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API 6D/API 608/
ISO17292

TRUNNION MOUNTED BALL VALVE

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SNY VALVE
LEADING TECHNOLOGY SOLUTION
FOR ENGINEERING VALVE

SNY VALVE (YANCHENG) CO., LTD.
Rev. No.: E1–TMBV–2020

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COMPANY PROFILE

SNY Valve (Yancheng) Co., Ltd. is committed to providing global customers with reliable and complete range of solution for engineering valve. Established in 2003 with CNY 150 million registered capital, SNY VALVE is a national high-tech comprehensive enterprise which integrating valve R&D manufacturing and sales. SNY VALVE headquarters is located in Yancheng city with two manufacturing workshops. We have sales centers in Yancheng, Suzhou and Beijing. SNY VALVE covers an area of over 100,000 sq. meters with more than 300 sets of production, test & inspection facilities. SNYVALVE has established long-term cooperative relations with many large enterprises at home and abroad, been approved by many end users and EPC companies, and products export to middle east, Europe, America, etc.

Main Products

SNY VALVE products are widely applied in oil, gas, petroleum refining, petrochemical, power, mining, metallurgy, LNG shipbuilding and other industries. Our product range are NPS 1/4~60 inch (DN6~DN1500), Class150~2500 (PN16~PN420). Our mainly products are gate valves, globe valves, check valves, ball valves, API6D valve, and we are actively developing special valves used for severe service such as cryogenic, ultra-high temperature and high corrosion. Products are designed according to standards of ANSI, ASTM, API, BS, JIS, DIN, GB, ISO, MSS, etc., and design temperature from -196 to 650 Deg.C. Material are available of carbon steel, stainless (including duplex and super duplex), and other alloys steel (low alloy, nickel-based alloy, Inconel, Monel, Hastelloy),etc.

Technical Strength

SNY VALVE has a first-class technology research and development team, and we have nearly 100 of all kinds of patents and copyrights. Company are capable of physical & chemical analysis, mechanical performance testing, NDT, impact test at ambient temperature and low temperature, hardness testing, metallographic analysis, coordinate measuring, valve torque testing, valve life testing, high-temperature & cryogenic testing, etc., products have been certified through fire safe, fugitive emission, TAT tests.

HEADQUARTERS

Established in 2003
Area: 34,000 ㎡
Located in Tinghu District, Yancheng City.

THE SECOND FACTORY

Established in 2006
Area: 58,000 ㎡
Located in Yancheng E&T development zone, Yancheng City.

SUZHOU BRANCH

Located in Suzhou Industrial Zone, Suzhou branch is the global sales & marketing center of SNY VALVE, which plays a comprehensive role in market promotion, sales, and set up distribution system.

BEIJING BRANCH

Located in Beijing International Business Center, Beijing branch is the domestic sales & marketing center of SNY VALVE, and plays a comprehensive role in market promotion, sales, and set up distribution system.

Environment, Health & Safety

Quality, health, safety and environment management have top priority in our growth plans and all our endeavors. SNY VALVE is committed to providing a safe, healthy and positive working environment for our employees and those under our care. SNY VALVE has established management policy and action guidelines regarding environmental issues. We view "harmony with nature" and "sustainable development" as integral to the pursuit of our business.

Social Responsibility

Constantly taking social responsibility, SNY VALVE has set up “SNY Scholarship” through cooperating with local university for aiding excellent students in straitened circumstance.

QUALIFICATION & CERTIFICATE

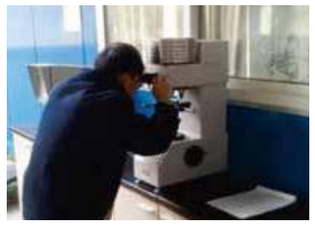
SNY VALVE is committed to provide the highest possible quality industrial valves at the most cost effective way to customers worldwide. We have been certified with ISO9001, ISO14001, OHSAS18001, CE/PED, API6D, API602, API600,ABS, CU-TR,TS,and obtained API607 /API 6Fa fire safe approvals.

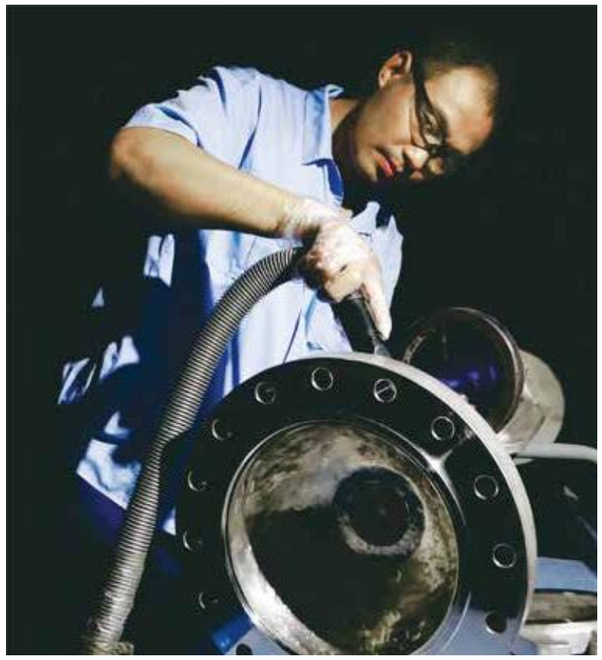
QUALITY CONTROL

SNY VALVE has been certified with ISO 9001 & API Spec. Q1 for quality management system.
SNY quality assurance and quality control capabilities are followed and implemented based on global standards.
We have
· State-of-the-art Quality Control Test Center
· In-house Non-destructive Test Equipment & ASNT Certified Personnel
· Pressure Test Equipment
· Special Testing Equipment for Product Validation

Raw material quality is ensured by a stringent vendor qualification system. By NDT (Radiographic Test, Magnetic Particle Test, Penetrant Test & Ultrasonic Test), Positive Martial Identification (PMI), Tensile Test, and Hardness Test to evaluate samples & small lot production, as well as surveillance audits and sample check to ensure the compliance as per customers' requirements.

Valves manufactured at SNY valves are 100% pressure-tested. The product design has been validated through various special testing as per applicable industry standards such as Fire Safe Test, Low Temperature Test, Cryogenic Test, Vacuum Test, Fugitive Emission Test, High Pressure Gas Test, Elevated Temperature Test and so on.



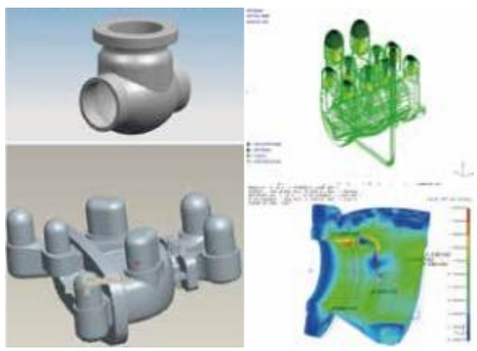


SNY VALVE always focus on technical innovation. It has one province technique center and one cryogenic ball valve engineering center. Technical team utilizes the most advanced computer technology to improve the existing products and develop the new products. Up to now, SNY VALVE possesses more than 90 patents.

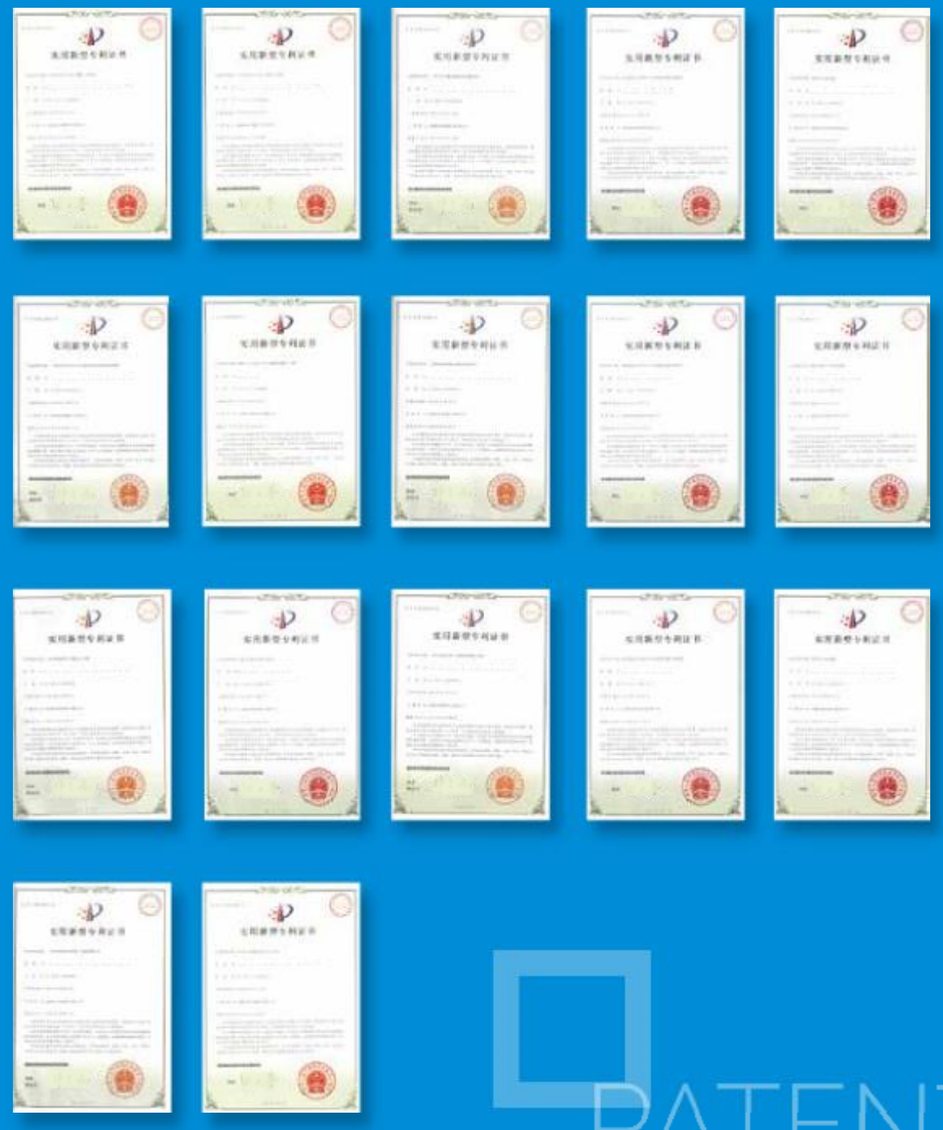
SNY VALVE design philosophy is to develop a safe and cost-efficient valve. Through the latest software of 3D, CAD & Solid works, engineer is available to fictitiously check and verify if the parts & valves can be assembled precisely before they are actually made, which can speed up the development process & saves the costs.

SNY VALVE technical personnel are always ready to offer on-line or on-site technical training and support for all of our customers.

