TEMPERATURE RESPONSIVE EXPANSION VALVES (LIQUID INJECTION)



■ Introduction

WTV series temperature responsive expansion valve (liquid injection) is a flow control device mainly used to solve the problem of excessively high exhaust temperature of the compressor and maintain its continuous operation. It regulates the intake flow through the throttling effect during gas flow, injecting subcooled liquid refrigerant from the liquid line into the compressor's suction chamber. This process helps lower the discharge temperature caused by excessive hot gas bypassing through the bypass valve or other factors, thereby optimizing compressor efficiency and stability.

■ Technical Parameters

- Ambient Temperature: -20 ~ +65°C
- Test Pressure: 3.3 MPa (4.5 MPa for R410A systems)
- Maximum Working Pressure: 3 MPa (4.2 MPa for R410A systems)
- Factory-Set Static Superheat: 3.5°C

■ Model naming method

WTV series1

WTV □ □

- Arabic numerals, valve number
- Connection method, English letters (The threaded horn tube is connected to A and the welded tube is connected to B)
- Temperature responsive expansion valve code

WTV series2

WTV □ □

- Arabic numerals, valve number
- Connection method, English letters (The threaded horn tube is connected to C and the welded tube is connected to D)
- Temperature responsive expansion valve code

■ Type & data

Model	Capacity code	Nominal capacity										Suction pressure（MPa）	Openning temperature range（℃）
		R134A		R22		R407C		R404A/R507		R410A			
		(Tons)	(KW)	(Tons)	(KW)	(Tons)	(KW)	(Tons)	(KW)	(Tons)	(KW)		
WTVA WTVB	2	1.5	5.3	2	7	2	7	1.5	5.3	2	7	0.1	50 ~ 75
	3	2	7	3	10.5	3	10.5	2	7	3.5	10.5	0.2	75 ~ 85
	4	2.5	8.9	4	14	4	14	2.5	8.9	4	14	0.3	80 ~ 90
	5	3	10.5	5	17.5	5	17.5	3	10.5	6	17.5	0.4	85 ~ 95
	7.5	5.5	19.3	7.5	26.3	7.5	26.3	5	14	9	26.3	0.5	90 ~ 101
	10	7.5	26.3	10	35	10	35	6.5	22.8	12	35	0.6	94 ~ 105
	12	9	31.5	12	42	12	42	8	28	14	42	0.7	100 ~ 110

Model	Capacity code	Nominal capacity										Suction pressure（MPa）	Openning temperature range（℃）
		R134A		R22		R407C		R404A/R507		R410A			
		(Tons)	(KW)	(Tons)	(KW)	(Tons)	(KW)	(Tons)	(KW)	(Tons)	(KW)		
WTVC WTVD	0	0.2	0.65	0.3	1.14	0.3	1.13	0.22	0.8	0.35	1.32	0.1	50 ~ 75
	1	0.4	1.5	0.8	2.8	0.8	2.8	0.5	1.85	0.9	3.25	0.2	75 ~ 85
	2	0.7	2.5	1.3	4.7	1.2	4.57	0.88	3.1	1.55	5.45	0.3	80 ~ 90
	3	1.2	4	2.1	7.5	2	7.03	1.4	5	2.4	8.7	0.4	85 ~ 95
	4	1.9	6.7	3.5	12.2	3.4	12	2.3	8.1	4	14.2	0.5	90 ~ 101
	5	2.3	8.2	4.2	14.9	4	14.4	2.8	9.9	4.9	17.3	0.6	94 ~ 105
	6	2.7	9.5	4.9	17.2	4.8	16.9	3.2	11.4	5.5	20	0.7	100 ~ 110

■ Temperature of liquid entering valve correction factor

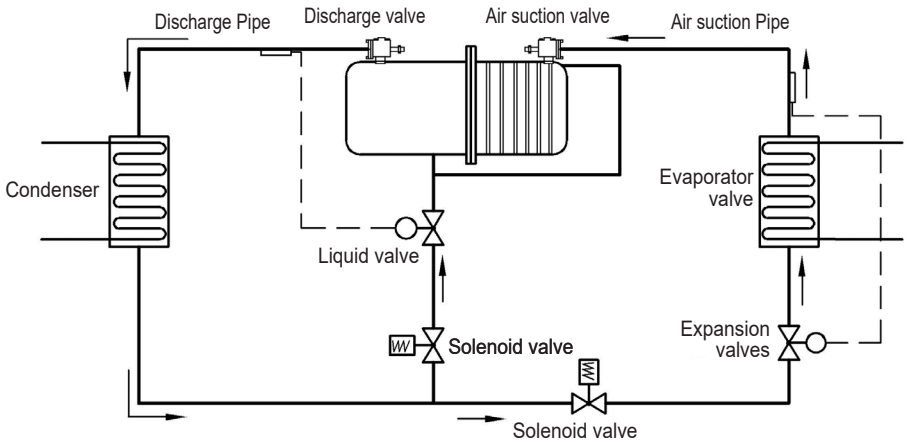
Refrigerant	Refrigerant liquid temperature℃																
	60	55	50	45	40	35	30	25	20	15	10	5	0	–5	–10	–15	–20
R134a	0.75	0.77	0.83	0.89	0.94	1	1.06	1.11	1.17	1.23	1.28	1.34	1.39	1.45	1.5	1.56	1.61
R22	0.71	0.8	0.85	0.9	0.95	1	1.05	1.1	1.14	1.19	1.24	1.29	1.33	1.38	1.42	1.47	1.51
R407C	0.67	0.74	0.8	0.87	0.94	1	1.06	1.12	1.19	1.24	1.3	1.36	1.42	1.48	1.54	1.59	1.65
R404A/R507	0.5	0.61	0.71	0.81	0.91	1	1.09	1.18	1.26	1.34	1.43	1.51	1.59	1.66	1.74	1.82	1.89

