



PRESSURE REGULATOR QUICK SELECT

APPLICATION	FEATURE	MODEL	RANGE (IN PSIG)	PAGE
UPSTREAM EVAPORATOR	High Pressure, Pilot Operated, Suction Stop	EPRB(S)	0 – 110	198
	Pressure Differential Operated	EPRV		219
	Pressure Differential Operated, Flanges, Suction Stop	EPRV(S)	25" Hg – 95 PSIG	220
	Direct Acting, Adjustable	IPR	0 – 225	202
	Remote Pilot, Pressure Differential Operated, Flange Mount	722	PILOT DEPENDENT	213
CRANKCASE	Direct Acting, Adjustable	OPR	0 – 225	201
	Flange Mount, Optional Solenoid Shut-off, Ammonia Suitable	FA5	0 – 80	222
HOT GAS BYPASS	Flexible, Direct Acting	CPH(E)	0 – 80	211
	Pilot Operated, Solenoid Shut-off, Flange Mount, Ammonia Suitable	FA8	0 – 80	213
	Direct Acting, Adjustable	DGR(E)	0 – 80	212
HEAD PRESSURE CONTROL	3-Way Non-Adjustable	HP	95 – 225	207
	3-Way, Compact, Non-Adjustable	HPC	95 – 225	210
	2-Way Direct Acting	IPR	0 – 225	202
ELECTRONIC REGULATOR	ESR Electronic Stepper Regulator	ESR		200
AUTOMATIC VALVE	ACP(E)	ACP(E)		205

FLANGES

Like our iron bodied valves, the flanges that accompany these ALCO regulators are of the highest quality materials and construction. Using the chart at right, select the flange set for your iron bodied valve. These flanges are available for use on all ALCO EPRV, EPRVS, 722, 905, EAC, POS and FA Series Valves.

FLANGES TABLE FOR EPR(V), EPRVS, 722, EAC AND ALL FA SERIES VALVES

NOMINAL PORT SIZE (INCHES)	PORT SIZE CODE	AVAILABLE FLANGE SIZES (INCHES)	FLANGE SUFFIX CODE ^{2,3,4}	FLANGE SET ^{1,2}	PCN
3/8	11	1/2 FPT	P4	RX170	026761
		3/4 FPT	P6	RX171	026762
1/2	12	1/2 ODF	S4	RX175	026766
		5/8 ODF	S5	RX172	027226
3/4	13	7/8 ODF	S7	RX173	026764
		1 1/8 ODF	S9	RX174	027227
1	14	1 FPT	P8	RX136	026741
		1 1/8 ODF	S9	RX139	026744
		1 3/8 ODF	S11	RX140	026745
		1 5/8 ODF	S13	RX141	027746
1-1/4	15	1 1/4 FPT	P10	RX179	026768
		1 3/8 ODF	S11	RX182	026771
		1 5/8 ODF	S13	RX183	027228
1-1/2	16	1 1/2 FPT	P12	RX165	026757
		1 5/8 ODF	S13	RX166	026758
2	18	2 FPT	P16	RX187	027230
		2 1/8 ODF	S17	RX190	026777
		2 5/8 ODF	S21	RX191	026778

NOTES

- ¹ Flange sets include flanges, gaskets, bolts and nuts as required.
- ² Valves may be ordered less flanges.
If flanges are to be ordered separately, specify correct flange set as indicated in the flange table.
- ³ Two bolt, oval flanges supplied on 3/8" thru 1" valves.
Four bolt, square flanges supplied on 1-1/4" thru 2" valves.

OPTIONS FOR EPR(V) & FA SERIES

PNEUMATIC COMPENSATION

Add prefix code "EAC" to the catalog number (External Air Connection). Example: EACFA2-15. Standard pneumatic compensation feature provides a 1:1 control ratio.

ACCESS VALVE

1/4" SAE male flare access valve and seal cap, factory assembled. Specify on order. Not suitable for use on R717. Example: EPR(V)13 "With Access Valve".

Cannot be installed on EPRVS.

GAUGE & SHUT-OFF VALVE – PS1487-1 & PS1488-1

1/4" NPT shut-off valve and steel gauge suitable for ammonia. Available separately. Specify "With gauge", "With shut-off valve", or "With gauge and shut-off valve".

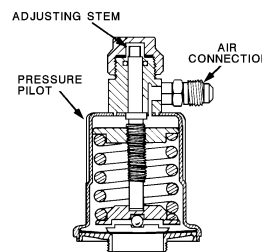
Cannot be installed on EPRVS.

SOLENOID CONDUIT BOSS

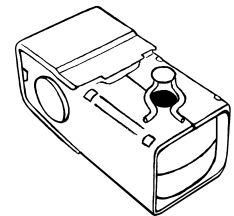
Specify "With Conduit Boss Housing".

VOLTAGES FOR FA SERIES VALVES

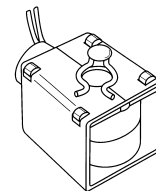
Specify on order. See Standard Voltages & Frequencies Table on page 330.



PNEUMATIC COMPENSATION (TYPICAL CONSTRUCTION) X5044-3



JUNCTION BOX (STANDARD)



CONDUIT BOSS

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" 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

EPRB(S) REPLACEMENT PARTS

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

EPRB PILOT ASSEMBLY KR 50071
EPRB(S) PILOT ASSEMBLY KR 50067

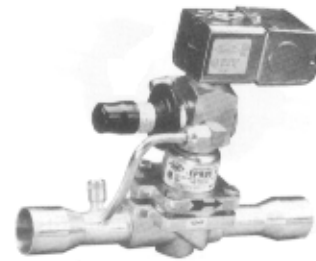
ODF PILOT ONLY

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 KR 50051
GASKETS KR 50053

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



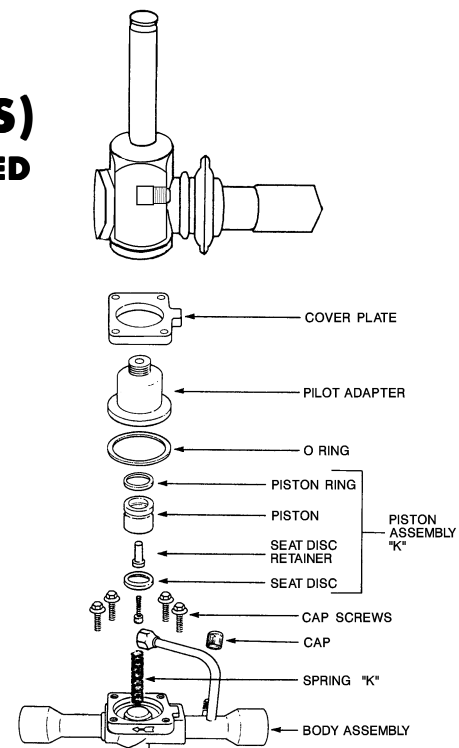
UL file number MP604
 Guide number Y10Z

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

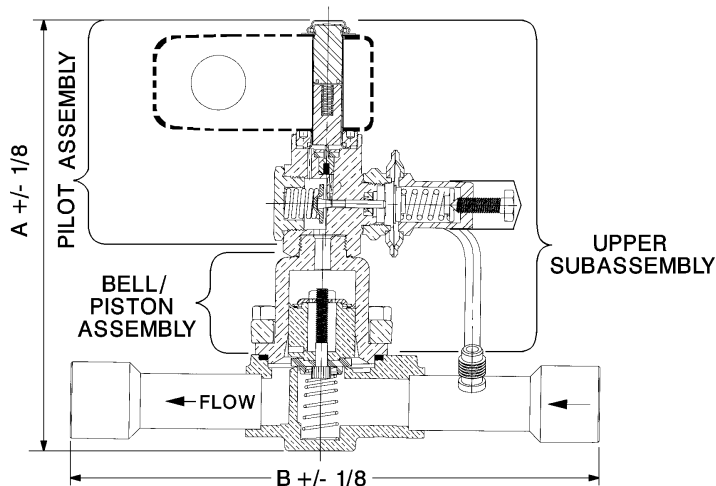


SAE PILOT ONLY

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	

EPRB(S) DIMENSIONAL DATA

PCN	VALVE	A	B
057243	EPRBS 12 T 9 SAE PILOT 1-1/8 ODF VLC	6-7/8	8-1/2
057245	EPRBS 12 T 9 ODF PILOT 1-1/8 ODF VLC		
057250	EPRBS 16 T 11 ODF PILOT 1-3/8 ODF VLC	7-1/2	11-1/16
057246	EPRBS 16 T 11 SAE PILOT 1-3/8 ODF VLC		
057249	EPRBS 20 T 13 SAE PILOT 1-5/8 ODF VLC	8-1/4	12-3/8
057253	EPRBS 20 T 13 ODF PILOT 1-5/8 ODF VLC		



NOMENCLATURE

example: EPRBS 12T9

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

EPRB(S) EXTENDED CAPACITY TABLES

R134a	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	16.90	18.16	5.11	7.35	10.53	12.97	14.49	16.00	4.50	6.49	9.31	11.47	12.71	13.98	4.21	6.08	8.73	10.45	11.86	13.03

R134a	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

R22	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

R22	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

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

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.



NOMENCLATURE

ESR	12/20	T	7/11	12/24V	NC
ELECTRIC STEPPER REGULATOR	PORT 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

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 \pm 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

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

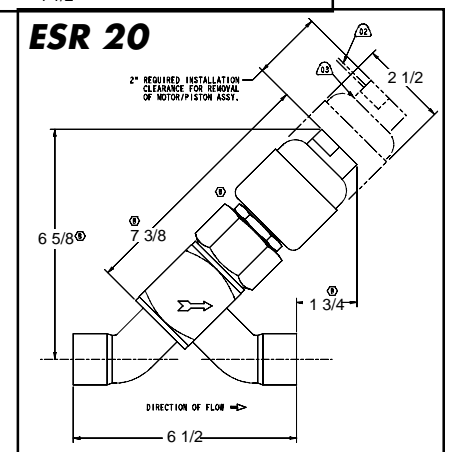
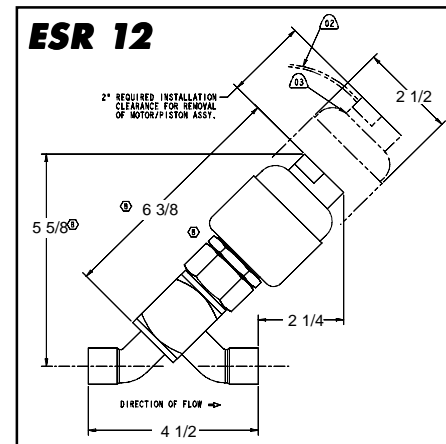
STEPPER SEQUENCE					
STEP	PHASE A		PHASE B		
	RED	BLUE	BLACK	WHITE	
1	+	-	-	+	
2	-	+	-	+	
3	-	+	+	-	
4	+	-	+	-	

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.



ESR DIMENSIONAL DATA



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	0.78	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

R-134a

		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		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°							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		1.43	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°							-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		1.1	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

PCN Number	Description
062092	ESR 12 T 7 12V NC
062749	ESR 12 T 7 24V NC
062566	ESR 20 T 11 12V NC
062750	ESR 20 T 11 24V NC
062093	ESR EXTERNAL MOLDED CONNECTOR 5'
062094	ESR EXTERNAL MOLDED CONNECTOR 22'
063904	MTB-1 HAND HELD CONTROLLER

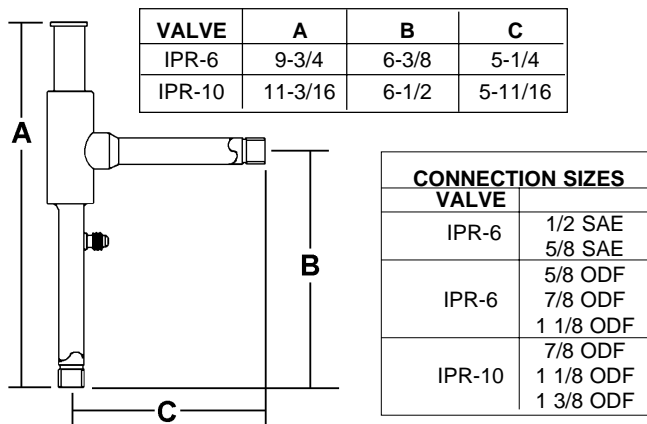
IPR INLET PRESSURE UPSTREAM REGULATOR

IPR Upstream Evaporator Pressure Regulators accurately maintain a predetermined minimum evaporator inlet pressure, regardless of sudden load or suction pressure changes. These valves operate from an inlet pressure signal, opening on a rise in pressure above the valve set point and closing at any inlet pressure below the set point. The IPR is a hermetic valve supplied with a pressure tap in the inlet connection as standard.

FEATURES

- ☆ Compact design permits minimal space requirements
- ☆ 3 adjustment range options: 0-50 psig, 30-100 psig, or 65-225 psig
- ☆ Install in vertical or horizontal line
- ☆ Supplied with strainer in the inlet connection
- ☆ Supplied with copper line connections for installation ease
- ☆ Maximum working pressure: 400 psig

IPR DIMENSIONAL DATA



ORDERING INFORMATION FOR IPR VALVES

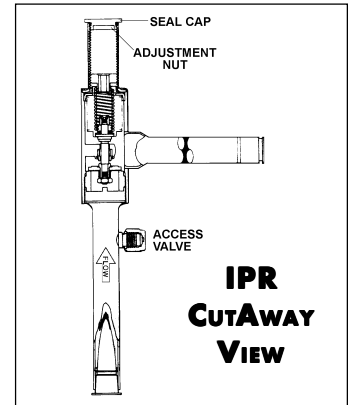
PCN	DESCRIPTION
049239	IPR - 6 (1/2 ODF)
047901	IPR - 6 (1/2 SAE)
059125	IPR - 6 (1/2 ODF)
047902	IPR - 6 (1/2 SAE)
047900	IPR - 6 ** (5/8 ODF)
047904	IPR - 6 (5/8 SAE)
047303	IPR - 6 (5/8 ODF)
047903	IPR - 6 (5/8 SAE)
047898	IPR - 6 (5/8 ODF)
047301	IPR - 6 ** (7/8 ODF)
047304	IPR - 6 ** (7/8 ODF)
047899	IPR - 6 (7/8 ODF)
047302	IPR - 6 ** (1 1/8 ODF)
047305	IPR - 6 ** (1 1/8 ODF)
047900	IPR - 6 (1 1/8 ODF)

IPR-6 EXTENDED CAPACITY TABLES - SUCTION GAS

TYPE & ADJUSTMENT RANGE (PSIG)	EVAP. TEMP. °F	SATURATION PRESSURE PSIG			R134a				R22				R404A/R507			
		R-134A	R-22	R404A/R-507	PRESSURE DROP ACROSS VALVE - PSI											
		2	5	10	20	2	5	10	20	2	5	10	20			
IPR-6 0/50 or 30/100	40	35.0	68.5	85.7	0.94	1.35	1.57	1.57	1.2	2.0	3.0	4.4	1.11	1.67	2.18	2.56
	30	26.1	54.9	69.7	0.82	1.15	1.26	1.26	1.1	1.8	2.7	3.8	0.98	1.47	1.88	2.10
	20	18.4	43.0	55.7	0.72	0.96	1.00	1.00	1.0	1.6	2.4	3.3	0.87	1.28	1.60	1.70
	10	12.0	36.8	43.5	0.61	0.78	0.79	0.79	0.9	1.4	2.1	2.7	0.75	1.10	1.33	1.36
	0	6.5	24.0	33.0	0.52	0.62	0.62	0.62	0.8	1.2	1.8	2.2	0.66	0.93	1.07	1.07
	-10	2.0	16.5	24.0	0.43	0.48	0.48	0.48	0.7	1.1	1.5	1.8	0.57	0.78	0.84	0.84
-20	-	10.1	16.3	-	-	-	-	0.6	0.9	1.2	1.4	0.48	0.64	0.66	0.66	

IPR-10 EXTENDED CAPACITY TABLES - SUCTION GAS

PCN	DESCRIPTION	TYPE & ADJUSTMENT RANGE (PSIG)	EVAP. TEMP. °F	SATURATION PRESSURE PSIG			R134a				R22				R404A/R507			
				R-134A	R-22	R404A/R-507	PRESSURE DROP ACROSS VALVE - PSI											
				2	5	10	20	2	5	10	20	2	5	10	20			
IPR-10 0/50 or 30/100	40	35.0	68.5	85.7	0.94	1.35	1.57	1.57	1.2	2.0	3.0	4.4	1.11	1.67	2.18	2.56		
	30	26.1	54.9	69.7	2.12	3.29	4.51	5.96	2.7	4.3	6.1	8.3	2.43	3.81	5.31	7.29		
	20	18.4	43.0	55.7	1.87	2.89	3.93	5.09	2.4	3.8	5.4	7.2	2.16	3.38	4.69	6.39		
	10	12.0	36.8	43.5	1.64	2.52	3.38	4.28	2.1	3.3	4.7	5.9	1.91	2.98	4.12	5.56		
	0	6.5	24.0	33.0	1.43	2.18	2.88	3.52	1.9	2.9	4.0	4.8	1.67	2.61	3.58	4.79		
	-10	2.0	16.5	24.0	1.23	1.86	2.41	2.74	1.6	2.5	3.3	3.9	1.46	2.26	3.09	4.07		
-20	-	10.1	16.3	-	-	-	-	1.4	2.1	2.7	3.0	1.27	1.95	2.64	3.40			



UL file number SA5312
Guide SFJQ
CSA file number LR44005

NOMENCLATURE

example: IPR-6 5/8 ODF 0-50 psig

IPR	6	5/8 ODF	0-50 psig
Valve Series	Port Size (in 1/8")	Connection Size & Style (SAE optional)	Adjustment Range

IPR LIQUID CAPACITIES IN TONS FOR HEAD PRESSURE CONTROL IPR 6

REFRIGERANT	PRESSURE DROP ACROSS VALVE - PSI						
	1	2	3	4	5	10	20
R-134A	7.8	11.4	13.2	15.6	17.4	24.6	34.8
R-22	8.5	12.0	14.5	17.0	19.0	27.0	38.0
R-404A/R-507	5.0	7.5	9.0	10.5	11.0	16.0	22.5

IPR 10

REFRIGERANT	PRESSURE DROP ACROSS VALVE - PSI						
	1	2	3	4	5	10	20
R-134A	15.0	22.2	27.0	31.2	33.6	47.4	67.2
R-22	16.5	24.0	29.0	34.0	37.0	52.0	74.0
R-404A/R-507	10.0	14.5	17.5	20.5	22.5	31.5	45.0

OPR OUTLET PRESSURE DOWNSTREAM REGULATOR

OPR Series Downstream Pressure Regulators accurately maintain a predetermined maximum outlet pressure. Designed to prevent compressor motor overload, the OPR is a hermetic valve supplied with a pressure tap in the inlet connection as standard.



