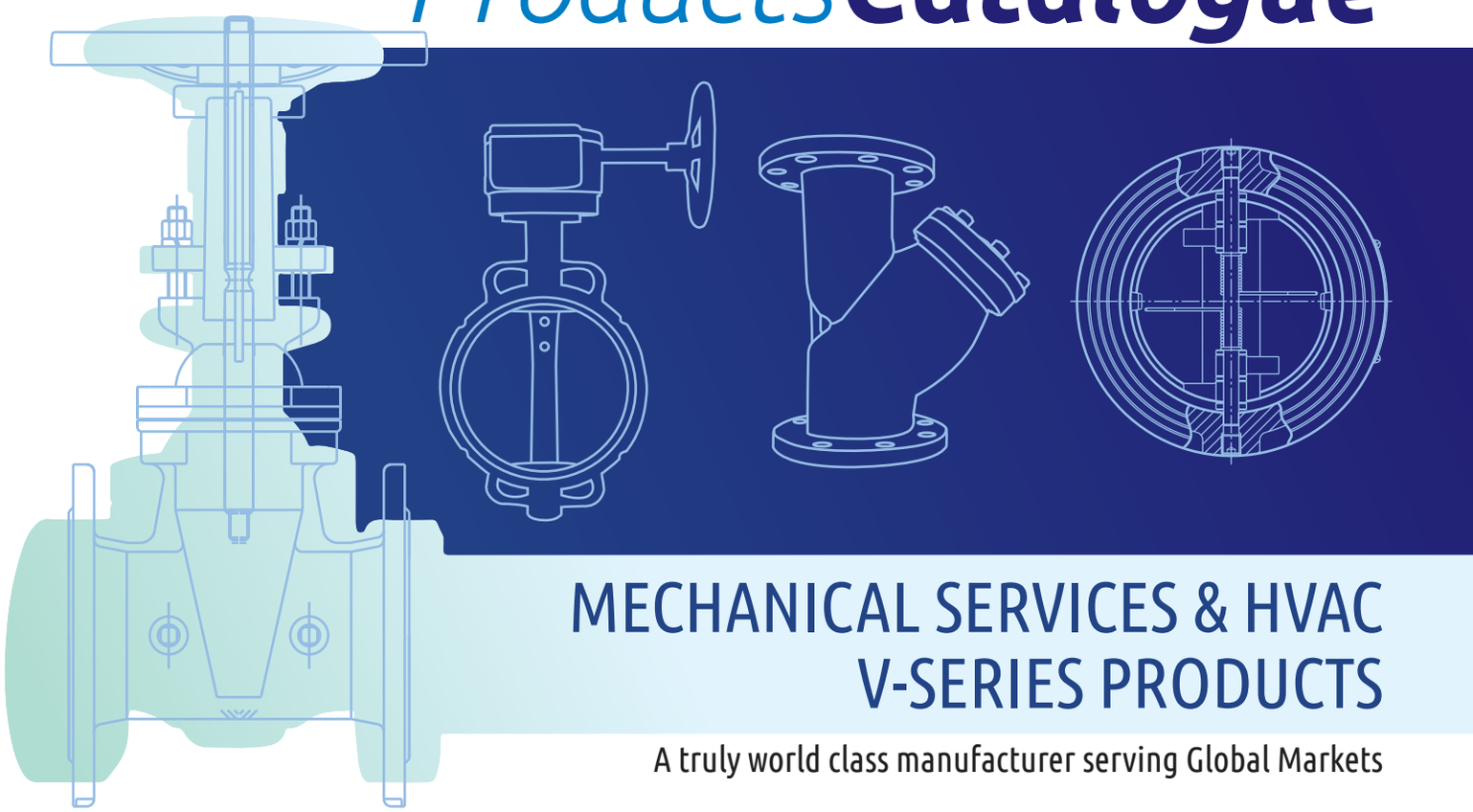
fivalco®

Products**Catalogue**

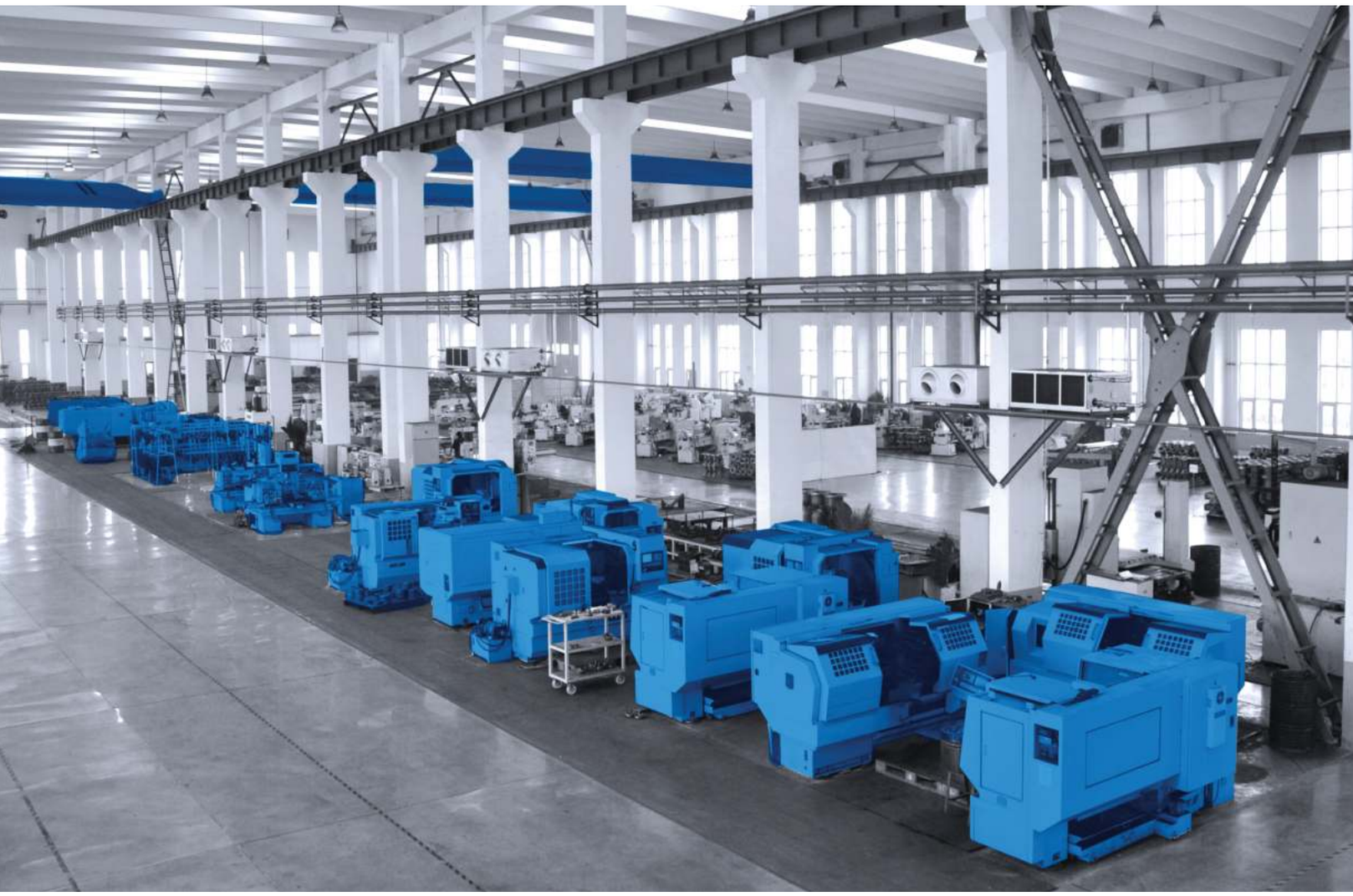


MECHANICAL SERVICES & HVAC
V-SERIES PRODUCTS

A truly world class manufacturer serving Global Markets

An American brand trusted for over 35 years

The quality goes in before our name goes on



A True Manufacturer

Fivalco is a widely recognised world class manufacturer of flow control products primarily serving the critical Fire Protection, General Process Industries, Water Supply and Heating, Ventilation & Air Conditioning (HVAC) markets worldwide.

We operate from two main facilities utilising the latest manufacturing technologies and equipment available to produce world class flow control products serving multiple industries.

Our primary mission is to continue to provide the highest quality products to discerning customers, whilst allowing our employees career growth prospects, all elements working together as partners to enhance stakeholder value.

