vahn-tech®
international inc.

RISING STEM BALL VALVES

License Number 6D-1724

C SA® US

UL®

NSF®

WRAS APPROVED PRODUCT

ISO 9001:2015 CERTIFICATION™

Intertek

VAHN-TECH International Inc., headquartered in Toronto, Canada is a unique company within the Flow Control Industry.

- 'vt' brand = high quality certified products (API, NSF, CSA, WRAS etc.)
- Valves, Actuators and Accessories – all 'vt' branded
- Width and Depth of Product Offerings
- Flexibility to customize products to customer needs
- Specialized user-friendly products including large sizes
- Quick Response
- Reduced Delivery times
- Efficient after sales service
- Competitive Pricing

VAHN-TECH International Inc. is a customer focused organization based on "Value-Add" and "Quality Service" principles. Achieving long term partnership with our customers and being their supplier of choice is our prime mission.

We develop, manufacture and market VAHN-TECH (vt) branded Valves, Actuators, Automatic Control Valves and Accessories for variety of Industrial Applications. Our product range includes:

Oil and Gas

Water and Sewage, Desalination

Chemicals

Paper and Pulp

Irrigation

Power Plants

Various Industrial Applications

We can supply all types of valves with following materials of construction like:

Ductile Iron, Cast Iron, Carbon Steel, Stainless Steel – SS304, SS304L, SS316, SS316L, Duplex Stainless Steel, Super Duplex, Alloy, Monel and Inconel with variety of seating and stem configurations.

Table of Contents

RISING STEM BALL VALVES

Features 1

Operating Principle 2

Design 2
Specifications & Compliances
Parts List

Dimensions 5
Class 150 / 300 / 600 / 900

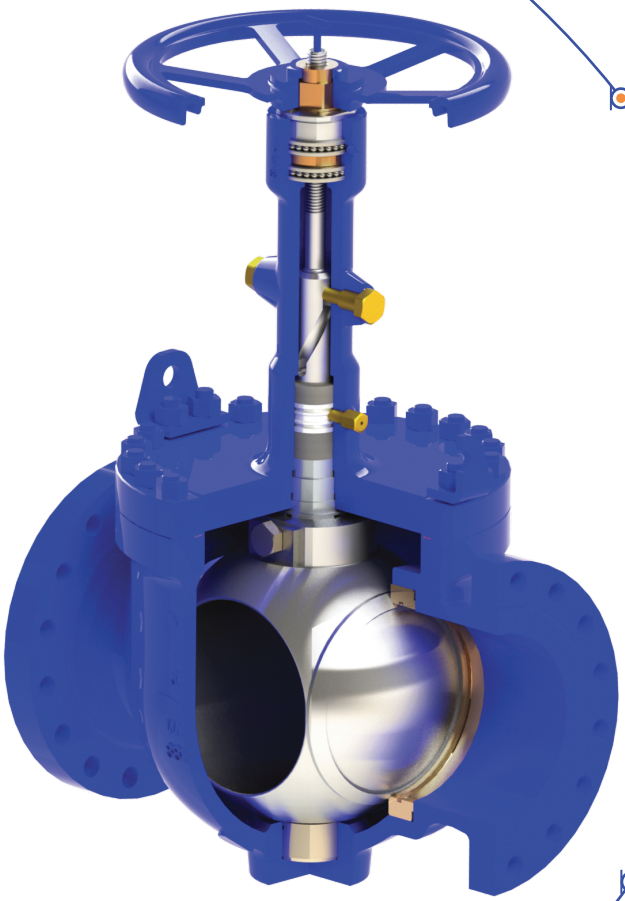
Technical Data 6
Cv Values
Torque Values

Valve Actuation 7

How To Order 8

1. Features

Vahn-Tech Rising Stem Ball Valves are friction free high-performance valves for Oil & Gas and Process application where zero leakage and heavy duty operation are required.



Friction Free Operation

Reduction of friction between the seat and the ball is created by the ster. design and its tilt and turn action. This design eliminates the wear and tear of the seat.

Long Life and Reduced Maintenance

The reduced wear and tear of the seat provides extended lifetime and low maintenance needs, reducing the cost of ownership.