FEATURES

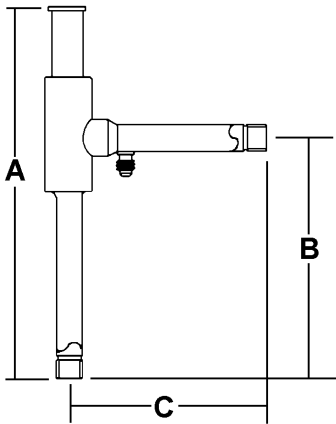
- ☆ Compact design permits minimal space requirements
- ☆ 3 adjustment range options: 0-60 psig, 50-130 psig, or 100-225 psig
- ☆ Install in vertical or horizontal line
- ☆ Supplied with strainer in the inlet connection
- ☆ Supplied with copper line connections for installation ease
- ☆ Maximum working pressure: 400 psig

UL file number SA5312
Guide SFJQ
CSA file number LR44005

NOMENCLATURE

example: OPR-6 5/8 ODF 0-60 psig

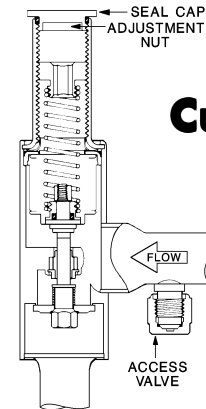
OPR Series	6	5/8 ODF	0-60 psig
Valve	Port Size	Connection Size & Style	Adjustment Range
	(in 1/8")	(SAE optional)	



CONNECTION SIZES	
VALVE	
OPR-6	1/2 SAE
	5/8 SAE
OPR-6	5/8 ODF
	7/8 ODF
	1 1/8 ODF
OPR-10	7/8 ODF
	1 3/8 ODF

OPR DIMENSIONAL DATA

VALVE	A	B	C
OPR-6	9-3/4	6-3/8	5-1/4
OPR-10	11-3/16	6-1/2	5-11/16



OPR CUTAWAY VIEW

OPR-6, -10 EXTENDED CAPACITY TABLES IN TONS R-134A — SUCTION GAS

TYPE & ADJUSTMENT RANGE (PSIG)	EVAPORATOR TEMP. °F	R-134A SATURATED SUCTION PRESSURE PSIG	1/2 PSI DROP						1 PSI DROP						2 PSI DROP					
			VALVE SET POINT — PSIG																	
			10	20	30	40	50	60	10	20	30	40	50	60	10	20	30	40	50	60
OPR-6 0/60 50/130	30	26.1	-	-	0.35	0.56	0.78	1.01	-	-	0.48	0.79	1.10	1.41	-	-	0.64	1.08	1.52	1.96
	20	18.4	-	0.26	0.45	0.65	0.84	0.99	-	0.35	0.63	0.90	1.18	1.38	-	0.47	0.85	1.24	1.63	1.92
	10	12.0	-	0.34	0.51	0.68	0.85	0.87	-	0.46	0.71	0.95	1.19	1.21	-	0.62	0.95	1.30	1.64	1.67
	0	6.5	0.22	0.37	0.52	0.67	0.76	0.76	0.30	0.51	0.73	0.94	1.05	1.05	0.38	0.68	0.98	1.28	1.45	1.45
	-10	2.0	0.25	0.38	0.51	0.64	0.65	0.65	0.34	0.52	0.71	0.89	0.91	0.91	0.43	0.69	0.95	1.21	1.24	1.24
OPR-10 0/60 50/130	30	26.1	-	-	0.54	1.91	2.41	2.41	-	-	0.76	2.70	3.42	3.42	-	-	1.07	3.81	4.81	4.81
	20	18.4	-	0.20	1.41	2.13	2.13	2.13	-	0.27	1.98	3.02	3.02	3.02	-	0.37	2.79	4.25	4.25	4.25
	10	12.0	-	0.86	1.88	1.88	1.88	1.88	-	1.21	2.65	2.65	2.65	2.65	-	1.70	3.74	3.74	3.74	3.74
	0	6.5	0.33	1.26	1.64	1.64	1.64	1.64	0.46	1.78	2.32	2.32	2.32	2.32	0.63	2.50	3.26	3.26	3.26	3.26
	-10	2.0	0.65	1.43	1.43	1.43	1.43	1.43	0.92	2.02	2.02	2.02	2.02	2.02	1.28	2.83	2.83	2.83	2.83	2.83

OPR-6, -10 EXTENDED CAPACITY TABLES IN TONS R-22 — SUCTION GAS

TYPE & ADJUSTMENT RANGE (PSIG)	EVAPORATOR TEMP. °F	R-22 SATURATED SUCTION PRESSURE PSIG	1/2 PSI DROP						1 PSI DROP						2 PSI DROP						
			VALVE SET POINT - PSIG																		
			10	20	30	40	50	60	10	20	30	40	50	60	10	20	30	40	50	60	
OPR-6 0/60 50/130	40	68.5	-	-	-	-	0.7	1.2	-	-	-	-	1.0	1.7	-	-	-	-	1.4	2.3	
	30	54.9	-	-	-	0.6	1.1	1.3	-	-	-	0.9	1.0	1.8	-	-	-	-	1.3	2.1	2.5
	20	43.0	-	-	0.6	0.9	1.1	1.2	-	-	0.8	1.3	1.6	1.7	-	-	1.1	1.9	2.2	2.4	
	10	36.8	-	0.5	0.8	0.9	1.0	1.0	-	0.6	1.1	1.3	1.4	1.4	-	0.9	1.5	1.8	1.9	1.9	
	0	24.0	0.4	0.6	0.7	0.7	0.7	0.7	0.5	0.8	1.0	1.0	1.0	1.0	0.7	1.2	1.4	1.5	1.5	1.5	
OPR-10 0/60 50/130	40	68.5	-	-	-	-	1.8	3.1	-	-	-	-	2.6	4.4	-	-	-	-	-	3.5	6.1
	30	54.9	-	-	-	1.6	2.8	2.8	-	-	-	2.3	3.9	3.9	-	-	-	-	3.2	5.0	5.0
	20	43.0	-	-	1.4	2.4	2.4	2.4	-	-	2.0	3.4	3.4	3.4	-	-	2.8	4.8	4.8	4.8	
	10	36.8	-	1.2	2.0	2.0	2.0	2.0	-	1.7	2.8	2.8	2.8	2.8	-	2.3	3.9	3.9	3.9	3.9	
	0	24.0	0.9	1.5	1.5	1.5	1.5	1.5	1.3	2.2	2.2	2.2	2.2	2.2	1.7	3.0	3.0	3.0	3.0	3.0	

OPR-6, -10 EXTENDED CAPACITY TABLES IN TONS R-404A/R-507 — SUCTION GAS

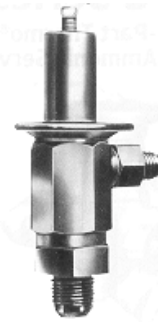
TYPE & ADJUSTMENT RANGE (PSIG)	EVAPORATOR TEMP. °F	R-404A/R-507 SATURATED SUCTION PRESSURE PSIG	1/2 PSI DROP						1 PSI DROP						2 PSI DROP						
			VALVE SET POINT - PSIG																		
			10	20	30	40	50	60	10	20	30	40	50	60	10	20	30	40	50	60	
OPR-6 0/60 50/130	20	55.7	-	-	-	-	-	0.36	-	-	-	-	-	0.50	-	-	-	-	-	0.68	
	10	43.5	-	-	-	-	0.38	0.55	-	-	-	-	0.52	0.78	-	-	-	-	0.72	1.08	
	0	33.0	-	-	-	0.33	0.51	0.67	-	-	-	0.45	0.71	0.94	-	-	-	-	0.62	0.99	1.30
	-10	24.0	-	-	0.27	0.42	0.58	0.72	-	-	0.37	0.59	0.81	1.01	-	-	0.51	0.81	1.13	1.40	
	-20	16.3	-	0.20	0.33	0.46	0.60	0.67	-	0.28	0.46	0.65	0.85	0.93	-	0.37	0.63	0.89	1.17	1.30	
OPR-10 0/60 50/130	20	55.7	-	-	-	-	-	0.57	-	-	-	-	-	0.80	-	-	-	-	-	1.12	
	10	43.5	-	-	-	-	0.88	1.99	-	-	-	-	1.24	2.82	-	-	-	-	-	3.97	
	0	33.0	-	-	-	0.76	1.91	1.91	-	-	-	1.07	2.69	2.69	-	-	-	-	1.51	3.80	3.80
	-10	24.0	-	-	0.58	1.51	1.67	1.67	-	-	0.81	2.14	2.35	2.35	-	-	1.14	3.01	3.32	3.32	
	-20	16.3	-	0.30	1.13	1.45	1.45	1.45	-	0.43	1.59	2.04	2.04	2.04	-	0.59	2.24	2.88	2.88	2.88	

ORDERING INFORMATION FOR OPR VALVES

PCN	DESCRIPTION
047907	OPR - 6 (1/2 SAE)
047312	OPR - 6 ** (5/8 ODF)
047908	OPR - 6 (5/8 SAE)
054406	OPR - 6 (5/8 ODF)
049712	OPR - 6 (5/8 ODF)
049728	OPR - 6 (5/8 ODF)
047313	OPR - 6 ** (7/8 ODF)
058172	OPR - 6 (7/8 ODF)
047909	OPR - 6 (7/8 ODF)
049729	OPR - 6 (7/8 ODF)
047314	OPR - 6 ** (1 1/8 ODF)
047315	OPR -10 ** (7/8 ODF)
049731	OPR -10 (7/8 ODF)
047316	OPR -10 ** (1 1/8 ODF)
059223	OPR -10 (1 1/8 ODF)
049788	OPR -10 (1 1/8 ODF)
049732	OPR -10 (1 1/8 ODF)
047318	OPR -10 ** (1 3/8 ODF)
049787	OPR -10 (1 3/8 ODF)
049733	OPR -10 (1 3/8 ODF)

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.



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			

PCN	VALVE TYPE	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 CONNECTION
					ODF – SOLDER		SAE			
					INLET	OUTLET	INLET	OUTLET		
047280	ACP(E)-1	.31	.44	.29	1/4				ANGLE OR ST. THRU	1/4" SAE OR 1/4" ODF
048298	ACP(E)-2	.41	.57	.38		3/8		3/8		
049853	ACP(E)-3	.65	.91	.61		1/2		1/4		
049785	ACP(E)-5	.90	1.30	.87	3/8			3/8		
047790	ACP(E)-7	1.40	1.96	1.31				3/8 – 1/2		
047351	ACP(E)-8	1.90	2.67	1.78	1/2		5/8			
056658	ACP(E)-9	2.30	3.28	2.19			1/2			
058674	ACP(E)-9	2.70	3.75	2.50				5/8		
048657	ACP(E)-9	3.80	5.32	3.55	5/8		7/8			

ACP EXTENDED CAPACITIES IN TONS R134a, R22, R404A & R507

VALVE	TONS R134a					TONS R22						TONS R404A/R507						
	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	.31	.36	.40	.45	.50	.44	.49	.54	.58	.62	.66	.29	.33	.36	.39	.41	.44	.46
ACP(E)2	.41	.47	.53	.59	.66	.57	.64	.70	.75	.81	.86	.38	.43	.47	.50	.54	.57	.60
ACP(E)3	.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	.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	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	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	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	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	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 OUTLINED WITH A BOX BORDER.

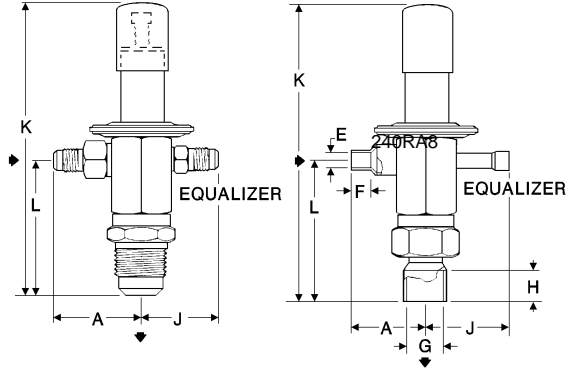
ACP Hot Gas Capacities in Tons R134a, R22, R404A & R507 *

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

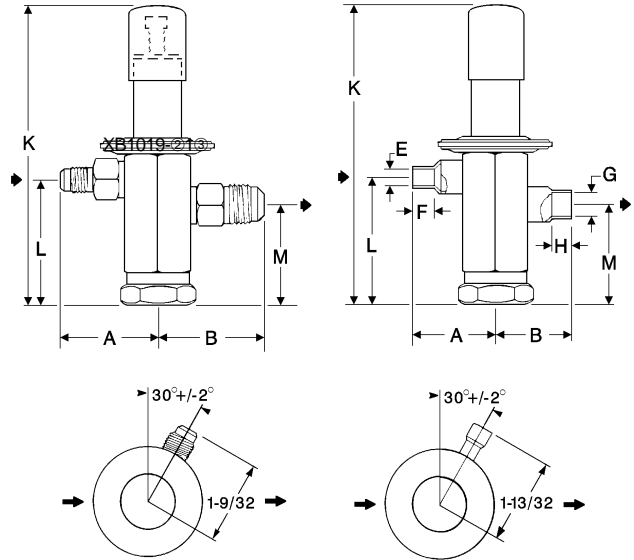
* CAPACITIES BASED UPON 40°F EVAPORATOR, 100°F CONDENSING, 25°F SUPERHEAT, ISOTROPIC COMPRESSION +50°F.

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	—	—	—	—	—	4-1/2	2-1/8
	3/8		1-41/64							
	1/2	3/8 - 1/2	1-23/32							
	1/4	5/8	1-1/2							
	3/8		1-41/64							
1/2	1-23/32									
ANGLE ODF	1/4	3/8	1-1/4	—	.2540	.320	.3790	.320	4-39/64	2-15/64
	3/8		1/2		1-3/16	.3790	.320	.5040		
	1/2	5/8	1-3/8		.5040	.380	.6290	.500	4-47/64	2-23/64
	5/8		1-3/8		.6290	.500				
	1/4	1/2	1-1/4		.2540	.320	.5040	.380	4-35/64	2-11/64
	3/8		1-3/16		.3790	.320				
	1/4	7/8	1-1/4		.2540	.320	.5040	.380	4-35/64	2-11/64
	1/2		1-3/16		.5040	.380	.8790	.750	5-7/64	

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	—	—	—	—	4-14	1-7/8	1-31/64
	3/8		1-41/64								
	1/2	1/2	1-23/32	1-23/32							
	1/4	5/8	1-1/2	1-63/64							
	3/8		1-41/64								
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	.320	.5040	.380			
	1/2	5/8	1-3/8	1-3/8	.5040	.380	.6290	.500			
	5/8		1-3/8	.6290	.500						
	1/4	1/2	1-1/4	1-3/16	.2540	.320	.5040	.380	4-14	1-7/8	1-31/64
	3/8		1-3/16	.3790	.320						
	1/4	7/8	1-1/4	1-3/16	.2540	.320	.5040	.380	4-14	1-7/8	1-31/64
	1/2		1-3/16	.5040	.380	.8790	.750				
	3/8	1-3/16	1-3/4	.3790	.320	.8790	.750				

HP HEADMASTER® HEAD PRESSURE CONTROL

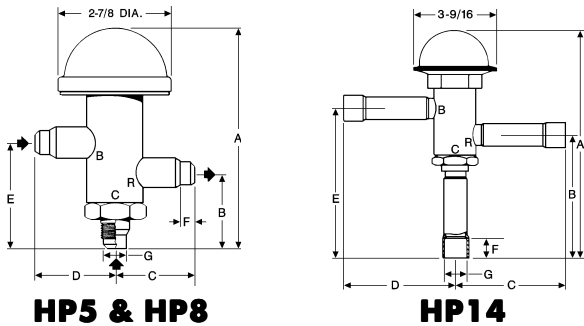
HeadMaster HP Series 3-Way Head Pressure Control Valves are controlled by the system discharge pressure. Adequate head pressure, the system pressure imposed by the compressor, is necessary for optimum system performance. When ambient air temperature flowing thru air-cooled condensers is warm enough, there is no problem maintaining head pressure. However, when ambient temperature falls, there is a corresponding head pressure drop and a method of controlling this situation is necessary. The HP is designed specifically to maintain proper air-cooled condenser pressures during periods of low ambient conditions. The HP eliminates the need for special piping or multiple control valves. As a single unit, the HP simplifies piping and reduces installation costs.



FEATURES

- ☆ Accurate head pressure control, even at low ambient temperatures
- ☆ Precise control in maintaining optimum pressure
- ☆ Superior operation at low ambients
- ☆ ODF or SAE connections available
- ☆ Maximum working pressure: 440 psig
- ☆ Shipping weights: HP5 & HP8 = 2-1/2 lbs
HP14 = 5 lbs

HP DIMENSIONAL DATA



HP DIMENSIONS									
VALVE	SIZE & STYLE		A	B	C	D	E	F	G
	CONN.								
HP 5F3-*	3/8 SAE		5-5/16	1-5/16	1-13/16	1-13/16	2-7/16	-	-
HP 5F4-*	1/2 SAE		5-3/4	2-1/16	2	2	2-13/16	-	-
HP 5T3-*	3/8 ODF		6-13/16	3-13/16	2-9/16	2-9/16	3-15/16	3/8	5/16
HP 5T4-*	1/2 ODF		6-13/16	3-3/16	2-9/16	2-9/16	3-15/16	1/2	3/8
HP 8F4-*	1/2 SAE		5-3/4	2-1/16	2	2	2-13/16	-	-
HP 8F5-*	5/8 SAE		5-27/32	2-5/32	2-3/16	2-3/16	2-29/32	-	-
HP 8T4-*	1/2 ODF		6-13/16	3-11/64	2-9/16	2-9/16	3-15/16	1/2	3/8
HP 8T5-*	5/8 ODF		6-13/16	3-11/64	2-9/16	2-9/16	3-15/16	5/8	1/2
HP 8T7-*	7/8 ODF		6-13/16	3-11/64	2-9/16	2-9/16	3-15/16	7/8	3/4
HP 14T7-*	7/8 ODF							3/8	7/8
HP 14T9-*	1-1/8 ODF		10-5/16	5-7/16	4-3/4	4-3/4	6-9/16	15/16	1-1/8
HP 14T11-*	1-3/8 ODF							1	1-3/8

Bold Type Valves are the standard models, other sizes may require longer leadtimes.

