

# TECHNICAL MANUAL

# MPE

Chillers and heat pumps  
4 kW - 76 kW



Axial fan

Scroll  
compressorRefrigerant  
R-410A

Cooling only

Heating/Cooling

Packaged  
executionRotary  
compressor

## PLUS

- » Completely configurable
- » Dual-compressor version that guarantees high efficiency at partial loads
- » Production of chilled water up to an air temperature of 47 °C
- » Incorporable hydraulic kit

CE



**TRANSLATION BY ORIGINAL INSTRUCTIONS**

The water chillers and heat pumps comply with directive 2014/68/EC (PED).

*The technical and dimensional data reported in this manual may be modified in view of any product improvement.*

*For any information , please contact the company: [info@galletti.it](mailto:info@galletti.it)*

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# 1 SERIES

Water chillers and heat pumps of the series MPE are designed for outdoor installation in both residential and commercial applications.

The range uses R410A refrigerant, which assures high levels of performance with relatively low energy consumption and features 10 models in the chiller version and 29 in reversible heat pump, with cooling capacities ranging from 4 to 75 kW.

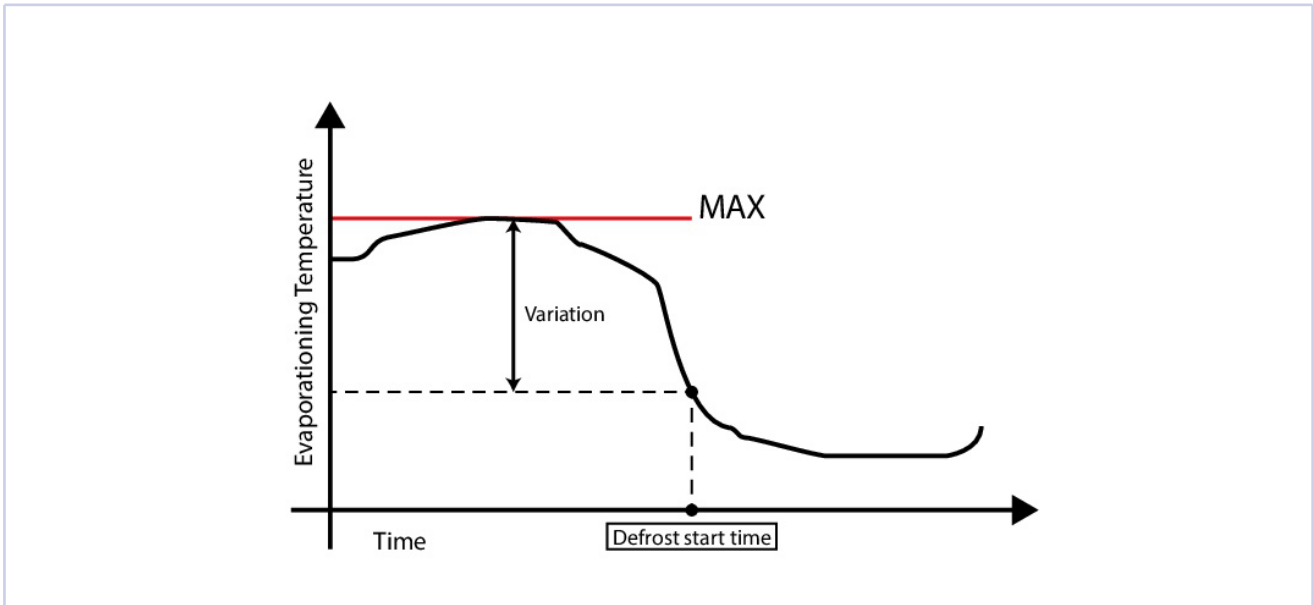
## BEYOND CONVENTIONAL WORKING LIMITS

The finned block heat exchangers have been optimised for

R410A and use 8 mm copper pipes, which permit a better heat exchange and quiet operation of the fans.

## SMART DEFROST SYSTEM

The exclusive smart defrost system can correctly identify an impairment of performance in the outdoor exchanger due to the formation of ice and minimise the process time in relation to normal operation of the unit.



## 2 CONSTRUCTIVE FEATURES

### STRUCTURE

Galvanised sheet steel structure treated with a polyester powder coating (RAL9002) suitable for outdoor applications, for an attractive look and effective resistance to corrosive agents. Fastening devices are made of non-oxidizable materials, or carbon steel that has undergone surface-passivating treatments. The compressor compartment is completely sealed and may be accessed on 3 sides thanks to easy-to-remove panels that greatly simplify maintenance and/or inspection. On request acoustic insulation can reduce the unit noise emissions

### CUSTOMISED HYDRAULIC KIT

- High head pump made entirely of stainless steel, already configured for use with mixtures of water and ethylene glycol up to 25% and provided with internal thermal protection.
- Expansion tank.
- Safety valve.
- Filling cock (included).
- Automatic vent valve.
- Water differential pressure switch and outlet water temperature probe with anti-freeze thermostat function.
- Mechanical Y filter supplied as a standard feature on all models to protect the evaporator (included).

### COOLING CIRCUIT

- Scroll compressors in tandem configuration or trio, with optional acoustical insulation (Frame 3 e 4). The levels of efficiency, reliability and noise of such components are the state of the art for the scroll compressor.
- Brazed plate heat exchangers made of stainless steel and optimised for use with R410A.
- Finned block condenser with 8 mm copper piping and aluminium fins, characterised by ample heat exchange surfaces.
- Dehydrating filter.
- Flow indicator with humidity indicator.
- Thermostatic valve with external equalisation and integrated MOP function.
- Cycle reversing valve (only MPE H)
- Check valve (MPE H)
- Liquid receiver (MPE H)
- High and low pressure switch
- Water safety valve
- Schrader valves for checks and/or maintenance
- Refrigerant pressure gauges (optional)

### FAN DRIVE ASSEMBLY

Electric fan with 6/8-pole external rotor motor directly keyed to the axial fan, with internal thermal protection on the windings, complete with safety grille and dedicated supporting structure. The fan is housed in a special compartment having a profile designed to optimise ventilation.

The use of finned block heat exchangers with 8 mm diameter pipes reduces pressure drops on the air side, thus significantly improving the noise levels of the units.

The condensation control system continuously and automatically regulates the fan speed, further limiting the noise emissions of the unit during nighttime operation and under partial load

conditions.

### FINNED BLOCK HEAT EXCHANGER

Made of 8 mm diameter copper pipes and aluminium fins, generously sized.

The special engineering of the heat exchangers allows defrost cycles to be carried out at maximum speed in the models with heat pump operation, which brings clear benefits in terms of the integrated efficiency of the whole cycle.

### ELECTRONIC MICROPROCESSOR CONTROL

The electronic control enables the complete control of the MPE unit. It can be easily accessed through a polycarbonate flap with IP65 protection rating.

The basic controller comes complete with the MODBUS.



