

ELECTRONIC EXPANSION VALVE

Series

ESCORT FOR SAFE REFRIGERATION

REFRIGERATION & A/C SYSTEM ACCESSORIES

HONGSEN



DHFF DHFS 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.

DPF/DPFS

DPF/DPFS Series electronic expansion valve



DPF series



DPFS series

Product Description

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run in the best state, achieve rapid cooling, and achieve the goal of precise control and energy saving.

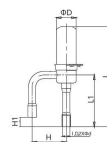
Features

- Small size, light weight, stable and reliable performance;
- Fast response and action;
- New structure design of expansion valve, low noise and low failure rate;
- DPF series products apply design of balanced port, and the reverse valve opening pressure is high;
- Suitable for systems with little oil or no oil.

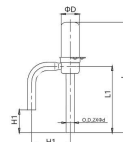
Technical Parameters

Applicable refrigerant	R22, R134a, R404A, R407C, R410A
Nominal capacity	2.5~126kW
Medium temperature	-30~+70°C
Environment temperature	-30~+60°C
Environment humidity	under 95%RH
Full open pulse	500PS
Valve opening pulse	32±20
Rated voltage	12V DC (±10%), rectangular wave
Excitation mode	1-2 phase excitation, single pole drive
Excitation speed	30~90pps
Finishing excitation mode keeps	0.1~1.0s
Time cost for whole course	6s (83pps)
Drive current	260mA
Coil resistance	48±3.7Ω/phase
Coil insulation grade	Class E
Protect grade	IP65

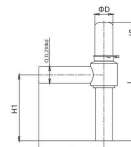
Structure



DPF1.3~2.4



DPF3.0~3.2



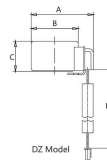
DPFS4.0~6.5

Overall dimension

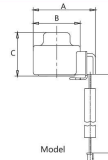
Model	φD	L	L1	H	H1	φd
DPF1.3~2.4	17.3	87	36.8	30	8	6.5
DPF3.0~3.2	17.3	105	41.5	37	21.5	7.94
DPFS4.0~6.5	17.3	114	/	63	64	16

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

Coil



DZ Model

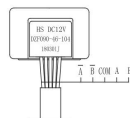


Model

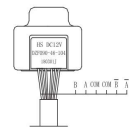
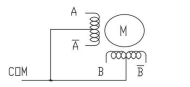
Overall dimension

Series	Coil model	A	B	C	H	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	XHP-5 XHP-6 XAP-5 XAP-6
	DZF120-46-□□□□	51	38.5	35.5	1200	
	DZF200-46-□□□□	51	38.5	35.5	2000	
	DZF300-46-□□□□	51	38.5	35.5	3000	

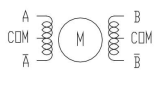
Note: the lead wire length and connector can be customized according to customer's requirements.



Four-phase eight-shot

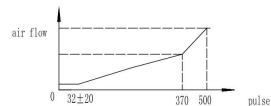
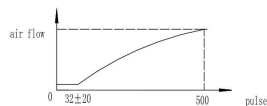
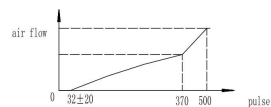
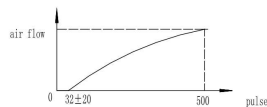


Four-phase eight-shot



Excitation method								
相号	1	2	3	4	5	6	7	8
A								
B								
A-bar								
B-bar								

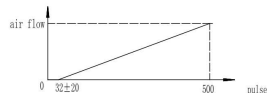
Timing: 1→2→3→4→5→6→7→8 Valve close
8→7→6→5→4→3→2→1 Valve open



DPFF1.0~DPFF3.2

Model selection											
Product series	Full open steps	Diameter [mm]	Kv ^①	Nominal capacity [QW]						Max. working pressure [MPa]	Reverse valve opening pressure difference [MPa]
				R22	R134a	R407C	R404A/R507	R410A			
DPFF1.3	500	1.30	0.06	4.36	3.40	4.46	3.08	5.12	4.2	4.2	≥2.1
DPFF1.65	500	1.65	0.08	8.01	6.26	8.22	5.65	9.42	4.2	4.2	≥2.1
DPFF1.8	500	1.80	0.10	9.11	7.10	9.32	6.44	10.70	4.2	4.2	≥2.1
DPFF2.0	500	2.00	0.16	11.25	8.77	11.51	7.95	13.21	4.2	4.2	≥2.1
DPFF2.2	500	2.20	0.20	13.61	10.61	13.92	9.61	15.98	4.2	4.2	≥2.1
DPFF2.4	500	2.40	0.23	16.20	12.63	16.57	11.44	19.02	4.2	4.2	≥2.1
DPFF3.0	500	3.00	0.39	20.20	15.78	20.76	14.24	23.77	4.2	4.2	≥1.47
DPFF3.2	500	3.20	0.45	27.85	21.76	28.62	19.63	32.78	4.2	4.2	≥1.47
DPFF4.0	500	4.50	0.50	40.37	31.54	41.49	28.45	47.52	4.2	4.2	≥3.5
DPFF4.5	500	4.50	0.70	50.48	39.44	51.88	35.58	59.42	4.2	4.2	≥3.5
DPFF5.5	500	6.50	0.80	67.30	52.58	69.16	47.44	79.21	4.2	4.2	≥3.5
DPFF6.5	500	6.50	1.10	100.96	78.88	103.75	71.16	118.83	4.2	4.2	≥3.5

