Hoval Belaria® twin A
Hoval Belaria® twin AR
Air/water heat pump

- Compact air/water heat pump for outside installation
- High energy efficiency
- Evaporator and refrigeration part are placed adjacent to one another. The refrigeration part is encapsulated with electrolytically galvanised, powder-coated and sound-insulated steel sheets. Colour light grey (RAL 7035).
- Covering made of sheet steel, colour anthracite (DB 703)
- Two suction gas cooled scroll compressors.
- With large-area, multi-row aluminium/copper ribbed pipe evaporator and copper-brazed plate-type condenser made from stainless steel
- Two electronic expansion valves for the highest efficiency and operational reliability
- Speed-controlled axial ventilator made from high-strength composite material with vanes as a compact unit for low energy consumption and the lowest noise level
- Two electronic starting current limiters with rotary field/phase monitoring
- Belaria® twin AR - additionally with cooling function through inversion of cycle
- Filled with refrigerant R410A, wired up internally ready for connection
- Electrical box for wall mounting inside the building with built-in TopTronic® E controller
- The electrical box is not included in the scope of delivery and must be ordered in addition as an accessory.
- Strainer ball valve installed
- Connecting hoses included
  Heating side pipework in the casing

Condensate connection
- The drain pipeline is to be made with sufficient incline and without change of the cross-section.
- The water connections and the drain pipelines must be carried out outdoors and must be protected against frost on site (see base plan).

Hydraulic connections
- Heating connections with flexible hoses to the bottom

Electrical connections
- Connection from the bottom (see base plan)

Options
- Diffuser for sound reduction

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

Model range

Belaria® twin A type			Heat output A2W35 kW		Belaria® twin AR type			Heat output A2W35 kW		Cooling capacity A35W18 kW	
	35 °C	55 °C	stage 1	stage 2		35 °C	55 °C	stage 1	stage 2	stage 1	stage 2
(32)	A+++	A++	18.6	31.6	(32)	A+++	A++	18.6	31.6	22.7	40.4

Energy efficiency class of the compound system with control.

- 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 charging 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 balancing 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 electrical box:
- 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”

EnergyManager PV smart
Feature to increase self-generated power consumption in use with HovalConnect.

If a HovalConnect gateway is used together with the heat pump, the EnergyManager PV smart feature is available. This allows the heat pump to be operated preferentially at times of higher solar radiation. The feature uses online weather data on the current solar radiation for this purpose and can be adjusted by means of an associated threshold value. The self-consumption of electricity from an existing photovoltaic plant is thus increased and the purchase of grid electricity is reduced. This results in a lasting and significant cost-saving potential without further investment costs for the customer.

Delivery
One-piece design. Compact unit wired-up internally ready for connection.

Recommended accessories
- High-efficiency pump with continuously variable speed control

Air/water heat pump - 2-stage

Hoval Belaria® twin A

Belaria® twin A type	Heat output A2W35 kW		Part No.
	stage 1	stage 2	
(32)	18.6	31.6	7016 821

Air/water heat pump - 2-stage (cooling function)

Hoval Belaria® twin AR

Belaria® twin AR type	Heat output A2W35 kW		Cooling capacity A35W18 kW		Part No.
	stage 1	stage 2	stage 1	stage 2	
(32)	18.6	31.6	22.7	40.4	7016 824

EnergyManager PV smart
Free feature to increase self-generated power consumption in use with HovalConnect.

Further information
see “Description”

Notice
Suitable 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 “Circulating pumps”

The electrical box with built-in TopTronic® E controller must be ordered separately.

If the heat pump is ordered without electrical box, engineering must absolutely be performed by Hoval, otherwise it will not be taken into operation.

Electric heating elements
see “Calorifiers” - chapter “Electric heating elements”

Energy efficiency class
see Description

Notice
A buffer storage tank must be provided.

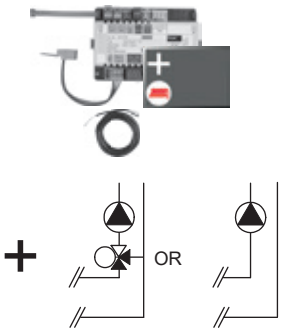
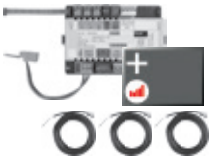
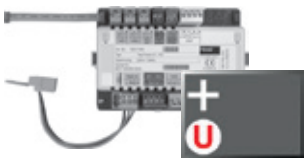
Matching buffer storage tanks
see “Calorifiers”

Accessories

		Part No.
	**Electrical box** for wall installation in building interiors with built-in Hoval TopTronic® E controller Integrated control functions for - 1 heating/cooling circuit with mixer - 1 heating/cooling circuit without mixer - 1 hot water charging circuit - Bivalent and cascade management Can be optionally expanded by max. 1 module expansion and 1 controller module or 2 controller modules: - Module expansion heating circuit or - Module expansion heat balancing or - Module expansion Universal Can be optionally networked with up to 16 controller modules in total (incl. solar module) Incl. outdoor sensor, immersion sensor (calorifier sensor), contact sensor (flow temperature sensor) and RAST 5 basic plug set	6058 626
	**Set vibration-damping adjustable feet 55/65** for Belaria® twin A/AR (32) for reducing the transmission of solid-borne noise Set comprises 4 vibration-damping adjustable feet, threaded rot and locknut Material elastomer part: NR, black Material housing: galvanised steel, chromated	6040 348
	Recommended accessory: **High-efficiency pump with continuously variable speed control**	

TopTronic® E module expansions

for TopTronic® E basic module heat generator

		Part No.
	**TopTronic® E module expansion heating circuit TTE-FE HK** Expansion to the inputs and outputs of the basic module heat generator or the heating circuit/domestic hot water module for implementing the following functions: - 1 heating/cooling circuit w/o mixer or - 1 heating/cooling circuit with mixer Consisting of: - Fitting accessories - 1 contact sensor ALF/2P/4/T, L = 4.0 m - Basic plug set FE module **Notice** The supplementary plug set may have to be ordered to implement functions differing from the standard!	6034 576
	**TopTronic® E module expansion heating circuit incl. energy balancing** TTE-FE HK-EBZ Expansion to the inputs and outputs of the basic module heat generator or the heating circuit/domestic hot water module for implementing the following functions: - 1 heating/cooling circuit w/o mixer or - 1 heating/cooling circuit with mixer incl. energy balancing in each case Consisting of: - Fitting accessories - 3 contact sensors ALF/2P/4/T, L = 4.0 m - Plug set FE module **Notice** The flow rate sensor set must be ordered as well.	6037 062
	**TopTronic® E module expansion Universal TTE-FE UNI** Expansion to the inputs and outputs of a controller module (basic module heat generator, heating circuit/domestic hot water module, solar module, buffer module) for implementing various functions Consisting of: - Fitting accessories - Plug set FE module **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.	6034 575

Accessories

Flow rate sensor sets
Plastic housing

Size	Connection inches	Flow rate l/min	Part No.
DN 8	G ¾″	0.9-15	6038 526
DN 10	G ¾″	1.8-32	6038 507
DN 15	G 1″	3.5-50	6038 508
DN 20	G 1¼″	5-85	6038 509
DN 25	G 1½″	9-150	6038 510

Brass housing

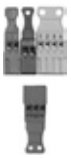
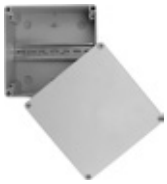
Size	Connection inches	Flow rate l/min	Part No.
DN 10	G 1″	2-40	6042 949
DN 32	G 1½″	14-240	6042 950
DN 40	G 2″	22-400	6055 092

Hoval recommended use
Flow rate sensor set DN 32 made of brass.
Installation location within the heat pump.

