belven®
Involved as promised





butterfly valves

introducing belven

Whatever we promise, we deliver

Headquartered in Mechelen, in the centre of Belgium and in the heart of Europe, Belven NV is a customer- and service-oriented manufacturer and supplier of quarter turn valves.
Belven was founded 40 years ago as Belgium Ventiel and specialized over the years in building technology, as well as in industrial and environmental applications.
Our product portfolio is made up of an in-house product range, supplemented with products from partner companies that share our vision.
Belven NV is a value-driven organization where human interaction plays a central role.

Delivery reliability

As a valued partner, we constantly raise the bar for ourselves to make our slogan 'Invalved as Promised' relevant for you.
From our own affiliates in 4 continents and through our distribution network, we deliver quality at the right price. In that flow, we understand how crucial reliability is to you. For one, we are committed to ensuring that you receive the goods on the promised delivery date, at the right place, in a packaging as expected by you.
Always... promised.

Distribution network

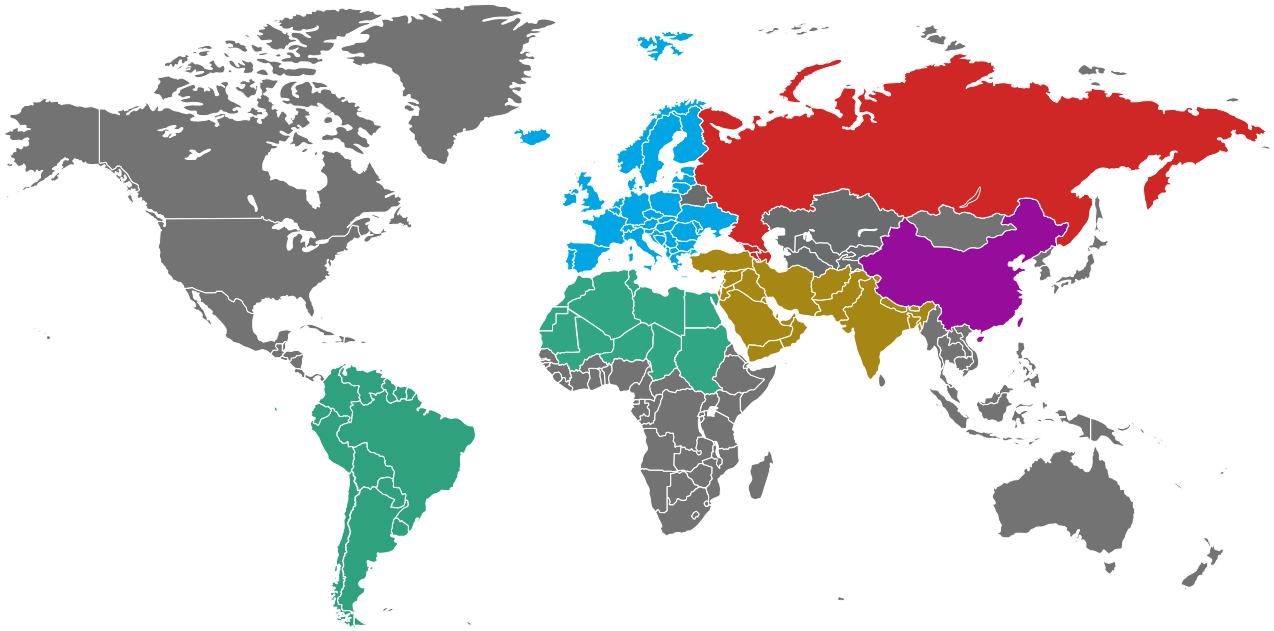


Table of contents

Standard codes

Applicable standard (non limitative)

ANSI - American National Standards Institute		
ANSI	B16.5	Pipe flanges & flange fittings
ANSI	B16.10	Face-to-face and end-to-end dimensions of valves
ANSI	B16.47	Large diameter flanges, NPS 26 through NPS 60
API - American Petroleum Institute		
API	598	Valve Inspection and Test
API	609	Butterfly Valves : Double Flanged, Lug- and Wafer-type
API	6D	Specification for pipeline valves
BS - British Standard		
BS	5146	Part 2 : Specification for pressure testing requirements for general purpose valves
BS	5155	Specification for Butterfly Valves
BS	6755	Part 1 : Specification for production pressure testing requirements
DIN - Deutsches Institut für Normung		
DIN	1690	Technical delivery conditions for castings made from metallic materials
DIN	1691	Cast iron
DIN	1693	Nodular iron
DIN	2501	Flanges - connecting dimensions
DIN	3202	Part 1 : Face-to-face and centre-to-face dimensions - Flanged valves
DIN	3337	Part-turn valve actuator attachment - flange dimensions
DIN	3840	Valve bodies, strength calculation in respect of internal pressure
ISO - International Organisation for Standardisation		
ISO	2081	Metallic coatings, electroplated coatings of zinc on iron or steel
ISO	5208	Industrial valves - pressure testing for valves
ISO	5211	Part-turn valve actuator attachment - flange dimensions
ISO	5752	Metal valves for use in flanged pipe systems. Face-to face and centre-to-face dimensions
ISO	7005	Metallic flanges
ISO	7268	Pipe components, definition of nominal pressure
EN - European Norm		
EN	19	Industrial valves - Marking of metallic valves
EN	558	Industrial valves - Face-to-face and centre-to-face dimensions of metal valves for use in flanged pipe systems
EN	593	Industrial valves - Metallic butterlfy valves
EN	736	Part 1 : Definition of types of valves Part 2 : Definition of components of valves Part 3 : Definition of terms
EN	1092	Flanges and their joint. Circular flanges for pipes, valves, fittings and accessories
EN	1503	Materials for bodies, bonnets and covers
EN	1561	Founding. Grey cast irons
EN	1775	Gas supply - Gas pipework for buildings
EN	1759	Flanges and their joint. Circular flanges for pipes, valves, fittings and accessories
EN	6708	Pipework components - definition and selection of DN (nominal size)
EN	10204	Metallic products - Types of inspection documents
EN	12516	Part 2 : Valves, shell design strength. Calculation method for steel valve shells Part 3 : Shell design strength. Experimental method
EN	12570	Industrial valves - Method for sizing the operating element
MSS - Manufacturers Standard Society		
MSS	SP-67	Butterfly Valves
MSS	SP-68	High Pressure Butterfly Valves with Offset Design

Butterfly valves certified

PED 2014/68/Eu (TÜV Süddeutschland - CE0036)
Pressure Equipment Directive
According to Module H (full quality assurance)

ADR approved (Apragaz)
International Carriage of Dangerous Goods by Road
According to EN 14432 (2014) - Class 3, 4, 5, 6, 8, 9

WRAS approved (Water Regulations Advisory Scheme)
Black coloured EPDM rubber valve liner
For cold and hot water use up to 85°C

EC1935/2004
FDA approval/ Regulation (EC) 1935/2004 for specific EPDM/VITON/NBR/SILICONE seats

ISO 9001:2015 certified
Quality Management System
Certified since 1996

ATEX certified
ATEX suitable to be used in Zone 1 and 2 for explosive gasses and vapours, and in Zone 21 and 22 for flammable dust

DVGW approval
(Deutsche Vereinigung des Gas- und Wasserfaches)
DVGW NBR rubber valve liner for gasses
DVGW reference DG-5113CT0333

Overview products

wafer - lug rubberlined


BV10 BV10-S


BV12 BV12-S


BV10-U / BV12-U

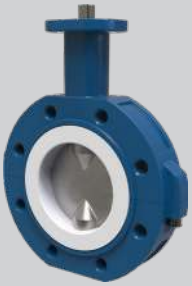
double flanged rubberlined


BV13


BV14

wafer - lug TFM lined


BV10-TFM


BV12-TFM

high performance

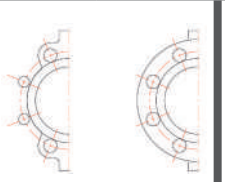
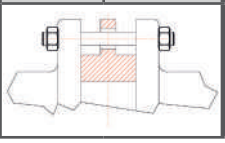
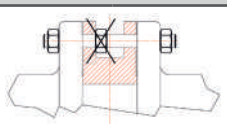
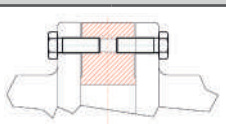
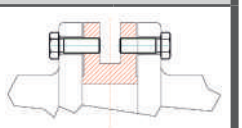

Double eccentric

BV10-HP / BV12-HP /BV13-HP


Triple eccentric

BV10-TR / BV12-TR / BV13-TR

Overview

			WAFER				LUG			
			DIN	ANSI	DIN	ANSI	DIN	ANSI	DIN	ANSI
BV TYPE			BV10		BV10-U		BV12		BV12-U	
BV description			WAFER		U-TYPE WAFER		LUG		U-TYPE LUG	
FLANGE according to	EN 1092-2	PN 6	●				●		●	
		PN 10	●		●		●		●	
		PN 16	●		●		●		●	
	ASME/ANSI B16.5	class 150		●		●		●		●
	ASME/ANSI B16.47	class 150 series A		●		●				●
		class 150 series B								●
FACE-to-FACE according to (*)	EN 558-1	series 13								
	EN 558-1	series 14								
	EN 558-1	series 20	●	●	●	●	●	●	●	●
DESIGN according to	EN 593		●		●		●		●	
	MSS SP67			●		●		●		●
(*) For more corresponding F/F standards, see page 34, 35			DN 32 - 1200 / NPS 1 - 48 DESIGNED ACCORDING TO		DN 150 - 1600 / NPS 8 - 64 DESIGNED ACCORDING TO		DN 40 - 600 / NPS 1 1/2 - 24 DESIGNED ACCORDING TO		DN 700 - 1200 / NPS 28 - 48 DESIGNED ACCORDING TO	
			with central lugs	central single flange	U-section wafer body without counter nut		Valve with lugs with internally threaded holes		U-section Lug body with internally threaded holes	
										
			DN 32 - 500 NPS 1 - 20	DN 600 - 1200 NPS 24 - 48	DN / NPS all sizes		DN / NPS all sizes		DN / NPS all sizes	
										
FEATURES	DISC construction	concentric	●	●	●	●	●	●	●	●
		eccentric								
	SEAT execution	back-up	●	●	●	●	●	●	●	●
		soft (DN50-DN300)	●	●			●	●		
		resilient disc seal								
		vulcanised on body								




material

BV10
BV10-U
BV10-S - XX XX X
BV12
BV12-U
BV12-S

Body		
Cast iron	23	GG25 Epoxy coated
Ductile iron	24	GGG40 Epoxy coated
Cast steel	44	A216 WCB
Stainless steel	63	CF8
Stainless steel	66	CF8M

Disc		
Alu - Bronze	13	ASTM B148 C95400
Ductile iron	24	GGG40 Epoxy coated
Ductile iron	25	GGG40 Nickel plated
Ductile iron	27	GGG40 Nylon plated
Stainless steel	63	CF8
Stainless steel	66	CF8M
Stainless steel	69	CF8M polished

Seat	
EPDM	E
EPDM WHITE	WE
HIGH TEMP. EPDM	HE
NBR	B
NBR GAS	NG
EPICHLORHYDRIN	ECO
HYPALON	CSM
VITON	V
VITON BIO	VB
SILICONE	S
Abrasion resistance	FC

General Specification

BV10

- Belven back-up seat WAFER type butterfly valve
- Centering lugs for easy clamping between flanges
- High ISO 5211/DIN 3337 mounting platform and square stem for easy automation
- Recessed platform for optimal actuator centering
- Design according to EN 593 fig. 7a body type, long neck for insulation
- Coating procedure according to EC.BV1012-091205, minimum thickness 150 microns
- Heat number casted into the body
- Rubber seat vulcanized on a phenol resin back up ring (with aluminium core > DN300)
- Suitable for vacuum applications
- Replaceable seat
- Two O-rings integrated in the seat as primary sealing on the shaft
- Up to and including DN300 with two-piece stainless steel shaft disc connection for optimal flow (Kv-value)
- Rounded square connection with the disc for upper stem, frictionless operation
- Pinless connection until DN300, leakage prevention from disc to shaft
- Upper shaft with secondary and tertiary O-ring
- Lower shaft with secondary O-ring for tight shut off
- Stem guided by six self-lubricating bushings
- Excellent alignment for reduced wear and low operating torques
- Anti-blowout execution through retaining ring (circlip)
- Locking screw to ensure lower stem position
- Additional security on the bushings through retainer plate

BV10-S

- Belven soft seat WAFER type butterfly valve
- Centering lugs for easy clamping between flanges
- High ISO 5211/DIN 3337 mounting platform and square stem for easy automation
- Recessed platform for optimal actuator centering
- Design according to EN 593 fig. 7a body type, long neck for insulation
- Coating procedure according to EC.BV1012-091205, minimum thickness 150 microns
- Heat number casted into the body
- Replaceable soft rubber seat chambered in the body by tongue and groove, positioned with a raised locating ring in the recess of the body
- Seat remains at its correct position on higher working pressures
- 2 moulded O-rings and large seat facing for mounting between slip-on flanges
- No additional gasket required for the adjacent flanges
- Polished sealing face of the spherical disc for bubble tight shut-off with minimum torque
- Octagonal connection of the disc with the stainless steel shaft for frictionless operation
- Pinless connection to prevent leakage from disc to shaft
- Excellent alignment for reduced wear and low operating torques
- Anti-blowout execution through retaining ring (circlip)
- Additional security on the bushings through retainer plate

