

Trunnion Mounted Ball Valves





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Note: (1) Made in Japan
(2) Made in Spain

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Product Coding for KITZ Trunnion Mounted Ball Valves

Soft seated

Example **T60S / G-150 SF3TC S BL 8**
T60S / G-150 UF3TC S M 8

①
②
③
④
⑤
⑥
⑦

①	T60S	Series code for soft seated	
	- None	Lever operation	
②	- G	Gear operation	
	- B	KITZ Type B double acting pneumatic actuator	
	- BS	KITZ Type BS spring return pneumatic actuator	
③	Pressure class	150, 300, 600, 900 or 1500	
④	- SF3TC	Trunnion ball valve made in carbon and low alloy steel	
	- UF3TC	Trunnion ball valve made in stainless and high alloy steel	
⑤	- S	Full bore (fire safe)	
	- RS	Reduced bore (fire safe)	
⑥	Body & Trim material: Other materials are also available		
	- None	150-600	A105 Body/Cap/Ball, 316SS Stem
		900/1500	A105 Body/Cap, F60 Ball, 316SS Stem
	- BL	150-600	LF2 Body/Cap/Ball, 316SS Stem
		900/1500	LF2 Body/Cap, F60 Ball, 316SS Stem
	- M	150-600	F316 Body/Cap/Ball, 316SS Stem
900/1500		F316 Body/Cap, F51 or S31803 Ball, 316SS Stem	
⑦	Nominal size (NPS)	2 to 24	

Metal seated

Example **T60M / G-150 SF3TC 6H 10**
T60M / G-150 UF3TC 6H M 10

①
②
③
④
⑤
⑥
⑦
⑧

①	T60M	Series code for metal seated
	- None	Lever operation
②	- G	Gear operation
	- B	KITZ Type B double acting pneumatic actuator
	- BS	KITZ Type BS spring return pneumatic actuator
③	Pressure Class	150, 300 or 600
④	- SF3TC	Trunnion ball valve made in carbon steel
	- UF3TC	Trunnion ball valve made in stainless steel
⑤	- None	Full bore
	- R	Reduced bore
⑥	6H	Metal seated trunnion ball valve
⑦	Body & Trim material: Other materials are also available	
	- None	A105 Body/Cap, 316SS Ball, 630SS Stem
	- BL	LF2 Body/Cap, 316SS Ball, 630SS Stem
	- M	316SS Body/Cap/Ball, 630SS Stem
⑧	Nominal size (NPS)	2 to 24

T60S Series

Soft Seated 3-Piece Body Trunnion Mounted Ball Valves



설계 표준

- Basic design: API 6D/ISO 14313
- F-F dimensions: API 6D/ASME B16.10
- End connection: ASME B16.5
- Bore diameter: API 6D/ISO 14313
- Wall thickness: ASME PBVC Section VIII

인증

- Fugitive emission: ISO 15848-1 BH CO1
- Fire test: API 607/API 6FA/ISO 10497
- PED: 2014/68/EU
- ATEX: 2014/34/EU
- SIL: IEC 61508 (SIL 2)

생산 범위

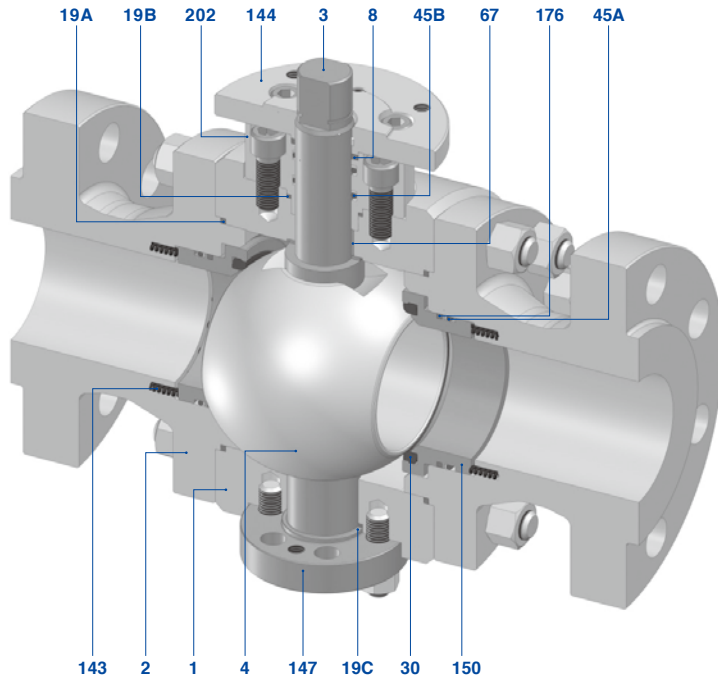
- 표준압력: ASME Class 150 to 1500
- 표준 Size: NPS 2 to NPS 24 (DN 50 to DN 600)
- Shell 재질:
 - Carbon steel, Alloy steel,
 - Austenitic stainless steel, Duplex stainless steel,
 - High alloy steel, Nickel based alloy
- Ball seat 재질:
 - RPTFE (Reinforced PTFE), Modified PTFE,
 - RNylon (Reinforced Nylon), DEVLON V[®],
 - PEEK

설계 특성

- 구조: 3-piece bolted body and cap
- 표준 재질: NACE MR0175, ASTM and others
- Tight shut-off sealing mechanism
- 낮은 작동 Torque (Low operating torque)
- 2 O-ring & Packing으로 삼중 Sealing System
- Double Block and Bleed 기능
- Self-relief of excessive cavity pressure
- Fire safe tested
- Blowout-proof ball seat & stem construction
- 정전기 방지 (Antistatic) design
- Lever 장착 시 Locking Device
- ISO 5211 actuator mounting pad
- DPE (Double Piston Effect)/SPE (Single Piston Effect) 가능

Component Drawing

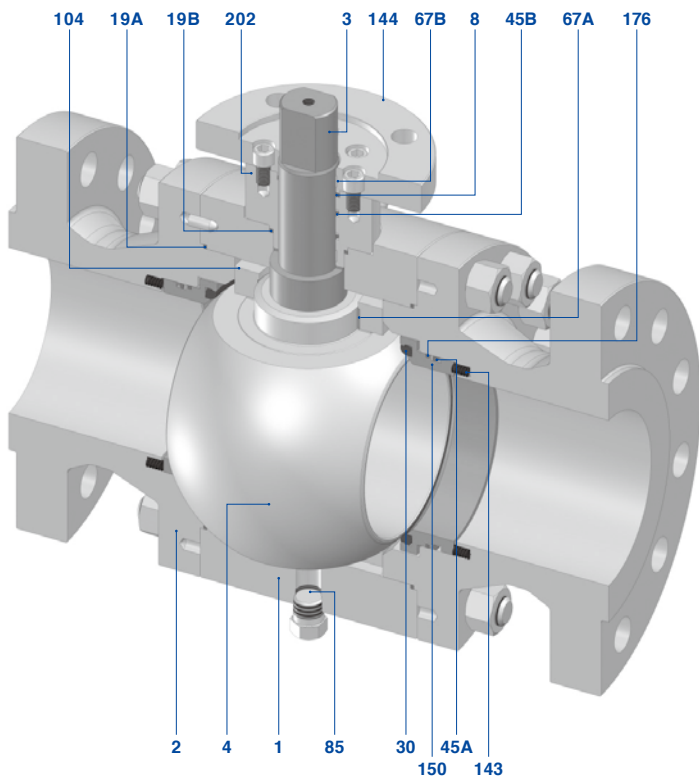
Up to size NPS 4



- 1 Body*
- 2 Cap*
- 3 Stem
- 4 Precision machined ball
- 8 Firesafe gland packing (Flexible graphite)
- 19A Gasket (Flexible graphite)
- 19B Gasket (Flexible graphite)
- 19C Gasket (Flexible graphite)
- 30 Ball seat
- 45A O-ring
- 45B O-ring
- 67 Stem bearing (Metal + RPTFE)
- 143 Seat spring
- 144 Gland plate
- 147 End plate
- 150 Seat retainer
- 176 Fire safe retainer packing (Flexible graphite)
- 202 Bonnet

*Note: Made of forged carbon steel, low alloy steel and high alloy steel. Made of forged or cast austenitic stainless steel, duplex stainless steel and other special alloy materials. Contact KITZ for current available materials.

Size NPS 6 and larger



- 1 Body*
- 2 Cap*
- 3 Stem
- 4 Precision machined ball
- 8 Fire safe gland packing (Flexible graphite)
- 19A Gasket (Flexible graphite)
- 19B Gasket (Flexible graphite)
- 30 Ball seat
- 45A O-ring
- 45B O-ring
- 67A Curl bearing (Metal + RPTFE)
- 67B Stem bearing (PTFE)
- 85 Plug
- 104 Trunnion plate
- 143 Seat spring
- 144 Gland plate
- 150 Seat retainer
- 176 Fire safe retainer packing (Flexible graphite)
- 202 Bonnet

해당 카탈로그에 소개된 그림은 대표적인 Class 600밸브의 구조를 소개합니다.

해당 구조는 밸브의 크기와 Class에 따라 차이가 날수도 있습니다. 밸브의 구체적인 사양과 구조에 관련된 자세한 정보는 KITZ로 문의하여 주십시오.

Design Features

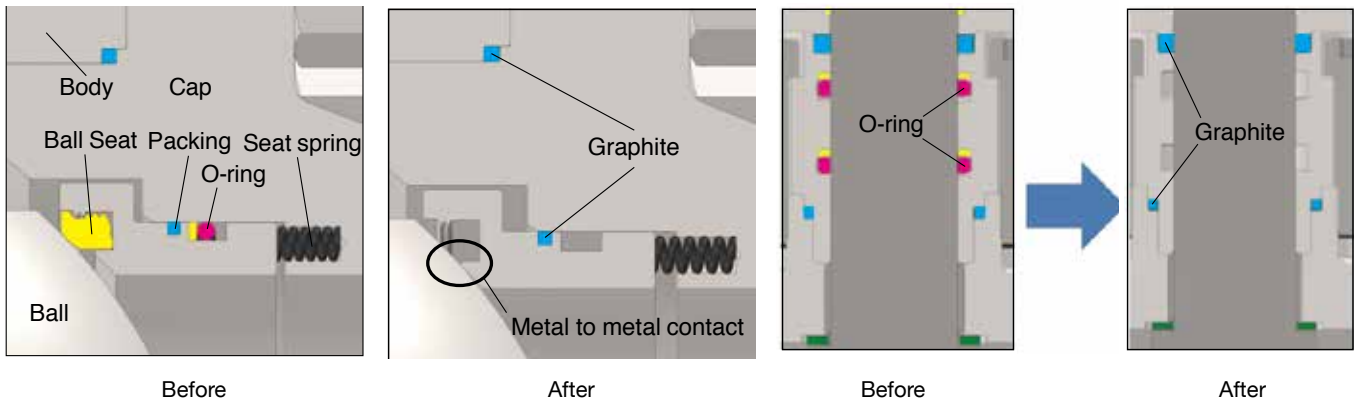
1. Fire Safe Design

(1) Internal Leakage Prevention (내부누수방지)

공장 내부 화재로 인하여 Resilient Sealing재가 손상을 입거나 파괴된다면, Seat Spring에 의해 사전 적재된 Metal Seat Retainer의 상 하부 Edge가 Ball과 접촉하여 밸브 Bore를 통한 내부누수를 최소화합니다. KITZ 기존의 디자인 Metal Seat Retainer는 화재 시 그리고 화재 후, Cap과 Seat Retainer 사이의 누수를 예방합니다.

(2) External Leakage Prevention (외부누수방지)

Stem 부위를 통한 외부 누수는 O-ring, Flexible Graphite Gland Packing Ring의 이중 밀봉으로 방지됩니다. 밸브 Body Joint를 통한 누수는 Flexible Graphite Gasket으로 방지할 수 있습니다. 화재 때문에 O-ring이 손상을 입더라도, Flexible Graphite Packing Ring과 Gasket이 밸브내부에 그대로 남아있기 때문에 외부누수를 방지할 수 있습니다.

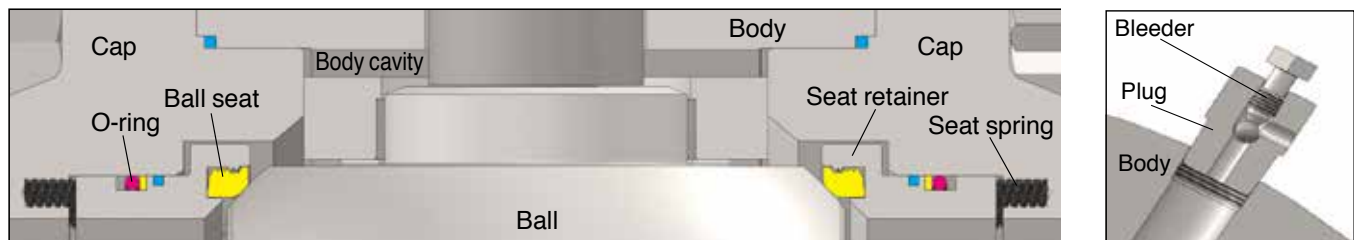


2. Tight Shut-off Sealing Mechanism

Resilient Seat의 디자인은 Seat Retainer 뒤에 삽입된 Seat Spring의 힘을 제거하여 각 상부 하부 Ball Seat를 Ball과 적절하게 접촉시킵니다. 유체 압력은 이러한 연결방식에 도움이 됩니다. 이러한 Sealing 매커니즘은 상.하부 Ball Seat의 thru-the-bore Sealing 기능을 특징으로 합니다.

3. Double Block and Bleed Function

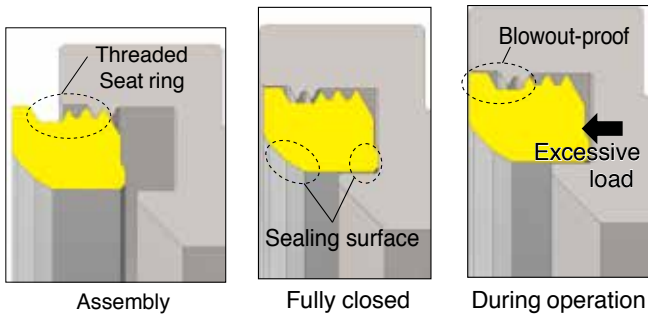
Ball Seat는 Ball의 Inlet / Outlet에서 단독적으로 유체를 차단합니다. 밸브 개폐시 밸브 Bore와 Body Cavity는 서로 분리됩니다. 이러한 상황에서 Cavity 압력은 Vent Valve(환기밸브)나 Drain Plug를 통해서 완화될 수 있습니다. Vent Valve는 안전한 방전(Discharge)을 위하여 Blowout-proof Bleeder와 함께 설치 됩니다. 안전한 배출을 위하여 Cavity 압력을 낮추는 것이 좋습니다.



Design Features

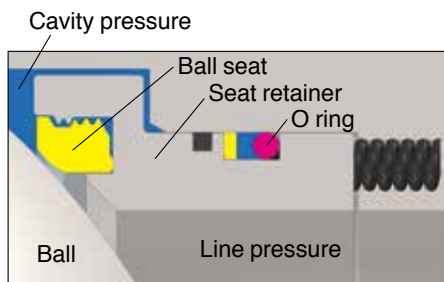
4. Blowout-proof Ball Seat Assembly

아래 그림과 같이 나사산이 없는(Unthreaded) Seat Retainer 뒤에 끼워진 Ball Seat는, Seat Retainer의 안쪽 벽과 하단 Shoulder 부위까지 닿아 표면과 접촉면을 단단히 봉합합니다. 이러한 독특한 디자인은 손쉬운 보수 뿐만 아니라 순간적으로 Cavity 압력이 상승하여 역압에 의해 Ball Seat가 과도한 하중을 받을 경우, 폭발방지 기능(Blowout-proof)을 제공합니다.



6. Cavity Pressure Relief

밸브가 사용되는 환경의 온도 및 주변온도가 상승할 경우, 액화가스 또는 휘발성이 높은 액체가 Body Cavity내에 갇힐 수 있으며, 이로 인해 Cavity 앞이 과도하게 상승할 수 있습니다. 안전을 위해 Cavity 압력이 Line 압력을 초과할 경우, 두 Ball Seat중 하나가 Seat Retainer와 함께 Ball 표면에서 약간 떨어져 밸브 Bore로 유입되는 과도한 Cavity 압력을 완화합니다.

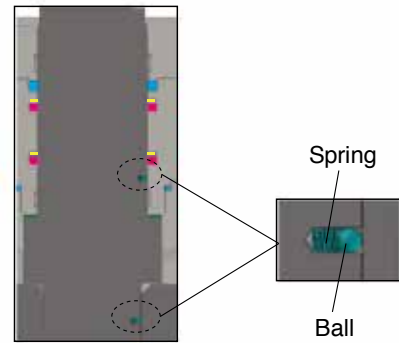


7. Low Emission Guaranteed Design

Resilient Seated Valve와 Metal Seated Valve에 대한 비산배출 억제 설계(The Fugitive Emission Suppressing Design)는 ISO 15848 Tightness Class "B"에 의해 인증받았습니다 (스텝 누출의 경우 10-4 mg/s-1 · m-1 미만, 차체 누출의 경우 50ppmv 미만). 이는 밸브의 Sealing Mechanism의 Low Emission 성능이 뛰어나다는 점을 입증합니다.

5. Antistatic Design

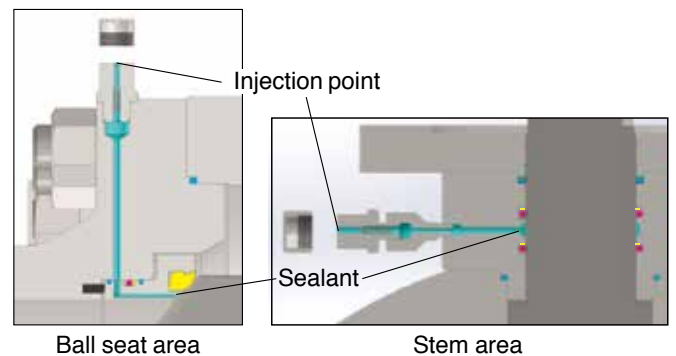
Stem과 Bonnet 사이, Stem과 Ball 사이에 조립되는 Spring loaded Ball은 모든 금속밸브 부품에 전기전도율을 허용합니다.



8. Options¹

(1) Emergency Seal Restoration²

Ball Stem 또는 Stem Sealing 부분에서 일어나는 누수에는, 밀폐재(Sealant) 공급 메커니즘이 제공될 수 있습니다. 화재나 사고로 인하여 Sealing Part가 손상을 입거나 분해된다면, 이 메커니즘에 Sealant를 주입해 누수를 일시적으로 방지하거나 줄일 수 있습니다.



(2) 특수 Shell and Trim 재질

(3) 특수 Sealing 부품 재질

(4) Butt-weld Piping Connection

(5) Pipe Pups Welded to Valve Ends

(6) DIB: Double Isolation and Bleed (Double Seal)³

(7) Stem Extension

(8) Overlay for Bore and Cavity

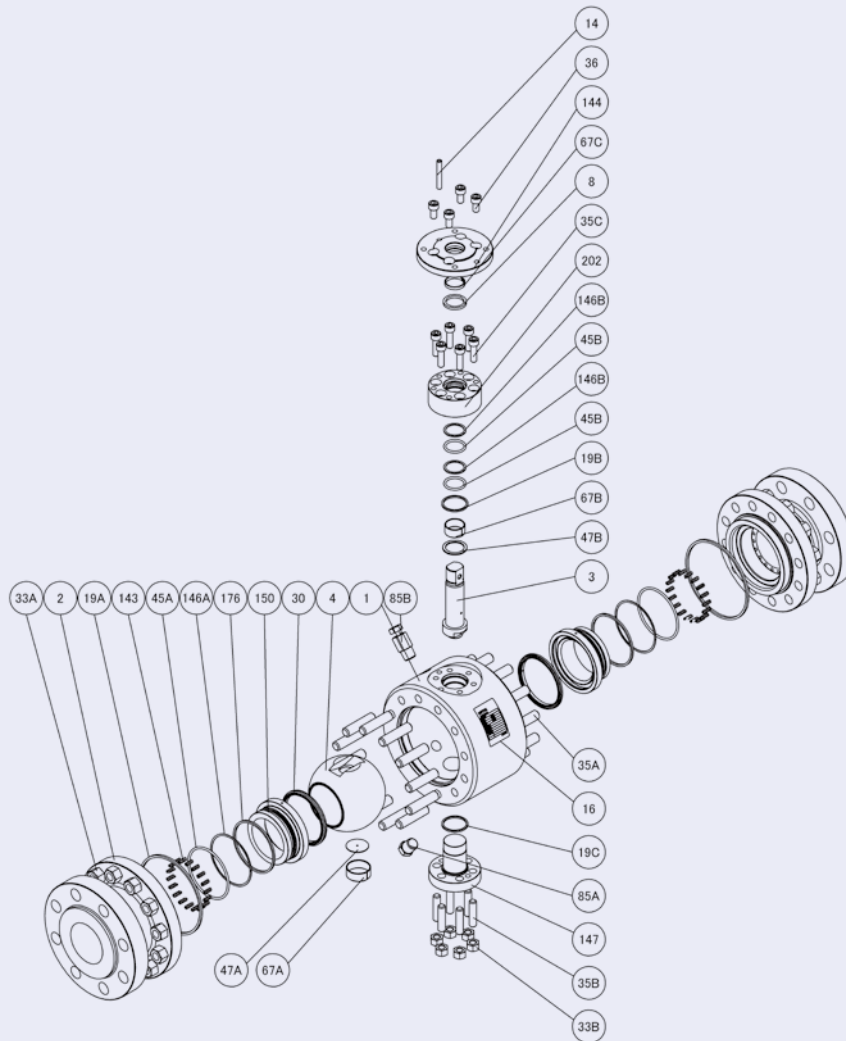
(9) Actuation (Pneumatic and Electric)

¹ 모든 option 조항은 KITZ Agent 또는 대리점에 문의 하십시오

² 북미 표준설계.

