

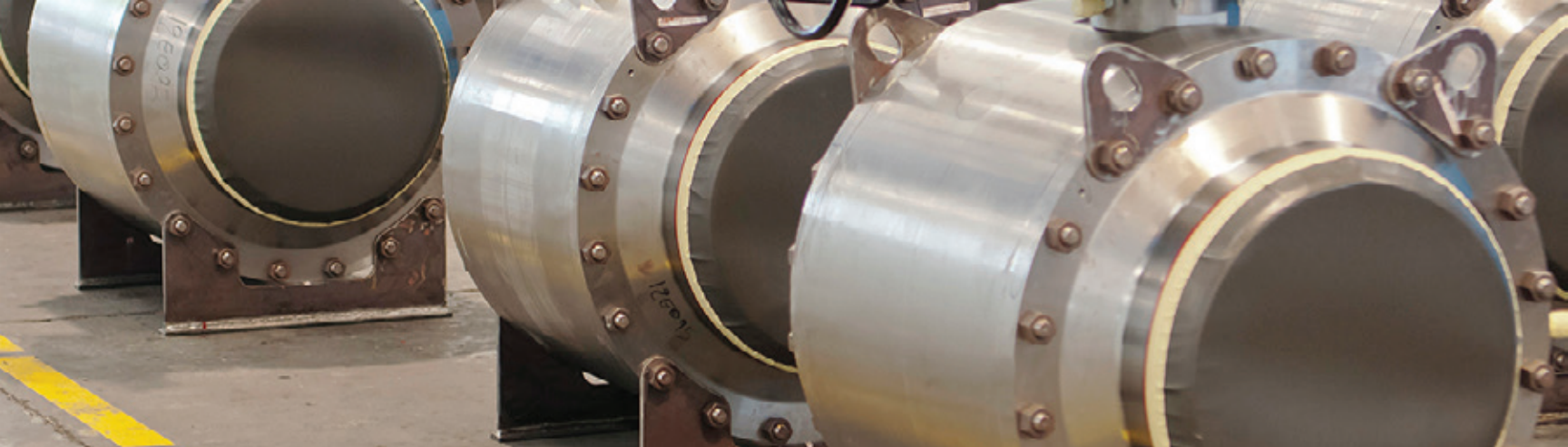


Uncompromising commitment
to high quality and reliable
valve performance.

KTM™ Virgo™ Series Trunnion Ball Valves

Delivering value with a comprehensive range
of products that meets your operational demands.





What is Important When You Purchase Valves for Your Process?

- Reliability
- Long life
- Low emissions
- Local support
- Low cost of ownership
- All of the above

With pressure to improve your bottom line, ever increasing quality and safety measures to implement, and more stringent regulatory requirements to comply with, you need confidence in your valve performance so that you have the ability to spend your time elsewhere. For high-quality, reliable ball valves from a trusted supplier, look to Emerson's **KTM** Virgo Series range to meet your needs.

Emerson's Commitment to Excellence With KTM Virgo Series Products

Emerson is committed to delivering quality Trunnion Mounted Ball Valve products that meet or exceed your expectations. We continue to improve our performance levels through the use of innovative technologies and processes, perfect execution principles, and promoting safety and quality among our employees. Our pursuit of excellence drives Emerson to provide products and services that the industry demands. Utilization of the latest design tools helps ensure product functionality, state-of-the-art manufacturing facilities control product builds from start to finish, and rigorous testing practices confirm product quality before they are delivered to you.

The Best Support You May Never Need

The true value of a supplier is about the attention you get before the sale and the support you receive after. Backed by the global strength of Emerson and our local providers, we deliver superior pre- and post-sales support—including around-the-clock access to inventory and a comprehensive range of services. Our strategic stocking locations ensure short lead times, and product is ready when you need it. Our capability to provide broader solutions allows you to focus attention on keeping your plant operating smoothly.

With the **KTM** Virgo Series product line, Emerson has the perfect ball valve to fit your process. Whether your application requires a 2” off-the-shelf soft-seated trunnion ball valve, a custom 60” top entry valve or something in between, Emerson can deliver.



**Cast Trunnion Mounted
Ball Valves**



**Forged Trunnion Mounted
Ball Valves**

Trunnion mounted ball valves are utilized in some of the most demanding processes in practically every industry. Whether you are controlling a chemical process, isolating an upstream oil and gas operation, or protecting a midstream pipeline, **KTM** Virgo Series Ball Valves safely and effectively manage these demands. **KTM** Virgo Series valves are available in various configurations to provide unsurpassed performance in all your applications.

Product Reference Standards

Design and Manufacturing	API 6D, API 6A, ASME B 16.34, BS EN ISO 17292
Face to Face	ASME B 16.10, API 6D
Flange Dimensions	ASME B 16.5 (up to 24”), ASME B16.47 Series A (26” and above)
Butt Weld Valve Ends	ASME B16.25
Pressure Tests	API 6D, API 598, BS EN 12266 -1 and 2
Fire Safety Test	API 607, API 6FA, BS EN ISO 10497
Quality/Product Certifications	ISO 9001, API 6D, PED 2014/68/EU, EAC (Russia), ATEX and OSHAS 18001
Safety Reliability	SIL3
Fugitive Emissions	ISO 15848

*Valve conforming to NACE MR 0175 / ISO 15156 / MR 0103 can be supplied. Environmental restrictions may apply.

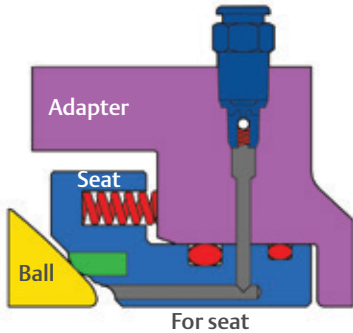
Product Control

- Material traceability is maintained on all **KTM** Virgo Series ball valves.
- All **KTM** Virgo Series ball valves are tested and documented prior to shipment.
- Certificate of Compliance, material and mechanical test reports are provided with all products.

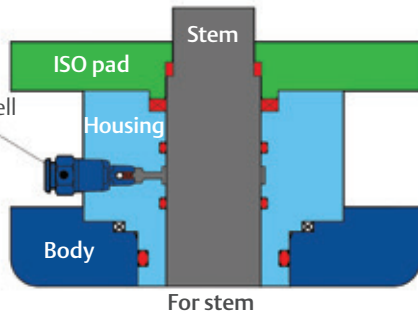
Dependability for Your Process

Maximizing process uptime is critical to your plant achieving maximum output. All the components in the process must perform at their peak to make this to happen. To provide highest performance for isolation valve applications all **KTM** Virgo Series ball valve can be supplied in a variety of materials, body and trim configurations, and end connections to precisely fit your applications. Each valve includes industry-leading features that provide the reliability you are looking for in your process.

Sealant fitting with check valv embedded in shell

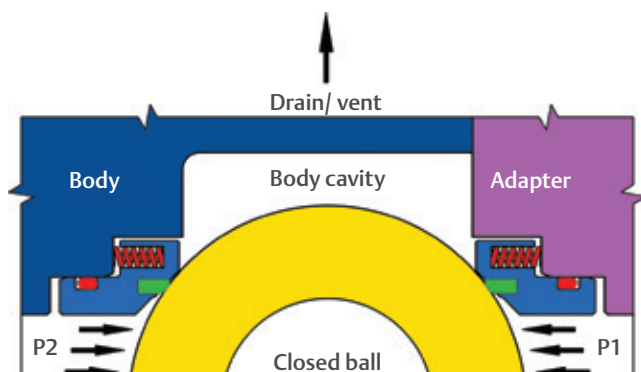


Sealant fitting with check valv embedded in shell



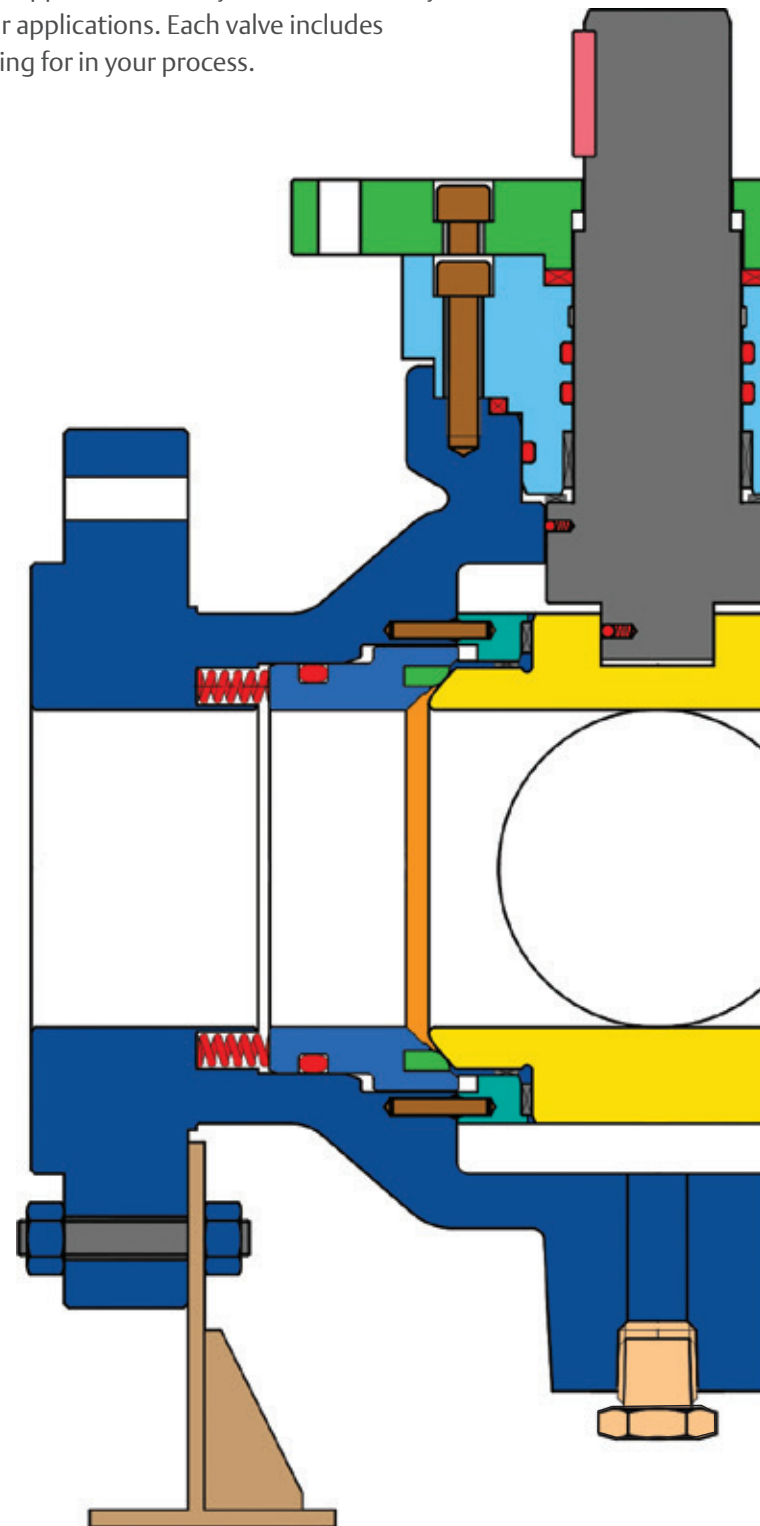
Sealant Injection

In the event of seat or seal damage due to contamination, an emergency seal can be formed using seat sealant injection.



