

High Performance Process Ball Valves

Soft Seated QB-Series



Product Range

Rating	Class150-1500#, JIS10K-63K
Size	1/2"– 40"(15A - 1000A)
Temperature	-196 deg. C to 500 deg. C
Leakage Rate	API 598, Tight Shut Off, Zero Leakage
Type	Floating, Trunnion, Full Port, Reduced Port, Three way Port
Body Material	A351CF8M/A351CF8/A216WCB/SCS14A/SCS13A/SCPH2/Titanium, Hastelloy, Inconel and others
Seat Material	PTFE, R-PTFE, Carbon Graphite, PEEK and Others
Design Code	API608, ASME B16.5, ASME B16.34, ISO5211, ISO5752, API 6D, API607, ISO 15848

Special Designed Soft Seat QB-Series

The soft seated QB-Series ball valves provide variety advantages and excellent performance such as **superior shut-off across a range of pressure with minimum operating torque, cryogenic operation for service down to -196°C, fugitive emission ISO15848, oil free, corrosion resistance and so on.** This Qublock soft seat ball valve has been specially designed for rugged oil field and petrochemical applications - Polymerization (PE/PP), EDC/VCM/PVC, Steam cracking, Polysilicon, Propane dehydrogenation and also ultra pure application - semiconductor, display, DI water. A choice of body, trim, and seat materials is available to suit an extensive range of applications. Qublock soft seated ball valves meet the special requirement of its customers with valves that are designed on the basis of accurate data, extensive experience, excellent technical know-how, and superior precision machining.

