



► **KaClima R32**
Chillers/Heat pumps

KaClima R32

Chillers and heat pumps
using refrigerant R32 to save CO₂

► **Technical catalogue**

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01

Product data

► KaClima R32 AO 4–16 kW



Product benefits

- R32 refrigerant to reduce the greenhouse effect by approx. 75%
- noise-reduced operation possible for night-time hours
- continuously variable EC fans
- integrated circulation pump, safety valve, flow monitor and dirt trap
- ultra-space-saving arrangement of the components
- energy efficiency class A+++ ⁶⁾



Features

Standard range

- 10 model sizes
- low starting currents
- leaving water temperature control
- integrated Modbus interface
- electronic expansion valve for optimum overheating control
- separate external control unit
- up to 16 units can be combined as a master/slave configuration

Installation

- location** ► outdoors
- Cooling** ► CHW
- Heating** ► LPHW
- Refrigerant** ► R32

Inverter compressor

- control range 40–100 %

Axial fans

- in DC version

Hydraulics:

- energy-saving, speed-controlled circulation pump
- separate dirt trap
- 3 bar safety valve
- integrated expansion vessel
models 21–31: 2-litre
models 51–81: 5-litre

Performance data

Cooling output ¹⁾

- 4.9–29.5 kW

Performance rating ¹⁾

- ESEER 4.54–4.99

Heat output ³⁾

- 4.8–30.0 kW

Performance rating ^{2) 3)}

- COP 2.9–4.0

Sound pressure level ⁴⁾

- 49–62 [dB(A)]

Sound pressure level

Noise-reduced operation ^{4,7)}

- 46–54 [dB(A)]

Limits of cooling mode

- min. outside temperature: -5°C ⁵⁾
- max. outside temperature: +43°C
- min. leaving water temperature: +5°C
- max. leaving water temperature: +20°C
- min. flow temperature below 15°C
outside temperature is 10°C ⁵⁾

Limits of heating mode

- min. outside temperature: -25°C
- max. outside temperature: +35°C
- min. leaving water temperature: +30°C
- max. leaving water temperature: +55°C
- max. flow temperature below -15°C
is 40°C

Applications

To supply centralised and decentralised water-based units with heating and cooling energy.



Hotels/
motels



Sales rooms
and
showrooms



Office and
meeting
rooms



Homes and
conservato-
ries



Restaurants
and cafés

¹⁾ at CHW 7/12, outside temperature 35 °C

²⁾ according to EN 14511:2013 including defrosting function

³⁾ at LPHW 45/40, outside temperature 7 °C

⁴⁾ noise data at full load, nominal conditions, 1 m distance in an open area, measurement in accordance with UNI EN ISO 9614-2

⁵⁾ **KaClima, models 021-081, are not suitable for process cooling, server rooms or other cooling systems that need to be operated throughout the year at a constant flow temperature.**

⁶⁾ in accordance with (EU) Delegated Regulation No. 811/2013

⁷⁾ the performance of the KaClima is reduced by approx. 40% at a reduced sound pressure level

KaClima R32 AO: Technical data

Model	Cooling output ¹⁾	Power consumption	EER	ESEER	Heat output ^{2) 3)}	COP ^{2) 3)}	Number of compressors/ cooling circuits	Number of fans	Air volume	Max. starting current	Max. power consumption	Voltage supply	Oil volume	Refrigerant volume	Expansion vessel	Pump external pressure ¹⁾	Water content in the generator	Min. water volume in the entire hydraulic system	Energy efficiency class ^{6 5)}
	[kW]	[kW]			[kW]				[m³/h]	[A]	[kW]	[V]	[kg]	[kg]	[litres]	[kPa]	[litres]	[litres]	
Heating or cooling mode																			
21	4.85	1.63	2.98	4.71	4.8	3.6	1/1	1	3050	14.1	3.5	230 1Ph	0.46	2	2	60	0.54	50	A+++
31	6.3	2.27	2.77	4.99	6.7	3.88	1/1	1	3050	14.1	3.5	230 1Ph	0.46	2	2	50	0.54	50	A+++
41	7.95	3	2.53	4.92	8.6	3.5	1/1	1	3050	14.1	3.5	230 1Ph	0.46	2	2	37	0.54	50	A+++
61	10.9	3.74	2.92	4.85	12.4	3.45	1/1	2	6150	11.0	6.8	400 3Ph	1.1	2.8	5	50	1.01	50	A++
71	12.9	4.64	2.78	4.73	14.1	3.99	1/1	2	6150	11.0	6.8	400 3Ph	1.1	2.8	5	36	1.01	50	A++
81	13.8	5.21	2.65	4.54	16.2	3.7	1/1	2	6150	11.0	6.8	400 3Ph	1.1	2.8	5	30	1.01	50	A++
91	17	5.57	3.05	4.7	18	3.5	1/1	2	10650	21	10.6	400 3Ph	1.5	5	8	109	3.5	50	A++
101	21	7.12	2.95	4.7	22	3.4	1/1	2	10650	24.5	12.5	400 3Ph	1.5	5	8	106	3.5	50	A++
121	26	9.63	2.7	4.66	26	3.1	1/1	2	11190	27	13.8	400 3Ph	1.5	5	8	103	3.5	50	A+
141	29.5	11.6	2.55	4.49	30	2.9	1/1	2	11190	28.5	14.5	400 3Ph	1.5	5	8	99	3.5	50	A+

KaClima R32 AO: Sound data

Sound power level [dB] ⁴⁾										Sound pressure level [dB(A)] ⁴⁾	Sound power level, noise-reduced operation [dB(A)] ⁶⁾	Sound pressure level, noise-reduced operation [dB(A)] ⁶⁾
Model	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	Total	Total	Summe	Total
21	55	54	48	46	45	38	37	32	61	49	59	46
31	59	56	52	50	50	44	41	37	64	52	60	49
41	60	57	54	53	52	47	44	39	67	55	62	50
61	62	58	53	51	48	44	38	34	68	54	63	49
71	67	62	58	56	53	48	43	39	71	55	63	50
81	68	61	59	55	53	48	43	39	71	56	65	51
91	78	77	65	63	60	53	48	45	70	57	65	50
101	67	66	66	65	62	56	53	48	72	59	66	51
121	71	70	68	67	65	58	54	51	74	61	68	53
141	80	79	71	70	67	61	56	52	77	63	69	54

¹⁾ at CHW 7/12, outside temperature 35 °C

²⁾ according to EN 14511:2013 including defrosting function

³⁾ at LPHW 45/40, outside temperature 7 °C

⁴⁾ noise data at full load, nominal conditions, 1m distance in an open area, measurement in accordance with UNI EN ISO 9614-2

⁵⁾ in accordance with (EU) Delegated Regulation No. 811/2013

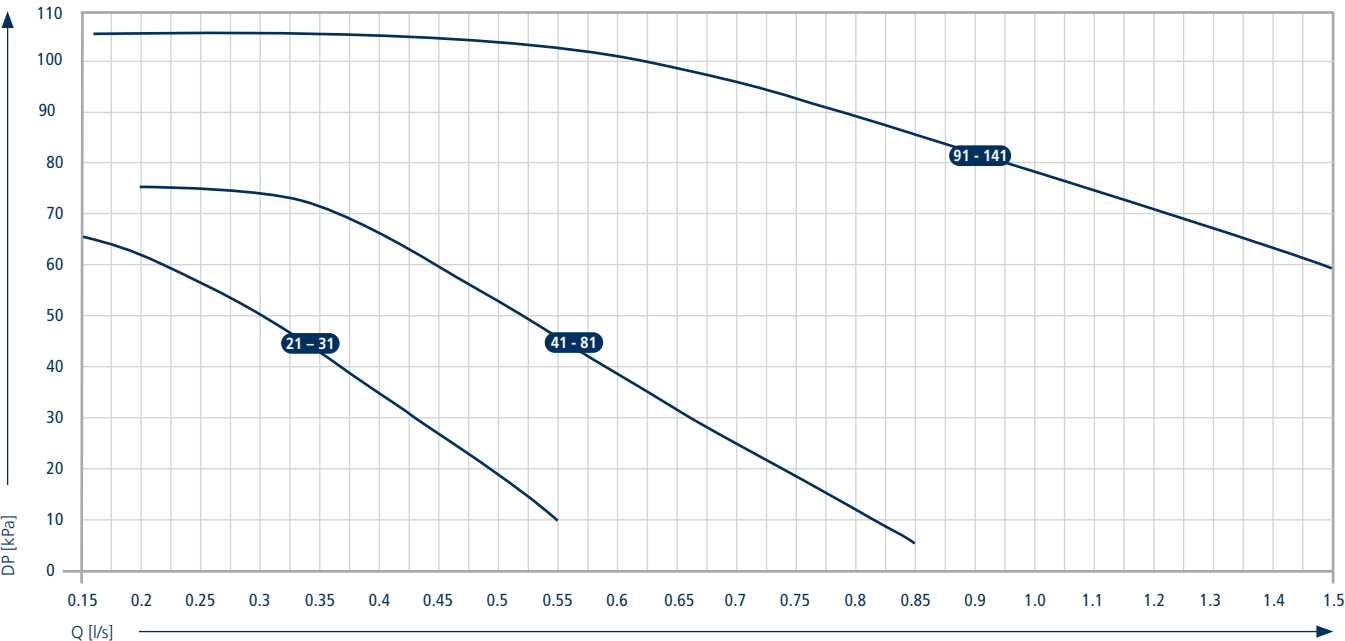
⁶⁾ the performance of the KaClima is reduced by approx. 40% at a reduced sound pressure level

KaClima R32 AO

Pump characteristic curve

The following diagrams show the external pressure of the integrated pump.
The internal pressure losses have already been deducted from the pump characteristic curve.

Pump external pressure

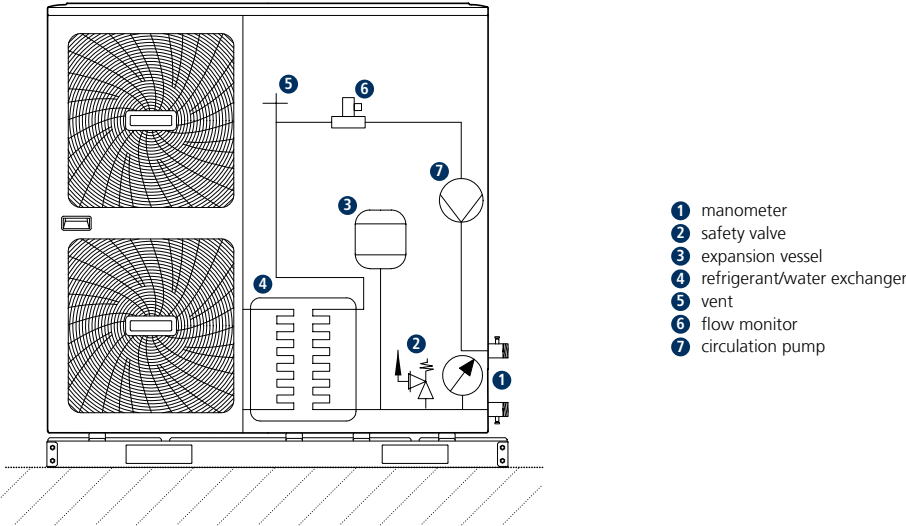


Operating the pump outside the characteristic lines will result in damage to the pump.

Water volume

Model		21	31	41	61	71	81	91	101	121	141
Minimum water flow rate	[l/s]	0.14	0.2	0.26	0.36	0.42	0.48	0.54	0.66	0.78	0.9
Maximum water flow rate	[l/s]	0.29	0.4	0.52	0.69	0.8	0.92	1.03	1.26	1.49	1.72

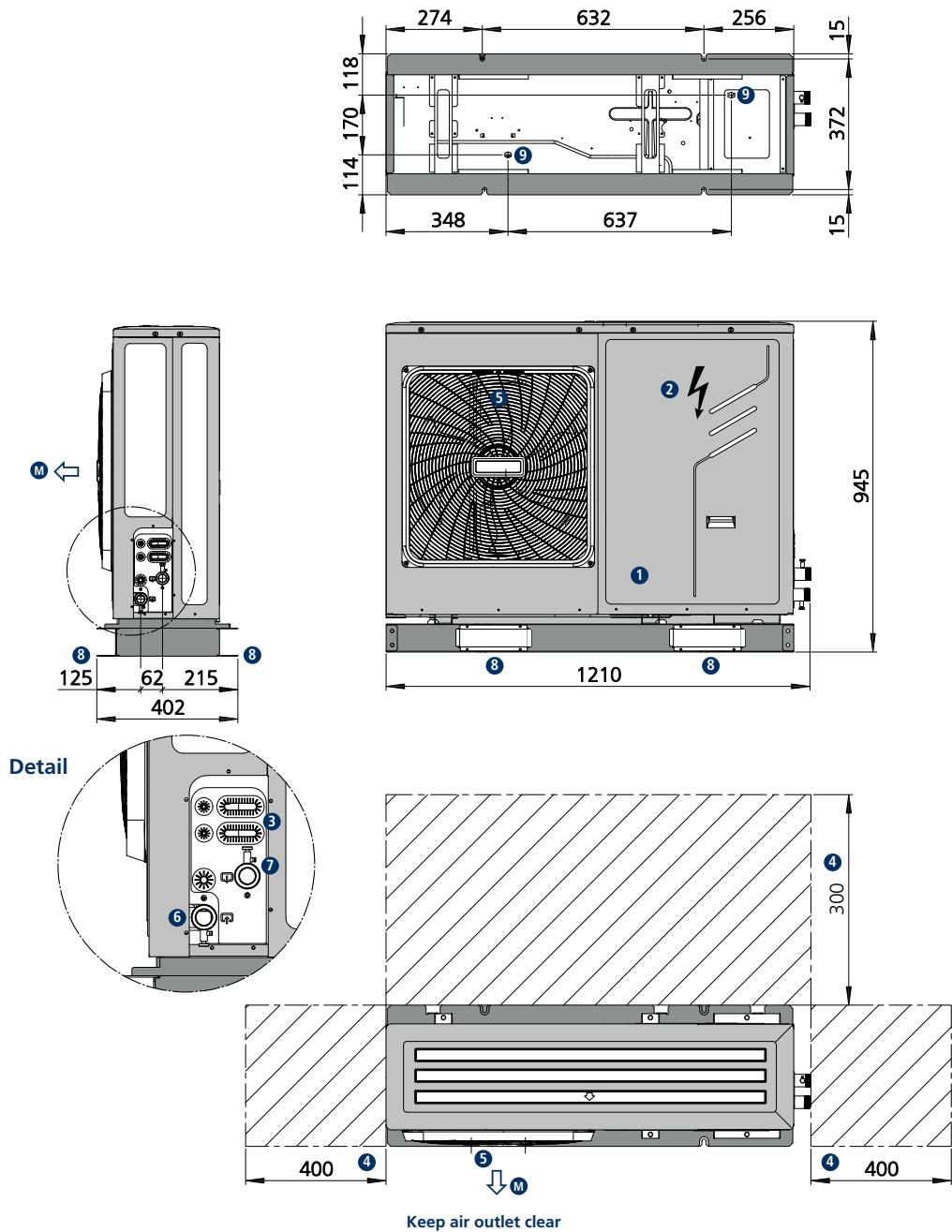
Hydraulic construction of the KaClima



KaClima R32 AO

Models 021 – 041

Technical drawings (all dimensions in mm)



