

■ Description

**Hoval Thermalia® comfort  
Brine/water-water/water heat pump**

- Brine/water-water/water heat pump in compact design with high energy efficiency for indoor installation. Extremely low-noise with triple-mounted construction
- Stable framework of galvanised sheet steel; with removable, powder-coated, sound-insulated side panels, colour brown red (RAL 3011)
- Sound-insulated plastic hood, colour flame red (RAL 3000)
- Safety valve incl. hose installed at the side of the heating
- Comprising a spiral (Scroll) compressor
- Electronic expansion valve
- Plate heat exchanger system of stainless steel
- Electronic starting current limiter with rotary field/phase monitoring.
- Speed-controlled, highly efficient heating and brine pump
- 3-way switch ball valve for heating and hot water
- Integrated brine pressure monitoring
- Brine pressure gauge and pressure valve incl. hose
- Brine expansion vessel 18 litres
- Hydraulic connections with flexible hoses, removable to the left, right or top:  
comfort (6-13): 1" 2x 1 m top,  
1" 2x 1.5 m bottom  
comfort (17): 1 ¼" 2x 1.52 m top,  
2x 1 m bottom  
comfort H (7,10): 1" 1x 1 m resp. 1x 0.85 m top,  
2x 1.75 m bottom
- Sound-insulating floor mat
- Refrigerant  
Thermalia® comfort (6-17) with R410A  
Thermalia® comfort H (7,10) with R134a
- Heat pump wired ready
- Temperatures and pressures of brine and refrigeration circuit available
- TopTronic® E controller installed



**Thermalia® comfort**

Water/water 35 °C		Brine/water 35 °C		Type	Refrigerant	Max. flow °C	Heat output	
55 °C	55 °C	35 °C	55 °C				B0W35 kW	W10W35 kW
A+++	A+++	A++	A+	(6)	R410A	62	5.8	7.1
A+++	A+++	A+++	A++	(8)	R410A	62	7.6	9.6
A+++	A+++	A+++	A++	(10)	R410A	62	10.6	12.7
A+++	A+++	A+++	A++	(13)	R410A	62	13.4	17.5
A+++	A+++	A+++	A++	(17)	R410A	62	17.2	22.3
A+++	A+++	A+++	A++	H (7)	R134a	67	6.5	9.1
A+++	A+++	A+++	A++	H (10)	R134a	67	9.1	12.8

Energy efficiency class of the compound system with control



The built-in high-efficiency pumps fulfil the Ecodesign requirements of 2015 with an EEI of ≤ 0.23.

Seal of approval FWS

The Thermalia® comfort (6-17), comfort H (7,10) series are certified by the seal of approval of the authorisation commission of Switzerland

*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 HovalConnect)
- Adaptation of the heating strategy based on the weather forecast (with online HovalConnect)

*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 heat accounting or
  - module expansion universal
- 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*

Electrical connection selectable between lateral (left/right) or top

*Delivery*

Heat pump on pallet, plastic hood and floor plate separately packed. Hose sleeves, clamps and sensor set included separately

*Option*

- Drive motor for 3-way switch ball valve with flexible hose 1"
- internet connection

■ Part No.



Brine/water-water/water heat pump  
Hoval Thermalia® comfort

Part No.

Brine/water-water/water heat pump with hermetic spiral (scroll) compressor for indoor installation with flexible connection pipes and built-in Hoval TopTronic® E control

Control functions integrated for

- 1 heating circuit with mixer
- 1 heating 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
  - module expansion heat accounting
- Can be optionally networked with a total of up to 16 controller modules (incl. solar module)

*Delivery*

- Compact device internally wired ready for installation
- Heat pump on pallet, plastic hood and floor plate separately packed
- Hose sleeves, clamps and sensor set included separately
- Flexible hoses (removable to the left, right or top)

Hoval Thermalia® comfort

Refrigerant R410A

**Flow temperature max. 62 °C**

Thermalia® comfort Type	Heat output	
	with B0W35 kW	with W10W35 kW
(6)	5.8	7.1
(8)	7.6	9.6
(10)	10.6	12.7
(13)	13.4	17.5
(17)	17.2	22.3

7014 715  
7014 716  
7014 717  
7014 718  
7014 719

**Energy efficiency class**  
see Description

Hoval Thermalia® comfort H

Refrigerant R134a

**Flow temperature max. 67 °C**

Thermalia® comfort Type	Heat output	
	with B0W35 kW	with W10W35 kW
(7)	6.5	9.1
(10)	9.1	12.8

7014 721  
7014 722

**Suitable plate heat exchanger**  
see chapter "plate heat exchanger  
for Hoval Thermalia®"

■ Part No.



Accessories

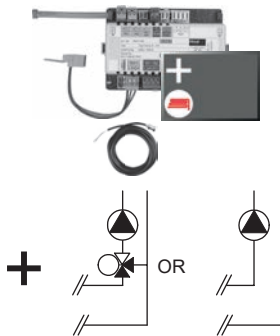
Part No.

**Sound attenuation cowl for compressor**

for reducing the transmission of noise. In heat pumps with two compressors, it is mandatory for two sound attenuation cowls to be ordered.

Thermalia® comfort Type	Number of compressors	Part No.
(6)	1	2069 694
(8)	1	2069 695
(10)	1	2069 695
(13)	1	2069 696
(17)	1	2069 697
H (7)	1	2069 698
H (10)	1	2069 699

■ Part No.



**Notice**

The supplementary plug set may have to be ordered to implement functions differing from the standard!

**TopTronic® E module expansions**  
for TopTronic® E basic module heat generator

Part No.

**TopTronic® E module expansion heating circuit TTE-FE HK**

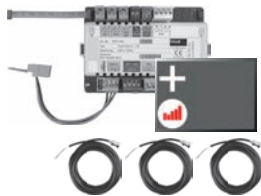
6034 576

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



**Notice**

The flow rate sensor set must be ordered as well.

**TopTronic® E module expansion heating circuit incl. energy balancing TTE-FE HK-EBZ**

6037 062

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



**Flow rate sensor sets**

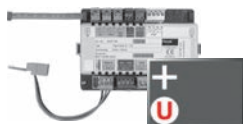
Plastic housing

Size	Connection	Flow rate l/min	
DN 8	G 3/4"	0.9-15	6038 526
DN 10	G 3/4"	1.8-32	6038 507
DN 15	G 1"	3.5-50	6038 508
DN 20	G 1 1/4"	5-85	6038 509
DN 25	G 1 1/2"	9-150	6038 510



Brass housing

Size	Connection	Flow rate l/min	
DN 10	G 1"	2-40	6042 949
DN 32	G 1 1/2"	14-240	6042 950



**TopTronic® E module expansion Universal TTE-FE UNI**

6034 575

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

**Notice**

Refer to the Hoval System Technology to find which functions and hydraulic arrangements can be implemented.

**Further information**

see "Controls" - "Hoval TopTronic® E module expansions" chapter

## ■ Part No.


**HovalConnect available from summer 2019**

Up to that point, TopTronic® E online is delivered.



## 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	6039 253
Consisting of the following languages: HU, CS, SL, RO, PL, TR, ES, HR, SR, JA, DA	

**HovalConnect**

HovalConnect domestic starter LAN	6049 496
HovalConnect domestic starter WLAN	6049 498
HovalConnect commercial starter LAN	6049 495
HovalConnect commercial starter WLAN	6049 497
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
HovalConnect domestic starter Modbus	6049 501
HovalConnect domestic starter KNX	6049 593
HovalConnect commercial starter Modbus	6049 500
HovalConnect commercial starter KNX	6049 502

**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
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**Further information**  
 see "Controls"

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

■ Part No.



Accessories

Part No.

**Protective pipe immersion sleeve  
SB280 1/2"**  
brass nickel-plated  
PN10, 280 mm

2018 837

Accessories for water heating



**Hot water set**  
for Thermalia® comfort (6-17),  
comfort H (7,10)  
Consisting of:  
Motor drive LRA 230A for integrated  
switching valve and flexible  
connecting hose 1"

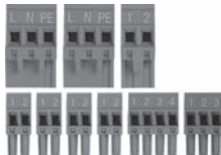
6026 251



**Screw-in electrical heating inset**  
for plants with energy buffer storage tank  
as emergency heating.

Type	Heat output [kW]	Installation depth [mm]
EP 2.5	2.35	390
EP 3.5	3.6	500
EP 5	4.9	620
EP 7.5	7.5	850

6049 557  
6049 558  
6049 559  
6049 560



**Expansion connector set**  
for the automatic heat pump ECR461.  
Use for additional function:  
- Flow monitor  
- Crankcase bottom heating  
(included in the scope of delivery  
for Belaria® twin A, twin AR, dual AR)  
- Condensation drain heating  
- Heat quantity metering  
Plugs:  
- 1x 230V digital input  
- 2x 230V outputs  
- 4x low-voltage inputs  
- 1x ratio. Input






6032 509







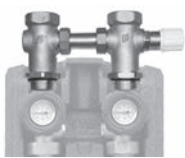
**Universal connector set**  
for automatic heat pump ECR461  
Plugs:  
- 3x 230V digital input  
- 4x 230V outputs  
- 6x low-voltage inputs  
- 2x low-voltage outputs  
- 1x ratio. input  
- 1x electr. expansion valve

6032 510

## ■ Part No.

	Accessories	Part No.
<i>Necessary at boiler room temperatures &lt; 10 °C</i>		
	<p><b>Crankcase heater</b> for Belaria® twin I, twin IR, Thermalia® comfort, Thermalia® twin for compressor protection For Belaria® twin I, twin IR 2 pieces are necessary!</p>	6019 718
	<p><b>Instantaneous water heater kit DN 50</b> from ready electrical box for electrical protection incl. assembly fittings. for combination with all screw-in heating inset EP. Screw-in heaters must be ordered separately.</p>	6044 070
	<p><b>Silt trap</b> Casing made of brass, PN 16 Max. operating temperature 110 °C Sieve made of stainless steel, size of mesh 0.5 mm</p>	
	DN 25-1"	2046 978
	DN 32-1¼"	2046 980
	DN 40-1½"	2046 982
	DN 50-2"	2046 984
	<p><b>Sludge separator CS 25-1" with magnet</b> for flow rates of 1.0 - 2.0 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 1" 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: 1.21 kg</p>	2063 735
	<p><b>Sludge separator CS 32-1¼" with magnet</b> for flow rates of 2.0 - 3.0 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 1¼" 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: 1.37 kg</p>	2063 736

■ Part No.

		Part No.
	<p><b>Freeze protection concentrate PowerCool DC 924-PXL</b>                      on basis propylene glycol                      completely mixable with water                      with corrosion protection                      Frost protection: -20 °C with 40 % mixture ratio                      Content plastic container: 10 kg</p>	<p>2009 987</p>
	<p><b>Float ball flow switch</b>                      area of application 300-3000 l/h,                      0-80 °C, nominal pressure 10 bar                      connection Rp 1½"                      installed length 335 mm                      bistable reed contact as normally open contact</p>	<p>2040 707</p>
	<p><b>Float ball flow switch</b>                      area of application 600-6000 l/h,                      0-80 °C, nominal pressure 10 bar                      connection Rp 1½"                      installed length 335 mm                      bistable reed contact as normally open contact</p>	<p>2040 708</p>
	<p><b>Ground water pump kit SB-GWP</b>                      for Thermalia® comfort (6-17),                      comfort H (7,10)                      Contactor for actuation of a 3-phase ground water pump.                      Ready to connect without thermal overload protection</p>	<p>6025 513</p>
	<p><b>Bypass valve DN 32 (1¼")</b>                      for the installation in a HA group DN 32                      Setting range 0.6-1.5 bar                      Max. flow rate: 1.5 m³/h                      with self-sealing screw connection for mounting between flow and return ball valve</p>	<p>6014 849</p>



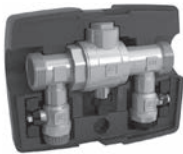
■ Part No.

Part No.



**Brine filling station in compact design DN 25**  
with shut-off valves, filter and EPS insulation.  
Application temperatures -20°C to +60°C  
Frost protection max. 50 %  
Connections DN 25 G 1", kvs 12.5  
Max. operating pressure 1.0 MPa (10 bar)  
Dirt screen integrated

6037 537



**Brine filling station in compact design DN 32**  
with shut-off valves, filter and EPS insulation.  
Application temperatures -20°C to +60°C  
Frost protection max. 50 %  
Connections DN 32 G 1¼", kvs 22  
Max. operating pressure 1.0 MPa (10 bar)  
Dirt screen integrated

6033 364



**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

Services



**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® comfort (6-17) with R410A

Type		(6)	(8)	(10)	(13)	(17)
Seasonal coefficient of performance moderate climate (brine) 35 °C /55 °C	SCOP	4.4/3.2	4.6/3.3	5.0/3.5	5.0/3.7	5.0/3.7
<i>Performance data acc. to EN 14511</i>						
• Heat output B0W35	kW <sup>1</sup>	5.83	7.56	10.58	13.36	17.18
• Power consumption B0W35	kW <sup>1</sup>	1.31	1.66	2.20	2.78	3.64
• Coefficient of performance B0W35	COP	4.45	4.55	4.81	4.81	4.72
• Heat output W10W35	kW <sup>1</sup>	7.11	9.63	12.71	17.52	22.34
• Power consumption W10W35	kW <sup>1</sup>	1.31	1.64	2.09	2.79	3.80
• Coefficient of performance W10W35	COP	5.43	5.87	6.08	6.28	5.88
• Operating weight	approx. kg	140	150	160	170	180
• Compressor type			1 x spiral (scroll), hermetic			
• Refrigerant filling R410A	kg	1.3	1.6	1.85	2.12	2.4
• Condenser/evaporator			Plate heat exchanger			
Material			Stainless steel V4A, AISI 316, 1.4401			
Piping connections with flex. connecting hose	G	1"	1"	1"	1"	1"
<i>Nominal volume flow and resistance brine/water heat pump</i>						
• Heating ( $\Delta T = 5 \text{ K}$ )	m <sup>3</sup> /h	1.01	1.30	1.82	2.30	2.96
$\Delta P$ Pressure drop condenser	kPa	6.2	6.7	8.3	9.2	10.2
Residual overpressure	kPa	69	68	57	67	62
• Heat source ( $\Delta T = 3.5 \text{ K}$ )	m <sup>3</sup> /h	1.26	1.65	2.34	2.96	3.78
$\Delta P$ Pressure drop evaporator (glycol)	kPa	11.3	12.9	16.5	20.4	16.2
Residual overpressure	kPa	60	63	55	94	98
<i>Nominal volume flow and resistance water/water heat pump</i>						
• Heating ( $\Delta T = 5 \text{ K}$ )	m <sup>3</sup> /h	1.23	1.66	2.19	3.02	3.85
$\Delta P$ Pressure drop condenser	kPa	9.2	10.9	11.9	15.8	14.1
Residual overpressure	kPa	62	55	45	59	52
• Heat source ( $\Delta T = 5 \text{ K}$ ) <sup>5</sup>	m <sup>3</sup> /h	1.0	1.38	1.83	2.54	2.84
$\Delta P$ Pressure drop evaporator	kPa	9.3	10.6	13.5	16.7	13.2
Residual overpressure	kPa	68	72	80	108	110
• Operating pressure max.						
- Water side	bar			6		
- Brine side	bar			6		
<i>Operating limit values</i>						
• Ranges of application for heating and see diagrams.						
• Ranges of application for heating and hot water see diagrams						
• Installation place operation <sup>4</sup>	min./max.	°C		5/35		
Storage	min./max.	°C		-15/50		
<b>Electrical data <sup>3</sup></b>						
Voltage	V			3 x 400		
Frequency	Hz			50		
Voltage range	V			380-420		
Operating pressure compressor I <sub>max</sub>	A	4.8	6.2	7.4	9.7	13.0
Starting current with starting current limiter <sup>2</sup>	A	9.6	12.4	14.8	19.4	26.0
Principal current (external protection) with brine systems	A	13	13	13	13	16
	Type	C,D,K	C,D,K	C,D,K	C,D,K	C,D,K
Principal current (external protection) with ground water systems	A	13	13	13	13	16
	Type	C,D,K	C,D,K	C,D,K	C,D,K	C,D,K
Control current (external protection)	A	13	13	13	13	13
	Type	B,C,D,K,Z	B,C,D,K,Z	B,C,D,K,Z	B,C,D,K,Z	B,C,D,K,Z

<sup>1</sup> kW = Standard values according to EN 14511; Values for B0W35 with 25 % monopolypropylene

<sup>2</sup> Effective value

<sup>3</sup> Values for electrical data apply for supply voltage of 3 x 400 V

<sup>4</sup> <10 °C Crankcase heater is necessary

<sup>5</sup>  $\Delta T$  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® comfort H (7,10) with R134a

Type		H (7)	H (10)
Seasonal coefficient of performance moderate climate 35 °C /55 °C	SCOP	4.7/3.5	4.9/3.7
<i>Performance data acc. to EN 14511</i>			
• Heat output B0W35	kW <sup>1</sup>	6.5	9.1
• Power consumption B0W35	kW <sup>1</sup>	1.4	2.0
• Coefficient of performance B0W35	COP	4.50	4.6
• Heat output W10W35	kW <sup>1</sup>	9.1	12.8
• Power consumption W10W35	kW <sup>1</sup>	1.6	2.1
• Coefficient of performance W10W35	COP	5.90	6.0
• Operating weight	approx. kg	160	180
• Compressor type		1 x spiral (scroll), hermetic	
• Refrigerant filling R134a	kg	2.75	3.4
• Condenser/evaporator		Plate heat exchanger	
Material		Stainless steel V4A, AISI 316, 1.4401	
Piping connections with flex. connecting hose	G	1"	1"
<i>Nominal volume flow and resistance brine/water heat pump</i>			
• Heating ( $\Delta T = 5 \text{ K}$ )	m <sup>3</sup> /h	1.14	1.61
$\Delta P$ Pressure drop condenser	kPa	6.0	7.0
Residual overpressure	kPa	69	63
• Heat source ( $\Delta T = 3.5 \text{ K}$ )	m <sup>3</sup> /h	1,47	2,07
$\Delta P$ Pressure drop evaporator	kPa	12,5	16,2
Residual overpressure	kPa	59	60
<i>Nominal volume flow and resistance water/water heat pump</i>			
• Heating ( $\Delta T = 5 \text{ K}$ )	m <sup>3</sup> /h	1.6	2.25
$\Delta P$ Pressure drop condenser	kPa	13.0	14.0
Residual overpressure	kPa	57	41
• Heat source ( $\Delta T = 5 \text{ K}$ ) <sup>5</sup>	m <sup>3</sup> /h	1.34	1.89
$\Delta P$ Pressure drop evaporator	kPa	7.49	9.7
Residual overpressure	kPa	68	70
• Operating pressure max.			
- Water side	bar		6
- Brine side	bar		6
Operating limit values			
• Ranges of application for heating see diagrams.			
• Ranges of application for heating and hot water see diagrams			
• Installation place operation <sup>4</sup>	min./max.	°C	5/35
Storage	min./max.	°C	-15/50
<b>Electrical data <sup>3</sup></b>			
Voltage	V		3 x 400
Frequency	Hz		50
Voltage range	V		380-420
Operating pressure compressor I <sub>max</sub>	A	6.8	10.1
Starting current with starting current limiter <sup>2</sup>	A	13.6	20.2
Principal current (external protection) with brine systems	A	13	13
	Type	C,D,K	C,D,K
Principal current (external protection) with ground water systems	A	13	13
	Type	C,D,K	C,D,K
Control current (external protection)	A	13	13
	Type	B,C,D,K,Z	B,C,D,K,Z

<sup>1</sup> kW = standard values according to EN 14511; values for B0W35 with 25 % monopolypropylene

<sup>2</sup> Effective value

<sup>3</sup> Values for electrical data apply for supply voltage of 3 x 400 V

<sup>4</sup> <10 °C crankcase heater is necessary

<sup>5</sup>  $\Delta T$  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® comfort (6-17), comfort H (7,10)

**Sound emission**

The effective sound pressure level <sup>1</sup> in the installation room is dependent on different factors like room size, absorptive capacity, reflection, free sound spreading etc.

Therefore it is important that the installation room lies, if possible, outside the noise-sensitive range and is supplied with sound-absorbing doors.

Ducts and pipes must be fixed to walls and ceiling in a way that no structure-borne sound is being transmitted to the system.

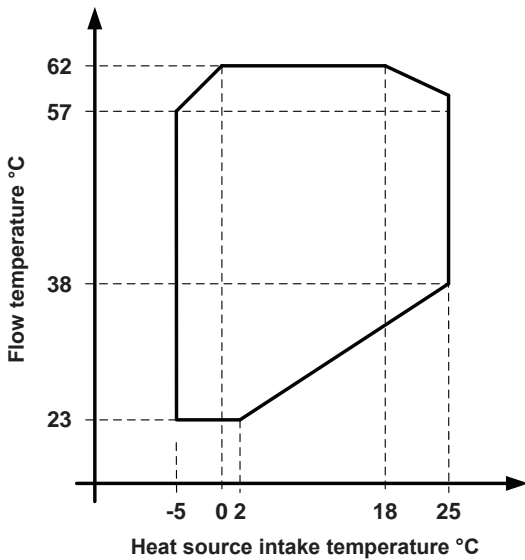
Thermalia® comfort (6-17)	(6)	(8)	(10)	(13)	(17)
Thermalia® comfort H			(7)		(10)
Sound power level dB(A)	45	46	46	49	50
Sound pressure level dB(A) <sup>1</sup>	35	35	36	37	38

<sup>1</sup> Sound pressure level, distance 1 m  
(in standard room with approx. 5-6 dB(A) sound absorption)

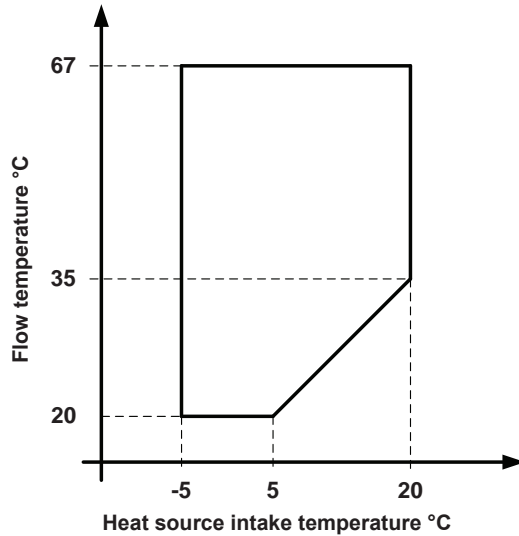
Diagrams range of application

Heating and hot water

Thermalia® comfort (6-17)



Thermalia® comfort H (7,10)

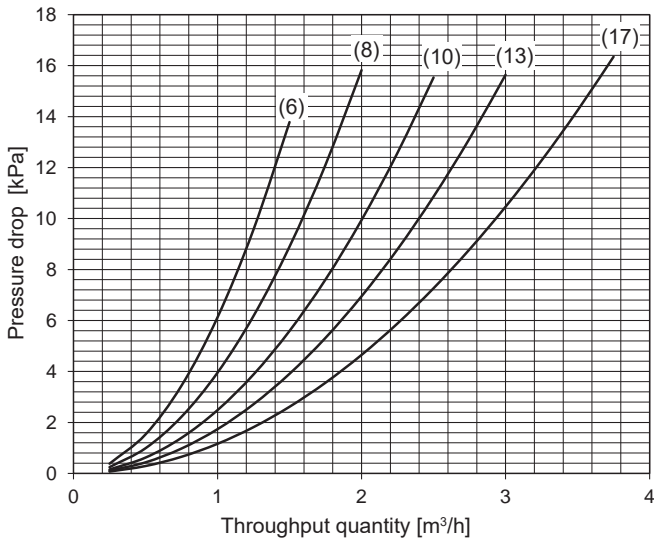


■ Technical data

Hoval Thermalia® comfort (6-17)

