



**D A T A S H E E T**

Emerson Climate Technologies' TRAES series hermetic thermal expansion valve is a compact designed product. The TRAES valve provides an ideal superheat control solution to the small-medium size chillers, heat pumps, and water heating applications.

The TREAS is able to manage the superheat independently, thus customers can simplify their electrical control system, particularly for the applications with compressor injection or the geo-thermo chiller and water-sourced chiller heat pumps.

**Key Features:**

- Compact hermetic design, saves room for installation and minimizes external leakage.
- Balanced port design, able to control the superheat stably even during the variable head pressure or partial load condition.
- Stainless power element, no corrosion and long life time.
- Superheat adjustable.
- Covering 8-15Ton cooling capacity range, aligned with Copeland brand compressors.
- Straight-through configuration.
- ODF connection.

**Nomenclature Example : TRAES15 HCA 5FT 5/8\*7/8 ODF S/T**

TRA	E	S	15	H	CA	5FT	5/8*7/8	ODF	S/T
<b>Series</b>	<b>Equalizer</b>	<b>Small</b>	<b>Nominal Capacity</b>	<b>Refrigerant Code</b>	<b>Charge Code</b>	<b>Capillary Length</b>	<b>Connection Size</b>	<b>Connection Type</b>	<b>Configuration</b>
	E=External		(Ton )	H=R22 M=R134a N=R407C S=R404A	C=Medium Temp. CA=HP Z=Low Temp. W(MOP code)=Press. Limiting	5FT/1.5m 10FT/3m	Inlet*Outlet	Solder	Straight through



**DATASHEET**

**Product selection:**

Refrigerant	Charge	Description	Nominal capacity(Tons)	PCN
R22	HC	TRAES 8 HC	8	066688
		TRAES 10 HC	10	066689
		TRAES 12 HC	12	066690
		TRAES 15 HC	15	066691
	HCA	TRAES 8 HCA	8	066684
		TRAES 10 HCA	10	066685
		TRAES 12 HCA	12	066686
		TRAES 15 HCA	15	066687
	HW100	TRAES 8 HW100	8	066736
		TRAES 10 HW100	10	066738
		TRAES 12 HW100	12	066752
		TRAES 15 HW100	15	066739
R404A	SC	TRAES 5 SC	5	066740
		TRAES 7 SC	7	066741
		TRAES 7.5 SC	7.5	066743
		TRAES 10 SC	10	066744
	SZ	TRAES 5 SZ	5	066745
		TRAES 7 SZ	7	066746
		TRAES 7.5 SZ	7.5	066747
		TRAES 10 SZ	10	066748
	SW45	TRAES 5 SW45	5	066753
		TRAES 7 SW45	7	066754
		TRAES 7.5 SW45	7.5	066755
		TRAES 10 SW45	10	066756
R407C	NC	TRAES 8 NC	8	066696
		TRAES 10 NC	10	066697
		TRAES 12 NC	12	066698
		TRAES 15 NC	15	066699
R134a	MC	TRAES 6 MC	6	066734
		TRAES 7 MC	7	066750
		TRAES 9 MC	9	066751
		TRAES 11MC	11	066735

**Note: Nominal capacity rated per ARI 750-2007, 37.8°C liquid temperature, 4.4°C evaporating temperature, pressure drop across the valve R22/R407C/R404A 6.89bar , R134a 4.13bar**

Refrigerant	Evaporating Temp.	Condensing Temp.	Sub-cooling
R404A, R134a, R22	+4.4°C	+37.8°C	1K
R407C	+4.4°C Dew Point	+37.8°C bulb / +43°C Dew point	1K