List

WAFER BUTTERFLY VALVE

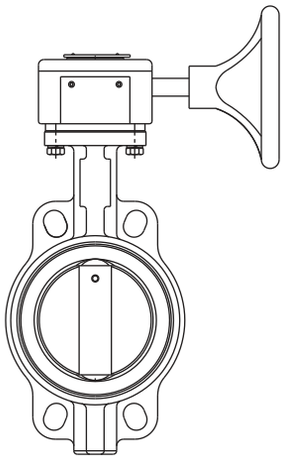
PN 16 Fig No.: V1116

FEATURES & SPECIFICATIONS

- Higher strength for disc with pinned single shaft ensure optimal alignment
- Centrally mounted disc and hydrodynamic design minimize pressure loss
- Can be installed at horizontal or vertical pipe line
- Phenolic backed rubber seat is non-collapsible, stretch resistant and easily replaceable
- Excellent flow characteristic with flow in either direction
- Durable fusion bonded epoxy coated
- Designed to BS EN 593 / BS 5155 / MSS SP-67
- Precision machining of disc for low operating torque
- No gasket needed for installation

TECHNICAL SPECIFICATIONS

Size	DN50 ... DN600
Body Design	Wafer
Working Pressure	16bar
Shell Testing Pressure	(x1.5) 24 bar
Seat Testing Pressure	(x1.1) 17.6 bar
Working Temperature	-20°C ... 110°C (EPDM Seat) -10°C ... 80°C (NBR Seat) -10°C ... 130°C (Viton Seat)
Applicable Media	Water, Oil & Gas
Operator	Lever, Wormgear, Electric Actuator
Connection	EN1092-2 PN16 JIS B2239 10K / 16K ASME Class 125 / 150
Optional Accessories	Chain Wheel, Limit Switch

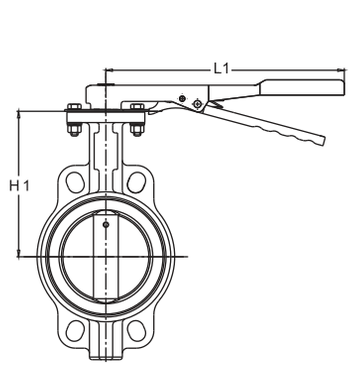


MATERIAL SPECIFICATIONS

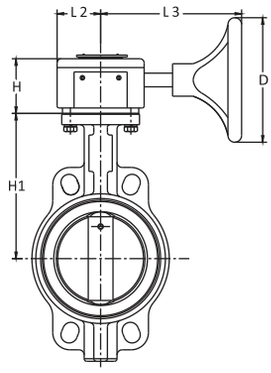
Part	Material
Body	Ductile Iron
Disc	Ductile Iron Stainless Steel
Stem	Stainless Steel
Seat	EPDM / NBR / Viton
O-Ring	EPDM / NBR / Viton
Taper Pin	Stainless Steel
Bushing	PTFE / PAP
Lever	Malleable Iron
Gear Box Housing	Cast Iron

WAFER BUTTERFLY VALVE

PN 16 Fig No.: V1116



Lever Operated



Gear Box Operated

DIMENSIONS

(mm)

DN (mm)	50	65	80	100	125	150	200	250	300	350	400	450	500	600
DN (inch)	2	2½	3	4	5	6	8	10	12	14	16	18	20	24
Face to Face	42	44.5	44.5	51	54.5	54.5	59.6	67	75.5	76	102	114	127	151
H1	141.2	150.4	156.4	167.9	186.5	205.7	230.6	269.9	327.8	368	400	422	480	562
L1	195	195	195	266	266	328	386	-	-	-	-	-	-	-
H	70	70	70	70	70	70	80	80	80	80	80	97	97	105
L2	52	52	52	52	52	52	75	75	80	80	80	88	88	128
L3	150	150	150	150	150	150	208	208	212	212	212	201	201	283
D	150	150	150	150	150	150	280	280	280	280	280	175	175	255

VALVE COEFFICIENT (FULL OPEN)

DN (mm)	50	65	80	100	125	150	200	250	300	350	400	450	500	600
DN (inch)	2	2½	3	4	5	6	8	10	12	14	16	18	20	24
CV	135	220	302	600	1022	1579	3136	5340	8250	11917	16388	21705	27908	43116

INSTALLATION & OPERATION GUIDE

1. Ensure sufficient space for valves for easy installation, operation, maintenance and replacement.
2. Verify the valves are suitable for the operating condition such as medium, operating pressure / temperature, etc.
3. Check the I.D. of the flange and pipe to ensure free disc movement.
4. Valves shall be mounted on flanges only after the counter flanges have been welded to pipe and cooled fown to the atmospheric temperature. Welding heat may damage the rubber seat of the valves. Never weld the flanges with valves installed. No gasket is required for installation of rubber seated butterfly valves.
5. Position the valves carefully between flanges. Accurate centering between flanges is essential to prevent any damages and problems during operation.
6. Valves should be installed by placing bolts through the hole and tightening carefully, ensuring even contact between the flange and seat. Too tight of space may cause damages to the seat and should be avoided.
7. Cross tighten all the bolts diagonally to distribute the loads evenly over the valves.
8. Turning the valves to ensure sufficient disc clearance.
9. Valves equipped with manual operators must be operated manually. Excessive external force on the operation of valve may damage the valve and / or operator.
10. Blind flange with short pipe should be used for dead end installation.

FULL LUG BUTTERFLY VALVE

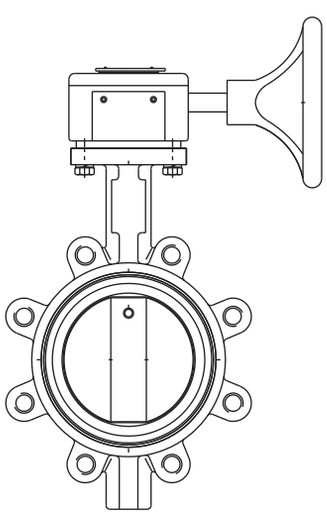
PN 16 Fig No.: V1216

FEATURES & SPECIFICATIONS

- Higher strength for disc with pinned single shaft ensure optimal alignment
- Centrally mounted disc and hydrodynamic design minimize pressure loss
- Can be installed at horizontal or vertical pipe line
- Phenolic backed rubber seat is non-collapsible, stretch resistant and easily replaceable
- Excellent flow characteristic with flow in either direction
- Durable fusion bonded epoxy coated
- Designed to BS EN 593 / BS 5155 / MSS SP-67
- Precision machining of disc for low operation torque
- No gasket needed for installation

TECHNICAL SPECIFICATIONS

Size	DN50 ... DN600
Body Design	Lugged
Working Pressure	16bar
Shell Testing Pressure	(x1.5) 24 bar
Seat Testing Pressure	(x1.1) 17.6 bar
Working Temperature	-20°C ... 110°C (EPDM Seat) -10°C ... 80°C (NBR Seat) -10°C ... 130°C (Viton Seat)
Applicable Media	Water, Oil & Gas
Operator	Lever, Wormgear, Electric Actuator
Connection	EN1092-2 PN16 JIS B2239 10K / 16K ASME Class 125 / 150
Optional Accessories	Chain Wheel, Limit Switch

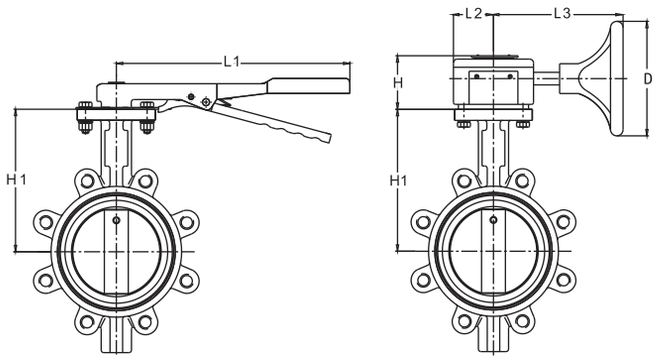


MATERIAL SPECIFICATIONS

Part	Material
Body	Ductile Iron
Disc	Ductile Iron Stainless Steel
Stem	Stainless Steel
Seat	EPDM / NBR / Viton
O-Ring	EPDM / NBR / Viton
Taper Pin	Stainless Steel
Bushing	PTFE / PAP
Lever	Malleable Iron
Gear Box Housing	Cast Iron

FULL LUG BUTTERFLY VALVE

PN 16 Fig No.: V1216



Lever Operated Gear Box Operated

DIMENSIONS

(mm)

