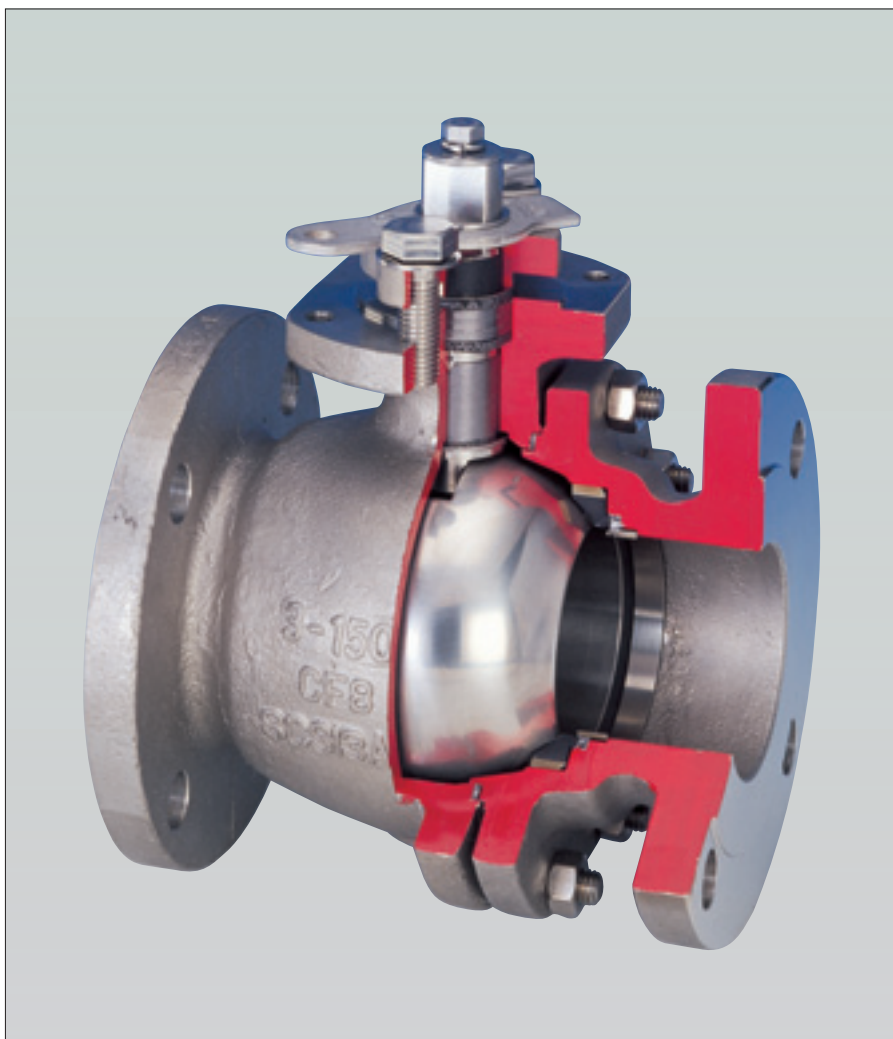




KTM's Gratite® seat ball valve not only operates across an impressive range of temperatures, from -29°C to 500°C, it also boasts outstanding performance and a reliability, making it ideal for high pressure, fire-proof, anti-corrosion and other key process lines.

Features

- Hard graphite with excellent self-lubrication and anti-corrosion properties is adopted to the seat and flexible graphite to the cushion seal.
- Hard graphite seats and the graphite packing ensure a wide operating temperature range from -29°C to 500°C.
- Gratite® offers superior cost effectiveness in comparison to the metal seated valves.
- High resistance to thermal shock prevents the cracking caused by thermal shock seen in ceramics.
- With high conductivity, Gratite® has an anti-static function.
- Blowout-proof stem (ASME Class 600 optional)
- A two-piece body construction makes maintenance easier.
- The product features a fire safe design.
- Easy actuator mounting
- It can be used for both flow directions.
- Gratite® boasts outstanding sealing characteristics.
Water pressure: Zero leakage
Air pressure: 10cc / min / inch
(10cc / min for the size of 25mm or less)