Recommended accessories:
speed-controlled high-efficiency pump
see “Circulating pumps”

Notice
Installation of a flow rate sensor set is recommended. With the help of flow rate sensors and further technical measures, the heating circuit freezing can be prevented.
In order to protect the heat pump from frost in the event of a power failure or for example in bivalence mode, a system separation or other technical measures must be provided on site.

Accessories for TopTronic® E

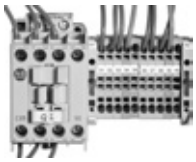
		Part No.
	**TopTronic® E controller modules**	
TTE-HK/WW	TopTronic® E heating circuit/ hot water module	6034 571
TTE-SOL	TopTronic® E solar module	6037 058
TTE-PS	TopTronic® E buffer module	6037 057
TTE-MWA	TopTronic® E measuring module	6034 574
	**Supplementary plug set**	
	for basic module heat generator TTE-WEZ	6034 499
	for controller modules and module expansion TTE-FE HK	6034 503
	**TopTronic® E room control modules**	
TTE-RBM	TopTronic® E room control modules	
	easy white	6037 071
	comfort white	6037 069
	comfort black	6037 070
	**Enhanced language package TopTronic® E** one SD card required per control module Consisting of the following languages: HU, CS, SL, RO, PL, TR, ES, HR, SR, JA, DA	6039 253
	**HovalConnect**	
	HovalConnect LAN	6049 496
	HovalConnect WLAN	6049 498
	HovalConnect Modbus	6049 501
	HovalConnect KNX	6049 593
	TopTronic® E interface modules	
	GLT module 0-10 V	6034 578
	**TopTronic® E sensors**	
AF/2P/K	Outdoor sensor H x W x D = 80 x 50 x 28 mm	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
	**Bivalent switch** for various release or switching functions	
	Bivalent switch 1-piece	2056 858
	Bivalent switch 2-piece	2061 826
	**System housing**	
	System housing 182 mm	6038 551
	System housing 254 mm	6038 552
	**TopTronic® E wall casing**	
WG-190	Wall casing small	6052 983
WG-360	Wall casing medium	6052 984
WG-360 BM	Wall casing medium with control module cut-out	6052 985
WG-510	Wall casing large	6052 986
WG-510 BM	Wall casing large with control module cut-out	6052 987

Further information
see “Controls”

Accessories

Trace heating tape
for heating a condensate drainage pipe (on site) and a condensate drip tray KWD with thermostat and microfuses
Output: 40-80 W, 230 V
Length: cable 1.5 m
Heating tape 2 m

Part No. 6033 374



Control set (switching contactor)
for installation in the wall-hanging electrical box.

Necessary for the control of an electric heating element.

Part No. 6033 403

System water protection filter FGM050-200
For horizontal installation in return
For filtration of heating and cooling water, with high filtration capacity for corrosion particles and dirt without significant pressure drop
Consisting of:
- Filter head and bowl in brass
- Magnetic insert (nickel-neodymium)
- 2 pressure gauges
- Very large filter surface in stainless steel
- Filter fineness 200 µm
- With drain valve
- Connections Rp 2″ internal thread with integrated shut-off valves and union connection (outlet)

Max. flow rate (Δp < 0.1 bar): 7.2 m³/h
Weight: 6.9 kg
Water temperature: max. 90 °C
- incl. steam diffusion-tight insulating shells

Part No. 6058 257

Notice
Fulfills the function of sludge separator and strainer

Strainers
see “Various system components”

Circulating pumps, actuators, buffer storage tanks see separate brochures

Vibration decoupler
for reducing structure-borne noise from heat pumps in the indoor area
Consisting of:
- 1 vibration decoupler insulated for heating side flat-sealing with union nut
- 2 flat seals

Nominal pressure: PN 10

Dimension	Connection inches	Nominal length mm	Part No.
DN 25	1″	300	2082 222
DN 25	1″	500	2082 223
DN 25	1″	1000	2080 794
DN 32	1¼″	300	2082 224
DN 32	1¼″	500	2082 225
DN 32	1¼″	1000	2080 796
DN 40	1½″	500	2082 226
DN 40	1½″	1000	2080 798
DN 50	2″	500	2082 227
DN 50	2″	1000	2080 800

Accessories

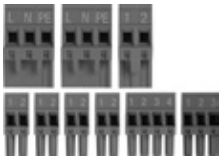
Switching ball valve VBI60...L
DN 25-50, PN 16, 120 °C

- Three-way ball valve made of brass with threaded connection
- Leakage rate: 0 ... 0.0001 % of kvs value
- Permitted media: cold water, cooling water, DHW, hot water, water with frost protection
- Recommendation: water treatment according to VDI 2035
- Media temperature: -10 ... 120 °C

DN	Connection inches	kvs m³/h	Part No.
25	Rp 1″	9	6052 444
32	Rp 1¼″	13	6052 445
40	Rp 1½″	25	6052 446
50	Rp 2″	37	6052 447

Motor drive GLB341.9E — 2070 331
For straight-way ball valves VAG60.. and switching ball valves VBI60.. DN 15..50
Operating voltage: 230 V, 50/60 Hz
Control signal 2-point/3-point
Single-wire/2 wire control
Operating time: 150 s
Nominal torque: 10 Nm
Permitted ambient temperature: -32 °C to +55 °C

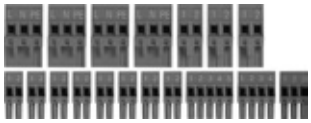
For active cooling, the installation of a flow controller is mandatory!



Expansion connector set — 6032 509
for the automatic heat pump device 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:
- 1 230 V digital input
- 2 230 V outputs
- 4 low-voltage inputs
- 1 ratio. Input
- 1 4-pin low-voltage input



Universal plug set — 6032 510
for automatic heat pump device ECR461
Plugs:
- 3 digital 230 V inputs
- 4 230 V outputs
- 6 low-voltage inputs
- 2 low-voltage outputs
- 1 ratio. input
- 1 electronic expansion valve
- 1 4-pin low-voltage input

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.