Main functions:

- Control over the temperature of water entering the evaporator.
- Complete alarm management.
- Dynamic control of the setpoint according to the outdoor air temperature.
- Can be connected to an RS485 serial line for supervisory / teleassistance operation

Devices controlled

- Compressor
- Fans
- Water circulation pump
- Antifreeze heating element (optional)
- Alarm signalling relay

### ELECTRIC CONTROL BOARD

The electric control board is constructed and wired in accordance with EEC Directive 73/23, Directive 89/336 on electromagnetic compatibility and related standards. Made of steel sheet, it is also protected by the enclosing panels of the machine.

### OPTIONS

- Incorporable hydraulic kit
- Condensation control
- Low noise execution
- Refrigerant pressure gauges
- Antifreeze heating elements on the water circuit
- Electronic thermostatic valve
- Heat recovery 25% (chiller)
- Special exchangers (hydrophilic treatment, copper-copper, cataphoresis, anti-corrosion)

## 3 CONFIGURATION OPTIONS

The MPE series consists of 29 models in reversible heat pump and 10 in cooling only version with different capacities. All

models operates with R410A refrigerant.

» Configuration options

<b>1</b>	<b>Expansion valve</b>
0	Mechanical
A	Electronic
<b>2</b>	<b>Water pump and accessories</b>
1	LP pump + expansion vessel
2	LP run and standby double pump + expansion vessel (advanced controller required)
<b>3</b>	<b>Water buffer tank</b>
0	Absent
S	Selected
<b>4</b>	<b>Partial heat recovery</b>
0	Absent
D	Desuperheater with pump activation contact
<b>5</b>	<b>Air flow modulation</b>
C	Condensation control by phase-cut fans
E	Condensation control performed by EC fans
<b>6</b>	<b>Antifreezing kit</b>
0	Absent
E	Evaporator (tandem unit advanced controller required)
P	Evaporator and pump (tandem unit advanced controller required)
S	Evaporator, water pump and water buffer tank (tandem unit advanced controller required)
<b>7</b>	<b>Acoustic insulation and attenuation</b>
0	Absent
1	Compressor compartment acoustic insulation
2	Compressor sound blanket
3	Compressor compartment acoustic insulation and sound blanket
<b>8</b>	<b>Refrigerant pipework accessories</b>
0	Absent
M	Refrigerant pressure gauges
<b>9</b>	<b>Remote control / Serial communication</b>
0	Absent
2	RS485 serial board (Carel / Modbus protocol)
B	BACNET IP / PCOWEB serial board (advanced controller required)
F	BACNET MS/TP / PCONET board (advanced control required)
G	BACNET IP / PCOWEB serial board + supervision software Gweb (advanced controller required)
L	LON FTT10 serial board (advanced controller required)
S	Remote simplified user panel
X	Remote user panel for advanced controller
<b>10</b>	<b>Special coils / Protective treatments</b>
0	Standard
B	Pre-painted fins with epoxy painting
C	Cataphoresis
I	Hydrophilic
R	Copper-copper
<b>11</b>	<b>Outdoor finned coil heat exchanger protection</b>
0	Absent
G	Outdoor finned coil heat exchanger protection grille
<b>12</b>	<b>Compressors options</b>
0	Absent
1	Power factor capacitors
2	Soft starter
3	Power factor capacitors + soft starter
4	Crankcase compressor heater (CHILLER), outdoor coil trace heater (HP)
<b>13</b>	<b>Onboard controller</b>
1	Basic

2	Advanced
4	Advanced + clock card
<b>Chiller accessories</b>	
<b>1701546</b>	Remote simplified user panel
<b>RYKAMF</b>	Spring anti vibration shock mounts
<b>RYMCL</b>	MyChiller Plus (RS485 serial board and advanced controller required)
<b>RYMCM</b>	MyChiller Base (RS485 serial board and advanced controller required)
<b>RYPAM</b>	Rubber anti vibration shock mounts
<b>RYRT40</b>	Tank module connection kit
<b>RYT40</b>	Inertial tank module for under-base installation

**NOTE:** The choice of some options can make the choice of some others forbidden or make some selection (fields) mandatory. Please contact Galletti S.p.A. for verification.

## 4 TECHNICAL FEATURES

### 4.1 MPE C WATER CHILLERS RATED TECHNICAL DATA

» MPE C water chillers rated technical data

MPE			T18	T23	T25	T30	T34	T42	T54	T57	T64	T71
Power supply		V-ph-Hz	400 - 3N - 50									
Cooling capacity	(1)(E)	kW	19,9	23,4	26,0	31,9	35,9	42,5	54,6	56,9	65,8	71,5
Total power input	(1)(E)	kW	7,80	8,70	8,90	10,7	12,8	15,0	18,7	19,9	22,6	26,2
Absorbed rated current	(1)	A	13,6	15,2	15,4	19,9	23,2	26,7	34,4	36,4	40,7	46,4
EER	(1)(E)		2,56	2,68	2,94	2,97	2,79	2,83	2,93	2,86	2,91	2,73
SEER	(2)(E)		4,10	4,10	4,10	4,10	4,11	4,10	4,10	4,11	4,10	4,12
Eurovent efficiency class	(1)(E)		D	D	B	B	C	C	B	C	C	C
Maximum current absorption		A	16,2	25,5	25,8	33,5	39,1	34,8	43,3	45,2	58,7	56,8
Start up current		A	85	95	96	100	116	164	177	182	196	238
Startup current with soft starter		A	65	73	74	78	90	123	134	138	149	179
Compressors / circuits			2 / 1									
no. of axial fans			4	4	4	2	2	2	4	4	4	4
Air flow rate	(1)	m <sup>3</sup> /h	11600	117600	20100	20100	20100	19600	23900	23900	23500	23500
Water flow	(1)	l/h	3435	4041	4480	5489	6181	7320	9400	9795	11335	12306
Water pressure drop	(1)(E)	kPa	52	48	35	34	42	37	41	37	37	37
Available pressure head - LP pumps	(1)	kPa	111	92	96	126	101	98	145	147	142	136
Buffer tank volume		dm <sup>3</sup>	50	50	50	125	125	125	125	125	125	125
Expansion vessel volume		dm <sup>3</sup>	5	5	5	8	8	8	8	8	8	8
Unit connections diameter		"	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	2	2	2	2
Height		mm	1274	1274	1274	1489	1489	1489	1733	1733	1733	1733
Depth		mm	797	797	797	947	947	947	1183	1183	1183	1183
Length		mm	1588	1588	1588	1988	1988	1988	2091	2091	2091	2091
Sound power level	(3)(E)	dB(A)	72	73	73	73	73	74	81	81	81	81
Sound power level, low-noise version	(3)	dB(A)	70	71	71	70	70	72	79	79	79	79
Sound pressure level	(4)	dB(A)	36	37	37	45	45	46	53	53	53	53
Refrigerant charge	(5)	kg	3,80	5,80	6,00	7,80	7,80	10,9	12,8	12,8	16,3	16,3
Transport weight unit with pump and tank		kg	232	256	260	448	484	521	643	665	685	786
Operating weight unit with pump and full tank		kg	282	306	309	555	591	663	751	773	793	894

(1) Outdoor air temperature 35°C, water temperature 12°C / 7°C (EN14511:2018)

(2)  $\eta$  efficiency values for heating and cooling are respectively calculated by the following formulas:  $[\eta = SCOP / 2,5 - F(1) - F(2)]$  e  $[\eta = SEER / 2,5 - F(1) - F(2)]$ . For further information, please refer to the technical document "ErP 2009/125/EC DIRECTIVE" in the catalogue introducing pages, or to the EN14825:2017 regulation.