■ Installation

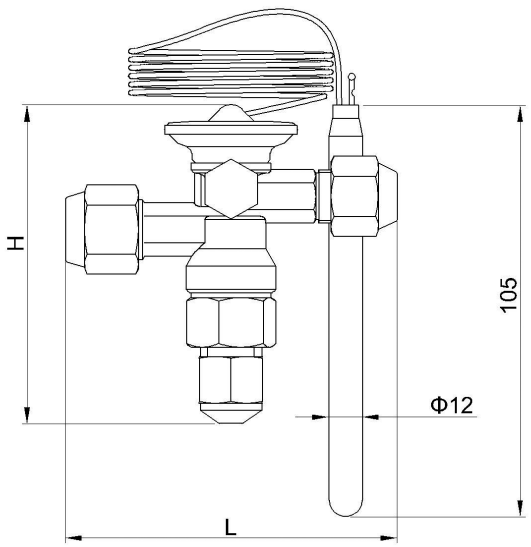
The liquid injection valve□WTV□ is usually installed on the pipeline near the suction port of the refrigeration compressor. The inlet of the valve is connected to the outlet pipeline of the condenser of the refrigeration unit, while the outlet is connected to the suction pipeline of the compressor.To ensure accurate and responsive injection, the sensing bulb of the valve should be installed on the discharge pipe near the compressor's outlet. It must be tightly secured on the upper side of the discharge pipe using dedicated straps and insulated with an external thermal insulation layer.

An electromagnetic valve (solenoid valve) should be installed upstream of the injection valve's inlet pipeline. This solenoid valve is linked to the compressor and operates synchronously. When the compressor stops, the solenoid valve closes, effectively preventing liquid refrigerant from entering the suction line and causing liquid slugging in the compressor.

To ensure that the injected liquid refrigerant fully evaporates within the suction line, the injection point of the liquid injection valve must be located at least 2 meters away from the compressor's suction inlet. Additionally, a reverse injection method should be adopted (i.e., the injection direction is opposite to the airflow in the suction pipe), so that the hot gas and the liquid refrigerant can mix thoroughly.



■ Selecting of a valve size

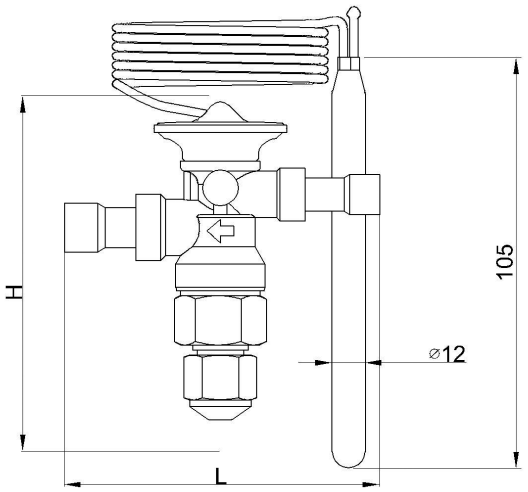


WTVA series

Products number	Dimensions		Speaker tube size	
	H	L	Import	Export
WTVA2	106	100	Φ10	Φ12
WTVA3				
WTVA4				
WTVA5				Φ16
WTVA7.5			Φ12	
WTVA10				
WTVA12				

Capillary standard length 1m

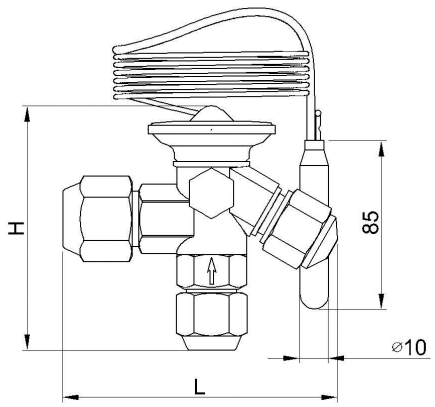
■ Selecting of a valve size



WTVB series

Products number	Dimensions		Speaker tube size	
	H	L	Import	Export
WTVB2	96	95	Φ10	Φ12
WTVB3				
WTVB4				
WTVB5				Φ16
WTVB7.5			Φ12	
WTVB10				
WTVB12				