³ DPE (Double Piston Effect)/SPE (Single Piston Effect) 의 모는 조합 사용 가능

Construction and Materials



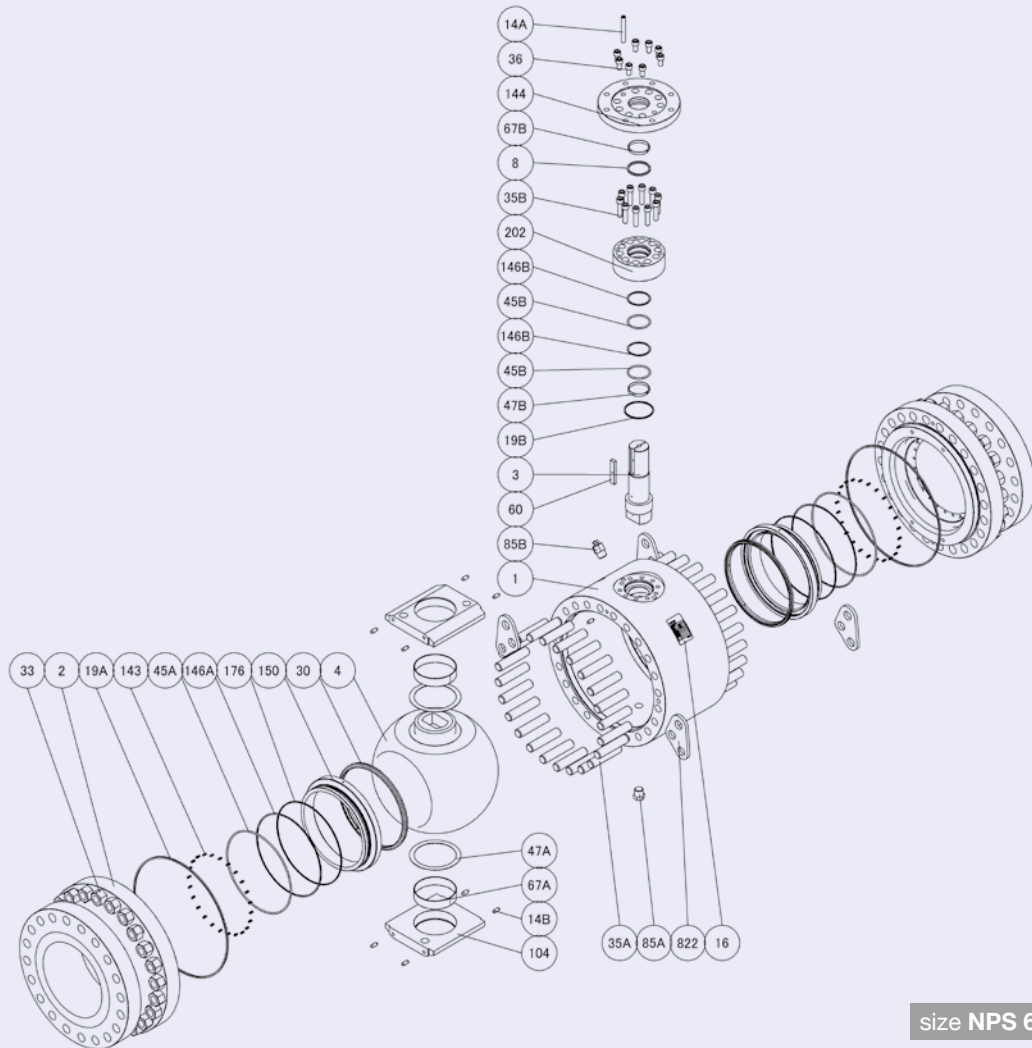
up to size NPS 4

NO	NAME OF PARTS	MATERIALS	NO	NAME OF PARTS	MATERIALS
1	BODY	A105	36	GLAND BOLT	A193 Gr. B7M
2	CAP	A105	45A	O-RING	HNBR
3	STEM	A479 TYPE 316 or A276 TYPE 316 or A182 Gr. F316	45B	O-RING	HNBR
4	BALL	A105 + ENP or A216 Gr. WCB + ENP F60+ENP (CLASS 900/1500)	47A	THRUST WASHER	RPTFE
8	GLAND PACKING	FLEXIBLE GRAPHITE	47B	THRUST WASHER	CS + RPTFE
14	SET PIN	A564 TYPE 630 H1150D	67A	CURL BEARING (BALL)	CS + RPTFE
16	NAME PLATE	STAINLESS STEEL	67C	STEM BEARING	PTFE
19A	GASKET	FLEXIBLE GRAPHITE	85A	PLUG	A350 Gr. LF2 cl.1
19B	GASKET	FLEXIBLE GRAPHITE	85B	VENT VALVE	A350 Gr. LF2 cl.1
19C	GASKET	FLEXIBLE GRAPHITE	143	SEAT SPRING	INCONEL® X750 NICKEL ALLOY
30	BALL SEAT	RPTFE	144	GLAND PLATE	A105
33A	CAP NUT	A194 Gr. 2HM	146A	BACK UP RING	PTFE
33B	COVER NUT	A194 Gr. 2HM	146B	BACK UP RING	PTFE
35A	CAP BOLT	A193 Gr. B7M	147	END PLATE	A105
35B	COVER BOLT	A193 Gr. B7M	150	SEAT RETAINER	A105 + ENP
35C	BONNET BOLT	A193 Gr. B7M	176	RETAINER PACKING	BRAIDED GRAPHITE
			202	BONNET	A105

해당 카탈로그에 소개된 그림은 대표적인 Class 600밸브의 구조를 소개합니다.

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Construction and Materials



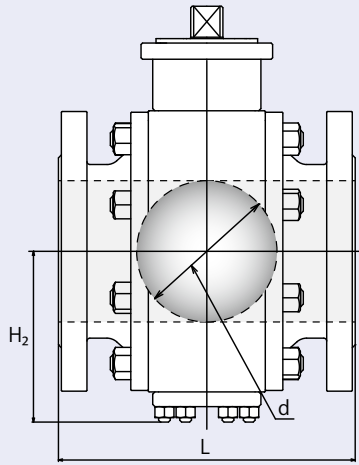
size NPS 6 and larger

NO	NAME OF PARTS	MATERIALS	NO	NAME OF PARTS	MATERIALS
1	BODY	A105	45B	O-RING	HNBR
2	CAP	A105	47A	THRUST WASHER	RPTFE
3	STEM	A479 TYPE 316 or A276 TYPE 316 or A182 Gr. F316	47B	THRUST WASHER	CS + RPTFE
4	BALL	A105 + ENP or A216 Gr. WCB + ENP F60+ENP (CLASS 900/1500)	60	KEY	CARBON STEEL
8	GLAND PACKING	FLEXIBLE GRAPHITE	67A	CURL BEARING (BALL)	CS + RPTFE
14A	SET PIN	A564 TYPE 630 H1150D	67B	STEM BEARING	PTFE
14B	SET PIN	A276 TYPE 316 or A479 TYPE 316	85A	PLUG	A350 Gr. LF2 cl.1
16	NAME PLATE	STAINLESS STEEL	85B	VENT VALVE	A350 Gr. LF2 cl.1
19A	GASKET	FLEXIBLE GRAPHITE	104	TRUNNION PLATE	A105 or A216 Gr. WCB
19B	GASKET	FLEXIBLE GRAPHITE	143	SEAT SPRING	INCONEL® X750 NICKEL ALLOY
30	BALL SEAT	RPTFE	144	GLAND PLATE	A105
33	CAP NUT	A194 Gr. 2HM	146A	BACK UP RING	PTFE
35A	CAP BOLT	A193 Gr. B7M	146B	BACK UP RING	PTFE
35B	BONNET BOLT	A193 Gr. B7M	150	SEAT RETAINER	A105 + ENP
36	GLAND BOLT	A193 Gr. B7M	176	RETAINER PACKING	BRAIDED GRAPHITE
45A	O-RING	HNBR	202	BONNET	A105
			822	LIFTING LUG	CARBON STEEL

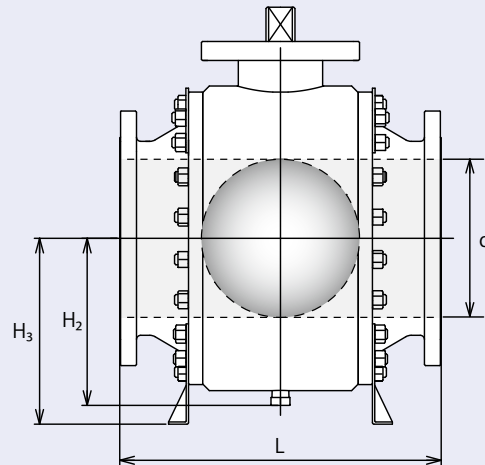
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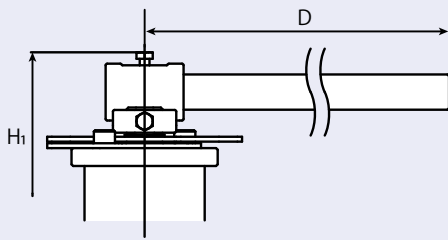
Valve Dimensions and Operators



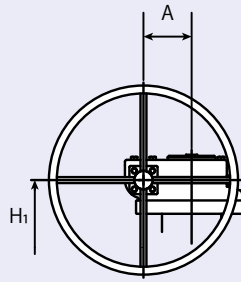
Up to Size NPS 4



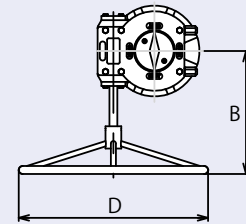
Size NPS 6 and larger



Lever



Gear



< size unit : mm >

Class 150

Nominal Size	NPS	2	3	4	6	8	10	12	14	16	18	20	24	
	DN	50	80	100	150	200	250	300	350	400	450	500	600	
Valve Operator		Lever					Gear							
d		49	74	100	150	201	252	303	334	385	436	487	589	
L		178	203	229	394	457	533	610	686	762	864	914	1067	
H1		159	201	260	326	316	372	407	441	511	551	613	687	
H2		96	116	148	185	221	275	-	-	-	-	-	-	
H3		-	-	-	-	-	-	426	444	498	526	618	697	
A		-	-	-	-	86	105	105	53	130	130	130	130	
B		-	-	-	-	305	396	396	396	567	567	567	567	
D		300	400	450	750	500	600	600	600	800	800	800	800	

Class 300

Nominal Size	NPS	2	3	4	6	8	10	12	14	16	18	20	24	
	DN	50	80	100	150	200	250	300	350	400	450	500	600	
Valve Operator		Lever					Gear							
d		49	74	100	150	201	252	303	334	385	436	487	589	
L		216	283	305	403	502	568	648	762	838	914	991	1143	
H1		159	201	260	326	316	372	415	441	511	551	613	695	
H2		96	116	148	185	221	275	-	-	-	-	-	-	
H3		-	-	-	-	-	-	428	445	498	528	618	698	
A		-	-	-	-	86	105	53	53	130	130	130	140	
B		-	-	-	-	305	396	396	396	567	567	567	567	
D		300	400	450	750	500	600	600	600	800	800	800	800	

Valve Dimensions and Operators

Class 600

Nominal Size	NPS	2	3	4	6	8	10	12	14	16	18	20	24
	DN	50	80	100	150	200	250	300	350	400	450	500	600
Valve Operator		Lever				Gear							
d	49	74	100	150	201	252	303	334	385	436	487	589	
L	292	356	432	559	660	787	838	889	991	1092	1194	1397	
H1	182	236	263	282	335	382	448	478	540	588	652	749	
H2	98	120	150	191	237	-	-	-	-	-	-	-	
H3	-	-	-	-	-	383	427	459	497	553	643	721	
A	-	-	-	86	105	53	130	130	130	140	140	182	
B	-	-	-	305	396	396	567	567	567	581	581	570	
D	400	450	800	500	600	600	800	800	800	800	800	800	

unit: mm

Class 900

Nominal Size	NPS	2	3	4	6	8	10	12	14	16	18	20	24
	DN	50	80	100	150	200	250	300	350	400	450	500	600
Valve Operator		Lever				Gear							
d	49	74	100	150	201	252	303	322	373	423	471	570	
L	368	381	457	610	737	838	965	1029	1130	1219	1321	1549	
H1	218	243	276	295	355	406	480	547	588	673	781	930	
H2	109	134	172	201	246	-	-	-	-	-	-	-	
H3	-	-	-	-	-	414	454	508	570	614	676	788	
A	-	-	-	86	53	130	130	140	140	182	279	279	
B	-	-	-	305	396	417	567	581	581	570	701	701	
D	700	700	700	600	600	600	800	800	800	800	800	800	

unit: mm

Class 1500

Nominal Size	NPS	2	3	4	6	8	10	12	14	16	18	20	24
	DN	50	80	100	150	200	250	300	350	400	450	500	600
Valve Operator		Lever				Gear							
d	49	74	100	144	192	239	287	315	360	406	454	546	
L	368	470	546	705	832	991	1130	1257	1384	1537	1664	1972	
H1	218	250	262	353	435	482	600	625	730	807	912	1000	
H2	109	146	186	237	-	-	-	-	-	-	-	-	
H3	-	-	-	-	408	446	556	568	623	701	764	857	
A	-	-	86	53	130	130	182	182	279	279	279	279	
B	-	-	305	396	567	567	570	570	701	701	701	701	
D	700	900	500	600	600	800	800	800	800	800	800	800	

unit: mm

< size unit : inch >

Class 150

Nominal Size	NPS	2	3	4	6	8	10	12	14	16	18	20	24
	DN	50	80	100	150	200	250	300	350	400	450	500	600
Valve Operator		Lever				Gear							
d	1.94	2.94	3.94	5.94	7.94	9.94	11.94	13.19	15.19	17.19	19.19	23.19	
L	7.00	8.00	9.00	15.50	18.00	21.00	24.00	27.00	30.00	34.00	36.00	42.00	
H1	6.26	7.91	10.24	12.83	12.44	14.65	16.02	17.36	20.12	21.69	24.13	27.05	
H2	3.78	4.57	5.83	7.28	8.70	10.83	-	-	-	-	-	-	
H3	-	-	-	-	-	-	16.77	17.48	19.61	20.71	24.33	27.44	
A	-	-	-	-	3.39	4.13	4.13	2.09	5.12	5.12	5.12	5.12	
B	-	-	-	-	12.01	15.59	15.59	15.59	22.32	22.32	22.32	22.32	
D	11.81	15.75	17.72	29.53	19.69	23.62	23.62	23.62	31.50	31.50	31.50	31.50	

unit: inch

Class 300

Nominal Size	NPS	2	3	4	6	8	10	12	14	16	18	20	24
	DN	50	80	100	150	200	250	300	350	400	450	500	600
Valve Operator		Lever				Gear							
d	1.94	2.94	3.94	5.94	7.94	9.94	11.94	13.19	15.19	17.19	19.19	23.19	
L	8.50	11.13	12.00	15.88	19.75	22.38	25.50	30.00	33.00	36.00	39.00	45.00	
H1	6.26	7.91	10.24	12.83	12.44	14.65	16.34	17.36	20.12	21.69	24.13	27.36	
H2	3.78	4.57	5.83	7.28	8.70	10.83	-	-	-	-	-	-	
H3	-	-	-	-	-	-	16.85	17.52	19.61	20.79	24.33	27.48	
A	-	-	-	-	3.39	4.13	2.09	2.09	5.12	5.12	5.12	5.51	
B	-	-	-	-	12.01	15.59	15.59	15.59	22.32	22.32	22.32	22.32	
D	11.81	15.75	17.72	29.53	19.69	23.62	23.62	23.62	31.50	31.50	31.50	31.50	

unit: inch

Valve Dimensions and Operators

Class 600

unit: inch

Nominal Size	NPS	2	3	4	6	8	10	12	14	16	18	20	24
	DN	50	80	100	150	200	250	300	350	400	450	500	600
Valve Operator		Lever				Gear							
d		1.94	2.94	3.94	5.94	7.94	9.94	11.94	13.19	15.19	17.19	19.19	23.19
L		11.50	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00
H1		7.17	9.29	10.35	11.10	13.19	15.04	17.64	18.82	21.26	23.15	25.67	29.49
H2		3.86	4.72	5.91	7.52	9.33	-	-	-	-	-	-	-
H3		-	-	-	-	-	15.08	16.81	18.07	19.57	21.77	25.31	28.39
A		-	-	-	3.39	4.13	2.09	5.12	5.12	5.12	5.51	5.51	7.17
B		-	-	-	12.01	15.59	15.59	22.32	22.32	22.32	22.87	22.87	22.44
D		15.75	17.72	31.50	19.69	23.62	23.62	31.50	31.50	31.50	31.50	31.50	31.50

Class 900

unit: inch

Nominal Size	NPS	2	3	4	6	8	10	12	14	16	18	20	24
	DN	50	80	100	150	200	250	300	350	400	450	500	600
Valve Operator		Lever				Gear							
d		1.94	2.94	3.94	5.94	7.94	9.94	11.94	12.69	14.69	16.69	18.56	22.44
L		14.50	15.00	18.00	24.00	29.00	33.00	38.00	40.50	44.50	48.00	52.00	61.00
H1		8.58	9.57	10.87	11.61	13.98	15.98	18.90	21.54	23.15	26.50	30.75	36.61
H2		4.29	5.28	6.77	7.91	9.69	-	-	-	-	-	-	-
H3		-	-	-	-	-	16.30	17.87	20.00	22.44	24.17	26.61	31.02
A		-	-	-	3.39	2.09	5.12	5.12	5.51	5.51	7.17	10.98	10.98
B		-	-	-	12.01	15.59	16.42	22.32	22.87	22.87	22.44	27.60	27.60
D		27.56	27.56	27.56	23.62	23.62	23.62	31.50	31.50	31.50	31.50	31.50	31.50

Class 1500

unit: inch

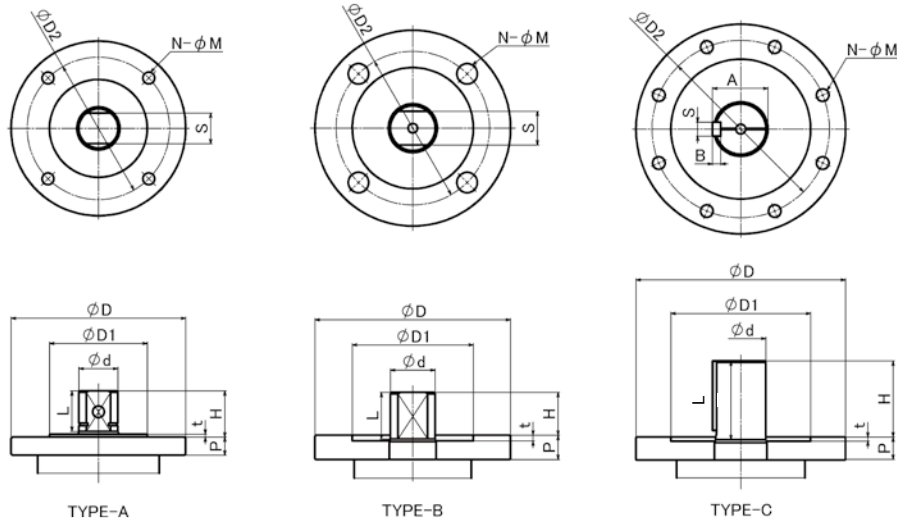
Nominal Size	NPS	2	3	4	6	8	10	12	14	16	18	20	24
	DN	50	80	100	150	200	250	300	350	400	450	500	600
Valve Operator		Lever				Gear							
d		1.94	2.94	3.94	5.69	7.56	9.44	11.31	12.44	14.19	16.00	17.88	21.50
L		14.50	18.50	21.50	27.75	32.75	39.00	44.50	49.50	54.50	60.50	65.50	76.50
H1		8.58	9.84	10.31	13.90	17.13	18.98	23.62	24.61	28.74	31.77	35.91	39.37
H2		4.29	5.75	7.32	9.33	-	-	-	-	-	-	-	-
H3		-	-	-	-	16.06	17.56	21.89	22.36	24.53	27.60	30.08	33.74
A		-	-	3.39	2.09	5.12	5.12	7.17	7.17	10.98	10.98	10.98	10.98
B		-	-	12.01	15.59	22.32	22.32	22.44	22.44	27.60	27.60	27.60	27.60
D		27.56	35.43	19.69	23.62	23.62	31.50	31.50	31.50	31.50	31.50	31.50	31.50

Material Example

Service	Non-corrosive	Low Temp.	Corrosive	Sour	
Body/Cap	A105	LF2	F316	F51, S31803 or CD3MN	F55, S32760 or CD3MWCuN
Stem	316SS	316SS	316SS	F51 or S31803	F55 or S32760
Ball	A105+ENP	LF2+ENP F60+ENP (CLASS 900/1500)	316SS F51, S31803 or CD3MN (CLASS 900/1500)	F51, S31803 or CD3MN	F55, S32760 or CD3MWCuN
Seat Retainer	A105+ENP	LF2+ENP	316SS	F51, S31803 or CD3MN	F55, S32760 or CD3MWCuN
Ball Seat	CLASS 150 to 600: RPTFE CLASS 900 and over: RNYLON				
Spring	INCONEL® X750				
O-ring	HNBR	L-NBR	FKM	FKM	FKM
Bolt	B7M	L7M	B8M	B8M	B8M
Nut	2HM	7M	8M	8M	8M

Dimensions of Actuator Mounting Pads

KITZ의 Trunnion Mounted Ball Valve는 ISO 5211의 기준을 준수하여 만들어진 일체형 액츄에이터 Mounting Pad를 제공합니다. 이 기능을 통해 사용자는 밸브에 액츄에이터를 쉽게 장착할 수 있습니다.



