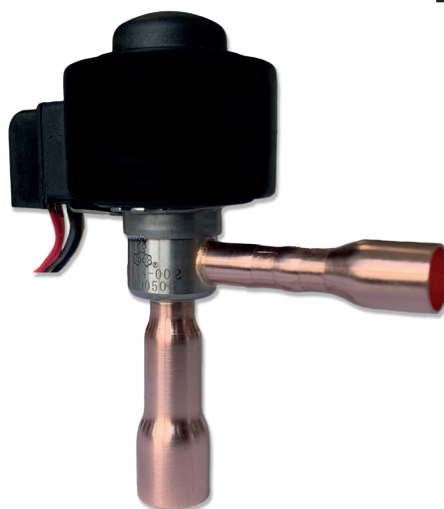




LPF SERIES

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 (100 MESH)
- FLOW DIRECTION: UNI-FLOW
- LPF...D : 60 BAR DESIGN FOR R744 REFRIGERANT

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 and also for flammable refrigerants like R290, R1234ze, R454C, R455A, R1234yf and R744 (CO₂))
- 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 (LPF series)
60 bar, MOPD: 35 bar (LPF...D series, designed for R744 refrigerant)
- Reverse operating pressure difference ≥ 21 bar

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 ± 3.7 Ω/phase (20°C)
- Insulation class of coil: E
- Protection class: IP 67
- Compatible with Sanhua controller SEC series

ELECTRONIC EXPANSION VALVE



SELECTION

Condition 1: $T_c / T_e / S_c / SH$: 45°C / -10°C / 2K / 6K (0°C / -20°C / 2K / 6K for R744)

| Valve Model | Seat ϕ (mm) | Kv (m ³ /h) | Maximal Cooling Capacity [kW] | | | | | | | |
|-----------------|------------------|------------------------|-------------------------------|-------|-------|-------|-------|-------|-------|-------|
| | | | R134a | R404A | R407F | R448A | R449A | R450A | R452A | R513A |
| LPF08 LPF08D | 0.8 | 0.025 | 2.23 | 1.96 | 3.15 | 2.82 | 2.76 | 1.94 | 2.07 | 1.84 |
| LPF10 LPF10D | 1,0 | 0,04 | 3.64 | 3.2 | 5.14 | 4,60 | 4,49 | 3,16 | 3.37 | 3.00 |
| LPF14 LPF14D | 1,4 | 0,08 | 6,90 | 6.08 | 9.75 | 8.70 | 8.51 | 6.00 | 6.39 | 5.69 |
| LPF18 LPF18D | 1,8 | 0,12 | 9,53 | 8.40 | 13.47 | 12.0 | 11,76 | 8,29 | 8,83 | 7,86 |
| LPF24 LPF24D | 2,4 | 0,2 | 13.04 | 11.50 | 18.43 | 16.45 | 16.09 | 11,34 | 12.1 | 10,75 |

| | | | R454B | R454C | R455A | R1234yf | R1234ze | R290 | R410A | R744 |
|-----------------|-----|-------|-------|-------|-------|---------|---------|------|-------|------|
| LPF08 LPF08D | 0.8 | 0.025 | 4.0 | 2.41 | 2.62 | 1.57 | 1.72 | 3.0 | 3.43 | 4.7 |
| LPF10 LPF10D | 1,0 | 0,04 | 6.52 | 3.93 | 4.27 | 2.55 | 2.81 | 4,87 | 5.6 | 7.6 |
| LPF14 LPF14D | 1,4 | 0,08 | 12.36 | 7.45 | 8.10 | 4.84 | 5.32 | 9.23 | 10.6 | 14.4 |
| LPF18 LPF18D | 1,8 | 0,12 | 17.08 | 10.3 | 11.20 | 6.69 | 7.36 | 12,7 | 14.64 | 19.9 |
| LPF24 LPF24D | 2,4 | 0,2 | 23.37 | 14.1 | 15.32 | 9.16 | 10.07 | 17,3 | 20.0 | 27.2 |

Condition 2: $T_c / T_e / S_c / SH$: 45°C / -35°C / 2K / 6K (-10°C / -40°C / 2K / 6K for R744)

| Valve Model | Seat ϕ (mm) | Kv (m ³ /h) | Maximal Cooling Capacity [kW] | | | | | | | |
|-----------------|------------------|------------------------|-------------------------------|-------|-------|-------|-------|-------|-------|-------|
| | | | R134a | R404A | R407F | R448A | R449A | R450A | R452A | R513A |
| LPF08 LPF08D | 0,8 | | 2.1 | 1.81 | 3.04 | 2.68 | 2.62 | 1.79 | 1.88 | 1.69 |
| LPF10 LPF10D | 1,0 | 0,04 | 3.43 | 2.95 | 4.96 | 4.36 | 4.26 | 2.92 | 3.07 | 2.75 |
| LPF14 LPF14D | 1,4 | 0,08 | 6.5 | 5.6 | 9.4 | 8.27 | 8.08 | 5.53 | 5.82 | 5.21 |
| LPF18 LPF18D | 1,8 | 0,12 | 9.00 | 7.73 | 13.0 | 11.43 | 11.17 | 7.64 | 8.04 | 7.21 |
| LPF24 LPF24D | 2,4 | 0,2 | 12.3 | 10.58 | 17.78 | 15.65 | 15.29 | 10.45 | 11.0 | 9.86 |

