	915	1100	1616	81
	700	800	1015	1150	1841	92
	800	900	1115	1200	2099	105
	900	1000	1210	1250	2369	118
	1000	1100	1300	1300	2676	133
1100	400	550	750	1050	1416	71
	450	600	795	1075	1528	76
	500	600	835	1100	1605	80
	600	700	925	1150	1851	92
	700	800	1025	1200	2101	105
	800	900	1125	1250	2385	119
	900	1000	1220	1300	2678	134
	1000	1100	1310	1350	3012	151
	1100	1200	1400	1100	3353	167
1200	450	600	805	1125	1793	89
	500	600	845	1150	1877	94
	600	700	935	1200	2148	107
	700	800	1035	1250	2425	121
	800	900	1135	1300	2736	136
	900	1000	1230	1350	3056	153
	1000	1100	1320	1400	3417	177
	1100	1200	1410	1450	3785	189
	1200	1300	1500	1500	4200	210

* With PN16 flange
Iron - estimated minimum weight
CML - additional estimated weight for cement mortar lining

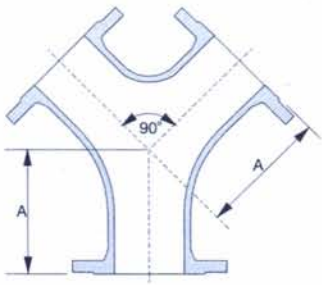
For radial tees DN 400 and above

Maximum working pressure = 10 bar
Recommended maximum site test pressure = 16 bar



All Flanged Equal Crosses
Class K14 u.t.i. DN 350

DN	L	H	* Weight	
			Iron	CML
mm	mm	mm	Kg	Kg
80	330	165	20.5	1.7
100	360	180	24.5	2.2
150	440	220	41	3.8
200	520	260	61	6
250	700	350	99.5	10
300	800	400	142	13
350	850	425	198	16
400	900	450	247	17
450	950	475	300	21
500	1000	500	386	26
600	1100	550	556	34
700	1200	600	930	60
800	1350	675	1240	72
900	1500	750	1620	96
1000	1650	825	2240	110
1100	1780	890	2870	140
1200	1950	975	3540	176
1400	2500	1225	4280	208

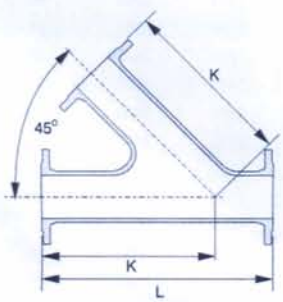


All Flanged 'Y's
Class K14 u.t.i. DN 350

DN	A	* Weight	
		Iron	CML
mm	mm	Kg	Kg
80	165	15.6	1.3
100	180	19.3	1.7
150	220	32.5	3
200	260	49	4.8
250	350	81	8
300	400	115	12
350	450	166	14
400	500	231	16
450	550	295	20
500	600	385	23
600	700	591	36

For crosses and 'Y's, DN 400 and above

Maximum working pressure = 10 bar
Recommended maximum site test pressure = 16 bar



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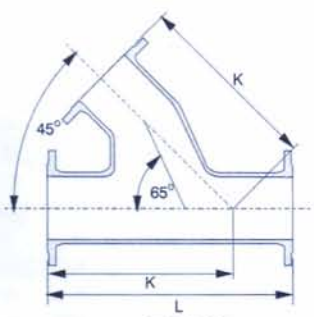
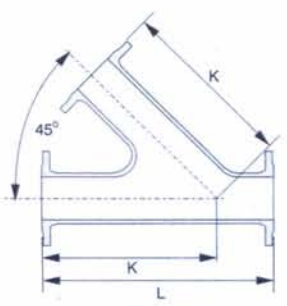


TYPE M

All Flanged 45° Angle Branches
Class K14, DN 80-250

DN		Type	L	K	* Weight	
Body	Branch				Iron	CML
mm	mm		mm	mm	Kg	Kg
80	80	N	500	375	23	2.3
100	80	N	500	390	27	2.8
	100	N	540	405	30	3.2
150	80	N	590	480	41	4.3
	100	N	640	480	45	4.7
	150	N	640	480	52	5.5
200	80	N	635	535	55	5.8
	100	N	635	535	58	6.1
	150	N	735	560	71	7.5
	200	N	735	560	81	8.5
250	80	N	660	585	75	7.1
	100	N	710	610	82	7.8
	150	N	830	640	100	9.5
	200	N	830	640	112	10.5
	250	N	830	640	126	12

* With PN16 flange
Iron - estimated minimum weight
CML - additional estimated weight for cement mortar lining



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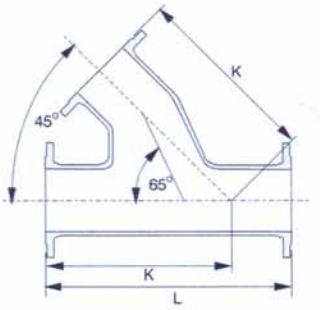


TYPE M

All Flanged 45° Angle Branches Class K14, DN 300-600

DN		Type	L	K	* Weight	
Body	Branch				Iron	CML
mm	mm		mm	mm	Kg	Kg
300	80	N	685	610	97	8
	100	N	685	610	100	8.5
	150	N	790	660	120	10
	200	N	865	685	140	12
	250	N	930	715	161	13.5
	300	N	930	715	177	15
350	100	N	685	635	124	12
	150	N	740	660	140	14
	200	N	840	710	165	17
	250	N	880	740	185	19
	300	M	880	790	207	21
	350	M	880	790	168	17
400	100	N	760	710	165	13
	150	N	815	740	180	15
	200	N	865	760	200	16
	250	N	970	820	230	18
	300	M	970	870	254	20
	350	M	970	870	283	23
	400	M	970	870	310	25
450	100	N	740	710	185	13
	150	N	840	760	211	15
	200	N	890	790	233	17
	250	N	990	820	272	19
	300	M	1040	900	298	21
	350	M	1060	950	338	24
	400	M	1060	950	366	26
	450	M	1060	950	392	28
500	150	N	790	765	245	15
	200	N	890	810	278	17
	250	N	940	840	304	18
	300	M	990	865	334	20
	350	M	1065	950	389	23
	400	M	1140	1025	439	26
	450	M	1140	1025	468	28
	500	M	1140	1025	505	30
600	150	N	890	840	354	18
	200	N	940	890	382	19
	250	N	990	915	413	21
	300	M	1090	965	460	23
	350	M	1160	1000	520	26
	400	M	1230	1035	568	28
	450	M	1295	1070	618	31
	500	M	1310	1180	680	34
	600	M	1310	1180	768	38

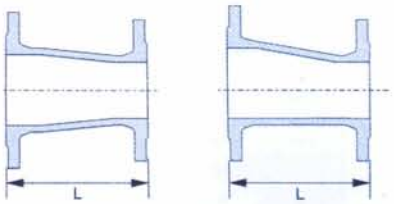
All Flanged 45° Angle Branches Class K14, DN 700-1200

DN		Type	L	K	* Weight	
Body	Branch				Iron	CML
mm	mm		mm	mm	Kg	Kg
700	200	N	1040	1015	547	27
	250	N	1070	1040	582	29
	300	N	1170	1090	649	32
	350	M	1240	1125	708	35
	400	M	1310	1160	772	39
	450	M	1370	1195	860	43
	500	M	1440	1240	945	47
	600	M	1570	1370	1133	57
	700	M	1570	1370	1240	62
800	250	N	1180	1150	760	31
	300	N	1200	1170	800	33
	350	N	1270	1205	867	35
	400	M	1340	1240	938	37
	450	M	1400	1270	1009	41
	500	M	1470	1305	1128	45
	600	M	1600	1370	1314	52
	700	M	1660	1450	1476	60
	800	M	1720	1520	1674	66
900	300	N	1270	1245	980	30
	350	N	1340	1280	1056	33
	400	N	1410	1315	1136	35
	450	M	1350	1350	1218	37
	500	M	1560	1390	1322	41
	600	M	1730	1475	1590	48
	700	M	1780	1540	1757	53
	800	M	1830	1610	1964	59
	900	M	1880	1680	2194	66
1000	350	N	1415	1380	1320	39
	400	N	1485	1415	1408	42
	450	N	1550	1450	1500	45
	500	M	1680	1510	1647	49
	600	M	1800	1575	1915	57
	700	M	1930	1640	2144	64
	800	M	2060	1700	2410	72
	900	M	2180	1980	2812	84
	1000	M	2180	1980	3052	90
1100	400	N	1560	1515	1677	50
	450	N	1625	1550	1777	53
	500	M	1730	1600	1922	57
	600	M	1830	1650	2200	66
	700	M	1980	1790	2490	75
	800	M	2120	1930	2827	85
	900	M	2265	2065	3205	96
	1000	M	2265	2065	3452	104
	1100	M	2265	2065	3703	111
1200	450	N	1780	1700	2210	66
	500	N	1880	1750	2367	71
	600	M	1980	1855	2695	81
	700	M	2125	1920	2988	90
	800	M	2270	1990	3330	100
	900	M	2415	2060	3693	111
	1000	M	2480	2280	4136	124
	1100	M	2480	2280	4410	132
	1200	M	2480	2280	4728	142

* With PN16 flange
Iron - estimated minimum weight
CML - additional estimated weight for cement mortar lining

For 45° angle branches DN 400 and above

Maximum working pressure = 10 bar
Recommended maximum site test pressure = 16 bar



Concentric Flat

Double Flanged Tapers, Concentric and Flat DN 80-350, Class K12

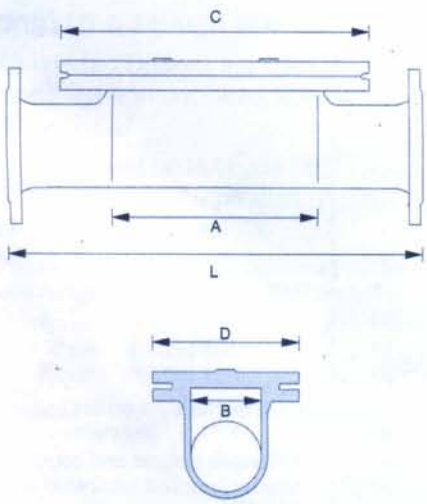
DN		L	* Weight	
Large	Small		Iron	*CML
mm	mm	mm	Kg	Kg
80	50	200	7.3	0.5
100	50	300	9.4	0.8
	80	200	9.3	0.7
150	80	400	16.1	1.7
	100	300	15	1.4
200	80	600	25.5	3.1
	100	600	27	3.4
	150	300	21.5	2.0
250	80	600	32	3.7
	100	600	34	4.0
	150	600	38	4.5
	200	300	29.5	2.5
300	100	600	41.5	4.5
	150	600	46	5.0
	200	600	51	5.5
	250	300	39.5	3.1
350	150	600	46	5.5
	200	600	60.5	6.0
	250	600	67	6.5
	300	300	52	3.6

Double Flanged Tapers, Concentric and Flat DN 400-800, Class K12

DN		L	* Weight	
Large	Small		Iron	*CML
mm	mm	mm	Kg	Kg
400	200	600	71	6.5
	250	600	77	7
	300	600	84	8
	350	300	67	4.2
450	250	600	87.5	8
	300	600	95	8.5
	350	600	104	9
	400	300	81	4.7
500	250	700	114	9.5
	300	600	111	9
	350	600	121	9
	400	600	130	10
	450	300	102	5
600	300	800	171	13
	350	700	167	12
	400	600	164	11
	450	600	175	12
	500	600	190	12
700	350	900	225	20
	400	800	220	18
	450	700	213	17
	500	600	208	15
	600	600	243	16
800	400	1000	293	25
	450	900	287	23
	500	800	285	21
	600	600	275	17
	700	600	295	20

Double Flanged Tapers, Concentric and Flat DN 900-1600, Class K12

DN		L	* Weight	
Large	Small		Iron	*CML
mm	mm	mm	Kg	Kg
900	450	1100	380	31
	500	1000	377	29
	600	800	366	25
	700	600	333	21
	800	600	364	22
1000	500	1200	501	37
	600	1000	487	33
	700	800	452	30
	800	600	418	24
	900	600	454	25
1100	600	1230	617	43
	700	1050	592	42
	800	860	561	36
	900	800	579	35
	1000	600	550	28
1200	600	1450	801	54
	700	1260	768	53
	800	1070	765	47
	900	880	708	41
	1000	800	720	39
	1100	600	666	30
1400	1000	1500	1177	102
	1100	1250	1102	88
	1200	1000	1070	73
1600	1000	2000	1718	150
	1100	1750	1646	144
	1200	1500	1615	119
	1400	1000	1338	99

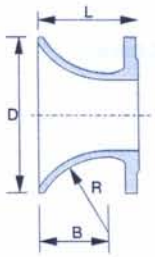


Double Flanged Hatchboxes Class K14

DN	L	Clear opening		Cover		Number and size of studs	Number & size of bolts	* Weight	
		A	B	C	D			Iron	CML
mm	mm	mm	mm	mm	mm			kg	kg
80	800	400	80	520	200	-	10 x M16	65	2.3
100	800	400	100	535	235	-	10 x M20	70	3
150	800	400	150	550	300	4 x M24	10 x M24	85	4.5
200	800	400	200	560	360	4 x M24	12 x M24	98.5	6
250	950	500	250	675	425	4 x M27	14 x M27	140	9
300	950	500	300	685	485	6 x M27	14 x M27	188	9
350	950	500	350	705	555	6 x M30	18 x M30	252	12
400	1100	600	400	820	620	6 x M33	18 x M33	310	16
450	1100	600	450	820	670	6 x M33	20 x M33	367	18
500	1200	600	500	830	730	4 x M33	22 x M33	422	22
600	1200	600	600	845	845	4 x M36	22 x M36	474	27

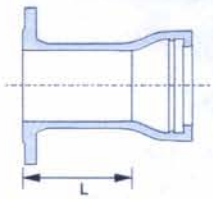
Maximum working pressure for hatchboxes u.t.i. DN350 = 16 bar, DN 400 and above = 10 bar

* With PN16 flange
Iron - estimated minimum weight
CML - additional estimated weight for cement mortar lining



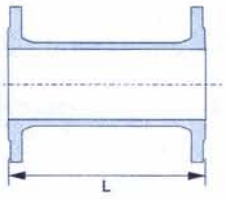
Flanged Bellmouths Class K12

DN	L	D	B	R	* Weight	
					Iron	CML
mm	mm	mm	mm	mm	Kg	kg
80	135	160	80	100	5.2	0.5
100	140	185	85	106	6.3	0.7
150	155	245	95	119	10.1	1.2
200	170	310	110	137	14.7	1.7
250	190	370	120	150	21	2.3
300	210	435	135	169	29	3.0
350	225	495	145	181	39	3.7
400	245	560	160	200	51	4.6
450	260	620	170	212	63	5
500	280	685	185	231	82.5	6
600	300	810	210	262	122	8
700	340	945	225	281	154	13
800	380	1055	240	300	203	17.5
900	420	1165	255	319	263	20
1000	440	1290	270	337	339	23
1100	465	1400	285	357	409	27
1200	490	1515	300	376	515	31
1400	515	1725	305	400	609	51
1600	540	1945	310	400	826	60



Flanged Sockets, Class K12 §

DN	L	* Weight	
		Iron	CML
mm	mm	kg	kg
80	130	7.3	0.4
100	130	8.7	0.5
150	135	13.6	0.8
200	140	19.7	1.1
250	145	27.5	1.4
300	150	38.0	1.7
350	155	48.5	2.0
400	160	62.5	2.4
450	165	75.5	2.7
500	170	97.0	3.1
600	180	140.0	4
700	190	202	6
800	200	253	7
900	210	327	8
1000	220	415	10
1100	230	520	11
1200	240	635	13

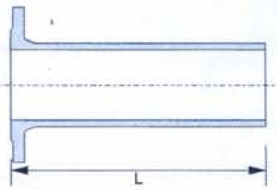


Double Flanged Cast Pipes Class K12

DN	L	*Weight	
		Iron	CML
mm	mm	kg	kg
80	100	7.1	0.3
	150	7.8	0.4
	200	8.4	0.6
	250	9.1	0.7
	300	9.8	0.9
	350	10.4	1.0
	400	11.1	1.2
	450	11.7	1.3
	500	12.4	1.5
	600	13.7	1.7

Double Flanged Cast Pipes Class K12

DN	L	*Weight	
		Iron	CML
mm	mm	kg	kg
100	100	8.3	0.4
	150	9.2	0.6
	200	10.1	0.8
	250	11.0	1.0
	300	11.9	1.1
	350	12.7	1.3
	400	13.6	1.5
	450	14.5	1.7
	500	15.4	1.9
	600	17.1	2.3
150	100	12.7	0.5
	150	14.0	0.8
	200	15.3	1.1
	250	16.7	1.4
	300	18.1	1.7
	350	19.5	2.0
	400	21.0	2.2
	450	22.5	2.5
	500	24.1	2.8
	600	26.5	3.4
200	150	19	1.0
	200	21	1.3
	250	23	1.6
	300	25	1.9
	500	31	3.2

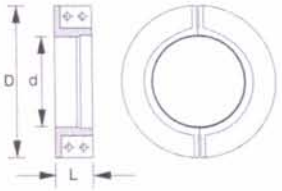


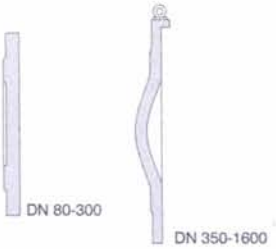
Flanged Spigots, Class K12 §

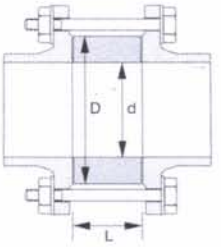
DN	L	* Weight	
		Iron	*CML
mm	mm	Kg	Kg
80	350	7.9	1.0
100	360	9.7	1.4
150	380	15.6	2.1
200	400	22.5	3.0
250	420	31.5	3.9
300	440	42	5
350	460	55	6
400	480	70	7
450	500	86	8.5
500	520	109	9.5
600	560	159	12
700	600	206	18
800	600	254	21
900	600	320	24
1000	600	395	26
1100	600	473	29
1200	600	567	32
1400	710	818	66
1600	780	1143	82

§ Flanged spigots and sockets ma also be supplied fabricated as Class K9

* With PN16 flange
Iron, estimated minimum weight
CML, additional estimated weight for cemen mortar lining







Loose Puddle Flanges (for use on spun pipe only)

DN	D	L	d	* Weight
mm	mm	mm	mm	kg
80	260	110	100	11.5
100	305	110	120	14.5
150	390	130	172	23
200	430	130	224	28
250	490	130	276	37
300	555	130	329	46
350	610	130	381	50
400	660	150	432	62
450	725	150	483	73
500	790	150	535	85
600	900	165	638	120
700	1000	165	746	144
800	1100	185	850	189
900	1200	185	953	221
1000	1340	200	1056	342
1100	1440	200	1160	378
1200	1570	225	1263	487
1400	1780	225	1470	634
1600	1996	225	1686	702

Note: Loose puddle flanges are not suitable for sand cast pipes, or where thrust loading is expected. For welded puddle flanges see page 6.

The bolts supplied with loose puddle flanges are for transit purposes only.

Blank Flanges

DN	Weight of flange			
	PN10	PN16	PN25	PN40
mm	kg	kg	kg	kg
80	3.9	3.9	3.9	3.7
100	4.8	4.8	5.1	5.1
150	8.1	8.1*	8.8	11.4
200	11.6	11.4	13.3	20.5
250	16.9	16.6	21	34.5
300	24	23.5	30	51
350	30.5	34.5	44.5	74
400	37.5	46	59.5	106
450	46.5	60	80.5	118
500	58	79.5	97	150
600	88.5	125	149	232
700	128	163	215	-
800	180	228	304	-
900	234	299	397	-
1000	307	405	535	-
1100	391	509	670	-
1200	491	653	843	-
1400	739	993	1350	-
1600	1239	1462	1938	-

Note: The eyebolts on the larger flanges are intended for lifting the blank flanges alone.

