THERMOSTATIC EXPANSION VALVES





■ Introduction

The K-type thermal expansion valve is used to regulate the supply of liquid refrigerant in the evaporator, which is controlled by the superheat of the refrigerant, so that the superheat of the refrigerant at the outlet of the evaporator is proportional to the load of the evaporator.

The K-type thermal expansion valve is a series of thermal expansion valves specially designed for R134a, R22, R407C, R40-4A, R507, R410A refrigeration systems

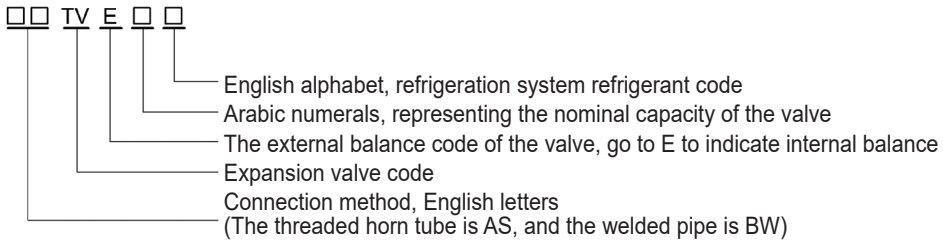
■ Characteristics

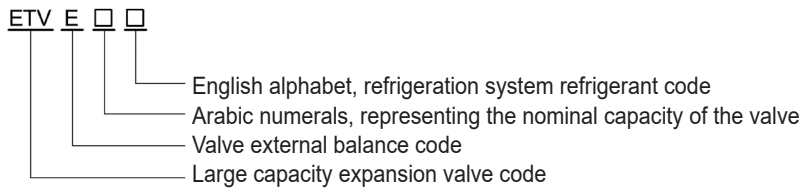
- Large evaporation temperature range
  --- -40~+10°C
  --- Suitable for freezing, refrigerating and air conditioning units
- Valves with MOP function to prevent damage to the compressor motor due to excessive evaporation temperatures
- Balanced orifice design prevents fluctuations through valve pressure drop and provides good control
- The valve needle is strongly sealed. Can ensure that the valve needle is tightly sealed during use.
- Adjustable superheat
- Stainless steel power head
- Provide a variety of mounting connections (welding, bell mouth)

■ Technical Parameters

- Steaming environment heat resistant temperature: 80°C
- The highest temperature of the temperature sensor: 60°C 410A 50°C
- Factory static superheat: 3.5°C
- Maximum working pressure: 3MPa 410A 4.2MPa
- Test pressure: 3.3MPa 410A 4.5MPa

■ Model naming method





Refrigerant code identification

Code	refrigerant
N	R134a
X	R22
Z	R407c
S	R404a (R207)
L	R410a
D	R142b

■ Type & data

Valve Series	R134A			R22			R407C			R404A/R507			R410A			R142B		
	Model	Nominal capacity		Model	Nominal capacity		Model	Nominal capacity		Model	Nominal capacity		Model	Nominal capacity		Model	Nominal capacity	
		Tons	KW		Tons	KW		Tons	KW		Tons	KW		Tons	KW		Tons	KW
K-ASTV(E) K-BWTV(E)	1/6N	1/6	0.58	1/5X	1/5	0.7	1/5Z	1/5	0.7	1/6S	1/6	0.58	1/4L	1/4	0.87			
	1/2N	1/2	1.73	5/8X	5/8	2.3	5/8Z	5/8	2.3	1/2S	1/2	1.75	3/4L	3/4	2.6			
	1 / 2 N -1	1/2	1.73	5/8X -1	5/8	2.3	5/8Z -1	5/8	2.3	1/2S -1	1/2	1.75	3/4L -1	3/4	2.6			
	1.5N	1.5	6.5	2X	2	7	2Z	2	7	1.5S	1.5	5.3	2L	2	7			
	2N	2	8.8	3X	3	10.5	3Z	3	10.5	2S	2	7	3.5L	4	12.3	2D		4
	2.5N	2.5	11	4X	4	14	4Z	4	14	2.5S	2.5	8.8	4L	4.0	14			
	3N	3	13.2	5X	5	17.5	5Z	5	17.5	3S	3	10.5	6L	6	21	3D		5

Valve Series	R134a			R22			R407C			R404A/R507			R410A			R142B		
	Model	Nominal capacity		Model	Nominal capacity		Model	Nominal capacity		Model	Nominal capacity		Model	Nominal capacity		Model	Nominal capacity	
		Tons	KW		Tons	KW		Tons	KW		Tons	KW		Tons	KW		Tons	KW
ASTV(E) BWTV(E)	5.5N	5.5	19.3	7.5X	7.5	26.3	7.5Z	7.5	26.3	5S	5.5	14	9L	9.0	31.5	5D		8.5
	7.5N	7.5	26.3	10X	10	35	10Z	10	35	6.5S	6.5	22.8	12L	12	42	7.5D		10
	9N	9	31.5	12X	12	42	12Z	12	42	8S	8	28	14L	14	49			
ETV–	11N	11	39	14X	14	49	14Z	14	49	9S	9	32	–	–	–			
	13N	13	46	18X	18	63	18Z	18	63	11S	11	39	–	–	–			
	16N	16	56	22X	22	77	22Z	22	77	14S	14	49	26L	26	91			
	19N	19	67	26X	26	92	26Z	26	92	16S	16	56	31L	31	110			
	25N	25	88	35X	35	123	35Z	35	123	22S	22	77	35L	35	125			
	31N	31	109	45X	45	158	45Z	45	158	28S	28	94	46L	46	161			
	45N	45	158	55X	55	193	55Z	55	193	39S	39	137	52L	52	183			
	55N	55	193	75X	75	264	75Z	75	264	50S	50	176	–	–	–			
	68N	68	239	100X	100	352	100Z	100	352	60S	60	211	–	–	–			

※ The nominal capacity is based on the condensing temperature +38 ° C, the evaporating temperature +4 ° C, the valve inlet temperature is 1 K, and for the refrigerant R134a, the pressure drop across the valve is 0.14 MPa,
For refrigerants R22, R407, R404 (R507), the pressure drop across the valve is 0.69 MPa, and for refrigerant R410A, the pressure drop across the valve is 1.35 MPa.