DN (mm)	50	65	80	100	125	150	200	250	300	350	400	450	500	600
DN (inch)	2	2½	3	4	5	6	8	10	12	14	16	18	20	24
Face to Face	42	44.5	44.5	51	54.5	54.5	59.6	67	75.5	76	102	114	127	151
H1	141.2	150.4	156.4	167.9	186.5	205.7	230.6	269.9	327.8	368	400	422	480	562
L1	195	195	195	266	266	328	386	-	-	-	-	-	-	-
H	70	70	70	70	70	70	80	80	80	80	80	97	97	105
L2	52	52	52	52	52	52	75	75	80	80	80	88	88	128
L3	150	150	150	150	150	150	208	208	212	212	212	201	201	283
D	150	150	150	150	150	150	280	280	280	280	280	175	175	255

VALVE COEFFICIENT (FULL OPEN)

DN (mm)	50	65	80	100	125	150	200	250	300	350	400	450	500	600
DN (inch)	2	2½	3	4	5	6	8	10	12	14	16	18	20	24
CV	135	220	302	600	1022	1579	3136	5340	8250	11917	16388	21705	27908	43116

INSTALLATION & OPERATION GUIDE

1. Ensure sufficient space for valves for easy installation, operation, maintenance and replacement.
2. Verify the valves are suitable for the operating condition such as medium, operating pressure / temperature, etc.
3. Check the I.D. of the flange and pipe to ensure free disc movement.
4. Valves shall be mounted on flanges only after the counter flanges have been welded to pipe and cooled fown to the atmospheric temperature. Welding heat may damage the rubber seat of the valves. Never weld the flanges with valves installed. No gasket is required for installation of rubber seated butterfly valves.
5. Position the valves carefully between flanges. Accurate centering between flanges is essential to prevent any damages and problems during operation.
6. Valves should be installed by placing bolts through the hole and tightening carefully, ensuring even contact between the flange and seat. Too tight of space may cause damages to the seat and should be avoided.
7. Cross tighten all the bolts diagonally to distribute the loads evenly over the valves.
8. Turning the valves to ensure sufficient disc clearance.
9. Valves equipped with manual operators must be operated manually. Excessive external force on the operation of valve may damage the valve and / or operator.
10. Blind flange with short pipe should be used for dead end installation.

DOUBLE FLANGE BUTTERFLY VALVE

PN16 Fig No.: V13C16

FEATURES & SPECIFICATIONS

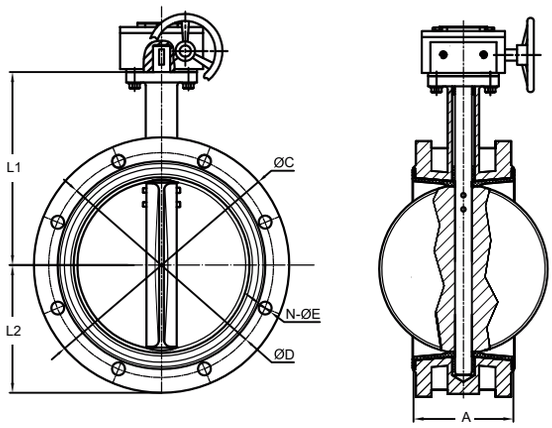
- Concentric double flange
- Comply with BS EN593 / BS 5155 (Double flange short body) / ISO 5752 / EN 558-1 Basic Series 13 (Double flange short body) / MSS SP-67
- Flange drilled to BS 4504 PN16 / EN1092-2 PN16 / ANSI Class 150 / JIS10K / AS 2129 Table E (Specify on order)

PRESSURE & TEMPERATURE RATINGS

Working Pressure	16bar
Shell Testing Pressure	(x1.5) 24bar
Seat Testing Pressure	(x1.1) 17.6bar
Working Temperature	-20°C ... 110°C (EPDM) -10°C ... 80°C (NBR)
Suitable Media	Water, Oil & Gas

MATERIAL SPECIFICATIONS

Part	Material
Body	Ductile Iron
Disc	Ductile Iron Aluminum Bronze Stainless Steel 304 Stainless Steel 316
Stem	Stainless Steel 410 Stainless Steel 431
Seat Ring	EPDM/NBR
O-Ring	EPDM/NBR
Bushing	Bronze



DIMENSIONS

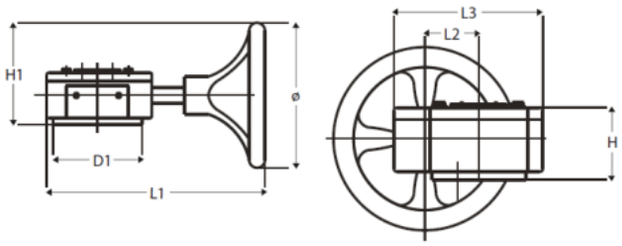
(mm)

DN	(mm)	50	65	80	100	125	150	200	250	300	350	400	450	500	600
	(inch)	2	2½	3	4	5	6	8	10	12	14	16	18	20	24
	ΦC	165	180	200	220	250	285	340	405	460	520	580	640	715	840
	ΦD	125	145	160	180	210	240	295	355	410	470	525	585	650	770
	N-ΦE	4-19	4-19	8-19	8-19	8-19	8-23	12-23	12-28	12-28	16-28	16-31	20-31	20-34	20-37
	L1	125	134	145.5	151.5	156.5	196.5	211	270	305.5	322.5	365	394	440	508
	L2	82.5	92.5	100	110	125	142.5	170	202.5	230	260	290	320	358	420
	A	108	112	114	127	140	140	152	165	178	190	216	222	229	267

DOUBLE FLANGE BUTTERFLY VALVE

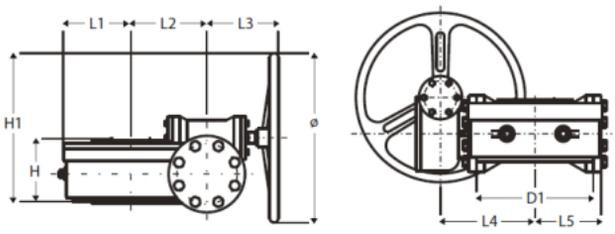
PN16 Fig No.: V13C16

Cast Iron 1-Stage Worm Gear and Handwheel
Carbon Steel Gear Box Shaft



VALVE DIAMETER	D1	ø	H	H1	L1	L2	L3
DN50 - DN80	65	150	33	70	216	45	127
DN100 - DN150	90	150	33	70	216	45	127
DN200 - DN250	125	285	36	76	303	63.5	170
DN300 - DN350	125	285	40	79	300	80	190
DN400	175	385	79	232.5	300	80	190
DN450 - DN500	175	390	108	251	397/427	120	279

Cast Iron 2-Stage Worm Gear and Handwheel
Carbon Steel Gear Box Shaft



VALVE DIAMETER	D1	ø	H	H1	L1	L2	L3	L4	L5
DN400 - DN500	175	285	125	271	107	100	156	168	107
DN600	210	285	125	271	107	100	156	168	107

INSTALLATION & OPERATION GUIDE

1. Ensure sufficient space for valves for easy installation, operation, maintenance and replacement.
2. Verify the valves are suitable for the operating condition such as medium, operating pressure / temperature, etc.
3. Check the I.D. of the flange and pipe to ensure free disc movement.
4. Valves shall be mounted on flanges only after the counter flanges have been welded to pipe and cooled down to the atmospheric temperature. Welding heat may damage the rubber seat of the valves. Never weld the flanges with valves installed. No gasket is required for installation of rubber seated butterfly valves.
5. Position the valves carefully between flanges. Accurate centering between flanges is essential to prevent any damages and problems during operation.
6. Valves should be installed by placing bolts through the hole and tightening carefully, ensuring even contact between the flange and seat. Too tight of space may cause damages to the seat and should be avoided.
7. Cross tighten all the bolts diagonally to distribute the loads evenly over the valves.
8. Turning the valves to ensure sufficient disc clearance.
9. Valves equipped with manual operators must be operated manually. Excessive external force on the operation of valve may damage the valve and / or operator.
10. Blind flange with short pipe should be used for dead end installation.