Top Entry Design

Top entry design allows for inspection and repair without removing the valve from the pipeline, hence reducing the cost of maintenance.

Dual Stem Guides

The stem travels vertically and its lift and turn action is controlled by hardened stainless steel guide pins. Guiding pins are located outside the pressure boundary area to simplify the maintenance activities.

Mechanical Closure

In full close position, the ball is mechanically pressed against the seat for tight shut-off thanks to the design of the stem.

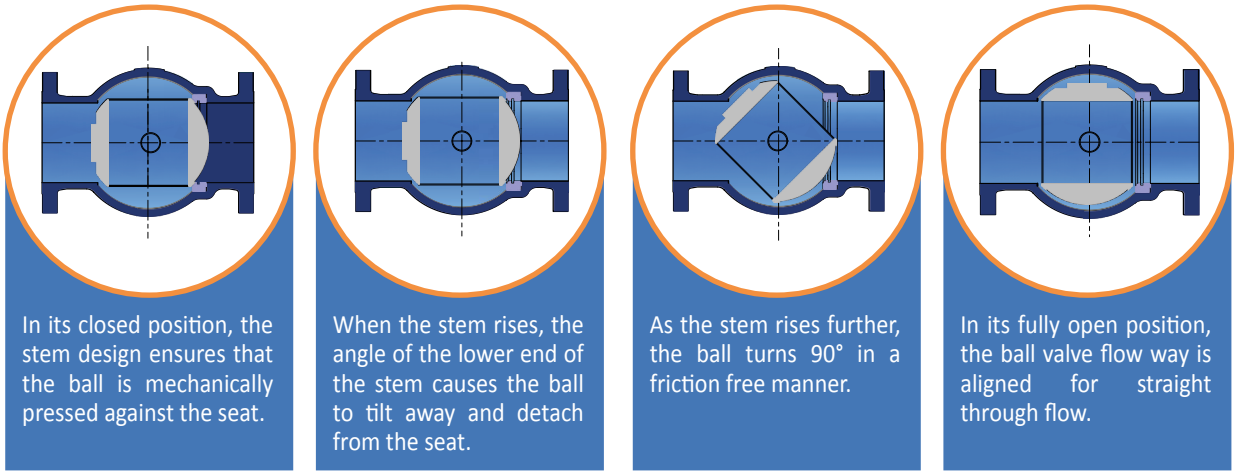
Self-cleaning of the Seat

By tilting of the ball away from the core before it rotates during opening, the medium flows around 360° of the ball and seat sealing surfaces. Medium flow flushes away any foreign material while preventing localized erosion of the sealing surfaces.

2. Operating Principle

When a Rising Stem Ball Valve is closed, the ball is mechanically pressed against the seat, ensuring tight shut-off. In the first step of opening, the ball tilts away and detaches from the seat; its centerline will be slightly shift backward. At this stage, the medium can flow uniformly around the ball reducing uneven seat wear and tear. The ball is then rotated friction free to the full open position. The absence of friction between the seat and the ball during the opening and closing process allows for an extended lifetime of the valve and reduced torque.

Opening Sequence:



In its closed position, the stem design ensures that the ball is mechanically pressed against the seat.

When the stem rises, the angle of the lower end of the stem causes the ball to tilt away and detach from the seat.

As the stem rises further, the ball turns 90° in a friction free manner.

