

KTM SERIES EB OM-2 SPLIT BODY FLOATING BALL VALVES

A new generation of ball valves with fugitive emission control and ISO mounting pad



FEATURES

- Superior valve design at a competitive price.
- Fugitive emissions control for flammable and non-flammable applications.
- Valve fugitive emissions capability third party certified to ISO 15848-1.
- Machined ISO actuator mounting pad.
- Pure white E-seat (PTFE/PFA copolymer) seal relieves concern over product contamination.
- Positive alignment of split body.
- Fire test certified to API 607 5th edition and ISO 10497.
- PTFE bearing and packing rings reduce wear.
- Lower operating torque for ease of operation and reduced actuator cost.
- Positive position indication.
- Blowout-proof shaft.
- NACE MR-01-75 available on request.
- Locking device is available.
- Static electricity grounding device.
- Manufactured under ISO 9001 certified quality system.
- CE marking PED 97/23/EC as standard.
- Various seat types are available.

In addition to standard E-seat, various seats are available in following variety. Each seat option will meet a wide range of performance, suitable for many applications.

- PTFE/PFA copolymer
- E-seat (standard)*
- PEEK-seat (option)
- Gratiite®-seat (option)
- Metaltite®-seat (option)

* Please refer to the Pressure-Temperature rating

GENERAL APPLICATIONS

Pulp and paper, reactive monomers, oil and gas production, steam, hot gases, toxic and lethal, fire-safe and flammables

Option

- Shaft extension
- For cryogenic, oxygen and vacuum services
- Special painting
- Special tests
 - X-ray (RT)
 - Liquid penetrant (PT)
 - Positive Material Identification (PMI)

TECHNICAL DATA

Model/sizes:	Full bore EB11, EB12 DN 15 to DN 200 Reduced bore EB21, EB22 DN 150 to DN 250
Pressure rating:	ASME Class 150, 300 JIS 10K, 20K (JPI also available)
Temperature:	-29°C to 270°C (Depending on options -196°C to 500°C is available)
Seat leakage:	Zero leakage (E-seat) to ISO 5208 rate A and API 598

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ISO5211 ACTUATOR MOUNTING PAD:
Machined 'automation pad' allows precise mounting of actuator; mounting bolts independent from shaft-packing gland bolts. Exact alignment reduces torque requirements and prevents out-of-line wear.

RADIAL THRUST BEARINGS:
Radial loading absorbed and friction from axial shaft loading reduced. Dual thrust bearings support shaft for extended cycle life and superior thermal characteristics.

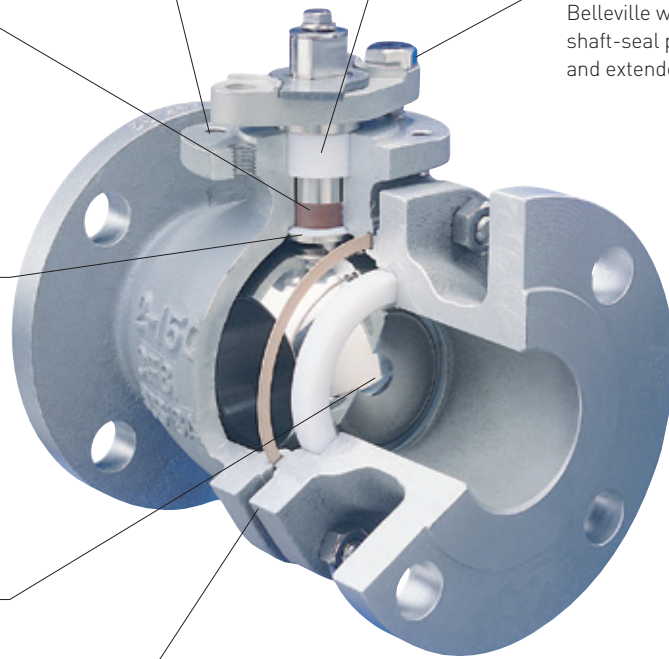
BLOW-OUT PROOF SHAFT AND PRIMARY SHAFT SEAL:
Shaft shoulder is integral part of shaft, retained internally to prevent shaft blowout from pressure in body cavity. Primary shaft seal prevents leakage to atmosphere, also serves as low-torque bearing.

PRECISE, SMOOTH BALL:
Ball sphericity and surface finish are key factors in attaining long valve life, low operating torque and superb pressure-holding capacity.

RIGID SPLIT BODY:
Designed with extra bolts to assure positive alignment and maximum protection against bending stresses in the piping and forces produced by thermal distortion; designed with secondary metal to metal seal in the event of fire.

FUGITIVE EMISSIONS CONTROL:
Multiple layers of adjustable PTFE chevron packing rings for standard models; while graphite braided / die-formed seals are used for models tested to API 607 5th edition.

LIVE LOADED SPRING:
Belleville washer keeps constant force on shaft-seal packing, ensuring seal integrity and extended valve life.

