

LPF SERIES | *Electric Expansion Valve*



LPF series Electric Expansion Valves are designed for use in refrigeration systems. The valve port is designed with PTFE (Teflon™), creating a tight seat equivalent to a solenoid valve thus preventing liquid refrigerant from migrating to the evaporator and compressor.

FEATURES

- TIGHT SEATING, AS GOOD AS A SOLENOID VALVE (<1ML/MIN)
- QUICK-CONNECT STATOR FOR EASY INSTALLATION
- IP67 RATED STATOR WORKS SAFELY IN HARSH ENVIRONMENTS
- COMPATIBLE WITH OIL-FREE SYSTEMS (NOT INCLUDING LPF45-XXX THROUGH LPF62-XXX)
- INLET STRAINER, 100 MESH
- LPFXXT-XXX: 1,305 PSIG (90 BAR) DESIGN FOR R-744 (CO₂) APPLICATION

GENERAL SPECIFICATION

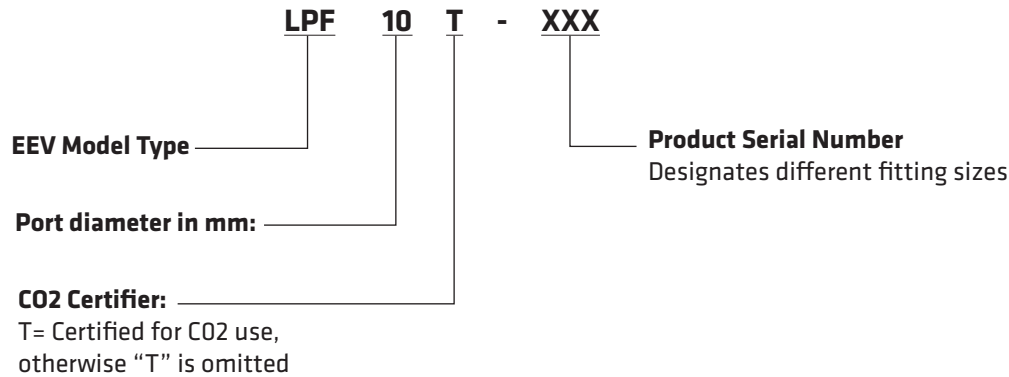
- 500 steps (full stroke); 32 ± 20 opening steps
- Fluid temperature range: -40°F to +158°F
 - LPF03(T)-XXX through LPF32(T)-XXX: -40°F to 158°F (-40°C to +70°C)
 - LPF45-XXX through LPF62-XXX: -22°F to +158°F (-30°C to +70°C)
- Ambient temperature and relative humidity range:
 - LPF03(T)-XXX through LPF62-XXX: -22°F to +140°F (-40°C to +60°C); 0 to 95% RH
 - LPF45-XXX through LPF 62-XXX: -22°F to +140°F (-30°C to +60°C); 0 to 95% RH
- Design Pressures:
 - LPF03-XXX through LPF32-XXX: MWP=600 psig (42 bar); MOPD=500 psi (35 bar)
 - LPF45-XXX through LPF62-XXX: MWP=710 psig (49 bar); MOPD=500 psi (35 bar)
 - LPF03T-XXX through LPF24T-XXX: MWP=1,305 psig (90 bar); MOPD=725 psi (50 bar)
 - LPF30T-XXX through LPF32T-XXX: MWP=1,305 psig (90 bar); MOPD=500 psi (35 bar)
- Certifications: UL/CSA file no. MH25894 for A1/A2/A2L/A3 refrigerants

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ELECTRICAL PARAMETERS

- Rated voltage: 12V DC ($\pm 10\%$), rectangular wave
- Excitation mode: 1 - 2 phase excitation, unipolar actuation
- Excitation rate: 30 - 90pps (30-40pps for LPF45-XXX through LPF62-XXX)
- Full stroke time: 6s @ 90pps (13s @ 40pps for LPF45-XXX through LPF62-XXX)
- Coil current: 260 mA/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 SEC series controller

