Description

Hoval Thermalia® dual

Brine/water-water/water heat pump

- Compact unit with high energy efficiency
- Extremely quiet running thanks to 3-bearing construction
- Stable steel frame structure, a ground plate including vibration-free machine adjustable feet
- Removable, powder-coated sheet steel side panels and front doors with quick-release fasteners
- All casing parts are sound-insulated and thermally insulated
- Colour of side panels, ceiling and rear side: brown red (RAL 3011)
- Colour of doors: flame red (RAL 3000)
- 2 spiral (scroll) compressors
- With plate heat exchanger (condenser and evaporator) made of stainless steel (1.4401), soldered
- Two separate refrigerant circuits with electronic expansion valves, filter dryer with sight glass, liquid receivers and high-pressure and low-pressure sensors
- Electronic initial current limiter with rotating field and phase monitoring
- Integrated brine pressure monitoring
- Two output levels
- Hydraulic connections with flexible hoses and flanges
  Thermalia® dual (55-85): 2″ 2x1 m
  Thermalia® dual (110,140): flange DN80/PN6
  Thermalia® dual H (35-70): 2″ 2x1 m
  Thermalia® dual H (90): flange DN80/PN6
- Working media
  Thermalia® dual (55-140) with R410A
  Thermalia® dual H (35-90) with R134a
- Heat pump wired and ready to connect
- Operating side on front with integrated TopTronic® E controller

TopTronic® E controller

Control panel

- Colour touchscreen 4.3 inch
- Heat generator blocking switch for interrupting operation
- Fault signalling lamp

TopTronic® E control module

- Simple, intuitive operating concept
- Display of the most important operating statuses
- Configurable start screen
- Operating mode selection
- Configurable day and week programmes
- Operation of all connected Hoval CAN bus modules
- Commissioning wizard
- Service and maintenance function
- Fault message management
- Analysis function
- Weather display (with online option)
- Adaptation of the heating strategy based on the weather forecast (with online option)

Thermalia® dual						max.	Heat output	
Water/water		Brine/water				flow	B0W35	W10W35
35 °C	55 °C	35 °C	55 °C	Type	Refrigerant	°C	kW	kW
A+++	A+++	A+++	A++	(55)	2 x R410A	62	57.9	76.7
		A+++	A++	(70)	2 x R410A	62	73.2	97.2
				(85)	2 x R410A	62	84.8	112.8
				(110)	2 x R410A	62	113.4	149.1
				(140)	2 x R410A	62	137.8	181.1
A+++	A+++	A+++	A++	H (35)	2 x R134a	70	34.9	49.3
A+++	A+++	A+++	A++	H (50)	2 x R134a	70	52.5	71.8
		A+++	A++	H (70)	2 x R134a	70	70.9	97.1
				H (90)	2 x R134a	70	87.3	119.5

Package label incl. controller

Seal of approval FWS
The Thermalia® dual (55-140), dual H (35-90) series are certified by the seal of approval of the authorisation commission of Switzerland

TopTronic® E basic module heat generator (TTE-WEZ)

- Control functions integrated for
  - 1 heating/cooling circuit with mixer
  - 1 heating/cooling circuit without mixer
  - 1 hot water loading circuit
  - bivalent and cascade management
- Outdoor sensor
- Immersion sensor (calorifier sensor)
- Contact sensor (flow temperature sensor)
- Rast-5 basic plug set

Options for TopTronic® E controller

- Can be expanded by max. 1 module expansion:
  - module expansion heating circuit or
  - module expansion universal
  - module expansion heat accounting
- Can be networked with a total of up to 16 controller modules:
  - heating circuit/hot water module
  - solar module
  - buffer module
  - measuring module

Number of modules that can be additionally installed in the heat generator:

- 1 module expansion and 1 controller module **or**
- 2 controller modules

The supplementary plug set must be ordered in order to use expanded controller functions.

Further information about the TopTronic® E see “Controls”

Electrical connections

- Connection at rear

Delivery

- Heat pump pre-assembled and packed

Part No.

Notice
Suitable heat source and charging pumps:

Hoval system pump set SPS-I with interface for pump control
Type 0-10 V or PWM1

Premium pump Stratos
with IF module Stratos Ext. Off (0-10 V)

See brochure “Accessories” - chapter “Circulating pumps”

Energy efficiency class
see Description

Hoval Thermalia® dual
Brine/water or water/water heat pump

Part No.

Brine/water-water/water heat pump with 2 hermetic spiral (scroll) compressors for indoor installation with built-in Hoval TopTronic® E control

Integrated control functions for
- 1 heating/cooling circuit with mixer
- 1 heating/cooling circuit without mixer
- 1 hot water loading circuit
- bivalent and cascade management

• Can be optionally expanded by max. 1 module expansion:
- module expansion heating circuit or
- module expansion universal or
- module expansion heat balancing

• Can be optionally networked with a total of up to 16 controller modules (incl. solar module)

Delivery
Compact unit wired-up internally ready for connection, supplied fully packaged incl. connection hoses 2″ or weld-on flanges DN80/PN6

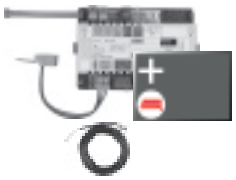
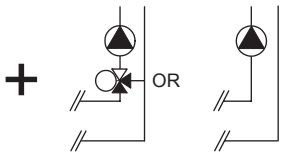
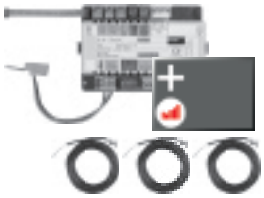
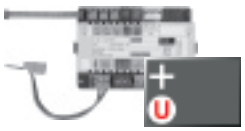
Hoval Thermalia® dual
Working medium R410A, 2 circuits.
Max. flow temperature 62 °C

Thermalia® dual type	Heat output for B0W35 kW	Heat output for W10W35 kW	
(55)	57.9	76.7	7014 291
(70)	73.2	97.2	7014 292
(85)	84.8	112.8	7014 293
(110)	113.4	149.1	7014 294
(140)	137.8	181.1	7014 295

Hoval Thermalia® dual H
Working medium R134a, 2 circuits.
Max. flow temperature 70 °C

Thermalia® dual H type	Heat output for B0W35 kW	Heat output for W10W35 kW	
H (35)	34.9	49.3	7014 296
H (50)	52.5	71.8	7014 297
H (70)	70.9	97.1	7014 298
H (90)	87.3	119.5	7014 299

Part No.

	TopTronic® E module expansions for TopTronic® E basic module heat generator	Part No.
	**TopTronic® E module expansion heating circuit TTE-FE HK** Expansion to the inputs and outputs of the basic module heat generator or the heating circuit/domestic hot water module for implementing the following functions: - 1 heating circuit without mixer or - 1 heating circuit with mixer incl. fitting accessories 1x contact sensor ALF/2P/4/T L = 4.0 m Can be installed in: Boiler control, wall housing, control panel **Note** The supplementary plug set may have to be ordered to implement functions differing from the standard!	6034 576
		
	**TopTronic® E module expansion heating circuit incl. energy balancing TTE-FE HK-EBZ** Expansion to the inputs and outputs of the basic module heat generator or the heating circuit/domestic hot water module for implementing the following functions: - 1 heating/cooling circuit w/o mixer or - 1 heating/cooling circuit with mixer in each case incl. energy balancing incl. fitting accessories 3x contact sensor ALF/2P/4/T L = 4.0 m Can be installed in: Boiler control, wall housing, control panel **Note** Suitable flow rate sensors (pulse sensors) must be provided on site.	6037 062
	**TopTronic® E module expansion Universal TTE-FE UNI** Expansion to the inputs and outputs of a controller module (basic module heat generator, heating circuit/domestic hot water module, solar module, buffer module) for implementing various functions incl. fitting accessories Can be installed in: Boiler control, wall housing, control panel **Further information** see “Controls” - “Hoval TopTronic® E module expansions” chapter **Note** Refer to the Hoval System Technology to find which functions and hydraulic arrangements can be implemented.	6034 575

■ **Part No.**

Accessories for TopTronic® E		Part No.
Supplementary plug set		
for basic module heat generator (TTE-WEZ)		6034 499
for controller modules and module expansion TTE-FE HK		6034 503

TopTronic® E controller modules		
TTE-HK/WW	TopTronic® E heating circuit/ hot water module	6034 571
TTE-SOL	TopTronic® E solar module	6037 058
TTE-PS	TopTronic® E buffer module	6037 057
TTE-MWA	TopTronic® E measuring module	6034 574

TopTronic® E room control modules		
TTE-RBM	TopTronic® E room control modules	
	easy white	6037 071
	comfort white	6037 069
	comfort black	6037 070

Enhanced language package TopTronic® E one SD card required per control module Consisting of the following languages: HU, CS, SK, RO, PL, TR, ES, HR, SR, PT, NL, DA, JA	6039 253

TopTronic® E remote connection		
TTE-GW	TopTronic® E online LAN	6037 079
TTE-GW	TopTronic® E online WLAN	6037 078
	SMS remote control unit	6018 867
	System component SMS remote control unit	6022 797
TopTronic® E interface modules		
	GLT module 0-10 V	6034 578
	Gateway module Modbus TCP/RS485	6034 579
	Gateway module KNX	6034 581

TopTronic® E wall casing		
WG-190	Wall casing small	6035 563
WG-360	Wall casing medium	6035 564
WG-360 BM	Wall casing medium with control module cut-out	6035 565
WG-510	Wall casing large	6035 566
WG-510 BM	Wall casing large with control module cut-out	6038 533

TopTronic® E sensors		
AF/2P/K	Outdoor sensor	2055 889
TF/2P/5/6T	Immersion sensor, L = 5.0 m	2055 888
ALF/2P/4/T	Contact sensor, L = 4.0 m	2056 775
TF/1.1P/2.5S/6T	Collector sensor, L = 2.5 m	2056 776

System housing		
	System housing 182 mm	6038 551
	System housing 254 mm	6038 552

	Bivalent switch	2061 826

Outdoor sensor, immersion sensor and contact sensor supplied with the heat pump.

