



# HYDRONIC SYSTEMS



CATALOGUE 2015





# HYDRONIC SYSTEMS

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# RESIDENTIAL SOLUTIONS WITH HEAT PUMPS

AIR/WATER



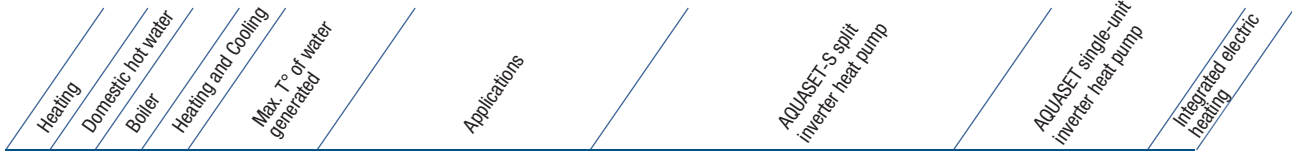
# Guida to selection

## ON/OFF SYSTEMS

Heating	Domestic Hot Water Boiler	Heating and Cooling	Max. T° of water generated	Applications	Single-unit heat pump ON/OFF
<b>EXISTING INSTALLATION</b>					
<b>▼ Boiler Integration</b>					
• (1)	•		65°C	1 radiator zone	PHTJ
• (1)	•		65°C	1 underfloor heating zone	PHTJ
• (1)	•		65°C	2 mixed zones: underfloor heating + radiators	PHTJ
• (1)	•		60°C	1 radiator zone	PHT
• (1)	•		60°C	1 underfloor heating zone	PHT
• (1)	•		60°C	2 mixed zones: underfloor heating + radiators	PHT
• (1)	•		55°C	1 radiator zone	PHRT
• (1)	•	•	55°C	1 underfloor heating/cooling zone	PHRT
• (1)	•	•	55°C	2 mixed zones: underfloor heating/cooling + radiators	PHRT
• (1)	•	•	55°C	2 underfloor heating/cooling zones	PHRT
<b>▼ Boiler replacement</b>					
•	•		65°C	1 radiator zone	PHTJ
•	•		60°C	1 radiator zone	PHT
<b>NEW INSTALLATION</b>					
<b>▼ 1 radiator zone</b>					
•	•		65°C		PHTJ
•	•		60°C		PHT
•	•		55°C		PHRT
<b>▼ 1 underfloor heating/cooling zone</b>					
•		•	40°C		PHR
<b>▼ 2 underfloor heating/cooling zone</b>					
•		•	40°C		PHR
<b>▼ Mixed: underfloor heating/cooling + terminal units</b>					
•		•	55°C		PHRT
<b>▼ Mixed: underfloor heating + low temperature radiators</b>					
•			55°C		PHRT
<b>▼ 1 terminal unit zone</b>					
•		•	55°C		PHRT

(1) From Boiler

# INVERTER SYSTEMS



## EXISTING INSTALLATION

					▼ Boiler Integration				
•	(1)	•		55°C	1 radiator zone			PHIE / PHRIE	
•	(1)	•		55°C	1 underfloor heating zone			PHIE / PHRIE	
•	(1)	•	•	55°C	1 underfloor heating/cooling zone			PHRIE	

## NEW INSTALLATION

					▼ 1 radiator zone				
•	•			55°C		iSeries™		PHIE / PHRIE	•
•	•			50°C		AQUASET-S 6 AQUASET-S 11/14/16/21/24 (GRFP+HKE)			•
					▼ 1 underfloor heating zone				
•				55°C		iSeries™		PHIE / PHRIE	•
•				50°C		iSeries™ / PSHRIA			•
					▼ 1 underfloor heating/cooling zone				
•			•	55°C		iSeries™		PHRIE	•
•			•	50°C		iSeries™ / PSHRIA			•
					▼ 2 underfloor heating zone				
•				55°C		iSeries™		PHIE / PHRIE	•
•				50°C		iSeries™ / PSHRIA			•
					▼ 2 underfloor heating/cooling zone				
•			•	55°C		iSeries™		PHRIE 9/12/15/ 17/19/25/30	•
•			•	50°C		iSeries™ / PSHRIA			•
					▼ Mixed: underfloor heating/cooling + terminal units				
•			•	55°C		iSeries™		PHRIE	•
•			•	50°C		iSeries™ / PSHRIA			•
					▼ Mixed: underfloor heating/cooling + low temperature radiators				
•				55°C		iSeries™		PHIE / PHRIE	•
•				50°C		iSeries™ / PSHRIA			•
					▼ 1 terminal unit zone				
•			•	55°C		iSeries™		PHRIE	•
•			•	50°C		iSeries™ / PSHRIA			•

(1) From Boiler



Air/Water Heat Pumps  
Split INVERTER  
Heating (or reversible)

# Range AQUASET-S



## AQUASET-S - ISERIES



DC INVERTER   
ISERIES 



GR9Fi 50 R5

GR9Fi 65 R5



HK



GR9Fi 80 R5



GR9Fi 110 R5



## Applications

Refer to the circuit diagrams

- Floor or radiators
- 2 zones
- Terminal units

A **TECHNIBEL** exclusive :

With a single outdoors unit you can hook up to the HK hydronic unit for air/water applications, and at the same time, to an air/air indoors unit.

Example : underfloor heating/cooling in one zone and direct expansion indoors unit in a second zone.



## Benefits

- Split models with cooling connections
- Models 5 - 13 kW in heating
- Defrost without downtime
- High low temperature performance
- Exceptional power variation, 10 to 130%
- Long cooling circuit connections
- Very low running noise
- Integration with 2-stage heating element
- Complete hydronic unit included in indoors unit

Complete range of accessories



## AQUASET-S

MODELS	6	9	11	13
Inside Unit	HKBER57I	HKCER57I		HKDER57I
Outside Unit	GR9FI50R5I	GR9FI65R5I	GR9FI80R5I	GR9FI110R5I

▼ Heating capacity	(conditions NF PAC)			
Heating +7°C/35°C floor (kW) (Min / Nom / Max)	0,95 / 5,24 / 5,92	1,82 / 8,22 / 9,33	1,70 / 9,70 / 10,80	1,90 / 11,77 / 13,22
COP +7°C/+35°C floor	4,22	4,14	4,06	4,08
Heating -7°C/35°C floor (kW) (Nom / Max)	3,80 / 3,95	5,21 / 5,41	5,89 / 6,20	7,06 / 7,43
COP -7°C/+35°C floor Nominal	2,37	2,80	2,59	2,31
Heating +7°C/45°C LT radiators Nom/Max (kW)	4,93 / 5,50	7,29 / 7,60	8,01 / 9,10	9,50 / 10,82
COP +7°C/+45°C LT radiators Nominal	3,31	3,25	3,36	3,20
Heating -7°C/45°C LT radiators (kW) Nom/Max	3,21 / 3,38	4,72 / 4,95	5,70 / 6,10	6,76 / 7,26
COP -7°C/+45°C LT radiators Nominal	1,83	2,20	2,35	2,21

## OUTDOOR UNIT

▼ Cooling specifications				
Distance min / max UI/ UE (m)	3 / 20	3 / 35	3 / 50	3 / 50
R410A refrigerant charge (kg)	1,3	2,7	2,9	3,38
Additional gas per metre (gr)	15	15	15	15
Number of fittings	2	3	4	4
External gas-fluid fittings	3/8" - 1/4"	1/2" - 1/4"	1/2" - 1/4"	1/2" - 1/4"
HK gas-fluid fittings	1/2" - 1/4"			
▼ Electrical specifications and connections				
Power 50 Hz with GND	230 V			
Startup current (A)	3	3	3	3
Maximum draw (A)	7,8	12	15	20
Thermal cutout rating (A)	10	16	20	25
Shielded cable (mm <sup>2</sup> )	Shielded 3 x 0.5	Shielded 3 x 0.5	Shielded 3 x 0.5	Shielded 3 x 0.5
Single/three-phase cable (1) (mm <sup>2</sup> )	3G1.5	3G2.5	3G2.5	3G4
▼ Physical specifications				
Dimensions - H x L x D (mm)	630 x 895 x 345	735 x 1 030 x 400	835 x 1 190 x 400	1 070 x 1 190 x 400
Net weight (kg)	39	64	73	90

## INDOOR UNIT

▼ Electrical specifications and connections (1)				
2 stage supplementary heating element (kW)	4 o 6			
Power 50 Hz with GND	230 V / 380 V			
Maximum draw (A)	27			
Thermal cutout rating (A)	32			
Power cord (1)	3G6			
▼ Circuit specifications and connections				
Expansion tank capacity (l)	6			
Nominal head (+7°C/35°C) (m <sup>3</sup> /h)	0,92	1,42	1,64	1,9
Pressure available at nominal head (kPa)	68	62	60	55
Circuit connections	3/4" M	3/4" M	3/4" M	3/4" M
▼ Physical specifications				
Dimensions - H x L x D mm	826 x 527 x 284			
Net weight kg	41			
▼ Running noise				
Sound power - EN12102 (dB(A)) (UE/UI)	58 / 42	64 / 42	67 / 42	67 / 42
Sound pressure (dB(A)) (2) (UE/UI)	30 / 38	36 / 38	39 / 38	39 / 38
▼ Operating range				
Operating range in heating	-20°C/+35°C			
Water temperature range (heating)	+25°C/+50°C			+25°C/+55°C

Filter included in heat pump for assembly at time of installation

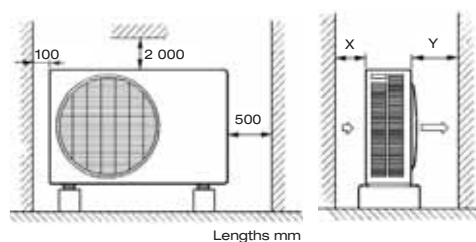
(1) Indicative data, must be checked in relation to the installation conditions and legal requirements

(2) Sound pressure: appliance installed outdoors (free sound field), on a reflective surface, at a distance of 10m.