TABLE 2 – MULTIPLIER FACTORS FOR CAPACITIES AT CONDITIONS OTHER THAN NOMINAL RATINGS															
LIQUID TEMP. °F	EVAPORATOR TEMPERATURE °F														
	R-134a					R-22					R-404A & R-507				
	40°	20°	0°	-20°	-40°	40°	20°	0°	-20°	-40°	40°	20°	0°	-20°	-40°
120°	0.87	0.82	0.78	0.71	0.69	0.89	0.86	0.84	0.82	0.78	0.84	0.79	0.74	0.69	0.63
100°	1.00	0.96	0.91	0.86	0.82	1.00	0.98	0.95	0.93	0.89	1.00	0.96	0.90	0.85	0.79
80°	1.13	1.08	1.04	0.99	0.95	1.12	1.09	1.06	1.03	1.00	1.14	1.09	1.04	0.99	0.93
60°	1.27	1.22	1.17	1.12	1.07	1.22	1.20	1.17	1.14	1.10	1.32	1.27	1.21	1.16	1.09
40°	-	1.34	1.29	1.24	1.19	-	1.30	1.27	1.24	1.21	-	1.42	1.37	1.31	1.26
20°	-	-	1.42	1.38	1.32	-	-	1.39	1.35	1.32	-	-	1.51	1.46	1.41

TABLE 3 – REFRIGERANT LBS. PER FT.*												
REFRIGERANT	CONDENSER TUBE SIZE – O.D. (IN INCHES)** & AMBIENT TEMPERATURE °F											
	3/8"				1/2"				5/8"			
	40°	0°	-20°	-40°	40°	0°	-20°	-40°	40°	0°	-20°	-40°
R-134a	.051	.054	.055	.057	.095	.099	.102	.105	.150	.157	.164	.167
R-22	.051	.054	.055	.056	.094	.099	.102	.104	.150	.159	.163	.167
R-404A/R-507	.053	.056	.058	.059	.098	.104	.107	.109	.157	.166	.171	.175

* Return bends: 3/8" O.D. – .20 ft.; 1/2" O.D. – .25 ft.; 5/8" O.D. – .30 ft. ** Wall thickness: 3/8" O.D. – .016"; 1/2" O.D. – .017"; 5/8" O.D. – .018"

NOMENCLATURE

example: HP 8T4A	HP Valve Series	8 Port Size (in 1/16")	T Connection Style T = ODF F = SAE	4 Connection Size (in 1/8")	A Charge Code A = R12 or R134a B = R22, C = R404A/R507
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HEAD PRESSURE CONTROL

HP SIZING SELECTION TABLE

HP SIZING SELECTION

Consideration must be given to the system design requirements, such as: equivalent line length (vertical lift or unusual pressure drop), equipment location, etc., to determine if the minimum control range meets design requirements. There are numerous alternatives involving head pressure control applications worth considering. For engineering assistance, consult your ALCO field engineer or ALCO Technical Services Department, Alco Controls, St. Louis.

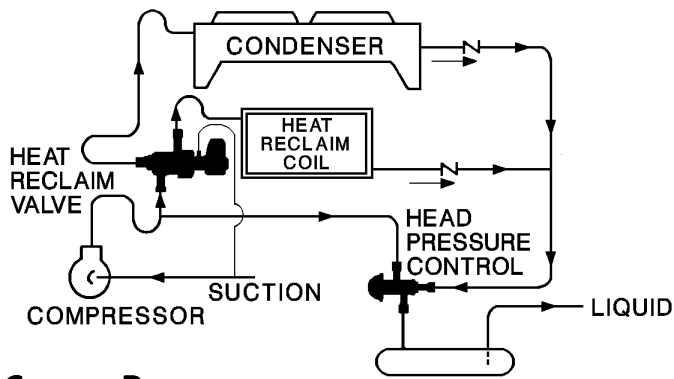
NOTE: Be sure the HP valve is not required to operate at conditions exceeding the maximum safe working pressure of 440 psi.

VALVE	SIZE & STYLE CONN.	NOMINAL PRESSURE SETTING		
		95 PSI	170 PSI	200 PSI
HP-5	3/8 SAE	HP 5F3-A	HP5F3-B	HP5F3-C
	1/2 SAE	HP 5F4-A	HP5F4-B	HP5F4-C
	3/8 ODF	HP 5T3-A	HP5T3-B	HP5T3-C
	1/2 ODF	HP 5T4-A	HP5T4-B	HP5T4-C
HP-8	1/2 SAE	HP 8F4-A	HP8F4-B	HP8F4-C
	5/8 SAE	HP 8F5-A	HP8F5-B	HP8F5-C
	1/2 ODF	HP 8T4-A	HP 8T4-B	HP 8T4-C
	5/8 ODF	HP 8T5-A	HP 8T5-B	HP 8T5-C
	7/8 ODF	HP 8T7-A	HP 8T7-B	HP 8T7-C
HP-14	7/8 ODF	HP 14T7-A	HP 14T7-B	HP 14T7-C
	1-1/8 ODF	HP 14T9-A	HP 14T9-B	HP 14T9-C
	1-3/8 ODF	HP 14T11-A	HP 14T11-B	HP 14T11-C

HEADMASTER SERVICE HINTS (DURING LOW AMBIENT OPERATION)

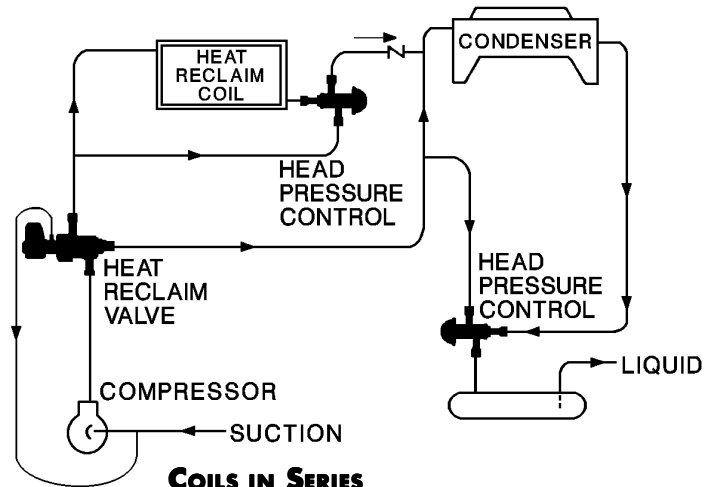
COMPLAINT	POSSIBLE CAUSE	REMEDY
Low head pressure during operation.	<p>Valve unable to throttle 'C' port:</p> <ul style="list-style-type: none"> a) foreign material wedged between 'C' port seat and seat disc. b) power element lost its charge. c) insufficient wintertime system charge. <p>Wrong charge pressure in valve for system refrigerant.</p> <p>Receiver exposed to low ambient conditions is acting as condenser.</p>	<ul style="list-style-type: none"> a) Artificially raise head pressure & tap valve body to dislodge foreign material. b) Change valve. c) Add refrigerant per table 3. <p>Change valve.</p> <p>Insulate the receiver.</p> <p>Clear obstruction or open valve.</p>
System runs high head pressure or cycles on high pressure cut-out.	<p>Hot gas bypass line restricted or shut off.</p> <p>Compressor not pumping or restriction in liquid line, or low side causing very low suction pressure.</p> <p>Condenser fan or fans not running or turning in the wrong direction.</p> <p>Fan cycling.</p> <p>Pressure drop through condenser exceeds allowable 20 psi forcing 'B' port partially open.</p> <p>Condenser undersized or air flow restricted or short circuiting.</p> <p>'B' port wedged open due to foreign material between seat and seat disc.</p> <p>'B' port seat damaged due to foreign material.</p> <p>Wrong charge pressure in valve for system refrigerant.</p> <p>Excess system charge or air in system.</p> <p>Obstruction or valve closed in discharge or condenser drain line.</p> <p>Liquid line solenoid fails to open.</p>	<p>Change or repair compressor or clear obstruction or other reason for low suction pressure.</p> <p>Replace or repair fan motor, belts, wiring or controls as required.</p> <p>Run condenser fans continuously while the system is running.</p> <p>Repipe, recircuit, or change condenser as required to reduce condenser pressure drop to less than 20 psi.</p> <p>Increase size of condenser or remove air flow restriction or short circuit as required.</p> <p>Artificially reduce head pressure below valve set point and tap valve body with system running to dislodge foreign material.</p> <p>Change valve.</p> <p>Change valve.</p> <p>Purge or bleed off refrigerant or noncondensables as system requires.</p> <p>Clear obstruction or open valve.</p> <p>Check solenoid.</p>

HEAD PRESSURE CONTROL



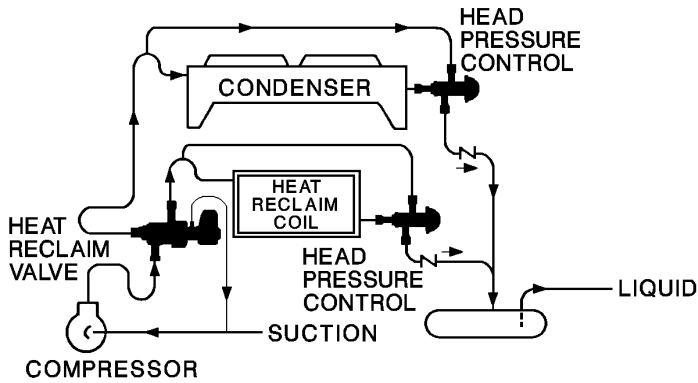
COILS IN PARALLEL

ONE HP SERIES VALVE CONTROLLING BOTH COILS.



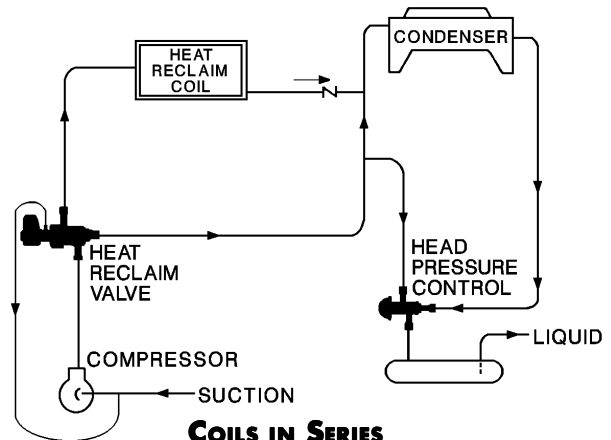
COILS IN SERIES

TWO HP SERIES VALVES — ONE ON EACH COIL.



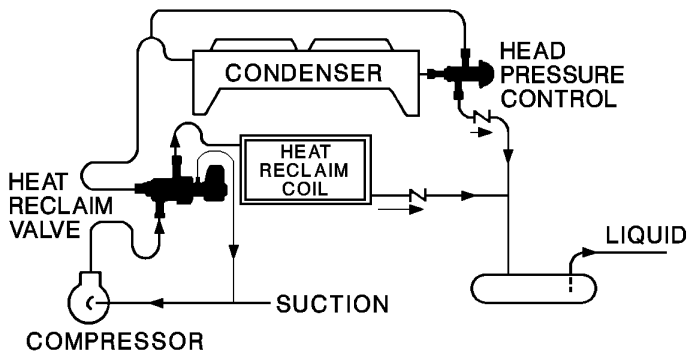
COILS IN PARALLEL

ONE HP SERIES VALVE CONTROLLING EACH COIL.



COILS IN SERIES

ONE HP SERIES VALVE FOR BOTH COILS.



COILS IN PARALLEL

ONE HP SERIES VALVE CONTROLLING OUTDOOR COIL ONLY.

ORDERING INFORMATION FOR HP VALVES

PCN	DESCRIPTION	REFRIGERANT
046094	HP 5 F 3 - A	R-12/R-134a
046093	HP 5 F 3 - B	R-22
055130	HP 5 F 4 - A	R-12/R-134a
046091	HP 5 F 4 - B	R-22
046090	HP 5 T 3 - A	R-12/R-134a
046088	HP 5 T 3 - B	R-22
054173	HP 5 T 3 - C	R-404A/R-507
046087	HP 5 T 4 - A	R-12/R-134a
046086	HP 5 T 4 - B	R-22
062240	HP 5 T 4 - C	R-404A/R-507
052979	HP 8 F 4 - A	R-12/R-134a
053200	HP 8 F 4 - B	R-22
053062	HP 8 F 5 - A	R-12/R-134a
053283	HP 8 F 5 - B	R-22
046209	HP 8 T 4 - A	R-12/R-134a
046208	HP 8 T 4 - B	R-22
033862	HP 8 T 5 - A	R-12/R-134a
032407	HP 8 T 5 - B	R-22
046207	HP 8 T 7 - A	R-12/R-134a
046206	HP 8 T 7 - B	R-22
046498	HP 8 T 7 - C	R-404A/R-507
032210	HP 14 T 7 - A	R-12/R-134a
024935	HP 14 T 7 - B	R-22
024405	HP 14 T 9 - A	R-12/R-134a
029805	HP 14 T 9 - B	R-22
043406	HP 14 T 9 - C	R-404A/R-507
024380	HP 14 T 11 - A	R-12/R-134a
024601	HP 14 T 11 - B	R-22
043407	HP 14 T 11 - C	R-404A/R-507

HPC MODULATING HEAD PRESSURE CONTROL

HeadMaster HPC Series 3-Way Modulating Head Pressure Control Valves are today's answer to the problem of proper head pressure. Adequate head pressure, the system pressure imposed by the compressor, is necessary for optimum system performance. When ambient air temperature flowing thru air-cooled condensers is warm enough, there is no problem maintaining head pressure. However, when ambient temperature falls, there is a corresponding head pressure drop and a method of controlling this situation is necessary. The HPC is designed specifically to maintain liquid subcooling and prevent liquid line flash gas. The HPC eliminates the need for special piping or multiple control valves. As a single unit, the HPC simplifies piping and reduces installation costs.



FEATURES

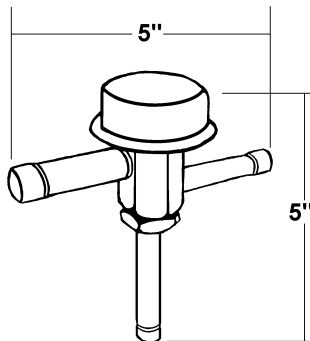
- ☆ Maintains liquid subcooling and prevents liquid line flash gas
- ☆ Eliminates the need for special piping or multiple control valves
- ☆ Superior operation at low ambients
- ☆ 3/8" and 1/2" ODF connections

NOMENCLATURE

example: HPC 5T4 180

HPC Valve Series	5 Port Size (in 1/16")	T Connection Style T = ODF	4 Connection Size (in 1/8")	180 Pressure Range (will vary, specify refrigerant) <small>R134a = 100 psig, R404A/R507 = 225 psig</small>
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HPC DIMENSIONAL DATA



ORDERING INFORMATION FOR HPC VALVES

PCN	DESCRIPTION
063185	HPC 2 T 4 -100
063580	HPC 2 T 4 -125
063186	HPC 2 T 4 -180
063187	HPC 3 T 4 -100
063581	HPC 3 T 4 -125
063188	HPC 3 T 4 -180
060367	HPC 5 T A -180
060364	HPC 5 T 3 -100
059686	HPC 5 T 3 -180
059687	HPC 5 T 4 -180

HPC2 & HPC3 NOMINAL CAPACITY TABLE (TONS)						
VALVE	REFRIGERANT	PRESSURE DROP - PSI				
		1	2	3	4	5
HPC-2	R-134a	1.0	1.4	1.8	2.0	2.3
HPC-2	R-22	1.1	1.6	1.9	2.2	2.5
HPC-2	R-404A R-507	0.7	1.0	1.3	1.5	1.7
HPC-3	R-134a	1.7	2.4	3.0	3.5	3.9
HPC-3	R-22	1.88	2.65	3.25	3.75	4.19
HPC-3	R-404A R-507	1.25	1.77	2.17	2.51	2.80

HPC5 NOMINAL CAPACITY TABLE (TONS)						
VALVE	REFRIGERANT	PRESSURE DROP - PSI				
		1	2	3	4	5
HPC-5	R-134a	2.24	3.17	3.88	4.48	5.00
HPC-5	R-22	2.43	3.43	4.20	4.86	5.43
HPC-5	R-404A R-507	1.62	2.29	2.81	3.25	3.63

Nominal capacities are based on 100°F liquid and 40°F evaporator.

MULTIPLIER FACTORS FOR CAPACITIES AT CONDITIONS OTHER THAN NOMINAL RATINGS

LIQUID TEMP. °F	EVAPORATOR TEMPERATURE °F														
	R-134a					R-22					R-404A & R-507				
	40°	20°	0°	-20°	-40°	40°	20°	0°	-20°	-40°	40°	20°	0°	-20°	-40°
120°	0.88	0.85	0.80	0.76	0.72	0.89	0.86	0.84	0.82	0.78	0.84	0.79	0.74	0.69	0.63
100°	1.00	0.96	0.92	0.88	0.83	1.00	0.98	0.95	0.93	0.89	1.00	0.96	0.90	0.85	0.79
80°	1.12	1.06	1.02	0.98	0.94	1.12	1.09	1.06	1.03	1.00	1.14	1.09	1.04	0.99	0.93
60°	1.22	1.19	1.13	1.09	1.05	1.22	1.20	1.17	1.14	1.10	1.32	1.27	1.21	1.16	1.09
40°	-	1.28	1.24	1.20	1.15	-	1.30	1.27	1.24	1.21	-	1.42	1.37	1.31	1.26
20°	-	-	1.36	1.31	1.28	-	-	1.39	1.35	1.32	-	-	1.51	1.46	1.41

CPH(E) DIRECT OPERATED HOT GAS BYPASS REGULATOR

CPHE Series Direct Operated Regulators are furnished with an adjustment range of 0-80 psig. Other features include: Take-A-Part construction for service ease without removing the body flange from the line; stainless steel diaphragm; contoured power element; and the “U” gland packing material which eliminates stem friction and packing leaks. Vacuum service is possible by counterclockwise adjustment of the side-mounted adjusting screw. Chart below shows breakdown of parts by number and connection sizes.

Direct operated CPHE regulators are furnished with an adjustment range of 0-80 psig. A 1/4” SAE male flare external equalizer is standard. Types 1 and 2 can be furnished with internal equalizer—omit “E” from the type number (i.e. CPH1 or CPH2). Types CPHE3 thru CPHE6 use a balanced double-ported cage assembly.



FEATURES

- ☆ Sizes available: 1 thru 6
- ☆ SAE external equalizer standard
- ☆ ODF and ODF x ODM connections are available
- ☆ External air connection available for pneumatic compensation (add EAC prefix – example: EAC CPHE)

NOMENCLATURE

example: CPHE 3

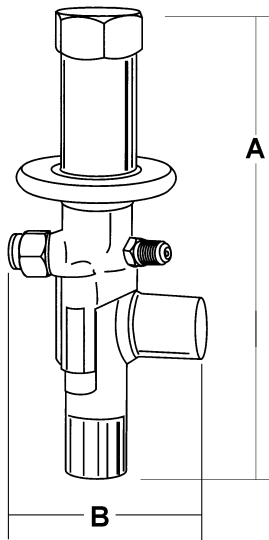
CPH	E	3
Valve Series	External Equalizer (omit on CPHE1 & 2 for internal equalizer)	Size

CPH(E) SELECTION TABLE

CATALOG NUMBER	CAGE ASSEMBLY PART NUMBER	POWER ASSEMBLY PART NUMBER	STANDARD FLANGE SIZE & PART NUMBER	
			ANGLE STYLE	STRAIGHT-THRU STYLE
CPH(E)1	X22440-B5B*	X7118-4	3/8 ODF x 5/8 ODF (C501-5)	3/8 ODF x 5/8 ODF (9761-3)
CPH(E)2	X22440B8B*		1/2 ODF x 5/8 ODF (C501-7)	1/2 ODF x 5/8 ODF (9761-4)
CPH(E)3	X11873-B5B		7/8 ODF x 1-1/8 ODM (10331)	7/8 ODF x 1-1/8 ODM (10332)
CPH(E)4	X9117-B9B	X7428-2	7/8 ODF x 1-1/8 ODM (9153)	7/8 ODF x 1-1/8 ODM (9152)
CPH(E)5	X9166-B10B		7/8 ODF x 1-1/8 ODM (9151)	7/8 ODF x 1-1/8 ODM (9150)
CPH(E)6	X9144-B13B		1-1/8 ODM x 1-1/8 ODM (9149)	1-1/8 ODM x 1-1/8 ODM (9148)

* Change letter “B” to “A” for internally equalized valve.