MODEL DESIGNATION



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REFRIGERANT CAPACITY TABLES

Air Conditioning

| Model No. | Refrigerant | | | | | |
|-----------|-------------|---------|--------|---------|------|---------|
| | R-410A | | R-454B | | R-32 | |
| | tons | BTU/hr | tons | BTU/hr | tons | BTU/hr |
| LPF03 | 0.24 | 2,880 | 0.28 | 3,360 | 0.32 | 4,200 |
| LPF05 | 0.37 | 4,440 | 0.44 | 5,280 | 0.54 | 6,480 |
| LPF08 | 0.66 | 7,920 | 0.78 | 9,360 | 0.96 | 11,520 |
| LPF10 | 1.06 | 12,720 | 1.25 | 15,000 | 1.54 | 18,480 |
| LPF14 | 2.12 | 25,440 | 2.51 | 30,120 | 3.08 | 36,960 |
| LPF18 | 3.18 | 38,160 | 3.76 | 45,120 | 4.63 | 55,560 |
| LPF24 | 5.29 | 63,480 | 6.27 | 75,240 | 7.71 | 92,520 |
| LPF30 | 7.15 | 85,800 | 8.46 | 101,520 | 10.4 | 124,800 |
| LPF32 | 7.94 | 95,280 | 9.40 | 112,800 | 11.6 | 139,200 |
| LPF45 | 13.20 | 158,400 | 15.7 | 188,400 | 19.3 | 231,600 |
| LPF52 | 18.50 | 222,000 | 21.9 | 262,800 | 27.0 | 324,000 |
| LPF55 | 23.80 | 285,600 | 28.2 | 338,400 | 34.7 | 416,000 |
| LPF62 | 29.10 | 349,200 | 34.5 | 414,000 | 42.4 | 508,800 |

Conditions: 45°F evap temperature,
100°F liquid temperature

CO2

| Model No. | Refrigerant | | | |
|-----------|-----------------|---------|----------------|---------|
| | R-744 (CO2) | | | |
| | Med. Temp. Ref. | | Low Temp. Ref. | |
| | tons | BTU/hr | tons | BTU/hr |
| LPF03T | 0.29 | 3,480 | 0.45 | 5,400 |
| LPF05T | 0.45 | 5,400 | 0.70 | 8,400 |
| LPF08T | 0.81 | 9,720 | 1.25 | 15,000 |
| LPF10T | 1.29 | 15,480 | 2.01 | 24,120 |
| LPF14T | 2.58 | 30,960 | 4.02 | 48,240 |
| LPF18T | 3.87 | 46,440 | 6.02 | 72,240 |
| LPF24T | 6.45 | 77,400 | 10.0 | 120,000 |
| LPF30T | 8.70 | 104,400 | 13.6 | 163,200 |
| LPF32T | 9.67 | 111,040 | 15.1 | 181,200 |
| LPF45T | 16.1 | 193,200 | 25.1 | 301,200 |
| LPF52T | 22.6 | 271,200 | 35.1 | 421,200 |
| LPF55T | 29.0 | 348,000 | 45.2 | 542,400 |
| LPF62T | 35.5 | 426,000 | 55.2 | 662,400 |

Medium Temperature:
25°F evap temperature,
45°F liquid temperature $\Delta P=150$ psi

Low Temperature:
-10°F evap temperature,
45°F liquid temperature $\Delta P=350$ psi

Note:

1. LPF stator is sold separately
2. Nominal capacity is at 480 fully open pulses of linear flow curve
3. If your system capacity is between two valve sizes, always select the a larger valve to avoid a capacity restriction.

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REFRIGERANT CAPACITY TABLES continued

