

Technical description

Thermia Legend



Thermia AB is not liable or bound by warranty if these instructions are not adhered to during installation or service.

The English language is used for the original instructions.
Other languages are a translation of the original instructions.
(Directive 2006/42/EC)

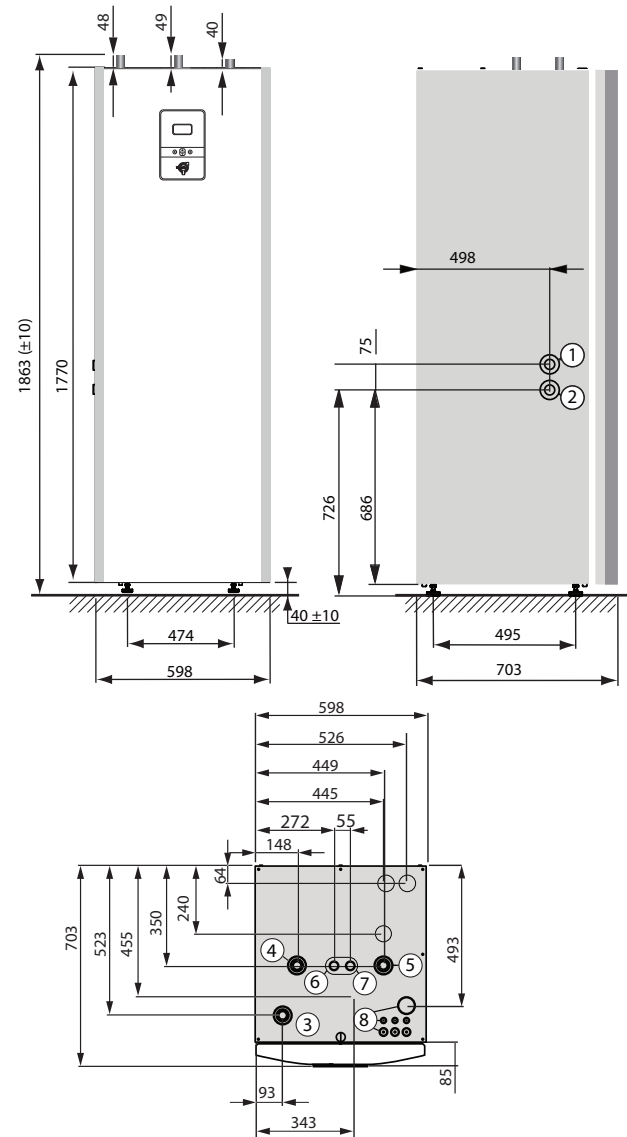
© Copyright Thermia AB

Table of Contents

| | | |
|----------|---|-----------|
| 1 | Heat pump dimensions and connections | 4 |
| 1.1 | Legend | 4 |
| 1.2 | Legend Duo | 5 |
| 2 | Technical data Thermia Legend | 6 |
| 2.1 | Technical data, Thermia Legend 4, 6, 8, 10, 13, 17 | 6 |
| 3 | Heating capacity | 8 |
| 3.1 | Supply line temperature 35° | 8 |
| 3.2 | Supply line temperature 55° | 9 |
| 4 | Calculated maximum external available pressure for brine circuit | 10 |
| 4.1 | Calculated maximum external available pressure for brine circuit | 10 |

1 Heat pump dimensions and connections

1.1 Legend

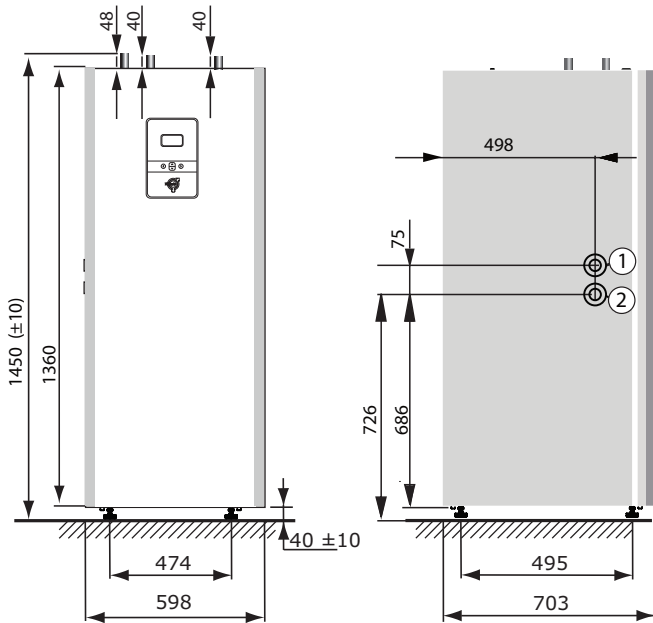


- 1 Brine in, 28 mm (left or right)
- 2 Brine out, 28 mm (left or right)
- 3 Heating system supply, 22 mm
- 4 Heating system return, 22 mm
- 5 Connection for bleed valve, 22 mm
- 6 Hot water line, 22 mm
- 7 Cold water line, 22 mm
- 8 Lead-in for power supply, sensor and communication cables

