

KTM Omni II Split Body Floating Ball Valve

Full Bore and Reduced Bore

tyco

KTM

Select from various seats

The KTM OMNI II is available in three basic style of seats - soft, hard and metal-to-metal. Each offers a range of performance suitable to many applications.

- E-Seat PTFE/PFA copolymer (standard) -148° to 500°F
- F-Gratite hard seat -50° to 932°F
- K-PEEK -20° to 550°F
- M-Metal seat -20° to 932°F
- T-PTFE -320° to 400°F

Features

- Superior valve design at a competitive price.
- Fugitive emissions control for flammable and non-flammable applications.
- Machined ISO actuator mounting pad.
- ZERO leakage with standard E-Seat.
- Pure white E-Seat seal relieves concern over product contamination.
- Positive alignment of split body.
- Fire-safe design tested to API 607 Fourth Edition.
- Secondary fire-safe metal-to-metal seat is standard.
- Blow out-proof stem.
- Static electricity grounding device.
- Sphericity tolerance of the balls, $\pm 0.0008"$, and a 4 RMS surface finish are unsurpassed.
- Reinforced PTFE bearing and packing rings reduce friction.
- Lower operating torque for ease of operation and reduced actuator cost.
- Positive position indication.
- Meets NACE MR0175 for sulfide cracking resistance.
- Locking device capable.



Special Options

- Stem extension
- Special body coatings
- Can be outfitted for cryogenic, chlorine oxygen and vacuum services

General applications

- Pulp and Paper
- Reactive Monomers
- Oil and Gas Production
- Steam
- Hot Gases
- Toxic and Lethal
- Fire-safe and Flammables

Special tests

- Liquid penetrant
- Magnetic-particle
- Ultra-sonic
- X-ray

Technical data

Size range

- : EB100 Full bore 1/2" thru 8"
- : EB800 Reduced bore 6" thru 10"

Standards

- : API 6D and 598
- : ANSI B16.5, B16.10 and B16.34
- : Fire-safe approved; API 607, Fourth Edition, EXES 3-14-1-2A BS6755 Part 2

Total Flow Control Solutions

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Features

ISO5211 Actuator Mounting

Machined "automation pad" allows precise mounting of actuator; mounting bolts independent from stem-packing gland bolts. Exact alignment reduces torque requirements and prevents out-of-line wear.

Radial Thrust Bearings

Radial loading absorbed, and friction from axial stem loading reduced. Dual thrust bearings support stem for extended cycle life and superior thermal characteristics.

Blowout-proof Stem and Primary Stem Seal

Stem shoulder is integral part of stem, retained internally to prevent stem blowout from pressure in body cavity. Primary stem seal prevents leakage to atmosphere, also serves as low-torque bearing.

Precise, Smooth Ball

Ball sphericity and surface finish are key factors in valve life, pressure-holding capability, and operating torque. KTM ball specifications are unmatched: Sphericity : to $\pm 0.0008"$ and surface finish 4 microinches RMS.

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; seal is fire-safe metal-to-metal.

Fugitive Emissions Control

Multiple layers of adjustable PTFE Chevron packing rings for non-flammable service, and Soft Carbon braided and die-formed for flammable service.

Live Loaded Seals

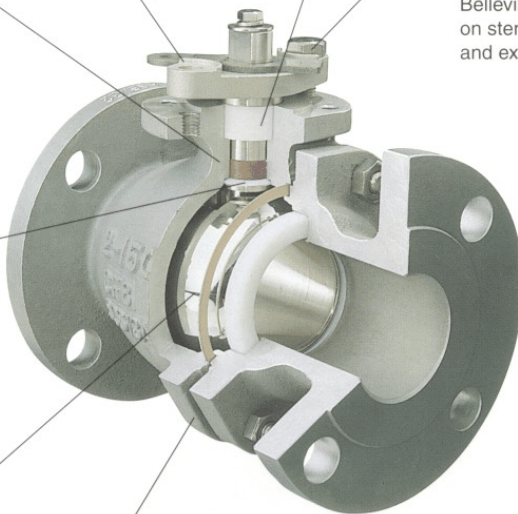
Belleville washer keeps constant force on stem-seal packing for seal integrity and extended valve life.

