

THERMOSTATIC EXPANSION VALVE

Series

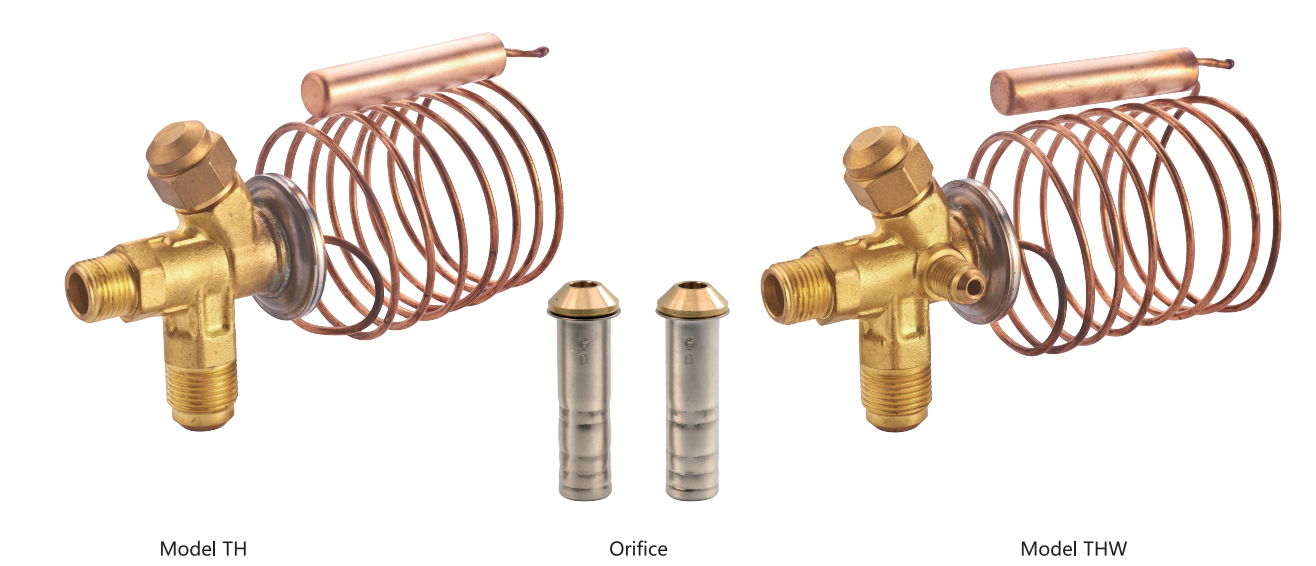
Using imported diaphragm, linearity is more stable.
With unique charging technology, can be used in/outside of the cold room.



REFRIGERATION & A/C SYSTEM ACCESSORIES

HONGSEN

TH/ THW Thermostatic Expansion Valve



Product Description
• T-type expansion valve is a novel thermostatic expansion valve with replaceable valve element • T-type expansion valve is used for adjusting the supply quantity of liquid refrigerant in evaporator • T-type expansion valve is particularly suitable for supplying liquid refrigerant in dry-type evaporator • T-type expansion valve has autocontrol through regulating the-superheating degree of refrigerant.

Features
• Large scope of evaporating temperature. • be capable of providing MOP function so as not to damage the compressor motor due to overhigh evaporating pressure. • Have two forms of internal and external equaliser, be capable of removing influence brought by loss of evaporator pressure effectively. • Have the membrane structure with invention patent, greatly improve the working performance at low temperature. • The bonnet adopts a secondary sealing structure to reduce the percentage of external leakage . • With filtering orifice,convenient storage, matching and maintenance • The temperature wrap has mixed charging technology so as to have the feature of superheating degree within the whole evaporating temperature range

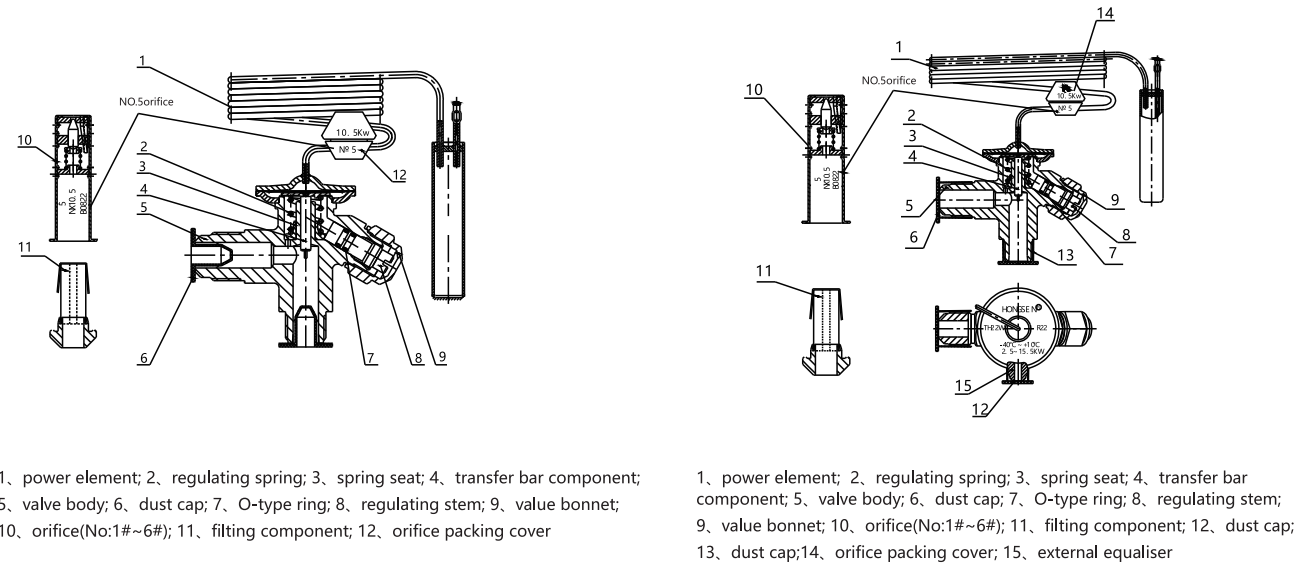
Technical Parameters		
Applicable Refrigerants	R22/R407C、 R134a、 R404A	• Capillary length of T-type thermostatic expansion valve:1.5m in atandard; under special situation,it can be customized based on clients' requirements.
Applicable Medium	R22/R407C: -40°C~+10°C; R134a:-30°C~+10°C;R404A:-40°C~+10°C	
Norminal Capacity	2.5KW~15.5KW、 1.8KW~10.5KW、 1.6KW~9.1KW	
Adjustable Range of Superheat	2°C~8°C	
Ex-Works Static Heat Adjustment	3.5°C	
Maximum Working Pressure	2.8MPa	
Maximum Testing Pressure	3.2MPa	