The brine lines (1) and (2) can be connected on either the left or right-hand sides or to the two knock out holes on the top. All piping connections are copper or stainless (hot water) pipe connections, unless other is stated.

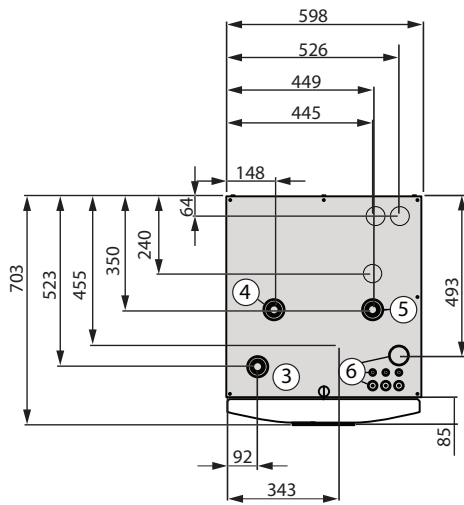
Technical description Thermia Legend

1.2 Legend Duo



- 1 Brine in, 28 mm (left or right)
- 2 Brine out, 28 mm (left or right)
- 3 Heating system supply, 22 mm (4-10kW) , 28mm (13-17kW)
- 4 Heating system and hot water tank return, 22 mm (6-10kW) , 28mm (13-17kW)
- 5 Heating supply to hot water tank, 22 mm
- 6 Lead-in for power supply, sensor and communication cables

The brine lines (1) and (2) can be connected on either the left or right-hand side or to the two knock out holes on the top.
 All piping connections are copper or stainless (hot water) pipe connections, unless other is stated.



Technical description Thermia Legend

2 Technical data Thermia Legend

2.1 Technical data, Thermia Legend 4, 6, 8, 10, 13, 17

| Legend | Unit | 4kW | 6kW | 8kW | 10kW | 13kW | 17kW | | |
|-----------------------------------|--|---------|------------------|------------------|------------------|------------------|------------------|------------------|--|
| Refrigerant | Type | R452B | | | | | | | |
| | Amount ¹ Alternative amount* ¹⁴ | kg | 0,575/ 0,650* | 0,575/ 0,650* | 0,850/ 0,925* | 0,900/ 1,075* | 1,000/ 1,400* | 1,250/ 1,700* | |
| | GWP | 698 | | | | | | | |
| | CO ² equivalent ¹⁴ | tons | 0,401/ 0,454* | 0,401/ 0,454* | 0,593/ 0,646* | 0,628/ 0,750* | 0,698/ 0,977* | 0,873/ 1,187* | |
| | Design pressure | Bar (g) | 45 | | | | | | |
| Compressor | Type | Scroll | | | | | | | |
| | Oil | POE | | | | | | | |
| Electrical data, 400V, ~3N | Mains power supply | Volt | 400V~3N | | | | | | |
| | Max working power, compressor | kW | 2,1 | 2,4 | 3,0 | 4,1 | 5,1 | 1,7 | |
| | Rated power, circulation pumps | kW | 0,15 | 0,15 | 0,15 | 0,2 | 0,25 | 0,3 | |
| | Immersion heater, 3 steps | kW | (0)/3/6/9 | | | | | | |
| | Fuses, combined ² | A | 10/13/20 | 10/16/20 | 13/16/20 | 13/16/20 | 16/20/25 | 20/25/32 | |
| | Fuse separate supply, compressor only | A | 6 | 6 | 10 | 10 | 13 | 16 | |
| | Fuse separate supply, immersion heater only | A | 6/10/16 | | | | | | |
| | Starting current | A | 8 | 9 | 10 | 11 | 20 | 30 | |
| Electrical data, 230V, ~1N | Mains power supply | Volt | 230V~1N | | | | | | |
| | Max working power, compressor | kW | | | 3,0 | 4,1 | | | |
| | Rated power, circulation pumps | kW | | | 0,15 | 0,2 | | | |
| | Immersion heater, 3 steps | kW | (0)/2/4/6 | | | | | | |
| | Fuses, combined ² | A | | | 25/32/40 | 32/40/50 0 | | | |
| | Fuse separate supply, compressor only | A | | | 16 | 20 | | | |
| | Fuse separate supply, immersion heater only | A | 10/20/30 | | | | | | |
| | Starting current | A | | | 24 | 30 | | | |
| Performance | SCOP, floor heating (35°C) ³ | | 4,72 | 4,87 | 5,10 | 5,24 | 5,09 | 4,92 | |
| | SCOP, radiator heating (55°C) ³ | | 3,41 | 3,65 | 3,74 | 3,94 | 3,83 | 3,80 | |
| | COP ⁵ | | 4,30 | 4,40 | 4,62 | 4,76 | 4,52 | 4,43 | |
| Energy class-system ⁶ | Floor heating (35°C) | | A+++ | | | | | | |
| | Radiator heating (55°C) | | A++ | | | | | | |
| Energy class-product ⁷ | Floor heating (35°C) | | A+++ | | | | | | |
| | Radiator heating (55°C) | | A++ | | | | | | |
| | Hot water ⁸ | | A | | | | | | |
| Max/Min temperature | Brine | °C | 25/-10 | | | | | | |
| | Heating | °C | 60/20 | | | | | | |
| Max pressure | Brine | bar(g) | 3 | | | | | | |
| | Heating | bar(g) | 3 | | | | | | |
| Anti freeze type ⁹ | Ethanol + water solution -17°C ± 2 | | | | | | | | |