## Installation clearances

(Refer to the installation manual for full information)



	X	Y
Aquaset-S	100	500

Air/Water Heat Pumps  
Split INVERTER  
Medium temperature

Range  
AQUASET-S



AQUASET-S - PSHRIA



DC INVERTER 



## Applications

Refer to the circuit diagrams on pages 24 to 27

- Heating and Cooling
- New installation and restructuring
- Max. temperature of hot water generated in Heating mode: 50°C
- COP of 4
- Power varies from 32 to 130% of the nominal power
- Refrigerant: R 410 A
- The best COP values on the market
- Compact appliances: 1390 x 340 x 1380 mm
- Quality components:
  - Twin rotary DC Inverter compressor with sound insulation
  - High-efficiency heat exchanger with fins for R 410 A -
  - Helicoidal fan motor - Plate heat exchanger in AISI 316 stainless steel with heat insulation, ...
- Hydronic module
  - 3-speed circulation pump - Expansion tank
  - Safety valve - Air vent - Manometer - Hydraulic filter
- Control system functions: There are 2 parts:
- Monitoring/control assembly, with INVERTER technology, for the thermodynamic circuit which can be used:
  - to activate the compressor at various speeds,
  - to activate the fan at various speeds,
  - to activate the electronic regulator and the cycle inversion valve.
- Integrated electric module
- Heating mode operation from -20°C to +35°C
- Cooling mode operation from +10°C to +43°C
- System monitoring/control assembly, integrated into the heat pump, can be used:
  - to activate thermodynamic heating with permanent monitoring of the power requirements of the system,
  - to activate the integrated electric heating module,
  - to activate the heat pump circulation pump (with anti-freeze and anti-seize functions),
  - to manage system alarms through event logging.
- Integrated electric module:
  - 4 or 6 kW (1st step of 2 or 4 kW ; 2nd step of 2 kW)
  - heat protection and water pressure switch
- Other advantages:
  - Easy access to components
  - Dividing panel between the fan and the machinery compartment
  - Control panel can be removed for a wider opening
  - Stringent manufacturing inspections: helium waterproofing test, electric and dielectric test, hydraulic test, etc...

- Regulation of INVERTER technology with electronic regulator
- water flow rate sensor
- proportional "four seasons" regulation
- low pressure switch

- high pressure switch
- water filter (to be connected)
- Hydraulic equipment
- electric module
- system control box and outdoor temperature sensor

HEATING SYSTEM WITH 1 LOW TEMPERATURE RADIATOR ZONE WITH OR WITHOUT DOMESTIC HOT WATER GENERATION  
 UNDERFLOOR HEATING/COOLING SYSTEM (1 ZONE OR 2 ZONES)  
 MIXED UNDERFLOOR HEATING/COOLING AND TERMINAL UNIT SYSTEM  
 MIXED UNDERFLOOR HEATING AND LOW TEMPERATURE RADIATOR SYSTEM  
 SYSTEM WITH TERMINAL UNITS

		<b>AQUASET-S</b>		
		<b>369 R5/7</b>	<b>489 R5/7</b>	
<b>Indoor Units 230/1/50 (-400/3N/50)</b>		KE369R57I	HKE489R57I	
<b>Outdoor Units 230/1/50</b>		GRFP369R5I	GRFP489R5I	
<b>Outdoor Units 400/3N/50</b>		GRFP369R7I	GRFP489R7I	
		Mono/Tri	Mono/Tri	
Conditions: temperature of water at inlet/outlet 30/35°C and temperature of air at inlet 7/6°C (DB/WB); net values; NF PAC; ref. Tax credit				
Nominal min./max. heating capacity (kW)		10,3 (4,2-13,6)	13,5 (4,2-14,8)	
Nominal power consumption (kW)		2,635 / 2,60	3,43 / 3,43	
COP		3,91 / 3,97	3,94 / 3,94	
Nominal water flow rate (m3/h)		1,8	2,3	
Available head for pump (kPa)		45	42	
HEATING	Nominal min./max. heating capacity (kW)	5,78 / <b>7,58</b>	7,7 / 7,9 / <b>9,34</b>	
	Nominal power consumption (kW)	2,51 / 2,48	3,21 / 3,18	
	COP	2,3 / 2,33	2,4 / 2,48	
	Conditions: temperature of water at inlet/outlet 40/45°C and temperature of air at inlet 7/6°C (DB/WB); net values; NF PAC			
Nominal min./max. heating capacity (kW)		<b>9,5</b>	<b>12,9</b>	
Nominal power consumption (kW)		3,17 / 3,12	4,17 / 4,11	
COP		3 / 3,04	3,09 / 3,14	
Nominal water flow rate (m3/h)		1,65	2,17	
Available head for pump (kPa)		47	43	
Conditions: temperature of water at inlet/outlet */45°C and temperature of air at inlet -7/-8°C (DB/WB); net values; NF PAC				
Nominal min./max. heating capacity (kW)		5,1 / <b>6,98</b>	7,2 / <b>7,97</b>	
Nominal power consumption (kW)		2,83 / 2,79	3,69 / 3,64	
COP		1,8 / 1,83	1,95 / 1,98	
COOLING	Nominal cooling capacity (kW) / EER	<b>9,4</b> / 3,70	<b>13,4</b> / 3,69	
	Nominal power consumption (kW)	2,54	3,63	
	Nominal water flow rate (m3/h)	1,72	2,30	
	Available head for pump (kPa)	46	42	
	Conditions: temperature of water at inlet/outlet 12/7°C and temperature of air at inlet 35°C (DB/WB); gross values; Eurovent			
	Nominal cooling capacity (kW) / EER		<b>6,7</b> / 2,65	<b>9,7</b> / 2,84
	Nominal power consumption (kW)		2,525	3,42
	Nominal water flow rate (m3/h)		1,15	1,67
	Available head for pump (kPa)		50	47
	Complementary Electric Heating (kW)		4 o 6	4 o 6
Refrigerant Type		R 410 A	R 410 A	
No. of refrigerant circuits / No. of compressors		1/1	1/1	
Start-up intensity (A)		3	3	
Expansion tank capacity (l)		6	6	
Ø of male hydraulic connection		1"	1"	
Refrigerant charge (kg)		3,6 / 3,4	3,6 / 3,4	
Gas connection diameter			<b>3/8"-5/8"</b>	
Min.pipes lenght		<b>3 metri</b>		
Max pipes lenght		<b>10 metri (30 carica agg.)</b>		
Sound power level (dBA)		70 / 46	72 / 46	
Sound pressure level* (dBA)		42 / 42	44 / 42	
Volume min./max. system water (l)		50/200	65/200	
Weight O.U./I.U. (kg)		90 / 42	95 / 43	
Dimensions I.U. H x L x P (mm)		826 x 527 x 284	826 x 527 x 284	
Dimensions O.U. H x L x P (mm)		1330 x 940 x 410	1330 x 940 x 410	

\* Sound pressure: this level corresponds to that of a unit installed outdoors (free sound field), on a reflective surface, with the measurement taken at a distance of 10 m.

#### OPERATING LIMITS

HEATING	T Outdoor Air	- 20°C(WB) / + 35°C (WB)	COOLING	T Outdoor Air	+10°C (DB) / + 43°C (DB)
	T Max. water outlet	+ 50°C		T Max. water outlet	+ 20°C
	T Min. water outlet	+ 25°C		T Min. water outlet	+ 5°C

Air/Water Heat Pumps  
Single-unit INVERTER  
Heating (or reversible)

# Range AQUASET



## AQUASET-PHIE/PHRIE



AQUASET 6 e 9



AQUASET 11 e 14



AQUASET 16



AQUASET 20 e 24



## Applications

Refer to the circuit diagrams on pages 30 to 34

- Floor or radiators
- Heating with boiler integration
- 2 zones
- Terminal units



## Benefits

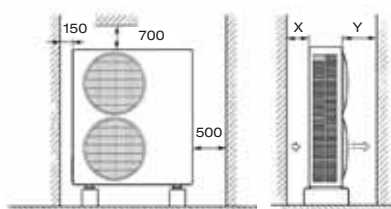
- AQUASET models 6 - 11 heating only (cooling option)
- The largest inverter range on the market
- The highest COP on the market
- Exceptional power modulation, 30 to 140 %
- Advanced Digital Hybrid (ADH) inverter
- High performance at low temperatures: 55°C to -10°C outdoors temperature
- Class A water circulation pump
- Very low running noise, with super quiet mode
- 2 stage power heating elements included
- Full water circuit equipment

Complete range of accessories



## Installation clearances

(Refer to the installation manual for full information)



Distances in mm

	X	Y
Aquaset 6 e 9	200	1 000
Aquaset 11 e 14	250	1 000
Aquaset 16	250	1 000
Aquaset 20 e 24	300	1 000

Air/Water Heat Pumps  
Single-unit INVERTER  
Heating (or reversible)

# Range AQUASET

AQUASET					
MODELS	6	9	11	11 TRI	14
Model codes, heating only	PHIE095F	PHIE125F	PHIE155F	-	-
Reversible model codes	PHRIE095F	PHRIE125F	PHRIE155F	PHRIE157F	PHRIE175F
▼ Heating capacity	(conditions NF PAC)				
Heating +7°C/35°C floor Min/Nom/Max (kW)	1,65 / 5,30 / 9,0	1,89 / 8,21 / 10,6	4,77 / 10,50 / 17,0	4,77 / 10,45 / 16,95	5,30 / 13,6 / 18,0
COP +7°C/+35°C floor Nominal	5	4,61	5	4,86	4,67
Heating -7°C/35°C floor Nom/Max (kW)	3,31 / 5,57	5,14 / 6,36	6,50 / 10,6	6,45 / 10,55	8,1 / 11,10
COP -7°C/+35°C floor Nominal	2,83	3,06	2,81	2,73	2,7
Heating +7°C/45°C LT radiators Nom/Max (kW)	4,90 / 8,5	7,70 / 9,95	9,8 / 13,85	9,75 / 13,8	12,45 / 14,65
COP +7°C/+45°C LT radiators Nominal	3,68	3,58	3,86	3,76	3,47
Heating -7°C/45°C LT radiators Max (kW)	5,25	6,16	9,00	8,95	9,30
COP -7°C/+45°C LT radiators Nominal	2,31	2,37	2,25	2,21	2,22
Heating +7°C/55°C radiators Nom/Max (kW)	5,80 / 6,68	7,19 / 7,90	9,35 / 11,30	9,30 / 11,25	12,18 / 12,18
COP +7°C/+55°C radiators Nominal	2,71	2,82	3,06	2,99	2,80
Heating -7°C/55°C radiators (kW)	3,88	5,29	7,30	7,25	7,40
COP -7°C/+55°C radiators Nominal	1,70	1,85	1,83	1,79	1,76
2 stage supplementary heating element (kW)	3 ou 4,5			4 ou 6	
▼ Cooling capacity	(PHRIE models only)				
Cooling +18°/23°C - 35°C floor max (kW)	5,64	7,45	11,5	11,5	13
EER	3,36	2,76	3,59	3,59	2,99
Cooling +7°/12°C - 35°C terminal units max (kW)	4,14	6,67	8,20	8,20	10,20
EER	2,56	2,44	2,62	2,62	2,55
▼ Circuit specifications and connections					
Expansion tank capacity (l)	4	4	6	6	6
Nominal water flow rate (+7°C/35°C) (m³/h)	0,92	1,45	1,84	1,84	2,32
Available head for pump (kPa)	59	51	45	45	52
Hydraulic connections	3/4" M	3/4" M	1" M	1" M	1" M
▼ Electrical specifications and connections					
Power 50 Hz	230 V	230 V	230 V	400 V+N	230 V
Startup current (A)	3	3	3	3	3
Max current draw with heating element (A)	31,3	36,9	46,1	20	48,6
Thermal cutout rating (A)	40	40	50	25	50
Power cord cross section (1)	3G 6 mm²	3G 6 mm²	3G 10 mm²	5G 4 mm²	3G 10 mm²
▼ Running noise					
Sound power per EN12102 (dB(A))	67 - 65 (2)	67 - 65 (2)	70 - 66 (2)	70 - 66 (2)	72 - 68 (2)
Sound pressure level at 10 m (dB(A)) (3)	39 - 37 (2)	39 - 37 (2)	42 - 38 (2)	42 - 38 (2)	44 - 40 (2)
▼ Operating range					
Operating range in heating, air temperature	-20°C/+35°C				
Operating range in cooling, air temperature	+10°C/+43°C				
Water temperature range (heating)	+25°C / +55°C				
Water temperature range (cooling)	+5°C / +25°C	+5°C / +25°C	+7°C / +25°C	+7°C / +25°C	+7°C / +25°C
▼ General specifications					
Dimensions H x L x D (mm)	835 x 1 270 x 390	835 x 1 270 x 390	1 335 x 1 270 x 390	1 335 x 1 270 x 390	1 335 x 1 270 x 390
Net weight (kg)	90	93	143	142	144
R410A refrigerant charge (kg)	1,8	1,9	3,5	3,5	3,8

