

HARSHAD

SAFETY VALVE MANUFACTURER

SAFETY RELIEF VALVE

ISO 9001 CERTIFIED COMPANY

SERIES # 006

CE 1128

DESIGN FEATURES

- SAFETY VALVE MANUFACTURED IN ACCORDANCE WITH REQUIREMENT OF ASME SECTION VIII DIVISION 1, API 526, API 527, EN ISO 4126 PART 1, IS 12992, API 520 & ASME 16.34
- DIRECT SPRING OPERATED, FULL LIFT, FULL NOZZLE, SINGLE TRIM & HIGH CAPACITY DESIGN
- ADJUSTABLE BLOW DOWN RING FOR PERFECT POPPING AND BLOW DOWN ADJUSTMENT
- SUPERIOR SEAT TIGHTNESS. AVAILABLE IN FLAT METAL SEAT, RUBBER & TEFLON SEAT.
- STELLITE DISC & NOZZLE ARE OFFER
- AVAILABLE IN OPEN AND CLOSED BONNET
- SPECIAL MATERIAL OFFERS LIKE MONEL, HASTE ALLOY, SUPER DUPLEX, INCONEL, ETC.
- MATERIAL COMPLIANCE TO NACE MR0175 ARE ALSO AVAILABLE.

TECHNICAL DATA : -

- SIZES : 1" X 2" TO 8" X 10" (ORIFICE "D" TO "R")
- END CONNECTION : FLANGE END (ANSI B 16.5 R.F.)
- SET PRESSURE RANGE : 1BARG TO 414BARG
- PRESSURE RATING CLASS : 150# TO 2500#
- TEMPERATURE RANGE : -196°C TO 538°C
- APPLICATION : AIR, GAS, STEAM, LIQUID



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HARSHAD ENGINEERING WORKS

WORK & OFFICE ADDRESS : -

S-121 TO S-124, VIVEKANAND
INDUSTRIAL ESTAE, NEAR RAKHIAL
CROSS ROAD, RAKHIAL, AHMEDABAD
- 380 023. GUJARAT, INDIA.

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WEB 1

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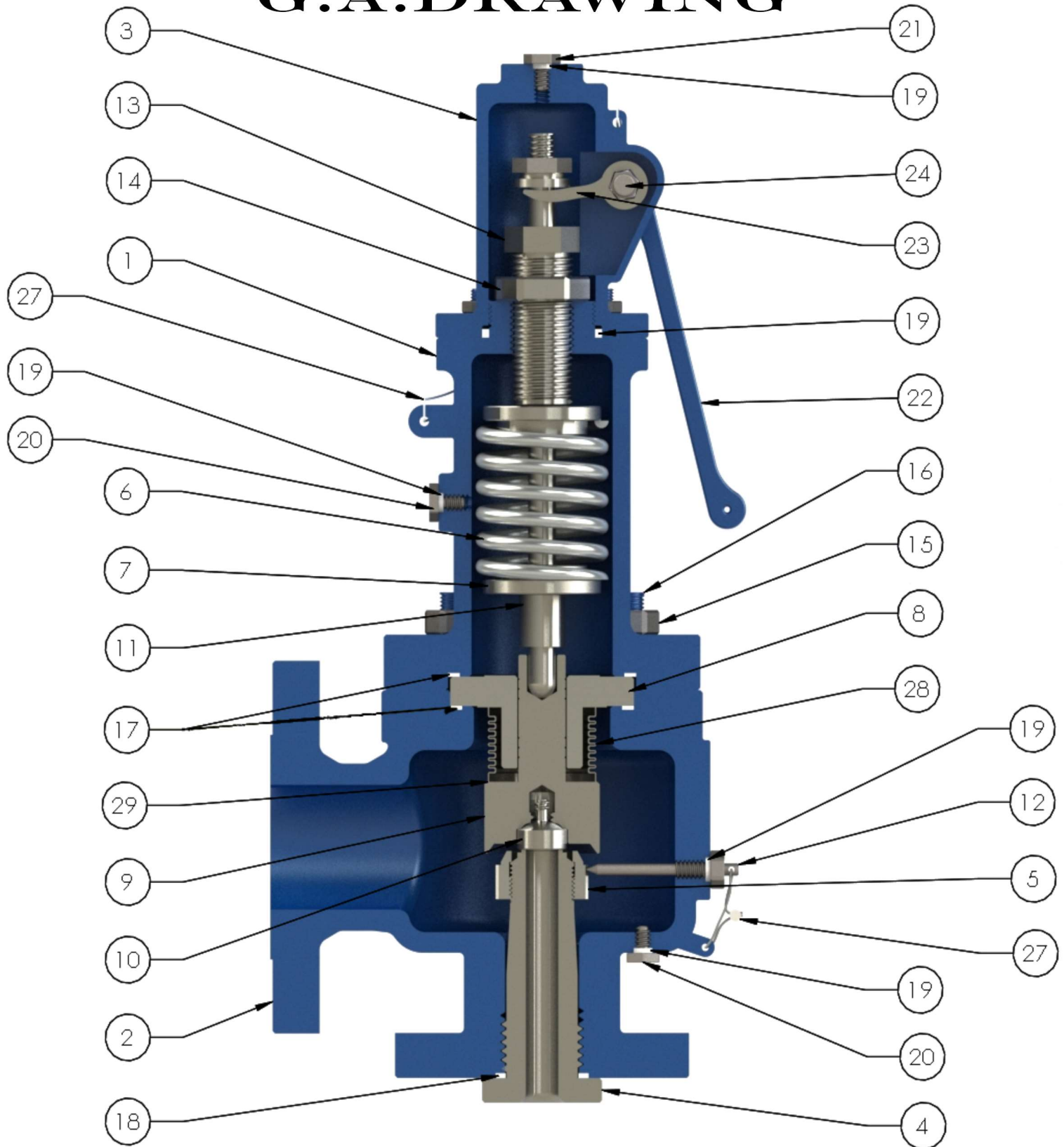
WEB 2

: www.hewsafetyvalves.com

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SAFETY VALVE MANUFACTURER

SERIES # 006 G.A.DRAWING



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S A F E T Y V A L V E M A N U F A C T U R E R

SERIES # 006

MATERIAL OF CONSTRUCTION

PART LIST		MODEL # 006-16 STANDARD SERVICE	MODEL # 006-26 HIGH TEMP. SERVICES	MODEL # 006-36 CORROSIVE SERVICE
SR.NO.	DESCRIPTION	TEMPERATURE -29°C TO 427°C	TEMPERATURE -29°C TO 538°C	TEMPERATURE -196°C TO 530°C
01	BONNET	CAST STEEL (ASTM A 216 GR.WCB)	CAST STEEL (ASTM A 217 GR.WC6)	S.S. (ASTM A 351 GR.CF8M)
02	BODY	CAST STEEL (ASTM A 216 GR.WCB)	CAST STEEL (ASTM A 217 GR.WC6)	S.S. (ASTM A 351 GR.CF8M)
03	CAP	CAST STEEL (ASTM A 216 GR.WCB)	CAST STEEL (ASTM A 216 GR.WCB)	S.S. (ASTM A 351 GR.CF8M)
04	NOZZLE *	S.S.316 / CF8M	S.S.316 / CF8M	S.S.316 / CF8M
05	NOZZLE RING *	S.S. (ASTMA 351 GR.CF8M)	S.S. (ASTM A 351 GR.CF8M)	S.S. (ASTM A 351 GR.CF8M)
06	SPRING *	ACCORDING TO MEDIUM & TEMPERATURE		
07	SPRING WASHER	S.S.410 (ASTM A 479 GR.410)	S.S.410 (ASTM A 479 GR.410)	S.S.304 (ASTM A 479 GR.304)
08	BODY - BONNET GUIDE	S.S. (ASTM A 351 GR.CF8M)	S.S. (ASTM A 351 GR.CF8M)	S.S. (ASTM A 351 GR.CF8M)
09	PISTON GUIDE	S.S. (ASTM A 351 GR.CF8)	S.S. (ASTM A 351 GR.CF8)	S.S. (ASTM A 351 GR.CF8)
10	DISC *	S.S.316 (ASTM A 479 GR.316)	S.S.316 (ASTM A 479 GR.316)	S.S.316 (ASTM A 479 GR.316)
11	SPINDLE	S.S.410 (ASTM A 479 GR.410)	S.S. (ASTM A 479 GR.410)	S.S. (ASTM A 479 GR.304)
12	NOZZLE RING LOCK SCREW	S.S.304 (ASTM A 479 GR.304)	S.S.304 (ASTM A 479 GR.304)	S.S.304 (ASTM A 479 GR.304)
13	PRESSURE ADJUSTING SCREW	S.S.304 (ASTM A 479 GR.304)	S.S.304 (ASTM A 479 GR.304)	S.S.304 (ASTM A 479 GR.304)
14	ADJUSTING LOCK SCREW	S.S.304 (ASTM A 479 GR.304)	S.S.304 (ASTM A 479 GR.304)	S.S.304 (ASTM A 479 GR.304)
15	BODY - BONNET BOLTING NUT	ASTM A 194 GR.2H	ASTM A 194 GR.2H	S.S.304 (ASTM A 479 GR.304)
16	BODY - BONNET BOLTING STUD	ASTM A 193 GR.B7	ASTM A 193 GR.B7	ASTM A 193 GR.B7
17	BODY - BONNET GASKET	GRAPHITE WITH SS WIRE REINFORCE	GRAPHITE WITH SS WIRE REINFORCE	GRAPHITE WITH SS WIRE REINFORCE
18	NOZZLE - BODY GASKET	NON ASBESTOS / TEFLON	NON ASBESTOS / TEFLON	NON ASBESTOS / TEFLON
19	GASKET	NON ASBESTOS / TEFLON	NON ASBESTOS / TEFLON	NON ASBESTOS / TEFLON
20	DRAIN PLUG & BONNET PLUG	S.S.304 (ASTM A 479 GR.304)	S.S.304 (ASTM A 479 GR.304)	S.S.304 (ASTM A 479 GR.304)
21	TEST GAG & CAP PLUG	S.S.304 (ASTM A 479 GR.304)	S.S.304 (ASTM A 479 GR.304)	S.S.304 (ASTM A 479 GR.304)
22	HANDLE / LEVER	MILD STEEL	MILD STEEL	MILD STEEL
23	LIFTING CAM	S.S. (ASTM A 351 GR.CF8M)	S.S. (ASTM A 351 GR.CF8M)	S.S. (ASTM A 351 GR.CF8M)
24	HANDLE / LEVER SHAFT	S.S.304 (ASTM A 479 GR.304)	S.S.304 (ASTM A 479 GR.304)	S.S.304 (ASTM A 479 GR.304)
25	SPINDLE WASHER & NUT	S.S.304 (ASTM A 479 GR.304)	S.S.304 (ASTM A 479 GR.304)	S.S.304 (ASTM A 479 GR.304)
26	BODY - CAP NUT & BOLT	S.S.304 (ASTM A 479 GR.304)	S.S.304 (ASTM A 479 GR.304)	S.S.304 (ASTM A 479 GR.304)
27	WIRE & SEAL	S.S.304 / LEAD	S.S.304 / LEAD	S.S.304 / LEAD
28	BELLOW	S.S.316L / INCONEL X750	S.S.316L / INCONEL X750	S.S.316L / INCONEL X750
29	BELLOW GASKET	NON ASBESTOS / TEFLON	NON ASBESTOS / TELFON	NON ASBESTOS / TEFLON
30	NAME PLATE (NOT SHOWN)	S.S.304	S.S.304	S.S.304

RECOMMENDED SPRING MATERIAL	
MATERIAL	TEMPERATURE RANGE
1.) SPRING STEEL (IS 4454 GR.II / IID)	-29°C TO 200°C
2.) ALLOY STEEL (50CRV4)	-29°C TO 350°C
3.) INCONEL (X750)	-196°C TO 538°C
4.) S.S.302 / SS316	-196°C TO 300°C

REV.6 / 05.2019

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SAFETY VALVE MANUFACTURER

SERIES # 006 DIMENSIONS



REV.6 / 05.2019

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SERIES # 006 TECHNICAL DETAIL

