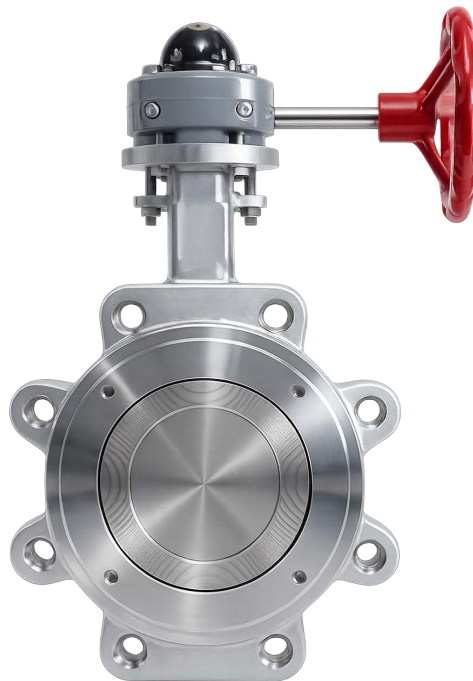


Vtek

Controls

VHP Series High Performance Butterfly Valve



Design Specifications

- **Standard Sizes :** 2" – 24"
- **Body Materials:** CF8M / WCB / Duplex
- **Seats:** PTFE, RTFE, CTFE
(25%Carbon / 75%PTFE),
Metal Seated Available
- **ISO 5211 Direct Mount**
- **ANSI 150 / 300**
- **Blow-Out Proof Stem**
- **Flanged End**
- **General & Industrial Applications**

Standards

- **Compliance Standard:** API 609,
MSS-SP-68, BS 5155, ISO 5752
Pressure / Temp Rating : ANSI B16.34,
Shell/Seat Test: API 598, MSS-SP-61
Class 300 (740 psig)
Metal to Metal seat leakage is rated
Class IV per ASME/FCI 70-2
- **Quality Assurance:** ISO 9001, 5209

Features:

High Performance Butterfly Valve

Size : 2" ~ 24"

Type: Wafer , Lug

Pressure Rating: Class 150, 300

Body Material: Cast Steel and Stainless Steel

Seat Material: Soft Seat (PTFE / RTFE) NBR, EPDM, VITON,
Metal Seat (A240 Tp 316 / 304)

Operation: Lever , Gear, Actuators Drilling: ANSI 150, JIS 10/16K,
DIN PN 10/16 ANSI 300, JIS 20K, 30K, DIN PN 25/ 40.

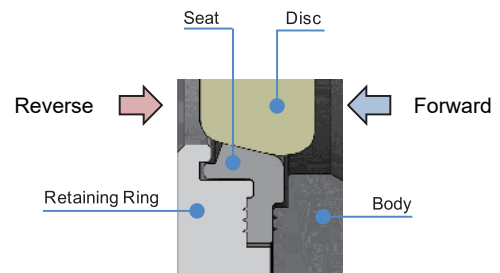
- Tight shut-off design.
 - One - piece body materials are either cast steel or stainless steel for excellent corrosion resistance.
 - High strength one-piece stem in A564 Gr.630 / PH 17-4 materials.
 - ISO 5211 mounting pad with square shaft 2" ~ 12", Key Type Connection 14" ~ 24" permits direct mount actuation for both Manual (Lever & gear), pneumatic and electric actuators.
 - Double off-set onfiguration with conical angled disc design. Maximize fl w and minimize resistance providing high Cv.
 - Seat available in either Soft (PTFE / RTFE) NBR, EPDM, VITON or Metal (A240 Tp 316 / 304). Both Soft seats and Metal seats are interchangeable.
 - Gland Flange preventing uneven load distribution against packing.
 - Internal travel stop design to prevent over travel of the disc. Minimizing possible seat damage.
-
- Retainer ring surface finish is 125 to 200 AARH and is compatible with both standard gasket and spiral wound gasket designs. Outside diameter is recessed within gasket sealing surface to prevent external leakage.
 - The heavy duty handle and 10 position notch plates allow for positioning the valve disc to precise angle stops.