Further information
see “Controls”

Part No.

	Accessories	Part No.
	**Protective pipe immersion sleeve SB280 ½″** brass nickel-plated PN10, 280 mm	2018 837
	**Flange compensator set DN80 PN6** for Thermalia® dual(110-140), dual H(90) for reducing the transmission of solid-borne and fluid-borne noise Set consisting of 4 flange compensators DN80 PN6 without fittings Structural length 130 mm	6040 025
	**Immersion sensor TF/2P/2.5/6T, L = 2.5 m** for TopTronic® E controller modules/ module expansions with exception of basic module district heating/fresh water or basic module district heating com, cable length: 2.5 m without plug sensor sleeve diameter: 6 x 50 mm, dewpoint-proof, sensor may already be included in scope of delivery of heat generator/controller module/module expansion, operating temperature: -20…105 °C, index of protection: IP67	2056 789
	**Sludge separator CS 50-2″ with magnet** for flow rates of 5.0-8.0 m³/h for flow speed of 1.0 m/s Housing made of plastic PPA with diffuser and partial flow removal with 4 extra-strong Neodymium magnets Magnets removable for draining EPP insulation 20 mm Connections made of brass G 2″ Drain made of brass: hose connection Any inst. orientation - 360° rotating Temperature range -10 to 120 °C Operating pressure max.: 10 bar Glycol proportion max.: 50 % Weight: 2.32 kg	2063 738

Part No.

Float ball flow switch
nominal pressure 10 bar
installed length 335 mm
bistable reed contact as normally open contact
Contact open, if there is no flow

Area of application l/h	°C	Connection	Part No.
1500-15000	0-80	Rp 2″	2040 709
3000-30000	0-80	G 3½″	2064 164
8000-60000	0-80	G 3½″	2064 165

Flow controller set 6033 043
STW01-25 / STW01-40 / STW01-50
Consisting of:
flow controller VHS09 (paddle)
incl. double nipple inner thread
incl. solder nipple for installing
the flow controller on pipeline,
connection cable and sealing ring

Type	T-piece	Double nipple	l/min
STW01-50	2″	2″	51-400

For active cooling, the installation of a flow controller is mandatory!

Flow switch F61 TB-9100 2004 483
(alternative in case of lack of space)
for heat source ground water
Type of protection: IP 67
Area of application: -30/85 °C
Connection: 1″ external
Min. water volume: 1.2 m³/h

Frost protection temperature switch 2007 313
270XT-95068
to heat source ground water
Type of protection: IP 40
Area of application: -24/18 °C

Freeze protection concentrate 2009 987
PowerCool DC 924-PXL
on basis propylene glycol
completely mixable with water
with corrosion protection
Frost protection: -20 °C with
40% mixture ratio
Content plastic container: 10 kg

Service

Commissioning

Commissioning by works service or Hoval trained authorised serviceman/company is condition for warranty.

For commissioning and other services please contact your Hoval sales office.

Technical data

Hoval Thermalia® dual (55-140) with R410A

Type		(55)	(70)	(85)	(110)	(140)
Performance data acc. to EN 14511						
• Heat output B0W35	kW	57.9	73.2	84.8	113.4	137.8
• Power consumption B0W35	kW	12.5	15.9	18.3	27.9	29.9
• Performance B0W35	COP	4.63	4.60	4.63	4.62	4.61
• Heat output W10W35	kW	76.9	97.2	112.8	149.1	181.1
• Power consumption W10W35	kW	12.7	16.6	19.1	26.0	31.3
• Performance W10W35	COP	6.07	5.87	5.91	5.73	5.79
Sound data according to EN 12102						
• Sound power level	dB(A)	57.2	55.7	57.2	64.2	64.2
Hydraulic data brine/water						
• Maximum flow temperature	°C	62	62	62	62	62
• Operating pressure	bar	6	6	6	6	6
B0W35						
• Heating water spread	K	5	5	5	5	5
• Required volume flow	m³/h	10.1	12.7	14.3	19.3	23.4
• Pressure drop. capacitor	kPa	6.9	9.7	10.7	13.7	11.5
• Capacitor connections	R outer thread	2″	2“	2″	DN80/PN6	DN80/PN6
B0W35						
• Brine spread	K	3	4	4	4	5
• Required volume flow	m³/h	14.1	13.4	15.1	20.4	19.8
• Pressure drop. capacitor	kPa	14.3	9.7	10.7	13.7	11.5
• Capacitor connections	R outer thread	2″	2″	2″	DN80/PN6	DN80/PN6
Hydraulic data water/water						
• Maximum flow temperature	°C	62	62	62	62	62
• Operating pressure	bar	6	6	6	6	6
W10/B7W35 (intermediate circuit)						
• Heating water spread	K	5	5	5	5	5
• Required volume flow	m³/h	12.0	14.8	16.8	22.8	27.8
• Pressure drop. capacitor	kPa	6.9	9.7	10.7	13.7	11.5
• Capacitor connections	R outer thread	2″	2″	2″	DN80/PN6	DN80/PN6
W10/B7W35 (intermediate circuit)						
• Ground water spread [1]	K	3	4	4	4	5
• Required volume flow GW	m³/h	16.3	15.1	17.1	23.3	22.6
• Pressure drop. capacitor	kPa	14.3	9.7	10.7	13.7	11.5
• Capacitor connections	R outer thread	2″	2″	2″	DN80/PN6	DN80/PN6
Refrigerating data						
• Refrigerant				R410A		
• Refrigerant filling quantity	kg	2x7	2x7.4	2x8.4	2x11.2	2x13.5
• Compressor oil filling quantity	kg	2x2.46	2x3.30	2x3.60	2x6.70	2x6.70
Electrical data						
• Power supply	V			3+N~400 V / 50 Hz		
• Max. power consumption (without pumps)	kW	24.8	30.4	34.6	46.6	56.6
• Max. operating current (without pumps)	A	45.6	51.0	58.2	75.6	93.2
• Starting current (compressor 1 + 2)	A	85.3	100.5	114.1	160.3	186.6
• Main current fuse (on site)	A	C63	C63	C80	C100	C125
• Control current fuse (on site)	A	16	16	16	16	16
Dimensions / weight						
• Dimensions (H x W x D)	mm		1907 x 1066 x 774		1907 x 1316 x 774	
• Minimum size of the installation room (without ventilation)	m³	16	17	19	26	31
• Weight	kg	560	620	700	770	820

[1] ΔT in accordance with regional regulations. The temperature difference is adjustable from 3 to 6 kelvin. The pump regulates the volumetric current to the set temperature difference.

Technical data

Hoval Thermalia® dual H (35-90) with R134a

Type		H (35)	H (50)	H (70)	H (90)
Performance data acc. to EN 14511					
• Heat output B0W35	kW	34.9	52.5	70.9	87.3
• Power consumption B0W35	kW	8.1	12.0	16.3	20.3
• Performance B0W35	COP	4.31	4.38	4.35	4.30
• Heat output W10W35	kW	49.3	71.8	97.1	119.5
• Power consumption W10W35	kW	8.2	12.3	16.8	21.1
• Performance W10W35	COP	6.01	5.83	5.78	5.66
Sound data according to EN 12102					
• Sound power level	dB(A)	55.2	60.2	63.2	63.2
Hydraulic data brine/water					
• Maximum flow temperature	°C	70	70	70	70
• Operating pressure	bar	6	6	6	6
B0W35					
• Heating water spread	K	5	5	5	5
• Required volume flow	m³/h	5.5	9.0	12.1	15.1
• Pressure drop, capacitor	kPa	9.3	5.1	5.8	7.2
• Capacitor connections	R outer thread	2″	2″	2″	DN80/PN6
B0W35					
• Brine spread	K	3	3	4	4
• Required volume flow	m³/h	8.9	12.4	12.6	15.7
• Pressure drop, capacitor	kPa	16.5	5.7	8.3	9.0
• Capacitor connections	R outer thread	2″	2″	2″	DN80/PN6
Hydraulic data water/water					
• Maximum flow temperature	°C	70	70	70	70
• Operating pressure	bar	6	6	6	6
W10/B7W35 (intermediate circuit)					
• Heating water spread	K	5	5	5	5
• Required volume flow	m³/h	8.5	11.4	15.2	18.9
• Pressure drop, capacitor	kPa	14.5	5.1	5.8	7.2
• Capacitor connections	R outer thread	2″	2″	2″	DN80/PN6
W10/B7W35 (intermediate circuit)					
• Ground water spread [1]	K	3	4	4	4
• Required volume flow GW	m³/h	10.9	15.3	15.3	19.1
• Pressure drop, capacitor	kPa	20.0	25.2	25.2	19.6
• Capacitor connections	R outer thread	2″	2″	2″	DN80/PN6
Refrigerating data					
• Refrigerant			R134a		
• Refrigerant filling quantity	kg	2x5.4	2x8.0	2x8.2	2x9.0
• Compressor oil filling quantity	kg	2x3.3	2x6.2	2x8.0	2x8.0
Electrical data					
• Power supply	V		3+N~400 V / 50 Hz		
• Max. power consumption (without pumps)	kW	17.4	25.6	34.8	44.2
• Max. operating current (without pumps)	A	32.0	45.6	58.6	75.8
• Starting current (compressor 1 + 2)	A	76.0	107.8	151.8	182.9
• Main current fuse (on site)	A	C50	C63	C80	C100
• Control current fuse (on site)	A	16	16	16	16
Dimensions / weight					
• Dimensions (H x W x D)	mm	1907 x 1066 x 774		1907 x 1316 x 774	
• Minimum size of the installation room (without ventilation)	m³	22	24	27	36
• Weight	kg	491	700	770	800