Technical description Thermia Legend

| | | | | | | | | |
|-------------------------------------|-------------------------------------|--------|--------------------|-----------------------|-----------------------|-----------------------|-------------------------|----------------------|
| Pressure limits refrigerant circuit | Low pressure | bar(g) | 3,5 | | | | | |
| | Operating pressure | bar(g) | 39 | | | | | |
| | High pressure | bar(g) | 45 | | | | | |
| Sound power level | Thermia Legend | dB(A) | 40 ¹⁰ | 40 ¹⁰ | 41 ¹⁰ | 41 ¹⁰ | n/a | n/a |
| | | | 41 ¹¹ | 42 ¹¹ | 42 ¹¹ | 42 ¹¹ | | |
| | Thermia Legend Duo | dB(A) | n/a | 42 ¹⁰ | 42 ¹⁰ | 42 ¹⁰ | 45 ¹⁰ | 45 ¹⁰ |
| | | | | 44 ¹¹ | 44 ¹¹ | 44 ¹¹ | 46 ¹¹ | 46 ¹¹ |
| Hot water performance | Volume 40°C hot water ¹² | l | 250 | 250 | 230 | 240 | 240/385 ¹³ | -/390 ¹³ |
| | COP, hot water ⁸ | | 2,56 | 2,98 | 2,55 | 2,53 | 2,19/2,09 ¹³ | -/2,08 ¹³ |
| Hot water tank, size | Thermia Legend | l | 184 | 184 | 184 | 184 | n/a | n/a |
| Hot water tank, size | Thermia Legend Duo | l | n/a | 184/296 ¹³ | 184/296 ¹³ | 184/296 ¹³ | 184/296 ¹³ | -/296 ¹³ |
| Water mains | | bar(g) | 10 | | | | | |
| Weight | Thermia Legend, empty | kg | 146 | 148 | 165 | 170 | 135 | 140 |
| | Thermia Legend, filled | kg | 336 | 338 | 355 | 360 | n/a | n/a |
| Dimensions (WxDxH) | Thermia Legend | mm | 598x703x1863 +/-10 | | | | | |
| Dimensions (WxDxH) | Thermia Legend Duo | mm | 598x703x1450 +/-10 | | | | | |

1) The refrigerant circuit is hermetically sealed and contains refrigerants covered by the F-gas regulation. GWP for R452B according to EC 517/2014 is 698.

2) The minimum recommended fuse size depends on the limitation of the electrical immersion heater in combination with the compressor. The maximum permissible power for immersion heater can also be set differently with and without compressor for further adjustment at low fuses. 400V versions: The power supply for the auxiliary heater and the compressor are powered by L1, L2 and L3. Control and circulation pumps are operated with L1. Meets IEC61000-3-12 at Ssc. 230V versions: The feeding for auxiliary heater and compressor can be physically separated.

3) SCOP according to EN14825, cold climate (Helsinki).

4) SCOP according to EN14825, average climate (Strasbourg).

5) At B0/W35, according to EN14511.

6) When the heat pump is installed in a heating system that is controlled via the heat pump's control computer. According to EU regulation 811/2013.

