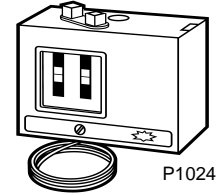


TEMPERATURE & PRESSURE CONTROLS

ALCO TF115 TEMPERATURE CONTROLS

The TF115 Temperature Controls are designed to sense space or surface temperatures in cooling or heating applications for cycling and alarm applications. Maximum application flexibility is provided by using a heavy-duty 24 amp single pole double throw SPDT switch and temperature ranges and power elements designed for specific applications.



PART NUMBER*	RANGE IN °F	DIFFERENTIAL IN °F	SWITCH	CAPILLARY & BULB	REPLACES			
					Ranco	Penn	White-Rodgers	Honeywell
REMOTE COILED BULB — VAPOR CHARGED								
TF115-S1 AA10 Low Temp	-60 to +15	3 to 30	SPDT	10' Capillary with 3/8 x 2" coiled bulb	O10-1433	—	1609-100†	—
TF115-S2 AA10 Refrigerator/ Freezer Control	-20 to +60				O10-1408 O10-1409 O16-104	—	1609-90	T4031A1008
AIR COIL — ROOM SENSING								
TF115-S2 AE00 Walk-in Coolers/Freezers	-20 to +60	3 to 30	SPDT	Air Coil for space temperature sensing	O10-1072 O10-1418 O16-594	A19BBC-2†	201-20†	T6054A†
TF115-S3 AE00 Ventilating/A.C./ Heat	+15 to +95				O10-301 O16-165	A19BAB-3 A19BAC-1	201-8	T6054B
WIDE RANGE — BULB SENSING								
TF115-S4 AF10 Wide Range Temperature Control	-20 to +95	5 to 35	SPDT	10' Capillary with 3/8 x 2-3/4" solid bulb	O60-100 F25-107**	A19ABC-24 A19ZBC-2**	1609-101 1609-102 1609-103	T6031A1029

*The controls listed replace many other temperature controls than just those shown in this table.

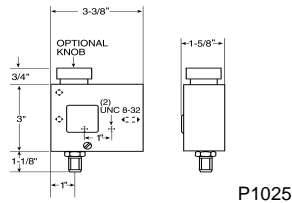
†Limited Range — check application.

**Functional replacement.

TF115 ELECTRICAL RATINGS

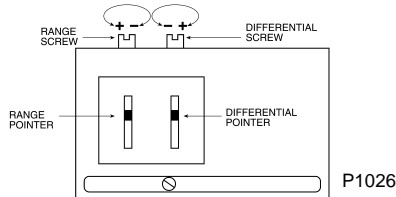
MAXIMUM LOAD	120 VAC	240 VAC
Full Load Amps	24 FLA	24 FLA
Locked Rotor Amps	144 LRA	144 LRA
Horsepower	2 HP	3 HP
Pilot Duty	720 VA	720 VA
Noninductive	24 amps	24 amps

TF115 DIMENSIONAL DRAWINGS



SETTINGS & ADJUSTMENTS: TF115/FF115/FF215

ADJUSTABLE RANGE & DIFFERENTIAL CONTROLS



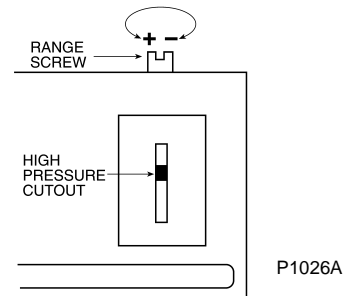
Procedure

1. Adjust the Range Screw/Pointer to the desired "High Event" setting.
2. Adjust the Differential Screw to the desired differential.

Low Event = High Event – Differential

- Adjustment of the Range Screw changes both high and low events
- Adjustment of the Differential Screw changes the "Low Event" only.

ADJUSTABLE RANGE FIXED DIFFERENTIAL CONTROLS OR HIGH SIDE DUAL PRESSURE



Procedure

1. Adjust the Range Screw to the desired "High Event" setting.

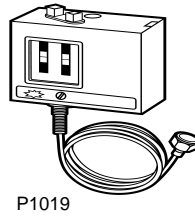
Low Event = High Event – Fixed Differential

- Adjustment of the Range Screw changes both the high and low events.

PRESSURE CONTROLS

ALCO FF115 SINGLE LOW PRESSURE CONTROLS

The FF115 Low Pressure Controls are designed to sense the suction pressure in refrigeration systems for cycling, limit and alarm applications. Maximum application flexibility and accuracy are assured by using a heavy-duty 24 amp single pole double throw (SPDT) switch and customized pressure ranges for precise sensing.



FF115 ELECTRICAL RATINGS

MAXIMUM LOAD	120 VAC	240 VAC
Full Load Amps	24 FLA	24 FLA
Locked Rotor Amps	144 LRA	144 LRA
Horsepower	2 HP	3 HP
Pilot Duty	720 VA	720 VA
Noninductive	24 amps	24 amps

PART NUMBER	PRESSURE RANGE IN PSIG	DIFFERENTIAL RANGE IN PSI	SWITCH ACTION	PRESSURE CONNECTION	REPLACES		
					Penn	Copeland	Ranco
FF-115-S1-BAK	24 to 42	3 to 30	SPDT Auto Reset	36" Capillary with 1/4" Flare Nut	P70AB-12*	085-0098-21	O10-1402 O16-557
FF-115-S3-BAK	15 to 100	7 to 70			P70AB-2 P70AB-12 P70CA-1	085-0098-00	O10-1483 O11-3099 O16-527
FF-115-S3-BAA				1/4" SAE† Male Flare	P70AB-1 P170AB-2,-12* P170CA-1	—	O10-1831 O11-1799 O16-107

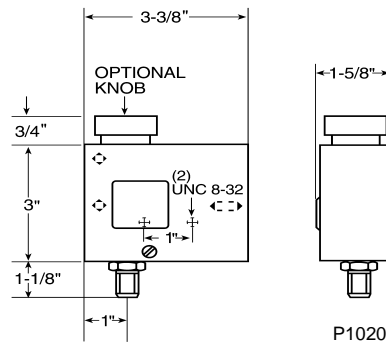
*Controls have an extended range.

†For applications where the condensing unit/control is exposed to temperatures below 20° F, 1/4" lines are recommended.

ALCO FF115 SINGLE HIGH-PRESSURE CONTROLS

The FF115 High Pressure Controls are designed to sense the high side pressure in refrigeration systems for high pressure limit, alarm and condenser fan control. Maximum application flexibility is assured by using a heavy-duty 24 amp single pole double throw (SPDT) switch and wide range pressure setting capability.

FF115 DIMENSIONAL DRAWINGS



PART NUMBER**	PRESSURE RANGE IN PSIG	DIFFERENTIAL RANGE IN PSI	SWITCH ACTION	PRESSURE CONNECTION	REPLACES		
					Penn	Copeland	Ranco
FF-115-S4-BAK	15 to 290	15 to 145	SPDT Auto Reset	36" Capillary with 1/4" Flare Nut	P70AA-2	085-0098-33	O10-2000 O16-593
FF-115-S5-BAK	90 to 450	30 to 220			P70AA-118 P70CA-3	085-0098-08	O10-2054 O11-1711 O16-108
FF-115-S5-BAA				1/4" SAE Male Flare	P70CA-2 P170AA-118 P170CA-3	—	O10-1894 O11-1713 O16-503 O16-570
FF-115-S5-BRK		60 PSI fixed	SPDT Manual Reset Trips on pressure rise	36" Capillary with 1/4" Flare Nut	P70DA-1 P70KA-1*	—	O16-200†
FF-115-S5-BRA				1/4" SAE Male Flare	P170DA-1	—	O16-209

*FF115-S5-BRK has common power feed for limit and alarm function.

†48" capillary.

**Limited to stock on hand.

PRESSURE CONTROLS

ALCO PS1 SERIES SINGLE PRESSURE CONTROLS

PS1 Single Pressure Controls are designed for use on high and low pressure applications in refrigeration and heat pump systems. By operating a set of electrical contacts, a pressure is kept inside a certain limit.

FEATURES

- Adjustable pressures and differentials.
- Narrow adjustable differential depending on model.
- Range and differential pointer in units bar and psig.
- Range and differential individually lockable by wire seal.
- High rated SPDT contacts for all versions.
- Captive terminal and cover screws.
- Manual toggle for system checkout and override.
- Factory installed wire bridge for reduced installation effort.

OPTIONS

- Different pressure connections.
- Automatic and manual reset versions.
- Factory set to customer specifications.
- Different types of mounting brackets.

SPECIFICATIONS

- SPDT switch rated for 120 VAC/240 VAC at 24 FLA and 144 LRA.
- Agency approvals include: UL/CUL file #E85974, VDE 0631/0660, TUV, CE 73/23/EWG, CE 93/68/EWG.
- Low pressure and high pressure versions available with TUV approval according to EN 12263 (supersedes DIN 32733) to meet requirements of DIN 8901 and EN378 (supercedes DIN 8975).

FF115 REPLACEMENT

NOMENCLATURE - EXAMPLE PS1-A5K

PS1	A	5	K
Product Name	Function	Pressure Range	Pressure Connector Type
PS1 = Adjustable single Pressure Control PSA = Customer specials	A = Pressure control, automatic reset, internal range & differential adjustments B = Pressure cut out, external manual reset, DIN/TUV approved, internal range and differential adjustments*, † R = Pressure cut out, external manual reset, internal range and differential adjustments*, † S = Safety pressure cut out, internal manual reset, DIN/TUV approved, internal range & differential adjustments*, † U = Convertible from R to A W = Pressure control, automatic reset, DIN/TUV approved, internal range and differential adjustments X = Pressure control, automatic reset, external range and differential adjustments Y = Pressure cut out, external manual reset, external range and differential adjustments *Function types B, R, S in combination with Pressure Range 1 or 3 have a low pressure manual reset function. (15 psi differential) †Function types B, R, S in combination with Pressure Range 4 or 5 have a high pressure manual reset function. (60 psi diff.)	1 = 24" Hg to 42 psi (-0.75 to 3 bar) 2 = 26" Hg to 21 psi (-0.8 to 1.5 bar) 3 = 15" Hg to 100 psi (-0.5 to 7 bar) 4 = 15 to 290 psi (1 to 20 bar) 5 = 90 to 450 psi (6 to 31 bar)	A = 7/16"-20 UNF male for 1/4" SAE male flare C = R 1/4" stainless steel with steel bellows F = 1/4-18 NPTF stainless steel with steel bellows K* = 7/16" -20 UNF flare nut with 1 meter (3 ft) cap tube L = 1/4" ODF solder with 1 meter (3 ft) cap tube R = R 1/4" U = 6 mm ODF solder, 80 mm tube length X = 1/4" ODF solder, 80 mm tube length *Controls with housing variant X/Y have extended copper ends, without Schrader valve depressor. All other housing variants have schrader valve depressor and brass end fitting with copper gasket.

PRESSURE CONTROLS

ALCO PS1 SERIES SINGLE PRESSURE CONTROLS

P/N	ALCO U.S. PCN	ALCO EUROPE PCN	ADJUSTMENT RANGE		FACTORY SETTING PSI (BAR)	PRESSURE CONNECTION			
			Upper Setpoint PSI (BAR)	Diff. Setpoint PSI (BAR)					
LOW PRESSURE CONTROLS									
TPC-PS1-X1K	097898		24" Hg to 42 (-.75 to 3)	4 to 29 (.25 to 2)	7/15 (.5/1)	Capillary/nut			
PS1-A3A		4370700	15" Hg to 100 (-0.5 ... +7)	7 to 73 (0.5 ... 5)	50/65 (3.5/4.5)	7/16" -20 UNF			
TPC-PS1-X3A	097914					7/16" -20 UNF, 1/4" SAE male			
PS1-A3K		4370600				Capillary/nut			
TPC-PS1-X3K	097904					Capillary/nut			
PS1-A3L		4714945				Capillary/solder			
PS1-A3U		4714945				Solder 6 mm			
PS1-A3X		4713430				Solder tube 1/4"			
PS1-R3A		4350100	15" Hg to 100 (-0.5 ... +7)	External Manual Reset Low Pressure 15 psi (1 bar) fixed	50 (3.5)	7/16" -20 UNF			
PS1-R3K		4713431				Capillary/nut			
PS1-R3L		4715135				Capillary/solder			
PS1-R3U		4713432				Solder 6 mm			
PS1-R3X		4713433				Solder tube 1/4"			
HIGH PRESSURE CONTROLS									
TPC-PS1-X4K	097901					15 to 290 (1 to 20)	15 to 100 (1 to 7)	145/115 (10/8)	Capillary/nut
PS1-A5A		4350500	90 to 450 (6 ... 31)	29 to 217 (2 ... 15)	230/290 (16/20)	7/16" -20 UNF			
TPC-PS1-X5A	097919				190/280 (10/19)	7/16" -20 UNF			
PS1-A5K		4370400			Capillary/nut				
TPC-PS1-X5K	097908				230/290 (16/20)	Capillary/nut			
PS1-A5L		4715136			Capillary/solder				
PS1-A5U		4713325			Solder 6 mm				
PS1-A5X		4713434			Solder tube 1/4"				
PS1-R5A		4350700	90 to 450 (6 ... 31)	Ext. Manual Reset High Pressure 60 psi (4 bar) fixed	290 (20)	7/16" -20 UNF			
TPC-PS1-Y5A	097923				290 (20)	7/16" -20 UNF			
PS1-R5K		4370300			390 (27)	7/16" -20 UNF, 1/4" SAE male			
TPC-PS1-Y5K	097911				290 (20)	Capillary/nut			
PS1-R5L		4715137				Capillary/solder			
PS1-R5U		4713435				Solder 6 mm			
PS1-R5X		4713436				Solder tube 1/4"			
PRESSURE LIMITER FOR LOW PRESSURE PROTECTION									
PS1-W3A		4368300	15" Hg to 100 (-0.5 ... +7)	7 to 73 (0.5 ... 5)	50/65 (3.5/4.5)	7/16" -20 UNF			
PS1-W3K		4321400				Capillary/nut			
PS1-W3L		4715138				Capillary/solder			
PS1-W3U		4713437				Solder 6 mm			
PS1-W3X		4713438				Solder tube 1/4"			
PRESSURE CUT OUT FOR LOW PRESSURE PROTECTION									
PS1-B3A		4470400	15" Hg to 100 (-0.5 ... +7)	Ext. Manual Reset Low Pressure 15 psi (1 bar) fixed	65 (4.5)	7/16" -20 UNF			
PS1-B3K		4715139				Capillary/nut			
PS1-B3L		4715140				Capillary/solder			
PS1-B3U		4715141				Solder 6 mm			
PS1-B3X		4715142				Solder tube 1/4"			
PRESSURE LIMITER FOR HIGH PRESSURE PROTECTION									
PS1-W5A		4353200	90 to 450 (6 ... 31)	29 to 217 (2 ... 15)	230/290 (16/20)	7/16" -20 UNF			
PS1-W5K		4359100				Capillary/nut			
PS1-W5L		4715143				Capillary/solder			
PS1-W5U		4713439				Solder 6 mm			
PS1-W5X		4713440				Solder tube 1/4"			

Standard Product Offering.

*Product Code Number.

PRESSURE CONTROLS

ALCO PS1 SERIES SINGLE PRESSURE CONTROLS

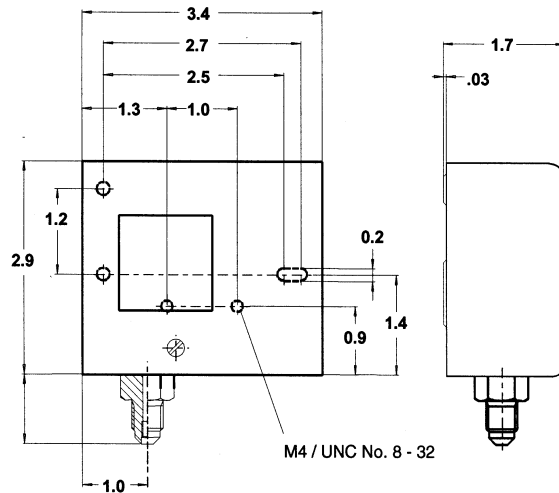
ORDERING INFORMATION FOR PS1 SINGLE PRESSURE CONTROLS

P/N	ALCO U.S. PCN	ALCO EUROPE PCN	ADJUSTMENT RANGE		FACTORY SETTING PSI (BAR)	PRESSURE CONNECTION
			Upper Setpoint PSI (BAR)	Diff. Setpoint PSI (BAR)		
PRESSURE CUT OUT FOR HIGH PRESSURE PROTECTION						
PS1-B5A		4353300	90 to 450 (6 ... 31)	Ext. Manual Reset High Pressure 60 psi (4 bar) fixed	290 (20)	7/16"-20 UNF
PS1-B5K		4359200				Capillary/nut
PS1-B5L		4715144				Capillary/solder
PS1-B5U		4712332				Solder 6 mm
PS1-B5X		4713441				Solder tube 1/4"
SAFETY PRESSURE CUT OUT FOF HIGH PRESSURE PROTECTION						
PS1-S5A		4368400	90 to 450 (6 ... 31)	Int. Manual Reset High Pressure 60 psi (4 bar) fixed	304 (21)	7/16"-20 UNF
PS1-S5K		4359400				Capillary/nut
PS1-S5L		4715145				Capillary/solder
PS1-S5U		4711591				Solder 6 mm
PS1-S5X		4713442				Solder tube 1/4"

Standard Product Offering.

*Product Code Number.

PS1 DIMENSIONAL DIAGRAM



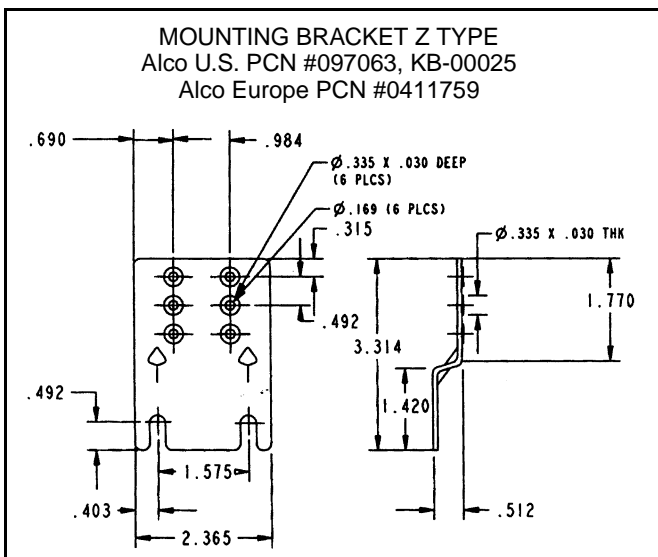
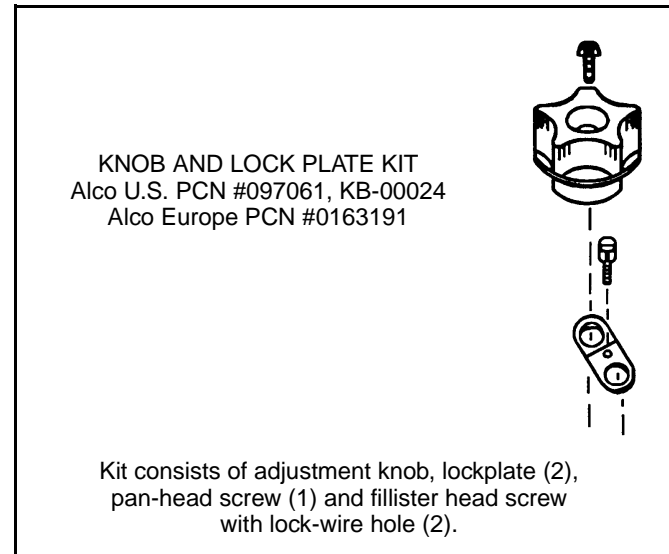
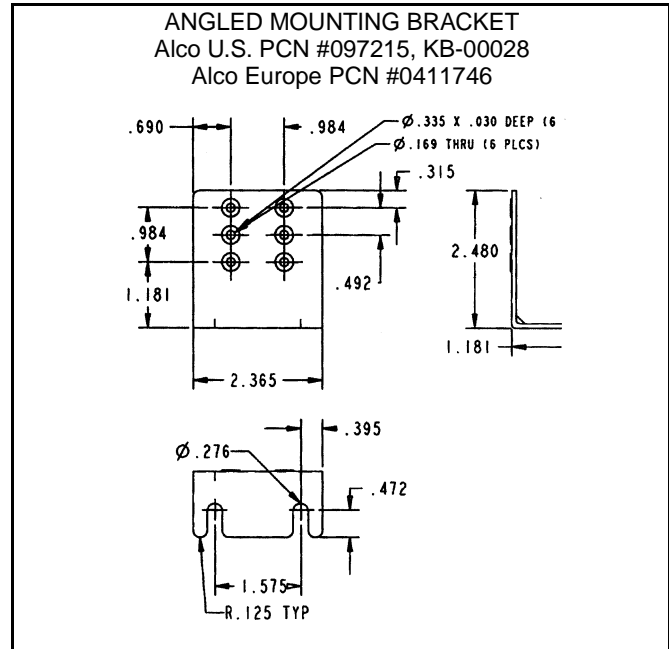
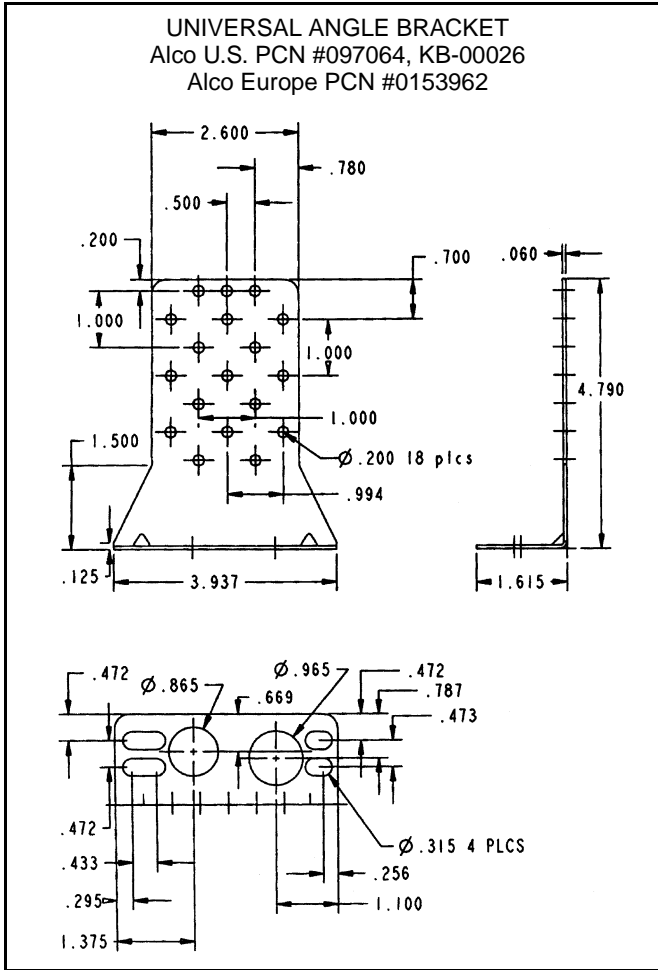
OLD TO NEW CROSS REFERENCE (TF115 TO TS1)				REPLACES THE COMPETITION				
OLD MODEL	OLD PCN	NEW MODEL	NEW PCN	COPELAND*	RANCO	PENN	DANFOSS	SAGINOMIYA
FF115-S1-BAK	097450	PS1-X1K 7/15	097898	085-0098-21 985-CP1A-1K	O10-1402 O16-557	P70AB-12		
FF115-S4-BAK	097565	PS1-X4K 115/145	097901	085-0098-33	O10-2000 O16-593	P70AA-2		
FF115-S3-BAK	097451	PS1-X3K 50/65	097904	085-0098-00 985-CP1A3K	O10-1483 O11-3099 O16-527	P70AB-12 P70AB-2 P70CA-2		
FF115-S5-BAK	097452	PS1-X5K 230/290	097908	085-0098-08 985-CP1A-5K	O10-2054, O11-1711 O16-108, O20-7006	P70AA-118 P70CA-3		
FF115-S5-BRK	097453	PS1-Y5K 230/290	097911		O16-200	P70DA-1 P70KA-1		
FF115-S3-BAA	097459	PS1-X3A 50/65	097914	985-CP1A-3A	O10-1401, O10-1831 O11-1799, O16-106 O16-107	P170AB-12 P170AB-2	KP1 60-1101	SNS-C106X
FF115-S5-BAA	097460	PS1-X5A 140/280	097919	985-CP1A-5A	O10-1894, O11-1713 O16-503, O16-570 O16-106	P170AA-118 P170CA-3 P77AAA-9350 P77AAA-9370	KP5 60-1171	SNS-C130X SNS-C135X
FF115-S5-BRA	097462	PS1-Y5A 330/390	097923		O16-209, O16-106	P170DA-1 P77BEA-9350 P77BEA-9370	KP 60-1173	
		PS1-U5A 385		985-CP1U-5A				
		PS1-U5K 385		985-CP1U-5K				

*The Alco control may be used with bracket (PCN 097221) to allow placement of the Copeland control with the same mounting configuration.

PRESSURE CONTROLS

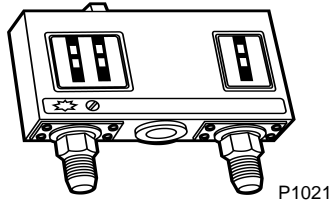
ALCO PS1 SERIES SINGLE PRESSURE CONTROLS

PS1 PARTS/ACCESSORIES



PRESSURE CONTROLS

ALCO FF215 DUAL PRESSURE CONTROLS



FF215 ELECTRICAL RATINGS

MAXIMUM LOAD	120 VAC	240 VAC
Full Load Amps	24 FLA	24 FLA
Locked Rotor Amps	144 LRA	144 LRA
Horsepower	2 HP	3 HP
Pilot Duty	720 VA	720 VA
Noninductive	24 amps	24 amps

PART NUMBER**	LOW PRESSURE RANGE IN PSIG	LO PRESS. DIFF. RANGE IN PSI	HIGH PRESSURE RANGE IN PSIG	HI PRESS. DIFF. RANGE IN PSI	SWITCH ACTION	PRESSURE CONNECTION
FF-215-S9-BAUK	24 to 42	3 to 30	90 to 450	60 fixed	LP SPDT Auto Reset HP SPDT Convertible—User Selects Auto or Manual Reset	(2) 48" Capillary with 1/4" Flare Nut
FF-215-S7-BAUK	15 to 100	7 to 70				
FF-215-S7-BAUA						1/4" SAE Male Flare†

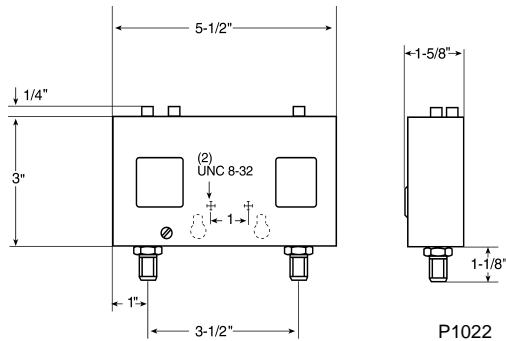
PART NUMBER	REPLACES			ALCO PART NUMBER	REPLACES		
	PENN	COPELAND	RANCO		PENN	COPELAND	RANCO
FF-215-S9-BAUK	P70LB-6*	085-0098-22	O12-1502	FF215-S7 BAUK	P70LB-1,-6	085-0098-02	O12-1549
	P70MA-18*	085-0098-23	O12-1506 O12-1554 O12-4833			085-7000-00	O12-4834
				FF215-S7 BAUA	P170LB-1 P170MA-1	—	O12-1550

*Controls have an extended range.

†For applications where the condensing unit/control is exposed to temperatures below 20° F, 1/4" lines are recommended.

**Limited to stock on hand.

FF215 DIMENSIONAL DRAWINGS



PRESSURE CONTROLS

ALCO PS2 SERIES DUAL PRESSURE CONTROLS

PS2 Dual Pressure Controls are designed for use on high and low pressure applications in refrigeration and heat pump systems. By operating a set of electrical contacts, a pressure is kept inside certain limits.

FEATURES

- Adjustable pressures and differentials.
- Narrow adjustable differential depending on model.
- Range and differential pointer in units bar and psig.
- Range and differential individually lockable by wire seal.
- High rated SPDT contacts for all versions.
- Captive terminal and cover screws.
- Manual toggle for system checkout and override.
- Factory-installed wire bridge for reduced installation effort.

OPTIONS

- Different pressure connections.
- Automatic and manual reset versions.
- Factory set to customer specification.
- Different types of mounting brackets.

SPECIFICATIONS

- SPDT switch rated for 120 VAC/240 VAC at 24 FLA and 144 LRA.
- Agency approvals include: UL/CUL file #E85974, VDE 0631/0660, TÜV, CE 73/23/EWG, CE 93/68/EWG.
- Low pressure and high pressure versions available with TÜV approval according to DIN 32733 to meet requirements of DIN 8901 and DIN 8975.

FF215 REPLACEMENT

NOMENCLATURE — Example PS2-G8A

PS2	G	8	A
Product Name	Function	Pressure Ranges	Pressure Connector Type
PS2 = Adjustable Dual Pressostat PSB = Customer Special Version	A = <i>Both sides</i> : Pressure controls, automatic reset, internal range and differential adjustments B = <i>Both sides</i> : Pressure cut out, external manual reset, DIN/TÜV approved, internal range and differential adjustments C = <i>Left side</i> : Pressure control, automatic reset, DIN/TÜV approved, internal range and differential adjustments. <i>Right side</i> : Safety cut out, external manual reset, DIN/TÜV approved, internal range and differential adjustments. G = <i>Left side</i> : Pressure control, automatic reset, DIN/TÜV approved, internal range and differential adjustments. <i>Right side</i> : Safety limiter, internal manual reset, DIN/TÜV approved, internal range and differential adjustments. L = <i>Left side</i> : Pressure control, automatic reset, internal range and differential adjustments. <i>Right side</i> : Pressure cut out, external manual reset, internal range and differential adjustments. M = <i>Left side</i> : Pressure control, automatic reset, internal range and differential adjustments. <i>Right side</i> : Convertible reset from R to A, internal range and differential adjustments. R = <i>Both sides</i> : Pressure cut out, external manual reset, internal range and differential adjustments. S = <i>Both sides</i> : Pressure safety cut out, internal manual reset, DIN/TÜV approved, internal range and differential adjustments. T = <i>Left side</i> : Pressure control, automatic reset, DIN/TÜV approved, internal range and differential adjustments. <i>Right side</i> : Safety limiter, internal manual reset, DIN/TÜV approved, internal range and differential adjustments. U = <i>Both sides</i> : Convertible from R to A. W = <i>Both sides</i> : Pressure control, automatic reset, TÜV approved, internal range and differential adjustments. X = <i>Both sides</i> : Pressure controls, automatic reset, external range and differential adjustments. Y = <i>Left side</i> : Pressure control, automatic reset, external range and differential adjustments. <i>Right side</i> : Convertible from external manual reset to automatic reset, external range and differential adjustments. Z = <i>Both sides</i> : Convertible from external manual reset to automatic reset, external range and differential adjustments. LOW PRESSURE MANUAL RESET: Cut outs with manual reset function and in combination with the low pressure side of Pressure Ranges 7 and 9 have a low pressure manual reset function (15 psi differential). HIGH PRESSURE MANUAL RESET: Cut outs with manual reset function and in combination with the high pressure side of Pressure Ranges 7 and 9 have a high pressure manual reset function (60 psi differential).	7 = Left side: 15" Hg to 100 psi (-0.5 to 7 bar) Right side: 90 to 450 psi (6 to 31 bar) 8 = Left side: 90 to 450 psi (6 to 31 bar) Right side: 90 to 450 psi (6 to 31 bar) 9 = Left side: 24" Hg to 45 psi (-0.75 to 3 bar) Right side: 90 to 450 psi (6 to 31 bar)	A = 7/16" -20 UNF male for 1/4" SAE flare fitting C = R 1/4" stainless steel with steel bellows F = 1/4" -18 NPTF stainless steel with steel bellows K* = 7/16" -20 UNF flare nut with 1 meter (3 ft) cap tube L = 1/4" ODM solder with 1 meter (3 ft) cap tube R = R 1/4" U = 6 mm ODF solder, 80 mm tube length X = 1/4" ODF solder, 80 mm tube length *Controls with housing variants X/Y/Z have extended copper ends, without schrader valve depressor and brass end fitting with copper gasket

PRESSURE CONTROLS

ALCO PS2 SERIES DUAL PRESSURE CONTROLS

ORDERING INFORMATION FOR PS2 DUAL PRESSURE CONTROLS

P/N	ALCO U.S. PCN	ALCO EUROPE PCN	ADJUSTMENT RANGE				FACTORY SETTING		PRESSURE CONNECTION
			Upper Setpoint		Differential		Left PSI (BAR)	Right PSI (BAR)	
			Left PSI (BAR)	Right PSI (BAR)	Left PSI (BAR)	Right PSI (BAR)			
COMBINED LOW AND HIGH PRESSURE CONTROLS									
TPC-PS2-A7A	097874	4353400	15" Hg to 100 (-0.5...7)	90 to 450 (6...31)	7 to 72 (0.5...5)	29 to 217 (2...5)	50/65 (3.5/4.5)	230/290 (16/20)	7/16" -20 UNF
TPC-PS2-A7K	097875	4350900							Capillary/nut
TPC-PS2-A7L	097876	4713565							Capillary/solder
PS2-A7U		4713415							Solder 6 mm
PS2-A7X		4713416		Solder tube 1/4"					
TPC-PS2-L7A	097877	4351100	15" Hg to 100 (-0.5...7)	90 to 450 (6...31)	7 to 72 (0.5...5)	External Manual Reset High Press. 60 (4) fixed	50/65 (3.5/4.5)	290 (20)	7/16" -20 UNF
PS2-L7K		4370500							Capillary/nut
TPC-PS2-L7L	097878	4440800							Capillary/solder
PS2-L7U		4713417							Solder 6 mm
PS2-L7X		4713418		Solder tube 1/4"					
PS2-R7A		4351300	15" Hg to 100 (-0.5...7)	90 to 450 (6...31)	External Manual Reset Low Press. 15 (1) fixed	External Manual Reset High Press. 60 (4) fixed	50 (3.5)	290 (20)	7/16" -20 UNF
PS2-R7K		4713421							Capillary/nut
PS2-R7L		4715134							Capillary/solder
PS2-R7U		4713419							Solder 6 mm
PS2-R7X		4713420		Solder tube 1/4"					
COMBINED PRESSURE LIMITER FOR LOW PRESSURE/HIGH PRESSURE PROTECTION									
PS2-W7A		4360100	15" Hg to 100 (-0.5...7)	90 to 450 (6...31)	7 to 72 (0.5...5)	29 to 217 (2...5)	50/65 (3.5/4.5)	230/290 (16/20)	7/16" -20 UNF
PS2-W7K		4450200							Capillary/nut
PS2-W7L		4450300							Capillary/solder
PS2-W7U		4712436							Solder 6 mm
PS2-W7X		4713429		Solder tube 1/4"					
COMBINED PRESSURE LIMITER/PRESSURE CUT OUT FOR LOW PRESSURE/HIGH PRESSURE PROTECTION									
PS2-C7A		4353500	15" Hg to 100 (-0.5...7)	90 to 450 (6...31)	7 to 72 (0.5...5)	External Manual Reset High Press. 60 (4) fixed	50/65 (3.5/4.5)	290 (20)	7/16" -20 UNF
PS2-C7K		4348400							Capillary/nut
PS2-C7L		5715131				Capillary/solder			
PS2-C7U		4713422				Solder 6 mm			
PS2-C7X		4713423		Solder tube 1/4"					
TPC-PS2-Y7A	097954		24" Hg to 45 (-0.8...3)	90 to 450 (6...31)	4 to 29 (.25...2)	Convertible Auto/Manual Reset	7/15		7/16" -20 UN
TPC-PS2-Y7K	097943					Capillary/nut			
TPC-PS2-Y9K	097950								Capillary/nut

Standard Product Offering.

*Product Code Number.

PRESSURE CONTROLS

ALCO PS2 SERIES DUAL PRESSURE CONTROLS

ORDERING INFORMATION FOR PS2 DUAL PRESSURE CONTROLS

P/N	ALCO U.S. PCN	ALCO EUROPE PCN	ADJUSTMENT RANGE				FACTORY SETTING		PRESSURE CONNECTION
			Upper Setpoint		Differential		Left PSIG (BAR)	Right PSIG (BAR)	
			Left PSIG (BAR)	Right PSIG (BAR)	Left PSIG (BAR)	Right PSIG (BAR)			
COMBINED PRESSURE LIMITER/SAFETY PRESSURE CUT OUT — FOR LOW PRESSURE/HIGH PRESSURE PROTECTION									
PS2-T7A		4368500	15" Hg to 100 (-0.5...7)	90 to 450 (6...31)	7 to 72 (0.5...5)	Internal Manual Reset High Press. 60 (4) fixed	50/65 (3.5/4.5)	290 (20)	7/16" -20 UNF
PS2-T7K		4448000							Capillary/nut
PS2-T7L		4715132							Capillary/solder
PS2-T7U		4713424							Solder 6 mm
PS2-T7X		4713425							Solder tube 1/4"
COMBINED PRESSURE CUT OUT — FOR LOW PRESSURE/HIGH PRESSURE PROTECTION									
PS2-B7A		4360200	15" Hg to 100 (-0.5...7)	90 to 450 (6...31)	External Manual Reset Low Press. 15 (1) fixed	External Manual Reset High Press. 60 (4) fixed	65 (4.5)	290 (20)	7/16" -20 UNF
PS2-B7K		4446600							Capillary/nut
PS2-B7L		4446700							Capillary/solder
PS2-B7U		4449400							Solder 6 mm
PS2-B7X		4713426							Solder tube 1/4"
COMBINED PRESSURE CUT OUT — FOR HIGH PRESSURE/HIGH PRESSURE PROTECTION									
PS2-G8A		4368600	15" Hg to 100 (-0.5...7)	90 to 450 (6...31)	External Manual Reset Low Press. 15 (1) fixed	Internal Manual Reset High Press. 60 (4) fixed	65 (4.5)	290 (20)	7/16" -20 UNF
PS2-G8K		4445500							Capillary/nut
PS2-G8L		4715133							Capillary/solder
PS2-G8U		4713427							Solder 6 mm
PS2-G8X		4713428							Solder tube 1/4"

Standard Product Offering.

*Product Code Number.

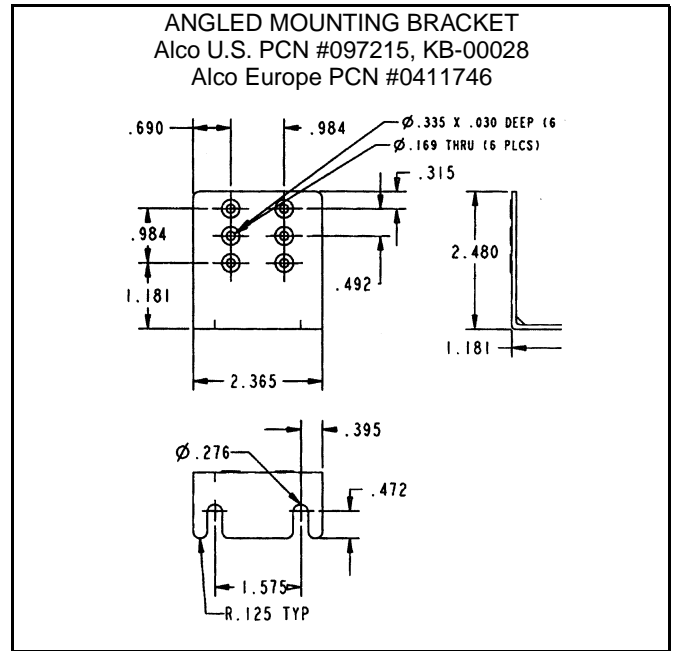
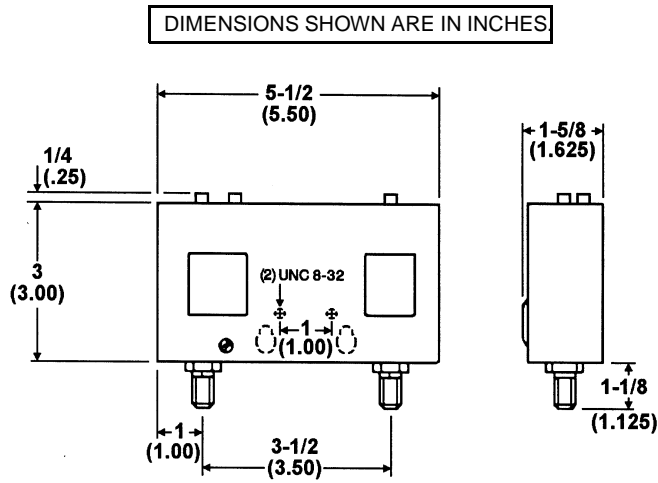
OLD TO NEW CROSS REFERENCE (FF215 TO PS2)				REPLACES THE COMPETITION				
OLD MODEL	OLD PCN	NEW MODEL	NEW PCN	COPELAND*	RANCO	PENN	DANFOSS	SAGINOMIYA
FF215-S7-BAUK	097454	PS2-Y7K 50/65* 230/290	097943	085-0098-02 085-7000-00 985-CP2M-7K	O12-1549 O12-4834	P70LB-1 P70LB-6 P70MA-1 P70MA-18		
FF215-S9-BAUK	097455	PS2-Y9K 7/15* 230/290	097950	085-0098-22 085-0098-23	O12-1502 O12-1506 O12-1554 O12-4833	P70LB-1 P70LB-6 P70MA-1 P70MA-18		
FF215-S7-BAUA	097463	PS2-Y7A 50/65* 230/290	097954	985-CP2M-7A	O12-1550	P170LB-1 P170MA-1		
FF215-S7-BAAA	097006	PS2-A7A 50/65* 230/290	097874		O17-108	P78LCA-9300 P78LCA-9320	KP15 60-1241 KP15 60-1265	DNS-D304X DNS-D306X DNS-D604X DNS-D606X DNS-D706X
FF215-S7-BAAK	097261	PS2-X7K 50/65* 230/290	097875					
FF215-S7-BAAL	097145	PS2-A7L 50/65* 230/290	097876					
FF215-S7-BARA	097034	PS2-L7A 50/65* 290	097877		O17-108	P78MCA-9300 P78MCA-9320	KP15 60-1243 KP15 60-1264	DNS-D304XM DNS-D304XML DNS-D306XM DNS-D306XML DNS-D604XM DNS-D606XM DNS-D606XMM
FF215-S7-BARL	097344	PS2-L7L 50/65* 290	097878					
FF215-S7-BAUL	097057	PS2-Y7L 50/65* 290	097896					

*The Alco control may be used with bracket (PCN 097221) to allow replacement of the Copeland control with the same mounting configuration.

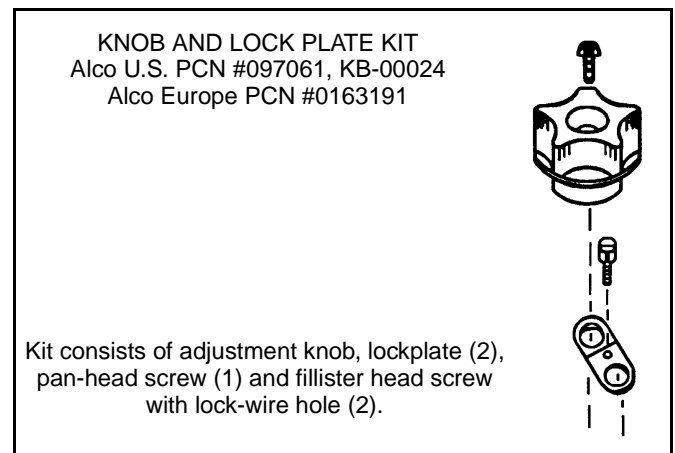
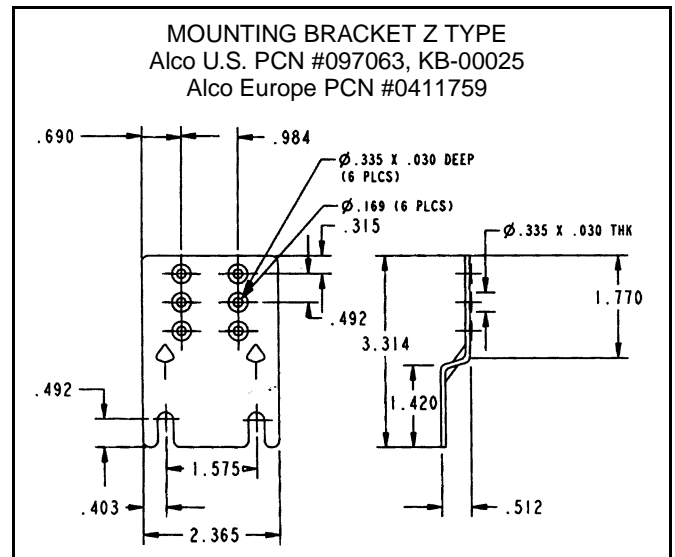
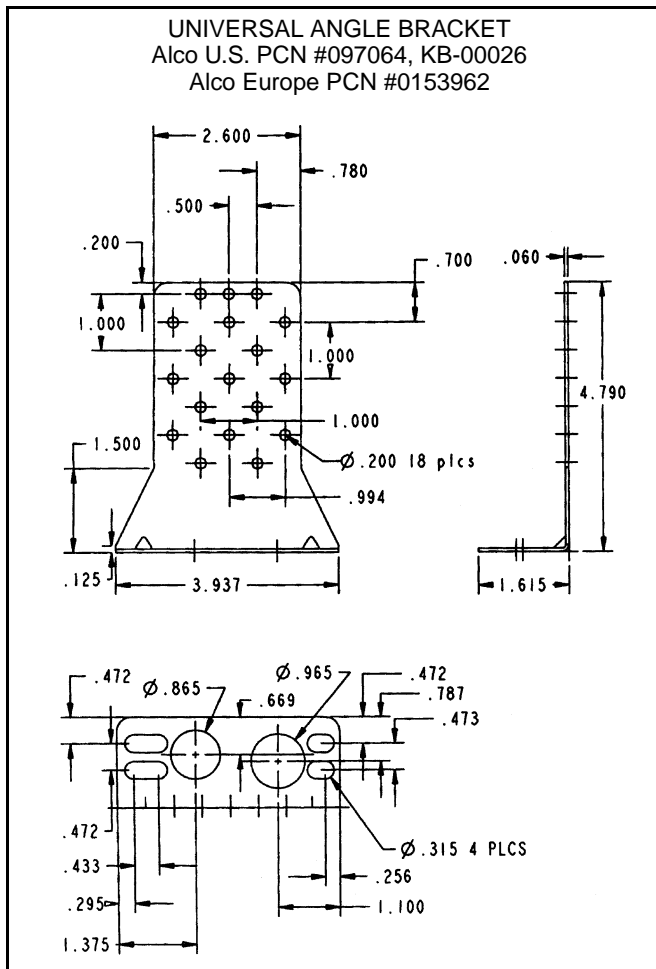
PRESSURE CONTROLS

ALCO PS2 SERIES DUAL PRESSURE CONTROLS

PS1 DIMENSIONAL DIAGRAM



PS2 PARTS/ACCESSORIES



PRESSURE CONTROLS

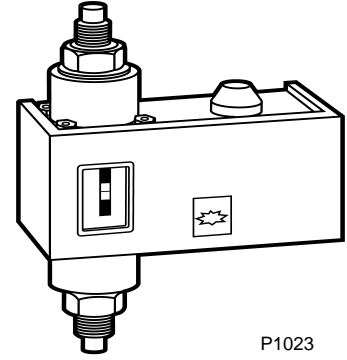
ALCO FD113-ZU(K) OIL PRESSURE SAFETY CONTROLS

The FD113 Oil Pressure Safety Control senses the effective oil pressure on pressure lubricate compressors. If inadequate oil pressure exists, a time delay is energized. If the oil pressure does not recover to safe levels within the time delay setting, the compressor is shut down. The time delay allows the compressor adequate time to establish oil pressure on start up and avoids nuisance shutdowns on pressure drop of short duration during the run cycle.

Maximum application flexibility is assured by providing an adjustable differential pressure switch which can be adjusted to the compressor's minimum required oil pressure needs and an adjustable electronic time delay which allows you to select the length of time the compressor runs below the minimum pressure before shutdown. The minimum pressure setting and time delay values specified by the compressor manufacturer should be used when installing the FD113 control.

FEATURES

- Pressure range adjustable from 4 to 65 PSID; Timer start pressure-timer stop pressure is 3 PSID above timer start pressure.
- A SPDT switch is used in the pressure portion of the control which allows the addition of a "safe light" if desired.
- Electronic timer is Timer-Adjustable from 20 to 150 seconds.
- Supply voltage - 24 to 240 Volt AC/DC. Timing unaffected by voltage or ambient temperature variations.
- A SPDT Manual Reset Switch is used in the Timer Module. Upon time-out, the compressor is stopped and an alarm circuit is energized. To restart the compressor and de-energize the alarm circuit, the reset button is pushed.
- A factory installed jumper allows the FD113 to be powered from a single power source. Should separate circuits be desired for the timer and "Lockout" switch, the jumper can be removed.



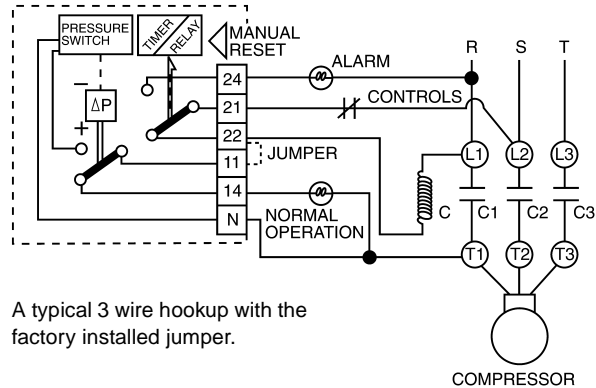
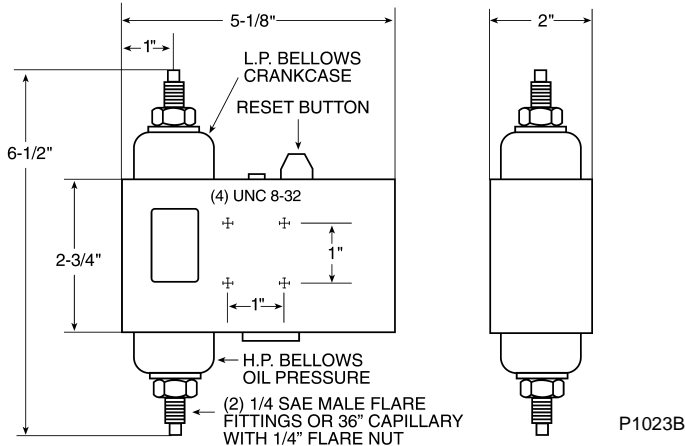
P1023

SPECIFICATIONS

- Agency approvals include: UL/CUL file #E85974, VDE 0631/0660, TUV, CE 73/23/EWG, CE 93/68/EWG.

DIMENSIONS SHOWN ARE IN INCHES.

FD113 DIMENSIONAL DATA



A typical 3 wire hookup with the factory installed jumper.

ORDERING INFORMATION FOR FD113-ZU(K) OIL PRESSURE SAFETY CONTROLS

P/N	PCN	ADJUSTABLE PRESSURE RANGE	ADJUSTABLE TIME	SUPPLY VOLTAGE	PRESSURE CONNECTION	REPLACES		
						PENN	COPELAND	RANCO
TPC-FD-113-ZUK	097456	4-65 PSID	20 to 150 seconds	24 to 240V AC/DC	(2) 36" capillary with 1/4" flare nut	P45NCA-12 P45NCA-82 P28AA-1,-2 P28AA-17,-18 P28DA-1 P28GA-2 P28NA-5	085-0062-00	P30-5826 P30-3601 P30-3701 P30-3801
TPC-FD-113-ZU	097464					P128AA-1,-2,-3 P145NCA-12,-82 P145NCB-12,-82		P30-5827

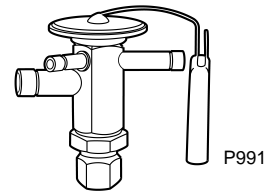
*For applications where the condensing unit/control is exposed to temperatures below 20° F, 1/4" lines are recommended.

THERMOSTATIC EXPANSION VALVES

ALCO A-SERIES

"A" Series Thermo Expansion valves are used for heat pump, air conditioning, food service and commercial applications. "A" Series valves provide stable and accurate control over a wide range of operating conditions.

Stainless Steel Power Assembly



FEATURES

- Hermetic construction eliminates external leakage.
- Compact size allows installation in limited spaces.
- Mass spectrometer tested to ensure less than 0.10 oz/year external leakage rate.
- Stainless steel power element eliminates corrosion and prevents valve failure.

SPECIFICATIONS

- Maximum working pressure: 600 psig

OPTIONS

- HAA wide range charge allows two valves (2-1/2 and 5 ton, R-22) to cover all capacities from 1 to 5 tons on most residential systems (see below).
- New ZW155 charge available for R-410A systems.
- Available adjustable or non-adjustable superheat for application flexibility.
- SAE or ODF connections standard - chatleff or aeroquip are available.
- Available external or internal equalizer to satisfy the broadest possible range of applications.
- Available internal check valve allows reverse flow heat pump applications, eliminating the need for external piping and external check valve, thus reducing installation costs (ANC Series).
- Bleed type pressure equalization available to accommodate PSC type compressors.
- Pressure limiting charges (MOP) available - consult factory.

NOMENCLATURE

Example: AACEB 2 HC 30 IN 3/8 x 1/2 ODF ANG

A	A	C	E	B	2	H	C	30 IN.	3/8 X 1/2	ODF	ANG
Valve Series Economy, Hermetic Design	Superheat Adjustment A = Adjustable N = Non-Adjustable	Internal Check Valve (optional) Reverse Flow Bypass Application	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	Change Code C = medium temp CA = heat pump W(MOP) = press.limiting Z = low temp AA = wide range	Capillary Tube Length 30 in. (std) other lengths available	Inlet x Outlet Connection Sizes I O 1/4 3/8 3/8 1/2 1/2 5/8 5/8 7/8	Connection Type SAE= flare ODF= solder Chatleff (optional) Aeroquip (optional)	Configuration S/T= straight-thru ANG= 90° angle

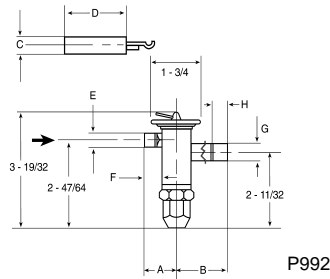
AA/AN SERIES - NOMINAL CAPACITY TABLE IN TONS (kW)

R-12	R-134a	R-22	R-410A	R-502	R-507/R-404A	R-407C
-	1/8 (0.4)	1/5 (0.7)	-	-	1/8 (0.4)	1/5 (0.7)
1/8 (0.4)	1/4 (0.9)	1/4 (0.9)	1/4 (0.9)	1/8 (0.4)	1/4 (0.9)	1/4 (0.9)
1/4 (0.9)	1/2 (1.8)	1/2 (1.8)	1/2 (1.8)	1/4 (0.9)	1/2 (1.8)	1/2 (1.8)
1/2 (1.8)	3/4 (2.7)	1 (3.5)	1 (3.5)	1/2 (1.8)	3/4 (2.7)	1 (3.5)
1 (3.5)	1 (3.5)	1-1/2 (5.3)	1-1/2 (5.3)	1 (3.5)	1 (3.5)	1-1/4 (4.4)
-	1-1/2 (5.3)	2 (7.0)	2 (7.0)	-	1-1/4 (4.4)	2 (7.0)
1-1/2 (5.3)	2 (7.0)	2-1/2 (8.8)	3 (11.0)	1-1/2 (5.3)	2 (7.0)	2-1/2 (8.8)
2 (7.0)	2-1/2 (9.0)	3 (11.0)	4 (14.0)	2 (7.0)	2-1/4 (8.0)	3-1/4 (11.5)
2-1/2 (9.0)	3 (11.0)	4 (14.0)	5 (17.0)	2-1/2 (9.0)	2-1/2 (9.0)	4 (14.0)
3 (11.0)	4 (14.0)	5 (17.0)	-	3 (11.0)	3-1/2 (12.0)	5-1/4 (19.0)

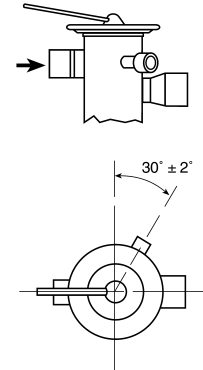
THERMOSTATIC EXPANSION VALVES

ALCO A-SERIES

AA(E) DIMENSIONAL DIAGRAM — ODF Connections,
Straight-Thru Configuration Only



P992



P992A

AA(E)

AA(E) DIMENSIONAL DATA

TYPE	INLET	OUTLET	A	B	E	F	G	H
AA(E) STRAIGHT THRU ODF	1/4 (.25)	3/8 (.38)	1-45/64 (1.70)	1-47/64 (1.73)	1/4 (.25)	5/16 (.31)	3/8 (.38)	5/16 (.31)
	3/8 (.38)	3/8 (.38)	1-47/64 (1.73)	1-47/64 (1.73)	3/8 (.38)	5/16 (.31)	3/8 (.38)	5/16 (.31)
	3/8 (.38)	1/2 (.50)	1-47/64 (1.73)	1-47/64 (1.73)	3/8 (.38)	5/16 (.31)	1/2 (.50)	3/8 (.38)
	1/2 (.50)	1/2 (.50)	1-47/64 (1.73)	1-47/64 (1.73)	1/2 (.50)	3/8 (.38)	1/2 (.50)	3/8 (.38)
	1/2 (.50)	5/8 (.63)	1-47/64 (1.73)	1-3/4 (1.75)	1/2 (.50)	3/8 (.38)	5/8 (.63)	1/2 (.50)
	5/8 (.53)	5/8 (.63)	1-3/4 (1.75)	1-3/4 (1.75)	5/8 (.63)	1/2 (.50)	5/8 (.63)	1/2 (.50)
	1/4 (.25)	5/8 (.63)	1-45/64 (1.70)	1-3/4 (1.75)	1/4 (.25)	5/16 (.31)	5/8 (.63)	1/2 (.50)
	3/8 (.38)	5/8 (.63)	1-47/64 (1.73)	1-3/4 (1.75)	3/8 (.38)	5/16 (.31)	5/8 (.63)	1/2 (.50)
	1/4 (.25)	1/2 (.50)	1-45/64 (1.70)	1-47/64 (1.73)	1/4 (.25)	5/16 (.31)	1/2 (.50)	3/8 (.38)
	1/2 (.50)	7/8 (.88)	1-47/64 (1.73)	1-47/64 (1.73)	1/2 (.50)	3/8 (.38)	7/8 (.88)	3/4 (.75)
	3/8 (.38)	7/8 (.88)	1-47/64 (1.73)	1-47/64 (1.73)	3/8 (.38)	5/16 (.31)	7/8 (.88)	3/4 (.75)
	5/8 (.63)	7/8 (.88)	1-3/4 (1.75)	1-47/64 (1.73)	5/8 (.63)	1/2 (.50)	7/8 (.88)	3/4 (.75)

REMOTE BULB TUBING LENGTH 30" OR 5' STANDARD

AA(E) & AN(E) REMOTE BULB DIMENSIONS

REFRIGERANT CHARGE	D (LENGTH)	C (DIAMETER)
ZW 155, HCA, NCA, HAA	2-5/16 (2.31)	3/4 (.75)
MC, MZ, MW, (MOP), RW (MOP)	2-3/32 (2.09)	1/2 (.50)
RC, SC, SZ, SW (MOP)		
PC, PZ, PW (MOP)		

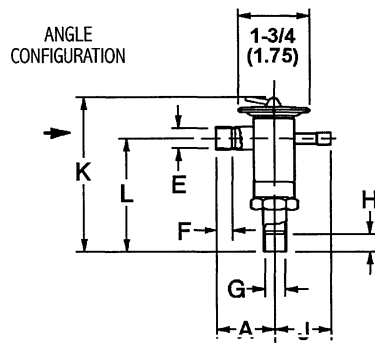
THERMOSTATIC EXPANSION VALVES

ALCO A-SERIES

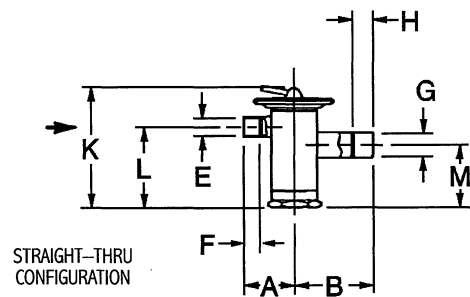
AN(E) & ANC (E) Dimensional Diagrams — ODF Connections Angle or Straight-Thru Configuration

DIMENSIONAL DATA											
TYPE	INLET	OUTLET	A	B	E	F	G	H	K	L	M
STRAIGHT THRU ODF	1/4 (.25)	3/8 (.38)	1-45/64 (1.70)	1-47/64 (1.73)	1/4 (.25)	5/16 (.31)	3/8 (.38)	5/16 (.31)	2-5/8 (2.63)	1-3/4 (1.75)	1-23/64 (1.36)
	3/8 (.38)	3/8 (.38)	1-47/64 (1.73)	1-47/64 (1.73)	3/8 (.38)	5/16 (.31)	3/8 (.38)	5/16 (.31)			
	3/8 (.38)	1/2 (.50)	1-47/64 (1.73)	1-47/64 (1.73)	3/8 (.38)	5/16 (.31)	1/2 (.50)	3/8 (.38)			
	1/2 (.50)	1/2 (.50)	1-47/64 (1.73)	1-47/64 (1.73)	1/2 (.50)	3/8 (.38)	1/2 (.50)	3/8 (.38)			
	1/2 (.50)	5/8 (.63)	1-47/64 (1.73)	1-3/4 (1.75)	1/2 (.50)	3/8 (.38)	5/8 (.63)	1/2 (.50)			
	5/8 (.63)	5/8 (.63)	1-3/4 (1.75)	1-3/4 (1.75)	5/8 (.63)	1/2 (.50)	5/8 (.63)	1/2 (.50)			
	1/4 (.25)	5/8 (.63)	1-45/64 (1.70)	1-3/4 (1.75)	1/4 (.25)	5/16 (.31)	5/8 (.63)	1/2 (.50)			
	3/8 (.38)	5/8 (.63)	1-47/64 (1.73)	1-3/4 (1.75)	3/8 (.38)	5/16 (.31)	5/8 (.63)	1/2 (.50)			
	1/4 (.25)	1/2 (.50)	1-45/64 (1.70)	1-47/64 (1.73)	1/4 (.25)	5/16 (.31)	1/2 (.50)	3/8 (.38)			
	1/2 (.50)	7/8 (.88)	1-47/64 (1.73)	1-47/64 (1.73)	1/2 (.50)	3/8 (.38)	7/8 (.88)	3/4 (.75)			
3/8 (.38)	7/8 (.88)	1-47/64 (1.73)	1-47/64 (1.73)	3/8 (.38)	5/16 (.31)	7/8 (.88)	3/4 (.75)				
5/8 (.63)	7/8 (.99)	1-3/4 (1.73)	1-47/64 (1.73)	5/8 (.63)	1/2 (.50)	7/8 (.88)	3/4 (.75)				

DIMENSIONAL DATA										
TYPE	INLET	OUTLET	A	E	F	G	H	J	K	L
ANGLE ODF	1/4 (.25)	3/8 (.38)	1-45/64 (1.70)	1/4 (.25)	5/16 (.31)	3/8 (.38)	5/16 (.31)	1-45/64 (1.70)	3-1/32 (3.03)	2-11/64 (2.17)
	3/8 (.38)	3/8 (.38)	1-47/64 (1.73)	3/8 (.38)	5/16 (.31)	3/8 (.38)	5/16 (.31)		3-1/32 (3.03)	2-11/64 (2.17)
	3/8 (.38)	1/2 (.50)	1-47/64 (1.73)	3/8 (.38)	5/16 (.31)	1/2 (.50)	3/8 (.38)		3-37/64 (3.58)	2-23/32 (2.72)
	1/2 (.50)	1/2 (.50)	1-47/64 (1.73)	1/2 (.50)	3/8 (.38)	1/2 (.50)	3/8 (.38)		3-37/64 (3.58)	2-23/32 (2.72)
	1/2 (.50)	5/8 (.63)	1-47/64 (1.73)	1/2 (.50)	3/8 (.38)	5/8 (.63)	1/2 (.50)		3-7/32 (3.22)	2-23/64 (2.36)
	5/8 (.63)	5/8 (.63)	1-3/4 (1.75)	5/8 (.63)	1/2 (.50)	5/8 (.63)	1/2 (.50)		3-7/32 (3.22)	2-23/64 (2.36)
	1/4 (.25)	5/8 (.63)	1-45/64 (1.70)	1/4 (.25)	5/16 (.31)	5/8 (.63)	1/2 (.50)		3-7/32 (3.22)	2-23/64 (2.36)
	3/8 (.38)	5/8 (.63)	1-47/64 (1.73)	3/8 (.38)	5/16 (.31)	5/8 (.63)	1/2 (.50)		3-7/32 (3.22)	2-23/64 (2.36)
	1/4 (.25)	1/2 (.50)	1-45/64 (1.70)	1/4 (.25)	5/16 (.31)	1/2 (.50)	3/8 (.38)		3-37/64 (3.58)	2-23/32 (2.72)
	1/2 (.50)	7/8 (.88)	1-47/64 (1.73)	1/2 (.50)	3/8 (.38)	7/8 (.88)	3/4 (.75)		3-37/64 (3.58)	2-47/64 (2.73)



P992B



P992C

THERMOSTATIC EXPANSION VALVES

ALCO A-SERIES

ORDERING INFORMATION FOR A-SERIES VALVES

VALVE SERIES	CAPACITY TONS	CONNECTIONS	P/N					CAP TUBE
			FC R-12/R-134a Med Temp.	HC R-22 Med Temp.	MC R-134a Med Temp.	MZ R-134a Low Temp.	SC R-404A Med Temp.	
AA	1/4	1/4 X 3/8 ODF S/T	ALC-048986					5 FT.
	1/4	1/4 X 3/8-1/2 SAE S/T	ALC-049820					5 FT.
	1/4	1/4 X 3/8 ODF S/T		ALC-056315				5 FT.
	1/2	3/8 X 1/2 SAE S/T		057828				5 FT.
	1/2	3/8 X 3/8 SAE S/T		ALC-056547				30 IN.
	1/2	1/4 X 3/8 SAE S/T			ALC-058985			30 IN.
	1/2	1/4 X 3/8 SAE S/T				ALC-058986		30 IN.
	1	3/8 X 1/2 SAE S/T		ALC-057985				5 FT.
	1	1/4 X 1/2 ODF S/T					ALC-061827	30 IN.
	1	1/4 X 1/2 ODF S/T						ALC-059682
2 1/2	3/8 X 1/2 SAE S/T		ALC-056682				5 FT.	
3	3/8 X 1/2 SAE S/T		ALC-056683				5 FT.	

VALVE SERIES	CAPACITY TONS	CONNECTIONS	P/N		CAP TUBE
			HCA R-22 Heat Pump		
AAEB	3	3/8 X 1/2 ODF S/T (B032)		ALC-059603	30 IN.
	3	3/8 X 1/2 SAE S/T (B032)		ALC-059602	30 IN.
	4	1/2 X 1/2 ODF S/T (B035)		ALC-059605	30 IN.
	4	1/2 X 1/2 SAE S/T (B035)		ALC-059604	30 IN.
	5	1/2 X 7/8 ODF S/T (B040)		ALC-064036	5 FT.
	5	1/2 X 1/2 ODF S/T (B040)		ALC-059607	30 IN.
	5	1/2 X 5/8 SAE S/T (B040)		ALC-061243	30 IN.

VALVE SERIES	CAPACITY TONS	CONNECTIONS	P/N			CAP TUBE
			HC R-22 Med Temp.	HCA R-22 Heat Pump	HAA R-22 Wide Range	
AAE	1/2	3/8 X 1/2 SAE S/T	ALC-057987			5 FT.
	1	1/4 X 3/8 ODF S/T	ALC-059582			30 IN.
	2	3/8 X 3/8 ODF S/T	ALC-059583			30 IN.
	2	3/8 X 1/2 ODF S/T		ALC-049632		30 IN.
	2	3/8 X 1/2 SAE S/T		ALC-059609		30 IN.
	2 1/2	CHATLEFF			ALC-013938	30 IN.
	2 1/2	3/8 X 1/2 ODF S/T		ALC-049633		30 IN.
	2 1/2	3/8 X 1/2 ODF S/T			ALC-063648	30 IN.
	3	3/8 X 1/2 SAE S/T	ALC-056686			5 FT.
	3	1/2 X 5/8 ODF S/T		ALC-060643		30 IN.
	3	3/8 X 1/2 ODF S/T		ALC-049634		30 IN.
	3	3/8 X 1/2 SAE S/T		ALC-059611		30 IN.
	4	1/2 X 5/8 ODF S/T	ALC-061960			5 FT.
	4	1/2 X 5/8 ODF S/T		ALC-057270		30 IN.
	4	3/8 X 1/2 ODF S/T		ALC-049638		30 IN.
	4	1/2 X 1/2 ODF S/T		ALC-061247		30 IN.
	4	1/2 X 1/2 SAE S/T		ALC-059612		30 IN.
	5	1/2 X 5/8 ODF S/T	ALC-059565			5 FT.
	5	5/8 X 7/8 ODF S/T	ALC-061805			30 IN.
	5	1/2 X 5/8 ODF S/T		ALC-059683		30 IN.
	5	3/8 X 1/2 ODF S/T (ODF EE)		ALC-054024		30 IN.
	5	1/2 X 5/8 SAE S/T		ALC-061246		30 IN.
	5	3/8 X 1/2 ODF S/T(SAE EE)		ALC-055120		30 IN.
	5	3/8 X 1/2 ODF S/T			ALC-063649	30 IN.
5	CHATLEFF			ALC-013939	30 IN.	

Standard Product Offering.

THERMOSTATIC EXPANSION VALVES

ALCO ANC THERMO® VALVE WITH INTERNAL CHECK

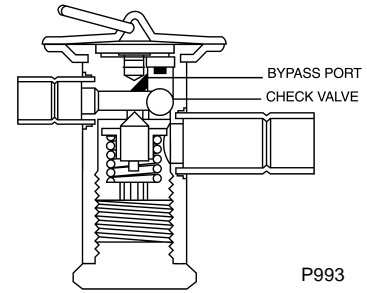
ANC Series Thermo Expansion Valves are used for heat pump and air conditioning applications. ANC valves provide stable and accurate system control over a wide range of operating conditions.

FEATURES

- Factory-set super heat prevents unwanted or unauthorized field tampering.
- Compact integral design with straight-thru connections adapts to your installation needs.
- Reverse-flow capability for heat pumps.
- Internal check valve for construction shown above was designed specifically for heat pump applications and provides superior control during heating or cooling cycles.
- Negligible pressure drop in reverse flow.
- External equalizer standard.
- Stainless steel power assembly.

OPTIONS

- HAA wide range charge for R-22 applications.
- ZW155 charge for R-410A systems conditioning service. Other charges available.
- Bleed type pressure equalization to accommodate PSC type compressors available on special order.
- SAE flare or ODF solder connections.
- Remote bulb tubing length 30" or 5' standard.



The ANC was designed specifically for heat pump systems. The internal check valve feature allows reverse flow to occur, making the ANC the best choice for your heat pump applications.

SPECIFICATIONS

- Maximum working pressure: 600 psig.