(1) Indicative data, must be checked against the installation conditions and legal requirements (2) Sound power in quiet operating mode, which limits power output to the nominal power rating (3) Sound pressure: unit outdoors on a reflective surface at a distance of 10m.

AQUASET					
MODELS	14 TRI	16	16 TRI	20	24
Reversible model codes	PHRIE177F	PHRIE195F	PHRIE197F	PHRIE257F	PHRIE307F
<b>▼ Heating capacity</b> (conditions NF PAC)					
Heating +7°C/35°C floor Min/Nom/Max (kW)	5,20 / 13,55 / 17,95	5,31 / 15,70 / 20,25	5,31 / 15,65 / 20,2	5,4 / 19,9 / 23,9	6,9 / 23,5 / 25,4
COP +7°C/+35°C floor Nominal	4,58	4,47	4,4	4,61	4,64
Heating -7°C/35°C floor Nom/Max (kW)	7,95 / 11,15	9,20 / 12,25	9,15 / 12,2	10,70 / 13,4	11,40 / 15,89
COP -7°C/+35°C floor Nominal	2,66	2,81	2,76	2,67	2,71
Heating +7°C/45°C LT radiators Nom/Max (kW)	12,40 / 14,60	14,90 / 16,65	14,85 / 16,60	18,45 / 23,10	21,50 / 23,20
COP +7°C/+45°C LT radiators Nominal	3,41	3,55	3,49	3,55	3,62
Heating -7°C/45°C LT radiators Max (kW)	9,25	10,15	10,1	12,18	14,90
COP -7°C/+45°C LT radiators Nominal	2,18	2,09	2,06	2,08	2,16
Heating +7°C/55°C radiators Nom/Max (kW)	12,13 / 12,13	12,35 / 12,50	12,30 / 12,45	17,95 / 18,40	20,00 / 21,50
COP +7°C/+55°C radiators Nominal	2,78	3,00	2,95	2,98	2,89
Heating -7°C/55°C radiators (kW)	7,45	7,7	7,65	10,8	13,8
COP -7°C/+55°C radiators Nominal	1,75	1,77	1,74	1,63	1,72
2 stage supplementary heating element (kW)		4 ou 6			6 ou 9
<b>▼ Cooling capacity</b>					
Cooling +18°/23°C - 35°C floor max (kW)	13	13,33	13,33	23,80	24,50
EER	3,18	2,70	2,70	3,27	2,85
Cooling +7°/12°C - 35°C terminal units max (kW)	9,70	11,36	11,36	14,70	20,80
EER	2,45	2,40	2,40	2,60	2,38
<b>▼ Circuit specifications and connections</b>					
Expansion tank capacity (l)		6		8	
Nominal water flow rate (+7°C/35°C) (m³/h)	2,32	2,60	2,60	3,50	4,09
Available head for pump (kPa)	52	46	46	48	81
Hydraulic connections	1" M	1" M	1" M	1" 1/4 M	1" 1/4 M
<b>▼ Electrical specifications and connections</b>					
Power 50 Hz	400 V+N	230 V	400 V+N	400 V+N	400 V+N
Startup current (A)	3	3	3	3	3
Max current draw with heating element (A)	20,7	52,7	19,7	25,7	29,5
Thermal cutout rating (A)	25	63	25	32	32
Power cord cross section (1)	5G 4 mm²	3G 16 mm²	5G 4 mm²	5G 6 mm²	5G 6 mm²
<b>▼ Running noise</b>					
Sound power per EN12102 (dB(A))	72 - 68 (2)	73 / 69 (2)	73 / 69 (2)	72 / 68 (2)	72 / 68 (2)
Sound pressure level at 10 m (dB(A)) (3)	44 - 40 (2)	45 - 41 (2)	45 - 41 (2)	44 - 40 (2)	44 - 40 (2)
<b>▼ Operating range</b>					
Operating range in heating, air temperature	-20°C/+35°C				
Operating range in cooling, air temperature	+10°C/+43°C				
Water temperature range (heating)	+25°C / +55°C				
Water temperature range (cooling)	+7°C / +25°C	+5°C / +25°C	+5°C / +25°C	+5°C / +25°C	+5°C / +25°C
<b>▼ General specifications</b>					
Dimensions H x L x D (mm)	1 335 x 1 270 x 390	1 335 x 1 440 x 390		1 535 x 1 440 x 390	
Net weight (kg)	144	151	150	177	180
R410A refrigerant charge (kg)	3,8	4,2	4,2	5,8	6,5

(1) Indicative data, must be checked against the installation conditions and legal requirements (2) Sound power in quiet operating mode, which limits power output to the nominal power rating (3) Sound pressure: unit outdoors on a reflective surface at a distance of 10m.



Air/Water Heat Pumps  
Single-unit ON/OFF  
High temperature

# Range AQUASET



## AQUASET-PHTJ



PHTJ 19



## Applications

Refer to the circuit diagrams on pages 24 to 27

- Heating
- To -16°C outdoors temperature
- Max T delivery water: 65°C
- Intermediate re-injection scroll compressor

- Refrigerant R 407 C
- The best COP values on the market
- Silent operation
- Compact appliances: 1190x340x1235 mm
- Quality components:
  - Scroll compressor with intermediate reinjection, with sound insulation - High efficiency air heat exchanger with copper pipes and inorganic hydrophilic aluminium - Helicoidal fan - Heat exchanger with AISI 316 stainless steel plates and heat insulation,...
- Integrated hydronic module:
  - 3-speed circulation pump - air vent - manometer - hydraulic filter
  - Control system functions:
    - Automatic control of circulation pump (anti-freeze function, anti-seize function)
    - Defrosting regulation in accordance with the outdoor temperature
    - Alarm management through event logging
    - External communication via serial interface (Modbus protocol)

- Other advantages:
  - Easy access to components
  - Keypad / display on front panel
  - Dividing panel between the fan and the machinery compartment
  - Control panel can be removed for a wider opening
  - Stringent manufacturing inspections: cooling circuit waterproofing test, electric/hydraulic test, etc...
- Standard equipment
  - water flow rate control
  - low pressure switch
  - high pressure switch
  - water filter (to be connected)
  - integrated hydronic module
  - defrosting heating element

BOILER BACK-UP SOLUTION  
BOILER REPLACEMENT SOLUTION/HEATING WITH 1 RADIATOR ZONE

		<b>AQUASET</b>
Modelo		PHTJ 19
Code	400/3N/50	PHTJ 197 V
Conditions: temperature of water at inlet/outlet 40/45°C and temperature of air at inlet 7/6°C (DB/WB); net values		
Heating capacity (kW)		<b>20,7</b>
Power consumption (kW)		6,97
COP		2,97
Conditions: temperature of water at inlet/outlet * /55°C and temperature of air at inlet -7/-8°C (BS/BU); net values		
HEATING	Heating capacity (kW)	12,7
	Power consumption (kW)	7,47
	COP	1,70
Conditions: temperature of water at inlet/outlet 47/55°C and temperature of air at inlet 7/6°C (BS/BU); net values		
Heating capacity (kW)		20,4
Power consumption (kW)		7,55
COP		2,70
Conditions: temperature of water at inlet/outlet 55/65°C and temperature of air at inlet 7/6°C (DB/WB); net values		
Heating capacity (kW)		20,1
Power consumption (kW)		9,00
COP		2,2
Conditions: temperature of water at inlet/outlet 30/35°C and temperature of air at inlet 7/6°C (DB/WB); net values		
COP		<b>3,41</b>
Water flow rate (m <sup>3</sup> /h) for generated water temp. of 47/55°C		2,30
Available head for pump (kPa)		88
Type of refrigerant		R 407 C
No. of cooling circuits		1
No. of compressors		1
Expansion tank capacity (l)		
Ø of male hydraulic connection		1"
Sound power level/Sound pressure* (dBA)		73,5/45,5
Minimum water volume (system) (l)		65
Length (mm)		1 190
Depth (mm)		340
Height (mm)		1 235
Weight (kg)		145

\* Sound pressure: appliance installed outdoors (free sound field), on a reflective surface, at a distance of 10 m.

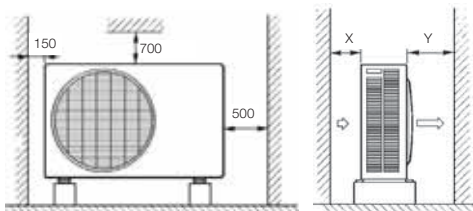
OPERATING LIMITS

HEATING	T outdoor air	- 16°C (DB) / + 43°C (DB)
	Max. T of water generated	+ 65°C
	Min. T of water generated	+ 30°C



Installation clearances

(Refer to the installation manual for full information)



minimum dimensions

PHTJ 19	X	Y
	250	1000

Air/Water Heat Pumps  
Single-unit ON/OFF  
Medium temperature

# Range AQUASET



## AQUASET-PHRT



PHRT 12/16



PHRT 9



## Applications

- Heating and cooling
- To -16°C outdoors temperature and +43°C in cooling
- Max T delivery water: 55°C

- Refrigerant: R 410 A
- The best COP values on the market
- The lowest sound levels on the market
- Limited size:

1 190 x 340 x 735 mm  
1 190 x 340 x 1 235 mm

- **Quality components:**

Scroll compressor with sound insulation - High efficiency air heat exchanger with copper pipes and inorganic hydrophilic aluminium fins - Helicoidal fan - Heat exchanger with AISI 316 stainless steel plates and heat insulation,...