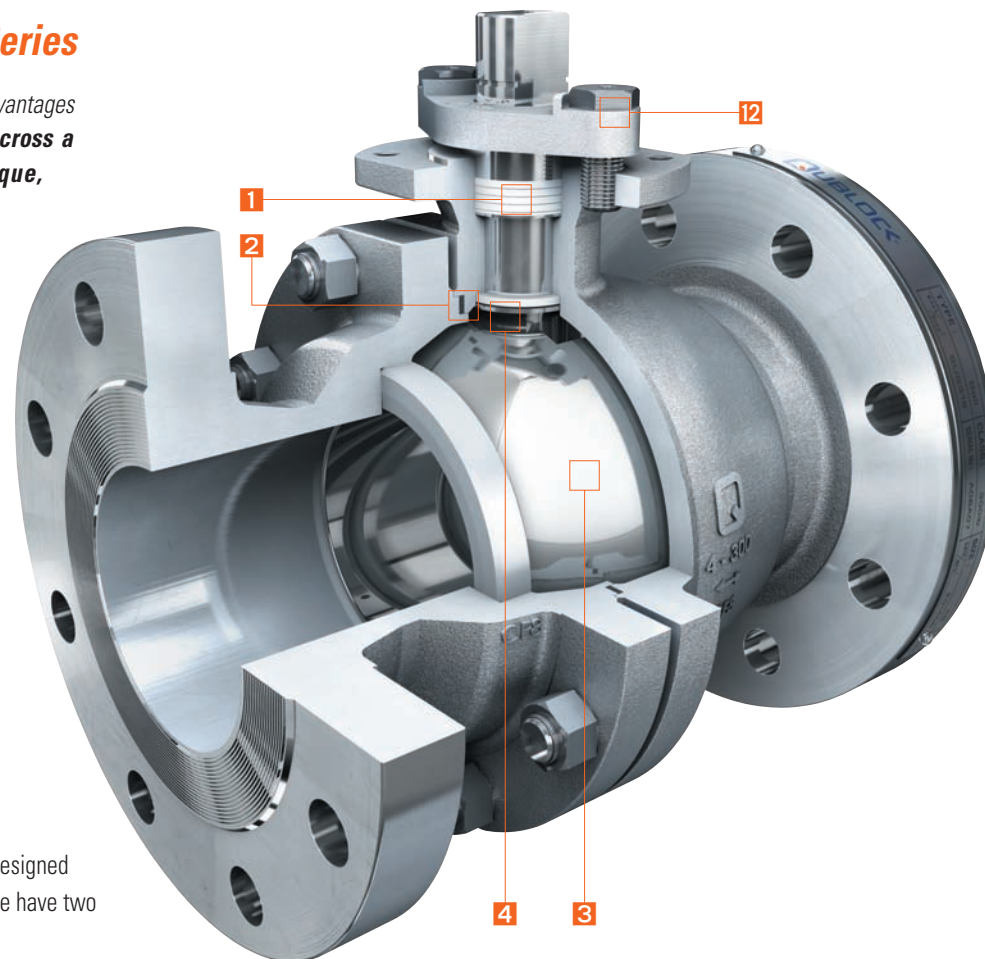
Benefits of Soft Seated QB-Series

Double Seal Structure : The double seal structure is designed according to ISO 15848. All parts where emission is possible have two stages of sealing structure with soft seals.

Tight Shut-Off Sealing Performance : Soft-seated Qublock ball valves exhibit a tight shut-off sealing performance. This is the result of trustable engineering data and excellent production control.

Wide Range of Material Applications : Depending on customer requirements, the best suitable materials is selected from among various materials.

Solid Resistance through Hard-Facing Aspects : The combination of ball and seat is the most critical part of a valve; thus, Qublock provides Hard-Facing solutions on the basis of past experience, operation cycle, and compatibility with the base material as well as fluid conditions.



Standard Features

1 Low Emission

Stem sealing certified by ISO 15848, low fugitive emission design. With this special structure, the valve has low friction, thereby providing stabilized sealing performance for a long cycle life.

2 Double Seal Structure

The double seal structure is designed according to ISO 15848. All parts where emission is possible have two stages of sealing structures with soft and metal seals. This leads to intrinsic fire safety, which in turn increases the stability of the process valves.

3 Roundness: Q-LAP® System

The perfect spherical shape designed on the basis of the Q-LAP® system creates a seal-lock environment and leads to a relatively long life. The superfine ball surface enhances the removal of particles on the surface, minimizes leakage, and extends the product life.

4 AntiBlow-Out Stem

This prevents the stem from being blown out when an improper operation occurs and performs a backseat function to assure stem-sealing safety.

5 Flow Indication Stem

A stem top with "grooves" indicates the flow direction. It helps users to properly operate and maintain the valves at their sites.

6 Anti-Static Device

An anti-static device designed according to BS 17292 (API 607, 10Q under 12 V) is placed between the body seat, ball, and stem. This device maintains a permanent contact and prevents any accumulation of electric charges on the ball, thereby avoiding any unexpected electric discharge.

7 ISO 5211 Mounting Plate

According to the international standard ISO 5211 for a mounting plate, it is easy to assemble an actuator and brackets without the use of any special designs. In the case when the actuator specifications are changed, modifications of the mounting parts are not required.

8 Fire-Safe Design

Qublock valves are certified by API 607 6th edition and conform to ISO 10497. All sealing faces are designed with two phases, gasket and metal-to-metal. This design makes it possible to maintain the continuously intended functions even after a fire.



9 Self-Relief Seat (Block & Bleed)

The automatic self-relieving seat design allows the venting of the internal cavity pressure when a gas or a liquid is trapped within the body cavity through an unusual increase in servicing or ambient temperature. This is very important for reducing the pressure in the body cavity for safety purposes.

Optional Features

10 Special Packing Option

Various types of special packing materials, such as metal U-ring, Karlets O-ring, and thermiculite packing, are selected and recommended by Qublock upon request.

11 Pocket-Less Design

The pocket-less ball valves completely eliminate the clearance portion between the body and the ball. These valves are particularly suitable for high-viscosity service or powder service.

12 Live Loaded Seals

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

13 Wide variety of seat material

Depending on process conditions seat material is perfectly selected among a wide variety-PTFE, R-PTFE, Carbon Graphite, PEEK and so on.

Oil Free Treatment-Optional

Oil free treatment valves are required for various industries such as Semiconductor, LCD, Display and so on. Qublock has the state of the art clean room in house and all Qublock oil free valves are assembled and tested in the clean room under the strict inspection and tests. The oil free QB-series valves offer smooth valve operation without sticking and reduced friction to expand the valve life cycle and are suitable to Ultra pure fine applications.