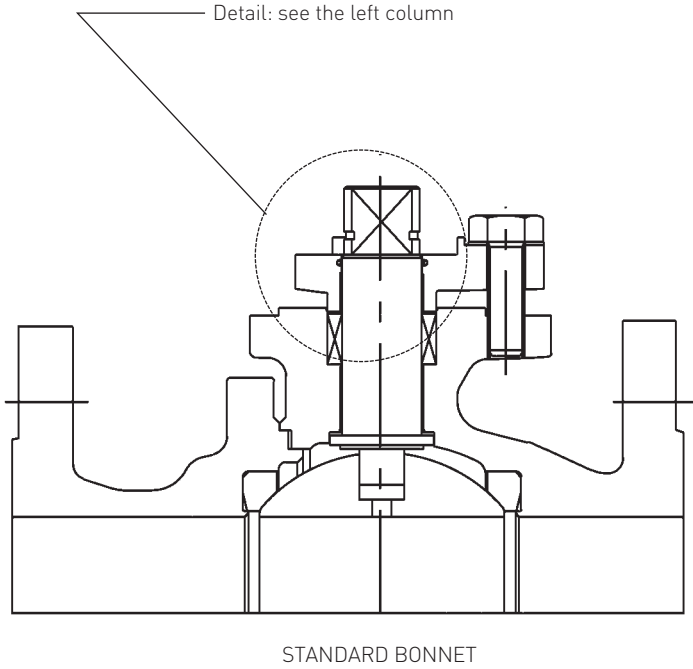


CAST BLEED-PORT BOSS:
Provision can be made for drain bleed port when required. (Not shown)

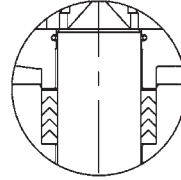
ANTI-STATIC GROUNDING:
Special retaining spring provides positive ground for use with volatile or flammable liquids. (Not shown)

KTM SERIES EB 0M-2 SPLIT BODY FLOATING BALL VALVES

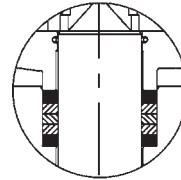
STANDARD PRIMARY CONTAINMENT SEALS FOR FUGITIVE EMISSION CONTROL



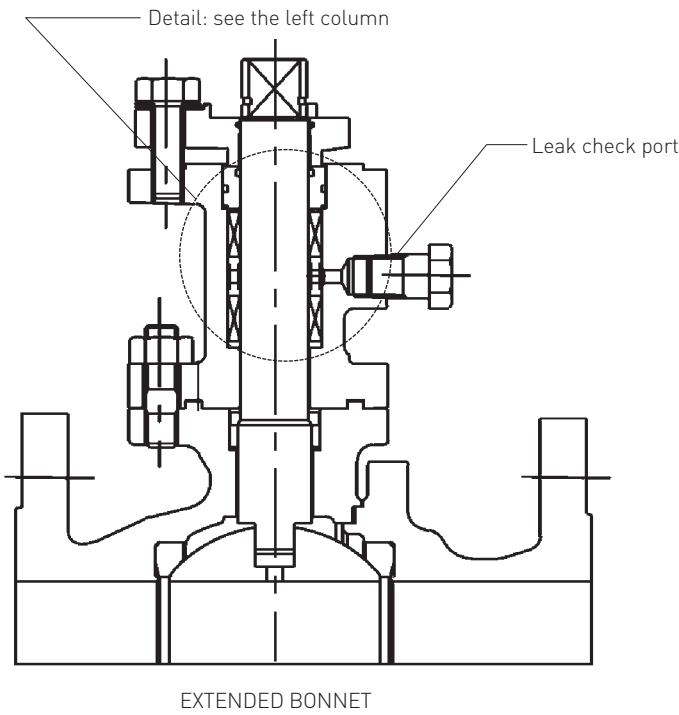
STANDARD SEALS
 Superior quality multi-layered, adjustable chevron packing rings as shaft seals.



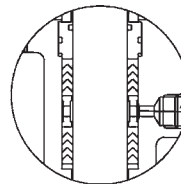
FIRE TESTED (OPTION)
 Die-formed carbon fiber seals, sandwiched by braided graphite rings. Fire safe in design, minimizing leakage in the event of fire. Fire tested to API 607 5th edition.



OPTIONAL SECONDARY CONTAINMENT SEALS FOR FUGITIVE EMISSION CONTROL / TOXIC AND LETHAL APPLICATIONS

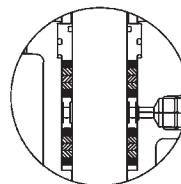


CHEVRON PTFE PACKING (OPTION)
 Double packing gland elastomer seal with a lantern ring. If media leaks through primary seal, it can be detected and stopped by pressure injection.



Leak check port

FLAMMABLE SERVICES (OPTION)
 Double packing gland graphite seal and lantern ring.



Leak check port

KTM SERIES EB OM-2 SPLIT BODY FLOATING BALL VALVES



PHOTO (A)

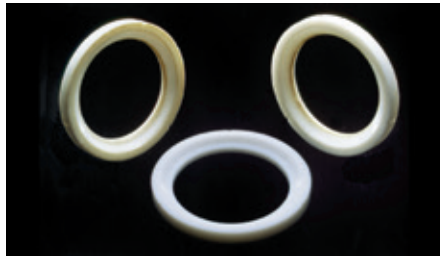


PHOTO (B)

The OM-2 is available in three basic types of seats: soft, Gratiite® and Metaltite®. Each offering a range of performance suitable for many applications.