TECHNICAL INNOVATION



TECHNOLOGY PATENT



PATENT

INTRODUCTION OF FOUNDRIES

SNY VALVE realizes the casting quality is the most important to valve life, safety of personnel and environment, especially in the high temperature and high pressure applications. So our strict customers always audit the foundries at first from our approved suppliers before order execution.

SNY VALVE has established unique strategic supply chain management system. We have strategically foundries and one own foundry. They each have a full set of quality inspection facilities, such as spectrometer, NDT and PMI inspection, etc.

FACTORY MANAGEMENT & FACILITIES

SNY VALVE organically integrates the advanced manufacturing equipment and the staffs. By using the most advanced hardware and software, centralizing the production resources, increasing our efficiency and continuously improving the process control, we are able to meet or exceed the different requirement of customers. Company implement 6S management onsite to reduce waste and improve process control. Advanced management software such as K/3 (ERP) & OA (Collaborative Management Software) play an important role in SNY VALVE. Synchronized supervision & management are performed through the whole manufacturing process to improve productivity & efficiency. Our business philosophy is: stable & reliable quality, on-time delivery and reasonable price.

SNY VALVE have more than 300 sets(units) equipment, such as CNC machining Center, CNC lathes, CNC boring-milling machine, general lathes, large-scale vertical lathe, sphere grinders, plasma overlaying welding equipment and heat treatment equipment, etc.
CNC machining Center is Japanese FANUC 0I-MD NC, and the three-way coupling is from Germany S+J/R+W, which realizes the automatic continuous milling of plane, groove, bevel, and a variety of linear processing, and ensure the accuracy of ball.

INDUSTRY APPLICATIONS

- Oil & Gas Pipeline
- Refinery
- Petrochemical
- Power
- Chemical
- LNG & LPG
- Mining
- Metallurgy
- Aerospace
- Water Treatment
- Offshore Engineering

Figure Numbers

	Nominal Size	Valve Type	Nominal Pressure	End Connection	Operation	Special Requirement	Body Material	Trim	Special Material
Example:	A	B	C	D	E	F	G	H	I
	1 6	B S	6	R	G	F N	L F 2	2 4 9 2	N C

Explanation: NPS 16, Forged Steel Side Entry Soft Seated Trunnion Mounted Ball Valve, Class 600, RF Flanged End, Gearbox Operated, No Machining on Raised Face, Body Material LF2, Ball LF2+ENP, Seat Sealing Ring NYLON12, Stem 4140+ENP, Stem Sealing VITON B, NACE Requirement

A Nominal Size

2 NPS2	28 NPS28	D50 DN50	D700 DN700
2 1/2 NPS2 1/2	30 NPS30	D65 DN65	D750 DN750
3 NPS3	32 NPS32	D80 DN80	D800 DN800
4 NPS4	34 NPS34	D100 DN100	D850 DN850
5 NPS5	36 NPS36	D125 DN125	D900 DN900
6 NPS6	38 NPS38	D150 DN150	D950 DN950
8 NPS8	40 NPS40	D200 DN200	D1000 DN1000
10 NPS10	42 NPS42	D250 DN250	D1050 DN1050
12 NPS12	44 NPS44	D300 DN300	D1100 DN1100
14 NPS14	46 NPS46	D350 DN350	D1150 DN1050
16 NPS16	48 NPS48	D400 DN400	D1200 DN1200
18 NPS18	50 NPS50	D450 DN450	D1250 DN1250
20 NPS20	52 NPS52	D500 DN500	D1300 DN1300
22 NPS22	54 NPS54	D550 DN550	D1350 DN1350
24 NPS24	56 NPS56	D600 DN600	D1400 DN1400
26 NPS26		D650 DN650	

Note: Reduced–bore valve is expressed as Nominal Size × Nominal Size, e.g.: 4 × 3.

C Nominal Pressure

0	Class125	-2.5	PN(DIN)2.5	-20	PN(ANSI)20
1	Class150	-6	PN(DIN)6	-50	PN(ANSI)50
3	Class300	-10	PN(DIN)10	-110	PN(ANSI)110
4	Class400	-16	PN(DIN)16	-150	PN(ANSI)150
6	Class600	-25	PN(DIN)25	-260	PN(ANSI)260
8	Class800	-40	PN(DIN)40	-420	PN(ANSI)420
9	Class900	-63	PN(DIN)63		
15	Class1500	-100	PN(DIN)100		
25	Class2500				

B Valve Type

BS	Forged Steel Side Entry Soft Seated Trunnion Mounted Ball Valve
BT	Cast Steel 2-pc Soft Seated Trunnion Mounted Ball Valve
BE	Top Entry Soft Seated Trunnion Mounted Ball Valve
BSW	Fully Welded Soft Seated Trunnion Mounted Ball Valve
BSM	Forged Steel Side Entry Metal Seated Trunnion Mounted Ball Valve

D End Connection

R	RF	B**	Butt-welding(** is the pipe norminal size or can be described as OD*Wall Thickness)	
J	RTJ	F	FF	Flanged

E Operation

Default	Lever/Handle/Handwheel	B	Bare Stem
G	Gearbox	P	Pneumatic Actuator
E	Electric Actuator	H	Hydraulic Actuator

F Special Requirement

B16.47B ASME B16.47B standard end flange
BW belleville spring at packing bolt shall be anti-loosening
CE valves exported to EU, and shall be CE marked
DIB1 double piston effect seats
DIB2 one self-relieving seat and one double piston effective seat
EPW** buttwelding end with pup piece (** is the pup piece dimension)
LS valve with lock
FN no machining on raised face
SH Shell requirement
UG** buried ball valve, ** is the distance between top flange to the valve center

G Body Material

WCA	A216 WCA	A105N	A105N
WCB	A216 WCB	LF2	A320 LF2
WCC	A216 WCC	F304	A182 F304
LCB	A352 LCB	F316	A182 F316
LCC	A352 LCC	F304L	A182 F304L
CF8	A351 CF8	F316L	A182 F316L
CF8M	A351 CF8M	F51	A182 F51
CF3	A351 CF3	F53	A182 F53
CF3M	A351 CF3M	N600	B564 UNS N06600

H Trim Material

Ball/Seat Ring	Seat Insert/Ball-Seat Ring Surface	Stem	Seals
1 A105N+ENP	1 PTFE	1 A105N+ENP	1 VITON A
2 LF2+ENP	2 PTFE + 15 Glass Fiber	2 LF2+ENP	2 VITON B
3 F304	3 PTFE + 25% Carbon Fiber	3 3 F304	3 VITON AED
4 F316	4 NYLON12	4 F316	4 NBR
5 F304L	5 DEVLON-V	5 F304L	5 HNBR
6 F316L	6 PEEK	6 F316L	6 HNBR-AED
7 F51	7 PPL	7 F51	7 EPDM
8 INCONEL 625	8 PCTFE	8 17-4PH	Y Braided + Flexible Graphite
9 INCOLOY 825	9 4140+ENP	9 4140+ENP	Z Flexible Graphite
	X WC	A INCONEL 718	
	Y HF	B FXM-19	
	Z Ni60		

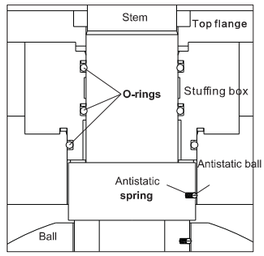
Note: Material of seat ring is defaulted same as ball. Special material can be described in special requirement.

I Special Material

B7M/2HM	bolt&nut material is B7M/2HM
BZ	galvanized bolt
BN	nickelplated bolt&nut
BP	PTFE plated bolt
NC	NACE Requirement

Blow-out Proof Stem

The stem is made separately from the ball with an integral T-type round shoulder, retained by gland to assure stem sealing safety at all pressure. Besides, blow-out proof design with pendant collet is available for option.



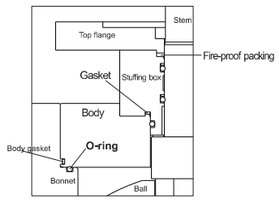
Anti-static Device

A conductive spring and a steel ball form an elctrostatic conduction circuit to provide antistatic continuity throughout the valve.

Firesafe Design

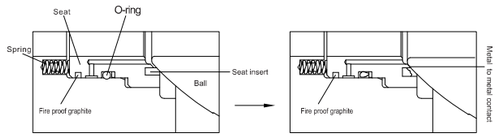
External leakage prevention

All the possible external leakage point between stem and gland flange, gland flange and body, body and adapter are sealed with primary O-ring then secondary graphite gasket. When fire burned out the primary O-ring seal, the secondary graphite gasket seal can ensure that the external leakage is in allowable range.



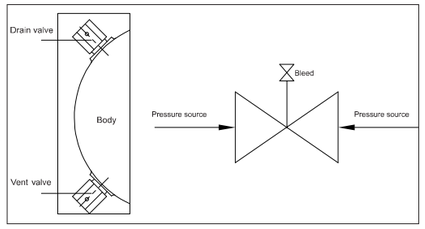
Internal leakage prevention

When fire burned out the primary O-ring seal between the floating seat ring and adapter, also the seat insert between seat ring and ball, the secondary graphite seal between seat ring and adapter, and seat ring & ball metal to metal contact preloaded by spring will minimize the internal process medium leakage,to ensure that the internal leakage is under control in the specified range.



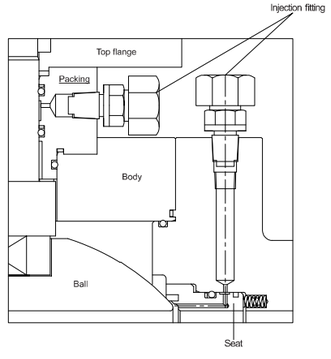
Double Block and Bleed

Trunnion mounted ball valves have been designed with two seating surfaces (Upstream & Downstream Seats), each of them in the close position achieve sealing against pressure coming from a single source. Anti blow-out vent & drain plug allow bi-directional valves to vent and drain the body cavity in both open and closed positions. This feature helps to de-pressurize the line downstream to open up and work on it.

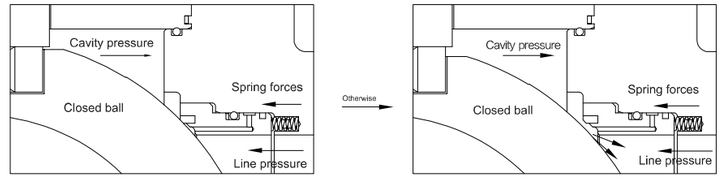


Emergency Sealant Injection System

For 6 inch and larger (or smaller size on request) Trunnion mounted ball valves, sealant injected fittings will be installed on both the stem and seats. When the sealing materials (soft seat or the stem o-ring) are damaged or decomposed by fire or other accidental causes, the seat and stem leakage can be prevented by the injection of sealant into these fittings. The fitting contains a check valve and also contains an internally installed check valve to provide backup sealing.