General Specification

BV12

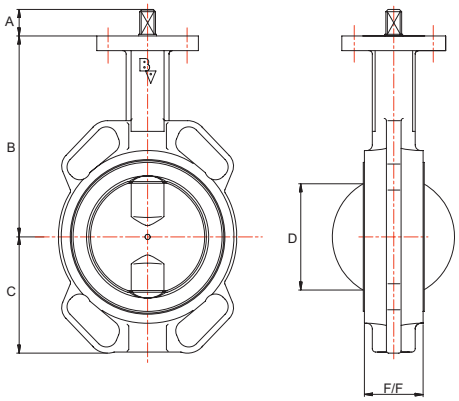
- Belven back-up seat Lug type butterfly valve, threaded holes for easy bolting between flanges.
- High ISO 5211/DIN 3337 mounting platform and square stem for easy automation
- Recessed platform for optimal actuator centering
- Design according to EN 593 fig. 7c body type, long neck for insulation
- Coating procedure according to EC.BV1012-091205, minimum thickness 150 microns
- Heat number casted into the body
- Rubber seat vulcanized on a phenol resin back up ring (with aluminium core > DN300)
- Suitable for vacuum applications
- Replaceable seat
- Two O-rings integrated in the seat as primary sealing on the shaft
- Up to and including DN300 with two-piece stainless steel shaft disc connection for optimal flow (Kv-value)
- Rounded square connection with the disc for upper stem, frictionless operation
- Pinless connection until DN300, leakage prevention from disc to shaft
- Upper shaft with secondary and tertiary O-ring
- Lower shaft with secondary O-ring for tight shut off
- Stem guided by six self-lubricating bushings
- Excellent alignment for reduced wear and low operating torques
- Anti-blowout execution through retaining ring (circlip)
- Locking screw to ensure lower stem position
- Additional security on the bushings through retainer plate

BV12-S

- Belven soft seat Lug type butterfly valve, threaded holes for easy bolting between flanges.
- High ISO 5211/DIN 3337 mounting platform and square stem for easy automation
- Recessed platform for optimal actuator centering
- Design according to EN 593 fig. 7c body type, long neck for insulation
- Coating procedure according to EC.BV1012-091205, minimum thickness 150 microns
- Heat number casted into the body
- Replaceable soft rubber seat chambered in the body by tongue and groove, positioned with a raised locating ring in the recess of the body
- Seat remains at its correct position on higher working pressures
- 2 moulded O-rings and large seat facing for mounting between slip-on flanges
- No additional gasket required for the adjacent flanges
- Polished sealing face of the spherical disc for bubble tight shut-off with minimum torque
- Octagonal connection of the disc with the stainless steel shaft for frictionless operation
- Pinless connection to prevent leakage from disc to shaft
- Excellent alignment for reduced wear and low operating torques
- Anti-blowout execution through retaining ring (circlip)
- Additional security on the bushings through retainer plate

Dimensions

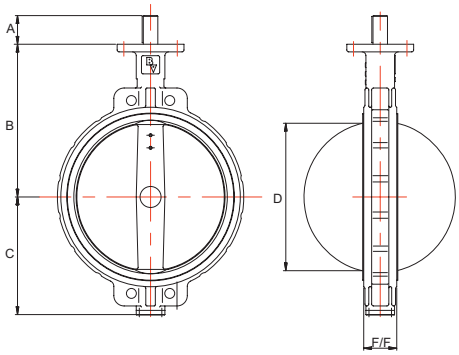
BV10 - BV10-S



		BV10					BV10-S				
DN	NPS	A	B	C	D	F/F	A	B	C	D	F/F
32	1" 1/4	22,0	110,0	57,0	(*)	33,0	-	-	-	-	-
40	1" 1/2	22,0	110,0	65,0	29,0	33,0	-	-	-	-	-
50	2"	22,0	142,7	71,4	30,0	43,0	22,0	140,5	64,0	30,0	43,0
65	2" 1/2	22,0	155,4	77,8	45,0	46,0	22,0	152,5	71,4	45,0	46,0
80	3"	22,0	161,8	89,0	64,0	46,0	22,0	157,5	94,0	64,0	46,0
100	4"	22,0	178,0	102,0	90,0	52,0	22,0	176,0	108,5	90,0	52,0
125	5"	22,0	190,5	123,0	110,0	56,0	22,0	191,0	119,0	110,0	56,0
150	6"	22,0	205,2	138,0	146,0	56,0	22,0	202,5	135,8	146,0	56,0
200	8"	34,5	237,0	168,0	194,0	60,0	34,5	243,5	165,0	194,0	60,0
250	10"	34,5	268,3	207,0	242,0	68,0	34,5	273,0	202,0	242,0	68,0
300	12"	34,5	308,5	243,5	292,0	78,0	34,5	322,0	235,0	292,0	78,0
mm	inches										

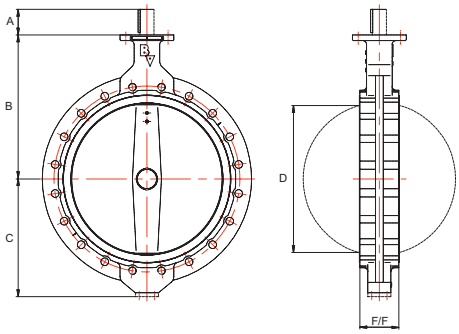
Dimensions in mm

(*) For this size, the open disc dimension is smaller than F/F



		BV10				
DN	NPS	A	B	C	D	F/F
350	14"	65,0	368,0	259,0	325,0	78,0
400	16"	75,0	400,0	309,0	377,0	102,0
450	18"	75,0	422,0	327,0	426,0	114,0
500	20"	90,0	480,0	361,0	475,0	127,0
mm	inches					

Dimensions in mm



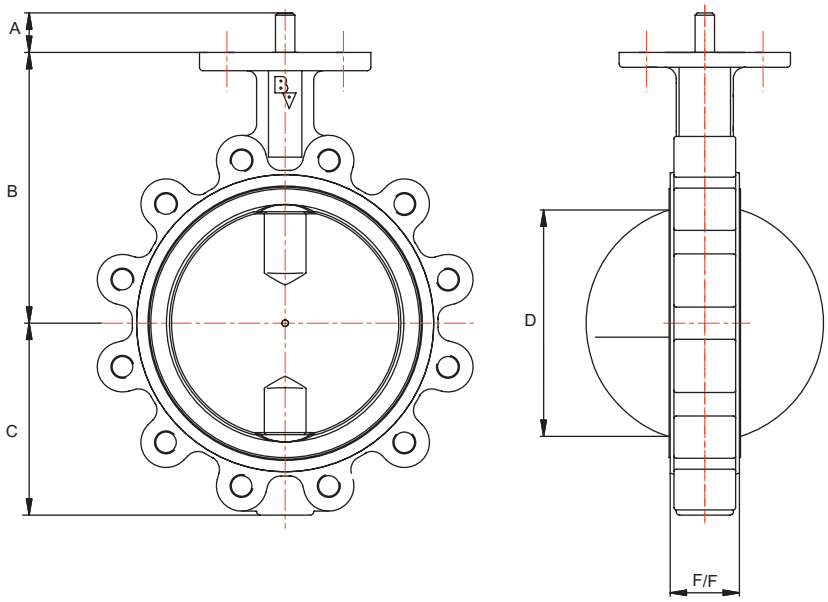
		BV10				
DN	NPS	A	B	C	D	F/F
600	24"	100,0	562,0	459,0	572,0	154,0
700	28"	85,0	626,0	521,0	674,0	165,0
800	32"	100,0	666,0	591,0	772,0	190,0
900	36"	118,0	722,0	650,0	840,0	203,0
1000	40"	140,0	806,0	713,0	940,0	216,0
1200	48"	150,0	938,0	855,0	1132,0	254,0
mm	inches					

Dimensions in mm

all dimensions are subject to revision without prior notice

Dimensions

BV12 - BV12-S



		BV12					BV12-S				
DN	NPS	A	B	C	D	F/F	A	B	C	D	F/F
40	1" 1/2	22,0	110,0	68,0	29,0	33,0	-	-	-	-	-
50	2"	22,0	142,7	71,4	30,0	43,0	22,0	140,5	64,0	30,0	43,0
65	2" 1/2	22,0	155,4	77,8	45,0	46,0	22,0	152,5	71,4	45,0	46,0
80	3"	22,0	161,8	89,0	64,0	46,0	22,0	157,5	87,0	64,0	46,0
100	4"	22,0	178,0	102,0	90,0	52,0	22,0	176,0	102,0	90,0	52,0
125	5"	22,0	190,5	123,0	110,0	56,0	22,0	191,0	118,5	110,0	56,0
150	6"	22,0	205,2	138,0	146,0	56,0	22,0	202,5	133,0	146,0	56,0
200	8"	34,5	237,0	168,0	194,0	60,0	34,5	243,5	165,0	194,0	60,0
250	10"	34,5	268,3	207,0	242,0	68,0	34,5	273,0	196,5	242,0	68,0
300	12"	34,5	308,5	243,5	292,0	78,0	34,5	311,0	230,7	292,0	78,0
350	14"	65,0	368,0	259,0	325,0	78,0	-	-	-	-	-
400	16"	75,0	400,0	309,0	377,0	102,0	-	-	-	-	-
450	18"	75,0	422,0	327,0	426,0	114,0	-	-	-	-	-
500	20"	90,0	480,0	361,0	475,0	127,0	-	-	-	-	-
600	24"	100,0	562,0	459,0	572,0	154,0	-	-	-	-	-
mm	inches										

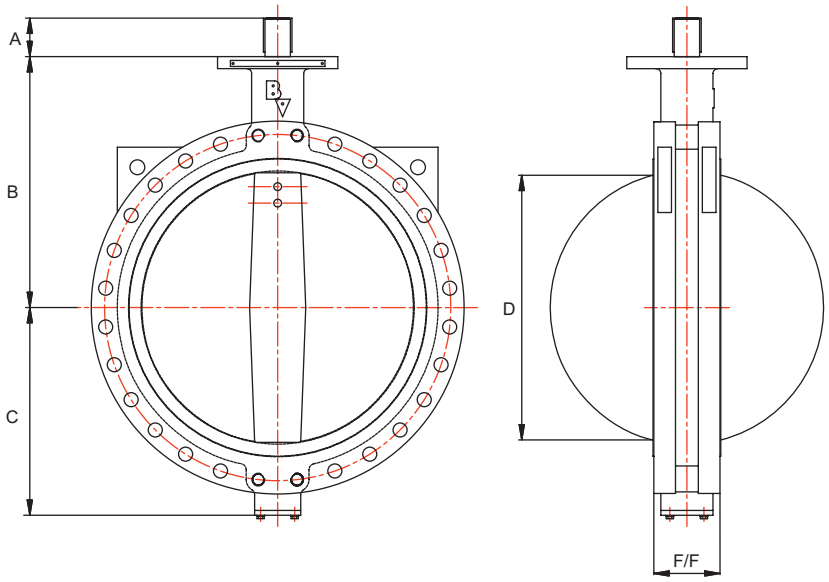
Dimensions in mm

all dimensions are subject to revision without prior notice

Dimensions

BV10-U
BV12-U
U-section design

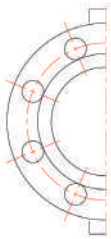
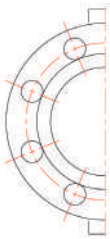
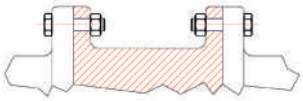
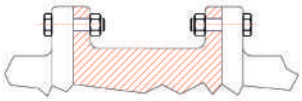
These valves have the same design principle and installation length as the corresponding BV10 and BV12 valves.
The U-section design has 2 thin flanges for easy alignment of the valves.
BV10-U has drilled holes. BV12-U has threaded holes.



		BV10-U/BV12-U						
DN	NPS	A	B	C	D	F/F	BV10-U	BV12-U
150	6”	22,0	226,0	142,0	146,0	56,0	●	-
200	8”	34,5	260,0	175,0	194,0	60,0	●	-
250	10”	34,5	292,0	202,5	242,0	68,0	●	-
300	12”	34,5	337,0	242,0	292,0	78,0	●	-
350	14”	65,0	364,0	267,0	325,0	78,0	●	-
400	16”	75,0	400,0	309,0	377,0	102,0	●	-
450	18”	75,0	422,0	337,0	426,0	114,0	●	
500	20”	90,0	480,0	371,0	475,0	127,0	●	-
600	24”	100,0	562,0	459,0	572,0	154,0	●	-
700	28”	85,0	626,0	527,0	674,0	165,0	●	●
800	32”	100,0	666,0	605,0	772,0	190,0	●	●
900	36”	118,0	720,0	668,0	840,0	205,0	●	●
1000	40”	140,0	806,0	728,0	940,0	216,0	●	●
1200	48”	150,0	938,0	868,0	1132,0	276,0	●	●
mm	inches							

Dimensions in mm

Overview

			DOUBLE FLANGED			
			DIN	ANSI	DIN	ANSI
BV TYPE			BV13		BV14	
BV description			DOUBLE FLANGED ECCENTRIC		DOUBLE FLANGED CONCENTRIC	
FLANGE according to	EN 1092-2	PN 6				
		PN 10	belven		belven	
		PN 16	belven		belven	
	ASME/ANSI B16.5	class 150				belven
	ASME/ANSI B16.47	class 150 series A				belven
		class 150 series B				
FACE-to-FACE according to (*)	EN 558-1	series 13	belven		belven	belven
	EN 558-1	series 14	belven			
	EN 558-1	series 20				
DESIGN according to	EN 593		belven		belven	
	MSS SP67					belven
(*) For more corresponding F/F standards, see page 34, 35			DN 200 - 2000 / NPS 8 - 80 DESIGNED ACCORDING TO Double flanged body		DN50 - 1600 / NPS 2 - 64 DESIGNED ACCORDING TO Double flanged body	
						
			DN / NPS all sizes		DN / NPS all sizes	
						
FEATURES	DISC construction	concentric			belven	belven
		eccentric	belven			
	SEAT execution	back-up				
		soft				
		resilient disc seal	belven			
		vulcanised on body			belven	belven