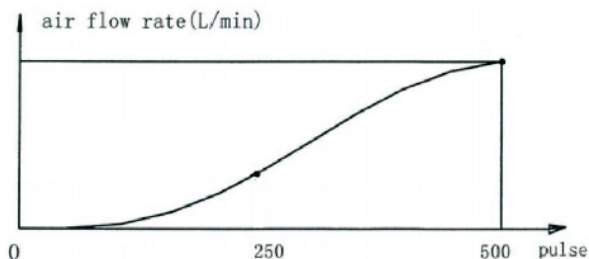
| | | | R454B | R454C | R455A | R1234yf | R1234ze | R290 | R410A | R744 |
|-------|-----|------|-------|-------|-------|---------|---------|-------|-------|------|
| LPF10 | 0.8 | | 4.03 | 2.23 | 2.43 | 1.4 | 1.57 | 2.86 | 3.42 | 5.4 |
| LPF10 | 1,0 | 0,04 | 6.56 | 3.63 | 3.95 | 2.28 | 2.55 | 4.66 | 5.57 | 8.8 |
| LPF14 | 1,4 | 0,08 | 12.45 | 6.89 | 7.50 | 4.33 | 4.84 | 8.84 | 10.57 | 16.6 |
| LPF18 | 1,8 | 0,12 | 17.20 | 9.53 | 10.36 | 5.98 | 6.69 | 12.21 | 14.61 | 23.0 |
| LPF24 | 2,4 | 0,2 | 23.54 | 13.03 | 14.17 | 8.18 | 9.15 | 16.7 | 20.0 | 31.5 |

Note: 1) Max capacity is given for fully open position

ELECTRONIC EXPANSION VALVE

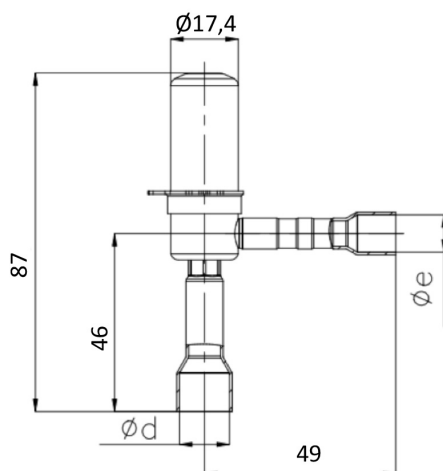


FLOW CHARACTERISTIC (EQUAL PERCENTAGE)



DIMENSIONS

(Unit is mm)

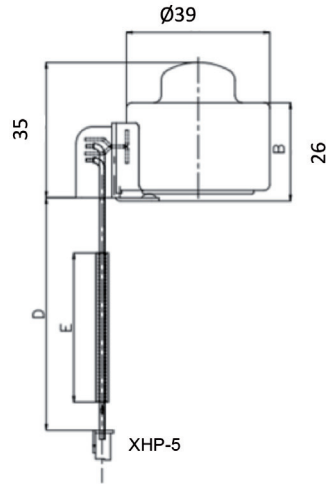


| Valve Model | U11 Code Multi-Pack | Dimensions (mm unless specified) | | Weight (g) |
|-----------------------|--------------------------|-------------------------------------|-----------|---------------|
| | | Øe Inlet | Ød Outlet | |
| LPF08-001/ LPF08D-001 | 10136003202/ 10136003702 | 3/8 | 1/2 | 51,2 |
| LPF08-002/LPF08D-002 | 10136003302/ 10136003802 | 1/4 | 1/4 | |
| LPF10-002/ LPF10D-002 | 10136000502/ 10136002002 | 3/8 | 1/2 | |
| 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 | |



THE COIL IS SEPARATED

(Unit is mm)



| Coil Model | Coil U11 Code | Coil Dimensions [mm] | | Weight (g) |
|------------------|---------------|----------------------|--------|------------|
| | | D = Cable length | E | |
| PQ-M24012-000007 | 10810127602 | 1500 | 1400 | 140,2 |
| 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.