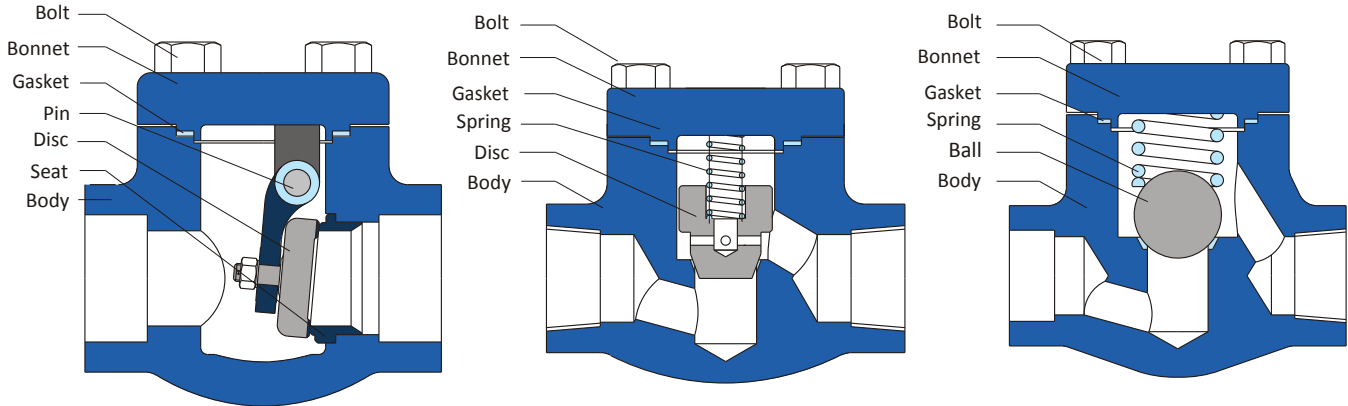


FORGED STEEL CHECK VALVES

Design



Remarks:

1. Type of end connection referred to Appendix
2. Type of body and bonnet connection referred to Appendix

Main Parts & Materials

No.	Parts Name	Material			
		Carbon Steel		Stainless Steel	Alloy Steel
1	Body	ASTM A105	ASTM A350 LF2/LF3	ASTM A182 F304	ASTM A182 F11/F22
2	Seat	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F304	ASTM A182 F11/F22
3	Disc/Ball	ASTM A182 F6a	ASTM A182 F6a	ASTM A276-304	ASTM A182 F6a
4	Pin	ASTM A276-410	ASTM A276-410	ASTM A276-304	ASTM A276-410
5	Spring	Si.Mn Alloy Steel		Stainless Steel	Cr.V Alloy Steel
6	Gasket	SS304 + Graphite			
7	Bonnet	ASTM A105	ASTM A350 LF2/LF3	ASTM A182 F304	ASTM A182 F11/F22
8	Bolt	ASTM A193 B7	ASTM A320 L7	ASTM A193 B8	ASTM A193 B7

FORGED STEEL CHECK VALVES

Product Line

Connection Ends	Port	Structure	Pressure		Size								
			PN	Class	8	10	15	20	25	32	40	50	
					1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	
Flange, Butt-weld	FP	BS / BL / WS / WL	1.6 ~ 10.0	150			*	*	*	*	*	*	*
				300			*	*	*	*	*	*	*
				600			*	*	*	*	*	*	*
Flange, Butt-weld	FP	PL	1.6 ~ 42.0	900			*	*	*	*	*	*	*
				1500			*	*	*	*	*	*	*
				2500			*	*	*	*	*	*	*
Threaded, Socket	RP	BS / BL / WS / WL	1.6 ~ 10.0	150	*	*	*	*	*	*	*	*	*
				300	*	*	*	*	*	*	*	*	*
				600	*	*	*	*	*	*	*	*	*
				800	*	*	*	*	*	*	*	*	*
Threaded, Socket	FP	BS / BL / WS / WL	1.6 ~ 10.0	150	*	*	*	*	*	*	*	*	*
				300	*	*	*	*	*	*	*	*	*
				600	*	*	*	*	*	*	*	*	*
				800	*	*	*	*	*	*	*	*	*
Threaded, Socket	FP	BS / BL / WS / WL	1.6 ~ 26.0	900			*	*	*	*	*	*	*
				1500			*	*	*	*	*	*	*
Threaded, Socket	RP	Y - BL / WL	-	800	*	*	*	*	*	*	*	*	*
				1500	*	*	*	*	*	*	*	*	*

