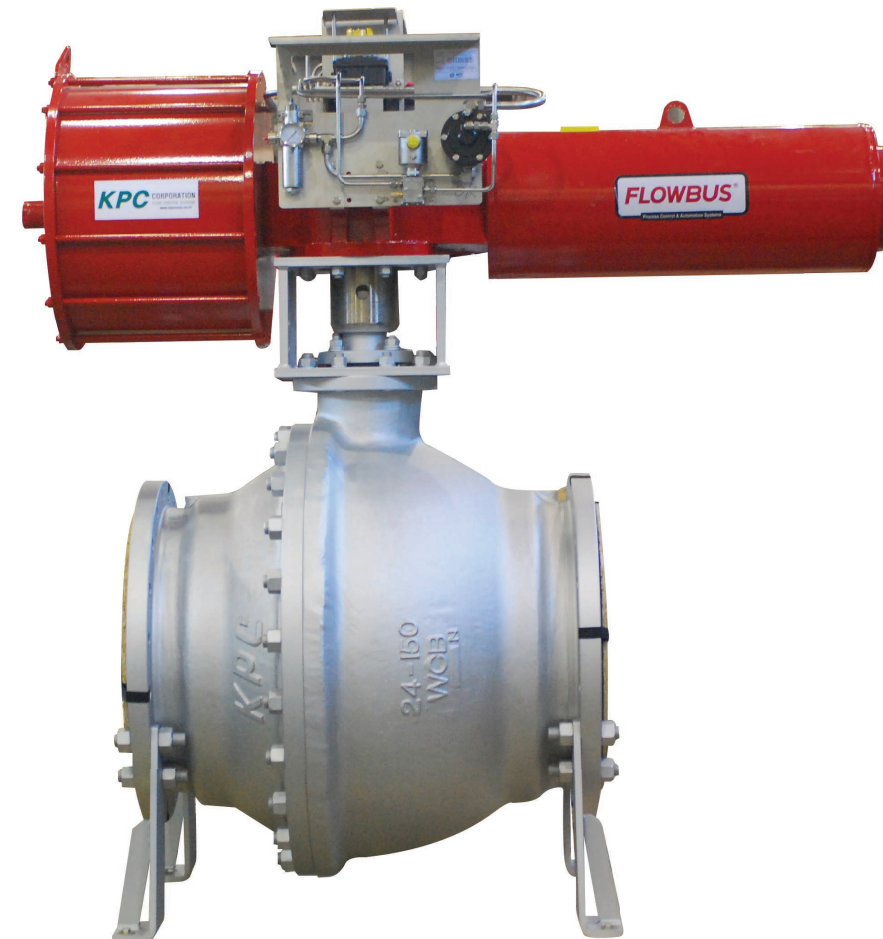




KPC

TWO PIECE TRUNNION MOUNTED BALL



KPC

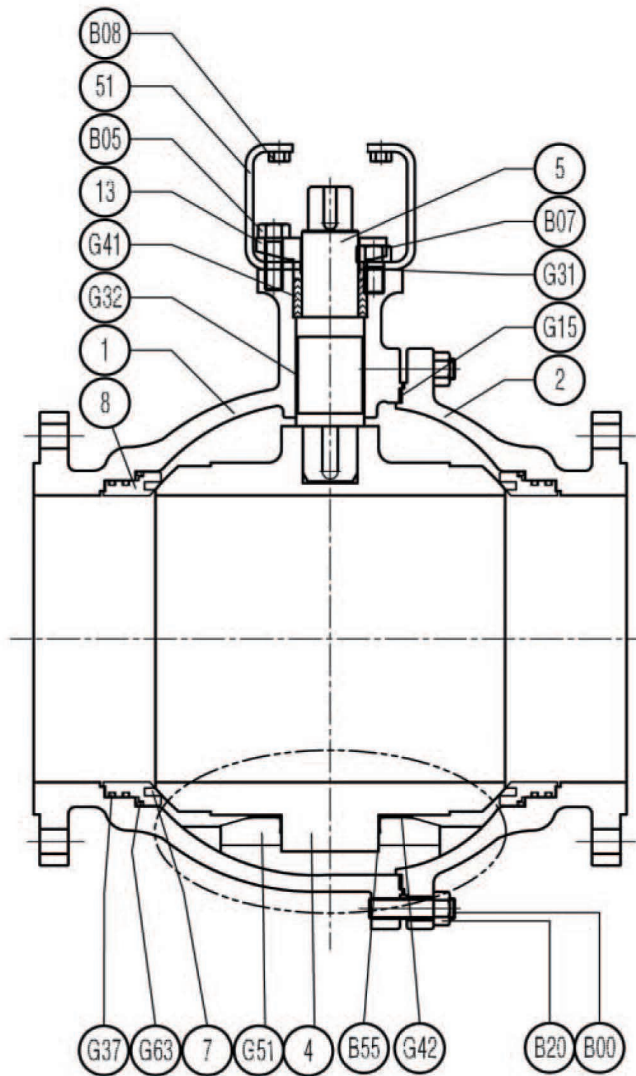
Main office & factory

Address. » 8, Ansim-ro 59 gil, Dong-gu, Daegu, 41081, South Korea
Tel. » 82-53-962-4839
Fax. » 82-53-962-6383
URL » www.kpccorp.co.kr

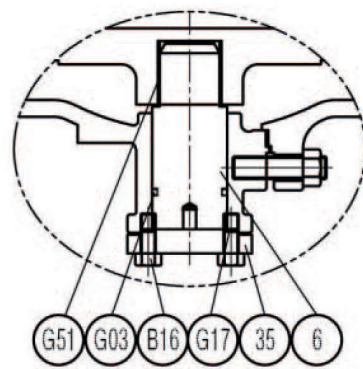
Seoul office

Address. » 13th fl, Dongwha-BLDG, 160 Seosomun-ro, Jung-gu, Seoul, 04513, South Korea
Tel. » 82-2-2637-9188
Fax. » 82-2-2637-9118
URL » www.kpccorp.co.kr
» www.kpctitanium.com

