

Metallite® Metal Seated ball valves has excellent sealing characteristics suitable for various fluids services with a wide range of operating temperatures.

KTM 's Metallite® family of valves are designed to provide solutions to specific operating needs.

Features

1. Superior Sealing

High precision machining results in superior ball and seat interfacing for tight shutoff conforming to ASME B16.104 Class V and VI.

2. Dependable Operations

Spring loaded seats maintain close contact with the ball assuring tight sealing even at low pressures. This results in stable opening and closing torques at high differential pressures over a wide range of temperatures as well as high frequency.

3. Fire Safe

The combination of metal seat and graphite seals insure fire-safe capabilities.

4. Material Selection

Various material components are available for a variety of service application up to 500°C.

5 Versatility

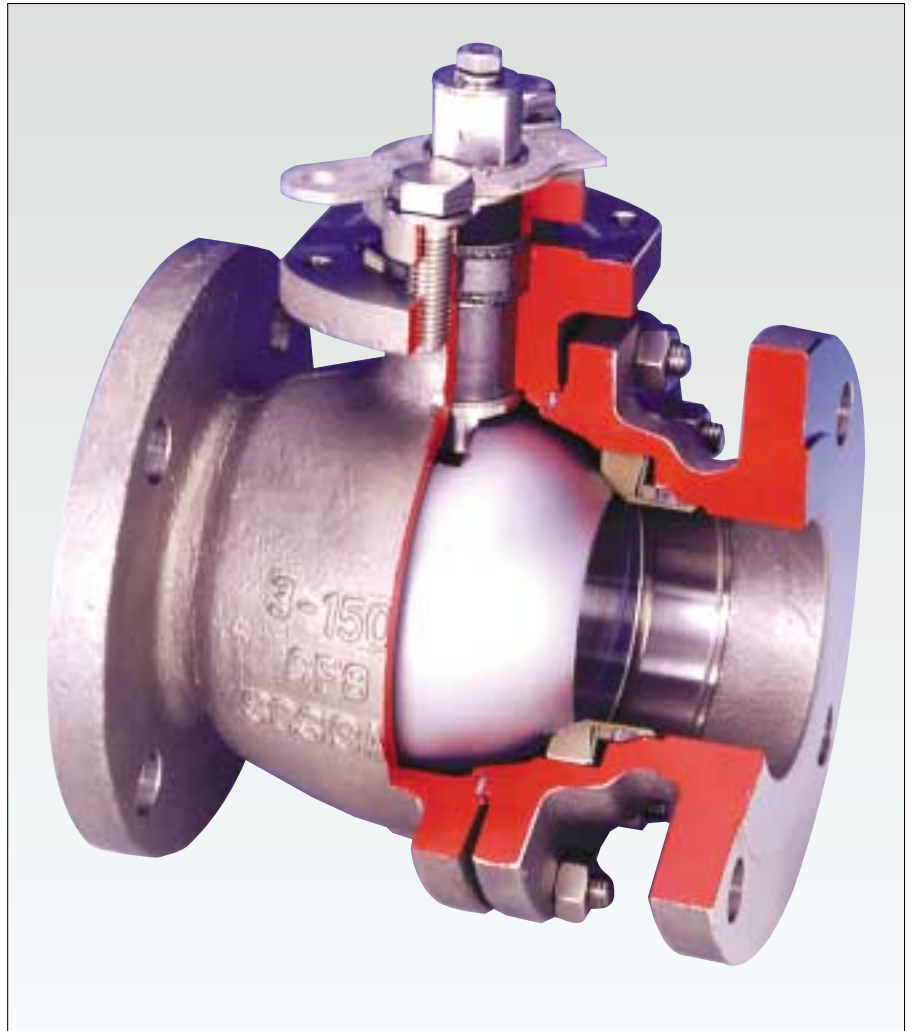
Surface-hardened ball and seats allow use in more severe applications such as slurries, pulp stock and other abrasive media in long life. Uniquely designed trunnion mounted valves are also available for powder service.

6. Actuators

KTM can provide a complete valve and actuator 'package' including various user-preferred brands of actuators.

