

EMERSON **FDB** is a hermetic filter-drier in compacted bead style for use on liquid line.

Features

- Compacted bead style
- Hermetic design.
- Rugged steel shells
- Corrosion resistant epoxy paint
- Cushioned flow for non-turbulent performance
- Filtration first for more effective use of surface area of desiccant
- High water and acid adsorption capacity
- High filtration capacity / efficiency

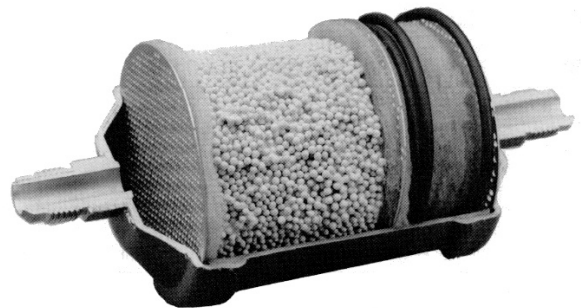
Construction / Function

Liquid line filter-driers are often referred to as system protectors because they remove harmful elements from the circulating refrigerants and lubricants before serious damage results. No matter how many precautions are taken during assembly and installation or servicing of a system, contaminants can find (generate) their way into the system. These contaminants can be solid, such as metal swarf, flux, dust and dirt. Other equally menacing contaminants are soluble, such as water, acid and wax.

FDB filter-driers incorporate a desiccant specially formulated and blended from molecular sieves and activated alumina for maximum moisture and acid removal capability. The active drying material is in the form of beads or pellets. No binding material is used to hold beads together, but rather compacting is performed through some type of mechanical pressure e.g. spring. On the upstream side of the compacted beads is a filter network which cushions flow and traps the solid contaminants.






FDB



Technical Data

| | |
|--|---|
| Max. allowable pressure PS | 45 bar |
| Test pressure PT | 47.3 bar |
| Liquid Temperature Refrigerant | -45...+65°C |
| Fluid Group | I + II |
| List of released refrigerants Fluid group II (A1): | R134a, R404A, R407C, R410A, R448A, R449A, R450A, R452A, R507, R513A |
| Fluid group I (A2L): | R32, R452B, R454B, R454A, R454C, R455A, R1234ze, R1234yf |
| <small>Note: Fluid group classification according to PED 2014/68/EU.</small> | |

| | |
|----------------|--|
| Material shell | Steel |
| Paint | Epoxy Powder paint |
| Connections | Solder Flare Copper, ODF Burnished, SAE |
| Protection | 500+ Hours salt spray test |
| Package | Individual packaged |
| Marking |  (A2L pending)  (acc. PED, V > 1 liter),  |