Pipe Blocks to suit PN16 flanges

DN	d	D	L		Weight per 100mm L
			min	max	
mm	mm	mm	mm	mm	kg
80	76	133	15	105	6.6
100	100	153	15	120	7.4
150	150	209	15	130	11.8
200	200	264	15	140	16.5
250	250	319	20	155	22
300	300	367	20	170	25
350	350	432	20	180	35.5
400	400	484	20	195	41
450	450	544	20	205	52
500	500	606	20	220	65
600	600	721	30	245	89
700	704	791	30	245	75
800	802	898	30	245	94
900	897	998	30	250	109
1000	1003	1115	35	270	127
1100	1100	1215	35	290	151
1200	1203	1328	35	310	175
1400	1404	1530	40	375	205
1600	1604	1750	40	375	271

Pipe blocks for PN10, PN25 and PN40 flanges available.
Full face pipe blocks on request.

DRILLED & TAPPED BOSSES

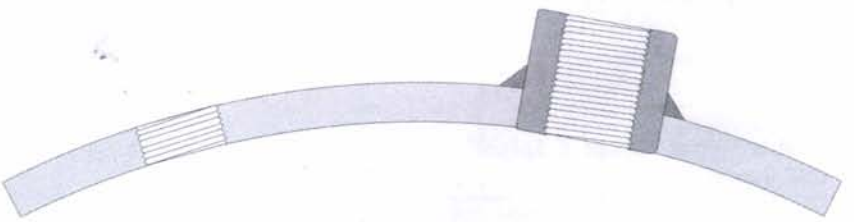
All welded bosses are mild steel as standard and supplied fitted with plugs.

Sockets and bosses are positioned to customer requirements. A drawing should be supplied.

Please note the minimum distance from an end flange to the centre of a BSP socket is:

100 mm DN 80-300
150 mm DN 350-600
250 mm DN 700-1200

Bosses will be fitted on the centre line unless stated otherwise.



Drilled & Tapped Wall Sockets

For pipes & fittings DN 80-1200 the wall can be drilled and tapped 1/8" to 2" BSP.

Pipes and fittings u.t.i. DN 150 should have wall tappings restricted to ½" max.

Drilled & Tapped Standard Bosses

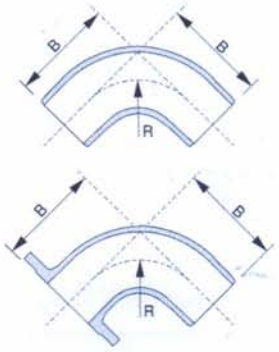
For pipes & fittings DN 80-1200

Drilled 1/8" to 2" BSP as standard

Maximum boss OD = 100mm

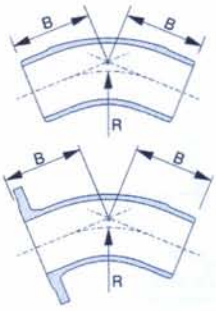
CAST BOSSES & FACINGS

Bosses or facings may be cast on to our own range of flanged or spigoted fittings DN 400 and above.



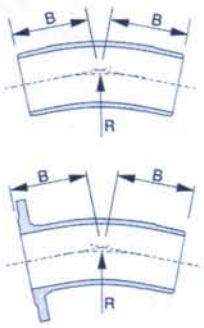
Double Spigot, Flange & Spigot 90° Short Radius Bends

DN	B	R appx.	Spigot OD x length
mm	mm	mm	mm
400	500	405	429 x 100
450	550	450	480 x 100
500	600	490	532 x 100
600	700	580	635 x 150
700	800	685	738 x 150
800	900	785	842 x 150
900	1000	875	945 x 150
1000	1100	965	1048 x 150
1100	1200	1055	1152 x 150
1200	1300	1145	1255 x 150
1400	1270	1075	1462 x 150
1600	1270	1075	1668 x 150



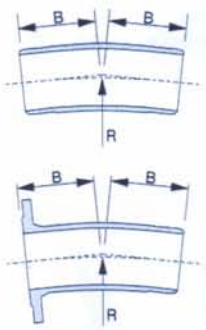
Double Spigot, Flange & Spigot 45° Bends

DN	B	R appx.	Spigot OD x length
mm	mm	mm	mm
400	324	550	429 x 100
450	349	595	480 x 100
500	375	645	532 x 100
600	426	735	635 x 150
700	478	875	738 x 150
800	529	1000	842 x 150
900	581	1100	945 x 150
1000	632	1200	1048 x 150
1100	683	1300	1152 x 150
1200	735	1400	1255 x 150
1400	835	1600	1462 x 150
1600	940	1800	1668 x 150



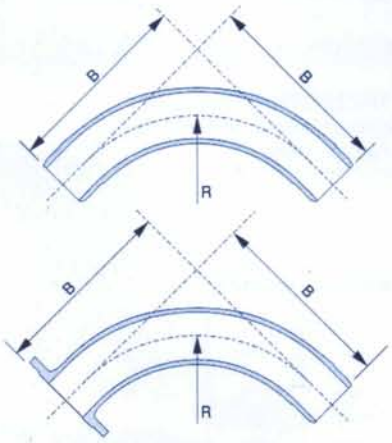
Double Spigot, Flange & Spigot 22½° Bends

DN	B	R approx.	Spigot OD x length
mm	mm	mm	mm
400	324	1145	429 x 100
450	349	1240	480 x 100
500	375	1340	532 x 100
600	426	1535	635 x 150
700	478	1825	738 x 150
800	529	2080	842 x 150
900	581	2295	945 x 150
1000	632	2500	1048 x 150
1100	683	2705	1152 x 150
1200	735	2915	1255 x 150
1400	875	3300	1462 x 150
1600	940	3700	1668 x 150



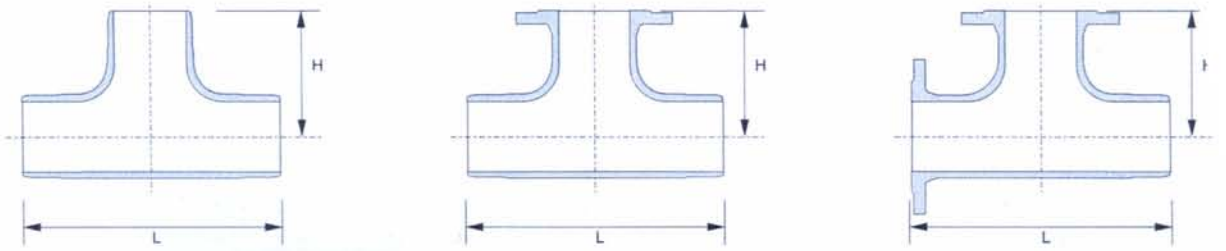
Double Spigot, Flange & Spigot 11¼° Bends

DN	B	R appx.	Spigot OD x length
mm	mm	mm	mm
400	324	2315	429 x 100
450	349	2505	450 x 100
500	375	2710	532 x 100
600	426	3095	635 x 150
700	478	3685	738 x 150
800	529	4200	842 x 150
900	581	4630	945 x 150
1000	632	5045	1048 x 150
1100	683	5460	1152 x 150
1200	735	5890	1255 x 150
1400	835	6700	1462 x 150
1600	940	7600	1668 x 150



Double Spigot, Flange & Spigot 90° Long Radius Bends

DN	B	R approx.	Spigot OD x length
mm	mm	mm	mm
400	700	330	429 x 100
450	750	340	480 x 100
500	800	385	500 x 532
600	900	780	635 x 150
700	100	880	738 x 150
800	1100	970	842 x 150
900	1200	1060	945 x 150
1000	1300	1155	1048 x 150
1100	1400	1250	1152 x 150
1200	1500	1350	1255 x 150



All Spigot Tees, Flange on Double Spigot Tees, Flange on Flange & Spigot Tees

DN 400-700

DN		L	H
Body	Branch		
mm	mm	mm	mm
400	80*	900	350
	100*	900	350
	150*	900	350
	200*	900	350
	250	900	350
	300	900	450
	350	900	450
	400	900	450
450	80*	950	375
	100*	950	375
	150*	950	375
	200*	950	375
	250	950	375
	300	950	475
	350	950	475
	400	950	475
	450	950	475
0	80*	1000	400
	100*	1000	400
	150*	1000	400
	200*	1000	400
	250	1000	400
	300	1000	500
	350	1000	500
	400	1000	500
	450	1000	500
	500	1000	500
	80*	1100	450
	100*	1100	450
	150*	1100	450
	200*	1100	450
	250	1100	450
	300	1100	550
	350	1100	550
	400	1100	550
	450	1100	550
	500	1100	550
	600	1100	550
	)0*	600	390
	)0*	600	395
	0*	600	395
	)*	650	525
	)	720	530
		780	530
		830	555
		870	555
		920	560
		990	560
		1200	590
		1200	600

DN 800-1000

DN		L	H
Body	Branch		
mm	mm	mm	mm
800	80*	670	440
	100*	670	445
	150*	670	445
	200*	690	585
	250	770	585
	300	820	585
	350	880	600
	400	910	615
	450	980	615
	500	1030	620
	600	1350	645
	700	1350	645
	800	1350	675
900	80*	720	490
	100*	720	495
	150*	720	495
	200*	730	495
	250	820	645
	300	880	650
	350	930	655
	400	950	675
	450	1030	680
	500	1080	680
	600	1500	705
	700	1500	705
	800	1500	720
	900	1500	750
1000	80*	770	545
	100*	770	550
	150*	770	705
	200*	770	705
	250	880	710
	300	930	710
	350	980	725
	400	990	735
	450	1080	745
	500	1130	755
	600	1650	765
	700	1650	765
	800	1650	770
	900	1650	800
	1000	1650	825

* These sizes available with flanged branch only

DN 1100-1400

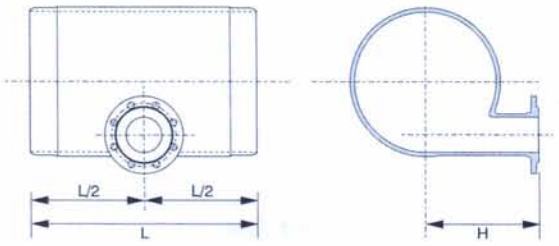
DN		L	H
Body	Branch		
mm	mm	mm	mm
1100	80*	800	595
	100*	800	600
	150*	800	600
	200*	850	600
	250	900	760
	300	950	760
	350	1000	760
	400	1050	770
	450	1100	780
	500	1150	790
	600	1250	800
	700	1350	800
	800	1450	820
	900	1550	840
	1000	1650	875
	1100	1780	890
1200	80*	800	645
	100*	800	650
	150*	800	650
	200*	850	650
	250	900	825
	300	950	825
	350	1000	825
	400	1070	855
	450	1100	850
	500	1150	860
	600	1250	885
	700	1350	885
	800	1450	885
	900	1550	900
	1000	1680	935
	1100	1780	940
	1200	1950	975
1400	80*	1150	745
	100*	1150	750
	150*	1150	750
	200*	1150	760
	250	1150	760
	300	1150	960
	350	1150	960
	400	1200	960
	450	1250	960
	500	1300	960
	600	1400	1000
	700	1500	1000
	800	1600	1010
	900	1700	1030
	1000	1800	1070
	1100	1900	1070
	1200	2000	1100
	1400	2250	1125

DN 1600

DN		L	H
Body	Branch		
mm	mm	mm	mm
1600	80*	1150	845
	100*	1150	850
	150*	1150	860
	200*	1150	860
	250	1150	860
	300	1150	1080
	350	1200	1080
	400	1250	1080
	450	1300	1080
	500	1350	1080
	600	1450	1125
	700	1550	1125
	800	1650	1140
	900	1750	1160
	1000	1850	1200
	1100	1950	1200
	1200	2050	1225
	1400	2300	1225
	1600	2500	1225

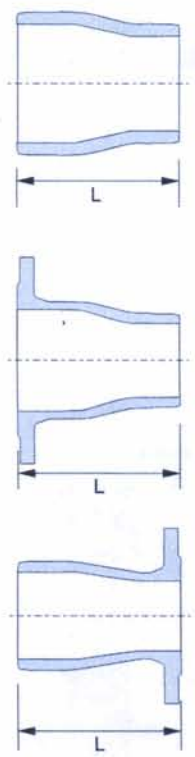
Spigot Dimensions

DN	Spigot OD x length
mm	mm
250	274 x 100
300	326 x 100
350	378 x 100
400	429 x 100
450	480 x 100
500	532 x 100
600	635 x 150
700	738 x 150
800	842 x 150
900	945 x 150
1000	1048 x 150
1100	1152 x 150
1200	1255 x 150
1400	1462 x 150
1600	1668 x 150



Flange on Double Spigot Level Invert Tees

DN		L	H	Spigot OD x length
Body	Branch			
mm	mm	mm	mm	mm
400	100	900	350	429 x100
450	100	950	375	480 x 100
500	100	1000	400	532 x 100
600	100	1100	450	635 x 150
700	150	600	525	738 x 150
	200	650	525	
800	150	670	585	842 x 150
	200	690	585	
900	150	720	640	945 x 150
	200	730	645	
1000	150	770	705	1048 x 150
	200	770	705	
1100	150	800	760	1152 x 150
	200	850	760	
1200	150	800	825	1255 x 150
	200	850	825	



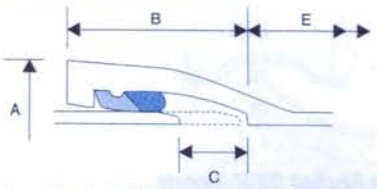
Double Spigot, Flange & Spigot Concentric Tapers, DN 400-800

DN		L	Spigot OD x length	
Large	Small		Small end	Large end
mm	mm	mm	mm	mm
400	200	600	222 x 100	429 x 100
	250	600	274 x 100	
	300	600	326 x 100	
	350	300	378 x 100	
450	250	600	274 x 100	480 x 100
	300	600	326 x 100	
	350	600	378 x 100	
	400	300	429 x 100	
500	250	700	274 x 100	532 x 100
	300	600	326 x 100	
	350	600	378 x 100	
	400	600	429 x 100	
	450	300	480 x 100	
600	300	800	326 x 100	635 x 150
	350	700	378 x 100	
	400	600	429 x 100	
	450	600	480 x 100	
	500	600	532 x 100	
700	350	900	378 x 100	738 x 150
	400	800	429 x 100	
	450	700	480 x 100	
	500	600	532 x 100	
	600	600	635 x 150	
800	400	1000	429 x 100	842 x 150
	450	900	480 x 100	
	500	800	532 x 100	
	600	600	635 x 150	
	700	600	738 x 150	

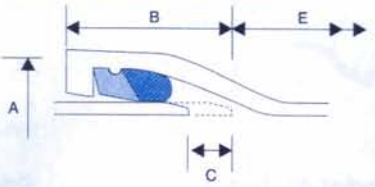
Double Spigot, Flange & Spigot Concentric Tapers, DN 900-1600

DN		L	Spigot OD x length	
Large	Small		Small end	Large end
mm	mm	mm	mm	mm
900	450	1100	480 x 100	945 x 150
	500	1000	532 x 100	
	600	800	635 x 150	
	700	600	738 x 150	
	800	600	842 x 150	
1000	500	1200	532 x 100	1048 x 150
	600	1000	635 x 150	
	700	800	738 x 150	
	800	600	842 x 150	
	900	600	945 x 150	
1100	600	1230	635 x 150	1152 x 150
	700	1050	738 x 150	
	800	860	842 x 150	
	900	800	945 x 150	
	1000	600	1048 x 150	
1200	600	1450	635 x 150	1255 x 150
	700	1260	738 x 150	
	800	1070	842 x 150	
	900	880	945 x 150	
	1000	800	1048 x 150	
	1100	600	1152 x 150	
1400	1000	1500	1048 x 150	1462 x 150
	1100	1250	1152 x 150	
	1200	1000	1255 x 150	
1600	1000	2000	1048 x 150	1668 x 150
	1100	1750	1152 x 150	
	1200	1500	1255 x 150	
	1400	1000	1462 x 150	

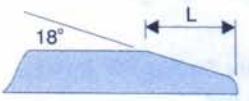
Joints up to DN 600



Joints DN 600 and above



A Socket OD
B Socket depth
C Allowable spigot withdrawal
E Effective length

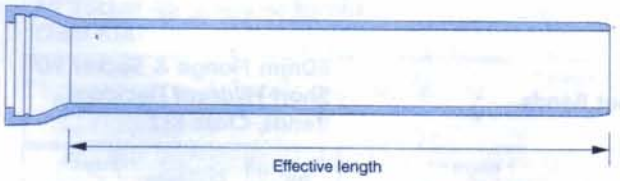


Socket Specification & Dimensions

DN	A	B	C		Angular deflection
			No deflection	Full deflection	
mm	mm	mm	mm	mm	degrees
80	146	80	38	30	5
100	166	80	38	28	5
150	219	80	38	23	5
200	277	87	38	18	5
250	329	96	38	14	5
300	386	104	38	9	5
350	439	101	38	11	4
400	495	112	38	7	4
450	547	107	38	4	4
500	604	117	40	2	4
600	713	125	45	1	4
700	825	138	40	0	4
800	930	143	40	0	4
900	1045	154	43	0	4
1000	1155	164	46	0	4
1100	1270	174	50	0	4
1200	1380	184	54	0	4

Chamfer Dimensions

DN	L	
	min	max
mm	mm	mm
80	10	14
100	10	14
150	10	14
200	10	14
250	10	14
300	10	14
350	10	14
400	12	16
450	12	16
500	14	18
600	14	18
700	16	20
800	16	20
900	18	22
1000	20	24
1100	22	26
1200	24	28



Length Tolerances

The tolerance on pipe length allowed by EN 545 and EN 598 is ±30 mm

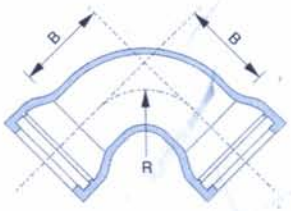
However, as test rings are cut from a proportion of pipes for quality control purposes, some pipes may be shorter than the length given by 150 mm.

