



**Common Specifications**

Design Pressure (MRP) ..... 27.6 Bar (400 psig)  
 SV2 only ..... 31.0 Bar (450 psig)  
 Maximum Fluid Temperature ..... 105°C (220°F)  
 Standard Coil Housing ..... NEMA 3R and 4  
 Explosion Proof Housing ..... NEMA Type 4 and 7

**Application Guide**

Valve Type	Refrigerant Application	Refrigerant Temperature Range	VALVE MOST RECOMMENDED – Listed by Port Size											
			5mm	13mm	20mm	25mm	32mm	40mm	50mm	65mm	75mm	100mm	125-200mm	
			3/16"	1/2"	3/4"	1"	1 1/4"	1 5/8"	2"	2 1/2"	3"	4"	5" - 8"	
Solenoid	Liquid	Conventional warm high pressure	S6N	S8F SV2	S4A SV2	S4A SV2	S4A SV2	S4A	S4A	S4A	S4A	S4A	S4A	S4W
		Above -50°C (-60°F)	S6N	S8F	—	—	—	S4A	S4A	S4A	S4A	S4A	S4A	S4W
		Above -45°C (-50°F)	S6N	S8F SV2	S4A SV2	S4A SV2	S4A SV2	S4A	S4A	S4A	S4A	S4A	S4A	S4W
Solenoid	Suction*	Above -30°C (-25°F)	S6N	S8F	S7A	S7A	S5A	S5A	S5A	S5A	S5A	S5A	S4A	S4W
	Hot Gas Defrost	Below 105°C (220°F)	S6N	S8F SV2	S4A SV2	S4A SV2	S4A SV2	S4A	S4A	S4A	S4A	S4A	S4A	S4W
Solenoid	Bypass Compressor Unloading	Below 105°C (220°F)	S6N	S8F	S7A	S7A	S4AE	S4AE	S4AE	S4AE	S4AE	S4AE	S4AE	—
Solenoid	Equalizing Lines		S6N	—	S7A	S7A	—	—	—	—	—	—	—	—

**Specifications**

Type		S6N	S8F	S7A	SV2	S5A	S5A	S4A	S4A	S4W
Port Size	mm	5	13	20-25	13-32	32	40-75	20-32	40-100	125-200
	inch	3/16"	1/2"	3/4" - 1"	1/2" - 1 1/4"	1 1/4"	1 5/8" - 3"	3/4" - 1 1/4"	1 5/8" - 4"	5" - 8"
Seat Material		PTFE	PTFE	PTFE	PTFE	PTFE	Metal	PTFE	Metal	Metal
Body Material		Ductile Iron	Ductile Iron	Gray Iron	Ductile Iron	Gray Iron	Gray Iron	Gray Iron	Gray Iron	Cast Steel
Minimum Pressure Drop to Open Wide	bar	0	0.7	0	.24	0.07	0.07	0.14	0.28	0.14
	psi	0	1	0	3.5	1	1	4	2	2
Minimum Fluid Temperature	°C	-50°	-50°	-30°	-45°	-30°	-30°	-45°	-50°	-50°
	°F	-60°	-60°	-25°	-50°	-25°	-25°	-50°	-60°	-60°
Bulletin for Reference		30-90	30-91	30-92	30-06	30-93	30-93	30-94	30-94	30-05

**Coil Specifications**

**Class B Coils (used with all solenoids except SV2)**

Volts/Hertz	Leads	Inrush Current (Amps)	Holding Current (Amps)	Fuse Size (Amps)
120/60	Blue	1.18	0.46	1
208/60	Blue and Red	0.63	0.26	1
240/60	Red	0.60	0.23	1
115/50	Yellow and Blue	1.22	0.21	1
230/50	Yellow	0.65	0.26	1

**Class H Coils (used with SV2 only)**

Coil Type	Watt Rating	Volt Amperage	
		Holding	Inrush
Standard AC Class "H"	10.5	23	37
Standard AC Coil with 6v Secondary Pilot Light	11.0	26	38

