



## 2 Piece Floating Ball Valve

Company Overview & Engineering Specifications

*We Make Our Valves™*





**PREMIER QUALITY. PREMIER PERFORMANCE.**

### **Our Legacy and Our Future**

With over 40 years of quality manufacturing serving as our legacy, YVI Valve (YVI) presses forward into the future by providing unwavering commitment to developing and delivering superior quality cast industrial valves to the approved End User markets around the globe. Headquartered in Houston, TX, YVI is a family-owned and managed company with unrivaled passion for quality manufacturing and high performance. Dedicated to providing solutions that bring our customers a competitive advantage in an ever-evolving global marketplace, YVI is confident in their goal of being recognition as a preferred global manufacturer.

### **Every Valve. Our Foundry, Our Factory**

YVI maintains a dedicated workforce focused on utilizing our integrated foundry and factory manufacturing processes to achieve highly reliable, and predictable quality products. Our facilities consist of two professional casting foundries, multiple machining, assembly, and testing operations totaling approximately 1.9Mft<sup>2</sup>. Placing top priority on quality ensures every YVI valve meet the strictest requirements for manufacturing as examined through our rigorous testing processes where all types of non-destructive testing, including mag-particle and radiography, are utilized every day to verify our products.

### **On-Time, Every Time**

YVI considers performance to delivery assurance expectations a cornerstone to its reputation. By controlling all aspects of the manufacturing process, from raw materials receipt to finished product, YVI maintains notable competence in providing world-class lead times. No matter whether the opportunity is large or small, YVI will always meet its customers' expectations.

**Driven by an uncompromising commitment to excellence and a vision to become the world's next premier valve manufacturer, YVI was born.**

## Quality Guaranteed

YVI manufactures and rigorously tests every valve to achieve 100% compliance with the latest regulatory standards. YVI valves meet or exceed applicable requirements including API 6D, API 608, API 598, API 641, ISO 15848-1, CE/PED, UKCA, and National CRN certifications.

With best-in-class reliability and craftsmanship, YVI sets a new benchmark for performance. Our mission is simple: not just to meet customer expectations—but to exceed them, every time.

## Certified Performance.

YVI places the greatest emphasis on the achievement and retention of certification from many leading global agencies governing the manufacturing of cast industrial valves. These certificates are part of the bedrock and promise of YVI Valve to remain in full compliance with the latest editions of global industry standards. This commitment begins with the Li family ownership and is carried out by its valued employees, every day.

