



# Reynold Valves Ltd.

ISO 9001:2008 COMPANY

CIN NO. U29130MH1990PTC059519

Tel : 91-22-2872 7757 / 2872 9634 ; Fax : 91-22-2876 8418

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[reynoldvalves@yahoo.com](mailto:reynoldvalves@yahoo.com)



ISO 9001:2008

Quality Management System

Cert. No. QMSP091296

**Office:** 213, Ruby Industrial Estate, Chincholi Bunder Road, Malad (West), Mumbai 400064, INDIA.

**Factory:** J - 182, MIDC, Tarapur, Dist. Thane - 401 506. (M.S) - Telefax: + 91 2525 272677

## TECHNICAL CHARACTERISTICS OF REYNOLD BALL VALVES

**Body Joint Construction:** The one pc. Unibody end entry design incorporates independent Seals such as Viton 'O' ring, PTFE and Graphoil to ensure absolute Seal Integrity.

The Two/Three Pc. Bolted body design includes a tight tolerance overlapping metal fit between the body and the adapter to minimize any possibility of moment due to pipeline stress. A special high temperature spiral wound stainless steel / graphoil filled gasket is utilized for absolute seal. This gasket is encapsulated by the body and adapter on all four sides. The body and adapters dimensioned for metal to metal contact to ensure correct gasket crush.

**External Surface Corrosion Prevention :** Cast Iron and Cast Steel valves are externally and internally Epoxy Powder Coated and Stainless Steel valves externally powder coated with metallic powder. This powder coating is done after anti corrosive surface treatment such as hot Phosphating.

**Internal Parts : In C.I. and C.S. Valves:** In Cast Iron and Cast Steel valves, all working parts are of SS 316. Hence when the valve is not in operation for a long period of time stem will not deteriorate or bend during operation. This subsequently increases the life of ball & the Valve.

**Fasteners:** Connecting studs and nuts conform to A-193 B7/A-194 2H, in Cast Steel & Cast Iron & A-193B8/A-194 Grade 8 in all S.S. Valves. This prevents joint leakage due to expansion of studs in high pressure and high temperature conditions

**Straight Bore:** All Reynold Ball Valves are straight bore full solid ball. Hollow ball is provided only if the client explicitly asks for it. This gives the maximum ball thickness and ensures straight flow with minimum pressure drop and valve induced turbulence.

**Ball :** Ball is designed to use the valve in both the directions and it releases trapped cavity pressure. The ball is mirror finished which ensures better life of Teflon seats and repels liquid, preventing corrosion on ball surface.

♦ **Fugitive Emission Stem Packing:** Our floating ball valves incorporate an advanced packing arrangement consisting of independent packing as a sensible economical solution to provide zero leakage against dangerous emissions. The Lower high pressure packing is of graphoil washer, The mid stem packing is an

♦ This type of packing arrangement is provided only on request in the Purchase Order

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**PTFE chevron O- ring seal.** The upper packing is compressible Graphoil rings. To ensure even compression of upper packing the Reynold valve features a uni- nut gland tightening arrangement. This totally eliminates the possibility of leakage due to an even tightening of gland bolts which could occur in older design incorporating dual gland bolts.

**Stem Guide :** Reynold Ball Valves have glass filled teflon for stem guide to prevent play between the ball and the spindle which may develop after a period of time.

**Gland Packing:** Reynold Ball Valves have virgin PTFE Chevron-type Gland Packing to ensure zero leakage under vacuum and pneumatic condition. Chevron packing is resilient and it has the ability to retain it's shape even when the pressure changes. Thus the packing self-adjusts space in the gland as determined by stem, stuffing box & gland follower. The height reduction is minimized due to resilience, thus the life of the gland packing is increased. Interlocked Chevron packing reduces expansion due to increase in temperature. Also, the thermal expansion co-efficient of PTFE is negligible.

**Bushing:** Reynold Valves have virgin PTFE bush in the gland as well as in the Body. This tremendously reduces friction between the body and the spindle during operation. Overheating can result from high friction coefficient, which can lead to wearing of stem and packing, excessive consumption of energy and other problems. Further these bushes allow the stem to remain always concentric to the bore. This gives the "Graded Pliability" which helps to keep the stem aligned. These bushes also prevents elongation of the inner components of the packing system. The self-lubricating property of Teflon reduces friction further. Hence the life of spindle is increased and the valve can be smoothly operated with minimum torque.