■ Selecting of external equalizer

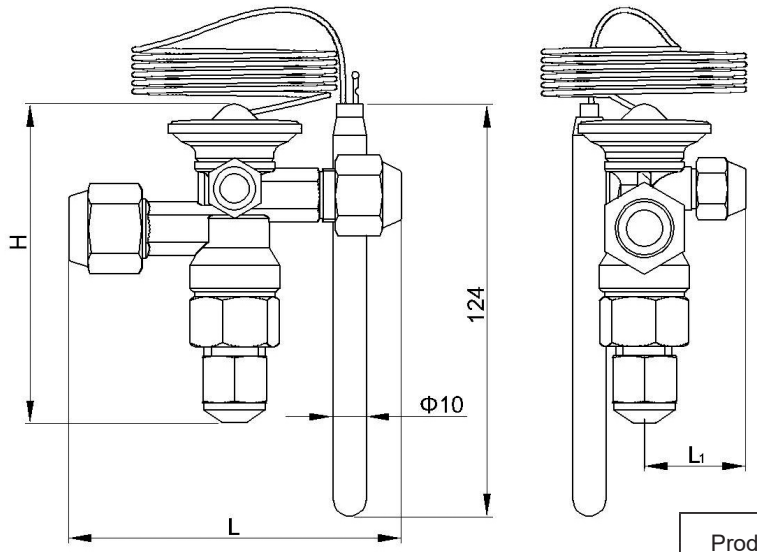
Applications	Temperature range	Pressure drop
Air conditioning	+10 ~ +2℃	0.022
Commercial	-1 ~ -18℃	0.015
Low temperature	≤-18℃	0.007

■ 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	0.71	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	0.75	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
R410A	0.76	0.79	0.83	0.88	0.93	1	1.07	1.14	1.20	1.26	1.32	1.38	1.44	1.49	1.55	1.60	1.66

Valve capacities based on vapor free liquid refrigerant at +35℃ .
To determine the capacities for other temperatures of vapor free liquid refrigerant entering the valve, multiply the capacities listed in the table of extend capacities.

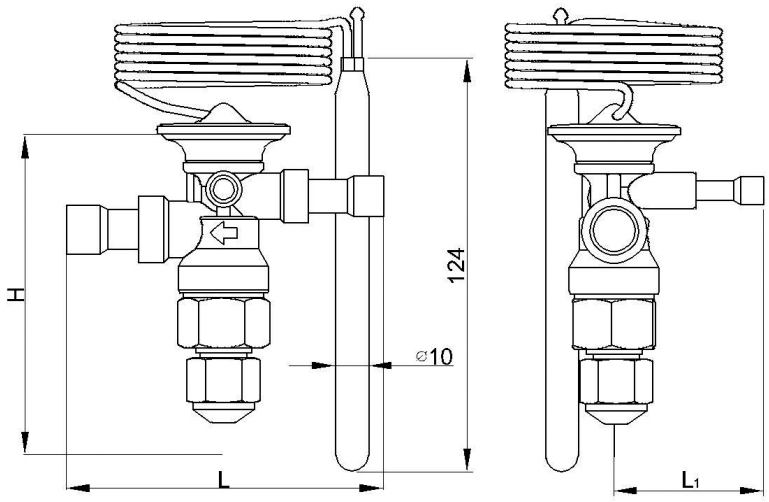
■ Dimensions



K–ASTV SERIES

Products number	Dimensions			Speaker tube size			
	H	L	L1	Import	Export	External balance	Internal balance
K-ASTV2X	96	100	30	Φ10	Φ12	Φ6	none
K-ASTV3X							
K-ASTV4X							
K-ASTV5X					Φ16		