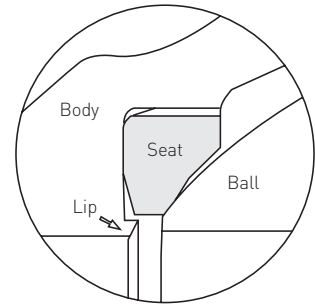
SOFT SEAT

Choose from two soft seat materials: the standard E-seat PTFE/PFA copolymer or PEEK. Each type of seat is retained in the same manner and is machined with a protective lip, designed to eliminate seat deformation and cold flow. This same lip acts as a secondary back-up seal, which forms a metal to metal contact in the event the primary soft seal is burnt in a fire (see details, right).

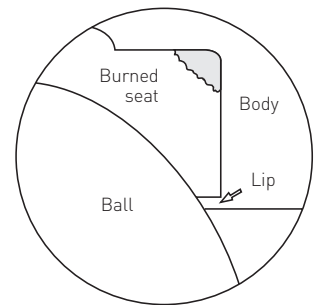
The E-seat offers process purity, strength, integrity, low permeability and high resiliency. It is composed of a unique molecularly enhanced copolymer of PTFE and PFA. It offers a full range of properties formerly requiring two separate materials. The E-seat provides pressure and temperature capabilities previously available only with glass or carbon fiber-reinforced PTFE. In high-temperature operations, the seat remains white, eliminating the problem of color contamination associated with seats made from darker reinforced materials. The E-seat is excellent on a wide variety of applications but is particularly recommended for use on styrene and butadiene, where low permeability is a required performance factor; and on low-pressure steam, where flaking of virgin PTFE is a problem. It is also recommended for use on food and beverage, pharmaceutical and biotech, paper, clean gas and any other applications where product purity and the lack of foreign fillers are critical to process media integrity.

The Popcorn Factor: the photo (A) shows a virgin PTFE seat after the attack by a reactive monomer (in this case, styrene). The material's molecular matrix was penetrated by the vapor pressure of the uninhibited monomers, resulting in a polymeric reaction, commonly known as 'popcorn polymerization'. This reaction can totally destroy the seat material.

The photo (B) shows the results of the E-seat copolymer tested by KTM. Using butadiene, generally considered the worst-case scenario due to its small molecular size, the test ran for two years at 0.84 MPa and 82°C. The seats experienced minimum distortion and, after the two-year period, did not leak in service. Pressure tests after removal, at 1.1 times of design pressure, also showed no leakage. The photo shows two of the tested seats and a new seat in the middle for comparison.



ANTI COLD FLOW FEATURE



SECONDARY BACK UP SEAL

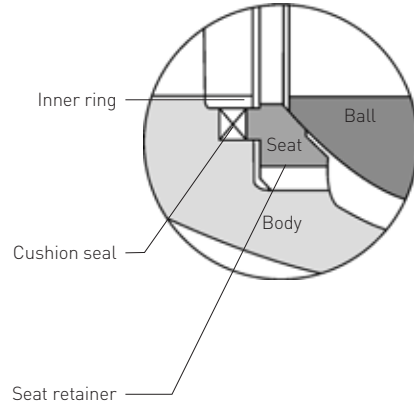
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GRATITE™ SEAT

A proprietary product for high-temperature, high-pressure, flammable and corrosive critical-process applications, the KTM Gratite® seat offers superior performance and reliability. Gratite® is a bonded composite of hard graphite material. The cushion seal provides resiliency during thermal expansion-contraction. The result is a seat with physical properties that are far superior to conventional ball valve seats of carbon graphite construction.

- More economical than Stellite
- High resistance to thermal shock

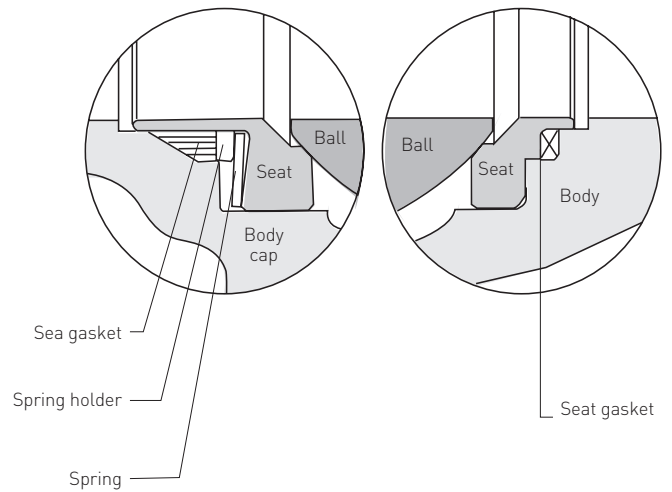
Gratite® is a registered trademark of Pentair Japan Co., LTD.



