



A+R®

METAL SEATED BALL VALVES FOR SEVERE APPLICATIONS

made in Germany



Metal seated Ball Valve
PN 63 / PN 100 for
Polymerisation Line

Since 1969 A+R- Armaturen® GmbH has been manufacturing valves for various industrial fields. In 1989 the advanced ball valve technology was introduced primarily in the petrochemical, chemical, refining and steel technology industries. Since then A+R® has been supplying severe service metal seated ball valves for the most hazardous applications. Sophisticated metal seated systems are utilized to ensure the highest level of operational integrity of processes up to +540° C (1000° F). Metal seated ball valves size DN 15 (1/2") - DN 300 (12"), PN 10- PN160, 150# - 900# working on abrasive, erosive, and corrosive media. The product models 710 and 510 are dedicated to solve the most complex problems in the process industry.



Metal seated Ball Valve
PN 40 over size flanges
with Heating Jacket for
Desulphurisation
(Claus Unit)



Metal seated Ball Valve
ANSI 600# - 900#
for Cracking Unit



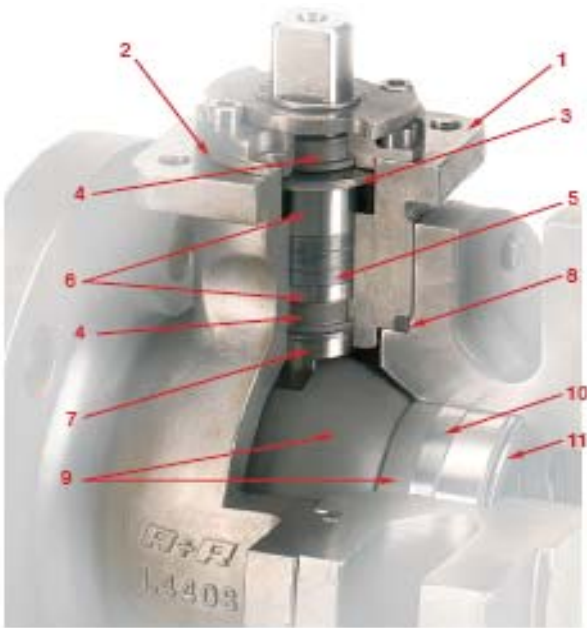
Over a period of 35 years, A+R® have achieved much knowledge on valve machining. The majority state-of-the art CNC machining equipment is available in house to ensure fully controlled machining processes. A high grade of flexibility allows maximal response to special requirements from customers and guarantees punctual deliveries.



A+R® is aiming on absolute trouble-free process operation of metal seated ball valves to improve plant run-time and safety. Therefore A+R® proofs what is promised to customers. Very advanced and custom made high temperature test equipment operated by A+R® is used to verify the design of new ball valve technology development or process for any individual test required to customers specification. Temperatures of +900° C (1650° F) at internal valve test pressure of max. 40 bars can be demonstrated. A connected Helium leak detector ensures unique stem sealing tightness. Only test results showing emissions far lower than any available standard are acceptable for A+R® products.

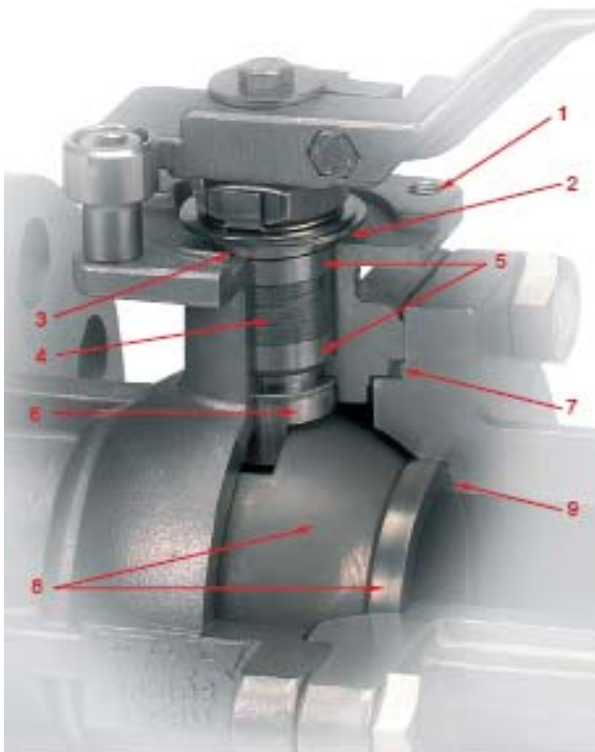
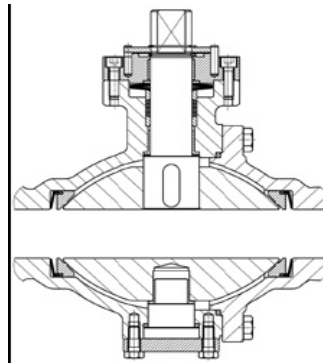