FDB Filter Drier

Selection table - A1 Refrigerants

| Type | Part No. | Connection ODF*/SAE* | Flow capacity (kW) pressure drop 0.07 bar** | | | | | | | | |
|----------|----------|-------------------------|---|-------|---------------|-------|-------|-------|-------|-------|-------|
| | | | R134a | R407C | R404A R507 | R410A | R448A | R449A | R450A | R452A | R513A |
| FDB-032 | 059305 | 1/4"(6 mm) SAE | 6.3 | 6.6 | 4.5 | 6.8 | 6.0 | 5.9 | 5.8 | 4.6 | 5.5 |
| FDB-032S | 059306 | 1/4" ODF | 9.7 | 10.1 | 6.9 | 10.5 | 9.2 | 9.1 | 8.9 | 7.0 | 8.5 |
| FDB-052 | 059307 | 1/4"(6 mm) SAE | 6.5 | 6.8 | 4.6 | 7.0 | 6.2 | 6.1 | 6.0 | 4.7 | 5.7 |
| FDB-052S | 059309 | 1/4" ODF | 9.7 | 10.1 | 6.9 | 10.5 | 9.2 | 9.1 | 8.9 | 7.0 | 8.5 |
| FDB-053 | 059308 | 3/8"(10 mm) SAE | 15.5 | 16.1 | 11.0 | 16.7 | 6.4 | 6.3 | 6.2 | 4.9 | 5.9 |
| FDB-053S | 059310 | 3/8" ODF | 19.3 | 20.1 | 13.8 | 20.8 | 9.4 | 9.2 | 9.1 | 7.1 | 8.6 |
| FDB-082 | 059311 | 1/4"(6 mm) SAE | 6.8 | 7.1 | 4.8 | 7.3 | 6.4 | 6.3 | 6.2 | 4.9 | 5.9 |
| FDB-082S | 059314 | 1/4" ODF | 9.9 | 10.3 | 7.0 | 10.7 | 14.7 | 14.4 | 14.2 | 11.2 | 13.5 |
| FDB-083 | 059312 | 3/8"(10 mm) SAE | 15.8 | 16.4 | 11.2 | 17.0 | 18.4 | 18.0 | 17.7 | 14.0 | 16.9 |
| FDB-083S | 059315 | 3/8" ODF | 19.8 | 20.6 | 14.1 | 21.3 | 15.0 | 14.7 | 14.4 | 11.4 | 13.8 |
| FDB-084 | 059313 | 1/2"(12 mm) SAE | 26.4 | 27.5 | 18.8 | 28.4 | 18.8 | 18.4 | 18.1 | 14.3 | 17.3 |
| FDB-084S | 059316 | 1/2" ODF | 28.3 | 29.5 | 20.1 | 30.5 | 15.4 | 15.1 | 14.9 | 11.7 | 14.2 |
| FDB-162 | 059317 | 1/4"(6 mm) SAE | 6.8 | 7.1 | 4.8 | 7.3 | 21.9 | 21.4 | 21.1 | 16.6 | 20.1 |
| FDB-163 | 059318 | 3/8"(10 mm) SAE | 16.2 | 16.9 | 11.5 | 17.5 | 17.2 | 16.8 | 16.5 | 13.0 | 15.8 |
| FDB-163S | 059321 | 3/8" ODF | 23.0 | 23.9 | 16.4 | 24.8 | 25.1 | 24.6 | 24.2 | 19.0 | 23.0 |
| FDB-164 | 059319 | 1/2"(12 mm) SAE | 27.9 | 29.1 | 19.9 | 30.1 | 26.9 | 26.4 | 25.9 | 20.4 | 24.7 |
| FDB-164S | 059322 | 1/2" ODF | 36.0 | 37.5 | 25.6 | 38.8 | 26.6 | 26.0 | 25.6 | 20.2 | 24.4 |
| FDB-165 | 059320 | 5/8"(16 mm) SAE | 36.6 | 38.2 | 26.1 | 39.5 | 34.2 | 33.6 | 33.0 | 26.0 | 31.4 |
| FDB-165S | 059323 | 5/8" ODF | 48.8 | 50.8 | 34.8 | 52.6 | 30.2 | 29.6 | 29.1 | 23.0 | 27.8 |
| FDB-303 | 059324 | 3/8"(10 mm) SAE | 18.0 | 18.8 | 12.8 | 19.4 | 36.2 | 35.4 | 34.8 | 27.4 | 33.2 |
| FDB-304 | 059325 | 1/2"(12 mm) SAE | 31.8 | 33.1 | 22.6 | 34.2 | 34.9 | 34.2 | 33.6 | 26.5 | 32.0 |
| FDB-304S | 003667 | 1/2" ODF | 38.0 | 39.6 | 27.1 | 41.0 | 46.4 | 45.5 | 44.7 | 35.3 | 42.6 |
| FDB-305 | 059326 | 5/8"(16 mm) SAE | 40.3 | 42.0 | 28.7 | 43.4 | 38.3 | 37.6 | 36.9 | 29.1 | 35.2 |
| FDB-305S | 059327 | 5/8" ODF | 53.8 | 56.0 | 38.3 | 57.9 | 51.2 | 50.1 | 49.3 | 38.8 | 47.0 |
| FDB-307S | 059328 | 7/8" ODF | 60.5 | 63.1 | 43.1 | 65.2 | 47.3 | 46.4 | 45.6 | 35.9 | 43.4 |
| FDB-415 | 059329 | 5/8"(16 mm) SAE | 49.7 | 51.8 | 35.4 | 53.6 | 57.6 | 56.5 | 55.5 | 43.7 | 52.9 |
| FDB-417S | 059330 | 7/8" ODF | 77.2 | 80.4 | 55.0 | 83.2 | 73.5 | 72.0 | 70.8 | 55.8 | 67.5 |

Note 1: Flow capacities are in accordance with ARI710-86 and DIN8949.