NOMENCLATURE Example: ANCEB 2 HCA 30 IN 1/2 x 5/8 ODF S/T

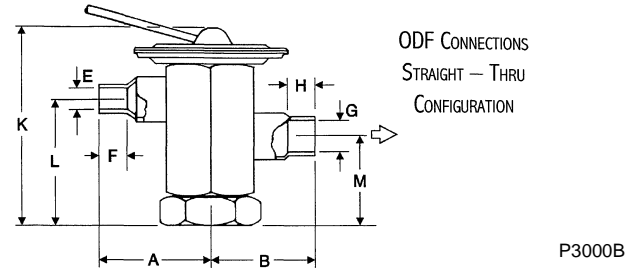
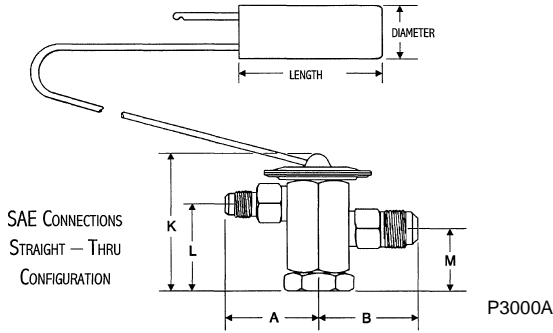
A	N	C	E	B	2	H	CA	30 IN	1/2 X 5/8	ODF	S/T
Valve Series Economy, Hermetic Design	Superheat Adjustment N = Non-adjustable	Internal Check Valve Reverse Flow Bypass Application	Equalizer E = External (Omit for Internal)	Bleed Hole (optional) Omit for no bleed hole	Capacity Nominal Rating in Tons See nominal capacity table (below)	Refrigerant Code F = R-12 H = R-22 M = R-134A N = R-407C Z = R-410A	Charge Code CA = heat pump AA = wide range W155 = R410A	Capillary Tube Length 30 in. (std) other lengths are available	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 Chatleff (optional) Aeroquip (optional)	Configuration S/T = straight-thru ANG = 90° angle

ANC SERIES — NOMINAL CAPACITY TABLE IN TONS (kWATTS)

R-12	R-134A	R-22	R-410A	R-407C
—	1/8 (0.4)	1/5 (0.7)	—	1/5 (0.7)
1/8 (0.4)	1/4 (0.9)	1/4 (0.9)	1/4 (0.9)	1/4 (0.9)
1/4 (0.9)	1/2 (1.8)	1/2 (1.8)	1/2 (1.8)	1/2 (1.8)
1/2 (1.8)	3/4 (2.7)	1 (3.5)	1 (3.5)	1 (3.5)
1 (3.5)	1 (3.5)	1-1/2 (5.3)	1-1/2 (5.3)	1-1/4 (4.4)
—	1-1/2 (5.3)	2 (7.0)	2 (7.0)	2 (7.0)
1-1/2 (5.3)	2 (7.0)	2-1/2 (8.8)	3 (11.0)	2-1/2 (8.8)
2 (7.0)	2-1/2 (9.0)	3 (11.0)	4 (14.0)	3-1/4 (11.5)
2-1/2 (9.0)	3 (11.0)	4 (14.0)	5 (17.0)	4 (14.0)
3 (11.0)	4 (14.0)	5 (17.0)	—	5-1/4 (19.0)

THERMOSTATIC EXPANSION VALVES

ALCO ANC THERMO® VALVE WITH INTERNAL CHECK ANC DIMENSIONAL DATA

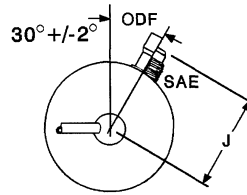
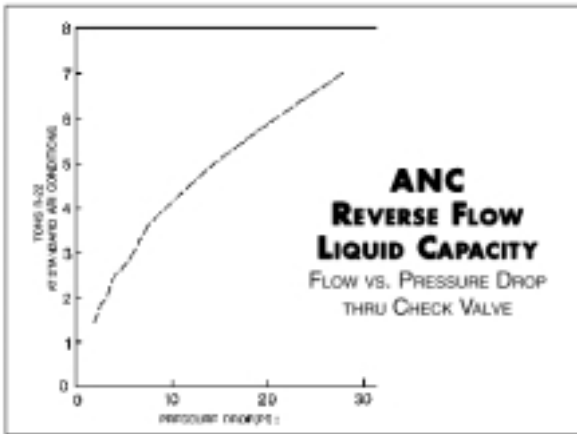


STRAIGHT-THRU	INLET	OUTLET	A	B	E DIA.	F MIN.	G DIA.	H MIN.	K	L	M
SAE	3/8 (.38)	3/8 (.38)	1-41/64 (1.64)	1-23/32 (1.72)	—	—	—	—	2-1/4 (2.25)	1-25/64 (1.39)	1 (1.00)
	3/8 (.38)	1/2 (.50)	1-41/64 (1.64)	1-23/32 (1.72)							
	1/2 (.50)	1/2 (.50)	1-23/32 (1.72)	1-23/32 (1.72)							
	1/2 (.50)	5/8 (.63)	1-23/32 (1.72)	1-63/64 (1.98)							
ODF	3/8 (.38)	3/8 (.38)	1-3/16 (1.19)	1-3/16 (1.19)	3/8 (.38)	5/16 (.32)	3/8 (.38)	5/16 (.32)	2-1/4 (2.25)	1-25/64 (1.39)	1 (1.00)
	3/8 (.38)	1/2 (.50)	1-3/16 (1.19)	1-3/16 (1.19)	3/8 (.38)	3/8 (.38)	3/8 (.38)	5/16 (.32)			
	1/2 (.50)	1/2 (.50)	1-3/16 (1.19)	1-3/16 (1.19)	1/2 (.50)	1/2 (.50)	1/2 (.50)	3/8 (.38)			
	5/8 (.63)	5/8 (.63)	1-3/8 (1.38)	1-3/8 (1.38)	5/8 (.63)	5/16 (.32)	5/8 (.63)	1/2 (.50)			

For connection sizes not shown consult your ALCO representative or ALCO's Applications Engineering Department.

REMOTE BULB DIMENSIONS

CHARGE SYMBOL	DIAMETER	LENGTH
HCA	3/4 (.75)	2-5/16 (2.31)



DIMENSIONS SHOWN ARE IN INCHES:
FRACTIONS (DECIMAL)

P3000C

EXTERNAL EQUALIZER FITTING

EXTERNAL EQUALIZER FITTING

TYPE	I.D.	J	SOCKET DEPTH
1/4 SAE	—	1-9/32 (1.28)	—
1/4 ODF	.2540 + .0020 - .9915	1-13/32 (1.41)	1/4 ± 1/64 (.25 ± .02)

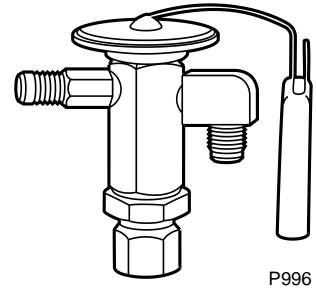
ORDERING INFORMATION FOR ANC SERIES VALVES

VALVE SERIES	CAPACITY (TONS)	CONNECTIONS	P/N	CAP TUBE
			HCA R-22 Heat Pump	
ANCE	1	3/8 x 1/2 ODF S/T	ALC-058506	5 ft
	2	3/8 x 1/2 ODF S/T	ALC-056490	5 ft
	2-1/2	3/8 x 1/2 ODF S/T	ALC-056491	5 ft
	3	3/8 x 1/2 ODF S/T	ALC-056492	5 ft
	4	3/8 x 1/2 ODF S/T	ALC-056493	5 ft
ANCEB	5	3/8 x 1/2 ODF S/T	ALC-059221	30 in.
	1-1/2	3/8 x 1/2 ODF S/T (B020)	ALC-056842	5 ft
	2	3/8 x 1/2 ODF S/T (B024)	ALC-056768	5 ft
	2-1/2	3/8 x 1/2 ODF S/T (B028)	ALC-056769	5 ft
	3	3/8 x 1/2 ODF S/T (B032)	ALC-058824	5 ft
	4	3/8 x 1/2 ODF S/T (B035)	ALC-056770	5 ft
	5	3/8 x 1/2 ODF S/T (B040)	ALC-057939	5 ft

THERMOSTATIC EXPANSION VALVES

ALCO AFA(E) THERMO® EXPANSION VALVE

ALCO's AFA series Thermo® Expansion Valve is designed for air conditioning and commercial refrigeration applications requiring angle configuration SAE connections. The AFA is ideal for those applications requiring compact size combined with stable and accurate control over wide load and evaporator temperature ranges.



FEATURES

- External superheat adjustment.
- Replaceable inlet strainer.
- SAE connections only.
- Wrench flats on inlet and outlet for easy installation.
- Stainless steel power element for maximum corrosion resistance.

OPTIONS

- Available external or internal equalizer to satisfy the broadest possible range of applications.

SPECIFICATIONS

- Maximum working pressure of 600 psig.

NOMENCLATURE Example: AFAE 1/2 HC 5 FT 3/8 x 1/2 SAE ANG

AF	A	E	1/2	H	C	5 FT	3/8 X 1/2	SAE	ANG
Valve Series Economy, Hermetic Design	Superheat Adjustment A = Adjustable	Equalizer E = External (Omit for Internal)	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	Charge Code C = medium temp CA = heat pump W(MOP) = press. limiting Z = low temp AA = wide range	Capillary Tube Length 30 in. and 5 ft are standard	Inlet x Outlet Connection Sizes 1/4 x 3/8 3/8 x 1/2	Connection Type SAE = flare	Configuration ANG = 90° angle

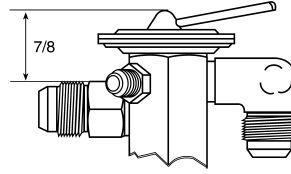
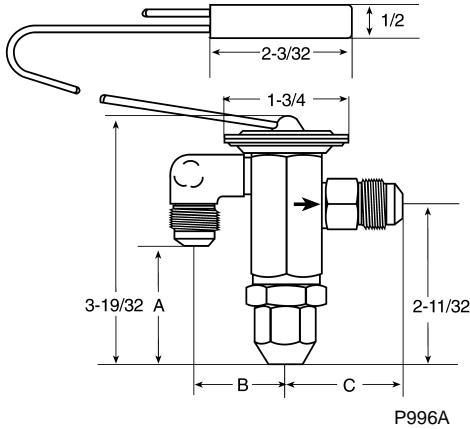
AFA SERIES — NOMINAL CAPACITY TABLE IN TONS (kWATTS)

R-12	R-134A	R-22	R-410A	R-502	R-507/R-404A	R-407C
—	1/8 (0.4)	1/5 (0.7)	—	—	1/8 (0.4)	1/5 (0.7)
1/8 (0.4)	1/4 (0.9)	1/4 (0.9)	1/4 (0.9)	1/8 (0.4)	1/4 (0.9)	1/4 (0.9)
1/4 (0.9)	1/2 (1.8)	1/2 (1.8)	1/2 (1.8)	1/4 (0.9)	1/2 (1.8)	1/2 (1.8)
1/2 (1.8)	3/4 (2.7)	1 (3.5)	1 (3.5)	1/2 (1.8)	3/4 (2.7)	1 (3.5)
1 (3.5)	1 (3.5)	1-1/2 (5.3)	1-1/2 (5.3)	1 (3.5)	1 (3.5)	1-1/4 (4.4)
—	1-1/2 (5.3)	2 (7.0)	2 (7.0)	—	1-1/4 (4.4)	2 (7.0)
1-1/2 (5.3)	2 (7.0)	2-1/2 (8.8)	3 (11.0)	1-1/2 (5.3)	2 (7.0)	2-1/2 (8.8)
2 (7.0)	2-1/2 (9.0)	3 (11.0)	4 (14.0)	2 (7.0)	2-1/4 (8.0)	3-1/4 (11.5)
—	3 (11.0)	—	5 (17.0)	—	2-1/2 (9.0)	4 (14.0)
3 (11.0)	4 (14.0)	5 (17.0)	—	3 (11.0)	3-1/2 (12.0)	5-1/4 (19.0)

THERMOSTATIC EXPANSION VALVES

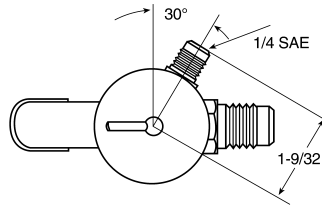
ALCO AFA(E) THERMO® EXPANSION VALVE

AFA(E) DIMENSIONAL DATA



DIMENSIONS SHOWN ARE IN INCHES.
FRACTIONS (DECIMAL)

Remote Bulb Tubing Length
30" or 5' Standard.



AFA(E) DIMENSIONAL DATA

AFA(E) CONNECTIONS				
TOLERANCE		± 5/32 (.16)	± 1/32 (.03)	± 3/64 (.05)
Inlet	Outlet	A	B	C
1/4 (.25) elbow	3/8 (.38)	1-49/64 (1.77)	1-3/32 (1.09)	1-41/64 (1.64)
	1/2 (.50)			1-23/64 (1.36)
	5/8 (.63)			1-63/64 (1.98)
	3/8 (.38) - 1/2 (.50)			1-47/64 (1.73)
3/8 (.38) elbow	3/8 (.38)	1-41/64 (1.64)	1-5/16 (1.31)	1-41/64 (1.64)
	1/2 (.50)			1-23/64 (1.36)
	5/8 (.63)			1-63/64 (1.98)
	3/8 (.38) - 1/2 (.50)			1-47/64 (1.73)

ORDERING INFORMATION FOR AFA SERIES VALVES

VALVE SERIES	CAPACITY TONS	CONNECTIONS	P/N				REFRIG.
			Internal Equalized		External Equalized		
			MC R-134a Med. Temp.	MZ R-134a Low Temp.	MC R-134a Med. Temp.		
AFA(E)	1/4	1/4 x 1/2 SAE	ALC-057607	ALC-058622	ALC-063898		R-134a
	1/2	1/4 x 1/2 SAE	ALC-057606		ALC-057853		
	1/2	3/8 x 1/2 SAE	ALC-059625		ALC-061904		
	1	3/8 x 1/2 SAE			ALC-057613		
	1-1/2	3/8 x 1/2 SAE			ALC-060865		
	2	3/8 x 1/2 SAE			ALC-061906		
	2-1/2	3/8 x 1/2 SAE			ALC-061907		
3	3/8 x 1/2 SAE			ALC-061908			

VALVE SERIES	CAPACITY TONS	CONNECTIONS	Internal Equalized			External Equalized			REFRIG.
			HC R-22 Med. Temp.	HZ R-22 Low Temp.	HW35 R-22 MOP	HC R-22 Med. Temp.	HZ R-22 Low Temp.	HW35 R-22 MOP	
			AFA (E)	1/4	1/4 x 1/2 SAE	ALC-057261	ALC-059575		
1/2	1/4 x 1/2 SAE	ALC-057260		ALC-055828		ALC-054246	ALC-058929	ALC-058924	
1	3/8 x 1/2 SAE	ALC-054231		ALC-057555		ALC-054247	ALC-057950		
1-1/2	3/8 x 1/2 SAE	ALC-054232		ALC-058480		ALC-054258	ALC-057951		
2	3/8 x 1/2 SAE	ALC-054233		ALC-058481		ALC-054249	ALC-057556		
3	3/8 x 1/2 SAE	ALC-062058				ALC-054250	ALC-058484		
5	3/8 x 1/2 SAE	ALC-062059							

VALVE SERIES	CAPACITY TONS	CONNECTIONS	Internal Equalized			External Equalized			REFRIG.
			SC R-404A Med. Temp.	SZ R-404A Low Temp.	SW35 R-404A MOP	SC R-404A Med. Temp.	SZ R-404A Low Temp.	SW35 R-404A MOP	
			AFA(E)	1/4	1/4 x 1/2 SAE	ALC-064072			
1/2	1/4 x 1/2 SAE	ALC-064073							
1	3/8 x 1/2 SAE					ALC-061912	ALC-063464	ALC-061307	
1-1/2	3/8 x 1/2 SAE					ALC-063702	ALC-063465	ALC-061308	
2	3/8 x 1/2 SAE					ALC-061914	ALC-061646		
3-1/2	3/8 x 1/2 SAE					ALC-061917	ALC-063466	ALC-063386	

Standard Product Offering.

THERMOSTATIC EXPANSION VALVES

ALCO BA THERMO® EXPANSION VALVE

BA(E)/BN(E) Series Thermo Expansion Valves featuring balanced port construction are used for Bi-Flow applications.

BA/BN valves provide stable and accurate control over a wide range of operating conditions.

FEATURES

- Hermetic construction eliminates external leakage.
- Compact size allows installation in limited spaces.
- Stainless steel power element eliminates corrosion and prevents valve failure.
- 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.

OPTIONS

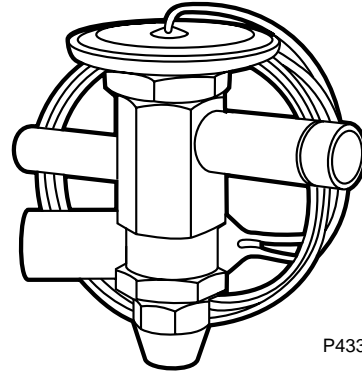
- Available external or internal equalizer to satisfy the broadest possible range of applications.
- Bleed type pressure equalization available to accommodate PSC type compressors.

- SAE or ODF connections standard - chatleff or aeroquip are available.
- Available adjustable or non-adjustable superheat for application flexibility.

Straight-thru configuration designed to fit most common applications.

SPECIFICATIONS

- Maximum Working Pressure: 600 psig.



P4335

NOMENCLATURE

Example: BAEB 1/2 HCA 5 FT 3/8 X 1/2 ODF S/T

B	A	E	B	1/2	H	CA	5 FT	3/8 X 1/2	ODF	S/T
Valve Series Economy, 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	Charge Code C = medium temp CA = heat pump W (MOP)=press limiting Z = low temp	Capillary Tube Length 30 in. and 5 ft are standard	Inlet x Outlet Connection Sizes 1 1/4 3/8 3/8 1/2 1/2 5/8 5/8 7/8	Connection Type SAE = flare ODF = solder	Configuration S/T = Straight thru ANG = 90° angle

BA/BN SERIES - NOMINAL CAPACITY TABLE IN TONS (kWATTS)

R-12	R-134A	R-22/R-407C	R-410A	R-502	R-507/R-404A
1/4 (0.9)	1/2 (1.8)	1/2 (1.8)	1/2 (1.8)	1/4 (0.9)	1/4 (0.9)
1/2 (1.8)	3/4	1 (3.5)	1 (3.5)	1/2 (1.8)	1/2 (1.8)
1 (3.5)	1 (3.5)	1-1/2 (5.3)	1-1/2 (5.3)	1 (3.5)	1 (3.5)
1-1/4 (4.4)	1-1/2 (5.3)	2 (7.0)	2 (7.0)	1-1/4 (4.4)	1-1/4 (4.4)
1-1/2 (5.3)	2 (7.0)	2-1/2 (9.0)	3 (11.0)	1-1/2 (5.3)	1-1/2 (5.3)
2 (7.0)	2-1/4 (8.0)	3 (11.0)	3-1/2 (12.0)	2 (7.0)	2 (7.0)
2-1/2 (9.0)	3 (11.0)	4 (14.0)	4-1/2 (16.0)	2-1/2 (9.0)	2-1/2 (9.0)
3 (11.0)	3-1/2 (12.0)	5 (17.0)	6 (21.0)	3 (11.0)	3 (11.0)
3-1/2 (12.0)	4-1/4 (15.0)	6 (21.0)	7-1/2 (26.0)	4 (14.0)	4 (14.0)

THERMOSTATIC EXPANSION VALVES

ALCO BA THERMO® EXPANSION VALVE

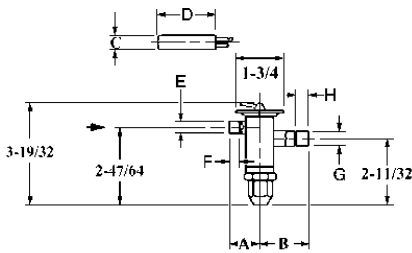
BA/BN DIMENSIONAL DATA

BA(E) DIMENSIONAL DATA

TYPE	INLET	OUTLET	A	B	E	F	G	H
BA(E) STRAIGHT THRU ODF	1/4	3/8	1-45/64 (1.70)	1-47/64 (1.73)	1/4 (.25)	5/16 (.31)	3/8 (.38)	5/16 (.31)
	3/8	3/8	1-47/64 (1.73)	1-47/64 (1.73)	3/8 (.38)	5/16 (.31)	3/8 (.38)	5/16 (.31)
	3/8	1/2	1-47/64 (1.73)	1-47/64 (1.73)	3/8 (.38)	5/16 (.31)	1/2 (.50)	3/8 (.38)
	1/2	1/2	1-47/64 (1.73)	1-47/64 (1.73)	1/2 (.50)	3/8 (.38)	1/2 (.50)	3/8 (.38)
	1/2	5/8	1-47/64 (1.73)	1-3/4 (1.75)	1/2 (.50)	3/8 (.38)	5/8 (.63)	1/2 (.50)
	5/8	5/8	1-3/4 (1.75)	1-3/4 (1.75)	5/8 (.63)	1/2 (.50)	5/8 (.63)	1/2 (.50)
	1/4	5/8	1-45/64 (1.70)	1-3/4 (1.75)	1/4 (.25)	5/16 (.31)	5/8 (.63)	1/2 (.50)
	3/8	5/8	1-47/64 (1.73)	1-3/4 (1.75)	3/8 (.38)	5/16 (.31)	5/8 (.63)	1/2 (.50)
	1/4	1/2	1-45/64 (1.70)	1-47/64 (1.73)	1/4 (.25)	5/16 (.31)	1/2 (.50)	3/8 (.38)
	1/2	7/8	1-47/64 (1.73)	1-47/64 (1.73)	1/2 (.50)	3/8 (.38)	7/8 (.88)	3/4 (.75)
3/8	7/8	1-47/64 (1.73)	1-47/64 (1.73)	3/8 (.38)	5/16 (.31)	7/8 (.88)	3/4 (.75)	
5/8	7/8	1-3/4 (1.75)	1-47/64 (1.73)	5/8 (.63)	1/2 (.50)	7/8 (.88)	3/4 (.75)	

DIMENSIONS SHOWN ARE IN INCHES.
FRACTIONS (DECIMAL)

BA(E)
EXTERNAL EQUALIZER
CONFIGURATION VIEW



P3002

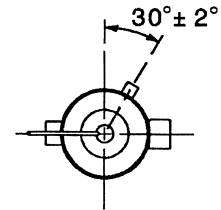
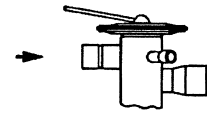
BA(E) DIMENSIONAL DIAGRAM

ODF CONNECTIONS, STRAIGHT-THRU
CONFIGURATION ONLY

REMOTE BULB TUBING LENGTH 30" OR 5' STANDARD

BA(E) & BN(E) REMOTE BULB DIMENSIONS

REFRIGERANT CHARGE	D LENGTH	C DIAMETER
HCA, NCA, HAA	2-5/16 (2.31)	3/4 (.75)
MC, MZ, MW (MOP) RW (MOP) RC, SC, SZ SW (MOP), PC, PZ, PW (MOP)	2-3/32 (2.09)	1/2 (.50)



P3003

BA/BN DIMENSIONAL DATA

BN(E) DIMENSIONAL DATA

TYPE	INLET	OUTLET	A	B	E	F	G	H	K	L	M
BA(E) STRAIGHT THRU ODF	1/4	3/8	1-45/64 (1.70)	1-47/64 (1.73)	1/4 (.25)	5/16 (.31)	3/8 (.38)	5/16 (.31)	2-5/8 (2.63)	1-3/4 (1.75)	1-23/64 (1.36)
	3/8	3/8	1-47/64 (1.73)	1-47/64 (1.73)	3/8 (.38)	5/16 (.31)	3/8 (.38)	5/16 (.31)			
	3/8	1/2	1-47/64 (1.73)	1-47/64 (1.73)	3/8 (.38)	5/16 (.31)	1/2 (.50)	3/8 (.38)			
	1/2	1/2	1-47/64 (1.73)	1-47/64 (1.73)	1/2 (.50)	3/8 (.38)	1/2 (.50)	3/8 (.38)			
	1/2	5/8	1-47/64 (1.73)	1-3/4 (1.75)	1/2 (.50)	3/8 (.38)	5/8 (.63)	1/2 (.50)			
	5/8	5/8	1-3/4 (1.75)	1-3/4 (1.75)	5/8 (.63)	1/2 (.50)	5/8 (.63)	1/2 (.50)			
	1/4	5/8	1-45/64 (1.70)	1-3/4 (1.75)	1/4 (.25)	5/16 (.31)	5/8 (.63)	1/2 (.50)			
	3/8	5/8	1-47/64 (1.73)	1-3/4 (1.75)	3/8 (.38)	5/16 (.31)	5/8 (.63)	1/2 (.50)			
	1/4	1/2	1-45/64 (1.70)	1-47/64 (1.73)	1/4 (.25)	5/16 (.31)	1/2 (.50)	3/8 (.38)			
	1/2	7/8	1-47/64 (1.73)	1-47/64 (1.73)	1/2 (.50)	3/8 (.38)	7/8 (.88)	3/4 (.75)			
3/8	7/8	1-47/64 (1.73)	1-47/64 (1.73)	3/8 (.38)	5/16 (.31)	7/8 (.88)	3/4 (.75)				
5/8	7/8	1-3/4 (1.75)	1-47/64 (1.73)	5/8 (.63)	1/2 (.50)	7/8 (.88)	3/4 (.75)				

THERMOSTATIC EXPANSION VALVES

ALCO BA THERMO® EXPANSION VALVE

ORDERING INFORMATION FOR B-SERIES VALVES

VALVE SERIES	CAPACITY TONS	CONNECTIONS	P/N			CAP TUBE
			MC R-134a Med Temp.	HCA R-22 Heat Pump	HW100 R-22 MOP	
BAE	3/4	3/8 X 1/2 ODF S/T	ALC-062754			30 IN.
	1	3/8 X 1/2 ODF S/T		ALC-063200		30 IN.
	1	3/8 X 1/2 ODF S/T	ALC-061967			30 IN.
	1-1/2	3/8 X 1/2 ODF S/T		ALC-061954		30 IN.
	1-1/2	3/8 X 1/2 ODF S/T			ALC-062831	30 IN.
	1-1/2	3/8 X 1/2 ODF S/T	ALC-063129			30 IN.
	2	1/2 X 1/2 ODF S/T		ALC-063018		5 FT.
	2	3/8 X 1/2 ODF S/T		ALC-061955		30 IN.
	2	3/8 X 1/2 ODF S/T	ALC-062830			30 IN.
	2-1/2	1/2 X 5/8 ODF S/T		ALC-061962		30 IN.
	2-1/2	3/8 X 1/2 ODF S/T		ALC-061956		30 IN.
	2-1/2	3/8 X 1/2 ODF S/T			ALC-062616	30 IN.
	3	1/2 X 5/8 ODF S/T		ALC-063019		5 FT.
	3	1/2 X 5/8 ODF S/T		ALC-062279		30 IN.
	3	3/8 X 1/2 ODF S/T		ALC-061957		30 IN.
	3	3/8 X 1/2 ODF S/T			ALC-062372	30 IN.
	3	3/8 X 1/2 ODF S/T	ALC-063201			30 IN.
	4	5/8 X 5/8 ODF S/T		ALC-063020		5 FT.
	4	1/2 X 5/8 ODF S/T		ALC-061963		30 IN.
	4	3/8 X 1/2 ODF S/T		ALC-061958		30 IN.
	4	3/8 X 1/2 ODF S/T			ALC-062373	30 IN.
	4-1/4	1/2 X 7/8 ODF S/T	ALC-063202			30 IN.
	5	1/2 X 1/2 ODF S/T		ALC-062852		5 FT.
	5	1/2 X 5/8 ODF S/T		ALC-061964		5 FT.
	5	1/2 X 7/8 ODF S/T		ALC-061965		5 FT.
	5	3/8 X 1/2 ODF S/T		ALC-062839		5 FT.
5	5/8 X 5/8 ODF S/T		ALC-062838		5 FT.	
5	1/2 X 7/8 ODF S/T		ALC-061966		30 IN.	
5	3/8 X 1/2 ODF S/T			ALC-062374	30 IN.	
6	1/2 X 1/2 ODF S/T		ALC-062853		5 FT.	
6	1/2 X 5/8 ODF S/T		ALC-062736		5 FT.	
VALVE SERIES	CAPACITY TONS	CONNECTIONS	P/N			CAP TUBE
			HC R-22 Med Temp.	HCA R-22 Heat Pump	HW100 R-22 MOP	
BAEB	1	3/8 X 1/2 ODF S/T (B0145)	ALC-062419			30 IN.
	1	3/8 X 1/2 ODF S/T (B016)		ALC-062820		30 IN.
	1-1/2	1/2 X 1/2 ODF S/T (B028)		ALC-063006		30 IN.
	1-1/2	3/8 X 1/2 ODF S/T (B020)		ALC-062789		30 IN.
	1-1/2	3/8 X 1/2 ODF S/T (B026)		ALC-063014		30 IN.
	2	3/8 X 1/2 ODF S/T (B023)		ALC-062790		30 IN.
	2-1/2	1/2 X 1/2 ODF S/T (B030)		ALC-063016		30 IN.
	2-1/2	3/8 X 1/2 ODF S/T (B027)		ALC-062791		30 IN.
	2-1/2	1/2 X 1/2 ODF S/T (B033)			ALC-063124	5 FT.
	3	1/2 X 1/2 ODF S/T (B041)		ALC-062632		5 FT.
	3	1/2 X 1/2 ODF S/T (B038)		ALC-063015		30 IN.
	3	3/8 X 1/2 ODF S/T (B030)		ALC-061968		30 IN.
	3	3/8 X 3/8 ODF S/T (B028)		ALC-063012		30 IN.
	3	3/8 X 1/2 ODF S/T (B030)			ALC-062558	30 IN.
	4	1/2 X 1/2 ODF S/T (B029)		ALC-061969		5 FT.
	4	1/2 X 1/2 ODF S/T (B046)		ALC-063010		5 FT.
	4	5/8 X 5/8 ODF S/T (B046)			ALC-061978	30 IN.
	5	1/2 X 1/2 ODF S/T (B033)		ALC-061970		5 FT.
	5	1/2 X 1/2 ODF S/T (B055)		ALC-062634		5 FT.
	5	3/8 X 1/2 ODF S/T (B039)		ALC-061980		5 FT.
	5	3/8 X 1/2 ODF S/T (B052)		ALC-063013		5 FT.
	5	1/2 X 1/2 ODF S/T (B039)		ALC-063128		30 IN.
	5	1/2 X 1/2 ODF S/T (B052)		ALC-063126		30 IN.
	6	1/2 X 7/8 ODF S/T (B046)		ALC-063011		5 FT.
	6	1/2 X 5/8 ODF S/T (B046)			ALC-062875	5 FT.

Standard Product Offering.

THERMOSTATIC EXPANSION VALVES

ALCO BA THERMO[®] EXPANSION VALVE

ORDERING INFORMATION FOR B-SERIES VALVES (CONT)

VALVE SERIES	CAPACITY TINS	CONNECTIONS	P/N HCA (R-22 HEAT PUMP)	CAP TUBE
BNE	3	1/2 X 1/2 ODF S/T	ALC-062289	5 FT.
	4	3/8 X 1/2 ODF S/T	ALC-061971	30 IN.
	4	3/8 X 3/8 ODF S/T	ALC-063132	30 IN.
	5	1/2 X 1/2 ODF S/T	ALC-062290	5 FT.
	5	1/2 X 7/8 ODF S/T	ALC-062832	30 IN.

Standard Product Offering.

THERMOSTATIC EXPANSION VALVES

ALCO BAES THERMO® EXPANSION VALVE

BA(E)S/BN(E)S Series Thermo Expansion Valves feature balanced port construction providing stable and accurate control over a wide range of operating conditions.

The BAES/BNES also features a removable inlet strainer for added versatility.

FEATURES

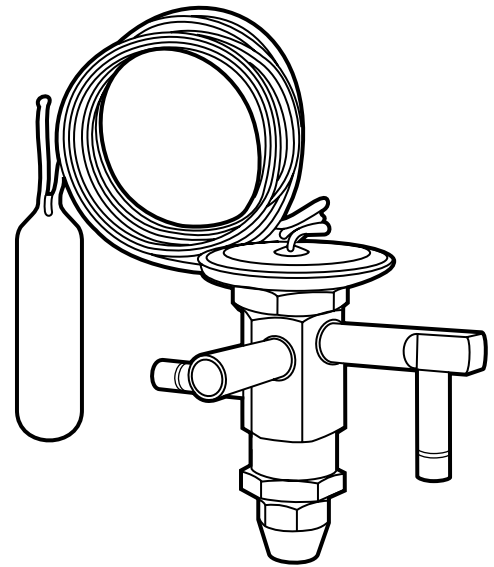
- Removable inlet strainer assembly.
- Balanced port design compensates for changes in operating pressures due to varying ambients or widely varying evaporator loads.
- Hermetic, leak free construction.
- Stainless steel power element for maximum corrosion resistance.
- Solid copper ODF connections, angle style only.

OPTIONS

- Adjustable (BAES) and non-adjustable (BNES) configurations available.
- Ratings from 1/2 to 6 tons.
- Standard 30" and optional 5' capillary tube length.

SPECIFICATIONS

- Maximum Working Pressure: 450 psig.



P3004

NOMENCLATURE

Example: BAESB 1/2 HC 5 FT 3/8 X 1/2 ODF

B	A	E	S	B	1/2	H	C	5 FT	3/8 X 1/2	ODF
Valve Series	Superheat Adjustment	Equalizer	Strainer	Bleed Hole (optional)	Capacity Nominal Rating in Tons	Refrigerant Code	Charge Code	Capillary Tube Length	Inlet x Outlet Connection Sizes	Connection Type
Economy Hermetic Balanced Port Design	A = Adjustable N = Non-Adjustable	E = External (Omit for internal)	Removable Inlet Screen	Omit for no bleed hole	See nominal capacity table (below)	F = R-12 H = R-22 M = R-134a N = R-407C P = R-507 R = R-502 S = R-404A	C = medium temp CA = heat pump W (MOP) = press. limiting Z = low temp	30 in and 5 ft are standard	L O 1/4 3/8 3/8 1/2 1/2 5/8 5/8 7/8	ODF = solder

*NOTE: Valves are shipped without the solenoid coils (VLC-Valve Less Coil).

BA(E)S/BN(E)S SERIES - NOMINAL CAPACITY TABLE IN TONS (kWATTS)

R-12	R-134a	R-22	R-502	R-507/R-404A
1/4 (0.9)	1/2 (1.8)	1/2 (1.8)	1/4 (0.9)	1/4 (0.9)
1/2 (1.8)	3/4 (2.7)	1 (3.5)	1/2 (1.8)	1/2 (1.8)
1 (3.5)	1 (3.5)	1-1/2 (5.3)	1 (3.5)	1 (3.5)
1-1/4 (4.4)	1-1/2 (5.3)	2 (7.0)	1-1/4 (4.4)	1-1/4 (4.4)
1-1/2 (5.3)	2 (7.0)	2-1/2 (9.0)	1-1/2 (5.3)	1-1/2 (5.3)
2 (7.0)	2-1/4 (8.0)	3 (11.0)	2 (7.0)	2 (7.0)
2-1/2 (9.0)	3 (11.0)	4 (14.0)	2-1/2 (9.0)	2-1/2 (9.0)
3 (11.0)	3-1/2 (12.0)	5 (17.0)	3 (11.0)	3 (11.0)
3-1/2 (12.0)	4-1/4 (15.0)	4-1/4 (15.0)	4 (14.0)	4 (14.0)

THERMOSTATIC EXPANSION VALVES

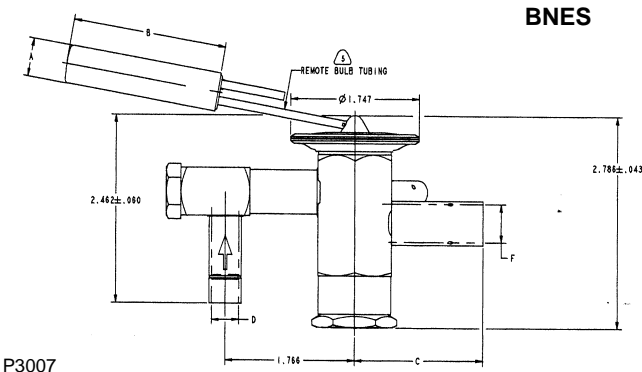
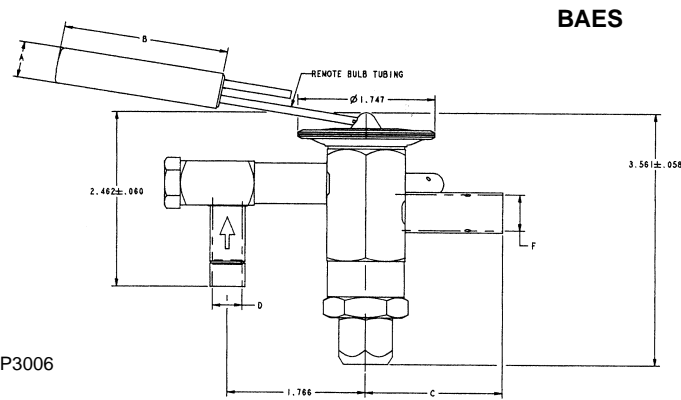
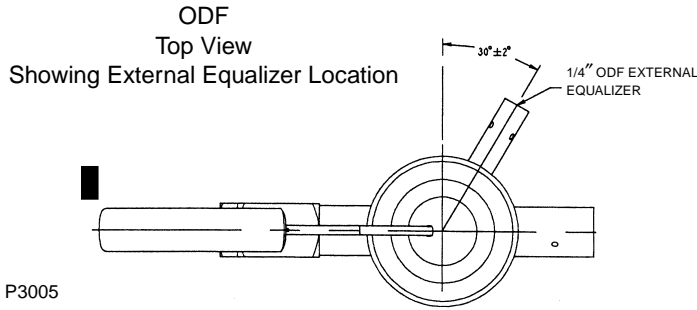
ALCO BAES THERMO[®] EXPANSION VALVE DIMENSIONAL DATA

ODF CONNECTIONS, ANGLE STYLE ONLY

ORDERING INFORMATION FOR BAES/BNES

CONNECTIONS				
ODF INLET	ODF OUTLET	C	D	F
1/4"	3/8"	1.734	.254	.379
1/4"	1/2"	1.734	.254	.504
1/4"	5/8"	1.750	.254	.629
3/8"	3/8"	1.734	.379	.379
3/8"	1/2"	1.734	.379	.504
3/8"	5/8"	1.750	.379	.629
3/8"	7/8"	1.734	.379	.879
1/2"	1/2"	1.734	.504	.504
1/2"	5/8"	1.750	.504	.629
1/2"	7/8"	1.734	.504	.879

DIMENSIONS SHOWN ARE IN INCHES.
FRACTIONS (DECIMAL)



PCN*	DESCRIPTION
063630	BNES 2-1/2 HC ODF EE 5 FT 3/8 X 1/2 ODF ANG 5A
064137	BAES 1/4 SC ODF EE 30 IN 3/8 X 1/2 ODF ANG 5A
064295	BAES 1/4 SZ ODF EE 30 IN 3/8 X 1/2 ODF ANG 5C
064144	BAES 1/2 SZ ODF EE 30 IN 3/8 X 1/2 ODF ANG 5C
064138	BAES 1/2 SC ODF EE 30 IN 3/8 X 1/2 ODF ANG 5A
064244	BAES 1/2 MC ODF EE 30 IN 3/8 X 1/2 ODF ANG 5A
064235	BAES 1/2 HC ODF EE 30 IN 3/8 X 1/2 ODF ANG 5A
064245	BAES 3/4 MC ODF EE 30 IN 3/8 X 1/2 ODF ANG 5A
064145	BAES 1 SZ ODF EE 30 IN 3/8 X 1/2 ODF ANG 5C
064139	BAES 1 SC ODF EE 30 IN 3/8 X 1/2 ODF ANG 5A
064246	BAES 1 MC ODF EE 30 IN 3/8 X 1/2 ODF ANG 5A
064236	BAES 1 HC ODF EE 30 IN 3/8 X 1/2 ODF ANG 5A
064140	BAES 1-1/4 SC ODF EE 30 IN 3/8 X 1/2 ODF ANG 5A
064146	BAES 1-1/4 SZ ODF EE 30 IN 3/8 X 1/2 ODF ANG 5C
064238	BAES 2 HC ODF EE 30 IN 3/8 X 1/2 ODF ANG 5A
064237	BAES 1-1/2 HC ODF EE 30 IN 3/8 X 1/2 ODF ANG 5A
064247	BAES 1-1/2 MC ODF EE 30 IN 3/8 X 1/2 ODF ANG 5A
064141	BAES 1-1/2 SC ODF EE 30 IN 3/8 X 1/2 ODF ANG 5A
064273	BAES 1-1/2 SZ ODF EE 30 IN 3/8 X 1/2 ODF ANG 5C
064248	BAES 2 MC ODF EE 30 IN 3/8 X 1/2 ODF ANG 5A
064142	BAES 2 SC ODF EE 30 IN 3/8 X 1/2 ODF ANG 5A
064537	BAES 2 SZ ODF EE 30 IN 3/8 X 1/2 ODF ANG 5A
063629	BAES 2-1/2 HC ODF EE 5 FT 3/8 X 1/2 ODF ANG 5A
064239	BAES 2-1/2 HC ODF EE 30 IN 3/8 X 1/2 ODF ANG 5A
064280	BAES 2-1/2 SC ODF EE 30 IN 3/8 X 1/2 ODF ANG 5A
064434	BAES 2-1/2 SZ ODF EE 30 IN 3/8 X 1/2 ODF ANG 5C
064249	BAES 2-1/4 MC ODF EE 30 IN 3/8 X 1/2 ODF ANG 5A
064240	BAES 3 HC ODF EE 30 IN 3/8 X 1/2 ODF ANG 5A
064250	BAES 3 MC ODF EE 30 IN 3/8 X 1/2 ODF ANG 5A
064281	BAES 3 SC ODF EE 30 IN 3/8 X 1/2 ODF ANG 5A
064538	BAES 3 SZ ODF EE 30 IN 3/8 X 1/2 ODF ANG 5C
064251	BAES 3-1/2 MC ODF EE 30 IN 3/8 X 1/2 ODF ANG 5A
064241	BAES 4 HC ODF EE 30 IN 3/8 X 1/2 ODF ANG 5A
064460	BAES 4 SC ODF EE 30 IN 3/8 X 1/2 ODF ANG 5A
064780	BAES 4SZ ODF EE 30 IN 3/8 X 1/2 ODF ANG 5C
064252	BAES 4-1/4 MC ODF EE 30 IN 3/8 X 1/2 ODF ANG 5A
064242	BAES 5 HC ODF EE 30 IN 3/8 X 1/2 ODF ANG 5A
064243	BAES 6 HC ODF EE 30 IN 3/8 X 1/2 ODF ANG 5A

Standard Product Offering.

*Product Code Number.

REMOTE BULB TUBING LENGTH 30" OR 5' STANDARD

BAES & BNES REMOTE BULB DIMENSIONS		
REFRIGERANT CHARGE	A Diameter	B Length
HCA, NCA, HAA	3/4 (.75)	2 3/8 (2.38)
MC, MZ, MW (MOP) RW (MOP) RC, SC, SZ SW (MOP), PC, PZ, PW (MOP)	1/2 (.50)	2 1/8 (2.13)

THERMOSTATIC EXPANSION VALVES

ALCO B-SERIES EXTENDED CAPACITIES IN TONS FOR R-134a

VALVE	EVAPORATOR TEMPERATURE																							
	+40° F								+20° F								+0° F							
	PRESSURE DROP ACROSS VALVE - PSI																							
	60	80	100	125	150	175	200	225	60	80	100	125	150	175	200	225	60	80	100	125	150	175	200	225
BA 1/2M	.36	.41	.46	.52	.57	.61	.66	.69	.34	.40	.44	.50	.54	.59	.63	.69	.30	.35	.39	.44	.48	.52	.55	.59
BA 3/4M	.68	.79	.88	.98	1.08	1.16	1.24	1.32	.65	.75	.84	.94	1.03	1.11	1.19	1.26	.58	.67	.74	.83	.91	.98	1.05	1.12
BA 1M	1.06	1.23	1.37	1.53	1.68	1.81	1.94	2.06	1.02	1.17	1.31	1.47	1.61	1.73	1.85	1.97	.90	1.04	1.16	1.30	1.42	1.53	1.64	1.74
BAE 1 -1/2M	1.42	1.64	1.83	2.05	2.25	2.43	2.59	2.75	1.36	1.57	1.75	1.96	2.15	2.32	2.48	2.63	1.20	1.39	1.55	1.73	1.90	2.05	2.19	2.32
BA 2M	1.79	2.07	2.32	2.59	2.84	3.06	3.28	3.47	1.72	1.98	2.21	2.48	2.71	2.93	3.13	3.32	1.52	1.75	1.96	2.19	2.40	2.59	2.77	2.94
BA 2 1/4M	2.17	2.51	2.81	3.14	3.44	3.71	3.97	4.21	2.08	2.40	2.68	3.00	3.29	3.55	3.80	4.03	1.84	2.12	2.37	2.65	2.90	3.14	3.35	3.56
BA 3M	2.81	3.25	3.63	4.06	4.45	4.80	5.14	5.45	2.69	3.11	3.47	3.88	4.25	4.59	4.91	5.21	2.38	2.74	3.07	3.43	3.76	4.06	4.34	4.60
BA 3 -1/2M	3.56	4.11	4.60	5.14	5.63	6.08	6.50	6.89	3.40	3.93	4.39	4.91	5.38	5.81	6.21	6.59	3.01	3.47	3.88	4.34	4.76	5.14	5.49	5.82
BA 4-1/4M	4.43	5.11	5.72	6.39	7.00	7.56	8.08	8.58	4.23	4.89	5.47	6.11	6.69	7.23	7.73	8.20	3.74	4.32	4.83	5.40	5.92	6.39	6.83	7.24

VALVE	EVAPORATOR TEMPERATURE																							
	-10° F								-20° F								-40° F							
	PRESSURE DROP ACROSS VALVE - PSI																							
	60	80	100	125	150	175	200	225	60	80	100	125	150	175	200	225	60	80	100	125	150	175	200	225
BA 1/2M	.25	.29	.32	.36	.40	.43	.46	.49	.20	.24	.26	.30	.32	.35	.37	.40	.13	.15	.17	.19	.21	.23	.24	.26
BA 3/4M	.48	.55	.61	.69	.75	.81	.87	.92	.39	.45	.50	.56	.62	.67	.71	.75	.25	.29	.32	.36	.40	.43	.46	.49
BA 1M	.74	.86	.96	1.07	1.17	1.27	1.35	1.44	.61	.70	.78	.88	.96	1.04	1.11	1.17	.39	.45	.51	.57	.62	.67	.72	.76
BAE 1 -1/2M	.99	1.15	1.28	1.43	1.57	1.69	1.81	1.92	.81	.94	1.05	1.17	1.28	1.39	1.48	1.57	.52	.61	.68	.76	.83	.90	.96	1.02
BA 2M	1.25	1.45	1.62	1.81	1.98	2.14	2.29	2.43	1.02	1.18	1.32	1.48	1.62	1.75	1.87	1.98	.66	.76	.85	.96	1.05	1.13	1.21	1.28
BA 2 1/4M	1.52	1.75	1.96	2.19	2.40	2.59	2.77	2.94	1.24	1.43	1.60	1.79	1.96	2.12	2.27	2.41	.80	.93	1.04	1.16	1.27	1.37	1.47	1.55
BA 3M	1.96	2.27	2.54	2.84	3.11	3.36	3.59	3.80	1.61	1.86	2.07	2.32	2.54	2.74	2.93	3.11	1.04	1.20	1.34	1.50	1.64	1.77	1.90	2.01
BA 3 -1/2M	2.49	2.87	3.21	3.59	3.93	4.25	4.54	4.81	2.03	2.35	2.63	2.93	3.22	3.47	3.71	3.94	1.31	1.52	1.70	1.90	2.08	2.24	2.40	2.54
BA 4-1/4M	3.09	3.57	3.99	4.46	4.98	5.28	5.65	5.99	2.53	2.92	3.27	3.65	4.00	4.32	4.62	4.90	1.63	1.89	2.11	2.36	2.58	2.79	2.98	3.16

ALCO B-SERIES EXTENDED CAPACITIES IN TONS FOR R-22

VALVE	EVAPORATOR TEMPERATURE																							
	+40° F								+20° F								+0° F							
	PRESSURE DROP ACROSS VALVE - PSI																							
	60	80	100	125	150	175	200	225	60	80	100	125	150	175	200	225	60	80	100	125	150	175	200	225
BA 1/2H	.39	.45	.50	.56	.61	.66	.71	.75	.38	.44	.49	.54	.60	.64	.69	.73	.34	.39	.44	.49	.54	.58	.62	.66
BA 1H	.74	.85	.95	1.06	1.16	1.26	1.34	1.42	.72	.83	.93	1.03	1.13	1.22	1.31	1.39	.65	.75	.84	.94	1.03	1.11	1.19	1.26
BA 1 1/2H	1.15	1.32	1.48	1.65	1.81	1.96	2.09	2.22	1.12	1.29	1.44	1.61	1.77	1.91	2.04	2.16	1.01	1.17	1.31	1.46	1.60	1.73	1.85	1.96
BA 2H	1.53	1.77	1.98	2.21	2.42	2.62	2.80	2.97	1.49	1.73	1.93	2.16	2.36	2.55	2.73	2.89	1.35	1.56	1.75	1.95	2.14	2.31	2.47	2.62
BA 2 1/2H	1.94	2.24	2.50	2.79	3.06	3.31	3.53	3.75	1.89	2.18	2.44	2.72	2.98	3.22	3.45	3.65	1.71	1.97	2.21	2.47	2.70	2.92	3.12	3.31
BA 3H	2.35	2.71	3.03	3.39	3.71	4.01	4.28	4.54	2.29	2.64	2.95	3.30	3.62	3.91	4.18	4.43	2.07	2.39	2.68	2.99	3.28	3.54	3.78	4.01
BA 4H	3.04	3.51	3.92	4.38	4.80	5.18	5.54	5.88	2.96	3.42	3.82	4.27	4.68	5.05	5.40	5.73	2.68	3.10	3.46	3.87	4.24	4.58	4.90	5.19
BA 5H	3.84	4.44	4.96	5.54	6.07	6.56	7.01	7.44	3.74	4.32	4.83	5.40	5.92	6.39	6.84	7.25	3.39	3.92	4.38	4.90	5.36	5.79	6.19	6.57
BA 6H	4.78	5.52	6.17	6.90	7.55	8.16	8.72	9.25	4.66	5.38	6.01	6.72	7.36	7.95	8.50	9.02	4.22	4.87	5.45	6.09	6.67	7.21	7.70	8.17

VALVE	EVAPORATOR TEMPERATURE																							
	-10° F								-20° F								-40° F							
	PRESSURE DROP ACROSS VALVE - PSI																							
	60	80	100	125	150	175	200	225	60	80	100	125	150	175	200	225	60	80	100	125	150	175	200	225
BA 1/2H	.29	.33	.37	.41	.45	.49	.52	.55	.24	.27	.31	.34	.37	.40	.43	.46	.16	.18	.20	.23	.25	.27	.29	.30
BA 1H	.54	.63	.70	.78	.86	.93	.99	1.05	.45	.52	.58	.65	.71	.77	.82	.87	.30	.35	.39	.43	.47	.51	.55	.58
BA 1 1/2H	.85	.98	1.09	1.22	1.34	1.45	1.55	1.64	.70	.81	.91	1.01	1.11	1.20	1.28	1.36	.47	.54	.60	.67	.74	.80	.85	.90
BA 2H	1.13	1.31	1.46	1.64	1.79	1.94	2.07	2.19	.94	1.08	1.21	1.36	1.48	1.60	1.71	1.82	.62	.72	.80	.90	.99	1.06	1.14	1.21
BA 2 1/2H	1.43	1.65	1.85	2.07	2.26	2.44	2.61	2.77	1.19	1.37	1.53	1.71	1.87	2.02	2.16	2.30	.79	.91	1.02	1.14	1.24	1.34	1.44	1.52
BA 3H	1.73	2.00	2.24	2.50	2.74	2.96	3.17	3.36	1.44	1.66	1.86	2.07	2.27	2.45	2.62	2.78	.95	1.10	1.23	1.38	1.51	1.63	1.74	1.85
BA 4H	2.24	2.59	2.90	3.24	3.55	3.83	4.10	4.35	1.86	2.15	2.40	2.68	2.94	3.18	3.39	3.60	1.23	1.43	1.59	1.78	1.95	2.11	2.25	2.39
BA 5H	2.84	3.28	3.67	4.10	4.49	4.85	5.18	5.50	2.35	2.72	3.04	3.40	3.72	4.02	4.29	4.56	1.56	1.80	2.02	2.25	2.47	2.67	2.85	3.02
BA 6H	3.53	4.08	4.56	5.10	5.58	6.03	6.45	6.84	2.93	3.38	3.78	4.22	4.63	5.00	5.34	5.67	1.94	2.24	2.51	2.80	3.07	3.32	3.55	3.76

NOTE: FOR R410A, USE R-22 EXTENDED CAPACITIES.
Nominal capacities shown are based on 40° F evaporator temperature and 100° F superheated liquid refrigerant entering the valve per ASHRAE 90.1.

THERMOSTATIC EXPANSION VALVES

ALCO B-SERIES EXTENDED CAPACITIES IN TONS FOR R-404A

VALVE	EVAPORATOR TEMPERATURE																							
	+40° F								+20° F								+0° F							
	PRESSURE DROP ACROSS VALVE - PSI																							
	60	80	100	125	150	175	200	225	60	80	100	125	150	175	200	225	60	80	100	125	150	175	200	225
BA 1/4S	.26	.29	.33	.37	.40	.44	.47	.49	.24	.28	.31	.35	.38	.41	.44	.47	.22	.25	.28	.32	.35	.37	.40	.42
BA 1/2S	.49	.56	.63	.70	.77	.83	.89	.94	.46	.53	.59	.66	.73	.78	.84	.89	.42	.48	.54	.60	.66	.71	.76	.80
BA 1S	.76	.87	.98	1.09	1.20	1.29	1.38	1.46	.71	.83	.92	1.03	1.13	1.22	1.31	1.38	.65	.75	.84	.93	1.02	1.10	1.18	1.25
BA 1 -1/4S	1.01	1.17	1.31	1.46	1.60	1.73	1.85	1.96	.96	1.10	1.23	1.38	1.51	1.63	1.75	1.85	.87	1.00	1.12	1.25	1.37	1.48	1.58	1.68
BA 1 -1/2S	1.28	1.47	1.65	1.84	2.02	2.18	2.33	2.47	1.21	1.39	1.56	1.74	1.91	2.06	2.20	2.34	1.09	1.26	1.41	1.58	1.73	1.87	2.00	2.12
BA 2S	1.55	1.79	2.00	2.23	2.45	2.64	2.83	3.00	1.46	1.69	1.89	2.11	2.31	2.50	2.67	2.83	1.32	1.53	1.71	1.91	2.09	2.26	2.42	2.56
BA 2 -1/2S	2.00	2.31	2.58	2.89	3.17	3.42	3.66	3.88	1.89	2.19	2.44	2.73	2.99	3.23	3.46	3.67	1.71	1.98	2.21	2.47	2.71	2.93	3.13	3.32
BA 3S	2.53	2.93	3.27	3.66	4.01	4.33	4.63	4.91	2.40	2.77	3.09	3.46	3.79	4.09	4.37	4.64	2.17	2.50	2.80	3.13	3.43	3.70	3.96	4.20
BA 4S	3.15	3.64	4.07	4.55	4.98	5.38	5.75	6.10	2.98	3.44	3.85	4.30	4.71	5.09	5.44	5.77	2.70	3.11	3.48	3.89	4.26	4.61	4.92	5.22

VALVE	EVAPORATOR TEMPERATURE																							
	-10° F								-20° F								-40° F							
	PRESSURE DROP ACROSS VALVE - PSI																							
	60	80	100	125	150	175	200	225	60	80	100	125	150	175	200	225	60	80	100	125	150	175	200	225
BA 1/4S	.18	.21	.23	.26	.29	.31	.33	.35	.15	.17	.19	.21	.23	.25	.27	.29	.10	.11	.12	.14	.15	.16	.18	.19
BA 1/2S	.34	.40	.44	.50	.54	.59	.63	.67	.28	.33	.36	.41	.45	.48	.51	.55	.18	.21	.24	.26	.29	.31	.33	.35
BA 1S	.54	.62	.69	.77	.85	.92	.98	1.04	.44	.51	.57	.63	.69	.75	.80	.85	.28	.33	.37	.41	.45	.49	.52	.55
BA 1 -1/4S	.72	.83	.93	1.03	1.13	1.22	1.31	1.39	.59	.68	.76	.85	.93	1.00	1.07	1.14	.38	.44	.49	.55	.60	.65	.69	.74
BA 1 -1/2S	.91	1.05	1.17	1.31	1.43	1.55	1.65	1.75	.74	.86	.96	1.07	1.17	1.27	1.35	1.44	.48	.55	.62	.69	.76	.82	.88	.93
BA 2S	1.10	1.27	1.42	1.58	1.73	1.87	2.00	2.12	.90	1.04	1.16	1.30	1.42	1.54	1.64	1.74	.58	.67	.75	.84	.92	.99	1.06	1.13
BA 2 -1/2S	1.42	1.64	1.83	2.05	2.24	2.42	2.59	2.75	1.16	1.34	1.50	1.68	1.84	1.99	2.12	2.25	.75	.87	.97	1.09	1.19	1.29	1.38	1.46
BA 3S	1.80	2.07	2.32	2.59	2.84	3.07	3.28	3.48	1.47	1.70	1.90	2.12	2.33	2.51	2.69	2.85	.95	1.10	1.23	1.38	1.51	1.63	1.74	1.85
BA 4S	2.23	2.58	2.88	3.23	3.53	3.82	4.08	4.33	1.83	2.11	2.36	2.64	2.89	3.13	3.34	3.55	1.19	1.37	1.53	1.71	1.87	2.03	2.16	2.30

ALCO B-SERIES EXTENDED CAPACITIES IN TONS FOR R-507

VALVE	EVAPORATOR TEMPERATURE																							
	+40° F								+20° F								+0° F							
	PRESSURE DROP ACROSS VALVE - PSI																							
	60	80	100	125	150	175	200	225	60	80	100	125	150	175	200	225	60	80	100	125	150	175	200	225
BA 1/4P	.25	.29	.32	.36	.40	.43	.46	.49	.24	.27	.31	.34	.38	.41	.43	.46	.22	.25	.28	.31	.34	.37	.39	.42
BA 1/2P	.48	.55	.62	.69	.75	.81	.87	.92	.45	.52	.58	.65	.71	.77	.82	.87	.41	.47	.53	.59	.65	.70	.75	.79
BA 1P	.74	.86	.96	1.07	1.17	1.27	1.36	1.44	.70	.81	.91	1.02	1.11	1.20	1.28	1.36	.64	.74	.82	.92	1.01	1.09	1.17	1.24
BA 1 -1/4P	.99	1.15	1.28	1.43	1.57	1.70	1.81	1.92	.94	1.09	1.21	1.36	1.49	1.61	1.72	1.82	.85	.99	1.10	1.23	1.35	1.46	1.56	1.65
BA 1 -1/2P	1.25	1.45	1.62	1.81	1.98	2.14	2.29	2.43	1.19	1.37	1.53	1.72	1.88	2.03	2.17	2.30	1.08	1.25	1.39	1.56	1.71	1.84	1.97	2.09
BA 2P	1.52	1.76	1.96	2.19	2.40	2.60	2.78	2.94	1.44	1.66	1.86	2.08	2.28	2.46	2.63	2.79	1.31	1.51	1.69	1.89	2.07	2.23	2.39	2.53
BA 2 -1/2P	1.97	2.27	2.54	2.84	3.11	3.36	3.59	3.81	1.86	2.15	2.41	2.69	2.95	3.18	3.40	3.61	1.69	1.95	2.18	2.44	2.67	2.89	3.09	3.28
BA 3P	2.49	2.87	3.21	3.59	3.93	4.25	4.54	4.82	2.36	2.72	3.04	3.40	3.73	4.03	4.30	4.57	2.14	2.47	2.76	3.09	3.38	3.66	3.91	4.14
BA 4P	3.19	3.57	4.00	4.47	4.89	5.29	5.65	5.99	2.93	3.39	3.79	4.23	4.64	5.01	5.35	5.68	2.66	3.07	3.44	3.84	4.21	4.55	4.86	5.16

VALVE	EVAPORATOR TEMPERATURE																							
	- 0° F								-20° F								-40° F							
	PRESSURE DROP ACROSS VALVE - PSI																							
	60	80	100	125	150	175	200	225	60	80	100	125	150	175	200	225	60	80	100	125	150	175	200	225
BA 1/4P	.18	.21	.23	.26	.28	.31	.33	.35	.15	.17	.19	.21	.23	.25	.27	.28	.10	.11	.12	.14	.15	.16	.17	.19
BA 1/2P	.34	.39	.44	.49	.54	.58	.62	.66	.28	.32	.36	.40	.44	.48	.51	.54	.18	.21	.23	.26	.29	.31	.33	.35
BA 1P	.53	.61	.68	.77	.84	.91	.97	1.03	.44	.50	.56	.63	.69	.74	.79	.84	.28	.33	.37	.41	.45	.48	.52	.55
BA 1 -1/4P	.71	.82	.92	1.02	1.12	1.21	1.29	1.37	.58	.67	.75	.84	.92	.99	1.06	1.13	.38	.44	.49	.55	.60	.65	.69	.73
BA 1 -1/2P	.90	1.03	1.16	1.29	1.42	1.53	1.63	1.73	.74	.85	.95	1.06	1.16	1.26	1.34	1.42	.48	.55	.62	.69	.76	.82	.87	.93
BA 2P	1.09	1.25	1.40	1.57	1.72	1.85	1.98	2.10	.89	1.03	1.15	1.29	1.41	1.52	1.63	1.73	.58	.67	.75	.84	.92	.99	1.06	1.12
BA 2 -1/2P	1.40	1.62	1.81	2.03	2.22	2.40	2.56	2.72	1.15	1.33	1.49	1.66	1.82	1.97	2.11	2.23	.75	.87	.97	1.08	1.19	1.28	1.37	1.45
BA 3P	1.78	2.05	2.29	2.56	2.81	3.03	3.24	3.44	1.46	1.68	1.88	2.11	2.31	2.49	2.66	2.83	.95	1.10	1.23	1.37	1.50	1.62	1.73	1.84
BA 4P	2.21	2.55	2.85	3.19	3.49	3.77	4.03	4.28	1.81	2.10	2.34	2.62	2.87	3.10	3.31	3.51	1.18	1.36	1.52	1.70	1.87	2.02	2.16	2.29

NOTE: Flow capacities are the same for reverse flow applications.

Nominal capacities shown are based on 40° F evaporator temperature and 100° F vapor-free liquid refrigerant entering the valve per ARI 750-94.

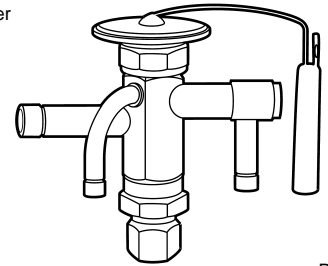
THERMOSTATIC EXPANSION VALVES

ALCO HF BALANCED PORT THERMO[®] EXPANSION VALVE

FEATURES

- Large, removable power element.
- Balanced port construction compensates for changes in operating pressures due to varying ambients, gas defrost, heat reclaim, or widely varying evaporator loads.
- Two body sizes provide capacities from 1/4 to 20 tons.
- Bi-Flow capability up to 5-1/2 tons R-22 allows one valve to control the superheat in both cooling and heating modes for package unit heat pump applications.
- Wrench flats on inlets and outlets (SAE only) for easy installation.
- Stainless steel power element for maximum corrosion resistance.

Stainless Steel Power Assembly



HFESC
ODF Connections

P997

OPTIONS

- Bleed type pressure equalization available to accommodate PSC type compressors.
- ODF or SAE connections.
- Removable strainer.
- Adjustable or non-adjustable superheat.

SPECIFICATIONS

- Maximum Working Pressure: 450 psig.
- Operating Temperature: -40° F to 50° F.
- 5' capillary tube length (standard).
- Use with R-22, R-134a, R-404A, R-507, R-12, R-502.

NOMENCLATURE EXAMPLE: HFNESC B 2 HC 5 FT 3/8 x 1/2 ODF S/T

HF	N	E	S	C	B	2	H	C	5 FT	3/8 X 1/2	ODF	S/T
Valve Series	Superheat Adjustment N = Nonadjustable Omit for Adjustable	Equalizer E = External (Omit for Internal)	Connection Type S = Solder (Omit for SAE Flare)	Removable Inlet Strainer (optional) C = Inlet Strainer (ODF only)	Bleed Hole (optional) Omit for no bleed hole	Capacity Nominal Rating in Tons See nominal capacity table	Refrigerant Code F = R-12 H = R-22 M = R-134a *P = R-507 *R = R-502 *S = R-404A	Charge Code C = medium temp CA = heat pump W(MOP) = press. limiting Z = low temp.	Capillary Tube Length 5 ft (std) other lengths are available	Inlet x Outlet Connection Sizes I O 3/8 1/2 1/2 5/8 5/8 7/8	Connection Type SAE = flare ODF = solder	Configuration S/T = straight-thru ANG = 90° angle

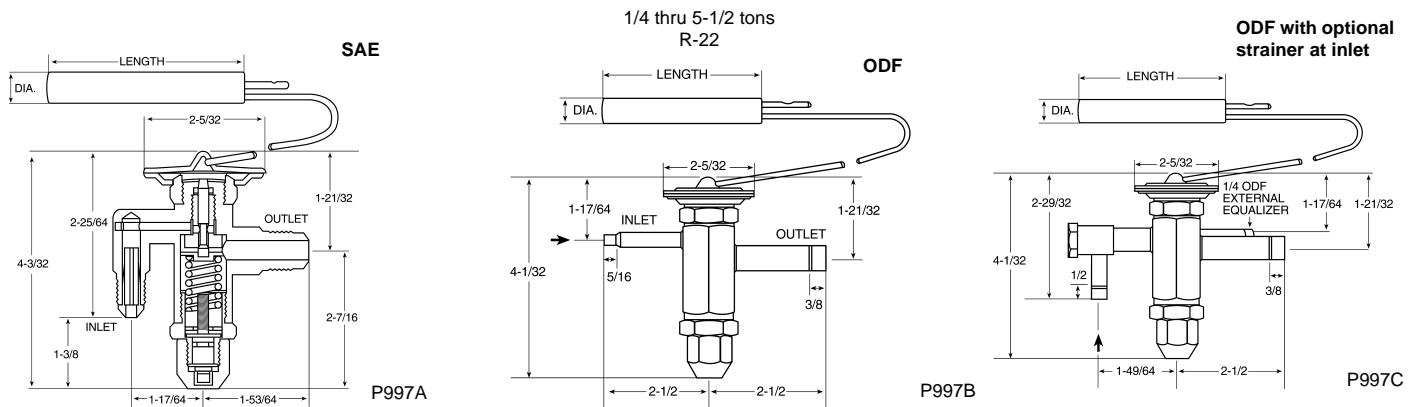
*P, R and S charges are interchangeable.

IMPORTANT NOTE: ALCO TXVs are only set up in C-10, using the following nomenclature: ALC-XXXXX where XXXXX is an ALCO PCN (Product Code Number). The ALCO nomenclature is used as a part description only.

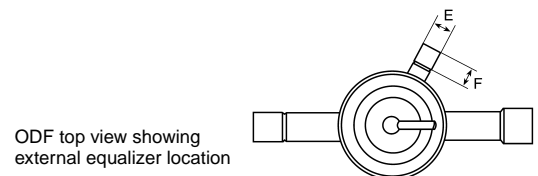
DIMENSIONAL DATA

DIMENSIONS SHOWN ARE IN INCHES.
FRACTIONS (DECIMAL)

Remote Bulb Tubing Length 5' Standard.



REMOTE BULB DIMENSIONS		
REFRIGERANT CHARGE	LENGTH	DIA.
C, G, L, Z	3-1/2 (3.50)	1/2 (.50)
CA	2-15/16 (2.31)	3/4 (.75)



P997E

THERMOSTATIC EXPANSION VALVES

HF BALANCED PORT THERMO[®] EXPANSION VALVE

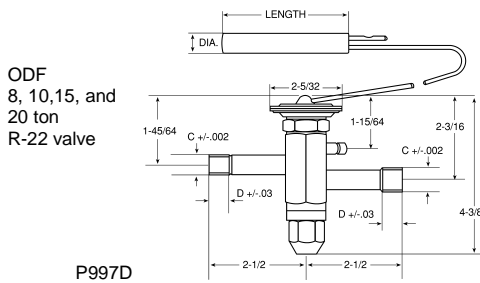
HF SERIES — NOMINAL CAPACITY TABLE IN TONS (kW)

R-12	R-134A	R-22	R-502	R-507/R-404A
1/8 (0.4)	1/4 (0.9)	1/4 (0.9)	1/8 (0.4)	1/8 (0.4)
1/4 (0.9)	1/2 (1.8)	1/2 (1.8)	1/4 (0.9)	1/4 (0.9)
1/2 (1.8)	3/4 (2.7)	1 (3.5)	1/2 (1.8)	1/2 (1.8)
1 (3.5)	1 (3.5)	1-1/2 (5.3)	1 (3.5)	1 (3.5)
—	1-1/2 (5.3)	2 (7.0)	—	—
1-1/2 (5.3)	1-3/4 (6.2)	2-1/2 (8.8)	1-1/2 (5.3)	1-1/2 (5.3)
2 (7.0)	2-1/2 (8.8)	3 (11.0)	2 (7.0)	2 (7.0)
3-1/2 (12.0)	4 (14.0)	5-1/2 (20.0)	3-1/2 (12.0)	3-1/2 (12.0)
5 (17.0)	6 (21.0)	8 (28.0)	5 (17.0)	5 (17.0)
6 (21.0)	7-1/2 (27.0)	10 (35.0)	7 (25.0)	7 (25.0)
9 (32.0)	11 (39.0)	15 (53.0)	10 (35.0)	10 (35.0)
12 (42.0)	14 (50.0)	20 (70.0)	13 (46.0)	13 (46.0)

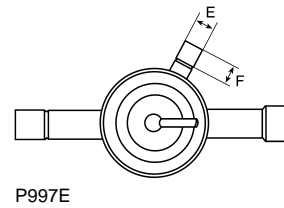
INLET/OUTLET CONNECTIONS		
SIZE ODF	C ±.002	D ±.03
1/2	.504	.37
5/8	.629	.50
7/8	.879	.76
1-1/8	1.129	.90
1-3/8	1.379	.97

EXTERNAL EQUALIZER	E	F
3/16 ODF	.192 ± .002	.31 ± .03
1/4 ODF	.254 ± .002	.33 ± .03

HF DIMENSIONAL DIAGRAM



ODF top view showing
external equalizer location



Remote Bulb Tubing Length 5' Standard.

REPLACEMENT POWER ASSEMBLIES		
R-12 POWER ASSEMBLY P/N	R-22 POWER ASSEMBLY P/N	R-502 POWER ASSEMBLY P/N
X26300-FC-1	X26300-HC-1	X26300-RC-1
X26300-FZ-1	X26300-HZ-1	X26300-RZ-1
X26300-FW15-1	X26300-HW35-1	X26300-RW45-1
X26300-FW35-1	X26300-HW65-1	X26300-RW65-1

REFRIGERANT CHARGE	TUBE LENGTH	LENGTH (DIMENSION)	DIA. (DIMENSION)
CA	10 ft	2-5/16 (2.31)	3/4 (.75)
C, L, Z, G — WMOP	5 ft 10 ft	3-1/2 (3.50)	1/2 (.5)

Torque Power Element 300-360 inch pounds.

TAILORED BULB CHARGES

The use of ALCO tailored charges makes the HF valve reliable for HVAC, refrigerated display cases, walk-in coolers, reach-in coolers, and all other small refrigeration systems — both low and medium temperature.

The thermostatic charge is selected on the basis of the evaporator temperature only, as indicated in Table 2.

Table 2

EVAPORATOR TEMPERATURE	REFRIGERANT			
	R-12	R-134A	R-22	R-502 R-404A R-507
Med. Temp. (-20 to +50° F)	FC	MC	HC	*C
Low Temp. (-50 to +10° F)	FZ	MZ	HZ	*Z
MOP Low Temp. (-50 to +0° F)	FW15	MW15	HW35	*W45
MOP Med. Temp. (0 to +25° F)	—	MW35	HW65	*W65

*Add refrigerant code: "R" for R-502, "S" for R-404A, "P" for R-507.

CONNECTIONS

Extended copper ODF line connections:

STRAIGHT-THRU CONFIGURATIONS	
INLET	OUTLET
3/8	1/2
1/2	5/8
5/8	7/8
7/8	1-1/8
Angle Configuration	
90° Elbow — 3/8 Inlet ONLY	

SAE Line Connections

INLET	OUTLET
1/4	1/2
3/8	1/2

REPLACEMENT PARTS — FOR SAE INLET		
P/N	INLET SIZE	DESCRIPTION
X-11176-1	3/8	Filter Screen
KT-20003	3/8-1/4	Inlet Adapter
27676-1	NA	Seal Cap

REPLACEMENT PARTS — HFSC & HFSC ONLY	
REPAIR KIT	DESCRIPTION
KT20264	Includes seal cap, gasket O-ring screen spring

THERMOSTATIC EXPANSION VALVES

ALCO HF BALANCED PORT THERMO[®] EXPANSION VALVE

HF(E)/HFK(E) EXTENDED PRODUCT INFORMATION TXV SUPERHEAT CHANGE

Listed below are superheat change per turn for the listed refrigerants in ° F.

HF(E)/HFK(E) ≤ 5 1/2 tons R-22

HF(E)/HFK(E) ≤ 3 1/2 tons R-502

Approximate Superheat Change per Turn @ 20° F

CHARGE TYPE	R-404A	R-507	R-22	R-12	R-502	R-134a
C, Z	1.5 - 2.0	1.5 - 2.0	2.0 - 2.5	3.0 - 4.0	1.5 - 2.0	3.0 - 4.0

Approximate Superheat Change per Turn @ -20° F

CHARGE TYPE	R-404A	R-507	R-22	R-502
C, Z	3.0 - 3.5	3.0 - 3.5	4.0 - 4.5	3.0 - 3.5

HF(E)/HFK(E) valves typically have between 9 and 11 turns of adjustment depending on tolerances from full lower stop to upper stop.

HF(E)/HFK(E) > 5 1/2 tons R-22

HF(E)/HFK(E) > 3 1/2 tons R-502

Approximate Superheat Change Per Turn @ 20° F

CHARGE TYPE	R-404A	R-507	R-22	R-12	R-502	R-134a
C, Z	3.5 - 4.0	3.5 - 4.0	3.5 - 4.0	6.0 - 6.5	3.5 - 4.0	6.0 - 6.5

Approximate Superheat Change Per Turn @ -20° F

CHARGE TYPE	R-404A	R-507	R-22	R-502
C, Z	6.0 - 6.5	6.0 - 6.5	7.0 - 7.5	6.0 - 6.5

HF(E)/HFK(E) valves typically have between 4 and 6 turns of adjustment depending on tolerances from full lower stop to upper stop.