Medium Temperature Refrigeration

| Model No. | Refrigerant | | | | | | | |
|-----------|------------------|---------|-------|---------|-------------------|---------|-------------------|---------|
| | R-404A/ R-507 | | R-290 | | R-407A/ R-407F | | R-448A/ R-449A | |
| | tons | BTU/hr | tons | BTU/hr | tons | BTU/hr | tons | BTU/hr |
| LPF03 | 0.14 | 1,680 | 0.24 | 2,880 | 0.19 | 2,280 | 0.19 | 2,280 |
| LPF05 | 0.22 | 2,640 | 0.38 | 4,560 | 0.29 | 3,480 | 0.29 | 3,480 |
| LPF08 | 0.39 | 4,680 | 0.68 | 8,160 | 0.53 | 6,360 | 0.53 | 6,360 |
| LPF10 | 0.62 | 7,440 | 1.08 | 12,960 | 0.84 | 10,080 | 0.84 | 10,080 |
| LPF14 | 1.24 | 14,880 | 2.16 | 25,920 | 1.68 | 20,160 | 1.68 | 20,160 |
| LPF18 | 1.86 | 22,320 | 3.25 | 39,000 | 2.52 | 30,240 | 2.53 | 30,360 |
| LPF24 | 3.10 | 37,200 | 5.41 | 64,920 | 4.20 | 50,400 | 4.21 | 50,520 |
| LPF30 | 4.19 | 50,280 | 7.31 | 87,720 | 5.67 | 68,040 | 5.68 | 68,160 |
| LPF32 | 4.65 | 55,800 | 8.12 | 97,440 | 6.30 | 75,600 | 6.31 | 75,720 |
| LPF45 | 7.75 | 93,000 | 13.5 | 162,000 | 10.5 | 126,000 | 10.5 | 126,000 |
| LPF52 | 10.9 | 130,800 | 18.9 | 226,800 | 14.7 | 176,000 | 14.7 | 176,400 |
| LPF55 | 14.0 | 168,000 | 24.4 | 292,800 | 18.9 | 226,800 | 18.9 | 226,800 |
| LPF62 | 17.1 | 205,200 | 29.8 | 357,600 | 23.1 | 277,200 | 23.1 | 277,200 |

Conditions: 25°F evap temperature, 100°F liquid temperature, 125 psi ΔP across EEV

| Model No. | Refrigerant | | | | | | | |
|-----------|-------------|---------|--------|---------|--------|---------|--------|---------|
| | R-452A | | R-454A | | R-454C | | R-455A | |
| | tons | BTU/hr | tons | BTU/hr | tons | BTU/hr | tons | BTU/hr |
| LPF03 | 0.14 | 1,680 | 0.19 | 2,280 | 0.17 | 2,040 | 0.17 | 2,040 |
| LPF05 | 0.22 | 2,640 | 0.29 | 3,480 | 0.26 | 3,120 | 0.27 | 3,240 |
| LPF08 | 0.39 | 4,680 | 0.52 | 6,240 | 0.47 | 5,640 | 0.48 | 5,760 |
| LPF10 | 0.63 | 7,560 | 0.84 | 10,080 | 0.76 | 9,120 | 0.77 | 9,240 |
| LPF14 | 1.26 | 15,120 | 1.68 | 20,160 | 1.51 | 18,120 | 1.53 | 18,360 |
| LPF18 | 1.89 | 22,680 | 2.52 | 30,240 | 2.27 | 27,240 | 2.30 | 27,600 |
| LPF24 | 3.15 | 37,800 | 4.19 | 50,280 | 3.78 | 45,360 | 3.83 | 45,960 |
| LPF30 | 4.25 | 51,000 | 5.66 | 67,920 | 5.10 | 61,200 | 5.18 | 62,160 |
| LPF32 | 4.73 | 56,760 | 6.29 | 75,480 | 5.67 | 68,040 | 5.75 | 69,000 |
| LPF45 | 7.88 | 94,560 | 10.5 | 126,000 | 9.44 | 113,280 | 9.58 | 114,960 |
| LPF52 | 11.0 | 132,000 | 14.7 | 176,400 | 13.2 | 158,400 | 13.4 | 160,800 |
| LPF55 | 14.2 | 170,400 | 18.9 | 226,800 | 17.0 | 204,000 | 17.3 | 207,600 |
| LPF62 | 17.3 | 207,600 | 23.1 | 277,200 | 20.8 | 249,600 | 21.1 | 253,200 |

Conditions: 25°F evap temperature, 100°F liquid temperature, 125 psi ΔP across EEV

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REFRIGERANT CAPACITY TABLES continued