Buffing finished-Optional

Buffing finished treatment is optionally applied on the wetted parts for providing smooth fluid control in case that the fluid has high viscosity, slurry, powder, fly-ash and so on. This buffing finished option increases the valve performance and reduces the maintenance cost.

High Performance for Process Control

As a leader in valve and process technology, Qublock's engineers have devoted to high demanding application with an experience of more than 40 years in design, sizing and optimizing of various valve types. QB-Series soft seated ball valve offer a value added solutions for Petrochemical, Chemical and other harsh industries. High cycle more than 2,000,000 operations per year, fast operation less than two seconds, superior wear resistance, long lasting tightness can be achieved by QB-Series. Qublock soft seated ball valve has unique design to prevent polymer accumulation inside of the valve and extend the service life of the valve. Also QB-Series soft seat ball valves are suitable to other chemical and petrochemical applications; Intermediates, EDC / VCM / PVC, Steam cracking, Propane dehydrogenation, Polysilicon, Chlorine and so on.



Fugitive Emission Design

Increasing the plant safety level is considered as one of the most important issues for plant management. Therefore, Qublock technology provides a few packing options in order to achieve a low emission level in accordance with ISO-15848. Other packing options can be applied if specific packing options are required.

1 Double Gland Packing

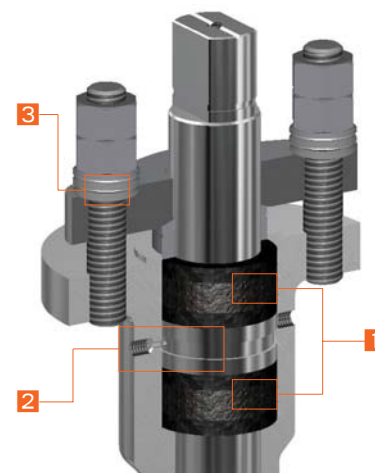
Two sets of graphite gland packing are applied to increase the sealing performance. If the first packing set is pressed and damaged by fluid conditions such as heat, high pressure, foreign substances, and so on, the second packing set maintains the sealing performance.

2 Lantern Ring with Injection Port

A lantern ring is inserted between the two-gland packing for injecting gas inside the works for ultimate sealing on the gland packing part and for a leak check.

3 Live Loading gland bolts

In a normal case, the valve packing is tightened by the gland and gland bolting. During service, the gland load retention may reduce because of pressure from the medium over a long time, and the loosened packing could cause leakage. Springs installed on each gland stud can be used to provide a continuous compressive force on the gland that permanently maintains load retention for the stem packing to avoid fugitive emissions.



Special Packing Options

Depending on the process conditions, metal U-ring, karlez O-ring, and Thermiculite™, packing materials are recommended by Qublock Technology. These materials enable the valve to be used in a wide range of applications.



Thermiculite

A graphite packing cannot be used at high temperatures of 400°C under oxidizing conditions. Thermiculite is the optimum option for sealing and easy maintenance in such cases, because it is specifically designed for oxidizing conditions at high temperatures.



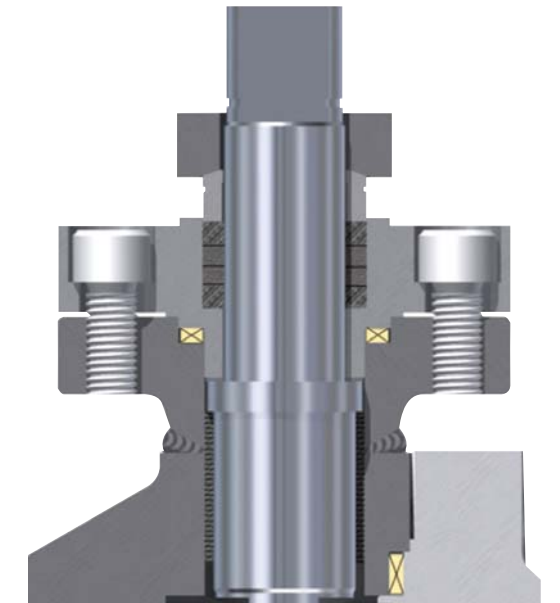
Metal U-Ring

For high temperatures including under oxidizing conditions, a metal U-ring provides excellent sealing performance for oxidizing applications.