Model Selection														
Refrigerant	Model	Spool	Condensing Temp (°C)	Cooling capacity(KW)/(TR)										
				Evaporation temperature(°C)										
				-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
R22/R407C	TH22/ TH22W	1#	25	1.3/0.37	1.48/0.42	1.69/0.48	1.91/0.55	2.14/0.61	2.36/0.67	2.58/0.74	2.75/0.79	2.86/0.82	2.86/0.82	2.72/0.78
		2#		1.46/0.42	1.69/0.48	1.94/0.55	2.22/0.63	2.52/0.72	2.85/0.81	3.18/0.91	3.49/1	3.75/1.07	3.88/1.11	3.81/1.09
		3#		2.44/0.7	2.83/0.81	3.26/0.93	3.73/1.07	4.24/1.21	4.78/1.37	5.33/1.52	5.85/1.67	6.29/1.8	6.53/1.87	6.46/1.85
		4#		3.52/1.01	4.07/1.16	4.7/1.34	5.42/1.55	6.24/1.78	7.11/2.03	8.02/2.29	8.87/2.53	9.55/2.73	9.88/2.82	9.71/2.77
		5#		4.6/1.31	5.31/1.52	6.14/1.75	7.08/2.02	8.15/2.33	9.34/2.67	10.62/3.03	11.86/3.39	12.91/3.69	13.48/3.85	13.29/3.8
		6#		5.43/1.55	6.26/1.79	7.22/2.06	8.32/2.38	9.56/2.73	10.95/3.13	12.43/3.55	13.91/3.97	15.18/4.34	15.91/4.55	15.71/4.49
	TH22/ TH22W	1#	35	1.34/0.38	1.54/0.44	1.76/0.5	2/0.57	2.26/0.65	2.53/0.72	2.8/0.8	3.06/0.87	3.27/0.93	3.4/0.97	3.43/0.98
		2#		1.52/0.43	1.76/0.5	2.03/0.58	2.34/0.67	2.68/0.77	3.06/0.87	3.46/0.99	3.88/1.11	4.29/1.23	4.63/1.32	4.83/1.38
		3#		2.56/0.73	2.97/0.85	3.44/0.98	3.95/1.13	4.52/1.29	5.16/1.47	5.84/1.67	6.55/1.87	7.24/2.07	7.83/2.24	8.2/2.34
		4#		3.77/1.08	4.34/1.24	5.02/1.43	5.8/1.66	6.69/1.91	7.7/2.2	8.8/2.51	9.94/2.84	11.03/3.15	11.92/3.41	12.45/3.56
		5#		4.92/1.41	5.67/1.62	6.54/1.87	7.57/2.16	8.76/2.5	10.13/2.89	11.68/3.34	13.35/3.81	15/4.29	16.4/4.69	17.19/4.91
		6#		5.77/1.65	6.65/1.9	7.66/2.19	8.85/2.53	10.23/2.92	11.82/3.38	13.62/3.89	15.59/4.45	17.57/5.02	19.3/5.51	20.32/5.81
	TH22/ TH22W	1#	45	1.37/0.39	1.58/0.45	1.81/0.52	2.06/0.59	2.33/0.67	2.63/0.75	2.93/0.84	3.24/0.93	3.51/1	3.74/1.07	3.87/1.11
		2#		1.56/0.45	1.81/0.52	2.09/0.6	2.41/0.69	2.77/0.79	3.18/0.91	3.64/1.04	4.13/1.18	4.63/1.32	5.11/1.46	5.48/1.57
		3#		2.64/0.75	3.07/0.88	3.55/1.01	4.09/1.17	4.71/1.35	5.41/1.55	6.18/1.77	7.03/2.01	7.91/2.26	8.75/2.5	9.42/2.69
		4#		3.96/1.13	4.55/1.3	5.24/1.5	6.05/1.73	6.98/1.99	8.05/2.3	9.26/2.65	10.56/3.02	11.9/3.4	13.15/3.76	14.17/4.05
		5#		5.17/1.48	5.94/1.7	6.84/1.95	7.91/2.26	9.16/2.62	10.64/3.04	12.53/3.58	14.28/4.08	16.35/4.67	18.32/5.23	19.87/5.68
		6#		6.04/1.73	6.94/1.98	7.99/2.28	9.22/2.63	10.68/3.05	12.39/3.54	14.38/4.11	16.65/4.76	19.13/5.47	21.57/6.16	23.55/6.73
	TH22/ TH22W	1#	55	1.38/0.39	1.59/0.45	1.82/0.52	2.07/0.59	2.35/0.67	2.66/0.76	2.98/0.85	3.3/0.94	3.61/1.03	3.88/1.11	4.08/1.17
		2#		1.58/0.45	1.83/0.52	2.12/0.61	2.44/0.7	2.81/0.8	3.24/0.93	3.71/1.06	4.24/1.21	4.79/1.37	5.34/1.53	5.81/1.66
		3#		2.68/0.77	3.11/0.89	3.6/1.03	4.16/1.19	4.8/1.37	5.52/1.58	6.34/1.81	7.26/2.07	8.25/2.36	9.24/2.64	10.09/2.88
		4#		4.11/1.17	4.66/1.33	5.38/1.54	6.19/1.77	7.13/2.04	8.21/2.35	9.43/2.69	10.79/3.08	12.23/3.49	13.65/3.9	14.93/4.27
		5#		5.36/1.53	6.14/1.75	7.05/2.01	8.12/2.32	9.38/2.68	10.89/3.11	12.65/3.61	14.67/4.19	16.9/4.83	19.17/5.48	21.13/6.04
		6#		6.24/1.78	7.14/2.04	8.2/2.34	9.44/2.7	10.92/3.12	12.66/3.62	14.73/4.21	17.13/4.89	19.83/5.67	22.64/6.47	25.16/7.19
R134a	TH134/ TH134w	1#	25	0.71/0.20	0.81/0.23	0.93/0.27	1.09/0.31	1.21/0.35	1.29/0.37	1.52/0.43	1.59/0.45	1.68/0.48	1.83/0.52	1.82/0.52
		2#		0.79/0.23	0.89/0.25	1.02/0.29	1.19/0.34	1.43/0.41	1.52/0.43	1.72/0.49	1.92/0.55	2.12/0.61	2.21/0.63	2.19/0.63
		3#		1.31/0.37	1.53/0.44	1.69/0.48	2.02/0.58	2.31/0.66	2.63/0.75	2.91/0.83	3.18/0.91	3.49/1.00	3.7/1.06	3.84/1.10
		4#		1.88/0.54	2.21/0.63	2.52/0.72	2.91/0.83	3.31/0.95	3.69/1.05	4.19/1.20	4.69/1.34	5.58/1.59	5.56/1.59	5.73/1.64
		5#		2.52/0.72	2.93/0.84	3.29/0.94	3.79/1.08	4.35/1.24	4.91/1.40	5.63/1.61	6.15/1.76	6.83/1.95	7.33/2.09	7.51/2.15
		6#		2.99/0.85	3.38/0.97	3.91/1.12	4.51/1.29	5.23/1.49	5.88/1.68	6.72/1.92	7.56/2.16	8.25/2.36	8.76/2.50	8.99/2.57
	TH134/ TH134w	1#	35	0.71/0.20	0.82/0.23	0.98/0.28	1.12/0.32	1.16/0.33	1.39/0.40	1.30/0.37	1.80/0.51	2.02/0.58	2.02/0.58	2.13/0.61
		2#		0.82/0.23	0.93/0.27	1.12/0.32	1.19/0.34	1.42/0.41	1.58/0.45	1.89/0.54	2.12/0.61	2.39/0.68	2.53/0.72	2.81/0.80
		3#		1.39/0.40	1.62/0.46	1.82/0.52	2.13/0.61	2.37/0.68	2.83/0.81	3.09/0.88	3.45/0.99	4.01/1.15	4.51/1.29	4.75/1.36
		4#		2.02/0.58	2.33/0.67	2.63/0.75	3.01/0.86	3.53/1.01	3.99/1.14	4.59/1.31	5.18/1.48	5.95/1.70	6.58/1.88	7.22/2.06
		5#		2.73/0.78	3.01/0.86	3.52/1.01	4.02/1.15	4.62/1.32	5.33/1.52	6.08/1.74	6.91/1.97	7.76/2.22	8.69/2.48	9.41/2.69
		6#		3.18/0.91	3.62/1.03	4.11/1.17	4.85/1.39	5.53/1.58	6.28/1.79	7.22/2.06	8.24/2.35	9.26/2.65	10.31/2.95	11.25/3.21
	TH134/ TH134w	1#	45	0.77/0.22	0.83/0.24	0.96/0.27	1.08/0.31	1.34/0.38	1.46/0.42	1.73/0.49	1.92/0.55	2.11/0.60	2.25/0.64	2.53/0.72
		2#		0.81/0.23	0.92/0.26	1.12/0.32	1.33/0.38	1.52/0.43	1.69/0.48	1.92/0.55	2.23/0.64	2.53/0.72	2.85/0.81	3.16/0.90
		3#		1.42/0.41	1.66/0.47	1.83/0.52	2.16/0.62	2.49/0.71	2.75/0.79	3.34/0.95	3.71/1.06	4.23/1.21	4.69/1.34	5.32/1.52
		4#		2.11/0.60	2.42/0.69	2.68/0.77	3.21/0.92	3.58/1.02	4.26/1.22	4.76/1.36	5.61/1.60	6.31/1.80	7.12/2.03	7.85/2.24
		5#		2.83/0.81	3.15/0.90	3.66/1.05	4.15/1.19	4.86/1.39	5.55/1.59	6.25/1.79	7.28/2.08	8.15/2.33	9.25/2.64	10.29/2.94
		6#		3.36/0.96	3.72/1.06	4.31/1.23	4.94/1.41	5.62/1.61	6.52/1.86	7.46/2.13	8.63/2.47	9.91/2.83	11.2/3.20	12.44/3.55

