

ViNtrol® Series VT2 and VT3 Trunnion Mounted Ball Valves

ViNtrol®



Your Valve Solution Specialist



Experience the ViNtrol® Difference

It All Starts With Our State-of-the-Art ViNtrol® Facility and Extensive Product Offering

The approximately 86,000 square foot ViNtrol® facility in Oklahoma City, OK, maintains over 71,000 square feet for product assembly, product testing, valve automation, valve enhancements and product upgrades to meet our customer's needs. Not to mention, ViNtrol's expansive inventory and our bold commitment to stock valve sizes ranging from 1/4" thru 36" diameter.



ViNtrol Headquarters, Oklahoma City, OK, USA

Raising the Bar

When it comes to providing unequalled customer service and delivery performance, ViNtrol has raised the bar. Our knowledgeable sales team, skilled staff and manufacturing personnel are ready to tackle your most challenging valve requirements.

Whether you choose from ViNtrol's standard product line or your project requires a customized solution, ViNtrol can solve your toughest challenges. All ViNtrol® valve products are field tested and approved even in the harshest of environments.

World Class Customer Service begins with the craftsmanship and expertise of our seasoned technicians, state-of-the-art facility, Quality Assurance and customized solutions to successfully complete your project.



Worldwide Support

ViNtrol's global reach is extended further as a subsidiary to International Operations abroad. ViNtrol® and its parent company have a vast network of locations worldwide including the United States, India, Dubai, Singapore, Italy, Australia and the United Kingdom for delivery enhancement and unequalled customer service.

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ViNtrol® Series VT2 and VT3 Trunnion Ball Valves

ViNtrol® offers a complete line of two and three-piece trunnion mounted ball valves available as cast or forged bodies in carbon steel, low temp, stainless steel and duplex materials for petroleum, industrial and oil & gas applications. All Series VT2 and VT3 Trunnions come standard NACE certified and can be fitted with GOPs, pneumatic and hydraulic actuation upon ordering to ideally suit your application requirements.



Design & Testing Standards

ViNtrol valves are designed and manufactured as per ASME B16.34, API 6D & BS 5351/BS EN ISO 17292. These standards cover pressure/temperature ratings, minimum shell thickness and bore diameter for each size/class.

Valve Face-to-Face API 6D, ASME B16.10

Valve Bore API 6D, API 6A

Valve Butt weld Ends
B16.25/31.3/31.4/31.8

Valve Flange Dimension
ASME B16.5/B16.47/MSS-SP44

Drain/Vent/Bypass API 6D/MSS-SP45

Castings as Per
MSS-SP 53, 54, 55, 59, 93, 94

Pressure Tests
API 6D/API 598/BS EN 12266-1&2

Fire Safe Test
API 607/API 6FA/BS 6755 Part II
BS EN ISO 10497

NACE Compliance MR0175

Actuator Mounting Pad ISO 5211

Quality System
ISO 9001:2000, API 6D-Q1, PED
97/23/EC, GOST, ATEX, OSHAS 18001

Fugitive Emission Qualifications
ISO 15848, TA-Luft:VDI 2440,
MESC 77/312, EPA 40_CFR 60-F

Note: Additional testing methods available upon customer request including fugitive emission, cryogenic, high pressure nitrogen/gas, vacuum, sulphide stress cracking & hydrogen induced cracking testing.



ViNtrol's Series VT2 and VT3 trunnion ball valves are available in weld x weld, weld x flange and flange x flange end configurations. Gear operators and pneumatic or hydraulic actuation are available.

Certifications

The ViNtrol facility has achieved ISO 9001 certification, ISO 9001:2000, APIQR Registration No. 0863; API Specification, Q1, Registration No. Q1-0615; ISO/TS 29001, Registration No. TS-0439; API Specification 6A, Certificate No. 6A-0930, and API Specification 6D, Certificate No. 6D-0850.



Design Features

ViNtrol® Series VT2 & VT3 trunnion mounted ball valves feature NACE Conformance and Fire Safe standard construction. Sizes range from 2" thru 56" (Non-Domestic) in ANSI Pressure Class 150 thru 2500 as well as 2" thru 4", API 6A 2000, 3000 and 5000 psi.