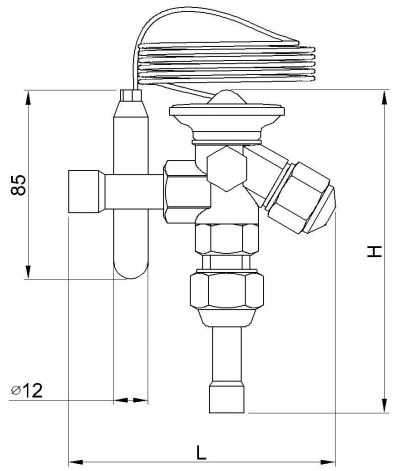
Capillary standard length 1m



WTVC series

Series	Spool number	Dimensions		Welded pipe size	
		H	L	Import	Export
WTVC	0	77	87	Φ10	Φ12
	1				
	2				
	3				
	4				
	5				
	6				

Capillary standard length 1m



WTV$_D$ series

Series	Spool number	Dimensions		Welded pipe size	
		H	L	Import	Export
WTVD	0	110	92	Φ10	Φ12
	1				
	2				
	3				
	4				
	5				
	6				

Capillary standard length 1m

■ R134a Extend capacity KW (Extend KW capacities based on vapor free liquid refrigerant at +35℃)

Model		Evaporating temperature (℃)																	
		10						0						-10					
	spool No	Pressure drop across valve（MPa）																	
		0.3	0.4	0.6	0.7	0.8	1	0.4	0.6	0.7	0.8	1	1.1	0.4	0.6	0.7	0.8	1	1.1
WTVC / WTVD	0	0.6	0.7	0.8	0.9	1	1.1	0.7	0.8	0.9	0.9	1.1	1.1	0.6	0.8	0.8	0.9	1	1.1
	1	1.4	1.6	1.9	2.1	2.2	2.5	1.5	1.8	2	2.1	2.4	2.5	1.5	1.8	1.9	2.1	2.3	2.4
	2	2.3	2.7	3.3	3.5	3.8	4.2	2.6	3.1	3.4	3.6	4.1	4.2	2.5	3	3.3	3.5	3.9	4.1
	3	3.8	4.4	5.4	5.8	6.2	6.9	4.2	5.2	5.6	6	6.7	7	4	5	5.4	5.7	6.4	6.7
	4	6	6.9	8.5	9.2	9.8	11	6.7	8.2	8.8	9.4	10.5	11.1	6.4	7.9	8.5	9.1	10.1	10.6
	5	7.6	8.8	10.7	11.6	12.4	13.8	8.4	10.3	11.1	11.9	13.3	14	8.1	9.9	10.7	11.4	12.8	13.4
	6	9.8	11.3	13.8	15	16	17.9	10.9	13.3	14.4	15.4	17.2	18	10.5	12.8	13.8	14.8	16.5	17.3
WTVA / WTVB	2	4.4	5.1	6.3	6.8	7.2	8.1	4.9	6	6.5	6.9	7.8	8.1	4.7	5.8	6.3	6.7	7.5	7.8
	3	5.8	6.8	8.3	8.9	9.6	10.7	6.5	8	8.6	9.2	10.3	10.8	6.3	7.7	8.3	8.8	9.9	10.4
	4	7.1	8.2	10	10.9	11.6	13	7.9	9.7	10.4	11.2	12.5	13.1	7.6	9.3	10	10.7	12	12.6
	5	9.2	10.6	13	14.1	15	16.8	10.2	12.5	13.5	14.4	16.2	16.9	9.8	12	13	13.9	15.5	16.3
	7.5	17.4	20.1	24.6	26.5	28.4	31.7	19.3	23.6	25.5	27.3	30.5	32	18.6	22.7	24.6	26.2	29.4	30.8
	10	23.4	27	33.1	35.7	38.2	42.7	26	31.8	34.4	36.7	41.1	43.1	25	30.6	33	35.3	39.5	41.4
	12	27.5	31.7	38.9	42	44.9	50.2	30.5	37.4	40.4	43.2	48.3	50.6	29.4	35.9	38.8	41.5	46.4	48.7
Model		Evaporating temperature (℃)																	
		-20						-30						-40					
	spool No	Pressure drop across valve（MPa）																	
		0.6	0.7	0.8	1	1.1	1.2	0.6	0.7	0.8	1	1.1	1.2	0.6	0.7	0.8	1	1.1	1.2
WTVC / WTVD	0	0.6	0.65	0.7	0.78	0.82	0.85	0.41	0.44	0.47	0.52	0.55	0.57	0.26	0.28	0.3	0.34	0.35	0.37
	1	1.4	1.5	1.6	1.8	1.8	1.9	0.9	1	1.1	1.2	1.2	1.3	0.59	0.64	0.68	0.76	0.8	0.84
	2	2.3	2.5	2.7	3	3.1	3.3	1.6	1.7	1.8	2	2.1	2.2	1	1.1	1.2	1.3	1.4	1.4
	3	3.8	4.1	4.4	4.9	5.2	5.4	2.6	2.8	3	3.3	3.5	3.6	1.6	1.8	1.9	2.1	2.2	2.3
	4	6	6.5	7	7.8	8.2	8.5	4.1	4.4	4.7	5.2	5.5	5.7	2.6	2.8	3	3.4	3.5	3.7
	5	7.6	8.2	8.8	9.8	10.3	10.8	5.1	5.5	5.9	6.6	6.9	7.2	3.3	3.6	3.8	4.3	4.5	4.7
	6	9.8	10.6	11.3	12.7	13.3	13.9	6.6	7.1	7.6	8.5	8.9	9.3	4.3	4.6	4.9	5.5	5.8	6
WTVA / WTVB	2	4.6	5	5.3	5.9	6.2	6.5	3.1	3.3	3.6	4	4.2	4.4	2	2.1	2.3	2.6	2.7	2.8
	3	5.9	6.3	6.8	7.6	8	8.3	3.9	4.3	4.6	5.1	5.3	5.6	2.5	2.7	2.9	3.3	3.4	3.6
	4	7.1	7.7	8.2	9.2	9.7	10.1	4.8	5.2	5.5	6.2	6.5	6.8	3.1	3.3	3.6	4	4.2	4.4
	5	9.2	10	10.7	11.9	12.5	13.1	6.2	6.7	7.2	8	8.4	8.8	4	4.3	4.6	5.2	5.4	5.7
	7.5	17.4	18.8	20.1	22.5	23.6	24.7	11.7	12.7	13.5	15.1	15.9	16.6	7.6	8.2	8.7	9.8	10.2	10.7
	10	23.5	25.3	27.1	30.3	31.8	33.2	15.8	17	18.2	20.4	21.4	22.3	10.2	11	11.7	13.1	13.8	14.4
	12	27.6	29.8	31.8	35.6	37.3	39	18.5	20	21.4	24	25.1	26.2	11.9	12.9	13.8	15.4	16.2	16.9

