DPF/DPFS 系列电子膨胀阀
DPF/DPFS Series electronic expansion valve

DPF 系列
DPF series

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产品概述 Product Description

DPF/DPFS型电子膨胀阀适用于空调、商用冷柜、小型冷库和热泵等制冷系统中，精确控制系统中制冷剂流量，使系统始终在最佳状态下运行，达到快速制冷，实现精准控制和节能的目的。	DPF/DPFS electronic expansion valve is suitable for refrigeration systems such as air conditioners, commercial refrigerators, small refrigeration storage and heat pumps. It can accurately control the refrigerant flow in the system, so that the system can always run in the best state, achieve rapid cooling, and achieve the goal of precise control and energy saving.

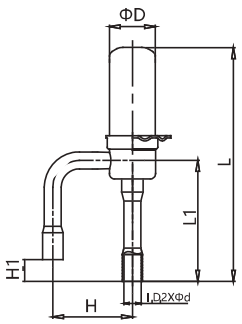
特点 Features

• 体积小、重量轻，性能稳定可靠； • 反应和动作速度快； • 膨胀阀新结构设计，噪音低，故障率低； • DPFS系列产品采用平衡口设计，逆向开阀压力高； • 适用于少油或无油系统。	• Small size, light weight, stable and reliable performance; • Fast response and action; • New structure design of expansion valve, low noise and low failure rate; • DPFS series products apply design of balanced port, and the reverse valve opening pressure is high; • Suitable for systems with little oil or no oil.

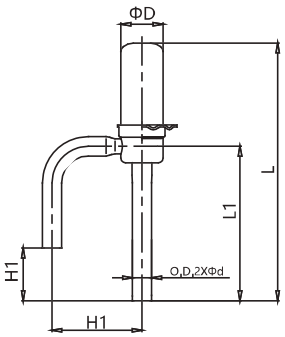
技术参数 Technical Parameters

适用制冷剂 Applicable refrigerant	R22、R134a、R404A、R407C、R410A
名义容量 Nominal capacity	2.5~126KW
介质温度 Medium temperature	-30~+70℃
环境温度 Environment temperature	-30~+60℃
环境湿度 Environment humidity	95%RH以下
全开脉冲 Full open pulse	500PS
开阀脉冲 Valve opening pulse	32±20
额定电压 Rated voltage	12V DC （±10%），矩形波 rectangular wave
励磁方式 Excitation mode	1-2相励磁，单极驱动 1-2 phase excitation, single pole drive
励磁速度 Excitation speed	30~90pps
结束励磁模式保持 Finishing excitation mode keeps	0.1~1.0s
全程耗时 Time cost for whole course	6s（83pps）
驱动电流 Drive current	260mA
线圈电阻 Coil resistance	46±3.7Ω/相
线圈绝缘等级 Coil insulation grade	E级
防护等级 Protect grade	IP65

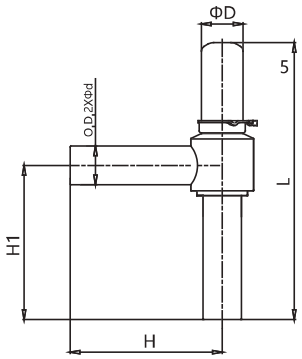
结构 Structure



DPF1.3~2.4



DPF3.0~3.2



DPFS4.0~6.5

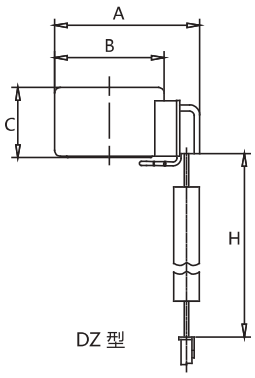
外型尺寸 Overall dimension

型号 Model	外 形 尺 寸 Overall dimension					
	φD	L	L1	H	H1	φd
DPF1.3~2.4	17.3	87	36.8	30	8	6.5
DPF3.0~3.2	17.3	105	41.5	37	21.5	7.94
DPFS4.0~6.5	17.3	114	/	63	64	16

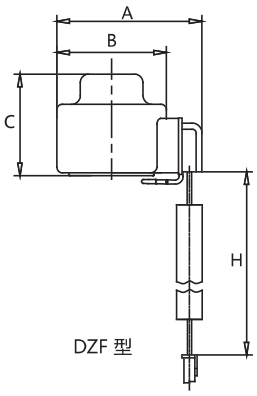
注：接管尺寸可以根据要求定制。

Note: dimension of connecting pipe can be customized according to requirements

线圈 Coil



DZ 型



DZF 型

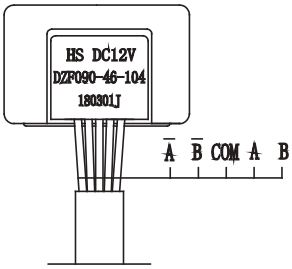
外型尺寸 Overall dimension

系列 Series	线圈型号 Coil model	A	B	C	H	接器型号 Connector model
DZ	DZ090-46-□□□	51	38.5	25	900	XHP-5 XHP-6 XAP-5 XAP-6
	DZ120-46-□□□	51	38.5	25	1200	
	DZ200-46-□□□	51	38.5	25	2000	
	DZ300-46-□□□	51	38.5	25	3000	
DZF	DZF090-46-□□□	51	38.5	35.5	900	
	DZF120-46-□□□	51	38.5	35.5	1200	
	DZF200-46-□□□	51	38.5	35.5	2000	
	DZF300-46-□□□	51	38.5	35.5	3000	

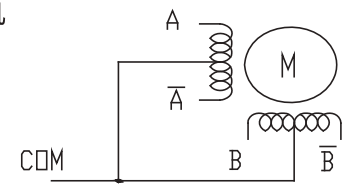
注：导线长度和连接器可根据客户要求定制。

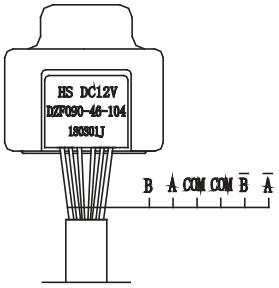
Note: the lead wire length and connector can be customized according to customer’ s requirements.

驱动时序 Driving schedule

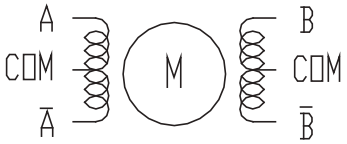


四相八拍电机
接线示意图





四相八拍电机
接线示意图



励磁方式								
相号	1	2	3	4	5	6	7	8
A	▨	▨						▨
B		▨	▨	▨				
$\bar{A}$				▨	▨	▨		
$\bar{B}$						▨	▨	▨

动作顺序：1→2→3→4→5→6→7→8 关阀

8→7→6→5→4→3→2→1 开阀

选型表 Model selection

产品系列 Product series	全开步数 Full open steps	通经 Diameter	KV[2]	名义容量 [KW] [1] Nominal capacity					最大工作压力 Max. working pressure	最大工作压差 Max. working pressure difference	逆向开阀压差 Reverse valve opening pressure difference
		[mm]	[m3/h]	R22	R134a	R407C[*]	R404A/R507	R410A[*]	[MPa]	[MPa]	[MPa]
DPF1.3	500	1.30	0.06	3.5	2.7	3.50	2.50	4.20	4.2	4.2	≥2.1
DPF1.65	500	1.65	0.08	5.3	4.1	5.30	3.70	6.35	4.2	4.2	≥2.1
DPF1.8	500	1.80	0.10	7.0	5.4	7.00	4.90	8.40	4.2	4.2	≥2.1
DPF2.0	500	2.00	0.16	8.8	6.7	8.75	6.10	10.5	4.2	4.2	≥2.1
DPF2.2	500	2.20	0.20	10.5	8.1	10.5	7.40	12.6	4.2	4.2	≥2.1
DPF2.4	500	2.40	0.23	17.5	13.5	17.5	12.3	21.0	4.2	4.2	≥2.1
DPF3.0	500	3.00	0.39	21.0	16.2	21.0	14.7	25.2	4.2	4.2	≥1.47
DPF3.2	500	3.20	0.43	28.0	21.4	28.0	19.6	33.6	4.2	4.2	≥1.47
DPFS4.0	500	6.50	0.50	42.0	32.3	42.0	29.4	50.4	4.2	4.2	≥3.5
DPFS4.5	500	6.50	0.70	52.5	40.4	52.0	36.8	63.0	4.2	4.2	≥3.5
DPFS5.5	500	6.50	0.80	70.0	53.9	70.0	49.0	84.0	4.2	4.2	≥3.5
DPFS6.5	500	6.50	1.10	105	80.9	100	73.5	126	4.2	4.2	≥3.5