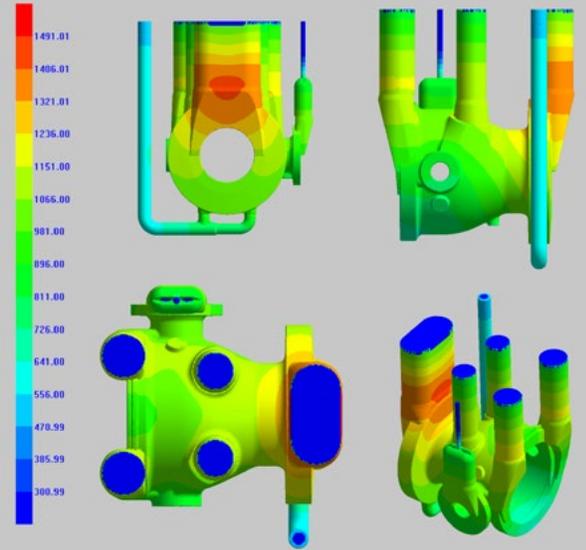
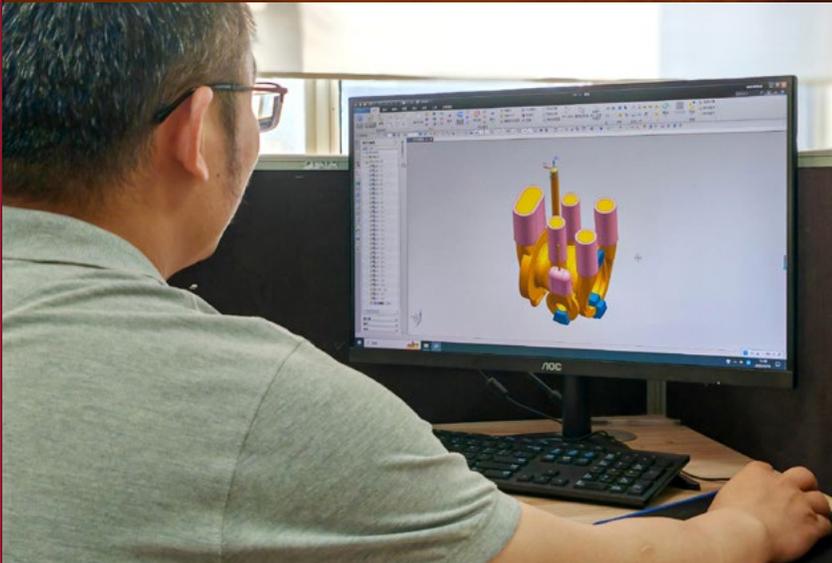
- |                            |                |                           |
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| <b>1.</b> ISO 9001:2015    | <b>5.</b> UKCA | <b>9.</b> ISO 15848-1, -2 |
| <b>2.</b> ISO 14001:2015   | <b>6.</b> BV   | <b>10.</b> API 6D         |
| <b>3.</b> OSHAS 18001:2007 | <b>7.</b> ABS  | <b>11.</b> API 608        |
| <b>4.</b> CE / PED         | <b>8.</b> CRN  | <b>12.</b> API 607        |

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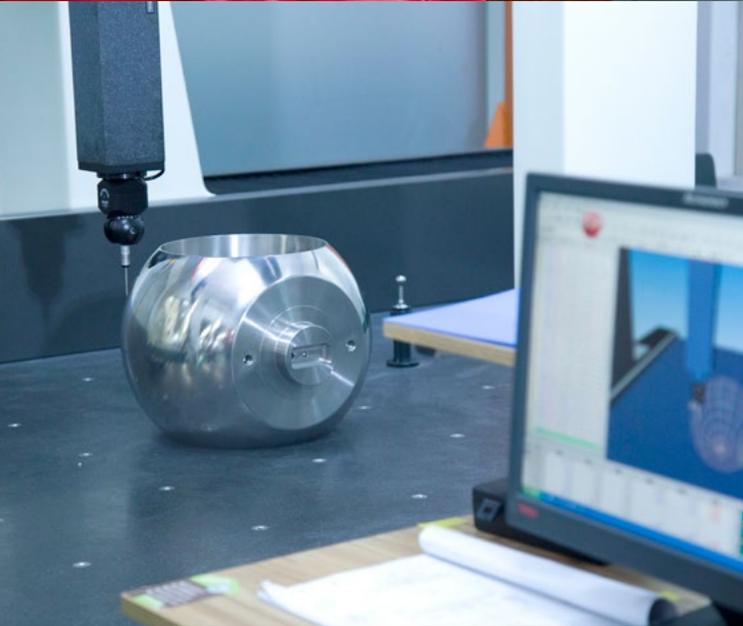
## In-House Competency: Our Foundries

Since its beginning, YVI has maintained a mission of being a premier valve manufacturer. Challenging themselves every day, with the truth that to make a quality valve you first need to own your manufacturing facilities and processes, YVI utilizes its own professional foundries, capable of outputting over 30,000 metric tons of product annually, to meet the growing demand for quality cast industrial valves. Casting solely from the highest-grade metals under the strictest chemical and mechanical controls and pouring practices, YVI valves exceed industry standards for quality and workmanship. It's with these truths that YVI confidently and resolutely marches into the future proclaiming; **We Make Our Valves.**