■ R22 Extend capacity KW (Extend KW capacities based on vapor free liquid refrigerant at +35℃)

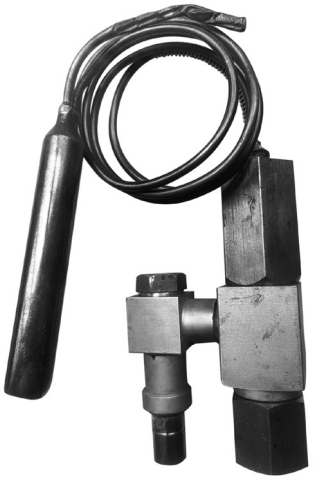
Model		Evaporating temperature (℃)																	
		10						0						-10					
	spool No	Pressure drop across valve（MPa）																	
		0.5	0.7	0.9	1	1.2	1.4	0.5	0.7	0.9	1	1.2	1.4	0.7	0.9	1	1.2	1.4	1.6
WTVC / WTVD	0	1	1.2	1.3	1.4	1.5	1.7	1	1.2	1.3	1.4	1.5	1.6	1.1	1.3	1.3	1.5	1.6	1.7
	1	2.5	3	3.3	3.5	3.9	4.2	2.4	2.9	3.3	3.5	3.8	4.1	2.8	3.2	3.4	3.7	4	4.3
	2	4.1	4.8	5.4	5.7	6.3	6.8	4	4.7	5.3	5.6	6.2	6.6	4.6	5.2	5.5	6	6.5	6.9
	3	6.5	7.7	8.8	9.3	10.1	11	6.4	7.6	8.6	9.1	9.9	10.7	7.4	8.4	8.9	9.7	10.5	11.2
	4	10.9	12.9	14.6	15.4	16.9	18.3	10.7	12.6	14.3	15.1	16.6	17.9	12.3	14	14.8	16.2	17.5	18.7
	5	13.1	15.5	17.6	18.5	20.3	21.9	12.8	15.2	17.2	18.1	19.9	21.5	14.8	16.8	17.7	19.4	21	22.4
	6	15.3	18.1	20.5	21.6	23.7	25.6	15	17.7	20.1	21.2	23.2	25	17.3	19.6	20.7	22.6	24.5	26.1
WTVA / WTVB	2	6.2	7.3	8.3	8.7	9.6	10.3	6.04	7.15	8.11	8.55	9.37	10.1	6.98	7.92	8.35	9.15	9.88	10.6
	3	9.4	11.2	12.7	13.4	14.6	15.8	9.3	10.9	12.4	13.1	14.3	15.5	10.7	12.1	12.8	14	15.1	16.2
	4	12.2	14.5	16.4	17.3	18.9	20.5	12	14.2	16.1	16.9	18.6	20	13.8	15.7	16.5	18.1	19.6	20.9
	5	15.5	18.3	20.8	21.9	24	25.9	15.1	17.9	20.3	21.4	23.5	25.4	17.5	19.8	20.9	22.9	24.8	26.5
	7.5	23.1	27.3	31	32.6	35.8	38.6	22.6	26.7	30.3	32	35	37.8	26.1	29.6	31.2	34.2	36.9	39.5
	10	31.8	37.6	42.7	45	49.3	53.3	31.1	36.8	41.8	44.1	48.3	52.1	36	40.8	43	47.1	51	54.4
	12	38.4	45.4	51.5	54.3	59.4	64.2	37.5	44.4	50.4	53.1	58.2	62.9	43.4	49.2	51.9	56.8	61.4	65.6