General Specification

BV13

- Belven Double flanged type butterfly valve
- Eccentric disc and resilient disc seal
- High ISO 5211/DIN 3337 mounting platform
- Design according to EN 593 fig.5
- Minimum coating thickness 150 microns
- Heat number casted into the body
- Double eccentric disc design for minimal seat ring stress, lower operating torques and service life extension
- Sizes above DN600 (24") with lightweight and high rigid arche- or triangle-shaped discs, for optimal flow through the disc with valve in open position
- Minimized pressure drop and increased Kv-value due to larger valve opening area
- Easily replaceable seat ring by removal of retaining ring
- Precise fit of seat ring in the disc and exact contact with valve body
- Increased sealing capability and longer life cycle
- Self-lubricating shaft bearing made of PTFE compound for smooth operation and lower torque, cost savings due to smaller actuator sizing and a longer life time
- > DN400 4 or 8 lifting lugs for easy transport and installation
- Available in 2 face-to-face dimensions : EN 558-1 series 13 and series 14

BV14

- Belven Double flanged type butterfly valve
- Centric disc and rubber seat vulcanized on the body
- High ISO 5211/DIN 3337 mounting platform
- Design according to EN 593 fig.5
- Minimum coating thickness 150 microns
- Heat number casted into the body
- Vulcanized seat on the body, suitable for vacuum applications
- Disc to stem connection with single or double pin, following valve size, for stem blow-out prevention
- Upper shaft part with 2 O-rings to prevent leakage to the outside
- Upper shaft part guided by four self-lubricating bushings, lower part equipped with one long bushing
- Excellent alignment for less wear and low operating torques
- Large valves have standard 4 or 8 lifting lugs for easy transport and installation

Material

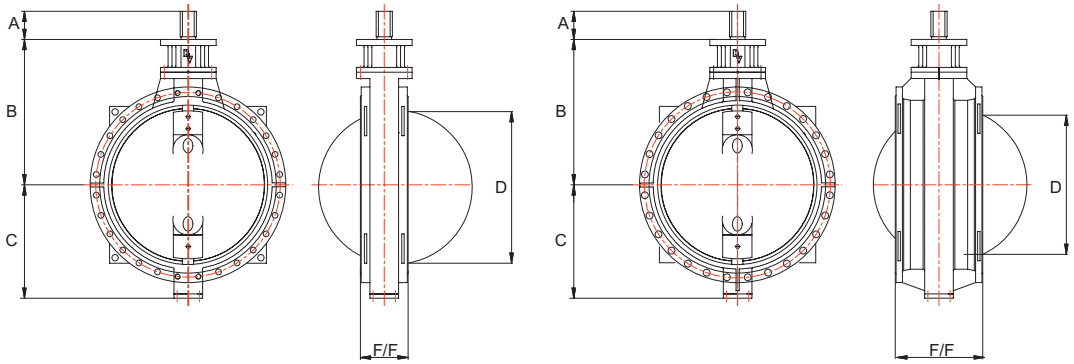
BV13 - XX XX X

Body		
Cast iron	23	GG25 Epoxy coated
Ductile iron	24	GGG40 Epoxy coated

Disc		
Ductile iron	24	GGG40 Epoxy coated
Stainless steel	63	CF8
Stainless steel	66	CF8M

Seat	
EPDM	E
NBR	B

Dimensions



		BV13-SERIE 13					BV13-SERIE 14				
DN	NPS	A	B	C	D	F/F	A	B	C	D	F/F
50	2”	-	-	-	-	-	22,0	110,0	80,0	-	150,0
65	2”1/2	-	-	-	-	-	22,0	134,0	80,0	-	170,0
80	3”	-	-	-	-	-	22,0	131,0	95,0	-	180,0
100	4”	-	-	-	-	-	22,0	150,0	114,0	-	190,0
125	5”	-	-	-	-	-	22,0	170,0	113,0	-	200,0
150	6”	-	-	-	-	-	22,0	180,0	139,0	-	210,0
200	8”	50,0	308,0	210,0	183,0	152,0	50,0	308,0	210,0	35,0	230,0
250	10”	54,5	360,0	214,0	228,0	165,0	54,5	360,0	214,0	135,0	250,0
300	12”	63,5	423,0	262,0	283,0	178,0	63,5	423,0	262,0	200,0	270,0
350	14”	54,0	452,0	307,0	333,0	190,0	54,0	452,0	307,0	260,0	290,0
400	16”	66,5	488,0	343,0	381,0	216,0	66,5	488,0	343,0	312,0	310,0
450	18”	59,5	516,0	371,0	437,0	222,0	59,5	516,0	371,0	370,0	330,0
500	20”	81,0	560,0	420,0	479,0	229,0	81,0	560,0	420,0	412,0	350,0
600	24”	90,0	631,0	440,0	578,0	267,0	90,0	631,0	440,0	510,0	390,0
700	28”	103,0	671,0	518,0	672,0	292,0	103,0	671,0	518,0	607,0	430,0
800	32”	126,0	731,0	573,0	773,0	318,0	126,0	731,0	573,0	709,0	470,0
900	36”	157,0	789,0	629,0	875,0	330,0	157,0	789,0	629,0	805,0	510,0
1000	40”	177,0	914,0	713,0	962,0	410,0	177,0	914,0	713,0	898,0	550,0
1200	48”	171,0	1023,0	820,0	1139,0	470,0	171,0	1023,0	820,0	1083,0	630,0
1400	56”	242,0	1255,0	1091,0	1353,0	530,0	242,0	1255,0	1091,0	1283,0	710,0
1600	64”	234,0	1365,0	1236,0	1546,0	600,0	234,0	1365,0	1236,0	1471,0	790,0
1800	72”	309,0	1603,0	1446,0	1748,0	670,0	309,0	1603,0	1446,0	1670,0	870,0
2000	80”	303,0	1630,0	1486,0	1864,0	760,0	303,0	1630,0	1486,0	1863,0	950,0
mm	inches										

Dimensions in mm

all dimensions are subject to revision without prior notice

Material

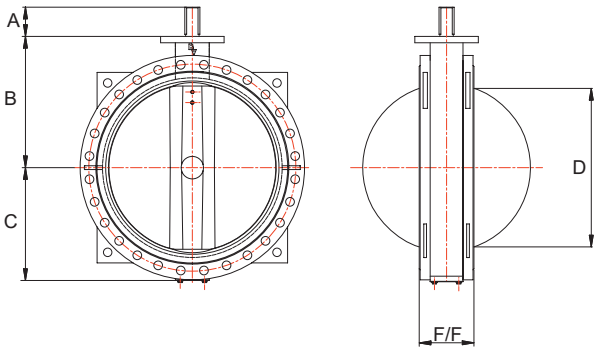
BV14 - XX XX X

Body		
Ductile iron	24	GGG40 Epoxy coated
Cast steel	44	A216 WCB
Stainless steel	63	CF8
Stainless steel	66	CF8M

Disc		
Alu - bronze	13	ASTM B148 C95400
Ductile iron	24	GGG40 Epoxy coated
Ductile iron	25	GGG40 Nickel plated
Ductile iron	27	GGG40 Nylon plated
Stainless steel	63	CF8
Stainless steel	66	CF8M
Stainless steel	69	CF8M polished

Seat	
EPDM	E
NBR	B

Dimensions



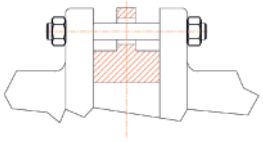
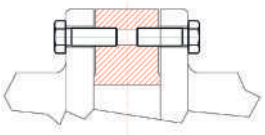
		BV14				
DN	NPS	A	B	C	D	F/F
50	2”	22,0	110,0	80,0	(*)	108,0
65	2” 1/2	22,0	134,0	80,0	(*)	112,0
80	3”	22,0	131,0	95,0	(*)	114,0
100	4”	22,0	150,0	114,0	(*)	127,0
125	5”	22,0	170,0	127,0	(*)	140,0
150	6”	22,0	180,0	139,0	70,0	140,0
200	8”	34,5	210,0	175,0	134,0	152,0
250	10”	34,5	245,5	203,0	189,0	165,0
300	12”	34,5	276,0	242,0	244,0	178,0
350	14”	65,0	328,0	250,0	274,0	190,0
400	16”	75,0	376,0	310,5	324,0	216,0
450	18”	75,0	406,0	332,0	381,0	222,0
500	20”	90,0	433,0	358,0	435,0	229,0
600	24”	100,0	507,5	423,0	529,0	267,0
700	28”	75,0	560,0	487,5	630,0	292,0
750	30”	75,0	610,0	508,0	680,0	305,0
800	32”	100,0	620,0	533,0	729,0	318,0
900	36”	118,0	692,0	602,0	799,0	330,0
1000	40”	140,0	735,0	656,0	873,0	410,0
1200	48”	150,0	917,0	781,0	1057,0	470,0
mm	inches					

Dimensions in mm

(*) For this size, the open disc dimension is smaller than F/F

all dimensions are subject to revision without prior notice

Overview

			WAFER		LUG	
			DIN	ANSI	DIN	ANSI
BV TYPE			**BV10-TFM**		**BV12-TFM**	
BV description			WAFER TFM LINED		LUG TFM LINED	
FLANGE according to	EN 1092-2	PN 6	●		●	
		PN 10	●		●	
		PN 16	●		●	
	ASME/ANSI B16.5	class 150		●		●
	ASME/ANSI B16.47	class 150 series A		●		●
		class 150 series B				
FACE-to-FACE according to (*)	EN 558-1	series 13				
	EN 558-1	series 14				
	EN 558-1	series 20	●	●	●	●
DESIGN according to	EN 593		●		●	
	MSS SP67			●		●
(*) For more corresponding F/F standards, see page 34, 35			DN 50 - 1050 / NPS 2 - 42 DESIGNED ACCORDING TO (from size DN 350 / NPS 14 lug type with holes drilled through)		DN 40 - 1050 / NPS 1 1/2 - 42 DESIGNED ACCORDING TO	
			2-piece valve with central lugs		2-piece valve with lugs with internally threaded holes	
						
			DN / NPS all sizes		DN / NPS all sizes	
						
FEATURES	DISC construction	concentric	●	●	●	●
		eccentric				
	SEAT execution	back-up	●	●	●	●
		soft				
		resilient disc seal				
		vulcanised on body				

General Specification

BV10-TFM

- Wafer type with 2 centering holes : Type BV10
- Face to face according to EN 558-1 series 20 - DIN 3202/K1 - BS5155 - ISO 5752 - API 609
- Long neck execution for easy insulation
- High ISO 5211/DIN 3337 mounting platform and square stem for easy automation
- Mounting between flanges DIN PN6/10/16, ANSI 150
- Two piece body in GGG40.3
- Disc and stem in one piece design
- Min. 3 mm PFA disc covering to obtain good corrosion and diffusion resistance
- Min. 3 mm TFM liner, vacuum tight
- Elastic elastomers guarantee gas tightness
- Wide TFM flange sealing area
- Leakage free sealing by constant pressure of belleville rings
- Maintenance free stem bearing

BV12-TFM

- Lug type with threaded holes : Type BV12
- Face to face according to EN 558-1 series 20 - DIN 3202/K1 - BS5155 - ISO 5752 - API 609
- Long neck execution for easy insulation
- High ISO 5211/DIN 3337 mounting platform and square stem for easy automation
- Mounting between flanges DIN PN6/10/16, ANSI 150
- Two piece body in GGG40.3
- Disc and stem in one piece design
- Min. 3 mm PFA disc covering to obtain good corrosion and diffusion resistance
- Min. 3 mm TFM liner, vacuum tight
- Elastic elastomers guarantee gas tightness
- Wide TFM flange sealing area
- Leakage free sealing by constant pressure of belleville rings
- Maintenance free stem bearing

Material

BV10
BV12

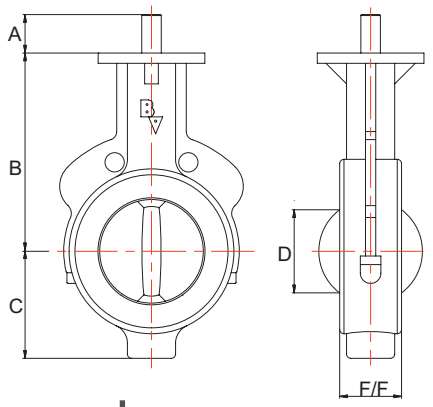
- XX XX X

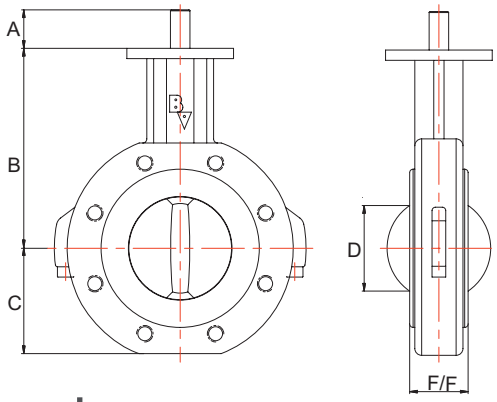
Body		
Ductile iron	29	GGG40.3
Stainless steel	66	CF8M
Stainless steel	69	CF8M polished

Disc		
Stainless steel	66	CF8M
Stainless steel	69	CF8M polished
PFA	77	PFA coated
	91	Hastelloy c22
	98	Titanium Gr.2