Cast Bleed-port Boss

Provisions for drain bleed port if desired. (Not shown)

Anti-static Grounding

Retained wire-ring provides positive ground for use with volatile or flammable liquids. (Not shown)



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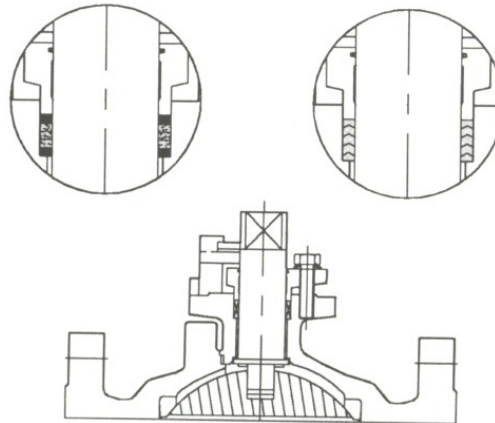
Standard Primary Containment Seals for Fugitive Emission Control

For flammable services

Fire-safe tested per API 607 4th edition/EXES 3-14-1-2A. Braided Soft Carbon for upper and lower rows, die-formed Soft Carbon for middle seal.

For non-flammable services

Fire-safe design with multi-layered, adjustable Chevron packing rings.



Standard bonnet

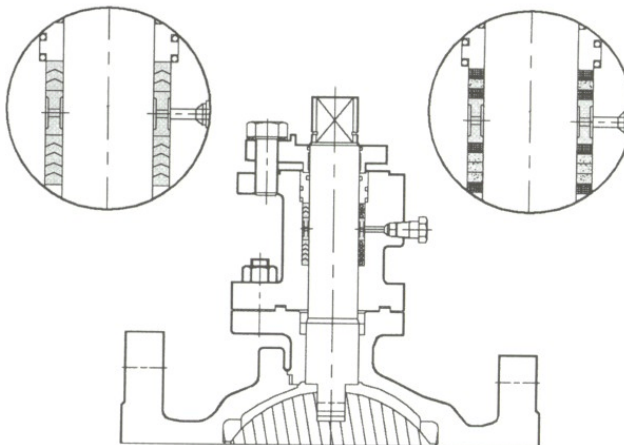
Optional Secondary Containment Seals for Fugitive Emission Control - Toxic and Lethal; Applications

For flammable services

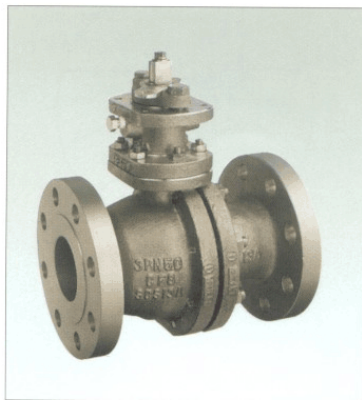
Double packing gland elastomer seal and lantern ring.

For non-flammable services

Double packing gland elastomer seal and lantern ring.



Extended bonnet



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Seat Design Selection

The OMNI II is available in three basic style of seats, soft, hard and metal. Each offering a range of performance suitable to many applications.

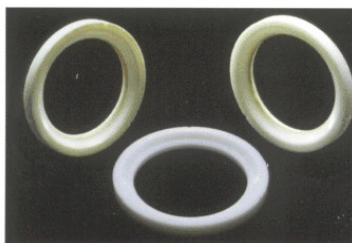
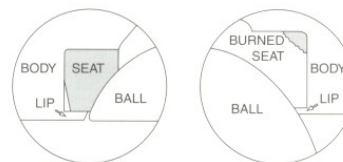
Soft Seat

Choose from three soft seat materials: The standard E-Seat PTFE/PFA copolymer, PEEK and PTFE. Each type of seat is retained in the same manner, with the valve body 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 destroyed in a fire.

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 risk 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 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 success.

The Popcorn Factor: The photograph to the right shows a virgin PTFE seat after attack by a reactive monomers (in this case, styrene). The material's molecular matrix has been penetrated by uninhibited monomers due to vapor pressure, allowing a polymeric reaction to take place. Commonly called "popcorn polymerization," this reaction can totally destroy seat material.

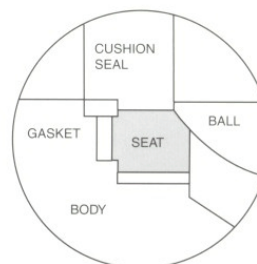
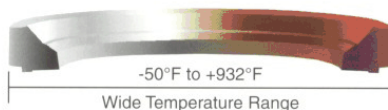
In the second photograph, you can see the results of a field test of the E-seat copolymer by KTM. Using butadiene, generally considered the worst-case scenario due to its small molecular size, the test ran for two years at 120 psi and 180°F. The seats experienced minimum distortion and, after the two-year period, did not leak in service. Pressure tests after removal, at 1.1 times design, also showed no seat leakage. The photo shows two of the seats tested and for comparison, a new seat is shown in the foreground.