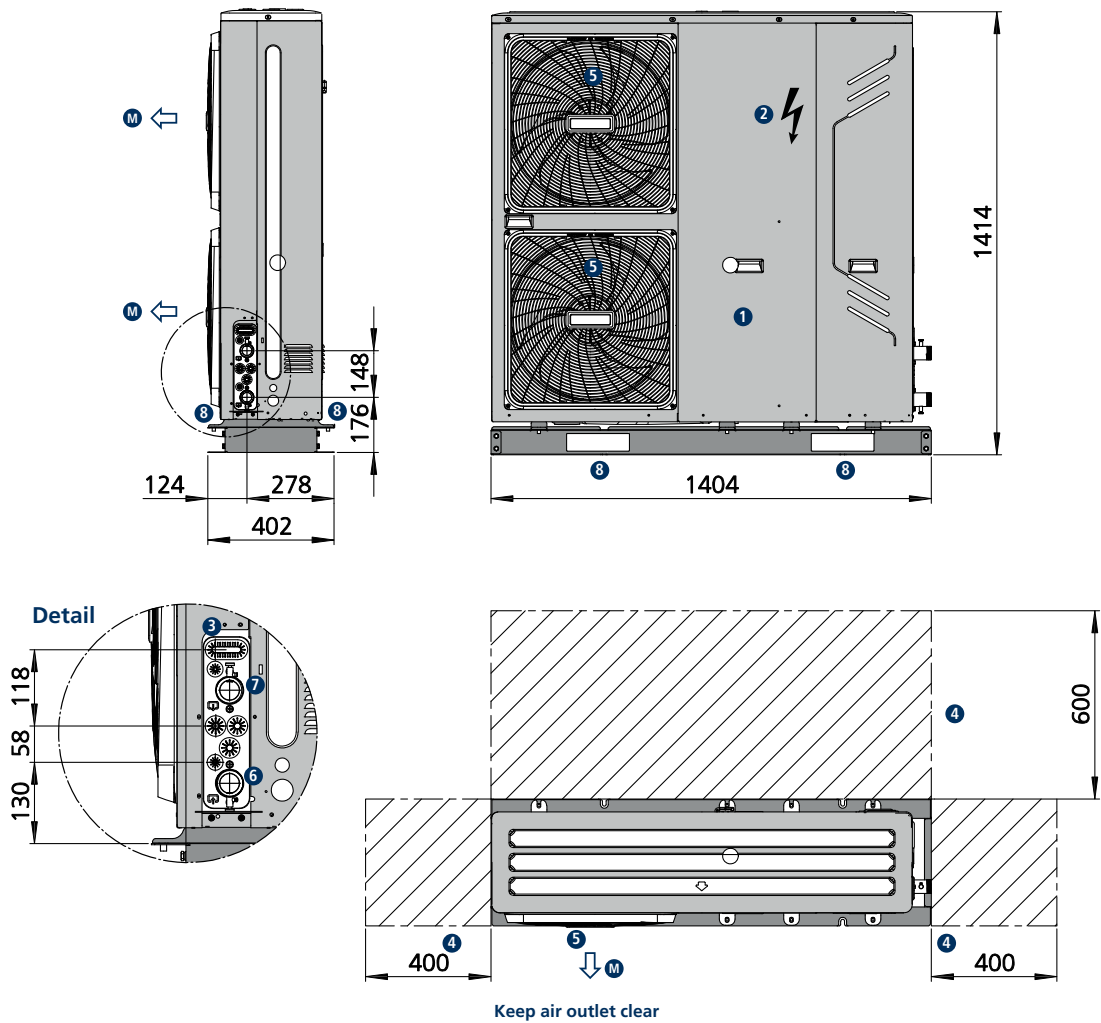
- 1 compressor
- 2 control cabinet
- 3 electrical supply
- 4 working areas
- 5 air outlet
- 6 1" water inlet
- 7 1" water outlet
- 8 supporting point
- M air outlet, maintain a minimum 1 m clearance from obstacles

Model		21	31	41
Length	[mm]	1210	1210	1210
Depth	[mm]	402	402	402
Height	[mm]	945	945	945
Operating weight	[kg]	92	92	92
Shipping weight	[kg]	111	111	111

KaClima R32 AO

Models 061 – 081

Technical drawings (all dimensions in mm)



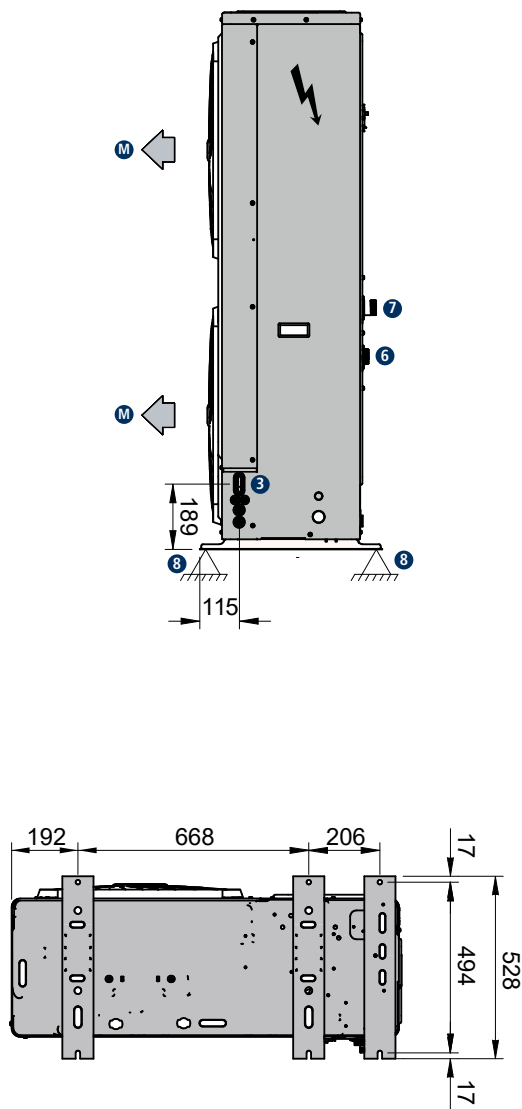
- 1 compressor
- 2 control panel
- 3 electrical supply
- 4 working areas
- 5 air outlet
- 6 1 1/4" water inlet
- 7 1 1/4" water outlet
- 8 supporting point
- M air outlet, maintain a minimum 1.5 m clearance from obstacles

Model		61	71	81
Operating weight ¹⁾	[kg]	158	158	158
Shipping weight ¹⁾	[kg]	178	178	178

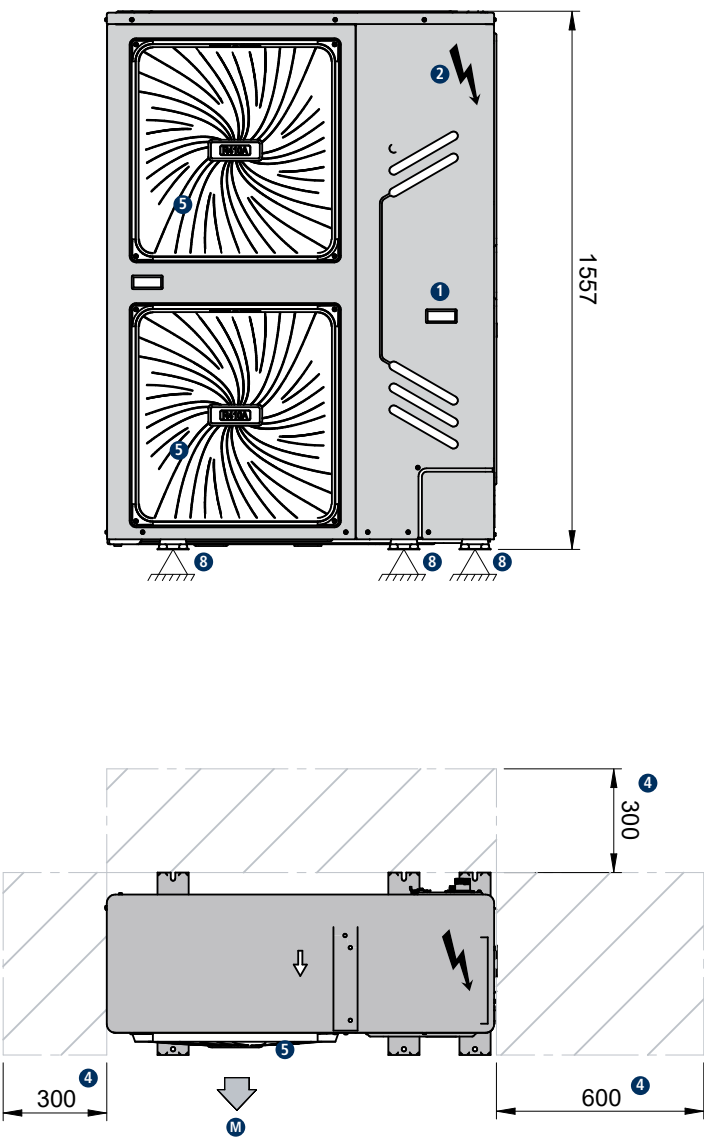
¹⁾ Weight data excluding optional accessories!

KaClima R32 AO

Models 091 – 141



- 1 compressor
- 2 control panel
- 3 electrical supply
- 4 working areas
- 5 air outlet
- 6 1 1/4" water inlet
- 7 1 1/4" water outlet
- 8 supporting point
- M air outlet, maintain a minimum 1.5 m clearance from obstacles



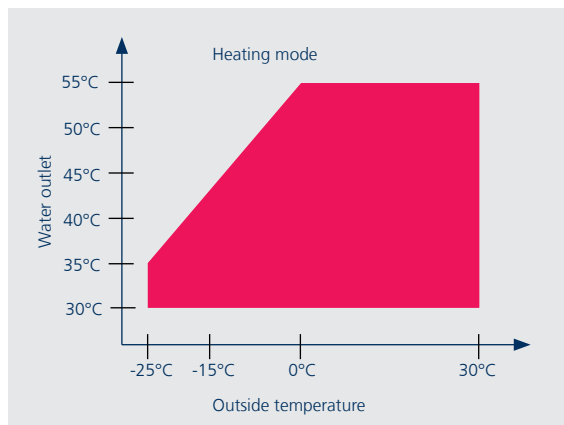
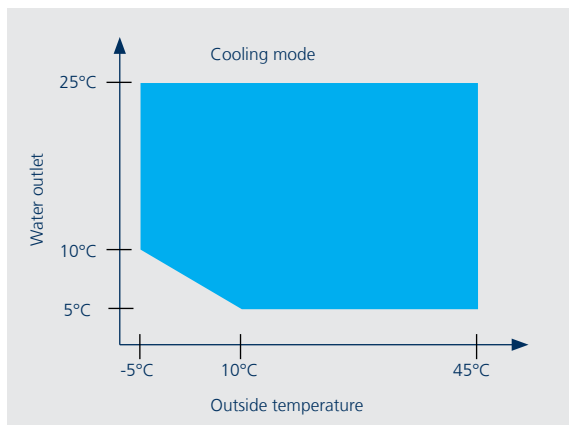
Model		091	101	121	141
Operating weight ¹⁾	[kg]	177	177	177	177
Shipping weight ¹⁾	[kg]	206	206	206	206

¹⁾ Weight data excluding optional accessories!

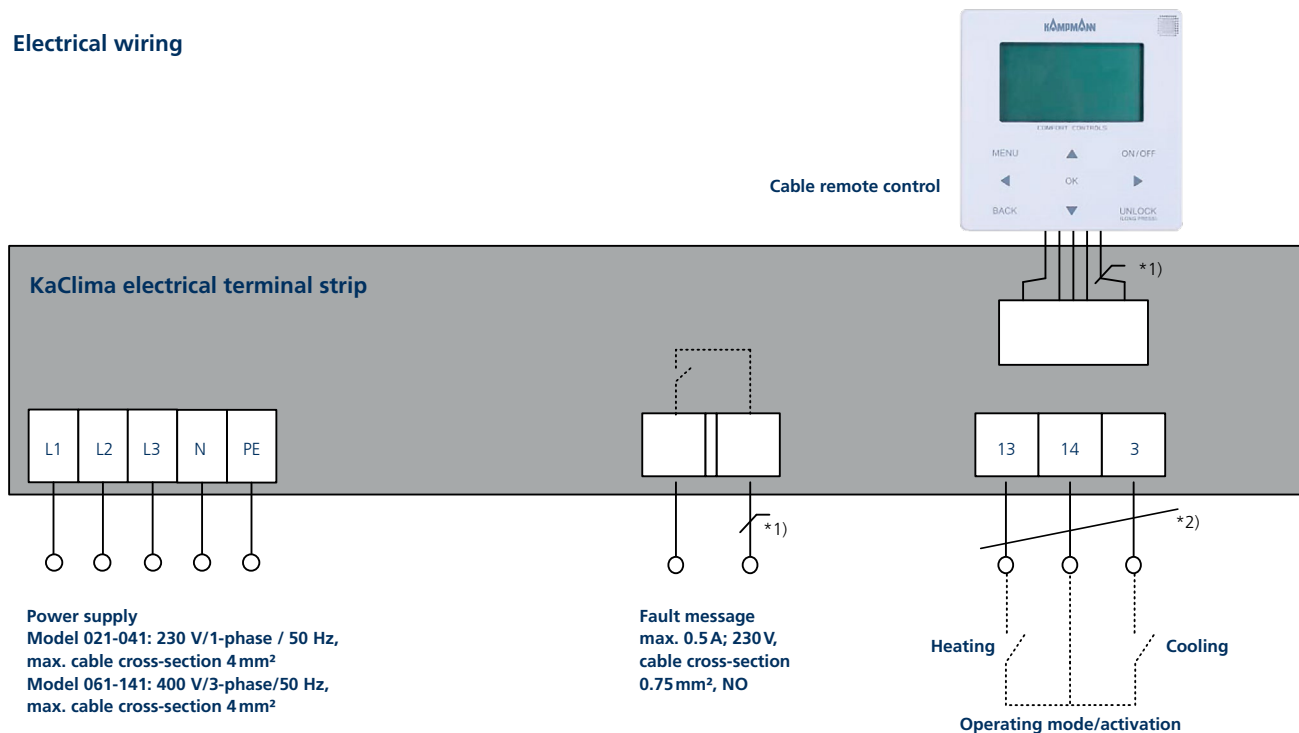
KaClima R32 AO

Additional technical information

Water / outside temperature limits



Electrical wiring



The unit must be fused in accordance with the currently applicable standards and legislation!
 Provide anti-surge fuses!
 Provide universal residual current circuit-breakers!



230 V-energised!

*1) Lay shielded cables (e.g. JY(ST)Y, 0.8 mm) separately from high-voltage cables. Max. cable length 50 metres.

*2) Take into account voltage drop when sizing cables.

