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Safety Relief Valves



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INTRODUCTION



DARLING MUESCO (INDIA) PVT LTD is a Joint Venture Company with Anchor/Darling Valve Co., Penn, USA and Muesco Inc., Houston, USA for manufacturing of their different varieties of products.

We have most modern manufacturing and testing facility in Western Part of India in Ahmedabad, Gujarat.

Company has following credentials with respect to Pressure Relief Valves

- ISO 9001-2008 certified
- CCOE/CMRI approved for LPG Bullet Relief Valve
- UL-approved/listed for Deluge Valve
- Discharge capacity of Safety Relief Valve has been certified by FCRI-Pallakad as per ASME standard
- IBR approved for steam service with '45' constant for discharge capacity
- Having more than 50000 Safety Relief Valve supplied till year 2011.





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CONVENTIONAL SPRING LOADED PRESSURE RELIEF VALVE

Series : SVE 520

Darling Muesco SVE 520series spring loaded Pressure Relief Valve has been engineered to providing high quality cover pressure protection for Air, Gas, Vapors, Liquid and two phase application in an exceptionally rugged standardized design to the process and power industries.

All Valve casting and forging are manufactured to ASME/ASTM standard material specification. These are available in WCB/WC6/WCC/WC9/CF8/CF8M/CA15/Hastalloy-C/NACE MR0175 etc.,

High Pressure Valves will have Inconel Disc. and SS347H-Nozzle. Standard Valves has SS316 Nozzle and Disc.



Features :

- Closed Bonnet and closed cap for general purpose service
- Design of API 526/527 for all Nozzle Orifice from "D" thru "V"
- Single blow down ring for blow down adjustment
- Packed lever available as optional (Prefix- 'P')
- Easily converted to any type of cap configuration.
- Soft seat available for liquid application
- Flange to ANSI/B16.5 as well as BS-10/PN std.
- Chrome-Vanadium alloy steel Springs as standard for 8.0mm and above wire dia
- Full compliance with ASME Boiler and Pressure Vessel code section VIII and API 526 and 527
- Available in NACE standard MR0175 where application demands

Technical Specification

Valve size	1"xDx2" to 10"xVx14"
Orifice size	9.5mm to 192mm
Orifice area	0.110 in ² to 44.85 in ² (0.71 cm ² to 289.38 cm ²)
Inlet rating	ANSI class 150,300,600,900
Temp. range	-40 ^o c to + 538 ^o c
Pressure range	Refer charts available as it varies from orifice to orifice size.



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Series SVE 520

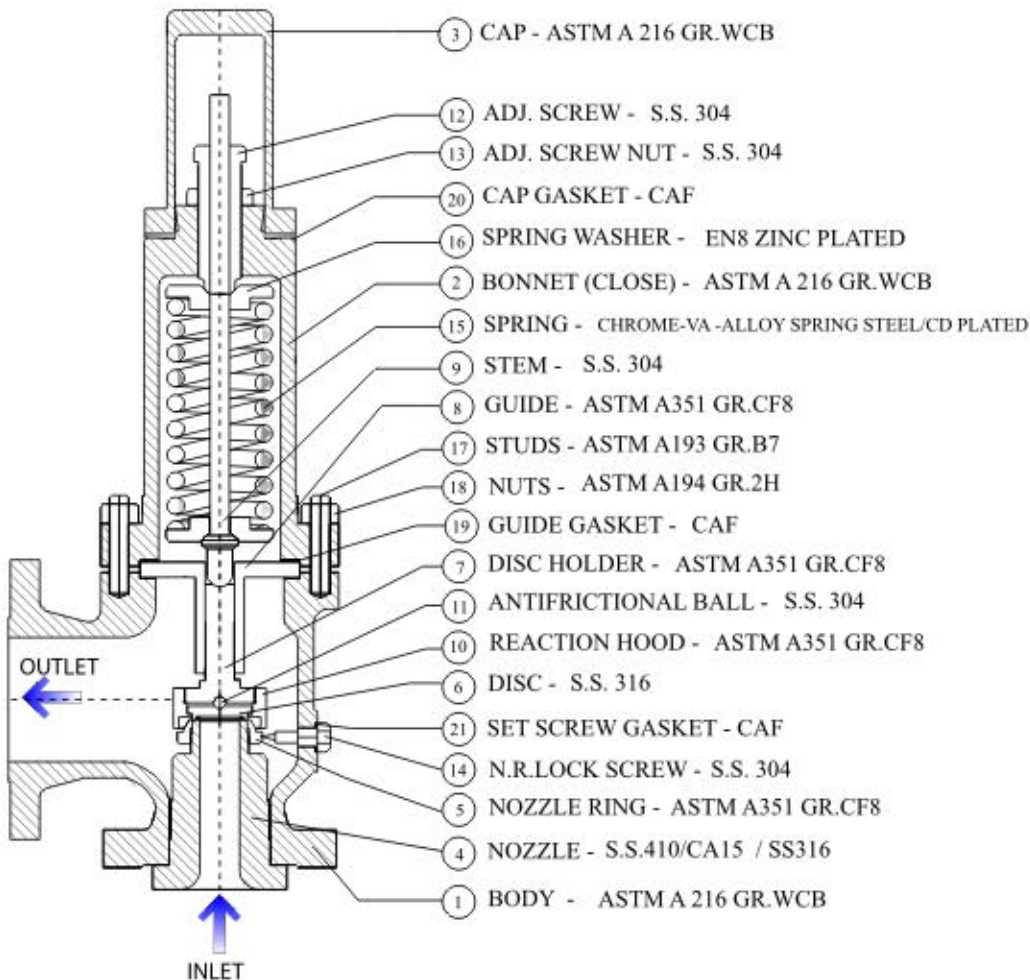
Applicable Standards :

Design: AP1-526 & API-520 PART-1, ASME SECTION-I, VIII & IBR

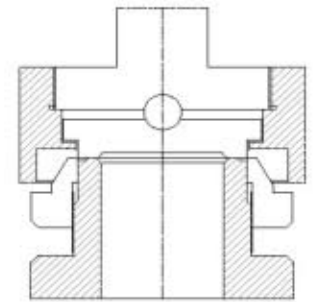
Flange Drilling: ANSI B 16.5 , BS:10 , DIN, JIS STD.

Leakage Test: API-527

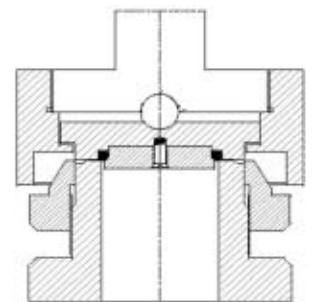
Material: ASTM STANDARD



NOZZLE AND DISC EXPOSED



Metal to Metal Seat
Standard Design



Soft Seat
Model:- SVE-520



BELLOW SEALED – SPRING LOADED PRESSURE RELIEF VALVE

Series SVB 540

Processes where there is back pressure or highly corrosive toxic vapors and liquid, balanced bellow design is used to protect the fluid to enter into bonnet area and possibility to go into atmosphere. Screwed Bellows and top flange fits into standard SVE520 Valves. Standard material used for bellow is SS316L as however, special material such as Inconel 625, can be used if required. Standard internal design is maintained. Antifriction Ball, gives floating mechanism to disc, which is held securely into disc holder and reaction hood.

Rest of the design is standard as SVE520

- Chrome Vanadium Spring
- Close bonnet with standard closed cap or packed lever is offered.
- Nozzle ring for blow down percentage adjustment.

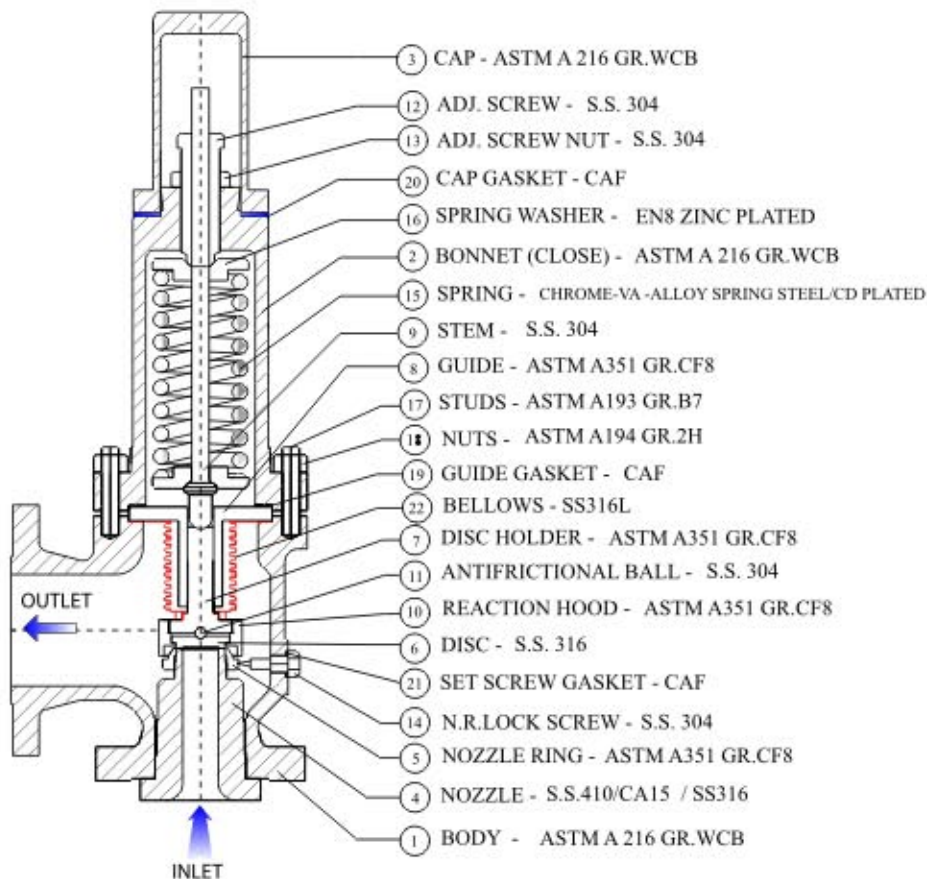
Applicable Standards :

Design: API-526 & API-520 PART-1, ASME SECTION-I, VIII & IBR

Flange Drilling : ANSI B 16.5, BS:10, DIN, JIS STD.

Leakage Test; API-527

Material: ASTM STANDARD





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OPEN BONNET PRESSURE RELIEF VALVE FOR STEAM SERVICE.

Series SVC 500

Series SVC500 Relief Valves are intended for ASME section VIII steam service application and are furnished with a regular lifting lever and open cap as standard.

The spring in SVC500-open bonnet design is exposed to atmosphere for cooling. Optional accessories include a test-gag and governor ring as required by IBR (Indian Boiler Regulation) in some cases.

Special Inconel 725 disc is used for set pressure above 30 kg/cm². Standard disc is SS316 and Nozzle of SS410 considering the steam upto temp. of 42^oc.

Body/Bonnet are ASTM A216 Gr.WCB as standard upto temp. 420^oc. For steam temp. 420^oc. to 480^oc. WC6 Body, Bonnet are used and from 480^oc to 538^oc.-WC9 Body and Bonnet are used.



Technical Specification :

Valve size	:	1"xGx2" to 10"xVx14"
Orifice size	:	20.0mm to 192mm (Min.orifice is 19.0mm as per IBR)
Orifice area	:	0.44in ² to 44.85in ² (2.85cm ² to 289.38cm ²)
Inlet rating	:	ANSI class 150,300,600 & 900
Temp. range	:	upto +538 ^o c
Pressure range	:	Refer charts



Series SVC 500

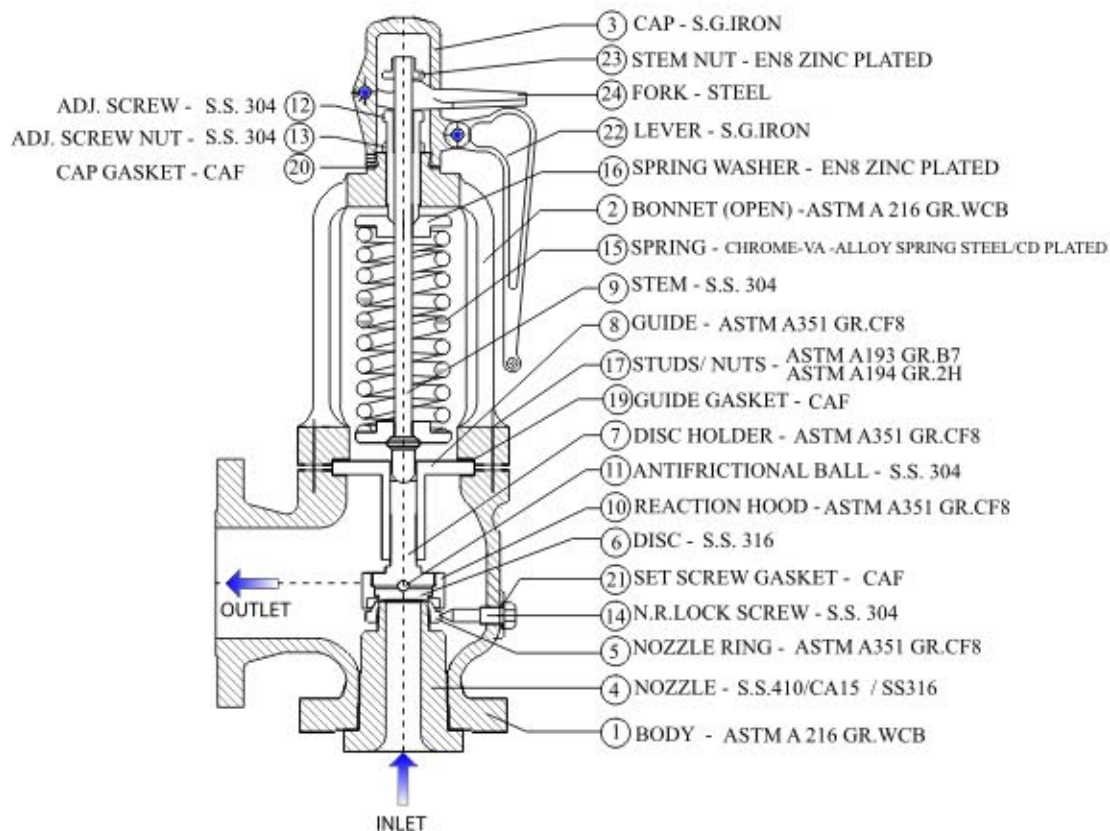
Applicable Standards :

Design: API-526 & API-520 PART-1, ASMR SECTION-I, VIII & IBR

Flange Drilling: ANSI B 16.5, BS:10, DIN,JIS STD.

Leakage Test: API-527

Material: ASTM STANDARD



- SVC500 is IBR approved with discharge capacity co-efficient certified as "0.45"
- Considering the service condition all nozzle are of CA15/SS410 and disc of SS316. All springs are Chrome Vanadium alloy spring steel for longer life.
- For high pressure application Inconel 625 disc is used with SS347H, nozzle.
- These valves can also be supplied as per ASME section-I with design modification to meet 3% blow down.
- Many boiler manufacturers across the country has been using our SVC500 over the period of last 20 years without any difficulties.
- Test gag and government ring can be provided as optional accessories.



Series NCE 520

LEVEL – 1

For application where compliance with NACE MR0175 is required for wetted parts in the primary (upstream) pressure zone of the pressure relief valve. Materials of construction for level 1 are standard and are as standard valve material only.

LEVEL – 2

For application where compliance with NACE MR0175 is required for wetted parts in the primary (upstream) and secondary (downstream) pressure zones of the pressure relief valve. We offer series NCE 520-Design and material of construction as shown below.

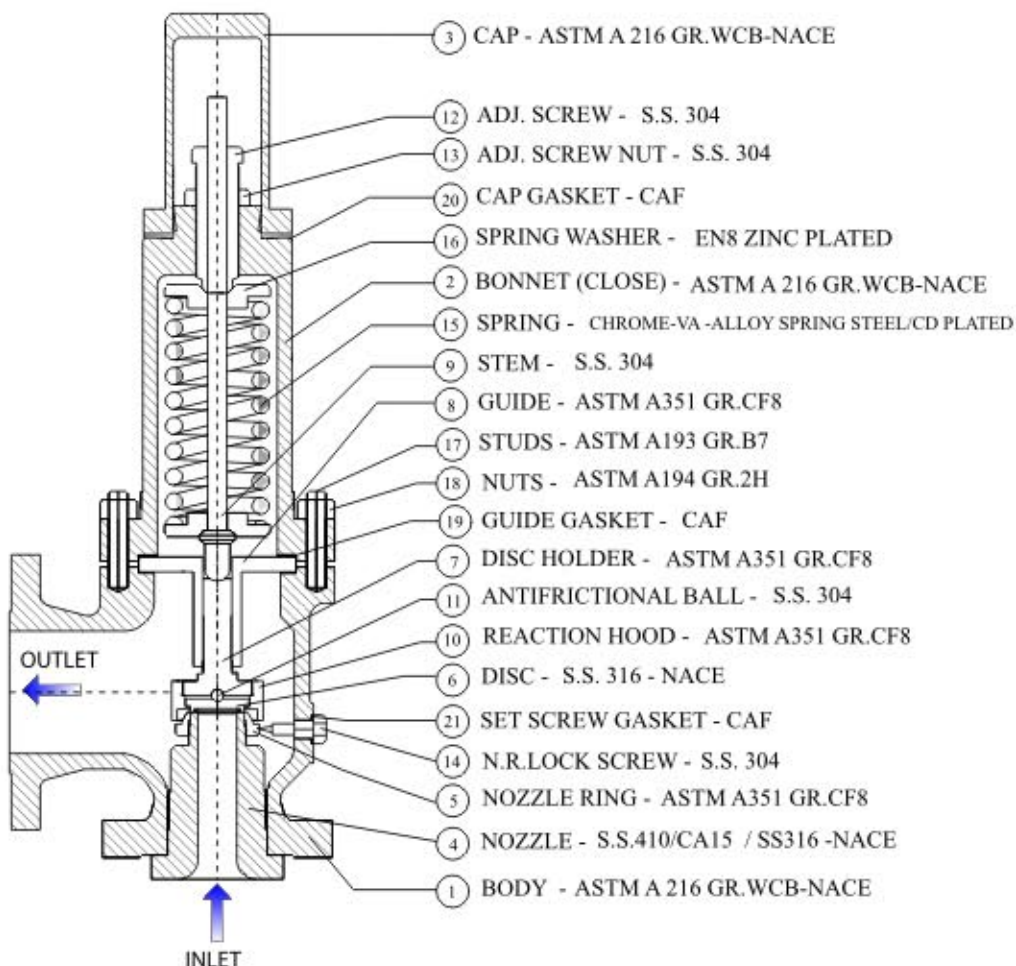
Applicable Standards :

Design: API-526 & API-520 PART-1, ASME SECTION-I, VIII.

Flange Drilling: ANSI B16.5 , BS:10, DIN, JIS STD, & NACE MR0175.

Leakage Test: API-527

Material: ASTM STANDARD





Series NCB 540

Balanced bellows Pressure Relief Valve for SOUR GAS SERVICE as per NACE MR0175 (2002 edition)

LEVEL – 1

For application where compliance with NACE MR0175 is required for wetted parts in the primary (upstream) pressure zone of the pressure relief valve. Materials of construction for level 1 are standard and can be found on page 4.

LEVEL – 2

For application where compliance with NACE MR0175 is required for wetted parts in the primary (upstream) and secondary (downstream) pressure zones of the pressure relief valve. We offer series NCB-540 – Design and material of construction as per drawing shown below.

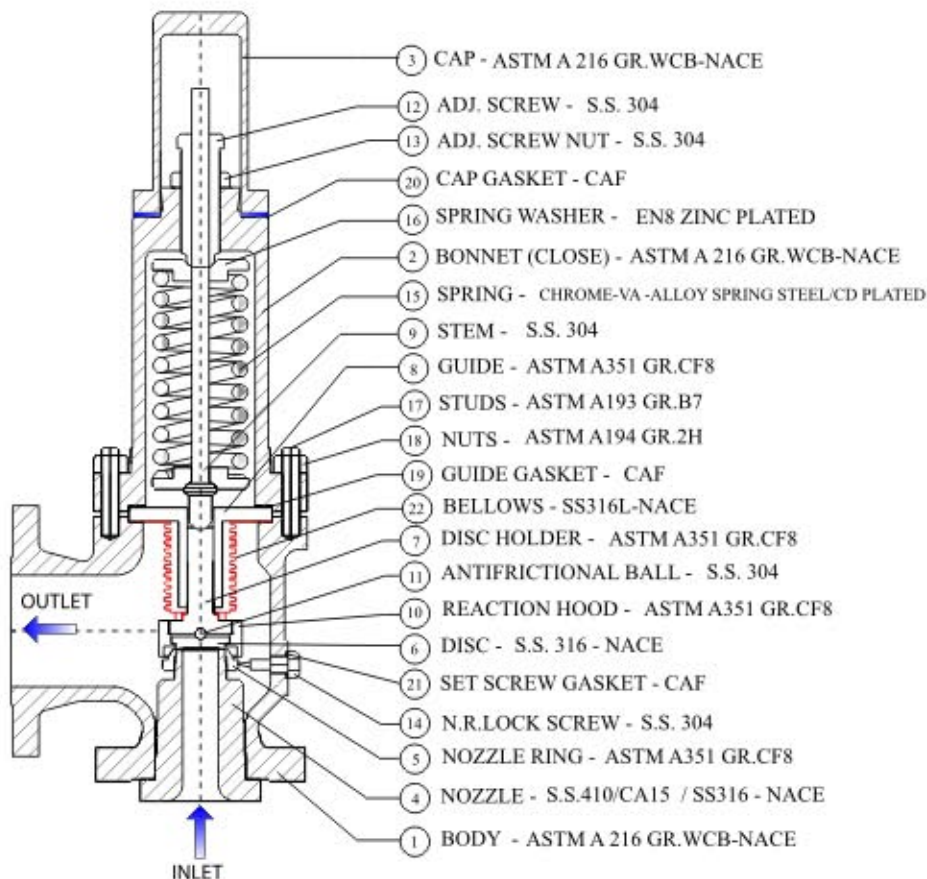
Applicable Standards :

Design : API-526 & API-520 PART-1, ASME SECTION-I, VIII & NACE MR 0175 (2002 EDITION)

Flange Drilling : ANSI B16.5 , BS:10 , DIN, JIS STD.

Leakage Test: API-527

Material: ASTM STANDARD





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THERMAL RELIEF VALVE-SMALL ORIFICE PRESSURE RELIEF VALVE, FLANGED END. Series T100

Series T – Pressure Relief Valve are specially designed for pharmaceutical, food, paint, nuclear services, small reactors, vessels and pipe line applications, where discharge capacity required is not large, but protection of equipment, vessels and pipe line is of utmost importance.



Technical Specification :

Valve size	:	3/4"x1", 1"x1" and 1"x1 1/2"
Orifice size	:	7.0mm, 10.0mm & 12.0mm
Orifice area	:	0.38cm ² , 0.78cm ² & 1.13 cm ²
Inlet rating	:	150class, 300class & 600class
Temp. range	:	-40°c to +538°c
Pressure range	:	1.5bar to 100bar



Series T100

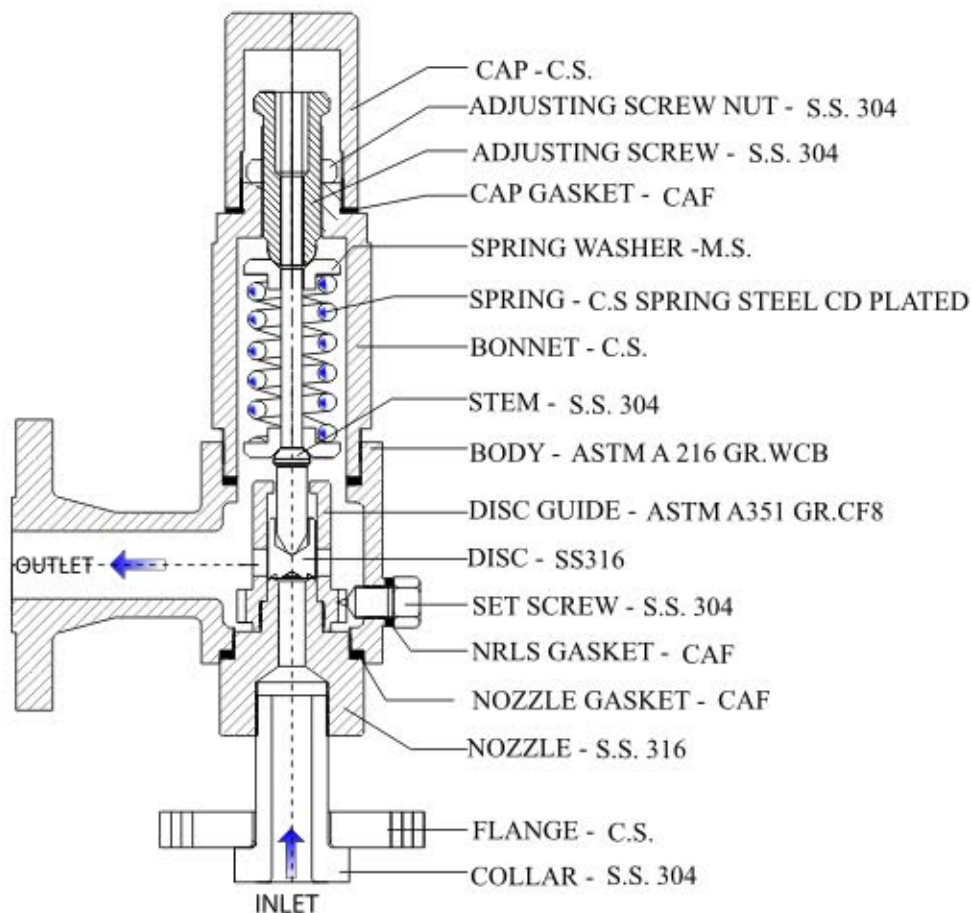
Applicable Standards :

Design : API-526 & API-520 PART-I

Leakage Test : API-527

Flange Drilling : ANSI B16.5 , BS:10 , DIN , JIS STD

Material : ASTM STANDARD



- Standard material is carbon steel body and stainless steel internal. For specific services, complete stainless steel body/bonnet and internal are offered
- These are available in ANSI class 150,300 and 600 rating with variety of set pressure, minimum set pressure possible is 1.5bar and maximum 60bar
- Considering the design criteria, these valves has high percentage of blow down as high as 20%. Minimum blow down possible is 15%. Hence this need to be taken care of during designing the system



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THERMAL RELIEF VALVE - SMALL ORIFICE PRESSURE RELIEF VALVE – SCREWED END. Series T110

Screwed end T110 are used in Pharmaceutical Industries, Food and Beverages, Nuclear Chemical Reactors, Vessels and Pipe line application.