ORIFICE (API 520)		SIZE		FLANGE CONNECTION (ANSI B16.5 E, F)		MAX SET PRESSURE (QN HARG) AT 38°C	DIMENSIONS (MM)				APPROX WEIGHT (KGG)
DESIGNATION LETTER & EFFECTIVE AREA (IN2)	ACTUAL AREA (IN2 (N MM)	INLET	OUTLET	INLET	OUTLET		A ±5	B ±5	C ±20	D ±3	
“D” (0.110)	0.124 (10MM)	1”	2”	150	150	19.6	105	115	440	23	18
				300	150	19.6	105	115	440	26	18
				300	150	51	105	115	440	26	18
				600	150	102	105	115	440	28	18
		1.5”	2”	900	300	153	105	140	520	47	30
				1500	300	255	105	140	520	47	30
		1.5”	3”	2500	300	414	140	178	650	60	40
“E” (0.196)	0.23 (14MM)	1”	2”	150	150	19.6	105	115	440	23	18
				300	150	19.6	105	115	440	26	18
				300	150	51	105	115	440	26	18
				600	150	102	105	115	440	28	18
		1.5”	2”	900	300	153	105	140	520	47	30
				1500	300	255	105	140	520	47	30
		1.5”	3”	2500	300	414	140	178	650	60	40
“F” (0.307)	0.35 (17MM)	1.5”	2”	150	150	19.6	130	137	480	31	25
				300	150	19.6	130	137	480	34	25
				300	150	51	130	137	480	34	28
				600	150	102	130	137	480	38	28
		1.5”	3”	900	300	153	124	165	550	49	50
				1500	300	255	124	165	550	49	50
				2500	300	345	140	178	650	60	55
“G” (0.503)	0.59 (22MM)	1.5”	3”	150	150	19.6	124	121	530	33	28
				300	150	19.6	124	121	530	36	28
				300	150	51	124	152	530	36	30
				600	150	102	124	152	530	40	30
				900	300	153	124	165	650	49	40
		2”	3”	1500	300	255	156	171	750	57	70
				2500	300	255	156	171	750	70	85
“H” (0.785)	0.887 (27MM)	1.5”	3”	150	150	19.6	130	137	530	33	28
				300	150	19.6	130	137	530	36	28
		2”	3”	300	150	51	130	135	550	40	35
				600	150	102	130	135	550	44	35
				900	150	153	155	162	750	57	70
				1500	300	190	155	162	750	57	70
“J” (1.287)	1.49 (35MM)	2”	3”	150	150	19.6	130	135	550	36	32
				300	150	19.6	130	135	550	39	32
		3”	4”	300	150	51	184	180	680	49	55
				600	150	102	184	180	680	55	55
				900	300	153	184	180	810	60	125
				1500	300	186	184	180	810	65	125

REV.6 / 05.2019

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S A F E T Y V A L V E M A N U F A C T U R E R

SERIES # 006

TECHNICAL DETAIL

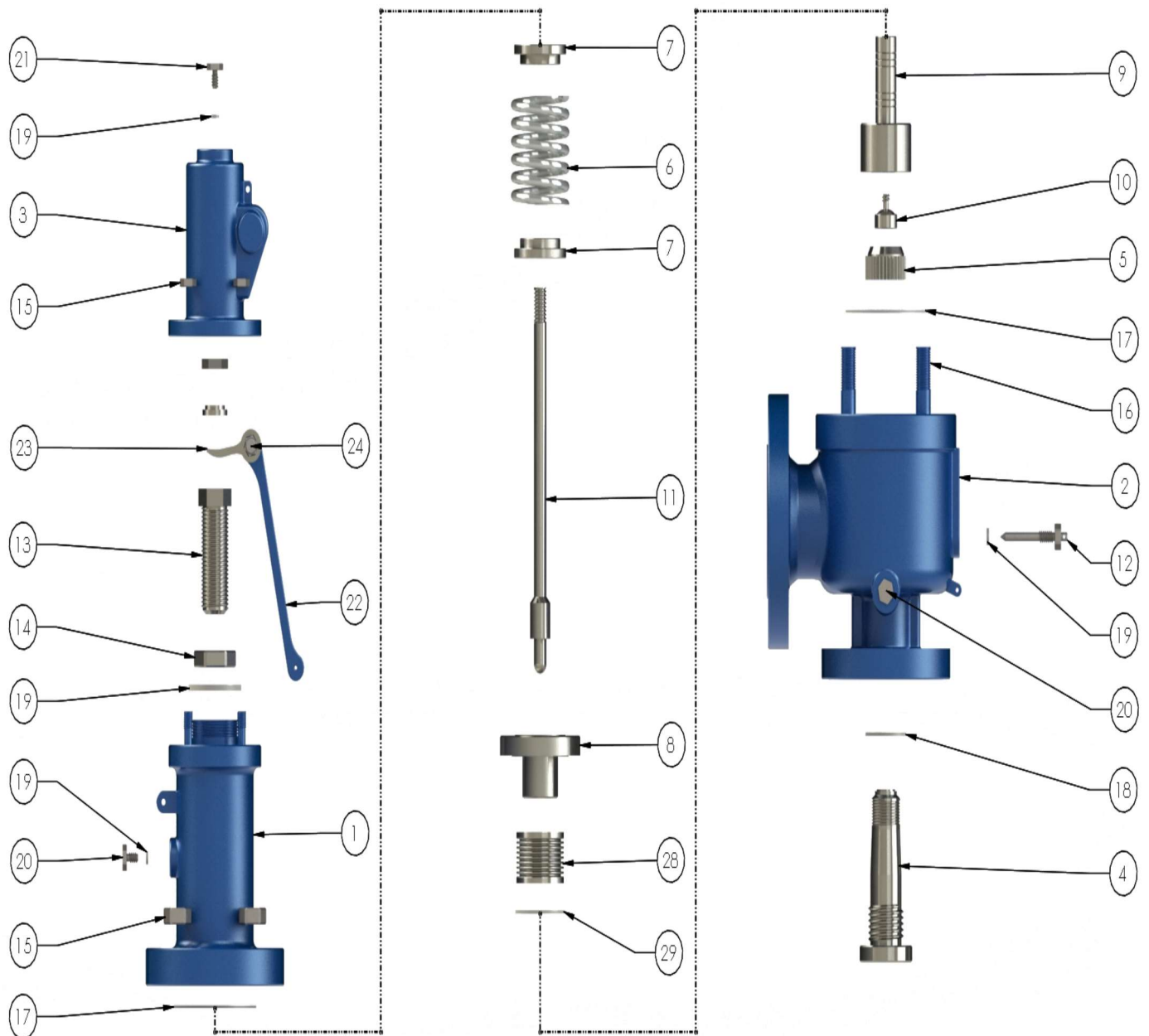
ORIFICE (API 520)		SIZE		FLANGE CONNECTION (ANSI B16.5 R.F.)		MAX SET PRESSURE (IN BARG) AT 38°C	DIMENSIONS (MM)				APPROX WEIGHT (KG)
DESIGNATION LETTER & EFFECTIVE AREA (MM²)	ACTUAL AREA IN2 (IN MM)	INLET	OUTLET	INLET	OUTLET		A ± 3	B ±3	C ±10	D ±3	
“K” 1.838	2.14 (42MM)	3”	4”	150	150	19.6	155	165	680	45	55
				300	150	19.6	155	165	680	49	55
				300	150	51	155	165	680	49	55
				600	150	102	155	165	680	55	55
		3”	4”	900	300	153	184	180	810	55	125
				1500	300	153	184	180	810	65	125
“L” (2.853)	3.23 (50MM)	3”	4”	150	150	19.6	155	165	680	45	55
				300	150	19.6	155	165	680	49	55
		4”	6”	300	150	51	190	228	810	55	120
				600	150	69	190	228	810	63	120
				900	150	103	225	254	950	70	200
				1500	150	103	225	254	950	70	200
“M” (3.6)	3.83 (56MM)	4”	6”	150	150	19.6	190	228	810	47	95
				300	150	19.6	190	228	810	55	95
				300	150	51	190	228	810	55	120
				600	150	76	190	228	950	63	120
				900	150	76	225	254	950	70	200
“N” (4.34)	4.98 (64MM)	4”	6”	150	150	19.6	190	228	810	47	95
				300	150	19.6	190	228	810	55	95
				300	150	51	190	228	810	55	120
				600	150	69	190	228	810	63	120
				900	150	69	225	254	950	70	200
“P” (6.38)	7.02 (75MM)	4”	6”	150	150	19.6	190	228	810	47	95
				300	150	19.6	190	228	810	55	95
				300	150	36	190	228	810	55	120
				600	150	69	225	254	810	63	120
				900	150	69	225	254	950	70	200
“Q” (11.05)	12.92 (103MM)	6”	8”	150	150	11.5	240	241	1100	45	180
				300	150	11.5	240	241	1100	55	250
				300	150	21	240	241	1100	55	250
				600	150	42	240	241	1100	65	250

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SAFETY VALVE MANUFACTURER

SERIES # 006

ASSEMBLY DRAWING



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SAFETY VALVE MANUFACTURER

SERIES # 006 TYPE OF BONNET



**OPEN
BONNET**



**CLOSE
BONNET**

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SERIES # 006 TYPE OF CAP & HANDLE



TYPE A
(THREADED CAP
& NO LEVER)



TYPE B
(THREADED CAP
& PACKED LEVER)



TYPE C
(BOLTED CAP &
REGULAR LEVER)

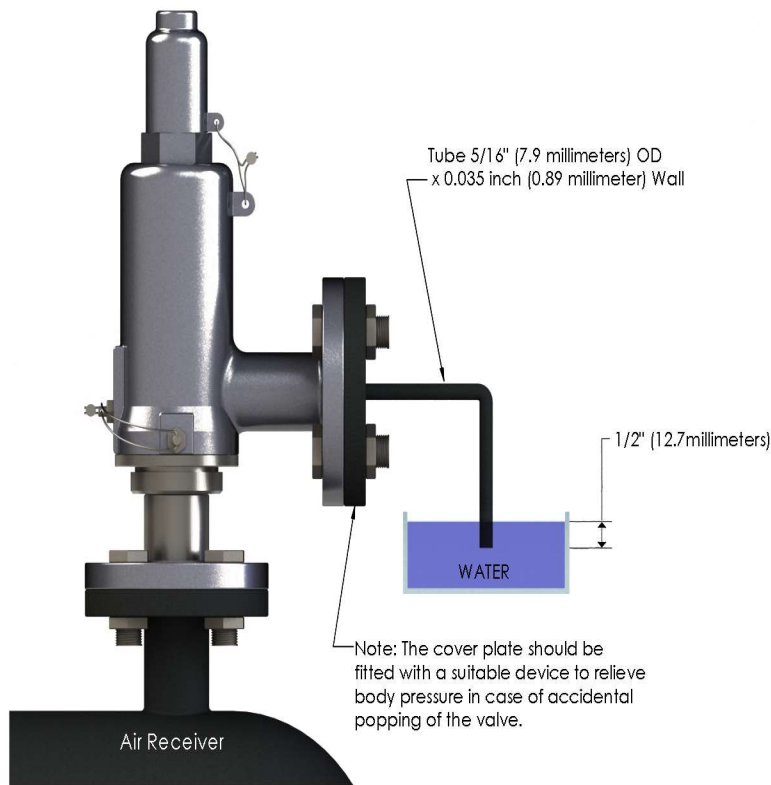
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SAFETY VALVE MANUFACTURER

SERIES # 006

SEAT LEAKAGE & BACK PRESSURE TEST

SEAT LEAKAGE



SEAT LEAKAGE ACCEPTANCE CRITERIA AS PER (API 527)

FOR A VALVE WITH METAL SEAT, THE LEAKAGE RATE IN BUBBLES PER MINUTE SHALL NOT EXCEED THE APPROPRIATE VALUE IN BELOW TABLE 1. FOR A SOFT SEATED SAFETY VALVE (RUBBER OR TEFLON), THERE SHALL BE NO LEAKAGE FOR ONE MINUTE (0 BUBBLE / MIN)

TABLE 1

SET PRESSURE PSIG (BARG)	EFFECTIVE ORIFICE SIZES 0.307IN ² AND SMALLER		EFFECTIVE ORIFICE SIZES LARGER THAN 0.307IN ²	
	MAX BUBBLES PER MINUTE	APPROX LEAKAGE RATE PER 24 HOURS STD. CUBIC FEET	MAX BUBBLE PER MINUTE	APPROX LEAKAGE RATE PER 24 HOURS STD. CUBIC FEET
15-1000 (1.03 - 68.9)	40	0.60	20	0.30
1500 (103.4)	60	0.90	30	0.45
2000 (137.9)	80	1.20	40	0.60
2500 (172.4)	100	1.50	50	0.75
3000 (206.8)	100	1.50	60	0.90
4000 (275.8)	100	1.50	80	1.20
5000 (344.8)	100	1.50	100	1.50
6000 (413.7)	100	1.50	100	1.50

BACK PRESSURE TEST



- BACK PRESSURE TEST CONDUCT AT 7KG/CM²G BY AIR OR WATER FLUID AS PER SHOWN DIAGRAM.
- ZERO LEAKAGE ALLOWED.
- CHECK POINT ALL GASKET SEALANT, BODY & CAP.