Capillary standard length 1m

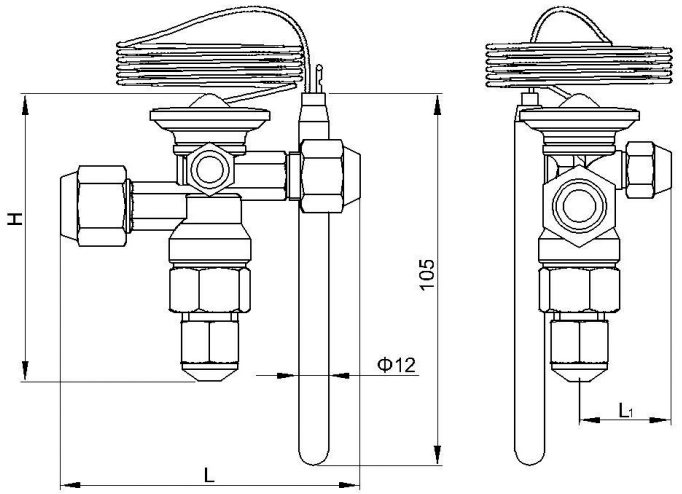


K–BWTV SERIES

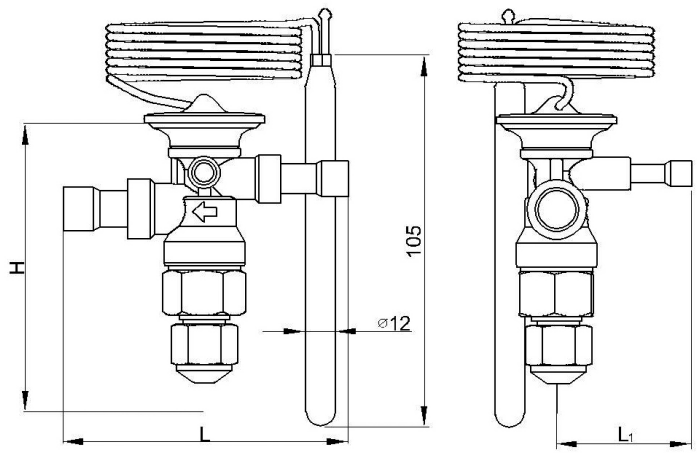
Products number	Dimensions			Speaker tube size			
	H	L	L1	Import	Export	External balance	Internal balance
K-BWTV2X	96	95	45	Φ10	Φ12	Φ6	none
K-BWTV3X							
K-BWTV4X							
K-BWTV5X					Φ16		

Capillary standard length 1m

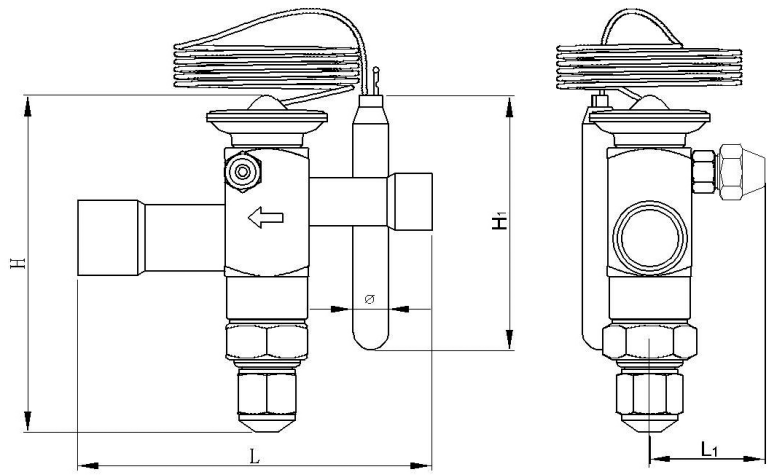
■ Dimensions



ASTV SERIES



BWTV SERIES



ETV SERIES





■ Introduction

The SSTV series bi-directional thermal expansion valve is a thermal expansion valve that can supply the evaporator refrigerant flow in both forward and reverse directions.

The conventional air-cooling dual-purpose heat pump type air conditioner is configured to realize cooling and heating through two parallel units of a thermal expansion valve and two one-way valves, respectively. The design form adds a lot of piping, which greatly increases the manufacturing cost of the air conditioner. If a two-way expansion valve is used because it has two-way adjustment work Yes, an expansion valve, a check valve and a corresponding piping can be dispensed with when the same cooling and heating supply is achieved. The cost of the air conditioner is greatly reduced Low, in addition, the advantages of energy saving in the use state of the inverter for the inverter air conditioner can be fully exerted.

■ Technical Parameters

- Environmentally heat resistant temperature: 80°C
- Temperature sensing package maximum temperature: 60°C 410A 50°C
- Factory static superheat: 3.5°C
- Maximum working pressure: 3MPa 410A 4.2MPa
- Test pressure: 3.3MPa 410A 4.5MPa

■ Model naming method

SS □ TV E □ □

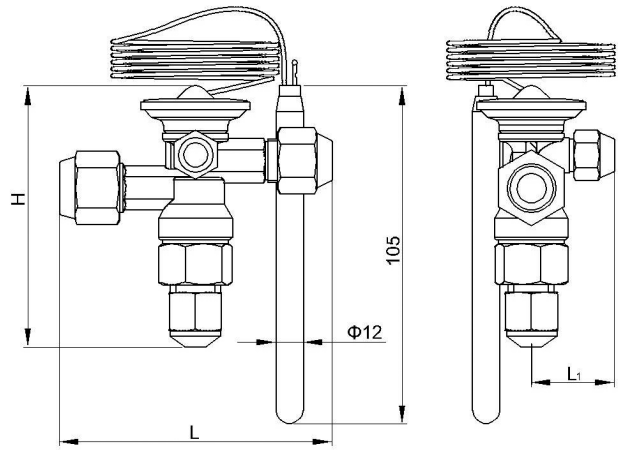
- English alphabet, refrigeration system refrigerant code
- Arabic numerals, representing the nominal capacity of the valve
- The external balance code of the valve, go to E to indicate internal balance
- Expansion valve code
- Connection method, English letters (The threaded horn tube is A, and the welded pipe is B)
- Two-way code

■ Type & data

Model	R134a			R22			R407C			R404A/507			R410A		
	Model	Nominal capacity		Model	Nominal capacity		Model	Nominal capacity		Model	Nominal capacity		Model	Nominal capacity	
		(Tons)	(KW)		(Tons)	(KW)		(Tons)	(KW)		(Tons)	(KW)		(Tons)	(KW)
SSATVE SSBTVE	1.5N	1.5	5.3	2X	2	7	2Z	2	7	1.5S	1.5	5.3	2L	2	7
	2N	2	7	3X	3	10.5	3Z	3	10.5	2S	2	7	3.5L	3.5	12.3
	2.5N	2.5	8.9	4X	4	14	4Z	4	14	2.5S	2.5	8.8	4L	4	14
	3N	3	10.5	5X	5	17.5	5Z	5	17.5	3S	3	10.5	6L	6	21
	5.5N	5.5	19.3	7.5X	7.5	26.3	7.5Z	7.5	26.3	5S	5	14	9L	9	31.5
	7.5N	7.5	26.3	10X	10	35	10Z	10	35	6.5S	6.5	22.8	12L	12	42
	9N	9	31.5	12X	12	42	12Z	12	42	8S	8	28	14L	14	49