Model		Evaporating temperature (℃)																	
		-20						-30						-40					
	spool No	Pressure drop across valve（MPa）																	
		0.9	1	1.2	1.4	1.6	1.7	0.9	1	1.2	1.4	1.6	1.7	0.9	1	1.2	1.4	1.6	1.7
WTVC / WTVD	0	1.1	1.1	1.3	1.4	1.5	1.5	0.8	0.8	0.9	1	1	1.1	0.5	0.6	0.6	0.7	0.7	0.7
	1	2.7	2.9	3.1	3.4	3.6	3.7	1.9	2.1	2.3	2.4	2.6	2.7	1.3	1.4	1.6	1.7	1.8	1.8
	2	4.4	4.7	5.1	5.5	5.9	6.1	3.2	3.3	3.7	4	4.2	4.4	2.2	2.3	2.5	2.7	2.9	3
	3	7.1	7.5	8.2	8.9	9.5	9.8	5.1	5.4	5.9	6.4	6.8	7	3.5	3.7	4.1	4.4	4.7	4.9
	4	11.9	12.5	13.7	14.9	15.9	16.4	8.5	9	9.8	10.6	11.4	11.7	5.9	6.2	6.8	7.3	7.8	8.1
	5	14.3	15.1	16.5	17.8	19	19.6	10.2	10.8	11.8	12.8	13.6	14.1	7.1	7.4	8.2	8.8	9.4	9.7
	6	16.7	17.6	19.2	20.8	22.2	22.9	11.9	12.6	13.8	14.9	15.9	16.4	8.2	8.7	9.5	10.3	11	11.3
WTVA / WTVB	2	6.7	7.1	7.8	8.4	9	9.3	4.8	5.1	5.6	6	6.4	6.6	3.3	3.5	3.8	4.2	4.4	4.6
	3	10.3	10.9	11.9	12.9	13.7	14.2	7.4	7.8	8.5	9.2	9.8	10.1	5.1	5.4	5.9	6.4	6.8	7
	4	13.3	14.1	15.4	16.6	17.8	18.3	9.5	10.1	11	11.9	12.7	13.1	6.6	6.9	7.6	8.2	8.8	9.1
	5	16.9	17.8	19.5	21	22.5	23.2	12.1	12.7	14	15.1	16.1	16.6	8.3	8.8	9.6	10.4	11.1	11.5
	7.5	25.2	26.5	29.1	31.4	33.6	34.6	18	19	20.8	22.5	24	24.8	12.4	13.1	14.4	15.5	16.6	17.1
	10	34.7	36.6	40.1	43.3	46.3	47.7	24.8	26.2	28.7	31	33.1	34.2	17.1	18.1	19.8	21.4	22.9	23.6
	12	41.8	44.1	48.3	52.2	55.8	57.5	30	31.6	34.6	37.4	40	41.2	20.7	21.8	23.9	25.8	27.6	28.4

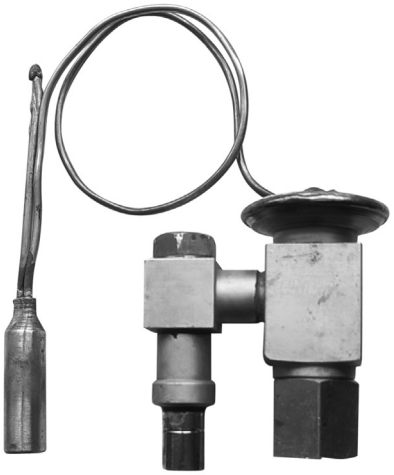
■ R407C Extend capacity KW (Extend KW capacities based on vapor free liquid refrigerant at +35℃)