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S A F E T Y V A L V E M A N U F A C T U R E R

SERIES # 006

ORDERING INFORMATION - MODEL NUMBER

Position No.	1	2	3	4	4	5	6	6	7	8	9	10
Example Model #	006	1	6	C	A	1	M	2"	H	3"	A	1
*	*	*	*	*	*	*	*	*	*	*	*	*
Description	Series #	Body Material	Trim Material	Design Type	Application / Media	Spring Material	Seat Type	Inlet Size	Orifice	Outlet Size	Cap & Lever Style	Accessories
Options	*	*	*	*	*	*	*	*	*	*	*	*
I	006	1 = C.S. (SA 216 WCB)	6 = SS 316 / CF8M	C = Conventional Design	A = Air or Gas or Vapor	1 = C.S. / Spring Steel	M = Metal Seat	1"	D	2"	Type A	1 = No Accessories
									E			
II	*	2 = C.S. (SA 217 WC6)	8 = SS 304 / CF8	B = Bellow Design	S = Steam	2 = Alloy Steel (EN47)	P = Plastic Seat	1.5"	D	2"	Type B	2 = Test Gag
									E			
									F			
III	*	3 = S.S. (SA 351 CF8M)	9 = Exotic Metal	*	L = Liquid	3 = Inconel Spring X750	V = Viton Seat	1.5"	F	3"	Type C	3 = Drain Plug
									G			
									H			
IV	*	4 = S.S. (SA 351 CF8)	*	*	*	4 = AISI Ss302	S = Silicon Seat	2"	H	3"	*	4 = Open Bonnet
									J			
V	*	5 = S.S. (SA 351 CF3M)	*	*	*	5 = AISI Ss316	M1 = Stellite Seat	3"	J	4"	*	*
									K			
									L			
VI	*	6 = S.S. (SA 352 LCB)	*	*	*	6 = Exotic Metal	*	4"	M	6"	*	*
									N			
									P			
VII	*	7 = Exotic Metal	*	*	*	*	*	6"	Q	8"	*	*
VIII	*	*	*	*	*	*	*	8"	R	10"	*	*

MODEL NO. GENERATED FROM THE ABOVE TABLE

MODEL # 006-16-C-A1-M-2"H3"-A-1

REV.6 / 05.2019

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SAFETY VALVE MANUFACTURER

SERIES # 006

PRESSURE V/S TEMPERATURE SELECTION TABLE

Orifice Area (in2)	Valve Sizes	ANSI Flange Class		Maximum Set Pressure (in Barg) As per ANSI B 16.34 & API 526						Back Pressure Limit Barg @ 38°C		Material		Inlet Temp. Range
	Inlet x Outlet	Inlet RF	Outlet RF	-196°C TO -60°C	-59°C TO -30°C	-29°C TO +38°C	+232°C	+427°C	+538°C	Conventional Type	Bellow Type	Body & Bonnet	Spring	
“D” (0.12 in2)	1" x 2"	150#	150#			19.6	12.7	5.5		19.6	15.8	Carbon Steel (ASTM A 216 GR.WCB)	Spring Steel / Alloy Steel	-29°C to 427°C
	1" x 2"	300#	150#			19.6	19.6	19.6		19.6	15.8			
	1" x 2"	300#	150#			51.0	42.7	28.2		19.6	15.8			
	1" x 2"	600#	150#			102	85.1	56.8		19.6	15.8			
	1.5" x 2"	900#	300#			153	128	85.1		41.3	34.5			
	1.5" x 2"	1500#	300#			255	213	142		41.3	34.5			
	1.5" x 3"	2500#	300#			425	355	236		51.0	34.5			
	1" x 2"	300#	150#					35.1	14.8	19.6	15.8	Carbon Steel (ASTM A 351 GR.WC6)	Inconel X750	428°C to 538°C
	1" x 2"	600#	150#					69.9	29.6	19.6	15.8			
	1.5" x 2"	900#	300#					105	44.8	41.3	34.5			
	1.5" x 2"	1500#	300#					175	74.4	41.3	34.5			
	1.5" x 3"	2500#	300#					291	124	51.0	34.5			
	1" x 2"	150#	150#	18.9	18.9					18.9	15.8	Stainless Steel (ASTM A 351 GR.CF8M)	Inconel X750 / S.S.316	-30°C to -196°C
	1" x 2"	300#	150#	18.9	18.9					18.9	15.8			
	1" x 2"	300#	150#	49.6	49.6					18.9	15.8			
	1" x 2"	600#	150#	99.2	99.2					18.9	15.8			
	1.5" x 2"	900#	300#	149	149					41.3	34.5			
	1.5" x 2"	1500#	300#	248	248					41.3	34.5			
	1.5" x 3"	2500#	300#	276	413					49.6	34.5			
“E” (0.23 in2)	1" x 2"	150#	150#			19.6	12.7	5.5		19.6	15.8	Carbon Steel (ASTM A 216 GR.WCB)	Spring Steel / Alloy Steel	29°C to 427°C
	1" x 2"	300#	150#			19.6	19.6	19.6		19.6	15.8			
	1" x 2"	300#	150#			51.0	42.7	28.2		19.6	15.8			
	1" x 2"	600#	150#			102	85.1	56.8		19.6	15.8			
	1.5" x 2"	900#	300#			153	128	85.1		41.3	34.5			
	1.5" x 2"	1500#	300#			255	213	142		41.3	34.5			
	1.5" x 3"	2500#	300#			425	355	236		51.0	34.5			
	1" x 2"	300#	150#					35.1	14.8	19.6	15.8	Carbon Steel (ASTM A 351 GR.WC6)	Inconel X750	428°C to 538°C
	1" x 2"	600#	150#					69.9	29.6	19.6	15.8			
	1.5" x 2"	900#	300#					105	44.8	41.3	34.5			
	1.5" x 2"	1500#	300#					175	74.4	41.3	34.5			
	1.5" x 3"	2500#	300#					291	124	51.0	34.5			
	1" x 2"	150#	150#	18.9	18.9					18.9	15.8	Stainless Steel (ASTM A 351 GR.CF8M)	Inconel X750 / S.S.316	-30°C to -196°C
	1" x 2"	300#	150#	18.9	18.9					18.9	15.8			
	1" x 2"	300#	150#	49.6	49.6					18.9	15.8			
	1" x 2"	600#	150#	99.2	99.2					18.9	15.8			
	1.5" x 2"	900#	300#	149	149					41.3	34.5			
	1.5" x 2"	1500#	300#	248	248					41.3	34.5			
	1.5" x 3"	2500#	300#	276	413					49.6	34.5			

1. ABOVE SELECTION CHART INDICATES ONLY CONVENTIONAL VALVES & METAL SEAT VALVES.
2. OUTLET PRESSURE FOR TEMPERATURES ABOVE 38°C SHALL NOT EXCEED THE RATING IN ASME 16.5.
3. FOR APPLICATIONS ABOVE 538°C CONSULT THE FACTORY.

REV.6 / 05.2019

HARSHAD

SAFETY VALVE MANUFACTURER

SERIES # 006

PRESSURE V/S TEMPERATURE SELECTION TABLE

Orifice Area (in2)	Valve Sizes	ANSI Flange Class		Maximum Set Pressure (in Barg) As per ANSI B 16.34 & API 526						Back Pressure Limit Barg @ 38°C		Material		Inlet Temp. Range
	Inlet x Outlet	Inlet RF	Outlet RF	-196°C TO -60°C	-59°C TO -30°C	-29°C TO +38°C	+232°C	+427°C	+538°C	Conventional Type	Bellow Type	Body & Bonnet	Spring	
“F” (0.35 in2)	1.5" x 2"	150#	150#			19.6	12.7	5.5		19.6	15.8	Carbon Steel (ASTM A 216 GR.WCB)	Spring Steel / Alloy Steel	-29°C to 427°C
	1.5" x 2"	300#	150#			19.6	19.6	19.6		19.6	15.8			
	1.5" x 2"	300#	150#			51.0	42.7	28.2		19.6	15.8			
	1.5" x 2"	600#	150#			102	85.1	56.8		19.6	15.8			
	1.5" x 3"	900#	300#			153	128	85.1		51.0	34.5			
	1.5" x 3"	1500#	300#			255	213	142		51.0	34.5			
	1.5" x 3"	2500#	300#			345	345	236		51.0	34.5			
	1.5" x 2"	300#	150#					35.1	14.8	19.6	15.8	Carbon Steel (ASTM A 351 GR.WC6)	Inconel X750	428°C to 538°C
	1.5" x 2"	600#	150#					69.9	29.6	19.6	15.8			
	1.5" x 3"	900#	300#					105	44.8	51.0	34.5			
	1.5" x 3"	1500#	300#					175	74.4	51.0	34.5			
	1.5" x 3"	2500#	300#					291	124	51.0	34.5			
	1.5" x 2"	150#	150#	18.9	18.9					18.9	15.8	Stainless Steel (ASTM A 351 GR.CF8M)	Inconel X750 / S.S.316	-30°C to -196°C
	1.5" x 2"	300#	150#	18.9	18.9					18.9	15.8			
	1.5" x 2"	300#	150#	49.6	49.6					18.9	15.8			
	1.5" x 2"	600#	150#	99.2	99.2					18.9	15.8			
	1.5" x 3"	900#	300#	149	149					49.6	34.5			
	1.5" x 3"	1500#	300#	152	248					49.6	34.5			
“G” (0.59 in2)	1.5" x 3"	150#	150#			19.6	12.7	5.5		19.6	15.8	Carbon Steel (ASTM A 216 GR.WCB)	Spring Steel / Alloy Steel	29°C to 427°C
	1.5" x 3"	300#	150#			19.6	19.6	19.6		19.6	15.8			
	1.5" x 3"	300#	150#			51.0	42.7	28.2		19.6	15.8			
	1.5" x 3"	600#	150#			102	85.1	56.8		19.6	15.8			
	1.5" x 3"	900#	300#			153	128	85.1		51.0	32.4			
	2" x 3"	1500#	300#			255	213	142		51.0	32.4			
	2" x 3"	2500#	300#			255	255	236		51.0	32.4			
	1.5" x 3"	300#	150#					35.1	14.8	19.6	15.8	Carbon Steel (ASTM A 351 GR.WC6)	Inconel X750	428°C to 538°C
	1.5" x 3"	600#	150#					69.9	29.6	19.6	15.8			
	1.5" x 3"	900#	300#					105	44.8	51.0	32.4			
	2" x 3"	1500#	300#					175	74.4	51.0	32.4			
	2" x 3"	2500#	300#					255	124	51.0	32.4			
	1.5" x 3"	150#	150#	18.9	18.9					18.9	15.8	Stainless Steel (ASTM A 351 GR.CF8M)	Inconel X750 / S.S.316	-30°C to -196°C
	1.5" x 3"	300#	150#	18.9	18.9					18.9	15.8			
	1.5" x 3"	300#	150#	49.6	49.6					18.9	15.8			
	1.5" x 3"	600#	150#	99.2	99.2					18.9	15.8			
	1.5" x 3"	900#	300#	149	149					49.6	32.4			
	2" x 3"	1500#	300#	169	248					49.6	32.4			
	2" x 3"	2500#	300#	179	255					49.6	32.4			