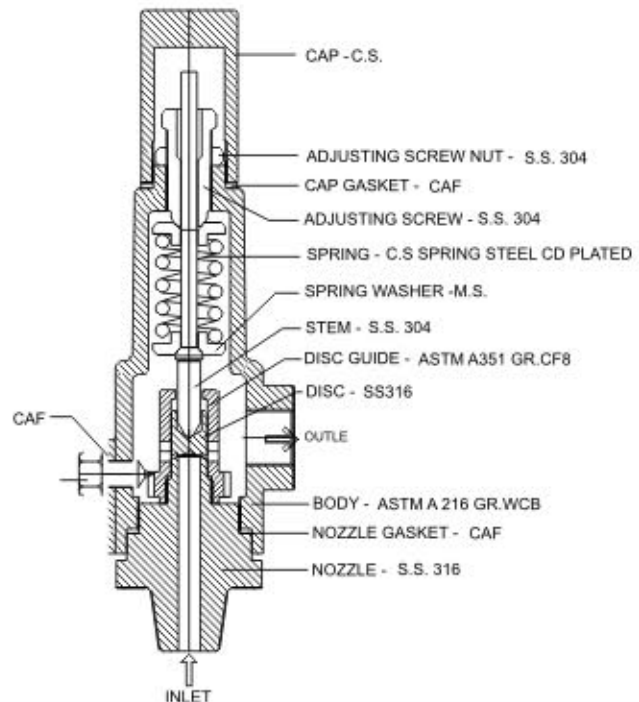
Specific application is also found on high pressure triplex plunger pump-where this is used to protect the over pressure occurrence on such type of pumps and pipelines. This is also widely used on air eliminator in loading terminals of petroleum products.

Applicable Standards :

Design: API-526 & API-520 PART-I

Leakage Test; API-527

Material: ASTM STANDARD



Technical Specification :

Sizes available are

Inlet- 1/2" – 3/4" – 1" – NPT(M)/BSPT (M)

Outlet – 3/4" & 1" – NPT(F)/ BSPT (F)

Orifice – 7.0 mm (C) & 10.0 mm (D)

Pressure range – 1.5bar to 250bar



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PRESSURE RELIEF VALVE - ONE PC. BODY DESIGN, FLANGED END DESIGN.

Series T120

Specially designed for medium size reaction vessels, pharma reactors, chemical and dyes intermediates, digester alcohol and beverages Industries. Flanged end Pressure Relief Valves is of investment cast body.



- Available in orifice size 12mm('E') 16mm('F')
- Flanged end connection to ANSI 150 class & 300 class
- Sizes available – 25x40 & 40x50
- Unique design of single piece body made of investment casting process with highly precisely machined nozzle and disc.
- Guide ring/nozzle ring for better blow down controls.
- Soft seating available for liquid service, Viton O Rings are standard and are optionally offered.
- PTFE flat disc type seat.
- This design is not covered into API526/527 or ASME section VIII. The blow down percentage varies from 12% to 20%.
- Bellow sealed design also available in this type.



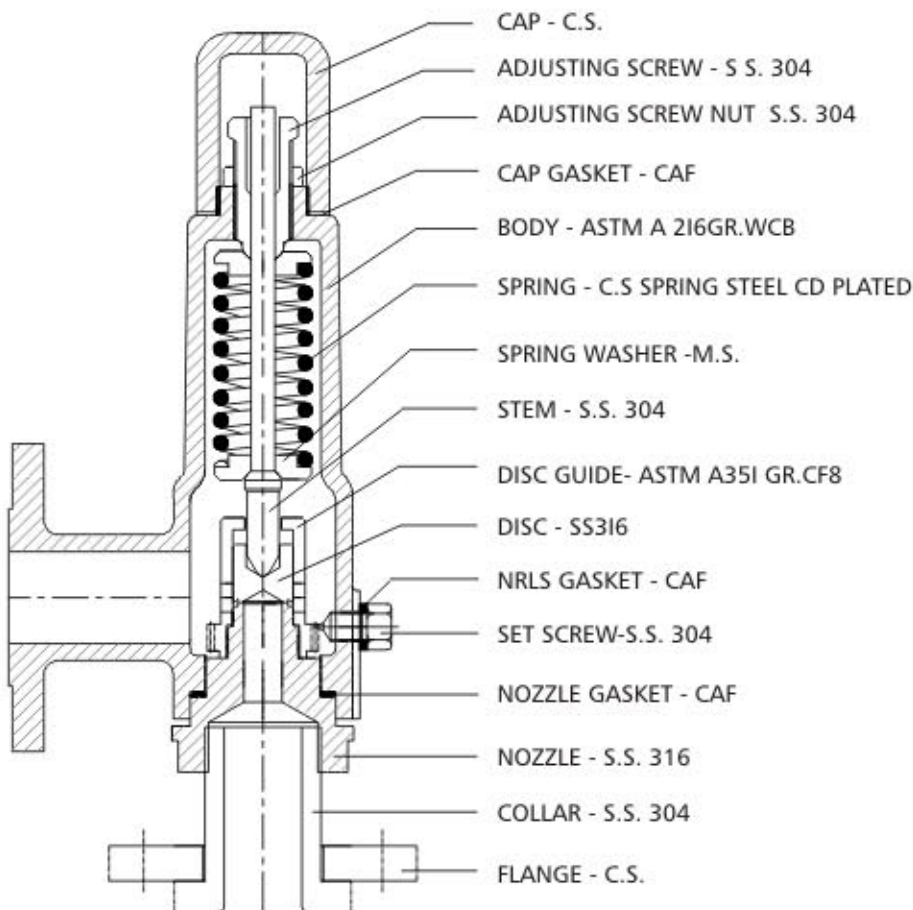
Series T120

Applicable Standards :

Design : API-526 & API-520 PART-I

Leakage Test; API-527

Material: ASTM STANDARD



Technical Specification

Valve size	25x40, 40x50
Orifice size	12.0mm, 16.0mm
Orifice area	1.131cm ² , 2.011 cm ²
Inlet rating	ANSI class 150, 300, 600
Temp. range	-40 ^o c to +300 ^o c
Pressure range	1.5bar to 100bar



PRESSURE RELIEF VALVE FOR STEAM SERVICE – IBR CERTIFIED. SCREWED END DESIGN.

Series T130

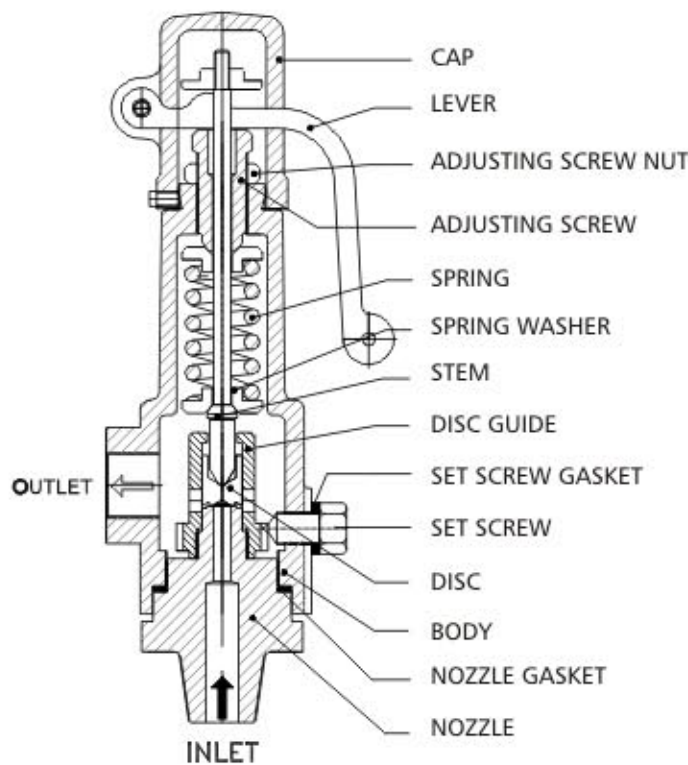
Keeping specific industry requirement in mind and with a view to requirement of small packaged boiler (SPB) – this small size pressure relief valve has been designed. It meets IBR requirement of minimum 19.0mm orifice, and still the valve is small and compact in size. The valve is provided with open cap and lever as required by IBR (Indian Boiler Regulation)

Applicable Standards :

Design: API-526 & API-520 PART-I, ASME SECTION-I, VIII & IBR

Leakage Test: API-527

Material: ASTM STANDARD



Technical Specification	
Inlet size	1" NPT (M)/BSPT(M)
Outlet size	1" NPT(F)/BSPT(F)
Orifice	19.0mm
Discharge capacity	as per IBR formula with 0.45 constant
Pressure range	1.5bar to 30bar



BELLOW SEALED – THERMAL RELIEF VALVE FLANGED END & SCREWED END.

Series TBL100/TBL110/TBL120

Looking at the specific requirement & oil and gas sector, small size thermal relief valve also offered with balanced bellow design. All bellows are carefully designed to this specific requirement SS316L material as standard for bellows. The size, rating, orifice size and all other technical parameters remains same as T100/T110/T120 respectively except the bellow seal.

Series TBL100

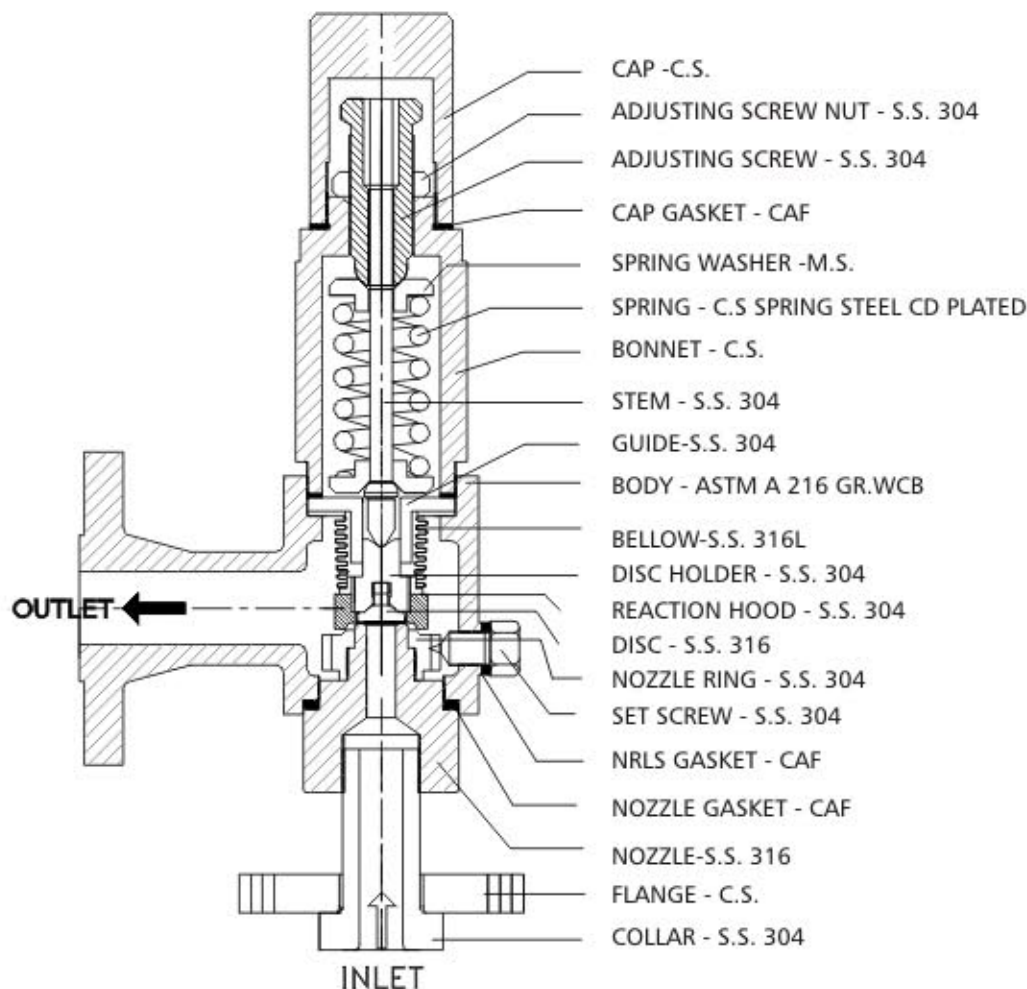
Applicable Standards :

Design: API-526 & API-520 PART-I

Leakage Test: API-527

Flange Drilling : ANSI B16.5 , BS:10 , DIN, JIS STD.

Material: ASTM STANDARD





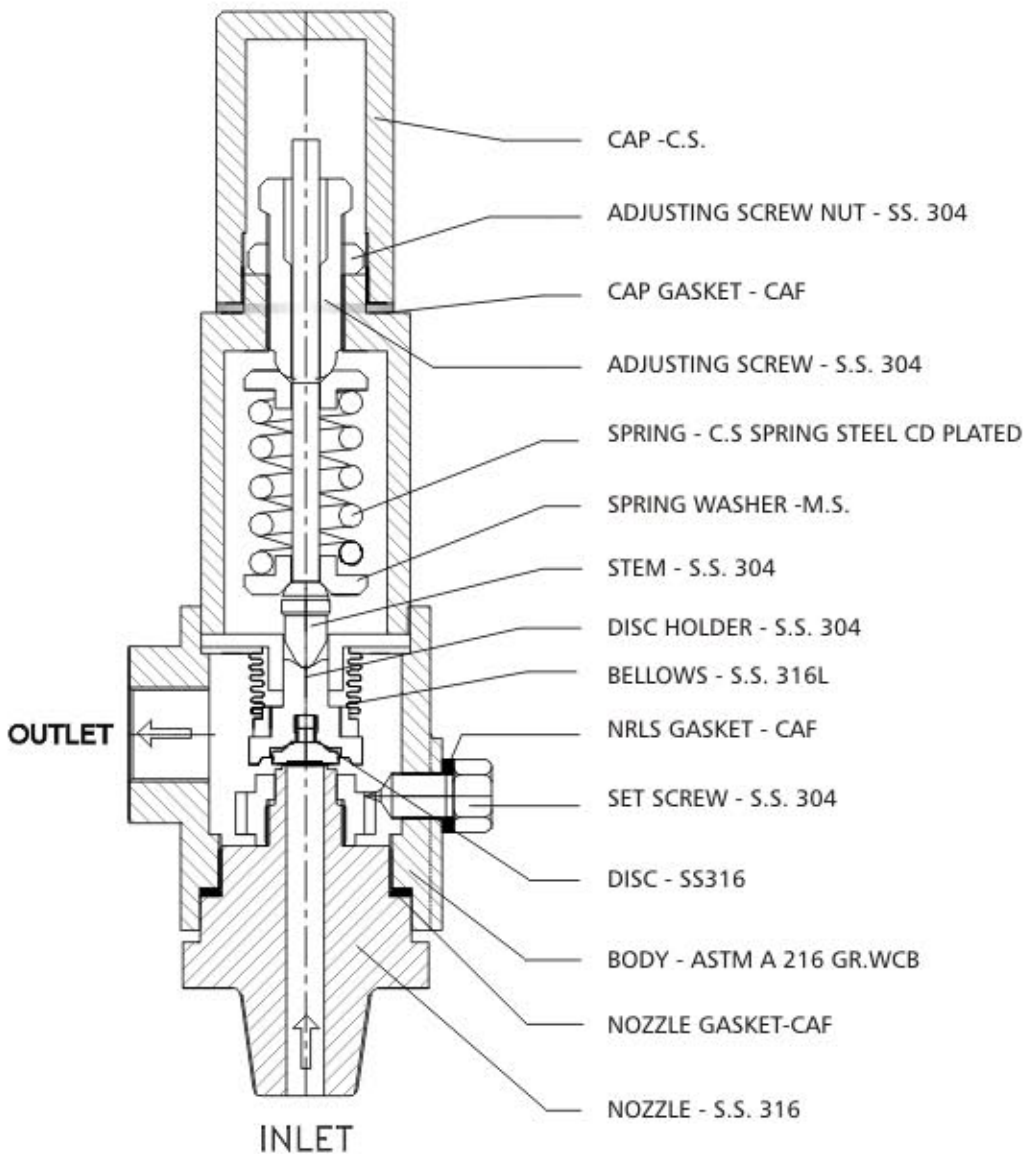
Series TBL110

Applicable Standards :

Design : API-526 & API-520 PART-I

Leakage Test: API-527

Material: ASTM STANDARD





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Series TBL120

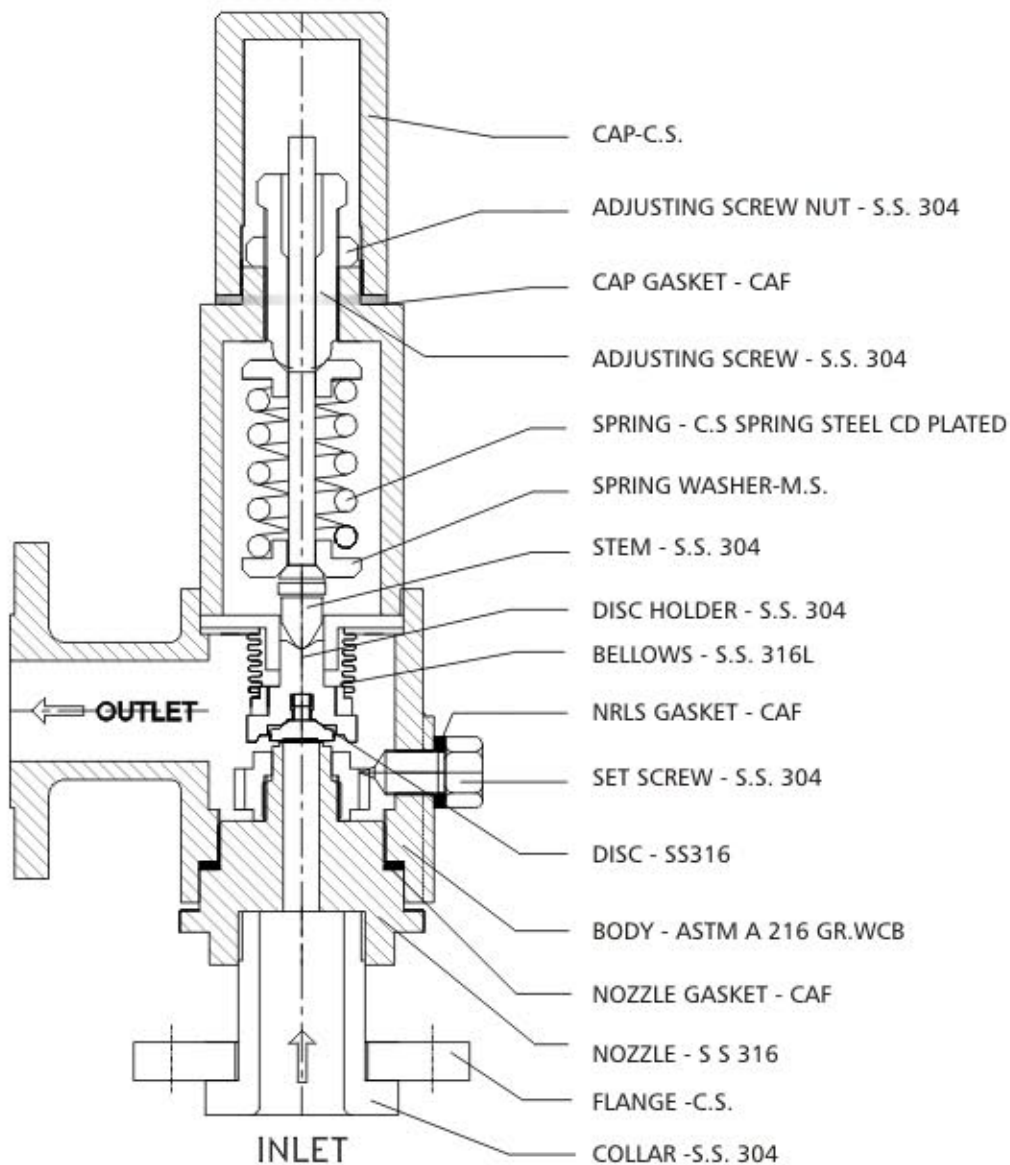
Applicable Standards :

Design: API-526 & API-520 PART-I

Leakage Test: API-527

Flange DriHtng: ANSIB16J, BS:10, DIN, JIS STD.

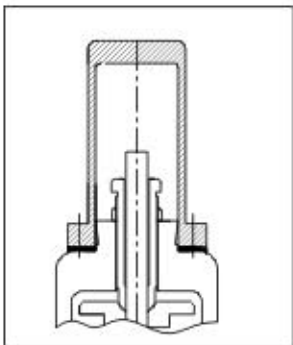
Material: ASTM STANDARD



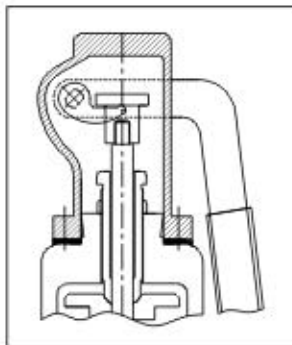


CAP ARRANGEMENT

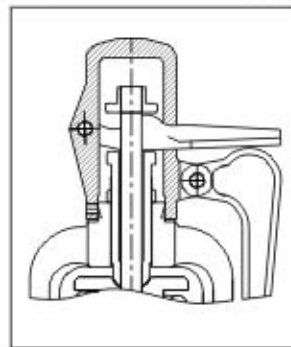
Various type of cap arrangement as possible depending on the Valve type and process requirement



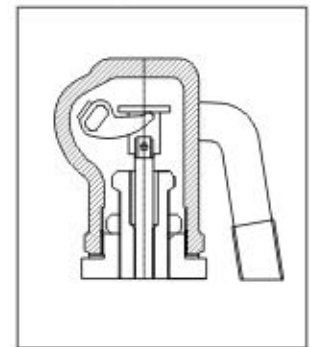
BOLTED CLOSE CAP WITH SVE - 520 SERIES SIZE 4"X6" AND ABOVE



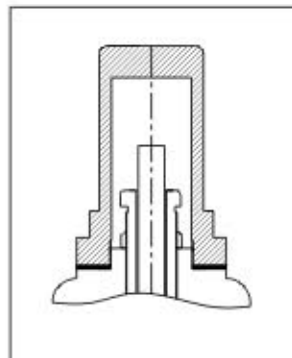
PACKED LIFTING LEVER WITH BOLTED CAP USED IN SVE- 520/SVB-540 SERIES OF VALVE



OPEN CAP WITH PLAIN LEVER FOR STEAR SERVICE SAFETY RELIEF VALVE STANDARD VALVE SVC-500 SERIES

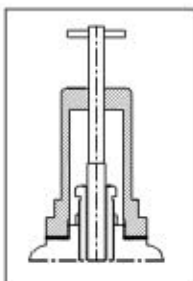


PACKED LIFTING LEVER WITH SCREWED CAP USED IN T-100/T110/T120 SERIES OF VALVE



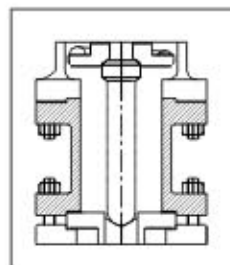
THREADED CLOSE CAP STANDARD VALVE SVE - 520 SERIES

ACCESSORIES



TEST GAG

Test gag – provided so the entire vessel can be tested without removing safety valve. Safety valve stem will not move up due to increase in pressure.



COOLING SPOOL

Cooling spool : It keeps spring at a safe distance, which protects from high service temp. Mostly used in high temp/high pressure application.



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GENERAL DESIGN INFORMATION

SET PRESSURE LIMIT :

Safety relief valve having a set pressure above 15 psig (1.034 Barg) are covered by the requirement of ASME code section VIII Div.1 and API recommended 10% over pressure practise.

Capacity rated is at 10% overpressure

Adjustable blow down to 5% of set pressure in orifice above 32.5mm and between 5% & 10% in orifice upto 32.0mm.

SEAT TIGHTNESS TEST :

Seat tightness test is performed at 90% of the set pressure above 50 psig (3.45 Barg) and 5 psig (0.35 Barg) below the set pressure for pressure below 50 psig. For metal to metal seated pressure relief valve leakage of upto 40 bubbles/min (max) is allowed when tested as per API-527 standard procedures.

For soft seated valve, the seat shall have bubble tight shut off-for set pressure upto 3 Bar at 90% of set pressure. For set pressure from 3 Bar and above bubble tight shut off is required at 94% of set pressure.

SET PRESSURE TOLERANCE :

Set pressure tolerance is 2psig for set pressure upto 70 psig and 3% for set pressure above 70 psig. It is recommended that the set pressure of Safety Relief Valve shall be min 10% above the max. allowable working pressure.

SET PRESSURE TEMPERATURE CORRECTION :

High service temp. lowers opening pressure of Safety Relief Valve. As such the cold spring setting has to be increased as below :

Service temp. upto – high 65^oc - NIL

Service temp. from 66^oc to 200^oc - 2%

Service temp. upto 201^oc to 300^oc - 3%

Service temp. from 301^oc to 428^oc - 4%

SET PRESSURE CHANGES/MODIFICATION :

Most of our spring are designed in such a way that for set pressure upto 250 psig (17.5 kg/cm²) the set pressure can be modified by 10% on the original set pressure with the same spring. For set pressure above 250 psig-this range would be 5%. However, consult factory in case of doubt.



