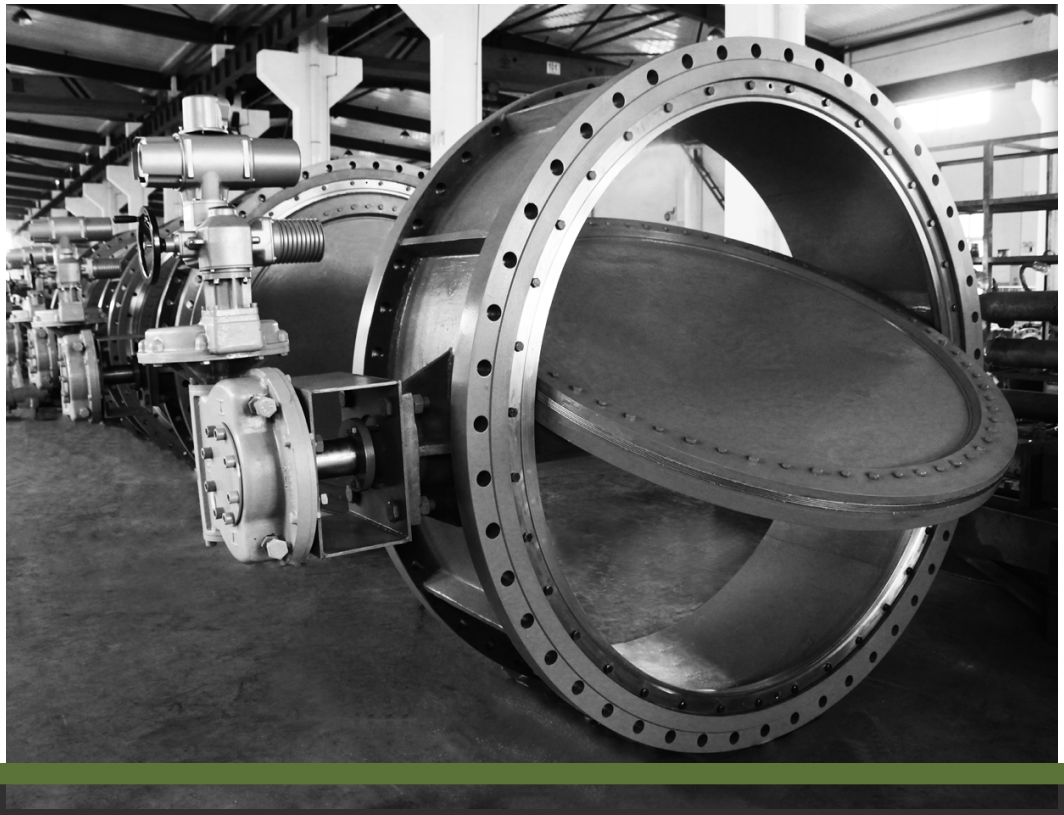
ROBVALVE

VALVE MANUFACTURER FOR INDUSTRIAL AND WATER APPLICATIONS



BUTTERFLY VALVE

SUPRAX® - TRIPLE OFFSET

Pressure : Class150 ~ Class1500 (PN6 ~ 250) | **Size :** 2" ~ 200" (DN50 ~ 5000mm) | **Temperature :** -196°C ~ +750°C

По вопросам продаж и поддержки обращайтесь:

ROBVALVE

Архангельск (8182)63-90-72
Астана+7(7172)727-132
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89
Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Липецк (4742)52-20-81
Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Симферополь (3652)67-13-56
Сургут (3462)77-98-35
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Тверь (4822)63-31-35
Томск (3822)98-41-53
Тула (4872)74-02-29
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Ярославль (4852)69-52-93

эл. почта: rvb@nt-rt.ru || сайт: http://robvalve.nt-rt.ru

CONTENTS

CODIFICATION

Valve Definition			Inside Parts Material	Connection Type	Working Pressure	Actuation	Size
Valve Type							
BUV Butterfly Valve	**3 -** Triple Offset Suprax ®	**10 -** Standard **20 -** High Temperature **30 -** Low Temperature	**WBWBLA** Seat (Lamelar) Disc (WCB) Body (WCB)	**WA** - Wafer **LU** - Lug **BW** - Butt Welded **FL** - Flanged	**006** - PN6 **016** - PN16 **025** - PN25 **C01 -** CL150 **C06 -** CL600 **C15 -** CL1500	**0 -** Bareshaft **3 -** Gearbox **4 -** Elec Actuator **5 -** Pneumatical Actuator	**0008** - DN8 **0015** - DN15 **0200** - 8" **1200** - 48"

More materials :
Cf. Material Tables

MATERIAL TABLES

Carbon Steel, Low Temperature Carbon Steel and Low Temperature Alloy Steel

Material Group	Forging ASTM	Forging EN	Codification	Casting ASTM	Casting EN	Codification	Application
Carbon Steel **-29°C Manufacturing Standard**	**A105**	**1.0432**	**A5**	A216 **WCB**	**1.0619**	**WB**	Non-corrosive applications including water, oil and gases from -29°C to +425°C
	A350 **LF1**	-	**L1**	A216 **WCC**	-	**WC**	
Low Temperature Carbon Steel **-46°C**	A350 **LF2** Class 1	**1.0570**	**L2**	A352 **LCB**	**1.1156**	**LB**	Low temperature applications from LCB, LCC -46°C to +340°C LF2 -46°C to +427°C
				A352 **LCC**	-	**LC**	
Low Temperature Carbon Steel **-51°C**	A350 **LF6** Class 1 and 2	-	**L6**	-	-	-	Low temperature applications from -51°C to +340°C
Low Temperature Carbon Steel **-59°C**	A350 **LF5** Class 1 and 2	-	**L5**	-		-	Low temperature applications from -59°C to +340°C
	A350 **LF787** Class 2	-	**L7**	-	-	-	
	-		-	-		-	
				A352 **LC1**		**A1**	
Low Temperature Carbon Steel **-73°C**	A350 **LF9**	-	**L9**	-	-	-	Low temperature applications from -73°C to +340°C
	A350 **LF787** Class 3		**L8**	-		-	
	-			-		-	
				A352 **LC2**		**A2**	
Low Temperature Alloy Steel **-101°C**	A350 **LF3** Class 1 and 2	**1.5637**	**L3**	A352 **LC3**	**1.5638**	**A3**	Low temperature applications from -101°C to +340°C

Medium and Low Alloy Steel

Material Group	Forging ASTM	Forging EN	Codification	Casting ASTM	Casting EN	Codification	Application
Low Alloy Steel	A182 **F1**	**1.5421**	**F1**	A217 **WC1**	—	**W1**	For high temperatures non-corrosive applications including water, oil and gases from - 29°C to +470°C
	A182 **F11** Class2	≈**1.7535**	**11**	A217 **WC6**	**1.7354**	**W6**	Non-corrosive applications including water, oil and gases from -30°C to +593°C
	A182 **F22** Class3	**1.7375**	**F2**	A217 **WC9**	**1.7380**	**W9**	For high temperatures Non-corrosive applications including water, steam, oil and gases from -30°C to +593°C
Medium Alloy Steel	A182 **F5**	**1.7362**	**F5**	A217 **C5**	**1.7363**	**C5**	Mild corrosive or erosive applications as well as non-corrosive applications especially high temperature refinery service from -30°C to +650°C
	A182 **F9**	**1.7386**	**F9**	A217 **C12**	**1.7389**	**C1**	Mild corrosive or erosive applications as well as non-corrosive applications especially high temperature erosive refinery service from -30°C to +650°C
	A182 **F91**	**1.4903**	**91**	A217 **C12A**	**1.4903**	**C2**	Mild corrosive or erosive applications as well as non-corrosive applications especially high pressure steam from -30°C to +650°C

Table given as an indication and without obligation on our part.

CODIFICATION

MATERIAL TABLES

Stainless Steel

Type	Casting ASTM	Casting EN	Codification	Forging ASTM	Forging EN	Codification	Application
Generic	Generic **SS**	-	**SS**	Generic **SS**		**SS**	Standard Generic Designation
304	A351 **CF8**	**1.4308**	**C8**	A182 **F304**	**1.4301**	**34**	Corrosive or high temperature non-corrosive services from -268°C to +649°C. Above +425°C specify carbon content of 0,04% or greater
304L	A351 **CF3**	**1.4309**	**C3**	A182 **F304L**	**1.4306**	**4L**	Corrosive or non-corrosive services up to +425°C.
316 **Manufacturing Standard**	A351 **CF8M**	**1.4408**	**8M**	A182 **F316**	**1.4401**	**36**	Corrosive or either extremely low or high temperature non-corrosive services from -268°C to +649°C. Above +425°C specify carbon content of 0,04% or greater
316L	A351 **CF3M**	**1.4404**	**3M**	A182 **F316L**	**1.4404**	**6L**	Acetic acid, calcium carbonate, calcium lactate, potable water, sea water, steam, sulfites Corrosive or high temperature non-corrosive services from -268°C to +649°C. Above +425°C specify carbon content of 0,04% or greater
321	-		**-**	A182 **F321**	**1.4541**	**32**	Corrosive or high temperature non-corrosive services up to +540°C
310	A351 **CK-20**	**1.4843**	**41**	A182 **F310H**	**1.4841**	**31**	For High Temperature butterfly valves BUV320 : 450°<T<750°

Ferritic-Austenitic Stainless Steel

Type	Casting ASTM	Casting EN	Codification	Forging ASTM	Forging EN	Codification	Application
904L	—	—	—	904L/**UB6**	**1.4539**	**U6**	**Uranius B6**
F51	**A890-CD3MN**	**1.4470**	**DU**	A182 **F51**	**1.4462**	**51**	**Duplex 2205 / Uranius 45N** Low Salt Aggression (Sea Water) Max. temp. 315°
F53	**A890-CE3MN**	**1.4469**	**D2**	A 182 **F53**	**1.4410**	**53**	**Super Duplex F53** High Salt Agression (Sea Water)
F55	**A995-6A**		**DF**	A 182 **F55**	**1.4501**	**55**	**Super Duplex F55** High Salt Agression (Sea Water)

Nickel Alloy

Type	Casting ASTM	Casting EN	Codification	Forging ASTM	Codification	Application
Monel 400	**A494 M35-1**	**2.4360**	**M4**	**N04400**	**N4**	If requested by customer
Monel 500	**-**	**2.4375**	**M5**	**N05500**	**N5**	
Inconel 600	**A494 CY40**	**2.4816**	**I0**	**N06600**	**N6**	
Inconel 625	**A494 CW-6MC**	**2.4856**	**I5**	**N06625**	**N7**	
Hastelloy C-276	**A494 CW-2M**	**2.4819**	**H2**	**N10276**	**N1**	