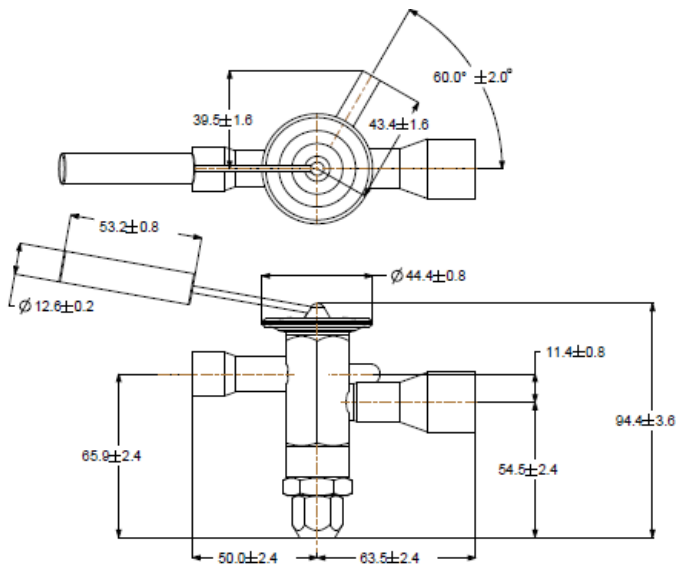


**DATASHEET**

**Technical data:**

MWP	450psig (31bar)
Temperature Range	HC / HCA: -29 ~ +10°C HW100: -46 ~ +10°C SC: -29 ~ +10°C SZ: -46°C ~ -12°C SW45: -46°C ~ -12°C NC: -29 ~ +10°C MC: -29 ~ +10°C
Static Superheat	6A (3.3K)
Compatible Lubricant	POE oil, Mineral oil
External Leakage	2.835 g/year
Weight	600 g (excludes remote bulb strap and accessories)
Connection	5/8 ODF * 7/8 ODF * 1/4 ODF (Inlet* Outlet* External Equalizer)
Length of Bulb Capillary	5FT

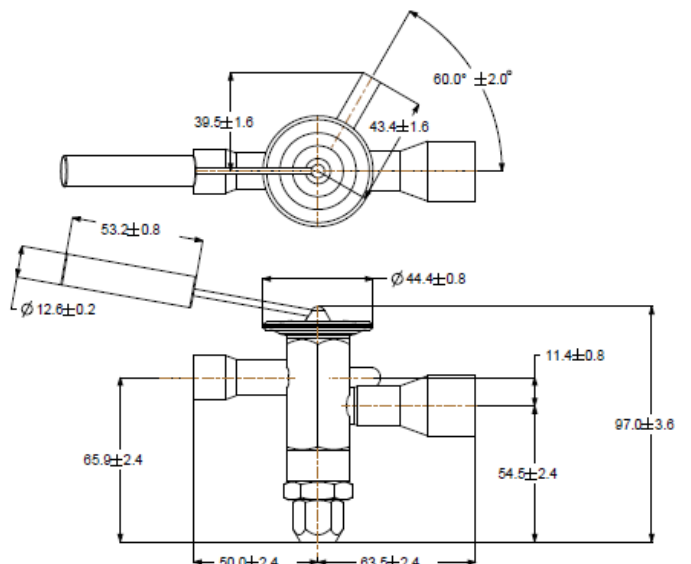
**Dimensions (mm):**



TRAES8/TRAES10/TRAES12 (R22, R407C)

TRAES6/TRAES7/TRAES9 (R134a)

TRAES5/TRAES7/TRAES7.5 (R404A)



TRAES15 (R22, R407C)

TRAES11 (R134a)

TRAES10 (R404A)



