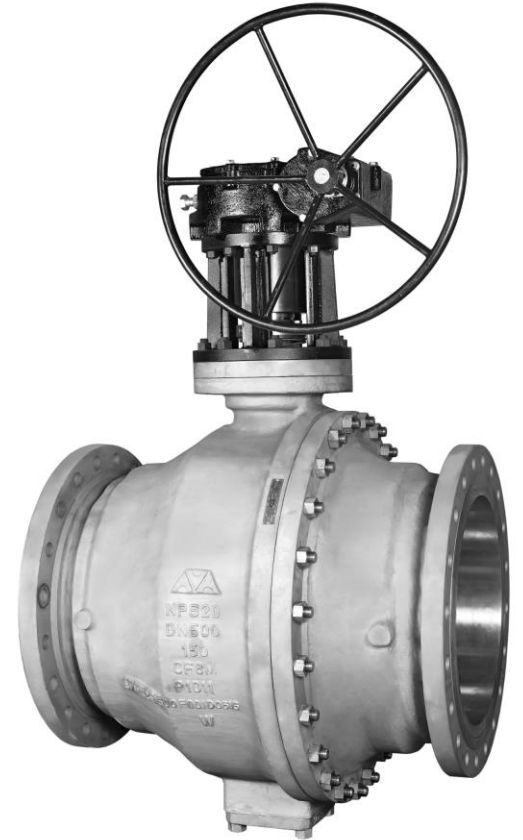
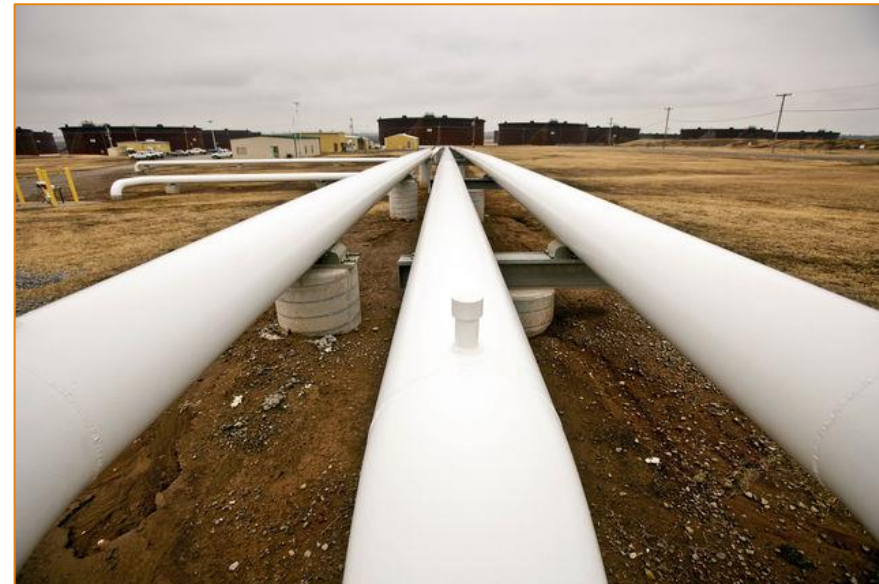


Trunnion Mounted Ball Valve (TMBV) for Natural Gas service



Natural Gas Pipe Line

- Media: Natural gas
 - Design pressure: Class 600 (103 bar) / Class 900 (155 bar)
 - Design temperature: *-20°C and up to +50°C
 - Operating Pressure: 80 bar – 110 bar
 - Flammable (Fire safe design requirement)
- * Minimum design temperature of -60°C can be found on extreme condition.