名义工况：

• 额定能力基于：R407C冷凝温度：+38℃； 蒸发温度：+5℃；过冷度：0 K； 过热度：0 K；

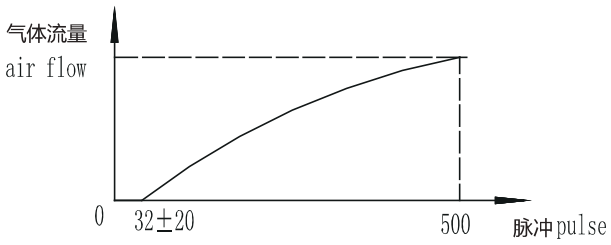
• Kv值：基于密度为1T/m3的水、阀门两端压差等于100KPa时的正向流动能力。

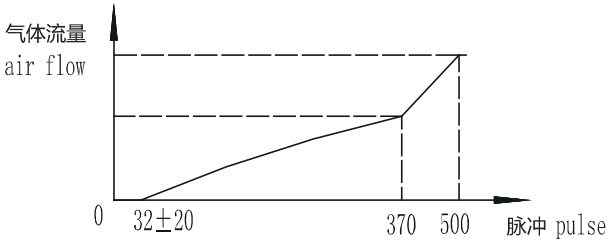
Nominal condition:

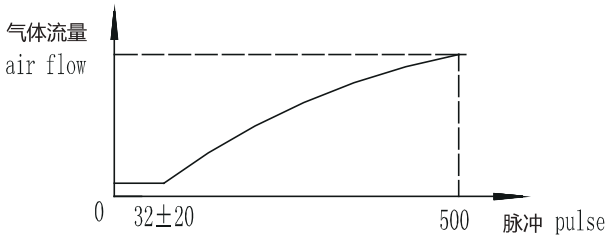
• Rated capacity is based on: R407C condensing temperature: +38℃; evaporating temperature: +5℃; super cooling degree: 0 K; super heat degree: 0 K;

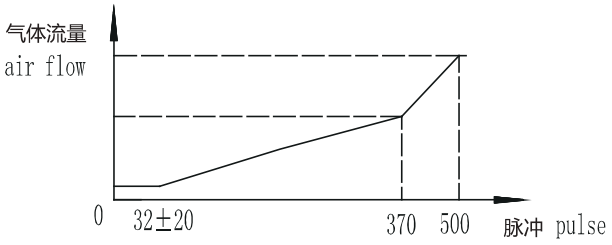
• Kv value: the pressure difference based on the two sides between water with density 1T/m3 and the valve is equal to the positive flow capacity at 100Kpa.

流量曲线示意图 Schematic pic. of flow curve

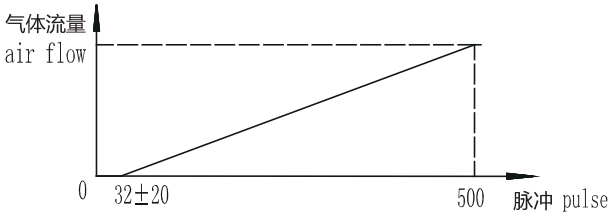








DPF1.0~DPF3.2



DPFS4.5~DPFS6.5

注：流量曲线要求可以根据要求定制。
Note: the flow curve can be customized according to requirement.

额定能力（kW）Rated capacity

	冷凝温度[℃] Condensing temperature	DPF1.3							DPF1.65						
		蒸发温度[℃] Evaporating temperature							蒸发温度[℃] Evaporating temperature						
		10	5	0	-5	-10	-20	-30	10	5	0	-5	-10	-20	-30
R410A	30	4.38	4.73	5.02	5.24	5.41	5.63	5.71	8.06	8.72	9.25	9.65	9.96	10.36	10.51
	35	4.72	5.00	5.22	5.41	5.54	5.70	5.73	8.68	9.21	9.63	9.95	10.20	10.49	10.56
	38	4.87	5.12	5.31	5.46	5.58	5.70	5.73	8.95	9.42	9.78	10.06	10.26	10.50	10.54
	40	4.93	5.17	5.36	5.49	5.59	5.70	5.70	9.10	9.53	9.86	10.11	10.29	10.49	10.50
	45	5.07	5.26	5.39	5.49	5.58	5.63	5.61	9.33	9.68	9.93	10.13	10.26	10.38	10.32
	50	5.10	5.24	5.36	5.42	5.48	5.49	5.42	9.39	9.65	9.85	9.99	10.07	10.11	10.00
R407C	30	3.79	4.06	4.28	4.43	4.55	4.66	4.66	6.96	7.47	7.86	8.15	8.36	8.57	8.60
	35	4.12	4.65	4.50	4.61	4.70	4.77	4.75	7.58	7.99	8.28	8.50	8.64	8.76	8.74
	38	4.28	4.46	4.60	4.70	4.77	4.80	4.77	7.88	8.22	8.47	8.65	8.76	8.85	8.78
	40	4.38	4.55	4.66	4.75	4.80	4.83	4.77	8.06	8.36	8.58	8.74	8.83	8.89	8.79
	45	4.56	4.68	4.77	4.83	4.85	4.85	4.77	8.39	8.63	8.79	8.89	8.95	8.92	8.76
	50	4.68	4.77	4.82	4.85	4.87	4.82	4.70	8.46	8.78	8.88	8.93	8.95	8.86	8.65
R22	30	3.63	3.92	4.14	4.31	4.44	4.61	4.68	6.68	7.21	7.63	7.95	8.18	8.49	8.61
	35	3.97	4.21	4.39	4.53	4.63	4.75	4.78	7.32	7.75	8.08	8.33	8.53	8.75	8.81
	38	4.14	4.36	4.51	4.63	4.72	4.82	4.83	7.64	8.01	8.31	8.53	8.70	8.88	8.90
	40	4.26	4.44	4.58	4.70	4.77	4.85	4.87	7.82	8.17	8.43	8.64	8.78	8.93	8.95
	45	4.46	4.61	4.73	4.82	4.87	4.92	4.90	8.22	8.50	8.71	8.86	8.97	9.06	9.03
	50	4.63	4.75	4.83	4.90	4.93	4.95	4.90	8.53	8.74	8.90	9.01	9.08	9.11	9.04
R134a	30	2.89	3.08	3.23	3.33	3.40	3.45	3.41	5.31	5.67	5.93	6.11	6.24	6.33	6.29
	35	3.14	3.30	3.40	3.46	3.52	3.53	3.46	5.79	6.07	6.26	6.39	6.46	6.49	6.39
	38	3.28	3.40	3.48	3.53	3.57	3.57	3.50	6.04	6.26	6.42	6.51	6.57	6.56	6.43
	40	3.35	3.46	3.53	3.58	3.60	3.58	3.50	6.18	6.38	6.51	6.58	6.63	6.58	6.45
	45	3.52	3.58	3.63	3.65	3.65	3.60	3.50	6.46	6.60	6.68	6.72	6.72	6.63	6.43
	50	3.62	3.67	3.68	3.68	3.67	3.58	3.46	6.65	6.74	6.78	6.78	6.75	6.60	6.38
R404A	30	2.70	2.89	3.04	3.13	3.19	3.24	3.21	4.97	5.33	5.58	5.76	5.89	5.97	5.90
	35	2.89	3.03	3.13	3.19	3.23	3.23	3.18	5.32	5.57	5.76	5.88	5.95	5.96	5.83
	38	2.96	3.08	3.14	3.19	3.21	3.19	3.11	5.43	5.65	5.79	5.88	5.92	5.89	5.74
	40	2.97	3.08	3.14	3.18	3.19	3.16	3.06	5.47	5.67	5.78	5.85	5.88	5.82	5.64
	45	3.01	3.08	3.11	3.13	3.11	3.04	2.92	5.53	5.65	5.72	5.74	5.72	5.61	5.39
	50	2.96	2.99	3.01	2.99	2.97	2.87	2.72	5.45	5.51	5.53	5.51	5.46	5.29	5.01