< size unit : mm >

T60S Class 150

Nominal Size	NPS DN	unit: mm											
		2 50	3 80	4 100	6 150	8 200	10 250	12 300	14 350	16 400	18 450	20 500	24 600
TYPE		A	A	A	A	B	B	B	C	C	C	C	C
φ d		18	22	28	48	48	60	60	60	72	72	80	80
φ D		65	90	125	175	210	300	300	300	300	300	300	300
φ D1		35	55	70	100	130	200	200	200	200	200	200	200
φ D2		50	70	102	140	165	254	254	254	254	254	254	254
t		3	3	3	3	6	6	6	6	6	6	6	6
L		19	21	26	44.5	54	64	64	89	113	113	112	112
H		23	25	30	49.5	50	60	60	85	109	109	109	109
S		14	17	22	36	36	46	46	18	20	20	22	22
A		-	-	-	-	-	-	-	64	76.5	76.5	85	85
B		-	-	-	-	-	-	-	11	12	12	14	14
N		4	4	4	4	4	8	8	8	8	8	8	8
M		M6	M8	M10	M16	22	18	18	18	18	18	18	18
P		9	11	13	17	26	28	28	28	33	33	38	38
ISO 5211 Flange Type		F05	F07	F10	F14	F16	F25	F25	F25	F25	F25	F25	F25

T60S Class 300

Nominal Size	NPS DN	unit: mm											
		2 50	3 80	4 100	6 150	8 200	10 250	12 300	14 350	16 400	18 450	20 500	24 600
TYPE		A	A	A	A	B	B	B	C	C	C	C	C
φ d		18	22	28	48	48	60	60	60	72	72	80	80
φ D		65	90	125	175	210	300	300	300	300	300	300	350
φ D1		35	55	70	100	130	200	200	200	200	200	200	230
φ D2		50	70	102	140	165	254	254	254	254	254	254	298
t		3	3	3	3	6	6	6	6	6	6	6	6
L		19	21	26	44.5	54	64	64	89	113	113	112	112
H		23	25	30	49.5	50	60	60	85	109	109	109	109
S		14	17	22	36	36	46	46	18	20	20	22	22
A		-	-	-	-	-	-	-	64	76.5	76.5	85	85
B		-	-	-	-	-	-	-	11	12	12	14	14
N		4	4	4	4	4	8	8	8	8	8	8	8
M		M6	M8	M10	M16	22	18	18	18	18	18	18	18
P		9	11	13	17	26	28	28	28	33	33	38	38
ISO 5211 Flange Type		F05	F07	F10	F14	F16	F25	F25	F25	F25	F25	F25	F30

T60S Class 600

unit: mm

Nominal Size	NPS	2	3	4	6	8	10	12	14	16	18	20	24
	DN	50	80	100	150	200	250	300	350	400	450	500	600
TYPE		A	A	A	B	B	C	C	C	C	C	C	C
ϕ d		22	28	36	48	60	60	72	72	80	80	98	98
ϕ D		90	125	150	210	300	300	300	300	300	350	350	415
ϕ D1		55	70	85	130	200	200	200	200	200	230	230	260
ϕ D2		70	102	125	165	254	254	254	254	254	298	298	356
t		3	3	3	6	6	6	6	6	6	6	6	6
L		21	26	33	50	64	89	113	113	112	112	131	131
H		25	30	37	46	60	85	109	109	109	109	128	128
S		17	22	27	36	46	18	20	20	22	22	28	28
A		-	-	-	-	-	64	76.5	76.5	85	85	104	104
B		-	-	-	-	-	11	12	12	14	14	16	16
N		4	4	4	4	8	8	8	8	8	8	8	8
M		M8	M10	M12	22	18	18	18	18	18	22	22	32
P		11	13	13	26	28	28	33	33	38	38	41	41
ISO 5211 Flange Type		F07	F10	F12	F16	F25	F25	F25	F25	F25	F30	F30	F35

T60S Class 900

unit: mm

Nominal Size	NPS	2	3	4	6	8	10	12	14	16	18	20	24
	DN	50	80	100	150	200	250	300	350	400	450	500	600
TYPE		A	A	A	B	B	C	C	C	C	C	C	C
ϕ d		28	28	36	48	60	60	72	98	98	98	120	160
ϕ D		125	125	150	210	300	300	300	350	350	415	475	560
ϕ D1		70	70	85	130	200	200	200	230	230	260	300	370
ϕ D2		102	102	125	165	254	254	254	298	298	356	406	483
t		3	3	3	6	6	6	6	6	6	6	9	9
L		26	26	33	50	64	89	113	132.5	132.5	140	168	172
H		30	30	37	46	60	85	109	130.5	130.5	138	165	168
S		22	22	27	36	46	18	20	28	28	28	32	40
A		-	-	-	-	-	64	76.5	104	104	104	127	169
B		-	-	-	-	-	11	12	16	16	16	18	22
N		4	4	4	4	8	8	8	8	8	8	8	12
M		M10	M10	M12	22	18	18	18	22	22	32	38	38
P		13	13	13	26	28	28	33	42	42	52	62	73
ISO 5211 Flange Type		F10	F10	F12	F16	F25	F25	F25	F30	F30	F35	F40	F48

T60S Class 1500

unit: mm

Nominal Size	NPS	2	3	4	6	8	10	12	14	16	18	20	24
	DN	50	80	100	150	200	250	300	350	400	450	500	600
TYPE		A	A	B	B	C	C	C	C	C	C	C	C
ϕ d		28	36	48	60	72	80	98	98	120	120	160	160
ϕ D		125	150	210	300	300	300	415	415	475	475	560	560
ϕ D1		70	85	130	200	200	200	260	260	300	300	370	370
ϕ D2		102	125	165	254	254	254	356	356	406	406	483	483
t		3	3	6	6	6	6	6	6	9	9	9	9
L		26	33	50	64	113	112	131	140	168	168	172	172
H		30	37	46	60	109	109	128	138	165	165	168	168
S		22	27	36	46	20	22	28	28	32	32	40	40
A		-	-	-	-	77	85	104	104	127	127	169	169
B		-	-	-	-	12	14	16	16	18	18	22	22
N		4	4	4	8	8	8	8	8	8	8	12	12
M		M10	M12	22	18	18	18	32	32	38	38	38	38
P		13	13	26	33	33	41	41	52	62	62	73	73
ISO 5211 Flange Type		F10	F12	F16	F25	F25	F25	F35	F35	F40	F40	F48	F48

< size unit : inch >

T60S Class 150

unit: inch

Nominal Size	NPS	2	3	4	6	8	10	12	14	16	18	20	24
	DN	50	80	100	150	200	250	300	350	400	450	500	600
TYPE		A	A	A	A	B	B	B	C	C	C	C	C
ϕ d		0.71	0.87	1.10	1.89	1.89	2.36	2.36	2.36	2.83	2.83	3.15	3.15
ϕ D		2.56	3.54	4.92	6.89	8.27	11.81	11.81	11.81	11.81	11.81	11.81	11.81
ϕ D1		1.38	2.17	2.76	3.94	5.12	7.87	7.87	7.87	7.87	7.87	7.87	7.87
ϕ D2		1.97	2.76	4.02	5.51	6.50	10.00	10.00	10.00	10.00	10.00	10.00	10.00
t		0.12	0.12	0.12	0.12	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24
L		0.75	0.83	1.02	1.75	2.13	2.52	2.52	3.50	4.45	4.45	4.41	4.41
H		0.91	0.98	1.18	1.95	1.97	2.36	2.36	3.35	4.29	4.29	4.29	4.29
S		0.55	0.67	0.87	1.42	1.42	1.81	1.81	0.71	0.79	0.79	0.87	0.87
A		-	-	-	-	-	-	-	2.52	3.01	3.01	3.35	3.35
B		-	-	-	-	-	-	-	0.43	0.47	0.47	0.55	0.55
N		4	4	4	4	4	8	8	8	8	8	8	8
M		M6	M8	M10	M16	0.87	0.71	0.71	0.71	0.71	0.71	0.71	0.71
P		0.35	0.43	0.51	0.67	1.02	1.10	1.10	1.10	1.30	1.30	1.50	1.50
ISO 5211 Flange Type		F05	F07	F10	F14	F16	F25	F25	F25	F25	F25	F25	F25

T60S Class 300

Nominal Size	NPS	2	3	4	6	8	10	12	14	16	18	20	24
	DN	50	80	100	150	200	250	300	350	400	450	500	600
TYPE		A	A	A	A	B	B	B	C	C	C	C	C
ϕ d		0.71	0.87	1.10	1.89	1.89	2.36	2.36	2.36	2.83	2.83	3.15	3.15
ϕ D		2.56	3.54	4.92	6.89	8.27	11.81	11.81	11.81	11.81	11.81	11.81	13.78
ϕ D1		1.38	2.17	2.76	3.94	5.12	7.87	7.87	7.87	7.87	7.87	7.87	9.06
ϕ D2		1.97	2.76	4.02	5.51	6.50	10.00	10.00	10.00	10.00	10.00	10.00	11.73
t		0.12	0.12	0.12	0.12	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24
L		0.75	0.83	1.02	1.75	2.13	2.52	2.52	3.50	4.45	4.45	4.41	4.41
H		0.91	0.98	1.18	1.95	1.97	2.36	2.36	3.35	4.29	4.29	4.29	4.29
S		0.55	0.67	0.87	1.42	1.42	1.81	1.81	0.71	0.79	0.79	0.87	0.87
A		-	-	-	-	-	-	-	2.52	3.01	3.01	3.35	3.35
B		-	-	-	-	-	-	-	0.43	0.47	0.47	0.55	0.55
N		4	4	4	4	4	8	8	8	8	8	8	8
M		M6	M8	M10	M16	0.87	0.71	0.71	0.71	0.71	0.71	0.71	0.71
P		0.35	0.43	0.51	0.67	1.02	1.10	1.10	1.10	1.30	1.30	1.50	1.50
ISO 5211 Flange Type		F05	F07	F10	F14	F16	F25	F25	F25	F25	F25	F25	F30

unit: inch

T60S Class 600

Nominal Size	NPS	2	3	4	6	8	10	12	14	16	18	20	24
	DN	50	80	100	150	200	250	300	350	400	450	500	600
TYPE		A	A	A	B	B	C	C	C	C	C	C	C
ϕ d		0.87	1.10	1.42	1.89	2.36	2.36	2.83	2.83	3.15	3.15	3.86	3.86
ϕ D		3.54	4.92	5.91	8.27	11.81	11.81	11.81	11.81	11.81	13.78	13.78	16.34
ϕ D1		2.17	2.76	3.35	5.12	7.87	7.87	7.87	7.87	7.87	9.06	9.06	10.24
ϕ D2		2.76	4.02	4.92	6.50	10.00	10.00	10.00	10.00	10.00	11.73	11.73	14.02
t		0.12	0.12	0.12	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24
L		0.83	1.02	1.30	1.97	2.52	3.50	4.45	4.45	4.41	4.41	5.16	5.16
H		0.98	1.18	1.46	1.81	2.36	3.35	4.29	4.29	4.29	4.29	5.04	5.04
S		0.67	0.87	1.06	1.42	1.81	0.71	0.79	0.79	0.87	0.87	1.10	1.10
A		-	-	-	-	-	2.52	3.01	3.01	3.35	3.35	4.09	4.09
B		-	-	-	-	-	0.43	0.47	0.47	0.55	0.55	0.63	0.63
N		4	4	4	4	8	8	8	8	8	8	8	8
M		M8	M10	M12	0.87	0.71	0.71	0.71	0.71	0.71	0.87	0.87	1.26
P		0.43	0.51	0.51	1.02	1.10	1.10	1.30	1.30	1.50	1.50	1.61	1.61
ISO 5211 Flange Type		F07	F10	F12	F16	F25	F25	F25	F25	F25	F30	F30	F35

unit: inch

T60S Class 900

Nominal Size	NPS	2	3	4	6	8	10	12	14	16	18	20	24
	DN	50	80	100	150	200	250	300	350	400	450	500	600
TYPE		A	A	A	B	B	C	C	C	C	C	C	C
ϕ d		1.10	1.10	1.42	1.89	2.36	2.36	2.83	3.86	3.86	3.86	4.72	6.30
ϕ D		4.92	4.92	5.91	8.27	11.81	11.81	11.81	13.78	13.78	16.34	18.70	22.05
ϕ D1		2.76	2.76	3.35	5.12	7.87	7.87	7.87	9.06	9.06	10.24	11.81	14.57
ϕ D2		4.02	4.02	4.92	6.50	10.00	10.00	10.00	11.73	11.73	14.02	15.98	19.02
t		0.12	0.12	0.12	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.35	0.35
L		1.02	1.02	1.30	1.97	2.52	3.50	4.45	5.22	5.22	5.51	6.61	6.77
H		1.18	1.18	1.46	1.81	2.36	3.35	4.29	5.14	5.14	5.43	6.50	6.61
S		0.87	0.87	1.06	1.42	1.81	0.71	0.79	1.10	1.10	1.10	1.26	1.57
A		-	-	-	-	-	2.52	3.01	4.09	4.09	4.09	5.00	6.65
B		-	-	-	-	-	0.43	0.47	0.63	0.63	0.63	0.71	0.87
N		4	4	4	4	8	8	8	8	8	8	8	12
M		M10	M10	M12	0.87	0.71	0.71	0.71	0.87	0.87	1.26	1.50	1.50
P		0.51	0.51	0.51	1.02	1.10	1.10	1.30	1.65	1.65	2.05	2.44	2.87
ISO 5211 Flange Type		F10	F10	F12	F16	F25	F25	F25	F30	F30	F35	F40	F48

unit: inch

T60S Class 1500

Nominal Size	NPS	2	3	4	6	8	10	12	14	16	18	20	24
	DN	50	80	100	150	200	250	300	350	400	450	500	600
TYPE		A	A	B	B	C	C	C	C	C	C	C	C
ϕ d		1.10	1.42	1.89	2.36	2.83	3.15	3.86	3.86	4.72	4.72	6.30	6.30
ϕ D		4.92	5.91	8.27	11.81	11.81	11.81	16.34	16.34	18.70	18.70	22.05	22.05
ϕ D1		2.76	3.35	5.12	7.87	7.87	7.87	10.24	10.24	11.81	11.81	14.57	14.57
ϕ D2		4.02	4.92	6.50	10.00	10.00	10.00	14.02	14.02	15.98	15.98	19.02	19.02
t		0.12	0.12	0.24	0.24	0.24	0.24	0.24	0.24	0.35	0.35	0.35	0.35
L		1.02	1.30	1.97	2.52	4.45	4.41	5.16	5.51	6.61	6.61	6.77	6.77
H		1.18	1.46	1.81	2.36	4.29	4.29	5.04	5.43	6.50	6.50	6.61	6.61
S		0.87	1.06	1.42	1.81	0.79	0.87	1.10	1.10	1.26	1.26	1.57	1.57
A		-	-	-	-	3.03	3.35	4.09	4.09	5.00	5.00	6.65	6.65
B		-	-	-	-	0.47	0.55	0.63	0.63	0.71	0.71	0.87	0.87
N		4	4	4	8	8	8	8	8	8	8	12	12
M		M10	M12	0.87	0.71	0.71	0.71	1.26	1.26	1.50	1.50	1.50	1.50
P		0.51	0.51	1.02	1.30	1.30	1.61	1.61	2.05	2.44	2.44	2.87	2.87
ISO 5211 Flange Type		F10	F12	F16	F25	F25	F25	F35	F35	F40	F40	F48	F48

unit: inch

T60M Series

Metal Seated 3-Piece Body Trunnion Mounted Ball Valves



일반 설계 기준

- Design: API 6D/ISO 14313 (Except CL 600-24)
- Face to face: API 6D/ASME B16.10
- End connection: ASME B16.5
- Bore diameter: API 6D/ISO 14313
- Wall thickness: ASME PBVC Section VIII

인증

- Fugitive emission: ISO 15848-1 BH CO1
- Fire test: API 6FA
- PED: 2014/68/EU
- ATEX: 2014/34/EU
- SIL: IEC 61508 (SIL 2)

생산 범위

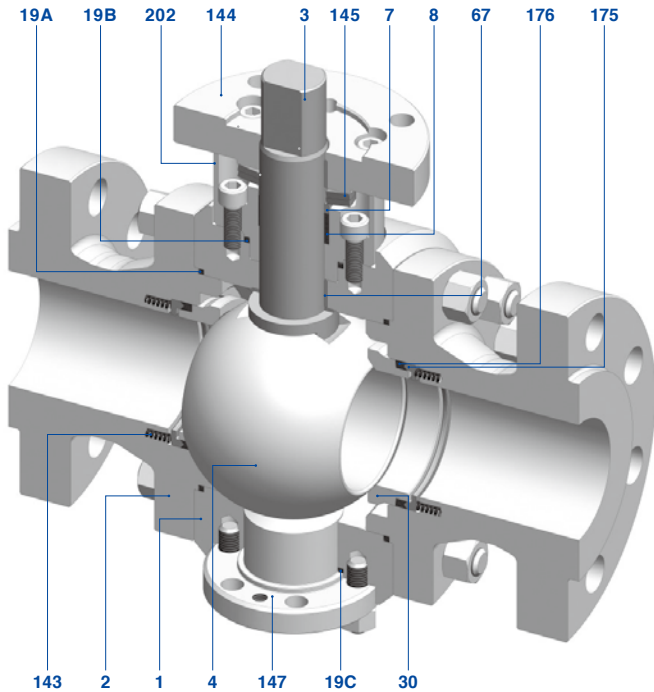
- 표준 압력: Class 150 to 600
- 표준 Size: NPS 2 to 24 (DN 50 to 600)
- Shell 재질:
 - Carbon steel, Alloy steel,
 - Austenitic stainless steel, Duplex stainless steel,
 - High alloy steel, Nickel based alloy
- Seat 재질:
 - 316SS + Ni- Cr alloy thermal spraying

DESIGN 특성

- 구조: 3-piece bolted body and cap
- Standard material: NACE MR0175, ASTM and others
- High performance sealing mechanism
- Low operating torque
- Packing with live loaded sealing mechanism
- Double Block and Bleed function
- Self-relief of excessive cavity pressure
- Fire safe design
- Blowout-proof ball seat & stem construction
- Antistatic provision design
- Locking device for lever operation
- ISO 5211 actuator mounting pad

Component Drawing

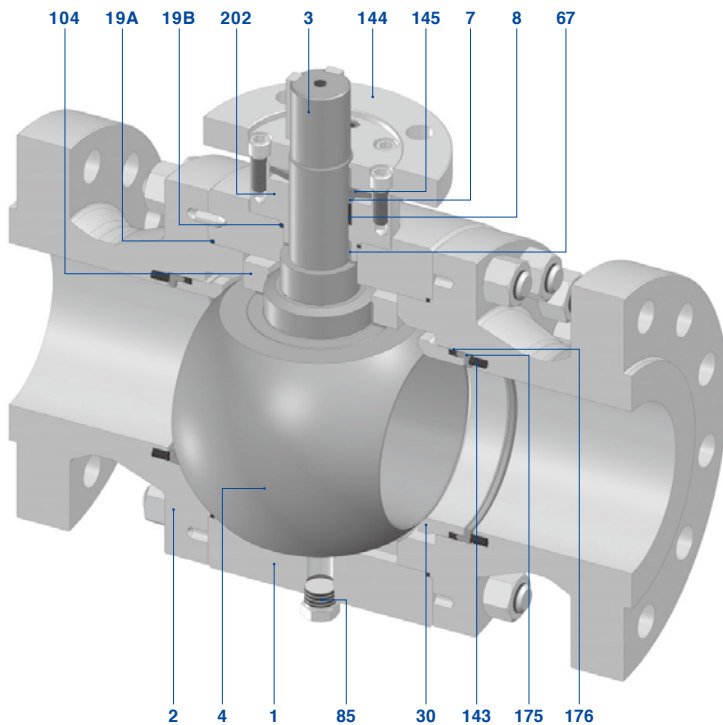
Up to Size NPS 4



- 1 Body*
- 2 Cap*
- 3 Stem
- 4 Precision machined ball
- 7 Gland
- 8 Gland packing (Flexible graphite)
- 19A Gasket (Flexible graphite)
- 19B Gasket (Flexible graphite)
- 19C Gasket (Flexible graphite)
- 30 Ball seat
- 67 Stem bearing
- 143 Seat spring
- 144 Gland plate
- 145 Coned disc spring
- 147 End plate
- 175 Retainer gland
- 176 Seat packing (Flexible graphite)
- 202 Bonnet

*Note: Made of forged carbon steel, low alloy steel and high alloy steel. Made of forged or cast austenitic stainless steel, duplex stainless steel and other special alloy materials. Contact KITZ for current available materials.

