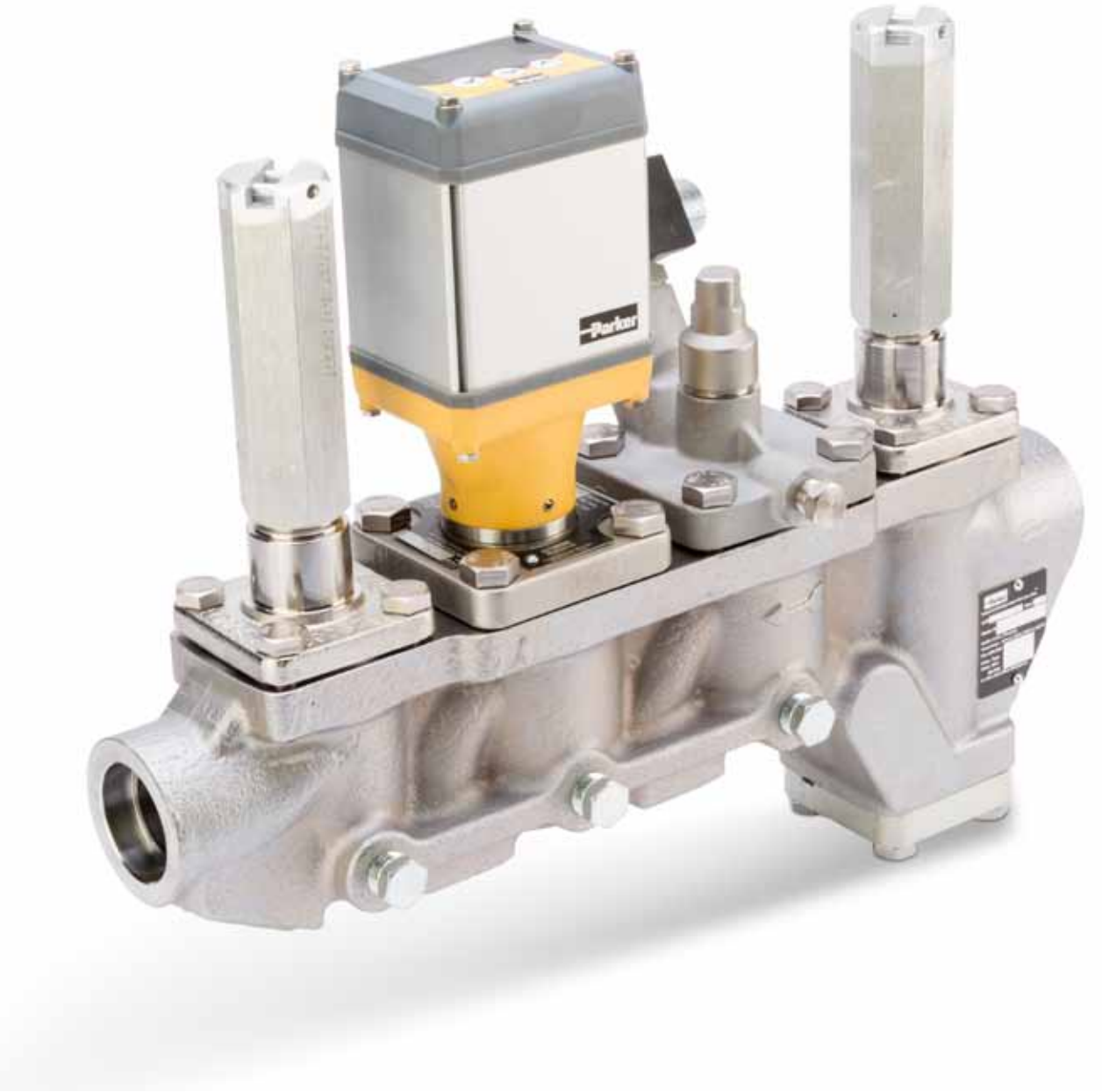
Industrial Refrigeration Control Valves

Catalog C12-PVS
Parker Valve Station (PVS)
Sizing Guide



R-717

Evap Temp, °F Evap Press PSI	Pressure Drop (psi)	¾" 30%	¾" 65%	¾"	1"	1¼"	1½"		
50°F 74.5	2 5 10 20	7 11 15 21	14 22 30 41	21 33 45 62	28 44 61 82	36 57 79 107	64 101 140 190		
40°F 58.6	2 5 10 20	6 10 14 18	13 20 27 37	19 30 41 55	25 39 54 73	33 51 71 95	58 91 126 169		
30°F 45.0	2 5 10	6 9 12	11 18 24	17 27 36	23 35 49	30 46 63	53 82 113		
20°F 33.5	2 5 10	5 8 11	10 16 22	15 24 32	20 32 43	26 41 56	47 73 100		
10°F 23.8	2 5 10	4.5 7 9	9 14 19	14 21 28	18 28 38	24 36 49	42 65 87		
0°F 15.7	2 3 5	4.0 5 6	8 10 12	12 15 18	16 19 25	21 25 32	37 45 57		
-10°F 9.0	2 3	3.5 4.3	7 9	11 13	14 17	18 22	33 40		
-20°F 3.6	2	3.1	6.2	9	12	16	29		
-30°F -0.8	2	2.7	5.3	8	11	14	25		
-40°F -4.3	2	2.3	4.5	7	9	12	21		

Capacities for R717 based on 86°F liquid. Capacities are maximum and have no reserve for excess loads. Capacities apply to any PVS regulator (or solenoid) regardless of variation used.