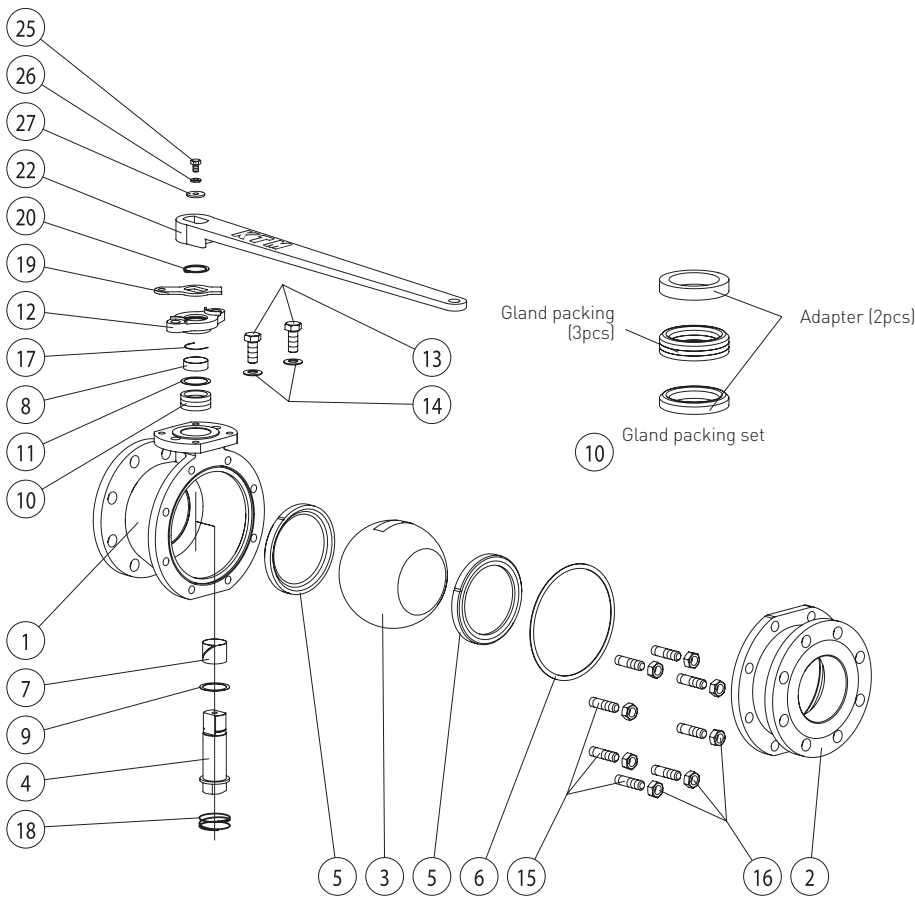
METALTITE™ SEAT

KTM utilizes proprietary processes with special lapping technologies to provide a higher-quality product with a superior level of performance. Suitable for temperature range up to 500°C, the Metaltite® metal seat provides high performance solutions to many difficult and bidirectional applications. Precision lapping of the ball-to-seat fit result in superior interfacing and a tight shut-off conforming to FCI 70-2 Class V and Class VI (option). Available with two different ball coatings: Hard chrome or nickel alloy overlay. Durable stellited stainless seats are highly corrosion and erosion resistant. PTFE or soft carbon shaft seals are available.

Metaltite® is a registered trademark of Pentair Japan Co., LTD.



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STANDARDS

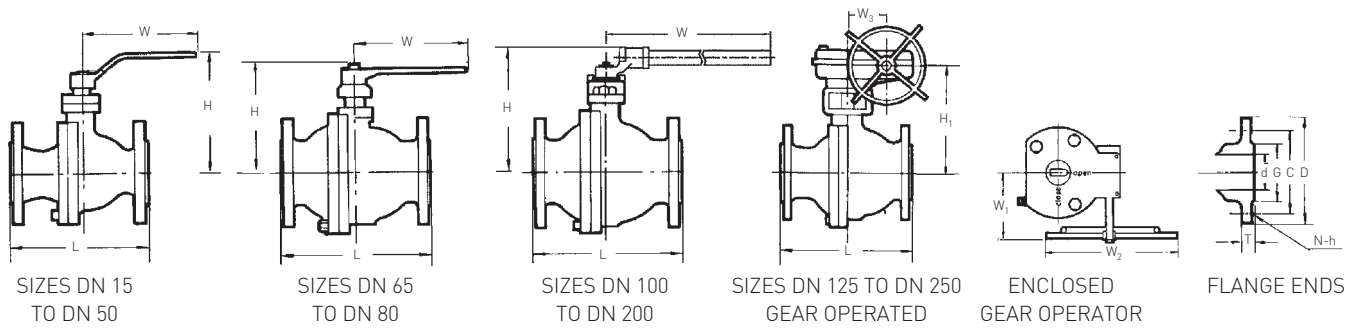
Design:	ASME B16.34
Face to face:	ASME B16.10, JIS B2002
End connection:	ASME B16.5, JIS B2220
Testing:	ASME B16.34, API 598, API 6D
Fire test:	API 607 5th edition
Quality assurance:	ISO 9001