Size NPS 6 and larger



- 1 Body*
- 2 Cap*
- 3 Stem
- 4 Precision machined ball
- 7 Gland
- 8 Gland packing (Flexible graphite)
- 19A Gasket (Flexible graphite)
- 19B Gasket (Flexible graphite)
- 30 Ball seat
- 67 Stem bearing
- 85 Plug
- 104 Trunnion plate
- 143 Seat spring
- 144 Gland plate
- 145 Coned disc spring
- 175 Retainer gland
- 176 Seat packing (Flexible graphite)
- 202 Bonnet

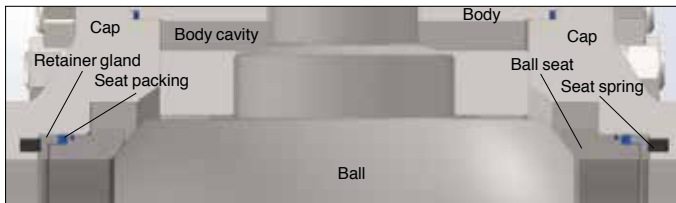
해당 카탈로그에 소개된 그림은 대표적인 Class 600밸브의 구조를 소개합니다.

해당 구조는 밸브의 크기와 Class에 따라 차이가 날수도 있습니다. 밸브의 구체적인 사양과 구조에 관련된 자세한 정보는 KITZ로 문의하여 주십시오.

Design Features

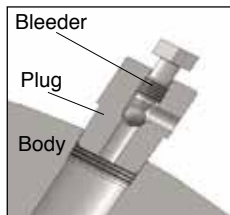
1. High Performance Sealing Mechanism

Metal Seat는 Resilient Seat 설계와 마찬가지로, Seat Retainer 뒤에 삽입된 Seat Spring의 힘을 제거하여 각 상.하부 Ball Seat가 Ball과 접촉하는 상태를 적절하게 유지합니다. 유체 압력 또한 이러한 접촉 방식에 도움이 됩니다. 해당 Sealing Mechanism은 상.하부 Ball Seat 동시에 실패없는 Thru-the-ball Sealing 기능을 특징으로 합니다. Ball 과 Ball Seat의 접촉 표면에는 고 합금 물질이 열분사 됩니다.



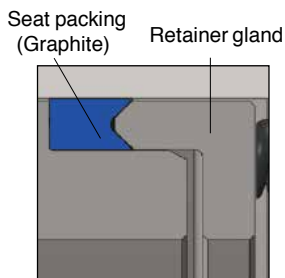
2. Double Block and Bleed Function

Ball seats는 Ball 의 Inlet / Outlet에서 유체를 독립적으로 차단하는 기능이 있습니다. 밸브 Bore와 Body Cavity는 밸브가 완전히 개폐될 때 서로 차단됩니다. 이러한 상황 하에, Cavity 압력은 Vent Valve와 Drain Plug를 통해 완화될 수 있습니다. 안전한 압력 완화를 위해 Vent Valve를 통하여 Cavity 압력을 완화하는 것을 추천합니다.



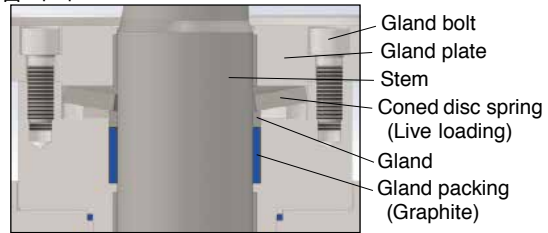
3. High Performance Seat Packing

Retainer Gland와 함께 제공되는 특수 Graphite Seat Packing Ring은 서비스 기간동안 확실한 Shut-off Sealing 성능을 제공합니다.



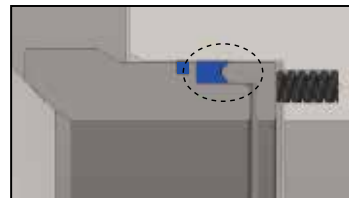
4. Live Loaded Packing Structure

Gland Packing Ring은 응력완화(Stress Relaxation)를 예방하기 위하여 콘(Cone)모양의 Disc Spring으로 압축되어져 있습니다. 이러한 Live Loaded Packing System은 Packing의 재조임 없이 매우 단단한 Sealing 성능을 제공합니다.



5. Cavity Pressure Relief

밸브 서비스 온도 및 대기온도가 갑자기 상승하는 경우, Body Cavity 내부에 갇힌 액화가스나 휘발성이 강한 액체가 증발하여 Cavity 압력이 과도하게 상승할 수 있습니다. 안전을 고려하여, Cavity 압력이 Line 압력을 초과할 때, Ball Seal 중 하나가 Seat Retainer와 함께 Ball 표면에서 약간 떨어져 밸브 Bore 내부의 과도한 Cavity 압력을 완화 시킵니다.



6. Low Emission Guaranteed Design

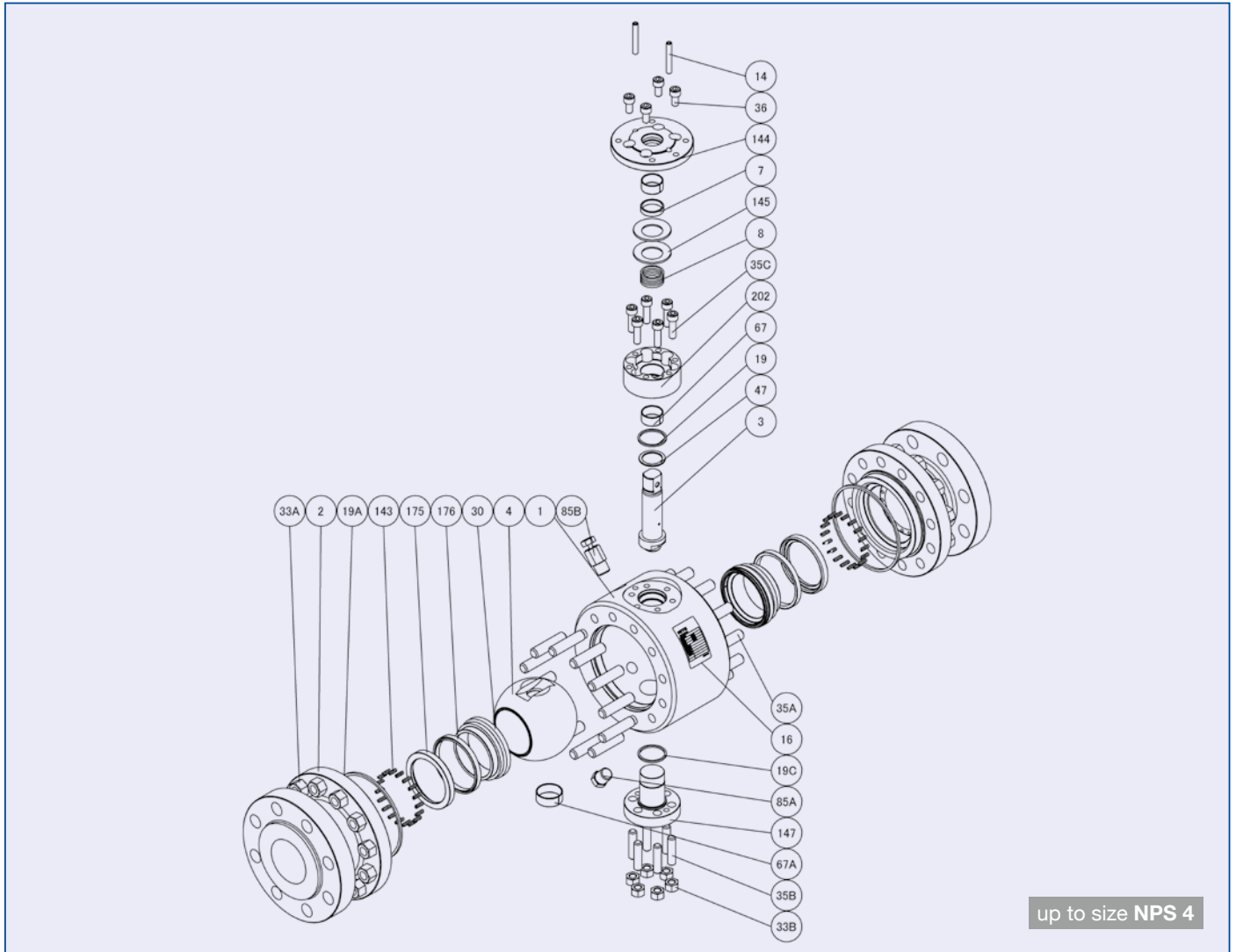
Resilient 및 Metal Seat가 장착된 밸브에 대한 비산 배출 억제(The Fugitive Emission suppressing) 디자인은 ISO 15848 Tightness Class "B"에 따라 인증됩니다. (Stem 누출의 경우 10-4 mg.s-1m-1 미만, Body 누출의 경우 50ppm 미만입니다.) 이를 통해 밸브의 Whole Sealing Mechanism의 탁월한 Low Emission 성능을 확인할 수 있습니다.

7. Options*

- (1) Special Shell and Trim Materials
- (2) Special Sealing Component Materials
- (3) Butt-weld Piping Connection
- (4) Pipe Pups Welded on Valve Ends
- (5) Stem Extension
- (6) Overlay for Bore and Cavity
- (7) Actuation (Pneumatic and Electric)

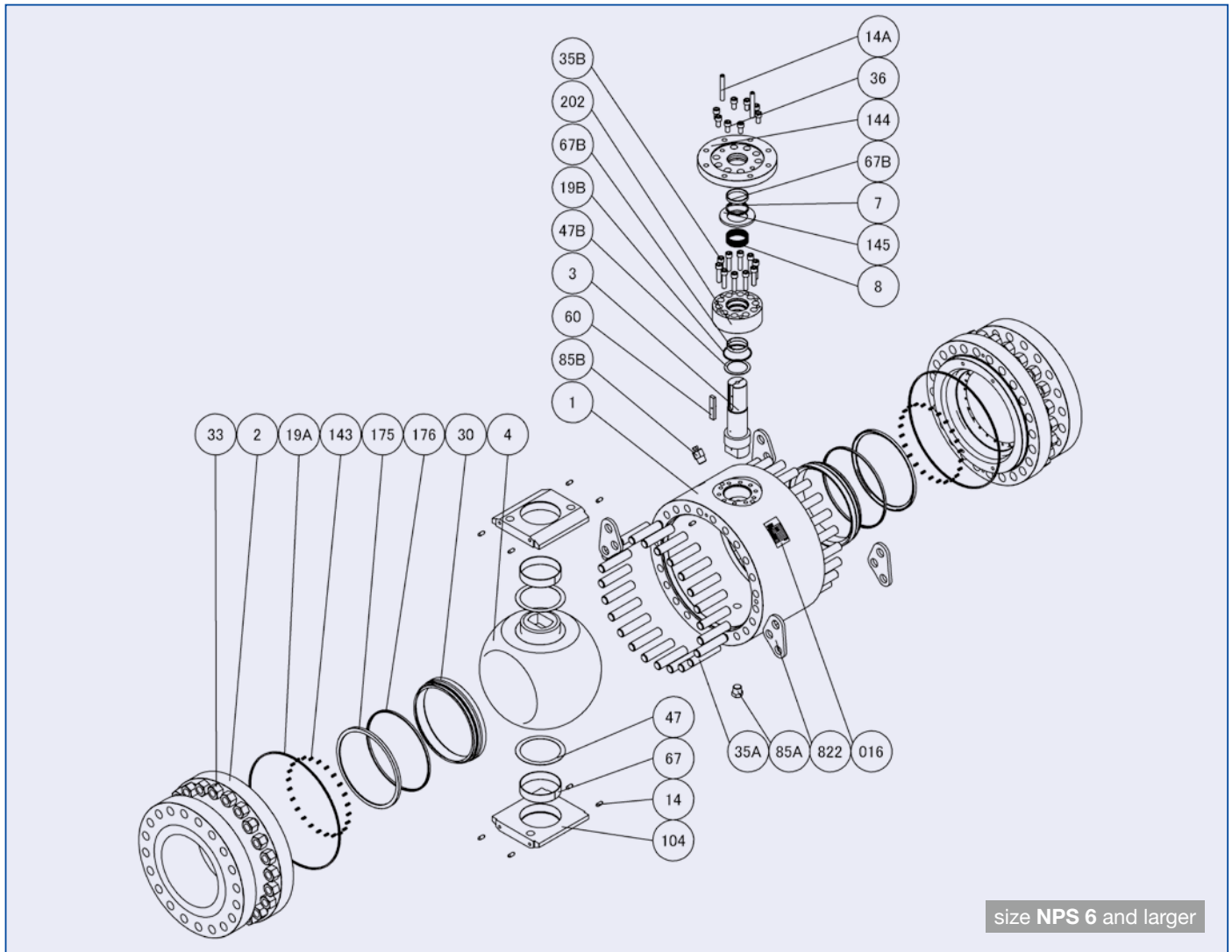
*모든 선택적 사항은, 현지 KITZ 대리점에 문의하십시오.

Construction and Materials



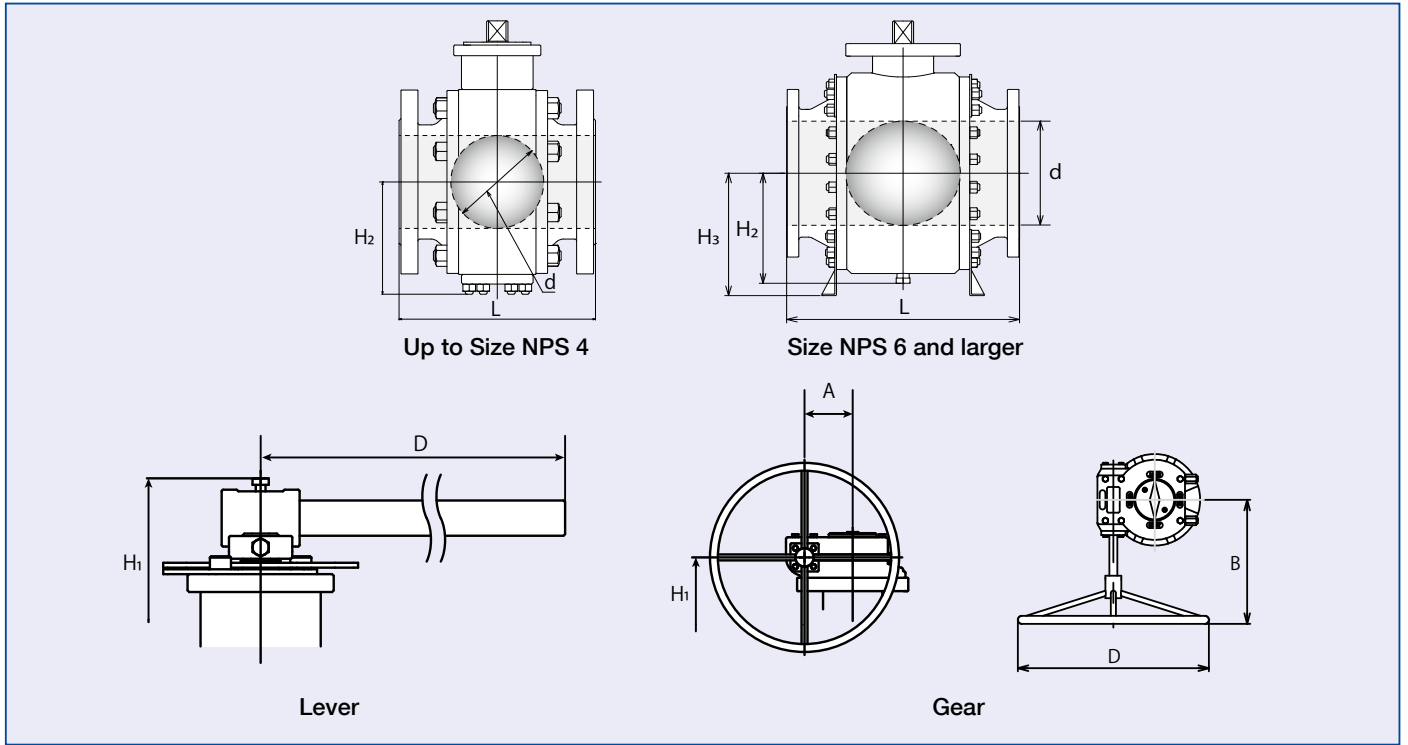
NO	NAME OF PARTS	MATERIALS	NO	NAME OF PARTS	MATERIALS
1	BODY	A105	33B	COVER NUT	A194 Gr. 2HM
2	CAP	A105	35A	CAP BOLT	A193 Gr. B7M
3	STEM	A564 TYPE 630 H1150D	35B	COVER BOLT	A193 Gr. B7M
4	BALL	A182 Gr. F316 + SFNi or A479 TYPE 316 + SFNi or A276 TYPE 316 + SFNi	35C	BONNET BOLT	A193 Gr. B7M
			36	GLAND BOLT	A193 Gr. B7M
			47	THRUST WASHER	HT-625 [®] NICKEL ALLOY + COATING
7	GLAND	A182 Gr. F316 or A479 TYPE 316 or A276 TYPE 316	67A	CURL BEARING (BALL)	HT-625 [®] NICKEL ALLOY + COATING
8	GLAND PACKING	FLEXIBLE GRAPHITE	67B	STEM BEARING	HT-625 [®] NICKEL ALLOY + COATING
14	SET PIN	A564 TYPE 630 H1150D	85A	PLUG	A350 Gr. LF2 cl.1
16	NAME PLATE	STAINLESS STEEL	85B	VENT VALVE	A350 Gr. LF2 cl.1
19A	GASKET	FLEXIBLE GRAPHITE	143	SEAT SPRING	INCONEL [®] X750 NICKEL ALLOY
19B	GASKET	FLEXIBLE GRAPHITE	144	GLAND PLATE	ASTM A105
19C	GASKET	FLEXIBLE GRAPHITE	145	CONED DISC SPRING	UNS N07718
30	BALL SEAT	A182 Gr. F316 + SFNi or A479 TYPE 316 + SFNi or A276 TYPE 316 + SFNi	147	END PLATE	A105
			175	RETAINER GLAND	A182 Gr. F316 or A479 TYPE 316 or A276 TYPE 316 or A240 TYPE 316
			176	SEAT PACKING	FLEXIBLE GRAPHITE
33A	CAP NUT	A194 Gr. 2HM	202	BONNET	A105