Internal or External Trunnion Design



I (INTERNAL) TYPE

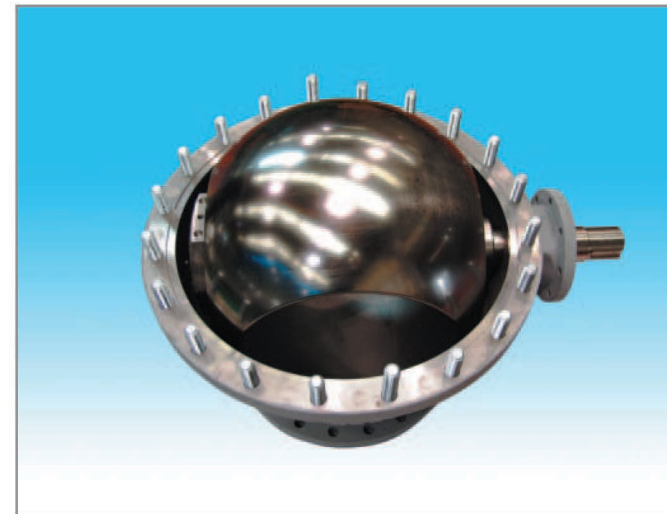


E (EXTERNAL) TYPE

G63	SEAT SPRING
G51	BEARING PLATE
G42	THRUST BEARING
G32	STEM BEARING
G41	GLAND PACKING
G37	SEAT SEAL
G31	GLAND BUSH
G15	CAP GASKET
B55	TRUNNION BEARING
B08	GEAR BOX BOLT
B07	YOKE BOLT
B05	GLAND BOLT
B20	CAP /NUT
B00	CAP BOLT
51	YOKE
13	GLAND FLANGE
8	SEAT RING
7	SEAT
5	STEM
4	BALL
2	CAP
1	BODY
NO	PART NAME

G51	LOWER STEM BEARING
G17	LOWER STEM GASKET
G03	LOWER STEM O-RING
B16	LOWER COVER BOLT
35	LOWER STEM COVER
6	LOWER STEM
NO	PART NAME

Construction Features



DOUBLE BLOCK AND BLEED SEATS

The spherically shaped seat rings on both sides of the trim are in constant contact with the ball surface and the spring force gives optimum seat pressure for excellent shut-off tightness even at very low pressure differentials. At higher pressures increased force is required on the seat to ensure tight shut-off, this is achieved through upstream pressure acting surface of the seat, which is designed to allow sufficient load to seal whilst not creating excessive wear or operating torque. However, the seat pressure is kept moderate to minimize the risk of wear.

Since the upstream seat is an additional sealing element, it is possible to drain the cavity of the valve. This is possible even under line pressure when the valve is closed. Due to the design, the pressure in the body cavity is automatically relieved behind the downstream seat back to the pipeline.



BODY GASKET

The tongue - and - groove body gasket maximizes protection against leakage even in the event of a fire. The standard gasket materials are pure PTFE or Grafoil.

ANTISTATIC DESIGN

Ball and Valve body have metallic contact. This excludes build-up of static electricity.

EMERGENCY SEAL

Secondary sealant injection on stem and seats is available upon request for sizes 6" - 24"

MANY TYPES OF ENCLOSED ACTUATORS

Hand levers, gear operators, pneumatic actuators are normally provided. The actuators are enclosed and sealed for effective protection against corrosion. Electric and hydraulic actuators are also available.

FIRE-TESTED DESIGN

KPC ball valves are designed to meet the requirements of International Standards. They have been successfully tested in accordance with API 607 / 6FA.



KPC 2 pc Trunnion Ball Valve for a Wide Range of Applications including the most Severe Services

- Features:
- Trunnion supported ball.
 - Double block and bleed.
 - Low friction bearing materials

Seat Materials: Virgin PTFE, Reinforced PTFE, Nylon, Carbon Graphite, PEEK, Metal-Stellite or Carbide.

- Applications Include:
- Chemical and Petrochemical plants
 - Oil and Gas production
 - Power Generation

- Media Services Include:
- Gases and Vapours
 - Various Liquids, Steam, Slurries, Solids and many other services.

Temperature : Wide range relative to Seat Materials.



Standard sizes: 2" - 24"
Pressure ratings: ANSI Class 150#, 300#, 600#, 900# & 1500#
Face-to-face: According to ANSI B 16.10
End flanges: According to ANSI B 16.5

Other sizes and pressure ratings are available on request.



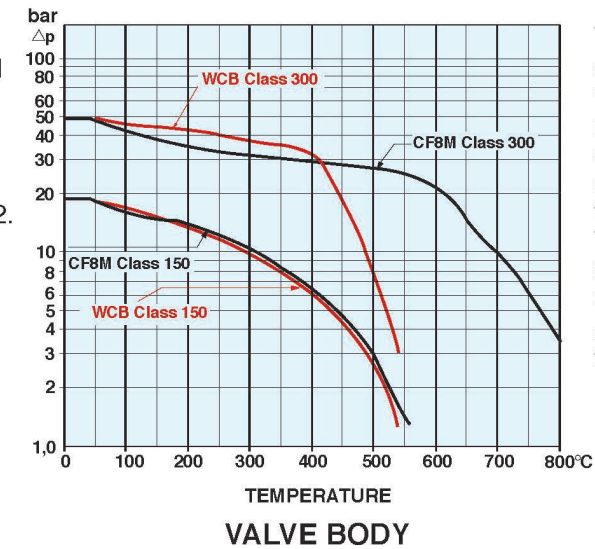
READY-TO-INSTALL VALVE UNITS.

KPC ball valves are normally supplied with various actuators and specified accessories such as positioners, limit switches, solenoid valves, operating time control units, trip valves, volume tanks etc., as required.