**DATASHEET**

**Extended Cooling Capacity:**

**R22 (kW)**

Model	Nominal Capacity	Evaporating Temperature																	
		-30°C																	
		Pressure Drop Across the Valve(bar)																	
		4.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0
TRAES	8	12.48	15.29	16.51	17.65	18.72	19.73	20.70	21.62	22.50	23.35	24.17	24.96	25.73	26.48	27.20	27.91	28.60	29.27
TRAES	10	19.11	20.64	22.06	24.67	25.87	27.02	25.87	27.02	28.13	29.19	30.21	31.20	32.16	33.10	34.00	34.89	35.75	36.59
TRAES	12	22.93	24.77	26.48	29.60	31.05	32.43	31.05	32.43	33.75	35.03	36.25	37.44	38.60	39.71	40.80	41.86	42.90	43.91
TRAES	15	28.66	30.96	33.10	37.00	38.81	40.53	38.81	40.53	42.19	43.78	45.32	46.80	48.24	49.64	51.00	52.33	53.62	54.88
Model	Nominal Capacity	Evaporating Temperature																	
		-20°C																	
		Pressure Drop Across the Valve(bar)																	
		4.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0
TRAES	8	17.73	21.72	23.46	25.08	26.60	28.04	29.41	30.72	31.97	33.18	34.34	35.47	36.56	37.62	38.65	39.66	40.64	41.59
TRAES	10	22.17	27.15	29.33	31.35	35.05	36.76	36.76	38.40	39.96	41.47	42.93	44.34	45.70	47.03	48.31	49.57	50.79	51.99
TRAES	12	26.60	32.58	35.19	37.62	42.06	44.11	44.11	46.08	47.96	49.77	51.51	53.20	54.84	56.43	57.98	59.48	60.95	62.39
TRAES	15	33.25	40.73	43.99	47.03	52.58	55.14	55.14	57.59	59.95	62.21	64.39	66.50	68.55	70.54	72.47	74.35	76.19	77.98
Model	Nominal Capacity	Evaporating Temperature																	
		-10°C																	
		Pressure Drop Across the Valve(bar)																	
		4.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0
TRAES	8	21.06	25.79	27.86	29.78	31.59	33.30	34.92	36.47	37.96	39.40	40.78	42.12	43.41	44.67	45.90	47.09	48.25	49.39
TRAES	10	26.32	32.24	34.82	37.23	41.62	43.65	43.65	45.59	47.46	49.25	50.98	52.65	54.27	55.84	57.37	58.86	60.31	61.73
TRAES	12	31.59	38.69	41.79	44.67	49.95	52.38	52.38	54.71	56.95	59.10	61.17	63.18	65.12	67.01	68.84	70.63	72.38	74.08
TRAES	15	39.49	48.36	52.23	55.84	62.43	65.48	65.48	68.39	71.18	73.87	76.46	78.97	81.40	83.76	86.06	88.29	90.47	92.60
Model	Nominal Capacity	Evaporating Temperature																	
		0°C																	
		Pressure Drop Across the Valve(bar)																	
		4.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0
TRAES	8	21.12	25.87	27.94	29.87	31.68	33.39	35.02	36.58	38.07	39.51	40.90	42.24	43.54	44.80	46.03	47.22	48.39	49.53
TRAES	10	26.40	32.33	34.92	37.33	41.74	43.78	43.78	45.72	47.59	49.39	51.12	52.80	54.42	56.00	57.54	59.03	60.49	61.91
TRAES	12	31.68	38.80	41.91	44.80	50.09	52.53	52.53	54.87	57.11	59.27	61.35	63.36	65.31	67.20	69.04	70.84	72.59	74.29
TRAES	15	39.60	48.50	52.38	56.00	62.61	65.67	65.67	68.59	71.39	74.08	76.68	79.20	81.63	84.00	86.30	88.55	90.73	92.87
Model	Nominal Capacity	Evaporating Temperature																	
		10°C																	
		Pressure Drop Across the Valve(bar)																	
		4.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0
TRAES	8	21.62	26.48	28.60	30.58	32.43	34.18	35.85	37.45	38.98	40.45	41.87	43.24	44.57	45.86	47.12	48.34	49.54	50.70
TRAES	10	27.03	33.10	35.75	38.22	42.73	44.82	44.82	46.81	48.72	50.56	52.33	54.05	55.71	57.33	58.90	60.43	61.92	63.38
TRAES	12	32.43	39.72	42.90	45.86	51.28	53.78	53.78	56.17	58.46	60.67	62.80	64.86	66.86	68.80	70.68	72.52	74.31	76.06
TRAES	15	40.54	49.65	53.63	57.33	64.10	67.22	67.22	70.21	73.08	75.84	78.50	81.08	83.57	85.99	88.35	90.65	92.88	95.07

Note: Nominal capacity rated per ARI 750-2007, 37.8°C liquid temperature, 4.4°C evaporating temperature, pressure drop across the valve 6.89bar.