Seat	
TFM	T
PTFE	P

Dimensions





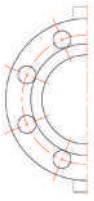
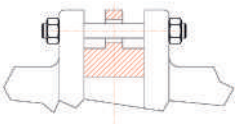
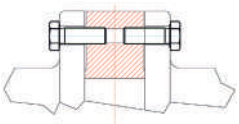
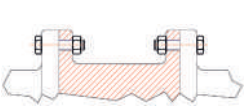
		BV10 - TFM					BV12 - TFM				
DN	NPS	A	B	C	D	F/F	A	B	C	D	F/F
50	2”	19,0	130,0	56,0	31,0	43,0	19,0	130,0	58,0	31,0	43,0
65	2” 1/2	19,0	146,0	67,0	48,0	46,0	19,0	146,0	65,0	48,0	46,0
80	3”	19,0	165,0	84,0	63,0	46,0	19,0	165,0	88,0	63,0	46,0
100	4”	25,0	185,0	100,0	90,0	52,0	25,0	185,0	102,0	90,0	52,0
125	5”	25,0	202,0	110,0	118,0	56,0	25,0	202,0	116,0	118,0	56,0
150	6”	30,0	217,0	125,0	137,0	56,0	30,0	217,0	127,0	137,0	56,0
200	8”	26,0	245,0	158,0	189,0	60,0	26,0	245,0	160,0	189,0	60,0
250	10”	30,0	270,0	190,0	239,0	68,0	30,0	270,0	193,0	239,0	68,0
300	12”	30,0	308,0	225,0	290,0	78,0	30,0	308,0	227,0	290,0	78,0
350	14”	37,0	330,0	256,0	328,0	92,0	37,0	330,0	256,0	328,0	92,0
400	16”	37,0	365,0	292,0	377,0	102,0	37,0	365,0	292,0	377,0	102,0
450	18”	50,0	400,0	311,0	417,0	114,0	50,0	400,0	311,0	417,0	114,0
500	20”	50,0	435,0	340,0	477,0	127,0	50,0	435,0	340,0	477,0	127,0
600	24”	64,0	510,0	398,0	560,0	154,0	64,0	510,0	398,0	560,0	154,0
750	30”	90,0	608,0	482,0	716,0	154,0	90,0	608,0	482,0	716,0	154,0
900	36”	90,0	684,0	573,0	860,0	154,0	90,0	684,0	573,0	860,0	154,0
1050	42”	90,0	768,0	660,0	1009,0	154,0	90,0	768,0	660,0	1009,0	154,0
mm	inches										

Dimensions in mm

all dimensions are subject to revision without prior notice

high performance - Double eccentric

Overview

			WAFER		LUG		DOUBLE FLANGED	
			DIN	ANSI	DIN	ANSI	DIN	ANSI
BV TYPE			BV10-HP		BV12-HP		BV13-HP	
BV description			WAFER DOUBLE ECCENTRIC		LUG DOUBLE ECCENTRIC		DOUBLE FLANGED DOUBLE ECCENTRIC	
FLANGE according to	EN 1092-1	PN 10 - PN 16 - PN 25 - PN 40	✓	✓	✓	✓	✓	✓
	ASME/ANSI B16.5	class 150 - class 300 - class 600	✓	✓	✓	✓	✓	✓
	ASME/ANSI B16.47	series A/B for class 150 - class 300 - class 600	✓	✓	✓	✓	✓	✓
	API 605 / MSS-SP-44	class 150 - class 300 - class 600	✓	✓	✓	✓	✓	✓
	BS 3293	class 150 - class 300 - class 600	✓	✓	✓	✓	✓	✓
	JIS B2210	10 k - 16 k - 20 k	✓	✓	✓	✓	✓	✓
	ASME B16.25	Buttwelding Ends	✓	✓	✓	✓	✓	✓
FACE-to-FACE according to (*)	ISO 5752	Serie 13					✓	✓
	ISO 5752	Serie 14					✓	✓
	ISO 5752	Serie 20	✓	✓	✓	✓		
	API 609	Category A, B, Double flanged short	✓	✓	✓	✓	✓	✓
	MSS-SP-68	Table 1, 2	✓	✓	✓	✓		
DESIGN according to	EN 593		✓	✓	✓	✓	✓	✓
	ASME B16.34		✓	✓	✓	✓	✓	✓
	MSS SP67		✓	✓	✓	✓	✓	✓
(*) For more corresponding F/F standards, see page 34, 35			DN 50 – 1800 / NPS 2 – 72 DESIGNED ACCORDING TO		DN 50 – 1800 / NPS 2 – 72 DESIGNED ACCORDING TO		DN 50 – 1800 / NPS 2 – 72 DESIGNED ACCORDING TO	
			with central lugs		Valve with lugs with internally threaded holes		Double flanged body	
								
			DN / NPS all sizes		DN / NPS all sizes		DN / NPS all sizes	
								
FEATURES	DISC construction	concentric						
		eccentric	✓	✓	✓	✓	✓	✓
	SEAT execution	soft (PTFE / RTFE)	✓	✓	✓	✓	✓	✓
		metal	✓	✓	✓	✓	✓	✓
		fire-safe	✓	✓	✓	✓	✓	✓

BV10-HP / BV12-HP / BV13-HP
General Specification

- High Performance Double Eccentric butterfly valve
- Suitable for higher temperatures and pressures up to PN50 (Class 300lbs)
- Available in soft seat or metal seat execution
- Pressure assisted soft seat for bi-directional shut off
- Metal seat design for higher temperatures and bi-directional shut-off, leakage rate Class IV per FCI 70-2
- One-piece shaft design with ISO 5211 bracket for easy automation
- Set of bushings against ingress of foreign material and for perfect shaft alignment
- Adjustable packing gland prevents medium leakage to the atmosphere (fugitive emissions)
- Various materials available to suit wide range of applications
- Available end connections: wafer type, lug type or flanged ends

Material

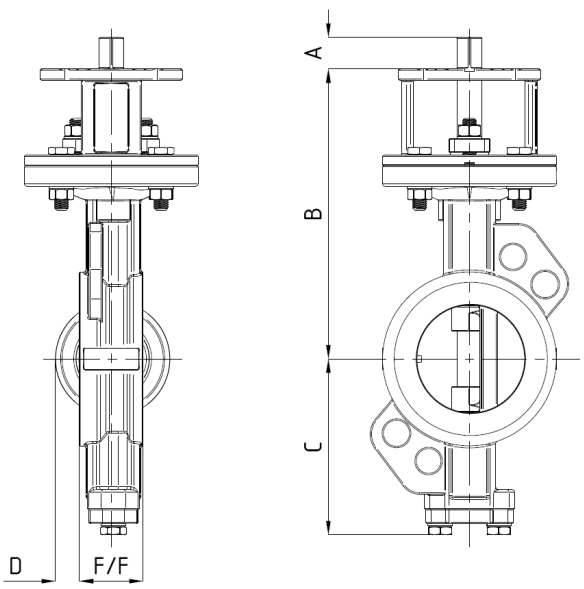
BV10-HP
BV12-HP - XX XX X
BV13-HP

Body		
Cast steel	44	A216 WCB
Stainless steel	63	CF8
Stainless steel	64	CF3
Stainless steel	66	CF8M
Stainless steel	67	CF3M

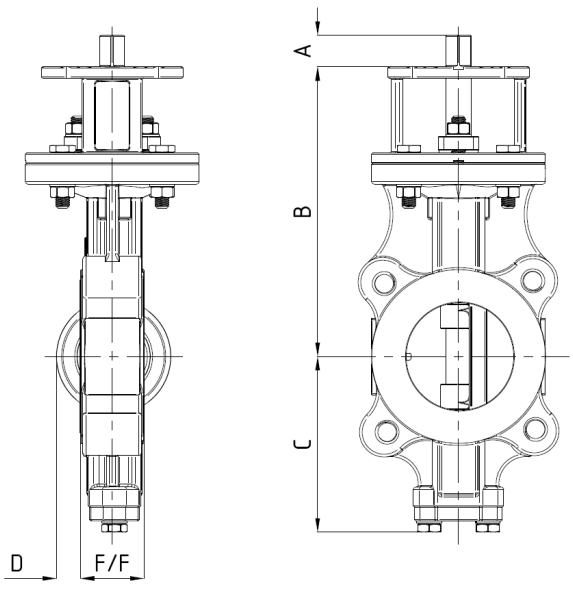
Disc		
Alu -Bronze	13	ASTM B148
Stainless steel	63	CF8
Stainless steel	64	CF3
Stainless steel	66	CF8M
Stainless steel	67	CF3M

Seat	
PTFE	T
RTFE	R
METAL	M
FIRE-SAFE	F

Dimensions



BV10-HP



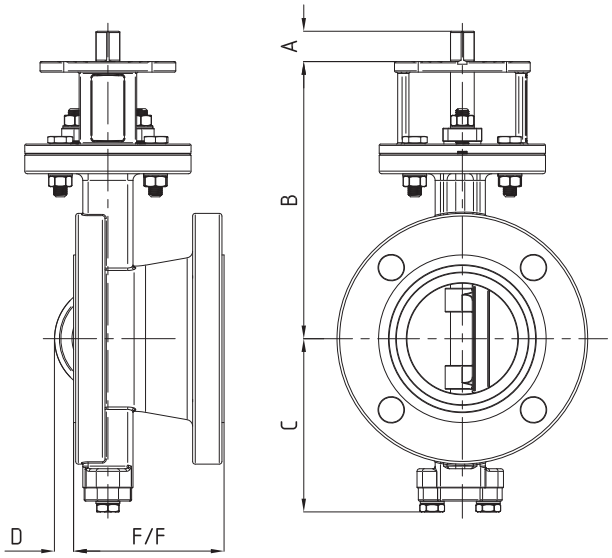
BV12-HP

		BV10-HP/BV12-HP - CLASS150 / PN10-PN25					BV10-HP/BV12-HP - CLASS300 / PN40-PN50				
DN	NPS	A	B	C	D	F/F	A	B	C	D	F/F
50	2”	18,0	178,0	99,0	2,0	43,0	18,0	178,0	99,0	2,0	43,0
65	2” 1/2	18,0	185,0	111,0	15,0	46,0	18,0	185,0	111,0	15,0	46,0
80	3”	23,0	210,0	128,0	22,0	47,0	23,0	210,0	128,0	22,0	47,0
100	4”	23,0	227,0	150,0	25,0	53,0	23,0	227,0	150,0	25,0	53,0
125	5”	23,0	240,0	163,0	36,0	57,0	23,0	240,0	163,0	36,0	57,0
150	6”	23,0	255,0	176,0	49,0	56,0	45,0	275,0	185,0	42,0	59,0
200	8”	28,0	300,0	206,0	68,0	62,0	55,0	340,0	230,0	61,0	73,0
250	10”	28,0	340,0	238,0	89,0	68,0	60,0	395,0	266,0	79,0	83,0
300	12”	37,0	390,0	269,0	106,0	78,0	65,0	425,0	300,0	98,0	92,0
350	14”	37,0	426,0	306,0	125,0	78,0 / 92,0	80,0	485,0	330,0	105,0	117,0
400	16”	47,0	490,0	342,0	140,0	102,0	80,0	520,0	368,0	122,0	133,0
450	18”	47,0	515,0	370,0	157,0	114,0	80,0	560,0	385,0	137,0	149,0
500	20”	56,0	550,0	397,0	177,0	127,0	110,0	620,0	427,0	157,0	159,0
600	24”	56,0	640,0	455,0	210,0	154,0	120,0	713,0	516,0	196,0	181,0
mm	inches										

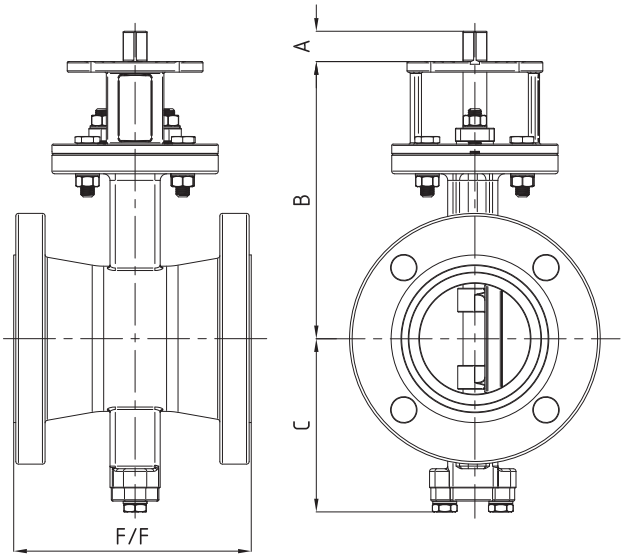
Dimensions in mm

all dimensions are subject to revision without prior notice

Dimensions



BV13-HP - Short



BV13-HP - Long

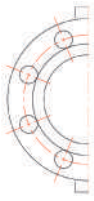
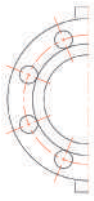
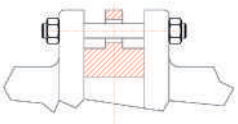
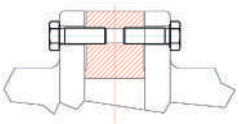
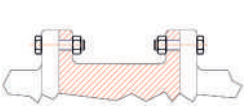
		BV13-HP - CLASS150 / PN10-PN25						BV13-HP - CLASS300 / PN40-PN50					
DN	NPS	A	B	C	D	F/F (Short)	F/F (Long)	A	B	C	D	F/F (Short)	F/F (Long)
80	3”	18,0	210,0	128,0	17,5	114,0	180,0	18,0	210,0	121,0	17,5	114,0	180,0
100	4”	18,0	227,0	150,0	25,0	127,0	190,0	18,0	227,0	150,0	25,0	127,0	190,0
125	5”	22,0	240,0	163,0	33,0	140,0	200,0	22,0	240,0	163,0	33,0	140,0	200,0
150	6”	22,0	255,0	176,0	45,0	140,0	210,0	25,0	275,0	185,0	132,0	140,0	210,0
200	8”	25,0	300,0	206,0	65,0	152,0	230,0	30,0	340,0	230,0	177,0	152,0	230,0
250	10”	28,0	340,0	238,0	85,0	165,0	250,0	35,0	395,0	266,0	225,0	165,0	250,0
300	12”	35,0	390,0	269,0	104,0	178,0	270,0	38,0	425,0	300,0	270,0	178,0	270,0
350	14”	36,0	426,0	306,0	123,0	190,0	290,0	48,0	485,0	330,0	303,0	190,0	290,0
400	16”	48,0	490,0	342,0	136,0	216,0	310,0	60,0	520,0	368,0	359,0	216,0	310,0
450	18”	48,0	515,0	370,0	154,0	222,0	330,0	70,0	560,0	385,0	403,0	222,0	330,0
500	20”	60,0	550,0	397,0	169,0	229,0	350,0	80,0	620,0	427,0	443,0	229,0	350,0
600	24”	60,0	640,0	455,0	211,0	267,0	390,0	90,0	713,0	416,0	541,0	267,0	390,0
mm	inches												