Belaria® twin A (32)

Type		(32)	
		1st stage	2nd stage
• Energy efficiency class of the compound system with control	35 °C/55 °C	A+++/A++	
• Room heating energy efficiency “moderate climate” 35 °C ηS [1), 2)]	%	173	
• Room heating energy efficiency “moderate climate” 55 °C ηS [1), 2)]	%	129	
• Seasonal coefficient of performance moderate climate 35 °C/55 °C	SCOP	4.4	3.3
Max. performance data heating in acc. with EN 14511			
• Heat output A2W35	kW [3)]	18.6	31.6
• Coefficient of performance A2W35	COP	4.5	4.0
• Heat output A-7W35	kW [3)]	15.8	26.9
• Coefficient of performance A-7W35	COP	3.8	3.4
Sound data			
• Sound power level EN 12102 outdoor unit [4)]	dB(A)	-	72
• Max. sound power level outdoor unit	dB(A)	-	76
• Sound pressure level 5 m [5), 6)]	dB(A)	-	53
• Sound pressure level 10 m [5), 6)]	dB(A)	-	47
Hydraulic data			
• Max. flow temperature	°C	62	
• Max. operating pressure on the heating side	bar	6	
• Flow/return connection heating	R (ext. thread)	1½″	
• Nominal heating water quantity heating ΔT 5 K (A7W35)	m^3/h	6.6	
• Nominal heating water quantity heating ΔT 8 K (A7W35)	m^3/h	4.2	
• Pressure drop with nominal heating water quantity ΔT 5 K (A7W35)	kPa	26	
• Nominal air volume	m^3/h	5500-11000	
Cooling technical data			
• Refrigerant		R410A	
• Compressor/stages		2/2	
• Refrigerant filling quantity	kg	16.0	
• Compressor oil filling quantity	l	1.9	
Electrical data			
• Electrical connection compressor	V/Hz	3~400/50	
• Electrical connection fan	V/Hz	3~400/50	
• Electrical connection control	V/Hz	1~230/50	
• Max. heat pump operating current	A	25.5	
• Max. compressor operating current	A	12.9	25.4
• Compressor power consumption A2W35	kW	4.1	7.9
• Compressor power consumption A20W55	kW	6.0	12.7
• Max. fan operating current	A	1.45	
• Max. starting current heat pump (with jump start)	A	39.5	
• External protection main current	A	32	
• External protection main current	Type	C,D,K	
• External protection control current	A	13	
• External protection control current	Type	B,C,D,K,Z	
Dimensions/weight			
• Dimensions (H x W x D)	mm	1395 x 1934 x 908	
• Weight	kg	590	

[1)] 2 % can be added for class II heat pump incl. control.

[2)] 4 % can be added for class IV heat pump incl. control and room thermostat.

[3)] kW = incl. defrosting loss

[4)] The sound power levels apply in whisper mode. Values increase by +4 dB(A) in normal operation.

[5)] The sound pressure levels indicated apply if the outdoor unit is placed at a building façade. These values are reduced by 3 dB if the outdoor unit is free-standing. With installation in a corner, the sound pressure level increases by 3 dB.

[6)] The sound values apply with a clean evaporator. These values are temporarily exceeded before defrosting.

Using a fault-current circuit breaker RCCB type B. IΔn ≥ 300 mA is recommended. Country-specific regulations must be observed.

Belaria® twin AR (32)

Type		(32)	
		1st stage	2nd stage
• Energy efficiency class of the compound system with control	35 °C/55 °C	A+++ / A++	
• Room heating energy efficiency “moderate climate” 35 °C ηS [1), 2)]	%	177	
• Room heating energy efficiency “moderate climate” 55 °C ηS [1), 2)]	%	131	
• Seasonal coefficient of performance moderate climate 35 °C/55 °C	SCOP	4.5	3.3
Max. performance data heating and cooling in acc. with EN 14511			
• Heat output A2W35	kW [3)]	18.6	31.6
• Coefficient of performance A2W35	COP	4.5	4.0
• Heat output A-7W35	kW [3)]	15.8	26.9
• Coefficient of performance A-7W35	COP	3.8	3.4
• Cooling capacity A35W18	kW	22.7	40.4
• Energy efficiency ratio A35W18	EER	4.3	3.4
• Cooling capacity A35W7	kW	16.2	28.8
• Energy efficiency ratio A35W7	EER	3.4	2.7
Sound data			
• Sound power level EN 12102 outdoor unit [4)]	dB(A)	-	72
• Max. sound power level outdoor unit	dB(A)	-	76
• Sound pressure level 5 m [5), 6)]	dB(A)	-	53
• Sound pressure level 10 m [5), 6)]	dB(A)	-	47
Hydraulic data			
• Max. flow temperature	°C	62	
• Max. operating pressure on the heating side	bar	6	
• Flow/return connection heating	R (ext. thread)	1½″	
• Nominal heating water quantity heating ΔT 5 K (A7W35)	m^3/h	6.6	
• Nominal heating water quantity heating ΔT 8 K (A7W35)	m^3/h	4.2	
• Nominal heating water quantity cooling ΔT 4 K (A35W7)	kPa	6.2	
• Nominal heating water quantity cooling ΔT 4 K (A35W18)	m^3/h	8.7	
• Pressure drop with nominal heating water quantity ΔT 5 K (A7W35)	kPa	26	
• Nominal air volume	m^3/h	5500-11000	
Cooling technical data			
• Refrigerant		R410A	
• Compressor/stages		2/2	
• Refrigerant filling quantity	kg	16.0	
• Compressor oil filling quantity	l	1.9	
Electrical data			
• Electrical connection compressor	V/Hz		
• Electrical connection fan	V/Hz		
• Electrical connection control	V/Hz		
• Max. heat pump operating current	A	25.5	
• Max. compressor operating current	A	12.9	25.4
• Compressor power consumption A2W35	kW	4.1	7.9
• Compressor power consumption A20W55	kW	6.0	12.7
• Max. fan operating current	A	1.5	
• Max. starting current heat pump (with jump start)	A	39.5	
• External protection main current	A	32.0	
• External protection main current	Type		
• External protection control current	A		
• External protection control current	Type		
Dimensions/weight			
• Dimensions (H x W x D)	mm	1395 x 1934 x 908	
• Weight	kg	590	

[1)] 2 % can be added for class II heat pump incl. control.

[2)] 4 % can be added for class IV heat pump incl. control and room thermostat.

[3)] kW = incl. defrosting loss

[4)] The sound power levels apply in whisper mode. Values increase by +4 dB(A) in normal operation.

[5)] The sound pressure levels indicated apply if the outdoor unit is placed at a building façade. These values are reduced by 3 dB if the outdoor unit is free-standing. With installation in a corner, the sound pressure level increases by 3 dB.

