# Danfoss Heat Pumps UK

## Danfoss Heat Pump
### DHP-AL Opti

Air/water heat pump with optimised speed control to increase savings.

Danfoss DHP-AL Opti is an air/water heat pump that uses new innovative technology to operate at the highest possible annual efficiency, meaning you can save more on fuel bills and $CO_2$ emissions.

The new Opti technology incorporates an intelligent control system that via speed controlled circulation pumps ensures that the performance is always adjusted to the prevailing requirements and conditions of the heating system. This makes the heat pump always work under the most ideal conditions available, guaranteeing maximum efficiency, second by second, hour by hour.

DHP-AL Opti has a separate hot water tank, ideal if you have a low ceiling. The tank incorporates our patented TWS* technology, which produces hot water faster and at higher temperatures than with traditional technologies. This heat pump operates at a low sound levels and it can be controlled and monitored via the Internet.

* Tap Water Stratificator, our patented technology developed to stratify hot water in a tank to ensure that heat is used optimally.

kiwa approved product

UK BUILDING REGULATIONS

APPROVED PRODUCT

MCS

BRE GLOBAL LISTED

Kiwa applies to single phase models only

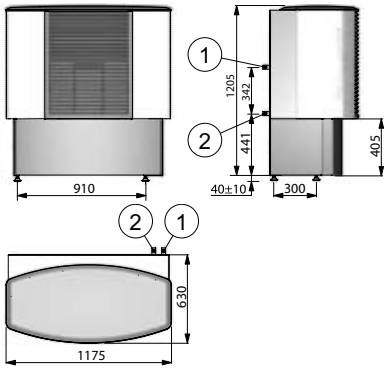
DANFOSS HEAT PUMPS

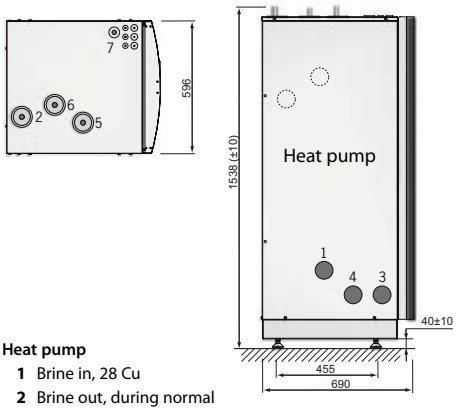
# DANFOSS DHP-AL OPTI

**Connection**

The brine lines can be connected on either the left or right-hand sides of the heat pump.

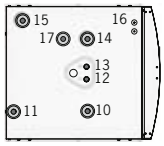
**1** Brine in, 28 Cu
**2** Brine out, 28 Cu




**Heat pump**

**1** Brine in, 28 Cu
**2** Brine out, during normal operation, 28 Cu
**3** Brine out, during defrosting to hwh pos 8, 28 Cu
**4** Return pipe from water heater pos 9, 28 Cu
**5** Heating system supply line, 22 Cu: 6-10 kW, 28 Cu: 12 kW
**6** Heating system return line, 22 Cu: 6-10 kW, 28 Cu: 12 kW
**7** Lead-in power and sensor lead





**Water tank**

**8** Connection for brine out when defrosting from pos 3
**9** Water tank, return pipe to pos 4
**10** Bleed valve, at stainless steel water heater
**11** Brine out during defrosting, 28 Cu
**12** Domestic hot water, 22 Brass
**13** Cold water, 22 Brass
**14** Supply to water tank coil
**15** Brine, expansion outlet when outdoor unit is positioned at high level
**16** Lead-in sensor lead
**17** Temperature and pressure valve