Dimensions in mm

all dimensions are subject to revision without prior notice

high performance - Triple eccentric

Overview

			WAFER		LUG		DOUBLE FLANGED	
			DIN	ANSI	DIN	ANSI	DIN	ANSI
BV TYPE			BV10-TR		BV12-TR		BV13-TR	
BV description			WAFER TRIPLE ECCENTRIC		LUG TRIPLE ECCENTRIC		DOUBLE FLANGED TRIPLE ECCENTRIC	
FLANGE according to	EN 1092-1	PN 10 - PN 16 - PN 25 - PN 40	●	●	●	●	●	●
	ASME/ANSI B16.5	class 150 - class 300 - class 600	●	●	●	●	●	●
	ASME/ANSI B16.47	series A/B for class 150 - class 300 - class 600	●	●	●	●	●	●
	API 605 / MSS-SP-44	class 150 - class 300 - class 600	●	●	●	●	●	●
	BS 3293	class 150 - class 300 - class 600	●	●	●	●	●	●
	JIS B2210	10 k - 16 k - 20 k	●	●	●	●	●	●
	ASME B16.25	Buttwelding Ends	●	●	●	●	●	●
FACE-to-FACE according to (*)	ISO 5752	Serie 13					●	●
	ISO 5752	Serie 14					●	●
	ISO 5752	Serie 20	●	●	●	●		
	API 609	Category A, B, Double flanged short	●	●	●	●	●	●
	MSS-SP-68	Table 1, 2	●	●	●	●		
DESIGN according to	EN 593		●	●	●	●	●	●
	ASME B16.34		●	●	●	●	●	●
	MSS SP67		●	●	●	●	●	●
(*) For more corresponding F/F standards, see page 34, 35			DN 50 – 1800 / NPS 2 – 72 DESIGNED ACCORDING TO		DN 50 – 1800 / NPS 2 – 72 DESIGNED ACCORDING TO		DN 50 – 1800 / NPS 2 – 72 DESIGNED ACCORDING TO	
			with central lugs		Valve with lugs with internally threaded holes		Double flanged body	
								
			DN / NPS all sizes		DN / NPS all sizes		DN / NPS all sizes	
								
FEATURES	DISC construction	concentric						
		eccentric	●	●	●	●	●	●
	SEAT execution	soft (PTFE / RTFE)	●	●	●	●	●	●
		metal	●	●	●	●	●	●
		fire-safe	●	●	●	●	●	●

BV10-TR / BV12-TR / BV13-TR
General Specification

- High Performance Triple-Offset butterfly valve
- Suitable for high temperatures and pressures up to PN100 (Class 900lbs)
- Available in laminated seat or solid metal seat execution
- Leakage class FCI 70-2-2006 Table 1, ISO 5208 rate D/A
- The disc surface is hard chrome plated or with stellite weld overlay
- One-piece shaft design with ISO 5211 bracket for easy automation
- Set of bushings against ingress of foreign material and for perfect shaft alignment
- Adjustable packing gland prevents medium leakage to the atmosphere (fugitive emissions)
- Various materials available to suit wide range of applications
- Available end connections: wafer type, lug type or flanged ends

Material

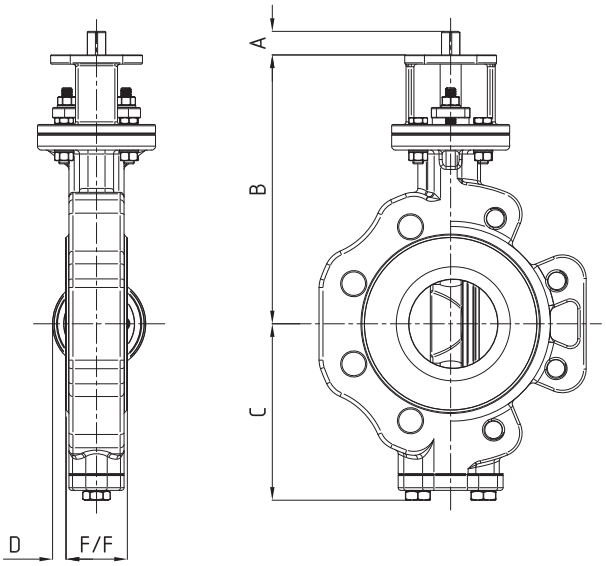
BV10-TR
BV12-TR - XX XX X
BV13-TR

Body		
Cast steel	44	A216 WCB
Stainless steel	63	CF8
Stainless steel	66	CF8M

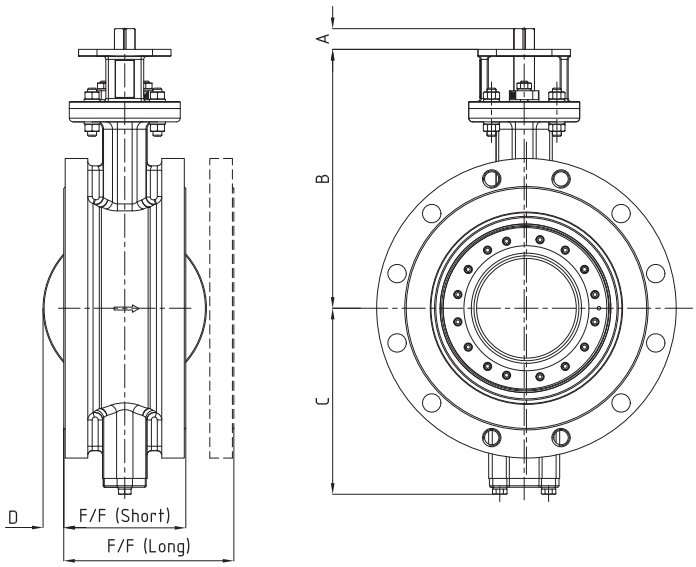
Disc		
Cast steel	44	A216 WCB
Stainless steel	63	CF8
Stainless steel	66	CF8M

Seat	
XM-19 + graphite	LX
UNS S20910(XM-19)	MX
S32205 + graphite	L
S32205	M

Dimensions



BV10-TR | BV12-TR



BV13-TR

		BV10-TR | BV12-TR					BV13-TR					
DN	NPS	A	B	C	D	F/F	A	B	C	D	F/F (Short)	F/F (Long)
80	3”	18,0	205,0	137,0	-	47,0	18,0	205,0	137,0	-	114,0	180,0
100	4”	18,0	215,0	140,0	-	53,0	18,0	215,0	140,0	-	127,0	190,0
150	6”	24,0	270,0	177,0	16,5	56,0	24,0	270,0	177,0	5,0	140,0	210,0
200	8”	28,0	325,0	204,0	33,0	63,0	28,0	325,0	204,0	24,0	152,0	230,0
250	10”	28,0	350,0	252,0	49,5	69,0	28,0	350,0	252,0	42,5	165,0	250,0
300	12”	37,0	400,0	281,0	63,5	79,0	37,0	400,0	281,0	61,0	178,0	270,0
350	14”	55,0	455,0	317,0	75,0	79,0*	55,0	455,0	317,0	80,0	190,0	290,0
400	16”	55,0	505,0	351,0	90,0	102,0	55,0	505,0	351,0	92,0	216,0	310,0
450	18”	65,0	535,0	376,0	102,0	114,0	65,0	535,0	376,0	114,0	222,0	330,0
500	20”	65,0	575,0	411,0	113,5	127,0	65,0	575,0	411,0	135,5	229,0	350,0
600	24”	80,0	690,0	476,0	137,0	154,0	80,0	690,0	476,0	166.5	267,0	390,0
mm	inches											

Dimensions in mm

all dimensions are subject to revision without prior notice

8V10 / 8V12 / 8V13 / 8V14

Name	Composition	General applications	Limitations
EPDM	Ethylene-propylene Terpolymer	Water-Steam Sea Water Brine Esters Ketone Alkalis Caustic soda	Not recommended for Hydrocarbons Oils Fats
NBR	Copolymer of butadiene and acrylonitrile	Hydrocarbons Natural Gas Oils and fat Air Gasoline	Not recommended for Solvents Benzene Xylol
PTFE	PolyTetraFluoroEthylene	Solvents Corrosive products	Not recommended for fluid containing powders Alkaline metals Gaseous Fluorine
FKM	Fluorocarbon polymer	Acids Oils Hydrocarbons	Not recommended for Steam Freon Ketones Alkalis
VMQ	Organic Silicone polymer	Food & Beverage	Not recommended for Steam Oils Hydrocarbons
TFM	Tetra Fluoro Modified (modified PTFE)	High chemical demands High purity environments Corrosive liquids & gases Abrasive liquids & gases	

Disc coatings

PFA Perfluoralkoxy-Copolymer is a thermoplastic fluorine polymer. It is used in combination with TFM lined butterfly valves for many different and high demanding applications. PFA is very similar in composition to the fluoropolymers (PTFE) and shows the same useful properties as outstanding resistance to chemical attack, high chemical strenght, low coefficient of friction, inertness and electrical isolating properties.

NYLON Nylon, a synthetic thermoplasic polyamide (PA11), has many applications in a wide variety of fields where following characteristics are required : excellent resistance to corrosion, improved resistance to wear and abrasion, good impact resistance, electrical insulation, low surface friction, compatibility with food products, good hygienic properties, long service life. There are no volatile substances, toxicity, or odours released on the finished coatings, thus contributing to a healthy environment.

8V10-S / 8V12-S

EPDM

ISO 1629 Nomenclature: EPDM
Chemical name: Ethylene- Propylene Terpolymer

- E: Peroxide cured EPDM (black) is our standard seat used for most common applications
  The seat is suitable for water, air, weak mineral acids and basis, ketones and esters
  Oily media should be avoided (swelling)
  Temperature range: -15°C to 120°C
- WE: White EPDM
  FDA approved, suitable for food applications
  Temperature range: -10°C to 90°C
- HE : High temperature EPDM
  Increased thermal resistance for long term services, suitable for hot water
  Temperature range: -20°C to 130°C

Other available EPDM rubbers: Blue EPDM, EPDM-HT (FDA)
Temperature range depending on the type of EPDM-rubber: -20°C to 130°C

NBR

ISO 1629 Nomenclature: NBR
Chemical name: Acrylonitrile-Butadiene Copolymer

- B: Peroxide cured NBR (Buna - black) is hydrocarbon applications
  Temperature range: -10°C to 90°C
- NG: NBR rubber with gas approval DVGW EN-682
  Temperature range: -5°C to 50°C

Other available NBR rubbers: White NBR (FDA approved), HNBR, Low temperature NBR
Temperature range depending on the type of NBR-rubber: -20°C to 90°C

ECO

ISO 1629 Nomenclature: ECO
Chemical name: Epichlorhydrin ethylen oxide Copolymer
Temperature range: -40°C to 90°C
Suitable for brine, moderate resistance to oil and fuel

CSM (Hypalon)

ISO 1629 Nomenclature: CSM
Chemical name: Chlorosulfonated Polyethylene
Temperature range: -10°C to 100°C
Moderate resistance to oil, greases and weak acids

VITON

ISO 1629 Nomenclature: FPM
Chemical name : compound dependent

- V: Hexafluorpropylene vinyldienefluoride copolymer
  General good chemical resistance
  Temperature range: -5°C to 200°C
  Red marking on the seat
- VB: HFP-VDF-TFE Terpolymer
  Suitable for acids, steam, biodiesel
  Temperature range: -5°C to 200°C
  Yellow marking on the seat

Other available viton rubbers: VG for oxygenated gasoline, V2 resistant for bases, VL for low temperatures, VF with FDA approval for food
Temperature range depending on the type of viton-rubber: -30°C to 200°C

8V10-S / 8V12-S

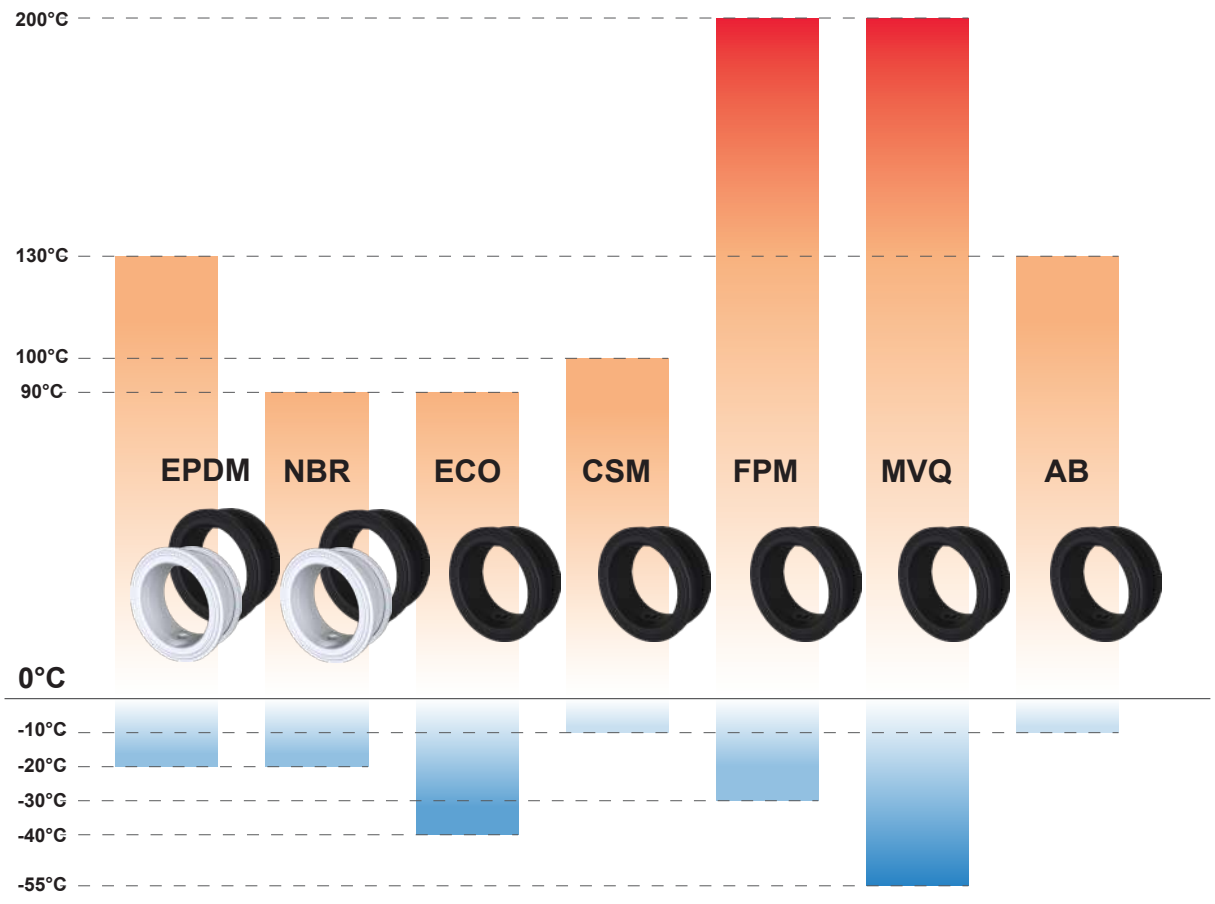
SILICONE

ISO 1629 Nomenclature: MVQ
Chemical name: compound dependent
S: Poly methyl vinyl siloxane
Suitable for steam water
Temperature range: -55°C to 160°C
Orange marking on the seat
Other available silicone rubbers: QF for high temperature, QF with FDA approval for food, QO for oil applications
Temperature range depending on the type of silicone-rubber : -50°C to 200°C