**Selection Guide**

Port Size		Type	Description	Flow Coefficient		Available Connections			Net Weight			
									Less Strainer		With Strainer	
mm	Inch			Kv	Cv	FPT, SW, WN	ODS	DIN WN	kg	lb	kg	lb
5mm	3/16	S6N	Direct Operated	0.5	0.6	¼", ⅜", ½", ¾"	½", ⅝", ⅞"	10, 15, 20	2.5	5	3.3	7
13mm	1/2	S8F	Spring Closing	2.3	2.7	¼", ⅜", ½", ¾"	½", ⅝", ⅞"	10, 15, 20	2.5	5	3.3	7
		SV2	Spring Closing	2.6	3.0				1.8	4	2.7	6
20mm	3/4	SV2	Spring Closing	6.0	7.0	¾", 1", 1¼"	⅞", 1⅛", 1⅝"	20, 25, 32	9.5	20	13	27
		S4A	Spring Closing	6.9	8.1				5.5	11	8.6	18
		S7A	Elec. Held Open	8.7	10				4.0	9	7.2	16
25mm	1	S4A	Spring Closing	8.4	9.9	¾", 1", 1¼"	⅞", 1⅛", 1⅝"	20, 25, 32	9.5	20	14	27
		S7A	Elec. Held Open	9.2	11				5.5	11	8.6	18
		SV2	Spring Closing	10	12				4.0	9	7.2	16
32mm	1¼	S4A	Spring Closing	17	20	1¼", 1½"	1⅝", 1⅞", 2⅛"	32, 40	15	31	21	46
		S5A	Gravity Closing	16	19				14	29	20	44
		SV2	Spring Closing	16	19				6.8	15	14	30
40mm	1⅝	S4A	Spring Closing	27	32	1½", 2"	1⅝", 2⅛", 2⅝"	40, 50	30	64	43	94
		S5A	Gravity Closing	32	37				28	60	41	90
50mm	2	S4A	Spring Closing	46	53	1½", 2"	1⅝", 2⅛", 2⅝"	40, 50	30	64	43	94
		S5A	Gravity Closing	44	51				28	61	41	90
65mm	2½"	S4A	Spring Closing	64	75	2½", 3" (No FPT)	2⅝", 3⅞"	65, 75	38	81	63	137
		S5A	Gravity Closing	70	82				36	77	61	133
75mm	3	S4A	Spring Closing	86	100	3" (No FPT)	3⅞", 4⅝"	75	53	115	78	171
		S5A	Gravity Closing	98	120				51	110	76	166
100mm	4	S4A	Spring Closing	130	150	4" (No FPT)	4⅝"	100	72	156	121	264
125mm	5	S4W	Spring Closing	170	200	Weld End Only			52	114	95	209
150mm	6	S4W	Spring Closing	310	360	Weld End Only			94	204	169	371
200mm	8	S4W	Spring Closing	470	550	Weld End Only			152	333	281	618

S4A and S4W are available with ¼" FPT connection for EXTERNAL supply of actuating pressure. Specify S4AE or S4WE. S5A is available with ¼" FPT connection for external connection to outlet pressure. Specify S5AE. S4A, SV2 and S4W are available as EXPLOSION PROOF Solenoids and meet

the construction requirement of NEMA 4, 7 and 9. Specify S4AX, SV2X or S4WX. For SV2 with additional clearance between coil/housing assembly and body, specify SV2A.

**To Order**

Specify: Port Size, Type, Flange Size, Flange Style, Volts and Frequency, and if with Strainer. Standard connection sizes are in bold type and will be furnished unless otherwise specified.

**Standard connections:** FPT – 5 to 50mm (¾" - 2"); SW – 65 - 200mm (2 ½" - 4"); Weld End – 125 to 200mm (5" - 8").

Examples: ½" SV2, ½" FPT, 120V 60Hz, with strainer. 32mm S4A, 1¼" WN, 230V 50Hz.

**Voltages**

Non-standard voltages (shown in shaded area of table) can be special ordered. Coils with 6V secondary voltage for use with remote pilot lights PLT-1 and PLT-2.

**NOTE:** Pilot lights cannot be used with explosion proof or unleaded (DIN connector) coils.

■ These voltages for the Class "H" coils are 120/60-110/50, 240/60-220/50, 480/60-440/50.