## *In-House Competency: Our Factories*

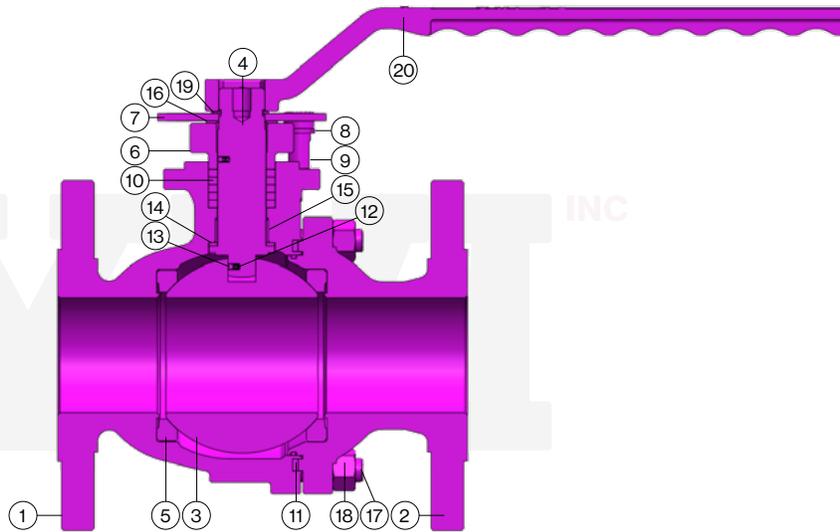
At each step of the manufacturing process spanning 1.3M ft<sup>2</sup> of advanced machining, assembly, and testing operations, YVI demands a high level of precise craftsmanship discoverable in every part, details and finish. Drawing on the talents of its craftspeople with tireless attention to quality and workmanship, our factory turns out a full range of highly predictable and reliable products ready for the toughest and most difficult requirements. We are proud to proclaim; **We Make Our Valves.**



# Cast Steel Floating Ball Valve

## Design Features

- Secure Line Flow Locking Device
- Blow-out Proof Stem
- API 607 Firesafe Design
- Anti-Static Design
- API 641 Low Emission Design
- Over Pressure Self Relieving Seat Design
- ISO5211 Mount Pad
- Flanges (RF/RTJ) according to ASME B16.5
- Designed and Tested to API 608
- Designed all to API608, & ASME B16.34
- Optional NACE MR 01 - 75 MR 01 - 03 specification Compliance



No	Part	Standard	Stainless Steel	Low Temperature
1	Body	ASTM A216 WCB	ASTM A351 CF8M	ASTM A352 LCC
2	End Connect	ASTM A216 WCB	ASTM A351 CF8M	ASTM A352 LCC
3	Ball	ASTM A105N+ENP	ASTM A182 F316	ASTM A182 F316
4	Stem	AISI 4140+ENP	ASTM A182 F316	ASTM A182 F316
5	Seat	RPTFE	RPTFE	RPTFE
6	Packing Gland	Carbon Steel	Stainless Steel	Stainless Steel
7	Limiting Stopper	Carbon Steel	Stainless Steel	Stainless Steel
8	Locking Plate	Carbon Steel + Zn	SS316	SS316
9	Pin	SS316	SS316	SS316
10	Stem Packing	Graphite	Graphite	Graphite
11	Body Gasket	SS+Graphite	SS+Graphite	SS+Graphite
12	Spring	SS316	SS316	SS316
13	Steel Ball	SS316	SS316	SS316
14	Thrust Bearing	PEEK	PEEK	PEEK
15	Bearing	PTFE	PTFE	PTFE
16	Spacer	PTFE	PTFE	PTFE
17	Body Bolt	ASTM A193 B7	ASTM A193 B8M	ASTM A320 L7
18	Body Nut	ASTM A194 2H	ASTM A194 8M	ASTM A194 7
19	Retaining Ring	Carbon Steel	SS316	SS316
20	Handle	ASTM A216 WCB	ASTM A351 CF8M	ASTM A351 CF8M
21	Hexagon Socket Set Screws with Cone Point	SS316	SS316	SS316

Material list, other materials available/provided. Design/parts may vary based on size & class.

