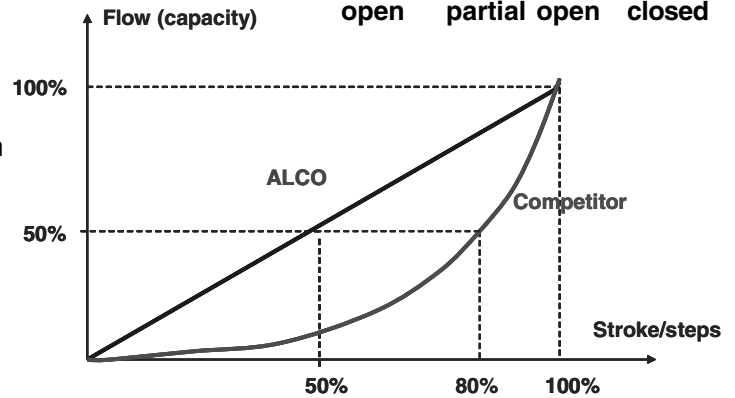


EX ELECTRONIC CONTROL VALVE SERIES

EX Electronic Control Valve series applications:

- Expansion Valve
- Hot-Gas Bypass Valve
- Evaporator Pressure Regulator
- Crankcase Pressure Regulator
- Head Pressure Control
- Liquid Level Control
- Liquid Injection Valve

- ☆ Fully hermetic, corrosion resistant, 100% stainless steel
- ☆ For use CFC's, HCFC's, HFC's - mineral, alkyl benzene and POE systems (not for use with flammable refrigerants)
- ☆ Bi-Polar stepper motor driven (24 VDC)
- ☆ Full valve travel
 - EX-4 / 5 / 6 = 750 steps 1.5 seconds
 - EX-7 = 1600 steps 3.2 seconds
 - EX-8 = 2600 steps 5.2 seconds
- ☆ Direct coupling of motor and valve for high reliability
- ☆ Positive Shut-off function eliminates solenoid requirement
- ☆ High capacity and resolution due to straight through design
- ☆ Balanced force design
- ☆ Ceramic slide and port for accurate flow and minimal wear
- ☆ Maximum working pressure:
 - EX-4 653 psig
 - EX-5/6 624 psig
 - EX-7/8 508 psig
- ☆ MOPD Maximum Operating Pressure Differential:
 - EX-4 475 psig
 - EX-5/6 435 psig
 - EX-7/8 360 psig
- ☆ Refrigerant temperature range: -68°F to 176°F
- ☆ CRN file number: Pending (see page A)



Flow Control's patented ceramic slide and port design ensures a reliable linear modulation of mass flow vs valve position. Other designs drive a valve stem into a seat, thus producing non-linear flow per step.

Selection Chart - capacities represent valve fully open (no reserve capacity) at 100°F/40°F equivalent pressure drop

Type	Order No.	Expansion Valve Nominal Capacity (tons)							Capacity Regulation	Inlet connection	Outlet connection
		R 407C	R 404A/507	R 134a	R 410A	R 22	R124	R744			
EX4-I21	800 615	4.5	3.3	3.6	5.5	4.7	2.6	9.5	10 ... 100%	3/8" ODF	5/8" ODF
EX4-U31	800 617	4.5	3.3	3.6	5.5	4.7	2.6	9.5		5/8" ODF	5/8" ODF
EX5-U21	800 618	15.1	9.9	11.1	16.5	14.2	8			5/8" ODF	7/8" ODF
EX5-U31	800 619	15.1	9.9	11.1	16.5	14.2	8			7/8" ODF	7/8" ODF
EX6-I21	800 620	35.8	23.9	26.4	39.8	34.1	19.1			7/8" ODF	1-1/8" ODF
EX6-I31	800 622	35.8	23.9	26.4	39.8	34.1	19.1			1-1/8" ODF	1-1/8" ODF
EX7-I21	800 624	98.6	65.3	72.4		93.7				1-3/8" ODF	1-3/8" ODF
EX7-U31	800 626	98.6	65.3	72.4		93.7				1-3/8" ODF	1-3/8" ODF
EX8-U21	801 970	262.7	174.1	193.1		249.9				13/8" ODF, rotalock	