ABRASION RESISTANT RUBBERS

ISO 1629 Nomenclature: none
Belven Nomenclature: AB
Chemical name : compound dependent
FC: styrene-butadiene based compound
Suitable for dry abrasive applications
Temperature range: -10°C to 70°C
Grey marking on the seat
Other available rubbers: FW for wet abrasion, FO for oil abrasion, FH for high temperature abrasive applications
Temperature range depending on the type of rubber: -10°C to 130°C

Above mentioned temperatures are for static laboratory conditions, at 1 bara working pressure.
The maximum allowable temperatures depend on the working conditions of the valve.



Chemical resistance list

A = recommended under normal conditions B = conditional resistance C = not recommended na = not available	Seat materials						Metals				
	PTFE / TFM	EPDM	NBR (Buna N)	CSM (hypalon)	FKM (viton)	VMQ (silicon)	Cast iron	Ductile iron	Carbon steel	Alu bronze	SS 316
Acetaldehyde	A	A	C	C	C	A	B	B	A	C	A
Acetic Acid	A	B	C	C	C	C	C	C	C	C	A
Acetone	A	A	C	C	C	C	A	A	A	A	A
Acetylene (gas 100%)	A	A	A	B	A	B	A	A	A	C	A
Acrylonitrile	A	C	C	B	C	C	A	A	A	A	A
Adipic Acid	A	A	A	B	A	na	C	C	B	na	B
Aluminum Chloride (Sat'd)	A	A	B	B	A	B	C	C	C	C	A
Aluminum Sulfate	A	A	A	A	A	A	C	C	C	C	B
Ammonia, liquid	A	A	B	C	C	na	A	A	A	C	A
Amyl Acetate	A	B	C	C	C	C	C	B	B	B	A
Amyl Alcohol	A	A	B	A	A	C	B	B	B	A	A
Amyl Chloride	A	C	C	C	B	C	A	A	A	A	A
Aniline	A	B	C	C	A	B	C	B	C	C	B
Antimony Trichloride	A	B	B	na	A	na	na	C	C	C	C
Aqua Regia (80% HCl, 20% HN03)	A	C	C	C	B	C	C	C	C	C	B
Arsenic Acid	A	A	A	A	A	A	C	C	C	C	A
Asphalt	A	C	B	C	A	C	A	A	A	A	A
Barium Hydroxide	A	A	A	A	A	A	B	B	C	C	A
Barium Nitrate	A	A	A	A	A	B	A	A	A	C	A
Barium Sulfate	A	A	A	A	A	A	B	B	A	B	A
Beer	A	A	B	A	A	A	C	C	C	A	A
Benzaldehyde	A	A	C	C	C	C	A	C	C	A	A
Benzene	A	C	C	C	A	C	A	A	A	A	A
Benzoic Acid	A	C	A	B	A	B	C	C	C	C	A
Benzol / Benzene	A	C	na	C	A	C	A	na	na	na	A
Borax (Sodium Borate)	A	A	A	A	A	B	A	A	B	A	A
Boric Acid	A	A	A	A	A	A	C	C	B	B	A
Brine	A	A	A	A	A	B	C	C	C	A	A
Bromine	A	C	C	C	B	C	C	C	C	C	C
Butadiene	A	C	C	B	B	C	A	A	A	A	A
Butane	A	C	B	B	A	C	A	A	A	A	A
Butanol (Butyl Alcohol)	A	A	B	A	B	B	B	na	A	B	A
Butyric Acid	A	B	na	C	B	C	C	C	C	A	A
Calcium Bisulfate	A	na	B	C	A	C	C	C	C	na	A
Calcium Carbonate	A	A	B	B	A	A	B	B	B	C	A
Calcium Chlorate	A	A	B	B	A	na	B	B	B	B	A
Calcium Chloride	A	A	A	A	A	A	C	A	C	B	A
Calcium Hydroxide	A	A	A	A	A	A	C	C	C	C	A
Calcium Hypochlorite	A	B	C	A	A	B	C	C	C	C	B
Calcium Nitrate	A	A	A	A	A	B	B	B	na	B	A
Calcium Sulfate	A	A	A	A	A	na	A	A	B	B	A
Carbon Dioxide (dry)	A	B	A	A	A	B	A	A	A	A	A
Carbon Dioxide (wet)	A	B	A	B	B	B	B	B	B	A	A
Carbon Tetrachloride	A	C	C	C	A	C	C	A	A	A	B
Carbonic Acid	A	B	A	C	A	A	C	B	B	C	A
Chloric Acid	A	na	na	na	na	na	C	C	C	C	C
Chlorinated Water (<3500ppm)	A	B	C	B	A	na	C	C	C	C	A
Chlorinated Water (>3500ppm)	A	C	C	B	A	C	C	C	C	C	A
Chlorosulfonic Acid	A	C	C	C	C	C	C	B	C	C	B
Chromic Acid 10%	A	C	C	C	B	C	C	C	C	C	B
Chromic Acid 30%	A	C	C	B	B	C	C	C	C	C	B
Chromic Acid 50%	A	B	C	C	B	C	C	C	C	C	B
Citric Acid	A	A	B	C	A	A	C	C	C	C	A
Copper Chloride	A	A	A	B	A	A	C	C	C	C	A
Copper Nitrate	A	A	B	A	A	na	C	C	C	C	A
Copper Sulfate (sat'd)	A	A	A	C	A	A	C	C	C	C	A
Cresylic Acid	A	C	C	C	A	C	A	A	B	A	A
Cyclohexane	A	C	C	C	A	C	B	B	A	A	A
Cyclohexanol	A	C	C	C	C	C	A	A	na	na	A
Detergents	A	A	A	A	A	B	A	A	A	A	A
Diacetone Alcohol	A	B	C	C	C	C	A	A	A	A	A
Dichlorobenzene	A	C	C	C	C	C	na	A	A	na	A
Dichloroethane	A	C	C	C	C	C	A	A	na	B	A
Diesel Fuel	A	C	A	C	A	C	A	A	A	A	A
Diethylamine	A	B	B	C	C	B	A	A	C	C	A
Ethanol	A	A	A	A	A	B	A	A	A	A	A
Ether	A	C	C	C	C	C	C	B	B	na	A
Ethyl Acetate	A	B	C	C	C	B	A	A	A	na	A
Ethyl Chloride	A	B	C	C	A	C	A	A	A	B	A
Ethylene Bromide	A	C	C	C	B	C	na	A	A	na	A
Ethylene Chloride (dry)	A	C	C	C	B	C	na	na	na	B	A
Ethylene Glycol	A	A	A	A	A	A	A	A	A	A	A
Ethylene Oxide	A	C	C	C	C	C	B	A	A	na	A
Ferric Sulfate	A	A	A	A	A	B	C	C	C	na	A

A = recommended under normal conditions B = conditional resistance C = not recommended na = not available	Seat materials						Metals				
	PTFE / TFM	EPDM	NBR (Buna N)	CSM (hypalon)	FKM (viton)	VMQ (silicon)	Cast iron	Ductile iron	Carbon steel	Alu bronze	SS 316
Ferrous Chloride	A	A	A	na	A	na	C	C	C	C	C
Ferrous Sulfate	A	A	A	B	A	na	C	C	C	B	A
Fluorine Gas (dry)	B	C	C	B	C	C	C	C	A	na	A
Formaldehyde (50%)	A	A	C	C	C	B	C	na	B	B	A
Formic Acid	A	A	C	B	C	B	C	C	C	B	A
Freon 11	A	C	B	B	B	C	B	B	B	A	A
Freon 12	A	C	na	B	C	C	B	B	B	A	A
Freon 22	C	C	C	B	C	C	B	B	B	A	A
Furfural	A	B	C	B	C	C	A	A	A	A	A
Gallic Acid	A	B	C	B	A	C	C	C	C	C	A
Gasoline, leaded	A	C	B	B	B	C	A	A	A	A	A
Gasoline, unleaded	A	C	B	B	B	C	A	A	A	A	A
Glucose	A	A	A	B	A	A	A	A	A	A	A
Glue	A	B	A	A	B	A	A	A	A	A	A
Glycerin	A	A	B	A	A	A	A	A	A	A	A
Glycolic Acid	A	A	C	C	C	B	C	C	C	na	A
Grease	A	C	A	C	A	C	A	A	A	C	A
Heptane	A	C	B	B	A	C	A	A	A	A	A
Hexane	A	C	B	B	B	C	A	A	A	A	A
Hydraulic Oil (Petro)	A	C	A	B	A	B	A	A	A	B	A
Hydrobromic Acid 50%	A	A	C	B	A	C	C	C	C	C	C
Hydrochloric Acid 37%	A	B	C	C	C	C	C	C	C	C	B
Hydrocyanic Acid 10%	A	A	B	A	A	C	C	C	C	C	A
Hydrofluoric Acid 50%	A	C	C	B	B	C	C	C	C	C	B
Hydrogen Gas	A	A	A	A	A	C	A	A	A	A	A
Hydrogen Peroxide 50%	A	A	C	A	A	A	C	C	B	C	A
Hydrogen Sulfide (aqua)	A	B	C	B	B	C	C	C	C	C	A
Hydrogen Sulfide (dry)	A	B	C	B	B	C	C	B	B	na	A
Ink	A	na	B	na	A	na	C	C	C	A	A
Iodine 10%	A	B	B	B	C	na	C	C	C	C	C
Isooctane	A	C	B	A	A	C	A	A	A	A	A
Isopropyl Acetate	A	B	C	C	C	C	A	A	A	na	A
Isopropyl Ether	A	C	B	C	C	C	A	A	A	na	A
Jet Fuel (JP3, JP4, JP5)	A	C	B	C	A	C	A	A	A	A	A
Kerosene	A	C	A	C	A	C	A	A	A	A	A
Ketones	A	C	C	C	C	na	A	A	A	A	A
Lactic Acid	A	B	C	A	B	A	C	B	C	C	A
Lard Oil	A	C	A	C	A	B	B	B	B	C	A
Latex	A	B	B	na	B	A	na	A	na	na	A
Lead Acetate	A	A	B	B	C	A	C	C	C	na	A
Lead Nitrate	A	A	A	na	A	B	na	na	A	na	A
Lead Sulfate	A	A	na	A	A	B	C	C	C	na	B
Lime	A	B	B	B	A	na	A	A	A	na	A
Linoleic Acid	A	C	B	C	B	B	C	C	C	C	B
Lithium Chloride	A	A	B	na	A	A	A	A	B	B	A
Lithium Hydroxide	A	B	B	na	na	na	A	A	na	C	A
Lubricating oil (ASTM #1/2/3)	A	C	A	C	A	C	A	A	A	A	A
Magnesium Carbonate	A	A	A	A	A	na	B	B	B	na	A
Magnesium Chloride	A	A	A	A	A	A	C	C	C	B	C
Magnesium Oxide	A	A	A	na	na	na	A	A	na	na	A
Magnesium Sulfate (Epsom Salts)	A	A	A	A	A	A	A	A	A	A	A
Maleic Acid	A	B	C	na	A	na	C	C	C	B	A
Manganese Sulfate	A	A	A	A	A	A	C	C	B	A	A
Mercuric Chloride (dilute)	A	A	A	A	A	na	C	C	C	C	C
Mercuric Cyanide	A	B	B	na	B	A	C	C	C	C	A
Mercurous Nitrate	A	B	C	na	A	na	na	C	C	C	A
Mercury	A	A	A	A	A	na	A	A	na	C	A
Methane	A	C	C	B	A	C	A	A	A	A	A
Methanol (Methyl Alcohol)	A	A	A	A	C	A	A	A	A	A	A
Methyl Acetate	A	B	C	C	C	C	A	A	B	na	B
Methyl Acetone	A	B	na	na	C	na	A	A	A	A	A
Methyl Acrylate	A	B	C	C	C	C	na	na	na	na	A
Methyl Bromide	A	C	B	C	A	na	C	C	B	B	A
Methyl Cellosolve	A	B	C	C	C	C	C	B	B	B	B
Methyl Chloride	A	C	C	C	B	C	A	A	A	C	A
Methyl Ethyl Ketone	A	B	C	C	C	C	A	A	A	A	A
Methyl Isobutyl Ketone	A	B	C	C	C	C	A	na	na	na	B
Methyl Isopropyl Ketone	A	C	C	C	C	C	C	na	na	na	na
Methyl Methacrylate	A	C	C	B	C	C	C	na	na	na	B
Methylene Chloride	A	C	C	C	B	na	B	B	B	B	A
Milk	A	A	A	A	A	A	C	C	C	B	A
Molasses	A	A	A	A	A	na	A	A	A	A	A
Monochloroacetic acid	A	C	B	C	C	na	C	C	C	C	C
Monoethanolamine	A	B	B	C	C	A	B	B	B	C	A