THERMOSTATIC EXPANSION VALVES

ALCO HF BALANCED PORT THERMO® EXPANSION VALVE

ORDERING INFORMATION FOR HF SERIES VALVES

VALVE SERIES	CAPACITY TONS	CONNECTIONS	P/N						REFRIG.
			INTERNAL			EXTERNAL			
			MC R-134a Med. Temp.	MZ R-134a Low Temp.	MW35 R-134a MOP	MC R-134a Med. Temp.	MZ R-134a Low Temp.	MW35 R-134a MOP	
HF(E)(S)	1/4	3/8 x 1/2 SAE ANG	ALC-057618	ALC-059421	—	ALC-057860	—	—	R-134a
		3/8 x 1/2 ODF S/T	—	—	—	—	—	—	
		3/8 x 1/2 ODF ANG	ALC-058545	—	—	ALC-058544	—	—	
	1/2	3/8 x 1/2 SAE ANG	ALC-057620	—	—	ALC-057616	—	—	
		3/8 x 1/2 ODF S/T	—	—	—	—	—	—	
		3/8 x 1/2 ODF ANG	—	—	—	—	—	ALC-062076	
	3/4	3/8 x 1/2 SAE ANG	ALC-057879	—	—	—	—	—	
		3/8 x 1/2 ODF S/T	—	—	—	ALC-059422	ALC-064034	—	
		3/8 x 1/2 ODF ANG	—	—	—	ALC-057784	—	—	
	1	3/8 x 1/2 SAE ANG	ALC-057619	—	—	ALC-057617	ALC-058916	—	
		3/8 x 1/2 ODF S/T	—	—	—	—	—	—	
		3/8 x 1/2 ODF ANG	—	—	—	ALC-058546	—	—	
1-1/2	3/8 x 1/2 SAE ANG	—	—	—	ALC-057895	ALC-058918	—		
	3/8 x 1/2 ODF S/T	—	—	—	—	—	—		
	3/8 x 1/2 ODF ANG	—	—	—	ALC-058543	—	—		
1-3/4	3/8 x 1/2 SAE ANG	—	—	—	ALC-057896	—	—		
	3/8 x 1/2 ODF S/T	—	—	—	ALC-058152	—	—		
	3/8 x 1/2 ODF ANG	—	—	—	ALC-059618	—	—		
2-1/2	3/8 x 1/2 SAE ANG	—	—	—	ALC-057622	ALC-061800	—		
	3/8 x 1/2 ODF S/T	—	—	—	—	—	—		
	3/8 x 1/2 ODF ANG	—	—	—	ALC-058154	—	—		
4	3/8 x 1/2 SAE ANG	—	—	—	ALC-057897	—	—		
	3/8 x 1/2 ODF S/T	—	—	—	—	—	—		
	3/8 x 1/2 ODF ANG	—	—	—	ALC-058153	—	—		
6	5/8 x 7/8 ODF S/T	—	—	—	ALC-057903	—	—		
	5/8 x 7/8 ODF ANG	—	—	—	—	—	—		
	—	—	—	—	—	—	—		
7-1/2	5/8 x 7/8 ODF S/T	—	—	—	ALC-057904	—	—		
	5/8 x 7/8 ODF ANG	—	—	—	—	—	—		
	—	—	—	—	—	—	—		
11	5/8 x 7/8 ODF S/T	—	—	—	ALC-057906	—	—		
	7/8 x 1-1/8 ODF S/T	—	—	—	ALC-058681	—	—		
	—	—	—	—	—	—	—		
14	5/8 x 7/8 ODF S/T	—	—	—	ALC-063999	—	—		
	7/8 x 1-3/8 ODF S/T	—	—	—	ALC-064000	—	—		
	—	—	—	—	—	—	—		
VALVE SERIES	CAPACITY TONS	CONNECTIONS	P/N						REFRIG.
			Internal			External			
			HC R-22 Med. Temp.	HZ R-22 Low Temp.	HW35 R-22 MOP	HC R-22 Med. Temp.	HZ R-22 Low Temp.	HW35 R-22 MOP	
HF(E)(S)	1/4	3/8 x 1/2 SAE	ALC-054921	ALC-054922	ALC-054923	ALC-054924	ALC-054925	ALC-054926	R-22
		3/8 x 1/2 ODF S/T	ALC-055633	ALC-056169	—	ALC-055927	ALC-055869	—	
		3/8 x 1/2 ODF ANG	ALC-055493	—	—	ALC-055841	—	ALC-056072	
	1/2	3/8 x 1/2 SAE	ALC-054135	ALC-054364	ALC-054362	ALC-054361	ALC-054365	ALC-054363	
		3/8 x 1/2 ODF S/T	ALC-054136	ALC-056188	—	ALC-055927	ALC-055889	ALC-056036	
		3/8 x 1/2 ODF ANG	ALC-054723	ALC-058450	ALC-056065	ALC-054838	ALC-056247	ALC-056070	
	1	3/8 x 1/2 SAE	ALC-054927	ALC-054928	ALC-054929	ALC-054930	ALC-054931	ALC-054932	
		3/8 x 1/2 ODF S/T	ALC-055928	—	—	ALC-055708	ALC-055872	ALC-057376	
		3/8 x 1/2 ODF ANG	ALC-055702	—	ALC-056718	ALC-055494	ALC-055937	ALC-054938	
	1-1/2	3/8 x 1/2 SAE	ALC-054933	ALC-054934	ALC-054935	ALC-054936	ALC-054937	ALC-054938	
		3/8 x 1/2 ODF S/T	ALC-056018	—	—	ALC-055863	ALC-055908	—	
		3/8 x 1/2 ODF ANG	ALC-055969	—	ALC-056035	ALC-055495	ALC-055842	ALC-055980	
2	3/8 x 1/2 SAE	ALC-054939	ALC-054940	ALC-054941	ALC-054942	ALC-054943	ALC-054944		
	3/8 x 1/2 ODF S/T	ALC-056007	—	—	ALC-055706	—	ALC-055856		
	3/8 x 1/2 ODF ANG	ALC-054945	—	—	ALC-054946	ALC-055938	ALC-056118		
2-1/2	3/8 x 1/2 SAE	ALC-054947	ALC-054948	ALC-054949	ALC-054950	ALC-054951	ALC-054952		
	3/8 x 1/2 ODF S/T	—	—	—	ALC-055931	ALC-056857	ALC-056117		
	3/8 x 1/2 ODF ANG	—	—	—	ALC-056042	ALC-057865	—		
3	3/8 x 1/2 SAE	ALC-053316	ALC-053908	ALC-054954	ALC-053317	ALC-053191	ALC-053141		
	3/8 x 1/2 ODF S/T	ALC-053915	—	—	ALC-053916	ALC-055924	ALC-053971		
	3/8 x 1/2 ODF ANG	ALC-054836	—	—	ALC-054756	ALC-054843	ALC-058094		

Standard Product Offering.

THERMOSTATIC EXPANSION VALVES

ALCO HF BALANCED PORT THERMO[®] EXPANSION VALVE

ORDERING INFORMATION FOR HF SERIES VALVES (cont)

VALVE SERIES	CAPACITY TONS	CONNECTIONS	P/N							REFRIG.
			Internal			External				
			HC R-22 Med. Temp.	HZ R-22 Low Temp.	HW35 R-22 MOP	HC R-22 Med. Temp.	HZ R-22 Low Temp.	HW35 R-22 MOP	HCA R-22 Heat Pump	
HF(E)(S)	5-1/2	3/8 x 1/2 SAE	—	—	—	ALC-054140	ALC-054777	ALC-054955	—	R-22
		3/8 x 1/2 ODF S/T	—	—	—	ALC-054141	ALC-054780	—	—	
		1/2 x 5/8 ODF S/T	—	—	—	ALC-054778	ALC-054781	—	—	
		1/2 x 7/8 ODF S/T	—	—	—	ALC-055187	—	—	—	
		5/8 x 7/8 ODF S/T	—	—	—	ALC-054779	ALC-054782	—	—	
	8	1/2 x 5/8 ODF S/T	—	—	—	ALC-057312	—	ALC-059231	—	
		1/2 x 7/8 ODF S/T	—	—	—	—	—	—	ALC-056818	
		5/8 x 7/8 ODF S/T	—	—	—	ALC-057313	ALC-057305	ALC-062557	ALC-056819	
	10	7/8 x 1-1/8 ODF S/T	—	—	—	ALC-057314	—	ALC-057912	—	
		1/2 x 5/8 ODF S/T	—	—	—	ALC-057315	—	ALC-059232	—	
		5/8 x 7/8 ODF S/T	—	—	—	ALC-057256	ALC-058578	—	ALC-056820	
	12	5/8 x 1-1/8 ODF S/T	—	—	—	—	—	—	ALC-056821	
		7/8 x 1-1/8 ODF S/T	—	—	—	ALC-057316	—	—	—	
	15	5/8 x 7/8 ODF S/T	—	—	—	ALC-062737	—	—	—	
		7/8 x 1-1/8 ODF S/T	—	—	—	—	—	—	—	
	20	5/8 x 7/8 ODF S/T	—	—	—	ALC-057317	—	—	ALC-056823	
		7/8 x 1-1/8 ODF S/T	—	—	—	ALC-057318	—	—	ALC-056825	
	20	7/8 x 7/8 ODF S/T	—	—	—	ALC-058781	—	—	—	
7/8 x 1-1/8 ODF S/T		—	—	—	ALC-062055	—	—	ALC-058490		
VALVE SERIES	CAPACITY TONS	CONNECTIONS	P/N						REFRIG.	
			Internal			External				
			RC R-502 Med. Temp.	RZ R-502 Low Temp.	RW45 R-502 MOP	RC R-502 Med. Temp.	RZ R-502 Low Temp.	RW45 R-502 MOP		
HF(E)(S)	1/8	3/8 x 1/2 SAE	ALC-054956	ALC-054957	ALC-054958	ALC-054959	ALC-054960	ALC-054961	R-502	
		3/8 x 1/2 ODF S/T	—	—	—	—	—	—		
		3/8 x 1/2 ODF ANG	—	—	—	—	—	—		
	1/4	3/8 x 1/2 SAE	ALC-054137	ALC-054369	ALC-054962	ALC-054366	ALC-054370	ALC-054963		
		1/4 x 3/8 ODF S/T	—	ALC-055792	—	—	—	—		
		3/8 x 1/2 ODF S/T	ALC-056010	ALC-056228	ALC-056015	ALC-056026	—	ALC-056027		
	1/2	3/8 x 1/2 ODF ANG	ALC-055490	ALC-056006	ALC-055986	ALC-055092	ALC-055491	ALC-055995		
		3/8 x 1/2 SAE	ALC-054964	ALC-054965	ALC-054966	ALC-054967	ALC-054968	ALC-054969		
		3/8 x 1/2 ODF S/T	ALC-055701	ALC-056008	ALC-056014	ALC-056022	ALC-056224	—		
	1	3/8 x 1/2 ODF ANG	ALC-055702	ALC-055874	ALC-055987	ALC-055992	ALC-055497	ALC-055996		
		3/8 x 1/2 SAE	ALC-054976	ALC-054977	ALC-054978	ALC-054979	ALC-054980	ALC-054981		
		3/8 x 1/2 ODF S/T	ALC-056016	ALC-056057	ALC-056017	ALC-056029	ALC-056226	ALC-055948		
	1-1/2	3/8 x 1/2 ODF ANG	ALC-054982	ALC-055875	ALC-055988	ALC-054983	ALC-055498	ALC-055997		
		3/8 x 1/2 SAE	ALC-054984	ALC-054986	ALC-054987	ALC-054988	ALC-054989	ALC-054990		
		3/8 x 1/2 ODF S/T	ALC-056019	—	ALC-056020	ALC-056031	ALC-056226	ALC-056032		
	2	3/8 x 1/2 ODF ANG	ALC-055985	—	ALC-055984	ALC-955657	ALC-055498	ALC-055991		
		3/8 x 1/2 SAE	ALC-053061	ALC-053064	ALC-054991	ALC-053070	ALC-053071	ALC-054992		
		3/8 x 1/2 ODF S/T	ALC-053269	—	—	ALC-053270	ALC-053271	ALC-055947		
	3-1/2	3/8 x 1/2 ODF ANG	ALC-054837	—	—	ALC-054768	ALC-054884	—		
		3/8 x 1/2 SAE	ALC-055936	ALC-057009	ALC-056323	ALC-054142	ALC-054145	ALC-054993		
		3/8 x 1/2 ODF S/T	—	—	—	ALC-054143	ALC-054784	—		
	5	1/2 x 5/8 ODF S/T	—	—	—	—	—	—		
		1/2 x 5/8 ODF S/T	—	—	—	ALC-054783	ALC-054785	ALC-058907		
		5/8 x 7/8 ODF S/T	—	—	—	—	—	ALC-055776		
	7	5/8 x 7/8 ODF S/T	—	—	—	ALC-054312	ALC-054786	—		
		3/8 x 1/2 ODF S/T	—	—	—	—	—	—		
		1/2 x 5/8 ODF S/T	—	—	—	ALC-058875	—	—		
	10	5/8 x 7/8 ODF S/T	—	—	—	—	ALC-061196	ALC-061696		
7/8 x 1-1/8 ODF S/T		—	—	—	ALC-058608	—	ALC-058305			
7/8 x 1-1/8 ODF S/T		—	—	—	—	—	—			
13	1/2 x 5/8 ODF S/T	—	—	—	—	—	—			
	5/8 x 7/8 ODF S/T	—	—	—	ALC-058607	ALC-059291	ALC-059271			
13	7/8 x 1-1/8 ODF S/T	—	—	—	—	—	—			
	7/8 x 1-3/8 ODF S/T	—	—	—	ALC-058808	—	—			
13	7/8 x 1-1/8 ODF S/T	—	—	—	—	ALC-059212	ALC-062457			
	7/8 x 1-3/8 ODF S/T	—	—	—	—	—	ALC-058897			

Standard Product Offering.

THERMOSTATIC EXPANSION VALVES

ALCO HF BALANCED PORT THERMO® EXPANSION VALVE

ORDERING INFORMATION FOR HF SERIES VALVES (cont)

VALVE SERIES	CAPACITY TONS	CONNECTIONS	P/N						REFRIG.
			Internal			External			
			MC R-134a Med Temp.	MZ R-134a Low Temp.	MW35 R-134a MOP	MC R-134a Med Temp.	MZ R-134a Low Temp.	MW35 R-134a MOP	
HF(E)SC	1/4	3/8 x 1/2 ODF ANG	ALC-057573	—	—	ALC-057572	—	—	R-134a
	1/2	3/8 x 1/2 ODF ANG	ALC-058067	—	—	ALC-058069	ALC-063853	ALC-063946	
	3/4	3/8 x 1/2 ODF ANG	ALC-058301	—	—	ALC-058070	ALC-063856	—	
	1	3/8 x 1/2 ODF ANG	ALC-057571	—	—	ALC-057570	ALC-063858	ALC-063947	
	1 1/2	3/8 x 1/2 ODF ANG	ALC-057569	—	—	ALC-057568	ALC-063864	—	
	1 3/4	3/8 x 1/2 ODF ANG	ALC-063641	—	—	ALC-058262	—	—	
	2 1/2	3/8 x 1/2 ODF ANG	—	—	—	ALC-058421	—	—	
	4	3/8 x 1/2 ODF ANG	—	—	—	ALC-059087	—	—	
	6	1/2 x 5/8 ODF ANG	—	—	—	—	—	—	
	7 1/2	1/2 x 5/8 ODF ANG	—	—	—	—	—	—	
		5/8 x 7/8 ODF ANG	—	—	—	—	—	—	
11	5/8 x 7/8 ODF ANG	—	—	—	—	—	—		
	5/8 x 1-1/8 ODF ANG	—	—	—	—	—	—		
14	5/8 x 7/8 ODF ANG	—	—	—	—	—	—		
	5/8 x 1-1/8 ODF ANG	—	—	—	—	—	—		
VALVE SERIES	CAPACITY TONS	CONNECTIONS	P/N						REFRIG.
			Internal			External			
			HC R-22 Med Temp.	HZ R-22 Low Temp.	HW35 R-22 MOP	HC R-22 Med Temp.	HZ R-22 Low Temp.	HW35 R-22 MOP	
HF(E)SC	1/4	3/8 x 1/2 ODF ANG	ALC-057467	ALC-057481	ALC-057473	ALC-057409	ALC-057428	ALC-057413	R-22
	1/2	3/8 x 1/2 ODF ANG	ALC-057293	ALC-057482	ALC-057479	ALC-057291	ALC-057429	ALC-057414	
	1	3/8 x 1/2 ODF ANG	ALC-057468	ALC-057483	ALC-057477	ALC-057410	ALC-057430	ALC-057416	
	1 1/2	3/8 x 1/2 ODF ANG	ALC-057469	—	ALC-057480	ALC-057292	ALC-057321	ALC-057419	
	2	3/8 x 1/2 ODF ANG	ALC-057470	—	—	ALC-057294	ALC-057433	ALC-057421	
	2 1/2	3/8 x 1/2 ODF ANG	ALC-057471	—	—	ALC-057411	ALC-057434	ALC-057414	
	3	3/8 x 1/2 ODF ANG	ALC-057472	—	—	ALC-057412	ALC-057748	ALC-057426	
	5 1/2	3/8 x 1/2 ODF ANG	—	—	—	ALC-057781	—	—	
	8	1/2 x 7/8 ODF ANG	—	—	—	ALC-063421	—	—	
		5/8 x 7/8 ODF ANG 5/8 x 1-1/8 ODF ANG	—	—	—	ALC-058609	ALC-061233	—	
	10	5/8 x 7/8 ODF ANG	—	—	—	—	—	—	
5/8 x 1-1/8 ODF ANG		—	—	—	—	—	—		
15	5/8 x 7/8 ODF ANG 5/8 x 1-1/8 ODF ANG	—	—	—	—	—	—		
VALVE SERIES	CAPACITY TONS	CONNECTIONS	P/N						REFRIG.
			Internal			External			
			RC R-502 Med Temp.	RZ R-502 Low Temp.	RW35 R-502 MOP	RC R-502 Med Temp.	RZ R-502 Low Temp.	RW35 R-502 MOP	
HF(E)SC	1/8	3/8 x 1/2 ODF ANG	—	—	—	—	—	—	R-502
	1/4	3/8 x 1/2 ODF ANG	ALC-057487	ALC-057484	ALC-057492	ALC-057436	ALC-057454	ALC-057442	
	1/2	3/8 x 1/2 ODF ANG	ALC-057488	ALC-057485	ALC-057493	ALC-057437	ALC-057455	ALC-057443	
	1	3/8 x 1/2 ODF ANG	ALC-057489	ALC-057486	ALC-057496	ALC-057438	ALC-057456	ALC-057446	
	1 1/2	3/8 x 1/2 ODF ANG	ALC-057490	—	ALC-057499	ALC-057439	ALC-057322	ALC-057448	
	2	3/8 x 1/2 ODF ANG	ALC-057491	—	—	ALC-057440	ALC-057457	ALC-057451	
	3 1/2	3/8 x 1/2 ODF ANG	—	—	—	ALC-057441	ALC-057458	ALC-057453	
	5	3/8 x 1/2 ODF ANG	—	—	—	ALC-058595	—	ALC-062063	
		5/8 x 7/8 ODF ANG	—	—	—	—	ALC-059654	—	
	7	5/8 x 7/8 ODF ANG	—	—	—	—	ALC-058603	ALC-058775	
10	5/8 x 7/8 ODF ANG	—	—	—	—	—	ALC-058765		

Standard Product Offering.

THERMOSTATIC EXPANSION VALVES

ALCO HF BALANCED PORT THERMO[®] EXPANSION VALVE REFRIGERANT LIQUID TEMPERATURE CORRECTION FACTORS

	REFRIGERANT LIQUID TEMPERATURE °F														
	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140
R-12 Correction Factor	1.60	1.54	1.48	1.42	1.36	1.30	1.24	1.18	1.12	1.06	1.00	0.94	0.88	0.82	0.75
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
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-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	0.80	0.70	0.50

These factors include corrections for liquid refrigerant and net refrigerating effect and are based on an average evaporator temperature of 0° F. However, they may be used for any evaporator temperature from -40° F to +40° F since the variation in the actual factors across this range is insignificant.
EXAMPLE: Actual capacity of a HFE1-1/2H valve at -20° F, 150 psi pressure drop and 60° F liquid temperature = 1.06 tons x 1.23 = 1.30 tons.

HF EXTENDED CAPACITIES IN TONS R-134a

R-134a	EVAPORATOR TEMPERATURE											
	+50° F						+40° F					
	PRESSURE DROP ACROSS VALVE — PSI											
VALVE	60	80	100	125	150	175	60	80	100	125	150	175
HF1/4	0.21	0.24	0.27	0.30	0.33	0.35	0.20	0.23	0.26	0.29	0.32	0.35
HF1/2	0.39	0.45	0.51	0.56	0.62	0.67	0.38	0.44	0.49	0.55	0.61	0.65
HF3/4	0.70	0.80	0.90	1.01	1.10	1.19	0.68	0.79	0.88	0.98	1.08	1.17
HF1	1.06	1.23	1.37	1.54	1.68	1.82	1.04	1.20	1.34	1.50	1.65	1.78
HF1-1/2	1.43	1.65	1.85	2.06	2.26	2.44	1.40	1.62	1.81	2.02	2.21	2.39
HF1-3/4	1.83	2.12	2.37	2.65	2.90	3.13	1.80	2.07	2.32	2.59	2.84	3.07
HF2-1/2	2.42	2.80	3.13	3.49	3.83	4.13	2.37	2.74	3.06	3.42	3.75	4.05

R-134a	EVAPORATOR TEMPERATURE											
	+20° F						0° F					
	PRESSURE DROP ACROSS VALVE — PSI											
VALVE	60	80	100	125	150	175	60	80	100	125	150	175
HF1/4	0.19	0.22	0.25	0.28	0.31	0.33	0.17	0.20	0.22	0.25	0.27	0.29
HF1/2	0.37	0.42	0.47	0.53	0.58	0.63	0.32	0.37	0.42	0.47	0.51	0.55
HF3/4	0.65	0.75	0.84	0.94	1.03	1.11	0.58	0.67	0.74	0.83	0.91	0.98
HF1	1.00	1.15	1.29	1.44	1.57	1.70	0.88	1.02	1.14	1.27	1.39	1.50
HF1-1/2	1.34	1.55	1.73	1.93	2.12	2.29	1.18	1.37	1.53	1.71	1.87	2.02
HF1-3/4	1.72	1.98	2.22	2.48	2.71	2.93	1.52	1.75	1.96	2.19	2.40	2.59
HF2-1/2	2.27	2.62	2.93	3.27	3.58	3.87	2.00	2.31	2.59	2.89	3.17	3.42

HF EXTENDED CAPACITIES IN TONS R-22

R-22	EVAPORATOR TEMPERATURE																	
	+50° F						+40° F						+20° F					
	PRESSURE DROP ACROSS VALVE — PSI																	
VALVE	80	100	125	150	175	200	80	100	125	150	175	200	80	100	125	150	175	200
HF1/4H	0.26	0.29	0.32	0.35	0.38	0.41	0.25	0.28	0.32	0.35	0.38	0.40	0.25	0.28	0.31	0.34	0.37	0.39
HF1/2H	0.48	0.51	0.60	0.66	0.71	0.76	0.48	0.53	0.60	0.65	0.71	0.75	0.47	0.52	0.58	0.64	0.69	0.74
HF1H	0.86	0.96	1.08	1.18	1.27	1.36	0.85	0.95	1.06	1.16	1.26	1.34	0.83	0.93	1.04	1.13	1.23	1.31
HF1-1/2H	1.31	1.47	1.64	1.80	1.94	2.08	1.30	1.45	1.62	1.75	1.92	2.05	1.26	1.41	1.58	1.73	1.87	2.00
HF2H	1.76	1.97	2.20	2.42	2.61	2.79	1.74	1.95	2.18	2.39	2.58	2.76	1.70	1.90	2.12	2.33	2.51	2.69
HF2-1/2H	2.26	2.53	2.83	3.10	3.35	3.58	2.24	2.50	2.80	3.06	3.31	3.54	2.18	2.44	2.73	2.99	3.23	3.45

R-22	EVAPORATOR TEMPERATURE															
	0° F						-20° F						-40° F			
	PRESSURE DROP ACROSS VALVE — PSI															
VALVE	80	100	125	150	175	200	100	125	150	175	200	100	125	150	175	200
HF1/4H	0.22	0.25	0.28	0.31	0.33	0.35	0.17	0.19	0.21	0.23	0.25	0.12	0.13	0.14	0.15	0.16
HF1/2H	0.42	0.47	0.53	0.58	0.62	0.67	0.33	0.37	0.40	0.43	0.46	0.22	0.24	0.27	0.29	0.31
HF1H	0.75	0.84	0.94	1.03	1.11	1.19	0.58	0.65	0.71	0.77	0.82	0.39	0.43	0.47	0.51	0.55
HF1-1/2H	1.15	1.28	1.43	1.57	1.70	1.81	0.89	0.99	1.09	1.18	1.26	1.59	0.66	0.72	0.78	0.83
HF2H	1.54	1.72	1.93	2.11	2.28	2.43	1.19	1.33	1.46	1.58	1.69	1.79	0.89	0.97	1.05	1.12
HF2-1/2H	1.98	2.21	2.47	2.71	2.92	3.12	1.53	1.71	1.88	2.03	2.17	1.02	1.14	1.25	1.35	1.44

THERMOSTATIC EXPANSION VALVES

ALCO HF BALANCED PORT THERMO® EXPANSION VALVE

HF EXTENDED CAPACITIES IN TONS R-404A/507

R-404A/ R-507	EVAPORATOR TEMPERATURE																	
	+50° F						+40° F						+20° F					
	PRESSURE DROP ACROSS VALVE — PSI																	
VALVE	80	100	125	150	175	200	80	100	125	150	175	200	80	100	125	150	175	200
HF1/8	0.17	0.19	0.21	0.23	0.25	0.27	0.16	0.18	0.21	0.23	0.24	0.26	0.16	0.18	0.20	0.22	0.23	0.25
HF1/4	0.32	0.35	0.40	0.43	0.47	0.50	0.31	0.35	0.39	0.42	0.46	0.49	0.30	0.33	0.37	0.41	0.44	0.47
HF1/2	0.56	0.63	0.70	0.77	0.83	0.89	0.55	0.62	0.69	0.76	0.82	0.87	0.53	0.59	0.66	0.72	0.78	0.83
HF1	0.86	0.96	1.08	1.18	1.27	1.36	0.84	0.94	1.05	1.15	1.25	1.33	0.80	0.90	1.01	1.10	1.19	1.27
HF1-1/4	1.16	1.29	1.45	1.58	1.71	1.83	1.13	1.27	1.42	1.55	1.67	1.79	1.08	1.21	1.35	1.48	1.60	1.71
HF1-1/2	1.48	1.66	1.85	2.03	2.19	2.35	1.45	1.62	1.82	1.99	2.15	2.30	1.39	1.55	1.73	1.90	2.05	2.19

R-404A/ R-507	EVAPORATOR TEMPERATURE																	
	0° F						-20° F						-40° F					
	PRESSURE DROP ACROSS VALVE — PSI																	
VALVE	80	100	125	150	175	200	80	100	125	150	175	200	100	125	150	175	200	
HF1/8	0.14	0.16	0.18	0.20	0.21	0.23	0.10	0.11	0.12	0.14	0.15	0.16	0.07	0.08	0.09	0.10	0.10	
HF1/4	0.27	0.30	0.34	0.37	0.40	0.43	0.19	0.21	0.23	0.25	0.28	0.29	0.14	0.15	0.17	0.18	0.19	
HF1/2	0.48	0.54	0.60	0.66	0.71	0.76	0.33	0.37	0.41	0.45	0.49	0.52	0.24	0.27	0.30	0.32	0.34	
HF1	0.74	0.82	0.92	1.01	1.09	1.16	0.51	0.57	0.63	0.69	0.75	0.80	0.37	0.42	0.46	0.49	0.53	
HF1-1/4	0.99	1.11	1.24	1.35	1.46	1.56	0.68	0.76	0.85	0.93	1.01	1.08	0.50	0.56	0.61	0.66	0.71	
HF1-1/2	1.27	1.42	1.59	1.74	1.88	2.01	0.87	0.98	1.09	1.19	1.29	1.38	0.64	0.72	0.78	0.85	0.91	

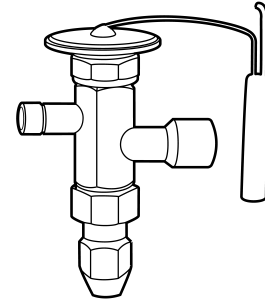
NOTE: For small tonnage HF valves, flow capacities are the same for reverse flow applications.

THERMOSTATIC EXPANSION VALVES

ALCO TRAE+ THERMO[®] EXPANSION VALVE

Alco's TRAE Plus thermostatic expansion valve (TXV) is a large capacity series designed for refrigeration, air conditioning, heat pump, and chiller applications. The new series introduces a new replaceable stainless steel power element, a fully interchangeable cage assembly and a square body.

This valve type features double balanced port design, which provides stable and accurate control over wide loads and evaporator temperature ranges. Furthermore, a permanent inlet strainer and external adjustment are standard on every valve.



P998

FEATURES

- Suitable for Bi-Flow applications.
- Removable power element and cage assembly for full serviceability.
- Stainless steel power element for enhanced corrosion resistance.
- Double balanced port design improves operation and stability under low load conditions.
- Square body with straight-thru connections.
- Solid copper connections.
- External superheat adjustment.
- Large diaphragm provides superior stability.
- HCA charge designed especially for R-22 air conditioning applications.

OPTIONS

- Cages KT20289 thru KT20293.
- Remote Bulb Tubing Length 10' standard, other lengths are available.
- Replaceable Power Assembly X-28458.

NOMENCLATURE EXAMPLE: TRAE + 30 HC 10 FT 7/8 x 1-1/8 ODF S/T

IMPORTANT NOTE: ALCO TXVs are only set up in C-10, using the following nomenclature: ALC-XXXXXX where XXXXX is an ALCO PCN (Product Code Number). The ALCO nomenclature is used as a part description only.

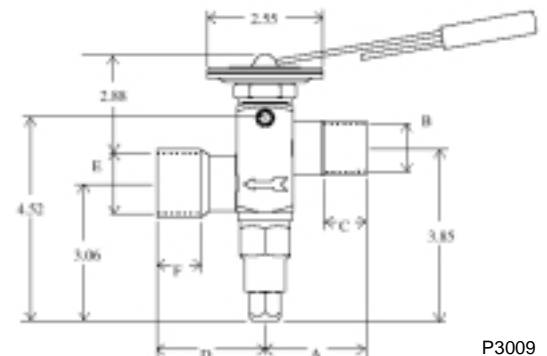
TRA	E	+	30	H	C	10 FT	7/8 X 1 1/8	ODF	S/T
Valve Series	Equalizer E = External 1/4" SAE	Replaceable Components Cage and Power Assembly	Capacity Nominal Rating in Tons See nominal capacity table (below)	Refrigerant Code F = R-12 H = R-22 M = R-134a N = R-407C P = R-507 R = R-502 S = R-404A	Charge Code C = medium temp CA = heat pump W (MOP) = press. limiting Z = low temp	Capillary Tube Length 10 ft (standard) Other lengths are available	Inlet x Outlet Connection Sizes I O 5/8 7/8 7/8 1-1/8 1-1/8 1-3/8	Connection Type ODF = Solder (only)	Configuration S/T = Straight thru (only)

TRAE+ SERIES NOMINAL CAPACITY TABLE IN TONS (kWatts)

R-12	R-134A	R-22	R-502	R-507/ R-404A	R-407C
7-1/2 (27)	9 (32)	10 (35)	8 (28)	8 (28)	10 (35)
10 (35)	13 (46)	15 (53)	12 (42)	12 (42)	15 (53)
12 (42)	14 (50)	20 (71)	14 (50)	14 (50)	20 (71)
18 (64)	22 (78)	30 (106)	20 (71)	20 (71)	30 (106)
25 (88)	30 (106)	40 (142)	30 (106)	30 (106)	40 (142)

TRAE+ DIMENSIONAL DATA (inches)

TRAE VALVE TYPE	NOMINAL INLET (B)	SIZES (ODF) OUTLET (E)	INLET		OUTLET	
			A	C	D	F
TRAE+ 10-40 TONS	5/8	7/8	1.57	0.50	2.09	0.75
	5/8	1-1/8	1.57	0.50	2.21	0.91
	7/8	7/8	2.09	0.75	2.09	0.75
	7/8	1-1/8	2.09	0.75	2.21	0.91
	7/8	1-3/8	2.09	0.75	2.39	0.97
	1-1/8	1-1/8	2.21	0.91	2.21	0.97
	1-1/8	1-3/8	2.21	0.91	2.39	0.97
	1-1/8	1-3/8	2.21	0.91	2.39	0.97



P3009

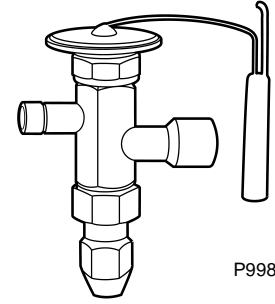
THERMOSTATIC EXPANSION VALVES

ALCO TRAE/TRAE+ THERMO[®] EXPANSION VALVE

TRAE Thermo Valves are a large capacity series for chiller, heat pump, refrigeration, and air conditioning applications. Its balanced port design provides stable and accurate control over wide load and evaporator temperature ranges.

FEATURES

- Suitable for Bi-Flow applications.
- External superheat adjustment.
- Integral body with straight-thru connections.
- TRAE's balanced port design improves valve operation and stability under low load conditions.
- Solid copper connections.
- Large diaphragm provides superior stability.
- Stainless steel power element for maximum corrosion resistance.



OPTIONS

- HCA charge designed especially for R-22 air conditioning applications.

SPECIFICATIONS

- Ratings from 50 to 70 tons.
- Maximum Working Pressure: 450 psig.

NOMENCLATURE EXAMPLE: TRAE 50 HC 10 FT 7/8 x 1-1/8 ODF S/T

IMPORTANT NOTE: ALCO TXVs are only set up in C-10, using the following nomenclature: ALC-XXXXX where XXXXX is an ALCO PCN (Product Code Number). The ALCO nomenclature is used as a part description only.

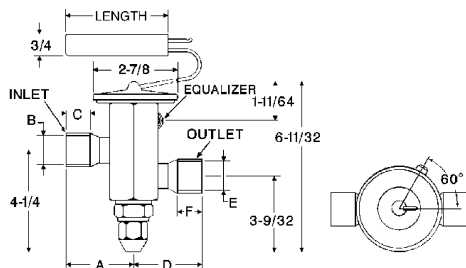
TRA	E	50	H	C	10 FT	7/8 X 1 1/8	ODF	S/T
Valve Series Hermetic Design, Solder Connections, Balanced Port, Larger Tonnages	Equalizer E = External 1/4" SAE	Capacity Nominal Rating in Tons See nominal capacity table (below)	Refrigerant Code F = R-12 H = R-22 M = R-134a N = R-407C P = R-507 R = R-502 S = R-404A	Charge Code C = medium temp CA = heat pump/AC W(MOP) = press. limiting Z = low temp	Capillary Tube Length 10 ft (standard) Other lengths are available	Inlet x Outlet Connection Sizes $\frac{1}{4}$ $\frac{3}{8}$ $\frac{3}{8}$ $\frac{1}{2}$	Connection Type ODF = Solder (only)	Configuration S/T = Straight thru (only)

TRAE SERIES — NOMINAL CAPACITY TABLE IN TONS (kWatts)

R-12	R-134A	R-22	R-502	R-507/R-404A	R-407C
30 (106)	40 (142)	50 (177)	35 (124)	35 (124)	50 (177)
35 (124)	45 (159)	60 (212)	40 (142)	40 (142)	60 (212)
40 (142)	50 (177)	70 (248)	50 (177)	50 (177)	70 (248)

TRAE

R-22 Available Tonnages: 50, 60, 70



P3010

TRAE DIMENSIONAL DATA — Remote Bulb Tubing Length 10' Standard

TRAE VALVE TYPE	NOMINAL SIZES (ODF)		INLET		OUTLET	
	INLET-B	OUTLET-E	A	C	D	F
TRAE	7/8 (.88)	7/8 (.88)	2-1/16 (2.06)	3/4 (.75)	2-1/16 (2.06)	3/4 (.75)
		1-1/8 (1.13)			2-1/2 (2.50)	29/32 (.91)
		1-3/8 (1.38)			2-11/16 (2.69)	31/32 (.97)
	1-1/8 (1.13)	1-1/8 (1.13)	2-1/2 (2.50)	29/32 (.91)	2-1/2 (2.50)	29/32 (.91)
1-3/8 (1.38)	1-3/8 (1.38)	2-11/16 (2.69)	31/32 (.97)	2-19/32 (2.59)	31/32 (.97)	

TRAE Remote Bulb Table

REMOTE BULB TUBING LENGTH	LENGTH DIMENSION
5, 10, 15 ft	4-7/8
20, 30 ft	
40, 50 ft	6-3/16

DIMENSIONS SHOWN ARE IN INCHES.
FRACTIONS (DECIMAL)

THERMOSTATIC EXPANSION VALVES

ALCO TRAE/TRAE+ THERMO® EXPANSION VALVE

ORDERING INFORMATION FOR TRAE/TRAE+ SERIES VALVES

VALVE SERIES	CHARGE	CAP TUBE LENGTH	CONNECTIONS	P/N
TRAE+ 10	HC*	5 ft	5/8 x 7/8 ODF S/T	ALC-062718
TRAE+ 15	HC*	10 ft	7/8 x 1-1/8 ODF S/T	ALC-062721
TRAE+ 20	HC*	10 ft	7/8 x 1-3/8 ODF S/T	ALC-063650
TRAE+ 20	HC*	10 ft	7/8 x 1-1/8 ODF S/T	ALC-062724
TRAE+ 30	HC*	10 ft	7/8 x 1-1/8 ODF S/T	ALC-062727
TRAE+ 30	HC*	10 ft	1-1/8 x 1-3/8 ODF S/T	ALC-062728
TRAE+ 40	HC*	10 ft	1-1/8 x 1-3/8 ODF S/T	ALC-062733
TRAE 50	HC*	10 ft	1-1/8 x 1-3/8 ODF S/T	ALC-061700
TRAE 60	HC*	10 ft	1-1/8 x 1-3/8 ODF S/T	ALC-061865
TRAE 70	HC*	10 ft	1-1/8 x 1-3/8 ODF S/T	ALC-061866

(+) Replaceable Power Assembly.

*R-22 Medium Temperature.

NOTE: Consult Alco for refrigerants other than R-22.

Standard Product Offering.

CAGE REPLACEMENT KITS FOR TRAE+ SERIES VALVES

Replacement cage assemblies for TRAE+ are available as separate sale items. Cage kits are cross referenced by capacity and tonnage in the table to the right. Each cage kits consists of a replacement cage and cage removal wrench. In addition, the cage removal wrench (KT-20294) can be ordered as a separate item.

PCN*	TRAE+ KIT	DESCRIPTION	NOMINAL CAPACITY — TONS			
			R-22	R-12/R-134a	R-507/R-404A	R-502
063387	KT-20289	Cage Kit	10	9	8	8
063388	KT-20290	Cage Kit	15	13	12	12
063389	KT-20291	Cage Kit	20	14	14	14
063390	KT-20292	Cage Kit	30	22	20	20
063391	KT-20293	Cage Kit	40	30	30	30
063392	KT-20294	Cage Wrench Kit				

Standard Product Offering.

POWER ASSEMBLY REPLACEMENT: X-28458

THERMOSTATIC EXPANSION VALVES

ALCO TRAE/TRAE+ THERMO[®] EXPANSION VALVE

REFRIGERANT LIQUID TEMPERATURE CORRECTION FACTORS

	Refrigerant Liquid Temperature °F														
	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140
R-12 Correction Factor	1.60	1.54	1.48	1.42	1.36	1.30	1.24	1.18	1.12	1.06	1.00	.94	.88	.82	.75
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	.93	.85	.78	.71
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	.94	.88	.82	.76
R-404A/R-507 Correction	2.00	1.90	1.80	1.70	1.60	1.50	1.40	1.30	1.20	1.10	1.00	.90	.80	.70	.50

These factors include corrections for liquid refrigerant density and net refrigerating effect and are based on an average evaporator temperature of 0° F.

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

THERMOSTATIC EXPANSION VALVES

ALCO T-SERIES TAKE-A-PART THERMO[®] VALVE

ALCO Take-A-Part Series TEVs, with adjustable superheat and replaceable, interchangeable components are ideal for original equipment and field replacements in air conditioning, heat pump, and refrigeration applications.

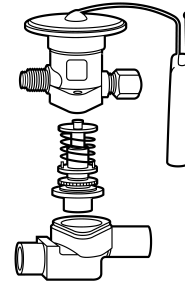
FEATURES

- Take-A-Part construction for easy field service.
- External superheat adjustment.
- Bi-Flow capability.
- Stainless steel power assembly up to 20 ton.

OPTIONS

- Interchangeable, replaceable cages for TEV versatility (1/4 to 100 tons capacity).
- Interchangeable body flanges for any connection you need.
- Interchangeable power heads for refrigerants listed.
- Charges for other applications available (consult Alco Application Engineering).

Stainless Steel Power Assembly



P999

SPECIFICATIONS

- Maximum working pressure: 450 psig
- Torque Bolts: 300 in. lb.

NOMENCLATURE

Example: TCLEB 5 HC 5 FT 3/8 X 1/2 SAE ANG

TLC	E	B	5	H	C	5 FT	3/8 X 1/2	SAE	ANG
Valve Series* Take-A-Part Adjustable	Equalizer E = External Omit for internal	Bleed Hole (optional) B = Bleed Hole Omit for no bleed hole	Capacity Nominal Rating in Tons See Cage Assembly Interchangeability	Refrigerant Code F = R-12 H = R-22 M = R-134a N = R-407C P = R-507 R = R-502 S = R-404A	Charge Code C = medium temp CA = heat pump W (MOP) = press. limiting Z = low temp	Capillary Tube Length Various lengths are available.	Inlet x Outlet Connection Sizes Various sizes are available. Also, valve is available less flange	Connection Type SAE = flare ODF = solder	Configuration ANG = 90° Angle S/T = Straight Thru

SINGLE OUTLET "T" SERIES BODY FLANGES WITH BLEED HOLE FOR USE WITH PSC COMPRESSORS

VALVE TYPE			BLEED HOLE DIAMETER* FOR % CAPACITY BYPASS											
R-12	R-22	R-502	10%		15%		20%		25%		30%		40%	
			Dia. (in.)	Drill Size	Dia. (in.)	Drill Size	Dia. (in.)	Drill Size	Dia. (in.)	Drill Size	Dia. (in.)	Drill Size	Dia. (in.)	Drill Size
TCL1/4F	TCL1/2H	TCL 1/2R	-	-	.0156	1/64	.018	77	.020	76	.022	74	.025	72
TCL1/2F	TCL1H	TCL 1/2R	.018	77	.021	75	.024	73	.026	71	.0292	69	.035	65
TCL1F	TCL2H	TCL 1R	.026	71	.0312	1/32	.036	64	.040	60	.0465	56	.052	55
TCL2F	TCL3H	TCL 2R	.028	70	.035	65	.040	60	.043	57	.0468	3/4	.055	54
TCL3F	TCL5H	TCL 3R	.035	65	.043	57	.052	55	.055	54	.0625	1/16	.070	50
TCL4F	TCL7-1/2H	TCL4-1/2R	.043	57	.052	55	.0595	53	.067	51	.076	48	.086	44
TCL6-1/2F	TCL10H	TCL7R	.052	55	.0595	53	.070	50	.0785	47	.086	44	.0995	39
TCL7-1/2	TCL12H	TCL8R	.052	55	.0595	53	.070	50	.0785	47	.086	44	.0995	39

*Bleed hole sizes shown above are based on a percent of full effective port area of the valve. This does not necessarily indicate the percent of valve capacity that will be bypassed. The hole sizes shown above should be used for reference only. Normal industry practice is to equalize systems 3 to 5 minutes.

BOLT TORQUE

The cap screws on all ALCO Take-A-Part TEVs require 300 inch pound bold torque.

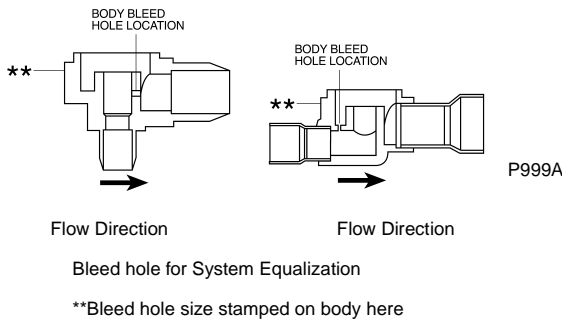
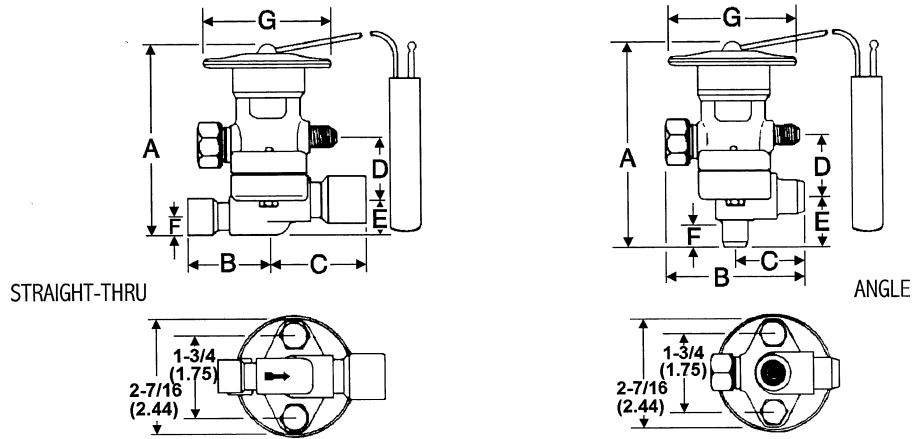
FIELD REPLACEMENT OF VALVE TYPES TL(E), TLX

For field replacement of valve types TLX & TL(E), substitute a valve type TCL(E) of equivalent tonnage and re-use the old body flange. This substitution provides a valve equal in performance with provision for external superheat adjustment and eliminates the need to remove the old flange.

THERMOSTATIC EXPANSION VALVES

ALCO T-SERIES TAKE-A-PART THERMO[®] VALVE

TCL-(E) DIMENSIONAL DIAGRAMS & TABLES



TCL(E) REMOTE BULB DIMENSIONS

CAPILLARY TUBING LENGTH	STANDARD REMOTE BULB		RAPID RESPONSE BULB*	
	DIA.	LENGTH	DIA.	LENGTH
5'	5/8 (.63)	3-1/16 (3.06)	3/8 (.38)	1-3/16 (1.19)
10'		3-9/16 (3.56)		
15 OR 20'		4-13/16 (4.81)	-	-
30'		6-1/16 (6.06)	-	-
40 OR 50'	3/4 (.75)	6-3/16 (6.19)	-	-

*Rapid response bulb available only with 5' or 10' capillary tubing.

TCL(E) ROUGHING-IN DIMENSIONS

STANDARD CONNECTIONS*	STRAIGHT-THRU STYLE DIMENSIONS							SOCKET DEPTH		
	A	B	C	D	E	F	G	INLET	OUTLET	
3/8 X 1/2 SAE	3-45/64 (3.70)	1-25/32	1-63/64 (1.98)	1-13/64 (1.20)	11/16 (.69)	3/8 (.38)	2-9/16 (2.56) DIA.	-	-	
3/8 X 5/8 SAE			2-5/32 (2.16)							
1/2 X 1/2 SAE		1-31/32 (1.97)	1-9/16 (1.56)							
3/8 X 1/2 ODF	1-13/32 (1.41)	1-37/64 (1.58)	43/64 (.67)					23/64 (.36)	5/16 (.31)	3/8 (.38)
3/8 X 5/8 ODF		1-5/8 (1.63)	11/16 (.69)		3/8 (.38)	3/8 (.38)		1/2 (.50)		
1/2 X 1/2 ODF		1-9/16 (1.56)	43/64 (.67)		23/64 (.36)	3/8 (.38)		1/2 (.50)		
1/2 X 5/8 ODF		1-5/8 (1.63)	11/16 (.69)		3/8 (.38)	3/8 (.38)		1/2 (.50)		
5/8 X 5/8 ODF	3-45/64 (3.70)	1-19/32 (1.59)	1-5/8 (1.63)		11/16 (.69)	3/8 (.38)		2-9/16 (2.56) DIA.	1/2 (.50)	3/4 (.75)
5/8 X 7/8 ODF			1-15/16 (1.94)						29/32 (.91)	
5/8 X 1-1/8 ODF			2-3/8 (2.38)		29/32 (.91)					
7/8 X 1-1/8 ODF	3-13/16 (3.81)	1-15/16 (1.94)	2-3/8 (2.38)				3/4 (.75)	29/32 (.91)		
ANGLE STYLE										
3/8 X 1/2 SAE	4-9/64 (4.14)	3-1/16 (3.06)	1-1/2 (1.50)	1-13/64 (1.20)	1-1/8 (1.13)	-	2-9/16 (2.56) DIA.	-	-	
3/8 X 5/8 SAE		3-3/16 (3/19)	1-5/8 (1.63)		1-3/8 (1.38)					
1/2 X 5/8 SAE	4-25/64 (4.39)	2-29/32 (2.91)	1-11/32 (1.34)		15/16 (.94)	7/16 (.44)		7/16 (.44)	9/16 (.56)	
1/4 X 3/8 ODF	3-61/64 (3.95)		1-15/32 (1.47)		1-1/16 (1.06)	9/16 (.56)		11/16 (.69)	1/16 (.06)	
3/8 X 1/2 ODF	4-7/64 (4.11)		1-19/32 (1.59)						11/16 (.69)	13/16 (.81)
3/8 X 5/8 ODF	4-13/64 (4.20)	3-5/32 (3.16)	1-19/32 (1.59)		1-3/16 (1.19)	11/16 (.69)		11/16 (.69)	13/16 (.81)	
1/2 X 5/8 ODF					1-11/32 (1.34)	1-11/16 (1.69)		13/16 (.81)	1	
5/8 X 7/8 ODF (7/8 X 1-1/8 ODM)	4-53/64 (4.83)	3-9/16 (3.56)	2 (2.00)							

*Connections shown are standard sizes, consult ALCO for non-standard sizes. Allow 2-1/8" above valve for removal of power assembly.

THERMOSTATIC EXPANSION VALVES

ALCO T-SERIES TAKE-A-PART THERMO® EXPANSION VALVE

TER, TIR, THR, TMR ROUGHING-IN DIMENSIONS

TER STRAIGHT-THRU SYTLE										
TER VALVE*		DIMENSIONS								
INLET	OUTLET	A	B	C	D	E	F	G	H	J DIA.
ODF:ODM 7/8: 1-1/8	ODF:ODM 7/8: 1-1/8	(5.39) 5-25/64	(2.00) 2	(1.78) 1-25/32	(2.94) 2-15/16	(.59) 19/32	(2.20) 2-13/64	(1.13) 1-1/8	(.75) 3/4	(2.88) 2-7/8
TER ANGLE STYLE										
ODF:ODM 7/8: 1-1/8	ODF:ODM 7/8: 1-1/8	(5.50) 5-1/2	(3.38) 3-3/8	(2.00) 2	(3.66) 3-21/32	(2.31) 2-5/16	(.75) 3/4	(1.13) 1-1/8	(.75) 3/4	(2.88) 2-7/8
TIR STRAIGHT-THRU STYLE										
TIR VALVE*		DIMENSIONS								
INLET	OUTLET	A	B	C	D	E	F	G	H	J DIA.
ODF:ODM 7/8: 1-1/8	ODF:ODM 7/8: 1-1/8	(5.45) 5-29/64	(2.00) 2	(1.78) 1-25/32	(3.00) 3	(.59) 19/32	(2.27) 2-17/64	(1.13) 1-1/8	(.75) 3/4	(2.88) 2-7/8
TIR ANGLE STYLE										
ODF:ODM 7/8: 1-1/8	ODF:ODM 7/8: 1-1/8	(6.00) 6	(3.38) 3-3/8	(2.00) 2	(4.16) 4-5/32	(2.81) 2-13/16	(.75) 3/4	(1.13) 1-1/8	(.75) 3/4	(2.88) 2-7/8
THR STRAIGHT-THRU STYLE										
THR, TMR VALVE*		DIMENSIONS								
INLET	OUTLET	A	B	C	D	E	F	G	H	J DIA.
ODM 1-1/8	ODM 1-1/8	(5.45) 5-29/64	(2.00) 2	(1.78) 1-25/32	(3.00) 3	(.59) 19/32	(2.27) 2-17/64	-	-	(2.88) 2-7/8
THR ANGLE STYLE										
ODM 1-1/8	ODM 1-1/8	(6.00) 6	(3.38) 3-3/8	(2.00) 2	(4.16) 4-5/32	(2.81) 2-13/16	-	(1.13) 1-1/8	-	(2.88) 2-7/8

*Connections shown are standard sizes, consult ALCO for non-standard sizes. Allow 2-1/8" above valve for removal of power assembly.

TJL(E) ROUGHING-IN DIMENSIONS

TJLE STRAIGHT-THRU SYTLE										
TER VALVE*		DIMENSIONS								
INLET	OUTLET	A	B	C	D	E	F	G	H	J
5/8	1-1/8	4-55/64	1-5/8(1.63)	2-1/2(2.50)	1-11/16	1-23/32	45/64	17/32(.53)	29/32(.91)	-
7/8	1-1/8	(4.86)	1-15/16	2-1/2(2.50)	(1.34)	(1.72)	(.70)	3/4	29/32(.91)	-
7/8	1-3/8		(1.94)	2-11/16(2.69)				(.75)	31/32(.98)	
TJLE ANGLE STYLE										
ODF:ODM 5/8:7/8	ODF:ODM 7/8:1-1/8	(5.03) 5-1/32	(3.47) 3-15/32	(2.00) 2	(1.34) 1-11/32	(1.84) 1-27/32	(.81) 13/16	(1.06) 1-1/16	(1.00) 1	(1.13) 1-1/8

TJR ROUGHING-IN DIMENSIONS

TJR STRAIGHT-THRU SYTLE										
TJR VALVE*		DIMENSIONS								
INLET	OUTLET	A	B	C	D	E	F	G	H	J
ODF:ODM 7/8:1-1/8	ODF:ODM 7/8:1-1/8	(5.36) 5-1/2	(2.00) 2	(1.78) 1-25/32	(2.94) 2-15/16	(.59) 19/32	(2.20) 2-13/64	(.75) 3/4	(.75) 3/4	(1.13) 1-1/8
TJR ANGLE STYLE										
ODF:ODM 7/8:1-1/8	ODF:ODM 7/8:1-1/8	(5.50) 5-1/2	(3.38) 3-3/8	(2.00) 2	(3.66) 3-21/32	(2.31) 2-5/16	(.75) 3/4	(1.13) 1-1/8	(.75) 3/4	(1.13) 1-1/8

*Connections shown are standard sizes, consult ALCO for non-standard sizes. Allow 2-1/8" above valve for removal of power assembly.

TJL(E) & TJR BULB DIMENSIONS

CAPIL-LARY TUBING LENGTH	STANDARD REMOTE BULB		RAPID RESPONSE BULB*	
	DIA.	LENGTH	DIA.	LENGTH
5'	5/8 (.63)	3-1/16 (3.06)	3/8 (.38)	1-3/16 (1.19)
10'		3-9/16 (3.56)		
15 OR 20'		4-13/16 (4.81)		
30'		6-1/16 (6.06)		
40 OR 50'	3/4 (.75)	6-3/16 (6.19)		

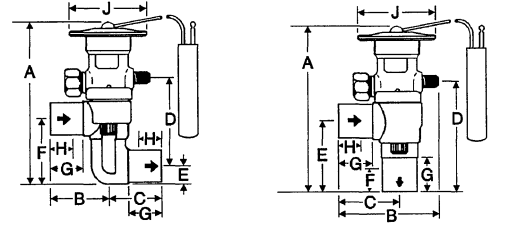
*Rapid response bulb available only with 5' or 10' capillary tubing.

TER, TIR, THR & TMR REMOTE BULB DIMENSIONS

CAPIL-LARY TUBING LENGTH	STANDARD REMOTE BULB		RAPID RESPONSE BULB*	
	DIA.	LENGTH	DIA.	LENGTH
5'	3/4 (.75)	4-7/8 (4.88)	3/8 (.38)	2-1/16 (2.06)
10'				
15 OR 20'				
30'				
40 OR 50'		6-3/16 (6.19)		

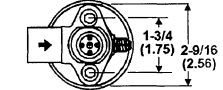
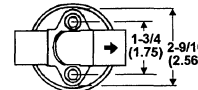
*Rapid response bulb available only with 5' or 10' capillary tubing.

TER, TIR, THR, TMR



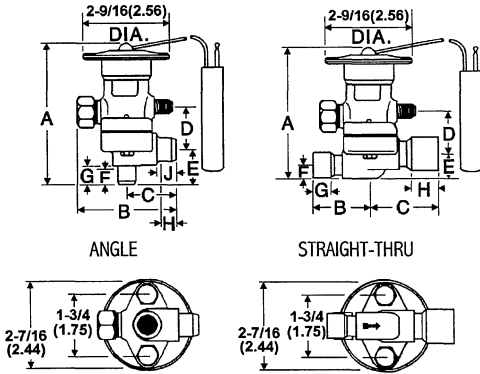
STRAIGHT-THRU

ANGLE



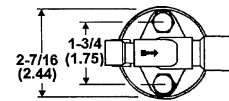
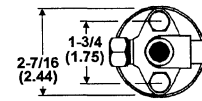
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TJLE



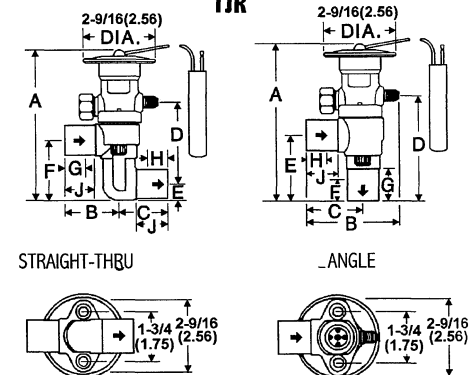
ANGLE

STRAIGHT-THRU



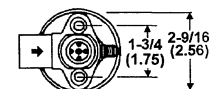
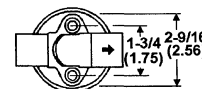
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TJR



STRAIGHT-THRU

ANGLE



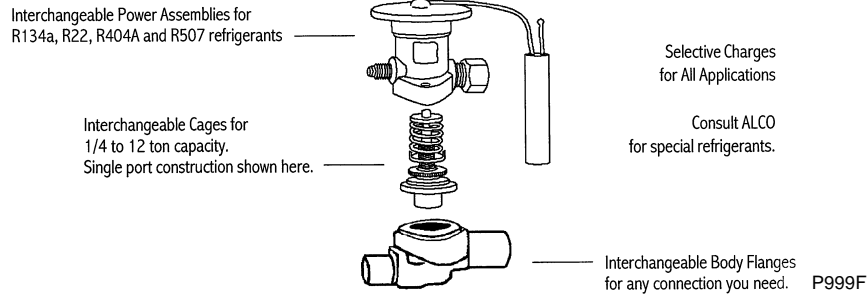
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DIMENSIONS SHOWN ARE IN INCHES.
FRACTIONS (DECIMAL)

THERMOSTATIC EXPANSION VALVES

ALCO T-SERIES TAKE-A-PART THERMO® EXPANSION VALVE

ALTERNATE QUICK-SELECT GUIDE



T-SERIES VALVE SPECIFICATIONS

R134a VALVE TYPE†	134a TONS @ 60psi PRESSURE	R-12 VALVE TYPE†	R-12 TONS @ 60 psi PRESSURE	R-22 VALVE TYPE†	R-22 TONS @ 100psi PRESSURE	R-404A/ R-507 VALVE TYPE†	R-404A/R507 TONS @ 100 psi PRESSURE	EQUALIZER TYPE	CAGE ASSEMBLY PART NO.	POWER ASSEMBLY PART NO.
TCLE1/4M	1/4	TCLE1/4F	1/4	TCLE1/2H	1/2	TCLE1/4R	1/4	Internal equalizer or 1/4" SAE external equalizer standard	X22440-B1*	XB1019** Standard Bulb
TCLE3/4M	3/4	TCLE1/2F	1/2	TCLE1H	1	TCLE1/2R	1/2		X22440-B2*	
TCLE1-1/2M	1-1/2	TCLE1F	1	TCLE2H	2	TCLE1R	1		X22440-B3*	
TCLE2-1/2M	2-1/2	TCLE2F	2	TCLE3H	3	TCLE2R	2		X22440-B4*	
TCLE3-1/2M	3-1/2	TCLE3F	3	TCLE5H	5	TCLE3R	3		X22440-B5*	
TCLE5-1/2M	5-1/2	TCLE4F	4	TCLE7-1/2H	7-1/2	TCLE4-1/2R	4-1/2		X22440-B6*	
TCLE7-1/2M	7-1/2	TCLE6-1/2F	6-1/2	TCLE10H	10	TCLE7R	7		X22440-B7*	
TCLE9M	9	TCLE7-1/2F	7-1/2	TCLE12H	12	TCLE8R	8	X22440-B8*	X8019** Rapid Response Bulb	
TJLE9M	9	TJLE7F	7	TJLE11H	11	TJLE7R	7	XC724-B4B		
TJLE11M	11	TJLE8F	8	TJLE14H	14	TJLE9R	9	XC724-B5B		
TJR11M	11	TJR8F	8	TJR14H	14	TJR9R	9	X11873-B4B	XC726 Standard Bulb	
TJR13M	13	TJR11F	11	TJR18H	18	TJR12R	12	X11873-B5B		
TER16M	16	TER13F	13	TER22H	22	TER14R	14	X9117-B6B		
TER19M	19	TER15F	15	TER26H	26	TER16R	16	X9117-B7B	X7726 Rapid Response Bulb	
TER25M	25	TER20F	20	TER35H	35	TER21R	21	X9117-B8B		
TER31M	31	TER25F	25	TER45H	45	TER27R	27	X9117-B9B		
TIR45M	45	TIR35F	35	TIR55H	55	TIR37R	37	X9166-B10B	X9144-B13B	
THR55M	46	THR45F	45	THR75H	70	THR48R	48	X9144-B11B		
THR68M	56	THR55F	55	THR100H	85	THR60R	60	X9144-B13B		
TMR68M	66	TMR55F	55	TMR100H	100	TMR60R	60	X9144-B14B		

†TCLE, TJL are single ported valves for normal load conditions. TER, THR, TIR, TJR and TMR are balanced, double ported valves for low load conditions if needed.

²Other lengths are available on special order.

*Add: "A" for internal or "B" for external equalizer.

** Add Refrigerant: F = R-12; H = R-22; R = R-502; MOP if required.

Charge Code: C = med temp; Z = low temp; MOP (if needed)

Tubing Length: 1 = 5'; 2 = 10'; 3 = 15'; etc.

Equalizer Code: A = internal; B = external

Motor overload protection, if required (MOP)

Equalizer Code: B = 1/4" SAE external

NOTES:

- E in valve type denotes external equalizer, omit for internally equalized valve. Optional Rapid Response Remote Bulbs are available. Standard Remote Bulb Tube Length is 5' for TCL, TJL & TJR Series. Standard Length is 10' for TER, TIR, THR & TMR Series
- Nominal capacities shown here are based on 40° F evaporator temperature and 100° F vapor-free liquid refrigerant entering the valve. R-12 and R-134a rated at 60 PSID. All other refrigerants rated at 100 PSID.

TCL (E) OLD VS. NEW NOMENCLATURE

New cage assemblies are interchangeable with the old versions. To modernize our product, minor changes have been made in the construction of cage assemblies. The new constructions have been identified by a new cage assembly part number and a new valve type number.

OLD STYLE				NEW STYLE			
VALVE TYPE			CAGE ASSY. PART NO.	VALVE TYPE			CAGE ASSY. PART NO.
R-12	R-22	R-502		R-12	R-22	R-502	
TCLE25F	TCLE50H	TCLE25R	XC709-B7*	TCLE1/4F	TCLE1/2H	TCLE1/4R	X22440-B1*
TCLE50F	TCLE100H	TCLE50R	XC709B000*	TCLE1/2F	TCLE1H	TCLE1/2R	X22440-B2*
TCLE100F	TCLE200H	TCLE100R	XC709-B00*	TCLE1F	TCLE2H	TCLE1R	X22440-B3*
TCLE200F	TCLE300H	TCLE200R	XC709-B0*	TCLE2F	TCLE3H	TCLE2R	X22440-B4*
TCLE250F	TCLE400H	TCLE250R	XC709-B6*	TCLE3F	TCLE5H	TCLE3R	X22440-B5*
TCLE300F	TCLE500H	TCLE300R	XC709-B1*	TCLE3F	TCLE5H	TCLE3R	X22440-B5*
TCLE400F	TCLE700H	TCLE450R	XC709-B4*	TCLE4F	TCLE7-1/2H	TCLE4-1/2R	X22440-B6*
TCLE600F	TCLE900H	TCLE650R	XC709-B2*	TCLE6-1/2F	TCLE10H	TCLE7R	X22440-B7*
TCLE650F	TCLE1000H	TCLE700R	XC709-B3*	TCLE6-1/2F	TCLE10H	TCLE7R	X22440-B7*
TCLE750F	TCLE1200H	TCLE800R	XC709-B5*	TCLE7-1/2F	TCLE12H	TCLE8R	X22440-B8*

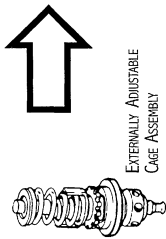
* Add equalizer code letter "A" for internal or "B" for external to make the cage assembly part number complete.

NOTE: delete the letter "E" from valve type for internally equalized valve.

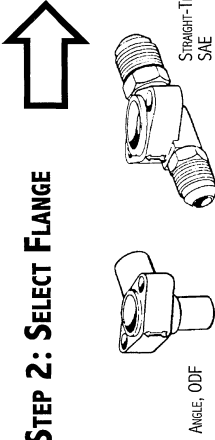
THERMOSTATIC EXPANSION VALVES

ALCO T-SERIES TAKE-A-PART THERMO® EXPANSION VALVE

T-SERIES TAKE-A-PART VALVE SMALL CAPACITY 1/2 TO 18 TONS (R22 NOMINAL - B FLOW)

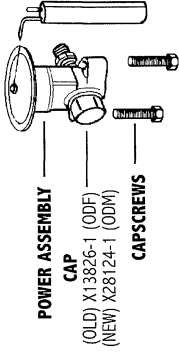


STEP 1: SELECT CAGE FROM CAPACITY TABLE



STEP 2: SELECT FLANGE

STEP 3: SELECT POWER ASSEMBLY



POWER ASSEMBLY
CAP
(OLD) X13826-1 (ODF)
(NEW) X28124-1 (ODM)
CAPSCREWS

NOTE: Nominal capacities shown here are based on 40°F evaporator temperature and 100°F vapor-free liquid refrigerant entering the valve. R-12 and R-134a rated at 60 PSID. All other refrigerants rated at 100 PSID.

VALVE TYPE	NOMINAL CAPACITY-TONS				CAGE ASSEMBLY ¹	
	R12	R134a	R22	R40A/R507	R407C	PCN*
TCL	1/4	1/4	1/2	1/4	1/2	X2244081B 037035
	1/2	3/4	1	1/2	1	X2244082B 037037
TCL	1	1-1/2	2	1	2	X2244083B 037039
	2	2-1/2	3	2	3	X2244084B 037041
	3	3-1/2	5	3	5	X2244085B 037043
	4	5-1/2	7-1/2	4-1/2	7-1/2	X2244086B 037045
TCL	6-1/2	7-1/2	10	7	10	X2244087B 037047
	7-1/2	9	12	8	12	X2244088B 037049

Standard Product Offering

* Product Code Number

VALVE TYPE	NOMINAL CAPACITY-TONS				CAGE ASSEMBLY ¹	
	R12	R134a	R22	R40A/R507	R407C	PCN*
TILE	7	9	11	7	11	X72484B 093343
	8	11	14	9	14	X72485B 038699

VALVE TYPE	NOMINAL CAPACITY-TONS				CAGE ASSEMBLY ¹	
	R12	R134a	R22	R40A/R507	R407C	PCN*
TIR	8	11	14	9	14	X1187384B 088837
	11	13	18	12	18	X1187385B 089058

¹ Gaskets included on cage.

Gasket strip X13455-1 replaces all older T-Series Gasket kits.

REFRIG-ERANT	EQUALIZER TYPE	CAP TUBE LENGTH	APPLICATION		POWER ASSEMBLY	PCN*
			TEMP RANGE	POP ¹ (psi)		
R12	Internal	5 FT.	-20 to +50	NONE	XB-1019 FC 1A	052951
	1/4 SAE	5 FT.	-20 to +50	NONE	XB-1019 FC 1B	049881
	Internal	10 FT.	-20 to +50	NONE	XB-1019 FC 2A	032374
	1/4 SAE	10 FT.	-20 to +50	NONE	XB-1019 FC 2B	052954
	1/4 SAE	15 FT.	-20 to +50	NONE	XB-1019 FC 3B	058569
	1/4 SAE	5 FT.	-50 to +30	35	XB-1019 FW 35 1B	079346
	1/4 SAE	5 FT.	-50 to +50	55	XB-1019 FW 55 1B	057432
	1/4 SAE	10 FT.	-50 to +50	55	XB-1019 FW 55 2B	050981
	1/4 SAE	5 FT.	-50 to +10	NONE	XB-1019 EZ 1B	040422
	1/4 SAE	5 FT.	-20 to +50	NONE	XB-1019 HC 1A	062078
R22	1/4 SAE	5 FT.	-20 to +50	NONE	XB-1019 HC 1B	053416
	1/4 SAE	10 FT.	-20 to +50	NONE	XB-1019 HC 2B	054390
	1/4 SAE	5 FT.	-50 to +5	35	XB-1019 HW35 1B	089975
	1/4 SAE	5 FT.	-50 to +20	55	XB-1019 HW55 1B	091152
	1/4 SAE	5 FT.	-50 to +30	65	XB-1019 HW65 1B	089445
	1/4 SAE	5 FT.	-20 to +50	100	XB-1019 HW100 1B	062437
	1/4 SAE	10 FT.	-20 to +50	100	XB-1019 HW100 2B	062668
	1/4 SAE	5 FT.	-50 to +10	NONE	XB-1019 HZ 1B	040568
	1/4 SAE	10 FT.	-50 to +10	NONE	XB-1019 HZ 2B	054105
	1/4 SAE	5 FT.	-20 to +50	NONE	XB-1019 MC 1B	057878
R134a	1/4 SAE	10 FT.	-20 to +50	NONE	XB-1019 MC 2B	059548
	1/4 SAE	10 FT.	-50 to +30	35	XB-1019 MW35 2B	062257
	1/4 SAE	5 FT.	-50 to +50	55	XB-1019 MW55 1B	057370
	1/4 SAE	10 FT.	-50 to +50	55	XB-1019 MW55 2B	057371
	1/4 SAE	5 FT.	-50 to +10	NONE	XB-1019 MZ 1B	061946
	1/4 SAE	10 FT.	-50 to +10	NONE	XB-1019 MZ 2B	061947
	1/4 SAE	5 FT.	-20 to +50	NONE	XB-1019 NC 1B	064837
	1/4 SAE	5 FT.	-20 to +50	100	XB-1019 NW100 1B	063069
	1/4 SAE	5 FT.	-20 to +50	NONE	XB-1019 PC 1B	061949
	1/4 SAE	10 FT.	-20 to +50	NONE	XB-1019 PC 2B	061950
R507	1/4 SAE	5 FT.	-50 to 0	40	XB-1019 PW40 1B	064200
	1/4 SAE	5 FT.	-50 to +10	NONE	XB-1019 PZ 1B	061951
	1/4 SAE	10 FT.	-50 to +10	NONE	XB-1019 PZ 2B	061952
	1/4 SAE	5 FT.	-20 to +50	NONE	XB-1019 RC 1B	052955
R502	1/4 SAE	10 FT.	-20 to +50	NONE	XB-1019 RC 2B	054415
	1/4 SAE	5 FT.	-50 to -20	15	XB-1019 RW 15 1B	070346
	1/4 SAE	5 FT.	-50 to 0	35	XB-1019 RW 35 1B	063644
	1/4 SAE	5 FT.	-50 to +5	45	XB-1019 RW 45 1B	055881
	1/4 SAE	10 FT.	-50 to +5	45	XB-1019 RW 45 2B	055704
	1/4 SAE	5 FT.	-50 to +10	65	XB-1019 RW 65 1B	063114
	1/4 SAE	5 FT.	-50 to +10	NONE	XB-1019 RZ 1B	046474
	1/4 SAE	10 FT.	-50 to +10	NONE	XB-1019 RZ 2B	047358
	1/4 SAE	5 FT.	-20 to +50	NONE	XB-1019 SC 1B	051889
	1/4 SAE	5 FT.	-50 to 0	40	XB-1019 SW40 1B	059130
R404A	1/4 SAE	5 FT.	-50 to +25	65	XB-1019 SW65 1B	063541
	1/4 SAE	10 FT.	-50 to +10	NONE	XB-1019 SZ 2B	061948

³ Capscrews included with Power Assembly

⁴ Maximum Operating Pressure Limit to prevent motor overload

VALVE TYPE	FLOW	SIZE & STYLE CONNECTIONS		BODY FLANGE		PCN*
		INLET	OUTLET	PART NUMBER	PART NUMBER	
TCL	ANGLE	3/8 SAE	1/2 SAE	C500-4	C500-4	056932
		3/8 SAE	5/8 SAE	C500-5	C500-5	057153
		1/2 SAE	5/8 SAE	C500-6	C500-6	056294
		1/4 ODF	3/8 ODF	C501-1	C501-1	045401
		3/8 ODF	1/2 ODF	C501-4	C501-4	065527
		3/8 ODF	5/8 ODF	C501-5	C501-5	065748
		1/2 ODF	5/8 ODF	C501-7	C501-7	065861
		5/8 ODF or 7/8 ODF	7/8 ODF or 1-1/8 ODF	A576	A576	027764
		3/8 SAE	1/2 SAE	X6669-4	X6669-4	051176
		3/8 SAE	5/8 SAE	X6669-1	X6669-1	050563
TCL	STRAIGHT-THRU	1/2 SAE	5/8 SAE	X6669-2	X6669-2	050842
		3/8 ODF	5/8 ODF	9761-5	9761-5	027769
		3/8 ODF	5/8 ODF	9761-3	9761-3	027771
		1/2 ODF	1/2 ODF	9761-6	9761-6	027766
		1/2 ODF	5/8 ODF	9761-4	9761-4	027268
		1/2 ODF	7/8 ODF	9761-2	9761-2	027770
		5/8 ODF	5/8 ODF	X6346-16	X6346-16	044733
		5/8 ODF	7/8 ODF	X6346-17	X6346-17	044846
		5/8 ODF	1-1/8 ODF	X6346-18	X6346-18	094038
		7/8 ODF	1-1/8 ODF	X6346-34	X6346-34	071757

VALVE TYPE	FLOW	SIZE & STYLE CONNECTIONS		BODY FLANGE		PCN*
		INLET	OUTLET	PART NUMBER	PART NUMBER	
TILE	ANGLE	5/8 ODF or 7/8 ODF	7/8 ODF or 1-1/8 ODF	B504	B504	044984
		5/8 ODF	1-1/8 ODF	X6347-2	X6347-2	094289
		7/8 ODF	1-1/8 ODF	X6347-6	X6347-6	057210
TILE	STRAIGHT-THRU	7/8 ODF	1-3/8 ODF	X6347-7	X6347-7	057323

VALVE TYPE	FLOW	SIZE & STYLE CONNECTIONS		BODY FLANGE		PCN*
		INLET	OUTLET	PART NUMBER	PART NUMBER	
TIR ²	ANGLE	7/8 ODF or 1-1/8 ODF	7/8 ODF or 1-1/8 ODF	10331	10331	029411
		7/8 ODF or 1-1/8 ODF	1-1/8 ODF	10332	10332	032988

² TIR is balanced ported. TIR flange includes extended length capscrews.

