

Electronic Expansion Valves FX Series

Emerson FX are stepper motor driven electronic expansion valves for precise control of refrigerant mass flow in air conditioning, heat pumps, close control, and industrial process cooling applications.

Features

- Flexibility by configuration of outlet connection in 4 directions
- Stepper motor driven
- High resolution and excellent repeatability
- Linear flow capacity
- Extremely wide capacity range (10...100%)
- Continuous modulation of mass flow, no stress (liquid hammering) in the refrigeration circuit
- Direct coupling of motor and valve for high reliability (no gear mechanism)



FX7

Selection table

Type	Part No.	Inlet Connection ODF	Outlet Connection ODF	Electric Connection
FX5-U07	801 336	3/8"	3/8"	Suitable for M12 plug (order separately)
FX6-I09	801 337	1-1/8"	1-1/8"	
FX6-M28	801 338	28 mm	28 mm	
FX6.5-I09	801 339	1-1/8"	1-1/8"	
FX6.5-M28	801 340	28 mm	28 mm	
FX7-U11	801 341	1-3/8"	1-3/8"	
FX7.5-U11		1-3/8"	1-3/8"	
FX8-I13		1-5/8"	1-5/8"	
FX8-M42		42 mm	42 mm	
FX9-U17	801 345	2-1/8"	2-1/8"	

Cable and connector assembly

Type	Part No.	Temperature Range	Length	Connector type to valve	Connector type to driver board or controller	Illustration
EXV-M15	804 663	-50 ... +80°C	1.5 m	M12	Loose wires	
EXV-M30	804 664		3.0 m			
EXV-M60	804 665		6.0 m			

Nominal capacities, kW

Valve Type	R134a	R410A	R407C	R22	R450A	R513A	R1234ze
FX5	40	60	54	52	27.3	27.9	31.3
FX6	90	136	123	116	65	66	74
FX6.5	145	220	200	190	99	101	113
FX7	300	450	400	390	211	216	242
FX7.5	460	700	630	600	314	321	360
FX8	730	1100	990	944	498	510	571
FX9	1700	-	2310	2200	1159	1187	1329

Note: Nominal capacities of FX7.5/8/9 might be modified. Please contact sales office.

Warning: R1234ze classified as A2L. Use of product only for non-explosive environment, non ATEX zone.

The nominal capacity is based on the following conditions:

Refrigerant	Evaporating temperature	Condensing temperature	Subcooling
R134a, R410A & R22	+4°C	+38°C	1K
R407C	+4°C (dew point)	+38°C bubble point / +43°C dew point	
R513A & R1234ze	+4°C	+38°C bubble point / +38°C dew point	
R450A	+4°C (dew point)	+38°C bubble point / +38.6°C dew point	



Note: For other operating conditions use the quick selection in this document or the "Controls Navigator" selection tool (download from www.emersonclimate.eu).

Bi-flow application

FX valves are able to be operated in Bi-flow direction such as reversible heat pump with following consideration:

Valve	Max. Operating differential, bar		Capacity	
	Normal flow direction	Reverse flow direction	Normal flow direction	Reverse flow direction
FX5	40	30	Normal capacity on page 1	The same capacity
FX6	35	30		
FX6.5	35	30		

Technical Data

 marking FX5/6/6.5: FX7/7.5/8/9:	not required required, Cat I, Module A
Compatibility (not released for use with inflammable refrigerants)	HCFC, HFC, HFO, HFO-blends Mineral and POE lubricants
Max. working pressure PS	FX5-8: 46 bar FX9: 35 bar
Ambient temperature Storage temperature	-40...+55°C -40...+70°C
Medium inlet temperature	TS: -35...+75°C
Approval	UL (pending)  (pending)

Protection accordance to IEC 529, DIN 40050	IP67 with EMERSON EXV-Mxx plug and cable assembly
Package and delivery (individual)	without electrical connector
Humidity	5...95% r.H.
Connections	ODF Copper
Vibration resistance	4g at 10...200Hz
Evaporating temperature	-35...+40°C

Electrical Data

Stepper motor type	Bi-polar, phase current (constant current)
Electrical connection	4 pin terminal via plug
Supply Voltage	24 VDC (nominal)
Driver supply voltage range	18...36 VDC
Phase current, operating	FX5-9: 800 mA

Total number of steps	FX5-7: 2400 full steps FX7.5: 2500 full steps FX8: 2600 full steps FX9: 3200 full steps
Step mode	Full step, half step or micro step
Stepping rate	330 Hz
Winding resistance per phase	3.4 Ohm ±10%
Reference position	Mechanical stop at fully close position
Full travel time	FX5-7: 7.3 seconds FX7.5: 7.6 seconds FX8: 7.9 seconds FX9: 9.7 seconds