NRS RESILIENT SEAT GATE VALVE

PN 16 Fig No.: V23A16 / V23AS16

FEATURES & SPECIFICATIONS

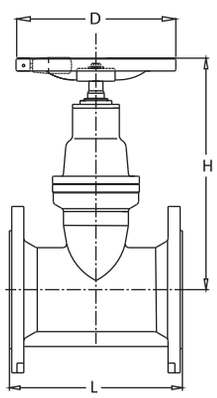
- Non-rising stem
- Inside screw
- Bolted bonnet
- Full bore port allows optimum and smooth flowing passage
- Fully encapsulated rubber disc
- Resilient seat for superior pipeline isolation
- Durable fusion bonded epoxy coated
- Handwheel or removable square key operated
- Designed to BS 5163 / BS EN 1074-2
- Flange drilled to BS 4504 PN16 / EN 1092-2 PN16 / ANSI Class 150 (Specify on order)
- Applicable for Building Services, Air-Conditioning, Fire- Protection, Cold Water Plumbing, Hot Water System, Water Supply Works, Water Treatment Plant, General Industries

TECHNICAL SPECIFICATIONS

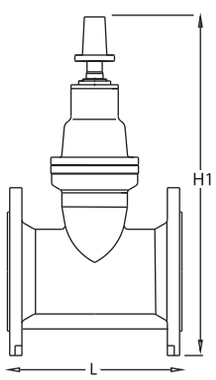
Working Pressure	16bar
Shell Testing Pressure	(x1.5) 24 bar
Seat Testing Pressure	(x1.1) 17.6 bar
Working Temperature	-20°C ... 110°C
Suitable Media	Water, Oil & Gas

MATERIAL SPECIFICATIONS

Part	Material	Specification
Body	Ductile Iron	EN-JS 1050
Disc	EPDM coated Ductile Iron	EN-JS 1050
Stem	Stainless Steel 410	EN 10088-3 1.4006
Stem Nut	Brass	EN 12165 CW614N
Bonnet	Ductile Iron	EN-JS 1050
Hexagon Bolt	Carbon Steel	
O-Ring	EPDM / NBR	
Handwheel	Ductile Iron	EN-JS 1050



Handwheel Operated
V23A16



Square Key Operated
V23AS16

DIMENSIONS

(mm)

DN (mm)	50	65	80	100	125	150	200	250	300	350	400	450	500	600
DN (inch)	2	2½	3	4	5	6	8	10	12	14	16	18	20	24
H	236	249	276	322	377	424	500	591	695	789	815	995	1100	1240
H1	319	342	376	431	502	567	670	794	925	1049	1105	1315	1458	1660
L	178	190	203	229	254	267	292	330	356	381	406	432	457	508
D	160	160	180	200	250	250	300	350	400	500	500	500	600	600

OS&Y RESILIENT SEAT GATE VALVE

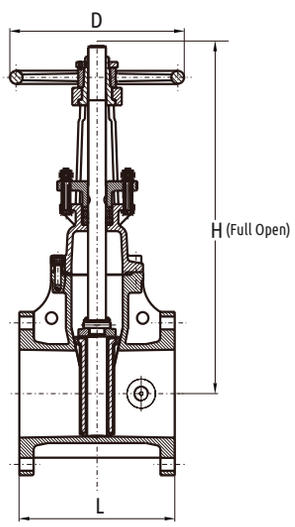
PN 16 Fig No.: V23AR16

FEATURES & SPECIFICATIONS

- Rising stem, Outside Screw & Yoke (OS&Y)
- Bolted bonnet
- Full bore port allows optimum and smooth flowing passage
- Fully encapsulated rubber disc
- Resilient seat for superior pipeline isolation
- Durable fusion bonded epoxy coated
- Designed to BS 5163 / EN 1074-2
- Flange drilled to BS 4504 PN16 / EN 1092-2 PN16 / ANSI Class 150 (Specify on order)
- Applicable for Building Services, Air-Conditioning, Fire- Protection, Cold Water Plumbing, Hot Water System, Water Supply Works, Water Treatment Plant, General Industries

TECHNICAL SPECIFICATIONS

Working Pressure	16bar
Shell Testing Pressure	(x1.5) 24 bar
Seat Testing Pressure	(x1.1) 17.6 bar
Working Temperature	-20°C ... 110°C
Suitable Media	Water, Oil & Gas



MATERIAL SPECIFICATIONS

Part	Material	Specification
Body	Ductile Iron	EN-JS 1050
Disc	EPDM coated Ductile Iron	EN-JS 1050
Stem	Stainless Steel 410	EN 10088-3 1.4006
Stem Nut	Brass	EN 12165 CW614N
Bonnet	Ductile Iron	EN-JS 1050
Hexagon Bolt	Carbon Steel	
O-Ring	EPDM / NBR	
Handwheel	Ductile Iron	EN-JS 1050

DIMENSIONS

(mm)

DN (mm)	50	65	80	100	125	150	200	250	300	350	400
(inch)	2	2½	3	4	5	6	8	10	12	14	16
H (Full Open)	350	380	455	548	618	747	942	1144	1328	1410	1685
L	178	190	203	229	254	267	292	330	356	381	406
D	160	160	180	200	250	250	300	350	400	500	500

WAFER DOUBLE DOOR CHECK VALVE

PN 16 Fig No.: V51DD16

FEATURES & SPECIFICATIONS

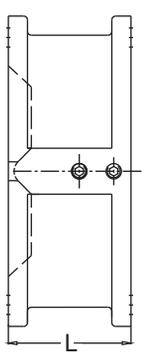
- Spring loaded double door
- Vulcanized seat for non-slam effect
- Comply with DIN 3202
- Durable fusion bonded epoxy coated
- Wafer connection to BS 4504 PN16 / EN 1092-2 PN16 / ANSI Class 150 (Specify on order)
- Applicable for Building Services, Air-Conditioning, Fire- Protection, Cold Water Plumbing, Hot Water System, Sewerage & Water Treatment, General Industries

TECHNICAL SPECIFICATIONS

Working Pressure	16bar
Shell Testing Pressure	(x1.5) 24 bar
Seat Testing Pressure	(x1.1) 17.6 bar
Working Temperature	-20°C ... 110°C (EPDM Seat Ring) -10°C ... 80°C (NBR Seat Ring)
Suitable Media	Water, Oil & Gas

MATERIAL SPECIFICATIONS

Part	Material	Specification
Body	Ductile Iron Cast Iron	EN-JS 1050 EN-JL 1040
Disc	Ductile Iron Stainless Steel 304 Stainless Steel 316	EN-JS 1050 EN 10088-3 1.4301 EN 10088-3 1.4401
Shaft	Stainless Steel 410 Stainless Steel 304 Stainless Steel 316	EN 10088-3 1.4006 EN 10088-3 1.4301 EN 10088-3 1.4401
Seat	EPDM / NBR	
Spring	Stainless Steel 304 Stainless Steel 316	EN 10088-3 1.4301 EN 10088-3 1.4401
Gasket	PTFE	
Lifting Ring*	Carbon Steel	



* Lifting ring is only for valve of 8" and above.

DIMENSIONS

(mm)

DN	(mm)	50	65	80	100	125	150	200	250	300	350	400	450	500	600
	(inch)	2	2½	3	4	5	6	8	10	12	14	16	18	20	24
	L	43	46	64	64	70	76	89	114	114	127	140	152	152	178

VALVE COEFFICIENT

DN	(mm)	50	65	80	100	125	150	200	250	300	350	400	450	500	600
	(inch)	2	2½	3	4	5	6	8	10	12	14	16	18	20	24
	CV	79	120	226	404	695	1075	1920	3360	5320	6200	7650	9900	12700	19200

Y-TYPE STRAINER

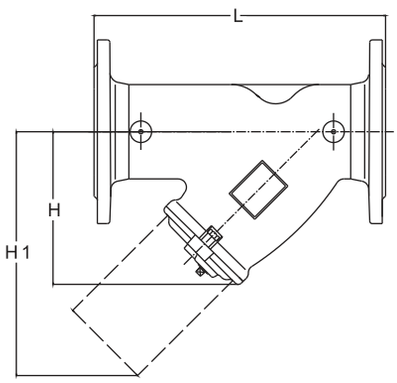
PN 16 Fig No.: V73Y16

FEATURES & SPECIFICATIONS

- Filter the particles and debris that may be carried by process fluid in the pipeline
- Bolted cover with drain plug
- Stainless steel perforated screen
- Machined test point plugs are available
- Durable fusion bonded epoxy coated
- Comply with DIN 3202-F1 / BS EN 558-1
- Flange drilled to BS 4504 PN16 / EN 1092-2 PN16 / ANSI Class150 (Specify on order)
- Applicable for Building Services, Air-Conditioning, Fire-Protection, Cold Water Plumbing, Hot Water System, Sewerage & Water Treatment, General Industries

TECHNICAL SPECIFICATIONS

Working Pressure	16bar
Shell Testing Pressure	(x1.5) 24 bar
Working Temperature	-10°C ... 120°C
Suitable Media	Water, Oil & Gas



MATERIAL SPECIFICATIONS

Part	Material	Specification
Body	Ductile Iron	EN-JS 1050
Bonnet	Ductile Iron	EN-JS 1050
Screen	Stainless Steel	
O-Ring	EPDM	
Drain Plug	Steel	
Bolt	Steel	
Nut	Steel	

DIMENSIONS

(mm)