Construction and Materials



NO	NAME OF PARTS	MATERIALS	NO	NAME OF PARTS	MATERIALS
1	BODY	A105	35B	BONNET BOLT	A193 Gr. B7M
2	CAP	A105	36	GLAND BOLT	A193 Gr. B7M
3	STEM	A564 TYPE 630 H1150D	47A	THRUST WASHER	HT-625 [®] NICKEL ALLOY + COATING
4	BALL	A182 Gr. F316 + SFNi or A479 TYPE 316 + SFNi or A276 TYPE 316 + SFNi	47B	THRUST WASHER	HT-625 [®] NICKEL ALLOY + COATING
			60	KEY	CARBON STEEL
			67A	CURL BEARING (BALL)	HT-625 [®] NICKEL ALLOY + COATING
7	GLAND	A182 Gr. F316 or A479 TYPE316 or A276 TYPE 316	67B	STEM BEARING	HT-625 [®] NICKEL ALLOY + COATING
8	GLAND PACKING	FLEXIBLE GRAPHITE	85A	PLUG	A350 Gr. LF2 cl.1
14A	SET PIN	A564 TYPE 630 H1150D	85B	VENT VALVE	A350 Gr. LF2 cl.1
14B	SET PIN	A276 TYPE 316 OR A479 TYPE 316	104	TRUNNION PLATE	A105 OR A216 Gr. WCB
16	NAME PLATE	STAINLESS STEEL	143	SEAT SPRING	INCONEL [®] X750 NICKEL ALLOY
19A	GASKET	FLEXIBLE GRAPHITE	144	GLAND PLATE	A105
19B	GASKET	FLEXIBLE GRAPHITE	145	CONED DISC SPRING	UNS N07718
30	BALL SEAT	A182 Gr. F316 + SFNi or A479 TYPE 316 + SFNi or A276 TYPE 316 + SFNi	175	RETAINER GLAND	A182 Gr. F316 or A479 TYPE 316 or A276 TYPE 316 or A240 TYPE 316
			176	SEAT PACKING	FLEXIBLE GRAPHITE
			202	BONNET	A105
33	CAP NUT	A194 Gr. 2HM	822	LIFTING LUG	CARBON STEEL
35A	CAP BOLT	A193 Gr. B7M			

Valve Dimensions and Operators



< size unit : mm >

Class 150

Nominal Size	NPS	2	3	4	6	8	10	12	14	16	18	20	24
	DN	50	80	100	150	200	250	300	350	400	450	500	600
Valve Operator	Lever	Gear											
Ball Bore	49	74	100	150	201	252	303	334	385	436	487	589	
L	178	203	229	394	457	533	610	686	762	864	914	1067	
H1	182	188	234	283	349	398	463	483	582	612	724	807	
H2	100	123	151	191	237	284	-	-	-	-	-	-	
H3	-	-	-	-	-	-	427	445	499	526	619	698	
A	-	52	71	86	53	130	130	130	182	182	67	67	
B	-	217	282	305	396	567	567	567	570	570	600	600	
D	300	200	300	500	500	600	600	600	800	800	800	800	
Weight (kg)	25	45	80	190	350	550	840	1030	1650	1970	2940	4310	

unit: mm

Class 300

Nominal Size	NPS	2	3	4	6	8	10	12	14	16	18	20	24
	DN	50	80	100	150	200	250	300	350	400	450	500	600
Valve Operator	Lever	Gear											
Ball Bore	49	74	100	150	201	252	303	334	385	436	487	589	
L	216	283	305	403	502	568	648	762	838	914	991	1143	
H1	182	188	242	297	348	398	472	492	582	617	724	808	
H2	100	123	151	191	237	284	-	-	-	-	-	-	
H3	-	-	-	-	-	-	429	445	498	529	618	699	
A	-	52	105	53	130	130	140	140	182	209	67	279	
B	-	217	311	348	418	567	580	580	570	491	600	701	
D	400	200	300	500	500	600	600	800	800	800	800	800	
Weight (kg)	30	55	110	225	390	590	860	1110	1760	2130	3210	4780	

unit: mm

Class 600

Nominal Size	NPS	2	3	4	6	8	10	12	14	16	18	20	24
	DN	50	80	100	150	200	250	300	350	400	450	500	600
Valve Operator		Gear											
Ball Bore	49	74	100	150	201	252	303	334	385	436	487	589	
L	292	356	432	559	660	787	838	889	991	1092	1194	1397	
H1	165	221	263	296	385	402	467	546	601	685	725	828	
H2	103	134	165	191	241	-	-	-	-	-	-	-	
H3	-	-	-	-	-	384	427	460	498	554	643	721	
A	52	105	53	130	140	182	182	209	67	279	279	343	
B	217	311	313	418	530	570	570	491	600	701	701	727	
D	200	300	300	500	600	600	800	800	800	800	800	800	
Weight (kg)	45	100	175	300	560	850	1180	1560	2200	3100	3970	6150	

unit: mm

Valve Dimensions and Operators

< size unit : inch >

Class 150

unit: inch

Nominal Size	NPS	2	3	4	6	8	10	12	14	16	18	20	24
	DN	50	80	100	150	200	250	300	350	400	450	500	600
Valve Operator	Lever	Gear											
Ball Bore	1.94	2.94	3.94	5.94	7.94	9.94	11.94	13.19	15.19	17.19	19.19	23.19	
L	7.00	8.00	9.00	15.50	18.00	21.00	24.00	27.00	30.00	34.00	36.00	42.00	
H1	7.17	7.40	9.21	11.14	13.74	15.67	18.23	19.02	22.91	24.09	28.50	31.77	
H2	3.94	4.84	5.94	7.52	9.33	11.18	-	-	-	-	-	-	
H3	-	-	-	-	-	-	16.81	17.52	19.65	20.71	24.37	27.48	
A	-	2.05	2.80	3.39	2.09	5.12	5.12	5.12	7.17	7.17	2.64	2.64	
B	-	8.54	11.10	12.01	15.59	22.32	22.32	22.32	22.44	22.44	23.62	23.62	
D	11.81	7.87	11.81	19.69	19.69	19.69	23.62	23.62	31.50	31.50	31.50	31.50	
Weight (lb.)	44	88	154	353	661	1058	1631	2161	2976	4409	5291	8598	

Class 300

unit: inch

Nominal Size	NPS	2	3	4	6	8	10	12	14	16	18	20	24
	DN	50	80	100	150	200	250	300	350	400	450	500	600
Valve Operator	Lever	Gear											
Ball Bore	1.94	2.94	3.94	5.94	7.94	9.94	11.94	13.19	15.19	17.19	19.19	23.19	
L	8.50	11.13	12.00	15.88	19.75	22.38	25.50	30.00	33.00	36.00	39.00	45.00	
H1	7.17	7.40	9.53	11.69	13.70	15.67	18.58	19.37	22.91	24.29	28.50	31.81	
H2	3.92	4.84	5.93	7.50	9.33	11.18	-	-	-	-	-	-	
H3	-	-	-	-	-	-	16.89	17.52	19.61	20.83	24.33	27.52	
A	-	2.05	4.13	2.09	5.12	5.12	5.51	5.51	7.17	8.23	2.68	11.02	
B	-	8.54	12.24	13.70	16.46	22.32	22.83	22.83	22.44	19.33	23.62	27.60	
D	15.75	7.87	11.81	19.69	19.69	23.62	23.62	31.50	31.50	31.50	31.50	31.50	
Weight (lb.)	55	121	198	485	794	1235	1874	2513	3483	4916	6063	10141	

Class 600

unit: inch

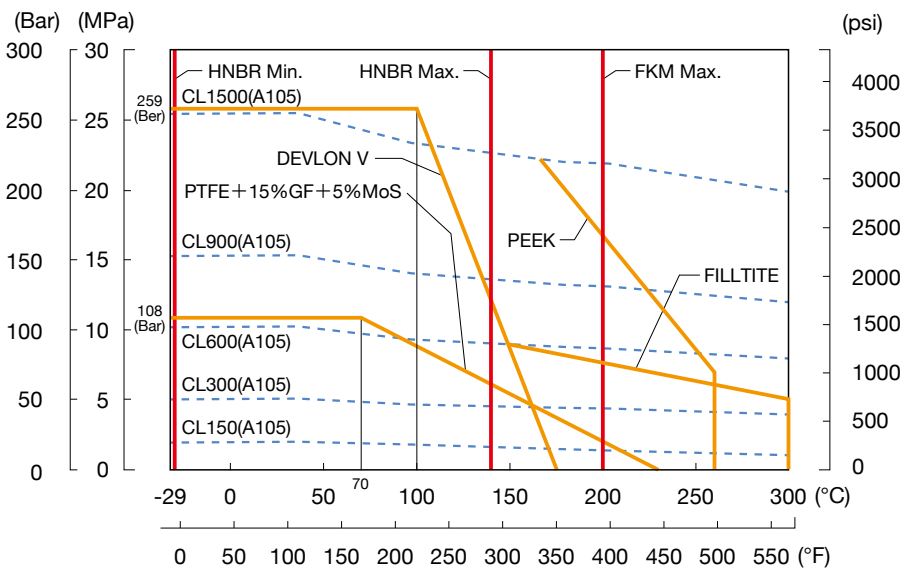
Nominal Size	NPS	2	3	4	6	8	10	12	14	16	18	20	24
	DN	50	80	100	150	200	250	300	350	400	450	500	600
Valve Operator		Gear											
Ball Bore	1.94	2.94	3.94	5.94	7.94	9.94	11.94	13.19	15.19	17.19	19.19	23.19	
L	11.50	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00	
H1	6.61	8.70	10.35	11.65	14.33	15.83	18.39	21.50	23.66	26.95	28.54	32.59	
H2	4.06	5.26	6.49	7.50	9.49	-	-	-	-	-	-	-	
H3	-	-	-	-	-	15.12	16.81	18.11	19.61	21.81	25.31	28.39	
A	2.05	4.13	2.09	5.12	5.51	7.17	7.17	8.23	2.64	10.98	10.98	13.50	
B	8.54	12.24	12.32	16.46	20.87	22.44	22.44	19.33	23.62	27.60	27.60	28.62	
D	7.87	11.81	11.81	19.69	23.62	23.62	31.50	31.50	31.50	31.50	31.50	31.50	
Weight (lb.)	88	176	353	706	1279	1874	2535	3527	4850	6614	8157	12566	

Pressure-Temperature Ratings

KITZ의 Trunnion Mounted Ball Valve의 압력-온도 등급은 밸브 Shell의 재질 뿐만 아니라 Ball Seat, Gland Packing, O-ring, Flange, Gasket, Bearing에 사용되는 재질에 의해 결정됩니다. Soft Seat가 장착된 밸브의 경우, Sealing 재질은 고분자나 고무가 될 수 있습니다. 하지만 사용할 유체의 특성, 작동압력, 유속 및 밸브 작동 빈도에 따라서 재질 선택은 한정됩니다.

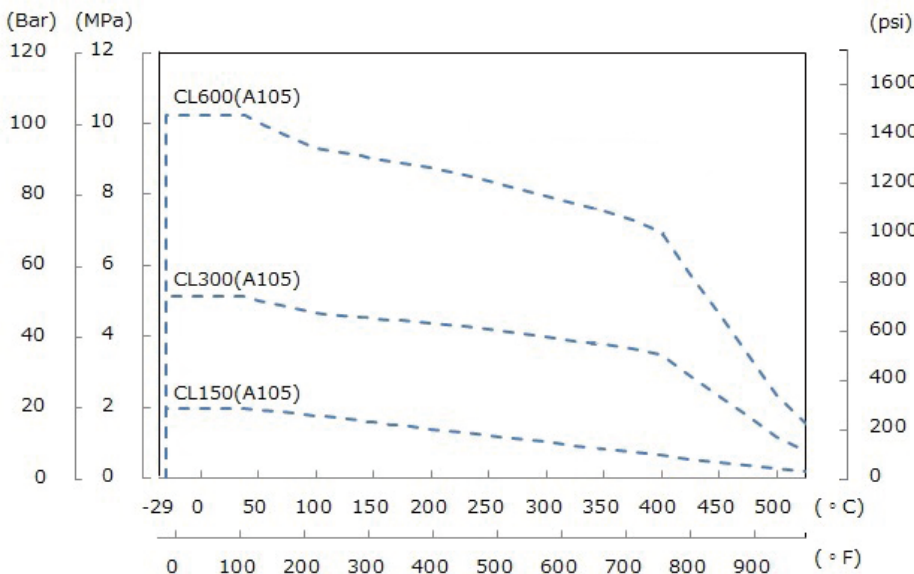
예상 가능한 조건 아래에서 모든 종류의 유체의 압력-온도 등급을 미리 지정하는 것이 매우 어렵기 때문에, 현장 및 자체 실험실에서의 과거 경험을 바탕으로 Non-shock 유체에 대한 일반적인 등급차트가 제공되었습니다. 극한의 고온에서 작동할 경우, 유지보수의 빈번한 필요성도 염두에 두어야 할 요소입니다.

T60S Pressure-Temperature Rating



O-Ring Material	Min.Temp. (°C/°F)	Max.Temp. (°C/°F)
NBR	-30/-22	80/176
HNBR	-30/-22	140/284
L-NBR	-46/-51	80/176
L-HNBR	-46/-50	140/284
FKM	-20/-4	200/392

T60M Pressure-Temperature Rating



NOTE : 만약 T60M 밸브가 400°C/752°F 이상의 온도에서 사용되는 경우 KITZ Corporation으로 문의하여 주십시오.

Engineering Data

유량 계수(Cv)

T60S and T60M Full bore

Nominal Size	NPS	2	3	4	6	8	10	12	14	16	18	20	24
	DN	50	80	100	150	200	250	300	350	400	450	500	600
Class	150	500	1200	2500	5200	10400	17300	26100	32000	44000	57000	74000	111000
	300	420	1050	2100	5200	9900	16800	25400	30100	41500	55000	70500	108000
	600	400	1000	1850	4400	8700	14500	22500	28000	38200	50300	64000	97000
	900	330	900	1750	4300	8400	14000	21000	24000	34000	45000	56000	85000
	1500	330	810	1650	3800	7200	11500	17000	21000	27500	36500	46000	67500

Valve 작동 Torque < Torque unit : N·m >

T60S Class 150 / 300

Nominal Size	NPS	2	3	4	6	8	10	12	14	16	18	20	24
	DN	50	80	100	150	200	250	300	350	400	450	500	600
Differential Pressure (MPa)	0.5	43	82	121	298	408	647	881	980	1325	1587	2139	3121
	1	46	86	130	337	497	776	1110	1252	1695	2116	2876	4362
	2	51	98	153	421	668	1031	1542	1763	2388	3086	4222	6594
	3	53	103	166	469	774	1186	1811	2084	2824	3702	5080	8033
	4	59	112	183	530	892	1364	2109	2434	3299	4363	5998	9546
	5	61	117	195	572	978	1491	2324	2690	3645	4848	6670	10663

T60S Class 600

Nominal Size	NPS	2	3	4	6	8	10	12	14	16	18	20	24
	DN	50	80	100	150	200	250	300	350	400	450	500	600
Differential Pressure (MPa)	0.5	66	100	153	299	524	650	972	1063	1477	1746	2543	3526
	2	70	114	185	423	763	1035	1621	1836	2514	3251	4557	6929
	4	75	126	212	532	974	1368	2179	2499	3406	4540	6282	9829
	6	86	148	255	664	1225	1747	2804	3232	4397	5931	8167	12923
	8	104	182	316	846	1564	2252	3627	4191	5697	7734	10622	16910
	10	121	216	377	1027	1905	2756	4450	5152	6997	9538	13078	20898

T60S Class 900

Nominal Size	NPS	2	3	4	6	8	10	12	14	16	18	20	24
	DN	50	80	100	150	200	250	300	350	400	450	500	600
Differential Pressure (MPa)	0.5	96	118	182	357	610	779	1162	1908	2252	2414	3385	5596
	5	106	158	269	668	1193	1700	2708	3621	4690	5369	7896	13742
	7.5	135	210	362	929	1667	2404	3854	5011	6600	7606	11237	19477
	10	165	262	455	1189	2141	3107	4999	6466	8510	9844	14579	25557
	12.5	184	298	521	1378	2484	3621	5838	7494	9899	11478	17025	29891
	15	212	347	609	1625	2935	4289	6926	8846	11714	13603	20200	35503

T60S Class 1500

Nominal Size	NPS	2	3	4	6	8	10	12	14	16	18	20	24
	DN	50	80	100	150	200	250	300	350	400	450	500	600
Differential Pressure (MPa)	0.5	96	154	245	492	725	1078	1875	1931	2832	2973	4556	5604
	5	106	187	323	803	1346	2098	3457	3738	5633	6383	10126	13755
	10	165	299	530	1391	2393	3763	6142	6699	10144	11640	18566	25580
	15	212	391	700	1880	3269	5157	8385	9177	13922	16053	25655	35534
	20	254	472	850	2310	4040	6385	10359	11360	17249	19939	31900	44306
	25	290	541	979	2682	4706	7446	12065	13246	20125	23300	37301	51896

< Torque unit : in-lb >

T60S Class 150 / 300

unit: in-lb

Nominal Size	NPS	2	3	4	6	8	10	12	14	16	18	20	24
	DN	50	80	100	150	200	250	300	350	400	450	500	600
Differential Pressure (PSIG)	100	388	738	1100	2765	3909	6161	8568	9586	12966	15822	21398	31783
	150	404	763	1158	3005	4447	6946	9956	11234	15212	19024	25857	39275
	300	450	866	1365	3757	5977	9217	13808	15795	21398	27686	37888	59225
	450	476	917	1488	4209	6953	10654	16297	18760	25421	33366	45795	72464
	600	521	996	1636	4744	7996	12223	18922	21848	29619	39198	53898	85834
	740	543	1040	1736	5100	8729	13311	20766	24035	32573	43340	59640	95373

T60S Class 600

unit: in-lb

Nominal Size	NPS	2	3	4	6	8	10	12	14	16	18	20	24
	DN	50	80	100	150	200	250	300	350	400	450	500	600
Differential Pressure (PSIG)	100	591	902	1392	2784	4904	6183	9331	10274	14229	17134	24755	35006
	300	623	1016	1642	3772	6817	9259	14516	16446	22521	29164	40847	62200
	600	674	1129	1901	4786	8769	12333	19661	22557	30743	41018	56734	88863
	900	776	1342	2310	6044	11146	15921	25564	29473	40091	54124	74505	117993
	1350	1018	1806	3149	8536	15812	22846	36862	42652	57939	78886	108220	172733
	1480	1085	1940	3392	9252	17163	24846	40125	46463	63095	86043	117960	188546

T60S Class 900

unit: in-lb

Nominal Size	NPS	2	3	4	6	8	10	12	14	16	18	20	24
	DN	50	80	100	150	200	250	300	350	400	450	500	600
Differential Pressure (PSIG)	100	850	1058	1639	3276	5620	7241	10863	17523	20840	22463	31641	52561
	740	948	1402	2376	5910	10555	15044	23966	32044	41502	47513	69877	121616
	1000	1135	1748	3002	7661	13738	19769	31657	41380	54327	62536	92313	160118
	1480	1472	2342	4073	10664	19199	27877	44858	57979	76330	88316	130817	229351
	1800	1611	2597	4540	12002	21638	31524	50815	65285	86200	99923	148195	260146
	2220	1878	3068	5390	14385	25972	37961	61296	78287	103667	120390	178766	314199

T60S Class 1500

unit: in-lb

Nominal Size	NPS	2	3	4	6	8	10	12	14	16	18	20	24
	DN	50	80	100	150	200	250	300	350	400	450	500	600
Differential Pressure (PSIG)	100	850	1376	2197	4468	6647	9919	17185	17762	26112	27583	42395	52636
	740	948	1674	2893	7210	12101	18870	31090	33622	50681	57454	91163	123901
	1480	1474	2683	4752	12486	21503	33815	55175	60195	91159	104634	166902	230028
	2220	1897	3502	6271	16844	29304	46234	75156	82273	124818	143944	230059	318713
	3000	2289	4261	7681	20898	36567	57800	93760	102834	156166	180567	288908	401374
	3705	2562	4791	8665	23733	41650	65894	106776	117223	178107	206208	330115	459276

NOTES :

- (1) 모든 Torque값은 30%의 안전율이 적용됩니다. 값은 주변온도에서 깨끗하고 안정적인 물에 대한 값입니다.
- (2) Ball seat material: RPTFE (PTFE + 15% Glass filled + 5% MoS2)
- (3) 30%보다 높은 안전율을 사용하는 경우, 최대 허용 스템 강도(maximum allowable stem strength (MAST))를 확인하십시오.