Tightness and Pressure Ratings

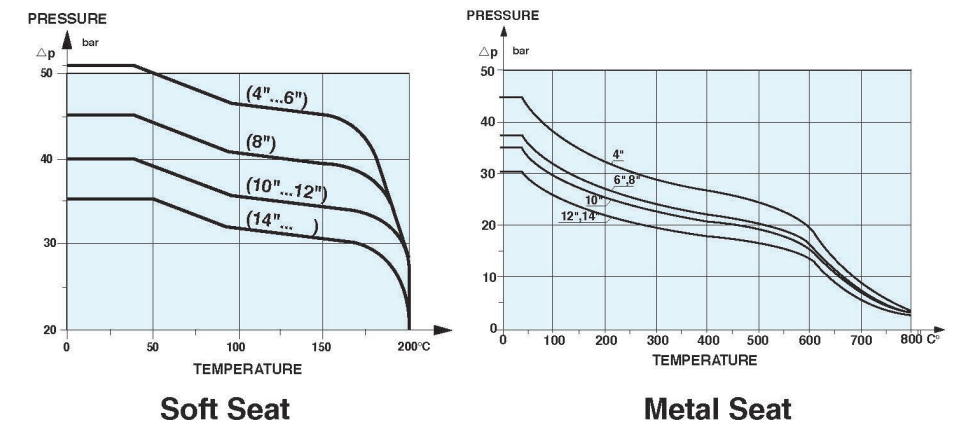
Valves with soft seats are "bubble tight". Valves with Metal seats are also very tight but some leakage is allowed. The leakage classes available are bubble tight, class VI, V and IV per ANSI B 16.104 / FCI 70-2. The maximum pressure differential when the valve is in closed position is limited and depends on the operating temperature, according to the curve in the right.



The opening torque of a metal seated valve is higher than one with soft seats. Therefore, the maximum pressure differential allowed while the valve is being operated is limited according to the curve in the left. This limitation is valid for Class 300 valves only. Class 150 valves are in accordance with the ANSI pressure-temperature curve.

PRESSURE-TEMPERATURE CAPABILITIES

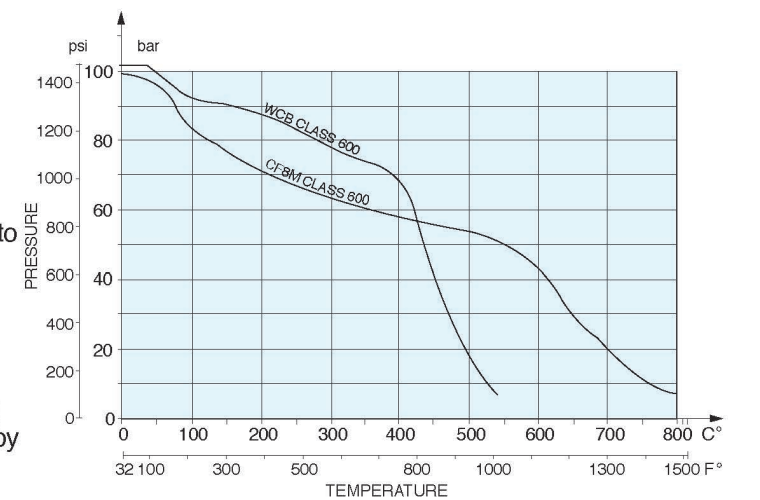
The pressure-temperature ratings of class 150 and 300 valves are based on standard ANSI B 16.34-1988, these being the maximum pressures allowed by the valve bodies. The seals and packings have to be appropriate for the service temperature. The valve seats set some limitations.



PRESSURE-TEMPERATURE RATINGS

The ratings of Class 600 valves are based on standard ANS IB 16.34 - 1988. The maximum allowed pressure according to the curves concern the valve body. The seal packing and seat material have to correspond to the respective temperature requirements.

The maximum differential pressure allowed while the valve is being operated depends on the operating temperature and the valve seat material. It is restricted for metal seated valves over and including 10", and it must in no case exceed the pressure limited by the rating of the valve.



Pressure-Temperature Ratings Curve for Body, Seat & Seal Materials.