DN (mm)	50	65	80	100	125	150	200	250	300	350	400	450	500	600
DN (inch)	2	2½	3	4	5	6	8	10	12	14	16	18	20	24
H	110	135	155	190	255	290	335	428	470	625	686	746	845	984
H1	165	205	230	295	350	400	510	665	745	940	1230	1110	1550	1560
L	230	290	310	350	400	480	600	730	850	980	1100	1200	1250	1450

VALVE COEFFICIENT

DN (mm)	50	65	80	100	125	150	200	250	300	350	400	450	500	600
DN (inch)	2	2½	3	4	5	6	8	10	12	14	16	18	20	24
CV	71.3	110.9	174.2	253.4	396	570.3	863.4	1711	2218	3168	4673.6	6178.7	7763.0	9505.7

SINGLE SPHERE RUBBER FLEXIBLE JOINT

PN 16 Fig No.: F83SJ-I

GENERAL

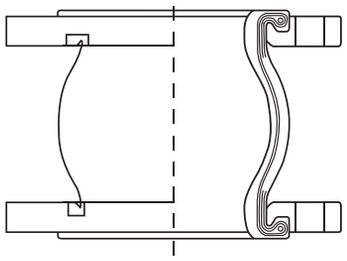
- Absorbs and reduces vibration and shock in the system
- Absorbs the stress generated by the expansion and compression of the pipe line
- Provides flexibility to the system as allowance connection and installation error
- Excellent resistance against pressure

FEATURES

- Molded and vulcanised in hydraulic presses
- Solid carbon steel internal reinforcing ring
- With BS 4504 PN16 / EN 1092-2 PN16 / ANSI Class 150 floating flanges (Specify on order)

APPLICATIONS

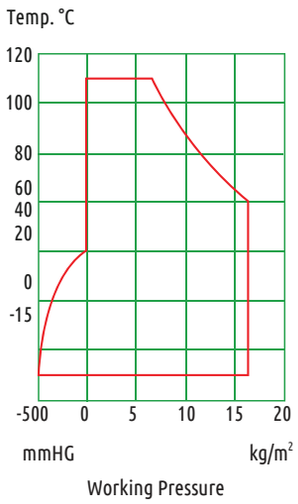
- Building Services, Air-Conditioning, Fire-Protection, Cold Water Plumbing, Sewerage & Water Treatment, Marine Services, General Industries
- Suitable for suction and discharge within specify working pressure



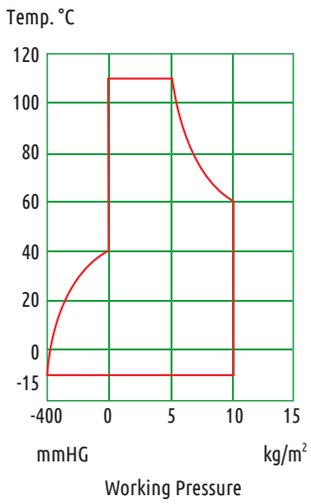
MATERIAL SPECIFICATIONS

Part	Material
Flanges	Ductile Iron (DN25 ... DN300) Carbon Steel (DN350 ... DN600)
Reinforcing Ring	Carbon Steel
Inner Rubber	EPDM
Outer Rubber	EPDM
Reinforcing Cord	Nylon
Control Rod	Mild Steel

OPERATING PRESSURE & TEMPERATURE



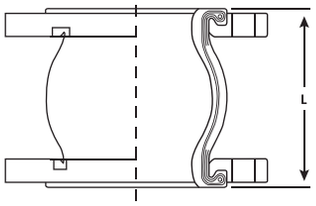
F83SJ-I
DN25 ... DN300
Burst Pressure 48bar



F83SJ-I + Control Rod
DN350 ... DN600
Burst Pressure 30bar

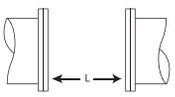
SINGLE SPHERE RUBBER FLEXIBLE JOINT

PN 16 Fig No.: F83SJ-I

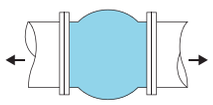


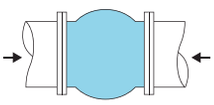
DIMENSIONS AND MOVEMENTS

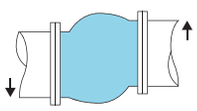
Diameter		Dimension	Pre-Gap	Allowable Movements(mm)			
mm	inch	L(mm)	L(mm)	Axial Elongation (mm)	Axial Compression (mm)	Lateral Displacement (mm)	Angle of Deflection (°)
25	1	95	90-100	6	9	9	15
32	1¼	95	90-100	6	10	9	15
40	1½	95	90-100	6	10	9	15
50	2	105	100-110	7	10	10	15
65	2½	115	110-120	8	13	12	15
80	3	130	125-135	8	15	12	15
100	4	150	145-155	10	15	15	15
125	5	170	165-175	12	19	15	15
150	6	180	175-185	12	20	15	15
200	8	195	190-200	12	20	22	10
250	10	230	225-235	16	28	22	10
300	12	245	240-250	16	28	25	10
350	14	200	195-205	16	20	20	10
400	16	200	195-205	15	20	20	10
450	18	200	195-205	15	20	20	10
500	20	200	195-205	15	20	20	10
600	24	265	260-270	16	28	28	10

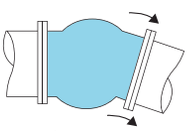


Pre-Gap


Axial Elongation


Axial Compression


Lateral Displacement


Angular Movement

USE OF CONTROL UNITS WITH RUBBER FLEXIBLE JOINTS

A control unit assembly is an accessory of two or more control rod units (limit rods, tie rods or compression sleeves) placed between the flanges across a flexible joint to minimize possible destruction caused by excessive motion of a pipeline. When used in this manner, control units are an additional safety factor which can minimize possible damage to the adjacent equipment.

A control unit is strongly recommended to use when:
- In case that proper anchoring cannot be provided
- In case that it is hard to withstand the line thrusts generated by internal pressure or wide temperature fluctuations
- In case that the anticipated elongation, compression and lateral movement are more than the design, pre-gap and/or installation tolerance
- In case that the anticipated angle of deflection is more than the design and/or installation tolerance.

RECOMMENDED QUANTITY FOR CONTROL RODS

DN	(mm)	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
	(inch)	1	1¼	1½	2	2½	3	4	5	6	8	10	12	14	16	18	20	24
Quantity		N/A	2	2	2	2	2	2	2	2	2	3	3	4	4	4	4	4

SINGLE SPHERE RUBBER FLEXIBLE JOINT

PN 25 Fig No.: F83SJ-I

GENERAL

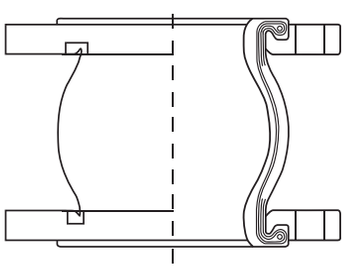
- Absorbs and reduces vibration and shock in the system
- Absorbs the stress generated by the expansion and compression of the pipe line
- Provides flexibility to the system as allowance connection and installation error
- Excellent resistance against pressure

FEATURES

- Molded and vulcanised in hydraulic presses
- Solid carbon steel internal reinforcing ring
- With BS 4504 PN25 / EN 1092-2 PN25 / ANSI Class 150 floating flanges (Specify on order)

APPLICATIONS

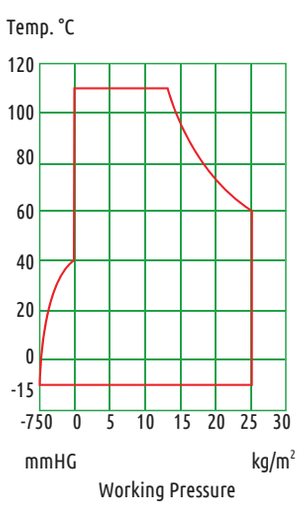
- Building Services, Air-Conditioning, Fire-Protection, Cold Water Plumbing, Sewerage & Water Treatment, Marine Services, General Industries
- Suitable for suction and discharge within specify working pressure



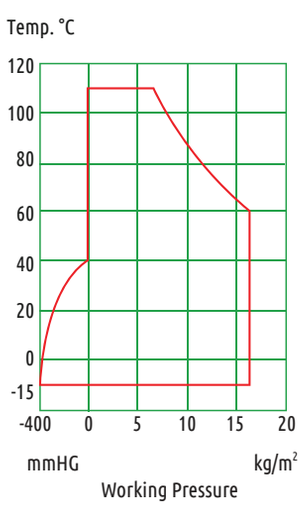
MATERIAL SPECIFICATIONS

Part	Material
Flanges	Carbon Steel
Reinforcing Ring	Carbon Steel
Inner Rubber	EPDM
Outer Rubber	EPDM
Reinforcing	Nylon
Control Rod	Mild Steel