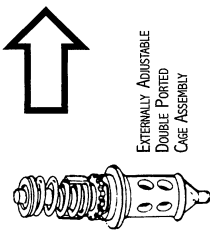
THERMOSTATIC EXPANSION VALVES

ALCO T-SERIES TAKE-A-PART THERMO® EXPANSION VALVE

T-SERIES TAKE-A-PART VALVE LARGE CAPACITY 22 TO 100 TONS (R22 NOMINAL — BALANCED PORTED AND Bi FLOW)

NOTE: Nominal capacities shown here are based on 40°F evaporator temperature and 100°F vapor-free liquid refrigerant entering the valve. R-12 and R-134a rated at 60 PSID. All other refrigerants rated at 100 PSID.

STEP 1: SELECT CAGE FROM CAPACITY TABLE



VALVE TYPE	NOMINAL CAPACITY—TONS					CAGE ASSEMBLY ¹	
	R134a	R22	R502	R407C	PCN*	PART #	PCN*
TER	13	16	22	14	22	X9117B6B	077896
	15	19	26	16	26	X9117B7B	078117
	20	25	35	21	35	X9117B8B	071155
	25	31	45	27	45	X9117B9B	029429

VALVE TYPE	NOMINAL CAPACITY—TONS					CAGE ASSEMBLY ¹	
	R134a	R22	R502	R407C	PCN*	PART #	PCN*
TIR	35	45	55	37	55	X9166B10B	070738

VALVE TYPE	NOMINAL CAPACITY—TONS					CAGE ASSEMBLY ¹	
	R134a	R22	R502	R407C	PCN*	PART #	PCN*
THR	45	46	70	48	70	X9144B11B	020846
	55	56	85	60	85	X9144B13B	021067

VALVE TYPE	NOMINAL CAPACITY—TONS					CAGE ASSEMBLY ¹	
	R134a	R22	R502	R407C	PCN*	PART #	PCN*
TMR	55	66	100	60	100	X9144B14B	065123

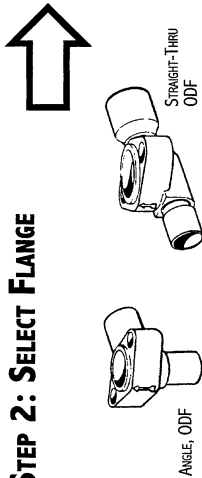
¹ Gaskets included on cage.

Gasket strip X13455-1 replaces all older T-Series Gasket kits.

Standard Product Offering

* Product Code Number

STEP 2: SELECT FLANGE



VALVE TYPE	FLOW ANGLE	SIZE & STYLE CONNECTIONS		BODY FLANGE PART NUMBER		PCN*
		INLET	OUTLET	NUMBER	NUMBER	
TER ²	STRAIGHT-THRU	7/8 ODF or 1-1/8 ODM	7/8 ODF or 1-1/8 ODM	9153	027919	027919
	ANGLE	7/8 ODF or 1-1/8 ODM	7/8 ODF or 1-1/8 ODM	9152	027918	027918

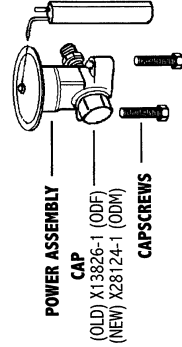
VALVE TYPE	FLOW ANGLE	SIZE & STYLE CONNECTIONS		BODY FLANGE PART NUMBER		PCN*
		INLET	OUTLET	NUMBER	NUMBER	
TIR	STRAIGHT-THRU	7/8 ODF or 1-1/8 ODM	7/8 ODF or 1-1/8 ODM	9151	027926	027926
	ANGLE	7/8 ODF or 1-1/8 ODM	7/8 ODF or 1-1/8 ODM	9150	028849	028849

VALVE TYPE	FLOW ANGLE	SIZE & STYLE CONNECTIONS		BODY FLANGE PART NUMBER		PCN*
		INLET	OUTLET	NUMBER	NUMBER	
THR	STRAIGHT-THRU	1-1/8 ODM	1-1/8 ODM	9149	028030	028030
	ANGLE	1-1/8 ODM	1-1/8 ODM	9148	028032	028032

VALVE TYPE	FLOW ANGLE	SIZE & STYLE CONNECTIONS		BODY FLANGE PART NUMBER		PCN*
		INLET	OUTLET	NUMBER	NUMBER	
TMR	STRAIGHT-THRU	1-1/8 ODM	1-1/8 ODM	9149-1	065124	065124
	ANGLE	1-1/8 ODM	1-1/8 ODM	9148-1	065125	065125

² TER flange includes extended length capscrews.

STEP 3: SELECT POWER ASSEMBLY



REFRIG-ERANT	EQUALIZER TYPE	CAP TUBE LENGTH	APPLICATION		POWER ASSEMBLY		PCN*
			TEMP RANGE	TRIP ³ (psi)	ASSEMBLY	ASSEMBLY	
R12	1/4 SAE	10 FT.	-20 to +40	NONE	XC-726 FC 2B	052957	052957
	1/4 SAE	10 FT.	-50 to 0	15	XC-726 RW15 2B	023362	023362
	1/4 SAE	10 FT.	-50 to +50	55	XC-726 RW55 2B	035000	035000
R22	1/4 SAE	10 FT.	-50 to 0	NONE	XC-726 FZ 2B	054849	054849
	1/4 SAE	10 FT.	-20 to +50	NONE	XC-726 HC 2B	056421	056421
	1/4 SAE	10 FT.	-50 to +5	35	XC-726 HW35 2B	024511	024511
R134a	1/4 SAE	10 FT.	-50 to +30	65	XC-726 HW65 2B	036750	036750
	1/4 SAE	10 FT.	-20 to +50	100	XC-726 HW100 2B	040569	040569
	1/4 SAE	10 FT.	-50 to +10	NONE	XC-726 HZ 2B	057235	057235
R502	1/4 SAE	10 FT.	-50 to +50	55	XC-726 MW55 2B	053732	053732
	1/4 SAE	10 FT.	-50 to +10	NONE	XC-726 MZ 2B	063075	063075
	1/4 SAE	10 FT.	-20 to +50	NONE	XC-726 RC 2B	052958	052958
R404A	1/4 SAE	10 FT.	-50 to -20	15	XC-726 RW15 2B	023351	023351
	1/4 SAE	10 FT.	-50 to +5	35	XC-726 RW35 2B	070866	070866
	1/4 SAE	10 FT.	-50 to +25	65	XC-726 RW65 2B	071421	071421
R404A	1/4 SAE	10 FT.	-50 to +10	NONE	XC-726 RZ 2B	046692	046692
	1/4 SAE	10 FT.	-20 to +50	NONE	XC-726 SC 2B	062303	062303
	1/4 SAE	10 FT.	-50 to +10	40	XC-726 SW40 2B	063127	063127
R404A	1/4 SAE	10 FT.	-50 to +25	65	XC-726 SW65 2B	061692	061692
	1/4 SAE	10 FT.	-50 to +10	NONE	XC-726 SZ 2B	063974	063974

³ Capscrews included with Power Assembly

⁴ Maximum Operating Pressure Limit to prevent motor overload

THERMOSTATIC EXPANSION VALVES

ALCO T-SERIES TAKE-A-PART THERMO® EXPANSION VALVE

ORDERING INFORMATION FOR T-SERIES VALVES (Complete Valves, Less Flange — VLF)

TCL,TCLE, TJLE & TJRE SAE EXTERNAL 5 FT CAP TUBE LENGTH

VALVE DESCRIPTION					
R-12	PCN*	R-22	PCN*	R-502	PCN*
TCL 3 F	055103	-	-	TCL 1 RC	055102
TCLE 1/4 FC	-	TCLE 1/2 HC	-	TCLE 1/4 RC	-
TCLE 1/2 FC	054413	TCLE 1 HC	062884	TCLE 1/2 RC	-
TCLE 1 FC	052940	TCLE 2 HC	061724	TCLE 1 RC	-
TCLE 2 FC	052941	TCLE 3 HC	054395	TCLE 2 RC	061215
TCLE 3 FC	052942	TCLE 5 HC	054399	TCLE 3 RC	055501
TCLE 4 FC	052943	TCLE 7 1/2 HC	054401	TCLE 4 1/2 RC	-
TCLE 6 1/2 FC	052944	TCLE 10 HC	054404	TCLE 7 RC	-
TCLE 7 1/2 FC	052945	TCLE 12 HC	060854	TCLE 8 RC	063501
TJLE 7 FC*	055686	TJLE 11 HC*	060855	TJLE 7 RC	-
TJLE 8 FC*	055104	TJLE 14 HC*	060856	TJLE 9 RC*	-
TJRE 8 FC	-	TJRE 14 HC	060857	TJRE 9 RC	-
TJRE 11 FC	055105	TJRE 18 HC	060858	TJRE 12 RC	-

TER, TIR & THR 10 FT CAP TUBE LENGTH

VALVE DESCRIPTION					
R-12	PCN*	R-22	PCN*	R-502	PCN*
TER 13 FC	060781	TER 22 HC	061673	TER 14 RC	-
TER 15 FC	055191	TER 26 HC	061674	TER 16 RC	-
TER 20 FC	055109	TER 35 HC	061675	TER 21 RC	-
TER 25 FC	055111	TER 45 HC	061676	TER 27 RC	-
TIR 35 FC	-	TIR 55 HC	061677	TIR 37 RC	-
THR 45 FC	-	THR 75 HC	-	THR 48 RC	-
THR 55 FC	055114	THR 100 HC	062036	THR 60 RC	-

Standard Product Offering.

*Product Code Number.

TER, TIR & THR 10 FT CAP TUBE LENGTH

	NEW	OLD
R-12	TJLE 7 TJLE 8	TJLE 800 TJLE 1100
R-22	TJLE 11 TJLE 14	TJLE 1400 TJLE 1800
R-502	TJLE 7 TJLE 9	TJLE 900 TJLE 1200

THERMOSTATIC EXPANSION VALVES

ALCO T-SERIES TAKE-A-PART THERMO® EXPANSION VALVE

ORDERING INFORMATION FOR T-SERIES VALVES (cont)

NOTE
TCL/TCLE Remote Bulb Tubing length
R-12 (FC) = 30" 1/4 thru 3 ton
R-22 (HC) = 30" 1/2 thru 3 ton
R-502 (RC) = 30" 1/4 thru 3 ton
TER, TIR, THR 5 ft Cap Tube Length

TCL INTERNAL EQUALIZED, 30" CAP TUBE LENGTH

VALVE DESCRIPTION					
R-12	PCN*	R-22	PCN*	R-502	PCN*
TCL 1/4 FC	-	TCL 1/2 HC	-	TCL 1/4 RC	-
TCL 1/2 FC	-	TCL 1 HC	-	TCL 1/2 RC	-
TCL 1 FC	-	TCL 2 HC	-	TCL1 RC	-
TCL FC	-	TCL 3 HC	-	TCL 2 RC	-
TCL 3 FC	-	-	-	TCL 3 RC	-

Standard Product Offering.

*Product Code Number.

TCLE EXTERNAL EQUALIZED-SAE EXTERNAL 30" CAP TUBE LENGTH

VALVE DESCRIPTION					
R-12	PCN*	R-22	PCN*	R-502	PCN*
TCLE 1/4 FC	060765	TCLE 1/2 HC	060768	TCLE 1/4 RC	060766
TCLE 1/2 FC	060767	TCLE 1 HC	060772	TCLE 1/2 RC	060770
TCLE 1 FC	060771	TCLE 2 HC	060775	TCLE 1 RC	060773
TCLE 2 FC	060774	TCLE 3 HC	060778	TCLE 2 RC	060776
TCLE 3 FC	060777	-	-	TCLE 3 RC	060779

Standard Product Offering.

*Product Code Number.

NOTE:

T-Series does not include flange.

ALTERNATE REFRIGERANT CHARGE CODES

REFRIGERANT	CODE
R-134A	M
R-507	R
R-404A	R
R-402A	R
MP39	X

TER, TIR & THR 5 FT CAP TUBE LENGTH

VALVE DESCRIPTION					
R-12	PCN*	R-22	PCN*	R-502	PCN*
TER 13 FC	060781	TER 22 HC	060784	TER 14 RC	060788
TER 15 FC	060782	TER 26 HC	060785	TER 16 RC	060789
TER 20 FC	060783	TER 35 HC	060786	TER 21 RC	060790
TER 25 FC	-	TER 45 HC	060787	TER 27 RC	060791
TIR 35 FC	060862	TIR 55 HC	060859	TIR 37 RC	-
THR 45 FC	060863	THR 75 HC	060860	THR 48 RC	-
THR 55 FC	060864	THR 100 HC	060861	THR 60 RC	-

Standard Product Offering.

*Product Code Number.

REPLACEMENT CAP SCREW KITS

PCN*	DESCRIPTION	CONTAINS SCREW #	PCS. PER PKG.**
054569	KT-30021	PS-286-5	10
054570	KT-30022	PS-168-5	10
054571	KT-30023	PS-259	10
054572	KT-30024	PS-370	10
054573	KT-30025	PS-514-5	10
054574	KT-30026	PS-517-5	10

**10 pc kits are in poly bags for hanging on peg board.

Standard Product Offering.

*Product Code Number.

THERMOSTATIC EXPANSION VALVES

ALCO T-SERIES TAKE-A-PART VALVES

T-SERIES EXTENDED CAPACITIES IN TONS

R-404A/ R-507	EVAPORATOR TEMPERATURE																							
	+50° F						+40° F						+20° F						0° F					
	PRESSURE DROP ACROSS VALVE — PSI																							
VALVE	100	125	150	175	200	225	100	125	150	175	200	225	125	150	175	200	225	250	150	175	200	225	250	275
TCL(E)1/4	.35	.39	.43	.46	.49	.53	.34	.38	.42	.45	.48	.51	.36	.39	.42	.45	.48	.51	.37	.40	.43	.45	.48	.50
TCL(E)1/2	.64	.72	.78	.85	.91	.96	.63	.70	.77	.83	.89	.95	.67	.73	.79	.85	.90	.95	.68	.73	.78	.83	.87	.92
TCL(E)1	1.3	1.5	1.6	1.8	1.9	2.0	1.3	1.4	1.6	1.7	1.8	1.9	1.4	1.5	1.6	1.7	1.9	2.0	1.4	1.5	1.6	1.7	1.8	1.9
TCL(E)2	2.4	2.7	3.0	3.2	3.4	3.6	2.4	2.7	2.9	3.1	3.4	3.6	2.5	2.8	3.0	3.2	3.4	3.6	2.6	2.8	3.0	3.1	3.3	3.5
TCL(E)3	3.5	3.9	4.3	4.6	4.9	5.2	3.4	3.8	4.2	4.5	4.8	5.1	3.6	4.0	4.3	4.6	4.9	5.1	3.7	4.0	4.2	4.5	4.8	5.0
TCL(E)4-1/2	5.1	5.7	6.2	6.7	7.2	7.6	5.0	5.5	6.1	6.6	7.0	7.4	5.3	5.8	6.2	6.7	7.1	7.5	5.3	5.8	6.2	6.5	6.9	7.2
TCL(E)7	7.0	7.8	8.5	9.2	9.9	10.5	6.8	7.6	8.4	9.0	9.6	10.2	7.3	8.0	8.6	9.2	9.7	10.3	7.4	7.9	8.5	9.0	9.5	10.0
TCL(E)8	8.4	9.4	10.3	11.1	11.9	12.6	8.2	9.2	10.1	10.9	11.6	12.4	8.8	9.6	10.4	11.1	11.8	12.4	8.9	9.6	10.2	10.9	11.5	12.0

R-404A/ R-507	EVAPORATOR TEMPERATURE																							
	-10° F						-20° F						-30° F						-40° F					
	PRESSURE DROP ACROSS VALVE — PSI																							
VALVE	150	175	200	225	250	275	175	200	225	250	275	300	175	200	225	250	275	300	175	200	225	250	275	300
TCL(E)1/4	.35	.38	.41	.43	.45	.48	.36	.38	.41	.43	.45	.47	.29	.31	.33	.35	.36	.38	.23	.25	.26	.27	.29	.30
TCL(E)1/2	.66	.71	.76	.81	.85	.89	.68	.73	.77	.81	.85	.89	.54	.58	.61	.65	.68	.71	.43	.46	.49	.51	.54	.56
TCL(E)1	1.3	1.5	1.6	1.6	1.7	1.8	1.4	1.5	1.6	1.7	1.7	1.8	1.1	1.2	1.3	1.3	1.4	1.5	.90	1.0	1.0	1.1	1.1	1.2
TCL(E)2	2.5	2.7	2.9	3.0	3.2	3.4	2.5	2.7	2.9	3.0	3.2	3.3	2.0	2.2	2.3	2.4	2.6	2.7	1.6	1.7	1.9	2.0	2.0	2.1
TCL(E)3	3.6	3.8	4.1	4.4	4.6	4.8	3.7	3.9	4.2	4.4	4.6	4.8	2.9	3.1	3.3	3.5	3.7	3.8	2.4	2.5	2.7	2.8	3.0	3.1
TCL(E)4-1/2	5.2	5.6	6.0	6.3	6.7	7.0	5.3	5.7	6.0	6.4	6.7	7.0	4.3	4.6	4.8	5.1	5.3	5.6	3.4	3.7	3.9	4.1	4.3	4.5
TCL(E)7	7.1	7.7	8.2	8.7	9.2	9.6	7.3	7.8	8.3	8.8	9.2	9.6	5.9	6.3	6.6	7.0	7.4	7.7	4.7	5.0	5.3	5.6	5.9	6.2
TCL(E)8	8.6	9.3	9.9	10.5	11.1	11.6	8.8	9.4	10.0	10.6	11.1	11.6	7.1	7.6	8.0	8.5	8.9	9.3	5.7	6.1	6.4	6.8	7.1	7.4

R-134a	EVAPORATOR TEMPERATURE																							
	+50° F						+40° F						+20° F						0° F					
	PRESSURE DROP ACROSS VALVE — PSI																							
VALVE	60	80	100	125	150	175	60	80	100	125	150	175	60	80	100	125	150	175	60	80	100	125	150	175
TJLE9M	8.0	9.2	10.3	11.5	12.6	13.6	7.8	9.0	10.1	11.2	12.3	13.3	7.4	8.6	9.6	10.7	11.8	12.7	6.6	7.6	8.5	9.5	10.4	11.2
TJLE11M	10.2	11.7	13.1	14.7	16.0	17.3	9.9	11.5	12.8	14.3	15.7	17.0	9.5	11.0	12.3	13.7	15.0	16.2	8.4	9.7	10.8	12.1	13.3	14.3
TJR11M	10.8	12.4	13.9	15.5	17.0	18.4	10.5	12.2	13.6	15.2	16.7	18.0	10.1	11.6	13.0	14.5	15.9	17.2	8.9	10.3	11.5	12.9	14.1	15.2
TJR13M	12.8	14.8	16.6	18.5	20.3	21.9	12.6	14.5	16.2	18.1	19.9	21.5	12.02	13.9	15.5	17.4	19.0	20.5	10.6	12.3	13.7	15.3	16.8	18.1

R-22	EVAPORATOR TEMPERATURE																							
	+50° F						+40° F						+20° F						0° F					
	PRESSURE DROP ACROSS VALVE — PSI																							
VALVE	75	100	125	150	175	200	75	100	125	150	175	200	75	100	125	150	175	200	100	125	150	175	200	225
TJLE11H	9.6	11.0	12.3	13.5	14.6	15.6	9.4	10.9	12.2	13.4	14.4	15.4	9.2	10.6	11.8	13.0	14.1	15.0	8.6	9.7	10.6	11.4	12.2	12.9
TJLE14H	12.2	14.1	15.7	17.2	18.6	19.9	12.0	13.9	15.5	17.0	18.4	19.7	11.7	13.6	15.2	16.6	17.9	19.2	11.0	12.3	13.5	14.5	15.5	16.5
TJR14H	12.9	14.8	16.6	18.2	19.6	21.0	12.7	14.7	16.4	18.0	19.5	20.8	12.4	14.3	16.0	17.6	19.0	20.3	11.6	13.8	14.2	15.4	16.4	17.4
TJR18H	15.4	17.8	20.0	21.8	23.6	25.2	15.2	17.6	19.7	21.6	23.3	24.9	14.9	17.2	19.2	21.0	22.7	24.3	13.9	15.5	17.8	18.4	19.7	20.9

R-22	EVAPORATOR TEMPERATURE																							
	-10° F						-20° F						-30° F						-40° F					
	PRESSURE DROP ACROSS VALVE — PSI																							
VALVE	125	150	175	200	225	250	125	150	175	200	225	250	125	150	175	200	225	250	125	150	175	200	225	250
TJLE11H	8.1	8.9	9.6	10.3	10.9	11.5	6.9	7.5	8.1	8.7	9.2	9.7	5.7	6.3	6.8	7.3	7.7	8.1	4.8	5.3	5.7	6.1	6.4	6.8
TJLE14H	10.3	11.3	12.2	13.1	13.9	14.6	8.7	9.6	10.3	11.1	11.7	12.4	7.3	8.0	8.7	9.3	9.8	10.3	6.1	6.7	7.3	7.8	8.2	8.7
TJR14H	10.9	12.0	12.9	13.8	14.7	15.5	9.2	10.1	10.9	11.7	12.4	13.1	7.7	8.5	9.2	9.8	10.4	10.9	6.8	7.4	8.0	8.6	9.1	9.6
TJR18H	13.1	14.3	15.5	16.6	17.6	18.5	11.1	12.1	13.1	14.0	14.8	15.6	9.3	10.1	11.0	11.7	12.4	13.1	7.8	8.5	9.2	9.8	10.4	10.9

R-404A/ R-507	EVAPORATOR TEMPERATURE																							
	+50° F						+40° F						+20° F						0° F					
	PRESSURE DROP ACROSS VALVE — PSI																							
VALVE	100	125	150	175	200	225	100	125	150	175	200	225	125	150	175	200	225	250	150	175	200	225	250	275
TJLE7	7.5	8.3	9.1	10.0	10.5	11.2	7.3	8.2	8.9	9.6	10.3	10.9	7.8	8.5	9.2	9.8	10.4	11.0	7.9	8.5	9.1	9.7	10.1	10.6
TJLE9	9.5	10.6	11.6	12.6	13.4	14.3	9.3	10.4	11.4	12.3	13.2	14.0	9.9	10.8	11.7	12.5	13.3	14.0	10.0	10.8	11.6	12.3	12.9	13.6
TJR9	10.1	11.2	12.3	13.3	14.2	15.1	9.9	11.0	12.0	13.0	14.0	14.7	10.5	11.5	12.4	13.2	14.0	14.8	10.6	11.4	12.2	13.0	13.7	14.3
TJR12	12.0	13.5	14.7	15.9	17.0	18.0	11.8	13.2	14.4	15.6	16.7	17.7	12.5	13.7	14.8	15.9	16.8	17.7	12.7	13.7	14.7	15.5	16.4	17.2

R-404A/ R-507	EVAPORATOR TEMPERATURE																							
	-10° F						-20° F						-30° F						-40° F					
	PRESSURE DROP ACROSS VALVE — PSI																							
VALVE	150	175	200	225	250	275	175	200	225	250	275	300	175	200	225	250	275	300	175	200	225	250	275	300
TJLE7	7.6	8.2	8.8	9.3	9.8	10.3	7.8	8.4	8.8	9.4	9.8	10.2	6.3	6.7	7.1	7.5	7.9	8.2	5.0	5.4	5.7	6.0	6.3	6.6
TJLE9	9.7	10.5	11.2	11.9	12.5	13.1	10.0	10.7	11.3	11.9	12.5	13.1	8.0	8.6	9.1	9.6	10.0	10.5	6.4	6.9	7.3	7.7	8.0	8.4
TJR9	10.3	11.1	11.8	12.6	13.2	13.9	10.6	11.3	12.0	12.6	13.2	13.8	8.5	9.0	9.6	10.1	10.6	11.1	6.8	7.3	7.7	8.1	8.5	8.9
TJR12	12.3	13.3	14.2	15.0	15.9	16.6	12.6	13.5	14.3	15.1	15.8	16.5	10.1	10.8	11.5	12.1	12.7	13.3	8.1	8.7	9.2	9.7	10.2	10.6

THERMOSTATIC EXPANSION VALVES

ALCO T-SERIES TAKE-A-PART VALVES

TER, TIR, and THR EXTENDED CAPACITIES IN TONS

R-134a	EVAPORATOR TEMPERATURE																							
	+50° F						+40° F						+20° F						0° F					
	PRESSURE DROP ACROSS VALVE — PSI																							
VALVE	60	80	100	125	150	175	60	80	100	125	150	175	60	80	100	125	150	175	60	80	100	125	150	175
TER16M	15.9	18.4	20.5	22.9	25.1	27.1	15.6	18.0	20.1	22.5	24.6	26.6	14.9	17.2	19.2	21.5	23.5	25.4	13.2	15.2	17.0	19.0	20.8	22.5
TER19M	18.3	21.2	23.7	26.5	29.0	31.3	18.0	20.7	23.2	25.9	28.4	30.7	17.2	19.8	22.2	24.8	27.2	29.3	15.2	17.5	19.6	21.9	24.0	25.9
TER25M	24.5	28.2	31.6	35.3	38.7	41.8	23.9	27.7	30.9	34.6	37.9	40.9	22.9	26.4	30.0	33.0	36.2	39.1	20.2	23.4	26.1	29.2	32.0	34.6
TER31M	30.6	35.3	39.5	44.1	48.3	52.2	29.9	34.6	38.6	43.2	47.3	51.1	28.6	33.0	36.9	41.3	45.2	48.9	25.3	29.2	32.6	36.5	40.0	43.2
TIR45M	42.8	49.4	55.2	61.8	67.7	73.1	41.9	48.4	54.1	60.5	66.2	71.6	40.1	46.3	51.7	57.8	63.3	68.4	35.4	40.9	45.7	51.1	56.0	60.5
THR55M	55.0	63.5	71.0	79.4	87.0	94.0	53.9	62.2	69.5	77.8	85.2	92.0	51.5	59.5	66.5	74.3	81.4	88.0	45.5	52.6	58.8	65.7	72.0	77.7
THR68M	67.2	77.6	86.8	97.1	106.3	114.8	65.8	76.0	85.0	95.0	104.1	112.4	63.0	72.7	81.3	90.9	99.5	107.5	55.6	64.2	71.8	80.3	88.0	95.0

R-22	EVAPORATOR TEMPERATURE																							
	+50° F						+40° F						+20° F						0° F					
	PRESSURE DROP ACROSS VALVE — PSI																							
VALVE	75	100	125	150	175	200	75	100	125	150	175	200	75	100	125	150	175	200	100	125	150	175	200	225
TER22H	19.3	22.3	24.9	27.3	29.4	31.5	19.1	22.0	24.6	26.9	29.1	31.1	18.6	21.4	24.0	26.3	28.4	31.1	17.4	19.4	21.3	23.0	24.6	26.1
TER26H	22.8	26.3	29.4	32.2	34.8	37.2	22.5	26.0	29.1	31.8	34.4	36.8	21.9	25.3	28.3	31.0	33.5	35.8	20.5	23.0	25.2	27.2	29.0	30.8
TER35H	30.7	35.4	39.6	43.4	46.8	50.1	30.3	35.0	39.1	42.9	46.3	49.5	29.5	34.1	38.1	41.8	45.1	48.2	27.6	30.9	33.9	36.6	39.1	41.5
TER45H	39.4	45.5	50.9	55.8	60.2	64.4	39.0	45.0	50.3	55.1	59.5	63.6	38.0	43.9	49.0	53.7	58.0	62.0	35.5	39.7	43.5	47.0	50.3	53.3
TIR55H	48.2	55.6	62.2	68.2	73.6	78.7	47.6	55.0	61.5	67.4	72.8	77.8	46.4	53.6	59.9	65.6	70.9	75.8	43.5	48.6	53.2	57.5	61.4	65.2
THR75H	65.7	75.9	84.8	92.9	100.4	107.3	64.9	75.0	83.9	91.9	99.2	106.1	63.3	73.1	81.7	89.5	96.7	103.4	59.6	66.2	72.6	78.4	83.8	88.9
THR100H	87.6	101.2	113.1	123.9	133.8	143.1	86.6	100.0	111.8	122.5	132.3	141.4	84.4	97.4	109.0	119.3	128.9	137.8	79.0	88.3	96.7	104.5	111.7	118.5

R-22	EVAPORATOR TEMPERATURE																							
	-10° F						-20° F						-30° F						-40° F					
	PRESSURE DROP ACROSS VALVE — PSI																							
VALVE	125	150	175	200	225	250	125	150	175	200	225	250	150	175	200	225	250	275	150	175	200	225	250	275
TER22H	16.4	17.9	19.3	20.7	21.9	23.1	13.8	15.2	16.4	17.5	18.6	19.6	12.7	13.7	14.6	15.5	16.4	17.2	10.6	11.5	12.3	13.0	13.7	14.4
TER26H	19.3	21.2	22.9	24.5	25.9	27.3	16.3	17.9	19.3	20.7	21.9	23.1	15.0	16.2	17.3	18.3	19.3	20.3	12.6	13.6	14.5	15.4	16.2	17.0
TER35H	26.0	28.5	30.8	32.9	34.9	36.8	22.0	24.1	26.0	27.8	29.5	31.1	20.2	21.8	23.3	24.7	26.0	27.3	16.9	18.3	19.5	20.7	21.8	22.9
TER45H	33.5	36.7	39.6	42.3	44.9	47.3	28.3	31.0	33.5	35.8	38.0	40.0	25.9	28.0	29.9	31.8	33.4	35.1	21.7	23.5	25.1	26.6	28.0	29.4
TIR55H	40.9	44.8	48.4	51.7	54.9	57.8	34.6	37.9	40.9	43.7	46.4	48.9	31.7	34.2	36.6	38.8	40.9	42.9	26.6	28.7	30.7	32.5	34.3	36.0
THR75H	55.8	61.1	66.0	70.5	74.8	78.9	47.2	51.7	55.8	59.6	63.3	66.7	43.2	46.7	49.9	52.9	55.8	58.5	36.2	39.0	41.8	44.3	46.7	49.0
THR100H	74.4	81.4	88.0	94.0	99.8	105.1	62.9	68.9	74.4	79.5	84.3	88.9	57.6	62.2	66.5	70.6	74.4	78.0	48.3	52.1	55.7	59.1	62.3	65.4

R-407A/ R-507	EVAPORATOR TEMPERATURE																							
	+50° F						+40° F						+20° F						0° F					
	PRESSURE DROP ACROSS VALVE — PSI																							
VALVE	100	125	150	175	200	225	100	125	150	175	200	225	125	150	175	200	225	250	150	175	200	225	250	275
TER14	14.3	16.0	17.5	18.9	20.2	21.5	14.0	15.7	17.1	18.5	19.8	21.0	14.9	16.3	17.6	18.9	20.0	21.1	15.1	16.3	17.4	18.5	19.5	20.4
TER16	16.4	18.3	20.0	21.6	23.1	24.5	16.0	17.9	19.6	21.2	22.6	24.0	17.0	18.7	20.2	21.6	22.9	24.1	17.2	18.6	19.9	21.1	22.3	23.3
TER21	21.5	24.0	26.3	28.4	30.4	32.2	21.0	23.5	25.7	27.8	29.7	31.5	22.4	24.5	26.5	28.3	30.0	31.6	22.6	24.5	26.1	27.7	29.2	30.7
TER27	27.6	30.9	33.8	36.5	39.0	41.4	27.0	30.2	33.1	35.7	38.2	40.5	28.7	31.5	34.0	36.4	38.6	40.6	29.1	31.4	33.6	35.6	37.6	39.4
TIR37	37.8	42.3	46.3	50.0	53.5	56.7	37.0	41.4	45.3	48.9	52.3	55.5	39.4	43.1	46.6	49.8	52.8	55.7	39.9	43.1	46.1	48.4	51.5	54.0
THR48	49.1	54.9	60.1	64.9	69.4	73.6	48.0	53.7	58.8	63.5	67.9	72.0	51.1	56.0	60.5	64.6	68.6	72.7	51.7	55.9	59.7	63.4	66.8	70.0
THR60	61.3	68.6	75.1	81.1	86.7	92.0	60.0	67.1	73.5	79.4	84.9	90.0	63.9	70.0	72.6	80.8	85.7	90.3	64.7	69.8	74.7	79.2	83.5	87.6

R-407A/ R-507	EVAPORATOR TEMPERATURE																							
	-10° F						-20° F						-30° F						-40° F					
	PRESSURE DROP ACROSS VALVE — PSI																							
VALVE	150	175	200	225	250	275	175	200	225	250	275	300	175	200	225	250	275	300	175	200	225	250	275	300
TER14	14.6	15.8	16.9	17.9	18.9	19.8	15.0	16.1	17.0	18.0	18.8	19.7	12.0	12.9	13.7	14.4	15.1	15.8	9.7	10.3	10.9	11.5	12.1	12.6
TER16	16.7	18.0	19.3	20.4	21.6	22.6	17.2	18.4	19.5	20.5	21.5	22.5	13.8	14.7	15.6	16.4	17.2	18.0	11.0	11.8	12.5	13.2	13.8	14.4
TER21	21.9	23.6	25.2	26.8	28.3	29.7	22.5	24.1	25.6	26.9	28.2	29.5	18.1	19.3	20.5	21.6	22.6	23.6	14.5	15.5	16.4	17.3	18.2	19.0
TER27	28.2	30.4	32.5	34.5	36.4	38.1	29.0	31.0	32.8	34.6	36.3	37.9	23.2	24.8	26.3	27.7	29.1	30.4	18.6	19.9	21.1	22.2	23.3	24.4
TIR37	38.6	41.7	44.6	47.3	49.9	52.3	39.7	42.5	45.0	47.5	49.8	52.0	31.8	34.0	36.1	38.0	39.9	41.7	25.5	27.3	28.9	30.5	32.0	33.4
THR48	50.1	54.1	57.8	61.3	64.7	67.8	51.5	55.1	58.4	61.6	64.6	67.4	41.3	44.1	46.8	49.3	51.7	54.0	33.1	35.4	37.5	39.6	41.5	43.3
THR60	62.6	67.6	72.3	76.7	80.8	84.8	64.4	68.8	73.0	77.0	80.7	84.3	51.6	55.2	58.5	61.7	64.7	67.5	41.4	44.2	46.9	49.4	51.9	54.2

THERMOSTATIC EXPANSION VALVES

TLE THERMO[®] EXPANSION VALVE

TLE Thermo Valves for air conditioning, heat pumps, transportation and commercial refrigeration have preset factory superheat and feature Bi-Directional capability for reduced system complexity. Take-A-Part construction improves serviceability with replaceable/interchangeable parts. TLE valves do not have an external superheat adjustment.

FEATURES

- Unique internal construction insures smooth and accurate superheat control with refrigerant flow in either direction through the valve (non-adjustable).
- Bi-Flow capability ideal for packaged heat pump applications (external equalizer required).
- Take-A-Part construction for easy field service.
- Stainless steel power assembly.

OPTIONS

- Nineteen bolt-on-body flanges available in numerous SAE or ODF connection sizes and angle and straight-through configurations.
- Interchangeable capacity cages, power heads and flanges.

SPECIFICATIONS

- Maximum working pressure: 450 psig.
- Capscrew Torque = 300 in. lbs.

Dimensions shown are in inches:
Fractions (Decimal)

NOMENCLATURE

EXAMPLE: TLEB 5 HCA 5 FT 3/8 x 1/2 ODF S/T

TL	E	B	5	H	CA	5 FT	3/8 x 1/2	ODF	S/T
Valve Series Take-A-Part	Equalizer E = External 1/4" SAE Standard 1/4" ODF Available Omit for Internal	Bleed Hole (Optional) B = Bleed Hole Omit for no bleed hole	Capacity Nominal Rating in Tons	Refrigerant Code F = R-12 H = R-22 M = R-134a P = R-507 R = R-592 S = R-404A	Charge Code C = medium temp CA = Heat pump/AC W(MOP) = press. limiting Z = low temp	Capillary Tube Length 5 Ft (std) Various lengths are available	Inlet x Outlet Connection Sizes Various sizes are available Also, valve is available less flange	Connection Type SAE = flare ODF = solder	Configuration ANG = 90° Angle S/T = Straight-Thru

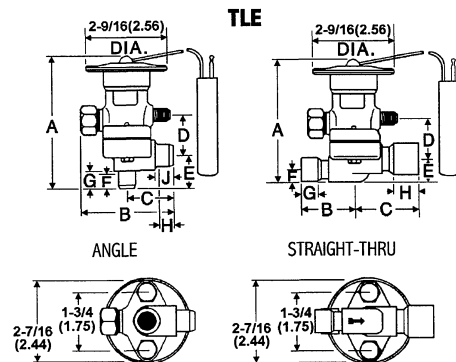
TLE DIMENSIONAL DATA

TLE STRAIGHT-THRU STYLE										
TLE Valve*		Dimensions								
Inlet	Outlet	A	B	C	D	E	F	G	H	J
5/8	1-1/8	4-55/64 (4.86)	1-5/8 (1.63)	2-1/2 (2.50)	1-11/32 (1.34)	1-23/32 (1.72)	45/64 (.70)	17/32 (.53)	29/32 (.91)	-
7/8	1-1/8		1-15/16 (1.94)	2-1/2 (2.50)				3/4 (.75)	29/32 (.91)	
7/8	1-3/8		2-11/16 (2.69)	31/32 (.97)						
TLE ANGLE STYLE										
ODF:ODM	ODF:ODM	(5.03)	(3.47)	(2.00)	(1.34)	(1.84)	(.81)	(1.06)	(1.00)	(1.13)
5/8:7/8	7/8:1-1/8	5-1/32	3-15/32	2	1-11/32	1-27/32	13/16	1-1/16	1	1-1/8

*Connections shown are standard sizes, consult ALCO for non-standard sizes.
Allow 2-1/8" above valve for removal of power assembly.

FIELD REPLACEMENT OF VALVE TYPES TL(E), TLX

For field replacement of valve types TLX & TL(E), substitute a valve type TCL(E) of equivalent tonnage and re-use the old body flange. This substitution provides a valve equal in performance with provision for external superheat adjustment and eliminates the need to remove the old flange. The TCL(E) requires a different cage assembly than that of the TL(E) or TLX.



TLE-1

THERMOSTATIC EXPANSION VALVES

TLE THERMO® EXPANSION VALVE

ORDERING INFORMATION FOR TL(E) SERIES VALVES

NOTE: TL(E) Series does not include flange.

VALVE LESS FLANGE*	PCN†	EQUALIZER TYPE	REFRIGERANT
TL 1/2 HW	-	Internal	R-22
TL 1 HW	-		
TL 2 HW	-		
TL 3 HW	047005		
TL 5 HW	-		
TLE 1/2 HW	-	1/4" SAE External	
TLE 1 HW	-		
TLE 2 HW	042591		
TLE 3 HW	041734		
TLE 5 HW	054793		
TLE 7-1/2 HW	054794		
TLE 10 HW	055125		
TLE 12 HW	054795		

*Also available with "HCA" charge for heat pump and air-conditioning applications.

†Product code number

NOTE: Consult ALCO for refrigerants other than R-22.

TL CAGE CAPACITY INFORMATION

DESCRIPTION	R-12	R-134a	R-22	R-404/507	R-202
X-22517 B1**	1/4	1/4	1/2	1/4	1/4
X-22517 B2**	1/2	3/4	1	1/2	1/2
X-22517 B3**	1	1-1/2	2	1	1
X-22517 B4**	2	2-1/2	3	2	2
X-22517 B5**	3	3-1/2	5	3	3
X-22517 B6**	4	5-1/2	7-1/2	4-1/2	4-1/2
X-22517 B7**	6-1/2	7-1/2	10	7	7
X-22517 B8**	7-1/2	9	12	8	8

**Add "A" for internal or "B" for external equalizer.

TL POWER ASSEMBLY INFORMATION

DESCRIPTION
XB-1033 XXX-YZ
XXX = charge code
Y = cap tube length code
Z = internal or external equalizer

THERMOSTATIC EXPANSION VALVES

ALCO TF(E) THERMO® EXPANSION VALVE

APPLICATION

- Large tonnage heat pump, air conditioning and commercial refrigeration.

FEATURES

- Replaceable power element for added serviceability (X28458).
- External superheat adjustment.
- ODF connections for easy installation.
- Balanced port construction compensates for changes in operating pressures due to varying ambients, gas defrost, heat reclaim, or widely varying evaporator loads.
- Bi-Flow capability ideal for packaged heat pump applications.
- External equalizer.
- Stainless steel power assembly.

SPECIFICATIONS

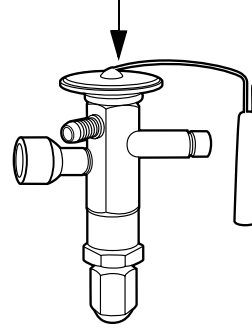
- Maximum working pressure: 450 psig.

NOMENCLATURE

Example: TFES 10 HCA 3/8 X 1/2 ODF S/T

TF	E	S	10	H	CA	3/8 X 1/2	ODF	S/T
Valve Series Balanced Port, Replaceable Power Assembly	Equalizer E = External 1/4" ODF	Connection Type S = solder (only)	Capacity Nominal Rating in Tons See nominal capacity table (below)	Refrigerant Code H = R-22 M = R-134a P = R-507 R = R-502 S = R-404A	Charge Code C = medium temp CA = heat pump	Inlet x Outlet Connection Sizes See Ordering Information Table below for options	Connection Type ODF = solder (only)	Configuration S/ T = Straight thru (only)

STAINLESS STEEL POWER ASSEMBLY!



P3011

TFE NOMINAL CAPACITY RANGES IN TONS

R-12 (F)	R-134A (M)	R-22 (H)	R-502 (R), R-404A/ R-507 (S)	R-407C (N)
5	6	8	5	8
6-1/2	8	10	7	10
8	10	12	9	13
12	15	20	14	20

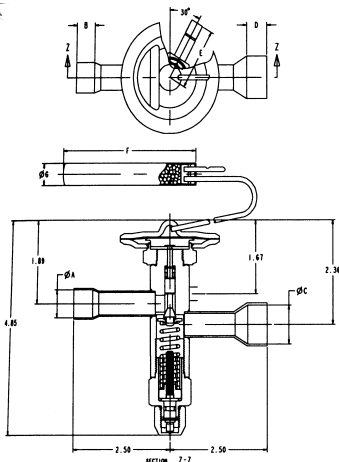
ORDERING INFORMATION FOR TFE VALVES

VALVE SERIES	CAPACITY TONS (R-22 NOMINAL)	CONNECTIONS	PCN* CHARGE HCA R-22 HEAT PUMP
TFES	8	1/2 X 5/8 ODF S/T 6A	061710
		5/8 X 5/8 ODF S/T 6A	061611
		5/8 X 7/8 ODF S/T 6A ODF EE	061608
		5/8 X 7/8 ODF S/T 6A SAE EE	062370
	10	1/2 X 7/8 ODF S/T 6A	062124
		5/8 X 7/8 ODF S/T 4A	062347
		5/8 X 7/8 ODF S/T 6A ODF EE	061610
		5/8 X 7/8 ODF S/T 6A SAE EE	062371
	12	5/8 X 7/8 ODF S/T 6A	061609
		5/8 X 7/8 ODF S/T 12A	062460

Standard Product Offering.

*Product Code Number.

TFE DIMENSIONAL DATA



P3012

INLET/OUTLET FITTINGS DIMENSIONAL DATA

CONNECTIONS		INLET		OUTLET		EQUALIZER	
INLET	OUTLET	ØA ± .002	B MIN.	ØC ± .002	D MIN.	E: 1/4 ODF	E: SAE
1/4 ODF	3/8 ODF	.254	.310	.379	.310	1.703	1.65
	1/2 ODF			.504	.370		
	5/8 ODF			.629	.500		
3/8 ODF	3/8 ODF	.379	.310	.379	.310		
	1/2 ODF			.504	.370		
	5/8 ODF			.629	.500		
1/2 ODF	7/8 ODF	.504	.370	.879	.760		
	1/2 ODF			.504	.370		
	5/8 ODF			.629	.500		
5/8 ODF	7/8 ODF	.629	.500	.879	.760		
	1-1/8 ODF			1.129	.906		
	7/8 ODF			.879	.760		
7/8 ODF	1-1/8 ODF	.879	.760	1.129	.906		

EQUALIZER FITTING DIMENSIONAL DATA

1/4" ODF	Ø.254 ± .002	.310 MIN.
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REMOTE BULB

CHARGE	TUBE LENGTH	F	ØG
C, A, Z	2', 2-1/2', 5'	3.06	.631 ± .008
	10'	3.56	
	15', 20', 30'	4.81	
	40', 50'	6.19	
CA, AA	2-1/2', 5', 10'	2.31	.756 ± .008

THERMOSTATIC EXPANSION VALVES

ALCO TF(E) THERMO® EXPANSION VALVE

TFE EXTENDED CAPACITIES IN TONS R-134a

VALVE	EVAPORATOR TEMPERATURE																							
	+50° F								+40° F								+20° F							
	PRESSURE DROP ACROSS VALVE — PSI																							
	60	80	100	125	150	175	200	225	60	80	100	125	150	175	200	225	60	80	100	125	150	175	200	225
TFE 6 M	5.88	6.79	7.59	8.49	9.30	10.04	10.74	11.39	5.76	6.65	7.43	8.31	9.10	9.83	10.51	11.51	5.51	6.36	7.11	7.95	8.70	9.40	10.05	10.66
TFE 8 M	8.05	9.29	10.39	11.62	12.73	13.75	14.70	15.59	7.88	9.10	10.18	11.38	12.46	13.46	14.39	15.26	7.54	8.70	9.73	10.88	11.92	12.87	13.76	14.59
TFE 10 M	9.99	11.54	12.90	14.42	15.80	17.07	18.24	19.35	9.79	11.30	12.63	14.12	15.47	16.71	17.87	18.95	9.36	10.80	12.08	13.50	14.79	15.98	17.08	18.12
TFE 15 M	15.26	17.62	19.70	22.03	24.13	26.06	27.86	29.55	14.94	17.25	19.29	21.57	23.63	25.52	27.28	28.94	14.29	16.50	18.44	20.62	22.59	24.40	26.08	27.67

VALVE	EVAPORATOR TEMPERATURE																							
	0° F								-20° F								-40° F							
	PRESSURE DROP ACROSS VALVE — PSI																							
	60	80	100	125	150	175	200	225	60	80	100	125	150	175	200	225	60	80	100	125	150	175	200	225
TFE 6 M	4.86	5.62	6.28	7.02	7.69	8.31	8.88	9.42	3.29	3.80	4.25	4.75	5.20	5.62	6.00	6.37	2.12	2.45	2.74	3.07	3.36	3.63	3.88	4.11
TFE 8 M	6.66	7.69	8.60	9.61	10.53	11.37	12.16	12.90	4.50	5.20	5.81	6.50	7.12	7.69	8.22	8.72	2.91	3.36	3.75	4.20	4.60	4.97	5.31	5.63
TFE 10 M	8.27	9.55	10.67	11.93	13.07	14.12	15.09	16.01	5.59	6.45	7.22	8.07	8.84	9.55	10.21	10.82	3.61	4.17	4.66	5.21	5.71	6.17	6.59	6.99
TFE 15 M	12.62	14.58	16.30	18.22	19.96	21.56	23.05	24.45	8.54	9.86	11.02	12.32	13.50	14.58	15.58	16.53	5.51	6.37	7.12	7.96	8.72	9.42	10.07	10.68

TFE EXTENDED CAPACITIES IN TONS R-22

VALVE	EVAPORATOR TEMPERATURE																							
	+50° F								+40° F								+20° F							
	PRESSURE DROP ACROSS VALVE — PSI																							
	60	80	100	125	150	175	200	225	60	80	100	125	150	175	200	225	60	80	100	125	150	175	200	225
TFE 8 H	6.29	7.26	8.11	9.07	9.94	10.73	11.48	12.17	6.21	7.17	8.02	8.97	9.82	10.61	11.34	12.03	6.06	6.99	7.82	8.74	9.57	10.34	11.06	11.73
TFE 10 H	8.60	9.93	11.11	12.42	13.60	14.69	15.71	16.66	8.50	9.82	10.98	12.28	13.45	14.52	15.53	16.47	8.29	9.57	10.70	11.96	13.11	14.16	15.13	16.05
TFE 12 H	10.68	12.33	13.79	15.42	16.89	18.24	19.50	20.68	10.56	12.19	13.63	15.24	16.69	18.03	19.28	20.45	10.29	11.88	13.29	14.85	16.27	17.58	18.79	19.93
TFE 20 H	16.31	18.83	21.06	23.54	25.79	27.86	29.78	31.59	16.12	18.62	20.81	23.27	25.49	27.54	29.44	31.22	15.71	18.15	20.29	22.68	24.85	26.84	28.69	30.43

VALVE	EVAPORATOR TEMPERATURE																							
	0° F								-20° F								-40° F							
	PRESSURE DROP ACROSS VALVE — PSI																							
	80	100	125	150	175	200	225	250	80	100	125	150	175	200	225	250	80	100	125	150	175	200	225	250
TFE 8 H	5.49	6.34	7.08	7.92	8.68	9.37	10.02	10.63	3.81	4.39	4.91	5.49	6.02	6.50	6.95	7.37	2.53	2.92	3.26	3.65	3.99	4.31	4.61	4.89
TFE 10 H	7.51	8.67	9.70	10.84	11.88	12.83	13.71	14.55	5.21	6.01	6.72	7.52	8.24	8.90	9.51	10.09	3.46	3.99	4.46	4.99	5.47	5.91	6.31	6.70
TFE 12 H	9.33	10.77	12.04	13.46	14.74	15.93	17.03	18.06	6.47	7.47	8.35	9.33	10.22	11.04	11.81	12.52	4.29	4.96	5.54	6.20	6.79	7.33	7.84	8.31
TFE 20 H	14.24	16.44	18.38	20.55	22.52	24.32	26.00	27.58	9.87	11.40	12.75	14.25	15.61	16.86	18.03	19.12	6.56	7.57	8.46	9.46	10.37	11.20	11.97	12.70

THERMOSTATIC EXPANSION VALVES

ALCO TF(E) THERMO® EXPANSION VALVE

TFE EXTENDED CAPACITIES IN TONS R-404A/R-507

VALVE	EVAPORATOR TEMPERATURE																							
	+50° F								+40° F								+20° F							
	PRESSURE DROP ACROSS VALVE — PSI																							
	60	80	100	125	150	175	200	225	60	80	100	125	150	175	200	225	60	80	100	125	150	175	200	225
TFE 5 S	4.20	4.85	5.42	6.06	6.54	7.18	7.67	8.14	4.10	4.73	5.29	5.91	6.48	7.00	7.48	7.94	3.88	4.47	5.00	5.59	6.13	6.62	7.08	7.50
TFE 7 S	5.75	6.64	7.43	8.30	9.09	9.82	10.50	11.14	5.61	6.48	7.24	8.10	8.87	9.58	10.24	10.86	5.30	6.13	6.85	7.66	8.39	9.06	9.69	10.27
TFE 9 S	7.14	8.24	9.22	10.31	11.29	12.19	13.04	13.83	6.96	8.04	8.99	10.05	11.01	11.89	12.71	13.49	6.59	7.60	8.50	9.51	10.41	11.25	12.02	12.75
TFE 14 S	10.90	12.59	14.08	15.74	17.24	18.62	19.91	21.11	10.63	12.28	13.73	15.35	16.81	18.16	19.42	20.59	10.06	11.61	12.98	14.52	15.90	17.18	18.36	19.48

VALVE	EVAPORATOR TEMPERATURE																							
	0° F								-20° F								-40° F							
	PRESSURE DROP ACROSS VALVE — PSI																							
	80	100	125	150	175	200	225	250	80	100	125	150	175	200	225	250	80	100	125	150	175	200	225	250
TFE 5 S	3.51	4.05	4.53	5.06	5.55	5.99	6.40	6.79	2.38	2.75	3.07	3.44	3.76	4.07	4.35	4.61	1.54	1.78	1.99	2.23	2.44	2.63	2.82	2.99
TFE 7 S	4.80	5.54	6.20	6.93	7.59	8.20	8.76	9.30	3.26	3.76	4.21	4.70	5.15	5.57	5.95	6.31	2.11	2.44	2.72	3.05	3.34	3.60	3.85	4.09
TFE 9 S	5.96	6.88	7.69	8.60	9.42	10.18	10.88	11.54	4.05	4.67	5.22	5.84	6.40	6.91	7.39	7.83	2.62	3.03	3.38	3.78	4.14	4.48	4.78	5.07
TFE 14 S	9.10	10.51	11.75	13.14	14.39	15.54	16.62	17.62	6.18	7.13	7.98	8.92	9.77	10.55	11.28	11.96	4.00	4.62	5.17	5.78	6.33	6.83	7.31	7.75

NOTE: Flow capacities are the same for reverse flow applications.

ORDERING INFORMATION FOR TFE VALVES

VALVE SERIES	CAPACITY TONS	CONNECTIONS	PCN CHARGE HCA R-22 HEAT PUMP	REFRIGERANT
TFES	8	1/2 x 5/8 ODF S/T 6A	061710	R-22
		5/8 x 5/8 ODF S/T 6A	061611	
		5/8 x 7/8 ODF S/T 6A ODF EE	061608	
		5/8 x 7/8 ODF S/T 6A SAE EE	062370	
	10	1/2 x 7/8 ODF S/T 6A	062124	
		5/8 x 7/8 ODF S/T 4A	062347	
		5/8 x 7/8 ODF S/T 6A ODF EE	061610	
		5/8 x 7/8 ODF S/T 6A SAE EE	062371	
	12	5/8 x 7/8 ODF S/T 6A	061609	
		5/8 x 7/8 ODF S/T 12A	062460	

THERMOSTATIC EXPANSION VALVES

ALCO TI THERMO® VALVE WITH INTERCHANGEABLE CARTRIDGES

TI Series Thermo Valves with interchangeable cages are designed to give the service technician a valve capable of changing capacity with the change of a cage. Simply change the easy-to-use cartridges to achieve desired capacity. 6 valve bodies + 8 cages lead to 48 valves!

FEATURES

- Rugged stainless steel diaphragm.
- Wrench flats are provided for easy fastening or loosening of flare nuts.
- Valve body is made of forged brass.
- Inlet strainer assembly.
- Stainless steel power assembly.

OPTIONS

- Interchangeable capacity cages.

NOMENCLATURE

EXAMPLE: TIE4 HC

TI	E	4	H	C
Valve Series	Equalizer E = External (omit for internal)	Orifice Size Valve sold less cage (select proper cage from interchangeability table below)	Refrigerant Code H = R-22 M = R-134a N = R-407C P = R-507 S = R-404A	Charge Code C = medium temp W(MOP) = press. limiting

SOLDER ADAPTER FOR TIS (E)

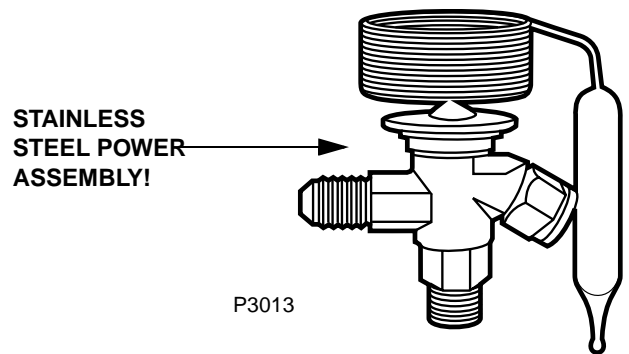
TYPE	EUROPE PCN* (U.S.)	CONNECTION ODF (mm)	CONNECTION ODF (in.)
X99980	801046 (965096)	6.0	-
X99981	801049 (065097)	10.0	-
X99982	801047 (065098)	-	1/4
X99983	801048 (065099)	-	3/8

TI INTERCHANGEABLE CAGES

CAGE SIZE	TYPE	EUROPE PCN* (U.S.)	NOMINAL CAPACITY (kW)		
			R-134a	R-22	R-404A/R-507
00	TI0-00X	800532 (065087)	0.3	0.5	0.4
0	TI0-000	800533 (065088)	0.8	1.3	1.0
1	TI0-001	800534 (065090)	1.9	3.2	2.3
2	TI0-002	800535 (065091)	3.1	5.3	3.9
3	TI0-003	800536 (065092)	5.0	8.5	6.2
4	TI0-004	800537 (065093)	8.3	13.9	10.1
5	TI0-005	800538 (065094)	10.1	16.9	12.3
6	TI0-006	800539 (065095)	11.7	19.5	14.2

*Product code number.

Nominal capacities shown here are based on European standards of +38° C condensing temperature, +4° C evaporating temperature and 1° K liquid subcooling at the inlet of the expansion valve. For valve selection at other operating conditions, see the quick selection tables.

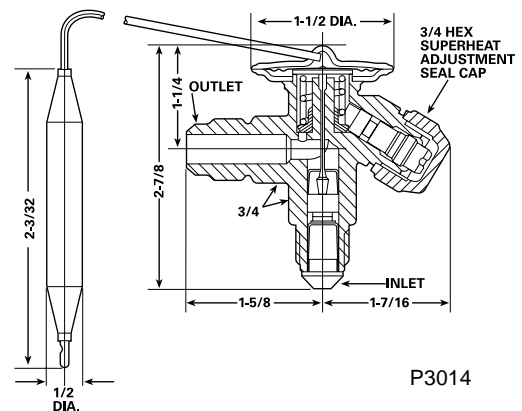


NOTE: Nominal capacities shown are based on European standards of +38° C condensing temperature, +4° C evaporating temperature and 1° K liquid subcooling at the inlet of the expansion valve. This methodology varies from the rest of the capacity tables in this catalog.

SPECIFICATIONS

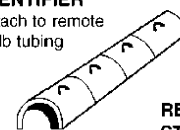
- Inlet connection size 3/8" SAE, Outlet 1/2" SAE.
- Inlet connection size 1/4" or 3/8" ODF, Outlet 1/2" ODF.
- Maximum working pressure of 450 psig.
- Maximum bulb temperature is 165° F.

TI DIMENSIONAL DATA

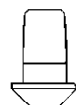


Dimensions shown are in inches: Fractions (Decimal).

SNAP-ON CAGE IDENTIFIER
Attach to remote bulb tubing



REPLACEABLE STRAINER
PART NO. X-22988-1

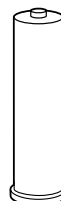


P3015

PCN*	PART NUMBER	DESCRIPTION
046460	X-22988-1	TI/TIE Replaceable Strainer

NOTE: Not available with MOP. Not available with Z charge.

NEW Stainless Steel Pin



P3016

THERMOSTATIC EXPANSION VALVES

ALCO TI THERMO® VALVE WITH INTERCHANGEABLE CARTRIDGES TI (E) SERIES - VALVE BODIES, FLARE TYPE

MOP (Valve Closed)	EVAPORATING TEMP RANGE °C	REFRIGERANT									
		Equalizer	R-134a			R-22		R-404A/R-507		R-407C	
		Type	Valve	Europe PCN* (U.S.)	Valve	Europe PCN* (U.S.)	Valve	Europe PCN* (U.S.)	Valve	Europe PCN* (U.S.)	
less	-45 to +20	internal	TI-MW	800975 (065016)	TI-HW	800649 (065020)	TI-SW	800553 (065028)	TI-NW	800001 (065038)	
		external	TIE-MW	800974 (065017)	TIE-HW	800652 (065021)	TIE-SW	800552 (065031)	TIE-NW	800003 (065039)	
-20° C	-45 to -27	internal	-	-	TI-HAD-20	800964 (065022)	TI-SAD-20	800554 (065032)	-	-	
		external	-	-	TIE-HAD-20	800965 (065023)	TIE-SAD-20	800555 (065033)	-	-	
0° C	-45 to -5	internal	-	-	-	-	TI-SW75	800501 (065034)	-	-	
		external	-	-	-	-	TIE-SW75	801331 (065035)	-	-	
+14° C	-45 to +9	internal	TI-MW55	800543 (065018)	-	-	-	-	-	-	
		external	TIE-MW55	800997 (065019)	-	-	-	-	-	-	
+15° C	-45 to +11	internal	-	-	TI-HW100	800991 (065024)	-	-	-	-	
		external	-	-	TIE-HW100	800992 (065025)	-	-	-	-	
+10° D	-45 to 0	internal	-	-	TI-HAD10	800968 (065026)	TI-SAD10	800962 (065036)	-	-	
		external	-	-	TIE-HAD10	800969 (065027)	TIE-SAD10	800959 (065037)	-	-	

Inlet: Flare 5/8" - 18 UNF for 6 mm, 8 mm, 10 mm, 1/4", 5/16" and 3/8" tubes.

Outlet: Flare 3/4" - 16 UNF for 12 mm and 1/2" tubes.

*Product code number.

TIS (E) - VALVE BODIES, SOLDER TYPE (METRIC SIZE)

MOP (Valve Closed)	EVAPORATING TEMP RANGE °C	REFRIGERANT									
		Equalizer	R-134a			R-22		R-404A/R-507		R-407C	
		Type	Valve	Europe PCN* (U.S.)	Valve	Europe PCN* (U.S.)	Valve	Europe PCN* (U.S.)	Valve	Europe PCN* (U.S.)	
less	-45 to +20	internal	TIS-MW	800976 (065040)	TIS-HW	800947 (065044)	TIS-SW	800549 (065052)	TIS-NW	800008 (065062)	
		external	TISE-MW	800979 (065041)	TISE-HW	800950 (065045)	TISE-SW	800548 (065053)	TISE-NW	800009 (065063)	
-20° C	-45 to -27	internal	-	-	TIS-HAD-20	800928 (065046)	TIS-SAD-20	800556 (065054)	-	-	
		external	-	-	TISE-HAD-20	800929 (065047)	TISE-SAD-20	800557 (065057)	-	-	
0° C	-45 to -5	internal	-	-	-	-	TI-SW75	800502 (065058)	-	-	
		external	-	-	-	-	TISE-SW75	801503 (065059)	-	-	
+14° C	-45 to +9	internal	TI-MW55	800546 (065042)	-	-	-	-	-	-	
		external	TIE-MW55	800547 (065043)	-	-	-	-	-	-	
+15° C	-45 to +11	internal	-	-	TIS-HW100	800993 (065048)	-	-	-	-	
		external	-	-	TISE-HW100	800994 (065049)	-	-	-	-	
+10° C	-45 to 0	internal	-	-	TIS-HAD10	800932 (065050)	TI-SAD10	800938 (065060)	-	-	
		external	-	-	TISE-HAD10	800933 (065051)	TISE-SAD10	800939 (065061)	-	-	

Inlet: Flare 5/8" - 18 UNF for 6 mm, 8 mm, 10 mm, 1/4", 5/16" and 3/8" tubes.

Outlet: Flare 3/4" - 16 UNF for 12 mm and 1/2" tubes.

*Product code number.

TIS (E) - VALVE BODIES, SOLDER TYPE (INCH SIZE)

MOP (Valve Closed)	EVAPORATING TEMP RANGE °C	REFRIGERANT									
		Equalizer	R-134a			R-22		R-404A/R-507		R-407C	
		Type	Valve	Europe PCN* (U.S.)	Valve	Europe PCN* (U.S.)	Valve	Europe PCN* (U.S.)	Valve	Europe PCN* (U.S.)	
less	-45 to +20	internal	TIS-MW	800978 (065064)	TIS-HW	800953 (065068)	TIS-SW	800551 (065076)	TIS-NW	800004 (065085)	
		external	TISE-MW	800977 (065065)	TISE-HW	800956 (065069)	TISE-SW	800550 (065077)	TISE-NW	800007 (065086)	
-20° C	-45 to -27	internal	-	-	TIS-HAD-20	800944 (065070)	TIS-SAD-20	800558 (065078)	-	-	
		external	-	-	TISE-HAD-20	800945 (065071)	TISE-SAD-20	800559 (065079)	-	-	
0° C	-45 to -5	internal	-	-	-	-	TI-SW75	800504 (065080)	-	-	
		external	-	-	-	-	TISE-SW75	800505 (065081)	-	-	
+14° C	-45 to +9	internal	TI-MW55	800544 (065066)	-	-	-	-	-	-	
		external	TIE-MW55	800545 (065067)	-	-	-	-	-	-	
+15° C	-45 to +11	internal	-	-	TIS-HW100	800995 (065072)	-	-	-	-	
		external	-	-	TISE-HW100	800996 (065073)	-	-	-	-	
+10° C	-45 to 0	internal	-	-	TIS-HAD10	800938 (065074)	TI-SAD10	800989 (065082)	-	-	
		external	-	-	TISE-HAD10	800984 (065075)	TISE-SAD10	800990 (065084)	-	-	

Inlet: Flare 5/8" - 18 UNF for 6 mm, 8 mm, 10 mm, 1/4", 5/16" and 3/8" tubes.

Outlet: Flare 3/4" - 16 UNF for 12 mm and 1/2" tubes.

*Product code number.

THERMOSTATIC EXPANSION VALVES

ALCO TI THERMO® VALVE WITH INTERCHANGEABLE CARTRIDGES TI EXTENDED CAPACITIES IN TONS R-134a

VALVE	CAGE	EVAPORATOR TEMPERATURE																	
		+40° F						+20° F						0° F					
		PRESSURE DROP ACROSS VALVE – PSI																	
		60	80	100	125	150	175	60	80	100	125	150	175	60	80	100	125	150	175
TI(E)1/4M	0	.19	.22	.25	.27	.30	.32	.18	.21	.23	.26	.28	.30	.14	.16	.18	.20	.22	.24
TI(E)1/2M	1	.43	.49	.55	.62	.68	.74	.41	.47	.53	.60	.65	.70	.31	.36	.40	.45	.49	.53
TI(E)3/4M	2	.73	.84	.94	1.1	1.2	1.3	.70	.81	.90	1.0	1.1	1.2	.53	.61	.68	.76	.84	.90
TI(E)1-1/4M	3	1.2	1.4	1.5	1.7	1.9	2.1	1.2	1.4	1.5	1.7	1.9	2.1	.86	.99	1.1	1.2	1.4	1.5
TI(E)2M	4	1.9	2.2	2.5	2.7	3.0	3.2	1.8	2.1	2.3	2.6	2.8	3.1	1.4	1.6	1.8	2.0	2.2	2.4
TI(E)2-1/2M	5	2.4	2.8	3.1	3.5	2.8	4.1	2.3	2.6	3.0	3.3	3.6	3.9	1.7	2.0	2.2	2.4	2.7	2.9
TI(E)2-1/2M	6	3.1	3.6	4.0	4.5	4.9	5.3	2.6	3.0	3.4	3.7	4.1	4.4	2.0	2.3	2.6	2.9	3.2	3.4

TI EXTENDED CAPACITIES IN TONS R-22

VALVE	CAGE	EVAPORATOR TEMPERATURE																	
		+40° F						+20° F						0° F					
		PRESSURE DROP ACROSS VALVE – PSI																	
		75	100	125	150	175	200	75	100	125	150	175	200	100	125	150	175	200	225
TI(E)1/6H	0	.28	.32	.36	.40	.43	.46	.27	.31	.35	.38	.42	.45	.25	.28	.31	.34	.36	.38
TI(E)1/3H	1	.69	.80	.89	.98	1.0	1.1	.67	.78	.87	.95	1.0	1.1	.63	.70	.77	.83	.89	.94
TI(E)1/2H	2	1.2	1.3	1.5	1.6	1.8	1.9	1.1	1.3	1.4	1.6	1.7	1.8	1.0	1.2	1.3	1.4	1.5	1.8
TI(E)1H	3	1.8	2.1	2.4	2.6	2.8	3.0	1.8	2.1	2.3	2.5	2.7	2.9	1.7	1.9	2.0	2.2	2.4	2.5
TI(E)1-1/2H	4	3.0	3.5	3.9	4.3	4.6	4.9	2.9	3.4	3.8	4.2	4.5	4.8	2.7	3.0	3.3	3.6	3.9	4.1
TI(E)2H	5	3.7	4.2	4.7	5.2	5.6	6.0	3.6	4.1	4.6	5.0	5.4	5.8	3.3	3.7	4.1	4.4	4.7	5.0
TI(E)2-1/2H	6	4.2	4.9	5.5	6.0	6.5	6.9	4.1	4.8	5.3	5.8	6.3	6.7	3.8	4.3	4.7	5.1	5.4	5.8

VALVE	CAGE	EVAPORATOR TEMPERATURE																	
		-10° F						-20° F						-40° F					
		PRESSURE DROP ACROSS VALVE – PSI																	
		80	100	125	150	175	200	80	100	125	150	175	200	80	100	125	150	175	200
TI(E)1/6H	0	.25	.27	.30	.32	.33	.35	.21	.23	.25	.27	.28	.30	.19	.20	.21	.23	.24	.25
TI(E)1/3H	1	.62	.67	.73	.78	.83	.87	.52	.57	.62	.66	.70	.74	.46	.50	.53	.56	.59	.62
TI(E)1/2H	2	1.0	1.1	1.2	1.3	1.4	1.4	.87	.95	1.0	1.1	1.2	1.2	.76	.82	.88	.93	.98	1.0
TI(E)1H	3	1.6	1.8	1.9	2.1	2.2	2.3	1.4	1.5	1.6	1.7	1.9	2.0	1.2	1.3	1.4	1.5	1.6	1.7
TI(E)1-1/2H	4	2.7	2.9	3.2	3.4	3.6	3.8	2.3	2.5	2.7	2.9	3.0	3.2	2.0	2.2	2.3	2.4	2.6	2.7
TI(E)2H	5	3.3	3.6	3.9	4.1	4.4	4.6	2.8	3.0	3.3	3.5	3.7	3.9	2.4	2.6	2.8	3.0	3.1	3.3
TI(E)2-1/2H	6	3.8	4.1	4.4	4.8	5.0	5.3	3.2	3.5	3.8	4.0	4.3	4.5	2.8	3.0	3.2	3.4	3.6	3.8

TI EXTENDED CAPACITIES IN TONS R-404A/R-507

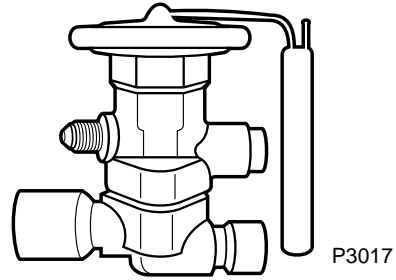
VALVE	CAGE	EVAPORATOR TEMPERATURE																	
		+40° F						+20° F						0° F					
		PRESSURE DROP ACROSS VALVE – PSI																	
		100	125	150	175	200	225	125	150	175	200	225	250	150	175	200	225	250	275
TI(E)1/6	0	.22	.24	.26	.29	.31	.33	.23	.25	.27	.29	.31	.33	.20	.21	.23	.24	.25	.27
TI(E)1/3	1	.51	.57	.62	.67	.72	.76	.54	.59	.64	.68	.73	.77	.46	.50	.53	.57	.60	.62
TI(E)1/2	2	.87	.98	1.1	1.2	1.2	1.3	.93	1.0	1.1	1.2	1.2	1.3	.79	.86	.92	.97	1.0	1.1
TI(E)1	3	1.4	1.6	1.7	1.8	2.0	2.1	1.5	1.6	1.7	1.9	2.0	2.1	1.2	1.4	1.4	1.5	1.6	1.7
TI(E)1-1/2	4	2.3	2.5	2.8	3.0	3.2	3.4	2.4	2.6	2.8	3.0	3.2	3.4	2.0	2.2	2.4	2.5	2.6	2.8
TI(E)2	5	2.8	3.1	3.4	3.6	3.9	4.1	2.9	3.2	3.5	3.7	3.9	4.2	2.5	2.7	2.9	3.1	3.2	3.4
TI(E)2-1/2	6	3.2	3.6	3.9	4.2	4.5	4.8	3.4	3.7	4.0	4.3	4.6	4.8	2.9	3.1	3.3	3.5	3.7	3.9

VALVE	CAGE	EVAPORATOR TEMPERATURE																	
		-10° F						-20° F						-40° F					
		PRESSURE DROP ACROSS VALVE – PSI																	
		150	175	200	225	250	275	175	200	225	250	275	300	200	225	250	275	300	325
TI(E)1/6	0	.17	.18	.19	.20	.22	.23	.15	.16	.17	.18	.19	.20	.12	.13	.14	.14	.15	.16
TI(E)1/3	1	.39	.43	.45	.48	.51	.53	.36	.39	.41	.43	.45	.47	.29	.30	.32	.33	.35	.37
TI(E)1/2	2	.68	.73	.78	.83	.87	.92	.62	.66	.70	.74	.78	.81	.49	.52	.55	.58	.60	.63
TI(E)1	3	1.1	1.2	1.2	1.3	1.4	1.4	.98	1.0	1.1	1.2	1.2	1.3	.78	.83	.87	.92	.96	1.0
TI(E)1-1/2	4	1.8	1.9	2.0	2.2	2.3	2.4	1.6	1.7	1.8	1.9	2.0	2.1	1.3	1.4	1.4	1.5	1.6	1.6
TI(E)2	5	2.1	2.3	2.5	2.6	2.8	2.9	2.0	2.1	2.2	2.3	2.4	2.6	1.6	1.6	1.7	1.8	1.9	2.0
TI(E)2-1/2	6	2.5	2.7	2.8	3.0	3.2	3.3	2.3	2.4	2.6	2.7	2.8	3.0	1.8	1.9	2.0	2.1	2.2	2.3

THERMOSTATIC EXPANSION VALVES

ALCO ZZ THERMO® EXPANSION VALVE FOR ULTRA LOW TEMPS

ZZ Series Thermo Valves for Ultra Low Temperature applications fit mechanical refrigeration systems used for cooling climatic environmental test chambers and cabinets (specifically where the desired evaporator temperature is below -40° F). They are used on altitude and space simulators, low-temp metallurgy cabinets, low temperature chambers, and low-temp cabinets for industrial product and biomedical testing.