Note 2: *) SAE = Flare. ODF = Brazing female

Note 3: **) 0.14 bar pressure drop, multiply values by 1.4

Note 4: Product label update is pending!

Nominal Flow Capacities bases on following operating conditions:

| Refrigerant | Evaporating temperature | Liquid temperature | Flow rate kg/kW/sec. | Refrigerant | Evaporating temperature | Liquid temperature | Flow rate kg/kW/sec. |
|-------------|-------------------------|--------------------|----------------------|-------------|-------------------------|--------------------|----------------------|
| R134a | -15°C | +30°C | 0.0068 | R448A | -15°C | +30°C | 0.0061 |
| R407C | | | 0.0063 | R449A | | | 0.0061 |
| R404A/R50 | | | 0.0088 | R450A | | | 0.0074 |
| R410A | | | 0.0059 | R452A | | | 0.0086 |
| | | | | R513A | | | 0.0079 |

Note: For other operating conditions use the "Controls Navigator 4.1" selection tool.

FDB Filter Drier

Selection table - A2L Refrigerants

| Type | Part No. | Connection ODF*/SAE* | Flow capacity (kW) pressure drop 0.07 bar** | | | | | | | |
|----------|----------|-------------------------|---|-------|-------|-------|-------|-------|---------|---------|
| | | | R32 | R452B | R454B | R454A | R454C | R455A | R1234ze | R1234yf |
| FDB-032 | 059305 | 1/4"(6mm) SAE | 9.8 | 7.6 | 7.7 | 5.8 | 5.1 | 5.4 | 4.5 | 5.5 |
| FDB-032S | 059306 | 1/4" ODF | 15.0 | 11.7 | 11.8 | 9.0 | 7.8 | 8.3 | 7.0 | 8.5 |
| FDB-052 | 059307 | 1/4"(6mm) SAE | 10.1 | 7.9 | 7.9 | 6.0 | 5.3 | 5.6 | 4.7 | 5.7 |
| FDB-052S | 059309 | 1/4" ODF | 15.0 | 11.7 | 11.8 | 9.0 | 7.8 | 8.3 | 7.0 | 8.5 |
| FDB-053 | 059308 | 3/8"(10mm) SAE | 23.9 | 18.7 | 18.8 | 14.3 | 12.5 | 13.2 | 11.1 | 13.6 |
| FDB-053S | 059310 | 3/8" ODF | 29.9 | 23.4 | 23.5 | 17.8 | 15.6 | 16.5 | 13.9 | 16.9 |
| FDB-082 | 059311 | 1/4"(6mm) SAE | 10.5 | 8.2 | 8.2 | 6.3 | 5.5 | 8.5 | 4.9 | 5.9 |
| FDB-082S | 059314 | 1/4" ODF | 15.3 | 12.0 | 12.0 | 9.1 | 8.0 | 5.8 | 7.1 | 8.7 |
| FDB-083 | 059312 | 3/8"(10mm) SAE | 24.4 | 19.1 | 19.2 | 14.5 | 12.7 | 13.5 | 11.3 | 13.8 |
| FDB-083S | 059315 | 3/8" ODF | 30.6 | 23.9 | 24.1 | 18.3 | 16.0 | 16.9 | 14.2 | 17.3 |
| FDB-084 | 059313 | 1/2"(12mm) SAE | 40.8 | 31.9 | 32.1 | 24.3 | 21.3 | 22.6 | 19.0 | 23.1 |
| FDB-084S | 059316 | 1/2" ODF | 43.8 | 34.2 | 34.4 | 26.1 | 22.9 | 24.2 | 20.4 | 24.8 |
| FDB-162 | 059317 | 1/4"(6mm) SAE | 10.5 | 8.2 | 8.2 | 6.3 | 5.5 | 5.8 | 4.9 | 5.9 |
| FDB-163 | 059318 | 3/8"(10mm) SAE | 25.1 | 19.6 | 19.7 | 15.0 | 13.1 | 13.9 | 11.7 | 14.2 |
| FDB-163S | 059321 | 3/8" ODF | 35.5 | 27.8 | 28.0 | 21.2 | 18.6 | 19.7 | 16.5 | 20.1 |
| FDB-164 | 059319 | 1/2"(12mm) SAE | 43.2 | 33.8 | 34.0 | 25.8 | 22.6 | 23.9 | 20.1 | 24.5 |
| FDB-164S | 059322 | 1/2" ODF | 55.7 | 43.5 | 43.8 | 33.2 | 29.1 | 30.8 | 25.9 | 31.5 |
| FDB-165 | 059320 | 5/8"(16mm) SAE | 56.6 | 44.3 | 44.6 | 33.8 | 29.6 | 31.3 | 26.4 | 32.1 |
| FDB-165S | 059323 | 5/8" ODF | 75.5 | 59.0 | 59.4 | 45.1 | 39.4 | 41.8 | 35.1 | 42.8 |
| FDB-303 | 059324 | 3/8"(10mm) SAE | 27.9 | 21.8 | 21.9 | 16.7 | 14.6 | 15.4 | 13.0 | 15.8 |
| FDB-304 | 059325 | 1/2"(12mm) SAE | 49.1 | 38.4 | 38.7 | 29.3 | 25.7 | 27.2 | 22.9 | 27.8 |
| FDB-304S | 003667 | 1/2" ODF | 58.8 | 46.0 | 46.2 | 35.1 | 30.7 | 32.5 | 27.3 | 33.3 |
| FDB-305 | 059326 | 5/8"(16mm) SAE | 62.3 | 48.7 | 49.0 | 37.2 | 32.5 | 34.5 | 29.0 | 35.3 |
| FDB-305S | 059327 | 5/8" ODF | 83.1 | 65.0 | 65.4 | 49.6 | 43.4 | 46.0 | 38.7 | 47.1 |
| FDB-307S | 059328 | 7/8" ODF | 93.6 | 73.2 | 73.6 | 55.9 | 48.9 | 51.8 | 43.6 | 53.0 |
| FDB-415 | 059329 | 5/8"(16mm) SAE | 76.9 | 60.1 | 60.5 | 45.9 | 40.2 | 51.8 | 35.8 | 43.6 |
| FDB-417S | 059330 | 7/8" ODF | 119.4 | 93.4 | 93.9 | 71.3 | 62.3 | 66.0 | 55.6 | 67.6 |