- **Integrated hydronic module:**

3-speed circulation pump - expansion tank - safety valve - air vent - manometer - hydraulic filter

- **Control system functions:**

- Reduction of minimum volume of water in the system
- Regulation of condensation pressure
- Automatic control of circulation pump (anti-freeze function, anti-seize function)

- Defrosting regulation in accordance with the outdoor temperature
- Alarm management through event logging
- External communication via serial interface (Modbus protocol)

- **Other advantages:**

- Easier access to components
- Keypad / display on front panel
- Dividing panel between the fan and the machinery compartment
- Control panel can be removed for a wider opening
- Stringent manufacturing inspections: cooling circuit waterproofing test, electric/hydraulic test, etc...

- **Standard equipment**

- Single-phase start-up kit (PHRT 9/12 mono)
- water flow rate control
- proportional "four seasons" regulation
- LP switch and HP switch
- water filter (to be connected)
- integrated hydronic module

		AQUASET			
Models		PHRT 9	PHRT 12	PHRT 16	
Code	230/1/50	PHRT 095 F	PHRT 125 F	-	
	400/3N/50	PHRT 097 F	PHRT 127 F	PHRT 167 F	
		Mono/Tri	Mono/Tri		
Conditions: temperature of water at inlet/outlet 40/45°C and temperature of air at inlet 7/6°C (DB/WB); net values; NF PAC					
Heating capacity (kW)		<b>9,17 / 9,2</b>	<b>10,5 / 12,4</b>	<b>15</b>	
Power consumption (kW)		3,19 / 3,19	3,62 / 4,06	4,92	
COP		2,87 / 2,88	2,9 / 3,05	3,05	
Conditions: temperature of water at inlet/outlet 40/45°C and temperature of air at inlet -7/-8°C (DB/WB); net values; NF PAC					
Heating capacity (kW)		<b>5 / 5,05</b>	<b>5,88 / 6,8</b>	<b>8,51</b>	
Power consumption (kW)		3,23 / 3,23	3,77 / 4,25	5,38	
COP		1,55 / 1,56	1,56 / 1,6	1,58	
CALDO	Conditions: temperature of water at inlet/outlet 40/45°C and temperature of air at inlet 7/6°C (DB/WB); net values; NF PAC				
	Heating capacity (kW)		<b>8,25 / 8,3</b>	<b>9,38 / 11,7</b>	<b>13,6</b>
	Power consumption (kW)		3,75 / 3,75	4,04 / 4,73	5,96
COP		2,17 / 2,21	2,32 / 2,47	2,28	
Conditions: temperature of water at inlet/outlet 40/45°C and temperature of air at inlet 7/6°C (DB/WB); gross values; Eurovent					
Heating capacity (kW)		<b>9,24 / 9,27</b>	<b>10,65 / 12,5</b>	<b>15,2</b>	
Power consumption (kW)		3,12 / 3,1	3,48 / 4,1	4,83	
COP		2,96 / 2,99	3,06 / 3,05	3,15	
Conditions: temperature of water at inlet/outlet 30/35°C and temperature of air at inlet 7/6°C (DB/WB); net values					
COP		<b>3,41 / 3,44</b>	<b>3,66 / 3,84</b>	<b>3,94</b>	
Water flow rate (m <sup>3</sup> /h)		1,58 / 1,55	1,87 / 2,16	2,7	
Available head for pump (kPa)		47 / 47	66 / 53	68	
FREDDO	Conditions: temperature of water at inlet/outlet 12/7°C and temperature of air at inlet 35°C (DB/WB); gross values; Eurovent				
	Heating capacity (kW)		<b>7,10 / 7,10</b>	<b>8,56 / 9,00</b>	<b>11,40</b>
	Power consumption (kW)		3,14 / 3,09	3,33 / 3,73	4,98
	EER		2,26 / 2,30	2,57 / 2,41	2,29
	Water flow rate (m <sup>3</sup> /h)		1,22 / 1,22	1,48 / 1,51	1,98
	Available head for pump (kPa)		59 / 59	82 / 80	84
	Type of refrigerant		R 410 A	R 410 A	R 410 A
	No. of cooling circuits		1	1	1
	No. of compressors		1	1	1
	Expansion tank capacity (l)		2	2	2
Ø of male hydraulic connection		3/4"	1"	1"	
Sound power level/Sound pressure* (dBA)		65/37	67/39	68/40	
Min./max. system water volume (l)		40/90	50/90	60/90	
Length (mm)		1 190	1 190	1 190	
Depth (mm)		340	340	340	
Height (mm)		735	1 235	1 235	
Weight (kg)		98	128	133	

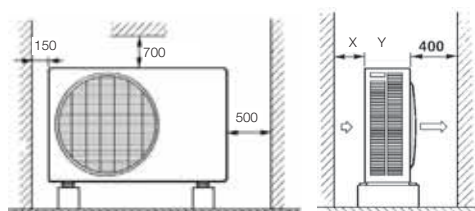
## OPERATING LIMITS

HEATING	T outdoor air	PHRT 9-12-16	- 16°C (DB) / + 43°C (DB)	COOLING	T outdoor air	+ 10°C (DB) / + 43°C (DB)
	Max. T of water	PHRT 9-12-16	+ 55°C		Max. T of water	PHRT 9-12-16
					Min. T of water	+ 5°C



## Installation clearances

(Refer to the installation manual for full information)



	X	Y
PHRT 9	150	1 000
PHRT 12 - 16	250	1 000

Air/Water Heat Pumps  
Single-unit ON/OFF  
Low temperature

# Range AQUASET



## AQUASET-PHR



PHR 11/15/17



## Applications

### Refer to the circuit diagrams

- Heating and cooling
- Nominal water temperature 30/35°C in Heating mode (18/23°C in Cooling mode)
- Operating limits: T outdoor air: - 16°C in Heating mode (+43°C in Cooling mode)  
Max. T of water generated: + 40°C in Heating mode

- Refrigerant: R 410 A
- The best COP values on the market
- The lowest sound levels on the market
- Limited size:  
1 190 x 340 x 1 235 mm
- Quality components:  
Scroll compressor with sound insulation - High efficiency air heat exchanger with copper pipes and inorganic hydrophilic aluminium fins - Helicoidal fan - Heat exchanger with AISI 316 stainless steel plates and heat insulation,...
- Integrated hydronic module:  
3-speed circulation pump - expansion tank - safety valve - air vent - manometer - hydraulic filter
- Control system functions:
  - Reduction of minimum volume of water in the system
  - Automatic control of circulation pump (anti-freeze function, anti-seize function)
  - Defrosting regulation in accordance with the outdoor temperature

- Alarm management through event logging
- External communication via serial interface (Modbus protocol)
- Other advantages:
  - Easy access to components
  - Keypad / display on front panel
  - Dividing panel between the fan and the machinery compartment
  - Control panel can be removed for a wider opening
  - Stringent manufacturing inspections: cooling circuit water-proofing test, electric/hydraulic test, etc...

### Standard equipment

- Single-phase start-up kit (PHR 11 mono)
- water flow rate control
- proportional "four seasons" regulation
- low pressure switch
- high pressure switch
- water filter (to be connected)
- integrated hydronic module

		AQUASET			
Models		PHR 11	PHR 15	PHR 17	
Code	230/1/50	PHR 115 F	-	-	
	400/3N/50	PHR 117 F	PHR 157 F	PHR 177 F	
		Mono/Tri	Tri	Tri	
Conditions: temperature of water at inlet/outlet 30/35°C and temperature of air at inlet 7/6°C (DB/WB); net values; NF PAC					
Heating capacity (kW)		<b>11,2 / 11,1</b>	<b>14,3</b>	<b>16,8</b>	
Power consumption (kW)		2,85 / 2,7	3,64	4,57	
COP		3,93 / 4,11	3,93	3,68	
CALDO	Heating capacity (kW)	<b>6,65 / 6,5</b>	<b>7,63</b>	<b>9,07</b>	
	Power consumption (kW)	3,17 / 2,9	3,71	4,51	
	COP	2,1 / 2,24	2,11	2,01	
Conditions: temperature of water at inlet/outlet 30/35°C and temperature of air at inlet 7/6°C (DB/WB); gross values; Eurovent					
Heating capacity (kW)		<b>11,25 / 11,2</b>	<b>14,5</b>	<b>17</b>	
Power consumption (kW)		2,7 / 2,56	3,51	4,47	
COP		<b>4,17 / 4,38</b>	<b>4,13</b>	<b>3,8</b>	
Water flow rate (m3/h)		1,91	2,48	2,81	
Available head for pump (kPa)		55	65	76	
FREDDO	Conditions: temperature of water at inlet/outlet 23/18°C and temperature of air at inlet 35°C (DB/WB); gross values; Eurovent				
	Heating capacity (kW)		<b>9,45 / 9,5</b>	<b>14,6</b>	<b>16,5</b>
	Power consumption (kW)		3,33 / 3,12	4,37	6
	EER		2,84 / 3,04	3,34	2,75
	Water flow rate (m3/h)		1,62	2,48	2,74
	Available head for pump (kPa)		72	65	79
	Type of refrigerant		R 410 A	R 410 A	R 410 A
	No. of cooling circuits		1	1	1
	No. of compressors		1	1	1
	Expansion tank capacity (l)		2	2	2
	Ø of male hydraulic connection		1"	1"	1"
	Sound power level/Sound pressure* (dBA)		67/39	68/40	68/40
	Min./max. system water volume (l)		40/200	50/200	60/200
	Length (mm)		1 190	1 190	1 190
	Depth (mm)		340	340	340
	Height (mm)		1 235	1 235	1 235
	Weight (kg)		113	127	131

\* Sound pressure: appliance installed outdoors (free sound field), on a reflective surface, at a distance of 10 m.

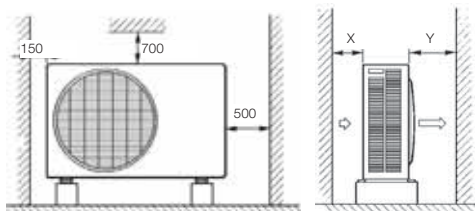
OPERATING LIMITS

HEATING T outdoor air	- 16°C (DB) / + 20°C (DB)	COOLING T outdoor air PHR 11	0°C (DB) / + 43°C (DB)
Max. T of water generated	+ 40°C	T outdoor air PHR 15	- 3°C (DB) / + 43°C (DB)
Min. T of water generated	+ 25°C	T outdoor air PHR 17	- 7°C (DB) / + 43°C (DB)
		Max. T of water generated	+ 25°C
		Min. T of water generated	+ 5°C (except PHR 6 : + 10°C)



Installation clearances

(Refer to the installation manual for full information)



minimum dimensions

	X	Y
PHR 11 - 15 - 17	250	1 000

# ACCESSORIES



Remote control keypad and display



Defrosting heating element kit



MCE(D) connection kit



Hydraulic connection hoses

These are essential in order to prevent noise transmission caused by compressor and circulation pump vibration.