PARTS LIST AND MATERIALS OF CONSTRUCTION MATERIALS

No.	Parts name	Materials			Qty
		62.1E	31.1E	32.1E	
1	Body	WCB	CF8	CF8M	1
2	Body cap	WCB	CF8	CF8M	1
3	Ball	CF8	CF8	CF8M	1
4	Shaft	A276 (TP) 304	A276 (TP) 304	A276 (TP) 316	1
5	Seat	PTFE / PFA copolymer	PTFE / PFA copolymer	PTFE / PFA copolymer	2
6	Gasket	R-PTFE	R-PTFE	R-PTFE	1
7	Shaft bearing	R-PTFE	R-PTFE	R-PTFE	1
8	Shaft bearing	PTFE	PTFE	PTFE	1
9	Thrust bearing	PTFE	PTFE	PTFE	1
10	Gland packing set	PTFE	PTFE	PTFE	1 set
11	Packing washer	316SS	316SS	316SS	1
12	Gland flange	CF8	CF8	CF8	1
13	Gland bolt	A193 (G) B8	A193 (G) B8	A193 (G) B8	2
14	Live loading spring	SUS304	SUS304	SUS304	2
15	Stud	A193 (G) B7	A193 (G) B8	A194 (G) 8	4-12
16	Nut	A194 (G) 2H	A193 (G) B8	A194 (G) 8	4-12
17	Spring	316SS	316SS	316SS	1
18	Spring [DN 65 and larger]	316SS	316SS	316SS	1
19	Stopper	304SS	304SS	304SS	1
20	Snap ring (C-type)	304SS	304SS	304SS	1
22	Handle	SS400Zn / FCD450	SS400Zn / FCD450	SS400Zn / FCD450	1
25	Hexagon bolt	304SS	304SS	304SS	1
26	Spring washer	304SS	304SS	304SS	1
27	Plate washer	304SS	304SS	304SS	1

The material parts vary slightly depending on the valve size, but the basic structures are identical. Other materials are also available. Please consult for the details.

KTM SERIES EB OM-2 SPLIT BODY FLOATING BALL VALVES



ASME CLASS 150 / JIS 10K DIMENSIONS (mm)

Valve size (DN)	EB11 Full bore									EB21 Reduced bore									JIS 10K Flange dimensions					
	Bore (d)	L	H	H1	W	W ₁	W ₂	W ₃	Weight (kg)	Ball bore (d ₁)	L	H	H1	W	W ₁	W ₂	W ₃	Weight (kg)	D	C	G	T	N	h
15	13	108	81	-	130	-	-	-	2.3	-	-	-	-	-	-	-	-	-	95	70	51	12	4	15
20	19	117	85	-	130	-	-	-	3.0	-	-	-	-	-	-	-	-	-	100	75	56	14	4	15
25	25	127	98	-	160	-	-	-	4.6	-	-	-	-	-	-	-	-	-	125	90	67	14	4	19
40	38	165	124	-	230	-	-	-	7.8	-	-	-	-	-	-	-	-	-	140	105	81	16	4	19
50	51	178	135	-	230	-	-	-	11.0	-	-	-	-	-	-	-	-	-	155	120	96	16	4	19
65	64	190	165	-	400	-	-	-	20.0	-	-	-	-	-	-	-	-	-	175	140	116	18	4	19
80	76	203	174	-	400	-	-	-	24.0	-	-	-	-	-	-	-	-	-	185	150	126	18	8	19
100	102	229	240	-	715	-	-	-	34.0	-	-	-	-	-	-	-	-	-	210	175	151	18	8	19
125	127	356	310	312	1140	85	450	240	50.0	-	-	-	-	-	-	-	-	-	250	210	182	20	8	23
150	152	394	330	332	1140	85	450	240	69.0	127	267	310	312	1140	85	450	240	55	280	240	212	22	8	23
200	203	457	405	415	1510	116	600	350	108.0	152	292	330	332	1140	85	450	240	83	330	290	262	22	12	23
250	-	-	-	-	-	-	-	-	-	203	330	405	415	1510	116	600	350	122	400	355	324	24	12	25

ASME CLASS 300 / JIS 20K DIMENSIONS (mm)

Valve size (DN)	EB12 Full bore									EB22 Reduced bore									JIS 20K Flange dimensions					
	Bore (d)	L	H	H1	W	W ₁	W ₂	W ₃	Weight (kg)	Ball bore (d ₁)	L	H	H1	W	W ₁	W ₂	W ₃	Weight (kg)	D	C	G	T	N	h
15	13	140	81	-	130	-	-	-	2.5	-	-	-	-	-	-	-	-	-	95	70	51	14	4	15
20	19	152	85	-	130	-	-	-	3.2	-	-	-	-	-	-	-	-	-	100	75	56	16	4	15
25	25	165	98	-	160	-	-	-	5.0	-	-	-	-	-	-	-	-	-	125	90	67	16	4	19
40	38	190	124	-	230	-	-	-	11.0	-	-	-	-	-	-	-	-	-	140	105	81	18	4	19
50	51	216	135	-	230	-	-	-	15.0	-	-	-	-	-	-	-	-	-	155	120	96	18	8	19
65	64	241	165	-	400	-	-	-	24.0	-	-	-	-	-	-	-	-	-	175	140	116	20	8	19
80	76	283	174	-	400	-	-	-	36.0	-	-	-	-	-	-	-	-	-	200	160	132	22	8	23
100	102	305	240	-	650	-	-	-	42.0	-	-	-	-	-	-	-	-	-	225	185	160	24	8	23
125	127	381	310	312	1140	85	450	240	60.0	-	-	-	-	-	-	-	-	-	270	225	195	26	8	25
150	152	403	330	332	1140	85	450	240	106.0	127	403	310	312	1140	85	450	240	67	305	260	230	28	12	25
200	203	502	405	415	1410	116	600	350	122.0	152	419	330	332	1140	85	450	240	95	350	305	275	30	12	25
250	-	-	-	-	-	-	-	-	-	203	457	405	415	1510	116	600	350	144	430	380	345	34	12	27