# TRAES Thermal Expansion Valve

# Flow Controls

# DATASHEET

## R134a (kW)

Model	Nominal Capacity	Evaporating Temperature																	
		-30°C																	
		Pressure Drop Across the Valve(bar)																	
		4.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0
TRAES	6	9.62	11.78	12.73	13.61	14.43	15.21	15.96	16.66	17.35	18.00	18.63	19.24	19.84	20.41	20.97	21.51	22.05	22.56
TRAES	7	14.63	15.80	16.89	18.89	19.81	20.69	19.81	20.69	21.53	22.35	23.13	23.89	24.62	25.34	26.03	26.71	27.37	28.01
TRAES	9	17.68	19.09	20.41	22.82	23.93	25.00	23.93	25.00	26.02	27.00	27.95	28.86	29.75	30.62	31.45	32.27	33.07	33.85
TRAES	11	21.94	23.70	25.34	28.33	29.71	31.03	29.71	31.03	32.30	33.52	34.69	35.83	36.93	38.01	39.05	40.06	41.05	42.02
Model	Nominal Capacity	Evaporating Temperature																	
		-20°C																	
		Pressure Drop Across the Valve(bar)																	
		4.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0
TRAES	6	14.58	17.85	19.28	20.62	21.87	23.05	24.17	25.25	26.28	27.27	28.23	29.15	30.05	30.92	31.77	32.60	33.40	34.19
TRAES	7	18.10	22.16	23.94	25.59	28.61	30.01	30.01	31.34	32.62	33.85	35.04	36.19	37.31	38.39	39.44	40.46	41.46	42.44
TRAES	9	21.87	26.78	28.93	30.92	34.57	36.26	36.26	37.87	39.42	40.91	42.34	43.73	45.08	46.38	47.65	48.89	50.10	51.28
TRAES	11	27.14	33.24	35.91	38.39	42.92	45.01	45.01	47.01	48.93	50.78	52.56	54.29	55.96	57.58	59.16	60.69	62.19	63.66
Model	Nominal Capacity	Evaporating Temperature																	
		-10°C																	
		Pressure Drop Across the Valve(bar)																	
		4.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0
TRAES	6	18.68	22.88	24.71	26.42	28.02	29.54	30.98	32.36	33.68	34.95	36.18	37.36	38.51	39.63	40.71	41.77	42.80	43.81
TRAES	7	23.19	28.40	30.68	32.80	36.67	38.46	38.46	40.17	41.81	43.39	44.91	46.38	47.81	49.19	50.54	51.86	53.14	54.39
TRAES	9	28.02	34.32	37.07	39.63	44.31	46.47	46.47	48.53	50.52	52.42	54.26	56.04	57.77	59.44	61.07	62.66	64.21	65.72
TRAES	11	34.79	42.60	46.02	49.19	55.00	57.69	57.69	60.25	62.71	65.08	67.36	69.57	71.71	73.79	75.81	77.78	79.70	81.58
Model	Nominal Capacity	Evaporating Temperature																	
		0°C																	
		Pressure Drop Across the Valve(bar)																	
		4.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0
TRAES	6	19.59	24.00	25.92	27.71	29.39	30.98	32.49	33.94	35.32	36.66	37.94	39.19	40.39	41.57	42.71	43.81	44.90	45.95
TRAES	7	24.32	29.79	32.18	34.40	38.46	40.34	40.34	42.13	43.85	45.51	47.10	48.65	50.15	51.60	53.01	54.39	55.73	57.05
TRAES	9	29.39	36.00	38.88	41.57	46.47	48.74	48.74	50.91	52.99	54.99	56.92	58.78	60.59	62.35	64.06	65.72	67.34	68.93
TRAES	11	36.49	44.69	48.27	51.60	57.69	60.51	60.51	63.20	65.78	68.26	70.66	72.97	75.22	77.40	79.52	81.59	83.60	85.57
Model	Nominal Capacity	Evaporating Temperature																	
		10°C																	
		Pressure Drop Across the Valve(bar)																	
		4.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0
TRAES	6	20.39	24.97	26.97	28.83	30.58	32.23	33.81	35.31	36.75	38.14	39.48	40.77	42.03	43.25	44.43	45.59	46.71	47.81
TRAES	7	25.31	31.00	33.48	35.79	40.02	41.97	41.97	43.83	45.62	47.35	49.01	50.62	52.17	53.69	55.16	56.59	57.99	59.35
TRAES	9	30.58	37.45	40.45	43.25	48.35	50.71	50.71	52.97	55.13	57.21	59.22	61.16	63.04	64.87	66.65	68.38	70.07	71.72
TRAES	11	37.96	46.49	50.22	53.69	60.02	62.95	62.95	65.75	68.44	71.02	73.51	75.92	78.26	80.53	82.74	84.89	86.98	89.03

