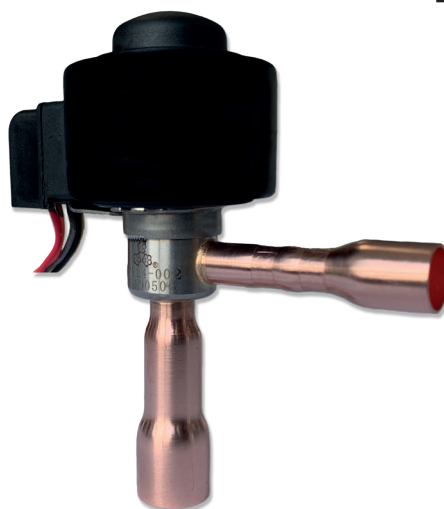




LPF SERIES

ELECTRONIC EXPANSION VALVE

LPF series Electronic Expansion Valves are especially designed for use in refrigeration systems. Thanks to the soft-sealing seat design, it can be as tight as a solenoid valve once it is completely shut off thus to prevent liquid refrigerant migrate to evaporator or compressor.



FEATURES

- EXTREMELY HIGH INTERNAL TIGHTNESS, WHICH IS AS GOOD AS WITH SOLENOID VALVES(<1ML/MIN)
- EQUAL PERCENTAGE FLOW DESIGN FOR BETTER FLOW REGULATION
- SNAP-ON COIL FOR EASIER INSTALLATION
- COIL WITH IP67 WORKS SAFELY IN EXTREMELY ENVIRONMENT
- APPLICABLE FOR OIL-FREE SYSTEM
- BUILT-IN STRAINER AT INLET
- FLOW DIRECTION: BI-FLOW
- LPF...D : 60BAR DESIGN FOR R744 APPLICATION

GENERAL SPECIFICATION

- Applicable for all common HCFC, HFC and HFO refrigerants (such as R134a, R404A, R407A/F, R407C, R410A, R448A, R449A, R450A, R452A, R513A, R507A as well as R744. For Flammable refrigerants like R32, R290, R1234ze and R1234yf are available on request
- 500 steps (full stroke); 32 ± 20 opening steps
- Medium temperature TS min./max.: -40°C / +70°C (duty cycle rate below 40%)
- Ambient temperature min./max.: -40°C / +60°C (duty cycle rate below 40%)
- Relative humidity: 0 to 95% RH
- Design Pressure: 42 bar, MOPD: 35 bar
60 bar, MOPD: 35 bar --- Designed for R744 series
- Reverse operating pressure difference ≥ 2.1 MPa

ELECTRONIC EXPANSION VALVE



ELECTRICAL PARAMETERS

- Rated voltage: 12V DC(± 10%), rectangular wave
- Excitation mode: 1 - 2 phase excitation, uni-polar actuation
- Excitation rate: 30 - 90pps
- Full stroke time: 6s@ 90pps
- Coil current: 260mA/phase (20°C)
- Coil resistance: $46 \pm 3.7 \Omega$ /phase (20°C)
- Insulation class of coil: E
- Protection class: IP 67
- Compatible with Sanhua controller SEC series

GENERAL CHARACTERISTICS

Condition 1: $T_c/T_e/Sc/SH: 45^\circ\text{C} / -10^\circ\text{C} / 1\text{K} / 10\text{K}$
 $R744: 0^\circ\text{C} / -20^\circ\text{C} / 1\text{K} / 10\text{K}$

Valve Model	Seat Φ (mm)	Kv (m ³ /h)	Nominal Cooling Capacity [kW]											Operate pressure [bar]	MOPD Direct [bar]	MOPD Rev. [bar]
			R22	R134a	R404A	R410A	R448A	R449A	R450A	R452A	R513A	R290	R744			
LPF10	1,0	0,04	4.80	3.70	3.30	5.60	4.60	4.50	3.20	3.40	3.00	4.90	7.60	42	3,5	≥21
LPF10D			60													
LPF14	1,4	0,08	9.10	7.00	6.20	10.70	8.80	8.60	6.10	6.50	5.80	9.30	14.50	42		
LPF14D			60													
LPF18	1,8	0,12	12.60	9.60	8.60	14.80	12.30	11.90	8.40	9.00	8.00	12.90	20.00	42		
LPF18D			60													
LPF24	2,4	0,2	17.30	13.20	11.70	20.20	16.60	16.30	11.50	12.30	10.90	17.70	27.40	42	≥15	
LPF24D			60													

Condition 2: $T_c/T_e/Sc/SH: 40^\circ\text{C} / -35^\circ\text{C} / 1\text{K} / 10\text{K}$
 $R744: -10^\circ\text{C} / -40^\circ\text{C} / 1\text{K} / 10\text{K}$