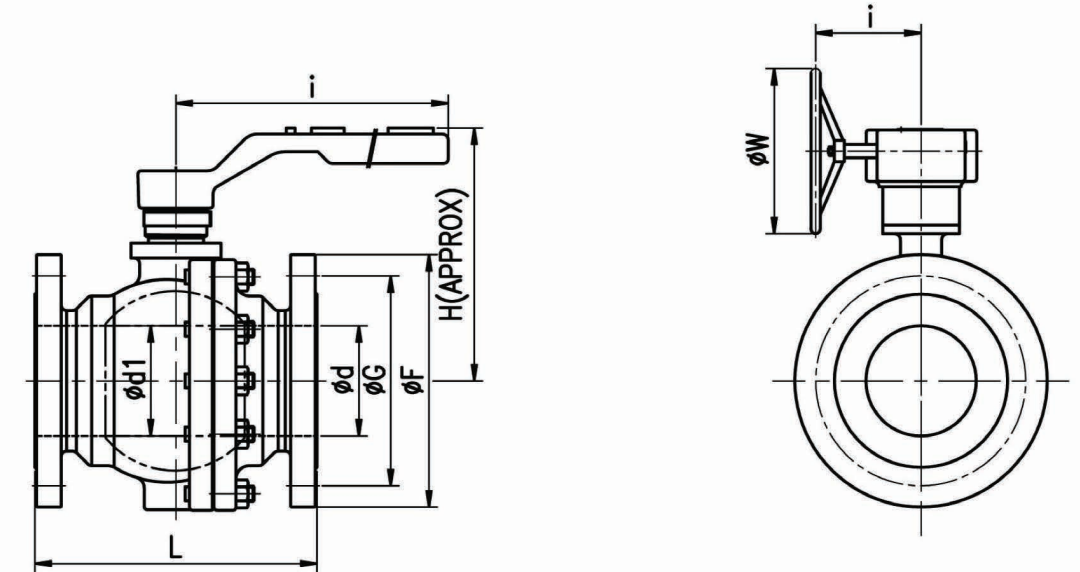
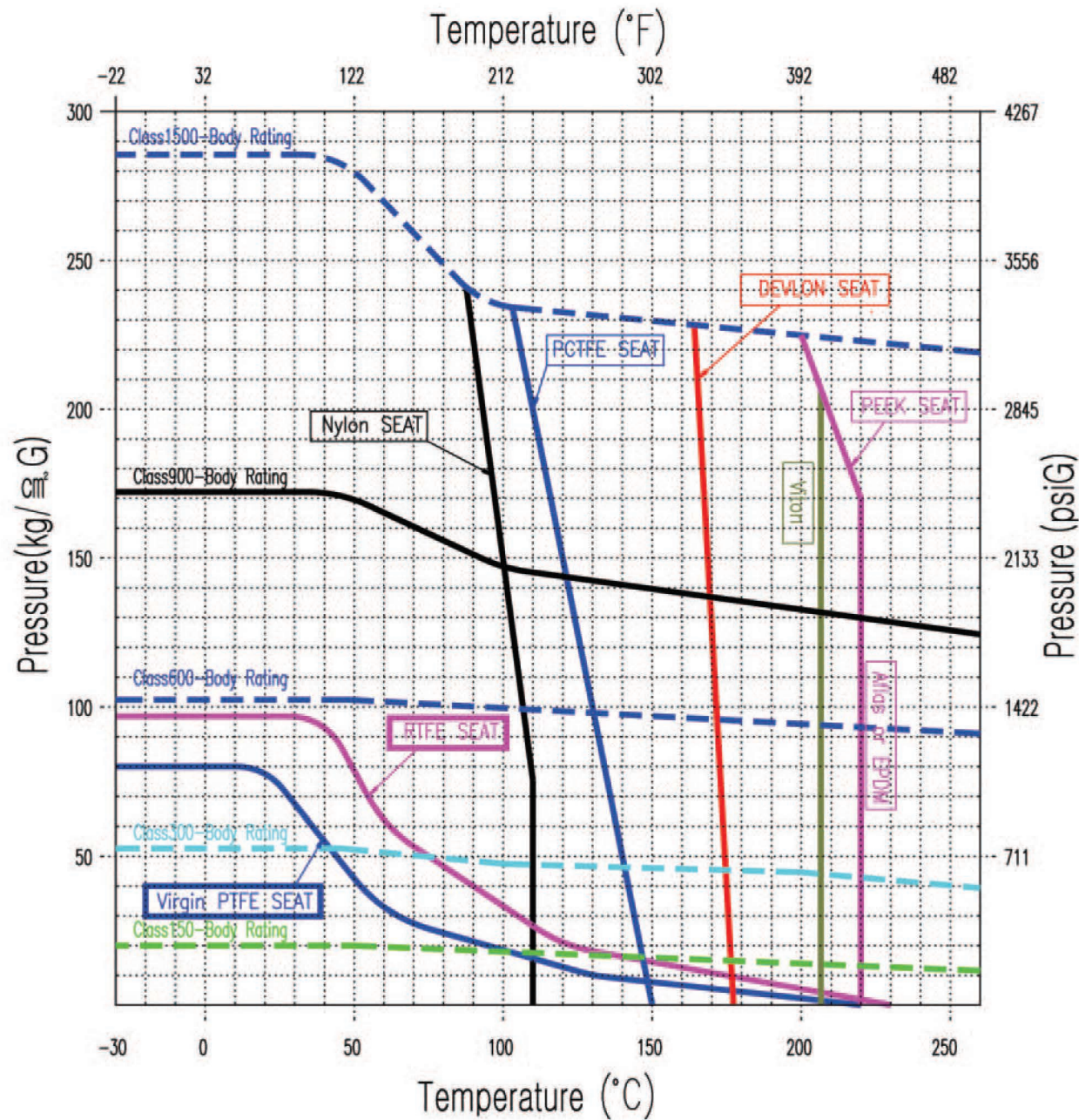
Rating listed per ANSI B16.34, Standard Class Valves

Type : Trunnion

LOW TEMPERATURE LIMITS

Body Material		Seat Material		Seal Material	
WCB	-20°F (-29°C)	Nylon	-25°F (-32°C)	Viton	-20°F (-29°C)
17-4PH	-40°F (-40°C)	RTFE	-50°F (-46°C)	EPDM	-50°F (-46°C)
LCC(B)	-50°F (-46°C)	PEEK	-50°F (-46°C)	Graphite	-140°F (-96°C)
ALLOY20	-50°F (-46°C)	Carbon	-140°F (-96°C)	VIRGIN PTFE	-328°F (-200°C)
INCONNEL	-325°F (-198°C)	PCTFE	-450°F (-268°C)		
CF8M	-425°F (-253°C)				