Note 1: Flow capacities are in accordance with ARI710-86 and DIN8949.

Note 2: *) SAE = Flare. ODF = Brazing female

Note 3: **) 0.14 bar pressure drop, multiply values by 1.4

Note 4: Product label update is pending!

Nominal Flow Capacities bases on following operating conditions:

| Refrigerant | Evaporating temperature | Liquid temperature | Flow rate kg/kW/sec. | Refrigerant | Evaporating temperature | Liquid temperature | Flow rate kg/kW/sec. |
|-------------|-------------------------|--------------------|----------------------|-------------|-------------------------|--------------------|----------------------|
| R32 | -15°C | +30°C | 0.0039 | R454C | -15°C | +30°C | 0.0058 |
| R452B | | | 0.0043 | R455A | | | 0.0072 |
| R454B | | | 0.0047 | R1234ze | | | 0.0076 |
| R454A | | | 0.0061 | R1234yf | | | 0.0089 |

Note: For other operating conditions use the "Controls Navigator 4.1" selection tool.

FDB Filter Drier

Water and Acid Adsorption Capacity

A1 Refrigerants

| Type / Size | Water adsorption capacity (gram) | | | | | | | | | |
|-------------|----------------------------------|---------------|-------|-------|-------|-------------------------|----------------|-------|-------|-------|
| | Liquid Temperature 24°C | | | | | Liquid Temperature 52°C | | | | |
| | R134a | R404A R507 | R407C | R410A | R452A | R134a | R404A/ R507 | R407C | R410A | R452A |
| FDB-03... | 1.9 | 1.9 | 1.7 | 1.6 | 2.4 | 1.8 | 1.9 | 1.6 | 1.3 | 2.0 |
| FDB-05... | 5.5 | 5.5 | 5.0 | 4.4 | 6.5 | 5.2 | 5.3 | 4.5 | 3.3 | 5.5 |
| FDB-08... | 8.8 | 8.8 | 8.0 | 7.1 | 10.4 | 8.4 | 8.5 | 7.2 | 5.4 | 8.8 |
| FDB-16... | 17.7 | 17.6 | 15.9 | 14.2 | 20.7 | 16.8 | 17.1 | 14.5 | 10.8 | 17.5 |
| FDB-30... | 31.7 | 31.6 | 28.5 | 25.0 | 36.3 | 30.1 | 30.5 | 26.0 | 19.0 | 30.8 |
| FDB-41... | 44.2 | 44.1 | 39.9 | 35.0 | 50.9 | 42.1 | 42.7 | 36.3 | 26.6 | 43.2 |

