

SM(E) 系列热力膨胀阀 (Thermo-expansion valves)

Shanghai Thermostat Factory Co.,Ltd.

概述

SM(E)系列是新一代可换阀芯的热力膨胀阀，它是制冷空调系统中一个重要部件，安装于储液器与蒸发器之间，使高温高压液态制冷通过节流成为低压湿蒸汽，由于低压湿蒸汽的蒸发吸热使制冷系统达到降温目的。

SM(E)系列热力膨胀阀，采用多种充注形式，能满足空调、冷藏柜、冰箱、除湿机等各种系统需求。

特点

- 过热度调节稳定, 可提供MOP功能
- 不锈钢波纹膜片, 可更换阀芯
- 阀进口装有过滤器
- 适用R22、R134a、R407c、R404A/R507
- 安全工作压力3.0MPa
- 温包最高温度75°C

过热度调节

旋下密封螺帽，旋转调节杆，顺时针旋转过热度增加(关小)，逆时针旋转过热度减小(开大)，每旋转90°(1/4圈)，过热度增加或减少大约为1K，(每旋转一圈过热度增加或减小大约4K)，每次旋转90°(1/4圈)，后应让机组运行20分钟观察系统是否符合设定工况再作第二次调整。

安装使用

- 可以任何位置安装，但必须靠近分配器或蒸发器进口处。
- 系统中制冷剂的流动方向与阀体上箭头指向方向一致。
- 感温包的安装应保证感温包充分感受蒸发器出口温度，外平衡管安装在感温包附近，并从回气管顶部引出。



General

SM(E)series thermostatic expansion valve is a new design. It is an essential part in the refrigeration and air-condition system. It is equipped between the liquid receiver and the evaporator. By its throttling, the liquid refrigerant under high temperature and pressure changes to the low pressure moist vapor, in the meantime, during the evaporation of low pressure moist vapor in the refrigerating system, heat is absorbed from the surrounding and there temperature is lowered.

It supplies many kinds of charge types and suits for air-condition, refrigerated cabinets freezer, dehumidifier etc.

Characteristics

- Constant superheat adjusting performance, MOP(Max. operating pressure) function is available.
- Stainless steel diaphragm
- Interchangeable orifice assembly.
- Inlet filter assembly
- Suitable for refrigerants R22、R134a、R407c and R404A/ R507
- Maximum working pressure is 3.0 Mpa
- Maximum bulb temperature is 75 C

Superheat adjusting

After removal of the seal cap, the adjusting stem can be turned. If it is turned clockwise, superheat will increase. If it is turned anticlockwise, superheat will decrease. The superheat will increase or decrease 1K for each 90° turning of the adjusting stem, the superheat will increase or decrease by about 4K for each round. Waiting 20 minutes then check the status after each 90° adjustment.

Installation

Valves can be installed in any position, but should be located as close as possible to the distributor or evapor inlet.

Be sure that the flow direction of the system refrigerant corresponds to the flow arrow stamped on the valve body.

Fitting should ensure sensor bulb can sense output temperature of evaporation. External equalization tube connects to the top of the suction tube near the bulb accordingly.

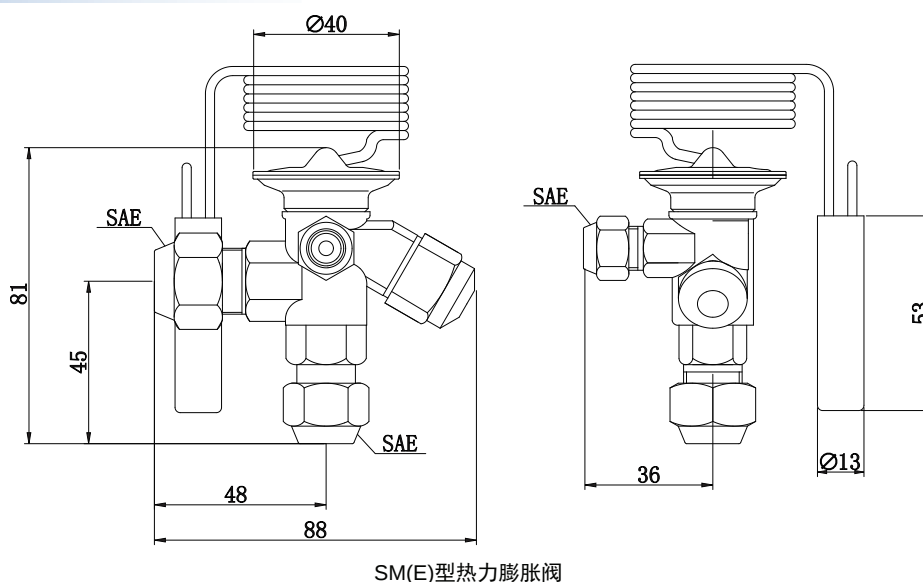
SM(E) 系列热力膨胀阀 (Thermo-expansion valves)