(3) Sound power level measured according to ISO 9614

(4) Sound pressure measured at a distance of 10 m in a free field with a directivity factor of 2

(5) Kg gas value is estimated. For the exact value refer to the plate data on the unit.

(E) EUROVENT certified data

## 4.2 MPE H HEAT PUMPS RATED TECHNICAL DATA

» MPE H heat pumps rated technical data

MPE		V-ph-Hz	004M	005M	007M	008	008M	009	010
Power supply		V-ph-Hz	230 - 1 - 50	230 - 1 - 50	230 - 1 - 50	400 - 3N - 50	230 - 1 - 50	400 - 3N - 50	400 - 3N - 50
Cooling capacity	(1)(E)	kW	4,00	5,00	6,70	8,30	8,10	9,20	9,10
Total power input	(1)(E)	kW	1,30	1,70	2,20	3,09	3,10	3,00	3,30
Absorbed rated current	(1)	A	6,49	8,17	10,5	5,37	14,0	5,40	6,01
EER	(1)		2,98	2,94	3,03	2,64	2,41	3,08	2,76
SEER	(2)		3,16	3,02	3,22	3,17	2,98	3,54	3,15
Heating capacity	(3)(E)	kW	4,70	5,90	7,50	9,90	10,3	10,5	10,9
Absorbed rated current	(3)	A	7,02	8,75	10,4	5,59	14,2	6,00	6,64
COP	(3)(E)		3,23	3,18	3,46	2,97	2,81	3,12	3,02
Eurovent efficiency class	(3)		B	B	A	B	C	B	C
Total power input	(3)(E)	kW	1,50	1,80	2,20	3,30	3,70	3,40	3,60
SCOP	(2)(E)		3,45	3,59	3,57	3,51	3,26	3,30	3,05
Energy efficiency			136	141	140	138	128	129	131
Heating energy efficiency class	(4)(E)		A+						
Maximum current absorption		A	9,00	11,0	11,0	9,00	17,6	8,00	12,0
Start up current		A	38	44	44	49	88	43	49
Startup current with soft starter		A	26	30	30	34	66	29	33
Air flow rate	(1)	m <sup>3</sup> /h	3635	3635	3400	3406	3406	7000	7385
Water flow	(1)	l/h	687	858	1151	1424	1401	1585	1568
Water pressure drop	(1)(E)	kPa	5	5	9	6	6	16	33
Available pressure head - LP pumps	(1)	kPa	77	74	55	67	67	146	115
Air flow rate	(3)	m <sup>3</sup> /h	3635	3635	3500	3406	3406	7000	7385
Water flow	(3)	l/h	815	1017	1307	1717	1781	1823	1890
Water pressure drop	(3)	kPa	5	5	11	8	8	21	46
Compressors / circuits			1 / 1						
Buffer tank volume		dm <sup>3</sup>	20	20	20	20	20	30	30
Expansion vessel volume		dm <sup>3</sup>	1	1	1	1	1	5	5
Unit connections diameter		"	1	1	1	1	1	1 1/4	1
Height		mm	758	758	758	758	758	1224	1224
Depth		mm	451	451	451	451	451	564	564
Length		mm	989	989	989	989	989	1248	1248
Sound power level	(5)(E)	dB(A)	66	66	68	67	82	69	69
Sound power level, low-noise version	(5)	dB(A)	64	64	65	65	65	67	67
Sound pressure level	(6)	dB(A)	38	38	40	39	71	41	41
Refrigerant charge	(7)	kg	1,50	1,50	2,00	2,10	2,10	2,90	2,90
Transport weight unit with pump and tank		kg	114	118	123	127	120	211	211
Operating weight unit with pump and full tank		kg	123	127	132	136	129	227	227

- (1) Outdoor air temperature 35°C, water temperature 12°C / 7°C (EN14511:2018)  
(2)  $\eta$  efficiency values for heating and cooling are respectively calculated by the following formulas:  $\eta = SCOP / 2,5 - F(1) - F(2)$  e  $\eta = SEER / 2,5 - F(1) - F(2)$ . For further information, please refer to the technical document "ErP 2009/125/EC DIRECTIVE" in the catalogue introducing pages, or to the EN14825:2017 regulation.  
(3) Outdoor air temperature dry bulb 7°C / wet bulb 6°C, water temperature 40°C / 45°C (EN14511:2018)  
(4) Seasonal energy efficiency class for LOW TEMPERATURE room heating under AVERAGE climatic conditions [EUROPEAN REGULATION No 811/2013]  
(5) Sound power level measured according to ISO 9614  
(6) Sound pressure measured at a distance of 10 m in a free field with a directivity factor of 2  
(7) Kg gas value is estimated. For the exact value refer to the plate data on the unit.  
(E) EUROVENT certified data