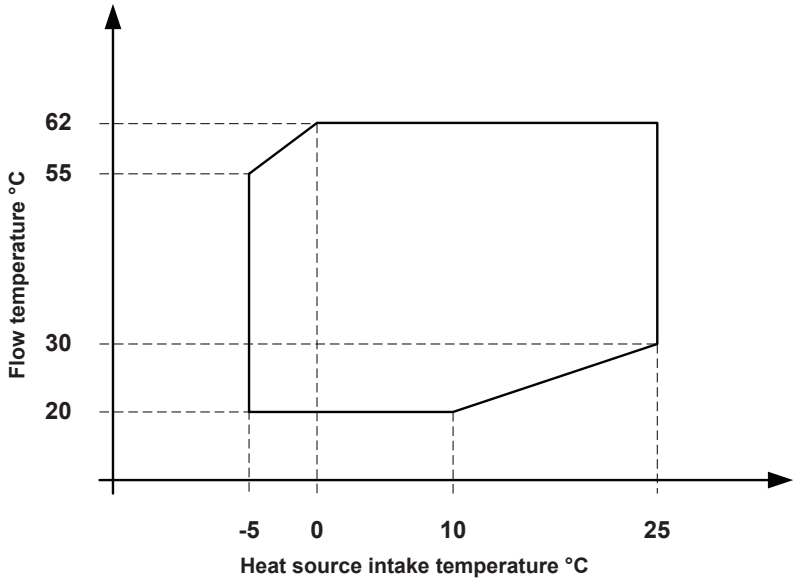
[1] ΔT in accordance with regional regulations. The temperature difference is adjustable from 3 to 6 kelvin. The pump regulates the volumetric current to the set temperature difference.

Technical data

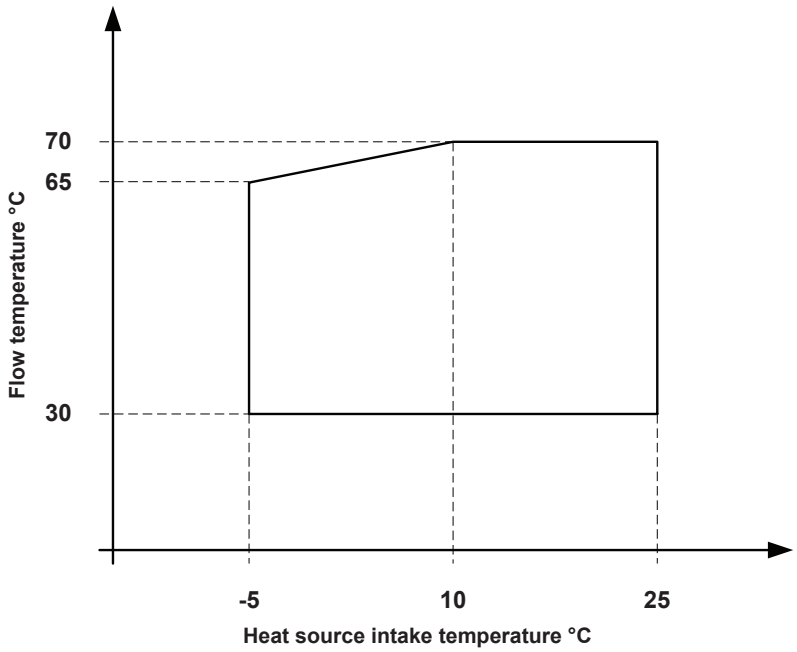
Diagrams range of application

Heating and hot water

Thermalia® dual (55-140)



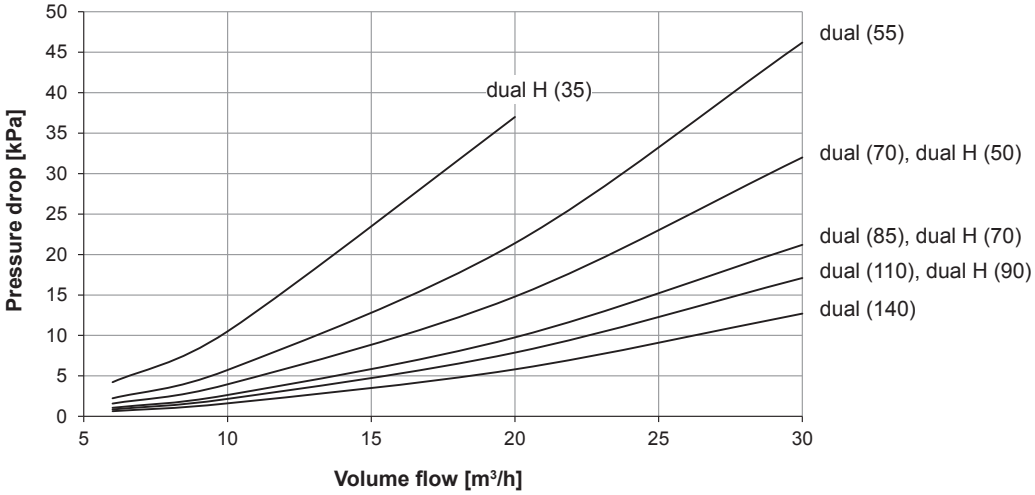
Thermalia® dual H (35-90)



Technical data

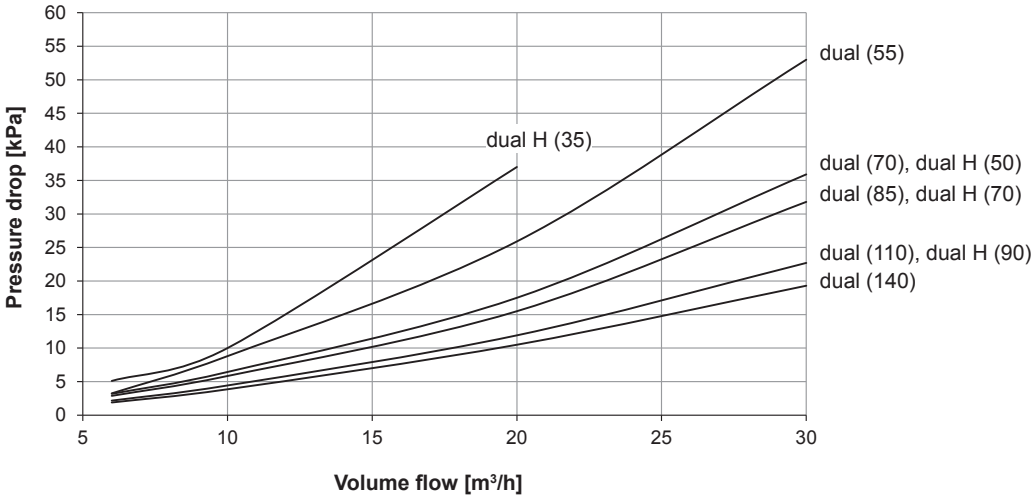
Heating

Pressure drop condenser
with water



Heat source

Pressure drop evaporator
with ethylene glycol 25%
(antifrogen N)



Cooling capacity

$$Q_0 = Q - P$$

Q_0 = cooling capacity (kW)
Q = heat output (kW)
P = power consumption compressor (kW)
Δt_2 = temperature difference heat source supply/discharge(K)
C = 0.86
c_p = 0.89 (specific heat)
γ = 1.05 (specific weight, density)