Model Selection														
Refrigerant	Model	Spool	Condensing Temp (°C)	Cooling capacity(KW)/(TR)										
				Evaporation temperature(°C)										
				-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
R134a	TH134/TH134w	1#	55	0.75/0.21	0.82/0.23	0.96/0.27	1.13/0.32	1.32/0.38	1.56/0.45	1.75/0.50	1.93/0.55	2.14/0.61	2.33/0.67	2.54/0.73
		2#		0.83/0.24	0.95/0.27	1.12/0.32	1.28/0.37	1.49/0.43	1.78/0.51	1.89/0.54	2.15/0.61	2.53/0.72	2.75/0.79	3.18/0.91
		3#		1.44/0.41	1.62/0.46	1.82/0.52	2.06/0.59	2.38/0.68	2.69/0.77	3.41/0.97	3.74/1.07	4.26/1.22	4.63/1.32	5.26/1.50
		4#		2.11/0.60	2.42/0.69	2.83/0.81	3.25/0.93	3.65/1.04	4.26/1.22	4.76/1.36	5.53/1.58	6.21/1.77	7.08/2.02	7.93/2.27
		5#		2.86/0.82	3.21/0.92	3.56/1.02	4.23/1.21	4.91/1.40	5.52/1.58	6.33/1.81	7.23/2.07	8.21/2.35	9.4/2.69	10.3/2.94
		6#		3.29/0.94	3.74/1.07	4.29/1.23	4.92/1.41	5.82/1.66	6.43/1.84	7.52/2.15	8.66/2.47	9.85/2.81	11.2/3.20	12.35/3.53
R404A/R507	TH404/TH404W	1#	25	0.99/0.28	1.18/0.34	1.39/0.4	1.65/0.47	1.83/0.52	1.93/0.55	2.13/0.61	2.23/0.64	2.41/0.69	2.43/0.69	2.36/0.67
		2#		1.12/0.32	1.34/0.38	1.56/0.45	1.93/0.55	2.21/0.63	2.52/0.72	2.85/0.81	3.02/0.86	3.32/0.95	3.19/0.91	3.15/0.9
		3#		1.13/0.32	2.22/0.63	2.67/0.76	3.12/0.89	3.71/1.06	4.15/1.19	4.65/1.33	5.31/1.52	5.53/1.58	5.5/1.57	5.36/1.53
		4#		2.73/0.78	3.21/0.92	3.83/1.09	4.62/1.32	5.44/1.55	6.13/1.75	7.21/2.06	7.82/2.23	8.52/2.43	8.72/2.49	8.59/2.45
		5#		3.52/1.01	4.23/1.21	5.03/1.44	6.03/1.72	7.21/2.06	8.26/2.36	9.35/2.67	10.34/2.95	11.23/3.21	11.43/3.27	11.17/3.19
		6#		4.23/1.21	5.02/1.43	6.11/1.75	7.12/2.03	8.36/2.39	9.85/2.81	11.13/3.18	12.56/3.59	13.41/3.83	13.8/3.94	13.25/3.79
	TH404/TH404W	1#	35	0.93/0.27	1.16/0.33	1.25/0.36	1.63/0.47	1.82/0.52	1.98/0.57	2.35/0.67	2.39/0.68	2.65/0.76	2.77/0.79	2.68/0.77
		2#		1.21/0.35	1.25/0.36	1.53/0.44	1.82/0.52	2.13/0.61	2.61/0.75	2.91/0.83	3.41/0.97	3.49/1	3.65/1.04	3.95/1.13
		3#		1.69/0.48	2.11/0.6	2.67/0.76	3.15/0.9	3.65/1.04	4.29/1.23	4.92/1.41	5.63/1.61	6.03/1.72	6.62/1.89	6.63/1.89
		4#		2.54/0.73	3.06/0.87	3.85/1.1	4.61/1.32	5.51/1.57	6.51/1.86	7.46/2.13	8.62/2.46	9.38/2.68	10.31/2.95	10.62/3.03
		5#		3.46/0.99	3.99/1.14	4.91/1.4	5.81/1.66	7.12/2.03	8.2/2.34	9.75/2.79	11.21/3.2	12.53/3.58	13.52/3.86	13.59/3.88
		6#		4.12/1.18	4.76/1.36	5.86/1.67	7.1/2.03	8.33/2.38	10.1/2.89	11.8/3.37	13.52/3.86	14.92/4.26	16.03/4.58	16.25/4.64
	TH404/TH404W	1#	45	0.88/0.25	0.98/0.28	1.16/0.33	1.46/0.42	1.72/0.49	1.79/0.51	2.25/0.64	2.51/0.72	2.61/0.75	2.72/0.78	2.93/0.84
		2#		0.96/0.27	1.22/0.35	1.42/0.41	1.75/0.5	2.03/0.58	2.45/0.7	2.71/0.77	3.22/0.92	3.53/1.01	3.95/1.13	4.22/1.21
		3#		1.55/0.44	2.05/0.59	2.51/0.72	2.93/0.84	3.51/1	4.23/1.21	4.92/1.41	5.61/1.6	6.13/1.75	6.68/1.91	7.15/2.04
		4#		2.36/0.67	2.92/0.83	3.66/1.05	4.21/1.2	5.23/1.49	6.21/1.77	7.35/2.1	8.38/2.39	9.65/2.76	10.92/3.12	11.29/3.23
		5#		3.25/0.93	3.82/1.09	4.53/1.29	5.49/1.57	6.6/1.89	8.1/2.31	9.49/2.71	11.1/3.17	13.1/3.74	14.25/4.07	15.02/4.29
		6#		3.78/1.08	4.56/1.3	5.51/1.57	6.63/1.89	7.85/2.24	9.7/2.77	11.52/3.29	13.6/3.89	15.33/4.38	16.8/4.8	17.85/5.1
	TH404/TH404W	1#	55	0.73/0.21	0.86/0.25	1.15/0.33	1.32/0.38	1.51/0.43	1.75/0.5	2.06/0.59	2.16/0.62	2.5/0.71	2.53/0.72	2.76/0.79
		2#		0.86/0.25	0.98/0.28	1.23/0.35	1.49/0.43	1.82/0.52	2.1/0.6	2.43/0.69	2.99/0.85	3.23/0.92	3.75/1.07	4.03/1.15
		3#		1.35/0.39	1.69/0.48	2.21/0.63	2.53/0.72	3.01/0.86	3.63/1.04	4.36/1.25	5.03/1.44	5.76/1.65	6.31/1.8	6.85/1.96
		4#		2.23/0.64	2.65/0.76	3.12/0.89	3.69/1.05	4.52/1.29	5.51/1.57	6.55/1.87	7.61/2.17	9.1/2.6	10.01/2.86	10.92/3.12
		5#		2.91/0.83	3.43/0.98	4.06/1.16	4.85/1.39	5.93/1.69	7.25/2.07	8.69/2.48	10.41/2.97	11.75/3.36	13.6/3.89	14.3/4.09
		6#		3.29/0.94	4.01/1.15	4.75/1.36	5.82/1.66	7.11/2.03	8.39/2.4	10.38/2.97	12.26/3.5	14.4/4.11	16.2/4.63	17.35/4.96
R410A	TH410/TH410W	1#	25	1.03/0.29	1.33/0.38	1.68/0.48	1.96/0.56	2.35/0.67	2.69/0.77	3.1/0.89	3.29/0.94	3.81/1.09	3.65/1.04	3.29/0.94
		2#		1.32/0.38	1.68/0.48	2.05/0.59	2.45/0.7	2.86/0.82	3.25/0.93	3.65/1.04	4.24/1.21	4.62/1.32	4.29/1.23	4.28/1.22
		3#		2.35/0.67	3.03/0.87	3.62/1.03	4.39/1.25	5.19/1.48	5.93/1.69	9.62/2.75	7.53/2.15	8.35/2.39	7.86/2.25	7.63/2.18
		4#		3.49/1	4.5/1.29	5.51/1.57	6.51/1.86	7.95/2.27	8.79/2.51	9.99/2.85	11.35/3.24	12.54/3.58	12.03/3.44	11.53/3.29
		5#		4.36/1.25	5.56/1.59	6.79/1.94	8.31/2.37	9.68/2.77	11.25/3.21	12.58/3.59	14.23/4.07	16.73/4.78	14.98/4.28	14.4/4.11
		6#		5.39/1.54	6.93/1.98	8.55/2.44	10.32/2.95	12.1/3.46	19.88/5.68	15.92/4.55	17.68/5.05	19.58/5.59	18.78/5.37	17.9/5.11
	TH410/TH410W	1#	35	1.1/0.31	1.43/0.41	1.68/0.48	2.01/0.57	2.39/0.68	2.91/0.83	3.21/0.92	3.72/1.06	4.21/1.2	4.15/1.19	4.08/1.17
		2#		1.32/0.38	1.69/0.48	2.12/0.61	2.5/0.71	2.96/0.85	3.52/1.01	3.96/1.13	4.56/1.3	5.15/1.47	5.1/1.46	5.06/1.45
		3#		2.25/0.64	3.12/0.89	3.68/1.05	4.51/1.29	5.36/1.53	6.31/1.8	7.2/2.06	8.15/2.33	9.22/2.63	9.08/2.59	9.08/2.59
		4#		3.39/0.97	4.39/1.25	5.62/1.61	6.67/1.91	8.01/2.29	9.42/2.69	10.81/3.09	13.38/3.82	14.01/4	13.91/3.97	13.88/3.97
		5#		4.39/1.25	5.68/1.62	7.03/2.01	8.46/2.42	10.1/2.89	11.68/3.34	13.4/3.83	15.51/4.43	17.2/4.91	17.25/4.93	17.42/4.98
		6#		5.61/1.6	7.05/2.01	8.82/2.52	10.59/3.03	15.61/4.46	14.69/4.2	16.65/4.76	19.43/5.55	21.75/6.21	21.77/6.22	21.69/6.2