Nominal condition:
 • Rated capacity is based on: R407C condensing temperature: +38°C; evaporating temperature: +5°C; super cooling degree: 0 K; super heat degree: 0 K;
 • Kv value: the pressure difference based on the two sides between water with density 17/m³ and the valve is equal to the positive flow capacity at 100kPa.



DPFF4.0~DPFF6.5

Note: the flow curve can be customized according to requirement.

Rated capacity (kW)															
	Condensing temperatur °[C]	DPF1.3							DPF1.65						
		Evaporating temperature[°C]							Evaporating temperature[°C]						
		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
R407C	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
	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
R22	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
	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
R134a	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
	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
R404A	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
	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
R404A	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

Rated capacity (kW)															
	Condensing temperature [°C]	DPF1.8							DPF2.0						
		Evaporating temperature[°C]							Evaporating temperature[°C]						
		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
R407C	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
	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
R22	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
	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
RT34a	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
	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
R404A	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
	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
R404A	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	7.94	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

Rated capacity (kW)															
	Condensing temperature [°C]	DPF2.2							DPF2.4						
		Evaporating temperature [°C]							Evaporating temperature [°C]						
		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
R407C	30	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
	35	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
	38	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
	40	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
	45	14.67	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
R22	30	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	
	35	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
	38	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
	40	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
	45	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
R134a	30	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
	35	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
	40	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
	45	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
	50	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
R404A	30	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
	35	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
	40	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
	45	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
	50	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
R404A	30	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	11.11	11.03	10.66	10.10	

Rated capacity (kW)															
	Condensing temperature [°C]	DPF3.0							DPF3.2						
		Evaporating temperature [°C]							Evaporating temperature [°C]						
		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
R407C	30	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
	35	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
	38	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
	40	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
	45	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
R22	30	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
	35	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
	38	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
	40	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
	45	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
R134a	30	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
	35	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
	40	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
	45	21.39	21.43	21.50	21.43	21.58	21.59	21.58	28.47	29.73	30.69	31.27	31.76	32.05	21.85
	50	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
R404A	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	23.21	22.14
	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
R404A	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

Rated capacity (kW)															
		Condensing temperature [°C]	DPF4.0						DPF4.5						
			Evaporating temperature[°C]						Evaporating temperature[°C]						
			10	5	0	-5	-10	-20	-30	10	5	0	-5	-10	-20
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
R407C	30	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
	35	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
	38	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
	40	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
	45	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
R22	30	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
	35	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
	38	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
	40	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
	45	38.54	40.37	41.91	43.04	43.88	44.72	44.85	48.20	50.46	52.40	53.82	54.87	55.92	56.08
R134a	30	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
	35	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
	40	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
	38	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
	45	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
R404A	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
	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
R404A	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	28.67	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

Rated capacity (kW)																		
		Condensing temperature [°C]	DPF5.5								DPF6.5							
			Evaporating temperature [°C]								Evaporating temperature [°C]							
			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			
R407C	30	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			
	35	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			
	38	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			
	40	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			
	45	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			
R22	30	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			
	35	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			
	38	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			
	40	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			
	45	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			
R134a	30	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			
	35	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			
	40	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			
	45	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			
	38	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			
R404A	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			
	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			
R404A	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			

SPF Series electronic expansion valve



SPF12.5/25



SPF50/100



SPF250/400

Product Description

SPF series electronic expansion valve is suitable for refrigeration systems such as commercial refrigerators, large refrigeration storages 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.

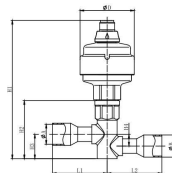
Features

- Integrated with the function of solenoid valve, expansion valve and sight glass, stable and reliable performance.
- Fast response and action, precise adjustment.
- New structure design of expansion valve, easy to dismantle and clean, low noise.
- SPF series products apply a balanced port design with high reverse valve opening pressure, and have bidirectional cut-off function.
- Suitable for systems with little oil or no oil.