KaClima R32 AO 4-30 kW

Ordering information

Model	Cooling output ¹⁾	ESEER	Heat output ^{2) 3)}	COP ^{2) 3)}	Type	Article no.
	[kW]		[kW]			
Heating or cooling mode						
21	4.85	4.71	4.8	3.6	Cooling and heating	350721100213
31	6.3	4.99	6.7	3.88	Cooling and heating	350721100313
41	7.95	4.92	8.6	3.5	Cooling and heating	350721100413
61	10.9	4.85	12.4	3.45	Cooling and heating	350721100613
71	12.9	4.73	14.1	3.99	Cooling and heating	350721100713
81	13.8	4.54	16.2	3.7	Cooling and heating	350721100813
91	17	4.7	18	3.5	Cooling and heating	350721100913
101	21	4.7	22	3.4	Cooling and heating	350721101013
121	26	4.66	26	3.1	Cooling and heating	350721101213
141	29.5	4.49	30	2.9	Cooling and heating	350721101413

Accessories

Article	Properties	Suitable for	Art. no.
3.50 Plate heat exchanger			
System separator	Cooling output: Primary: 6/12 °C glycol 35%, Secondary: 8/14 °C water. Heat output: Primary: 45/40 °C glycol 35%, Secondary: 37/43 °C water	Output of up to 6.0 kW	350501000016
		Output of up to 8.5 kW	350501000026
		Output of up to 11.5 kW	350501000036
		Output of up to 17.0 kW	350501000046
		Output of up to 21.0 kW	350501000056
		Output of up to 28.5 kW	350501000066
		Output of up to 32.0 kW	350501000076
3.50 Hydraulic box			
Hydraulic box	To separate primary / secondary in the insulated housing	Cooling output max. 12 kW	350501000017
		Cooling output max. 20 kW	350501000027
		Cooling output max. 35 kW	350501000037
3.50 Buffer tank			
External buffer tank	Vapour-impermeable insulation, each with 2 connections for integration as a series tank	200 litres, 1 1/4" connection	350000002020
9.40 Services			
Operational check and training on chillers	<ul style="list-style-type: none">▶ Check all functions of the unit▶ Check hydraulic integration▶ Check compliance with the system limits▶ Check safety systems▶ Check and adjust operational parameters	Model 021 - 171, 4 kW - 48 kW cooling output, version for cooling and heating	350003800910

¹⁾ at CHW 7/12, outside temperature 35 °C

²⁾ according to EN 14511:2013 including defrosting function

³⁾ at LPHW 45/40, outside temperature 7 °C

⁴⁾ sound pressure level at a distance of 1 m in an open area, measurement in accordance with UNI EN ISO 9614-2

⁵⁾ operating weight

⁶⁾ in accordance with EU Delegated Regulation 811/2013

02

Product data

KaClima R32 AO 22–55 kW



Product benefits

- ▶ R32 refrigerant to reduce the greenhouse effect by approx. 75%
- ▶ noise-reduced operation possible for night-time hours
- ▶ continuously variable EC fans
- ▶ integrated safety valve, flow monitor and dirt trap
- ▶ optionally with integrated pump and series tank
- ▶ energy efficiency class A++⁶⁾



Features

Standard range

- ▶ 6 model sizes
- ▶ low starting currents
- ▶ leaving water temperature control
- ▶ integrated Modbus interface
- ▶ electronic expansion valve for optimum overheating control
- ▶ separate external control unit
- ▶ up to 16 units can be combined as a master/slave configuration

Installation

- location** ▶ outdoors
- Cooling** ▶ CHW
- Heating** ▶ LPHW
- Refrigerant** ▶ R32

Inverter compressor

- ▶ control range 30–100%

Axial fans

- ▶ in DC version

Hydraulics:

- ▶ optional speed-controlled circulation pump
- ▶ separate dirt trap
- ▶ 6 bar safety valve
- ▶ optional integrated series tank
models 101–141: 140 litres
models 162–222: 180-litre

Performance data

Cooling output¹⁾

- ▶ 22.3–55.0 kW

Performance rating¹⁾

- ▶ SEER 3.99–4.64

Heat output³⁾

- ▶ 24.3–62.0 kW

Performance rating^{2) 3)}

- ▶ COP 3.1–3.32

Sound pressure level⁴⁾

- ▶ 59–70 [dB(A)]

Sound pressure level

Noise-reduced operation^{4,7)}

- ▶ 56–68 [dB(A)]

Limits of cooling mode

- ▶ min. outside temperature: -10 °C⁵⁾
- ▶ max. outside temperature: +48 °C
- ▶ min. leaving water temperature: +5 °C
- ▶ max. leaving water temperature: +20 °C
- ▶ min. flow temperature below 15 °C
outside temperature is 10 °C⁵⁾

Limits of heating mode

- ▶ min. outside temperature: -14 °C
- ▶ max. outside temperature: +30 °C
- ▶ min. leaving water temperature: +30 °C
- ▶ max. leaving water temperature: +50 °C
- ▶ max. flow temperature below -5 °C
is 45 °C

Applications

To supply centralised and decentralised water-based units with heating and cooling energy.



Hotels/
motels



Sales rooms
and
showrooms



Office and
meeting
rooms



Restaurants
and cafés

¹⁾ at CHW 7/12, outside temperature 35 °C

²⁾ according to EN 14511:2013 including defrosting function

³⁾ at LPHW 45/40, outside temperature 7 °C

⁴⁾ noise data at full load, nominal conditions, 1 m distance in an open area, measurement in accordance with UNI EN ISO 9614-2

⁵⁾ The KaClima series R32 described is not suitable for process cooling, server rooms or other cooling systems that need to be operated throughout the year and or at a constant flow temperature.

⁶⁾ in accordance with (EU) Delegated Regulation No. 811/2013

⁷⁾ the performance of the KaClima is reduced by approx. 40% at a reduced sound pressure level

KaClima R32 AO: Technical data

Model	Cooling output ¹⁾	Power consumption	EER	SEER	Heat output ^{2) 3)}	COP ^{2) 3)}	Number of compressors/ cooling circuits	Number of fans	Air volume	Max. power consumption/ starting current	Max. power consumption	Voltage supply	Oil volume	Refrigerant volume	Volume of integral tank ⁷⁾	External pump pressure	Water content in the generator	Min. water volume in the entire hydraulic system	Energy efficiency class ^{6 5)}
	[kW]	[kW]			[kW]				[m³/h]	[A]	[kW]	[V]	[kg]	[kg]	[litres]	[kPa]	[litres]	[litres]	
Heating or cooling mode																			
101	22.3	7.4	3.02	4.63	24.3	3.3	1/1	1	12500	20	12.1	400 3-phase	2.3	7.9	140	100-240	6	170	A++
121	25.8	9.1	2.84	4.64	27.1	3.27	1/1	1	12500	20	12.1	400 3-phase	2.3	7.9	140	100-230	6	180	A++
141	29	10.4	2.8	4.63	31.4	3.2	1/1	1	12500	20	12.1	400 3-phase	2.3	7.9	140	100-220	6	185	A++
162	45.1	14.6	2.69	4	48.6	3.32	2/1	2	24000	40.5	24.5	400 3-phase	4.6	14	180	60-160	10	325	A++
182	50.3	18.3	2.63	3.99	54	3.26	2/1	2	24000	40.5	24.5	400 3-phase	4.6	14	180	60-150	10	340	A++
222	55	20.8	2.64	4.01	62	3.1	2/1	2	24000	40.5	24.5	400 3-phase	4.6	14	180	60-140	10	358	A++

KaClima R32 AO: Sound data

Sound power level [dB] ⁴⁾										Sound pressure level [dB(A)] ⁴⁾	Sound power level, noise-reduced operation [dB(A)] ⁶⁾	Sound pressure level, noise-reduced operation [dB(A)] ⁶⁾
Model	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	Total	Total	Total	Total
101	55	66	67	70	72	68	60	52	75	59	72	56
121	63	68	69	72	74	69	62	52	76	60	73	57
141	58	67	69	72	73	68	61	49	76	60	74	58
162	55	87	86	82	79	76	70	65	84	68	82	66
182	56	88	86	84	79	75	70	65	85	69	83	67
222	58	89	87	83	81	76	70	65	86	70	84	68

¹⁾ at CHW 7/12, outside temperature 35 °C

²⁾ according to EN 14511:2013 including defrosting function

³⁾ at LPHW 45/40, outside temperature 7 °C

⁴⁾ noise data at full load, nominal conditions, 1m distance in an open area, measurement in accordance with UNI EN ISO 9614-2

⁵⁾ in accordance with (EU) Delegated Regulation No. 811/2013

⁶⁾ the performance of the KaClima is reduced by approx. 40% at a reduced sound pressure level

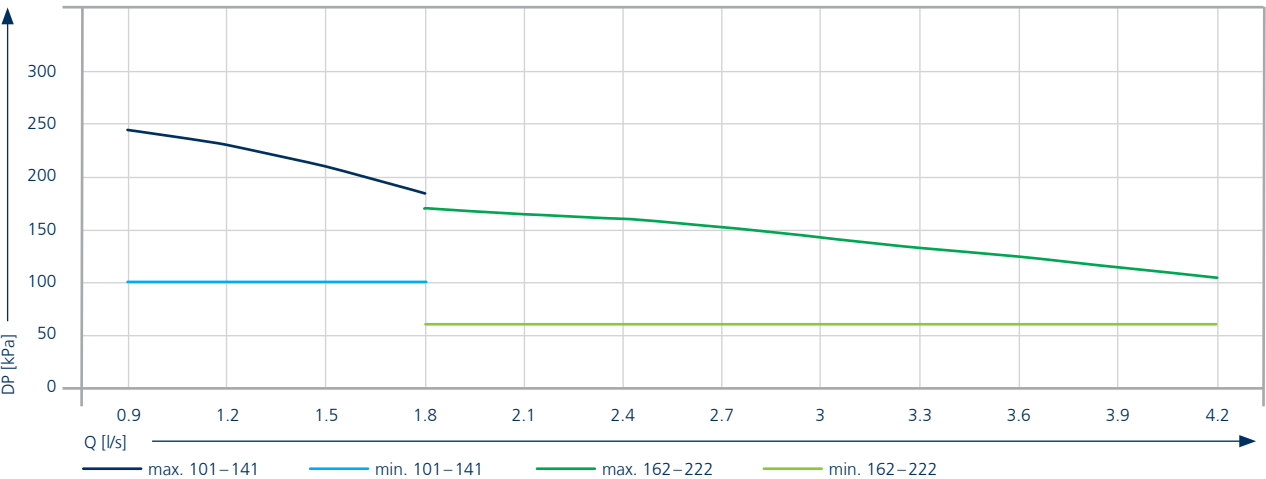
⁷⁾ when used with optional accessories, series tank and pump

KaClima R32 AO

Pump characteristic curve

The following diagrams show the external pressure of the integrated pump.
The internal pressure losses have already been deducted from the pump characteristic curve.

External pressure of inverter pump accessories

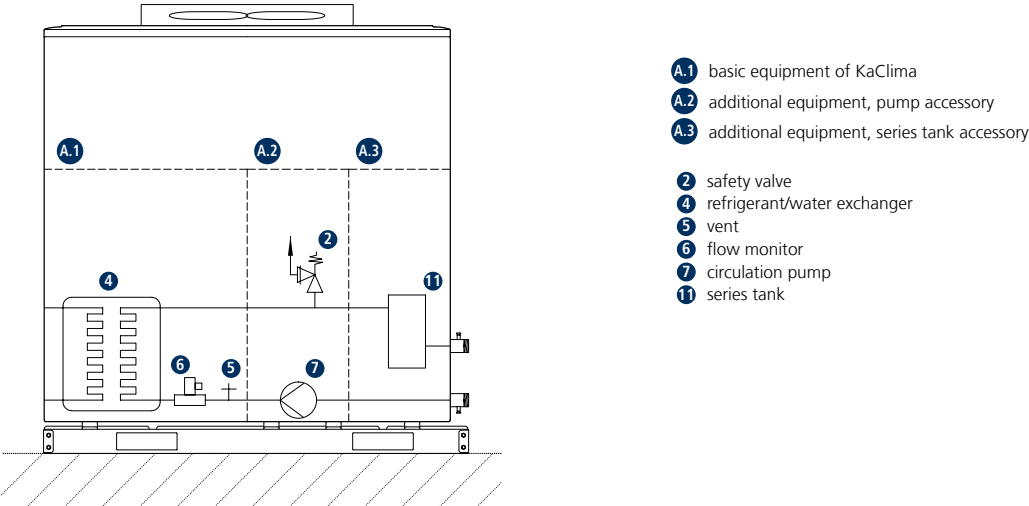


Operating the pump outside the characteristic lines will result in damage to the pump.

Water volume

Model		101	121	141	162	182	222
Minimum water flow rate	[l/s]	0.9	0.9	0.9	1.8	1.8	1.8
Maximum water flow rate	[l/s]	2.6	2.6	2.6	5	5	5

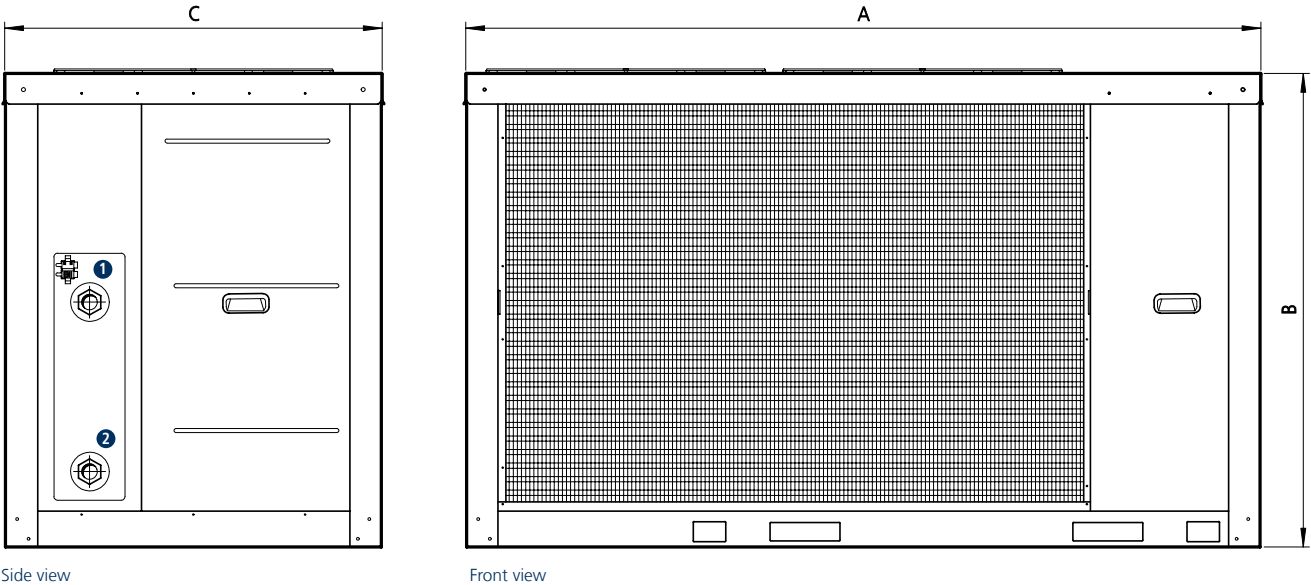
Hydraulic construction of the KaClima



KaClima R32 AO

Models 101 – 222

Technical drawings (all dimensions in mm)



- ❶ water inlet models 101–141 1 1/4", models 162–222 2"
- ❷ water outlet models 101–141 1 1/4", models 162–222 2"

Important: Allow 800 mm working area on all sides!