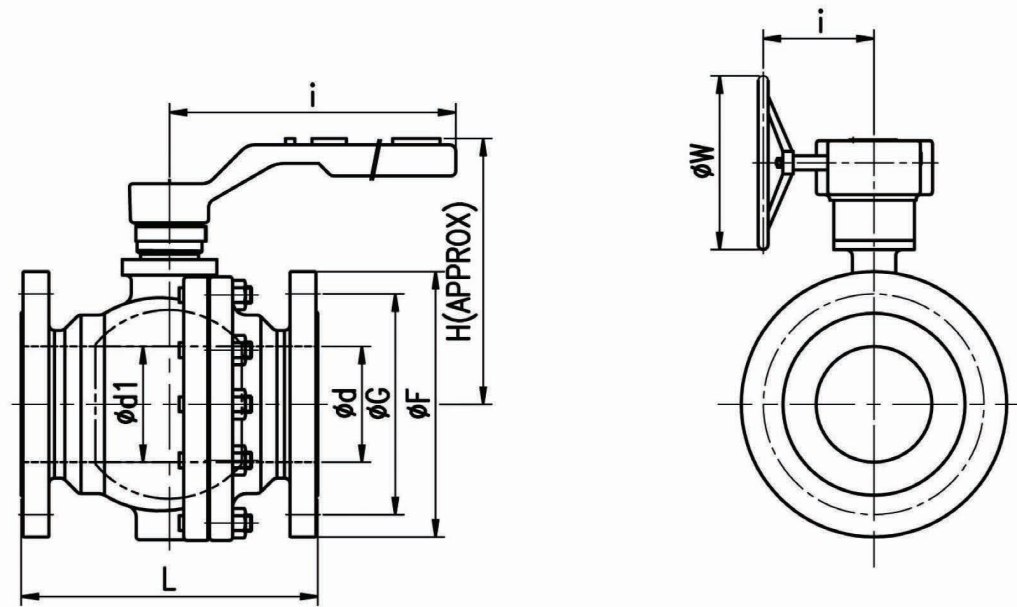
ASME B31.3



ANSI CLASS 150 RAISED FACE FLANGE AS PER ANSI B16.5

SIZE	L(SHORT)	Ød	Ød1	ØG	ØF	H	ØW	i	WGT
2"	178	51	51	120.7	150	140	-	250	12
2 1/2"	190	64	64	139.7	180	159	-	400	18
3"x2 1/2"	203	76	64	152.4	190	159	-	400	19
3"	203	76	76	152.4	190	165	-	400	23
4"x3"	229	102	76	190.5	230	165	-	400	28
4"	229	102	102	190.5	230	214	-	460	34
6"x4"	394(267)	152	102	241.3	280	214	-	460	55
6"	394	152	152	241.3	280	338	370	240	82
8"x6"	457(292)	203	152	298.5	345	338	370	240	102
8"	457	203	203	298.5	345	389	370	240	153
10"x8"	533(330)	254	203	362.0	405	389	370	240	192
10"	533	254	254	362.0	405	530	600	420	331
12"x10"	610(356)	305	254	431.8	485	530	600	420	394
12"	610	305	305	431.8	485	575	600	460	484
14"x12"	686	337	305	476.3	535	575	600	460	512
14"	686	337	337	476.3	535	620	600	460	642
16"x12"	762	387	337	539.8	595	575	600	460	610
16"	762	387	387	539.8	595	635	600	460	770
18"x14"	864	438	337	577.9	635	650	600	460	700
20"x16"	914	489	387	635.0	700	635	600	460	850
18"	864	438	438	577.9	635	730	600	460	1054
20"	914	489	489	635.0	700	765	600	460	1295
24"x20"	1067	591	489	749.3	815	765	600	460	1710
24"	1067	591	591	749.3	815	895	800	680	2250

* Dimensions in mm
* All weights in kg and approximate

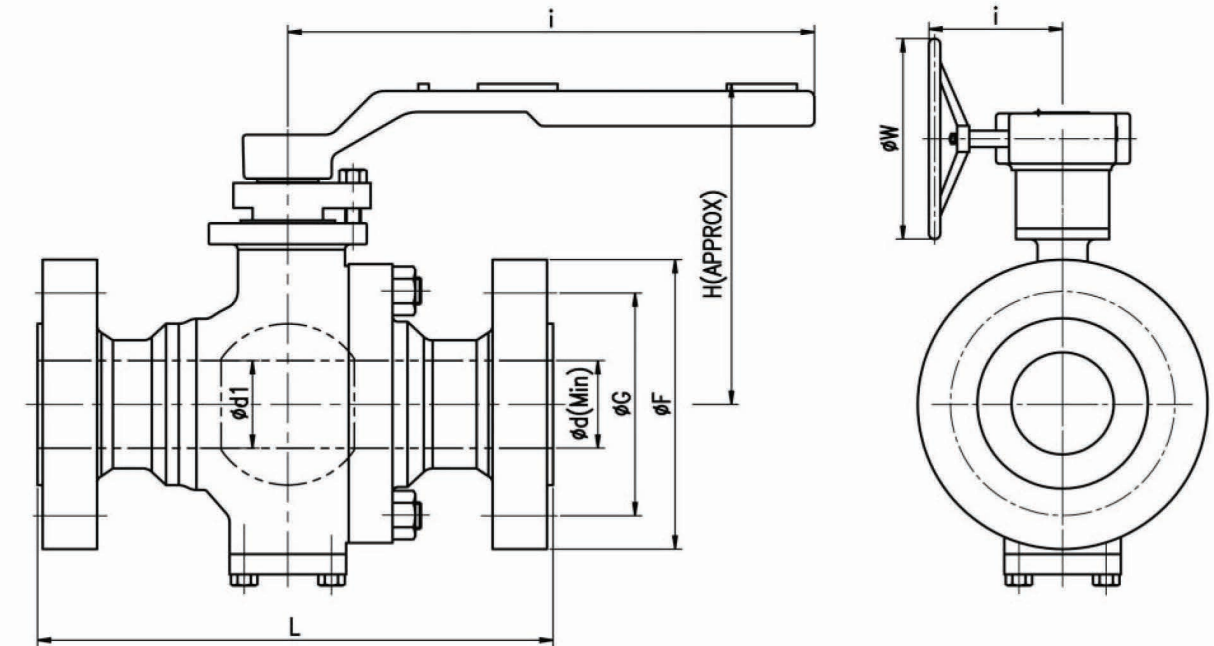


ANSI CLASS 300 RAISED FACE FLANGE AS PER ANSI B16.5

SIZE	L(SHORT)	ød	ød1	øG	øF	H	øW	i	WGT
2"	216	51	51	127.0	165	140	—	250	16
2 1/2"	241	64	64	149.2	190	159	—	400	24
3"x2 1/2"	282	76	64	168.3	210	159	—	400	32
3"	282	76	76	168.3	210	165	—	400	36
4"x3"	305	102	76	200.0	255	165	—	400	38
4"	305	102	102	200.0	255	214	—	460	45
6"x4"	403	152	102	269.9	320	214	—	460	68
6"	403	152	152	269.9	320	338	370	240	130
8"x6"	502(419)	203	152	330.1	380	338	370	240	158
8"	502	203	203	330.1	380	390	370	240	200
10"x8"	568(457)	254	203	387.4	445	390	370	240	320
10"	568	254	254	387.4	445	530	600	420	410
12"x10"	648(502)	305	254	405.8	520	530	600	420	420
12"	648	305	305	405.8	520	575	600	460	560
14"x12"	762	337	305	514.4	585	575	600	460	610
14"	762	337	337	514.4	585	620	600	460	740
16"x12"	838	387	205	571.5	650	575	600	460	720
16"	838	387	387	571.5	650	635	600	460	880
18"x14"	914	438	337	628.6	710	650	600	460	865
20"x16"	991	489	387	685.8	775	635	600	460	1260
18"	914	438	438	628.6	710	730	800	600	1410
20"	991	489	489	685.8	775	765	800	600	1660
24"x20"	1067	591	489	812.8	915	765	800	600	1820
24"	1067	591	591	812.8	915	895	800	680	2650