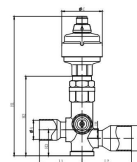
Technical Parameters

Applicable refrigerant	HFC or HFC
Nominal capacity	43~1936KW
Medium temperature	-40~+65°C
Environment temperature	-40°C~+60°C
Environment humidity	under 95%RH
Full open pulse	2620~3800see model select table for detail
Rated voltage	12V DC (±10%) rectangular wave
Excitation mode	2-2 phase excitation, double pole drive
Excitation speed	250pps/300pps, voltage current
Finishing excitation mode keeps	0.1~1.0s
Drive current	230mA
Coil resistance	52Ω/phase
Coil insulation grade	Glass E
Protect grade	IP65

Overall dimension

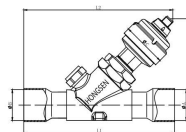


SPF12.5/25

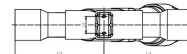


SPF50/100

Model	H1	H2	H3	H4	L1	L2	A	B	C
SPF12.5-5-5	152.5	64	27	13	60.5	60.5	16.1	16.1	60
SPF12.5-7-7	152.5	64	27	13	60.5	60.5	22.3	22.3	60
SPF25-5-5	152.5	64	27	13	60.5	60.5	16.1	16.1	60
SPF25-7-7	152.5	64	27	13	60.5	60.5	22.3	22.3	60
SPF50-7-7	206.3	118	38.5	12.5	56	56	22.3	22.3	60
SPF50-9-9	206.3	118	38.5	12.5	63	63	28.7	28.7	60
SPF50-9-9	206.3	118	38.5	12.5	56	63	22.3	28.7	60
SPF50-9-11	206.3	118	38.5	12.5	63	73	28.7	35.2	60
SPF100-9-9	206.3	118	38.5	12.5	63	63	28.7	28.7	60
SPF100-9-11	206.3	118	38.5	12.5	63	73	28.7	35.2	60

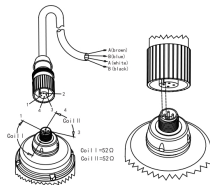


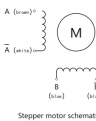
SPF250/400

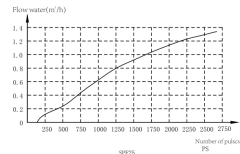
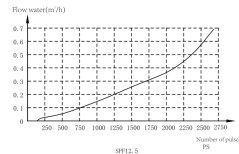


Model	H1	L1	L2	L3	L4	L5	A	B	C
SPF250-9-9	206.3	168.5	184.3	84.3	84.3	24	28.7	28.7	60
SPF250-11-11	206.3	203	189.3	89.3	89.3	24	35.2	35.2	60
SPF400-13-13	206.3	203	201.5	101.5	101.5	24	41.5	41.5	60
SPF400-17-17	206.3	242	221	121	121	24	54.2	54.2	60

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



Phase Timing	1	2	3	4	 Stepper motor schematic	
A (v+)	no	no	off	off		
B (v+)	no	off	off	no		
A (v-)	off	off	no	no		
B (v-)	off	no	no	off		
Valve close: 1 → 2 → 3 → 4						
Valve open: 1 ← 2 ← 3 ← 4						



Connecting cable assembly

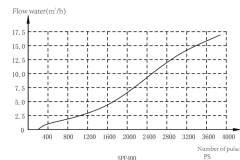
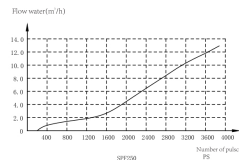
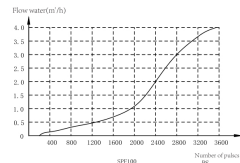
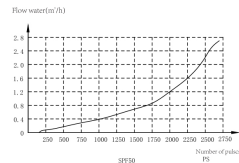
Model	Temperature range	Length	Connector specification	Connecting mode with control	Schematic pic.
M124-Z1MD	-40°C ~ +80°C	1m	M12×1 (water proof)	4×0.18mm²	

Model selection

Product series	Full open steps	Diameter	KV ^①	Nominal capacity ^①						Max working pressure	Max working pressure difference	Reserve valve opening pressure difference ^②
		[mm]		R22	R134a	R407C ^③	R404A/R507	R410A ^④				
SPF12.5	2620	4.50	0.70	57	45	63	43	70	4.5	3.5		≥3.5
SPF25	2620	8.00	1.30	112	89	124	84	139	4.5	3.5		≥3.5
SPF50	2620	11.5	2.30	226	182	265	173.5	274	4.5	3.5		≥3.5
SPF100	3500	16.0	3.90	408	325	455	308	496	4.5	3.5		≥3.5
SPF250	3800	24.0	12.2	1090	860	1203	817	/	3.5	3.0		≥3.0
SPF400	3800	30.0	17.0	1768	1397	1936	1324	/	3.5	3.0		≥3.0

Nominal condition:

- Rated capacity is based on: R407C condensing temperature T_c: +32°C; evaporating temperature T_e: +5°C; liquid temperature before valve T_l: +28°C;
- 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.