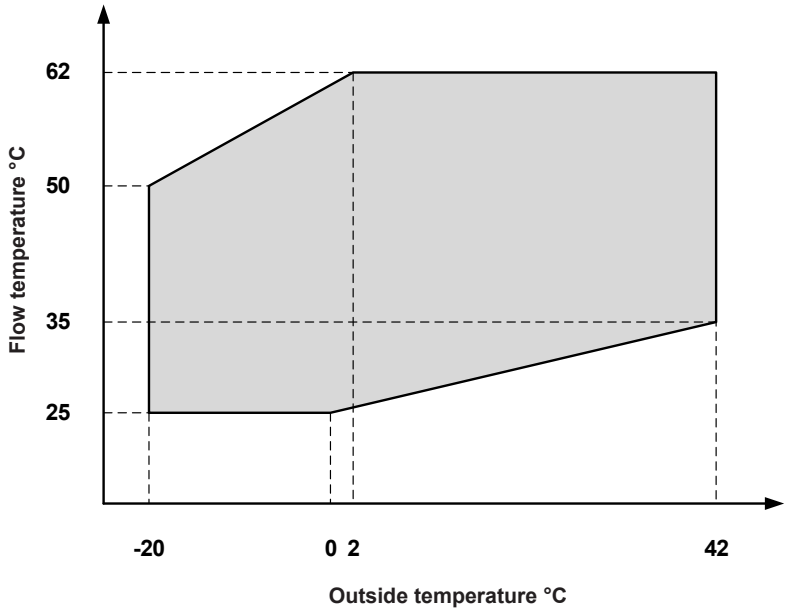
[6)] The sound values apply with a clean evaporator. These values are temporarily exceeded before defrosting.

Using a fault-current circuit breaker RCCB type B. IΔn ≥ 300 mA is recommended. Country-specific regulations must be observed.

A flow controller must be installed for operational reliability in cooling mode.

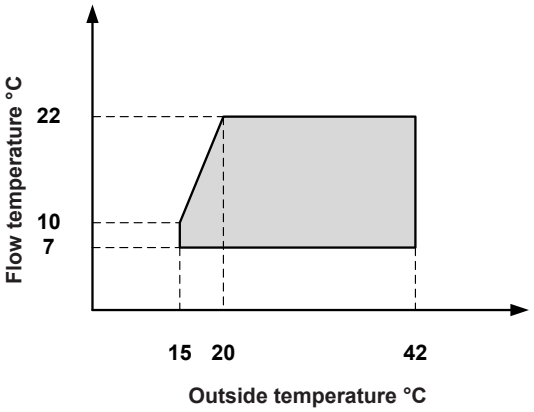
Diagrams of areas of application

Belaria® twin A (32), Belaria® twin AR (32)
Heating and hot water



Area of application of the heat pump for heating

Belaria® twin AR (32)
Cooling



Area of application of the heat pump for cooling

Belaria® twin A, twin AR (32)

Sound pressure level - sound power level
The **sound pressure level** is dependent on the **place of measurement** in a sound field and describes the sound intensity at this place. The sound power level thus is a feature of the sound source and therefore is distance-unrelated; it describes the totality of sound power of the relevant source radiated into all directions.

Structure-borne sound
All connections must be fitted with compensators or vibration absorbers so that no structure-borne sound is being transmitted.

Special precautions must be taken for roof installation.

Sound propagation
The further away you are from a sound source, the lower the acoustic energy, and consequently the immission values.
In general, not only the distance between the heat pump and the immission point should be considered with regard to propagation, but also, depending on the circumstances, the following factors:

- Installation location
  - free-standing (reference factor Q = 2)
  - on the facade (reference factor Q = 4)
  - in the corner (reference factor Q = 8)
- Effect of obstacles
- Reflection against buildings, trees or rocks
- Effect of reflections from the ground
- Attenuation by the air and the ground
- Effect of wind and temperature stratifications of the air

The table below contains reference values and only takes account of the distance and installation location.

Belaria® twin A, Belaria® twin AR type	Sound pressure level outside dB(A)	Distance m	Sound pressure level free installation dB(A)	Sound pressure level on facade dB(A)
(32)	72	1	64	67
		5	50	53

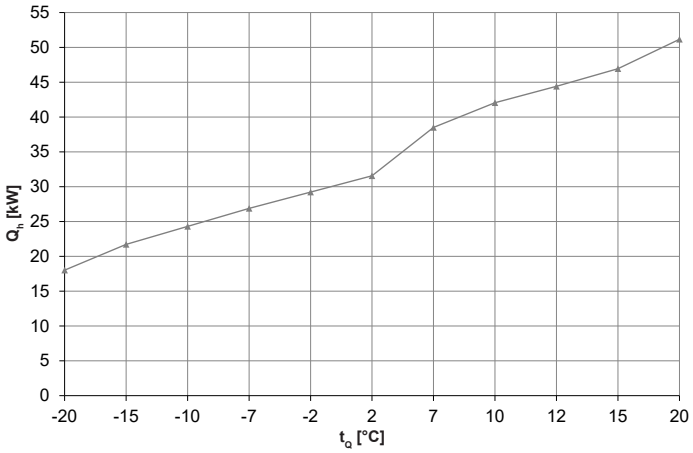
Information on sound levels applies to whisper mode. Values increase by + 4 dB(A) in normal operation

Performance data - heating

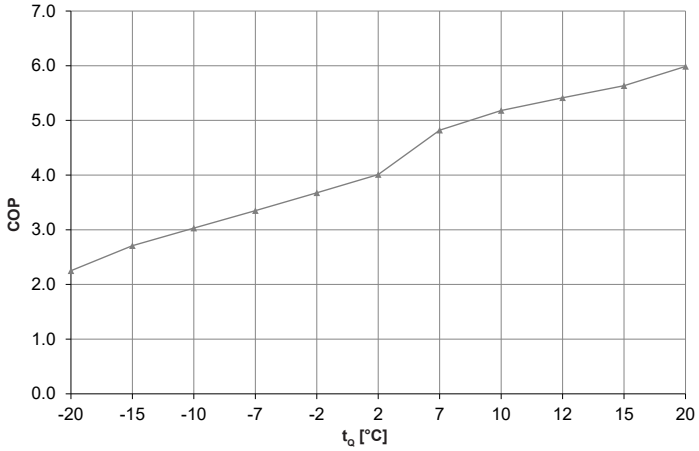
Maximum heat output allowing for defrosting losses

Belaria® twin A (32), twin AR (32)