Technical Specification

		Class							PN							
		150	300	600	800	900	1500	2500	1.6	2.5	4.0	6.4	10.0	16	26.0	42.0
Test Pressure (mpa)	Shell Test	2.93	7.55	10.0	20.1	15.0	37.5	63.0	2.4	3.75	6.0	9.6	15.0	24.0	39.0	63.0
	Seal Test (High Pressure)	2.07	5.52	7.31	14.7	11.03	27.5	16.2	1.76	2.75	4.4	7.04	11.0	17.6	28.6	46.2
	Seal Test (Low Pressure)	0.6														
Applicable Temperature		< 425°C														
Medium		Water, Oil & Gas														

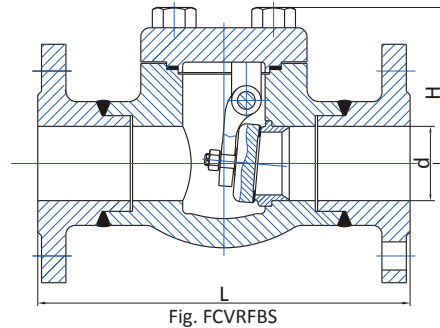
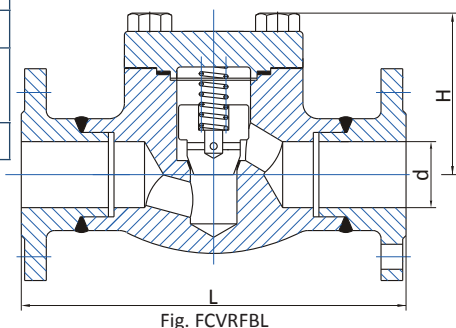
FORGED STEEL CHECK VALVES

Standard Specification

Design Standard	ASME B16.34 / BS 5352
Face to Face	ASME B16.10
Flange Ends	ASME B16.5
Butt weld Ends	ASME B16.25
Pressure-Temperature Rating	ASME B16.34
Inspection & Test	API 598

Structure Description

- ✦ Bolted Bonnet or Welded Bonnet
- ✦ Full Port
- ✦ Swing or Lift Type
- ✦ Flange Ends or Butt-welding Ends



Class 150

LIFT TYPE	Size		Main Dimension				Weight (kg)
	Inch	mm	FB	LRF	LBW	H	
	1/2"	15	13	105	105	61	
3/4"	20	18	117	117	78	4.4	
1"	25	24	124	127	84	8.2	
1 1/4"	32	29	140	140	103	8.9	
1 1/2"	40	36.5	165	165	118	12.0	
2"	50	46.5	203	203	130	14.3	

SWING TYPE	Size		Main Dimension				Weight (kg)
	Inch	mm	FB	LRF	LBW	H	
	1/2"	15	13	105	105	61	
3/4"	20	18	117	117	78	4.4	
1"	25	24	124	127	84	8.2	
1 1/4"	32	29	140	140	101	8.9	
1 1/2"	40	36.5	165	165	120	12.0	
2"	50	46.5	203	203	133	14.3	

Class 300

LIFT TYPE	Size		Main Dimension				Weight (kg)
	Inch	mm	FB	LRF	LBW	H	
	1/2"	15	13	152	152	61	
3/4"	20	18	178	178	78	4.8	
1"	25	24	203	203	84	8.8	
1 1/4"	32	29	216	216	103	9.6	
1 1/2"	40	36.5	229	229	118	13.7	
2"	50	46.5	267	267	130	17.8	

SWING TYPE	Size		Main Dimension				Weight (kg)
	Inch	mm	FB	LRF	LBW	H	
	1/2"	15	13	152	152	61	
3/4"	20	18	178	178	78	4.8	
1"	25	24	203	203	84	8.8	
1 1/4"	32	29	216	216	101	9.6	
1 1/2"	40	36.5	229	229	120	13.7	
2"	50	46.5	267	267	133	17.8	