Cavity Pressure Relief



When cavity pressure is lower than seat spring force and line pressure, then contact between ball and seat ring is assured to provide a tight seal.

When cavity pressure is higher than seat spring force and line pressure, the self relieving action allows the valve seat to move slightly away from the ball surface. Therefore, any excess pressure inside the body cavity is discharged into the pipeline to restore the balance between the body cavity and the pipeline (either upstream or downstream side).

Single Piston Effect Seats (Self Relieving Seats)

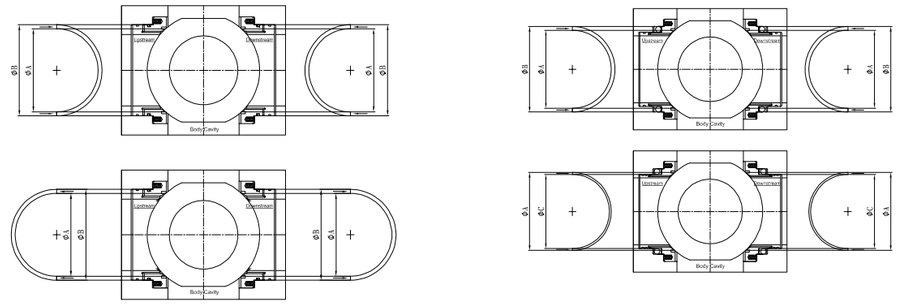
The single piston is the the standard design for trunnion mounted ball valves. Both the upstream and downstream fluid pressure pushes the seat rings toward the ball. If the thrust created by the body cavity pressure is greater than the spring preload and the fluid pressure thrust, the seats are pushed against the ball. Then, any overpressure in the body cavity is released automatically in the valves' fully opened or fully closed position.

Double Piston Effect Seats

Double piston effect seats are pressure energized in both directions. Upstream and downstream pressure creates the thrust. So the seat rings are pushed toward the ball at all times. If the upstream seat fails, the downstream seat can still insure valve tightness. Interesting in specific applications (high integrity required) or for some pipe testing. Since double piston effect valves do not have the self-relieving function, they can not release valve body cavity overpressure. A pressure relief design feature is added.

STANDARD
SINGLE PISTON EFFECT (SELF-RELIEVING SEATS)

OPTIONAL
DOUBLE PISTON EFFECT

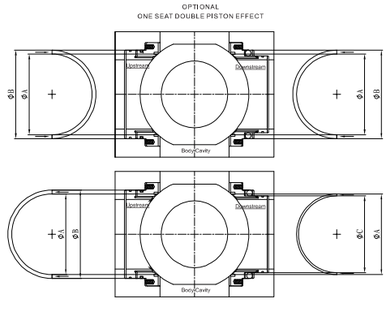


Combination Seats(Self Relieving Upstream Seat and Double Piston Effective Downstream Seat)

The fluid pushes the double piston effect seat toward the ball on the downstream side. So the seat is pressure energized at all times. If the upstream seat failed, the downstream seat can still insure valve tightness.

On the other side, the upstream seat is designed with a single piston effect being pressure energized in one direction only. If the thrust created by the body cavity pressure is greater than the spring preload and the fluid pressure thrust, the seats are pushed against the ball. Then, any overpressure between downstream seats and the body cavity shall be released automatically into upstream side.

OPTIONAL
ONE SEAT DOUBLE PISTON EFFECT

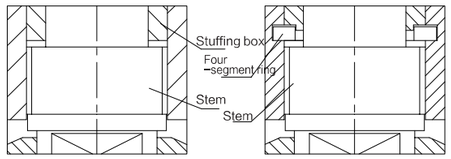


Blow-out Proof Stem Design

Stuffing Box Stop Type: The stem is designed with a raised pattern at the bottom, which could stop stem movement by the stuffing box to prevent stem blowout due to abnormal pressure rise in valve cavity which will result in accident.
Four-Segment Ring Stop Type: The body is designed with a groove to accommodate four-segment ring after the stem is installed in place. The ring can stop stem movement and prevent stem blowout due to abnormal pressure rise inside valve cavity which will result in accident. This design ensures the stem anti-blowout even if the stuffing box is removed.

Fire Safe Design

Die-formed flexible graphite to maintain the reliable sealing performance even in the case of fire or high temperature.

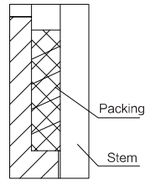


Stuffing Box Stop Type　　Four-Segment Ring Stop Type

Blow-out Proof Stem Design

High-performance Packing

High density die-formed fugitive emissions packing, with low friction coefficient, can greatly reduce the torque. Best resistance even at a very high temperature, still maintain a very low ablation rate of graphite. Extremely low content of sulfur, phosphorus, and the corrosion-resistant active molecules can effectively prevent the corrosion of the stem.



Fugitive Emission Packing Set

Metal Sealing Selection

The selection of hard-facing sealing surface of metal sealed ball valve is an important aspect of its performance guarantee. Our conventional sealing surface are as follows:

Ball	Seat
Tungsten Carbide (WC)	Tungsten Carbide (WC)
HF *	HF *
Ni60	Ni55

*HF：Hard-faced with Stellite 6 or equivalent.

Note: SNY can provide the best solution of hard sealing surface according to the working conditions or customer requirements.

Sealing Surface Precision

With advanced processing technology and imported high-precision spherical grinder, SNY sealing performance of the spherical surface can realize zero leakage.

PART 1

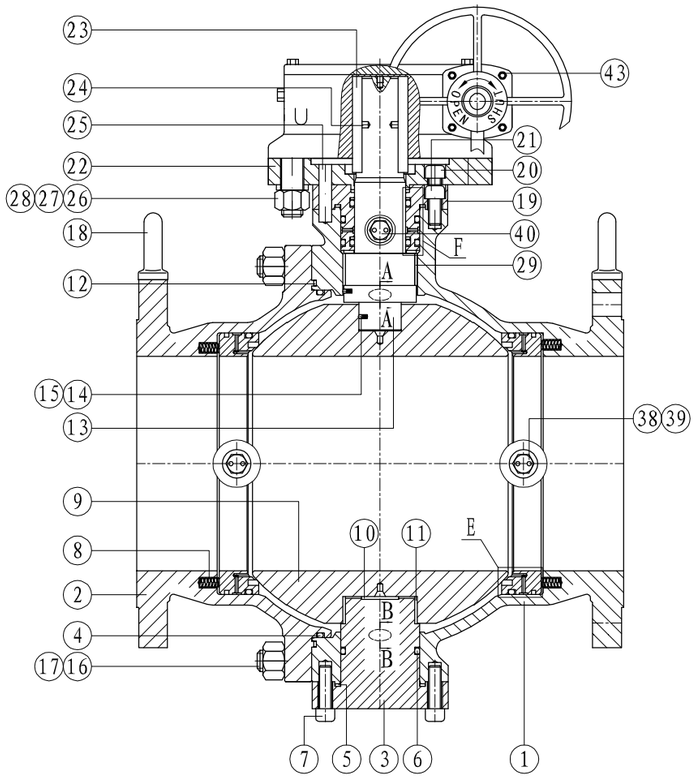
Design Standards

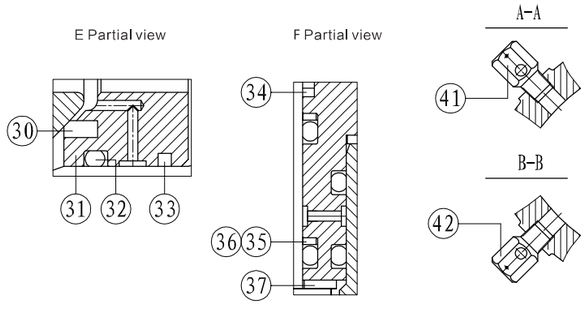
Basic Design	API 608/ISO 17292/ASME B16.34
Face to Face/End to End Dimension	ASME B16.10
Flanged End Dimension	ASME B16.5
Buttwelding End Dimension	ASME B 16.25
Pressure-temperature Rating	ASME B16.34
Inspection and Test	API 598
Firesafe	API 607/API 6FA

2-pc Cast Trunnion Mounted Ball Valve (Soft Seated)

1. Double sealing system of packing, and firesafe design
2. Stem with emergency grease injection
3. Integral anti-blowout design structure of the stem
4. Floating preload seat ring design to ensure good sealing under low pressure
5. Double block and bleed function (DBB)
6. Double isolation and bleed function (DIB)
7. Anti-static function
8. Low torque design
9. Top flange self-limited design

General Assembly Drawing





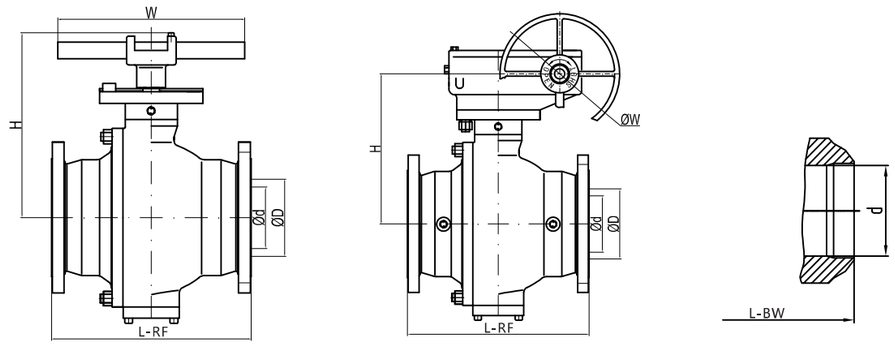
2-pc Cast Trunnion Mounted Ball Valve (Soft Seated)