CPH(E) DIMENSIONAL DATA



VALVE	A	B
CPH(E)1	6-13/16	2-3/4
CPH(E)2	2-15/16	
CPH(E)3	8-1/4	
CPH(E)4	8-1/4	
CPH(E)5	8-3/4	
CPH(E)6	8-3/4	

The above dimensions are maximum height and width variations, dependent on flange selection.

ORDERING INFORMATION FOR CPH(E) VALVES

PCN	DESCRIPTION
088025	CPHE 1 SAE EE 3/8X5/8 ODF ANG
087274	CPHE 1 SAE EE 3/8X5/8 ODF S/T
087774	CPHE 2 SAE EE 1/2X5/8 ODF ANG
087887	CPHE 2 SAE EE 1/2X5/8 ODF S/T
036903	CPHE 3 SAE EE 7/8 ODF/1-1/8 ODM ANG
087357	CPHE 3 SAE EE 7/8 ODF/1-1/8 ODM S/T
081348	CPHE 4 SAE EE 7/8 ODF/1-1/8 ODM ANG
044783	CPHE 4 SAE EE 7/8 ODF/1-1/8 ODM S/T
045225	CPHE 5 SAE EE 7/8 ODF/1-1/8 ODM ANG
037802	CPHE 5 SAE EE 7/8 ODF/1-1/8 ODM S/T
028619	CPHE 6 SAE EE 1-1/8X1-1/8 ODM ANG
038219	CPHE 6 SAE EE 1-1/8X1-1/8 ODM S/T

See pages 214-216 for CPHE Extended Capacity Tables before completing selection.

DGR(E) DIRECT ACTING HOT GAS BYPASS REGULATOR

DGRE Series Direct Acting Hot Gas Bypass Regulators are designed for use on residential and light commercial systems. They provide precision system capacity balance at an economical price. The DGRE is an adjustable valve.

The adjustable DGR Regulators are supplied with a factory set point of 50 psig (point at which the regulator starts to open), which can be changed by adjustment. Capacity of these regulators is based on 6° gradient. Rated capacity will be attained when the suction pressure falls 6° below the corresponding set point saturation temperature. This lower temperature, at which the regulator is rated, is termed "evaporator temperature" in the selection tables on pages 217-218.

When the suction pressure decreases below the set point, the regulator opens and allows discharge gas to be bypassed. The discharge gas may be bypassed into the evaporator or the suction line. When bypassed to the suction line, a liquid injection Thermo Valve must be installed to properly desuperheat the suction gas returning to the compressor.

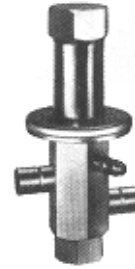
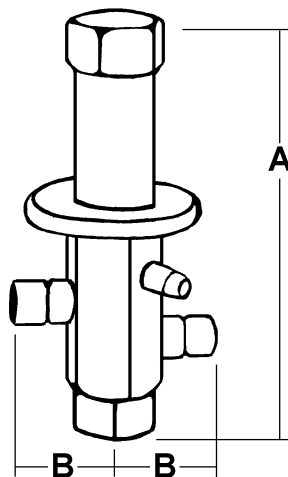
NOMENCLATURE

example: DGRE 6S4

DGR	E	6	S	4
Valve Series	External Equalizer (omit for internal equalizer)	Size	Connection S = ODF connections	Connection (in 1/8")

DGRE DIMENSIONAL DATA

VALVE	A	B
DGRE4, DGRE 6	6-13/16	1-5/8
		1-11/16
		1-7/8
DGRE12	8-3/8	4-13/16



UL file number SA5312

FEATURES

- ☆ Compact hermetic construction
- ☆ Contoured power assembly for long life
- ☆ External or internal equalizer
- ☆ Maximum working pressure: 440 psig
- ☆ SAE or ODF line connections
- ☆ Adjustment range: 0-80 psig
- ☆ Sizes available: 4 thru 12

CATALOG NUMBER	LINE CONNECTIONS		STANDARD EQUALIZER ²	ADJUSTMENT RANGE	SHIPPING WEIGHT
	CODE	SIZE & STYLE			
DGRE-4 ¹	F4	1/2 SAE	1/4 SAE or 1/4 ODF	0-80 psig	2-1/2 lbs.
DGRE-6 ¹	S4	1/2 ODF			
	S5	5/8 ODF			
DGRE-12 ¹	S7	7/8 ODF	EXTERNAL		5 lbs.
	S9	1-1/8 ODF			

¹ Add connection code to complete catalog number.

Example: DGRE-6S4.

² Internal equalized style available. To order, omit "E" from catalog number.

Example: DGR-6S4.

ORDERING INFORMATION FOR DGRE VALVES

PCN	DESCRIPTION
050031	DGRE 4 S 4 B SAE EE
050144	DGRE 4 S 5 B SAE EE
042691	DGRE 6 S 4 B SAE EE
047762	DGRE 6 S 4 C ODF EE
043025	DGRE 6 S 5 B SAE EE
048763	DGRE 6 S 5 C ODF EE
049640	DGRE 12 S 7 B SAE EE
029806	DGRE 12 S 7 C ODF EE
049861	DGRE 12 S 9 B SAE EE

See pages 217-218 for DGRE Extended Capacity Tables before completing selection.

FA8 PILOT OPERATED HOT GAS BYPASS REGULATOR

The FA8 Series Pilot Operated Regulators for Hot Gas Bypass are completely integral units, requiring no external connections other than the inlet and outlet connections and a 1/4" SAE male flare external equalizer connection. The FA8 is equipped with Teflon seat material and is designed for high discharge gas temperature. It is equipped with an integral solenoid and a CPH type pilot assembly. When suction pressure falls below the set point of the pilot, the regulator will open, permitting hot gas to bypass from the system high side to the suction (low) side.



Solenoid Valve on FA8 is listed under UL file number MP604 and CSA file number LR3204

FEATURES

- ☆ Durable, cast iron construction
- ☆ Easy to service, dismantle without removing body from the line
- ☆ External air connection available for pneumatic compensation (add EAC prefix – example: EAC FA8)
- ☆ Flange sizes to fit your system line requirements
- ☆ Sizes available: 11 thru 18
- ☆ Standard external equalizer
- ☆ Adjustment range: 0-80 psig

NOMENCLATURE

example: FA8-18H

FA8	18	H
Valve Series	Size	Refrigerant
		H = R22
		M = R134a

NOTE: These valves are externally equalized and available in 0-80 psig range only.

NOTE: When a pneumatic controller is required to provide temperature compensation, order X10227-2 EAC conversion kit. This connection makes it possible to raise or lower the set point of the valve in a 1:1 ratio.

Example: An increase of 1 psi air pressure will raise the set point 1 psi above the spring setting.

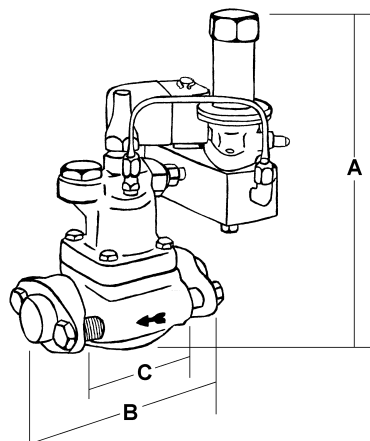
FA8 VALVE	AVAILABLE ODF FLANGES (IN INCHES)
FA8-11	1/2, 5/8, 7/8 & 1-1/8
FA8-12	
FA8-13	
FA8-14	1, 1-1/8, 1-3/8 & 1-5/8
FA8-15	1-1/4, 1-3/8 & 1-5/8
FA8-16	1-1/2, 1-5/8 & 2-1/8
FA8-18	1-1/2, 2-1/8 & 2-5/8

For flange sets, see page 197.

See pages 214-216 for FA8 Extended Capacity Tables before completing selection.

ORDERING INFORMATION FOR FA8 SERIES

PCN	DESCRIPTION
025921	FA8 -11 H VLC
032711	FA8 -12 F VLC
072610	FA8 -12 H VLC
026799	FA8 -13 F VLC
033389	FA8 -13 H VLC
028491	FA8 -1 4F VLC
074022	FA8 -14 H VLC
042874	FA8 -15 F VLC
041448	FA8 -15 H VLC
042028	FA8 -16 F VLC
041921	FA8 -16 H VLC
042875	FA8 -18 H VLC



FA8 DIMENSIONAL DATA

VALVE	A MAX.	B	C
FA8-11	11	5-3/32	3-1/4
FA8-12		6-3/32	
FA8-13		6-3/32	
FA8-14	12	6-7/32	4
		7-3/32	
FA8-15	12	10-1/32	7-13/16
		10-21/32 10-25/32	
FA8-16	12-1/2	10-13/32	8-1/4
		11-7/32 11-23/32	
FA8-18		12-11/32	9-3/4
		13-1/2 13-7/8	

HOT GAS BYPASS REGULATORS EXTENDED CAPACITIES

CPH(E) & FA8 VALVES FOR R134a IN TONS (ALL R-134a AND R404A CAPACITIES ARE R12 AND R502 CAPACITIES)

TOTAL TONS BYPASSED	COMPONENT TYPE	EVAPORATOR TEMPERATURE °F								
		40°	30°	20°	10°	0°	-10°	-20°	-30°	-40°
1/2	BYPASS REGULATOR	CPHE-3	CPHE-3	CPHE-3	CPHE-3	CPHE-3	CPHE-3	CPHE-3	CPHE-3	CPHE-3
	HOT GAS SOL.	200RB3	200RB3	200RB3	200RB3	200RB3	200RB3	200RB3	200RB3	200RB3
	LIQ. INJ. VALVE	LCL1B	LCL1B	LCL1C	LCL1C	LCL1C	LCL1C	LCL1C	LCL1C	LCL1C
	BYPASS REGULATOR	CPHE-4	CPHE-4	CPHE-4	CPHE-4	CPHE-4	CPHE-4	CPHE-4	CPHE-4	CPHE-4
1	HOT GAS SOL.	200RB4	200RB4	200RB4	200RB4	200RB4	200RB4	200RB4	200RB4	200RB4
	LIQ. INJ. VALVE	LCL1B	LCL1B	LCL1C	LCL1C	LCL1C	LCL1C	LCL1C	LCL1C	LCL1C
	BYPASS REGULATOR	CPHE-5	CPHE-5	CPHE-5	CPHE-5	CPHE-5	CPHE-5	CPHE-5	CPHE-5	CPHE-5
	HOT GAS SOL.	200RB5	200RB5	200RB5	200RB5	200RB5	200RB5	200RB5	200RB5	200RB5
2	LIQ. INJ. VALVE	LCL2B	LCL2B	LCL2C	LCL2C	LCL2C	LCL2C	LCL2C	LCL2C	LCL2C
	BYPASS REGULATOR	CPHE-6	CPHE-6	CPHE-6	CPHE-6	CPHE-6	CPHE-6	CPHE-6	CPHE-6	CPHE-6
3	HOT GAS SOL.	200RB6	200RB6	200RB6	200RB6	200RB6	200RB6	200RB6	200RB6	200RB6
	LIQ. INJ. VALVE	LCL2B	LCL2B	LCL2C	LCL2C	LCL2C	LCL2C	LCL2C	LCL2C	LCL2C
	BYPASS REGULATOR	FA8-12M	FA8-12M	FA8-12M	FA8-12M	FA8-12M	FA8-12M	FA8-12M	FA8-12M	FA8-12M
	LIQ. INJ. VALVE	LCL2B	LCL2B	LCL2C	LCL2C	LCL2C	LCL3C	LCL3C	LCL3C	LCL3C
5	BYPASS REGULATOR	FA8-12M	FA8-12M	FA8-12M	FA8-12M	FA8-12M	FA8-12M	FA8-12M	FA8-12M	FA8-12M
	LIQ. INJ. VALVE	LCL3B	LCL3B	LCL3C	LCL3C	LCL3C	LCL3C	LCL3C	LCL3C	LCL4C
	BYPASS REGULATOR	FA8-12M	FA8-12M	FA8-12M	FA8-12M	FA8-12M	FA8-12M	FA8-12M	FA8-12M	FA8-12M
	LIQ. INJ. VALVE	LCL3B	LCL3B	LCL3C	LCL3C	LCL3C	LCL4C	LCL4C	LCL4C	LCL4C
7-1/2	BYPASS REGULATOR	FA8-13M	FA8-13M	FA8-13M	FA8-13M	FA8-13M	FA8-13M	FA8-13M	FA8-13M	FA8-13M
	LIQ. INJ. VALVE	LCL3B	LCL3B	LCL3C	LCL3C	LCL4C	LCL4C	LCL4C	LCL4C	LCL4C
10	BYPASS REGULATOR	FA8-13M	FA8-13M	FA8-13M	FA8-13M	FA8-13M	FA8-13M	FA8-13M	FA8-13M	FA8-13M
	LIQ. INJ. VALVE	LCL4B	LCL4B	LCL4C	LCL4C	LCL6C	LCL6C	LCL6C	LCL6C	LCL6C
12	BYPASS REGULATOR	FA8-13M	FA8-13M	FA8-13M	FA8-13M	FA8-13M	FA8-13M	FA8-13M	FA8-13M	FA8-13M
	LIQ. INJ. VALVE	LCL6B	LCL6B	LCL6C	LCL6C	LCL6C	LCL6C	LCL6C	LCL6C	LCL6C
15	BYPASS REGULATOR	FA8-14M	FA8-14M	FA8-14M	FA8-14M	FA8-14M	FA8-14M	FA8-14M	FA8-14M	FA8-14M
	LIQ. INJ. VALVE	LCL6B	LCL6B	LCL6C	LCL6C	LCL6C	LCL6C	LCL7C	LCL7C	LCL7C
20	BYPASS REGULATOR	FA8-14M	FA8-14M	FA8-14M	FA8-14M	FA8-14M	FA8-14M	FA8-14M	FA8-14M	FA8-14M
	LIQ. INJ. VALVE	LCL6B	LCL6B	LCL7C	LCL7C	LCL7C	LCL7C	LCL7C	LCL7C	LCL7C
25	BYPASS REGULATOR	FA8-15M	FA8-15M	FA8-15M	FA8-15M	FA8-15M	FA8-15M	FA8-15M	FA8-15M	FA8-15M
	LIQ. INJ. VALVE	LCL7B	LCL7B	LCL7C	LCL7C	LCL9C	LCL9C	LCL10C	LCL10C	LCL10C
30	BYPASS REGULATOR	FA8-16M	FA8-16M	FA8-16M	FA8-16M	FA8-16M	FA8-16M	FA8-16M	FA8-16M	FA8-16M
	LIQ. INJ. VALVE	LCL9B	LCL9B	LCL10C	LCL10C	LCL10C	LCL10C	LCL11C	LCL12C	LCL12C
35	BYPASS REGULATOR	FA8-16M	FA8-16M	FA8-16M	FA8-16M	FA8-16M	FA8-16M	FA8-16M	FA8-16M	FA8-16M
	LIQ. INJ. VALVE	LCL9B	LCL10B	LCL10C	LCL10C	LCL11C	LCL11C	LCL12C	LCL12C	LCL12C
40	BYPASS REGULATOR	FA8-16M	FA8-16M	FA8-16M	FA8-16M	FA8-16M	FA8-16M	FA8-16M	FA8-16M	FA8-16M
	LIQ. INJ. VALVE	LCL10B	LCL10B	LJL11C	LJL11C	LJL11C	LJL11C	LJL12C	LER13C	LER13C
45	BYPASS REGULATOR	FA8-16M	FA8-16M	FA8-16M	FA8-16M	FA8-16M	FA8-16M	FA8-16M	FA8-16M	FA8-16M
	LIQ. INJ. VALVE	LJL11B	LJL11B	LJL12C	LJL12C	LJL12C	LJL12C	LER13C	LER13C	LER14C
50	BYPASS REGULATOR	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M
	LIQ. INJ. VALVE	LJL12B	LJL12B	LJL12C	LJL12C	LER13C	LER13C	LER14C	LER14C	LER14C
55	BYPASS REGULATOR	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M
	LIQ. INJ. VALVE	LJL12B	LJL12B	LER13C	LER13C	LER13C	LER13C	LER14C	LER14C	LER14C
60	BYPASS REGULATOR	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M
	LIQ. INJ. VALVE	LJL12B	LER13B	LER13C	LER13C	LER13C	LER14C	LER14C	LER14C	LER14C
65	BYPASS REGULATOR	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M
	LIQ. INJ. VALVE	LER13B	LER14B	LER14C	LER14C	LER14C	LER14C	LER14C	LER14C	LER15C
70	BYPASS REGULATOR	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M
	LIQ. INJ. VALVE	LER14B	LER14B	LER14C	LER14C	LER14C	LER14C	LER14C	LER15C	LER15C
75	BYPASS REGULATOR	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M
	LIQ. INJ. VALVE	LER14B	LER14B	LER14C	LER14C	LER14C	LER15C	LER15C	LER15C	LER16C
80	BYPASS REGULATOR	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M
	LIQ. INJ. VALVE	LER14B	LER14B	LER14C	LER14C	LER15C	LER15C	LER15C	LER16C	LER16C
85	BYPASS REGULATOR	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M
	LIQ. INJ. VALVE	LER14B	LER14B	LER15C	LER15C	LER15C	LER15C	LER15C	LER16C	LER16C
90	BYPASS REGULATOR	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M
	LIQ. INJ. VALVE	LER14B	LER15B	LER15C	LER15C	LER15C	LER15C	LER15C	LER16C	LER16C
95	BYPASS REGULATOR	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M
	LIQ. INJ. VALVE	LER15B	LER15B	LER15C	LER15C	LER15C	LER16C	LER16C	LER16C	LER16C
100	BYPASS REGULATOR	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M	FA8-18M
	LIQ. INJ. VALVE	LER15B	LER15B	LER15C	LER15C	LER16C	LER16C	LER16C	LER16C	LER16C