额定能力（kW）Rated capacity

	冷凝温度[℃] Condensing temperature	DPF1.8							DPF2.0						
		蒸发温度[℃] Evaporating temperature							蒸发温度[℃] Evaporating temperature						
		10	5	0	-5	-10	-20	-30	10	5	0	-5	-10	-20	-30
R410A	30	9.15	9.88	10.49	10.95	11.31	11.77	11.93	11.30	12.20	12.95	13.52	13.96	14.52	14.73
	35	9.86	10.45	10.91	11.31	11.58	11.91	11.97	12.18	12.90	13.47	13.96	14.29	14.71	14.78
	38	10.18	10.70	11.10	11.41	11.66	11.91	11.97	12.56	13.21	13.70	14.09	14.40	14.71	14.78
	40	10.30	10.80	11.20	11.47	11.68	11.91	11.91	12.72	13.34	13.83	14.16	14.42	14.71	14.71
	45	10.59	10.99	11.26	11.47	11.66	11.77	11.72	13.08	13.57	13.91	14.16	14.40	14.52	14.47
	50	10.66	10.95	11.20	11.33	11.45	11.47	11.33	13.16	13.52	13.83	13.98	14.14	14.16	13.98
R407C	30	7.92	8.48	8.94	9.26	9.51	9.74	9.74	9.78	10.47	11.04	11.43	11.74	12.02	12.02
	35	8.61	9.72	9.40	9.63	9.82	9.97	9.93	10.63	12.00	11.61	11.89	12.13	12.31	12.25
	38	8.94	9.32	9.61	9.82	9.97	10.03	9.97	11.04	11.51	11.87	12.13	12.31	12.38	12.31
	40	9.15	9.51	9.74	9.93	10.03	10.09	9.97	11.30	11.74	12.02	12.25	12.38	12.46	12.31
	45	9.53	9.78	9.97	10.09	10.14	10.14	9.97	11.76	12.07	12.31	12.46	12.51	12.51	12.31
	50	9.78	9.97	10.07	10.14	10.18	10.07	9.82	12.07	12.31	12.44	12.51	12.56	12.44	12.13
R22	30	7.59	8.19	8.65	9.01	9.28	9.63	9.78	9.36	10.11	10.68	11.12	11.45	11.89	12.07
	35	8.30	8.80	9.17	9.47	9.68	9.93	9.99	10.24	10.86	11.33	11.69	11.94	12.25	12.33
	38	8.65	9.11	9.42	9.68	9.86	10.07	10.09	10.68	11.25	11.64	11.94	12.18	12.44	12.46
	40	8.90	9.28	9.57	9.82	9.97	10.14	10.18	10.99	11.45	11.82	12.13	12.31	12.51	12.56
	45	9.32	9.63	9.88	10.07	10.18	10.28	10.24	11.51	11.89	12.20	12.44	12.56	12.69	12.64
	50	9.68	9.93	10.09	10.24	10.30	10.34	10.24	11.94	12.25	12.46	12.64	12.72	12.77	12.64
R134a	30	6.04	6.44	6.75	6.96	7.10	7.21	7.13	7.46	7.95	8.33	8.59	8.77	8.90	8.80
	35	6.56	6.90	7.10	7.23	7.36	7.38	7.23	8.10	8.51	8.77	8.93	9.08	9.11	8.93
	38	6.85	7.10	7.27	7.38	7.46	7.46	7.31	8.46	8.77	8.98	9.11	9.21	9.21	9.03
	40	7.00	7.23	7.38	7.48	7.52	7.48	7.31	8.64	8.93	9.11	9.24	9.29	9.24	9.03
	45	7.36	7.48	7.59	7.63	7.63	7.52	7.31	9.08	9.24	9.36	9.42	9.42	9.29	9.03
	50	7.56	7.67	7.69	7.69	7.67	7.48	7.23	9.34	9.47	9.49	9.49	9.47	9.24	8.93
R404A	30	5.64	6.04	6.35	6.54	6.67	6.77	6.71	6.97	7.46	7.84	8.08	8.23	8.36	8.28
	35	6.04	6.33	6.54	6.67	6.75	6.75	6.65	7.46	7.82	8.08	8.23	8.33	8.33	8.20
	38	6.19	6.44	6.56	6.67	6.71	6.67	6.50	7.64	7.95	8.10	8.23	8.28	8.23	8.02
	40	6.21	6.44	6.56	6.65	6.67	6.60	6.39	7.66	7.95	8.10	8.20	8.23	8.15	7.89
	45	6.29	6.44	6.50	6.54	6.50	6.35	6.10	7.77	7.95	8.02	8.08	8.02	7.84	7.53
	50	6.19	6.25	6.29	6.25	6.21	6.00	5.68	7.64	7.71	7.77	7.71	7.66	7.40	7.02

额定能力（kW）Rated capacity

	冷凝温度[℃] Condensing temperature	DPF2.2							DPF2.4						
		蒸发温度[℃] Evaporating temperature							蒸发温度[℃] Evaporating temperature						
		10	5	0	-5	-10	-20	-30	10	5	0	-5	-10	-20	-30
R410A	30	13.67	14.77	15.67	16.36	16.89	17.57	17.82	16.27	17.57	18.65	19.47	20.10	20.92	21.21
	35	14.73	15.61	16.30	16.89	17.29	17.79	17.89	17.53	18.58	19.39	20.10	20.58	21.18	21.29
	38	15.20	15.98	16.58	17.04	17.42	17.79	17.89	18.09	19.02	19.73	20.28	20.73	21.18	21.29
	40	15.39	16.14	16.73	17.14	17.45	17.79	17.79	18.32	19.21	19.91	20.40	20.77	21.18	21.18
	45	15.83	16.42	16.83	17.14	17.42	17.57	17.51	18.84	19.54	20.02	20.40	20.73	20.92	20.84
	50	15.92	16.36	16.73	16.92	17.11	17.14	16.92	18.95	19.47	19.91	20.14	20.36	20.40	20.14
R407C	30	11.83	12.67	13.36	13.83	14.20	14.55	14.55	14.08	15.08	15.90	16.46	16.90	17.31	17.31
	35	12.86	14.52	14.05	14.39	14.67	14.89	14.83	15.31	17.27	16.72	17.13	17.46	17.72	17.65
	38	13.36	13.92	14.36	14.67	14.89	14.98	14.89	15.90	16.57	17.09	17.46	17.72	17.83	17.72
	40	13.67	14.20	14.55	14.83	14.98	15.08	14.89	16.27	16.90	17.31	17.65	17.83	17.94	17.72
	45	14.23	14.61	14.89	15.08	15.14	15.14	14.89	16.94	17.39	17.72	17.94	18.02	18.02	17.72
	50	14.61	14.89	15.05	15.14	15.20	15.05	14.67	17.39	17.72	17.91	18.02	18.09	17.91	17.46
R22	30	11.33	12.24	12.92	13.45	13.86	14.39	14.61	13.49	14.56	15.38	16.01	16.49	17.13	17.39
	35	12.39	13.14	13.70	14.14	14.45	14.83	14.92	14.75	15.64	16.31	16.83	17.20	17.65	17.76
	38	12.92	13.61	14.08	14.45	14.73	15.05	15.08	15.38	16.20	16.75	17.20	17.53	17.91	17.94
	40	13.30	13.86	14.30	14.67	14.89	15.14	15.20	15.83	16.49	17.01	17.46	17.72	18.02	18.09
	45	13.92	14.39	14.77	15.05	15.20	15.36	15.30	16.57	17.13	17.57	17.91	18.09	18.28	18.20
	50	14.45	14.83	15.08	15.30	15.39	15.45	15.30	17.20	17.65	17.94	18.20	18.32	18.39	18.20
R134a	30	9.02	9.61	10.08	10.40	10.61	10.77	10.64	10.74	11.44	12.00	12.37	12.63	12.82	12.67
	35	9.80	10.30	10.61	10.80	10.99	11.02	10.80	11.67	12.26	12.63	12.85	13.08	13.11	12.85
	38	10.24	10.61	10.86	11.02	11.14	11.14	10.93	12.19	12.63	12.93	13.11	13.26	13.26	13.00
	40	10.46	10.80	11.02	11.18	11.24	11.18	10.93	12.45	12.85	13.11	13.30	13.37	13.30	13.00
	45	10.99	11.18	11.33	11.39	11.39	11.24	10.93	13.08	13.30	13.49	13.56	13.56	13.37	13.00
	50	11.30	11.46	11.49	11.49	11.46	11.18	10.80	13.45	13.63	13.67	13.67	13.63	13.30	12.85
R404A	30	8.43	9.02	9.49	9.77	9.96	10.11	10.02	10.03	10.74	11.29	11.63	11.85	12.04	11.93
	35	9.02	9.46	9.77	9.96	10.08	10.08	9.93	10.74	11.26	11.63	11.85	12.00	12.00	11.81
	38	9.24	9.61	9.80	9.96	10.02	9.96	9.71	11.00	11.44	11.67	11.85	11.93	11.85	11.55
	40	9.27	9.61	9.80	9.93	9.96	9.86	9.55	11.03	11.44	11.67	11.81	11.85	11.74	11.37
	45	9.40	9.61	9.71	9.77	9.71	9.49	9.12	11.18	11.44	11.55	11.63	11.55	11.29	10.85
	50	9.24	9.33	9.40	9.33	9.27	8.96	8.49	11.00	11.11	11.18	11.11	11.03	10.66	10.10