Class 600

LIFT TYPE	Size		Main Dimension				Weight (kg)
	Inch	mm	FB	LRF	LBW	H	
	1/2"	15	13	165	165	61	
3/4"	20	18	190	190	78	5.8	
1"	25	24	216	216	84	9.5	
1 1/4"	32	29	229	229	103	10.4	
1 1/2"	40	36.5	241	241	118	15.6	
2"	50	46.5	292	292	130	24.5	

SWING TYPE	Size		Main Dimension				Weight (kg)
	Inch	mm	FB	LRF	LBW	H	
	1/2"	15	13	165	165	61	
3/4"	20	18	190	190	78	5.8	
1"	25	24	216	216	84	9.5	
1 1/4"	32	29	229	229	101	10.4	
1 1/2"	40	36.5	241	241	120	15.6	
2"	50	46.5	292	292	133	24.5	

FORGED STEEL CHECK VALVES

Standard Specification

Design Standard	GB/T12235, GB/T12236
Face to Face	GB/T9113, JB/T96-95
Flange Ends	GB/T9113, JB/T82.1~82.4
Butt weld Ends	GB/T1224
Pressure-Temperature Rating	GB/T12224
Inspection & Test	JB/T9092

Structure Description

- ✦ Bolted Bonnet or Welded Bonnet
- ✦ Full Port
- ✦ Swing or Lift Type
- ✦ Flange Ends or Butt-welding Ends

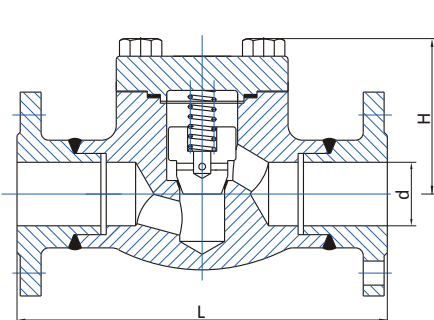


Fig. FCVRFB

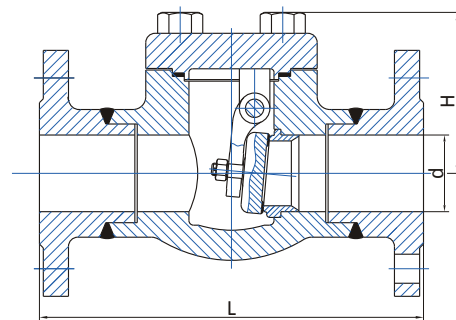


Fig. FCVRFS

PN1.6 / 2.5

LIFT TYPE	Size		Main Dimension				Weight (kg)
	Inch	mm	FB	LRF	LBW	H	
	1/2"	15	13	130	130	61	3.5
	3/4"	20	18	150	150	78	4.6
	1"	25	24	160	160	84	8.5
	1 1/4"	32	29	190	190	103	9.2
	1 1/2"	40	36.5	200	200	118	12.8
	2"	50	46.5	230	230	130	16.1

SWING TYPE	Size		Main Dimension				Weight (kg)
	Inch	mm	FB	LRF	LBW	H	
	1/2"	15	13	130	130	61	3.5
	3/4"	20	18	150	150	78	4.6
	1"	25	24	160	160	84	8.5
	1 1/4"	32	29	190	190	101	9.2
	1 1/2"	40	36.5	200	200	120	12.8
	2"	50	46.5	230	230	133	16.1

PN4.0

LIFT TYPE	Size		Main Dimension				Weight (kg)
	Inch	mm	FB	LRF	LBW	H	
	1/2"	15	13	130	130	61	3.5
	3/4"	20	18	150	150	78	4.6
	1"	25	24	160	160	84	8.5
	1 1/4"	32	29	190	190	103	9.2
	1 1/2"	40	36.5	200	200	118	12.8
	2"	50	46.5	230	230	130	16.1

SWING TYPE	Size		Main Dimension				Weight (kg)
	Inch	mm	FB	LRF	LBW	H	
	1/2"	15	13	130	130	61	3.5
	3/4"	20	18	150	150	78	4.6
	1"	25	24	160	160	84	8.5
	1 1/4"	32	29	190	190	101	9.2
	1 1/2"	40	36.5	200	200	120	12.8
	2"	50	46.5	230	230	133	16.1