* Dimensions in mm

* All weights in kg and approximate



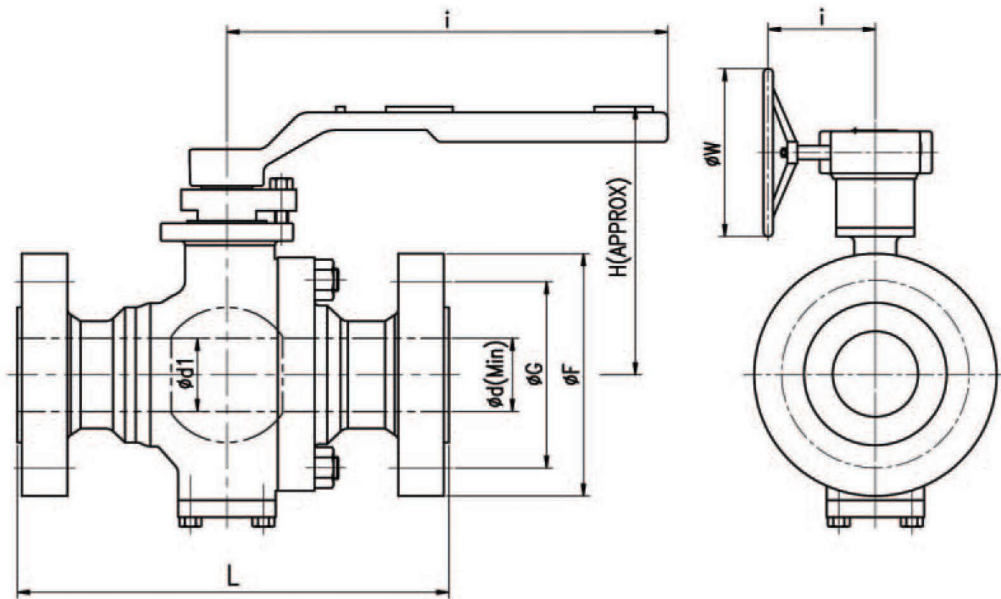
ANSI CLASS 600 RAISED FACE FLANGE AS PER ANSI B16.5

SIZE	L	ød	ød1	øG	øF	H	øW	i	WGT
1/2"	165	13	13	66.7	95	117	—	230	4.9
3/4"	190	19	19	82.6	115	120	—	230	7.2
1"	216	25	25	88.9	125	146	—	250	11.4
1 1/2"	241	38	38	114.3	155	140	—	250	17.5
2"	292	49	49	127.0	165	164	—	400	31
2 1/2"	330	62	62	149.2	190	190	—	460	48
3"x2 1/2"	350	74	62	168.3	210	190	—	460	52
3"	350	74	74	168.3	210	191	—	460	55
4"x3"	432	100	74	215.9	275	191	—	460	77
4"	432	100	100	215.9	275	293	370	240	122
6"x4"	559	150	100	292.1	355	293	370	240	165
6"	559	150	150	292.1	355	320	600	420	280
8"x6"	660	201	150	349.2	420	320	600	420	320
8"	660	201	201	349.2	420	420	600	420	490
10"x8"	787	252	201	431.8	510	420	600	420	585
10"	787	252	252	431.8	510	470	600	460	825

