

## 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
- BETTER FLOW REGULATION
- COIL WITH IP67 WORKS SAFELY IN EXTREMELY ENVIRONMENT
- APPLICABLE FOR OIL-FREE SYSTEM (NOT INCLUDED LPF45-62)
- BUILT-IN STRAINER AT INLET (NOT INCLUDED IN LPF45~62)
- FLOW DIRECTION: UNI-FLOW
- LPF...T : 90 BAR DESIGN FOR R744 REFRIGERANT AND SUITABLE WITH THE OTHERS REFRIGERANTS

## GENERAL SPECIFICATION

- Applicable for all common HFCF, 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 (CO<sub>2</sub>))
- 500 steps (full stroke); 32±20 (LPF 03~32); 42±30 (LPF45~62) opening steps
- Temperature:

LPF Model	Medium temperature Min/Max	Ambient temperature Min/Max
LPF45 ~ 62	-40°C / +70°C <sup>(2)</sup>	-30°C / +60°C <sup>(2)</sup>
LPF03T ~ 32T	-40°C / +70°C <sup>(1)</sup>	-40°C / +60°C <sup>(1)</sup>

<sup>(1)</sup>duty cycle rate below 40% / <sup>(2)</sup>duty cycle rate below 50%

- Relative humidity: 0 to 95% RH
- Pressures:

LPF Model	MPW	MOPD
LPF03T ~ 24T	90 bar	50 bar
LPF30T ~ 32T	90 bar	35 bar
LPF45 ~ 62	49 bar	35 bar

- Declaration according to LVD and PED
- Suitable with the EN 60335-2-24 / 2-40 / 2-89

# ELECTRONIC EXPANSION VALVE



## ELECTRICAL PARAMETERS

- Rated voltage: 12V DC(± 10%), rectangular wave
- Excitation mode: 1 - 2 phase excitation, uni-polar actuation

LPF Model	Excitation rate	Full stroke time
LPF03T ~ 32T	30 - 90pps	6s@ 90pps
LPF45 ~ 62	30 - 40pps	13s@ 40pps

- 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

## GENERAL CHARACTERISTICS

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

Valve Model	Seat $\Phi$ (mm)	Kv (m <sup>3</sup> /h)	Maximal Cooling Capacity [kW]							
			R134a	R404A	R407F	R448A	R449A	R450A	R452A	R513A
LPF03T	1.0	0.009	0.90	0.80	1.28	1.14	1.12	0.79	0.84	0.74
LPF05T	1.0	0.014	1.39	1.23	1.97	1.75	1.72	1.21	1.29	1.15
LPF08T	1.0	0.025	2.3	2.0	3.2	2.8	2.8	2.0	2.1	1.84
LPF10T	1.0	0.04	3.6	3.2	5.1	4.6	4.5	3.2	3.4	3.0
LPF14T	1.4	0.08	6.9	6.1	9.7	8.7	8.5	6.0	6.4	5.7
LPF18T	1.8	0.12	9.5	8.4	13.5	12.0	11.8	8.3	8.8	7.9
LPF24T	2.4	0.20	13.0	11.5	18.4	16.4	16.1	11.3	12.1	10.8
LPF30T	3.0	0.27	18.4	16.2	26.0	23.3	22.7	16.0	17.1	15.2
LPF32T	3.2	0.30	20.2	17.8	28.5	25.5	24.9	17.6	18.7	16.6
LPF45	4.5	0.5	45.3	39.9	64.0	57.1	55.9	39.5	41.9	37.3
LPF52	5.2	0.7	60.6	53.4	85.6	76.3	74.8	52.8	56.0	49.9
LPF55	5.5	0.9	70.2	61.8	99.1	88.4	86.6	61.1	64.8	57.7
LPF62	6.2	1.1	85.3	75.2	102.5	107.5	105.3	74.4	78.9	70.2