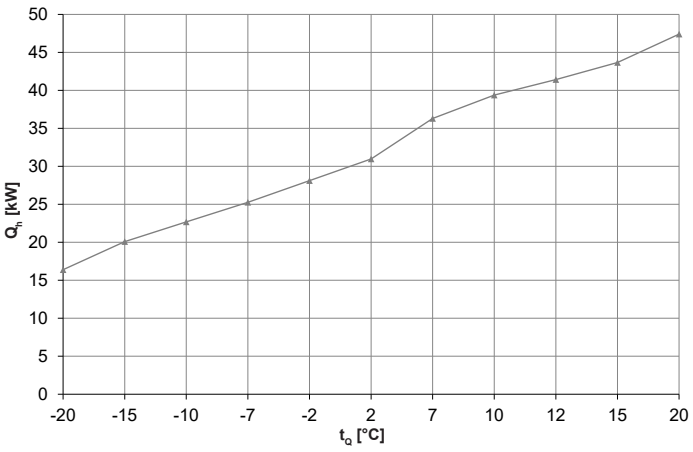
Heat output - t_{VL} 35 °C



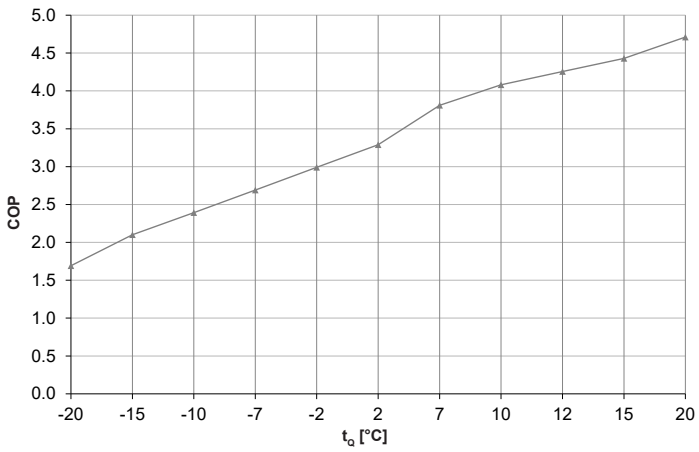
Coefficient of performance - t_{VL} 35 °C



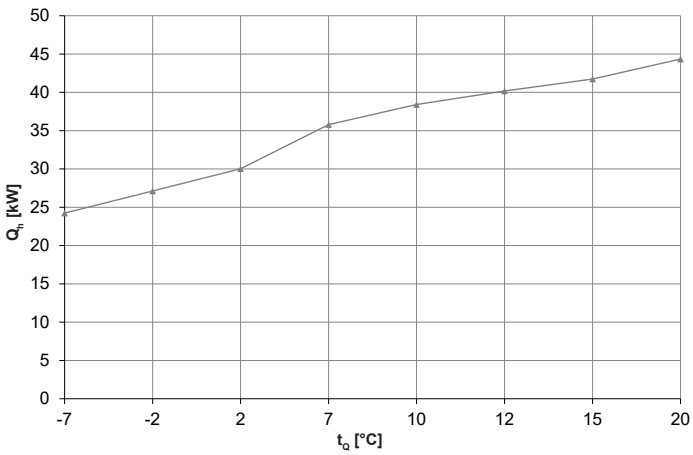
Heat output - t_{VL} 45 °C



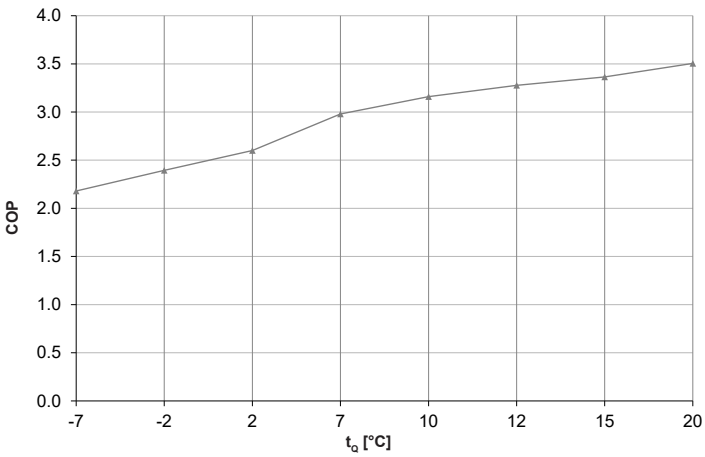
Coefficient of performance - t_{VL} 45 °C



Heat output - t_{VL} 55 °C



Coefficient of performance - t_{VL} 55 °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

Belaria® twin A/AR (32)

Performance data - heating

Belaria® twin A (32), twin AR (32)

Indications acc. to EN 14511

Type t_{VL} °C	t_Q °C	Q_h kW	(32) P kW	COP
	-20	18.0	8.0	2.3
	-15	21.7	8.0	2.7
	-10	24.3	8.0	3.0
	-7	26.9	8.0	3.4
	-2	29.2	7.9	3.7
35	2	31.6	7.9	4.0
	7	38.5	8.0	4.8
	10	42.0	8.1	5.2
	12	44.4	8.2	5.4
	15	46.9	8.3	5.6
	20	51.2	8.5	6.0
	-20	17.2	8.8	1.9
	-15	20.9	8.8	2.4
	-10	23.5	8.7	2.7
	-7	26.1	8.7	3.0
	-2	28.7	8.7	3.3
40	2	31.3	8.6	3.6
	7	37.4	8.8	4.3
	10	40.7	8.9	4.6
	12	42.9	9.0	4.8
	15	45.3	9.1	5.0
	20	49.2	9.3	5.3
	-20	16.4	9.7	1.7
	-15	20.1	9.6	2.1
	-10	22.7	9.5	2.4
	-7	25.3	9.4	2.7
	-2	28.1	9.4	3.0
45	2	31.0	9.4	3.3
	7	36.3	9.5	3.8
	10	39.4	9.7	4.1
	12	41.4	9.7	4.3
	15	43.7	9.9	4.4
	20	47.4	10.1	4.7
	-20	-	-	-
	-15	-	-	-
	-10	-	-	-
	-7	24.8	10.3	2.4
	-2	27.6	10.4	2.7
50	2	30.5	10.5	2.9
	7	36.0	10.8	3.4
	10	38.9	10.9	3.6
	12	40.8	11.0	3.7
	15	42.7	11.1	3.8
	20	45.9	11.4	4.0
	-20	-	-	-
	-15	-	-	-
	-10	-	-	-
	-7	24.2	11.1	2.2
	-2	27.1	11.3	2.4
55	2	30.0	11.5	2.6
	7	35.8	12.0	3.0
	10	38.4	12.2	3.2
	12	40.2	12.3	3.3
	15	41.7	12.4	3.4
	20	44.3	12.7	3.5
	-20	-	-	-
	-15	-	-	-
	-10	-	-	-
	-7	-	-	-
	-2	-	-	-
60	2	29.4	14.1	2.1
	7	35.4	14.5	2.4
	10	38.0	14.5	2.6
	12	39.7	14.5	2.7
	15	40.7	14.5	2.8
	20	42.4	14.4	2.9