### Temperature Ranges

- **Soft-seated:** -46°C to 200°C  
(-51°F to 392°F)

### Size Ranges

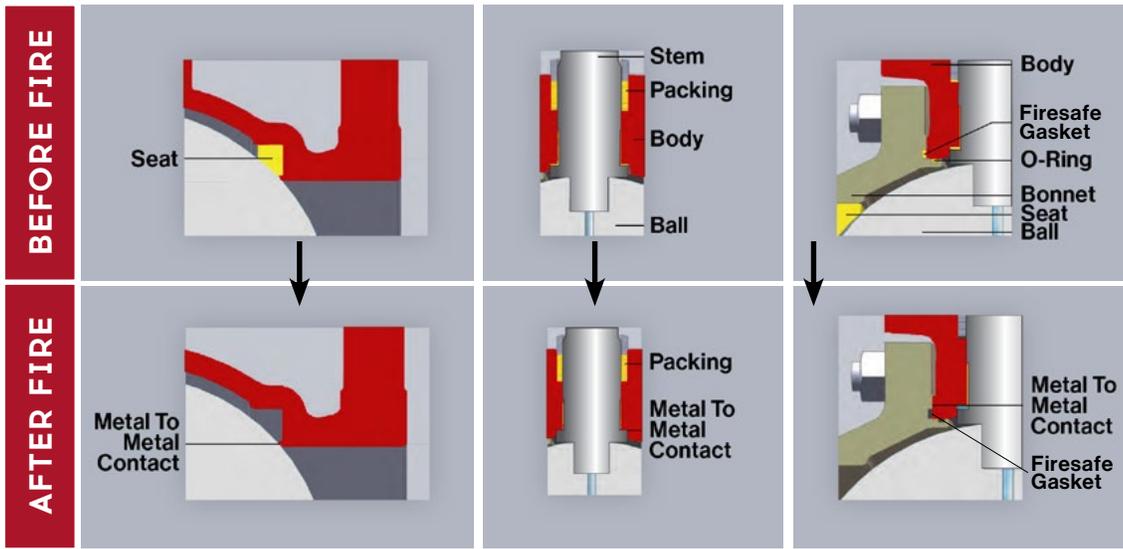
- **150 lb:** 1/2" to 8"
- **300 lb:** 1/2" to 8"
- **600 lb:** 1/2" to 4"



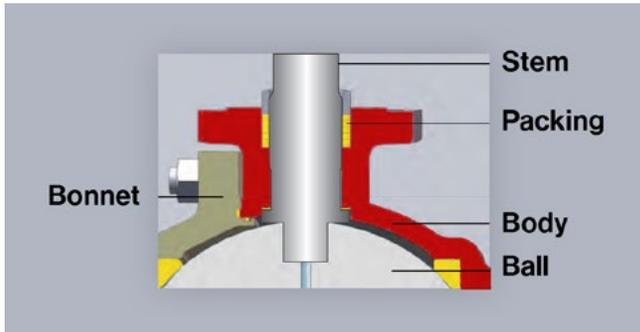
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# Design Features

## Fire Safe Design

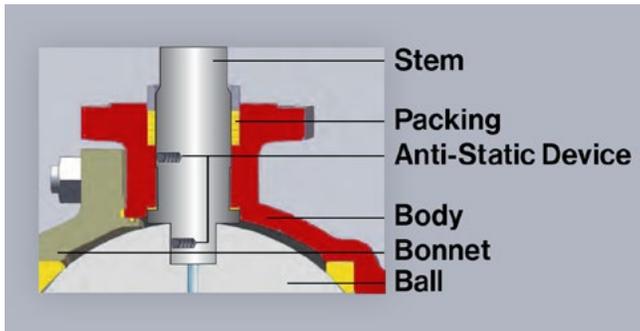


The seat, stem, and body joint of the ball valve are designed with fire-safe features. When non-metal materials such as O-rings, soft seats, etc., are decomposed or deteriorated by fire, the ball valve changes to a metal-to-metal auxiliary seal structure, which will prevent/control effectively internal leakage or external leakage.