Medium Temperature Refrigeration

| Model No. | Refrigerant | | | | | |
|-----------|-------------|---------|--------|---------|--------|---------|
| | R-134a | | R-450A | | R-513A | |
| | tons | BTU/hr | tons | BTU/hr | tons | BTU/hr |
| LPF03 | 0.16 | 1,920 | 0.15 | 1,800 | 0.13 | 1,560 |
| LPF05 | 0.25 | 3,000 | 0.23 | 2,760 | 0.21 | 2,520 |
| LPF08 | 0.45 | 5,400 | 0.42 | 5,040 | 0.37 | 4,440 |
| LPF10 | 0.72 | 8,640 | 0.67 | 8,040 | 0.59 | 7,080 |
| LPF14 | 1.44 | 17,280 | 1.33 | 15,960 | 1.18 | 14,160 |
| LPF18 | 2.16 | 25,920 | 2.00 | 24,000 | 1.77 | 21,240 |
| LPF24 | 3.60 | 43,200 | 3.33 | 39,960 | 2.95 | 35,400 |
| LPF30 | 4.86 | 58,320 | 4.49 | 53,880 | 3.98 | 47,760 |
| LPF32 | 5.40 | 64,800 | 4.99 | 59,880 | 4.42 | 53,040 |
| LPF45 | 9.00 | 108,000 | 8.32 | 99,840 | 7.36 | 88,320 |
| LPF52 | 12.6 | 151,200 | 11.6 | 139,200 | 10.3 | 123,320 |
| LPF55 | 16.2 | 194,400 | 15.0 | 180,000 | 13.3 | 159,600 |
| LPF62 | 19.8 | 237,600 | 18.3 | 219,600 | 16.2 | 194,400 |

Conditions: 25°F evap temperature, 100°F liquid temperature, 80 psi ΔP across EEV

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REFRIGERANT CAPACITY TABLES continued

Low Temperature Refrigeration

| Model No. | Refrigerant | | | | | | | |
|-----------|------------------|---------|-------|---------|-------------------|---------|-------------------|---------|
| | R-404A/ R-507 | | R-290 | | R-407A/ R-407F | | R-448A/ R-449A | |
| | tons | BTU/hr | tons | BTU/hr | tons | BTU/hr | tons | BTU/hr |
| LPF03 | 0.14 | 1,680 | 0.24 | 2,880 | 0.19 | 2,280 | 0.19 | 2,280 |
| LPF05 | 0.21 | 2,520 | 0.38 | 4,560 | 0.30 | 3,600 | 0.30 | 3,600 |
| LPF08 | 0.38 | 4,560 | 0.68 | 8,160 | 0.53 | 6,360 | 0.53 | 6,360 |
| LPF10 | 0.61 | 7,320 | 1.09 | 13,080 | 0.85 | 10,200 | 0.85 | 10,200 |
| LPF14 | 1.23 | 14,760 | 2.18 | 26,160 | 1.71 | 20,520 | 1.71 | 20,520 |
| LPF18 | 1.84 | 22,080 | 3.26 | 39,120 | 2.56 | 30,720 | 2.56 | 30,720 |
| LPF24 | 3.06 | 36,720 | 5.44 | 65,280 | 4.26 | 51,120 | 4.27 | 51,240 |
| LPF30 | 4.14 | 49,680 | 7.34 | 88,080 | 5.76 | 69,120 | 5.77 | 69,240 |
| LPF32 | 4.59 | 55,080 | 8.16 | 97,920 | 6.40 | 76,800 | 6.41 | 76,920 |
| LPF45 | 7.66 | 91,920 | 13.6 | 163,200 | 10.7 | 128,400 | 10.7 | 128,400 |
| LPF52 | 10.7 | 128,400 | 19.0 | 228,000 | 14.9 | 178,800 | 15.0 | 180,000 |
| LPF55 | 13.8 | 165,600 | 24.5 | 294,000 | 19.2 | 230,400 | 19.2 | 230,400 |
| LPF62 | 16.8 | 201,600 | 29.9 | 358,800 | 23.4 | 280,800 | 23.5 | 282,000 |