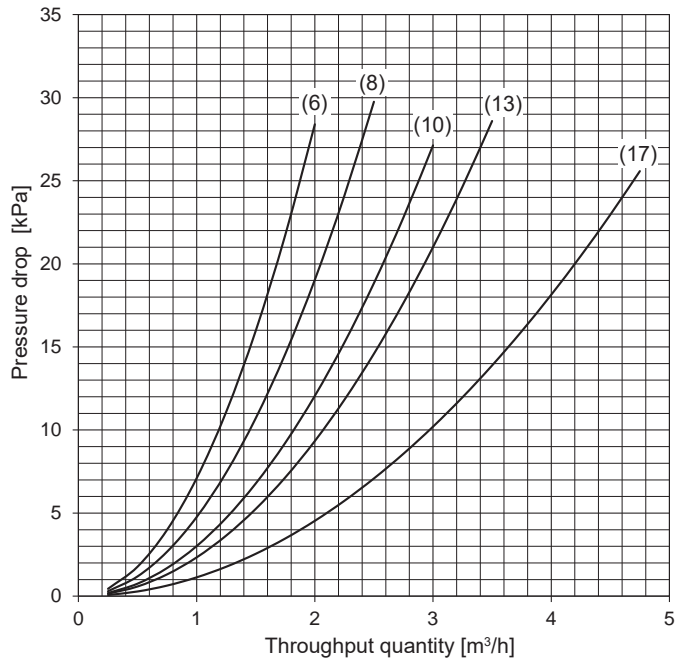
Heating

Pressure drop condenser with water



Heat source

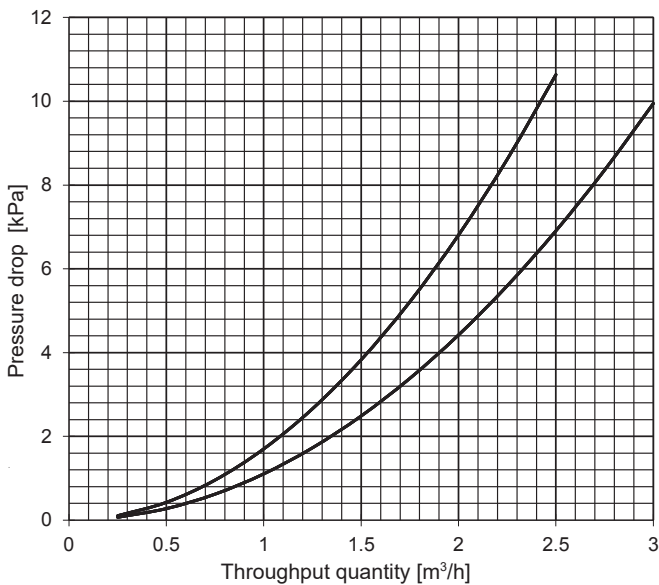
Pressure drop evaporator with ethylene glycol 25 % (Antifrogen N)



Hoval Thermalia® comfort H (7,10)

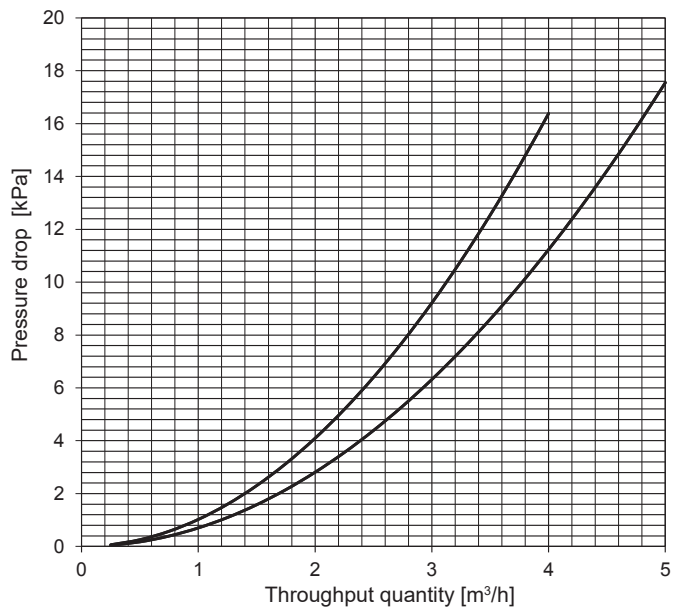
Heating

Pressure drop condenser with water



Heat source

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



Refrigeration capacity

$$Q_0 = Q - P$$

- $Q_0$  = Refrigeration capacity (kW)
- $Q$  = Heat output (kW)
- $P$  = Power consumption compressor (kW)
- $\Delta t_2$  = Temperature difference heat source supply/discharge (K)
- $C$  = 0.86
- $c_p$  = 0.89 (specific heat)
- $\gamma$  = 1.05 (specific weight, density)

Volume flow evaporator

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

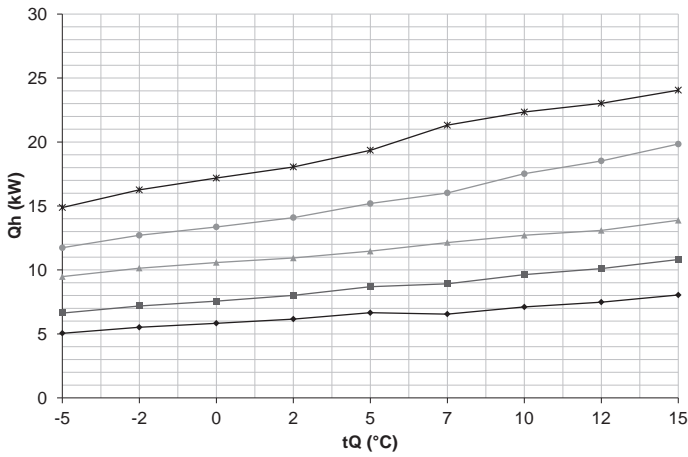
- $\Delta p$  (kPa) = Pressure drop with frost protection (1 kPa = 0.1 mWC)
- $\Delta p = f \times \Delta P \cdot f$  Ethylene glycol % (Antifrogen N)
- 0.97  $\triangleq$  20 %
- 1  $\triangleq$  25 %
- 1.03  $\triangleq$  30 %
- $\Delta p_w$  (kPa) = Pressure drop with water (1 kPa = 0.1 mWC)
- $\Delta p_w = \Delta P \times 0.89$

■ Technical data  
Performance data - heating

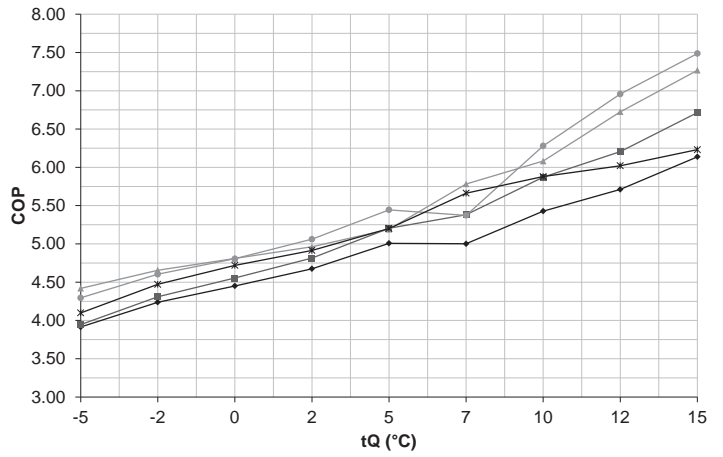
Maximum heat output

Hoval Thermalia® comfort (6-17)

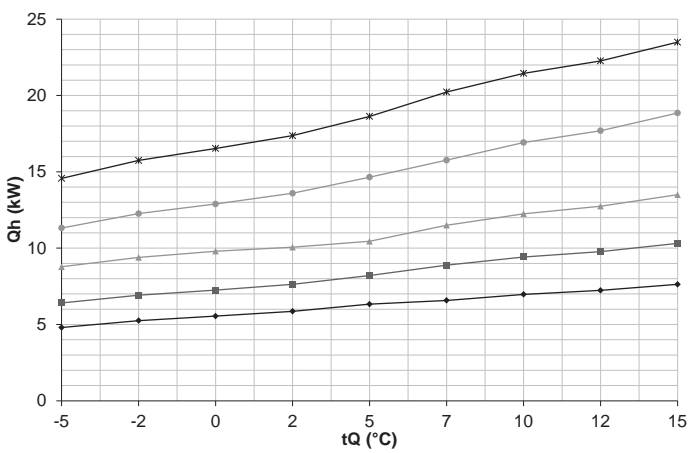
Heat output -  $t_{VL}$  35 °C



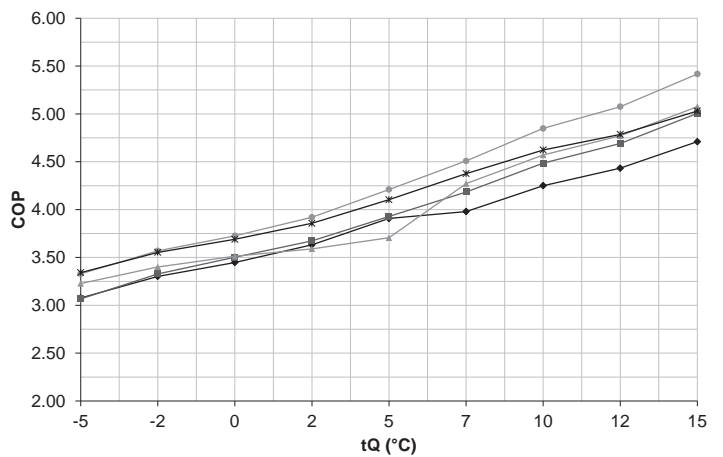
Output rating -  $t_{VL}$  35 °C



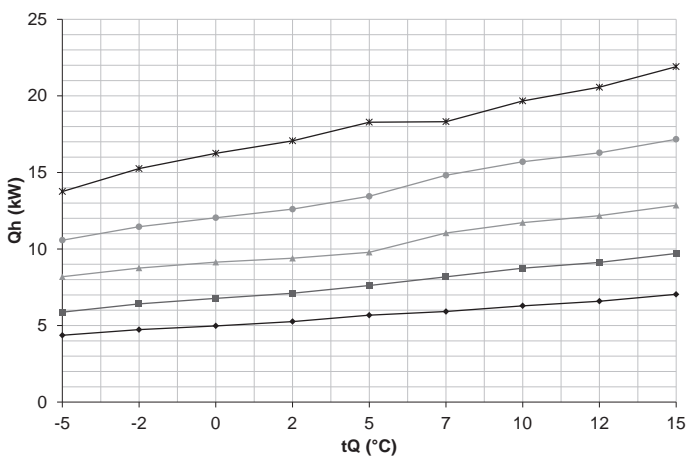
Heat output -  $t_{VL}$  45 °C



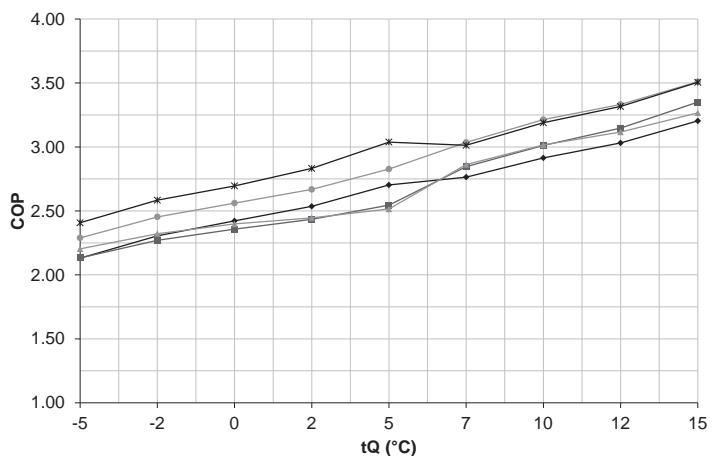
Output rating -  $t_{VL}$  45 °C



Heat output -  $t_{VL}$  62 °C



Output rating -  $t_{VL}$  62 °C



$t_{VL}$  = heating flow temperature (°C)

$t_Q$  = source temperature (°C)

$Q_h$  = 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® comfort (6)
- Thermalia® comfort (8)
- ▲ Thermalia® comfort (10)
- Thermalia® comfort (13)
- ✕ Thermalia® comfort (17)

■ Technical data

Performance data - heating

Hoval Thermalia® comfort (6-17)

Indications acc. to EN 14511

Type	tVL °C	tQ °C	(6)			(8)			(10)			(13)			(17)		
			Qh kW	P kW	COP	Qh kW	P kW	COP	Qh kW	P kW	COP	Qh kW	P kW	COP	Qh kW	P kW	COP
30	Brine	-5	5.1	1.2	4.28	6.7	1.5	4.34	9.7	2.0	4.97	11.9	2.5	4.73	15.0	3.4	4.42
		-2	5.6	1.2	4.65	7.3	1.5	4.75	10.4	2.0	5.24	12.9	2.5	5.07	16.4	3.4	4.87
		0	5.9	1.2	4.90	7.7	1.5	5.03	10.8	2.0	5.41	13.5	2.6	5.29	17.4	3.4	5.18
		2	6.3	1.2	5.14	8.1	1.5	5.33	11.2	2.0	5.60	14.3	2.6	5.58	18.3	3.4	5.38
		5	6.8	1.2	5.49	8.9	1.5	5.78	11.8	2.0	5.89	15.4	2.6	6.00	19.6	3.4	5.68
	Water	7	6.5	1.2	5.47	8.9	1.5	5.95	12.4	1.9	6.49	16.1	2.7	5.97	21.7	3.5	6.23
		10	7.2	1.2	5.96	9.7	1.5	6.52	12.9	1.9	6.79	17.7	2.6	6.93	22.6	3.5	6.43
		12	7.6	1.2	6.29	10.2	1.5	6.92	13.2	1.7	7.75	18.8	2.4	7.87	23.3	3.5	6.56
		15	8.2	1.2	6.78	11.0	1.5	7.52	14.0	1.7	8.44	20.2	2.4	8.50	24.2	3.6	6.75
		35	Brine	-5	5.1	1.3	3.91	6.6	1.7	3.95	9.5	2.1	4.42	11.7	2.7	4.29	14.9
-2	5.5			1.3	4.24	7.2	1.7	4.31	10.1	2.2	4.66	12.7	2.8	4.60	16.3	3.6	4.47
0	5.8			1.3	4.45	7.6	1.7	4.55	10.6	2.2	4.81	13.4	2.8	4.81	17.2	3.6	4.72
2	6.2			1.3	4.68	8.0	1.7	4.81	10.9	2.2	4.96	14.1	2.8	5.06	18.0	3.7	4.92
5	6.7			1.3	5.01	8.7	1.7	5.20	11.5	2.2	5.19	15.2	2.8	5.44	19.4	3.7	5.20
Water	7		6.6	1.3	5.00	8.9	1.7	5.38	12.1	2.1	5.78	16.0	3.0	5.37	21.3	3.8	5.66
	10		7.1	1.3	5.43	9.6	1.6	5.87	12.7	2.1	6.08	17.5	2.8	6.28	22.3	3.8	5.88
	12		7.5	1.3	5.71	10.1	1.6	6.21	13.1	1.9	6.73	18.5	2.7	6.96	23.0	3.8	6.02
	15		8.0	1.3	6.14	10.8	1.6	6.71	13.9	1.9	7.27	19.8	2.7	7.49	24.1	3.9	6.23
	40		Brine	-5	4.9	1.4	3.46	6.5	1.9	3.46	9.1	2.4	3.75	11.5	3.1	3.76	14.7
-2		5.4		1.4	3.72	7.1	1.9	3.76	9.8	2.5	3.95	12.5	3.1	4.03	16.0	4.0	3.97
0		5.7		1.5	3.90	7.4	1.9	3.97	10.2	2.5	4.08	13.1	3.1	4.21	16.9	4.1	4.15
2		6.0		1.5	4.10	7.8	1.9	4.18	10.5	2.5	4.19	13.8	3.1	4.43	17.7	4.1	4.33
5		6.5		1.5	4.40	8.5	1.9	4.49	11.0	2.5	4.36	14.9	3.1	4.76	19.0	4.1	4.60
Water		7	6.6	1.5	4.43	8.9	1.9	4.71	11.8	2.4	4.93	15.9	3.2	4.91	20.8	4.2	4.95
		10	7.0	1.5	4.77	9.5	1.9	5.09	12.5	2.4	5.23	17.2	3.1	5.48	21.9	4.2	5.19
		12	7.4	1.5	5.00	9.9	1.9	5.36	12.9	2.3	5.60	18.1	3.1	5.89	22.6	4.2	5.34
		15	7.8	1.5	5.35	10.6	1.8	5.75	13.7	2.3	5.99	19.3	3.1	6.31	23.8	4.3	5.57
		45	Brine	-5	4.8	1.6	3.08	6.4	2.1	3.07	8.8	2.7	3.23	11.3	3.4	3.33	14.6
-2	5.3			1.6	3.30	6.9	2.1	3.33	9.4	2.8	3.40	12.3	3.4	3.57	15.7	4.4	3.55
0	5.6			1.6	3.45	7.3	2.1	3.50	9.8	2.8	3.51	12.9	3.5	3.73	16.5	4.5	3.69
2	5.9			1.6	3.63	7.6	2.1	3.67	10.1	2.8	3.59	13.6	3.5	3.92	17.4	4.5	3.86
5	6.3			1.6	3.91	8.2	2.1	3.93	10.5	2.8	3.71	14.7	3.5	4.21	18.6	4.5	4.10
Water	7		6.6	1.7	3.98	8.9	2.1	4.18	11.5	2.7	4.27	15.8	3.5	4.51	20.2	4.6	4.38
	10		7.0	1.6	4.25	9.4	2.1	4.49	12.3	2.7	4.57	16.9	3.5	4.85	21.5	4.6	4.62
	12		7.2	1.6	4.43	9.8	2.1	4.69	12.8	2.7	4.77	17.7	3.5	5.08	22.3	4.7	4.79
	15		7.6	1.6	4.71	10.3	2.1	5.00	13.5	2.7	5.08	18.9	3.5	5.42	23.5	4.7	5.03
	50		Brine	-5	4.7	1.7	2.73	6.2	2.3	2.71	8.6	3.0	2.86	11.1	3.8	2.95	14.3
-2		5.1		1.7	2.92	6.7	2.3	2.93	9.2	3.1	3.01	12.0	3.8	3.17	15.6	4.9	3.18
0		5.4		1.8	3.04	7.1	2.3	3.07	9.6	3.1	3.11	12.6	3.8	3.30	16.4	5.0	3.32
2		5.7		1.8	3.20	7.4	2.3	3.21	9.9	3.1	3.17	13.3	3.8	3.47	17.3	5.0	3.47
5		6.2		1.8	3.44	8.0	2.3	3.42	10.3	3.1	3.27	14.3	3.9	3.71	18.6	5.0	3.69
Water		7	6.4	1.8	3.54	8.6	2.4	3.63	11.4	3.0	3.74	15.5	3.9	3.97	19.6	5.1	3.83
		10	6.8	1.8	3.75	9.2	2.4	3.88	12.1	3.0	3.99	16.6	3.9	4.25	20.9	5.1	4.06
		12	7.1	1.8	3.90	9.5	2.4	4.05	12.6	3.0	4.15	17.3	3.9	4.43	21.7	5.2	4.20
		15	7.5	1.8	4.11	10.1	2.3	4.30	13.3	3.0	4.39	18.4	3.9	4.71	23.0	5.2	4.42
		55	Brine	-5	4.5	1.9	2.44	5.9	2.5	2.40	8.4	3.3	2.55	10.9	4.1	2.64	14.0
-2	4.9			1.9	2.60	6.5	2.5	2.59	9.0	3.4	2.69	11.8	4.2	2.83	15.4	5.4	2.87
0	5.2			1.9	2.70	6.9	2.5	2.72	9.4	3.4	2.78	12.4	4.2	2.96	16.3	5.4	3.01
2	5.5			1.9	2.84	7.2	2.6	2.83	9.7	3.4	2.83	13.0	4.2	3.09	17.2	5.5	3.15
5	6.0			2.0	3.05	7.8	2.6	3.00	10.1	3.5	2.92	13.9	4.2	3.30	18.5	5.5	3.35
Water	7		6.3	2.0	3.18	8.4	2.6	3.19	11.2	3.4	3.33	15.2	4.3	3.53	19.0	5.6	3.39
	10		6.7	2.0	3.35	8.9	2.6	3.40	11.9	3.4	3.52	16.2	4.3	3.76	20.3	5.7	3.59
	12		6.9	2.0	3.46	9.3	2.6	3.54	12.4	3.4	3.65	16.9	4.3	3.91	21.1	5.7	3.72
	15		7.3	2.0	3.63	9.9	2.6	3.75	13.1	3.4	3.85	17.9	4.3	4.14	22.4	5.7	3.92
	62		Brine	-5	4.4	2.0	2.13	5.9	2.8	2.13	8.2	3.7	2.20	10.6	4.6	2.29	13.8
-2		4.7		2.1	2.31	6.4	2.8	2.27	8.8	3.8	2.32	11.5	4.7	2.45	15.3	5.9	2.58
0		5.0		2.1	2.42	6.8	2.9	2.36	9.1	3.8	2.40	12.0	4.7	2.56	16.3	6.0	2.70
2		5.3		2.1	2.54	7.1	2.9	2.43	9.4	3.8	2.45	12.6	4.7	2.67	17.1	6.0	2.83
5		5.7		2.1	2.70	7.6	3.0	2.54	9.8	3.9	2.52	13.4	4.8	2.83	18.3	6.0	3.04
Water		7	5.9	2.1	2.76	8.2	2.9	2.85	11.0	3.9	2.86	14.8	4.9	3.04	18.3	6.1	3.01
		10	6.3	2.2	2.91	8.7	2.9	3.01	11.7	3.9	3.02	15.7	4.9	3.21	19.7	6.2	3.19
		12	6.6	2.2	3.03	9.1	2.9	3.15	12.2	3.9	3.12	16.3	4.9	3.33	20.6	6.2	3.32
		15	7.0	2.2	3.20	9.7	2.9	3.35	12.9	3.9	3.27	17.2	4.9	3.51	21.9	6.2	3.51

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

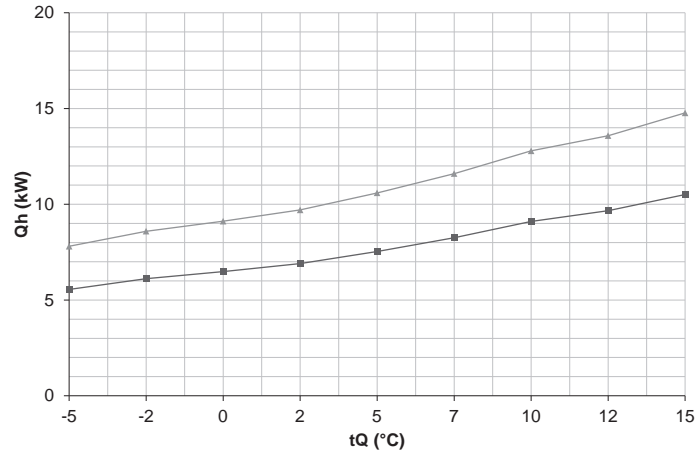
Take account of daily power cuts!  
see Engineering

■ Technical data  
Performance data - heating

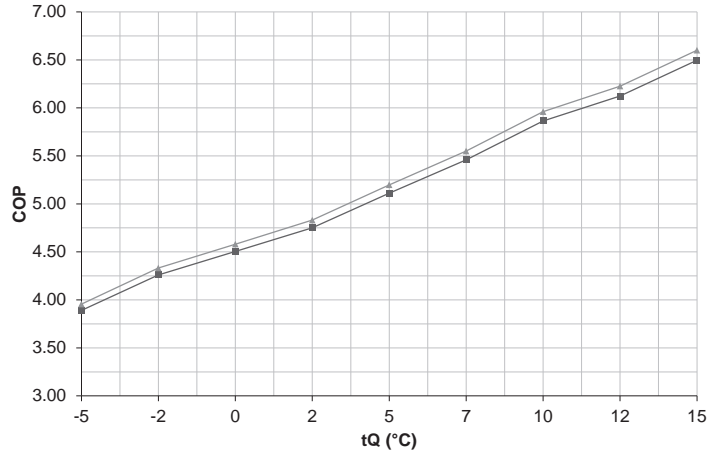
Maximum heat output

Hoval Thermalia® comfort H (7,10)