Nominal capacities base on +38℃ condensing temperature, +4℃ evaporating temperature and 1K liquid sub cooling at the inlet of the expansion valve. Valve pressure drop for R134a is rated at 0.41MPa.Valve pressure drop for R22, R407C and R404A/507 is rated at 0.69MPa. Valve pressure drop for R410a is rated at 1.35MPa.

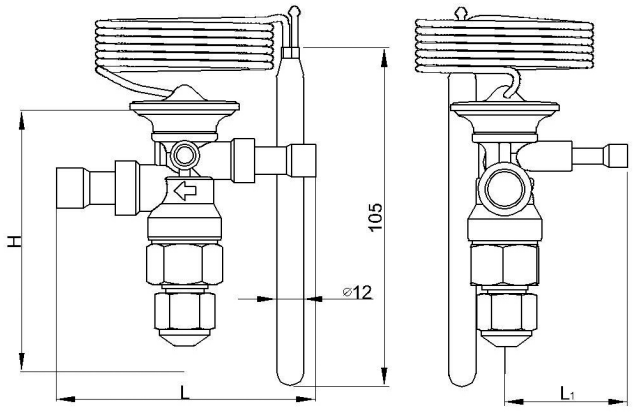
■ Dimensions



SSATV SERIES

Products number	Dimensions			Speaker tube size			
	H	L	L_1	Import	Export	External balance	Internal balance
SSATV2X	106	100	35	Φ10	Φ12	Φ6	none
SSATV3X							
SSATV4X							
SSATV5X					Φ16		
SSATV7.5X				Φ12			
SSATV10X							
SSATV12X							

Capillary standard length 1m



SSBTV SERIES

Products number	Dimensions			Welded pipe size			
	H	L	L_1	Import	Export	External balance	Internal balance
SSBTV2X	96	95	45	Φ10	Φ12	Φ6	none
SSBTV3X							
SSBTV4X							
SSBTV5X					Φ16		
SSBTV7.5X				Φ12			
SSBTV10X							
SSBTV12X							

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					
		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
ASTV(E) BWTV(E) K-ASTV(E) K-BWTV(E) SSATVE SSBTVE	1/6N	0.4	0.5	0.62	0.67	0.71	0.79	0.48	0.59	0.64	0.68	0.76	0.79	0.46	0.57	0.62	0.66	0.74	0.76
	1/2N	1.4	1.6	1.98	2.13	2.26	2.54	1.54	1.88	2.04	2.16	2.45	2.54	1.47	1.82	1.98	2.1	2.35	2.45
	1/2N-1	1.4	1.6	1.98	2.13	2.26	2.54	1.54	1.88	2.04	2.16	2.45	2.54	1.47	1.82	1.98	2.1	2.35	2.45
	1.5N	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
	2N	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
	2.5N	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
	3N	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
	5.5N	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
	7.5N	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
	9N	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
ETV	11N	33	38	47	51	54	61	37	45	49	52	58	61	35	43	47	50	56	59
	13N	40	46	56	61	65	73	44	54	59	63	70	73	43	52	56	60	67	71
	16N	49	57	70	75	80	90	55	67	72	77	87	91	53	65	70	74	83	87
	19N	57	66	80	87	93	104	63	77	84	89	100	105	61	74	80	86	96	101
	25N	76	87	107	115	123	138	84	103	111	119	133	139	81	99	107	114	128	134
	31N	94	109	133	144	154	172	105	128	138	148	165	173	101	123	133	142	159	167
	45N	132	152	187	202	216	241	147	180	194	207	232	243	141	173	187	199	223	234
	55N	170	196	240	259	277	310	188	231	249	266	298	312	181	222	240	256	287	300
	68N	206	238	292	315	337	377	229	281	303	324	362	380	220	270	292	312	349	365

Model		Evaporating temperature (℃)																	
		-20						-30						-40					
		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
ASTV(E) BWTV(E) K-ASTV(E) K-BWTV(E) SSATVE SSBTVE	1/6N	0.45	0.49	0.52	0.58	0.61	0.64	0.3	0.32	0.35	0.39	0.41	0.43	0.2	0.21	0.23	0.25	0.26	0.27
	1/2N	1.44	1.57	1.66	1.85	1.95	2.04	0.97	1.04	1.13	1.25	1.32	1.38	0.63	0.66	0.72	0.82	0.85	0.88
	1/2N-1	1.44	1.57	1.66	1.85	1.95	2.04	0.97	1.04	1.13	1.25	1.32	1.38	0.63	0.66	0.72	0.82	0.85	0.88
	1.5N	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
	2N	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
	2.5N	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
	3N	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
	5.5N	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
	7.5N	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
	9N	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
ETV	11N	33	36	38	43	45	47	22	24	26	29	30	32	14	16	17	19	20	20
	13N	40	43	46	52	54	57	27	29	31	35	36	38	17	19	20	22	23	25
	16N	50	53	57	64	67	70	33	36	38	43	45	47	21	23	25	28	29	30
	19N	57	62	66	74	77	81	38	42	44	50	52	54	25	27	29	32	34	35
	25N	76	82	88	98	103	107	51	55	59	66	69	72	33	36	38	42	44	46
	31N	95	102	109	122	128	134	64	69	73	82	86	90	41	44	47	53	55	58
	45N	133	143	153	171	179	187	89	96	103	115	121	126	57	62	66	74	78	81
	55N	170	184	197	220	231	241	115	124	132	148	155	162	74	80	85	95	100	104
	68N	207	224	239	267	280	293	139	150	161	180	189	197	90	97	104	116	121	127