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REV.6 / 05.2019

HARSHAD

SAFETY VALVE MANUFACTURER

SERIES # 006

PRESSURE V/S TEMPERATURE SELECTION TABLE

Orifice Area (in2)	Valve Sizes	ANSI Flange Class		Maximum Set Pressure (in Barg) As per ANSI B 16.34 & API 526						Back Pressure Limit Barg @ 38°C		Material		Inlet Temp. Range
	Inlet x Outlet	Inlet RF	Outlet RF	-196°C TO -60°C	-59°C TO -30°C	-29°C TO +38°C	+232°C	+427°C	+538°C	Conventional Type	Bellow Type	Body & Bonnet	Spring	
“H” (0.87 in2)	1.5" x 3"	150#	150#			19.6	12.7	5.5		19.6	15.8	Carbon Steel (ASTM A 216 GR.WCB)	Spring Steel / Alloy Steel	-29°C to 427°C
	1.5" x 3"	300#	150#			19.6	19.6	19.6		19.6	15.8			
	2" x 3"	300#	150#			51.0	42.7	28.2		19.6	15.8			
	2" x 3"	600#	150#			102	85.1	56.8		19.6	15.8			
	2" x 3"	900#	150#			153	128	85.1		19.6	15.8			
	2" x 3"	1500#	300#			189	189	142		51.0	28.6			
	2" x 3"											Carbon Steel (ASTM A 217 GR.WC6)	Inconel X750	428°C to 538°C
	2" x 3"	300#	150#					35.1	14.8	19.6	15.8			
	2" x 3"	600#	150#					69.9	29.6	19.6	15.8			
	2" x 3"	900#	150#					105	44.8	19.6	15.8			
	2" x 3"	1500#	300#					175	74.4	51.0	28.6			
	1.5" x 3"	150#	150#	18.9	18.9					18.9	15.8	Stainless Steel (ASTM A 351 GR.CF8M)	Inconel X750 / S.S.316	-30°C to -196°C
	1.5" x 3"	300#	150#	18.9	18.9					18.9	15.8			
	2" x 3"	300#	150#	49.6	49.6					18.9	15.8			
	2" x 3"	600#	150#	99.2	99.2					18.9	15.8			
	2" x 3"	900#	150#	102	149					18.9	15.8			
	2" x 3"	1500#	300#	110	189					49.6	28.6			
“J” (1.49 in2)	2" x 3"	150#	150#			19.6	12.7	5.5		19.6	15.8	Carbon Steel (ASTM A 216 GR.WCB)	Spring Steel / Alloy Steel	29°C to 427°C
	2" x 3"	300#	150#			19.6	19.6	19.6		19.6	15.8			
	3" x 4"	300#	150#			51.0	42.7	28.2		19.6	15.8			
	3" x 4"	600#	150#			102	85.1	56.8		19.6	15.8			
	3" x 4"	900#	150#			153	128	85.1		19.6	15.8			
	3" x 4"	1500#	300#			186	186	142		41.3	15.8			
	3" x 4"											Carbon Steel (ASTM A 217 GR.WC6)	Inconel X750	428°C to 538°C
	3" x 4"	300#	150#					35.1	14.8	19.6	15.8			
	3" x 4"	600#	150#					69.9	29.6	19.6	15.8			
	3" x 4"	900#	150#					105	44.8	19.6	15.8			
	3" x 4"	1500#	300#					175	74.4	41.3	15.8			
	2" x 3"	150#	150#	18.9	18.9					18.9	15.8	Stainless Steel (ASTM A 351 GR.CF8M)	Inconel X750 / S.S.316	-30°C to -196°C
	2" x 3"	300#	150#	18.9	18.9					18.9	15.8			
	3" x 4"	300#	150#	34.5	49.6					18.9	15.8			
	3" x 4"	600#	150#	43.1	99.2					18.9	15.8			
	3" x 4"	900#	150#	55	149					18.9	15.8			
	3" x 4"	1500#	300#	55	189					41.3	15.8			

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REV.6 / 05.2019

HARSHAD

SAFETY VALVE MANUFACTURER

SERIES # 006

PRESSURE V/S TEMPERATURE SELECTION TABLE

Orifice Area (in2)	Valve Sizes	ANSI Flange Class		Maximum Set Pressure (in Barg) As per ANSI B 16.34 & API 526						Back Pressure Limit Barg @ 38°C		Material		Inlet Temp. Range
	Inlet x Outlet	Inlet RF	Outlet RF	-196°C TO -60°C	-59°C TO -30°C	-29°C TO +38°C	+232°C	+427°C	+538°C	Conventional Type	Bellow Type	Body & Bonnet	Spring	
“K” (2.69 in2)	3" x 4"	150#	150#			19.6	12.7	5.5		19.6	10.3	Carbon Steel (ASTM A 216 GR.WCB)	Spring Steel / Alloy Steel	-29°C to 427°C
	3" x 4"	300#	150#			19.6	19.6	19.6		19.6	10.3			
	3" x 4"	300#	150#			51.0	42.7	28.2		19.6	10.3			
	3" x 4"	600#	150#			102	85.1	56.8		19.6	13.8			
	3" x 6"	900#	150#			153	128	85.1		19.6	13.8			
	3" x 6"	1500#	300#			153	153	142		41.3	13.8			
	3" x 4"	300#	150#									Carbon Steel (ASTM A 217 GR.WC6)	Inconel X750	428°C to 538°C
	3" x 4"	600#	150#					35.1	14.8	19.6	10.3			
	3" x 6"	900#	150#					69.9	29.6	19.6	13.8			
	3" x 6"	1500#	300#					105	44.8	19.6	13.8			
								153	74.4	41.3	13.8			
	3" x 4"	150#	150#	18.9	18.9					18.9	10.3	Stainless Steel (ASTM A 351 GR.CF8M)	Inconel X750 / S.S.316	-30°C to -196°C
	3" x 4"	300#	150#	18.9	18.9					18.9	10.3			
	3" x 4"	300#	150#	36.2	49.6					18.9	10.3			
	3" x 4"	600#	150#	41.3	99.2					18.9	13.8			
	3" x 6"	900#	150#	41.3	149					18.9	13.8			
	3" x 6"	1500#	300#	51.7	153					41.3	13.8			
“L” (3.16 in2)	3" x 4"	150#	150#			19.6	12.7	5.5		19.6	6.9	Carbon Steel (ASTM A 216 GR.WCB)	Spring Steel / Alloy Steel	29°C to 427°C
	3" x 4"	300#	150#			19.6	19.6	19.6		19.6	6.9			
	4" x 6"	300#	150#			51.0	42.7	28.2		19.6	11.7			
	4" x 6"	600#	150#			68.9	68.9	56.8		19.6	11.7			
	4" x 6"	900#	150#			103	103	75.8		19.6	11.7			
	4" x 6"	1500#	150#			103	103	103		19.6	11.7			
	4" x 6"	300#	150#									Carbon Steel (ASTM A 217 GR.WC6)	Inconel X750	428°C to 538°C
	4" x 6"	600#	150#					35.1	14.8	19.6	11.7			
	4" x 6"	900#	150#					69.9	29.6	19.6	11.7			
	4" x 6"	1500#	150#					103	44.8	19.6	11.7			
								103	74.4	19.6	11.7			
	3" x 4"	150#	150#	18.9	18.9					18.9	6.9	Stainless Steel (ASTM A 351 GR.CF8M)	Inconel X750 / S.S.316	-30°C to -196°C
	3" x 4"	300#	150#	18.9	18.9					18.9	6.9			
	4" x 6"	300#	150#	36.9	49.6					18.9	11.7			
	4" x 6"	600#	150#	36.9	68.9					18.9	11.7			
	4" x 6"	900#	150#	48.2	103					18.9	11.7			
	4" x 6"													

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REV.6 / 05.2019

HARSHAD

SAFETY VALVE MANUFACTURER

SERIES # 006

PRESSURE V/S TEMPERATURE SELECTION TABLE

Orifice Area (in2)	Valve Sizes	ANSI Flange Class		Maximum Set Pressure (in Barg) As per ANSI B 16.34 & API 526						Back Pressure Limit Barg @ 38°C		Material		Inlet Temp. Range
	Inlet x Outlet	Inlet RF	Outlet RF	-196°C TO -60°C	-59°C TO -30°C	-29°C TO +38°C	+232°C	+427°C	+538°C	Conventional Type	Bellow Type	Body & Bonnet	Spring	
“M” (3.82 in2)	4" x 6" 4" x 6" 4" x 6" 4" x 6" 4" x 6"	150# 300# 300# 600# 900#	150# 150# 150# 150# 150#			19.6 19.6 51.0 75.8 75.8	12.7 19.6 42.7 75.8 75.8	5.5 19.6 28.2 56.8 75.8		19.6 19.6 19.6 19.6 19.6	5.5 5.5 11.0 11.0 11.0	Carbon Steel (ASTM A 216 GR.WCB)	Spring Steel / Alloy Steel	-29°C to 427°C
	4" x 6" 4" x 6" 4" x 6"	300# 600# 900#	150# 150# 150#					35.1 69.9 75.8	14.8 29.6 44.8	19.6 19.6 19.6	11.0 11.0 11.0	Carbon Steel (ASTM A 217 GR.WC6)	Inconel X750	428°C to 538°C
	4" x 6" 4" x 6" 4" x 6" 4" x 6"	150# 300# 300# 600#	150# 150# 150# 150#	18.9 18.9 36.2 41.3	18.9 18.9 49.6 75.8					18.9 18.9 18.9 18.9	5.5 5.5 11.0 11.0	Stainless Steel (ASTM A 351 GR.CF8M)	Inconel X750 / S.S.316	-30°C to -196°C
“N” (4.83 in2)	4" x 6" 4" x 6" 4" x 6" 4" x 6" 4" x 6"	150# 300# 300# 600# 900#	150# 150# 150# 150# 150#			19.6 19.6 51.0 68.9 68.9	12.7 19.6 42.7 68.9 68.9	5.5 19.6 28.2 56.8 68.9		19.6 19.6 19.6 19.6 19.6	6.9 6.9 11.0 11.0 11.0	Carbon Steel (ASTM A 216 GR.WCB)	Spring Steel / Alloy Steel	29°C to 427°C
	4" x 6" 4" x 6" 4" x 6"	300# 600# 900#	150# 150# 150#					35.1 68.9 68.9	14.8 29.6 44.8	19.6 19.6 19.6	11.0 11.0 11.0	Carbon Steel (ASTM A 217 GR.WC6)	Inconel X750	428°C to 538°C
	4" x 6" 4" x 6" 4" x 6" 4" x 6"	150# 300# 300# 600#	150# 150# 150# 150#	18.9 18.9 31.0 34.5	18.9 18.9 49.6 68.9					18.9 18.9 18.9 18.9	5.5 5.5 11.0 11.0	Stainless Steel (ASTM A 351 GR.CF8M)	Inconel X750 / S.S.316	-30°C to -196°C

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REV.6 / 05.2019

HARSHAD

SAFETY VALVE MANUFACTURER

SERIES # 006

PRESSURE V/S TEMPERATURE SELECTION TABLE

Orifice Area (in2)	Valve Sizes	ANSI Flange Class		Maximum Set Pressure (in Barg) As per ANSI B 16.34 & API 526						Back Pressure Limit Barg @ 38°C		Material		Inlet Temp. Range
	Inlet x Outlet	Inlet RF	Outlet RF	-196°C TO -60°C	-59°C TO -30°C	-29°C TO +38°C	+232°C	+427°C	+538°C	Conventional Type	Bellow Type	Body & Bonnet	Spring	
“P” (7.02 in2)	4" x 6" 4" x 6" 4" x 6" 4" x 6" 4" x 6"	150# 300# 300# 600# 900#	150# 150# 150# 150# 150#			19.6 19.6 36.2 68.9 68.9	12.7 19.6 36.2 68.9 68.9	5.5 19.6 28.2 56.8 68.9		19.6 19.6 19.6 19.6 19.6	5.5 5.5 10.3 10.3 10.3	Carbon Steel (ASTM A 216 GR.WCB)	Spring Steel / Alloy Steel	-29°C to 427°C
	4" x 6" 4" x 6" 4" x 6"	300# 600# 900#	150# 150# 150#					35.1 68.9 68.9	14.8 29.6 44.8	19.6 19.6 19.6	10.3 10.3 10.3	Carbon Steel (ASTM A 217 GR.WC6)	Inconel X750	428°C to 538°C
	4" x 6" 4" x 6" 4" x 6" 4" x 6"	150# 300# 300# 600#	150# 150# 150# 150#	12.1 12.1 20.7 33.1	18.9 18.9 36.2 68.9					12.1 12.1 18.9 18.9	5.5 5.5 10.3 10.3	Stainless Steel (ASTM A 351 GR.CF8M)	Inconel X750 / S.S.316	-30°C to -196°C
“Q” (12.16 in2)	6" x 8" 6" x 8" 6" x 8" 6" x 8" 6" x 8"	150# 300# 300# 600# 600#	150# 150# 150# 150# 150#			11.4 11.4 20.7 41.3 62.0	11.4 11.4 20.7 41.3 62.0	5.5 11.4 20.7 41.3 56.8		7.9 7.9 7.9 7.9 19.6	4.8 4.8 7.9 7.9 13.8	Carbon Steel (ASTM A 216 GR.WCB)	Spring Steel / Alloy Steel	29°C to 427°C
	6" x 8" 6" x 8" 6" x 8"	300# 600# 600#	150# 150# 150#					11.4 41.3 62.0	11.4 29.6 29.6	7.9 7.9 19.6	4.8 4.8 13.8	Carbon Steel (ASTM A 217 GR.WC6)	Inconel X750	428°C to 538°C
	6" x 8" 6" x 8" 6" x 8" 6" x 8"	150# 300# 300# 600#	150# 150# 150# 150#	11.4 11.4 17.2 20.7	11.4 11.4 20.7 41.3					7.9 7.9 7.9 7.9	4.8 4.8 7.9 7.9	Stainless Steel (ASTM A 351 GR.CF8M)	Inconel X750 / S.S.316	-30°C to -196°C