TMBV Applicable size / pressure class

- Size 2" Full bore Class 600 (103 bar) and above
- Size 10" Full bore Class 150 (20 bar) and above

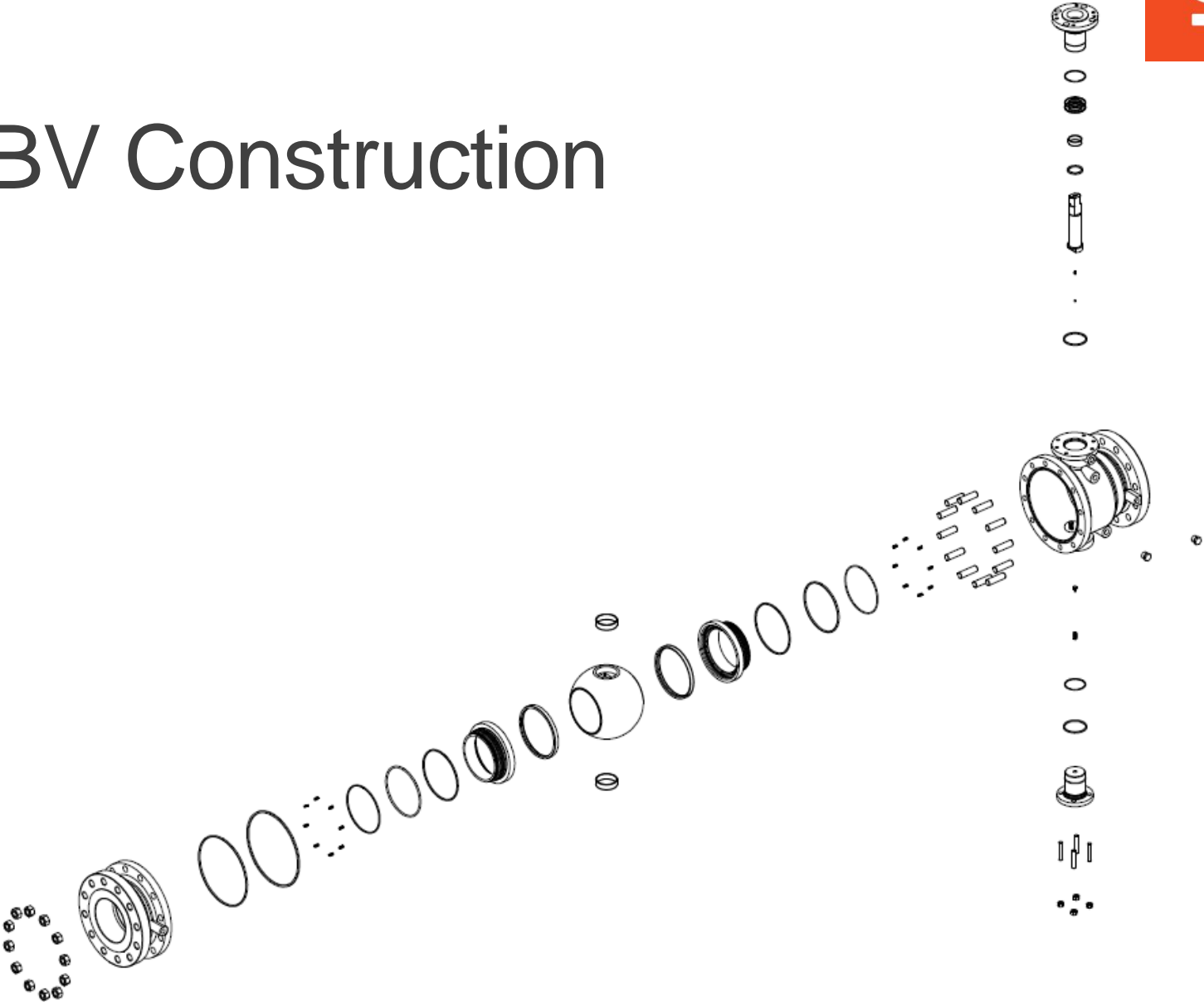


TMBV Construction

- Class 600 - 2" (DN50) and up to 30" (DN750) two-piece design.
- Cast body and tail pcs.
- The TMBV design includes External trunnion (Two robust shafts fix the ball in place).