CPH(E) & FA8 VALVES FOR R22 IN TONS

TOTAL TONS BYPASSED	COMPONENT TYPE	EVAPORATOR TEMPERATURE °F									
		40°	30°	20°	10°	0°	-10°	-20°	-30°	-40°	
1/2	BYPASS REGULATOR HOT GAS SOL. LIQ. INJ. VALVE	CPHE-1 100RB2 LCL1A	CPHE-1 100RB2 LCL1A	CPHE-1 100RB2 LCL1B	CPHE-1 100RB2 LCL1B	CPHE-1 100RB2 LCL1B	CPHE-1 100RB2 LCL1C	CPHE-1 100RB2 LCL1C	CPHE-1 100RB2 LCL1C	CPHE-1 100RB2 LCL1C	
1	BYPASS REGULATOR HOT GAS SOL. LIQ. INJ. VALVE	CPHE-3 200RB3 LCL1A	CPHE-3 200RB3 LCL1A	CPHE-3 200RB3 LCL1B	CPHE-3 200RB3 LCL1B	CPHE-3 200RB3 LCL1B	CPHE-3 200RB3 LCL1C	CPHE-3 200RB3 LCL1C	CPHE-2 200RB3 LCL1C	CPHE-2 200RB3 LCL1C	
2	BYPASS REGULATOR HOT GAS SOL. LIQ. INJ. VALVE	CPHE-4 200RB4 LCL1A	CPHE-4 200RB4 LCL1A	CPHE-4 200RB4 LCL1B	CPHE-4 200RB4 LCL1B	CPHE-4 200RB4 LCL1B	CPHE-4 200RB4 LCL1C	CPHE-4 200RB4 LCL1C	CPHE-4 200RB4 LCL1C	CPHE-4 200RB4 LCL1C	
3	BYPASS REGULATOR HOT GAS SOL. LIQ. INJ. VALVE	CPHE-4 200RB5 LCL1A	CPHE-4 200RB5 LCL1A	CPHE-4 200RB5 LCL1B	CPHE-4 200RB5 LCL1B	CPHE-4 200RB5 LCL1B	CPHE-4 200RB5 LCL1C	CPHE-4 200RB5 LCL2C	CPHE-4 200RB5 LCL2C	CPHE-4 200RB5 LCL2C	
4	BYPASS REGULATOR HOT GAS SOL. LIQ. INJ. VALVE	CPHE-5 200RB5 LCL2A	CPHE-5 200RB5 LCL2A	CPHE-5 200RB5 LCL2B	CPHE-5 200RB5 LCL2B	CPHE-5 200RB5 LCL2B	CPHE-5 200RB5 LCL2C	CPHE-4 200RB5 LCL3C	CPHE-4 200RB5 LCL3C	CPHE-4 200RB5 LCL3C	
5	BYPASS REGULATOR HOT GAS SOL. LIQ. INJ. VALVE	CPHE-6 200RB6 LCL2A	CPHE-6 200RB6 LCL2A	CPHE-6 200RB6 LCL2B	CPHE-6 200RB6 LCL2B	CPHE-6 200RB6 LCL2B	CPHE-5 200RB6 LCL2C	CPHE-5 200RB6 LCL2C	CPHE-5 200RB6 LCL2C	CPHE-5 200RB6 LCL2C	
6	BYPASS REGULATOR HOT GAS SOL. LIQ. INJ. VALVE	CPHE-6 200RB6 LCL2A	CPHE-6 200RB6 LCL2A	CPHE-6 200RB6 LCL2B	CPHE-6 200RB6 LCL2B	CPHE-6 200RB6 LCL2B	CPHE-6 200RB6 LCL3C	CPHE-6 200RB6 LCL3C	CPHE-6 200RB6 LCL3C	CPHE-5 200RB6 LCL3C	
7	BYPASS REGULATOR HOT GAS SOL. LIQ. INJ. VALVE	CPHE-6 240RA8 LCL2A	CPHE-6 240RA8 LCL2A	CPHE-6 240RA8 LCL2B	CPHE-6 240RA8 LCL3B	CPHE-6 240RA8 LCL3B	CPHE-6 240RA8 LCL3C	CPHE-6 240RA8 LCL3C	CPHE-6 240RA8 LCL3C	CPHE-6 240RA8 LCL3C	
8	BYPASS REGULATOR LIQ. INJ. VALVE	FA8-12H LCL3A	FA8-12H LCL3A	FA8-12H LCL3B	FA8-12H LCL3B	FA8-12H LCL3B	FA8-12H LCL3C	FA8-12H LCL3C	FA8-12H LCL3C	FA8-12H LCL3C	
9	BYPASS REGULATOR LIQ. INJ. VALVE	FA8-12H LCL3A	FA8-12H LCL3A	FA8-12H LCL3B	FA8-12H LCL3B	FA8-12H LCL3B	FA8-12H LCL3C	FA8-12H LCL3C	FA8-12H LCL3C	FA8-12H LCL3C	
10	BYPASS REGULATOR LIQ. INJ. VALVE	FA8-12H LCL3A	FA8-12H LCL3A	FA8-12H LCL3B	FA8-12H LCL3B	FA8-12H LCL3B	FA8-12H LCL3C	FA8-12H LCL3C	FA8-12H LCL3C	FA8-12H LCL4C	
12	BYPASS REGULATOR LIQ. INJ. VALVE	FA8-12H LCL3A	FA8-12H LCL3A	FA8-12H LCL3B	FA8-12H LCL3B	FA8-12H LCL3B	FA8-12H LCL4C	FA8-12H LCL4C	FA8-12H LCL4C	FA8-12H LCL4C	
14	BYPASS REGULATOR LIQ. INJ. VALVE	FA8-13H LCL4A	FA8-13H LCL4A	FA8-13H LCL4B	FA8-13H LCL4B	FA8-12H LCL4B	FA8-12H LCL4C	FA8-12H LCL4C	FA8-12H LCL4C	FA8-12H LCL6C	
16	BYPASS REGULATOR LIQ. INJ. VALVE	FA8-13H LCL4A	FA8-13H LCL4A	FA8-13H LCL4B	FA8-13H LCL4B	FA8-13H LCL4B	FA8-13H LCL4C	FA8-13H LCL4C	FA8-12H LCL6C	FA8-12H LCL6C	
20	BYPASS REGULATOR LIQ. INJ. VALVE	FA8-13H LCL4A	FA8-13H LCL4A	FA8-13H LCL4B	FA8-13H LCL4B	FA8-13H LCL4B	FA8-13H LCL6C	FA8-13H LCL6C	FA8-13H LCL6C	FA8-13H LCL6C	
25	BYPASS REGULATOR LIQ. INJ. VALVE	FA8-13H LCL6A	FA8-13H LCL6A	FA8-13H LCL6B	FA8-13H LCL6B	FA8-13H LCL6B	FA8-13H LCL6C	FA8-13H LCL7C	FA8-13H LCL7C	FA8-13H LCL7C	
30	BYPASS REGULATOR LIQ. INJ. VALVE	FA8-14H LCL6A	FA8-14H LCL6A	FA8-14H LCL6B	FA8-14H LCL7B	FA8-14H LCL7B	FA8-13H LCL7C	FA8-13H LCL7C	FA8-13H LCL7C	FA8-13H LCL7C	
35	BYPASS REGULATOR LIQ. INJ. VALVE	FA8-14H LCL7A	FA8-14H LCL7A	FA8-14H LCL7B	FA8-14H LCL7B	FA8-14H LCL7B	FA8-14H LCL7C	FA8-14H LCL7C	FA8-14H LCL9C	FA8-14H LCL9C	
40	BYPASS REGULATOR LIQ. INJ. VALVE	FA8-15H LCL7A	FA8-14H LCL7A	FA8-14H LCL7B	FA8-14H LCL7B	FA8-14H LCL9B	FA8-14H LCL9C	FA8-14H LCL9C	FA8-14H LCL10C	FA8-14H LCL10C	
45	BYPASS REGULATOR LIQ. INJ. VALVE	FA8-15H LCL9A	FA8-15H LCL9A	FA8-15H LCL9B	FA8-15H LCL9B	FA8-15H LCL9B	FA8-15H LCL9C	FA8-14H LCL9C	FA8-14H LCL10C	FA8-14H LCL11C	
50	BYPASS REGULATOR LIQ. INJ. VALVE	FA8-15H LCL9A	FA8-15H LCL9A	FA8-15H LCL9B	FA8-15H LCL9B	FA8-15H LCL10B	FA8-15H LCL10C	FA8-15H LCL11C	FA8-15H LCL11C	FA8-15H LCL11C	
55	BYPASS REGULATOR LIQ. INJ. VALVE	FA8-16H LCL9A	FA8-16H LCL9A	FA8-15H LCL9B	FA8-15H LCL10B	FA8-15H LCL10B	FA8-15H LJL11C	FA8-15H LJL11C	FA8-15H LJL11C	FA8-15H LJL12C	
60	BYPASS REGULATOR LIQ. INJ. VALVE	FA8-16H LCL9A	FA8-16H LCL10A	FA8-16H LCL10B	FA8-16H LJL11B	FA8-16H LJL11B	FA8-15H LJL11C	FA8-15H LJL11C	FA8-15H LJL12C	FA8-15H LJL12C	
65	BYPASS REGULATOR LIQ. INJ. VALVE	FA8-16H LCL10A	FA8-16H LCL10A	FA8-16H LCL10B	FA8-16H LJL11B	FA8-16H LJL11B	FA8-16H LJL11C	FA8-16H LJL12C	FA8-16H LJL12C	FA8-15H LER13C	
70	BYPASS REGULATOR LIQ. INJ. VALVE	FA8-16H LCL10A	FA8-16H LCL11A	FA8-16H LJL11B	FA8-16H LJL11B	FA8-16H LJL12B	FA8-16H LJL12C	FA8-16H LJL12C	FA8-16H LJL12C	FA8-16H LER13C	
75	BYPASS REGULATOR LIQ. INJ. VALVE	FA8-16H LJL11A	FA8-16H LJL11A	FA8-16H LJL11B	FA8-16H LJL12B	FA8-16H LJL12B	FA8-16H LJL12C	FA8-16H LJL12C	FA8-16H LJL13C	FA8-16H LER13C	
80	BYPASS REGULATOR LIQ. INJ. VALVE	FA8-16H LJL11A	FA8-16H LJL11A	FA8-16H LJL12B	FA8-16H LJL12B	FA8-16H LJL12B	FA8-16H LER12C	FA8-16H LER13C	FA8-16H LER13C	FA8-16H LER14C	
85	BYPASS REGULATOR LIQ. INJ. VALVE	FA8-16H LJL12A	FA8-16H LJL12A	FA8-16H LJL12B	FA8-16H LJL12B	FA8-16H LER13B	FA8-16H LER13C	FA8-16H LER13C	FA8-16H LER13C	FA8-16H LER14C	
90	BYPASS REGULATOR LIQ. INJ. VALVE	FA8-18H LJL12A	FA8-16H LJL12A	FA8-16H LJL12B	FA8-16H LJL12B	FA8-16H LER13B	FA8-16H LER13C	FA8-16H LER13C	FA8-16H LER14C	FA8-16H LER14C	
95	BYPASS REGULATOR LIQ. INJ. VALVE	FA8-18H LJL12A	FA8-18H LJL12A	FA8-18H LJL12B	FA8-18H LER13B	FA8-16H LER13B	FA8-16H LER13C	FA8-16H LER14C	FA8-16H LER14C	FA8-16H LER14C	
100	BYPASS REGULATOR LIQ. INJ. VALVE	FA8-18H LJL12A	FA8-18H LJL12A	FA8-18H LJL12B	FA8-18H LER13B	FA8-18H LER13B	FA8-16H LER13C	FA8-16H LER14C	FA8-16H LER14C	FA8-16H LER15C	

CPH(E) & FA8 VALVES FOR R404A & R507 IN TONS

TOTAL TONS BYPASSED	COMPONENT TYPE	EVAPORATOR TEMPERATURE °F							
		30°	20°	10°	0°	-10°	-20°	-30°	-40°
1/2	BYPASS REGULATOR	CPHE-2	CPHE-2	CPHE-1	CPHE-1	CPHE-1	CPHE-1	CPHE-1	CPHE-1
	HOT GAS SOL.	100RB2	100RB2	100RB2	100RB2	100RB2	100RB2	100RB2	100RB2
	LIQ. INJ. VALVE	LCL1A	LCL1A	LCL1B	LCL1B	LCL1B	LCL1C	LCL1C	LCL1C
1	BYPASS REGULATOR	CPHE-3	CPHE-3	CPHE-3	CPHE-3	CPHE-3	CPHE-3	CPHE-2	CPHE-2
	HOT GAS SOL.	200RB3	200RB3	200RB3	200RB3	200RB3	200RB3	200RB3	200RB3
	LIQ. INJ. VALVE	LCL1A	LCL1A	LCL1B	LCL1B	LCL1B	LCL1C	LCL1C	LCL1C
2	BYPASS REGULATOR	CPHE-4	CPHE-4	CPHE-4	CPHE-4	CPHE-4	CPHE-4	CPHE-4	CPHE-4
	HOT GAS SOL.	200RB4	200RB4	200RB4	200RB4	200RB4	200RB4	200RB4	200RB4
	LIQ. INJ. VALVE	LCL2A	LCL2A	LCL2B	LCL2B	LCL2B	LCL2C	LCL2C	LCL2C
3	BYPASS REGULATOR	CPHE-4	CPHE-4	CPHE-4	CPHE-4	CPHE-4	CPHE-4	CPHE-4	CPHE-4
	HOT GAS SOL.	200RB5	200RB5	200RB5	200RB5	200RB5	200RB5	200RB5	200RB5
	LIQ. INJ. VALVE	LCL2A	LCL2A	LCL2B	LCL2B	LCL2B	LCL3C	LCL3C	LCL3C
4	BYPASS REGULATOR	CPHE-5	CPHE-5	CPHE-5	CPHE-5	CPHE-5	CPHE-5	CPHE-5	CPHE-5
	HOT GAS SOL.	200RB6	200RB6	200RB6	200RB6	200RB6	200RB6	200RB6	200RB6
	LIQ. INJ. VALVE	LCL2A	LCL3A	LCL3B	LCL3B	LCL3B	LCL3C	LCL3C	LCL3C
5	BYPASS REGULATOR	CPHE-6	CPHE-6	CPHE-6	CPHE-6	CPHE-6	CPHE-6	CPHE-6	CPHE-6
	HOT GAS SOL.	200RB6	200RB6	200RB6	200RB6	200RB6	200RB6	200RB6	200RB6
	LIQ. INJ. VALVE	LCL3A	LCL3A	LCL3B	LCL3B	LCL3B	LCL5C	LCL4C	LCL4C
6	BYPASS REGULATOR	CPHE-6	CPHE-6	CPHE-6	CPHE-6	CPHE-6	CPHE-6	CPHE-6	CPHE-6
	HOT GAS SOL.	240RA8	240RA8	240RA8	240RA8	240RA8	240RA8	240RA8	240RA8
	LIQ. INJ. VALVE	LCL3A	LCL3A	LCL3B	LCL4B	LCL4B	LCL4C	LCL4C	LCL4C
7	BYPASS REGULATOR	FA8-12H	FA8-12H	FA8-12H	FA8-12H	FA8-12H	FA8-12H	FA8-12H	FA8-12H
	LIQ. INJ. VALVE	LCL4A	LCL4A	LCL4B	LCL4B	LCL4B	LCL4C	LCL4C	LCL6C
8	BYPASS REGULATOR	FA8-12H	FA8-12H	FA8-12H	FA8-12H	FA8-12H	FA8-12H	FA8-12H	FA8-12H
	LIQ. INJ. VALVE	LCL4A	LCL4A	LCL4B	LCL4B	LCL4B	LCL6C	LCL6C	LCL6C
9	BYPASS REGULATOR	FA8-12H	FA8-12H	FA8-12H	FA8-12H	FA8-12H	FA8-12H	FA8-12H	FA8-12H
	LIQ. INJ. VALVE	LCL4A	LCL4A	LCL4B	LCL6B	LCL6B	LCL6C	LCL6C	LCL6C
10	BYPASS REGULATOR	FA8-12H	FA8-12H	FA8-12H	FA8-12H	FA8-12H	FA8-12H	FA8-12H	FA8-12H
	LIQ. INJ. VALVE	LCL6A	LCL6A	LCL6B	LCL6B	LCL6B	LCL6C	LCL6C	LCL6C
12	BYPASS REGULATOR	FA8-13H	FA8-13H	FA8-12H	FA8-12H	FA8-12H	FA8-12H	FA8-12H	FA8-12H
	LIQ. INJ. VALVE	LCL6A	LCL6A	LCL6B	LCL6B	LCL6B	LCL6C	LCL7C	LCL7C
14	BYPASS REGULATOR	FA8-13H	FA8-13H	FA8-13H	FA8-13H	FA8-13H	FA8-13H	FA8-13H	FA8-13H
	LIQ. INJ. VALVE	LCL6A	LCL6A	LCL6B	LCL6B	LCL7B	LCL7C	LCL7C	LCL7C
16	BYPASS REGULATOR	FA8-13H	FA8-13H	FA8-13H	FA8-13H	FA8-13H	FA8-13H	FA8-13H	FA8-13H
	LIQ. INJ. VALVE	LCL6A	LCL6A	LCL7B	LCL7B	LCL7B	LCL7C	LCL7C	LCL7C
20	BYPASS REGULATOR	FA8-13H	FA8-13H	FA8-13H	FA8-13H	FA8-13H	FA8-13H	FA8-13H	FA8-13H
	LIQ. INJ. VALVE	LCL7A	LCL7A	LCL7B	LCL7B	LCL7B	LCL7C	LCL9C	LCL9C
25	BYPASS REGULATOR	FA8-14H	FA8-14H	FA8-13H	FA8-13H	FA8-13H	FA8-13H	FA8-13H	FA8-13H
	LIQ. INJ. VALVE	LCL7A	LCL9A	LCL9B	LCL9B	LCL9B	LCL10C	LCL10C	LCL10C
30	BYPASS REGULATOR	FA8-14H	FA8-14H	FA8-14H	FA8-14H	FA8-14H	FA8-14H	FA8-14H	FA8-14H
	LIQ. INJ. VALVE	LCL9A	LCL9A	LCL10B	LCL10B	LCL10B	LCL11C	LCL11C	LCL11C
35	BYPASS REGULATOR	FA8-14H	FA8-14H	FA8-14H	FA8-14H	FA8-14H	FA8-14H	FA8-14H	FA8-14H
	LIQ. INJ. VALVE	LCL10A	LCL10A	LJL11B	LJL11B	LJL11B	LJL11C	LJL11C	LJL11C
40	BYPASS REGULATOR	FA8-15H	FA8-15H	FA8-15H	FA8-15H	FA8-15H	FA8-15H	FA8-15H	FA8-15H
	LIQ. INJ. VALVE	LJL11A	LJL11A	LJL11B	LJL11B	LJL11B	LJL12C	LJL12C	LJL12C
45	BYPASS REGULATOR	FA8-15H	FA8-15H	FA8-15H	FA8-15H	FA8-15H	FA8-15H	FA8-15H	FA8-15H
	LIQ. INJ. VALVE	LJL11A	LJL11A	LJL12B	LJL12B	LJL12B	LER13C	LER13C	LER13C
50	BYPASS REGULATOR	FA8-16H	FA8-16H	FA8-15H	FA8-15H	FA8-15H	FA8-15H	FA8-15H	FA8-15H
	LIQ. INJ. VALVE	LJL12A	LJL12A	LJL12B	LJL12B	LJL12B	LER13C	LER13C	LER13C
55	BYPASS REGULATOR	FA8-16H	FA8-16H	FA8-16H	FA8-16H	FA8-16H	FA8-16H	FA8-16H	FA8-16H
	LIQ. INJ. VALVE	LJL12A	LJL12A	LER13B	LER13B	LER13B	LER14C	LER14C	LER14C
60	BYPASS REGULATOR	FA8-16H	FA8-16H	FA8-16H	FA8-16H	FA8-15H	FA8-15H	FA8-15H	FA8-15H
	LIQ. INJ. VALVE	LER13A	LER13A	LER13B	LER13B	LER14B	LER14C	LER14C	LER14C
65	BYPASS REGULATOR	FA8-16H	FA8-16H	FA8-16H	FA8-16H	FA8-15H	FA8-15H	FA8-15H	FA8-15H
	LIQ. INJ. VALVE	LER13A	LER13A	LER13B	LER14B	LER14B	LER14C	LER14C	LER15C
70	BYPASS REGULATOR	FA8-16H	FA8-16H	FA8-16H	FA8-16H	FA8-15H	FA8-15H	FA8-15H	FA8-15H
	LIQ. INJ. VALVE	LER13A	LER14A	LER14B	LER14B	LER14B	LER14C	LER15C	LER15C
75	BYPASS REGULATOR	FA8-16H	FA8-16H	FA8-16H	FA8-16H	FA8-16H	FA8-16H	FA8-16H	FA8-16H
	LIQ. INJ. VALVE	LER14A	LER14A	LER14B	LER14B	LER15B	LER15C	LER15C	LER15C
80	BYPASS REGULATOR	FA8-16H	FA8-16H	FA8-16H	FA8-16H	FA8-16H	FA8-16H	FA8-16H	FA8-16H
	LIQ. INJ. VALVE	LER14A	LER14A	LER15B	LER15B	LER15B	LER15C	LER15C	LER15C
85	BYPASS REGULATOR	FA8-18H	FA8-18H	FA8-16H	FA8-16H	FA8-16H	FA8-16H	FA8-16H	FA8-16H
	LIQ. INJ. VALVE	LER15A	LER15A	LER15B	LER15B	LER15B	LER15C	LER16C	LER16C
90	BYPASS REGULATOR	FA8-18H	FA8-18H	FA8-18H	FA8-18H	FA8-18H	FA8-18H	FA8-16H	FA8-16H
	LIQ. INJ. VALVE	LER15A	LER15A	LER15B	LER15B	LER15B	LER16C	LER16C	LER16C
95	BYPASS REGULATOR	FA8-18H	FA8-18H	FA8-18H	FA8-18H	FA8-18H	FA8-18H	FA8-18H	FA8-18H
	LIQ. INJ. VALVE	LER15A	LER15A	LER15B	LER15B	LER16B	LER16C	LER16C	LER16C
100	BYPASS REGULATOR	FA8-18H	FA8-18H	FA8-18H	FA8-18H	FA8-18H	FA8-18H	FA8-18H	FA8-18H
	LIQ. INJ. VALVE	LER15A	LER15A	LER16B	LER16B	LER16B	LER16C	LER16C	LER16C