Special Tests

- Liquid penetrant
- Magnetic particle
- PM I
- X-ray



General applications

- Clean Liquids
- Dirty Liquids
- High Viscosity
- Scaling Liquids
- Corrosive
- Erosive
- Waste Treatment
- Sludge
- Pulp Stock
- Wet Slurries
- Dry Slurries
- Saturated Steam
- Superheated Steam
- Clean Gases
- Dirty Gases
- High Temperature
- High Velocity

Technical Data

Sizes	: 15mm to 600 mm
Pressure rating	: ASME Class 150 to 600. For ASME Class 900 consult KTM
Temperature	: -29°C to 500°C

Standards

Face to face	: ASME B16.10
End connection	: ASME B16.5

KTM's Metallite® Family

Experience gained from over 20 years of manufacturing metal-seated ball valves has contributed to the development of a valve of superior quality and design -Metallite®.

Precision lapping of ball to seat and high-precision machining result in superior ball and seat interfacing for tight shutoff conforming to FCI 70-2 Class V and Class VI.

Type	Manufacturing Range	Temperature Range	Backup Seal	Hard-facing	Trim Code	Applications
Floating	Class 150, 300 15mm to 200mm (½" to 8")	-29°C to 250°C (-20 to 480°F)	Reinforced Teflon	Ball : Hard chrome plated Seat : Stellite	AY	Slurries, pulp stock, solid-containing fluids, etc. ON-OFF or throttling.
				Ball : Nickel alloy overlay Seat : Stellite	BY	
	Class 600 15mm to 50mm (½" to 2")	-29°C to 350°C (-20 to 662°F)	Graphite	Ball : Hard chrome plated Seat : Stellite	AG	High-temperature fluids, slurry, pulp stock, steam, solid containing fluids, etc. ON-OFF or throttling, fire-safe.
				Ball : Nickel alloy overlay Seat : Stellite	BG	
				Ball : Nickel alloy overlay Seat : Stellite	BX	
	Trunnion Mounted	Class 150, 300 50mm to 500mm (2" to 20")	-20°C to 150°C (-4 to 300°F)	Viton O-Ring	Ball : Hard chrome plated Seat : Stellite	AY
Ball : Nickel alloy overlay Seat : Stellite					BY	
Class 600 50mm to 400mm (2" to 16")		-29°C to 250°C (-20 to 480°F)	Teflon U-Ring	Ball : Hard chrome plated Seat : Stellite	AG	Slurries, pulp stock, steam, solid-containing fluids etc. ON-OFF or throttling, fire-safe.
				Ball : Nickel alloy overlay Seat : Stellite	BG	
				Ball : Nickel alloy overlay Seat : Stellite	BX	
		-29°C to 500°C (-20 to 932°F)	Graphite	Ball : Nickel alloy overlay Seat : Stellite	BX	High-temperature, high-frequency, high-pressure service, fire-safe.

Ball

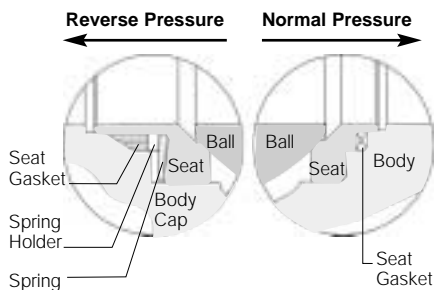
Two types of surface-hardened precision balls are available

Hardening	Hardness	Working Temp.
Hard chrome plating	HV800 (HRC 60) or higher	350°C Maximum
Nickel alloy overlay	HV 595 (HRC 55) or higher	500°C Maximum

Other surface rendering : Consult KTM

Extension Bonnet

Extension bonnets are required for fluids above 300°C.



* In order to seal normal pressure, install the valve with the seat on body side when piping.

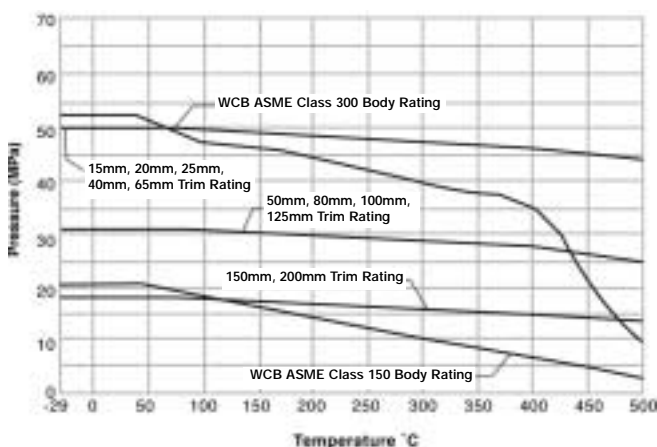
Metallite® Metal Seat

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 up to 500°C, the Metallite metal seat is bi-directional 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 FCI 70-2 Class V and Class VI. Available with two different ball coatings: Hard chrome or Nickel alloy overlay. Durable stellite stainless seats are highly corrosion and erosion resistant. RTFE or soft carbon stem seals are available.