ViNtrol®

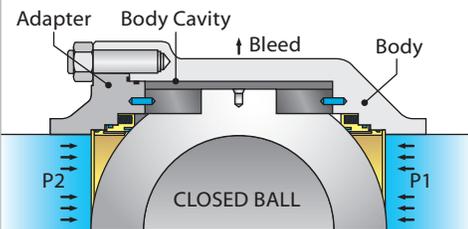
Series VT3
Three-Piece Trunnion

Series VT2
Two-Piece Trunnion
Weld x Flange

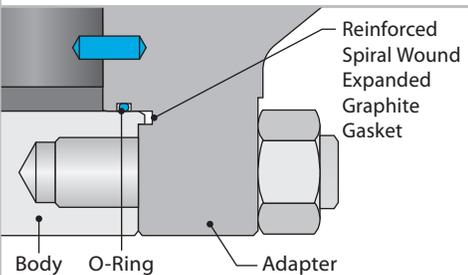


Key Design Features:

- Fire Safe NACE as Standard
- Blowout Proof Stem
- Double Block and Bleed
- Double Sealed at all Pressure Connections
- Sealant Injection Fittings with Buried Check Valves
- Antistatic Construction
- Available in Carbon Steel, Low Temp, Stainless and Duplex Materials
- Standard ISO 5211 Mounting for Ease of Actuation
- Conforms to API 6D/ANSI B16.34 Requirements and Demanding Service Conditions



Downstream Upstream



Optimal Sealing Design

◀ Double Block and Bleed

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

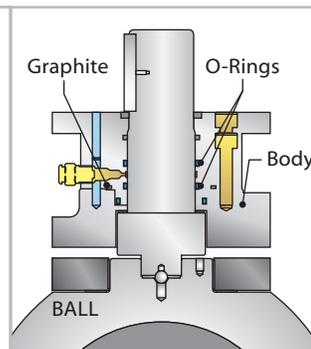
◀ Double Body Sealing

Double seal combination of O-ring and spiral wound gasket ensure perfect body joint sealing. ViNtrol valves therefore meet or exceed the fugitive emission requirements across wide range of pressure and temperature applications. Valves are suitable for both above and underground installations.

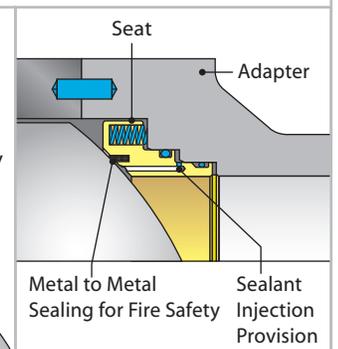
Multiple Stem Sealing and Fire Safe Design

A triple sealing arrangement in stem area prevents leakage to the atmosphere. It includes double sealing with O-rings and graphite seal at the top of stem housing. The blow out proof stem enables positive stem retention. Secondary metal-to-metal sealing accomplishes Fire Safe requirements.

Multiple Stem Sealing ▼



Fire Safe Design ▼



Custom Options & Modifications

Corrosion Protection and Painting

All castings are shot blasted and subjected to dewatering oil coats. Carbon Steel valves are Zinc phosphated and internally lacquered before final assembly. Valves are thoroughly cleaned and primed with Epoxy Zinc Phosphate primer, followed by a final coat of Epoxy Blue. Valves are shipped in vapor corrosion inhibitor impregnated paper bags with desiccant pouches to prevent corrosion.

Special Coatings and Overlays

A wide variety of coatings are available for increased life span and corrosion protection. Enduro-Bond™ Plus coatings are a cross-linked barrier, fused by a strong mechanical bond to provide superior protection. Spray-on and weld overlay metals are also available.

Single Source Automation

ViNtrol® is pleased to offer top of the line products in flow control automation. ViNtrol Series 21 actuators are pneumatically operated and offer quarter turn valve automation. These actuators are built with features that enhance safety and performance. Sizes range from 4500 thru 177,000 in-lbs.