Volume flow evaporator

$$V = \frac{Q_0 \cdot c}{\Delta t_2 \cdot c_p \cdot \gamma} \ (m^3/h)$$

Δp (kPa) = pressure drop with frost protection (1 kPa = 0.1 mWC)
Δp = f x ΔP

f		Ethylene glycol % (Antifrogen N)
0.97	≙	20 %
1	≙	25 %
1.03	≙	30 %

Δp_w (kPa) = Pressure drop with water (1 kPa = 0.1 mWC)
Δp_w = ΔP x 0.89

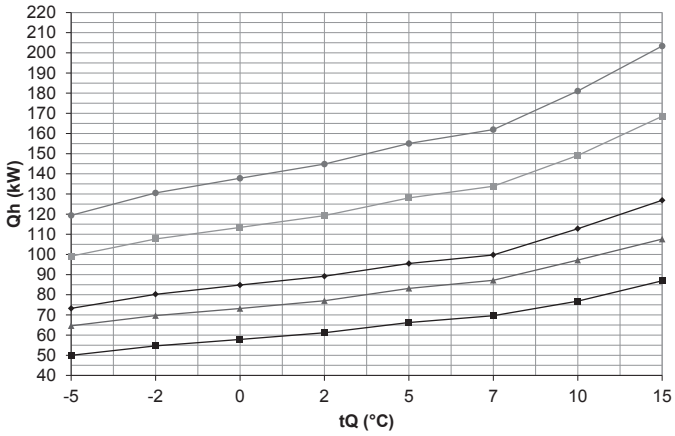
Technical data

Performance data - heating

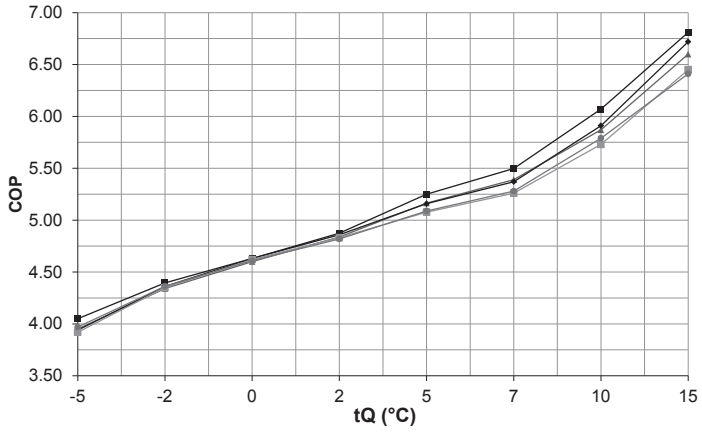
Maximum heat output

Hoval Thermalia® dual (55-140) with R410A

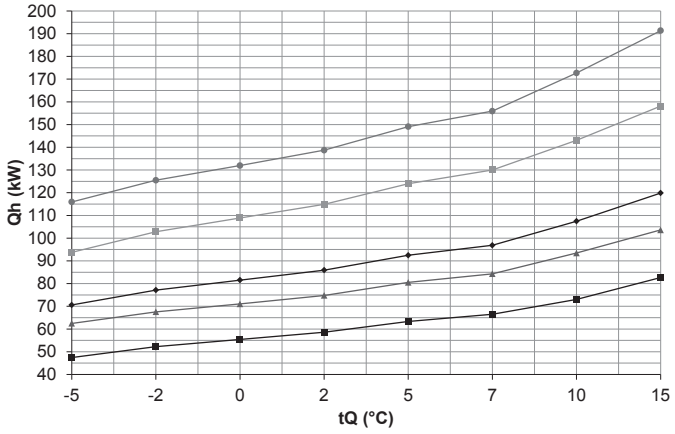
Heat output - t_{VL} 35 °C



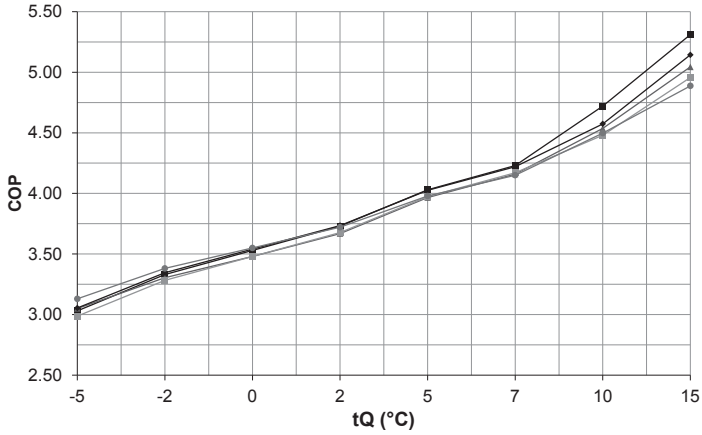
Output rating - t_{VL} 35 °C



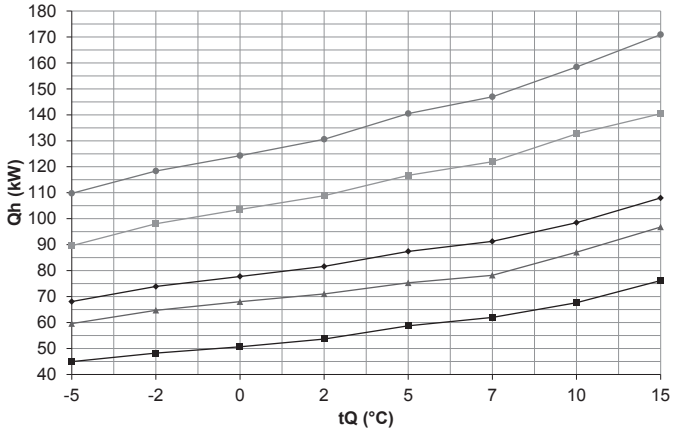
Heat output - t_{VL} 45 °C



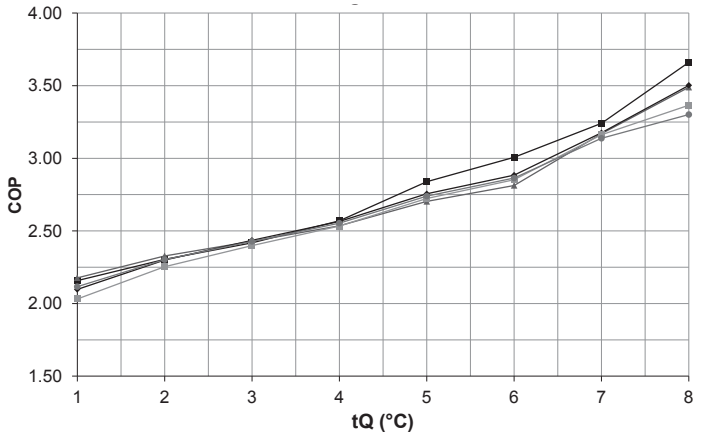
Output rating - t_{VL} 45 °C



Heat output - t_{VL} 62 °C



Output rating - t_{VL} 62 °C



tVL = heating flow temperature (°C)
tQ = source temperature (°C)
Qh = heat output at full load (kW), measured in accordance with standard EN 14511
COP = Coefficient of Performance for the overall unit in accordance with standard EN 14511

Thermalia® dual (55)
Thermalia® dual (70)
Thermalia® dual (85)
Thermalia® dual (110)
Thermalia® dual (140)

Technical data

Performance data - heating

Hoval Thermalia® dual (55-140)