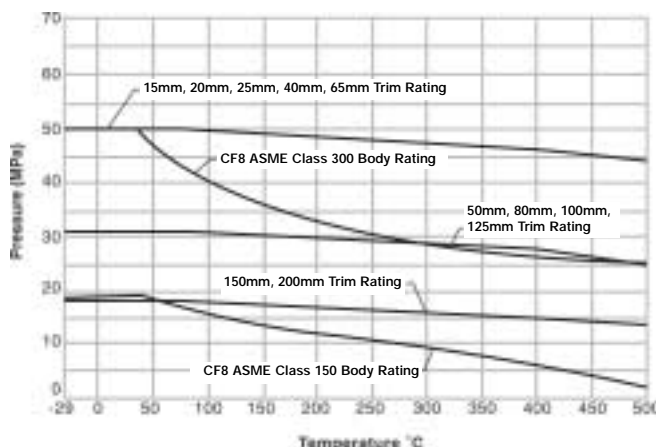
Pressure - Temperature Rating

Pressure - Temperature rating of valves are limited by Sealing and Stem materials. The combination of Body Rating and Trim Rating indicate the maximum Valve Rating at specific pressure and temperature conditions.

Floating Type

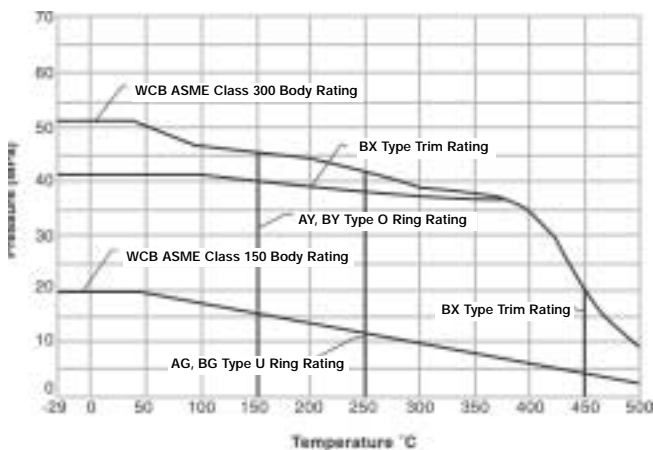


Carbon Steel

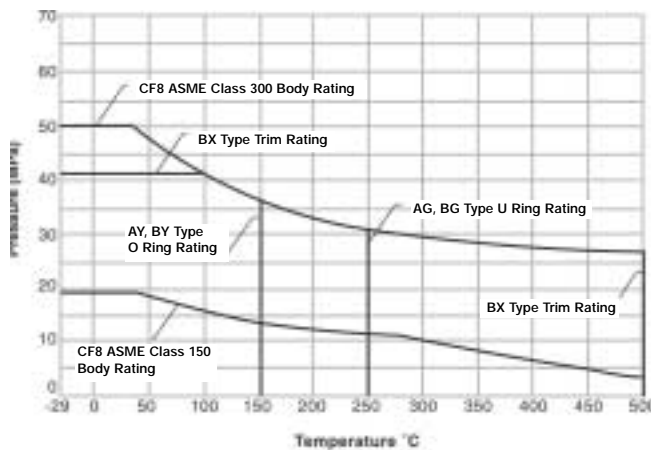


Stainless Steel

Trunnion Type



Carbon Steel

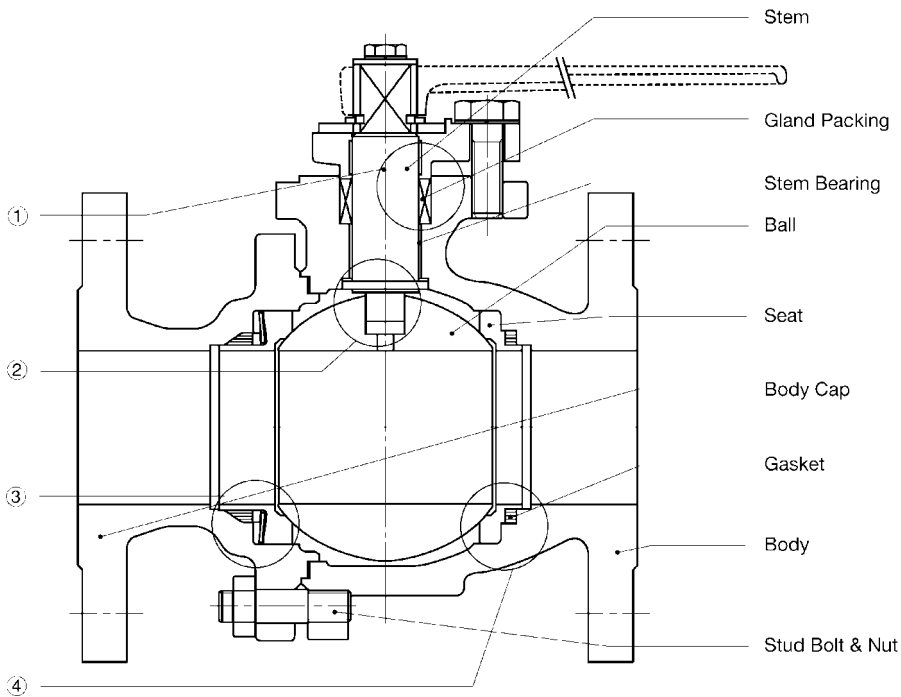


Stainless Steel

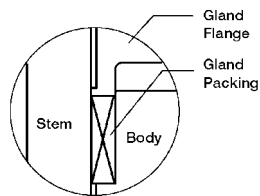
Floating Ball Valve Structure (Bi-Directional Flow)

Notes

- ASME Class 150 and 300
15mm to 200mm (½" to 8")
- ASME Class 600
15mm to 50mm (½" to 2")

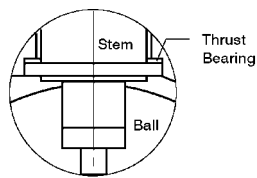


① Gland Packing Area



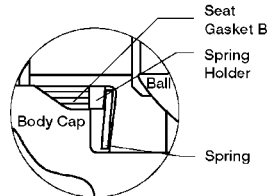
Graphite packing are suitable for high-temperature service.
(Reinforced Teflon Packing also available)

② Stem Area



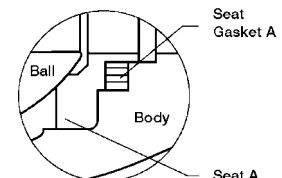
Stem with integral Flange provides blow-out proof protection if packing is loosen.

③ Seat Area (Bodycap Side)



Seat Spring provides flexibility to piping stress semi colon and thermal expansion to stabilize operation.