PN6.4

LIFT TYPE	Size		Main Dimension				Weight (kg)
	Inch	mm	FB	LRF	LBW	H	
	1/2"	15	13	170	170	61	4.3
	3/4"	20	18	190	190	78	6.1
	1"	25	24	210	210	84	10.0
	1 1/4"	32	29	230	230	103	11.4
	1 1/2"	40	36.5	260	260	118	17.0
	2"	50	46.5	300	300	130	26.0

SWING TYPE	Size		Main Dimension				Weight (kg)
	Inch	mm	FB	LRF	LBW	H	
	1/2"	15	13	170	170	61	4.3
	3/4"	20	18	190	190	78	6.1
	1"	25	24	210	210	84	10.0
	1 1/4"	32	29	230	230	101	11.4
	1 1/2"	40	36.5	260	260	120	17.0
	2"	50	46.5	300	300	133	26.0

PN10.0

LIFT TYPE	Size		Main Dimension				Weight (kg)
	Inch	mm	FB	LRF	LBW	H	
	1/2"	15	13	170	170	61	4.3
	3/4"	20	18	190	190	78	6.1
	1"	25	24	210	210	84	10.0
	1 1/4"	32	29	230	230	103	11.4
	1 1/2"	40	36.5	260	260	118	17.0
	2"	50	46.5	300	300	130	28.7

SWING TYPE	Size		Main Dimension				Weight (kg)
	Inch	mm	FB	LRF	LBW	H	
	1/2"	15	13	170	170	61	4.3
	3/4"	20	18	190	190	78	6.1
	1"	25	24	210	210	84	10.0
	1 1/4"	32	29	230	230	101	11.4
	1 1/2"	40	36.5	260	260	120	17.0
	2"	50	46.5	300	300	133	28.7

✦ VAHN-TECH International Inc. reserves the right to change the technical data without prior notice.

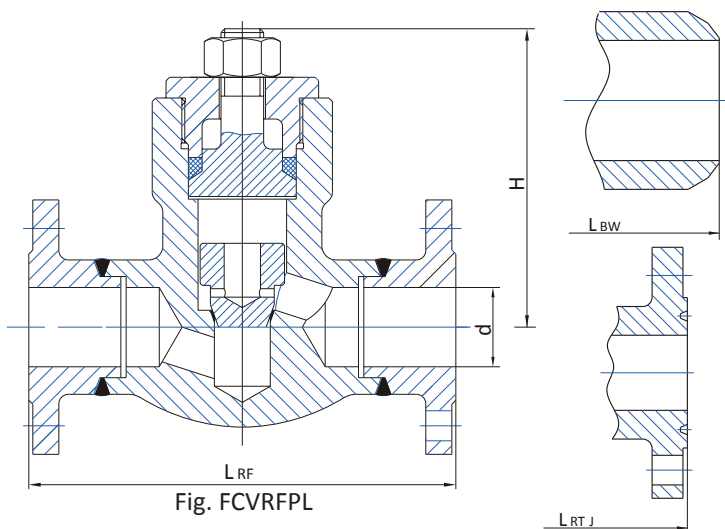
FORGED STEEL CHECK VALVES

Standard Specification

	GB / JB	ASME / API/BS
Design Standard	GB/T12235, GB/T12224	ASME B16.34 / BS 5352
Face to Face	GB/T12221, JB/T97-95	ASME B16.10
Flange Ends	GB/T9113, JB/T82.1~82.4	ASME B16.5
Butt weld Ends	GB/T12224	ASME B16.25
Pressure-Temperature Rating	GB/T12224	ASME B16.34
Inspection & Test	JB/T9092	API 598

Structure Description

- ✦ Pressure Sealed Bonnet
- ✦ Full Port
- ✦ Lift Type
- ✦ Flange Ends or Butt-welding Ends



Class 900 / PN16.0

Size		Main Dimension					Weight (kg)
Inch	mm	FB	LRF	LBJ	LRTJ	H	
1/2"	15	13	216	216	216	117.5	10.5
3/4"	20	18	229	229	229	117.5	11.9
1"	25	24	254	254	254	117.5	13.9
1 1/4"	32	29	279	279	279	149	26.9
1 1/2"	40	36.5	305	305	305	149	25.1
2"	50	46.5	368	368	371.2	195	32.0
2 1/2"	65	48.5	216	216	229	350	35.4