FEATURES

- Take-A-Part construction for easy field service.
- Improved internal construction extends valve life.
- External equalizer standard.
- Exclusive cage bellows eliminates friction at low temperatures.
- External superheat adjustment.
- Stainless steel power element for maximum corrosion resistance.

OPTIONS

- Interchangeable cages, power assemblies and flanges for maximum flexibility.

SPECIFICATIONS

- Maximum working pressure 450 psig.

NOMENCLATURE

Example: ZZC 6 B G125 10 FT 3/8 X 1/2 ODF ANG

ZZC	6	B	G125	10 FT	3/8 X 1/2	ODF	ANG
Valve Series Ultra Low Temperature Take-A-Part	Capacity (nominal @-40° F)	Refrigerant Code B = R-13/R-23 H = R-22 O = R-508 R = R-502	Charge Code Z = low temp G(MOP) = press. limiting	Capillary Tube Length 10 ft (standard)	Inlet x Outlet Connection Sizes Various connection sizes available.	Connection Type SAE = flare ODF = solder	Configuration ANG = 90° angle S/T = straight-thru

Ammonia Usage - for direct expansion applications with evaporator temperatures below -40° F, Type ZZTG is used. These valves are identical to the TG Series, except the ZZTG cage assembly stem packing is replaced by a stainless steel bellows.

Contact ALCO's applications engineering department for complete selection information.

R-13/R-23 VALVE TYPE	R-22 VALVE TYPE	R-508 VALVE TYPE	STANDARD CONNECTIONS
ZZC 1BG	ZZC 3/4HZ	ZZC 1/4	3/8 ODF X 5/8 ODF
ZZC 2-1/2BG	ZZC 1-1/2HZ	ZZC 1/2	
ZZC 4BG	ZZC 2-1/2HZ	ZZC 1	
ZZC 6BG	ZZC 4HZ	ZZC 1-3/4	1/2 ODF X 5/8 ODF
ZZC 9BG	ZZC 6HC	ZZC 2-1/2	
ZZC 13BG	ZZC 8HZ	ZZC 4-1/2	7/8 ODF X 1-1/8 ODM
ZZ ER 20BG			

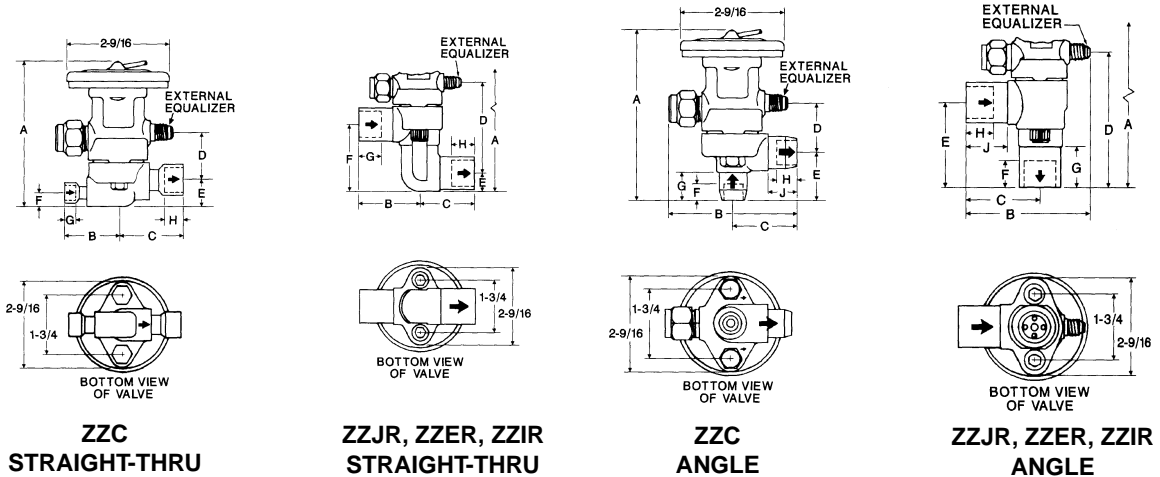
NOTE: Nominal capacities shown here are based upon the following conditions:
 R-23 evaporator temp = -40° F, liquid temp at valve inlet = 0° F,
 150 psig pressure drop across valve
 R-22 evaporator temp = -40° F, liquid temp at valve inlet = 20° F,
 150 psig pressure drop across valve
 R-508 evaporator temp = -40° F, liquid temp at valve inlet = +20° F,
 150 psig pressure drop across valve

NOTE: The FW, HW, & RW charges should not be used below -10° F.

NOTE: For valve capacities or refrigerants not listed, consult ALCO Applications Engineering Department.

THERMOSTATIC EXPANSION VALVES

ALCO ZZ THERMO® EXPANSION VALVE FOR ULTRA LOW TEMPS



P3018

ZZ STRAIGHT-THRU STYLE ROUGH IN DIMENSION TABLE Dimensions shown are in inches; fractions (decimal).

ZZ VALVE STRAIGHT-THRU	LINE CONNECTIONS INLET X OUTLET	A	B	C	D	E	F	G	H
ZCC	3/8 X 1/2 SAE	3-3/4 (3.75)	1-13/16 (1.81)	2 (2.00)	1-1/4 (1.25)	11/16 (.69)	3/8 (.38)	-	-
	3/8 X 5/8 SAE		1-13/16 (1.81)	2-3/16 (2.19)					
	1/2 X 5/8 SAE		2 (2.00)	2-3/16 (2.19)					
	1/4 X 5/8 ODF	3-3/4 (3.75)	1-7/16 (1.44)	1-5/8 (1.63)	1-1/4 (1.25)	11/16 (.69)	3/8 (.38)	5/16 (.31)	1/2 (.50)
	3/8 X 3/8 ODF			1-9/16 (1.56)					5/16 (.31)
	3/8 X 1/2 ODF			1-9/16 (1.56)					3/8 (.38)
	3/8 X 5/8 ODF			1-5/8 (1.63)					1/2 (.50)
	3/8 X 7/8 ODF	3-13/16 (3.81)	1-7/16 (1.44)	1-15/16 (1.94)	1-5/16 (1.31)	11/16 (.69)	3/8 (.38)	3/8 (.38)	3/4 (.75)
	1/2 X 1/2 ODF	3-3/4 (3.75)		1-9/16 (1.56)	1-1/4 (1.25)				3/8 (.38)
	1/2 X 5/8 ODF	3-3/4 (3.75)		1-5-8 (1.63)	1-1/4 (1.25)				1/2 (.50)
	1/2 X 7/8 ODF	3-13/16 (3.81)		1-15/16 (1.94)	1-5/16 (1.31)				3/4 (.75)
	1/2 X 1-1/8 ODF	3-3/4 (3.75)		2-3/8 (2.38)	1-1/4 (1.25)				1 (1.00)
	5/8 X 5/8 ODF	3-3/4 (3.75)	1-5/8 (1.63)	1-5/8 (1.63)	1-1/4 (1.25)	11/16 (.69)	3/8 (.38)	1/2 (.50)	1/2 (.50)
	5/8 X 7/8 ODF			1-15/16 (1.94)					3/4 (.75)
	5/8 X 1-1/8 ODF			2-3/8 (2.38)					15/16 (.94)
5/8 X 1-3/8 ODF	3-13/16 (3.81)			2-9/16 (2.56)					1-1/4 (1.25)
7/8 X 1-1/8 ODF	3-3/4 (3.75)	1-15/16 (1.94)	2-3/8 (2.38)	1-1/4 (1.25)	11/16 (.69)	1/2 (.50)	3/4 (.75)	15/16 (.94)	
ZZIR	7/8 ODF - 1-1/8 ODM X 7/8 ODF - 1-1/8 ODM	5-7/16 (5.44)	2 (2.00)	1-13/16 (1.81)	2-15/16 (2.94)	9/16 (.56)	2-3/16 (2.19)	3/4 (.75)	3/4 (.75)
ZZER	7/8 ODF - 1-1/8 ODM X 7/8 ODF - 1-1/8 ODM								
ZZIR	7/8 ODF - 1-1/8 ODM X 7/8 ODF - 1-1/8 ODM	5-1/2 (5.50)			3 (3.00)		2-1/4 (2.25)		

NOTE: Allow 2-1/8" above valve for removal of power assembly. Remote bulb diameter is 3/4" and length is 4-7/8".

ZZ ANGLE STYLE ROUGH IN DIMENSION TABLE

ZZ VALVE ANGLE	LINE CONNECTIONS INLET X OUTLET	A	B	C	D	E	F	G	H	J
ZCC	1/4 X 3/8 SAE	4-1/16 (4.06)	2-15/16 (2.94)	1-3/8 (1.38)	1-1/4 (1.25)	1 (1.00)	-	-	-	-
	3/8 X 1/2 SAE	4-3/16 (4.19)	3-1/16 (3.06)	1-1/2 (1.50)		1-1/8 (1.13)				
	3/8 X 5/8 SAE	4-3/16 (4.19)	3-3/16 (3.19)	1-5/8 (1.63)		1-1/8 (1.13)				
	1/2 X 5/8 SAE	4-7/16 (4.44)	3-3/16 (3.19)	1-5/8 (1.63)		1-3/8 (1.38)				
	1/4 X 3/8 ODF	4 (4.00)	2-15/16 (2.94)	1-3/8 (1.38)	1-1/4 (1.25)	15/16 (.94)	7/16 (.44)	-	9/16 (.56)	-
	1/4 X 1/2 ODF	4 (4.00)	3-1/16 (3.06)	1-1/2 (1.50)		15/16 (.94)	7/16 (.44)		11/16 (.69)	
	3/8 X 1/2 ODF	4-1/8 (4.13)	3-1/16 (3.06)	1-1/2 (1.50)		1-1/16 (1.06)	9/16 (.56)		11/16 (.69)	
	3/8 X 1/2 ODF	4-1/8 (4.13)	3-3/16 (3.19)	1-5/8 (1.63)		1-1/16 (1.06)	9/16 (.56)		13/16 (.81)	
	1/2 X 5/8 ODF	4-1/8 (4.13)	3-3/16 (3.19)	1-5/8 (1.63)		1-3/16 (1.19)	11/16 (.69)		13/16 (.81)	
	5/8 ODF - 7/8 ODM X 7/8 ODF - 1-1/8 ODM	4-7/8 (4.88)	3-9/16 (3.56)	2 (2.00)	1-3/8 (1.38)	1-11/16 (1.69)	13/16 (.81)	1-1/16 (1.06)	1 (1.00)	1-1/8 (1.13)
ZZIR	7/8 ODF - 1-1/8 ODM X 7/8 ODF - 1-1/8 ODM	5-1/2 (5.50)	3-7/16 (3.44)	2 (2.00)	3-11/16 (3.69)	2-5/16 (2.31)	3/4 (.75)	1-1/8 (1.13)	3/4 (.75)	1-1/8 (1.13)
ZZER	7/8 ODF - 1-1/8 ODM X 7/8 ODF - 1-1/8 ODM									
ZZIR	7/8 ODF - 1-1/8 ODM X 7/8 ODF - 1-1/8 ODM				4-3/16 (4.19)	2-13/16 (2.81)	3/4 (.75)			

NOTE: Allow 2-1/8" above valve for removal of power assembly. Remote bulb diameter is 3/4" and length is 4-7/8".

THERMOSTATIC EXPANSION VALVES

ALCO ZZ THERMO® EXPANSION VALVE FOR ULTRA LOW TEMPS

ORDERING INFORMATION FOR ZZ-SERIES

REFRIGERANT	DESCRIPTION	CAPACITY IN TONS	CAP TUBE LENGTH	PCN*
R-13	ZZC 1 BG125	1	10'	-
	ZZC 1-1/2 BG125	2.5		-
	ZZC 6 BG125	6		-
	ZZC 9 BG125	9		-
	ZZC 13 BG125	13		-
R-22	ZZC 3/4 HZ	.75	10'	-
	ZZC 1-1/2 HZ	1.5		058840
	ZZC 2-1/2 HZ	2.5		055185
	ZZC 4 HZ	4		-
	ZZC 6 HZ	6		-
	ZZC 8 HZ	8		-
R-502	ZZC 3/4 RW35	.75	10'	055882
	ZZC 1-1/2 RW35	1.5		055930
	ZZC 2-1/2 RW35	2.5		054975
	ZZC 3-1/2 RW35	3.5		-
	ZZC 5 RW35	5		054854
	ZZC 8 RW35	8		-

*Product Code Number.

ZZ CAGE ASSEMBLY AND GASKETS

VALVE	PART NUMBER
ZZC1BG, ZCC3/4HW, ZCC3/4RW	X10110-B1**
ZZC2-1/2BG, ZCC1-1/2HW, ZCC1-1/2RW	X10110-B2**
ZZC4BG, ZCC2-1/2HW, ZCC2-1/2RW	X10110-B3**
ZZC6BG, ZCC4HW, ZCC3-1/2RW	X10110-B4**
ZZC9BG, ZCC6HW, ZCC5RW	X10110-B5**
ZZC13BG, ZCC8HW, ZCC8RW	X10110-B6**
ZZER20BG, ZZER12HW, ZZER11RW	X10059-B6B
ZZER21BG, ZZER13HW, ZZER13RW	X10059-B7B
ZZER29BG, ZZER18HW, ZZER18RW	X10059-B8B
ZZER34BG, ZZER21HW, ZZER19RW	X10059-B9B
ZZHR61BG, ZZHR38HW, ZZHR37RW	X10061-B11B
ZZHR68BG, ZZHR42HW, ZZHR41RW	X10061-B12B
ZZHR75BG, ZZHR46HW, ZZHR45RW	X10061-B13B
ZZIR48BG, ZZIR30HW, ZZIR29RW	X10060-B10B
ZZIR16BG, ZZIR10HW, ZZIR9RW	X10111-B5B

**Add Equalizer Code Letter: "A" for internal or "B" for external equalizer.

ZZ REPLACEMENT POWER ASSEMBLY - XC726

POWER ASSEMBLY DESCRIPTION
XC-726 xxx yz
xxx = refrigerant charge code y = remote bulb tube length code z = internal or external equalizer

Replacement Power Assembly consists of:
power assembly, gaskets and bulb clamps

ZZ REPLACEMENT GASKET SET - X13455-1

Gasket Set includes necessary body flange gasket & seat gasket.

ZZ EXTENDED CAPACITIES IN TONS R-22

VALVE	PRESSURE DROP ACROSS VALVE - PSI													
	30	50	70	90	110	130	150	170	190	210	230	250	270	290
ZZC3/4HZ	.33	.43	.51	.58	.64	.70	.75	.80	.84	.89	.93	.97	1.01	1.04
ZZC1-1/2HZ	.67	.87	1.02	1.16	1.28	1.40	1.50	1.60	1.69	1.77	1.86	1.93	2.01	2.08
ZZC2-1/2HZ	1.12	1.44	1.71	1.94	2.14	2.33	2.50	2.66	2.81	2.96	3.09	3.22	3.35	3.47
ZZC4HZ	1.79	2.31	2.73	3.10	3.42	3.72	4.00	4.26	4.50	4.73	4.95	5.16	5.37	5.56
ZZC6HZ	2.46	3.17	3.76	4.26	4.71	5.12	5.50	5.86	6.19	6.51	6.81	7.09	7.38	7.64
ZZC8HZ	3.58	4.62	5.46	6.20	6.85	7.45	8.00	8.52	9.00	9.46	9.90	10.32	10.74	11.12

The capacities for R-22 are based on a vapor free liquid temperature of 20° F entering the valve, a -40° F evaporator temperature, 150 psig pressure drop across the valve and a maximum superheat change of 7° F.

To determine the capacities for evaporator temperatures other than -40° F, multiply the capacities listed for the available pressure drop by the correction factor shown in the R-22 Corrections Factor Table below.

ZZ CORRECTIONS FACTOR TABLE FOR R-22

EVAPORATOR TEMPERATURE °F	VAPOR FREE LIQUID TEMPERATURE ENTERING VALVE °F									
	+60	+40	+20	0	-20	-40	-60	-80	-100	
- 40	.8302	.9162	1.0000	1.0809	1.1590					
- 60	.5639	.6241	.6827	.7393	.7940	.8968				
- 80	.4031	.4475	.4907	.5324	.5727	.6118	.6494			
-100	.2975	.3313	.3642	.3960	.4268	.4565	.4852	.5132		
-120	.2404	.2687	.2961	.3227	.3484	.3733	.3972	.4207	.4436	

THERMOSTATIC EXPANSION VALVES

ALCO ZZ THERMO® EXPANSION VALVE FOR ULTRA LOW TEMPS

ZZ EXTENDED CAPACITIES IN TONS R-508

VALVE	PRESSURE DROP ACROSS VALVE – PSI													
	30	50	70	90	110	130	150	170	190	210	230	250	270	290
ZZC 1/4	.13	.16	.19	.22	.24	.26	.28	.30	.32	.33	.35	.36	.38	.39
ZZC 1/2	.24	.31	.37	.42	.46	.50	.54	.57	.61	.64	.67	.70	.72	.75
ZZC 1	.52	.67	.78	.89	.99	1.07	1.15	1.22	1.30	1.36	1.43	1.48	1.54	1.60
ZZC 1 3/4	.78	1.01	1.18	1.34	1.5	1.62	1.74	1.84	1.97	2.05	2.16	2.24	2.33	2.42
ZZC 2 1/2	1.14	1.47	1.73	1.96	2.18	2.36	2.54	2.69	2.87	3.0	3.15	3.28	3.40	3.53
ZZC 4 1/2	2.07	2.67	3.13	3.54	3.96	4.28	4.6	4.88	5.20	5.43	5.7	5.93	6.16	6.39

The capacities for R-508 are based on a vapor free liquid temperature of 20° F entering the valve, a -40° F evaporator temperature, 150 psig pressure drop across the valve and a maximum superheat change of 7° F.

To determine the capacities for evaporator temperatures other than -40° F, multiply the capacities listed for the available pressure drop by the correction factor shown in the R-508 Corrections Factor Table below.

ZZ CORRECTIONS FACTOR TABLE FOR R-508

EVAPORATOR TEMPERATURE °F	VAPOR FREE LIQUID TEMPERATURE ENTERING VALVE °F							
	+40	+20	0	20	-40	-60	-80	-100
- 40	.68	1.0	1.26	1.52				
- 60	.67	.95	1.28	1.55	1.92			
- 80	.66	.90	1.29	1.57	1.83	2.1		
-100	.55	.85	1.11	1.36	1.59	1.83	2.1	
-120	.49	.79	1.05	1.30	1.52	1.76	1.98	2.2

ZZ EXTENDED CAPACITIES IN TONS R-23

VALVE	PRESSURE DROP ACROSS VALVE – PSI													
	30	50	70	90	110	130	150	170	190	210	230	250	270	290
ZZC1BG	.45	.58	.68	.77	.86	.93	1.00	1.06	1.12	1.18	1.24	1.29	1.34	1.39
ZZC2-1/2BG	1.12	1.44	1.71	1.94	2.14	2.33	2.50	2.66	2.81	2.96	3.09	3.22	3.35	3.47
ZZC4BG	1.79	2.31	2.73	3.10	3.42	3.72	4.00	4.26	4.50	4.73	4.95	5.16	5.37	5.56
ZZC6BG	2.68	3.46	4.10	4.65	5.14	5.58	6.00	6.39	6.75	7.10	7.43	7.74	8.05	8.34
ZZC9BG	3.80	4.91	5.81	6.58	7.28	7.91	8.50	9.05	9.56	10.06	10.52	10.96	11.41	11.81
ZZC13BG	5.59	7.22	8.54	9.68	10.70	11.63	12.50	13.31	14.06	14.79	15.47	16.12	16.77	17.37

The capacities for R-23 are based on a vapor free liquid temperature of 20° F entering the valve, a -40° F evaporator temperature, 150 psig pressure drop across the valve and a maximum superheat change of 7° F.

To determine the capacities for evaporator temperatures other than -40° F, multiply the capacities listed for the available pressure drop by the correction factor shown in the R-23 Corrections Factor Table below.

ZZ CORRECTIONS FACTOR TABLE FOR R-23

EVAPORATOR TEMPERATURE °F	VAPOR FREE LIQUID TEMPERATURE ENTERING VALVE °F						
	+20	0	-20	-40	-60	-80	-100
- 40	.8526	1.0000	1.1450				
- 60	.8164	.9627	1.1070	1.2440			
- 80	.7775	.9225	1.0650	1.2020	1.3360		
-100	.5447	.6512	.7570	.8561	.9546	1.0510	
-120	.3603	.4346	.5084	.5777	.6463	.7144	.7820
-140	.1945	.2370	.2793	.3189	.3582	.3972	.4359
-160	.1205	.1486	.1765	.2030	.2288	.2546	.2804
-180	.0724	.0905	.1085	.1256	.1422	.1588	.1755
-200	.0459	.0583	.0706	.0824	.0938	.1053	.1166

THERMOSTATIC EXPANSION VALVES

ALCO LA(E) DESUPERHEATING EXPANSION VALVE

APPLICATION

- Desuperheating (Liquid Injection) valve used in conjunction with hot gas bypass to prevent excessive suction line superheat.
- Interstage cooling for compound systems.

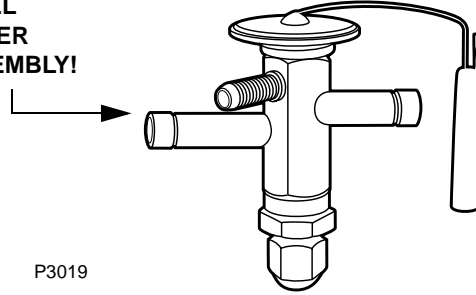
FEATURES

- May operate at superheat settings in excess of 20° F, allowing the valve to perform in desuperheating applications.
- Compact size allows installation in limited spaces.
- Stainless steel power element eliminates corrosion and prevents valve failure.

OPTIONS

- External superheat adjustment provides greater application flexibility.
- SAE or ODF connections for easy installation.
- Available external or internal equalizer to satisfy the broadest possible range of applications.
- Wrench flats on inlets and outlets (SAE only) for installation ease.
- Replaceable inlet strainer (SAE only) protects the valve from contaminants, preventing valve malfunction.

**STAINLESS
STEEL
POWER
ASSEMBLY!**



P3019

SPECIFICATIONS

- Maximum working pressure: 450 psig.
- Compatible with those refrigerants used in desuperheating applications.

NOMENCLATURE

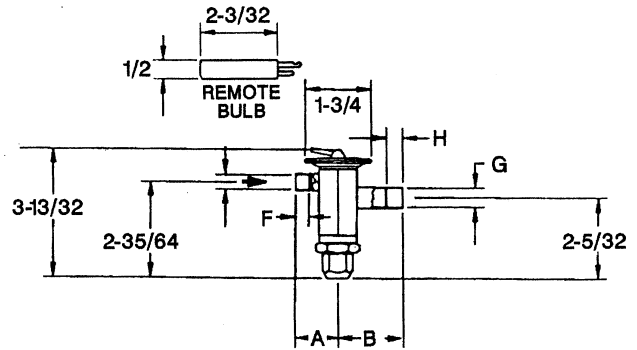
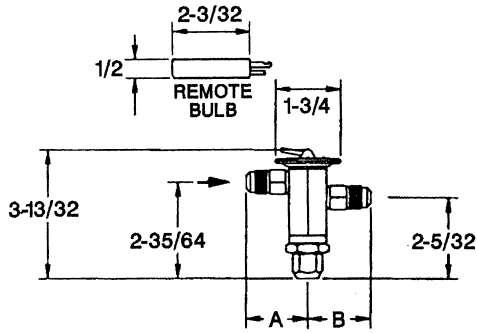
Example: LAES 2 CL 5 FT 1/2 X 5/8 ODF S/T

LA	E	S	2	C	L	5 FT	1/2 X 5/8	ODF	S/T
Valve Series De-Superheating Liquid Injection	Equalizer E = External (Omit for Internal)	Connection Type S = solder (Omit for flare)	Capacity NOTE: This is not system capacity See hot gas bypass charts for valve sizing	Refrigerant Code See hot gas bypass charts for valve selection	Charge Code L = liquid injection See Hot Gas Bypass charts for selection	Capillary Tube Length 5 ft (standard)	Inlet x Outlet Connection Sizes See tables below	Connection Type SAE = flare ODF = solder	Configuration S/T = Straight-thru (Only)

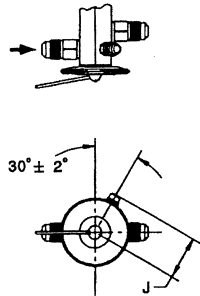
THERMOSTATIC EXPANSION VALVES

ALCO LA(E) DESUPERHEATING EXPANSION VALVE

LA(E)S DIMENSIONAL DATA

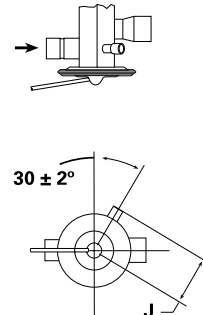


SAE CONNECTIONS



P3021

ODF CONNECTIONS



P3022

EXTERNAL EQUALIZER FITTING

TYPE	I.D.	J	SOCKET DEPTH
1/4 SAE	-	1.281	-
1/4 OSF	.254±.002	1.406	.328±.015

Dimensions shown are in inches.

SAE

INLET	OUTLET	A ±.047	B ±.047
1/4	3/8	1.500	1.641
3/8	3/8	1.641	1.719
3/8	1/2	1.641	
1/4	1/2	1.500	1.984
1/4	5/8	1.641	
3/8	5/8	1.641	

ODF

LA(E)S VALVE TYPE	INLET	OUTLET	A ±.094	B ±.094	E ±.022	F MIN.	G ±.002	H MIN.
ODF	1/4	3/8	1.703	1.734	.254	.320	.379	.320
	3/8	1/2	1.734		.379		.504	.380
	1/2	5/8	1.734		.504	.380	.629	.500
	1/4	3/8	1.703		.254	.320	.379	.320
	3/8	3/8	1.734		.379		.504	.380
	3/8	1/2			.504		.380	.629
	1/2	1/2	1.734	1.750	.504	.380	.629	.500
	1/2	5/8			.379	.320		.380
	3/8	5/8			1.734	1.734	.504	.380
	1/2	7/8						

THERMOSTATIC EXPANSION VALVES

ALCO LCL TAKE-A-PART DESUPERHEATING THERMO® VALVE

APPLICATION

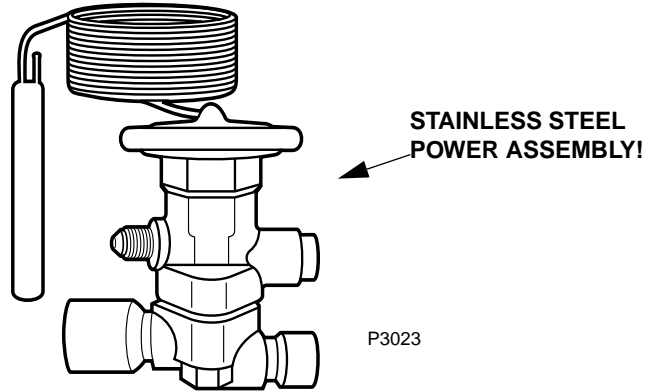
- Desuperheating (Liquid Injection) valve used in conjunction with hot gas bypass to prevent excessive suction line superheat.
- Interstage cooling for compound systems.

FEATURES

- Take-A-Part construction for easy field service.
- Contoured, durable power element for long life.
- Stainless steel power assembly.

OPTIONS

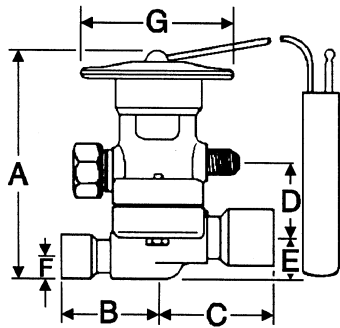
- Interchangeable, replaceable cages for versatility.
- External superheat adjustment.
- Interchangeable body flanges for any connection you need.
- Interchangeable power heads for different temperature ranges.
- Charges for all applications.



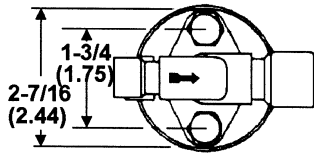
SPECIFICATIONS

- Maximum working pressure: 450 psig.

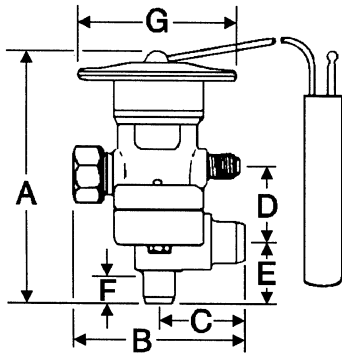
LCL(E) DIMENSIONAL DIAGRAMS & TABLES



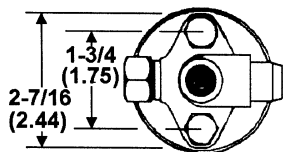
STRAIGHT-THRU



P3023A



ANGLE



P3023B

LCL(E) REMOTE BULB DIMENSIONS

CAPILLARY TUBING LENGTH	STANDARD REMOTE BULB	
	DIA.	LENGTH
5'	5/8	3-1/16
10'		3-9/16
15 or 20'		4-13/16
30'		6-1/16
40 or 50'	3/4	6-3/16

LCL(E) ROUGHING-IN DIMENSIONS

STANDARD CONNECTIONS*	STRAIGHT-THRU STYLE							SOCKET DEPTH	
	DIMENSIONS							INLET	OUTLET
	A	B	C	D	E	F	G		
3/8 X 1/2 SAE	3.70	1.78	1.98	1.20	.69	.38	2.56 DIA.	.31	.38
3/8 X 5/8 SAE			2.16						
1/2 X 1/2 SAE	1.97	1.56							
3/8 X 1/2 ODF	3.69	1.41	1.58						
3/8 X 5/8 ODF			1.63						
1/2 X 1/2 ODF	3.70	1.56	.67					.36	
1/2 X 5/8 ODF	3.69	1.63	.69					.38	
5/8 X 5/8 ODF	3.70	1.59	1.63					.67	.36
5/8 X 7/8 ODF			1.94					.69	.38
5/8 X 1-1/8 ODF			2.38					.50	.75
7/8 X 1-1/8 ODF	3.81	1.94	2.38	.75	.91				

STANDARD CONNECTIONS*	ANGLE STYLE							INLET	OUTLET			
	DIMENSIONS											
	A	B	C	D	E	F	G					
3/8 X 1/2 SAE	4.14	3.06	1.50	1.20	1.13	-	2.56 DIA.	-	-			
3/8 X 5/8 SAE	4.39	3.19	1.63		1.38							
1/2 X 5/8 SAE		2.91	1.34		.94	.44						
3/8 X 1/2 ODF	3.95	3.03	1.47		1.06	.56						
3/8 X 5/8 ODF	4.11	3.16	1.59		1.19	.69						
1/2 X 5/8 ODF	4.20				1.06	.81						
5/8 X 7/8 ODF (7/8 X 1-1/8 ODM)	4.83	3.56	2.00		1.34	1.69				.81	1.06	1.00

*Connections shown are standard sizes, consult ALCO for non-standard sizes.
Allow 2-1/8" above valve for removal of power assembly.

DIMENSIONS ARE SHOWN IN INCHES.

THERMOSTATIC EXPANSION VALVES

ALCO LCL TAKE-A-PART DESUPERHEATING THERMO® VALVE

NOMENCLATURE

LCL	E	2	B	5 FT	3/8 X 1/2	ODF	S/T
Valve Series Desuperheating Liquid Injection Take-A-Part	Equalizer E = External (omit for internal)	Capacity NOTE: This is not system capacity. See hot gas bypass charts for valve sizing	Charge Code See Hot Gas Bypass charts for selection and chart below	Capillary Tube Length 5 ft (standard)	Inlet x Outlet Connection Sizes	Connection Type SAE = flare ODF = solder	Configuration ANG = 90° angle S/T = straight-thru

For new applications, consult the factory for proper selection and sizing. For field replacement, select a LCL/LCLE valve with the exact same capacity and charge.

ORDERING INFORMATION FOR LCL VALVES

DESCRIPTION	EQUALIZER TYPE	PCN* BY CHARGE			CONNECTIONS
		SELECT FROM TABLE BELOW			
		A	B	C	
LCL 11	INTERNAL	022018	022017	022009	Same as TCL & TCLE
LCL 21		022005	021996	045527	
LCL 31		055093	021987	021979	
LCL 41		055094	055095	-	
LCL 61		047759	021961	-	
LCL 71		056105	-	-	
LCL 91		-	-	-	
LCL 101		-	-	-	
LCLE 11	1/4" SAE EXTERNAL	055096	022010	-	Same as TJLE
LCLE 21		022003	021997	-	
LCLE 31		021991	021985	-	
LCLE 41		062885	061054	055097	
LCLE 61		062886	055098	-	
LCLE 71		055099	061055	055100	
LCLE 91		-	-	-	
LCLE 101		-	-	-	
LJLE 111		-	-	-	
LJLE 121		-	-	-	

NOTE: Valve sizes LCL5, LCL8, LCLE5 and LCLE8 are obsolete.

Replace:
LCL5 with LCL6
LCL8 with LCL9
LCLE5 with LCLE6
LCLE8 with LCLE9

NOTE: Add charge suffix symbol "A", "B" or "C" based on the following table.

EXAMPLE: LCLE 4-A

NOTE: Standard remote bulb tubing is 5'.

*Product Code Number

LCL (LA) CHARGE CODES

SAT'D SUCTION TEMP	REFRIGERANT					
	R-134a		R-22		R-404A/R-507	
	REQUIRED SUCTION GAS TEMP		REQUIRED SUCTION GAS		REQUIRED SUCTION GAS	
	45° F	65° F	45° F	65° F	45° F	65° F
40° F	-	B (GL)	-	A (CL)	-	-
30° F	B (GL)	B (GL)	-	A (CL)	-	A (CL)
20° F	B (GL)	C (UL)	A (CL)	B (GL)	-	A (CL)
10° F	B (GL)	C (UL)	B (GL)	B (GL)	A (CL)	B (GL)
0° F	C (UL)	C (UL)	B (GL)	B (GL)	A (CL)	B (GL)
-10° F	C (UL)	C (UL)	B (GL)	C (UL)	B (GL)	B (GL)
-20° F	C (UL)	C (UL)	C (UL)	C (UL)	B (GL)	C (UL)
-30° F	C (UL)	C (UL)	C (UL)	C (UL)	B (GL)	C (UL)
-40° F	C (UL)	C (UL)	C (UL)	C (UL)	B (GL)	C (UL)

() Denotes LA Series valve charge code.

THERMOSTATIC EXPANSION VALVES

FUNDAMENTALS OF HOT GAS BYPASS

TABLE 5 — ADJUSTABLE SUPERHEAT RANGE SELECTION CHART

SATURATED SUCTION TEMP °F	R-134a		R-22		R-404A/R-507	
	REQUIRED SUCTION GAS TEMPERATURE (in °F)					
	45°	65°	45°	65°	45°	65°
40	—	B	—	A	—	—
30	B	B	—	A	—	A
20	B	C	A	B	—	A
10	B	C	B	B	A	B
0	C	C	B	B	A	B
-10	C	C	B	C	B	B
-20	C	C	B	C	B	C
-30	C	C	C	C	B	C
-40	C	C	C	C	B	

THERMOSTATIC EXPANSION VALVES

ALCO TG THERMO® EXPANSION VALVE

ALCO Ammonia TG Thermo Valves have the same compact Take-A-Part design features and rugged construction used in other ALCO Thermo Valves. A discharge tube in the outlet controls valve capacity, thus preventing frosting of the valve and erosion of the pin and seat.

NOTE: For applications below -40° F evaporator temperatures, use ALCO's ZZTG Thermo Valve.

FEATURES

- Take-A-Part construction for easy field service.
- Integral inlet strainer standards.
- Internal equalizer standard.
- 10' remote bulb tubing standard.

OPTIONS

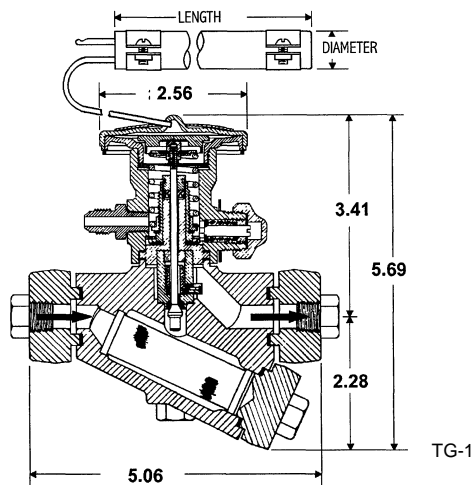
- 1/4" external equalizer option available.
- 1/4", 3/8" or 1/2" connections available.

NOMENCLATURE

EXAMPLE: TG 1 AZ 1/4" FPT

TG	1	A	Z	1/4" FPT
Valve Series	Nominal Capacity (in tons)	Refrigerant Code A = R-717	Charge Code see note 1	Connection Size & Style 1/4, 3/8, & 1/2 Available

TG DIMENSIONAL DATA



TG FLANGES TABLE	
SIZE	DESCRIPTION
1/4 FPT	RX264
3/8 FPT	RX265
1/2 FPT	RX266

TG REMOTE BULB TABLE		
Remote Bulb Tubing Length	Length Dimension	Diameter Dimension
10 ft., 15 ft.	6.25	.50 dia.
20 ft.	4.75	.63 dia.
30 ft.	6.00	.63 dia.
50 ft.	6.13	.75 dia.

Dimensions shown are in inches.

VALVE TYPE ¹	NOMINAL CAPACITY IN TONS R717 ²	BASIC CAGE ASSEMBLY PART NO. ³	DISCHARGE TUBE PART NUMBER ⁷	DISCHARGE TUBE ORIFICE DIA.	SIZE AND STYLE LINE CONNECTIONS	LENGTHS REMOTE BULB TUBING	STYLE OF REMOTE BULB	EQUALIZER
TG1A	1.0	XC741-B0	A735-1	.031	ORDER SEPARATELY Flanged 1/4" FPT 3/8" FPT 1/2" FPT	10' OR 15' other lengths to 50' can be supplied on special order	External strap-on type ⁶	Internal or 1/4" SAE male flare external
TG2A	2.0	XC741-B1 ⁴	A735-1	.031				
TG3A	3.0	XC741-B5 ⁴	A735-10	.039				
TG5A	5.0	XC741-B2 ⁴	A735-2	.046				
TG7-1/2A	7.5	XC741-B2-1/2 ⁴	A735-3	.062				
TG10A	10	XC741-B3 ⁴	A735-5	.078				
TG15A	15.0	XC741-B6 ⁵	A735-11	.086				
TG20A	20.0	XC741-B4 ⁵	A735-4	.093				
TG25A	25.0	XC741-B7B	NONE	NA				
TG40A	40.0	XC741-B8B	NONE	NA				

¹Add power assembly charge symbol suffix "Z", or "X" to valve type. "Z" cross charge is recommended for standard installations operating at either low or high temperature.

"Z" superheat adjustment range is 2 to 20° F. Examples: TG1AZ, TG10AZ.

"X" charge is recommended for central station truck installations, or special applications requiring high operating superheats. "X" superheat adjustment range is 18 to 40° F.

Example: TG2AX, TG20AX

²Capacities are based on 86° F condensing, +5° F evaporator, vapor-free liquid at valve inlet and 140 psi pressure drop across the valve.

³Add suffix "A" for internal equalizer or suffix "B" for external equalizer to obtain complete cage assembly part number. Example: XC741-B2A

⁴These cage assemblies are identical except for discharge tube. Installation of proper discharge tube therefore determines capacity.

⁵These cage assemblies are identical except for discharge tube. Installation of proper discharge tube therefore determines capacity.

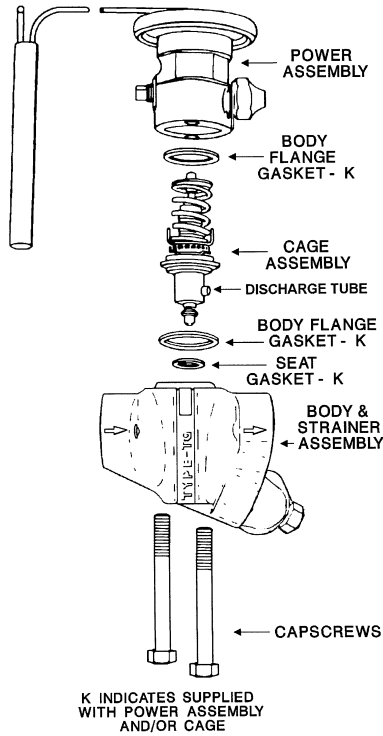
⁶External remote bulb may be used with remote bulb well.

⁷Remove discharge tube when used on system with distributors.

THERMOSTATIC EXPANSION VALVES

ALCO TG THERMO[®] EXPANSION VALVE

TG EXPLODED VIEW



TG-2

TG REPLACEMENT PARTS

POWER ASSEMBLY	
Consists of: Power Assembly, gaskets and external bulb clamps	
TG VALVE	PART #
Power Assembly	XB1049*

*Specify AZ, AL or AX refrigerant charge, remote bulb tubing length, and internal or external equalizer. Example: XB1049 AZ 2 A.

CAGE ASSEMBLY KIT			
Consists of: Cage Assembly and Gaskets			
VALVE	PART #	VALVE	PART #
TG1A	XC41-B0**	TG10A	XC741-B3*
TG2A	XC741-B1**	TG15A	XC741-B6**
TG3A	XC741-B5**	TG20A	XC741-B4**
TG5A	XC741-B2**	TG25A	XC741-B7**
TG7-1/2A	XC741-B2-1/2**	TG40A	XC741-B8**

**Add "A" for internal or "B" for external equalizer.
Example: XC741 B5 A

GASKET SET	
Consists of: All the necessary flange gaskets and seat gasket.	
TG VALVE	PART#
Gasket Set	X13455-1

FLANGE SETS	
DESCRIPTION	PART #
1/4 FPT	RX264
3/8 FPT	RX265
1/2 FPT	RX266

BODY CAPSCREWS (2 required)	
TG VALVE	PART #
Body Capscrews	PS208
Body & Strainer Assembly	XA-867

STRAINER ASSEMBLY (not shown)	
TG VALVE	PART #
Strainer Assembly	XA1633-1

TG CAPACITY, CAGE & DISCHARGE TUBE TABLE

DESCRIPTION	NOMINAL CAPACITY TONS R-717	BASIC CAGE ASSEMBLY PART NO.	DISCHARGE TUBE PART NUMBER
TG 1A	1.0	XC741-B0	A735-1
TG 2 A	2.0	XC741-B1	A735-1
TG 3 A	3.0	XC741-B5	A735-10
TG 5 A	5.0	XC741-B2	A735-2
TG 7-1/2 A	7.5	XC741-B2-1/2	A735-3
TG 10 A	10.0	XC741-B3	A735-5
TG 15 A	15.0	XC741-B6	A735-11
TG 25 A	25.0	XC741-B4	A735-4
TG 25 A	25.0	XC741-B7	NONE
TG 40 A	40.0	XC741-B8	NONE

NOTE: CAGE ASSEMBLIES

1. Add equalizer code letter "A" (internal) or "B" (external) to complete cage part number.

TG FLANGE SETS TABLE - WORK WITH AL TG VALVES

SIZE	DESCRIPTION	PCN*
1/4" FPT	RX264	039650
3/8" FPT	RX265	032636
1/2" FPT	RX266	028947

ORDERING INFORMATION FOR TG VALVES

DESCRIPTION	NOMINAL CAPACITY IN TONS	PCN* BY EQUALIZER TYPE		CAP TUBE LENGTH
		INTERNAL	EXTERNAL	
TG 1 AZ	1	039660	025444	10'
TG 1 AZ	1	075842	040740	15'
TG 2 AZ	2	037465	025434	10'
TG 2 AZ	2	081515	082236	15'
TG 3 AZ	3	040338	026972	10'
TG 3 AZ	3	087550	065089	15'
TG 5 AZ	5	072480	025424	10'
TG 5 AZ	5	065278	065474	15'
TG 5 AX	5	072176	071925	15'
TG 7-1/2 AZ	7.5	029140	040270	10'
TG 10 AZ	10	039661	025421	10'
TG 15 AZ	15	040293	025417	10'
TG 20 AZ	20	N/A	040295	10'
TG 25 AZ	25	045213	040762	10'
TG 40 AZ	40	040729	041035	10'

Standard Product Offering.

*Product Code Number.

NOTE:

TGAZ Superheat Adjustment Range is 2 to 20° F.
TGAX Superheat Adjustment Range is 18 to 40° F.

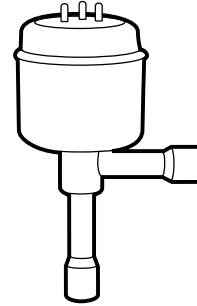
THERMOSTATIC EXPANSION VALVES

ALCO ESVB BI-FLO STEPPER EXPANSION VALVE

The ESVB is a direct driven expansion valve that uses a stepper motor to actuate the valve pin. The stepper motor uses a voltage pulse to move the valve either open or closed, one step for each pulse. The ESVB has the ability to be interfaced with a variety of control electronics. The ESVB is useful in a variety of applications ranging from case control to subcooler applications, truck/trailer refrigeration, and heat pump/air conditioning applications.

FEATURES

- Hermetic construction eliminates external leakage.
- Bi-Flo capability allows one valve to control the superheat in both cooling and heating modes for heat pump applications.
- Stepper motor moves in discrete "steps" allowing for precise digital control.
- Voltage is required only when moving the valve increasing energy efficiency.
- Removable external connector for easy replacement.
- Contains internal strainer in both the inlet and outlet connections to protect the valve from contamination in both forward and reverse flow modes.
- Solenoid-tight shut off eliminates the need for both a traditional TEV and a solenoid valve in the liquid line.
- Stainless steel housing minimizes corrosion over the life of the valve.
- 2-phase bi-polar, linear actuating stepper motor, direct drive.
- Two motors available 24 volt or 12 volt alternating square wave (see stepper sequence table).



UL file number MP604
CSA file number LR3204

P3028

SPECIFICATIONS

- UL file number MP604, CSA file number LR3204.
- MOPD: 300 psid, either flow direction.
- Maximum Working Pressure: 500 psi.
- Operating temperatures: Ambient -40° F to 150° F
Refrigerant -40° F to 140° F
- Shipping Weight: 2 lbs.
- Motor drive voltage (12 VDC or 24 VDC) must be within +10% and -15% thru step.

MOTOR SPECIFICATIONS

FEATURE	ESVB-1, -4	ESVB-10, -20
COIL RESISTANCE (± 10%)	84 Ω AT 25° C (12 V) 336 Ω AT 25° C (24 V)	29 Ω AT 25° C (12 V) 116 Ω AT 25° C (24 V)
INDUCTANCE (± 20%)	55 mH per winding	52 mH per winding
STEP RATE (± 20%)	50 steps/second	50 steps/second
# steps from full open to full closed	384 steps	800 steps
HYSTERESIS (STEPS)	0	0
LINEAR TRAVEL/STEP	.001 inch	.001 inch
POWER INPUT (nominal)	1.7 watts per phase (3.4 watts total)	5 watts per phase (10 watts nominal)

NOMENCLATURE

Example: ESV 1 24V 3/8 X 3/8 ODF ANG NC

ESVB	*	24	3/8 X 3/8	ODF	ANG	NC
BiPolar Stepper Driven	Nominal Capacity 1 4 10 20	Motor Voltage 12 V or 24 V ¹	Side Fitting Size x Bottom Fitting Size 3/8 x 3/8 3/8 x 1/2 1/2 x 1/2 7/8 x 1-3/8	Fitting Type ODF	Body ANG = Angle Style	Connector NC = No Connector (Must order connector separately)

*CPC EINSTEIN requires 12 V.

ORDERING INFORMATION FOR ESVB VALVES

PCN*	DESCRIPTION
064791	ESVB 1 12 V 3/8 X 3/8 ODF ANG NC
064792	ESVB 1 24 V 3/8 X 3/8 ODF ANG NC
064753	ESVB 1 12 V 3/8 X 1/2 ODF ANG NC
064752	ESVB 1 24 V 3/8 X 1/2 ODF ANG NC
064793	ESVB 4 12 V 2/8 X 3/8 ODF ANG NC
064794	ESVB 4 24 V 3/8 X 3/8 ODF ANG NC
064755	ESVB 4 12 V 3/8 X 1/2 ODF ANG NC
064754	ESVB 4 24 V 3/8 X 1/2 ODF ANG NC
064795	ESVB 10 12 V 1/2 X 1/2 ODF ANG NC
064796	ESVB 10 24 V 1/2 X 1/2 ODF ANG NC
064797	ESVB 20 12 V 7/8 X 1-3/8 ODF ANG NC
064798	ESVB 20 24 V 7/8 X 1-3/8 ODF ANG NC
062093	4-WIRE EXTERNAL MOLDED CONNECTOR 5 FT (28963-1)
062094	4-WIRE EXTERNAL MOLDED CONNECTOR 22 FT (28963-2)

Standard Product Offering.

*Product Code Number.

ESVB NOMINAL CAPACITY RANGES IN TONS AND (kW)

VALVE	R-12 @ 60 PSI Δ P	R-134a @ 60 PSI Δ P	R-22 @ 100 PSI Δ P
ESVB-1	0.41 (1.4)	0.51 (1.8)	0.70 (2.4)
ESVB-4	2.00 (7.0)	2.45 (8.5)	3.36 (11.7)
ESVB-10	6.00 (21.0)	7.38 (25.6)	10.08 (35.0)
ESVB-20	13.00 (46.0)	16.00 (55.5)	21.86 (75.9)
VALVE	R-407C @ 100 PSI Δ P	R-404A/R-507 @ 100 PSI Δ P	R-502 @ 100 PSI Δ P
ESVB-1	0.67 (2.3)	0.50 (1.7)	0.45 (1.6)
ESVB-4	3.19 (11.1)	2.43 (8.4)	2.17 (7.5)
ESVB-10	9.60 (33.3)	7.29 (25.3)	6.52 (22.6)
ESVB-20	20.82 (72.2)	15.83 (54.9)	14.14 (49.1)

NOTE: All capacities shown are at 100° F Condensing, 40° F Evaporator Temperature, with a solid column of fluid at the valve inlet, with the ESVB-1 and -4 @ 250 steps open and the ESVB-10 and -20 @ 650 steps open. For capacities at other than nominal conditions, see extended capacity tables in kW.

THERMOSTATIC EXPANSION VALVES

ALCO ESVB BI-FLO STEPPER EXPANSION VALVE

ESVB SERIES BI-FLO EXPANSION VALVES

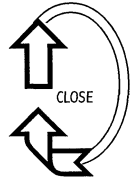
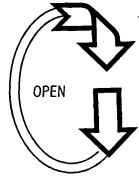
The ESVB is approved for use with all CFC, HCFC, and HFC refrigerants, except R-123, R-406A, R-410A, and those listed in ASHRAE standard 34 as A2, A3, B2, and B3. For more information concerning application, sizing, and selection contact ALCO Applications Engineering Department.

ESVB OPERATION

The ESVB is a direct driven expansion valve that uses a stepper motor to control the opening and closing of the valve. Table 1 contains step sequence for driving the valve. This four step sequence is then repeated as necessary for the valve to open the appropriate number of steps. **WARNING:** The shaft of the valve can only change position if power is applied to it. Upon loss of power, valve will not move.

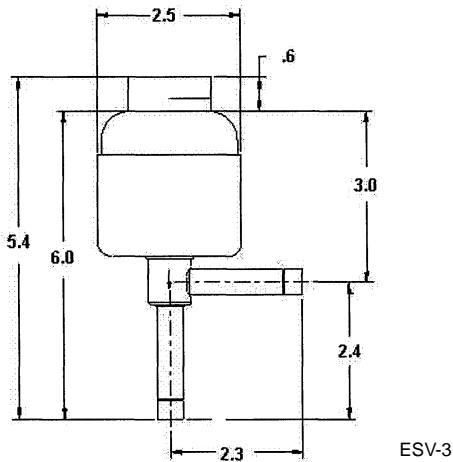
TABLE 1

STEP	STEPPER SEQUENCE			
	PHASE A		PHASE B	
	RED	BLUE	BLACK	WHITE
1	+	-	-	+
2	-	+	-	+
3	-	+	+	-
4	+	-	+	-

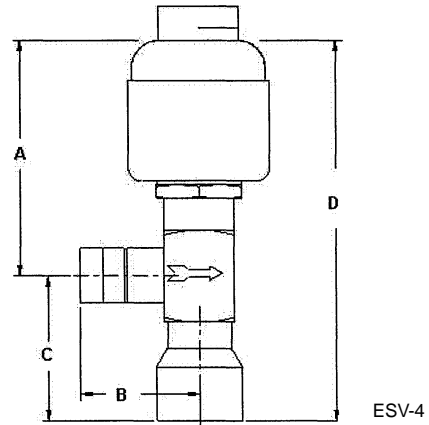


ESVB DIMENSIONAL DATA

ESVB-1, -4



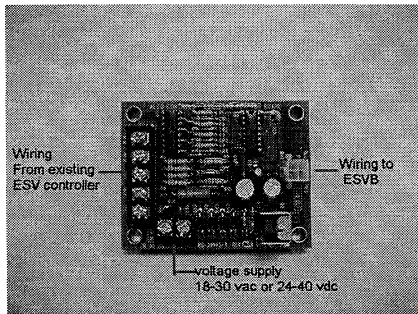
ESVB-10, -20



ESV-TO-ESVB ADAPTER BOARD

The ESV-to-ESVB adapter board must be used as an interface board to allow the field replacement of obsolete unipolar ESV stepper valves with the newer bipolar stepper motor ESVB valve.

VALVE	A	B	C	D
ESVB-10	4.20"	2.60"	2.70"	6.90"
ESVB-20	4.20"	2.10"	2.50"	6.70"



ESV-5

PCN*	DESCRIPTION	PART #
064905	ESV-ESVB ADAPTER BOARD	PS-29943-1

Standard Product Offering.

*Product Code Number.

THERMOSTATIC EXPANSION VALVES

ALCO EX2 PULSE MODULATED ELECTRIC EXPANSION VALVE

The EX2 is an Electrically Driven Expansion Valve designed for use with R-12, R-22, R-134a, R-404A, R-407C, R-410A and R-502.

- Use with an Alco EC2 Electronic Display Case Controller for the ultimate, precise case temperature control system. (Use 24 V coil only.)

FEATURES

- Pulse width modulation provides very precise temperature control.
- Dampened plunger reduces noise and effects of “water hammer”.
- Shut off function eliminates the necessity of a separate solenoid valve.
- ODF connections.

SPECIFICATIONS

- Designed for 15 year life or 80 million cycles at 15 sec. duty cycle.
- 400 psig MOPD, 500 psig Maximum Working Pressure.
- Alco ASC2X Coils: 24 V/60 Hz, 120 V/60 Hz.
- UL Approved File #MP604.

OPTIONS

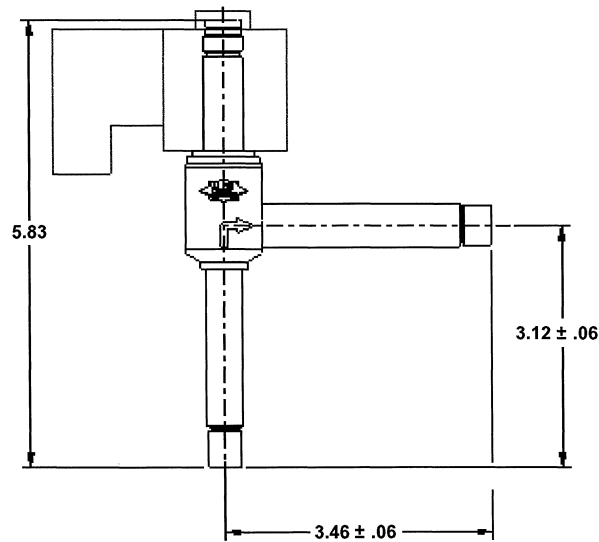
- One valve body can be combined with 6 orifices to make 6 capacity ranges up to 2.7 tons R-22.

NOMENCLATURE

Example: EX2 1/4 x 3/8 EXO-001 ASC2X 120 V

EX2	1/4	3/8	EXO-001	ASC2X 120 V
Valve Series	Inlet Connection	Outlet Connection	Orifice	Coil

EX2 DIMENSIONAL DATA



DIMENSIONS SHOWN ARE IN INCHES;
FRACTIONS (DECIMAL).

THERMOSTATIC EXPANSION VALVES

ALCO EX2 PULSE MODULATED ELECTRIC EXPANSION VALVE

EX2 SELECTION CHART

DEVICE	MODEL #	PCN*
Electronic Expansion Valve	EX2 1/4 x 3/8	064496
Electronic Expansion Valve	EX2 3/8 x 1/2	064497
Electronic Expansion Valve	EX2 1/2 x 5/8	064498
24 V/60 Hz Coil	ASC2X 24/60	064503
120 V/60 Hz Coil	ASC2X 120/60	064504

*Product Code Number.

The liquid capacity table below quotes capacities at 100% duty cycle (i.e. the valve is open continuously). However it is recommended to operate the valve at partial load (50-80%) to allow for system load fluctuations. When used with an EC2 case controller, the valve operates with a 6 second pulse width cycle. Partial capacity can be calculated by proportioning the actual pulse time relative to 6 seconds (i.e. 3 second pulse width cycle time = 50% valve capacity).

We recommend the use of an Alco EC2 Electronic Display Case Controller with the EX2 Valve operating on a 24 V AC supply.

LIQUID CAPACITY TABLE IN TONS (kWatts) @ 100% DUTY CYCLE

PCN*	ORIFICE#	R-22/R-407C TONS (kW)	R-502 TONS (kW)	R-12 TONS (kW)	R-134a TONS (kW)
064570	EX0-00X	0.23 (.8)	0.15 (.5)	0.15 (.5)	0.18 (.6)
064569	EX0-000	0.40 (1.4)	0.26 (.9)	0.40 (1.4)	0.50 (1.8)
064499	EX0-001	0.81 (2.8)	0.53 (1.9)	0.50 (1.8)	0.62 (2.2)
064500	EX0-002	1.10 (3.9)	0.72 (2.5)	0.74 (2.6)	0.85 (3.0)
064501	EX0-003	2.00 (7.0)	1.30 (4.6)	1.3 (4.6)	1.5 (5.3)
064502	EX0-004	2.70 (9.6)	1.76 (6.0)	1.8 (6.4)	2.1 (7.4)

Nominal capacities shown in this table are based on 40° F evaporating temperature, 100° F condensing temperature and 100 psig pressure drop across the valve.

*Product Code Number.

For Ordering Information, see selection chart above.

THERMOSTATIC EXPANSION VALVES

ALCO ACP(E) AUTOMATIC EXPANSION VALVE

ALCO's ACP is an Automatic Valve developed for small cooling units where the heat load is reasonably constant.

The ACP is ideal for room air conditioners, domestic refrigerators, drink dispensers, food dispensers, ice cream cabinets, bottle coolers, home freezers, ice cube makers, ice cream freezers, and milk coolers.

FEATURES

- Small, compact size adapts to any installation.
- Friction-free floating design.
- Can be used as a small capacity hot gas bypass valve.
- Covers multiple capacity ranges.
- Fully adjustable from 0-80 psig (factory setting 40 psig).

- Wrench flats on inlets and outlets.
- Available with fixed setting/non-adjustable.

OPTIONS

- Angle or straight-thru style.
- Internal or external equalizer.
- SAE or ODF connections.

SPECIFICATIONS

- Maximum working pressure 450 psig.
- Maximum working temperature: 300° F.
- UL file #SA5312, CSA file #LR44005.

NOMENCLATURE

Example: ACPE 6 SAE EE 1/4 x 3/8 ODF ANG

ACP	E	6	SAE EE	1/4 x 3/8		ODF	ANG
Valve Series	External Equalizer (optional)	Port Size (diameter) see table below	External Equalizer Type	Inlet Connection Size (inches)	Outlet Connection Size (inches)	Connection Type ODF or SAE	Body Style ANG = Angle S/T = Straight-thru

ACP (E) NOMINAL CAPACITY* TABLE IN TONS AND (kWatts)

VALVE	PORT DIAMETER (in.)	R-12 R-134a	R-407C R-22	R-502 R-404A R-507	R-410A
		PRESSURE DROP ACROSS VALVE - PSI			
		60	100	100	160
ACP(E)1	.407	.31 (1.1)	.44 (1.5)	.29 (1.0)	.38 (1.4)
ACP(E)2	.059	.41 (1.4)	.57 (2.0)	.38 (1.3)	.51 (1.7)
ACP(E)3	.101	.65 (2.3)	.91 (3.2)	.61 (2.1)	.80 (2.8)
ACP(E)4	.113	.90 (3.1)	1.30 (4.5)	.87 (3.0)	1.1 (3.8)
ACP(E)5	.125	1.40 (4.9)	1.96 (6.8)	1.31 (4.5)	1.7 (6.0)
ACP(E)6	.140	1.90 (6.6)	2.67 (9.3)	1.78 (6.2)	2.3 (8.1)
ACP(E)7	.169	2.30 (8.0)	3.28 (11.4)	2.19 (7.6)	2.8 (9.9)
ACP(E)8	.196	2.70 (9.4)	3.75 (13.0)	2.50 (8.7)	3.3 (11.6)
ACP(E)9	.228	3.80 (13.2)	5.32 (18.5)	3.55 (12.3)	4.7 (16.3)

*All capacities shown are at 100° F condensing, 40° F evaporator temperature, with a solid column of liquid at the valve inlet.

ORDERING INFORMATION

PCN*	DESCRIPTION	PCN*	DESCRIPTION
056240	ACP 1 IE 1/4 X 3/8 SAE ANG	049204	ACP 5 IE 3/8 X 3/8-1/2 SAE ANG
046838	ACP 1 IE 1/4 X 3/8-1/2 SAE ANG	047653	ACP 6 IE 1/4 X 3/8 SAE ANG
057233	ACP 1 IE 1/4 X 3/8 ODF S/T	047654	ACP 7 IE 3/8 X 1/2 ODF ANG
047680	ACP 1 IE 1/4 X 3/8 ODF S/T	047285	ACP 7 IE 3/8 X 3/8-1/2 SAE ANG
047651	ACP 2 IE 1/4 X 3/8 ODF ANG	047655	ACP 8 IE 3/8 X 1/2 ODF ANG
046839	ACP 2 IE 1/4 X 3/8 SAE ANG	057771	ACP 9 IE 1/2 X 5/8 ODF ANG
047283	ACP 3 IE 1/4 X 3/8 ODF ANG	052773	ACP 9 IE 1/4 X 3/8 ODF ANG
046840	ACP 3 IE 1/4 X 3/8 SAE ANG	047657	ACP 9 IE 3/8 X 1/2 ODF ANG
047105	ACP 4 IE 1/4 X 3/8 ODF ANG	057209	ACP 9 IE 3/8 X 3/8 ODF ANG
047101	ACP 4 IE 1/4 X 3/8 SAE ANG	047658	ACP 9 IE 3/8 X 3/8-1/2 SAE ANG
047284	ACP 5 IE 1/4 X 3/8 ODF ANG	047280	ACPE 1 SAE EE 1/4 X 3/8 SAE S/T
047332	ACP 5 IE 1/4 X 3/8 SAE ANG	047790	ACP 7 SAE EE 3/8 X 1/2 ODF ANG
053374	ACP 5 IE 3/8 X 3/8 ODF ANG	058674	ACPE 9 SAE EE 1/2 X 5/8 ODF S/T

Standard Product Offering.

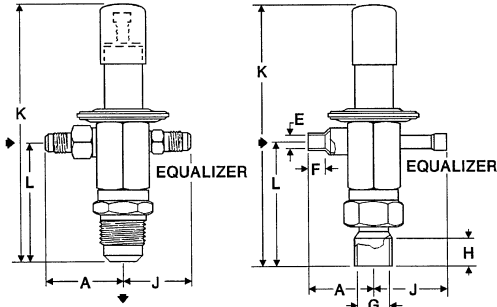
*Product Code Number.

THERMOSTATIC EXPANSION VALVES

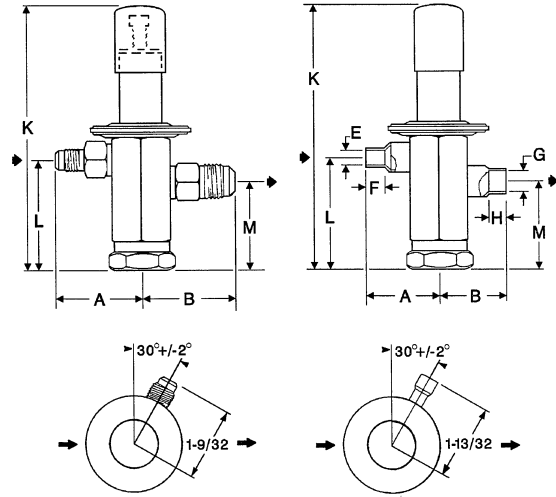
ALCO ACP(E) AUTOMATIC EXPANSION VALVE

ACP DIMENSIONAL DATA

ACP ANGLE



ACP STRAIGHT-THRU



ACP-1

ACP ROUGH IN DIMENSION TABLE

ACP (E) VALVE TYPE	INLET	OUTLET	A	B	E DIA.	F MIN.	G DIA.	H MIN.	K	L	
ANGLE SAE	1/4	3/8	1.50	-	-	-	-	-	4.50	2.13	
	3/8	3/8 - 1/2	1.64								
	1/2		1.72								
	1/4	5/8	1.50							4.61	2.23
	3/8		1.64								
1/2	1.72										
ANGLE ODF	1/4	3/8	1.25	-	.25	.32	.37	.32	4.55	2.17	
	3/8	1/2	1.19		.37	.32	.50	.38			
	1/2	5/8	1.38		.50	.38	.62	.50	4.73	2.36	
	5/8		1.25		.25	.32					
	1/4		1.19		.37	.32					
	3/8	1/2	1.25		.25	.32	.50	.38	4.55	2.17	
	1/2		1.19		.50	.38	.87	.75	5.11	2.73	

ACP (E) VALVE TYPE	INLET	OUTLET	A	B	E DIA.	F MIN.	G DIA.	H MIN.	K	L	M
STRAIGHT-THRU SAE	1/4	3/8	1.50	1.64	-	-	-	-	4.25	1.88	1.48
	3/8	1/2	1.64	1.72							
	1/2		1.72								
	1/4	5/8	1.50	1.98							
	3/8		1.64								
1/2	1.72										
STRAIGHT-THRU ODF	1/4	3/8	1.25	1.19	.25	.32	.37	.32			
	3/8	1/2	1.19		.37	.32	.50	.38			
	1/2	5/8	1.19	1.38	.50	.38	.62	.50			
	5/8		1.38		.25	.32					
	1/4		1.25		.37	.32					
	3/8	1/2	1.19	1.19	.25	.32	.50	.38			
	1/2		1.25		1.19	.25	.32	.50	.38		
	1/4	1/2	1.25	1.19	.50	.38	.87	.75			
3/8	7/8	1.19	1.75	.37	.32	.87	.75				

DIMENSIONS SHOWN ARE IN INCHES.

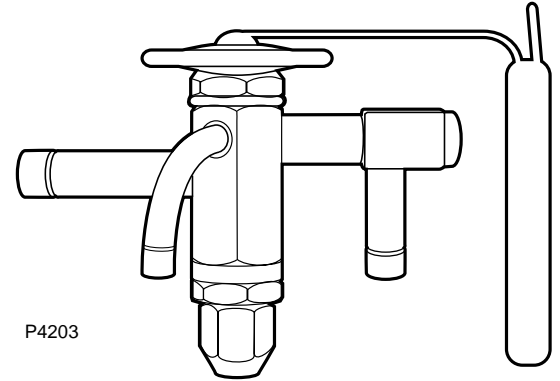
THERMOSTATIC EXPANSION VALVE KITS

ALCO HFK KITS (For 1/4 to 5-1/2 Ton Applications (Nominal R-22))

Interchangeable Cages, Power Assemblies and Valve Bodies for Maximum Flexibility in Meeting All Your Thermo® Expansion Valve Needs

Features

- The new HFK features interchangeable bodies, cages, and power elements providing maximum flexibility.
- The HFK is offered several ways:
 - *Pre-packaged service kits* — Include a mix of bodies and power elements with a complete set of cages to serve the most applications with a minimum of parts.
 - *Individual components* — Bodies, cages, and power elements may be ordered separately and can be used to build personalized service kits or replenish pre-packaged kits.
 - *Finished valves* — Assembled valves ready for immediate installation.
- All HFK valves use a balanced port cage design that compensates for changes in operating pressures due to varying ambients, gas defrost, heat reclaim, or widely varying evaporator loads.
- The HFK offers the following additional features:
 - Bi-Flow capability
 - Stainless steel power element
 - Adjustable superheat
 - Solid copper connections



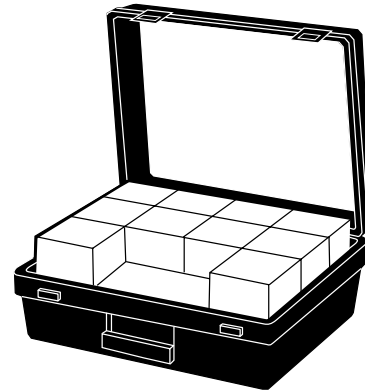
P4203

Options

- ODF or SAE connections
- Straight-through or angle flow configurations
- Removable inlet strainer available (ODF only)
- Internal or external equalizer

Specifications

- Maximum working pressure: 450 psig
- Operating Temperature: -40° F to 50° F
- Use with R-22, R-134a, R-404A, R-507, R-12, R-502



P4204

Nomenclature (Example: HFKESC 2 HC 5 FT 3/8 x 1/2 ODF S/T)

HFK	E	S	C	2	H	C	5 FT	3/8 X 1/2	ODF	S/T
Valve Series	Equalizer E = External (Omit for Internal)	Connection Type S = Solder (Omit for SAE Flare)	Removable Inlet Strainer (Optional) C = Inlet Strainer (ODF Only)	Capacity Nominal Rating in Tons See nominal capacity table (on next page)	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	Charge Code C = Medium Temp CA = Heat Pump W (MOP) = Press. Limiting Z = Low Temp	Capillary Tube Length 5 Ft (Std) Other lengths are available.	Inlet x Outlet Connection Sizes See Body table on next page.	Connection Type SAE = Flare ODF = Solder	Configuration S/T = Straight-Thru ANG = 90° Angle

THERMOSTATIC EXPANSION VALVE KITS

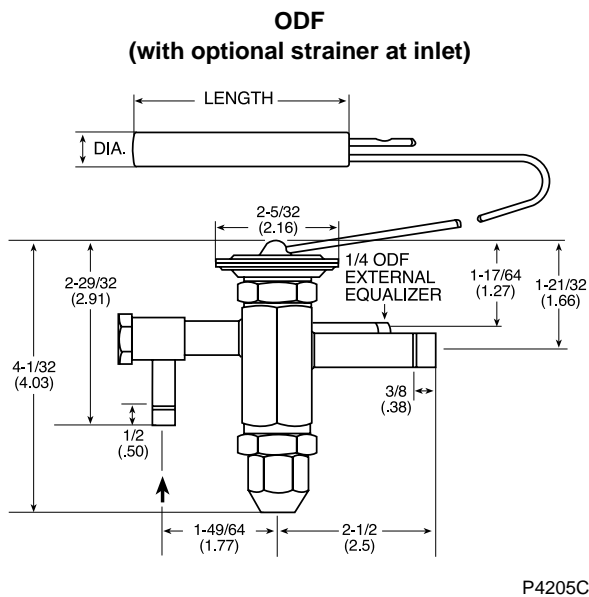
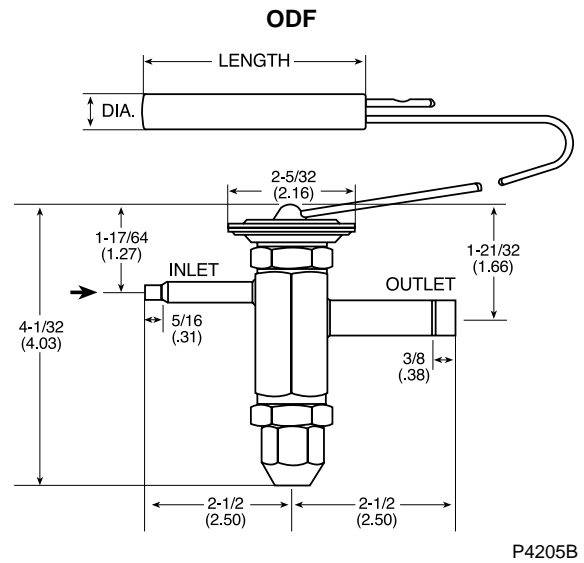
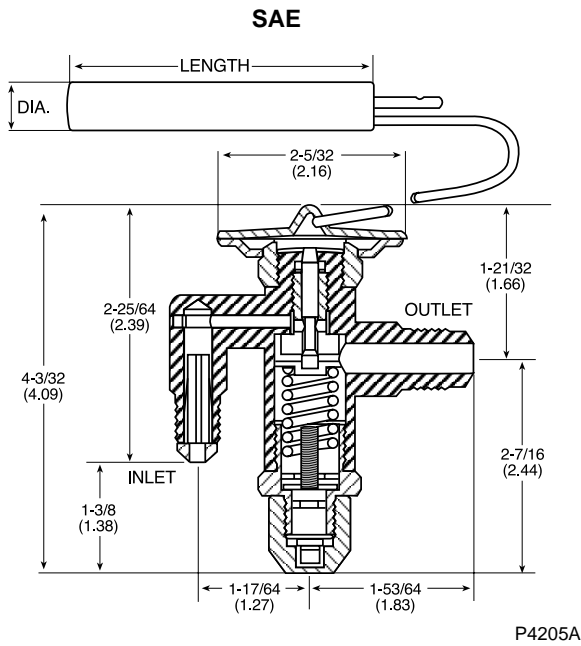
ALCO HFK KITS (For 1/4 to 5-1/2 Ton Applications (Nominal R-22))

Dimensional Data

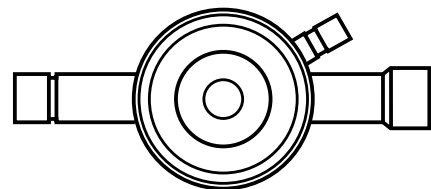
Dimensions shown are in inches: Fractions (Decimal).