Mixing valve

	Mixing valve	Storage or mixing tank	
		35 l	70 l
Length (mm)	480	500	670
Diameter (mm)	80	300	350
Weight of tank when empty (kg)	1,6	15,5	24



Storage or mixing tank



## ACCESSORIES



Dirt separator for heat pump circuit



Additional boiler valve



Control unit



Room sensor



DHW tank



Electrical regulation box



Water Flow Valve

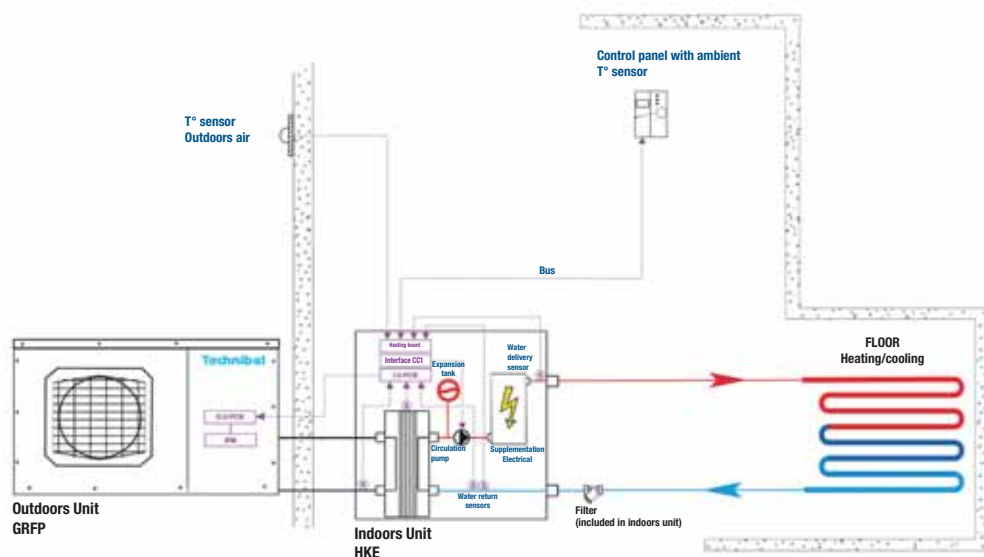
# Applications Circuit diagrams

We give below the water circuit diagrams for some of the applications possible with our systems. It is essential to observe these layouts in installation to ensure good system operation. More example circuit diagrams are available from our sales network.



## Application - 1 underfloor heating/cooling zone with optional electric radiators in zone 2

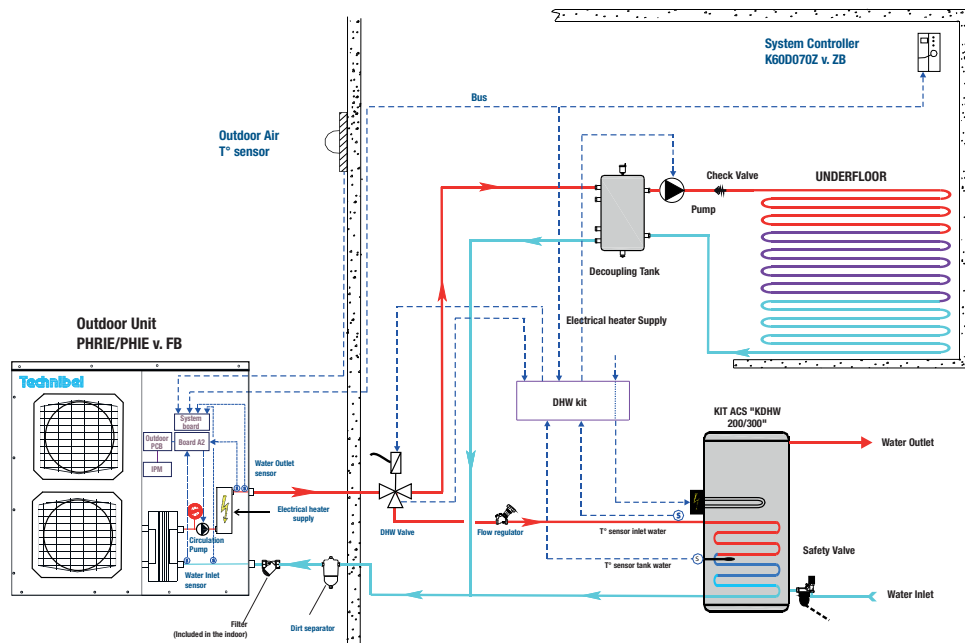
Example water circuit diagram





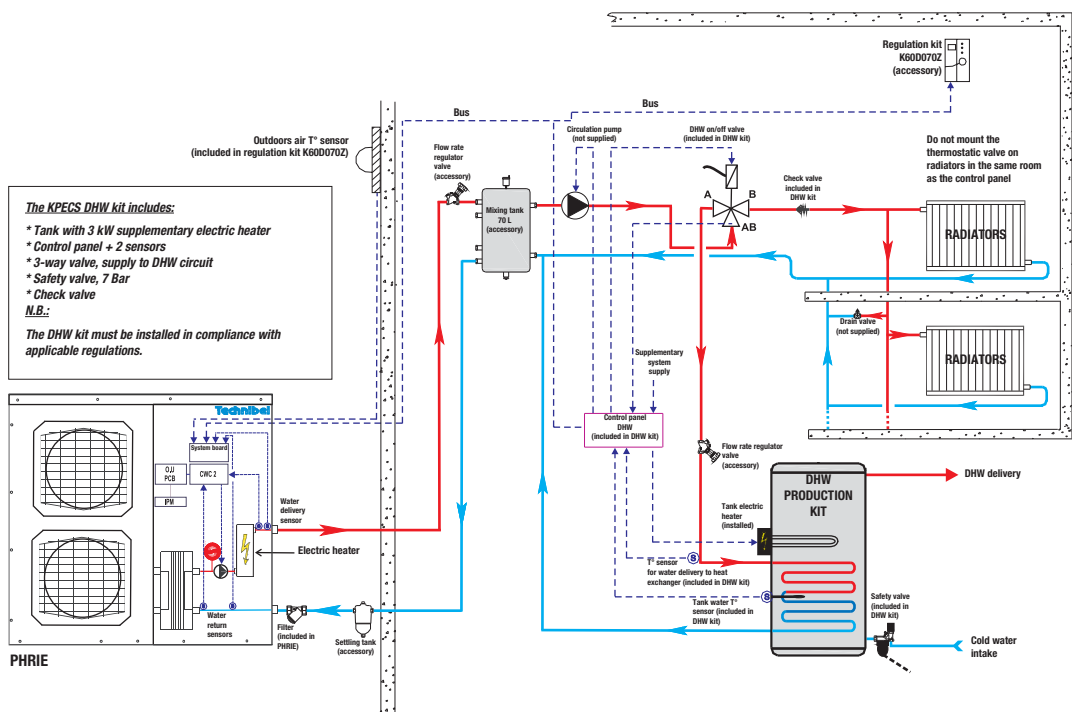
## Application - 1 underfloor zone with DHW production