General applications

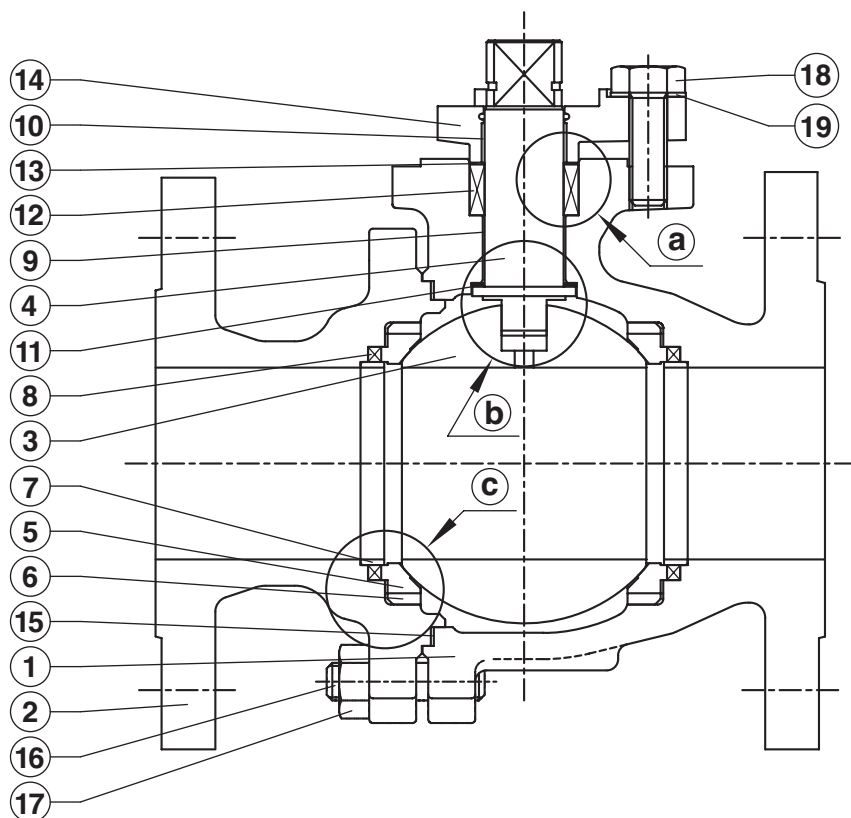
Chemical plant, oil refinery, power plant, steam, Dowtherm®, fused alkali, fuel oil and gas

Special options

- Extension bonnet
- Jacketed ball valve
- Special tests
 - X-ray (RT)
 - Liquid penetrant (PT)
 - Positive material inspection (PMI)

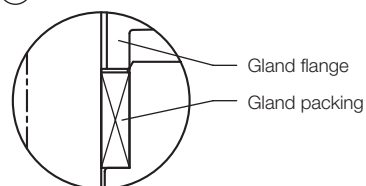
Technical data

Models / Sizes : EB11G / 15 to 200mm
(1/2" to 8")
EB12G / 15 to 200mm
(1/2" to 8")
E0108G / 15 to 100mm
(1/2" to 4")
Pressure Rating : JIS10K, 20K / ASME
Class 150, 300 and 600
(JPI available)
Face to Face : ASME B16.10, JIS B2002
End Connection : ASME B16.5, JIS B2220
Temperature : -29°C to 500°C
(Up to 450°C for oxidizing condition)



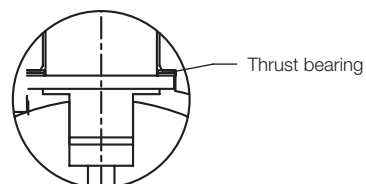
This figure shows a product in ASME150, 300 (JIS10K, 20K).