Positive flow rated capacity(kW)																	
°C	SPF12.5								SPF25								
	Pressure drop																
	2	4	6	8	10	12	14	16	2	4	6	8	10	12	14	16	
R22	-40	39.6	50.6	57.1	61.2	64.1	65.9	67.0	67.6	82.0	105.4	118.5	126.6	133.6	137.0	139.3	140.9
	-30	39.2	50.6	57.3	61.7	64.7	66.7	68.1	68.8	81.8	104.5	119.3	128.7	134.0	139.2	141.5	143.4
	-20	38.5	50.1	57.1	61.7	64.9	67.1	68.6	69.4	80.3	104.3	118.9	128.7	134.8	140.0	143.0	144.7
	-10	37.5	49.2	56.3	61.2	64.5	66.9	68.5	69.5	78.1	102.5	117.0	127.5	134.6	138.5	142.8	144.6
	-5	36.9	48.6	55.8	60.7	64.1	66.5	68.2	69.2	76.9	101.1	116.3	126.2	133.3	138.8	142.2	144.4
	10	34.7	40.3	53.3	58.3	62.0	64.4	66.2	67.4	72.3	96.2	111.3	121.7	129.2	134.4	138.2	140.6
R134a	-40	35.1	42.6	46.1	47.8	48.3	47.9	47.0	45.6	73.1	88.8	95.8	99.7	100.6	99.9	98.0	94.9
	-30	35.3	43.4	47.3	49.3	50.0	49.9	49.2	47.9	73.5	90.4	98.5	102.6	104.2	104.0	102.4	99.9
	-20	35.1	43.7	48.1	50.4	51.3	51.4	50.9	49.9	73.3	91.1	100.2	104.8	107.0	107.2	106.2	104.0
	-10	34.7	43.7	48.4	50.9	52.2	52.5	52.2	51.3	72.3	91.0	100.8	106.2	108.7	109.5	108.9	107.0
	-5	34.3	43.5	48.3	51.0	52.4	52.9	52.6	51.8	71.6	90.6	100.7	106.4	109.3	110.3	109.8	108.2
	10	32.8	42.2	47.4	50.5	52.2	52.9	53.0	52.4	68.3	87.6	98.9	105.1	108.9	110.4	110.5	109.3
R404A	-40	31.4	39.0	42.8	44.5	45.2	45.1	44.4	43.2	65.7	81.4	89.2	93.0	94.3	94.0	92.5	90.0
	-30	31.1	38.9	43.0	45.1	46.0	46.0	45.5	44.4	64.7	81.2	89.7	94.0	95.9	96.1	94.9	92.8
	-20	30.3	38.4	42.7	45.0	46.2	46.4	46.1	45.2	63.0	80.1	89.1	94.0	96.3	96.9	95.1	94.3
	-10	29.1	37.4	41.9	44.4	45.7	46.2	46.0	45.2	60.7	78.0	87.4	92.7	95.4	96.3	95.9	94.4
	-5	28.5	36.8	41.3	44.0	45.3	45.8	45.6	44.9	59.4	76.6	86.1	91.6	94.5	95.5	95.2	93.8
	10	26.1	34.1	38.6	41.3	42.9	43.5	43.5	43.9	54.3	71.0	80.3	86.0	89.2	90.5	90.4	89.3
R407C	-40	41.5	52.0	57.7	61.1	63.0	64.0	64.1	63.7	86.0	108.0	120.2	127.0	131.4	132.8	133.2	132.5
	-30	41.3	52.2	58.3	62.1	64.2	65.3	65.7	65.4	85.5	108.5	121.0	128.9	133.3	135.8	137.1	136.1
	-20	40.6	52.0	58.4	62.5	64.8	66.2	66.8	66.8	84.2	108.0	121.4	129.7	134.8	137.7	138.9	138.8
	-10	39.6	51.2	57.9	62.2	64.9	66.5	67.3	67.4	82.0	106.4	119.9	129.2	134.9	138.7	139.8	140.6
	-5	39.0	50.7	57.5	61.9	64.6	66.3	67.2	67.4	81.3	105.2	120.0	128.4	134.9	138.4	139.7	140.6
	10	36.6	48.2	55.2	59.7	62.8	64.5	65.7	66.1	76.3	100.5	114.5	124.6	130.9	134.2	137.1	137.9
R410A	-40	45.7	58.1	67.1	72.4	76.2	78.7	80.4	81.4	94.9	122.7	139.0	150.6	157.8	163.1	166.6	163.3
	-30	44.5	58.1	66.3	71.9	75.8	78.5	80.4	81.5	91.9	120.7	137.9	149.0	157.1	162.8	165.2	169.3
	-20	43.0	56.6	64.9	70.6	74.7	77.5	79.5	80.8	89.6	117.1	135.4	146.4	154.8	161.0	165.4	167.6
	-10	41.0	54.4	62.8	68.6	72.7	75.7	77.7	79.1	85.5	113.5	131.0	143.1	151.7	157.9	162.2	165.0
	-5	39.9	53.1	61.5	67.3	71.4	74.4	76.5	77.8	83.3	109.7	127.2	139.1	147.9	154.6	158.5	162.5
	10	36.2	48.5	56.5	62.1	66.1	69.1	71.1	72.4	74.9	101.2	116.8	128.5	136.9	143.0	147.3	151.2

