ADVANCE VALVES

Changing the way you think about valves

advancevalves.com

HIGH PERFORMANCE
Triple Offset Valves

SERIES BT

ACTUATED | CRYOGENIC | FIRE SAFE | FUGITIVE EMISSION COMPLIANT

008 0062

Covered under API Monogram

More than 3 Decades

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Having commenced manufacturing over 25 years ago, in 1986, Advance has become a qualified and trusted name. Advance Valves recognized the leap in technology and the wide spectrum of services where the customers needed a reliable rotary valve solution, having started with the Triple Offset Butterfly Valves in the late 90's. Similar was the scenario when Advance introduced the Dual Plate Check Valves and Balancing Valves. Today, Advance Valves is specified very widely with all the major End-Users, Process Licensors, EPCs and Consultants globally having serviced more than 40 countries.

Advance Valves is considered by its clients to be amongst the top few vendors globally with the ability to -

- Supply valves of exotic metallurgies, including Alloy Steels, Duplex & Super Duplex, Inconel and other superior Nickel and Copper alloys;
- Supply valves of sizes between 50mm (2") to 3000mm (120");
- Supply Dual Plate Check Valves up to ANSI # 2500 and Triple Offset Valves up to ANSI # 900;
- Meet client's stringent quality requirements, including zero leakage;
- Supply valves for Cryogenic applications down to -196 °C;
- Supply valves for Fire-Safe applications up to 550 °C;
- Supply valves complying with Fugitive Emission norms;
- Supply UL Certified Butterfly Valves;

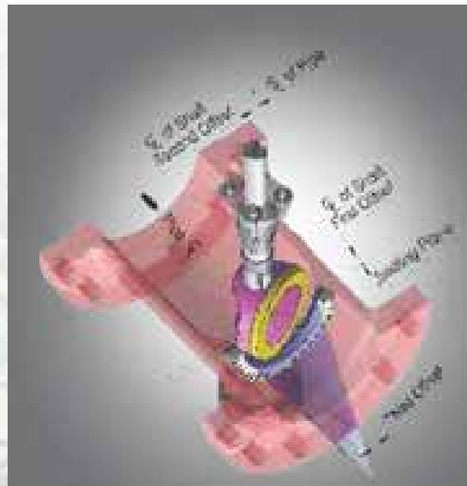
Impetus on innovation, quality control systems, up-to-date manufacturing setup and investment in talent has provided sustainable thrust to the group's growth chart. On top of this, customers remain the most valued stakeholders, where meeting and exceeding their expectation on project requirements is the topmost priority and effort.

Triple Offset Valves

Advance Valves' High Performance Triple Eccentric Butterfly Valves (BT Series) are complete metal-to-metal seated valves suitable for both Throttling and Positive Isolation applications. These valves are capable of Bi-Directional Flow Control, Zero Leakage, Low Fugitive Emissions, Steam-Based Applications (up to 550°C) and for Cryogenic Applications (down to -196°C).

Due to the triple offset sealing system, the disc moves smoothly and free of friction at all points along the specially designed body seal. This is because the third offset completely eliminates rubbing. When the disc is closed, the seat ring (on the disc) energises the seal (on the body), thereby providing a snug-tight high-performance fit.

The laminar seal is constructed with Grafoil layers sandwiched between metal laminations. This resiliency of the seal flexes and energizes according to the compressive forces generated, and allows for minor body deformation due to temperature fluctuations without the risk of jamming. This provides a uniform wedging effect and ensures "Zero" leakage of the valve.



The First Offset: The axis of the shaft is moved behind the disc from the seating plane. This effectively allows complete sealing contact around the entire seal area, as the shaft is not in the sealing area.

The Second Offset: The axis of the shaft is shifted from the pipe and valve centre-line. This reduces interference and releases the seat after a few degrees of rotation only, resulting in a minimal seat-seal rubbing due to camming action. This increases seal-seat life and therefore valve life.

The Third Offset: The centre line of the seat-seal cone is tilted away from the valve centre-line resulting in an ellipsoidal profile producing a wedging effect. This results in a frictionless seating with uniform compressive sealing around the entire seal.