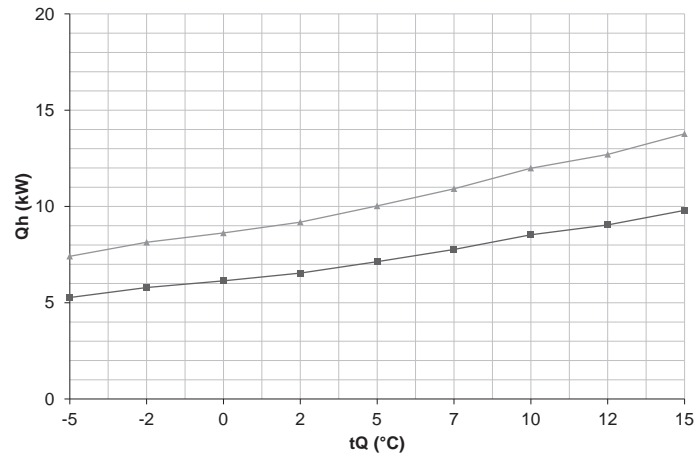
Heat output -  $t_{VL}$  35 °C



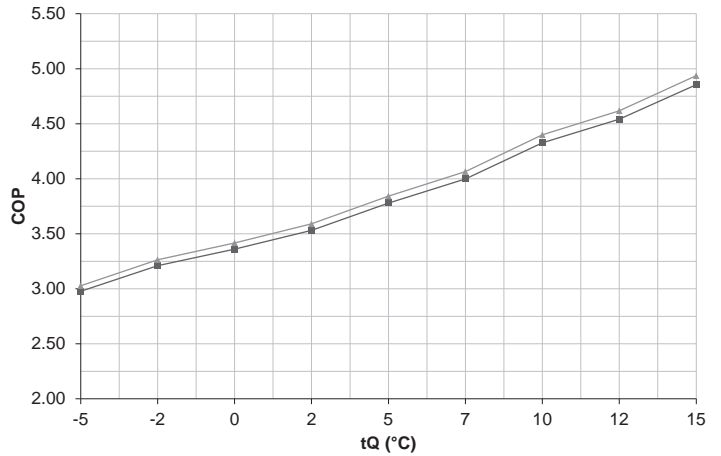
Output rating -  $t_{VL}$  35 °C



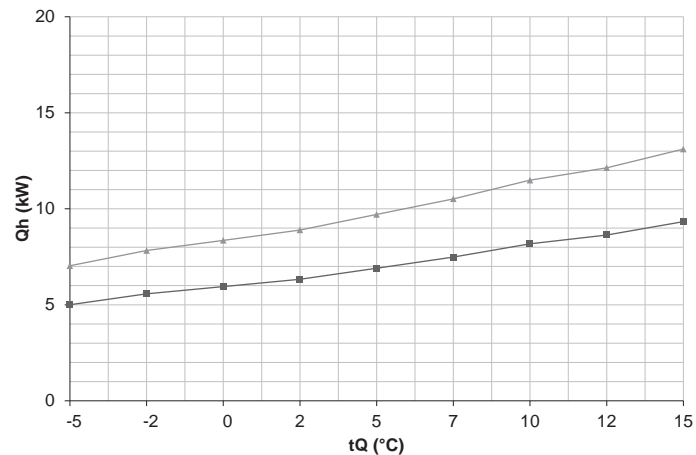
Heat output -  $t_{VL}$  50 °C



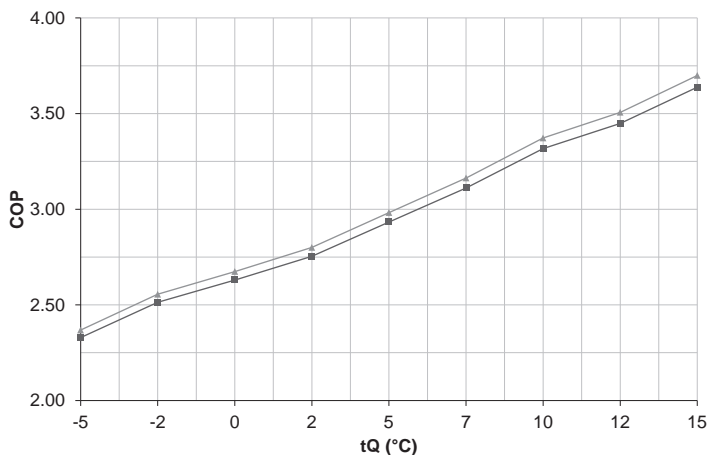
Output rating -  $t_{VL}$  50 °C



Heat output -  $t_{VL}$  65 °C



Output rating -  $t_{VL}$  65 °C



$t_{VL}$  = heating flow temperature (°C)  
 $t_Q$  = source temperature (°C)  
 $Q_h$  = 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® comfort H (7)  
 ▲ Thermalia® comfort H (10)



**■ Technical data**

Performance data - heating

**Hoval Thermalia® comfort H (7,10)**

Indications acc. to EN 14511

Type tVL °C	tQ °C	Qh kW	H (7)		H (10)		COP	
			P kW	COP	P kW	COP		
30	Brine	-5	5.6	1.4	4.16	7.9	1.9	4.23
		-2	6.2	1.4	4.58	8.7	1.9	4.65
		0	6.6	1.4	4.86	9.2	1.9	4.94
		2	7.0	1.4	5.13	9.8	1.9	5.21
		5	7.6	1.4	5.53	10.7	1.9	5.62
	Water	7	8.4	1.4	5.92	11.8	2.0	6.02
		10	9.3	1.5	6.33	13.0	2.0	6.44
		12	9.8	1.5	6.59	13.8	2.1	6.70
		15	-	-	-	-	-	-
		-	-	-	-	-	-	-
35	Brine	-5	5.6	1.4	3.89	7.8	2.0	3.96
		-2	6.1	1.4	4.26	8.6	2.0	4.33
		0	6.5	1.4	4.50	9.1	2.0	4.58
		2	6.9	1.5	4.75	9.7	2.0	4.83
		5	7.5	1.5	5.11	10.6	2.0	5.20
	Water	7	8.3	1.5	5.46	11.6	2.1	5.55
		10	9.1	1.6	5.86	12.8	2.1	5.96
		12	9.7	1.6	6.12	13.6	2.2	6.23
		15	10.5	1.6	6.50	14.8	2.2	6.60
		-	-	-	-	-	-	-
40	Brine	-5	5.5	1.5	3.54	7.7	2.1	3.60
		-2	6.0	1.6	3.85	8.4	2.2	3.91
		0	6.3	1.6	4.05	8.9	2.2	4.12
		2	6.8	1.6	4.26	9.5	2.2	4.33
		5	7.4	1.6	4.58	10.4	2.2	4.65
	Water	7	8.1	1.7	4.86	11.3	2.3	4.94
		10	8.9	1.7	5.26	12.5	2.3	5.35
		12	9.4	1.7	5.52	13.2	2.4	5.61
		15	10.2	1.7	5.89	14.4	2.4	5.99
		-	-	-	-	-	-	-
45	Brine	-5	5.4	1.7	3.24	7.5	2.3	3.37
		-2	5.9	1.7	3.49	8.2	2.3	3.55
		0	6.2	1.7	3.66	8.7	2.3	3.72
		2	6.6	1.7	3.85	9.3	2.4	3.91
		5	7.2	1.7	4.13	10.1	2.4	4.20
	Water	7	7.9	1.8	4.36	11.1	2.5	4.43
		10	8.7	1.8	4.75	12.2	2.5	4.81
		12	9.2	1.8	5.00	12.9	2.5	5.08
		15	10.0	1.9	5.37	14.0	2.6	5.45
		-	-	-	-	-	-	-
50	Brine	-5	5.3	1.8	2.98	7.4	2.4	3.03
		-2	5.8	1.8	3.21	8.1	2.5	3.26
		0	6.1	1.8	3.36	8.6	2.5	3.42
		2	6.5	1.9	3.53	9.2	2.6	3.59
		5	7.1	1.9	3.78	10.0	2.6	3.84
	Water	7	7.8	1.9	4.00	10.9	2.7	4.07
		10	8.5	2.0	4.33	12.0	2.7	4.40
		12	9.0	2.0	4.54	12.7	2.8	4.62
		15	9.8	2.0	4.86	13.8	2.8	4.94
		-	-	-	-	-	-	-
55	Brine	-5	5.2	1.9	2.75	7.3	2.6	2.79
		-2	5.7	1.9	2.96	8.0	2.7	3.01
		0	6.1	2.0	3.10	8.5	2.7	3.15
		2	6.5	2.0	3.26	9.1	2.7	3.31
		5	7.1	2.0	3.48	9.9	2.8	3.54
	Water	7	7.7	2.1	3.68	10.8	2.9	3.75
		10	8.4	2.1	3.97	11.8	2.9	4.01
		12	8.9	2.1	4.15	12.5	3.0	4.22
		15	9.6	2.2	4.42	13.5	3.0	4.49
		-	-	-	-	-	-	-
62	Brine	-5	5.1	2.1	2.44	7.1	2.9	2.48
		-2	5.6	2.1	2.64	7.9	2.9	2.68
		0	6.0	2.2	2.76	8.4	3.0	2.80
		2	6.4	2.2	2.89	9.0	3.0	2.94
		5	7.0	2.3	3.08	9.8	3.1	3.13
	Water	7	7.5	2.3	3.27	10.6	3.2	3.32
		10	8.2	2.4	3.49	11.6	3.3	3.55
		12	8.7	2.4	3.64	12.2	3.3	3.70
		15	9.4	2.4	3.85	13.2	3.4	3.91
		-	-	-	-	-	-	-
65	Brine	-5	5.0	2.1	2.33	7.0	3.0	2.37
		-2	5.6	2.2	2.51	7.8	3.1	2.56
		0	5.9	2.3	2.63	8.4	3.1	2.67
		2	6.3	2.3	2.75	8.9	3.2	2.80
		5	6.9	2.4	2.93	9.7	3.3	2.98
	Water	7	7.5	2.4	3.11	10.5	3.3	3.16
		10	8.2	2.5	3.32	11.5	3.4	3.37
		12	8.6	2.5	3.45	12.1	3.5	3.51
		15	9.3	2.6	3.64	13.1	3.5	3.70
		25	-	-	-	-	-	-

tVL = heating flow temperature (°C)

tQ = source temperature (°C)

Qh = heat output at full load (kW), measured in accordance with standard EN 14511

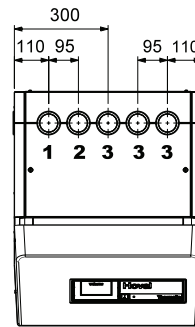
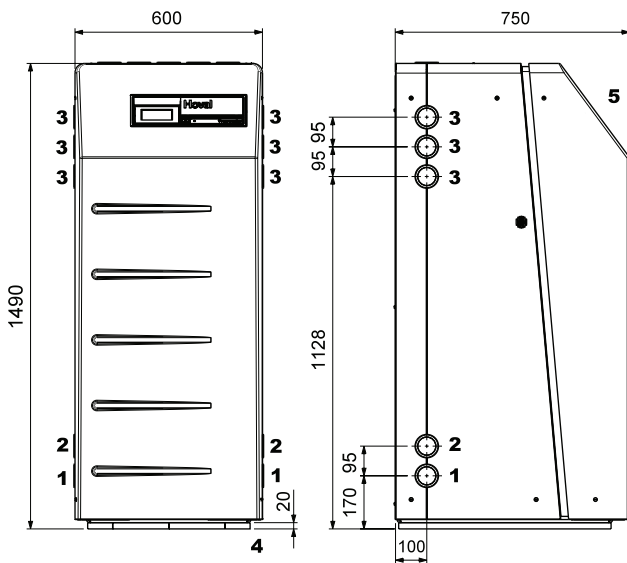
P = power consumption of the overall unit (kW)

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® comfort (6-17) and comfort H (7,10)  
Dimensions in mm



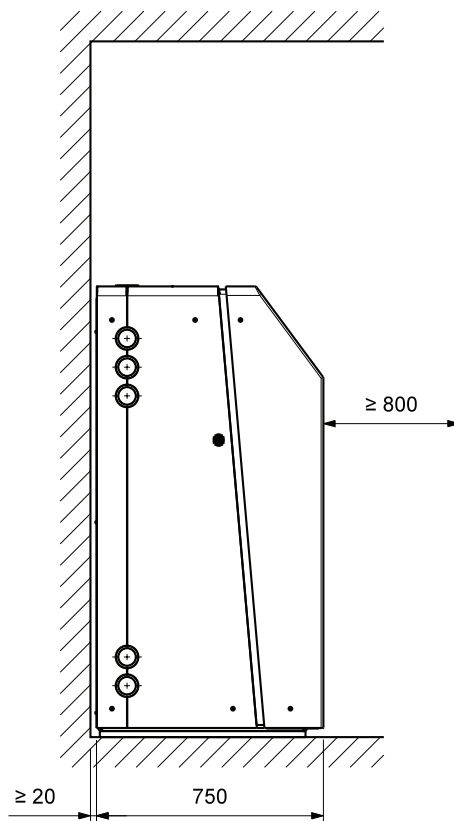
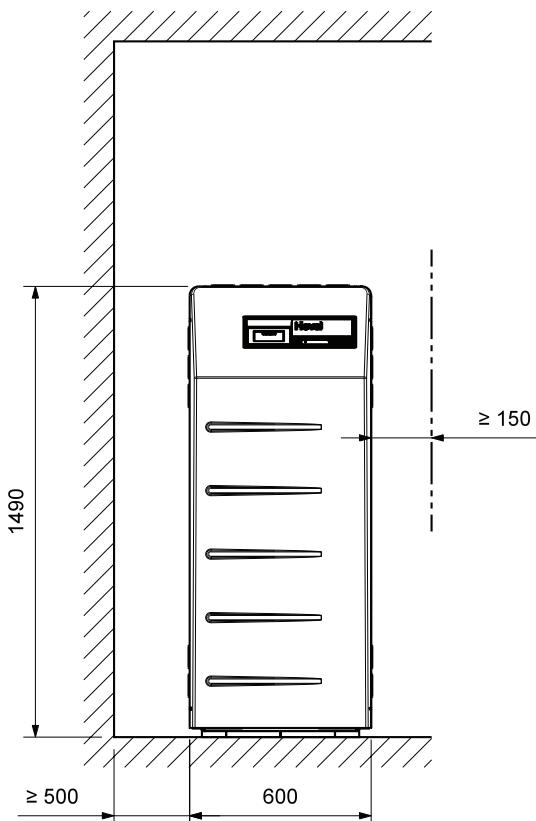
- 1 Heat source - outlet R1" (selectable lateral or above)
- 2 Heat source - inlet R1" (selectable lateral or above)
- 3 Openings freely selectable for:
  - heating flow R1"
  - heating return R1"
  - hot water R1" (left or above)
  - electrical connection
- 4 Vibration damping
- 5 Control panel

The 4 flexible hoses 1" can be extracted from the heat pump by at least 30 cm

**Required space**

(required wall distance in mm for operation and maintenance)

front	rear	right or left side
min. 800	min. 20	min. 500

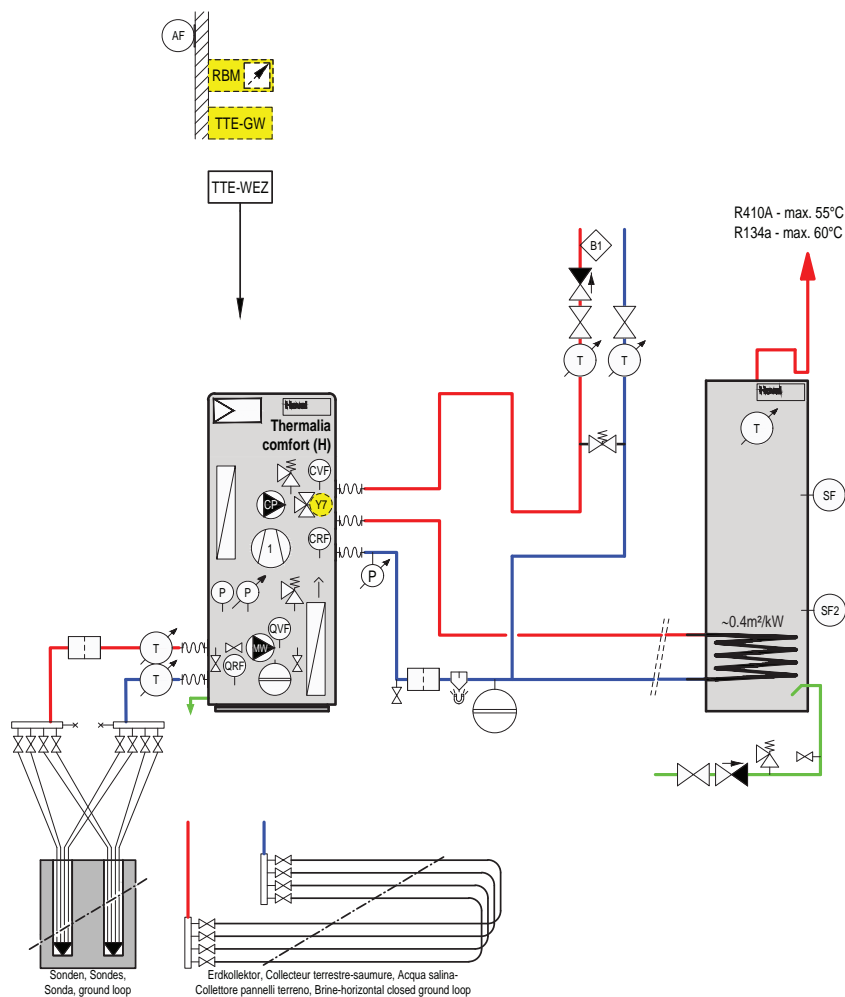


## ■ Examples

## Thermalia® comfort (6-17), comfort H (7,10)

Brine/water-water/water heat pump with

- earth probes
- calorifier
- 1 direct circuit

**Hydraulic schematic BBBAE020**

**Important notices**

- 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.
- 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!

TTE-WEZ	TopTronic® E basic module heat generator (installed)
B1	Flow temperature guard (if required)
AF	Outdoor sensor
SF	Calorifier sensor
SF2	Calorifier sensor 2

*Option*

RBM	TopTronic® E room control module
TTE-GW	TopTronic® E Gateway
Y7	Switching valve

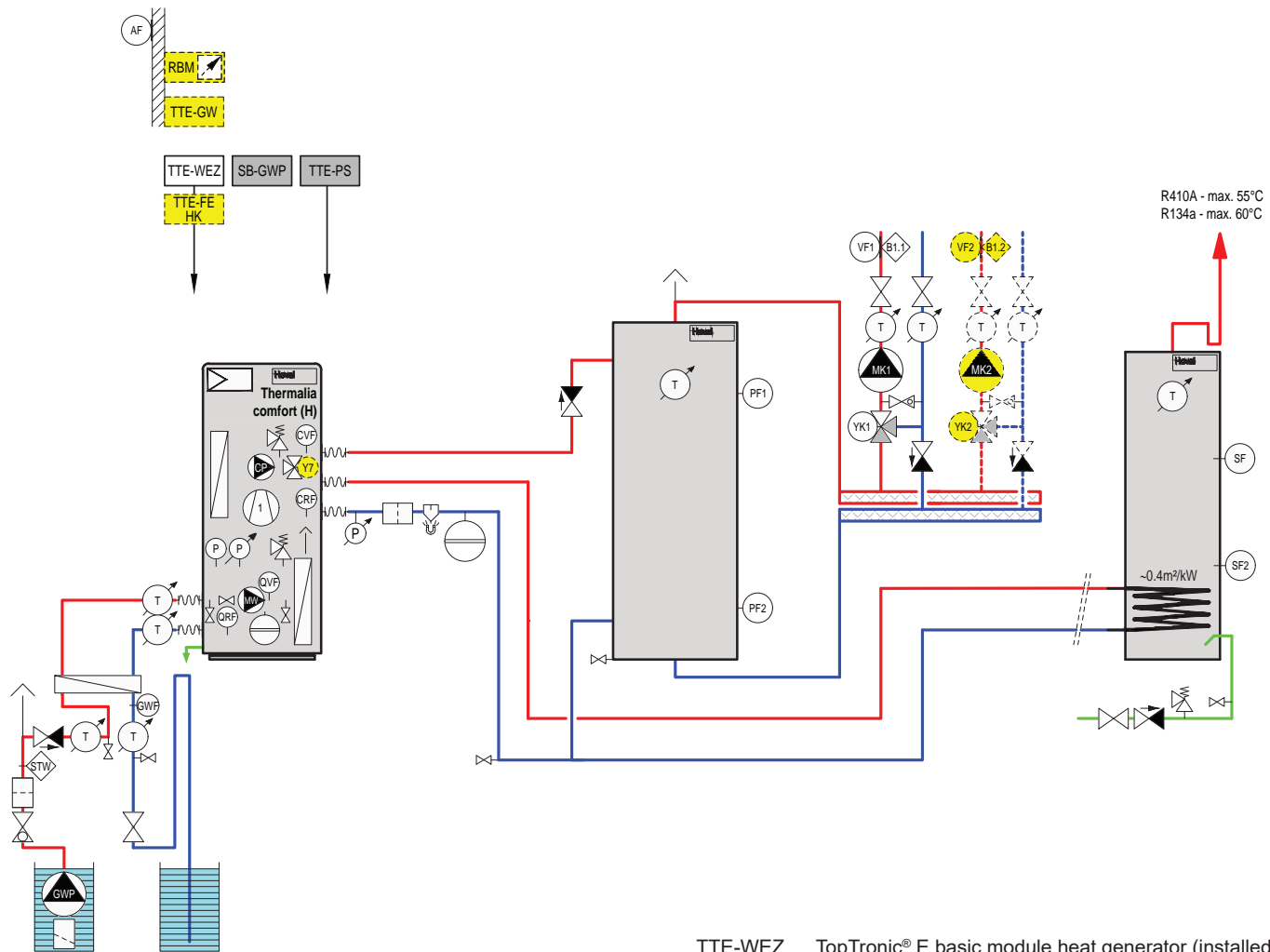
■ Examples

Thermalia® comfort (6-17), comfort H (7,10)

Brine/water-water/water heat pump with

- water/water - indirect utilisation
- energy buffer storage tank
- calorifier
- 1-... mixer circuit(s)

Hydraulic schematic BBBAE070



- TTE-WEZ TopTronic® E basic module heat generator (installed)
- SB-GWP System module ground water pump
- 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
- GWF Frost controller
- STW Flow controller
- GWP Ground water pump

- 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 notices**

- 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.
- 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!

■ Description

Hoval Thermalia® twin

Hoval Thermalia® twin H

Brine/water-water/water heat pump

- Brine/water-water/water heat pump with two output stages for indoor installation
- Compact unit with high energy efficiency
- Extremely low-noise with triple-mounted construction
- Stable framework of galvanised sheet steel; with removable, powder-coated, sound-insulated side panels, colour brown red (RAL 3011)
- Sound-insulated plastic hood, colour flame red (RAL 3000)
- Temperatures and pressures of brine and refrigeration circuit available
- 2 spiral (scroll) compressors
- Electronic expansion valve
- Plate heat exchanger system of stainless steel
- Electronic starting current limiter with rotary field/phase monitoring for each compressor
- Integrated brine pressure monitoring
- Hydraulic connections to the rear
- 4 flexible hoses incl. 90° bend (included separately)  
Thermalia® twin (20,26): 1½" 4x 1 m  
Thermalia® twin (35,42): 2" 4x 1 m  
Thermalia® twin H (13-22): 1½" 4x 0.965 m
- Sound-insulating floor mat
- Refrigerant  
Thermalia® twin (20-42) with R410A  
Thermalia® twin H (13-22) with R134a
- Heat pump wired ready
- TopTronic® E controller installed



Thermalia® twin

Water/water		Brine/water		Type	Refrigerant	max. flow °C	Heat output	
35 °C	55 °C	35 °C	55 °C				B0W35 kW	W10W35 kW
A+++	A+++	A+++	A++	twin (20)	R410A	62	20.4	27.3
A+++	A+++	A+++	A++	twin (26)	R410A	62	26.2	35.1
A+++	A+++	A+++	A+++	twin (36)	R410A	62	35.3	46.4
A+++	A+++	A+++	A+++	twin (42)	R410A	62	42.0	55.4
A+++	A+++	A+++	A++	twin H (13)	R134a	67	12.3	17.0
A+++	A+++	A+++	A++	twin H (19)	R134a	67	18.0	24.7
A+++	A+++	A+++	A++	twin H (22)	R134a	67	20.9	28.8

Energy efficiency class of the compound system with control

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 HovalConnect)
- Adaptation of the heating strategy based on the weather forecast (with online HovalConnect)

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



Seal of approval FWS

The Thermalia® twin (20-42) and twin H (13-22) series are certified by the seal of approval of the authorisation commission of Switzerland

Options for TopTronic® E controller

- Can be expanded by max. 1 module expansion:
  - module expansion heating circuit or
  - module expansion heat accounting or
  - module expansion universal
- 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 to the rear

Delivery

- Heat pump on pallet, plastic hood and floor plate separately packed
- Flexible hoses included
- Sensor set separately packed

Option

- Internet connection

■ Part No.



Brine/water-water/water heat pump  
Hoval Thermalia® twin

Part No.

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

Control functions integrated for

- 1 heating circuit with mixer
- 1 heating 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
  - module expansion heat accounting
- Can be optionally networked with a total of up to 16 controller modules (incl. solar module)

*Delivery*

- Compact device internally wired ready for installation
- Heat pump on pallet, plastic hood and sound-insulating floor mat separately packed.
- Flexible hoses included
- Sensor set separately packed

**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® twin

Refrigerant R410A

**Flow temperature max. 62 °C**

Thermalia® twin Type	Heat output		
	with B0W35 kW	with W10W35 kW	
(20)	20.4	27.3	7014 725
(26)	26.2	35.1	7014 726
(36)	35.3	46.4	7014 727
(42)	42.0	55.4	7014 728

Hoval Thermalia® twin H

Refrigerant R134a

**Flow temperature max. 67 °C**

Thermalia® twin Type	Heat output		
	with B0W35 kW	with W10W35 kW	
(13)	12.3	17.0	7014 729
(19)	18.0	24.7	7014 730
(22)	20.9	28.8	7014 731

■ Part No.



Accessories

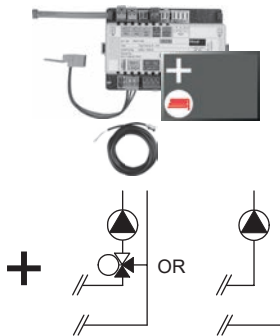
Part No.

**Sound attenuation cowl for compressor**

for reducing the transmission of noise. In heat pumps with two compressors, it is mandatory for two sound attenuation cowls to be ordered.

Thermalia® twin Type	Number of compressors	Part No.
(20)	2	2069 695
(26)	2	2069 696
(36)	2	2069 697
(42)	2	2069 697
H (13)	2	2069 698
H (19)	2	2069 699
H (22)	2	2069 699

■ Part No.



**Notice**

The supplementary plug set may have to be ordered to implement functions differing from the standard!