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PRODUCT CODE/MODEL DE-CODIFICATION - SAFETY RELIEF VALVE

SVC500	-	G	1	1	3	O
(I) Model No.		(II) Orifice	(III) Body/ Bonnet Mat'l.	(IV) Trim Mat'l	(V) Rating	(VI) Cap & Lever
SVC500		C - 7.0 mm	1 - WCB	1 - std. Trim for steam	1 - 150x150#	O - Open Cap + Plain Lever C - Closed Cap + No Lever P - Closed Cap + Packed Lever
SVE520		D - 9.5 mm	2- WC6		3 - 300x150#	
SVB540		E - 12.5 mm	3- WC9		6 - 600x150#	
T100		F - 16.0 mm	4- WC9	2 - Std. Trim for Gen. Purpose	9 - 900x300#	
T110		G - 20.0 mm	6 - CF8M		5 - 1500x300#	
T120		H - 25.4 mm	7 - Special		2 - 2500x300#	
T130		J - 32.5 mm		3 - Special Trim	H - T-HxT-E	
TBL100		K - 42.5 mm			N - NPT	
TBL110		L - 50.0 mm			B - BSPT	
TBL120		M - 56.0 mm				
		N - 60.0 mm				
		P - 76.0 mm				
		Q - 95.5 mm				
		R - 115.0 mm				
		T - 146.0 mm				
		V - 192.0 mm				

SVE500 Open Bonnet-for steam service
 SVE520 General Purpose-closed bonnet
 SVB540 General purpose-bellow sealed
 T100 Thermal Relief-flanged end
 T110 Thermal Relief-screwed end.
 T120 Thermal Relief-one pc body.-flanged end
 T130 Safety Relief-one pc body-screwed end
 TBL100 Thermal Relief-flanged end-bellow sealed
 TBL110 Thermal Relief-screwed end-bellow sealed
 TBL120 Thermal Relief-one pc body-F/E bellow sealed

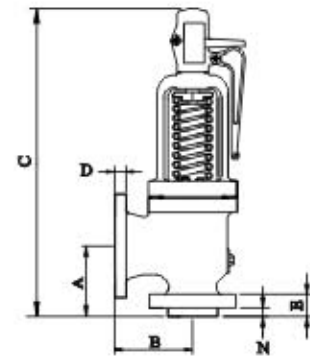
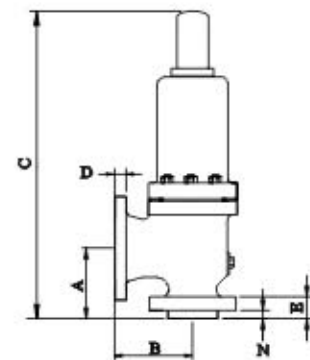
(IV) Trim Mat'l

1-Nozzle/Disc.: S.S. 410
 Other part : S.S. 304
 2- Nozzle/Disc : S.S. 316
 Other part : S.S. 304



DIMENSION DETAILS – SVC-500/SVE-520/SVB-540

RATING	ORIFICE	SIZES Dimensions	A	B	C	D	E	N	APPX. WEIGHT
150		INLET x OUTLET	mm						Kgs.
	D - E - G	25 x 50	105	114.5	450	24	33	12	18
	F	40 x 50	124	120.5	505	24	36	12	25
	G	40 x 65	124	120.5	505	24	36	12	26
	H - J	40 x 80	130	124.0	530	26	38	14	32
	H - J - K	50 x 80	133	124.0	575	26	39	14	33
	J	65 x 100	136.5	143.0	595	26	41	14	42
	K - L - M	80 x 100	155.0	162.0	620	26	43	14	64
	P - Q	100 x 150	181.0	229.0	900	27	49	14	149
	Q - R	150 x 200	240.0	241.0	1145	30	59	18	210
T	200 x 250	276.0	280.0	1225	32	62	18	340	
V	250 x 350	380.0	370.0	1565	40	75	28	340	



RATING	ORIFICE	SIZES Dimensions	A	B	C	D	E	N	APPX. WEIGHT
300		INLET x OUTLET	mm						Kgs.
	D - E - G	25 x 50	105	114.5	450	24	33	12	18
	F	40 x 50	124	120.5	505	24	36	12	25
	G	40 x 65	124	120.5	505	24	36	12	26
	H - J	40 x 80	130	124.0	530	26	38	14	32
	H - J - K	50 x 80	133	124.0	575	26	39	14	33
	J	65 x 100	136.5	143.0	595	26	41	14	42
	K - L - M	80 x 100	155.0	162.0	620	26	43	14	64
	P - Q	100 x 150	181.0	229.0	900	27	49	14	149
	Q - R	150 x 200	240.0	241.0	1145	30	59	18	210
T	200 x 250	276.0	280.0	1225	32	62	18	340	
V	250 x 350	380.0	370.0	1565	40	75	28	340	



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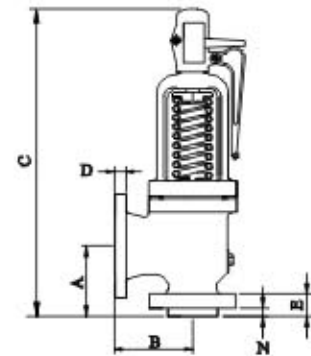
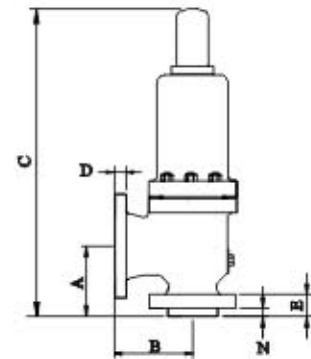


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DIMENSION DETAILS – SVC-500/SVE-520/SVB-540

RATING	ORIFICE	SIZES Dimensions	A	B	C	D	E	N	APPX. WEIGHT	
600		INLET x OUTLET	mm							Kgs.
	D - E - G	25 x 50	105	114.5	450	24	33	12	19	
	F	40 x 50	124	152.5	530	24	41	12	31	
	G	40 x 65	124	152.5	530	24	41	12	32	
	H - J	40 x 80	130	124.0	630	26	38	14	36	
	H - J - K	50 x 80	154	162.0	680	31	45	14	37	
	J	65 x 100	155.5	171.5	740	35	49	14	45	
	K - L - M	80 x 100	155.5	165.0	770	26	47	14	86	
	P - Q	100 x 150	225.0	254.0	1180	37	61	14	149	
	Q - R	150 x 200	240.0	254.0	1380	31	73	18	332	
T	200 x 250	276.0	280.0	1225	32	62	18	340		
V	250 x 350	380.0	370.0	1565	40	75	28	340		



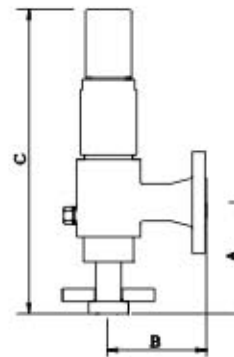
RATING	ORIFICE	SIZES Dimensions	A	B	C	D	E	N	APPX. WEIGHT	
900		INLET x OUTLET	mm							Kgs.
	D - E - G	25 x 50	105	114.5	450	24	33	12	18	
	F	40 x 50	124	139.5	580	27	47	12	22	
	G	40 x 65	124	152.5	630	27	47	12	35	
	H - J	40 x 80	130	124.0	530	26	38	14	32	
	H - J - K	50 x 80	155	181.0	730	31	55	14	53	
	J	65 x 100	136.5	143.0	595	26	41	14	42	
	K - L - M	80 x 100	184.0	181.0	970	26	65	14	96	
P - Q	100 x 150	197.0	254.0	1180	37	61	14	290		



DIMENSION DETAILS – T-100/TBL-100 FLANGED SCREWED END / T-110/TBL-110/T-120/TBL-120-FLANGED/T-130-IBR PRESSURE RELIEF VALVE

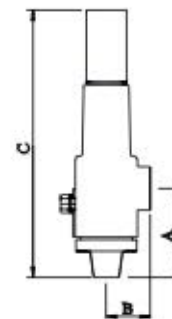
SERIES T-100/TBL-100 FLANGED END THERMAL RELIEF VALVE DIMENSIONS AND WEIGHTS

SIZES Dimensions	ORIFICE	A	B	C	APPX. WEIGHT
INLET x OUTLET		mm			Kgs.
15 x 20	C	120	105	315	5.5
20 x 25	D	120	105	315	5.5
25 x 25	D	120	105	315	6.0
25 x 40	E	120	105	315	6.0



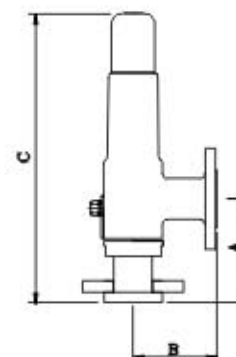
SERIES T-110/TBL-110/T-130 SCREWED END THERMAL RELIEF VALVE DIMENSIONS AND WEIGHTS

SIZES Dimensions	ORIFICE	A	B	C	APPX. WEIGHT
INLET x OUTLET		mm			Kgs.
15 x 20	C	95.0	45.0	270	4.0
20 x 25	D	95.0	45.0	270	4.0
25 x 25	D	95.0	45.0	270	4.5
25 x 40	E	95.0	70.0	330	5.0
40 x 50	F	95.0	70.0	330	7.0



SERIES T-120/TBL-120 FLANGED END THERMAL RELIEF VALVE DIMENSIONS AND WEIGHTS

SIZES Dimensions	ORIFICE	A	B	C	APPX. WEIGHT
INLET x OUTLET		mm			Kgs.
25 x 40	E	125.0	105.0	235	6.5
25 x 50	F	125.0	105.0	235	7.5
40 x 40	F	125.0	105.0	235	8.0
40 x 50	F	125.0	105.0	235	8.0





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VALVE SIZING CALCULATION Safety Relief Valve for Steam Service

Formula for Steam Application (Sizing formula According to ASME Section VIII & API RP 520)

$$S = \frac{Q1}{51 * P_2 * K_{sh}}$$

Q1=Required Flow rate (Kg/Hr)
P2 = Set pressure Bar A (with 10% over pressure)
Ksh: Superheat Correction Factor
S = Orifice Area (cm²)

Example :

Fluid: Steam Back Pressure: ATM,
Temp: 330 Deg.C, Required Capacity: 47 TPH,
Set pressure: 40 bar G , 10% over pressure

$$S = \frac{Q1}{51 * P_2 * K_{sh}}$$

P1 = 40 bar G
For 10% over pressure.
P2 = Set pressure - bar A
= 1.1 * 40 + 1.013
= 45 bar A (Over pressure 10%)

$$S = \text{Cal Area in Cm}^2 \\ = 22.74$$

Flow rate for Safety Valve
Q1 = 47000 Kg/Hr

Temp: 330 Deg.C

Ksh = Superheat Correction Factor
= 0.9

$$S = \frac{47000}{51 * 0.9 * 45}$$

$$S = 22.74 \text{ Cm}^2$$

Calculated Orifice: 53.80 mm
Selected Area M : 24.63 cm²
Orifice Area: M: 56 mm
Rated Discharge Capacity: 50.9 TPH.
Type: Conventional
Valve Selection : 4" x M x 6"
Rating: 600# x 150#.



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VALVE SIZING CALCULATION Safety Relief Valve for Steam Service

IBR Formula for Steam Application

$$S = \frac{Q1}{45 * P_2 * K_{sh}}$$

Q1=Required Flow rate (Kg/Hr)

P2 = Set pressure Bar A (without over pressure)

Ksh: Superheat Correction Factor

S = Orifice Area (cm²)

45 = Constant Allocated by IBR

Example :

Fluid: Steam

Back Pressure: ATM,

Temp: 330 Deg.C,

Required Capacity: 47 TPH,

Set pressure: 40 bar G , without over pressure

$$S = \frac{Q1}{45 * P_2 * K_{sh}}$$

$$P1 = 40 \text{ Bar G}$$

$$S = \text{Cal Area in Cm}^2 \\ = 28.29$$

$$P2 = \text{Set pressure - Bar A} \\ = 40 + 1.013 \\ = 41.013 \text{ Bar A}$$

Flow rate for Safety Valve

$$Q1 = 47000 \text{ Kg/Hr}$$

Temp: 330 Deg.C

$$K_{sh} = \text{Superheat Correction Factor} \\ = 0.9$$

$$S = \frac{47000}{45 * 41.013 * 0.9}$$

$$S = 28.29 \text{ Cm}^2$$

Calculated Orifice: 60.01 mm

Selected Area P : 41.28 cm²

Orifice : P: 72.5 mm

Rated Discharge Capacity: 68.57 TPH.

Type: Conventional

Valve Selection : 4" x P x 6"

Rating: 600# x 150#.



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VALVE SIZING CALCULATION

Safety Relief Valve For Gas Duty

Formula for Gas Application (Sizing formula According to ASME Section VIII & API RP 520)
(Without Back Pressure)

$$S = \frac{V1 * \sqrt{Ta} * Z * M}{16.5 * C * P_2 * Kb}$$

V1 = Required Capacity (NM³/Hr)
Ta = Absolute Temp (K)
Z = Compressibility Factor
S = Orifice Area (cm²)

M = Molecular Weight
C = Constant
P₂ = Absolute Pressure with 10% over pressure
Kb = Back Pressure Co-efficient

Example :

Fluid: Nitrogen
Set pressure: 3 bar G, 10% Over Pressure
Required Capacity: 2500 NM³/Hr,

Temp: 20 Deg.C,
Back Pressure: Nil

P1 = Set Pressure (Bar G) = 3 Bar G

P2 = 1.1 x 3 + 1.013 (10% Over pressure)
P2 = 4.313 bar A

Kb = Back Pressure Co-efficient = 1 (No Back pressure Exist)

k = 1.4 (Cp / Cv for Nitrogen)

M = Molecular Weight = 28.02

Ta = 273 + t = 293 K (T)

Ta = 273 + 20 = 293 K (Absolute temp in Kelvin)

C = Constant = 356 (As k = 1.4)

$$S = \frac{V1 * \sqrt{Ta} * Z * M}{16.5 * C * P_2 * Kb}$$

$$S = \frac{2500 * \sqrt{293} * 1 * 28.02}{16.5 * 356 * 4.313 * 1}$$

$$S = 8.9411 \text{ cm}^2$$

Selected Area: K = 14.18 cm²

Orifice Area: K = 42.5 mm

Capacity: Q = (14.18 x 2500) / 8.9411

Capacity: Q = 3964 NM³/Hr

Valve Selection:

t = 20 Deg.C & P = 3 Bar G

Type: Conventional

Size : 3" x K x 4"

Rating: 150# x 150#



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VALVE SIZING CALCULATION

Safety Relief Valve For Gas Duty

Formula for Gas Application (Sizing formula According to ASME Section VIII & API RP 520)
(with Variable Back Pressure)

$$S = \frac{V1 * \sqrt{Ta} * Z * M}{16.5 * C * P_2 * Kb}$$

V1 = Required Capacity (NM³/Hr)
Ta = Absolute Temp (K)
Z = Compressibility Factor
S = Orifice Area (cm²)

M = Molecular Weight
C = Constant
P₂ = Absolute Pressure with 10% over pressure
Kb = Back Pressure Co-efficient

Example :

Fluid: Nitrogen
Set pressure: 3 bar G, 10% Over Pressure
Required Capacity: 2500 NM³/Hr,
Temp: 20 Deg.C,
Back Pressure: 1-1.8 bar G (Variable)

P1 = Set Pressure (bar G) = 3 bar G

P2 = 1.1 x 3 + 1.013 (10% Over pressure)
P2 = 4.313 bar A

% Back Pressure = 1.8 / 3 x 100

% Back Pressure = 60%

Kb = Back Pressure Co-efficient = 0.93 (Selection from Chart on page 30)

k = 1.4 (Cp / Cv for Nitrogen)

M = Molecular Weight = 28.02

Ta = 273 + t = 293 K (T)

Ta = 273 + 20 = 293 K (Absolute temp in Kelvin)

C = Constant = 356 (As k = 1.4)

$$S = \frac{V1 * \sqrt{Ta} * Z * M}{16.5 * C * P_2 * Kb}$$

$$S = \frac{2500 * \sqrt{293} * 1 * 28.02}{16.5 * 356 * 4.313 * 0.93}$$

S = 9.614 Cm²

Selected Area: K = 14.18 cm²

Orifice Area: K = 42.5 mm

Capacity: Q = (14.18 x 2500) / 9.614

Capacity: Q = 3687 NM³/Hr

Valve Selection:

t = 20 Deg.C & P = 3 Bar G

Type: Conventional

Size : 3" x K x 4"

Rating: 150# x 150#



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VALVE SIZING CALCULATION

Safety Relief Valve For Liquid Service

Formula for Liquid Application (Sizing formula According to ASME Section VIII & API RP 520)

$$S = \frac{q * \sqrt{d}}{3.157 * K_p * K_w * K_v * \sqrt{(1.25 * P_1) - P_c}}$$

S = Orifice Area (cm²)

q = Required capacity (M3/Hr)

d = Specific Gravity of Liquid

P1 = Set pressure in bar G

Pc = Back Pressure (bar G)

Kw = Back pressure Co-efficient

Kp = Over pressure correction factor

Kv = Viscosity Correction Factor

Example :

Liquid with Specific Gravity: 0.8

Set pressure: 12 bar G, 10% Over Pressure

Back Pressure: 3 bar G

Required Capacity: 32 M3/Hr,

Temp: Ambient

Specific Gravity: 0.8

P1 : 12 Bar G

Pc = Back Pressure (bar G)

Pc = 3.0 bar G

Over pressure: 10%

Kp = 0.60

% Back Pressure = 3 / 12 x 100

% Back Pressure = 25%

Kw = 0.92 (Refer chart on Page: 31)

Specific Gravity : d = 0.8

Bellows : Required

Kv= 1 (Viscosity correction Factor- Refer Chart on Page: 31)

$$S = \frac{q * \sqrt{d}}{3.157 * K_p * K_w * K_v * \sqrt{(1.25 * P_1) - P_c}}$$

$$S = \frac{32 * \sqrt{0.8}}{3.157 * 0.60 * 0.92 * 1 * \sqrt{1.25 * 12 - 3}}$$

S = 4.74 cm²

Selected Area:

H = 6.154 cm²

Orifice H : 28 mm

Capacity: Q = (6.154 x 32) / 4.74

Capacity: Q = 41.54 M3/H

Valve Selection:

t = Ambient & P = 12 Bar G

Type: Bellowseal

Size : 1.5" x H x 3"

Rating: 150# x 150#



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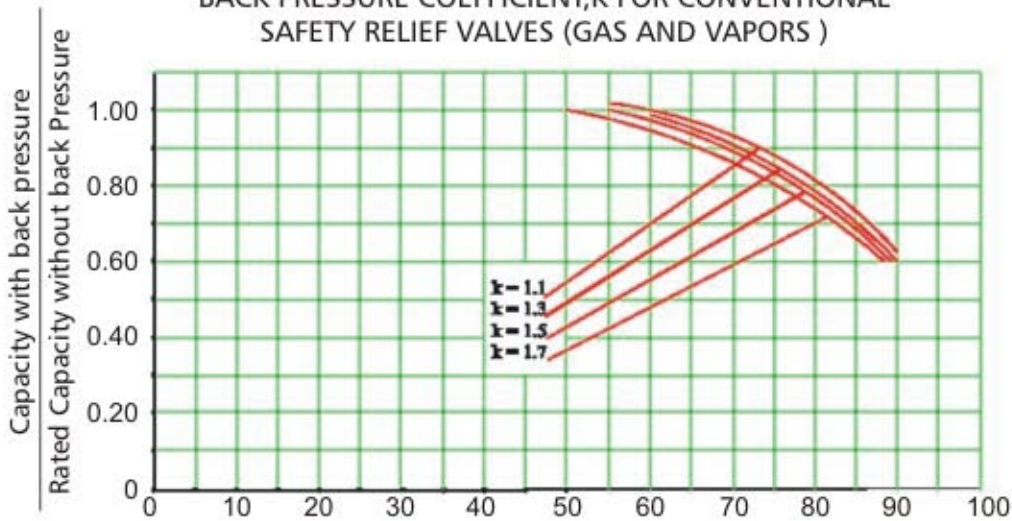


DETAILS OF SUPERHEAT CORRECTION FACTORS FOR STEAM

Set Pressure Psig	Saturation Temperature °C	Correction Factor											
		0.99	0.98	0.97	0.96	0.95	0.94	0.93	0.92	1.91	0.90	0.89	0.88
10	240	269	305	335	368	400	428	460	492	520	545	570	595
20	259	286	315	343	375	405	433	463	492	518	542	565	590
40	287	310	335	357	382	410	440	467	493	515	540	561	585
60	308	330	350	370	390	422	450	472	495	515	537	560	580
80	324	345	365	385	405	432	460	478	497	515	535	556	580
100	338	360	375	395	415	440	466	485	500	515	535	555	580
120	350	370	388	405	425	450	475	490	505	520	537	557	581
140	361	—	398	415	435	455	480	497	510	525	540	560	585
160	370	—	405	425	443	463	487	502	516	530	545	565	586
180	379	—	415	432	450	470	492	508	523	535	550	570	590
200	388	—	420	440	456	475	497	513	527	540	555	575	592
220	396	—	430	445	463	480	502	517	532	546	560	577	596
240	403	—	435	452	470	485	507	522	537	550	565	583	600
260	409	—	440	460	475	490	512	526	541	555	569	586	603
280	416	—	447	465	480	495	516	531	545	558	573	590	606
300	422	—	452	470	485	500	520	535	550	562	577	593	610
350	433	—	465	480	496	512	530	545	558	572	586	602	618
400	448	—	475	492	508	523	540	553	566	580	595	610	626
500	470	—	495	513	526	543	557	568	582	597	610	625	646
600	489	—	512	530	543	556	570	585	596	610	625	638	655
800	520	—	545	558	570	585	597	610	625	635	650	665	680
1000	546	—	567	582	595	608	620	633	645	660	675	688	705
3250	574	—	593	605	620	630	640	655	668	681	696	710	725
1500	597	—	—	630	642	653	664	676	688	702	715	728	744
1750	619	—	—	647	660	670	680	692	704	717	730	743	759
2000	637	—	—	665	675	685	696	708	719	732	745	757	773
2500	670	—	—	690	702	712	723	733	742	755	766	780	795
3000	697	—	—	713	723	733	742	751	762	773	785	795	812



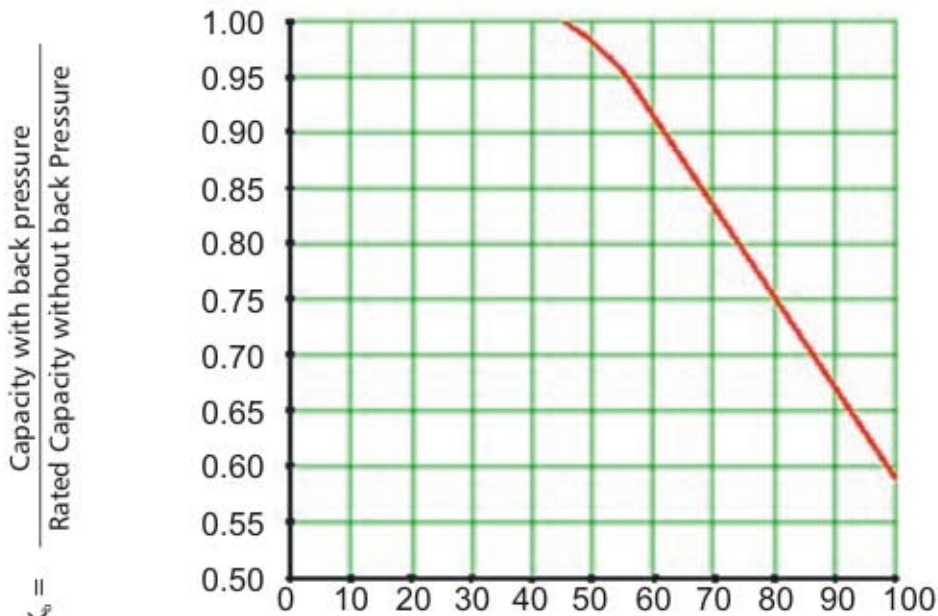
BACK PRESSURE COEFFICIENT, K FOR CONVENTIONAL SAFETY RELIEF VALVES (GAS AND VAPORS)



$$K_b = \frac{\text{Capacity with back pressure}}{\text{Rated Capacity without back Pressure}}$$

$$\% \text{ absolute back pressure} = \frac{\text{Back pressure point}}{\text{Set pressure} + \text{overpressure point}} \times 100 = r \times 100$$

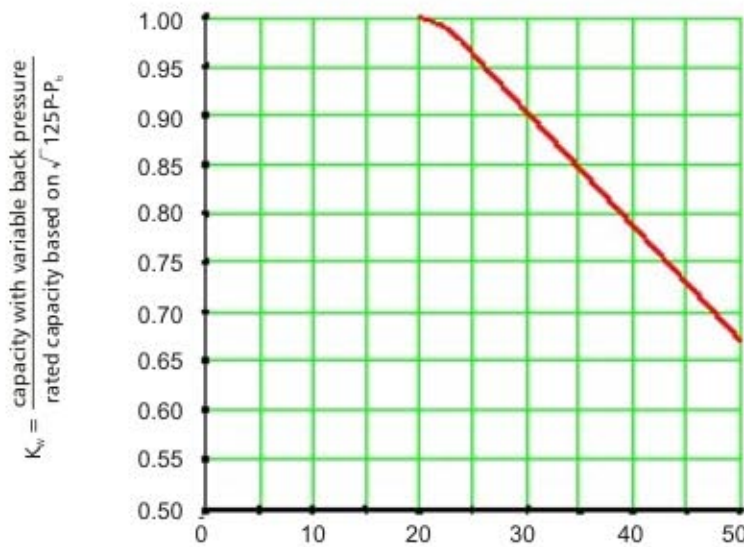
BACK PRESSURE COEFFICIENT, K FOR BALANCED Bellows Safety Relief Valves (Gas And Vapors)



$$\% \text{ gage back pressure} = \frac{\text{Back pressure gage}}{\text{Set pressure gage}} \times 100$$

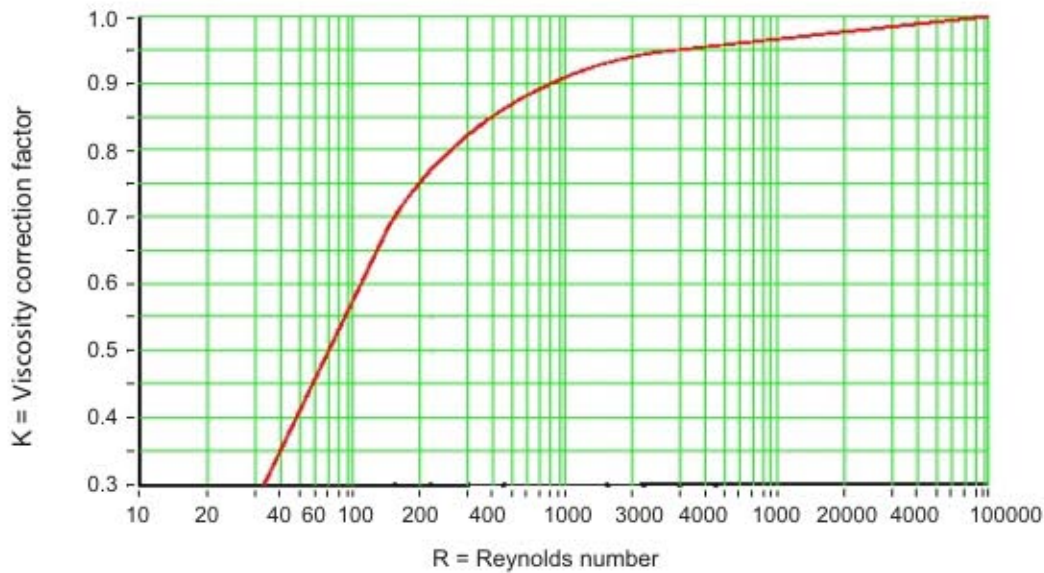


BACK PRESSURE COEFFICIENT, K FOR BALANCED BELLOWS SAFETY RELIEF VALVES(LIQUID)



$$\% \text{ gage back pressure} = \frac{\text{Back pressure gage}}{\text{Set pressure gage}} \times 100$$

VISCOSITY CORRECTION FACTOR, Kv



Note :

$$R = 2800 \frac{V, G}{P \sqrt{A}}$$

P = absolute viscosity cps

$$R = 30000 \frac{qb}{P \sqrt{s}}$$



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DISCHARGE CAPACITY OF AIR @ 10% OVER PRESSURE AND AT 30 DEGREE C TEMP. - MODEL SVE520/SVB540