Series 21 Key Design Features:

- ISO 5211 Standard Mounting Pads
- Inherently Safe Spring Module to Provide Fail Safe Operation. Spring Pack Utilizes up to 2 Springs for High Torque Fully Encapsulated in Factory Welded Cartridge Ensuring Safety
- Modular Construction Allows Interchanging of Spring Module and Cylinder
- Totally Encapsulated Weatherproof Cast Housing
- Available With Jack Screw and Compact Hydraulic Manual Override



Series 21
Pneumatic Scotch
Yoke Actuator

Size Range & Valve Configurations Available

ASME Class	Size (in., 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	30" 750	36" 900	40" 1000	42" 1050	48" 1200	56" 1400	
150	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
300	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
600	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
900	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
1500	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
2500	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

Design	ANSI Class/Size (in.)					
	150	300	600	900	1500	2500
VT2 (2 pc.)	2"-12"	2"-12"	2"-12"	2"-12"	—	—
VT3 (3 pc.)	2"-56"	2"-56"	2"-56"	2"-36"	2"-24"	2"-12"

Note: Valve sizes 22", 26", 28", 32", 34" and valves 40" and larger available upon request. Top entry and all welded construction available upon request.

Dimensional Data and Parts & Materials

Consult Factory for complete Dimensional Data and Parts & Materials information.

How To Order

How To Order and Assembly Base Number

Example:

5303 - 1 2 7 1 4 3 99 99

Assembly Base No.	Body/Adapter Material	Trim Material (Ball/Stem)	End Connection	Seats	Seals	Actuation	Pipe Size	Options
See Chart Below	1 A216 WCB Carbon Steel 4 A105 Carbon Steel	1 Carbon Steel 1 mil ENP NACE Fire Safe 2 316SS/316SS NACE Fire Safe	6 Flanged RF 7 Flanged RTJ	1 Devlon®	4 HNBR	1 Locking Handle 3 Gear Operator 9 Bare Stem	99 Standard XX See Schedule	99 None