**TopTronic® E module expansions for TopTronic® E basic module heat generator**

**Part No.**

**TopTronic® E module expansion heating circuit TTE-FE HK**

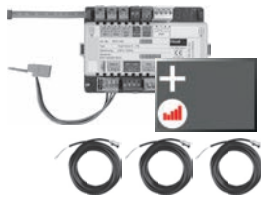
6034 576

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



**Notice**

The flow rate sensor set must be ordered as well.

**TopTronic® E module expansion heating circuit incl. energy balancing TTE-FE HK-EBZ**

6037 062

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



**Flow rate sensor sets**

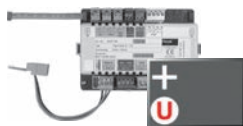
Plastic housing

Size	Connection	Flow rate l/min	
DN 8	G 3/4"	0.9-15	6038 526
DN 10	G 3/4"	1.8-32	6038 507
DN 15	G 1"	3.5-50	6038 508
DN 20	G 1 1/4"	5-85	6038 509
DN 25	G 1 1/2"	9-150	6038 510



Brass housing

Size	Connection	Flow rate l/min	
DN 10	G 1"	2-40	6042 949
DN 32	G 1 1/2"	14-240	6042 950



**TopTronic® E module expansion Universal TTE-FE UNI**

6034 575

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

**Notice**

Refer to the Hoval System Technology to find which functions and hydraulic arrangements can be implemented.

**Further information**

see "Controls" - "Hoval TopTronic® E module expansions" chapter



## ■ Part No.


**HovalConnect available from summer 2019**

Up to that point, TopTronic® E online is delivered.


**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	6039 253
Consisting of the following languages: HU, CS, SL, RO, PL, TR, ES, HR, SR, JA, DA	

**HovalConnect**

HovalConnect domestic starter LAN	6049 496
HovalConnect domestic starter WLAN	6049 498
HovalConnect commercial starter LAN	6049 495
HovalConnect commercial starter WLAN	6049 497
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
HovalConnect domestic starter Modbus	6049 501
HovalConnect domestic starter KNX	6049 593
HovalConnect commercial starter Modbus	6049 500
HovalConnect commercial starter KNX	6049 502

**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
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**Further information**  
 see "Controls"

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

■ Part No.



Accessories

Part No.

**Protective pipe immersion sleeve  
SB280 1/2"**  
brass nickel-plated  
PN10, 280 mm

2018 837



**Switching ball valve VBG60..  
DN 15-50, PN 16, 120 °C**  
• Three-way ball valve made of brass  
with threaded connection  
• incl. seals and screw connections

DN	Connection Valve	Connection Fitting	kvs	$\dot{V}$ [m³/h] at $\Delta P$ 50 mbar
25	G 1½"	Rp 1"	13	2.91
32	G 2"	Rp 1¼"	25	5.59
40	G 2¼"	Rp 1½"	49	10.96
50	G 2¾"	Rp 2"	73	16.32

6045 769  
6045 770  
6045 771  
6045 772



Type	Voltage	Control signal	Actua- tor run time
GLB341.9E	230 V / 50/60 Hz	2-/3-point	150 s

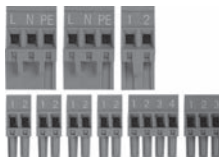
2070 331



**Screw-in electrical heating inset**  
for plants with technical storage tank  
as emergency heating.

Type	Heat output [kW]	Installation depth [mm]
EP 2.5	2.35	390
EP 3.5	3.6	500
EP 5	4.9	620
EP 7.5	7.5	850

6049 557  
6049 558  
6049 559  
6049 560



**Expansion connector set**  
for the automatic heat pump ECR461.  
Use for additional function:  
- Flow monitor  
- Crankcase bottom heating  
(included in the scope of delivery  
for Belaria® twin A, twin AR, dual AR)  
- Condensation drain heating  
- Heat quantity metering  
Plugs:  
- 1x 230V digital input  
- 2x 230V outputs  
- 4x low-voltage inputs  
- 1x ratio. Input

6032 509



**Universal connector set**  
for automatic heat pump ECR461  
Plugs:  
- 3x 230V digital input  
- 4x 230V outputs  
- 6x low-voltage inputs  
- 2x low-voltage outputs  
- 1x ratio. input  
- 1x electr. expansion valve

6032 510

■ Part No.

Part No.

*Necessary at boiler room temperatures < 10 °C*



**Crankcase heater**  
 for Belaria® twin I, twin IR,  
 Thermalia® comfort, Thermalia® twin  
 for compressor protection  
 For Belaria® twin I, twin IR  
 2 pieces are necessary!

6019 718



**Instantaneous water heater kit DN 50**  
 from ready electrical box  
 for electrical protection incl.  
 assembly fittings.  
 for combination with all screw-in  
 heating inset EP.  
 Screw-in heaters must be  
 ordered separately.

6044 070



**Strainer**  
 Brass casing, PN 16  
 Max. operating temperature 110 °C  
 Sieve made of stainless steel,  
 Mesh size 0.5 mm  
 DN 25-1"  
 DN 32-1¼"  
 DN 40-1½"  
 DN 50-2"

2046 978

2046 980

2046 982

2046 984



**Sludge separator CS 40-1½" with magnet**  
 for flow rates of 3.0 - 5.0 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 1½"  
 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: 1.88 kg

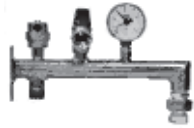
2063 737



**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.



**Safety group for brine circuit SI-Gr.**  
Retaining bar incl. safety valve,  
pressure gauge, air vent and connection  
fittings for expansion chambers

Part No.

2015 354



**Expansion chamber**  
Reflex NG 25  
for systems up to approx. 20 kW  
Operating pressure: up to 6 bar  
Pre-pressure: 1.5 bar  
Ø 280 mm, H = 490 mm

242 791

Ground water accessories



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

Area of application l/h	°C	Connection
1500-15000	0-80	Rp 2"

2040 709



**Ground water pump kit SB-GWP**  
for Thermalia® twin (20-42),  
twin H (13-22)  
Contactor for actuation of a 3-phase  
ground water pump.  
Ready to connect without thermal  
overload protection

6041 092

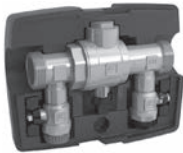
■ Part No.

Part No.



**Brine filling station in compact design DN 25**  
with shut-off valves, filter and EPS insulation.  
Application temperatures -20°C to +60°C  
Frost protection max. 50 %  
Connections DN 25 G 1", kvs 12.5  
Max. operating pressure 1.0 MPa (10 bar)  
Dirt screen integrated

6037 537



**Brine filling station in compact design DN 32**  
with shut-off valves, filter and EPS insulation.  
Application temperatures -20°C to +60°C  
Frost protection max. 50 %  
Connections DN 32 G 1¼", kvs 22  
Max. operating pressure 1.0 MPa (10 bar)  
Dirt screen integrated

6033 364



**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



**Freeze protection concentrate 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

2009 987

Services



**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® twin (20-42) with R410A and Thermalia® twin H (13-22) with R134a

Type		(20)	(26)	(36)	(42)	H (13)	H (19)	H (22)
Seasonal coefficient of performance moderate climate (brine) 35 °C /55 °C	SCOP	5.2/3.6	5.2/3.6	5.4/3.9	5.3/3.6	4.7/3.4	4.6/3.5	4.9/3.5
<i>Performance data acc. to EN 14511</i>								
• Heat output B0W35	kW <sup>1</sup>	20.4	26.2	35.3	42.0	12.3	18.0	20.9
• Power consumption B0W35	kW <sup>1</sup>	4.2	5.5	7.1	8.8	2.7	4.1	4.6
• Performance B0W35	COP	4.89	4.79	4.96	4.76	4.48	4.42	4.58
• Heat output W10W35	kW <sup>1</sup>	27.3	35.1	46.4	55.4	17.0	24.7	28.8
• Power consumption W10W35	kW <sup>1</sup>	4.2	5.5	7.2	9.1	3.0	4.4	4.9
• Performance W10W35	COP	6.59	6.40	6.41	6.06	5.76	5.61	5.89
• Operating weight	approx. kg	280	286	298	310	273	283	293
• Compressor type		2 x spiral (scroll), hermetic						
• Refrigerant filling R410A	kg	6.5	7.1	8.2	9.0	-	-	-
• Refrigerant filling R134a	kg	-	-	-	-	4.8	5.9	6.5
• Condenser/evaporator		Plate heat exchanger						
Material		Stainless steel V4A, AISI 316, 1.4401						
Connections	R	1½"	1½"	2"	2"	2"	2"	2"
Piping connections with flex. connecting hose	Rp	1½"	1½"	2"	2"	2"	2"	2"
<i>Nominal volume flow and resistance brine/water heat pump</i>								
• Heating ( $\Delta t = 7K$ )	m <sup>3</sup> /h	2.5	3.3	4.4	5.2	1.6	2.3	2.7
• $\Delta P$ Pressure drop condenser	kPa	5.3	7.3	5.0	5.3	1.6	2.0	2.3
• Heat source ( $\Delta t = 3.5K$ )	m <sup>3</sup> /h	5.0	6.3	8.1	10.2	3.3	4.7	5.6
• $\Delta P$ Pressure drop evaporator	kPa	12	13	14	14	4.0	5.0	6.0
<i>Nominal volume flow and resistance water/water heat pump</i>								
• Heating ( $\Delta t = 7K$ )	m <sup>3</sup> /h	3.4	4.3	5.7	6.8	2.2	3.2	3.8
• $\Delta P$ Pressure drop condenser	kPa	9.8	12.5	8.5	9.0	3.1	3.9	4.4
• Heat source ( $\Delta t = 5K$ ) <sup>5</sup>	m <sup>3</sup> /h	4.0	5.0	6.8	8.0	2.6	3.7	4.4
• $\Delta P$ Pressure drop evaporator	kPa	5.0	5.5	6.5	6.0	2.4	3.0	3.6
• Operating pressure max.								
- Water side	bar	6						
- Brine side	bar	6						
• Operating limit values - see diagram range of application								
• Installation place operation <sup>4</sup>	min./max.	°C			5/35			
• Storage	min./max.	°C			-15/50			
<b>Electrical data<sup>3</sup></b>								
Voltage	V	3 x 400						
Frequency	Hz	50						
Voltage range	V	380-420						
• Operating pressure compressor I <sub>max</sub>		13.1	16.9	24.0	29.3	9.4	13.3	15.8
• Starting current with starting current limiter <sup>2</sup>		25.4	32.7	44.5	55.1	21.7	27.1	37.4
• Principal current (external protection) with brine systems	Type	16	20	32	32	16	16	20
• Principal current (external protection) with ground water systems	Type	C,D,K	C,D,K	C,D,K	C,D,K	C,D,K	C,D,K	C,D,K
• Control current (external protection)	Type	20	25	32	40	16	20	25
	Type	C,D,K	C,D,K	C,D,K	C,D,K	C,D,K	C,D,K	C,D,K
	Type	13	13	13	13	13	13	13
	Type	B,C,D,K,Z	B,C,D,K,Z	B,C,D,K,Z	B,C,D,K,Z	B,C,D,K,Z	B,C,D,K,Z	B,C,D,K,Z

<sup>1</sup> kW = standard values according to EN 14511; values for B0W35 with 25 % ethylene glycol (Antifrogen N)

<sup>2</sup> Effective value, operating current compressor 1 + starting current with starting current limiter

<sup>3</sup> Values for electrical data apply for supply voltage of 3 x 400 V

<sup>4</sup> <10 °C crankcase heater necessary

<sup>5</sup>  $\Delta T$  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® twin (20-42), twin H (13-22)

**Sound emission**

The effective sound pressure level <sup>1</sup> in the installation room is dependent on different factors like room size, absorptive capacity, reflection, free sound spreading etc.

Therefore it is important that the installation room lies, if possible, outside the noise-sensitive range and is supplied with sound-absorbing doors.

Ducts and pipes must be fixed to walls and ceiling in a way that no structure-borne sound is being transmitted to the system.

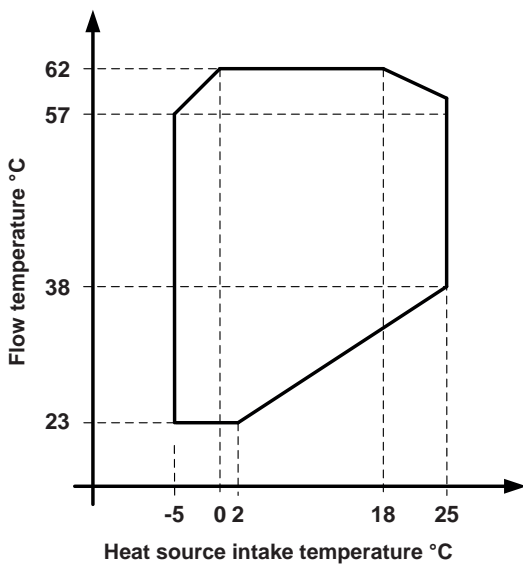
Thermalia® twin	(20)		(26)		(36)		(42)	
Thermalia® twin H	(13)		(19)		(22)			
Stage	1	2	1	2	1	2	1	2
Sound power level dB(A)	47	50	49	51	52	55	53	56
Sound pressure level dB(A) <sup>1</sup>	35	38	37	39	40	43	41	44

<sup>1</sup> Sound pressure level, distance 1 m (in standard room with approx. 5-6 dB(A) sound absorption)

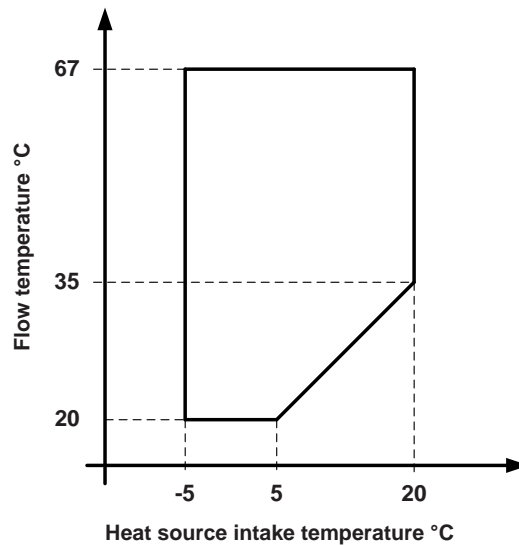
Diagrams range of application

Heating and hot water

Thermalia® twin (20-42)



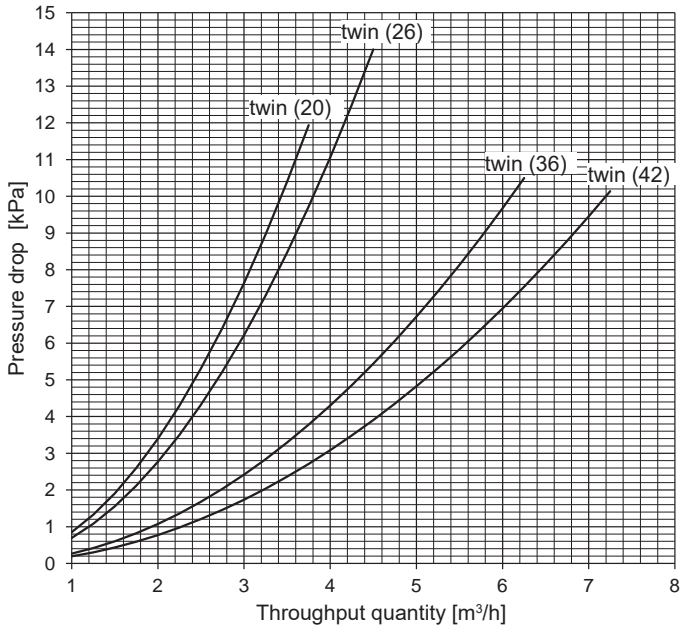
Thermalia® twin H (13-22)



■ Technical data

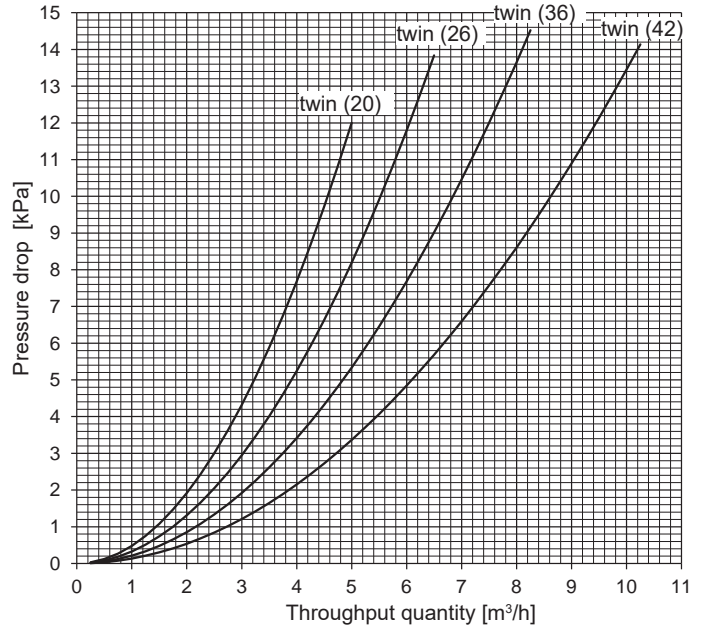
Hoval Thermalia® twin (20-42)  
Heating

Pressure drop condenser with water



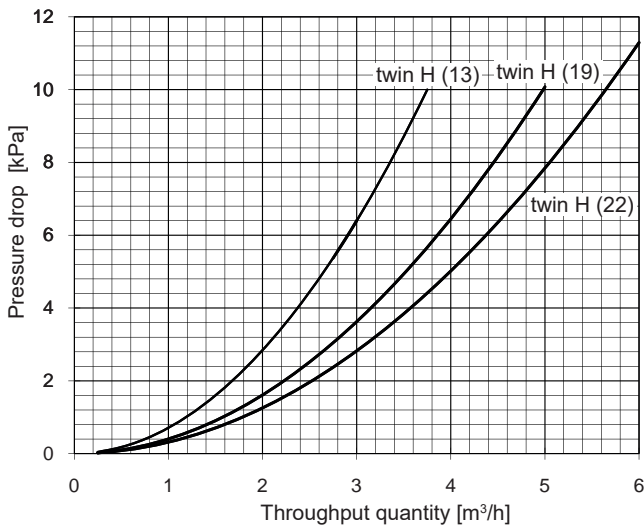
Heat source

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



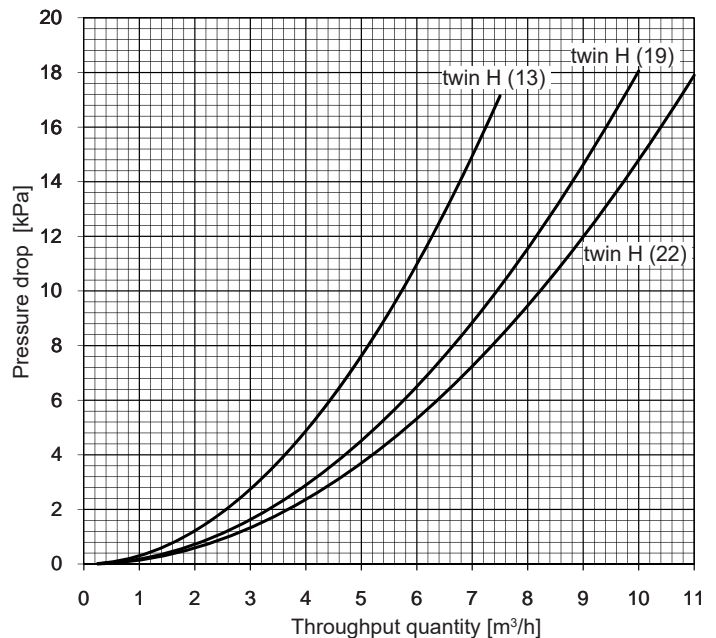
Hoval Thermalia® twin H (13-22)  
Heating

Pressure drop condenser with water



Heat source

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



Refrigeration capacity

$$Q_0 = Q - P$$

- $Q_0$  = Refrigeration capacity (kW)
- $Q$  = Heat output (kW)
- $P$  = Power consumption compressor (kW)
- $\Delta t_2$  = Temperature difference heat source supply/discharge (K)
- $C$  = 0.86
- $c_p$  = 0.89 (specific heat)
- $\gamma$  = 1.05 (specific weight, density)

Volume flow evaporator

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

- $\Delta p$  (kPa) = Pressure drop with frost protection (1 kPa = 0.1 mWC)
- $\Delta p = f \times \Delta P$       Ethylene glycol % (Antifrogen N)
- 0.97      20
- 1      25
- 1.03      30
- $\Delta p_w$  (kPa) = Pressure drop with water (1 kPa = 0.1 mWC)
- $\Delta p_w = \Delta P \times 0.89$

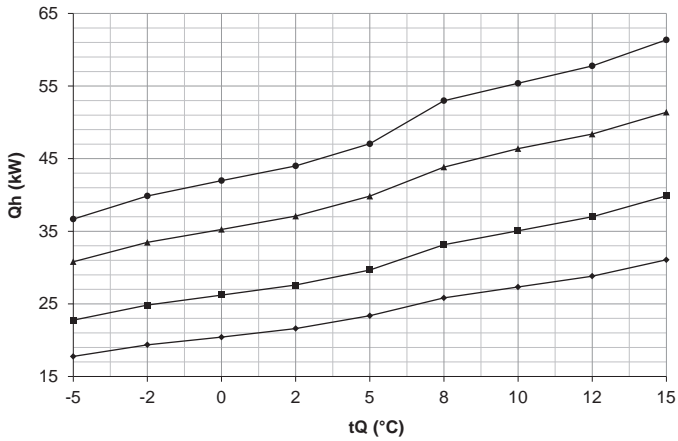


■ Technical data  
Performance data - heating

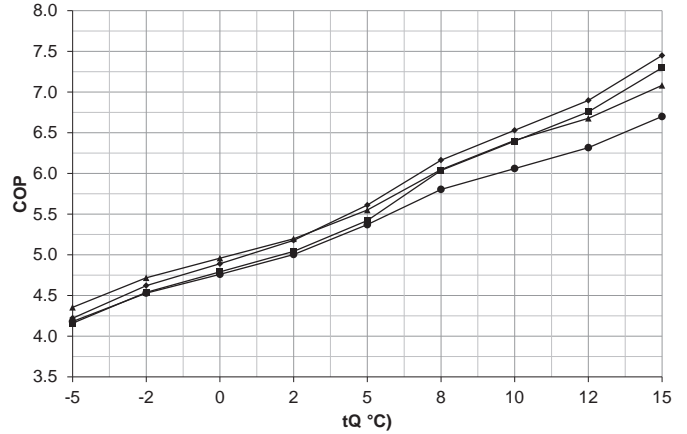
Maximum heat output

Hoval Thermalia® twin (20-42)

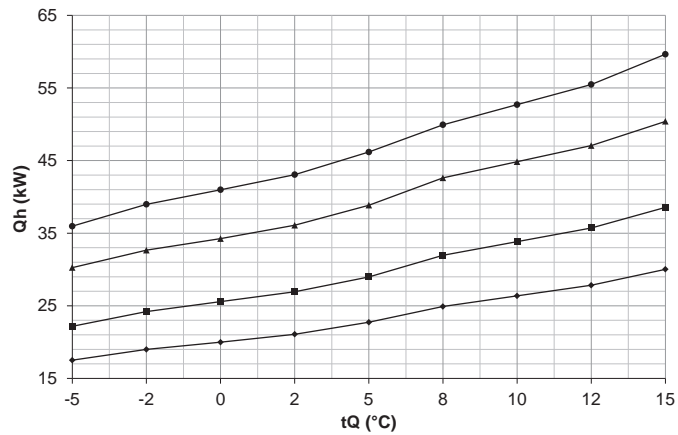
Heat output -  $t_{VL}$  35 °C



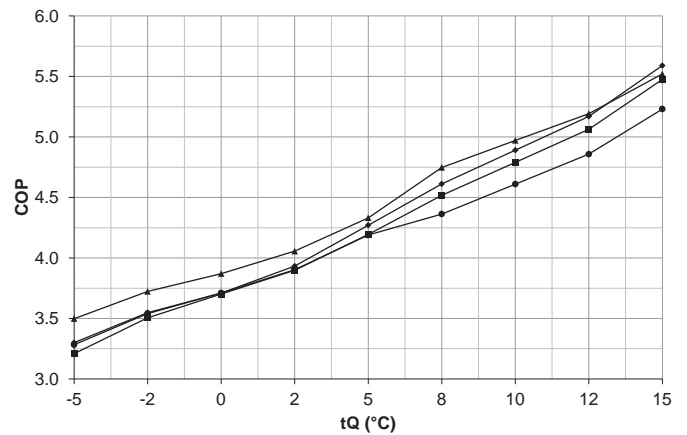
Output rating -  $t_{VL}$  35 °C



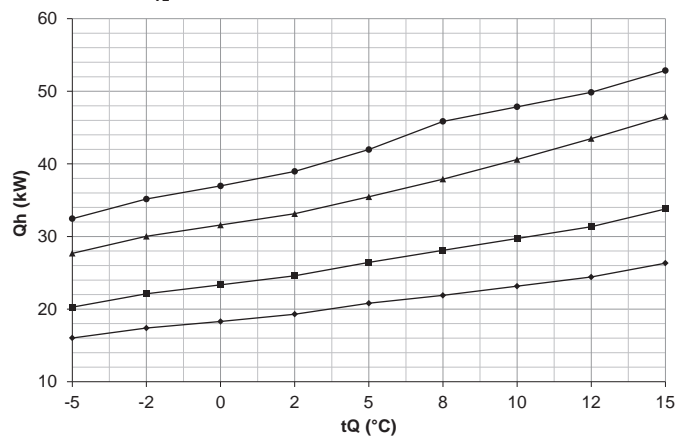
Heat output -  $t_{VL}$  45 °C



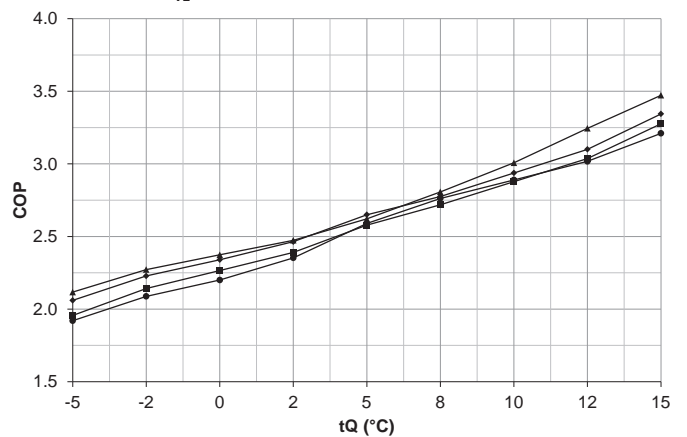
Output rating -  $t_{VL}$  45 °C



Heat output -  $t_{VL}$  60 °C



Output rating -  $t_{VL}$  60 °C



$t_{VL}$  = heating flow temperature (°C)  
 $t_Q$  = source temperature (°C)  
 $Q_h$  = 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® twin (20)
- Thermalia® twin (26)
- ▲ Thermalia® twin (36)
- Thermalia® twin (42)