VALVE SIZE	25x50	40x80	40x80 50X80	80X100	80X100	80X100	80X100	100X150	150X200	150X200 100X150	200x250	250x300
ORIFICE CODE	G	H	J	K	L	M	N	P	Q	R	T	V
ORIFICE DIA.mm	23	28	32.5	42.5	50	56	60	72.5	95.5	115	146	192
CROSS SEC. AREA cm2	4.154	6.154	8.301	14.186	19.634	24.630	28.280	41.282	71.630	103.910	167.420	289.530
SET PRE. 1.00	452.7	707.3	1158	1653	2568	3240	3906	5743	9946	14403	23405	36044
1.50	570.5	891.4	1460	2084	3236	4084	4923	7238	42535	18152	29497	45426
2.00	688.4	1075	1761	2514	3904	4927	5940	8732	15125	21901	35589	58808
3.00	924	1443	2364	3375	5241	6614	7973	11722	20303	29399	47773	73572
3.50	1041	1627	2666	3806	5910	7458	8990	13217	22892	33148	53866	82594
4.00	1159	1811	2967	4236	6578	8301	10007	14712	25481	36997	59958	92336
4.50	1277	1995	3269	4667	7247	9145	11024	16207	28070	40646	66052	101718
5.00	1395	2180	3471	5097	7915	9988	12040	17702	30659	44395	72142	111100
5.50	1513	2364	3872	5528	8583	10832	13057	19197	32248	48144	78234	120482
6.00	1631	2548	4174	5958	9252	11676	14074	20692	35837	51893	84327	129864
7.00	2916	4777	6819	10589	13363	16108	23681	41015	59391	96511	148628	222862
8.00	2102	3284	5380	7680	11926	15050	18141	26671	46194	66889	108695	167393
9.00	2338	3653	5983	8541	13262	16737	20175	29661	51372	74387	120880	186157
9.50	2456	3837	6285	8972	13931	17580	21192	31156	53961	78136	126972	195539
10.00	2574	4021	6586	9402	14599	18424	22209	32651	56550	81885	133064	204291
11.00	2809	4389	7189	10263	15936	20111	24242	35641	61728	89384	145249	224685
12.00	3045	4757	7792	11124	17273	21978	26276	38630	66906	96882	157433	232449
13.00	3281	5125	8395	11985	18610	23485	28310	41620	82085	104380	169617	261213
14.00	3516	5494	8999	12846	19947	25172	30343	44610	77263	11878	181822	279977
15.00	3757	5862	9602	13707	21284	28859	32377	47600	82441	119376	298741	447950
16.00	3988	6230	10205	14568	22621	34411	50589	87619	126874	206171	317505	476085
18.00	4459	6967	11411	16290	25294	31920	56569	97976	141870	230539	356034	532358
20.00	4930	7703	12617	18012	27968	32295	42545	62549	108332	146866	253908	392562
22.00	5402	8439	13823	19734	30642	38669	46612	68528	118688	171873	-	-
24.00	5873	9176	15030	21456	33315	42043	50680	74508	129045	186859	-	-
26.00	6435	9912	16236	23178	35989	45417	32490	47427	82293	119379	-	-
28.00	6816	10649	17442	24900	38663	48791	58814	84467	149757	216851	-	-
32.00	7759	12122	19855	28344	44010	55539	66949	98426	170470	246844	-	-
34.00	8230	12858	21081	30065	46684	58814	71016	104406	180827	261840	-	-
36.00	8702	1359	22267	31787	49358	62288	75080	110385	191183	276836	-	-
38.00	9173	14331	23473	35509	52032	65662	79151	116365	201539	291832	-	-
40.00	9644	15067	24680	32531	54705	69036	83218	122344	211896	306828	-	-
42.00	10116	15804	25886	36953	57379	72410	87285	128324	22252	321824	-	-
44.00	10587	16540	27092	38675	60053	75784	91352	134304	232608	336821	-	-
46.00	11059	17277	28298	40397	62727	79158	59420	140283	242965	351817	-	-
48.00	11530	18013	29505	42119	65400	82533	99487	146263	253321	366813	-	-
50.00	12001	18750	30711	43841	68074	85907	103554	152242	26378	381809	-	-
52.00	12473	19486	31917	45563	70748	89281	107622	158222	274034	-	-	-
54.00	12944	20222	33123	47285	73422	92655	111689	164202	284390	-	-	-
56.00	13416	20959	34329	49007	76095	96029	115756	170181	294747	-	-	-
58.00	13887	21695	35536	50279	78769	99403	119823	176161	305103	-	-	-
60.00	14538	22432	36472	52451	81443	102777	123891	182140	315459	-	-	-



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DISCHARGE CAPACITY OF MODEL SVC-500 SAFETY RELIEF VALVE SATURATED STEAM - WITHOUT OVER PRESSURE

VALVE SIZE	25x50	40x80	40x80 50X80	50X80	80X100	80X100	80X100	80X100	100X150	100X150	150X200 100X150	150X200	200x250	250x300
ORIFICE CODE	G	H	J	K	K	L	M	N	P	P1	Q	R	T	V
ORIFICE DIA.mm	23	28	32.5	38	42.5	50	56	60	72.5	76	95.5	115	146	192
CROSS SEC. AREA cm2	4.154	6.154	8.301	11.341	14.186	19.634	24.630	28.280	41.282	45.365	71.630	103.910	167.420	289.530
SET PRE. 1.00	372	552	744	1017	1272	1761	2209	2537	3703	4069	6426	9322	15020	25975
1.50	464	687	927	1267	1585	2194	2753	3161	4614	5071	8006	11615	18714	32364
2.00	556	823	1111	1517	1898	2627	3296	3785	5525	6072	9587	13908	22408	38753
3.00	739	1095	1477	2018	2524	3494	4383	5033	7347	8074	12748	18493	29797	51530
3.50	830	1231	1660	2268	2837	3927	4927	5657	8258	9075	14329	20786	33491	57919
3.60	849	1258	1697	2318	2900	4014	5035	5782	8440	9275	14645	21245	34230	59196
4.00	922	1366	1843	2518	3150	4360	5470	6281	9169	10076	15909	23079	37185	64307
4.50	1014	1502	2026	2769	3463	4794	6014	6905	10080	11077	17490	25372	40880	70696
5.00	1105	1638	2210	3019	3776	5227	6557	7529	10991	12078	19070	27665	44574	77085
5.60	1215	1801	2429	3319	4152	5747	7209	8278	12084	13279	20967	30416	49007	84751
5.70	1234	1828	2466	3369	4215	5833	7318	8402	12266	13479	21283	30875	49746	86029
6.00	1289	1910	2576	3519	4402	6093	7644	8777	12812	14080	22232	32250	51962	89862
7.00	1472	2181	2942	4020	5029	6960	8731	10025	14634	16082	25393	36836	59351	102639
8.00	1655	2453	3309	4520	5655	7826	9818	11273	16456	18084	28554	41422	66739	115417
9.00	1839	2724	3675	5021	6281	8693	10905	12521	18278	20086	31715	46008	74128	128194
9.20	1875	2779	3748	5121	6406	8886	11122	12771	18642	20486	32347	46925	75606	130750
10.00	2022	2996	4041	5521	6907	9559	11992	13769	20100	22088	34876	50593	81516	140972
10.25	2068	3064	4133	5647	7063	9776	12264	14081	20555	22588	35666	51740	83363	144166
10.54	2121	3143	4239	5792	7245	10027	12579	14443	21083	23169	36583	53070	85506	147871
11.00	2205	3267	4408	6022	7533	10426	13079	15017	21922	24090	38037	55179	88905	153749
11.25	2251	3335	4499	6147	7689	10642	13351	15329	22377	24590	38828	56325	90752	156943
12.00	2389	3539	4774	6522	8159	11292	14166	16265	23743	26092	41198	59765	96293	166526
12.50	2480	3675	4957	6773	8472	11725	14709	16889	24654	27093	42779	62058	99988	172915
13.00	2572	3811	5140	7023	8785	12159	15253	17513	25565	28094	44360	64350	103682	179304
14.00	2755	4082	5507	7523	9411	13025	16340	18761	27387	30096	47521	68936	111070	192081
14.06	2766	4099	5529	7553	9448	13077	16405	18836	27496	30216	47710	69211	111514	192848
14.50	2847	4218	5690	7774	9724	13458	16883	19385	28298	31097	49101	71229	114765	198470
15.00	2939	4354	5873	8024	10037	13892	17427	20009	29209	32098	50682	73522	118459	204859
15.25	2985	4422	5965	8149	10193	14108	17698	20321	29664	32598	51472	74668	120306	208053
16.00	3122	4625	6239	8524	10663	14758	18514	21257	31031	34100	53843	78108	125847	217636
17.00	3305	4897	6606	9025	11289	15625	19601	22505	32853	36102	57004	82693	133236	230413
17.58	3412	5054	6818	9315	11652	16127	20231	23229	33909	37263	58838	85353	137521	237824
18.00	3489	5169	6972	9525	11915	16491	20688	23753	34674	38104	60165	87279	140624	243191
18.25	3534	5236	7064	9651	12072	16708	20959	24065	35130	38604	60956	88425	142471	246385
18.50	3580	5304	7155	9776	12228	16924	21231	24377	35585	39105	61746	89572	144319	249579
19.00	3672	5440	7338	10026	12541	17358	21774	25001	36496	40106	63326	91865	148013	255968
20.00	3855	5712	7705	10526	13167	18224	22861	26249	38318	42108	66488	96450	155401	268746
20.75	3993	5915	7979	10902	13637	18874	23677	27185	39684	43609	68858	99890	160943	278329
21.00	4039	5983	8071	11027	13793	19091	23948	27497	40140	44110	69649	101036	162790	281523
21.09	4055	6008	8104	11072	13850	19169	24046	27610	40304	44290	69933	101449	163455	282673
22.00	4222	6255	8437	11527	14419	19957	25035	28745	41962	46112	72810	105622	170178	294300
23.00	4405	6526	8804	12028	15045	20824	26122	29994	43784	48114	75971	110207	177567	307078
24.00	4589	6798	9170	12528	15671	21690	27209	31242	45605	50116	79132	114793	184955	319855
24.60	4699	6961	9390	12829	16047	22210	27861	31990	46699	51317	81029	117545	189388	327522
25.00	4772	7070	9536	13029	16297	22556	28296	32490	47427	52118	82293	119379	192344	332633
30.00	5689	8428	11368	15531	19428	26889	33731	38730	56536	62128	98099	142307	229286	396520
32.00	6055	8971	12101	16532	20680	28622	35905	41226	60180	66132	104421	151479	244063	422074
35.00	6605	9786	13200	18034	22558	31221	39166	44970	65646	72138	113905	165236	266229	460406
40.00	7522	11143	15031	20536	25688	35554	44601	51210	74755	82148	129710	188164	303171	524293
44.00	8255	12230	16497	22538	28192	39020	48948	56202	82042	90157	142355	206507	332725	575403
45.00	8438	12501	16863	23039	28818	39886	50035	57450	83864	92159	145516	211093	340114	588180
50.00	9355	13859	18695	25541	31949	44218	55470	63691	92973	102169	161322	234021	377056	652067



an ISO 9001 : 2008 Certified Company



Approved

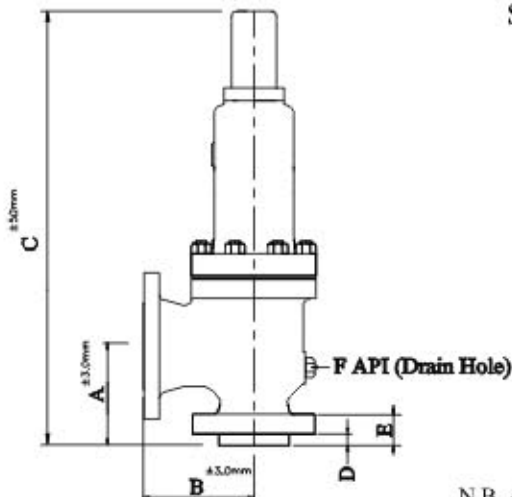
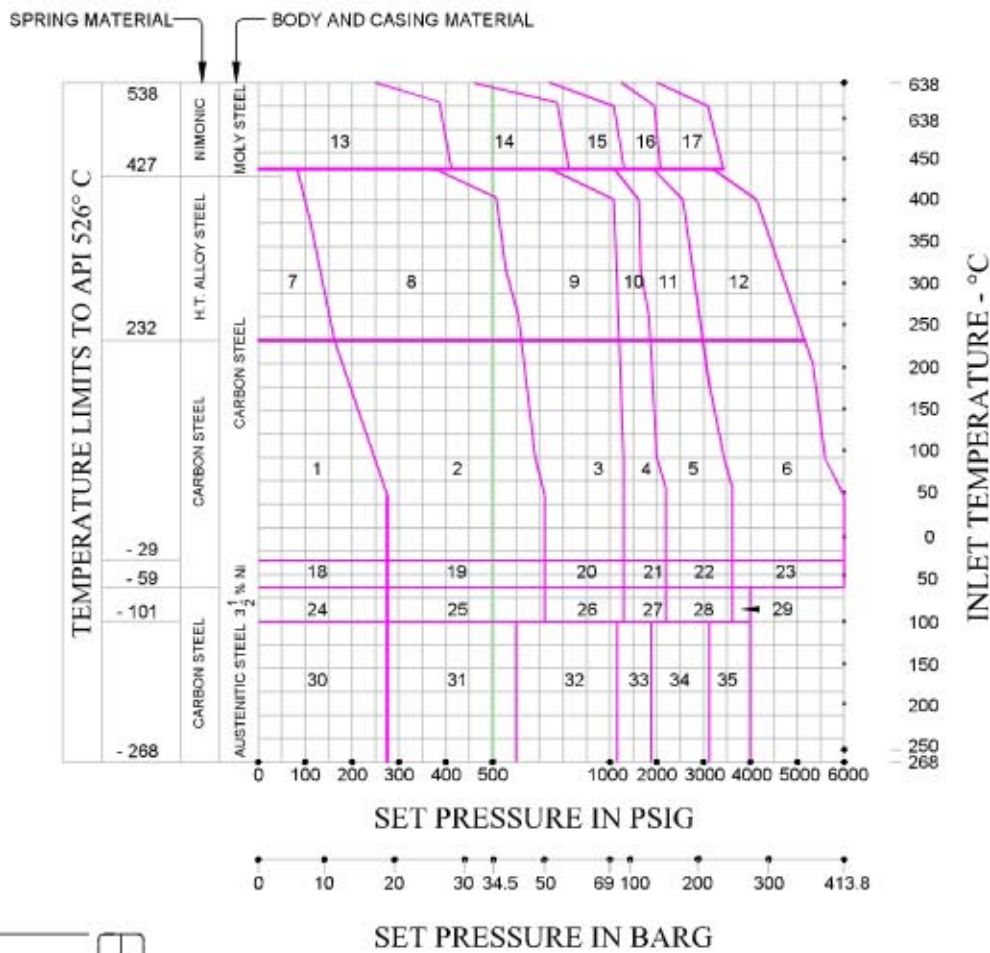


DISCHARGE CAPACITY OF WATER @ 10% OVER PRESSURE AND AT 30 DEGREE C TEMP.- MODEL SVE520/SVB540

VALVE SIZE	25x50	40x80	40x80 50X80	80X100	80X100	80X100	80X100	100X150	150X200	150X200 100X150	200x250	250x300
ORIFICE CODE	G	H	J	K	L	M	N	P	Q	R	T	V
ORIFICE DIA.mm	23	28	32.5	42.5	50	56	60	72.5	95.5	115	146	192
CROSS SEC. AREA cm2	4.154	6.154	8.301	14.186	19.634	24.630	28.280	41.282	71.630	103.910	167.420	289.530
SET PRE. 1.00	6.86	10.73	17.57	25.09	38.95	49.15	59.26	87.12	150.8	218.5	355	546.8
1.50	8.41	13.14	21.53	30.72	47.7	60.2	72.58	106.7	184.8	267.6	434.8	669.7
2.00	9.71	15.18	24.85	35.48	55.09	69.53	83.81	123.2	213.3	309	502.1	669.7
3.00	11.89	18.59	30.43	43.45	67.47	85.15	102.6	150.9	261.3	378.4	615	947.1
3.50	12.85	20.07	32.87	46.93	72.87	91.97	110.8	163	282.3	408.7	664.2	1022
4.00	13.73	21.46	35.15	50.18	77.91	98.33	118.5	174.2	301.7	437	710.1	1093
4.50	3.19	5.68	8.89	14.57	22.75	22.75	37.28	53.21	82.63	104.2	125.7	184.8
5.00	15.35	23.99	39.29	56.09	87.11	109.9	132.5	194.8	337.4	488.5	793.9	1222
5.50	16.1	25.17	41.21	58.84	91.37	115.3	138.9	204.3	353.8	512.4	832.7	1282
6.00	16.82	26.28	43.04	61.45	95.43	11676	14074	20692	35837	51893	84327	129864
6.50	17.5	27.35	44.81	63.96	99.31	125.3	23681	41015	59391	96511	148628	222862
8.00	2102	3284	5380	7680	11926	15050	18141	26671	46194	66889	108695	167393
9.00	2338	3653	5983	8541	13262	16737	20175	29661	51372	74387	120880	186157
9.50	2456	3837	6285	8972	13931	17580	21192	31156	53961	78136	126972	195539
10.00	2574	4021	6586	9402	14599	18424	22209	32651	56550	81885	133064	204291
11.00	2809	4389	7189	10263	15936	20111	24242	35641	61728	89384	145249	224685
12.00	3045	4757	7792	11124	17273	21978	26276	38630	66906	96882	157433	232449
13.00	3281	5125	8395	11985	18610	23485	28310	41620	82085	104380	169617	261213
14.00	3516	5494	8999	12846	19947	25172	30343	44610	77263	11878	181822	279977
15.00	3757	5862	9602	13707	21284	28859	32377	47600	82441	119376	298741	447950
16.00	3988	6230	10205	14568	22621	34411	50589	87619	126874	206171	317505	476085
18.00	4459	6967	11411	16290	25294	31920	56569	97976	141870	230539	356034	532358
20.00	4930	7703	12617	18012	27968	32295	42545	62549	108332	146866	253908	392562
22.00	32.21	50.32	82.43	117.6	182.7	230.6	277.9	408.6	707.7	1024	-	-
24.00	33.65	52.56	86.09	122.9	190.8	240.8	290.3	426.8	739.2	1070	-	-
26.00	35.01	54.7	89.62	127.9	198.6	250.6	302.1	444.2	769.4	1114	-	-
28.00	36.34	56.78	93	132.7	206.1	260.1	313.5	461	798.4	1156	-	-
30.00	37.62	58.76	96.27	137.4	213.3	269.2	324.6	477.2	826.5	1196	-	-
32.00	38.84	60.7	99.41	141.9	220.3	278.1	335.2	492.8	853.6	1236	-	-
34.00	40.04	62.56	102.4	146.3	227.1	286.6	345.5	508	879.8	1274	-	-
36.00	41.2	64.37	105.4	150.5	233.7	294.9	355.5	522.7	905.4	1311	-	-
38.00	42.34	66.15	108.3	154.6	240.1	303	365.3	537	930.2	1346	-	-
40.00	43.53	67.87	111.1	158.6	246.3	310.9	374.8	551	954.3	1381	-	-
42.00	44.51	69.53	113.9	162.6	252.4	318.6	384	564.6	977.9	1416	-	-
44.00	45.56	71.18	116.5	166.4	258.4	326.1	393.1	577.9	1000	1449	-	-
46.00	46.57	72.78	119.1	170.1	264.2	333.4	401.9	590.9	1023	1481	-	-
48.00	47.59	74.34	121.7	173.8	269.9	340.6	410.5	603.6	1045	1513	-	-
50.00	48.56	75.87	124.2	177.4	275.4	347.6	419	616	1067	1545	-	-
52.00	49.53	77.37	126.7	180.9	280.9	354.5	427.3	628.2	1088	-	-	-
54.00	50.46	78.84	129.1	184.3	286.2	361.2	435.4	640.2	1108	-	-	-
56.00	51.4	80.3	131.5	187.7	291.5	367.9	443.4	652	1129	-	-	-
58.00	52.31	81.71	133.8	191	296.7	374.4	451.3	663.5	1149	-	-	-
60.00	53.2	83.12	136.1	194.3	301.7	380.8	459	674.8	1168	-	-	-



VALVE SELECTION CHART ORIFICE- 'D' (0.110 SQ.INS.)



VALVE SIZE - INCH	1" x D x 2"	1" x D x 2"	1" x D x 2"	1-1/2" x D x 2"	1-1/2" x D x 2"	1-1/2" x D x 2-1/2"
CLASS	150	300	600	900	1500	2500
A	105.0	105.0	105.0	124.0	124.0	136.5
B	114.5	114.5	114.5	152.5	152.5	152.5
C	450	450	450	524.0	524.0	524.0
D	12	12	12	12	12	12
E	29.5	29.5	29.5	32	32	44.5
F	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"
Appx.Weight	18 Kgs	18 Kgs	18 Kgs	40 Kgs	40 Kgs	45 Kgs

N.B. All valves weights given approximate and apply only to conventional valves with plain cap.



VALVE SELECTION TABLE

ORIFICE- 'D' (0.110 Sq.ins.)

Key No.	Type Number	Valve Size Inlet x Outlet	Flanges ANSI		Max. Set pressure (PSIG) & Temperature Limits (°C)						Max. back Pressure PSIG		
			Inlet	Outlet	-232°C to -66°C	-65.5°C to -24.5°C	-24°C to -6°C	-6.66°C to -38°C	232°C	427°C	538°C	Conv. Valve	Balanced bellows
1	SVES20-D111C	1" x 2"	150#RF	150#RF				275	165			230	
2	SVES20-D113C	1" x 2"	300#RF	150#RF				720	615			230	
3	SVES20-D116C	1" x 2"	600#RF	150#RF				1440	1235			230	
4	SVES20-D119C	1-1/2" x 2"	900#RF	300#RF				2160	1845			600	
5	SVES20-D115C	1-1/2" x 2"	1500#RF	300#RF				3600	3080			600	
6	SVES20-D112C	1-1/2" x 2-1/2"	2500#RF	300#RF				6000	5135			600	
7	SVES20-D111C	1" x 2"	150#RF	150#RF					165	80		230	
8	SVES20-D113C	1" x 2"	300#RF	150#RF					615	365		230	
9	SVES20-D116C	1" x 2"	600#RF	150#RF					1235	730		230	
10	SVES20-D119C	1-1/2" x 2"	900#RF	300#RF					1845	1100		600	
11	SVES20-D115C	1-1/2" x 2"	1500#RF	300#RF					3080	1830		600	
12	SVES20-D112C	1-1/2" x 2-1/2"	2500#RF	300#RF					5135	3050		600	
13	SVES20-D111C	1" x 2"	300#RF	150#RF						410	215	230	
14	SVES20-D113C	1" x 2"	600#RF	150#RF						815	430	230	
15	SVES20-D119C	1-1/2" x 2"	900#RF	300#RF						1225	645	600	
16	SVES20-D115C	1-1/2" x 2"	1500#RF	300#RF						2040	1070	600	
17	SVES20-D112C	1-1/2" x 2-1/2"	2500#RF	300#RF						3400	1785	600	
18	SVES20-D111C	1" x 2"	150#RF	150#RF				275				230	
19	SVES20-D113C	1" x 2"	300#RF	150#RF				720				230	
20	SVES20-D116C	1" x 2"	600#RF	150#RF				1440				230	
21	SVES20-D119C	1-1/2" x 2"	900#RF	300#RF				2160				600	
22	SVES20-D115C	1-1/2" x 2"	1500#RF	300#RF				3600				600	
23	SVES20-D112C	1-1/2" x 2-1/2"	2500#RF	300#RF				6000				600	
24	SVES20-D111C	1" x 2"	150#RF	150#RF				275				230	
25	SVES20-D113C	1" x 2"	300#RF	150#RF				720				230	
26	SVES20-D116C	1" x 2"	600#RF	150#RF				1440				230	
27	SVES20-D119C	1-1/2" x 2"	900#RF	300#RF				2160				600	
28	SVES20-D115C	1-1/2" x 2"	1500#RF	300#RF				3600				600	
29	SVES20-D112C	1-1/2" x 2-1/2"	2500#RF	300#RF				4000				600	
30	SVES20-D111C	1" x 2"	150#RF	150#RF	275							230	
31	SVES20-D113C	1" x 2"	300#RF	150#RF	615							230	
32	SVES20-D116C	1" x 2"	600#RF	150#RF	1235							230	
33	SVES20-D119C	1-1/2" x 2"	900#RF	300#RF	1850							600	
34	SVES20-D115C	1-1/2" x 2"	1500#RF	300#RF	3085							600	
35	SVES20-D112C	1-1/2" x 2-1/2"	2500#RF	300#RF	4000							600	

= PSIG

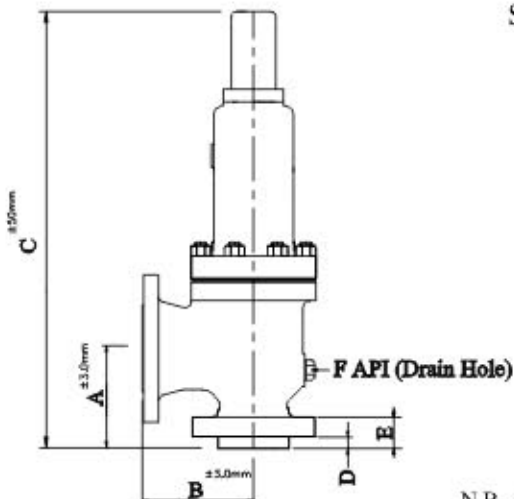
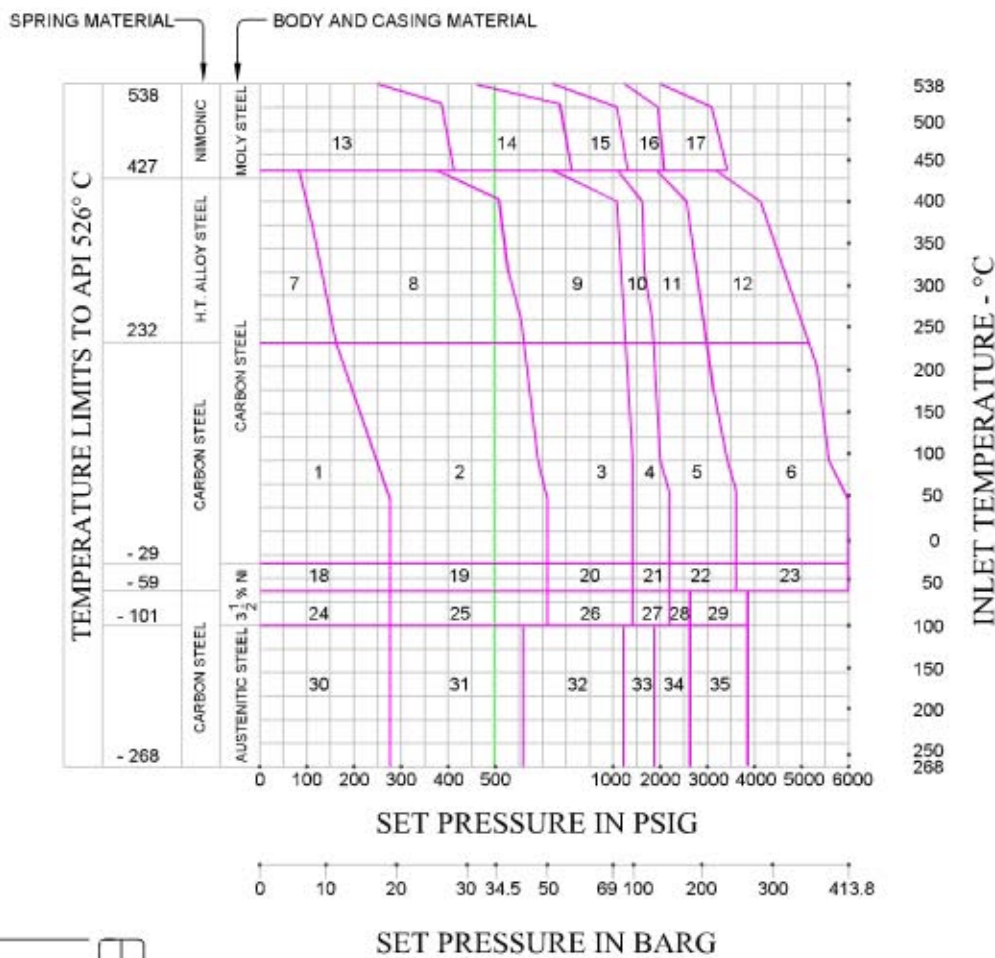
RF = RAISED FACE

To select a valve having the required pressure/temperature rating proceed as follows:

- 1) refer to the valve selection chart appropriate to the calculated orifice area.
- 2) Locate intersection of set pressure and service temperature on the chart, thus identifying the Key No.
- 3) Using the Key No. in the above table, read off the type number, valve size and flange rating.
Note : The type numbers in the table refer only to a conventional valve with a plain cap, and using standard materials appropriate to the pressure and temperature conditions.
- 4) Use the size and flange rating from the above table in compiling a complete valve type number from the table.



VALVE SELECTION CHART ORIFICE- 'E' (0.196 Sq.ins.)



VALVE SIZE - INCH	1" X E X 2"	1 1/2" X E X 2"	1" X E X 2"	1-1/2" X E X 2"	1-1/2" X E X 2"	1-1/2" X E X 2-1/2"
CLASS	150	300	600	900	1500	2500
A	105.0	105.0	105.0	124.0	124.0	136.5
B	114.5	114.5	114.5	152.5	152.5	152.5
C	450	450	450	524.0	524.0	524.0
D	12	12	12	12	12	12
E	29.5	29.5	29.5	32	32	44.5
F	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"
Appx.Weight	18 Kgs	18 Kgs	18 Kgs	40 Kgs	40 Kgs	45 Kgs

N.B. All valves weights given approximate and apply only to conventional valves with plain cap.