Socket & Spigot Pipes, Class K9

DN	Mean ext. dia. of barrel	Standard effective length	*Weight	
			Iron	CML
mm	mm	mm	Kg	Kg
80	98	5500	70.5	16
100	118	5500	87	20
150	170	5500	131	31
200	222	5500	177	41
250	274	5500	234	52
300	326	5500	297	62
350	378	5500	368	73
400	429	5500	441	83
450	480	5500	524	92
500	532	5500	610	103
600	635	5500	806	124
700	738	5500	1012	173
800	842	5500	1247	197
900	945	8080	2185	326
1000	1048	8070	2616	361
1100	1152	8060	3076	397
1200	1255	8050	3572	433

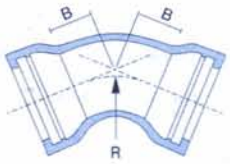
* Iron - estimated minimum weight
CML - additional estimated weight for cement mortar lining

Socketed Fittings for Ductile Iron Pipe
to EN 545 & EN 598 (ISO 2531 : 1998)



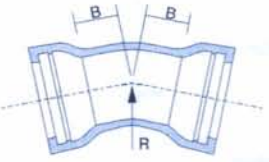
Double Socket 90° bends Class K12

DN	B	R approx.	* Weight	
			Iron	CML
mm	mm	mm	Kg	Kg
80	100	80	7.1	0.5
100	120	95	9.2	0.8
150	170	145	16.8	1.6
200	220	195	28	2.7
250	270	245	42.5	4.1
300	320	290	63.5	6
350	370	340	83	8
400	420	390	113	10
450	470	435	143	12
500	520	485	183	15
600	620	580	273	22
700	720	675	455	36
800	820	775	605	47
900	920	870	813	58
1000	1020	970	1045	72



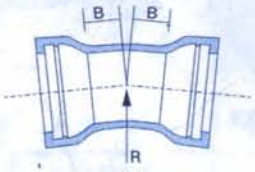
Double Socket 45° bends Class K12

DN	B	R approx.	* Weight	
			Iron	CML
mm	mm	mm	Kg	Kg
80	55	80	6.3	0.3
100	65	100	7.9	0.5
150	85	145	13.5	0.9
200	110	200	22	1.6
250	130	245	32.5	2.3
300	155	305	49	3.4
350	175	350	61	4.3
400	200	405	82.5	6
450	220	450	103	7
500	240	495	130	8
600	285	595	191	12
700	330	685	336	20
800	370	785	434	25
900	415	885	583	31
1000	460	985	741	39



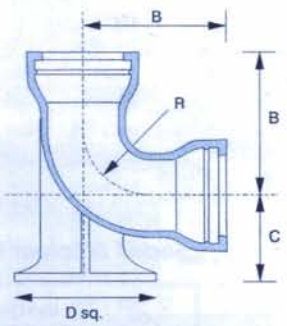
Double Socket 22½° bends Class K12

DN	B	R approx.	* Weight	
			Iron	CML
mm	mm	mm	Kg	Kg
80	40	90	5.9	0.2
100	45	110	7.3	0.3
150	55	155	12	0.6
200	65	195	18.8	1.0
250	75	240	27	1.4
300	90	305	41	2.0
350	100	350	50	2.6
400	110	390	66	3.2
450	120	435	81.5	4.0
500	135	505	103	4.9
600	155	590	147	7
700	175	650	271	11
800	195	750	343	14
900	220	850	461	17
1000	240	950	577	21



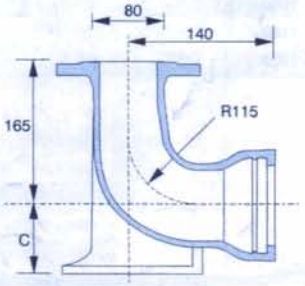
Double Socket 11¼° bends Class K12

DN	B	R approx.	* Weight	
			Iron	CML
mm	mm	mm	Kg	Kg
80	30	75	5.6	0.2
100	35	120	6.9	0.3
150	40	155	11.2	0.5
200	45	195	17.2	0.7
250	50	230	24.5	0.9
300	60	315	37	1.4
350	65	350	44	1.7
400	70	385	58	2.1
450	75	420	71.5	2.5
500	85	510	90	3.1
600	95	580	126	4.2
700	95	500	235	6
800	110	600	295	8
900	120	700	393	9
1000	130	800	489	11



Double Socket 90° Duckfoot Bends Class K12

DN	B	R approx.	C	D	* Weight	
					Iron	CML
mm	mm	mm	mm	mm	Kg	Kg
80	100	80	110	180	11.3	0.5
100	120	95	125	200	14.8	0.8
150	170	145	160	250	28.5	1.6
200	220	195	190	300	44.5	2.7
250	270	245	225	350	68.5	4.1
300	320	290	255	400	100	6
350	370	340	290	450	133	8
400	420	390	320	500	180	10
450	470	435	355	550	230	12
500	520	485	385	600	294	15
600	620	580	450	700	442	22

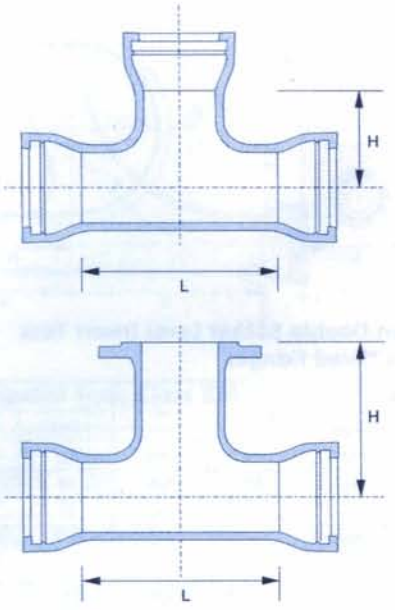


80mm Flange & Socket 90° Short Hydrant Duckfoot Bends, Class K12

DN	C	* Weight	
		Iron	CML
mm	mm	kg	kg
80	95	12.5	0.7
100	105	15.9	1.0
150	130	21.5	1.3

* Iron - estimated minimum weight
CML - additional estimated weight for cement mortar lining

Socketed Fittings for Ductile Iron Pipe
to EN 545 & EN 598 (ISO 2531 : 1998)



All Socket Tees, Flange on Double Socket Tees DN 80-400, Class K14 (fixed flange)

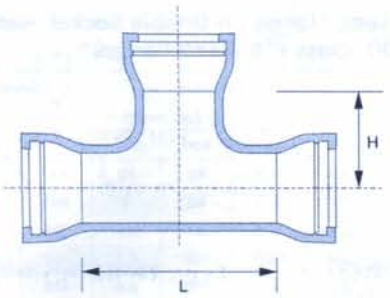
DN		L	All Socket Tee			Flange on DS Tee		
Body	Branch		H	Est. weight		H	Est. weight	
				Iron	CML		Iron	CML
mm	mm	mm	mm	kg	kg	mm	kg	kg
80	80	185	110	10.9	0.7	185	12.6	0.9
100	80	185	125	12.6	0.9	195	14.3	1.1
	100	210	125	13.8	1.1	200	15.9	1.5
150	80	190	150	18.1	1.3	220	19.7	1.5
	100	210	150	19.5	1.5	230	21.5	1.7
	150	270	150	23	1.9	245	26.5	2.3
200	80	190	180	25.5	1.6	250	27	1.9
	100	215	180	27	1.9	255	29	2.2
	150	270	180	31.5	2.3	270	35	2.8
	200	330	180	37.5	2.8	275	41.5	3.5
250	80	220	205	35.5	2.2	275	37	2.5
	100	220	205	36	2.3	285	38	2.5
	150	335	205	45	3.3	300	48.5	3.8
	200	335	205	48	3.5	305	52	4.2
	250	335	205	55	4.0	320	61	5.0
300	80	220	235	48	2.7	305	49.5	2.8
	100	220	235	49	2.7	310	51	3.0
	150	335	235	60	4.0	325	63	4.5
	200	335	235	62	4.0	330	66.5	4.8
	250	450	240	76.5	5.5	345	82.58	6.5
	300	450	240	81.5	5.5	360	89.5	7.0
350	80	225	260	57	3.1	330	58.5	3.3
	100	225	260	57	3.1	340	59.5	3.4
	150	340	265	70.5	4.7	355	74	5
	200	340	265	73.5	4.8	360	77.5	5.5
	250	515	265	95.5	7.5	375	102	8
	300	515	270	101	7.5	390	108	9
	350	515	270	102	8	405	117	9.5
400	80	225	290	72.5	3.6	360	74	3.8
	100	225	290	73	3.7	365	75	3.9
	150	340	290	88.5	5.5	380	91.5	6
	200	340	290	91	5.5	385	95.5	6.5
	250	575	295	121	9	400	128	10
	300	575	295	130	9	415	138	11
	350	575	300	131	9	430	146	11
	400	575	300	137	10	445	156	12

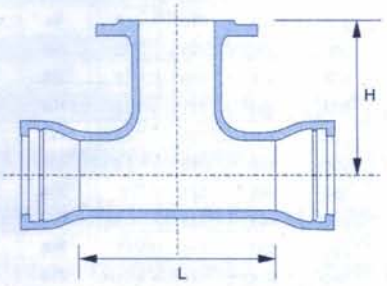
All Socket Tees, Flange on Double Socket Tees DN 450-800, Class K14 (fixed flange)

DN		L	All Socket Tee			Flange on DS Tee		
Body	Branch		H	Est. weight		H	Est. weight	
				Iron	CML		Iron	CML
mm	mm	mm	mm	kg	kg	mm	kg	kg
450	80	230	315	86	4	385	88	4.3
	100	230	315	87	4.1	395	89	4.4
	150	345	320	105	6.2	410	108	6.5
	200	345	320	108	6.4	415	112	7
	250	635	320	151	11	430	157	12
	300	635	325	159	12	44	167	13
	350	635	310	161	12	460	174	13
	400	635	315	169	12	475	186	15
	450	635	330	171	12	490	196	15
500	80	230	345	105	4.5	415	107	4.7
	100	290	345	106	4.6	420	108	4.8
	150	350	345	127	7	435	130	7.5
	200	350	345	129	7.5	440	133	7.5
	250	580	350	170	11	455	176	12
	300	580	350	171	11	470	182	13
	350	580	340	184	12	485	198	13
	400	580	340	188	12	500	207	14
	450	695	345	212	14	515	236	17
	500	695	360	219	15	530	252	18
600	80	355	400	167	8	470	168	8.5
	100	3551	400	168	8	475	169	8.5
	150	355	400	169	8.5	490	172	9
	200	355	400	171	8.5	495	175	9
	250	585	405	225	14	510	230	15
	300	585	405	224	14	525	235	15
	350	585	395	229	14	540	243	16
	400	585	395	247	14	555	265	17
	450	820	400	302	20	570	325	23
	500	820	405	308	20	585	341	23
	600	820	420	322	20	615	378	25
700	80*	360	-	-	-	390	276	11
	100*	360	-	-	-	395	278	11
	150*	360	410	288	11	395	280	11
	200	360	415	289	12	510	294	12
	250	415	420	306	13	525	313	14
	300	475	425	326	15	530	334	17
	350	530	425	342	16	545	355	18
	400	580	430	361	18	570	378	20
	450	640	435	381	19	580	402	22
	500	695	435	416	21	580	445	24
	600	810	445	461	24	610	509	28
	700	900	450	536	28	620	546	23
800	80*	360	-	-	-	440	335	13
	100*	360	-	-	-	445	337	13
	150*	360	465	352	13	448	339	13
	200	360	470	353	13	560	358	14
	250	420	470	375	15	575	382	16
	300	480	480	399	18	585	406	19
	350	535	480	418	19	600	431	20
	400	585	480	439	20	625	456	22
	450	645	490	463	22	630	483	25
	500	700	490	486	24	635	515	27
	600	1020	495	629	35	665	678	39
	700	1020	505	680	36	670	688	41
	800	1020	505	701	36	700	724	42

* These sizes are supplied with a facing instead of a flanged branch

Socketed Fittings for Ductile Iron Pipe
to EN 545 & EN 598 (ISO 2531 : 1998)

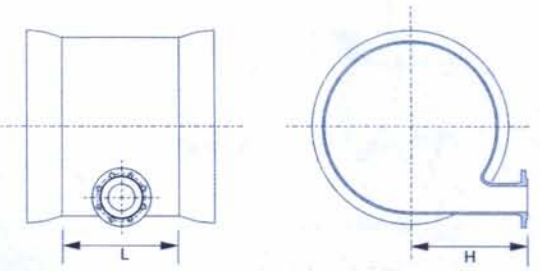




All Socket Tees, Flange on Double Socket Tees DN 900-1000, Class K14 (fixed flange)

DN		L	All Socket Tee			Flange on DS Tee		
Body	Branch		H	Est. weight		H	Est. weight	
				Iron	CML		Iron	CML
mm	mm	mm	mm	kg	kg	mm	kg	kg
900	80*	370	-	-	-	490	436	15
	100*	370	-	-	-	495	437	15
	150*	370	515	457	15	498	439	15
	200*	370	520	458	15	498	441	15
	250	425	520	482	17	635	489	18
	300	485	525	509	20	645	517	21
	350	540	530	532	21	660	546	23
	400	590	530	556	23	680	574	25
	450	650	535	582	25	690	605	28
	500	705	540	610	27	690	639	30
	600	1145	545	833	44	715	883	48
	700	1145	555	884	45	720	892	50
	800	1145	555	903	44	750	326	51
	900	1145	560	944	44	770	975	53
1000	80*	370	-	-	-	545	530	16
	100*	370	-	-	-	550	532	16
	150*	370	565	556	17	550	534	16
	200*	370	570	557	17	550	536	16
	250	430	570	586	20	685	594	21
	300	490	580	618	22	695	626	24
	350	545	580	645	24	710	658	25
	400	595	580	672	26	735	689	28
	450	655	590	703	28	735	724	31
	500	710	590	734	31	740	762	33
	600	1265	600	1008	55	765	1056	58
	700	1265	615	1112	55	770	1118	60
	800	1265	615	1129	55	800	1148	61
	900	1265	620	1171	55	825	1190	63
	1000	1265	625	1209	55	865	1257	65

* These sizes are supplied with a facing instead of a flanged branch

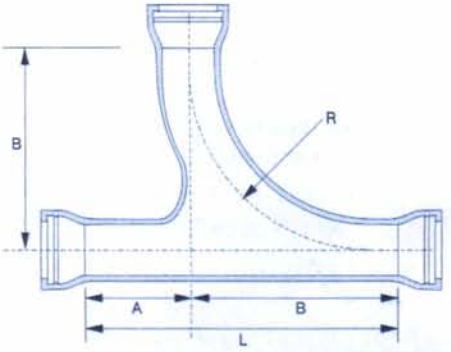


Flange on Double Socket Level Invert Tees Class K14 (fixed flange)

DN		L	H	* Weight	
Body	Branch			Iron	CML
mm	mm	mm	mm	Kg	Kg
100	80	185	195	16	1.1
150	80	190	220	21	1.5
200	80	190	250	27.5	1.9
	100	215	250	28.5	2.2
250	80	220	275	37.5	2.6
	100	220	275	39	2.7
300	80	220	305	50	2.8
	100	220	305	52.5	3.2
	150	335	305	66	4.7
350	80	225	340	59.5	3.5
	100	225	340	60.5	3.7
	150	340	340	79	5.5
400	80	225	365	75	4
	100	225	365	76	4.2
	150	340	365	97.5	6
	200	340	365	103	6.5
450	80	230	380	89	4.5
	100	230	380	90	4.7
	150	345	380	115	7
	200	345	380	121	7
500	80	230	400	107	5
	100	230	400	108	5
	150	350	400	137	7.5
	200	350	400	143	8
600	80	355	435	170	8.5
	100	355	435	171	9
	150	355	450	180	9.5
	200	355	450	187	9.5
700	150	360	500	296	13
	200	360	500	300	13
800	150	360	540	360	14
	200	360	540	364	15
900	150	370	580	467	16
	200	370	580	471	17
1000	150	370	630	565	18
	200	370	630	569	19

* Iron, estimated minimum weight
CML, additional estimated weight for cement mortar lining

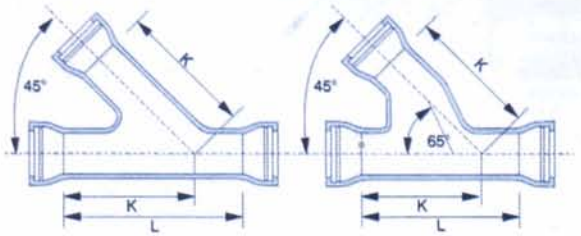
Socketed Fittings for Ductile Iron Pipe
to EN 545 & EN 598 (ISO 2531 : 1998)



All Socket Radial Tees, Class K14

DN		L	A	B	R appx.	*Weight	
Body	Branch					Iron	CML
mm	mm	mm	mm	mm	mm	Kg	Kg
80	80	545	165	380	330	21	2.7
100	100	580	180	400	340	28	3.5
150	150	670	220	450	385	47	6
200	200	760	260	500	430	72.5	9
250	250	900	350	550	475	107	14
300	300	1000	400	600	515	150	19
350	350	1100	450	650	560	206	23

Maximum hydraulic working pressure DN 80-350 = 16 bar
Recommended maximum site hydraulic test pressure DN 80-350 = 21 bar
Unequal radial tees are available on request.

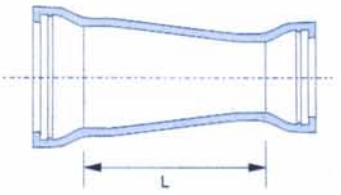


All Socket 45° Angle Branches Class K14

DN		Type	L	K	* Weight	
Body	Branch				Iron	CML
mm	mm		mm	mm	Kg	Kg
80	80	N	500	375	19	2.3
100	100	N	540	405	25.5	3.1
150	150	N	640	480	45.5	5.5
200	200	N	735	560	71.5	8.5
250	250	N	830	640	106	12
300	300	N	930	715	151	15
350	350	M	880	790	169	17
400	400	M	970	870	-	-
450	450	M	1060	950	-	-
500	500	M	1140	1025	-	-
600	600	M	1310	1180	-	-

Maximum hydraulic working pressure DN 80-350 = 16 bar
Recommended maximum site hydraulic test pressure DN 80-350 = 21 bar
Unequal angle branches are available on request.

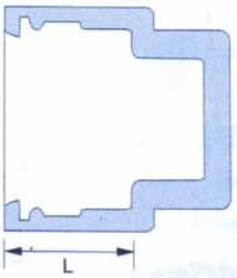
* Iron, estimated minimum weight
CML, additional estimated weight for cement mortar lining



Double Socket Concentric Tapers Class K12

DN		L	* Weight	
Large	Small		Iron	CML
mm	mm	mm	Kg	Kg
100	80	90	6.6	0.3
150	80	190	10.9	0.8
	100	150	10.8	0.7
200	100	250	17.0	1.7
	150	150	16.4	1.0
250	150	250	24.5	1.9
	200	150	23.5	1.4
300	150	350	35.5	3.0
	200	250	34.5	2.3
	250	150	33.0	1.5
350	200	360	45.5	3.7
	250	260	44	2.9
	300	160	43	1.9
400	200	460	61.5	5.0
	250	360	59.5	4.4
	300	260	58	3.4
	350	160	53	2.2
450	250	460	76	6.0
	300	360	75	5.0
	350	260	69.5	3.8
	400	160	66	2.5
500	250	560	96.5	7.5
	300	460	95.5	7.0
	350	360	90.5	6.0
	400	260	86.5	4.3
	450	160	80.5	2.8
600	300	660	144	11
	350	560	138	10
	400	460	133	9
	450	360	127	7
	500	260	121	5
700	350	800	235	18
	400	700	231	16
	450	600	224	14
	500	480	215	12
	600	280	196	7
800	400	870	303	22
	450	770	295	20
	500	670	288	18
	600	480	270	14
	700	280	280	9
900	450	940	396	26
	500	940	388	24
	600	640	365	20
	700	480	384	17
	800	280	355	10
1000	500	1040	504	32
	600	840	480	28
	700	680	498	25
	800	480	468	19
	900	280	446	12

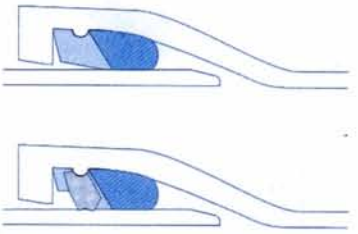
Socketed Fittings for Ductile Iron Pipe
to EN 545 & EN 598 (ISO 2531 : 1998)



Socket Cap Ends

DN	L	Weight
mm	mm	Kg
80	82	6.0
100	82	7.4
150	82	13.6
200	89	21.5
250	96	30.7
300	104	40.9

For use with Anchor gaskets to provide self-restrained end seal.



Tyton & Anchor Gaskets

DN	Weight	
	Tyton	Anchor
mm	Kg	Kg
80	0.17	0.18
100	0.20	0.22
150	0.26	0.30
200	0.37	0.42
250	0.54	0.65
300	0.77	0.97
350	0.85	-
400	1.10	1.40
450	1.20	-
500	1.70	-
600	2.30	-
700	3.4	-
800	4.1	-
900	6.1	-
1000	7.8	-

Anchor Gaskets

An anchor gasket can be used in a standard Tyton socket to give a self-restrained joint. The gasket contains moulded stainless steel teeth to grip the pipe under pressure and prevent the joint from separating.

Maximum working pressures are listed below.

DN	Pressure
mm	bar
80	30
100	27
150	16
200	15
250	14
300	13
400	10

Anchor gaskets are not available as yet in DN 350.

Angular Deflection of Tyton Joints

With Tyton gasket:

DN 80-300	5°
DN 350-1000	4°

With Anchor gasket:

DN 80-400	3°

Socketed Fittings for Metric uPVC Pipe
to DIN 16452 & ISO 3126

SPECIFICATION

Fittings are supplied fusion bonded epoxy coated blue as standard, 300 microns thick to WIS 4-52-01.

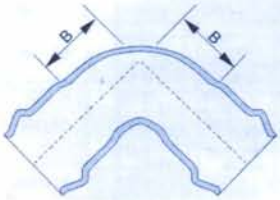
Fittings are delivered with gaskets and plastic end plugs fitted. Gaskets are WRC approved EPDM or NBR as standard.