Chemical resistance list

A = recommended under normal conditions B = conditional resistance C = not recommended na = not available	Seat materials						Metals				
	PTFE / TFM	EPDM	NBR (Buna N)	CSM (hypalon)	FKM (viton)	VMQ (silicon)	Cast iron	Ductile iron	Carbon steel	Alu bronze	SS 316
Motor oil	A	C	A	na	A	na	A	A	A	A	A
Naphtha	A	C	A	C	A	C	A	A	A	B	A
Naphthalene	A	C	C	C	A	C	A	A	A	B	A
Natural Gas	A	C	A	A	A	A	A	A	A	A	A
Nickel Chloride	A	A	A	A	A	A	C	C	C	B	A
Nickel Nitrate	A	A	A	C	A	na	C	C	C	na	A
Nickel Sulfate	A	A	na	A	A	A	C	C	C	B	B
Nitric Acid <10%	A	B	C	B	A	na	C	C	C	na	A
Nitric Acid 70%	A	C	C	C	B	C	C	C	C	C	A
Nitrobenzene	A	C	na	C	B	C	A	A	A	na	A
Nitromethane	A	B	C	na	na	ba	na	na	na	na	A
Nitrous Acid 10%	A	na	C	na	B	na	C	C	C	C	B
Nitrous Oxide	A	na	B	C	B	na	C	B	B	na	A
Oleic Acid	A	B	B	B	A	C	B	B	C	A	A
Oxalic Acid (cold)	A	A	C	na	B	B	C	C	C	C	A
Ozone	A	A	C	A	A	A	A	A	A	A	A
Palmitic Acid	A	B	B	C	A	C	B	B	B	B	A
Paraffin	A	C	B	na	A	na	B	A	A	A	A
Pentane	A	C	B	na	B	C	A	A	A	A	A
Perchloric Acid	A	B	C	C	A	C	C	na	na	na	B
Perchloroethylene	A	C	C	C	A	C	B	B	B	na	A
Phenol	A	B	C	C	A	C	C	C	C	C	A
Phosphoric Acid (>40%)	A	B	C	B	A	C	C	C	C	C	A
Phosphorus	A	na	na	na	na	na	na	na	na	na	A
Phosphorus Trichloride	A	na	C	C	na	na	na	na	na	na	A
Photographic Solutions	A	A	na	B	A	A	na	C	na	na	A
Phthalic Acid	A	A	C	B	B	B	B	B	C	na	A
Picric Acid	A	B	C	B	B	C	C	C	C	C	A
Potassium Bicarbonate (Sat'd)	A	A	B	na	A	A	A	A	A	na	A
Potassium Bromide	A	A	A	na	A	A	C	C	C	B	A
Potassium Carbonate	A	A	A	na	A	na	A	A	A	B	A
Potassium Chlorate (aqueous)	A	A	B	na	A	B	A	A	A	na	A
Potassium Chloride	A	A	A	A	A	A	B	B	B	A	A
Potassium Chromate	A	A	A	na	A	na	A	A	A	B	A
Potassium Cyanide	A	A	A	A	A	A	B	B	B	C	A
Potassium Dichromate	A	A	A	A	A	A	B	B	C	C	A
Potassium Ferricyanide	A	A	B	A	A	na	B	B	C	na	A
Potassium Ferrocyanide	A	A	B	A	A	na	C	C	C	C	A
Potassium Hydroxide	A	A	B	A	C	C	B	B	B	C	A
Potassium Hypochlorite	A	C	C	B	na	B	na	na	C	na	A
Potassium Iodide	A	A	A	A	A	na	na	na	B	na	A
Potassium Nitrate	A	A	A	A	A	A	B	B	B	B	A
Potassium Permanganate 10%	A	A	C	B	A	na	A	A	A	na	A
Potassium Sulfate	A	A	A	A	A	A	A	A	A	B	A
Potassium Sulfide	A	A	A	B	A	A	C	C	C	C	B
Propane	A	C	B	B	B	C	A	A	A	A	A
Propylene Glycol	A	B	A	A	A	A	na	na	B	na	A
Pyridine	A	B	C	C	C	C	B	B	B	na	A
Pyrogallic Acid	A	na	B	na	A	na	A	A	A	na	A
Rosins	A	na	B	B	A	A	C	C	C	na	A
Salicylic Acid	A	A	C	A	A	A	C	C	C	na	A
Silver Nitrate	A	A	A	A	A	A	C	C	C	C	A
Soap Solutions	A	A	A	A	A	A	A	A	A	A	A
Sodium Acetate	A	A	C	B	C	C	B	B	C	B	A
Sodium Aluminate (Sat'd)	A	A	A	A	A	na	B	B	A	na	A
Sodium Bicarbonate	A	A	A	A	A	A	A	A	C	B	A
Sodium Bisulfate	A	A	A	A	A	A	C	C	C	C	A
Sodium Bisulfite	A	A	A	A	A	A	C	C	C	na	A
Sodium Bromide	A	A	B	B	A	na	C	C	C	na	A
Sodium Carbonate	A	A	A	A	A	A	A	A	A	B	A
Sodium Chlorate	A	B	B	na	A	C	B	B	B	C	A
Sodium Chloride	A	A	A	A	A	A	B	B	B	A	B
Sodium Chromate	A	B	B	C	A	na	B	B	B	na	A
Sodium Cyanide	A	A	A	A	A	A	C	A	A	C	A
Sodium Ferrocyanide	A	A	A	B	A	na	na	na	na	na	A
Sodium Fluoride	A	A	B	B	A	na	C	C	C	B	A
Sodium Hydroxide (<10%)	A	A	A	A	C	A	A	A	A	A	A
Sodium Hydroxide (30%)	A	A	A	A	C	A	B	B	B	B	A
Sodium Hydroxide (50%)	A	A	C	A	C	A	B	B	B	C	A
Sodium Hydroxide (70%)	A	B	C	B	C	B	B	B	B	C	A
Sodium Hypochlorite (5%)	A	B	C	A	A	B	C	C	C	C	A
Sodium Hypochlorite (sat'd)	A	C	C	A	A	B	C	C	C	C	A
Sodium Metaphosphate	A	B	B	B	A	A	C	C	C	C	A
Sodium Nitrate	A	A	A	A	A	C	A	A	A	B	A

A = recommended under normal conditions B = conditional resistance C = not recommended na = not available	Seat materials						Metals				
	PTFE / TFM	EPDM	NBR (Buna N)	CSM (hypalon)	FKM (viton)	VMQ (silicon)	Cast iron	Ductile iron	Carbon steel	Alu bronze	SS 316
Sodium Perborate	A	B	B	B	B	B	B	B	B	na	A
Sodium Peroxide	A	A	B	A	A	C	C	C	C	C	A
Sodium Polyphosphate	A	A	A	A	A	C	B	B	B	B	A
Sodium Silicate	A	A	A	A	A	A	A	A	A	B	A
Sodium Sulfate	A	A	A	A	A	A	A	A	A	B	A
Sodium Sulfide	A	A	A	A	A	A	B	B	C	C	A
Sodium Sulfite	A	A	A	A	A	A	B	B	B	C	A
Soybean Oil	A	C	A	A	A	na	A	A	B	B	A
Stannic Chloride	A	A	A	C	A	B	C	C	C	C	C
Stannous Chloride	A	C	A	A	A	B	C	C	C	C	A
Starch	A	A	A	A	A	na	B	B	B	B	A
Stearic Acid	A	C	A	C	A	B	C	C	C	C	A
Stoddard Solvent	A	C	A	C	A	C	A	A	A	na	A
Styrene	A	C	C	C	B	C	B	B	B	B	A
Sugar (Liquids)	A	A	A	A	A	A	na	B	C	na	A
Sulfate (Liquors)	A	B	B	B	B	B	B	A	na	C	B
Sulfur Chloride	A	C	C	na	A	C	C	C	C	C	C
Sulfur Dioxide (wet)	A	A	C	A	A	B	A	A	A	A	A
Sulfur Dioxide (dry)	A	B	C	A	B	B	na	na	na	B	A
Sulfur Trioxide	A	B	C	C	A	B	B	na	na	na	B
Sulfuric Acid (<30%)	A	A	C	A	A	C	C	C	C	C	A
Sulfuric Acid (30-75%)	A	C	C	B	A	C	C	C	C	C	B
Sulfuric Acid (75-100%)	A	C	C	C	B	C	C	C	C	C	C
Sulfuric Acid (fuming)	A	C	C	C	C	C	C	C	C	C	C
Sulfurous Acid	A	B	n	A	A	C	C	C	C	C	A
Tannic Acid	A	B	A	A	A	B	B	B	C	na	A
Tanning Liquors	A	na	B	B	A	B	B	na	na	na	A
Tartaric Acid	A	C	B	A	A	B	C	C	C	C	A
Tetrachloroethane	A	C	C	C	B	C	na	na	na	na	A
Tetrachloroethylene	A	C	C	C	B	C	na	na	na	na	na
Tetrahydrofuran	A	C	C	C	C	C	na	na	na	na	na
Toluene (Toluol)	A	C	na	C	C	C	A	A	A	A	A
Tomato Juice	A	A	C	C	A	na	C	C	B	na	A
Trichloroacetic Acid	A	B	B	na	C	C	C	C	C	na	C
Trichloroethylene	A	C	C	C	A	C	B	B	B	A	A
Triethylamine	A	na	B	na	B	na	na	na	na	A	A
Trisodium Phosphate	A	B	B	A	A	A	B	B	na	na	A
Turpentine	A	C	B	C	A	C	A	A	A	A	A
Urea	A	A	A	A	A	B	na	C	C	B	na
Urine	A	A	A	na	A	na	C	C	C	na	A
Varnish	A	C	B	C	B	C	C	C	C	B	A
Vegetable Oil	A	C	B	B	B	B	na	A	A	na	A
Vinegar	A	A	C	A	C	A	C	C	C	C	A
Vinyl Acetate	A	B	B	C	C	C	B	B	na	B	na
Water, Acid Mine	A	A	A	A	A	B	C	C	C	C	A
Water, Deionized	A	A	B	na	A	na	C	C	C	C	A
Water, Distilled	A	A	A	A	A	C	C	C	C	B	A
Water, Hot	A	A	A	A	C	na	B	B	B	A	A
Water, Potable	A	A	A	A	A	B	B	B	B	A	A
Water, Salt	A	A	A	A	A	B	C	C	C	B	A
Water, Sea	A	A	A	A	A	A	C	C	C	A	B
Whiskey & Wines	A	A	A	A	A	A	C	C	C	C	A
White Liquor (Pulp Mill)	A	na	A	B	A	A	C	C	C	C	A
Xylene	A	C	C	C	B	C	A	A	A	A	A
Zinc Chloride	A	A	B	A	A	B	C	C	C	C	B
Zinc Hydrosulfite	A	A	na	na	na	na	C	na	na	na	A
Zinc Sulfate	A	A	A	A	A	A	C	C	C	B	A

ATTTENTION

This chemical resistance guide has been compiled to assist the piping system designer in selecting chemical resistant materials. The information given is intended as a guide only, consequently it can not be used as guarantee as many conditions can affect the material choice. Careful consideration must be given to temperature, pressure and chemical concentrations before a final material can be selected. It is the responsibility of the user to check the compatibility of our products within the specific process parameters.

Operating options

Beside default manual steering, Belven butterfly valves can be supplied with actuated OPEN/CLOSE or full position control, both supplied with the necessary accessories. You find here a brief overview of the operating possibilities and accessories.

Manual

- LEVER in different materials, long or short model, adjustable, fail safe lever, ...
- GEARBOX in different materials such as cast iron or aluminium, standard/lockable/ with chainwheel, with visual open/close indication

Pneumatic

Double acting pneumatic actuator - DA
Single acting pneumatic actuator - SR

- Suitable for high duty cycles
- Fast opening and closing times
- Few moving parts: increases operational safety
- Namur design for easy mounting of accessories, as limit switches, (NAMUR) solenoid valves and bus communication systems
- Can be combined with emergency operation. (manual override - MOD)

SR : Fail-safe function can be realized in spring closing or spring opening configuration, Standard Belven execution in fail close position.

Operating options

Electric

Belven aims to find solutions suitable for the automation of butterfly valves for different water applications and other processes in the industrial and construction sector. The usage of electronic components of last generation, together with precise mechanic, fruit of careful research and development, enables high performance and long-term reliability of the product.

- Wide range of voltage options
- Self-locking reduction gear
- The electronic circuit adjusts automatically the motor speed depending on the mechanical charge variations, in order to drive the cycle always in the same time
- All actuators are provided with torque limiter
- Thermal protection
- Extra limit switches, visual open/close indication, heater and even an emergency handwheel operator can be integrated in the actuator
- Open / close and modulating duty
- Different protection classes

For more information related to our standardisation on electric actuators and brands, please contact our sales department.