Indications acc. to EN 14511

Type tVL °C		tQ °C	Qh kW	(55) P kW	COP	Qh kW	(70) P kW	COP	Qh kW	(85) P kW	COP	Qh kW	(110) P kW	COP	Qh kW	(140) P kW	COP
30	Brine	-5	50.6	10.9	4.67	65.6	14.3	4.59	74.0	15.6	4.74	100.1	21.2	4.71	121.5	25.4	4.79
		-2	55.9	10.9	5.12	70.6	13.8	5.12	81.2	15.5	5.24	109.0	20.9	5.22	132.6	25.3	5.24
		0	59.3	11.0	5.41	74.1	13.6	5.47	86.0	15.5	5.56	115.0	20.8	5.54	139.9	25.4	5.52
		2	62.6	11.0	5.68	78.2	13.5	5.77	90.5	15.5	5.83	121.1	20.9	5.79	147.0	25.5	5.75
		5	67.6	11.2	6.05	84.9	13.7	6.18	97.1	15.7	6.19	130.3	21.5	6.07	157.5	26.0	6.06
		7	70.9	11.2	6.31	89.2	13.8	6.46	101.5	15.8	6.44	136.5	21.7	6.28	164.5	26.2	6.27
	Water	10	78.4	11.0	7.10	99.1	14.5	6.82	115.4	16.9	6.84	152.2	23.1	6.59	185.3	27.7	6.69
		15	88.8	11.2	7.93	109.6	14.2	7.73	130.3	16.7	7.82	173.7	23.2	7.48	209.4	28.0	7.47
35	Brine	-5	50.0	12.3	4.05	64.6	16.4	3.95	73.2	18.6	3.94	99.1	25.3	3.92	119.4	30.1	3.97
		-2	54.7	12.4	4.40	69.7	16.1	4.34	80.2	18.4	4.36	107.7	24.8	4.35	130.5	29.9	4.36
		0	57.9	12.5	4.63	73.2	15.9	4.60	84.8	18.3	4.63	113.4	24.6	4.62	137.8	29.9	4.61
		2	61.2	12.6	4.87	77.0	15.9	4.84	89.2	18.4	4.86	119.2	24.7	4.83	144.8	30.0	4.82
		5	66.3	12.6	5.25	83.2	16.1	5.16	95.5	18.5	5.16	128.0	25.2	5.08	155.0	30.5	5.09
		7	69.6	12.7	5.50	87.2	16.2	5.39	99.8	18.6	5.37	133.9	25.4	5.26	161.9	30.7	5.28
	Water	10	76.9	12.7	6.07	97.2	16.6	5.87	112.8	19.1	5.91	149.1	26.0	5.73	181.1	31.3	5.79
		15	86.9	12.8	6.81	107.6	16.3	6.60	126.8	18.9	6.72	168.5	26.1	6.45	203.4	31.7	6.41
40	Brine	-5	48.9	14.0	3.50	63.7	18.4	3.47	72.2	20.9	3.45	96.8	28.4	3.41	117.8	33.6	3.50
		-2	53.5	14.0	3.81	68.8	18.2	3.78	78.9	20.7	3.81	105.6	28.0	3.78	128.1	33.5	3.83
		0	56.6	14.1	4.02	72.2	18.1	4.00	83.4	20.6	4.05	111.4	27.8	4.01	135.0	33.4	4.04
		2	59.8	14.1	4.24	76.0	18.1	4.20	87.7	20.6	4.26	117.3	27.8	4.22	141.9	33.6	4.23
		5	64.8	14.1	4.58	81.9	18.1	4.51	94.1	20.7	4.54	126.1	28.2	4.48	152.2	33.9	4.49
		7	68.1	14.2	4.81	85.7	18.2	4.72	98.3	20.7	4.74	131.9	28.3	4.66	159.0	34.1	4.67
	Water	10	75.0	14.1	5.32	95.3	18.6	5.13	110.1	21.3	5.17	146.1	29.0	5.04	176.9	34.8	5.08
		15	84.8	14.2	5.98	105.6	18.4	5.73	123.4	21.1	5.85	163.3	29.0	5.63	197.4	35.4	5.57
45	Brine	-5	47.5	15.7	3.03	62.5	20.5	3.05	70.6	23.1	3.05	93.7	31.4	2.99	115.9	37.0	3.13
		-2	52.2	15.7	3.33	67.6	20.4	3.30	77.2	23.1	3.35	102.8	31.3	3.28	125.5	37.1	3.38
		0	55.4	15.7	3.53	71.1	20.4	3.48	81.5	23.0	3.54	108.9	31.3	3.48	132.0	37.2	3.55
		2	58.6	15.7	3.73	74.8	20.4	3.67	85.9	23.0	3.73	114.9	31.2	3.68	138.7	37.3	3.72
		5	63.3	15.7	4.03	80.5	20.3	3.97	92.5	23.0	4.03	124.0	31.2	3.97	149.1	37.5	3.98
		7	66.5	15.7	4.23	84.3	20.3	4.16	96.8	22.9	4.22	130.0	31.2	4.17	155.9	37.6	4.15
	Water	10	73.1	15.5	4.72	93.5	20.6	4.54	107.5	23.5	4.57	143.0	31.9	4.48	172.7	38.4	4.50
		15	82.7	15.6	5.31	103.6	20.5	5.04	119.9	23.3	5.14	158.1	31.9	4.96	191.3	39.2	4.89
50	Brine	-5	47.1	17.1	2.76	61.8	22.5	2.75	70.3	26.1	2.69	93.5	35.5	2.63	114.2	41.9	2.72
		-2	51.1	17.2	2.98	66.9	22.5	2.97	76.6	25.9	2.96	102.2	35.0	2.92	123.7	41.6	2.97
		0	53.9	17.2	3.13	70.3	22.6	3.11	80.8	25.8	3.14	107.9	34.8	3.10	130.1	41.5	3.14
		2	57.0	17.2	3.32	73.7	22.6	3.26	84.9	25.7	3.30	113.5	34.7	3.27	136.8	41.6	3.29
		5	62.1	17.1	3.62	78.9	22.6	3.50	91.0	25.7	3.54	121.8	34.8	3.50	146.9	41.8	3.51
		7	65.3	17.1	3.82	82.3	22.5	3.65	95.1	25.7	3.70	127.4	34.9	3.65	153.6	41.9	3.66
	Water	10	71.7	17.2	4.17	91.6	22.6	4.05	104.8	25.7	4.08	140.0	34.9	4.01	168.5	42.0	4.02
		15	80.9	17.2	4.70	101.6	22.7	4.48	116.4	25.5	4.56	152.9	34.8	4.39	185.3	42.9	4.32
55	Brine	-5	46.5	18.6	2.50	62.1	24.2	2.56	70.5	28.3	2.49	92.8	38.5	2.41	113.7	45.5	2.50
		-2	49.9	18.7	2.67	66.8	24.2	2.77	76.6	27.7	2.76	101.7	37.4	2.72	122.0	44.4	2.75
		0	52.5	18.7	2.80	70.0	24.1	2.90	80.6	27.4	2.94	107.4	36.8	2.92	127.8	43.9	2.91
		2	55.5	18.7	2.97	73.2	24.1	3.03	84.4	27.3	3.09	112.8	36.7	3.07	134.2	43.9	3.06
		5	60.7	18.6	3.27	77.9	24.1	3.24	90.1	27.3	3.30	120.5	37.0	3.26	144.5	44.3	3.26
		7	64.0	18.5	3.46	81.1	24.1	3.37	93.9	27.3	3.44	125.7	37.1	3.39	151.2	44.5	3.40
	Water	10	70.2	18.8	3.73	89.7	24.6	3.64	102.2	27.9	3.66	136.9	37.8	3.62	164.3	45.5	3.61
		15	79.0	18.8	4.21	99.6	24.8	4.02	112.9	27.7	4.07	147.7	37.7	3.92	179.3	46.6	3.85
62	Brine	-5	45.0	20.8	2.16	59.6	27.4	2.18	68.1	32.5	2.10	89.6	44.1	2.03	109.8	51.9	2.12
		-2	48.2	20.9	2.30	64.7	27.8	2.33	73.9	32.1	2.30	98.0	43.5	2.25	118.4	51.4	2.30
		0	50.7	20.9	2.42	68.0	28.0	2.43	77.8	31.9	2.43	103.6	43.2	2.40	124.3	51.2	2.43
		2	53.7	20.9	2.57	71.0	28.0	2.54	81.6	31.8	2.57	108.9	43.0	2.53	130.6	51.2	2.55
		5	58.7	20.7	2.84	75.3	27.9	2.70	87.4	31.7	2.76	116.7	42.8	2.72	140.5	51.3	2.74
		7	62.0	20.6	3.01	78.2	27.8	2.81	91.3	31.6	2.88	121.9	42.7	2.85	147.0	51.3	2.86
	Water	10	67.6	20.9	3.24	87.1	27.5	3.17	98.5	31.0	3.18	132.7	42.0	3.16	158.4	50.5	3.14
		15	76.2	20.8	3.66	96.8	27.7	3.49	108.0	30.8	3.50	140.4	41.7	3.37	170.9	51.8	3.30

tVL = heating flow temperature (°C)
tQ = source temperature (°C)
Qh = heat output at full load (kW), measured in accordance with standard EN 14511
P = power consumption of the overall unit (kW)
COP = Coefficient of Performance for the overall unit in accordance with standard EN 14511

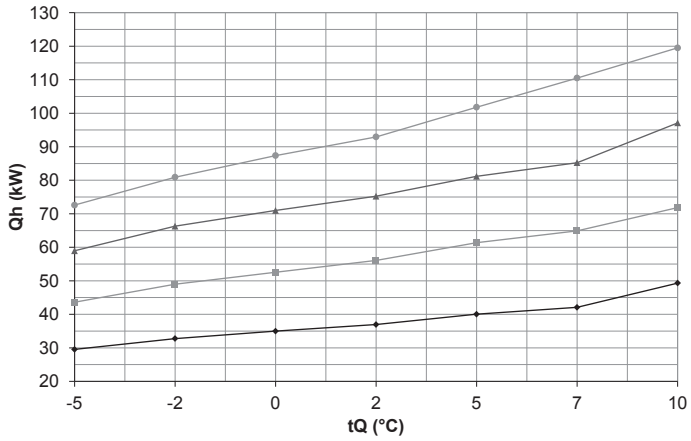
Take account of daily power cuts!
see Engineering