Available Voltages for Coils and Remote Pilot Lights	Class	120/60	120/6/60	208/60	208/6/60	240/60	240/6/60	115/50	230/50	240/50	24/60	480/60	24/50	48/50	24VDC	120VDC	48VDC
		Encapsulated w/Leads	B	●	●	●	●	●	●		●		●		●	●	
Encapsulated w/Leads & Integral Pilot Light	B	●		●		●											
Encapsulated w/DIN Connector	B	●				●		●	●	●					●		●
Encapsulated w/DIN & Integral Pilot Light	B	●						●	●	●							
Explosion Proof	-	●		●		●		●	●		●	●			●	●	
Compact Operator w/Leads (SV2 only)	H	■		●		■		●	●	●	●	■	●		●		
Compact Operator w/DIN (SV2 only)	H	■		●		■		●	●	●	●	■	●				
Remote Pilot Light PLT-1 (NEMA 1)			●		●		●										
Remote Pilot Light PLT-2 (NEMA 4)			●		●		●										
Remote Pilot Light PLT-5 (NEMA 4)		●		●		●											

**NOTE:** Class B coils are used on all industrial solenoids except the SV2. Class H coils are used with the SV2 only.



	Port Size (mm)	Type	Liquid Capacities <sup>①</sup>		Suction Capacities <sup>②</sup>				Hot Gas Reclaim <sup>③</sup>					
			0.14 bar pressure drop	0.27 bar pressure drop	0.07 bar pressure drop		0.14 bar pressure drop		32°C Condensing		43°C Condensing		54°C Condensing	
					-10°C	-20°C	-10°C	-20°C	0.24 bar pr. drop	0.34 bar pr. drop	0.24 bar pr. drop	0.34 bar pr. drop	0.24 bar pr. drop	0.34 bar pr. drop
<b>R22</b>	5 mm	S6N	9.0	12	0.72	0.59	1.0	0.83	—	—	—	—	—	—
	13 mm	S8F SV2	41 —	56 62	3.2 —	2.7 —	4.6 —	3.8 —	14	17	15	18	16	19
	20 mm	S4A <sup>⑤</sup>	120	170	—	—	—	—	39	46	41	49	44	52
		S7A SV2	150 —	210 150	12 —	10 —	17 —	14 —	— 33	— 40	— 36	— 43	— 38	— 45
	25 mm	S4A	150	210	—	—	—	—	47	56	51	60	53	63
		S7A SV2	160 —	220 250	13 —	11 —	18 —	15 —	— 57	— 68	— 62	— 73	— 65	— 77
	32 mm	S4A	300	420	—	—	—	—	96	110	103	120	110	130
		S5A SV2	290 —	400 400	23 —	19 —	32 —	26 —	— 91	— 110	— 98	— 120	— 100	— 120
	40 mm	S4A	480	660	—	—	54	44	150	180	160	190	170	200
		S5A	560	770	45	36	63	51	—	—	—	—	—	—
	50 mm	S4A	800	1100	—	—	91	74	250	300	270	330	290	340
		S5A	770	1100	61	50	87	71	—	—	—	—	—	—
	65 mm	S4A	1100	1600	—	—	130	100	360	430	380	460	410	480
		S5A	1200	1700	99	81	140	110	—	—	—	—	—	—
75 mm	S4A	1500	2100	—	—	170	140	480	570	510	610	540	640	
	S5A	1700	2400	140	110	200	160	—	—	—	—	—	—	
100 mm	S4A	2200	3100	—	—	—	—	700	830	750	890	790	940	
125 mm	S4W	—	—	—	—	—	—	960	1100	1000	1200	1100	1300	
150 mm	S4W	—	—	—	—	—	—	1700	2000	1800	2200	1900	2300	
200 mm	S4W	—	—	—	—	—	—	2600	3100	2800	3400	3000	3500	
<b>R717</b>								21°C Condensing		30°C Condensing				
								0.24 bar	0.34 bar	0.24 bar	0.34 bar			
	5 mm	S6N	55	77	—	—	—	—	—	—	—	—	—	
	13 mm	S8F	250	350	9.3	7.5	13	11	—	—	—	—	—	—
		SV2	—	380	—	—	—	—	35	41	38	46	—	—
	20 mm	S4A <sup>⑤</sup>	—	1000	—	—	—	—	93	110	100	120	—	—
		S7A SV2	940 —	1300 900	35 —	28 —	50 —	40 —	— 81	— 96	— 90	— 110	—	—
	25 mm	S4A	—	1300	—	—	—	—	110	140	130	150	—	—
		S7A SV2	990 —	1400 1500	37 —	30 —	52 —	42 —	— 140	— 170	— 150	— 180	—	—
	32 mm	S4A	—	2600	—	—	—	—	230	280	260	300	—	—
		S5A SV2	1800 —	2400 2400	65 —	53 —	93 —	75 —	— 220	— 260	— 240	— 290	—	—
	40 mm	S4A	2900	4100	—	—	160	130	370	440	410	490	—	—
		S5A	3400	4700	130	100	180	150	—	—	—	—	—	—
	50 mm	S4A	4900	6800	—	—	260	210	620	730	680	810	—	—
S5A		4700	6500	180	140	250	200	—	—	—	—	—	—	
65 mm	S4A	6900	9600	—	—	370	300	870	1000	960	1100	—	—	
	S5A	7600	11000	280	230	400	320	—	—	—	—	—	—	
75 mm	S4A	9200	13000	—	—	490	390	1200	1400	1300	1500	—	—	
	S5A	11000	15000	400	320	560	450	—	—	—	—	—	—	
100 mm	S4A	14000	19000	Use CK-2 or S9A <sup>④</sup>	710	580	1700	2000	1900	2200	—	—	—	
125 mm	S4W	—	—	Use CK-2 or S9A <sup>④</sup>	970	790	2300	2800	2600	3000	—	—	—	
150 mm	S4W	—	—	Use CK-2 or S9A <sup>④</sup>	1800	1400	4200	5000	4600	5500	—	—	—	
200 mm	S4W	—	—	Use CK-2 or S9A <sup>④</sup>	2700	2200	6400	7600	7000	8400	—	—	—	