7) When the heat pump is not connected to a heating system, and the function of the built-in control computer is not taken into account. According to EU regulation 811/2013.

8) Hot water performance according to EN16147, COP according to XL cycle.

9) Local regulations and regulations must always be checked before antifreeze agents are used.

10) Sound power level measured according to EN12102 and EN 3741 B0/W35.

11) Sound power level according to energy labelling, measured according to EN12102 and EN3741 (B0W55).

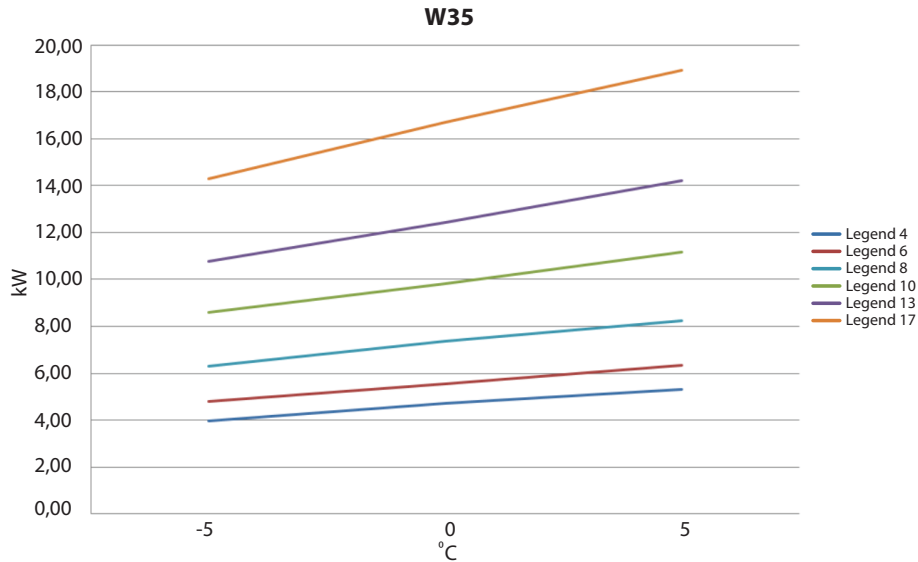
12) Hot water performance according to EN16147, V40 according to XL cycle.

13) MBH 200/MBH 300.

14) Legend can be produced with different heat exchanger's that give different filling amounts & CO2 equivalents. For example, in the case of a borehole application, we recommend that the higher quantity be specified. For more information, see information on and next to the type plate on each and every product.