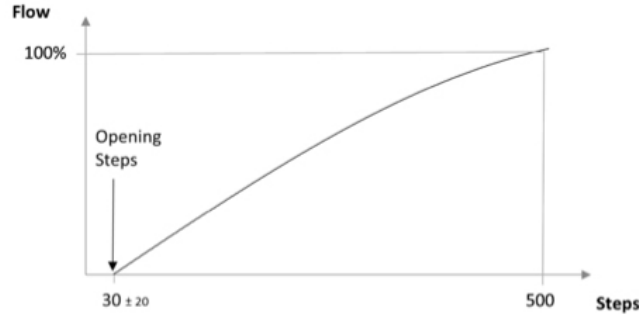
Valve Model	Seat Φ (mm)	Kv (m ³ /h)	Nominal Cooling Capacity [kW]											Operate pressure [bar]	MOPD Direct [MPa]	MOPD Rev. [MPa]
			R22	R134a	R404A	R410A	R448A	R449A	R450A	R452A	R513A	R290	R744			
LPF10	1,0	0,04	4.80	3.50	3.10	5.70	4.50	4.40	3.00	3.20	2.80	4.70	8.80	42	3,5	≥21
LPF10D			60													
LPF14	1,4	0,08	9.00	6.60	5.90	10.80	8.50	8.30	5.60	6.10	5.40	9.00	16.70	42		
LPF14D			60													
LPF18	1,8	0,12	12.50	9.10	8.20	14.90	11.70	11.50	7.80	8.50	7.40	12.40	23.10	42		
LPF18D			60													
LPF24	2,4	0,2	17.10	12.40	11.20	20.40	16.00	15.70	10.60	11.60	10.10	17.00	31.60	42	≥15	
LPF24D			60													

- Note:**
- 1) Extent of delivery without coil
 - 2) Nominal capacity is got at 480 fully open pulses of linear flow curve.
 - 3) LPF... is standard series and LPF...D is designed for CO₂

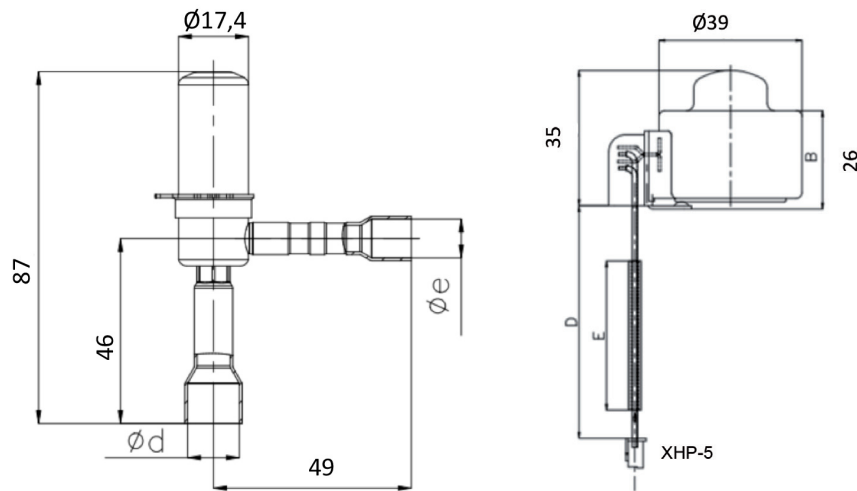
ELECTRONIC EXPANSION VALVE



FLOW CHARACTERISTIC (EQUAL PERCENTAGE)



DIMENSIONS



Valve Model	U11 Code Multi-Pack	Dimensions (mm unless specified)		Weight (g)
		Øe Inlet	Ød Outlet	
LPF10-002/ LPF10D-002	10136000502/ 10136002002	3/8	1/2	51
LPF10-003/ LPF10D-003	10136000602/ 10136002102	1/4	3/8	
LPF10-004/ LPF10D-004	10136000702/ 10136002202	10mm	12mm	
LPF10-005/ LPF10D-005	10136000802/ 10136002302	6mm	10mm	
LPF14-002/ LPF14D-002	10136000902/ 10136002402	3/8	1/2	
LPF14-003/ LPF14D-003	10136001002/ 10136002502	1/4	3/8	
LPF14-004/ LPF14D-004	10136001102/ 10136002602	10mm	12mm	
LPF14-005/ LPF14D-005	10136001202/ 10136002702	6mm	10mm	
LPF18-002/ LPF18D-002	10136001302/ 10136002802	3/8	1/2	
LPF18-003/ LPF18D-003	10136001402/ 10136002902	10mm	12mm	
LPF24-002/ LPF24D-002	10136001502/ 10136003002	3/8	1/2	
LPF24-003/ LPF24D-003	10136001602/ 10136003102	10mm	12mm	

ELECTRONIC EXPANSION VALVE

Coil Model	Coil U11 Code	Coil Dimensions [mm]		Weight (g)
		D = Cable length	E	
PQ-M24012-000007	10810127602	1500	1400	140
PQ-M24012-000008	10810129502	3000	2700	
PQ-M24012-000009	10810129602	6000	2*2700	
PQ-M24012-000010	10810129702	9000	3*2700	

For complete product family information please visit us at www.sanhuaeurope.com and download the full range of datasheet at TECHNICAL INFORMATION LINK.