Thermostatic Expansion Valve

BA/BN Series

EMERSON Climate Technologies

The BA/BN series is a balanced ported valve. Typical applications include: refrigerated cases, coolers, freezers, ice machines and air conditioning systems. BA/BN valves operate over widely varying operating conditions.

Features

- Stainless steel power element eliminates corrosion and prevents valve failure
- Hermetic, leak-free construction
- Compact size allows installation in limited spaces
- Bi-Flow capability allows one valve to control the superheat in both cooling and heating modes for heat pump applications
- Balanced port construction compensates for changes in operating pressures due to varying ambients, gas defrost, heat reclaim, or widely varying evaporator loads

Specifications

- Maximum working pressure : 700 psig

Options

- ZW195 charge available for R-410A systems
- External or internal equalizer
- Bleed type pressure equalization available to accommodate PSC type compressors
- SAE or ODF connections standard – Chatleff or Aeroquip are available
- Adjustable or non-adjustable superheat

Nomenclature example: BAEB 1/2 HCA 5 FT 3/8 x 1/2

B	A	E	B	1/2	H	CA	5 FT	3/8 x 1/2	ODF	S/T
Valve Series Hermetic Balanced Port Design	Superheat Adjustment A = Adjustable N = Non-Adjustable	Equalizer E=External (Omit for Internal)	Bleed Hole (optional) (Omit for no bleed hole)	Capacity Nominal Rating in Tons (See nominal capacity table below)	Refrigerant Code +F = R-12 • H = R-22 +M = R-134a • N = R-407C *P = R-507 *R = R-502 *S = R-404A Z = R-410A *B = R-448A/ R-449A +D = R-450A/ R-513A	Charge Code C = medium temp CA = heat pump W(MOP) = press. limiting Z = low temp	Capillary Tube Length 30 IN &5 FT (std)	Inlet x Outlet Connection Sizes 1/4 x 3/8 3/8 x 1/2 1/2 x 5/8 5/8 x 7/8	Connection Type SAE = flare ODF = solder	Configuration S/T = straight-thru ANG = 90° angle

+ = R-12, R-134a, R-450A and R-513A are interchangeable refrigerant charges
* = R-507, R-502, R-404A, R-448A, R-449A and R-404A are interchangeable refrigerant charges
• = R-22 and R-407C are interchangeable refrigerant charges

BA/BN Series – Nominal* Capacity Table in Tons (kW)

R-12	R-134a	R-450A/R-513A	R-22/R-407C	R-410A	R-502/R-404A/R-507	**R-448A/R-449A
1/4 (0.9)	1/2 (1.8)	1/4 (0.9)	1/2 (1.8)	1/2 (1.8)	1/4 (0.9)	1/2 (1.8)
1/2 (1.8)	3/4 (2.7)	1/2 (1.8)	1 (3.5)	1 (3.5)	1/2 (1.8)	1 (3.5)
1 (3.5)	1 (3.5)	3/4 (2.7)	1½ (5.3)	1½ (5.3)	1 (3.5)	1½ (5.3)
1¼ (4.4)	1½ (5.3)	1 (3.5)	2 (7.0)	2 (7.0)	1¼ (4.4)	2 (7.0)
1½ (5.3)	2 (7.0)	1½ (5.3)	2½ (9.0)	3 (11.0)	1½ (5.3)	2½ (8.8)
2 (7.0)	2¼ (8.0)	1¾ (9.5)	3 (11.0)	3½ (12.0)	2 (7.0)	3 (11.0)
2½ (9.0)	3 (11.0)	2¼ (8.0)	4 (14.0)	4½ (16.0)	2½ (9.0)	4 (14.0)
3 (11.0)	3½ (12.0)	3 (11.0)	5 (17.0)	6 (21.0)	3 (11.0)	5 (17.5)
3½ (12.0)	4¼ (15.0)	3½ (12.0)	6 (21.0)	7½ (26.0)	4 (14.0)	6 (21.0)

All capacities shown are at 100°F condensing, 40°F evaporator temperature.
*See Extended Capacity Tables for ratings at a wide range of conditions per ARI standard 750
** Use SZ charge for all R-448A/R-449A applications. Recommend oversizing the valve capacity by 50% for low temperature applications.