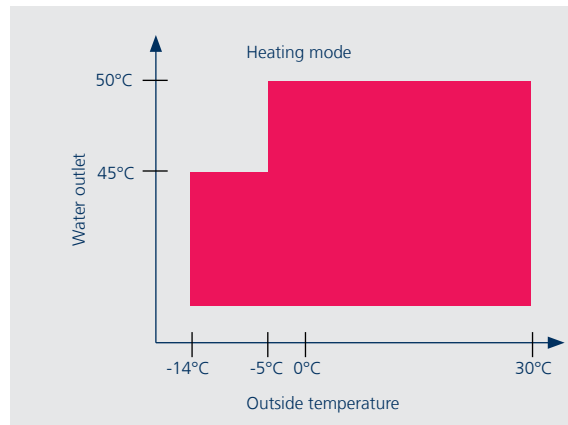
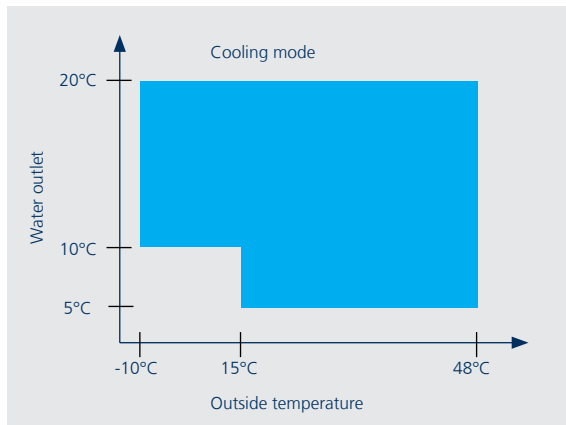
Model		101, 121, 141	162, 182, 222
Length (A)	[mm]	1875	2218
Height (B)	[mm]	1176	1339
Depth (C)	[mm]	1005	1057
Operating weight ¹⁾	[kg]	310	490
Shipping weight ¹⁾	[kg]	300	480

¹⁾ weight data excluding optional accessories

KaClima R32 AO

Additional technical information

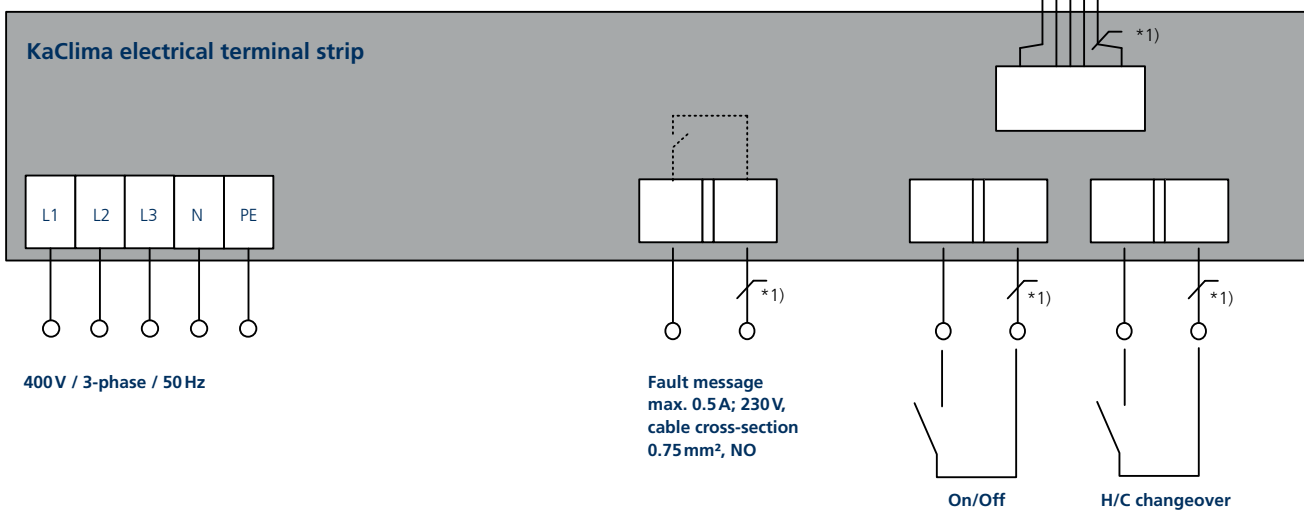
Water / outside temperature limits



Electrical wiring

230 V / 50 Hz
Provide electrical
socket

Cable remote control



The unit must be fused in accordance with the currently applicable standards and legislation!
Provide anti-surge fuses!
Provide universal residual current circuit-breakers!



Energised!

*1) Lay shielded cables (e.g. JY(ST)Y, 0.8 mm) separately from high-voltage cables. Max. cable length 50 metres.

*2) Take into account voltage drop when sizing cables.

KaClima R32 AO 22-55 kW

Ordering information

Model	Cooling output ¹⁾	ESEER	Heat output ^{2) 3)}	COP ^{2) 3)}	Max. power consumption	Max. power consumption	Sound pressure level ⁴⁾	Min. water volume in the entire hydraulic system	Weight ⁵⁾	Energy efficiency class A+++ ⁶⁾	Type	Article no.
	[kW]		[kW]		[A]	[kW]	[dB(A)]	[l]	[kg]			
Heating or cooling mode												
101	22.3	4.63	24.3	3.30	20	12.1	59	200	300	A++	Cooling and heating	350721101010
121	25.8	4.64	27.1	3.27	20	12.1	60	200	300	A++	Cooling and heating	350721101210
141	29	4.63	31.4	3.20	20	12.1	60	200	300	A++	Cooling and heating	350721101410
162	42	4.00	48.6	3.32	40.5	24.5	68	350	480	A++	Cooling and heating	350721101620
182	48	3.99	54.0	3.26	40.5	24.5	69	350	480	A++	Cooling and heating	350721101820
222	55	4.01	62.0	3.10	40.5	24.5	70	350	480	A++	Cooling and heating	350721102220

Accessories

Article	Properties	Suitable for	Art. no.
3.50 Pump			
Hydraulic design of speed-controlled single pump	Hydraulic design of speed-controlled individual pump integrated into KaClima	Model 101-141	350701120011
		Model 162-222	350701120021
Hydraulic design of integrated series tank 140 litres in KaClima	Hydraulic design of integrated series tank 140 litres in KaClima	Model 101-141	350701120014
Hydraulic design of integrated series tank 160 litres in KaClima	Hydraulic design of integrated series tank 160 litres in KaClima	Model 162-222	350701120024
3.50 Hydraulic box			
Hydraulic box	To separate primary / secondary in the insulated housing	Cooling output max. 20 kW	350501000027
		Cooling output max. 35 kW	350501000037
3.50 Plattenwärmetauscher			
System separator	Cooling output: Primary: 6/12 °C glycol 35%, Secondary: 8/14 °C water. Heat output: Primary: 45/40 °C glycol 35%, Secondary: 37/43 °C water	Output of up to 28,5 kW	350501000066
		Output of up to 32,0 kW	350501000076
		Output of up to 38,0 kW	350501000086
		Output of up to 51,0 kW	350501000096
		Output of up to 70,0 kW	350501000106
9.40 Services			
Operational check and training on chillers	<ul style="list-style-type: none">▶ Check all functions of the unit▶ Check hydraulic integration▶ Check compliance with the system limits▶ Check safety systems▶ Check and adjust operational parameters	Model 021 - 171, 4 kW - 48 kW cooling output, version for cooling and heating	350003800910

¹⁾ at CHW 7/12, outside temperature 35 °C

²⁾ according to EN 14511:2013 including defrosting function

³⁾ at LPHW 45/40, outside temperature 7 °C

⁴⁾ sound pressure level at a distance of 1 m in an open area, measurement in accordance with UNI EN ISO 9614-2

⁵⁾ operating weight

⁶⁾ in accordance with EU Delegated Regulation 811/2013

03

Product data

► KaClima R32 AO 53–85 kW



Product benefits

- R32 refrigerant to reduce the greenhouse effect by approx. 75%
- noise-reduced operation possible for night-time hours
- continuously variable EC fans
- integrated safety valve, flow monitor and dirt trap
- optionally with integrated pump and series tank
- energy efficiency class A++⁶⁾



Features

Standard range

- 5 model sizes
- low starting currents
- leaving water temperature control
- integrated Modbus interface
- electronic expansion valve for optimum overheating control
- separate external control unit
- up to 16 units can be combined as a master/slave configuration

Installation

- location** ► outdoors
- Cooling** ► CHW
- Heating** ► LPHW
- Refrigerant** ► R32

Inverter compressor

- control range 30–100%

Axial fans

- in DC version

Hydraulics:

- optional speed-controlled circulation pump
- separate dirt trap
- 6 bar safety valve
- optional integrated series tank
models 101–141: 140 litres
models 162–222: 180-litre

Performance data

Cooling output¹⁾

- 53.3–85.0 kW

Performance rating¹⁾

- SEER 4.57–4.5

Heat output³⁾

- 53.0–91.0 kW

Performance rating^{2) 3)}

- COP 3.21–3.25

Sound pressure level⁴⁾

- 67–68 [dB(A)]

Sound pressure level

Noise-reduced operation^{4,7)}

- 54–56 [dB(A)]

Limits of cooling mode

- min. outside temperature: -10 °C⁵⁾
- max. outside temperature: +48 °C
- min. leaving water temperature: +5 °C
- max. leaving water temperature: +20 °C
- min. flow temperature below 10 °C
outside temperature is 10 °C⁵⁾

Limits of heating mode

- min. outside temperature: -15 °C
- max. outside temperature: +30 °C
- min. leaving water temperature: +30 °C
- max. leaving water temperature: +50 °C
- max. flow temperature below -5 °C
is 45 °C

Applications

To supply centralised and decentralised water-based units with heating and cooling energy.



Hotels/
motels



Sales rooms
and
showrooms



Office and
meeting
rooms



Restaurants
and cafés

¹⁾ at CHW 7/12, outside temperature 35 °C

²⁾ according to EN 14511:2013 including defrosting function

³⁾ at LPHW 45/40, outside temperature 7 °C

⁴⁾ noise data at full load, nominal conditions, 1 m distance in an open area, measurement in accordance with UNI EN ISO 9614-2

⁵⁾ The KaClima series R32 described is not suitable for process cooling, server rooms or other cooling systems that need to be operated throughout the year and or at a constant flow temperature.

⁶⁾ in accordance with (EU) Delegated Regulation No. 811/2013

⁷⁾ the performance of the KaClima is reduced by approx. 40% at a reduced sound pressure level

KaClima R32 AO: Technical data

Model	Cooling output ¹⁾	Power consumption	EER	SEER	Heat output ^{2) 3)}	COP ^{2) 3)}	Number of compressors/cooling circuits	Number of fans	Air volume	Max. power consumption/starting current	Max. power consumption	Voltage supply	Oil volume	Refrigerant volume	Volume of integral tank ⁷⁾	Pump external pressure ⁷⁾	Water content in the generator	Min. water volume in the entire hydraulic system	Energy efficiency class ^{6) 5)}
	[kW]	[kW]			[kW]				[m³/h]	[A]	[kW]	[V]	[kg]	[kg]	[litres]	[kPa]	[litres]	[litres]	
Heating or cooling mode																			
1182	53.3	18.1	2.95	4.57	53	3.21	2/1	2	24800	38.5/46	25.6	400 3-phase	5	15	170	40-150	6	400	A++
1202	58.9	20.3	2.9	4.51	66	3.17	2/1	2	24800	38.5/46	25.6	400 3-phase	5	15	170	30-140	6	400	A++
1252	72	22.8	3.15	4.64	79.3	3.33	2/1	3	37200	59.7/60.2	40.1	400 3-phase	6	21	275	70-180	8	650	-
1302	77.7	25.1	3.1	4.62	84.7	3.29	2/1	3	37200	59.7/60.2	40.1	400 3-phase	6	21	275	70-170	8	650	-
1352	85	29.2	2.91	4.5	91	3.25	2/1	3	37200	59.7/60.2	40.1	400 3-phase	6	21	275	70-165	8	650	-

KaClima R32 AO: Sound data

Sound power level [dB] ⁴⁾										Sound pressure level [dB(A)] ⁴⁾	Sound power level, noise-reduced operation [dB(A)] ⁶⁾	Sound pressure level, noise-reduced operation [dB(A)] ⁶⁾
Model	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	Total	Total	Total	Total
1182	62	67	68	72	79	72	64	52	83	67	70	54
1202	68	79	76	73	76	67	59	52	83	67	71	55
1252	65	66	69	73	80	73	65	5	85	68	71	55
1302	59	67	69	72	80	73	65	51	85	68	71	55
1352	87	77	76	76	79	68	60	53	85	68	73	56

¹⁾ at CHW 7/12, outside temperature 35 °C

²⁾ according to EN 14511:2013 including defrosting function

³⁾ at LPHW 45/40, outside temperature 7 °C

⁴⁾ noise data at full load, nominal conditions, 1m distance in an open area, measurement in accordance with UNI EN ISO 9614-2

⁵⁾ in accordance with (EU) Delegated Regulation No. 811/2013

⁶⁾ the performance of the KaClima is reduced by approx. 40% at a reduced sound pressure level

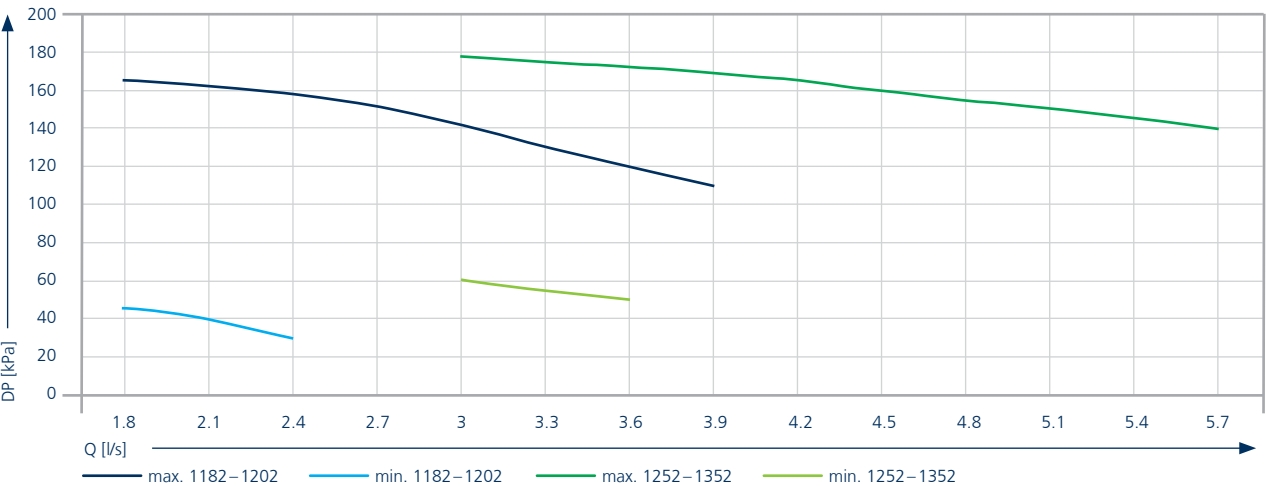
⁷⁾ when used with optional accessories, series tank and pump

KaClima R32 AO

Pump characteristic curve

The following diagrams show the external pressure of the integrated pump.
The internal pressure losses have already been deducted from the pump characteristic curve.

External pressure of inverter pump accessories

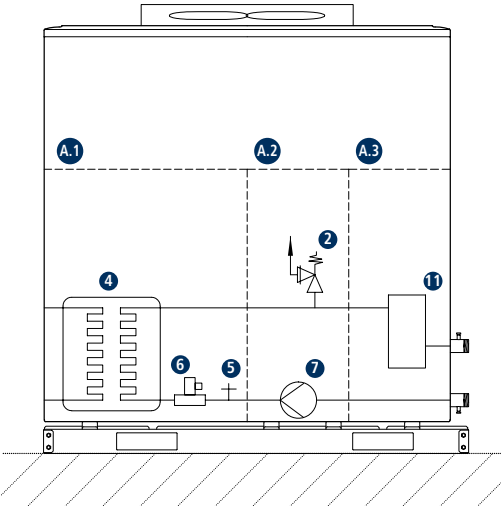


Operating the pump outside the characteristic lines will result in damage to the pump.