* Dimensions in mm

* All weights in kg and approximate

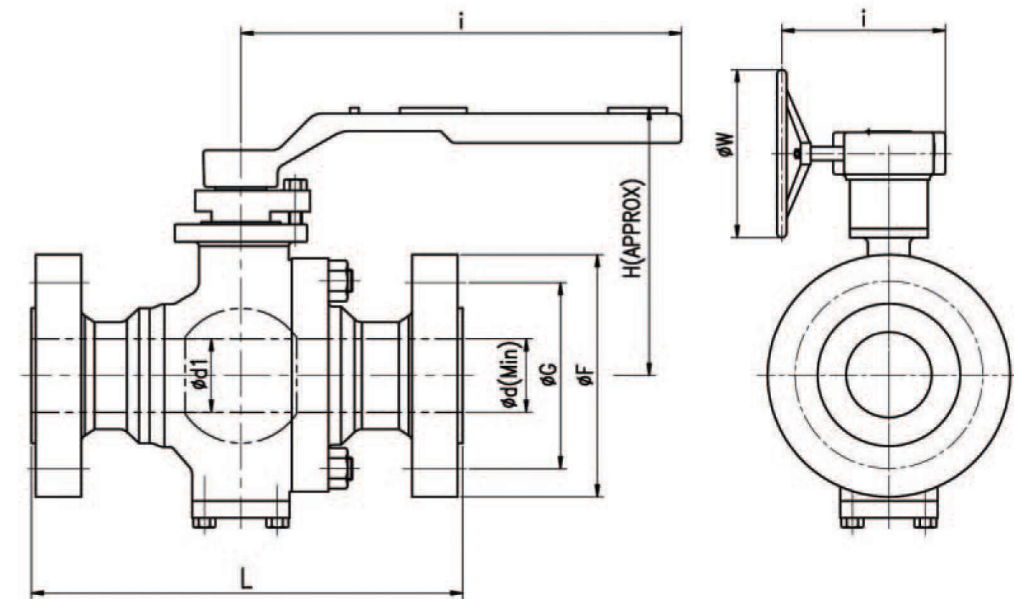
* 1/2"~1 1/2" floating type



ANSI CLASS 900 RAISED FACE & RING JOINT FLANGE AS PER ANSI B16.5

SIZE	L (RTJ)	ϕd	$\phi d1$	ϕG	ϕF	H	ϕW	i	WGT
1/2"	216 (216)	13	13	82.6	120	-	-	-	-
3/4"	229 (229)	19	19	88.9	130	140	-	230	-
1"	254 (254)	25	25	101.6	150	160	-	380	-
1 1/2"	305 (305)	38	38	123.8	180	-	-	-	-
2"	368 (371)	49	49	165.1	215	210	-	400	62
3"x2 1/2"	381 (384)	74	62	190.5	240	297	370	240	65
3"	381 (384)	74	74	190.5	240	297	370	240	90
4"x3"	457 (460)	100	74	235.0	290	297	370	240	120
4"	457 (460)	100	100	235.0	290	290	370	240	140
6"x4"	610 (613)	150	100	317.5	380	290	370	240	245
6"	610 (613)	150	150	317.5	380	320	600	420	280
8"x6"	737 (740)	201	150	393.7	470	320	600	420	440
8"	737 (740)	201	201	393.7	470	420	600	460	400
10"x8"	838 (841)	252	201	469.9	545	420	600	460	725
10"	838 (841)	252	252	469.9	545	470	600	460	970

* Dimensions in mm
 * All weights in kg and approximate
 * 1/2"~1 1/2" floating type

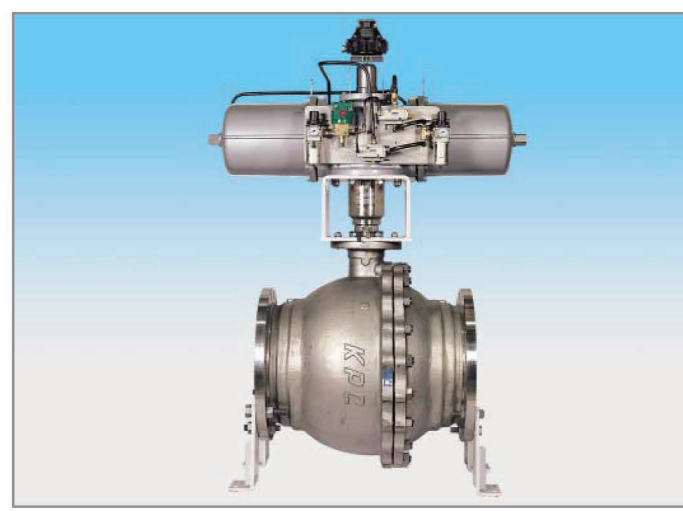
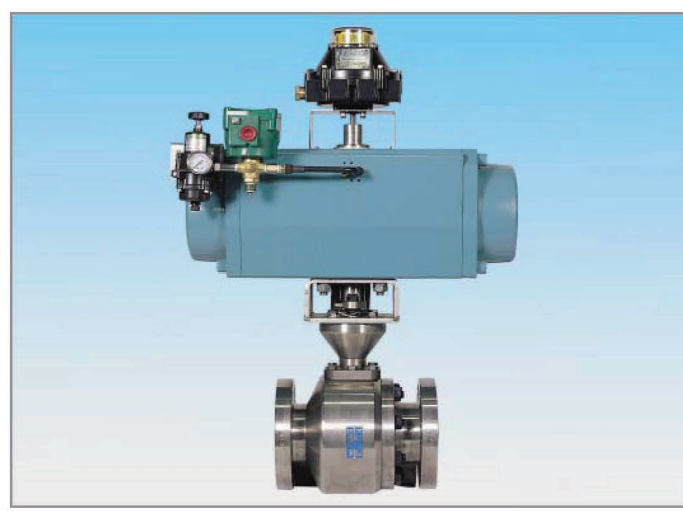
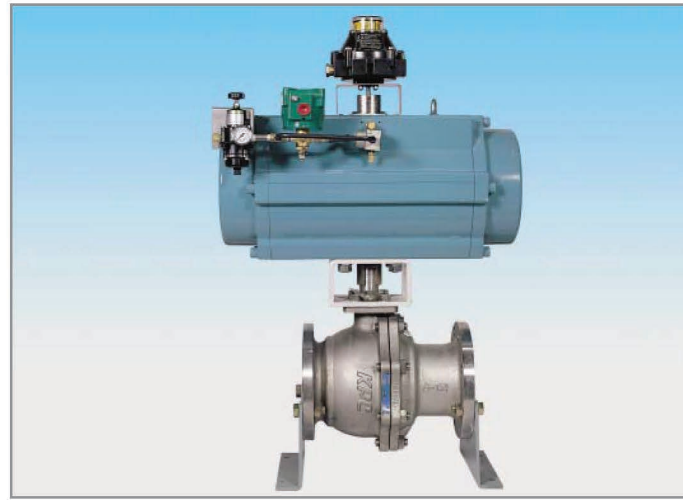


ANSI CLASS 1500 RAISED FACE & RING JOINT FLANGE AS PER ANSI B16.5

SIZE	L (RTJ)	ϕd	$\phi d1$	ϕG	ϕF	H	ϕW	i	WGT
1/2"	216 (219)	13	13	82.6	120	-	-	-	-
3/4"	229 (229)	19	19	88.9	130	140	-	230	-
1"	254 (254)	25	25	101.6	150	160	-	380	-
1 1/2"	305 (305)	38	38	123.8	180	-	-	-	-
2"	368 (371)	49	49	165.1	215	210	-	400	62
3"x2 1/2"	470 (473)	74	62	203.2	265	270	370	240	105
3"	470 (473)	74	74	203.2	265	340	370	240	145
4"x3"	546 (549)	100	74	241.3	310	340	370	240	160
4"	546 (549)	100	100	241.3	310	290	600	420	210
6"x4"	705 (711.2)	144	100	317.5	395	290	600	420	350
6"	705 (711.2)	144	144	317.5	395	400	600	460	510
8"x6"	832 (841.4)	192	144	393.7	485	400	600	460	640
8"	832 (841.4)	192	192	393.7	485	420	600	460	950
10"x8"	991 (1000.4)	239	192	482.6	585	420	600	460	1280
10"	991 (1000.4)	239	239	482.6	585	490	600	460	1580