Valve Model	Seat $\Phi$ (mm)	Kv (m <sup>3</sup> /h)	Maximal Cooling Capacity [kW]							
			R454B	R454C	R455A	R1234yf	R1234ze	R290	R410A	R744
LPF03T	1.0	0.009	1.62	0.98	1.06	0.63	0.70	1.21	1.39	1.89
LPF05T	1.0	0.014	2.49	1.51	1.64	0.98	1.08	1.86	2.14	2.91
LPF08T	1.0	0.025	4.0	2.4	2.6	1.6	1.7	3.0	3.4	4.7
LPF10T	1.0	0.04	6.5	3.9	4.3	2.6	2.8	4.9	5.6	7.6
LPF14T	1.4	0.08	12.4	7.5	8.1	4.8	5.3	9.2	10.6	14.4
LPF18T	1.8	0.12	17.1	10.3	11.2	6.7	7.4	12.8	14.6	19.9
LPF24T	2.4	0.2	23.4	14.1	15.3	9.2	10.1	17.5	20.0	27.2
LPF30T	3.0	0.27	33.0	19.9	21.7	12.9	14.2	24.7	28.3	38.5
LPF32T	3.2	0.30	36.2	21.8	23.7	14.2	15.6	27.0	31.0	42.1
LPF45	4.5	0.5	81.1	49.0	53.3	31.7	35.0	60.6	69.5	-
LPF52	5.2	0.7	108.5	65.5	71.2	42.5	46.8	81.1	93.0	-
LPF55	5.5	0.9	125.5	75.8	82.5	49.2	54.2	93.9	107.6	-
LPF62	6.2	1.1	152.7	92.3	100.3	59.8	65.9	114.2	130.9	-



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

Valve Model	Seat $\Phi$ (mm)	Kv (m <sup>3</sup> /h)	Maximal Cooling Capacity [kW]							
			R134a	R404A	R407F	R448A	R449A	R450A	R452A	R513A
LPF03T	1.0	0.009	0.85	0.73	1.23	1.08	1.06	0.72	0.76	0.68
LPF05T	1.0	0.014	1.31	1.13	1.90	1.67	1.63	1.11	1.18	1.05
LPF08T	1.0	0.025	2.1	1.8	3.1	2.7	2.6	1.8	1.9	1.7
LPF10T	1.0	0.04	3.4	3.0	5.0	4.4	4.3	2.9	3.1	2.7
LPF14T	1.4	0.08	6.5	5.6	9.4	8.3	8.1	5.5	5.8	5.2
LPF18T	1.8	0.12	9.0	7.7	13.0	11.4	11.2	7.6	8.0	7.2
LPF24T	2.4	0.2	12.3	10.6	17.8	15.6	15.3	10.5	11.0	9.9
LPF30T	3.0	0.27	17.4	15.0	25.1	22.1	21.6	14.8	15.6	13.9
LPF32T	3.2	0.30	19.0	16.4	27.5	24.2	23.7	16.2	17.0	15.3
LPF45	4.5	0.5	42.6	36.8	61.7	54.3	53.1	36.3	38.3	34.2
LPF52	5.2	0.7	57.0	49.2	82.6	72.7	71.7	48.5	51.2	45.8
LPF55	5.5	0.9	66.0	57.0	95.6	84.1	82.2	56.2	59.2	53.0
LPF62	6.2	1.1	80.3	69.3	116.3	102.3	100.0	68.3	72.1	64.5

Valve Model	Seat $\Phi$ (mm)	Kv (m <sup>3</sup> /h)	Maximal Cooling Capacity [kW]							
			R454B	R454C	R455A	R1234yf	R1234ze	R290	R410A	R744
LPF03T	1.0	0.009	1.63	0.90	0.98	0.56	0.63	1.16	1.39	2.18
LPF05T	1.0	0.014	2.51	1.39	1.51	0.87	0.98	1.79	2.14	3.36
LPF08T	1.0	0.025	4.0	2.2	2.4	1.4	1.6	2.9	3.5	5.4
LPF10T	1.0	0.04	6.6	3.6	4.0	2.3	2.6	4.7	5.6	8.8
LPF14T	1.4	0.08	12.5	6.9	7.5	4.3	4.8	8.8	10.6	16.6
LPF18T	1.8	0.12	17.2	9.5	10.4	6.0	6.7	12.2	14.6	23.0
LPF24T	2.4	0.2	23.5	13.0	14.2	8.2	9.2	16.7	20.0	31.5
LPF30T	3.0	0.27	33.3	18.4	20.0	11.6	12.9	23.6	28.3	44.5
LPF32T	3.2	0.30	36.4	20.2	21.9	12.7	14.2	25.9	30.9	48.7
LPF45	4.5	0.5	81.7	45.2	49.1	28.3	31.8	58.1	69.4	-
LPF52	5.2	0.7	109.3	60.5	65.8	37.9	42.5	77.7	92.9	-
LPF55	5.5	0.9	126.6	70.1	76.1	43.8	49.2	89.9	107.5	-
LPF62	6.2	1.1	153.9	85.2	92.6	53.3	59.9	109.4	130.8	-