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

Model		Evaporating temperature（℃）																	
		10						0						-10					
		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
ASTV(E) BWTV(E) K-ASTV(E) K-BWTV(E) SSATVE SSBTVE	1/5X	0.62	0.73	0.83	0.87	0.96	1.03	0.6	0.72	0.81	0.86	0.94	1.01	0.7	0.79	0.84	0.92	0.99	1.06
	5/8X	2	2.4	2.73	2.86	3.16	3.99	1.99	2.35	2.67	2.81	3.08	3.32	2.29	2.6	2.75	3.01	3.25	3.48
	5/8X-1	2	2.4	2.73	2.86	3.16	3.99	1.99	2.35	2.67	2.81	3.08	3.32	2.29	2.6	2.75	3.01	3.25	3.48
	2X	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
	3X	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
	4X	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
	5X	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
	7.5X	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
	10X	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
	12X	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
ETV	14X	46	54	62	65	71	77	45	53	60	64	70	75	52	59	62	68	73	78
	18X	55	65	74	78	85	92	54	64	72	76	83	90	62	70	74	81	88	94
	22X	69	81	92	97	106	115	67	80	90	95	104	112	78	88	93	102	110	117
	26X	81	96	109	115	126	136	79	94	107	112	123	133	92	104	110	120	130	139
	35X	109	129	147	154	169	183	107	126	143	151	166	179	123	140	148	162	175	187
	45X	140	166	188	199	218	235	137	163	184	194	213	230	159	180	190	208	225	240
	55X	172	203	230	243	266	287	168	199	225	238	260	281	194	220	232	254	275	293
	75X	234	277	314	331	363	392	229	271	307	324	355	383	265	300	316	347	374	400
	100X	312	369	419	441	483	522	305	361	410	432	473	511	353	400	422	462	499	533
Model		Evaporating temperature（℃）																	
		-20						-30						-40					
		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
ASTV(E) BWTV(E) K-ASTV(E) K-BWTV(E) SSATVE SSBTVE	1/5X	0.66	0.71	0.78	0.84	0.9	0.93	0.48	0.51	0.56	0.6	0.64	0.66	0.33	0.35	0.38	0.42	0.44	0.46
	5/8X	2.16	2.3	2.53	2.72	2.92	3.01	1.55	1.65	1.81	1.94	2.07	2.14	1.07	1.13	1.23	1.36	1.43	1.49
	5/8X-1	2.16	2.3	2.53	2.72	2.92	3.01	1.55	1.65	1.81	1.94	2.07	2.14	1.07	1.13	1.23	1.36	1.43	1.49
	2X	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
	3X	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
	4X	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
	5X	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
	7.5X	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
	10X	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
	12X	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
ETV	14X	50	53	58	62	67	69	36	38	41	45	48	49	25	26	29	31	33	34
	18X	60	63	69	75	80	82	43	45	50	54	57	59	30	31	34	37	39	41
	22X	75	79	86	93	100	103	54	57	62	67	72	74	37	39	43	46	49	51
	26X	88	93	102	110	118	122	63	67	73	79	85	87	44	46	51	55	58	60
	35X	119	126	138	149	159	164	85	90	99	106	114	117	59	62	68	73	78	81
	45X	153	161	177	191	204	210	110	116	127	137	146	151	76	80	87	94	101	104
	55X	187	197	216	233	249	257	134	141	155	167	179	184	92	97	107	115	123	127
	75X	255	269	295	318	340	351	183	193	211	228	244	251	126	133	146	157	168	173
	100X	340	359	393	424	454	468	244	257	281	304	325	335	168	177	194	210	224	231