VALVE SELECTION TABLE

ORIFICE- 'E' (0.196 Sq.ins.)

Key No.	Type Number	Valve Size Inlet x Outlet	Flanges ANSI		Max. Set pressure (PSIG) & Temperature Limits (°C)						Max. back Pressure PSIG		
			Inlet	Outlet	-232°C to -66°C	-65.5°C to -24.5°C	-24°C to -6°C	-6.66°C to -38°C	232°C	427°C	538°C	Conv. Valve	Balanced bellows
1	SVE520-E111C	1" x 2"	150#RF	150#RF				275	165			230	—
2	SVE520-E113C	1" x 2"	300#RF	150#RF				720	615			230	—
3	SVE520-E116C	1" x 2"	600#RF	150#RF				1440	1235			230	—
4	SVE520-E119C	1-1/2" x 2"	900#RF	300#RF				2160	1845			600	—
5	SVE520-E115C	1-1/2" x 2"	1500#RF	300#RF				3600	3080			600	—
6	SVE520-E112C	1-1/2" x 2-1/2"	2500#RF	300#RF				6000	5135			600	—
7	SVE520-E111C	1" x 2"	150#RF	150#RF					165	80		230	—
8	SVE520-E113C	1" x 2"	300#RF	150#RF					615	365		230	—
9	SVE520-E116C	1" x 2"	600#RF	150#RF					1235	730		230	—
10	SVE520-E119C	1-1/2" x 2"	900#RF	300#RF					1845	1100		600	—
11	SVE520-E115C	1-1/2" x 2"	1500#RF	300#RF					3080	1830		600	—
12	SVE520-E112C	1-1/2" x 2-1/2"	2500#RF	300#RF					5135	3050		600	—
13	SVE520-E111C	1" x 2"	300#RF	150#RF						410	215	230	—
14	SVE520-E113C	1" x 2"	600#RF	150#RF						815	430	230	—
15	SVE520-E119C	1-1/2" x 2"	900#RF	300#RF						1225	645	600	—
16	SVE520-E115C	1-1/2" x 2"	1500#RF	300#RF						2040	1070	600	—
17	SVE520-E112C	1-1/2" x 2-1/2"	2500#RF	300#RF						3400	1785	600	—
18	SVE520-E111C	1" x 2"	150#RF	150#RF			275					230	—
19	SVE520-E113C	1" x 2"	300#RF	150#RF			720					230	—
20	SVE520-E116C	1" x 2"	600#RF	150#RF			1440					230	—
21	SVE520-E119C	1-1/2" x 2"	900#RF	300#RF			2160					600	—
22	SVE520-E115C	1-1/2" x 2"	1500#RF	300#RF			3600					600	—
23	SVE520-E112C	1-1/2" x 2-1/2"	2500#RF	300#RF			6000					600	—
24	SVE520-E111C	1" x 2"	150#RF	150#RF			275					230	—
25	SVE520-E113C	1" x 2"	300#RF	150#RF			720					230	—
26	SVE520-E116C	1" x 2"	600#RF	150#RF			1440					230	—
27	SVE520-E119C	1-1/2" x 2"	900#RF	300#RF			2160					600	—
28	SVE520-E115C	1-1/2" x 2"	1500#RF	300#RF			2600					600	—
29	SVE520-E112C	1-1/2" x 2-1/2"	2500#RF	300#RF			3800					600	—
30	SVE520-E111C	1" x 2"	150#RF	150#RF			275					230	—
31	SVE520-E113C	1" x 2"	300#RF	150#RF			615					230	—
32	SVE520-E116C	1" x 2"	600#RF	150#RF			1235					230	—
33	SVE520-E119C	1-1/2" x 2"	900#RF	300#RF			1850					600	—
34	SVE520-E115C	1-1/2" x 2"	1500#RF	300#RF			2600					600	—
35	SVE520-E112C	1-1/2" x 2-1/2"	2500#RF	300#RF			3800					600	—

= PSIG

RF = RAISED FACE

To select a valve having the required pressure/temperature rating proceed as follows:

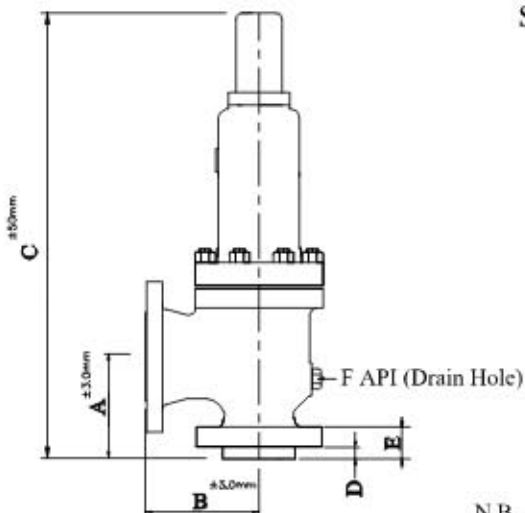
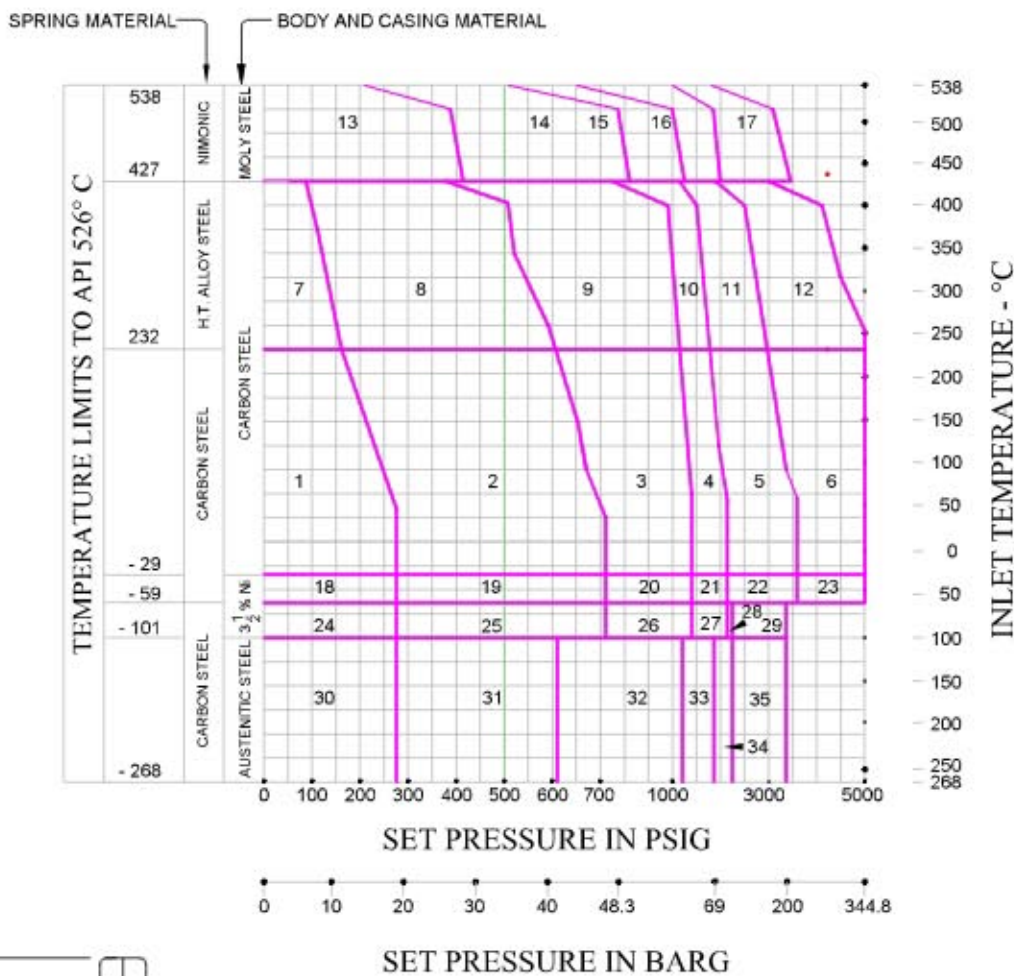
- 1) refer to the valve selection chart appropriate to the calculated orifice area.
- 2) Locate intersection of set pressure and service temperature on the chart, thus identifying the Key No.
- 3) Using the Key No. in the above table, read off the type number, valve size and flange rating.

Note : The type numbers in the table refer only to a conventional valve with a plain cap, and using standard materials appropriate to the pressure and temperature conditions.

- 4) Use the size and flange rating from the above table in compiling a complete valve type number from the table.



VALVE SELECTION CHART ORIFICE- 'F' (0.307 Sq.ins.)



VALVE SIZE - INCH	1-1/2" X F X 2"	1-1/2" X F X 2"	1-1/2" X F X 2"	1-1/2" X F X 2-1/2"	1-1/2" X F X 2-1/2"	1-1/2" X F X 2-1/2"
CLASS	150	300	600	900	1500	2500
A	124.0	124.0	124.0	124.0	124.0	136.5
B	120.5	120.5	120.5	152.5	152.5	152.5
C	450	450	450	524.0	524.0	524.0
D	12	12	12	12	12	12
E	29.5	29.5	29.5	32	32	44.5
F	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"
Appx. Weight	32 Kgs	32 Kgs	32 Kgs	40 Kgs	40 Kgs	45 Kgs

N.B. All valves weights given approximate and apply only to conventional valves with plain cap.



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VALVE SELECTION TABLE

ORIFICE- 'F' (0.307 Sq.ins.)

Key No.	Type Number	Valve Size Inlet x Outlet	Flanges ANSI		Max. Set pressure (PSIG) & Temperature Limits (°C)						Max. back Pressure PSIG		
			Inlet	Outlet	-232°C to -66°C	-65.5°C to -24.5°C	-24°C to -6°C	-6.66°C to -38°C	232°C	427°C	538°C	Conv. Valve	Balanced bellows
1	SVE520-F111C	1-1/2" x 2"	150#RF	150#RF				275	165			230	
2	SVE520-F113C	1-1/2" x 2"	300#RF	150#RF				720	615			230	
3	SVE520-F116C	1-1/2" x 2"	600#RF	150#RF				1440	1235			230	---
4	SVE520-F119C	1-1/2" x 2-1/2"	900#RF	300#RF				2160	1845			500	---
5	SVE520-F115C	1-1/2" x 2-1/2"	1500#RF	300#RF				3600	3080			500	---
6	SVE520-F112C	1-1/2" x 2-1/2"	2500#RF	300#RF				5000	5000			500	---
7	SVE520-F111C	1-1/2" x 2"	150#RF	150#RF					165	80		230	---
8	SVE520-F113C	1-1/2" x 2"	300#RF	150#RF					615	365		230	---
9	SVE520-F116C	1-1/2" x 2"	600#RF	150#RF					1235	730		230	---
10	SVE520-F119C	1-1/2" x 2-1/2"	900#RF	300#RF					1845	1100		500	---
11	SVE520-F115C	1-1/2" x 2-1/2"	1500#RF	300#RF					3080	1830		500	---
12	SVE520-F112C	1-1/2" x 2-1/2"	2500#RF	300#RF					5000	3050		500	---
13	SVE520-F111C	1-1/2" x 2"	300#RF	150#RF						410	215	230	---
14	SVE520-F113C	1-1/2" x 2"	600#RF	150#RF						815	430	230	---
15	SVE520-F119C	1-1/2" x 2"	900#RF	300#RF						1225	645	500	---
16	SVE520-F115C	1-1/2" x 2"	1500#RF	300#RF						2040	1070	500	---
17	SVE520-F112C	1-1/2" x 2-1/2"	2500#RF	300#RF						3400	1785	500	---
18	SVE520-F111C	1-1/2" x 2"	150#RF	150#RF			275					230	---
19	SVE520-F113C	1-1/2" x 2"	300#RF	150#RF			720					230	---
20	SVE520-F116C	1-1/2" x 2"	600#RF	150#RF			1440					230	---
21	SVE520-F119C	1-1/2" x 2-1/2"	900#RF	300#RF			2160					500	---
22	SVE520-F115C	1-1/2" x 2-1/2"	1500#RF	300#RF			3600					500	---
23	SVE520-F112C	1-1/2" x 2-1/2"	2500#RF	300#RF			5000					500	---
24	SVE520-F111C	1-1/2" x 2"	150#RF	150#RF			275					230	---
25	SVE520-F113C	1-1/2" x 2"	300#RF	150#RF			720					230	---
26	SVE520-F116C	1-1/2" x 2"	600#RF	150#RF			1440					230	---
27	SVE520-F119C	1-1/2" x 2-1/2"	900#RF	300#RF			2160					500	---
28	SVE520-F115C	1-1/2" x 2-1/2"	1500#RF	300#RF			2200					500	---
29	SVE520-F112C	1-1/2" x 2-1/2"	2500#RF	300#RF			3400					500	---
30	SVE520-F111C	1-1/2" x 2"	150#RF	150#RF	275							230	---
31	SVE520-F113C	1-1/2" x 2"	300#RF	150#RF	615							230	---
32	SVE520-F116C	1-1/2" x 2"	600#RF	150#RF	1235							230	---
33	SVE520-F119C	1-1/2" x 2-1/2"	900#RF	300#RF	1850							500	---
34	SVE520-F115C	1-1/2" x 2-1/2"	1500#RF	300#RF	2200							500	---
35	SVE520-F112C	1-1/2" x 2-1/2"	2500#RF	300#RF	3400							500	---

= PSIG

RF = RAISED FACE

To select a valve having the required pressure/temperature rating proceed as follows:

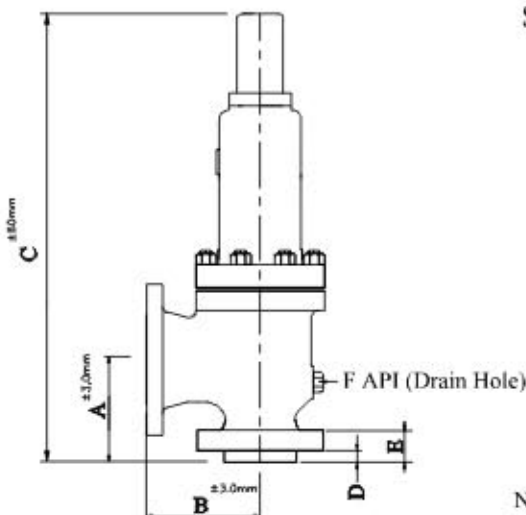
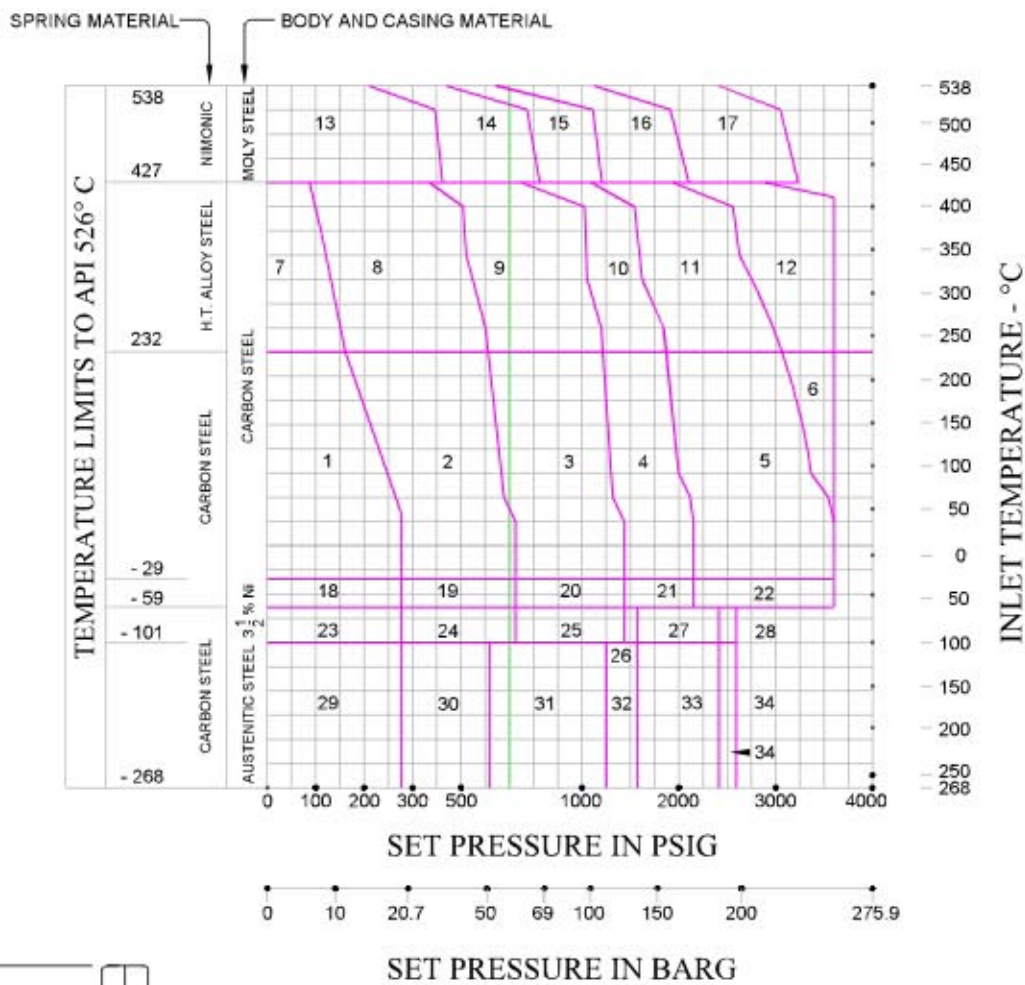
- 1) refer to the valve selection chart appropriate to the calculated orifice area.
- 2) Locate intersection of set pressure and service temperature on the chart, thus identifying the Key No.
- 3) Using the Key No. in the above table, read off the type number, valve size and flange rating.

Note : The type numbers in the table refer only to a conventional valve with a plain cap, and using standard materials appropriate to the pressure and temperature conditions.

- 4) Use the size and flange rating from the above table in compiling a complete valve type number from the table.



VALVE SELECTION CHART ORIFICE- 'G' (0.503 Sq.ins.)



VALVE SIZE - INCH	1-1/2" G x 2-1/2"	1-1/2" G x 3-1/2"	1-1/2" G x 2-1/2"	1-1/2" G x 2-1/2"	2" G x 3"	2" G x 3"
CLASS	150	300	600	900	1500	2500
A	124.0	124.0	124.0	124.0	155.0	155.0
B	120.5	120.5	120.5	152.5	171.0	171.0
C	450	450	450	524.0	650.0	650.0
D	12	12	12	12	14	14
E	32	32	32	32	54	65
F	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"
Appx. Weight	32 Kgs	32 Kgs	32 Kgs	40 Kgs	60 Kgs	65 Kgs

N.B. All valves weights given approximate and apply only to conventional valves with plain cap.



VALVE SELECTION TABLE

ORIFICE- 'G' (0.503 Sq.ins.)

Key No.	Type Number	Valve Size Inlet x Outlet	Flanges ANSI		Max. Set pressure (PSIG) & Temperature Limits (°C)						Max. back Pressure PSIG		
			Inlet	Outlet	-232°C to -66°C	-65.5°C to -24.5°C	-24°C to -6°C	-6.66°C to -38°C	232°C	427°C	538°C	Conv. Valve	Balanced bellows
1	SVE520-G111C	1-1/2" x 2-1/2"	150#RF	150#RF				275	165			230	230
2	SVE520-G113C	1-1/2" x 2-1/2"	300#RF	150#RF				720	615			230	230
3	SVE520-G116C	1-1/2" x 2-1/2"	600#RF	150#RF				1440	1235			230	230
4	SVE520-G119C	1-1/2" x 2-1/2"	900#RF	300#RF				2160	1845			600	470
5	SVE520-G115C	2" x 3"	1500#RF	300#RF				3600	3080			600	470
6	SVE520-G112C	2" x 3"	2500#RF	300#RF				3600	3600			600	470
7	SVE520-G111C	1-1/2" x 2-1/2"	150#RF	150#RF					165	80		230	230
8	SVE520-G113C	1-1/2" x 2-1/2"	300#RF	150#RF					615	365		230	230
9	SVE520-G116C	1-1/2" x 2-1/2"	600#RF	150#RF					1235	730		230	230
10	SVE520-G119C	1-1/2" x 2-1/2"	900#RF	300#RF					1845	1100		600	470
11	SVE520-G115C	2" x 3"	1500#RF	300#RF					3080	1830		600	470
12	SVE520-G112C	2" x 3"	2500#RF	300#RF					3600	3050		600	470
13	SVE520-G113C	1-1/2" x 2-1/2"	300#RF	150#RF						410	215	230	230
14	SVE520-G116C	1-1/2" x 2-1/2"	600#RF	150#RF						815	430	230	230
15	SVE520-G119C	1-1/2" x 2-1/2"	900#RF	300#RF						1225	645	600	470
16	SVE520-G115C	2" x 3"	1500#RF	300#RF						2040	1070	600	470
17	SVE520-G112C	2" x 3"	2500#RF	300#RF						3400	1785	600	470
18	SVE520-G111C	1-1/2" x 2-1/2"	150#RF	150#RF				275				230	230
19	SVE520-G113C	1-1/2" x 2-1/2"	300#RF	150#RF				720				230	230
20	SVE520-G116C	1-1/2" x 2-1/2"	600#RF	150#RF				1440				230	230
21	SVE520-G119C	1-1/2" x 2-1/2"	900#RF	300#RF				2160				600	470
22	SVE520-G115C	2" x 3"	1500#RF	300#RF				3600				600	470
	SVE520-G112C	2" x 3"	2500#RF	300#RF				3600				600	470
23	SVE520-G111C	1-1/2" x 2-1/2"	150#RF	150#RF				275				230	230
24	SVE520-G113C	1-1/2" x 2-1/2"	300#RF	150#RF				720				230	230
25	SVE520-G116C	1-1/2" x 2-1/2"	600#RF	150#RF				1440				230	230
26	SVE520-G119C	1-1/2" x 2-1/2"	900#RF	300#RF				1600				600	470
27	SVE520-G115C	2" x 3"	1500#RF	300#RF				2450				600	470
28	SVE520-G112C	2" x 3"	2500#RF	300#RF				2600				600	470
29	SVE520-G111C	1-1/2" x 2-1/2"	150#RF	150#RF				275				230	230
30	SVE520-G113C	1-1/2" x 2-1/2"	300#RF	150#RF				615				230	230
31	SVE520-G116C	1-1/2" x 2-1/2"	600#RF	150#RF				1235				230	230
32	SVE520-G119C	1-1/2" x 2-1/2"	900#RF	300#RF				1600				600	470
33	SVE520-G115C	2" x 3"	1500#RF	300#RF				2450				600	470
34	SVE520-G112C	2" x 3"	2500#RF	300#RF				2600				600	470

= PSIG

RF = RAISED FACE

To select a valve having the required pressure/temperature rating proceed as follows:

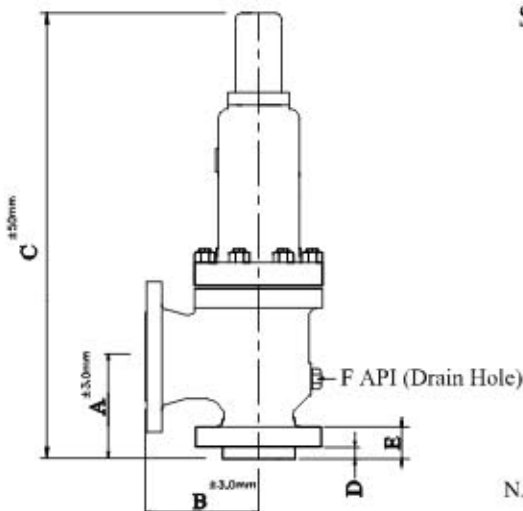
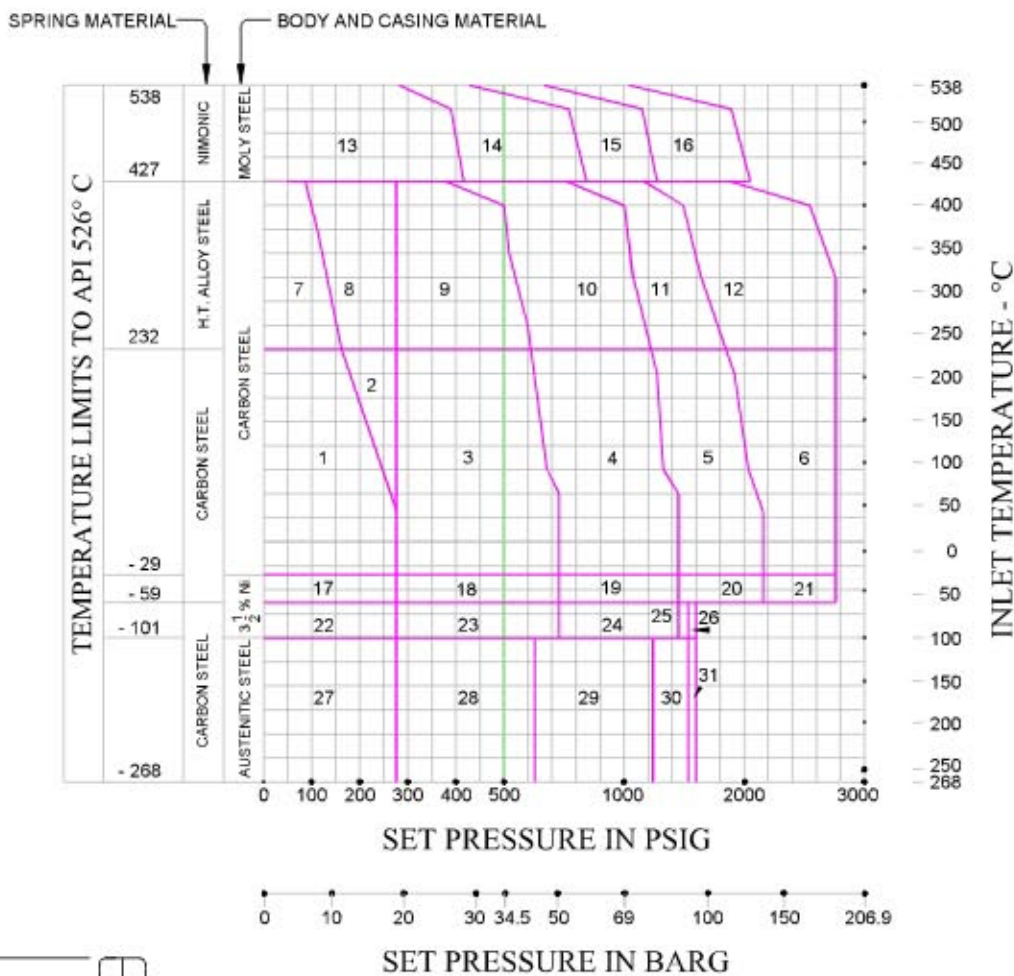
- 1) refer to the valve selection chart appropriate to the calculated orifice area.
- 2) Locate intersection of set pressure and service temperature on the chart, thus identifying the Key No.
- 3) Using the Key No. in the above table, read off the type number, valve size and flange rating.

Note : The type numbers in the table refer only to a conventional valve with a plain cap, and using standard materials appropriate to the pressure and temperature conditions.

- 4) Use the size and flange rating from the above table in compiling a complete valve type number from the table.



VALVE SELECTION CHARGE ORIFICE- 'H' (0.785 Sq.ins.)