» MPE H heat pumps rated technical data

MPE			010M	013	014	015	018	020	021	024	027
Power supply		V-ph-Hz	230 - 1 - 50	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50
Cooling capacity	(1)(E)	kW	9,00	12,6	14,0	14,6	16,7	20,8	20,1	23,2	26,0
Total power input	(1)(E)	kW	3,31	4,31	4,70	5,31	6,40	7,90	7,00	8,19	9,49
Absorbed rated current	(1)	A	15,6	7,51	8,80	9,12	11,9	13,1	13,7	14,7	16,7
EER	(1)(E)		2,75	2,98	3,01	2,78	2,61	2,66	2,88	2,83	2,74
SEER	(2)(E)		3,15	3,45	3,25	3,39	3,17	3,14	3,38	3,32	3,32
Heating capacity	(3)(E)	kW	11,0	15,3	15,9	17,7	20,1	23,9	24,6	27,3	30,0
Absorbed rated current	(3)	A	17,4	8,37	9,40	9,63	12,3	13,2	13,9	14,7	15,9
COP	(3)(E)		3,04	3,19	3,17	3,16	2,94	2,99	3,39	3,28	3,32
Eurovent efficiency class	(3)(E)		B	B	B	B	C	C	A	A	A
Total power input	(3)(E)	kW	3,60	4,80	5,00	5,60	6,80	8,00	7,30	8,30	9,00
SCOP	(2)(E)		3,05	3,34	3,62	3,47	3,22	3,22	3,55	3,44	3,57
Energy efficiency			131	131	142	136	126	126	139	135	140
Heating energy efficiency class	(4)(E)		A+								
Maximum current absorption		A	24,0	15,0	11,0	18,0	22,0	24,0	24,0	26,0	32,0
Start up current		A	98	64	67	67	76	105	158	159	133
Startup current with soft starter		A	68	44	46	46	51	72	110	110	91
Air flow rate	(1)	m <sup>3</sup> /h	7385	6939	11600	6939	9990	9990	11900	9307	9307
Water flow	(1)	l/h	1554	2174	2409	2516	2886	3592	3459	4000	4469
Water pressure drop	(1)(E)	kPa	33	59	10	36	49	57	18	47	32
Available pressure head - LP pumps	(1)	kPa	115	81	139	102	130	109	140	109	118
Air flow rate	(3)	m <sup>3</sup> /h	7385	6939	11600	6939	9990	9990	11900	9307	9307
Water flow	(3)	l/h	1896	2642	2764	3060	3479	4139	4264	4720	5189
Water pressure drop	(3)	kPa	46	86	12	52	70	75	27	63	43
Compressors / circuits			1 / 1								
Buffer tank volume		dm <sup>3</sup>	30	30	50	30	50	50	50	50	50
Expansion vessel volume		dm <sup>3</sup>	5	5	5	5	5	5	5	5	5
Unit connections diameter		"	1	1	1 1/4	1	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
Height		mm	1224	1224	1274	1224	1274	1274	1274	1274	1274
Depth		mm	564	564	605	564	605	605	605	605	605
Length		mm	1248	1248	1588	1248	1588	1588	1588	1588	1588
Sound power level	(5)(E)	dB(A)	69	69	71	69	71	71	74	72	72
Sound power level, low-noise version	(5)	dB(A)	67	67	69	67	69	69	72	70	70
Sound pressure level	(6)	dB(A)	41	41	43	41	43	43	46	44	44
Refrigerant charge	(7)	kg	2,90	4,00	4,10	4,10	3,70	4,20	4,20	5,80	6,00
Transport weight unit with pump and tank		kg	211	216	219	219	265	281	281	297	313
Operating weight unit with pump and full tank		kg	227	232	236	236	301	317	317	333	350

- (1) Outdoor air temperature 35°C, water temperature 12°C / 7°C (EN14511:2018)  
(2)  $\eta$  efficiency values for heating and cooling are respectively calculated by the following formulas:  $[\eta = SCOP / 2,5 - F(1) - F(2)]$  e  $[\eta = SEER / 2,5 - F(1) - F(2)]$ . For further information, please refer to the technical document "ErP 2009/125/EC DIRECTIVE" in the catalogue introducing pages, or to the EN14825:2017 regulation.  
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(7) Kg gas value is estimated. For the exact value refer to the plate data on the unit.  
(E) EUROVENT certified data

» MPE H heat pumps rated technical data

MPE			028	T30	032	T34	035	040	054	066
Power supply		V-ph-Hz	400 - 3N - 50							
Cooling capacity	(1)(E)	kW	27,4	29,4	30,8	33,3	34,1	38,8	51,8	62,5
Total power input	(1)(E)	kW	8,81	10,6	10,2	12,8	11,6	13,1	18,2	24,6
Absorbed rated current	(1)	A	16,4	19,2	18,6	22,6	20,9	22,9	31,9	42,0
EER	(1)(E)		3,11	2,80	3,02	2,62	2,91	3,00	2,86	2,55
SEER	(2)(E)		3,71	3,85	3,58	3,78	3,58	3,66	3,57	3,18
Heating capacity	(3)(E)	kW	31,4	34,5	35,8	39,3	39,3	44,3	61,2	75,5
Absorbed rated current	(3)	A	17,1	19,9	19,2	23,0	21,0	23,5	32,7	40,4
COP	(3)(E)		3,37	3,12	3,34	3,03	3,34	3,31	3,24	3,18
Eurovent efficiency class	(3)(E)		A	B	A	B	A	A	A	B
Total power input	(3)(E)	kW	9,30	11,1	10,7	13,0	11,8	13,4	18,9	23,8
SCOP	(2)(E)		3,60	3,66	3,64	3,70	3,70	3,64	3,58	3,48
Energy efficiency			141	139	143	146	146	143	141	137
Heating energy efficiency class	(4)(E)		A+							
Maximum current absorption		A	32,0	37,0	34,0	43,0	38,0	40,0	40,0	41,0
Start up current		A	134	86	166	96	162	164	163	165
Startup current with soft starter		A	91	64	114	71	111	112	110	112
Air flow rate	(1)	m <sup>3</sup> /h	16276	16276	16276	16276	16276	15776	20048	20048
Water flow	(1)	l/h	4722	5062	5309	5736	5873	6686	8938	10763
Water pressure drop	(1)(E)	kPa	39	29	49	37	39	42	56	53
Available pressure head - LP pumps	(1)	kPa	139	146	120	130	126	115	107	89
Air flow rate	(3)	m <sup>3</sup> /h	16276	16276	16276	16276	16276	15776	20048	20048
Water flow	(3)	l/h	5438	5975	6190	6801	6809	7675	10578	13063
Water pressure drop	(3)	kPa	50	39	64	51	51	53	82	81
Compressors / circuits			1 / 1	2 / 1	1 / 1	2 / 1	1 / 1	1 / 1	1 / 1	1 / 1
Buffer tank volume		dm <sup>3</sup>	125	125	125	125	125	125	125	125
Expansion vessel volume		dm <sup>3</sup>	8	8	8	8	8	8	8	8
Unit connections diameter		"	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	2	2
Height		mm	1451	1451	1451	1451	1451	1451	1452	1452
Depth		mm	951	951	951	951	951	951	951	951
Length		mm	1988	1988	1988	1988	1988	1988	2008	2008
Sound power level	(5)(E)	dB(A)	73	76	73	72	73	75	78	78
Sound power level, low-noise version	(5)	dB(A)	71	70	71	70	71	73	76	76
Sound pressure level	(6)	dB(A)	45	44	45	44	45	47	50	50
Refrigerant charge	(7)	kg	7,50	7,80	7,50	7,80	7,80	10,8	13,0	15,0
Transport weight unit with pump and tank		kg	427	448	456	484	487	516	521	558
Operating weight unit with pump and full tank		kg	534	555	563	591	595	624	630	665

(1) Outdoor air temperature 35°C, water temperature 12°C / 7°C (EN14511:2018)

(2)  $\eta$  efficiency values for heating and cooling are respectively calculated by the following formulas:  $[\eta = SCOP / 2,5 - F(1) - F(2)]$  e  $[\eta = SEER / 2,5 - F(1) - F(2)]$ . For further information, please refer to the technical document "ErP 2009/125/EC DIRECTIVE" in the catalogue introducing pages, or to the EN14825:2017 regulation.

(3) Outdoor air temperature dry bulb 7°C / wet bulb 6°C, water temperature 40°C / 45°C (EN14511:2018)

(4) Seasonal energy efficiency class for LOW TEMPERATURE room heating under AVERAGE climatic conditions [EUROPEAN REGULATION No 811/2013]

(5) Sound power level measured according to ISO 9614

(6) Sound pressure measured at a distance of 10 m in a free field with a directivity factor of 2

(7) Kg gas value is estimated. For the exact value refer to the plate data on the unit.