Model Selection														
Refrigerant	Model	Spool	Condensing Temp (°C)	Cooling capacity(KW)/(TR)										
				Evaporation temperature(°C)										
				-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
R410A	TH410/TH410W	1#	45	1.06/0.3	1.38/0.39	1.59/0.45	2.01/0.57	2.39/0.68	2.86/0.82	3.19/0.91	3.82/1.09	4.28/1.22	4.3/1.23	4.41/1.26
		2#		1.33/0.38	1.66/0.47	2.06/0.59	2.39/0.68	3.01/0.86	3.51/1	4.06/1.16	4.71/1.35	5.29/1.51	5.29/1.51	5.46/1.56
		3#		2.29/0.65	2.96/0.85	3.68/1.05	4.48/1.28	5.4/1.54	6.28/1.79	7.31/2.09	8.44/2.41	9.63/2.75	9.68/2.77	9.85/2.81
		4#		3.35/0.96	4.38/1.25	5.39/1.54	6.65/1.9	7.89/2.25	9.42/2.69	10.9/3.11	12.58/3.59	14.55/4.16	14.69/4.2	15.02/4.29
		5#		4.36/1.25	5.58/1.59	6.93/1.98	8.61/2.46	10.1/2.89	11.85/3.39	13.68/3.91	15.99/4.57	18.25/5.21	15.65/4.47	18.91/5.4
		6#		5.44/1.55	6.92/1.98	8.65/2.47	10.49/3	12.56/3.59	14.9/4.26	17.22/4.92	20.01/5.72	22.69/6.48	23.3/6.66	23.75/6.79
	TH410/TH410W	1#	55	0.96/0.27	1.31/0.37	1.62/0.46	1.95/0.56	2.26/0.65	2.75/0.79	3.15/0.9	3.69/1.05	4.31/1.23	4.28/1.22	4.42/1.26
		2#		1.23/0.35	1.62/0.46	1.88/0.54	2.38/0.68	2.85/0.81	3.29/0.94	3.86/1.1	4.56/1.3	5.2/1.49	5.41/1.55	5.61/1.6
		3#		2.15/0.61	2.79/0.8	3.43/0.98	4.31/1.23	5.06/1.45	6.02/1.72	7.08/2.02	8.15/2.33	9.5/2.71	9.63/2.75	10.1/2.89
		4#		3.15/0.9	4.21/1.2	5.12/1.46	6.29/1.8	7.53/2.15	9.01/2.57	10.4/2.97	12.36/3.53	14.11/4.03	14.68/4.19	15.2/4.34
		5#		4.03/1.15	5.32/1.52	6.39/1.83	7.96/2.27	9.56/2.73	11.36/3.25	13.25/3.79	15.43/4.41	17.69/5.05	18.33/5.24	18.96/5.42
		6#		5.02/1.43	6.49/1.85	8.01/2.29	9.98/2.85	11.95/3.41	14.31/4.09	16.61/4.75	19.38/5.54	22.19/6.34	23.1/6.6	23.68/6.77

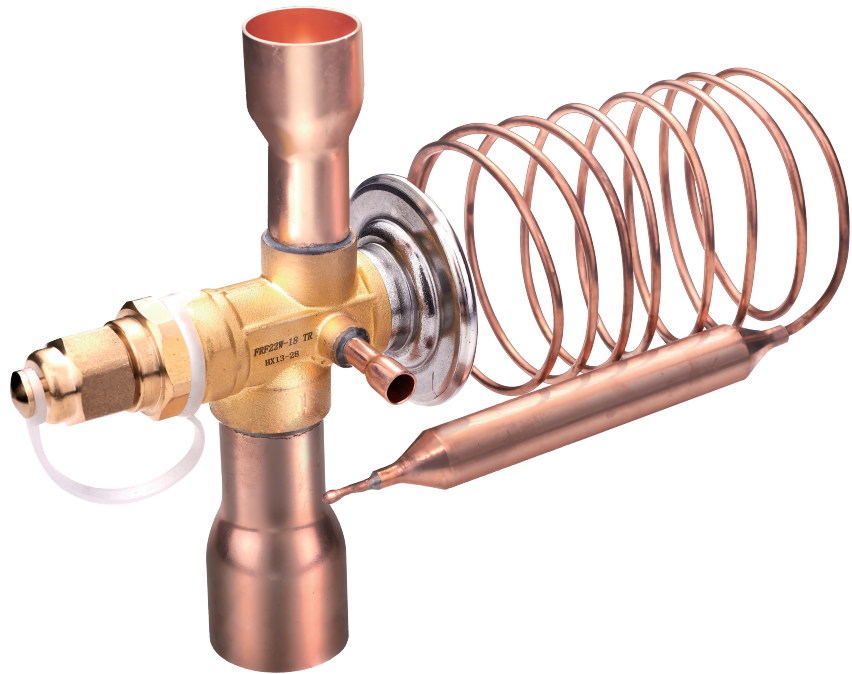
Structure



Replaceable element model								
Valve element No.	Nominal refrigerating capacity(TR)				Nominal refrigerating capacity(KW)			
	R22/R407C	R134a	R404A	R410A	R22	R134a	R404A	R410A
No.1	0.7	0.5	0.45	0.92	2.5	1.8	1.6	3.25
No.2	1.0	0.8	0.6	1.55	3.5	2.6	2.1	5.45
No.3	1.5	1.3	1.2	2.5	5.2	4.6	4.2	8.7
No.4	2.3	1.9	1.7	4	8.0	6.7	6.0	14.15
No.5	3.0	2.5	2.2	4.9	10.5	8.6	7.7	17.28
No.6	4.5	3.0	2.6	5.7	15.5	10.5	9.1	19.95

Model of main value body					
Refrigerant	Model	Pressure Equalisation	Thread		
			Intet	Outlet	External Equaliser
R22/R407C	TH22	Internal Equalisation	3/8 SAE	1/2 SAE	
R22/R407C	TH22W	External Equalisation	3/8 SAE	1/2 SAE	1/4 SAE
R134a	TH134	Internal Equalisation	3/8 SAE	1/2 SAE	
R134a	TH134W	External Equalisation	3/8 SAE	1/2 SAE	1/4 SAE
R404A	TH404	Internal Equalisation	3/8 SAE	1/2 SAE	
R404A	TH404W	External Equalisation	3/8 SAE	1/2 SAE	1/4 SAE
R410A	TH410	Internal Equalisation	3/8 SAE	1/2 SAE	
R410A	TH410W	External Equalisation	3/8 SAE	1/2 SAE	1/4 SAE
• Working Condition of Nominal Refrigerating Capacity: Evaporation Temperature: + 5°C; Condensation Temperature:+35°C; Superheat:3.5°C;Subcooling:4°C.					