额定能力（kW）Rated capacity

	冷凝温度[℃] Condensing temperature	DPF3.0							DPF3.2						
		蒸发温度[℃] Evaporating temperature							蒸发温度[℃] Evaporating temperature						
		10	5	0	-5	-10	-20	-30	10	5	0	-5	-10	-20	-30
R410A	30	20.33	22.02	23.35	24.33	25.18	26.16	26.51	28.04	30.36	32.20	33.55	34.72	36.07	36.55
	35	21.88	23.21	24.33	25.11	25.74	26.44	26.65	30.17	32.01	33.55	34.62	35.49	36.46	36.75
	38	22.58	23.77	24.69	25.39	25.95	26.51	26.58	31.14	32.78	34.04	35.01	35.78	36.55	36.65
	40	23.00	24.06	24.90	25.53	26.02	26.51	26.51	31.72	33.17	34.33	35.20	35.88	36.55	36.55
	45	23.56	24.40	25.11	25.60	25.88	26.16	26.02	32.49	33.65	34.62	35.30	35.68	36.07	35.88
	50	23.70	24.33	24.90	25.18	25.45	25.53	25.24	32.68	33.55	34.33	34.72	35.10	35.20	34.81
R407C	30	17.54	18.86	19.85	20.55	21.04	21.60	21.67	24.18	26.01	27.37	28.33	29.01	29.78	29.88
	35	19.15	20.12	20.90	21.39	21.81	22.09	22.02	26.40	27.75	28.82	29.49	30.07	30.46	30.36
	38	19.85	20.76	21.39	21.81	22.09	22.30	22.09	27.37	28.62	29.49	30.07	30.46	30.75	30.46
	40	20.27	21.11	21.67	22.02	22.30	22.37	22.16	27.95	29.11	29.88	30.36	30.75	30.85	30.56
	45	21.18	21.74	22.16	22.44	22.51	22.51	22.09	29.20	29.98	30.56	30.94	31.04	31.04	30.46
	50	21.67	22.09	22.37	22.51	22.58	22.30	21.81	29.88	30.46	30.85	31.04	31.14	30.75	30.07
R22	30	16.83	18.23	19.28	20.06	20.69	21.46	21.74	23.21	25.14	26.59	27.66	28.53	29.59	29.98
	35	18.44	19.57	20.41	21.04	21.53	22.09	22.23	25.43	26.98	28.14	29.01	29.69	30.46	30.65
	38	19.28	20.20	20.97	21.53	21.95	22.37	22.44	26.59	27.85	28.91	29.69	30.27	30.85	30.94
	40	19.78	20.62	21.32	21.81	22.16	22.58	22.58	27.27	28.43	29.40	30.07	30.56	31.14	31.14
	45	20.76	21.46	22.02	22.37	22.65	22.86	22.79	28.62	29.59	30.36	30.85	31.23	31.52	31.43
	50	21.53	22.09	22.44	22.79	22.93	23.00	22.79	29.69	30.46	30.94	31.43	31.62	31.72	31.43
R134a	30	13.39	14.31	15.00	15.43	15.78	15.99	15.85	18.47	19.73	20.69	21.27	21.76	22.05	21.85
	35	14.66	15.36	15.78	16.13	16.34	16.41	16.13	20.21	21.18	21.76	22.24	22.53	22.63	22.24
	38	15.21	15.78	16.20	16.48	16.55	16.55	16.20	20.98	21.76	22.34	22.72	22.82	22.82	22.34
	40	15.57	16.06	16.41	16.62	16.69	16.55	16.27	21.47	22.14	22.63	22.92	23.01	22.82	22.43
	45	16.34	16.69	16.90	16.97	16.97	16.69	16.27	22.53	23.01	23.30	23.40	23.40	23.01	22.43
	50	16.83	17.04	17.11	17.11	17.04	16.69	16.06	23.21	23.50	23.59	23.59	23.50	23.01	22.14
R404A	30	12.55	13.47	14.10	14.58	14.87	15.08	14.94	17.31	18.57	19.44	20.11	20.50	20.79	20.60
	35	13.39	14.10	14.52	14.87	15.00	15.00	14.73	18.47	19.44	20.02	20.50	20.69	20.69	20.31
	38	13.74	14.24	14.66	14.87	14.94	14.87	14.52	18.95	19.63	20.21	20.50	20.60	20.50	20.02
	40	13.82	14.31	14.58	14.79	14.79	14.66	14.24	19.05	19.73	20.11	20.40	20.40	20.21	19.63
	45	13.95	14.16	14.45	14.52	14.45	14.16	13.60	19.24	19.53	19.92	20.02	19.92	19.53	18.76
	50	13.74	13.89	13.95	13.89	13.82	13.32	12.69	18.95	19.15	19.24	19.15	19.05	18.37	17.50