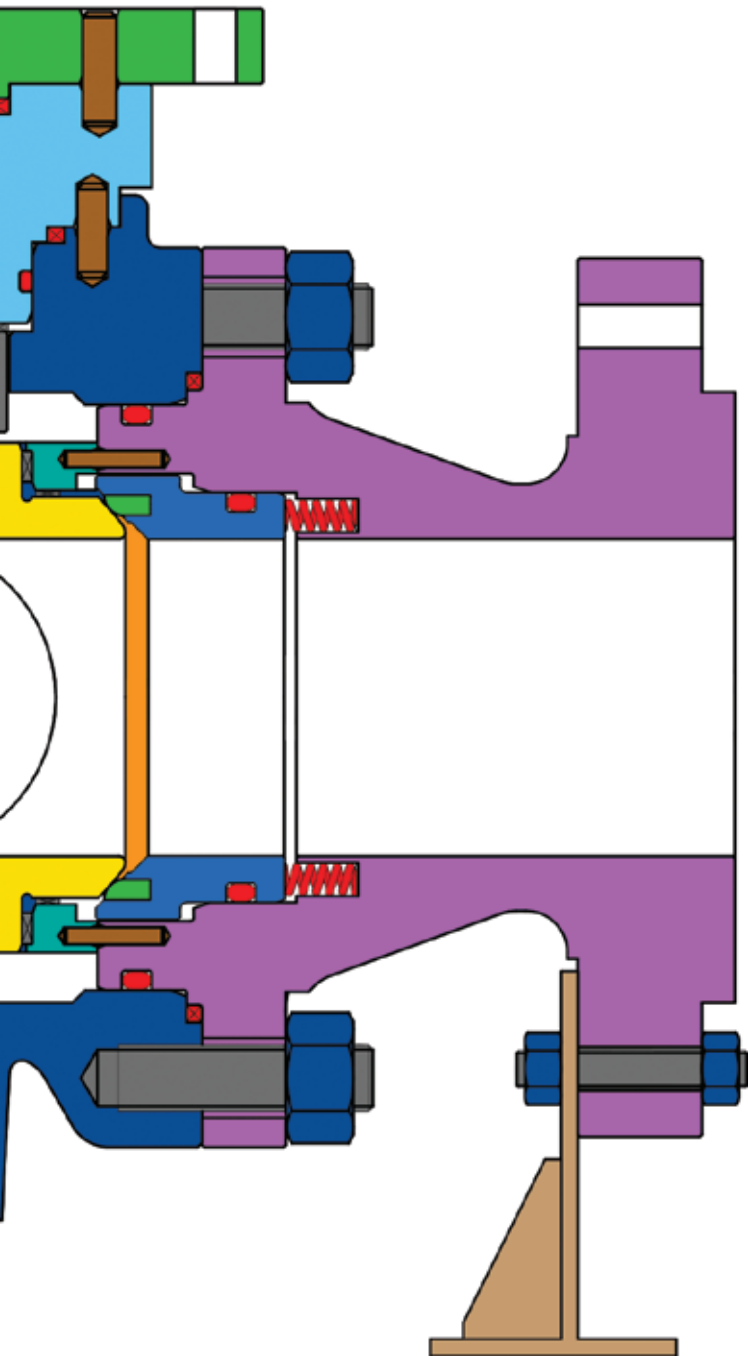
Double Block and Bleed

Spring loaded floating seats maintain contact with the ball and provide a tight shut off even at low pressure differential. Independent sealing of upstream and downstream sides facilitates draining/venting of the body cavity, thus the double block and bleed operation.

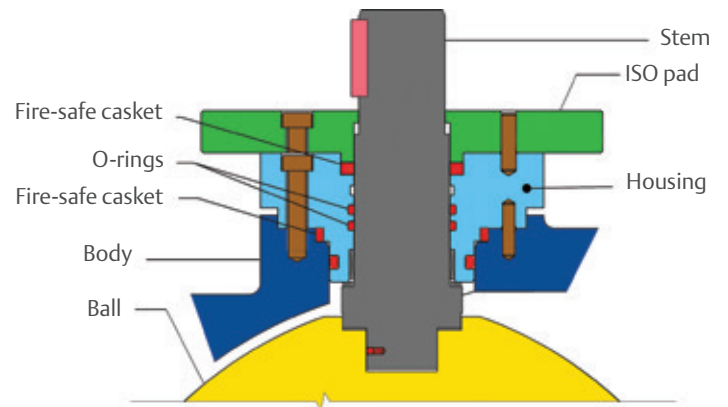


- Forged or Cast Construction
- Production valves are 100% tested
- Dual trunnion plate design for increased ball stability
- Bi-directional zero leakage – maximum life with minimum maintenance
- Self-lubricating stem and trunnion bearings

KTM Virgo Series trunnion mounted ball valves are manufactured with the highest level of integrity, to provide you with the greatest confidence in their ability to perform. Our engineering team focuses on providing products that meet or exceed industry standards and regulations using the latest engineering design tools. During manufacturing, Emerson utilizes state-of-the-art equipment and techniques to produce **KTM** Virgo Series products. Each **KTM** Virgo Series valve is then validated in an industry-leading in-house test facility.

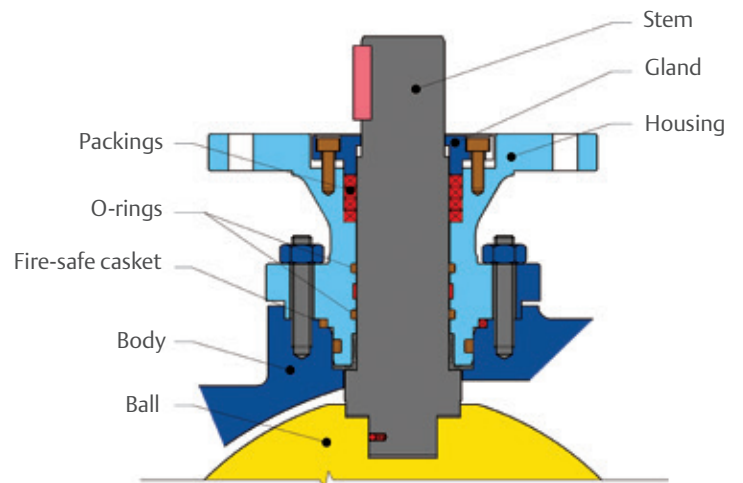


- ISO 5211 mounting allows for easy automation
- Low operating torques for cost effective automation
- Compression springs provide uniform loading of seats, ensuring sealing at low pressures
- Piggable bore



O-ring Stem Sealing

The O-ring seal arrangement features a triple stem seal with two O-rings and a fire safe gasket. Rigorous fugitive emissions testing requirements are reliably met utilizing this O-ring stem seal.



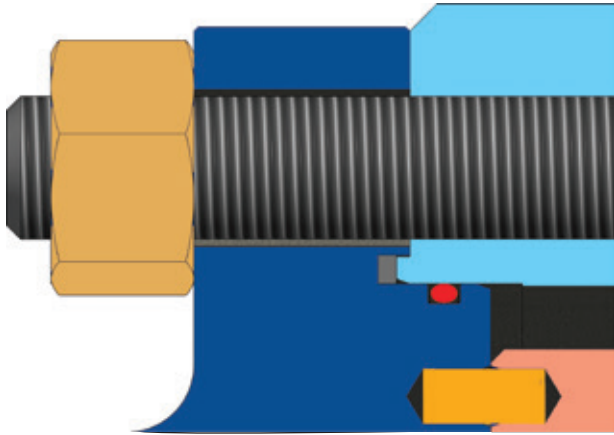
Adjustable packing stem sealing

For applications that benefit from the flexibility of a fully adjustable packing gland, this multi stem seal consists of a layered graphite packing gland set and double shaft O-rings. The adjustable seal permits constant adherence to stringent fugitive emissions testing requirements.

Note: cast 2 Piece Series NL Ball Valve representative drawing only. Consult Emerson Sales for actual product drawings.

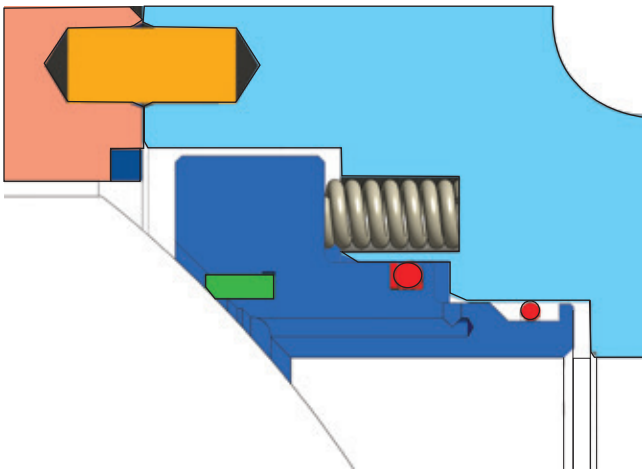
Maintain Your Plant Safety

Safety is at the top of everyone's priority list and protecting your personnel as well as your plant is critical. **KTM** Virgo Series trunnion mounted ball valves are designed to make maintaining a safe process easier with features like a blowout-proof stem, API 607/6FA fire safety certification, built in anti-static devices, and extra wall thickness for increased corrosion resistance, to name a few. **KTM** Virgo Series valves have been rigorously evaluated and are SIL 3 capable. These valves have been designed to meet rigorous industry certifications such as API 6D.