Note: Nominal capacity rated per ARI 750-2007, 37.8°C liquid temperature, 4.4°C evaporating temperature, pressure drop across the valve 4.13bar

### Liquid temperature correction factor:

	Refrigerant Liquid Temperature °C															
	-18	-12	-7	-1	4	10	16	21	27	32	38	43	49	54	60	
R-22 Correction Factor	1.56	1.51	1.45	1.40	1.34	1.29	1.23	1.17	1.12	1.06	1.00	0.94	0.88	0.82	0.76	
R-134a Correction Factor	1.70	1.63	1.56	1.49	1.42	1.36	1.29	1.21	1.14	1.07	1.00	0.93	0.85	0.78	0.71	

These factors include corrections for liquid refrigerant density and net refrigerating effect and are based on an average evaporator temperature -18°C. However, they may be used for any evaporator temperature from -40°C to +4°C since the variation in the actual factors across this range is insignificant.



# TRAES Thermal Expansion Valve

# Flow Controls

# DATASHEET

## R407C (kW)

Model	Nominal Capacity	Evaporating Temperature																	
		-30°C																	
		Pressure Drop Across the Valve(bar)																	
		4.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0
TRAES	8	10.09	12.36	13.35	14.27	15.14	15.96	16.73	17.48	18.19	18.88	19.54	20.18	20.80	21.41	21.99	22.57	23.12	23.67
TRAES	10	15.49	16.73	17.89	20.00	20.97	21.91	20.97	21.91	22.80	23.66	24.49	25.30	26.07	26.83	27.57	28.28	28.98	29.66
TRAES	12	18.62	20.11	21.50	24.04	25.21	26.34	25.21	26.34	27.41	28.45	29.44	30.41	31.35	32.25	33.14	34.00	34.84	35.66
TRAES	15	23.24	25.10	26.83	30.00	31.46	32.86	31.46	32.86	34.20	35.49	36.74	37.94	39.11	40.25	41.35	42.42	43.47	44.49
Model	Nominal Capacity	Evaporating Temperature																	
		-20°C																	
		Pressure Drop Across the Valve(bar)																	
		4.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0
TRAES	8	15.09	18.48	19.96	21.34	22.63	23.85	25.02	26.13	27.20	28.22	29.22	30.17	31.10	32.00	32.88	33.73	34.57	35.38
TRAES	10	18.91	23.16	25.01	26.74	29.90	31.36	31.36	32.75	34.09	35.37	36.62	37.82	38.98	40.11	41.21	42.28	43.33	44.34
TRAES	12	22.73	27.84	30.07	32.15	35.94	37.69	37.69	39.37	40.98	42.53	44.02	45.46	46.86	48.22	49.54	50.83	52.08	53.31
TRAES	15	28.36	34.74	37.52	40.11	44.85	47.03	47.03	49.13	51.13	53.06	54.92	56.73	58.47	60.17	61.82	63.42	64.99	66.52