Flanges are drilled to PN 16.

PRESSURE RATINGS

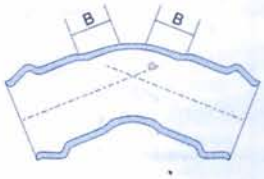
Maximum working pressure	16 bar
Maximum site test pressure	25 bar

Do not exceed manufacturer's recommendations or flange ratings.



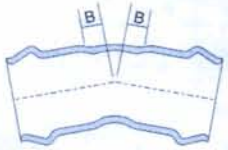
Double Socket 90° Bends

DN/ Pipe OD	B	Weight
mm	mm	Kg
80/90	84	5.5
100/110	94	7.2
150/160	167	15.2
200/200	154	22.5
200/225	166	30.1
250/250	187	42.2
250/280	200	53.1
300/315	217	66.0
400/400	-	93.3
400/450	-	117.0



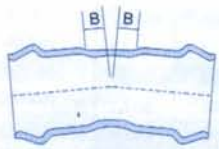
Double Socket 45° Bends

DN/ Pipe OD	B	Weight
mm	mm	Kg
80/90	50	4.7
100/110	61	8.9
150/160	74	12.3
200/200	70	16.6
200/225	88	24.9
250/250	110	32.5
250/280	130	39.7
300/315	135	58.2
400/400	175	100.0
400/450	200	97.4



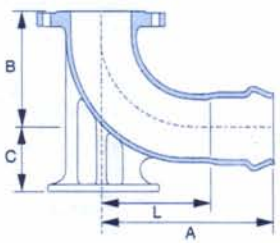
Double Socket 22½° Bends

DN/ Pipe OD	B	Weight
mm	mm	Kg
80/90	25	4.0
100/110	30	5.1
150/160	35	8.6
200/200	55	15.7
200/225	45	23.0
250/250	74	28.6
250/280	84	36.5
300/315	92	44.5
400/400	126	76.9



Double Socket 11¼° Bends

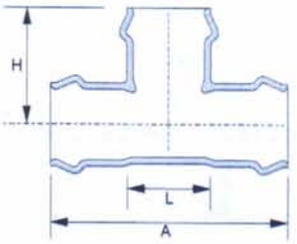
DN/ Pipe OD	B	Weight
mm	mm	Kg
80/90	26	5.0
100/110	30	6.3
150/160	30	8.2
200/200	30	12.3
200/225	56	22.8
250/250	60	30.5
250/280	61	37.8
300/315	66	47.3
400/400	106	84.1



Flange & Socket 90° Duckfoot Bends

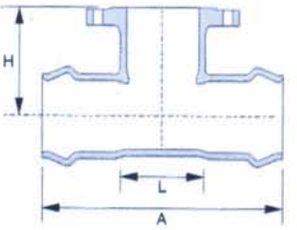
DN / Pipe OD	Flange DN	L	A	B	C	Wt
mm	mm	mm	mm	mm	mm	Kg
80/90	80	150	260	180	108	13.0
100/110	80	185	300	180	120	13.6
100/110	100	185	295	200	120	18.4
150/160	80	130	262	180	155	17.2
150/160	150	175	300	220	120	36.2

Socketed Fittings for Metric uPVC Pipe
to DIN 16452 & ISO 3126



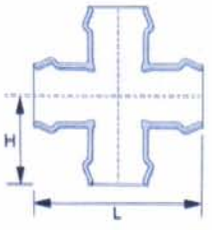
All Socket Tees

DN / Pipe OD		L	A	H	Wt
Body	Branch				
mm	mm	mm	mm	mm	Kg
80/90	80/90	101	317	164	9.0
100/110	80/90	106	327	156	12.2
	100/110	124	362	180	13.7
150/160	80/90	118	394	191	19.9
	100/110	136	413	197	19.5
	150/160	181	453	228	24.8
200/200	80/90	95	396	216	26.4
	100/110	112	418	220	28.8
	150/160	160	460	253	34.0
	200/200	210	510	255	38.1
200/225	80/90	130	449	222	28.0
	100/110	148	468	226	32.1
	150/160	193	520	257	36.1
	200/225	252	570	284	56.2
250/250	100/110	180	542	234	45.0
	150/160	205	584	266	74.1
	200/200	250	634	268	53.2
	250/250	280	665	332	64.4
250/280	80/90	142	547	256	48.2
	100/110	180	547	269	49.8
	150/160	205	688	295	64.4
	200/225	304	688	325	69.5
	250/280	314	688	359	81.6
300/315	80/90	154	642	277	71.2
	100/110	172	642	288	71.8
	150/160	217	642	308	72.0
	200/225	270	677	331	63.2
	250/280	310	727	362	101.3
	300/315	350	756	379	79.8
400/400	200/225	404	812	368	94.2
	300/315	485	893	416	108.3
	400/400	489	937	469	219.0
500/500	200/225	424	902	418	141.1



Flange on Double Socket Tees

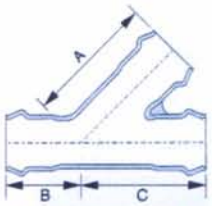
Body DN / Pipe OD	Flange DN	L	A	H	Wt
mm	mm	mm	mm	mm	Kg
80/90	80	99	315	161	10.6
100/110	80	104	345	172	12.2
	100	124	360	172	13.3
150/160	80	116	380	199	17.0
	100	136	410	208	19.9
	150	186	460	218	24.1
200/200	80	128	458	223	26.9
	100	150	465	240	28.9
	150	243	550	273	33.9
	200	240	547	280	40.9
200/225	80	128	447	251	26.8
	100	148	466	251	30.4
	150	198	517	251	35.6
	200	248	565	251	39.3
250/250	80	140	522	250	36.8
	100	160	534	255	38.1
	150	210	579	265	42.9
	200	260	638	275	66.0
	250	310	685	285	67.9
250/280	80	140	501	282	40.5
	100	160	521	288	45.9
	150	210	573	288	49.4
	200	260	687	285	71.4
	250	310	673	287	69.3
300/315	80	152	550	305	61.7
	100	172	576	309	63.6
	150	222	624	309	67.4
	200	272	672	292	76.8
	250	322	773	305	93.8
	300	372	745	309	90.0
400/400	80	280	688	316	84.0
400/450	80	200	688	341	133.6
	100	220	813	356	139.0
	150	274	810	360	150.0
	200	324	806	365	158.0
	400	527	960	394	219.0
500/500	80	300	778	366	119.8



All Socket Crosses

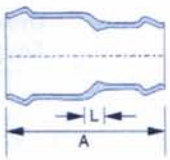
DN/Pipe OD	L	H	Wt
mm	mm	mm	Kg
100/110	360	180	18.0
150/160	453	226.5	33.0
200/200	510	255	48.0

Socketed Fittings for Metric uPVC Pipe
to DIN 16452 & ISO 3126



All Socket 45° Angle Branches

DN / Pipe OD		A	B	C	Wt
Body	Branch				
mm	mm	mm	mm	mm	Kg
80/90	80/90	235	140	235	8.8
100/110	80/90	250	140	250	10.8
	100/110	270	155	270	15.0
150/160	80/90	305	145	280	17.3
	100	320	155	295	18.3
	150	345	190	345	29.5
300/315	80/90	460	175	385	69.0

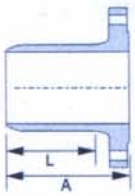


Double Socket Tapers

DN / Pipe OD		L	A	Wt
Large	Small			
mm	mm	mm	mm	Kg
100/110	80/90	31	260	6.6
150/160	80/90	44	305	10.8
	100/110	53	303	11.0
200/200	80/90	101	361	13.3
	100/110	84	350	12.8
	150/160	71	370	19.2
200/225	100/110	84	370	17.7
	150/160	71	372	21.4
250/250	150/160	102	407	22.2
	200/200	79	428	25.2
250/280	100/110	114	420	29.1
	150/160	102	445	32.0
	200/225	79	457	34.2
400/400	300/315	190	560	56.0

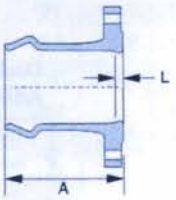
Double Socket Collars

DN/Pipe OD	H	Wt
mm	mm	Kg
80/90	270	5.4
100/110	290	7.3
150/160	312	13.1
200/200	350	16.1
200/225	451	23.6
250/280	494	40.6
300/315	610	55.2
400/450	610	132.6
500/500	730	95.4



Flanged Spigots

DN/Pipe OD	A	L	Wt
mm	mm	mm	Kg
80/90	134	103	5.1
100/110	149	117	6.1
150/160	168	134	10.2
200/200	225	185	15.2
200/225	204	172	16.8
250/250	248	220	27.7
250/280	246	215	27.7
300/315	233	190	37.2

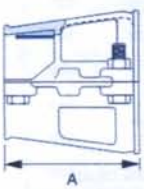


Flanged Sockets

DN/Pipe OD	H	L	Wt
mm	mm	mm	Kg
80/90	120	14	4.6
100/110	130	15	5.6
150/160	150	15	9.8
200/200	192	34	15.9
200/225	192	34	16.2
250/250	220	41	30.0
250/280	220	41	25.2
300/315	240	49	35.0
400/400	295	71	69.6
500/500	340	76	98.0
600/630	425	90	136.0

Caps

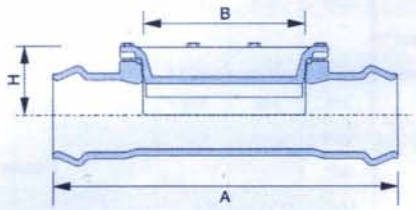
DN/Pipe OD	A	Wt
mm	mm	Kg
80/90	140	3.4
100/110	144	4.7
150/160	177	8.9
200/225	210	17.5
250/280	241	26.8



Anchor Clamps for joint restraint

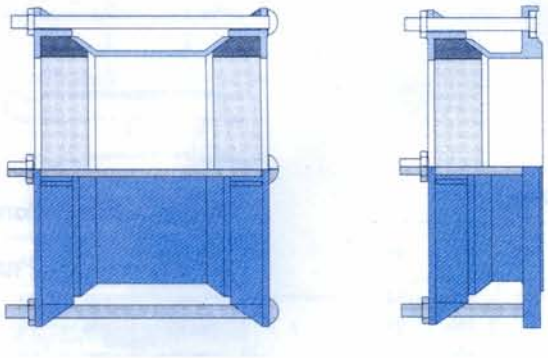
DN/Pipe OD	A	Wt
mm	mm	Kg
80/90	140	4.9
100/110	160	6.5
150/160	170	9.8
200/225	220	16.9
250/280	315	39.4
300/315	330	50.7

Suitable for PN16 applications



Double Socket Hatchboxes

DN/Pipe OD	A	B	H	Wt
mm	mm	mm	mm	Kg
100/110	505	100 x 250	117	19.4
150/160	615	150 x 300	132	34.0
200/225	750	200 x 350	170	59.6



Superange (wide range) Couplings & Flange Adaptors

DN		Pipe OD (mm)				
mm	in	min	max	mm	BS EN 1092-1:2002	BS 10
50	2	60	72	83	PN10, PN16	
80	3	88	103	80	PN10, PN16	A, D, E
100	4	108	128	100	PN10, PN16	A, D, E
150	6	159	182	150	PN10, PN16	A, D, E
200	8	218	235	200	PN10, PN16	A, D, E
250	10	271	284	250	PN10, PN16	
300	12	322	340	300	PN10, PN16	
300	12	325	345	300	PN10, PN16	

Material Specification

Couplings

Gland rings and centre sleeve — Either ductile iron* or steel**

Flange Adaptors

Gland ring and body — Either ductile iron* or steel**

Seals

EPDM to BS EN 681-1:1996 (Formerly BS 2494)

Fasteners

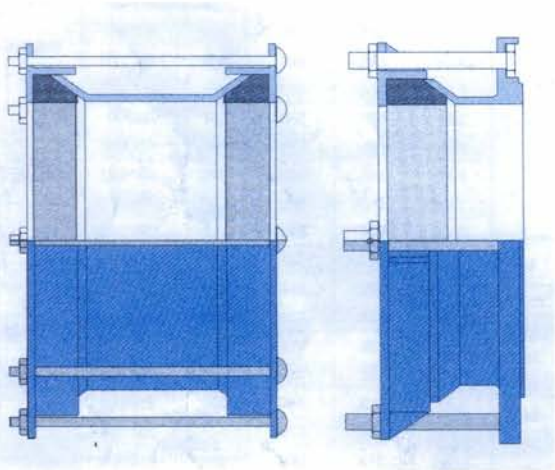
Bolts to: BS EN ISO 898-1:1999
SS 304, 316 to BS 970 EN 58 and EN 58J

Washers to: BS 4320:1968, SS 316, 304

Proecive coatings

Body — Fusion bonded epoxy coated blue
305 microns (minimum average thickness)

Fasteners — Fusion bonded epoxy coated blue (Black as standard)



Superange and Dedicated Couplings & Flange Adaptors for Ductile Iron, GRP, STEEL, AC Etc.

DN	Pipe
mm	Inches
80	3"
100	4"
150	6"
200	8"
250	10"
300	12"
350	14"
400	16"
450	18"
500	20"

DN	Pipe
mm	Inches
600	24"
700	28"
800	32"
900	36"
1000	40"
1110	43"
1200	48"
1400	55"
1600	63"
1800	70"
2000	78"

Material Specification

Couplings

Gland ring and centre sleeve — Steel or D.I

Flange Adaptors

Sleeve and gland ring — Steel or D.I

Flange ring — Either ductile iron* or steel**

Seals

EPDM to BS EN 681-1:1996 (Formerly BS 2494)

Fasteners

Bolts to: BS EN ISO 898-1:1999

Studs to: EN 58 and EN 58J

Washers to: BS 4320:1968, SS 316, 304

Protective coatings

Body — Fusion bonded epoxy coated blue
305 microns (minimum average thickness)

Fasteners — Fusion bonded epoxy coated blue (Black as standard)

GATE VALVES

Specification

All to BS 5163, type B
Rating 16 bar
Flanged PN16,

Cap top as standard
Clockwise closure as standard

Resilient seated (u.t.i. DN 400)

Cast iron body
Resilient seated nitrile covered gate
Non-rising spindle of high tensile bronze with toroidal 'O' ring spindle seal
Fusion bonded epoxy coating, WRC approved.

Metal faced (u.t.i. DN 300)

Cast iron body
Non-ferrous faces to body and wedge
Non-rising spindle of high tensile bronze with toroidal 'O' ring spindle seal
Black bitumen coating, WRC approved

Metal faced (above DN 300)

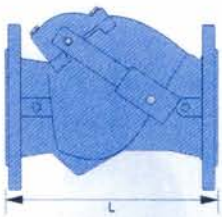
Cast iron body
Non-ferrous faces to body and wedge
Non-rising spindle of high tensile bronze with packed gland spindle seal
Black bitumen coating, WRC approved

OPTIONS

Handwheel (as illustrated)
Anti clockwise closure
Rising spindle
Fusion bonded epoxy coating for metal faced valves

Full range of accessories, see pages 36-37

DN	L
mm	mm
50	178
65	190
80	203
100	229
125	254
150	267
200	292
250	330
300	356
350	381
400	406
450	432
500	457
600	508
700	610
800	660
900	711
1000	811



NON-RETURN VALVES

Specification

Valves to BS 5153
Rating 16 bar
Flanged PN 16

Resilient seated (up to DN 300)

Ductile iron body and disc
Resilient seated disc
Stainless steel hinge pin
WRC approved coating

As standard, valves are offered without lever and weight and are suitable for velocities up to 3 metres per second. Contact us with full details of requirements above this figure.

Metal faced (up to DN 600)

Cast iron body and disc
Non-ferrrous faces to body and disc
Stainless steel hinge pin
WRC approved coating

As standard, valves are offered without lever and weight and are suitable for velocities up to 3.5 metres per second. Contact us with full details of requirements above this figure.

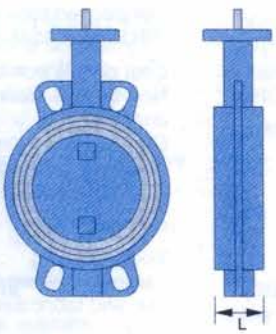
OPTIONS

Lever and weight (as illustrated)
Guards

Also see pages 35 to 37

DN	L
mm	mm
50	203
65	216
80	241
100	292
125	356
150	356
200	495
250	622
300	698
350	788
400	915
450	965
500	1067
600	1219
700	1420
800	1560

DN	L
mm	mm
50	43
65	46
80	46
100	52
125	56
150	56
200	60
250	68
300	78
350	78
400	86
450	105
500	130
600	150



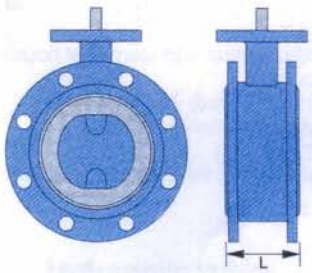
Wafer Butterfly Valves

Wafer pattern to BS 5155
16 bar rated up to 300mm, 10 bar rated 350-600mm
To fit between PN16 flanges

Partially lugged cast iron body
Ductile iron nickel plated disc
410 stainless steel shafts
Renewable nitrile body lining
Epoxy coated

Lever or gear box operated
u.t.i. 300mm
Gearbox or handwheel operated
350-600mm

DN	L
mm	mm
80	114
100	127
125	140
150	140
200	152
250	165
300	178
350	190
400	216
450	222
500	229
600	267
700	292
800	318
900	330
1000	410
1100	440?
1200	470
1400	530



Double Flanged Butterfly Valves

To ISO 5752/ BS 5155 short pattern with double offset disc design.
Drillings BS 4504 to PN 16.

Ductile iron body, disc and seal retaining ring

Nitrile rubber N167 disc seal
Operating shafts and shaft pins of stainless steel BS 970 Grade 431. Bearings are WRC listed Devlon 'V'.
All 'O' ring seals are BS listed nitrile.
Internal fastenings and construction screws stainless steel A2.
WRC approved epoxy coating to 350 microns.