■ Technical data

Performance data - heating

Hoval Thermalia® twin (20-42)

Indications acc. to EN14511

Type	tVL °C	tQ °C	Qh kW	(20) P kW	COP	Qh kW	(26) P kW	COP	Qh kW	(36) P kW	COP	Qh kW	(42) P kW	COP	
30	Brine	-5	18.1	3.7	4.85	23.3	4.9	4.77	31.4	6.3	4.96	36.8	7.9	4.68	
		-2	19.8	3.7	5.32	25.4	4.9	5.22	34.2	6.3	5.42	40.3	7.9	5.11	
		0	20.9	3.7	5.64	26.8	4.9	5.53	36.1	6.3	5.72	42.5	7.9	5.39	
		2	22.0	3.7	5.97	28.2	4.8	5.84	38.0	6.3	6.03	44.8	7.9	5.68	
		5	23.8	3.7	6.47	30.4	4.8	6.30	40.8	6.3	6.48	48.1	7.9	6.12	
	Water	8	26.3	3.6	7.33	33.7	4.7	7.18	44.4	6.4	6.96	54.5	8.0	6.84	
		10	27.8	3.6	7.76	35.7	4.7	7.61	47.2	6.4	7.43	56.7	8.0	7.10	
		12	29.3	3.6	8.20	37.6	4.7	8.03	49.0	6.3	7.74	58.9	8.0	7.36	
		15	31.6	3.6	8.85	40.5	4.7	8.67	51.9	6.3	8.21	62.2	8.0	7.74	
		35	Brine	-5	17.8	4.2	4.22	22.8	5.5	4.16	30.8	7.1	4.35	36.7	8.8
	-2			19.4	4.2	4.62	24.8	5.5	4.54	33.5	7.1	4.72	39.9	8.8	4.53
	0			20.4	4.2	4.89	26.2	5.5	4.79	35.3	7.1	4.96	42.0	8.8	4.76
	2			21.6	4.2	5.18	27.6	5.5	5.04	37.1	7.1	5.20	44.0	8.8	5.00
	5			23.4	4.2	5.61	29.7	5.5	5.42	39.8	7.2	5.55	47.0	8.8	5.37
	Water		8	25.8	4.2	6.16	33.1	5.5	6.04	43.8	7.3	6.05	53.0	9.1	5.80
10			27.3	4.2	6.53	35.1	5.5	6.40	46.4	7.2	6.41	55.4	9.1	6.06	
12			28.8	4.2	6.90	37.0	5.5	6.76	48.4	7.2	6.68	57.8	9.1	6.32	
15			31.1	4.2	7.45	39.9	5.5	7.30	51.4	7.3	7.08	61.4	9.2	6.70	
40			Brine	-5	17.6	4.8	3.71	22.5	6.2	3.63	30.5	7.9	3.88	36.3	9.9
	-2			19.2	4.8	4.02	24.5	6.2	3.96	33.1	7.9	4.17	39.4	9.9	3.98
	0			20.2	4.8	4.23	25.9	6.2	4.18	34.8	8.0	4.35	41.5	9.9	4.18
	2			21.3	4.8	4.48	27.3	6.2	4.40	36.6	8.0	4.56	43.5	9.9	4.39
	5			23.0	4.7	4.86	29.3	6.2	4.74	39.3	8.1	4.87	46.6	9.9	4.71
	Water		8	25.4	4.8	5.29	32.6	6.3	5.18	43.2	8.1	5.33	51.5	10.3	5.00
		10	26.8	4.8	5.61	34.5	6.3	5.49	45.6	8.1	5.61	54.0	10.3	5.25	
		12	28.3	4.8	5.92	36.4	6.3	5.80	47.7	8.2	5.85	56.6	10.3	5.51	
		15	30.5	4.8	6.40	39.2	6.3	6.27	50.9	8.2	6.21	60.5	10.3	5.88	
		45	Brine	-5	17.5	5.3	3.30	22.2	6.9	3.21	30.3	8.7	3.50	36.0	11.0
	-2			19.0	5.4	3.55	24.2	6.9	3.50	32.7	8.8	3.72	39.0	11.0	3.54
	0			20.0	5.4	3.71	25.6	6.9	3.70	34.3	8.9	3.87	41.0	11.0	3.71
	2			21.1	5.4	3.93	26.9	6.9	3.90	36.1	8.9	4.06	43.1	11.0	3.90
	5			22.7	5.3	4.27	29.0	6.9	4.19	38.9	9.0	4.33	46.2	11.0	4.19
	Water		8	24.9	5.4	4.61	32.0	7.1	4.52	42.6	9.0	4.75	49.9	11.4	4.36
10			26.4	5.4	4.89	33.8	7.1	4.79	44.8	9.0	4.97	52.7	11.4	4.61	
12			27.8	5.4	5.17	35.7	7.1	5.06	47.1	9.1	5.19	55.5	11.4	4.86	
15			30.0	5.4	5.59	38.5	7.0	5.48	50.4	9.1	5.52	59.6	11.4	5.23	
50			Brine	-5	17.0	6.0	2.84	21.8	7.8	2.78	29.6	9.6	3.07	34.5	12.5
	-2			18.4	6.0	3.06	23.6	7.8	3.03	32.1	9.7	3.30	37.4	12.6	2.97
	0			19.4	6.1	3.20	24.9	7.8	3.20	33.8	9.8	3.45	39.4	12.6	3.12
	2			20.4	6.1	3.38	26.1	7.7	3.37	35.2	9.8	3.60	41.6	12.6	3.31
	5			22.0	6.0	3.65	28.0	7.7	3.63	37.2	9.7	3.84	44.7	12.4	3.59
	Water		8	24.0	6.1	3.92	30.8	8.0	3.84	42.1	10.1	4.18	48.7	13.0	3.76
		10	25.4	6.1	4.15	32.6	8.0	4.07	44.2	10.1	4.36	51.3	12.9	3.96	
		12	26.8	6.1	4.39	34.4	8.0	4.30	46.3	10.2	4.55	53.8	12.9	4.17	
		15	28.9	6.1	4.74	37.1	8.0	4.64	49.5	10.3	4.83	57.6	12.9	4.47	
		55	Brine	-5	16.4	6.6	2.47	21.4	8.8	2.44	29.0	10.6	2.73	33.0	14.1
	-2			17.8	6.7	2.66	23.1	8.7	2.65	31.6	10.7	2.95	35.9	14.2	2.53
	0			18.8	6.7	2.79	24.2	8.6	2.80	33.3	10.8	3.10	37.9	14.2	2.66
	2			19.8	6.7	2.94	25.3	8.6	2.95	34.2	10.6	3.22	40.1	14.1	2.84
	5			21.3	6.7	3.16	26.9	8.5	3.18	35.6	10.4	3.41	43.3	13.9	3.12
	Water		8	23.1	6.9	3.37	29.7	9.0	3.30	41.5	11.2	3.72	47.5	14.5	3.28
10			24.5	6.9	3.57	31.4	9.0	3.50	43.6	11.2	3.88	49.9	14.5	3.45	
12			25.8	6.9	3.77	33.2	9.0	3.69	45.6	11.3	4.04	52.2	14.4	3.62	
15			27.9	6.8	4.07	35.8	9.0	3.99	48.6	11.4	4.28	55.7	14.4	3.87	
60			Brine	-5	16.0	7.8	2.06	20.3	10.4	1.96	27.7	13.1	2.12	32.5	16.9
	-2			17.4	7.8	2.23	22.1	10.3	2.14	30.0	13.2	2.27	35.2	16.8	2.09
	0			18.3	7.8	2.34	23.3	10.3	2.27	31.6	13.3	2.37	37.0	16.8	2.20
	2			19.3	7.8	2.46	24.6	10.3	2.39	33.1	13.4	2.47	39.0	16.6	2.35
	5			20.8	7.9	2.65	26.4	10.3	2.58	35.5	13.5	2.62	42.0	16.2	2.59
	Water		8	21.9	7.9	2.78	28.1	10.3	2.72	37.9	13.5	2.81	45.9	16.6	2.76
		10	23.2	7.9	2.94	29.7	10.3	2.88	40.6	13.5	3.01	47.9	16.6	2.89	
		12	24.4	7.9	3.10	31.4	10.3	3.04	43.5	13.4	3.24	49.9	16.5	3.02	
		15	26.3	7.9	3.34	33.8	10.3	3.28	46.5	13.4	3.47	52.9	16.5	3.21	

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

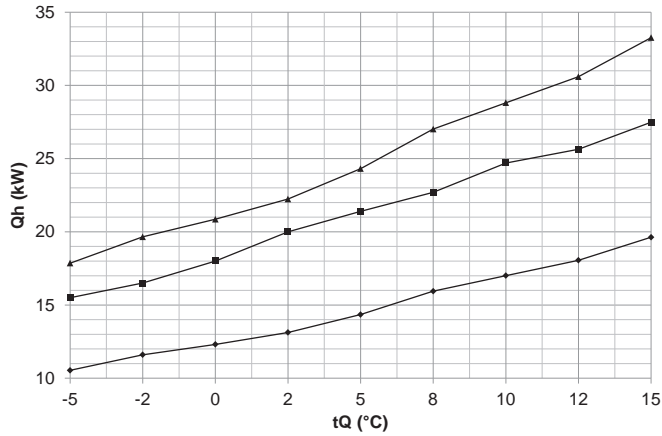
■ Technical data

Performance data - heating

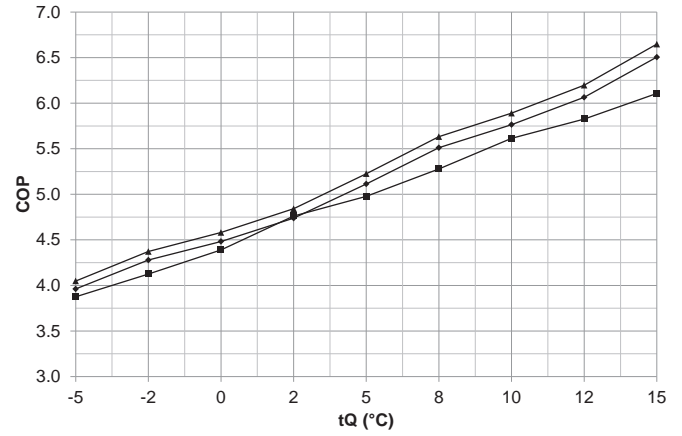
Maximum heat output

Hoval Thermalia® twin H (13-22)

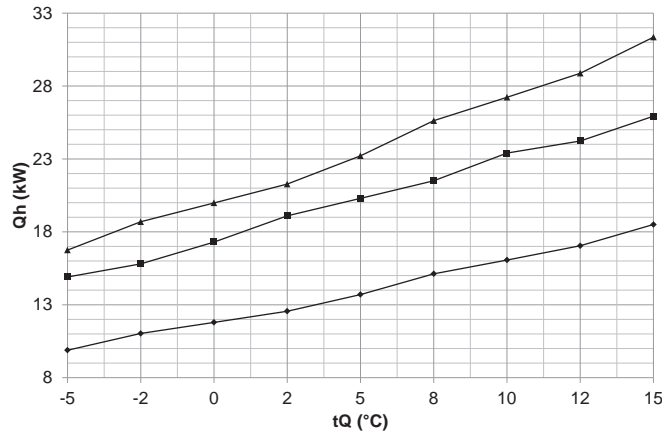
Heat output -  $t_{VL}$  35 °C



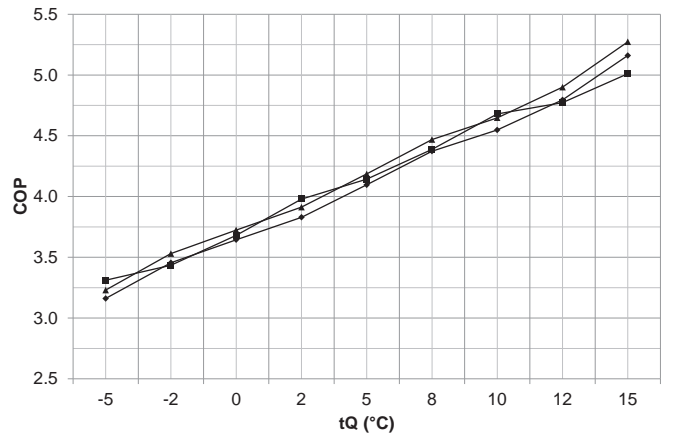
Output rating -  $t_{VL}$  35 °C



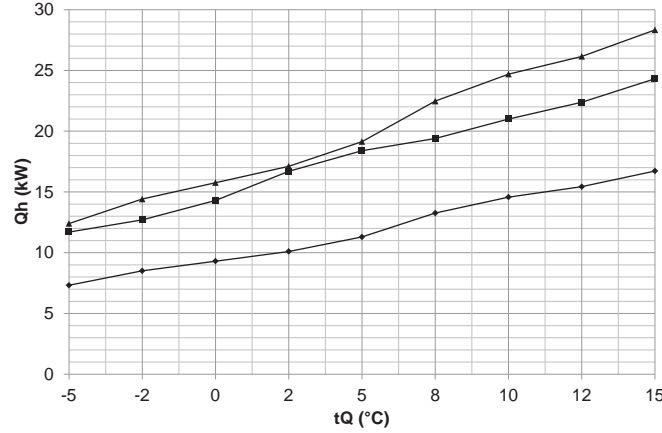
Heat output -  $t_{VL}$  45 °C



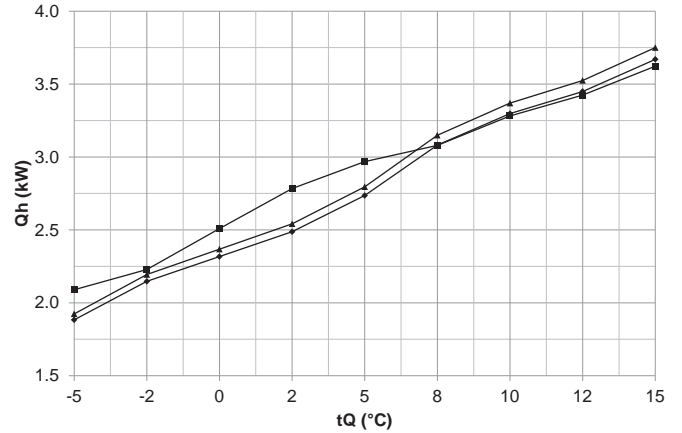
Output rating -  $t_{VL}$  45 °C



Heat output -  $t_{VL}$  60 °C



Output rating -  $t_{VL}$  60 °C



$t_{VL}$  = heating flow temperature (°C)

$t_Q$  = source temperature (°C)

$Q_h$  = 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® twin H (13)
- Thermalia® twin H (19)
- ▲ Thermalia® twin H (22)

■ Technical data

Performance data - heating

Hoval Thermalia® twin H (13-22)

Indications acc. to EN14511

Type	tVL °C	tQ °C	H (13)			H (19)			H (22)		
			Qh kW	P kW	COP	Qh kW	P kW	COP	Qh kW	P kW	COP
30	Brine	-5	10.9	2.4	4.48	15.8	3.5	4.51	18.4	4.0	4.58
		-2	11.9	2.5	4.81	16.8	3.7	4.54	20.1	4.1	4.92
		0	12.6	2.5	5.03	18.4	3.7	4.97	21.3	4.1	5.14
		2	13.4	2.5	5.33	20.5	3.8	5.39	22.7	4.2	5.45
		5	14.7	2.5	5.78	22.0	3.9	5.64	24.9	4.2	5.91
	Water	8	16.4	2.6	6.27	24.0	4.0	5.96	27.7	4.3	6.40
		10	17.5	2.7	6.57	25.3	4.0	6.33	29.6	4.4	6.72
		12	-	-	-	-	-	-	-	-	-
		15	-	-	-	-	-	-	-	-	-
		35	Brine	-5	10.5	2.7	3.96	15.5	4.0	3.87	17.9
-2	11.6			2.7	4.28	16.5	4.0	4.09	19.7	4.5	4.37
0	12.3			2.7	4.48	18.0	4.1	4.42	20.9	4.6	4.58
2	13.1			2.8	4.74	20.0	4.2	4.76	22.2	4.6	4.84
5	14.3			2.8	5.11	21.4	4.3	4.98	24.3	4.7	5.23
Water	8		15.9	2.9	5.51	22.7	4.3	5.24	27.0	4.8	5.63
	10		17.0	3.0	5.76	24.7	4.4	5.61	28.8	4.9	5.89
	12		18.1	3.0	6.06	25.6	4.4	5.83	30.6	4.9	6.20
	15		19.6	3.0	6.51	27.5	4.5	6.11	33.3	5.0	6.65
	40		Brine	-5	10.2	2.9	3.53	15.1	4.4	3.43	17.3
-2		11.3		3.0	3.83	16.1	4.4	3.66	19.2	4.9	3.92
0		12.1		3.0	4.03	17.6	4.5	3.91	20.4	5.0	4.12
2		12.8		3.0	4.25	19.5	4.6	4.24	21.8	5.0	4.34
5		14.0		3.1	4.56	20.8	4.7	4.43	23.8	5.1	4.66
Water		8	15.5	3.2	4.89	22.0	4.8	4.58	26.3	5.3	5.00
		10	16.5	3.2	5.10	24.0	4.8	5.00	28.0	5.4	5.21
		12	17.5	3.3	5.37	25.1	4.9	5.13	29.7	5.4	5.49
		15	19.1	3.3	5.77	26.8	5.0	5.36	32.3	5.5	5.90
		45	Brine	-5	9.9	3.1	3.16	14.9	4.5	3.31	16.8
-2	11.0			3.2	3.45	15.8	4.6	3.43	18.7	5.3	3.53
0	11.8			3.2	3.64	17.3	4.7	3.68	20.0	5.4	3.72
2	12.6			3.3	3.83	19.1	4.8	3.98	21.3	5.4	3.91
5	13.7			3.3	4.10	20.3	4.9	4.14	23.2	5.5	4.19
Water	8		15.1	3.5	4.37	21.5	4.9	4.39	25.6	5.7	4.47
	10		16.1	3.5	4.55	23.4	5.0	4.68	27.2	5.9	4.65
	12		17.0	3.6	4.79	24.2	5.1	4.77	28.9	5.9	4.90
	15		18.5	3.6	5.16	25.9	5.2	5.01	31.4	5.9	5.27
	50		Brine	-5	9.0	3.4	2.67	13.8	4.9	2.82	15.3
-2		10.2		3.4	2.95	14.8	4.9	3.02	17.3	5.7	3.02
0		11.0		3.5	3.14	16.3	5.0	3.26	18.6	5.8	3.20
2		11.7		3.5	3.32	18.3	5.2	3.52	19.9	5.9	3.39
5		12.9		3.6	3.58	19.7	5.3	3.72	21.9	6.0	3.66
Water		8	14.5	3.7	3.88	20.8	5.4	3.85	24.6	6.2	3.96
		10	15.6	3.8	4.07	22.6	5.4	4.19	26.4	6.3	4.16
		12	16.5	3.9	4.27	23.6	5.5	4.27	28.0	6.4	4.37
		15	17.9	3.9	4.58	25.4	5.6	4.54	30.3	6.5	4.68
		55	Brine	-5	8.2	3.6	2.25	12.8	5.2	2.46	13.9
-2	9.3			3.7	2.52	13.8	5.3	2.60	15.8	6.1	2.58
0	10.1			3.8	2.70	15.3	5.4	2.83	17.2	6.2	2.76
2	10.9			3.8	2.87	17.5	5.6	3.13	18.5	6.3	2.94
5	12.1			3.9	3.13	19.0	5.7	3.33	20.5	6.4	3.20
Water	8		13.9	4.0	3.45	20.1	5.8	3.47	23.5	6.7	3.53
	10		15.1	4.1	3.65	21.8	5.9	3.69	25.5	6.8	3.73
	12		16.0	4.2	3.83	23.0	6.0	3.82	27.1	6.9	3.92
	15		17.3	4.2	4.09	24.8	6.2	4.03	29.3	7.0	4.18
	60		Brine	-5	7.3	3.9	1.88	11.7	5.6	2.09	12.4
-2		8.5		4.0	2.15	12.7	5.7	2.23	14.4	6.6	2.19
0		9.3		4.0	2.32	14.3	5.7	2.51	15.8	6.7	2.37
2		10.1		4.1	2.49	16.7	6.0	2.78	17.1	6.7	2.54
5		11.3		4.1	2.74	18.4	6.2	2.97	19.1	6.8	2.80
Water		8	13.3	4.3	3.08	19.4	6.3	3.08	22.5	7.1	3.15
		10	14.6	4.4	3.30	21.0	6.4	3.28	24.7	7.3	3.37
		12	15.4	4.5	3.45	22.4	6.5	3.42	26.2	7.4	3.52
		15	16.7	4.6	3.67	24.3	6.7	3.62	28.3	7.6	3.75

tVL = heating flow temperature (°C)

tQ = source temperature (°C)

Qh = heat output at full load (kW), measured in accordance with standard EN 14511

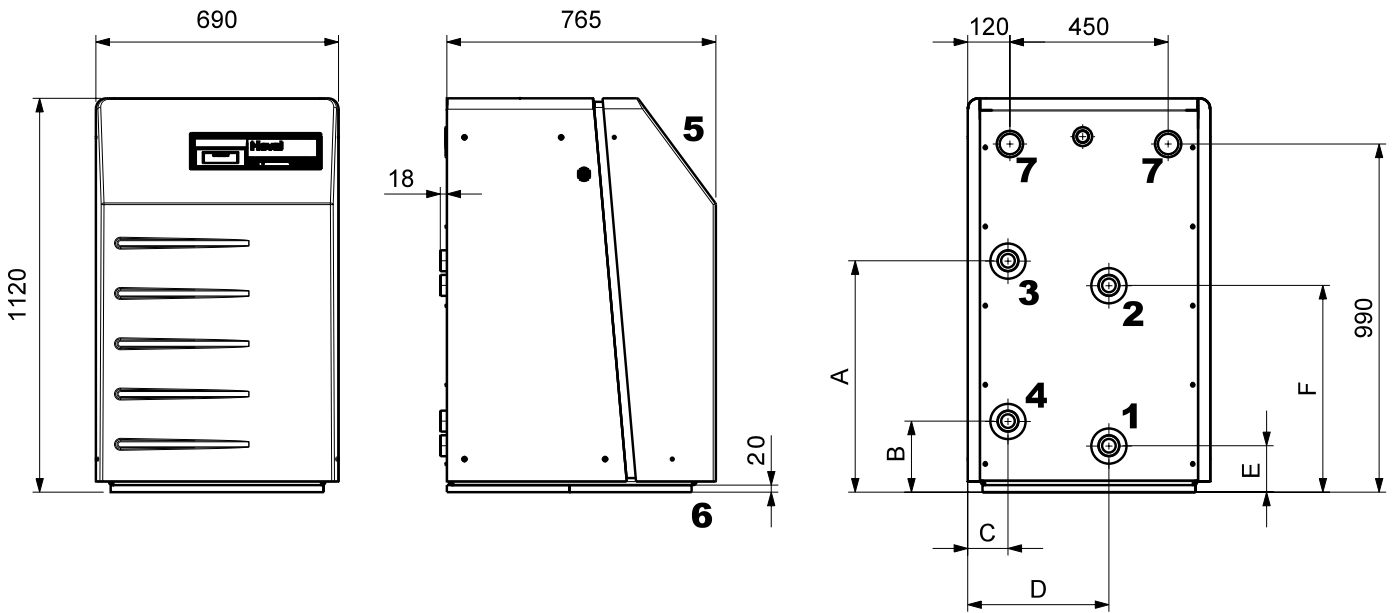
P = power consumption of the overall unit (kW)