额定能力（kW）Rated capacity

	冷凝温度[℃] Condensing temperature	DPF4.0							DPF4.5						
		蒸发温度[℃] Evaporating temperature							蒸发温度[℃] Evaporating temperature						
		10	5	0	-5	-10	-20	-30	10	5	0	-5	-10	-20	-30
R410A	30	40.64	44.01	46.67	48.63	50.33	52.28	52.98	50.83	55.03	58.37	60.81	62.93	65.38	66.25
	35	43.73	46.40	48.63	50.18	51.44	52.85	53.27	54.69	58.02	60.81	62.75	64.33	66.09	66.61
	38	45.14	47.52	49.34	50.75	51.86	52.98	53.13	56.45	59.42	61.70	63.46	64.86	66.25	66.43
	40	45.98	48.08	49.76	51.02	52.01	52.98	52.98	57.50	60.13	62.23	63.80	65.04	66.25	66.25
	45	47.09	48.78	50.18	51.17	51.72	52.28	52.01	58.89	61.00	62.75	63.99	64.67	65.38	65.04
	50	47.37	48.63	49.76	50.33	50.88	51.02	50.46	59.24	60.81	62.23	62.93	63.62	63.80	63.10
R407C	30	35.05	37.70	39.67	41.06	42.05	43.17	43.31	43.83	47.15	49.61	51.35	52.58	53.98	54.16
	35	38.27	40.22	41.78	42.75	43.59	44.15	44.01	47.85	50.30	52.24	53.45	54.51	55.21	55.03
	38	39.67	41.49	42.75	43.59	44.15	44.57	44.15	49.61	51.88	53.45	54.51	55.21	55.74	55.21
	40	40.51	42.20	43.31	44.01	44.57	44.72	44.30	50.66	52.77	54.16	55.03	55.74	55.92	55.39
	45	42.33	43.46	44.30	44.85	44.99	44.99	44.15	52.93	54.34	55.39	56.08	56.26	56.26	55.21
	50	43.31	44.15	44.72	44.99	45.14	44.57	43.59	54.16	55.21	55.92	56.26	56.45	55.74	54.51
R22	30	33.64	36.44	38.54	40.09	41.35	42.89	43.46	42.07	45.57	48.20	50.14	51.71	53.64	54.34
	35	36.86	39.11	40.79	42.05	43.04	44.15	44.43	46.10	48.90	51.01	52.58	53.82	55.21	55.56
	38	38.54	40.37	41.91	43.04	43.88	44.72	44.85	48.20	50.48	52.40	53.82	54.87	55.92	56.08
	40	39.53	41.21	42.62	43.59	44.30	45.14	45.14	49.43	51.53	53.29	54.51	55.39	56.45	56.45
	45	41.49	42.89	44.01	44.72	45.27	45.69	45.56	51.88	53.64	55.03	55.92	56.61	57.13	56.97
	50	43.04	44.15	44.85	45.56	45.83	45.98	45.56	53.82	55.21	56.08	56.97	57.32	57.50	56.97
R134a	30	26.77	28.60	29.99	30.83	31.54	31.96	31.67	33.48	35.76	37.50	38.55	39.44	39.97	39.61
	35	29.29	30.70	31.54	32.24	32.66	32.80	32.24	36.63	38.39	39.44	40.31	40.84	41.02	40.31
	38	30.41	31.54	32.38	32.93	33.08	33.08	32.38	38.03	39.44	40.49	41.18	41.36	41.36	40.49
	40	31.12	32.09	32.80	33.22	33.35	33.08	32.51	38.92	40.13	41.02	41.55	41.71	41.36	40.66
	45	32.66	33.35	33.77	33.92	33.92	33.35	32.51	40.84	41.71	42.23	42.42	42.42	41.71	40.66
	50	33.64	34.06	34.19	34.19	34.06	33.35	32.09	42.07	42.60	42.76	42.76	42.60	41.71	40.13
R404A	30	25.09	26.92	28.18	29.15	29.72	30.14	29.86	31.38	33.66	35.24	36.45	37.16	37.68	37.34
	35	26.77	28.18	29.02	29.72	29.99	29.99	29.44	33.48	35.24	36.29	37.16	37.50	37.50	36.81
	38	27.47	28.45	29.29	29.72	29.86	29.72	29.02	34.35	35.58	36.63	37.16	37.34	37.16	36.29
	40	27.61	28.60	29.15	29.57	29.57	29.29	28.45	34.53	35.76	36.45	36.98	36.98	36.63	35.58
	45	27.89	28.31	28.87	29.02	28.87	28.31	27.19	34.88	35.40	36.11	36.29	36.11	35.40	34.01
	50	27.47	27.76	27.89	27.76	27.61	26.63	25.37	34.35	34.71	34.88	34.71	34.53	33.30	31.72

额定能力（kW）Rated capacity

	冷凝温度[℃] Condensing temperature	DPF5.5							DPF6.5						
		蒸发温度[℃] Evaporating temperature							蒸发温度[℃] Evaporating temperature						
		10	5	0	-5	-10	-20	-30	10	5	0	-5	-10	-20	-30
R410A	30	67.76	73.37	77.81	81.07	83.90	87.16	88.32	101.65	110.06	116.73	121.62	125.86	130.76	132.50
	35	72.91	77.35	81.07	83.66	85.76	88.11	88.81	109.37	116.04	121.62	125.50	128.65	132.17	133.22
	38	75.25	79.21	82.26	84.60	86.46	88.32	88.57	112.88	118.83	123.40	126.91	129.71	132.50	132.86
	40	76.65	80.16	82.96	85.06	86.71	88.32	88.32	114.99	120.24	124.45	127.60	130.07	132.50	132.50
	45	78.51	81.32	83.66	85.30	86.22	87.16	86.71	117.78	121.98	125.50	127.97	129.34	130.76	130.07
	50	78.97	81.07	82.96	83.90	84.82	85.06	84.12	118.47	121.62	124.45	125.86	127.24	127.60	126.19
R407C	30	58.43	62.85	66.14	68.46	70.10	71.96	72.21	87.65	94.29	99.22	102.70	105.16	107.95	108.32
	35	63.80	67.06	69.64	71.26	72.67	73.61	73.37	95.70	100.60	104.47	106.90	109.01	110.42	110.06
	38	66.14	69.16	71.26	72.67	73.61	74.31	73.61	99.22	103.75	106.90	109.01	110.42	111.47	110.42
	40	67.54	70.35	72.21	73.37	74.31	74.55	73.85	101.32	105.53	108.32	110.06	111.47	111.83	110.78
	45	70.56	72.45	73.85	74.77	75.01	75.01	73.61	105.85	108.68	110.78	112.16	112.52	112.52	110.42
	50	72.21	73.61	74.55	75.01	75.25	74.31	72.67	108.32	110.42	111.83	112.52	112.88	111.47	109.01
R22	30	56.09	60.75	64.26	66.84	68.94	71.51	72.45	84.14	91.13	96.39	100.27	103.42	107.27	108.68
	35	61.45	65.20	68.00	70.10	71.75	73.61	74.07	92.19	97.80	102.01	105.16	107.63	110.42	111.11
	38	64.26	67.30	69.86	71.75	73.15	74.55	74.77	96.39	100.96	104.80	107.63	109.73	111.83	112.16
	40	65.90	68.70	71.05	72.67	73.85	75.25	75.25	98.86	103.06	106.58	109.01	110.78	112.88	112.88
	45	69.16	71.51	73.37	74.55	75.47	76.17	75.95	103.75	107.27	110.06	111.83	113.21	114.26	113.94
	50	71.75	73.61	74.77	75.95	76.41	76.65	75.95	107.63	110.42	112.16	113.94	114.62	114.99	113.94
R134a	30	44.63	47.68	50.00	51.40	52.58	53.28	52.80	66.96	71.52	75.00	77.11	78.88	79.93	79.21
	35	48.84	51.18	52.58	53.74	54.44	54.69	53.74	73.26	76.78	78.88	80.62	81.67	82.04	80.62
	38	50.70	52.58	53.99	54.90	55.15	55.15	53.99	76.05	78.88	80.98	82.36	82.72	82.72	80.98
	40	51.88	53.50	54.69	55.39	55.60	55.15	54.20	77.83	80.26	82.04	83.09	83.41	82.72	81.31
	45	54.44	55.60	56.31	56.55	56.55	55.60	54.20	81.67	83.41	84.46	84.83	84.83	83.41	81.31
	50	56.09	56.79	57.01	57.01	56.79	55.60	53.50	84.14	85.19	85.52	85.52	85.19	83.41	80.26
R404A	30	41.83	44.88	46.98	48.60	49.54	50.24	49.78	62.75	67.32	70.47	72.90	74.31	75.37	74.68
	35	44.63	46.98	48.38	49.54	50.00	50.00	49.08	66.96	70.47	72.57	74.31	75.00	75.00	73.63
	38	45.79	47.44	48.84	49.54	49.78	49.54	48.38	68.70	71.16	73.26	74.31	74.68	74.31	72.57
	40	46.04	47.68	48.60	49.30	49.30	48.84	47.44	69.06	71.52	72.90	73.95	73.95	73.26	71.16
	45	46.49	47.19	48.14	48.38	48.14	47.19	45.33	69.75	70.80	72.21	72.57	72.21	70.80	68.01
	50	45.79	46.28	46.49	46.28	46.04	44.39	42.29	68.70	69.42	69.75	69.42	69.06	66.59	63.44

DPF/DPFS系列电子膨胀阀控制器
DPF/DPFS series electronic expansion valve controller

T0055（一拖二）

T0056（一拖三）

产品概述 Product Description

用于DPF/DPFS系列电子膨胀阀的过热度控制和机组控制，适用4相步进电机驱动的电子膨胀阀，以4相8拍1-2相励磁驱动方式控制。保障系统处于安全范围内运转，提高压缩机和系统的可靠性，降低系统功耗（提高系统COP），提高系统的制冷能力。	Used for super heat degree control and unit control of DPF/DPFS series electronic expansion vlave, and suitable for the electronic expansion valve driven by 4 phase stepper motors and controlled by 4 phase 8 beat 1-2 phase excitation driving mode. Ensure the system is operating within a safe range, improve the reliability of compressor and system, reduce system power consumption (improve system COP), enhance the refrigerating capacity of system.