TMBV Construction



TMBV Design and Certifications

- Design standard API 6D (the manufacturer shall hold a valid API 6D monogram)
- Design standard ASME B16.34
- Fire safe design to API 607



6D 0301



0045



SIL 3 IEC 61508



ATEX 94/9/EC

TMBV Test as per API 6D

- Hydrostatic test @ 1.5 times the valve pressure rating (155 bar)
- High pressure seat test @ 1.1 times the valve pressure rating (114 bar)
- Low pressure seat test @ 6 bar +/-1 bar
- DB&B pressure relief test – the cavity pressure doesn't exceed 1.3 time the valve pressure rating. (Only applicable for DB&B and DIB2 configurations)
- Microfinish standard 100% Radiographic Test for body and tail piece Class 600 and above.
- Other test such as PMI, MP, UT upon special request.

TMBV Test facilities

Fire test facility



Hydrostatic test facility



Radiographic test in-house

TMBV seats configurations

- DB&B (Double block & bleed) – Upstream seat holds the pressure.
- DB&B – In case of valve cavity pressure build-up the seats will relieve the over pressure in-line.
- DIB-1 – Both seats, upstream and downstream, hold the pressure.
- DIB-1 – No cavity pressure relieving mechanism.

TMBV seat configurations

- DIB-2 – Both seats, upstream and downstream, hold the pressure, and in case of valve cavity pressure build-up the upstream seat will relief the over pressure in-line. Note: the valve is not symmetric and has a preferred flow direction.

TMBV MOC

Material Of Construction

- Body and tail pcs – ASTM A216 Carbon Steel WCB
- Upper trunnion and Bottom trunnion – ASTM A216 Carbon Steel WCB
- Ball – ASTM A216 Carbon steel WCB + 75 micron ENP (Alternative – Stainless Steel CF8M).
- Stem – SAE 4140 + 75 micron ENP (Alternative – Stainless Steel AISI 410 or 17-4PH)
- Seat housing – ASTM A216 Carbon steel WCB + 75 micron ENP
- Seat insert – Devlon
- Stem primary seal – Viton (FKM) Shore 85 (#600 and above: Anti Explosion Decompression – AED)
- Stem secondary seal – Graphite (Cup & Cone design ISO15848-1 approved for low emission)
- Body primary seal – Viton (FKM) Shore 85 ((#600 and above: Anti Explosion Decompression – AED)
- Body secondary seal – Spiral Wound Graphite (SWG)
- Fasteners – ASTM A193 B7 / ASTM A194 2H

Operation

- Manual Gear
- Pneumatic (Scotch-Yoke)
- Electric
- Gas over oil
- Hydraulic



Maximum Allowable Stem Torque (MAST)

- API 6D dictates that the MAST of the drive train must have a safety factor of 2.
- API 6DX dictates that under NO circumstances an actuator will be able to damage the valve drive train.



Minimum spring stroke time (Sec.) to close for Microfinish ESD TMBV's under warranty

Size	150#	300#	600#	900#	1500#	2500#
2"	< 1	< 1	< 1	< 1	< 1.5	< 1.5
3"	< 1	< 1	< 1	< 1	< 1.5	< 1.5
4"	< 1	< 1	< 1	< 1	< 1.5	< 1.5
6"	< 1	< 1	< 1	< 1	< 1.5	< 1.5
8"	< 1	< 1	< 1	< 1	< 2	< 2
10"	< 1	< 1	< 1	< 1	< 2	< 2
12"	< 1	< 1	< 1	< 1	< 2	< 2
14"	< 1	< 1	< 1.5	< 1.5	< 3	TBA
16"	< 1	< 1	< 1.5	< 1.5	< 3	TBA
18"	< 1.5	< 1.5	< 2	< 2	TBA	TBA
20"	< 1.5	< 1.5	< 2	< 2	TBA	TBA
24"	< 2	< 2	< 3	< 3	TBA	TBA
30"	< 3	< 3	< 4	< 4	TBA	N/A
36"	< 3	< 3	< 4	< 4	TBA	N/A
42"	< 3	< 3	< 4	< 4	N/A	N/A
48"	< 4	< 4	< 5	< 5	N/A	N/A



SNR Technologies

- Support the gas industry with Engineering and R&D services.
- Design and Market valves and special products.

For more information

Contact us: Sales@snr-tec.com

WWW.SNR-TEC.COM