Features:

1. Improved Bi-Directional Sealing Reliability

Optimal seat structure designed to enhance sealing performance

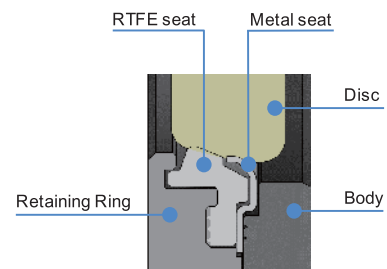
The seat structure is designed so that the seat seals first, minimizing damage between the seat and disc
Improves sealing reliability not only in the forward direction but also in reverse flow



2. Fire-Safe Seat Design

Seat consists of a dual structure: RTFE and metal.
Under normal conditions, the RTFE seat provides sealing.

In case of a fire where the RTFE seat is damaged, the metal seat maintains sealing by coming into contact with the disc despite deformation



3. RTFE Seat Material

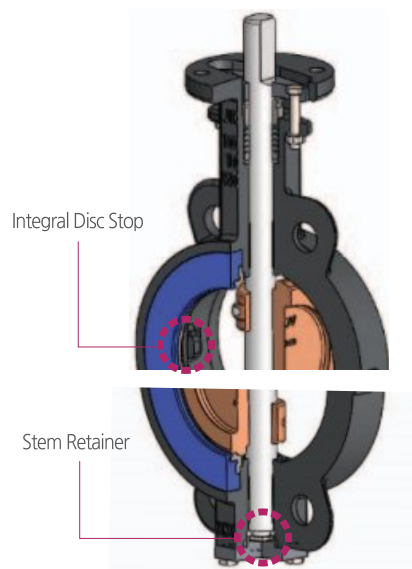
Used for High Temperature & Improved Friction Performance, RTFE (Reinforced PTFE): composed of PTFE 80% + Glass Fiber 15% + Molybdenum 5%
Offers excellent thermal resistance compared to standard PTFE, making it suitable for high-temperature applications. Provides improved wear and friction characteristics, making it ideal as a valve seat material.

4. Integral Disc Stop

A disc travel stopper is built into the valve body
Prevents excessive movement when the disc closes, protecting the seat from damage
Enhances valve lifespan.

5. Enhanced Seat Durability / Retainer

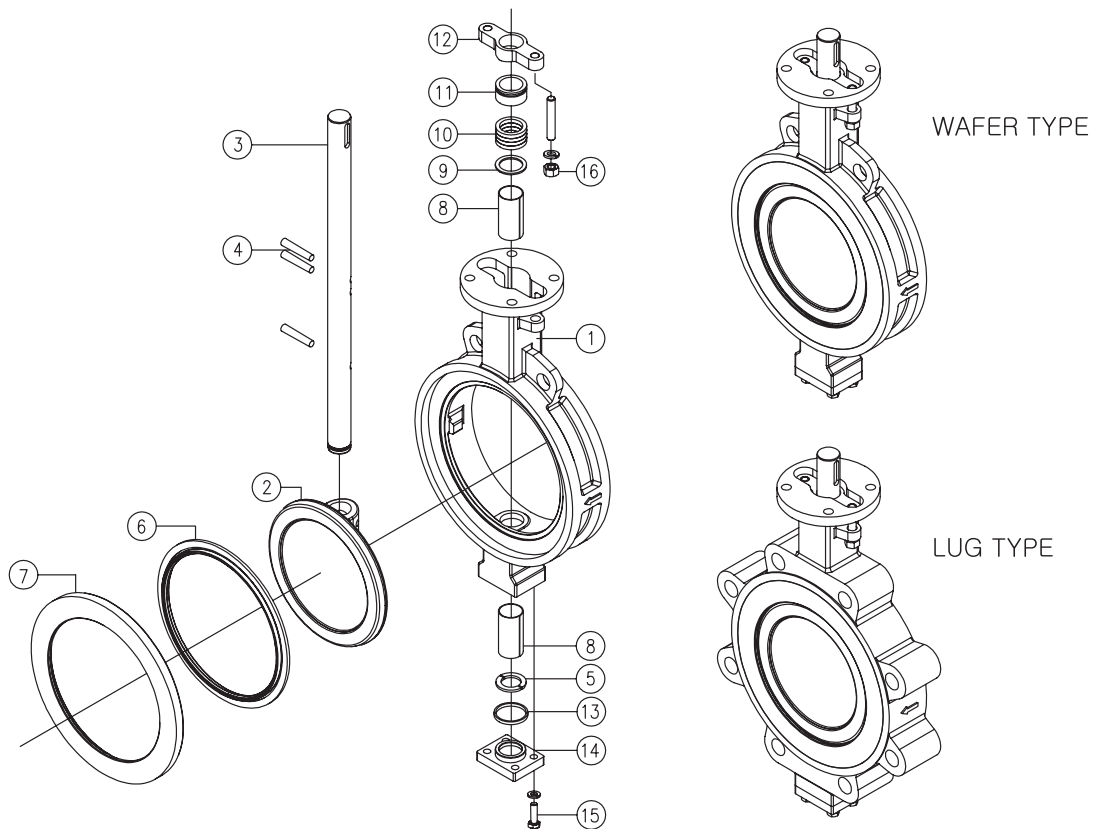
A stem retainer is installed at the bottom of the valve body minimizes disc movement and reduces seat damage, improving durability