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HARSHAD

SAFETY VALVE MANUFACTURER

SERIES # 006

SOFT SEAT DESIGN SELECTION

RUBBER O-RING SEAT VALVE PRESSURE & TEMPERATURE LIMITS

RUBBER O-RING SEAT VALVE PRESSURE & TEMPERATURE LIMITS			
ORIFICE	TEMPERATURE RANGE	PRESSURE RANGE IN BARG	
		VITON RUBBER	DUROMETER SHORE A
“D” TO “K”	-5*C TO 232*C	1 TO 7	50
		7 TO 45	75
		45 TO 103	90
“L” TO “Q”		1 TO 10	50
		10 TO 45	75
		45 TO 103	90

RUBBER O-RING SEAT VALVE PRESSURE & TEMPERATURE LIMITS

RUBBER O-RING SEAT VALVE PRESSURE & TEMPERATURE LIMITS			
ORIFICE	TEMPERATURE RANGE	PRESSURE RANGE IN BARG	
		SILICON RUBBER	DUROMETER SHORE A
“D” TO “K”	-101*C TO 232*C	1 TO 7	50
		7 TO 41	65
		41 TO 58	70
		58 TO 103	80
“L” TO “Q”		1 TO 7	50
		7 TO 31	65
		31 TO 51	70
		51 TO 103	80

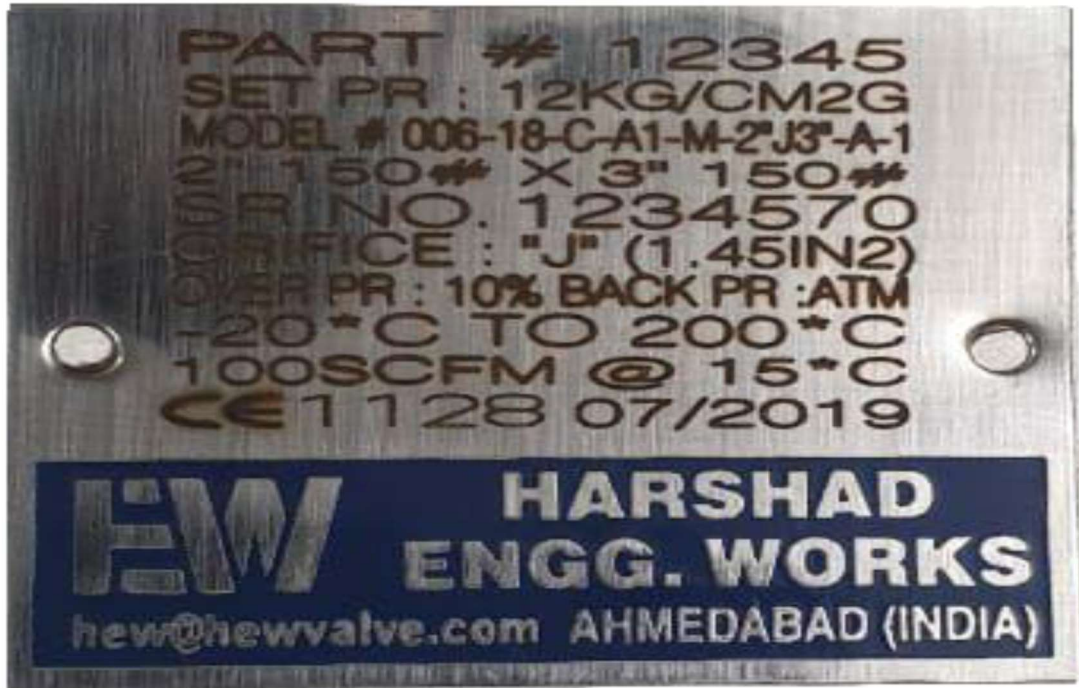
PLASTIC SEAT VALVE PRESSURE & TEMPERATURE LIMITS

ORIFICE	TEMPERATURE RANGE	PRESSURE RANGE IN BARG
		PTFE / PCTFE / PEEK
"D", "E", "F"	-184°C TO 260°C	7 TO 275
"G"		7 TO 275
"H"		7 TO 190
"J"		7 TO 150
"K"		7 TO 150
"L"		5 TO 100
"M", "N"		5 TO 70
"P"		3 TO 50
"Q"		1 TO 20

HARSHAD

SAFETY VALVE MANUFACTURER

SERIES # 006 MARKING DETAIL



MARKING DETAIL

- LINE NO. 01 = PART # / TAG #
- LINE NO. 02 = SET PRESSURE
- LINE NO. 03 = HEW MODEL #
- LINE NO. 04 = INLET X OUTLET SIZE & FLANGE CLASS
- LINE NO. 05 = UNIQUE SR.NO.
- LINE NO. 06 = ORIFICE AREA
- LINE NO. 07 = OVER PRESSURE & BACK PRESSURE
- LINE NO. 08 = WORKING TEMPERATURE RANGE
- LINE NO. 09 = FLOW RATE (SCFM / KG/HR / LPM / ETC.)
- LINE NO. 10 = CE STAMP & DATE OF MFG

HARSHAD

S A F E T Y V A L V E M A N U F A C T U R E R

SERIES # 006

COLD DIFFERENTIAL TEST PRESSURE

WHEN SETTING A VALVE INTENDED FOR USE AT HIGH TEMPERATURE ON A TEST RIG USING A TEST FLUID AT AMBIENT TEMPERATURES, IT IS NECESSARY TO SET THE VALVE AT SLIGHTLY HIGHER PRESSURE, SO THAT IT WILL OPEN AT THE CORRECT SET PRESSURE UNDER OPERATING CONDITIONS. THE NECESSARIES ALLOWANCE IS SHOWN IN THE FOLLOWING TABLE.

OPERATING TEMPERATURE (CENTIGRADE)	OPERATING TEMPERATURE (FAHRENHEIT)	% INCREASE IN SET PRESSURE AT (AMBIENT TEMPERATURE)
UPTO 121 *C	UPTO 250 *F	0 %
122 *C TO 316 *C	251 *F TO 600 *F	1 %
317 *C TO 427 *C	601 *F TO 800 *F	2 %
428 *C TO 538 *C	801 *F TO 1000 *F	3 %

HARSHAD

SAFETY VALVE MANUFACTURER

SERIES # 006

AIR CAPACITY TABLE

AIR CAPACITIES IN STANDARD CUBIC FEET PER MINUTE (SCFM) @ 15°C & 10% OVER PRESSURE AS PER API 520												
ORIFICE AREA & LETTER DESIGNATION (in2 & mm2) (API 526)												
API Letter	"D"	"E"	"F"	"G"	"H"	"J"	"K"	"L"	"M"	"N"	"P"	"Q"
Actual Area (in2)	0.12	0.23	0.35	0.59	0.887	1.49	2.69	3.16	3.82	4.83	7.02	12.16
Actual Area (mm2)	77.42	148.39	225.81	380.64	567.74	961.29	1735.48	2038.71	2464.51	3116.12	4529.02	7845.15
Set Pr. (Barg)												
1	59	113	172	291	437	734	1325	1556	1881	2378	3457	5987
2	90	172	262	442	664	1116	2014	2366	2860	3616	5256	9104
3	121	231	352	593	891	1497	2703	3176	3839	4854	7055	12221
4	151	290	441	744	1119	1879	3393	3986	4818	6092	8854	15337
5	182	349	531	895	1346	2261	4082	4796	5797	7330	10654	18454
6	213	408	621	1047	1573	2643	4772	5606	6776	8568	12453	21571
7	244	467	711	1198	1801	3025	5461	6415	7755	9806	14252	24687
8	274	526	800	1349	2028	3407	6151	7225	8734	11044	16051	27804
9	305	585	890	1500	2255	3789	6840	8035	9714	12282	17851	30921
10	336	644	980	1651	2483	4171	7530	8845	10693	13520	19650	34037
11	367	703	1069	1803	2710	4553	8219	9655	11672	14758	21449	37154
12	397	762	1159	1954	2937	4934	8908	10465	12651	15996	23248	40271
13	428	821	1249	2105	3165	5316	9598	11275	13630	17234	25048	43387
14	459	880	1339	2256	3392	5698	10287	12085	14609	18471	26847	46504
15	490	939	1428	2408	3620	6080	10977	12895	15588	19709	28646	49620
16	520	997	1518	2559	3847	6462	11666	13705	16567	20947	30445	52737
17	551	1056	1608	2710	4074	6844	12356	14515	17546	22185	32244	55854
18	582	1115	1697	2861	4302	7226	13045	15325	18525	23423	34044	58970
19	613	1174	1787	3012	4529	7608	13735	16134	19504	24661	35843	62087
20	643	1233	1877	3164	4756	7990	14424	16944	20483	25899	37642	62504
21	674	1292	1966	3315	4984	8371	15114	17754	21462	27137	39441	68320
22	705	1351	2056	3466	5211	8753	15803	18564	22442	28375	41241	71437
23	736	1410	2146	3617	5438	9135	16492	19374	23421	29613	43040	74554
24	766	1469	2236	3769	5666	9517	17182	20184	24400	30851	44839	77670
25	797	1528	2325	3920	5893	9899	17871	20994	25379	32089	46638	80787
30	828	1823	2774	4676	7030	11808	21319	25044	30274	38279	55635	96370
35	1105	2118	3222	5432	8166	13718	24766	29093	35170	44468	64631	111953
40	1259	2412	3671	6188	9303	15627	28213	33143	40065	50658	73627	127536
45	1412	2707	4119	6944	10440	17537	31660	37192	44960	56848	82623	143120
50	1566	3002	4568	7700	11576	19446	35108	41242	49856	63037	91620	158703
60	1874	3591	5465	9212	13850	23265	42002	49341	59646	75417	109612	*
70	2181	4181	6362	10725	16123	27084	48897	57440	69437	87796	127604	*
80	2489	4770	7259	12237	18397	30903	55791	65539	*	*	*	*
90	2796	5360	8156	13749	20670	34722	62686	73638	*	*	*	*
100	3104	5949	9053	15261	22943	38541	69580	81738	*	*	*	*
125	3873	7423	11296	19042	28627	48088	86816	101986	*	*	*	*
150	4642	8897	13539	22822	34310	57635	104053	122233	*	*	*	*
175	5411	10370	15781	26603	39994	67183	*	*	*	*	*	*
200	6180	11844	18024	30383	45677	76730	*	*	*	*	*	*
225	6948	13318	20266	34163	*	*	*	*	*	*	*	*
250	7717	14792	22509	37944	*	*	*	*	*	*	*	*
300	9255	17739	26994	*	*	*	*	*	*	*	*	*
325	10024	19213	29237	*	*	*	*	*	*	*	*	*
350	10793	20687	*	*	*	*	*	*	*	*	*	*
375	11562	22160	*	*	*	*	*	*	*	*	*	*
400	12331	23634	*	*	*	*	*	*	*	*	*	*
414	12761	24459	*	*	*	*	*	*	*	*	*	*