Example water circuit diagram



## Application - 1 radiator zone with DHW production

Example water circuit diagram

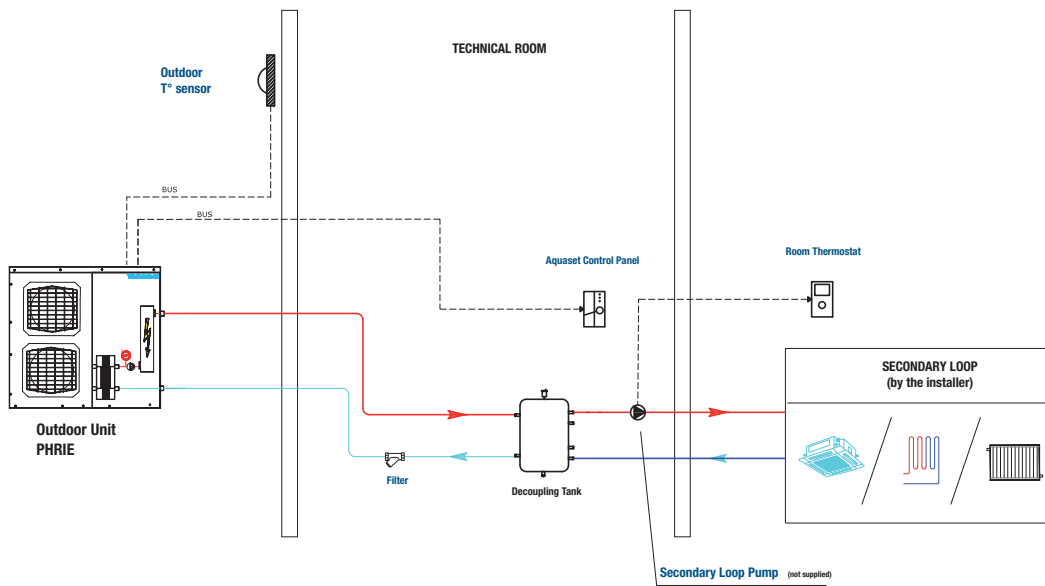


# Applications Circuit diagrams



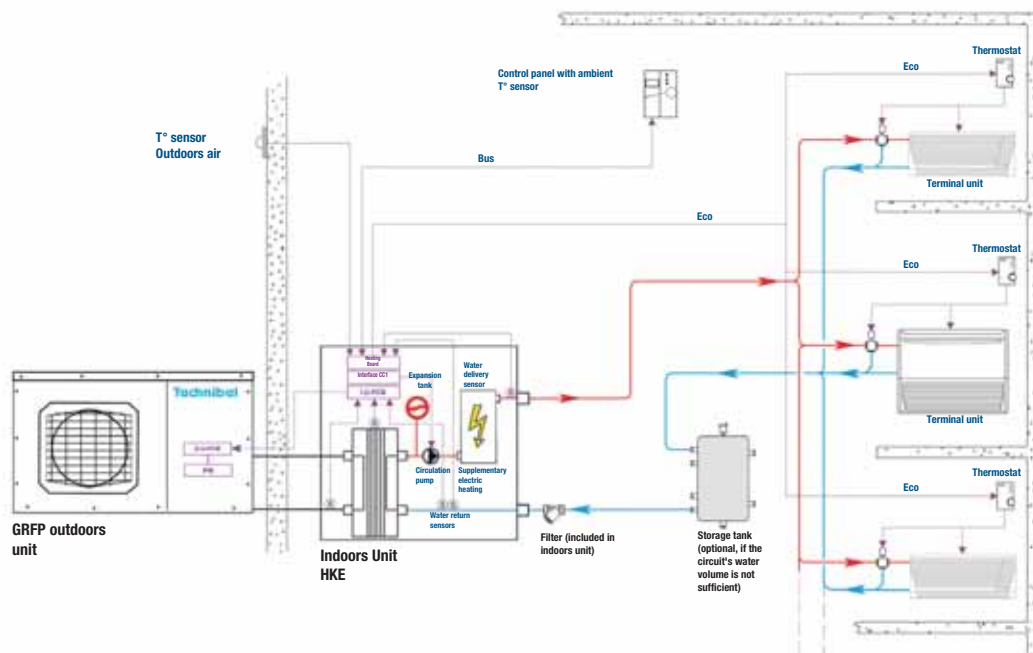
## Application - primary/secondary loop

Example water circuit diagram



## Application - 1 water terminal unit zone

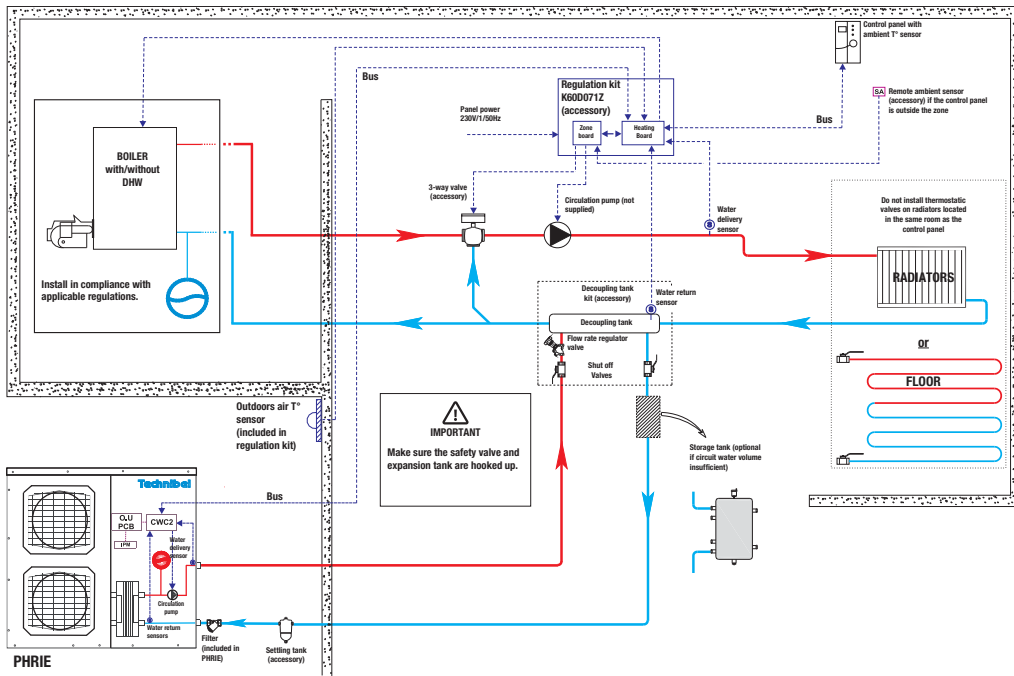
Example water circuit diagram





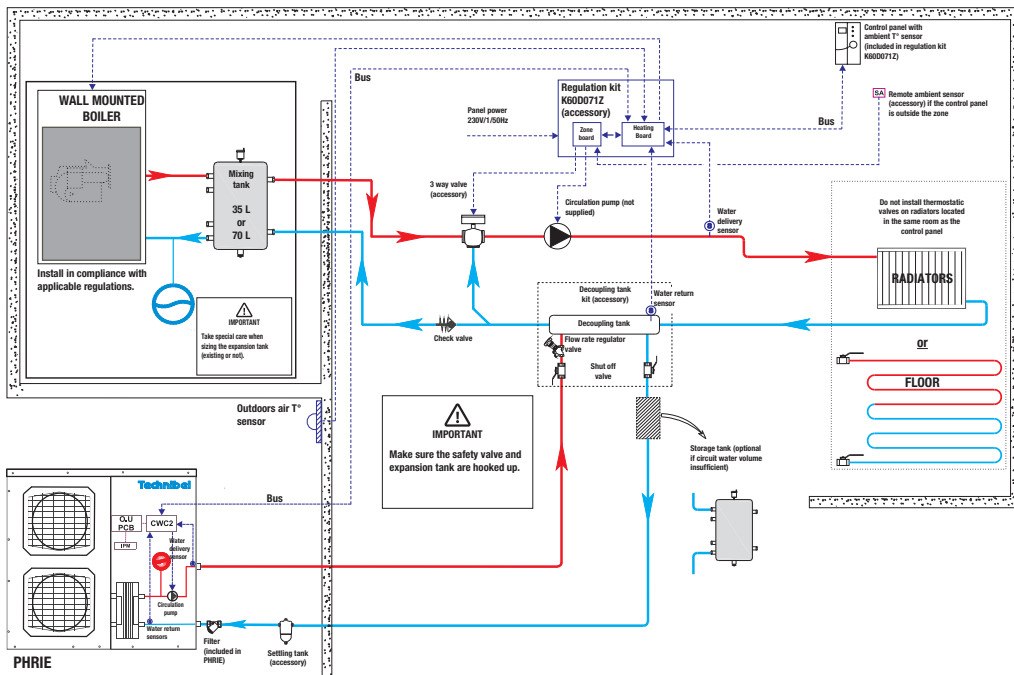
## Application - Heat pump with boiler integration

### Example water circuit diagram

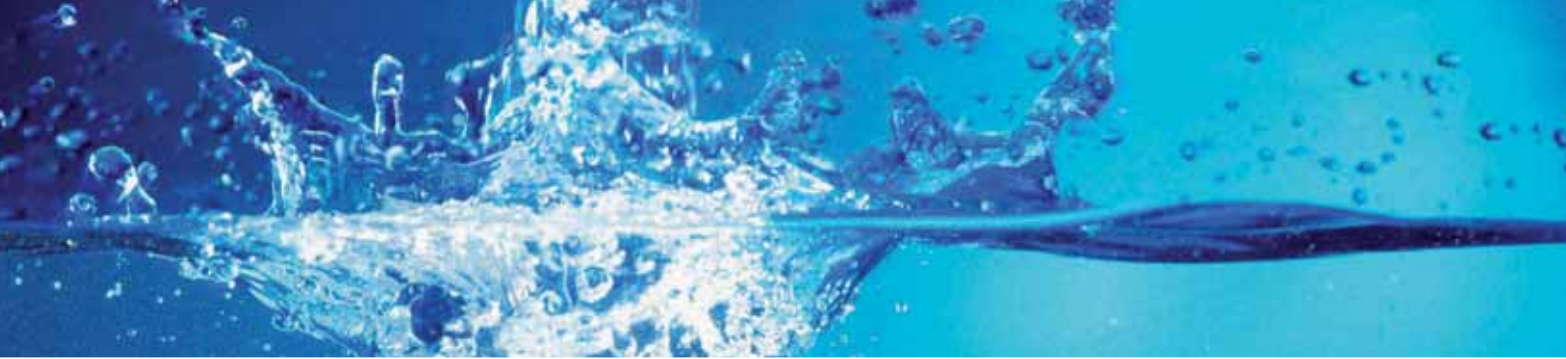


## Application - Heat pump with supplementary wall-mounted boiler

### Example water circuit diagram







HEAT PUMP FOR

DOMESTIC HOT WATER



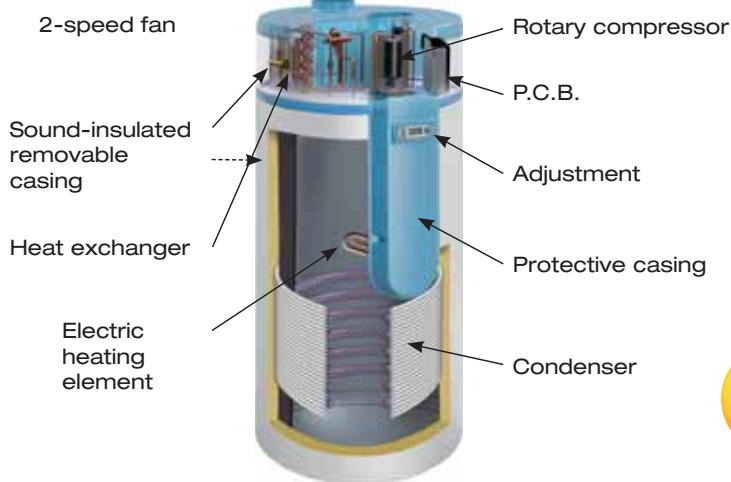


Heat pump for  
domestic hot water

# LIBERTY 300 - 300S



Liberty 300



- Thermodynamic water heater with integrated heat pump.
- Excellent COP: 3,7
- Cylinder capacity: 300 litres
- Max. temperature of hot water generated in Heating mode: 60°C
- Operation from - 5°C to + 35°C in thermodynamic mode (heat pump)
- Adjustable feet

TANK  
WARRANTY  
5 YEARS

WARRANTY  
for other parts  
2 YEARS



## Benefits

- Refrigerant fluid R 134 A
- COP: 3,7
- Low noise level: 36 dBA
- Limited height: 1,570 mm
- Quality components:
  - Horizontal rotary compressor with sound insulation
  - High-efficiency heat exchanger
  - 2-speed pressure fan available
  - Knock-resistant coating
  - Electronic regulation is intuitive and simple (for users and assistance personnel alike)
  - Thermostatic regulator
  - Defrosting solenoid valve with hot gas
  - High-pressure switch
  - Temperature sensor for control and regulation
  - Integrated electric heating element with safety thermostat
  - Dryer filter
  - Protective anode.
- Enamelled steel tank
- Rustproof magnesium anode
- Other advantages:
  - Appliance can be ducted to recover heat from the air outdoors, up to 10 m of ducting can be used (flow and return)
- Regulation operating mode:
  - "Eco" mode (Thermodynamic heating),
  - Turbo mode (forces the heating element for faster thermodynamic heating + heating element),
  - Day/Night hourly programming,
  - Holiday programming,
  - Load disconnection,
  - Dry contact for fan control (e.g. hygrostat),
  - Anti-Legionella cycle can be programmed.
- Complementary 1.5 kW electric module functions:
  - It begins operating to guarantee a minimum DHW temperature between 38°C and 43°C
  - It begins operating when the outdoor temperature is outside the operating interval,
  - It begins operating in the event of a malfunction,
  - It begins operating when the user selects Turbo mode.
- The appliance is easy to transport and to install because it is not very tall
- Adjustable feet
- Pipe accessories