Karlez O-Ring

Elastomer O-rings can be used at temperatures of up to 280°C to realize high corrosion resistance. Furthermore, an additional sealing option can be added to other standard materials because it requires only a small space for installation.



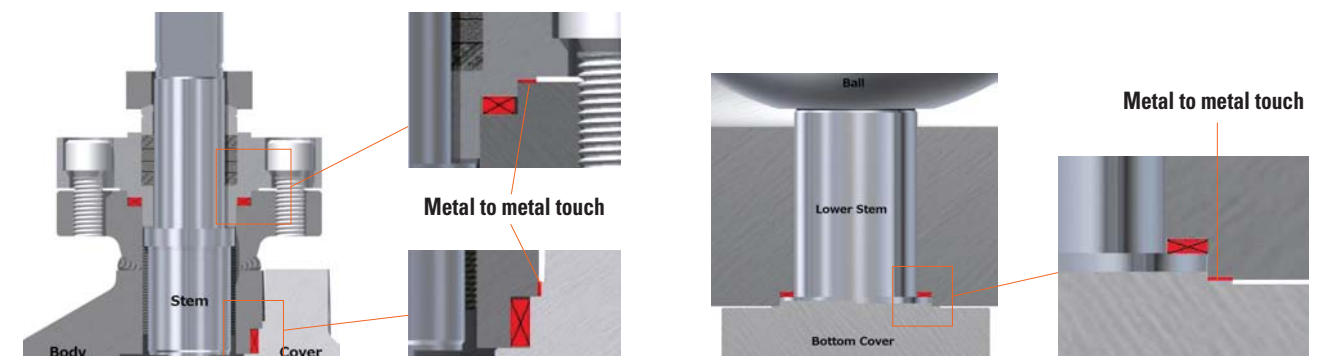
Double Seal Structure

All parts where emission is possible have two stages of sealing structures with soft and metal seals. The features of this double seal structure are as follows:

Fire Safety : A soft sealing gasket alone does not work properly in the case of a fire, resulting in a leak to the outside. However, a double seal structure provides stable sealing as the metal seal forms the intrinsic fire safety structure.

Low Emission : The double seal structure ensures low emission to the outside. The metal seal supports the soft sealing gasket to maximize the intended level of emission reduction.

Easy Maintenance : The torque to fasten a body bolt is managed while assembling the body with the soft sealing gasket because the soft gasket needs to be compressed for the best performance. In the double seal structure, the metal seal design is created according to the level of compression of the soft sealing gasket. It is simply not necessary to control torque to assemble the body during maintenance.



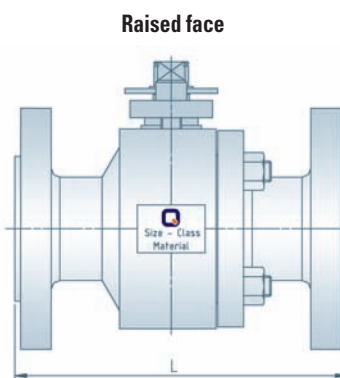
Material Information

A variety of special material can be selected according to the customer's requirement or Qublock's technology recommendation depending on the process conditions. Qublock has a wide range of extraordinary skills and experience to handle exotic alloys such as titanium, Hastelloy, Inconel, Incoloy Monel, and zirconium to meet customer needs. Selecting and blending of materials, handling of the machine, and assembling parts are key processes for obtaining a complete product. Qublock specializes in managing the core processes for valve manufacturing to produce high quality products.