Double Body sealing

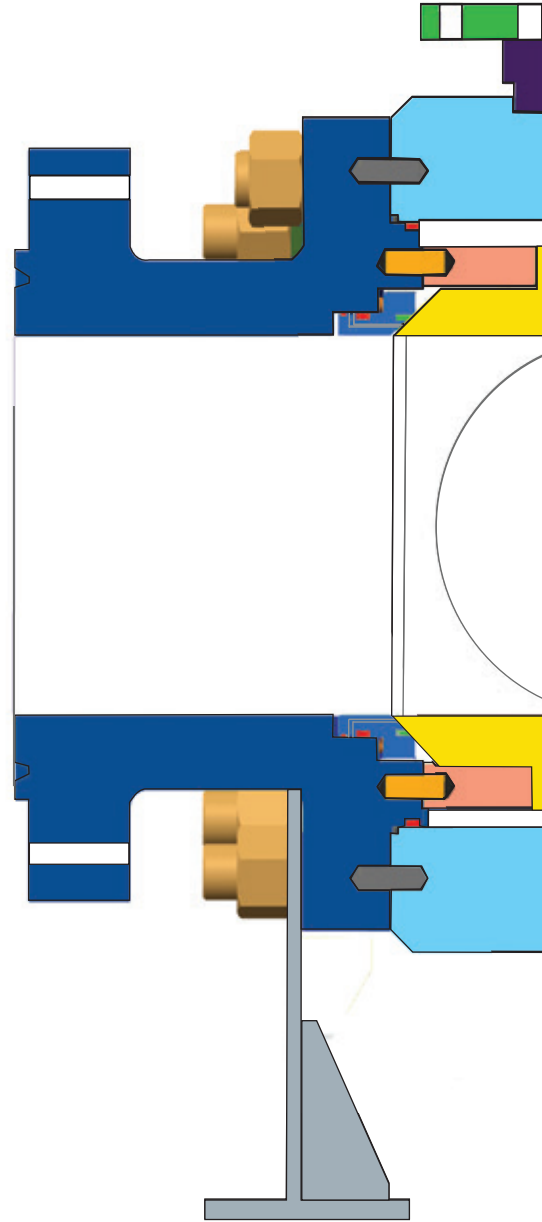
Pipelines often put stress on valve body seals. To overcome these stresses and to ensure a leak free joint, a double body seal is utilized.

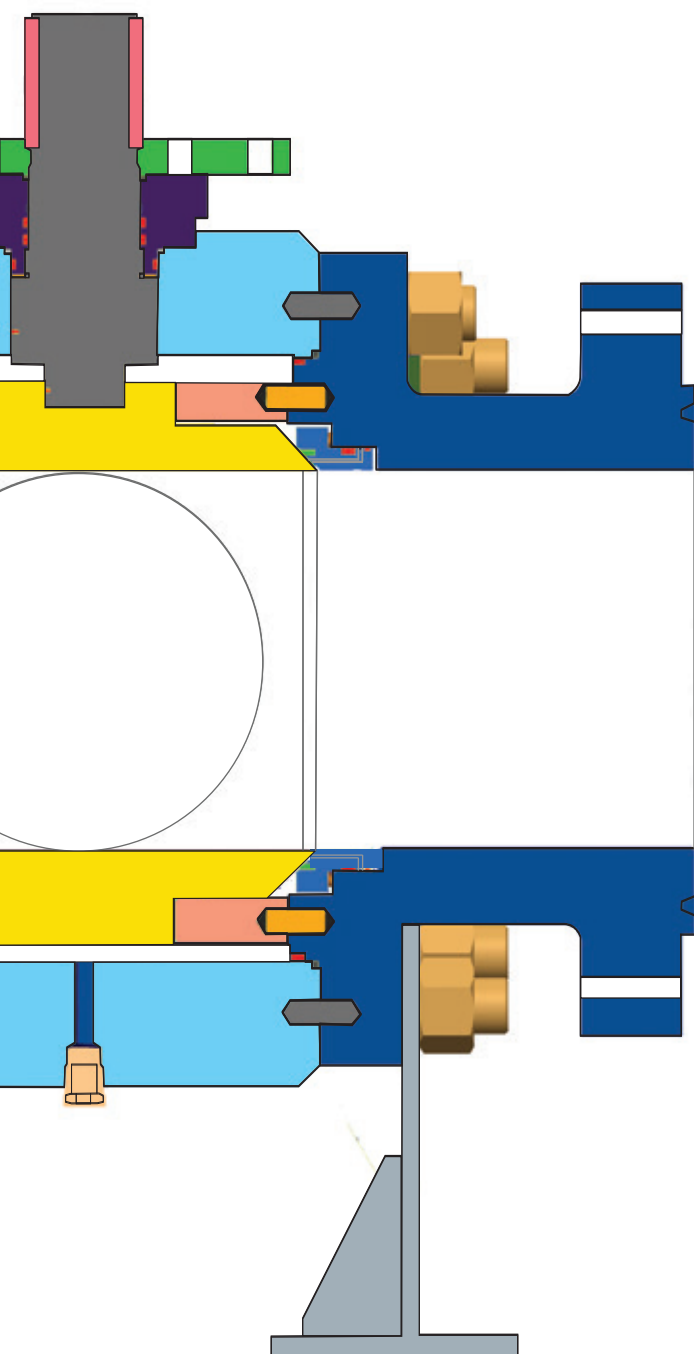


Fire Safe Design

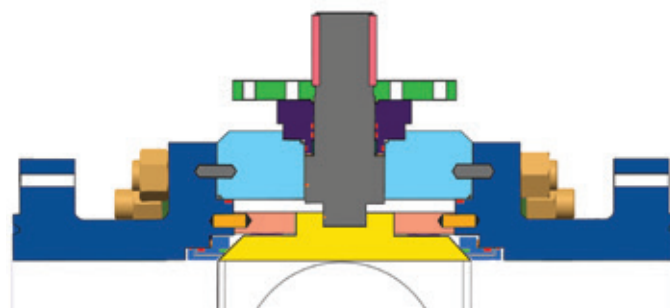
To increase safety, the valve is certified API 607 / 6FA / ISO 10497 fire-safe. If a fire should develop, the valve is designed to provide a metal-to-metal seal.

- Sealant Injection
- Double Block and Bleed
- Extra wall thickness for increased corrosion allowance
- Blowout-proof stem



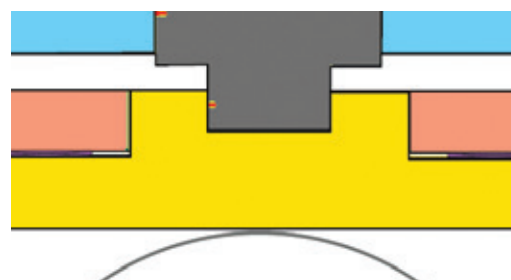


- SIL 3 capable
- Anti-static device maximizes safety
- API 607 / 6FA / ISO 10497 fire safe certification
- Low fugitive emissions



Blowout Proof Stem

The blowout-proof stem provides positive stem retention.

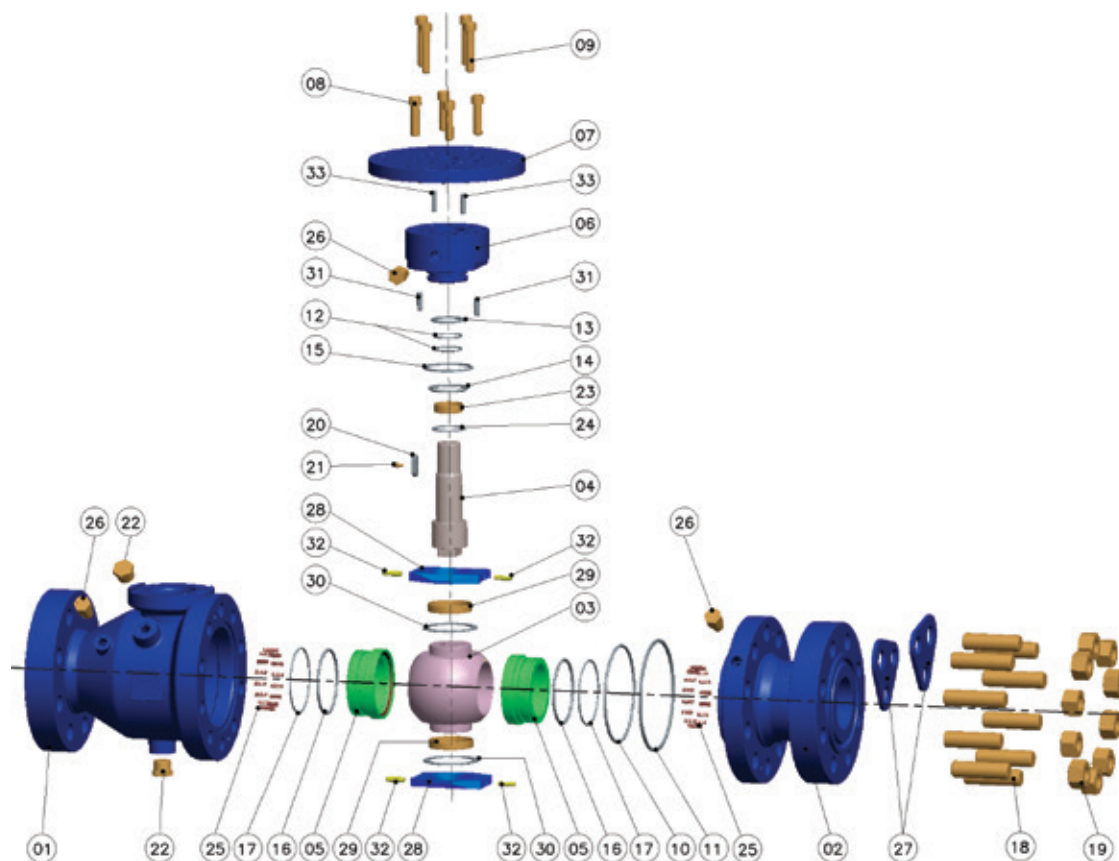


Built-in Anti-static Devices

Built-in antistatic devices in the valve stem ensure electrical continuity between ball, stem and body providing increased safety.

Note: forged 3 Piece Series NL Ball Valve representative drawing only. Consult Emerson Sales for actual product drawings.