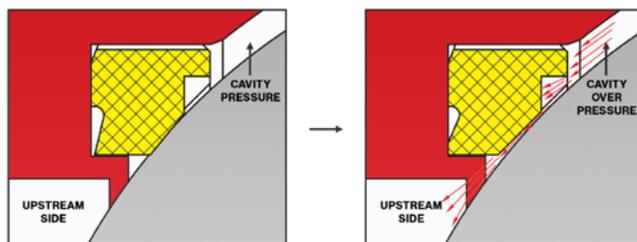
### Blow-Out Proof Stem Design

Stem is designed with collar, which will prevent stem from being blown out, when medium passes through the valve or the valve is disassembled to repair.



### Anti-Static Device

When opening and closing the valve, the friction between the ball and the non-metal seat will generate static charges. To avoid static sparkle, an antistatic device is designed on the valve to derive the accumulated static from the ball.

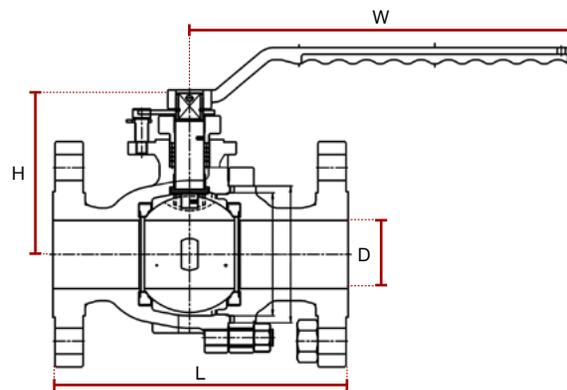


### Over Pressure Self Relieving Seat Design

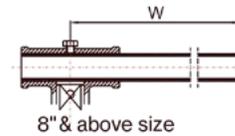
Under close position, when the cavity pressure increases abnormally, the cavity medium will elastically squeeze out through the upstream side seat ring, and it will prevent cavity pressure from exceeding.

# Dimensional Data

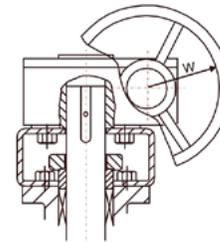
## Full Port



Full Port



8" & above size



Gear operator

CLASS 150	NPS	in	½"	¾"	1"	1½"	2"	2½"	3"	4"	5"	6"	8"
	D	in	0.43	0.70	1.00	1.46	1.97	2.50	2.95	3.94	5.00	5.94	7.95
		mm	11	17	24	37	50	62	75	100	127	151	202
	L	in	4.25	4.61	5	6.5	7.01	7.48	7.99	9.02	14.02	15.51	17.99
		mm	108	117	127	165	178	190	203	229	356	394	457
	H	in	3.27	3.67	4.29	5.71	5.96	6.2	7.61	9.19	11.22	11.68	16.24
		mm	80	90	105	140	151.41	152	193	234	275	297	413
	W	in	5.91	5.91	7.09	11.02	11.02	15.75	14.17	22.83	41.34	31.5	15.75
		mm	150	150	180	280	280	400	360	580	1,050	800	*400
	WEIGHT	lb	5.6	6.7	10	15.6	37.5	33.3	51.1	86.2	123.9	166.7	288.7
kg		2.5	3	4.5	7	17.0	15	23.2	39.1	58	90	160	