Materials:

Model : **VHP-W/L**

Wafer / Lug Type



	Part	Material	Material Standards
1	Body	Ductile Iron	ASTM A536 65-45-12
		Carbon steel	ASTM A216 GR. WCB
		Stainless steel	ASTM A351 GR. CF8, CF8M, CF3M
		Ni-Aluminum Bronze	ASTM B148 C95800
2	Disc	Stainless steel	ASTM A351 GR. CF8, CF8M, CF3M
		Aluminum Bronze	ASTM B148 C95200
3	Stem	Stainless steel	STS420J2
		17-4PH	ASTM A564 Type 630
		Monel	-
4	Disc pin	Stainless steel	STS420J2
		17-4PH	ASTM A564 Type 630
5	Stem Retaining	Stainless steel	ASTM A240 Type 304, 316
6	Seat	PTFE	-
		RTFE	Reinforced PTFE
		Metal	ASTM A240 Type 316
		Fire safe	RTFE+A240 TYPE 316

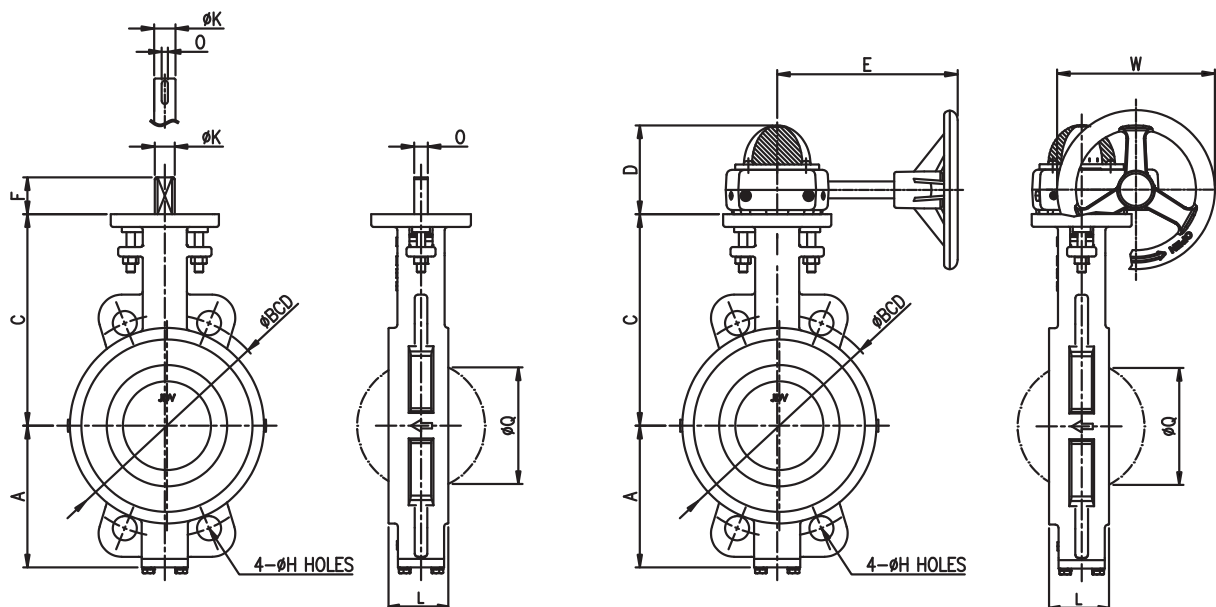
	Part	Material	Material Standards
7	Retaining Ring	Carbon steel	ASTM A 36
		Stainless steel	ASTM A240 Type 304, 316
		Ni-Aluminum Bronze	ASTM B148 C95800
8	Bush Bearing	Metal Backed PTFE	-
9	Packing Retaining	Stainless steel	-
10	Packing	PTFE / Graphite	
11	Gland	Stainless steel	ASTM A351 GR. CF8
12	Gland Bridge	Stainless steel	ASTM A351 GR. CF8
13	Bottom Packing	PTFE / Graphite	-
14	Bottom Cover	Stainless steel	ASTM A351 GR. CF8
		Ni-Aluminum Bronze	ASTM B148 C95800
15	Bolt	304/316	
16		Stainless Steel	