Note: EX4, EX5, EX6 and EX7 are delivered without cable/connector assembly. The cable/connector assembly must be ordered separately. EX8 is delivered with electrical plug (DIN 43650) wire not included with plug assembly, use up to 20ft of AWG 20/22

Cable and Connector Assembly for EX4, EX5, EX6 and EX7 EX5-N60 20 ft PCN 804652

Suction Duty Capacities

For pressure drops other than 2 psi use capacity from EX Suction Duty Capacity tables and multiply by the appropriate factor

Pressure Drop (psi)	1.5	2	3	4.4
Factor	0.82	1.00	1.15	1.41

EX SUCTION DUTY CAPACITY

Condensing Temperature °F	R-22 Maximum Capacity in Tons (2 psi drop, others page 97)							Valve Type
	Evaporator Temperature °F							
	50	40	30	20	0	-20	-40	
140	3.7	3.4	3.1	2.6	2.0	1.4	1.1	EX7
	11.6	10.5	9.7	7.7	6.2	4.3	3.4	EX8
120	4.3	3.7	3.4	2.8	2.3	1.7	1.4	EX7
	12.8	11.6	10.5	8.5	6.8	5.4	4.0	EX8
100	4.5	4.3	3.7	3.1	2.6	2.0	1.4	EX7
	13.9	12.8	11.6	9.4	7.7	6.0	4.3	EX8
90	4.8	4.5	4.0	3.4	2.6	2.0	1.4	EX7
	15.0	13.6	12.5	10.2	8.2	6.2	4.5	EX8
70	5.4	4.8	4.3	3.7	2.8	2.3	1.7	EX7
	15.9	14.8	13.3	11.0	8.8	6.8	5.1	EX8

Condensing Temperature °F	R-407C Maximum Capacity in Tons (2 psi drop, others page 97)							Valve Type
	Evaporator Temperature °F							
	50	40	30	20	0			
140	3.4	3.1	2.8	2.3	1.7			EX7
	10.2	9.4	8.2	6.5	5.1			EX8
120	4.0	3.4	3.1	2.6	2.0			EX7
	11.6	10.5	9.7	7.7	6.0			EX8
100	4.3	4.0	3.4	2.8	2.3			EX7
	13.0	11.9	10.8	8.5	6.5			EX8
90	4.8	4.3	4.0	3.1	2.6			EX7
	14.5	13.0	11.6	9.4	7.4			EX8
70	5.1	4.5	4.3	3.4	2.6			EX7
	15.6	14.2	12.8	10.2	8.0			EX8

Condensing Temperature °F	R-134a Maximum Capacity in Tons (2 psi drop, others page 97)							Valve Type
	Evaporator Temperature °F							
	50	40	30	20	0			
140	2.8	2.6	2.3	1.7	1.1			EX7
	8.5	7.7	6.8	5.1	3.7			EX8
120	3.1	2.8	2.6	2.0	1.4			EX7
	9.7	8.5	7.7	6.0	4.3			EX8
100	3.4	3.1	2.8	2.3	1.7			EX7
	10.8	9.7	8.5	6.5	4.8			EX8
90	4.0	3.4	3.1	2.3	1.7			EX7
	11.6	10.5	9.4	7.4	5.4			EX8
70	4.3	3.7	3.4	2.6	2.0			EX7
	12.8	11.4	10.2	8.0	6.0			EX8

Condensing Temperature °F	R-404A/507 Maximum Capacity in Tons (2 psi drop, others page 97)							Valve Type
	Evaporator Temperature °F							
	50	40	30	20	0	-20	-40	
140	2.6	2.3	2.3	1.7	1.1	0.9	0.6	EX7
	8.2	7.4	6.5	5.1	3.7	2.8	2.0	EX8
120	3.4	3.1	2.6	2.0	1.7	1.1	0.9	EX7
	10.2	9.1	8.2	6.5	5.1	3.7	2.6	EX8
100	4.0	3.4	3.1	2.6	2.0	1.4	1.1	EX7
	11.9	10.8	9.7	7.7	6.0	4.5	3.4	EX8
90	4.5	4.0	3.7	2.8	2.3	1.7	1.4	EX7
	13.6	12.2	11.0	8.8	7.1	5.4	4.0	EX8
70	4.8	4.5	4.0	3.4	2.6	2.0	1.4	EX7
	15.0	13.6	12.5	9.9	8.0	6.0	4.5	EX8