**Seat:** Reynold valves used Teflon seats which are shaped such that there is sufficient space for expansion which occurs during the operation of the valve. The Ball and seats are designed in such a way that Ball is wiping the Teflon seats rather than scratching. The wiping action cleans foreign material of both, the seat and ball and assures leak tight sealing and increases the life of the seat.

<sup>1</sup> For 2pc. Design ball valves only



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◆ **Additional Stem Sealing:** Reynold Valves have an additional seal above the body shoulder. It is held in place by the gland, two Belleville washers of SS 302 (Non magnetic) and an adjusting gland nut. The nut allows in-line stem seal adjustment, the

flexible Belleville washers automatically compensate, for normal expansion and contraction during operation temperature changes.

**Blowout Proof Stem:** Reynold Valves have blow-out proof stem. When the pressure running through the valve in the body cavity has risen, the stem may blow out. To prevent such danger from taking place, the valve is provided with a stem flange in the lower part of the stem and so constructed that the stem may not blow out upwards. Even if the packing (thrust bearing) has burnt out in a fire or for any other reason, the internal pressure will bring the stem flange into close contact with the back seat of the valve body. Thus the fluid may be positively prevented from leaking through the packing so burnt out. If the pressure in the body cavity should abnormally rise or a gland bolt should be loose or missing anyway, an ordinary stem held with packing will blow out and the fluid will burst out. Besides, there are possibilities that such accident may take place upon maintenance. If the gland packing has burnt out in a fire, in particular, the back seat at the stem flange will be a requirement essential to the fire safety of the valve.

**Anti Static :** All Reynold Fire safe design ball valves include dual grounding systems from stem to ball and stem to body. Reynold valves provide the anti-static feature as per API 608 which ensures electrical connectivity between the body, ball and the stem.

◆ **Top works :** Reynold Valves include a special ISO mounting pad for ease of subsequent actuation.

◆ **Key Lock:** To prevent the valve from wrong operation, it is lockable with a pad lock at two points fully opened or fully closed positions, Especially, when installed outdoors, the valve is so lockable as to prevent an outsider or third person from opening or closing. In other words, an operation of the valve is limited to protect it against the possibilities that an outsider may accidentally operate the lever or the valve may be opened or close due to vibrations, especially when an inflammable petroleum product or chemical is treated.

- ◆ Provided in 3 piece design Ball Valves.
- ◆◆ Provided upon specific request in the purchase order
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**Lever:** Reynold Valves have a lever, which permits neither wrong visual determination of open close position nor improper installation. Whether the valve is open or close and opening degree is visually confirmed from a position of the lever. As ball, stem and lever is a unit assembly, the valve is open with the lever in parallel to piping, with the lever right-angled to piping, the valve is closed. In the ball valves of many manufacturers, the stem has a square top. Therefore, the lever does not always coincide with open and/or close of

the valve due to an error in mounting and removing. This leads to the possibility that the fluid may flow out once an opening or closure of the valve has been wrongly determined.

**Fire-Safe:** Reynold Fire-safe valves design has been tested as per the standard API 607 – Fire-safe test for soft-seated quarter turn valves. The design and production technology have been developed in-house by Reynold Engineers. The fire safe tests are certified by third party independent inspectors.

**Longevity of Life:** Special consideration was devoted to the attainment of enhanced life and operations of our valves throughout design, development testing and manufacturing stages.

**Valve designs combined with the selection of advanced materials are such that long period of inactivity should not affect the operations of efficiency.**

**Traceability:** All Valves manufactured by Reynolds under these rigid programs have fully traceability of materials, testing, test equipments, calibration equipments personnel and personnel training records. These records are available for review by our customers with prior arrangement.

- Reynold Valves are designed and manufactured as per ASME B 16.34, API 6D and BS 5351 /BS EN ISO17292
- Valves body and trim can be offered as per NACE MR 01-75 Compliant
- Casting inspection as per MSS Sp 53 , 54, 55,59, 93 & 94
- Actuator mounting pad as per ISO 5211
- Fugitive Emission qualification.
- Valve Bore as per BS EN ISO 17292