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® twin (20-42) and twin H (13-22)  
(Dimensions in mm)

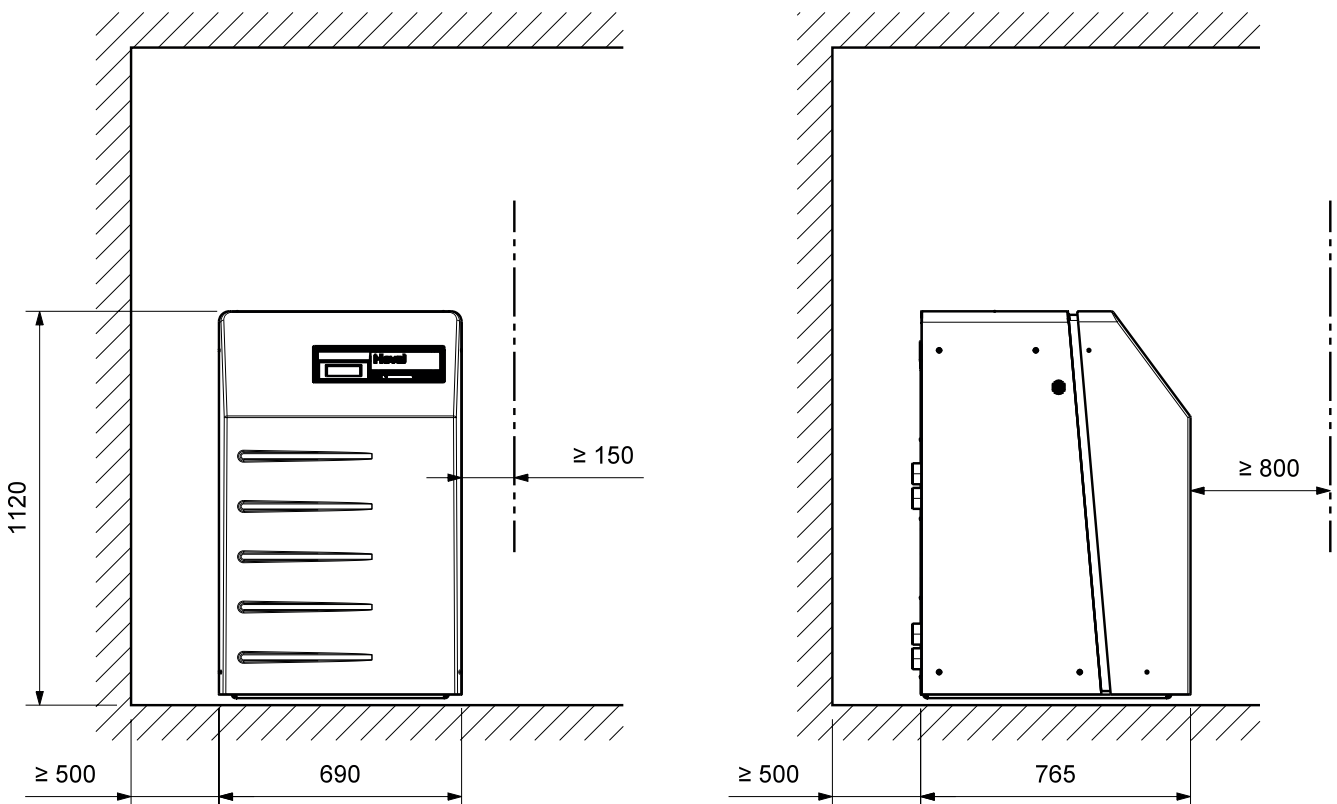


Type	A	B	C	D	E	F
Thermalia® twin (20-42)	741	222	274.5	481.5	170	689
Thermalia® twin H (13-22)	658	202	114	401	132	588

- 1 Heat source - discharge R 1½"  
Thermalia® twin (20,26), twin H (13,19)  
Heat source - discharge R 2"  
Thermalia® twin (36,42), twin H (22)
- 2 Heat source - inlet R 1½"  
Thermalia® twin (20,26), twin H (13,19)  
Heat source - inlet R 2"  
Thermalia® twin (36,42), twin H (22)
- 3 Heating flow type R 2"
- 4 Heating return type R 2"
- 5 Operating panel
- 6 Vibration damping
- 7 Electrical connection

**Required space** (required wall distance in mm for operation and maintenance)

Front	Rear	Right or left side
min. 800	min. 500	min. 500



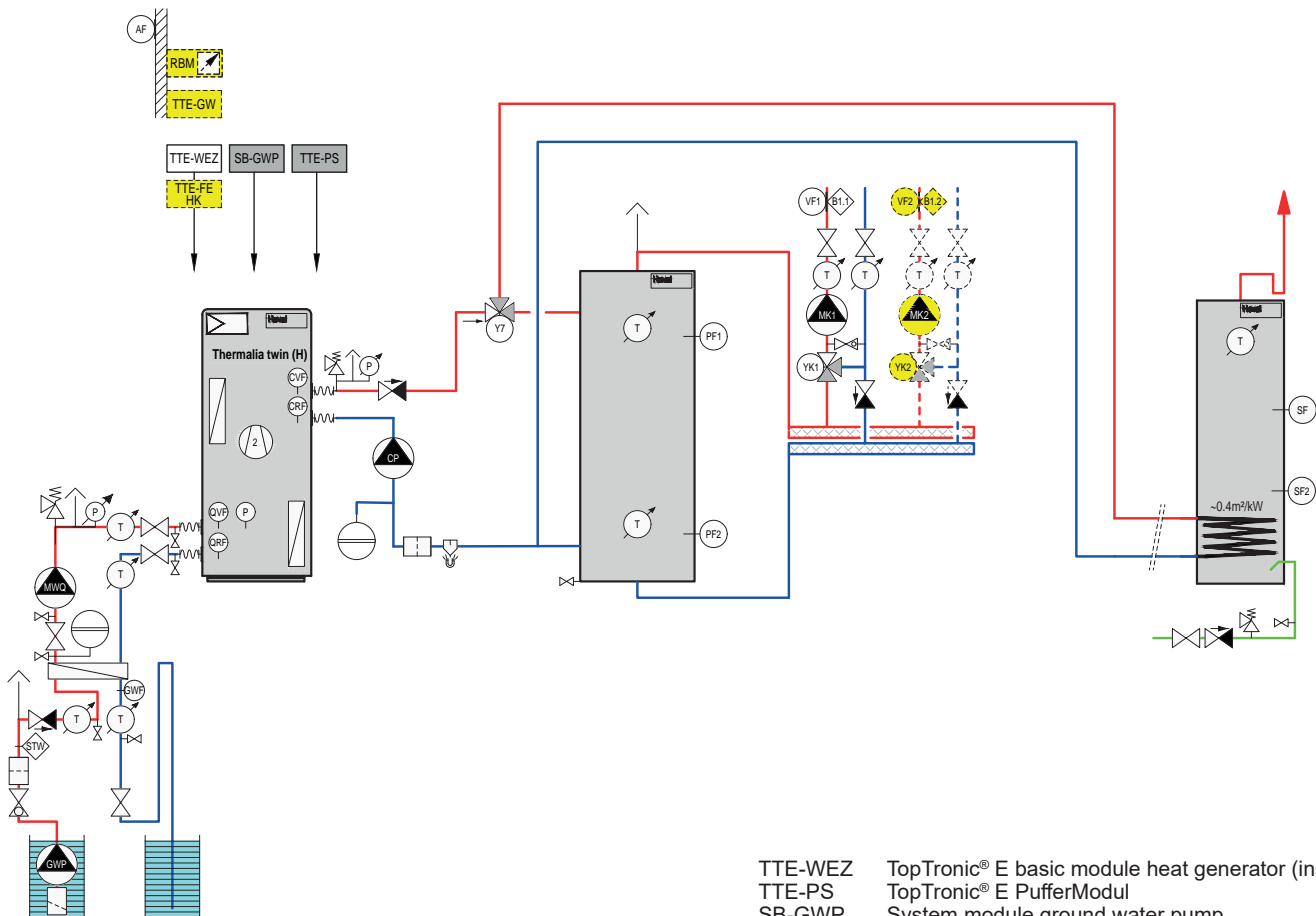
■ Examples

**Thernalia® twin**

Brine/water-water/water heat pump with

- water/water - indirect utilisation
- energy storage buffer tank
- calorifier
- 1-... mixer circuit(s)

**Hydraulic schematic BBBCE070**



- |               |   |
|---------------|---|
| TTE-WEZ       | TopTronic® E basic module heat generator (installed)                  |
| TTE-PS        | TopTronic® E PufferModul  |
| SB-GWP        | System module ground water pump                                       |
| 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   |
| SF2           | Calorifier sensor 2   |
| PF1           | Buffer sensor 1   |
| PF2           | Buffer sensor 2   |
| Y7            | Switching valve   |
| GWF           | Frost controller  |
| STW           | Flow controller   |
| CP            | Condenser pump  |
| GWP           | Ground water pump   |
| MWQ           | Delivery pump in heat source intermediate circuit (cold-water design) |
| <br>          |   |
| <i>Option</i> |   |
| RBM           | TopTronic® E room control module                                      |
| TTE-GW        | TopTronic® E Gateway  |
| <br>          |   |
| 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 notices**

- 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.
- 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!

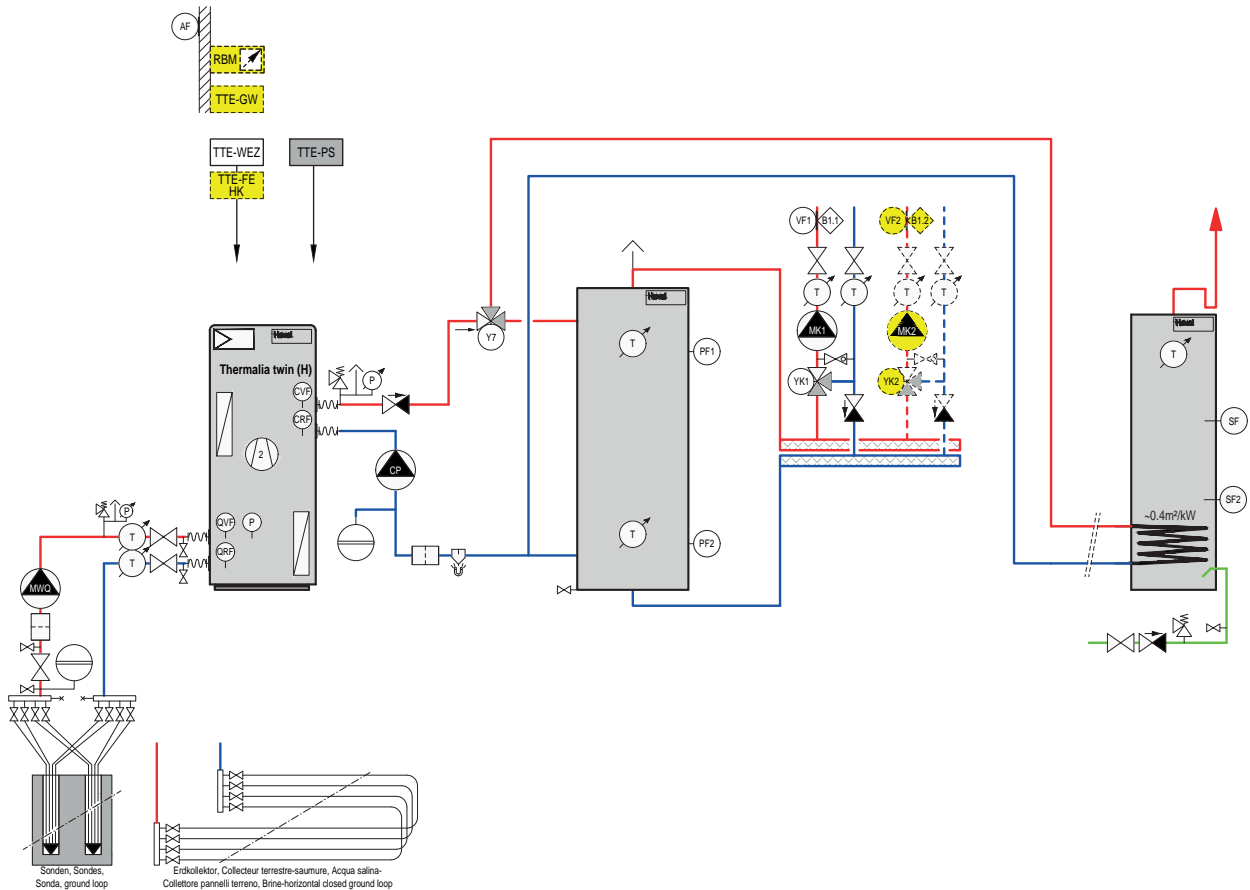
■ Examples

**Thermalia® twin**

Brine/water-water/water heat pump with

- earth probes
- energy storage buffer tank
- calorifier
- 1-... mixer circuit(s)

**Hydraulic schematic BBBCE030**



**Important notices**

- 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.
- 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!

- |               |   |
|---------------|---|
| 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   |
| SF2           | Calorifier sensor 2   |
| 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) |
| <i>Option</i> |   |
| 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  |





■ 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, dual R (55-85): 2" 4x 1 m
- Thermalia® dual, dual R (110,140): flange DN80/PN6
- Thermalia® dual H (35-70): 2" 4x 1 m
- Thermalia® dual H (90): flange DN80/PN6
- Working media
- Thermalia® dual, dual R (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



**Thermalia® dual**

Water/ water 35 °C	55 °C	Brine/ water 35 °C	55 °C	Type	Refrigerant	Flow		Heat output		Cooling capacity	
						min. °C	max. °C	B0W35 kW	W10W35 kW	B17W9 kW	B25W18 kW
A+++	A+++	A+++	A++	(55)	2 x R410A	-	62	57.9	76.7	-	-
				(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	-	-
				H (50)	2 x R134a	-	70	52.5	71.8	-	-
				H (70)	2 x R134a	-	70	70.9	97.1	-	-
				H (90)	2 x R134a	-	70	87.3	119.5	-	-
A+++	A+++	A+++	A++	R (55)	2 x R410A	7	62	57.9	76.7	64.7	81.1
				R (70)	2 x R410A	7	62	73.2	97.2	86.2	108.3
				R (85)	2 x R410A	7	62	84.8	112.8	107.0	127.7
				R (110)	2 x R410A	7	62	113.4	149.1	138.1	165.0
				R (140)	2 x R410A	7	62	137.8	181.1	156.9	183.9

*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 HovalConnect)
- Adaptation of the heating strategy based on the weather forecast (with online HovalConnect)

Energy efficiency class of the compound system with control



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	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	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

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

Thermalia® dual R type	Cooling capacity <sup>1)</sup>		
	for B17W9 kW	for B25W18 kW	
R (55)	64.7	81.1	7016 550
R (70)	86.2	108.3	7016 551
R (85)	107.0	127.7	7016 552
R (110)	138.1	165.0	7016 553
R (140)	156.9	183.9	7016 554

<sup>1)</sup> Heat output: see Hoval Thermalia® dual

■ Part No.



Accessories

Part No.

**Sound attenuation cowl for compressor**

for reducing the transmission of noise. In heat pumps with two compressors, it is mandatory for two sound attenuation cowls to be ordered.

Thermalia® dual type	Number of compressors	
(55)	2	2069 701
(70)	2	2069 706
(85)	2	2069 707
(110)	2	2069 708
(140)	2	2069 708
H (35)	2	2069 703
H (50)	2	2069 705
H (70)	2	2069 704
H (90)	2	2069 704
R (55)	2	2069 701
R (70)	2	2069 706
R (85)	2	2069 707
R (110)	2	2069 708
R (140)	2	2069 708



**Set of sound attenuation feet 65/75**  
for Thermalia® dual (55, 70), H (35, 50), dual R (55,70)  
for reducing the transmission of solid-borne noise  
Set consisting of 4 vibration-damping adjustable feet, threaded rod and locknut  
Elastomer part material: NR, black  
Housing material: galvanised steel, chromated

6045 228



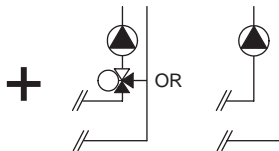
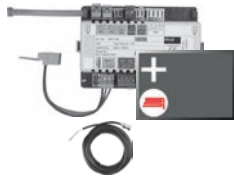
**Set of sound attenuation feet 45/55,**  
for Thermalia® dual (85, 110, 140), H (70, 90), dual R (85, 110, 140)  
for reducing the transmission of solid-borne noise  
Set consisting of 4 vibration-damping adjustable feet, threaded rod and locknut  
Elastomer part material: NR, black  
Housing material: galvanised steel, chromated

6045 229

■ Part No.

**TopTronic® E module expansions  
for TopTronic® E basic module heat generator**

Part No.



**TopTronic® E module expansion  
heating circuit TTE-FE HK**

6034 576

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:

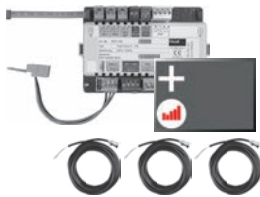
- 1 heating circuit without mixer or
- 1 heating circuit with mixer

incl. fitting accessories  
1x contact sensor ALF/2P/4/T L = 4.0 m

Can be installed in:  
Boiler control, wall housing, control panel

**Notice**

The supplementary plug set may have to be ordered to implement functions differing from the standard!



**TopTronic® E module expansion heating circuit incl. energy balancing TTE-FE HK-EBZ**

6037 062

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:

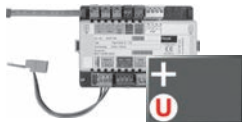
- 1 heating/cooling circuit w/o mixer or
  - 1 heating/cooling circuit with mixer
- in each case incl. energy balancing

incl. fitting accessories  
3x contact sensor ALF/2P/4/T L = 4.0 m

Can be installed in:  
Boiler control, wall housing, control panel

**Notice**

Suitable flow rate sensors (pulse sensors) must be provided on site.



**TopTronic® E module expansion Universal TTE-FE UNI**

6034 575

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

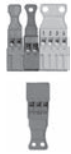
**Further information**

see "Controls" - "Hoval TopTronic® E module expansions" chapter

**Notice**

Refer to the Hoval System Technology to find which functions and hydraulic arrangements can be implemented.

■ Part No.



**HovalConnect available from summer 2019**

Up to that point, TopTronic® E online is delivered.



Accessories for TopTronic® E

Part No.

**Supplementary plug set**

for basic module heat generator (TTE-WEZ)	6034 499
for controller modules and module expansion	6034 503
TTE-FE HK	

**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	6039 253
Consisting of the following languages:	
HU, CS, SL, RO, PL, TR, ES, HR, SR, JA, DA	

**HovalConnect**

HovalConnect domestic starter LAN	6049 496
HovalConnect domestic starter WLAN	6049 498
HovalConnect commercial starter LAN	6049 495
HovalConnect commercial starter WLAN	6049 497
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
HovalConnect domestic starter Modbus	6049 501
HovalConnect domestic starter KNX	6049 593
HovalConnect commercial starter Modbus	6049 500
HovalConnect commercial starter KNX	6049 502

**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
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**Further information**  
see "Controls"

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

■ Part No.



Accessories

Part No.

**Protective pipe immersion sleeve SB280 1/2"**  
brass nickel-plated  
PN10, 280 mm

2018 837



**Flange compensator set DN80 PN6**  
for Thermalia® dual(110-140), dual H(90),  
dual R (110-140)  
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



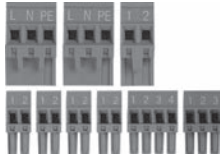
**Float ball flow switch**  
nominal pressure 10 bar  
installed length 335 mm  
bistable reed contact as normally open contact  
Contact open, if there is no flow

Area of application l/h	Connection °C	Part No.
1500-15000	0-80	Rp 2" 2040 709
3000-30000	0-80	DN 65 2064 164
8000-60000	0-80	DN 65 2064 165

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

■ Part No.

Part No.



**Expansion connector set**

for the automatic heat pump ECR461.

Use for additional function:

- Flow monitor
- Crankcase bottom heating (included in the scope of delivery for Belaria® twin A, twin AR, dual AR)
- Condensation drain heating
- Heat quantity metering

Plugs:

- 1x 230V digital input
- 2x 230V outputs
- 4x low-voltage inputs
- 1x ratio. Input

6032 509



**Frost protection temperature switch 270XT-95068**

to heat source ground water

Type of protection: IP 40

Area of application: -24/18 °C

2007 313



**Freeze protection concentrate 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

2009 987

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)
Seasonal coefficient of performance moderate climate (brine) 35 °C /55 °C	SCOP	5.1/3.7	5.0/3.7	5.1/3.7	5.1/3.7	5.0/3.7
<i>Performance data acc. to EN 14511</i>						
• 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
<b>Sound data according to EN 12102</b>						
• Sound power level	dB(A)	57.2	55.7	57.2	64.2	64.2
<b>Hydraulic data brine/water</b>						
• Maximum flow temperature	°C	62	62	62	62	62
• Operating pressure	bar	6	6	6	6	6
<i>B0W35</i>						
• 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, condenser	kPa	6.9	9.7	10.7	13.7	11.5
• Condenser connections	R ext. thread	2"	2"	2"	DN80/PN6	DN80/PN6
<i>B0W35</i>						
• 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, evaporator	kPa	14.3	9.7	10.7	13.7	11.5
• Evaporator connections	R ext. thread	2"	2"	2"	DN80/PN6	DN80/PN6
<b>Hydraulic data water/water</b>						
• Maximum flow temperature	°C	62	62	62	62	62
• Operating pressure	bar	6	6	6	6	6
<i>W10/B7W35 (intermediate circuit)</i>						
• 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, condenser	kPa	6.9	9.7	10.7	13.7	11.5
• Condenser connections	R ext. thread	2"	2"	2"	DN80/PN6	DN80/PN6
<i>W10/B7W35 (intermediate circuit)</i>						
• Ground water spread <sup>1</sup>	K	3	4	4	4	5
• Required volume flow GW	m³/h	16.3	15.1	17.1	23.3	22.6
• Pressure drop, evaporator	kPa	14.3	9.7	10.7	13.7	11.5
• Evaporator connections	R ext. thread	2"	2"	2"	DN80/PN6	DN80/PN6
<b>Refrigerating data</b>						
• Refrigerant				R410A		
• Refrigerant filling quantity	kg	2x6,0	2x7,4	2x8,2	2x10,0	2x10,7
• Compressor oil filling quantity	kg	2x2,46	2x3,30	2x3,60	2x6,70	2x6,70
(Type of compressor oil: DAPHNE HERMETIC OIL FVC32D for dual (55), EMKARATE® RL 32HB - 160SZ - 160Z)						
<b>Electrical data</b>						
• 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
• Max. starting current	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
<b>Dimensions / weight</b>						
• 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

<sup>1</sup> 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)
Seasonal coefficient of performance moderate climate (brine) 35 °C /55 °C	SCOP	4.6/3.5	4.8/3.6	4.8/3.5	4.7/3.5
<b>Performance data acc. to EN 14511</b>					
• 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
<b>Sound data according to EN 12102</b>					
• Sound power level	dB(A)	55.2	60.2	63.2	63.2
<b>Hydraulic data brine/water</b>					
• Maximum flow temperature	°C	70	70	70	70
• Operating pressure	bar	6	6	6	6
<i>B0W35</i>					
• Heating water spread	K	5	5	5	5
• Required volume flow	m³/h	5.5	9.0	12.1	15.1
• Pressure drop, condenser	kPa	9.3	5.1	5.8	7.2
• Condenser connections	R ext. thread	2"	2"	2"	DN80/PN6
<i>B0W35</i>					
• Brine spread	K	3	3	4	4
• Required volume flow	m³/h	8.9	12.4	12.6	15.7
• Pressure drop, evaporator	kPa	9.2	5.7	8.3	9.0
• Evaporator connections	R ext. thread	2"	2"	2"	DN80/PN6
<b>Hydraulic data water/water</b>					
• Maximum flow temperature	°C	70	70	70	70
• Operating pressure	bar	6	6	6	6
<i>W10/B7W35 (intermediate circuit)</i>					
• Heating water spread	K	5	5	5	5
• Required volume flow	m³/h	8.5	11.4	15.2	18.9
• Pressure drop, condenser	kPa	14.5	5.1	5.8	7.2
• Condenser connections	R ext. thread	2"	2"	2"	DN80/PN6
<i>W10/B7W35 (intermediate circuit)</i>					
• Ground water spread <sup>1</sup>	K	3	3	4	4
• Required volume flow GW	m³/h	10.9	15.3	15.3	19.1
• Pressure drop, evaporator	kPa	20.0	25.2	25.2	19.6
• Evaporator connections	R ext. thread	2"	2"	2"	DN80/PN6
<b>Refrigerating data</b>					
• 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
(Type of compressor oil: EMKARATE® RL 32HB - 160SZ - 160Z)					
<b>Electrical data</b>					
• 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
• Max. starting current	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
<b>Dimensions / weight</b>					
• 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