(E) EUROVENT certified data

» MPE H heat pumps rated technical data

MPE			T42	T54	T61	T69	T76
Power supply		V-ph-Hz	400 - 3N - 50				
Cooling capacity	(1)(E)	kW	42,5	53,2	60,5	68,5	74,5
Total power input	(1)(E)	kW	15,3	18,7	21,7	24,1	28,0
Absorbed rated current	(1)	A	27,0	34,0	38,6	42,5	48,7
EER	(1)(E)		2,79	2,86	2,79	2,85	2,66
SEER	(2)(E)		3,76	3,77	3,78	3,42	3,97
Heating capacity	(3)(E)	kW	48,0	60,3	67,8	76,6	85,2
Absorbed rated current	(3)	A	28,4	34,3	39,1	42,2	47,6
COP	(3)(E)		2,98	3,19	3,07	3,21	3,11
Eurovent efficiency class	(3)(E)		C	B	B	A	B
Total power input	(3)(E)	kW	16,1	18,9	22,1	23,9	27,4
SCOP	(2)(E)		3,68	3,55	3,47	3,67	3,56
Energy efficiency			147	139	136	144	140
Heating energy efficiency class	(4)(E)		A+				
Maximum current absorption		A	44,0	48,0	53,0	57,0	69,0
Start up current		A	164	177	187	202	229
Startup current with soft starter		A	123	130	138	149	169
Air flow rate	(1)	m <sup>3</sup> /h	19600	24930	24930	24354	24354
Water flow	(1)	l/h	7320	9173	10425	11800	12837
Water pressure drop	(1)(E)	kPa	37	51	64	50	58
Available pressure head - LP pumps	(1)	kPa	98	138	122	129	115
Air flow rate	(3)	m <sup>3</sup> /h	19600	24930	24930	24354	24354
Water flow	(3)	l/h	8308	10440	11736	13266	14740
Water pressure drop	(3)	kPa	47	58	74	56	69
Compressors / circuits			2 / 1				
Buffer tank volume		dm <sup>3</sup>	125	125	125	125	125
Expansion vessel volume		dm <sup>3</sup>	8	8	8	8	8
Unit connections diameter		"	1 1/4	2	2	2	2
Height		mm	1489	1733	1733	1733	1733
Depth		mm	947	1183	1183	1183	1183
Length		mm	1988	2112	2112	2112	2112
Sound power level	(5)(E)	dB(A)	74	81	81	81	81
Sound power level, low-noise version	(5)	dB(A)	72	79	79	79	79
Sound pressure level	(6)	dB(A)	46	53	53	53	53
Refrigerant charge	(7)	kg	10,9	11,0	11,0	16,0	16,0
Transport weight unit with pump and tank		kg	521	643	665	685	786
Operating weight unit with pump and full tank		kg	629	751	773	793	894

- (1) Outdoor air temperature 35°C, water temperature 12°C / 7°C (EN14511:2018)  
(2)  $\eta$  efficiency values for heating and cooling are respectively calculated by the following formulas:  $[\eta = SCOP / 2,5 - F(1) - F(2)]$  e  $[\eta = SEER / 2,5 - F(1) - F(2)]$ . For further information, please refer to the technical document "ErP 2009/125/EC DIRECTIVE" in the catalogue introducing pages, or to the EN14825:2017 regulation.  
(3) Outdoor air temperature dry bulb 7°C / wet bulb 6°C, water temperature 40°C / 45°C (EN14511:2018)  
(4) Seasonal energy efficiency class for LOW TEMPERATURE room heating under AVERAGE climatic conditions [EUROPEAN REGULATION No 811/2013]  
(5) Sound power level measured according to ISO 9614  
(6) Sound pressure measured at a distance of 10 m in a free field with a directivity factor of 2  
(7) Kg gas value is estimated. For the exact value refer to the plate data on the unit.  
(E) EUROVENT certified data

## 5 PERFORMANCES

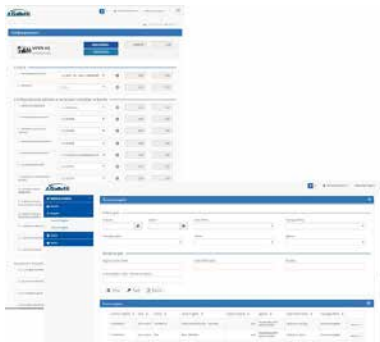
Galletti has developed on its [www.galletti.com](http://www.galletti.com) web-area the new ON-LINE integrated platform for product selection, configuration and the making of the economic offer.

The software, whose use is easy and intuitive, allows the identification of the desired products by calculating their performances based on real working conditions and their configuration helping the user in choosing options and accessories. It also allows to obtain a detailed report which includes performances, dimensional drawings, tender specifications and the economic offer.



### Product selection:

- Filters to make the identification of the requested product easier
- Performance calculation and saving of results
- Performance comparison between products belonging to different series



### Configuration and project history

- Wizard configuration of accessories and options for chillers, heat pumps and hydronic units
- Creation of a project which collects all products of interest
- Complete management of the stored history projects



### Report:

- Generation of a detailed list report in pdf format
- Choice of the sections to be included in the print:
  - Products performances
  - Dimensional drawings
  - Tender specifications

### 5.1 INTEGRATED CAPACITIES

In the heat pump operation (heating mode), the actual heating capacities of units may be lower than the values shown in the table, due to defrosting cycles. To obtain the actual heating capacity, multiply the capacity values by the corrective coefficients given below.

Air temperature dry bulb (°C)			
-5	0	5	>5
0,89	0,88	0,94	1,00
0,91	0,90	0,94	1,00

## 6 CALCULATION FACTORS

### 6.1 CHANGE IN OPERATING PARAMETERS WITH DT OTHER THAN 5°C

After identifying the unit's performance in the terms of the desired outlet water temperature, correct the value by multiplying it by

the following corrective coefficients.

Difference between water inlet temperature and water outlet temperature	Corrective coefficient of cooling/heating capacity	Correction coefficient of electrical input	Correction coefficient of water flow rate	Correction coefficient of pressure drop
3	0,975	1	1,63	2,64
4	0,990	1	1,24	1,53
5	1,000	1	1,00	1,00
6	1,015	1	0,85	0,72
7	1,030	1	0,74	0,54
8	1,040	1	0,65	0,42

## 6.2 WATER AND GLYCOL MIXTURE

Based on the minimum outlet water temperature, you can derive the percentage of ethylene glycol and the corrective coefficient using the table below.

Percentage of ethylene glycol (%)	0%	10%	20%	30%	40%
Minimum temperature of water produced (°C)	5	2	-5	-10	-15
Mixture freezing temperature (°C)	0	-4	-14	-18	-24
Capacity correction factor	1	1,00	0,99	0,99	0,98
Water flow rate correction factor	1	1,05	1,09	1,14	1,20
Pressure drop correction factor	1	1,16	1,35	1,58	1,86

**⚠ IMPORTANT!** The use of propylene glycol is not admitted with standard pumps. For further information, contact the manufacturer.