Class 1500 / PN26.0

Size		Main Dimension					Weight (kg)
Inch	mm	FB	LRF	LBJ	LRTJ	H	
1/2"	15	13	216	216	216	117.5	10.5
3/4"	20	18	229	229	229	117.5	11.9
1"	25	24	254	254	254	117.5	13.9
1 1/4"	32	29	279	279	279	149	26.9
1 1/2"	40	36.5	305	305	305	149	25.1
2"	50	46.5	368	368	371.2	195	32.0
2 1/2"	65	48.5	216	216	229	350	35.4

Class 2500 / PN42.0

Size		Main Dimension					Weight (kg)
Inch	mm	FB	LRF	LBJ	LRTJ	H	
1/2"	15	13	264	264	264	125	12.6
3/4"	20	18	273	273	273	125	14.9
1"	25	24	308	308	308	125	16.5
1 1/4"	32	29	349	349	352.2	166	28.0
1 1/2"	40	36.5	384	384	387.2	166	27.6
2"	50	46.5	451	451	454.2	210	34.5
2 1/2"	65	48.5	216	216	229	350	35.4

✦ VAHN-TECH International Inc. reserves the right to change the technical data without prior notice.

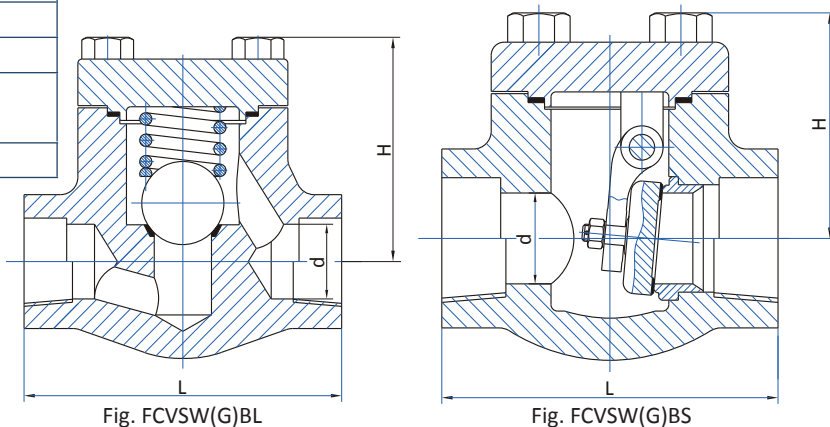
FORGED STEEL CHECK VALVES

Standard Specification

	GB / JB	ASME / API
Design Standard	JB/T7746	API 602
Face to Face	JB/T7746	Factory Standard
Socket-Welded Ends	JB/T1751	ASME B16.11
Threaded Ends	GB/T7306	ASME B1.20.1
Pressure-Temperature Rating	GB/T12224	ASME B16.34
Inspection & Test	JB/T9092	API 598

Structure Description

- ✦ Bolted Bonnet or Welded Bonnet
- ✦ Full Port
- ✦ Swing or Lift Type
- ✦ Threaded Ends or SW Ends



Class 150 - 600 / Class 800 / PN1.6~10.0

REDUCED BORE	Structure	Size		Main Dimension			Weight (kg)
		Inch	mm	d	L	H	
		Swing Type	1/4"	8	7	79	
3/8"	10		10	79	61	1.4	
1/2"	15		10	79	61	1.2	
3/4"	20		13	92	61	1.4	
1"	25		18	111	78	2.3	
1 1/4"	32		24	120	84	3.9	
1 1/2"	40		29	152	103	5.6	
2"	50		36.5	172	118	8.9	

FULL BORE	Structure	Size		Main Dimension			Weight (kg)
		Inch	mm	d	L	H	
		Swing Type	1/4"	8	7	79	
3/8"	10		10	79	61	1.2	
1/2"	15		13	92	61	1.4	
3/4"	20		18	111	78	2.3	
1"	25		24	120	84	3.9	
1 1/4"	32		29	152	103	5.6	
1 1/2"	40		36.5	172	118	8.9	
2"	50		46.5	200	132	12.5	