<sup>1</sup> 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 R (55-140) with R410A

Type		R (55)	R (70)	R (85)	R (110)	R (140)
Seasonal coefficient of performance moderate climate (brine) 35 °C / 55 °C	SCOP	5.1/3.7	5.0/3.7	5.1/3.7	5.1/3.7	5.0/3.7
<b>Performance data acc. to EN 14511</b>						
• 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
• Cooling capacity B17W9	kW	64.7	86.2	107.0	138.1	156.9
• Power consumption B17W9	kW	10.6	13.1	14.8	21.2	25.9
• Performance B17W9	EER	6.12	6.6	7.21	6.51	6.05
• Cooling capacity B25W18	kW	81.1	108.3	127.7	165.0	183.9
• Power consumption B25W18	kW	12.6	16.2	18.4	26.2	30.4
• Performance B25W18	EER	6.44	6.71	6.95	6.31	6.04
<b>Sound data according to EN 12102</b>						
• Sound power level	dB(A)	57.2	55.7	57.2	64.2	64.2
<b>Hydraulic data brine/water</b>						
• Maximum flow temperature	°C	62	62	62	62	62
• Operating pressure	bar	6	6	6	6	6
<i>B0W35</i>						
• 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, condenser	kPa	6.9	9.7	10.7	13.7	11.5
• Condenser connections	R AG	2"	2"	2"	DN80/PN6	DN80/PN6
<i>B0W35</i>						
• 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, evaporator	kPa	14.3	9.7	10.7	13.7	11.5
• Evaporator connections	R AG	2"	2"	2"	DN80/PN6	DN80/PN6
<b>Hydraulic data water/water</b>						
• Maximum flow temperature	°C	62	62	62	62	62
• Operating pressure	bar	6	6	6	6	6
<i>W10/B7W35 (intermediate circuit)</i>						
• 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, condenser	kPa	6.9	9.7	10.7	13.7	11.5
• Condenser connections	R AG	2"	2"	2"	DN80/PN6	DN80/PN6
<i>W10/B7W35 (intermediate circuit)</i>						
• Ground water spread <sup>1</sup>	K	3	4	4	4	5
• Required volume flow GW	m³/h	16.3	15.1	17.1	23.3	22.6
• Pressure drop, evaporator	kPa	14.3	9.7	10.7	13.7	11.5
• Evaporator connections	R AG	2"	2"	2"	DN80/PN6	DN80/PN6
<b>Refrigerating data</b>						
• Refrigerant				R410A		
• Refrigerant filling quantity	kg	2x6.0	2x7.4	2x8.2	2x10.0	2x10.7
• Compressor oil filling quantity	dm³	2x2.46	2x3.3	2x3.6	2x6.7	2x6.7
(Type of compressor oil: DAPHNE HERMETIC OIL FVC32D for dual (55), EMKARATE® RL 32HB - 160SZ - 160Z)						
<b>Electrical data</b>						
• 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
• Max. starting current	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
<b>Dimensions / weight</b>						
• 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	27.2	33.6	37.3	45.5	48.6
• Weight	kg	560	620	700	770	820

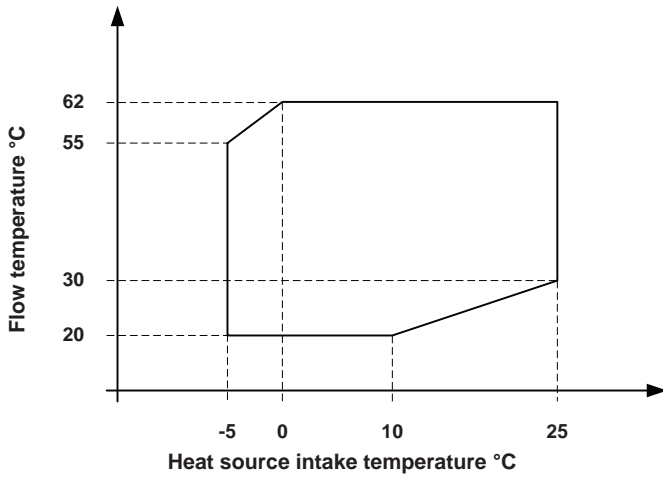
<sup>1</sup> ΔT in accordance with regional regulations. The temperature difference is adjustable from 3 to 6 kelvin. The pump regulates the volumetric current to the set temperature difference.

■ Technical data

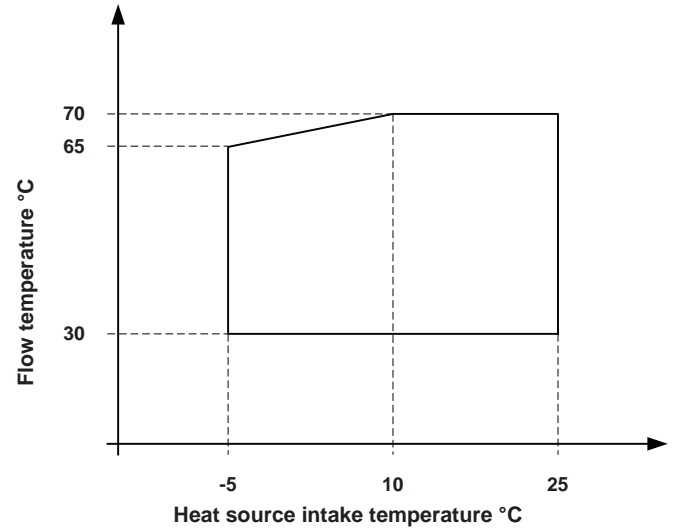
Diagrams range of application

Heating and hot water

Thermalia® dual (55-140), dual R (55-140)

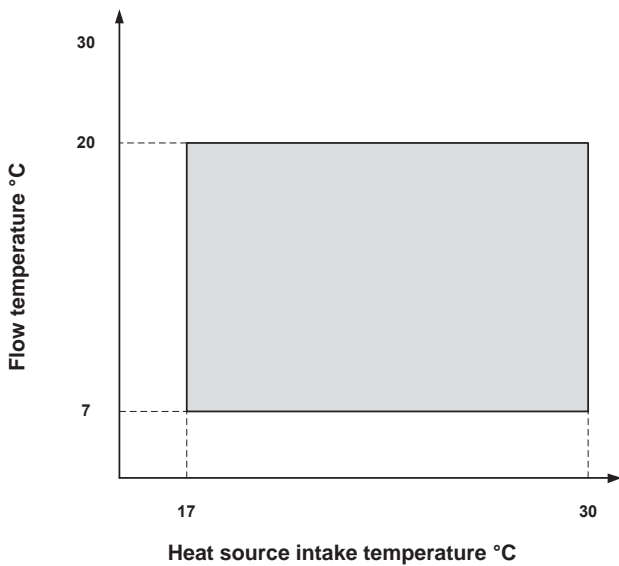


Thermalia® dual H (35-90)



Cooling

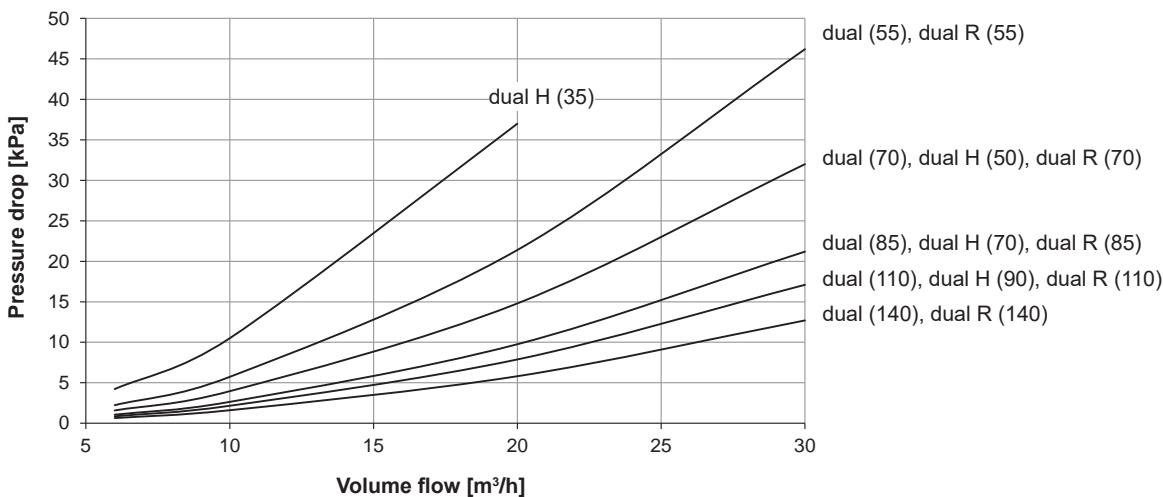
Thermalia® dual R (55-140)



■ Technical data

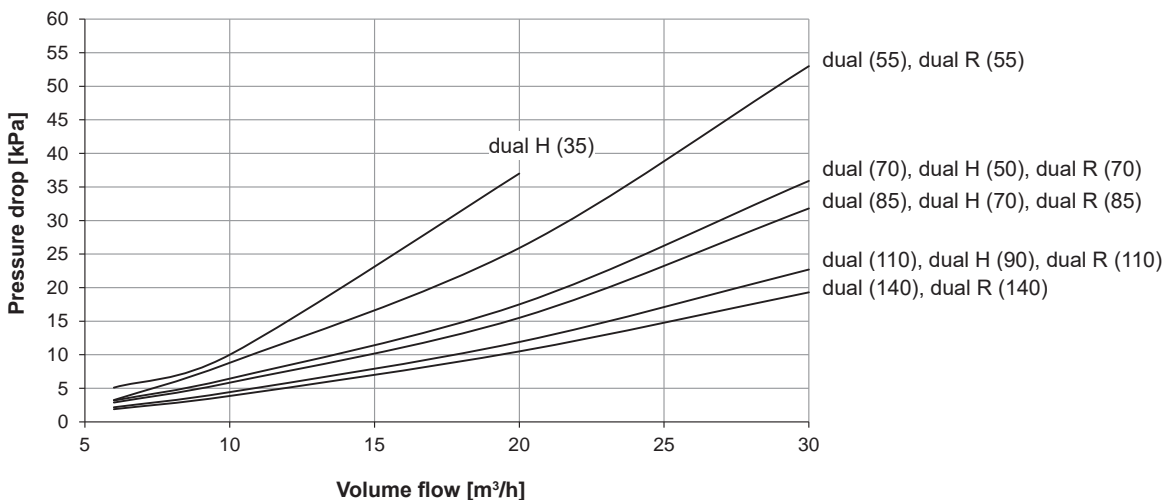
Heating

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)
- $\Delta t_2$  = temperature difference heat source supply/discharge (K)
- $C$  = 0.86
- $c_p$  = 0.89 (specific heat)
- $\gamma$  = 1.05 (specific weight, density)

Volume flow evaporator

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

- $\Delta p$  (kPa) = pressure drop with frost protection (1 kPa = 0.1 mWC)
- $\Delta p = \frac{f \times \Delta P}{f}$  Ethylene glycol % (Antifrogen N)
- 0.97  $\Delta$  20 %
- 1  $\Delta$  25 %
- 1.03  $\Delta$  30 %

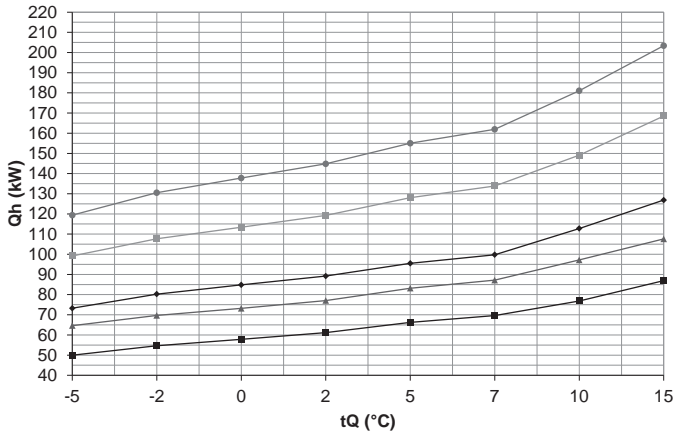
- $\Delta p_w$  (kPa) = Pressure drop with water (1 kPa = 0.1 mWC)
- $\Delta p_w = \Delta P \times 0.89$

■ Technical data  
Performance data - heating

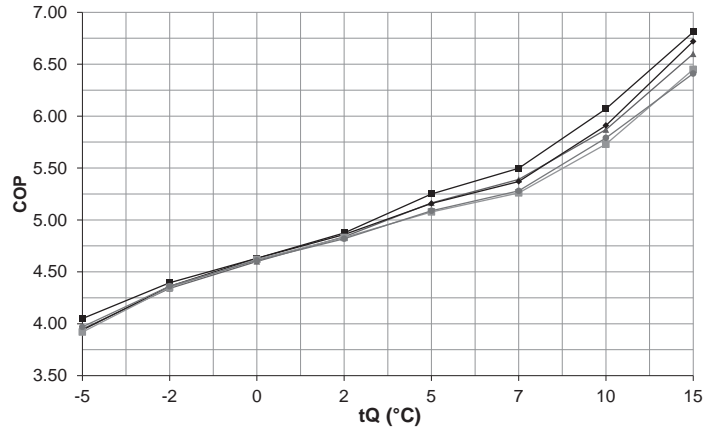
Maximum heat output

Hoval Thermalia® dual (55-140), dual R (55-140) with R410A

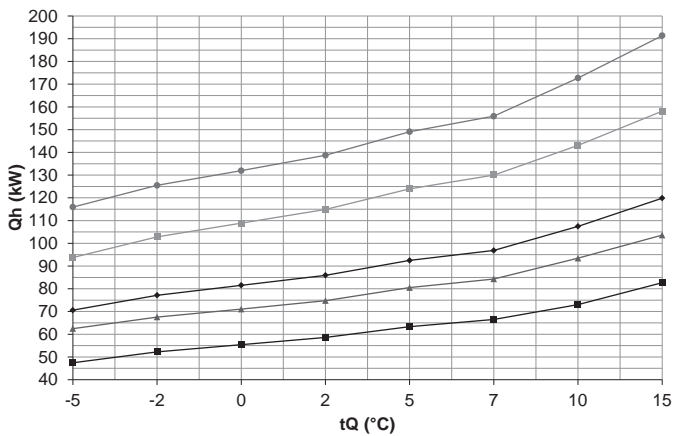
Heat output -  $t_{VL}$  35 °C



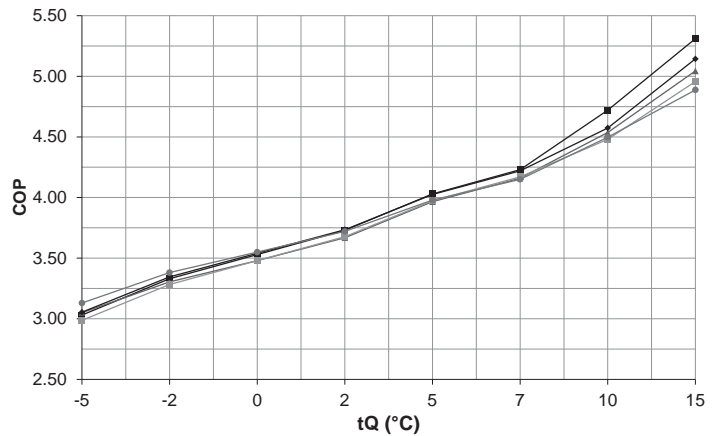
Output rating -  $t_{VL}$  35 °C



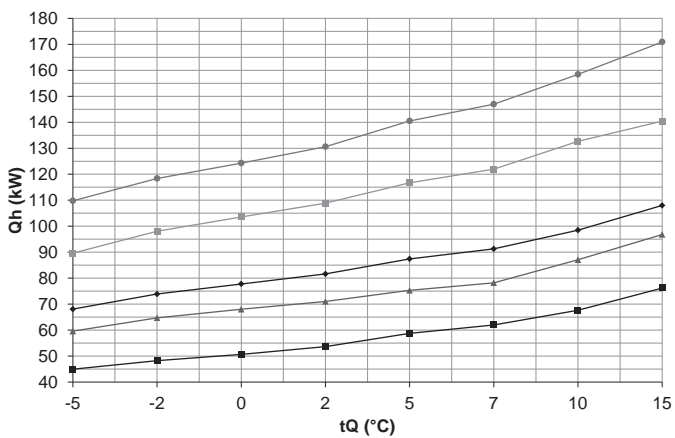
Heat output -  $t_{VL}$  45 °C



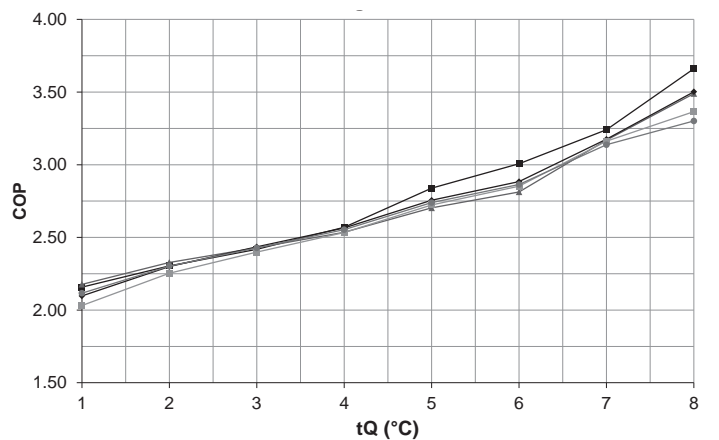
Output rating -  $t_{VL}$  45 °C



Heat output -  $t_{VL}$  62 °C



Output rating -  $t_{VL}$  62 °C



$t_{VL}$  = heating flow temperature (°C)  
 $t_Q$  = source temperature (°C)  
 $Q_h$  = 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, dual R (55)
- ▲ Thermalia® dual, dual R (70)
- ◆ Thermalia® dual, dual R (85)
- Thermalia® dual, dual R (110)
- Thermalia® dual, dual R (140)

## ■ Technical data

Performance data - heating

## Hoval Thermalia® dual (55-140), dual R (55-140)

Indications acc. to EN 14511

Type	tVL °C	(55), R (55)			(70), R (70)			(85), R (85)			(110), R (110)			(140), R (140)					
		tQ °C	Qh kW	P kW	COP	Qh kW	P kW	COP	Qh kW	P kW	COP	Qh kW	P kW	COP	Qh kW	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		
	Water	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		
		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		
Water	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		
	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		
Water		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		
		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		
Water	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		
	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		
Water		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		
		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		
Water	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		
	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		
Water		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		
		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

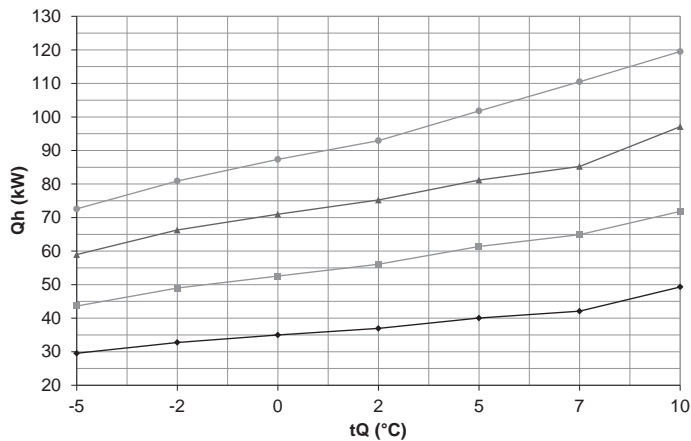
■ Technical data

Performance data - heating

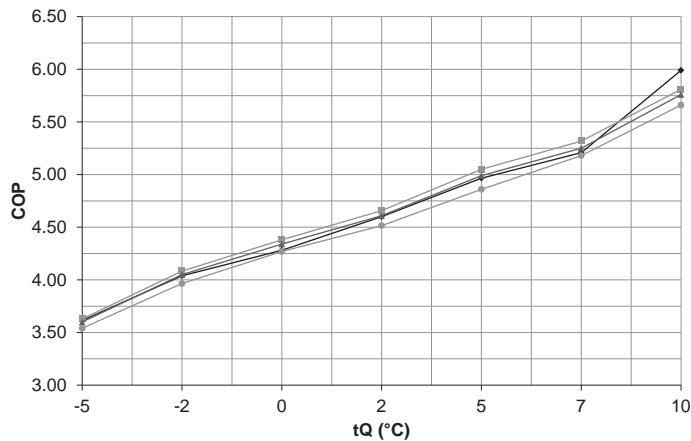
Maximum heat output

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

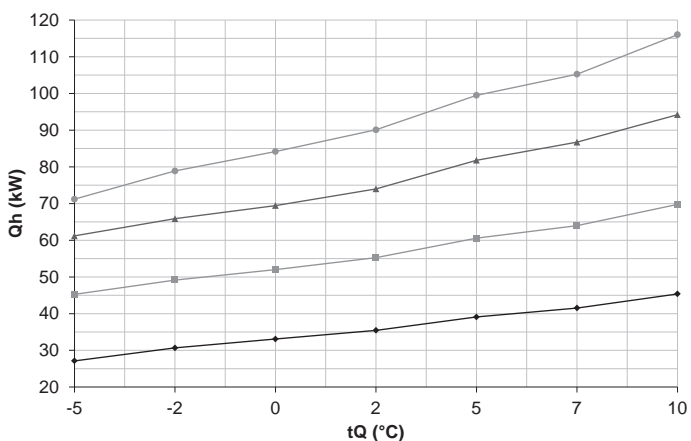
Heat output -  $t_{VL}$  35 °C



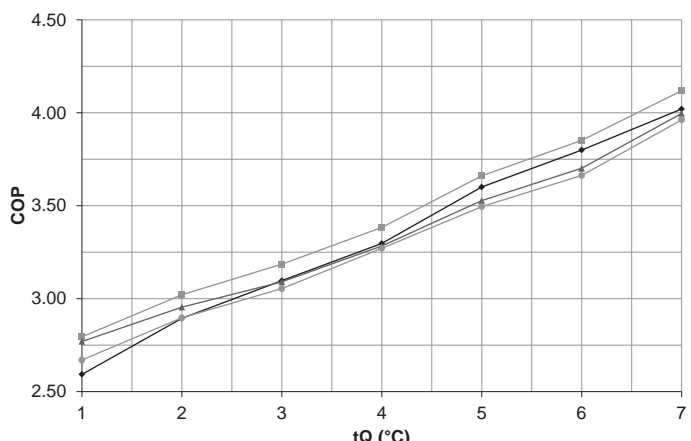
Output rating -  $t_{VL}$  35 °C



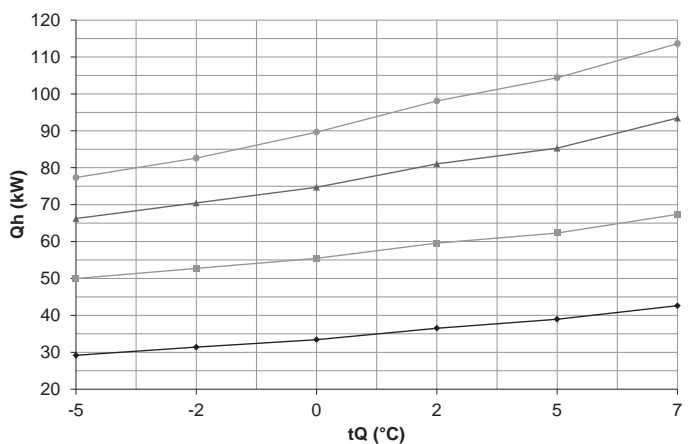
Heat output -  $t_{VL}$  50 °C



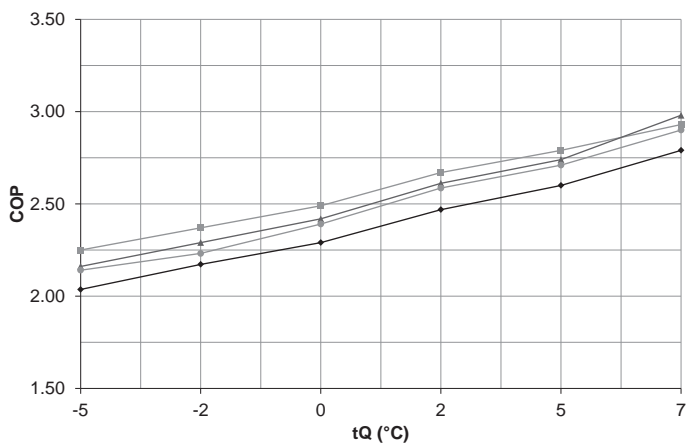
Output rating -  $t_{VL}$  50 °C



Heat output -  $t_{VL}$  65 °C



Output rating -  $t_{VL}$  65 °C



$t_{VL}$  = heating flow temperature (°C)

$t_Q$  = source temperature (°C)

$Q_h$  = 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	tVL °C	tQ °C	H (35)			H (50)			H (70)			H (90)		
			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
		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
		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
		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
		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
		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
		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