** METAL SEAT TYPE WILL SUPPLY WITH GRAPHITE SEAT RING.

Dimensions:

Model : VHP-W1

Wafer Type, Class 150



Dimension

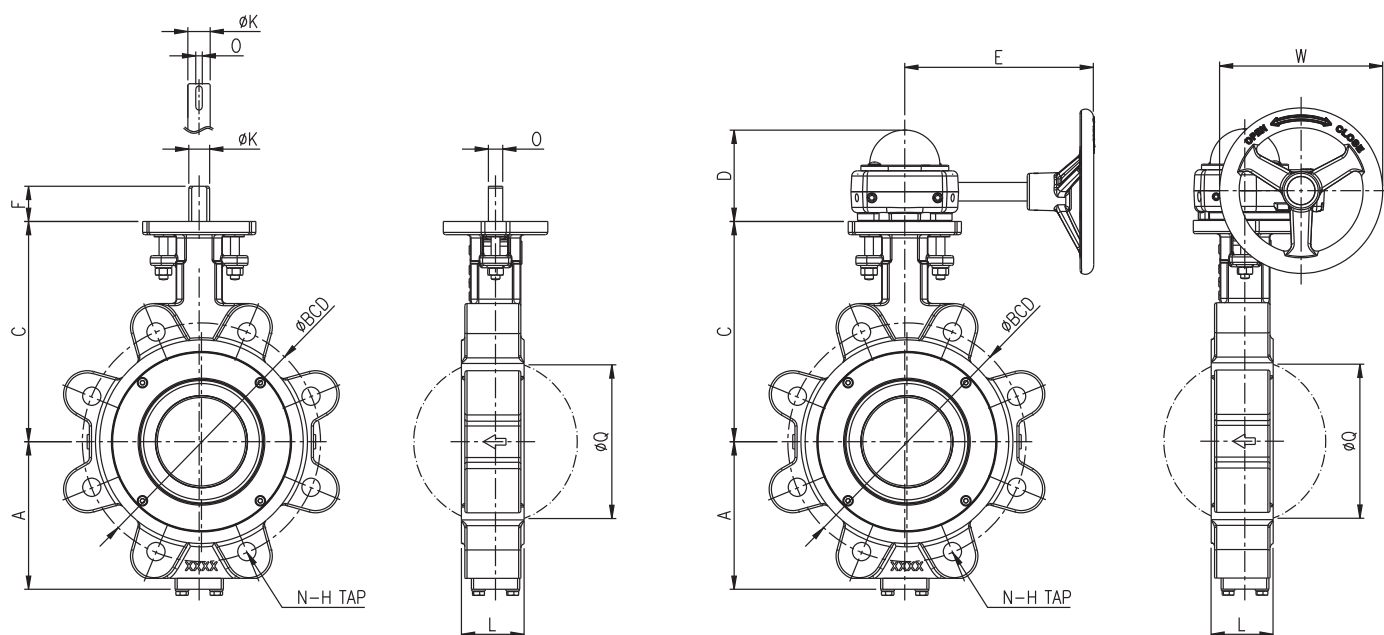
(unit : mm)