Material of Construction

Part No.	Part Name	Carbon Steel	Low Temperture	Stainless Steel
1	Body	ASTM A216 WCB	ASTM A352 LCB/LCC	ASTM A351 CF8/CF8M
2	Body Cap	ASTM A216 WCB	ASTM A352 LCB/LCC	ASTM A351 CF8/CF8M
3	Trunnion	ASTM A105N+ENP	ASTM A350 LF2+ENP	ASTM A182 F304/F316
4	O-ring	NBR/HNBR/VITON	NBR/HNBR/VITON	NBR/HNBR/VITON
5	Gasket	SS304+Graphite	SS304+Graphite	SS304/SS316+Graphite
6	O-ring	NBR/HNBR/VITON	NBR/HNBR/VITON	NBR/HNBR/VITON
7	Screw	ASTM A193 B7M	ASTM A320 L7M	ASTM A193 B8M
8	Spring	INCONEL X-750	INCONEL X-750	INCONEL X-750
9	Ball	ASTM A105N+ENP	ASTM A350 LF2+ENP	ASTM A182 F304/F316
10	Thrust Washer	ASTM A29 1045+PTFE	SS304+PTFE	SS304/SS316+PTFE
11	Bearing	ASTM A29 1045+PTFE	SS304+PTFE	SS304/SS316+PTFE
12	Gasket	SS304+Graphite	SS304+Graphite	SS304/SS316+Graphite
13	Stem	ASTM A29 4140/A105N+ENP	ASTM A29 4140/A105N+ENP	ASTM A182 F304/F316
14	Antistatic Spring	SS304	SS304	SS304
15	Antistatic Ball	SS304	SS304	SS304
16	Nut	ASTM A194 2HM	ASTM A194 7M	ASTM A194 8M
17	Stud	ASTM A193 2HM	ASTM A320 L7M	ASTM A193 B8M
18	Lifting Eye	Carbon Steel	Carbon Steel	SS304
19	Body Cover	ASTM A105N+ENP	ASTM A350 LF2+ENP	ASTM A182 F304/F316
20	Screw	ASTM A193 B7M	ASTM A320 L7M	ASTM A193 B8M
21	Screw	ASTM A193 B7M	ASTM A320 L7M	ASTM A193 B8M
22	Mounting Flange	ASTM A105N	ASTM A350 LF2	ASTM A182 F304/F316
23	Key	ASTM A29 1045	SS304	SS304
24	Pin	ASTM A29 1566	SS304	SS304
25	Pin	ASTM A29 1566	SS304	SS304
26	Nut	ASTM A194 2HM	ASTM A194 7M	ASTM A194 8M
27	Stud	ASTM A193 B7M	ASTM A320 L7M	ASTM A193 B8M
28	Washer	ASTM A29 1566	SS304	SS304
29	Bearing	ASTM A29 1045+PTFE	SS304 + PTFE	SS304/SS316 + PTFE
30	Seat Insert	RTFE/NYLON/DEVLON	RTFE/NYLON/DEVLON	RTFE/NYLON/DEVLON
31	Seat	ASTM A105N+ENP	ASTM A350 LF2+ENP	ASTM A182 F304/F316
32	O-ring	NBR/HNBR/VITON	NBR/HNBR/VITON	NBR/HNBR/VITON
33	Gasket	Graphite	Graphite	Graphite
34	Gasket	Graphite	Graphite	Graphite
35	O-ring	NBR/HNBR/VITON	NBR/HNBR/VITON	NBR/HNBR/VITON
36	Retaining Ring	PTFE	PTFE	PTFE
37	Thrust Washer	ASTM A29 1045+PTFE	SS304 + PTFE	SS304/SS316+PTFE
38	Sealant Injection	SS304	SS304	SS304/SS316
39	Check Valve	SS304	SS304	SS304/SS316
40	Sealant Injection	SS304	SS304	SS304/SS316
41	Vent Valve	SS304	SS304	SS304/SS316
42	Bleed Valve	SS304	SS304	SS304/SS316
43	Gearbox	Carbon Steel	Carbon Steel	Carbon Steel

Note：Materials listed in the table are general. When ordering, please contact SNY sales or technical team to confirm the details.

Dimension & Weight



CLASS 150 Full Bore

Size		d		L-RF		L-BW		H		W		Approx Weight	
NPS	DN	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
2	50	1.94	49	7.00	178	8.50	216	6.50	165	13.78	350	35	16
3	80	2.94	74	8.00	203	11.14	283	7.60	193	15.75	400	55	25
4	100	3.94	100	9.00	229	12.01	305	9.09	231	17.72	450	71	32
6	150	5.94	150	15.50	394	17.99	457	12.95	329	12.01	#305	243	110
8	200	7.94	201	18.00	457	20.51	521	15.47	393	12.01	#305	441	200
10	250	9.94	252	21.00	533	22.01	559	15.79	401	15.99	#406	728	330
12	300	11.94	303	24.00	610	25.00	635	17.36	441	15.99	#406	1080	490
14	350	13.19	334	27.00	686	30.00	762	18.94	481	20.00	#508	1257	570
16	400	15.19	385	30.00	762	32.99	838	23.54	598	20.00	#508	1715	778
18	450	17.19	436	34.00	864	35.98	914	25.31	643	20.00	#508	2061	935
20	500	19.19	487	36.00	914	39.02	991	27.87	708	24.02	#610	2624	1190
22	550	21.19	538	/	/	/	/	31.42	798	24.02	#610	296	1346
24	600	23.19	589	42.00	1067	45.00	1143	33.98	863	24.02	#610	3481	1579

#-Gear Operation

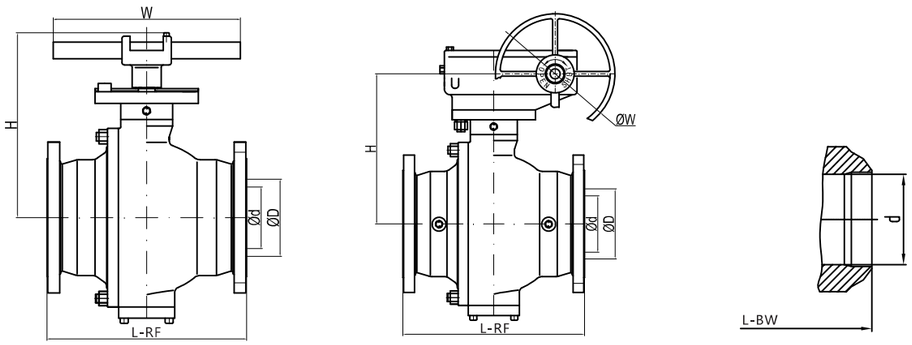
CLASS 150 Reduced Bore

Size		d		D		L-RF		L-BW		H		W		Approx Weight	
NPS	DN	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
3x2	80x50	1.94	49	2.94	74	8.00	203	11.14	283	6.50	165	13.78	350	66	30
4x3	100x80	2.94	74	3.94	100	9.00	229	12.01	305	7.60	193	15.75	400	104	47
6x4	150x100	3.94	100	5.94	150	15.50	394	17.99	457	9.09	231	17.72	450	198	90
8x6	200x150	5.94	150	7.94	201	18.00	457	20.51	521	12.95	329	12.01	#305	355	161
10x8	250x200	7.94	201	9.94	252	21.00	533	22.01	559	15.47	393	12.01	#305	591	268
12x10	300x250	9.94	252	11.94	303	24.00	610	25.00	635	15.47	393	15.99	#406	1030	467
14x12	350x300	11.94	303	13.19	334	27.00	686	30.00	762	17.36	441	15.99	#406	1235	560
16x14	400x350	13.19	334	15.19	385	30.00	762	32.99	838	18.94	481	20.00	#508	1689	766
18x16	450x400	15.19	385	17.19	436	34.00	864	35.98	914	23.54	598	20.00	#508	1989	902
20x18	500x450	17.19	436	19.19	487	36.00	914	39.02	991	25.31	643	20.00	#508	2491	1130
22x20	550x500	19.19	487	21.19	535	/	/	/	/	25.31	643	24.02	#610	2866	1300
24x20	600x500	19.19	487	23.19	589	42.00	1067	45.00	1143	27.87	708	24.02	#610	3351	1520

#-Gear Operation

2-pc Cast Trunnion Mounted Ball Valve (Soft Seated)

Dimension & Weight



CLASS 300 Full Bore

Size		d		L-RF		L-BW		H		W		Approx Weight	
NPS	DN	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
2	50	1.94	49	8.50	216	8.50	216	6.50	165	15.75	400	51	23
3	80	2.94	74	11.13	283	11.14	283	7.60	193	21.66	550	82	37
4	100	3.94	100	12.00	305	12.01	305	9.09	231	23.62	600	104	47
6	150	5.94	150	15.88	403	17.99	457	12.95	329	12.01	#305	320	145
8	200	7.94	201	19.75	502	20.51	521	15.47	393	15.99	#406	551	250
10	250	9.94	252	22.38	568	22.01	559	15.79	401	18.11	#460	882	400
12	300	11.94	303	25.50	648	25.00	635	17.36	441	20.00	#508	1301	590
14	350	13.19	334	30.00	762	30.00	762	18.94	481	24.02	#610	1687	765
16	400	15.19	385	33.00	838	32.99	838	23.54	598	24.02	#610	2205	1000
18	450	17.19	436	36.00	914	35.98	914	25.31	643	28.00	#711	2557	1160
20	500	19.19	487	39.00	991	39.02	991	27.87	708	28.00	#711	2910	1320
22	550	21.19	538	43.00	1092	42.99	1092	31.42	798	28.00	#711	3395	1540
24	600	23.19	589	45.00	1143	45.00	1143	33.98	863	28.00	#711	4131	1874

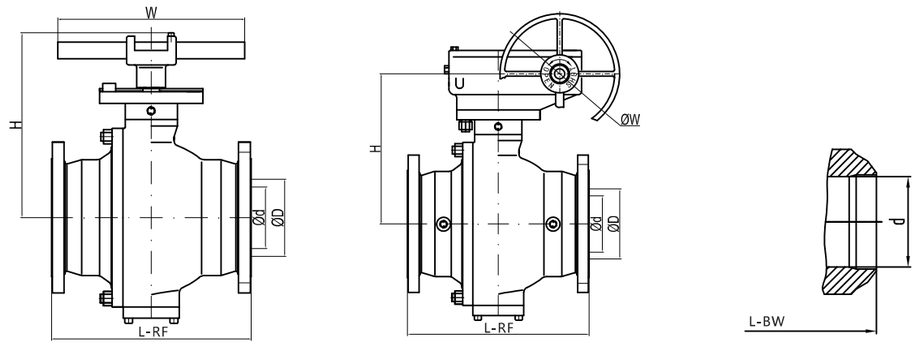
#-Gear Operation

CLASS 300 Reduced Bore

Size		d		D		L-RF		L-BW		H		W		Approx Weight	
NPS	DN	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
3x2	80x50	1.94	49	2.94	74	8.00	203	11.14	283	6.50	165	15.75	400	84	38
4x3	100x80	2.94	74	3.94	100	9.00	229	12.01	305	7.60	193	21.66	550	132	60
6x4	150x100	3.94	100	5.94	150	15.50	394	17.99	457	9.09	231	23.62	600	324	147
8x6	200x150	5.94	150	7.94	201	18.00	457	20.51	521	12.95	329	12.01	#305	516	234
10x8	250x200	7.94	201	9.94	252	21.00	533	22.01	559	15.47	393	15.99	#406	650	295
12x10	300x250	9.94	252	11.94	303	24.00	610	25.00	635	15.47	393	18.11	#460	1076	488
14x12	350x300	11.94	303	13.19	334	27.00	686	30.00	762	17.36	441	20.00	#508	1257	570
16x14	400x350	13.19	334	15.19	385	30.00	762	32.99	838	18.94	481	24.02	#610	2006	910
18x16	450x400	15.19	385	17.19	436	34.00	864	35.98	914	23.54	598	24.02	#610	2249	1020
20x18	500x450	17.19	436	19.19	487	36.00	914	39.02	991	25.31	643	28.00	#711	2822	1280
22x20	550x500	19.19	487	21.19	535	/	/	42.99	1092	25.31	643	28.00	#711	2998	1360
24x20	600x500	19.19	487	23.19	589	42.00	1067	45.00	1143	27.87	708	28.00	#711	3682	1670