| DHP-AL Opti | | | 6 | 8 | 10 | 12 |
|---|---|---|---|---|---|---|
| **Refrigerant** | Type | | R404A | R404A | R404A | R404A |
| | Amount | kg | 0.95 | 1.45 | 1.50 | 1.60 |
| **Compressor** | Type | | Scroll | Scroll | Scroll | Scroll |
| **Electrical data 3-N ~50Hz** | Main supply | Volt | 400 | 400 | 400 | 400 |
| | Rated power compressor | kW | 2.0 | 2.3 | 3.6 | 4.4 |
| | Rated power circulation pumps/fan | W | 0.4 | 0.4 | 0.5 | 0.6 |
| | Auxiliary heater, 5 steps | kW | 3/6/9/12/15 | 3/6/9/12/15 | 3/6/9/12/15 | 3/6/9/12/15 |
| | Start current per phase | A | 12 | 10 | 18 | 17 |
| | Circuit breaker | A | 10[3]/16[4]/20[5]/20[6]/ 25[7]/25[8]/30[9] | 16[3]/16[4]/20[5]/20[6]/ 25[7]/25[8]/30[9] | 16[3]/16[4]/20[5]/20[6]/ 25[7]/30[8]/35[9] | 16[3]/20[4]/25[5]/25[6]/ 25[7]/30[8]/35[9] |
| **Electrical data 1-N ~50Hz** | Main supply | Volt | 230 | 230 | 230 | 230 |
| | Rated power compressor | kW | 3.3 | 4.2 | 5.4 | 5.7 |
| | Rated power circulation pumps/fan | W | 0.4 | 0.4 | 0.5 | 0.6 |
| | Auxiliary heater, 3 steps | kW | 1.5/3/4.5 | 1.5/3/4.5 | 1.5/3/4.5 | 1.5/3/4.5 |
| | Start current - soft start | A | 11 | 21 | 26 | 28 |
| | Circuit breaker | A | 25[3]/32[4]/40[5] | 25[3]/32[4]/40[5] | 32[3]/40[4]/50[5] | 32[3]/40[4]/50[5] |
| **Performance** | COP[1] | | 3.88 | 4.06 | 4.21 | 4.06 |
| | COP[2] | | 3.26 | 3.45 | 3.29 | 3.35 |
| | Heating capacity[2] | kW | 5.90 | 7.96 | 9.85 | 11.3 |
| | Power input[2] | kW | 1.8 | 2.3 | 3.0 | 3.4 |
| **Lowest outdoor temperature allowed for compressor start** | | °C | –20 | –20 | –20 | –20 |
| **Max/min temperature** | Cooling circuit | °C | 20/–25 | 20/–25 | 20/–25 | 20/–25 |
| | Heating circuit | °C | 55/20 | 55/20 | 55/20 | 55/20 |
| **Water volume** | Water heater | l | 180 | 180 | 180 | 180 |
| **Anti freeze media[10]** | | | | Ethylene glycol + water solution to -32°C +/- 1°C | | |
| **Indoor unit** | Dimensions LxWxH | mm | 690x596x1538 | 690x596x1538 | 690x596x1538 | 690x596x1538 |
| | Weight | kg | 154 | 154 | 154 | 162 |
| | Sound power level[11] | dB(A) | 42.5 | 47.7 | 45.5 | 48.1 |
| **Water heater unit** | Dimensions LxWxH | mm | 690x596x1538 | 690x596x1538 | 690x596x1538 | 690x596x1538 |
| | Weight empty | kg | 172 | 172 | 172 | 172 |
| | Weight filled | kg | 352 | 352 | 352 | 352 |
| **Outdoor unit** | Dimensions LxWxH | mm | 630x1175x1245 | 630x1175x1245 | 630x1175x1245 | 630x1175x1245 |
| | Weight | kg | 94 | 94 | 94 | 94 |
| | Sound power level, low/high[12] | dB(A) | 53/63 | 53/63 | 54/67 | 54/67 |
| **Max pipe/cable length between indoor & outdoor units** | | m | 60 (30 + 30) | 60 (30 + 30) | 60 (30 + 30) | 60 (30 + 30) |

The measurements are performed on a limited number of heat pumps which can cause variations in the results. Tolerances in the measuring methods can also cause variations.

1) At A7W35 Δ10 warm side (excluding circulation pumps and outdoor unit).
2) At A7W35 according to EN 14511 (including circulation pumps and outdoor unit).
3) Heat pump with 3 kW auxiliary heater (1-N 1.5 kW).
4) Heat pump with 6 kW auxiliary heater (1-N 3 kW).
5) Heat pump with 9 kW auxiliary heater (1-N 4.5 kW).
6) 12 kW auxiliary heater (compressor off).
7) 15 kW auxiliary heater (compressor off).
8) Heat pump with 12 kW auxiliary heater.
9) Heat pump with 15 kW auxiliary heater.
10) Propylene glycol or ethanol may not be used.
11) Sound power level measured according to EN ISO 3741 at A7W45 (EN 12102).
12) Sound power level measured according to EN ISO 3741.

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