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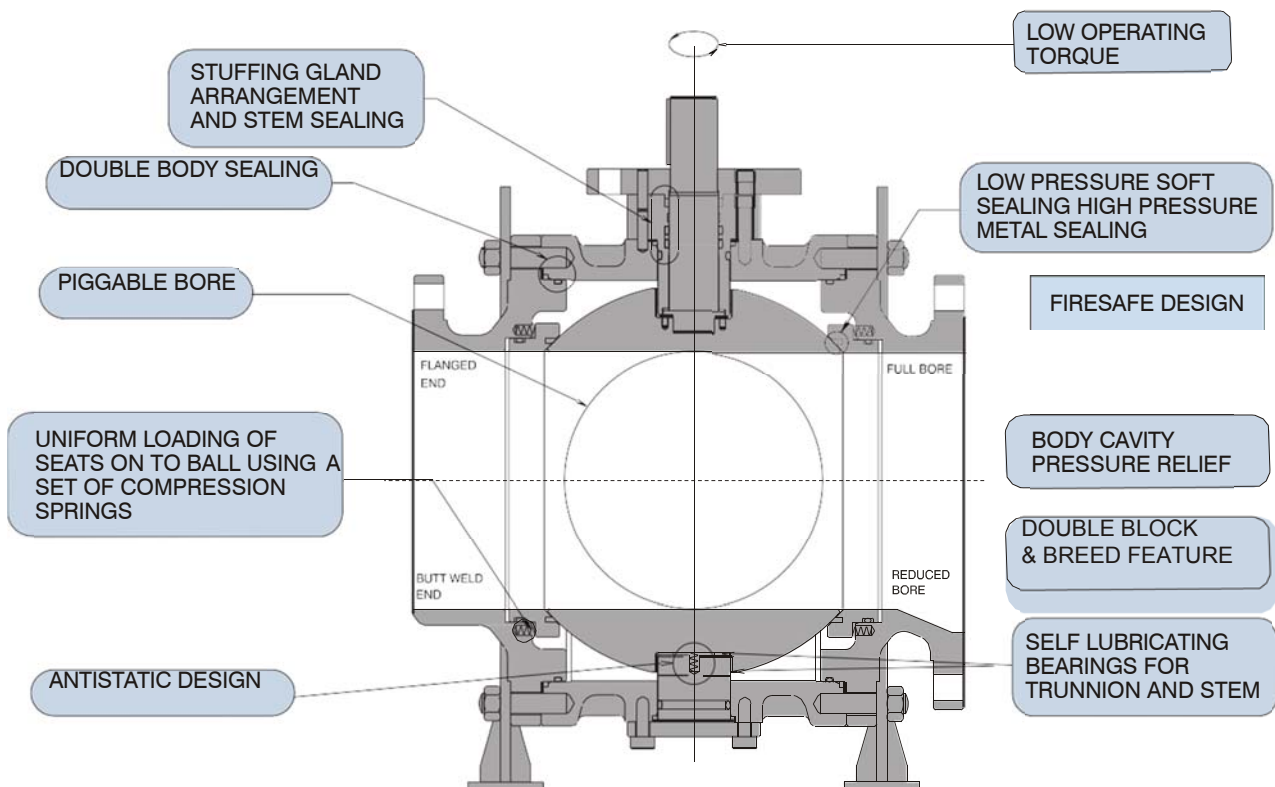
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- Face to Face as per ANSI B 16.10
- Flange Dimensions as per B 16.5
- But weld Valves end as per B 16.25
- Pressure test as per API 598. API 6D / BS EN12266 – 1 & 2
- Fire Safe test as per API 607.
- Drain vent bypass as per API 6D

## Trunnion Mounted Ball Valves



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## Cryogenic Ball Valves

### Standard Features of Cryogenic Ball valves are:

1. Extended stem and bonnet to position the stem packing above the cryogenic fluid and providing a column of warmer vapor that insulate the stem seal from the effect of low temperatures.
2. Vespel Valve seats enable valves to be rated to down -196°C Service
3. The Cryogenic Valves are in Stainless Steel Material in 2pc design for socket weld , screwed ends and for flanged ends. They are also available in Low Carbon steel grade for non-cold box applications.
4. Valves are unidirectional with vent hole in both, the stem slot and the upstream face of the ball. This prevent the cold liquid for becoming trapped in the valve.
5. Each valve is marked with flow direction to prevent incorrect installation.
6. Live loaded stem packing that provide self-adjustment to the stem packing is included at the top of the extension.
7. Stem primary seal and bearing are located near the packing end of the extended stem thus keeping these part away from the low temperature and providing blow out proof stem design.
8. Valves are specially cleaned to remove all grease and oils that may react with the service media.
9. Each valve after cleaning is sealed with an end cap and packaged in heavy poly bag to keep the valve clean until installation.