#-Gear Operation

Dimension & Weight



CLASS 600 Full Bore

Size		d		L-RF		L-BW		H		W		Approx Weight	
NPS	DN	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
2	50	1.94	49	11.50	292	11.50	292	6.93	176	21.66	550	60	27
3	80	2.94	74	14.00	356	14.02	356	9.72	247	27.56	700	110	50
4	100	3.94	100	17.00	432	17.01	432	10.87	276	12.01	#305	176	80
6	150	5.94	150	22.00	559	22.01	559	14.29	363	15.99	#406	776	351
8	200	7.94	201	26.00	660	25.98	660	14.29	363	20.00	#508	961	436
10	250	9.94	252	31.00	787	30.98	787	16.77	426	20.00	#508	1323	600
12	300	11.94	303	33.00	838	32.99	838	21.57	548	24.02	#610	1808	820
14	350	13.19	334	35.00	889	35.00	889	23.54	598	28.00	#711	2491	1130
16	400	15.19	385	39.00	991	39.02	991	25.51	648	28.00	#711	3417	1550
18	450	17.19	436	43.00	1092	42.99	1092	29.13	740	28.00	#711	4630	2100
20	500	19.19	487	47.00	1194	47.01	1194	31.89	810	30.00	#762	6173	2800
24	600	23.19	589	55.00	1397	55.00	1397	36.22	920	31.97	#812	7994	3626

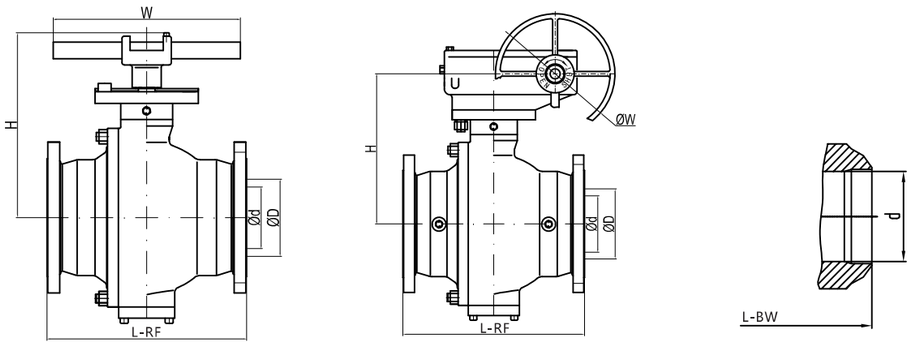
#-Gear Operation

CLASS 600 Reduced Bore

Size		d		D		L-RF		L-BW		H		W		Approx Weight	
NPS	DN	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
3x2	80x50	1.94	49	2.94	74	14.02	356	14.02	356	6.93	176	21.66	550	90	41
4x3	100x80	2.94	74	3.94	100	17.01	432	17.01	432	9.72	247	27.56	700	154	70
6x4	150x100	3.94	100	5.94	150	22.01	559	22.01	559	10.87	276	12.01	#305	269	122
8x6	200x150	5.94	150	7.94	201	25.98	660	25.98	660	14.29	363	15.99	#406	562	255
10x8	250x200	7.94	201	9.94	252	30.98	787	30.98	787	14.29	363	20.00	#508	970	440
12x10	300x250	9.94	252	11.94	303	32.99	838	32.99	838	16.77	426	20.00	#508	1367	620
14x12	350x300	11.94	303	13.19	334	35.00	889	35.00	889	21.57	548	24.02	#610	2337	1060
16x14	400x350	13.19	334	15.19	385	39.02	991	39.02	991	23.54	598	28.00	#711	3175	1440
18x16	450x400	15.19	385	17.19	436	42.99	1092	42.99	1092	25.51	648	28.00	#711	4101	1860
20x18	500x450	17.19	436	19.19	487	47.01	1194	47.01	1194	29.13	740	28.00	#711	5291	2400
24x20	550x500	19.19	487	23.19	589	55.00	1397	55.00	1397	31.89	810	28.00	#711	7143	3240

#-Gear Operation

Dimension & Weight



CLASS 900 Full Bore

Size		d		L-RF		L-BW		H		W		Approx Weight	
NPS	DN	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
2	50	1.94	49	14.50	368	14.49	368	7.56	192	27.56	700	115	52
3	80	2.94	74	15.00	381	15.00	381	9.80	249	29.53	750	214	97
4	100	3.94	100	18.00	457	17.99	457	12.40	315	12.01	#305	304	138
6	150	5.94	150	24.00	610	24.02	610	12.72	323	15.99	#406	635	288
8	200	7.94	201	29.00	737	29.02	737	15.00	381	20.00	#508	988	448
10	250	9.94	252	33.00	838	32.99	838	20.39	518	24.02	#610	1649	748
12	300	11.94	303	38.00	965	37.99	965	22.36	568	28.00	#711	2244	1018
14	350	12.69	322	40.50	1029	40.51	1029	26.18	665	28.00	#711	3082	1398
16	400	14.69	372	44.50	1130	44.49	1130	28.74	730	28.00	#711	4030	1828
18	450	16.69	423	48.00	1219	47.99	1219	31.30	795	28.00	#711	5132	2328
20	500	18.56	471	52.00	1321	52.01	1321	32.48	825	31.97	#812	6455	2928
24	600	22.44	570	61.00	1549	60.98	1549	38.31	973	31.97	#812	9211	4178

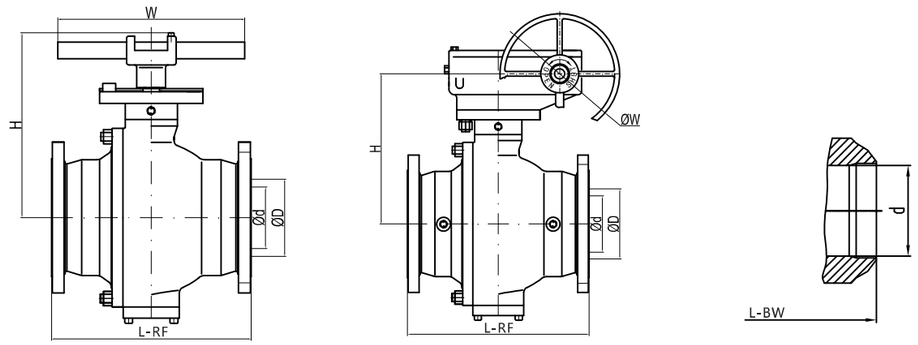
#-Gear Operation

CLASS 900 Reduced Bore

Size		d		D		L-RF		L-BW		H		W		Approx Weight	
NPS	DN	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
3x2	80x50	1.94	49	2.94	74	15.00	381	15.00	381	7.56	192	27.56	700	183	83
4x3	100x80	2.94	74	3.94	100	18.00	457	17.99	457	9.80	249	29.53	750	227	103
6x4	150x100	3.94	100	5.94	150	24.00	610	24.02	610	12.40	315	12.01	#305	443	201
8x6	200x150	5.94	150	7.94	201	29.00	737	29.02	737	12.72	323	15.99	#406	767	348
10x8	250x200	7.94	201	9.94	252	33.00	838	32.99	838	15.00	381	20.00	#508	1318	598
12x10	300x250	9.94	252	11.94	303	38.00	965	37.99	965	20.39	518	24.02	#610	1737	788
14x12	350x300	11.94	303	12.69	322	40.50	1029	40.51	1029	22.36	568	28.00	#711	2425	1100
16x14	400x350	12.69	322	14.69	373	44.50	1130	44.49	1130	26.18	665	28.00	#711	3131	1420
18x16	450x400	14.69	373	16.69	423	48.00	1219	47.99	1219	28.74	730	28.00	#711	4250	1928
20x18	500x450	16.69	423	18.56	471	52.00	1321	52.01	1321	31.30	795	28.00	#711	5353	2428
24x20	550x500	18.56	471	22.44	570	61.00	1549	60.98	1549	32.48	825	31.97	#812	7888	3578

#-Gear Operation

Dimension & Weight



CLASS 1500 Full Bore

Size		d		L-RF		L-BW		H		W		Approx Weight	
NPS	DN	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
2	50	1.94	49	14.50	368	14.49	368	9.92	252	27.56	700	190	86
3	80	2.94	74	18.50	470	18.50	470	11.81	300	35.44	900	300	136
4	100	3.94	100	21.50	546	21.50	546	10.71	272	12.01	#305	487	221
6	150	5.69	144	27.75	705	27.76	705	13.43	341	15.99	#406	855	388
8	200	7.56	192	32.75	832	32.76	832	19.41	493	20.00	#508	1279	580
10	250	9.44	239	39.00	991	39.02	991	22.24	565	24.02	#610	2090	948
12	300	11.31	287	44.50	1130	44.49	1130	27.56	700	28.00	#711	2950	1338
14	350	12.44	315	49.50	1257	49.49	1257	29.41	747	28.00	#711	3854	1748
16	400	14.19	360	54.50	1384	54.49	1384	31.30	795	28.00	#711	4912	2228
18	450	16.00	406	60.50	1537	/	/	34.53	877	28.00	#711	6283	2850
20	500	17.88	454	65.50	1664	/	/	38.78	985	31.97	#812	10714	4860
24	600	21.50	546	76.50	1943	/	/	45.98	1168	31.97	#812	16733	7590

#-Gear Operation

CLASS 1500 Reduced Bore

Size		d		D		L-RF		L-BW		H		W		Approx Weight	
NPS	DN	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
3x2	80x50	1.94	49	2.94	74	18.50	470	18.50	470	9.92	252	27.56	700	216	98
4x3	100x80	2.94	74	3.94	100	21.50	546	21.50	546	11.81	300	35.44	900	304	138
6x4	150x100	3.94	100	5.69	144	27.75	705	27.76	705	10.71	272	12.01	#305	635	288
8x6	200x150	5.69	144	7.56	192	32.75	832	32.76	832	13.43	341	15.99	#406	988	448
10x8	250x200	7.56	192	9.44	239	39.00	991	39.02	991	19.41	493	20.00	#508	1649	748
12x10	300x250	9.44	239	11.31	287	44.50	1130	44.49	1130	22.24	565	24.02	#610	2249	1020
14x12	350x300	11.31	287	12.44	315	49.50	1257	49.49	1257	27.56	700	28.00	#711	3086	1400
16x14	400x350	12.44	315	14.19	360	54.50	1384	54.49	1384	29.41	747	28.00	#711	4012	1820
18x16	450x400	14.19	360	16.00	406	60.50	1537	/	/	31.30	795	28.00	#711	5132	2328
20x18	500x450	16.00	406	17.88	454	65.50	1664	/	/	34.53	877	28.00	#711	9083	4120