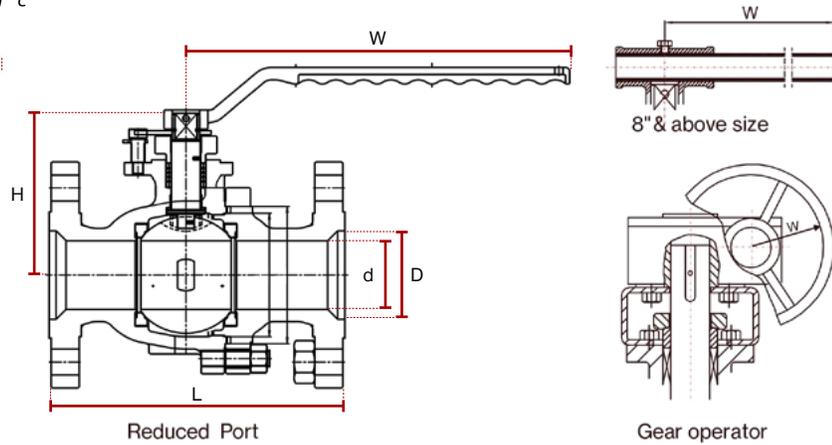
CLASS 300	NPS	in	½"	¾"	1"	1½"	2"	2½"	3"	4"	5"	6"	8"
	D	in	0.43	0.70	1.00	1.50	1.97	2.50	2.95	3.94	5.00	5.94	7.95
		mm	11	17	24	37	50	62	75	100	127	151	202
	L	in	5.51	5.98	6.5	7.48	8.5	9.49	11.10	12.01	15	15.87	19.76
		mm	140	152	165	190	216	241	282	305	381	403	502
	H	in	3.11	3.78	3.78	4.72	5.96	6.22	7.61	9.19	9.92	12.95	16.92
		mm	79	96	96	120	151.41	158	193	234	252	329	430
	W	in	5.91	7.35	9.39	12.24	11.02	15.75	14.17	22.83	41.34	13.78	39.37
		mm	150	180	230	300	280	400	360	580	1,050	*350	1000
	WEIGHT	lb	7.8	8.9	12.2	15	32.6	46.7	69.9	117.1	144.4	211.1	333.3
kg		3.5	4	5.5	11	14.8	21	31.7	53.1	75	105	200	

CLASS 600	NPS	in	½"	¾"	1"	1¼"	1½"	2"	2½"	3"	4"
	D	in	0.44	0.68	0.94	1.19	1.44	1.97	2.44	2.95	3.94
		mm	11	17	24	30	37	50	62	75	100
	L	in	6.5	7.5	8.5	9	9.5	11.5	13	14.02	17.01
		mm	165	190	216	229	241	292	330	356	432
	H	in	3.3	3.7	3.9	3.9	4.6	6.57	8.3	8.08	9.87
		mm	85	93	99	100	117	167	210	205	251
	W	in	6.3	7.9	7.9	7.9	7.9	13.39	15.7	20.08	27.56
		mm	160	200	200	200	200	340	400	510	700
	WEIGHT	lb	10	15	22	33	44	61.7	99	123	209
kg		4.5	7	10	15	20	28	45	56	95	

\* Gear Operator

# Dimensional Data

## Reduced Port



CLASS 150	NPS	in	2"-1½"	3"-2"	4"-3"	6"-4"	8"-6"
	d	in		0.40	2.00	3.00	4.00
mm			11	50	75	100	151
D	in		2	3	4	6	7.95
	mm		49	75	100	151	202
L	in		7.01	7.99	9.02	15.51	17.99
	mm		178	203	229	394	457
H	in		6.12	7.55	10.82	14.49	18.61
	mm		150	185	265	355	456
W	in		11.2	11.2	15.75	25.59	41.34
	mm		280	280	400	650	1,050
WEIGHT	lb		18.9	37.8	57.8	144.4	257.7
	kg		8.5	17	26	65	116