Model		Evaporating temperature (℃)																	
		10						0						-10					
	spool No	Pressure drop across valve（MPa）																	
		0.5	0.7	0.9	1	1.2	1.4	0.5	0.7	0.9	1	1.2	1.4	0.7	0.9	1	1.2	1.4	1.6
WTVC / WTVD	0	1	1.2	1.4	1.4	1.6	1.7	1	1.2	1.3	1.4	1.5	1.6	1.1	1.3	1.3	1.5	1.6	1.7
	1	2.5	3	3.4	3.6	3.9	4.2	2.4	2.9	3.3	3.5	3.8	4.1	2.8	3.2	3.3	3.7	3.9	4.2
	2	4.1	4.9	5.5	5.8	6.4	6.9	4	4.7	5.3	5.6	6.1	6.7	4.5	5.1	5.4	5.9	6.4	6.9
	3	6.3	7.5	8.5	8.9	9.8	10.6	6.1	7.2	8.2	8.7	9.4	10.2	7	7.9	8.3	9.1	9.9	10.6
	4	10.6	12.7	14.4	15.2	16.7	18	10.4	12.3	14	14.7	16	17.4	11.9	13.5	14.2	15.5	16.8	17.9
	5	12.8	15.3	17.4	18.3	20.1	21.7	12.5	14.8	16.8	17.7	19.3	21	14.3	16.2	17.1	18.7	20.2	21.6
	6	15	18	20.4	21.5	23.5	25.4	14.7	17.4	19.7	20.8	22.6	24.6	16.8	19	20	21.9	23.7	25.3
WTVA / WTVB	2	6.3	7.5	8.5	8.9	9.8	10.6	6.1	7.2	8.2	8.7	9.4	10.2	7	7.9	8.3	9.1	9.9	10.6
	3	9.5	11.3	12.3	13.7	14.8	16.5	9.1	10.9	12.3	13	14	15.5	10.6	11.6	12.7	13.7	14.8	15.5
	4	13	14.8	16.5	18.3	19.7	22.2	12.3	14.4	16.5	17.2	19	20.4	13.7	15.5	16.9	18.3	19.7	20.8
	5	16	19.1	21.6	22.8	25	27	15.6	18.5	20.9	22.1	24	26.1	17.8	20.2	21.3	23.3	25.2	26.9
	7.5	23.2	27.7	31.4	33.1	36.3	39.2	22.6	26.8	30.4	32	34.9	37.9	25.8	29.3	30.9	33.8	36.5	39
	10	31.9	38.2	43.3	45.6	50	54	31.2	36.9	41.9	44.1	48.1	52.2	35.6	40.4	42.5	46.6	50.3	53.8
	12	38.5	46	52.2	55	60.3	65.1	37.6	44.5	50.5	53.2	57.9	63	42.9	48.7	51.3	56.2	60.7	64.9
Model		Evaporating temperature (℃)																	
		-20						-30						-40					
	spool No	Pressure drop across valve（MPa）																	
		0.9	1	1.2	1.4	1.6	1.7	0.9	1	1.2	1.4	1.6	1.7	0.9	1	1.2	1.4	1.6	1.7
WTVC / WTVD	0	1.05	1.1	1.2	1.3	1.4	1.5	0.8	0.8	0.9	0.9	1	1	0.5	0.6	0.6	0.7	0.7	0.7
	1	2.56	2.8	3.1	3.3	3.5	3.6	1.9	2	2.2	2.4	2.5	2.6	1.3	1.4	1.5	1.6	1.7	1.8
	2	4.2	4.5	5	5.4	5.7	5.9	3.1	3.2	3.6	3.8	4.1	4.2	2.1	2.2	2.5	2.6	2.8	2.9
	3	6.7	7	7.6	8.3	8.8	9.1	4.7	5	5.5	5.9	6.3	6.5	3.3	3.4	3.8	4.1	4.4	4.5
	4	11.2	11.9	13	14	15	15.5	8	8.5	9.3	10	10.7	11.1	5.6	5.9	6.4	6.9	7.4	7.6
	5	13.7	14.3	15.7	16.9	18.1	18.7	9.7	10.2	11.2	12.1	12.9	13.3	6.7	7.1	7.7	8.4	8.9	9.2
	6	15.4	16.8	18.4	19.8	21.2	21.8	11.4	12	13.1	14.2	15.1	15.6	7.8	8.3	9.1	9.8	10.5	10.8
WTVA / WTVB	2	6.3	7	7.6	8.3	8.8	9.1	4.7	5	5.5	5.9	6.3	6.5	3.3	3.4	3.8	4.1	4.4	4.5
	3	9.8	10.6	11.6	12.3	13	13.7	7	7.7	8.1	8.8	9.1	9.8	4.9	5.3	5.6	6	6.3	6.7
	4	13	14.1	15.5	16.5	17.2	18.3	9.1	10.2	10.9	11.6	12.3	13	6.3	7	7.4	8.1	8.4	9.1
	5	16.5	17.8	19.5	21.1	22.5	23.2	12.1	12.7	13.9	15.1	16.1	16.6	8.3	8.8	9.6	10.4	11.1	11.4
	7.5	23.9	25.8	28.3	30.6	32.7	33.7	17.5	18.5	20.2	21.8	23.4	24.1	12.1	12.7	14	15.1	16.1	16.6
	10	33.1	35.6	39	42.1	45	46.4	24.1	25.4	27.9	30.1	32.2	33.2	16.7	17.6	19.2	20.8	22.2	22.9
	12	39.7	42.9	47	50.8	54.3	56	29.1	30.7	33.6	36.3	38.8	40	20.1	21.2	23.2	25.1	26.8	27.6