Also available in long body design

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Valve Technical Catalogue

SUPERIOR PIPELINE FITTINGS LTD

SPF

SUPERIOR PIPELINE FITTINGS

Butterfly Valve

EN 593 / MSS SP-67 ◊ WAFER Type

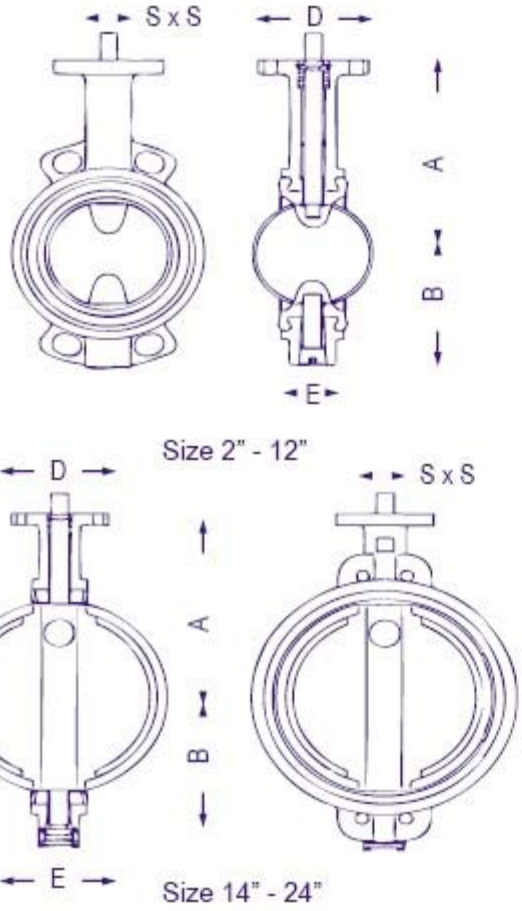


Figure Number

SV1E	Stainless Steel Disc, EPDM Liner
SV1N	Stainless Steel Disc, NBR Liner
SV2E	Bronze Disc, EPDM Liner
SV2N	Bronze Disc, NBR Liner
SV3E	DI Disc, Chrome or Nickel plated, EPDM Liner
SV3N	DI Disc, Chrome or Nickel plated, NBR Liner

Pressure and Temperature

Nominal Pressure	DN50-DN300 : 16 Bar DN350-DN600 : 10 Bar
	2"-12": 200psi 14"-24:150psi
Working Temperature	EPDM: -10˚C to 120 ˚C NBR : -10˚C to 82 ˚C

Materials List

Part Name	Materials	ASTM Spec.	BS Spec.
Body	Cast Iron	A126 Class B	EN-JL1040
Shaft	Stainless Steel	ASI416	970 416S21
Disc	Stainless Steel	A351 CF8M	970 316S16
	Cast Bonze	B62 C83600	1400LG2
	Ductile Iron	A536 65-45-12	EN-JS1050
Bushing	PTFE	Commercial	Commercial
Liner	EPDM/NBR	Commercial	Commercial
O-Ring	EPDM/NBR	Commercial	Commercial

Dimensions (Inch / mm)

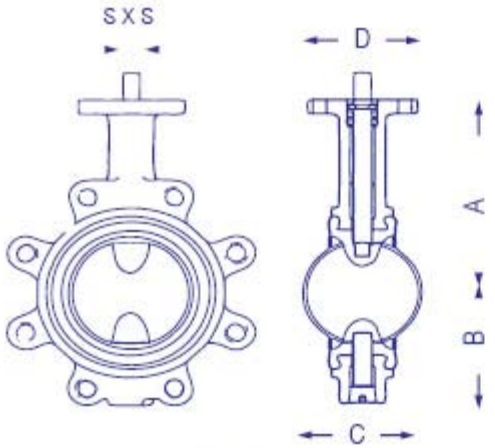
Size	2" (50)	2.5" (65)	3" (80)	4" (100)	5" (125)	6" (150)	8" (200)	10" (250)	12" (300)	14" (350)	16" (400)	18" (450)	20" (500)	24" (600)
A	6-1/3 (161)	6-7/8 (175)	7-1/8 (181)	7-7/8 (200)	8-7/16 (215)	8-7/8 (225)	9/-1/2 (241)	11-5/8 (296)	13-1/4 (336)	14-1/2 (368)	15-3/4 (400)	16-5/8 (422)	18-7/8 (480)	22-18 (562)
B	3-1/8 (80)	3-9/16 (91)	3-3/4 (95)	4-1/2 (115)	5-1/4 (134)	5-7/16 (138)	6-7/8 (174)	7-13/16 (198)	9-3/16 (234)	11 (280)	12-3/16 (310)	13-3/8 (340)	15-1/4 (388)	17-11/16 (450)
D	3-9/16 (90)	3-9-16 (90)	3-9/16 (90)	3-9/16 (90)	3-9/16 (90)	3-9/16 (90)	4-15/16 (125)	4-15/16 (125)	4-15/16 (125)	5-15/16 (150)	6-7/8 (175)	6-7/8 (175)	8-1/4 (210)	8-1/4 (210)
E	1-11/16 (43)	1-3/4 (45)	1-13/16 (46)	2-1/16 (51.5)	2-3/16 (56)	2-1/4 (56.5)	2-3/8 (60)	2-11/16 (68.5)	3-1/8 (79.5)	3-1/16 (78)	3-1/2 (88)	4-5/16 (109)	5 (127)	6-1/16 (154)
S x S	7/16x7/16 (11 x 11)			9/16 x 9/16 (14 x 14)		43/64x43/64 (17 x 17)		7/8 x 7/8 (22 x 22)			1-1/16x1-1/16 (27 x 27)		1-57/64 (ϕ48)	

Notes :

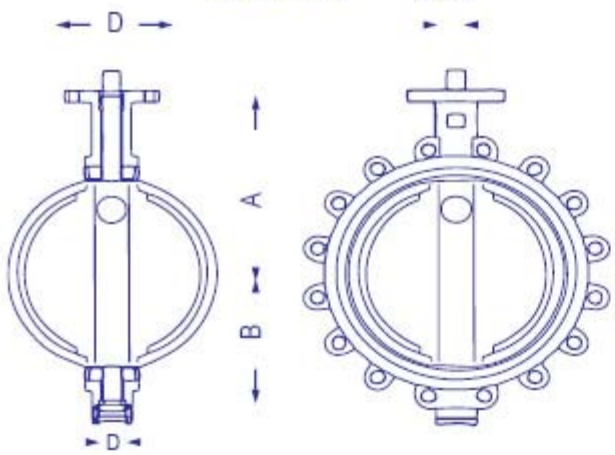
1) Designed and Tested in Accordance with EN593 or MSS SP-67.
2) Bolt Circle dimension comply with EN1092-2PN10/16, ANSI 125 Flanges, Other flange types are available
3) Top flange conforms to ISO5211/1.

Butterfly Valve

EN 593 / MSS SP-67 ◊ Lug Type



Size 2" - 12"



Size 14" - 24"

Figure Number

SV4E	Stainless Steel Disc, EPDM Liner
SV4N	Stainless Steel Disc, NBR Liner
SV5E	Bronze Disc, EPDM Liner
SV5N	Bronze Disc, NBR Liner
SV6E	DI Disc, Chrome or Nickel plated, EPDM Liner
SV6N	DI Disc, Chrome or Nickel plated, NBR Liner

Pressure and Temperature

Nominal Pressure	DN50-DN300 : 16 Bar DN350-DN600 : 10 Bar
	2"-12": 200psi 14"-24:150psi
Working Temperature	EPDM: -10˚C to 120 ˚C NBR : -10˚C to 82 ˚C

Materials List

Part Name	Materials	ASTM Spec.	BS Spec.
Body	Cast Iron	A126 Class B	EN-JL1040
Shaft	Stainless Steel	ASI416	970 416S21
Disc	Stainless Steel	A351 CF8M	970 316S16
	Cast Bonze	B62 C83600	1400LG2
	Ductile Iron	A536 65-45-12	EN-JS1050
Bushing	PTFE	Commercial	Commercial
Liner	EPDM/NBR	Commercial	Commercial
O-Ring	EPDM/NBR	Commercial	Commercial

Dimensions (Inch / mm)

Size	2" (50)	2-1/2" (65)	3" (80)	4" (100)	5" (125)	6" (150)	8" (200)	10" (250)	12" (300)	14" (350)	16" (400)	18" (450)	20" (500)	24" (600)
A	5-1/2 (140)	6 (152)	6-5/16 (160)	7-1/16 (180)	7-1/2 (191)	7-15/16 (202)	9/-1/2 (241)	10-13/16 (274)	12-3/8 (315)	14-1/2 (368)	15-3/4 (400)	16-5/8 (422)	18-7/8 (480)	22-18 (562)
B	2-11/16 (68)	3 (76)	3-3/8 (85)	3-15/16 (100)	4-3/4 (120)	5-3/16 (132)	6-5/16 (160)	7-7/8 (200)	9-1/16 (230)	11 (280)	12-3/16 (310)	13-3/8 (340)	15-1/4 (388)	17-3/4 (450)
D	3-9/16 (90)	3-9-16 (90)	3-9/16 (90)	3-9/16 (90)	3-9/16 (90)	3-9/16 (90)	4-15/16 (125)	4-15/16 (125)	4-15/16 (125)	5-15/16 (150)	6-7/8 (175)	6-7/8 (175)	8-1/4 (210)	8-1/4 (210)
E	1-11/16 (43)	1-3/4 (45)	1-13/16 (46)	2-1/16 (51.5)	2-3/16 (56)	2-1/4 (56.5)	2-3/8 (60)	2-11/16 (68.5)	3-1/8 (79.5)	3-1/16 (78)	3-1/2 (88)	4-5/16 (109)	5 (127)	6-1/16 (154)
S x S	7/16x7/16 (11 x 11)			9/16 x 9/16 (14 x 14)		43/64x43/64 (17 x 17)		7/8 x 7/8 (22 x 22)			1-1/16x1-1/16 (27 x 27)		1-57/64 (ϕ48)	

Notes :

1.) Designed and Tested in Accordance with EN593 or MSS SP-67.

2.) Bolt Circle dimension comply with EN1092-2PN10/16, ANSI 125 Flanges, Other flange types are available

3.) Top flange conforms to ISO5211/1.

Flanged End Butterfly Valve

AWWA C504

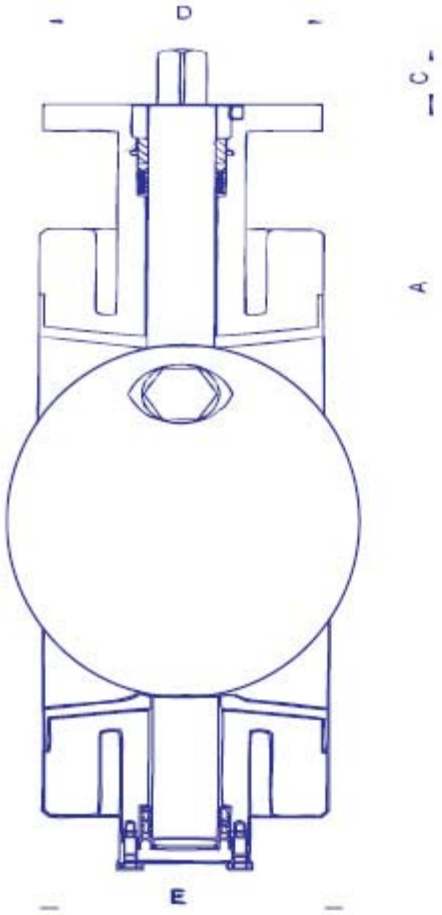


Figure Number

SV7E	Stainless Steel Disc, EPDM Seat
SV7N	Stainless Steel Disc, NBR Seat
SV8E	Ductile Iron Disc, EPDM Seat
SV8N	Ductile Iron Disc, NBR Seat

Pressure and Temperature

Nominal Pressure	150psi
Working Temperature	EPDM: -10˚C to 120 ˚C NBR : -10˚C to 82 ˚C

Materials List

Part Name	Materials	ASTM Spec.
Body	Cast Iron	A126 Class B
Seat	EPDM/NBR	Commercial
Disc	Stainless Steel	A351 CF8M
	DI with SS316 edge	A536 65-45-12
Stem	Stainless Steel	AISI 420
V-Packing	EPDM/NBR	Commercial
Cover Plate	Ductile Iron	A536 65-45-12

Dimensions (Inch / mm)

Size	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
A	6-5/16 (160)	7-1/16 (179)	8-3/8 (213)	9-5/8 (245)	10-15/16 (277)	12-1/2 (318)	14-1/16 (357)	16-1/16 (408)	17-1/4 (438)	18-9/16 (472)	22-9/16 (573)
C	1-3/16 (30)	1-3/16 (30)	1-3/16 (30)	1-3/16 (30)	1-3/16 (30)	1-3/16 (30)	1-3/4 (45)	1-3/4 (45)	1-3/4 (45)	1-3/4 (45)	1-3/4 (45)
D	3-9/16 (90)	3-9-16 (90)	4-15/16 (125)	4-15/16 (125)	4-15/16 (125)	4-15/16 (125)	5-15/16 (150)	6-7/8 (175)	6-7/8 (175)	8-5/16 (210)	8-5/16 (210)
E	5 (127)	5 (127)	5 (127)	6 (152)	8 (203)	8 (203)	8 (203)	8 (203)	8 (203)	8 (203)	8 (203)

Notes :

1.) Designed and Manufactured to AWWA C504.
2.) Flanges comply with ANSIB16.1 Class 125.Other flange types are available
3.) Top flange conforms to ISO5211.
4.) Valve may be operated by lever handle or gear operator.
5.) Ductile iron body valves are rated at 250PSI with flanges drilled to ANSI B16.2 Class 250.

Butterfly Valve

EN 593 Rubber Seat Double Eccentric ◊ Gear Operated

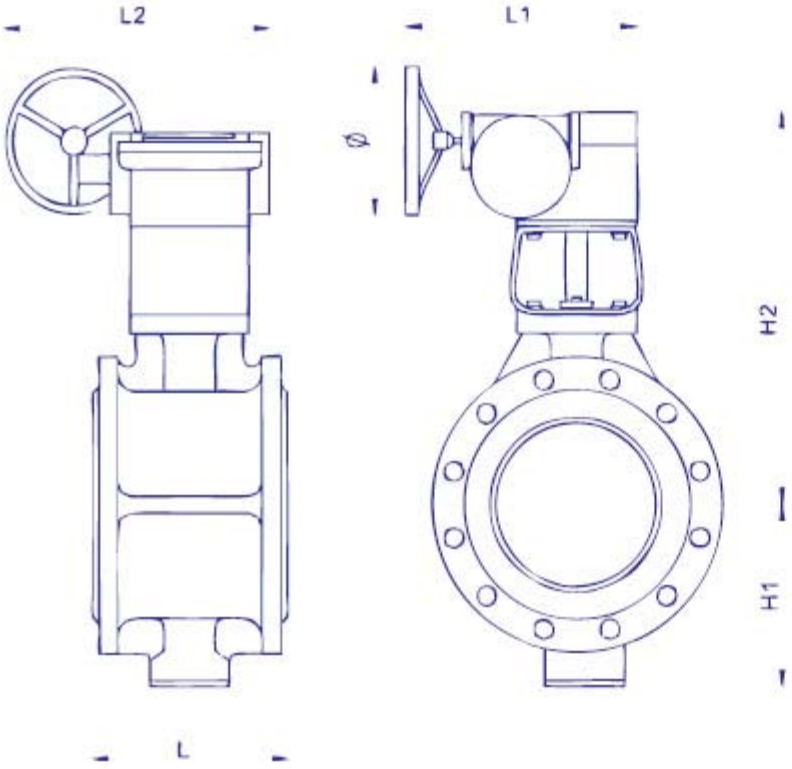


Figure Number

SV9 SS/DI/AL Bronze /Duplex SS
SV10 SS/DI/AL Bronze /Duplex SS

Pressure and Temperature

Nominal Pressure	DN100-DN2000 : 16 Bar DN100-DN1000: 10 Bar
Working Temperature	EPDM: -10˚C to 120 ˚C

Materials List

Part Name	Materials	BS Spec.
Body	Ductile Iron GGG40/50/450-10	
Stem	970316S21/416S21	
Disc	DI/SS/ALU BR/DUPLEX SS	
Seat	EPDM	Commercial
O-Ring	EPDM	Commercial

Dimensions (mm)

Size	100	150	200	250	300	350	400	450	500	600
L	190	210	230	250	270	290	310	330	350	390
L1	164	164	268	268	289	289	420	420	460	520
L2	136	136	268	268	289	435	435	545	545	545
ø	180	180	300	300	300	300	300	300	400	400
H1	115	143	233	243	245	253	325	355	368	419
H2	262	287	302	328	339	357	598	629	665	750
Size	700	800	900	1000	1200	1400	1600	1800	200	
L	430	470	510	550	630	710	790	870	950	
L1	580	580	660	660	713	713	713	1089	1089	
L2	638	638	716	716	1050	1050	1050	1270	1270	
ø	450	450	500	500	550	550	550	550	550	
H1	508	560	637	707	955	991	112	1426	1486	
H2	816	900	1010	1140	1153	1288	1418	2044	2115	

Notes :

1.) Designed and Tested in Accordance with EN593.

2.) Flanges comply with EN1092 PN10/PN16 or ANSI B16.1 Class 125.

Resilient-Seated Gate Valve

BS5163 Type A&B /DIN3352/AWWA C509

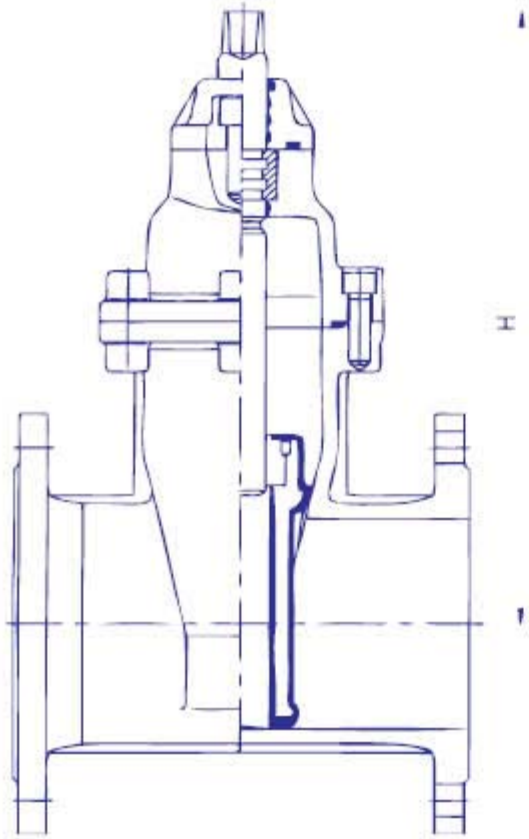


Figure Number

SV11	Conforms to BS5163 Type A& B
SV12	Conforms to DIN3352, DI3202-1 F4
SV13	Conforms to DIN3352, DI3202-1 F5
SV14	Conforms to AWWA C509

Pressure and Temperature

Nominal Pressure	200psi / 16 bar
Working Temperature	-10˚C to 82 ˚C

Materials List

Part Name	Materials	ASTM Spec.	BS Spec.
Body	Ductile Iron	A536 65-45-12	EN-JS1050
Bonnet	Ductile Iron	A536 65-45-12	EN-JS1050
Wedge	DI with EPDM Encapsulated	A536 65-45-12	EN-JS1050
Thrust Collar	Brass	B16 C36000	2874 CZ 124
Stem Nut	Brass	B16 C36000	2874 CZ 124
Stem	Stainless Steel	ANSI 420	970 420S37
Gland	Ductile Iron	A536 65-45-12	EN-JS1050
Wrench Nut	Ductile Iron	A536 65-45-12	EN-JS1050
Hand Wheel	Ductile Iron	A536 65-45-12	EN-JS1050

Dimensions (Inch / mm)

Size		2" (50)	2.5" (65)	3" (80)	4 (100)	5" (125)	6 (150)	8" (200)	10" (250)	12" (300)
L	BS5163 EN558-1, Series-3	7 (178)	7-1/2 (191)	8 (203)	9 (229)	10 (254)	10-1/2 (267)	11-1/2 (292)	13 (330)	14 (356)
	DIN3352 DIN3202-1-F4 EN558-1, Series-14	5-7/8 (150)	6-11/16 (170)	7-1/16 (180)	7-1/2 (190)	7-7/8 (200)	8-1/4 (210)	9-1/16 (230)	9-13/16 (250)	10-5/8 (270)
	DIN3352 DIN3202-1-F5 EN558-1, Series-15	3-9/16 (90)	10-5/8 (270)	11 (280)	11-13/16 (300)	11-13/16 (325)	13-3/4 (350)	15-3/4 (400)	17-11/16 (450)	19-11/16 (500)
	AWWA-C509 ANSI/ASME-B16.10	7 (178)	7-1/2 (191)	8 (203)	9 (229)	10 (254)	10-1/2 (267)	11-1/2 (292)	13 (330)	14 (356)
H		8-7/8 (225)	9-7/16 (240)	10-7/16 (265)	11-7/16 (290)	14-3/8 (365)	15-13/16 (402)	19-15/16 (507)	23-3/4 (603)	27-5/16 (693)

Notes :

1.) Flanges comply with ANSIB16.1 Class 125
2.) Wedge is fully encapsulated with EPDM.
3.) Three O-Rings for stem sealing are replaceable under pressure.
4.) All Bolts are sealed with Wax
5.) Minimum 300 microns Fusion Bonded Epoxy for protection against corrosion.
6.) Straight through full bore prevents pressure loss caused by turbulence.
7.) Operated by hand wheel or wrench nut.
8.) For BS5163 Type B gate valves, the stem materials is stainless steel BS970 431S29.