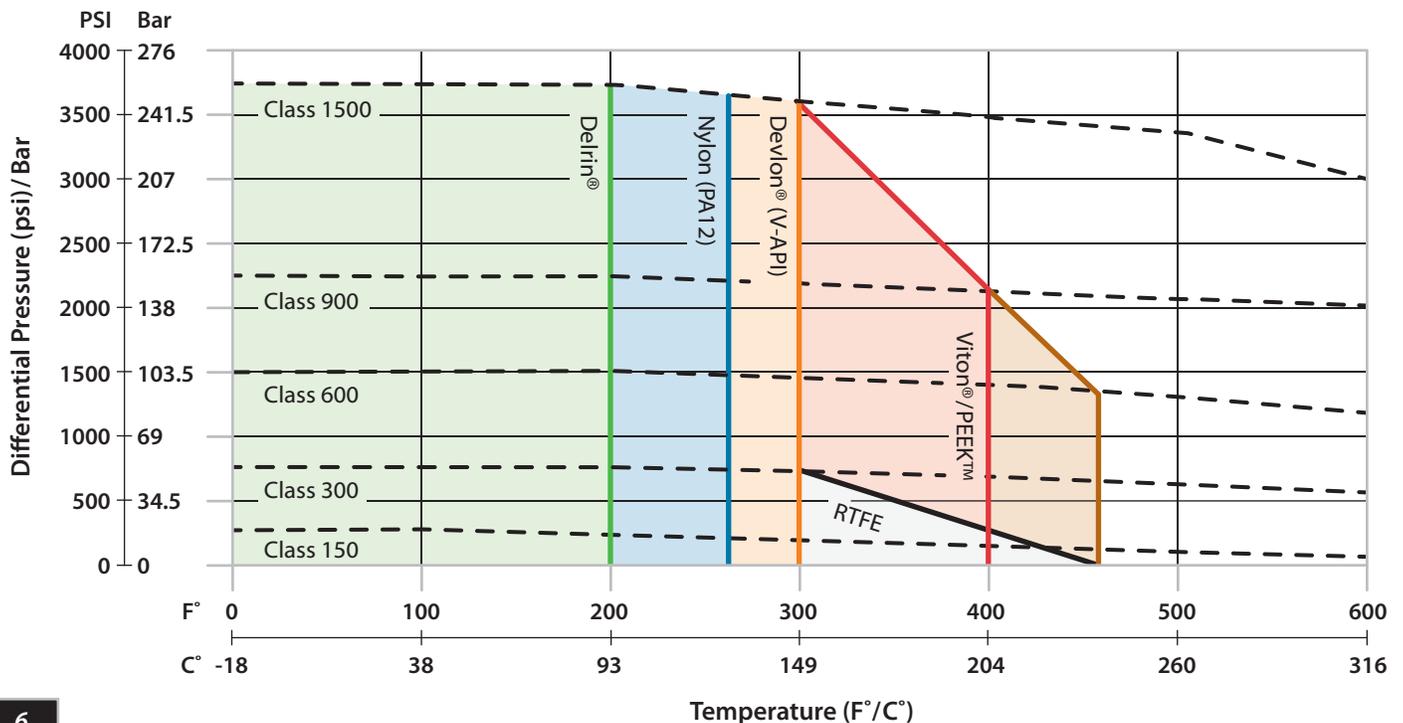
Assembly Base Numbers

Class	2"FP	3"RP	3"FP	4"RP	4"FP	6"RP	6"FP	8"RP	8"FP	10"RP	10"FP	12"RP	12"FP
150	5103	5105	5106	5107	5108	5109	5110	5111	5112	5113	5114	5115	5116
300	5303	5305	5306	5307	5308	5309	5310	5311	5312	5313	5314	5315	5316
600	5603	5605	5606	5607	5608	5609	5610	5611	5612	5613	5614	5615	5616
900	5903	5905	5906	5907	5908	5909	5910	5911	5912	5913	5914	5915	5916
1500	5703	5705	5706	5707	5708	5709	5710	5711	5712	5713	5714	5715	5716

Class	14"RP	14"FP	16"RP	16"FP	18"RP	18"FP	20"RP	20"FP	24"RP	24"FP	30"RP	30"FP	36"FP
150	5117	5118	5119	5120	5121	5122	5123	5124	5125	5126	5127	5128	5130
300	5317	5318	5319	5320	5321	5322	5323	5324	5325	5326	5327	5328	5330
600	5617	5618	5619	5620	5621	5622	5623	5624	5625	5626	5627	5628	5630
900	5917	5918	5919	5920	5921	5922	5923	5924	5925	5926	5927	5928	5930
1500	5717	5718	5719	5720	5721	5722	5723	5724	5725	5726	5727	5728	5730

Note: Consult factory for valve sizes 40" and larger and Class 2500.