Conditions: -10°F evap temperature, 100°F liquid temperature

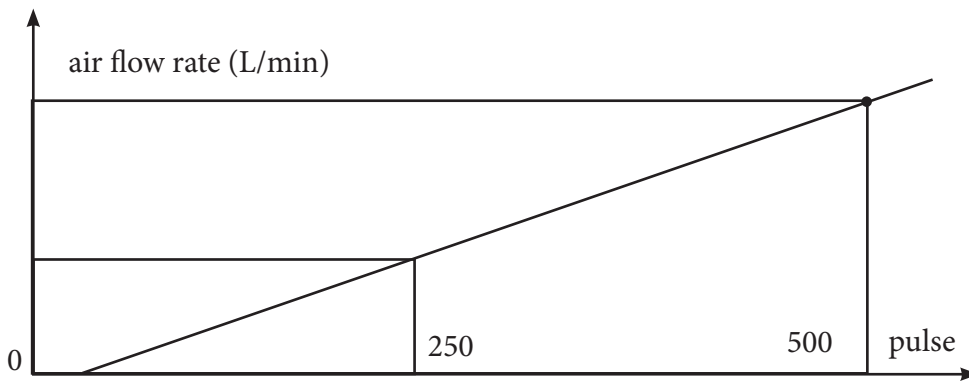
| Model No. | Refrigerant | | | | | | | |
|-----------|-------------|---------|--------|---------|--------|---------|--------|---------|
| | R-452A | | R-454A | | R-454C | | R-455A | |
| | tons | BTU/hr | tons | BTU/hr | tons | BTU/hr | tons | BTU/hr |
| LPF03 | 0.14 | 1,680 | 0.24 | 2,280 | 0.19 | 2,040 | 0.17 | 2,040 |
| LPF05 | 0.21 | 2,640 | 0.38 | 3,600 | 0.30 | 3,120 | 0.27 | 3,240 |
| LPF08 | 0.38 | 4,680 | 0.68 | 6,360 | 0.53 | 5,640 | 0.48 | 5,760 |
| LPF10 | 0.61 | 7,440 | 1.09 | 10,200 | 0.85 | 9,000 | 0.77 | 9,240 |
| LPF14 | 1.23 | 14,880 | 2.18 | 20,520 | 1.71 | 18,120 | 1.53 | 18,360 |
| LPF18 | 1.84 | 22,320 | 3.26 | 30,720 | 2.56 | 27,120 | 2.30 | 27,600 |
| LPF24 | 3.06 | 37,200 | 5.44 | 51,240 | 4.26 | 45,240 | 3.84 | 46,080 |
| LPF30 | 4.14 | 50,280 | 7.34 | 69,120 | 5.76 | 61,080 | 5.18 | 62,160 |
| LPF32 | 4.59 | 55,920 | 8.16 | 76,800 | 6.40 | 67,800 | 5.75 | 69,000 |
| LPF45 | 7.66 | 93,120 | 13.6 | 128,400 | 10.7 | 113,040 | 9.59 | 115,080 |
| LPF52 | 10.7 | 130,800 | 19.0 | 178,800 | 14.9 | 158,400 | 13.4 | 160,800 |
| LPF55 | 13.8 | 168,000 | 24.5 | 230,400 | 19.2 | 204,000 | 17.3 | 207,600 |
| LPF62 | 16.8 | 205,200 | 29.9 | 282,000 | 23.4 | 248,400 | 21.1 | 253,200 |

Conditions: -10°F evap temperature, 100°F liquid temperature

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TECHNICAL DATA

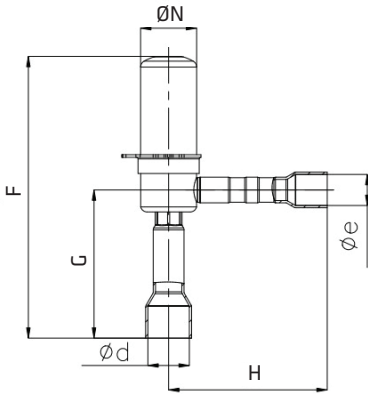
| Stator Model | D=Cable length ft (m) | E=Insulation length ft (m) | Number of wires | Weights Oz (g) |
|------------------|--------------------------|-------------------------------|-----------------|-------------------|
| PQ-M24012-000007 | 5 (1.5) | 4.6 (1.4) | 5 | 4.95 (140.2) |
| PQ-M24012-000008 | 10 (3.0) | 8.9 (2.7) | 5 | |
| PQ-M24012-000009 | 20 (6.0) | 17.8 (5.4) | 5 | |
| PQ-M24012-000010 | 30 (9.0) | 26.7 (8.1) | 5 | |