MODEL		LIBERTY 300	LIBERTY 300S
Code		ECS300T5Z	ECS300SOLT5Z
Volume	litres	300	
D.H.W. temperature		between 15 and 60°C	
Sound pressure at 2 m	dBA	36	
Average heat pump power at 60°C*	kW	1,65	
Average heat pump consumption at 60°C*	kW	0,67	
COP		3,7	
Air flow rate - Speed 1/Speed 2	m <sup>3</sup> /h	300 / 450	
Compressor		rotary	
Refrigerant fluid		R 134 A	
Armoured electric heating element	kW	1,5	
Protection		16 A differential 30 mA	
Max. length of Flow / Return pipes	m	10	
Pipe connection diameter	mm	160	
Condensate connection diameter	mm	12/16	
Mains water connection diameter	inches	M 3/4	
Quantity of mixed water (l/1st hour)	litres	440	
Diameter	mm	700	
Height (without pipes)	mm	1.570	
Weight when empty	kg	107	

\* in compliance with standard EN355-3

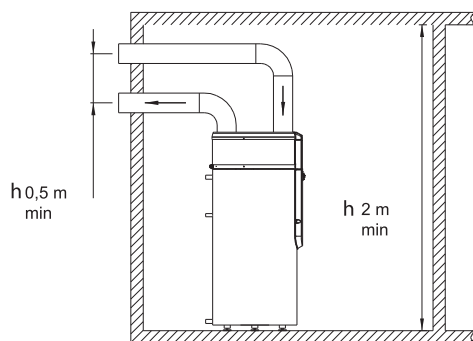
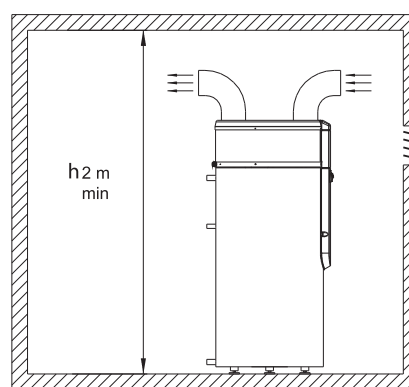
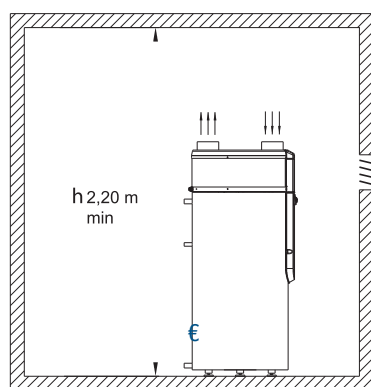
### Accessories

Type	Code
90° elbow - diameter 160 mm	K 70 N 135 T
Silencer with hose, diameter 160 mm	K 70 N 136 T

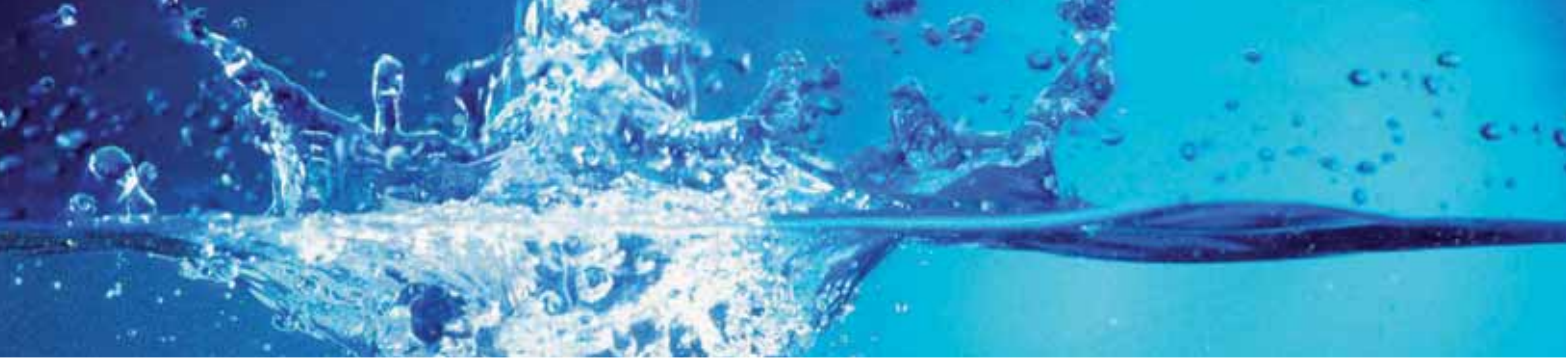
# LIBERTY 300 - 300S

## Installation

The thermodynamic water heater “LIBERTY 300” can be installed as a non-ducted unit in rooms with a surface area of  $> 20 \text{ m}^2$ , or can be ducted outdoors (see technical documentation for the various configurations).



The thermodynamic water heater “LIBERTY 300” from Technibel can be used to complete heating systems fitted with a Technibel heat pump at any time



# COOLING UNITS & HEAT PUMPS



# Range AQUASET-T

## AQUASET-T



The AQUASET-T range includes our HEAT PUMP and CHILLER products, renewed in 2012, intended for service sector and small commercial applications.

Eco-friendly solutions combining high energy efficiency with low running noise.

The AQUASET-T range includes:

8 chiller and 8 heat pump versions,  
from 19 to 80 kW, with integrated hydronics module\* for all models.

The operating range, - 20° to + 43°C, ensures optimal operation even in extreme conditions.

These latest generation units are capable of satisfying all service sector and small commercial applications, including:

- offices
- banks
- hotels
  - tourist residences
  - shops
  - residential care centres

They offer unbeatable comfort and significant running cost savings.





Air/water chiller

# Range AQUASET-T



GEF



GEF 20/24



GEF da 28 a 40



GEF da 55 a 76



## Applications

- Air Conditioning



## Benefits

- 20 kW to 76 kW
- Low running noise
- High energy efficiency
- Integrated hydronic module
- Water delivery/return temperature control

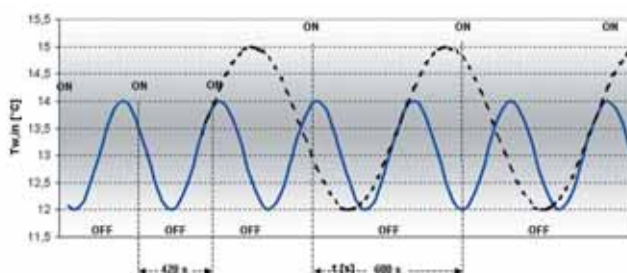
- Low water volume due to self-adaptive operation
- Dual pump (option) from size 28 (28 kW)
- Minimum water delivery temperature (0°C) with glycol
- Operation with ambient air temperature +47°C to -10°C
  - External master switch

High level accessories equipment:

- Soft starter
- Phase control
- Condensation pressure regulator
- Low temperature kit

### Available in three configurations

- Base
- Version with circulation pump and storage tank
- Version with circulation pump, expansion tank and storage tank



Self-adaptive curve

MODELS	GEF				
	20	24	28	32	40
Codes	GEF207F	GEF247F	GEF287F	GEF327F	GEF407F
<b>▼ Cooling specifications</b>					
Power +7°C/+12°C (kW) / 35°C ext.	19,61	23,80	28,10	31,52	39,67
EER	2,75	2,94	3,25	3,13	3,11
Number of compressors	1				
R410A refrigerant charge (kg)	4,23	5,80	7,50	7,50	10,80
<b>▼ Circuit specifications and connections</b>					
Expansion tank capacity (l)	5		8		
Nominal water flow rate (+7°C/35°C) (m³/h)	3,37	4,10	4,83	5,42	6,82
Available head for pump (kPa)	123	116	143	126	119
Storage tank capacity (l)	50		125		
Hydraulic connections	1" 1/4 F				
<b>▼ Electrical specifications and connections</b>					
Power 50 Hz with GND	400V +N				
Startup current (A)	104	158	133	166	163
Startup current with soft-starter (A) (opt.)	68	103	87	108	108
Max current draw with heating element (A)	21,7	24	28,6	32,4	36,4
Thermal cutout rating (A)	25	32	32	40	40
Power cord cross section (1)	5G 6 mm²	5G 10 mm²	5G 10 mm²	5G 10 mm²	5G 10 mm²
<b>▼ Running noise</b>					
Sound power per EN12102 (dBA)	71	72	73	73	75
Sound pressure level at 10 m (dBA) (2)	43	44	45	45	47
<b>▼ Operating range</b>					
Air temperature range	+47°C /-10°C				
Water delivery temperature, max/min	+16°C /+5°C (0°C con glicole)				
Δ Exchanger water temperature, min/max	+3°C/+8°C				
<b>▼ General specifications</b>					
Dimensions H x L x D (mm)	1 300 x 1 565 x 600		1 485 x 1 990 x 950		
Net weight (kg)	259	273	383	407	467

(1) Indicative data, must be checked against the installation conditions and legal requirements (3) Sound power in quiet operating mode, which limits power output to the nominal power rating (2) Sound pressure: unit outdoors on a reflective surface at a distance of 10m.



Air/water chiller

# Range AQUASET-T

	GEF		
MODELS	55	70	76
Codici	GEF557F	GEF707F	GEF767F
<b>▼ Cooling specifications</b>			
Power +7°C/+12°C (kW) / 35°C ext.	55,37	70,63	76,94
EER	2,95	2,94	2,76
Number of compressors	2		
R410A refrigerant charge (kg)	12,8	16,3	16,3
<b>▼ Circuit specifications and connections</b>			
Expansion tank capacity (l)	8		
Nominal water flow rate (+7°C/35°C) (m³/h)	9,39	12	13,1
Available head for pump (kPa)	56	55	64
Storage tank capacity (l)	138	128	114
Hydraulic connections	125	125	125
Raccordi idraulici	2" F		
<b>▼ Electrical specifications and connections</b>			
Power 50 Hz with GND	400V +N		
Startup current (A)	177	202	229
Startup current with soft-starter (A) (opt.)	117	136	154
Max current draw with heating element (A)	48	57	69
Thermal cutout rating (A)	50	63	80
Power cord cross section (1)	5G 16 mm²	5G 25 mm²	5G 35 mm²
<b>▼ Running noise</b>			
Sound power per EN12102 (dBA)	81	81	81
Sound pressure level at 10 m (dBA) (2)	53	53	53
<b>▼ Operating range</b>			
Air temperature range	+47°C /-10°C		
Water delivery temperature, max/min	+16°C /+5°C (0°C con glicole)		
Δ Exchanger water temperature, min/max	+3°C/+8°C		
<b>▼ General specifications</b>			
Dimensions H x L x D (mm)	1 735 x 2 091 x 1 183		
Net weight (kg)	633	680	774

(1) Indicative data, must be checked against the installation conditions and legal requirements (3) Sound power in quiet operating mode, which limits power output to the nominal power rating (2) Sound pressure: unit outdoors on a reflective surface at a distance of 10m.