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

Model		Evaporating temperature（℃）																	
		10						0						-10					
		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
ASTV(E) BWTV(E) K-ASTV(E) K-BWTV(E) SSATVE SSBTVE	1/5Z	0.63	0.75	0.85	0.89	0.98	1.06	0.61	0.72	0.82	0.87	0.94	1.02	0.7	0.79	0.83	0.91	0.99	1.06
	5/8Z	2	2.46	2.79	2.92	3.21	3.48	2	2.36	2.69	2.85	3.08	3.35	2.3	2.59	2.72	2.98	3.25	3.48
	5/8Z-1	2	2.46	2.79	2.92	3.21	3.48	2	2.36	2.69	2.85	3.08	3.35	2.3	2.59	2.72	2.98	3.25	3.48
	2Z	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
	3Z	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
	4Z	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
	5Z	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
	7.5Z	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
	10Z	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
	12Z	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
ETV	14Z	46	55	62	66	72	78	45	53	60	64	69	75	51	58	61	67	72	77
	18Z	55	66	75	79	86	93	54	64	72	76	83	90	61	70	73	80	87	93
	22Z	69	82	93	98	108	116	67	80	90	95	104	113	77	87	92	101	109	116
	26Z	81	97	110	116	127	138	80	94	107	113	123	133	91	103	109	119	128	137
	35Z	110	131	149	157	172	185	107	127	144	152	165	179	122	139	146	160	173	185
	45Z	141	168	191	201	221	238	138	163	185	195	212	230	157	178	188	206	222	237
	55Z	172	206	233	246	270	291	168	199	226	238	259	282	192	218	229	251	272	290
	75Z	235	281	318	336	368	397	230	272	308	325	353	384	262	297	313	343	370	396
	100Z	313	374	424	447	490	529	306	362	411	433	471	512	349	396	417	457	494	528
Model		Evaporating temperature（℃）																	
		-20						-30						-40					
		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
ASTV(E) BWTV(E) K-ASTV(E) K-BWTV(E) SSATVE SSBTVE	1/5Z	0.61	0.67	0.73	0.79	0.84	0.87	0.45	0.48	0.53	0.56	0.6	0.62	0.32	0.33	0.36	0.39	0.42	0.43
	5/8Z	1.9	2.1	2.28	2.49	2.64	2.73	1.41	1.5	1.65	1.77	1.89	1.95	0.99	1.02	1.14	1.23	1.32	1.35
	5/8Z-1	1.9	2.1	2.28	2.49	2.64	2.73	1.41	1.5	1.65	1.77	1.89	1.95	0.99	1.02	1.14	1.23	1.32	1.35
	2Z	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
	3Z	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
	4Z	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
	5Z	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
	7.5Z	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
	10Z	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
	12Z	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
ETV	14Z	48	51	56	61	65	67	35	37	40	43	46	48	24	25	28	30	32	33
	18Z	57	61	67	73	78	80	42	44	48	52	56	57	29	30	33	36	38	40
	22Z	71	77	84	91	97	100	52	55	60	65	69	72	36	38	42	45	48	49
	26Z	84	91	99	107	115	118	62	65	71	77	82	85	43	45	49	53	57	58
	35Z	113	122	134	145	155	159	83	87	96	103	111	114	57	60	66	71	76	79
	45Z	146	157	172	186	199	205	107	112	123	133	142	146	74	78	85	92	98	101
	55Z	178	192	210	227	243	250	130	137	150	162	174	179	90	95	104	112	120	124
	75Z	198	262	287	310	331	341	178	187	205	221	237	244	123	129	142	153	163	168
	100Z	323	349	382	413	442	455	237	250	273	295	316	325	163	172	189	204	218	225

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

Model		Evaporating temperature（℃）																	
		10						0						-10					
		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
ASTV(E) BWTV(E) K-ASTV(E) K-BWTV(E) SSATVE SSBTVE	1/6S	0.57	0.68	0.77	0.81	0.89	0.97	0.55	0.65	0.73	0.78	0.86	0.92	0.53	0.61	0.7	0.73	0.81	0.88
	1/2S	1.72	2.05	2.31	2.45	2.68	2.91	1.65	1.95	2.22	2.35	2.58	2.78	1.59	1.85	2.21	2.22	2.45	2.65
	1/2S-1	1.72	2.05	2.31	2.45	2.68	2.91	1.65	1.95	2.22	2.35	2.58	2.78	1.59	1.85	2.21	2.22	2.45	2.65
	1.5S	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
	2S	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
	2.5S	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
	3S	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
	5S	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
	6.5S	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
	8S	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
ETV	9S	32	37	42	45	49	53	30	36	40	43	47	50	29	34	38	40	44	48
	11S	38	44	50	53	58	63	36	42	48	51	56	60	34	40	46	48	53	57
	14S	45	53	60	63	69	75	43	50	57	60	66	71	40	48	54	57	63	68
	16S	51	60	68	72	79	85	49	58	65	69	75	81	46	55	62	65	72	77
	22S	67	79	90	95	104	112	64	76	86	90	99	107	61	72	81	86	94	101
	28S	86	102	115	122	133	144	82	97	110	116	127	137	78	92	104	110	121	130
	39S	118	139	158	167	182	197	112	133	151	159	174	188	107	126	143	151	165	179
	50S	153	181	205	216	237	256	146	173	196	206	226	244	138	164	186	196	214	232
	60S	191	226	256	270	296	320	182	216	245	258	283	305	173	205	232	245	268	290
Model		Evaporating temperature（℃）																	
		-20						-30						-40					
		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
ASTV(E) BWTV(E) K-ASTV(E) K-BWTV(E) SSATVE SSBTVE	1/6S	0.51	0.58	0.61	0.67	0.72	0.77	0.41	0.43	0.46	0.5	0.54	0.56	0.25	0.29	0.32	0.34	0.37	0.38
	1/2S	1.55	1.78	1.88	2.04	2.21	2.37	1.25	1.32	1.42	1.55	1.65	1.71	0.86	0.89	0.99	1.05	1.12	1.15
	1/2S-1	1.55	1.78	1.88	2.04	2.21	2.37	1.25	1.32	1.42	1.55	1.65	1.71	0.86	0.89	0.99	1.05	1.12	1.15
	1.5S	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
	2S	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
	2.5S	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
	3S	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
	5S	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
	6.5S	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
	8S	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
ETV	9S	29	32	34	37	40	43	23	24	26	28	30	31	15	16	18	19	21	21
	11S	34	39	41	45	48	51	27	28	31	34	36	37	18	19	21	23	25	25
	14S	40	46	48	53	57	61	32	34	37	40	43	44	22	23	25	27	29	30
	16S	46	52	55	60	65	70	37	39	42	46	49	50	25	26	29	31	33	34
	22S	60	69	72	79	86	91	48	51	55	60	64	66	33	34	38	41	44	45
	28S	78	88	93	102	110	118	62	65	71	77	82	85	42	44	49	52	56	58
	39S	107	121	127	139	151	161	85	89	98	105	113	116	58	61	66	72	77	79
	50S	138	157	165	181	195	209	110	116	127	137	146	151	75	79	86	93	100	103
	60S	173	196	206	226	244	261	137	144	158	171	183	188	93	98	108	116	124	128