< weight unit : kg >

T60S Weight

unit: kg

Nominal Size	NPS	2	3	4	6	8	10	12	14	16	18	20	24
	DN	50	80	100	150	200	250	300	350	400	450	500	600
Class	150	21	37	64	171	327	552	783	1017	1496	1898	2612	4044
	300	25	48	83	191	359	598	836	1111	1613	2074	2906	4460
	600	37	73	133	318	555	832	1194	1477	2164	2812	3992	5950
	900	65	95	170	400	700	1110	1730	2153	2960	3980	5830	10020
	1500	65	135	275	600	1130	1920	3330	3650	5490	7590	10280	15590

< weight unit : lbs >

unit: lbs

Nominal Size	NPS	2	3	4	6	8	10	12	14	16	18	20	24
	DN	50	80	100	150	200	250	300	350	400	450	500	600
Class	150	46	82	141	377	721	1217	1726	2242	3298	4184	5758	8915
	300	55	106	183	421	791	1318	1843	2449	3556	4572	6407	9833
	600	82	161	293	701	1224	1834	2632	3256	4771	6199	8801	13118
	900	143	209	375	882	1543	2447	3814	4747	6526	8774	12853	22090
	1500	143	298	606	1323	2491	4233	7341	8047	12103	16733	22663	34370

F18TK-T60 Series

Soft Seated 3-Piece Body Trunnion Mounted Ball Valves

Trunnion Mounted Side Entry Steel Ball Valve는 API 6D/ISO 14313 및 정유, 석유화학, 가스 그리고 모든 산업체들에 사용되는 국제 밸브 표준 디자인을 참조하여 설계되었습니다.

일반 설계 기준

- Basic design: API 6D/ISO 14313
- F-F dimensions: API 6D/ASME B16.10
- End connection: ASME B16.5
- Bore diameter: API 6D/ISO 14313
- Wall thickness: ASME B16.34

설계 특성

- Structure: 3-piece bolted body and cap
- Tight shut-off sealing mechanism
- Low operation torque
- Double block and bleed function
- Self-relief of excessive cavity pressure
- Fire safe tested
- Blowout-proof stem construction
- Antistatic provision design
- Locking device for lever operation
- ISO 5211 actuator mounting pad
- PN design can be available

인증

- Fugitive emission: ISO 15848-1 BH CO1
- Fire test: ISO 10497/API 607
- PED 2014/68/EU
- ATEX 2014/34/EU



생산 범위

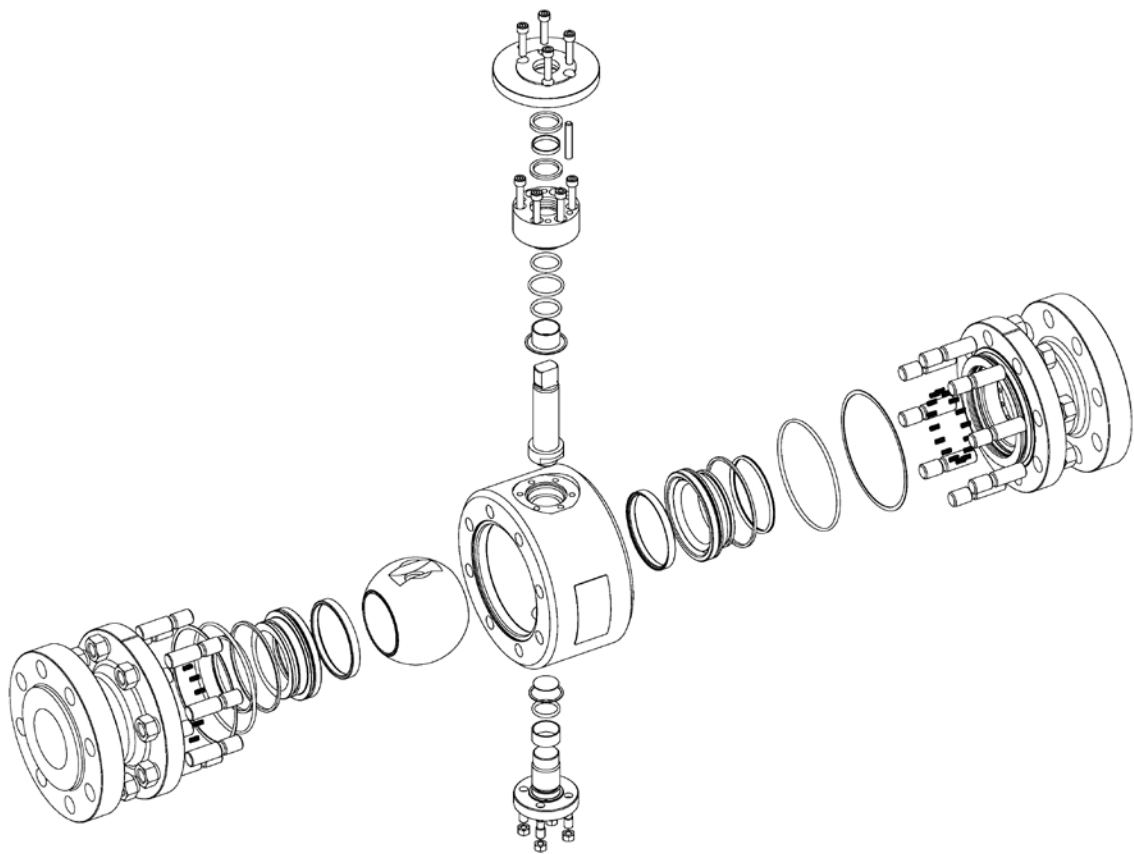
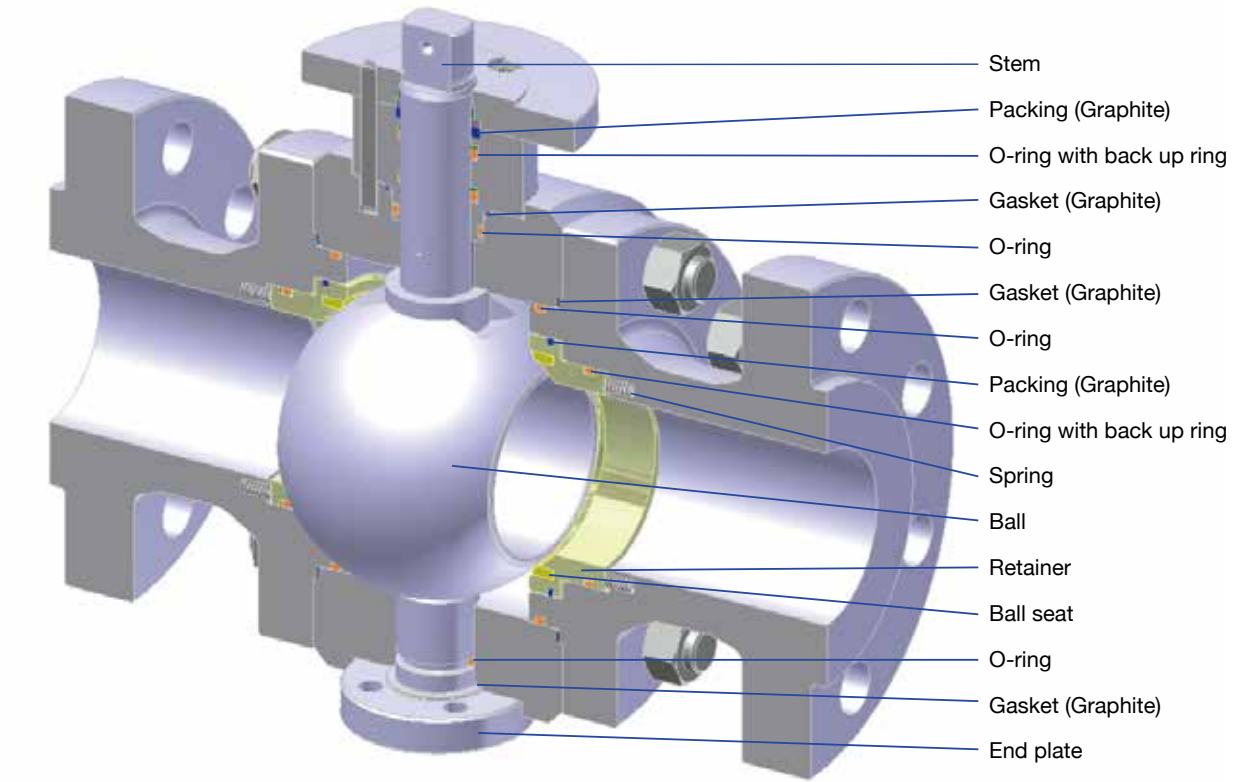
- Nominal pressure: ASME Class 150 to 2500
- Nominal size: NPS 1/2 to NPS 36
(DN 15 to 900)
- Shell materials:
Carbon and low alloy steel, Austenitic stainless steel, Duplex stainless steel, High alloy steel, Nickel based alloy
- Ball seat materials:
RPTFE (Reinforced PTFE), Modified PTFE, RNylon, DEVLON, PCTFE, PEEK

Option

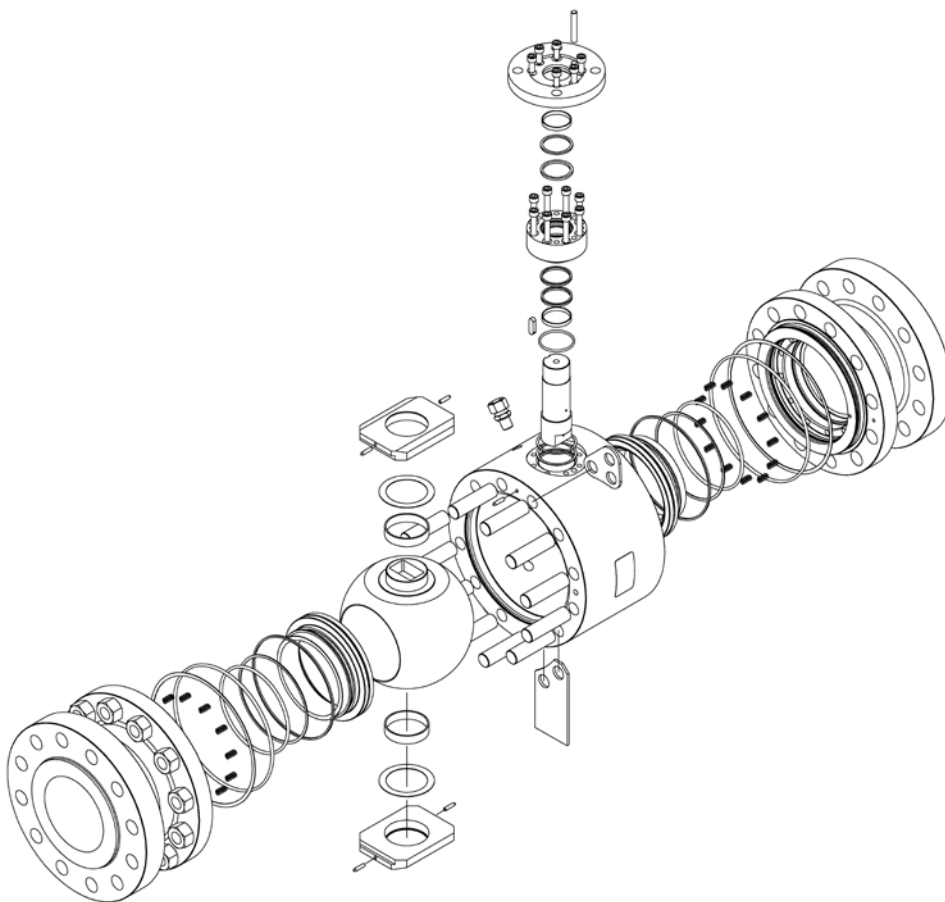
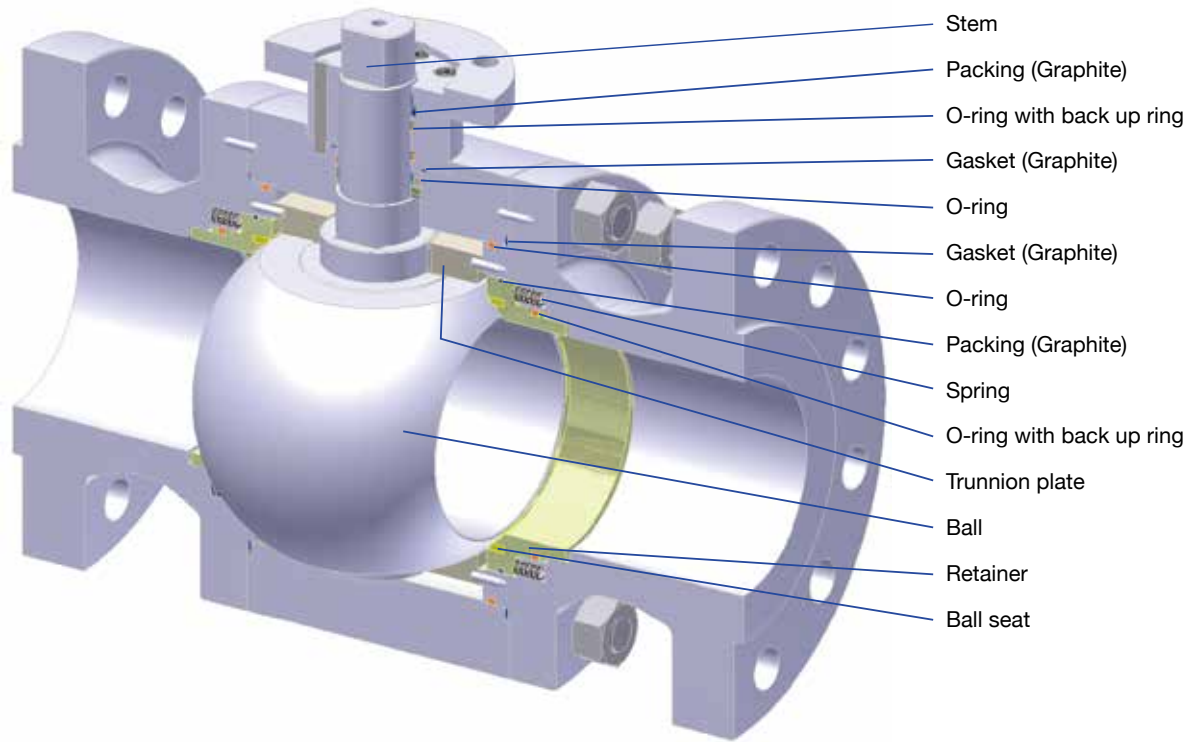
- NACE MR 0175 available
- Pneumatic and electric actuator
- Thru-conduit bore
- Grease injection point for seat and stem
- Stem extension



This illustration shows typical construction for size up to NPS 4



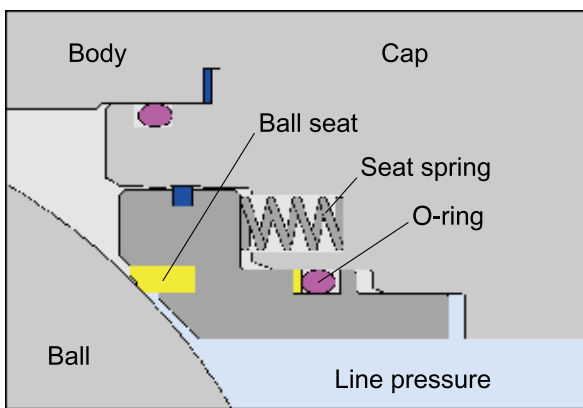
This illustration shows typical construction for size NPS 6 and larger



Design Features

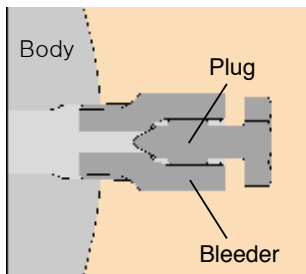
Tight Shut-off Sealing Mechanism

Resilient Seat 디자인은 Seat Retainer 뒤에 삽입된 Seat Spring의 힘을 제거하여서 각 상.하부 Ball Seat를 Ball과 적절하게 접촉시킵니다. Line 압력 또한 이러한 접촉 방식에 도움이 됩니다. 해당 Sealing Mechanism은 Ball Seat 상.하부 동시에 실패없는 Thru-the-Ball Sealing 성능을 특징으로 합니다.



Double Block and Bleed Function

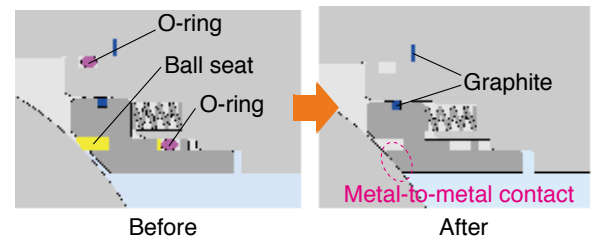
Ball Seat는 Ball의 Inlet/Outlet에서 유체의 흐름을 독립적으로 차단합니다. 밸브 Bore와 Cavity는 밸브가 완전히 개폐될 때 서로 분리 됩니다. 이러한 조건 아래에서 Cavity 압력은 Vent Valve와 Drain Plug를 통해 완화될 수 있습니다. Vent Valve는 안전한 압력완화를 위해 Blowout-proof Bleeder가 설치되어 있습니다. 안전한 압력완화를 위하여 Vent Valve를 통한 Cavity 압력완화를 추천합니다.



Fire Safe Design

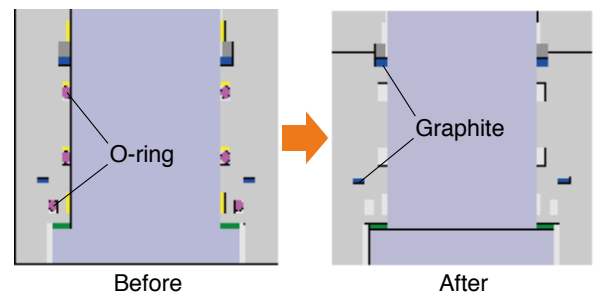
1) 내부 누출 방지

Resilient Sealing 재질이 공장 화재로 인하여 손상을 입거나 분해될 때, Seat Spring에 의해 사전에 적재된 상.하부 Metal Seat Retainer의 가장자리가 불과 접촉하여 밸브 Bore를 통한 내부 누출을 최소화 합니다. 한편, KITZ의 기존 디자인인 Flexible Graphite Seat Retainer Packing Ring은 화재 발생 후 Valve Cap과 Seat Retainer 사이의 유체 누출을 방지 합니다.



2) 외부 누출 방지

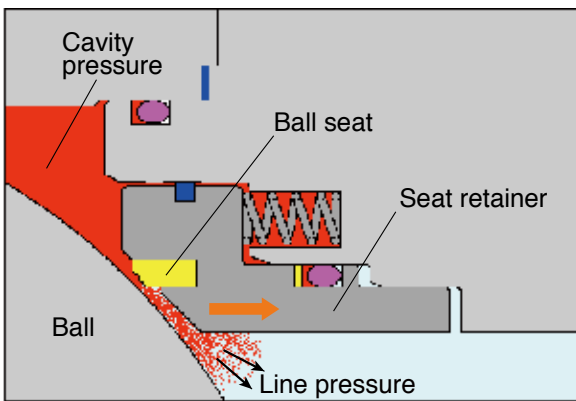
Stem 부위를 통한 외부 누출은 O-ring과 Flexible Graphite Gland Packing Ring으로 이중 밀봉된 구조에 의해 방지됩니다. 밸브 Body Joint를 통한 누출은 Flexible Graphite Gasket에 의해 예방됩니다. 화재로 인해 O-ring이 손상되어도, Flexible Gland Packing Ring과 Gasket이 온전히 남아있기 때문에 유체의 누출을 예방합니다.