Sub-cooled liquid: For each 10°F liquid is colder than base temperature, INCREASE TABLE VALUES by 3% for R717.

Note: For liquid overfeed applications (nominal 2:1 to 5:1 ratio), add 20% to the evaporator load and select a regulator based on this increased load value.

Note on PVS Valve Station Capacities: listed capacities are based on the control valve portion of the valve station. The listed pressure drops are across the control valve. For the complete valve train please allow an additional 2-3 times the listed pressure drop.

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	Port Size (inch)	Type	Liquid Capacities ①		Suction Capacities ②			
			2 psi pressure drop	4 psi pressure drop	2 psi pressure drop		4 psi pressure drop	
					20°F	0°F	20°F	0°F
	3/4"	30%	91	129	5.1	4.1	7	5.8
R717	3/4"	65%	182	258	10.3	8.2	15	11.6
	3/4"	100%	273	387	15.4	12.3	22	17.4
	1"		364	515	21	16	29	23
	1-1/4"		469	663	26	21	37	30
	1-1/2"		833	1178	47	37	67	53

All capacities are maximum for the conditions listed and have no reserve for excess loads.

① R717 liquid capacities are based on 20°F liquid with no flashing, 5°F evaporator temperature and no liquid overfeed. For liquid overfeed, multiply evaporator tons by recirculating rate and size valve to the tons result. Use of 20°F liquid for capacities in this table is sufficiently accurate for most liquid overfeed systems. To convert to 86°F liquid, multiply values in the table by 0.9.

② R717 suction capacities are based on 86°F condensing temperature and the evaporator temperatures listed. See PVS suction capacities on page 2 for other pressure drops and for corrections for liquid overfeed and sub-cooled liquid.

Note on PVS Valve Station Capacities: listed capacities are based on the control valve portion of the valve station. The listed pressure drops are across the control valve. For the complete valve train please allow an additional 2-3 times the listed pressure drop.

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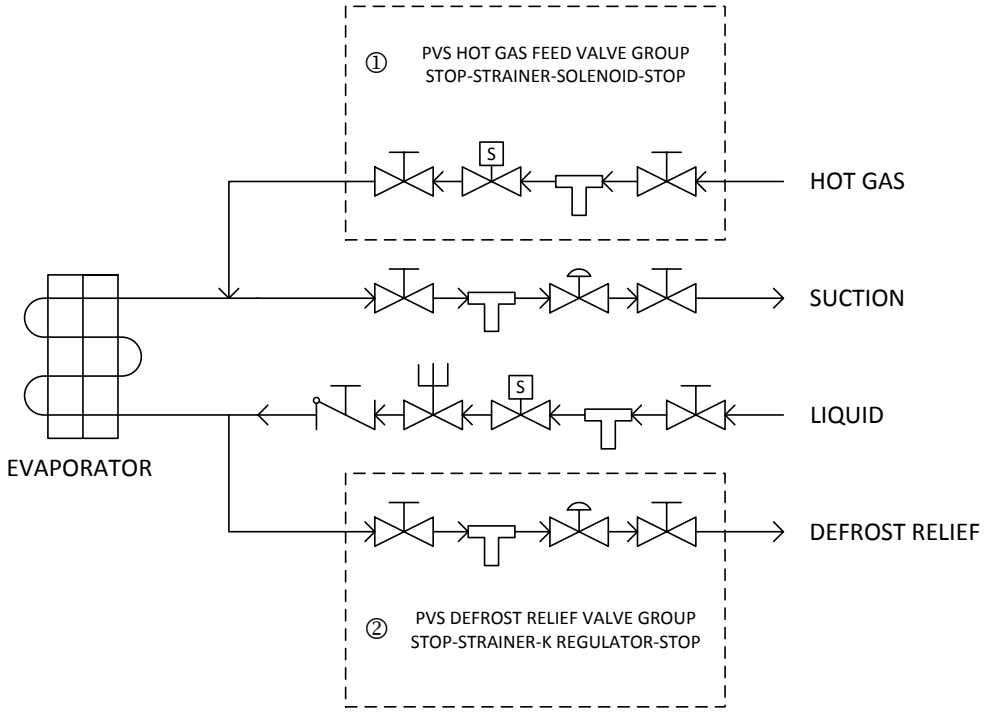