■ R410A Example

(Liquid temperature entering valve)	R410A Evaporating temperature															
	Evaporating temperature℃															
					+15	+10	+5	0	–5	–10	–15	–20	–25	–30	–35	–40
+60					1.50	1.51	1.53	1.54	1.57	1.59	1.85	2.16	2.55	3.03	3.64	4.42
+55					1.32	1.33	1.35	1.36	1.38	1.10	1.62	1.89	2.23	2.65	3.17	3.84
+50					1.20	1.20	1.21	1.23	1.24	1.26	1.46	1.70	2.00	2.37	2.83	3.42
+45					1.09	1.10	1.11	1.12	1.13	1.15	1.33	1.55	1.82	2.15	2.57	3.10
+40					1.01	1.02	1.03	1.04	1.05	1.06	1.22	1.43	1.67	1.98	2.36	2.84
+35					0.94	0.95	0.96	0.97	0.98	0.99	1.14	1.32	1.55	1.83	2.18	2.63
+30					0.89	0.89	0.90	0.91	0.91	0.92	1.06	1.24	1.45	1.71	2.04	2.45
+25					0.84	0.84	0.85	0.85	0.86	0.87	1.00	1.16	1.36	1.61	1.91	2.30
+20					0.79	0.80	0.80	0.81	0.81	0.82	0.95	1.10	1.28	1.51	1.80	2.16
Correction factor K △ P																
△ P	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	8	9
K △ P	5.29	3.74	3.05	2.65	2.37	2.16	2.00	1.87	1.76	1.67	1.60	1.53	1.47	1.41	1.32	1.25
△ P	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
K △ P	1.18	1.13	1.08	1.04	1.00	0.97	0.94	0.91	0.88	0.86	0.84	0.82	0.80	0.78	0.76	0.75



■ Introduction

C/DTV type thermal expansion valve is used to adjust the supply of liquid refrigerant in the evaporator. It is controlled by the superheat of the refrigerant, so that the evaporator outlet The superheat of the refrigerant is proportional to the load of the evaporator.

The C/D type thermal expansion valve is a series of thermal expansion valves specially designed with a number of innovative technologies, mainly used in the following occasions:

- Air Conditioning System
- Heat pump
- freezer
- Chiller
- Refrigeration unit

When the working medium is R22, the nominal cooling capacity is from 0.32 to 4.8Ton (1.14kW to 17.2kW) for R134a, R22, R407C,R40-4A, R507, R410A refrigeration system

■ Features

- Large evaporation temperature range
  --- -40~+10°C
  --- Suitable for freezing, refrigerating and air conditioning units
- Valves with MOP function to prevent damage to the compressor motor due to excessive evaporation temperatures
- Interchangeable 7 spool assemblies
  -- Easy to stock
  -- Easy capacity matching
  --More convenient for maintenance
- Adjustable superheat
- Stainless steel power head
- Provide a variety of mounting connections (welding, bell mouth)

■ Technical Parameters

- Environmentally heat resistant temperature: 80°C
- Temperature sensing package maximum temperature: 60°C 410A 50°C
- Factory static superheat: 3.5°C
- Maximum working pressure: 3MPa 410A 4.2MPa
- Test pressure: 3.3MPa 410A 4.5MPa

■ Model naming method

□ TV E □ □

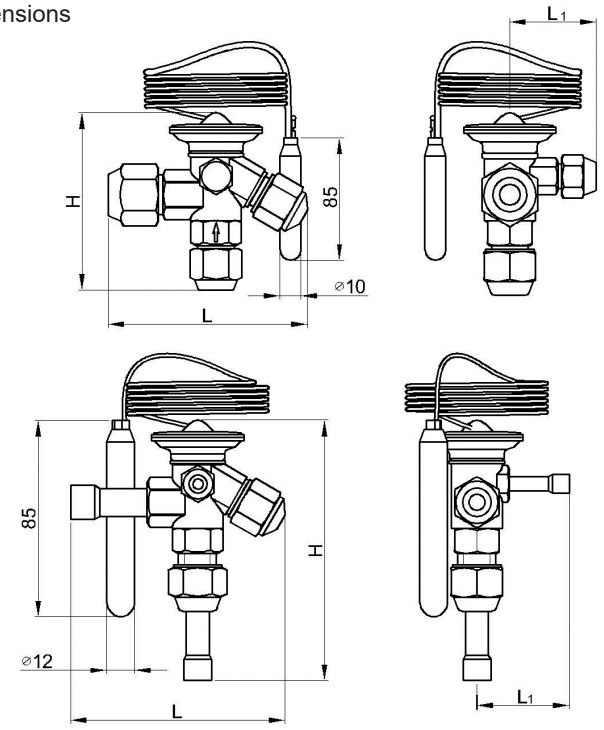
- Arabic numerals, representing the spool number
- English alphabet, system refrigerant code
- The external balance code of the valve, to E balance
- Expansion valve code
- Connection method, English letters (The threaded horn tube is connected to C and the welded tube is connected to D)

■ Type & data

Model	Orifice number	Nominal capacity									
		R134a		R22		R407C		R404A/R507		R410A	
		Tons	KW	Tons	KW	Tons	KW	Tons	KW	Tons	KW
CTV (E)- DTV (E)-	0	0.18	0.65	0.32	1.14	0.32	1.13	0.22	0.8	0.37	1.32
	1	0.42	1.5	0.79	2.8	0.79	2.8	0.52	1.85	0.92	3.25
	2	0.71	2.5	1.33	4.7	1.29	4.57	0.88	3.1	1.5	5.45
	3	1.1	4	2.1	7.5	1.99	7.03	1.42	5	2.4	8.7
	4	1.9	6.7	3.4	12.2	3.4	11.96	2.3	8.1	4	14.15
	5	2.3	8.2	4.2	14.9	4	14.4	2.8	9.9	4.9	17.28
	6	2.7	9.5	4.8	17.2	4.8	16.9	3.2	11.4	5.6	19.95

Nominal capacities base on +38℃ condensing temperature, +4℃ evaporating temperature and 1K liquid sub cooling at the inlet of the expansion valve. Valve pressure drop for R134a is rated at 0.41MPa.Valve pressure drop for R22, R407C and R404A/507 is rated at 0.69MPa. Valve pressure drop for R410a is rated at 1.35MPa.