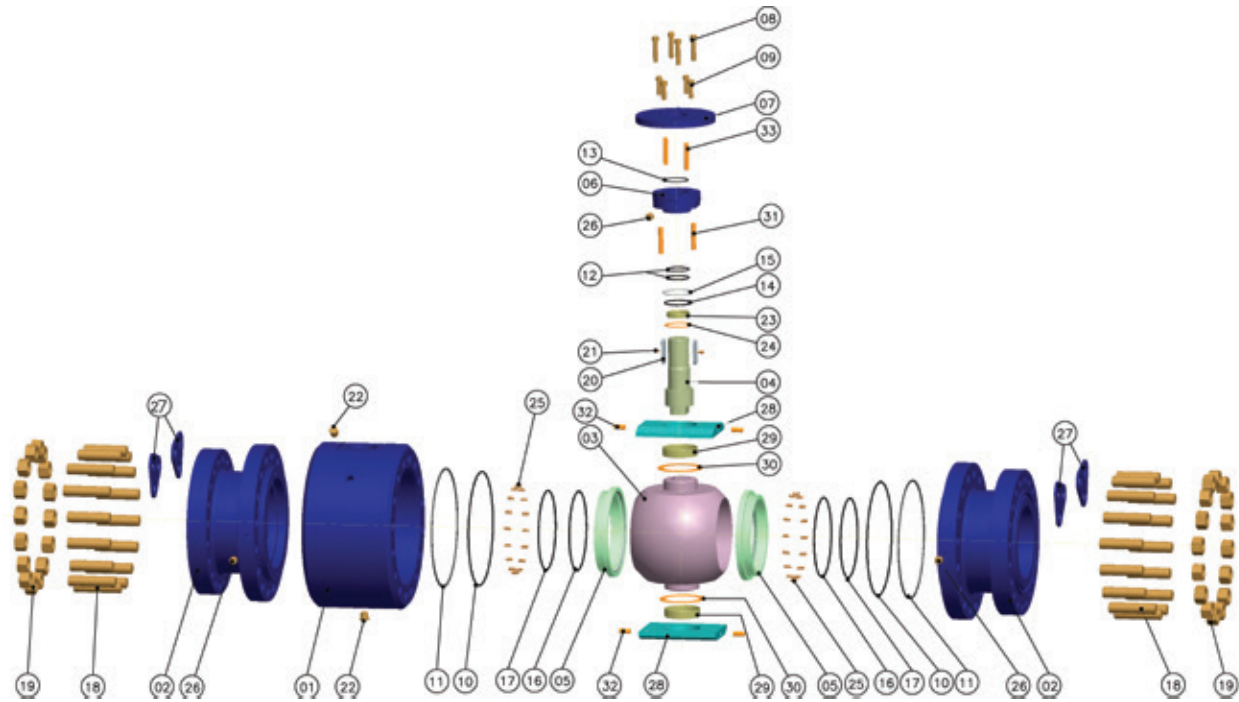
Materials of Construction



Item No.	Part Name	Carbon/Carbon	Carbon/Stainless
01	Body	ASTM A216 GR. WCB	ASTM A216 GR. WCB
02	Adapter	ASTM A216 GR. WCB	ASTM A216 GR. WCB
03	Ball	ASTM A105 with 1 MIL ENP	ASTM A182GR.F316/ASTM A351 GR. CF8M
04	Stem	ASTM A322 GR. 4140 with 1 MIL ENP	ASTM A479 TYPE 316
05	Seat	ASTM A105 with 1 MIL ENP+Devlon™	ASTM A182 GR.F316+Devlon™
06	Housing	ASTM A216 GR. WCB/ASTM A105	ASTM A216 GR. WCB/ASTM A105
07	ISO pad	ASTM A216 GR. WCB/ASTM A105	ASTM A216 GR. WCB/ASTM A105
08	Fastener (ISO Pad-Housing)	ASTM A193 GR. B7M	ASTM A193 GR. B7M
09	Fastener (Housing-Body)	ASTM A193 GR. B7M	ASTM A193 GR. B7M
10	O-ring (Body Seal)	HNBR	HNBR
11	Gasket (Body Seal)	Graphite	Graphite
12	O-ring (Stem Seal)	HNBR	HNBR
13	Gasket (Stem Seal)	Graphite	Graphite
14	O-ring (Housing Seal)	HNBR	HNBR
15	Gasket (Housing Seal)	Graphite	Graphite
16	O-ring (Seat Seal)	HNBR	HNBR
17	O-ring (Seat Sealant)	HNBR	HNBR
18	Stud (Body-Adapter)	ASTM A193 GR. B7M	ASTM A193 GR. B7M
19	Nut (Body-Adapter)	ASTM A194 GR. 2HM	ASTM A194 GR. 2HM
20	Key	ASTM A321 GR.1040	ASTM A321 GR.1040
21	Cap Screw (Key-Stem)	ASTM A193 GR. B8M	ASTM A193 GR. B8M
22	Drain and Vent Plug	ASTM A105	ASTM A105
23	Bearing (Stem)	SS316+PTFE	SS316+PTFE
24	Thrust Washer (Stem)	SS316+PTFE	SS316+PTFE
25	Seat Spring	ASTM B637 UNS N07750	ASTM B637 UNS N07750
26	Sealant Fitting for Nps 4 Class 600 and above	ASTM A479 Type 316	ASTM A479 Type 316
27	Lifting Hook for Nps 4 Class 600 and above	Carbon Steel	Carbon Steel
28	Trunnion Plate	ASTM A216 GR. WCB/ASTM A105	ASTM A216 GR. WCB/ASTM A105
29	Bearing (Trunnion Plate)	SS316+PTFE	SS316+PTFE
30	Thrust Washer (Trunnion)	SS316+PTFE	SS316+PTFE
31	Dowel (Body-Housing)	ASTM A321 GR.1040	ASTM A321 GR.1040
32	Dowel (Trunnion Plate-Body/Adapter)	ASTM A276 Type 316	ASTM A276 Type 316
33	Dowel (ISO Pad-Housing)	ASTM A321 GR.1040	ASTM A321 GR.1040

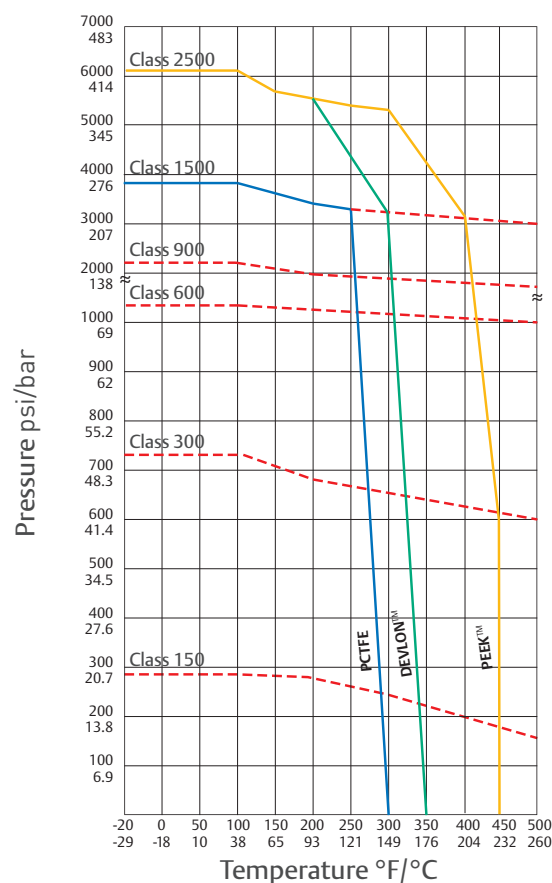
Note: information shown for Series NL Trunnion Mounted Ball Valve Sizes NPS 2,3,4, 6 FB Class 600, 900; NPS 8-18, Class 150-600; NPS 20, FB Class 150-900; NPS 24, FB Class 150-600. For other sizes and materials, contact your local Emerson sales office or Emerson Automation Solutions representative.

Materials of Construction



Item No.	Part Name	11L Body - A105 Trim - CS with ENP Insert - Devlon	16L Body - A105 Trim - SS Insert - Devlon	8LL Body - LF2 Trim - CS with ENP Insert - Devlon	86L Body - LF2 Trim - SS Insert - Devlon
01	Body	ASTM A105	ASTM A105	ASTM A350 GR. LF2	ASTM A350 GR. LF2
02	Adapter	ASTM A10 5	ASTM A105	ASTM A350 GR. LF2	ASTM A350 GR. LF2
03	Ball	ASTM A105 with ENP A694 F60 with ENP	ASTM A182 GR.F316 ASTM A182 GR. F51	A350 LF2 with ENP A694 F60 with ENP	ASTM A182 GR.F316 ASTM A182 GR. F51
04	Stem	ASTM A 182 Gr. FXM19 ASTM A182 Gr. F51	ASTM A 182 Gr. FXM19 ASTM A182 Gr. F51	ASTM A 182 Gr. FXM19 ASTM A182 Gr. F51	ASTM A 182 Gr. FXM19 ASTM A182 Gr. F51
05	Seat	ASTM A105 with ENP+Devlon	ASTM A182 GR.F316+Devlon	ASTM A350 GR.LF2 with ENP+Devlon	ASTM A182 GR.F316+Devlon
06	Housing	ASTM A105	ASTM A105	ASTM A350 GR.LF2	ASTM A350 GR.LF2
07	ISO Pad	ASTM A105	ASTM A105	ASTM A350 GR.LF2	ASTM A350 GR.LF2
08	Fastener (Iso Pad-Housing)	ASTM A193 GR. B7M	ASTM A193 GR. B7M	ASTM A320 GR.L7M	ASTM A320 GR.L7M
09	Fastener (Housing-Body)	ASTM A193 GR. B7M	ASTM A193 GR. B7M	ASTM A320 GR.L7M	ASTM A320 GR.L7M
10	O-ring (Body Seal)	HNBR	HNBR	HNBR (low temperature)	HNBR (low temperature)
11	Gasket (Body Seal)	Graphite	Graphite	Graphite	Graphite
12	O-ring (Stem Seal)	HNBR	HNBR	HNBR (low temperature)	HNBR (low temperature)
13	Gasket (Stem Seal)	Graphite	Graphite	Graphite	Graphite
14	O-ring (Housing Seal)	HNBR	HNBR	HNBR (low temperature)	HNBR (low temperature)
15	Gasket (Housing Seal)	Graphite	Graphite	Graphite	Graphite
16	O-ring (Seat Seal)	HNBR	HNBR	HNBR (low temperature)	HNBR (low temperature)
17	O-ring (Seat Sealant)	HNBR	HNBR	HNBR (low temperature)	HNBR (low temperature)
18	Stud (Body- Adapter)	ASTM A193 GR. B7M	ASTM A193 GR. B7M	ASTM A320 GR.L7M	ASTM A320 GR.L7M
19	Nut (Body-Adapter)	ASTM A194 GR. 2HM	ASTM A194 GR. 2HM	ASTM A194 GR.7M	ASTM A194 GR.7M
20	Key	ASTM A321 GR.1040	ASTM A321 GR.1040	ASTM A182 GR.F51	ASTM A182 GR.F51
21	Cap Screw (Key- Stem)	ASTM A193 GR. B8M	ASTM A193 GR. B8M	ASTM A193 GR. B8M	ASTM A193 GR. B8M
22	Drain and Vent Plug	ASTM A105	ASTM A105	ASTM A350 GR.LF2	ASTM A350 GR.LF2
23	Bearing (Stem)	SS316+PTFE	SS316+PTFE	SS316+PTFE	SS316+PTFE
24	Thrust Washer (Stem)	SS316+PTFE	SS316+PTFE	SS316+PTFE	SS316+PTFE
25	Seat Spring	ASTM B637 UNS N07750	ASTM B637 UNS N07750	ASTM B637 UNS N07750	ASTM B637 UNS N07750
26	Sealant Fitting for NPS 4 Class 600 and above	ASTM A479 Type 316	ASTM A479 Type 316	ASTM A479 Type 316	ASTM A479 Type 316
27	Lifting Hook for NPS 3 Class 1500 and above	Carbon Steel	Carbon Steel	Low temperature Carbon Steel	Low temperature Carbon Steel
28	Trunnion Plate	ASTM A105	ASTM A105	ASTM A350 GR.LF2	ASTM A350 GR.LF2
29	Bearing (Trunnion Plate)	SS316+PTFE	SS316+PTFE	SS316+PTFE	SS316+PTFE
30	Thrust Washer (Trunnion)	SS316+PTFE	SS316+PTFE	SS316+PTFE	SS316+PTFE
31	Dowel (Body-Housing)	ASTM A321 GR.1040	ASTM A321 GR.1040	ASTM A182 GR.F51	ASTM A182 GR.F51
32	Dowel (Trunnion Plate- Body/ Adapter)	ASTM A276 Type 316	ASTM A276 Type 316	ASTM A276 Type 316	ASTM A276 Type 316
33	Dowel (Iso Pad-Housing)	ASTM A321 GR.1040	ASTM A321 GR.1040	ASTM A182 GR.F51	ASTM A182 GR.F51