	In(°C)	Positive flow rated capacity(KW)															
		SPF50								SPF100							
		Pressure drop															
		2	4	6	8	10	12	14	16	2	4	6	8	10	12	14	16
R22	-40	151.8	194.3	218.1	234.1	245.6	252.1	256.8	258.9	282.1	360.6	406.6	436.7	456.6	469.7	478.0	482.4
	-30	150.0	193.1	218.0	236.0	247.8	255.7	260.2	263.6	279.1	359.8	407.6	439.4	461.2	475.5	485.2	490.4
	-20	147.1	191.7	218.0	236.0	248.6	256.8	262.6	266.3	274.0	356.5	406.4	439.5	462.5	478.4	488.7	494.7
	-10	143.1	187.9	215.1	233.9	246.9	255.9	262.4	265.8	266.8	349.7	401.0	435.3	459.4	477.2	487.9	495.1
	-5	140.9	185.8	213.6	232.0	245.1	254.2	260.9	264.8	262.9	345.9	397.2	432.2	456.4	473.7	485.8	493.4
	10	132.7	176.6	204.0	223.0	236.9	246.8	253.6	257.8	246.6	328.3	379.7	415.5	441.3	458.9	472.0	480.3
R134a	-40	133.1	162.4	175.7	181.8	183.2	182.1	178.8	173.7	247.9	301.7	326.8	338.6	342.0	339.5	332.7	322.9
	-30	135.0	164.9	179.9	187.6	190.0	189.8	187.9	183.6	249.5	306.7	334.7	348.7	353.7	352.9	347.9	339.4
	-20	134.2	167.1	183.8	191.6	195.0	196.2	194.2	190.3	248.5	309.4	340.4	356.5	363.4	364.2	360.7	353.3
	-10	131.9	166.0	184.9	194.8	198.7	199.8	198.7	195.6	245.5	309.2	342.7	360.9	369.2	371.6	369.3	363.3
	-5	130.7	166.1	184.8	194.5	199.6	201.5	201.0	197.6	242.6	307.4	341.9	361.1	370.8	374.1	372.4	367.0
	10	124.8	160.7	181.1	192.5	198.7	201.6	202.2	199.7	231.8	298.5	335.5	357.2	369.3	374.6	374.8	371.1
R404A	-40	119.9	149.3	163.4	169.9	173.2	172.5	169.6	164.9	223.4	276.7	303.3	316.2	320.9	320.4	315.4	306.8
	-30	118.0	148.1	163.9	172.4	175.1	176.3	173.8	168.9	219.7	276.0	304.7	319.7	326.2	326.9	323.2	316.1
	-20	115.5	146.1	162.8	171.9	176.0	177.1	175.9	173.3	214.3	272.4	302.8	319.7	327.6	329.7	328.0	322.0
	-10	110.9	142.2	159.8	169.2	174.7	176.1	175.2	173.4	206.4	265.4	297.5	315.4	324.6	328.2	326.6	322.6
	-5	108.7	139.9	157.1	167.7	173.3	174.8	174.1	172.4	201.8	260.3	292.7	311.4	321.4	325.1	324.2	319.7
	10	99.7	129.9	147.1	157.8	163.2	165.9	165.9	164.9	185.4	241.6	273.9	294.4	304.4	309.1	308.6	305.3
R407C	-40	158.8	199.7	222.5	236.4	243.9	248.6	249.9	248.6	295.6	371.7	413.3	438.7	454.2	462.1	464.9	464.0
	-30	157.8	200.7	224.2	239.2	249.3	253.9	257.1	256.6	293.5	373.4	417.8	445.9	462.7	472.5	477.1	477.5
	-20	155.2	199.8	225.0	241.5	251.1	257.7	260.8	261.2	289.4	371.7	419.0	448.8	468.1	479.5	485.5	486.9
	-10	151.9	196.9	223.2	240.2	251.8	258.8	263.3	264.0	282.6	366.6	414.8	447.8	468.4	481.8	488.8	491.8
	-5	149.2	194.9	222.4	239.1	250.9	258.1	262.7	264.6	278.5	363.0	413.1	445.4	466.9	480.9	488.6	492.4
	10	140.4	186.4	214.1	231.8	244.5	253.2	257.7	255.5	261.9	345.8	397.3	431.3	454.6	469.8	479.2	484.5
R410A	-40	174.4	224.8	254.6	275.8	288.8	299.6	306.4	310.3	324.1	418.7	475.4	513.3	539.1	557.2	569.5	576.8
	-30	169.2	221.9	252.7	273.8	288.2	298.8	305.9	310.6	315.4	411.8	469.8	509.2	536.9	556.1	569.5	577.6
	-20	163.2	215.0	247.9	268.8	284.1	295.5	302.8	308.2	304.4	400.8	459.4	500.8	529.3	549.2	565.8	572.8
	-10	156.0	206.9	239.4	260.5	276.8	289.0	295.9	301.5	290.8	385.4	444.6	485.7	515.7	536.1	555.7	561.0
	-5	151.9	202.0	234.4	259.0	271.8	283.5	291.5	296.7	282.9	373.4	435.6	461.8	505.8	527.0	542.2	552.2
	10	137.3	184.8	214.0	236.1	252.3	262.9	271.8	276.0	256.1	343.5	399.9	439.9	464.3	489.7	503.8	513.9