Technical data
Performance data - heating

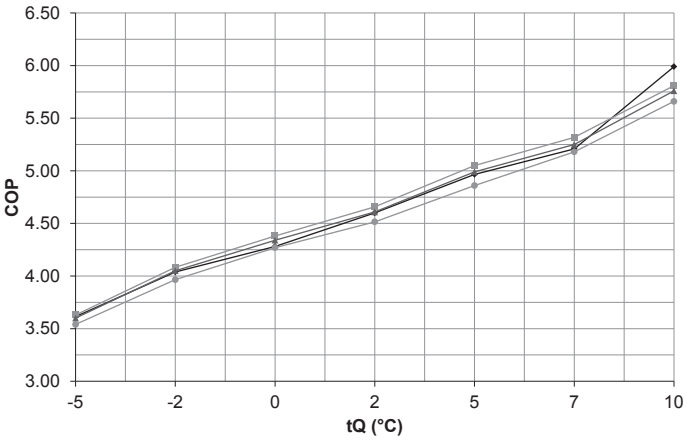
Maximum heat output

Hoval Thermalia® dual H (35-90) with R134a

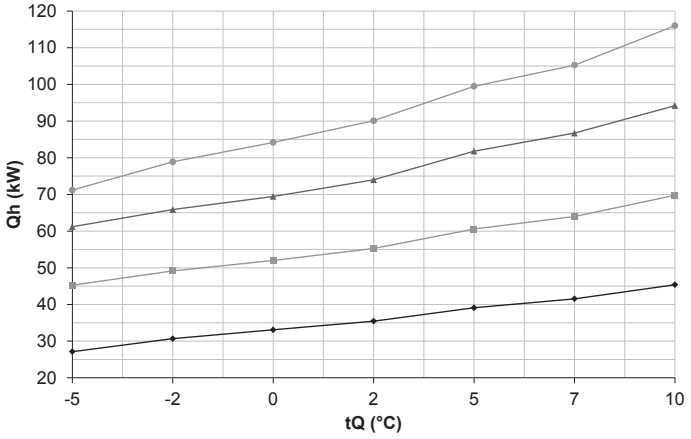
Heat output - t_{VL} 35 °C



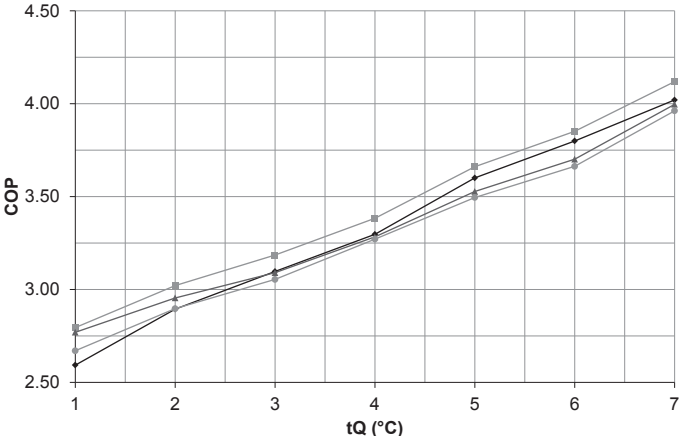
Output rating - t_{VL} 35 °C



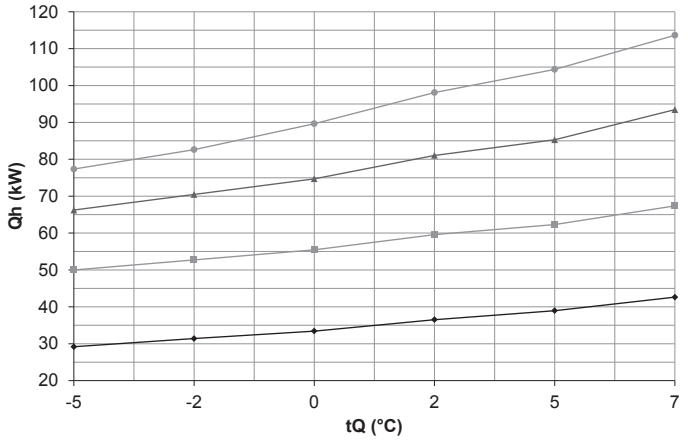
Heat output - t_{VL} 50 °C



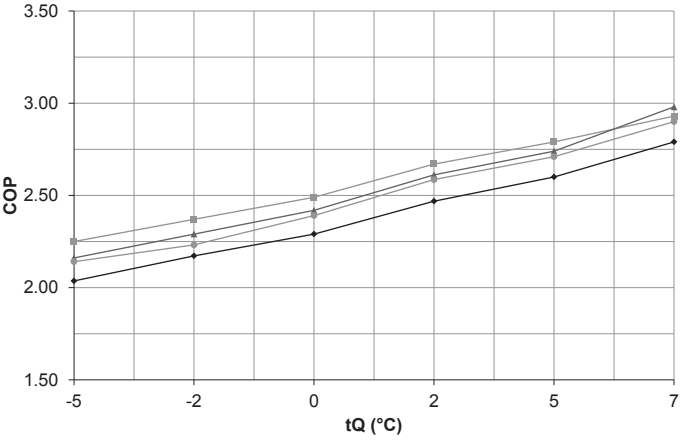
Output rating - t_{VL} 50 °C



Heat output - t_{VL} 65 °C



Output rating - t_{VL} 65 °C



tVL = heating flow temperature (°C)
tQ = source temperature (°C)
Qh = heat output at full load (kW), measured in accordance with standard EN 14511
COP = Coefficient of Performance for the overall unit in accordance with standard EN 14511

Thermalia® dual H (35)
Thermalia® dual H (50)
Thermalia® dual H (70)
Thermalia® dual H (90)

Technical data

Performance data - heating

Hoval Thermalia® dual H (35-90)

Indications acc. to EN 14511

Type			H (35)			H (50)			H (70)			H (90)		
tVL °C		tQ °C	Qh kW	P kW	COP	Qh kW	P kW	COP	Qh kW	P kW	COP	Qh kW	P kW	COP
35	Brine	-5	29.5	8.2	3.61	43.6	12.0	3.63	59.0	16.4	3.60	72.6	20.5	3.54
		-2	32.8	8.1	4.04	49.0	12.0	4.08	66.3	16.4	4.05	80.9	20.4	3.97
		0	35.0	8.1	4.32	52.5	12.0	4.38	71.0	16.4	4.34	87.4	20.3	4.30
		2	37.0	8.0	4.60	56.1	12.0	4.66	75.2	16.3	4.61	92.9	20.6	4.51
		5	40.0	8.1	4.97	61.4	12.2	5.05	81.2	16.3	4.99	101.8	20.9	4.86
		7	42.1	8.1	5.21	64.9	12.2	5.32	85.2	16.2	5.25	110.5	21.3	5.18
	Water	10	49.3	8.2	5.99	71.8	12.4	5.81	97.1	16.9	5.76	119.5	21.1	5.66
40	Brine	-5	28.7	9.0	3.20	44.4	13.2	3.36	60.0	18.0	3.33	71.9	22.4	3.22
		-2	32.1	9.1	3.54	49.1	13.2	3.71	66.1	18.0	3.66	80.2	22.4	3.57
		0	34.5	9.1	3.78	52.4	13.3	3.95	70.2	18.1	3.88	86.1	22.5	3.82
		2	36.7	9.0	4.08	55.8	13.3	4.20	74.6	18.1	4.12	91.7	22.4	4.09
		5	40.1	9.0	4.43	61.0	13.5	4.53	81.4	18.5	4.40	100.4	23.3	4.31
		7	42.4	9.1	4.66	64.5	13.5	4.77	85.9	18.6	4.61	107.2	23.6	4.54
	Water	10	47.5	9.2	5.19	71.2	13.7	5.18	95.8	19.0	5.04	118.1	23.7	4.98
45	Brine	-5	27.8	9.7	2.86	45.1	14.6	3.09	61.0	19.9	3.06	71.4	24.4	2.92
		-2	31.5	9.8	3.20	49.7	14.7	3.39	66.0	19.9	3.32	79.5	24.7	3.22
		0	33.9	9.9	3.44	52.8	14.7	3.58	69.7	19.9	3.50	85.0	24.9	3.41
		2	36.4	9.9	3.66	55.8	14.8	3.77	74.0	20.2	3.66	90.8	25.3	3.59
		5	40.1	10.2	3.92	60.3	14.9	4.04	81.2	20.9	3.89	99.6	25.8	3.86
		7	42.6	10.3	4.14	63.3	15.0	4.22	85.8	21.2	4.04	105.5	26.1	4.04
	Water	10	46.6	10.2	4.58	70.4	15.3	4.61	94.6	21.4	4.43	116.9	26.4	4.42
50	Brine	-5	27.1	10.5	2.59	45.3	16.2	2.80	61.2	22.1	2.77	71.2	26.7	2.67
		-2	30.7	10.6	2.89	49.1	16.3	3.02	65.9	22.3	2.95	78.9	27.2	2.90
		0	33.1	10.7	3.10	52.0	16.3	3.19	69.5	22.5	3.09	84.2	27.6	3.05
		2	35.5	10.8	3.30	55.2	16.3	3.38	74.0	22.5	3.28	90.1	27.5	3.27
		5	39.1	10.9	3.60	60.6	16.5	3.66	81.8	23.2	3.53	99.5	28.5	3.50
		7	41.5	10.9	3.80	64.0	16.6	3.85	86.7	23.4	3.70	105.3	28.7	3.66
	Water	10	45.4	11.3	4.02	69.8	16.9	4.12	94.2	23.6	4.00	116.0	29.3	3.96
55	Brine	-5	26.4	11.5	2.30	45.1	18.0	2.51	61.0	24.5	2.49	71.2	29.1	2.45
		-2	29.9	11.7	2.56	48.6	18.0	2.70	65.8	25.0	2.63	78.3	30.0	2.61
		0	32.2	11.8	2.74	51.3	18.1	2.84	69.5	25.3	2.75	83.5	30.5	2.74
		2	34.5	11.9	2.91	54.8	18.2	3.02	74.2	25.5	2.92	89.7	30.9	2.91
		5	38.1	12.0	3.18	60.8	18.3	3.32	82.2	25.6	3.21	99.9	31.3	3.20
		7	40.4	12.1	3.35	64.6	18.4	3.51	87.3	25.7	3.40	106.5	31.5	3.38
	Water	10	44.8	12.5	3.58	69.0	18.8	3.68	94.1	25.9	3.63	115.4	32.2	3.58
65	Brine	-5	-	-	-	-	-	-	-	-	-	-	-	-
		-2	29.2	14.3	2.04	50.0	22.2	2.25	66.2	30.6	2.16	77.3	36.1	2.14
		0	31.4	14.5	2.17	52.7	22.2	2.37	70.5	30.8	2.29	82.6	37.0	2.23
		2	33.4	14.6	2.29	55.5	22.3	2.49	74.7	30.9	2.42	89.6	37.5	2.39
		5	36.5	14.8	2.47	59.6	22.3	2.67	81.0	31.0	2.61	98.1	37.9	2.59
		7	39.0	15.0	2.60	62.3	22.3	2.79	85.3	31.1	2.74	104.4	38.5	2.71
	Water	10	42.6	15.3	2.79	67.4	23.0	2.93	93.5	31.4	2.98	113.6	39.2	2.90