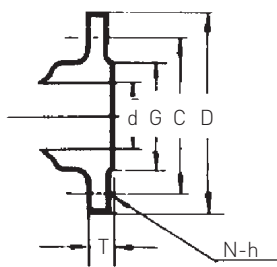
NOTES

- Weights for DN 150, DN 200 and DN 250 indicate lever operator.
- For gear operated, add 14 kg for DN 150 (reduced bore DN 200) and 35 kg for DN 200 (reduced bore DN 250).
- Face to face dimensions for EB21 size DN 150 to DN 250 and EB22 size DN 200, DN 250 are complied with ASME B16.10 short pattern.

- D: Outside diameter
- C: Bolt circle diameter
- G: Raised face diameter
- T: Flange thickness
- N: Number of bolts
- h: Bolt hole size
- d: Bore diameter
- d1: Ball bore

KTM SERIES EB OM-2 SPLIT BODY FLOATING BALL VALVES

FLANGE ENDS



- D: Outside diameter
- C: Bolt circle diameter
- G: Raised face diameter
- T: Flange thickness
- N: Number of bolts
- h: Bolt hole size
- d: Bore diameter
- d1: Ball bore

FLANGE DIMENSIONS (mm)

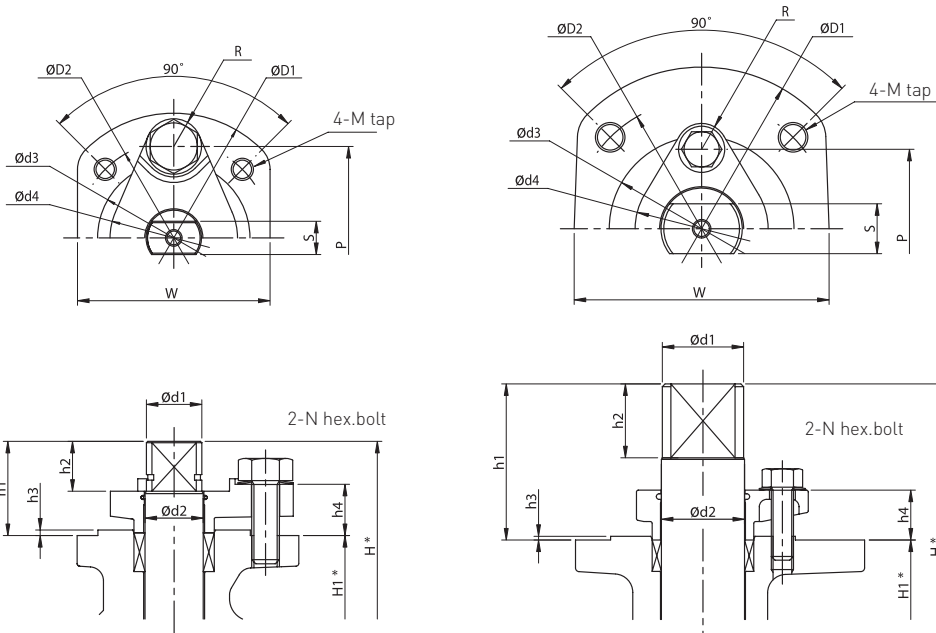
Valve size (DN)	ASME Class 150						ASME Class 300					
	D	C	G	T*	N	h	D	C	G	T*	N	h
15	89	60.5	35	11.2	4	16	95	66.5	35	14.3	4	16
20	98	70.0	43	11.2	4	16	117	82.5	43	15.9	4	19
25	108	79.5	51	11.2	4	16	124	89.0	51	17.5	4	19
40	127	98.5	73	14.3	4	16	156	114.5	73	20.7	4	22
50	152	120.5	92	15.9	4	19	165	127.0	92	22.3	8	19
65	178	139.5	105	17.5	4	19	190	149.0	105	25.4	8	22
80	190	152.5	127	19.1	4	19	210	168.0	127	28.6	8	22
100	229	190.5	157	23.9	8	19	254	200.0	157	31.8	8	22
125	254	216.0	186	23.9	8	22	279	235.0	186	35.0	8	22
150	279	241.5	216	25.4	8	22	318	270.0	216	36.6	12	22
200	343	298.5	270	28.6	8	22	381	330.0	270	41.3	12	25
250	406	362.0	324	30.2	12	25	444	387.5	324	47.7	16	29

*RF : 1.6 mm height

C_v VALUES

Valve size(DN)	Full bore	Reduced bore
15	26	-
20	50	-
25	94	-
40	260	-
50	480	-
65	750	-
80	1300	-
100	2300	-
125	3800	-
150	5400	1800
200	10000	2500
250	-	4500

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SIZES DN 15 TO DN 100

SIZES DN 125 TO DN 250

* H and H₁ are from valve center

TORQUE (Nm)

Size (DN)	Differential pressure (MPa)					
	0	1	2	3	4	5
15	5.5	5.5	5.5	5.6	5.8	6.6
20	7.0	7.0	7.1	7.2	7.6	8.5
25	9.0	9.0	9.4	10.0	10.5	12.0
40	15.5	16.0	17.0	17.5	20.0	25.0
50	22.0	22.5	24.0	27.0	32.0	40.0
65	40.0	41.0	45.0	51.0	60.5	70.0
80	60.0	69.0	78.0	89.0	100.0	115.0
100	110.0	125.0	145.0	160.0	185.0	210.0
125	200.0	230.0	265.0	310.0	350.0	380.0
150	310.0	380.0	450.0	540.0	580.0	620.0
200	500.0	720.0	960.0	1220.0	1450.0	1600.0

E-seat / PTFE gland packing

NOTE

Above-mentioned torque table's value does not contain the safety rate.