Pressure/Temperature



Engineering Data

Flow Coefficient (C_v), API 6D

Bore (in.)	ANSI Class					
	150	300	600	900	1500	2500
2	420	420	400	330	330	250
2.5	690	690	610	520	510	320
3 x 2	200	200	200	190	180	200
3	1200	1050	1000	910	180	200
4 x 3	600	600	600	590	550	560
4	2200	2100	1850	1800	1700	1100
6 x 4	800	800	790	790	780	745
6	5150	5100	4600	4380	3800	2500
8 x 6	2150	2150	2150	2150	2150	2150
8	9500	9400	9000	8500	7400	5300
10 x 8	4300	4300	4300	4300	3800	2500
10	15,000	15,000	14,700	14,500	11,500	8300
12 x 10	7550	7550	7550	8000	9000	7550
14 x 10	6000	6000	6000	6100	6100	—
12	23,000	23,000	22,500	21,100	18,000	13,000
14 x 12	14,000	14,000	14,000	12,800	12,800	—
16 x 12	9100	9100	9100	8900	8900	—
14	28,000	28,000	28,000	25,000	21,000	—
16 x 14	15,000	15,000	15,000	14,200	14,100	—
16	37,200	37,200	37,200	34,500	27,500	—
18 x 16	21,000	21,000	21,000	19,200	19,000	—
20 x 16	15,300	15,300	15,300	13,800	12,000	—
18	49,000	49,000	49,000	45,000	37,000	—
20 x 18	28,400	28,400	28,400	25,000	25,000	—
20	59,000	59,000	59,000	55,200	47,800	—
24 x 20	28,200	28,200	28,000	25,100	20,600	—
22	68,200	68,200	68,200	62,000	54,000	—
24	92,000	92,000	92,000	83,800	70,000	—
30 x 24	36,000	36,000	36,000	32,900	—	—
26	110,000	110,000	110,000	98,500	—	—
28	121,000	121,000	121,000	113,000	—	—
30	145,000	144,000	144,000	130,000	—	—
36 x 30	64,000	64,000	64,000	61,500	—	—
32	170,000	170,000	170,000	151,000	—	—
36 x 32	87,000	87,000	87,000	69,500	—	—
36	210,000	210,000	210,000	198,200	—	—
40	267,500	267,500	267,500	—	—	—
42 x 36	96,700	96,700	96,000	—	—	—
42	280,000	280,000	280,000	—	—	—
48	384,000	384,000	384,000	—	—	—
56 x 42	89,000	89,000	89,000	—	—	—
56	521,000	521,000	521,000	—	—	—

Flow Coefficient (C_v), API 6A

Bore (in.)	Pressure Class 5000
2 1/16	350
3 1/8	940
4 1/16	1700

Data for Calculation of Flow

The coefficient of flow (C_v) expresses the rate of flow of water in gallons per minute at 60°F with a pressure drop of 1 psig. The C_v coefficients for the various types and sizes shown in the tables have been determined from actual flow tests.

Note: K_v is the metric equivalent of C_v.

$$K_v = C_v \times 0.85$$

For Liquids:

$$1 \quad Q_L = C_v \sqrt{\frac{\Delta P}{G_L}}$$

$$2 \quad \Delta P = G_L \left(\frac{Q_L}{C_v} \right)^2$$

Where: Q_L = Flow in U.S. Gallons per minute
 ΔP = (P₁ - P₂) Pressure drop in psi
 G_L = Specific gravity of liquid
 (water = 1 at 60°F)

For Gases:

$$3 \quad Q_g = 1360 C_v \sqrt{\frac{\Delta P}{G_g T}} \cdot \sqrt{\frac{P_1 + P_2}{G_g T}}$$

$$4 \quad \Delta P = P_1 - \sqrt{P_1^2 - 2 G_g T \left(\frac{Q_g}{1360 C_v} \right)^2}$$

Where: Q_g = Volumetric flow of gas (SCFH)
 G_g = Specific gravity of gas at standard conditions
 T = Absolute temperature of gas (°F + 460)

Note: For gas, max. A_p = 1/2 P₁
 and min. P₂ = 1/2 P₁
 and P₂ are absolute pressures (psia)

Custom Trunnion Ball Valve Modification Services

Single Source Automation:

- ViNtrol® Series 21 Scotch Yoke Actuator for Quarter Turn Valve Products
- ViNtrol® Diaphragm and Piston Linear Actuator for API 6A Gate Valves and Chokes
- Complete Automated Valve Packages with a Variety of Options Available for Instrumentation & Controls

Stem Extension:

- Complete Fabricated Stem Extensions for Buried Service Applications
- High Head and Gear Mount Extensions with Fully Extended Lube Lines
- Welded and Threaded Lube Fitting Construction Available

Overlays and Coatings:

- 304SS, 316SS, 317SS, Inconel®, Hastelloy® and Monel®
- Nedox®
- Coal-Tar Set Epoxy
- Enduro-Bond™
- Xylan®
- E-Coat Ceramics



Cycle testing a Series VT3 24" FP Class 600 with pneumatic spring return actuator for ESD service at ViNtrol's Oklahoma City manufacturing facility.

Contact your ViNtrol® customer service sales department for more information about custom modifications, or visit our website at www.vintrol.com

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