CLASS 300	NPS	in	2-1½"	3-2"	4-3"	6-4"	8-6"
	d	in		1.50	2.01	3.00	4.00
mm			37	50	75	100	151
D	in		2	3	4	6	8
	mm		50	75	100	151	202
L	in		8.5	11.10	12.01	15.87	19.76
	mm		216	282	305	403	502
H	in		4.72	5.79	6.69	8.27	10.71
	mm		120	147	170	210	272
W	in		11.2	15.75	25.59	41.34	15.75
	mm		280	400	650	1,050	*400
WEIGHT	lb		26.7	53.3	91.1	188.9	302.2
	kg		12	24	41	85	136

CLASS 600	NPS	in	½*¾	¾*1½	1*¾	1*½	1½*1	1½*1¼	2*1¼	2*1½	3*2	3*2½	4*2½	4*3
	d	in		0.31	0.44	0.68	0.43	0.94	1.81	1.19	1.44	1.94	2.44	2.44
mm			8	11	17	11	24	30	30	37	49	62	62	75
D	in		0.44	0.68	0.94	0.94	1.44	1.44	1.94	1.94	2.94	2.94	3.94	3.94
	mm		11	17	24	24	37	37	49	49	75	75	100	100
L	in		6.5	7.5	8.5	8.5	9.5	9.5	11.5	11.5	14	14	17	17
	mm		165	190	216	216	241	241	292	292	356	356	432	432
H	in		3.3	3.3	3.7	3.3	3.9	3.9	3.9	4.6	7.1	8.3	8.3	9.6
	mm		85	85	93	85	99	100	100	117	180	210	210	244
W	in		6.3	6.3	7.9	6.3	7.9	7.9	7.9	7.9	13.8	15.7	15.7	27.6
	mm		160	160	200	160	200	200	200	200	350	400	400	*700
WEIGHT	lb		9	13	18	15	29	37	46	62	73	112	128	139
	kg		4	6	8	6.6	13	17	21	28	33	51	58	63

\* Gear Operator

# Engineering Specifications

## Soft Seal Materials | Seat

PROPERTIES		PTFE	RPTFE	NYLON	DEVLON	PEEK	PCTFE
Mechanical Property	Hardness (D)	52-60	55-62	70-80	78-80	≥82	85-95
	Tensile Strength (Mpa)	≥28	≥20	>52	≥79.92	≥90	>38
	Tensile Elongation (break %)	>250	>250	>240	>5.37	≥40	>45
Physical Property	Specific Gravity (g/cm <sup>3</sup> )	2.15-2.25	2.15-2.25	1.02-1.04	1.14	1.28-1.4	2.11-2.16
	Water Absorption 24hrs (%)	0	0	1	0.1	0.06	0
	Water Absorption Saturation	<0.01	<0.01	16	3	0.2	<0.01
Service Application		Chemical & Low temperature	Chemical & Low temperature	High pressure & Hydrocarbon	High pressure & Hydrocarbon	High pressure & temperature	Cryogenic

## Flow Coefficient (Cv Value)

SIZE (IN)	½	¾	1	1½	2	3	4	6	8
150LB	25	56	95	308	500	1360	2500	5300	10750
300LB	25	56	95	308	430	1100	2000	5250	10100
600LB	20	48	64	308	370	1020	1850	-	-

### Method of Calculating Flow

The Flow Coefficient Cv of a valve is the flow rate of water (gallons/minute) Through a fully opened valve, with a pressure drop of 1 psi across the valve. To find the flow of liquid through the valve from the Cv, use the following formulas:

