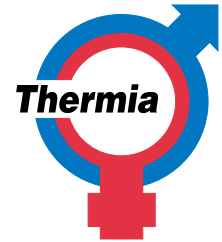


# Thermia Robust



Robust

## Major savings for larger buildings.

The **Thermia Robust** is the ideal heat pump for larger buildings such as apartment blocks, industrial and commercial buildings, schools, shops, etc. This easy-to-manage, reliable system requires a minimum of attention. The high annual efficiency, which is a measurement of the heat pump's efficiency over the whole year, means that you can reduce your heating costs drastically.

The powerful control system is simple to use yet delivers maximum energy savings. You can access all operating logs in the integrated web server – performance optimisation has never been this simple.

Your Thermia Robust can be easily upgraded to produce cooling too. This gives you a complete comfort system that provides a pleasant indoor climate all year round without the need for a separate cooler.

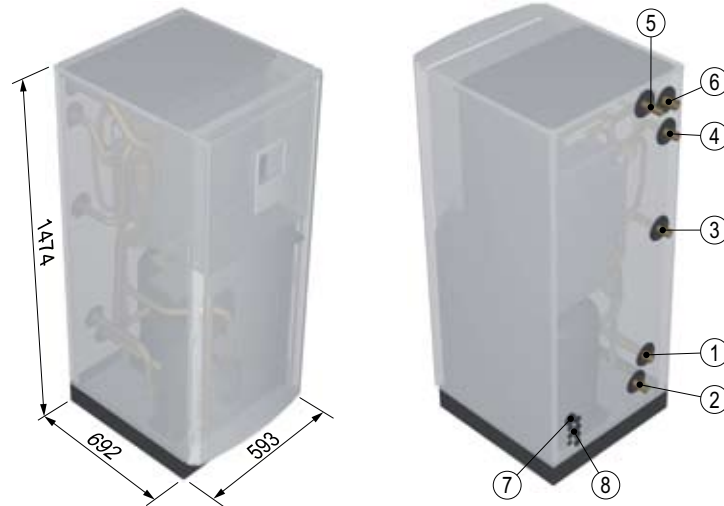
The pump utilises rock, surface ground, ground water, lake water or recycled exhaust air as its heat sources.



# Technical data Robust

## Connection

- 1 Coolant out (from HP)
- 2 Coolant out (from HP)
- 3 Return line hot-gas exchanger
- 4 Supply line hot-gas exchanger
- 5 Heat supply (supply line)
- 6 Coolant in (to HP)
- 7 Lead-in for communication cable
- 8 Lead-in for incoming power supply and sensors



Robust			20	26	35	42	21H	25H
<b>Refrigerant</b>	Type		R407C	R407C	R407C	R407C	R134a	R134a
	Amount	kg	3.4	3.5	3.6	4.2	2.7	2.9
	Test pressure	MPa	3.4	3.4	3.4	3.4	3.4	3.4
	Design pressure	MPa	2.95	2.95	2.95	2.95	2.45	2.45
<b>Compressor</b>	Type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
	Oil		POE	POE	POE	POE	POE	POE
<b>Electrical data 3-N,-50Hz</b>	Main supply	Volt	400	400	400	400	400	400
	Rated power, compressor	kW	8.8	11.8	15.7	19.9	15.7	19.9
	Rated power, circulation pumps	kW	0.9	0.9	1.5	1.5	0.9	0.9
	Start current	A	22	24	27	38	27	38
	Fuse	A	25	25	35	35	35	35
<b>Performance<sup>2</sup></b>	Heating capacity <sup>1</sup>	kW	18.2	24.5	32.8	38.4	20.2	24.2
	COP <sup>1</sup>		3.73	3.70	3.81	3.53	3.74	3.71
	Heating capacity <sup>2</sup>	kW	17.6	23.2	30.3	36.8	20.1	23.9
	COP <sup>2</sup>		3.09	3.03	3.11	2.91	3.22	3.18
	Power input <sup>1</sup>	kW	4.9	6.6	8.6	10.9	5.4	6.5
<b>Nominal flow<sup>3</sup></b>	Cooling circuit <sup>4</sup>	l/s	1.2	1.6	2.2	2.4	1.2	1.5
	Heating circuit	l/s	0.5	0.6	0.8	1.0	0.5	0.6
<b>External available pressure<sup>5</sup></b>	Cooling circuit	kPa	133	162	130	127	129	96
	Heating circuit	kPa	63	54	47	48	62	60
<b>Internal pressure drop</b>	Condenser		5	9	11	4	6	4
	Evaporator		37	50	58	53	41	49
	De-superheater		0.4	0.5	0.8	1.3	0.4	0.5
<b>Pressure switches</b>	Low pressure	MPa	0.08	0.08	0.08	0.08	0.03	0.03
	Operating		2.65	2.65	2.65	2.65	2.00	2.00
	High pressure	MPa	2.95	2.95	2.95	2.95	2.45	2.45
<b>Min/max temperature<sup>8</sup></b>	Cooling circuit	°C	20/-10	20/-10	20/-10	20/-10	20/-10	20/-10
	Heating circuit	°C	60/20	60/20	60/20	60/20	70/20	70/20
<b>Sound power level<sup>6</sup></b>	dB (A)		55	58	61	61	64	63
<b>Number of units</b>			1	1	1	1	1	1
<b>Water volume</b>	Condenser	l	5.4	5.4	6.0	6.7	4.9	5.4
	Evaporator	l	3.4	3.8	5.6	5.1	2.9	3.2
	De-superheater	l	0.6	0.6	0.6	0.6	0.6	0.6
<b>Weight</b>	kg		297	300	312	330	314	314

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 BOW35 according to EN14511 (including circulation pumps).
- 2) At BOW45 according to EN14511 (including circulation pumps).
- 3) Nominal flow: heating circuit Δ10K, cooling circuit Δ3K.
- 4) Anti-freeze in cooling circuit: Ethanol-water.
- 5) At nominal flow.

- 6) Sound power level measured according to EN ISO 3741 at BOW45 (EN 12102).
- 7) The values apply to a new heat pump with clean exchangers.
- 8) Please note that not all cooling circuit temperatures and heating circuit temperatures can be combined.