Design Features

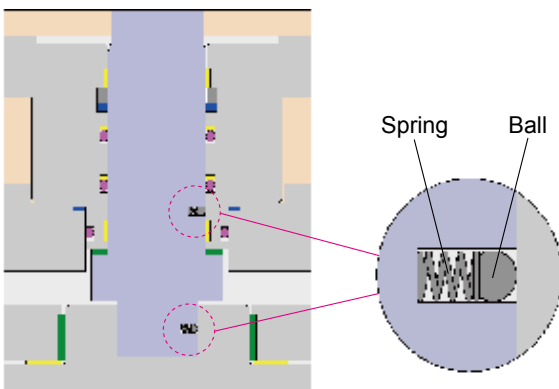
Self Cavity Pressure Relief

밸브 서비스 온도 및 대기온도가 갑자기 상승하는 경우, Body Cavity 내부에 갇힌 액화가스나 휘발성이 강한 액체가 증발하여 Cavity 압력이 과도하게 상승할 수 있습니다. 안전을 고려하여, Cavity 압력이 라인압력을 초과할 때, Ball Seal 중 하나가 Seat Retainer와 함께 Ball 표면에서 약간 떨어져 밸브 Bore 내부의 과도한 Cavity 압력을 완화시킵니다.



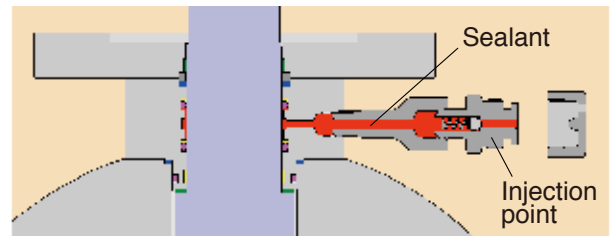
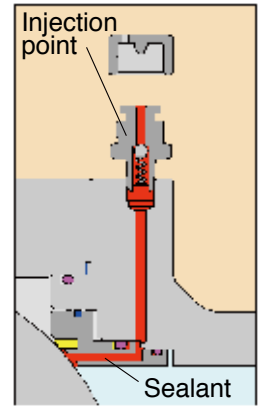
Anti Static Design

Stem과 Bonnet 그리고 Stem과 Ball 사이에 조립된 Spring이 장착된 Ball은 모든 금속 밸브 부품을 통해 전기전도성(Electric Conductivity)을 허용합니다.



Emergency Grease Injection (option)*

Ball Seat나 Stem Sealing영역에서 실수로 유체가 누출되는 경우 Sealant Supply Mechanism이 선택적으로 제공될 수 있습니다. 화재 또는 기타 우발적인 원인으로 인하여 재질이 손상되거나 분해되는 경우 이 Sealant Injection Mechanism을 통해 일시적으로 누출을 방지하거나 줄일 수 있습니다.



Thru-Conduit Bore (option)

표준 Full Bore외에 Pipeline Scraper 또는 배관 세척에 사용할 수 있는 맞춤형 Thru-Conduit Bore를 선택적으로 사용할 수 있습니다.

Stem Extension

StemExtension 설계는 선택적으로 지하 또는 원격 밸브 작동에 사용이 가능합니다. 밸브 Bore의 중심과 밸브 작동부의 중심 간의 거리를 명시해 주십시오. 전기 또는 공압 액추에이터와 같은 밸브 작동매체는 선택적으로 사용할 수 있습니다.



*Standard Design for North America.

Material Example/Pressure-Temperature Rating

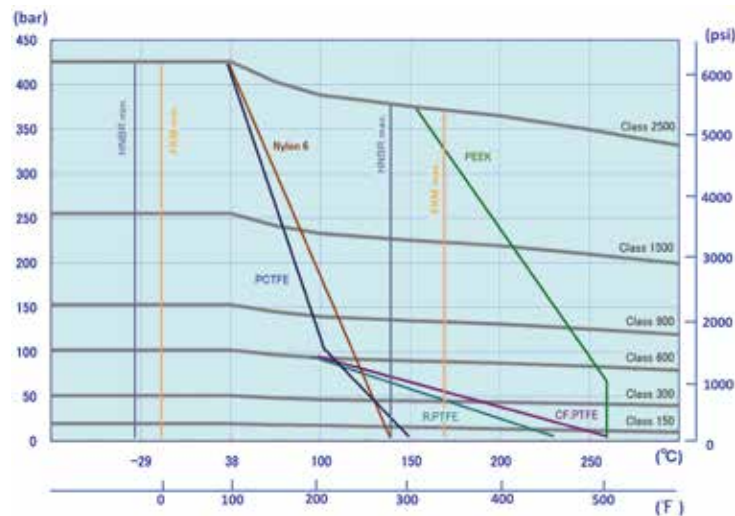
Material Example

Service	Non-corrosive	Low Temp.	Corrosive	Sour	
Body/Cap	A105	LF2	F316	F51 or S31803	F55 or S32760
Stem	13Cr or 630SS	316SS or 630SS	316SS or S31803	S31803	S32760
Ball	13Cr or A105+ENP	316SS or LF2+ENP	316SS	F51 or S31803	F55 or S32760
Seat Retainer	A105+ENP	LF2+ENP	316SS	S31803	S32760
Ball Seat	RPTFE (class up to 600) RNylon (class 900 and over)				
Spring	AISI 301	AISI 301	Inconel X750	Inconel X750	Inconel X750
O-ring	HNBR	L-NBR	FKM	FKM	FKM
Bolt	B7	L7	B8	B8	B8
Nut	2H	4	8	8	8

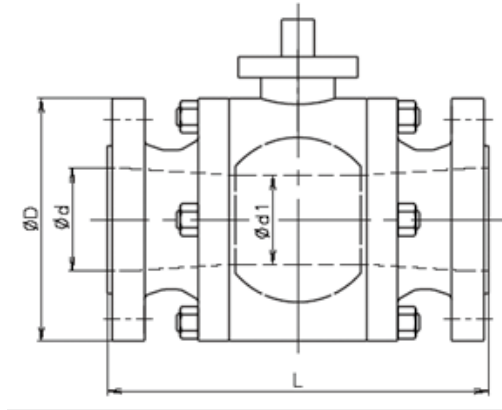
Pressure-Temperature Rating

KITZ의 Trunnion Mounted Ball Valve의 압력-온도 등급은 Shell 재질 뿐만 아니라 Ball Seat, Gland Packing, O-ring, Flange, Gasket, Bearing에 사용되는 Sealing 재질에 의해 결정됩니다. Soft Seat가 장착된 밸브의 경우, Sealing 재질은 고분자 또는 고무가 될 수 있습니다. 하지만 유체의 특성, 압력, 유속 및 밸브 작동 빈도에 따라 선택의 폭이 한정 됩니다.

예상 가능한 조건 아래에서 모든 종류의 유체의 압력-온도 등급을 미리 지정하는 것이 매우 어렵기 때문에, 현장 및 자체 실험실에서 과거 경험을 바탕으로 Non-Shock 유체에 대한 일반적인 등급 차트가 제공됩니다. 극한의 고온에서 작동 할 경우, 빈번한 유지보수의 필요성도 염두에 두어야 할 요소입니다.



Dimensions



< size unit : mm >

Class 150

unit: mm

SIZE (NPS)	d	d1	D	L		
				RF	WE	RJ
1/2	13	13	90	165	165	163
3/4 x 1/2	19	13	100	165	165	165
3/4	19	19	100	165	165	165
1 x 3/4	25	19	110	165	165	165
1	25	25	110	165	165	165
1 1/2 x 1	38	25	125	165	190	178
1 1/2	38	38	125	165	190	178
2 x 1 1/2	49	38	150	178	216	191
2 to 24	Please refer to T60S (p. 9)					
26 x 20	633	487	870	1143	1245	-
26 x 22	633	538	870	1143	1245	-
26 x 24	633	589	870	1143	1245	-
26	633	633	870	1143	1245	-
28 x 22	684	538	925	1245	1346	-
28 x 24	684	589	925	1245	1346	-
28 x 26	684	633	925	1245	1346	-
28	684	684	925	1245	1346	-
30 x 24	735	589	985	1295	1397	-
30 x 26	735	633	985	1295	1397	-
30 x 28	735	684	985	1295	1397	-
30	735	735	985	1295	1397	-
32 x 26	779	633	1060	1372	1524	-
32 x 28	779	684	1060	1372	1524	-
32 x 30	779	735	1060	1372	1524	-
32	779	779	1060	1372	1524	-
34 x 28	830	684	1110	1473	1626	-
34 x 30	830	735	1110	1473	1626	-
34 x 32	830	779	1110	1473	1626	-
34	830	830	1110	1473	1626	-
36 x 30	874	735	1170	1524	1727	-
36 x 32	874	779	1170	1524	1727	-
36 x 34	874	830	1170	1524	1727	-
36	874	874	1170	1524	1727	-

Class 300

unit: mm

SIZE (NPS)	d	d1	D	L		
				RF	WE	RJ
1/2	13	13	95	165	165	163
3/4 x 1/2	19	13	115	165	165	178
3/4	19	19	115	165	165	178
1 x 3/4	25	19	125	165	165	178
1	25	25	125	165	165	178
1 1/2 x 1	38	25	155	190	190	203
1 1/2	38	38	155	190	190	203
2 x 1 1/2	49	38	165	216	216	232
2 to 24	Please refer to T60S (p. 9)					
26 x 20	633	487	970	1245	1245	1270
26 x 22	633	538	970	1245	1245	1270
26 x 24	633	589	970	1245	1245	1270
26	633	633	970	1245	1245	1270
28 x 22	684	538	1035	1346	1346	1372
28 x 24	684	589	1035	1346	1346	1372
28 x 26	684	633	1035	1346	1346	1372
28	684	684	1035	1346	1346	1372
30 x 24	735	589	1090	1397	1397	1422
30 x 26	735	633	1090	1397	1397	1422
30 x 28	735	684	1090	1397	1397	1422
30	735	735	1090	1397	1397	1422
32 x 26	779	633	1150	1524	1524	1553
32 x 28	779	684	1150	1524	1524	1553
32 x 30	779	735	1150	1524	1524	1553
32	779	779	1150	1524	1524	1553
34 x 28	830	684	1205	1626	1626	1654
34 x 30	830	735	1205	1626	1626	1654
34 x 32	830	779	1205	1626	1626	1654
34	830	830	1205	1626	1626	1654
36 x 30	874	735	1270	1727	1727	1756
36 x 32	874	779	1270	1727	1727	1756
36 x 34	874	830	1270	1727	1727	1756
36	874	874	1270	1727	1727	1756

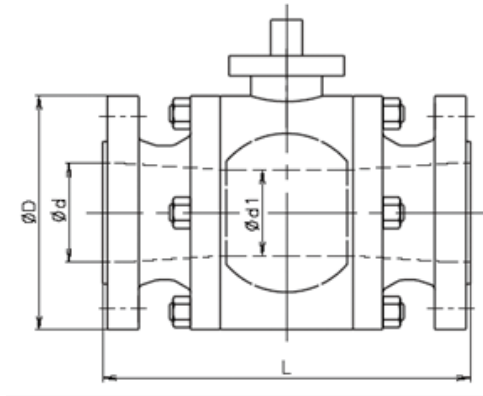
Class 600

unit: mm

SIZE (NPS)	d	d1	D	L		
				RF	WE	RJ
1/2	13	13	95	165	165	163
3/4 x 1/2	19	13	115	190	190	190
3/4	19	19	115	190	190	190
1 x 3/4	25	19	125	216	216	216
1	25	25	125	216	216	216
1 1/2 x 1	38	25	155	241	241	241
1 1/2	38	38	155	241	241	241
2 x 1 1/2	49	38	165	292	292	295
2 to 24	Please refer to T60S (p. 10)					
26 x 20	633	487	1015	1448	1448	1461
26 x 22	633	538	1015	1448	1448	1461
26 x 24	633	589	1015	1448	1448	1461
26	633	633	1015	1448	1448	1461
28 x 22	684	538	1075	1549	1549	1562
28 x 24	684	589	1075	1549	1549	1562
28 x 26	684	633	1075	1549	1549	1562
28	684	684	1075	1549	1549	1562
30 x 24	735	589	1130	1651	1651	1664
30 x 26	735	633	1130	1651	1651	1664
30 x 28	735	684	1130	1651	1651	1664
30	735	735	1130	1651	1651	1664
32 x 26	779	633	1195	1778	1778	1794
32 x 28	779	684	1195	1778	1778	1794
32 x 30	779	735	1195	1778	1778	1794
32	779	779	1195	1778	1778	1794
34 x 28	830	684	1245	1930	1930	1946
34 x 30	830	735	1245	1930	1930	1946
34 x 32	830	779	1245	1930	1930	1946
34	830	830	1245	1930	1930	1946
36 x 30	874	735	1315	2083	2083	2099
36 x 32	874	779	1315	2083	2083	2099
36 x 34	874	830	1315	2083	2083	2099
36	874	874	1315	2083	2083	2099

NOTE : PN designed Valve도 이용가능합니다. 제품의 범위 및 수치와 관련된 정보는 별도로 문의하여 주십시오.

Dimensions



Class 900

unit: mm

SIZE (NPS)	d	d1	D	L		
				RF	WE	RJ
1/2	13	13	120	216	216	216
3/4 x 1/2	19	13	130	229	229	229
3/4	19	19	130	229	229	229
1 x 3/4	25	19	150	254	254	254
1	25	25	150	254	254	254
1 1/2 x 1	38	25	180	305	305	305
1 1/2	38	38	180	305	305	305
2 x 1 1/2	49	38	215	368	368	371
2 to 24	Please refer to T60S (p. 10)					

Class 1500

unit: mm

SIZE (NPS)	d	d1	D	L		
				RF	WE	RJ
1/2	13	13	120	216	216	216
3/4 x 1/2	19	13	130	229	229	229
3/4	19	19	130	229	229	229
1 x 3/4	25	19	150	254	254	254
1	25	25	150	254	254	254
1 1/2 x 1	38	25	180	305	305	305
1 1/2	38	38	180	305	305	305
2 x 1 1/2	49	38	215	368	368	371
2 to 24	Please refer to T60S (p. 10)					

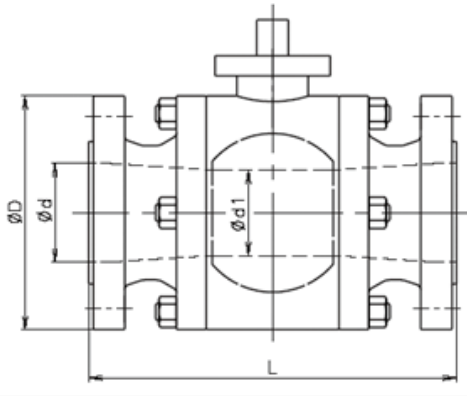
Class 2500

unit: mm

SIZE (NPS)	d	d1	D	L		
				RF	WE	RJ
1/2	13	13	135	264	264	264
3/4 x 1/2	19	13	140	273	273	273
3/4	19	19	140	273	273	273
1 x 3/4	25	19	160	308	308	308
1	25	25	160	308	308	308
1 1/2 x 1	38	25	205	384	384	387
1 1/2	38	38	205	384	384	387
2 x 1 1/2	42	38	235	451	451	454
2	42	42	235	451	451	454
3 x 2	62	42	305	578	578	584
3	62	62	305	578	578	584
4 x 3	87	62	355	673	673	683
4	87	87	355	673	673	683
6 x 4	131	87	485	914	914	927
6	131	131	485	914	914	927
8 x 6	179	131	550	1022	1022	1038
8	179	179	550	1022	1022	1038

NOTE : PN designed Valve도 이용가능합니다. 제품의 범위 및 수치의 관련된 정보는 별도로 문의하여 주십시오.

Dimensions



< size unit : inch >

Class 150

unit: inch

SIZE (NPS)	d	d1	D	L		
				RF	WE	RJ
1/2	0.50	0.50	3.50	6.50	6.50	6.44
3/4 x 1/2	0.75	0.5	3.88	6.50	6.50	6.50
3/4	0.75	0.75	3.88	6.50	6.50	6.50
1 x 3/4	1.00	0.75	4.25	6.50	6.50	6.50
1	1.00	1.00	4.25	6.50	6.50	6.50
1 1/2 x 1	1.50	1.00	5.00	6.50	7.50	7.00
1 1/2	1.50	1.50	5.00	6.50	7.50	7.00
2 x 1 1/2	1.94	1.50	6.00	7.00	8.50	7.50
2 to 24	Please refer to T60S (p. 10)					
26 x 20	24.94	19.19	34.25	45.00	49.00	-
26 x 22	24.94	21.19	34.25	45.00	49.00	-
26 x 24	24.94	23.19	34.25	45.00	49.00	-
26	24.94	24.19	34.25	45.00	49.00	-
28 x 22	26.94	21.19	36.50	49.00	53.00	-
28 x 24	26.94	23.19	36.50	49.00	53.00	-
28 x 26	26.94	24.19	36.50	49.00	53.00	-
28	26.94	26.94	36.50	49.00	53.00	-
30 x 24	28.94	23.19	38.75	51.00	55.00	-
30 x 26	28.94	24.19	38.75	51.00	55.00	-
30 x 28	28.94	26.94	38.75	51.00	55.00	-
30	28.94	28.94	38.75	51.00	55.00	-
32 x 26	30.69	24.19	41.75	54.00	60.00	-
32 x 28	30.69	26.94	41.75	54.00	60.00	-
32 x 30	30.69	28.94	41.75	54.00	60.00	-
32	30.69	30.69	41.75	54.00	60.00	-
34 x 28	32.69	26.94	43.75	58.00	64.00	-
34 x 30	32.69	28.94	43.75	58.00	64.00	-
34 x 32	32.69	30.69	43.75	58.00	64.00	-
34	32.69	32.69	43.75	58.00	64.00	-
36 x 30	34.44	28.94	46.00	60.00	68.00	-
36 x 32	34.44	30.69	46.00	60.00	68.00	-
36 x 34	34.44	32.69	46.00	60.00	68.00	-
36	34.44	34.44	46.00	60.00	68.00	-

Class 300

unit: inch

SIZE (NPS)	d	d1	D	L		
				RF	WE	RJ
1/2	0.50	0.50	3.75	6.50	6.50	6.44
3/4 x 1/2	0.75	0.50	4.62	6.50	6.50	7.00
3/4	0.75	0.75	4.62	6.50	6.50	7.00
1 x 3/4	1.00	0.75	4.88	6.50	6.50	7.00
1	1.00	1.00	4.88	6.50	6.50	7.00
1 1/2 x 1	1.50	1.00	6.12	7.50	8.00	8.00
1 1/2	1.50	1.50	6.12	7.50	8.00	8.00
2 x 1 1/2	1.94	1.50	6.50	8.50	8.50	9.13
2 to 24	Please refer to T60S (p. 10)					
26 x 20	24.94	19.19	38.25	49.00	49.00	50.00
26 x 22	24.94	21.19	38.25	49.00	49.00	50.00
26 x 24	24.94	23.19	38.25	49.00	49.00	50.00
26	24.94	24.19	38.25	49.00	49.00	50.00
28 x 22	26.94	21.19	40.75	53.00	53.00	54.00
28 x 24	26.94	23.19	40.75	53.00	53.00	54.00
28 x 26	26.94	24.19	40.75	53.00	53.00	54.00
28	26.94	26.94	40.75	53.00	53.00	54.00
30 x 24	28.94	23.19	43.00	55.00	55.00	56.00
30 x 26	28.94	24.19	43.00	55.00	55.00	56.00
30 x 28	28.94	26.94	43.00	55.00	55.00	56.00
30	28.94	28.94	43.00	55.00	55.00	56.00
32 x 26	30.69	24.19	45.25	60.00	60.00	61.13
32 x 28	30.69	26.94	45.25	60.00	60.00	61.13
32 x 30	30.69	28.94	45.25	60.00	60.00	61.13
32	30.69	30.69	45.25	60.00	60.00	61.13
34 x 28	32.69	26.94	47.50	64.00	64.00	65.13
34 x 30	32.69	28.94	47.50	64.00	64.00	65.13
34 x 32	32.69	30.69	47.50	64.00	64.00	65.13
34	32.69	32.69	47.50	64.00	64.00	65.13
36 x 30	34.44	28.94	50.00	68.00	68.00	69.13
36 x 32	34.44	30.69	50.00	68.00	68.00	69.13
36 x 34	34.44	32.69	50.00	68.00	68.00	69.13
36	34.44	34.44	50.00	68.00	68.00	69.13