HOT GAS BYPASS REGULATORS EXTENDED CAPACITIES

DGR(E) VALVES FOR R134a IN TONS

TOTAL TONS BYPASSED	COMPONENT TYPE	EVAPORATOR TEMPERATURE °F									
		40°	30°	20°	10°	0°	-10°	-20°	-30°	-40°	
1/2	BYPASS REGULATOR	DGRE4	DGRE6	DGRE6	DGRE6	DGRE6	DGRE6	DGRE6	DGRE6	DGRE12	DGRE12
	HOT GAS SOL.	200RB3	200RB3	200RB3	200RB3	200RB3	200RB3	200RB3	200RB3	200RB3	200RB3
	LIQ. INJ. VALVE	LCL1B	LCL1B	LCL1C	LCL1C	LCL1C	LCL1C	LCL1C	LCL1C	LCL1C	LCL1C
1	BYPASS REGULATOR	DGRE6	DGRE6	DGRE6	DGRE12	DGRE12	DGRE12	DGRE12	DGRE12	DGRE12	-
	HOT GAS SOL.	200RB4	200RB4	200RB4	200RB4	200RB4	200RB4	200RB4	200RB4	200RB4	-
	LIQ. INJ. VALVE	LCL1B	LCL1B	LCL1C	LCL1C	LCL1C	LCL1C	LCL1C	LCL1C	LCL1C	-
2	BYPASS REGULATOR	DGRE12	DGRE12	DGRE12	DGRE12	-	-	-	-	-	-
	HOT GAS SOL.	200RB5	200RB5	200RB5	200RB5	-	-	-	-	-	-
	LIQ. INJ. VALVE	LCL2B	LCL2B	LCL2C	LCL2C	-	-	-	-	-	-
3	BYPASS REGULATOR	DGRE12	DGRE12	-	-	-	-	-	-	-	-
	HOT GAS SOL.	200RB6	200RB6	-	-	-	-	-	-	-	-
	LIQ. INJ. VALVE	LCL2B	LCL2B	-	-	-	-	-	-	-	-

DGR(E) VALVES FOR R22 IN TONS

TOTAL TONS BYPASSED	COMPONENT TYPE	EVAPORATOR TEMPERATURE °F									
		40°	30°	20°	10°	0°	-10°	-20°	-30°	-40°	
1/2	BYPASS REGULATOR	DGRE4	DGRE4	DGRE4	DGRE4	DGRE4	DGRE4	DGRE4	DGRE4	DGRE4	DGRE6
	HOT GAS SOL.	100RB2	100RB2	100RB2	100RB2	100RB2	100RB2	100RB2	100RB2	100RB2	100RB2
	LIQ. INJ. VALVE	LCL1A	LCL1A	LCL1B	LCL1B	LCL1B	LCL1C	LCL1C	LCL1C	LCL1C	LCL1C
1	BYPASS REGULATOR	DGRE4	DGRE4	DGRE4	DGRE4	DGRE6	DGRE6	DGRE6	DGRE6	DGRE6	DGRE6
	HOT GAS SOL.	200RB3	200RB3	200RB3	200RB3	200RB3	200RB3	200RB3	200RB3	200RB3	200RB3
	LIQ. INJ. VALVE	LCL1A	LCL1A	LCL1B	LCL1B	LCL1B	LCL1C	LCL1C	LCL1C	LCL1C	LCL1C
2	BYPASS REGULATOR	DGRE6	DGRE6	DGRE6	DGRE6	DGRE6	DGRE6	DGRE12	DGRE12	DGRE12	DGRE12
	HOT GAS SOL.	200RB4	200RB4	200RB4	200RB4	200RB4	200RB4	200RB4	200RB4	200RB4	200RB4
	LIQ. INJ. VALVE	LCL1A	LCL1A	LCL1B	LCL1B	LCL1B	LCL1C	LCL1C	LCL1C	LCL1C	LCL1C
3	BYPASS REGULATOR	DGRE6	DGRE6	DGRE6	DGRE12	DGRE12	DGRE12	DGRE12	DGRE12	DGRE12	-
	HOT GAS SOL.	200RB5	200RB5	200RB5	200RB5	200RB5	200RB5	200RB5	200RB5	200RB5	-
	LIQ. INJ. VALVE	LCL1A	LCL1A	LCL1B	LCL1B	LCL1B	LCL2C	LCL2C	LCL2C	LCL2C	-
4	BYPASS REGULATOR	DGRE6	DGRE6	DGRE12	DGRE12	DGRE12	DGRE12	DGRE12	-	-	-
	HOT GAS SOL.	200RB5	200RB5	200RB5	200RB5	200RB5	200RB5	200RB5	-	-	-
	LIQ. INJ. VALVE	LCL2A	LCL2A	LCL2B	LCL2B	LCL2B	LCL2C	LCL3C	-	-	-
5	BYPASS REGULATOR	DGRE12	DGRE12	DGRE12	DGRE12	DGRE12	DGRE12	-	-	-	-
	HOT GAS SOL.	200RB6	200RB6	200RB6	200RB6	200RB6	200RB6	-	-	-	-
	LIQ. INJ. VALVE	LCL2A	LCL2A	LCL2B	LCL2B	LCL2B	LCL2C	-	-	-	-
6	BYPASS REGULATOR	DGRE12	DGRE12	DGRE12	DGRE12	DGRE12	-	-	-	-	-
	HOT GAS SOL.	200RB6	200RB6	200RB6	200RB6	200RB6	-	-	-	-	-
	LIQ. INJ. VALVE	LCL2A	LCL2A	LCL2B	LCL2B	LCL2B	-	-	-	-	-
7	BYPASS REGULATOR	DGRE12	DGRE12	DGRE12	DGRE12	-	-	-	-	-	-
	HOT GAS SOL.	240RA8	240RA8	240RA8	240RA8	-	-	-	-	-	-
	LIQ. INJ. VALVE	LCL2A	LCL2A	LCL2B	LCL3B	-	-	-	-	-	-
8	BYPASS REGULATOR	DGRE12	DGRE12	DGRE12	-	-	-	-	-	-	-
	HOT GAS SOL.	240RA8	240RA8	240RA8	-	-	-	-	-	-	-
	LIQ. INJ. VALVE	LCL3A	LCL3A	LCL3B	-	-	-	-	-	-	-
9	BYPASS REGULATOR	DGRE12	DGRE12	-	-	-	-	-	-	-	-
	HOT GAS SOL.	240RA8	240RA8	-	-	-	-	-	-	-	-
	LIQ. INJ. VALVE	LCL3A	LCL3A	-	-	-	-	-	-	-	-
10	BYPASS REGULATOR	DGRE12	-	-	-	-	-	-	-	-	-
	HOT GAS SOL.	240RA8	-	-	-	-	-	-	-	-	-
	LIQ. INJ. VALVE	LCL3A	-	-	-	-	-	-	-	-	-

HOT GAS BYPASS REGULATORS EXTENDED CAPACITIES

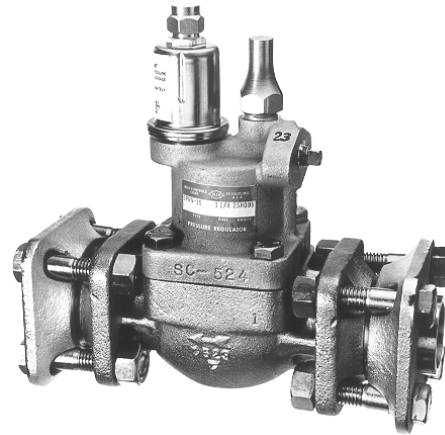
DGR(E) VALVES FOR R404A & R507 IN TONS

TOTAL TONS BYPASSED	COMPONENT TYPE	EVAPORATOR TEMPERATURE °F							
		30°	20°	10°	0°	-10°	-20°	-30°	-40°
1/2	BYPASS REGULATOR	DGRE4	DGRE4	DGRE4	DGRE4	DGRE4	DGRE4	DGRE4	DGRE6
	HOT GAS SOL.	100RB2	100RB2	100RB2	100RB2	100RB2	100RB2	100RB2	100RB2
	LIQ. INJ. VALVE	LCL1A	LCL1A	LCL1B	LCL1B	LCL1C	LCL1C	LCL1C	LCL1C
1	BYPASS REGULATOR	DGRE4	DGRE4	DGRE4	DGRE6	DGRE6	DGRE6	DGRE6	DGRE6
	HOT GAS SOL.	200RB3	200RB3	200RB3	200RB3	200RB3	200RB3	200RB3	200RB3
	LIQ. INJ. VALVE	LCL1A	LCL1A	LCL1B	LCL1B	LCL1B	LCL1C	LCL1C	LCL1C
2	BYPASS REGULATOR	DGRE6	DGRE6	DGRE6	DGRE6	DGRE6	DGRE12	DGRE12	DGRE12
	HOT GAS SOL.	200RB4	200RB4	200RB4	200RB4	200RB4	200RB4	200RB4	200RB4
	LIQ. INJ. VALVE	LCL2A	LCL2A	LCL2B	LCL2B	LCL2B	LCL2C	LCL2C	LCL2C
3	BYPASS REGULATOR	DGRE6	DGRE6	DGRE12	DGRE12	DGRE12	DGRE12	DGRE12	-
	HOT GAS SOL.	200RB5	200RB5	200RB5	200RB5	200RB5	200RB5	200RB5	-
	LIQ. INJ. VALVE	LCL2A	LCL2A	LCL2B	LCL2B	LCL3B	LCL3C	LCL3C	-
4	BYPASS REGULATOR	DGRE12	DGRE12	DGRE12	DGRE12	DGRE12	DGRE12	-	-
	HOT GAS SOL.	200RB6	200RB6	200RB6	200RB6	200RB6	200RB6	-	-
	LIQ. INJ. VALVE	LCL2A	LCL3A	LCL3B	LCL3B	LCL3B	LCL3C	-	-
5	BYPASS REGULATOR	DGRE12	DGRE12	DGRE12	DGRE12	DGRE12	-	-	-
	HOT GAS SOL.	200RB6	200RB6	200RB6	200RB6	200RB6	-	-	-
	LIQ. INJ. VALVE	LCL3A	LCL3A	LCL3B	LCL3B	LCL3B	-	-	-
6	BYPASS REGULATOR	DGRE12	DGRE12	DGRE12	DGRE12	-	-	-	-
	HOT GAS SOL.	240RA8	240RA8	240RA8	240RA8	-	-	-	-
	LIQ. INJ. VALVE	LCL3A	LCL3A	LCL3B	LCL4B	-	-	-	-
7	BYPASS REGULATOR	DGRE12	DGRE12	DGRE12	-	-	-	-	-
	HOT GAS SOL.	240RA8	240RA8	240RA8	-	-	-	-	-
	LIQ. INJ. VALVE	LCL4A	LCL4A	LCL4B	-	-	-	-	-
8	BYPASS REGULATOR	DGRE12	DGRE12	-	-	-	-	-	-
	HOT GAS SOL.	240RA8	240RA8	-	-	-	-	-	-
	LIQ. INJ. VALVE	LCL4A	LCL4A	-	-	-	-	-	-
9	BYPASS REGULATOR	DGRE12	-	-	-	-	-	-	-
	HOT GAS SOL.	240RA9	-	-	-	-	-	-	-
	LIQ. INJ. VALVE	LCL4A	-	-	-	-	-	-	-

EPR(V) UPSTREAM PRESSURE REGULATORS

ALCO Evaporator Pressure Regulating Valves, sometimes called Back Pressure Regulators, accurately maintain a predetermined minimum evaporator pressure regardless of sudden load or suction line changes. These valves are used on refrigeration systems whenever a minimum evaporator pressure or temperature is desired. Fundamental operation is described on page 330.

The EPR(V) Series is easily dismantled without removing body from the line. All have manual opening stems, are supplied with 1/4" FPT gauge port, and can be easily converted to an external pilot connection. Application information may be found on page 329. One turn of pilot stem equals approximately 4 psi change in system pressure.

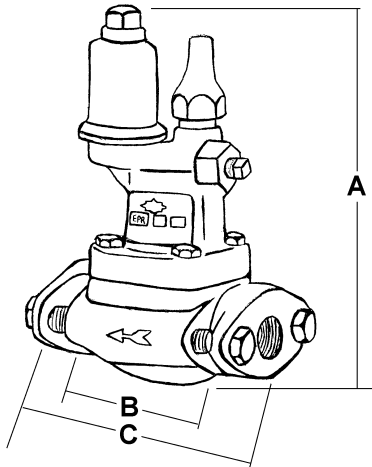


UL file number SA5312
Guide SFJQ
CSA file number LR44005

FEATURES

- ☆ Special Ranges
- ☆ Vacuum Ranges
- ☆ Gauge and Shut Off Valve
- ☆ Access Valve
- ☆ Maximum Working Pressure: 400 PSIG

EPR(V) DIMENSIONAL DATA

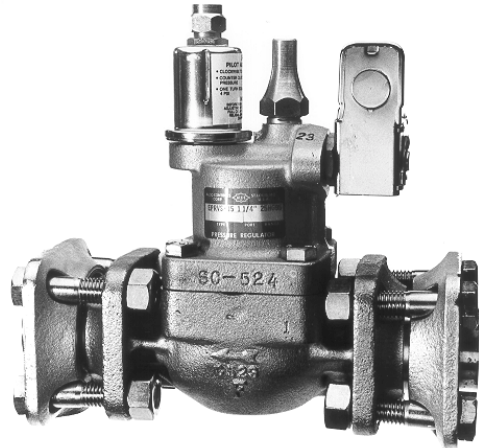


PCN	VALVE	A MAX.	B	C	
033642	EPR(V)11	9-1/4	3-1/4	5-3/32, 6-3/32	2 Bolt Flange
032280	EPR(V)12				
032281	EPR(V)13				
033275	EPR(V)14		4	6-7/32, 7-3/32	
032282	EPR(V)15	11-3/4	7-13/16	10-1/32, 10-21/32	4 Bolt Flange
032283	EPR(V)16		8-1/4	10-13/32, 11-7/32, 11-23/32	
033559	EPR(V)18		9-3/4	12-11/32, 13-1/2, 137/8	

See pages 224-225 for sizing data before completing selection.

EPRVS EPR WITH SUCTION STOP COMBINATION

The EPRVS Regulator is a combination evaporator pressure regulator and suction stop valve. When the pilot solenoid is energized, the EPRVS operates as a standard evaporator pressure regulator. When the pilot solenoid is de-energized, the regulator will close. Thus the EPRVS serves to take the place of two valves, an EPRV and a suction solenoid.

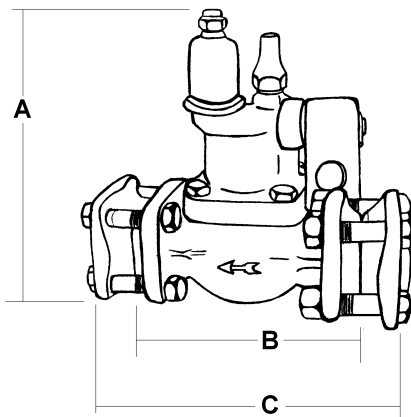


FEATURES

- ☆ Vacuum Ranges
- ☆ Pneumatic Compensation
- ☆ Conduit Boss
- ☆ Special Voltages
- ☆ Maximum Working Pressure: 400 PSIG

UL file number MP604
Guide YIOZ
CSA file number LR3204

EPRVS DIMENSIONAL DATA



PCN	VALVE	A MAX.	B	C
046610	EPRVS11	9-1/4	3-1/4	5-3/32, 6-3/32
046612	EPRVS12			
046512	EPRVS13			
046613	EPRVS14	11-3/4	4	6-7/32, 7-3/32
046513	EPRVS15		7-13/16	10-1/32, 10-21/32
046614	EPRVS16		8-1/4	10-13/32, 11-7/32, 11-23/32
047124	EPRVS18		9-3/4	12-11/32, 13-1/2, 137/8

See pages 224-225 for sizing data before completing selection.

FA2 EVAPORATOR PRESSURE REGULATOR

The FA2 regulator is a standard Evaporator Pressure Regulator with an integral, factory-installed pilot solenoid. They may be automatically changed to meet either of two conditions:

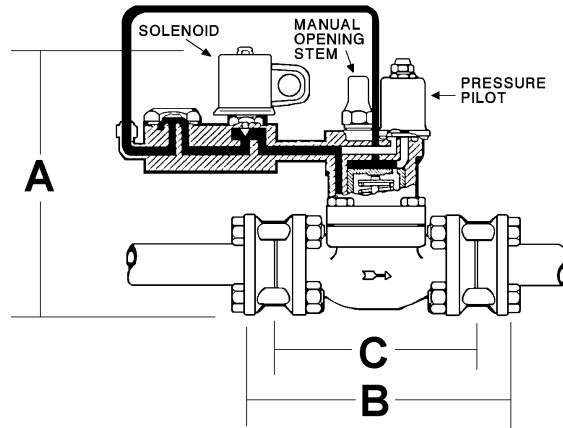
- 1) controlled evaporator pressure; or
- 2) no pressure control

When the pilot solenoid is de-energized, the FA2 operates as an EPR and will prevent the upstream pressure from going below the pressure pilot setting. When the pilot solenoid is energized, the regulator will remain in the wide open position with no pressure control.