#-Gear Operation

2-pc Cast Trunnion Mounted Ball Valve (Soft Seated)

PART 2

SNY VALVE

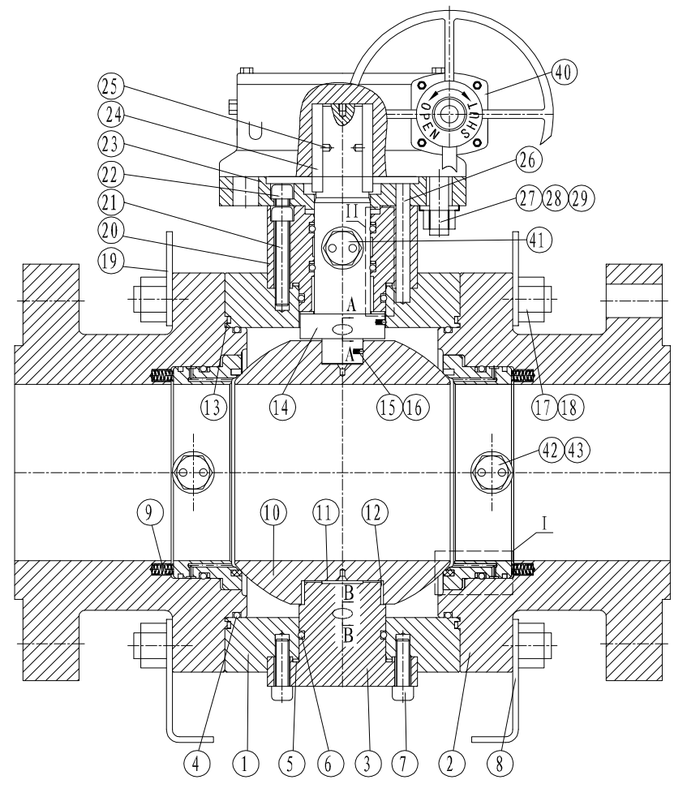
Design Standards

Basic Design	API 6D
Face to Face/End to End Dimension	ASME B16.10/API 6D
Flanged End Dimension	ASME B16.5/ASME B16.47
Buttwelding End Dimension	ASME B16.25
Pressure-temperature Rating	ASME B16.34
Inspection and Test	API 6D
Firesafe	API 607/API 6FA

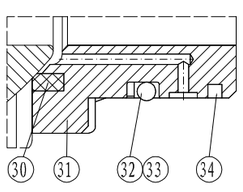
3-pc Forged Trunnion Mounted Ball Valve (Soft Seated)

1. Double sealing system of packing, and firesafe design
2. Stem with emergency grease injection
3. Integral anti-blowout design structure of the stem
4. Floating preload seat ring design to ensure good sealing under low pressure
5. Double block and bleed function (DBB)
6. Double isolation and bleed function (DIB)
7. Anti-static function
8. Low torque design
9. Top flange self-limited design

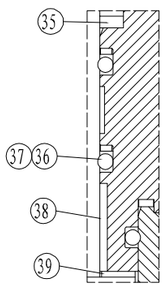
General Assembly Drawing



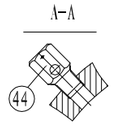
I Zoom in



II Zoom in



A-A



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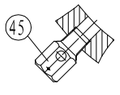
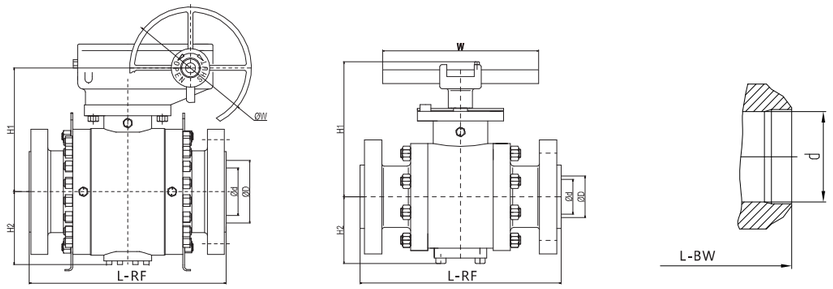


Material of Construction

Part No.	Part Name	Carbon Steel	Low Temperture	Stainless Steel
1	Body	ASTM A105N	ASTM A350 LF2	ASTM A182 F304/F316
2	End Connector	ASTM A105N	ASTM A350 LF2	ASTM A182 F304/F316
3	Trunnion	ASTM A105N+ENP	ASTM A350 LF2+ENP	ASTM A182 F304/F316
4	O-ring	NBR/HNBR/VITON	NBR/HNBR/VITON	NBR/HNBR/VITON
5	Gasket	SS304 + Graphite	SS304 + Graphite	SS304/SS316+Graphite
6	O-ring	NBR/HNBR/VITON	NBR/HNBR/VITON	NBR/HNBR/VITON
7	Nut	ASTM A193 B7M	ASTM A320 L7M	ASTM A193 B8M
8	Support Leg	Carbon Steel	Carbon Steel	SS304
9	Spring	INCONEL X-750	INCONEL X-750	INCONEL X-750
10	Ball	ASTM A105N+ENP	ASTM A350 LF2+ENP	ASTM A182 F304/F316
11	Thrust Washer	ASTM A29 1045+PTFE	SS304+PTFE	SS304/SS316+PTFE
12	Bearing	ASTM A29 1045+PTFE	SS304+PTFE	SS304/SS316+PTFE
13	Gasket	SS304+Graphite	SS304+Graphite	SS304/SS316+Graphite
14	Stem	ASTM A29 4140/A105N+ENP	ASTM A29 4140/A350 LF2+ENP	ASTM A182 F304/F316
15	Spring	SS304	SS304	SS304
16	Ball	SS304	SS304	SS304
17	Nut	ASTM A194 2HM	ASTM A194 7M	ASTM A194 8M
18	Stud	ASTM A193 B7M	ASTM A320 L7M	ASTM A193 B8M
19	Lifting Eye	Carbon Steel	ASTM A240 304	ASTM A240 304
20	Body Cover	ASTM A105N+ENP	ASTM A350 LF2+ENP	ASTM A182 F304/F316
21	Screw	ASTM A193 B7M	ASTM A320 L7M	ASTM A193 B7M
22	Screw	ASTM A193 B7M	ASTM A320 L7M	ASTM A193 B7M
23	Mounting Flange	ASTM A105N	ASTM A350 LF2	ASTM A182 F304/F316
24	Key	ASTM A29 1045	ASTM A240 304	ASTM A240 304
25	Pin	ASTM A29 1566	ASTM A276 304	ASTM A276 304
26	Pin	ASTM A29 1566	ASTM A276 304	ASTM A276 304
27	Nut	ASTM A194 2HM	ASTM A194 7M	ASTM A194 8M
28	Stud	ASTM A193 B7M	ASTM A320 L7M	ASTM A193 B8M
29	Washer	ASTM A29 1566	ASTM A276 304	ASTM A276 304
30	Seat Insert	DEVLON	DEVLON	DEVLON
31	Seat Ring	ASTM A105N+ENP	ASTM A350 LF2+ENP	ASTM A182 F304/F316
32	O-ring	NBR/HNBR/VITON	NBR/HNBR/VITON	NBR/HNBR/VITON
33	Retaining Ring	PTFE	PTFE	PTFE
34	Gasket	Graphite	Graphite	Graphite
35	Gasket	Graphite	Graphite	Graphite
36	O-ring	NBR/HNBR/VITON	NBR/HNBR/VITON	NBR/HNBR/VITON
37	Retaining Ring	PTFE	PTFE	PTFE
38	Bearing	ASTM A29 1045+PTFE	SS304+PTFE	SS304/SS316+PTFE
39	Thrust Washer	ASTM A29 1045+PTFE	SS304+PTFE	SS304/SS316+PTFE
40	Gearbox	Carbon Steel	Carbon Steel	Carbon Steel
41	Sealant Injection	SS304	SS304	SS304/SS316
42	Sealant Injection	SS304	SS304	SS304/SS316
43	Check Valve	SS304	SS304	SS304/SS316
44	Vent Valve	SS304	SS304	SS304/SS316
45	Drain Valve	SS304	SS304	SS304/SS316

Note: Materials listed in the table are general. When ordering, please contact SNY sales or technical team to confirm the details.

Dimension & Weight



CLASS 150 Full Bore

Size		d		L-RF		L-BW		H1		H2		W		Approx Weight	
NPS	DN	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
2	50	1.94	49	7.00	178	8.50	216	7.87	200	4.33	110	13.78	350	35	16
3	80	2.94	74	8.00	203	11.14	283	11.81	300	4.96	126	15.75	400	66	30
4	100	3.94	100	9.00	229	12.01	305	12.40	315	6.50	165	17.72	450	117	53
6	150	5.94	150	15.50	394	17.99	457	13.19	335	6.50	165	12.01	#305	364	165
8	200	7.94	201	18.00	457	20.51	521	15.94	405	7.87	200	12.01	#305	628	285
10	250	9.94	252	21.00	534	22.01	559	16.81	427	8.66	220	15.99	#406	1014	460
12	300	11.94	303	24.00	610	25.00	635	18.31	465	10.31	262	15.99	#406	1499	680
14	350	13.19	334	27.00	686	30.00	762	19.92	506	11.54	293	20.00	#508	2205	1000
16	400	15.19	385	30.00	762	32.99	838	24.49	622	13.43	341	20.00	#508	2954	1340
18	450	17.19	436	34.00	864	35.98	914	26.22	666	16.22	412	20.00	#508	3582	1625
20	500	19.19	487	36.00	914	39.02	991	28.74	730	17.13	435	24.02	#610	4850	2200
22	550	21.19	538	/	/	/	/	32.80	833	18.90	480	24.02	#610	6327	2870
24	600	23.19	589	42.00	1067	45.00	1143	35.24	895	20.39	518	24.02	#610	7518	3410
26	650	24.94	633	45.00	1143	49.02	1245	35.43	900	21.06	535	24.02	#610	9325	4230
28	700	26.94	684	49.00	1245	52.99	1346	36.81	935	21.34	542	28.00	#711	11376	5160
30	750	28.94	735	51.00	1295	55.00	1397	39.76	1010	23.82	605	28.00	#711	13228	6000
32	800	30.69	779	54.00	1372	60.00	1524	41.73	1060	25.59	650	28.00	#711	15939	7230
34	850	32.69	830	58.00	1473	64.02	1626	42.40	1077	25.59	650	28.00	#711	17990	8160
36	900	34.44	874	60.00	1524	67.99	1727	43.90	1115	27.56	700	31.97	#812	20723	9400
40	1000	38.44	976	/	/	/	/	55.12	1400	34.06	865	31.97	#812	22643	10271
42	1050	40.19	1020	/	/	/	/	62.91	1598	35.43	900	31.97	#812	26697	12110
48	1200	45.94	1166	/	/	/	/	67.80	1722	41.02	1042	31.97	#812	40476	18360