	DIN	ASTM	Codification	Application
Bronze	CuSn5Zn5Pb5-C Cun5Zn5Pb5-B	**B62** C83600 **B30** C83600	**B3** **B6**	Water, oil or gas : excellent for brine and seawater applications from -10ºC to 260ºC

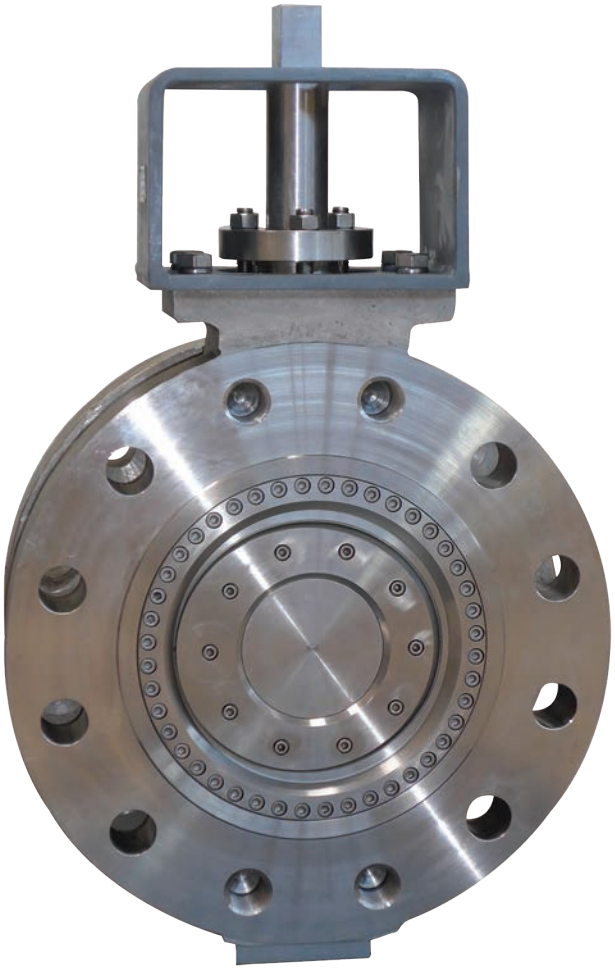
Table given as an indication and without obligation on our part.

CODIFICATION

DN - PN

DN	Size	Code
50	2"	0050
80	3"	0080
100	4"	0100
125	5"	0125
150	6"	0150
200	8"	0200
250	10"	0250
300	12"	0300
350	14"	0350
400	16"	0400
500	20"	0500
600	24"	0600
700	28"	0700
800	32"	0800
900	36"	0900
1000	40"	1000
1050	42"	1050
1100	44"	1100
1200	48"	1200
1300	52"	1300
1400	56"	1400
1500	60"	1500
1600	64"	1600
1700	68"	1700
1800	72"	1800
1900	76"	1900
2000	80"	2000
2200	88"	2200
2500	100"	2500
3000	120"	3000
3200	128"	3200
3500	140"	3500
4000	160"	4000
4500	180"	4500
5000	200"	5000

PN	CODE	Class	Code
PN6	006		
PN10	010		
PN16	016		
PN25	025	CL150	C01
PN40	040		
PN50	-	CL300	C03
PN64	064		
PN100	100	CL600	C06
PN160	160	CL900	C09
PN250	250	CL1500	C15



Material Sealing

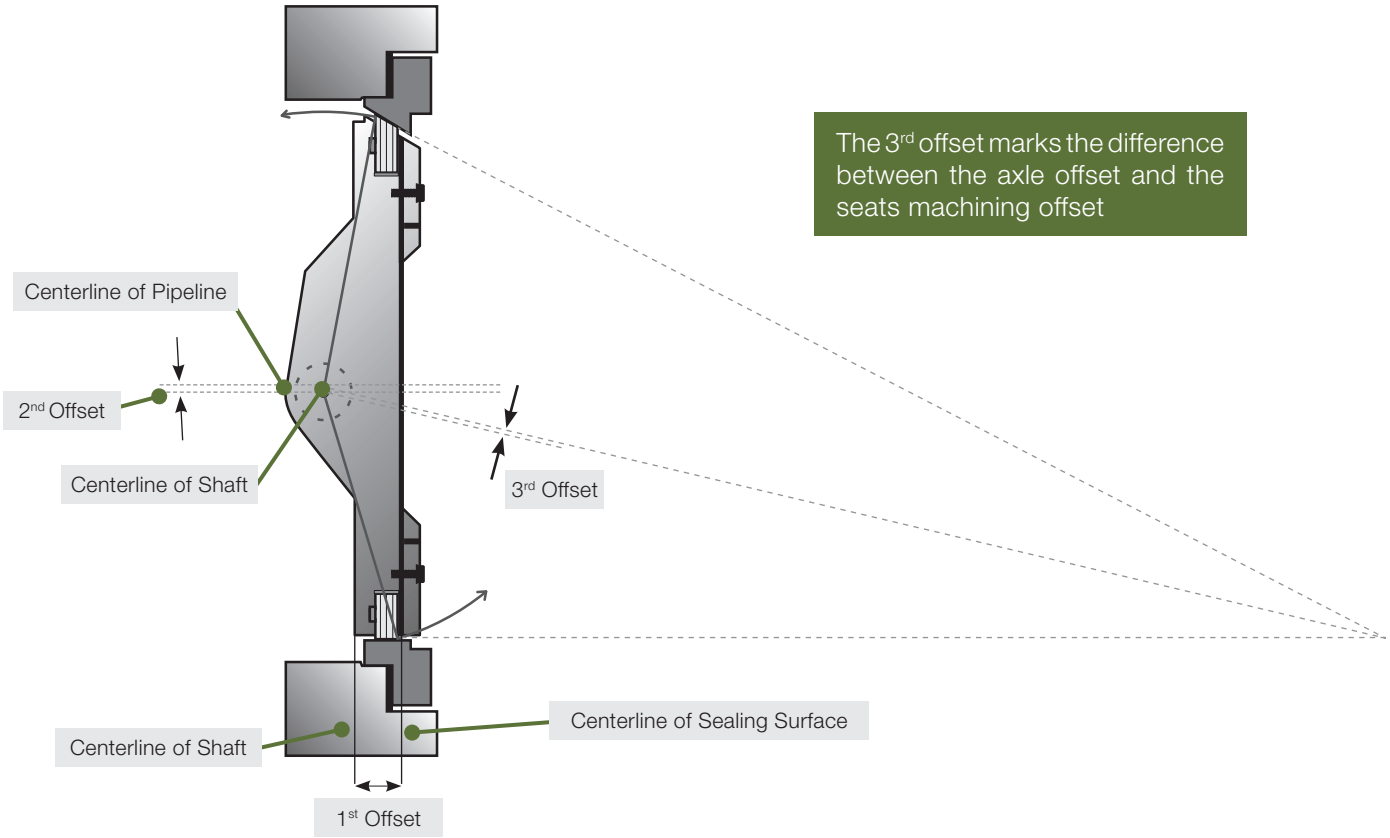
Sealings	Codification
Lamelar (Graphite + SS)	LA
Metal Seat	MS
Knife Metal Seat	KS

Table given as an indication and without obligation on our part.

Triple Offset explanation

On the triple-offset design, the shaft offsets from the centerline of sealing surface to form the 1st offset; the shaft offsets from centerline of pipeline to form the 2nd offset; and the scalene cone form the 3rd offset. This design can make effectively use of cam effect, and completely eliminate the friction between the seat and sealing surface in the 90° travel, preventing the valve from leakage caused by the abrasion of the sealing face, and extending time between maintenance.

Robvalve company developed an high end, high performance, state of the art, triple offset butterfly valve which is uniquewith its caracteristics : the Suprax®.
Thisvalve features many advantages compared to products available on the market. One of these advantages is the interchangeable seat giving the valve a longer lifetime and a possibility of maintenance. Twin shafts and disc inner cavity allows better flow performances.



The 3rd offset marks the difference between the axle offset and the seats machining offset

The triple-offset metal-seated butterfly valves play an important and indispensable role in petrochemical, LNG, coal chemical, nuclear power, thermal power and various other fields. It occupies the high-end market of valves due to its inherent characteristic of wide range of sizes, pressure, medium and temperature, low torque, compact design, easy installation and operation, bi-directional tight shut off and long life cycle.

Design

On/off valve

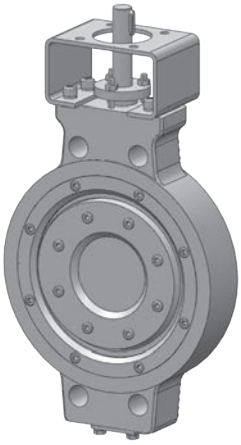
- Bidirectional zero leakage according to API 598
- No retention area
- Fire safe according to API standards
- Low torque values (reduced actuator size)
- High flow coefficient (Kv, CV)

Regulation valve

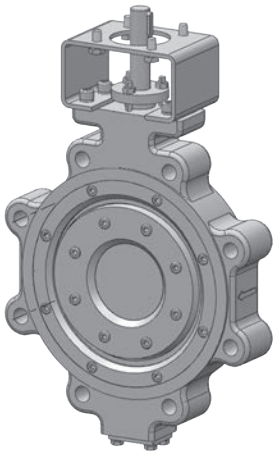
- Important regulation coefficient.
- Characteristic of exponential flow (equal percentage) and linear between 60 and 80 opening degrees.
- Possibility of flow regulation from the first degree of opening.

Basic Parameters

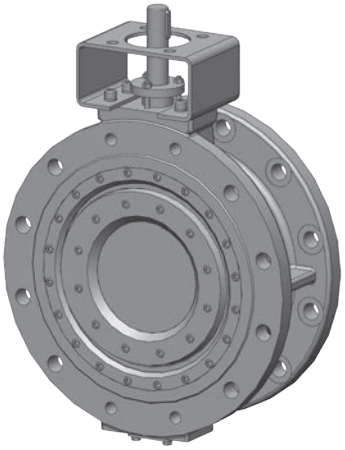
Size range : 3" ~ 160" (DN 80 ~ DN 4000) (Note : including all the listed pressure class). Bigger size on request.
Pressure class : Class 150 ~ Class 1500; PN25 ~ PN260
Vacuum : 0.05 bars (abs.) / 37.5 Torr (abs.)
Connection type : wafer, lug, double flanged, butt-welded
Working temperature : -196˚C ~ +750˚C (-321°F ~ +1202°F). Higher temperature on request.
Actuation : gearbox, electric, pneumatic
Application : pressure range from vacuum to high pressure, cryogenic to ultra-high temperature. The valves are tightness Class VI and fire safe by default.