VALVE SIZE - INCH	1-1/2" H x 3"	1-1/2" H x 3"	2" H x 3"	2" H x 3"	2" H x 3"	2" H x 3"
CLASS	150	300	300	600	900	1500
A	130.0	130.0	130.0	124.0	124.0	155.0
B	124.0	124.0	124.0	152.5	152.5	171.0
C	530	530	575	650	780	800
D	14	14	14	14	14	14
E	36	36	36	52	52	52
F	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"
Appx.Weight	39 Kgs	39 Kgs	43 Kgs	40 Kgs	40 Kgs	60 Kgs

N.B. All valves weights given approximate and apply only to conventional valves with plain cap.

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VALVE SELECTION TABLE

ORIFICE- 'H' (0.785 Sq.ins.)

Key No.	Type Number	Valve Size Inlet x Outlet	Flanges ANSI		Max. Set pressure (PSIG) & Temperature Limits (°C)						Max. back Pressure PSIG		
			Inlet	Outlet	-232°C to -66°C	-65.5°C to -24.5°C	-24°C to -6°C	-6.66°C to -38°C	232°C	427°C	538°C	Conv. Valve	Balanced bellows
1	SVE520-H111C	1-1/2" x 3"	150#RF	150#RF				275	165			230	230
2	SVE520-H113C	1-1/2" x 3"	300#RF	150#RF				275	275			230	230
3	SVE520-H113C	2" x 3"	300#RF	150#RF				720	615			230	230
4	SVE520-H116C	2" x 3"	600#RF	150#RF				1440	1235			230	230
5	SVE520-H119C	2" x 3"	900#RF	150#RF				2160	1845			230	230
6	SVE520-H115C	2" x 3"	1500#RF	300#RF				2750	2750			600	415
7	SVE520-H111C	1-1/2" x 3"	150#RF	150#RF					165	80		230	230
8	SVE520-H113C	1-1/2" x 3"	300#RF	150#RF					275	275		230	230
9	SVE520-H113C	2" x 3"	300#RF	150#RF					615	365		230	230
10	SVE520-H116C	2" x 3"	600#RF	150#RF					1235	730		230	230
11	SVE520-H119C	2" x 3"	900#RF	150#RF					1845	1100		230	230
12	SVE520-H115C	2" x 3"	1500#RF	300#RF					2750	1830		600	415
13	SVE520-H113C	2" x 3"	300#RF	150#RF						410	215	230	230
14	SVE520-H116C	2" x 3"	600#RF	150#RF						815	430	230	230
15	SVE520-H119C	2" x 3"	900#RF	150#RF						1225	645	230	230
16	SVE520-H115C	2" x 3"	1500#RF	300#RF						2040	1070	600	415
17	SVE520-H111C	1-1/2" x 3"	150#RF	150#RF			275					230	230
	SVE520-H113C	1-1/2" x 3"	300#RF	150#RF			275					230	230
18	SVE520-H113C	2" x 3"	300#RF	150#RF			720					230	230
19	SVE520-H116C	2" x 3"	600#RF	150#RF			1440					230	230
20	SVE520-H119C	2" x 3"	900#RF	150#RF			2160					230	230
21	SVE520-H115C	2" x 3"	1500#RF	300#RF			2750					600	415
22	SVE520-H111C	1-1/2" x 3"	150#RF	150#RF	275							230	470
	SVE520-H113C	1-1/2" x 3"	300#RF	150#RF	275							230	230
23	SVE520-H113C	2" x 3"	300#RF	150#RF	720							230	230
24	SVE520-H116C	2" x 3"	600#RF	150#RF	1440							230	230
25	SVE520-H119C	2" x 3"	900#RF	300#RF	1485							230	230
26	SVE520-H115C	2" x 3"	1500#RF	300#RF	1600							600	415
27	SVE520-H111C	1-1/2" x 3"	150#RF	150#RF	275							230	230
	SVE520-H113C	1-1/2" x 3"	300#RF	150#RF	275							230	230
28	SVE520-H113C	2" x 3"	300#RF	150#RF	615							230	230
29	SVE520-H116C	2" x 3"	600#RF	150#RF	1235							230	230
30	SVE520-H119C	2" x 3"	900#RF	150#RF	1485							230	230
31	SVE520-H115C	2" x 3"	1500#RF	300#RF	1600							600	415

= PSIG

RF = RAISED FACE

To select a valve having the required pressure/temperature rating proceed as follows:

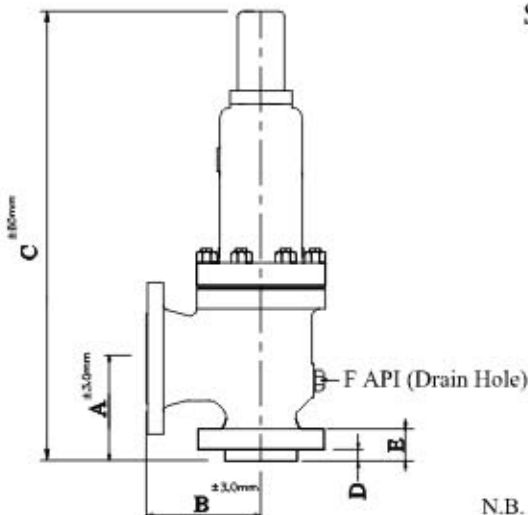
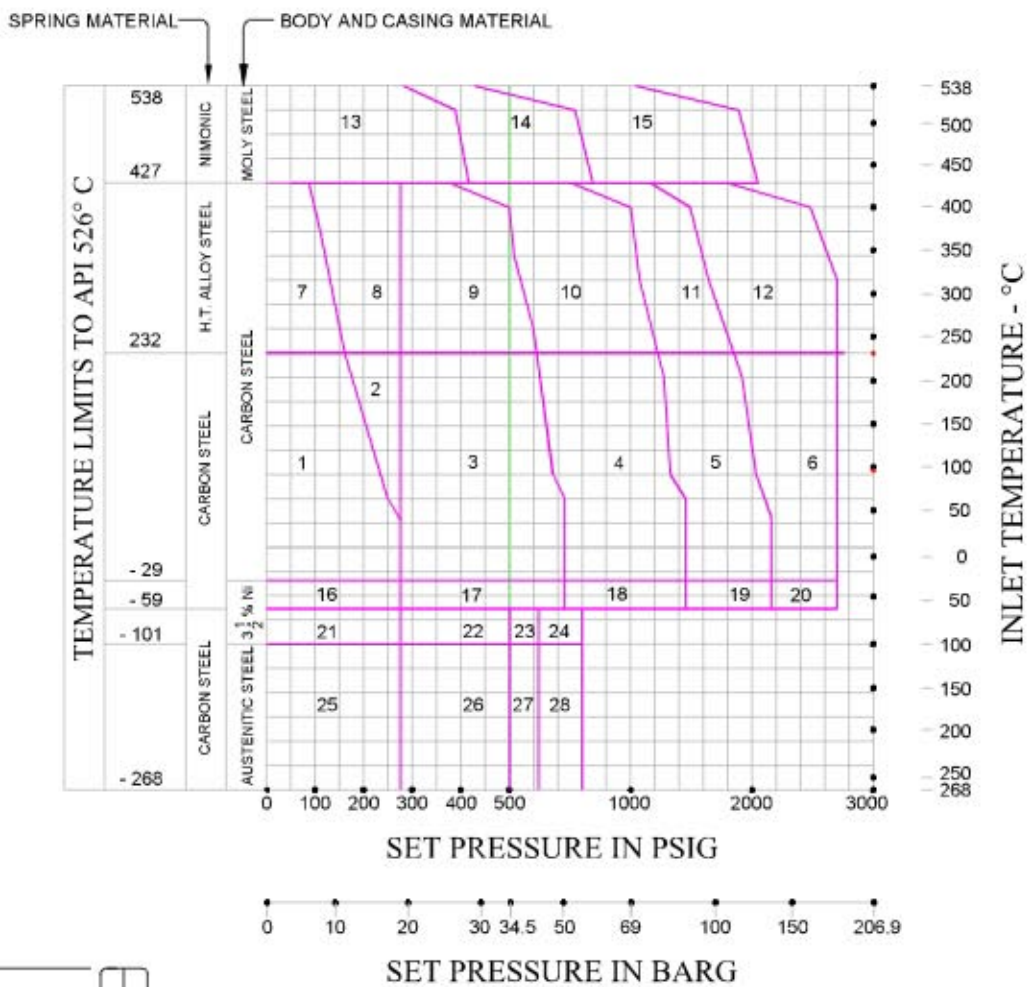
- 1) refer to the valve selection chart appropriate to the calculated orifice area.
- 2) Locate intersection of set pressure and service temperature on the chart, thus identifying the Key No.
- 3) Using the Key No. in the above table, read off the type number, valve size and flange rating.

Note : The type numbers in the table refer only to a conventional valve with a plain cap, and using standard materials appropriate to the pressure and temperature conditions.

- 4) Use the size and flange rating from the above table in compiling a complete valve type number from the table.



VALVE SELECTION CHART ORIFICE- 'J' (1.287 Sq.ins.)



VALVE SIZE - INCH	2"x J x 3"	2"x J x 3"	2-1/2"x J x 4"	2-1/2"x J x 4"	3"x J x 4"	3"x J x 4"
CLASS	150	300	300	600	900	1500
A	130.0	130.0	136.0	152.0	185.0	185.0
B	124.0	124.0	143.0	171.5	180.0	180.0
C	575	575	610	680	850	850
D	14	14	14	14	14	14
E	36	36	39.5	46.5	52	52
F	1/4"	1/4"	1/4"	1/4"	1/2"	1/2"
Appx.Weight	43 Kgs	43 Kgs	55 Kgs	62 Kgs	68 Kgs	68 Kgs

N.B. All valves weights given approximate and apply only to conventional valves with plain cap.



VALVE SELECTION TABLE

ORIFICE- 'J' (1.287 Sq.ins.)

Key No.	Type Number	Valve Size Inlet x Outlet	Flanges ANSI		Max. Set pressure (PSIG) & Temperature Limits (°C)						Max. back Pressure PSIG		
			Inlet	Outlet	-232°C to -66°C	-65.5°C to -24.5°C	-24°C to -6°C	-6.66°C to -38°C	232°C	427°C	538°C	Conv. Valve	Balanced bellows
1	SVE520-J111C	2" x 3"	150#RF	150#RF				275	165			230	230
2	SVE520-J113C	2" x 3"	300#RF	150#RF				275	275			230	230
3	SVE520-J113C	2-1/2" x 4"	300#RF	150#RF				720	615			230	230
4	SVE520-J116C	2-1/2" x 4"	600#RF	150#RF				1440	1235			230	230
5	SVE520-J119C	3" x 4"	900#RF	150#RF				2160	1845			230	230
6	SVE520-J115C	3" x 4"	1500#RF	300#RF				2700	2700			600	230
7	SVE520-J111C	2" x 3"	150#RF	150#RF					165	80		230	230
8	SVE520-J113C	2" x 3"	300#RF	150#RF					275	275		230	230
9	SVE520-J113C	2-1/2" x 4"	300#RF	150#RF					615	365		230	230
10	SVE520-J116C	2-1/2" x 4"	600#RF	150#RF					1235	730		230	230
11	SVE520-J119C	3" x 4"	900#RF	150#RF					1845	1100		230	230
12	SVE520-J115C	3" x 4"	1500#RF	300#RF					2700	1830		600	230
13	SVE520-J113C	2-1/2" x 4"	300#RF	150#RF						410	215	230	230
14	SVE520-J116C	2-1/2" x 4"	600#RF	150#RF						815	430	230	230
15	SVE520-J115C	3" x 4"	1500#RF	300#RF						2040	1070	230	230
16	SVE520-J111C	2" x 3"	150#RF	150#RF			275					600	230
	SVE520-J113C	2" x 3"	300#RF	150#RF			275					230	230
17	SVE520-J113C	2-1/2" x 4"	300#RF	150#RF			720					230	230
18	SVE520-J116C	2-1/2" x 4"	600#RF	150#RF			1440					230	230
19	SVE520-J119C	3" x 4"	900#RF	150#RF			2160					230	230
20	SVE520-J115C	3" x 4"	1500#RF	300#RF			2700					230	230
21	SVE520-J111C	2" x 3"	150#RF	150#RF	275							600	230
	SVE520-J113C	2" x 3"	300#RF	150#RF	275							230	230
22	SVE520-J113C	2-1/2" x 4"	300#RF	150#RF	500							230	230
23	SVE520-J116C	2-1/2" x 4"	600#RF	150#RF	625							230	230
24	SVE520-J119C	3" x 4"	900#RF	150#RF	800							230	230
	SVE520-J115C	3" x 4"	1500#RF	300#RF	800							230	230
25	SVE520-J111C	2" x 3"	150#RF	150#RF	275							600	230
	SVE520-J113C	2" x 3"	300#RF	150#RF	275							230	230
26	SVE520-J113C	2-1/2" x 4"	300#RF	150#RF	500							230	230
27	SVE520-J116C	2-1/2" x 4"	600#RF	150#RF	625							230	230
28	SVE520-J119C	3" x 4"	900#RF	150#RF	800							230	230
	SVE520-J115C	3" x 4"	1500#RF	300#RF	800							230	230

= PSIG

RF = RAISED FACE

To select a valve having the required pressure/temperature rating proceed as follows:

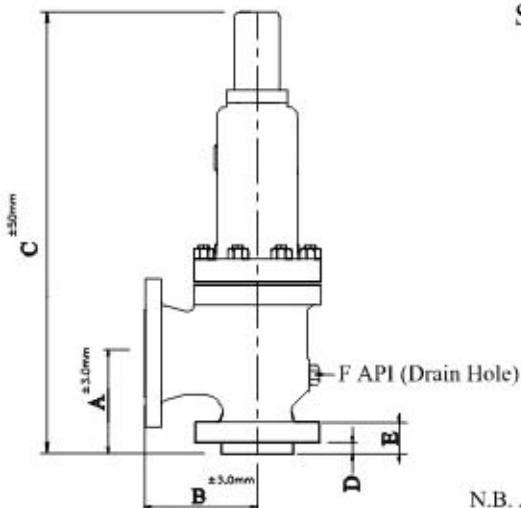
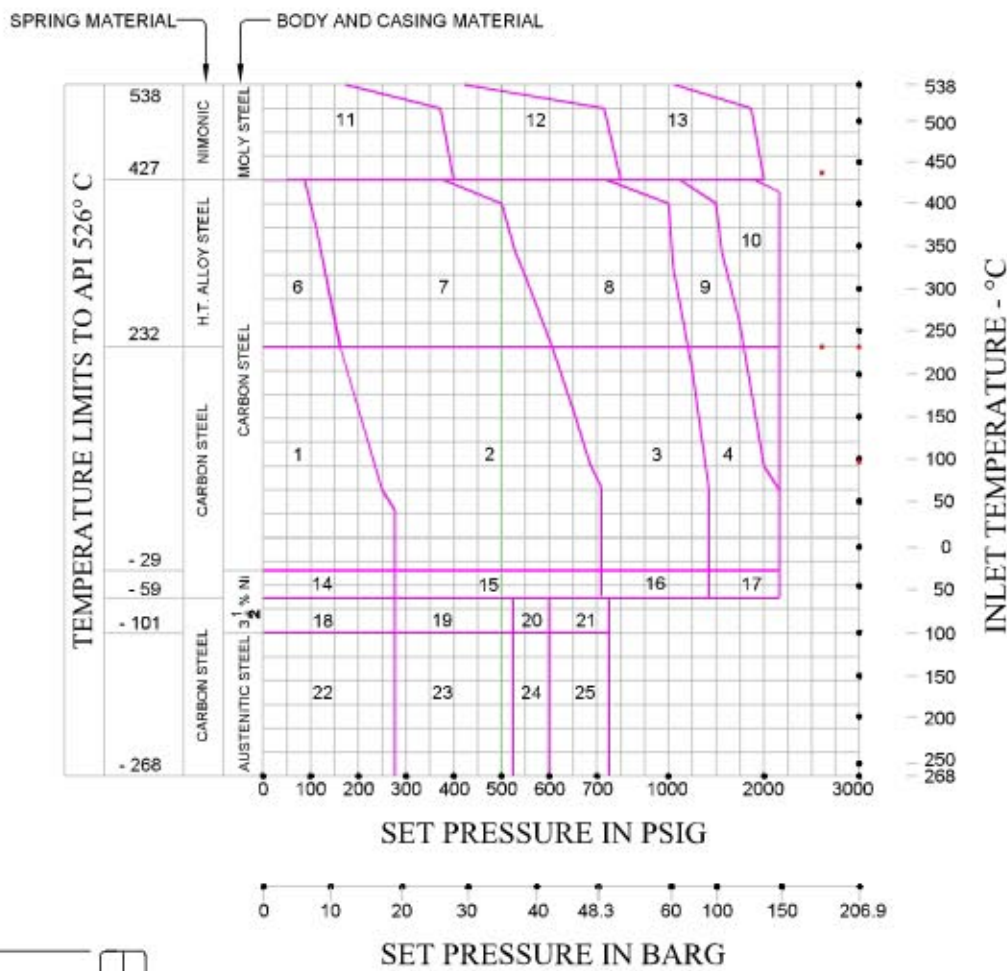
- 1) refer to the valve selection chart appropriate to the calculated orifice area.
- 2) Locate intersection of set pressure and service temperature on the chart, thus identifying the Key No.
- 3) Using the Key No. in the above table, read off the type number, valve size and flange rating.

Note : The type numbers in the table refer only to a conventional valve with a plain cap, and using standard materials appropriate to the pressure and temperature conditions.

- 4) Use the size and flange rating from the above table in compiling a complete valve type number from the table.



VALVE SELECTION CHART ORIFICE- 'K' (1.838 Sq.ins.)



VALVE SIZE - INCH	3" x K x 4"	3 1/2" x K x 4"	3 3/4" x K x 4"	3 7/8" x K x 4"	3" x K x 4"
CLASS	150	300	600	900	1500
A	155.0	155.0	185.0	185.0	185.0
B	162.0	162.0	180.0	180.0	180.0
C	650	650	850	850	850
D	14	14	14	14	14
E	43	43	52	52	52
F	1/2"	1/2"	1/2"	1/2"	1/2"
Appx. Weight	65 Kgs	65 Kgs	72 Kgs	72 Kgs	72 Kgs

N.B. All valves weights given approximate and apply only to conventional valves with plain cap.



VALVE SELECTION TABLE

ORIFICE- 'K' (1.838 Sq.ins.)

Key No.	Type Number	Valve Size Inlet x Outlet	Flanges ANSI		Max. Set pressure (PSIG) & Temperature Limits (°C)						Max. back Pressure PSIG		
			Inlet	Outlet	-232°C to -66°C	-65.5°C to -24.5°C	-24°C to -6°C	-6.66°C to -38°C	232°C	427°C	538°C	Conv. Valve	Balanced bellows
1	SVE520-K111C	3" x 4"	150#RF	150#RF				275	165			230	150
2	SVE520-K113C	3" x 4"	300#RF	150#RF				720	615			230	150
3	SVE520-K116C	3" x 4"	600#RF	150#RF				1440	1235			230	200
4	SVE520-K119C	3" x 4"	900#RF	150#RF				2160	1845			230	200
5	SVE520-K115C	3" x 4"	1500#RF	300#RF				2160	2160			600	200
6	SVE520-K111C	3" x 4"	150#RF	150#RF					165	80		230	150
7	SVE520-K113C	3" x 4"	300#RF	150#RF					615	365		230	150
8	SVE520-K116C	3" x 4"	600#RF	150#RF					1235	730		230	200
9	SVE520-K119C	3" x 4"	900#RF	150#RF					1845	1100		230	200
10	SVE520-K115C	3" x 4"	1500#RF	300#RF					2160	1830		600	200
11	SVE520-K113C	3" x 4"	300#RF	150#RF						410	215	230	150
12	SVE520-K116C	3" x 4"	600#RF	150#RF						815	430	230	200
13	SVE520-K115C	3" x 4"	1500#RF	300#RF						2040	1070	600	200
14	SVE520-K111C	3" x 4"	150#RF	150#RF			275					230	150
15	SVE520-K113C	3" x 4"	300#RF	150#RF			720					230	150
16	SVE520-K116C	3" x 4"	600#RF	150#RF			1440					230	200
17	SVE520-K119C	3" x 4"	900#RF	150#RF			2160					230	200
	SVE520-K115C	3" x 4"	1500#RF	300#RF			2160					600	200
18	SVE520-K111C	3" x 4"	150#RF	150#RF			275					230	150
19	SVE520-K113C	3" x 4"	300#RF	150#RF			525					230	150
20	SVE520-K116C	3" x 4"	600#RF	150#RF			600					230	200
	SVE520-K119C	3" x 4"	900#RF	150#RF			600					230	200
21	SVE520-K115C	3" x 4"	1500#RF	300#RF			750					600	200
22	SVE520-K111C	3" x 4"	150#RF	150#RF	275							230	150
23	SVE520-K113C	3" x 4"	300#RF	150#RF	525							230	150
24	SVE520-K116C	3" x 4"	600#RF	150#RF	600							230	200
	SVE520-K119C	3" x 4"	900#RF	150#RF	600							230	200
25	SVE520-K115C	3" x 4"	1500#RF	300#RF	750							600	200

= PSIG

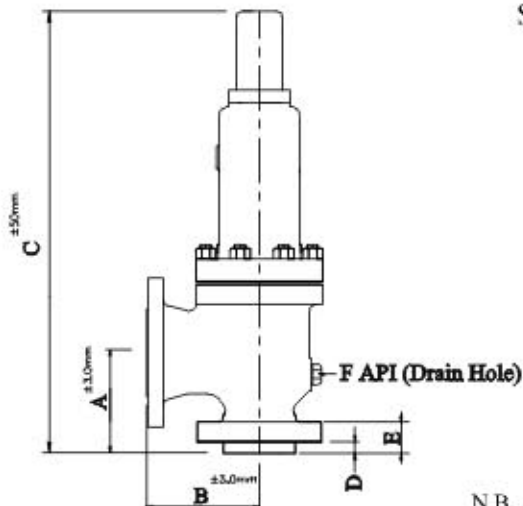
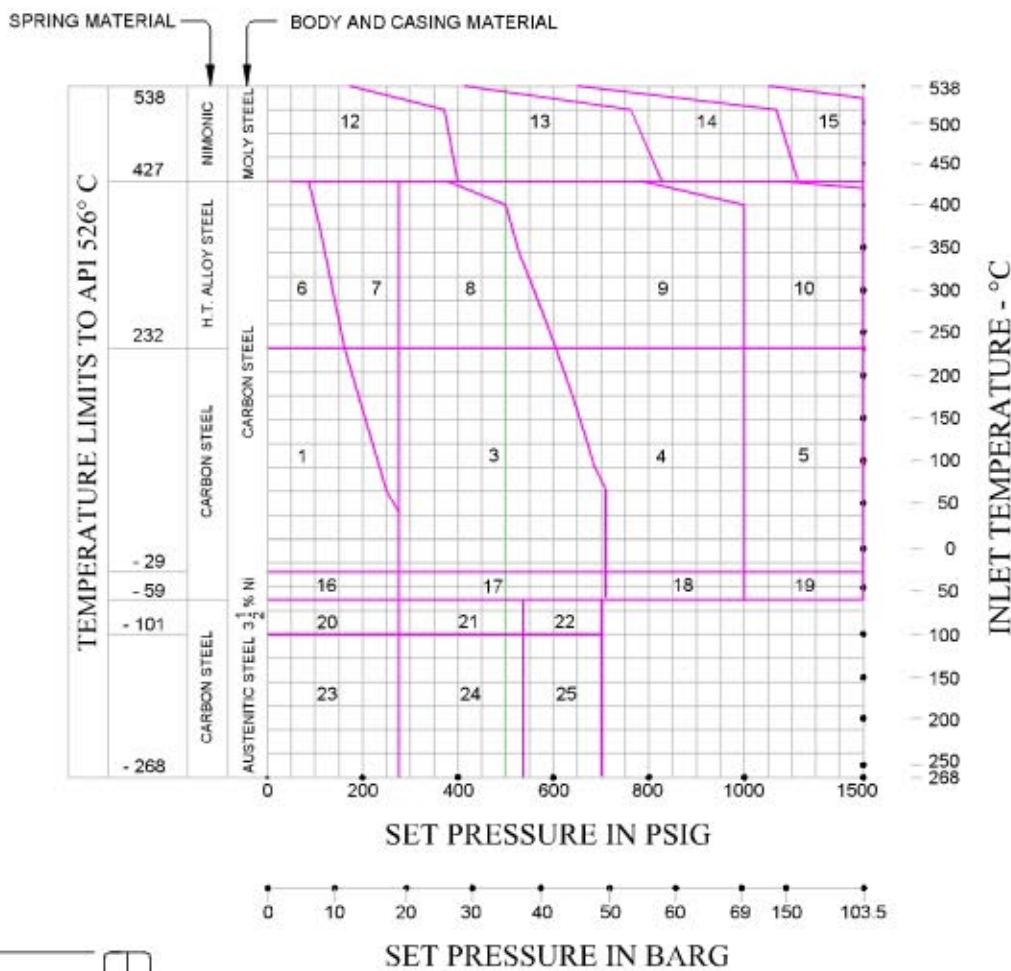
RF = RAISED FACE

To select a valve having the required pressure/temperature rating proceed as follows:

- 1) refer to the valve selection chart appropriate to the calculated orifice area.
- 2) Locate intersection of set pressure and service temperature on the chart, thus identifying the Key No.
- 3) Using the Key No. in the above table, read off the type number, valve size and flange rating.
Note : The type numbers in the table refer only to a conventional valve with a plain cap, and using standard materials appropriate to the pressure and temperature conditions.
- 4) Use the size and flange rating from the above table in compiling a complete valve type number from the table.



VALVE SELECTION CHART ORIFICE- 'L' (2.853 Sq.ins.)



VALVE SIZE - INCH	3"x L x 4"	3"x L x 4"	4"x L x 6"	4"x L x 6"	4"x L x 6"	4"x L x 6"
CLASS	150	300	300	600	900	1500
A	155.0	155.0	181.0	225.5	225.5	225.5
B	162.0	162.0	229.0	254.0	254.0	254.0
C	650	650	905	955	955	955
D	14	14	14	14	14	14
E	43	43	46	58	58	58
F	1/4"	1/4"	1/2"	1/2"	1/2"	1/2"
Appx.Weight	65 Kgs	65 Kgs	115 Kgs	125 Kgs	130 Kgs	135 Kgs

N.B. All valves weights given approximate and apply only to conventional valves with plain cap.



VALVE SELECTION TABLE

ORIFICE- 'L' (2.853 Sq.ins.)