Accessories

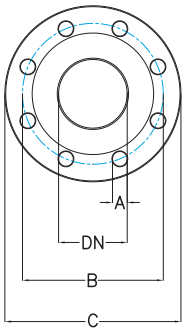
- Stem extension in steel or stainless steel
- Visual indicators
- Solenoid valves, available in different voltages /currents and available in different ATEX protection classes
- Limit switches (mechanical, inductive, capacitive, ...)
- Positioners
- Chain wheels








Flange connections



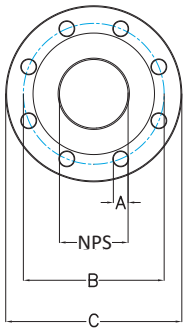
A	Diameter of holes	# bolts	Number of bolts
B	Bolt circle diameter	⦸ bolts	Diameter of bolts
C	Diameter of flange	DN	Bore nominal diameter

	PN 6					PN 10					PN 16				
	BS EN 1092 PN 6 (mm)					BS EN 1092 PN10 (mm)					BS EN 1092 PN16 (mm)				
DN	A	B	C	# bolts	⦸ bolts	A	B	C	# bolts	⦸ bolts	A	B	C	# bolts	⦸ bolts
32	14	90	120	4	M12	18	100	140	4	M16	18	100	140	4	M16
40	14	100	130	4	M12	18	110	150	4	M16	18	110	150	4	M16
50	14	110	140	4	M12	18	125	165	4	M16	18	125	165	4	M16
65	14	130	160	4	M12	18	145	185	4	M16	18	145	185	4	M16
80	18	150	190	4	M16	18	160	200	8	M16	18	160	200	8	M16
100	18	170	210	4	M16	18	180	220	8	M16	18	180	220	8	M16
125	18	200	240	8	M16	18	210	250	8	M16	18	210	250	8	M16
150	18	225	265	8	M16	22	240	285	8	M20	22	240	285	8	M20
200	18	280	320	8	M16	22	295	340	8	M20	22	295	340	12	M20
250	18	335	375	12	M16	22	350	395	12	M20	26	355	405	12	M24
300	22	395	440	12	M20	22	400	445	12	M20	26	410	460	12	M24
350	22	445	490	12	M20	22	460	505	16	M20	26	470	520	16	M24
400	22	495	540	16	M20	23	515	565	16	M24	30	525	580	16	M27
450	22	550	595	16	M20	26	565	615	20	M24	30	585	640	20	M27
500	22	600	645	20	M20	26	620	670	20	M24	33	650	715	20	M30
600	26	705	755	20	M24	30	725	780	20	M27	36	770	840	20	M33
700	26	810	860	24	M24	30	840	895	24	M27	36	840	910	24	M33
800	30	920	975	24	M27	33	950	1015	24	M30	39	950	1025	24	M36
900	30	1020	1075	24	M27	33	1050	1115	28	M30	39	1050	1125	28	M36
1000	30	1120	1175	28	M27	36	1160	1230	28	M33	42	1170	1255	28	M39
1200	33	1340	1405	32	M30	39	1380	1455	32	M36	48	1390	1485	32	M45
1400	36	1560	1630	36	M33	42	1590	1675	36	M39	48	1590	1685	36	M45
1600	36	1760	1830	40	M33	48	1820	1915	40	M45	56	1820	1930	40	M52
1800	39	1970	2045	44	M36	48	2020	2115	44	M45	56	2020	2130	44	M52
2000	42	2180	2265	48	M39	48	2230	2230	48	M45	62	2230	2230	48	M56
mm															

Dimensions in mm

Flange connections

A	Diameter of holes	# bolts	Number of bolts
B	Bolt circle diameter	⦸ bolts	Diameter of bolts
C	Diameter of flange	NPS	Nominal pipe size



ANSI 150

	ANSI B16.5 CLASS 150 (inches) ANSI B16.47 serie A (inches)					ANSI B16.5 CLASS 150 (mm) ANSI B16.47 serie A (mm)				
NPS	A	B	C	# bolts	⦸ bolts	A	B	C	# bolts	⦸ bolts
1 1/4	5/8	3 1/2	4 5/8	4	1/2	16	89	117	4	13
1 1/2	5/8	3 7/8	5	4	1/2	16	98	127	4	13
2	3/4	4 3/4	6	4	5/8	19	121	152	4	16
2 1/2	3/4	5 1/2	7	4	5/8	19	140	178	4	16
3	3/4	6	7 1/2	4	5/8	19	152	191	4	16
4	3/4	7 1/2	9	8	5/8	19	191	229	8	16
5	7/8	8 1/2	10	8	3/4	22	216	254	8	19
6	7/8	9 1/2	11	8	3/4	22	241	279	8	19
8	7/8	11 3/4	13 1/2	8	3/4	22	298	343	8	19
10	1	14 1/4	16	12	7/8	25	362	406	12	22
12	1	17	19	12	7/8	25	432	483	12	22
14	1 1/8	18 3/4	21	12	1	29	476	533	12	25
16	1 1/8	21 1/4	23 1/2	16	1	29	540	597	16	1
18	1 1/4	22 3/4	25	16	1 1/8	32	578	635	16	29
20	1 1/4	25	27 1/2	20	1 1/8	32	635	699	20	29
24	1 3/8	29 1/2	32	20	1 1/4	35	749	813	20	32
28	1 3/8	34	36 1/2	28	1 1/4	35	863	927	28	35
32	1 5/8	38 1/2	41 3/4	28	1 1/2	41	978	1060	28	41
36	1 5/8	42 3/4	46	32	1 1/2	41	1086	1168	32	41
40	1 5/8	47 1/4	50 3/4	36	1 1/2	41	1200	1289	36	41
48	1 5/8	51 3/4	55 1/4	40	1 1/2	41	1314	1403	40	41
56	1 5/8	60 1/2	64	44	1 1/2	41	1537	1626	44	48
64	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
72	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
80	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
inches						Dimensions in mm				

n.a. = not applicable

Face-to-Face standards

	WAFER					
	BV10	BV10-S	BV10-U	BV10-TFM	BV10-HP	BV10-TR
EN 558-1 BASIC SERIE 20	✓	✓	✓	✓	✓	✓
ISO 5752 BASIC SERIE 20	✓	✓	✓	✓	✓	✓
DIN 3202 Part 3 K1	✓	✓	✓	✓	✓	✓
API 609 Category A valves (lug & wafer type)	✓	✓	✓	✓	✓	✓
API 609 Category B valves					✓	✓
BS 5155 (4) Double flanged short DN 40-300	✓	✓	✓	✓	✓	✓
BS 5155 (5) Double flanged medium DN 350-600	✓		✓	✓	✓	✓
MSS SP-67 W-1 narrow body DN 40-350	✓	✓	✓	✓	✓	✓
MSS SP-67 W-2 wide body DN 400-1050	✓		✓	✓	✓	✓
MSS SP-68 Table 1,2					✓	✓

	LUG					
	BV12	BV12-S	BV12-U	BV12-TFM	BV12-HP	BV12-TR
EN 558-1 BASIC SERIE 20	✓	✓	✓	✓	✓	✓
ISO 5752 BASIC SERIE 20	✓	✓	✓	✓	✓	✓
DIN 3202 Part 3 K1	✓	✓	✓	✓	✓	✓
API 609 Category A valves (lug & wafer type)	✓	✓	✓	✓	✓	✓
API 609 Category B valves					✓	✓
BS 5155 (4) Double flanged short DN 40-300	✓	✓		✓	✓	✓
BS 5155 (5) Double flanged medium DN 350-600	✓			✓	✓	✓
MSS SP-67 W-1 narrow body DN 40-350	✓	✓		✓	✓	✓
MSS SP-67 W-2 wide body DN 400-1050	✓		✓	✓	✓	✓
MSS SP-68 Table 1,2					✓	✓

	DOUBLE FLANGED			
	BV13	BV14	BV13-HP	BV13-TR
EN 558-1 series 13	✓	✓	✓	✓
ISO 5752 BASIC SERIE 13	✓	✓	✓	✓
DIN 3202 Part 1 SERIE F16	✓	✓	✓	✓
API 609 Double flanged © Short pattern class 150 or 300	✓	✓	✓	✓
BS 5155 (2) Double flanged short	✓	✓	✓	✓
EN 558-1 series 14	✓		✓	✓
ISO 5752 BASIC SERIE 14	✓		✓	✓
DIN 3202 Part 1 SERIE F4	✓		✓	✓
API 609 Double flanged © Short pattern class 300	✓		✓	✓
BS 5155 (2) Double flanged long	✓		✓	✓

cv-kv values
for concentric butterfly valve

The flow coefficient is the valve sizing factor that permits the selection of the appropriate valve, to meet the flow requirements in the development of a given fluid system.

Kv value (m^3/h)

Flow in m^3/h @ Δp 1 bar

Size	DN	CLOSE ·····								OPEN
INCH	MM	10°	20°	30°	40°	50°	60°	70°	80°	90°
2"	50	0,1	3	6	13	23	38	60	90	99
2-1/2"	65	0,1	5	10	22	39	65	102	153	169
3"	80	0,2	8	15	34	60	100	157	237	260
4"	100	0,3	15	31	67	120	198	313	470	516
5"	125	0,4	25	52	114	204	337	533	800	879
6"	150	0,7	39	82	176	315	520	824	1236	1358
8"	200	2	77	162	351	625	1034	1637	2454	2697
10"	250	3	130	275	597	1064	1760	2786	4179	4592
12"	300	3	201	426	922	1643	2719	4304	6456	7095
14"	350	5	291	615	1332	2374	3928	6218	9326	10249
16"	400	7	399	845	1832	3265	5403	8550	12825	14094
18"	450	9	529	1120	2427	4324	7155	11324	16987	18666
20"	500	12	680	1416	3120	5560	9200	14561	21841	24001
24"	600	19	1051	2225	4820	7288	12856	19581	30012	37080
28"	700	31	1559	3130	5707	8591	14214	22495	33743	42570
30"	750	32	1789	3789	6610	10224	15970	24747	37561	50633
32"	800	39	1193	4120	7513	11858	17727	27000	41381	58695
36"	900	52	2623	5788	10956	17389	27950	45150	68456	75250
40"	1000	72	3597	7220	13164	20777	31103	47372	72606	102985
42"	1050	301	4106	7774	14713	23349	37530	60630	91925	117713
48"	1200	391	4614	10182	19264	26316	44032	79378	120400	132440

Flow m^3/h
Pressure drop Δp = 1 bar

Kv = Cv x 0,86

Cv value (gpm)

The Cv values still used in the USA, define the flow of water in US gallons /minute flowing through an open valve with a pressure drop of 1 psi across the valve.

Flow in gpm @ Δp 1 psi

Size	DN	CLOSE ·····								OPEN
INCH	MM	10°	20°	30°	40°	50°	60°	70°	80°	90°
2"	50	0,1	3	7	15	27	44	70	105	115
2-1/2"	65	0,1	6	12	25	45	75	119	178	196
3"	80	0,2	9	18	39	70	116	183	275	302
4"	100	0,3	17	36	78	139	230	364	546	600
5"	125	0,5	29	61	133	237	392	620	930	1022
6"	150	0,8	45	95	205	366	605	958	1437	1579
8"	200	2	89	188	408	727	1202	1903	2854	3136
10"	250	3	151	320	694	1237	2047	3240	4859	5340
12"	300	4	234	495	1072	1911	3162	5005	7507	8250
14"	350	6	338	715	1549	2761	4568	7230	10844	11917
16"	400	8	464	983	2130	3797	6282	9942	14913	16388
18"	450	11	615	1302	2822	5028	8320	13168	19752	21705
20"	500	14	791	1647	3628	6465	10698	16931	25396	27908
24"	600	22	1222	2587	5605	8474	14949	22769	34898	43116
28"	700	36	1813	3639	6636	9989	16528	26157	39236	49500
30"	750	37	2080	4406	7686	11888	18570	28776	43676	58875
32"	800	45	1387	4791	8736	13788	20613	31395	48117	68250
36"	900	60	3050	6730	12740	20220	32500	52500	79600	87500
40"	1000	84	4183	8395	15307	24159	36166	55084	84425	119750
42"	1050	350	4774	9040	17108	27150	43640	70500	106890	136875
48"	1200	455	5365	11840	22400	30600	51200	92300	140000	154000

Flow gpm (gallons per minute)
Pressure drop Δp = 1 psi

Cv = Kv x 1,16

Formulas

Liquid flow	$Q = Kv \times \sqrt{(\Delta p / \delta)}$	Q	flow (m^3/h)
Pressure drop	$\Delta p = \delta \times (Q^2/Kv^2)$	Δp	pressure drop (1 bar)
Minimum coefficient of flow	$Kv = Q \times \sqrt{(\delta/\Delta p)}$	δ	density (kg/dm^3), water = 1

We keep the right to change the mentioned values and text in this leaflet at any time without prior notice.

design

Belven butterfly valves are available in different designs to serve a wide range of applications.
The medium, pressure and temperature used in the pipeline will mostly define the choice of the valve.

research & development

Each butterfly valve is the result of preliminary thorough testing and research by the Belven R&D department, situated at Belven headquarters in Belgium.
Existing and new products are tested in our lab on state-of-the-art testing equipment. Belven is ISO 9001 certified and has a wide range of product certificates.

sales support

Belven partners are located in most countries, offering you the necessary support in your local market.
Local people rely on the know-how and experience of the Belven head offices in Belgium, to support you in finding the required butterfly valve for your application.

follow up

Starting from offer and order, the Belven sales and logistic team follow your order carefully to ensure your goods can be supplied as quickly as possible. You will receive an order confirmation stating when your goods will be ready for transportation. As promised.
Full traceability of the product through tagging and unique numbering is part of standard procedure.

delivery

The central warehouse in Belgium carries a large stock of standard product types, to complement our distributor's local stocks.
Deliveries ex works, transport by road, cargo or air as well as express deliveries can be organised by the Belven logistic department, in accordance with the urgency of supply.
Belven supplies the required export documentation for worldwide delivery.

reference

Belven has accumulated over the years an extensive experience in handling large projects.
If you have any questions related to our experience in your area of activity, please contact the Belven sales department.

OUR FIELD APPLICATIONS

WATER TREATMENT

DISTRICT ENERGY

TANK STORAGE

CONSTRUCTION & BUILDINGS

PROCESS INDUSTRY

belven®

Blokhuisstraat 24 I 2800 Mechelen I Belgium
tel.: 0032 15 29 40 70
fax.: 0032 15 20 14 13
info@belven.com
www.belven.com