3 Heating capacity

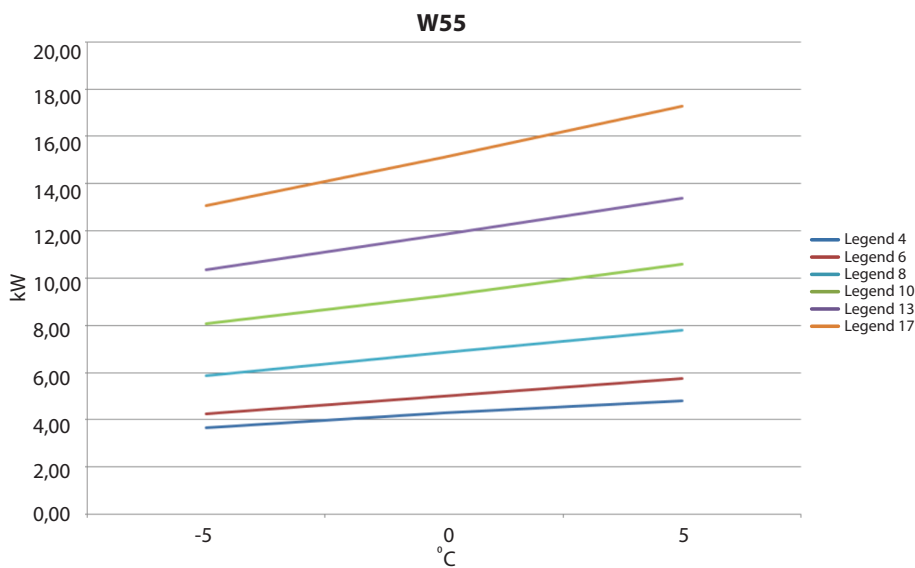
3.1 Supply line temperature 35°



| Legend | Brine temp. | -5 | 0 | +5 |
|--------|-----------------------|------|------|------|
| 4 | Heating capacity (kW) | 4,0 | 4,7 | 5,3 |
| | Input power (kW) | 1,1 | 1,1 | 1,1 |
| | COP | 3,6 | 4,3 | 4,9 |
| 6 | Heating capacity (kW) | 4,8 | 5,6 | 6,3 |
| | Input power (kW) | 1,3 | 1,3 | 1,3 |
| | COP | 3,8 | 4,4 | 5,1 |
| 8 | Heating capacity (kW) | 6,3 | 7,4 | 8,3 |
| | Input power (kW) | 1,6 | 1,6 | 1,6 |
| | COP | 3,9 | 4,6 | 5,2 |
| 10 | Heating capacity (kW) | 8,6 | 9,8 | 11,2 |
| | Input power (kW) | 2,1 | 2,1 | 2,1 |
| | COP | 4,1 | 4,8 | 5,4 |
| 13 | Heating capacity (kW) | 10,8 | 12,4 | 14,2 |
| | Input power (kW) | 2,8 | 2,8 | 2,7 |
| | COP | 3,9 | 4,5 | 5,2 |
| 17 | Heating capacity (kW) | 14,3 | 16,7 | 18,9 |
| | Input power (kW) | 3,8 | 3,8 | 3,8 |
| | COP | 3,8 | 4,4 | 4,9 |

Technical description Thermia Legend

3.2 Supply line temperature 55°



| Legend | Brine temp. | -5 | 0 | +5 |
|--------|-----------------------|------|------|------|
| 4 | Heating capacity (kW) | 3,7 | 4,3 | 4,8 |
| | Input power (kW) | 1,6 | 1,6 | 1,6 |
| | COP | 2,4 | 2,7 | 3,1 |
| 6 | Heating capacity (kW) | 4,3 | 5,0 | 5,8 |
| | Input power (kW) | 1,8 | 1,8 | 1,8 |
| | COP | 2,4 | 2,8 | 3,2 |
| 8 | Heating capacity (kW) | 5,9 | 6,8 | 7,8 |
| | Input power (kW) | 2,5 | 2,4 | 2,4 |
| | COP | 2,3 | 2,8 | 3,2 |
| 10 | Heating capacity (kW) | 8,1 | 9,3 | 10,6 |
| | Input power (kW) | 3,0 | 3,0 | 3,1 |
| | COP | 2,7 | 3,1 | 3,5 |
| 13 | Heating capacity (kW) | 10,3 | 11,9 | 13,4 |
| | Input power (kW) | 3,9 | 3,9 | 4,0 |
| | COP | 2,7 | 3,0 | 3,4 |
| 17 | Heating capacity (kW) | 13,1 | 15,1 | 17,3 |
| | Input power (kW) | 5,2 | 5,3 | 5,3 |
| | COP | 2,5 | 2,9 | 3,2 |

4 Calculated maximum external available pressure for brine circuit

4.1 Calculated maximum external available pressure for brine circuit

| Calculated maximum external available pressure for brine circuit | | | | | | | | |
|--|-----------------------|-----|---------------|-----|--------------------------|-----|---------------|-----|
| | Floor heating (B0W35) | | | | Radiator heating (B0W55) | | | |
| | $\Delta T=3K$ | | $\Delta T=4K$ | | $\Delta T=3K$ | | $\Delta T=4K$ | |
| | l/s | kPa | l/s | kPa | l/s | kPa | l/s | kPa |
| Legend 4 | 0,30 | 65 | 0,23 | 71 | 0,23 | 74 | 0,17 | 77 |
| Legend 6 | 0,33 | 71 | 0,25 | 75 | 0,27 | 77 | 0,20 | 80 |
| Legend 8 | 0,44 | 45 | 0,33 | 52 | 0,37 | 57 | 0,27 | 62 |
| Legend 10 | 0,63 | 59 | 0,48 | 73 | 0,52 | 75 | 0,39 | 86 |
| Legend 13 | 0,81 | 49 | 0,61 | 62 | 0,65 | 69 | 0,49 | 78 |
| Legend 17 | 1,09 | 44 | 0,82 | 61 | 0,80 | 82 | 0,60 | 92 |

Calculated with 30% ethanol/water mixture.



Technical description

Thermia Legend

Thermia AB
Box 950
SE 671 29 ARVIKA
Phone +46 570 81300
E-mail: info@thermia.com
Internet: www.thermia.com

Thermia can accept no responsibility for possible errors in catalogues, brochures and other printed material. Thermia reserves the right to alter its products without notice. This also applies to products already on order provided that such alterations can be made without subsequential changes being necessary in specifications already agreed. All trademarks in this material are property of the respective companies. Thermia AB and the Thermia AB logotype are trademarks of Thermia AB. All rights reserved.