上海恒温控制器厂有限公司

选型表格 Technical data

阀芯 编号 Orifice	型号 Model	制冷剂 Refrigerant								接管尺寸 Connection size			毛细管长度 Capillary length
		R22		R134a		R407c		R404A/R507		进口 Inlet	出口 Outlet	外平衡 External equalizer	
		规格 Type	额定容量 (KW) Nominal capacity (KW)	规格 Type	额定容量 (KW) Nominal capacity (KW)	规格 Type	额定容量 (KW) Nominal capacity (KW)	规格 Type	额定容量 (KW) Nominal capacity (KW)				
0	SM(E)	1/3H	1.12	1/4M	0.90	1/3N	1.07	1/4S	0.83	3/8 Φ10	1/2 Φ12	1/4 Φ6	1m
1		3/4H	2.53	1/2M	2.0	3/4N	2.68	1/2S	1.80				
2		1H	3.37	2/3M	2.50	1N	3.35	2/3S	2.30				
3		1-1/2H	5.06	1-1/3M	4.70	1-1/2N	5.28	1-1/3S	4.40	SAE	SAE	SAE	
4		2-1/2H	8.43	1-3/4M	6.80	2-1/2N	8.80	1-1/2S	6.40				
5		4H	13.49	2-1/2M	8.90	4N	14.10	2-1/3S	7.90				
6		5H	16.87	3M	11.0	5N	16.40	2-3/4S	9.30				

外形尺寸 Dimensions



注:名义制冷量是基于蒸发温度 $t_e=4.4^{\circ}\text{C}$, 冷凝温度 $t_c=40^{\circ}\text{C}$, 阀前制冷剂温度为 $t_1=38^{\circ}\text{C}$ 。

Note :Nominal capacity is based on evaporating temperature $t_e=4.4^{\circ}\text{C}$, condensing temperature $t_c=40^{\circ}\text{C}$, and refrigerant temperature ahead of valve $t_1=38^{\circ}\text{C}$.

R134a: $\Delta P=0.46\text{MPa}$, R22: $\Delta P=0.69\text{MPa}$, R404A: $\Delta P=0.72\text{MPa}$, R407C: $\Delta P=0.69\text{MPa}$.

注: 如需焊管结构, 请与本公司洽谈。

Note : Please contact STF if soldering connection is requested.

SM(E) 系列热力膨胀阀 (Thermo-expansion valves)

Shanghai Thermostat Factory Co.,Ltd.