Key No.	Type Number	Valve Size Inlet x Outlet	Flanges ANSI		Max. Set pressure (PSIG) & Temperature Limits (°C)						Max. back Pressure PSIG		
			Inlet	Outlet	-232°C to -66°C	-65.5°C to -24.5°C	-24°C to -6°C	-6.66°C to -38°C	232°C	427°C	538°C	Conv. Valve	Balanced bellows
1	SVE520-L111C	3" x 4"	150#RF	150#RF				275	165			230	100
2	SVE520-L113C	3" x 4"	300#RF	150#RF				275	275			230	100
3	SVE520-L113C	4" x 6"	300#RF	150#RF				720	615			230	170
4	SVE520-L116C	4" x 6"	600#RF	150#RF				1000	1000			230	170
5	SVE520-L119C	4" x 6"	900#RF	150#RF				1500	1500			230	170
6	SVE520-L111C	3" x 4"	150#RF	150#RF					165	80		230	100
7	SVE520-L113C	3" x 4"	300#RF	150#RF					275	275		230	100
8	SVE520-L113C	4" x 6"	300#RF	150#RF					615	365		230	170
9	SVE520-L116C	4" x 6"	600#RF	150#RF					1000	730		230	170
10	SVE520-L119C	4" x 6"	900#RF	150#RF					1500	1100		230	170
11	SVE520-L115C	4" x 6"	1500#RF	150#RF					1500	1500		230	170
12	SVE520-L113C	4" x 6"	300#RF	150#RF						410	215	230	170
13	SVE520-L116C	4" x 6"	600#RF	150#RF						815	430	230	170
14	SVE520-L119C	4" x 6"	900#RF	150#RF						1225	645	230	170
15	SVE520-L115C	4" x 6"	1500#RF	150#RF						1500	1070	230	170
16	SVE520-L111C	3" x 4"	150#RF	150#RF			275					230	100
	SVE520-L113C	3" x 4"	300#RF	150#RF			275					230	100
17	SVE520-L113C	4" x 6"	300#RF	150#RF			720					230	170
18	SVE520-L116C	4" x 6"	600#RF	150#RF			1000					230	170
19	SVE520-L119C	4" x 6"	900#RF	150#RF			1500					230	170
20	SVE520-L111C	3" x 4"	150#RF	150#RF			275					230	100
	SVE520-L113C	3" x 4"	300#RF	150#RF			275					230	100
21	SVE520-L113C	4" x 6"	300#RF	150#RF			720					230	170
	SVE520-L116C	4" x 6"	600#RF	150#RF			1000					230	170
22	SVE520-L119C	4" x 6"	900#RF	150#RF			1500					230	170
23	SVE520-L111C	3" x 4"	150#RF	150#RF	275							230	100
	SVE520-L113C	3" x 4"	300#RF	150#RF	275							230	100
24	SVE520-L113C	4" x 6"	300#RF	150#RF	535							230	170
	SVE520-L116C	4" x 6"	600#RF	150#RF	535							230	170
25	SVE520-L119C	4" x 6"	900#RF	150#RF	700							230	170

= PSIG

RF = RAISED FACE

To select a valve having the required pressure/temperature rating proceed as follows:

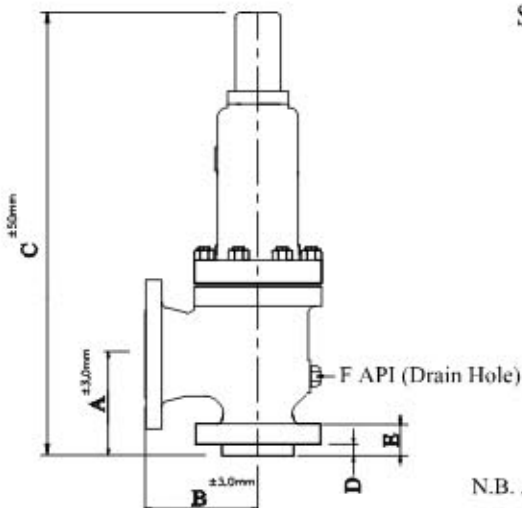
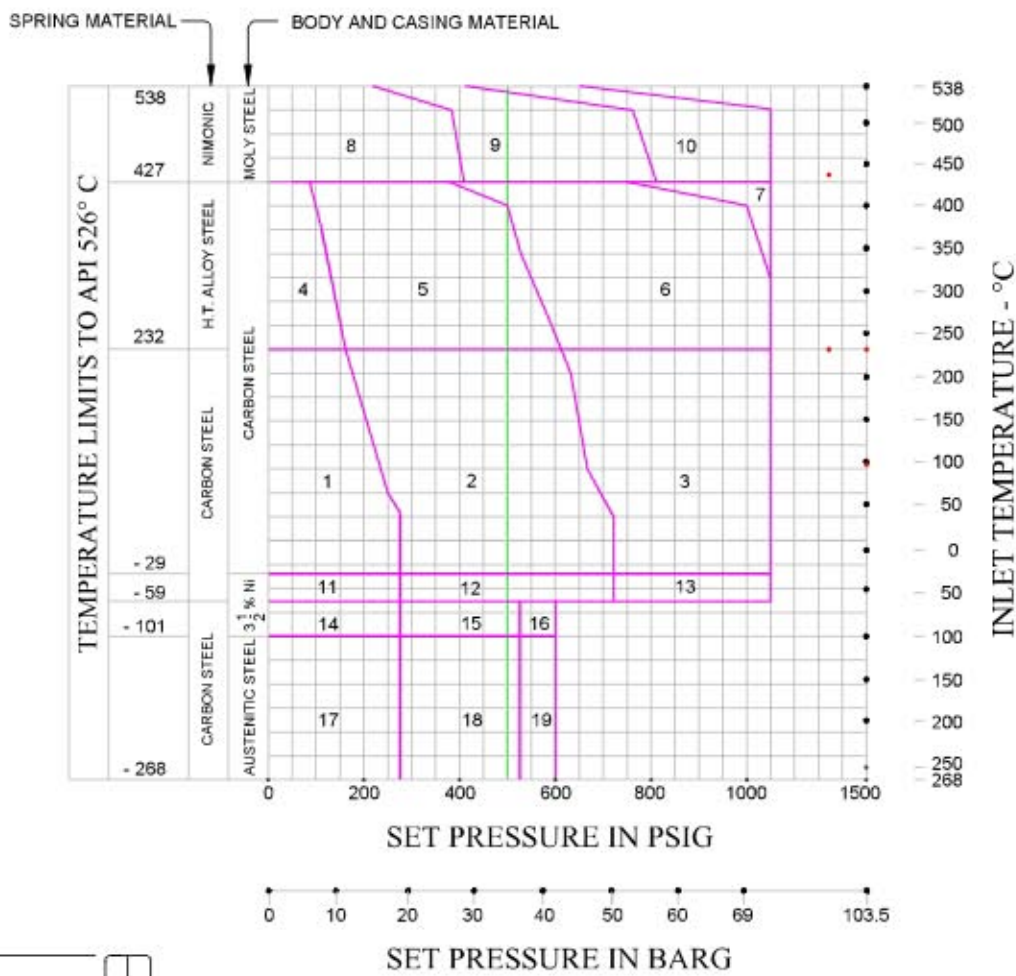
- 1) refer to the valve selection chart appropriate to the calculated orifice area.
- 2) Locate intersection of set pressure and service temperature on the chart, thus identifying the Key No.
- 3) Using the Key No. in the above table, read off the type number, valve size and flange rating.

Note : The type numbers in the table refer only to a conventional valve with a plain cap, and using standard materials appropriate to the pressure and temperature conditions.

- 4) Use the size and flange rating from the above table in compiling a complete valve type number from the table.



VALVE SELECTION CHART ORIFICE- 'M' (3.60 Sq.ins.)



VALVE SIZE - INCH	4" X M X 6"	4" X M X 6"	4" X M X 6"	4" X M X 6"
CLASS	150	300	600	900
A	181.0	181.0	225.5	225.5
B	229.0	229.0	254.0	254.0
C	905	905	955	955
D	14	14	14	14
E	46	46	58	58
F	1/2"	1/2"	1/2"	1/2"
Appx. Weight	115 Kgs	115 Kgs	125 Kgs	130 Kgs

N.B. All valves weights given approximate and apply only to conventional valves with plain cap.



VALVE SELECTION TABLE

ORIFICE- 'M' (3.60 Sq.ins.)

Key No.	Type Number	Valve Size Inlet x Outlet	Flanges ANSI		Max. Set pressure (PSIG) & Temperature Limits (°C)						Max. back Pressure PSIG		
			Inlet	Outlet	-232°C to -66°C	-65.5°C to -24.5°C	-24°C to -6°C	-6.66°C to -38°C	232°C	427°C	538°C	Conv. Valve	Balanced bellows
1	SVE520-M111C	4" x 6"	150#RF	150#RF				275	165			230	80
2	SVE520-M113C	4" x 6"	300#RF	150#RF				720	615			230	160
3	SVE520-M116C	4" x 6"	600#RF	150#RF				1100	1100			230	160
4	SVE520-M111C	4" x 6"	150#RF	150#RF					165	80		230	80
5	SVE520-M113C	4" x 6"	300#RF	150#RF					615	365		230	160
6	SVE520-M116C	4" x 6"	600#RF	150#RF					1100	730		230	160
7	SVE520-M119C	4" x 6"	900#RF	150#RF					1100	1100		230	160
8	SVE520-M113C	4" x 6"	300#RF	150#RF						410	215	230	160
9	SVE520-M116C	4" x 6"	600#RF	150#RF						815	430	230	160
10	SVE520-M119C	4" x 6"	900#RF	150#RF						1100	645	230	160
11	SVE520-M111C	4" x 6"	150#RF	150#RF				275				230	80
12	SVE520-M113C	4" x 6"	300#RF	150#RF				720				230	160
13	SVE520-M116C	4" x 6"	600#RF	150#RF				1100				230	160
14	SVE520-M111C	4" x 6"	150#RF	150#RF					275			230	80
15	SVE520-M113C	4" x 6"	300#RF	150#RF						525		230	160
16	SVE520-M116C	4" x 6"	600#RF	150#RF						600		230	160
17	SVE520-M111C	4" x 6"	150#RF	150#RF	275							230	80
18	SVE520-M113C	4" x 6"	300#RF	150#RF	525							230	160
19	SVE520-M116C	4" x 6"	600#RF	150#RF	600							230	160

= PSIG

RF = RAISED FACE

To select a valve having the required pressure/temperature rating proceed as follows:

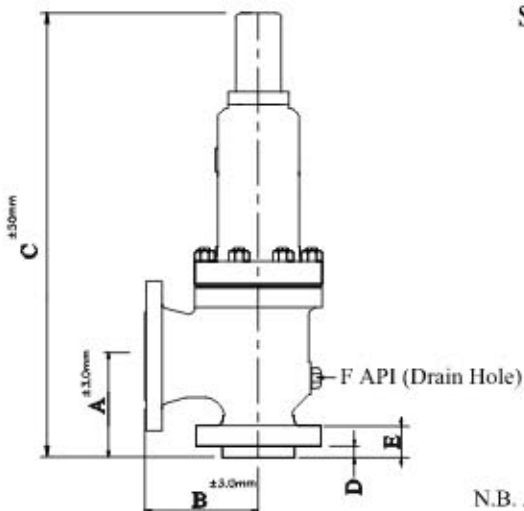
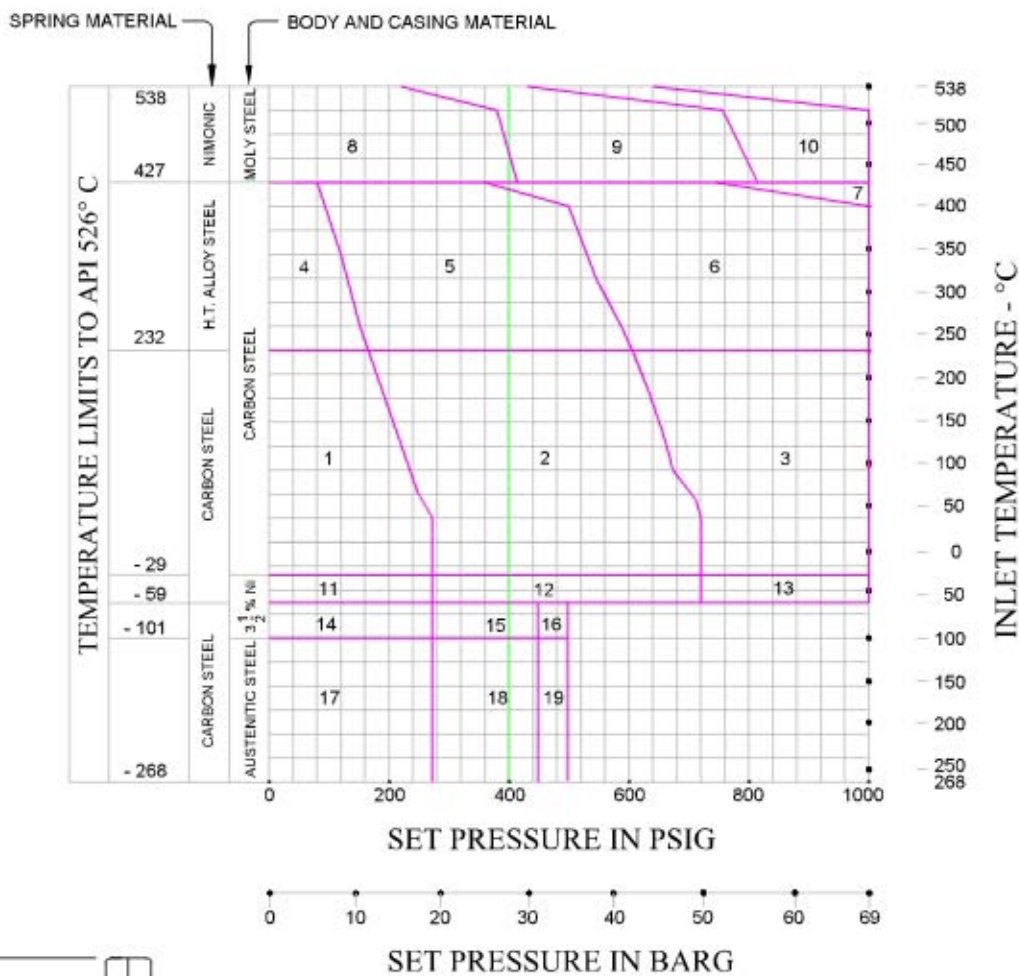
- 1) refer to the valve selection chart appropriate to the calculated orifice area.
- 2) Locate intersection of set pressure and service temperature on the chart, thus identifying the Key No.
- 3) Using the Key No. in the above table, read off the type number, valve size and flange rating.

Note : The type numbers in the table refer only to a conventional valve with a plain cap, and using standard materials appropriate to the pressure and temperature conditions.

- 4) Use the size and flange rating from the above table in compiling a complete valve type number from the table.



VALVE SELECTION CHART ORIFICE- 'N' (4.34 Sq.ins.)



VALVE SIZE - INCH	4" X N X 6"	4" X N X 6"	4" X N X 6"	4" X N X 6"
CLASS	150	300	600	900
A	181.0	181.0	225.5	225.5
B	229.0	229.0	254.0	254.0
C	905	905	955	955
D	14	14	14	14
E	46	46	58	58
F	1/2"	1/2"	1/2"	1/2"
Appx.Weight	115 Kgs	115 Kgs	125 Kgs	130 Kgs

N.B. All valves weights given approximate and apply only to conventional valves with plain cap.



VALVE SELECTION TABLE ORIFICE- 'N' (4.34 Sq.ins.)

Key No.	Type Number	Valve Size Inlet x Outlet	Flanges ANSI		Max. Set pressure (PSIG) & Temperature Limits (°C)						Max. back Pressure PSIG		
			Inlet	Outlet	-232°C to -66°C	-65.5°C to -24.5°C	-24°C to -6°C	-6.66°C to -38°C	232°C	427°C	538°C	Conv. Valve	Balanced bellows
1	SVE520-N111C	4" x 6"	150#RF	150#RF				275	165			230	80
2	SVE520-N113C	4" x 6"	300#RF	150#RF				720	615			230	160
3	SVE520-N116C	4" x 6"	600#RF	150#RF				1000	1000			230	160
4	SVE520-N111C	4" x 6"	150#RF	150#RF					165	80		230	80
5	SVE520-N113C	4" x 6"	300#RF	150#RF					615	365		230	160
6	SVE520-N116C	4" x 6"	600#RF	150#RF					1000	730		230	160
7	SVE520-N119C	4" x 6"	900#RF	150#RF					1000	1000		230	160
8	SVE520-N113C	4" x 6"	300#RF	150#RF						410	215	230	160
9	SVE520-N116C	4" x 6"	600#RF	150#RF						815	430	230	160
10	SVE520-N119C	4" x 6"	900#RF	150#RF						1000	645	230	160
11	SVE520-N111C	4" x 6"	150#RF	150#RF			275					230	80
12	SVE520-N113C	4" x 6"	300#RF	150#RF			720					230	160
13	SVE520-N116C	4" x 6"	600#RF	150#RF			1000					230	160
14	SVE520-N111C	4" x 6"	150#RF	150#RF		275						230	80
15	SVE520-N113C	4" x 6"	300#RF	150#RF		450						230	160
16	SVE520-N116C	4" x 6"	600#RF	150#RF		500						230	160
17	SVE520-N111C	4" x 6"	150#RF	150#RF	275							230	80
18	SVE520-N113C	4" x 6"	300#RF	150#RF	450							230	160
19	SVE520-N116C	4" x 6"	600#RF	150#RF	500							230	160

= PSIG

RF = RAISED FACE

To select a valve having the required pressure/temperature rating proceed as follows:

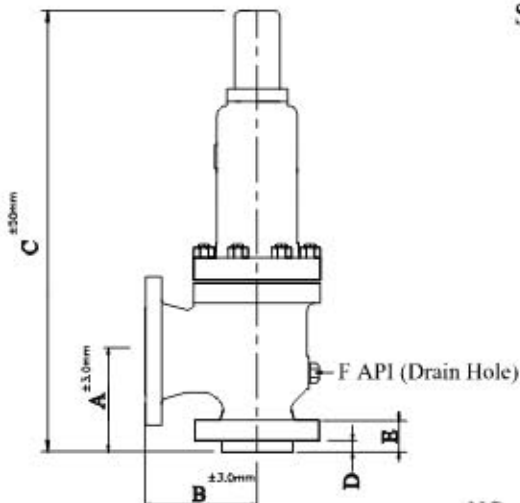
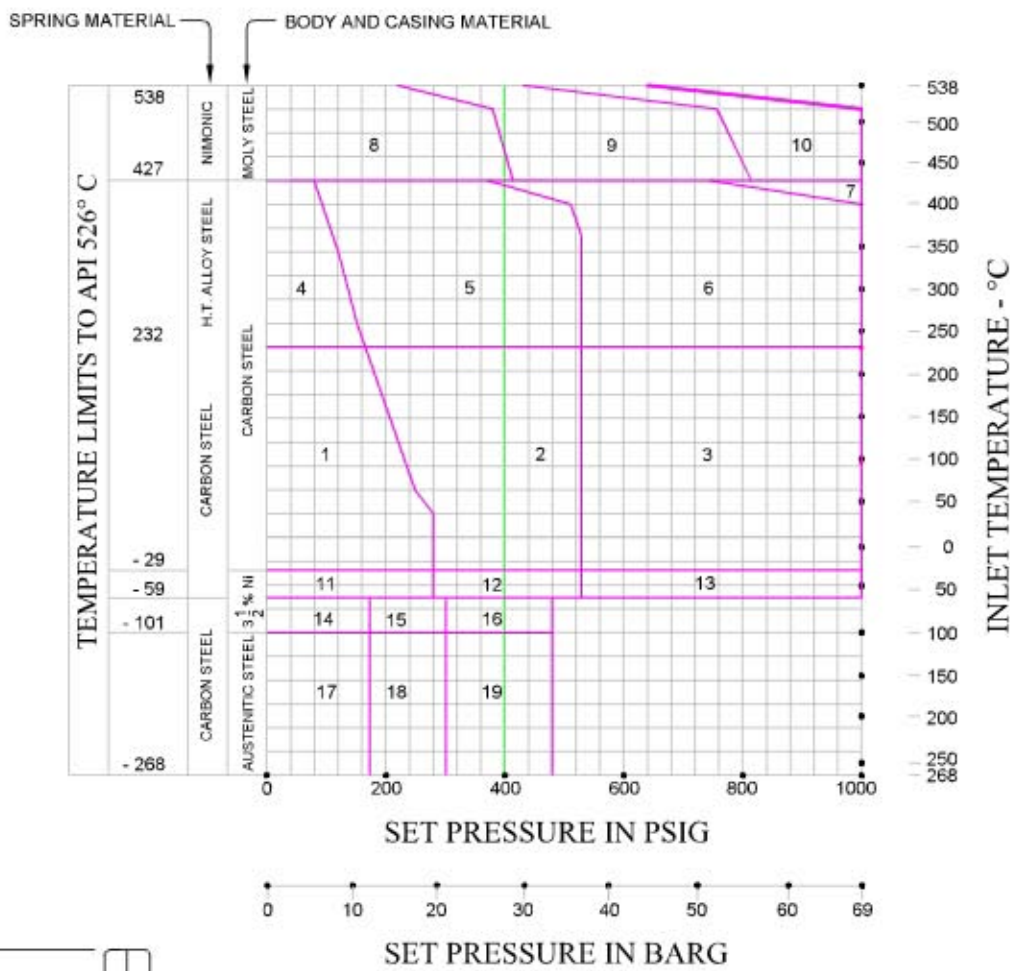
- 1) refer to the valve selection chart appropriate to the calculated orifice area.
- 2) Locate intersection of set pressure and service temperature on the chart, thus identifying the Key No.
- 3) Using the Key No. in the above table, read off the type number, valve size and flange rating.

Note : The type numbers in the table refer only to a conventional valve with a plain cap, and using standard materials appropriate to the pressure and temperature conditions.

- 4) Use the size and flange rating from the above table in compiling a complete valve type number from the table.



VALVE SELECTION CHART ORIFICE- 'P' (6.38 Sq.ins.)



VALVE SIZE - INCH	4" x P x 6"	4" x P x 6"	4" x P x 6"	4" x P x 6"
CLASS	150	300	600	900
A	181.0	181.0	225.5	225.5
B	229.0	229.0	254.0	254.0
C	905	905	955	955
D	14	14	14	14
E	46	46	58	58
F	1/2"	1/2"	1/2"	1/2"
Appx.Weight	115 Kgs	115 Kgs	125 Kgs	130 Kgs

N.B. All valves weights given approximate and apply only to conventional valves with plain cap.



VALVE SELECTION TABLE ORIFICE- 'P' (6.38 Sq.ins.)

Key No.	Type Number	Valve Size Inlet x Outlet	Flanges ANSI		Max. Set pressure (PSIG) & Temperature Limits (°C)						Max. back Pressure PSIG		
			Inlet	Outlet	-232°C to -66°C	-65.5°C to -24.5°C	-24°C to -6°C	-6.66°C to -38°C	232°C	427°C	538°C	Conv. Valve	Balanced bellows
1	SVE520-P111C	4" x 6"	150#RF	150#RF				275	165			230	80
2	SVE520-P113C	4" x 6"	300#RF	150#RF				525	525			230	150
3	SVE520-P116C	4" x 6"	600#RF	150#RF				1000	1000			230	
4	SVE520-P111C	4" x 6"	150#RF	150#RF					165	80		230	80
5	SVE520-P113C	4" x 6"	300#RF	150#RF					525	365		230	150
6	SVE520-P116C	4" x 6"	600#RF	150#RF					1000	730		230	
7	SVE520-P119C	4" x 6"	900#RF	150#RF					1000	1000		230	
8	SVE520-P113C	4" x 6"	300#RF	150#RF						410	215	230	150
9	SVE520-P116C	4" x 6"	600#RF	150#RF						815	430	230	
10	SVE520-P119C	4" x 6"	900#RF	150#RF						1000	645	230	
11	SVE520-P111C	4" x 6"	150#RF	150#RF			275					230	80
12	SVE520-P113C	4" x 6"	300#RF	150#RF			525					230	150
13	SVE520-P116C	4" x 6"	600#RF	150#RF			1000					230	
14	SVE520-P111C	4" x 6"	150#RF	150#RF		175						230	80
15	SVE520-P113C	4" x 6"	300#RF	150#RF		300						230	150
16	SVE520-P116C	4" x 6"	600#RF	150#RF		1000						230	
17	SVE520-P111C	4" x 6"	150#RF	150#RF	175							230	80
18	SVE520-P113C	4" x 6"	300#RF	150#RF	300							230	150
19	SVE520-P116C	4" x 6"	600#RF	150#RF	480							230	

= PSIG

RF = RAISED FACE

To select a valve having the required pressure/temperature rating proceed as follows:

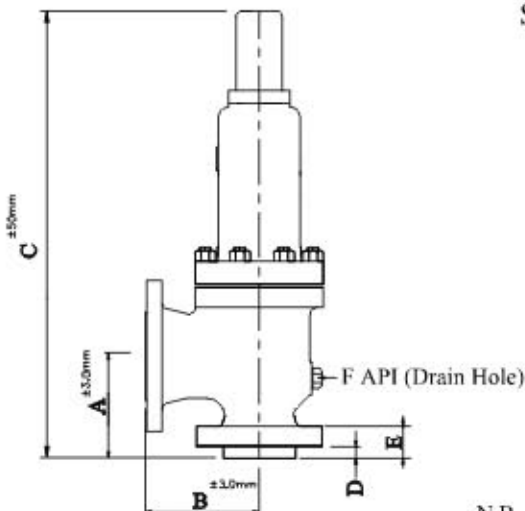
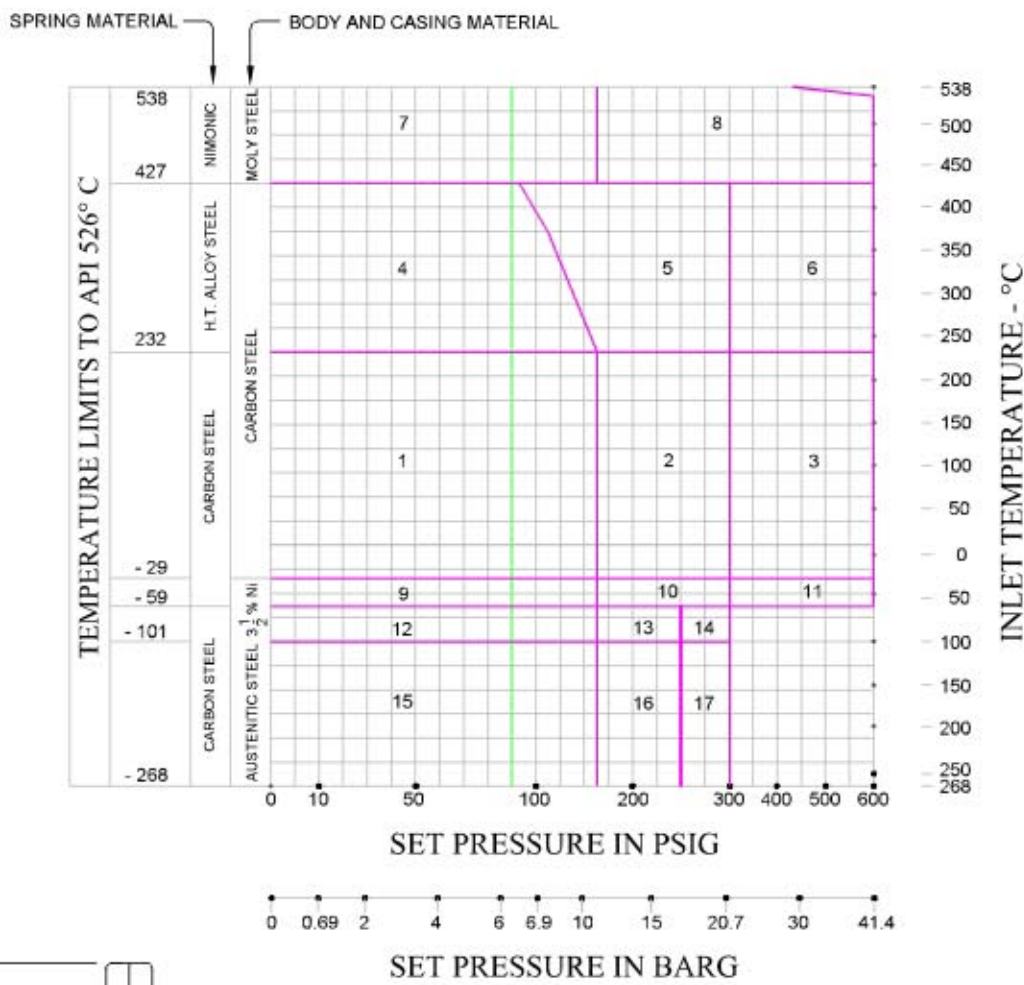
- 1) refer to the valve selection chart appropriate to the calculated orifice area.
- 2) Locate intersection of set pressure and service temperature on the chart, thus identifying the Key No.
- 3) Using the Key No. in the above table, read off the type number, valve size and flange rating.