## 7 SOUND LEVELS

### » Sound levels MPE C

MPE	125 Hz (1)	250 Hz (1)	500 Hz (1)	1000 Hz (1)	2000 Hz (1)	4000 Hz (1)	8000 Hz (1)	LwA (2)
	dB	dB	dB	dB	dB	dB	dB	dB(A)
<b>T18</b>	77,5	71,1	70,5	66,5	59,2	54,2	50,5	72
<b>T23 -T25</b>	78,4	72,1	71,5	67,4	60,2	55,2	51,5	73
<b>T30 -T34</b>	78,3	72,0	71,4	67,3	60,1	55,1	51,3	72
<b>T42</b>	80,4	74,0	73,4	69,4	62,1	57,2	53,4	74
<b>T54</b>	77,7	81,5	75,5	74,9	68,0	61,7	60,2	81
<b>T57</b>	78,7	83,0	77,6	76,8	69,2	65,1	63,4	81
<b>T64 -T71</b>	19,7	83,2	77,6	76,5	69,2	62,7	62,1	81

1. Sound power level by octave band, not weighted
2. Total sound power level, weighted A

### » Sound levels MPE C

MPE	125 Hz (1)	250 Hz (1)	500 Hz (1)	1000 Hz (1)	2000 Hz (1)	4000 Hz (1)	8000 Hz (1)	LwA (2)
	dB	dB	dB	dB	dB	dB	dB	dB(A)
<b>004M</b>	72,0	65,7	65,1	61,0	53,8	48,8	45,0	66
<b>005M</b>	71,8	65,5	64,9	60,8	53,6	48,6	44,8	66
<b>007M</b>	73,0	66,6	66,0	62,0	54,7	49,7	46,0	67
<b>008</b>	73,0	66,6	66,0	62,0	54,7	49,7	46,0	67
<b>008M</b>	72,6	66,3	65,7	61,6	54,4	49,4	45,6	82
<b>010 -010M</b>	74,4	68,0	67,4	63,4	56,1	51,1	47,4	69
<b>013</b>	74,6	68,3	67,7	63,6	56,4	51,4	47,6	69
<b>015</b>	75,3	69,0	68,4	64,3	57,1	52,1	48,3	69
<b>018</b>	76,8	70,5	69,9	65,8	58,6	53,6	49,8	71
<b>020</b>	76,6	70,3	69,7	65,6	58,4	53,4	49,6	71
<b>024</b>	77,5	71,1	70,5	66,5	59,2	54,2	50,5	72
<b>027</b>	77,8	71,4	70,8	66,8	59,6	54,6	50,8	72
<b>028 -032</b>	78,4	72,1	71,5	67,4	60,2	55,2	51,5	73
<b>035</b>	78,8	72,4	71,8	67,8	60,5	55,6	51,8	73
<b>040</b>	80,4	74,0	73,4	69,4	62,1	57,2	53,4	75
<b>054 -066</b>	82,0	79,0	78,4	75,0	68,0	62,2	58,4	78
<b>T30 -T34</b>	78,3	72,0	71,4	67,3	60,1	55,1	51,3	72
<b>T42</b>	80,4	74,0	73,4	69,4	62,1	57,2	53,4	74
<b>T54 -T61 -T69</b>	77,7	81,5	75,5	74,9	68,0	61,7	60,2	81
<b>T76</b>	77,7	82,5	76,5	75,9	69,0	62,7	62,1	81

1. Sound power level by octave band, not weighted
2. Total sound power level, weighted A

## 8 OPERATING LIMITS

The graphs below illustrate the operating limits of MPE units (in the case of continuous operation) in relation to the outlet water temperature and outdoor air temperature.

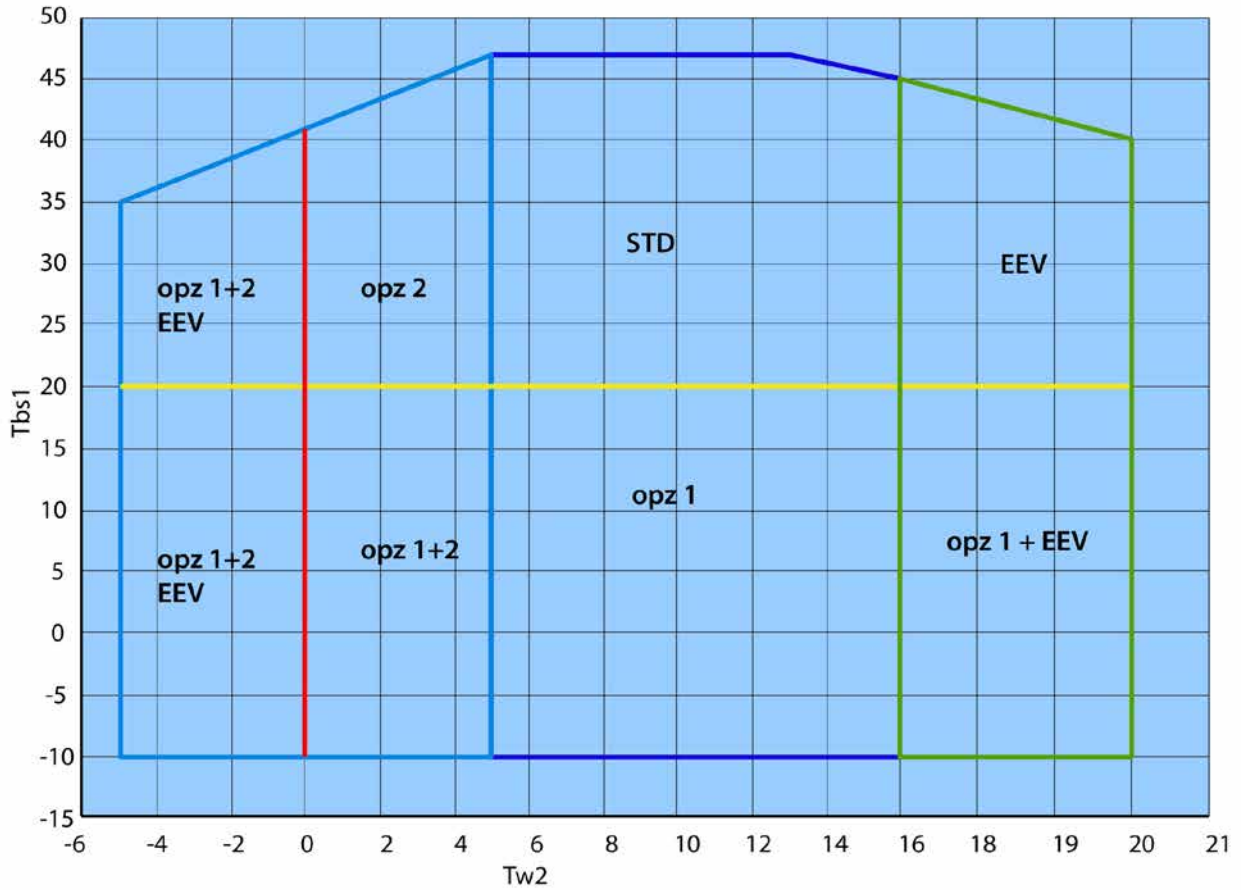
Operating limits	Water chiller		Heat pump	
	MIN	MAX	MIN	MAX
Inlet water temperature (°C)	8	20	22	42
Outlet water temperature (°C)	5	16	25	53 <sup>1</sup>
Temperature difference on the water side (°C)	3	8	3	8
Outdoor air temperature (°C)	20 <sup>2</sup>	47	-10	20 <sup>3</sup>