Resilient-Seated Gate Valve

BS5163 Type A&B / AWWA C509

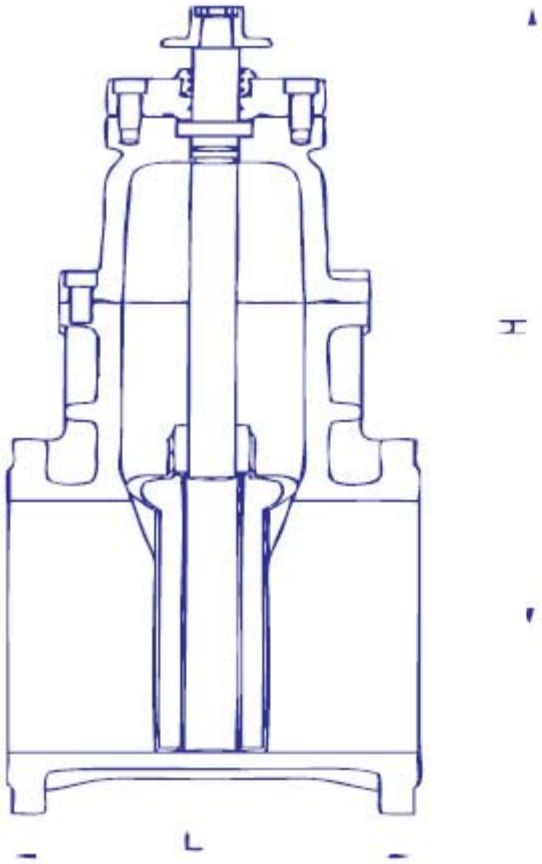


Figure Number

SV15	Conforms to BS5163 Type A& B
SV16	Conforms to AWWA C509

Pressure and Temperature

Nominal Pressure	150psi / 16 bar
Working Temperature	-10˚C to 82 ˚C

Materials List

Part Name	Materials	ASTM Spec.	BS Spec.
Body	Ductile Iron	A536 65-45-12	EN-JL1050
Bonnet	Ductile Iron	A536 65-45-12	EN-JL1050
Wedge	DI with EPDM Encapsulated	A536 65-45-12	EN-JL1050
Sealing Nut	Brass	B16 C36000	2874 CZ 124
Stem Nut	Brass	B16 C36000	2874 CZ 124
Stem	Stainless Steel	ANSI 420	970 420S37
Gland	Ductile Iron	A536 65-45-12	EN-JL1050
Wrench Nut	Ductile Iron	A536 65-45-12	EN-JL1050
Hand Wheel	Ductile Iron	A536 65-45-12	EN-JL1050

Dimensions (Inch / mm)

Size	14" (350)	16" (400)	18" (450)	20" (500)	24" (600)
L	15 (381)	16 (406)	17 (432)	18 (457)	20 (508)
H	34 (865)	40 (1020)	40-9/16 (1030)	47-1/4 (1200)	53-1/4 (1355)

Notes :

1.) Flanges comply with EN1092 PN10/PN16 or ANSI B16.1 Class 125.
2.) Wedge is fully encapsulated with EPDM.
3.) Three O-Rings for stem sealing are replaceable under pressure.
4.) All Bolts are sealed with Wax
5.) Minimum 300 microns Fusion Bonded Epoxy for protection against corrosion.
6.) Straight through full bore prevents pressure loss caused by turbulence.
7.) Operated by hand wheel or wrench nut.
8.) For BS5163 Type B gate valves, the stem materials is stainless steel BS970 431S29.

Resilient-Seated Gate Valve

AWWA C509

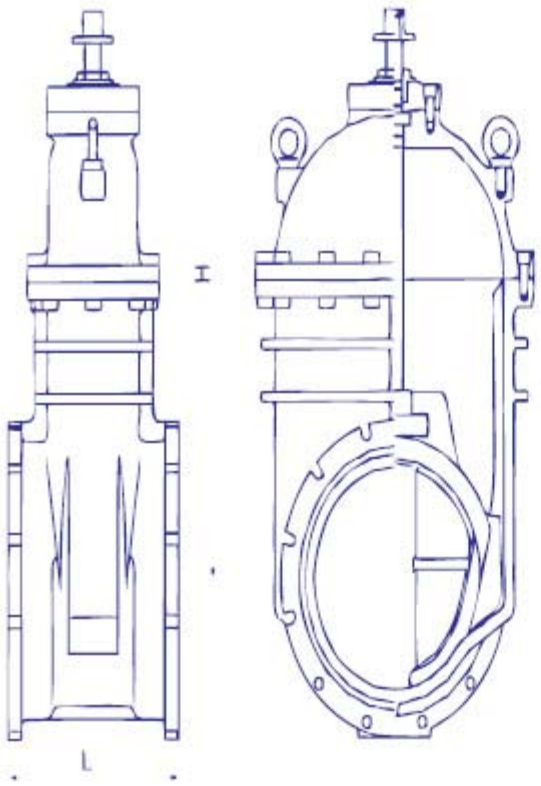


Figure Number

SV 23	Mechanical joint

Pressure and Temperature

Nominal Pressure	150psi / 16 bar
Working Temperature	-10˚C to 82 ˚C

Materials List

Part Name	Materials	ASTM Spec.
Body	Ductile Iron	A536 65-45-12
Bonnet	Ductile Iron	A536 65-45-12
Wedge	DI with EPDM Encapsulated	A536 65-45-12
Thrust Collar	Brass	B16 C36000
Stem Nut	Brass	B16 C36000
Gasket	EPDM	-
Stem	Stainless Steel	ANSI 420
Gland	Ductile Iron	A536 65-45-12
Wrench Nut	Ductile Iron	A536 65-45-12
Hand Wheel	Ductile Iron	A536 65-45-12

Dimensions (Inch / mm)

Size	14"	16"	18"	20"	24"
L	17 (432)	17 (432)	18 (457)	18 (457)	20-1/2 (521)
H	34-1/16 (865)	40-3/16 (1021)	40-15/16 (1040)	47-1/4 (1200)	53-3/8 (1356)

Notes :

1.) Mechanical Joint comply with C111/A21.10
2.) Wedge is fully encapsulated with EPDM.
3.) Three O-Rings for stem sealing are replaceable under pressure.
4.) All Bolts are sealed with Wax
5.) Minimum 300 microns Fusion Bonded Epoxy for protection against corrosion.
6.) Straight through full bore prevents pressure loss caused by turbulence.
7.) Operated by hand wheel or wrench nut.

Resilient-Seated Gate Valve

AWWA C509

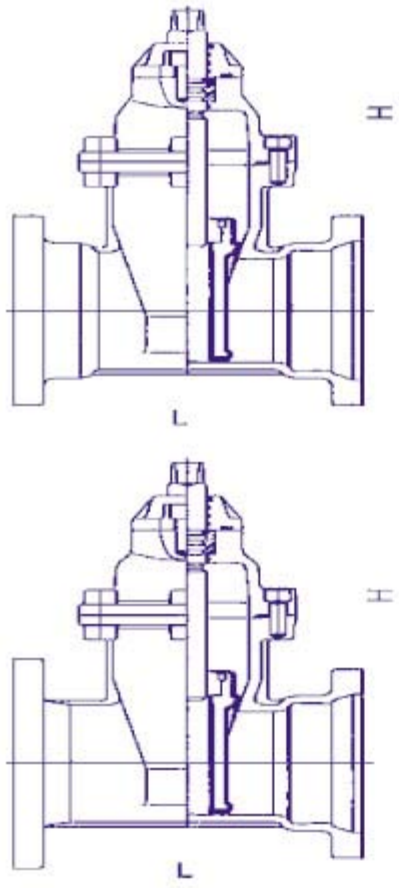


Figure Number

SV11	Mechanical Joint
SV12	Fig & Mechanical Joint

Pressure and Temperature

Nominal Pressure	200psi
Working Temperature	-10˚C to 82 ˚C

Materials List

Part Name	Materials	ASTM Spec.
Body	Ductile Iron	A536 65-45-12
Bonnet	Ductile Iron	A536 65-45-12
Wedge	DI with EPDM Encapsulated	A536 65-45-12
Thrust Collar	Brass	B16 C36000
Stem Nut	Brass	B16 C36000
Gasket	EPDM	-
Stem	Stainless Steel	ANSI 420
Gland	Ductile Iron	A536 65-45-12
Wrench Nut	Ductile Iron	A536 65-45-12
Hand Wheel	Ductile Iron	A536 65-45-12

Dimensions (Inch / mm)

Size		2"	3"	4"	6"	8"	10"	12"
L	3648	8-1/4 (210)	9 (229)	10 (254)	11.5 (292)	12.5 (318)	14.75 (375)	14.88 (378)
	3649	-	8-1/4 (210)	9-1/4 (235)	10-1/4 (260)	11 (279)	12-1/2 (317.5)	13-1/2 (343)
H		8-7/8 (225)	10-1/2 (267)	11-1/2 (292)	15-1/2 (394)	20 (508)	23-3/4 (603)	27-1/4 (692)

Notes :

1.) Flanges comply with EN1092 PN10/PN16 or ANSI B16.1 Class 125
2.) Wedge is fully encapsulated with EPDM.
3.) Three O-Rings for stem sealing are replaceable under pressure.
4.) All Bolts are sealed with Wax
5.) Minimum 300 microns Fusion Bonded Epoxy for protection against corrosion.
6.) Straight through full bore prevents pressure loss caused by turbulence.
7.) Operated by hand wheel or wrench nut.

Metal-Seated Gate Valve

BS5163 Type B /DIN3352/AWWA C500-02

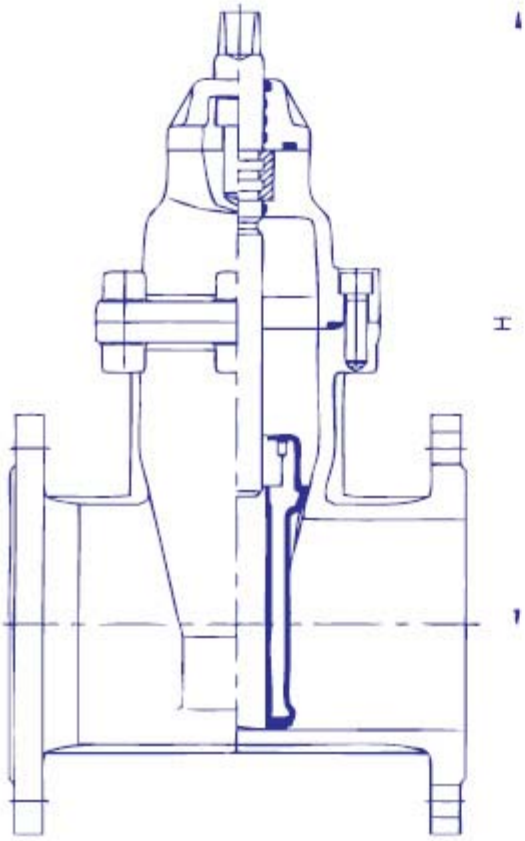


Figure Number

SV17	Conforms to BS5163 Type B
SV18	Conforms to DIN3352, DI3202-1 F4
SV19	Conforms to DIN3352, DI3202-1 F5
SV20	Conforms to AWWA C509

Pressure and Temperature

Nominal Pressure	200psi / 16 bar
Working Temperature	-10˚C to 82 ˚C

Materials List

Part Name	Materials	ASTM Spec.	BS Spec.
Body	Ductile Iron	A536 65-45-12	EN-JL1050
Bonnet	Ductile Iron	A536 65-45-12	EN-JL1050
Wedge	DI with EPDM Encapsulated	A536 65-45-12	EN-JL1050
Thrust Collar	Brass	B16 C36000	2874 CZ 124
Stem Nut	Brass	B16 C36000	2874 CZ 124
Stem	Stainless Steel	ANSI 420	970 420S37
Gland	Ductile Iron	A536 65-45-12	EN-JL1050
Wrench Nut	Ductile Iron	A536 65-45-12	EN-JL1050
Hand Wheel	Ductile Iron	A536 65-45-12	EN-JL1050

Dimensions (Inch / mm)

Size		2" (50)	2.5" (65)	3" (80)	4 (100)	5" (125)	6 (150)	8" (200)	10" (250)	12" (300)
L	BS5163 EN558-1, Series-3	7 (178)	7-1/2 (191)	8 (203)	9 (229)	10 (254)	10-1/2 (267)	11-1/2 (292)	13 (330)	14 (356)
	DIN3352 DIN3202-1-F4 EN558-1, Series-14	5-7/8 (150)	6-11/16 (170)	7-1/16 (180)	7-1/2 (190)	7-7/8 (200)	8-1/4 (210)	9-1/16 (230)	9-13/16 (250)	10-5/8 (270)
	DIN3352 DIN3202-1-F5 EN558-1, Series-15	9-13/16 (250)	10-5/8 (270)	11 (280)	11-13/16 (300)	11-13/16 (325)	13-3/4 (350)	15-3/4 (400)	17-11/16 (450)	19-11/16 (500)
	AWWA-C509 ANSI/ASME-B16.10	7 (178)	7-1/2 (191)	8 (203)	9 (229)	10 (254)	10-1/2 (267)	11-1/2 (292)	13 (330)	14 (356)
H		8-7/8 (225)	9-7/16 (240)	10-7/16 (265)	11-7/16 (290)	14-3/8 (365)	15-13/16 (402)	19-15/16 (507)	23-3/4 (603)	27-5/16 (693)

Notes :

1.) Flanges comply with EN1092-2 PN10/16 or ANSIB16.1 Class 125
2.) Wedge is fully encapsulated with EPDM.
3.) Three O-Rings for stem sealing are replaceable under pressure.
4.) All Bolts are sealed with Wax
5.) Minimum 300 microns Fusion Bonded Epoxy for protection against corrosion.
6.) Straight through full bore prevents pressure loss caused by turbulence.
7.) Operated by hand wheel or wrench nut.
8.) For BS5163 Type B gate valves, the stem materials is stainless steel BS970 431S29.

Metal-Seated Gate Valve

BS5163 Type B / AWWA C509

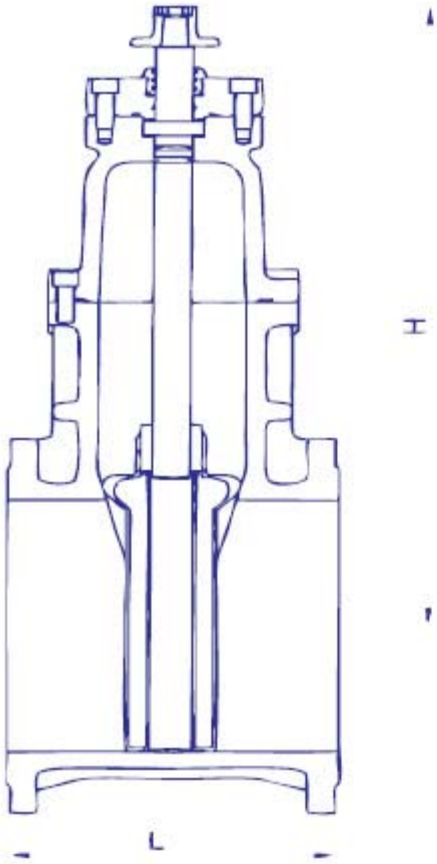


Figure Number

SV21	Conforms to BS5163 Type B
SV22	Conforms to AWWA C509

Pressure and Temperature

Nominal Pressure	150psi / 16 bar
Working Temperature	-10˚C to 82 ˚C

Materials List

Part Name	Materials	ASTM Spec.	BS Spec.
Body	Ductile Iron	A536 65-45-12	EN-JS1050
Bonnet	Ductile Iron	A536 65-45-12	EN-JS1050
Wedge	DI with EPDM Encapsulated	A536 65-45-12	EN-JS1050
Sealing Nut	Brass	B16 C36000	2874 CZ 124
Stem Nut	Brass	B16 C36000	2874 CZ 124
Stem	Stainless Steel	ANSI 420	970 420S37
Gland	Ductile Iron	A536 65-45-12	EN-JS1050
Wrench Nut	Ductile Iron	A536 65-45-12	EN-JS1050
Hand Wheel	Ductile Iron	A536 65-45-12	EN-JS1050

Dimensions (Inch / mm)

Size	14" (350)	16" (400)	18" (450)	20" (500)	24" (600)
L	15 (381)	16 (406)	17 (432)	18 (457)	20 (508)
H	34 (865)	40 (1020)	40-9/16 (1030)	47-1/4 (1200)	53-1/4 (1355)

Notes :

1.) Flanges comply with EN1092-2 PN10/16 or ANSIB16.1 Class 125
2.) Wedge is fully encapsulated with EPDM.
3.) Three O-Rings for stem sealing are replaceable under pressure.
4.) All Bolts are sealed with Wax
5.) Minimum 300 microns Fusion Bonded Epoxy for protection against corrosion.
6.) Straight through full bore prevents pressure loss caused by turbulence.
7.) Operated by hand wheel or wrench nut.
8.) For BS5163 Type B gate valves, the stem materials is stainless steel BS970 431S29.

Swing Check Valve
EN 12334/ DIN 32002 F6

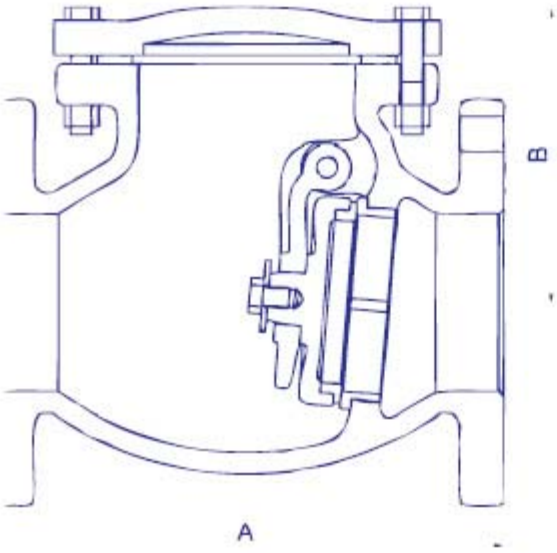


Figure Number

SV23	Bronze Disc Ring
SV24	EPDM Disc Ring
SV25	NBR Disc Ring

Pressure and Temperature

Nominal Pressure	200psi / 16 bar
Working Temperature	EPDM: -10˚C to 120 ˚C NBR : -10˚C to 82 ˚C

Materials List

Part Name	Materials	ASTM Spec.	BS Spec.
Bonnet	Cast Iron	A126 Class B	EN-JL1040
Side Plug	Brass	B16 C36000	2874 CZ 124
Hanger Pin	Brass	B16 C36000	2874 CZ 124
Hanger	Ductile Iron	A536 65-45-12	EN-JS1050
Disc Ring	Cast Bonze	B62 C83600	1400 LG2
	EPDM/NBR	Commercial	Commercial
Seat Ring	Cast Bronze	B62 C83600	1400 LG2
Body	Cast Iron	A126 Class B	EN-JL1040

Dimensions (Inch / mm)

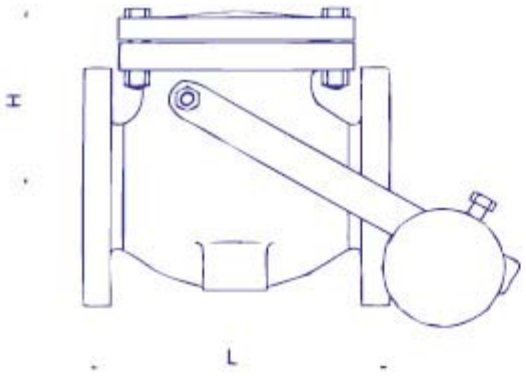
Size	2" (50)	2.1/2 " (65)	3" (80)	4" (100)	5" (125)	6" (150)	8" (200)
A	8 (203)	8 1/2 (216)	9 1/2 (241)	11-1/2 (292)	13 (330)	14 (356)	19/-1/2 (495)
B	4-3/4 (121)	5-5/16 (135)	5-9/16 (141)	6-5/8 (168)	7-3/16 (182)	8-7/16 (215)	10-1/2 (267)

Size	10" (250)	12" (300)	14" (350)	16" (400)	18" (450)	20" (500)	24" (600)
A	24-1/2 (622)	27-1/2 (699)	31 (787	36 (914)	36 (914)	40 (1016))	48 (1219)
B	12 (305)	13-1/2 (343)	17-11/16 (450)	20-1/2 (520)	21-5/8 (550)	23-1/4 (590)	26-3/4 (680)