Valve Size		L	H	BCD	A	C	D	E*	W	K	O	F	Q	TOP MOUNTING DIMENSION		
mm	inch													BCD	HOLES	ISO 5211
32A	1 ¼	43	15.9	88.9	70	140	80	125	100	12	8	32	32	70	4-9	F07
40A	1 ½	43	15.9	98.4	70	140	80	125	100	12	8	32	34	70	4-9	F07
50A	2	43	19	120.7	86	150	80	125	100	12	8	32	36	70	4-9	F07
65A	2 ½	46	19	139.7	93	150	80	125	100	12	8	32	59	70	4-9	F07
80A	3	48	19	152.4	105	160	85	172	150	16	11	32	70	70	4-9	F07
100A	4	54	19	190.5	115	180	85	172	150	19	13	32	91	70	4-9	F07
125A	5	57	22.2	215.9	134	200	85	172	150	19	13	32	110	70	4-9	F07
150A	6	57	22.2	241.3	153	220	85	172	150	19	13	32	139	70	4-9	F07
200A	8	62	22.2	298.5	197	260	102	236	250	28	8x7	55	187	102	4-12	F10
250A	10	69	25.4	362	233	300	102	236	250	28	8x7	55	235	102	4-12	F10
300A	12	79	25.4	431.8	254	350	102	236	300	30	8x7	60	277	125	4-14	F12
350A	14	92	28.6	476.3	300	360	105	257	400	42	12x8	60	317	140	4-18	F14
400A	16	102	28.6	539.8	318	400	123	296	500	45	14x9	65	363	165	4-22	F16
450A	18	114	32	577.9	349	425	123	296	500	45	14x9	65	416	165	4-22	F16
500A	20	127	1 ⅝"x8UN	635	388	470	123	296	500	55	16x10	100	467	165	4-22	F16
600A	24	154	1 ¼"x8UN	749.3	456	540	145	334	560	65	20x12	100	547	254	8-18	F25

Dimensions:

Model : VHP-L1

Lug Type, Class 150



Dimension

(unit : mm)

Valve Size		L	N	H	BCD	A	C	D	E*	W	K	O	F	Q	TOP MOUNTING DIMENSION		
mm	inch														BCD	HOLES	ISO 5211
32A	1 ¼	43	4	½"x13UNC	88.9	70	140	80	125	100	12	8	32	32	70	4-9	F07
40A	1 ½	43	4	½"x13UNC	98.4	70	140	80	125	100	12	8	32	34	70	4-9	F07
50A	2	43	4	⅝"x11UNC	120.7	86	150	80	125	100	12	8	32	36	70	4-9	F07
65A	2 ½	46	4	⅝"x11UNC	139.7	93	150	80	125	100	12	8	32	59	70	4-9	F07
80A	3	48	4	⅝"x11UNC	152.4	105	160	85	172	150	16	11	32	70	70	4-9	F07
100A	4	54	8	⅝"x11UNC	190.5	115	180	85	172	150	19	13	32	91	70	4-9	F07
125A	5	57	8	¾"x10UNC	215.9	134	200	85	172	150	19	13	32	110	70	4-9	F07
150A	6	57	8	¾"x10UNC	241.3	153	220	85	172	150	19	13	32	139	70	4-9	F07
200A	8	62	8	¾"x10UNC	298.5	197	260	102	236	250	28	8x7	55	187	102	4-12	F10
250A	10	69	12	⅞"x9UNC	362	233	300	102	236	250	28	8x7	55	235	102	4-12	F10
300A	12	79	12	⅞"x9UNC	431.8	254	350	102	236	300	30	8x7	60	277	125	4-14	F12
350A	14	92	12	1"x8UNC	476.3	300	360	105	257	400	42	12x8	60	317	140	4-18	F14
400A	16	102	16	1"x8UNC	539.8	318	400	123	296	500	45	14x9	65	363	165	4-22	F16
450A	18	114	16	1 ⅛"x8UN	577.9	349	425	123	296	500	45	14x9	65	416	165	4-22	F16
500A	20	127	20	1 ⅛"x8UN	635	388	470	123	296	500	55	16x10	100	467	165	4-22	F16
600A	24	154	20	1 ¼"x8UN	749.3	456	540	145	334	560	65	20x12	100	547	254	8-18	F25