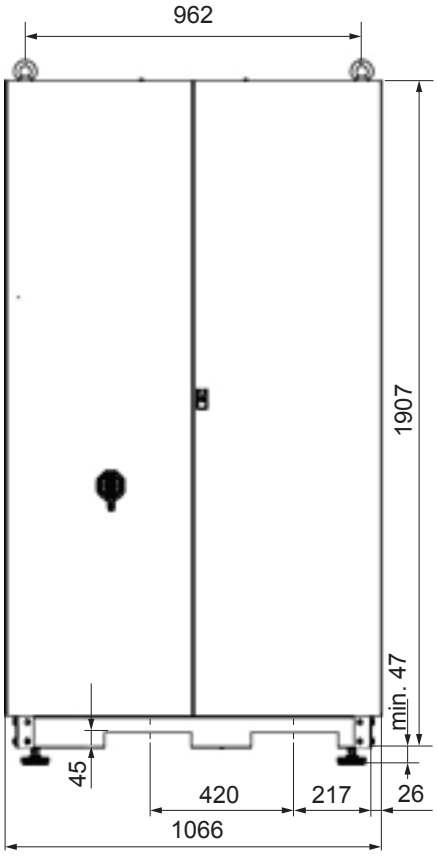
tVL = heating flow temperature (°C)
tQ = source temperature (°C)
Qh = heat output at full load (kW), measured in accordance with standard EN 14511
P = power consumption of the overall unit (kW)
COP = Coefficient of Performance for the overall unit in accordance with standard EN 14511

Take account of daily power cuts!
see Engineering

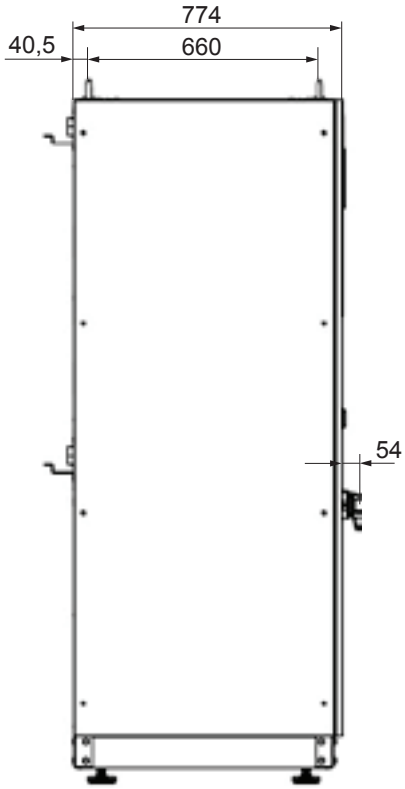
Dimensions

Hoval Thermalia® dual (55-85), dual H (35)
(Dimensions in mm)

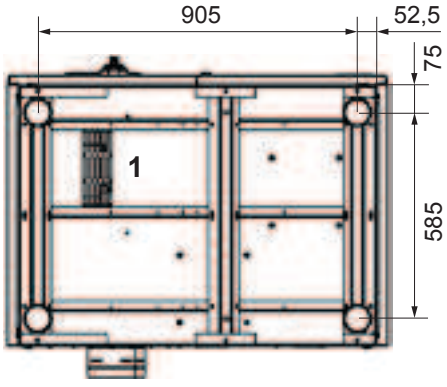
Front view



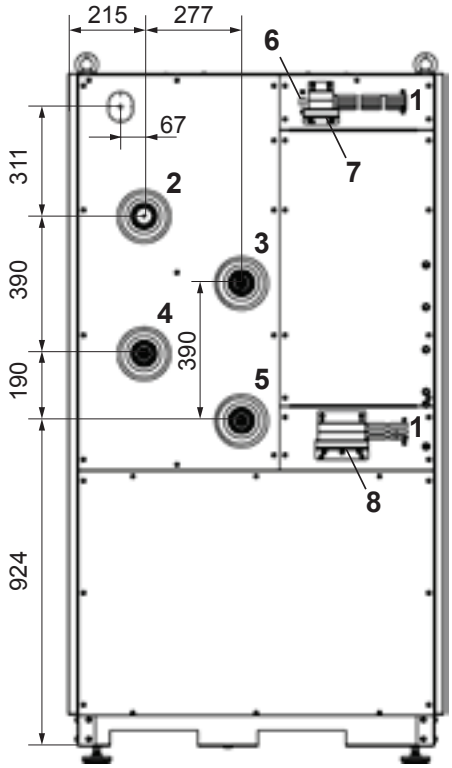
Side view



View from below



Rear view



1 Vent opening
2 Flow heating or storage tank Rp 2″
3 Brine or ground water inlet Rp 2″
4 Return heating or storage tank Rp 2″
5 Brine or ground water outlet Rp 2″
6 LAN interface
7 Cable feedthrough
for sensors and actuators
8 Cable feedthrough
for the mains supply and connection
to the main circuit

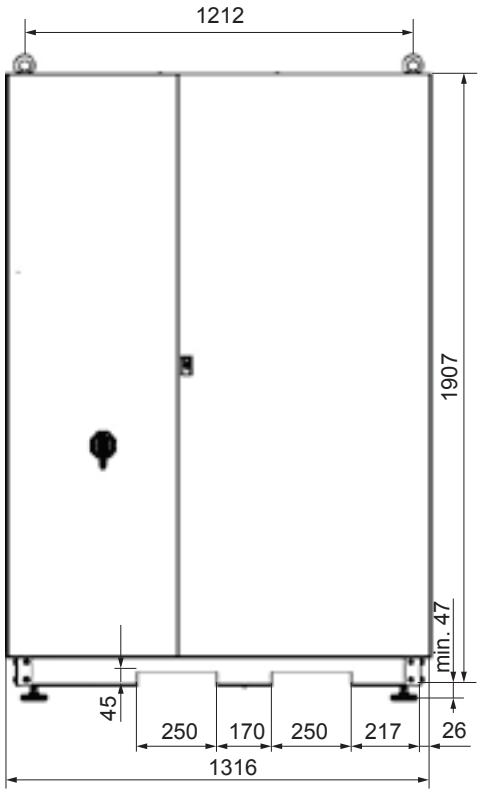
Adjustable feet
with M12 thread

Dimensions

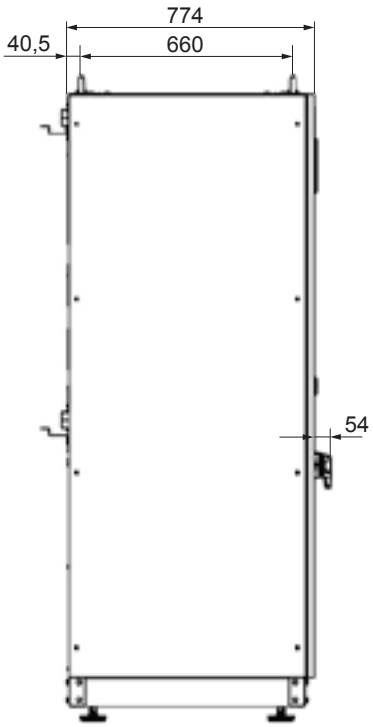
Hoval Thermalia® dual (110-140), dual H (50-90)

(Dimensions in mm)

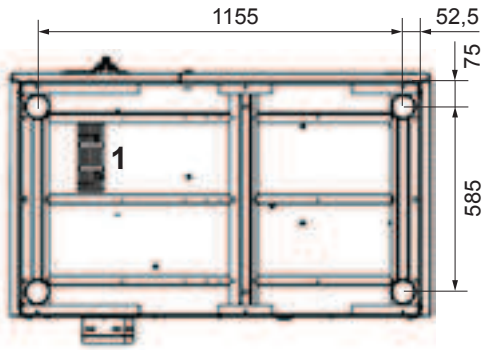
Front view



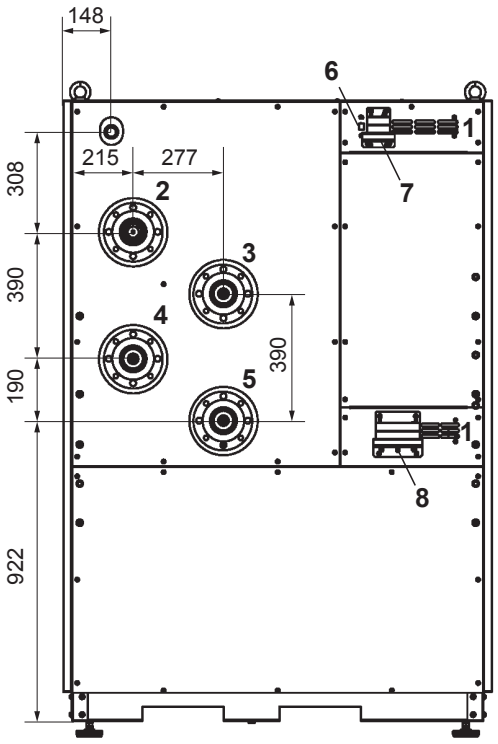
Side view



View from below



Rear view



1 Vent opening
2 Flow heating or storage tank
Thermalia® dual H (50,70) Rp 2″
Thermalia® dual (110,140), dual H (90) flange DN80/PN6
3 Brine or ground water inlet
Thermalia® dual H (50,70) Rp 2″
Thermalia® dual (110,140), dual H (90) flange DN80/PN6
4 Return heating or storage tank
Thermalia® dual H (50,70) Rp 2″
Thermalia® dual (110,140), dual H (90) flange DN80/PN6
5 Brine or ground water outlet
Thermalia® dual H (50,70) Rp 2″
Thermalia® dual (110,140), dual H (90) flange DN80/PN6
6 LAN interface
7 Cable feedthrough for sensors and actuators
8 Cable feedthrough
for the mains supply and connection to the main circuit