Model	Nominal Capacity	Evaporating Temperature																	
		-10°C																	
		Pressure Drop Across the Valve(bar)																	
		4.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0
TRAES	8	18.84	23.07	24.92	26.64	28.26	29.79	31.24	32.63	33.96	35.24	36.48	37.68	38.84	39.96	41.06	42.12	43.16	44.18
TRAES	10	23.61	28.92	31.23	33.39	37.33	39.15	39.15	40.90	42.57	44.17	45.72	47.22	48.67	50.09	51.46	52.80	54.10	55.37
TRAES	12	28.38	34.76	37.55	40.14	44.88	47.07	47.07	49.16	51.17	53.10	54.96	56.77	58.51	60.21	61.86	63.47	65.03	66.56
TRAES	15	35.42	43.38	46.85	50.09	56.00	58.73	58.73	61.34	63.85	66.26	68.58	70.83	73.01	75.13	77.19	79.19	81.15	83.06
Model	Nominal Capacity	Evaporating Temperature																	
		0°C																	
		Pressure Drop Across the Valve(bar)																	
		4.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0
TRAES	8	19.67	24.09	26.02	27.82	29.50	31.10	32.62	34.07	35.46	36.80	38.09	39.34	40.55	41.72	42.87	43.98	45.07	46.13
TRAES	10	24.65	30.19	32.61	34.86	38.98	40.88	40.88	42.70	44.44	46.12	47.74	49.30	50.82	52.29	53.73	55.12	56.48	57.81
TRAES	12	29.63	36.29	39.20	41.91	46.86	49.14	49.14	51.33	53.42	55.44	57.39	59.27	61.09	62.86	64.59	66.26	67.90	69.50
TRAES	15	36.98	45.29	48.92	52.29	58.47	61.32	61.32	64.05	66.66	69.18	71.61	73.95	76.23	78.44	80.59	82.68	84.73	86.72
Model	Nominal Capacity	Evaporating Temperature																	
		10°C																	
		Pressure Drop Across the Valve(bar)																	
		4.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0
TRAES	8	20.39	24.97	26.97	28.84	30.59	32.24	33.81	35.32	36.76	38.15	39.49	40.78	42.04	43.26	44.44	45.60	46.72	47.82
TRAES	10	25.56	31.30	33.81	36.14	40.41	42.38	42.38	44.27	46.07	47.81	49.49	51.11	52.69	54.21	55.70	57.15	58.56	59.94
TRAES	12	30.72	37.63	40.64	43.45	48.58	50.95	50.95	53.21	55.39	57.48	59.49	61.44	63.34	65.17	66.96	68.70	70.39	72.05
TRAES	15	38.34	46.95	50.71	54.21	60.61	63.57	63.57	66.40	69.11	71.72	74.24	76.67	79.03	81.32	83.55	85.72	87.84	89.90

Note: Nominal capacity rated per ARI 750-2007, 37.8°C liquid temperature, 4.4°C evaporating temperature, pressure drop across the valve 6.89bar.