TORQUE DATA - HIGH PERFORMANCE BFV

SIZE		SOFT SEAT			METAL SEAT			FIRE SAFE SEAT		
		10 bar	20 bar	50 bar	10 bar	20 bar	50 bar	10 bar	20 bar	50 bar
mm	Inch	N.m	N.m	N.m	N.m	N.m	N.m	N.m	N.m	N.m
50	2"	43	65	122	73	105	196	51	91	170
65	2.5"	47	73	138	82	120	222	57	104	192
80	3"	58	82	154	88	134	248	64	116	214
100	4"	76	95	179	121	155	286	85	134	248
125	5"	85	119	223	148	194	358	97	168	310
150	6"	110	156	291	178	252	441	128	218	411
200	8"	185	270	501	290	439	796	212	381	676
250	10"	264	400	748	436	650	1,190	313	563	1,009
300	12"	363	545	1,122	605	884	1,785	456	767	1,513
350	14"	627	806	1,843	1,092	1,310	2,931	695	1,136	2,486
400	16"	832	1,150	2,712	1,372	1,867	4,313	963	1,619	3,656
450	18"	1,135	1,553	3,527	2,002	2,522	5,609	1,301	2,187	4,755
500	20"	1,374	2,339	4,996	2,594	3,800	7,945	1,960	3,293	6,736
600	24"	2,208	3,548	7,493	3,770	5,766	11,919	2,974	4,997	10,105

NOTE : All torques shown on the chart were derived from test data using water at 41°F / 5°C.

For torques using dry gases, multiply these numbers by 1.6.

Above table has additional 30% safety factor to average net torque. For severe services, or unusual fluids or slurries, consult VTEK.

For 600 & 700 psig Torque, Please consult VTEK.

Flow Coefficients:

Flow Coefficient Charts

• The Size of Butterfly Valve used for control purpose should be calculated on the basis of the operating characteristics. In order to achieve optimum control, the flow coefficient (Cv, Kv) below need to be considered.

• Flow Coefficient for Vtek Controls Butterfly Valves.

1 CV = 1.16 KV

Size		Open (Angle)								
DN(mm)	NPS(inch)	10°	20°	30°	40°	50°	60°	70°	80°	90°
40	1½	2	4	6	13	19	30	44	62	71
50	2	2	7	13	21	31	46	64	84	92
65	2½	4	12	21	35	51	75	110	129	145
80	3	6	18	36	56	88	110	175	215	245
100	4	10	34	64	106	156	218	326	402	450
125	5	16	57	103	170	257	370	565	665	755
150	6	21	77	155	240	375	535	840	970	1,100
200	8	49	139	300	471	740	1,050	1,628	1,930	2,150
250	10	75	215	465	730	1,120	1,680	2,270	2,850	3,200
300	12	105	305	660	1,030	1,645	2,520	3,385	4,185	4,700
350	14	135	380	825	1,290	1,950	2,850	4,060	5,105	5,800
400	16	180	520	1,120	1,755	2,720	3,900	5,670	7,100	8,000
450	18	240	685	1,475	2,315	3,520	5,300	7,400	9,280	10,500
500	20	315	905	1,950	3,060	4,800	7,000	9,900	12,390	14,000
600	24	450	1,365	2,950	4,630	7,300	10,700	14,900	18,500	21,000

• Cv is in imperial units, the water flow in U.S. gallons per minute which passes through the valve giving a pressure drop of 1 PSI at a temperature of 68°F

In metric units the same coefficient is called Kv and correspond to the flow rate in m3/h passing through the valve giving a pressure drop of 1 bar at a temperature of 20°C

The approximate corresponding formulas are :

$$Q = Cv \cdot \sqrt{\frac{\Delta p \cdot 62.4}{D}}$$

where :

Q = valve flow rate in gpm (USGPM)

Δp = pounds per square inch (psi) pressure drop through the valve

62.4 = conversion factor for fluids computed in relation to water

D = pounds per cu.ft (pct) fluid density

$$Q = Kv \cdot \sqrt{\frac{\Delta p \cdot 1000}{D}}$$

where :

Q = valve flow rate in m3/h

Δp = pressure drop through the valve in bar

1000 = conversion factor for fluids computed in relation to water.