No.	Description	ASTM		UNS	JIS		Chemical Composition
		Forging / Bar	Casting	Forging / Bar	Forging / Bar	Casting	
1	Titanium Unalloyed Grade 2	B381 F2	B367 C2	UNS R50400	TB340H	-	99Ti-0.2Fe
2	Titanium Unalloyed Grade 3	B381 F3	B367 C3	UNS R50550	TB490H	-	99Ti-0.25Fe
3	Titanium alloy Grade 5	B381 F5	B367 C5	UNS R56400	TAB6400H	-	90Ti-6Al-4V
4	Titanium Low alloyed Grade 7	B381 F7	B367 C7	UNS R52400	TB340PdH	-	99Ti-0.15Pa
5	Titanium alloy Grade 12	B381 F12	-	UNS R53400	-	-	98Ti-0.3Mo-0.8Ni
6	Inconel 600 (Bar)	B166 N06600	A494 CY40	UNS N06600	NCF600	NCF600	78Ni-15Cr-5Fe
7	Inconel 625 (Bar)	B446 N06625	A494 CW6MC	UNS N06625	NCF625	-	65Ni-22Cr-9Mo-3.5Nb
8	Hastelloy C276 (Bar)	B574 N10276	A494 CW12MW	UNS N10276	NMCC	NMCC	58Ni-16Cr-16Mo-6Fe-4W
9	Hastelloy C22 (Bar)	B574 N06022	A494 CX2MW	UNS N06022	-	-	58Ni-21Cr-14Mo-4Fe-3W
10	Hastelloy B (Bar)	B335 N10001	A494 N-12MV	UNS N10001	NM1B	NMC	67Ni-28Mo-5Fe
11	Hastelloy B2 (Bar)	B335 N10665	A494 N-7M	UNS N10665	NM2B	-	68Ni-31Mo-1Fe
12	Incolloy 800HT (Bar)	B408 N08811	A351 CT15C	UNS N08811	NCF800	-	33Ni-20Cr-45Fe-Nb
13	Incolloy 825 (Bar)	B425 N08825	A494 CU5MCuC	UNS N08825	NCF825	-	43Ni-22Cr-3Mo-30Fe-Nb
14	Monel K-500 (Bar)	FED QQ-N-286(A)	-	UNS N05500	H4551, 4553-4	-	67Ni-30Cu-2.5Al-0.5Ti
15	Monel 400 (Bar)	B164 No4400	A494 M-35-1	UNS N04400	H4551	-	67Ni-30Cr
16	Carpenter 20 Cb3	A182 F20 / B473 N08020	A351 CN7M	UNS N08020	-	SCS23	20Cr-29Ni-2.5Mo-3.5Cu
17	Zirconium	B493 R60702	B752 702C	UNS R60702	-	-	95Zr-4.5Cu
18	Nickel (CZ-100)	B160 N02200	A494 CZ-100	UNS N02200	-	-	97Ni
19	Austenitic Cr-Ni Stainless Steel	A182 F304	A351 CF8	UNS S30400	SUS304	SCS13A	18Cr-8Ni-0.06C
20	Austenitic Cr-Ni Stainless Steel	A182 F304L	A351 CF3	UNS S30403	SUS304L	SCS19A	18Cr-8Ni-LowC
21	Austenitic Cr-Ni Stainless Steel	A182 F316	A351 CF8M	UNS S31600	SUS316	SCS14A	18Cr-12Ni-2.5Mo-0.06C
22	Austenitic Cr-Ni Stainless Steel	A182 F316L	A351 CF3M	UNS S31603	SUS316L	SCS16A	18Cr-9Ni-2Mo-LowC
23	Austenitic Cr-Ni Stainless Steel	A182 F347	A351 CF8C	UNS S34700	SUS347	SCS21	18Cr-9Ni-Nb
24	Austenitic Cr-Ni Stainless Steel	A182 F317	A351 CG8M	UNS S31700	SUS317	-	18Cr-12Ni-3.5Mo
25	Austenitic Cr-Ni Stainless Steel	A182 F317L	A351 CG3M	UNS S31703	SUS317L	-	18Cr-12Ni-3.5Mo-LowC
26	Austenitic Cr-Ni Stainless Steel	A182 F310S	A351 CK20	UNS S31008	SUS310S	SCS18	25Cr-20Ni-0.2C
27	Austenitic Ni-Cr-Mo-N Stainless Steel	A182 F62	A351 CN3MN	UNS N08367	SUS836L	-	21Cr-24Ni-6.5Mo-N
28	Austenitic Ni-Cr-Mo-N Stainless Steel	A182 F44	A351 CN3MCuN	UNS S31254	UNS S31254	-	20Cr-18Ni-6.5Mo-N-Cu
29	Martensite Stainless Steel	-	-	UNS S42000	SUS420J2	-	13Cr-0.3C
30	Precipitation Hardening Stainless Steel	A747 CB7Cu-1	-	UNS S17400	SUS630	-	17Cr-4Ni-4Cu-Nb
31	Duplex Cr-Ni-N Stainless Steel	A182 F51	A995 Gr.1B CD4MCuN	UNS S31803	SUS329 J3L	-	22Cr-5Ni-3Mo-N
32	Duplex Cr-Ni-N Stainless Steel	A276 S32205	A890 Gr.4A CD3MN	UNS S32205	SUS329 J3L	-	22Cr-5Ni-3Mo-N
33	Duplex Cr-Ni-Mo-W Stainless Steel	A182 F53	A890 Gr.5A CD3MWCuN	UNS S32750	SUS329 J4L	-	25Cr-7Ni-3Mo-Cu-N-W