Pressure Temperature Ratings



Temperature Limits

Typical values for commonly used materials

		Lower limit Deg. °F (°C)	Upper limit Deg. °F (°C)
Body Material	WCB	-20 (-29)	797 (425)
	A105	-20 (-29)	797 (425)
	LCB / LCC	-50 (-46)	653 (345)
	LF2	-50 (-46)	797 (425)
	CF8M	-425 (-254)	1000 (538)
	F316	-325 (-198)	1000 (538)
Seat Material	Devlon TM	-40 (-40)	As per graph
	Peek TM	-50 (-46)	As per graph
	PCTFE	-320 (-196)	As per graph
O-Ring Material	HNBR	-20 (-29)	300 (149)
	Low Temp HNBR	-40 (-40)	300 (149)
	FKM	-4 (-20)	400 (204)
	Low Temp FKM	-40 (-40)	350 (177)
	FFKM	-4 (-20)	620 (327)

These ratings are a general guide. Due to the variety of operating conditions and applications for these products, the user, through his/her own analysis and testing, is solely responsible for making the final selection of the products and assuming that all performance, safety and warning requirements of the application are met.

Common Applications

Trunnion Valve Applications

Gathering

- Onshore
- Offshore
- Headers and Manifolds
- Isolation
- ESDV and SDV and BDV
- Safety Systems
- Metering

Distribution and Transmission

- Compressor Stations
- Metering and Regulating Stations
- Bypass Lines
- Isolation
- ESDV and SDV and BDV
- Safety Systems
- AOV and ROV
- Trunk and Lateral Lines
- Tanks and Terminals

Processing

- Separators and Treaters
- Metering
- Isolation
- ESDV and SDV and BDV
- Safety Systems
- Bypass lines

Refining

- Atmospheric Distillation
- Vacuum Distillation
- Continuous Catalytic Reforming
- Fixed Bed Hydrotreating
- Fixed Bed Hydrocracking
- Delayed Coking
- Visbreaking
- Deasphalting
- Gasification

Chemical and Petrochemical

- Ethylene plants
- Ethylene crackers
- Propylene plants
- Hydrogen gas service
- Propane gas service
- Brine, CO₂ vapor and steam service
- Cryogenic services
- Thermal fluids
- Tail gas
- Hydrocarbon gas service
- Flare inlet and manifold isolation
- PSA and molecular sieves
- Coker plants
- Pump isolation

Other Applications

- Power Generation
- Storage and Distribution
- Tanks and Terminals
- Cooling water
- Equipment isolation

Automation Capabilities

KTM Virgo Series Ball valves can be automated to meet your unique system requirements. With our low operating torque and universal ISO mounting design, we can provide solutions for isolation, emergency shutdown, remote operated SDVs and safety instrumented systems (SIS-SIL3 certified). Lower stem torques can reduce actuator sizes to save space and lower cost.

Available automation packages include:

- Pneumatic actuators
- Gas or gas over oil actuators
- Line break systems
- Fireproof actuator systems
- Motor-operated valves
- Hydraulic/electro hydraulic-operated systems
- Valves with digital partial stroking
- HIPPS
- SIS

Series NL

Side Entry Soft Seated Trunnion Mounted Ball Valve with O-ring Stem Seal

The **KTM** Virgo Series NL is available with a large variety of body, seat and seal materials arrangements to best fit your process requirements. Stem seal leak resistance and stringent fugitive emissions compliance are maintained through a multiple stem seal design that includes two O-rings and a fire-safe gasket. This stem seal arrangement maintains sealing performance without the need for adjustments.



- Body Configurations: 2 Piece Cast, 3 piece Forged
- Available Size: 2" to 60"
- Pressure Classes: ASME 150# to 2500#
- Featured Certifications: API 6D, API 607, API 6FA, API 598, BS EN ISO 17292, BS EN ISO 10497, ISO 15848, SIL3 capable
- Body Materials: Carbon Steel, Stainless Steel, Low Temp Carbon Steel, Duplex, Alloys
- Activation Options: Manual, Bare Stem, Gear, Hand Lever, Fully Automated
- Bore: Full, Reduced

Product Selection Code – Series NL

Size		Series	Construction	End Connection	Ratings	Bore	Body	Ball / Seat Ring * / Stem	Coating (Ball and Seat)	Seat Insert (Ball Seal)	Seals (O-ring, Lipseal)	Operator (If Applicable)	Other (If Applicable)
2	22	NL	2	RF	1	F	C	F	1	G	1	A	SI
3	24		3	RS	2		L	M	3	L	2	B	SE
4	30		4	FF	3		7	N	1	P	3	C	BE
6	36		6	FS	5		2	1	3	E	4	G	DP
8	40		8	RT	6		6	8	1	V	5	L	SD
10	42		10	BW	9		5	Y	3	N	6	Z	MF
12	44		12	BP			4	2	9		7		ZZ
14	48		14	6B			3	P	4		A		
16	52		16	HB			D	5			K		
18	56		18	ZZ			E	4			E		
20	60		20										

Series

NL Soft seated Trunnion Side Entry with O-ring stem sealing - API 6D

Construction

- 2** Two Piece - Cast: ≤ 24"
- F** Three Piece - Forged: > 30"
- 3** Three Piece - Cast
- R** Two Piece - Forged

End Connection

- RF** Flanged Raised Face Serrated
- RS** Flanged Raised Face Smooth
- FF** Flanged Flat Face Serrated
- FS** Flanged Flat Face Smooth
- RT** Flanged RTJ
- BW** Butt Weld
- BP** Butt Weld with pup piece
- 6B** Flanged RTJ (API 6A)
- HB** Hub connection
- ZZ** Other than above

Ratings

- 1** 150#
- 2** 1500#
- 3** 300#
- 5** 2500#
- 6** 600#
- 9** 900#

Bore

- F** Full
- R** Reduced/ Regular

Body

- C** WCB
- L** LCB
- 7** WCC
- 2** LCC
- 6** CF8M or F316
- 5** CF3M or F316L
- 4** CF8 or F304
- 3** CF3 or F304L
- D** Duplex (4A or F51)
- E** Super Duplex (5A or F53)
- F** Super Duplex (6A or F55)

- M** Inconel® (825 or Cu5MCuC)
- N** Inconel® (625 or CW6MC)
- 1** A105
- 8** LF2
- 9** F60 (Carbon Steel)
- A** F6A
- G** Duplex F60
- Z** Other than above

Ball / Seat Ring * / Stem

- 1** A105/ A105/ 4140
 - 8** LF2/ LF2/ 17-4 PH
 - L** LF2/ LF2/ LF2
 - 6** 316/ 316/ 316
 - U** Duplex / 316 / 316 *
 - Y** Duplex / 316 / 17-4 PH
 - 2** 316/ 316/ 17-4 PH
 - 7** 316/ 316/ Duplex
 - P** 316/ 316/ Inconel®
 - 5** 316L/ 316L/ 316L
 - 4** 304/ 304/ 304
 - A** F6A/ F6A/ 410
 - D** Duplex (4A or F51)
 - E** Super Duplex (5A or F53)
 - F** Super Duplex (6A or F55)
 - M** Inconel® (825 or Cu5MCuC)
 - N** Inconel® (625 or CW6MC)
 - 3** 316/ 316/ XM-19
 - 9** F60 (Carbon Steel)
 - G** Duplex F60
 - Z** Other than above
- * Use on Cast 6" 1500# and 8" 900# and higher instead of 316

Coating (Ball and Seat Rings)

- 1** ENP 1 mil (25 Micron)*
 - 3** ENP 3 mil (75 Micron)*
 - N** Not Applicable
 - Z** Other than above
- * Also from stem, if in Carbon steel material

Seat Insert (Ball Seal)

- G** RTFE
- L** Devlon™
- P** PEEK
- E** PCTFE (Kel F)
- V** Viton®
- N** Not Applicable
- Z** Other than above

Seals (O-ring *, Lip Seal, Gasket)

- 1** HNBR
 - 2** HNBR 90 Durometer
 - 3** HNBR AED (90D) *
 - 4** HNBR Low Temp
 - 5** FKM/ Viton®
 - 6** FKM AED/ Viton® AED
 - 7** FKM Low Temp
 - A** FEPM
 - K** FFKM
 - E** EPDM
 - L** Lip Seals (Material as Specified)
 - T** PTFE sealing (No graphite) **
 - Z** Other than above
- * AED Orings mandatory for ASME Class 600 and above
- ** Non Fire Safe sealing

Operator

- A** Actuator
- B** Bare Stem
- C** Gear with Chain Wheel
- G** Gear with Hand Wheel
- L** Lever/ Wrench
- Z** Other than above

Other (If Applicable)

- SI** Sealant Injection
- SE** Stem Extension
- BE** Bonnet Extension
- DP** Double Piston Effect (Non-Relieving)
- SD** Single Piston Effect (U/S); Double Piston Effect (D/S)
- MF** Multiple Features - eg., stem extension with DP seats
- ZZ** Other than above

EXAMPLE: 8 NL 2 - RF 3 - F - C 1 1 - L - 1 - G - SI

24" Soft seated trunnion top entry ball valve, O-ring seal configuration API 6D, 1 piece cast body, RTJ flanged ends, 600# class, Full port, WCB body, A105 ball, seat rings and 4140 stem w/ 1 mil ENP, Devlon seat inserts, HNBR AED O-rings, gear with Handwheel, with sealant injection

Series NG

Side Entry Soft Seated Trunnion Mounted Ball Valve with Adjustable Packing Gland Stem Seal

KTM Virgo Series NG ball valve is optimized for your applications benefiting from an adjustable packing gland. This **KTM** Virgo Series NG valve offers a fully adjustable layered graphite packing gland and a double O-ring seal to provide the utmost leak integrity and adherence to demanding fugitive emissions standards for your processes.