④ Seat Area (Body Side)



Seat-Gaskets are press-fit into the body and provide stability for a wide range of temperatures from -29°C to 500°C.

Materials of Construction

Material Code	Carbon Steel					Stainless Steel*				
	62-AY*1	62-BY	62-AG*1	62-BG	62-BX	32-AY*1	32-BY	32-AG*1	32-BG	32-BX
Temp Range	-5°C to 250°C		-5°C to 350°C		Max.450°C	-29°C to 250°C		-29°C to 350°C		Max.500°C
Body & Body Cap	A216(G)WCB					A351(G)CF8M				
Ball	A351(G) CF8M/Hcr	A351(G) CF8M/SFNI	A351(G) CF8M/Hcr	A351(G)CF8M/SFNI		A351(G) CF8M/Hcr	A351(G) CF8M/SFNI	A351(G) CF8M/Hcr	A351(G)CF8M/SFNI	
Stem	AISI 4137 ENP				Hastelloy-C	329 Stainless Steel				Hastelloy-C
Seat	A276(TP)316 Stellite					A276(TP) Stellite				
Gasket**	Reinforced T.F.E		Graphite			Reinforced T.F.E		Graphite		
Gland Packing	Reinforced T.F.E		Graphite			Reinforced T.F.E		Graphite		
Stem Bearing	Reinforced T.F.E		Graphite			Reinforced T.F.E		Graphite		
Spring	316 Stainless Steel				Inconel X750	316 Stainless Steel				Inconel X750
Stud Bolt	A193(G)B7					304SS**4				
Nut	A194(G)B7					304SS**3				
Seat Gasket	Reinforced T.F.E		Graphite			Reinforced T.F.E		Graphite		