HARSHAD

SAFETY VALVE MANUFACTURER

SERIES # 006

WATER CAPACITY TABLE

WATER CAPACITIES IN LITRES PER MINUTE (LPM) @ 20°C & 10% OVER PRESSURE (AS PER API 520)

ORIFICE AREA & LETTER DESIGNATION, (in2 & mm2) (API 526)

API Letter	"D"	"E"	"F"	"G"	"H"	"J"	"K"	"L"	"M"	"N"	"P"	"Q"
Actual Area (in2)	0.12	0.23	0.35	0.59	0.887	1.49	2.69	3.16	3.82	4.83	7.02	12.16
Actual Area (mm2)	77.42	148.39	225.81	380.64	567.74	961.29	1735.48	2038.71	2464.51	3116.12	4529.02	7845.15
Set Pr. (Barg)												
1	46	87	133	224	337	567	1023	1202	1453	1837	2670	4625
2	65	124	188	317	477	801	1447	1700	2055	2598	3776	6540
3	79	152	231	389	584	982	1772	2082	2516	3182	4624	8010
4	91	175	266	449	675	1133	2046	2404	2906	3674	5340	9249
5	102	196	298	502	754	1267	2288	2687	3249	4107	5970	10341
6	112	214	326	550	826	1388	2506	2944	3559	4500	6540	11328
7	121	231	352	594	893	1499	2707	3180	3844	4860	7064	12236
8	129	247	376	635	954	1603	2894	3399	4109	5196	7551	13080
9	137	262	399	673	1012	1700	3069	3605	4358	5511	8009	13874
10	144	277	421	710	1067	1792	3235	3800	4594	5809	8443	14624
11	151	290	441	744	1119	1879	3393	3986	4818	6092	8855	15338
12	158	303	461	777	1169	1963	3544	4163	5033	6363	9249	16020
13	165	315	480	809	1216	2043	3689	4333	5238	6623	9626	16674
14	171	327	498	840	1262	2120	3828	4497	5436	6873	9990	17304
15	177	339	516	869	1307	2195	3962	4655	5627	7114	10340	17911
16	183	350	532	898	1349	2267	4092	4807	5811	7348	10679	18499
17	188	361	549	925	1391	2336	4218	4955	5990	7574	11008	19068
18	194	371	565	952	1431	2404	4340	5099	6164	7793	11327	19621
19	199	381	580	978	1470	2470	4459	5239	6333	8007	11637	20158
20	204	391	595	1003	1509	2534	4575	5375	6497	8215	11940	20682
21	209	401	610	1028	1546	2597	4688	5507	6658	8418	12235	21193
22	214	410	624	1052	1582	2658	4799	5637	6814	8616	12523	21692
23	219	420	638	1076	1618	2718	4906	5764	6967	8810	12804	22179
24	224	429	652	1099	1653	2776	5012	5888	7117	8999	13079	22656
25	228	437	666	1122	1687	2833	5115	6009	7264	9185	13349	23123
30	250	479	729	1229	1848	3104	5603	6583	7957	10061	14623	25330
35	270	517	787	1327	1996	3352	6052	7110	8595	10867	15795	27360
40	289	553	842	1419	2134	3584	6470	7601	9188	11618	16885	29249
45	306	587	893	1505	2263	3801	6863	8062	9746	12322	17910	31023
50	323	619	941	1587	2385	4007	7234	8498	10273	12989	18878	32701
60	354	678	1031	1738	2613	4389	7925	9309	11253	14229	20680	*
70	382	732	1114	1877	2822	4741	8559	10055	12155	15369	22337	*
80	408	782	1191	2007	3017	5068	9152	10749	*	*	*	*
90	433	830	1263	2129	3200	5376	9706	11401	*	*	*	*
100	456	875	1331	2244	3373	5667	10230	12018	*	*	*	*
125	510	978	1488	2509	3772	6336	11438	13437	*	*	*	*
150	559	1071	1630	2748	4132	6940	12530	14719	*	*	*	*
175	604	1157	1761	2968	4463	7496	*	*	*	*	*	*
200	645	1237	1882	3173	4771	8014	*	*	*	*	*	*
225	685	1312	1997	3366	*	*	*	*	*	*	*	*
250	722	1383	2105	3548	*	*	*	*	*	*	*	*
300	790	1515	2306	*	*	*	*	*	*	*	*	*
325	823	1577	2400	*	*	*	*	*	*	*	*	*
350	854	1636	*	*	*	*	*	*	*	*	*	*
375	884	1694	*	*	*	*	*	*	*	*	*	*
400	913	1749	*	*	*	*	*	*	*	*	*	*
414	929	1780	*	*	*	*	*	*	*	*	*	*

REV.6 / 05.2019

HARSHAD

SAFETY VALVE MANUFACTURER

SERIES # 006

AIR CAPACITY TABLE

AIR CAPACITIES IN KG/HR @ 15°C & 10% OVER PRESSURE AS PER (EN ISO 4126 PART.1)

Orifice Area & Letter Designation, (in2 & mm2) (API 526)

API Letter	"D"	"E"	"F"	"G"	"H"	"J"	"K"	"L"	"M"	"N"	"P"	"Q"
Actual Area (in2)	0.12	0.23	0.35	0.59	0.887	1.49	2.69	3.16	3.82	4.83	7.02	12.16
Actual Area (mm2)	77.42	148.39	225.81	380.64	567.74	961.29	1735.48	2038.71	2464.51	3116.12	4529.02	7845.15
Set Pr. (Bar)												
1	123	236	359	604	902	1526	2756	3237	3913	4948	7192	12457
2	187	358	545	919	1371	2321	4190	4922	5951	7524	10935	18942
3	251	481	732	1234	1840	3116	5625	6608	7988	10100	14679	25427
4	315	604	919	1548	2309	3910	7060	8293	10025	12676	18423	31912
5	379	726	1105	1863	2779	4705	8494	9978	12062	15252	22167	38397
6	443	849	1292	2178	3248	5500	9929	11663	14100	17827	25911	44882
7	507	972	1479	2492	3717	6294	11363	13349	16137	20403	29654	51367
8	571	1094	1665	2807	4187	7089	12798	15034	18174	22979	33398	57852
9	635	1217	1852	3122	4656	7883	14233	16719	20211	25555	37142	64337
10	699	1340	2038	3436	5125	8678	15667	18405	22248	28131	40886	70822
11	763	1462	2225	3751	5595	9473	17102	20090	24286	30707	44630	77307
12	827	1585	2412	4066	6064	10267	18536	21775	26323	33283	48374	83792
13	891	1708	2598	4380	6533	11062	19971	23460	28360	35858	52117	90277
14	955	1830	2785	4695	7003	11857	21405	25146	30397	38434	55861	96762
15	1019	1953	2972	5009	7472	12651	22840	26831	32435	41010	59605	103247
16	1083	2076	3158	5324	7941	13446	24275	28516	34472	43586	63349	109732
17	1147	2198	3345	5639	8410	14240	25709	30201	36509	46162	67093	116217
18	1211	2321	3532	5953	8880	15035	27144	31887	38546	48738	70836	122703
19	1275	2444	3718	6268	9349	15830	28578	33572	40584	51314	74580	129188
20	1339	2566	3905	6583	9818	16624	30013	35257	42621	53890	78324	135673
21	1403	2689	4092	6897	10288	17419	31448	36942	44658	56465	82068	142158
22	1467	2812	4278	7212	10757	18214	32882	38628	46695	59041	85812	148643
23	1531	2934	4465	7527	11226	19008	34317	40313	48732	61617	89555	155128
24	1595	3057	4652	7841	11696	19803	35751	41998	50770	64193	93299	161613
25	1659	3180	4838	8156	12165	20598	37186	43683	52807	66769	97043	168098
30	1979	3793	5772	9729	14511	24571	44359	52110	62993	79648	115762	200523
35	2299	4406	6705	11302	16858	28544	51532	60536	73179	92528	134481	232948
40	2619	5019	7638	12876	19205	32517	58705	68962	83365	105407	153200	265373
45	2939	5633	8572	14449	21551	36490	65878	77388	93552	118286	171919	29778
50	3259	6246	9505	16022	23898	40463	73051	85815	103738	131166	190638	330223
60	3899	7473	11371	19169	28591	48410	87397	102667	124110	156924	228077	*
70	4539	8699	13238	22315	33284	56356	101743	119520	144482	182683	265515	*
80	5179	9926	15105	25462	37977	64302	116089	136372	*	*	*	*
90	5819	11153	16971	28608	42670	72248	130435	153225	*	*	*	*
100	6459	12379	18838	31754	47363	80195	144781	170077	*	*	*	*
125	8059	15446	23504	39621	59096	100060	180646	212209	*	*	*	*
150	9659	18512	28171	47487	70829	119926	216511	254340	*	*	*	*
175	11258	21579	32837	55353	82561	139792	*	*	*	*	*	*
200	12858	24646	37504	63219	94294	159658	*	*	*	*	*	*
225	14458	27712	42170	71085	*	*	*	*	*	*	*	*
250	16058	30779	46837	78952	*	*	*	*	*	*	*	*
300	19258	36912	56170	*	*	*	*	*	*	*	*	*
325	20858	39979	60836	*	*	*	*	*	*	*	*	*
350	22458	43045	*	*	*	*	*	*	*	*	*	*
375	24058	46112	*	*	*	*	*	*	*	*	*	*
400	25658	49178	*	*	*	*	*	*	*	*	*	*
414	26554	50896	*	*	*	*	*	*	*	*	*	*

REV.6 / 05.2019

HARSHAD

SAFETY VALVE MANUFACTURER

SERIES # 006

WATER CAPACITY TABLE

WATER CAPACITIES IN KG/HR @ 20°C & 10% OVER PRESSURE (AS EN ISO 4126 PART.1)

ORIFICE AREA & LETTER DESIGNATION, (in2 & mm2) (API 526)

API Letter	“D”	“E”	“F”	“G”	“H”	“J”	“K”	“L”	“M”	“N”	“P”	“Q”
Actual Area (in2)	0.12	0.23	0.35	0.59	0.887	1.49	2.69	3.16	3.82	4.83	7.02	12.16
Actual Area (mm2)	77.42	148.39	225.81	380.64	567.74	961.29	1735.48	1961.3	2464.51	3116.12	4529.02	7845.15
Set Pr. (Barg)												
1	2720	5213	7933	13372	19945	33770	60967	71619	86577	109468	159103	275598
2	3846	7372	11218	18911	28206	47758	86220	101285	122439	154811	225006	389754
3	4711	9029	13740	23161	34545	58491	105598	124048	149957	189604	275575	477349
4	5439	10426	15865	26744	39889	67540	121934	143238	173155	218936	318206	551195
5	6082	11656	17738	29900	44597	75512	136326	160146	193593	244778	355765	616255
6	6662	12769	19431	32754	48854	82719	149338	175431	212071	268141	389721	675073
7	7196	13792	20988	35378	52768	89347	161303	189487	229062	289626	420947	729163
8	7693	14744	22437	37821	56412	95515	172440	202570	244878	309623	450011	779508
9	8159	15639	23798	40115	59834	101309	182901	214858	259732	328405	477309	826793
10	8601	16485	25085	42285	63070	106790	192794	226480	273782	346169	503128	871516
11	9020	17289	26310	44349	66149	112002	202204	237534	287145	363065	527685	914054
12	9421	18058	27479	46321	69090	116982	211195	248096	299913	379209	551149	954698
13	9806	18795	28602	48213	71911	121759	219819	258227	312160	394693	573654	993681
14	10176	19505	29681	50033	74626	126355	228117	267975	323943	409592	595309	1031192
15	10533	20189	30723	51789	77245	130790	236124	277380	335313	423968	616204	1067385
16	10879	20852	31731	53487	79778	135079	243867	286477	346310	437873	636412	1102390
17	11214	21493	32707	55133	82233	139236	251373	295294	356968	451349	655999	116318
18	11539	22116	33655	56732	84617	143273	258660	303855	367317	464434	675017	1169262
19	11855	22722	34578	58286	86936	147199	265748	312181	377382	477161	693514	1201302
20	12163	23313	35476	59800	89195	151023	272652	320291	387186	489557	711531	1232510
21	12463	23888	36352	61277	91397	154753	279835	328201	396748	501646	729102	1262947
22	12757	24451	37207	62719	93548	158394	285960	335924	406084	513451	746260	1292667
23	13043	25000	38044	64129	95651	161954	292387	343474	415211	524991	763031	1321720
24	13324	25538	38862	65508	97708	165438	298675	350861	424141	536282	779443	1350147
25	13599	26064	39663	66859	99723	168849	304834	358096	432887	547341	795515	1377988
30	14897	28552	43449	73240	109241	184965	333929	392275	474204	599582	871443	1509510
35	16090	30840	46930	79108	117993	199785	360685	423705	512199	647623	941266	1630457
40	17201	32969	50170	84570	126140	213579	385588	452960	547564	692338	1006256	1743032
45	18245	34969	53214	89701	133792	226535	408978	480437	580779	734335	1067296	1848765
50	19231	36861	56092	94553	141029	238789	431101	506425	612195	774057	1125029	1948769
60	21067	40379	61446	103577	154490	261580	472247	554760	670626	847937	1232407	*
70	22755	43614	66369	111876	166868	282538	510085	599210	724359	915877	1331152	*
80	24326	46626	70952	119601	178389	302046	545304	640582	*	*	*	*
90	25802	49454	75256	126856	189210	320369	578382	679440	*	*	*	*
100	27197	52129	79326	133718	199445	337698	609669	716192	*	*	*	*
125	30408	58282	88690	149501	222987	377558	681630	800728	*	*	*	*
150	33310	63845	97155	163770	244270	413594	746688	877153	*	*	*	*
175	35979	68960	104939	176892	263841	446733	*	*	*	*	*	*
200	38463	73721	112184	189105	282058	477577	*	*	*	*	*	*
225	40796	78193	118990	200576	*	*	*	*	*	*	*	*
250	43003	82423	125426	211426	*	*	*	*	*	*	*	*
300	47107	90290	137397	*	*	*	*	*	*	*	*	*
325	49031	93977	143008	*	*	*	*	*	*	*	*	*
350	50882	97524	*	*	*	*	*	*	*	*	*	*
375	52667	100947	*	*	*	*	*	*	*	*	*	*
400	54395	104258	*	*	*	*	*	*	*	*	*	*
414	55338	106067	*	*	*	*	*	*	*	*	*	*