The unique Replaceable Seat & Seal configuration of Advance BT Series minimizes shut down time & requirement of spare valves, making this product an attractive option for Plant & Project Managers optimizing TCO – Total Cost of Ownership. These valves are now replacing traditional Gate and Ball valves in many applications also because of their compact & light weight construction.

Design	:	API 609, ASME B16.34
Face to Face	:	API 609, ISO 5752, ASME B16.10
End Connection	:	Wafer, Lugged, Double Flanged, Double Flanged Long (Gate valve face to face), Hub Ends, Butt weld
Testing	:	API 598, EN 12266, ISO 5208, BS 6364 (Cryogenic upto -196 °C)
Fire Safe Testing	:	API 607, ISO 10497
Fugitive Emission Testing	:	ISO 15848, TA Luft, VDI 2440

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Actuated

- Established and repeated supplies with electric, pneumatic, hydraulic and other hybrid automation systems.
- Suitable for diverse spectrum of services from positive isolation ON/OFF to finely controlled throttling services, safety applications including ESD (Emergency Shut Down).
- Complete in-house function and performance testing done to provide a fully validated system.
- Full compatibility with wide variety of automation options for on-site actuation.
- Supplied extensively for large size flare gas systems with high end automation for system integration.

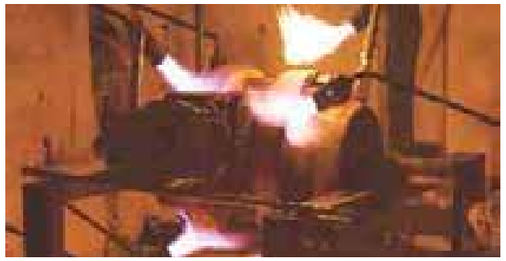
Jacketed Valves

- Successful elimination of fluid crystallization with excellent temperature manipulation throughout the valve, including seating areas.
- Suitable for Sulphur Recovering Units compliant with tracing requirement of most superior Oil & Gas industry users.

Cryogenics

- Valves are validated in house at fully equipped test facilities up to 48", testing valves down to -196°C (-350° F) up to 100 bar of sensitive Helium pressure.
- Nitronic provided as the standard seat and laminated seal material to handle cryo conditions over repeated use..
- Extended bonnets provided as a standard, keeping the packing away from sensitive temperatures, ensuring consistent fugitive emissions compliance.
- Suitable for low temperature media like LNG, LPG, liquid oxygen and liquid nitrogen.

High Temperature & Steam Services

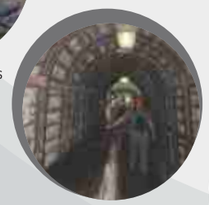


- Compatible thermal properties of materials to maintain consistent performance at extreme temperature.
- Suitable for high pressure steam and process gases, in turbine and process industries respectively. Compliant & certified by the Indian Boiler Regulation.

Oil & Gas

LNG & Cryogenic

Power & Nuclear Plants



Mining & Metallurgical

Fertilizer & Chemical

Water & Waste Water

HVAC

Applications

Oil & Gas – Refining, Crude Oil, Gas Hydrocarbons & Fuel Applications, Flare Gas Systems, Tank Farms & Transportation, Onshore & Offshore.

LNG & Cryogenic – Liquid Oxygen, Nitrogen and LNG handling across gasification, liquefaction & transportation.

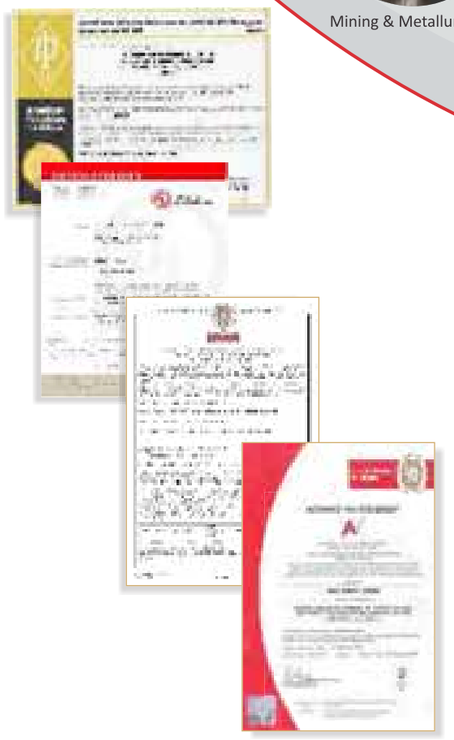
Fertilizer & Chemical – Polyethylene, Monomer, Catalysts, Ammonia.