SM(E) 膨胀阀扩展容量表 (KW) SM(E) extended capacity tables

R22		蒸发温度（℃） Evaporating temperature （℃）																	
		+10℃						+4.4℃						-6.7℃					
型号 Model	规格 Type	通过阀的压降 Pressure drop across valve (MPa)																	
		0.52	0.69	0.86	1.03	1.21	1.38	0.52	0.69	0.86	1.03	1.21	1.38	0.52	0.69	0.86	1.03	1.21	1.38
SM(E)	1/3H	0.96	1.15	1.28	1.39	1.51	1.57	0.93	1.12	1.23	1.34	1.46	1.57	0.75	1.02	1.12	1.23	1.35	1.46
	3/4H	2.16	2.59	2.88	3.12	3.40	3.54	2.09	2.53	2.77	3.02	3.29	3.54	1.69	2.30	2.52	2.77	3.04	3.28
	1H	2.88	3.45	3.84	4.16	4.53	4.72	2.79	3.37	3.70	4.02	4.39	4.72	2.25	3.07	3.36	3.69	4.05	4.38
	1-1/2H	4.32	5.18	5.76	6.24	6.80	7.07	4.19	5.06	5.55	6.04	6.58	7.07	3.38	4.60	5.05	5.54	6.08	6.57
	2-1/2H	7.21	8.63	9.60	10.40	11.33	11.79	6.98	8.43	9.25	10.06	10.97	11.79	5.63	7.67	8.41	9.23	10.13	10.95
	4H	11.53	13.80	15.37	16.63	18.13	18.86	11.17	13.49	14.79	16.10	17.55	18.86	9.01	12.27	13.45	14.76	16.21	17.52
	5H	14.41	17.25	19.21	20.79	22.66	23.58	13.96	16.87	18.49	20.12	21.94	23.58	11.27	15.33	16.82	18.45	20.26	21.90
R22		蒸发温度（℃） Evaporating temperature （℃）																	
		-17.8℃						-29℃						-40℃					
型号 Model	规格 Type	通过阀的压降 Pressure drop across valve (MPa)																	
		0.69	0.86	1.03	1.21	1.38	1.55	0.86	1.03	1.21	1.38	1.55	1.72	1.03	1.21	1.38	1.55	1.72	1.90
SM(E)	1/3H	0.81	0.91	1.00	1.08	1.12	1.23	0.72	0.78	0.85	0.92	0.95	1.01	0.58	0.63	0.67	0.72	0.75	0.79
	3/4H	1.83	2.04	2.24	2.43	2.53	2.78	1.61	1.76	1.90	2.06	2.15	2.26	1.31	1.42	1.52	1.61	1.69	1.77
	1H	2.44	2.72	2.99	3.25	3.37	3.70	2.15	2.35	2.54	2.75	2.86	3.02	1.75	1.89	2.02	2.15	2.26	2.36
	1-1/2H	3.67	4.09	4.48	4.87	5.06	5.55	3.23	3.52	3.80	4.13	4.29	4.53	2.62	2.84	3.03	3.23	3.38	3.54
	2-1/2H	6.11	6.81	7.46	8.11	8.43	9.26	5.38	5.87	6.34	6.88	7.15	7.55	4.36	4.73	5.06	5.38	5.64	5.90
	4H	9.78	10.89	11.94	12.98	13.49	14.81	8.60	9.38	10.14	11.00	11.44	12.08	6.98	7.57	8.09	8.61	9.02	9.44
	5H	12.22	13.62	14.93	16.23	16.87	18.51	10.75	11.73	12.68	13.75	14.30	15.10	8.73	9.46	10.11	10.76	11.28	11.80
R134a		蒸发温度（℃） Evaporating temperature （℃）																	
		+10℃						+4.4℃						-6.7℃					
型号 Model	规格 Type	通过阀的压降 Pressure drop across valve (MPa)																	
		0.30	0.41	0.55	0.69	0.86	1.03	0.30	0.41	0.55	0.69	0.86	1.03	0.41	0.55	0.69	0.86	1.03	1.21
SM(E)	1/4M	0.70	0.85	0.96	1.07	1.21	1.32	0.53	0.65	0.74	0.83	0.95	1.04	0.55	0.63	0.72	0.79	0.88	0.95
	1/2M	1.41	1.70	1.92	2.14	2.42	2.63	1.23	1.50	1.70	1.90	2.17	2.37	1.26	1.45	1.65	1.82	2.02	2.18
	2/3M	1.76	2.13	2.40	2.68	3.03	3.29	2.05	2.50	2.84	3.18	3.63	3.96	2.10	2.42	2.76	3.04	3.37	3.64
	1-1/3M	3.52	4.25	4.80	5.35	6.06	6.58	3.27	4.0	4.55	5.10	5.81	6.33	3.36	3.86	4.40	4.84	5.37	5.80
	1-3/4M	7.04	8.50	9.60	10.70	12.12	13.16	5.68	6.70	7.61	8.52	9.71	10.58	5.63	6.47	7.38	8.12	9.01	9.73
	2-1/2M	8.80	10.63	12.00	13.38	15.15	16.45	6.90	8.20	9.35	10.47	11.94	13.01	6.89	7.92	9.03	9.93	11.02	11.90
	3M	10.56	12.75	14.40	16.05	18.18	19.74	8.06	9.50	10.83	12.13	13.83	15.07	7.98	9.18	10.47	11.52	12.79	13.81