1. Value achievable only for outdoor air temperatures above 0 °C.
2. Condensation control: T external air min -10 °C.
3. Evaporation control. outdoor air temperature max 35°C

**⚠ WARNING** The units are designed to work with water and air temperatures falling within the range defined by the operating limits. Attempting to operate the units beyond these limits could cause irreparable damage to the units themselves.

## 8.1 OPERATING LIMITS IN CHILLER MODE

» Operating limits in chiller mode

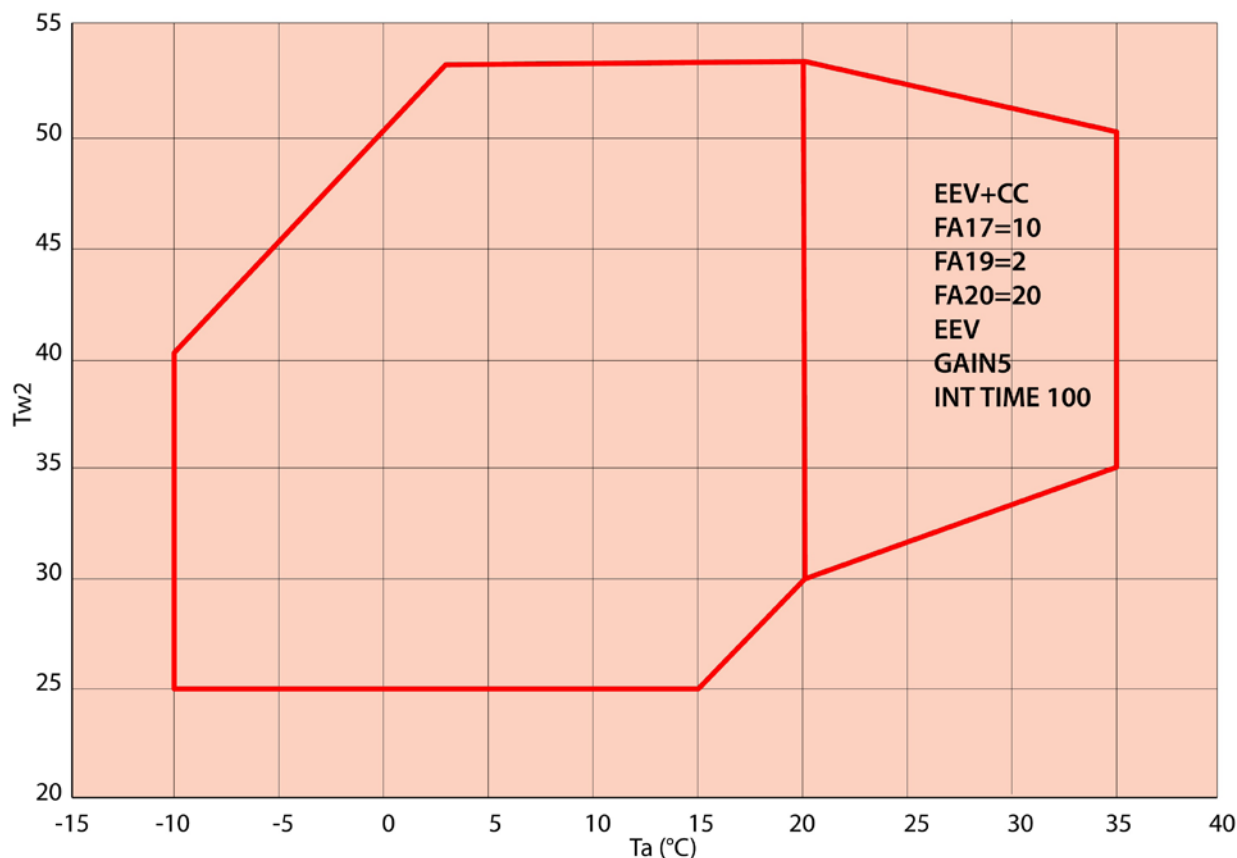


- Tbs1** Outdoor temperature (dry bulb)
- Tw2** Outlet water temperature
- OPZ 1** Condensing control
- OPZ 2** Glycol + low temperature option
- OPZ 1+2** Condensation control + glycol + low temperature option
- EEV** Electronic expansion valve
- STD** Standard



## 8.2 OPERATING LIMITS IN HEAT PUMP MODE

» Operating limits in heat pump mode



**RH** Relative humidity of outdoor air  
**Tbs1** Outdoor temperature (dry bulb)  
**Tw2** Outlet water temperature

**Operating range calculated with temperature difference of 5°C on the water side.**

### Extended operating envelope in heat pump mode

Heat pump operation within the right area of the extended operating envelope (beyond standard limits) can be allowed only for units equipped with condensation control (or EC fans) and electronic expansion valve

For fans, the parameters to be modified on iChill control are the following: FA17-FA19-FA20.

Parameters GAIN and INT TIME are regulation parameters; they have to be modified inside the electronic expansion valve driver. Both modifications should only be made in the factory or implemented on the field, but only by Galletti S.p.A. authorized personnel.