FEATURES

- ☆ Can also be used as a differential pressure regulator for hot gas defrost
- ☆ Maximum working pressure: 400 psig

FA2 DIMENSIONAL DATA



UL file number MP604
Guide YIOZ
CSA file number LR3204

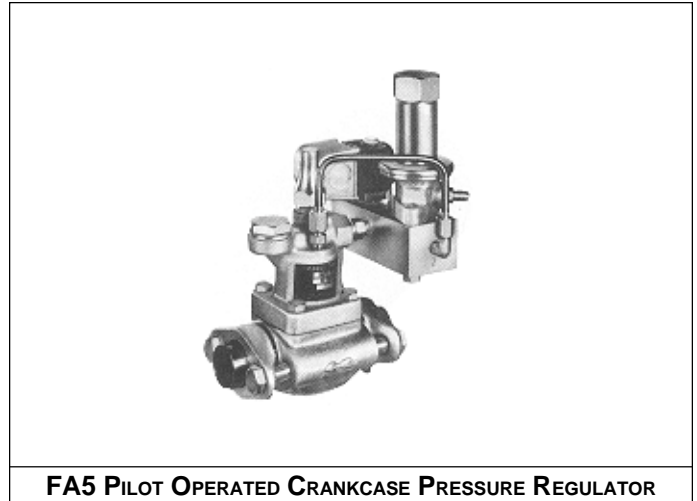
PCN	VALVE	A MAX.	B	C	
045438	FA2-11	11	5-3/32	3-1/4	2 Bolt Flange
	FA2-12		6-3/32		
	FA2-13		6-3/32		
043886	FA2-14	12	6-7/32	4	
			7-3/32		
			7-3/32		
036613	FA2-15	12	10-1/32 10-21/32 10-25/32	7-13/16	4 Bolt Flange
043561	FA2-16	12-1/2	10-13/32 11-7/32 11-23/32	8-1/4	
			038891		

See pages 224-225 for sizing data before completing selection.

FA5 SUCTION PRESSURE REGULATOR

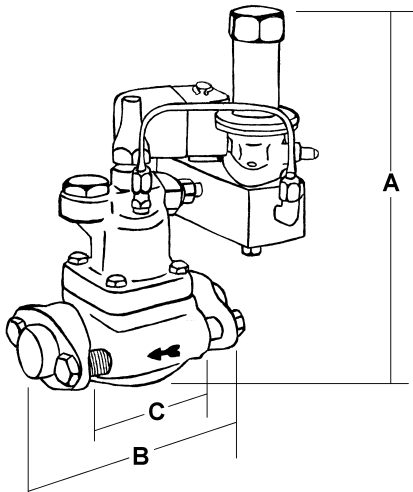
The FA5 regulator is a Pilot Operated Suction Pressure Regulator. This suction pressure regulator is designed to prevent motor overload caused by excessively high suction pressure. Suction pressure regulators or holdback valves, are often referred to as Crankcase Pressure Regulators. They should not be confused with Evaporator Pressure Regulators. Under no circumstance can Crankcase Pressure Regulators be used to regulate evaporator pressure.

☆ Maximum working pressure: 400 psig



FA5 DIMENSIONAL DATA

UL file number MP604
Guide YIOZ
CSA file number LR3204

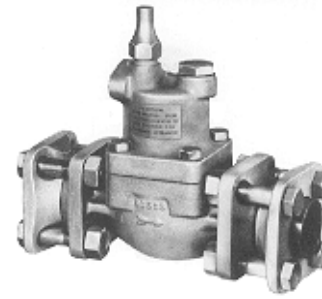


PCN	VALVE	A MAX.	B	C
030146	FA5-11		5-3/32	
025934	FA5-12	11	6-3/32	3-1/4
026578	FA5-13		6-3/32	
074273	FA5-14	12	6-7/32	4
			7-3/32 7-3/32	
031579	FA5-15	12	10-1/32	7-13/16
			10-21/32	
			10-25/32	
073248	FA5-16	12-1/2	10-13/32	8-1/4
			11-7/32 11-23/32	
028881	FA5-18		12-11/32	9-3/4
			13-1/2	
			13-7/8	

See pages 224-225 for sizing data before completing selection.

722 UPSTREAM PRESSURE REGULATOR

722 Series Upstream Evaporator Pressure Regulators must be used with a separate, remote pilot valve. The type of pilot valve used determines the function and operating characteristics of the main regulator (722). 722 valves are the same as EPRV valves, except that the pressure pilot is omitted and they are arranged for external pilot service. Used with a 724 remote pressure pilot, the 722 performs as an EPRV valve. An EAC724 pilot may be used for pneumatic compensation. If a 935 temperature pilot is used, the valve functions as an EPRV, except that it modulates in response to temperature changes at the remote bulb of the temperature pilot.



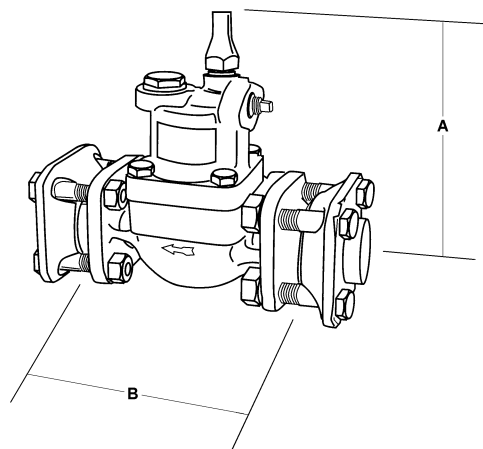
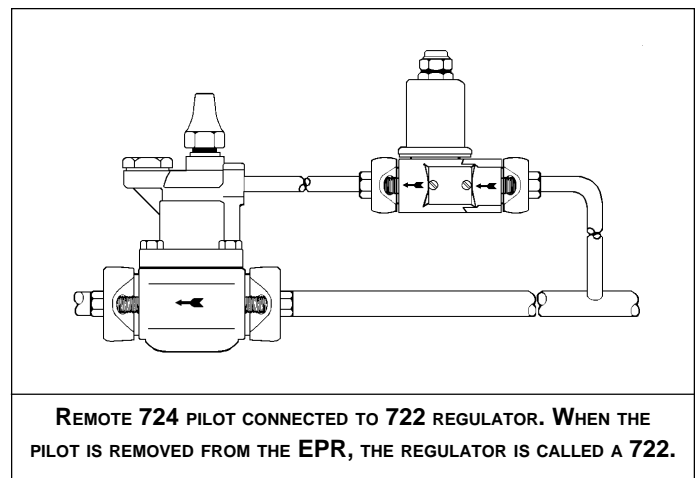
UL file number MP604
Guide YIOZ
CSA file number LR3204

FEATURES

- ☆ Durable, cast iron construction
- ☆ Compact design is easily serviced
- ☆ Easy to service, dismantle without removing body from the line
- ☆ Maximum working pressure: 400 psig

722 DIMENSIONAL DATA

PCN	VALVE	A MAX.	B
088531	722-11/11T	8	3-1/4
	722-12/12T		
	722-13/13T		
068795	722-14/14T	8-1/2	4
067848	722-15/15T	9-1/2	7-13/16
068682	722-16/16T	10	8-1/4
	722-18/18T	11-1/4	9-3/4



See pages 224-225 for sizing data before completing selection.

REGULATORS EXTENDED CAPACITIES

EPRV, EPRVS, FA2, FA5 & 722 EXTENDED CAPACITY TABLES IN TONS — R134a

R134a		VALVE INLET OR EVAPORATOR PRESSURE AND CORRESPONDING SATURATION TEMPERATURE (SET POINT)																															
		37 PSIG				40°				28.5 PSIG				30°				21.1 PSIG				20°				14.7 PSIG				10°			
PORT SIZE	SIZE CODE	PRESSURE DROP ACROSS VALVE – PSI																															
		2	5	10	20	2	5	10	20	2	5	10	20	2	5	10	20	2	5	10	20	2	5	10	20								
3/8"	11	.50	.70	1.0	1.1	.4	.6	.8	.9	.4	.6	.7	.7	.3	.5	.6	.6																
1/2"	12	1.25	1.8	2.4	2.8	1.1	1.6	2.0	2.1	1.0	1.4	1.8	1.9	.8	1.1	1.3	1.4																
3/4"	13	2.2	3.2	4.2	5.0	1.9	2.9	3.7	4.1	1.7	2.5	3.1	3.3	1.5	2.2	2.6	2.7																
1"	14	4.0	5.9	7.9	9.0	3.5	5.3	6.6	7.5	3.1	4.6	4.9	6.1	2.7	4.0	4.7	4.9																
1-1/4"	15	6.0	8.8	11.6	13.5	5.2	7.9	10.0	11.2	4.7	6.9	8.5	9.0	4.0	5.9	7.0	7.3																
1-1/2"	16	9.0	13.3	17.5	20.3	7.9	11.9	15.1	16.8	7.0	10.4	12.9	13.7	6.0	8.9	10.6	11.0																
2"	18	17.0	25.2	33.0	38.2	14.8	22.4	28.5	31.8	13.2	19.6	24.3	25.7	11.3	16.7	20.0	20.7																
		9.2 PSIG				0°				4.5 PSIG				-10°				0.6 PSIG				-20°				5.4" VAC.				-30°			
3/8"	11	.3	.4	.5	.5	.2	.3	.4	–	.2	.3	.3	–	.2	.2	–	–																
1/2"	12	.7	1.1	1.2	1.2	.6	.9	1.0	–	.6	.7	.7	–	.5	.6	–	–																
3/4"	13	1.3	1.9	2.1	2.1	1.1	1.5	1.7	–	1.0	1.2	1.3	–	.8	1.0	–	–																
1"	14	2.4	3.4	3.9	3.9	2.0	2.8	3.0	–	1.8	2.1	2.4	–	1.5	1.8	–	–																
1-1/4"	15	3.6	5.0	5.8	5.8	3.1	4.2	4.6	–	2.6	3.2	3.6	–	2.2	2.7	–	–																
1-1/2"	16	5.4	7.6	8.8	8.8	4.6	6.4	6.9	–	4.0	4.8	5.4	–	3.4	4.1	–	–																
2"	18	10.2	14.4	16.6	16.6	8.8	12.1	13.0	–	7.5	9.0	10.1	–	6.3	7.8	–	–																

EPRV, EPRVS, FA2, FA5 & 722 EXTENDED CAPACITY TABLES IN TONS — R22

R22		VALVE INLET OR EVAPORATOR PRESSURE AND CORRESPONDING SATURATION TEMPERATURE (SET POINT)																															
		68.5 PSIG				40°				54.9 PSIG				30°				43.7 PSIG				20°				32.8 PSIG				10°			
PORT SIZE	SIZE CODE	PRESSURE DROP ACROSS VALVE – PSI																															
		2	5	10	20	2	5	10	20	2	5	10	20	2	5	10	20	2	5	10	20	2	5	10	20	2	5	10	20				
3/8"	11	.75	1.1	1.5	1.9	.6	1.0	1.4	1.6	.6	.9	1.1	1.4	.5	.7	1.0	1.1																
1/2"	12	1.75	2.5	3.4	4.4	1.6	2.4	3.1	3.7	1.3	2.0	2.6	3.2	1.2	1.7	2.4	2.6																
3/4"	13	3.4	4.9	6.5	8.6	2.8	4.3	5.9	7.4	2.6	3.9	5.1	6.2	2.3	3.4	4.4	5.1																
1"	14	6.2	8.9	11.7	15.5	5.0	7.8	10.6	13.3	4.7	7.1	9.2	11.2	4.1	6.0	8.1	9.2																
1-1/4"	15	9.3	13.4	17.5	23.4	7.6	11.8	16.0	20.2	7.0	10.6	13.7	16.9	6.1	9.2	12.2	13.8																
1-1/2"	16	13.9	20.2	26.4	35.2	11.4	17.7	24.1	30.1	10.6	15.9	20.7	25.3	9.2	13.9	18.3	20.8																
2"	18	26.2	39.5	49.7	66.2	21.5	33.4	45.3	56.6	19.9	30.4	39.0	47.7	17.3	26.1	34.4	39.2																
		24.0 PSIG				0°				16.5 PSIG				-10°				10.2 PSIG				-20°				4.9 PSIG				-30°			
3/8"	11	.4	.6	.8	.9	.4	.6	.7	.7	.3	.5	.6	.6	.3	.4	.5	–																
1/2"	12	1.0	1.5	2.0	2.1	1.0	1.3	1.6	1.7	.8	1.1	1.3	1.3	.7	1.0	1.1	–																
3/4"	13	2.0	2.9	3.8	4.1	1.8	2.6	3.2	3.3	1.5	2.2	2.5	2.5	1.3	1.9	2.1	–																
1"	14	3.5	5.4	6.9	7.4	3.2	4.7	5.8	5.9	2.8	4.0	4.6	4.6	2.4	3.3	3.6	–																
1-1/4"	15	5.3	8.2	10.3	11.2	4.8	7.0	8.6	8.9	4.1	6.0	6.9	6.9	3.6	5.1	5.5	–																
1-1/2"	16	8.0	12.2	15.5	16.9	7.2	10.4	12.9	13.3	6.2	9.0	10.4	10.4	5.4	7.6	8.2	–																
2"	18	15.1	23.1	29.3	31.7	13.6	19.7	24.3	25.0	11.7	17.0	19.6	19.6	10.1	14.3	15.4	–																

EPRV, EPRVS, FA2, FA5 & 722 EXTENDED CAPACITY TABLES IN TONS — R404A/R507

R404A/ R507		VALVE INLET OR EVAPORATOR PRESSURE AND CORRESPONDING SATURATION TEMPERATURE (SET POINT)															
		80.2 PSIG 40°				65.4 PSIG 30°				52.5 PSIG 20°				41.1 PSIG 10°			
PORT SIZE	SIZE CODE	PRESSURE DROP ACROSS VALVE – PSI															
		2	5	10	20	2	5	10	20	2	5	10	20	2	5	10	20
3/8"	11	.57	.91	1.2	1.6	.51	.81	1.1	1.4	.45	.70	.95	1.2	.39	.61	.80	.95
1/2"	12	1.4	2.3	3.1	4.1	1.3	2.0	2.8	3.5	1.1	1.8	2.4	2.9	.97	1.5	2.0	2.4
3/4"	13	2.5	4.0	5.5	7.2	2.3	3.6	4.9	6.2	2.0	3.1	4.2	5.1	1.7	2.7	3.5	4.2
1"	14	4.5	7.3	9.9	13.0	4.1	6.5	8.8	11.2	3.6	5.6	7.6	9.3	3.1	4.8	6.4	7.6
1-1/4"	15	6.8	10.9	14.9	19.5	6.2	9.8	13.2	16.8	5.4	8.4	11.3	13.9	4.7	7.3	9.6	11.4
1-1/2"	16	10.2	16.3	22.4	29.2	9.3	14.7	19.9	25.2	8.1	12.7	17.0	20.9	7.0	10.9	14.5	17.1
2"	18	19.3	30.8	42.3	55.2	17.5	27.7	37.6	47.7	15.2	23.9	32.1	39.5	13.2	20.6	27.3	32.3
		31.2 PSIG 0°				22.8 PSIG – 10°				15.5 PSIG – 20°				9.4 PSIG – 30°			
3/8"	11	.34	.52	.67	.76	.29	.44	.56	.60	.26	.38	.46	.48	.22	.31	.36	.36
1/2"	12	.85	1.3	1.7	1.9	.73	1.1	1.4	1.5	.64	.95	1.1	1.2	.54	.79	.90	.91
3/4"	13	1.5	2.3	3.0	3.4	1.3	2.0	2.4	2.7	1.1	1.7	2.0	2.1	.96	1.4	1.6	1.6
1"	14	2.7	4.1	5.4	6.1	2.3	3.5	4.4	4.8	2.0	3.0	3.6	3.8	1.7	2.5	2.8	2.9
1-1/4"	15	4.1	6.2	8.0	9.1	3.5	5.3	6.7	7.2	3.1	4.5	5.5	5.7	2.6	3.8	4.3	4.4
1-1/2"	16	6.1	9.3	12.1	13.7	5.3	8.0	10.0	10.9	4.6	6.8	8.2	8.6	3.9	5.7	6.5	6.6
2"	18	11.5	17.6	22.8	25.9	10.0	15.0	18.9	20.5	8.7	12.9	15.5	16.2	7.4	10.7	12.3	12.4

EPRV, EPRVS, FA2, FA5 & 722 EXTENDED CAPACITY TABLES IN TONS — R717

R717		VALVE INLET OR EVAPORATOR PRESSURE AND CORRESPONDING SATURATION TEMPERATURE (SET POINT)															
		58.6 PSIG 40°				45 PSIG 30°				33.5 PSIG 20°				23.8 PSIG 10°			
PORT SIZE	SIZE CODE	PRESSURE DROP ACROSS VALVE – PSI															
		2	5	10	20	2	5	10	20	2	5	10	20	2	5	10	20
3/8"	11	2.0	3.2	4.2	5.3	1.9	2.8	3.7	4.5	1.6	2.5	3.2	3.7	1.4	2.1	2.7	2.9
1/2"	12	5.0	8.0	10.5	13.2	4.7	6.9	9.3	11.2	4.1	6.2	8.0	9.3	3.6	5.3	7.0	7.4
3/4"	13	9.0	14.4	18.9	23.8	8.6	12.4	16.8	20.2	7.4	11.1	14.4	16.7	6.6	9.7	12.2	13.3
1"	14	15.0	24.0	31.5	39.7	14.3	20.7	28.0	33.7	12.3	18.5	24.0	27.8	10.9	16.1	20.3	22.1
1-1/4"	15	23.0	36.8	48.3	61.0	22.0	31.8	43.1	51.8	18.9	28.4	36.9	42.8	16.8	24.7	31.2	34.0
1-1/2"	16	36.0	57.6	75.6	95.3	34.4	49.8	67.3	80.9	29.5	44.5	57.6	66.9	26.2	38.6	48.9	53.1
2"	18	50.0	80.0	105.0	133.0	47.8	69.2	93.6	112.0	41.0	61.8	80.1	93.0	36.4	53.6	67.9	73.8
		15.7 PSIG 0°				9 PSIG – 10°				3.6 PSIG – 20°				1.6" VAC. – 30°			
3/8"	11	1.3	1.9	2.4	2.6	1.1	1.6	1.8	1.8	1.0	1.4	1.5	–	.8	1.0	1.1	–
1/2"	12	3.2	4.7	6.0	6.5	2.9	3.9	4.6	4.6	2.6	3.5	3.8	–	2.0	2.6	2.7	–
3/4"	13	5.8	8.4	10.2	10.5	5.0	7.1	8.2	8.2	4.6	6.2	6.7	–	3.6	4.6	4.8	–
1"	14	9.7	13.9	17.0	17.4	8.3	11.8	13.7	13.7	7.7	10.4	11.1	–	6.0	7.7	8.0	–
1-1/4"	15	14.8	21.4	26.1	26.8	12.7	18.1	21.0	21.0	11.8	16.0	17.1	–	9.2	11.9	12.3	–
1-1/2"	16	23.2	33.4	40.8	41.9	19.9	28.3	32.8	32.8	18.4	25.0	26.7	–	14.4	18.6	19.2	–
2"	18	32.2	46.4	56.7	58.1	27.7	39.3	45.6	45.6	25.5	34.7	37.1	–	20.1	25.8	26.7	–