Hard Gratiite™ Seat

A proprietary product for high-temperature, high-pressure, flammable and corrosive critical-process applications, the KTM Gratiite seat offers superior performance and reliability. Patented (U.S. Patent 4,269,391), it is designed to operate within a temperature range from -50°F to +932°F. Gratiite 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



Gratiite is a registered trade name of Tyco Valves & Controls.

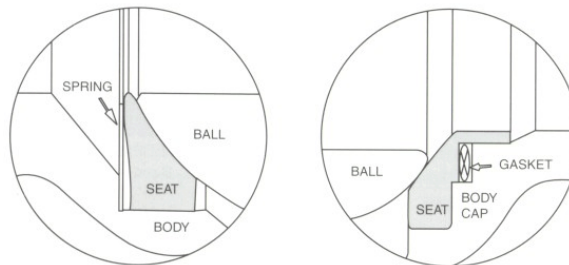
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Full Bore and Reduced Bore

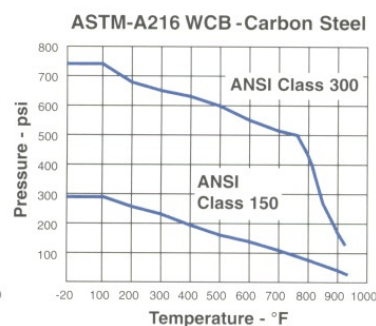
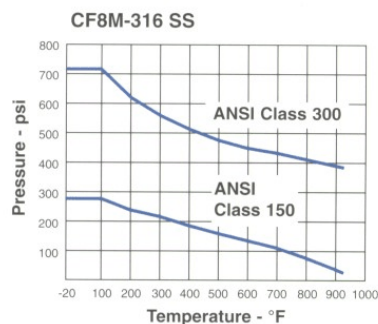
Seat Design Selection

Metaltite™ Metal Seat

KTM utilizes proprietary processes with special lapping technologies, enabling us to provide a higher-quality product with a superior level of performance. Suitable for a temperature range from -50°F to +932°F, the Metaltite metal seat is bidirectional and provides a high performance solution to many difficult applications. Precision lapping of the ball-to-seat result in superior interfacing and a tight shut-off conforming to ANSI FCI 70-2 Class V and Class VI. Available with two different ball coatings: Hard chrome or Nickel alloy overlay. Durable stellited stainless seats are highly corrosion and erosion resistant. RTFE or soft carbon stem seals are available.



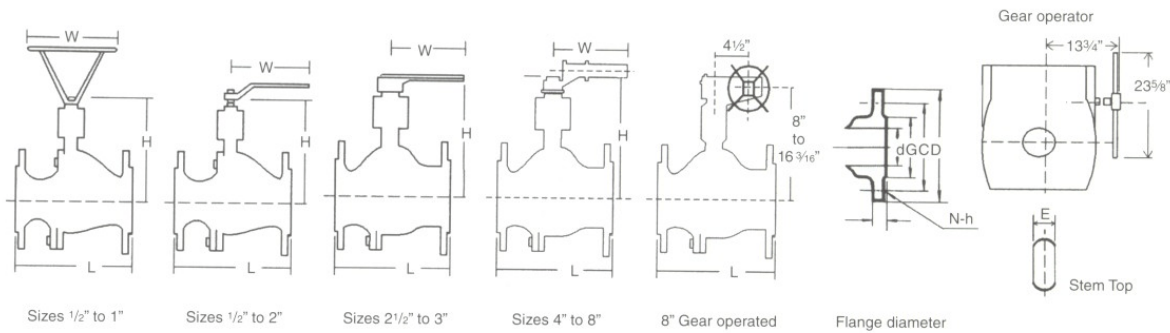
Temperature Pressure Rating



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Full Bore and Reduced Bore

Technical Information



150 lb. Class dimensions, Full and Reduced Bore

Valve Size	EB100 Full Bore						EB800 Reduced Bore						150 Lb. Flange					
	(d) Bore	L	H	W	E	Weight Pounds	(d) Bore	L	H	W	E	Weight Pounds	D	C	G	T	(N)	h
1/2"	0.50	4.25	2.38	5.13	0.25	5	—	—	—	—	—	—	3.5	2.38	1.38	0.38	(4)	5/8
3/4"	0.75	4.63	2.5	5.13	0.25	6.5	—	—	—	—	—	—	3.88	2.75	1.64	0.41	(4)	5/8
1"	1	5	3	6.31	0.31	10	—	—	—	—	—	—	4.25	3.13	2	0.44	(4)	5/8
1 1/2"	1.5	6.5	4.06	9.06	0.44	17	—	—	—	—	—	—	5	3.88	2.88	0.56	(4)	5/8
2"	2	7	4.5	9.06	0.44	23	—	—	—	—	—	—	6	4.75	3.63	0.63	(4)	3/4
2 1/2"	2.5	7.5	6.13	15.75	0.69	42	—	—	—	—	—	—	7	5.5	4.13	0.69	(4)	3/4
3"	3	8	6.5	15.75	0.69	51	—	—	—	—	—	—	7.5	6	5	0.75	(4)	3/4
4"	4	9	7.5	28.13	0.88	74	—	—	—	—	—	—	9	7.5	6.19	0.94	(8)	3/4
6"	6	15.5	10.75	45.06	1.06	151	5	10.5	10	28.13	1.06	121	11	9.5	8.5	1	(8)	7/8
8"	8	18	13.5	59	1.25	238	6	11.5	10.75	45.06	1.25	182	13.5	11.75	10.63	1.13	(8)	7/8
10"	—	—	—	—	—	—	8	13	15.94	59.45	1.42	267	16	14.25	12.75	1.19	(12)	1