*1 ASME Class 150, 300 only

**2 ASME Class 600: spiral wound gasket

**3.4 ASME Class 600: A193(G)B7/Zn, A194(G)2H/Zn

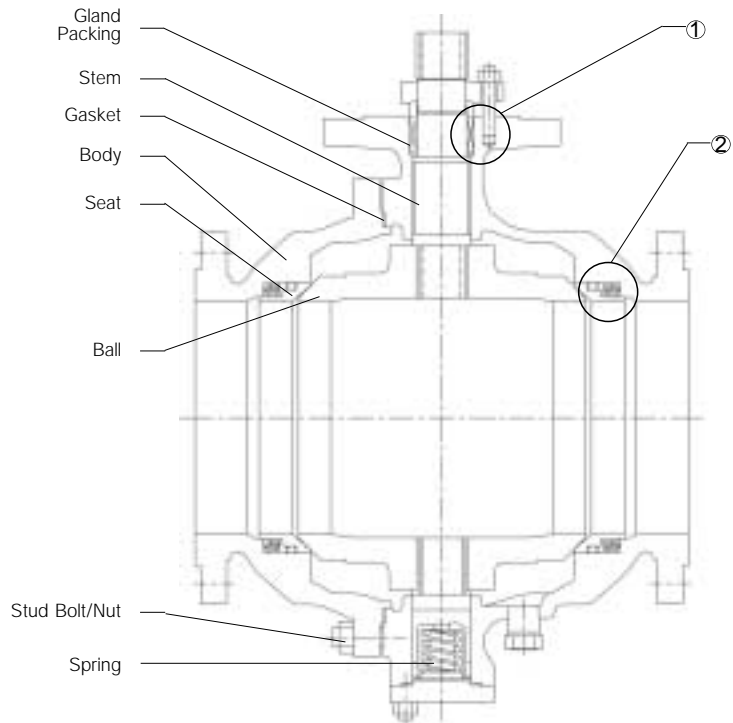
*Material Code 31 also available

SFNI: Nickel alloy overlay
HCr: Hard chrome plated
Zn: Zn plated

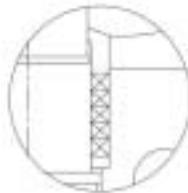
Notes

- ASME Class 150 and 300
50mm to 500mm (2" to 20")
- ASME Class 600
50mm to 450mm (2" to 18")

Trunnion Mounted Ball Valve Structure (Bi-Directional Flow)



① Gland Packing Area



Soft carbon packing is suitable for high-temperature service.
(Reinforced Teflon Packing also available)

② Seat Area



Highly corrosion-resistant Teflon U-ring or Viton O-ring provides excellent sealing performance up to 250°C

Materials of Construction

Material Code	Carbon Steel					Stainless Steel				
	62-AY* ¹	62-BY	62-AG* ¹	62-BG	62-BX	31-AY* ¹	31-BY	31-AG* ¹	31-BG	31-BX
Temp Range	-5°C to 150°C		-5°C to 250°C		Max.450°C	-20°C to 150°C		-29°C to 250°C		Max.500°C
Body and Body Cap	A216(G)WCB					A351(G)CF8				
Ball	A351(G)CF8/Hcr	A351(G)CF8/SFNI	A351(G)CF8/Hcr	A351(G)CF8/SFNI		A351(G)CF8/Hcr	A351(G)CF8/SFNI	A351(G)CF8/Hcr	A351(G)CF8/SFNI	
Stem	A276(TP) 410Hcr				329 Stainless Steel Hastelloy-C	329 Stainless Steel				329 Stainless Steel Hastelloy-C
Seat	A276(TP)304 Stellite					276(TP)316 Stellite				
Gasket* ²	Reinforced T.F.E		Non Asbestos joint sheet			Reinforced T.F.E		Non Asbestos joint sheet		Graphite
Gland Packing	Reinforced T.F.E		Graphite			Reinforced T.F.E		Graphite		
Stem Bearing	Metal Back T.F.E			Stellite		Metal Back T.F.E			Stellite	
Spring	316 Stainless Steel			Inconel X750		316 Stainless Steel			Inconel X750	
Seat Back Seal	Viton O-Ring		TFE U-Ring		Graphite	Viton O-Ring		TFE U-Ring		Graphite
Bolt	A193(G)B7					A193(G)B7/Zn				
Nut	A194(G)2H					A194(G)2H/Zn				