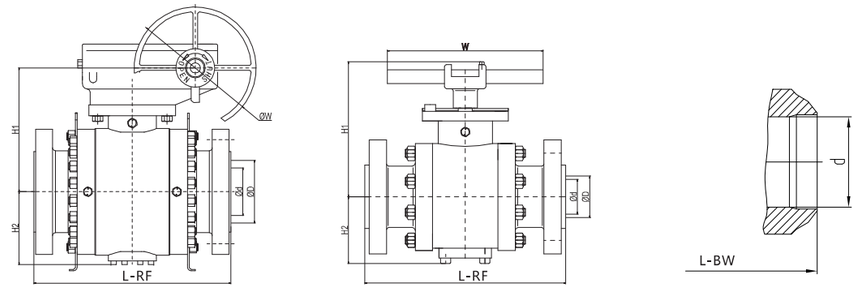
#-Gear Operation

CLASS 150 Reduced Bore

Size		d		D		L-RF		L-BW		H1		H2		W		Approx Weight	
NPS	DN	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
3x2	80x50	1.94	49	2.94	74	8.00	203	11.14	283	7.87	200	4.33	110	13.78	350	58	27
4x3	100x80	2.94	74	3.94	100	9.00	229	12.01	305	11.81	300	4.96	126	15.75	400	88	40
6x4	150x100	3.94	100	5.94	150	15.50	394	17.99	457	12.40	315	6.50	165	17.72	450	150	68
8x6	200x150	5.94	150	7.94	201	18.00	457	20.51	521	13.19	335	6.69	170	12.01	#305	390	177
10x8	250x200	7.94	201	9.94	252	21.00	535	22.01	559	15.94	405	7.87	200	12.01	#305	677	307
12x10	300x250	9.94	252	11.94	303	24.00	610	25.00	635	16.81	427	8.66	220	15.99	#406	1122	509
14x12	350x300	11.94	303	13.19	334	27.00	686	30.00	762	18.31	465	10.31	262	15.99	#406	1592	722
16x14	400x350	13.19	334	15.19	385	30.00	762	32.99	838	19.92	506	11.54	293	20.00	#508	2139	970
18x16	450x400	15.19	385	17.19	436	34.00	864	35.98	914	24.49	622	13.43	341	20.00	#508	2846	1291
20x18	500x450	17.19	436	19.19	487	36.00	914	39.02	991	26.22	666	15.43	392	20.00	#508	3682	1670
22x18	550x500	17.19	436	21.19	538	/	/	/	/	26.22	666	15.43	392	20.00	#508	5165	2343
24x20	600x500	19.19	487	23.19	589	42.00	1067	45.00	1143	28.74	730	17.13	435	24.02	#610	4242	1924
26x22	650x550	21.19	538	24.94	633	45.00	1143	49.02	1245	32.80	833	18.90	480	24.02	#610	4883	2215
28x24	700x600	23.19	589	26.94	684	49.00	1245	52.99	1346	35.24	895	20.39	518	24.02	#610	5952	2700
30x24	750x600	23.19	589	28.94	735	51.00	1295	55.00	1397	35.24	895	20.39	518	24.02	#610	6433	2918
32x26	800x650	24.94	633	30.69	779	54.00	1372	60.00	1524	35.43	900	21.06	535	24.02	#610	8829	4005
34x28	850x700	26.94	684	32.69	830	58.00	1473	64.02	1626	36.81	935	21.34	542	28.00	#711	9799	4445
36x30	900x750	28.94	735	34.44	874	60.00	1524	67.99	1727	39.76	1010	23.82	605	28.00	#711	11012	4995
40x34	1000x850	32.69	830	38.44	976	/	/	/	/	42.40	1077	25.59	650	31.97	#812	18078	8200
42x36	1050x900	34.44	874	40.19	1020	/	/	/	/	43.90	1115	27.56	700	31.97	#812	23966	10871
48x40	2000x1000	38.44	976	45.94	1166	/	/	/	/	55.12	1400	34.06	865	31.97	#812	29806	13520

#-Gear Operation

Dimension & Weight



CLASS 300 Full Bore

Size		d		L-RF		L-BW		H1		H2		W		Approx Weight	
NPS	DN	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
2	50	1.94	49	8.50	216	8.50	216	8.11	206	4.45	113	15.75	400	53	24
3	80	2.94	74	11.13	283	11.14	283	12.40	315	5.08	129	21.66	550	97	44
4	100	3.94	100	12.00	305	12.01	305	12.99	330	6.65	169	23.62	600	163	74
6	150	5.94	150	15.88	403	17.99	457	13.58	345	5.83	148	12.01	#305	408	185
8	200	7.94	201	19.75	502	20.51	521	16.34	415	7.28	185	15.99	#406	716	325
10	250	9.94	252	22.38	568	22.01	559	16.81	427	8.90	226	18.11	#460	1124	510
12	300	11.94	303	25.50	648	25.00	635	18.31	465	10.59	269	20.00	#508	1620	735
14	350	13.19	334	30.00	762	30.00	762	20.43	519	11.81	300	24.02	#610	2370	1075
16	400	15.19	385	33.00	838	32.99	838	25.12	638	13.78	350	24.02	#610	3274	1485
18	450	17.19	436	36.00	914	35.98	914	26.89	683	15.83	402	28.00	#711	4321	1960
20	500	19.19	487	39.00	991	39.02	991	29.45	748	17.56	446	28.00	#711	5952	2700
22	550	21.19	538	43.00	1092	42.99	1092	33.62	854	19.37	492	28.00	#711	7672	3480
24	600	23.19	589	45.00	1143	45.00	1143	36.10	917	20.91	531	28.00	#711	8862	4020
28	700	26.94	684	53.00	1346	52.99	1346	37.72	958	21.89	556	28.00	#711	12698	5760
30	750	28.94	735	55.00	1397	55.00	1397	40.75	1035	24.41	620	31.97	#812	15432	7000
32	800	30.69	779	60.00	1524	60.00	1524	42.80	1087	26.22	666	31.97	#812	18144	8230
34	850	32.69	830	64.00	1626	64.02	1626	43.46	1104	26.22	666	31.97	#812	21517	9760
36	900	34.44	874	68.00	1727	67.99	1727	45.00	1143	28.27	718	40.00	#1016	24692	11200
40	1000	38.44	976	/	/	/	/	56.50	1435	24.92	887	40.00	#1016	28329	12850
42	1050	40.19	1020	/	/	/	/	64.49	1638	36.34	923	40.00	#1016	31371	14230
48	1200	45.94	1166	/	/	/	/	69.49	1765	42.05	1068	40.00	#1016	41887	19000

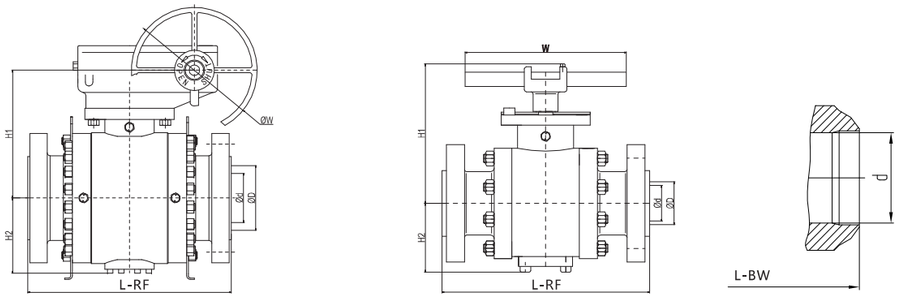
#-Gear Operation

CLASS 300 Reduced Bore

Size		d		D		L-RF		L-BW		H1		H2		W		Approx Weight	
NPS	DN	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
3x2	80x50	1.94	49	2.94	74	11.13	283	11.14	283	8.11	206	4.45	113	15.75	400	79	36
4x3	100x80	2.94	74	3.94	100	12.00	305	12.01	305	12.40	315	5.08	129	21.66	550	121	55
6x4	150x100	3.94	100	5.94	150	15.88	403	17.99	457	12.99	330	6.65	169	23.62	600	247	112
8x6	200x150	5.94	150	7.94	201	19.75	502	20.51	521	13.58	345	5.83	148	12.01	#305	489	222
10x8	250x200	7.94	201	9.94	252	22.38	568	22.01	559	16.34	415	7.28	185	15.99	#406	840	381
12x10	300x250	9.94	252	11.94	303	25.50	648	25.00	635	16.81	427	8.90	226	18.11	#460	1279	580
14x12	350x300	11.94	303	13.19	334	30.00	762	30.00	762	18.31	465	10.59	269	20.00	#508	2028	920
16x14	400x350	13.19	334	15.19	385	33.00	838	32.99	838	20.43	519	11.81	300	24.02	#610	2315	1050
18x16	450x400	15.19	385	17.19	436	36.00	914	35.98	914	25.12	638	13.78	350	24.02	#610	3379	1530
20x18	500x450	17.19	436	19.19	487	39.00	991	39.02	991	26.89	683	15.83	402	28.00	#711	4034	1830
22x18	550x500	17.19	436	21.19	538	43.00	1092	42.99	1092	26.89	683	15.83	402	28.00	#711	4431	2010
24x20	600x500	19.19	487	23.19	589	45.00	1143	45.00	1143	29.45	748	17.56	446	28.00	#711	4897	2220
28x24	700x600	23.19	589	26.94	684	53.00	1346	52.99	1346	36.10	917	20.91	531	28.00	#711	7055	3200
30x24	750x600	23.19	589	28.94	735	55.00	1397	55.00	1397	36.10	917	20.91	531	28.00	#711	8708	3950
34x28	850x700	26.94	684	32.69	830	64.00	1626	64.02	1626	37.75	958	21.89	556	28.00	#711	10681	4845
36x30	900x750	28.94	735	34.44	874	68.00	1727	67.99	1727	40.75	1035	24.41	620	31.97	#812	13448	6100
40x34	1000x850	32.69	830	38.44	976	/	/	/	/	43.46	1104	26.22	666	31.97	#812	18078	8200
42x36	1050x900	34.44	874	40.19	1020	/	/	/	/	45.00	1143	28.27	718	40.00	#1016	20282	9200
48x40	2000x1000	38.44	976	45.94	1166	/	/	/	/	56.50	1435	34.92	887	40.00	#1016	33069	15000