R717

Hot Gas Supply Valve ① PVS Port Size	Defrost Relief Valve ② PVS Port Size	Evap. Temp.				
		20°F	0°F	-20°F	-40°F	-60°F
¾" 30%	¾" 30%	12	9.6	8	7	5.7
¾" 65%	¾" 65%	23	19	16	14	11
¾"	¾"	35	29	24	21	17
1"	1"	47	38	31	28	23
1-1/4"	1-1/4"	72	56	45	40	34
1-1/2"	1-1/2"	170	130	110	90	72

Notes

Nominal capacities listed are based on normal defrost times, saturated hot gas inlet to valve no less than 86°F, a 10°F difference between evaporator temperature and air entering evaporator, and an 47°F defrost temperature.

These capacities can be adjusted depending on the evaporator type and mass, the thickness of frost and other factors affecting the duration of the defrost process.

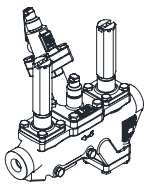
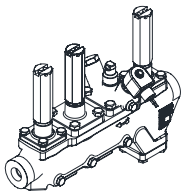
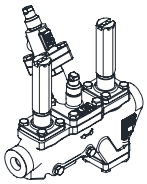
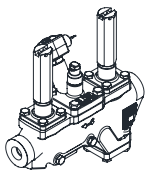
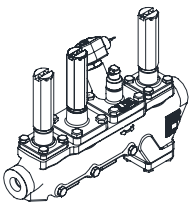
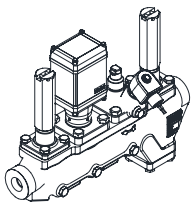
Equalizing the coil pressure after a defrost is critical to ensure that large suction valves do not open immediately and “shock” the system after the defrost has been terminated. This is especially true on large, low temperature coils, where the difference between the defrost pressure and the house suction is the greatest, and where the internal volume of the coil is largest. The addition of a vent solenoid (usually piped in parallel to the automatic suction valve), which opens for a pre-determined period after defrost (when the hot gas solenoid de-energizes, and the suction stop valve or suction solenoid remains closed), slowly bleeds down the coil pressure. This effectively allows the defrost to terminate in a “soft” and safe manner.

Note on PVS Valve Station Capacities: listed capacities are based on the control valve portion of the valve station. The listed pressure drops are across the control valve. For the complete valve train please allow an additional 2-3 times the listed pressure drop.

To Order		Value to Specify
PVS Body Options	Port Size	See Table Below
	End Connection Type	Socket Weld, ANSI Butt Weld, DIN Butt Weld
	End Connection Size	See Table Below
Control Valve Options	Type	Solenoid, Regulator, PEV (w/o solenoid)
	Regulator	Range: A (5-150 psi), D (75-280 psig)
		Options: B - Bypass, S - Shutoff, BS - Bypass and Shutoff, D - Dual Range, K- Relief
	Solenoid	Voltage & Frequency, Leaded or DIN, LED knob (Green or Red)
Expansion Valve		Hand Expansion, PEV, or none
Check Valve		Yes / No

Port Size		Available Connections	
mm	inch	SW, ANSI BW (inch)	DIN BW (mm)
20	3/4"	3/4", 1", 1-1/4"	20, 25, 32
25	1"	3/4", 1", 1-1/4"	20, 25, 32
32	1-1/4"	1-1/4", 1-1/2"	32, 40
40	1-1/2"	1-1/2", 2"	40, 50

Common Applications

Relief Regulator	Pumped Liquid Feed	Suction Regulator	Hot Gas Defrost	High Pressure Liquid	Liquid Feed w/ PEV
					
Shut-Off	Shut-Off	Shut-Off	Shut-Off	Shut-Off	Shut-Off
Strainer	Strainer	Strainer	Strainer	Strainer	Strainer
Regulator (K)	Solenoid	Regulator	Solenoid	Solenoid	Solenoid
—	HEV	—	—	HEV	PEV
Shut-Off/Check	Shut-Off/Check	Shut-Off	Shut-Off	Shut-Off	Shut-Off

Ordering Examples*

Application	Ordering Information	Notes
Hot gas feed solenoid	3/4" PVS, 1" SW, solenoid w/ 120/60 leaded coil, green LED	
Pumped liquid feed solenoid	1" PVS, 1-1/4" SW, solenoid w/ 120/60 DIN coil, HEV, check valve	
Relief regulator	1" PVS, 1-1/4" BW, K Regulator, check valve	Check valve is optional
Liquid Feed w/ PEV	3/4" PVS, 1-1/4" SW, solenoid w/ 240/60 leaded coil, PEV, red LED	

*See pages 3&4 of list price schedule ILP for additional ordering details.

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