PARTS KITS FOR REGULATORS

EPRV, EPRVS & 722 REGULATORS REPLACEMENT PARTS & EXPLODED VIEW

PILOT ASSEMBLY

VALVE	Part #	PCN
EPR & EPRV	D865	026710
EAC	X5044-3	045735
EPRVS Solenoid	KR50017	047957

Pilot Assembly consists of pilot assembly, pilot assembly gasket, seal cap gasket and seal cap (EPR, EPRV) or pneumatic connection (EAC)

VACUUM SPRING PARTS – EPRV

	Part #	PCN
Spring Washer	A4076	026525
Spring	A3756	026521

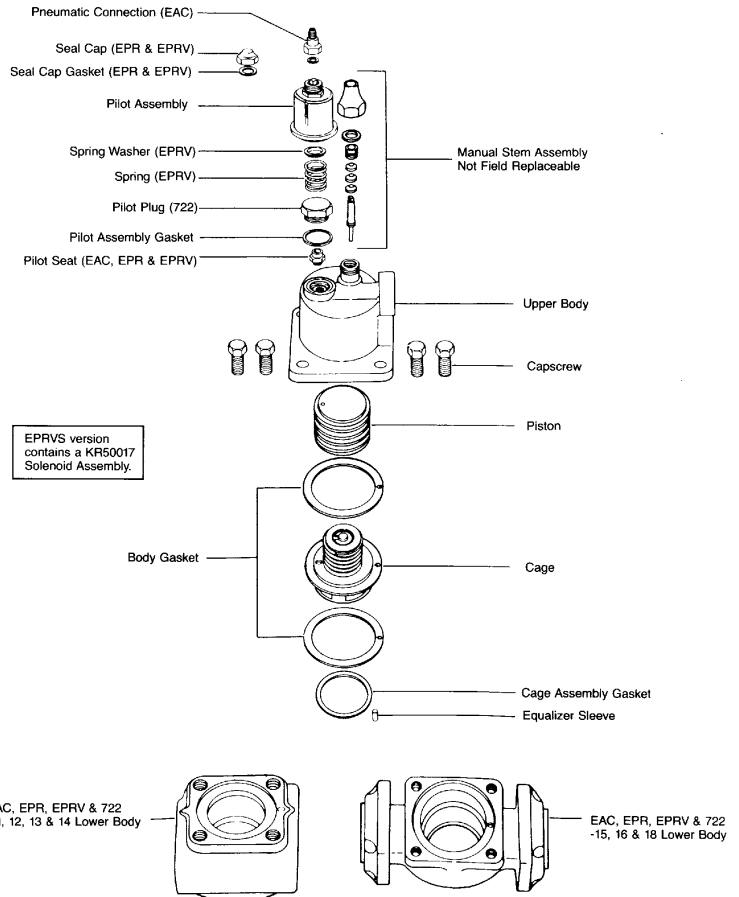
UPPER BODY & PISTON ASSEMBLY

VALVE	Part #
722-11	X7199-1
722-12	X7199-2
722-13	X7199
722-14	X7200
722-15	X7196
722-16	X7197
722-18	X7198
EAC,EPR & EPRV-11	X6206-1
EAC,EPR & EPRV-12	X6206-2
EAC,EPR & EPRV-13	X6206
EAC,EPR & EPRV-14	X6207
EAC,EPR & EPRV-15	X6208
EAC,EPR & EPRV-16	X6209
EAC,EPR & EPRV-18	X6210

Consists of pilot assembly gasket, packing and packing nut, manual stem, body capscrews (4), body gasket cage assembly, upper body, piston and pilot plug(722) or pilot seat (EAC, EPR, EPRV).

GASKET KIT

VALVE	Part #	PCN
EAC, EPR, EPRV & 722-11, 12, 13	KG10001	029858
EAC, EPR, EPRV & 722-14	KG10002	037993
EAC, EPR, EPRV & 722-15	KG10003	037994
EAC, EPR, EPRV & 722-16	KG10004	037998
EAC, EPR, EPRV & 722-18	KG10005	037999



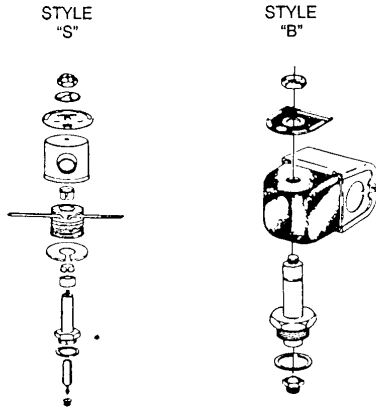
CAGE ASSEMBLY

VALVE	Part #	PCN
EAC, EPR, EPRV & 722-11	X7788-15	044124
EAC, EPR, EPRV & 722-12	X7788-6	
EAC, EPR, EPRV & 722-13	X5061-12	043666
EAC, EPR, EPRV & 722-14	X5084-7	
EAC, EPR, EPRV & 722-15	XB865-6	
EAC, EPR, EPRV & 722-16	XB859-6	
EAC, EPR, EPRV & 722-18	XB858-6	

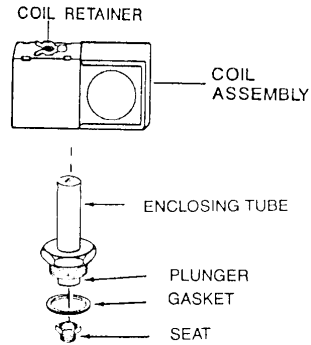
PARTS KITS FOR REGULATORS

FA2 REGULATORS REPLACEMENT PARTS EXPLODED VIEW

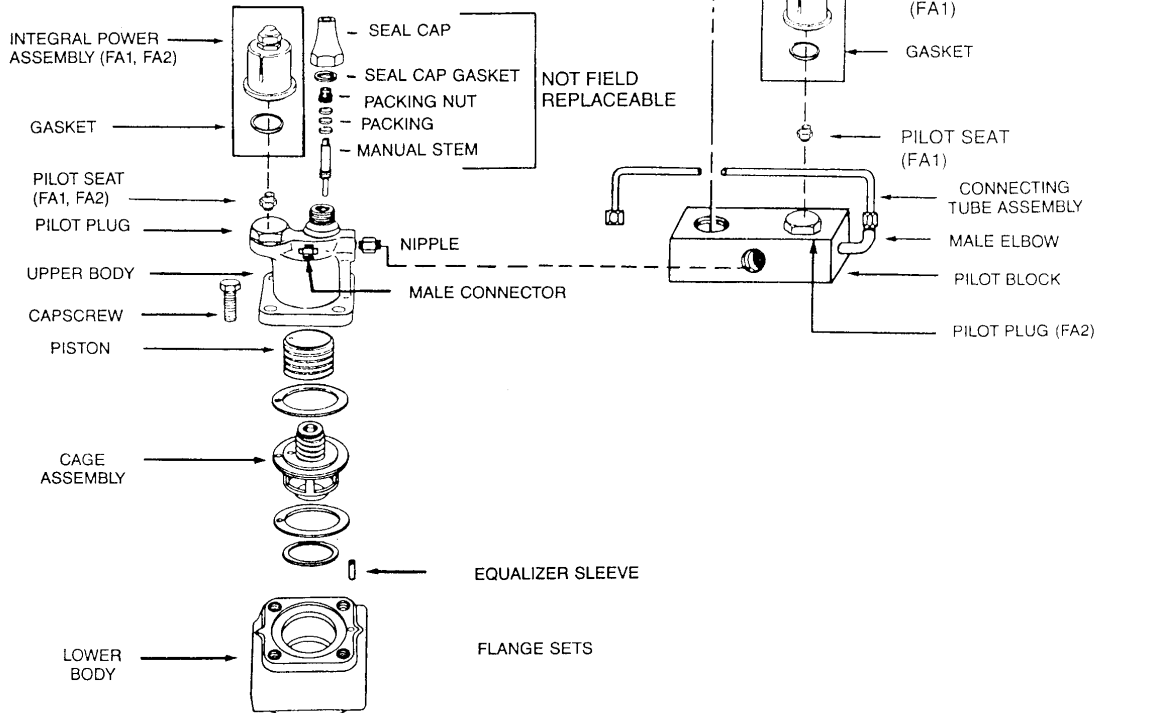
REPLACEMENT SOLENOID ASSEMBLY



REPLACEMENT SOLENOID ASSEMBLY



NOTE: STYLE "S" and STYLE "B" SOLENOID ASSEMBLIES are obsolete and only coil assemblies are available for replacement parts.



PARTS KITS FOR REGULATORS

FA2 REGULATORS REPLACEMENT PARTS

SOLENOID ASSEMBLY

<u>VALVE</u>	<u>Part #</u>	<u>PCN</u>
FA2	X7188VLC	041795

Consists of replacement enclosing tube assembly and pilot seat.

GASKET KIT

<u>VALVE</u>	<u>Part #</u>	<u>PCN</u>
FA2-11, 12, 13	KG10001	029858
FA2-14	KG10002	037993
FA2-15	KG10003	037994
FA2-16	KG10004	037998
FA2-18	KG10005	037999

EQUALIZER SLEEVE

	<u>Part #</u>	<u>PCN</u>
FA2-11, 12, 13, 14, 15	A1985	026509
FA2-16, 18	A1986	026510

UPPER BODY & PISTON ASSEMBLY

<u>VALVE</u>	<u>Part #</u>	<u>PCN</u>
FA2-11	X11855-1	
FA2-12	X11855-2	
FA2-13	X11855-3	
FA2-14	X11855-4	
FA2-15	X11855-5	054359
FA2-16	X11855-6	048802
FA2-18	X11855-7	048803
FA2-13EAC GR5097	KR50053	058027
FA2-14EAC GR5098	KR50058	058109
FA2-15EAC GR5099	KR50059	
FA2-16EAC GR5100	KR50060	058111
FA2-18EAC GR5102	KR50061	058112

Consists of manual opening stem assembly, pilot seat, capscrews (4), upper body, male connector, nipple, gaskets and piston.

CONNECTING TUBE ASSEMBLY

<u>VALVE</u>	<u>Part #</u>	<u>PCN</u>
FA2-11, 12, 13	X10851-5	027373
FA2-14, 15	X10851-4	
FA2-16	X10851-6	043628
FA2-18	X10851-10	

POWER ASSEMBLY

<u>VALVE</u>	<u>Part #</u>	<u>PCN</u>
FA2XXEACGR	X5044-3	045735
FA2	D865	026710

Consists of seal cap, seal cap gasket, power assembly and power assembly gasket.

CAGE ASSEMBLY

<u>VALVE</u>	<u>Part #</u>	<u>PCN</u>
FA2-11	X7788-15	044124
FA2-12	X7788-16	
FA2-13	X5061-12	043666
FA2-14	X5084-14	
FA2-15	XB865-12	043670
FA2-16	XB859-12	043898
FA2-18	XB858-12	044123
FA2-13EAC GR5097	KR50062	
FA2-14EAC GR5098	KR50063	058114
FA2-15EAC GR5099	KR50064	
FA2-16EAC GR5100	KR50065	056116

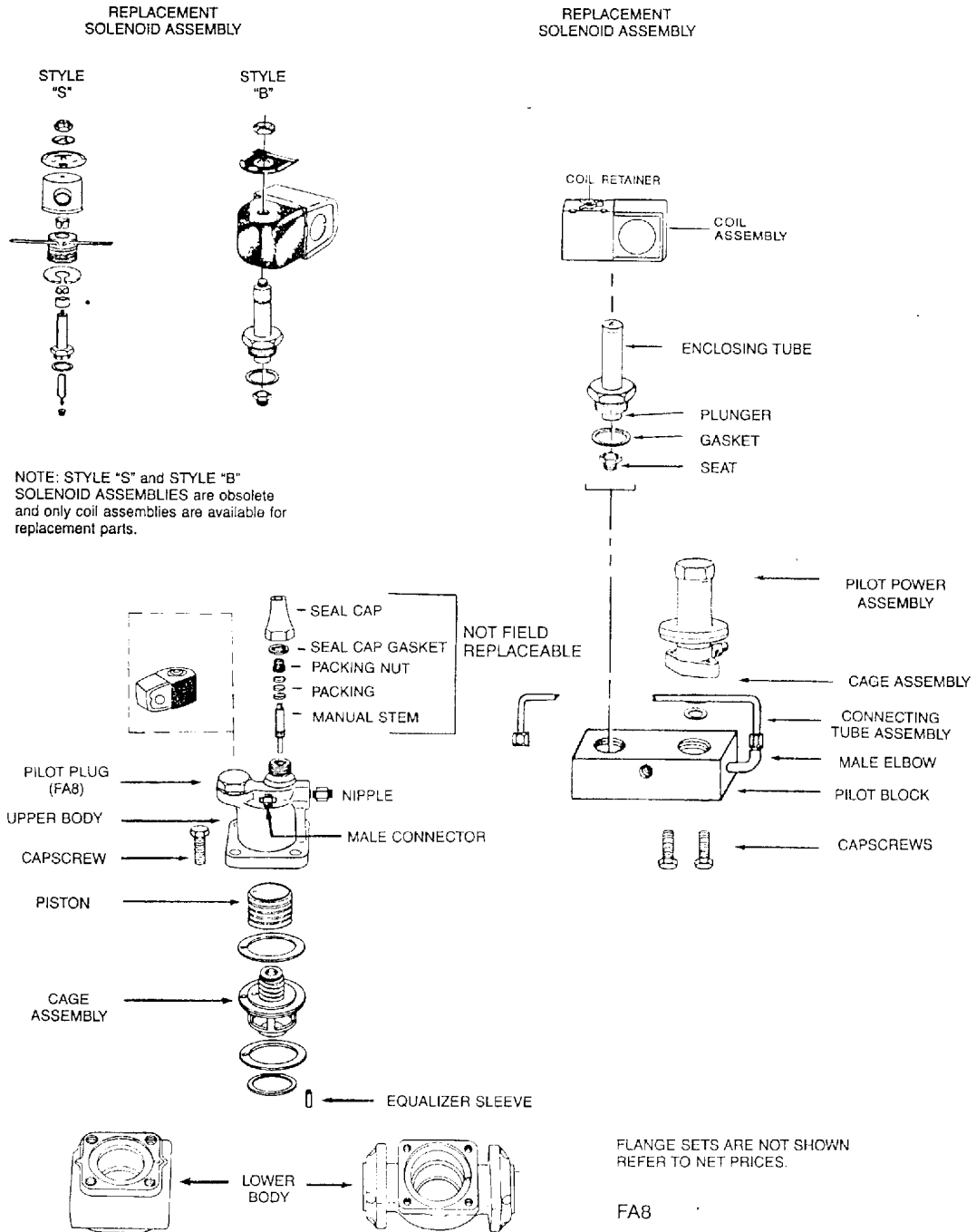
PILOT ASSEMBLY

<u>VALVE</u>	<u>Part #</u>	<u>PCN</u>
FA2	X13527-1VLC	040499

Consists of replacement solenoid assembly, pilot block and pilot assembly.

PARTS KITS FOR REGULATORS

FA5 & FA8 REGULATORS REPLACEMENT PARTS EXPLODED VIEW



PILOT CAGE ASSEMBLY

VALVE

FA5 & FA8

Part #

X10861-3

Includes Gaskets.

SOLENOID ASSEMBLY

VALVE	Part #	PCN
FA5 & FA8	X7188VLC	041795

Consists of replacement enclosing tube assembly and pilot seat.

GASKET KIT

VALVE	Part #	PCN
FA5, FA8-11, 12, 13	KG10001	029858
FA5, FA8-14	KG10002	037993
FA5, FA8-15	KG10003	037994
FA5, FA8-16	KG10004	037998
FA5, FA8-18	KG10005	037999

EQUALIZER SLEEVE

	Part #	PCN
FA5-11, 12, 13, 14, 15	A1985	026509
FA5-16, 18	A1986	026510

CONNECTING TUBE ASSEMBLY

VALVE	Part #	PCN
FA5, FA8-11, 12, 13	X10851-5	027373
FA5, FA8-14	X10851-7	036577
FA5, FA8-15	X10851-8	
FA5, FA8-16	X10851-9	
FA5, FA8-18	X10851-11	

UPPER BODY & PISTON ASSEMBLY

VALVE	Part #	PCN
FA5-11	X11868-1	
FA5-12	X11858-2	
FA5-13	X11858-3	
FA5-14	X11858-4	
FA5-15	X11858-5	027445
FA5-16	X11858-6	
FA5-18	X11858-7	048280

Consists of manual opening stem assembly, pilot plug and gasket, capscrews (4), upper body, male connector, nipple gaskets and piston.

POWER ASSEMBLY

VALVE	Part #	PCN
FA5 & FA8	X10862-5	048790

Includes Gaskets.

UPPER BODY & PISTON ASSEMBLY

VALVE	Part #	PCN
FA8-11H	X11864-1	
FA8-12H	X11864-2	027447
FA8-13H	X11864-3	027448
FA8-14H	X11864-4	027449
FA8-15H	X11864-5	027450
FA8-16H	X11864-6	044758
FA8-18H	X11864-7	

Consists of manual opening stem assembly, pilot plug and gasket, capscrews (4), upper body, male connector, nipple gaskets and piston.

CAGE ASSEMBLY

VALVE	Part #	PCN
FA5-11	X7788-15	044124
FA5-12	X7788-16	
FA5-13	X5061-12	043666
FA5-14	X5084-14	
FA5-15	XB865-12	043670
FA5-16	XB859-12	043898
FA5-18	XB858-12	044123

CAGE ASSEMBLY

VALVE	Part #	PCN
FA8-11	X10069-6	
FA8-12	X10069-8	064642
FA8-13	X9967-4	071540
FA8-14	X9973-4	027337
FA8-15	X9995-4	027339
FA8-16	X10008-4	
FA8-18	X10020-4	

PILOT ASSEMBLY

VALVE	Part #	PCN
FA5 & FA8	X13530-6**	048697

Consists of replacement solenoid pilot block assembly, pilot assembly and pilot cage assembly.

** Add voltage & frequency)

CPH(E) REGULATORS

VALVE	CAGE ASSEMBLY	POWER ASSEMBLY	BODY FLANGE		CAP SCREWS
			ANGLE	STRAIGHT-THRU	
CPHE1	X22440-B5B	X7118-4	(3/8 x 5/8 ODF) C501-5	3/8 x 5/8 ODF 9761-3	PS286
CPHE2	X22440-B8B	X7118-4	(1/2 x 5/8 ODF) C501-7	(1/2 x 5/8 ODF) 9761-4	PS286
CPHE3	X118373-B5B	X7118-4	(7/8 ODF x 1-1/8 ODM) 10331	(7/8 ODF x 1-1/8 ODM) 10332	PS259
CPHE4	X9117-B9B	X7428-2	(7/8 ODF x 1-1/8 ODM) 9153	(7/8 ODF x 1-1/8 ODM) 9152	PS259
CPHE5	X9166-B10B	X7428-2	(7/8 ODF x 1-1/8 ODM) 9151	(7/8 ODF x 1-1/8 ODM) 9150	PS370
CPHE6	X9144-B13B	X7428-2	(1-1/8 x 1-1/8 ODM) 9149	(1-1/8 x 1-1/8 ODM) 9148	PS370

BODY FLANGE AND SEAT GASKETS ARE AVAILABLE IN GASKET KIT X13455-1.