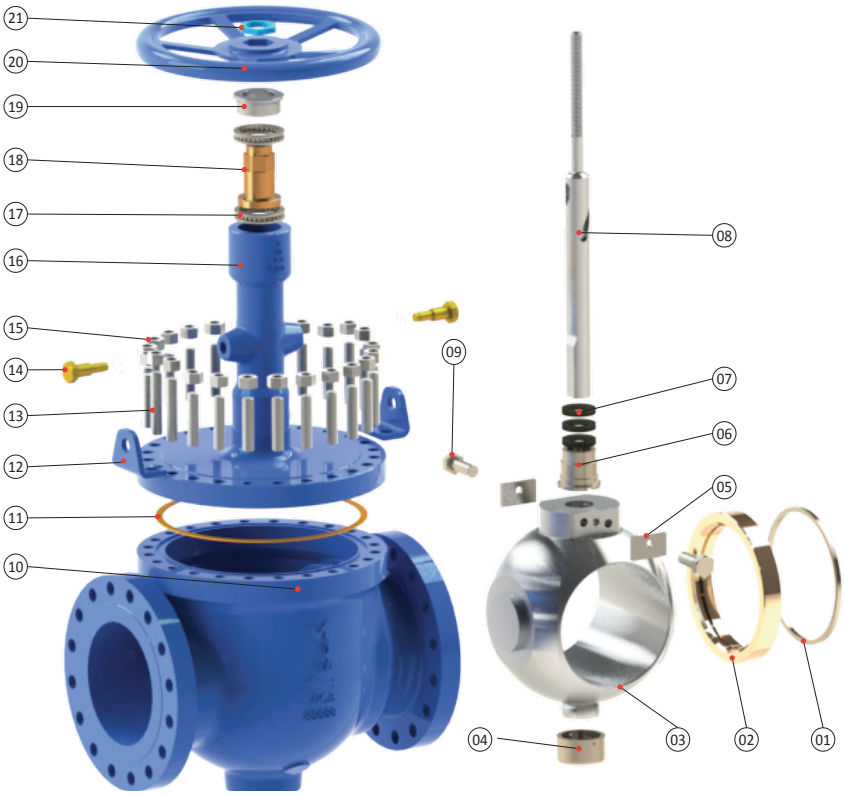
In its fully open position, the ball valve flow way is aligned for straight through flow.

3. Design

Specifications and Compliances

Design Standard	:	ASME B16.34, API 6D
Face-Face Standard	:	Manufacturer's Standard
Flange Standard	:	ASME B16.5 / ASME B16.47
Butt Weld Standard	:	ASME B16.25
Socket-Weld / Threaded Ends Standard	:	ASME B16.11
Test & Inspection	:	API 598, API 6D

Parts List



No.	Part Destination	Material		
		Carbon Steel	Stainless Steel	Low Temperature Steel
1	Seat Gasket	Flexible Graphite + SS		
2	Seat	A105 + ENP	A182 F316	A350 LF3
3	Ball	A105 + ENP	A182 F316	A350 LF3
4	Beairng Gland	ANSI 1045 + ENP		
5	Plate	A182 F6a		
6	Bushing	A182 F6a	A182 F316	A182 F316
7	Pin	A182 F6a		
8	Stem	A182 F316	A182 F316	A182 F316
9	Packing	Flexible Graphite		
10	Body	A216 WCB	A350 LF3	A182 F316
11	Gasket	Flexible Graphite + SS		
12	Eyebolt	A193 B7		
13	Stud	A193 B7	A193 B8	A320 L7
14	Guide Screw	A193 B7		
15	Nut	A194 2H	A194 8	A194 4
16	Bonnet	A216 WCB	A351 CF8M	A352 LCB
17	Thrust Ball Bearing	/		
18	Yoke Nut	A439 D2		
19	Stem Nut	A194 2H		
20	Handwheel	Carbon Steel		
21	Handwheel Nut	A194 2H		