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

- ① **Liquid capacities for R22** are based on 40°C Condensing and 5°C evaporator temperatures with no flashing through the valve for the pressure drops listed. For each 5°C liquid is below 40°C, INCREASE values by 5%. **R717 capacities** are based on -7°C liquid with no flashing, -15°C evaporator temperature and no liquid overfeed. For liquid overfeed, multiply evaporator KW by recirculating rate and size valve to the KW result. Use of -7°C liquid for capacities in this table is sufficiently accurate for most liquid overfeed systems. To convert for 30°C input, multiply values in the table by 0.9.
- ② **Suction capacities for R22** are based on 40°C liquid and 5°C superheat entering the valve at the pressure drops and evaporator temperatures listed. For each 5°C liquid is below 40°C, INCREASE values by 5%. **R717 capacities** are based on 30°C condensing temperature and the evaporator temperatures listed. See A4A suction capacities on page 10 for other pressure drops and for corrections for liquid overfeed and sub-cooled liquid.
- ③ **Hot gas heat reclaim capacities** are in terms of heat of condensation rejected at the condenser and are based on saturated inlet conditions at pressures equivalent to the condensing temperatures and for the pressure drops listed.
- ④ **CK-2 and S9A**. See page 22 for low pressure drop at temperatures below -10°C.
- ⑤ **The 20mm port size S4A** is available with capacities equal to 50% of the ratings shown.