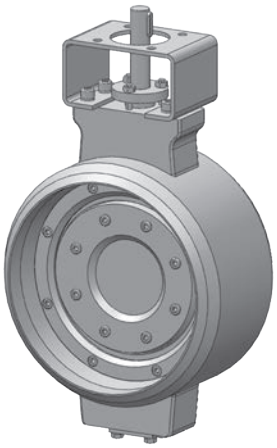
Wafer



Lug



Double Flanged



Butt-Welded

Industrial Applications

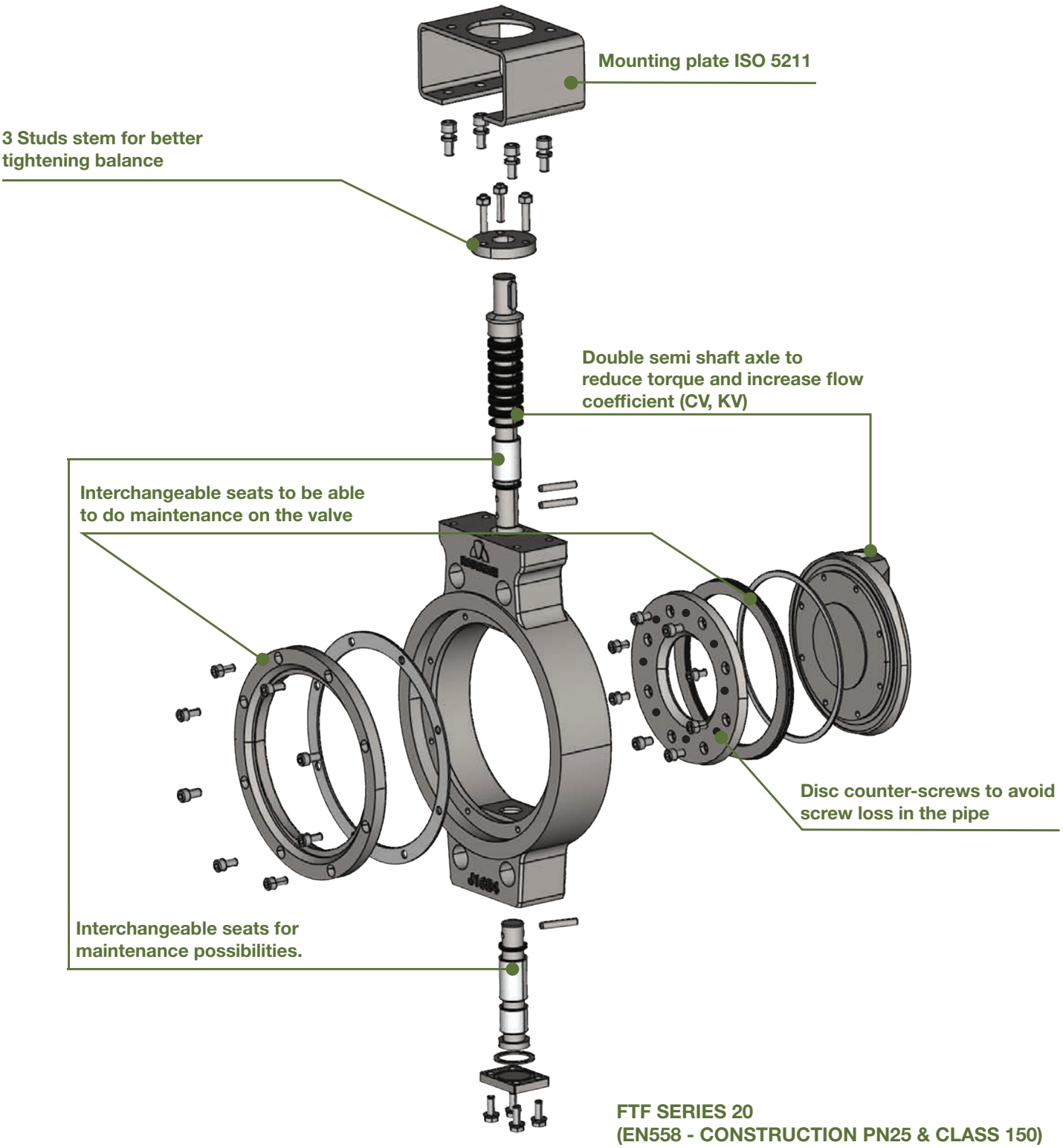
Triple-offset metal-seated butterfly valve depend on its excellent character, mainly applied to the following industries :

- LNG storage & transport
- District heating
- Petroleum & natural gas processing
- Paper manufacturing
- Marine drilling platform
- Metallurgy
- Refinery
- Steam (satured & overheating)
- Chemical & petrochemical industry
- Power plant
- Energy
- Desalination

Standards & Specifications

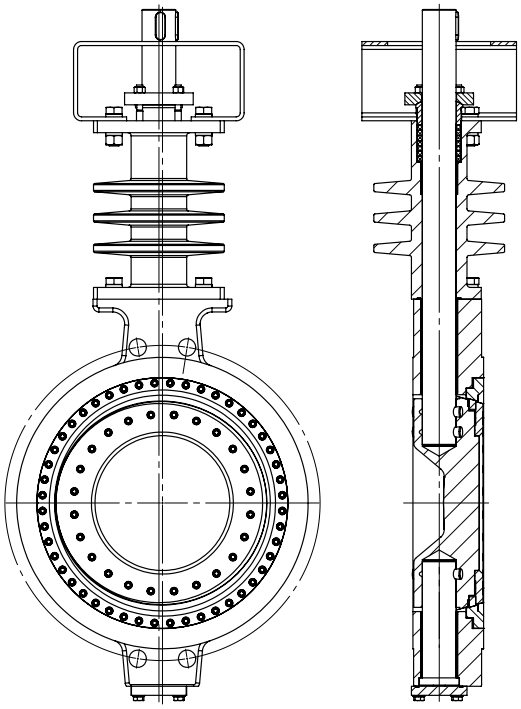
Design and manufacture standard : API 609, MSS SP-68, BS EN 593, EN 12569
Temperature and pressure rate conform to : ASME B16.34, EN12516.1
Low temperature standard : BS 6364, MSS SP-134
Top flange conform to : BS EN ISO 5211
Connection flange conform to : ASME B16.5, ASME B16.47, ISO 7005, EN 1092
Face to face conform to : API 609, MSS SP-68, ISO 5752, EN 558
Inspection and testing standard conform to : API 598, ISO 5208, EN 12266-1:2012, ANSI/FCI 70-2
Fire safe test conform to : BS EN ISO 10497, API607, API F6A
Valve mark conform to : MSS SP-25, EN 19:2002
Dissipation discharge test : API 622, API 624, ISO/CD 15848, EPA Method 21

Advantages & Features



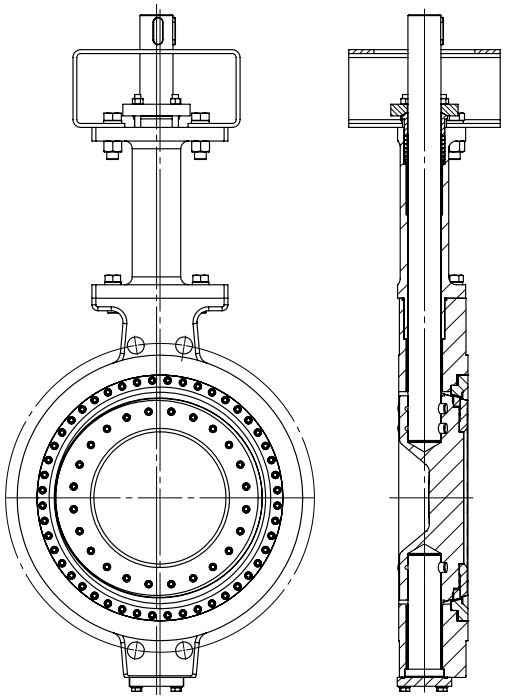
FTF SERIES 20
(EN558 - CONSTRUCTION PN25 & CLASS 150)

High & Low Temperature Metal-seated Butterfly Valve



High Temperature Features and Application Range

- Suitable for temperature up to 750˚C. Higher temperature is doable but should be studied case by case.
- Customized for compensation of valve components thermal expansion to withstand the material thermal creep when the working temperature is more than 600˚C.
- Extended bonnet helps to keep packing operating temperature at the normal level, which greatly reduce the risk of fluid improper divergence.
- The actuator is protected from the high temperature.
- High temperature valves are widely used in oil, gas processing, electric, chemical industries, and hot gas/ steam related industries.



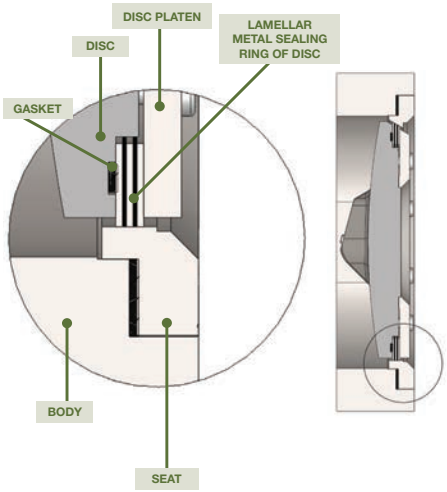
Low Temperature Features and Application Range

- Metal sealing is not affected by low temperature. Under low temperature or room temperature, the valves have the same performance and operating torque.
- The valves use extended bonnets to keep the packing away from low temperature area.
- Low temperature testing standard: BS 6364, MSS SP-134; dissipation discharge testing standard : API 622, API 624, ISO/CD 15848, EPA Method 21
- Widely used in low temperature media, such as LNG, liquid nitrogen, liquid oxygen, for other fluids, please contact us

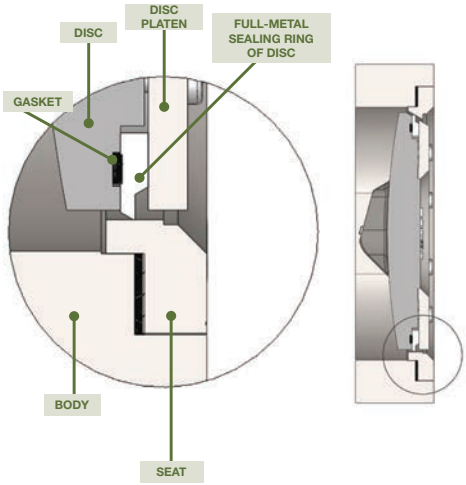
Sealing Form & Principle

For the triple-eccentric metal-seated butterfly valves, customers can select different kinds of disc sealing rings for different working conditions. By default we install a lamellar seal: stainless steel / graphite. For more extreme uses, it is possible to install a stainless steel full metal seal.
Finally, we can install a "knife" full metal seal in case of powder, resin or polymerization risk in the process.
There are three main types of sealing rings : the lamellar metal seal Class VI, the full metal standard seal Class V, and knife full metal seal Class VI. All our sealing rings are fire safe.