■ Dimensions



Series	Spool number	Dimensions			Welded pipe size			
		H	L	L1	Import	Export	External balance	Internal balance
CTV	0	77	87	38	Φ10	Φ12	Φ6	none
	1							
	2							
	3							
	4							
	5							
	6							

Capillary standard length 1m

Series	Spool number	Dimensions			Welded pipe size			
		H	L	L1	Import	Export	External balance	Internal balance
DTV	0	110	92	45	Φ10	Φ12	Φ6	none
	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					
R134a		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
CTV(E)N- DTV(E)N-	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
Model		Evaporating temperature（℃																	
		-20						-30						-40					
R134a		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
CTV(E)N- DTV(E)N-	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	2.36	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

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

Model		Evaporating temperature（℃）																	
		10						0						-10					
R22		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
CTV(E)X- DTV(E)X-	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	8.1	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
Model		Evaporating temperature（℃）																	
		-20						-30						-40					
R22		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
CTV(E)X- DTV(E)X-	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

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

Model R407C		Evaporating temperature（℃）																	
		10						0						-10					
		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
CTV(E)Z- DTV(E)Z-	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
Model R407C		Evaporating temperature（℃）																	
		-20						-30						-40					
		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
CTV(E)Z- DTV(E)Z-	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

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

Model R404A/R507		Evaporating temperature（℃）																	
		10						0						-10					
		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
CTV(E)S- DTV(E)S-	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
Model R404A/R507		Evaporating temperature（℃）																	
		-20						-30						-40					
		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
CTV(E)S- DTV(E)S-	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

■ R410A Extend capacity KW (Extend KW capacities based on vapor free liquid refrigerant at +35℃)

Model R410A		Evaporating temperature（℃）																	
		10						0						-10					
		Condensing temperature（℃）																	
		50	40	35	30	25	20	50	40	35	30	25	20	50	40	35	30	25	20
CTV(E)L- DTV(E)L-	0	1.27	1.21	1.13	1.02	0.87	0.65	1.34	1.32	1.28	1.21	1.11	0.99	1.37	1.39	1.36	1.32	1.25	1.17
	1	3.12	2.96	2.78	2.51	2.13	1.60	3.29	3.24	3.14	2.96	2.73	2.42	3.37	3.41	3.35	3.24	3.07	2.86
	2	5.16	4.91	4.60	4.16	3.54	2.65	5.45	5.37	5.20	4.91	4.53	4.02	5.59	5.64	5.55	5.36	5.10	4.76
	3	8.28	7.87	7.37	6.67	5.68	4.25	8.74	8.62	8.32	7.87	7.26	6.43	8.96	9.05	8.89	8.60	8.18	7.62
	4	13.46	12.79	11.99	10.84	9.23	6.91	14.19	14.01	13.53	12.81	11.79	10.46	14.56	14.72	14.46	13.98	13.29	12.39
	5	16.43	15.61	14.64	13.24	11.27	8.44	17.33	17.11	16.53	15.63	14.40	12.77	17.78	17.96	17.65	17.07	16.24	15.12
	6	18.10	17.97	16.85	15.24	12.98	9.71	19.94	19.69	19.01	17.99	16.58	14.70	20.47	20.69	20.32	19.65	18.69	17.40
Model R410A		Evaporating temperature（℃）																	
		-20						-30						-40					
		Condensing temperature（℃）																	
		50	40	35	30	25	20	50	40	35	30	25	20	50	40	35	30	25	20
CTV(E)L- DTV(E)L-	0	1.06	1.09	1.08	1.06	1.03	0.99	0.77	0.79	0.79	0.78	0.77	0.74	0.54	0.56	0.56	0.56	0.55	0.54
	1	2.62	2.69	2.67	2.62	2.53	2.42	1.88	1.95	1.95	1.93	1.89	1.83	1.31	1.38	1.39	1.38	1.36	1.33
	2	4.34	4.46	4.42	4.33	4.19	4.00	3.11	3.23	3.23	3.20	3.13	3.02	2.18	2.29	2.30	2.29	2.26	2.20
	3	6.96	7.14	7.09	6.95	6.72	6.42	4.99	5.19	5.19	5.13	5.02	4.85	3.49	3.67	3.69	3.67	3.61	3.52
	4	11.30	11.62	11.53	11.30	10.93	10.42	8.11	8.44	8.44	8.34	8.16	7.88	5.67	5.97	6.00	5.97	5.88	4.86
	5	13.81	14.18	14.08	13.80	13.35	12.73	9.89	10.31	10.31	10.18	9.96	9.62	6.92	7.29	7.32	7.29	7.18	6.99
	6	15.89	16.33	16.21	15.88	15.37	14.65	11.39	11.86	11.86	11.73	11.46	11.07	7.97	8.38	8.44	8.39	8.26	8.05