SM(E) 膨胀阀扩展容量表 (KW)
SM(E) extended capacity tables

R134a		蒸发温度 (℃) Evaporating temperature (℃)																	
		-17.8℃						-29℃						-40℃					
型号 Model	规格 Type	通过阀的压降 Pressure drop across valve (MPa)																	
		0.41	0.55	0.69	0.86	1.03	1.21	0.55	0.69	0.86	1.03	1.21	1.38	0.55	0.69	0.86	1.03	1.21	1.38
SM(E)	1/4M	0.42	0.48	0.54	0.61	0.66	0.72	0.35	0.40	0.44	0.49	0.54	0.59	0.25	0.28	0.31	0.35	0.38	0.39
	1/2M	0.97	1.12	1.25	1.40	1.53	1.67	0.82	0.93	1.02	1.13	1.24	1.35	0.59	0.66	0.73	0.84	0.91	0.95
	2/3M	1.62	1.86	2.08	2.33	2.54	2.77	1.36	1.55	1.71	1.90	2.09	2.28	0.98	1.09	1.21	1.39	1.50	1.58
	1-1/3M	2.59	2.98	3.37	3.77	4.11	4.48	2.18	2.49	2.74	3.04	3.34	3.64	1.57	1.76	1.95	2.24	2.42	2.52
	1-3/4M	4.39	5.05	5.66	6.34	6.91	7.53	3.69	4.21	4.63	5.14	5.65	6.16	2.66	2.98	3.31	3.81	4.11	4.32
	2-1/2M	5.31	6.11	6.84	7.66	8.35	9.10	4.46	5.08	5.59	6.20	6.82	7.43	3.21	3.60	3.40	3.91	4.22	4.43
	3M	6.14	7.06	7.91	8.86	9.66	10.53	5.16	5.88	6.47	7.18	7.90	8.61	3.72	4.17	4.63	5.32	5.75	6.04
R407c		蒸发温度 (℃) Evaporating temperature (℃)																	
		+10℃						+4.4℃						-6.7℃					
型号 Model	规格 Type	通过阀的压降 Pressure drop across valve (MPa)																	
		0.52	0.69	0.86	1.03	1.21	1.38	0.52	0.69	0.86	1.03	1.21	1.38	0.52	0.69	0.86	1.03	1.21	1.38
SM(E)	1/3N	0.87	1.01	1.13	1.21	1.35	1.43	1.05	1.22	1.37	1.49	1.59	1.71	1.00	1.18	1.29	1.41	1.57	1.67
	3/4N	1.74	2.02	2.26	2.41	2.71	2.86	2.62	3.05	3.33	3.64	3.71	4.08	2.46	2.90	3.23	3.52	3.71	4.08
	1N	2.18	2.52	2.83	3.02	3.39	3.58	4.26	4.95	5.57	5.94	6.68	7.06	4.08	4.83	5.19	5.94	6.30	6.68
	1-1/2N	4.35	5.04	5.66	6.03	6.77	7.15	6.86	7.98	8.91	9.65	10.49	11.13	6.68	7.79	8.55	9.28	10.02	10.77
	2-1/2N	8.70	10.08	11.32	12.06	13.54	14.30	11.45	13.31	14.47	15.96	17.23	18.19	10.77	12.62	14.11	15.58	16.71	17.83
	4N	10.88	12.60	14.15	15.08	16.93	17.88	13.73	15.96	17.44	19.48	20.97	22.57	13.36	15.36	17.08	18.73	20.33	21.73
	5N	13.05	15.12	16.98	18.09	20.31	21.45	16.02	18.63	20.40	22.57	24.35	25.85	15.36	17.99	19.91	21.73	23.60	25.09
R407c		蒸发温度 (℃) Evaporating temperature (℃)																	
		-17.8℃						-29℃						-40℃					
型号 Model	规格 Type	通过阀的压降 Pressure drop across valve (MPa)																	
		0.69	0.86	1.03	1.21	1.38	1.55	0.86	1.03	1.21	1.38	1.55	1.72	1.03	1.21	1.38	1.55	1.72	1.90
SM(E)	1/3N	0.93	1.01	1.15	1.26	1.34	1.41	0.78	0.85	0.93	1.01	1.04	1.12	0.71	0.74	0.77	0.85	0.88	0.93
	3/4N	2.34	2.59	2.85	3.07	3.27	3.49	1.93	2.12	2.30	2.44	2.65	2.74	1.71	1.85	1.98	2.08	2.20	2.30
	1-1/2N	3.71	4.45	4.83	5.19	5.57	5.94	3.17	3.52	3.71	4.08	4.45	4.83	2.83	3.05	3.27	3.45	3.64	3.71
	2-1/2N	6.30	7.06	7.43	8.16	8.91	9.28	5.19	5.57	5.94	6.30	7.16	7.43	4.45	4.83	5.19	5.57	5.94	6.30
	3N	10.02	11.13	12.25	13.36	14.47	15.22	8.55	9.28	10.02	10.77	11.23	11.88	7.43	8.16	8.55	8.91	9.65	10.02
	4N	12.36	13.85	15.36	16.49	17.60	18.73	10.49	11.23	12.36	13.10	13.85	14.60	8.91	9.73	10.49	11.23	11.60	11.98
	5N	14.24	16.11	17.60	19.10	20.23	21.73	11.98	13.10	14.23	14.98	16.11	16.86	10.40	11.23	12.36	12.73	13.48	14.24