When you select the actuator, please multiply the safety rate corresponding to the necessity.

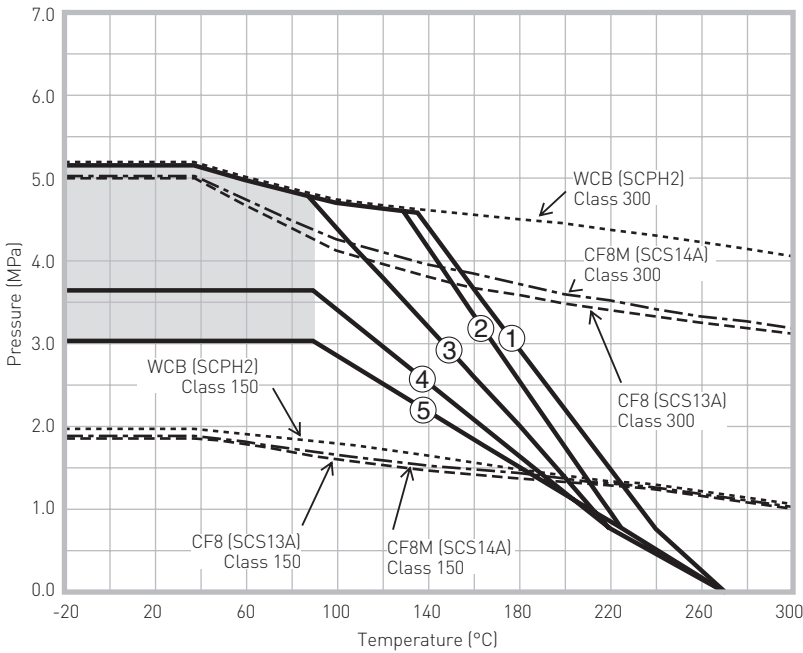
GLAND DIMENSIONS (mm)

Valve size (DN)		d ₁		d ₂		d ₃		S															
Full bore	Reduced bore	Max.	Min.	Max.	Min.	Max.	Min.	d ₄	D ₁	D ₂	h ₁	h ₂	h ₃	h ₄	H	H ₁	M	N	P	R	Max.	Min.	W
15	-	9.95	9.85	11.00	10.96	30.00	29.90	28	55	42	22.0	11	2	14.0	59.0	37	M6	M6	40	6	6.93	6.88	42.7
20	-	9.95	9.85	11.00	10.96	30.00	29.90	28	55	42	22.0	11	2	14.0	63.0	41	M6	M6	40	6	6.93	6.88	42.7
25	-	13.95	13.85	15.00	14.96	35.00	34.91	33	65	50	26.5	14	2	15.5	75.5	49	M6	M8	48	8	7.92	7.86	50.4
40	-	19.95	19.85	21.00	20.95	55.00	54.90	46	90	70	33.5	18	2	18.5	102.5	69	M8	M10	66	10	11.91	11.84	70.0
50	-	19.95	19.85	21.00	20.95	55.00	54.90	46	90	70	33.5	18	2	18.5	112.5	79	M8	M10	66	10	11.91	11.84	70.0
65	-	26.95	26.85	28.00	27.95	70.00	69.88	66	125	102	50.5	31	2	22.0	154.5	104	M10	M14	86	13	16.91	16.84	100.0
80	-	26.95	26.85	28.00	27.95	70.00	69.88	66	125	102	50.5	31	2	22.0	163.5	113	M10	M14	86	13	16.91	16.84	100.0
100	-	33.95	33.85	35.00	34.94	70.00	69.88	66	125	102	50.5	31	2	22.0	189.0	138	M10	M14	86	13	21.90	21.81	100.0
125	150	43.95	43.85	45.00	44.94	100.00	99.86	72	175	140	84.5	40	2	27.0	252.0	168	M16	M12	86	14	26.90	26.81	138.0
150	200	43.95	43.85	45.00	44.94	100.00	99.86	72	175	140	84.5	40	2	27.0	272.5	188	M16	M12	86	14	26.90	26.81	138.0
200	250	52.95	52.85	54.00	53.93	130.00	129.84	90	210	165	107.0	53	2	33.0	355.0	248	M20	M14	104	16	35.88	35.78	170.0

KTM SERIES EB OM-2 SPLIT BODY FLOATING BALL VALVES

PRESSURE/TEMPERATURE RATING (E-SEAT)

KTM seat ratings: The pressure and temperature limits of various KTM seat materials are available upon request. Below is an example of E-seat (PTFE/PFA copolymer) used for valve sizes from DN 15 to DN 250. Seat ratings for high-temperature valves with Grati® seats are identical to ASME body ratings.