a Gland area



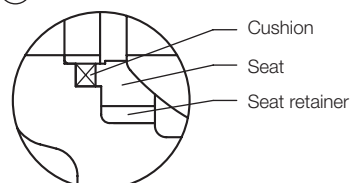
The graphite packing has a fire safe design that makes it suitable for high temperature environments.

b Stem area



The flanged stem is prevented from blowing out in the event of a packing loss.

c Seat area



The Gratitude® seat has impressive sealing performance. The cushion seal absorbs thermal expansion to ensure stable operation.

Parts List

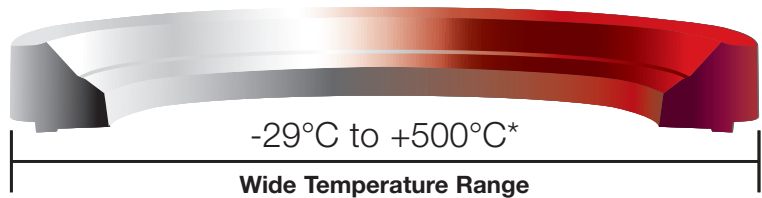
No	Part Name	Model No			Qty
		EB11G-62 / EB12G-62	EB11G-31 / EB12G-31	EB11G-32 / EB12G-32	
1	Body	WCB (SCPH2)	CF8 (SCS13A)	CF8M (SCS14A)	1
2	Body cap	WCB (SCPH2)	CF8 (SCS13A)	CF8M (SCS14A)	1
3	Ball	CF8 (SCS13A)	CF8 (SCS13A)	CF8M (SCS14A)	1
4	Stem	SUS329J1 (329SS)	SUS329J1 (329SS)	SUS329J1 (329SS)	1
5	Seat	Gratitude®	Gratitude®	Gratitude®	2
6	Seat retainer	316SS	316SS	316SS	2
7	Inner ring	316SS	316SS	316SS	2
8	Cushion	Graphite	Graphite	Graphite	2
9	Stem bearing	Graphite	Graphite	Graphite	1
10	Stem bearing	Graphite	Graphite	Graphite	1
11	Thrust bearing	316SS	316SS	316SS	2
12	Gland packing	Graphite	Graphite	Graphite	1set
13	Packing washer	316SS	316SS	316SS	1
14	Gland flange	CF8 (SCS13A)	CF8 (SCS13A)	CF8 (SCS13A)	1
15	Gasket	Graphite	Graphite	Graphite	1
16	Stud	A193 GB7	A193 GB8	A193 GB8	4-12
17	Nut	A194 G2H	A194 G8	A194 G8	4-12
18	Gland bolt	A193 GB8	A193 GB8	A193 GB8	2
19	Live loading spring	304SS (SUS304)	304SS (SUS304)	304SS (SUS304)	2

• Materials in parentheses indicate equivalent JIS material.

Gratitude® Seat

A proprietary product for high-temperature, high-pressure, flammable and corrosive critical process applications, the KTM Gratitude® seat offers superior performance and reliability. Gratitude® as a bonded composite of graphite material in high temperature and high pressure is designed to operate within a temperature range from -29°C to +500°C. The cushion provides resiliency during thermal expansion-contraction. The result is a Gratitude® seat with physical properties that are far superior to conventional ball valve seats of carbon graphite construction.

Gratitude® is a registered trade name of Tyco Flow Control Japan. Co., Ltd.