EX HOT GAS BYPASS CAPACITY

Condensing Temperature °F	R-22/407C R134a R404/507			Valve Type
	at 40°F Saturated Suction Temperature			
140	6.5	4.5	5.4	EX5
	15.3	10.8	12.8	EX6
	54.2	38.3	45.7	EX7
	164.0	116.7	138.6	EX8
120	5.7	4.0	5.1	EX5
	13.1	9.1	11.6	EX6
	46.3	32.7	41.7	EX7
	140.6	98.8	126.9	EX8
100	4.5	3.4	4.5	EX5
	10.8	7.7	10.2	EX6
	38.6	27.0	36.9	EX7
	117.6	82.1	111.9	EX8
90	4.0	2.6	3.7	EX5
	9.1	6.2	8.8	EX6
	31.8	22.2	31.5	EX7
	96.6	67.0	95.4	EX8
70	2.8	1.7	2.8	EX5
	6.2	4.0	6.5	EX6
	22.4	14.5	22.7	EX7
	68.4	44.0	69.3	EX8

EX LIQUID CAPACITY FOR HEAD PRESSURE CONTROL

Condensing Temperature °F	R-407C Maximum Capacity in Tons (5 psi drop)						Valve Type
	40	30	20	0	-20	-40	
140	4.0	3.7	3.4	3.4			EX5
	9.1	8.5	8.2	8.0			EX6
	31.8	30.7	29.3	27.8			EX7
	96.6	92.9	88.9	84.6			EX8
120	4.5	4.3	4.3	4.0			EX5
	10.5	10.2	9.9	9.4			EX6
	37.5	36.4	34.9	33.5			EX7
	114.2	110.2	105.9	101.7			EX8
100	5.1	5.1	4.8	4.8			EX5
	12.2	11.6	11.4	10.8			EX6
	43.2	41.7	40.3	38.9			EX7
	130.6	126.7	122.4	117.9			EX8
90	6.0	5.7	5.4	5.4			EX5
	13.6	13.3	12.8	12.5			EX6
	48.3	47.1	45.4	44.0			EX7
	146.8	142.9	138.3	133.8			EX8
70	6.5	6.2	6.2	6.0			EX5
	15.1	14.8	14.2	13.9			EX6
	53.7	52.3	50.8	49.1			EX7
	162.7	158.5	154.2	149.4			EX8
50		6.8	6.8	6.5			EX5
		16.2	15.6	15.3			EX6
		57.4	55.7	54.2			EX7
		174.1	169.5	164.7			EX8

Condensing Temperature °F	R-22 Maximum Capacity in Tons (5 psi drop)						Valve Type
	Evaporator Temperature °F						
	40	30	20	0	-20	-40	
140	4.3	4.3	4.3	4.0	4.0	3.7	EX5
	10.2	9.9	9.7	9.4	9.1	8.5	EX6
	36.4	35.2	34.1	32.9	31.8	30.7	EX7
	109.9	107.1	103.7	100.3	96.8	93.2	EX8
120	4.8	4.8	4.5	4.8	4.5	4.3	EX5
	11.6	11.4	10.2	11.1	10.2	9.9	EX6
	40.9	40.0	36.6	38.9	36.6	35.2	EX7
	124.7	121.6	111.0	118.1	111.0	107.1	EX8
100	5.4	5.4	5.4	5.1	4.8	4.8	EX5
	12.8	12.5	12.2	11.9	11.6	11.1	EX6
	45.7	44.6	43.5	42.3	41.2	39.8	EX7
	138.6	135.5	132.1	128.7	124.7	121.0	EX8
90	6.0	6.0	5.7	5.7	5.4	5.4	EX5
	14.2	13.9	13.6	13.1	12.8	12.5	EX6
	50.3	49.1	48.0	46.9	45.4	44.3	EX7
	152.2	149.1	145.7	142.0	138.0	134.0	EX8
70	6.5	6.5	6.2	6.2	6.0	6.0	EX5
	15.3	15.1	14.8	14.5	13.9	13.6	EX6
	54.5	53.4	52.3	51.1	49.7	48.8	EX7
	165.9	162.4	159.0	155.3	151.4	147.4	EX8
50		7.1	6.8	6.8	6.5	6.2	EX5
		16.2	15.9	15.6	15.3	14.8	EX6
		57.9	56.8	55.4	54.2	52.8	EX7
		175.8	172.1	168.4	164.4	160.5	EX8
30			7.4	7.1	7.1	6.8	EX5
			17.0	16.8	16.5	15.9	EX6
			61.1	59.6	58.5	57.1	EX7
			185.2	181.5	177.2	173.2	EX8
10		8.0	8.0	7.7	7.7	7.4	EX5
		18.7	18.5	18.0	17.6	17.3	EX6
		66.5	65.3	63.9	62.5	61.3	EX7
		201.6	197.9	194.3	190.0	186.0	EX8