■ R404A/R507 Extend capacity KW (Extend KW capacities based on vapor free liquid refrigerant at +35℃)

Model		Evaporating temperature (℃)																	
		10						0						-10					
	spool No	Pressure drop across valve（MPa）																	
		0.5	0.7	0.9	1	1.2	1.4	0.5	0.7	0.9	1	1.2	1.4	0.5	0.7	0.9	1	1.2	1.4
WTVC / WTVD	0	0.74	0.87	0.99	1.04	1.14	1.24	0.7	0.83	0.95	1	1.09	1.18	0.67	0.79	0.9	0.95	1.04	1.12
	1	1.7	2	2.3	2.4	2.6	2.8	1.6	1.9	2.2	2.3	2.5	2.7	1.5	1.8	2.1	2.2	2.4	2.6
	2	2.9	3.4	3.9	4.1	4.5	4.8	2.8	3.3	3.7	3.9	4.3	4.6	2.6	3.1	3.5	3.7	4.1	4.4
	3	4.6	5.4	6.2	6.5	7.1	7.7	4.4	5.2	5.9	6.2	6.8	7.3	4.2	4.9	5.6	5.9	6.4	7
	4	7.5	8.8	10	10.6	11.6	12.5	7.1	8.4	9.6	10.1	11.1	12	6.8	8	9.1	9.6	10.5	11.3
	5	9.1	10.8	12.2	12.9	14.1	15.3	8.7	10.3	11.7	12.3	13.5	14.6	8.3	9.8	11.1	11.7	12.8	13.8
	6	10.5	12.5	14.1	14.9	16.3	17.6	10.1	11.9	13.5	14.2	15.6	16.8	9.5	11.3	12.8	13.5	14.8	16
WTVA / WTVB	2	5.2	6.2	7	7.4	8.1	8.8	5	5.9	6.7	7.1	7.8	8.4	4.8	5.6	6.4	6.7	7.4	8
	3	6.4	7.5	8.5	9	9.9	10.7	6.1	7.2	8.2	8.6	9.4	10.2	5.8	6.8	7.7	8.2	8.9	9.7
	4	8.2	9.7	11.1	11.7	12.8	13.8	7.9	9.3	10.6	11.1	12.2	13.2	7.5	8.8	10	10.6	11.6	12.5
	5	10.4	12.3	14	14.7	16.1	17.4	9.9	11.8	13.3	14.1	15.4	16.6	9.4	11.2	12.6	13.3	14.6	15.8
	7.5	15.8	18.7	21.2	22.3	24.5	26.4	15.1	17.8	20.2	21.3	23.4	25.2	14.3	16.9	19.2	20.2	22.2	24
	10	21.3	25.2	28.6	30.1	33	35.6	20.3	24	27.3	28.7	31.5	34	19.3	22.8	25.9	27.3	29.9	32.3
	12	24.8	29.4	33.3	35.1	38.4	41.5	23.7	28	31.8	33.5	36.7	39.7	22.5	26.6	30.2	31.8	34.8	37.6
Model		Evaporating temperature (℃)																	
		-20						-30						-40					
	spool No	Pressure drop across valve（MPa）																	
		0.7	0.9	1	1.2	1.4	1.6	0.9	1	1.2	1.4	1.6	1.7	0.9	1	1.2	1.4	1.6	1.7
WTVC / WTVD	0	0.67	0.76	0.8	0.87	0.94	1.01	0.53	0.56	0.61	0.66	0.71	0.73	0.36	0.38	0.42	0.45	0.48	0.5
	1	1.5	1.7	1.8	2	2.2	2.3	1.2	1.3	1.4	1.5	1.6	1.7	0.8	0.9	1	1	1.1	1.1
	2	2.6	3	3.1	3.4	3.7	4	2.1	2.2	2.4	2.6	2.8	2.8	1.4	1.5	1.6	1.8	1.9	1.9
	3	4.2	4.7	5	5.4	5.9	6.3	3.3	3.5	3.8	4.1	4.4	4.5	2.2	2.4	2.6	2.8	3	3.1
	4	6.8	7.7	8.1	8.9	9.6	10.2	5.4	5.7	6.2	6.7	7.2	7.4	3.7	3.9	4.2	4.6	4.9	5
	5	8.2	9.3	9.9	10.8	11.7	12.5	6.5	6.9	7.6	8.2	8.7	9	4.5	4.7	5.1	5.6	5.9	6.1
	6	9.5	10.8	11.4	12.5	13.5	14.4	7.6	8	8.7	9.4	10.1	10.4	5.1	5.4	5.9	6.4	6.9	7.1
WTVA / WTVB	2	4.7	5.4	5.7	6.2	6.7	7.2	3.8	4	4.3	4.7	5	5.2	2.6	2.7	3	3.2	3.4	3.5
	3	5.8	6.5	6.9	7.5	8.1	8.7	4.6	4.8	5.3	5.7	6.1	6.3	3.1	3.3	3.6	3.9	4.1	4.3
	4	7.5	8.5	8.9	9.8	10.5	11.3	5.9	6.2	6.8	7.4	7.9	8.1	4	4.2	4.7	5	5.4	5.5
	5	9.4	10.7	11.2	12.3	13.3	14.2	7.5	7.9	8.6	9.3	10	10.3	5.1	5.4	5.9	6.3	6.8	7
	7.5	14.3	16.2	17.1	18.7	20.2	21.6	11.3	11.9	13.1	14.1	15.1	15.6	7.7	8.1	8.9	9.6	10.3	10.6
	10	19.2	21.8	23	25.2	27.2	29.1	15.3	16.1	17.6	19	20.4	21	10.4	11	12	13	13.9	14.3
	12	22.4	25.4	26.8	29.4	31.7	33.9	17.8	18.8	20.6	22.2	23.7	24.5	12.1	12.8	14	15.1	16.2	16.7