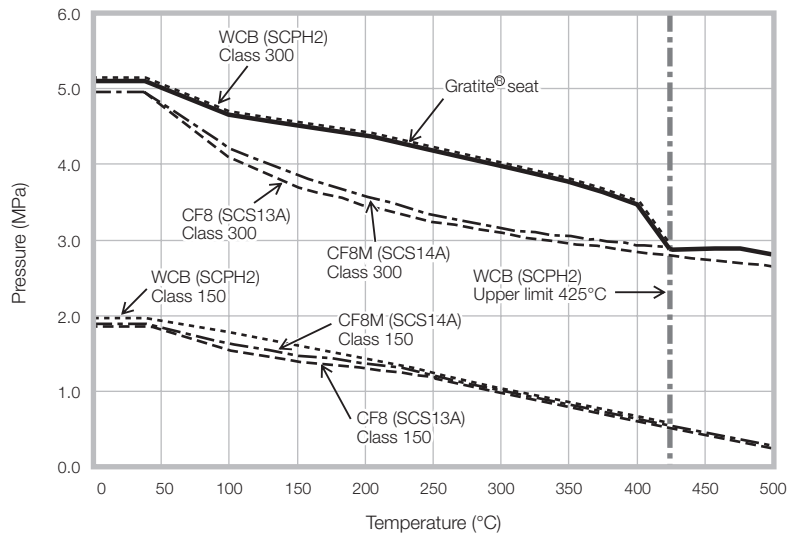


* Up to 450°C for oxidizing condition.

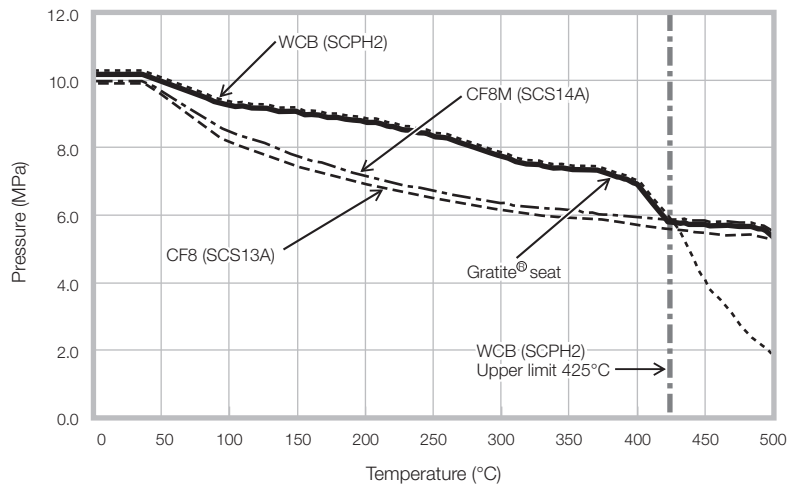
Pressure-Temperature Rating

Please note that pressure temperature rating for valves vary from body materials.

Class 150 / 300

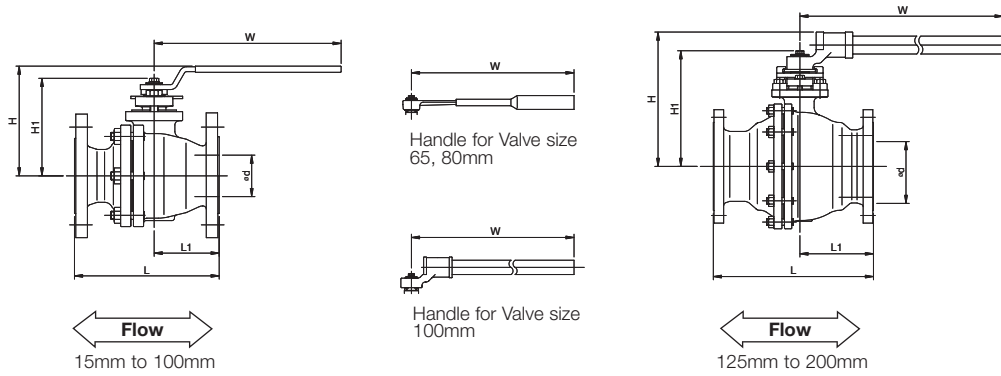


Class 600



- Solid line — indicate Gratitude® seat rating.
- Dashed lines indicate body ratings.
 - WCB
 - CF8
 - CF8M
- Material in parentheses indicate equivalent JIS material