- ① Full bore (DN 15, DN 20)
- ② Full bore (DN 25, DN 65)
- ③ Full bore (DN 80, DN 100)
- ④ Full bore (DN 125, DN 150),
Reduced bore (DN 150, DN 200)
- ⑤ Full bore (DN 200), Reduced bore (DN 250)

- Solid line — indicate trim rating.
- Dashed lines indicate body ratings.
 - WCB
 - CF8
 - CF8M
- Materials in parentheses indicate equivalent JIS material

- If continuous service condition is in shaded area for DN 125 to DN 200, trunnion type KTM Ball valve is recommended.
- Maximum pressure / temperature rating
ASME Class 150: 1.4 MPa / 120°C
ASME Class 300: 3.4 MPa / 120°C
- E-gasket (PTFE/PFA copolymer) is used for the body gasket in Class 150.
Y-gasket (ceramic filled PTFE) is used for the body gasket in Class 300. For temperatures exceeding 230°C, the Y-gasket in graphite construction must be used for both Class 150 and 300.

BODY STYLES

OM-2 split body floating ball valves						
Code	Body style	Bore	Connection	Pressure class	Sizes	
EB11	Floating type	Full bore	Raised face or smooth finish	ASME 150, JIS 10K	DN 15-200	
EB12	Floating type	Full bore	Raised face or smooth finish	ASME 300, JIS 20K	DN 15-200	
EB21	Floating type	Reduced bore	Raised face or smooth finish	ASME 150, JIS 10K	DN 150-250	
EB22	Floating type	Reduced bore	Raised face or smooth finish	ASME 300, JIS 20K	DN 150-250	

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SELECTION GUIDE

Example		EB11	-	32	-	1E	A15	RF	25	GG
<p>Body style: full bore, floating type, DN 15 to DN 200. Body material: 304SS. Ball material: SCS13A or SCS14A. Seat material: PTFE/PFA copolymer. Packing material: PTFE. Shaft material: 304SS or 316SS. Pressure class: ASME 150. Connection: raised face 125 to 250 AARH. Valve size: DN 25. Option: packing/gasket-graphite.</p> <p>EB11 - 32 - 1E A15 RF 25 GG</p>										
Body style										
Code	ASME	JIS								
EB11	150	10K	Full bore, floating type, DN 15 to DN 200							
EB12	300	20K	Full bore, floating type, DN 15 to DN 200							
EB21	150	10K	Reduced bore, floating type, DN 15 to DN 250							
EB22	300	20K	Reduced bore, floating type, DN 15 to DN 250							
Subcode										
Blank	Soft seat	M	Metaltite® seat	G	Gratite® seat					
Body material										
Code	JIS	ASTM								
31	SCS13A (304SS)	CF8 (304SS)								
32	SCS14A (316SS)	CF8M (316SS)								
62	SCPH2	WCB								
Special feature										
Blank	No special feature	E	Extension bonnet							
Trim										
Soft seat ball valve										
Code	Ball	Seat			Packing			Shaft		
1E	SCS13A ^[1] or SCS14A ^[2]	PTFE/PFA copolymer			PTFE			304 ^[1] /316 ^[2]		
5E ¹	SCS14A	PTFE/PFA copolymer			PTFE			316		
KR	CF8M	PEEK			R-PTFE			329J1		
KC	CF8M	PEEK			Graphite			329J1		
Metaltite® seat ball valve										
Code	Ball	Seat			Packing			Shaft		
AY	SCS13A+HCr ^[1] or SCS14A+HCr ^[2]	316 stellited			R-PTFE			329J1		
BY	SCS13A+SFNi ^[1] or SCS14A+SFNi ^[2]	316 stellited			R-PTFE			329J1		
AG	SCS13A+HCr ^[1] or SCS14A+HCr ^[2]	316 stellited			Graphite			329J1		
BG	SCS13A+SFNi ^[1] or SCS14A+SFNi ^[2]	316 stellited			Graphite			329J1		
BX	SCS13A+SFNi ^[1] or SCS14A+SFNi ^[2]	316 stellited			Graphite			Hastelloy-C		
Gratite® seat ball valve										
Code	Ball	Seat			Packing			Shaft		
CC	SCS13A ^[1] or SCS14A ^[2]	Hard graphite			Graphite			329J1		
1. For body code 31 and 62 only										
2. For body code 32 only										
Pressure class										
A15	ASME Class 150	A30	ASME Class 300	J10	JIS 10K	J20	JIS 20K			
(JPI also available)										
Connection										
RF	Raised face 125 to 250 AARH			SM	Smooth finish 63 to 125 AARH					
Valve size (DN)										
25	40	50	65	80	100	125	150	200	250	
Option										
Soft seated valve (PTFE/PFA copolymer)										
Blank	No additional option			E2	For -51°C to -70°C extension bonnet					
GG	Packing/gasket-graphite			E3	For -71°C to -104°C extension bonnet					
E1	For -30°C to -50°C extension bonnet			E5	For -105°C to -196°C extension bonnet					
Metaltite® seat and Gratite® seat ball valve										
Blank	No additional option									



PENTAIR VALVES & CONTROLS

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