FRF Thermostatic Expansion Valve



Model FRF (inch ODF)

Installation and usage requirements

- 1) welded pipe expansion valve with the system pipe welding, we must pay attention to the following points;
- 1.1 、 use a damp cloth or a wet cotton bag to protect bodyon the body, To avoid high that temperature burn in the valve parts in welding. Please note that the
- 1.2、 welding torch flame direction toward the body outward. 1.3 low temperature silverelec trode welding.
- 2) expansion valve maintenance should be designated professional staff.

Technical Parameters	
Applicable Refrigerants	R22、 R134a、 R404A
Applicable Medium	R22: -40°C~+10°C; R134a:-30°C~+10°C;R404A:-40°C~+10°C
Adjustable Range of Superheat	2°C~8°C
Maximum Working Pressure	2.8MPa
Maximum Testing Pressure	3.2MPa

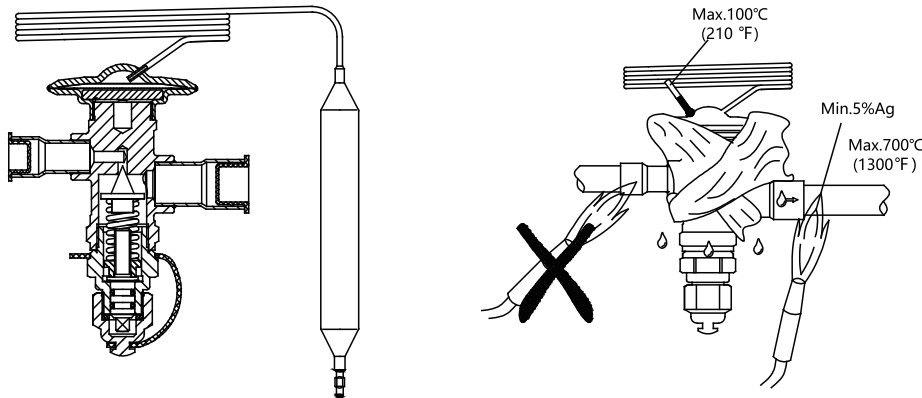
Model Selection											
Refrigerant	Condensing Temp (°C)	Model	Cooling capacity(KW)/(TR)								
			Evaporation temperature(°C)								
			-35	-30	-25	-20	-15	-10	-5	0	5
R22/R407C	40	FRF22W-3-3-5	4.99/1.43	5.69/1.63	6.43/1.84	7.2/2.06	7.98/2.28	8.75/2.5	9.49/2.71	10.17/2.91	10.72/3.06
		FRF22W-3-4-5	4.99/1.43	5.69/1.63	6.43/1.84	7.2/2.06	7.98/2.28	8.75/2.5	9.49/2.71	10.17/2.91	10.72/3.06
		FRF22W-4-4-7	6.68/1.91	7.63/2.18	8.63/2.47	9.68/2.77	10.75/3.07	11.81/3.37	12.83/3.67	13.76/3.93	14.52/4.15
		FRF22W-6-4-5	9.69/2.77	11.1/3.17	12.58/3.59	14.12/4.03	15.7/4.49	17.26/4.93	18.77/5.36	20.12/5.75	21.24/6.07
		FRF22W-6-4-7	9.69/2.77	11.1/3.17	12.58/3.59	14.12/4.03	15.7/4.49	17.26/4.93	18.77/5.36	20.12/5.75	21.24/6.07
		FRF22W-7.5-5-7	12.00/3.43	13.86/3.96	15.84/4.53	17.89/5.11	19.97/5.71	21.03/6.01	22.98/6.57	25.72/7.35	27.1/7.74
		FRF22W-11-5-7	19.44/5.55	22.45/6.41	25.58/7.31	28.73/8.21	31.98/9.14	34.6/9.89	37.07/10.59	38.85/11.1	39.95/11.41
		FRF22W-11-5-9	19.44/5.55	22.45/6.41	25.58/7.31	28.73/8.21	31.98/9.14	34.6/9.89	37.07/10.59	38.85/11.1	39.95/11.41
		FRF22W-12-5-7	19.86/5.67	22.01/6.29	25.07/7.16	28.26/8.07	31.51/9	34.25/9.79	37.91/10.83	40.11/11.46	42.61/12.17
		FRF22W-12-5-9	19.86/5.67	22.01/6.29	25.07/7.16	28.26/8.07	31.51/9	34.25/9.79	37.91/10.83	40.11/11.46	42.61/12.17
		FRF22W-15-5-9	22.47/6.42	25.11/7.17	28.3/8.09	31.96/9.13	35.69/10.2	38.86/11.1	41.85/11.96	51.13/14.61	54.25/15.5
		FRF22W-15-7-9	22.47/6.42	25.11/7.17	28.3/8.09	31.96/9.13	35.69/10.2	38.86/11.1	41.85/11.96	51.13/14.61	54.25/15.5
		FRF22W-18-7-9	25.31/7.23	28.72/8.21	33.17/9.48	38.98/11.14	45.08/12.88	49.37/14.11	53.68/15.34	58.76/16.79	63.22/18.06
		FRF22W-18-7-11	25.31/7.23	28.72/8.21	33.17/9.48	38.98/11.14	45.08/12.88	49.37/14.11	53.68/15.34	58.76/16.79	63.22/18.06
		FRF22W-26-7-11	36.48/10.42	42.31/12.09	48.76/13.93	55.84/15.95	63.49/18.14	71.61/20.46	79.99/22.85	88.29/25.23	92.02/26.29
		FRF22W-26-9-11	36.48/10.42	42.31/12.09	48.76/13.93	55.84/15.95	63.49/18.14	71.61/20.46	79.99/22.85	88.29/25.23	92.02/26.29
		FRF22W-30-7-11	41.30/11.80	47.93/13.69	55.26/15.79	63.29/18.08	71.98/20.57	81.2/23.2	90.69/25.91	100.1/28.6	104.8/29.94
		FRF22W-30-9-11	41.30/11.80	47.93/13.69	55.26/15.79	63.29/18.08	71.98/20.57	81.2/23.2	90.69/25.91	100.1/28.6	104.8/29.94
		FRF22W-38-9-11	48.63/13.89	55.75/15.93	64.95/18.56	75.29/21.51	86.78/24.79	99.3/28.37	111.5/31.86	123.7/35.34	134.7/38.49
R404A/R507	40	FRF404W-4-4-5	4.1/1.17	4.71/1.35	5.38/1.54	6.09/1.74	6.84/1.95	7.62/2.18	8.39/2.4	9.11/2.6	9.73/2.78
		FRF404W-5-5-7	5.1/1.46	5.71/1.63	6.48/1.85	7.59/2.17	8.84/2.53	9.52/2.72	10.39/2.97	11.36/3.25	12.28/3.51
		FRF404W-7.5-5-7	7.55/2.16	8.71/2.49	10.1/2.89	11/3.14	12.94/3.7	14/4	15.55/4.44	16.5/4.71	17.97/5.13
		FRF404W-9-5-7	9.57/2.73	10.98/3.14	12.51/3.57	14.14/4.04	15.83/4.52	17.53/5.01	19.18/5.48	20.7/5.91	21.98/6.28
		FRF404W-11-5-9	12.07/3.45	13.93/3.98	15.92/4.55	18.02/5.15	20.16/5.76	22.29/6.37	24.28/6.94	25.98/7.42	27.21/7.77
		FRF404W-13-7-9	12.93/3.69	15.1/4.31	17.1/4.89	19/5.43	22.1/6.31	25.05/7.16	27.1/7.74	30.55/8.73	32.17/9.19
		FRF404W-18-7-11	16.59/4.74	19.54/5.58	22.27/6.36	25.13/7.18	29.03/8.29	32.94/9.41	36.69/10.48	40.27/11.51	43.57/12.45
		FRF404W-21-7-11	26.03/7.44	29.79/8.51	33.77/9.65	37.87/10.82	41.93/11.98	45.77/13.08	49.21/14.06	52.06/14.87	54.14/15.47
		FRF404W-26-9-11	24.64/7.04	28.59/8.17	33.03/9.44	37.91/10.83	43.18/12.34	48.69/13.91	54.28/15.51	59.71/17.06	64.74/18.5
R410A	40	FRF410W-3.5-3-5	5.93/1.69	6.73/1.91	7.57/2.15	8.45/2.40	9.35/2.66	10.25/2.92	11.12/3.16	11.91/3.39	12.56/3.57
		FRF410W-4.5-4-7	7.92/2.25	9.0/2.56	10.15/2.89	11.35/3.23	12.58/3.58	13.81/3.93	15.01/4.27	16.10/4.58	17.00/4.84
		FRF410W-6.5-4-7	11.48/3.27	13.07/3.72	14.76/4.20	16.51/4.70	18.32/5.21	20.13/5.73	21.88/6.22	23.48/6.68	24.80/7.05
		FRF410W-9-5-7	15.36/4.37	17.49/4.97	19.73/5.61	22.06/6.27	24.44/6.95	26.81/7.63	29.08/8.27	31.13/8.85	32.77/9.32
		FRF410W-13-5-7	23.1/6.57	26.50/7.54	30.02/8.54	33.57/9.55	37.07/10.54	40.36/11.48	43.27/12.31	45.56/12.96	46.97/13.36
		FRF410W-15-5-7	23.01/6.54	26.51/7.54	30.31/8.62	34.40/9.78	38.74/11.02	43.25/12.30	47.80/13.59	52.15/14.83	55.98/15.92
		FRF410W-19-5-9	28.36/8.07	32.73/9.31	37.49/10.66	42.64/12.13	48.14/13.69	53.89/15.33	59.72/16.99	65.36/18.59	70.41/20.03
		FRF410W-23-7-9	34.74/9.88	39.94/11.36	45.52/12.95	51.47/14.64	57.75/16.42	64.27/18.28	70.84/20.15	77.13/21.94	82.66/23.51
		FRF410W-31-7-11	44.23/12.58	51.02/14.51	58.50/16.64	66.71/18.97	75.60/21.50	85.08/24.20	94.91/26.99	104.70/29.78	113.70/32.34
		FRF410W-35-7-11	50.06/14.24	57.76/16.43	66.26/18.85	75.58/21.50	85.67/24.37	96.41/27.42	107.50/30.57	118.60/33.73	128.80/36.63
		FRF410W-46-9-11	61.44/17.47	71.40/20.31	82.66/23.51	95.18/27.07	108.80/30.94	123.00/34.98	137.40/39.08	151.10/42.97	163.10/46.39
R134A	40	FRF134W-3.5-4-5	5.42/1.54	6.16/1.75	6.97/1.98	7.86/2.24	8.81/2.51	9.82/2.79	10.86/3.09	11.89/3.38	12.84/3.65
		FRF134W-4.5-5-7	7.39/2.10	8.40/2.39	9.50/2.70	10.70/3.04	11.99/3.41	13.35/3.80	14.74/4.19	16.11/4.58	17.37/4.94
		FRF134W-7-5-7	10.85/3.09	12.39/3.52	14.08/4.00	15.91/4.53	17.85/5.08	19.86/5.65	21.85/6.21	23.71/6.74	25.28/7.19