Mining & Metallurgical – Water flush lines, Vent gas lines, Acid injection, Steam spurge.

Power & Nuclear Plants – Cooling Water, Fire Water, DM Water, Heavy Water and steam services including boiler applications.

Water Desalination & Management Systems – Water and Desalination plants, Sea Water Applications, Effluent Treatment.

Heating Ventilation & Air Conditioning – Cooling Water, Chilled Water, Glycol or Brine Solution, District Cooling & Heating.



Quality Capabilities

Advance Valves products have, over the years, been vigorously tested for various parameters including Fire-Safe, Bubble tight, Vacuum & Cryogenic tests by various Third Party agencies. Quality is an integral component in Advance Valve's philosophy, certified as per ISO 9001-2008, having API Spec Q1 & 609 Monograms, CE and PED accreditation. Besides the usual hydrostatic and pneumatic tests, we conduct the following additional tests:

- High pressure helium testing (up to 100 bar / 1419 psi);
- Cryogenic testing down to -196° C (per BS 6364);
- Fire-safe testing (as per ISO 10497 / API 607);
- High temperature testing up to +550° C;
- Fugitive Emission testing (as per ISO 15848 / Ta Luft).

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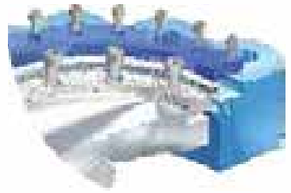
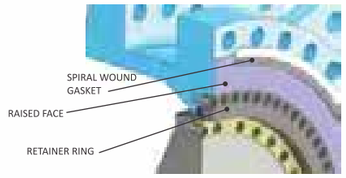
Fully Replaceable seal seat

The seal set (laminated seal and the seat) are field replaceable with proven ease of serviceability and handling at site.



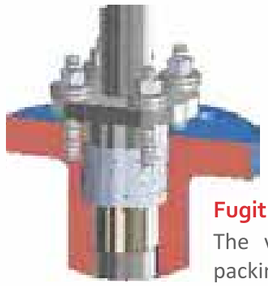
Friction Free Operation

The triple offset design ensures friction free seating avoiding rubbing between seal and seat during the closing operation.



Suitable for Dead End Service

Fully self supported retaining ring with uninterrupted gasket face, makes the valve fully suitable for Dead End Service without any supporting flange.

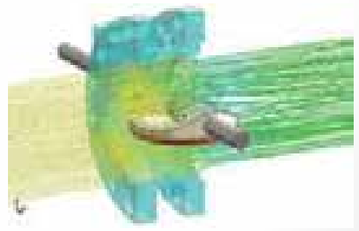


Fugitive Emissions

The valve with special gland packing & live loading through Belleville springs satisfies the fugitive emission standard ISO 15848 & TA Luft. Validated from -196°C to 450°C.

Laminated seal out of Fluid Path

The design of the valve with laminated seal on the body ensures that the seal is not directly exposed to the high velocity fluid infringement.

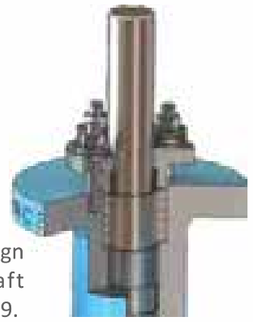


Wide range of flow control

Flow characteristics ideal for modulation over a wide range of operation. Suitable for control valve service with positive isolation capabilities.

Flexibility of Installation

Thrust washer supports the weight of the disc and shaft assembly. The valves are thus suitable for both vertical and horizontal installation.



Anti-Blow Out Design

Inherent anti-blow out design provides safety from shaft ejection. Meets norms of API 609.

Laminated Solid-flexible Seal

The seal is of thin metal lamination interlaid with high density Grafoil bringing resiliency in the metal seal.