| Type / Size | Water adsorption capacity (gram) | | | | | | | | | |
|-------------|----------------------------------|-------|-------|-------|--|-------------------------|-------|-------|-------|--|
| | Liquid Temperature 24°C | | | | | Liquid Temperature 52°C | | | | |
| | R448A | R449A | R450A | R513A | | R448A | R449A | R450A | R513A | |
| FDB-03... | 2.5 | 2.5 | 2.5 | 2.5 | | 2.3 | 2.3 | 2.3 | 2.3 | |
| FDB-05... | 6.8 | 6.8 | 6.9 | 6.9 | | 6.2 | 6.2 | 6.3 | 6.3 | |
| FDB-08... | 10.9 | 10.9 | 11.1 | 11.1 | | 9.9 | 9.9 | 10.1 | 10.1 | |
| FDB-16... | 21.6 | 21.6 | 22.0 | 22.0 | | 19.7 | 19.7 | 20.0 | 20.0 | |
| FDB-30... | 37.9 | 37.9 | 38.6 | 38.6 | | 34.6 | 34.6 | 35.2 | 35.2 | |
| FDB-41... | 53.2 | 53.2 | 54.2 | 54.2 | | 48.5 | 48.5 | 49.4 | 49.4 | |

A2L Refrigerants

| Type / Size | Water adsorption capacity (gram) | | | | | | | | | |
|-------------|----------------------------------|-------|-------------------------|-------|--------------------|-------------------------|-------|-------------------------|-------|--------------------|
| | Liquid Temperature 24°C | | | | | Liquid Temperature 52°C | | | | |
| | R32 | R452B | R454A R454B R454C | R455A | R1234ze R1234yf | R32 | R452B | R454A R454B R454C | R455A | R1234ze R1234yf |
| FDB-03... | 2.3 | 2.4 | 2.4 | 2.4 | 2.5 | 2.2 | 2.0 | 2.0 | 2.0 | 2.3 |
| FDB-05... | 6.3 | 6.5 | 6.5 | 6.5 | 6.9 | 5.9 | 5.5 | 5.5 | 5.5 | 6.3 |
| FDB-08... | 10.1 | 10.4 | 10.4 | 10.4 | 11.1 | 9.5 | 8.8 | 8.8 | 8.8 | 10.1 |
| FDB-16... | 20.1 | 20.7 | 20.7 | 20.7 | 22.0 | 18.8 | 17.5 | 17.5 | 17.5 | 20.0 |
| FDB-30... | 35.3 | 36.3 | 36.3 | 36.3 | 38.6 | 33.1 | 30.8 | 30.8 | 30.8 | 35.2 |
| FDB-41... | 49.5 | 50.9 | 50.9 | 50.9 | 54.2 | 46.4 | 43.2 | 43.2 | 43.2 | 49.4 |

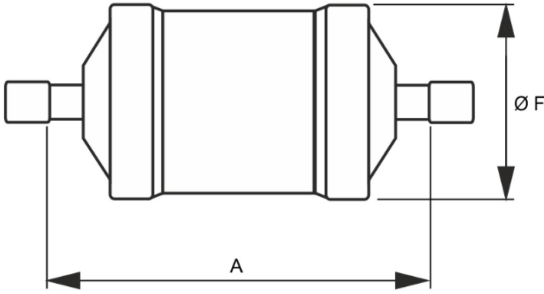
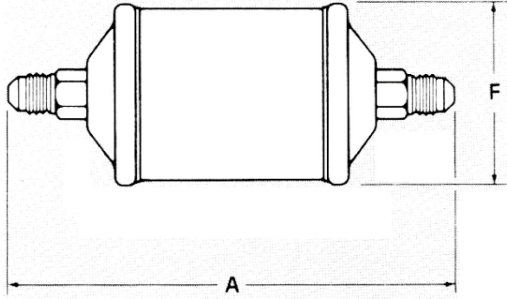
The water capacities are according to ARI-Standard 710 and DIN 8948.