Model Selection											
Refrigerant	Condensing Temp (°C)	Model	Cooling capacity(KW)/(TR)								
			Evaporation temperature(°C)								
			-35	-30	-25	-20	-15	-10	-5	0	5
R134A	40	FRF134W-8-5-9	11.50/3.27	13.21/3.76	15.14/4.31	17.29/4.92	19.67/5.59	22.26/6.33	25.00/7.11	27.79/7.90	30.49/8.67
		FRF134W-10-7-9	14.34/4.08	16.50/4.69	18.93/5.38	21.66/6.16	24.69/7.02	27.99/7.96	31.50/8.96	35.10/9.98	38.61/10.98
		FRF134W-12-7-11	17.69/5.03	20.34/5.78	23.27/6.62	26.51/7.54	30.04/8.54	33.85/9.63	37.85/10.77	41.91/11.92	45.79/13.02
		FRF134W-17-7-11	23.02/6.55	26.54/7.55	30.53/8.68	35.01/9.96	40.01/11.38	45.50/12.94	51.39/14.62	57.50/16.35	63.54/18.07
		FRF134W-20-9-11	26.17/7.44	30.19/8.59	34.74/9.88	39.85/11.33	45.55/12.96	51.80/14.73	58.51/16.64	65.47/18.62	72.32/20.57
• Model of expansion valve should be selected by refrigerating capacity of evaporators. • External equalisation thermostatic expansion valve should be chosen for evaporators with distributors. • Pay attention to the refrigerant when choosing expansion valve.											

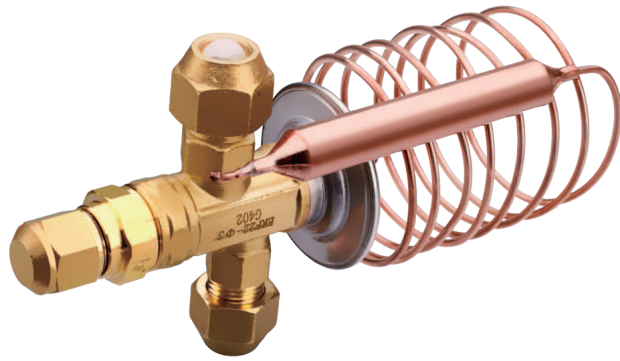
Product Parameters					
Refrigerant	Model	Pressure Equalisation	Thread(Connection Size)		
			Inlet inch	Outlet inch	External Equaliser
R22	FRF22W-3-3-5	External Equalisation	3/8"ODF	5/8"ODF	1 /4" ODF
	FRF22W-3-4-5		1/2"ODF	5/8"ODF	
	FRF22W-4-4-7		1/2"ODF	7/8"ODF	
	FRF22W-6-4-5		1/2"ODF	5/8"ODF	
	FRF22W-6-4-7		1/2"ODF	7/8"ODF	
	FRF22W-7.5-5-7		5/8"ODF	7/8"ODF	
	FRF22W-11-5-7		5/8"ODF	7/8"ODF	
	FRF22W-11-5-9		5/8"ODF	1-1/8"ODF	
	FRF22W-12-5-7		5/8"ODF	7/8"ODF	
	FRF22W-12-5-9		5/8"ODF	1-1/8"ODF	
	FRF22W-15-5-9		5/8"ODF	1-1/8"ODF	
	FRF22W-15-7-9		7/8"ODF	1-1/8"ODF	
	FRF22W-18-7-9		7/8"ODF	1-1/8"ODF	
	FRF22W-18-7-11		7/8"ODF	1-3/8"ODF	
	FRF22W-26-7-11		7/8"ODF	1-3/8"ODF	
	FRF22W-26-9-11		1-1/8"ODF	1-3/8"ODF	
	FRF22W-30-7-11		7/8"ODF	1-3/8"ODF	
	FRF22W-30-9-11		1-1/8"ODF	1-3/8"ODF	
R134a	FRF134W-3.5-4-5		1/2" ODF	5/8" ODF	
	FRF134W-4.5-5-7		5/8" ODF	7/8" ODF	
	FRF134W-7-5-7		5/8" ODF	7/8" ODF	
	FRF134W-8-5-9		5/8" ODF	1-1/8" ODF	
	FRF134W-10-7-9		7/8" ODF	1-1/8" ODF	
	FRF134W-12-7-11		7/8" ODF	1-3/8" ODF	
	FRF134W-17-7-11		7/8" ODF	1-3/8" ODF	
	FRF134W-20-9-11		1-1/8" ODF	1-3/8" ODF	