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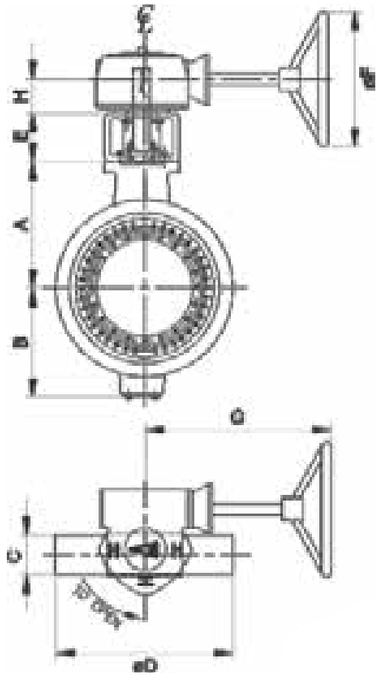
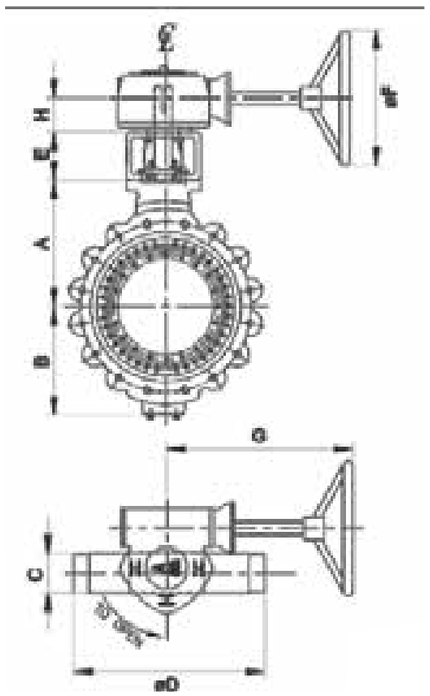


#150 ASME B 16.5 WAFER (M-11)

(MM)	(INCH)	A	B	C	D	E	F	G	H
80	3	155	125	48	N/A	70	175	196	50
100	4	165	140	54	N/A	90	175	260	65
150	6	215	180	57	N/A	100	350	260	65
200	8	245	210	64	N/A	120	600	325	85
250	10	270	240	71	N/A	120	600	325	85
300	12	310	275	81	N/A	120	600	353	125
350	14	335	309	92	N/A	120	500	404	125
400	16	370	346	102	N/A	120	500	404	125
450	18	400	365	114	N/A	120	600	423	115
500	20	440	396	127	N/A	120	600	454	133
600	24	500	480	154	N/A	120	750	478	155

#300 ASME B 16.5 WAFER (M-11)

(MM)	(INCH)	A	B	C	D	E	F	G	H
80	3	155	125	48	N/A	70	175	196	50
100	4	175	150	54	N/A	90	350	260	65
150	6	235	202	59	N/A	100	600	326	85
200	8	275	222	73	N/A	120	600	380	115
250	10	305	271	83	N/A	120	750	513	135
300	12	345	310	92	N/A	120	500	405	125
350	14	395	330	117	N/A	120	600	456	135
400	16	425	355	133	N/A	120	750	526	155
450	18	460	405	149	N/A	150	750	526	155
500	20	515	440	159	N/A	150	750	601	160
600	24	550	520	181	N/A	200	750	601	160



#150 ASME B 16.5 LUGGED (M-21)

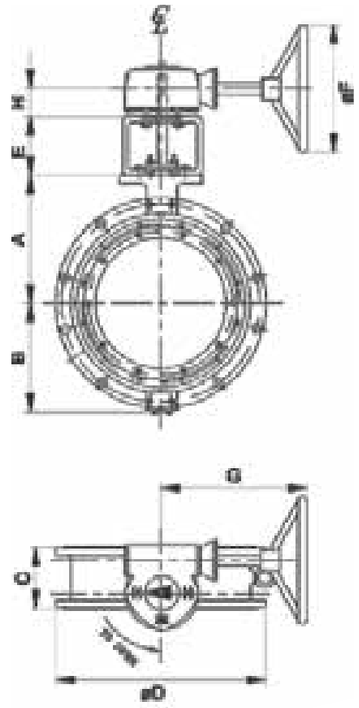
(MM)	(INCH)	A	B	C	D	E	F	G	H
80	3	135	115	48	190	70	175	196	50
100	4	165	140	54	230	90	175	260	65
150	6	215	180	57	280	100	350	260	65
200	8	245	210	64	345	120	600	325	85
250	10	270	240	71	405	120	600	325	85
300	12	310	275	81	485	120	600	353	125
350	14	335	309	92	535	120	500	404	125
400	16	370	346	102	595	120	500	404	125
450	18	420	367	114	635	120	600	423	115
500	20	440	396	127	700	120	600	454	133
600	24	500	480	154	815	120	750	478	155