| Refrigerant | EPD | Refrigerant | EPD | Refrigerant | EPD | Refrigerant | EPD |
|-------------|--------|-------------|--------|-------------|--------|-------------|--------|
| R134a | 50 ppm | R448A | 60 ppm | R32 | 50 ppm | R454C | 60 ppm |
| R407C | 50 ppm | R449A | 60 ppm | R452B | 60 ppm | R455A | 60 ppm |
| R404A/R507 | 50 ppm | R450A | 60 ppm | R454B | 60 ppm | R1234ze | 50 ppm |
| R410A | 50 ppm | R452A | 60 ppm | R454A | 60 ppm | R1234yf | 50 ppm |
| | | R513A | 60 ppm | | | | |

Note: EPD = End Point Dryness

FDB Filter Drier

Dimensions (mm)



| Type | Part No. | A (mm) | B (mm) | F (mm) | Connection | | | |
|----------|----------|-----------|-----------|-----------|-------------------------|--------|-----------------------|--------|
| | | | | | Brazing/ ODF (mm) | (Inch) | Flare/ SAE (mm) | (Inch) |
| FDB-032 | 059305 | 111 | - | 41 | - | - | 6 | 1/4" |
| FDB-032S | 059306 | 98 | 79 | 41 | - | 1/4" | - | - |
| FDB-052 | 059307 | 122 | - | 67 | - | - | 6 | 1/4" |
| FDB-052S | 059309 | 113 | 94 | 67 | - | 1/4" | - | - |
| FDB-053 | 059308 | 130 | - | 67 | - | - | 10 | 3/8" |
| FDB-053S | 059310 | 114 | 92 | 67 | - | 3/8" | - | - |
| FDB-082 | 059311 | 143 | - | 67 | - | - | 6 | 1/4" |
| FDB-082S | 059314 | 133 | 114 | 67 | - | 1/4" | - | - |
| FDB-083 | 059312 | 151 | - | 67 | - | - | 10 | 3/8" |
| FDB-083S | 059315 | 135 | 113 | 67 | - | 3/8" | - | - |
| FDB-084 | 059313 | 157 | - | 67 | - | - | 12 | 1/2" |
| FDB-084S | 059316 | 137 | 111 | 67 | - | 1/2" | - | - |
| FDB-162 | 059317 | 167 | - | 67 | - | - | 6 | 1/4" |
| FDB-163 | 059318 | 175 | - | 67 | - | - | 10 | 3/8" |
| FDB-163S | 059321 | 159 | 137 | 67 | - | 3/8" | - | - |
| FDB-164 | 059319 | 179 | - | 67 | - | - | 12 | 1/2" |
| FDB-164S | 059322 | 160 | 135 | 67 | - | 1/2" | - | - |
| FDB-165 | 059320 | 191 | - | 67 | - | - | 16 | 5/8" |
| FDB-165S | 059323 | 167 | 135 | 67 | - | 5/8" | - | - |
| FDB-303 | 059324 | 244 | - | 78 | - | - | 10 | 3/8" |
| FDB-304 | 059325 | 251 | - | 78 | - | - | 12 | 1/2" |
| FDB-304S | 003667 | 226 | 205 | 78 | - | 1/2" | - | - |
| FDB-305 | 059326 | 262 | - | 78 | - | - | 16 | 5/8" |
| FDB-305S | 059327 | 237 | 205 | 78 | - | 5/8" | - | - |
| FDB-307S | 059328 | 251 | 213 | 78 | - | 7/8" | - | - |
| FDB-415 | 059329 | 265 | - | 94 | - | - | 16 | 5/8" |
| FDB-417S | 059330 | 254 | 216 | 94 | - | 7/8" | - | - |

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