Water volume

Model		1182	1202	1252	1302	1352
Minimum water flow rate	[l/s]	1.9	1.9	2.9	2.9	2.9
Maximum water flow rate	[l/s]	6.4	6.4	6.4	6.4	6.4

Hydraulic construction of the KaClima

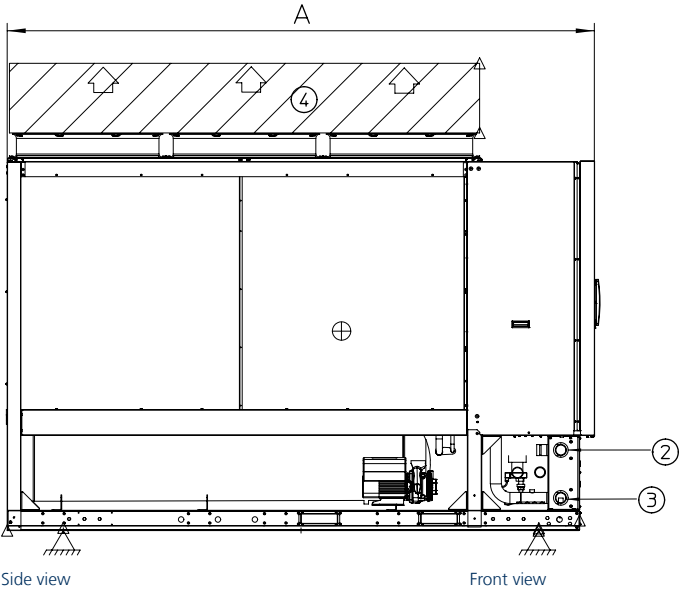


- A.1 basic equipment of KaClima
- A.2 additional equipment, pump accessory
- A.3 additional equipment, series tank accessory
- 2 safety valve
- 4 refrigerant/water exchanger
- 5 vent
- 6 flow monitor
- 7 circulation pump
- 11 series tank

KaClima R32 AO

Models 182 – 352

Technical drawings (all dimensions in mm)



- ② 2" water inlet
- ③ 2" water outlet
- ④ allow min. 80 cm maintenance clearance to the side and 6 m above

Important: allow 800 mm working area on all sides!

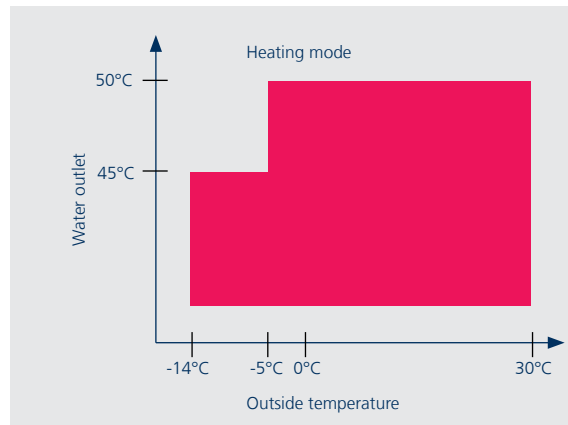
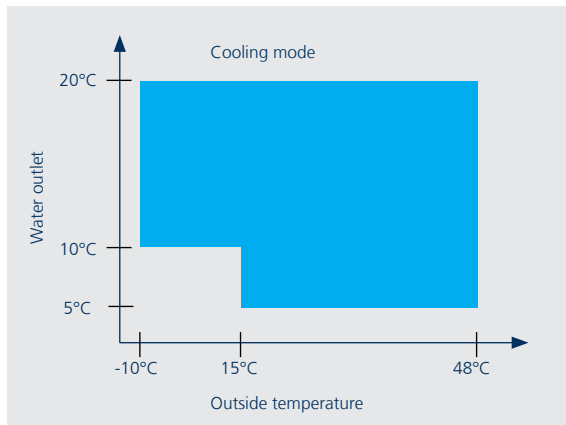
Model		182-202	252-352
Length (A)	[mm]	2337	3190
Height (B)	[mm]	2152	2155
Depth (C)	[mm]	1130	1130
Operating weight ¹⁾	[kg]	590	796
Shipping weight ¹⁾	[kg]	580	780

¹⁾ weight data excluding optional accessories

KaClima R32 AO

Additional technical information

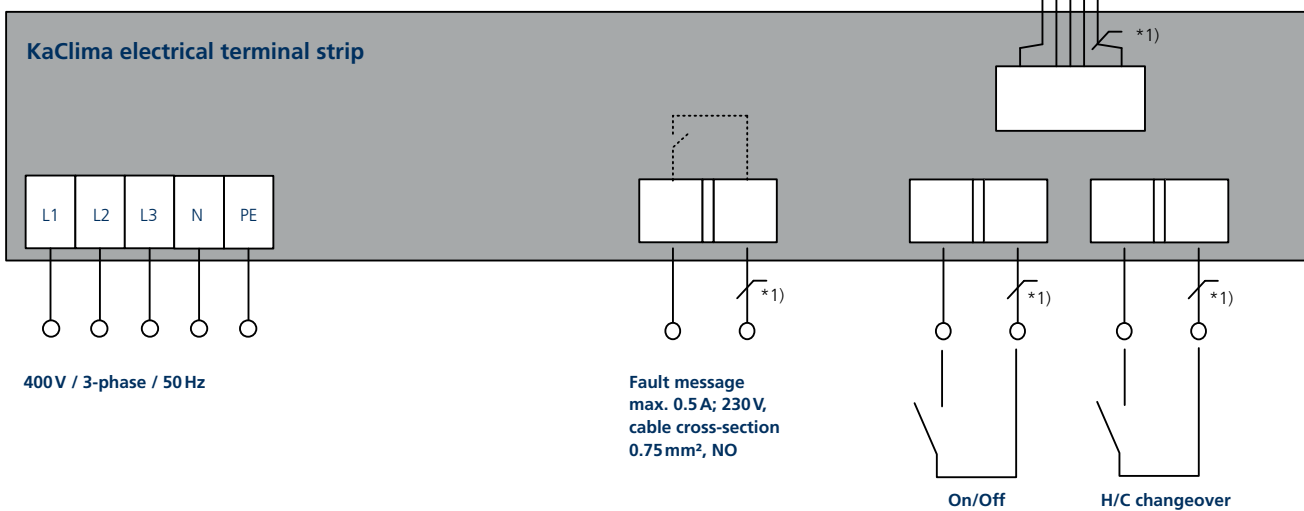
Water / outside temperature limits



Electrical wiring

230 V / 50 Hz
Provide electrical
socket

Cable remote control



The unit must be fused in accordance with the currently applicable standards and legislation!
Provide anti-surge fuses!
Provide universal residual current circuit-breakers!



Energised!

*1) Lay shielded cables (e.g. JY(ST)Y, 0.8 mm) separately from high-voltage cables. Max. cable length 50 metres.

*2) Take into account voltage drop when sizing cables.

KaClima R32 AO 53-85 kW

Ordering information

Model	Cooling output ¹⁾	ESEER	Heat output ^{2) 3)}	COP ^{2) 3)}	Max. power consumption	Max. power consumption	Sound pressure level ⁴⁾	Min. water volume in the entire hydraulic system	Weight ⁵⁾	Energy efficiency class A+++ ⁶⁾	Type	Article no.
	[kW]		[kW]		[A]	[kW]	[dB(A)]	[l]	[kg]			
Heating or cooling mode												
182	53.3	4.57	53.0	3.21	38.5	25.6	67	400	580	A++	Cooling and heating	350721111820
202	58.9	4.51	66.0	3.17	38.5	25.6	67	400	580	A++	Cooling and heating	350721112020
252	72	4.64	79.3	3.33	59.7	40.1	68	650	780	-	Cooling and heating	350721112520
302	77.7	4.62	84.7	3.29	59.7	40.1	68	650	780	-	Cooling and heating	350721113020
352	85	4.50	91.0	3.25	59.7	40.1	68	650	780	-	Cooling and heating	350721113520

Accessories

Article	Properties	Suitable for	Art. no.
3.50 Pump			
Hydraulic design of speed-controlled single pump	Installed in KaClima	Model 1182 - 1222, 2182 - 2222	350701130011
		Models 1252 – 1352	350701130021
Hydraulic version of integral series tank	170 l in KaClima	Models 1182 – 1202	350701130014
	275 l in KaClima	Models 1252 – 1352	350701130024
3.50 Plate heat exchanger			
System separator	Cooling output: Primary: 6/12 °C glycol 35%, Secondary: 8/14 °C water. Heat output: Primary: 45/40 °C glycol 35%, Secondary: 37/43 °C water	Output of up to 70.0 kW	350501000106
		Output of up to 80.0 kW	350501000116
		Output of up to 86.0 kW	350501000126
3.50 Buffer tank			
External buffer tank	Vapour-impermeable insulation, each with 2 connections for integration as a series tank	200 litres, 1 1/4" connection	350000002020
9.40 Services			
Operational check and training on chillers		KaClima R32 with 30-100 kW cooling output	350003800910

¹⁾ at CHW 7/12, outside temperature 35 °C

²⁾ according to EN 14511:2013 including defrosting function

³⁾ at LPHW 45/40, outside temperature 7 °C

⁴⁾ sound pressure level at a distance of 1 m in an open area, measurement in accordance with UNI EN ISO 9614-2

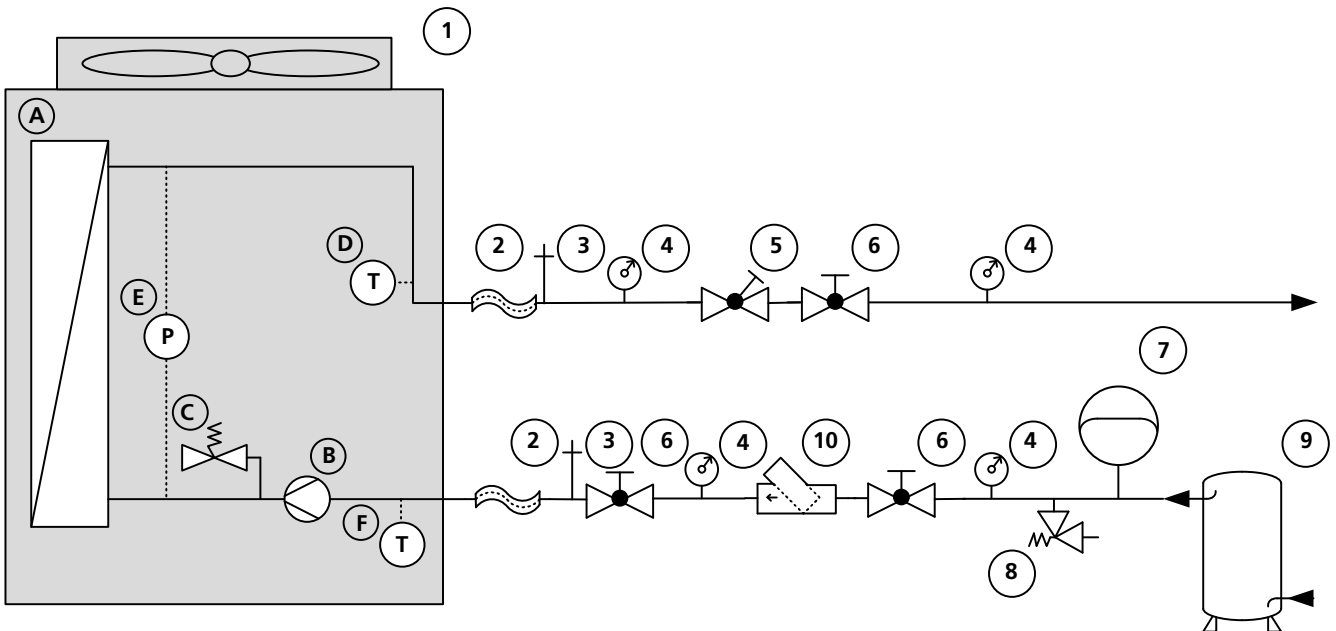
⁵⁾ operating weight

⁶⁾ in accordance with EU Delegated Regulation 811/2013

04 ► Design information



Hydraulic project planning assistance



- A water/refrigerant exchanger
- B primary pump*⁵⁾
- C safety valve
- D water outlet flow Sensor
- E flow monitor
- F water inlet flow Sensor

- 1 chiller
- 2 flexible connection
- 3 vent
- 4 manometer
- 5 flow regulator

- 6 shut-off valve
- 7 expansion vessel*¹⁾
- 8 safety valve *²⁾
- 9 increased ext. water volume/tank*³⁾
- 10 dirt trap*⁴⁾

Description

Frost protection:

Fill the primary circuit with anti-freeze to protect the KaClima unit from frost damage in winter. Please refer to the glycol manufacturers' data sheets for information on the concentration, properties and safety measures (e.g. collecting trays) required with the use of glycol.

7) Expansion vessel:

The expansion vessel needs to be sized for the filling volume of the system and possible temperature differences.

C+8) Safety valve:

Check whether the KaClima series and option selected include a safety valve and match the discharge pressure of the entire system.

9) Increased ext. water volume/tank

A minimum water volume is needed in the system to ensure proper operation and maximum energy efficiency. The volume differs depending on the size and is stated in the technical data. A series tank can also be integrated as an accessory with certain KaClima units.

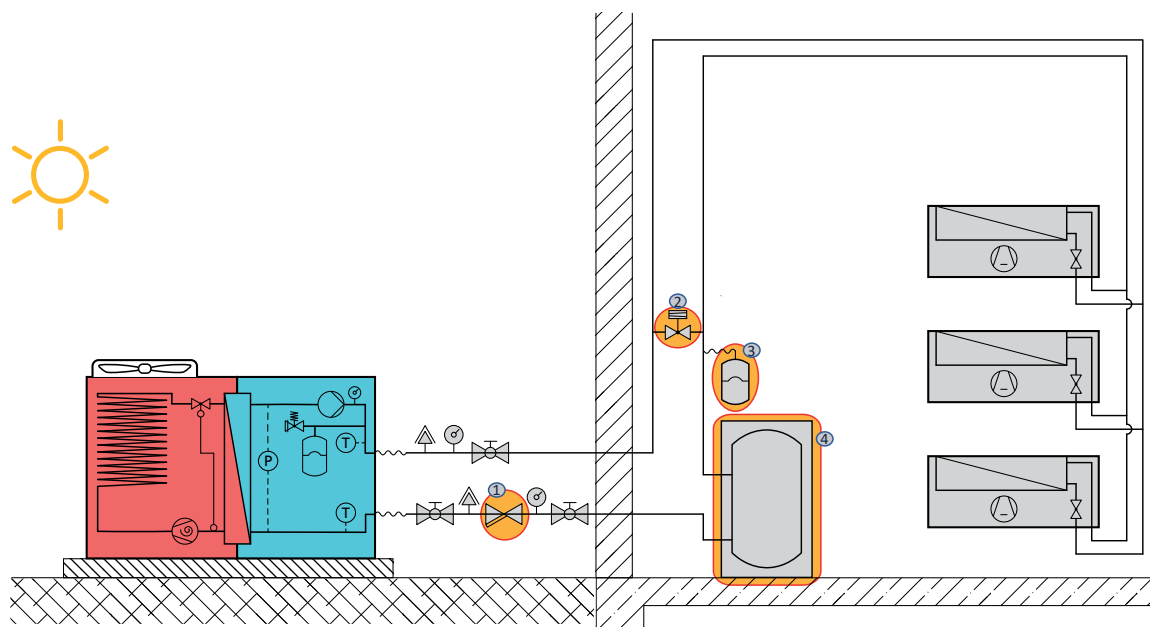
10) Dirt trap

The dirt trap is supplied with the KaClima and needs to be fitted directly upstream of the KaClima.