- Body Configurations: 2 Piece Cast
- Available Size: 2" to 30"
- Pressure Classes: ASME 150# to 1500#
- Featured Certifications: API 6D, API 607, API 6FA, API 598, BS EN ISO 17292, BS EN ISO 10497, ISO 15848, SIL3 capable
- Body Materials: Carbon Steel, Stainless Steel, Low Temp Carbon Steel, Duplex, Alloys
- Activation Options: Manual, Bare Stem, Gear, Hand Lever, Fully Automated
- Bore: Full, Reduced

Product Selection Code – Series NG

Size		Series	Construction	End Connection		Ratings	Bore	Body		Ball / Seat Ring* / Stem	Coating (Ball and Seat)	Seat Insert (Ball Seal)	Seals (O-ring, Lipseal)		Operator (If Applicable)	Other (If Applicable)
2	22	NG	2	RF	1		F	C	F	1	1	G	1	L	A	SI
3	24		3	RS	2			L	M	8	3	L	2	T	B	SE
0			0	FF	3			6	N	6	N	E	3		C	BE
6			6	FS	6			U	F	U		V	4		C	DP
8			8	RT	9			Y	M	2		N	5		L	SP
10			10	BW	5			7	N	7			6			SD
12			12	BP				4		5			7			MF
14			14	6B				3		4			A			ZZ
16			16	HB				D		E			K			
18			18	ZZ									E			
20			20													

Series

NG Soft seated Trunnion Side Entry with Gland Packing and O-ring stem sealing - API 6D

Construction

- 2** Two Piece - Cast: <= 30"
- F** Three Piece - Forged: =>30"
- 3** Three Piece - Cast
- R** Two Piece - Forged

End Connection

- RF** Flanged Raised Face Serrated
- RS** Flanged Raised Face Smooth
- FF** Flanged Flat Face Serrated
- FS** Flanged Flat Face Smooth
- RT** Flanged RTJ
- BW** Butt Weld
- BP** Butt Weld with pup piece
- 6B** Flanged RTJ (API 6A)
- HB** Hub connection
- ZZ** Other than above

Ratings

- 1** 150#
- 2** 1500#
- 3** 300#
- 6** 600#
- 9** 900#
- 5** 2500#

Bore

- F** Full
- R** Reduced/ Regular

Body

- C** WCB
- L** LCB
- 7** WCC
- 2** LCC
- 6** CF8M or F316
- 5** CF3M or F316L
- 4** CF8 or F304
- 3** CF3 or F304L

- D** Duplex (4A or F51)
- E** Super Duplex (5A or F53)
- F** Super Duplex (6A or F55)
- M** Inconel® (825 or Cu5MCuC)
- N** Inconel® (625 or CW6MC)
- Z** Other than above

Ball / Seat Ring* / Stem

- 1** A105/ A105/ 4140
- 8** LF2/ LF2/ 17-4 PH
- L** LF2/ LF2/ LF2
- 6** 316/ 316/ 316
- U** Duplex / 316 / 316 *
- Y** Duplex / 316 / 17-4 PH
- 2** 316/ 316/ 17-4 PH
- 7** 316/ 316/ Duplex
- P** 316/ 316/ Inconel®
- 5** 316L/ 316L/ 316L
- 4** 304/ 304/ 304
- A** F6A/ F6A/ 410
- D** Duplex (4A or F51)
- E** Super Duplex (5A or F53)
- F** Super Duplex (6A or F55)
- M** Inconel® (825 or Cu5MCuC)
- N** Inconel® (625 or CW6MC)
- Z** Other than above
- *** Use on Cast 6" 1500# and 8" 900# and higher instead of 316

Coating (Ball and Seat Rings)

- 1** ENP 1 mil (25 Micron)*
- 3** ENP 3 mil (75 Micron)*
- N** Not Applicable
- Z** Other than above
- *** Also from stem, if in Carbon steel material

Seat Insert (Ball Seal)

- G** RTFE
- L** Devlon™
- P** PEEK
- E** PCTFE (Kel F)
- V** Viton®

- N** Not Applicable
- Z** Other than above

Seals (O-ring*, Lip Seal, Gasket)

- 1** HNBR
- 2** HNBR 90 Durometer
- 3** HNBR AED (90D) *
- 4** HNBR Low Temp
- 5** FKM/ Viton®
- 6** FKM AED/ Viton® AED
- 7** FKM Low Temp
- A** FEPM
- K** FFKM
- E** EPDM
- L** Lip Seals (Material as Specified)
- T** PTFE sealing (No graphite) **
- Z** Other than above
- *** AED Orings mandatory for ASME Class 600 and above
- **** Non Fire Safe sealing

Operator

- A** Actuator
- B** Bare Stem
- C** Gear with Chain Wheel
- G** Gear with Hand Wheel
- L** Lever/ Wrench
- Z** Other than above

Other (If Applicable)

- SI** Sealant Injection
- SE** Stem Extension
- BE** Bonnet Extension
- DP** Double Piston Effect (Non-Relieving)
- SD** Single Piston Effect (U/S); Double Piston Effect (D/S)
- MF** Multiple Features - eg., stem extension with DP seats
- ZZ** Other than above

EXAMPLE: 12 NG 2 - RT 9 - F - C 1 1 - L - 3 - G - SI

12" Soft seated trunnion side entry ball valve, gland packing and O-ring seal configuration API 6D, 2 piece cast body, RTJ flanged ends, 900# class, Full port, WCB body, A105 ball, seat rings and 4140 stem w/ 1 mil ENP, Devlon seat inserts, HNBR AED O-rings, gear with Handwheel, with sealant injection

Series MG

Side Entry Metal Seated Trunnion Mounted Ball Valve with Adjustable Packing Gland Seal

KTM Virgo Series MG metal seated trunnion ball valves are designed and built to provide outstanding performance in your higher-temperature applications. The ball and seat are mate-lapped through a proprietary process to provide “zero” leakage* and then they are hard faced with tungsten carbide or chrome carbide using an in-house High Velocity Oxygen Fuel (HVOF) process to improved performance and increased life of the valve.

* Leakage shutoff per international standards like API 6D.



- Body Configurations: 2 Piece Cast, 3 piece Forged
- Available Size: 2” to 60”
- Pressure Classes: ASME 150# to 2500#
- Featured Certifications: API 6D, API 607, API 6FA, API 598, BS EN ISO 17292, BS EN ISO 10497, ISO 15848, SIL3 capable
- Body Materials: Carbon Steel, Stainless Steel, Low Temp Carbon Steel, Duplex, Alloys
- Activation Options: Manual, Bare Stem, Gear, Hand Lever, Fully Automated
- Bore: Full, Reduced

Product Selection Code – Series MG

Size		Series	Construction	End Connection		Ratings	Bore	Body		Ball / Seat Ring* / Stem	Coating (Ball and Seat)	Seat Insert (Ball Seal)	Seals (O-ring, Lipseal)		Operator (If Applicable)	Other (If Applicable)
2	22	MG	F	RF	1			C	1	E	C	N	1		A	SI
3	24		2	RS	2			F	8	F	T		2		B	SE
0			3	FF	3			M	6	M			3		C	BE
6			R	FS	5			N	2	N			4		C	DP
8				RT	6				7				5		L	SD
10				BW	9				P				6		Z	MF
12				BP					5				7			ZZ
14				6B					4				A			
16				HB					3				K			
18				ZZ					D				E			
20									E							

Series

MG Soft seated Trunnion Side Entry with gland packing and O-ring stem sealing - API 6D

Construction

- F** Three Piece - Forged: =>30"
- 2** Two Piece - Cast: <= 30"
- 3** Three Piece - Cast
- R** Two Piece - Forged

End Connection

- RF** Flanged Raised Face Serrated
- RS** Flanged Raised Face Smooth
- FF** Flanged Flat Face Serrated
- FS** Flanged Flat Face Smooth
- RT** Flanged RTJ
- BW** Butt Weld
- BP** Butt Weld with pup piece
- 6B** Flanged RTJ (API 6A)
- HB** Hub connection
- ZZ** Other than above

Ratings

- 1** 150#
- 2** 1500#
- 3** 300#
- 5** 2500#
- 6** 600#
- 9** 900#

Bore

- F** Full
- R** Reduced/ Regular

Body

- C** WCB
- L** LCB
- 7** WCC
- 2** LCC

- 6** CF8M or F316
- 5** CF3M or F316L
- 4** CF8 or F304
- 3** CF3 or F304L
- D** Duplex (4A or F51)
- E** Super Duplex (5A or F53)
- F** Super Duplex (6A or F55)
- M** Inconel® (825 or Cu5MCuC)
- N** Inconel® (625 or CW6MC)
- Z** Other than above

Ball / Seat Ring* / Stem

- 1** A105/ A105/ 4140
- 8** LF2/ LF2/ 17-4 PH
- L** LF2/ LF2/ LF2
- 6** 316/ 316/ 316
- 2** 316/ 316/ 17-4 PH
- 7** 316/ 316/ Duplex
- P** 316/ 316/ Inconel®
- 5** 316L/ 316L/ 316L
- A** F6A/ F6A/ 410
- D** Duplex (4A or F51)
- E** Super Duplex (5A or F53)
- F** Super Duplex (6A or F55)
- M** Inconel® (825 or Cu5MCuC)
- N** Inconel® (625 or CW6MC)
- G** Duplex F60
- Z** Other than above

Coating (Ball and Seat Rings)

- C** Chrome Carbide
- T** Tungsten Carbide
- Z** Other than above
- *** Also from stem, if in Carbon steel material

Seat Insert (Ball Seal)

N Not Applicable

Seals (O-ring*, Lip Seal, Gasket)

- 1** HNBR
- 2** HNBR 90 Durometer
- 3** HNBR AED *
- 4** HNBR Low Temp
- 5** FKM/ Viton®
- 6** FKM AED/ Viton® AED
- 7** FKM Low Temp
- A** FEPM
- K** FFKM
- E** EPDM
- L** Lip Seals (Material as Specified)
- Z** Other than above
- *** AED Orings mandatory for ASME Class 600 and above
- **** Non Fire Safe sealing

Operator

- A** Actuator
- B** Bare Stem
- C** Gear with Chain Wheel
- G** Gear with Hand Wheel
- L** Lever/ Wrench
- Z** Other than above

Other (If Applicable)

- SI** Sealant Injection
- SE** Stem Extension
- BE** Bonnet Extension
- DP** Double Piston Effect (Non-Relieving)
- SD** Single Piston Effect (U/S); Double Piston Effect (D/S)
- MF** Multiple Features - eg., stem extension with DP seats
- ZZ** Other than above