Face to Face Dimension ASME B16.10

NPS (inch)	DN (mm)	Raised face				
		150lb	300lb	600lb	900lb	1500lb
1/2	15	108	140	165	-	-
3/4	20	117	152	190	-	-
1	25	127	165	216	254	-
1-1/2	40	165	190	241	305	-
2	50	178	216	292	368	368
2-1/2	65	190	241	330	419	419
3	80	203	282	356	381	470
4	100	229	305	432	457	546
5	125	-	-	-	-	-
6	150	394	403	559	610	705
8	200	457	502	660	737	832
10	250	533	568	787	838	991
12	300	610	648	838	965	1130
14	350	686	762	889	1029	1257
16	400	762	838	991	1130	1384
18	450	864	914	1092	1219	-
20	500	914	991	1194	1321	-
22	550	1016*1	1092	1295	-	-
24	600	1067	1143	1397	1549	-
26	650	1143*1	1245	1448	-	-
28	700	1245*1	1346	1549	-	-
30	750	1295*1	1397	1651	-	-
32	800	1372*1	1524	1778	-	-
34	850	1473*1	1626	1930	-	-
36	900	1524*1	1727	1083	-	-

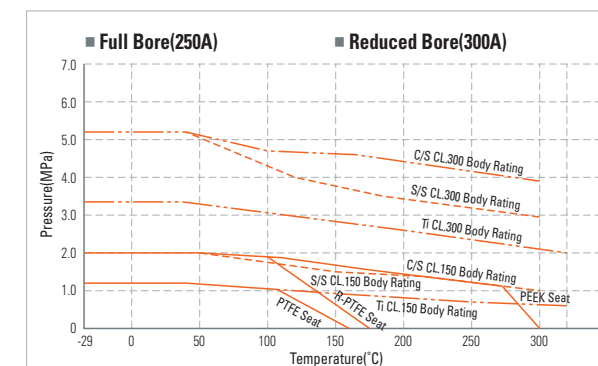
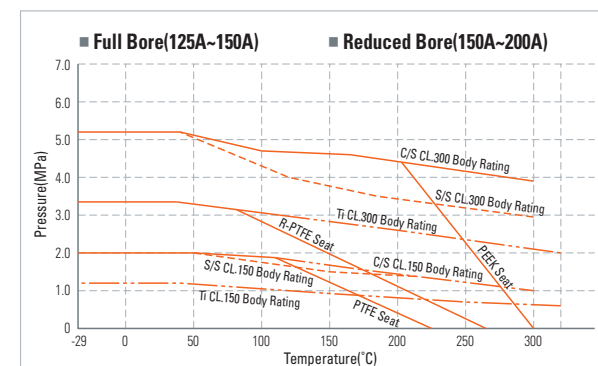
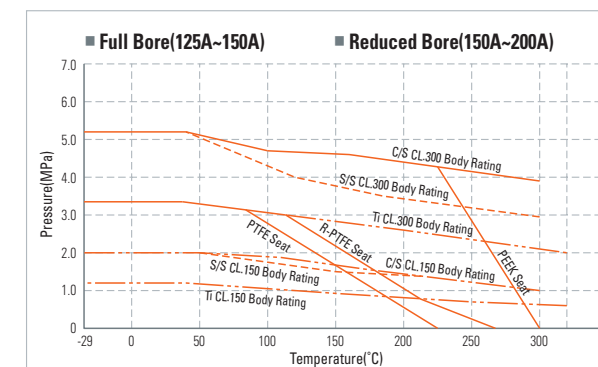
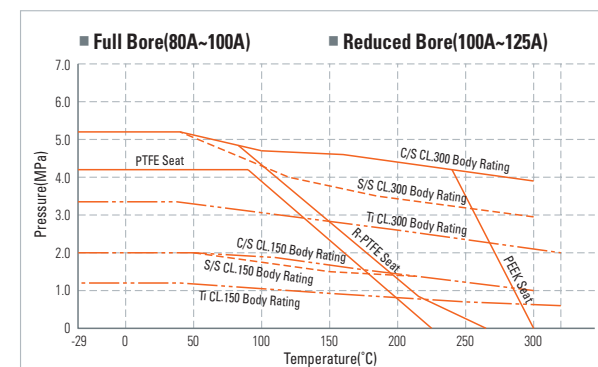