特点 Features

• 通过采集系统各部位温度信息，分析系统当前运行状态，运用模糊算法，使用自适应控制； • 反应和动作速度快，调节精准； • 电子膨胀阀控制器可根据系统参数设定，以适应不同的设备和工况需求； • 导轨式安装方便。	• Analyze the system current running state by collecting temperature information of each part of the system, use fuzzy algorithms, and adopt self-adaptive control; • Fast response and action, precise adjustment; • The electronic expansion valve controller can be set according to the system parameters to adapt demands of different equipments and conditions; • Easy installation of guide rail type

技术参数 Technical Parameters

使用环境 Working environment	温度-20~55℃，相对湿度≤90%RH(无凝露) temperature -20~55℃, relative humidity ≤90%RH (no condensation)
保存环境 Storing environment	温度-40~80℃，相对湿度≤95%RH(无凝露) temperature -40~80℃, relative humidity ≤95%RH(no condensation)
输入电源 Input power	单相交流110~220V/50Hz(60Hz) single phase alternative current 110~220V/50Hz(60Hz)
电子膨胀阀输出 Electronic expansion valve outpu	2路，单相最大负荷输出0.5A/12V 2 way, single phase maximum load output 0.5A/12V
温度传感器输入 Temperature sensor input	5路(含压力传感器),温度传感器B3470/5K；温度分辨率：0.1℃ 5 way (including pressure sensor), temperature sensor B3470/5K；temperature resolution: 0.1℃
压力传感器输入 Pressure sensor input	1路；压力分辨率0.01Bar 1 way; pressure resolution: 0.01Bar
交流输入开关 AC input switch	2路 2 way
继电器输出 Relay output	2路无源开关，负载能力：5A/220V 2 way passive switch, load capacity: 5A/220V
通信接口 Communication interface	1路,RS485 1 way, RS485

选型表 Model selection

序号 No	控制方式 Control method	代号 code	控制器型号 Controller model	适配器件型号 Adapter model		数量 Quantity	功能描述 Function description	设置参数 Set parameter
1	回气过热度控制 Air return super heat degree control	T0055	PCH-FP2N	电子膨胀阀 Electronic expansion valve	DPF、DPFS系列 DPF、DPFS series	1	一路主 (一拖一) 图1 One main way (1 carrying 1) PIC 1	
				压力传感器 Pressure sensor	HS-P321-30-（-1~12）barG	1		201
				温度传感器 Temperature sensor	NTC5K3470	1		
	回气过热度控制 Air return super heat degree control	T0055	PCH-FP2N	电子膨胀阀 Electronic expansion valve	DPF、DPFS系列 DPF、DPFS series	2	二路主 (一拖二) 图2 Two main ways (1 carrying 2) Pic 2	
				压力传感器 Pressure sensor	HS-P321-30-（-1~12）barG	1		201
				温度传感器 Temperature sensor	NTC5K3470	2		
	回气过热度控制 Air return super heat degree control	T0056	PCH-FP3N	电子膨胀阀 Electronic expansion valve	DPF、DPFS系列 DPF、DPFS series	3	三路主 (一拖三) 图3 Three main ways (1 carrying 3) Pic 3	
				压力传感器 Pressure sensor	HS-P321-30-（-1~12）barG	1		201
				温度传感器 Temperature sensor	NTC5K3470	3		
2	回气过热度+喷液冷却 Air return super heat degree+liquid injecting cooling	T0055	PCH-SP1L	电子膨胀阀 Electronic expansion valve	DPF、DPFS系列 DPF、DPFS series	2	一路主、一路辅 图4 One main way, one auxiliary Pic 4	
				压力传感器 Pressure sensor	HS-P321-30-（-1~12）barG	1		201
				温度传感器 Temperature sensor	NTC5K3470	2		

选型表 Model selection

序号 No	控制方式 Control method	代号 code	控制器型号 Controller model	适配器件型号 Adapter model		数量 Quantity	功能描述 Function description	设置参数 Set parameter
3	回（排）气过热度+喷气增焓 Air return(exhaust) super heat degree+enhanced vapor injection	T0055	PCH-SD1G	电子膨胀阀 Electronic expansion valve	DPF、DPFS系列 DPF、DPFS series	2	一路主、一路辅 图5 One main way, one auxiliary Pic 5	
				压力传感器 Pressure sensor	HS-P321-30-（-1~12）barG	0		201
				温度传感器 Temperature sensor	NTC5K3470	5		
4	排气过热度+喷液冷却 Air exhaust super heat degree+liquid injecting cooling	T0055	PCH-SD1L	电子膨胀阀 Electronic expansion valve	DPF、DPFS系列 DPF、DPFS series	2	一路主、一路辅 图6 One main way, one auxiliary Pic 6	
				压力传感器 Pressure sensor	HS-P321-30-（-1~12）barG	0		201
				温度传感器 Temperature sensor	NTC5K3470	3		
5	排气过热度控制 Air exhaust super degree	T0055	PCH-SD1N	电子膨胀阀 Electronic expansion valve	DPF、DPFS系列 DPF、DPFS series	1	一路主 图7 One main way Pic 7	
				压力传感器 Pressure sensor	HS-P321-30-（-1~12）barG	0		201
				温度传感器 Temperature sensor	NTC5K3470	3		

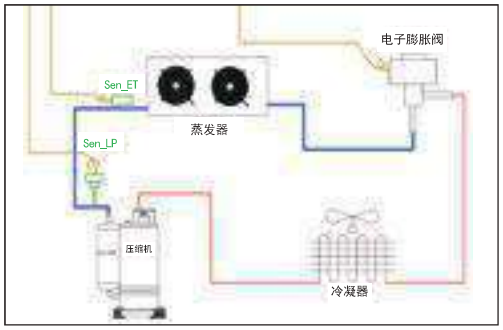


图1

回气过热度控制（一拖一）
Air return super heat degree control (1 by 1)

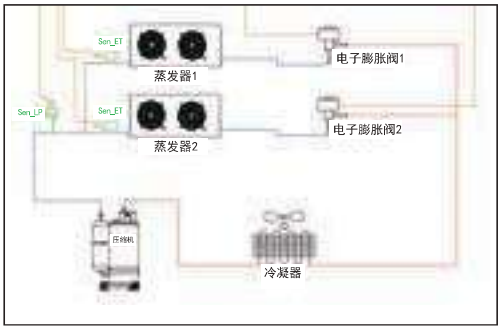


图2

回气过热度控制（一拖二）
Air return super heat degree control (1 by 2)

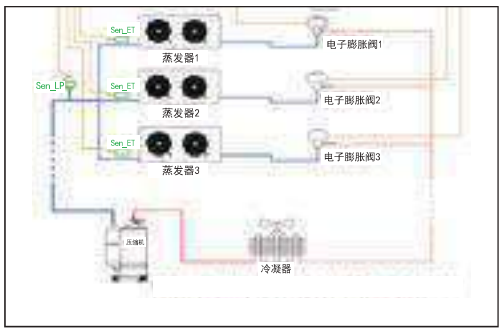


图3

回气过热度控制（一拖三）
Air return super heat degree control (1 by 3)

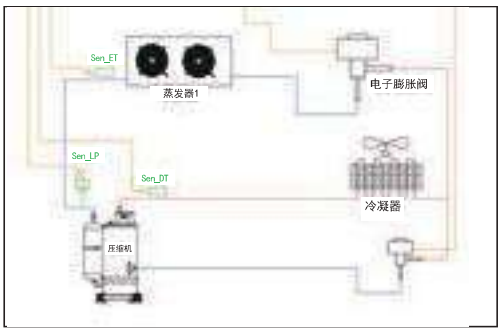


图4

热度+喷液冷却(一路主、一路辅)
Air return super heat degree+liquid injecting cooling
(One main way, one auxiliary)