Remote Bulb Dimensions		
Refrigerant Charge	Length	Dia.
C, G, L, Z	3-1/2 (3.50)	1/2 (.50)
CA	2-15/16 (2.31)	3/4 (.75)

NOTE: Remote Bulb Tubing Length 5' Standard.



ODF (Top View showing external equalizer location)



P4205D

THERMOSTATIC EXPANSION VALVE KITS

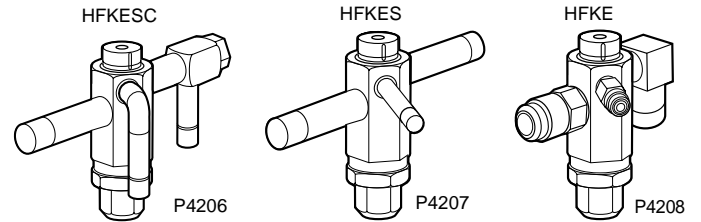
ALCO HFK KITS (For 1/4 to 5-1/2 Ton Applications (Nominal R-22))

HFK Selection Process

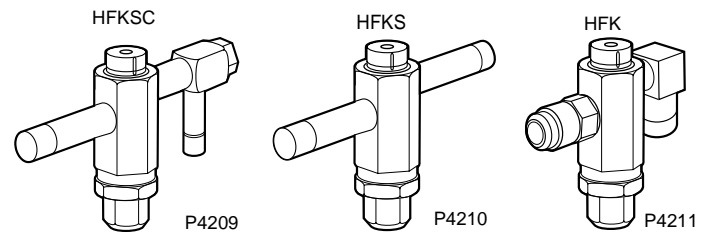
Step 1: Body Selection

Body Selection Table			
PCN*	P/N	Type	Connections (Inlet x Outlet)
064881	HFKKT-20298-1	HFK	1/4 x 1/2 SAE Ang Inlet
064882	HFKKT-20298-2	HFK	3/8 x 1/2 SAE Ang Inlet
064883	HFKKT-20298-3	HFKE	1/4 x 1/2 SAE Ang Inlet
064884	HFKKT-20298-4	HFKE	3/8 x 1/2 SAE Ang Inlet
064885	HFKKT-20298-5	HFKSC	3/8 x 1/2 ODF Ang Inlet w/Strainer
064886	HFKKT-20298-6	HFKESC	3/8 x 1/2 ODF Ang Inlet w/Strainer
064887	HFKKT-20298-7	HFKS	3/8 x 1/2 ODF S/T
064888	HFKKT-20298-8	HFKS	3/8 x 5/8 ODF S/T
064889	HFKKT-20298-9	HFKS	1/2 x 5/8 ODF S/T
064890	HFKKT-20298-10	HFKS	1/2 x 7/8 ODF S/T
064891	HFKKT-20298-11	HFKES	3/8 x 1/2 ODF S/T
064892	HFKKT-20298-12	HFKES	3/8 x 5/8 ODF S/T
064895	HFKKT-20298-13	HFKES	1/2 x 5/8 ODF S/T
064896	HFKKT-20298-14	HFKES	1/2 x 7/8 ODF S/T

*Product Code Number.



ODF (EXTERNALLY EQUALIZED)



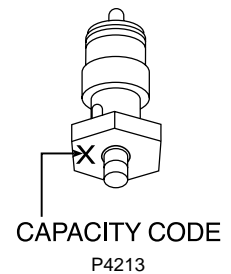
ODF (INTERNALLY EQUALIZED)

Step 2: Cage Selection

Cage Capacity Table (Nominal)									
PCN*	P/N ¹	Cage Code	R-12	R-22	R-134a	R-404	R-507	R-502	R-407C
064868	HFKKT-20299-0	0	1/8	1/4	1/4	1/8	1/8	1/8	1/4
064869	HFKKT-20299-1	1	1/4	1/2	1/2	1/4	1/4	1/4	1/2
064870	HFKKT-20299-2	2	1/2	1	3/4	1/2	1/2	1/2	1
064871	HFKKT-20299-3	3	1	1-1/2	1	1	1	1	1-1/2
064872	HFKKT-20299-4	4	1-1/4	2	1-1/2	1-1/4	1-1/4	1-1/4	2
064873	HFKKT-20299-5	5	1-1/2	2-1/2	1-3/4	1-1/2	1-1/2	1-1/2	2-1/2
064874	HFKKT-20299-6	6	2	3	2-1/2	2	2	2	3
064875	HFKKT-20299-7	7	3-1/2	5-1/2	4	3-1/2	3-1/2	3-1/2	5-1/2

*Product Code Number.

¹Cage Kit includes Cage, Insertion Tool and ID clips.

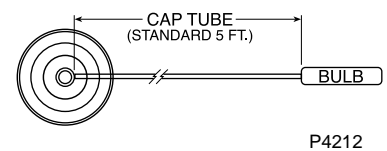


Step 3: Power Element Selection

Power Element Table ¹			
PCN*	P/N	System Refrigerant(s)	Application
054798	X26300-FW35-1	R-12/R-134a	Low Temp MOP
057764	X26300-HW100-1	R-22/R-407C	AC MOP
057834	X26300-HCA-1	R-22/R-407C	Heat Pump
058085	X26300-SW45-1	R-404/R-507/R-502	Low Temp MOP
053763	X26300-FC-1	R-12/R-134a	Medium Temp
053764	X26300-HC-1	R-22/R-407C	A/C Med. Temp
058083	X26300-SC-1	R-404/R-507/R-502	Medium Temp
053766	X26300-FZ-1	R-12/R-134a	Low Temp
053767	X26300-HZ-1	R-22/R-407C	Low Temp
058082	X26300-SZ-1	R-404/R-507/R-502	Low Temp

*Product Code Number.

¹Additional power element charges available, call for availability.



P4212

THERMOSTATIC EXPANSION VALVE KITS

ALCO HFK KITS (For 1/4 to 5-1/2 Ton Applications (Nominal R-22))

HFK Assembly Procedure

(see 6 assembly steps and diagrams at right)

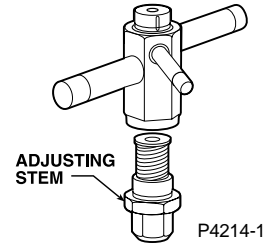
1. Remove adjusting stem from body.
2. Lubricate o-rings on cage.
3. Place cage into insertion tool (using 1/4-in. nut driver) and insert into body (do not overtighten).
4. Screw adjusting stem into bottom of body and hand tighten plus one wrench flat.
(300-360 inch lbs — do not overtighten.)
5. Attach cage identification clip on power element cap tube.
6. Screw power element onto top of body and hand tighten plus one wrench flat.
(300-360 inch lbs — do not overtighten.)

HFK Pre-Packaged Kits

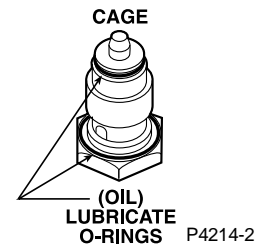
The HFK is available in a pre-packaged kit consisting of a mix of popular bodies and power elements with a complete selection of cages. These kits provide great flexibility allowing valves to be assembled as needed for each application. Three kits are provided as shown below. In addition, custom kits can be assembled by stocking an empty kit case with desired components.

SAE KIT (ALC-064876)		ODF KIT (ALC-064877)	
Item	Qty	Item	Qty
HFK 1/4 x 1/2 Body	1	HFKSC 3/8 x 1/2 Body	1
HFK 3/8 x 1/2 Body	1	HFKE 3/8 x 1/2 Body	1
HFKE 3/8 x 1/2 Body	2	HFKESC 3/8 x 1/2 Body	2
FC Power Element	2	FC Power Element	2
HC Power Element	1	HC Power Element	1
HZ Power Element	1	HZ Power Element	1
SZ Power Element	2	SZ Power Element	2
Cage Kit (PCN 064879)	1	Cage Kit (PCN 064879)	1
ODF/SAE MIX KIT (ALC-064878)		CAGE KIT (ALC-064879)	
Item	Qty	Item	Qty
HFK 3/8 x 1/2 Body	1	Size 0 Cage (1/4 ton R-22)	2
HFKE 3/8 x 1/2 Body	1	Size 1 Cage (1/2 ton R-22)	2
HFKSC 3/8 x 1/2 Body	1	Size 2 Cage (1 ton R-22)	2
HFKESC 3/8 x 1/2 Body	1	Size 3 Cage (1-1/2 ton R-22)	2
FC Power Element	2	Size 4 Cage (2-1/2 ton R-22)	2
HC Power Element	1	Size 5 Cage (3 ton R-22)	2
HZ Power Element	1	Size 6 Cage (5-1/2 ton R-22)	2
SZ Power Element	2	Insertion Tool	1
Cage Kit (PCN 064879)	1	Oil Bottle	1
		Cage ID Tags	—

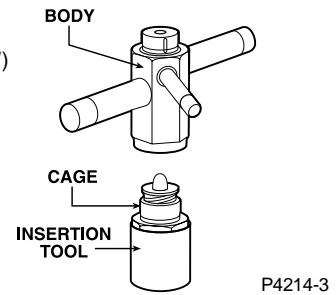
1 — REMOVE ADJUSTING STEM



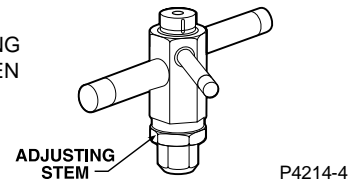
2 — LUBRICATE O-RINGS



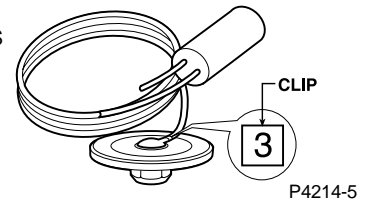
3 — INSERT CAGE (CW)



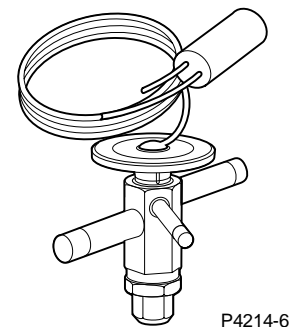
4 — INSTALL ADJUSTING STEM AND TIGHTEN (CW)



5 — INSTALL CLIP. SNAPS ON CAP TUBE

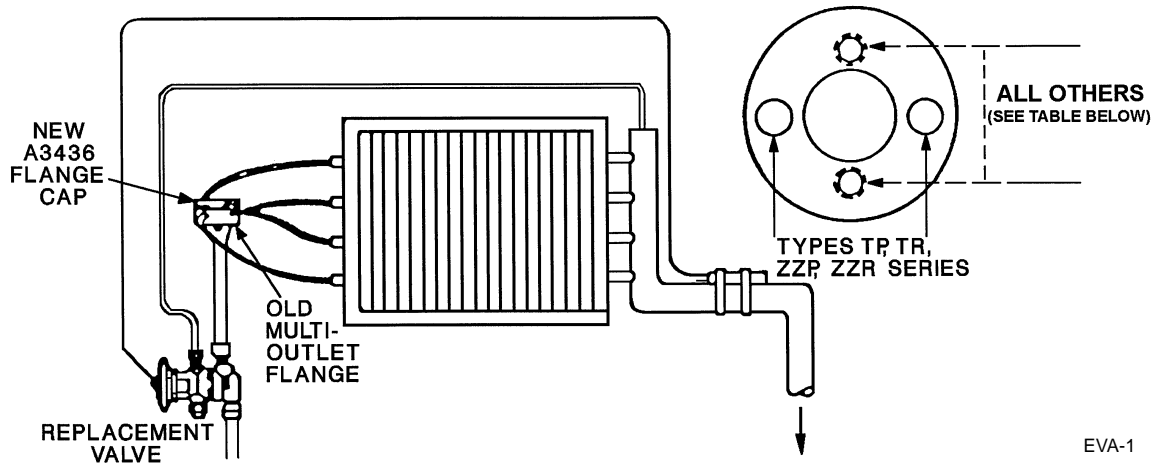


6 — INSTALL ELEMENT (CW) AND TIGHTEN



EXPANSION VALVE ACCESSORIES

ALCO REPLACEMENT FLANGE CAP FOR OBSOLETE ALCO MULTI-OUTLET VALVES



Occasionally it becomes necessary to replace outdated or obsolete ALCO multi-outlet Thermo® Valves. Where replacements are not readily available, the following procedure may be followed.

1. Remove multi-outlet cage and power assembly, save capscrews.
2. Install flange cap A3436 and flange gasket A625-A4 (packaged with A3436).
3. Move backward a few inches, cut the liquid line, and install a standard externally equalized single outlet Take-A-Part Thermo® Valve properly selected for an equivalent capacity and refrigerant to that of the old multi-outlet valve.
4. Attach the remote bulb of the new valve and connect the external equalizer in a standard manner.

The capped multi-outlet flange effectively serves as an adequate refrigerant distributor.

REPLACEMENT FLANGE CAP FOR MULTI-OUTLET THERMO VALVES

OBSOLETE VALVE TYPES	FLANGE CAP #	PCN*
TN, TO, TOC, TU, TV, TS, TP, TR	A3436	026516
ZZU, ZZO, ZZS, ZZP, ZZR		

Standard product offering.

*Product code number.

For additional information, contact your nearest ALCO wholesaler, ALCO representative or the ALCO Application Engineering Department.

EXPANSION VALVE CROSS REFERENCE

THERMOSTATIC EXPANSION VALVE CROSS REFERENCE INTERCHANGEABLE ORIFICE

Nominal Capacity (tons)	Connection	ALCO		SPORLAN				PARKER		VIRGINIA		SINGER		DANFOSS		TOTALINE REPLACEMENT		
														Type	Orifice P/N	P/N Body	P/N Orifice	Conn. In/out (in.)
R-12 INT. PRESSURE EQUALIZING																		
1/3	flare	HCE1/4FW	RCDE1/2FW	NIF1/4	FF1/4	GF1/4		DF1/4	RA1/4FA	223FA1/4	228FA1/4	TF 2	01	P530-C10000FCD	P532-1010	3/8 x 1/2		
1/2		HCE1/2FW	RCDE1/2FW	NIF1/2	FF1/2	GF1/2	CF1/2	DF1/2	RA1/2FA	223FA1/2	228FA1/2	TF 2	02		P532-1020	3/8 x 1/2		
1		HCE1FW	RCDE1FW	NIF1	FF1	GF1	CF1	DF1	RA1FA	223FA1	228FA1	TF 2	03		P532-1030	3/8 x 1/2		
1-1/2		HCE11/2FW	RCDE11/2FW			GF11/2		DF11/2	RA11/2FA	223FA11/2		TF 2	04		P532-1040	3/8 x 1/2		
2		HG2FW	RCDE2FW		CF2			DF2	RA2FA	223FA2	228FA2	TF 2	05		P532-1050	3/8 x 1/2		
3		HC3FW	RCDE3FW		CF21/2			DF3	RA3FA	223FA3		TF 2	06		P532-1060	3/8 x 1/2		
EXT. PRESSURE EQUALIZING																		
1/3	flare	HCE1/4FW	RCDE1/4FW						RAE1/4FA			TEF 2	01	P530-CE0000FCD	P532-1010	3/8 x 1/2		
1/2		HCE1/2FW	RCDE1/2FW	GFE1/2			CFE1/2	DFE1	RAE1/2FA	223FEA1/2	228FEA1/2	TEF 2	02		P532-1020	3/8 x 1/2		
1		HCE1FW	RCDE1FW	GFE1			CFE1	DFE1	RAE1FA	223FEA1	228FEA1	TEF 2	03		P532-1030	3/8 x 1/2		
1-1/2		HCE11/2FW	RCDE11/2FW	GFE11/2			CFE11/2	DFE11/2	RAE11/2FA	223FEA11/2		TEF 2	04		P532-1040	3/8 x 1/2		
2		HCE2FW	RCDE2FW	GFE2	CFE2		CFE2	DFE2	RAE2FA	223FEA2	228FEA2	TEF 2	05		P532-1050	3/8 x 1/2		
3		HCE3FW	RCDE3FW		CFE21/2			DFE3	RAE3FA	223FEA3		TEF 2	06		P532-1060	3/8 x 1/2		
R-22 INT. PRESSURE EQUALIZING																		
1/2	flare	HC1/2HW	RCDE1/2HW	NIV1/2	FV1/2	GV1/2	CV1/2	DV1/2	RA1/2HA	223VA1/2		TX 2	01	P530-C10000HCD	P532-1010	3/8 x 1/2		
1		HC1HW	RCDE1HW	NIV1	FV1	GV1	CV1	DV1	RA1HA	223VA1		TX 2	02		P532-1020	3/8 x 1/2		
1-1/2		HC11/2HW	RCDE11/2HW			GV11/2		DV11/2	RA11/2HA	223VA11/2		TX 2	03		P532-1030	3/8 x 1/2		
2-1/2		HC2HW	RCDE2HW			GV21/2		DV21/2	RA21/2HA	223VA21/2		TX 2	04		P532-1040	3/8 x 1/2		
3		HC3HW	RCDE3HW		CV3			DV3	RA3HA	223VA3		TX 2	05		P532-1050	3/8 x 1/2		
4-1/2		HC5HW	RCDE5HW		CV4		CV4	DV4	RA41/2HA			TX 2	06		P532-1060	3/8 x 1/2		
EXT. PRESSURE EQUALIZING																		
1/2	flare	HCE1/2HW	RCDE1/2HW	GVE1/2			CVE1	DVE1	RAE1/2HA	223VEA1/2		TEX 2	01	P530-CE0000HCD	P532-1010	3/8 x 1/2		
1		HCE1HW	RCDE1HW	GVE1			CVE1	DVE1	RAE1HA	223VEA1		TEX 2	02		P532-1020	3/8 x 1/2		
1-1/2		HCE11/2HW	RCDE11/2HW	GVE11/2			CVE11/2	DVE11/2	RAE11/2HA	223VEA11/2		TEX 2	03		P532-1030	3/8 x 1/2		
2-1/2		HCE2HW	RCDE2HW	GVE2			CVE2	DVE21/2	RAE21/2HA	223VEA21/2		TEX 2	04		P532-1040	3/8 x 1/2		
3		HCE3HW	RCDE3HW	GVE3	CVE3		CVE4	DVE3	RAE3HA	223VEA3		TEX 2	05		P532-1050	3/8 x 1/2		
4-1/2		HCE5HW	RCDE5HW		CVE4		CVE5	DVE4	RAE41/2HA	223VEA4		TEX 2	06		P532-1060	3/8 x 1/2		
R-502 INT. PRESSURE EQUALIZING																		
1/3	flare	HC1/4RW	RCDE1/4RW	ACX1/4RW	NIR1/4	FR1/4	GR1/4	CR1/4	DR1/4	RA1/4RA	223RA1/4	TY 2	01	P530-C10000RCD	P532-1010	3/8 x 1/2		
1/2		HC1/2RW	RCDE1/2RW	ACX1/2RW	NIR1/2	FR1/2	GR1/2	CR1/2	DR1/2	RA1/2RA	223RA1/2	TY 2	02		P532-1020	3/8 x 1/2		
1		HC1RW	RCDE1RW	ACX1RW	NIR1	FR1	GR1	CR1	DR1	RALRA	223RA1	TY 2	03		P532-1030	3/8 x 1/2		
1-1/2		HC11/2RW	RCDE11/2RW	ACX11/2RW			GR11/2		DR11/2	RA11/2RA	223RA11/2	TY 2	04		P532-1040	3/8 x 1/2		
2		HC2RW	RCDE2RW	ACX2RW			CR2	CR2	DR2	RA2RA	223RA2	TY 2	05		P532-1050	3/8 x 1/2		
3		HC3RW	RCDE3RW				CR3	CR3	DR3	RA3RA	223RA3	TY 2	06		P532-1060	3/8 x 1/2		
EXT. PRESSURE EQUALIZING																		
1/3	flare	HCE1/4RW	RCDE1/4RW		GRE1/2			CRE1/4		RAE1/4RA	223REA1/4	TEY 2	01	P530-LE0000RCD	P532-1010	3/8 x 1/2		
1/2		HCE1/2RW	RCDE1/2RW		GRE1			CRE1/2		RAE1/2RA	223REA1/2	TEY 2	02		P532-1020	3/8 x 1/2		
1		HCE1RW	RCDE1RW		GRE1			CRE1	DRE1	RAE1RA	223REA1	TEY 2	03		P532-1030	3/8 x 1/2		
1-1/2		HCE11/2RW	RCDE11/2RW		GRE11/2				DRE11/2	RAE11/2RA	223REA11/2	TEY 2	04		P532-1040	3/8 x 1/2		
2		HCE2RW	RCDE2RW		GRE2	CRE2		CRE2	DRE2	RAE2RA	223REA2	TEY 2	05		P532-1050	3/8 x 1/2		
3		HCE3RW	RCDE3RW		GRE3	CRE3			DRE3	RAE3RA	223REA3	TEY 2	06		P532-1060	3/8 x 1/2		

EXPANSION VALVE CROSS REFERENCE

THERMOSTATIC EXPANSION VALVE CROSS REFERENCE FIXED ORIFICE

NOM. CAP. (tons)	ALCO	SPORLAN	PARKER	VIRGINIA	SINGER	TOTALINE REPLACEMENT*			
						Type	Conn. In x Out (in.)	Conn.	P/N
R-12 - INTERNAL EQUALIZER									
2	HCE2HW RCDE2FW	CFE2 CFE2 CFE2-1/2	C2FE2 DFE2	RAE2FA	223FEA2 228FEA2	TKEF3-2	3/8 x 1/2	Flare	P530-CE0200FCD
3	HCE3FW RCDE3FW	CFE2-1/2 CFE3	C3FE3 DFE3	RAE3FA	223FEA3	TKEF3-3	3/8 x 1/2		P530-CE0300FCD
R22 - INTERNAL EQUALIZER									
5	HC5HW RCD5HW	CV4CV5	C4V D4V C5V D5V	RA41/2HA		TKX3-5	3/8 x 1/2	Flare	P530-S10500HCD
71/2	TCL71/2HW					TKX8-71/2	5/8 x 7/8		P530-F10750HC35D
R22 - EXTERNAL EQUALIZER**									
3	HCE3HW RCDE3HW	GVE3 CVE3	DE3V DE21/2V	RAE3HA	223VEA3	TKEX3-3	3/8 x 1/2	Flare	P530-SE0300HCD
5	HCE5HW RCDE5HW	CVE4 CVE5	CE4V DE4V CE5V DE5V	RAE41/2HA	223VEA4 223VEA5	TKEX3-5	3/8 x 1/2		P530-SE0500HCD
71/2		CVE8	CE7V CE71/2V DE71/2V			TKEX8-71/2	1/2 x 5/8		P530-FE0750HCD
3	TCLE3HW	SVE3	SE2V RE21/2V	YAE3HA	328VEA3	TKEX3-3	3/8 x 5/8	Solder	P530-SE0300HC35D
5	TCLE5HW	SVE4 SVE5	SE4V RE4V	YAE4HA YAE5HA	328VEA4 328VEA5	TKEX3-5	1/2 x 5/8		P530-SE0500HC35D
71/2	TCLE71/2HW	SVEB	RE7V SE71/2V	YAE71/2HA	328VEA71/2 428VEA81/2	TKEX8-71/2	5/8 x 7/8		P530-FE0750HC35D
10	TCLE10HW TRAE10HW	SVE10 OVE10	RE9V	YAE10HA	407VEA10	TKEX8-10	5/8 x 7/8 5/8 x 1-1/8		P530-FE1000HC35D or P530-FE1000HC36D
12	TCLE12HW	PVE11	RE12V		407VEA12	TKEX8-12	5/8 x 1-1/8		P530-FE1200HC35D
15	TJR14HW TJLE1400HW TRAE15HW	OVE15 PVE16	RE15V		407VEA15	TKEX8-15	5/8 x 1-1/8		P530-FE1500HC35D
20	TJR18HW TJLE1800HW TRAE20HW	PVE20 OVE20	RE20V		419VEA19	TKEX20-20	7/8 x 1-1/8		P530-FE2000HC35D
25	TER22HW TER26HW				419VEA25	TKEX20-25	7/8 x 1-3/8		P530-FE2500HC35D
30	TRAE30HW TER35HW	OVE30				TKEX20-30	7/8 x 1-3/8		P530-FE3000HC35D
R502 - EXTERNAL EQUALIZER**									
2	HCE2RW RCDE2RW	GRE2 CRE2	CE2R DE2R	RAE2RA	223REA2	TKEY3-2	3/8 x 1/2	Flare	P530-CE0200RCD
3	HCE3RW RCDE3RW AAE21/2RW	CRE3	DE3R	RAE3RA	223REA3	TKEY3-3	3/8 x 1/2		P530-CE0300RCD
4	AAE31/2RW AAE41/2RW	CRE4	CE4R DE4R		223REA4	TKEY3-4	3/8 x 1/2		P530-CE0400RCD
6		CRE6	CE6R DE6R			TKEY8-6	1/2 x 5/8		P530-CE0600RCD

*Replacement valves are similar but not necessarily identical to original valve.

**External equalizer connection 1/41/4 SAE flare.

THERMOSTATIC EXPANSION VALVE QUICK SELECT

THERMO® EXPANSION VALVE QUICK SELECT GUIDES:

1/4 TO 20 TONS

OVER 20 TONS

APPLICATION	FEATURE	MODEL
SUPERMARKET CASES WALK-IN COOLERS ICE MACHINES	Interchangeable Cages, Flexibility	TI
	Serviceability, Balanced Port, Premium Performance	HF
	Economy, SAE only	AFA
	Economy, ODF	AA
COMMERCIAL HVAC	Stepper Motor Driven – Electronic	ESV
	Serviceability, Balanced Port, Premium Performance	HF
	Economy Performance, Hermetic	AA
RESIDENTIAL A/C	Take-A-Part, Flexibility	TCL
	Economy Performance, Hermetic	AA
HEAT PUMP	Economy Performance, Non-Adjustable	AN
	Reverse Flow, Internal Check	ANC
	Bi-Flow Expansion, Hermetic, Economy	BA/BN
	Bi-Flow Expansion, Serviceable, Premium Performance	HF
TRANSPORT REFRIGERATION	Bi-Flow Expansion, Serviceable, Premium Performance	TFE
	Serviceability, Balanced Port, Premium Performance	HF
	Take-A-Part, Flexibility, Adjustable Superheat	TCL
	Take-A-Part, Flexibility, Non-Adjustable Superheat	TLE
AMMONIA	Stepper Motor Driven – Electronic	ESV
ULTRA-LOW TEMP	Take-A-Part, Flexibility	TG
DESUPERHEATING LIQUID INJECTION	Take-A-Part, Flexibility	ZZ
	Economy, Hermetic, Temperature/Pressure Responsive	LA
ELECTRONIC	Take-A-Part, Flexibility, Temperature/Pressure Responsive	LCL
	Stepper Motor Driven, Hermetic	ESV

APPLICATION	FEATURE	MODEL
ROOFTOP HVAC INDUSTRIAL REFRIGERATION	Take-A-Part, Serviceability, Flexibility, Performance	TER
		TIR
		THR
		TMR
CHILLERS	Premium Performance	TRAE
	Wide Range Control Flange Mount, Solenoid Shut-Off	POS
	Take-A-Part, Serviceability, Flexibility, Performance	TER
		TIR
		THR
	Premium Performance	TMR
Electronic Stepper Driver	TRAE	
AMMONIA	Take-A-Part, Serviceability, Flexibility	ESV
		TG

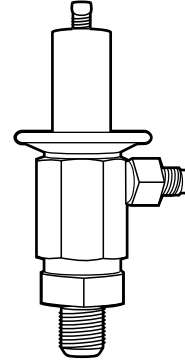
THERMO® EXPANSION VALVE QUICK SELECT GUIDE

APPLICATION	NOMINAL CAPACITY (R-22)	VALVE FAMILY	SERVICE REPLACEMENT	STYLE			CONNECTIONS		CONFIGURATION		PORT		ADJUST-ABLE SUPER-HEAT	INTERNAL CHECK
				Hermetic	Replace-able Power Element	Field Assembled	SAE	ODF	Angle	Straight	Conventional	Balanced		
AIR CONDITIONING AND REFRIGERATION	1/4 to 5	AA		X				X			X	X		
	1/4 to 5	AN		X				X	X	X	X			
	1/4 to 5	AAC	X	X				X		X	X	X	X	X
	1/4 to 5	ANC		X				X	X	X	X			X
	1/4 to 5	AFA	X	X			X	X	X	X	X		X	
	1/3 to 5	TI	X			X	X		X		X		X	
	1/2 to 6	BA		X				X		X		X	X	
	1/2 to 6	BN		X				X	X	X		X	X	
	1/4 to 5-1/2	HF	X		X	X	X	X	X	X	X	X	X	X
	1/4 to 5-1/2	HF			X		X	X	X	X		X	X	
	8 to 20	HF Ext			X				X	X	X	X	X	
	8 to 20	TF			X				X		X	X	X	
	1/2 to 12	TL				X	X	X	X	X	X			
	1/2 to 12	TCL	X			X	X	X	X	X	X		X	
	11 and 14	TJL	X			X	X	X	X	X	X		X	
	14 and 18	TJR	X			X	X	X	X	X	X		X	
	22 to 45	TER	X			X	X	X	X	X	X		X	
	55	TIR	X			X	X	X	X	X	X		X	
	70 and 85	THR	X			X	X	X	X	X	X		X	
	100	TMR				X	X	X	X	X	X		X	
10 to 40	TRAE+				X			X		X		X		
50 to 70	TRAE			X				X		X		X		
20 to 450	POS				X		Flange			X	N/A	X		
CONSTANT PRESSURE	1/2 to 5	ACP		X				X		X	X			
ELECTRICALLY DRIVEN	1 to 20	ESVB		X				X	X		N/A		N/A	
	1/4 to 4	EX2		X				X	X		N/A		N/A	
AMMONIA	1 to 40	TG			X		Flange			X	X	X		
ULTRA-LOW TEMP	3/4 to 8	ZZ			X		X	X	X	X	X	X		
DE-SUPERHEATING		LA		X				X		X	X	X		
		LCL			X		X	X	X	X	X	X		

AUTOMATIC VALVES

ALCO ACP(E) AUTOMATIC VALVE

ALCO's ACP is an Automatic Valve developed for small cooling units where the heat load is reasonably constant. The ACP is ideal for room air conditioners, domestic refrigerators, drink dispensers, food dispensers, ice cream cabinets, bottle coolers, home freezers, ice cube makers, ice cream freezers, and milk coolers.



P2025

FEATURES

- Small, compact size adapts to any installation
- Friction-free floating design
- Can be used as a small capacity hot gas bypass valve
- Covers multiple capacity ranges
- Fully adjustable from 0-80 psig
- Wrench flats on inlets and outlets
- Angle or straight-thru style
- Internal or external equalizer
- SAE or ODF connections
- Available with fixed setting/non-adjustable

SPECIFICATIONS

Safe working pressure: 450 psig
 Safe working temperature: 300° F

VALVE NOMENCLATURE			
ACP	E	6	1/4 x 3/8 ODF ANG
Valve Series	External Equalizer (optional)	Valve Code	Connection Size and Style

Example above: ACPE6 1/4 x 3/8 ODF ANG

VALVE TYPE P/N	R-134a TONS @ 60 psi Δ PRESSURE	R-22 TONS @ 100 psi Δ PRESSURE	R-404A/R-507 TONS @ 100 psi Δ PRESSURE	CONNECTIONS				STYLE	EQUALIZER CONNECTIONS
				ODF - Solder		SAE			
				Inlet	Outlet	Inlet	Outlet		
ACP(E)-1	.31	.44	.29						
ACP(E)-2	.41	.57	.38	1/4					
ACP(E)-3	.65	.91	.61		3/8	1/4			
ACP(E)-5	.90	1.30	.87	3/8	1/2	3/8	3/8 - 1/2	ANGLE OR ST. THRU	1/4" SAE OR 1/4" ODF
ACP(E)-7	1.40	1.96	1.31						
ACP(E)-8	1.90	2.67	1.78	1/2	5/8				
ACP(E)-9	2.30	3.28	2.19			1/2			
ACP(E)-9	2.70	3.75	2.50	5/8	7/8				
ACP(E)-9	3.80	5.32	3.55						

ACP EXTENDED CAPACITIES IN TONS R-134a, R-22, R4-04A & R-507

VALVE P/N	POINT SIZE	TONS R-134a					TONS R-22					TONS R-404A/R-507							
		Pressure Drop Across Valve – PSI																	
		60	80	100	125	150	100	125	150	175	200	225	100	125	150	175	200	225	250
ACP(E)-1	.047	.31	.36	.40	.45	.50	.44	.49	.54	.58	.62	.66	.29	.33	.36	.39	.41	.44	.46
ACP(E)-2	.039	.41	.47	.53	.59	.66	.57	.64	.70	.75	.81	.86	.38	.43	.47	.50	.54	.57	.60
ACP(E)-3	.101	.65	.75	.85	.94	1.00	.91	1.02	1.11	1.20	1.29	1.37	.61	.68	.74	.80	.86	.91	.96
ACP(E)-4	.113	.90	1.04	1.17	1.30	1.44	1.30	1.45	1.59	1.72	1.84	1.95	.87	.97	1.06	1.15	1.23	1.30	1.37
ACP(E)-5	.125	1.40	1.60	1.80	2.00	2.20	1.96	2.19	2.40	2.59	2.77	2.94	1.31	1.46	1.60	1.73	1.85	1.96	2.07
ACP(E)-6	.140	1.90	2.20	2.50	2.70	3.00	2.67	2.99	3.27	3.53	3.78	4.01	1.78	1.99	2.18	2.36	2.52	2.67	2.82
ACP(E)-7	.169	2.30	2.60	3.00	3.30	3.70	3.28	3.67	4.02	4.34	4.64	4.92	2.19	2.45	2.68	2.90	3.10	3.29	3.46
ACP(E)-8	.196	2.70	3.10	3.50	3.90	4.30	3.75	4.19	4.59	4.96	5.30	5.63	2.50	2.80	3.07	3.31	3.54	3.76	3.96
ACP(E)-9	.228	3.80	4.40	4.90	5.50	6.10	5.32	5.95	6.52	7.04	7.52	7.98	3.55	3.97	4.35	4.70	5.02	5.33	5.62

VALVE CAPACITIES SHOWN ARE BASED ON 100° F VAPOR FREE LIQUID ENTERING THE VALVE AND 40° F SATURATED EVAPORATOR TEMPERATURE. NOMINAL CAPACITIES ARE OULINED WITH A BOX BORDER.

AUTOMATIC VALVES

ALCO ACP(E) AUTOMATIC VALVE

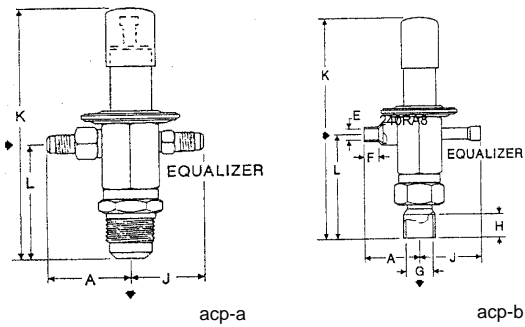
ACP HOT GAS CAPACITIES IN TONS R-134a, R-22, R-404A & R-507*

VALVE	R134a	R22	R404A/R507
	Pressure Drop Across Valve – PSI		
	80	125	135
ACP(E)-1	.05	.10	.08
ACP(E)-2	.07	.13	.10
ACP(E)-3	.12	.22	.18
ACP(E)-4	.17	.32	.26
ACP(E)-5	.28	.52	.42
ACP(E)-6	.37	.71	.57
ACP(E)-7	.53	.98	.80
ACP(E)-8	.62	1.15	.94
ACP(E)-9	.73	1.35	1.10

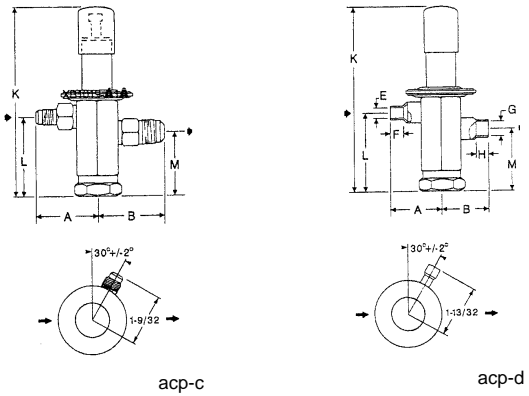
* CAPACITIES BASED UPON 40° F EVAPORATOR, 100°F CONDENSING, 25° F SUPERHEAT, ISOTROPIC COMPRESSION +50° F.

ACP DIMENSIONAL DATA

ACP ANGLE



ACP STRAIGHT-THRU



ACP ROUGH IN DIMENSION TABLE

ACP(E) VALVE TYPE	INLET	OUTLET	A	B	E DIA.	F MIN.	G DIA.	H MIN.	K	L	
ANGLE SAE	1/4	3/8	1- 1/2	--	.2540	.320	.3790	.320	4-1/2	2-1/8	
	3/8		1-41/64								
	1/2		1-23/32								
	1/4	3/8 - 1/2	1-1/2								
	3/8	5/8	1-41/64								
	1/2		1-23/32								
ANGLE ODF	1/4	3/8	1-1/4	--	.2540	.320	.3790	.380	4-35/64	2-11/64	
	3/8		1-3/16								
	1/2	5/8	1-3/8								
	5/8		1-3/8								
	1/4		1-1/4								
	3/8		1-3/16								
	1/4		1/2								1-1/4
	1/2		7/8								1-3/16
					.5040	.380	.6290	.500	4-47/64	2-23/64	
					.2540	.320	.3790	.320	4-35/64	2-11/64	
					.5040	.380	.8790	.750	5-7/64	2-47/64	

AUTOMATIC VALVES

ALCO ACP(E) AUTOMATIC VALVE

ACP ROUGH IN DIMENSION TABLE

ACP(E) VALVE TYPE	INLET	OUTLET	A	B	E DIA.	F MIN.	G DIA.	H MIN.	K	L	M
STRAIGHT-THRU SAE	1/4	3/8	1- 1/2	1-41/64							
	3/8		1-41/64								
	1/2	1/2	1-23/32	1-23/32							
	1/4		1-1/2								
	3/8	5/8	1-41/64	1-63/64							
	1/2		1-23/32								
STRAIGHT-THRU ODF	1/4	3/8	1-1/4	1-3/16	.2540	.320	.3790	.320	4-14	1-7/8	1-31/64
	3/8		1/2		1-3/16	.3790					
	1/2	5/8		1-3/8		1-3/8	.5040	.380			
			5/8		1-3/8		.6290	.500			
	1/4	1/2	1-1/4	1-3/16	.2540	.320	.6290	.500			
	3/8		1-3/16		.3790	.320					
	1/4	1/2	1-1/4	1-3/16	.2540	.320	.5040	.380			
	1/2	7/8	1-3/16	1-3/4	.5040	.380	.8790	.750			
	3/8				.3790	.320	.8790	.750			

HEAT RECLAIM VALVES

ALCO 4031RD 3-WAY SOLENOID VALVE FOR HEAT RECLAIM APPLICATIONS

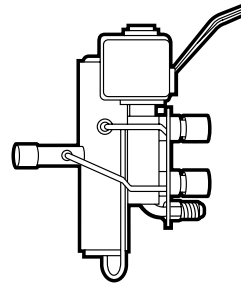
4031RD Series 3-Way Solenoid Valves are designed to meet the requirements of the high temperatures and pressures existing in compressor discharge gas applications. The 4031RD is designed specifically to divert discharge gas to an auxiliary condenser for heat reclaim applications.

Normal Operation:

When the solenoid coil is de-energized, the valve is in the normal operating mode and the refrigerant gas is diverted to the normal condenser. With the 3-way solenoid pilot de-energized, the slide is positioned so as to connect to ports "D1" with "B," and "A" with "S1." When the pilot is de-energized, high pressure discharge gas builds up on the end of the main slide. The other end of the main slide is isolated from the high pressure suction gas. The unbalance force, due to the difference between discharge and suction pressures acting on the full end area of the main slide holds the slide in the position as shown in Figure 1.

Heat Reclaim Operation:

When the solenoid is energized, the slide in the pilot solenoid valve shifts, now connecting pilot ports "D1" with "A," and "B" with "S1." With the pilot solenoid so positioned, the discharge pressure imposed on the other end of the main slide, will flow through the pilot solenoid valve to the suction side of the system. At the right end of the main slide, high pressure discharge gas will accumulate so as to increase the pressure. An unbalanced force in that direction is again due to the difference between discharge and suction pressures acting on opposite ends of the main slide. This unbalanced force moves the main slide to the position as shown in Figure 2 and the force unbalance across the area of the main slide holds the slide in the new position.

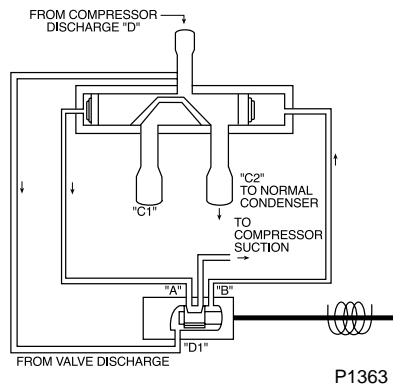


P1362

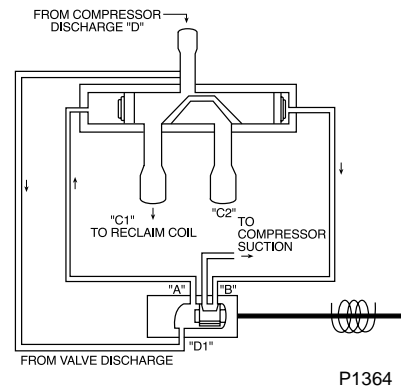
UL file number MP604
CSA file number LR3204

FEATURES

- Superior control in diverting discharge gas to an auxiliary condenser for heat reclaim
- All copper fittings for easy brazing
- High capacity, less pressure drop with higher system efficiency
- Operates in any position
- Rugged internal construction
- Long-life Molded Coils - water, chock, and vibration protection in coil winding



P1363



P1364

NOMENCLATURE

example: 4031RD BF 5 5

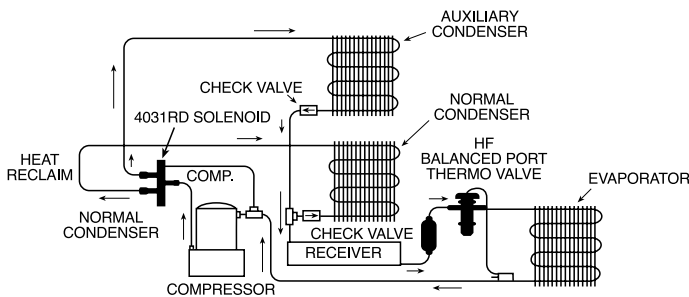
4031RD
Valve
Series

B
Valve
Size

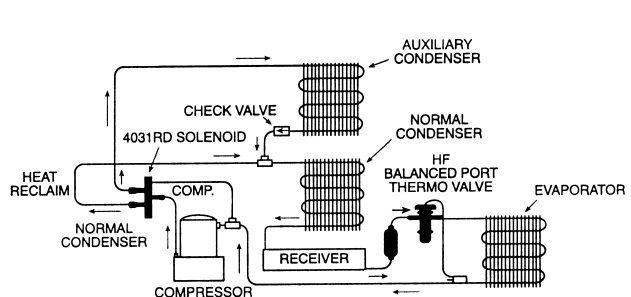
F
ODF

5
Inlet Connection
(in 1/8")

5
Outlet Connection
(in 1/8")



P1365

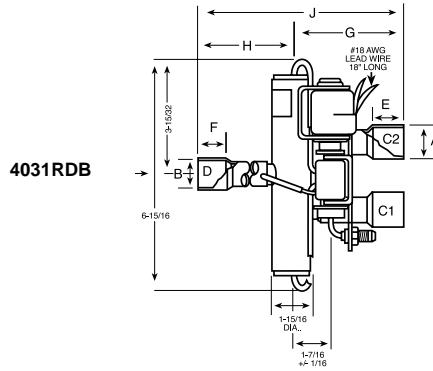


P1366

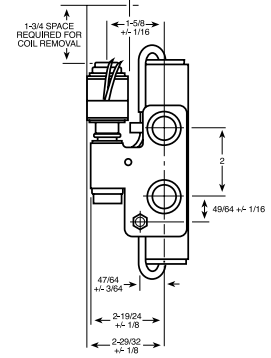
ALCO Heat Reclaim Valves provide superior control whether your condensers are parallel or in series. Flow through auxiliary condenser is accomplished when the 4031RD is energized.

HEAT RECLAIM VALVES

ALCO 4031RD DIMENSIONAL DATA

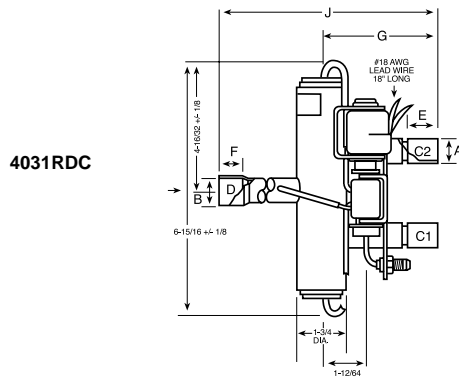


P1367

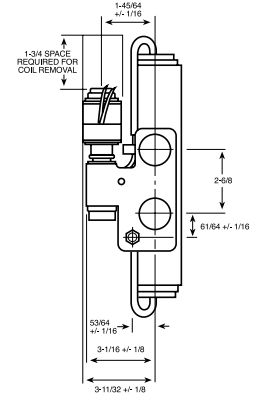


P1368

VALVE	INLET D	OUTLET C1, C2	A	B	E	F	G	H	J
4031RDBF 5 5	5/8 ODF	5/8 ODF	5/8	5/8	5/8	5/8	3-1/4	2-5/8	5-7/8
4031RDBF 7 7	7/8 ODF	7/8 ODF	7/8	7/8	7/8	7/8	3-1/4	3-3/4	7-63/64



P1369



P1370

4031RD DISCHARGE GAS EXTENDED CAPACITY TABLE - TONS

VALVE TYPE	EVAPORATOR TEMP °F	PRESSURE DROP ACROSS VALVE - PSI														
		R-134A					R-22					R-404A/R-507				
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
4031RDBF 5 5	40	2.8	4.0	4.8	5.5	6.1	4.1	5.8	7.0	8.2	9.0	3.3	4.5	5.6	6.5	7.2
	20	2.6	3.7	4.5	5.2	5.8	3.9	5.4	6.6	7.6	8.4	3.0	4.2	5.2	5.8	6.6
	0	2.4	3.4	4.3	4.9	5.5	3.6	5.1	6.1	7.1	8.0	2.8	3.9	4.7	5.5	6.1
	-20	2.3	3.2	3.9	4.5	5.0	3.4	4.7	5.8	6.7	7.5	2.5	3.5	4.3	5.0	5.5
	-40	2.1	2.9	3.6	3.9	4.6	3.1	4.5	5.4	6.3	7.0	2.2	3.2	3.9	4.4	4.8

All capacities shown are at 40° F Evaporator Temperature. For other temperatures, refer to correction factor tables.

REVERSING VALVES

ALCO 401RD 4-WAY STEEL REVERSING VALVE

FOR REVERSE CYCLE SYSTEMS

ALCO 401RD Series 4-Way Reversing Valves are designed for use on energy-conserving, reverse-cycle comfort systems.

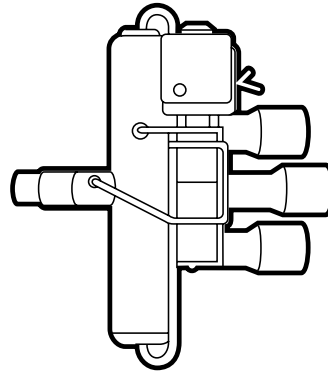
Heating Cycle (see Figure 1)

The system is on heating cycle with discharge gas flowing through ports "D" to "C2," making the indoor coil the condenser. The suction gas is flowing from the outdoor coil (evaporator) through reversing ports "C1" to "S" and back to the compressor. With the 4-way solenoid pilot de-energized, the slide's position connects the port "D1" to "B" and "A" to "S1."

Cooling Cycle (see Figure 2)

When the coil is energized, the slide in the pilot solenoid valve shifts, now connecting pilot ports "D1" to "A" and "B" to "S1." The system has now changed over to the cooling cycle with the discharge gas flowing through reversing valve ports "D" to "C1," making the outdoor coil the through port "C2" to "S," thus making the indoor coil the evaporator.

CAUTION: Depending on the manner in which the reversing valve is piped into the system, power failure to the pilot solenoid valve coil will cause the system to "fail-safe" on either the heating or cooling cycle. In the diagrams shown below, the valve is piped to fail-safe on heating. In order to fail-safe on cooling, the indoor coil would be connected to the reversing valve port "C" and the outdoor coil connected to port "C2."



P1371

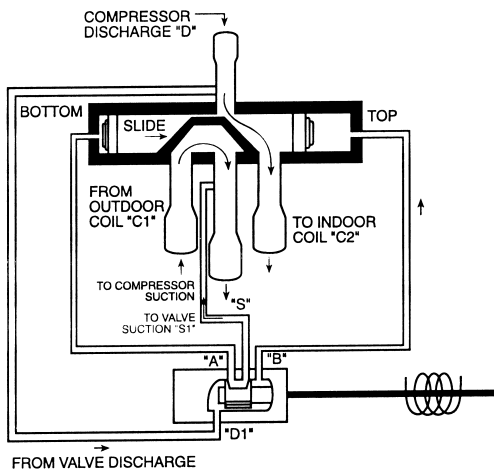
UL file number MP604
CSA file number LR44912

FEATURES

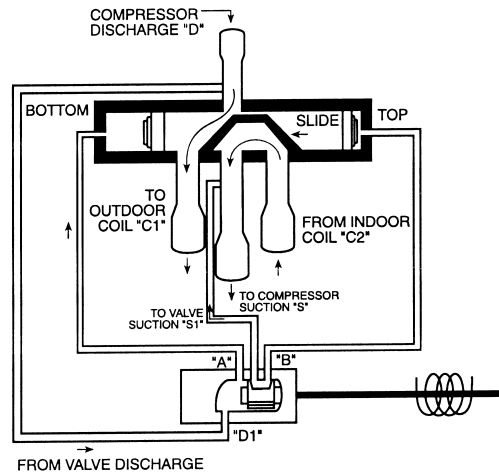
- High efficiency and higher capacity through suction and discharge
- All stainless steel pilot enclosing tube for longer life
- Connections to fit your system

SPECIFICATIONS

- Maximum safe working pressure: 500 PSIG
- Compatible with R-134a, R-22, R-404A, R-507, and the new CFC, HCFC, and HFC refrigerants
- MOPD: 400 PSIG
- Coil style: Open frame



P1372



REVERSING VALVES

NOMENCLATURE

example: 401RD 6F46

401R
Valve
Series

D
Design
Series

1
Nominal Rating
(in tons)

F
F = ODF
connections

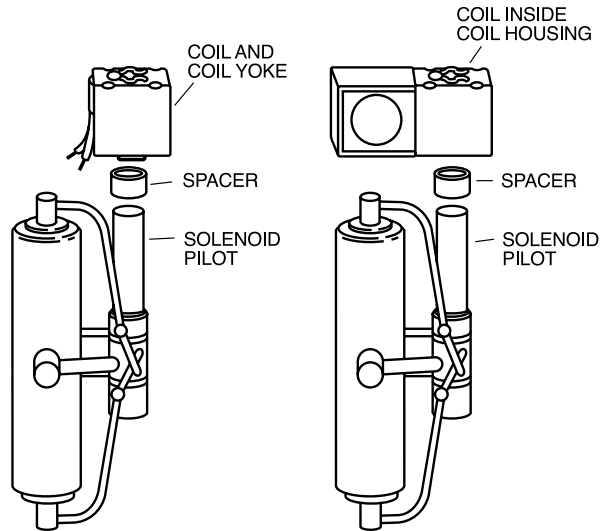
3
Discharge Connection (in 1/8")

5
Outlet Connection
(in 1/8")

410R CAPACITY TABLE

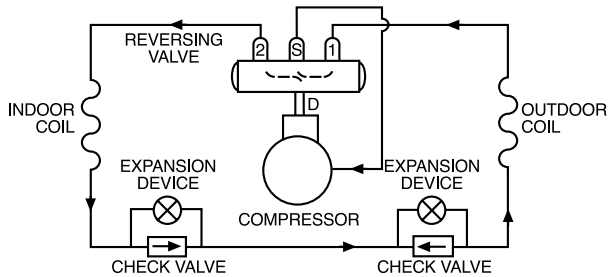
VALVE TYPE	NOMINAL CAPACITIES*		
	R-134a	R-22	R-404A/R-507
401RD1	0.9	1.5	1.1
401RD10	7.2	11.5	8.7
401RB15		15.2	

*Based on 100° F condensing temperature, 40° F evaporator and a 2 PSI pressure drop across the valve suction ports.

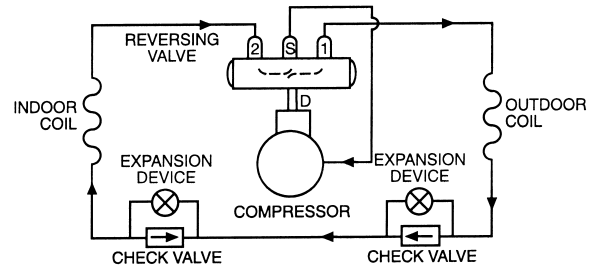


P1374

TYPICAL 401R PIPING DIAGRAM



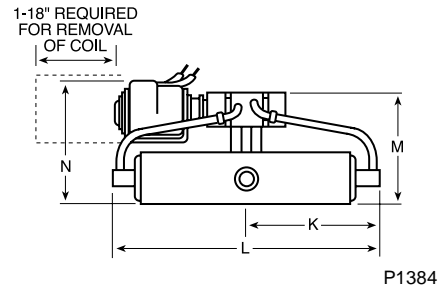
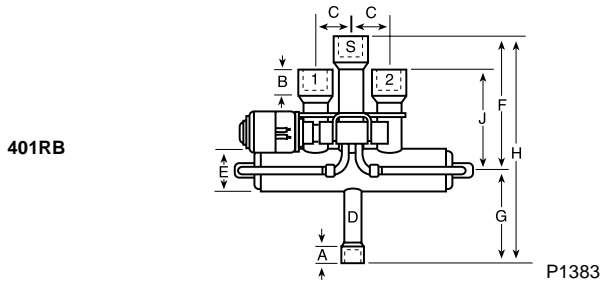
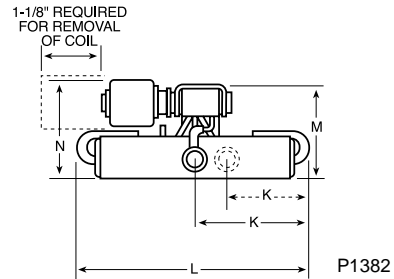
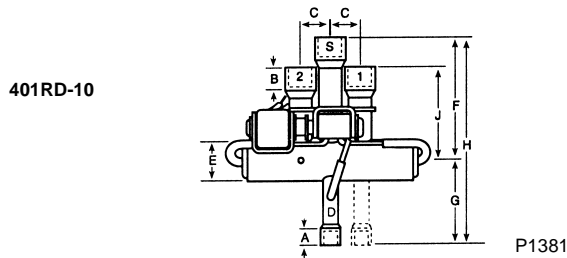
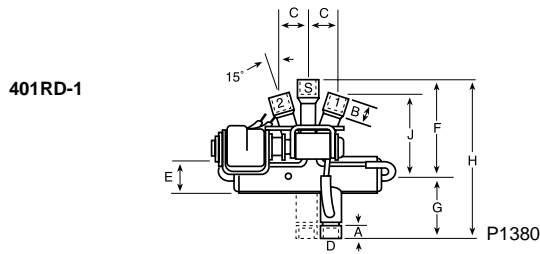
P1375



P1376

REVERSING VALVES

ALCO 401R DIMENSIONAL DATA



VALVE TYPE NUMBER	CAPACITY* (tons)	CONNECTIONS		A	B	C	E	F	G	H	J	K	L	M	N
		Discharge	"1", "S", "2"												
401RD134	1.5	3/8 ODM	1/2 ODF	1/2	1/2	5/8	1-1/8	2-13/16	1-15/16	4-3/4	2-5/16	2-25/32	5-9/16	2-31/64	2-41/64
401RD1F34	1.5	3/8 ODF	1/2 ODF	1/2	1/2	5/8	1-1/8	2-13/16	1-15/16	4-3/4	2-5/16	2-25/32	5-9/16	2-31/64	2-41/64
401RD135	1.5	3/8 ODM	5/8 ODF	1/2	5/8	55/64	1-1/8	2-7/8	1-15/16	4-13/16	2-11/32	2-25/32	5-9/16	2-31/64	2-41/64
401RD1F35	1.5	3/8 ODF	5/8 ODF	1/2	5/8	55/64	1-1/8	2-7/8	1-15/16	4-13/16	2-11/32	2/25/32	5-9/16	2-31/64	2-41/64
401RD10F46	11.5	1/2 ODF	3/4 ODF	7/16	11/16	1-5/16	1-3/4	3-7/8	3-7/32	7-3/32	3-3/8	4-15/32	8-15/16	3-1/16	3-11/32
401RD10F47	11.5	1/2 ODF	7/8 ODF	7/16	13/16	1-5/16	1-3/4	3-7/8	3-7/32	7-3/32	3-3/8	4-15/32	8-15/16	3-1/16	3-11/32
401RD10F49	11.5	1/2 ODF	1-1/8 ODF	7/16	31/32	1-5/16	1-3/4	3-7/8	3-7/32	7-3/32	3-3/8	4-15/32	8-15/16	3-1/16	3-11/32
401RD10F57	11.5	5/8 ODF	7/8 ODF	9/16	13/16	1-5/16	1-3/4	4-3/8	4-3/8	8-3/4	4-3/8	4-15/32	8-15/16	3-1/16	3-11/32
401RD10F59	11.5	5/8 ODF	1-1/8 ODF	9/16	31/32	1-5/16	1-3/4	3-7/8	3-7/32	7-3/32	3-3/8	4-15/32	8-15/16	3-1/16	3-11/32
401RD1067	11.5	3/4 ODM	7/8 ODF	3/4	13/16	1-5/16	1-3/4	3-7/8	3-7/32	7-3/32	3-3/8	4-15/32	8-15/16	3-1/16	3-11/32
401RD10F67	11.5	3/4 ODF	7/8 ODF	11/16	13/16	1-5/16	1-3/4	3-7/8	3-7/32	7-3/32	3-3/8	4-15/32	8-15/16	3-1/16	3-11/32
401RD1069	11.5	3/4 ODM	1-1/8 ODF	3/4	31/32	1-5/16	1-3/4	3-7/8	3-7/32	7-3/32	3-3/8	4-15/32	8-15/16	3-1/16	3-11/32
401RD10F69	11.5	3/4 ODF	1-1/8 ODF	11/16	31/32	1-5/16	1-3/4	3-7/8	3-7/32	7-3/32	3-3/8	4-15/32	8-15/16	3-1/16	3-11/32
4011079	11.5	7/8 ODM	1-1/8 ODF	—	31/32	1-5/16	1-3/4	3-7/8	3-7/32	7-3/32	3-3/8	4-15/32	8-15/16	3-1/16	3-11/32
401RD10F79	11.5	7/8 ODF	1-1/8 ODF	13/16	31/32	1-5/16	1-1/2	3-7/8	3-7/32	7-3/32	3-3/8	4-15/32	8-15/16	3-1/16	3-11/32
401RD10611	11.5	3/4 ODM	1-3/8 ODM	3/4	1-1/32	1-1/2	1-1/2	5-57/64	3-7/32	9-7/64	4-35/64	4-15/32	8-15/16	3-1/16	3-11/32
401RD10F711	11.5	7/8 ODF	1-1/8 ODF	13/16	1-1/32	1-1/2	1-1/2	5-57/64	4	9-57/64	4-35/64	4-15/32	8-15/16	3-1/16	3-11/32
401RB15F711	15.2	7/8 ODF	1-3/8 DF	7/8	3/4	1-5/8	1-29/32	5-1/2	4	9-1/2	4-1/2	4-1/2	9	2-61/64	2-7/32
401RB15F911	15.2	1-1/8 ODF	1-3/8 ODF	1-1/8	29/32	1-5/8	1-29/32	5-1/2	4	9-1/2	4-1/2	4-1/2	9	2-61/64	2-7/32

*Nominal Capacity R-22. All capacities shown are at 40° F Evaporator Temperature. For other temperatures refer to correction factor tables.

REVERSING VALVES

401R SUCTION GAS EXTENDED CAPACITY TABLE - TON

VALVE TYPE	EVAPORATOR TEMP °F	PRESSURE DROP ACROSS VALVE - PSI														
		R-134a					R-22					R-404A/R-507				
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
401RD1	40	.66	.91	1.1	1.2	1.3	1.0	1.5	1.7	1.9	2.1	.70	1.1	1.4	1.6	1.8
401RD10		5.2	7.2	8.6	9.8	10.6	7.8	11.5	13.1	15.1	16.7	5.5	8.7	10.9	12.5	14.1
401RB15		8.6	11.5	13.9	16.3	17.3	10.4	15.2	17.6	20.0	22.0	6.8	10.9	13.5	15.6	17.4
401RD1	20	.52	.71	.86	.97	1.1	.80	1.1	1.3	1.5	1.7	.58	.89	1.1	1.3	1.4
401RD10		4.1	5.6	6.7	7.6	8.2	6.3	8.8	10.5	11.9	13.2	4.6	7.0	8.6	9.9	10.9
401RBD15		6.7	9.1	11.0	12.5	14.4	8.8	11.6	14.0	15.6	17.6	5.6	8.6	10.6	12.2	13.5
401RD1	0	.41	.55	.65	.73	.78	.65	.85	1.0	1.2	1.3	.47	.69	.63	.96	1.1
401RD10		3.2	4.3	5.1	5.7	6.1	5.1	6.7	8.2	9.2	10.1	3.7	5.5	6.6	7.5	8.3
401RB15		5.3	7.2	8.2	9.1	9.6	6.8	8.8	10.8	12.0	13.6	4.5	6.5	7.9	9.0	9.9
401RD	-20	.30	.40	.47	.51	.52	.49	.65	.77	.86	.94	.37	.52	.63	.71	.77
401RD10		2.4	3.2	3.7	4.0	4.1	3.8	5.1	6.1	6.8	7.4	2.9	4.1	5.0	5.6	6.1
401RB15		3.8	5.3	5.8	6.2	6.7	5.2	6.8	8.0	8.8	10.0	3.5	4.9	5.9	6.7	7.3

Valve capacities are based on 100° F condensing temperature. For temperatures other than 100° F, use the multiplier factors below.

CONDENSING TEMPERATURE	70	80	90	100	110	120	130	140
MULTIPLIER	1.15	1.10	1.05	1.00	.95	.90	.85	.80

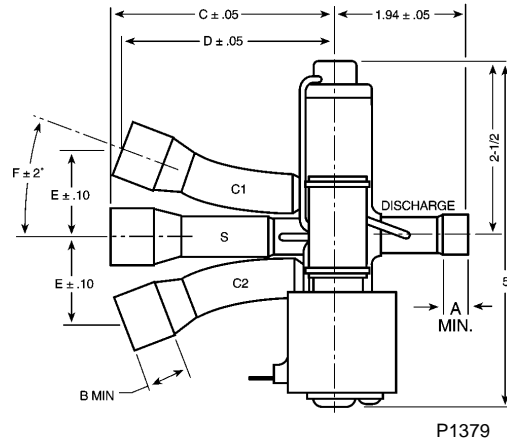
RV SUCTION GAS EXTENDED CAPACITY TABLE — TONS R-22

VALVE TYPE	EVAPORATOR TEMP °F	PRESSURE DROP ACROSS VALVE - PSI				
		R-22				
		1	2	3	4	5
RV2	45	1.66	2.35	2.87	3.32	3.71
RV3		2.23	3.15	3.86	4.46	4.99
RV4		3.14	4.44	5.44	6.28	7.02
RV2	25	1.36	1.92	2.35	2.71	3.03
RV3		1.82	2.58	3.16	3.65	4.08
RV4		2.57	3.63	4.45	5.13	5.74
RV2	5	1.09	1.54	1.88	2.06	2.27
RV3		1.46	2.07	2.53	2.78	3.02
RV4		2.57	3.63	4.45	5.13	5.74
RV2	-15	0.86	1.21	1.39	1.56	1.70
RV3		1.15	1.63	1.87	2.06	2.19
RV4		1.62	2.29	2.61	2.89	3.10

Valve capacities are based on 120° F liquid saturated evaporator, and 10° F superheat at the valve inlet.

REVERSING VALVES

ALCO RV2 AND RV3 DIMENSIONAL DATA



RV VALVE	CONNECTIONS		A MIN.	B MIN.	C	D	E	F
	DISCHARGE	"1", "S", "2"						
RV2F45	1/2 ODF	5/8 ODF	3/8	1/2	2.79	2.39	.95	15
RV2F46	1/2 ODF	3/4 ODF	3/8	5/8	3.42	3.25	1.27	20
RV2F36	3/8 ODF	3/4 ODF	5/16	5/8	3.42	3.25	1.27	20
RV2F46D1*	1/2 ODF	3/4 ODF	3/8	5/8	3.42	3.25	1.27	20
RV2F35	3/8 ODF	5/8 ODF	5/16	1/2	2.79	2.39	.95	15
RV2F45D1*	1/2 ODF	5/8 ODF	3/8	1/2	2.79	2.39	.95	15
RV2F35D1*	3/8 ODF	5/8 ODF	5/16	1/2	2.79	2.39	.95	15
RV2F36D1*	3/8 ODF	3/4 ODF	5/16	5/8	3.42	3.25	1.27	20
RV3F45	1/2 ODF	5/8 ODF	3/8	1/2	2.79	2.39	.95	15
RV3F46	1/2 ODF	3/4 ODF	3/8	5/8	3.42	3.25	1.27	20
RV3F36	3/8 ODF	3/4 ODF	5/16	5/8	3.42	3.25	1.27	20
RV3F46D1*	1/2 ODF	3/4 ODF	3/8	5/8	3.42	3.25	1.27	20
RV3F35	3/8 ODF	5/8 ODF	5/16	1/2	2.79	2.39	.95	15
RV3F45D1*	3/8 ODF	5/8 ODF	3/8	1/2	2.79	2.39	.95	15
RV3F35D1*	3/8 ODF	5/8 ODF	5/16	1/2	2.79	2.39	.95	15
RV3F36D1*	3/8 ODF	3/4 ODF	5/16	5/8	3.42	3.25	1.27	20

*"D" denotes Discharge Tube is off-center.

REVERSING VALVES

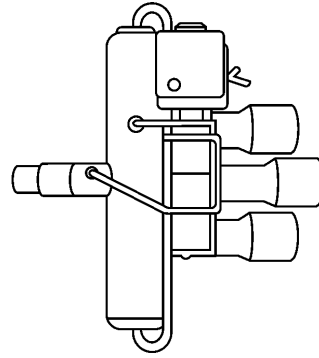
ALCO RV 4-WAY BRASS REVERSING VALVE FOR REVERSE-CYCLE SYSTEMS

APPLICATION

- Designed for use on heat pump systems.
- Reverse Cycle gas defrost.

FEATURES

- High strength slide carrier.
- Fewer parts.
- High capacity pilot.
- -Greater tolerance to contaminants.
- Low heat transfer slide.
- Greater wear resistance of seals.
- Stainless steel pilot bracket.



UL file number MP604
CSA file number LR44912

P1377

OPTIONS

Tube connection sizes

- Discharge 1/2 and 5/8 ODF/ODM
- Suction & Coil 3/4 and 7/8 ODF

SPECIFICATIONS

- Nominal 2, 3, & 6 ton sizes.
- Maximum working pressure 500 psig.
- MOPD: 400 psig.
- Minimum operating pressure differential: 10 psi.
- Maximum operating temperature: 250° F.
- External leakage: 0.1 oz/yr.
- UL file number: MP604.
- CSA file number: LR44912.

NOMENCLATURE

Sample: RV44F46

RV	4	F	4	6
Valve Series	Nominal Rating (in tons)	F = ODF connections (omit for ODM)	Discharge Connection (in 1/8")	Suction Connection (in 1/8")

ORDERING INFORMATION FOR RV SERIES VALVES

PCN*	DESCRIPTION
062796	RV 2 - F 34 VLC
062199	RV 2 - F 35 VLC
061795	RV 3 - F 35 VLC
061790	RV 3 - F 45 VLC
061792	RV 3 - F 46 VLC
062168	RV 4 - F 46 VLC
062173	RV 4 - F 47 VLC
062162	RV 4 - 56 VLC
062176	RV 4 - F 57 VLC

Standard Product Offering.

*Product Code Number.

RV SUCTION GAS EXTENDED CAPACITY TABLE IN TONS FOR R-22 AND R-410A

EVAPORATOR TEMP. (°F)	VALVE TYPE	PRESSURE DROP ACROSS VALVE - PSI									
		R-22/R-407C					R-410A				
		1	2	3	4	5	1	2	3	4	5
+45	RV2	1.66	2.35	2.87	3.32	3.71	2.14	3.03	3.71	4.29	4.56
	RV3	2.23	3.15	3.86	4.46	4.99	2.88	4.07	4.99	5.76	6.16
	RV4	3.24	4.58	5.61	6.48	7.25	4.19	5.92	7.25	8.37	8.69
+25	RV2	1.36	1.92	2.35	2.71	3.03	1.75	2.48	3.03	3.50	3.92
	RV3	2.57	3.63	4.45	5.13	5.74	3.42	4.84	5.93	6.84	7.65
	RV4	2.65	3.75	4.59	5.30	5.92	2.35	3.33	4.08	4.71	5.26
+5	RV2	1.09	1.54	1.88	2.06	2.27	1.41	1.99	2.44	2.64	2.90
	RV3	1.46	2.07	2.53	2.78	3.02	1.89	2.67	3.27	3.54	3.83
	RV4	2.12	3.00	3.68	3.93	4.27	2.75	3.88	4.76	5.01	5.42
-15	RV2	0.86	1.21	1.39	1.56	1.70	1.11	1.57	1.77	1.98	2.14
	RV3	1.15	1.63	1.87	2.06	2.19	1.49	2.10	2.35	2.57	2.71
	RV4	1.67	2.37	2.64	2.91	3.11	2.16	3.06	3.33	3.65	3.86

NOTE: Valve capacities are based on 120° F liquid, saturated evaporator, and 10° F superheat at the valve inlet.