LPF(T)03-xxx through LPF(T)32-xxx

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TECHNICAL DATA



| Valve Model | Dimensions | | | | | Weights Oz (g) |
|-------------|----------------|----------------|----------------|-----------|-----------|-------------------|
| | "F" | "G" | "H" | Øe outlet | Ød outlet | |
| | inches (mm) | inches (mm) | inches (mm) | inches | inches | |
| LPF03-001 | 3.43 (87) | 1.80 (45.8) | 1.93 (49) | 3/8 | 1/2 | 1.8 (52) |
| LPF05-001 | 3.43 (87) | 1.80 (45.8) | 1.93 (49) | 3/8 | 1/2 | 1.8 (52) |
| LPF08-001 | 3.43 (87) | 1.80 (45.8) | 1.93 (49) | 3/8 | 1/2 | 1.8 (52) |
| LPF08-002 | 3.43 (87) | 1.80 (45.8) | 1.93 (49) | 1/4 | 1/4 | 1.6 (44) |
| LPF10-002 | 3.43 (87) | 1.80 (45.8) | 1.93 (49) | 3/8 | 1/2 | 1.8 (52) |
| LPF10-003 | 3.43 (87) | 1.80 (45.8) | 1.93 (49) | 1/4 | 3/8 | 1.7 (48) |
| LPF14-002 | 3.43 (87) | 1.80 (45.8) | 1.93 (49) | 3/8 | 1/2 | 1.8 (52) |
| LPF14-003 | 3.43 (87) | 1.80 (45.8) | 1.93 (49) | 1/4 | 3/8 | 1.7 (48) |
| LPF18-002 | 3.43 (87) | 1.80 (45.8) | 1.93 (49) | 3/8 | 1/2 | 1.8 (52) |
| LPF24-002 | 3.43 (87) | 1.80 (45.8) | 1.93 (49) | 3/8 | 1/2 | 1.8 (52) |
| LPF30-001 | 3.43 (87) | 1.80 (45.8) | 1.93 (49) | 3/8 | 1/2 | 1.9 (53) |
| LPF32-001 | 3.43 (87) | 1.80 (45.8) | 1.93 (49) | 3/8 | 1/2 | 1.9 (53) |
| LPF32-002 | 3.43 (87) | 1.80 (45.8) | 1.93 (49) | 1/4 | 3/8 | 1.7 (48) |
| LPF45-001 | 4.57 (116) | 2.46 (62.5) | 2.25 (57.2) | 5/8 | 5/8 | 3.7 (104) |
| LPF52-001 | 4.57 (116) | 2.46 (62.5) | 2.25 (57.2) | 5/8 | 5/8 | 3.7 (104) |
| LPF55-001 | 4.57 (116) | 2.46 (62.5) | 2.25 (57.2) | 5/8 | 5/8 | 3.7 (104) |
| LPF62-001 | 4.57 (116) | 2.46 (62.5) | 2.25 (57.2) | 5/8 | 5/8 | 3.7 (104) |
| LPF03T-001 | 3.48 (88.5) | 1.80 (45.8) | 1.93 (49) | 3/8 | 1/2 | 2.1 (60) |
| LPF05T-001 | 3.48 (88.5) | 1.80 (45.8) | 1.93 (49) | 3/8 | 1/2 | 2.1 (60) |
| LPF08T-001 | 3.48 (88.5) | 1.80 (45.8) | 1.93 (49) | 3/8 | 1/2 | 2.1 (60) |
| LPF08T-002 | 3.33 (84.5) | 1.65 (41.8) | 1.77 (45) | 1/4 | 1/4 | 1.6 (45) |
| LPF10T-002 | 3.48 (88.5) | 1.80 (45.8) | 1.93 (49) | 3/8 | 1/2 | 2.1 (60) |
| LPF10T-003 | 3.48 (88.5) | 1.80 (45.8) | 1.77 (45) | 1/4 | 3/8 | 1.7 (49) |
| LPF14T-002 | 3.48 (88.5) | 1.80 (45.8) | 1.93 (49) | 3/8 | 1/2 | 2.1 (60) |
| LPF14T-003 | 3.48 (88.5) | 1.80 (45.8) | 1.77 (45) | 1/4 | 3/8 | 1.7 (49) |
| LPF18T-002 | 3.48 (88.5) | 1.80 (45.8) | 1.93 (49) | 3/8 | 1/2 | 2.1 (60) |
| LPF24T-002 | 3.48 (88.5) | 1.80 (45.8) | 1.93 (49) | 3/8 | 1/2 | 2.1 (60) |
| LPF30T-001 | 3.48 (88.5) | 1.80 (45.8) | 1.93 (49) | 3/8 | 1/2 | 2.1 (60) |
| LPF32T-001 | 3.48 (88.5) | 1.80 (45.8) | 1.93 (49) | 3/8 | 1/2 | 2.1 (60) |
| LPF32T-002 | 3.48 (88.5) | 1.80 (45.8) | 1.77 (45) | 1/4 | 3/8 | 1.7 (49) |