# *Filter driers series FDB hermetic design, bead style for liquid refrigerants*

## *Features*

- Compacted bead style (spring loaded)
- Optimum blend of molecular sieve and activated alumina combined with high filtration capacity
- Filtration first for more effective use of surface area of desiccant
- High water and acid capacity
- Cushioned flow for non-turbulent performance
- ODF Copper fittings for easy brazing
- Rugged steel shells
- Corrosion-resistant epoxy paint
- Temperature range TS: -40°C...+65°C
- Max. allowable pressure PS: 45 bar
- CE marking not required acc. PED
- c UL us LISTED Underwriter Laboratories

FDB

## *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:** ⁎⁎) for 0.14 bar pressure drop, multiple values by 1.4
**Note 3:** ⁎) SAE = Flare. ODF = Brazing female
**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) |
|---|---|---|---|
| R134a | -15°C | +30°C | 0.0068 |
| R407C | | | 0.0063 |
| R404A/R50 | | | 0.0088 |
| R410A | | | 0.0059 |

| Refrigerant | Evaporating Temperature | Liquid Temperature | Flow rate (kg/kW/sec) |
|---|---|---|---|
| R448A | -15°C | +30°C | 0.0061 |
| R449A | | | 0.0061 |
| R450A | | | 0.0074 |
| R452A | | | 0.0086 |

**Note:** For selection of other operating conditions please use Copeland Select software.

## *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"(6 mm) 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"(6 mm) 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"(10 mm) 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"(6 mm) 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"(10 mm) 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"(12 mm) 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"(6 mm) SAE | 10.5 | 8.2 | 8.2 | 6.3 | 5.5 | 5.8 | 4.9 | 5.9 |
| FDB-163 | 059318 | 3/8"(10 mm) 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"(12 mm) 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"(16 mm) 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"(10 mm) SAE | 27.9 | 21.8 | 21.9 | 16.7 | 14.6 | 15.4 | 13.0 | 15.8 |
| FDB-304 | 059325 | 1/2"(12 mm) 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"(16 mm) 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"(16 mm) 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:** **) for 0.14 bar pressure drop, multiple 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) |
|---|---|---|---|
| R32 | -15°C | +30°C | 0.0039 |
| R452B | | | 0.0043 |
| R454B | | | 0.0047 |
| R454A | | | 0.0061 |

| Refrigerant | Evaporating Temperature | Liquid Temperature | Flow rate (kg/kW/sec) |
|---|---|---|---|
| R454C | -15°C | +30°C | 0.0058 |
| R455A | | | 0.0072 |
| R1234ze | | | 0.0076 |
| R1234yf | | | 0.0089 |

**Note:** For selection of other operating conditions please use Copeland Select software.

# *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 | | 1.8 | 1.9 | 1.6 | 1.3 | |
| FDB-05... | 5.5 | 5.5 | 5.0 | 4.4 | | 5.2 | 5.3 | 4.5 | 3.3 | |
| FDB-08... | 8.8 | 8.8 | 8.0 | 7.1 | | 8.4 | 8.5 | 7.2 | 5.4 | |
| FDB-16... | 17.7 | 17.6 | 15.9 | 14.2 | | 16.8 | 17.1 | 14.5 | 10.8 | |
| FDB-30... | 31.7 | 31.6 | 28.5 | 25.0 | | 30.1 | 30.5 | 26.0 | 19.0 | |
| FDB-41... | 44.2 | 44.1 | 39.9 | 35.0 | | 42.1 | 42.7 | 36.3 | 26.6 | |

| Type / Size | Water Adsorption Capacity (gram) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Liquid Temperature 25°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 |

## *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<br>Fluid group II (A1):<br><br>Fluid group I (A2L):<br><br>Note: Fluid group classification according to PED 2014/68/EU. | R134a, R404A, R407C, R410A, R448A, R449A, R450A, R452A, R507, R513A<br><br>R32, R452B, R454B, R454A, R454C, R455A, R1234ze, R1234yf |

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