A+R® balls and seats for metal seated ball valves are precisely mate-lapped. Manual lapping or semi-automatic lapping process on smaller sizes is used to achieve a paramount result in ball to seat ring contact. Extremely careful mate-lapping and blueing ensures to provide µm tolerances. A 100% contact of the entire seat ring over the related ball surface ensures a leak-free seat system. The ball and seat coating is a very important issue. Only vendors with the highest expertise of engineering and manufacturing experience are applied to A+R® metal seated ball valves. It is imperative to select the appropriate coating for each individual severe application due to high temperature, high pressure or both, heavy solids, abrasive, erosive or corrosive media. Coatings such as Chrome Carbide, HVOF, Diffusion Coatings are available.

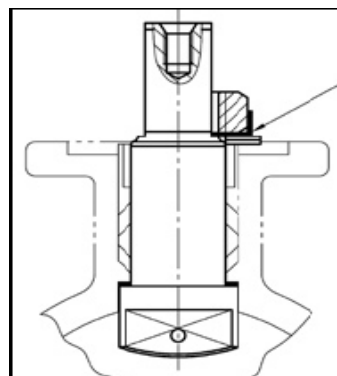

710 Series, Process Ball Valves
Flanged Ends, Floating Ball
DN 15, 1/2" to DN 300, 12"
PN 10 to PN 160, ANSI 150# to 900#

1. ISO 5211 Actuator Mounting Flange
2. Protection Cover Gland
3. Live Loading
4. Upper and Lower Stem Bushing
5. Graphite Packing (Helium Proof $<10\text{-}8\text{mbar I s-1}\cdot\text{m-1}</math>)$
6. Anti-Extrusion Rings
7. Anti-Blow Out Design
8. Full Supported Graphite Middle Flange Sealing
9. Mate-Lapped Ball and Seat Ring
10. Full protected Graphite Sealing Ring prevents from erosive Media Impact
11. Ball Seat System with Live Loading

710 Series Trunnion mounted double-block and bleed Version. Optional available from DN 150, 6" to DN 300, 12"


510 Series, Isolator Ball Valves
Flanged Ends, Floating Ball
DN 15, 1/2" to DN 150, 6"
PN 10 to PN 40, ANSI 150# to 300#

1. ISO 5211 Actuator Mounting Flange
2. Live Loading
3. Gland Bushing
4. Graphite Packing (Helium Proof $<10\text{-}8\text{mbar I s-1}\cdot\text{m-1}</math>)$
5. Anti-Extrusion Rings
6. Anti-Blow Out Design
7. Full Supported Graphite Middle Flange Sealing
8. Mate-Lapped Ball and Seat Ring
9. Graphite Loading



Torque Limiter of Stem Nut prevents packing damage from over tightening



Ball valve DN 300 (12") dislocated after 10 years
 Service in a Chlorosilanes line inspected,
 maintained and released to service



before assembly



after assembly

Full protected live loaded metal seats
 ensure a minimum of wear from media

Ball valve Selection and Process Application Guide

Series	End Connections	Size	Class Temperature	Application or Process	Body Materials & Trim	Coatings
710 Packing Graphite, Live loaded Ball Seats Metal Coated, Live loaded Floating Ball & Trunnion Type	Flanges EN DIN ASME RF, RTJ, SF others on request	DN 15 to DN 300 1/2" to 12"	PN 10 to PN 160 150# to 900# +540° C 1000° F	Contaminated, Slurry, Coal Powder, Coal Tar, Metallurgical, Cumene, Phenol, Chlorosilanes, Lethal Gas, Detergents, FCC-Units, CCR-Units, Fluid Coker, Desulphurisation, Polypropylene, Polyethylene Terephthalate, Polystyrene	GP240 GH, 1.4571, 1.4401, 1.4408, 1.4308, 1.4539, 304, 316, 347, 410, HC, Ti	HVOF, Defusion, Welding, Chrome Carbide, Tungsten Carbide, Stellite, others on request

Series	End Connections	Size	Class Temperature	Application or Process	Body Materials & Trim	Coatings
510 Packing Graphite, Live loaded Ball Seats Metal Coated, Graphit loaded Floating Ball	Flanges EN DIN ASME RF, RTJ, SF others on request	DN 15 to DN 150 1/2" to 6"	PN 10 to PN 40 150# to 300# +350° C 660° F	Abrasive, Erosive, Contaminated, Slurry, Coal Powder, Coal Tar, Metallurgical, Lethal Gas, Detergents, Flue Ash, Butadiene, Styrene, Cumene, Phenol	GP240 GH, WCB, 1.4408, 1.4308, CF8M, CF8	HVOF, Defusion, Welding, Chrome Carbide, Tungsten Carbide, Stellite, others on request

For more information, specific technical datasheets and dimensions etc. please contact us