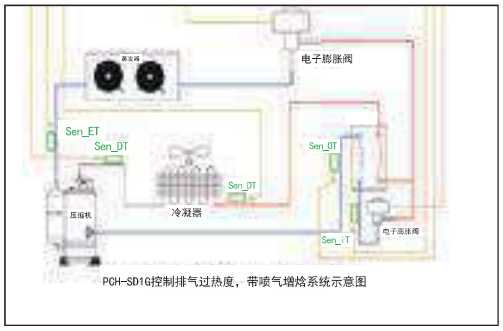


图5

回（排）气过热度+喷气增焓(一路主、一路辅)
Air return(exhaust) super heat degree+enhanced vapor injection
(One main way, one auxiliary)

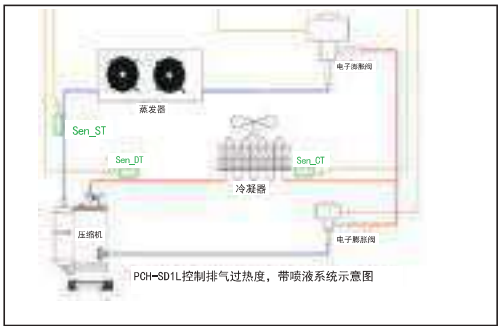


图6

排气过热度+喷液冷却(一路主、一路辅)
Air exhaust super heat degree+liquid injecting cooling
(One main way, one auxiliary)

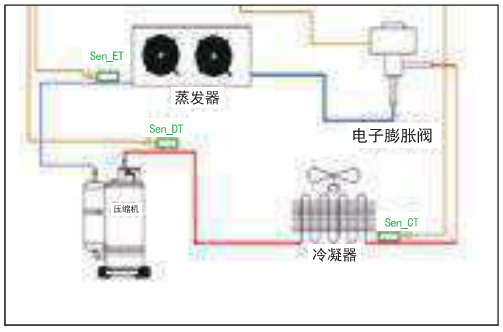
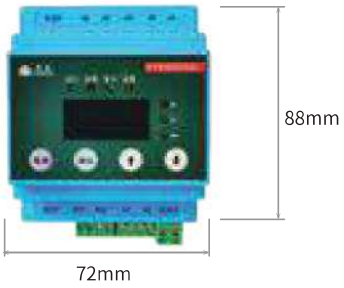
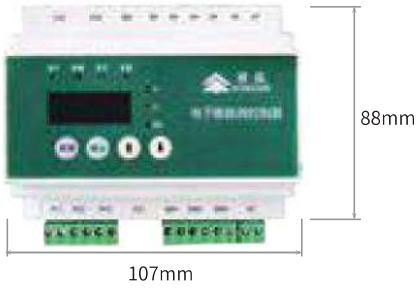


图7

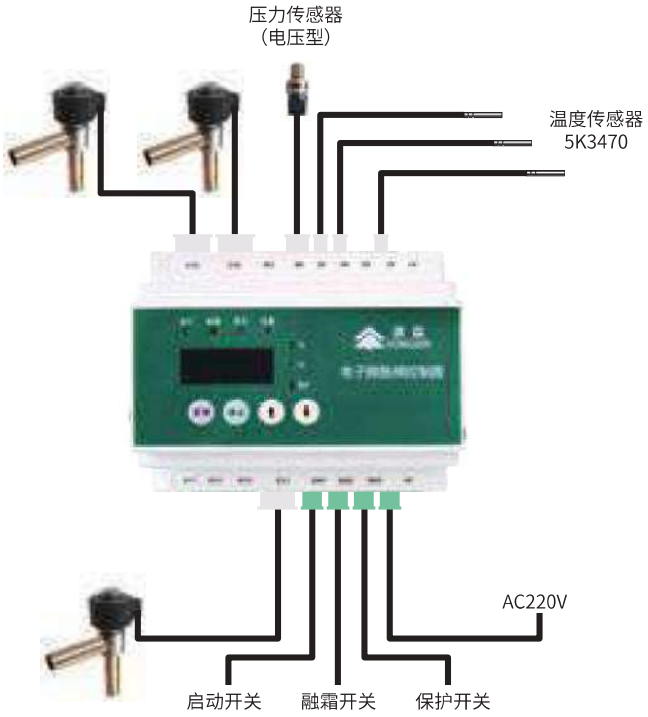
排气过热度控制(一路主)
Air exhaust super degree(One main way)

外形尺寸 Overall dimension





接线图 Wiring drawing



注：机组控制接线方式请参照说明书。
Note: Please refer to the instruction for detail of unit' s controlling wiring method

Ex1230电子膨胀阀控制器
Ex 1230 electronic expansion valve controller

产品概述 Product Description

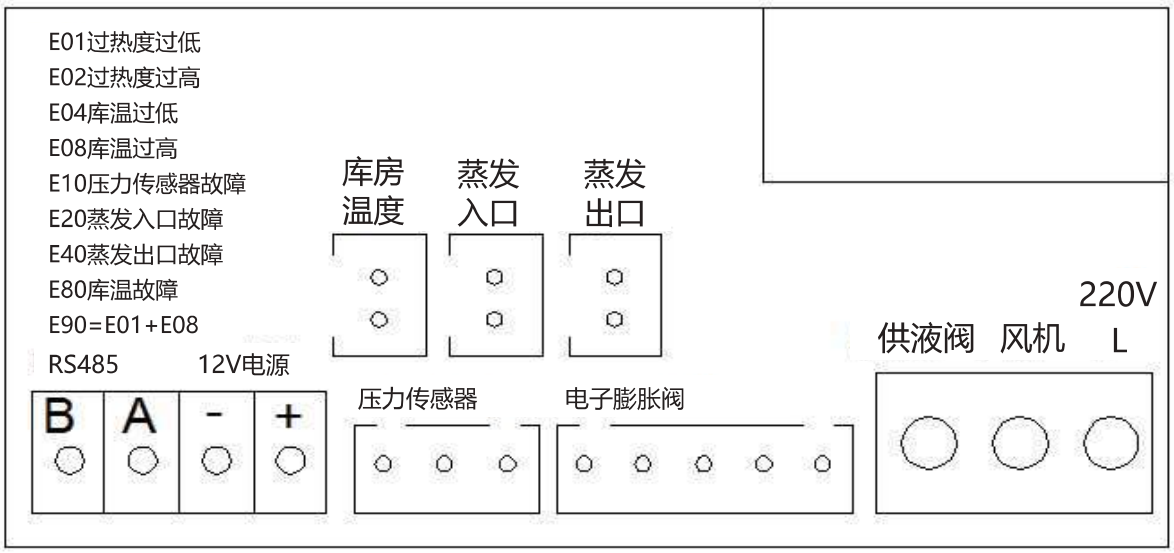
主要用于超市冷柜系统DPF/DPFS系列电子膨胀阀的过热度控制，以4相8拍1-2相励磁驱动方式精确控制冷媒流量，提高系统COP，达到快速制冷和节能的目的。	It is mainly used for super heat control of DPF/DPFS series electronic expansion valves in supermarket refrigerator system. It uses 4-phase 8- beat 1-2 phase excitation drive method to accurately control refrigerant flow, improve system COP and achieve the purpose of rapid cooling and energy saving.

特点 Features

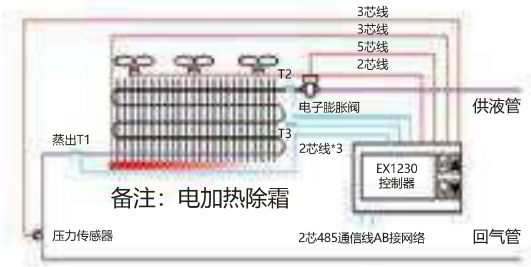
• 集成有风机控制、除霜控制、供液阀控制、膨胀阀开度调节等，兼顾冷柜/冷库温控器功能； • 通过压力对应温度控制过热度，过热度波动小、库温保持更平稳； • 多种内置程序保证电子膨胀阀控制精准,确保制冷系统安全、可靠运行； • 采用变过热度算法控制，使制冷系统效率更高； • 可多个温控共用一个压力值控制，适合一个主机拖多冷风机或者冷柜场合，安装调试简便； • 带RS485通信口，可接外部网络。	• Integrated with fan control, de-frost control, feed liquid valve control, expansion valve opening adjustment, taking into account the function of the temperature controller in refrigerator or refrigeration store; • The super heat degree is controlled by the pressure corresponding to temperature, whose fluctuation is low, and store temperature keeps more stable; • Various built-in programs ensure precise control of the electronic expansion valve, to make sure safe and reliable operation of the refrigeration system; • Control by means of changing super heat algorithm, to make the refrigeration system more efficient; • Multiple temperature controls can share one pressure value control, suitable for the occation with a host unit carrying several coolers or refrigerators, easy to install and commissioning; • Equipped with RS485 communication port, which can be connected with external network.