REDUCED BORE	Structure	Size		Main Dimension			Weight (kg)
		Inch	mm	d	L	H	
		Lift Type	1/4"	8	7	79	
3/8"	10		10	79	61	1.4	
1/2"	15		10	79	61	1.2	
3/4"	20		13	92	61	1.4	
1"	25		18	111	78	2.3	
1 1/4"	32		24	120	84	3.9	
1 1/2"	40		29	152	103	5.6	
2"	50		36.5	172	118	8.9	

FULL BORE	Structure	Size		Main Dimension			Weight (kg)
		Inch	mm	d	L	H	
		Lift Type	1/4"	8	7	79	
3/8"	10		10	79	61	1.2	
1/2"	15		13	92	61	1.4	
3/4"	20		18	111	78	2.3	
1"	25		24	120	84	3.9	
1 1/4"	32		29	152	103	5.6	
1 1/2"	40		36.5	172	118	8.9	
2"	50		46.5	200	132	12.5	

FORGED STEEL CHECK VALVES

Standard Specification

	GB / JB	ASME / API
Design Standard	JB/T7746	BS 5352
Face to Face	JB/T7746	Factory Standard
Socket-Welded Ends	JB/T1751	ASME B16.11
Threaded Ends	GB/T7306	ASME B1.20.1
Pressure-Temperature Rating	GB/T12224	ASME B16.34
Inspection & Test	JB/T9092	API 598

Structure Description

- ✦ Bolted Bonnet or Welded Bonnet
- ✦ Full Port
- ✦ Swing or Lift Type
- ✦ Threaded Ends or SW Ends

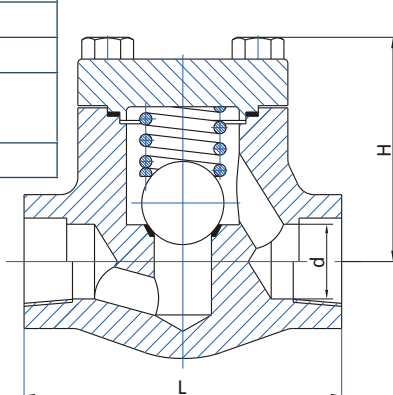


Fig. FCVSW(G)BL

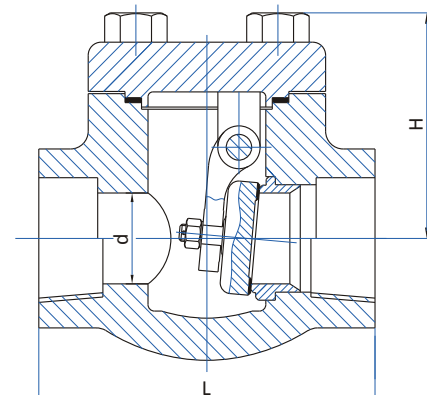


Fig. FCVSW(G)BS

Class 900 / PN16.0

REDUCED BORE	Structure	Size		Main Dimension			Weight (kg)
		Inch	mm	d	L	H	
		Swing Type	1/2"	15	10	79	
3/4"	20		13	92	61	1.4	
1"	25		18	111	78	2.3	
1 1/4"	32		24	120	84	3.9	
1 1/2"	40		29	152	103	5.6	
2"	50		36.5	172	118	8.9	

FULL BORE	Structure	Size		Main Dimension			Weight (kg)
		Inch	mm	d	L	H	
		Swing Type	3/8"	10	10	79	
1/2"	15		13	92	61	1.4	
3/4"	20		18	111	78	2.3	
1"	25		24	120	84	3.9	
1 1/4"	32		29	152	103	5.6	
1 1/2"	40		36.5	172	118	8.9	

Class 1500 / PN26.0

REDUCED BORE	Structure	Size		Main Dimension			Weight (kg)
		Inch	mm	d	L	H	
		Lift Type	1/2"	15	10	79	
3/4"	20		13	92	61	1.1	
1"	25		18	111	78	1.9	
1 1/4"	32		24	120	84	3.4	
1 1/2"	40		29	120	101	4.5	
2"	50		36.5	140	120	7.3	