OPERATING PRESSURE & TEMPERATURE



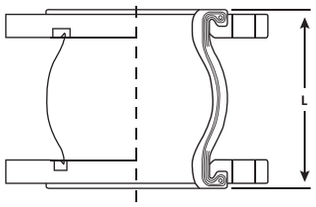
F83SJ-I + Control Rod
DN25 ... DN300
Burst Pressure 60bar



F83SJ-I + Control Rod
DN350 ... DN600
Burst Pressure 48bar

SINGLE SPHERE RUBBER FLEXIBLE JOINT

PN 25 Fig No.: F83SJ-I



DIMENSIONS AND MOVEMENTS

Diameter		Dimension	Pre-Gap	Allowable Movements(mm)			
mm	inch	L(mm)	L(mm)	Axial Elongation (mm)	Axial Compression (mm)	Lateral Displacement (mm)	Angle of Deflection (°)
25	1	95	90-100	6	9	9	15
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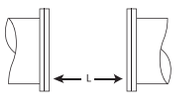
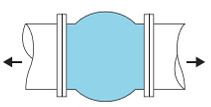
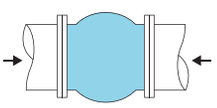
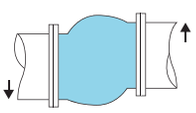
40	1½	95	90-100	6	10	9	15
50	2	105	100-110	7	10	10	15
65	2½	115	110-120	8	13	12	15
80	3	130	125-135	8	15	12	15
100	4	150	145-155	10	15	15	15
125	5	170	165-175	12	19	15	15
150	6	180	175-185	12	20	15	15
200	8	195	190-200	12	20	22	10
250	10	230	225-235	16	28	22	10
300	12	245	240-250	16	28	25	10
350	14	200	195-205	16	20	20	10
400	16	200	195-205	15	20	20	10
450	18	200	195-205	15	20	20	10
500	20	200	195-205	15	20	20	10
600	24	265	260-270	16	28	28	10

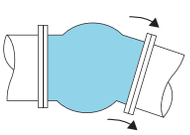


Pre-Gap


Axial Elongation


Axial Compression


Lateral Displacement


Angular Movement

USE OF CONTROL UNITS WITH RUBBER FLEXIBLE JOINTS

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- In case that the anticipated elongation, compression and lateral movement are more than the design, pre-gap and/or installation tolerance
- In case that the anticipated angle of deflection is more than the design and/or installation tolerance.

RECOMMENDED QUANTITY FOR CONTROL RODS

DN (mm)	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
(inch)	1	1¼	1½	2	2½	3	4	5	6	8	10	12	14	16	18	20	24
Quantity	N/A	2	2	2	2	2	2	2	2	2	3	3	4	4	4	4	4

DOUBLE SPHERE RUBBER FLEXIBLE JOINT

PN 16 Fig No.: F83DJ-I

GENERAL

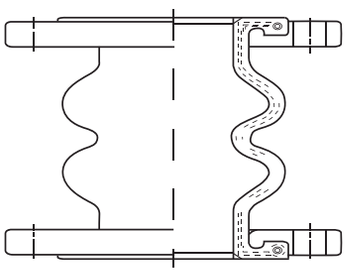
- Absorbs and reduces vibration and shock in the system
- Absorbs the stress generated by the expansion and compression of the pipe line
- Provides flexibility to the system as allowance connection and installation error
- Excellent resistance against pressure

FEATURES

- Molded and vulcanised in hydraulic presses
- Solid carbon steel internal reinforcing ring
- With BS 4504 PN16 / EN 1092-2 PN16 / ANSI Class 150 floating flanges (Specify on order)

APPLICATIONS

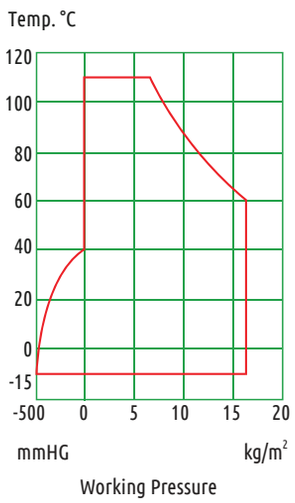
- Building Services, Air-Conditioning, Fire-Protection, Cold Water Plumbing, Sewerage & Water Treatment, Marine Services, General Industries
- Suitable for suction and discharge within specify working pressure



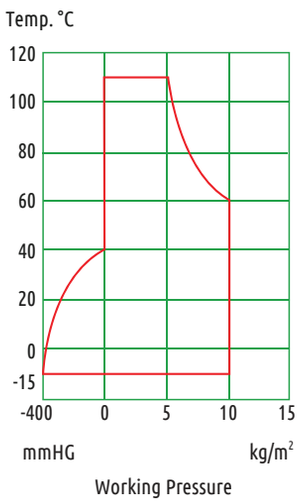
MATERIAL SPECIFICATIONS

Part	Material
Flanges	Ductile Iron (DN32 ... DN300) Carbon Steel (DN350 ... DN600)
Reinforcing Ring	Carbon Steel
Inner Rubber	EPDM
Outer Rubber	EPDM
Reinforcing Cord	Nylon
Control Rod	Mild Steel

OPERATING PRESSURE & TEMPERATURE



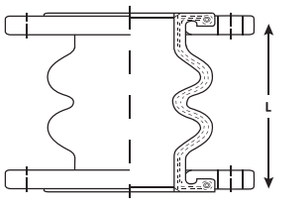
F83DJ-I
DN32 ... DN300
Burst Pressure 48bar



F83DJ-I + Control Rod
DN350 ... DN600
Burst Pressure 30bar

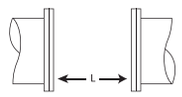
DOUBLE SPHERE RUBBER FLEXIBLE JOINT

PN 16 Fig No.: F83DJ-I

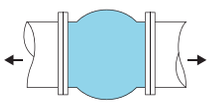


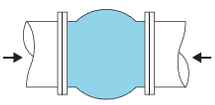
DIMENSIONS AND MOVEMENTS

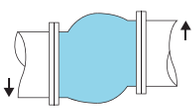
Diameter		Dimension	Pre-Gap	Allowable Movements(mm)			
mm	inch	L(mm)	L(mm)	Axial Elongation (mm)	Axial Compression (mm)	Lateral Displacement (mm)	Angle of Deflection (°)
32	1¼	175	170-180	20	30	45	30
40	1½	175	170-180	20	30	45	30
50	2	175	170-180	20	30	45	30
65	2½	175	170-180	25	50	45	30
80	3	175	170-180	25	50	45	30
100	4	225	220-230	35	50	35	30
125	5	225	220-230	35	50	35	30
150	6	225	220-230	35	50	35	30
200	8	325	320-330	35	50	30	30
250	10	325	320-330	35	50	30	15
300	12	325	320-330	35	50	30	15
350	14	345	340-350	25	40	28	10
400	16	345	340-350	25	40	28	10
450	18	345	340-350	25	40	28	10
500	20	345	340-350	25	40	28	10
600	24	345	340-350	25	40	28	10

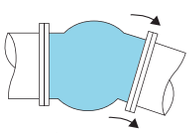


Pre-Gap


Axial Elongation


Axial Compression


Lateral Displacement


Angular Movement

USE OF CONTROL UNITS WITH RUBBER FLEXIBLE JOINTS

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- In case that the anticipated elongation, compression and lateral movement are more than the design, pre-gap and/or installation tolerance
- In case that the anticipated angle of deflection is more than the design and/or installation tolerance.