# TRAES Thermal Expansion Valve

# Flow Controls

# DATASHEET

## R404A (kW)

Model	Nominal Capacity	Evaporating Temperature																	
		-30°C																	
		Pressure Drop Across the Valve(bar)																	
		4.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0
TRAES	5	7.65	9.37	10.12	10.82	11.48	12.10	12.69	13.25	13.80	14.32	14.82	15.31	15.78	16.23	16.68	17.11	17.53	17.95
TRAES	7	11.71	12.65	13.52	15.12	15.86	16.56	15.86	16.56	17.24	17.89	18.52	19.12	19.71	20.28	20.84	21.38	21.91	22.43
TRAES	7.5	14.05	15.18	16.22	18.14	19.02	19.87	19.02	19.87	20.68	21.46	22.21	22.94	23.65	24.34	25.00	25.65	26.28	26.90
TRAES	10	17.57	18.97	20.28	22.68	23.79	24.84	23.79	24.84	25.86	26.83	27.78	28.69	29.57	30.43	31.26	32.07	32.86	33.64
Model	Nominal Capacity	Evaporating Temperature																	
		-20°C																	
		Pressure Drop Across the Valve(bar)																	
		4.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0
TRAES	5	10.95	13.41	14.48	15.48	16.42	17.31	18.16	18.96	19.74	20.48	21.20	21.90	22.57	23.22	23.86	24.48	25.09	25.68
TRAES	7	13.68	16.75	18.10	19.35	21.63	22.69	22.69	23.69	24.66	25.59	26.49	27.36	28.20	29.02	29.81	30.59	31.34	32.08
TRAES	7.5	16.41	20.10	21.71	23.21	25.95	27.22	27.22	28.43	29.59	30.70	31.78	32.82	33.83	34.81	35.77	36.70	37.60	38.49
TRAES	10	20.52	25.13	27.14	29.02	32.44	34.03	34.03	35.54	36.99	38.39	39.74	41.04	42.30	43.53	44.72	45.88	47.02	48.12
Model	Nominal Capacity	Evaporating Temperature																	
		-10°C																	
		Pressure Drop Across the Valve(bar)																	
		4.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0
TRAES	5	13.34	16.34	17.65	18.87	20.01	21.09	22.12	23.11	24.05	24.96	25.84	26.68	27.50	28.30	29.08	29.83	30.57	31.29
TRAES	7	16.67	20.42	22.05	23.57	26.36	27.64	27.64	28.87	30.05	31.19	32.28	33.34	34.37	35.36	36.33	37.28	38.20	39.09
TRAES	7.5	20.00	24.49	26.46	28.28	31.62	33.16	33.16	34.64	36.05	37.41	38.73	40.00	41.23	42.42	43.59	44.72	45.82	46.90
TRAES	10	25.01	30.62	33.08	35.36	39.54	41.47	41.47	43.31	45.08	46.78	48.42	50.01	51.55	53.04	54.50	55.91	57.29	58.64
Model	Nominal Capacity	Evaporating Temperature																	
		0°C																	
		Pressure Drop Across the Valve(bar)																	
		4.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0
TRAES	5	13.50	16.54	17.86	19.09	20.25	21.35	22.39	23.38	24.34	25.26	26.14	27.00	27.83	28.64	29.43	30.19	30.94	31.66
TRAES	7	16.87	20.66	22.32	23.86	26.67	27.98	27.98	29.22	30.41	31.56	32.67	33.74	34.78	35.79	36.77	37.72	38.65	39.56
TRAES	7.5	20.24	24.79	26.77	28.62	32.00	33.56	33.56	35.05	36.49	37.86	39.19	40.48	41.72	42.93	44.11	45.26	46.37	47.46
TRAES	10	25.30	30.99	33.48	35.79	40.01	41.96	41.96	43.83	45.62	47.34	49.00	50.61	52.17	53.68	55.15	56.58	57.98	59.35
Model	Nominal Capacity	Evaporating Temperature																	
		10°C																	
		Pressure Drop Across the Valve(bar)																	
		4.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0
TRAES	5	14.15	17.33	18.72	20.01	21.23	22.37	23.47	24.51	25.51	26.47	27.40	28.30	29.17	30.02	30.84	31.64	32.42	33.18
TRAES	7	17.68	21.65	23.39	25.00	27.96	29.32	29.32	30.62	31.87	33.08	34.24	35.36	36.45	37.51	38.53	39.54	40.51	41.46
TRAES	7.5	21.21	25.98	28.06	30.00	33.54	35.18	35.18	36.74	38.24	39.68	41.08	42.42	43.73	45.00	46.23	47.43	48.60	49.74
TRAES	10	26.52	32.48	35.08	37.51	41.93	43.98	43.98	45.94	47.81	49.62	51.36	53.04	54.67	56.26	57.80	59.30	60.77	62.20

Note: Nominal capacity rated per ARI 750-2007, 37.8°C liquid temperature, 4.4°C evaporating temperature, pressure drop across the valve 6.89bar.