HARSHAD

SAFETY VALVE MANUFACTURER

SERIES # 006

STEAM CAPACITY TABLE

SATURATED STEAM CAPACITIES IN LB/HR @ 10% OVER PRESSURE AS PER API 520											
ORIFICE AREA & LETTER DESIGNATION, (in2 & mm2) (API 526)											
API Letter	"E"	"F"	"G"	"H"	"J"	"K"	"L"	"M"	"N"	"P"	"Q"
Actual Area (in2)	0.23	0.35	0.59	0.887	1.49	2.69	3.16	3.82	4.83	7.02	12.16
Actual Area (mm2)	148.39	225.81	414.8	615.3	829.0	1193.9	2038.71	2464.51	3116.12	4529.02	7845.15
Set Pr. (Barg)											
1	305	464	782	1175	1974	3564	4186	5061	6398	9300	16109
2	458	697	1176	1767	2969	5360	6296	7611	9624	13988	24229
3	612	931	1570	2360	3964	7156	8407	10162	12849	18676	32350
4	765	1165	1964	2952	4959	8953	10517	12713	16075	23364	40470
5	919	1399	2358	3544	5954	10749	12627	15264	19300	28051	48591
6	1073	1632	2752	4137	6949	12545	14737	17815	22526	32739	56711
7	1226	1866	3146	4729	7944	14342	16848	20366	25751	37427	64831
8	1380	2100	3540	5321	8939	16138	18958	22917	28977	42155	72952
9	1533	2333	3934	5914	9934	17935	21068	25468	32202	46803	81072
10	1687	2567	4328	6506	10929	19731	23178	28019	35428	51491	89193
11	1841	2801	4722	7098	11924	21527	25289	30570	38653	56179	97313
12	1994	3035	5116	7691	12919	23324	27399	33121	41879	60867	105434
13	2148	3268	5510	8283	13914	25120	29509	35672	45104	65555	*
14	2301	3502	5904	8875	14909	26916	31619	38223	48330	70243	*
15	2455	3736	6298	9468	15904	28713	33730	40774	51555	74931	*
16	2609	3970	6692	10060	16899	30509	35840	43325	54781	79619	*
17	2762	4203	7086	10652	17894	32306	37950	45876	58006	84307	*
18	2916	4437	7480	11245	18889	34102	40060	48427	61231	88995	*
19	3069	4671	7874	11837	19884	35898	42171	50978	64457	93683	*
20	3223	4905	8268	12429	20879	37695	44281	53529	67682	98371	*
21	3377	5138	8662	13022	21874	39491	46391	56080	70908	103059	*
22	3530	5372	9056	13614	22869	41288	48501	58631	74133	107747	*
23	3684	5606	9450	14206	23864	43084	50612	61182	77359	112435	*
24	3837	5839	9844	14799	24859	44880	52722	63733	80584	117123	*
25	3991	6073	10238	15391	25854	46677	54832	66284	83810	121811	*
26	4145	6307	10632	15983	26849	48473	56942	68835	87035	126498	*
27	4298	6541	11026	16576	27844	50269	59053	71386	90261	131186	*
28	4452	6774	11420	17168	28839	52066	61163	73937	93486	135874	*
29	4605	7008	11814	17761	29834	53862	63273	76488	96712	140562	*
30	4759	7242	12208	18353	30829	55659	65383	79039	99937	145250	*
31	4913	7476	12602	18945	31824	57455	67494	81590	103163	149938	*
32	5066	7709	12996	19538	32820	59251	69604	84141	106388	154626	*
33	5220	7943	13390	20130	33815	61048	71714	86692	109614	159314	*
34	5373	8177	13784	20722	34810	62844	73824	89243	112839	164002	*
35	5527	8410	14178	21315	35805	64640	75935	91794	116065	168690	*
36	5680	8644	14572	21907	36800	66437	78045	94345	119290	173378	*
37	5834	8878	14966	22499	37795	68233	80155	96896	122515	178066	*
38	5988	9112	15360	23092	38790	70030	82265	99447	125741	182754	*
39	6141	9345	15754	23684	39785	71826	84376	101998	128966	187442	*
40	6295	9579	16148	24276	40780	73622	86486	104549	132192	192130	*
41	6448	9813	16542	24869	41775	75419	88596	107100	135417	196818	*
42	6602	10047	16936	25461	42770	77215	90706	109651	138643	201506	*
43	6756	10280	17330	26053	43765	79012	92817	112202	141868	206194	*
44	6909	10514	17724	26646	44760	80808	94927	114753	145094	210882	*
45	7063	10748	18118	27238	45755	82604	97037	117304	148319	215570	*
46	7216	10981	18512	27830	46750	84401	99147	119855	151545	220257	*
47	7370	11215	18906	28423	47745	86197	101257	122406	154770	224945	*
48	7524	11449	19300	29015	48740	87993	103368	124957	157996	229633	*
49	7677	11683	19694	29607	49735	89790	105478	127508	161221	234321	*
50	7831	11916	20088	30200	50730	91586	107588	130059	164447	239009	*

HARSHAD

SAFETY VALVE MANUFACTURER

SERIES # 006

STEAM CAPACITY TABLE

Steam Capacities in KG/HR at 5% Over Pressure & at Saturation Temperature as per IBR Reg.293 (1950)

Orifice Area & Letter Designation, (in2 & mm2) (API 526)

Calculation as per IBR Reg.293, $E = CAP$ where IBR Constant 0.24, $E = Capacity (KG/HR)$, $A = Area (mm^2)$ & $P = Pressure (Barg)$

API Letter	“G”	“H”	“J”	“L”	“M”	“N”	“P”	“Q”
Actual Area (in2)	0.59	0.822	1.285	3.04	3.81	4.83	7.02	11.69
Actual Area (mm2)	414.8	530.3	829.0	1961.2	2458.1	3116.1	4529.0	7541.9
Set Pr. (Barg)	DISCHARGE CAPACITY (IN KG/HR)							
1	219	280	438	1036	1298	1645	2391	3982
2	318	407	637	1506	1888	2393	3478	5792
3	413	528	826	1953	2448	3104	4511	7512
4	518	662	1035	2448	3068	3889	5652	9412
5	622	795	1243	2942	3687	4674	6793	11313
6	727	929	1452	3436	4307	5459	7935	13304
7	831	1063	1661	3930	4926	6245	9076	15114
8	936	1196	1870	4425	5545	7030	10217	17015
9	1040	1330	2079	4919	6165	7815	11359	18915
10	1145	1464	2288	5413	6784	8600	12500	20816
11	1249	1597	2497	5907	7404	9386	13641	22716
12	1354	1731	2706	6402	8023	10171	14783	24617
13	1458	1865	2915	6896	8643	10956	15924	26517
14	1563	1998	3124	7390	9262	11741	17065	28418
15	1667	2132	3333	7884	9882	12527	18206	30318
16	1772	2265	3541	8379	10501	13312	19348	32219
17	1877	2399	3750	8873	11120	14097	20489	34120
18	1981	2533	3959	9367	11740	14882	21630	36020
19	2086	2666	4168	9861	12359	15668	22772	37921
20	2190	2800	4377	10355	12979	16453	23913	39821
21	2296	2934	4586	10849	13598	17238	25054	41722
22	2401	3067	4795	11344	14218	18024	26196	43622
23	2505	3201	5004	11838	14837	18809	27337	45523
24	2610	3335	5213	12332	15457	19594	28478	47423
25	2714	3468	5422	12826	16076	20379	29620	49324
26	2819	3602	5631	13320	16695	21165	30761	51225
27	2923	3735	5839	13815	17315	21950	31902	53125
28	3028	3869	6048	14309	17934	22735	33044	55026
29	3132	4003	6257	14803	18554	23520	34185	56926
30	3237	4136	6466	15297	19173	24306	35326	58827

REV.6 / 05.2019

HARSHAD

SAFETY VALVE MANUFACTURER

SERIES # 006

STEAM CAPACITY TABLE

SATURATED STEAM CAPACITIES IN KG/HR @ 10% OVER PRESSURE AS PER EN ISO 4126 PART.1											
ORIFICE AREA & LETTER DESIGNATION, (m2 & mm2) (API 526)											
API Letter	"E"	"F"	"G"	"H"	"J"	"K"	"L"	"M"	"N"	"P"	"Q"
Actual Area (m2)	0.23	0.35	0.59	0.887	1.49	2.69	3.16	3.82	4.83	7.02	12.16
Actual Area (mm2)	148.39	225.81	414.8	615.3	829.0	1193.9	2038.71	2464.51	3116.12	4529.02	7845.15
Set Pr. (Barg)											
1	141	215	363	541	916	1653	1942	2347	2968	4313	7471
2	215	327	551	822	1392	2513	2952	3569	4513	6559	11361
3	288	439	740	1104	1869	3374	3963	4791	6058	8804	15251
4	362	551	929	1385	2346	4234	4974	6013	7603	11050	19140
5	436	663	1117	1667	2822	5095	5985	7235	9147	13295	23030
6	509	775	1306	1948	3299	5955	6995	8457	10692	15541	26919
7	583	887	1495	2230	3776	6815	8006	9678	12237	17786	30809
8	656	999	1684	2511	4252	7676	9017	10900	13782	20031	34698
9	730	1111	1872	2793	4729	8536	10028	12122	15327	22277	38588
10	803	1223	2061	3074	5206	9397	11039	13344	16872	24522	42477
11	877	1335	2250	3355	5682	10257	12049	14566	18417	26768	46367
12	951	1447	2438	3637	6159	11118	13060	15788	19962	29013	50257
13	1024	1558	2627	3918	6636	11978	14071	17010	21507	31259	*
14	1098	1670	2816	4200	7112	12838	15082	18232	23052	33504	*
15	1171	1782	3005	4481	7589	13699	16092	19453	24597	35750	*
16	1245	1894	3193	4763	8066	14559	17103	20675	26142	37995	*
17	1318	2006	3382	5044	8542	15420	18114	21897	27687	40240	*
18	1392	2118	3571	5326	9019	16280	19125	23119	29232	42486	*
19	1466	2230	3759	5607	9496	17141	20136	24341	30777	44731	*
20	1539	2342	3948	5889	9972	18001	21146	25563	32322	46977	*
21	1613	2454	4137	6170	10449	18862	22157	26785	33867	49222	*
22	1686	2566	4326	6452	10926	19722	23168	28007	35411	51468	*
23	1760	2678	4514	6733	11402	20582	24179	29228	36956	53713	*
24	1833	2790	4703	7015	11879	21443	25189	30450	38501	55959	*
25	1907	2902	4892	7296	12356	22303	26200	31672	40046	58204	*
26	1981	3014	5080	7578	12832	23164	27211	32894	41591	60449	*
27	2054	3126	5269	7859	13309	24024	28222	34116	43136	62695	*
28	2128	3238	5458	8141	13786	24885	29232	35338	44681	64940	*
29	2201	3350	5647	8422	14262	25745	30243	36560	46226	67186	*
30	2275	3462	5835	8704	14739	26605	31254	37782	47771	69431	*
31	2348	3574	6024	8985	15216	27466	32265	39004	49316	71677	*
32	2422	3686	6213	9267	15692	28326	33276	40225	50861	73922	*
33	2496	3798	6401	9548	16169	29187	34286	41447	52406	76168	*
34	2569	3910	6590	9830	16645	30047	35297	42669	53951	78413	*
35	2643	4021	6779	10111	17122	30908	36308	43891	55496	80658	*
36	2716	4133	6968	10392	17599	31768	37319	45113	57041	82904	*
37	2790	4245	7156	10674	18075	32628	38329	46335	58586	85149	*
38	2863	4357	7345	10955	18552	33489	39340	47557	60131	87395	*
39	2937	4469	7534	11237	19029	34349	40351	48779	61676	89640	*
40	3011	4581	7723	11518	19505	35210	41362	50000	63220	91886	*
41	3084	4693	7911	11800	19982	36070	42373	51222	64765	94131	*
42	3158	4805	8100	12081	20459	36931	43383	52444	66310	96377	*
43	3231	4917	8289	12363	20935	37791	44394	53666	67855	98622	*
44	3305	5029	8477	12644	21412	38652	45405	54888	69400	100867	*
45	3378	5141	8666	12926	21889	39512	46416	56110	70945	103113	*
46	3452	5253	8855	13207	22365	40372	47426	57332	72490	105358	*
47	3526	5365	9044	13489	22842	41233	48437	58554	74035	107604	*
48	3599	5477	9232	13770	23319	42093	49448	59775	75580	109849	*
49	3673	5589	9421	14052	23795	42954	50459	60997	77125	112095	*
50	3746	5701	9610	14333	24272	43814	51469	62219	78670	114340	*