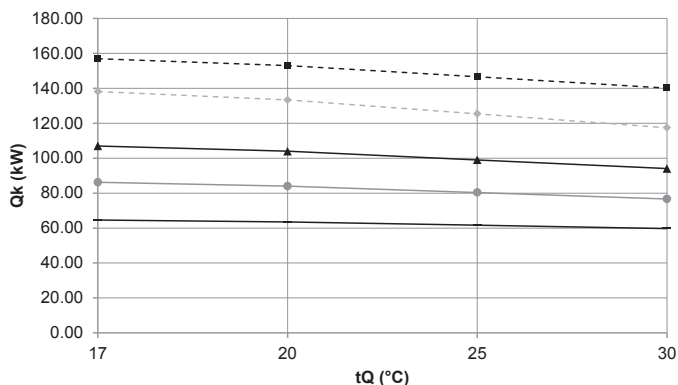
■ Dimensions

Performance data – cooling

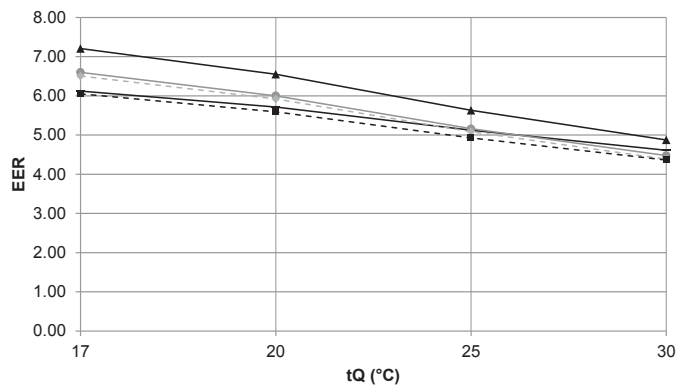
Maximum cooling capacity

Hoval Thermalia® dual R (55-140) with R410A

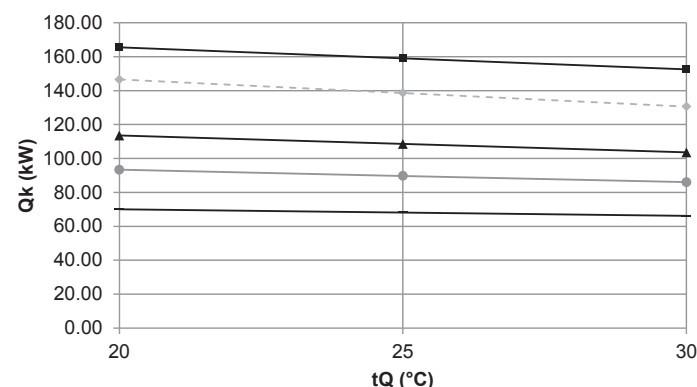
Cooling capacity -  $t_{FL} 9\text{ °C}$



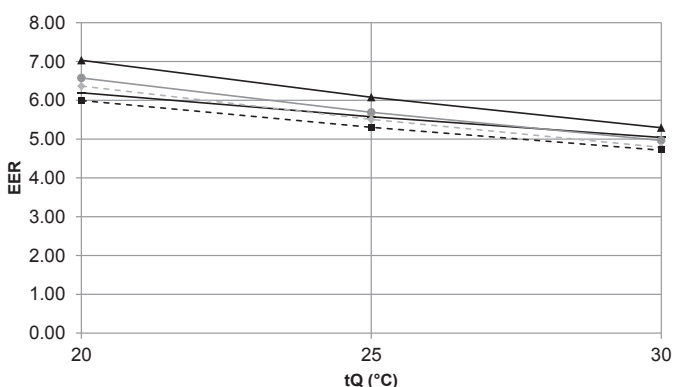
Coefficient of performance -  $t_{FL} 9\text{ °C}$



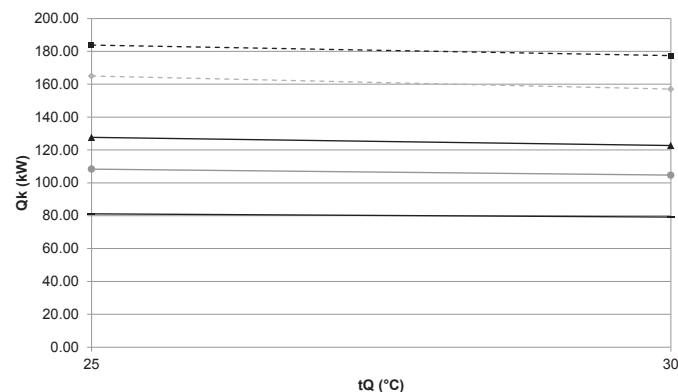
Cooling capacity -  $t_{FL} 12\text{ °C}$



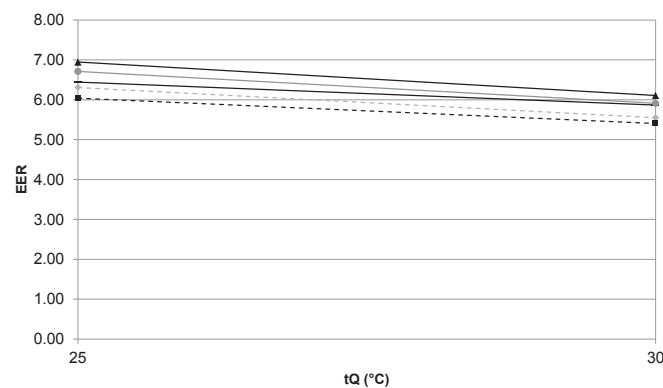
Coefficient of performance -  $t_{FL} 12\text{ °C}$



Cooling capacity -  $t_{FL} 18\text{ °C}$



Coefficient of performance -  $t_{FL} 18\text{ °C}$



$t_{FL}$  = Cooling water flow temperature (°C)

$t_Q$  = Source temperature (°C)

$Q_k$  = Cooling capacity (kW), measured in accordance with standard EN 14511

EER = Coefficient of performance for the overall unit in accordance with standard EN 14511

- Thermalia® dual R (55)
- Thermalia® dual R (70)
- ▲— Thermalia® dual R (85)
- ◆— Thermalia® dual R (110)
- Thermalia® dual R (140)

## ■ Dimensions

Performance data – cooling

## Hoval Thermalia® dual R (55-140)

Data according to EN 14511

Type	Heat source Medium t1	tQ °C	R (55)				R (70)				R (85)				R (110)				R (140)			
			Qk kW	P kW	EER	Qk kW	P kW	EER	Qk kW	P kW	EER	Qk kW	P kW	EER	Qk kW	P kW	EER	Qk kW	P kW	EER		
9	Brine (Sole)	17	64.66	10.56	6.12	86.20	13.06	6.60	106.97	14.84	7.21	138.10	21.23	6.51	156.90	25.92	6.05					
		20	63.52	11.11	5.72	84.00	14.00	6.00	103.98	15.87	6.55	133.33	22.51	5.92	153.02	27.35	5.59					
		25	61.62	12.03	5.12	80.34	15.56	5.16	99.00	17.58	5.63	125.37	24.65	5.09	146.56	29.74	4.93					
		30	59.72	12.94	4.61	76.67	17.13	4.48	94.02	19.29	4.87	117.42	26.79	4.38	140.09	32.12	4.36					
12	Brine (Sole)	20	70.02	11.30	6.20	93.34	14.19	6.58	113.55	16.14	7.04	146.53	23.01	6.37	165.46	27.59	6.00					
		25	68.12	12.21	5.58	89.67	15.76	5.69	108.57	17.85	6.08	138.57	25.15	5.51	158.99	29.97	5.30					
		30	66.22	13.13	5.04	86.01	17.32	4.97	103.59	19.56	5.30	130.62	27.29	4.79	152.52	32.36	4.71					
15	Brine (Sole)	25	74.61	12.40	6.02	99.01	15.95	6.21	118.15	18.12	6.52	151.77	25.65	5.92	171.42	30.20	5.68					
		30	72.71	13.31	5.46	95.34	17.52	5.44	113.17	19.83	5.71	143.82	27.79	5.18	164.96	32.59	5.06					
18	Brine (Sole)	25	81.11	12.59	6.44	108.34	16.15	6.71	127.72	18.39	6.95	164.97	26.15	6.31	183.86	30.44	6.04					
		30	79.21	13.50	5.87	104.68	17.71	5.91	122.74	20.10	6.11	157.02	28.29	5.55	177.39	32.82	5.40					

tFL = Cooling water flow temperature (°C)

tQ = Source temperature (°C)

Qk = Cooling capacity (kW), measured in accordance with standard EN 14511

P = Power consumption of the overall unit (kW) incl. high-efficiency pump, measured in accordance with EN 14511

EER = Coefficient of performance for the overall unit in accordance with standard EN 14511

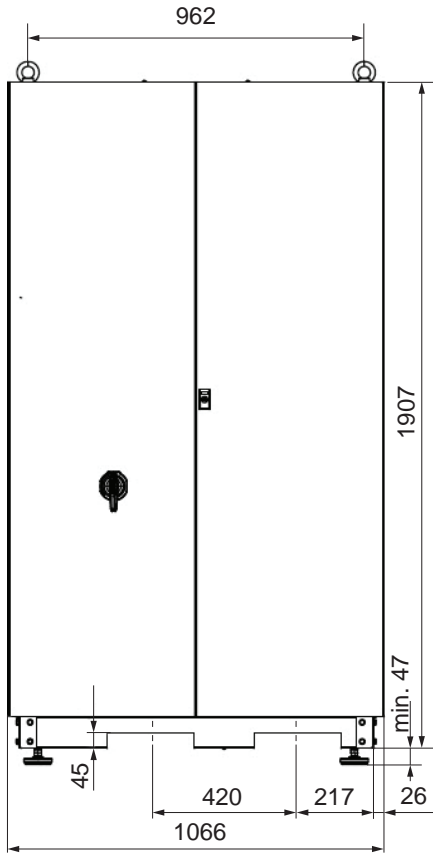
**Take account of daily power cuts!**

see Engineering

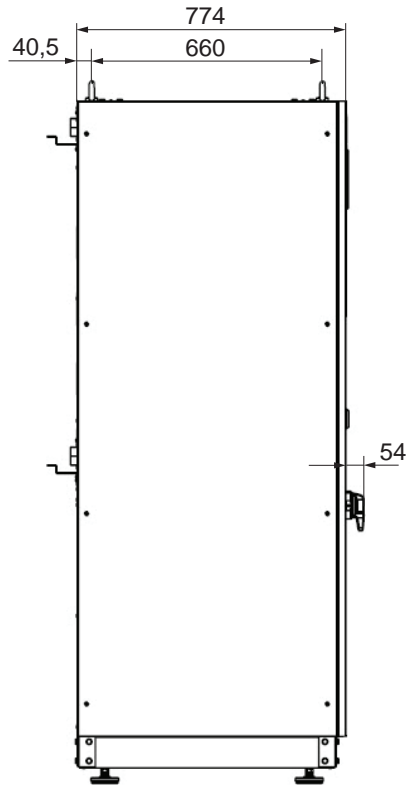
■ Dimensions

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

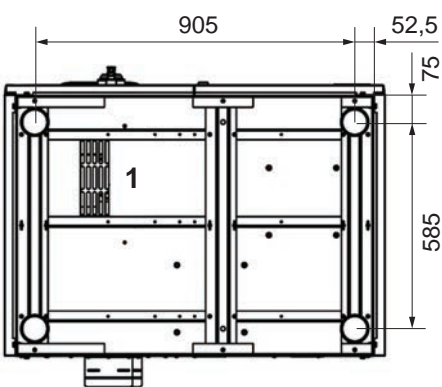
Front view



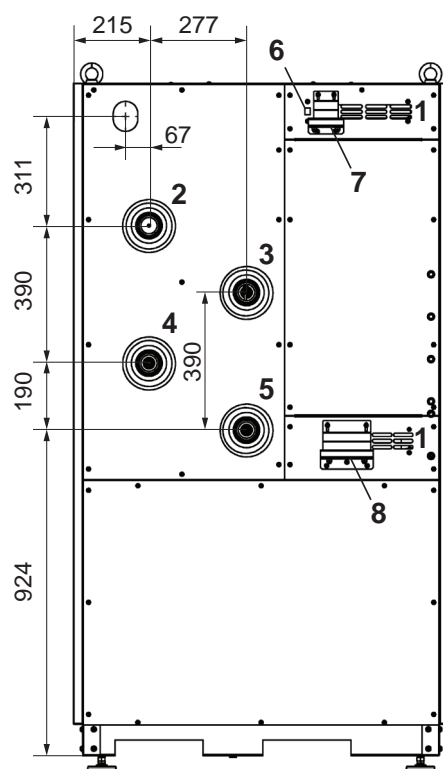
Side view



View from below



Rear view



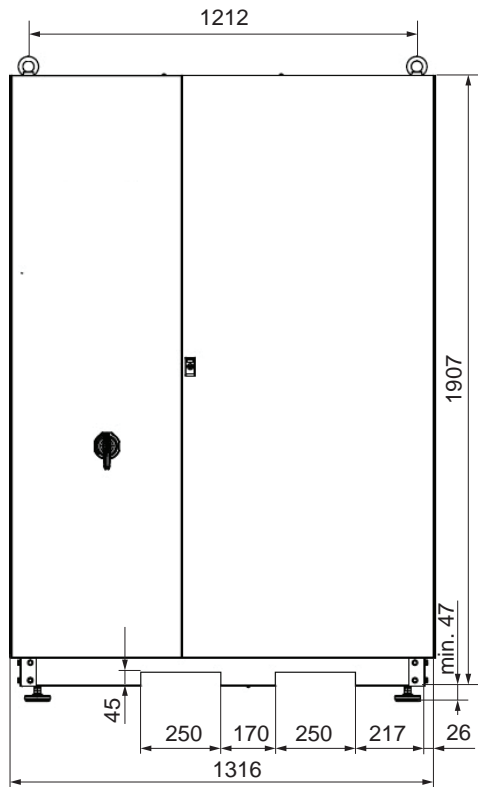
- 1 Vent opening
- 2 Flow heating or storage tank Rp 2"
- 3 Brine or ground water inlet Rp 2"
- 4 Return heating or storage tank Rp 2"
- 5 Brine or ground water outlet Rp 2"
- 6 LAN interface
- 7 Cable feedthrough for sensors and actuators
- 8 Cable feedthrough for the mains supply and connection to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

Adjustable feet with M12 thread

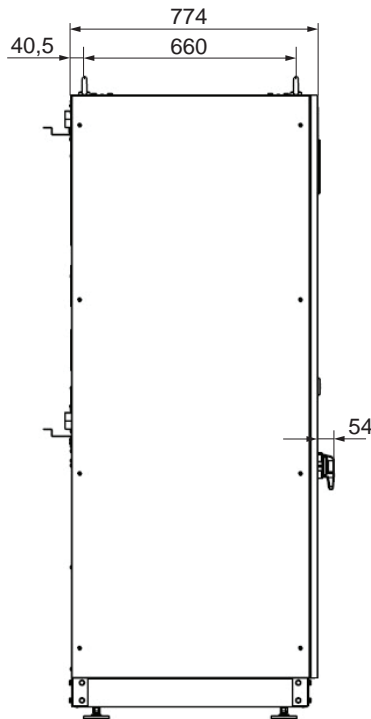
■ Dimensions

Hoval Thermalia® dual (110-140), dual H (50-90), dual R (110-140)  
(Dimensions in mm)

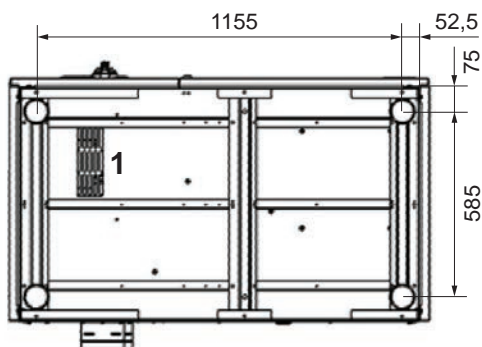
Front view



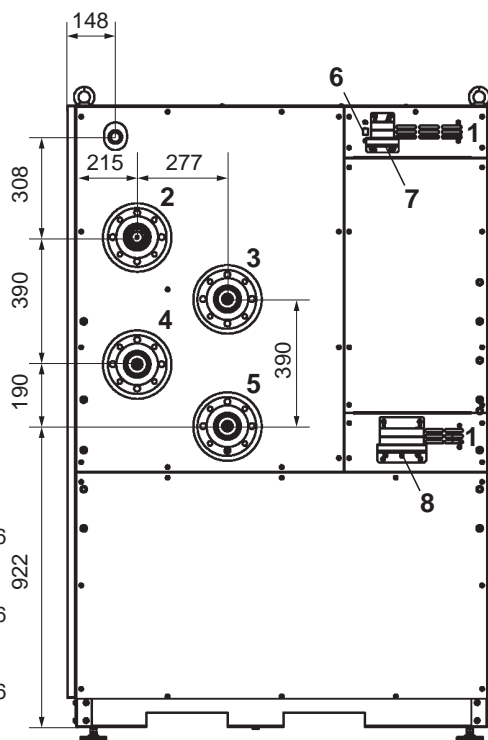
Side view



View from below



Rear view



- 1 Vent opening
- 2 Flow heating or storage tank  
Thermalia® dual H (50,70) Rp 2"  
Thermalia® dual, dual R (110,140), dual H (90) flange DN80/PN6
- 3 Brine or ground water inlet  
Thermalia® dual H (50,70) Rp 2"  
Thermalia® dual, dual R (110,140), dual H (90) flange DN80/PN6
- 4 Return heating or storage tank  
Thermalia® dual H (50,70) Rp 2"  
Thermalia® dual, dual R (110,140), dual H (90) flange DN80/PN6
- 5 Brine or ground water outlet  
Thermalia® dual H (50,70) Rp 2"  
Thermalia® dual, dual R (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

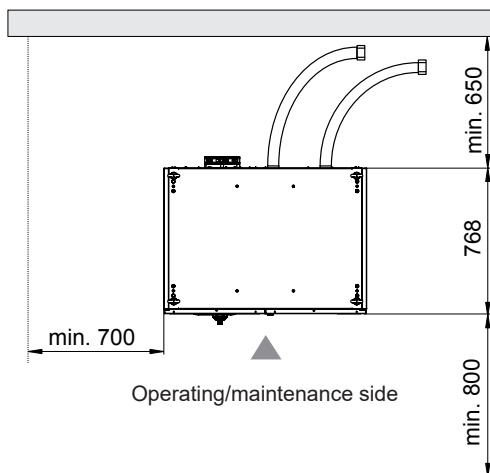
■ Dimensions

Space requirement

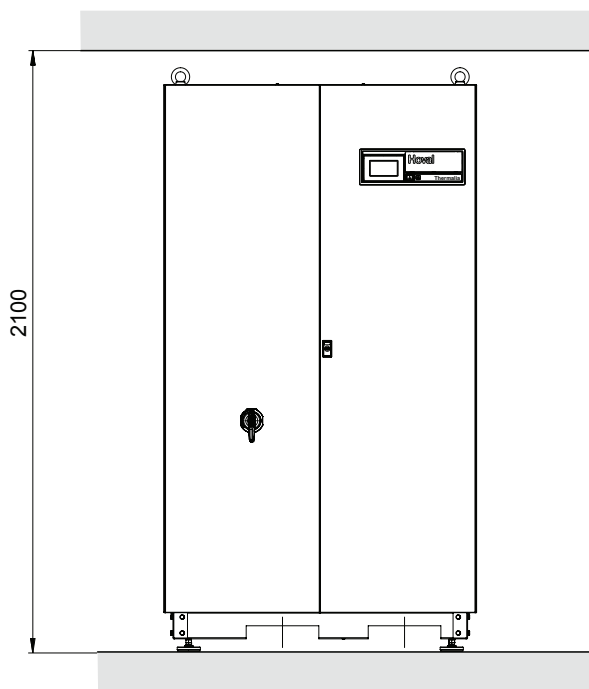
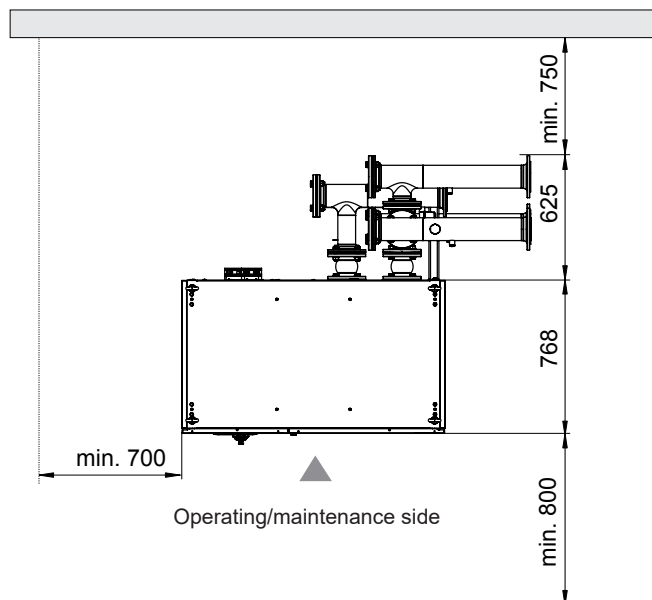
Required wall clearance for operation and maintenance

(Dimensions in mm)

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



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



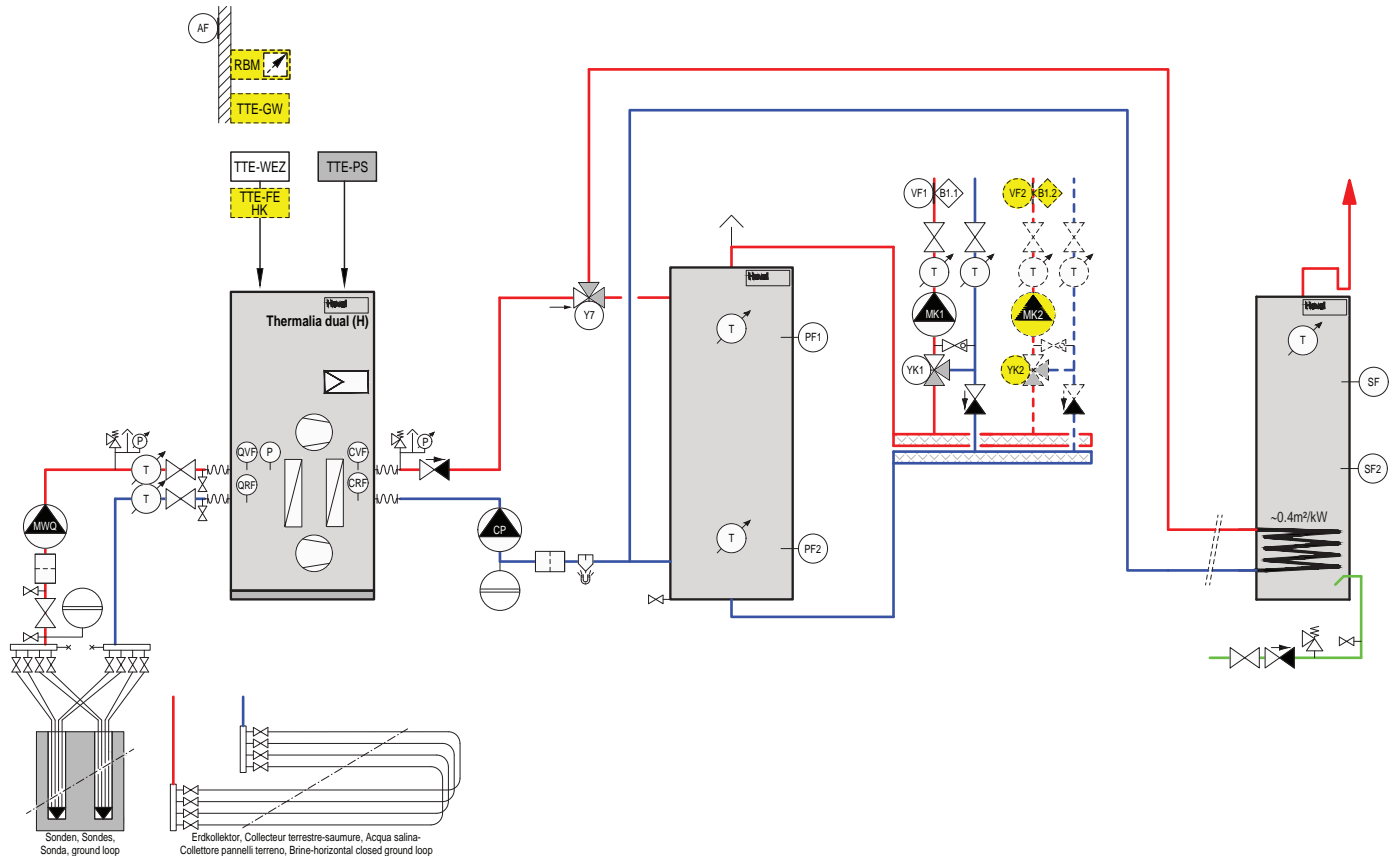
■ Examples

**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
- SF2 Calorifier sensor 2
- 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 notices**

- 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!