HONGSEN REFRIGERATION A/C SYSTEM ACCESSORIES

— Augustine of Hippo, Christian Philosopher

[illegible]

DPF/DPFS series electronic expansion valve controller



T0055 (1 carrying 2)



T0056 (1 carrying 3)

Product Description

Used for super heat degree control and unit control of DPF/DPFS series electronic expansion valve, 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.

Features

- Analyze the system current running state by collecting temperature information of each part of the system, use fuzzy algorithm, 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

Technical Parameters

Working environment	temperature -20~55℃, relative humidity ≤90%RH (no condensation)
Storing environment	temperature -40~80℃, relative humidity ≤95%RH (no condensation)
Input power	single phase alternative current 110~220V/50Hz(60Hz)
Electronic expansion valve output	single phase maximum load output 0.5A/12V
Temperature sensor input	5 way (including pressure sensor), temperature sensor B3470/5K; temperature resolution: 0.1℃
Pressure sensor input	1 way; pressure resolution: 0.01Bar
AC input switch	2 way
Relay output	2 way passive switch, load capacity: 5A/220V
Communication interface	1 way, RS485

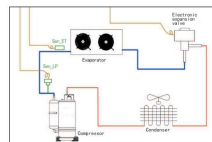
Model selection

No	Control method	code	Controller model	Adapter model		Quantity	Function description	Set parameter
1	Air return super heat degree control	T0055	PCH-PP2N	Electronic expansion valve	DPF, DPFS series	1	One main way (1 carrying 1) Pic 1	201
				Pressure sensor	HS-P321-30- (-1~12) barG	1		
				Temperature sensor	NTCSK3470	1		
	Air return super heat degree control	T0055	PCH-PP2N	Electronic expansion valve	DPF, DPFS series	2	Two main ways (1 carrying 2) Pic 2	201
				Pressure sensor	HS-P321-30- (-1~12) barG	1		
				Temperature sensor	NTCSK3470	2		
2	Air return super heat degree control	T0056	PCH-PP3N	Electronic expansion valve	DPF, DPFS series	3	Three main ways (1 carrying 3) Pic 3	201
				Pressure sensor	HS-P321-30- (-1~12) barG	1		
				Temperature sensor	NTCSK3470	3		
	Air return super heat degree-liquid injecting cooling	T0055	PCH-SP1L	Electronic expansion valve	DPF, DPFS series	2	One main way, one auxiliary Pic 4	201
				Pressure sensor	HS-P321-30- (-1~12) barG	1		
				Temperature sensor	NTCSK3470	2		

Model selection

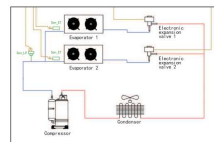
No	Control method	code	Controller model	Adapter model		Quantity	Function description	Set parameter
3	Air return(enhaust) super heat degree+ enhanced vapor injection	T0055	PCH-SD1G	Electronic expansion valve	DPF, DPFS series	2	One main way, one auxiliary Pic 5	201
				Pressure sensor	HS-P321-30- (-1~12) barG	0		
				Temperature sensor	NTCSK3470	5		
4	Air exhaust super heat degree+liquid injecting cooling	T0055	PCH-SD1L	Electronic expansion valve	DPF, DPFS series	2	One main way, one auxiliary Pic 6	201
				Pressure sensor	HS-P321-30- (-1~12) barG	0		
				Temperature sensor	NTCSK3470	3		
5	Air exhaust super degree	T0055	PCH-SD1N	Electronic expansion valve	DPF, DPFS series	1	One main way Pic 7	201
				Pressure sensor	HS-P321-30- (-1~12) barG	0		
				Temperature sensor	NTCSK3470	3		