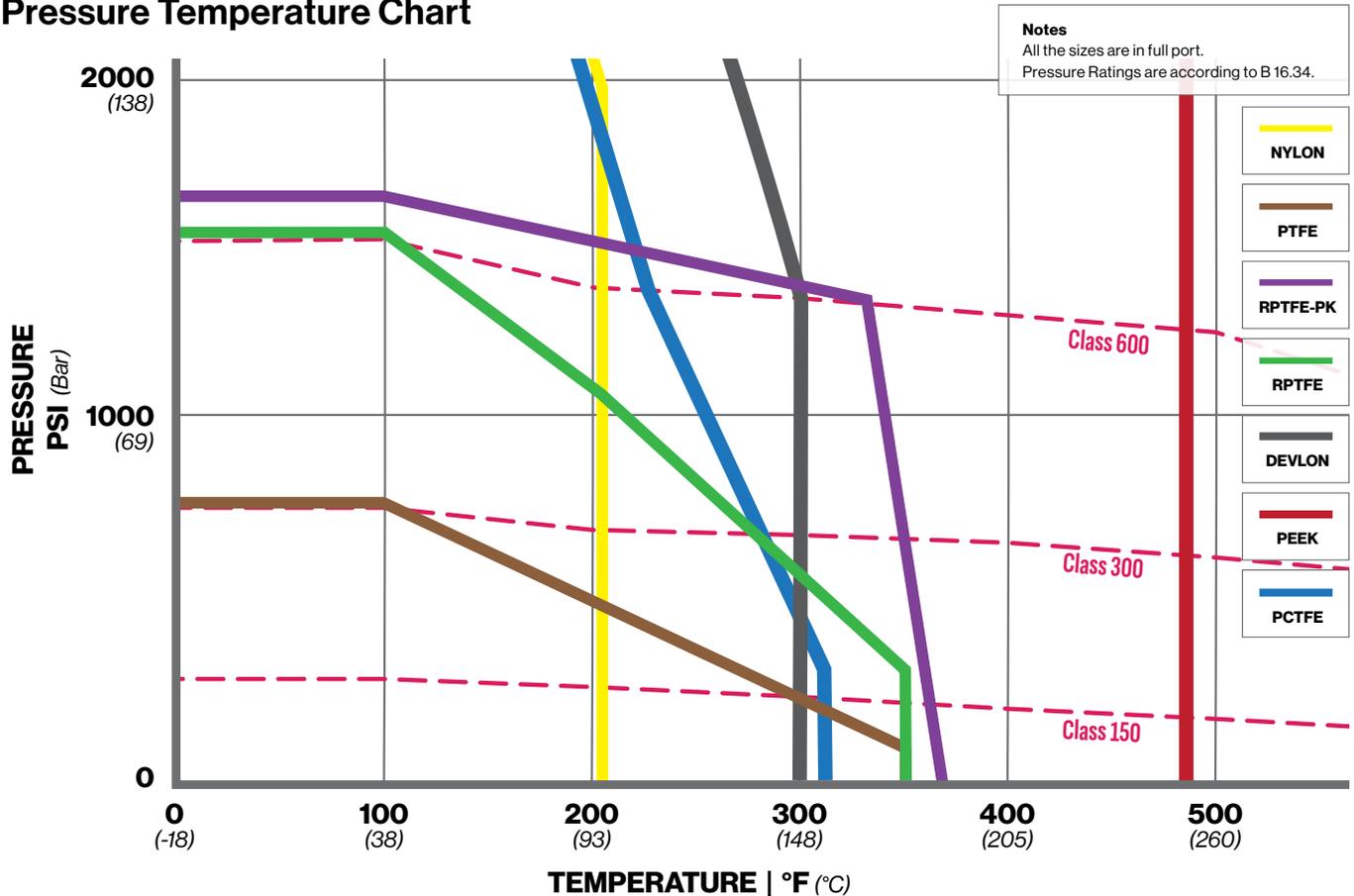
### Liquid Flow:

$Q_L = C_v(P/G)^{1/2}$   
 $Q_L$  = Flow rate of liquid (gal./min)  
 $P$  = Differential pressure across the valve  
 $G$  = Specific gravity of liquid (for water,  $G=1$ )

### Gas Flow:

$Q_g = 61C_v(P_2P/g)^{1/2}$   
 (For non-critical flow,  $P/P < 1.0$ )  
 $Q_g$  = Flow rate of gas (CFH at STP)  
 $P_2$  = Outlet pressure (psia)  
 $g$  = specific gravity of gas (for air,  $g=1.0$ )

## Pressure Temperature Chart







**YVI**<sup>INC</sup>

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