HARSHAD

SAFETY VALVE MANUFACTURER

SERIES # 006

SIZING FORMULA

ASME SECTION I & SECTION VIII

EQUATION :-

$$A = \frac{W_s}{51.5 P K_d K_{sh}}$$

WHERE :-

A = REQUIRED ORIFICE AREA IN SQUARE INCHES (IN²)

P = RELIVING PRESSURE IN POUNDS PER SQUARE INCH
ABSOLUTE = SET PR. + OVER PRESSURE + 14.7PSI

W_s = REQUIRED STEAM CAPACITY IN POUNDS PER HOUR

K_d = CO-EFFICIENT OF DISCHARGE, 0.878

K_{sh} = STEAM SUPERHEAT CORRECTION FACTOR, SEE TABLE BELOW

Appendix I

Capacity Correction Factor for SuperHeat, K_{sh}

The Steam sizing formula are based on the flow of dry saturated steam. To size for superheated steam, the superheat correction factor is used to correct the calculated saturated steam flow to superheated steam flow. For Saturated steam, K_{sh}=1. When the steam is superheated, use Appendix I and read the superheat correction factor under the total steam temperature column.

Pressure	Total Temperature of superheated steam (°F)																
(psia)	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
50	0.987	0.957	0.963	0.905	0.882	0.861	0.841	0.823	0.805	0.789	0.774	0.759	0.745	0.732	0.719	0.708	0.696
100	0.998	0.963	0.935	0.909	0.885	0.864	0.843	0.825	0.807	0.79	0.775	0.76	0.746	0.733	0.72	0.708	0.697
150	0.984	0.97	0.94	0.913	0.888	0.866	0.846	0.826	0.808	0.792	0.776	0.761	0.747	0.733	0.721	0.709	0.697
200	0.979	0.977	0.945	0.917	0.892	0.869	0.848	0.828	0.81	0.793	0.777	0.762	0.748	0.734	0.721	0.709	0.698
250	***	0.972	0.951	0.921	0.895	0.871	0.85	0.83	0.812	0.794	0.778	0.763	0.749	0.735	0.722	0.71	0.698
300	***	0.968	0.957	0.926	0.898	0.874	0.852	0.832	0.813	0.796	0.78	0.764	0.75	0.736	0.723	0.71	0.699
350	***	0.968	0.963	0.93	0.902	0.877	0.854	0.834	0.815	0.797	0.781	0.765	0.75	0.736	0.723	0.711	0.699
400	***	***	0.963	0.935	0.906	0.88	0.857	0.836	0.816	0.798	0.782	0.766	0.751	0.737	0.724	0.712	0.7
450	***	***	0.961	0.94	0.909	0.883	0.859	0.838	0.818	0.8	0.783	0.767	0.752	0.738	0.725	0.712	0.7
500	***	***	0.961	0.946	0.914	0.886	0.862	0.84	0.82	0.801	0.784	0.768	0.753	0.739	0.725	0.713	0.701
550	***	***	0.962	0.952	0.918	0.889	0.864	0.842	0.822	0.803	0.785	0.769	0.754	0.74	0.726	0.713	0.701
600	***	***	0.964	0.958	0.922	0.892	0.867	0.844	0.823	0.804	0.787	0.77	0.755	0.74	0.727	0.714	0.702
650	***	***	0.968	0.958	0.927	0.896	0.869	0.846	0.825	0.806	0.788	0.771	0.756	0.741	0.728	0.715	0.702
700	***	***	***	0.958	0.931	0.899	0.872	0.848	0.827	0.807	0.789	0.772	0.757	0.742	0.728	0.715	0.703
750	***	***	***	0.958	0.936	0.903	0.875	0.85	0.828	0.809	0.79	0.774	0.758	0.743	0.729	0.716	0.703
800	***	***	***	0.96	0.942	0.906	0.878	0.852	0.83	0.81	0.792	0.774	0.759	0.744	0.73	0.716	0.704
850	***	***	***	0.962	0.947	0.91	0.88	0.855	0.832	0.812	0.793	0.776	0.76	0.744	0.73	0.717	0.704
900	***	***	***	0.965	0.953	0.914	0.883	0.857	0.834	0.813	0.794	0.777	0.76	0.745	0.731	0.718	0.705
950	***	***	***	0.969	0.958	0.918	0.886	0.86	0.836	0.815	0.796	0.778	0.761	0.746	0.732	0.718	0.705
1000	***	***	***	0.974	0.959	0.923	0.89	0.862	0.838	0.816	0.797	0.779	0.762	0.747	0.732	0.719	0.706
1050	***	***	***	***	0.96	0.927	0.893	0.864	0.84	0.818	0.798	0.78	0.763	0.748	0.733	0.719	0.707
1100	***	***	***	***	0.962	0.931	0.896	0.867	0.842	0.82	0.8	0.781	0.764	0.749	0.734	0.72	0.707
1150	***	***	***	***	0.964	0.936	0.899	0.87	0.844	0.821	0.801	0.782	0.765	0.749	0.735	0.721	0.708
1200	***	***	***	***	0.96	0.941	0.903	0.872	0.846	0.823	0.802	0.784	0.766	0.75	0.735	0.721	0.708
1250	***	***	***	***	0.969	0.946	0.906	0.875	0.848	0.825	0.804	0.785	0.767	0.751	0.736	0.722	0.709
1300	***	***	***	***	0.973	0.952	0.91	0.878	0.85	0.826	0.805	0.786	0.768	0.752	0.737	0.723	0.709
1350	***	***	***	***	0.977	0.958	0.914	0.88	0.852	0.828	0.807	0.787	0.769	0.753	0.737	0.723	0.71
1400	***	***	***	***	0.982	0.963	0.918	0.883	0.854	0.83	0.808	0.788	0.77	0.754	0.738	0.724	0.71
1450	***	***	***	***	0.987	0.968	0.922	0.886	0.857	0.832	0.809	0.79	0.771	0.754	0.739	0.724	0.711
1500	***	***	***	***	0.993	0.97	0.926	0.889	0.859	0.833	0.811	0.791	0.772	0.755	0.74	0.725	0.711
1550	***	***	***	***	***	0.972	0.93	0.892	0.861	0.835	0.812	0.792	0.773	0.756	0.74	0.726	0.712
1600	***	***	***	***	***	0.973	0.934	0.894	0.863	0.836	0.813	0.792	0.774	0.756	0.74	0.726	0.712
1650	***	***	***	***	***	0.973	0.936	0.895	0.863	0.836	0.812	0.791	0.772	0.755	0.739	0.724	0.71
1700	***	***	***	***	***	0.973	0.938	0.895	0.863	0.835	0.811	0.79	0.771	0.754	0.738	0.723	0.709
1750	***	***	***	***	***	0.974	0.94	0.896	0.862	0.835	0.81	0.789	0.77	0.752	0.736	0.721	0.707
1800	***	***	***	***	***	0.975	0.942	0.897	0.862	0.834	0.81	0.788	0.768	0.751	0.735	0.72	0.705
1850	***	***	***	***	***	0.976	0.944	0.897	0.862	0.833	0.809	0.787	0.767	0.749	0.733	0.718	0.704
1900	***	***	***	***	***	0.977	0.946	0.898	0.862	0.832	0.807	0.785	0.766	0.748	0.731	0.716	0.702
1950	***	***	***	***	***	0.979	0.949	0.898	0.861	0.832	0.806	0.784	0.764	0.746	0.729	0.714	0.7
2000	***	***	***	***	***	0.982	0.952	0.899	0.861	0.831	0.805	0.782	0.762	0.744	0.728	0.712	0.698

HARSHAD

S A F E T Y V A L V E M A N U F A C T U R E R

SERIES # 006

INSTALLATION GUIDE

- Most Important customer have to check and make sure that the safety valve which is supplied by Harshad Engineering Works is in seal packed cardboard box or in wooden box and it is not tampered, dropped or damage from anywhere during transportation. If it is damaged or been dropped simply return back the safety valve to the manufacturer.
- Inspect each valve before installation and make sure that it is clean. Foreign particles can be carried into or through the valve during operation, which may damage the seat, resulting in leakage or malfunction.
- Prior to installation of the valve, clean the piping or vessel on which the Safety Valve is to be installed. It is recommended that safety relief valves be stored indoor in a clean, dry, place, well protected from the weather, sand, dust or other contamination sources.
- Safety Valve general detail like Inlet & Outlet Size, Set Pressure, Flow capacity, MOC, etc. is mentioned on the Name Plate which is attached to the body and if Name Plate is not attached then the detail is marked by permanent laser mark on bonnet of the Valve.
- Ensure the flange diameter on which valve is installed is same as Safety valve Inlet Size.
- Safety Valve should always be mounted in a vertical position directly on nozzle having well rounded approach that provides smooth and unobstructed flow from the vessel or line to the valve. Horizontal mounting could affect the alignment of the moving parts and affect the operation of the valve.
- Make sure there should not be any obstacle which create back pressure or blockage through outlet line of the safety valve.
- After installing safety valve customer has to check again by pulling handle by making sure that safety valve is in working conditions (Note: Handle will work only when pressure is flowing through the safety valve). If handle is not working or its jammed just reject safety valve.
- Test Gag is used for high pressure hydrostatic testing or cleaning of vessel or line but it is highly recommended to use blank flange at the time of hydrostatic test of vessel or line, because excessive tightening of test gag may damage or bend the valve spindle.
- Drain plug are located on the safety valve body and should piped to a drainage system to remove condensate from the valve bodies.
- Harshad Engineering Works hereby warrants that the goods delivered will be free from defect in material and workmanship for a period of 18months from the shipment or 12months from installation, whichever is earlier. within this period any of our products claimed defective may be returned to our factory after examination by us, Safety Valve will be repaired or replaced free of charge. Such defects shall be shall be exclusive of the effects of corrosion, erosion, normal ware or improper handling or storage.
- Safety Valve is a safety related component or instrument and it is recommend to calibrate every six months.
- Any Installation, Maintenance, Adjustment, Repair or Test performed on the product must be done in accordance with the requirements of all applicable codes and standard.