Application in system



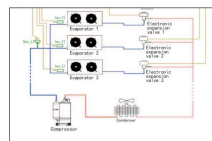
Pic 1

Air return super heat degree control (1 by 1)



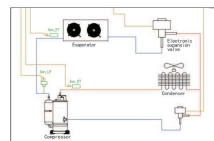
Pic 2

Air return super heat degree control (1 by 2)



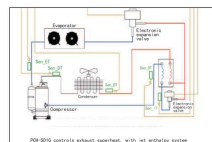
Pic 3

Air return super heat degree control (1 by 3)



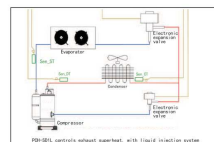
Pic 4

Air return super heat degree+liquid injecting cooling
(One main way, one auxiliary)



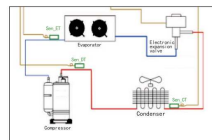
Pic 5

Air return(enhaust) super heat degree+enhanced vapor injection
(One main way, one auxiliary)



Pic 6

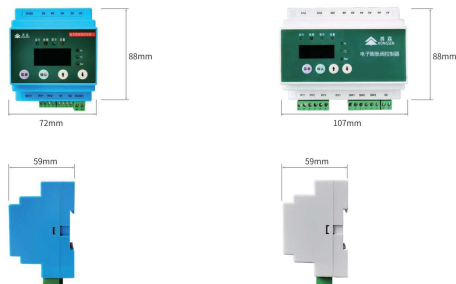
Air exhaust super heat degree+liquid injecting cooling
(One main way, one auxiliary)



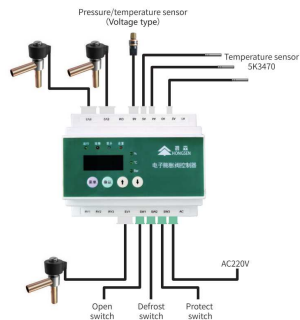
Pic 7

Air exhaust super degree(One main way)

Overall dimension



Wiring drawing



Note: Please refer to the instruction for detail unit's controlling wiring method

Controller for SPF Series electric expansion valve



H5-1702

Product Description

It is suitable for super heat control of SPF series electronic expansion valves. It is controlled by 2 phase 4 best bipolar excitation mode to improve the refrigerating capacity of the system.

Features

- More refrigerants available: R22, R134a, R404a, R410a, R507c;
- more kinds of electronic expansion valve: the PID algorithm is applicable to various bipolar electronic expansion valve, and the parameters of the expansion valve can also be customized;
- MOP protection: evaporative pressure overpressure protection;
- LOP protection: evaporative pressure low-pressure protection;
- Alarm output: one way passive relay contact output;
- Centralized monitoring: ON-OFF, parameter setting, data check can be performed through RS485 communication.

Technical Parameters	
control power	DC24V/650mA
using environment	altitude below 2000meters; temperature -10℃ ~ 60℃; humidity: 20% ~85%, no condensation . (No use in corrosive places with acid, alkali or inflammable and explosive places)
dispose	Accessories: Controller (GEC1702) *1, Normal temp. sensor (NTC-NT05) *2, Pressure sensor (77CP055)*1, transformer (XBB4825) *1, backup power (SFB300) *1

Wiring Layout



Accessory I: Normal temperature sensor



NTC-NT05

Technical Parameters	
Test range	-50~60℃
thermistors	B25/85=3435K±1%, R25=100±1%
cable length	5m
sensor size	φ6 X 50
protection level	IP68

Accessory II: pressure sensor



77CP055

Technical Parameters	
test range	-1~12bar
Accuracy	0.5% FS:(20~85℃)
working temp.	-40~125℃
Connection thread	7/16-20UNF (Female) , with depressor
input power	4~20Ma (red/black, current mode)
wire	AWG20, L=3m

Accessory III:Transformer



KBE4825

Technical Parameters	
input	230VAC, 50/60HZ
output	24V, MAX 10W
withstand voltage	3.5KW

Accessory IV:Backup power



GFB300

Product Description	
The backup power supply is a super capacitor module, which is connected in series in the power supply circuit, which can ensure the temporary power supply	of the controller in case of power failure, and immediately close the linked electronic expansion valve