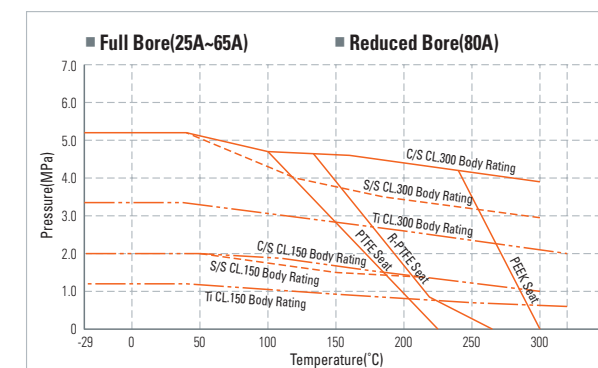
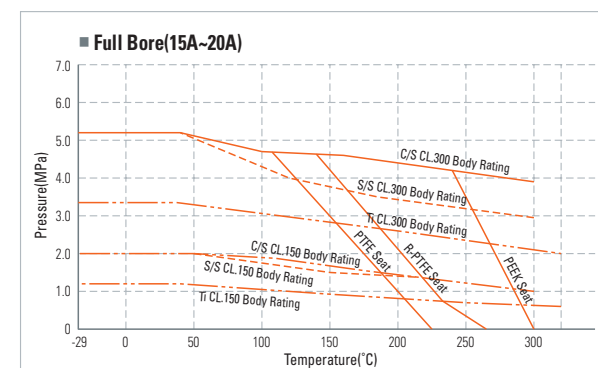


*1: According to API 6D For custom face to face dimensions, please contact to the sales division at sales@qublock.com

Temperature Pressure Rating (Carbon Graphite Seat)

Floating Soft Seat Ball Valve P-T Rating

- **Body Material** : Carbon Steel (A216-WCB) / Stainless Steel (A351-WCB) / Titanium (B381 F2)
- **Seat Material** : PTFE / R-PTFE / PEEK / CARBON
- **The rating of carbon seat follows body rating.**
- **An application standard** : ASME B16.34 / ASME B16.5 (CL.150, CL.300)



Trunnion Soft Seat Ball Valve P-T Rating

(VALVE SIZE : 50mm~600mm)

- **Body Material** : Carbon Steel (A216-WCB) / Stainless Steel (A351-WCB) / Titanium (B381 F2)
- **Seat Material** : PTFE / R-PTFE / PEEK / CARBON
- **The rating of carbon seat follows body rating.**
- **An application standard** : ASME B16.34 / ASME B16.5 (CL.600, CL.900, CL.1500)