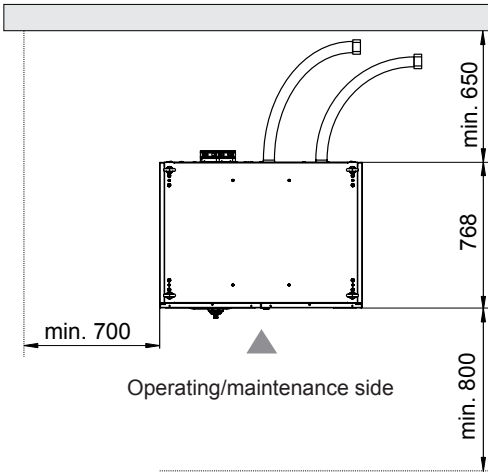
Adjustable feet
with M12 thread

Dimensions

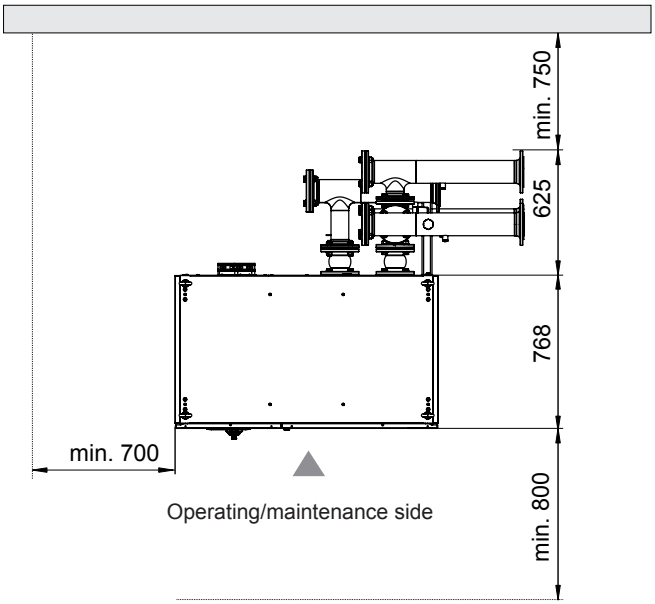
Space requirement

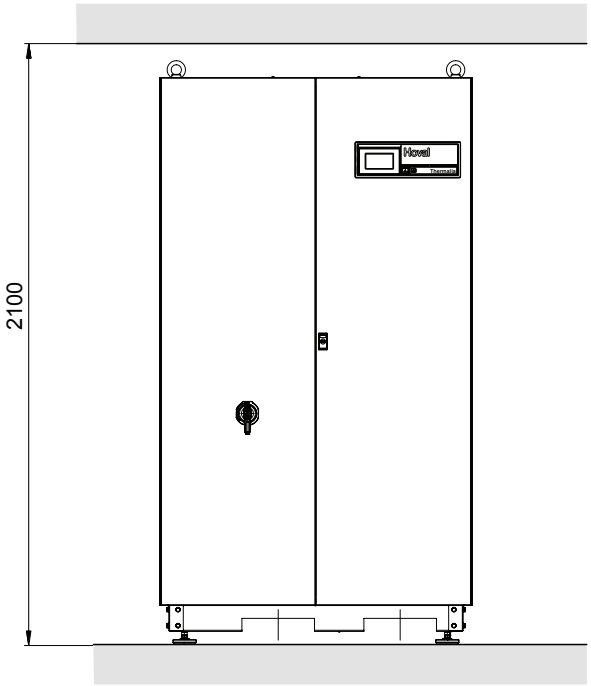
Required wall clearance in mm
for operation and maintenance

Hoval Thermalia® dual (55-85), dual H (35-70)



Hoval Thermalia® dual (110-140), dual H (90)



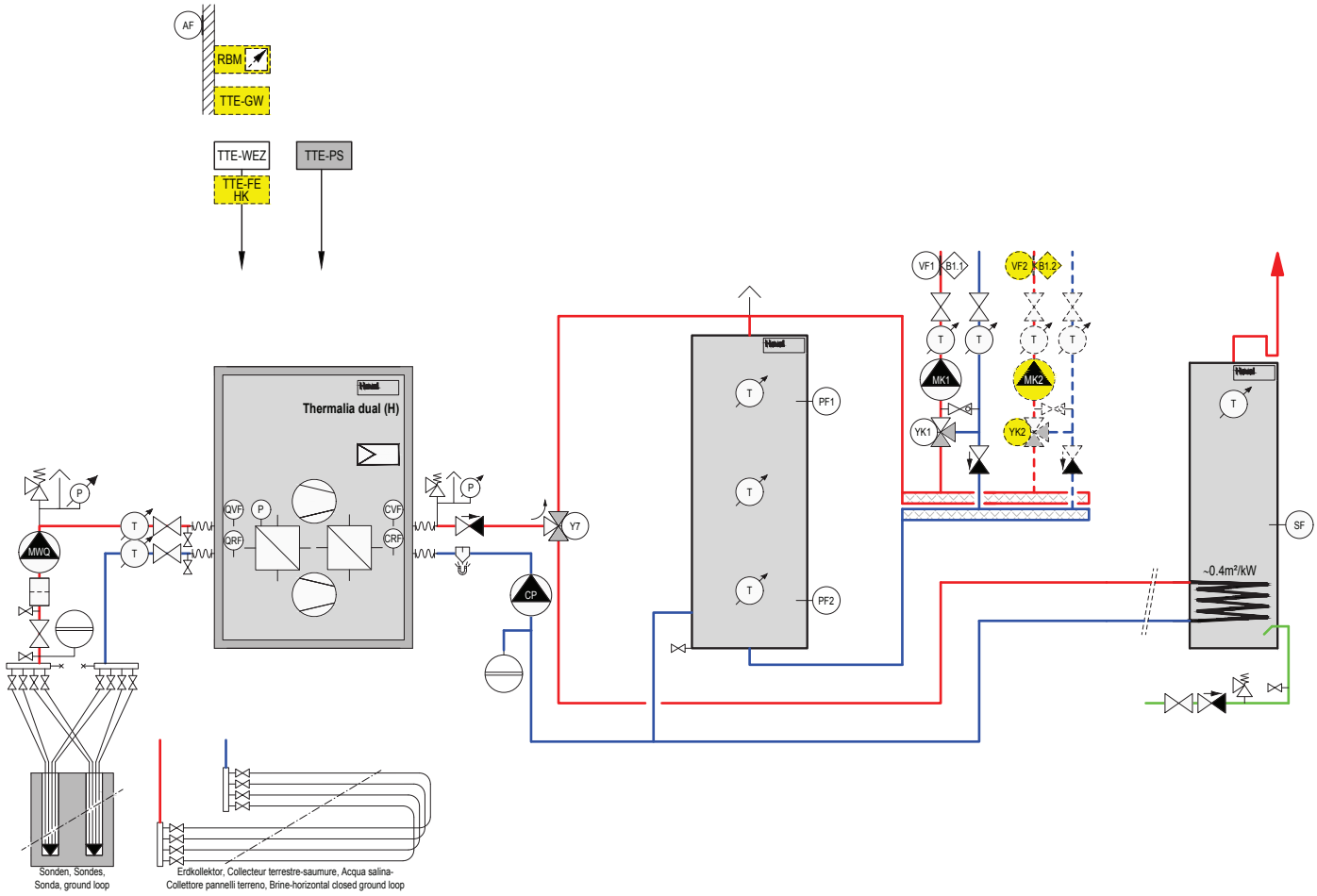


Examples

Thermalia® dual

Brine/water-water/water heat pump with
- energy buffer storage tank
- calorifier
- 1-... mixer circuit(s)

Hydraulic schematics BBBDE020



TTE-WEZ	TopTronic® E basic module heat generator (installed)
TTE-PS	TopTronic® E buffer module
VF1	Flow temperature sensor 1
B1.1	Flow temperature guard (if required)
MK1	Pump mixer circuit 1
YK1	Actuator mixer 1
AF	Outdoor sensor
SF	Calorifier sensor
PF1	Buffer sensor 1
PF2	Buffer sensor 2
Y7	Switching valve
CP	Condenser pump
MWQ	Delivery pump in heat source intermediate circuit (cold-water design)

Option

RBM	TopTronic® E room control module
TTE-GW	TopTronic® E Gateway
TTE-FE HK	TopTronic® E module expansion heating circuit
VF2	Flow temperature sensor 2
B1.2	Flow temperature guard (if required)
MK2	Pump mixer circuit 2
YK2	Actuator mixer 2

Important notes
- The example schematics merely show the basic principle and do not contain all information required for installation. Installation must be carried out according to the conditions on-site, dimensioning and local regulations.
- With underfloor heating a flow temperature monitor must be built in.
- Shut-off devices to the safety equipment (pressure expansion tank, safety valve, etc.) must be secured against unintentional closing!
- Install sacks to prevent single-pipe gravity circulation!