Note : The type numbers in the table refer only to a conventional valve with a plain cap, and using standard materials appropriate to the pressure and temperature conditions.

- 4) Use the size and flange rating from the above table in compiling a complete valve type number from the table.



VALVE SELECTION CHART ORIFICE- 'Q' (11.05 Sq.ins.)



VALVE SIZE - INCH	6" x Q x 8"	6" x Q x 8"	6" x Q x 8"
CLASS	150	300	600
A	240	240	240
B	241.0	241.0	241.0
C	1150	1150	1150
D	18	18	18
E	55	55	66
F	1/2"	1/2"	1/2"
Appx.Weight	213 Kgs	213 Kgs	230 Kgs

N.B. All valves weights given approximate and apply only to conventional valves with plain cap.



VALVE SELECTION TABLE

ORIFICE- 'Q' (11.05 Sq.ins.)

Key No.	Type Number	Valve Size Inlet x Outlet	Flanges ANSI		Max. Set pressure (PSIG) & Temperature Limits (°C)						Max. back Pressure PSIG		
			Inlet	Outlet	-232°C to -66°C	-65.5°C to -24.5°C	-24°C to -6°C	-6.66°C to -38°C	232°C	427°C	538°C	Conv. Valve	Balanced bellows
1	SVE520-Q111C	6" x 8"	150#RF	150#RF				165	165			115	70
2	SVE520-Q113C	6" x 8"	300#RF	150#RF				300	300			115	115
3	SVE520-Q116C	6" x 8"	600#RF	150#RF				600	600			115	115
4	SVE520-Q111C	6" x 8"	150#RF	150#RF					165	80		115	70
5	SVE520-Q113C	6" x 8"	300#RF	150#RF					300	300		115	115
6	SVE520-Q116C	6" x 8"	600#RF	150#RF					600	600		115	115
7	SVE520-Q113C	6" x 8"	300#RF	150#RF						165	165	115	115
8	SVE520-Q116C	6" x 8"	600#RF	150#RF						600	430	115	115
9	SVE520-Q111C	6" x 8"	150#RF	150#RF			165					115	70
10	SVE520-Q113C	6" x 8"	300#RF	150#RF			300					115	115
11	SVE520-Q116C	6" x 8"	600#RF	150#RF			600					115	115
12	SVE520-Q111C	6" x 8"	150#RF	150#RF		165						115	70
13	SVE520-Q113C	6" x 8"	300#RF	150#RF		250						115	115
14	SVE520-Q116C	6" x 8"	600#RF	150#RF		300						115	115
15	SVE520-Q111C	6" x 8"	150#RF	150#RF	165							115	70
16	SVE520-Q113C	6" x 8"	300#RF	150#RF	250							115	115
17	SVE520-Q116C	6" x 8"	600#RF	150#RF	300							115	115

= PSIG

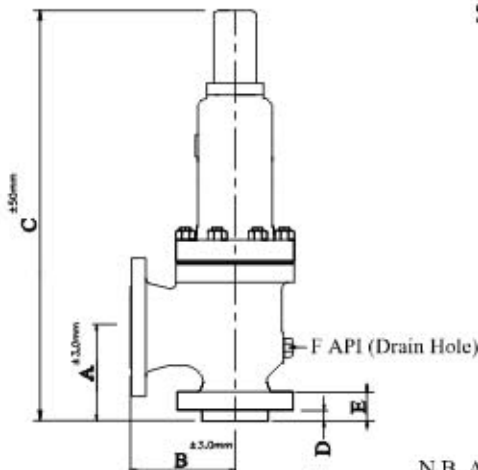
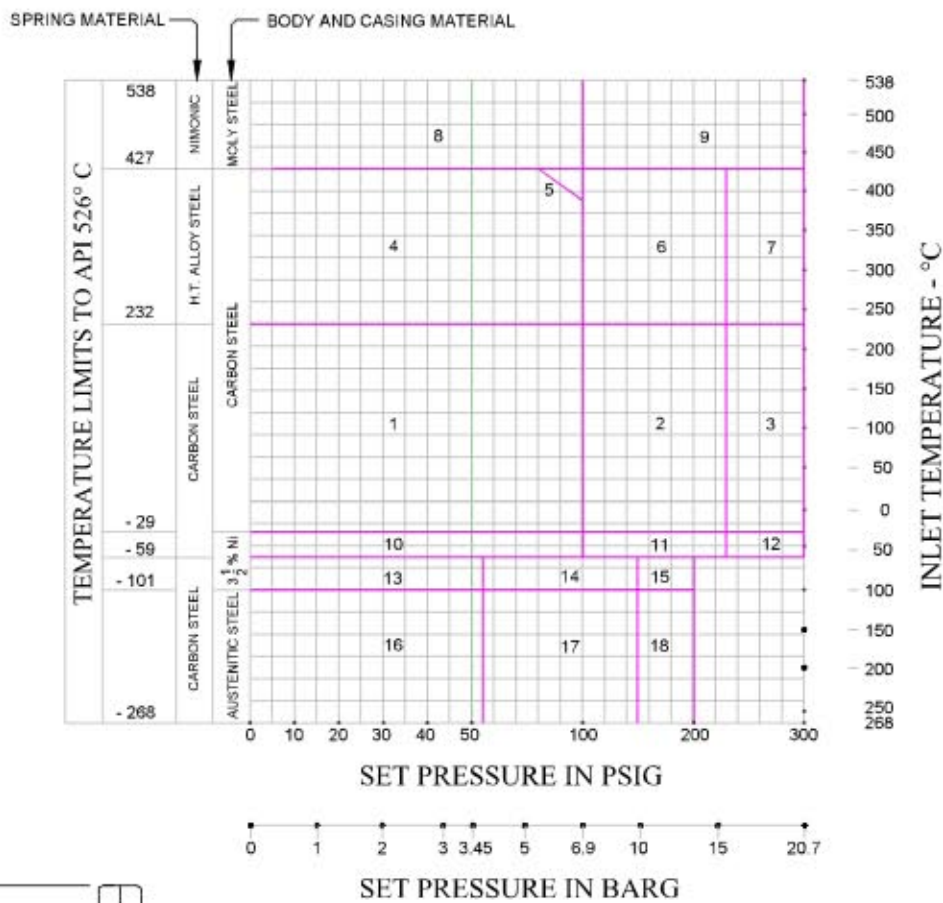
RF = RAISED FACE

To select a valve having the required pressure/temperature rating proceed as follows:

- 1) refer to the valve selection chart appropriate to the calculated orifice area.
- 2) Locate intersection of set pressure and service temperature on the chart, thus identifying the Key No.
- 3) Using the Key No. in the above table, read off the type number, valve size and flange rating.
Note : The type numbers in the table refer only to a conventional valve with a plain cap, and using standard materials appropriate to the pressure and temperature conditions.
- 4) Use the size and flange rating from the above table in compiling a complete valve type number from the table.



VALVE SELECTION CHART ORIFICE- 'R' (16.00 Sq.ins.)



VALVE SIZE - INCH	6" x R x 8"	6" x R x 8"	6" x R x 8"
CLASS	150	300	600
A	240	240	240
B	241.0	241.0	241.0
C	1150	1150	1150
D	18	18	18
E	55	55	66
F	1/2"	1/2"	1/2"
Appx.Weight	213 Kgs	213 Kgs	230 Kgs

N.B. All valves weights given approximate and apply only to conventional valves with plain cap.



VALVE SELECTION TABLE

ORIFICE- 'R' (16.00 Sq.ins.)

Key No.	Type Number	Valve Size Inlet x Outlet	Flanges ANSI		Max. Set pressure (PSIG) & Temperature Limits (°C)						Max. back Pressure PSIG		
			Inlet	Outlet	-232°C to -66°C	-65.5°C to -24.5°C	-24°C to -6°C	-6.66°C to -38°C	232°C	427°C	538°C	Conv. Valve	Balanced bellows
1	SVE520-R111C	6" x 8"	150#RF	150#RF				100	100			60	60
	SVE520-R113C	6" x 8"	300#RF	150#RF				100	100			60	60
2	SVE520-R113C	6" x 8"	300#RF	150#RF				230	230			100	100
3	SVE520-R116C	6" x 8"	600#RF	150#RF				300	300			100	100
4	SVE520-R111C	6" x 8"	150#RF	150#RF					100	80		60	60
5	SVE520-R113C	6" x 8"	300#RF	150#RF					100	100		60	60
6	SVE520-R113C	6" x 8"	300#RF	150#RF					230	230		100	100
7	SVE520-R116C	6" x 8"	600#RF	150#RF					300	300		100	100
8	SVE520-R113C	6" x 8"	300#RF	150#RF						100	100	60	60
9	SVE520-R116C	6" x 8"	600#RF	150#RF						300	300	100	100
10	SVE520-R111C	6" x 8"	150#RF	150#RF			100					60	60
	SVE520-R113C	6" x 8"	300#RF	150#RF			100					60	60
11	SVE520-R113C	6" x 8"	300#RF	150#RF			230					100	100
12	SVE520-R116C	6" x 8"	600#RF	150#RF			300					100	100
13	SVE520-R111C	6" x 8"	150#RF	150#RF		55						60	60
	SVE520-R113C	6" x 8"	300#RF	150#RF		55						60	60
14	SVE520-R113C	6" x 8"	300#RF	150#RF		150						100	100
15	SVE520-R116C	6" x 8"	600#RF	150#RF		200						100	100
16	SVE520-R111C	6" x 8"	150#RF	150#RF	55							60	60
	SVE520-R113C	6" x 8"	300#RF	150#RF	55							60	60
17	SVE520-R113C	6" x 8"	300#RF	150#RF	150							100	100
18	SVE520-R116C	6" x 8"	600#RF	150#RF	200							100	100

= PSIG

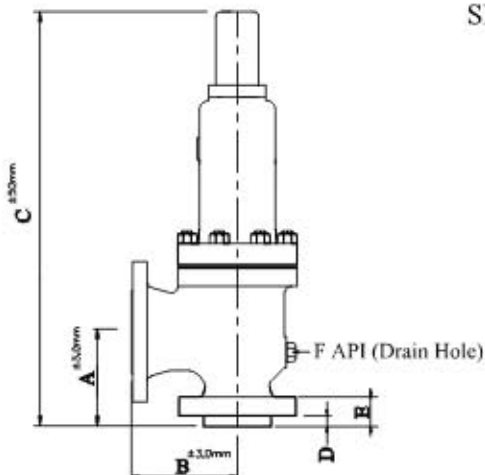
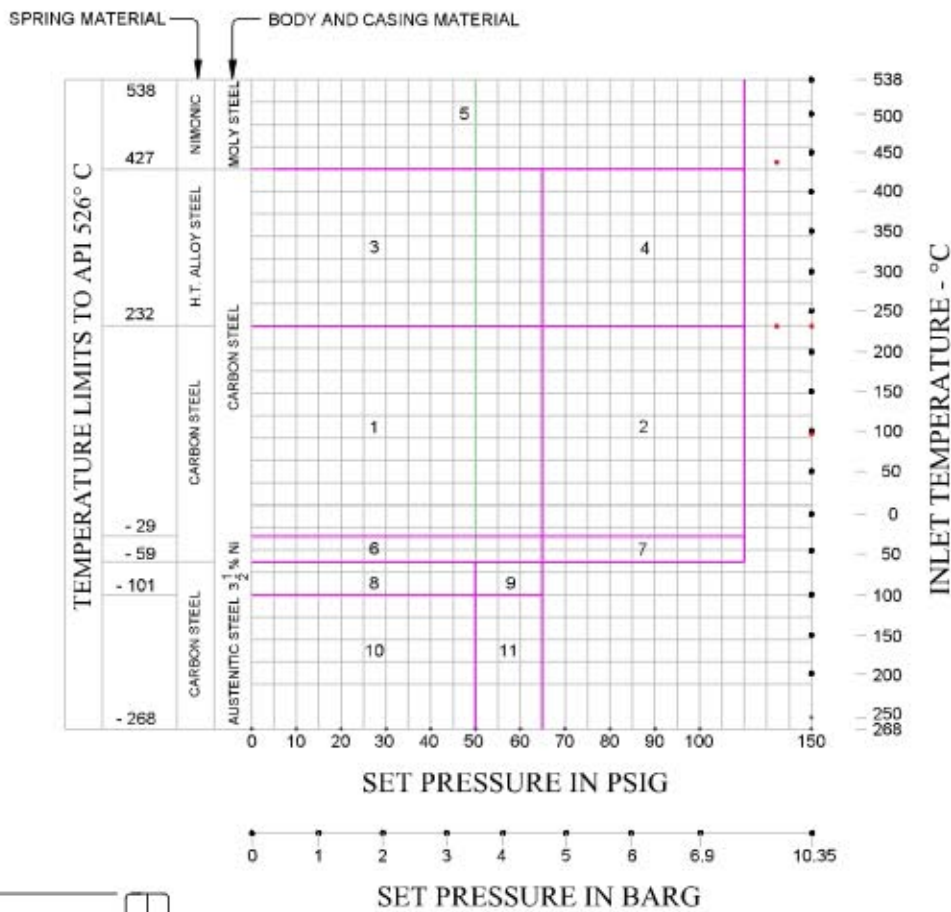
RF = RAISED FACE

To select a valve having the required pressure/temperature rating proceed as follows:

- 1) refer to the valve selection chart appropriate to the calculated orifice area.
- 2) Locate intersection of set pressure and service temperature on the chart, thus identifying the Key No.
- 3) Using the Key No. in the above table, read off the type number, valve size and flange rating.
Note : The type numbers in the table refer only to a conventional valve with a plain cap, and using standard materials appropriate to the pressure and temperature conditions.
- 4) Use the size and flange rating from the above table in compiling a complete valve type number from the table.



VALVE SELECTION CHART ORIFICE- 'T' (26.00 Sq.ins.)



VALVE SIZE - INCH	8" x T x 10"	8" x T x 10"
CLASS	150	300
A	276	276
B	279.5	279.5
C	1470	1470
D	18	18
E	59.5	59.5
F	1/2"	1/2"
Appx.Weight	350 Kgs	350 Kgs

N.B. All valves weights given approximate and apply only to conventional valves with plain cap.



VALVE SELECTION TABLE

ORIFICE- 'T' (26.00 Sq.ins.)

Key No.	Type Number	Valve Size Inlet x Outlet	Flanges ANSI		Max. Set pressure (PSIG) & Temperature Limits (°C)						Max. back Pressure PSIG		
			Inlet	Outlet	-232°C to -66°C	-65.5°C to -24.5°C	-24°C to -6°C	-6.66°C to -38°C	232°C	427°C	538°C	Conv. Valve	Balanced bellows
1	SVE520-T111C	8" x 10"	150#RF	150#RF				65	65			30	30
2	SVE520-T113C	8" x 10"	300#RF	150#RF				120	120			60	60
3	SVE520-T111C	8" x 10"	150#RF	150#RF					65	65		30	30
4	SVE520-T113C	8" x 10"	300#RF	150#RF					120	120		60	60
5	SVE520-T113C	8" x 10"	300#RF	150#RF						120	120	60	60
6	SVE520-T111C	8" x 10"	150#RF	150#RF			65					30	30
7	SVE520-T113C	8" x 10"	300#RF	150#RF			120					60	60
8	SVE520-T111C	8" x 10"	150#RF	150#RF		50						30	30
9	SVE520-T113C	8" x 10"	300#RF	150#RF		65						60	60
10	SVE520-T111C	8" x 10"	150#RF	150#RF	50							30	30
11	SVE520-T113C	8" x 10"	300#RF	150#RF	65							60	60

= PSIG

RF = RAISED FACE

To select a valve having the required pressure/temperature rating proceed as follows:

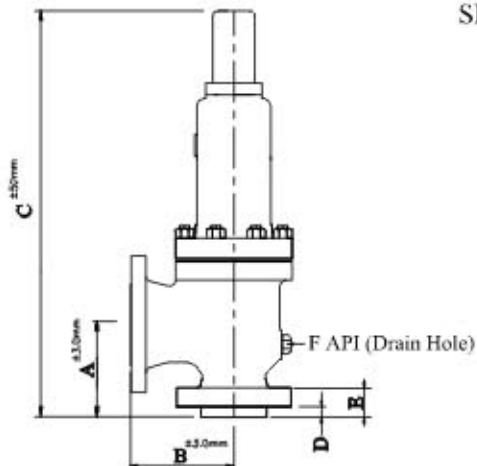
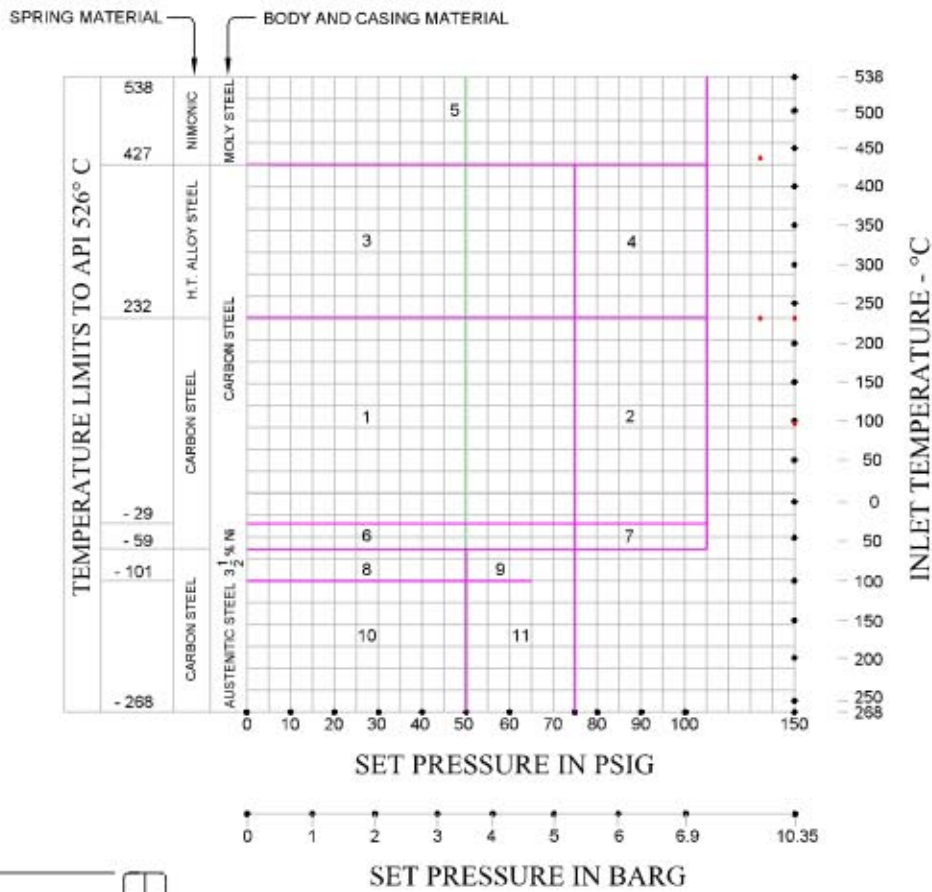
- 1) refer to the valve selection chart appropriate to the calculated orifice area.
- 2) Locate intersection of set pressure and service temperature on the chart, thus identifying the Key No.
- 3) Using the Key No. in the above table, read off the type number, valve size and flange rating.

Note : The type numbers in the table refer only to a conventional valve with a plain cap, and using standard materials appropriate to the pressure and temperature conditions.

- 4) Use the size and flange rating from the above table in compiling a complete valve type number from the table.



VALVE SELECTION CHART ORIFICE- 'V' (44.00 Sq.ins.)



VALVE SIZE - INCH	10" x V x 14"	10" x V x 14"
CLASS	150	300
A	380.0	380.0
B	370.0	370.0
C	1600	1600
D	28	28
E	75	75
F	1/2"	1/2"
Appx. Weight	650 Kgs	650 Kgs

N.B. All valves weights given approximate and apply only to conventional valves with plain cap.



VALVE SELECTION TABLE

ORIFICE- 'V' (44.00 Sq.ins.)

Key No.	Type Number	Valve Size Inlet x Outlet	Flanges ANSI		Max. Set pressure (PSIG) & Temperature Limits (°C)							Max. back Pressure PSIG	
			Inlet	Outlet	-232°C to -66°C	-65.5°C to -24.5°C	-24°C to -6°C	-6.66°C to -38°C	232°C	427°C	538°C	Conv. Valve	Balanced bellows
1	SVE520-V111C	10" x 14"	150#RF	150#RF				65	65			30	30
2	SVE520-V113C	10" x 14"	300#RF	150#RF				120	120			60	60
3	SVE520-V111C	10" x 14"	150#RF	150#RF					65	65		30	30
4	SVE520-V113C	10" x 14"	300#RF	150#RF					120	120		60	60
5	SVE520-V113C	10" x 14"	300#RF	150#RF						120	120	60	60
6	SVE520-V111C	10" x 14"	150#RF	150#RF			65					30	30
7	SVE520-V113C	10" x 14"	300#RF	150#RF			120					60	60
8	SVE520-V111C	10" x 14"	150#RF	150#RF		50						30	30
9	SVE520-V113C	10" x 14"	300#RF	150#RF		65						60	60
10	SVE520-V111C	10" x 14"	150#RF	150#RF	50							30	30
11	SVE520-V113C	10" x 14"	300#RF	150#RF	65							60	60

= PSIG

RF = RAISED FACE

To select a valve having the required pressure/temperature rating proceed as follows:

- 1) refer to the valve selection chart appropriate to the calculated orifice area.
- 2) Locate intersection of set pressure and service temperature on the chart, thus identifying the Key No.
- 3) Using the Key No. in the above table, read off the type number, valve size and flange rating.

Note : The type numbers in the table refer only to a conventional valve with a plain cap, and using standard materials appropriate to the pressure and temperature conditions.

- 4) Use the size and flange rating from the above table in compiling a complete valve type number from the table.



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ORDERING INFORMATION AND NAME PLATE

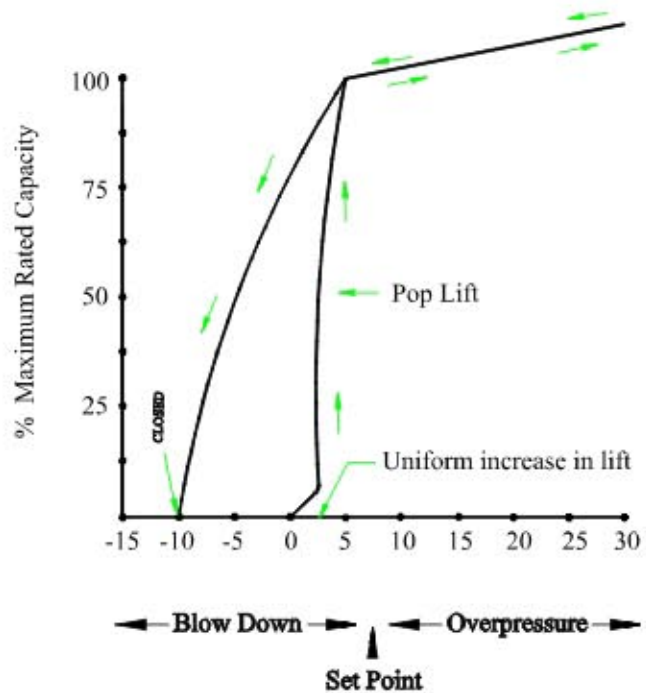
ORDERING INFORMATION :

- Valve Inlet size - rating - facing
- Valve Outlet size - rating - facing
- Orifice size - Orifice code - area in cm^2 - diameter
- Fluid and temp.
- Set pressure and discharge capacity required
- Body material, nozzle, disc material, trim material

TYPICAL NAME PLATE

MODEL <input style="width: 80%;" type="text"/>	
SR.NO <input style="width: 40%;" type="text"/>	YEAR <input style="width: 40%;" type="text"/>
INLET <input type="checkbox"/>	ORIFICE <input type="checkbox"/> OUTLET <input type="checkbox"/>
BODY MATL <input style="width: 40%;" type="text"/>	TRIM MATL <input style="width: 40%;" type="text"/>
SET PR. <input style="width: 40%;" type="text"/> Kg/cm ²	BACK PR. <input style="width: 40%;" type="text"/> Kg/cm ²
RATING <input style="width: 80%;" type="text"/>	
TAG.NO <input style="width: 40%;" type="text"/>	SPR.NO. <input style="width: 40%;" type="text"/>
DIS.CAP <input style="width: 80%;" type="text"/> Kg/hr	
DARLING MUESCO (INDIA) PVT.LTD. <small>97/A, TRASE-1 GID.C. VATVA, AHMEDABAD.</small>	

TYPICAL FLOW CURVE





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इंजीनियर्स इंडिया लिमिटेड ENGINEERS INDIA LIMITED
(प्राप्त सरकार का उपक्रम) (A Govt. of India Undertaking)

पंजीकृत कार्यालय : इंजीनियर्स इंडिया बिल्डिंग, 1, पीएमएचई ब्लॉक, नई दिल्ली-110066
Regd. Office : Engineers India Bhawan, 1, Bhikaiji Cama Place, New Delhi-110066

Procurement Development Department

Ref: 4994PDD/IE/D101

5th February, 2013

M/s Darling Muesco (India) Pvt.Ltd.
Plot No. 37/A, Phase 1,
GIDC Indl. Estate, Valva
Ahmedabad - 382445

Subject : Enlistment with EIL

Dear Sirs,

We refer to your request on subject matter and are pleased to inform that you have been enlisted with EIL for the items as described below.

Item Description	Material / Range
- Thermal Relief Valves	Series : T100, 110 Class 300
- Pressure Relief Valves - Conventional type	Inlet Upto 2" 300 Outlet Upto 3" 150 Inlet Upto 6" 300 Outlet Upto 8" 150
	Series: SVE-520 (Except ASME Sec I & IBR sized valves)

(This enlistment is valid for your works located at Plot No. 37/A, Phase 1, GIDC Indl. Estate, Valva, Ahmedabad - 382445).

Please note that this enlistment is subject to satisfactory execution of orders in delivery and quality of above mentioned items when ordered for our various projects.

Further, it may be noted that any change in the product range, location of Works/Sales Office, Management/Organisation structure etc. shall be intimated to us immediately along with relevant document for our necessary action. In case, information to any of the above referred changes is not intimated timely, our enquiries may not reach you.

Enlistment with EIL shall not guarantee any regular flow of enquiries.

In the event of direct / indirect orders for EIL associated projects, materials will be supplied strictly as per the material / range / works as stated above including agreed responsibility matrix, if applicable, failing which your enlistment with EIL is liable to be cancelled.

The validity of this ENLISTMENT is upto 29th February, 2016.

You are advised to apply for revalidation 'on-line', 6 months before expiry of the enlistment. Detailed procedures for revalidation can be seen on our website www.engineersindia.com.

Thanking you,

Very truly yours


(Rajesh Kumar)
Dy. General Manager
Procurement Development Department

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हिन्दी पेश की एक्स की कड़ी है।



PATRON CUSTOMERS



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Darling Muesco (India) Pvt. Ltd.

Joint Venture with Anchor/Darling Valve Co.-USA

Plot No. 97 A, Phase-1, G.I.D.C. Vatva, Ahmedabad - 382 445. INDIA.

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E-mail: sales@darlingmuesco.com, Web: www.darlingmuesco.com