#300 ASME B 16.5 LUGGED (M-21)

(MM)	(INCH)	A	B	C	D	E	F	G	H
80	3	135	115	48	190	70	175	196	50
100	4	175	150	54	255	90	350	260	65
150	6	240	202	59	320	100	600	326	85
200	8	275	222	73	380	120	750	380	115
250	10	305	271	83	445	120	750	513	135
300	12	345	310	92	520	120	500	405	125
350	14	395	330	117	585	120	600	456	135
400	16	425	355	133	650	120	750	526	155
450	18	460	405	149	710	150	750	526	155
500	20	515	440	159	775	150	750	601	160
600	24	550	520	181	915	200	750	601	160

#600 ASME B 16.5 LUGGED (M-21)

(MM)	(INCH)	A	B	C	D	E	F	G	H
150	6	240	202	59	320	100	600	326	85
250	10	340	320	117	N/A	150	750	526	155
300	12	380	350	140	N/A	120	750	525	155
400	16	462	400	178	N/A	150	750	526	155
500	20	550	480	216	N/A	150	750	526	155
600	24	550	520	181	915	200	750	601	160

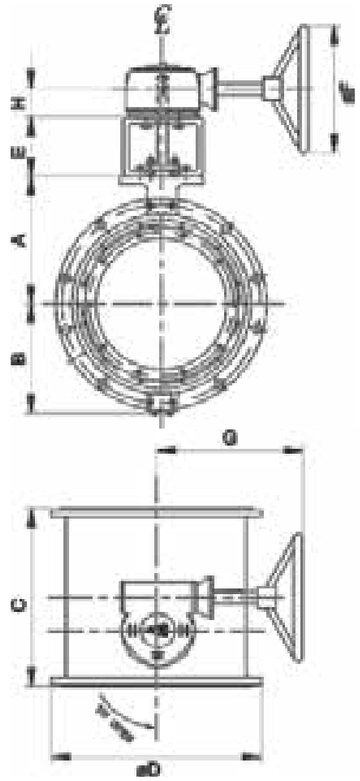


#150 ASME B 16.5 FLANGED (M-31)

(MM)	(INCH)	A	B	C	D	E	F	G	H
80	3	135	115	114	190	70	175	196	50
100	4	165	140	127	230	90	175	260	65
150	6	215	180	140	280	100	350	260	65
200	8	245	210	152	345	120	600	325	85
250	10	270	240	165	405	120	600	325	85
300	12	310	275	178	485	120	600	353	125
350	14	335	309	190	535	120	500	404	125
400	16	335	309	216	595	120	500	404	125
450	18	400	365	222	635	120	600	423	115
500	20	440	396	229	700	120	600	454	133
600	24	500	480	267	815	120	750	478	155
650	26	500	480	292	785	120	750	525	155
700	28	570	550	292	387	200	750	525	155
750	30	600	570	318	985	200	750	560	160
800	32	675	645	318	820	200	750	560	160
900	36	710	650	330	1057	200	750	601	160
1050	42	795	775	410	1047	200	900	749	210
1100	44	795	760	410	1047	200	900	786	210
1200	48	940	855	470	1390	200	900	786	210
1350	54	995	920	470	1685	200	900	786	210
1400	56	1100	1041	530	1745	200	900	786	210
1600	64	1215	1090	600	900	250	900	749	210
1650	66	1215	1090	660	2032	250	900	1029	320
1700*	68	1125	1090	600	1864	200	900	749	210
1900*	76	1245	1170	670	2068	250	900	749	210
2200*	88	1395	1280	770	2355	250	900	1029	320