Condensing Temperature °F	R-134a Maximum Capacity in Tons (5 psi drop)						Valve Type
	Evaporator Temperature °F						
	40	30	20	0	-20	-40	
140	4.0	3.7	3.7	3.4			EX5
	9.1	8.8	8.2	7.7			EX6
	32.7	31.0	29.5	27.8			EX7
	99.4	94.3	89.5	84.1			EX8
120	4.5	4.3	4.3	4.0			EX5
	10.5	10.2	9.9	9.1			EX6
	37.8	36.1	34.4	32.7			EX7
	115.0	109.9	104.8	99.4			EX8
100	5.1	5.1	4.8	4.5			EX5
	11.9	11.6	11.1	10.5			EX6
	42.9	41.2	39.5	37.8			EX7
	130.1	125.0	119.8	114.5			EX8
90	5.7	5.7	5.4	5.1			EX5
	13.3	13.1	12.5	11.9			EX6
	47.7	46.0	44.3	42.6			EX7
	145.4	140.0	134.6	129.2			EX8
70	6.2	6.2	6.0	5.7			EX5
	14.8	14.5	13.9	13.3			EX6
	52.8	51.1	49.1	47.4			EX7
	160.2	155.1	149.4	144.0			EX8
50		6.8	6.5	6.2			EX5
		15.6	15.3	14.8			EX6
		55.9	54.0	52.3			EX7
		169.8	164.2	158.5			EX8

Condensing Temperature °F	R-404A/507 Maximum Capacity in Tons (5 psi drop)						Valve Type
	Evaporator Temperature °F						
	40	30	20	0	-20	-40	
140	2.3	2.3	2.0	1.7	1.7	1.4	EX5
	5.4	4.8	4.5	4.3	3.7	3.4	EX6
	18.7	17.6	16.5	15.1	13.6	12.2	EX7
	57.4	53.7	49.7	45.4	41.5	36.9	EX8
120	3.1	2.8	2.6	2.6	2.3	2.3	EX5
	6.8	6.5	6.2	5.7	5.4	4.8	EX6
	24.7	23.3	22.2	20.7	19.0	17.6	EX7
	75.0	71.0	67.0	62.5	58.2	53.7	EX8
100	3.7	3.4	3.4	3.1	2.8	2.8	EX5
	8.5	8.0	7.7	7.4	6.8	6.5	EX6
	30.1	28.7	27.3	25.8	24.1	22.7	EX7
	91.2	86.9	82.6	78.4	73.8	69.0	EX8
90	4.3	4.0	4.0	3.7	3.4	3.4	EX5
	9.9	9.4	9.1	8.5	8.2	7.7	EX6
	34.9	33.8	32.4	30.7	29.3	27.5	EX7
	106.5	102.2	98.0	93.4	88.6	83.8	EX8
70	4.8	4.5	4.5	4.3	4.0	4.0	EX5
	11.4	10.8	10.5	9.9	9.7	9.1	EX6
	40.0	38.6	37.2	35.5	34.1	32.4	EX7
	126.3	117.0	112.7	107.9	103.1	98.3	EX8
50		5.1	5.1	4.8	4.5	4.5	EX5
		12.2	11.6	11.4	10.8	10.5	EX6
		43.5	41.7	40.3	38.6	36.9	EX7
		131.8	126.9	122.4	117.3	112.2	EX8
30			5.7	5.4	5.1	5.1	EX5
			13.1	12.5	12.2	11.6	EX6
			46.6	44.9	43.2	41.5	EX7
			114.1	136.3	131.5	126.4	EX8
10				6.0	5.7	5.7	EX5
				13.9	13.3	13.1	EX6
				49.4	47.7	46.0	EX7
				150.2	145.1	140.0	EX8