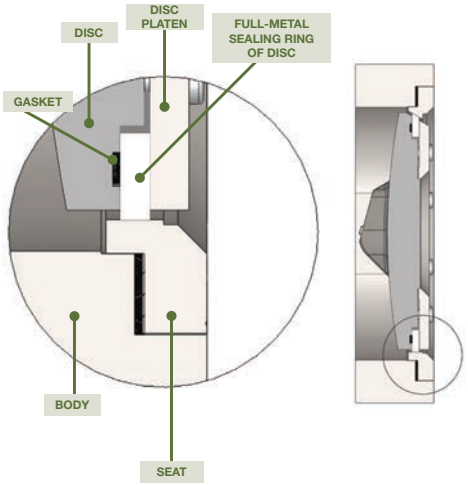
Lamellar metal seal



Knife metal seal



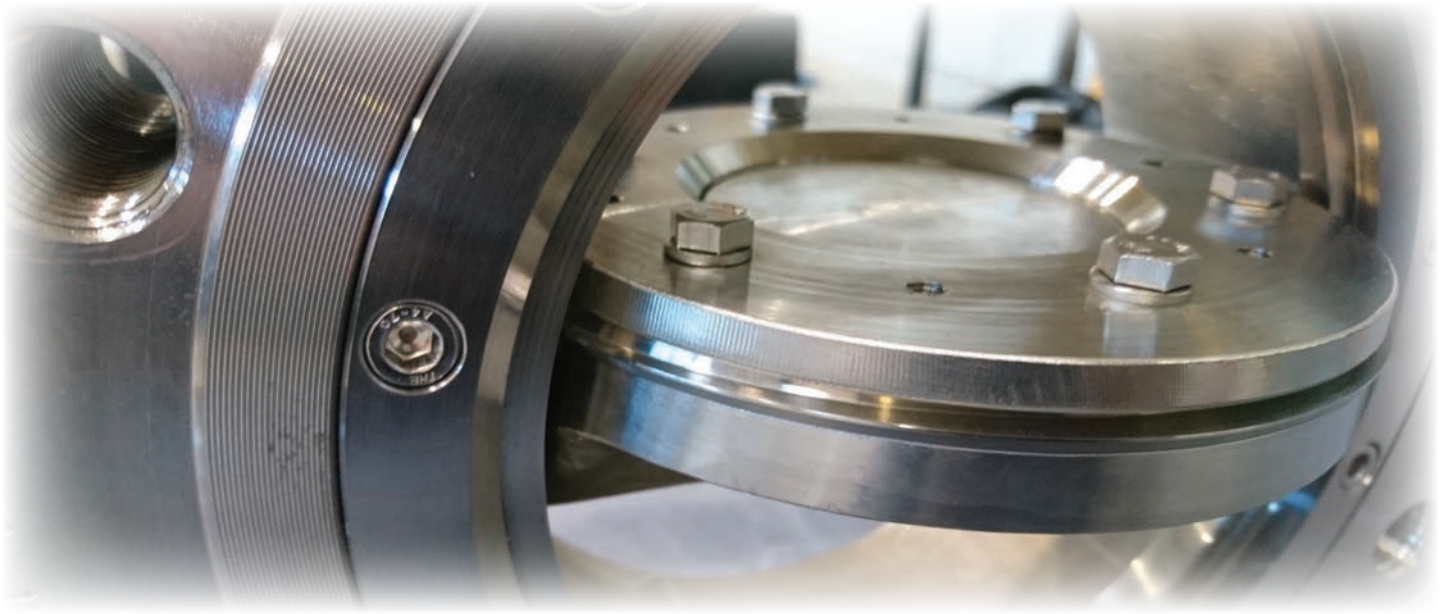
Full metal seal



Option : Stainless steel seal with very narrow range (called "knife") for cryogenics, fluids that cure, which clog ...
This "knife" joint minimizes the risk of interposition of solid particles during closure.

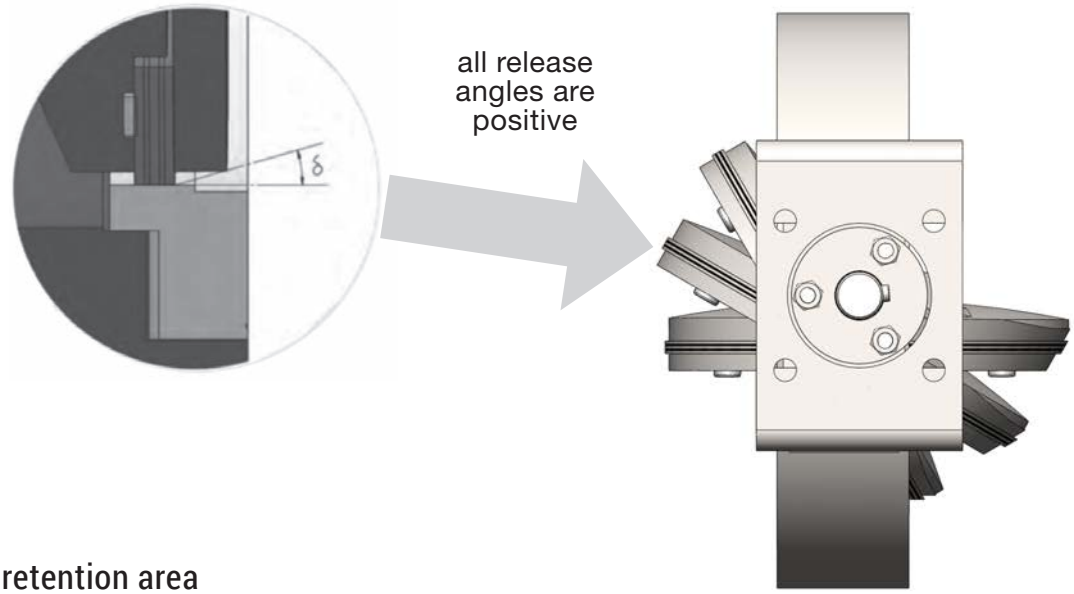
Sealing Principle

The shape of sealing ring and surface is like a cone.
Perfect contact between the sealing ring and the sealing surface of the seat enable tight sealing when the valve is closed.
Suprax seals, of body and disc, are interchangeable, which allows better maintenance possibility and therefore a longer lifetime.



Design Features

NO FRICTION = NO WEAR = LONGEVITY OF USE

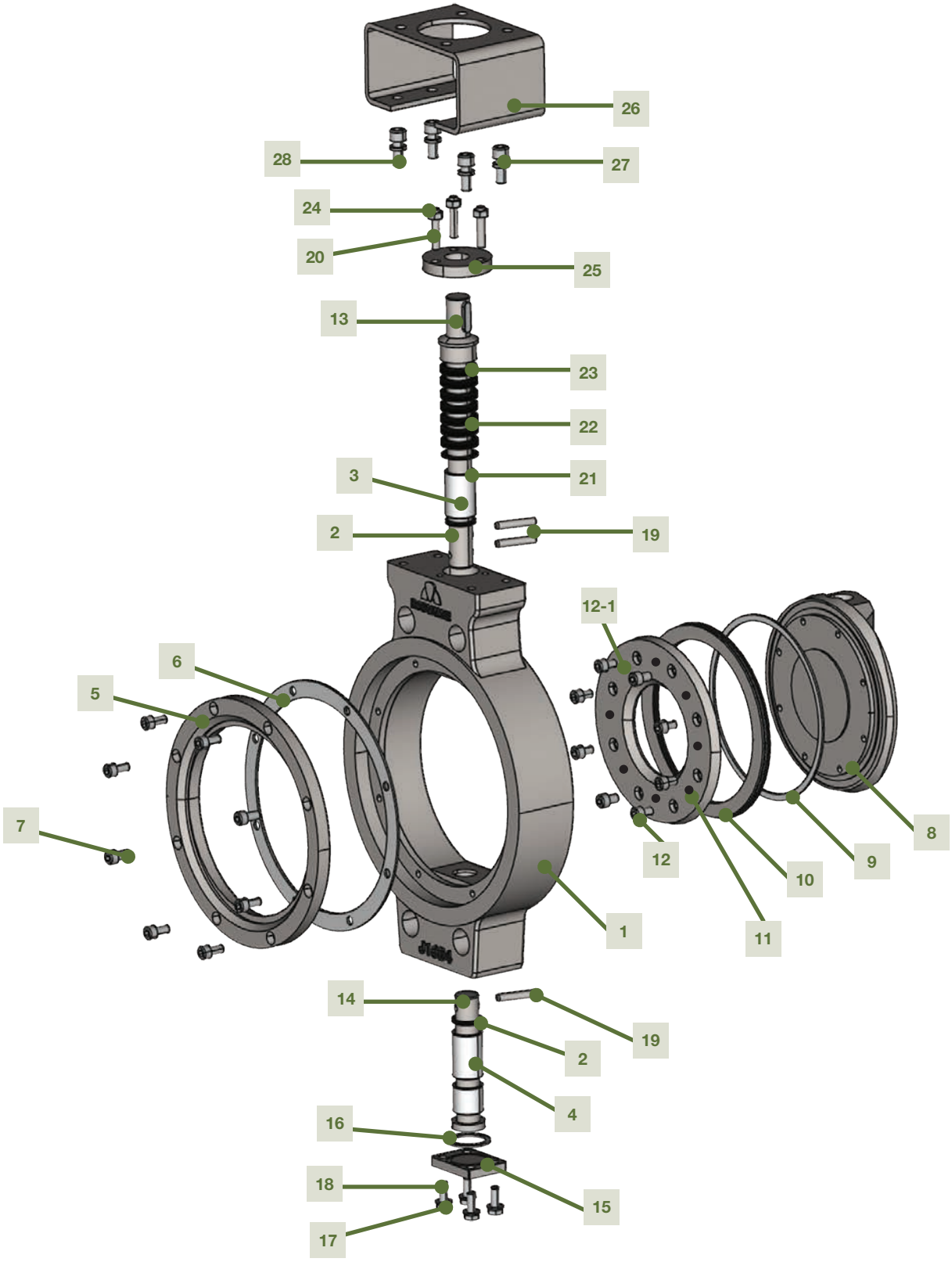


- No retention area
- No friction resistance during the opening due to the gasket/seat friction
- Possibility of flow regulation from the first degree of opening.
- No jamming risk.