#300 ASME B 16.5 FLANGED (M-31)

(MM)	(INCH)	A	B	C	D	E	F	G	H
80	3	135	115	114	190	70	175	196	50
100	4	175	150	127	255	90	350	260	65
150	6	240	202	140	320	100	600	326	85
200	8	275	222	152	380	120	750	380	115
250	10	305	271	165	445	120	750	513	135
300	12	345	310	178	520	120	500	405	125
350	14	395	330	190	585	120	600	456	135
400	16	425	355	216	650	120	750	526	155
450	18	460	405	222	710	150	750	526	155
500	20	515	440	229	775	150	750	601	160
600	24	550	520	267	915	200	750	601	160
750	30	640	620	318	990	200	900	749	210
800	32	700	665	318	1055	200	900	695	210
900	36	815	773	330	1170	200	900	1029	320
1000	40	850	755	410	1275	250	900	786	210
1050	42	850	725	410	1335	250	900	786	210
1200	48	940	835	470	1515	250	900	1029	320



#150 ASME B 16.5 FLANGED (M-51) LONG PATTERN

(MM)	(INCH)	A	B	C	D	E	F	G	H
80	3	135	115	203	190	70	175	196	50
100	4	165	140	229	230	90	175	260	65
150	6	215	180	267	280	100	350	260	65
200	8	245	210	292	345	120	600	325	85
250	10	270	240	330	405	120	600	325	85
300	12	310	275	356	485	120	600	353	125
350	14	335	309	381	535	120	500	404	125
400	16	335	309	406	595	120	500	404	125
450	18	400	365	432	635	120	600	423	115
500	20	440	396	457	700	120	600	454	133
600	24	500	480	508	815	120	750	478	155

**Manufacturer's Standard*
For additional range in higher sizes and pressure ratings in any models please contact Advance Valves.
All dimensions are in mm.
Content may change without notice.

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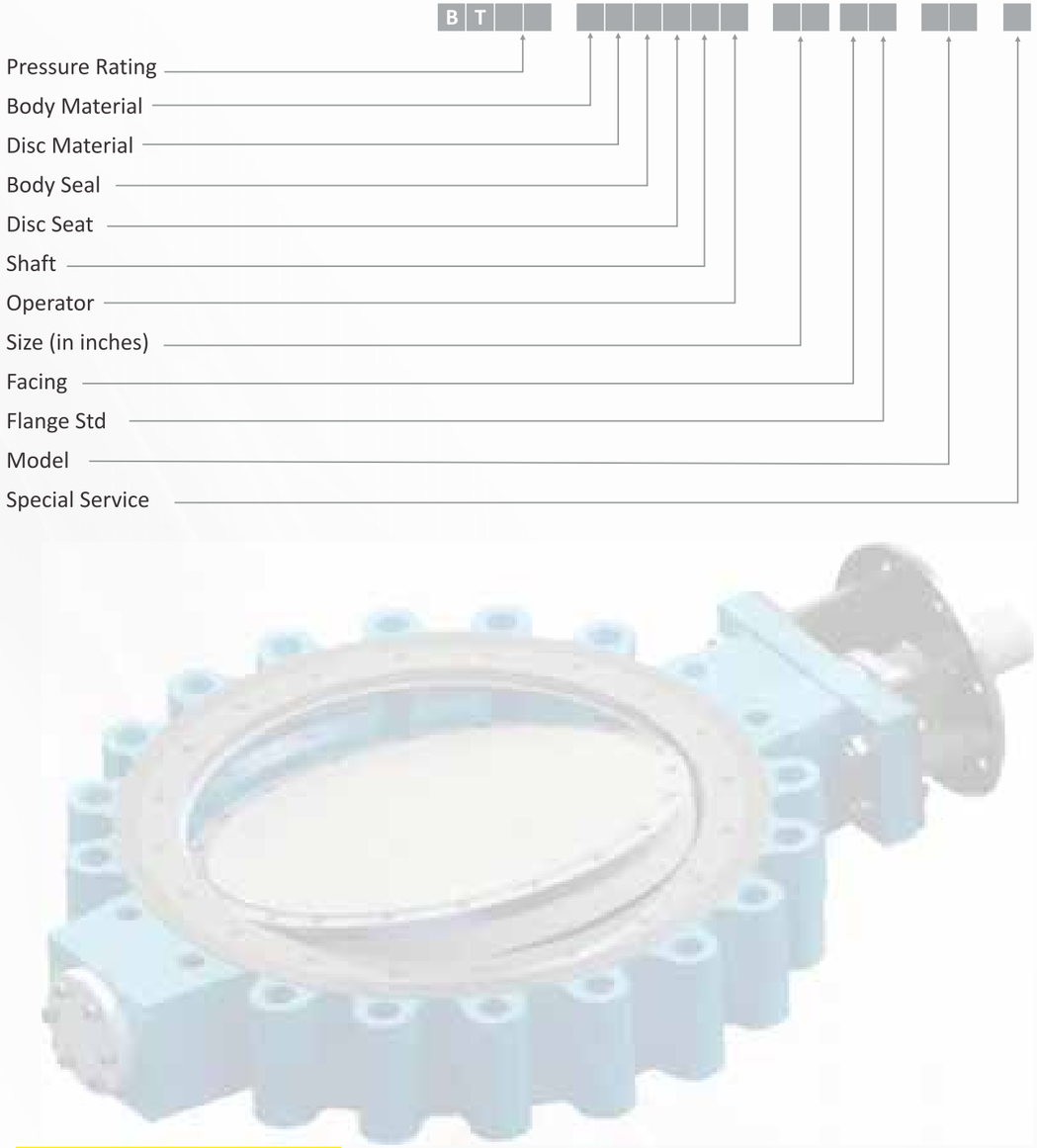
How to Enquire and Order ?