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
P = power consumption of the overall unit (kW)
COP = Coefficient of Performance for the overall unit in accordance with standard EN 14511

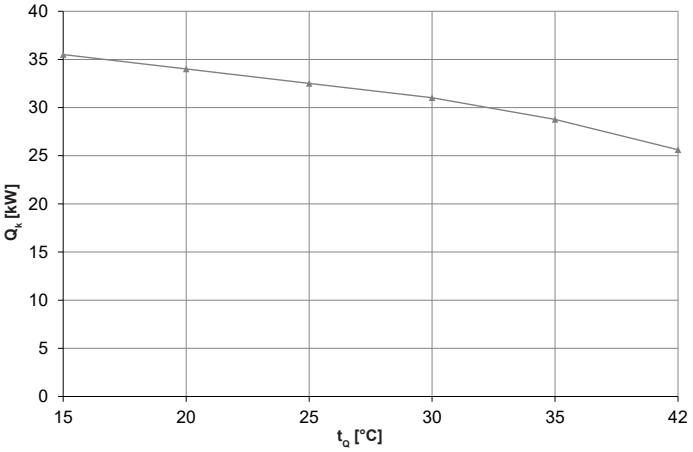
Observe daily power interruptions!
see “Engineering heat pumps general”

Performance data - cooling

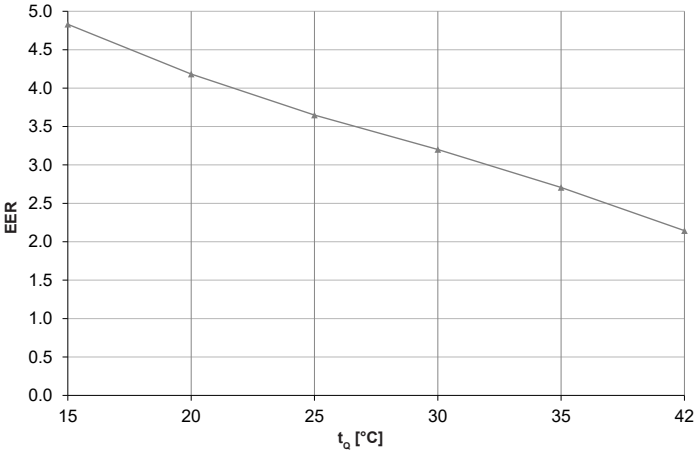
Maximum cooling capacity

Belaria® twin AR (32)

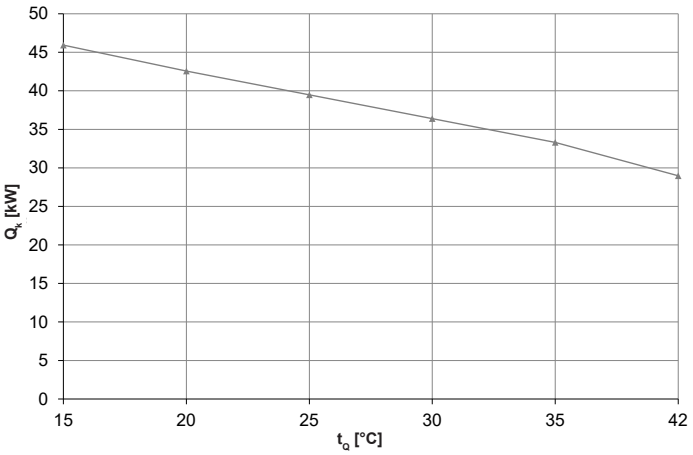
Cooling capacity - t_{VL} 7 °C



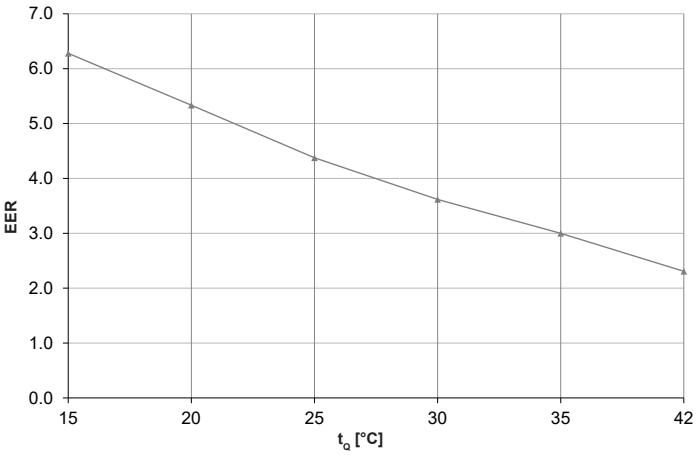
Energy efficiency ratio - t_{VL} 7 °C



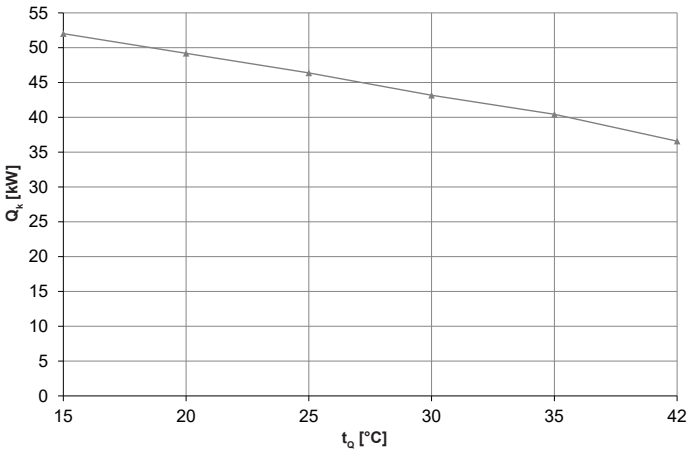
Cooling capacity - t_{VL} 13 °C



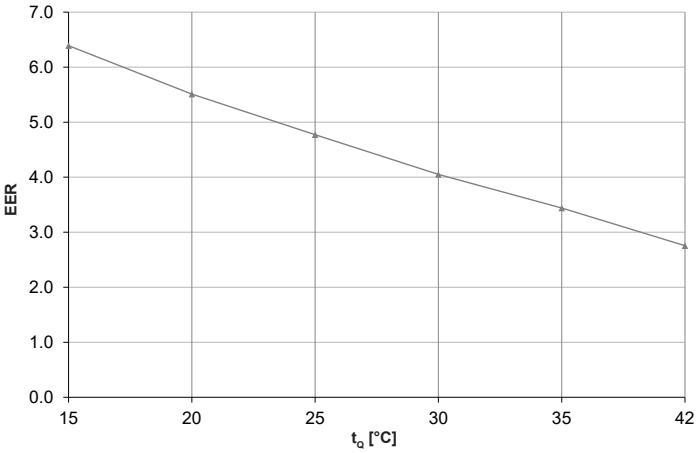
Energy efficiency ratio - t_{VL} 13 °C



Cooling capacity - t_{VL} 18 °C



Energy efficiency ratio - t_{VL} 18 °C



t_{VL} = cooling water flow temperature (°C)
t_Q = source temperature (°C)
Q_k = cooling capacity at full load (kW), measured in accordance with standard EN 14511
EER = Energy Efficiency Ratio for the overall unit in accordance with standard EN 14511