**Note:** The Max capacity is given for full opened position  
 LPF... is standard series, LPF...T is designed for CO<sub>2</sub> application

**ELECTRONIC EXPANSION VALVE**

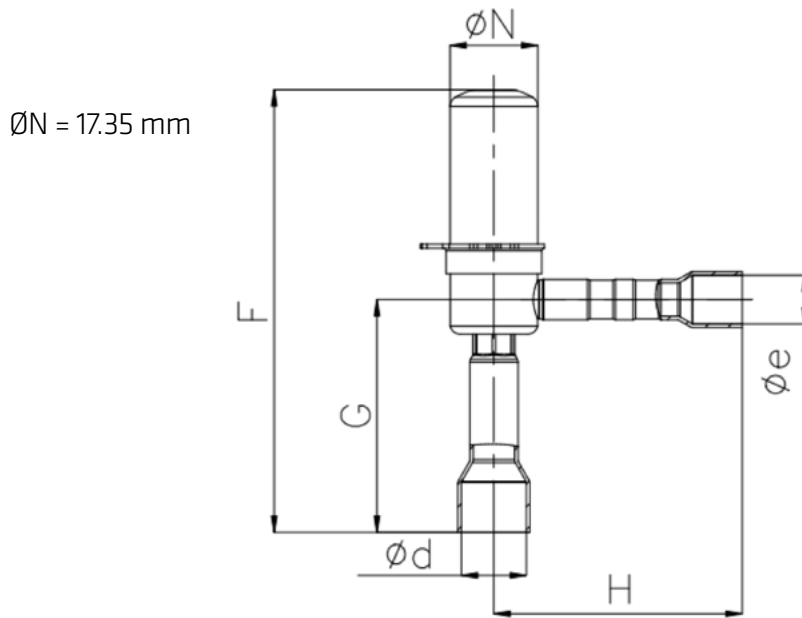


Valve Model	U11 Code Multi-Pack	Dimensions					Weight (g)	
		F	G	H	Øe Inlet	Ød Outlet		
LPF03T-001	10136007702	88.5	45.8	49	3/8	1/2	60	
LPF03T-002	10136010302				6mm	10mm	49.2	
LPF05T-001	10136007802				3/8	1/2	60	
LPF05T-002	10136010502				6mm	10mm	49.2	
LPF08T-001	10136005402	84.5	41.8	45	3/8	1/2	60	
LPF08T-002	10136006402				1/4	1/4	45.5	
LPF08T-003	10136008202				10mm	12mm	59.8	
LPF08T-004	10136010402				6mm	10mm	49.2	
LPF10T-002	10136005502	88.5	45.8	49	3/8	1/2	60	
LPF10T-003	10136005602			45	1/4	3/8	49.2	
LPF10T-004	10136006502			49	10mm	12mm	59.9	
LPF10T-005	10136006602			45	6mm	10mm	49.2	
LPF14T-002	10136005702			49	3/8	1/2	60	
LPF14T-003	10136005802			45	1/4	3/8	49.2	
LPF14T-004	10136006702			49	10mm	12mm	59.9	
LPF14T-005	10136006802			45	6mm	10mm	49.2	
LPF18T-002	10136005902			49	3/8	1/2	59.9	
LPF18T-003	10136006902			49	10mm	12mm	59.8	
LPF24T-002	10136006002	116	62.5	57.2	3/8	1/2	59.9	
LPF24T-003	10136007002				49	10mm	12mm	59.8
LPF30T-001	10136006102				49	3/8	1/2	59.8
LPF30T-002	10136007102				49	10mm	12mm	59.7
LPF32T-001	10136006202				49	3/8	1/2	59.8
LPF32T-002	10136006302				45	1/4	3/8	49
LPF32T-003	10136007202x				49	10mm	12mm	59.7
LPF45-001	10136007302				5/8	5/8	104	
LPF52-001	10136007402				1/4	1/4	104	
LPF55-001	10136007502				3/8	1/2	104	
LPF62-001	10136007602	1/4	1/4	104				