Product Parameters					
Refrigerant	Model	Pressure Equalisation	Thread Connection Size		
			Inlet inch	Outlet inch	External Equaliser
R404A	FRF404W-4-4-5		1/2" ODF	5/8" ODF	
	FRF404W-5-5-7		5/8" ODF	7/8" ODF	
	FRF404W-7.5-5-7		5/8" ODF	7/8" ODF	
	FRF404W-9-5-7		5/8" ODF	7/8" ODF	
	FRF404W-11-5-9		5/8" ODF	1-1/8" ODF	
	FRF404W-13-7-9		7/8" ODF	1-1/8" ODF	
	FRF404W-18-7-11		7/8" ODF	1-3/8" ODF	
	FRF404W-21-7-11		7/8" ODF	1-3/8" ODF	
	FRF404W-26-9-11		1-1/8" ODF	1-3/8" ODF	
R410A	FRF410W-3.5-3-5	External Equalisation	3/8" ODF	5/8" ODF	1/4" ODF
	FRF410W-4.5-4-7		1/2" ODF	7/8" ODF	
	FRF410W-6.5-4-7		1/2" ODF	7/8" ODF	
	FRF410W-9-5-7		5/8" ODF	7/8" ODF	
	FRF410W-13-5-7		5/8" ODF	7/8" ODF	
	FRF410W-15-5-7		5/8" ODF	7/8" ODF	
	FRF410W-19-5-9		5/8" ODF	1-1/8" ODF	
	FRF410W-23-7-9		7/8" ODF	1-1/8" ODF	
	FRF410W-31-7-11		7/8" ODF	1-3/8" ODF	
	FRF410W-35-7-11		7/8" ODF	1-3/8" ODF	
	FRF410W-46-9-11		1-1/8" ODF	1-3/8" ODF	
	R407C		FRF407C-3.5-4-7		
FRF407C-5-4-7		1/2" ODF	7/8" ODF		
FRF407C-7-5-7		5/8" ODF	7/8" ODF		
FRF407C-10-5-7		5/8" ODF	7/8" ODF		
FRF407C-12-5-9		5/8" ODF	1-1/8" ODF		
FRF407C-15-7-9		7/8" ODF	1-1/8" ODF		
FRF407C-18-7-11		7/8" ODF	1-3/8" ODF		
• Working Condition of Nominal Refrigerating Capacity: Evaporation Temperature: + 5°C; Condensation Temperature:+40°C; Superheat:3.5°C;Subcooling:2°C.					

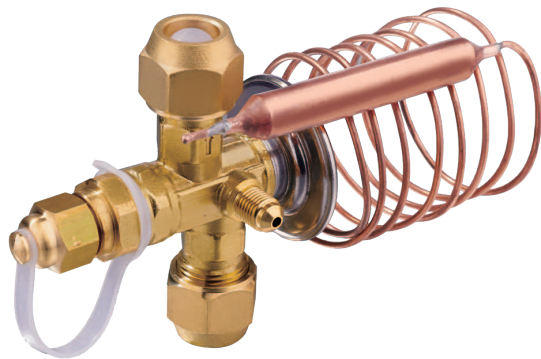
Structure



ERF ERFW Thermostatic Expansion Valve



Model ERF (metric/inch flare)



Model ERFW (inch flare)

Product Description

• Model ERF/ERFW thermal expansion valve are used to adjust the liquid refrigerant supply volume to the evaporator and they are suitable to various refrigerants and different charging condition. It meets the requirements of the cold storage facility, ice maker and dehumidifier as well as the refrigeration and air conditioning requirements under varied evaporation temperature.

Features

- The big power head structure with perfect linear performance has a stable adjustment on the degree of superheat.
- New structure has large scope of evaporation temperature and big work amplitude under low temperature.
- With proprietary technology, the diaphragm movement hysteresis <0.5k and the valve has good stability.
- The bonnet features fool-proofing design to prevent loss and ensure the reliability of sealing.

Technical Parameters

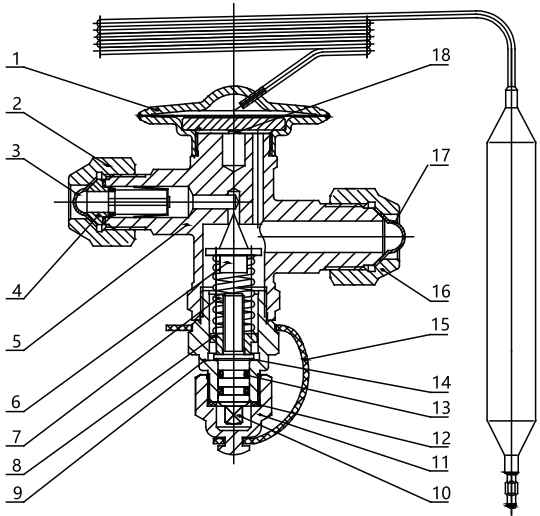
Applicable Refrigerants:	R404A,R22、 R134a	• Model ERF (ERFW) and FRF thermostatic expansion valve have two types of connection: Flare/ODF. • Capillary length of Model ERF (ERFW) and FRF thermostatic expansion valve can be standard 1.5 m, (φ10~ 13 is 3m) or customized.
Applicable Medium Temperature:	-40°C~ +10°C	
Norminal Capacity:	3.5KW~158KW	
Adjustable Range of Superheat:	2°C~8°C	
Ex-Works Static Heat Adjustment:	3.5°C	
Outer Equilibrium End Leakage:	≤75ml/min	
Maximum Working Pressure:	2.8MPa	
Maximum Testing Pressure:	3.2MPa	

Model Selection												
Refrigerant	Model	Pressure Equalisation	Thread(Connection Size)						Nominal Refrigerating Capacity			
			Inlet		Outlet		External Equaliser		TR	kW	kcal/h	
			metric	inch	metric	inch	metric	inch				
R22/R407C	ERF22-Φ1.0	Internal Equalisation (flare)	M16X1.5		M18X1.5	—	—	1.0	3.5	3024		
	ERF22-Φ1.5							1.6	5.6	4840		
	ERF22-Φ2.0							2.0	7.0	6048		
	ERF22-Φ2.5							2.5	8.8	7560		
	ERF22-Φ3.0							3.0	10.5	9072		
	ERF22-Φ4.0							5.0	17.6	15120		
	ERF22-Φ5.0				6.0			21.0	18144			
	ERF22-Φ6.0				7.5			26.0	22680			
	ERF22-Φ7.0		8.5	29.9	25704							
	ERF22-Φ8.0		12.0	42.2	36288							
	ERF22-Φ9.0		15.0	52.7	45360							
R134a	ERF134-Ø1.0		M16X1.5		M18X1.5	—	—	0.5	1.75	1510		
	ERF134-Ø1.5							0.7	2.5	2116		
	ERF134-Ø2.0							1.5	5.2	4500		
	ERF134-Ø2.5							1.6	5.6	4838		
	ERF134-Ø3.0							2.0	7.0	6048		
	ERF134-Ø4.0							3.0	10.5	9072		
	ERF134-Ø5.0				5.0			17.6	15120			
	ERF134-Ø7.0				6.5			22.9	19656			
	ERF134-Ø9.0		11.0	38.7	33264							
R22/R407C	ERF22W-Ø1.0	External Equalisation		3/8 SAE	1/2 SAE		1/4 SAE	1.0	3.5	3024		
	ERF22W-Ø1.5							1.6	5.6	4840		
	ERF22W-Ø2.0							2.0	7.0	6048		
	ERF22W-Ø2.5							2.5	8.8	7560		
	ERF22W-Ø3.0							3.0	10.5	9072		
	ERF22W-Ø4.0			5.0	17.6			15120				
	ERF22W-Ø5.0			6.0	21.0			18144				
	ERF22W-Ø6.0			7.5	26.5			22680				
	ERF22W-Ø7.0			8.5	29.9			25704				
	ERF22W-Ø8.0			12.0	42.2			36288				
	ERF22W-Ø9.0		15.0	52.7	45360							
	R134a		ERF134W-Ø1.0	3/8 SAE				1/2 SAE		1/4 SAE	0.5	1.75
ERF134W-Ø1.5			0.7								2.5	2116
ERF134W-Ø2.0			1.5								5.2	4500
ERF134W-Ø2.5			1.6								5.6	4838
ERF134W-Ø3.0			2.0								7.0	6048
ERF134W-Ø4.0			3.0					10.5			9072	
ERF134W-Ø5.0			5.0					17.6			15120	
ERF134W-Ø7.0			6.5					22.9			19656	
ERF134W-Ø9.0			11.0					38.7			33264	
• Working Condition of Nominal Refrigerating Capacity: Evaporation Temperature te = + 5°C; Condensation Temperature tK = +40°C; Degree of Superheat 2°C												