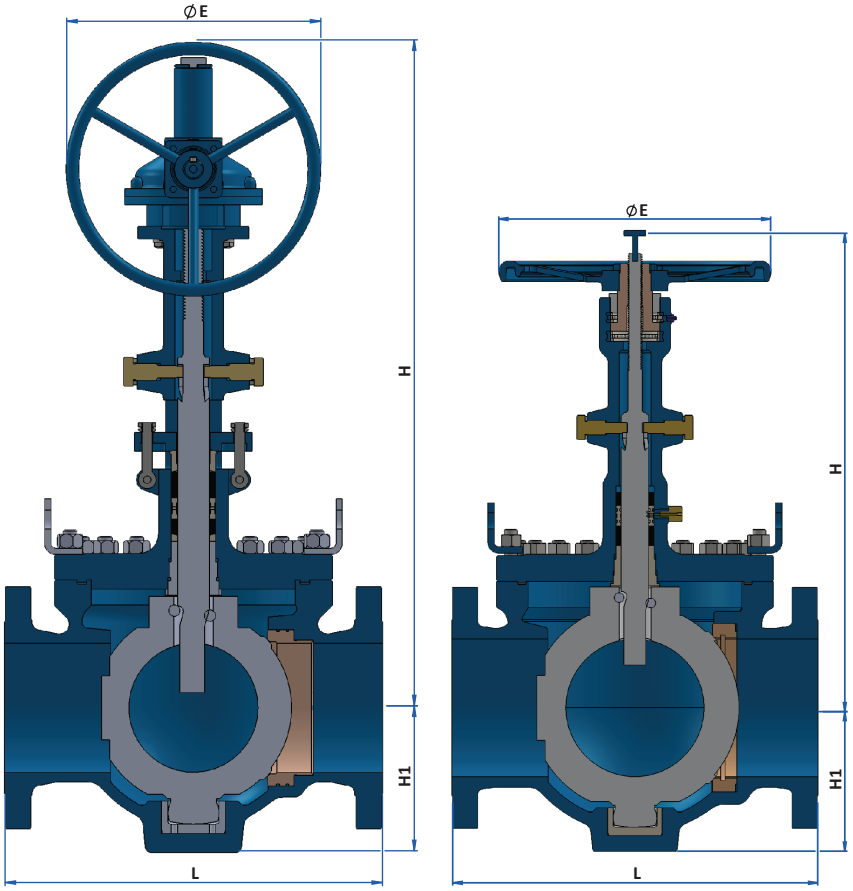
M.O.C : Options

Material Classification	ASTM Specification	Working Temperature			
		Minimum Temperature		Maximum Temperature	
		° C	°F	° C	°F
Carbon Steel	ASTM A216 Gr. WCB	-29	-20	427	800
Carbon Steel	ASTM A352 Gr. LCB	-46	-50	343	650
Carbon Steel	ASTM A352 Gr. LCC	-46	-50	343	650
1¼ Cr – ½ Mo	ASTM A217 Gr.WC6	-29	-20	593	1100
2¼ Cr – 1 Mo	ASTM A217 Gr.WC9	-29	-20	593	1100
5 Cr – ½ Mo	ASTM A217 Gr.C5	-29	-20	649	1200
Austenitic Stainless Steel 18Cr – 8Ni (Type 304)	ASTM A351 Gr. CF8	-196	-320	649	1200
Austenitic Stainless Steel 16Cr – 12Ni -2Mo (Type 316)	ASTM A351 Gr. CF8M	-196	-320	649	1200

Seating Materials : Options

Insert Seat Material	Working Temperature			
	Minimum Temperature		Maximum Temperature	
	° C	°F	° C	°F
PTFE	-104	-155	260	500
Nylon	-46	-50	121	250
PEEK	-46	-50	300	570

4. Dimensions



Class 150

Size		Main Dimension (mm)				Operation	Weight (Kg)
Inch	DN	L	H	H1	E		
2"	50	216	458	76	200	Handwheel	27
21/2"	65	241	467	89	200		32
3"	80	282	527	95	200		36
4"	100	406	611	114.5	300		82
6"	150	495	704	165	400		172
8"	200	597	807	228	400		236
10"	250	673	884	265	500	Gearbox	517
12"	300	762	1343	282	460		880
14"	350	826	1361	305	460		1030
16"	400	902	1580	350	460		1610
18"	450	978	1635	395	610		1641
20"	500	1194	1880	460	610		1706
24"	600	1397	2155	540	610		2638

Class 300

Size		Main Dimension (mm)				Operation	Weight (Kg)
Inch	DN	L	H	H1	E		
2"	50	216	460	82.5	200	Handwheel	32
21/2"	65	241	467	95	200		50
3"	80	282	527	105	200		64
4"	100	406	652	127	300	Handwheel	91
		406	784	127	305	Gearbox	
6"	150	495	704	165	400	Handwheel	172
		495	925	165	400	Gearbox	
8"	200	597	807	228	450	Handwheel	263
		597	1042	228	400	Gearbox	
10"	250	673	884	265	500	Handwheel	549
		673	1166	265	460	Gearbox	
12"	300	762	1345	282	460	Gearbox	925
14"	350	826	1361	310	460		993
16"	400	902	1580	350	460		1674
18"	450	978	1635	395	610		1728
20"	500	1194	1880	460	610		1837
24"	600	1397	2155	540	610		4364