B) Primary pump

A pump is included with the KaClima depending on the model and accessories selected. Check this against the flow and pressure loss required.

Hydraulic circuit



It is essential that the following points are noted when setting up chilled water or heat pump networks:

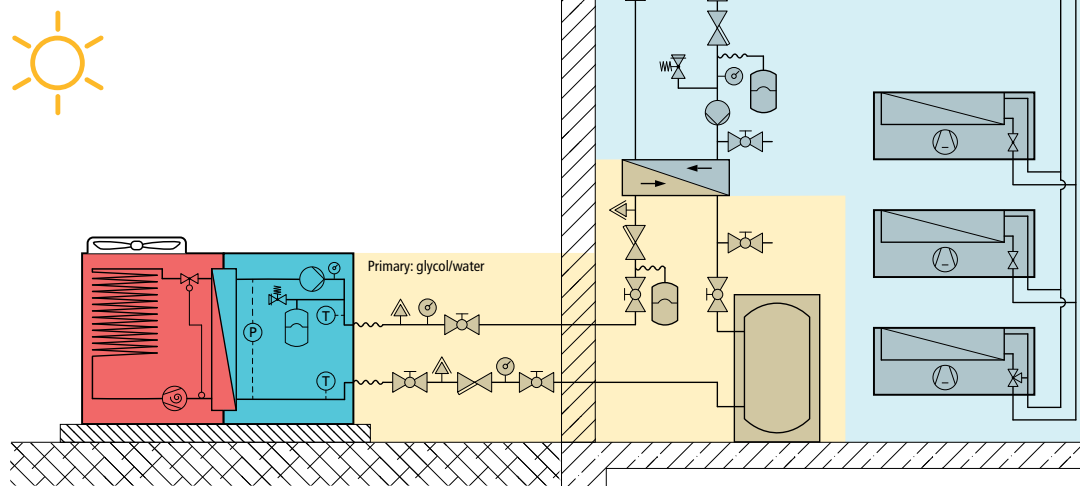
1. Fit a dirt trap upstream of all plate heat exchangers (e.g. upstream of the chiller/heat pump, system separator).
2. The chiller needs to guarantee a constant water flow. This can be done, for instance, using an overflow valve, as shown in the diagram, using a system separator or hydraulic switches.

3. Expansion vessels need to be designed for the volume of the system.
4. The water volume in the entire system needs to be sufficient to prevent the generator from clogging. The minimum water content can also be taken from the table in the technical data.

The generator needs to be protected against frost by glycol (minimum 35%).

Primary/secondary separation

Primary/secondary separation can be ensured, among other things, by a plate heat exchanger. The glycol filling can therefore be reduced to the primary circuit.



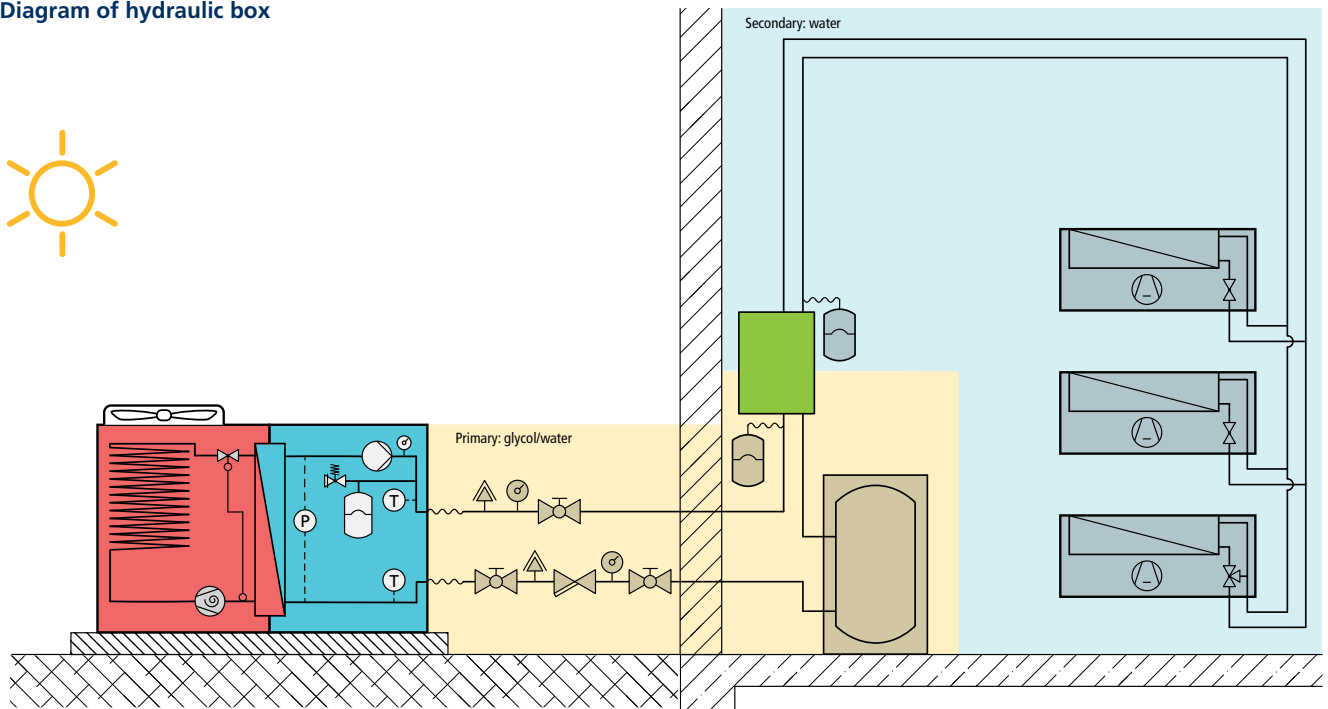
Hydraulic box

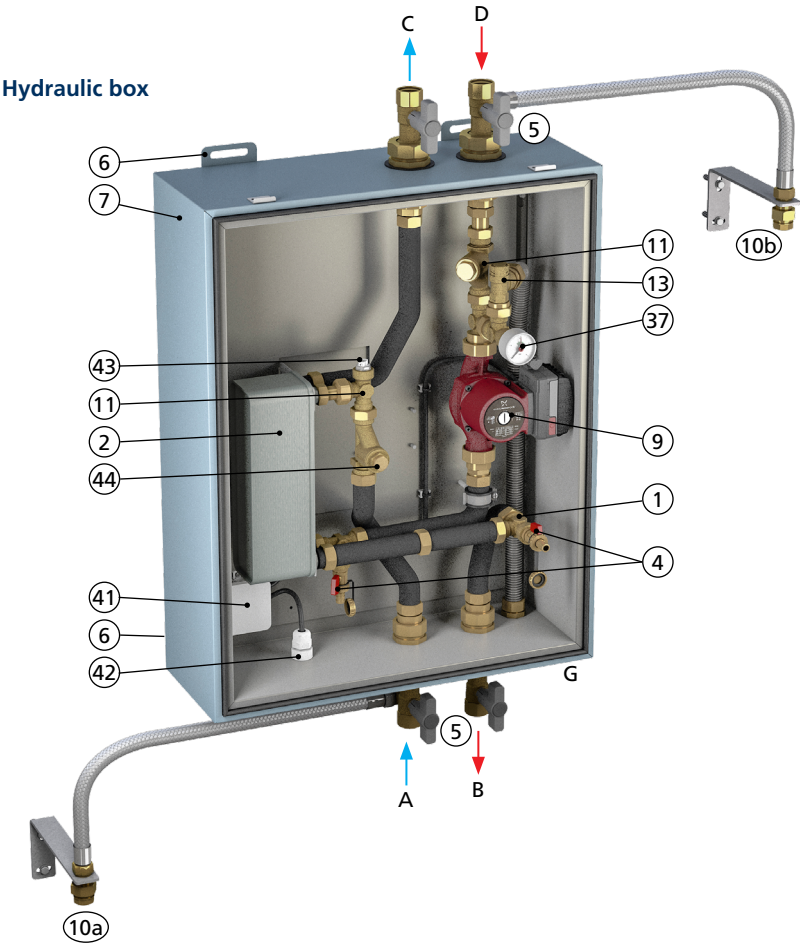
The construction of the primary/secondary system using a separator is relatively complex and time-consuming due to the many different components and the need to insulate the components. The Kampmann hydraulic box simplifies this significantly. It includes the key components and its housing protects them from condensation water:

- ▶ three sizes 12/20/35 kW
- ▶ several outputs are possible by the combination of components, accessories needed
- ▶ vapour diffusion-tight insulated, impact-resistant housing
- ▶ speed-controlled, energy-saving circulation pump
- ▶ minimised sources of errors
- ▶ shortened installation times

Expansion vessels need to be sized and provided on site. External shut-off valves and corrugated hoses need to be insulated on site.

Diagram of hydraulic box





No.	Components	Comment
1	Adapter 1" male x 130 mm for compact heating/cooling meter	For optional cooling meter (also possible with Mbus)
2	Stainless steel plate heat exchanger	
4	Fill-and-drain valve	1/2"
5	Shut-off ball valves	
6	Wall-mounted suspension lugs	
7	Insulated hybrid housing	
9	Secondary circuit pump	GF UPMXL 25-105 180 AUTO, grey cast iron
10a	Connection option for expansion vessel	3/4" male service coupling
10b	Primary circuit	
	Secondary circuit	
11	Dirt trap	Male 1" (12 kW), 1 1/4" (20 and 35 kW)
13	Relief valve secondary circuit 1/2" x 3/4"	3 bar
37	Secondary circuit manometer 1/4"	4 bar
41	Electrical junction box	230 V/50 Hz
42	Electrical connecting cable	
43	Vent valve 1/2"	
44	Plug 1/2"	

Connections and nominal diameters

A	Primary flow	
B	Primary return	Male
C	Secondary flow	1" (12 kW)
D	Secondary return	1 1/2" (20 and 35 kW)
G	Overpressure line safety valve	1"

Hydraulic box data sheet

12 kW hydraulic box

Secondary	Flow temperature	°C	8		10	
	Return temperature	°C	14		16	
Primary	Flow temperature	°C	6	7	6	7
	Return temperature	°C	12.1	11.5	14.8	14.6
Output		kW	14.5	10.5	16.0	16.0

20kW hydraulic box

Secondary	Flow temperature	°C	8		10	
	Return temperature	°C	14		16	
Primary	Flow temperature	°C	6	7	6	7
	Return temperature	°C	12.1	11.5	14.8	14.6
Output		kW	22.5	16.9	23.7	23.7

35 kW hydraulic box

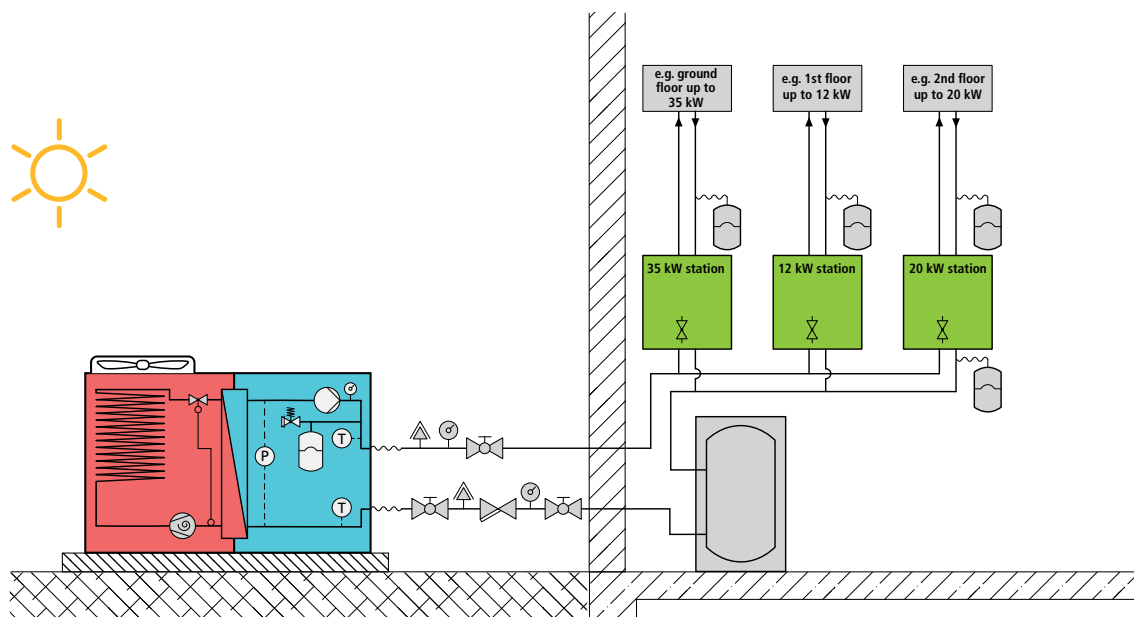
Secondary	Flow temperature	°C	8		10	
	Return temperature	°C	14		16	
Primary	Flow temperature	°C	6	7	6	7
	Return temperature	°C	11.7	11.5	14.8	14.6
Output		kW	35.0	35.0	34.9	34.9