Structure

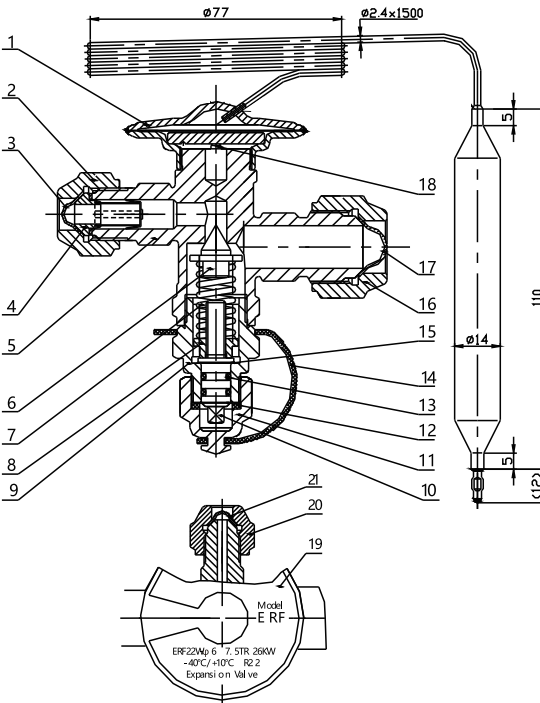
Model ERF(metric flare)

- 1、 power element; 2、 nut; 3、 seal cap; 4、
filtering component; 5、 valve body; 6、 value
element; 7、 adjusting spring; 8、 adjusting
nut; 9、 adjusting seat; 10、 valve stem; 11、
bonnet; 12、 seal ring; 13、 O-ring; 14、
gasket; 15、 security belt; 16、 metric nut;
17、 seal cap; 18、 drive pin

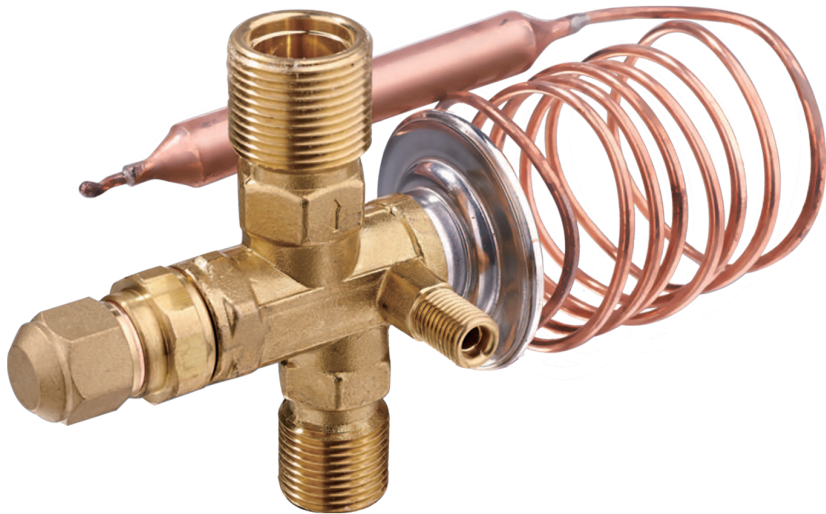


Model ERFW(inch flare)

1. power element
2. nut
3. seal cap
4. filtering component
5. valve body
6. valve element
7. adjusting spring
8. adjusting nut
9. adjusting seat
10. valve stem
11. bonnet
12. seal ring
13. O-ring
14. security belt
15. gasket
16. nut
17. seal cap
18. drive pin
19. label
20. nut
21. seal cap



QRF Thermostatic Expansion Valve



Model QRF (inch flare)

Product Description

- QRF134aW expansion Valve used for regulating the supply of liquid refrigerant in Evaporator.
- QRF134aW expansion valve with two-way throttling function is widely used in heat pump, Automotive air conditioning and refrigeration system

Features

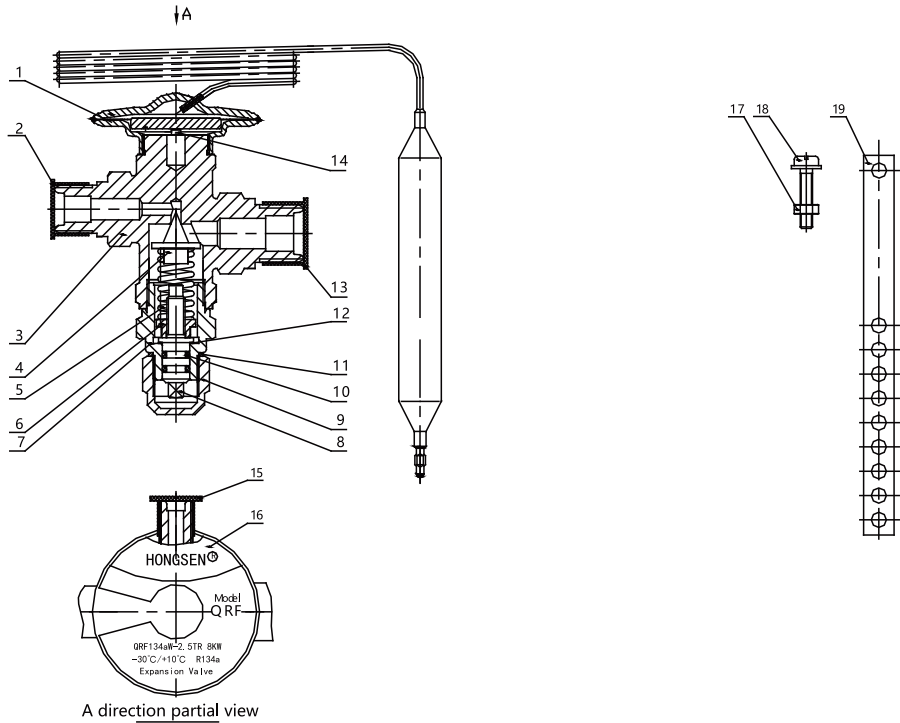
- The expansion valve diaphragm is made of the same material as the well-known supplier.
- MOP function can be provided, so that the compressor motor will not be damaged by excessive evaporation pressure.
- The patented membrane structure greatly improves the working performance at low temperature.
- The valve bonnet adopts secondary sealing structure to ensure zero external leakage.

Technical Parameters

Applicable Refrigerants	R134a
Applicable Medium	-30℃~+10℃
Adjustable Range of Superheat	2℃~8℃
Maximum Working Pressure	2.8MPa
Maximum Testing Pressure	3.2MPa
QREF type thermal expansion valve capillary length: standard 1.5m, special circumstances can be according to user demand.	

Model Selection							
Refrigerant	Model	Pressure Equalisation	Thread			Nominal Refrigerating Capacity	
			Intet	Outlet	External Equaliser	TR	KW
R134a	QRF134aW-2.5-3-4	External Equalisation	3/8 SAE	1/2 SAE	1/4 SAE	2.5	8
	QRF134aW-3.5-3-4		3/8 SAE	1/2 SAE		3.5	12
	QRF134aW-4.5-5-6		5/8SAE	3/4SAE		4.5	17
	QRF134aW-7-5-6		5/8SAE	3/4SAE		7	24
	QRF134aW-10-5-6		5/8SAE	3/4SAE		10	37
• The working condition of nominal refrigerating capacity is: evaporation temperature: 5°C; condensation temperature: 35°C; superheat: 3.5°C; supercooling degree: 4°C.							

Structure



- 1、 power element; 2、 dust cap; 3、 valve body; 4、 spool; 5、 adjusting spring; 6、 adjusting nut; 7、 adjusting seat; 8、 valve stem; 9、 valve bonnet; 10、 O-ring; 11、 gasket; 12、 gasket; 13、 dust cap; 14、 drive pin; 15、 dust cap; 16、 label; 17、 nut; 18、 bolt; 19、 hoop