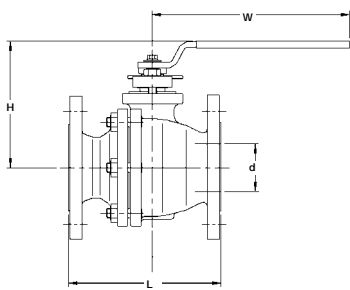
*1 ASME Class 150, 300 only

*2 ASME Class 600: spiral wound gasket

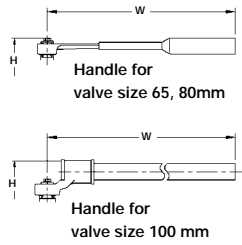
SFNI: Nickel Alloy overlay
HCr: Hard chrome plated
Zn: Zn plated

KTM Metallite® Metal Seated Ball Valves

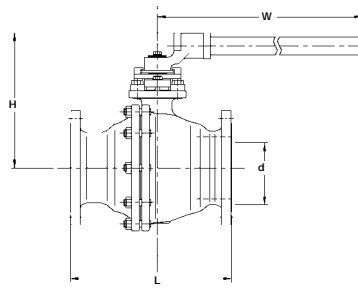
Floating type dimensions



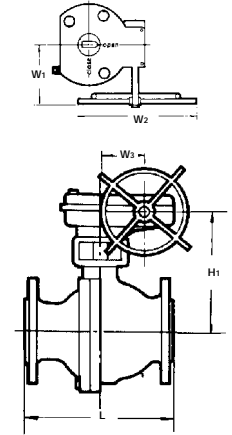
Size 15mm to 100mm



Handle for valve size 100 mm



Size 125mm to 200mm



Size 150mm to 200mm

ASME Class 150 Dimensions (mm)

EB11M Full Bore

Valve Size (mm)	d	L	H	H ₁	W	Bare Shaft Weight (Kg)	Gear type	W ₁	W ₂	W ₃	Gear Weight (Kg)
15	13	108	81	-	200	2	-	-	-	-	-
20	19	117	85	-	200	3	-	-	-	-	-
25	25	127	98	-	240	5	-	-	-	-	-
40	38	165	124	-	350	8	-	-	-	-	-
50	51	178	135	-	350	10	-	-	-	-	-
65	64	190	165	-	600	17	-	-	-	-	-
80	76	203	174	-	600	21	-	-	-	-	-
100	102	229	240	-	1,065	33	-	-	-	-	-
125	127	356	305	-	1,650	64	-	-	-	-	-
150	152	394	330	348	1,650	83	B	350	600	116	35
200	203	457	405	421	2,250	132	C	420	800	171	74

ASME Class 300 Dimensions (mm)

EB12M Full Bore

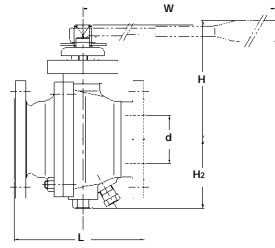
Valve Size (mm)	d	L	H	H ₁	W	Bare Shaft Weight (Kg)	Gear type	W ₁	W ₂	W ₃	Gear Weight (Kg)
15	13	140	81	-	200	3	-	-	-	-	-
20	19	152	85	-	200	4	-	-	-	-	-
25	25	165	98	-	240	6	-	-	-	-	-
40	38	190	124	-	350	12	-	-	-	-	-
50	51	216	135	-	350	17	-	-	-	-	-
65	64	241	165	-	600	26	-	-	-	-	-
80	76	283	174	-	600	33	-	-	-	-	-
100	102	305	240	-	1,065	53	-	-	-	-	-
125	127	381	305	-	1,650	77	-	-	-	-	-
150	152	403	330	348	1,650	116	B	350	600	116	35
200	203	502	405	421	2,250	187	C	420	800	171	74