### Liquid temperature correction factor:

	Refrigerant Liquid Temperature °C															
	-18	-12	-7	-1	4	10	16	21	27	32	38	43	49	54	60	
R-404A/R-507 Correction factor	2.00	1.90	1.80	1.70	1.60	1.50	1.40	1.30	1.20	1.10	1.00	0.90	.080	.070	0.50	
R-407C Correction factor	1.77	1.69	1.62	1.54	1.46	1.38	1.30	1.23	1.15	1.07	1.00	0.91	0.84	0.76	0.68	

These factors include corrections for liquid refrigerant density and net refrigerating effect and are based on an average evaporator temperature -18°C

However, they may be used for any evaporator temperature from -40°C to +4°C since the variation in the actual factors across this range is insignificant.



**DATASHEET**

**Selection Example:**

Refrigerant R22  
 Nominal Capacity 35 kW  
 Evaporating Temperature 0°C  
 Condensing Temperature +30°C  
 Liquid Temperature +29°C  
 No MOP Function

**Calculation:**

**1. Pressure Drop Across the Valve:**

Condensing Pressure: Pc = 11.92 bar (+30°C)  
 Evaporating Pressure: P0 = 4.98 bar (0°C)  
 Pressure Drop: Pc - P0 = 11.92 – 4.98 = 6.94 bar

**2. Pressure Along the System Line: (such as the drop across distributor)**

1.0 bar

**3. Actual Pressure Drop Across the Valve:**

6.94 – 1.0 = 5.94 bar

**4. Refrigerant Liquid Temperature Correction Factor:**

	制冷剂液体温度 °C														
	-18	-12	-7	-1	4	10	16	21	27	32	38	43	49	54	60
R-134a 修正系数	1.70	1.63	1.56	1.49	1.42	1.36	1.29	1.21	1.14	1.07	1.00	0.93	0.85	0.78	0.71
R-22 修正系数	1.56	1.51	1.45	1.40	1.34	1.29	1.23	1.17	1.12	1.06	1.00	0.94	0.88	0.82	0.76

R22 Liquid temperature+29°C, taking the correction factor from the table above:

$$1.12 + ( 29-27 ) * ( 1.06-1.12 ) / ( 32-27 ) =1.096$$

**5. Extended cooling capacity:**

Extended cooling capacity = 35 /1.096 = 31.93 kW

**6. Select the right model:**

Evaporating Temperature 0°C, pressure drop across the valve 5.94bar, the extended cooling capacity is 31.93kW, referring to the extended cooling capacity table of R22, the model should be TRAES 10.

型号	名义制冷量	蒸发温度																		
		0°C																		
		阀两端压降(bar)																		
		4.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0	
TRAES	8	21.12	25.87	27.94	29.87	31.68	33.39	35.02	36.58	38.07	39.51	40.90	42.24	43.54	44.80	46.03	47.22	48.39	49.53	
TRAES	10	26.40	32.33	34.92	37.33	41.74	43.78	43.78	45.72	47.59	49.39	51.12	52.80	54.42	56.00	57.54	59.03	60.49	61.91	
TRAES	12	31.68	38.80	41.91	44.80	50.09	52.53	52.53	54.87	57.11	59.27	61.35	63.36	65.31	67.20	69.04	70.84	72.59	74.29	
TRAES	15	39.60	48.50	52.38	56.00	62.61	65.67	65.67	68.59	71.39	74.08	76.68	79.20	81.63	84.00	86.30	88.55	90.73	92.87	

As a conclusion, the TRAES 10 valve meets the demand of this 35 kW application.