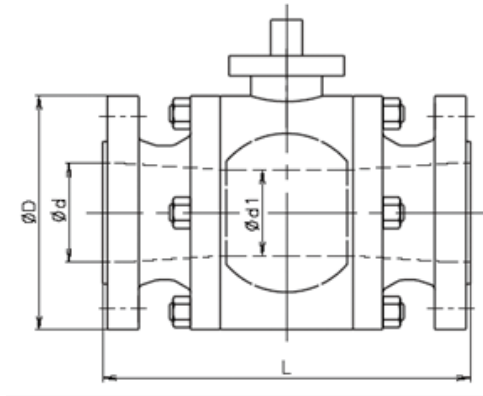
Class 600

unit: inch

SIZE (NPS)	d	d1	D	L		
				RF	WE	RJ
1/2	0.50	0.50	3.75	6.50	6.50	6.44
3/4 x 1/2	0.75	0.5	4.62	7.50	7.50	7.50
3/4	0.75	0.75	4.62	7.50	7.50	7.50
1 x 3/4	1.00	0.75	4.88	8.50	8.50	8.50
1	1.00	1.00	4.88	8.50	8.50	8.50
1 1/2 x 1	1.50	1.00	6.12	9.50	9.50	9.50
1 1/2	1.50	1.50	6.12	9.50	9.50	9.50
2 x 1 1/2	1.94	1.50	6.50	11.50	11.50	11.50
2 to 24	Please refer to T60S (p. 11)					
26 x 20	24.94	19.19	40.00	57.00	57.00	57.50
26 x 22	24.94	21.19	40.00	57.00	57.00	57.50
26 x 24	24.94	23.19	40.00	57.00	57.00	57.50
26	24.94	24.19	40.00	57.00	57.00	57.50
28 x 22	26.94	21.19	42.25	61.00	61.00	61.50
28 x 24	26.94	23.19	42.25	61.00	61.00	61.50
28 x 26	26.94	24.19	42.25	61.00	61.00	61.50
28	26.94	26.94	42.25	61.00	61.00	61.50
30 x 24	28.94	23.19	44.50	65.00	65.00	65.50
30 x 26	28.94	24.19	44.50	65.00	65.00	65.50
30 x 28	28.94	26.94	44.50	65.00	65.00	65.50
30	28.94	28.94	44.50	65.00	65.00	65.50
32 x 26	30.69	24.19	47.00	70.00	70.00	70.63
32 x 28	30.69	26.94	47.00	70.00	70.00	70.63
32 x 30	30.69	28.94	47.00	70.00	70.00	70.63
32	30.69	30.69	47.00	70.00	70.00	70.63
34 x 28	32.69	26.94	49.00	76.00	76.00	76.63
34 x 30	32.69	28.94	49.00	76.00	76.00	76.63
34 x 32	32.69	30.69	49.00	76.00	76.00	76.63
34	32.69	32.69	49.00	76.00	76.00	76.63
36 x 30	34.44	28.94	51.75	82.00	82.00	82.63
36 x 32	34.44	30.69	51.75	82.00	82.00	82.63
36 x 34	34.44	32.69	51.75	82.00	82.00	82.63
36	34.44	34.44	51.75	82.00	82.00	82.63

NOTE : PN designed Valve도 이용가능합니다. 제품의 범위 및 수치와 관련된 정보는 별도로 문의하여 주십시오.

Dimensions



Class 900

unit: inch

SIZE (NPS)	d	d1	D	L		
				RF	WE	RJ
1/2	0.50	0.50	4.75	8.50	8.50	8.50
3/4 x 1/2	0.75	0.50	5.12	9.00	9.00	9.00
3/4	0.75	0.75	5.12	9.00	9.00	9.00
1 x 3/4	1.00	0.75	5.88	10.00	10.00	10.00
1	1.00	1.00	5.88	10.00	10.00	10.00
1 1/2 x 1	1.50	1.00	7.00	12.00	12.00	12.00
1 1/2	1.50	1.50	7.00	12.00	12.00	12.00
2 x 1 1/2	1.94	1.50	8.50	14.50	14.50	14.63
2 to 24	Please refer to T60S (p. 11)					

Class 1500

unit: inch

SIZE (NPS)	d	d1	D	L		
				RF	WE	RJ
1/2	0.50	0.50	4.75	8.50	8.50	8.50
3/4 x 1/2	0.75	0.50	5.12	9.00	9.00	9.00
3/4	0.75	0.75	5.12	9.00	9.00	9.00
1 x 3/4	1.00	0.75	5.88	10.00	10.00	10.00
1	1.00	1.00	5.88	10.00	10.00	10.00
1 1/2 x 1	1.50	1.00	7.00	12.00	12.00	12.00
1 1/2	1.50	1.50	7.00	12.00	12.00	12.00
2 x 1 1/2	1.94	1.50	8.50	14.50	14.50	14.63
2 to 24	Please refer to T60S (p. 11)					

Class 2500

unit: inch

SIZE (NPS)	d	d1	D	L		
				RF	WE	RJ
1/2	0.50	0.50	5.25	10.38	10.38	10.38
3/4 x 1/2	0.75	0.50	5.50	10.75	10.75	10.75
3/4	0.75	0.75	5.50	10.75	10.75	10.75
1 x 3/4	1.00	0.75	6.25	12.12	12.12	12.12
1	1.00	1.00	6.25	12.12	12.12	12.12
1 1/2 x 1	1.50	1.00	8.00	15.12	15.12	15.24
1 1/2	1.50	1.50	8.00	15.12	15.12	15.24
2 x 1 1/2	1.69	1.50	9.25	17.75	17.75	17.88
2	1.69	1.69	9.25	17.75	17.75	17.88
3 x 2	2.44	1.69	12.00	22.75	22.75	23.00
3	2.44	2.44	12.00	22.75	22.75	23.00
4 x 3	3.44	2.44	14.00	26.50	26.50	26.88
4	3.44	3.44	14.00	26.50	26.50	26.88
6 x 4	5.19	3.44	19.00	36.00	36.00	36.50
6	5.19	5.19	19.00	36.00	36.00	36.50
8 x 6	7.06	5.19	21.75	40.25	40.25	40.88
8	7.06	7.06	21.75	40.25	40.25	40.88

NOTE : PN designed Valve도 이용가능합니다. 제품의 범위 및 수치와 관련된 정보는 별도로 문의하여 주십시오.

Engineering Data

Operating Torque

< Torque unit : N·m >

Class 900

unit: N·m

Nominal Size	NPS	1/2	3/4	1	11/2	2	3	4	6	8	10	12
	DN	15	20	25	40	50	80	100	150	200	250	300
Differential Pressure (MPa)	0.5	24	30	42	79	*	*	*	*	*	*	*
	5	24	31	44	86	*	*	*	*	*	*	*
	7.5	26	34	48	94	*	*	*	*	*	*	*
	10	32	42	60	117	*	*	*	*	*	*	*
	12.5	38	50	71	140	*	*	*	*	*	*	*
	15	41	55	78	155	*	*	*	*	*	*	*

Class 1500

unit: N·m

Nominal Size	NPS	1/2	3/4	1	11/2	2	3	4	6	8	10	12
	DN	15	20	25	40	50	80	100	150	200	250	300
Differential Pressure (MPa)	0.5	24	31	44	86	*	*	*	*	*	*	*
	5	24	31	44	86	*	*	*	*	*	*	*
	10	32	42	60	117	*	*	*	*	*	*	*
	15	41	55	78	155	*	*	*	*	*	*	*
	20	49	66	95	188	*	*	*	*	*	*	*
	25	56	76	109	216	*	*	*	*	*	*	*

Class 2500

unit: N·m

Nominal Size	NPS	1/2	3/4	1	11/2	2	3	4	6
	DN	15	20	25	40	50	80	100	150
Differential Pressure (MPa)	0.5	32	39	59	105	131	190	333	901
	10	32	39	59	105	131	190	333	901
	20	40	50	75	141	171	263	475	1337
	30	51	64	95	185	221	349	639	1826
	40	60	77	113	223	265	425	783	2258
	42.5	68	88	128	256	303	491	908	2630

< Torque unit : inch-lbs >

Class 900

unit: Inch-lbs

Nominal Size	NPS	1/2	3/4	1	11/2	2	3	4	6	8	10	12
	DN	15	20	25	40	50	80	100	150	200	250	300
Differential Pressure (PSIG)	100	217	278	392	757	*	*	*	*	*	*	*
	740	217	279	394	760	*	*	*	*	*	*	*
	1000	228	296	419	815	*	*	*	*	*	*	*
	1480	287	378	536	1053	*	*	*	*	*	*	*
	1800	332	439	625	1232	*	*	*	*	*	*	*
	2220	369	492	701	1385	*	*	*	*	*	*	*

Class 1500

unit: Inch-lbs

Nominal Size	NPS	1/2	3/4	1	11/2	2	3	4	6	8	10	12
	DN	15	20	25	40	50	80	100	150	200	250	300
Differential Pressure (PSIG)	100	217	278	392	757	*	*	*	*	*	*	*
	740	218	280	395	763	*	*	*	*	*	*	*
	1480	286	377	535	1050	*	*	*	*	*	*	*
	2220	370	492	702	1387	*	*	*	*	*	*	*
	3000	446	598	854	1697	*	*	*	*	*	*	*
	3705	507	682	975	1942	*	*	*	*	*	*	*

Class 2500

unit: Inch-lbs

Nominal Size	NPS	1/2	3/4	1	11/2	2	3	4	6
	DN	15	20	25	40	50	80	100	150
Differential Pressure (PSIG)	100	287	346	525	927	1160	1681	2950	7971
	1480	288	348	527	934	1167	1694	2976	8050
	3000	363	453	673	1273	1543	2380	4306	12126
	4300	447	566	834	1620	1941	3064	5607	16013
	5800	532	681	997	1974	2346	3762	6932	19979
	6170	604	778	1134	2272	2686	4351	8053	23336

NOTES

- (1) Class 1500부터 600 및 * Torque 값은 페이지 23-24를 참조하십시오
- (2) 모든 Torque 값은 30%의 안전 계수(Safety Factor)를 포함합니다. 값은 대기온도에서의 깨끗한 정수값입니다.
- (3) Ball seat material: RNYlon
- (4) 안전계수(Safety Factor)가 30% 보다 높은 조건에서 사용되는 경우, Stem의 최대 허용 강도를 확인 하십시오.

Engineering Data

Flow Coefficient (Cv)

Nominal Size		NPS	1/2	3/4	1	1 1/2	2	3	4	6	8	10	12	14
		DN	15	20	25	40	50	80	100	150	200	250	300	350
Class	150		20	40	85	260	*	*	*	*	*	*	*	*
	300		20	40	85	250	*	*	*	*	*	*	*	*
	600		20	38	65	230	*	*	*	*	*	*	*	*
	900		15	35	60	165	*	*	*	*	*	*	*	*
	2500		15	35	60	165	*	*	*	*	*	*	*	*
			15	30	55	150	250	500	1050	2500	5200	-	-	-

Nominal Size		NPS	16	18	20	22	24	26	28	30	32	34	36
		DN	400	450	500	550	600	650	700	750	800	850	900
Class	150		*	*	*	*	*	130000	152000	179000	202000	230000	258000
	300		*	*	*	*	*	124000	146000	172000	192000	219000	243000
	600		*	*	*	*	*	115000	135000	159000	177000	200000	220000
	900		*	*	*	-	*	-	-	-	-	-	-
	1500		*	*	*	-	*	-	-	-	-	-	-
			-	-	-	-	-	-	-	-	-	-	-

NOTE: * Please refer to p. 23.

Weight

< weight unit : kg >

Nominal Size		NPS	1/2	3/4	1	1 1/2	2	3	4	6	8	10	12
		DN	15	20	25	40	50	80	100	150	200	250	300
Class	900		14	17	20	38	*	*	*	*	*	*	*
	1500		14	17	20	38	*	*	*	*	*	*	*
	2500		-	-	-	67	110	220	405	1060	-	-	-

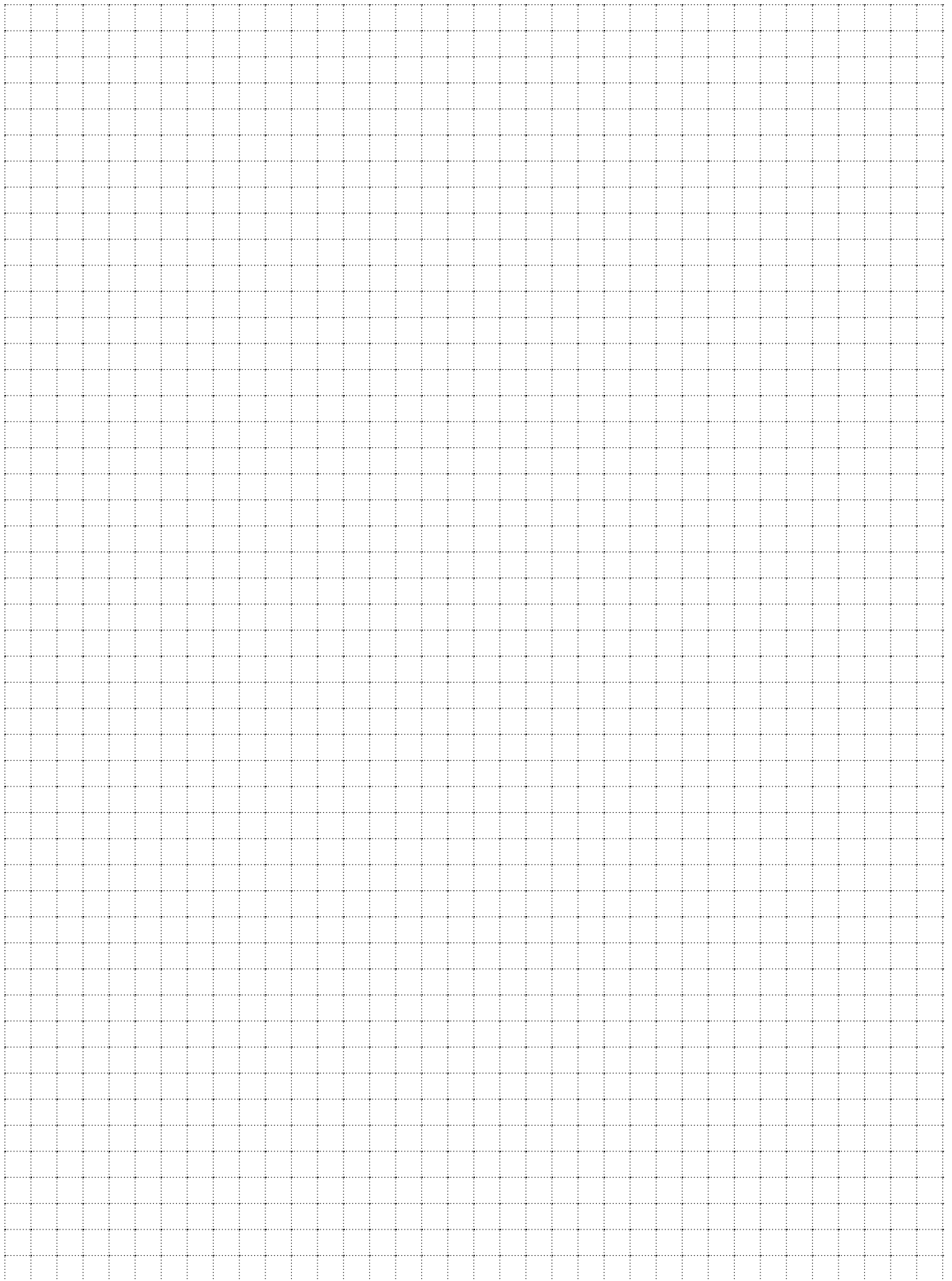
unit : kg

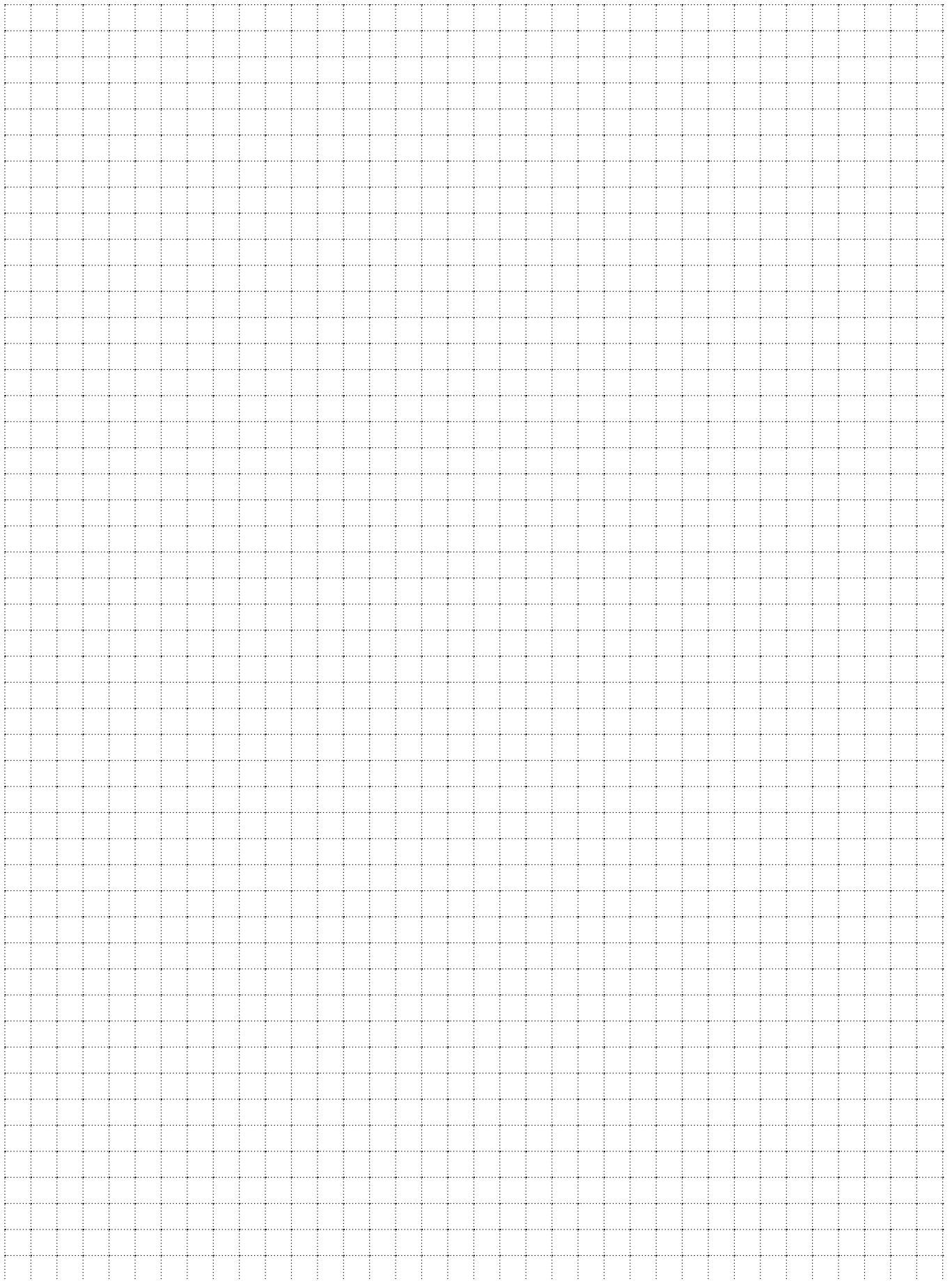
< weight unit : lb >

Nominal Size		NPS	1/2	3/4	1	1 1/2	2	3	4	6	8	10	12
		DN	15	20	25	40	50	80	100	150	200	250	300
Class	900		31	38	44	84	*	*	*	*	*	*	*
	1500		31	38	44	84	*	*	*	*	*	*	*
	2500		-	-	-	148	243	485	893	2337	-	-	-

unit : lb

NOTE : 해당 표는 Raised Flanged와 Bare Stem Valve에 대하여 나타냅니다.
p. 24를 참조하여 주십시오.





CAUTION

Pressure-temperature ratings and other performance data published in this catalog have been developed from our design calculation, in-house testing, field reports provided by our customers, and/or published official standards or specifications. They are good only to cover typical applications as a general guideline to users of KITZ products introduced in this catalog.

KITZ Carbon Steel Paintings are suitable for general service conditions. For painting used in severe atmospheres or at elevated temperatures. Please contact us for recommendations based on your service environment.

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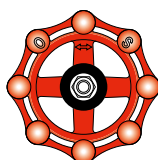
Read the instruction manual carefully before use.

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*A chrysanthemum-handle is a symbol of KITZ,
the brand of valve reliability*

ISO 9001 certified since 1989

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