ASME Cv Values

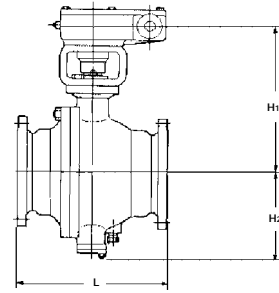
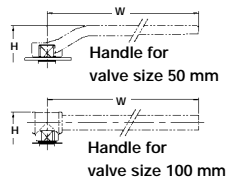
Floating Type		Trunnion Type	
Valve Size (mm)	Full bore	Valve Size (mm)	Full bore
15	26	50	480
20	50	80	1,300
25	94	100	2,300
40	260	150	5,400
50	480	200	10,000
65	750	250	16,000
80	1,300	300	24,000
100	2,300	350	31,400
125	3,800	400	43,000
150	5,400	450	57,000
200	10,000	500	73,000

KTM Metallite® Metal Seated Ball Valves

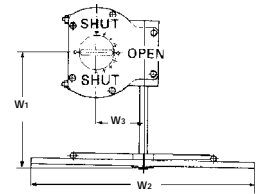
Trunnion type dimensions



Sizes 50mm to 100mm



Sizes 150mm and larger



ASME Class 150 Dimensions (mm)

E0125M Full Bore

Valve Size (mm)	d	L	H	H ₁	H ₂	W	Bare Shaft Weight (Kg)	Gear type	W ₁	W ₂	W ₃	Gear Weight (Kg)
50	51	178	154	-	81	350	13	-	-	-	-	-
80	76	203	193	-	108	600	31	-	-	-	-	-
100	102	229	254	-	132	1,065	44	-	-	-	-	-
150	152	394	-	389	207	-	133	B	350	600	116	35
200	203	457	-	448	265	-	229	C	420	800	171	74

E0105M Full Bore

Valve Size (mm)	d	L	Carbon Steel Body		Stainless Steel Body		Bare Shaft Weight (Kg)	Gear type	W ₁	W ₂	W ₃	Gear Weight (Kg)
			H ₁	H ₂	H ₁	H ₂						
250	254	533	507	325	521	335	330	C	420	800	171	74
300	305	610	585	365	580	385	490	C	420	800	171	74
350	337	686	659	400	664	430	605	D	400	800	257	145
400	387	762	699	440	717	470	891	D	400	800	257	145
450	438	864	769	500	767	520	1,122	E	400	800	355	150
500	489	914	964	555	972	590	1,408	H ₁	410	800	150	207

ASME Class 300 Dimensions (mm)

E0126M Full Bore

Valve Size (mm)	d	L	H	H ₁	H ₂	W	Bare Shaft Weight (Kg)	Gear type	W ₁	W ₂	W ₃	Gear Weight (Kg)
50	51	216	154	-	81	350	20	-	-	-	-	-
80	76	283	193	-	108	600	40	-	-	-	-	-
100	102	305	254	-	132	1065	73	-	-	-	-	-
150	152	403	-	389	207	-	169	B	350	600	116	35
200	203	502	-	448	265	-	286	C	420	800	171	74