Weights for 6" and 10" are lever operated valves. For gear operated, add 30 lbs. for 6" and 8" FULL port, and 55 lbs. for 8" and 10" REDUCED.

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Technical Information

300 lb. Class Dimensions, Full Bore

Valve Size	EB100 Full Bore (d)	Bore	L	H	W	E	300 Lb. Flange D	C	G	Weight T	(N)hPounds
1/2"	0.5	5.5	2.25	5.13	0.25	3.75	2.63	1.39	0.56	(4) 5/8	5.5
3/4"	0.75	6	2.5	5.13	0.25	4.63	3.25	1.64	0.63	(4) 3/4	7
1"	1	6.5	3	6.25	0.31	4.88	3.5	2	0.69	(4) 3/4	11
1 1/2"	1.5	7.5	3.75	9.5	0.44	6.13	4.5	2.88	0.81	(4) 7/8	24
2"	2	8.5	4.25	9.5	0.44	6.5	5	3.63	0.88	(8) 3/4	33
2 1/2"	2.5	9.5	5.5	15.75	0.69	7.5	5.88	4.13	1	(8) 7/8	52
3"	3	11.13	6	15.75	0.69	8.25	6.63	5	1.13	(8) 7/8	79
4"	4	12	7	27.5	0.88	10	7.88	6.19	1.25	(8) 7/8	91
6"	6	15.88	10.75	43.25	1.06	12.5	10.63	8.5	1.44	(12) 7/8	233
8"	8	19.75	13.5	59	1.25	15	13	10.63	1.63	(12) 1	267

Weights for 6" and 8" are lever operated valves. For gear operated, add 30 lbs. for 6" and 55 lbs. for 8".

Notes

- Model EB800 6" thru 10" face-to-face dimensions are based on API 6D short pattern.
- API 6D stipulates face-to-face dimensions for sizes 2" and over.
- The face-to-face dimensions up to 1 1/2" are based on the following standards:
Class 150 1/2" to 1 1/2":
ANSI 16.10 #150 Gate Valve
Class 300 1/2" to 1":
MSS DS-13 #300 Gate Valve
Class 300 1/2" to 1 1/2":
ANSI B16.10 #300 Gate Valve
- Lever handle standard up to 8". Gear operators are available. KTM furnishes a lever handle for sizes up to 10" due to low operating torque. Gear operators are available at user's option.
- KTM ball valves comply with one or more of the following standard specifications as to pressure, temperature ratings and dimensions:
ANSI B1.20.1 Pipe Threads
ANSI B16.5 Steel Pipe Flanges
ANSI B16.10 Face-to-Face Dimensions
ANSI B16.34 Valves - Flanged, threaded and welded end

C_v Values, Full and Reduced Bore

Valve Size	Full	Reduced
1/2"	26	—
3/4"	50	—
1"	94	—
1 1/2"	260	—
2"	480	—
2 1/2"	750	—
3"	1300	—
4"	2300	—
6"	5400	1800
8"	10000	2500
10"	—	4500

Materials of Construction

Body	: Carbon Steel (A216, WCB) 304 SS (CF8), 316 SS (CF8M)
Ball	: 304 SS (CF8), 316 SS (CF8M)
Stem	: 304 SS, 316 SS
Seat	: PTFE/PFA Copolymer
Packing	: PTFE or Soft Carbon
Valve Class	: 150 and 300
Test pressure per API 6D	
	: Shell (Hydrostatic) Class 150, 425 psig (30 kgf/cm ²) Class 300 1100 psig (77 kgf/cm ²)
	: Seat (Hydrostatic) (Air) Class 150, 300 psig 80 psig (21 kgf/cm ²) (6 kgf/cm ²) Class 300, 800 psig 80 psig (56 kgf/cm ²) (6 kgf/cm ²)