Notes :

1) Designed in accordance with EN12334, MSS SP-71.
2) Flanges comply with EN1092-2 PN10/16 or ANSI B16 Class 125. Other Flanges types are available.
3) Testing BS 6755

Check Valve with Lever & Weight (Spring)
EN 12334 / MSS SP-71



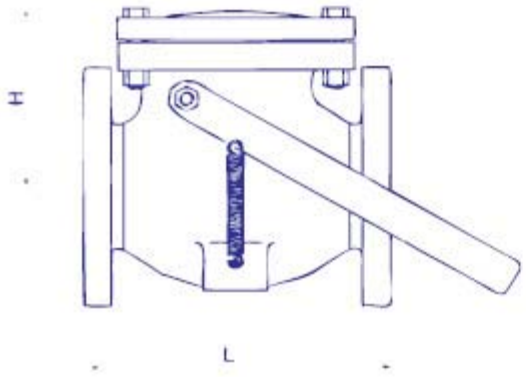


Figure Number

5108	

Pressure and Temperature

Nominal Pressure	200psi / 16 bar
Working Temperature	EPDM: -10˚C to 120 ˚C NBR : -10˚C to 82 ˚C

Materials List

Part Name	Materials	ASTM Spec.	BS Spec.
Bonnet	Cast Iron	A126 Class B	EN-JL1040
Side Plug	Brass	B16 C36000	2874 CZ 124
Hanger Pin	Stainless Steel	ANSI 420	970 420S37
Hanger	Ductile Iron	A536 65-45-12	EN-JS1050
Disc	Cast Iron	A126 Class B	EN-JL1040
Disc Ring	Cast Bonze	B62 C83600	1400 LG2
Seat Ring	Cast Bronze	B62 C83600	1400 LG2
Body	Cast Iron	A126 Class B	EN-JL1040
Lever	Carbon steel	AISI 1020	970 050A20
Weight	Cast Iron	A126 Class B	EN-JL1040
Spring	Stainless Steel	ANSI 304	970 304S15

Dimensions (Inch / mm)

Size	2" (50)	2.1/2 " (65)	3" (80)	4" (100)	5" (125)	6" (150)	8" (200)
L	8 (203)	8 1/2 (216)	9 1/2 (241)	11-1/2 (292)	13 (330)	14 (356)	19/-1/2 (495)
H	4-3/4 (121)	5-5/16 (135)	5-9/16 (141)	6-5/8 (168)	7-3/16 (182)	8-7/16 (215)	10-1/2 (267)

Size	10" (250)	12" (300)	14" (350)	16" (400)	18" (450)	20" (500)	24" (600)
L	24-1/2 (622)	27-1/2 (699)	31 (787	36 (914)	36 (914)	40 (1016))	48 (1219)
H	12 (305)	13-1/2 (343)	17-11/16 (450)	20-1/2 (520)	21-5/8 (550)	23-1/4 (590)	26-3/4 (680)

Notes :

1) Designed in accordance with EN12334, MSS SP-71.
2) Flanges comply with EN1092-2 PN10/16 or ANSI B16 Class 125. Other Flanges types are available.

Swing Flex Check Valve

EN 12334

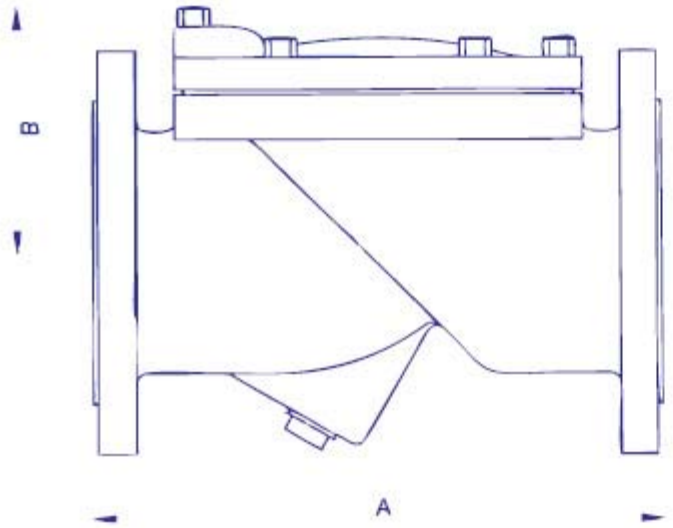


Figure Number

SV7E	Stainless Steel Disc, EPDM Seat
SV7N	Stainless Steel Disc, NBR Seat

Pressure and Temperature

Nominal Pressure	200psi / 16 bar
Working Temperature	EPDM: -10˚C to 120 ˚C NBR : -10˚C to 82 ˚C

Materials List

Part Name	Materials	ASTM Spec .	ASTM Spec.
Body*	Cast Iron	A126 Class B	EN-JL1040
Cover"	Cast Iron	A126 Class B	EN-JL1040
Disc	DI with EPDM/NBR Coated	A536 65-45-12	EN-JS1050
Gasket	NBR/EPDM		
Plug	Malleable Iron		

Dimensions (Inch / mm)

Size	2" (50)	2-1/2" (65)	3" (80)	4" (100)	5" (125)	6" (150)	8" (200)	10" (250)	12" (300)	14" (350)	16" (400)	18" (454)	20" (500)	24" (600)
A	8 (203)	8-/16 (216)	9-9/16 (243)	11-1/2 (292)	13-3/4 (349)	15 (381)	19-1/2 (495)	24-1/2 (6227)	27-1/2 (699)	31 (787)	32 (813)	36 (914)	40 (1016)	48 (1219)
B	3-3/4 (95)	3-3/4 (95)	4-1/3 (110)	4-3/4 (121)	5-13/16 (147)	5-13/16 (147)	8-3/4 (222)	10-1/4 (260)	11-1/2 (292)	13-1/8 (333)	15-3/8 (391)	17-1/8 (435)	19-1/8 (486)	22-3/4 (578)

Notes :

1.) Flanges comply with ANSI B16 Class 125 or EN1092-2 PN10/16. other flange types are available
2.) Minimum 200 microns Fusion Bonded Epoxy for Protection against corrosion.
3.) Body and cover materials for valves over 12" (300) are Ductile iron.

Eccentric Plug Valve

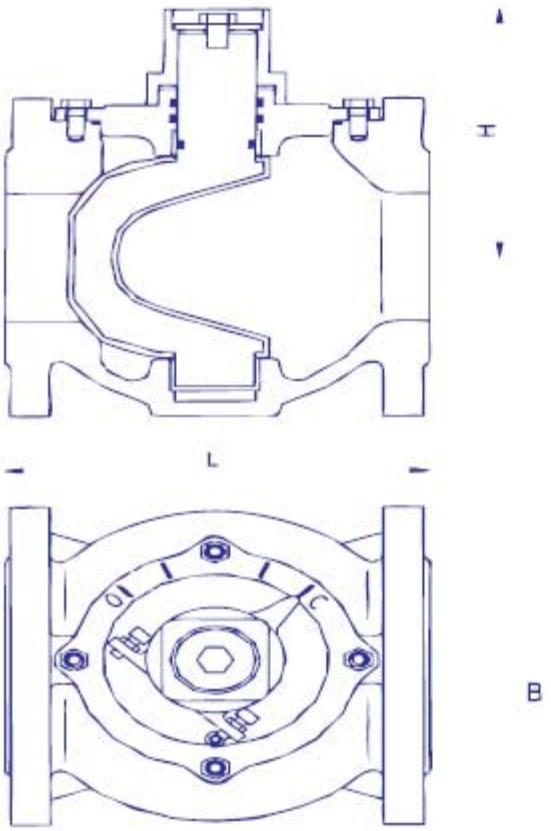


Figure Number

SV 11

Pressure and Temperature

Nominal Pressure	200psi / 16 bar
Working Temperature	EPDM: -10˚C to 120 ˚C NBR : -10˚C to 82 ˚C

Materials List

Part Name	Materials	ASTM Spec.	BS Spec.
Body	Cast Iron	A126 Class B	EN-JL1040
Body Seat	Nickle, Welded overlay		
Bonnet	Cast Iron	A126 Class B	EN-JL1040
Plug	DI with EPDM/NBR Coated	A536 65-45-12	EN-JS1050
Thrust Bearing	Stainless Steel	ANSI 316	970 316S16
Bus Bearing	Stainless Steel	ANSI 316	970 316S16
O-ring	EPDM Rubber		
Nut	Ductile Iron	A536 65-45-12	EN-JS1050

Dimensions (mm)

Size	2-1/2" (65)	3" (80)	4" (100)	5" (125)	6" (150)	8" (200)	10" (250)	12" (300)
L	7-1/2 (191)	8 (203)	9 (229)	10 (254)	10-1/2 (267)	11-1/2 (292)	13 (330)	14 (356)
H	6-5/16 (160)	6-5/16 (160)	7-5/16 (185)	8-7/16 (215)	8-7/16 (215)	10-13/16 (275)	11-7/16 (290)	13 (330)

Note :

Flanges comply with ANSI B16.1 Class 125 or EN1092-2 PN10/16. Other flanges types are available.

Eccentric Plug Valve

Mechanical Joint End

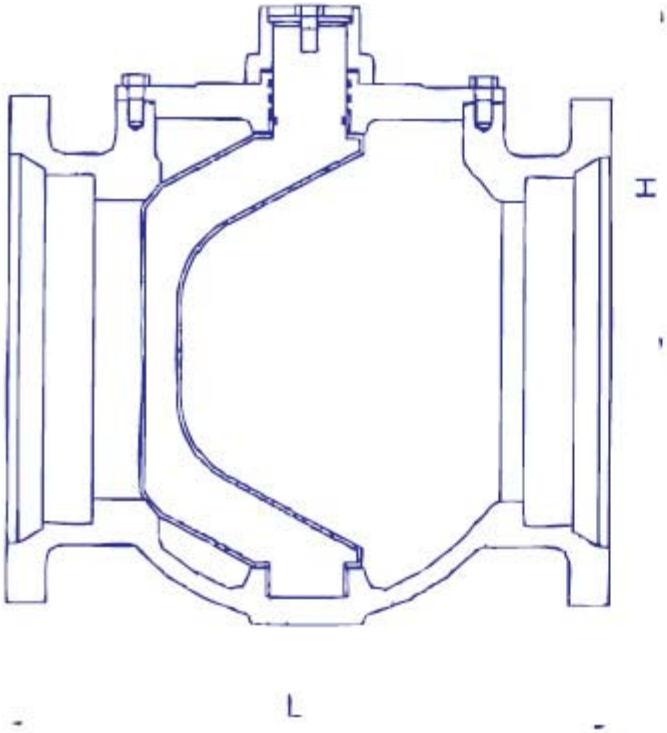


Figure Number

SV 16

Pressure and Temperature

Nominal Pressure	200psi / 16 bar
Working Temperature	EPDM: -10˚C to 120 ˚C NBR : -10˚C to 82 ˚C

Materials List

Part Name	Materials	AST Spec.
Body	Cast Iron	A126 Class B
Body Seat	Nickle, Welded overlay	
Bonnet	Cast Iron	A126 Class B
Plug	DI with EPDM/NBR Coated	A536 65-45-12
Thrust Bearing	Stainless Steel	AISI 316
Bush Bearing	Stainless Steel	AISI 316
O-Ring	EPDM/NBR	Commercial
Nut	Ductile Iron	A536 65-45-12

Dimensions (mm)

Size	3"	4"	6"	8"	10"	12"
L	11-7/8 (302)	12-1/4 (311)	14-1/8 (359)	17-1/2) (444.5)	19-3/8 (492)	20-3/4 (527)
H	6-5/16 (160)	7-5/16 (185)	8-7/16 (215)	10-13/16 (275)	11-17/16 (275)	13 (330)

Note :

Mechanical joints comply with ANSI/AWWA C111/A21.10.

Y- Strainer

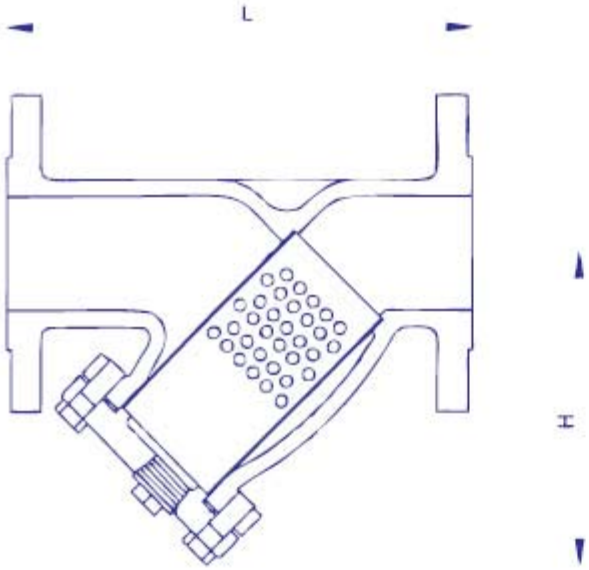


Figure Number

SV 7111

Pressure and Temperature

Nominal Pressure	200psi / 16 bar
Working Temperature	EPDM: -10˚C to 120 ˚C NBR : -10˚C to 82 ˚C

Materials List

Part Name	Materials	ASTM Spec.	BS Spec.
Bonnet	Cast Iron	A126 Class B	EN-JL1040
Cover	Cast Iron	A126 Class B	EN-JL1040
Screen	Stainless Steel	ASI304	970 304 S15
Gasket	PTFE / Graphite		
Plug	Cast Iron	A126 Class B	EN-JL1040

Standars Screens

Size	Hole Dia	Free Flow Area
2"-3 (50-600)	1.5mm	32.6%
4"-24" (100-600)	3.0mm	40%

Dimensions (Inch / mm)

Size	2" (50)	2.5 " (65)	3" (80)	4" (100)	5" (125)	6" (150)	8" (200)
L	9-1/16 (230)	10-3/4 (273)	11-5/8 (295)	13-7/8 (352)	16-3/8 (416)	18-1/2 (470)	21-3/8 (543)
H	5-3/4 (146)	6-7/8 (174)	7-13/16 (198)	9-1/8 (232)	11-1/4 (285)	12 (305)	15-13/16 (401)

Size	10" (250)	12" (300)	14" (350)	16" (400)	18" (450)	20" (500)	24" (600)
L	26 (660)	30-5/16 (770)	37-13/16 (960)	42-1/2 (960)	46 (1168)	50-1/5 (1275)	57-1/16 (1450)
H	18-5/8 (473)	21-13/16 (554)	29-1/8 (740)	33-1/16 (840)	35-1/2 (902)	39 (990)	44-5/8 (1134)

Note :

Flanges comply with EN1092-2 PN10/16 or ANSI B16 Class 125. Other Flanges types are available.

Y- Strainer

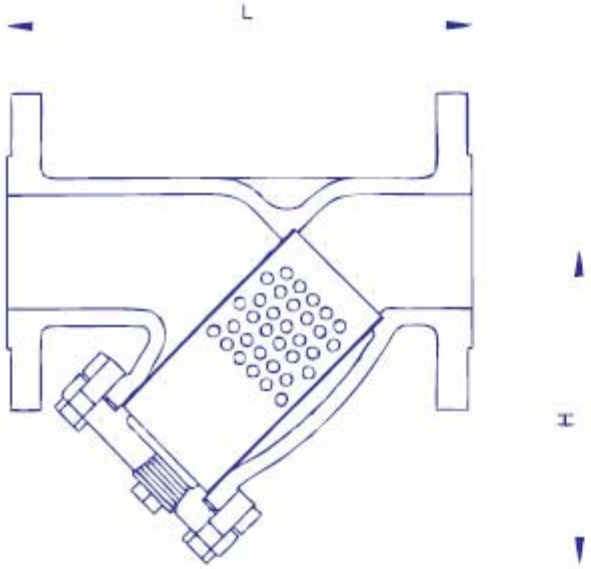


Figure Number

SV 7112

Pressure and Temperature

Nominal Pressure	200psi / 16 bar
Working Temperature	EPDM: -10˚C to 120 ˚C NBR : -10˚C to 82 ˚C

Materials List

Part Name	Materials	EN Spec.
Body	Cast Iron	EN-J1040
Cover	Cast Iron	EN-J1040
Screen	Stainless Steel	10088x5CrNi18-10
Gasket	PTFE / Graphite	
Plug	Cast Iron	EN-J1040

Standars Screens

Size	Hole Dia	Free Flow Area
20-40	1.0mm	22.6%
50-80	1.5mm	32.6%
100-400	3.0mm	40%

Dimensions (Inch / mm)

Size	20	25	32	40	50	65	80	100
L	150	160	180	200	230	290	310	350
H	79	87	128	137	137	165	186	226

Size	125	150	200	250	300	350	400
L	400	480	600	730	850	980	1100
H	267	305	358	495	530	740	840

Notes :

1). Flanges comply with EN1092-2 PN10/16. Other Flanges types are available.

2). Face to face dimensions conform to EN558-1, 1 Series.

Basket Strainer

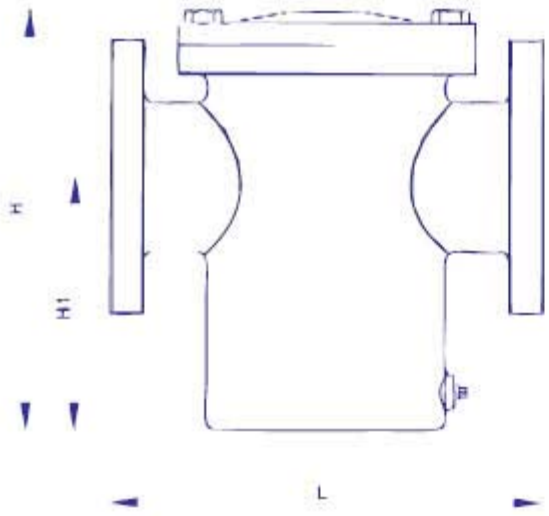


Figure Number

SV 7113

Pressure and Temperature

Nominal Pressure	200psi / 16 bar
Working Temperature	-10˚C to 120 ˚C

Material List

Part Name	Materials	ASTM Spec.	BS Spec.
Body	Cast Iron	A126 Class B	EN-JL1040
Cover	Cast Iron	A126 Class B	EN-JL1040
Screen	Stainless Steel	ASI304	970 304 S15
Gasket	PTFE / Graphite		
Plug	Cast Iron	A126 Class B	EN-JL1040

Standard Screens

Size	Hole Dia	Free Flow Area
2"-3 (50-600)	1.5mm	32.6%
4"-24" (100-600)	3.0mm	40%

Dimensions (Inch / mm)

Size	2" (50)	2.5 " (65)	3" (80)	4" (100)	5" (125)	6" (150)	8" (200)
L	8-1/8 (206.5)	8-1/4 (210)	9-7/8 (251)	11-1/2 (292)	13-1/8 (334)	14-7/8 (378)	18-11/16 (475)
H	8-3/4 (223	9-3/4 (248)	11-5/8 (295)	13-1/6 (332)	14-1/2 (368)	15-3/4 (400)	19-15/16 (507)
H1	5-3/16 (132.5)	6-1/8 (155.5)	7-5/16 (186)	8 (203)	8-3/8 (213)	9-1/4 (235)	11-5/8 (235)

Size	10" (250)	12" (300)	14" (350)	16" (400)	18" (450)	20" (500)	24" (600)
L	20-1/8 (511)	26-3/4 (680)	30-1/4 (768.5)	33-1/8 (841.5)	33-1/8 (841.5)	33-1/8 (841.5)	41-1/2 (1054)
H	26-1/16 (662)	30 (762)	36-5/8 (930)	39-9/16 (980)	39-11/16 (1008)	43-11/16 (1110)	66-7/16 (1687)
H1	13-3/8 (340)	15-7/8 (404)	23-1/16 (585)	23-1/4 (590)	23-1/4 (590)	23-1/2 (597)	46-1/4 (1174)

Note :

Flanges comply with EN1092-2 PN10/16 or ANSI B16 Class 125. Other Flanges types are available.