	Port Size (inch)	Type	Liquid Capacities <sup>①</sup>		Suction Capacities <sup>②</sup>				Hot Gas Reclaim <sup>③</sup>					
			2 psi pressure drop	4 psi pressure drop	1 psi pressure drop		2 psi pressure drop		90°F Condensing		110°F Condensing		130°F Condensing	
					20°F	0°F	20°F	0°F	3.5 psi pr. drop	5 psi pr. drop	3.5 psi pr. drop	5 psi pr. drop	3.5 psi pr. drop	5 psi pr. drop
<b>R22</b>	3/16	S6N	2.6	3.7	0.22	0.18	0.31	0.25	—	—	—	—	—	—
	1/2	S8F	12	17	1.0	0.79	1.4	1.1	—	—	—	—	—	—
		SV2	—	18	—	—	—	—	49	59	53	63	56	66
	3/4	S4A <sup>⑤</sup>	35	49	—	—	—	—	130	160	140	170	150	180
		S7A SV2	35	49	2.9	2.4	4.1	3.3	—	—	—	—	—	—
	1	S4A	43	60	—	—	—	—	160	190	170	210	180	220
		S7A SV2	43	61	3.7	2.9	5.2	4.2	—	—	—	—	—	—
	1¼	S4A	87	120	—	—	—	—	330	390	350	420	370	440
		S5A SV2	82	120	6.9	5.6	9.8	7.9	—	—	—	—	—	—
	1½	S4A	140	190	—	—	16	13	520	620	560	670	590	710
		S5A	160	230	14	11	19	15	—	—	—	—	—	—
	2	S4A	230	330	—	—	28	22	870	1040	940	1120	990	1180
S5A		220	310	19	15	26	21	—	—	—	—	—	—	
2½	S4A	320	460	—	—	39	31	1200	1500	1300	1600	1400	1700	
	S5A	350	500	30	24	42	34	—	—	—	—	—	—	
3	S4A	430	610	—	—	52	42	1600	2000	1800	2100	1900	2200	
	S5A	500	700	42	34	59	48	—	—	—	—	—	—	
4	S4A	630	900	—	—	—	—	2400	2900	2600	3100	2700	3200	
5	S4W	—	—	—	—	—	—	3300	3900	3500	4200	3700	4400	
6	S4W	—	—	—	—	—	—	5900	7000	6300	7600	6700	8000	
8	S4W	—	—	—	—	—	—	9000	11000	9700	12000	10200	12000	
<b>R717</b>								70°F Condensing		86°F Condensing				
								3.5 psi	5 psi	3.5 psi	5 psi			
	3/16	S6N	16	22	—	—	—	—	—	—	—	—	—	
	1/2	S8F	70	99	2.8	2.2	4.0	3.0	—	—	—	—	—	—
		SV2	—	110	—	—	—	—	120	140	130	160	—	—
	3/4	S4A <sup>⑤</sup>	—	300	—	—	—	—	320	380	350	420	—	—
		S7A SV2	210	290	8.3	6.6	12	9.0	—	—	—	—	—	—
	1	S4A	—	360	—	—	—	—	390	470	430	520	—	—
		S7A SV2	260	370	10	8.3	15	11	—	—	—	—	—	—
	1¼	S4A	—	740	—	—	—	—	480	570	530	630	—	—
		S5A SV2	490	700	20	16	28	21	790	950	880	1050	—	—
	1½	S4A	830	1200	—	—	47	36	—	—	—	—	—	—
		S5A	960	1400	38	31	54	41	1300	1500	1400	1700	—	—
	2	S4A	1400	2000	—	—	78	60	2100	2500	2300	2800	—	—
		S5A	1300	1900	53	42	75	57	—	—	—	—	—	—
	2½	S4A	2000	2800	—	—	110	84	3000	3600	3300	3900	—	—
S5A		2100	3000	85	68	120	92	—	—	—	—	—	—	
3	S4A	2600	3700	—	—	150	110	4000	4700	4400	5200	—	—	
	S5A	3000	4200	120	95	170	130	—	—	—	—	—	—	
4	S4A	3800	5400	Use CK-2 or S9A <sup>④</sup>	—	220	160	5800	6900	6400	7700	—	—	
5	S4W	—	—	Use CK-2 or S9W <sup>④</sup>	—	290	220	7900	9500	8800	10000	—	—	
6	S4W	—	—	Use CK-2 or S9W <sup>④</sup>	—	530	400	14000	17000	16000	19000	—	—	
8	S4W	—	—	Use CK-2 or S9W <sup>④</sup>	—	810	620	22000	26000	24000	29000	—	—	

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

- ① **Liquid capacities for R22** are based on 100°F Condensing and 40°F evaporator temperatures with no flashing through the valve for the pressure drops listed. For each 10°F liquid is below 100°F, INCREASE values by 5%. **R717 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 **Suction capacities for R22** are based on 100°F liquid and 10°F superheat entering the valve at the pressure drops and evaporator temperatures listed. For each 10°F liquid is below 100°F, INCREASE values by 5%. **R717 capacities** are based on 86°F condensing temperature and the evaporator temperatures listed. See A4A suction capacities on page 11 for other pressure drops and for corrections for liquid overfeed and sub-cooled liquid.
- ③ **Hot gas heat reclaim capacities** are in terms of heat of condensation rejected at the condenser and are based on saturated inlet conditions at pressures equivalent to the condensing temperatures and for the pressure drops listed.
- ④ **CK-2 and S9A.** See page 22 for low pressure drop at temperatures below 20°F.
- ⑤ **The 20mm port size S4A** is available with capacities equal to 50% of the ratings shown.