技术参数 Technical Parameters	
传感器长 Length of sensor	1.5 米(含探头) 1.5 meters (including probe)
感温元件 Temperature sensing element	NTC，R25Ⅱ = 5K,B25/50Ⅱ = 3470K
环境温度 Environment temperature	-10~45℃
工作湿度 Working humidity	5~85%RH (不结露) 5~85%RH(no condensation)
设定范围 Setting range	-40~120℃
显示范围 Display range	-50~130℃
电源电压 Power voltage	185~245Vac，50/60Hz
端子接线 Terminal wiring	导线不超过 2*1.5mm，或1*2.5mm lead wire no more than 2*1.5mm，or 1*2.5mm
整机尺寸 Dimension of whole machine	长 78 x 宽 34.5 x 深 71(毫米) length78 * width 34.5* depth 71(mm)
负载电流 Load current	5A，250Vac (阻性负载) 5A，250Vac (resistive load)
安装开孔 Installing hole	长 71 x 宽 29(毫米) length71 * width 29(mm)
防护等级 Protection grade	IP65(前面板) IP65 (front panel)

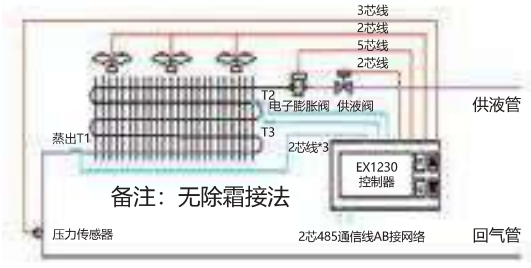
结构 Structure



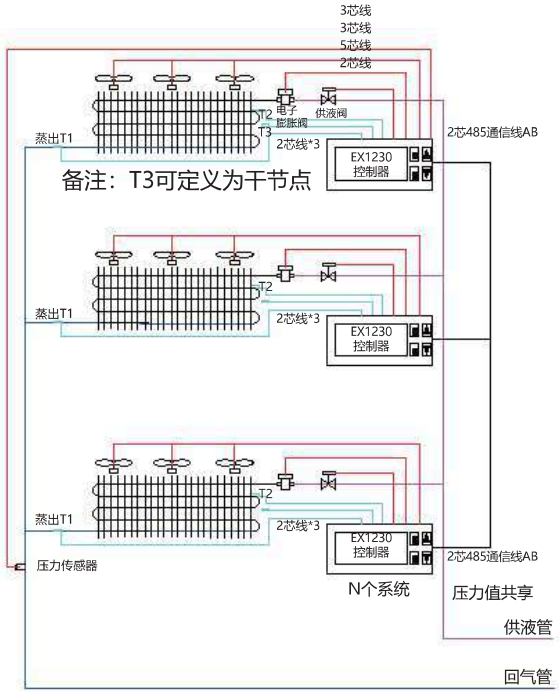
运用 Application



一拖一冷柜/冷库控制系统图（电除霜）



一拖一冷柜/冷库控制系统图（无除霜）



一拖多高温冷柜/冷库控制系统图

长 78(毫米) x 宽 34.5(毫米) x 深 71(毫米)　length78 * width 34.5* depth 71(mm)

压力传感器 Pressure/temperature sensor

电流型电流型（P22）
Current type（P22）

电压型（P321）
Voltage type（P321）

产品概述 Product Description	
用于检测制冷系统工况的压力值	Used to check the pressure value of refrigerating system condition

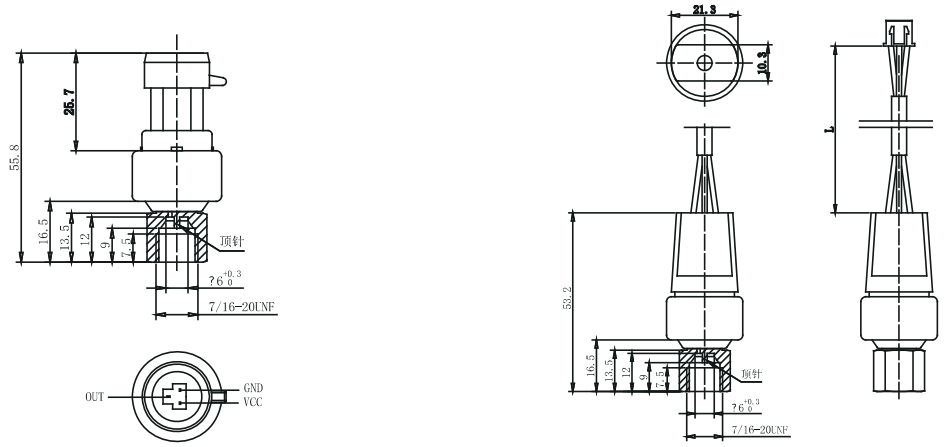
特点 Features	
• EMC/EMI适应变频环境应用； • 瞬间保护电压：DC16V； • 多种冷媒兼容，应用范围广； • 电源反接保护； • 电流型压力传感器防结露设计；	• EMC/EMI adapts frequency conversion environment application; • Instantaneous protective voltage: DC16V; • Compatible with multiple refrigerants, wide application range; • Power supply reverse connection protection; • Anti-condensation design for current type pressure sensor

技术参数 Technical Parameters	
工作电压 Working voltage	5±0.25VDC
介质温度 Medium temperature	-40℃~120℃
使用寿命 Service life	大于1000万次 more than10000000 times
适用量程 Applicable range	-1~50bar
输出信号 Output signa	电压/电流 voltage/current

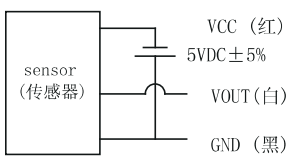
选型表 Model selection

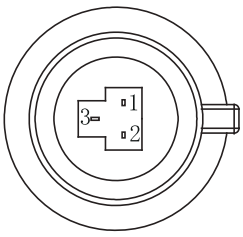
型号 Model	压力范围 Pressure range	安全过载 Safety overload	破坏压力 Breaking pressure	工作电源 Working voltage	输出信号 Output signal	综合精度 Comprehensive Precision
HS-P321-30-10barG	0-10bar	30bar	160bar	5VDC	0.5~4.5VDC	±2.5%F.S
HS-P321-30-20barG	0-20bar	60bar	160bar	5VDC	0.5~4.5VDC	±2.5%F.S
HS-P321-30-30barG	0-30bar	90bar	250bar	5VDC	0.5~4.5VDC	±2.5%F.S
HS-P321-30-45barG	0-45bar	90bar	250bar	5VDC	0.5~4.5VDC	±2.5%F.S
HS-P321-30-(-1~12)barG	-1~12bar	36bar	160bar	5VDC	0.5~4.5VDC	±2.5%F.S
HS-P224A-30-11barG	-1-11bar	60bar	160bar	24VDC(12~23VDC)	4~20mA	±1%F.S
HS-P224A-30-18barG	0-18bar	60bar	160bar	24VDC(12~23VDC)	4~20mA	±1%F.S
HS-P224A-30-30barG	0-30bar	90bar	250bar	24VDC(12~23VDC)	4~20mA	±1%F.S
HS-P224A-30-50barG	0-50bar	90bar	250bar	24VDC(12~23VDC)	4~20mA	±1%F.S

外形尺寸 Overall dimension



接线图 Wiring drawing





Pin	NS-P321-X2
1	GND
2	+5VDC
3	Vout

温度传感器 Temperature sensor

5K3470

产品概述 Product Description

用于检测制冷系统工况的温度值	Used to check the temperature value of refrigerating system condition

特点 Features

• 体积小，重量轻，防护性能好； • 温度偏差小，精度高 • 测量范围 test range：-50~150℃	• Small size, light weight, good protective performance • Small temperature deviation, high precision

型号 Model

NTC，R25Ⅱ = 5K，　B25/50Ⅱ = 3470K