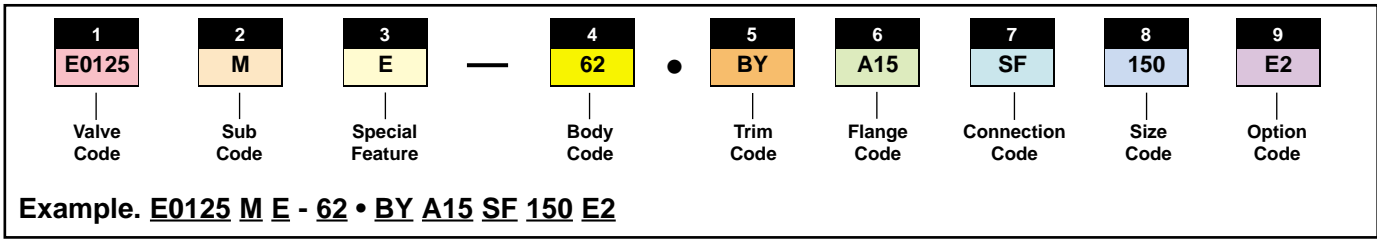
E0106M Full Bore

Valve Size (mm)	d	L	Carbon Steel Body		Stainless Steel Body		Bare Shaft Weight (Kg)	Gear type	W ₁	W ₂	W ₃	Gear Weight (Kg)
			H ₁	H ₂	H ₁	H ₂						
250	254	568	507	325	521	335	402	C	420	800	171	74
300	305	648	624	365	619	385	583	D	400	800	257	145
350	337	762	659	400	664	430	814	E	400	800	355	150
400	387	838	699	440	717	470	1,133	E	400	800	355	150
450	438	914	904	500	902	520	1,408	H ₁	410	800	150	207
500	489	991	964	555	972	590	1,694	H ₁	410	800	150	207

KTM Metallite® Metal Seated Ball Valves

Trunnion type dimensions

New KTM Model Coding System



1		Class		Description
Valve Code	JIS	ASME		
EB11	10K	150	Full bore, Floating type 15mm to 200mm	
EB12	20K	300	Full bore, Floating type 15mm to 200mm	
E0125	10K	150	Full bore, Trunnion type 50mm to 200mm	
E0126	20K	300	Full bore, Trunnion type 50mm to 200mm	
E0108	-	600	Full bore, Trunnion type 50mm to 500mm	
E0801	10K	150	Reduce bore, Trunnion type 300mm to 600mm	
E0821	10K	150	Reduce bore, Trunnion type 150mm to 250mm	
E0802	20K	300	Reduce bore, Trunnion type 300mm to 600mm	

2		Description
Sub Code		
M	Metal seat body	

3		Description
Special Features		
Blank	No Special Feature	
E	Extension Bonnet (For EB only)	
K	Powder Service	

4		Material	
Body Code	JIS	ASTM	
31	SCS13A (304)	CF8 (304)	
32	SCS14A (316)	CF8M (316)	
62	SCPH2	WCB	

5		Ball	Seat	Packing	Stem
Trim Code	JIS	ASTM			
AY	SCS13A/HCr ¹ or SCS14A/HCr ²	CF8/HCr ¹ or CF8M/HCr ²	316 Stellite	R-PTFE	329J1 ³
BY	SCS13A/SFNI ¹ or SCS14A/SFNI ²	CF8/SFNI ¹ or CF8MSFNI ²	316 Stellite	R-PTFE	329J1 ³
AG	SCS13A/HCr ¹ or SCS14A/HCr ²	CF8/HCr ¹ or CF8M/HCr ²	316 Stellite	Graphite	329J1 ³
BG	SCS13A/SFNI ¹ or SCS14A/SFNI ²	CF8/SFNI ¹ or CF8MSFNI ²	316 Stellite	Graphite	329J1 ³
BX	SCS13A/SFNI ¹ or SCS14A/SFNI ²	CF8/SFNI ¹ or CF8MSFNI ²	316 Stellite	Graphite	Hastelloy-C

* Trim Code is inclusive of "Ball, Seat, Packing and Stem"
¹ For Body Code 31 and 62 only
² For Body Code 32 only
³ For Body Code 62 : AISI 4137 with ENP or SUS410 ENP
 HCr: Hard chrome plated
 SFNI: Nickel alloy overlay
 ENP: Electroless Nickel Plating

6		Description
Flange Code		
ASME		
A15	ASME Class 150	
A30	ASME Class 300	
A60	ASME Class 600	
JIS		
J10	JIS 10K	
J20	JIS 20K	

7		Description
Connection Code		
Blank	Raised Face	
RJ	Ring Joint	
SF	Smooth Finish 125 to 250 AARH	

8		
Size Code	mm	inch
15	15	1/2
20	20	3/4
25	25	1
40	40	1 1/2
50	50	2
65	65	2 1/2
80	80	3
100	100	4
125	125	5
150	150	6
200	200	8
250	250	10
300	300	12
350	350	14
400	400	16
450	450	18
500	500	20
600	600	24

9		Description
Option Code		
Blank	No additional option	
E2	Extension Bonnet for high temp service (For Model Code EB11 and EB12 only)	
E4	Extension Bonnet for high temperature	