Advantages

- The disc separates from the body-sealing ring completely and immediately, and all release angles are positive angle, this avoids the friction between sealing surface and body sealing ring.
- The jamming risk is eliminated. It is no more necessary to use the ring's distortion to obtain the metal to metal sealing.
- The mechanical stop is directly ensured at the seat's contact (no risk of unsetting of the closed position). Mechanical stop is no more necessary.
- All contact points of the disc ring quit seat surface, at the same time, from the first degree of opening :
- The triple offset butterfly valve is the lighter metal to metal valve technology.
  Compared to ball valve, gate valve, globe valve.
- Optimized disc/shaft design ensure an important flow coefficient (low head loss).
- Internal protection ring bushing, prevents any particles to get inside.
- Fire safe construction (BS 6755 part 2, API607).
- Mounting plate ISO 5211

Parts & Materials



COMPONENTS

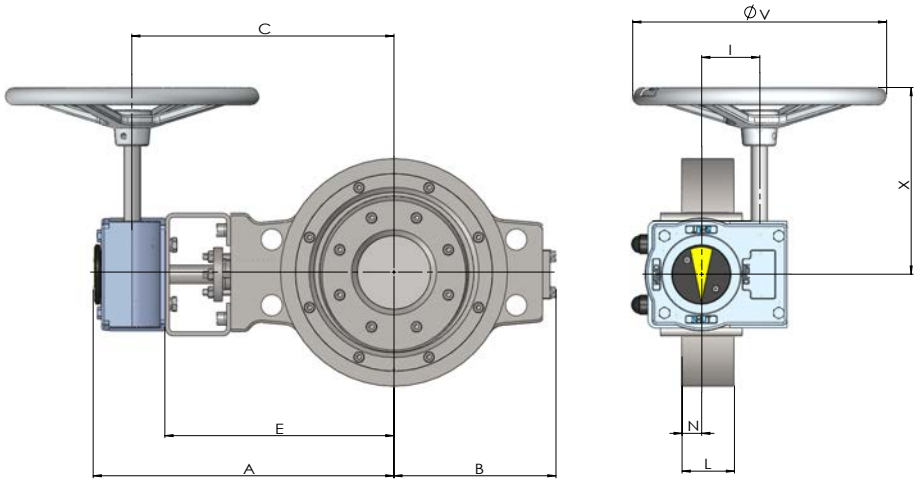
ROBVALVE

No.	Designation	Standard Materials			
		- 200 à + 450°C Stainless Steel	**- 20 à 250°C** Carbon Steel	**250 à 450°C** High temp. Carbon Steel	**450 à 750°C** High temp. Stainless Steel
1	Body	**Group 2** AISI 316	**Group 1** A216 WCB	**Group 1** A216 WCB	**Group 3** AISI 310
2	Protection	graphite	PTFE	graphite	graphite
3	Bushing	AISI 316 treated	AISI 316 treated	AISI 316 treated	Ni-Resistant iron
4	Bushing Stop	AISI 316 treated	AISI 316 treated	AISI 316 treated	Ni-Resistant iron
5	Seat	**316, 316 Hard faced or Duplex**			
6	Seat Seal	graphite	PTFE	graphite	graphite
7	Seat Screw	AISI 316	Cl 8.8	Cl 8.8	AISI 310
8	Butterfly	**Groupe 2** AISI 316	**Groupe 1** A216 WCB	**Groupe 1** A216 WCB	**Groupe 3** AISI 310
9	Butterfly Seal	graphite	PTFE	graphite	graphite
10	Butterfly rings	**Lamellar** : 304, 316, 310 or Duplex + graphite **/ Solid** : 304, 316 or 310 **/ Knife** : 304, 316, 310 or Duplex			
11	Counter Seal	AISI 304 / 316	Carbon Steel	High Temp. Carbon Steel AISI 310	AISI 310
12	Screw	AISI 316	Cl 8.8	Cl 8.8	AISI 310
12-1	Counter screw	PN 25 and 50 bars --> counter screw up to DN600 included / PN100 until DN300 Included.			
13	Upper Shaft	**Groupe 5** AISI 630	**Groupe 4** AISI 420	**Groupe 4** AISI 420	**Group 6** EN 1.4944
14	Lower Shaft	AISI 316	Z 20 C 13	Z 20 C 13	AISI 310
15	Cover	AISI 316	S235JR	A 42 CP	AISI 310
16	Cover Seal	graphite	PTFE	graphite	graphite
17	Cover Screw	AISI 316	Cl 8.8	Cl 8.8	AISI 310
18	Cover Washer	inox	inox	inox	inox
19	Pin	**Groupe 5** AISI 630	**Groupe 4** AISI 420	**Groupe 4** AISI 420	**Group 6** EN 1.4944
20	Stem Stud	AISI 316	Cl 8.8	Cl 8.8	AISI 310
21	Stem Lower Washer	inox	inox	inox	inox
22	Stem Trim	graphite	PTFE	graphite	graphite
23	Stem Gland	AISI 316	AISI 304	AISI 304	AISI 310
24	Stem Nut	AISI 316	Cl 8.8	Cl 8.8	AISI 310
25	Stem Flange	AISI 316	AISI 304	AISI 304	AISI 310
26	Adaptation Top	Steel	Steel	Steel	AISI 310
27	Top Screws	316	Cl 8.8	Cl 8.8	AISI 310
28	Top Washers	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel

	Class150, Class300 & Class600				**PN16, PN25, PN40 & PN63**				
	American Norms				**EN Norms**				**Trade Name**
	ASTM			**AISI**	**Laminated - Barre - Forged**		**Casted**		
Group of Material	**Laminated**	**Forged**	**Casted**		**Symb**	**Num.**	**Symb**	**Num**	
Group 1	-	-	A216 WCB		-	-	GP240GH	1.0619	
	A662 grA				P355GH	1.0553	-	-	
Group 2	A240 304	A182 F304	A351 CF8	304	X5CrNi18-10	1.4301	GX5CrNi19-10	1.4308	
	A240 304L	A182 F304L	A351 CF3	304L	X2CrNi19-11	1.4306	GX2CrNi19-11	1.4309	
	A240 316	A182 F316	A351 CF8M	316	X5CrNiMo17-12-2	1.4401	GX5CrNiMo19-11-2	1.4408	
	A240 316L	A182 F316L	A351 CF3M	316L	X2CrNiMo17-12-2	1.4404	GX2CrNiMo19-11-2	1.4409	
Group 3	A240 310			310	X12CrNi25-20	1.4845			
Group 4				420	X20Cr13	1.4014			X13D
Group 5				630	X5CrNiCuNb16-04	1.4542			17-4 PH / X17U4
Group 6					X6NiCrTiMoVB26-15	1.4944			Z6NCT25 XN26TW

DIMENSIONS

BUV 3 - Wafer Type - 25 Bars

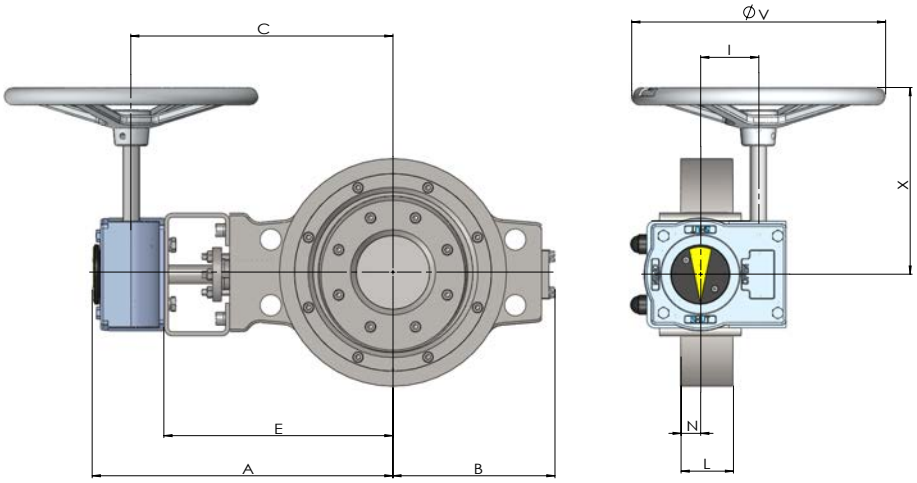


Face to Face Standard : API 609 / ISO 5752 20 series
25 Bars Body Construction : ASME B16.5, ASME B16.47, ISO 7005
Flange Drilling Standard : Connections PN16 or PN25 or Class 150

Size		Flange Type ISO	Dimensions (mm)									Bare Shaft Weight
DN	Inch		A	B	C	E	I	L	N	V	X	
80	3	F05	210	113	191	172	50	46	20	150	130	7.3
100	4	F05	231	136	213	194	50	52	21	150	130	9.3
150	6	F07	304	166	279	254	60	56	21	200	150	18.2
200	8	F10	355	200	318	280	65	61	21	300	190	29
250	10	F12	385	235	348	310	65	69	24	300	190	43
300	12	F14	445	272	395	345	80	79	27	400	250	64
350	14	F14	479	301	429	379	80	92	33	400	250	88
400	16	F16	582	336	519	457	105	103	37	500	300	123
450	18	F16	608	368	545	483	105	115	43	500	300	163
500	20	F25	660	403	610	560	120	128	46	400	300	228
600	24	F30	721	470	671	621	120	155	55	400	300	358
700	28	F30	798	560	748	698	120	167	58	400	350	535
800	32	F35	928	640	878	828	120	192	64	400	350	760
900	36	F35	1005	725	955	905	120	205	70	400	400	1014
1000	40	F40	1091	790	1041	991	120	219	78	400	400	1330
1200	48	F48	1305	930	1243	1180	130	257	92	500	450	2170
1300	52	F48	1414	1010	1350	1280	140	270	100	500	450	3 120
1400	56	F48	1650	1180	1570	1490	160	280	115	500	450	3 760
1500	60	F48	2060	1470	1960	1860	200	300	145	500	500	4 480
1600	64	F60	2750	1960	2610	2480	250	320	190	500	500	-

Note : Weight just for reference. If you need other size not listed in the table, please contact us.