RECOMMENDED QUANTITY FOR CONTROL RODS

DN (mm)	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
(inch)	1	1¼	1½	2	2½	3	4	5	6	8	10	12	14	16	18	20	24
Quantity	N/A	2	2	2	2	2	2	2	2	2	3	3	4	4	4	4	4

DOUBLE SPHERE RUBBER FLEXIBLE JOINT

PN 25 Fig No.: F83DJ-I

GENERAL

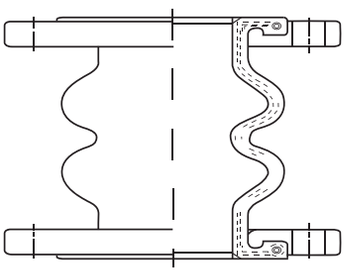
- Absorbs and reduces vibration and shock in the system
- Absorbs the stress generated by the expansion and compression of the pipe line
- Provides flexibility to the system as allowance connection and installation error
- Excellent resistance against pressure

FEATURES

- Molded and vulcanised in hydraulic presses
- Solid carbon steel internal reinforcing ring
- With BS 4504 PN25 / EN 1092-2 PN25 / ANSI Class 150 floating flanges (Specify on order)

APPLICATIONS

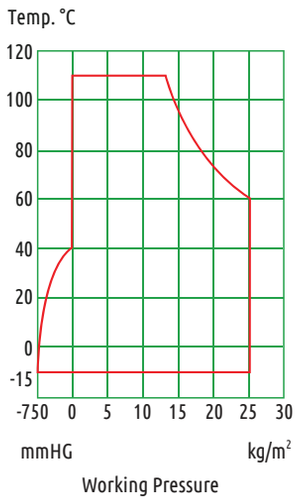
- Building Services, Air-Conditioning, Fire-Protection, Cold Water Plumbing, Sewerage & Water Treatment, Marine Services, General Industries
- Suitable for suction and discharge within specify working pressure



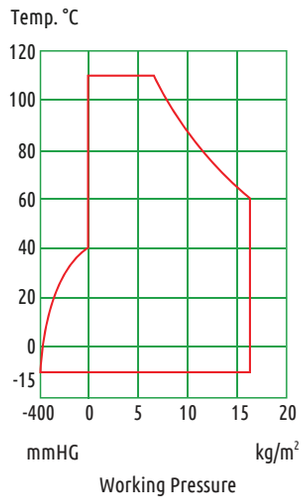
MATERIAL SPECIFICATIONS

Part	Material
Flanges	Carbon Steel
Reinforcing Ring	Carbon Steel
Inner Rubber	EPDM
Outer Rubber	EPDM
Reinforcing Cord	Nylon
Control Rod	Mild Steel

OPERATING PRESSURE & TEMPERATURE



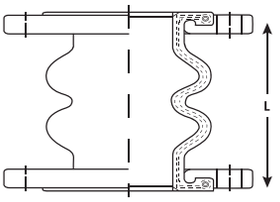
F83DJ-I + Control Rod
DN32 ... DN300
Burst Pressure 60bar



F83DJ-I + Control Rod
DN350 ... DN600
Burst Pressure 48bar

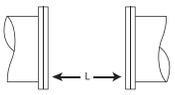
DOUBLE SPHERE RUBBER FLEXIBLE JOINT

PN 25 Fig No.: F83DJ-I

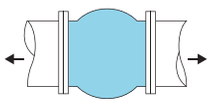


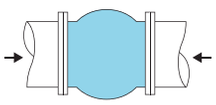
DIMENSIONS AND MOVEMENTS

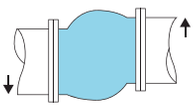
Diameter		Dimension	Pre-Gap	Allowable Movements(mm)			
mm	inch	L(mm)	L(mm)	Axial Elongation (mm)	Axial Compression (mm)	Lateral Displacement (mm)	Angle of Deflection (°)
32	1¼	175	170-180	20	30	45	30
40	1½	175	170-180	20	30	45	30
50	2	175	170-180	20	30	45	30
65	2½	175	170-180	25	50	45	30
80	3	175	170-180	25	50	45	30
100	4	225	220-230	35	50	35	30
125	5	225	220-230	35	50	35	30
150	6	225	220-230	35	50	35	30
200	8	325	320-330	35	50	30	30
250	10	325	320-330	35	50	30	15
300	12	325	320-330	35	50	30	15
350	14	345	340-350	25	40	28	10
400	16	345	340-350	25	40	28	10
450	18	345	340-350	25	40	28	10
500	20	345	340-350	25	40	28	10
600	24	345	340-350	25	40	28	10

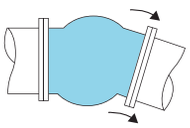


Pre-Gap


Axial Elongation


Axial Compression


Lateral Displacement


Angular Movement

USE OF CONTROL UNITS WITH RUBBER FLEXIBLE JOINTS

A control unit assembly is an accessory of two or more control rod units (limit rods, tie rods or compression sleeves) placed between the flanges across a flexible joint to minimize possible destruction caused by excessive motion of a pipeline. When used in this manner, control units are an additional safety factor which can minimize possible damage to the adjacent equipment.

A control unit is strongly recommended to use when:
- In case that proper anchoring cannot be provided
- In case that it is hard to withstand the line thrusts generated by internal pressure or wide temperature fluctuations
- In case that the anticipated elongation, compression and lateral movement are more than the design, pre-gap and/or installation tolerance
- In case that the anticipated angle of deflection is more than the design and/or installation tolerance.

RECOMMENDED QUANTITY FOR CONTROL RODS

DN	(mm)	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
	(inch)	1	1¼	1½	2	2½	3	4	5	6	8	10	12	14	16	18	20	24
Quantity		N/A	2	2	2	2	2	2	2	2	2	3	3	4	4	4	4	4

DOUBLE SPHERE RUBBER FLEXIBLE JOINT

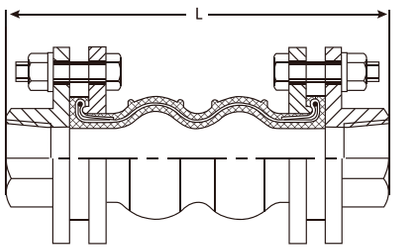
PN 16 Fig No.: F85DJ-I

GENERAL

- Absorbs and reduces vibration and shock in the system
- Absorbs the stress generated by the expansion and compression of the pipe line
- Provides flexibility to the system as allowance connection and installation error
- Excellent resistance against pressure

FEATURES

- Molded and vulcanised in hydraulic presses
- Solid carbon steel internal reinforcing ring
- 3-Pin ductile iron screwed connection to EN10226-1 (ISO 7)



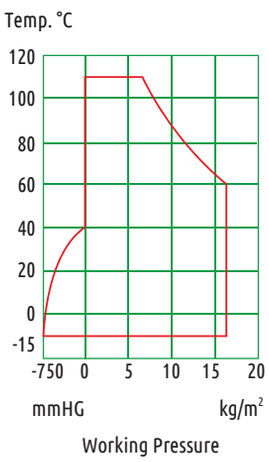
APPLICATIONS

- Building Services, Air-Conditioning, Fire-Protection, Cold Water Plumbing, General Industries
- Suitable for suction and discharge within specify working pressure

MATERIAL SPECIFICATIONS

Part	Material
Union Flange	Ductile Iron
Bolt	Mild Steel
Nut	Mild Steel
Washer	Mild Steel
Inner Rubber	EPDM
Outer Rubber	EPDM
Reinforcing Gord	Nylon
Union Edge	Malleable Iron

OPERATING PRESSURE & TEMPERATURE



F85DJ-I
DN15 ... DN50
Burst Pressure 48bar

DIMENSIONS AND MOVEMENTS

Diameter		Dimension	Allowable Movements(mm)			
mm	inch	L(mm)	Axial Elongation (mm)	Axial Compression (mm)	Lateral Displacement (mm)	Angle of Deflection (°)
15	½	180	10	15	15	30
20	¾	180	10	15	15	30
25	1	180	10	15	15	30
32	1¼	245	10	15	15	30
40	1½	245	10	15	15	30
50	2	255	10	15	15	30

DOUBLE SPHERE RUBBER FLEXIBLE JOINT

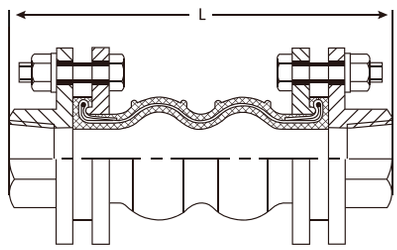
PN 25 Fig No.: F85DJ-I

GENERAL

- Absorbs and reduces vibration and shock in the system
- Absorbs the stress generated by the expansion and compression of the pipe line
- Provides flexibility to the system as allowance connection and installation error
- Excellent resistance against pressure

FEATURES

- Molded and vulcanised in hydraulic presses
- Solid carbon steel internal reinforcing ring
- 3-Pin ductile iron screwed connection to EN10226-1 (ISO 7)



APPLICATIONS

- Building Services, Air-Conditioning, Fire-Protection, Cold Water Plumbing, General Industries
- Suitable for suction and discharge within specify working pressure

MATERIAL SPECIFICATIONS

Part	Material
Union Flange	Ductile Iron
Bolt	Mild Steel
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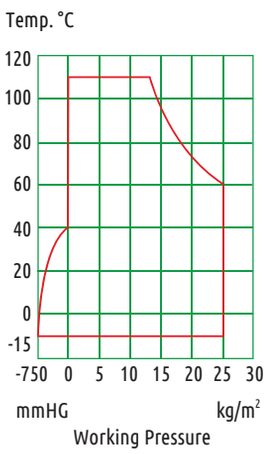
Union Edge	Malleable Iron