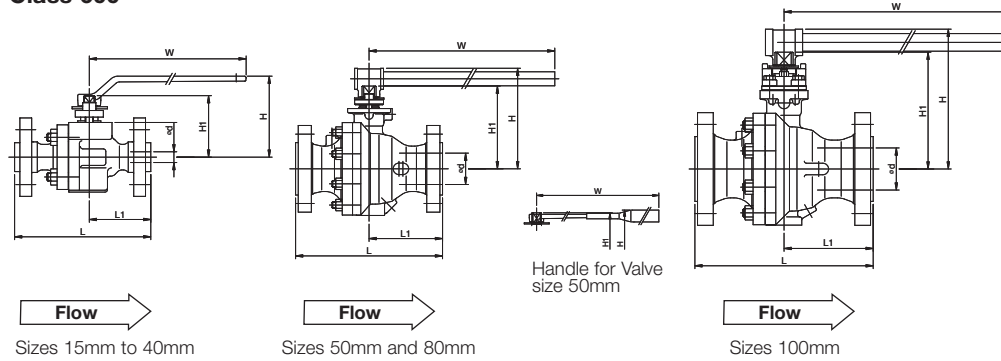
Class 150 / 300



JIS10K, 20K ASME Class 150, 300 Dimensions (mm)

Size (mm)	d	Class 150 / EB11		Class 300 / EB12		H	H1	W
		L	L1	L	L1			
15	13	108	47	140	62	81	64	200
20	19	117	51	152	72	85	68	200
25	25	127	55	165	73	98	80	240
40	38	165	75	190	80	125	110	350
50	51	178	80	216	90	135	120	350
65	64	190	88	241	107	-	165	600
80	76	203	98	283	120	-	174	600
100	102	229	115	305	145	240	200	1,130
125	127	356	140	381	155	311	265	1,740
150	152	394	181	403	190	331	285	1,740
200	203	457	225	502	235	414	368	2,345

Class 600



ASME Class 600 Dimensions (mm)

Size (mm)	D	RF (Raised Face)		RTJ (Ring Type Joint)		H	H1	W
		L	L1	L	L1			
15	13	165	74.5	163	73.5	98	75	240
20	19	190	87.0	190	87.0	105	82	240
25	25	216	100.0	216	100.0	124	101	350
40	38	241	110.5	241	110.5	134	111	350
50	51	292	146.0 (126)	295	147.5 (127.5)	187 (178)	180 (171)	600
80	76	356	178.0	359	179.5	244 (224)	201 (181)	1,065
100	102	432	216.0	435	217.5	339	283	1,650

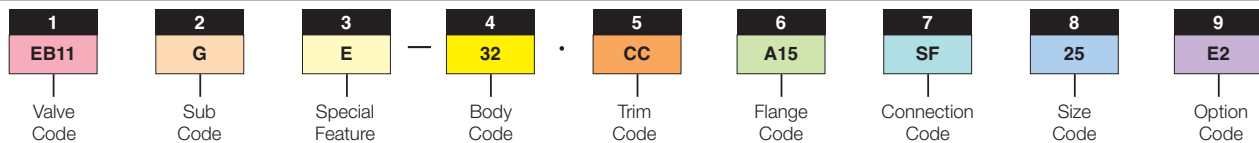
• Dimensions in parentheses indicate for WCB / SCPH2 body.