**DIMENSIONS**

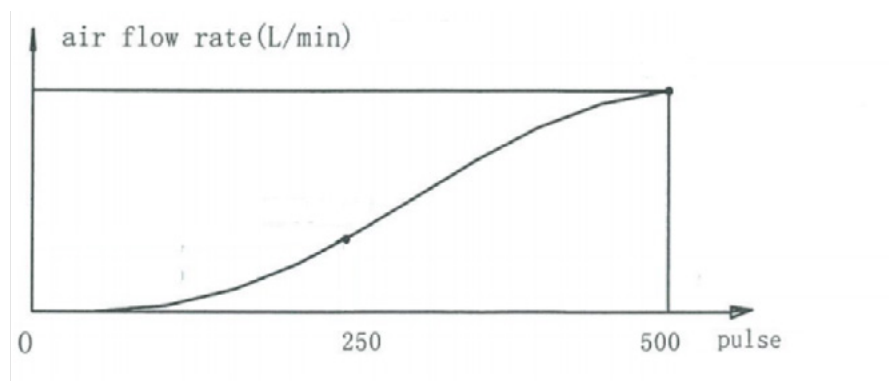
(Unit is mm)



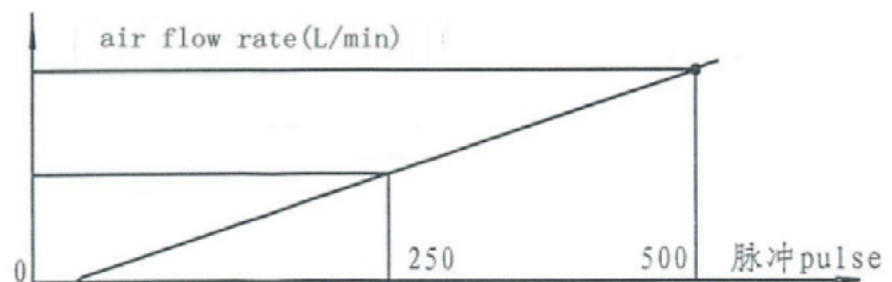
$\varnothing N = 17.35 \text{ mm}$

**FLOW CHARACTERISTIC (EQUAL PERCENTAGE)**

LPF and LPF-T (03-32)

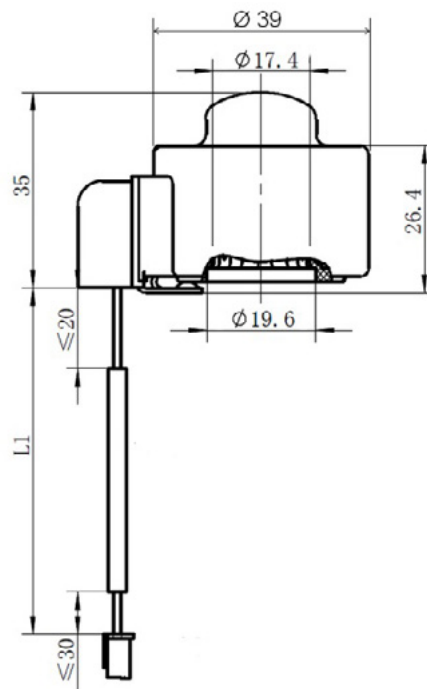


LPF 45-62





The coil is separated  
(Unit is mm)



Coil Model	Coil Code number	Coil Dimensions [mm]	Weight (g)
		L1	
PQ-M24012-000007	10810127602	1500	140
PQ-M24012-000008	10810129502	3000	
PQ-M24012-000009	10810129602	6000	
PQ-M24012-000010	10810129702	9000	