Fire Hydrant DN80

BS 750 Type II

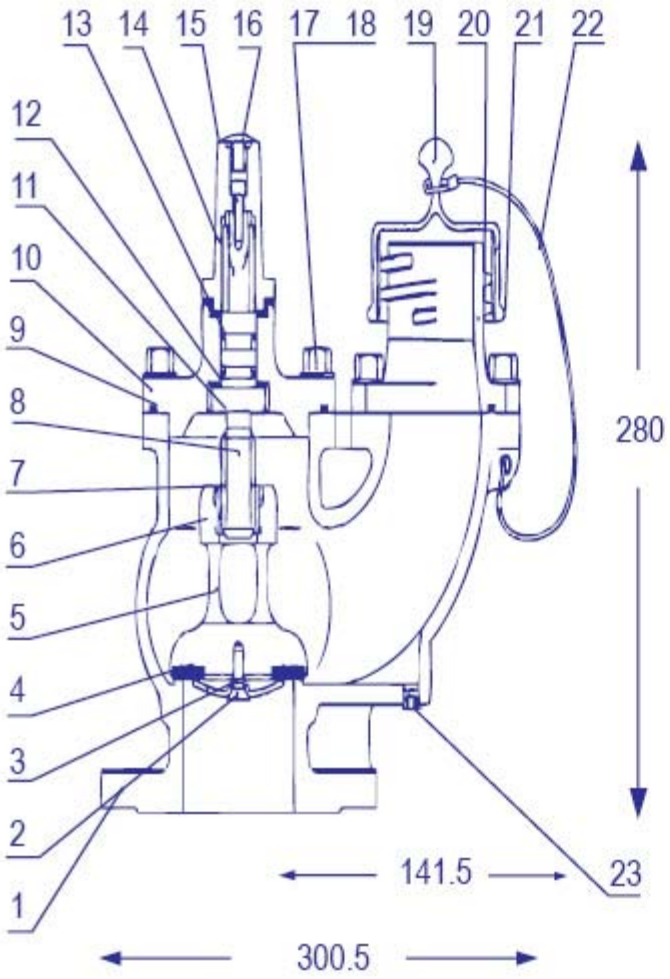


Figure Number

SV FH	London Round Thread

Material List

Item	Part Name	Materials	BS Spec.
1	Body	Ductile Iron	EN-JS1050
2	Bolt	Stainless Steel	970 304S15
3	Holder	Stainless Steel	970 304S15
4	Gasket	EPDM/NBR	
5	Disc	Ductile Iron	EN-JS1050
6	Stem Nut	Brass	2874 CZ121
7	Screw	Steel	
8	Stem	Stainless Steel	970 420S37
9	O-Ring	EPDM/NBR	
10	Cover	Ductile Iron	EN-JS1050
11	Washer	Brass	2874 CZ121
12	O-Ring	EPDM/NBR	
13	Cap Gasket	Plastic	
14	Driver Cap	Ductile Iron	EN-JS1050
15	Bolt	Stainless Steel	970 304S15
16	Indicator Cap	Plastic	
17	Bolt	Stainless Steel	970 304S15
18	Washer	Stainless Steel	970 304S15
19	Dust Cap	Plastic	
20	Outlet	Bronze	1400LG2
21	O-Ring	EPDM/NBR	
22	Rope	Stainless Steel	
23	Plug	Plastic	

Notes

1) Produced in accordance with the British National Water Council requirements .
2) The inlet flange is DN80 drilled to EN1092-2 Pn10, PN16 and ANSI B16.1 Class 125.
3) The outlet is 2-1/2" London Round Thread. Othe outlets are available.
4) Hydrostatic test
   Body – 24 Bar, Seat – 16 Bar.
5) Minimum 200 microns Fusion Bonded Epoxy for protection against corrosion

Double Orifice Air Relief Valve

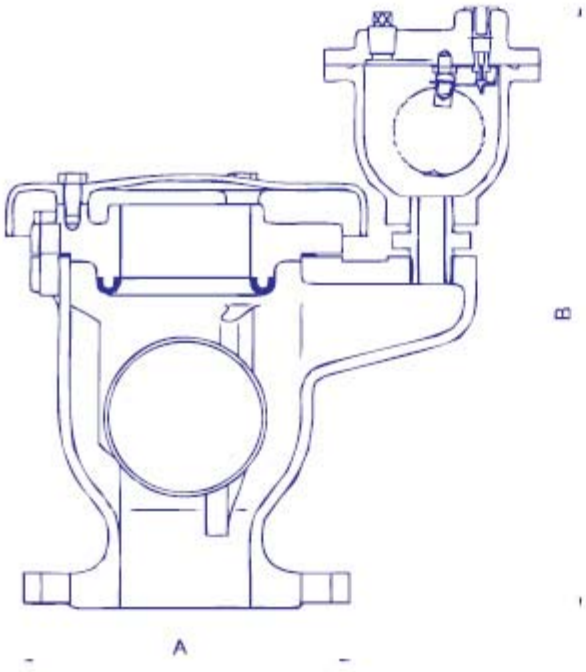


Figure Number

SV 91

Pressure and Temperature

Nominal Pressure	200psi / 16 bar
Working Temperature	EPDM: -10˚C to 120 ˚C

Materials List

Part Name	Materials	ASTM Spec.	BS Spec
Body	Cast Iron	A126 Class B	EN-JL1040
Cover	Cast Iron	A126 Class B	EN-JL1040
Large Ball	SS304 or Aluminum with Rubber – Coated		
Cap	Cast Iron	A126 Class B	EN-JL1040
Gasket	PTFE	Commercial	Commercial
Smaller ball	Stainless Steel	AISI 304	970 304S15

Dimensions (Inch / mm)

Size	2" (50)	3" (80)	4" (100)	6" (150)	8" (200)
L	6-1/2 (165)	7-7/8 (200)	8-11/16 (220)	11-1/4 (285)	13-3/8 (340)
H	13-1/4 (337)	14-13/16 (376)	15-1/4 (388)	16-9/16 (420)	18-1/8 (450)

Note :

1). Flanges comply with EN1092-2 PN10/16 or ANSI B16 Class 125. Other Flanges types are available.

AUTOMATIC FLOW CONTROL VALVE

Technical Advantages of Automatic Flow control Valves

For The Designer

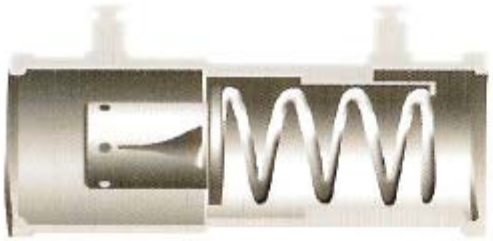
Automatic Balancing Benefits

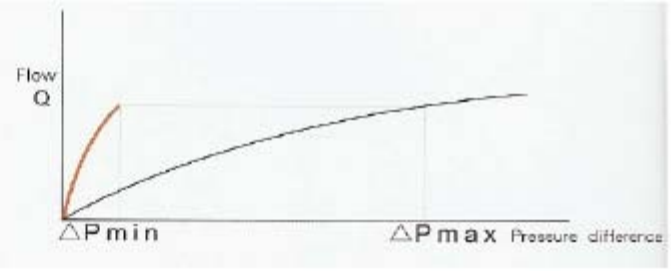
By specifying SPF automatic balancing valves, the designer is assured that the system is accurately and dynamically balanced. This means that all components will perform as specified regardless of changes. With automatic flow regulators, the terminal units will not exceed design flow even after modifications or additions to the system. Additionally, SPF automatic balancing offers important expense reductions both at installation and over the life of the facility through less balancing labor expenditures, reduced pump energy usage and lower head.

There are a number of important benefits the designer must consider.

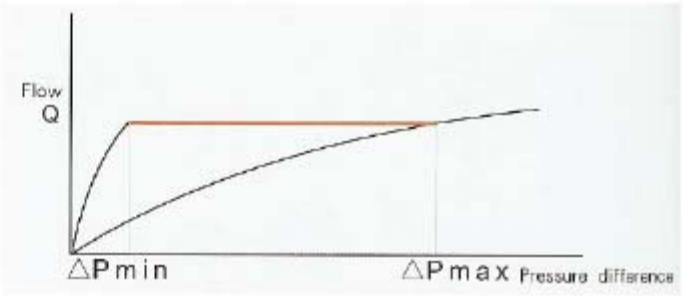
- Pump Energy savings
- Lower Head requirements
- Labour
- Variable speed pumping
- Tamperproof
- Space saving
- Design flexibility

WORKING PRINCIPLE SPF
AUTOMATIC FLOW CONTROL VALVE

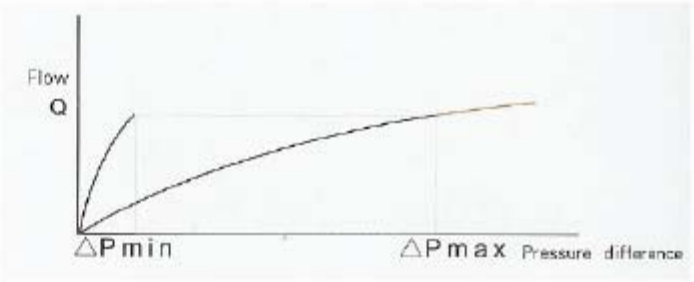




1. SPF Automatic flow control valves are high accuracy valves which automatically control the working pressure within the network. Automatic balancing uses flow limiters to prevent wasteful overflow in the system. The limiters only become active when overflow occurs and do not interfere with the operation of modulating control valves.

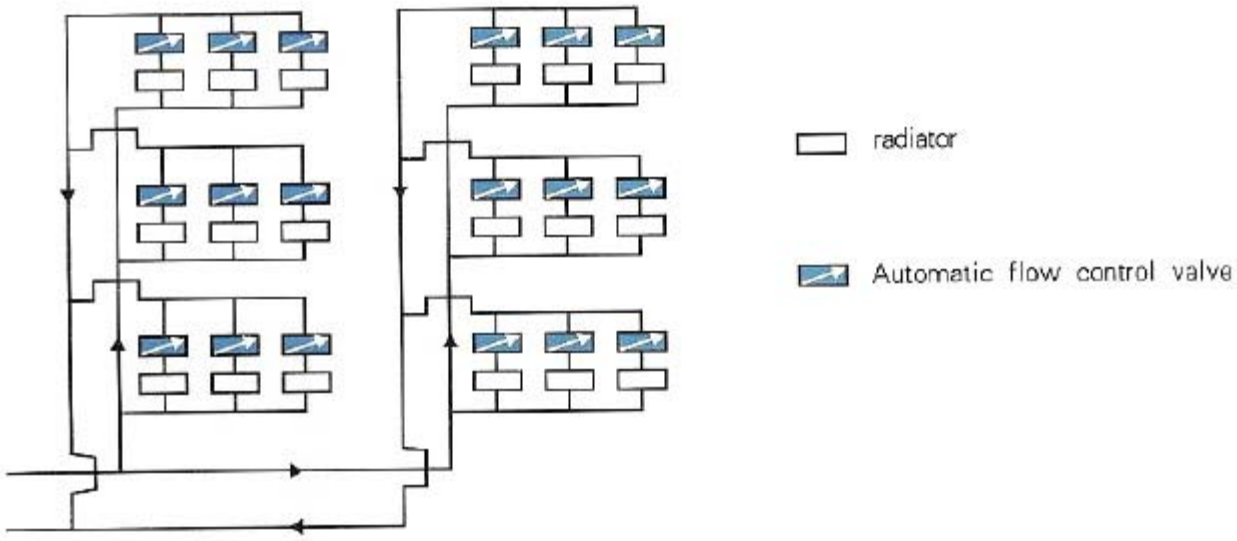


2. Before and after pressure differential the Automatic flow control valve is in the range of Pmin – Pmax. The spring is partly compressed and the water flows through the single orifice end hole and the curved side port. The output flow remains constant.

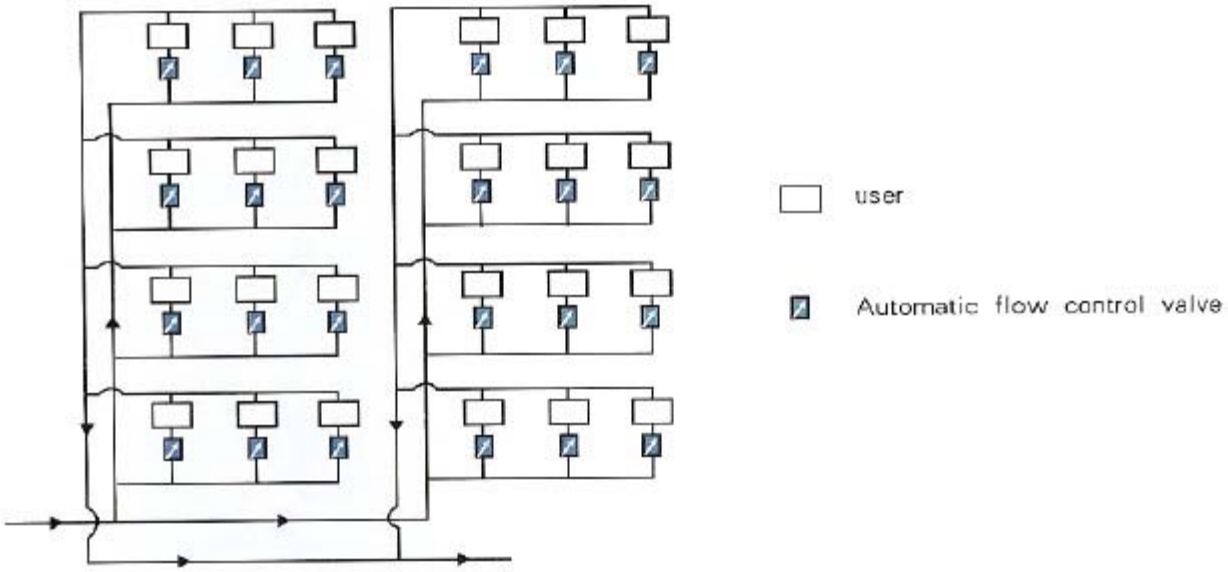


3. The curved side port and single orifice end hole provide the maximum orifice size and minimum flow restriction at a given pressure differential. The large end port boosts the low pressure flow through the cartridge.

APPLICATION INSTRUCTION SPF
AUTOMATIC FLOW CONTROL VALVE



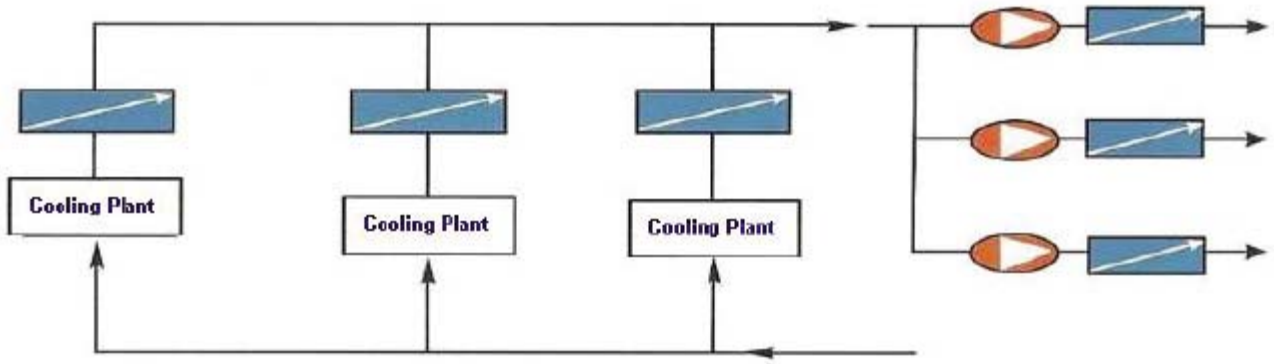
District Heating Systems
Automatic Flow Control valves can be fitted to evenly distribute heat for every user.



City Water Supply

Fitting Automatic Flow Control valves to end users in urban distribution systems will stabilize the dynamic flow disorder between the floors of multi storey towers incorporating homes and offices. The valves should be fitted on every floor.
They are equally suitable for single family residences on housing complexes to ensure water quality.

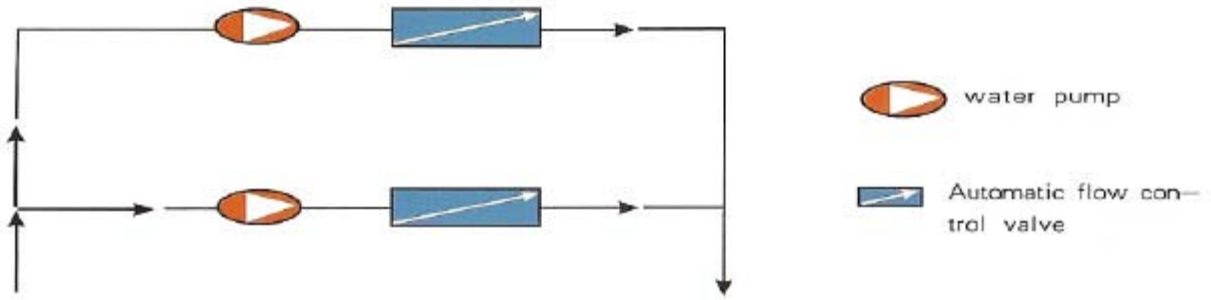
APPLICATION INSTRUCTION SPF
AUTOMATIC FLOW CONTROL VALVE



District Cooling Chilled Water Systems

Superior Valves for Superior fluid Control
Basically, a district cooling system (DCS) distributes thermal energy in the form of chilled water or other media from a central source to multiple buildings through a network of underground pipes for use in space and process cooling. The cooling or heat rejection is usually provided from a central cooling plant, thus eliminating the need for separate systems in individual buildings.

A DCS consists of three primary components: the central plant, the distribution network and the consumer system. The central plant may include the cooling equipment, power generation and thermal storage. The distribution or piping network is often the most expensive portion of the DCS and warrants careful design to optimize its use. The consumer system would usually comprise of air handling units and chilled water piping in the building. Automatic flow control valves are used after the chillers and throughout the consumer system to ensure the quality of the A.C



Parallel Water Pump System

Automatic flow control valves are only required at the terminal units. No controls are needed on the risers, and the system does not have to be rebalanced when a new unit is added. This can reduce installation costs 60% or more, depending on the configuration.

In any tower with varying cooling requirements in diverse locations, the HVAC system can reduce pump speed to meet only the chilled water needs for warmer locations, again enabling a substantial energy savings.

SPF automatic valves save money by providing the correct flow to protect much more expensive equipment downstream such as chillers and cooling towers, water source heat pumps, fan coils, air handlers, and other heating and cooling systems.

AGENT

SUPERIOR PIPELINE FITTINGS

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Superior Pipeline Fittings

VALVES

Butterfly and gate valves; made of cast iron or ductile iron and used to regulate the flow of water in large diameter pipes

REPAIR CLAMPS

Repair clamps; made of cast iron, ductile iron and stainless steel and used to seal leaks in water pipes

FLANGES

Flange adapters; made of cast iron or ductile iron and used to connect the valve flange to the pipe

COUPLINGS

Couplings; made of cast iron or ductile and used to join water pipe together

BENDS & TEES

Bends & Tees; made of cast iron or ductile iron and used to add branches or change the direction of a pipeline

STRAINERS

Pipeline strainers clear unwanted debris

STRAINERS

- **Y, T, & basket type strainers**
- **Standard (2-12”) and super (to 36”) sizes**
- **Ductile iron & stainless steel**
- **Competitive pricing**
- **International customer base**
- **ISO 9001:2000 Quality**

Superior Strainers

Strainers mechanically remove unwanted debris from the pipeline by use of a perforated or wire mesh straining element.

Strainers are used to protect pumps, meters, control valves, steam traps, regulators and other process equipment.

What our customers say

“*Superior Strainers are magnificent – unbelievable quality*”

“*The best quality I have ever seen*”

Superior Pipeline Fittings
3554 N Fail Road, La Porte, IN, 46350
T: (1) 219 773 4342
W: www.superiorpipelinefittings.com