REVERSING VALVES

ALCO RV 4-WAY BRASS REVERSING VALVE FOR REVERSE-CYCLE SYSTEMS

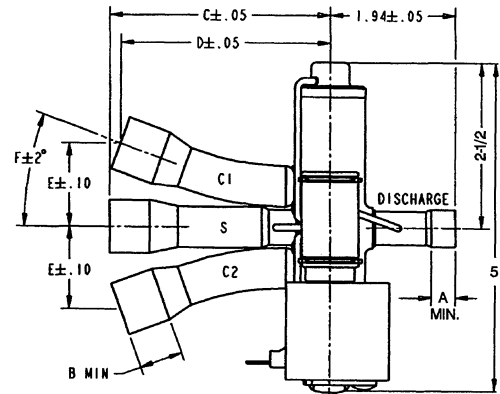
RV2 & RV3 DIMENSIONAL DATA

DIMENSIONS SHOWN ARE IN INCHES; FRACTIONS (DECIMALS)

RV VALUE	CONNECTIONS (in.)		A MIN.	B MIN.	C	D	E	F
	Discharge	"1", "S", "2"						
RV2F45	1/2 ODF (.50)	5/8 ODF (.63)	3/8 (.38)	1/2 (.50)	2-25/32 (2.79)	2-25/64 (2.39)	61/64 (.95)	15
RV2F46	1/2 ODF (.50)	3/4 ODF (.75)	3/8 (.38)	5/8 (.63)	3-27/64 (3.42)	3-1/4 (3.25)	1-17/64 (1.27)	20
RV2F36	3/8 ODF (.38)	3/4 ODF (.75)	5/16 (.31)	5/8 (.63)				
RV2F46D1*	1/2 ODF (.50)	3/4 ODF (.75)	3/8 (.38)	5/8 (.63)	2-25/32 (2.79)	2-25/64 (2.29)	61/64 (.95)	15
RV2F35	3/8 ODF (.38)	5/8 ODF (.63)	5/16 (.31)	1/2 (.50)				
RV2F45D1*	1/2 ODF (.50)	5/8 ODF (.63)	3/8 (.38)	1/2 (.50)	3-27/64 (3.42)	3-1/4 (3.25)	1-17/64 (1.27)	20
RV2F35D1*	3/8 ODF (.38)	5/8 ODF (.63)	5/16 (.31)	1/2 (.50)				
RV2F36D1*	3/8 ODF (.38)	3/4 ODF (.75)	5/16 (.31)	5/8 (.63)	2-25/32 (2.79)	2-25/64 (2.39)	61/64 (.95)	15
RV3F45	1/2 ODF (.50)	5/8 ODF (.63)	3/8 (.38)	1/2 (.50)				
RV3F46	1/2 ODF (.50)	3/4 ODF (.75)	3/8 (.38)	5/8 (.63)	3-27/64 (3.42)	3-1/4 (3.25)	1-17/64 (1.27)	20
RV3F36	3/8 ODF (.380)	3/4 ODF (.75)	5/16 (.31)	5/8 (.63)				
RV3F46D1*	1/2 ODF (.50)	3/4 ODF (.75)	3/8 (.38)	5/8 (.63)	2-25/32 (2.79)	2-25/64 (2.39)	61/64 (.95)	15
RV3F35	3/8 ODF (.38)	5/8 ODF (.63)	5/16 (.31)	1/2 (.50)				
RV3F45D1*	1/2 ODF (.50)	5/8 ODF (.63)	3/8 (.38)	1/2 (.50)	3-27/64 (3.42)	3-1/4 (3.25)	1-1/64 (1.27)	20
RV3F35D1*	1/2 ODF (.500)	5/8 ODF (.63)	3/8 (.38)	1/2 (.500)				
RV3F36D1*	3/8 ODF (.380)	3/4 ODF (.75)	5/16 (.31)	5/8 (.63)				

NOTE: "D" denotes Discharge Tube is off-center.

RV2 & RV3

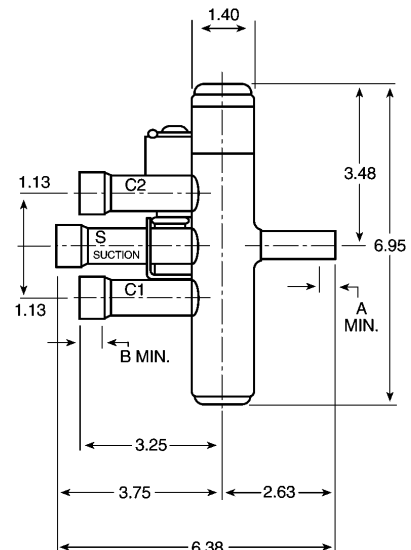


P1378A

RV4 & RV6 DIMENSIONAL DATA

DIMENSIONS SHOWN ARE IN INCHES; FRACTIONS (DECIMALS)

TYPE	DISCHARGE	C1, S, C2	A MIN.	B MIN.
RV456	5/8 ODM (.63)	3/4 ODF (.75)	1/2 (.50)	1/2 (.50)
RV4F46	1/2 ODF (.50)	3/4 ODF (.75)	3/8 (.38)	1/2 (.50)
RV4F47	1/2 ODF (.50)	7/8 ODF (.88)	3/8 (.38)	7/8 (.88)
RV6F46	1/2 ODF (.50)	3/4 ODF (.75)	3/8 (.38)	1/2 (.50)
RV6F47	1/2 ODF (.50)	7/8 ODF (.88)	3/8 (.38)	7/8 (.88)
RV6F57	5/8 ODF (.63)	7/8 ODF (.88)	1/2 (.50)	7/8 (.88)



RV4 & RV6

P1378

MOISTURE LIQUID INDICATORS

ALCO AMI MOISTURE-LIQUID INDICATORS

APPLICATION

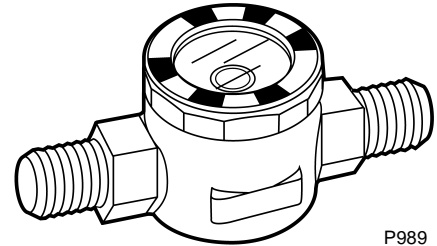
- Alco's AMI was designed to provide an accurate method of determining the moisture content of a systems' refrigerant.
- Premium Patented 3% High Accuracy Moisture Indicator for CFC, HCFC, and HFC refrigerants including R-410A.
- AMI-2 Series for OEM T-Drill applications (through 1-1/8" sizes).

FEATURES

- 3% relative humidity indication compared to 10% paper indicators.
- Single indicator for all common refrigerants.
- Accurate color calibration at low ppm levels and higher temperatures.
- Wide angle viewing/high visibility window for ease of monitoring.
- All brass corrosion resistant body.
- Solid copper fittings.

SPECIFICATIONS

- 3% relative humidity sensitivity.
- Maximum working pressure: 600 psig
- UL file number: SA 4876
- CSA file number: LR 32462



P989

NOMENCLATURE

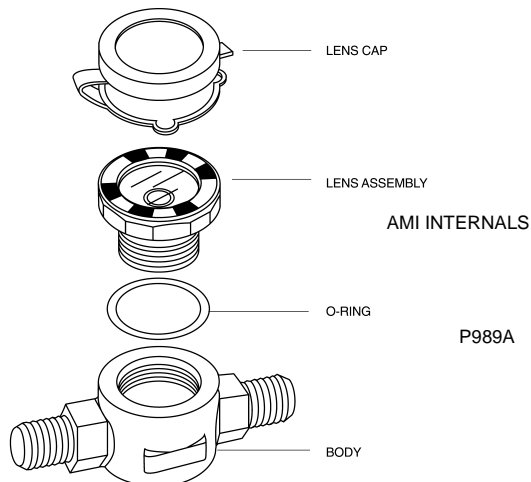
Example: AMI 1SS4

AMI	1	SS	4
Moisture Liquid Indicator Series	Design Series 1 = standard connection 2 = bushing style	Connection Style SS - Sweat x Sweat	Connection Size (in 1/8")

REPLACEMENT PARTS FOR AMI

PCN*	PART	NUMBER
021371	Lens Cap	12740-1
020877	"O" Ring	PS1525-2
027511	Lens Assembly Kit (Consists of lens assembly, lens cap and "O" ring)	X12978-1

Standard Product Offering
*Product Code Number.



P989A

ORDERING INFORMATION FOR AMI

PCN*	P/N	CONNECTION SIZE (in.)
048803	AMI-1MM2	1/4 SAE
048804	AMI-1MM3	3/8 SAE
048805	AMI-1MM4	1/2 SAE
048806	AMI-1MM5	5/8 SAE
048800	AMI-1FM2	1/4 SAE
048801	AMI-1FM3	3/8 SAE
048802	AMI-1FM4	1/2 SAE
048807	AMI-1MU2	1/4 SAE
048808	AMI-1MU3	3/8 SAE
048809	AMI-1MU4	1/2 SAE
048810	AMI-1MU5	5/8 SAE
048817	AMI-1FU3	3/8 SAE
048818	AMI-1FU4	1/2 SAE
048811	AMI-1SS2	1/4 ODF
048812	AMI-1SS3	3/8 ODF
048813	AMI-1SS4	1/2 ODF
048814	AMI-1SS5	5/8 ODF
048815	AMI-1SS7	7/8 ODF
048816	AMI-1SS9	1-1/8 ODF
048819	AMI-1SU2	1/4 ODF x 1/4 SAE
048820	AMI-1SU3	3/8 ODF x 3/8 SAE
048821	AMI-1SU4	1/2 ODF x 1/2 SAE
048822	AMI-1SU5	5/8 ODF x 5/8 SAE
047298	AMI-1TT2	1/4 ODF
042771	AMI-1TT3	3/8 ODF
022302	AMI-1TT4	1/2 ODF
031136	AMI-1TT5	5/8 ODF
031357	AMI-1TT7	7/8 ODF
031578	AMI-1TT9	1-1/8 ODF
046647	AMI-1UU3	3/8 x 3/8 FLARE SWIVEL
046648	AMI-1UU4	1/2 x 1/2 FLARE SWIVEL
046649	AMI-1UU5	5/8 x 5/8 FLARE SWIVEL

Standard Product Offering
*Product Code Number.

MOISTURE LIQUID INDICATORS

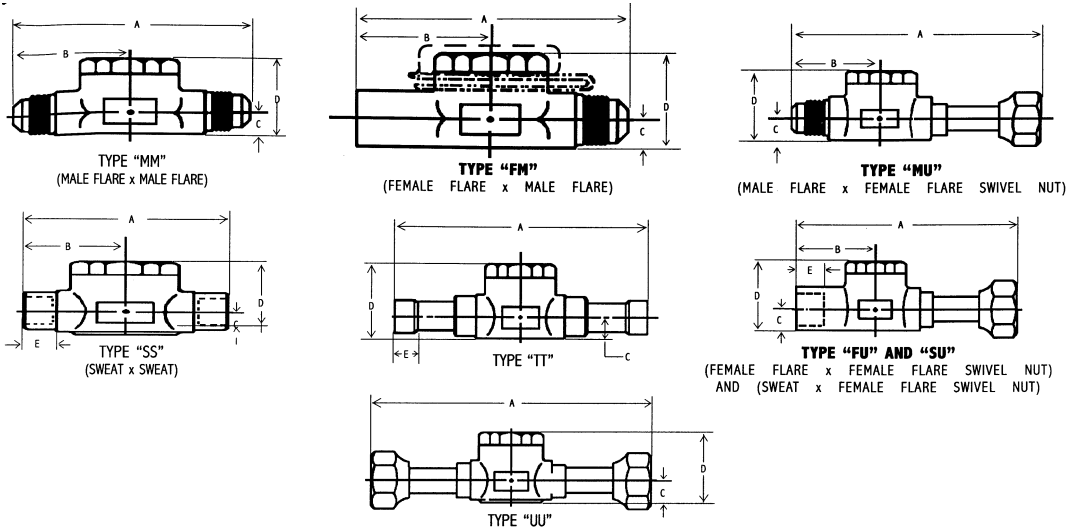
ALCO AMI MOISTURE-LIQUID INDICATORS

MOISTURE CONTENT COLOR CODE (ppm H₂O)

INDICATION	VERY DRY (DARK BLUE)			DRY/CAUTION (PURPLE)			CAUTION?WET (PINK)			WET (SALMON)			
	LIQUID TEMPERATURE	75° F	100° F	125° F	75° F	100° F	125° F	75° F	100° F	125° F	75° F	100° F	125° F
R-12		1.4	2.5	4	5	9	15	15	27	45	25	43	70
R-134a		20	35	60	35	55	85	90	120	150	130	160	190
R-22		25	35	50	40	65	90	90	130	185	145	205	290
R-407C		26	40	64	42	68	109	94	144	230	150	230	370
R-410A		30	55	75	50	85	120	110	190	270	165	290	420
R-404A/507		15	25	45	33	50	80	80	110	140	120	150	180
R-502		2.6	5	8	10	18	30	30	54	90	50	90	150

NOTE: A minimum period of 12 hours is recommended after installation of the Moisture-Liquid Indicator before attempting to accurately determine system moisture content.

DIMENSIONAL DATA



P989B

Specifications

P/N	CONNECTION SIZE (in.)	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)					
AMI-1MM2	1/4 SAE	3-1/8	1-9/16	11/32	1-3/16	—					
AMI-1MM3	3/8 SAE	3-3/8	1-11/16								
AMI-1MM4	1/2 SAE	3-5/8	1-13/16								
AMI-1MM5	5/8 SAE	3-7/8	1-15/16								
AMI-1FM2	1/4 SAE	2-3/4	1-3/16				15/32	1-7/16	—		
AMI-1FM3	3/8 SAE	3	1-5/16								
AMI-1FM4	1/2 SAE	3-7/32	1-13/32								
AMI-1MU2	1/4 SAE	3-29/32	1-9/16								
AMI-1MU3	3/8 SAE	4-3/8	1-11/16								
AMI-1MU4	1/2 SAE	4-23/32	1-13/16	15/32	1-7/16	—					
AMI-1MU5	5/8 SAE	5-3/32	1-15/16								
AMI-1FU3	3/8 SAE	4	1-5/16								
AMI-1FU4	1/2 SAE	4-5/16	1-13/32								
AMI-1SS2	1/4 ODF	2-1/4	1-1/8				11/32	1-3/16	5/16		
AMI-1SS3	3/8 ODF										
AMI-1SS4	1/2 ODF										
AMI-1SS5	5/8 ODF										
AMI-1SS7	7/8 ODF										
AMI-1SS9	1-1/8 ODF	3-3/8	1-11/16	43/64	1-59/64	7/8					
AMI-1SU2	1/4 ODF x 1/4 SAE						3-15/32	1-1/8	11/32	1-3/16	5/16
AMI-1SU3	3/8 ODF x 3/8 SAE						3-9/16	1-1/8	11/32	1-3/16	5/16
AMI-1SU4	1/2 ODF x 1/2 SAE						4-3/32	1-5/16	15/32	1-7/16	3/8
AMI-1SU5	5/8 ODF x 5/8 SAE						4-7/32				
AMI-1TT2	1/4 ODF	4-57/64	11/32	15/32	1-3/16	5/16					
AMI-1TT3	3/8 ODF										
AMI-1TT4	1/2 ODF										
AMI-1TT5	5/8 ODF										
AMI-1TT7	7/8 ODF										
AMI-1TT9	1-1/8 ODF	6-19/64	43/64	1-59/64	7/8						
AMI-1UU3	3/8 x 3/8 Flare Swivel	4-7/8	11/32	1-3/16	—						
AMI-1UU4	1/2 x 1/2 Flare Swivel	5-9/16	15/32	1-7/16							
AMI-1UU5	5/8 x 5/8 Flare Swivel	6-1/64									

MOISTURE LIQUID INDICATORS

ALCO AMI MOISTURE-LIQUID INDICATORS

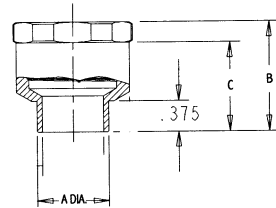
AMI-2 SERIES DIMENSIONS

ROUGHING IN DIMENSIONS

SPECIFICATIONS (in.)					
PCN*	TYPE NUMBER	CONNECTION SIZE	A DIA.	B	C
064857	AMI-255	5/8 ODM	.63	1.41	1.16
064167	AMI-257	7/8 ODM	.875	1.34	1.09
064168	AMI-259	1-1/8 ODM	1.13	1.25	1.00

Standard Product Offering.

*Product Code Number.

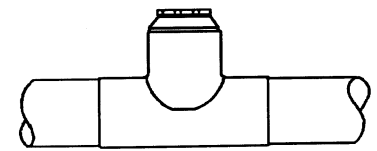
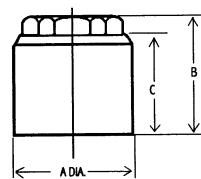


P989C

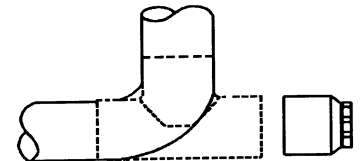
ROUGHING IN DIMENSIONS

SPECIFICATIONS (in.)					
PCN*	TYPE NUMBER	CONNECTION SIZE	A DIA.	B	C
022203	AMI-2511	1-3/8 ODM	1-3/8	1-9/16	1-5/16
028388	AMI-2513	1-5/8 ODM	1-5/8	1-11/16	1-7/16
031219	AMI-2517	2-1/8 ODM	2-1/8	1-15/16	1-11/16

*Product Code Number.



AMI - 2 AND TEE
STRAIGHT THRU CONFIGURATION



AMI - 2 AND TEE
REPLACING AN ELBOW

P989D

MOISTURE LIQUID INDICATORS

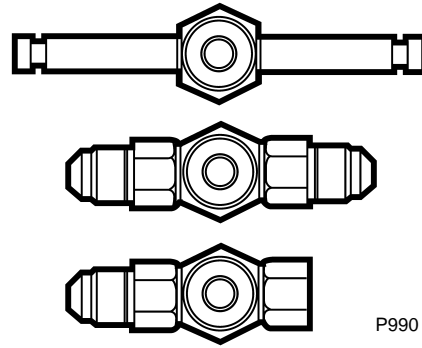
ALCO ALM LIQUID MOISTURE INDICATOR

- Hermetically sealed to eliminate the potential of external leakage
- SAE versions feature all brass body
- Intended for use on all CFC, HCFC, and HFC refrigerants
- Color calibrated and easily read

NOMENCLATURE/SELECTION

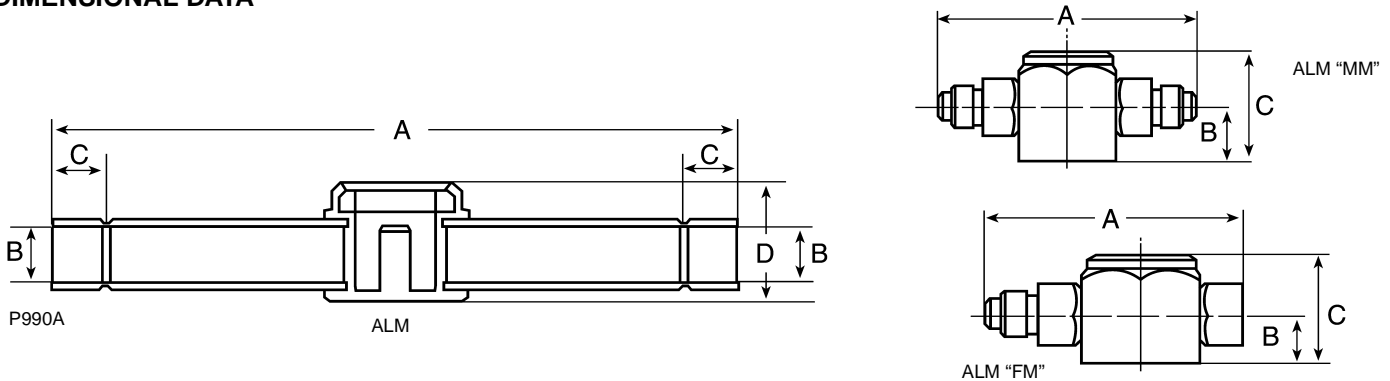
ALM	1	TT	4
Liquid Moisture Indicator Series	Design Series	Connection Style	Connection Size
	1 = Standard	TT = ODF	(in 1/8")
	Connection	Extended Ends	

Above example: AMI 1TT4



P990

DIMENSIONAL DATA



NOTE: ALM Liquid Moisture Indicator series superseded by AMI liquid Moisture Indicator series.

TYPE	CONNECTION	A	B	C	D
ALM1MM2	1/4 SAE (Male x Male)	3-3/32	1/2	1-1/8	
ALM1MM4	1/2 SAE (Male x Male)	3-17/32	1/2	1-1/8	
ALM1MM5	5/8 SAE (Male x Male)	4-1/16	1/2	1-1/8	
ALM1FM2	1/4 SAE (Female x Male)	2-17/32	1/2	1-1/8	
ALM1FM3	3/8 SAE (Female x Male)	2-11/16	1/2	1-1/8	
ALM1FM4	1/2 SAE (Female x Male)	2-3/4	1/2	1-1/8	
ALM1TT2	1/4 x 1/4 ODF	4-61/64	1/4	5/16	1-1/8
ALM1TT3	3/8 x 3/8 ODF	4-61/64	3/8	5/16	1-1/8
ALM1TT4	1/2 x 1/2 ODF	4-63/64	1/2	3/8	1-1/8
ALM1TT5	5/8 x 5/8 ODF	4-27/32	5/8	1/2	1-1/8
ALM1TT7	7/8 x 7/8 ODF	6-9/32	7/8	3/4	1-1/8

NOTE: All ALM's are 1-1/8 hex.

MOISTURE CONTENT PPM								
REFRIGERANT	R-134a			R-22			R-404a/R-507	
	75	100	125	75	100	125	75	100
Green Dry	100	130	175	100	140	175	75	90
Chartreuse Caution	100/150	130/160	175/220	100/150	140/200	175/220	75/110	90/120
Yellow Wet	150	160	220	150	200	220	110	120

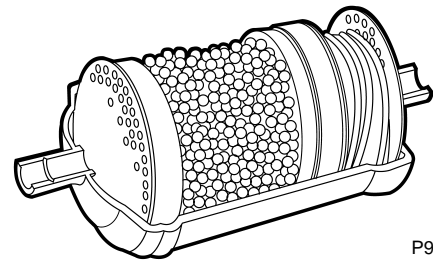
FILTER DRIERS

ALCO EK EXTRA-KLEAN LIQUID LINE FILTER DRIER

The EK has been upgraded to include the same features as the EKP with 20 micron final filtration and added water capacity!

SPECIFICATIONS

- Desiccant blend — 75% molecular sieve and 25% activated alumina
- Filtration 20 microns
- Maximum Working Pressure: Sizes: 03-16 600 psig
 30-75 500 psig
- UL File Number: SA 3124
- CSA File Number: LR100624
 LR32462



P973

NOMENCLATURE

Example: EK-083S

EK	08	3	S
Drier Series	Unit Size (in cu. in.)	Connection Size (in 1/8")	S = ODF Connections (omit for SAE)

CAPACITY TABLE

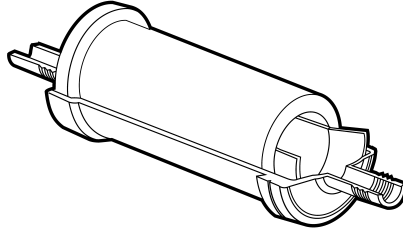
P/N	CONNECTIONS	FLOW CAPACITY TONS @ 1 psi ΔP (For kW, multiply tons by 3.5)						WATER CAPACITY DROPS OF WATER																
		R-12		R-134a		R-22/ R-410A	R-407C	R-404A/ 507		R-502	R-12		R-134a		R-22		R-407C		R-410A		R-404A/507		R-502	
		75° F	125° F	75° F	125° F	75° F	125° F	75° F	125° F	75° F	125° F	75° F	125° F	75° F	125° F	75° F	125° F	75° F	125° F	75° F	125° F	75° F	125° F	
EK 03 2 FM	1/4 Fem/In SAE	1.6	2.0	2.2	2.1	1.4	1.4	47	41	40	37	40	33	33	25	21	19	38	37	42	37			
EK 03 2 MF	1/4 Male/In SAE	1.6	2.0	2.2	2.1	1.4	1.4																	
EK 03 2	1/4 SAE	1.6	2.0	2.2	2.1	1.4	1.4																	
EK 03 2 S	1/4 ODF	2.2	2.7	2.9	2.9	2.0	1.9																	
EK 03 2 SV	1/4 ODF	2.2	2.7	2.9	2.9	2.0	1.9	133	119	116	106	114	97	95	75	64	58	109	106	120	107			
EK 03 3	3/8 SAE	2.5	3.0	3.3	3.2	2.2	2.1																	
EK 03 3 S	3/8 ODF	2.5	3.0	3.3	3.2	2.2	2.1																	
EK 05 2 FM	1/4 Fem/In SAE	1.7	2.1	2.3	2.2	1.5	1.5																	
EK 05 2 MF	1/4 Male/In ODF	1.7	2.1	2.3	2.2	1.5	1.5	274	240	237	218	235	200	195	155	159	118	224	217	245	217			
EK 05 2	1/4 SAE	1.7	2.1	2.3	2.2	1.5	1.5																	
EK 05 2 S	1/4 ODF	2.7	3.3	3.6	3.5	2.4	2.3																	
EK 05 3 MF	3/8 Male/In ODF	2.9	3.5	3.8	3.7	2.5	2.5																	
EK 05 3	3/8 SAE	2.9	3.5	3.8	3.7	2.5	2.5	347	301	371	341	368	313	305	240	206	186	350	340	306	272			
EK 05 3 S	3/8 ODF	3.6	4.4	4.8	4.7	3.2	3.1																	
EK 08 2 FM	1/4 Fem/In SAE	1.9	2.3	2.5	2.4	1.7	1.6																	
EK 08 2 MF	1/4 Male/In ODF	1.9	2.3	2.5	2.4	1.7	1.6																	
EK 08 2	1/4 SAE	1.9	2.3	2.5	2.4	1.7	1.6	601	526	664	611	657	561	548	434	—	—	627	608	536	477			
EK 08 2 S	1/4 ODF	2.5	3.1	3.4	3.3	2.2	2.2																	
EK 08 25 S	5/16 ODF	2.9	3.5	3.8	3.7	2.5	2.5																	
EK 08 3 MF	3/8 Male/In ODF	3.3	4.0	4.3	4.3	2.9	2.8																	
EK 08 3	3/8 SAE	3.3	4.0	4.3	4.3	2.9	2.8	1104	971	938	854	919	785	765	607	—	—	876	850	991	884			
EK 08 3 S	3/8 ODF	3.7	4.5	4.9	4.8	3.3	3.2																	
EK 08 4	1/2 SAE	5.5	6.7	7.3	7.1	4.9	4.7																	
EK 08 4 S	1/2 ODF	5.8	7.1	7.7	7.5	5.1	5.0																	
EK 16 2 MF	1/4 Male/In ODF	1.9	2.3	2.5	2.4	1.7	1.6	2196	1932	1485	1361	1468	1247	1220	961	—	—	1406	1354	1971	1760			
EK16 2	1/4 SAE	1.9	2.3	2.5	2.4	1.7	1.6																	
EK16 2 S	1/4 ODF	2.5	3.1	3.4	3.3	2.2	2.2																	
EK 16 25 S	5/16 ODF	2.5	3.1	3.4	3.3	2.2	2.2																	
EK 16 3	3/8 SAE	3.2	3.9	4.2	4.1	2.8	2.7	2196	1932	1485	1361	1468	1247	1220	961	—	—	1406	1354	1971	1760			
EK 16 3 S	3/8 ODF	3.6	4.4	4.8	4.7	3.2	3.1																	
EK 16 4	1/2 SAE	5.9	7.2	7.8	7.7	5.2	5.1																	
EK 16 4 S	1/2 ODF	7.0	8.5	9.2	9.0	6.2	6.0																	
EK 16 5	5/8 SAE	8.0	9.7	10.5	10.3	7.0	6.8	1104	971	938	854	919	785	765	607	—	—	876	850	991	884			
EK 16 5 S	5/8 ODF	8.3	10.1	10.9	10.7	7.3	7.1																	
EK 16 7 S	7/8 ODF	12.7	15.5	16.8	16.5	11.2	10.9																	
EK 30 3	3/8 SAE	3.5	4.3	4.7	4.6	3.1	3.0																	
EK 30 3 S	3/8 ODF	5.2	6.3	6.8	6.7	4.6	4.4	601	526	664	611	657	561	548	434	—	—	627	608	536	477			
EK 30 4	1/2 SAE	6.6	8.1	8.8	8.6	5.9	5.7																	
EK 30 4 S	1/2 ODF	8.2	10.0	10.8	10.6	7.2	7.0																	
EK 30 5	5/8 SAE	8.7	10.6	11.5	11.3	7.7	7.5																	
EK 30 5 S	5/8 ODF	10.3	12.5	13.5	13.3	9.1	8.8	1104	971	938	854	919	785	765	607	—	—	876	850	991	884			
EK 30 6 S	3/4 ODF	12.1	14.8	16.0	15.7	10.7	10.4																	
EK 30 7 S	7/8 ODF	13.8	16.8	18.2	17.9	12.2	11.8																	
EK 30 9 S	1-1/8 ODF	16.1	19.6	21.2	20.8	14.2	13.8																	
EK 41 3	3/8 SAE	3.5	4.3	4.7	4.6	3.1	3.0	2196	1932	1485	1361	1468	1247	1220	961	—	—	1406	1354	1971	1760			
EK 41 4	1/2 SAE	8.5	10.4	11.3	11.1	7.5	7.3																	
EK 41 4 S	1/2 ODF	8.9	10.8	11.7	11.5	7.8	7.6																	
EK 41 5	5/8 SAE	9.8	12.0	13.0	12.8	8.7	8.5																	
EK 41 5 S	5/8 ODF	13.9	17.0	18.4	18.1	12.3	12.0	1104	971	938	854	919	785	765	607	—	—	876	850	991	884			
EK 41 7 S	7/8 ODF	16.6	20.3	22.0	21.6	14.7	14.3																	
EK 41 9 S	1-1/8 ODF	22.7	27.7	30.0	29.4	20.1	19.5																	
EK 75 7 S	7/8 ODF	18.2	22.2	24.1	23.6	16.1	15.6																	
EK 75 9 S	1-1/8 ODF	26.8	32.7	35.4	34.8	23.7	23.0																	

FILTER DRIERS

ALCO ADK BLOCK STYLE LIQUID LINE FILTER DRIERS

SPECIFICATIONS

- Desiccant Blend: Activated Alumina with Molecular Sieve
- Filtration 40 microns
- Maximum Working Pressure: Sizes: 03-16 600 psig
 30-75 500 psig
- UL File Number: SA 3124
- CSA File Number: LR100624
 LR32462



P974

NOMENCLATURE

Example: ADK 083S

ADK	08	3	S
Series	Unit Size (in cu. in.)	Connection Size (in 1/8")	S = ODF Connections (omit for SAE)

CAPACITY TABLE

P/N	CONNECTIONS	FLOW CAPACITY TONS @ 1 psi ΔP (For kW, multiply tons by 3.5)							WATER CAPACITY DROPS OF WATER													
		R-12	R-134a	R-22	R-410A	R-407C	R-404A/ 507	R-502	R-12		R-134a		R-22		R-407C		R-410A		R-404A/507		R-502	
									75° F	125° F	75° F	125° F	75° F	125° F	75° F	125° F	75° F	125° F	75° F	125° F	75° F	125° F
ADK 03 2	1/4 SAE	1.6	1.9	2.1	2.1	2.0	1.4	1.3	64	46	44	37	34	31	31	21	27	17	47	37	43	34
ADK 03 2 S	1/4 ODF	1.9	2.3	2.5	2.5	2.4	1.7	1.6														
ADK 03 3	3/8 SAE	2.2	2.7	2.9	2.9	2.9	2.0	1.9														
ADK 03 3 S	3/8 ODF	2.5	3.0	3.3	3.3	3.2	2.2	2.1														
ADK 05 2	1/4 SAE	1.6	2.0	2.2	2.2	2.1	1.4	1.4	130	81	68	50	58	38	47	26	44	23	73	48	73	49
ADK 05 2 S	1/4 ODF	2.4	2.9	3.1	3.1	3.1	2.1	2.0														
ADK 05 3	3/8 SAE	3.0	3.7	4.0	4.0	3.9	2.7	2.6														
ADK 05 3 S	3/8 ODF	3.7	4.5	4.9	4.9	4.8	3.3	3.2														
ADK 08 2	1/4 SAE	1.6	2.0	2.2	2.2	2.1	1.4	1.4	188	117	101	76	87	57	68	39	63	34	109	73	105	71
ADK 08 2 S	1/4 ODF	2.5	3.1	3.4	3.4	3.3	2.2	2.2														
ADK 08 3	3/8 SAE	3.5	4.3	4.7	4.7	4.6	3.1	3.0														
ADK 08 3 S	3/8 ODF	3.4	4.2	4.6	4.6	4.5	3.0	3.0														
ADK 08 4	1/2 SAE	5.5	6.7	7.3	7.3	7.1	4.9	4.7	295	204	169	140	151	117	134	86	115	67	180	143	193	145
ADK 08 4 S	1/2 ODF	5.7	7.0	7.6	7.6	7.4	5.1	4.9														
ADK 16 2	1/4 SAE	1.6	2.0	2.2	2.2	2.1	1.4	1.4														
ADK 16 3	1/4 SAE	3.6	4.4	4.8	4.8	4.7	3.2	3.1														
ADK 16 3 S	1/4 ODF	4.0	4.9	5.3	5.3	5.2	3.6	3.5	615	444	359	278	314	218	309	212	—	—	385	272	427	335
ADK 16 4	1/2 SAE	6.8	8.3	9.0	9.0	8.8	6.0	5.8														
ADK 16 4 S	1/2 ODF	7.1	8.6	9.3	9.3	9.1	6.2	6.1														
ADK 16 5	5/8 SAE	9.7	11.8	12.8	12.8	12.5	8.6	8.3														
ADK 16 5 S	5/8 ODF	10.7	13.1	14.2	14.2	13.9	9.5	9.2	728	480	502	391	440	309	302	186	—	—	537	387	445	322
ADK 16 7 S	7/8 ODF	13.1	16.0	17.3	17.3	17.0	11.6	11.3														
ADK 30 3	3/8 SAE	3.9	4.7	5.1	—	5.0	3.4	3.3														
ADK 30 4	1/2 SAE	7.1	8.6	9.3	—	9.1	6.2	6.1														
ADK 30 4 S	1/2 ODF	7.2	8.8	9.5	—	9.4	6.4	6.2	1369	899	940	730	823	576	562	343	—	—	1008	719	833	600
ADK 30 5	5/8 SAE	11.3	13.8	15.0	—	14.7	10.0	9.7														
ADK 30 5 S	5/8 ODF	11.9	14.5	15.7	—	15.4	10.5	10.2														
ADK 30 6 S	3/4 ODF	13.0	15.8	17.1	—	16.8	11.5	11.1														
ADK 30 7 S	7/8 ODF	14.3	17.4	18.9	—	18.5	12.6	12.3														
ADK 30 9 S	1-1/8 ODF	20.4	24.9	27.0	—	26.5	18.0	17.5														
ADK 41 3	3/8 SAE	3.9	4.7	5.1	—	5.0	3.4	3.3	728	480	502	391	440	309	302	186	—	—	537	387	445	322
ADK 41 4	1/2 SAE	8.0	9.8	10.6	—	10.4	7.1	6.9														
ADK 41 4 S	1/2 ODF	8.8	10.7	11.6	—	11.4	7.8	7.5														
ADK 41 5	5/8 SAE	12.8	15.6	16.9	—	16.6	11.3	11.0														
ADK 41 5 S	5/8 ODF	13.5	16.5	17.9	—	17.5	12.0	11.6														
ADK 41 7 S	7/8 ODF	16.6	20.3	22.0	—	21.6	14.7	14.3														
ADK 41 9 S	1-1/8 ODF	20.7	25.2	27.3	—	26.8	18.3	17.7														
ADK 75 7 S	7/8 ODF	28.0	34.2	37.1	—	36.3	24.8	24.1														
ADK 75 9 S	1-1/8 ODF	30.6	37.3	40.4	—	39.6	27.0	26.3														

FILTER DRIERS

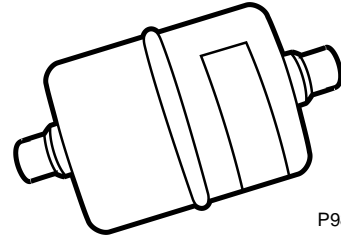
ALCO BOK-HH LIQUID LINE BURNOUT FILTER DRIERS

APPLICATION

- Alco's BOK-HH incorporates an HH blended solid core for the effective clean-up of systems following a severe burnout.
- Liquid line filter drier for burnout clean-up and wax removal.

SPECIFICATIONS

- Filtration 40 microns
- Maximum Working Pressure: Sizes: 08-16 600 psig
..... 30-41 500 psig
- UL File Number: SA 3124
- CSA File Number: LR100624
..... LR32462



P981

NOMENCLATURE

BOK	30	5	S	HH
Series	Unit Size (in cu. in.)	Connection Size (in 1/8")	S = ODF Connection (omit for SAE)	Charcoal Blend

Above example: BOK 305S-HH

BOK-HH CAPACITY TABLES

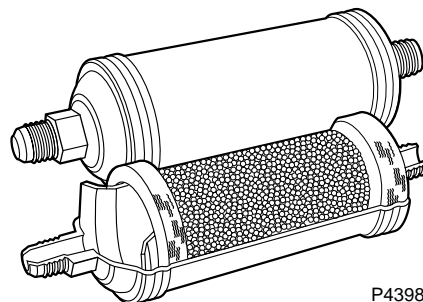
P/N	CONNECTIONS	FLOW CAPACITY TONS @ 1 psi ΔP (For kW, multiply tons by 3.5)							WATER CAPACITY DROPS OF WATER													
		R-12	R-134a	R-22	R-410A	R-407C	R-404A/507	R-502	R-12		R-134a		R-22		R-407C		R-410A		R-404A/507		R-502	
									75° F	125° F	75° F	125° F	75° F	125° F	75° F	125° F	75° F	125° F	75° F	125° F	75° F	125° F
BOK 08 2-HH	1/4 SAE	1.2	1.5	1.6	1.6	1.6	1.1	1.0	180	118	88	71	78	59	74	45	66	38	98	71	109	79
BOK 08 3-HH	3/8 SAE	3.2	3.9	4.2	4.2	4.1	2.8	2.7														
BOK 16 2-HH	1/4 SAE	1.2	1.5	1.6	1.6	1.6	1.1	1.0	209	143	171	141	153	117	91	56	77	41	182	141	135	100
BOK 16 3-HH	3/8 SAE	3.6	4.3	4.7	4.7	4.6	3.1	3.1														
BOK 16 3 S-HH	3/8 ODF	4.8	5.8	6.3	6.3	6.2	4.2	4.1														
BOK 16 4-HH	1/4 SAE	7.0	8.6	9.3	9.3	9.1	6.2	6.0														
BOK 16 4 S-HH	1/4 ODF	8.4	10.2	11.1	11.1	10.9	7.4	7.2														
BOK 16 5-HH	5/8 SAE	10.5	12.8	13.9	13.9	13.6	9.3	9.0														
BOK 16 5 S-HH	5/8 ODF	10.5	12.8	13.9	13.9	13.6	9.3	9.0														
BOK 30 3-HH	3/8 SAE	3.6	4.3	4.7	—	4.6	3.1	3.1														
BOK 30 4-HH	1/2 SAE	8.1	9.9	10.7	—	10.5	7.2	7.0														
BOK 30 4 S-HH	1/2 ODF	8.9	10.8	11.7	—	11.5	7.8	7.6														
BOK 30 5-HH	5/8 SAE	11.1	13.5	14.6	—	14.3	9.8	9.5														
BOK 30 5 S-HH	5/8 ODF	12.0	14.6	15.8	—	15.5	10.6	10.3														
BOK 41 4-HH	1/4 SAE	8.4	10.2	11.1	—	10.9	7.4	7.2	623	410	427	344	379	282	256	155	—	—	454	342	380	274
BOK 41 5-HH	5/8 SAE	13.4	16.3	17.7	—	17.4	11.8	11.5														
BOK 41 7 S-HH	7/8 ODF	16.3	19.8	21.5	—	21.1	14.4	14.0														

FILTER DRIERS

ALCO UDK ULTRA-DRY KLEANER LIQUID LINE FILTER DRIER

FEATURES

- Solid copper connections.
- Ultra high moisture capacity.
- Meets or exceeds all compressor manufacturer desiccant standards.
- Corrosion resistant epoxy powder paint finish.



P4398

SPECIFICATIONS

- Desiccant blend — 75% molecular sieve and 25% activated alumina.
- Filtration 40 microns
- Maximum Working Pressure: Sizes: 03-16 600 psig
 30-75 500 psig
- UL File Number: SA 3124
- CSA File Number: LR100624
 LR32462

NOMENCLATURE

UDK	08	3	S
Series	Unit Size (in cu. in.)	Connection Size (in 1/8")	S = ODF Connection (omit for SAE)

Above example: UDK 083S

UDK CAPACITY TABLES

P/N	CONNECTIONS	FLOW CAPACITY TONS @ 1 psi ΔP (For kW, multiply tons by 3.5)							WATER CAPACITY DROPS OF WATER													
									R-12		R-134a		R-22		R-407C		R-410A		R-404A/507		R-502	
		R-12	R-134a	R-22	R-410A	R-407C	R-404A/ 507	R-502	75° F	125° F	75° F	125° F	75° F	125° F	75° F	125° F	75° F	125° F	75° F	125° F	75° F	125° F
UK 03 2	1/4 SAE	1.6	1.9	2.1	2.1	2.0	1.4	1.3	80	69	73	67	68	62	56	43	36	32	75	71	71	62
UK 03 2S	1/4 ODF	1.9	2.3	2.5	2.5	2.4	1.7	1.6														
UK 03 3	3/8 SAE	2.2	2.7	2.9	2.9	2.9	2.0	1.9														
UK 03 3 S	3/8 ODF	2.5	3.0	3.3	3.3	3.2	2.2	2.1														
UK 05 2	1/4 SAE	1.6	2.0	2.2	2.2	2.1	1.4	1.4	253	221	205	189	191	173	168	131	112	100	212	200	225	200
UK 05 2 S	1/4 ODF	2.4	2.9	3.1	3.1	3.1	2.1	2.0														
UK 05 3	3/8 SAE	3.0	3.7	4.0	4.0	3.9	2.7	2.6														
UK 05 3 S	3/8 ODF	3.7	4.5	4.9	4.9	4.8	3.3	3.2														
UK 08 2	1/4 SAE	1.6	2.0	2.2	2.2	2.1	1.4	1.4	366	320	305	281	284	258	241	187	160	143	316	298	327	290
UK 08 2 S	1/4 ODF	2.5	3.1	3.4	3.4	3.3	2.2	2.2														
UK 08 3	3/8 SAE	3.5	4.3	4.7	4.7	4.6	3.1	3.0														
UK 08 3 S	3/8 ODF	3.4	4.2	4.6	4.6	4.5	3.0	3.0														
UK 08 4	1/2 SAE	5.5	6.7	7.3	7.3	7.1	4.9	4.7	483	427	432	396	401	363	306	233	197	174	450	422	436	390
UK 08 4 S	1/2 ODF	5.7	7.0	7.6	7.6	7.4	5.1	4.9														
UK 16 2	1/4 SAE	1.6	2.0	2.2	2.2	2.1	1.4	1.4														
UK 16 3	1/4 SAE	3.6	4.4	4.8	4.8	4.7	3.2	3.1														
UK 16 3 S	1/4 ODF	4.0	4.9	5.3	5.3	5.2	3.6	3.5	996	864	860	809	818	744	673	522	—	—	912	859	882	778
UK 16 4	1/2 SAE	6.8	8.3	9.0	9.0	8.8	6.0	5.8														
UK 16 4 S	1/2 ODF	7.1	8.6	9.3	9.3	9.1	6.2	6.1														
UK 16 5	5/8 SAE	9.7	11.8	12.8	12.8	12.5	8.6	8.3														
UK 16 5 S	5/8 ODF	10.7	13.1	14.2	14.2	13.9	9.5	9.2	1322	1146	1205	1108	1120	1018	921	714	—	—	1249	1176	1170	1030
UK 16 7 S	7/8 ODF	13.1	16.0	17.3	17.3	17.0	11.6	11.3														
UK 30 3	3/8 SAE	3.9	4.7	5.1	—	5.0	3.4	3.3														
UK 30 4	1/2 SAE	7.1	8.6	9.3	—	9.1	6.2	6.1														
UK 30 4 S	1/2 ODF	7.2	8.8	9.5	—	9.4	6.4	6.2	2505	2169	2281	2097	2120	1926	1741	1347	—	—	2366	2227	2216	1949
UK 30 5	5/8 SAE	11.3	13.8	15.0	—	14.7	10.0	9.7														
UK 30 5 S	5/8 ODF	11.9	14.5	15.7	—	15.4	10.5	10.2														
UK 30 6 S	3/4 ODF	13.0	15.8	17.1	—	16.8	11.5	11.1														
UK 30 7 S	7/8 ODF	14.3	17.4	18.9	—	18.5	12.6	12.3	1322	1146	1205	1108	1120	1018	921	714	—	—	1249	1176	1170	1030
UK 30 9 S	1-1/8 ODF	20.4	24.9	27.0	—	26.5	18.0	17.5														
UK 41 3	3/8 SAE	3.9	4.7	5.1	—	5.0	3.4	3.3														
UK 41 4	1/2 SAE	8.0	9.8	10.6	—	10.4	7.1	6.9														
UK 41 4 S	1/2 ODF	8.8	10.7	11.6	—	11.4	7.8	7.5	2505	2169	2281	2097	2120	1926	1741	1347	—	—	2366	2227	2216	1949
UK 41 5	5/8 SAE	12.8	15.6	16.9	—	16.6	11.3	11.0														
UK 41 5 S	5/8 ODF	13.5	16.5	17.9	—	17.5	12.0	11.6														
UK 41 7 S	7/8 ODF	16.6	20.3	22.0	—	21.6	14.7	14.3														
UK 41 9 S	1-1/8 ODF	20.7	25.2	27.3	—	26.8	18.3	17.7	2505	2169	2281	2097	2120	1926	1741	1347	—	—	2366	2227	2216	1949
UK 75 7 S	7/8 ODF	28.0	34.2	37.1	—	36.3	24.8	24.1														
UK 75 9 S	1-1/8 ODF	30.6	37.3	40.4	—	39.6	27.0	26.3														

FILTER DRIERS

ALCO ALF LIQUID FILTER DRIER

APPLICATION

- Liquid line filter.
- Recovery, recycle and reclaim filter.

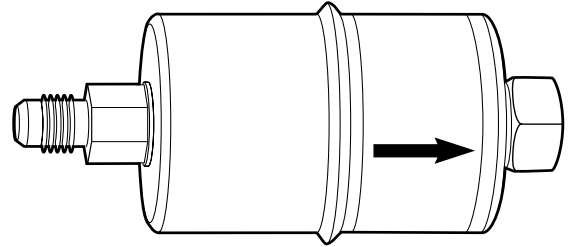
SPECIFICATIONS

- Filtration 40 microns
- Maximum Working Pressure: 500 psig
- UL File Number: SA 3124
- CSA File Number: LR100624
..... LR32462

NOMENCLATURE

Example: ALF 033S

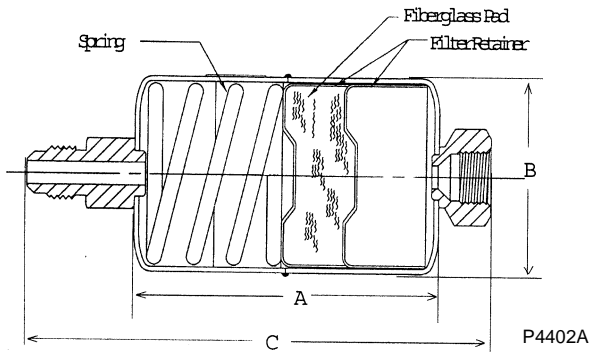
ALF	03	3	S
Series	Unit Size	Connection Size Inlet: (in 1/8")	S = ODF Connection Style Omit for SAE (Male In-Male Out) MF = Male SAE In - Female SAE Out FM = Female SAE In - Male SAE Out



P4402

DIMENSIONAL DATA

ALF-032-MF Pictured



P4402A

SELECTION AND ORDERING INFORMATION FOR ALF

P/N	DIMENSIONS			
	Connection Size	A	B*	C
ALF-032	1/4 SAE	2-9/16	1-5/8	4-3/8
ALF-032S	1/4 ODF	2-9/16	1-5/8	3-7/8
ALF-032MF	1/4 SAE Male In 1/4 SAE Female Out	2-9/16	1-5/8	4
ALF-032FM	1/4 SAE Female In 1/4 SAE Male Out	2-9/16	1-5/8	4
ALF-033S	3/8 ODF	2-9/16	1-5/8	4
ALF-034S	1/2 ODF	2-9/16	1-5/8	4-1/8
ALF-052	1/4 SAE	3	2-5/8	4-7/8
ALF-052MF	1/4 SAE Male In 1/4 SAE Female Out	3	2-5/8	4-3/8

*Does not include weld bead.

RECOVERY, RECYCLE AND RECLAIM REFRIGERANT FLOW CAPACITY (lb/min. liquid)

R-134a	R-22	R-404A/R-507
7.6	8.0	8.0

FILTER DRIERS

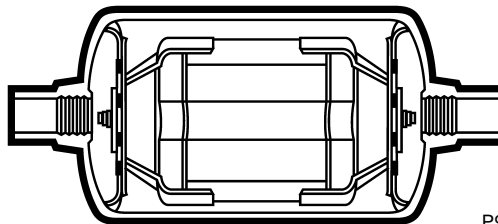
ALCO BFK/EBF LIQUID LINE BI-DIRECTIONAL HEAT PUMP FILTER DRIER

APPLICATION

- Bi-directional liquid line filter drier for heat pump applications.
- For use with CFC, HCFC, HFC refrigerants.

SPECIFICATIONS

- Desiccant blend — 75% molecular sieve and 25% activated alumina (Bead)
- Filtration 40 microns
- Maximum Working Pressure: Sizes: 05-16 600 psig
- 30 500 psig
- UL File Number: SA 3124
- CSA File Number LR100624
- LR32462



P988

NOMENCLATURE

Example: BFK 165S

BFK	16	5	S
Series	Unit Size (in cu. in.)	Connection Size (in 1/8")	S = ODF Connection (omit for SAE)

BFK CAPACITY TABLE

P/N	CONNECTIONS	FLOW CAPACITY TONS @ 1 psi ΔP (For kW, Multiply Tons By 3.5)			WATER CAPACITY DROPS OF WATER					
		R-22	R-410A	R-407C	R-22		R-407C		R-410A	
					75° F	125° F	75° F	125° F	75° F	125° F
BFK 05 2	1/4 SAE	1.6	1.6	1.6	73	66	58	42	39	35
BFK 05 2 S	1/4 ODF	2.2	2.2	2.2						
BFK 05 3	3/8 SAE	3.0	3.0	2.9						
BFK 05 3 S	3/8 ODF	4.0	4.0	3.9	159	144	106	79	85	75
BFK 08 3	3/8 SAE	4.5	4.5	4.4						
BFK 08 3 S	3/8 ODF	5.1	5.1	5.0						
BFK 08 4	1/2 SAE	6.4	6.4	6.3						
BFK 08 4 S	1/2 ODF	6.7	6.7	6.6						
BFK 08 5	5/8 SAE	7.8	7.8	7.7						
BFK 08 5 S	5/8 ODF	8.1	8.1	7.9	323	294	237	179	178	160
BFK 16 3	3/8 SAE	4.6	4.6	4.5						
BFK 16 3 S	3/8 ODF	5.2	5.2	5.1						
BFK 16 4	1/2 SAE	7.7	7.7	7.6						
BFK 16 4 S	1/2 ODF	8.1	8.1	7.9						
BFK 16 5	5/8 SAE	8.3	8.3	8.1						
BFK 16 5 S	5/8 ODF	8.7	8.7	8.5	585	532	452	345	—	—
BFK 30 3	3/8 SAE	4.6	—	4.5						
BFK 30 3 S	3/8 ODF	5.8	—	5.7						
BFK 30 4	1/2 SAE	7.6	—	7.5						
BFK 30 4 S	1/2 ODF	9.7	—	9.5						
BFK 30 5	5/8 SAE	10.3	—	10.1						
BFK 30 5 S	5/8 ODF	14.2	—	13.9						
BFK 30 6 S	3/4 ODF	16.0	—	15.7						
BFK 30 7 S	7/8 ODF	16.7	—	16.4						

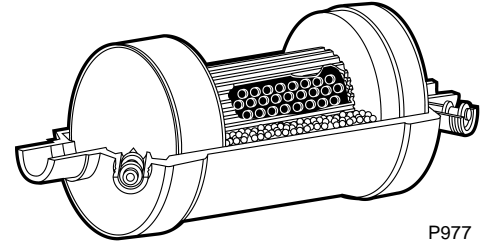
EBF CAPACITY TABLE

P/N	FLOW CAPACITY — TONS @ 1 PSID		LIQUID REFRIGERANT HOLDING CAPACITY — oz						WATER HOLDING CAPACITY DROPS					
			R-22		R-407C		R-410A		R-22		R-407C		R-410A	
	R-22/R-410A	R-407C	75° F	125° F	75° F	125° F	75° F	125° F	75° F	125° F	75° F	125° F	75° F	125° F
EBF163S	5.2	5.1	10.1	9.1	9.6	8.5	9.0	7.6	161	141	125	87	91	55
EBF164	6.6	6.5												
EBF164S	7.4	7.3												
EBF165	8.0	7.8												
EBF165S	8.3	8.1												

FILTER DRIERS

ALSO ASD PLUS SUCTION LINE FILTER DRIER

- Rugged steel shells for shock resistance
- Low pressure drop - full flow fittings
- Dual access valves
- Solid copper sweat connections
- Corrosion resistant epoxy powder paint finish



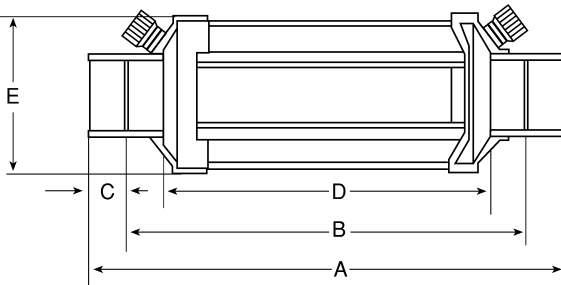
P977

NOMENCLATURE/SELECTION

ASD	35	S	5	VV
Series	Unit Size (in cu. in.)	S = ODF Connections F = SAE	Connection Size (in 1/8")	Suction Line Service

Above example: ASD 35S5VV

DIMENSIONAL DATA



P977A

CATALOG NUMBER	CONNECTION SIZE	DIMENSIONS					SHIP. WEIGHT (lbs)
		A	B	C	D	E*	
ASD 28S3VV	3/8 ODF	5-19/32	4-23/32	7/16	4-1/8	3-11/16	2
ASD 28S4VV	1/2 ODF	5-11/16	4-11/16	1/2			
ASD 35F5VV	5/8 SAE	7-9/16	--	--	4-3/4	3-11/16	2-1/2
ASD 35S5VV	5/8 ODF	6-17/32	5-9/32	5/8			
ASD 45S6VV	3/4 ODF	7-3/4	6-1/2	5/8	5-9/16	3-11/16	3
ASD 45S7VV	7/8 ODF	7-15/16	6-7/16	3/4			
ASD 50S9VV	1-1/8 ODF	8-27/32	7-1/32	29/32	6-1/8	3-11/16	3-1/2
ASD 75S11VV	1-3/8 ODF	12-1/4	10-5/16	31/32			
ASD 75S13VV	1-5/8 ODF	12-5/32	9-29/32	1-1/8	8-1/4	3-11/16	5

*Does not include weld bead.

Filtration recommendation: 40 microns

Maximum working pressure: 500 PSIG

ASD CAPACITY TABLES

P/N	CONNECTION SIZE AND TYPE	FLOW CAPACITY* IN TONS @ 1 PSI Δ PRESSURE REFRIGERANT													
		R-134a				R-22				R-404A/R-507					
		EVAPORATOR TEMPERATURE °F													
		40	20	0	-20	40	20	0	-20	-40	40	20	0	-20	-40
		PRESSURE DROP PSI													
2	1.5	1	.05	3	2	1.5	1	0.5	3	2	1.5	1	0.5		
ASD 28S3VV	3/8 ODF	1.1	.6	.5	.4	2.3	1.3	.9	.6	.5	2.1	1.1	.7	.5	.3
ASD 28S4VV	1/2 ODF	1.9	1.2	.8	.6	3.8	2.1	1.4	1.0	.8	3.6	1.8	1.1	.7	.5
ASD 35F5VV	5/8 SAE	2.2	1.4	1.0	.8	4.4	2.5	1.7	1.2	.9	4.1	2.1	1.3	.9	.6
ASD 35S5VV	5/8 ODF	2.9	1.9	1.3	1.0	5.8	3.2	2.2	1.6	1.0	5.4	2.8	1.7	1.1	.8
ASD 45S6VV	3/4 ODF	3.9	2.5	1.7	1.1	7.0	4.6	3.2	2.0	1.1	6.4	3.7	2.5	1.6	1.0
ASD 45S7VV	7/8 ODF	5.1	3.5	2.2	1.3	9.2	6.0	4.1	2.6	1.4	7.5	4.8	3.3	2.0	1.1
ASD 50S9VV	1-1/8 ODF	7.3	4.9	3.0	1.6	13.2	8.5	5.7	3.5	1.8	10.9	6.9	4.6	2.8	1.4
ASD 75S11VV	1-3/8 ODF	8.8	5.8	3.5	1.8	16.2	10.2	6.7	4.0	2.0	13.6	8.4	5.4	3.2	1.6
ASD 75S13VV	1-5/8 ODF	9.3	6.1	3.7	1.9	17.3	10.7	7.0	4.2	2.1	14.5	8.9	5.7	3.4	1.7

* All ratings in accordance with ARI standard 710-86.

A suction line filter drier with an oversized liquid line filter drier is an effective means of system clean-up to protect a new compressor following a burnout. ALCO suction line System Protectors installed near the compressor suction provide this pollution protection without causing excessive pressure drop.

Selection of a unit with a high pressure drop will result in reduced system capacity and a significant added operating period to overcome this loss. Such extended operation will add unnecessary cost to the owners periodic energy bill. The capacities shown here afford optimum system operating efficiencies.

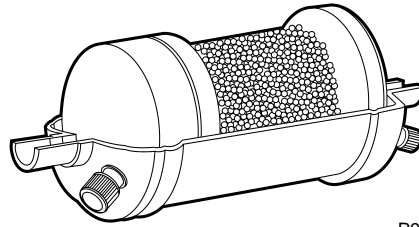
FILTER DRIERS

ALCO SFD SUCTION LINE FILTER DRIER

- Solid copper fittings
- Dual access valves
- Rugged steel shells for shock resistance
- Corrosion resistant epoxy powder paint finish
- Low pressure drop - full flow fittings

Filtration recommendation: 40 microns

Maximum working pressure: 400 PSIG



P978

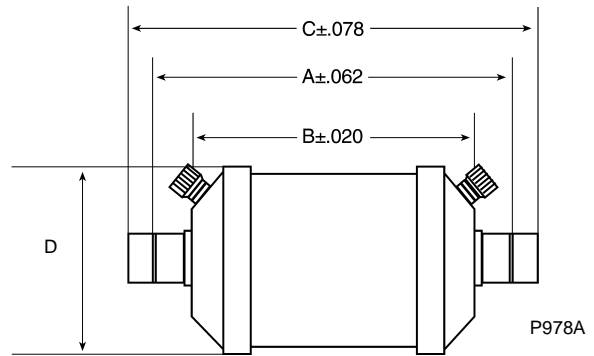
NOMENCLATURE/SELECTION

SFD	13	S	5	VV
Series	Unit Size (in cu. in.)	S = ODF Connections F = SAE	Connection Size (in 1/8")	Suction Line Service

Above example: SFD 13S5-VV

P/N	CONNECTION SIZE	DIMENSIONS				SHIP WEIGHT (lbs)		
		A	B	C	D			
SFD 08FS-VV	3/8 SAE	N/A	3-3/8	5-1/2	3-1/8	2		
SFD 08S3-VV	3/8 ODF	5-5/16		6-3/16				
SFD 08F4-VV	1/2 SAE	N/A		5-3/4				
SFD 08S4-VV	1/2 ODF	3-15/16		5				
SFD 08S5-VV	5/8 ODF	3-29/32		5-5/32				
SFD 08S6-VV	3/4 ODF	4-5/16		5-9/16				
SFD 13F3-VV	3/8 SAE	--	3-3/8	5-1/2	3-11/16	2		
SFD 13S3-VV	3/8 ODF	3-31/32		4-27/32				
SFD 13F4-VV	1/2 SAE	--		5-3/4				
SFD 13S4-VV	1/2 ODF	3-15/16		4-15/16				
SFD 13F5-VV	5/8 SAE	--		6-1/8				
SFD 13S5-VV	5/8 ODF	3-29/32		5-5/32				
SFD 13S6-VV	3/4 ODF	4		5-1/4				
SFD 13S7-VV	7/8 ODF	4-1/4		5-3/4				
SFD 27S6-VV	3/4 ODF	5-3/4		7			5-1/8	3
SFD 27S7-VV	7/8 ODF	6		7-1/2				
SFD 27S9-VV	1-1/8 ODF	5-13/16	7-5/8					
SFD 54S11-VV	1-3/8 ODF	10-5/16	8-1/4	12-1/4	4-1/2			
SFD 54S13-VV	1-5/8 ODF	9-29/32		12-5/32				

DIMENSIONAL DATA



SFD CAPACITY TABLE

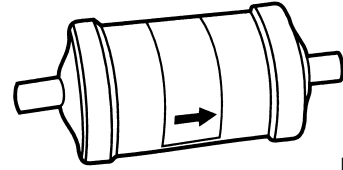
P/N	SFD Flow Capacity in Tons at Listed Conditions*													
	R-134a				R-22					R-404A/R-507A				
	Evaporator Temperature (F)													
	40	20	0	-10	40	20	0	-20	-40	40	20	0	-20	-40
	Pressure Drop													
2	1.5	1	0.5	3	2	1.5	1	0.5	3	2	1.5	1	0.5	
SFD 13F3-VV	0.7	0.4	0.2	0.1	1.4	0.8	0.4	0.2	0.1	1.3	0.7	0.4	0.2	0.1
SFD 13S3-VV	1.3	0.8	0.5	0.2	2.2	1.3	0.8	0.5	0.2	1.9	1.1	0.7	0.4	0.2
SFD 13F4-VV	1.5	1.0	0.6	0.3	2.4	1.6	1.1	0.7	0.4	2.1	1.3	0.9	0.5	0.3
SFD 13S4-VV	2.3	1.5	1.0	0.5	3.5	2.3	1.6	1.0	0.6	3.0	1.9	1.3	0.8	0.4
SFD 13F5-VV	2.5	1.7	1.1	0.6	3.7	2.4	1.6	1.0	0.6	3.2	2.0	1.4	0.9	0.5
SFD 13S5-VV	3.1	2.1	1.3	0.7	4.9	3.2	2.2	1.4	0.8	4.2	2.7	1.8	1.1	0.6
SFD 13S6-VV	4.1	2.7	1.7	0.9	6.4	4.2	2.8	1.8	1.0	5.6	3.5	2.3	1.4	0.7
SFD 13S7-VV	4.4	3.0	1.9	1.0	7.2	4.6	3.0	1.9	1.0	6.3	3.9	2.6	1.5	0.8
SFD 27S6-VV	4.1	2.7	1.7	0.9	6.4	4.2	2.8	1.8	1.0	5.6	3.5	2.3	1.4	0.7
SFD 27S7-VV	4.7	3.1	1.9	1.0	7.5	4.8	3.2	2.0	1.1	6.5	4.1	2.7	1.6	0.8
SFD 27S9-VV	5.2	3.4	2.0	1.0	8.5	5.4	3.5	2.1	1.1	7.5	4.6	3.0	1.7	0.9
SFD 54S11-VV	4.5	2.9	1.7	0.9	7.3	4.6	3.0	1.8	1.0	6.4	3.9	2.5	1.5	0.7
SFD 54S13-VV	4.6	3.0	1.8	0.9	7.4	4.7	3.2	2.0	1.0	6.5	4.0	2.6	1.6	0.8

*All ratings in accordance with ARI standard 730-86.

FILTER DRIERS

ALCO ASK-HH SUCTION LINE FILTER DRIER

All Alco filter driers are specifically designed to protect the refrigerant system from liquid and solid contaminants. They incorporate a desiccant specially formulated and blended for maximum moisture, and include advanced materials to remove acid and contaminants.



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FEATURES

- Full flow fittings for low pressure drop
- Dual access valves
- Corrosion resistant epoxy powder paint finish
- Rugged shock resistant steel shells
- Charcoal blend for soluble contaminant and wax removal
- Solid copper fittings

SPECIFICATIONS:

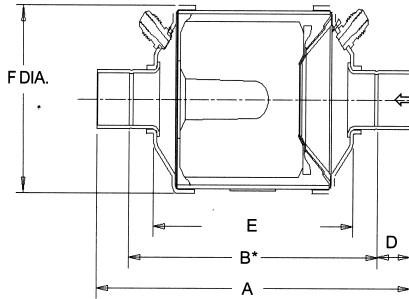
Maximum working pressure: 500 psi
 UL file number: SA 3124
 CSA file number: LR 100624
 LR 32462

NOMENCLATURE

ASK	16	5	S	VV	HH
Series	Unit Size (in cu in.)	Connection Size (in 1/8")	S = ODF Connection	Dual Access Valves	Charcoal Blend

Above example: ASK 305S-V

DIMENSIONAL DATA



*B Indicates Laying Length.

P/N	CONNECTION SIZE & STYLE	DIMENSIONS					SHIP WEIGHT (lbs)
		A	B	D	E	F*	
ASK 165S-VV-HH	5/8 ODF	6-3/8	5-1/8	5/8	4-5/8	2-7/8	2
ASK 166S-VV-HH	3/8 ODF	6-3/4	5-1/2	3/8			
ASK 167S-VV-HH	7/8 ODF	6-15/16	5-7/16	3/4	7-1/2	3-1/16	
ASK 306S-VV-HH	3/4 ODF	9-11/16	8-9/16	5/8			
ASK 307S-VV-HH	7/8 ODF	9-7/8	8-3/8	3/4			
ASK 309S-VV-HH	1-1/8 ODF	10-3/16	8-3/8	15/16			

*Dimension does not include weld bead.

ASK-HH WATER CAPACITY TABLE

SIZE	Water Capacity - (Drops of Water)								
	R-134a			R-22			R-407/R-507A		
	Evaporator Temperature (F)								
	40	0	-20	40	0	-40	40	0	-40
16	85	88	88	85	88	88	85	88	88
30	155	160	160	155	160	160	155	160	160

ASK-HH FLOW CAPACITY TABLE

P/N	Flow Capacity in Tons at Listed Conditions*													
	R-134a				R-22					R-404A/R-507A				
	Evaporator Temperature (F)													
	40	20	0	-10	40	20	0	-20	-40	40	20	0	-20	-40
	Pressure Drop													
	2	1.5	1	0.5	3	2	1.5	1	0.5	3	2	1.5	1	0.5
ASK 165S-VV-HH	2.0	1.4	0.8	0.5	3.4	2.1	1.4	0.9	0.4	3.2	1.9	1.2	0.8	0.3
ASK 166S-VV-HH	2.5	1.7	1.0	0.6	4.2	2.6	1.7	1	0.5	3.9	2.4	1.6	0.9	0.5
ASK 167S-VV-HH	2.7	1.8	1.1	0.6	4.6	2.8	1.9	1.1	0.6	4.3	2.6	1.7	1.0	0.6
ASK 306S-VV-HH	3.4	2.3	1.4	0.8	5.5	3.5	2.3	1.4	0.8	5.0	3.2	2.2	1.2	0.7
ASK 307S-VV-HH	3.6	2.5	1.5	0.8	6.1	3.8	2.5	1.5	0.8	5.6	3.5	2.3	1.4	0.7
ASK 309S-VV-HH	3.9	2.6	1.6	0.8	6.5	4	2.6	1.6	0.8	6.0	3.7	2.4	1.5	0.7

*All ratings in accordance with ARI Standard 730-86.

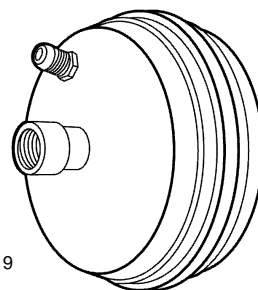
FILTER DRIERS

ALCO CSFD COMPACT SUCTION LINE FILTER DRIER

The Alco CSFD filter drier should be used for motor burnout clean-up applications. It uses a molded desiccant core block that effectively removes and holds a maximum amount of contaminants with a minimum pressure drop.

FEATURES

- For use with HCFCs, CFCs, and the lubricants that go with them
- Dual access valves
- Solid block desiccant core
- High acid removal
- Solid copper ODF fittings
- Corrosion resistant epoxy powder paint finish



SPECIFICATIONS

Maximum working pressure: 500 psig
 UL file number: SA 3124
 CSA file number: LR 100624

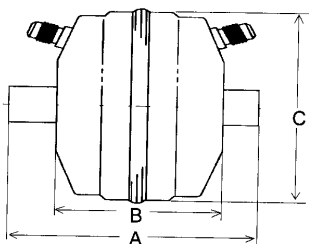
NOMENCLATURE

CSFD	14	S	4	VV
Series	Unit Size	S = ODF Connection	Connection Size (in 1/8")	Dual Access Valve

Above example: CSFD 14S4- VV

P/N	CONNECTION TYPE (in.)	DIMENSIONS (in.)		
		A	B	C
CSFD-14S4-VV	1/2 SOLDER	4-1/4	2-3/4	4-5/8
CSFD-14S5-VV	5/8 SOLDER	4-1/2		
CSFD-14S6-VV	3/4 SOLDER	4-3/8		
CSFD-14S7-VV	7/8 SOLDER	4-9/16		
CSFD-14S9-VV	1-1/8 SOLDER	4-7/8		

DIMENSIONAL DATA



CSFD CAPACITY TABLES IN TONS

P/N	FLOW CAPACITY* IN TONS REFRIGERANT													
	R-134a				R-22					R-404A/R-507				
	EVAPORATOR TEMPERATURE °F													
	40	20	0	-20	40	20	0	-20	-40	40	20	0	-20	-40
	2	1.5	1	.05	3	2	1.5	1	0.5	3	2	1.5	1	0.5
CSFD14S4-VV	1.3	0.9	0.5	0.3	2.0	1.3	0.9	0.6	0.3	1.3	0.8	0.5	0.3	0.2
CSFD14S5-VV	2.3	1.5	0.9	0.5	3.6	2.4	1.6	1.0	0.5	2.6	1.7	1.1	0.7	0.3
CSFD14S6-VV	3.1	2.1	1.3	0.7	4.9	3.2	2.2	1.4	0.7	3.6	2.3	1.5	0.9	0.5
CSFD14S7-VV	3.3	2.0	1.4	0.7	5.2	3.4	2.3	1.5	0.8	3.6	2.3	1.5	0.9	0.5
CSFD14S9-VV†	4.5	3.0	1.8	1.0	7.0	4.6	3.1	2.0	1.0	4.9	3.1	2.0	1.3	0.7

*All ratings in accordance with ARI standard 730-86.

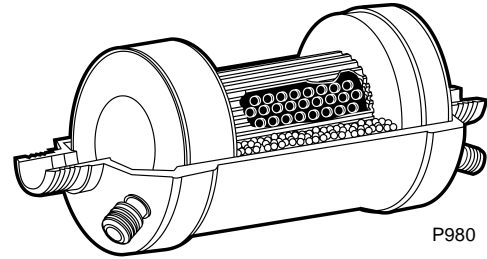
†400 Maximum Working Pressure.

FILTER DRIERS

ALCO ASF PLUS SUCTION LINE FILTER (FILTERS ONLY)

FEATURES

- Rugged steel shells for shock resistance
- Low pressure drop - full flow fittings
- Dual access valves
- Solid copper fittings - easy to sweat in
- Corrosion resistant epoxy powder paint finish



SPECIFICATIONS

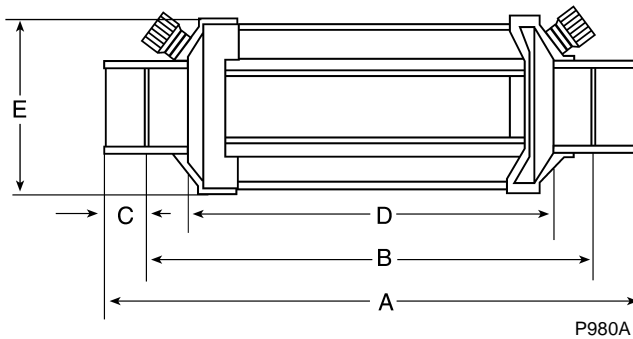
Filtration recommendation: 40 microns
 Maximum working pressure: 500 psig
 UL file number: SA 3124
 CSA file number: LR 100624
 LR 32462

NOMENCLATURE

ASF	35	S	5	VV
Series	Unit Size (in cu. in.)	S = ODF Connection F = SAE	Connection Size (in 1/8")	Suction Line Service

Above example: ASF 35S5-VV

DIMENSIONAL DATA



P/N	CONNECTION SIZE	DIMENSIONS					SHIP WEIGHT (lbs)	
		A	B	C	D	E*		
ASF 11S4	1/2 ODF	4-3/8	3-3/8	1/2	2-7/8	2-5/8	1-1/2	
ASF 11S5	5/8 ODF	4-5/8	3-3/8	5/8				
ASF 28S3-VV	3/8 ODF	5-19/32	4-23/32	7/16	4-1/8	3-11/16	2	
ASF 28S4-VV	1/2 ODF	5-11/16	4-11/16	1/2				
ASF 35F5-VV	5/8 SAE	7-9/16	--	--	4-3/4	3-11/16	2-1/2	
ASF 35S5-VV	5/8 ODF	6-17/32	5-9/32	5/8				
ASF 45S6-VV	3/4 ODF	7-3/4	6-1/2	5/8	5-9/16	3-11/16	3	
ASF 45S7-VV	7/8 ODF	7-15/16	6-7/16	3/4				
ASF 50S9-VV	1-1/8 ODF	8-27/32	7-1/32	29/32	6-1/8	5	3-1/2	
ASF 64S17-V	2-1/8 ODF	11-3/4	9-1/16	1 5/16	7-5/8			
ASF 64S21-V	2-5/8 ODF	13	10	1-1/2	7-7/8	5	6-1/2	
ASF 75S11-VV	1-3/8 ODF	12-1/4	10-5/16	31/32	8-1/4			5
ASF 75S13-VV	1-5/8 ODF	12-5/32	9-29/32	1-1/8				

*Does not include weld bead.