Example : BT15.LC999G.20.DA.31L

Valve Type	Pressure Rating	Body Material	Disc Material	Body Seal	Disc Seat	Shaft	Operator	Size	Facing	Flange Std.	Model	Special Service
BT	15	L	C	9	9	9	G	20	D	A	31	L
	ANSI #150	LCB ASTM A352	CF8M ASTM A351	Nitronic 50	Nitronic 50	XM 19	Gear Box	500 mm	Raised Face serrated	ANSI B 16.5	Double Flanged	Low Temp.

Pressure Rating	
Rating	**Code**
PN 6	06
PN 10	10
PN 16	16
# 125	12
# 150	15
# 300	30
# 600	60
# 900	90

Body & Disc Material	
Material	**Code**
WCB ASTM A216	S
LCB ASTM A352	L
LCC ASTM A352	M
WCC ASTM A217	W
WC6 ASTM A217	6
CA-15 ASTM A217	E
C5 ASTM A217	2
C12 ASTM A217	I
CF8M ASTM A351	C
CF3M ASTM A351	F
CF8C ASTM A351	8
Duplex Gr 4A ASTM 890/995	4
Duplex Gr 5A ASTM 890/995	5
Duplex Gr 6A ASTM 890/995	Z
Inc 825 ASTM A494 CU5MCuC	U
Inc 625 ASTM A494 CW_6MC	N
ASTM B367 GRC2 (Titanium)	T
Hastelloy B ASTM A494 N7M	I
Hastelloy C ASTM A494 CW12MW	V
ASTM A494 GR M35-1 N24020	Q
ASTM A494 GR M25-5 N24025	P
WC9 ASTM A217	9
CF8 ASTM A351	A
CF3 ASTM A351	3
ASTM A351 GR CN7M N08007	7
D2 ASTM A439	K
ASTM B148 AB2 C 95800	B
ASTM A148 AB2 C 95500	R
CF3MN ASTM A351	0
CK3MCun ASTM A351	O

Body Seal / Disc Seat	
Material	**Code**
SS-316 Gr.18.8.2	C
Duplex Gr 4A ASTM 890 - J92205	4
Duplex Gr 5A ASTM 890 - J93404	5
Inc. 625	N
Inc. 825	U
Nitronic 50/XM 19	9
SS 410	E
PTFE with metal backing seal	T
BT ASTM A351 Gr. CK3MCuN	K
BT Hastelloy	V