FULL BORE	Structure	Size		Main Dimension			Weight (kg)
		Inch	mm	d	L	H	
		Lift Type	3/8"	10	10	79	
1/2"	15		13	92	61	1.1	
3/4"	20		18	111	78	1.9	
1"	25		24	120	84	3.4	
1 1/4"	32		29	120	101	4.5	
1 1/2"	40		36.5	140	120	7.3	

FORGED STEEL CHECK VALVES

Standard Specification

Design Standard	ASME B16.34 / BS 5352
Face to Face	Manufacturer Standard
Socket-welded End	ASME B16.11
Threaded Ends	ASME B1.20.1
Pressure-Temperature Rating	ASME B16.34
Inspection & Test	API 598

Structure Description

- ✦ Y-Type Structure
- ✦ Bolted Bonnet or Welded Bonnet
- ✦ Full Port
- ✦ Conical Disc
- ✦ Threaded Ends or SW Ends

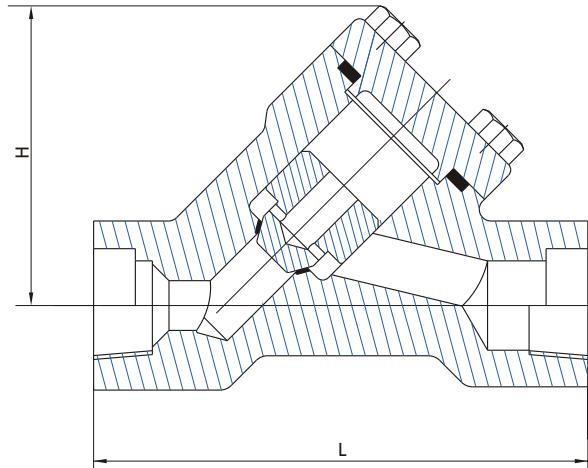


Fig. FCVSW(G)BL

Class 800

Size		Main Dimension			Weight (kg)
Inch	mm	FB	L	H	
1/4	8	7	98	84	3.0
3/8	10	10	98	84	2.8
1/2"	15	13	98	84	2.7
3/4"	20	18	98	84	3.7
1"	25	24	120	102	6.5
1 1/4"	32	29	130	114	9.0
1 1/2"	40	36.5	140	114	10.1
2"	50	46.5	170	145	11.0

Class 1500

Size		Main Dimension			Weight (kg)
Inch	mm	FB	L	H	
1/4	8	7	102	90	3.2
3/8	10	10	102	90	3.1
1/2"	15	13	102	90	3.0
3/4"	20	18	102	101	4.1
1"	25	24	130	125	7.2
1 1/4"	32	29	150	132	11.0
1 1/2"	40	36.5	190	142	12.0
2"	50	46.5	200	203	13.8

HOW TO ORDER

VT - XX - FCV - XX - XX - XX - XX - X - XXX

①

②

③

④

⑤

⑥

⑦

① Size:
1/2" - 8"

Type:
FCH- Forged Steel Check Valves

② Bore Type:
RB - Reduced Bore
FB - Full Bore

③ Pressure:
1 - Class 150 / PN1.6
2 - PN2.5
3 - Class 300
4 - Class 400 / PN4.0
6 - Class 600 / PN6.4
8 - Class 800
9 - Class 900
10 - PN10.0
16 - PN16.0
20 - PN20.0
25 - Class 2500

④ Design Structure:
BS - BB - Swing
PS - PB - Swing
BL - BC - Lift
PL - PC - Lift
YB-Y Type BC - Lift

⑤ Body Material:
C - A105
C5 - F5
C6 - F11
C9 - F22
BL - LF2
CL - LF3
8 - F304
8M - F316
3 - 304L
3M - 316L
ML - MONEL

⑥ Seat Face/Liner Material:
H - Cr13 S.S
E - 18-8 S.S
R - Mo2Ti S.S
D - Nitriding Steel
M - Monel Alloy
Y - Stellite

⑦ End Connection:
RF - Raised Face Flanges
RJ - Ring Type Joint
MFM - Male & Female Face
BW - Butt Weld Ends
SW - Socket-weld
G - 55° (RC)
T - 60° (NPT)
TG - Tongued & Grooved

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