ASF CAPACITY TABLE

P/N	CONNECTION SIZE and TYPE	FLOW CAPACITY* IN TONS REFRIGERANT													
		R-134a				R-22					R-404A/R-507				
		EVAPORATOR TEMPERATURE °F													
		40	20	0	-20	40	20	0	-20	-40	40	20	0	-20	-40
		PRESSURE DROP PSI													
2	1.5	1	.05	3	2	1.5	1	0.5	3	2	1.5	1	0.5		
ASF 11S4	1/2 ODF	1.8	1.2	0.9	0.5	2.6	1.9	1.4	0.9	0.6	2.2	1.5	1.1	0.7	0.4
ASF 11S5	5/8 ODF	2.9	2.1	1.5	0.9	4.2	3	2.3	1.5	1	3.5	2.4	1.8	1.2	0.7
ASF 28S3-VV	3/8 ODF	1.2	.8	.5	.4	2.4	1.3	.9	.7	.5	2.2	1.1	.7	.5	.3
ASF 28S4-VV	1/2 ODF	2.0	1.3	.9	.7	4.1	2.3	1.6	1.2	.9	3.8	2.0	1.2	.8	.6
ASF 35F5-VV	5/8 SAE	2.3	1.5	1.0	.8	4.7	2.6	1.8	1.3	1.0	4.4	2.3	1.4	.9	.7
ASF 35S5-VV	5/8 ODF	3.3	2.2	1.5	1.2	6.6	3.7	2.6	1.9	1.6	6.1	3.2	2.0	1.4	1.0
ASF 45S6-VV	3/4 ODF	4.8	3.1	2.2	1.6	9.8	5.5	3.7	2.7	2.2	9.1	4.7	2.9	1.9	1.4
ASF 45S7-VV	7/8 ODF	6.7	4.7	3.1	1.7	12.1	8.0	5.6	3.6	2.0	9.8	6.3	4.5	2.8	1.5
ASF 50S9-VV	1-1/8 ODF	9.5	6.7	4.3	2.3	19.1	12.2	8.2	4.9	2.6	15.8	10.0	6.7	4.0	2.0
ASF 64S17-V	2-1/8 ODF	26	18	12	6.4	41	27	19	12	6.9	35	23	15	9.8	5.2
ASF 64S21-V	2-5/8 ODF	31	21	14	7.9	46	31	22	14	8.6	40	26	18	12	6.5
ASF 75S11-VV	1-3/8 ODF*	12.4	8.7	5.6	3.0	24.3	15.3	10.3	6.5	3.2	20.1	12.7	8.3	5.1	2.6
ASF 75S13-VV	1-5/8 ODF*	13.5	9.5	6.3	3.4	24.9	15.7	10.6	6.7	3.3	20.8	12.8	8.4	5.2	2.7

*All ratings in accordance with ARI standard 730-86.

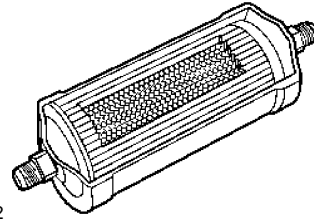
FILTER DRIERS

ALCO AOFD 553 OIL FILTER DRIER

ALCO's AOFD is designed specifically for refrigerant systems that use POE oil. POE oil is hygroscopic in nature, which means that it attracts and absorbs water. Moisture in a closed system can produce acid and will harm the compressor. ALCO's AOFD protects compressors by removing moisture and trapping contaminants.

FEATURES

- Designed to clean and dry POE Oil
- 3/8" male flare connections for easy replacement
- Large filter surface area to provide maximum filtration
- Contains 100% molecular sieve XH-9 Desiccant for moisture removal
- Designed to operate at a very low pressure drop
- 10 micron filtration for optimum oil cleaning

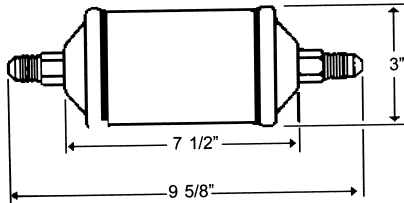


P2022

AOFD WATER CAPACITY TABLE

REFRIGERANT TYPE	DROPS @ 125° F
R-22	497
R-134a	518
R-404A	518
R-407C	435

DIMENSIONAL DATA



ORDERING INFORMATION FOR AOFD FILTER DRIER

DESCRIPTION
AOFD 553 OIL FILTER DRIER

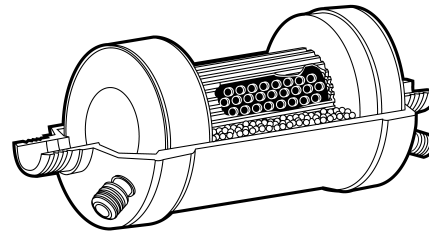
OIL FILTER ASF 45 F 3-VV

FEATURES

- Specifically designed to protect the compressor from dirt and all solid contaminants
- Full flow fittings minimizes pressure drop
- Dual access valves
- 3/8" SAE connections for easy installation on oil lines
- Filtration to 10 microns for maximum compressor protection
- Corrosion resistant epoxy powder paint finish

SPECIFICATIONS

Maximum working pressure: 500 psig
 UL file number: SA 3124
 CSA file number: LR 32462



P980

ORDERING INFORMATION FOR ASF

DESCRIPTION
ASF 45 F 3-VV

OIL TEST KIT

ALCO ACID ALERT REFRIGERATION OIL TEST KIT

How to Test Oil with the Acid Alert

1. Pour the solution from the small bottle into the large bottle. The bottom layer of this mixture will be purple.
2. Completely fill the small bottle with oil from the unit being tested. Do this immediately after the oil is removed from the crankcase, since exposure to air will contaminate the oil and result in a false test result.
3. Pour the oil into the large bottle and shake vigorously.
4. Wait two to three minutes. A phase separation will develop as the oil rises to the top of the mixture and an aqueous layer forms on the bottom.

How to Read Results of the Acid Alert Test

After the phase separation develops, if the bottom layer of the mixture turns pink to clear, the oil being tested is contaminated with acid. If the Acid Alert Test indicates that oil is contaminated, the system should be cleaned up by means of an oversized liquid line filter drier and a suction line filter drier. If the bottom layer of the mixture remains purple, the oil being tested is not contaminated with acid.

The Acid Alert Test provides a positive indication that the acid level in the oil being tested is either safe or unsafe. There is no need for marginal judgment readings.

The Acid Alert is an inexpensive, disposable refrigeration oil acid test kit that is a highly accurate service tool providing a convenient means for determining when the concentration of acid in the refrigeration oil has reached an unacceptable level.

There is no need to make marginal judgment readings when using the Acid Alert Test Kit. The test provides a positive indication of whether the acid number of the refrigeration oil is safe or unsafe.

CAUTION: DANGER! Toxic, flammable, test solutions contain toluene and methanol. Vapor harmful. Harmful if swallowed. Avoid breathing vapor. If swallowed, call physician. Do not induce vomiting. KEEP OUT OF REACH OF CHILDREN.

NOTE: U.S. Postal regulations prohibit mailing of flammable solvents by air or parcel post.

How the Phase II Test Works

The concentration of acid in refrigeration oil is expressed as an acid number in mg KOH per gram of oil (milligrams of potassium hydroxide per gram of oil). The acid number is a measure of the amount of hydroxide solution needed to neutralize the acid in the oil. The more acid there is in the oil, the more potassium hydroxide is needed to neutralize it, and so, the higher the acid number.



*The Alco Acid Alert Refrigeration Oil Test Kit is convenient, accurate, and simple. It contains two bottles and a four-step procedure to provide consistent test results. The phase separation provides a positive color change regardless of the color or condition of oil. Each kit contains everything needed to conduct one test. **When in doubt, use the ACID ALERT KIT!***

In the Acid Alert Test, an acid number of 0.05 mg KOH per gram of oil has been set as the maximum acceptable acid concentration for refrigeration oil. Oil with an acid number less than 0.05 mg KOH per gram of oil is acceptable and will cause no change in the color of the acid indicator. Oil with an acid number of 0.05 mg KOH or greater per gram of oil will cause the acid indicator to change from purple to pink or clear indicating that the oil is contaminated.

Using the Acid Alert with Inhibited Oils

Many inhibited oils contain additives or inhibitors that tend to react like an acid when tested with the Acid Alert Test Kit. Even when these oils are new, the additives may cause the Acid Alert Kit to indicate the oil has an acid number of 0.05 or greater.

Unsatisfactory results found when testing inhibited oils with the Acid Alert, do not necessarily mean that these oils are contaminated or unsuitable for use in refrigeration equipment. The results merely indicate that these oils contain additives which react like an acid-making the Acid Alert Test Kit results invalid. Refer to the following list of inhibited oils to determine those which can or cannot be tested with the Acid Alert Test Kit.

OIL TEST KIT

Satisfactory for Use with the Acid Alert

Nu-Calgon Wholesaler, Inc. C-3	Calumet
Nu-Calgon Wholesaler, Inc. C-4	Calumet
Zero [®] 150	Chevron
Zero [®] 200TD	Calumet
Zero [®] 300	Chevron
Suniso 3GS	Witco
Suniso 4GS	Witco
Texaco WF-32	Witco
Texaco WF-68	Witco

Unsatisfactory for Use with the Acid Alert

Delvac 1120	Mobil Oil Company
DTE Heavy Medium	Mobil Oil Company
American Industrial 31	Standard Oil (Indiana) Co.
Ursa HD20	Texaco
Regal PC	Texaco
WS-5124	Exxon Company
WS-4672	Exxon Company
Teresso No. 52	Exxon Company
Rimula 54802	Shell Oil Company
Tellus 33	Shell Oil Company
Sunvis 620	Sun Oil Company
Sunvis 931	Sun Oil Company
Polyester Lubricants	All Manufacturers

Testing R-11 and R-113 Refrigerant

Most of the inhibited oils which cannot be tested with the Acid Alert Test Kit are used in centrifugal systems. However, the Acid Alert Test Kit can be used to check for excessive acidity in centrifugal systems using R-11 or R-113 Refrigerant, even if oil in the systems cannot be checked.

The following procedure should be followed when testing R-11 or R-113 Refrigerant:

1. Pour the solution from the small bottle into the large bottle. The bottom layer of this mixture will be purple.
2. Completely fill the small bottle with refrigerant from the unit being tested. Do this immediately after the refrigerant is removed from the compressor since exposure to air will contaminate the sample and give a false test result.

3. Pour the refrigerant into the large bottle and shake well.
4. Immediately after shaking, loosen cap carefully to relieve pressure. Wait two or three minutes. When testing R-113, a normal phase separation will develop as the refrigerant rises to the top of the mixture and the aqueous (color-indicating) layer forms on the bottom. When testing R-11, the color-indicating layer will form on the top.
5. If the color-indicating layer:
 - Stays purple — the refrigerant is satisfactory
 - Turns light pink to clear — the refrigerant is contaminated

If contamination is indicated, necessary steps should be taken to free the system from contamination. Consult the equipment maintenance manual for specific instructions.

Ordering Instructions

To order, specify:

1. Catalog Number
2. Quantity

NOTE: Products, specifications, and data in this literature are subject to change without notice. Questions regarding product selection for specific applications should be directed to Alco Technical Service Department, Alco Controls, St. Louis, Missouri.

Engineering has advised that the Acid Alert Kit may not be reliable when used with some of the oil additive leak detectors.

Engineering recommends that the Acid Alert Kit not be used on systems which have used an oil additive leak detector. These additives have produced inconsistent and/or reliable results.

**FOR POE OILS, ORDER
ALCO's NEW POE ALERT!**

P/N	DESCRIPTION
AA/ALERT KT	Acid Alert Kit
AA KIT POE	Alert Kit for POW

TAKE-APART SHELLS

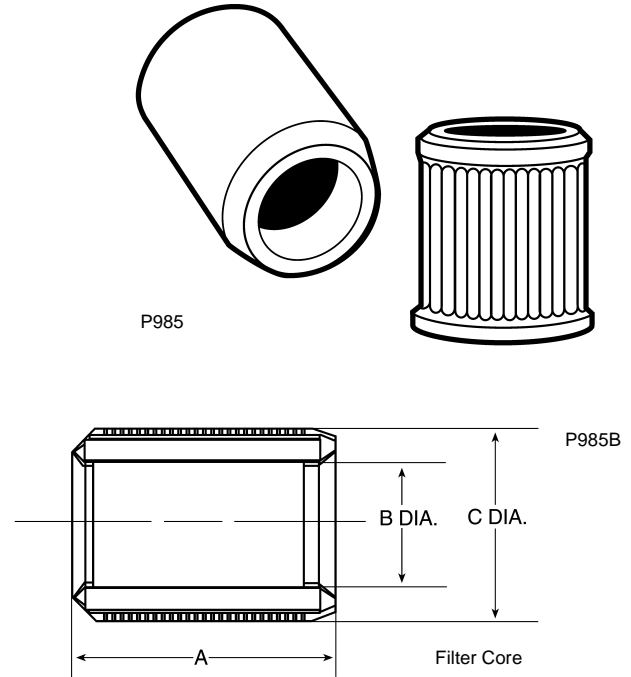
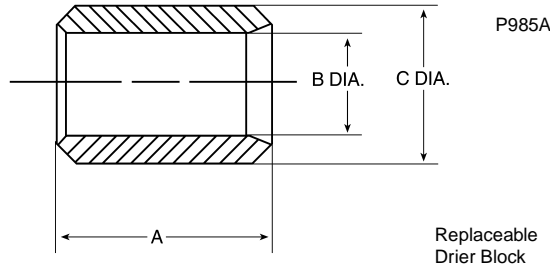
ALCO BLOCKS AND CORES

- Water capacities to suit specific system conditions
- Exceptional acid capacities for normal system protection, or to effectively clean-up following a compressor burnout
- Wax removal capabilities, if desired, for R-22 or R-502 low temperature applications, or for complete clean-up following a compressor burnout (W Series)
- Physical dimensions and gasket sets that permit interchangeability with competitive products

NOMENCLATURE/SELECTION

H	48	100	42
Series	Cubic Inch	Cubic Inch	Cubic Inch

DIMENSIONAL DATA



FILTER DRIER CORE

FILTER DRIER BLOCK SIZE	DIMENSIONS			FILTER AREA (sq. in.)	SHIP WEIGHT (lbs)
	A	B	C		
H/D/W-48	5-1/2	1-49/64	3-23/32	69	1-1/2
H/W-100	6-1/2	2-1/6	4-13/16	110	4

FILTER ONLY CORE

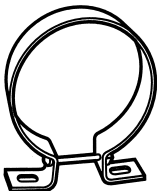
P/N	DIMENSIONS			FILTER AREA (sq. in.)	SHIP WEIGHT (lbs)
	A	B	C		
F48R	5-1/2	2-13/16	3-7/8	105	3/4
F100	6-1/2	3-3/4	4-13/16	210	1-1/2

P/N	DESCRIPTION	WATER CAPACITY - DROPS					
		R-134a		R-22		R-404A/R-507	
		75°	125°	75°	125°	75°	125°
D-42	STANDARD CAPACITY	493	384	432	303	528	378
H-42	MAXIMUM WATER	686	576	617	491	724	587
W-42	MAXIMUM BURNOUT ¹	333	253	288	195	359	248
D-48	STANDARD CAPACITY	415	340	363	254	457	343
H-48	HIGH CAPACITY	676	538	597	436	721	535
W-48	BURNOUT BLOCK	387	294	335	226	417	289
UK-48	ULTRA CAPACITY	1272	1168	1181	1072	1319	1241
HX-48	ULTRA HIGH WATER CAPACITY	1710	1600	1600	1491	1765	1710
H-100	HIGH CAPACITY	1112	834	962	673	1199	839
UK-100	ULTRA CAPACITY	2769	2550	2574	2345	2868	2710

Water capacities are based on an Equilibrium Point Dryness of 60 ppm for R-22. 20 drops of water = 1 gram = 1cc

¹ Includes activated carbon for wax removal from low temperature R-22 or R-404A applications.

SHELL MOUNTING BRACKET



P363

- FOR REPLACEABLE CORE SHELLS
- FITS 48 THRU 192 CU. IN. SIZES
- INCLUDES BOLTS, NUTS, WASHERS

P/N: **KH49ZE003**

TAKE-APART SHELLS

ALCO UNIVERSAL CORE/FILTER CROSS REFERENCE

CUBIC INCH	APPLICATION	SPORLAN	PARKER	ALCO
42 Core	Standard	RC-4267		D42
	High Moisture			H42
	Burnout			W42
48 Core	Standard	RC-4864	PCK-48	D48
	High Moisture	RCW-4864	PCX-48	H48
	Super Moisture		Z-48	HX48
	Burnout			W48
	Copeland Approved POE Block	RC-4864-HH	PCK-48HH	UK48
	Reclaim/Recycle Standard			RD48*
	Reclaim/Recycle High Moisture			RH48*
	Reclaim/Recycle Burnout			RW48*
48 Filter	Standard	RPE-48BD	PFE-48BF	F48
	Reverse Flow	RPE-48BD	PFE-48BF	F48R
100 Core	High Moisture	RC-10098	PCK-100	H100
	Burnout	RC-10098-HH		W100
100 Filter	Standard	RPE-100		F100

*For use on reclaim machines only.

BRASS SHELL CORE/FILTER CROSS REFERENCE

DIAMETER	APPLICATION	SUPERIOR	ALCO
2	Filter	F25A	A2F
3	Filter	F35A	A3F
4	Filter	F45A	A4F
5	Filter	F55A	A5F
2	Filter / Drier	DF25A	A2FD
3	Filter / Drier	DF35A	A3FD
4	Filter / Drier	DF45A	A4FD
5	Filter / Drier	DF55A	A5FD

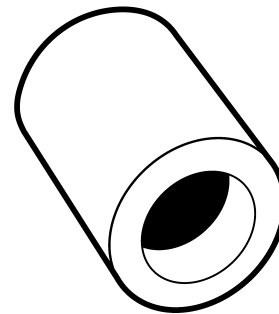
- 100% molecular sieve provides up to three times the moisture holding capacity of traditional high capacity cores
- Compatible with additives in POE lubricants

NOMENCLATURE/SELECTION

HX	48
Type	Size

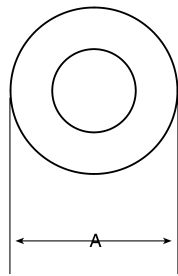
Above example: HX48

DIMENSION		
MODEL	A	B
HX48	3.66	5.50

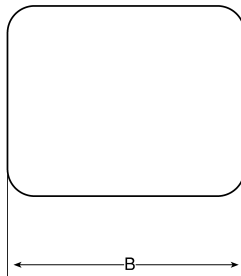


P986

DIMENSIONAL DATA



P986A



P986B

WATER CAPACITY TABLES IN DROPS

P/N	DESCRIPTION	WATER CAPACITY IN DROPS REFRIGERANT						
		R-134a		R-22		R-404A/R-507		
		DROPS @ PPM						
		60 PPM		60 PPM		50 PPM		
EVAPORATOR TEMPERATURE (°F)								
		75°	125°	75°	125°	45°	75°	125°
HX48	Extra High Capacity	1565	1486	1373	1202	1522	1416	1240

TAKE-APART SHELLS

ALCO STAS STEEL TAKE-A-PART FILTER DRIER

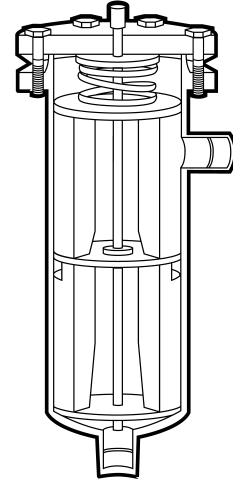
- Simplified internal hardware for easy installation
- Full flow fittings for low pressure drop
- Corrosion resistant epoxy powder paint finish
- Sturdy steel shells for long life durability

NOMENCLATURE/SELECTION

STAS	48	9	T
System	Unit Size	Connection Size	System Service
Protector Series	(in cu. in.)	(in 1/8")	T = Liquid Line Service SV = Suction Line Service

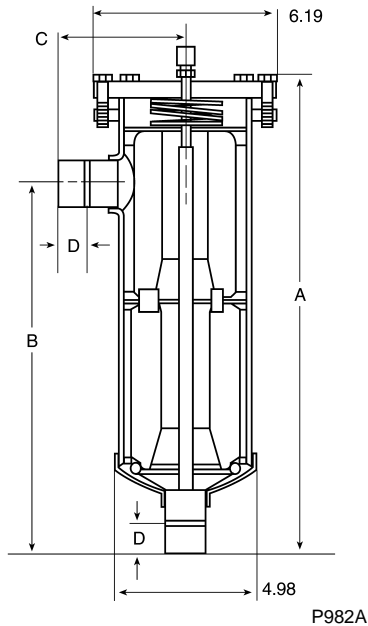
Above example: STAS 489T

Filtration recommendation: 40 microns
 Maximum working pressure: 500 PSIG T
 400 PSI SV



P982

DIMENSIONAL DATA



P/N	CONNECTION SIZE & TYPE	NUMBER OF BLOCKS	DESICCANT VOLUME (cu. in.)	DIMENSIONS			
				A	B	C	D
STAS485T	5/8 ODF	1	48	9-15/32	6	3-25/32	5/8
STAS487T	7/8 ODF			9-11/16	6-1/4	3-3/4	25/32
STAS489T	1-1/8 ODF			9-3/4	6-5/16	3-27/32	15/16
STAS4811T	1-3/8 ODF			9-27/32	6-7/16	3-31/32	15/16
STAS4813S-V	1-5/8 ODF			9-7/8	6-1/2	4-1/32	1-1/8
STAS4817S-V	2-1/8 ODF			10-1/16	6-9/16	4-9/16	1-11/32
STAS4821S-V	2-5/8 ODF			10-7/16	7-1/32	4-3/4	1-1/2
STAS967T	7/8 ODF			2	96	15-3/16	11-23/32
STAS969T	1-1/8 ODF	15-7/32	11-25/32			3-27/32	15/16
STAS9611T	1-3/8 ODF	15-5/16	11-29/32			3-31/32	1-1/32
STAS9613T	1-5/8 ODF	15-3/8	11-31/32			4-1/32	1-1/18
STAS9617S-V	2-1/8 ODF	15-9/16	12-1/32			4-9/16	1-11/32
STAS9621S-V	2-5/8 ODF	15-15/16	12-1/2			4-3/4	1-1/2
STAS9625S-V	3-1/8 ODF	15-11/16	10-5/16			4-5/8	1-3/4
STAS1449T	1-1/8 ODF	3	144			21-1/4	17-3/8
STAS14411T	1-3/8 ODF			21-11/32	17-17/32	3-31/32	1-1/32
STAS14413T	1-5/8 ODF			21-3/8	17-19/32	4-1/32	1-1/8
STAS14417T	2-1/8 ODF			21-9/16	17-5/8	4-9/16	1-11/32
STAS19211T	1-3/8 ODF	4	192	26-29/32	23	3-31/32	1-1/32
STAS19213T	1-5/8 ODF			26-15/16	23-1/6	4-1/32	1-1/8
STAS19217T	2-1/8 ODF			27-1/8	23-1/8	4-9/16	1-11/32

TAKE-APART SHELLS

ALCO STAS LIQUID LINE FILTER DRIER RATINGS

P/N	UNIT SIZE	CONNECTION SIZE & TYPE	SUGGESTED NOMINAL SYSTEM TONNAGE ¹									
			REFRIGERATION LOW TEMPERATURE & COMMERCIAL INSTALLATIONS			AIR CONDITIONING						
						FIELD REPLACEMENT AND FIELD INSTALLATIONS			OEM SELF-CONTAINED EQUIPMENT			
			R-134a	R-22	R-404A/R-507	R-134a	R-22	R-404A/R-507	R-134a	R-22	R-404A/R-507	
STAS485T	48	5/8 ODF	8	10	8	8	10	8	13	15	10	Improved flow capacities.
STAS487T		7/8 ODF	10	13	10	10	12.5	10	15	20	13	
STAS489T		1-1/8 ODF	10	15	10	10	15	10	15	20	15	
STAS4811T		1-3/8 ODF	13	20	13	13	20	13	20	25	15	
STAS967T	96	7/8 ODF	20	25	15	20	25	15	25	35	20	High water capacities.
STAS969T		1-1/8 ODF	25	30	20	25	30	20	35	45	25	
STAS9611T		1-3/8 ODF	30	35	25	30	35	25	35	45	30	
STAS9613T		1-5/8 ODF	35	40	30	35	40	30	40	50	35	
STAS1449T	144	1-1/8 ODF	30	40	30	30	40	30	40	55	35	Desiccant blends to suit specific system conditions.
STAS14411T		1-3/8 ODF	40	50	35	40	50	35	50	65	40	
STAS14413T		1-5/8 ODF	45	55	40	45	55	50	55	75	45	
STAS14417T		2-1/8 ODF	60	50	45	50	60	45	60	80	50	
STAS19211T	192	1-3/8 ODF	50	70	45	50	70	45	60	80	50	
STAS19313T		1-5/8 ODF	60	80	55	60	80	55	75	100	60	
STAS19217T		2-1/8 ODF	65	85	60	65	85	60	80	110	65	

¹Suggested nominal tonnage selection. By type or application. All ratings in accordance with ARI standard 710-86.

STAS SUCTION LINE FILTER DRIER RATINGS

P/N	CONNECTION SIZE & TYPE	FLOW CAPACITY IN TONS @ LISTED CONDITIONS ²														
		REFRIGERANT														
		R-134a				R-22				R-404A/R-507						
		EVAPORATOR TEMPERATURE °F														
		40	20	0	-20	40	20	0	-20	-40	40	20	0	-20	-40	
PRESSURE DROP PSI																
		2	1.5	1	0.5	3	2	1.5	1	0.5	3	2	1.5	1	0.5	
STAS489S-V	1-1/8 ODF	13	8	5	2	22	14	10	6	2	20	12	8	5	3	Maximum filter surface area for less pressure drop. Larger connection sizes for larger systems. Filtration of solid contaminants down to 10 microns for optimum compressor protection.
STAS4811S-V	1-3/8 ODF	15	10	6	3	28	17	12	7	3	25	15	10	6	4	
STAS4813S-V	1-5/8 ODF	20	12	7	4	35	20	15	8	4	30	18	11	7	5	
STAS4817S-V	2-1/8 ODF	25	15	10	5	47	30	20	10	5	40	25	15	9	7	
STAS4821S-V	2-5/8 ODF	30	20	13	6	60	40	25	15	7	55	30	20	12	8	
STAS9617S-V	2-1/8 ODF	28	18	10	5	50	30	20	12	6	40	25	15	10	7	
STAS9621S-V	2-5/8 ODF	38	25	15	7	70	43	28	17	8	60	35	25	15	10	
STAS9625S-V	3-1/8 ODF	50	30	20	10	95	60	40	22	10	80	50	30	20	12	

²Capacities are based on 100° F liquid refrigerant temperature and suction gas superheated 10° F.

SAS SUCTION LINE FILTER DRIER RATINGS

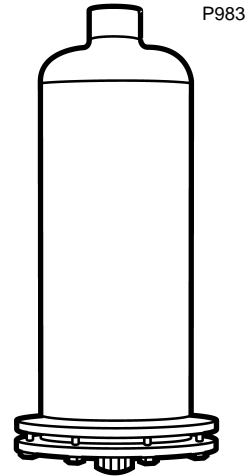
P/N	CONNECTION SIZE & TYPE	FLOW CAPACITY IN TONS @ LISTED CONDITIONS ³														
		REFRIGERANT														
		R-134a				R-22				R-404A/R-507						
		EVAPORATOR TEMPERATURE °F														
		40	20	0	-20	40	20	0	-20	-40	40	20	0	-20	-40	
PRESSURE DROP PSI																
		4	3	2	1	6	4	3	2	1	6	4	3	2	1	
STAS489S-V	1-1/8 ODF	12	8	5	2	21	13	10	6	2	19	11	8	5	3	Exceptional acid capacities for effective system clean-up following a compressor burnout. Effective filtration of solid contaminants and sludge.
STAS4811S-V	1-3/8 ODF	14	10	6	3	26	16	11	7	3	24	14	9	6	4	
STAS4813S-V	1-5/8 ODF	19	11	7	4	33	19	14	8	4	28	17	10	7	5	
STAS4817S-V	2-1/8 ODF	24	14	10	5	44	28	19	10	5	38	24	14	9	7	
STAS4821S-V	2-5/8 ODF	28	19	12	6	56	38	24	14	7	52	28	19	11	8	
STAS9617S-V	2-1/8 ODF	26	17	9	5	47	28	19	11	6	38	24	15	10	7	
STAS9621S-V	2-5/8 ODF	36	24	14	7	66	40	26	16	8	56	33	24	14	10	
STAS9625S-V	3-1/8 ODF	47	28	19	9	90	56	38	21	10	75	47	28	19	11	

³Capacities are based on 100° F liquid refrigerant temperature and suction gas superheated 10° F, and with pressure drop values twice that recommended for normal operation.

TAKE-APART SHELLS

ALCO ADKS LIQUID and SUCTION LINE FILTER DRIER

- Simplified internal hardware for easy installation
 - Full flow fittings for low pressure drop
 - Corrosion resistant epoxy powder paint finish
 - Sturdy steel shells for long life durability
- Maximum working pressure: 500 PSIG

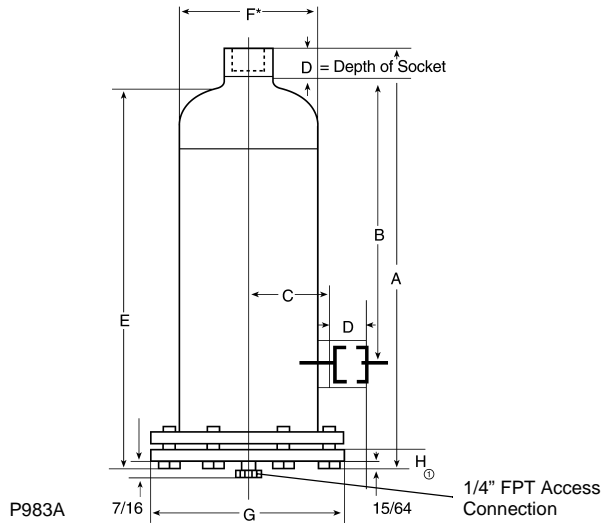


NOMENCLATURE/SELECTION

ADKS	300	13	T
System Protector Series	Unit Size (in cu. in.)	Connection Size (in 1/8")	System Service T = Liquid Line SV = Suction Line

Above example: ADKS 30013T

DIMENSIONAL DATA



ADKS CAPACITY TABLES (IN TONS)

P/N	UNIT SIZE	CONNECTION SIZE & TYPE	FLOW CAPACITY* TONS @ 1 PSI Δ P		
			R-134a	R-22	R-404A/R-507
ADKS30013T	300	1-5/8 ODF	49.1	75.5	49.1
ADKS30017T		2-1/8 ODF	95.4	91.5	59.5
ADKS40017T	400	2-1/8 ODF	101.7	97.5	63.4
ADKS40021T		2-5/8 ODF	114.8	110.0	71.5

*All ratings in accordance with ARI standard 710-86
 86° F Liquid Refrigerant Temperature
 5° F saturated temperature
 4.0 lbs./min./ton for R-134a
 2.9 lbs./min./ton for R-22
 4.4 lbs./min./ton for R-404A/R-507

P/N	CONNECTION SIZE & TYPE	DIMENSIONS								SHIP WEIGHT (lbs)
		A	B	C	D	E	F ¹	G	H ²	
ADKS30013T	1-5/8 ODF	25-1/2	19-15/32	4-3/16	1-1/8	23-3/16	6	7-/916	22-1/4	39
ADKS30017T	2-1/8 ODF	25-19/32	19	3-25/32	1-22/32					
ADKS40017T	2-1/8 ODF	32-3/32	25-1/2	3-25/32	1-21/32	29-31/32			28-7/8	46
ADKS40021T	2-5/8 ODF	33-1/8	26-23/32	4-13/16	1-15/32					

¹Does not include weld bead.

²"H" Dimension is the clearance required to change the internal hardware assembly.

T = 1/4 in. FPT access connection.

TAKE-APART SHELLS

ALCO LIQUID LINE FOR REPLACEABLE BLOCK TYPE ADKS FILTER DRIERS

P/N	UNIT SIZE	CONNECTION SIZE & TYPE	FLOW CAPACITY ¹ TONS @ 1 PSI P			FILTER AREA (sq. in.)	NUMBER & TYPE OF BLOCK REQ'D	SUGGESTED NOMINAL SYSTEM TONNAGE ²								
								REFRIGERATION LOW TEMPERATURE & COMMERCIAL INSTALLATIONS			AIR CONDITIONING			OEM SELF-CONTAINED EQUIPMENT		
			R-134a	R-22	R-404A/R-507			R-134a	R-22	R-404A/R-507	R-134a	R-22	R-404A/R-507	R-134a	R-22	R-404A/R-507
ADKS30013T	300	1-5/8 ODF	49.1	75.5	49.1	330	(3) H-100	75	100	65	75	100	65	100	125	75
ADKS30017T		2-1/8 ODF	95.4	91.5	59.5		or W-300	--	--	--	--	--	--	--	--	--
ADKS40017T	400	2-1/8 ODF	101.7	97.5	63.4	440	(4) H-100	100	130	90	100	130	90	130	160	100
ADKS40021T		2-5/8 ODF	114.8	110.0	71.5		or W-100	115	150	100	115	150	100	145	180	110

ADKS SUCTION LINE FILTER RATINGS

P/N	UNIT SIZE	CONNECTION SIZE & TYPE	FLOW CAPACITY IN TONS @ LISTED CONDITIONS ³														FILTER AREA (sq. in.)	NUMBER AND TYPE OF CORES REQUIRED	
			REFRIGERANT																
			R-134a			R-22				R-404A/R-507									
			EVAPORATOR TEMPERATURE °F																
			40	20	0	-20	-40	40	20	0	-20	-40	40	20	0	-20			-40
PRESSURE DROP PSI																			
		2	1.5	1	0.5	0.5	3	2	1.5	1	0.25	3	2	1.5	1	0.5			
ADKS30013T	300	1-5/8 ODF	25.2	17.3	11.1	6.2	3.0	45.0	29.5	20.5	12.9	7.0	36.6	23.8	16.0	10.3	5.5	630	(3)
ADKS30017T		2-1/8 ODF	42.9	29.5	18.8	10.6	5.1	76.7	50.3	34.9	21.9	12.0	61.9	40.4	27.3	17.5	9.4		F-100
ADKS40017T	400	2-1/8 ODF	45.0	30.9	19.7	11.2	5.4	80.4	52.9	36.6	23.0	12.6	65.6	42.5	28.7	18.4	9.8	840	(4)
ADKS40021T		2-5/8 ODF	67.9	47.0	29.8	16.8	8.1	121.7	79.8	55.2	34.0	19.0	98.7	64.2	43.4	27.7	14.8		F-100

ADKS SUCTION LINE FILTER DRIER RATINGS

P/N	UNIT SIZE	CONNECTION SIZE & TYPE	FLOW CAPACITY IN TONS @ LISTED CONDITIONS ⁴														FILTER AREA (sq. in.)	NUMBER AND TYPE OF CORES REQUIRED	
			REFRIGERANT																
			R-134a			R-22				R-404A/R-507									
			EVAPORATOR TEMPERATURE °F																
			40	20	0	-20	-40	40	20	0	-20	-40	40	20	0	-20			-40
PRESSURE DROP PSI																			
		2	1.5	1	0.5	0.5	3	2	1.5	1	0.25	3	2	1.5	1	0.5			
ADKS30013T	300	1-5/8 ODF	19.7	13.7	8.7	4.9	2.4	35.2	23.1	16.1	10.1	5.5	28.9	18.6	12.6	8.0	4.3	630	(3)H-100
ADKS30017T		2-1/8 ODF	31.2	21.7	13.8	7.7	3.7	55.7	36.7	25.3	16.0	8.8	45.7	29.5	20.0	12.7	6.8		or W-100
ADKS40017T	400	2-1/8 ODF	34.0	23.4	14.9	8.4	4.0	60.5	39.9	27.5	17.3	9.5	49.4	32.2	21.7	13.8	7.4	840	(4)H-100
ADKS40021T		2-5/8 ODF	49.4	33.9	21.7	12.2	5.9	88.1	57.9	40.2	25.3	13.8	71.7	46.8	31.6	20.1	10.8		or W-100

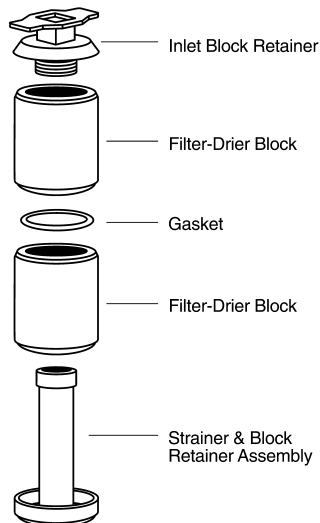
¹The above liquid line ratings are based on 86° F liquid refrigerant temperature. 5° saturated temperature, 4.0 lbs./min./ton for R-134a, 2.9 lbs./min./ton for R-22, and 4.4 lbs./min./ton for R-404A/R-507. In accordance with ARI Standard 710-86.

²Suggested nominal tonnage selections. By type or application.

³All ratings in accordance with ARI Standard 730-86.

⁴Capacities are based on 100° F liquid refrigerant temperature and suction gas superheated 10° F.

ADKS INTERNALS



P984

TAKE-APART SHELLS

ALCO BTAS BRASS TAKE-A-PART SUCTION LINE FILTER DRIER

- Full flow fittings for low pressure drop
- Corrosion free brass body

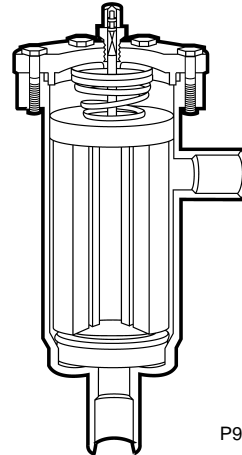
NOMENCLATURE/SELECTION

BTAS	3	11	SV
System	Unit Size	Connection Size	Suction Line
Protector Series		(in 1/8")	Service

Above example: BTAS 311SV

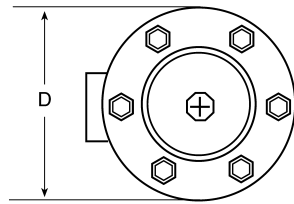
Filtration recommendation: 40 microns

Maximum working pressure: 400 PSIG

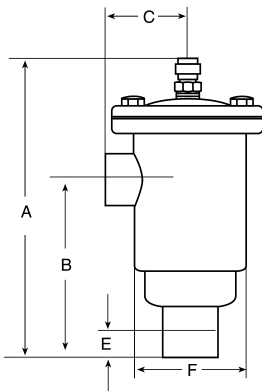


P987

DIMENSIONAL DATA



P987A



P987B

P/N	CONNECTION SIZE	NOMINAL SHELL SIZE (in.)	DIMENSIONS						SHIP WEIGHT (lbs)
			A	B	C	D	E	F	
BTAS 25SV	5/8 ODF	2	9-1/2	6-1/32	2-1/16	3-3/4	.500	2-23/32	6-1/2
BTAS 27SV	7/8 ODF		9-3/4	6-21/32	2-3/16		.750		6-3/4
BTAS 39SV	1-1/8 ODF	3	10-5/16	6-13/16	3-5/16	4-5/8	.910	3-15/32	10-1/4
BTAS 311SV	1-3/8 ODF		11-1/16	6-15/16	3-7/16		.970		10-1/2
BTAS 313SV	1-5/8 ODF		11-1/4	7-1/8	3-5/8		1.090		11
BTAS 317SV	2-1/8 ODF		11-1/2	7-3/8	3-7/8		1.340		11-1/2
BTAS 411SV	1-3/8 ODF	4	11-27/32	7-5/8	3-15/16	5-3/4	.970	4-15/32	16-1/4
BTAS 413SV	1-5/8 ODF		12-1/32	7-13/16	4-1/8		1.090		16-3/4
BTAS 417SV	2-1/8 ODF		12-9/32	8-1/16	4-3/8		1.340		17-1/2
BTAS 421SV	2-5/8 ODF		12-13/32	8-3/16	4-15/16		1.470		18
BTAS 517SV	2-1/8 ODF	5	13-7/16	8-13/32	4-3/16	7-3/32	1.340	5-9/16	28-3/4
BTAS 521SV	2-5/8 ODF		13-9/16	8-15/32	4-15/16		1.470		29
BTAS 525SV	3-1/8 ODF		13-1/4	8-5/32	4-5/8		1.660		29-1/4

TYPE A-F REPLACEABLE FILTER CORES

FILTER CORE	FOR SHELL NO.	CORE O.D. (in.)	CORE LENGTH (in.)	FILTER AREA (sq. in.)	WEIGHT (lbs)
A2F	BTAS - 2	1-29/32	6-3/8	66	1/3
A3F	BTAS - 3	2-3/4	6-7/8	115	1/2
A4F	BTAS - 4	3-3/4	7-1/2	189	7/8
A5F	BTAS - 5	4-5/16	8-1/2	270	1

TYPE A-F-D REPLACEABLE FILTER-DRIER CARTRIDGES

FILTER-DRIER CARTRIDGE	FOR SHELL NO.	CARTRIDGE O.D. (in.)	CARTRIDGE LENGTH (in.)	DESICCANT VOLUME (cu. in.)	WEIGHT (lbs)
A2FD	BTAS - 2	1-29/32	6-3/8	4.2	1/2
A3FD	BTAS - 3	2-3/4	6-7/8	13.3	7/8
A4FD	BTAS - 4	3-3/4	7-1/2	26.0	1-1/2
A5FD	BTAS - 5	4-5/16	8-1/2	36.5	2

Filter-drier cartridge filter area is the same as the corresponding filter core model.

TAKE-APART SHELLS

ALCO 42 CUBIC INCH DRIERS

The Alco A-TD-42 series is the standard line of replaceable core driers. The unique internal core retainer with a "hooked end" allows for easy removal of the core retainer for installation of new cores. The core retainer is spring loaded against an internal gasket to eliminate refrigerant bypass flow. The flange is made of aluminum with drilled holes for use with nuts and bolts.

FEATURES

- For use with 42 cubic inch cores
- Aluminum flange cover with threaded bolt
- Spring loaded core retainer
- Internal gasket seal to eliminate refrigerant bypass
- Solid copper ODF fittings
- Corrosion resistant epoxy powder paint finish

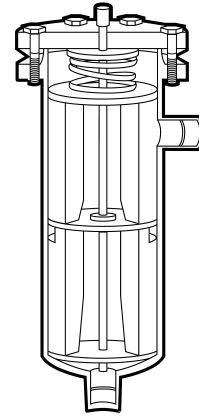
SPECIFICATIONS:

Maximum working pressure: 500 psig
 UL file number: SA7175
 CSA file number: LR 100624

NOMENCLATURE

A-TD	42	7
Series	Cubic Inch	Unit Size (in 1/8")

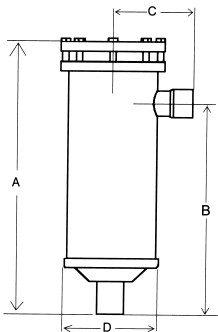
Above example: A-TD 42 7



P982

P/N	CONNECTION TYPE (in.)	DIMENSIONS (in.)			
		A	B	C	D
A-TD-42 4	1/2 SOLDER	8-5/8	6-3/4	2-5/8	3-1/2
A-TD-42 5	5/8 SOLDER	8-7/8	6-7/8	2-3/4	
A-TD-42 7	7/8 SOLDER	9-1/8	7-3/16	2-7/8	
A-TD-42 7 SV	7/8 SOLDER				
A-TD-42 9 SV	1-1/8 SOLDER	9-3/16	7-1/8	2-7/8	
A-TD-42 11 SV	1-3/8 SOLDER	9-1/4	7-1/4	3	
A-TD-42 13 SV	1-5/8 SOLDER				

DIMENSIONAL DATA



CAPACITY TABLES IN TONS

P/N	NOMINAL CAPACITY IN TONS		
	REFRIGERANT		
	R-134a	R-22	R-404A/R-507
A-TD-424	3-3/4	4	2-3/4
A-TD-425	TO	TO	TO
A-TD-427	12 TONS	13 TONS	10 TONS

OIL CONTROL SYSTEMS

OMA TRAXOIL

APPLICATION

- Compressor crankcase oil level protective control.
- Warranty requirement for Copeland ZF, ZB and ZS refrigeration scroll compressors.
- Recommended for Copeland, Carlyle, Bitzer and other semi-hermetic compressors.

FEATURES

- Self contained unit with oil level sensor and integral solenoid to manage oil level supply.
- Hall-effect sensor for precise measurement of oil level.
- Alarm and status indication by LEDs.
- SPDT output contact for compressor shutdown or alarming.
- Easy installation by sightglass replacement.
- Adapters suitable for various types of compressors including conventional and scroll compressors.
- Signal generated by gravity based float - not prone to errors from foaming like optical sensors.
- Debris retention magnet for reliable operation.
- UL recognized.

SPECIFICATIONS

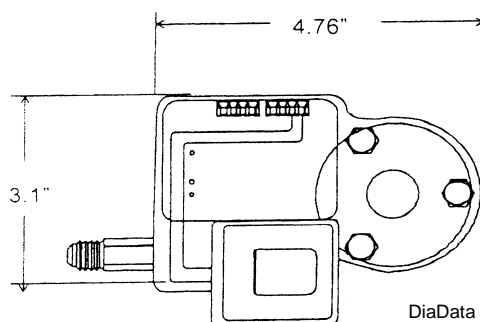
Maximum Working Pressure:	500 psig
Solenoid MOPD:	300 psi
Supply Voltage	24 VAC, 50/60 Hz
Solenoid Coil:	Alco AMF or ASC2 24 VAC, 50/60 Hz
Current Consumption:	0.6A
Time Delay for Low Level Signalling:	10 seconds
Time Delay After Setpoint Recovery	10 seconds
Alarm Delay Time (including alarm contact):	120 seconds
Alarm Switch:	SPDT
Alarm Contact Rating:	1.2A @ 125 VAC 50/60 0.6A @ 250 VAC 50/60
Refrigerant Compatibility: (not for use with flammable refrigerants or ammonia)	HFC, HCFC, CFC
Refrigerant Temp.:	180° F Maximum
Storage and Transport Temp.:	120° F Maximum
Ambient Temp. (Housing):	120° F Maximum
Oil Supply Fitting:	1/4" Male SAE

NOMENCLATURE

Example: OMAJB1S/T ASC2 24 50/60

OMA	JB	1	S/T	ASC2 24 50/60
Alco Oil Management Control	JB - Junction Box MA - Stress Relief Connector	1 - TraxOil 2 - Oil Watch	Oil Inlet FTG 1/4" SAE S/T - Straight ANG - Angle	Solenoid Coil Model Number, Voltage, Frequency (Included)

DIMENSIONAL DATA



TraxOil unit must be mounted horizontally for correct operation.

ORDERING INFORMATION FOR OMA TRAXOIL

PCN*	DESCRIPTION
TRAXOIL	
064340	OMA-JB1 S/T ASC 2 24/50-60 - STD
064341	OMA-MO1 ANG ASC 2 24/50-60 - Hussmann Protocol
ADAPTERS (TO ATTACH TRAXOIL TO COMPRESSOR FOR NEW INSTALLATIONS ONLY)	
063678	OMA-ACB ADAPTER (Copeland Scroll ZF, ZS ZB)† - KS30349
063520	OMA-ACA ADAPTER (Copeland Scroll ZF, ZS, ZB)** - KS30350
063521	OMA-AUA ADAPTER (Semi Hermetic Universal) - KS30348
SERVICE PARTS	
048638	Inlet Flare Screen - X11176-7
064811	Sight Glass and O-Ring - KS30367
064812	O-Rings (3 pieces) - KS30368

Standard Product Offering.

*Product Code Number.

†7-1/2 - 15 HP.

**6 HP and smaller.

NOTE: An adapter kit is required for new installations.

OIL CONTROL SYSTEMS

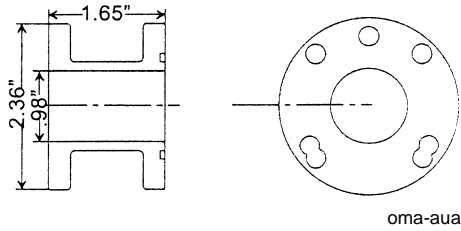
OMA TRAXOIL

OMA - AUA - 063521 Includes:

(3) O-Rings, 3 Bolts, 3 Washers and 3 Nuts

- Flange Adapter 3/4"
- 3 holes (.26")
- 4 holes (.26")
- O-ring seal (1.3" x 1")

Semi-Hermetic
Universal Adapter



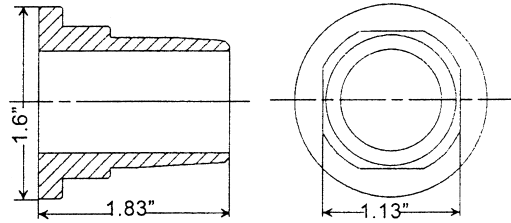
oma-aua

OMA - ACA - 063520 Includes:

Sight Glass, (2) O-Rings and 3 Bolts

- Screw Adapter 3/4"-14 NPTF
- Thread NPTF male
- Teflon seal
- Additional flange ring for adapter/base unit connection (included)

Copeland Scroll
ZF, ZS, ZB (2 - 6 Hp)



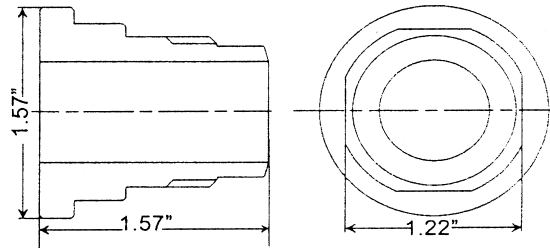
oma-aca

OMA - ACB - 063678 Includes:

Sight Glass, (2) O-Rings and 3 Bolts

- Screw Adapter 1-1/8"-12 UNF
- Thread UNF
- O-ring seal (.86" x 1")
- Additional flange ring for adapter/base unit connection (included)

Copeland Scroll
ZF, ZS, ZB (7-1/2 - 15 Hp)



oma-acb

NOTE: Sight Glass PCN 064811 required for Bitzer 4-hole pattern compressor.

OMA OIL WATCH

The Alco OMA-JB2 Oil Watch is designed to monitor a compressor's oil level and signal an alarm if the oil level is not adequate. The OMA-JB2 can be used to shut-down the compressor in addition to its alarm capability. For use on single compressor applications without oil separators.

FEATURES

- Self contained unit.
- SPDT alarm output.
- Installs directly over compressor sight glass.
- Junction box standard.
- UL recognized.

ORDERING INFORMATION FOR OMA OIL WATCH

PCN	DESCRIPTION
063841	OMA-JB2

PRESSURE REGULATORS

ALCO EPRB(S) BRASS BODY UPSTREAM REGULATOR

This Evaporator Pressure Regulator is a new lightweight, energy-efficient pilot operated regulator. It is supplied with copper connections to allow easy installation into the system. The pilot operation is dependent upon high side system pressure which minimizes the pressure drop across the regulator. This regulator is of normally-open construction so that a manual operator is not required for system evacuation. A solenoid version having the suction stop is available as an option.

ALCO EPRB(S) series regulators are pilot operated and designed to maintain a predetermined minimum inlet pressure. They are available in a "S" version for gas defrost applications. For information on other refrigerant applications please contact ALCO's Applications Engineering Department.

FEATURES

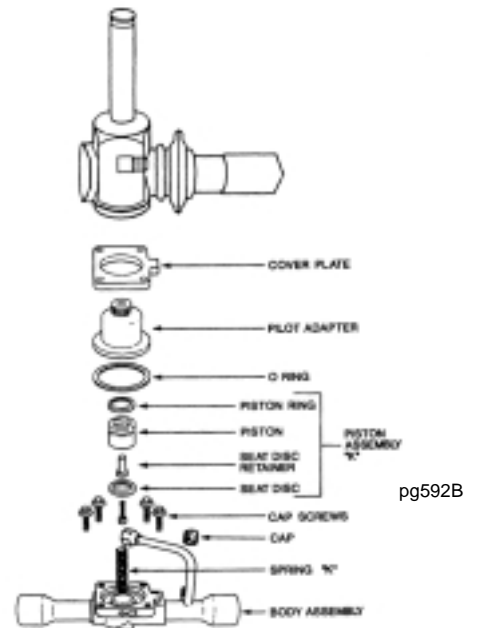
- Energy efficient as it uses high side pressure for pilot operation, which minimizes system pressure drop.
- 25 lb. system pressure differential needed for valve operation.
- Uses copper line connections allowing installation with phos-copper alloy, i.e.: no flux.
- Can be installed without disassembly.
- Has a wide adjustment range (0-110 psig).
- Pilot connection available in 1/4-in. SAE or ODF.
- Easily disassembled to allow easy serviceability.
- Available with suction stop feature using a take-apart solenoid for additional serviceability.
- May be installed in either a vertical or horizontal refrigeration line.
- Pressure tap on inlet connection.
- External leak tested to less than 1/10 oz. a year.
- Corrosion resistant to 1000 hour salt spray.
- Reduced discharge to suction bleed.

SPECIFICATIONS

Maximum Working Pressure: 450 psig (3100 KPa).
 MOPD: 350 psi (2412 KPa) "S" version.
 Maximum Temperature: 250° F (121° C).

"S" version for use with DMG, AMG or AMC coils only.

EPRB(S) EXPLODED VIEW



EPRB(S) REPLACEMENT PARTS

When 1/4" ODF pilot repair kits are needed, the following repair kits should be ordered:

EPRB Pilot Assembly KR50071

EPRB(S) Pilot Assembly KR 50067

ODF PILOT ONLY

VALVE SIZE	EPRB UPPER SUB-ASSEMBLY	EPRB(S) UPPER SUB-ASSEMBLY
12	KR 50068	KR 50072
16	KR 50069	KR 50073
20	KR 50070	KR 50074

SAE & ODF

SOLENOID ONLY	GASKETS
KR 50051	KR 50053

NOTE: Both the Bell/Piston Assembly and the Upper Subassembly Kits contain the main body gasket and spring.

SAE PILOT ONLY

VALVE SIZE	BELL/PISTON	EPRB UPPER SUBASSEMBLY	EPRBS UPPER SUBASSEMBLY
12	KR50045	KR50048	KR50054
16	KR50046	KR50049	KR50055
20	KR50047	KR50050	KR50056

PILOT ASSEMBLY SAE ONLY

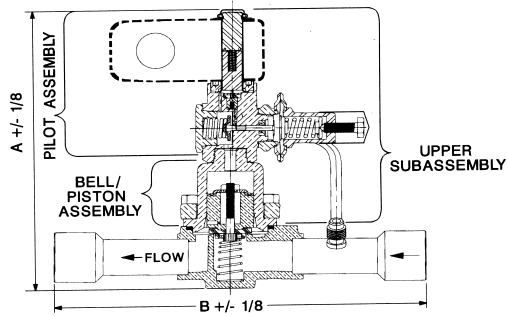
EPRB	EPRB(S)
KR 50052	KR 50044

PRESSURE REGULATORS

ALCO EPRB(S) BRASS BODY UPSTREAM REGULATOR

EPRB(S) DIMENSIONAL DATA

VALVE	A	B
EPRBS 12 T 9 SAE PILOT 1-1/8 ODF VLC	6-7/8	8-1/2
EPRBS 12 T 9 ODF PILOT 1-1/8 ODF VLC		
EPRBS 16 T 11 ODFPILOT 1-3/8 ODF VLC	7-1/2	11-1/16
EPRBS 16 T 11 SAE PILOT 1-3/8 ODF VLC		
EPRBS 20 T 13 SAE PILOT 1-5/8 ODF VLC	8-1/4	12-3/8
EPRBS 20 T 13 ODF PILOT 1-5/8 ODF VLC		



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NOMENCLATURE

EPRB	S	12	T	9
Valve	Suction Stop	Port Size	Connection Style	Connection Size
Series	(optional)	(in 1/16")	T = ODF	(in 1/8")

example Above: EPRBS 12T9

EPRB(A) EXTENDED CAPACITY TABLES

R-134a	EVAPORATOR TEMP.																							
	+ 45°F					+ 35°F					+ 25°F					+ 20°F								
	PRESSURE DROP ACROSS VALVE - PSI																							
VALVE	.5	1	2	3	4	5	.5	1	2	3	4	5	.5	1	2	3	4	5	.5	1	2	3	4	5
EPRBS 12T9	1.75	2.52	3.61	4.44	5.14	5.60	1.55	2.24	3.20	3.95	4.48	4.86	1.37	1.97	2.83	3.49	3.87	4.17	1.28	1.85	2.66	3.22	3.58	3.83
EPRBS 16T11	3.09	4.44	6.35	7.82	9.06	9.90	2.74	3.94	5.64	6.95	7.91	8.63	2.41	3.48	4.99	6.15	6.86	7.45	2.26	3.26	4.68	5.70	6.37	6.88
EPRBS 20T13	5.76	8.28	11.85	14.59	16.09	18.16	5.11	7.35	10.53	12.97	14.49	16.00	4.50	6.94	9.31	11.47	12.71	13.98	4.21	6.08	8.73	10.45	11.86	13.03

R-134a	EVAPORATOR TEMP.																							
	+ 15°F					+ 10°F					+ 5°F					+ 0°F								
	PRESSURE DROP ACROSS VALVE - PSI																							
VALVE	.5	1	2	3	4	5	.5	1	2	3	4	5	.5	1	2	3	4	5	.5	1	2	3	4	5
EPRBS 12T9	1.20	1.73	2.49	2.99	3.29	3.51	1.12	1.62	2.33	2.76	3.02	3.20	1.04	1.51	2.19	2.53	2.76	2.89	0.97	1.41	2.02	2.32	2.50	2.60
EPRBS 16T11	2.11	3.05	4.38	5.29	5.89	6.34	1.97	2.85	4.10	4.90	5.42	5.80	1.84	2.66	3.86	4.52	4.97	5.29	1.71	2.48	3.57	4.15	4.54	4.79
EPRBS 20T13	3.94	5.70	8.18	9.75	11.04	12.11	3.68	5.32	7.65	9.08	10.26	11.22	3.43	4.97	7.05	8.43	9.50	10.36	3.19	4.63	6.55	7.81	8.78	9.53

R-22	EVAPORATOR TEMP.																							
	+ 45°F					+ 35°F					+ 20°F					+10°F								
	PRESSURE DROP ACROSS VALVE - PSI																							
VALVE	.5	1	2	3	4	5	.5	1	2	3	4	5	.5	1	2	3	4	5	.5	1	2	3	4	5
EPRBS 12T9	2.29	3.29	4.69	5.77	6.68	7.49	2.07	2.97	4.25	5.23	6.06	6.78	1.76	2.54	3.63	4.47	5.18	5.81	1.58	2.27	3.25	4.01	4.64	5.02
EPRBS 16T11	4.04	5.79	8.27	10.17	11.77	13.19	3.65	5.24	7.49	9.21	10.67	11.95	3.11	4.47	6.40	7.88	9.13	10.23	2.78	4.00	5.73	7.06	8.18	8.89
EPRBS 20T13	7.53	10.80	15.42	18.97	21.97	24.60	6.81	9.77	13.97	17.19	19.90	22.29	5.80	8.34	11.94	14.70	17.03	19.08	5.18	7.46	10.69	13.17	15.26	16.38

R-22	EVAPORATOR TEMP.																							
	+ 0°F					- 10°F					- 20°F					- 30°F								
	PRESSURE DROP ACROSS VALVE - PSI																							
VALVE	.5	1	2	3	4	5	.5	1	2	3	4	5	.5	1	2	3	4	5	.5	1	2	3	4	5
EPRBS 12T9	1.40	2.02	2.90	3.57	4.02	4.35	1.24	1.79	2.57	3.13	3.47	3.72	1.08	1.57	2.26	2.68	2.94	3.11	0.94	1.37	1.97	2.26	2.44	2.53
EPRBS 16T11	2.47	3.56	5.11	6.29	7.12	7.75	2.18	3.15	4.52	5.53	6.18	6.68	1.91	2.77	3.98	4.77	5.28	5.65	1.66	2.42	3.49	4.05	4.43	4.66
EPRBS 20T13	4.60	6.64	9.53	11.74	13.11	14.45	4.06	5.87	8.44	10.14	11.50	12.64	3.56	5.16	7.43	8.85	10.00	10.93	3.10	4.51	6.42	7.64	8.58	9.31

PRESSURE REGULATORS

ALCO EPRB(S) BRASS BODY UPSTREAM REGULATOR

EPRB(A) EXTENDED CAPACITY TABLES

R404A/ R507	EVAPORATOR TEMP.																								
	+ 45°F					+ 35°F					+ 20°F					+ 10°F									
	PRESSURE DROP ACROSS VALVE – PSI																								
VALVE	.5	1	2	3	4	5	.5	1	2	3	4	5	.5	1	2	3	4	5	.5	1	2	3	4	5	
EPRBS 12T9	1.95	2.79	3.98	4.90	5.66	6.34	1.74	2.49	3.56	4.38	5.06	5.67	1.45	2.09	2.98	3.67	4.25	4.76	1.28	1.84	2.63	3.24	3.75	4.11	
EPRBS 16T11	3.44	4.92	7.01	8.62	9.98	11.17	3.07	4.39	6.27	7.71	8.92	9.99	2.56	3.67	5.25	6.46	7.48	8.38	2.26	3.24	4.64	5.71	6.61	7.26	
EPRBS 20T13	6.41	9.18	13.09	16.09	18.62	20.84	5.72	8.19	11.69	14.38	16.64	18.64	4.78	6.86	9.80	12.05	13.96	15.63	4.21	6.05	8.66	10.65	12.34	13.29	

R404A/ R507	EVAPORATOR TEMP.																								
	+ 0°F					- 10°F					- 20°F					- 30°F									
	PRESSURE DROP ACROSS VALVE – PSI																								
VALVE	.5	1	2	3	4	5	.5	1	2	3	4	5	.5	1	2	3	4	5	.5	1	2	3	4	5	
EPRBS 12T9	1.12	1.62	2.32	2.85	3.30	3.54	0.98	1.41	2.02	2.49	2.78	3.01	0.85	1.22	1.76	2.12	2.35	2.51	0.73	1.06	1.52	1.78	1.95	2.05	
EPRBS 16T11	1.98	2.85	4.08	5.02	5.82	6.28	1.73	2.49	3.56	4.39	4.93	5.36	1.49	2.16	3.10	3.75	4.19	4.52	1.29	1.86	2.67	3.17	3.50	3.74	
EPRBS 20T13	3.69	5.31	7.61	9.37	10.86	11.59	3.22	4.64	6.65	8.20	9.10	10.03	2.79	4.03	5.78	6.90	7.83	8.59	2.40	3.47	4.99	5.90	6.66	7.27	

PRESSURE REGULATORS

ALCO ESR ELECTRONIC STEPPER REGULATOR

The ESR is a direct driven suction regulator that uses a linear actuating bi-polar stepper motor to move the piston. The stepper motor is actuated by a voltage pulse to energize each of the motor phases and move the piston in discrete .001 inch increments. In individual cases, the ESR, along with appropriate control electronics, provides state-of-the-art temperature control within less than $\pm 1^\circ \text{F}$ of the desired setpoint temperature. The ESR is compatible with many control electronics widely available in the market today. Applications for the ESR include case control, line-up and rack mounted control, as well as transportation applications on refrigerated trucks, trailers and containers.

FEATURES

- No external sealing o-rings.
- Connections
 - 7/8 ODF (ESR 12)
 - 1-3/8 ODF (ESR 20)
- Removable external connector.
- Excellent repeatability.
- Corrosion resistant design.
- Solenoid tight shut-off.

SPECIFICATIONS

Operating temperatures:

- Ambient: -40°F to 150°F
- Refrigerant: -40°F to 140°F

Maximum working pressure: 500 psi

Linear actuating bi-polar stepper motor

Direct drive with no hysteresis

Two motors available

Step rate: 50 ± 10 steps per second

- 12 VDC
- 24 VDC

Steps full travel:

- 500 steps (ESR 12)
- 800 steps (ESR 20) of rated voltage

Voltage tolerance: +10% and -15%

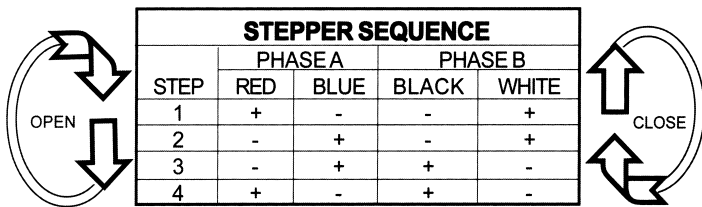
.001 inch of linear travel per step

Resistance (each phase): 29 ohms

$\pm 10\%$ (12 V) or 116 ohms $\pm 10\%$ (24 V)

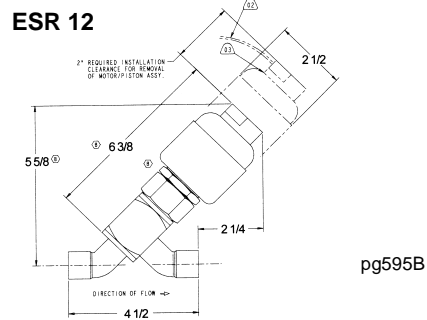
NOMENCLATURE

ESR	12120	T	7/11	12/24 V	NC
ELECTRIC STEPPER REGULATOR	POINT DIAMETER IN 1/16" INCREMENTS ESR-12 = 3/4" DIA. ESR-20 = 1 1/4" DIA.	CONNECTION T = ODF	CONNECTION SIZE IN 1/8" INCREMENTS 7 = 7/8" 11 = 1 3/8"	12 VOLT/ 24 VOLT BIPOLAR STEPPER MOTOR	NO EXTERNAL CONNECTOR



pg595E

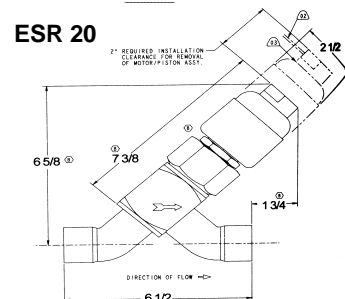
ESR DIMENSIONAL DATA



pg595B

MTB-1 HAND-HELD STEPPER DRIVER

Alco Controls provides a hand-held stepper driver to allow the user to verify the Alco ESR (or ESV) responds properly to known driver commands. Compact and easy to use, the MTB-1 and a common multi-meter are the only tools required to completely troubleshoot any Alco electronically driven product.



pg595C

PRESSURE REGULATORS

ALCO ESR ELECTRONIC STEPPER REGULATOR

ESR EXTENDED CAPACITIES IN TONS

R-22														
EVAPORATOR TEMPERATURE														
45°								35°						
PRESSURE DROP (PSI)								PRESSURE DROP (PSI)						
	0.5	1	2	3	5	8	10	0.5	1	2	3	5	8	10
ESR 12	2.49	3.52	4.98	6.09	7.87	9.95	10.35	2.26	3.19	4.52	5.53	7.14	8.44	9.22
ESR 20	7.0	9.9	14.0	17.14	22.13	28.0	29.38	6.35	8.98	12.7	15.56	20.08	23.93	26.24
20°								10°						
PRESSURE DROP (PSI)								PRESSURE DROP (PSI)						
	0.5	1	2	3	5	8	10	0.5	1	2	3	5	8	10
ESR 12	1.94	2.74	3.87	4.74	6.13	7.03	7.62	1.74	2.46	3.48	4.26	5.14	6.15	6.61
ESR 20	5.45	7.71	10.9	13.35	17.23	20.03	21.82	4.89	6.92	9.79	11.99	14.58	17.59	19.03
0°								-10°						
PRESSURE DROP (PSI)								PRESSURE DROP (PSI)						
	0.5	1	2	3	5	8	10	0.5	1	2	3	5	8	10
ESR 12	1.56	2.2	3.11	3.81	4.5	5.31	5.64	1.38	1.96	2.77	3.19	3.89	4.0	4.71
ESR 20	4.37	6.19	8.75	10.72	12.8	15.26	16.37	3.89	5.5	7.78	9.04	11.13	13.05	13.82
-20°								-30°						
PRESSURE DROP (PSI)								PRESSURE DROP (PSI)						
	0.5	1	2	3	5	8	10	0.5	1	2	3	5	8	10
ESR 12	1.22	1.73	2.45	2.76	3.32	3.72	3.81	1.08	1.52	2.02	2.36	2.77	2.87	2.93
ESR 20	3.44	4.87	6.88	7.85	9.54	10.92	11.36	3.03	4.28	5.71	6.74	8.03	8.89	8.99

R-404A/507														
EVAPORATOR TEMPERATURE														
45°								35°						
PRESSURE DROP (PSI)								PRESSURE DROP (PSI)						
	0.5	1	2	3	5	8	10	0.5	1	2	3	5	8	10
ESR 12	2.07	2.93	4.14	5.07	6.55	8.28	8.71	1.85	2.61	3.7	4.53	5.94	6.99	7.66
ESR 20	5.82	8.25	11.65	14.27	18.42	23.3	24.68	5.2	7.35	10.4	12.73	16.44	19.77	21.74
20°								10°						
PRESSURE DROP (PSI)								PRESSURE DROP (PSI)						
	0.5	1	2	3	5	8	10	0.5	1	2	3	5	8	10
ESR 12	1.55	2.19	3.09	3.79	4.89	5.7	6.21	1.37	1.93	2.73	3.34	4.08	4.92	5.33
ESR 20	4.35	6.15	8.7	10.66	13.76	16.21	17.72	3.84	5.43	7.68	9.41	11.56	14.04	15.27
0°								-10°						
PRESSURE DROP (PSI)								PRESSURE DROP (PSI)						
	0.5	1	2	3	5	8	10	0.5	1	2	3	5	8	10
ESR 12	1.2	1.7	2.4	2.94	3.52	4.2	4.5	1.05	1.48	2.09	2.56	3.01	3.53	3.74
ESR 20	3.37	4.77	6.74	8.26	10.0	12.03	12.99	2.94	4.16	5.89	7.21	8.56	10.16	10.87
-20°								-30°						
PRESSURE DROP (PSI)								PRESSURE DROP (PSI)						
	0.5	1	2	3	5	8	10	0.5	1	2	3	5	8	10
ESR 12	0.91	1.28	1.81	2.08	2.53	2.9	3.02	.078	1.1	1.56	1.75	20.9	2.32	2.35
ESR 20	2.55	3.61	5.1	5.9	7.24	8.43	8.89	2.2	3.11	4.39	4.98	6.02	6.83	7.06

PRESSURE REGULATORS

ALCO ESR ELECTRONIC STEPPER REGULATOR

ESR EXTENDED CAPACITIES IN TONS

R-134a

EVAPORATOR TEMPERATURE

45° PRESSURE DROP (PSI)								35° PRESSURE DROP (PSI)						
	0.5	1	2	3	5	8	10	0.5	1	2	3	5	8	10
ESR 12	1.93	2.73	3.86	4.73	5.75	6.92	7.46	1.72	2.43	3.44	4.21	5.03	5.97	6.39
ESR 20	5.44	7.69	10.87	13.31	16.29	19.74	21.43	4.84	6.84	9.68	11.85	14.29	17.14	18.46
20° PRESSURE DROP (PSI)								10° PRESSURE DROP (PSI)						
	0.5	1	2	3	5	8	10	0.5	1	2	3	5	8	10
ESR 12	1.43	2.03	2.87	3.31	4.04	4.67	4.89	1.26	1.78	2.52	2.85	3.43	3.85	3.95
ESR 20	4.03	5.7	8.07	9.37	11.54	13.53	14.34	3.55	5.02	7.1	8.11	9.85	11.3	11.77
0° PRESSURE DROP (PSI)														
	0.5	1	2	3	5	8	10							
ESR 12	1.1	1.56	2.07	2.43	2.86	3.08	3.05							
ESR 20	3.11	4.39	5.87	6.93	8.28	9.19	9.32							

ORDERING INFORMATION FOR ESR

DESCRIPTION

ESR 12 T 7 12V NC

ESR 12 T 7 24V NC

ESR 20 T 11 12V NC

ESR 20 T 11 24V NC

ESR EXTERNAL MOLDED CONNECTOR 5'

ESR EXTERNAL MOLDED CONNECTOR 22'

MTB-1 HAND HELD CONTROLLER