## Accessories

Description	Code	Notes
Simplified remote control	70250078	On/Off, mode change, alarm indicator
Remote display	70250079	Keypad included, 3 m cable, power supply and RS 485 card
RS 485 communication interface - MODBUS protocol	70250080	For applications without keypad
RS 485 communication interface - MODBUS protocol	70250081	For applications with keypad and screen code 70250079
HP/LP pressure gauges	70970008	All models
Battery protection grille	70600041	Sizes 20 and 24
Battery protection grille	70600042	Sizes 28 - 40
Battery protection grille	70600043	Sizes 55 - 76
Set of vibration damping mounts	70600035	All models - Thickness 25 mm - 100 x 100 mm



Remote display

# Range AQUASET-T



PEF



PEF 23/27



PEF 32 à 46



PEF 60 à 85



## Applications

- Air conditioning
- Heating



## Benefits

- 23 kW to 85 kW
- Low running noise
- High energy efficiency
- Integrated hydronic module
- Water delivery/return temperature control

- Low water volume due to optimised self-adaptive operation
- Dual pump (option) from size 32 (32 kW)
- Operation with ambient air temperature +47°C to -10°C

High level standard equipment:

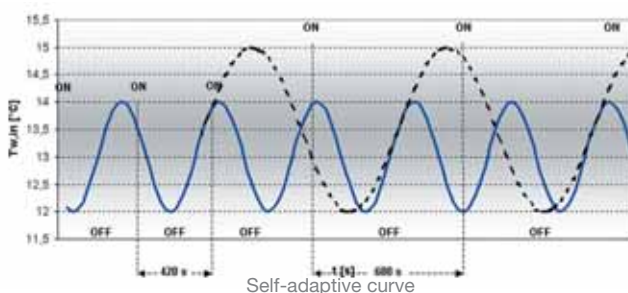
- External master switch
- Phase control
- Condensation pressure regulator

Optional equipment:

- Soft starter
- Low temperature kit

### Available in three configurations

- Base
- Version with circulation pump and storage tank
- Version with circulation pump, expansion tank and storage tank



# Range AQUASET-T

MODELS	PEF				
	23	27	32	40	46
Codes	PHR237F	PHR277F	PHR327F	PHR407F	PHR467F
<b>▼ Heating capacity</b>					
Power 45°C/40°C (kW) / +7°C ext.	22,57	26,83	30,80	38,67	44,07
COP +7°C/+45°C (kW)	3,00	3,20	3,24	3,23	3,27
Power 45°C/40°C (kW) / -7°C ext.	17,03	18,89	21,10	27,63	31,09
COP -7°C/+45°C (kW)	2,25	2,35	2,33	2,38	2,29
<b>▼ Cooling capacity</b>					
Power +7°C/+12°C (kW) / 35°C ext.	19,55	23,68	27,99	34,84	39,46
EER	2,61	2,83	3,09	2,94	3,00
Number of compressors	1				
R410A refrigerant charge (kg)	4,23	5,80	7,50	7,80	10,80
<b>▼ Circuit specifications and connections</b>					
Expansion tank capacity (l)	5		8		
Nominal water flow rate in cooling (+7°C/35°C) (m <sup>3</sup> /h)	3,37	4,10	4,83	6,21	6,82
Available head for pump (kPa)	123	116	143	130	119
Storage tank capacity (l)	50		125		
Hydraulic connections	1" 1/4 F				
<b>▼ Circuit specifications and connections</b>					
Power 50 Hz with GND	400V +N				
Startup current (A)	104	158	133	166	163
Startup current with soft start (A)	68	103	86	105	106
Max current draw with heating element (A)	21,7	24	28,6	35,2	36,4
Thermal cutout rating (A)	25	32	32	40	40
Power cord cross section (1)	5G 6 mm <sup>2</sup>	5G 10 mm <sup>2</sup>	5G 10 mm <sup>2</sup>	5G 10 mm <sup>2</sup>	5G 10 mm <sup>2</sup>
<b>▼ Running noise</b>					
Sound power per EN12102 (dBA)	71	72	73	73	75
Sound pressure level at 10 m (dBA) (2)	43	44	45	45	47
<b>▼ Operating range</b>					
Air temperature range	+47°C / -10°C				
Water delivery temperature, max/min, in cooling mode	+16°C / +5°C				
Water delivery temperature, max/min, in heating mode	+53°C / +25°C				
Δ water temperature, min/max	+3°C / +8°C				
<b>▼ General specifications</b>					
Dimensions H x L x D (mm)	1 300 x 1 565 x 600		1 485 x 1 990 x 950		
Net weight (kg)	268	280	384	444	473

(1) Indicative data, must be checked against the installation conditions and legal requirements (2) Sound pressure: unit outdoors on a reflective surface at a distance of 10m.

MODELS	PEF		
	60	77	85
Codes	PEF607F	PEF777F	PEF57F
<b>▼ Heating capacity</b>			
Power 45°C/40°C (kW) / +7°C ext.	59,12	75,67	83,97
COP +7°C/+45°C (kW)	3,11	3,17	3,08
Power 45°C/40°C (kW) / -5°C ext.	41,36	52,85	58,13
COP -5°C/+45°C (kW)	2,26	2,27	2,13
<b>▼ Cooling capacity</b>			
Power +7°C/+12°C (kW) / 35°C ext.	54,27	69,25	75,41
EER	2,89	2,88	2,70
Number of compressors	2		
R410A refrigerant charge (kg)	12,80	16,30	16,30
<b>▼ Circuit specifications and connections</b>			
Expansion tank capacity (l)	8		
Nominal water flow rate in cool(+7°C/35°C) (m <sup>3</sup> /h)	9,2	11,78	12,83
Pressure drop at nominal flow (kPa)	56	55	64
Available head for pump (kPa)	138	128	114
Storage tank capacity (l)	125	125	125
Hydraulic connections	2" F		
<b>▼ Circuit specifications and connections</b>			
Power 50 Hz with GND	400V +N		
Startup current (A)	177	202	229
Startup current with soft start (A) opt.	117	136	154
Max current draw with heating element (A)	48	57	69
Thermal cutout rating (A)	63	63	80
Power cord cross section (1)	5G 16 mm <sup>2</sup>	5G 25 mm <sup>2</sup>	5G 35 mm <sup>2</sup>
<b>▼ Running noise</b>			
Sound power per EN12102 (dBA)	81	81	81
Sound pressure level at 10 m (dBA) (2)	53	53	53
<b>▼ Operating range</b>			
Air temperature range	+47°C /-10°C		
Water delivery temperature, max/min, in cooling mode	+16°C /+5°C		
Water delivery temperature, max/min, in heating mode	+53°C/+25°C		
Δ water temperature, min/max	+3°C/+8°C		
<b>▼ General specifications</b>			
Dimensions H x L x D (mm)	1 735 x 2 091 x 1 183		
Net weight (kg)	648	690	780

(1) Indicative data, must be checked against the installation conditions and legal requirements (2) Sound pressure: unit outdoors on a reflective surface at a distance of 10m.

## Accessories

Description	Code	Notes
Simplified remote control	70250078	On/Off, mode change, alarm indicator
Remote display	70250079	Keypad included, 3 m cable, power supply and RS 485 card
RS 485 communication interface - MODBUS protocol	70250080	For applications without keypad
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HP/LP pressure gauges	70970008	All models
Battery protection grille	70600041	Sizes 23 and 27
Battery protection grille	70600042	Sizes 32 - 46
Battery protection grille	70600043	Sizes 60 - 85
Set of vibration damping mounts	70600035	All models - Thickness 25 mm - 100 x 100 mm



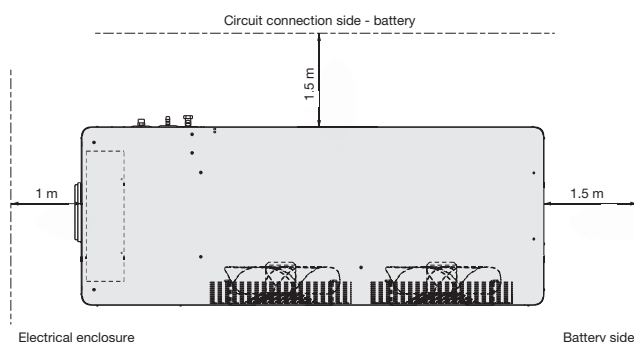
Remote display

# Installation Clearances

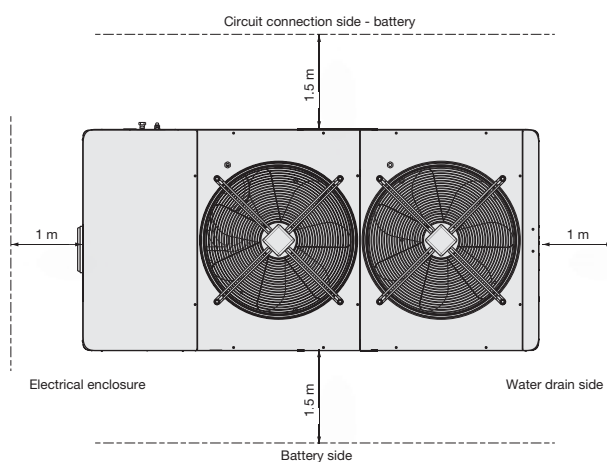
(Refer to the installation manuals for the complete information)



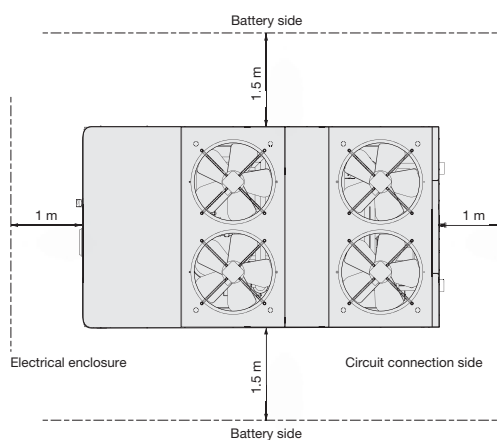
## GEF 20/24 - PEF 23/27



## GEF from 28 to 40 - PEF from 32 to 46



## GEF from 55 to 76 - PEF from 60 85







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