Class 600

Size		Main Dimension (mm)				Opertaion	Weight (Kg)
Inch	DN	L	H	H1	E		
2"	50	292	433	82.5	200	Handwheel	32
3"	80	356	502	105	250		64
4"	100	432	596	136.5	400		118
6"	150	559	760	178	500	Handwheel	254
		559	1015	178	460	Gearbox	
8"	200	660	924	228	500	Handwheel	462
		660	1113	228	460	Gearbox	
10"	250	787	1028	268	600	Handwheel	794
		787	1230	268	460	Gearbox	
12"	300	838	1370	295	460	Gearbox	1275
14"	350	889	1386	315	460		1583
16"	400	991	1585	360	610		1814
18"	450	1092	1675	400	610		1932
20"	500	1194	1900	470	610		2127
24"	600	1397	2284	550	610		4636

Class 900

Size		Main Dimension (mm)				Operation	Weight (Kg)
Inch	DN	L	H	H1	E		
2"	50	371	478	108	450	Handwheel	59
3"	80	384	559	121	600		77
4"	100	457	856	146	500	Gearbox	167
6"	150	613	1053	191	500		395
8"	200	737	1263	238	800		630
10"	250	838	1448	282	800		943
12"	300	968	1508	305	800		1533
14"	350	1038	1508	321	800		1683
16"	400	1140	1902	379	800		3094
18"	450	1232	1902	424	1000		3284
20"	500	1134	1902	489	1000		3434
24"	600	1549	2389	573	1000		5545

5. Technical Data

Diameter (inch)	Cv Value		
	Class 150LB	Class 300LB	Class 600LB
2"	775	775	775
2-1/2"	1310	1310	1310
3"	1744	1744	1744
4"	3100	3100	3100
6"	6977	6977	6977
8"	12403	12403	12403
10"	19380	19380	19380
12"	27907	27907	27907
14"	37984	37984	37984
16"	49613	49613	49613
18"	62791	62791	62791
20"	77520	77520	77520
24"	111628	111628	111628

Diameter (inch)	Torque Unit (N-m)		
	Class 150LB	Class 300LB	Class 600LB
2"	40	60	80
2-1/2"	45	70	130
3"	50	85	160
4"	60	100	210
6"	90	200	400
8"	185	350	600
10"	350	520	1000

6. Valve Actuation

Vahn-Tech Rising Stem Ball valves can be supplied in multiple actuation configuration:

- Manual with Handwheel or Gearbox operation
- Mounted with Double Acting or Spring Return Piston Actuators
- Mounted with Multi-turn Electrical Actuators.

Actuator assembly and test can be performed in Vahn-Tech facilities to ensure optimal field performance of the entire valve assembly.

Gearbox Box

Diaphragm Actuator

Electrical Multi-Turn Actuator

Consult us for selection of the suitable actuation of your Rising Stem Ball Valve.

PRODUCT SELECTION

VT - RSBV - XX - R - XX - XX - XX - XX - X - X

RSBV
RISING STEM BALL VALVE

SIZE
2" - 24"

BORE TYPE (OPTION)	
R	Reduced Bore

PRESSURE RANGE	
1	Class 150
3	Class 300
4	Class 400
6	Class 600
9	Class 900
15	Class 1500

BODY	
C	WCB
CL	LCC
3	CF3
3M	CF3M
8	CF8
8M	CF8M
ML	Monel

BALL	
C	WCB
2	SS304 / CF8
3	SS304L / CF3
4	SS316L / CF3M
6	Alloy Steel
9	Monel
10	SS316 / CF8M

SEAT	
J	Carbon Fiber
K	PEEK
L	Nylon
M	Molon
P	PTFE
PL	PL

END CONNECTION	
BW	Butt Weld Ends
RF	Raised Face Flange
RJ	Ring Type Joint

OPERATOR	
B	Bare Stem
D	Diaphragm Actuator
E	Electric Actuator
G	Gearbox
H	Handwheel
P	Pneumatic Actuator

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