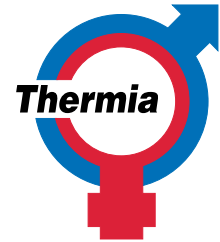


Thermia Robust



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.

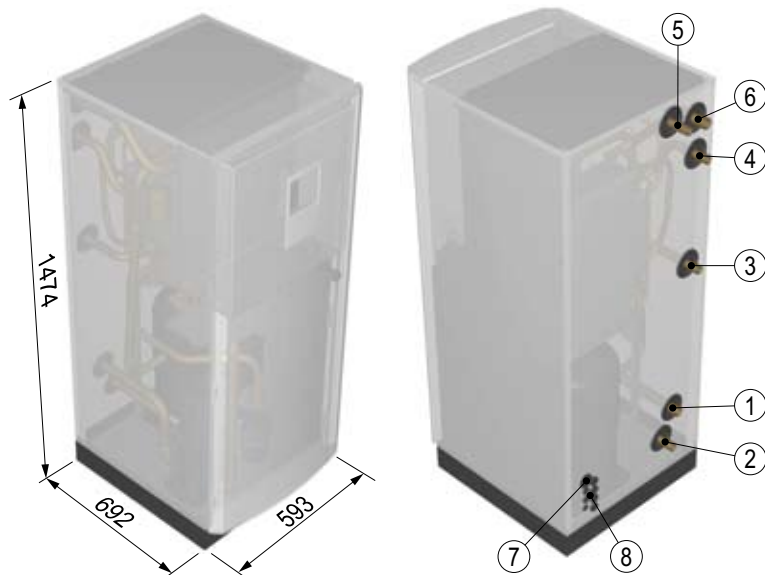
The pump utilises rock, surface ground, ground water, lake water and recycled exhaust air as its heat sources.



Technical data Thermia Robust

Connection

1. Coolant out (from HP)
2. Heat return (return line)
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



Heat pump, Robust			21H	25H	20	26	35	42
Refrigerant	Type		R134a	R134a	R407C	R407C	R407C	R407C
	Amount	kg	2,7	2,9	3,4	3,5	3,6	4,4
	Test pressure	MPa	3,2	3,2	3,2	3,2	3,2	3,2
Compressor	Type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
	Oil		POE	POE	POE	POE	POE	POE
Electrical connection 3-N	Rated power	kW	10,2	12,8	8,6	11,7	14,2	17,9
	Electrical connection	Volt	400 3N-50Hz	400 3N-50Hz	400 3N-50Hz	400 3N-50Hz	400 3N-50Hz	400 3N-50Hz
	Start current	A	167	198	99	127	167	198
	Start current, soft starter	A	96	106	69	82	96	106
	Fuse	A	25	25	25	25	35	35
Performance	Output capacity ¹⁾	kW	20	24	18	23	30	37
	Heat factor ¹⁾	COP	3,1	3,2	3,1	3,1	3,1	2,9
Nominal flow ²⁾	Coolant ³⁾	l/s	1,2	1,5	1,2	1,6	2,2	2,4
	Heat transfer fluid	l/s	0,5	0,6	0,5	0,6	0,8	1,0
External available pressure ⁴⁾	Coolant Heat transfer fluid	kPa	106	63	117	155	125	115
	Heat transfer fluid	kPa	57	54	60	51	47	40
Internal pressure drop	Condenser	kPa	5,6	6,6	4,7	8,9	10	12
	Evaporator	kPa	41,2	56	36,2	50,7	56,5	60
	De-superheater	kPa	0,35	0,47	0,36	0,49	0,84	1,26
Max/Min temperature	Brine	°C	20/-10	20/-10	20/-10	20/-10	20/-10	20/-10
	Heat transfer fluid	°C	70/20	70/20	60/20	60/20	60/20	60/20
Pressure switch	Low pressure switch	MPa	0,03	0,03	0,08	0,08	0,08	0,08
	Operating pressure switch	MPa	2	2	2,65	2,65	2,65	2,65
	High pressure switch	MPa	2,45	2,45	3,1	3,1	3,1	3,1
Anti-freeze			Ethylene glycol Ethanol-water	Ethylene glycol Ethanol-water	Ethylene glycol Ethanol-water	Ethylene glycol Ethanol-water	Ethylene glycol Ethanol-water	Ethylene glycol Ethanol-water
Size	Width x Height x Depth	mm	593x692x1474	593x692x1474	593x692x1474	593x692x1474	593x692x1474	593x692x1474
Weight		kg	296	310	291	300	316	331

1) B0W45 according to EN14511, Hot side $\Delta 5K$, Cold side $\Delta 3K$ 2) Nominal flow: Hot side $\Delta 10K$, Cold side $\Delta 3K$

3) Anti-freeze in cooling medium Ethanol water 4) At nominal flow