Technical Parameters	
input	24V/400mA
output	12V/400mA
capacity	50mA.h

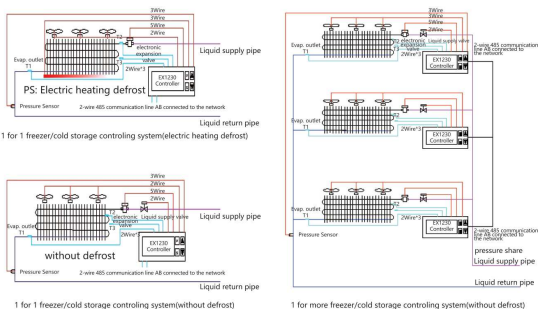
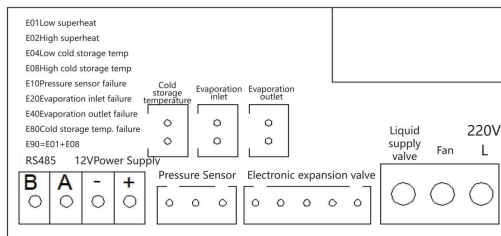
Ex 1230 electronic expansion valve controller



Product Description	
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.

Features	
- 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 valve control, suitable for the occasion 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.

Technical Parameters	
Length of sensor	1.5 meters (including probe)
Temperature sensing element	NTC, R25II = 5K, R25/50II = 3470K
Environment temperature	-10~45°C
Working humidity	5~85%RH(No condensation)
Setting range	-40~120°C
Display range	-90~130°C
Power voltage	185~245VAC, 50/60Hz
Terminal wiring	lead wire no more than 2*1.5mm, or 1*2.5mm
Dimension of whole machine	length78 * width 34.5" depth 71(mm)
Load current	5A, 250VAC (resistive load)
Installing hole	length71 * width 29(mm)
Protection grade	IP65 (front panel)



length78 * width 34.5* depth 71(mm)

Pressure sensor



Current type (P224A)

Voltage type (P321)

Product Description

Used to check the pressure value of refrigerating system condition

Features

- 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

Technical Parameters

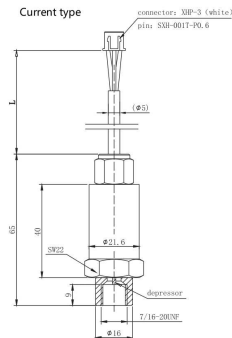
Model	P224A	P321
Working Voltage	24VDC (15~32VDC)	5±0.25VDC
Output Signal	4~20mA	0.5~4.5VDC
Media Temperature	-40°C~125°C	
Service Life	more than 10,000,000 times	
Long-term stability	±0.5%/FS/year	
Protection level	IP66	

Model selection

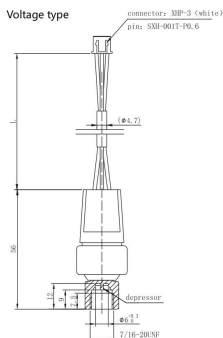
Model	Pressure range	Safety overload	Breaking pressure	Working voltage	Output signal	Comprehensive Precision
HS-P321-30-10barG	0-10bar	30bar	160bar	5VDC	0.5~4.5VDC	±2.5%FS
HS-P321-30-20barG	0-20bar	60bar	160bar	5VDC	0.5~4.5VDC	±2.5%FS
HS-P321-30-30barG	0-30bar	90bar	250bar	5VDC	0.5~4.5VDC	±2.5%FS
HS-P321-30-45barG	0-45bar	90bar	250bar	5VDC	0.5~4.5VDC	±2.5%FS
HS-P321-30(-1~12)barG	-1~12bar	36bar	160bar	5VDC	0.5~4.5VDC	±2.5%FS
HS-P224A-30-11barG	-1~11bar	60bar	160bar	24VDC(12~23VDC)	4~20mA	±1%FS
HS-P224A-30-18barG	0-18bar	60bar	160bar	24VDC(12~23VDC)	4~20mA	±1%FS
HS-P224A-30-30barG	0-30bar	90bar	250bar	24VDC(12~23VDC)	4~20mA	±1%FS
HS-P224A-30-50barG	0-50bar	90bar	250bar	24VDC(12~23VDC)	4~20mA	±1%FS

Overall dimension

Current type

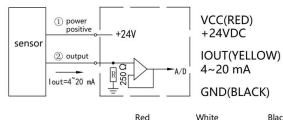


Voltage type

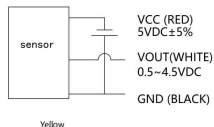


Wiring drawing

Current type



Voltage type



Temperature sensor



5K3470

Product Description

Used to check the temperature value of refrigerating system condition

Features

- Small size, light weight, good protective performance
- Small temperature deviation, high precision

Model

NTC, R25II = 5K, B25/50II = 3470K