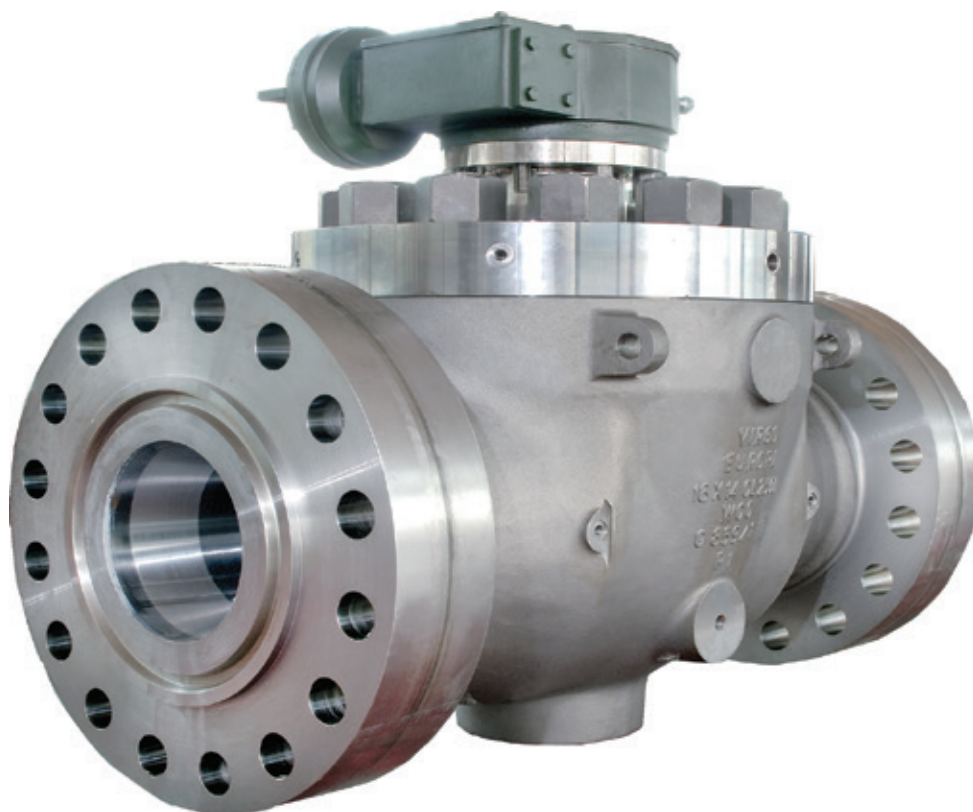
EXAMPLE: **6** **MG** **F** - **RT** **9** - **F** - **C** **1** **C** - **N** - **3** - **G** - **SI**

6" Metal seated trunnion mounted ball valve, side entry, Gland packing & O-ring seal configuration API 6D, 3 piece forged body, RTJ flanged ends, 900# class, Full port, WCB body, carbon steel ball, seat rings with chrome carbide coating and 4140 stem w/ 1 mil ENP, HNBR O-rings, gear with Handwheel, with sealant injection

Series EL

Top Entry Soft Seated Trunnion Mounted Ball Valve with O-ring Stem Seal

KTM Virgo Series EL top entry soft seated ball valves are designed to provide extended operation in many demanding processes. However, should maintenance be required, Series EL helps you simplify maintenance and reduce your downtime with inline field repairability. Series EL also incorporates multiple safety features such as anti-static devices, blowout-proof stem, and fire safe gaskets to help you protect your people and processes.



- Body Configurations: 1 Piece Cast or Forged
- Available Size: 2" to 60"
- Pressure Classes: ASME 150# to 2500#
- Featured Certifications: API 6D, API 607, API 6FA, API 598, BS EN ISO 17292, BS EN ISO 10497, ISO 15848, SIL3 capable
- Body Materials: Carbon Steel, Stainless Steel, Low Temp Carbon Steel, Duplex, Alloys
- Activation Options: Manual, Bare Stem, Gear, Hand Lever, Fully Automated
- Bore: Full, Reduced

Product Selection Code – Series EL

Size		Series	Construction	End Connection		Ratings	Bore	Body		Ball / Seat Ring* / Stem	Coating (Ball and Seat)	Seat Insert (Ball Seal)	Seals (O-ring, Lipseal)		Operator (If Applicable)	Other (If Applicable)
2	22	EL	1	RF		1	F	C	F	1	1	G	1	L	A	SI
3	24		G	RS		2	R	L	M	8	3	L	2	T	B	SE
4	30			FF		3		6	N	L	N	E	3	Z	C	BE
6	36			FS		5		2	U	6		V	4		C	DP
8	40			RT		6		5	Y	U		N	5		L	SD
10	42			BW		9		4	2	Y			6		L	MF
12	44			BP				3	7	7			7		L	ZZ
14	48			6B				D	P	5			A		L	
16	52			HB						4			K		L	
18	56			ZZ									E		L	
20	60														L	

Series

EL Soft seated Trunnion Top Entry with O-ring stem sealing - API 6D

Construction

- 1 One Piece - Cast: <=24"
- G One Piece - Forged: => 30"

End Connection

- RF Flanged Raised Face Serrated
- RS Flanged Raised Face Smooth
- FF Flanged Flat Face Serrated
- FS Flanged Flat Face Smooth
- RT Flanged RTJ
- BW Butt Weld
- BP Butt Weld with pup piece
- 6B Flanged RTJ (API 6A)
- HB Hub connection
- ZZ Other than above

Ratings

- 1 150#
- 2 1500#
- 3 300#
- 5 2500#
- 6 600#
- 9 900#

Bore

- F Full
- R Reduced/ Regular

Body

- C WCB
- L LCB
- 7 WCC
- 2 LCC
- 6 CF8M or F316
- 5 CF3M or F316L
- 4 CF8 or F304
- 3 CF3 or F304L
- D Duplex (4A or F51)
- E Super Duplex (5A or F53)
- F Super Duplex (6A or F55)
- M Inconel® (825 or Cu5MCuC)

N Inconel® (625 or CW6MC)

1 A105

8 LF2

9 F60 (Carbon Steel)

G Duplex F60

Z Other than above

Ball / Seat Ring* / Stem

- 1 A105/ A105/ 4140
 - 8 LF2/ LF2/ 17-4 PH
 - L LF2/ LF2/ LF2
 - 6 316/ 316/ 316
 - U Duplex / 316 / 316 *
 - Y Duplex / 316 / 17-4 PH
 - 2 316/ 316/ 17-4 PH
 - 7 316/ 316/ Duplex
 - P 316/ 316/ Inconel®
 - 5 316L/ 316L/ 316L
 - 4 304/ 304/ 304
 - A F6A/ F6A/ 410
 - D Duplex (4A or F51)
 - E Super Duplex (5A or F53)
 - F Super Duplex (6A or F55)
 - M Inconel® (825 or Cu5MCuC)
 - N Inconel® (625 or CW6MC)
 - 3 316/ 316/ XM-19
 - 9 F60 (Carbon Steel)
 - G Duplex F60
 - Z Other than above
- * Use on Cast 6" 1500# and 8" 900# and higher instead of 316

Coating (Ball and Seat Rings)

- 1 ENP 1 mil (25 Micron)*
 - 3 ENP 3 mil (75 Micron)*
 - N Not Applicable
 - Z Other than above
- * Also from stem, if in Carbon steel material

Seat Insert (Ball Seal)

- G RTFE
- L Devlon™
- P PEEK
- E PCTFE (Kel F)

V Viton®

N Not Applicable

Z Other than above

Seals (O-ring*, Lip Seal, Gasket)

- 1 HNBR
 - 2 HNBR 90 Durometer
 - 3 HNBR AED (90D) *
 - 4 HNBR Low Temp
 - 5 FKM/ Viton®
 - 6 FKM AED/ Viton® AED
 - 7 FKM Low Temp
 - A FEPM
 - K FFKM
 - E EPDM
 - L Lip Seals (Material as Specified)
 - T PTFE sealing (No graphite) **
 - Z Other than above
- * AED Orings mandatory for ASME Class 600 and above
- ** Non Fire Safe sealing

Operator

- A Actuator
- B Bare Stem
- C Gear with Chain Wheel
- G Gear with Hand Wheel
- L Lever/ Wrench
- Z Other than above

Other (If Applicable)

- SI Sealant Injection
- SE Stem Extension
- BE Bonnet Extension
- DP Double Piston Effect (Non-Relieving)
- SD Single Piston Effect (U/S); Double Piston Effect (D/S)
- MF Multiple Features - eg., stem extension with DP seats
- ZZ Other than above

EXAMPLE: 24 EL 1 - RT 6 - F - C 1 1 - L - 3 - G - SI

24" Soft seated trunnion top entry ball valve, O-ring seal configuration API 6D, 1 piece cast body, RTJ flanged ends, 600# class, Full port, WCB body, A105 ball, seat rings and 4140 stem w/ 1 mil ENP, Devlon seat inserts, HNBR AED O-rings, gear with Handwheel, with sealant injection

Series UL

Top Entry Metal Seated Trunnion Mounted Ball Valve with O-Ring Stem Seal

KTM Virgo Series UL top entry metal seated ball valve combines the high temperature handling capabilities of a metal seated valve and the straightforward maintenance capabilities of a top entry valve into one package. “Zero” leakage* is achieved through a proprietary ball and seat mate lapping process. The ball and seat are then hard faced with tungsten carbide or chrome carbide using a High Velocity Oxygen Fuel (HVOF) process to improve performance and extend service life.

* Leakage shutoff per international standards like API 6D.



- Body Configurations: 1 Piece Cast or Forged
- Available Size: 2" to 60"
- Pressure Classes: ASME 150# to 2500#
- Featured Certifications: API 6D, API 607, API 6FA, API 598, BS EN ISO 17292, BS EN ISO 10497, ISO 15848, SIL3 capable
- Body Materials: Carbon Steel, Stainless Steel, Low Temp Carbon Steel, Duplex, Alloys
- Activation Options: Manual, Bare Stem, Gear, Hand Lever, Fully Automated
- Bore: Full, Reduced

Product Selection Code – Series UL

Size		Series	Construction	End Connection		Ratings	Bore	Body		Ball / Seat Ring* / Stem	Coating (Ball and Seat)	Seat Insert (Ball Seal)	Seals (O-ring, Lipseal)		Operator (If Applicable)	Other (If Applicable)
2	22	UL	1 G	RF	RS	1	F	C	F	1	C	N	1	L	A	SI
3	24			RS	FF	2		L	M	8			2			
4	30			FF	RT	3		6	N	LF2						
6	36			FS	RT	5		316		LF2/ LF2						
8	40			RT	BW	6		Duplex		316/ 316						
10	42			BW	BP	7		316/ 316/ Duplex		316/ 316/ Duplex						
12	44			BP	6B	9		316L/ 316L/ 316L		316L/ 316L/ 316L						
14	48			6B	HB			304/ 304/ 304		304/ 304/ 304						
16	52			HB	ZZ			F6A/ F6A/ 410		F6A/ F6A/ 410						
18	56			ZZ				Duplex (4A or F51)		Duplex (4A or F51)						
20	60							Super Duplex (5A or F53)		Super Duplex (5A or F53)						