BUV 3 - Wafer Type - 50 Bars



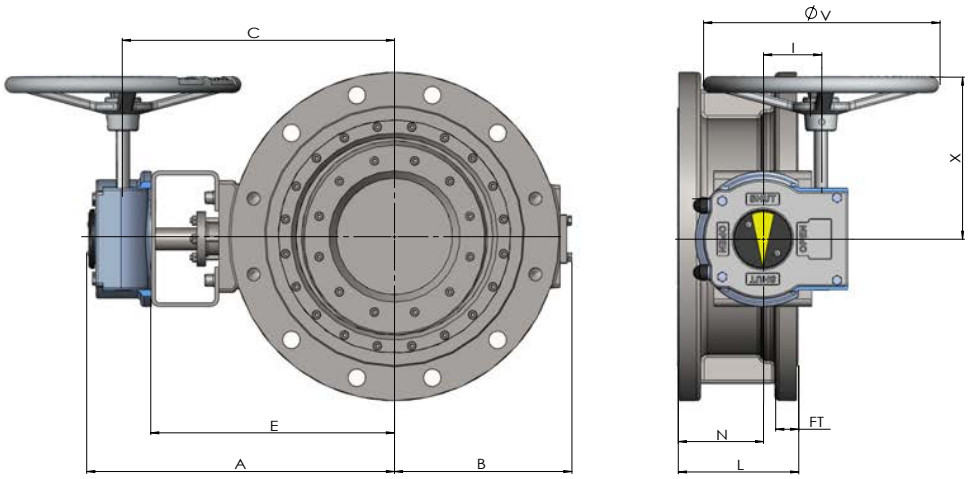
Face to Face Standard : ISO 5752 16 series
50 Bars Body Construction : ASME B16.5, ASME B16.47, ISO 7005
Flange Drilling Standard : Connections PN40 or Class 300

Size		Flange Type ISO	Dimensions (mm)									Bare Shaft Weight (Kg)
DN	Inch		A	B	C	E	I	L	N	V	X	
80	3	F05	200	119	219	200	50	64	21	150	130	9,47
100	4	F07	225	143	244	225	50	64	21	150	130	15,5
150	6	F12	290	175	320	295	60	76	21	200	150	30
200	8	F14	400	210	363	325	65	89	21	300	190	48
250	10	F14	435	247	398	360	65	114	26	300	190	79
300	12	F16	500	286	450	400	80	114	32	400	250	110
350	14	F25	540	317	490	440	80	127	37	400	250	165
400	16	F25	655	354	593	530	105	140	42	500	300	230
450	18	F30	685	387	623	560	105	152	47	500	300	264
500	20	F30	750	424	700	650	120	152	53	400	300	325
600	24	F35	820	493	770	720	120	178	55	400	300	529
700	28	F35	1 095	770	1 020	950	150	229	58	400	350	760
800	32	F40	1 165	800	1 100	1 040	150	241	64	400	350	1 090
900	36	F48	1 180	850	1 120	1 060	150	241	70	400	400	1 500
1000	40	F48	1 495	1 080	1 420	1 360	150	300	78	400	400	1 850
1200	48	F48	1 780	1 270	1 690	1 610	180	350	92	500	450	2 700
1300	52	F60	1 940	1 380	1 850	1 750	190	370	100	500	450	3 850
1400	56	F60	2 300	1 640	2 190	2 070	220	390	115	500	450	4 620
1500	60	F60	2 850	2 030	2 710	2 570	250	415	145	500	500	5 500
1600	64	F60	3 780	2 700	3 590	3 410	300	440	190	500	500	-

Note : Weight just for reference. If you need other size not listed in the table, please contact us.

DIMENSIONS

BUV3 - Flanged Type - 25 Bars

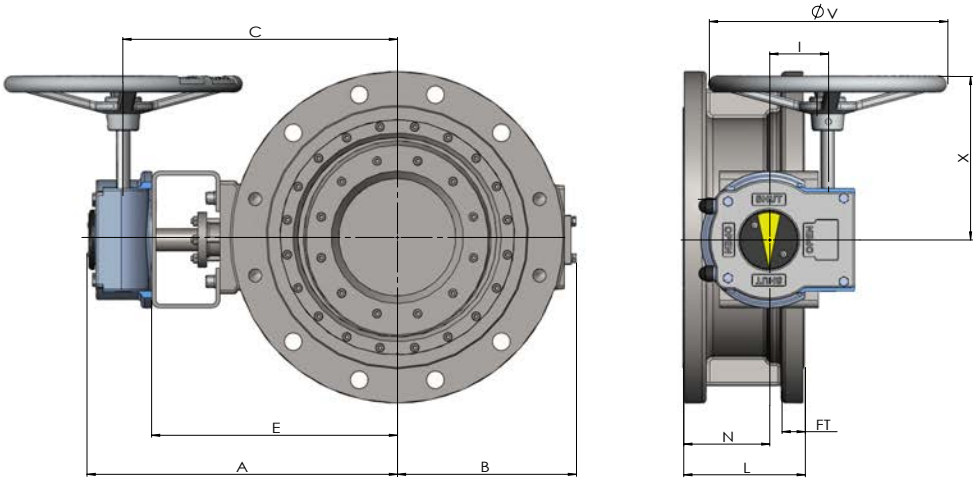


Face to Face Standard : ISO 5752 13 series (L1 standard) or 14 series (L2 option)
25 Bars Body Construction : ASME B16.5, ASME B16.47, ISO 7005
Flange Drilling Standard : Connections PN16 or PN25 or Class 150

Size		Flange Type ISO	Dimension (mm)											Bare Shaft Weight (Kg)
DN	Inch		A	B	C	E	FT	I	L1	L2	N	V	X	
80	3	F05	210	113	191	172	28	50	114	180	88	150	130	15.3
100	4	F05	231	136	213	194	32	50	127	190	96	150	130	21
150	6	F07	304	166	279	254	37	60	140	210	105	200	150	33
200	8	F10	355	200	318	280	41	65	152	230	112	300	190	53
250	10	F12	385	235	348	310	48	65	165	250	120	300	190	78
300	12	F14	445	272	395	345	51	80	178	270	126	400	250	113
350	14	F14	479	301	429	379	54	80	190	290	131	400	250	154
400	16	F16	582	336	519	457	57	105	216	310	150	500	300	204
450	18	F16	608	368	545	483	61	105	222	330	150	500	300	242
500	20	F25	660	403	610	560	64	120	229	350	147	400	300	326
600	24	F30	721	470	671	621	70	120	267	390	167	400	300	484
700	28	F30	798	560	748	698	90	120	292	430	183	400	350	758
800	32	F35	928	640	878	828	100	120	318	470	190	400	350	1069
900	36	F35	1005	725	955	905	111	120	330	510	195	400	400	1390
1000	40	F40	1091	790	1041	991	114	120	410	550	269	400	400	1850
1200	48	F48	1305	930	1243	1180	133	130	470	630	305	500	450	2940
1300	52	F48	1414	1010	1350	1280	144	140	500	670		500	450	3660
1400	56	F48	1650	1180	1570	1490	154	160	530	710		500	450	4300
1500	60	F48	2060	1470	1960	1860	159	200	565	750		500	500	5200
1600	64	F60	2750	1960	2610	2480	164	250	600	790		500	500	

Note : Weight just for reference. If you need other size not listed in the table, please contact us.

BUV3 - Flanged Type - 50 Bars



Face to Face Standard : ISO 5752 13 series (L1 standard) or 14 series (L2 option)
50 Bars Body Construction : ASME B16.5, ASME B16.47, ISO 7005
Flange Drilling Standard : Connections PN40 or Class 300

Dimensions		Flange Type ISO	Dimension (mm)											Bare Shaft Weight (Kg)
DN	Inch		A	B	C	E	FT	I	L1	L2	N	V	X	
80	3	F05	200	119	219	200	28	50	114	180	88	150	130	18.2
100	4	F07	225	143	244	225	32	50	127	190	96	150	130	31
150	6	F12	290	175	320	295	37	60	140	210	105	200	150	55
200	8	F14	400	210	363	325	41	65	152	230	112	300	190	82
250	10	F14	435	247	398	360	48	65	165	250	120	300	190	125
300	12	F16	500	286	450	400	51	80	178	270	126	400	250	180
350	14	F25	540	317	490	440	54	80	190	290	131	400	250	250
400	16	F25	655	354	593	530	57	105	216	310	150	500	300	330
450	18	F30	685	387	623	560	61	105	222	330	150	500	300	400
500	20	F30	750	424	700	650	64	120	229	350	147	400	300	505
600	24	F35	820	493	770	720	70	120	267	390	167	400	300	785
700	28	F35	1 095	770	1 020	950	90	150	292	430	183	400	350	1 130
800	32	F40	1 165	800	1 100	1 040	100	150	318	470	190	400	350	1 575
900	36	F48	1 180	850	1 120	1 060	111	150	330	510	195	400	400	2 350
1000	40	F48	1 495	1 080	1 420	1 360	114	150	410	550	269	400	400	2 300
1200	48	F48	1 780	1 270	1 690	1 610	133	180	470	630	305	500	450	5 200
1300	52	F60	1 940	1 380	1 850	1 750	144	190	500	670		500	450	6 250
1400	56	F60	2 300	1 640	2 190	2 070	154	220	530	710		500	450	7 000
1500	60	F60	2 850	2 030	2 710	2 570	159	250	565	750		500	500	8 000
1600	64	F60	3 780	2 700	3 590	3 410	164	300	600	790		500	500	

Note : Weight just for reference. If you need other size not listed in the table, please contact us.