SM(E) 膨胀阀扩展容量表 (KW)

SM(E) extended capacity tables

R404A/R507		蒸发温度（℃） Evaporating temperature （℃）																	
		+10℃						+4.4℃						-6.7℃					
型号 Model	规格 Type	通过阀的压降 Pressure drop across valve (MPa)																	
		0.52	0.69	0.86	1.03	1.21	1.38	0.69	0.86	1.03	1.21	1.38	1.55	0.86	1.03	1.21	1.38	1.55	1.72
SM(E)	1/4S	0.68	0.77	0.85	0.93	1.00	1.08	0.83	0.91	0.98	1.10	1.17	1.24	0.87	0.94	1.02	1.09	1.17	1.24
	1/2S	1.70	1.92	2.12	2.33	2.50	2.69	1.94	2.17	2.35	2.55	2.71	2.87	2.03	2.23	2.41	2.57	2.75	2.90
	2/3S	2.40	2.83	3.24	3.66	4.00	4.18	2.30	2.73	3.14	3.56	3.90	4.28	2.50	2.77	3.14	3.52	3.90	4.28
	1-1/3S	4.15	4.51	4.67	5.40	5.58	6.32	4.32	5.08	5.39	5.78	6.60	6.91	4.65	5.02	5.39	6.16	6.53	6.63
	1-1/2S	6.80	7.66	8.48	9.32	10.00	11.76	6.75	7.50	8.64	9.41	10.16	10.93	7.13	7.88	8.65	9.41	10.16	10.92
	2-1/3S	7.20	8.49	9.62	10.49	11.43	11.96	7.90	8.78	9.81	10.68	11.83	12.18	8.03	9.16	10.31	11.06	11.83	12.56
	2-3/4S	8.36	9.23	10.32	11.03	12.29	13.43	9.36	10.23	11.32	12.09	13.49	14.87	8.93	10.06	11.21	12.35	12.79	13.05
R404A/R507		蒸发温度（℃） Evaporating temperature （℃）																	
		-17.8℃						-29℃						-40℃					
型号 Model	规格 Type	通过阀的压降 Pressure drop across valve (MPa)																	
		1.03	1.21	1.38	1.55	1.72	1.90	1.21	1.38	1.55	1.72	1.90	2.07	1.38	1.55	1.72	1.90	2.07	2.24
SM(E)	1/4S	0.75	0.79	0.87	0.90	0.94	1.02	0.56	0.60	0.64	0.67	0.72	0.75	0.45	0.49	0.54	0.57	0.60	0.64
	1/2S	1.73	1.88	1.99	2.08	2.26	2.33	1.36	1.47	1.54	1.62	1.69	1.77	1.09	1.13	1.21	1.24	1.32	1.39
	2/3S	1.97	2.24	2.47	2.65	2.77	3.04	1.33	1.48	1.63	1.78	1.94	2.05	1.14	1.26	1.78	1.88	2.06	2.48
	1-1/3S	3.52	3.91	4.28	4.70	5.02	5.40	2.69	2.77	3.14	3.52	3.90	4.28	1.94	2.12	2.27	2.47	2.62	2.77
	1-1/2S	5.53	6.16	7.13	7.40	7.78	8.15	4.08	4.46	4.85	5.23	5.60	5.98	2.95	3.32	3.70	4.08	4.36	4.65
	2-1/3S	7.50	8.26	10.03	10.78	11.16	11.93	6.40	6.98	7.36	7.75	813	8.88	4.70	5.08	5.46	5.85	6.23	6.70
	2-3/4S	8.03	9.78	10.55	11.30	12.07	12.83	7.78	8.11	8.88	9.36	9.75	10.21	5.85	6.23	6.60	6.98	7.36	7.75