Series

UL Metal seated Trunnion Top Entry with O-ring stem sealing - API 6D

Construction

- 1** One Piece - Cast
- G** One Piece - Forged

End Connection

- RF** Flanged Raised Face Serrated
- RS** Flanged Raised Face Smooth
- FF** Flanged Flat Face Serrated
- FS** Flanged Flat Face Smooth
- RT** Flanged RTJ
- BW** Butt Weld
- BP** Butt Weld with pup piece
- 6B** Flanged RTJ (API 6A)
- HB** Hub connection
- ZZ** Other than above

Ratings

- 1** 150#
- 2** 1500#
- 3** 300#
- 5** 2500#
- 6** 600#
- 9** 900#

Bore

- F** Full
- R** Reduced/ Regular

Body

- C** WCB
- L** LCB
- 7** WCC
- 2** LCC
- 6** CF8M or F316
- 5** CF3M or F316L
- 4** CF8 or F304
- 3** CF3 or F304L
- D** Duplex (4A or F51)

- E** Super Duplex (5A or F53)
- F** Super Duplex (6A or F55)
- M** Inconel® (825 or Cu5MCuC)
- N** Inconel® (625 or CW6MC)
- 1** A105
- 8** LF2
- 9** F60 (Carbon Steel)
- G** Duplex F60
- Z** Other than above

Ball / Seat Ring* / Stem

- 1** A105/ A105/ 4140
- 8** LF2/ LF2/ 17-4 PH
- L** LF2/ LF2/ LF2
- 6** 316/ 316/ 316
- U** Duplex / 316 / 316
- Y** Duplex / 316 / 17-4 PH
- 2** 316/ 316/ 17-4 PH
- 7** 316/ 316/ Duplex
- P** 316/ 316/ Inconel®
- 5** 316L/ 316L/ 316L
- 4** 304/ 304/ 304
- A** F6A/ F6A/ 410
- D** Duplex (4A or F51)
- E** Super Duplex (5A or F53)
- F** Super Duplex (6A or F55)
- M** Inconel® (825 or Cu5MCuC)
- N** Inconel® (625 or CW6MC)
- 3** 316/ 316/ XM-19
- 9** F60 (Carbon Steel)
- G** Duplex F60
- Z** Other than above

Coating (Ball and Seat Rings)

- 1** ENP 1 mil (25 Micron)*
- 3** ENP 3 mil (75 Micron)*
- N** Not Applicable
- Z** Other than above
- *** Also from stem, if in Carbon steel material

Seat Insert (Ball Seal)

- N** Not Applicable

Seals (O-ring*, Lip Seal, Gasket)

- 1** HNBR
- 2** HNBR 90 Durometer
- 3** HNBR AED (90D) *
- 4** HNBR Low Temp
- 5** FKM/ Viton®
- 6** FKM AED/ Viton® AED
- 7** FKM Low Temp
- A** FEPM
- K** FFKM
- E** EPDM
- L** Lip Seals (Material as Specified)
- Z** Other than above
- *** AED Orings mandatory for ASME Class 600 and above
- **** Non Fire Safe sealing

Operator

- A** Actuator
- B** Bare Stem
- C** Gear with Chain Wheel
- G** Gear with Hand Wheel
- L** Lever/ Wrench
- Z** Other than above

Other (If Applicable)

- SI** Sealant Injection
- SE** Stem Extension
- BE** Bonnet Extension
- DP** Double Piston Effect (Non-Relieving)
- SD** Single Piston Effect (U/S); Double Piston Effect (D/S)
- MF** Multiple Features - eg., stem extension with DP seats
- ZZ** Other than above

EXAMPLE: **4** **UL** **1** - **RT** **6** - **F** - **C** **1** **C** - **N** - **3** - **B** - **SI**

4" Metal seated trunnion top entry ball valve, O-ring seal configuration API 6D, 1 piece cast body, RTJ flanged ends, 600# class, Full port, WCB body, A105 ball, seat rings with chrome carbide coating and 4140 stem w/ 1 mil ENP, HNBR AED O-rings, Bare stem

Series WL

Welded Body Soft Seated Trunnion Mounted Ball Valve

KTM Virgo Series WL welded body ball valve utilizes a heavy-duty forged body design that adheres to ASME B16.34 wall thickness requirements, providing increased resistance to pipeline pressures and stresses. The welded body design eliminates body flanges and reduces potential leak paths, making the valve lighter and safer. These valves are engineered to provide superior service in your buried applications.



- Body Configurations: 2 / 3 piece Forged
- Available Size: 2" to 60"
- Pressure Classes: ASME 150# to 2500#
- Featured Certifications: API 6D, API 607, API 6FA, API 598, BS EN ISO 17292, BS EN ISO 10497, ISO 15848, SIL3 capable
- Body Materials: Carbon Steel, Stainless Steel, Low Temp Carbon Steel, Duplex, Alloys
- Activation Options: Manual, Bare Stem, Gear, Hand Lever, Fully Automated
- Bore: Full, Reduced

Product Selection Code – Series WL

Size		Series	Construction	End Connection		Ratings	Bore	Body			Seat Insert (Ball Seal)	Seals (O-ring, Lipseal)	Operator (If Applicable)	Other (If Applicable)
2	22	WL	RF	RF	RS	1	F	1	3	1	G	1	A	SI
3	24			RS	FF	2		8	9	3	L	2	B	SE
4	30			FF	FS	3		D	U	U	P	3	C	BE
6	36			FS	RT	5		E	Y	Y	E	4	C	DP
8	40			RT	BW	6		F	D	D	V	5	L	SD
10	42			BW	BP	9		G	F	F	N	6	Z	MF
12	44			BP	6B			N	N	N		7		ZZ
14	48			6B	HB							A		
16	52			HB	ZZ							K		
18	56			ZZ								E		
20	60											Z		

Series

WL Soft seated Trunnion Welded Body with O-ring stem sealing - API 6D

Construction

- R** Two Piece - Forged
- G** One Piece - Forged: => 30"

End Connection

- RF** Flanged Raised Face Serrated
- RS** Flanged Raised Face Smooth
- FF** Flanged Flat Face Serrated
- FS** Flanged Flat Face Smooth
- RT** Flanged RTJ
- BW** Butt Weld
- BP** Butt Weld with pup piece
- 6B** Flanged RTJ (API 6A)
- HB** Hub connection
- ZZ** Other than above

Ratings

- 1** 150#
- 2** 1500#
- 3** 300#
- 5** 2500#
- 6** 600#
- 9** 900#

Bore

- F** Full
- R** Reduced/ Regular

Body

- 1** A105
- 8** LF2
- 9** F60 (Carbon Steel)
- D** Duplex (4A or F51)
- E** Super Duplex (5A or F53)
- F** Super Duplex (6A or F55)
- G** Duplex F60
- Z** Other than above

Ball / Seat Ring* / Stem

- 3** 316/ 316/ XM-19
- 9** F60 (Carbon Steel)
- U** Duplex / 316 / 316 *
- Y** Duplex / 316 / 17-4 PH
- D** Duplex (4A or F51)
- E** Super Duplex (5A or F53)
- F** Super Duplex (6A or F55)
- G** Duplex F60
- Z** Other than above
- * Use on Cast 6" 1500# and 8" 900# and higher instead of 316

Coating (Ball and Seat Rings)

- 1** ENP 1 mil (25 Micron) *
- 3** ENP 3 mil (75 Micron) *
- N** Not Applicable
- Z** Other than above
- * Also from stem, if in Carbon steel material

Seat Insert (Ball Seal)

- G** RTFE
- L** Devlon™
- P** PEEK
- E** PCTFE (Kel F)
- V** Viton®
- N** Not Applicable
- Z** Other than above

Seals (O-ring*, Lip Seal, Gasket)

- 1** HNBR
- 2** HNBR 90 Durometer
- 3** HNBR AED (90D) *
- 4** HNBR Low Temp
- 5** FKM/ Viton®
- 6** FKM AED/ Viton® AED
- 7** FKM Low Temp

- A** FEPM
- K** FFKM
- E** EPDM
- Z** Other than above

* AED Orings mandatory for ASME Class 600 and above

** Non Fire Safe sealing

Operator

- A** Actuator
- B** Bare Stem
- C** Gear with Chain Wheel
- G** Gear with Hand Wheel
- L** Lever/ Wrench
- Z** Other than above

Other (If Applicable)

- SI** Sealant Injection
- SE** Stem Extension
- BE** Bonnet Extension
- DP** Double Piston Effect (Non-Relieving)
- SD** Single Piston Effect (U/S); Double Piston Effect (D/S)
- MF** Multiple Features - eg., stem extension with DP seats
- ZZ** Other than above

EXAMPLE: **6** **WL** **R** - **BW** **9** - **F** - **9** **9** **1** - **L** - **3** - **B** - **SI**

6" Soft seated trunnion welded body ball valve, O-ring seal configuration API 6D, 2 piece forged body, butt weld ends, 900# class, Full port, F60 body, Carbon steel ball, seat rings and carbon steel stem w/ 1 mil ENP, Devlon seat inserts, HNBR AED O-rings, bare stem, with sealant injection

Why KTM Virgo Series





Reliable Products at a Competitive Price

Emerson's investment in superior manufacturing equipment, an ongoing commitment to keep employees well-trained, and the quest for upper quartile performance are just a few items that drive our mission for the highest in-class quality. At the same time, our global supply chain and manufacturing allow us to supply products at very competitive prices when compared to other high-quality valve manufacturers.

Expert Project Management

KTM Virgo Series Ball valves have been supplied to over than 2300 projects around the globe, both large and small. We help our customers maintain project certainty by pre-sale design collaboration, a structured project execution process and maintaining flexibility throughout the manufacturing process. The result is a responsive supplier that supports you throughout the process and meets the promised delivery dates.

Single Point Accountability

Emerson owns the complete process from design, manufacturing, assembly, automation, proof testing, integration, and lifecycle coverage. Emerson goes to great lengths to maintain full process accountability that only a few industry-leading manufacturers can provide. This includes having our own in-house foundry, which enables Emerson to uphold the highest quality standards on all **KTM** Virgo Series products.

Local Support and a Global Presence

Our vast network of sales offices and Local Business Partners (LBPs) are available to support our customers around the globe. We provide our customers superior pre- and post-sales support, local inventory, as well as a comprehensive range of other services.

Safe, Proven Products

We are committed to delivering quality products that meet or exceed our customers' expectations. This commitment starts with thorough testing of our products to ensure they comply with the latest standards and maintain the highest safety ratings. These products are then certified by respected third party organizations. Our commitment is backed by years of experience in many of the most demanding applications around the globe. We have supplied over 1 million valves to more than 150 of the world's leading EPCs, OEMs, and end users and they keep coming back to Emerson over and over.

For more information about KTM Virgo Series, contact your local Emerson sales office or Emerson Automation Solutions representative.

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