DIMENSIONS

BUV3 - Flanged Type 100 Bars

Face to Face Standard : ISO 5752 14 series
100 Bars Body Construction : ASME B16.5, ASME B16.47, ISO 7005
Flange Drilling Standard : Connections PN63 or Class 600

Size			Dimensions (mm)									
DN	Inch	Flange Type ISO	A	B	C	E	FT	I	L	N	V	X
80	3	F05	240	145	265	240	32	60	180	36	180	155
100	4	F05	270	172	295	270	38	60	190	30	180	155
150	6	F07	350	210	385	355	48	72	210	32	240	180
200	8	F10	480	250	435	390	56	78	230	38	360	230
250	10	F12	522	295	475	430	64	78	250	46	360	230
300	12	F14	600	345	540	480	67	96	270	60	480	300
350	14	F14	820	390	710	620	70	105	290	70	500	370
400	16	F16	930	435	880	700	76	140	310	80	600	450
450	18	F16	980	480	930	83	83	140	330	90	600	535
500	20	F25	1140	525	1000	89	89	140	350	100	700	625
600	24	F30	1170	620	1100	885	102	210	390	120	700	675
700	28	F35	1 365	720	1 290	1 030	120	245	430	215	800	790
800	32	F40	1 560	830	1 470	1 180	135	280	470	235	800	900
900	36	F48	1 755	930	1 650	1 330	150	315	510	255	900	1000
1000	40	F48	1 950	1 030	1 830	1 470	170	350	550	275	900	1120
1200	48	F48	2 340	1 240	2 200	1 770	200	420	630	315	1000	1350

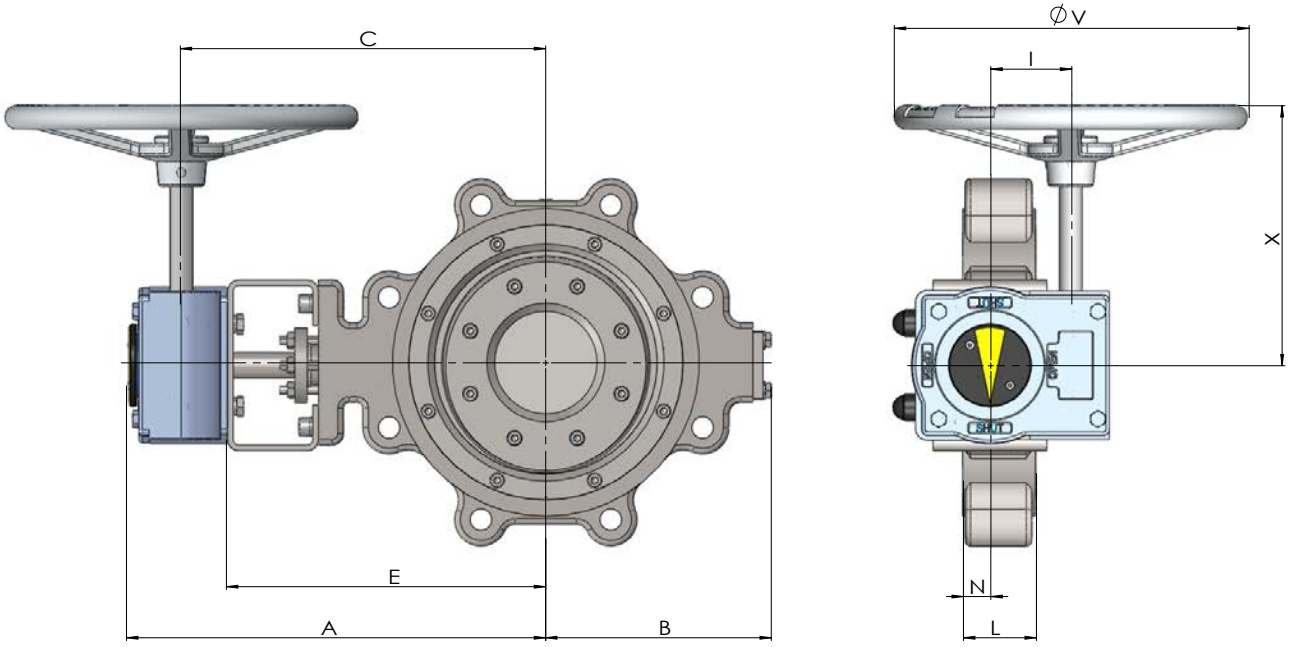
BUV3 - Flanged Type 160 Bars

Face to Face Standard : ISO 5752 3 series
160 Bars Body Construction : ASME B16.5, ASME B16.47, ISO 7005
Flange Drilling Standard : Connections Class 900

Size		Dimension (mm)		
DN	Inch	B	E	L
150	6	250	382	267
200	8	300	485	292
250	10	362	522	330
300	12	403	556	356
350	14	415	597	381
400	16	455	685	406
450	18	530	780	432
500	20	580	826	457
600	24	670	1000	508
700	28	800	1002	610
800	32	800	1002	660
900	36	950	1222	711
1000	40	1100	1400	813

Note : Weight just for reference. If you need other size not listed in the table, please contact us.

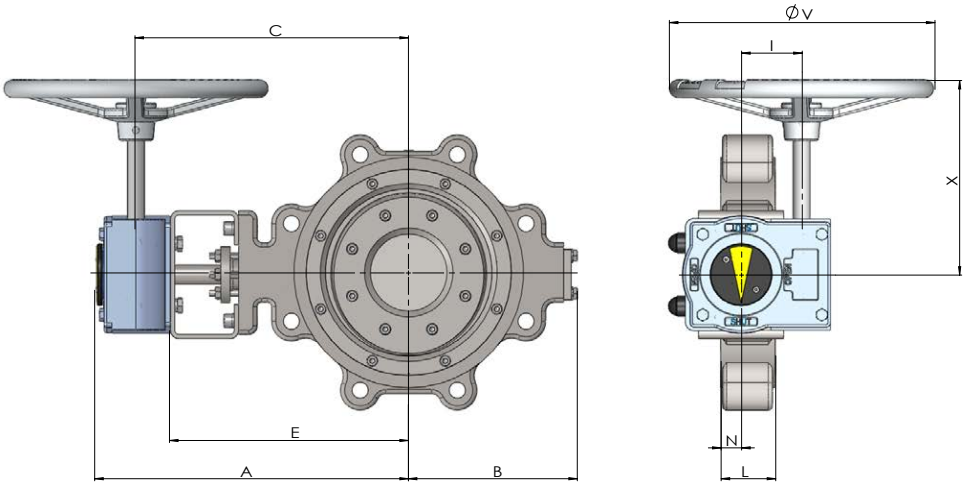
BUV3 - Lug Type - 16 and 25 Bars



		DN	A	B	C	E	I	L	N	V	X	Bare Shaft Weight (Kg)
CONSTRUCTION 16 BARS Connection : PN10 or PN16	ISO 5752 Série 20	700	798	538	748	698	120	167	58	400	350	
		800	928	614	878	828	120	192	64	400	350	
		900	1005	680	955	905	120	205	70	400	400	
		1000	1091	756	1041	991	120	219	78	400	400	
		1200	1305	912	1243	1180	130	257	92	500	450	
CONSTRUCTION 25 BARS Connection : PN10 or PN16 or Class150 or PN25		80	210	113	191	172	50	46	20	150	130	11
		100	231	136	213	194	50	52	21	150	130	17
		150	304	166	279	254	60	56	21	200	150	30
		200	355	200	318	280	65	61	0	300	190	44
		250	385	235	348	310	65	69	24	300	190	57
		300	445	272	395	345	80	79	27	400	250	97
		350	479	301	429	379	80	92	33	400	250	132
		400	582	336	519	457	105	103	37	500	300	198
		450	608	368	545	483	105	115	43	500	300	256
		500	660	403	610	560	120	128	46	400	300	331
		600	721	470	671	621	120	155	55	400	300	520
		700	798	560	748	698	120	167	58	400	350	
		800	928	640	878	828	120	192	64	400	350	
		900	1005	725	955	905	120	205	70	400	400	
		1000	1091	790	1041	991	120	219	78	400	400	
		1200	1305	930	1243	1180	130	257	92	500	450	

DIMENSIONS

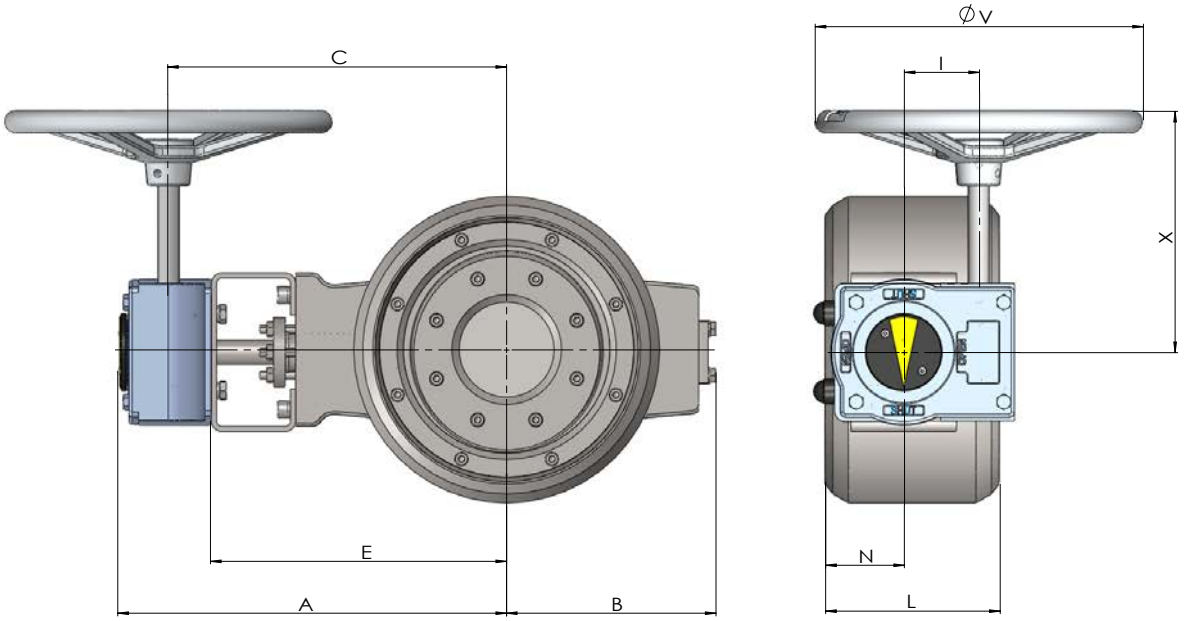
BUV3 - Lug Type - 50 and 100 Bars



		DN	A	B	B	C	E	I	L	N	V	V	X	Bare Shaft Weight (Kg)
CONSTRUCTION 50 BARS Connection : PN40 or Class300	ISO 5752 Série 16	80	200	119	119	219	200	50	64	21	150	150	130	17
		100	225	143	143	244	225	50	64	22	150	150	130	25
		150	290	175	175	320	295	60	76	21	200	200	150	45
		200	400	210	210	363	325	65	89	21	300	300	190	71
		250	435	247	247	398	360	65	114	26	300	300	190	121
		300	500	286	286	450	400	80	114	32	400	400	250	162
		350	540	317	317	490	440	80	127	37	400	400	250	227
		400	655	354	354	593	530	105	140	42	500	500	300	311
		450	685	387	387	623	560	105	152	47	500	500	300	392
		500	750	424	424	700	650	120	152	53	400	400	300	467
		600	820	493	493	770	720	120	178	63	400	400	300	753