Corrosion resistance and application temperature for Gratiite® seat

	Fluid	Dnsity (%)	Temperature (°C)	Corrosion resistance
1	acidum hydrochloricum	all	boiling point	Please contact us
2	chromic acid	10%	93°C	Please contact us
3	nitric acid	10%	85°C	Please contact us
4	nitric acid	10 - 20%	60°C	NG
5	nitric acid	20%<	-	NG
6	carbonic acid	all	boiling point	OK
7	hydrofluoric acid	48%	boiling point	Please contact us
8	boric acid	all	boiling point	OK
9	hydrosulfuric acid	all	boiling point	OK
10	sulfuric acid	75%	130°C	Please contact us
11	sulfuric acid	75 - 96%	80°C	NG
12	sulfuric acid	96%<	-	NG
13	phosphoric acid	85%	boiling point	Please contact us
14	phosphoric acid	96%	100°C	Please contact us
15	formic acid	all	boiling point	Please contact us
16	citric acid	all	boiling point	OK
17	acetic acid	all	boiling point	OK
18	anhydrous acetic acid	100%	boiling point	OK
19	oxalic acid	all	boiling point	OK
20	stearic acid	100%	170°C	OK
21	tannic acid	all	170°C	OK
22	acidum lacticum	all	boiling point	OK
23	ammonia water	all	boiling point	OK
24	caustic soda	67%	boiling point	Please contact us
25	caustic soda	67 - 80%	125°C	Please contact us
26	ferrous chloride	all	100°C	Please contact us
27	ferric chloride	all	boiling point	Please contact us
28	sodium chloride	all	boiling point	OK
29	sodium hypochlorite	5%	room temperature	Please contact us
30	sodium carbonate	all	50°C	OK
31	zinc sulfate	all	boiling point	OK
32	copper sulfate	all	boiling point	OK
33	chlorine	100%	room temperature	Please contact us
34	chlorine water	saturation	room temperature	Please contact us
35	bromine	100%	-	NG
36	bromine water	saturation	room temperature	Please contact us
37	fluorine	100%	-	NG
38	iodine	100%	-	NG
39	acetone	100%	boiling point	OK
40	isopropyl alcohol	100%	boiling point	OK
41	ethyl alcohol	100%	boiling point	OK
42	LPG	all	-100°C	OK
43	ethane tetrachloride	100%	boiling point	OK
44	ethylene oxide	all	170°C	OK
45	carbon tetrachloride	100%	boiling point	OK
46	VCM	100%	170°C	OK
47	gasoline	100%	boiling point	OK
48	glycerin	100%	170°C	OK
49	chloroform	100%	boiling point	OK
50	kerosene	100%	boiling point	OK
51	dowtherm®	100%	-	Please contact us
52	butyl alcohol	100%	boiling point	OK
53	benzene	100%	boiling point	OK
54	naphtha	100%	150°C	OK
55	water	-	boiling point	OK
56	water vapor	-	100°C	OK
57	air	-	300°C	OK

Note. This list should be used only as reference. Please consult us about your usage.

KTM Model Coding System



Example: **EB11 G E - 32 · CC A15 SF 25 E2**

1			
Valve Code	Class	Description	
	ASME	JIS	
EB11	150	10K	Full bore, Floating type 15mm to 200mm
EB12	300	20K	Full bore, Floating type 15mm to 200mm
E0108 (E1108)	600	-	Full bore, Floating type 15mm to 100mm

*Model in parentheses : Apply to Extension bonnet type.

2	
Sub Code	Description
G	Gratite® Seat body

3	
Operation Type	Description
Blank	No Special Feature
E	Extension Bonnet (For EB only)

4		
Body Code	Material	
	JIS	ASTM
31	SCS13A (304SS)	CF8 (304SS)
32	SCS14A (316SS)	CF8M (316SS)
62	SCPH2 or S25C	WCB or A105

5					
Trim Code	Ball	Seat	Packing	Stem	
	JIS	ASTM			
CC	SCS13A*1 or SCS14A*2	CF8*1 or CF8M*2	Hard-graphite	Graphite	329J1

*1. For body code 31 and 62 only
*2. For body code 32 only

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

(JPI also available)

7	
Connection Code	Description
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

9	
Option Code	Description
Blank	No additional option
E2	Extension Bonnet Special Length for high temperature (For EB only)