OPERATING PRESSURE & TEMPERATURE



F85DJ-I
DN15 ... DN50
Burst Pressure 60bar

DIMENSIONS AND MOVEMENTS

Diameter		Dimension	Allowable Movements(mm)			
mm	inch	L(mm)	Axial Elongation (mm)	Axial Compression (mm)	Lateral Displacement (mm)	Angle of Deflection (°)
15	½	180	10	15	15	30
20	¾	180	10	15	15	30
25	1	180	10	15	15	30
32	1¼	245	10	15	15	30
40	1½	245	10	15	15	30
50	2	255	10	15	15	30

CODIFICATION

Fig. No.	Full Description	Series	Connection	Type	
V1116	Wafer Butterfly Valve	V1 - Butterfly Valve	1 Wafer Type		
V1216	Full Lug Butterfly Valve		2 Lug Type		
V13C16	Double Flange Butterfly Valve		3 Flange Type	**C**	Concentric
V23A16	NRS Resilient Seat Gate Valve	V2 - Gate Valve		**A**	BS 5163 Type A, NRS
V23AS16	NRS Resilient Seat Gate Sluice Valve			**AS**	BS 5163 Type A, NRS, Sluice
V23AR16	OS&Y Resilient Seat Gate Valve			**AR**	BS 5163 Type A, OS&Y
V51DD16	Wafer Double Door Check Valve	V5 - Check Valve	1 Wafer Type	**DD**	Double Door
V73Y16	Y-Type Strainer	V7 - Strainer	3 Flange Type	**Y**	Y-Pattern
F83SJ-I	Single Sphere Rubber Flexible Joint	F8 - Hose & Joint		**SJ-I**	Single Sphere Joint
F83DJ-I	Double Sphere Rubber Flexible Joint			**DJ-I**	Double Sphere Joint
F85DJ-I	Double Sphere Rubber Flexible Joint		5 Female Threaded Ends	**DJ-I**	Double Sphere Joint

FIVALCO ORDERING CODE

Example: Fivalco Wafer Butterfly Valve PN16 - Cast Iron Body, Ductile Iron Disc, EPDM Seat, Stainless Steel 316 Stem, PN16 Connection, Lever Type, Size 150mm c/w Neumax QT15 On/Off Actuator

F1 1 16 - 10 11 80 51 P16 L .150 +QT15

Fivalco Wafer Butterfly Valve PN16 - Ductile Iron Body, Ductile Iron Disc, EPDM Seat, Stainless Steel 316 Stem, PN16 Connection, Lever Type, Size 150mm

V1 1 16 - 11 11 80 51 P16 L .150

Series	Connection	Type	Pressure Rating	Body Material	Disc	Seat	Stem	Connection	Operator	Valve Diameter	Accessory
F1 V1 Butterfly Valve	1 Wafer Type 2 Lug Type 3 Flange Type 4 Welded Type 5 Female Threaded Ends 6 Male Threaded Ends 7 Grooved Type 8 Mechanical Coupling	A AWWA C Concentric E Eccentric U U Type	10 PN10 16 PN16 20 PN20 25 PN25 150 150psi 200 200psi 250 250psi 300 300psi	10 Cast Iron 10e Epoxy Coated Cast Iron 11 Ductile Iron 11h Halar Coated Ductile Iron 11m EPDM Coated Ductile Iron 33 Aluminum Bronze 50 Stainless Steel 304 51 Stainless Steel 316 51e Epoxy Coated Stainless Steel 316 51h Halar Coated Stainless Steel 316 57 Duplex Stainless Steel 60 Carbon Steel 66 Mild Steel	10 Cast Iron 11 Ductile Iron 11b NBR Coated Ductile Iron 11e Epoxy Coated Ductile Iron 11h Halar Coated Ductile Iron 11n Nylon Coated Ductile Iron 33 Aluminum Bronze 50 Stainless Steel 304 51 Stainless Steel 316 51h Halar Coated Stainless Steel 316 51m EPDM Coated Stainless Steel 316 57 Duplex Stainless Steel	11 Ductile Iron 36 Brass 37 DZR Brass 38 Bronze 50 Stainless Steel 304 51 Stainless Steel 316 80 EPDM 80w White EPDM 81 NBR 82 Neoprene 87 Silicone 88 PTFE 89 FPM 90 Chloroprene 91 Hypalon	50 Stainless Steel 304 51 Stainless Steel 316 52 Stainless Steel 410 53 Stainless Steel 420 54 Stainless Steel 431 57 Duplex Stainless Steel 59 Monel	P10 PN10 P16 PN16 P25 PN25 J10 JIS10K J16 JIS16K J20 JIS20K A125 ANSI125 A150 ANSI150 A300 ANSI300 UF Universal Flange (Selected Standard)	L Lever G Gear B Bare Shaft E Electric Actuator	xxx mm	To Specify
F2 V2 Gate Valve		AR BS 5163 Type A, OS&Y BR BS 5163 Type B, OS&Y AS BS 5163 Type A, NRS, Sluice BS BS 5163 Type B, NRS, Sluice F4 DIN 3352-F4, NRS F4R DIN 3352-F4, OS&Y									
F3 Globe Valve		S S-Pattern B Bellow Seal R Round Body									
F4 Ball Valve		O 1-Piece Body D 2-Piece Body T 3-Piece Body									
F5 V5 Check Valve		S Swing Type DD Double Door N Silent Type P Lifting Type F Foot Valve									
F6 Control Valve		F Fixed Orifice									
F7 V7 Strainer		B Basket Type Y Y-Pattern									
F8 Hose & Joint		MH Metal Hose SJ Single Sphere Joint DJ Double Sphere Joint MJ Metal Joint									
F9 Air Vent/Air Valve		S Single Orifice D Double Orifice									

The above specifications and materials are for reference only and some may not available for this series. Please contact local distributor or sales representative for selection of material.

NOTES

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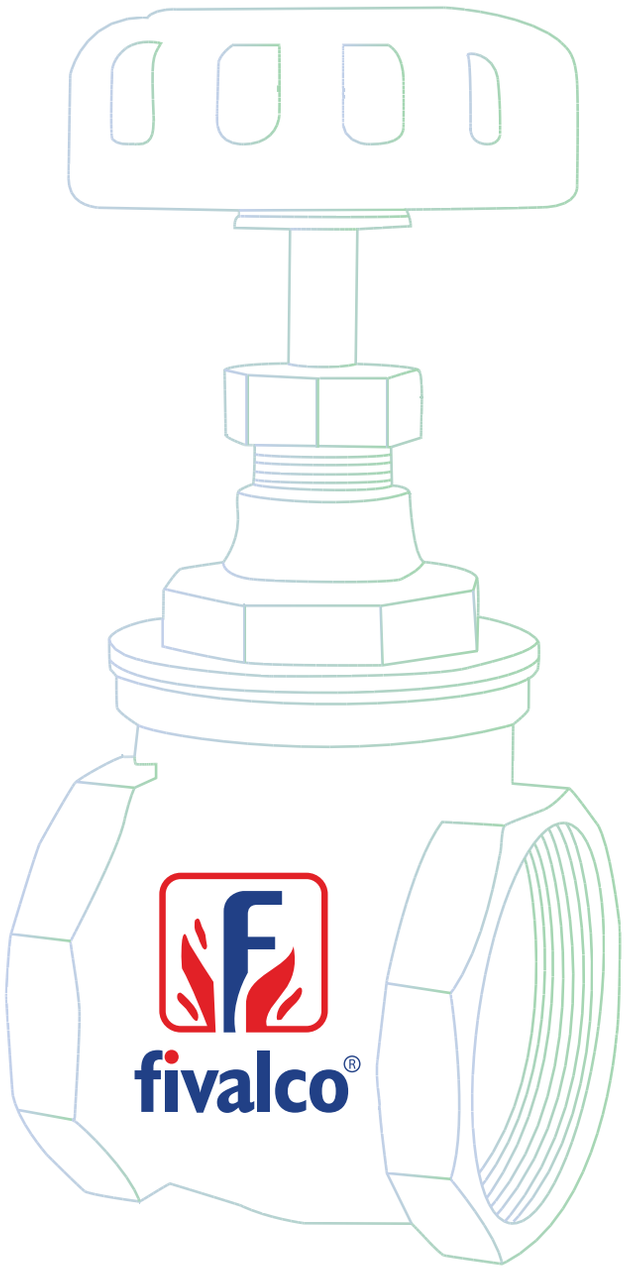
NOTES



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