■ Introduction

The 1RT-type and 5RT-type liquid injection valves in the scroll compressor series play a crucial role in refrigeration systems. They are mainly used to protect the refrigeration units from damage or shutdown caused by excessively high discharge or oil temperatures. When the system load increases, the compressor speed rises accordingly, leading to a higher discharge temperature, which affects the performance of both the refrigerant and the lubricating oil. This reduces compressor efficiency and compromises the reliability and stability of the entire system. Liquid injection valves not only help maintain system stability and reliability but also optimize cooling performance by precisely controlling the inflow and outflow of the refrigerant.

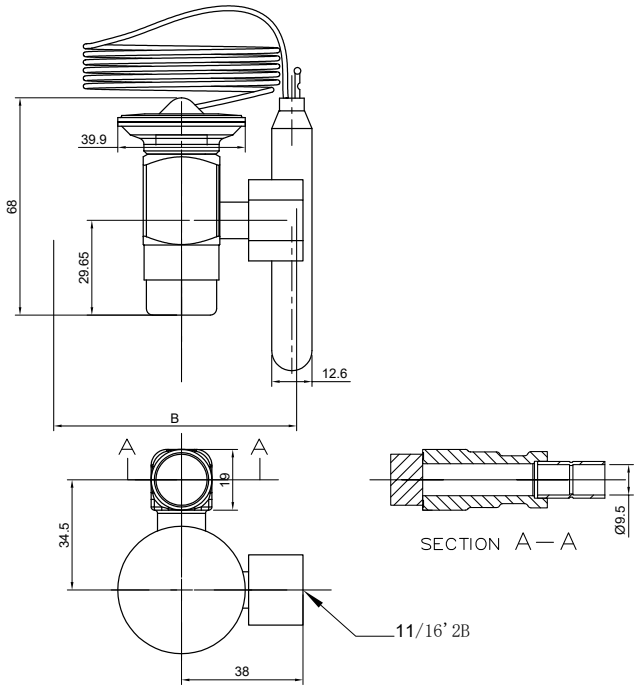
■ Technical Parameters

Compressor Model		1RT	5RT
New Series WTVAB2 Temperature Response	Liquid outlet port	Φ9.7mm compatible with Φ9.5mm copper tube	
	Liquid injection port (connected to compressor)	11/16-16UN	
	Opening Valve temperature	50˚C -100˚C	

Note: The discharge temperature protection setting of the temperature switch in the refrigeration system should be higher than the valve opening temperature of the liquid injection valve, but should not exceed 130°C.

■ Dimension

P 1：1RT-Type liquid injection ， 11/16-16UN injection port，120˚C



P 2：5RT -Type liquid injection，11/16-16UN injection port，120˚C