Dimensions: 880 x 650 x 340 mm plus external shut-off valves

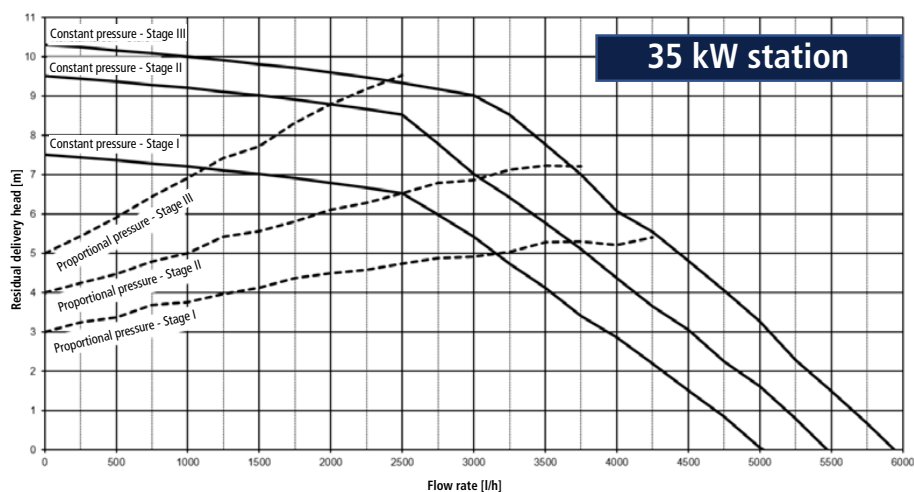
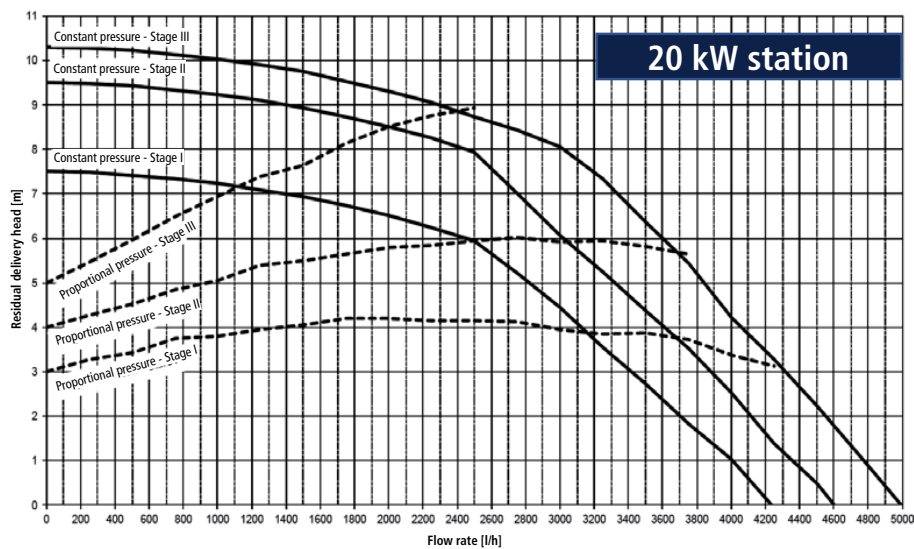
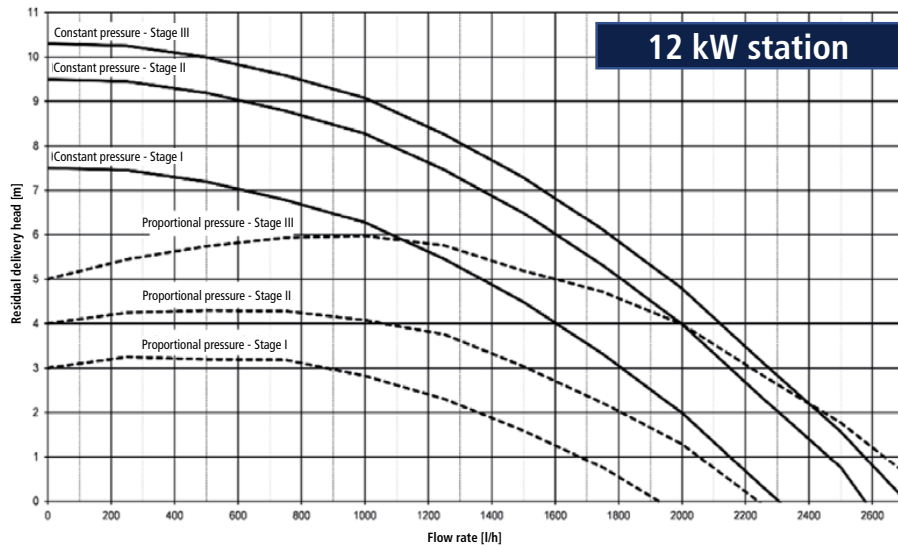
Hydraulic box, cascading

Combination of multiple hydraulic boxes

Higher outputs can be obtained by combining several hydraulic boxes. To do so, each hydraulic box needs to be calibrated using a volumetric flow controller, which is optionally available.



Hydraulic box pump residual delivery heads



05 ▶ Hydraulic suggestions



Hydraulic system 2: 2-pipe, cooling only

Legend:

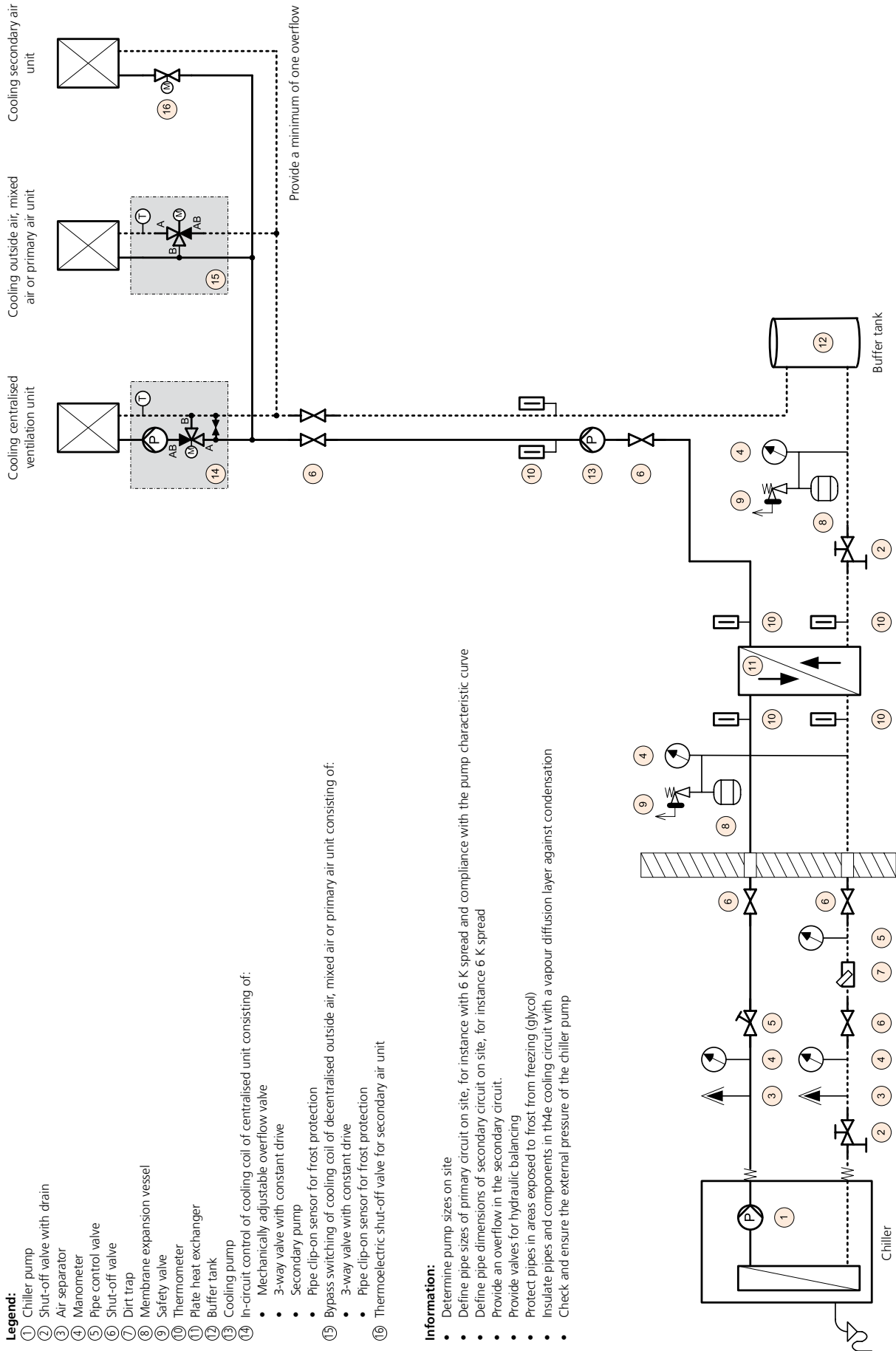
- 1 Chiller pump
- 2 Shut-off valve with drain
- 3 Air separator
- 4 Manometer
- 5 Pipe control valve
- 6 Shut-off valve
- 7 Dirt trap
- 8 Membrane expansion vessel
- 9 Safety valve
- 10 Thermometer
- 11 Plate heat exchanger
- 12 Buffer tank
- 13 Cooling pump
- 14 In-circuit control of cooling coil of centralised unit consisting of:
 - Mechanically adjustable overflow valve
 - 3-way valve with constant drive
 - Secondary pump
 - Pipe clip-on sensor for frost protection
- 15 Bypass switching of cooling coil of decentralised outside air, mixed air or primary air unit consisting of:
 - 3-way valve with constant drive
 - Pipe clip-on sensor for frost protection
 - Thermoelectric shut-off valve for secondary air unit
- 16 Thermoelectric shut-off valve for secondary air unit

In-circuit control of centralised unit consisting of:

- Mechanically adjustable overflow valve
 - 3-way valve with constant drive
 - Secondary pump
 - Pipe clip-on sensor for frost protection
- 13 Bypass switching of cooling coil of decentralised outside air, mixed air or primary air unit consisting of:
- 3-way valve with constant drive
 - Pipe clip-on sensor for frost protection
 - Thermoelectric shut-off valve for secondary air unit

Information:

- Determine pump sizes on site
- Define pipe sizes of primary circuit on site, for instance with 6 K spread and compliance with the pump characteristic curve
- Define pipe dimensions of secondary circuit on site, for instance 6 K spread
- Provide an overflow in the secondary circuit.
- Provide valves for hydraulic balancing
- Protect pipes in areas exposed to frost from freezing (glycol)
- Insulate pipes and components in the cooling circuit with a vapour diffusion layer against condensation
- Check and ensure the external pressure of the chiller pump



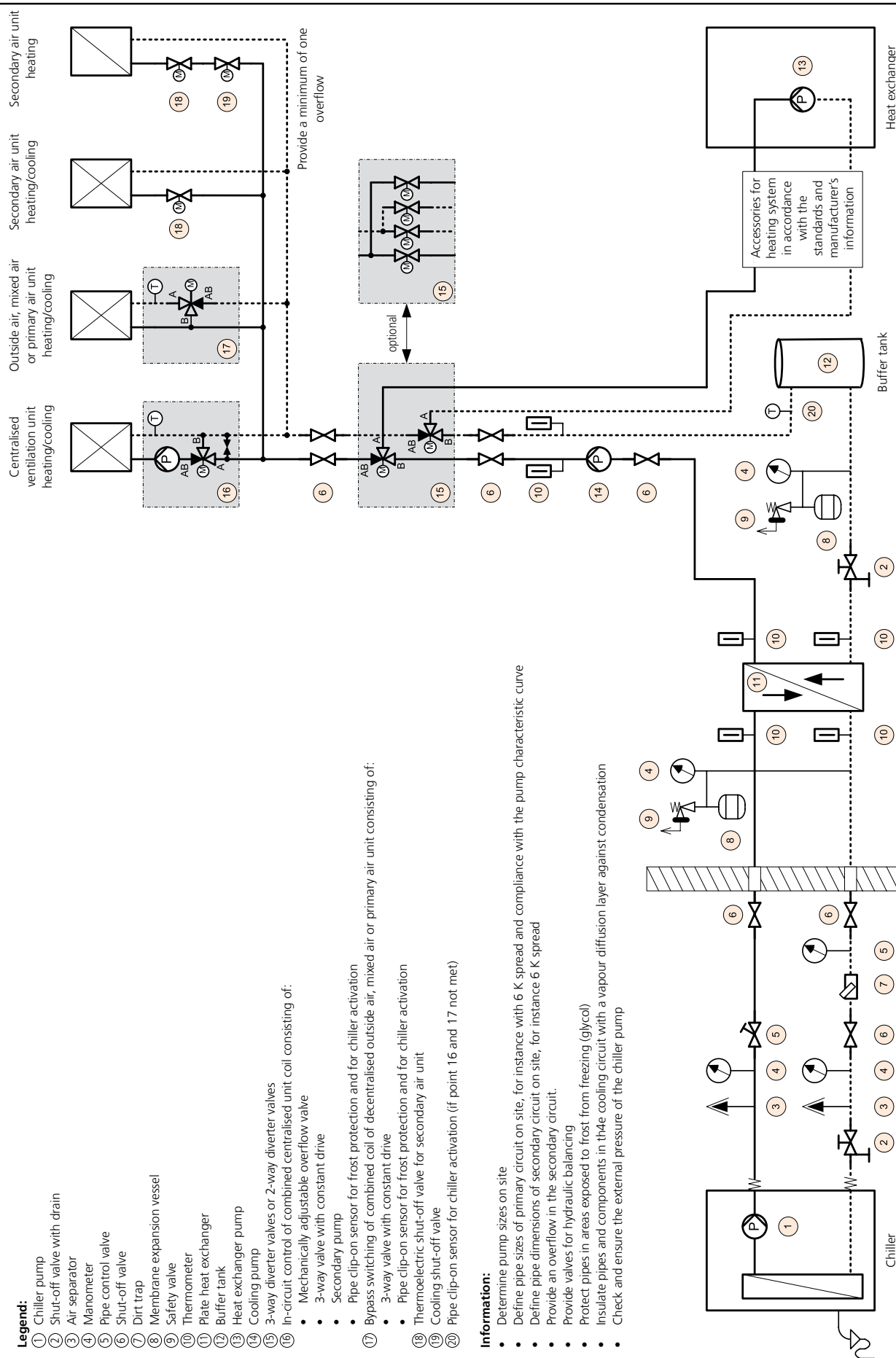
Hydraulic system 3: 2-pipe, heating/cooling, separate energy generator

Legend:

- ① Chiller pump
- ② Shut-off valve with drain
- ③ Air separator
- ④ Manometer
- ⑤ Pipe control valve
- ⑥ Shut-off valve
- ⑦ Dirt trap
- ⑧ Membrane expansion vessel
- ⑨ Safety valve
- ⑩ Thermometer
- ⑪ Plate heat exchanger
- ⑫ Buffer tank
- ⑬ Heat exchanger pump
- ⑭ Cooling pump
- ⑮ 3-way diverter valves or 2-way diverter valves
- ⑯ In-circuit control of combined centralised unit coil consisting of:
 - Mechanically adjustable overflow valve
 - 3-way valve with constant drive
 - Secondary pump
 - Pipe clip-on sensor for frost protection and for chiller activation
- ⑰ Bypass switching of combined coil of decentralised outside air, mixed air or primary air unit consisting of:
 - 3-way valve with constant drive
 - Pipe clip-on sensor for frost protection and for chiller activation
- ⑱ Thermoelectric shut-off valve for secondary air unit
- ⑲ Cooling shut-off valve
- ⑳ Pipe clip-on sensor for chiller activation (if point 16 and 17 not met)

Information:

- Determine pump sizes on site
- Define pipe sizes of primary circuit on site, for instance with 6 K spread and compliance with the pump characteristic curve
- Define pipe dimensions of secondary circuit on site, for instance 6 K spread
- Provide an overflow in the secondary circuit.
- Provide valves for hydraulic balancing
- Protect pipes in areas exposed to frost from freezing (glycol)
- Insulate pipes and components in the cooling circuit with a vapour diffusion layer against condensation
- Check and ensure the external pressure of the chiller pump