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Ordering Information

Refrigerant	Series	Tons*	Charge	Connections	Cap Tube
R-410A	BAE	1½	ZW195	3/8 X 1/2 ODF S/T	5 FT
		2	ZW195	3/8 X 1/2 ODF S/T	5 FT
		3	ZW195	3/8 X 1/2 ODF S/T	5 FT
		4½	ZW195	3/8 X 1/2 ODF S/T	5 FT
		6	ZW195	1/2 X 3/8 ODF S/T	5 FT
		7½	ZW195	5/8 X 7/8 ODF S/T	5 FT
	BAEB	1½	ZW195	3/8 X 1/2 ODF S/T	5 FT
		2	ZW195	3/8 X 1/2 ODF S/T	5 FT
		3	ZW195	3/8 X 1/2 ODF S/T	5 FT
		4½	ZW195	3/8 X 1/2 ODF S/T	5 FT
		6	ZW195	3/8 X 1/2 ODF S/T	5 FT
			ZW195	1/2 X 3/8 ODF S/T	5 FT
R-134a R-12 R-450A R-513A	BAE	3/4	MC	3/8 X 1/2 ODF S/T	30 IN
		1	MC	3/8 X 1/2 ODF S/T	30 IN
		1½	MC	3/8 X 1/2 ODF S/T	30 IN
		2	MC	3/8 X 1/2 ODF S/T	30 IN
		3	MC	3/8 X 1/2 ODF S/T	30 IN
R-22 R-407C	BAE	1	HCA	3/8 X 1/2 ODF S/T	30 IN
		1½	HCA	3/8 X 1/2 ODF S/T	30 IN
			HW100	3/8 X 1/2 ODF S/T	30 IN
		2	HCA	3/8 X 1/2 ODF S/T	30 IN
			HCA	1/2 X 1/2 ODF S/T	5 FT
			HCA	3/8 X 1/2 ODF S/T	30 IN
		2½	HCA	1/2 X 5/8 ODF S/T	30 IN
			HW100	3/8 X 1/2 ODF S/T	30 IN
			HCA	3/8 X 1/2 ODF S/T	30 IN
		3	HCA	1/2 X 5/8 ODF S/T	5 FT
			HW100	3/8 X 1/2 ODF S/T	30 IN
			HCA	3/8 X 1/2 ODF S/T	30 IN
		4	HCA	1/2 X 5/8 ODF S/T	30 IN
			HCA	5/8 X 5/8 ODF S/T	5 FT
			HW100	3/8 X 1/2 ODF S/T	30 IN
			HCA	3/8 X 1/2 ODF S/T	5 FT
			HCA	1/2 X 1/2 ODF S/T	5 FT
		5	HCA	1/2 X 5/8 ODF S/T	5 FT
			HCA	5/8 X 5/8 ODF S/T	5 FT
			HW100	3/8 X 1/2 ODF S/T	30 IN
		6	HCA	1/2 X 1/2 ODF S/T	5 FT
			HCA	1/2 X 5/8 ODF S/T	5 FT
	BNE	3	HCA	3/8 X 1/2 ODF S/T	5 FT
			HCA	1/2 X 1/2 ODF S/T	5 FT
		4	HCA	3/8 X 3/8 ODF S/T	30 IN
			HCA	3/8 X 1/2 ODF S/T	30 IN
		5	HCA	1/2 X 1/2 ODF S/T	5 FT
			HCA	1/2 X 5/8 ODF S/T	5 FT
	BAEB	1½	HCA	3/8 X 1/2 ODF S/T	30 IN
			HCA	1/2 X 1/2 ODF S/T	30 IN
		2	HCA	3/8 X 1/2 ODF S/T	30 IN
			HCA	3/8 X 1/2 ODF S/T	30 IN
		3	HCA	1/2 X 1/2 ODF S/T	30 IN
			HCA	1/2 X 5/8 ODF S/T	5 FT
		4	HCA	3/8 X 1/2 ODF S/T	30 IN
			HCA	1/2 X 1/2 ODF S/T	5 FT
		5	HCA	3/8 X 1/2 ODF S/T	5 FT
			HCA	1/2 X 1/2 ODF S/T	30 IN
			HCA	1/2 X 1/2 ODF S/T	30 IN
		6	HCA	1/2 X 5/8 ODF S/T	5 FT
			HCA	5/8 X 5/8 ODF S/T	5 FT

* For interchangeable refrigerant charges R-134a/R-12/R-450A/R-513A, R-404A/R-507/R-502/R-448A/R-449A and R-22/R-407C the tons of capacity shown in the table are for the first (primary) refrigerant listed. Consult the Nominal Capacity Table for determining the tons of capacity for the secondary refrigerants listed.
Example: A 1/4 ton R-12 valve is required. What R-134a ton valve should be selected? **Solution:** From the Nominal Capacity Table, a 1/2 ton R-134a valve is equivalent to a 1/4 ton R-12 valve.