Belaria® twin A/AR (32)

Performance data - cooling

Belaria® twin AR (32)

Indications acc. to EN 14511

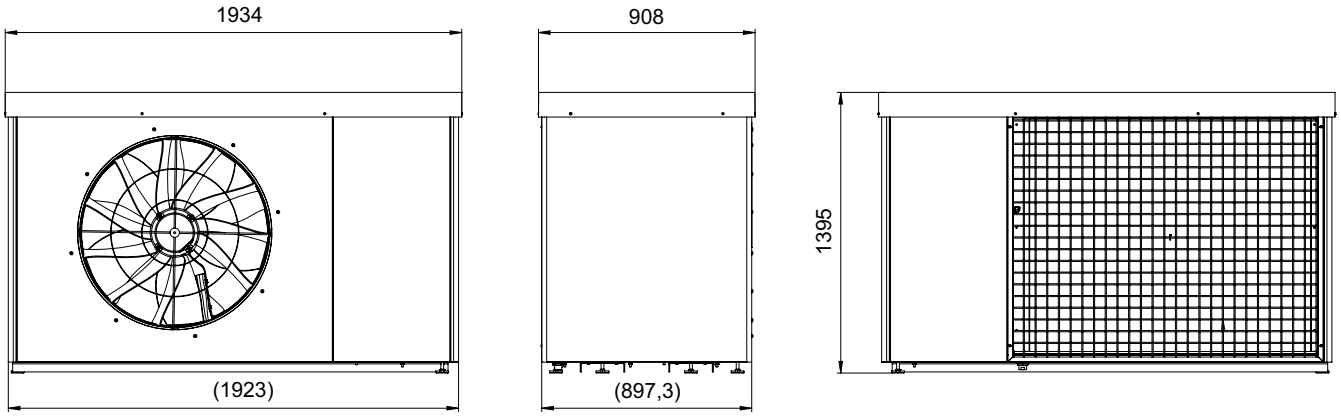
Type t_{VL} °C	t_Q °C	Q_k kW	(32) P kW	EER
7	15	35.5	7.4	4.8
	20	34.0	8.1	4.2
	25	32.5	8.9	3.7
	30	31.0	9.7	3.2
	35	28.8	10.6	2.7
	42	25.6	11.9	2.1
10	15	42.3	6.8	6.2
	20	39.6	7.8	5.1
	25	36.9	8.9	4.2
	30	34.3	9.9	3.5
	35	31.6	10.9	2.9
	42	27.9	12.3	2.3
13	15	44.7	7.2	6.3
	20	42.6	8.0	5.3
	25	39.5	9.0	4.4
	30	36.4	10.1	3.6
	35	33.3	11.1	3.0
	42	29.0	12.6	2.3
15	15	48.4	7.6	6.3
	20	45.2	8.4	5.4
	25	42.2	9.3	4.5
	30	39.1	10.3	3.8
	35	36.2	11.4	3.2
	42	32.9	12.8	2.6
18	15	52.0	8.1	6.4
	20	49.2	8.9	5.5
	25	46.4	9.7	4.8
	30	43.2	10.7	4.1
	35	40.4	11.8	3.4
	42	36.6	13.3	2.8
20	15	54.5	8.2	6.7
	20	51.6	9.1	5.7
	25	48.7	10.0	4.9
	30	45.9	10.9	4.2
	35	42.5	11.9	3.6
	42	39.0	13.1	3.0
22	15	56.9	8.2	6.9
	20	54.0	9.2	5.9
	25	51.1	10.3	5.0
	30	48.2	11.1	4.3
	35	44.5	12.0	3.7
	42	41.4	13.3	3.1

t_{VL} = cooling water flow temperature (°C)
t_Q = source temperature (°C)
Q_k = cooling capacity at full load (kW), measured in accordance with standard EN 14511
P = power consumption of the overall unit (kW)
EER = Energy Efficiency Ratio for the overall unit in accordance with standard EN 14511

Observe daily power interruptions!
see “Engineering heat pumps general”

Belaria® twin A (32), Belaria® twin AR (32)

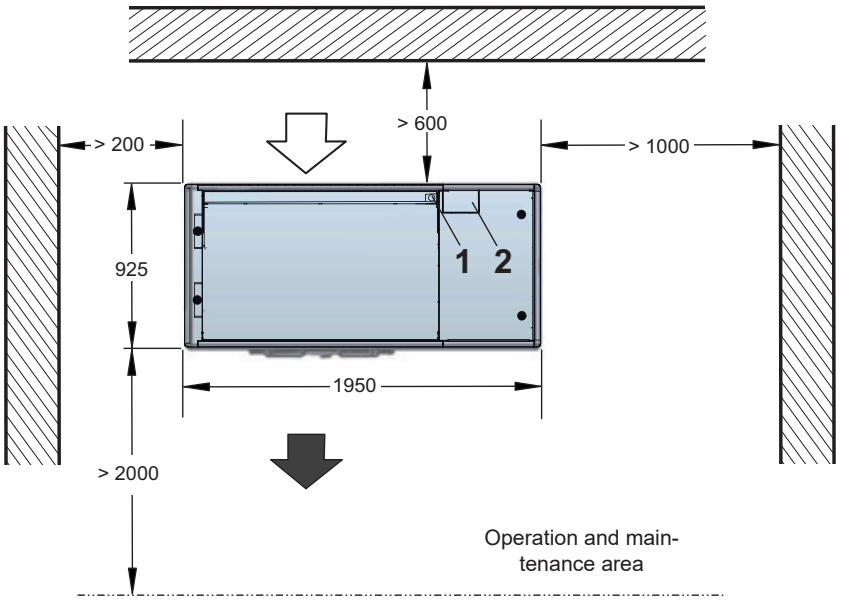
(Dimensions in mm)



Space requirement

(Dimensions in mm)

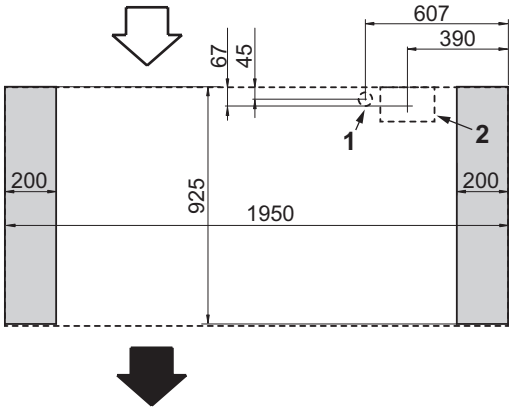
Belaria® twin A (32), Belaria® twin AR (32)