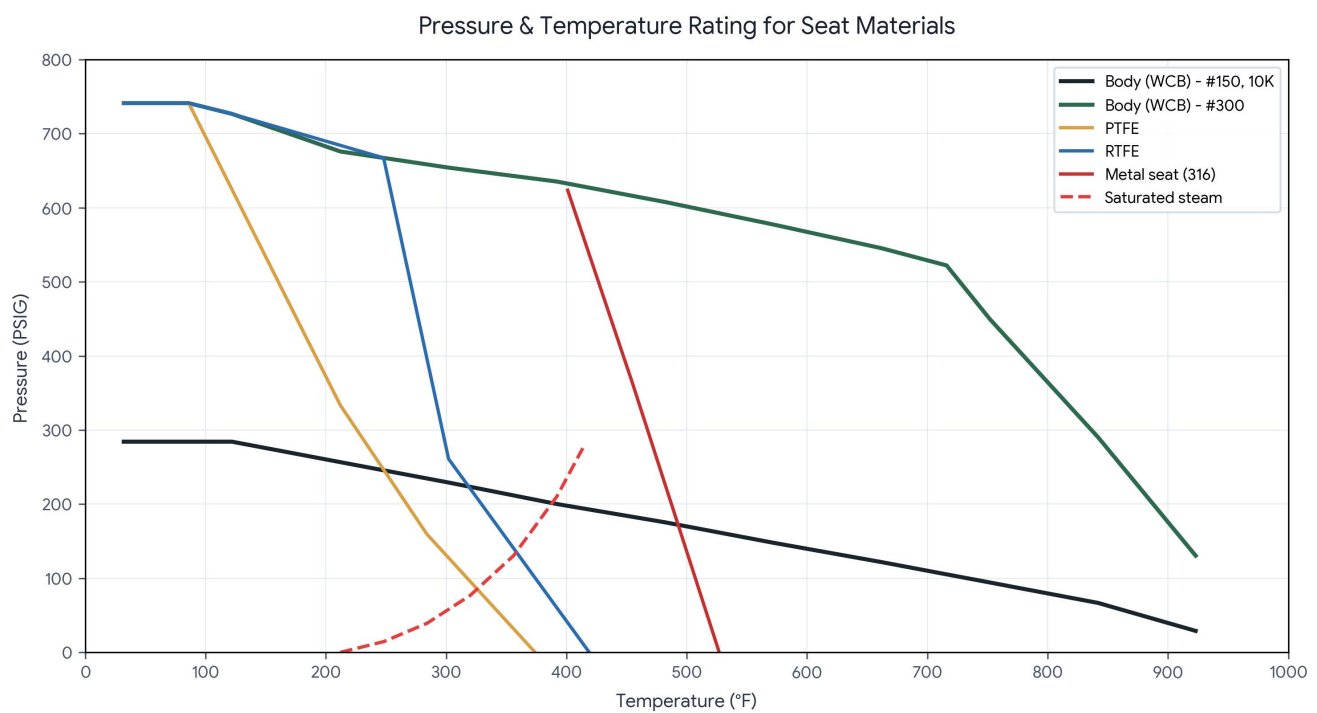
D = Kg/m³ fluid density

The relation between Cv and Kv, expressed in the above mentioned unit of measure is as follows ;

Cv = 1.16Kv

Technical Data

Pressure VS. Temperature



Ordering:

Series	Port	Body Material	Disc	Stem	End Connection	Size
VHP	B2- Double Offset	S - Stainless Steel C - Carbon Steel F - Duplex St. St.	S - 316 SS O - 304 SS D - Duplex St. St.	S - 316 SS P - 17-4PH D - Duplex St. St.	L1- Lug 150 L3- Lug 300 W1- Wafer 150 W3- Wafer 300	0200 - 2" 0250 - 2-1/2" 0300 - 3" 0400 - 4" 0500 - 5" 0600 - 6" 0800 - 8" 1000 - 10" 1200 - 12" ** 2400 - 24" *

Seats	Packing	Body Seal	Operator	Options	Stem O-ring
P - PTFE R - RTFE C - CTFE M - Metal	P - PTFE G - Graphite	P - PTFE G - Graphite	Blank - Bare Stem L - Locking Handle G - Gear Operated	Blank - No Options O - Oxygen Cleaned	Blank

* Larger Sizes Available

** Wafer Sizes 2" thru 12" only

Vtek Controls, LLC reserves the right to make revisions to it's products, specifications, literature, and related information without notice. Please visit our Website for the latest information and updates.



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