* Dimensions in mm
 * All weights in kg and approximate
 * 1/2"~1 1/2" floating type

2pc Trunnion Mounted Ball Valves



HOW TO SPECIFY KPC BALL VALVES

① ① - ② ② ③ - ④ ⑤ ⑥ - ⑦ ⑧ - ⑨ ⑨
2 T - 0 8 1 - C S 2 - R 2 - G A

(2T BALL VALVE 8" ANSI 150# FULL BORE, CARBON STEEL BODY, STAINLESS STEEL TRIM, GLASS REINFORCED PTFE SEAT, RAISED FACE, GEAR OPERATED, FIRE SAFE; ANTISTATIC)

① VALVE MODEL	
CD	DESCRIPTION
FM	FLO-MAX
3T	3PC TRUNNION SIDE ENTRY
2T	2PC TRUNNION
WT	WEDGE SEAL TOP ENTRY
WS	WEDGE SEAL SIDE ENTRY
TT	TOP ENTRY TRUNNION
2F	2PC FLOATING
3F	3PC FLOATING
SP	SPECIAL

② SIZE			
CD	SIZE	CD	SIZE
0A	1/4"	10	10"
0B	1/2"	12	12"
0C	3/4"	14	14"
01	1"	16	16"
1A	1 1/4"	18	18"
1B	1 1/2"	20	20"
02	2"	24	24"
2B	2 1/2"	26	26"
03	3"	28	28"
04	4"	30	30"
05	4"	32	32"
06	6"	36	36"
08	8"	42	42"

③ ANSI CLASS & PORT	
CD	CLASS
1	150# FB
2	150# RB
3	300# FB
4	300# RB
5	600# FB
6	600# RB
7	900# FB
8	900# RB
9	1500# FB
0	1500# RF
A	2500# FB
B	2500# RB

④ BODY & TRIM MAT'L	
CD	DESCRIPTION
C	C/STEEL
S	S/STEEL
A	ALLOY 20
H	HASTELLOY
D	DUPLEX SS.
M	MONEL
T	TITANIUM
X	SPECIAL

⑥ SEAT MATERIAL	
CD	DESCRIPTION
1	VIRGIN PTFE
2	GLASS RPTFE
3	CARBON RPTFE
4	UHMWPE
5	PEEK
6	METAL SEAT
7	LAMINATED METAL SEAT
8	CARBON GRAPHITE
9	CERAMIC
0	NYLON
X	SPECIAL

⑦ END CONFIGURATION	
CD	DESCRIPTION
F	FLAT FACE
R	RAISED FACE
J	RING TYPE JOINT
B	BUTT WELD
S	SOCKET WELD
C	SCREWED
X	SPECIAL

⑧ ACTUATOR	
CD	DESCRIPTION
0	BARE STEM
1	WRENCH HANDLE
2	ENCLOSED GEAR
3	PNEUMATIC
4	ELECTRIC MOTOR
5	OVAL HANDLE
X	SPECIAL

⑨ OPTIONAL FEATURES	
CD	DESCRIPTION
S	STANDARD
G	GRAFOIL PACKING/GASKET (API-607 FIRE SAFE)
L	DOUBLE LIVE LOADED RTFE CHEVRON PACKING
E	EXTENDED STEM
C	CHLORINE SERVICE CLEANING(CL2 CLEANING)
N	NACE CERTIFIED TRIM
V	VENTED BALL
A	ANTISTATIC STEM
X	SPECIAL

* This is limited list of the available options, contact the factory for specific requirements and availability.

APPLICABLE STANDARDS

KPC Ball Valves conform to, one or more of the following specifications, standards and codes for design, manufacturing and test/inspection. Other specifications and standards might be also available upon request.

API - AMERICAN PETROLEUM INSTITUTE

Spec. API 6D
Specification for pipeline valves.

Std. API 6FA/ 607
Specification for fire test for valves.

Std. API 598
Valve inspection and test.

ANSI - AMERICAN NATIONAL STANDARD INSTITUTE

ASME - AMERICAN SOCIETY OF MECHANICAL ENGINEERS

ASME/ANSI B 16.5
Steel pipe flanges and flanged fittings.

ASME/ANSI B 16.10
Face to face and end to end dimensions of ferrous valves.

ASME/ANSI B 16.25
Butt - Welding ends.

ASME/ANSI B 16.34
Steel valves.

ASME/ANSI B 31.3
Chemical Plant and Petroleum Refinery Piping.

ASME/ANSI B 31.4
Liquid Petroleum Transportation Piping Systems.

ASME/ANSI B 31.8
Gas Transmission and Distribution Piping Systems.

ASME Code Section V
Non-destructive examination.
ASME Code Section VIII
Div. 1 and 2 Pressure Vessel.
ASME Code Section IX
Welding and Brazing qualifications.

MSS - MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE & FITTING INDUSTRY

SP 25
Standard marking system for valves, fittings, flanges and unions.

SP 44
Steel pipe flanges.
SP 61
Hydrostatic testing of steel valves.

SP 72
Valves for general service.
SP 82
Valve pressure testing method.

ASTM - AMERICAN SOCIETY FOR TESTING AND MATERIALS

NACE - NATIONAL ASSOCIATION OF CORROSION ENGINEERS

NACE std MR 01.75 / ISO 15156
SSC resistant metallic materials for oilfield equipments.

NACE std TM 01.77
Laboratory testing of metals for resistance to SSC in H₂S environments.

CERTIFICATES



Material Certification Standard
Material of Conformance Certificate Hydrostatic Test Certificate

Certificates requested by the client
Fire Test Certificate Radiographic Test Certificate
Magnetic Particle Test Certificate Corrosion Test Certificate
Ultra Sonic Test Certificate