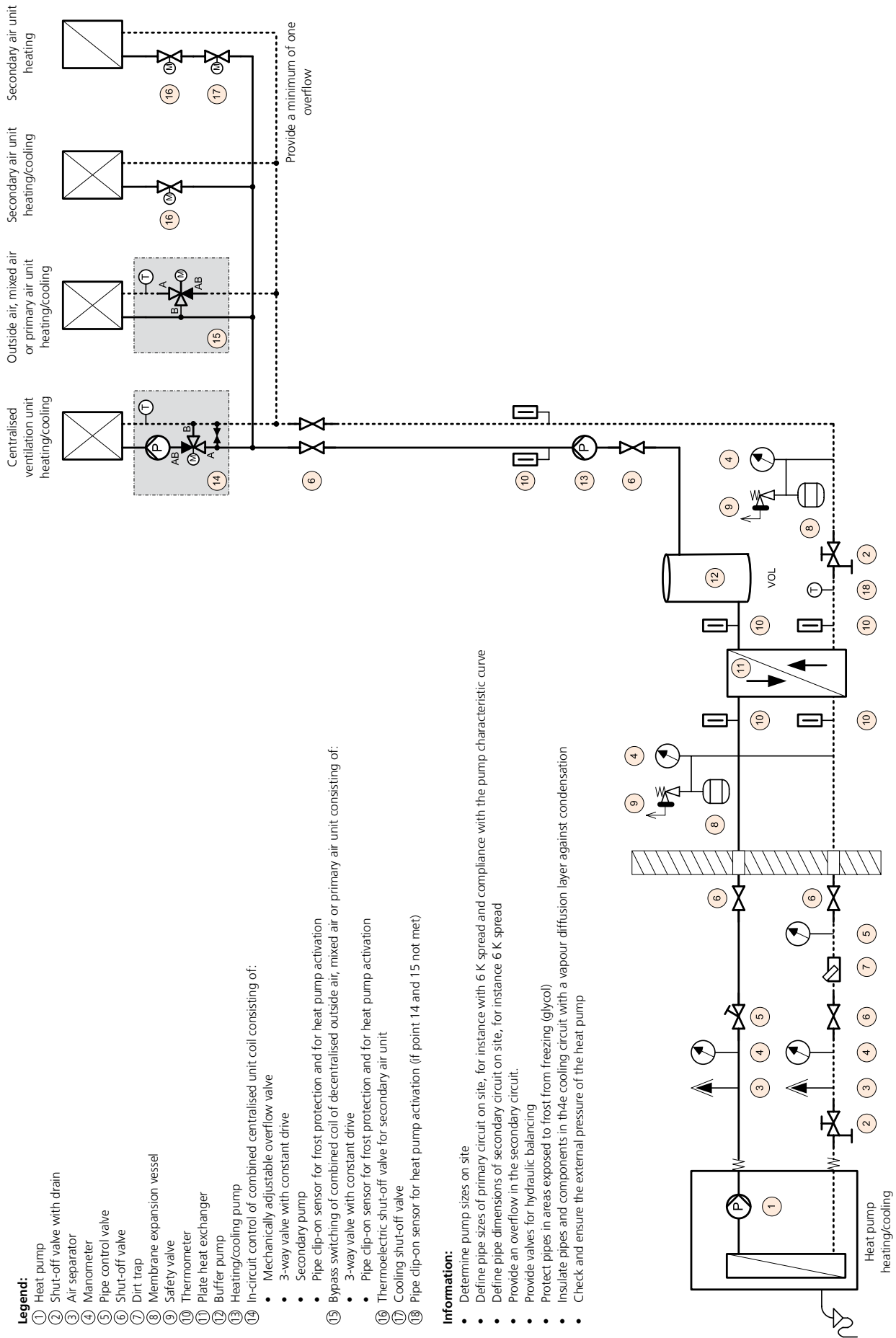
Hydraulic system 4: 2-pipe, heating/cooling, monovalent heat pump

Legend:

- ① Heat pump
- ② Shut-off valve with drain
- ③ Air separator
- ④ Manometer
- ⑤ Pipe control valve
- ⑥ Shut-off valve
- ⑦ Dirt trap
- ⑧ Membrane expansion vessel
- ⑨ Safety valve
- ⑩ Thermometer
- ⑪ Plate heat exchanger
- ⑫ Buffer pump
- ⑬ Heating/cooling pump
- ⑭ In-circuit control of combined centralised unit consisting of:
 - Mechanically adjustable overflow valve
 - 3-way valve with constant drive
 - Secondary pump
 - Pipe clip-on sensor for frost protection and for heat pump activation
- ⑮ Bypass switching of combined coil of decentralised outside air, mixed air or primary air unit consisting of:
 - 3-way valve with constant drive
 - Pipe clip-on sensor for frost protection and for heat pump activation
- ⑯ Thermoelectric shut-off valve for secondary air unit
- ⑰ Cooling shut-off valve
- ⑱ Pipe clip-on sensor for heat pump activation (if point 14 and 15 not met)

Information:

- Determine pump sizes on site
- Define pipe sizes of primary circuit on site, for instance with 6 K spread and compliance with the pump characteristic curve
- Define pipe dimensions of secondary circuit on site, for instance 6 K spread
- Provide an overflow in the secondary circuit.
- Provide valves for hydraulic balancing
- Protect pipes in areas exposed to frost from freezing (glycol)
- Insulate pipes and components in the cooling circuit with a vapour diffusion layer against condensation
- Check and ensure the external pressure of the heat pump



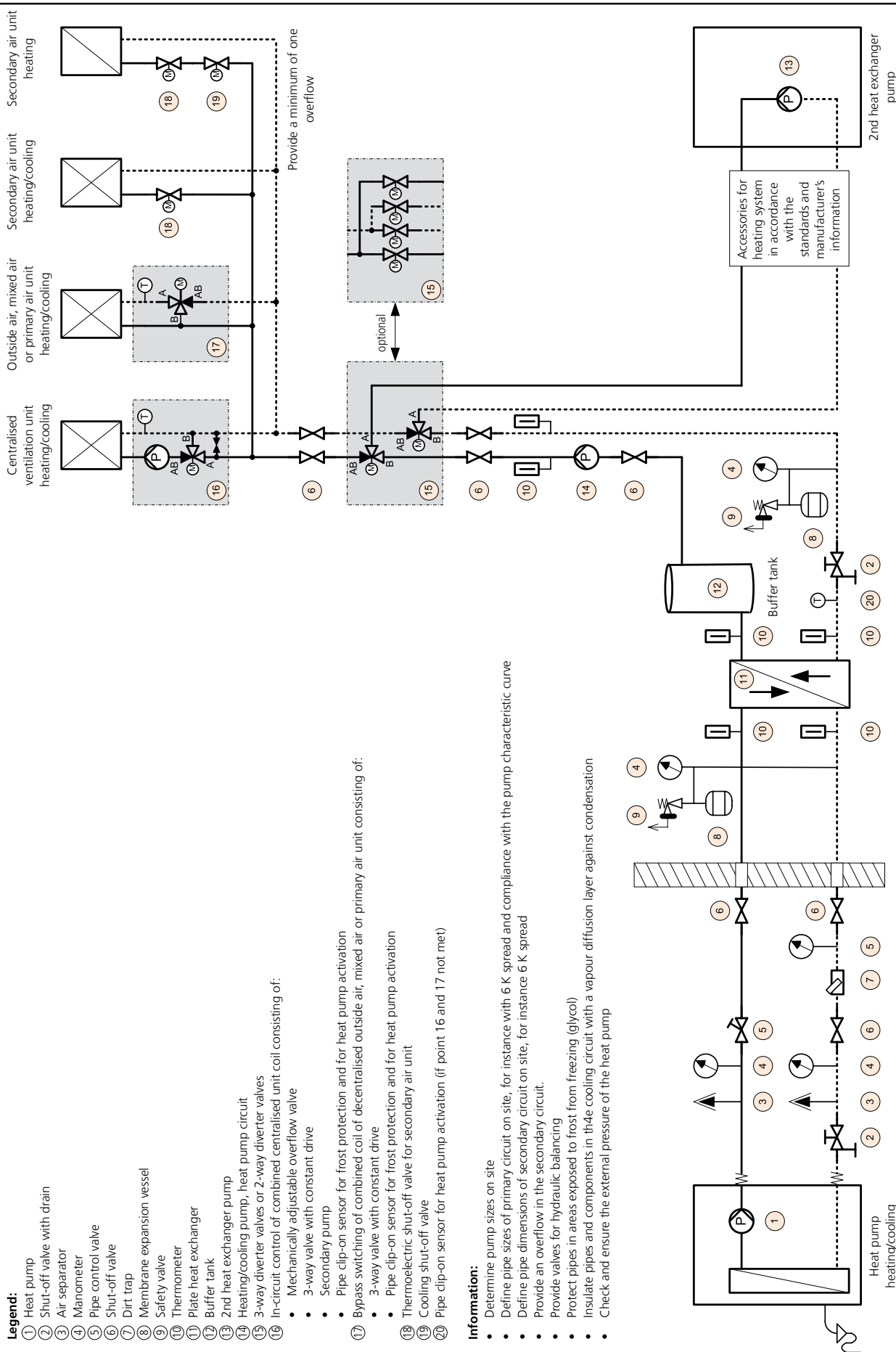
Hydraulic system 5: 2-pipe, heating/cooling, bivalent heat pump alternatively via 2nd heat exchanger

Legend:

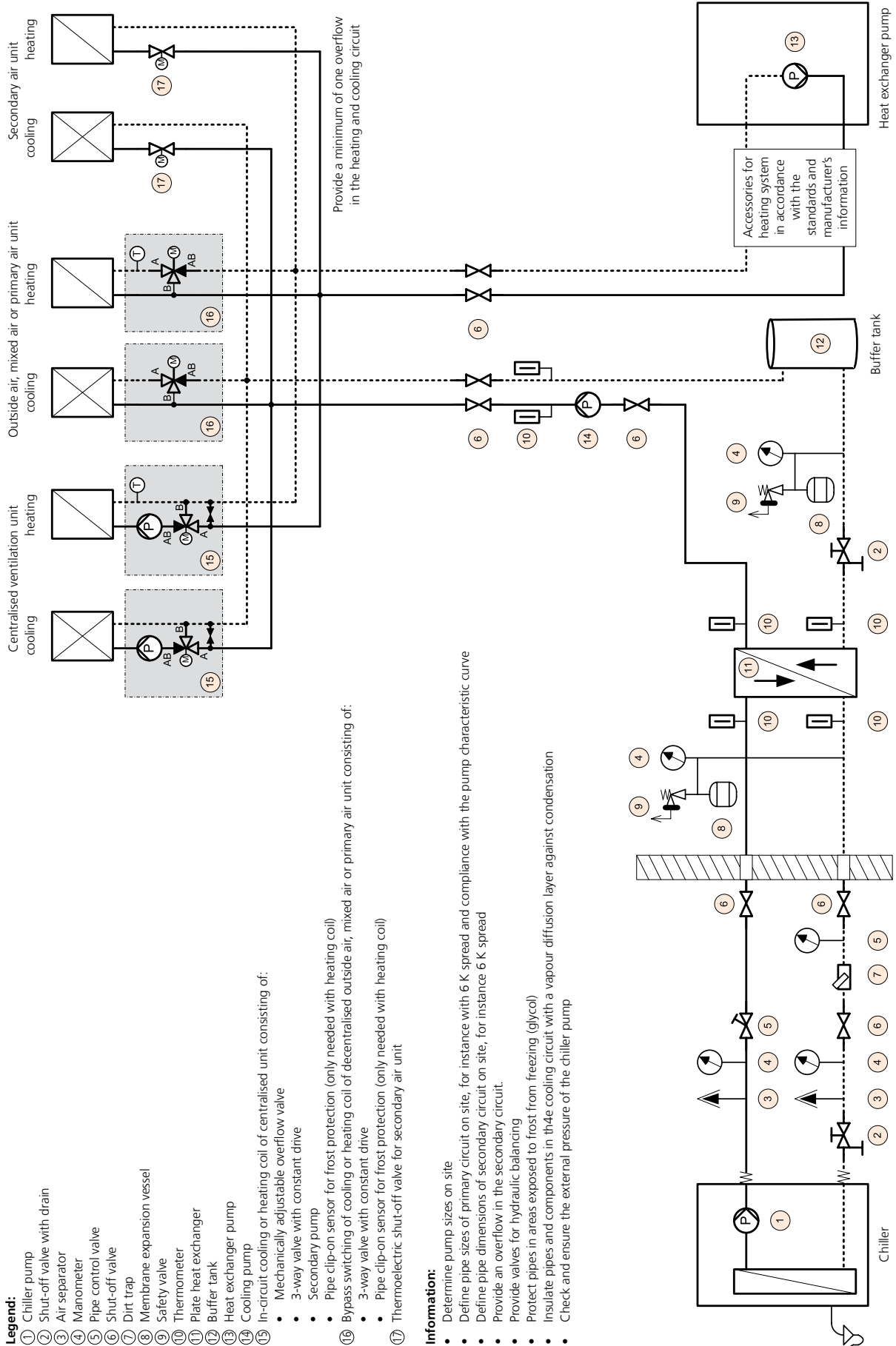
- 1 Heat pump
- 2 Shut-off valve with drain
- 3 Air separator
- 4 Manometer
- 5 Pipe control valve
- 6 Shut-off valve
- 7 Dirt trap
- 8 Membrane expansion vessel
- 9 Safety valve
- 10 Thermometer
- 11 Plate heat exchanger
- 12 Buffer tank
- 13 2nd heat exchanger pump
- 14 Heating/cooling pump, heat pump circuit
- 15 3-way diverter valves or 2-way diverter valves
- 16 In-circuit control of combined centralised unit coil consisting of:
 - Mechanically adjustable overflow valve
 - 3-way valve with constant drive
 - Secondary pump
 - Pipe clip-on sensor for frost protection and for heat pump activation
- 17 Bypass switching of combined coil of decentralised outside air, mixed air or primary air unit consisting of:
 - 3-way valve with constant drive
 - Pipe clip-on sensor for frost protection and for heat pump activation
- 18 Thermoelectric shut-off valve for secondary air unit
- 19 Cooling shut-off valve
- 20 Pipe clip-on sensor for heat pump activation (if point 16 and 17 not met)

Information:

- Determine pump sizes on site
- Define pipe sizes of primary circuit on site, for instance with 6 K spread and compliance with the pump characteristic curve
- Define pipe dimensions of secondary circuit on site, for instance 6 K spread
- Provide valves for hydraulic balancing
- Protect pipes in areas exposed to frost from freezing (glycol)
- Insulate pipes and components in the cooling circuit with a vapour diffusion layer against condensation
- Check and ensure the external pressure of the heat pump



Hydraulic system 6: 4-pipe, heating and cooling in succession



KaClima

Use of glycol

Use of glycol for frost protection

Chillers and heat pumps are often filled with a water/glycol mixture for frost protection. Note the following general points to avoid problems in operation and damage:

- ▶ The performance of the chiller or consumers is reduced by the thermodynamic properties of the antifreeze agents.
- ▶ Pressure losses (in valves, pipes, heat exchangers etc.) significantly increase due to the higher kinematic viscosity.
- ▶ Pump volumes and height and valve flow rates need to be corrected and checked.
- ▶ The water/glycol mixture may be classified as hazardous to water. Put in place appropriate safety precautions to protect the environment and groundwater.
- ▶ Do not use internally galvanised pipework! The mixture dissolves the internal layer of zinc and forms films which could block components.
- ▶ The use of pure water to pressurise the system can lead to corrosion. We would therefore recommend using the glycol/water mixture for this, which is also used later.

Correction factors

Glycol concentration	15%	20%	25%	30%	35%	40%	45%	50%
Frost protection temperature [°C]	-7	-9	-12	-16	-19	-24	-27	-30
Safety temperature [°C]	-2	-7	-10	-11	-14	-19	-22	-25
Output correction factor	0.985	0.981	0.977	0.974	0.971	0.968	0.965	0.962
Consumption power correction factor	0.990	0.988	0.986	0.984	0.982	0.981	0.979	0.976
External pressure correction factor	0.990	0.980	0.970	0.960	0.950	0.940	0.93	0.92

Normal antifreeze

Antifreeze	Ethylene glycol	Propylene glycol
Applications	Suitable for frost protection in cooling and heat pump systems with the exception of food and beverage areas	Suitable for frost protection in cooling and heat pump systems in food and beverage areas
Product description	Brightly coloured yellow	Light blue coloured
Water hazard class	1	1
Possible product	Antifrogen N	Antifrogen L

Kampmanngroup.com/kaclima-r32

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