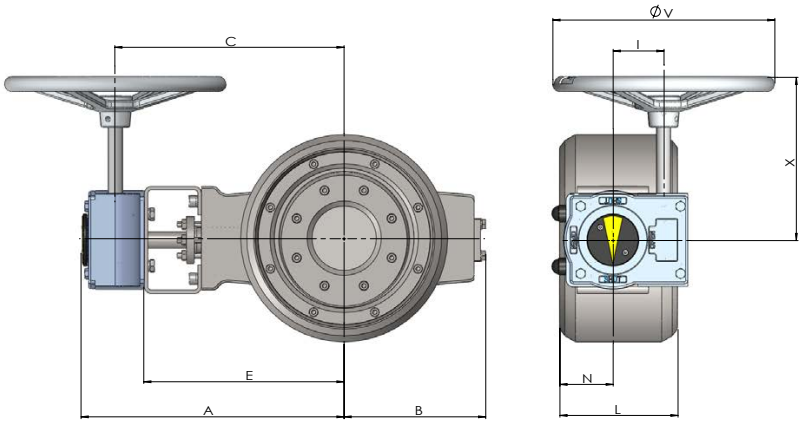
		DN	A	B	B	C	E	I	L	N	V	V	X	Bare Shaft Weight (Kg)
CONSTRUCTION 100 BARS Connection : PN63 or Class600	ISO5752 Série 16	80	240	145	145	265	240	60	64	36	180	180	155	26
		100	270	172	172	295	270	60	64	30	180	180	155	42
		150	350	210	210	385	355	72	76	32	240	240	180	72
	50	200	480	250	250	435	390	78	95	38	360	360	230	109
	16	250	522	295	295	475	430	78	114	46	360	360	230	163
	50	300	600	345	345	540	480	96	143	60	480	480	300	235
		350	820	390	390	710	620	105	184	70	500	500	370	
		400	930	435	435	880	700	140	191	80	600	600	450	
		450	980	480	480	930	740	140	203	90	600	600	535	
	13	500	1140	525	525	1000	860	140	229	100	700	700	625	
		600	1170	620	620	1100	885	210	267	120	700	700	675	

BUV3 - Butt-Welded Type - 16 and 25 Bars



		DN	A	B	C	E	FT	L	N	V	X	Bare Shaft Weight (Kg)
CONSTRUCTION 25 BARS Connection : PN10 or PN16 or Class150 or PN25	ISO 5752 Série 14 (long pattern)	80	209	113	191	172	24	180	88	150	130	8
		100	231	135	212	193	24	190	96	150	130	12
		150	304	166	279	254	28	210	105	200	150	21
		200	355	200	317	280	30	230	112	300	190	31
		250	385	234	347	310	32	250	120	300	190	46
		300	444	271	394	344	34	270	126	400	250	69
		350	479	301	429	379	38	290	131	400	250	92
		400	581	336	519	456	40	310	150	500	300	133
		450	607	367	545	482	42	330	150	500	300	174
		500	660	402	610	560	44	350	147	400	300	236
		600	720	468	670	620	46	390	167	400	300	374
		700	798	537	748	698	46	430	183	400	350	
		800	927	613	877	827	50	470	190	400	350	
		900	1005	680	955	905	54	510	195	400	400	
		1000	1091	756	1041	991	58	550	269	400	400	
		1200	1305	912	1243	1180	70	630	305	500	450	
CONSTRUCTION 16 BARS Connection : PN10 or PN16		700	798	538	748	698	36	430	183	400	350	
		800	928	614	878	828	38	470	190	400	350	
		900	1005	680	955	905	40	510	195	400	400	
		1000	1091	756	1041	991	42	550	269	400	400	
		1200	1305	912	1243	1180	48	630	305	500	450	

BUV3 - Butt-Welded Type - 50 and 100 Bars



		DN	A	B	C	E	I	L	N	V	X	Bare Shaft Weight (Kg)
CONSTRUCTION 50 BARS Connection : PN40 or Class300	ISO 5752 Série 14 (long pattern)	80	200	119	218	200	50	180	88	150	130	10
		100	225	143	243	225	50	190	96	150	130	15
		150	290	175	320	295	60	210	105	200	150	27
		200	400	210	362	325	65	230	112	300	190	46
		250	435	247	397	360	65	250	120	300	190	76
		300	500	286	450	400	80	270	126	400	250	104
		350	540	317	490	440	80	290	131	400	250	150
		400	655	354	592	530	105	310	150	500	300	206
		450	685	387	622	560	105	330	150	500	300	240
		500	750	424	700	650	120	350	147	400	300	291
		600	820	493	770	720	120	390	167	400	300	476

		DN	A	B	C	E	I	L	N	V	X	Bare Shaft Weight (Kg)
CONSTRUCTION 100 BARS Connection : PN63 or Class600	ISO 5752 Série 14	80	240	145	265	240	60	180	36	180	155	22
		100	270	172	295	270	60	190	30	180	155	35
		150	350	210	385	355	72	210	32	240	180	60
		200	480	250	435	390	78	230	38	360	230	90
		250	522	295	475	430	78	250	46	360	230	135
		300	600	345	540	480	96	270	60	480	300	195
		350	820	390	710	620	105	290	70	500	370	
		400	930	435	880	700	140	310	80	600	450	
		450	980	480	930	740	140	330	90	600	535	
		500	1140	525	1000	860	140	350	100	700	625	
		600	1170	620	1100	885	210	390	120	700	675	

HYDRAULIC FLOW TABLE

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Preferable direction																
	Constr 10 bars				Constr 25 bars				Constr 50 bars				Constr 100 bars			
DN	Kv	Cv	α	ξ	Kv	CV	α	ξ	Kv	CV	α	ξ	Kv	CV	α	ξ
80	-	-	-	-	230	266	0,90	1,24	215	249	0,84	1,42	180	208	0,70	2,02
100	-	-	-	-	370	428	0,93	1,17	340	393	0,85	1,38	290	335	0,73	1,90
125	-	-	-	-	680	786	1,09	0,84	630	728	1,01	0,98	540	624	0,86	1,34
150	-	-	-	-	1 000	1 156	1,11	0,81	930	1 075	1,03	0,94	790	913	0,88	1,30
200	-	-	-	-	1 910	2 208	1,19	0,70	1 770	2 046	1,11	0,82	1 510	1 746	0,94	1,12
250	-	-	-	-	3 150	3 641	1,26	0,63	2 920	3 376	1,17	0,73	2 480	2 867	0,99	1,02
300	-	-	-	-	4 550	5 260	1,26	0,63	4 220	4 878	1,17	0,73	3 590	4 150	1,00	1,01
350	-	-	-	-	5 650	6 531	1,15	0,75	5 250	6 069	1,07	0,87	-	-	-	-
400	-	-	-	-	8 050	9 306	1,26	0,63	7 480	8 647	1,17	0,73	-	-	-	-
450	-	-	-	-	9 350	10 809	1,15	0,75	8 670	10 023	1,07	0,87	-	-	-	-
500	-	-	-	-	11 900	13 756	1,19	0,71	11 040	12 762	1,10	0,82	-	-	-	-
600	-	-	-	-	16 850	19 479	1,17	0,73	15 650	18 091	1,09	0,85	-	-	-	-
700	25 400	29 362	1,30	0,60	23 100	26 704	1,18	0,72	21 400	24 738	1,09	0,84	-	-	-	-
800	32 900	38 032	1,29	0,61	29 900	34 564	1,17	0,73	-	-	-	-	-	-	-	-
900	43 700	50 517	1,35	0,55	39 700	45 893	1,23	0,67	-	-	-	-	-	-	-	-
1000	56 600	65 430	1,42	0,5	51 400	59 418	1,29	0,61	-	-	-	-	-	-	-	-
1200	88 900	102 768	1,54	0,42	80 800	93 405	1,40	0,51	-	-	-	-	-	-	-	-

Non-preferable direction																
	Constr 10 bars				Constr 25 bars				Constr 50 bars				Constr 100 bars			
DN	Kv	Cv	α	ξ	Kv	CV	α	ξ	Kv	CV	α	ξ	Kv	CV	α	ξ
80	-	-	-	-	260	301	1,02	0,97	245	283	0,96	1,09	210	243	0,82	1,49
100	-	-	-	-	420	486	1,05	0,91	390	451	0,98	1,05	330	381	0,83	1,47
125	-	-	-	-	775	896	1,24	0,65	720	832	1,15	0,75	610	705	0,98	1,05
150	-	-	-	-	1 130	1306	1,26	0,63	1 050	1 214	1,17	0,73	890	1029	0,99	1,02
200	-	-	-	-	2 170	2 509	1,36	0,54	2 010	2 324	1,26	0,63	1 710	1977	1,07	0,88
250	-	-	-	-	3 580	4 138	1,43	0,49	3 320	3 838	1,33	0,57	2 820	3 260	1,13	0,79
300	-	-	-	-	5 170	5 977	1,44	0,48	4 790	5 537	1,33	0,56	4 070	4 705	1,13	0,78
350	-	-	-	-	6 420	7 422	1,31	0,58	5 950	6 878	1,21	0,68	-	-	-	-
400	-	-	-	-	9 160	10 589	1,43	0,49	8 490	9 814	1,33	0,57	-	-	-	-
450	-	-	-	-	10 620	12 277	1,31	0,58	9 840	11 375	1,22	0,68	-	-	-	-
500	-	-	-	-	13 530	15 641	1,35	0,55	12 530	14 485	1,25	0,64	-	-	-	-
600	-	-	-	-	19 180	22 172	1,33	0,56	17 760	20 531	1,23	0,66	-	-	-	-
700	28 864	33 367	1,47	0,46	26 240	30 333	1,34	0,56	24 300	28 091	1,24	0,65	-	-	-	-
800	37 290	43 107	1,46	0,47	33 900	39 188	1,32	0,57	-	-	-	-	-	-	-	-
900	49 610	57 349	1,53	0,43	45 100	52 136	1,39	0,52	-	-	-	-	-	-	-	-
1000	64 240	74 261	1,61	0,39	58 400	67 510	1,46	0,47	-	-	-	-	-	-	-	-
1200	100 870	116 600	1,75	0,33	91 700	106 000	1,59	0,39	-	-	-	-	-	-	-	-

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