1 Condensate drain (Rp 1″) with electric trace heating
2 Hydraulic and electrical connection

Base plan Belaria® twin A (32), Belaria® twin AR (32)

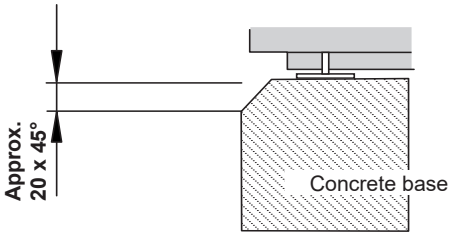
(Dimensions in mm)



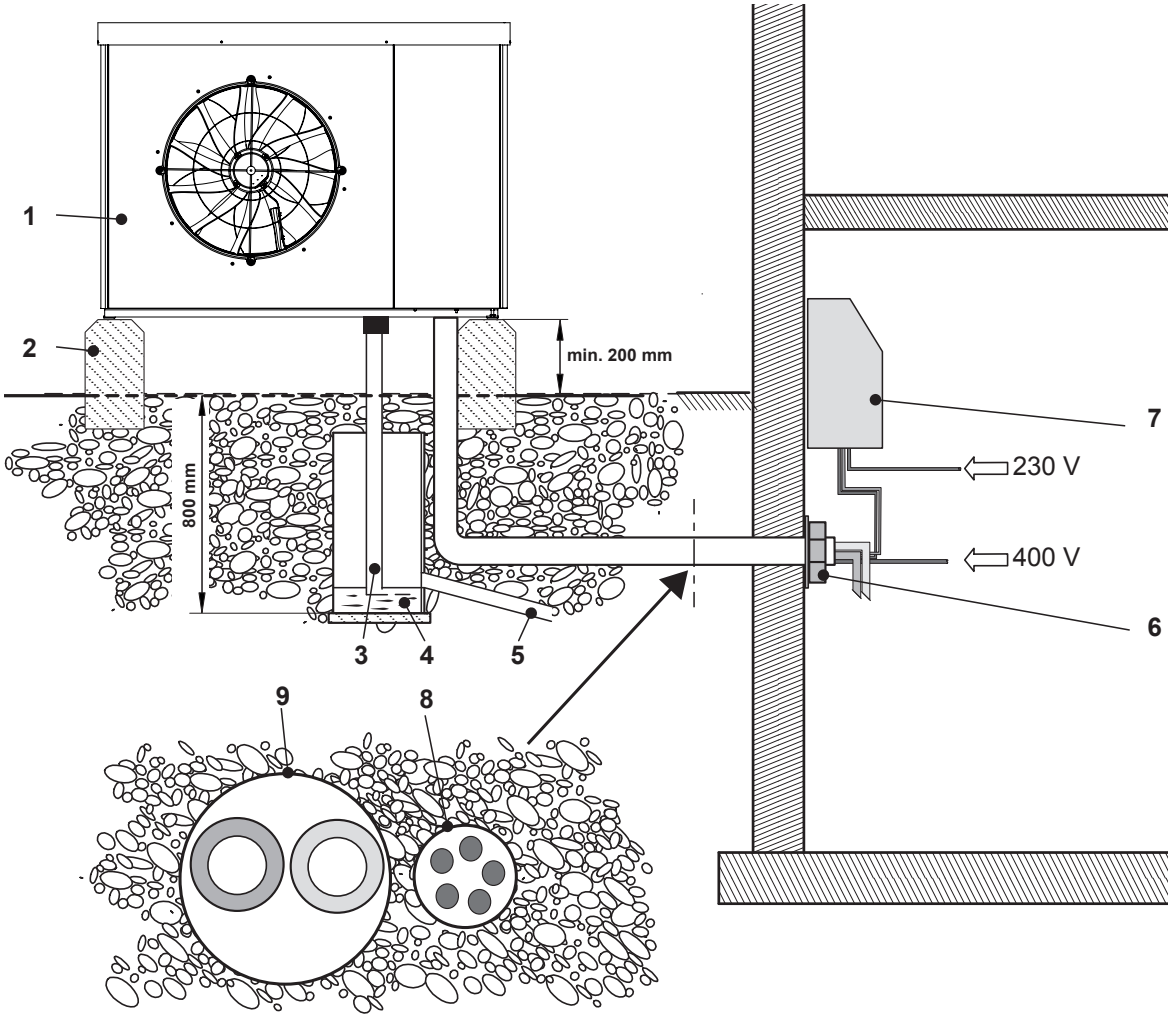
1 Condensate drain (Rp 1″) with electric trace heating
2 Hydraulic and electrical connection

The condensate drain is located on the rear (suction side).

The concrete base must have a level surface the size of the Belaria® twin A/AR (1950 mm × 925 mm).
The base should have chamfered edges.



Configuration and connection diagram Belaria® twin A (32), Belaria® twin AR (32)



1 Belaria® twin A (32)/Belaria® twin AR (32)
2 Concrete base
3 Condensate drain (R 1″) with electr. auxiliary heating (on site)
4 Possible variant with duct diameter/gravel layer
5 Discharge into the sewage system
6 Wall lead-through (hydraulic and electrical connections)
7 Terminal box/TopTronic® E controller
8 Empty tube for electrical connections outdoor unit

Necessary

	Main current	400 V/5-pin/configuration cross section on site
	Control current	230 V/3-pin/configuration cross section on site
	Bus line	24 V/2-pin/2 x 1.0 mm² shielded
	Pump control CP	24 V/2-pin/2 x 1.0 mm² shielded
1 cable 10 x 1.5 mm²	Fault contact CP	230 V/2-pin/2 x 1.5 mm²
	Lock by energy supply company	230 V/2-pin/2 x 1.5 mm²
	Reset	230 V/1-pin/1 x 1.5 mm²
	Heat generator block	230 V/1-pin/1 x 1.5 mm²
	Collective fault	230 V/2-pin/2 x 1.5 mm²
	Electric inset	230 V/1-pin/1 x 1.5 mm²

Options

CP pump ON/OFF (does not apply for pump control 0-10 V)	230 V/2-pin/2 x 1.5 mm²
Fault contact for PLC	230 V/2-pin/2 x 1.5 mm²
Flow rate meter	230 V/4-pin/2 x 1.5 mm²
Electricity meter	230 V/2-pin/2 x 1.5 mm²
USB cable for line recorder	
USB 2.0 extension cable active	

9 Empty tube for hydraulic connections outdoor unit

Heating flow	(32) R 1½″
Heating return	(32) R 1½″

Frost resistance must be taken into account if there are prolonged power outages.

The piping from the boilerhouse to the heat pump must be configured by the installer. Connecting pipes are not included.

Electrical box for Belaria® twin A (32), Belaria® twin AR (32)

(Dimensions in mm)