#-Gear Operation

Dimension & Weight



CLASS 600 Full Bore

Size		d		L-RF		L-BW		H1		H2		W		Approx Weight	
NPS	DN	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
2	50	1.94	49	11.50	292	11.50	292	8.11	206	5.08	113	21.66	550	75	34
3	80	2.94	74	14.00	356	14.00	356	12.40	315	5.83	129	27.56	700	141	64
4	100	3.94	100	17.00	432	17.00	432	12.99	330	6.65	148	12.01	#305	293	133
6	150	5.94	150	22.00	559	22.00	559	13.58	345	7.28	169	15.99	#406	615	279
8	200	7.94	201	26.00	660	26.00	660	16.34	415	8.90	185	20.00	#508	1091	495
10	250	9.94	252	31.00	787	31.00	787	16.81	427	10.59	226	20.00	#508	1720	780
12	300	11.94	303	33.00	838	33.00	838	18.31	465	11.81	269	24.02	#610	2458	1115
14	350	13.19	334	35.00	889	35.00	889	20.43	519	13.78	300	28.00	#711	3108	1410
16	400	15.19	385	39.00	991	39.00	991	25.12	638	15.83	350	28.00	#711	4222	1915
18	450	17.19	436	43.00	1092	43.00	1092	26.89	683	17.56	402	28.00	#711	5886	2670
20	500	19.19	487	47.00	1194	47.00	1194	29.45	748	19.37	446	30.00	#762	7760	3520
22	550	21.19	538	51.00	1295	51.00	1295	33.62	854	20.91	492	30.00	#762	9392	4260
24	600	23.19	589	55.00	1397	55.00	1397	36.10	917	21.89	531	31.97	#812	11728	5320
28	700	26.94	684	61.00	1549	61.00	1549	37.72	958	24.41	556	31.97	#812	13360	6060
30	750	28.94	735	65.00	1651	65.00	1651	40.75	1035	26.22	620	31.97	#812	19621	8900
32	800	30.69	779	70.00	1778	70.00	1778	42.80	1087	26.22	666	31.97	#812	23413	10620
34	850	32.69	830	76.00	1930	76.00	1930	43.46	1104	28.27	666	31.97	#812	27458	12455
36	900	34.44	874	82.00	2083	82.00	2083	45.00	1143	34.92	718	40.00	#1016	32011	14520
40	1000	38.44	976	/	/	/	/	56.50	1435	36.34	887	40.00	#1016	37203	16875
42	1050	40.19	1020	/	/	/	/	64.49	1638	42.05	923	40.00	#1016	43166	19580
48	1200	45.94	1166	/	/	/	/	69.49	1765		1069	40.00	#1016	53351	24200

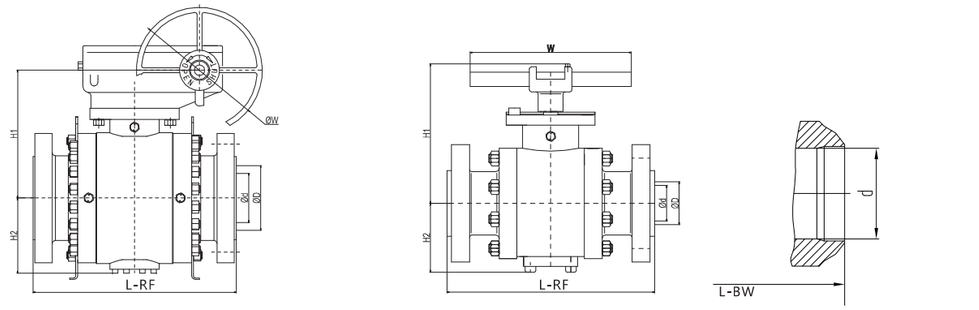
#-Gear Operation

CLASS 600 Reduced Bore

Size		d		D		L-RF		L-BW		H1		H2		W		Approx Weight	
NPS	DN	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
3x2	80x50	1.94	49	2.94	74	14.00	356	14.00	356	8.11	206	4.45	113	21.66	550	104	47
4x3	100x80	2.94	74	3.94	100	17.00	432	17.00	432	12.40	315	5.08	129	27.56	700	190	86
6x4	150x100	3.94	100	5.94	150	22.00	559	22.00	559	12.99	330	6.65	169	12.01	#305	357	162
8x6	200x150	5.94	150	7.94	201	26.00	660	26.00	660	13.58	345	6.97	177	15.99	#406	670	304
10x8	250x200	7.94	201	9.94	252	31.00	787	31.00	787	16.34	415	7.28	185	20.00	#508	1182	536
12x10	300x250	9.94	252	11.94	303	33.00	838	33.00	838	16.81	427	8.90	226	20.00	#508	1839	834
14x12	350x300	11.94	303	13.19	334	35.00	889	35.00	889	18.31	465	10.59	269	24.02	#610	2403	1090
16x14	400x350	13.19	334	15.19	385	39.00	991	39.00	991	20.43	519	11.81	300	28.00	#711	2888	1310
18x16	450x400	15.19	385	17.19	436	43.00	1092	43.00	1092	25.12	638	13.78	350	28.00	#711	4136	1876
20x18	500x450	17.19	436	19.19	487	47.00	1194	47.00	1194	26.89	683	15.83	402	28.00	#711	5564	2524
22x18	550x500	17.19	436	21.19	538	51.00	1295	50.98	1295	26.89	683	15.83	402	28.00	#711	5357	2430
24x20	600x500	19.19	487	23.19	589	55.00	1397	55.00	1397	29.45	748	17.56	446	31.97	#812	7584	3440
28x24	700x600	23.19	589	26.94	684	61.00	1549	60.98	1549	36.10	917	20.91	531	31.97	#812	9370	4250
30x24	750x600	23.19	589	28.94	735	65.00	1651	65.00	1651	36.10	917	20.91	531	31.97	#812	10428	4730
34x28	850x700	26.94	684	32.69	830	76.00	1953	75.98	1930	37.72	958	21.89	556	31.97	#812	15873	7200
36x30	900x750	28.94	735	34.44	874	82.00	2083	82.01	2083	40.75	1035	24.41	620	31.97	#812	18959	8600
40x34	1000x850	32.69	830	38.44	976	/	/	/	/	43.46	1104	26.22	666	31.97	#812	22090	10020
42x36	1050x900	34.44	874	40.19	1020	/	/	/	/	45.00	1143	28.27	718	40.00	#1016	24471	11100
48x40	2000x1000	38.44	976	45.94	1166	/	/	/	/	56.50	1435	34.92	887	40.00	#1016	37919	17200

#-Gear Operation

Dimension & Weight



CLASS 900 Full Bore

Size		d		L-RF		L-BW		H1		H2		W		Approx Weight	
NPS	DN	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
2	50	1.94	49	14. 50	368	14.49	368	4.69	119	4.69	119	18.11	460	143	65
3	80	2.94	74	15.00	381	15.00	381	5.24	133	5.24	133	39.37	1000	203	92
4	100	3.94	100	18.00	457	17.99	457	6.02	153	6.02	153	59.06	1500	340	154
6	150	5.94	150	24.00	610	24.02	610	6.93	173	6.93	176	11.81	#300	864	392
8	200	7.94	201	29.00	737	29.02	737	7.60	193	7.60	193	15.75	#400	1351	613
10	250	9.94	252	33.00	838	32.99	838	9.25	235	9.25	235	19.69	#500	1808	820
12	300	11.94	303	38.00	965	37.99	965	11.02	280	11.02	280	23.62	#600	2480	1125
14	350	12.69	322	40. 50	1029	40.51	1029	12.28	312	12.28	312	23.62	#600	3549	1610
16	400	14.69	373	44. 50	1130	44.49	1130	14.37	365	14.37	365	23.62	#600	4431	2010
18	450	16.69	423	48.00	1219	47.99	1219	16.30	414	16.30	414	23.62	#600	6195	2810
20	500	18.56	471	52.00	1321	52.01	1321	18.07	459	18.07	459	23.62	#600	8730	3960
22	550	20.56	522	/	/	/	/	19.96	507	19.96	507	31.50	#800	9722	4410
24	600	22.44	570	61.00	1549	60.98	1549	21.54	547	21.54	547	31.50	#800	17901	8120
28	700	26.19	665	/	/	/	/	22.56	573	22.56	573	31.50	#800	22491	10202
30	750	28.06	712	74.00	1880	/	/	25.12	638	25.12	638	31.50	#800	25617	11620
32	800	29.94	760	/	/	/	/	27.01	686	27.01	686	31.50	#800	26680	12102
34	850	31.81	808	/	/	/	/	27.09	688	27.09	688	31.50	#800	38497	17462
36	900	33.69	855	90.00	2286	/	/	29.09	739	29.09	739	31.50	#800	44431	20154

#-Gear Operation

CLASS 900 Reduced Bore

Size		d		D		L-RF		L-BW		H1		H2		W		Approx Weight	
NPS	DN	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
3x2	80x50	1.94	49	2.94	74	15.00	381	15.00	381	8.54	217	4.69	119	27.56	700	157	71
4x3	100x80	2.94	74	3.94	100	18.00	457	17.99	457	12.87	327	5.24	133	29.53	750	245	111
6x4	150x100	3.94	100	5.94	150	24.00	610	24.02	610	13.50	343	6.93	176	12.01	#305	472	214
8x6	200x150	5.94	150	7.94	201	29.00	737	29.02	737	14.09	358	6.02	153	15.99	#406	1058	480
10x8	250x200	7.94	201	9.94	252	33.00	838	32.99	838	16.97	431	7.60	193	20.00	#508	1433	650
12x10	300x250	9.94	252	11.94	303	38.00	965	37.99	965	17.44	443	9.25	235	24.02	#610	1914	868
14x12	350x300	11.94	303	12.69	322	40.50	1029	40.51	1029	19.06	484	11.02	280	28.00	#711	2888	1310
16x14	400x350	12.69	322	14.69	373	44.50	1130	44.59	1130	21.26	540	12.28	312	28.00	#711	4034	1830
18x16	450x400	14.69	373	16.69	423	48.00	1219	47.99	1219	25.98	660	14.37	365	28.00	#711	4861	2205
20x18	500x450	16.69	423	18.56	471	52.00	1321	52.01	1321	27.56	700	16.30	414	28.00	#711	6922	3140
22x18	550x500	16.69	423	20.56	522	/	/	/	/	27.56	700	16.30	414	28.00	#711	7249	3288
24x20	600x500	18.56	471	22.44	570	61.00	1549	60.98	1549	30.31	770	18.07	459	31.97	#812	10582	4800
28x24	700x600	22.44	570	26.19	665	/	/	/	/	37.20	945	21.54	547	31.97	#812	16711	7580
30x24	750x600	22.44	570	28.06	712	74.00	1880	/	/	37.20	945	21.54	547	31.97	#812	17595	7981
34x28	850x700	26.19	665	31.81	808	/	/	/	/	38.86	987	22.56	573	31.97	#812	24696	11202
36x30	900x750	28.06	712	33.69	855	90.00	2286	/	/	41.97	1066	25.12	638	31.97	#812	34508	15653

#-Gear Operation