Shaft	
Material	**Code**
SS-431	K
17-4PH/17-7PH	H
Duplex 4A	4
Duplex 5A	5
Duplex 6A	Z
Inc. 625	N
Inc. 825	U
Inc. 718	I
Monel 500	P
Monel 400	Q
Titanium	T
CK3MCuN ASTM A 479	O
Hastelloy C	V
Ferrallium	0
Nitronic 50 / XM 19	9
SS-316	C

Operator	
Material	**Code**
Gear Box	G
Electric Actuator	E
Hydraulic Actuator	H
Pneumatic Actuator	P
Electro Hydraulic Actuator	S
Bareshaft	B
BT Special Gear Box	R

Sizes			
MM	**Code**	**MM**	**Code**
80	03	1050	42
100	04	1100	44
150	06	1150	46
200	08	1200	48
250	10	1250	50
300	12	1300	52
350	14	1350	54
400	16	1400	56
450	18	1500	60
500	20	1600	64
600	24	1650	66
650	26	1700	68
700	28	1800	72
750	30	1900	76
800	32	2000	80
850	34	2200	88
900	36	2400	96
1000	40	2500	A0

For additional range please contact Advance Valves.

Facing	
Material	**Code**
Flat Face Smooth	A
Flat Face Serrated	B
Raised Face Smooth	C
Raised Face Serrated	D
Ring Joint	E

Flange Std	
Standard	**Code**
ANSI B16.5/ANSI B16.47 A / MSS-SP-44	A
ANSI B16.47B	B
AWWA C 207	C
EN 1092	E
IS 6392	F
BS 4504	H
ANSI B16.1	K
BS 10 E	S
BS 10 D	T
BT Others / Customer specified	X

Model	
Model	**Code**
Wafer	11
Wafer Cladded	14
Lugged	21
Lugged Cladded	24
Double Flanged	31
Double Flanged Cladded	34
Butt Weld	41
Double Flanged Long Pattern	51
Hub End	71

Special Service	
Service	**Code**
Oxygen	O
Bi-directional Testing	Q
Jacketed	J
ENP Coating	T
Stelliting on Seat	Y
Nace	N
IBR	I
Extended Bonnet	B
Vacuum	V
CE	P
Low Temp	L
Hydrogen	H
GOST Certified	G
Cryogenic	C
Fugitive Emission	E

PRODUCT RANGE & APPLICATIONS

Type	Size Range	Rating	Design & Qualification	Application
Dual Plate Check Valve	50 - 2000 mm (2" - 80")	ANSI # 125-2500	API 594, API 6D, API 6FA, BS 6364 / ISO 28921, ISO 10497	All Services Cryogenic & Fire Safe, Retainerless, (-196°C / -321°F to 750°C / 1382°F)
Butterfly Valve - Triple Eccentric (Offset) Metal Seated High Performance	80 - 2500 mm (3" - 100")	ANSI # 150, 300, 600 & 900	API 609 Category B, API 607, ISO 15848, BS 6364 / ISO 28921, ISO 10497	All Services Cryogenic & Fire Safe, Low Emission, (-196°C / -321°F to 550°C / 1020°F)
Butterfly Valve - Concentric Integrally Moulded Liner Design	50 - 600 mm (2" - 24")	PN 10, PN 16, PN 20 & ANSI # 150	API 609 Category A, BS 5155, IS 13095, UL 1091	All kinds of Water/Chemicals/ Air/Oil/ Gases (up-to 204°C / 400°F including Vaccum services)
Butterfly Valve - Double Eccentric (Offset) High Performance	80 - 3000 mm (3" - 120")	PN 10, PN 16, PN 20, PN 25 & ANSI # 150	API 609 B Elastomer seated design	All Services up-to 200°C / 392°F
Actuated Butterfly including MOVs, On-off Remote Shut-off Valves	50 – 3000mm (2" – 120")	PN10, PN16 ANSI # 150, 300, 600, 900	API 609, SIL 3	With Electric, Pneumatic, Electro Hydraulic, Complete Hydraulic, Actuators & Instrumentation
Balancing Valve	25 – 1200 mm (1" – 48")	PN 16 & PN 20	DIN 3202 / BS 7350/ BS EN 593 Face to face as per ISO 5752 Table 8	Water, Glycol, Brine solution

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