

## VS6 Series Safety Relief Valves

Working Pressure: 6000 psig (413 bar)  
PED 97/23/EC Certified

VS6-3.OCT.2018



### Features

- Air, Gas, liquid and CNG Service.
- Reliable seat design for repetitive leak-tight performance.
- Carbon Steel valves are red-painted for the valve to be protected from corrosion.

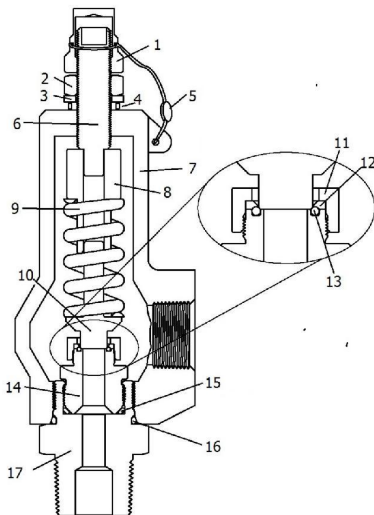
**Working Pressure:**  
6000 psig (413 bar)

**Set Pressure:**  
Set pressure is the system pressure that opens the valve.

After initial relief, set pressure is repeatable within +/- 5% at room temperature.

### Set Pressure Range

Spring Designator	Set Pressure Range, psi (bar)	Color Coding
1	15 to 40 (1.03 to 2.75)	Brown
2	41 to 100 (2.82 to 6.89)	Light Blue
3	101 to 215 (6.96 to 14.82)	Yellow
4	216 to 350 (14.89 to 24.13)	Light Green
5	351 to 750 (24.2 to 51.71)	Red
6	751 to 1000 (51.77 to 68.94)	Orange
7	1001 to 1800 (69.01 to 124.07)	Silver
8	1801 to 2800 (124.7 to 193)	Black
9	2801 to 3700 (193 to 255)	No color
10	3700 to 5500 (255 to 379)	Dark Brown

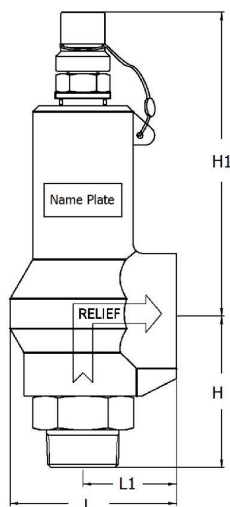


### Materials of Construction

Components	Valve Body Materials	
	Material Grade / ASTM Standard	
	Stainless Steel	Carbon Steel
1 Cap	Yellow Zinc-Plated S20C-45C/JIS G4051	
2 Lock Nut	SS316/ ASTM A476,A276	JIS G4051 S20G
3 Washer	JIS G4051 S20C Zinc plated	
4 Bonded Gasket	NBR bonded Carbon Steel Outer Ring	
5 Lock Wire	Stainless Steel wire with clamp seal	
6 Set Screw	Stainless Steel	Chome Plated Steel
7 Body	ASTM A351 CF8M	ASTM A216 Gr.WCB
8 Spring Guide	SS316 /ASTM A476, A276	
9 Spring	AISI 1086	
10 Poppet	SS316 /ASTM A476, A276	
11 Poppet Guide		
12 O-ring Guide		
13 O-ring	Standard FKM, see O-ring material table for option	
14 Poppet Housing	SS316 /ASTM A476, A276	
15 Housing O-ring	Standard FKM,	
16 Adapter O-ring	see O-ring material table for option	
17 Inlet Adapter	SS316/A276, A479	S20C - S50C / JIS G4051

Wetted parts are listed in **BOLD** letters.

**Lubricants:** Silicon-based.



### Ordering Information and Dimensions

Complete Ordering Number	End Connections		Dimensions mm (in.)			
	Inlet	Outlet	L	L1	H	H1
VS6-	F8N16N-C	1/2 in. Female NPT	84.5 (3.33)	47.5 (1.87)	77.0 (3.03)	154.0 (6.06)
	F12N16N-C	3/4 in. Female NPT				
	MF8N16N-C	1/2 in. Male NPT				
	MF12N16N-C	3/4 in. Male NPT				
	MF16N-C	1 in. Male NPT				

Dimensions are reference only and subject to change.

### Ordering Information

To order carbon steel valve, select an applicable complete ordering number:  
To order stainless steel valve, replace "C" in the ordering number with "SS".

VS6-F8N16N-C  
VS6-F8N16N-SS

To order valve with an optional O-ring material other than standard FKM, select an applicable designator of the O-ring material from the table below:

VS6-F8N16N-EP-SS

### Temperature Range of O-ring Materials

Materials	Designator	Temperature Range, °F ( °C)
Standard FKM	-	- 15 to 400 (-26 to 204)
Optional HNBR	HN	- 40 to 284 (-40 to 140)
Optional EPDM	EP	- 70 to 250 (-56 to 121)

### Flow Rate vs. Pressure

Media	Water	Air	Gas
Tested Temp. °F (°C)	70 (21.1)	60 (15.5)	60 (15.5)
Density	62.306	0.0764	0.0458
Orifice, in. (mm)	0.409 (10.4)		
Flow Unit	GPM	SCFM	
Set Pressure psig (bar)	Over pressure 110% or 3 psi, whichever is greater		
15 (1.03)	13	64	80
20 (1.3)	14	74	93
25 (1.7)	16	84	105
30 (2.0)	17	94	117
50 (3.4)	22	137	171
100 (6.8)	32	245	306
150 (10.3)	39	353	441
200 (13.7)	45	462	576
250 (17.2)	50	570	711
300 (20.6)	55	678	846
400 (27.5)	63	894	1117
500 (34.4)	71	1111	1387
600 (41.3)	77	1327	1657
700 (48.2)	84	1543	1927
900 (62.0)	95	1976	2467
1000 (68.9)	100	2192	2737
1500 (103)	122	3274	4088
1750 (120)	132	3815	4763
2000 (137)	141	4355	5438
2500 (172)	158	5437	6789
3000 (206)	173	6519	8139
4000 (275)	200	8682	10840
4500 (310)	212	9763	12191
5000 (344)	224	10845	13541
5500 (379)	235	11927	14892

### Valve Operation

Valves open when system pressure reaches the set pressure, and close when system pressure falls down below the set pressure.

Valves that are not actuated for a period of time, initial relief pressure may be different than the set pressure.

### Resealing Pressure

Valves are resealed by the spring force when upstream pressure falls down below the set pressure.

### Upstream Pressure for Valve to Reseal

Set Pressure, psi (bar)	Minimum Resealing Upstream Pressure at a Percentage of Set Pressure, %
3000 (207) and above	95
1800 (124) to 750 (52)	90
750 (52) to 350 (24)	85
350 (24) and below	80

### Back Pressure

System back pressure increases the set pressure of the valve by forcing the poppet to form a sealing in addition to the spring force. Valves that have lower set pressure may require back pressure to reseal.

### Factory Set Valves

To set the valve at a specific set pressure at factory, specify the desired set-pressure in psig in the valve ordering number.

Example: VS6-F8N16N-1500-C.

### Factory Test and Cleaning

Every valve is factory tested for set and reseal performance.

All valves are cleaned and packaged in accordance with HSME cleaning standard CS-01

### Safe Valve Selection

The selection of a valve for any application or system must be considered to ensure safe performance. Valve rating, valve function, material compatibility, proper installation, operation and maintenance remain the sole responsibility of the system designer and the user. HSME Corporation accepts no liability for any improper selection, compatibility, installation, operation or maintenance.