## 8.3 THERMAL CARRYING FLUID

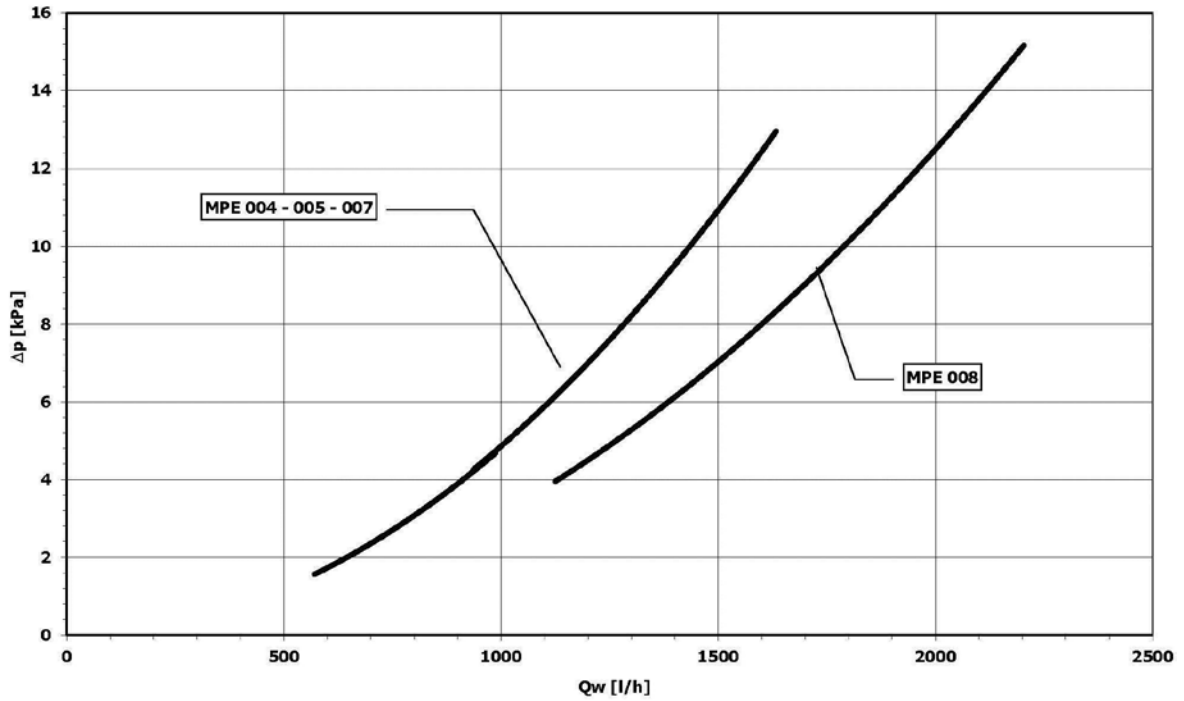
The units belonging to the MPESeries can work with mixtures of water and up to 25% ethylene glycol.

# 9 WATER PRESSURE DROP

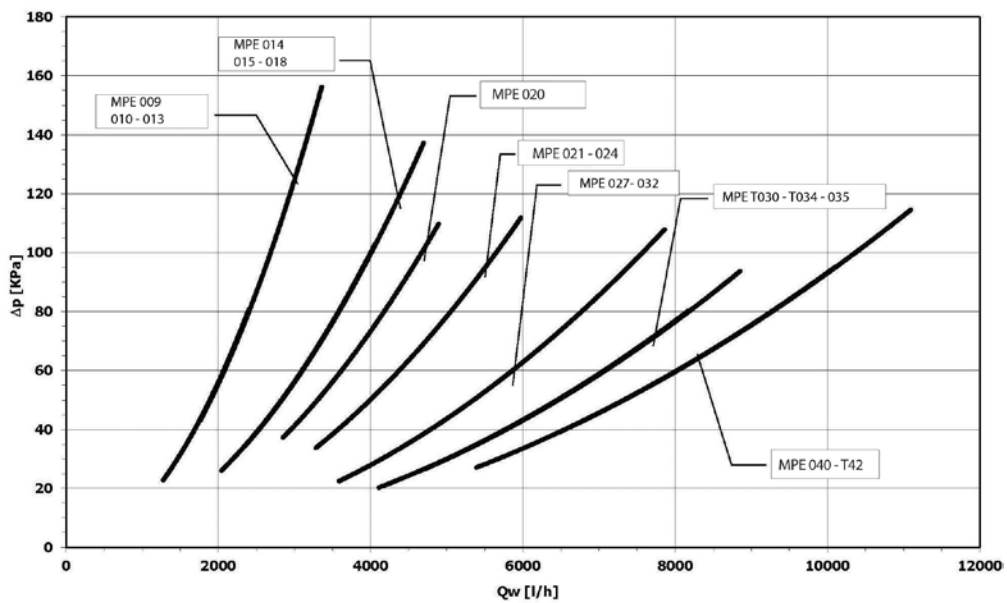
## 9.1 PRESSURE DROP, WATER SIDE

The table and diagrams shows the evaporator pressure drops ( $\Delta p_w$ ) as a function of the water flow rate ( $Q_w$ ), assuming an average water temperature of 10 °C.

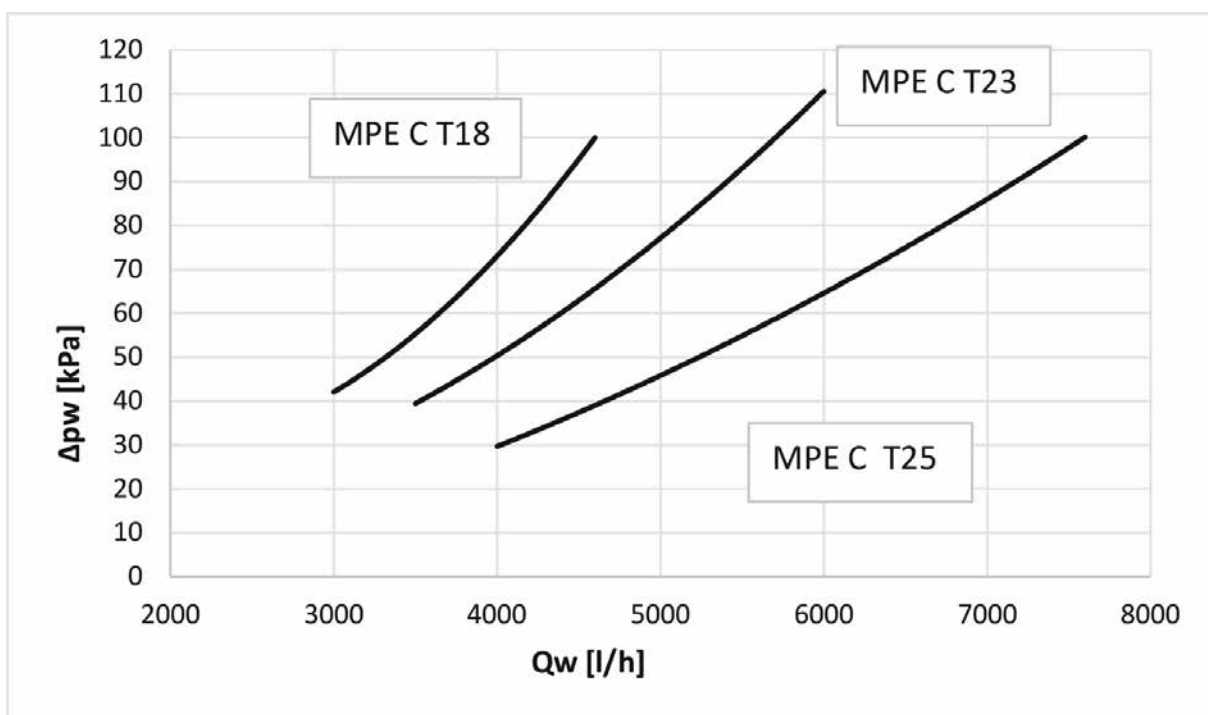
» MPE H 004 - 008



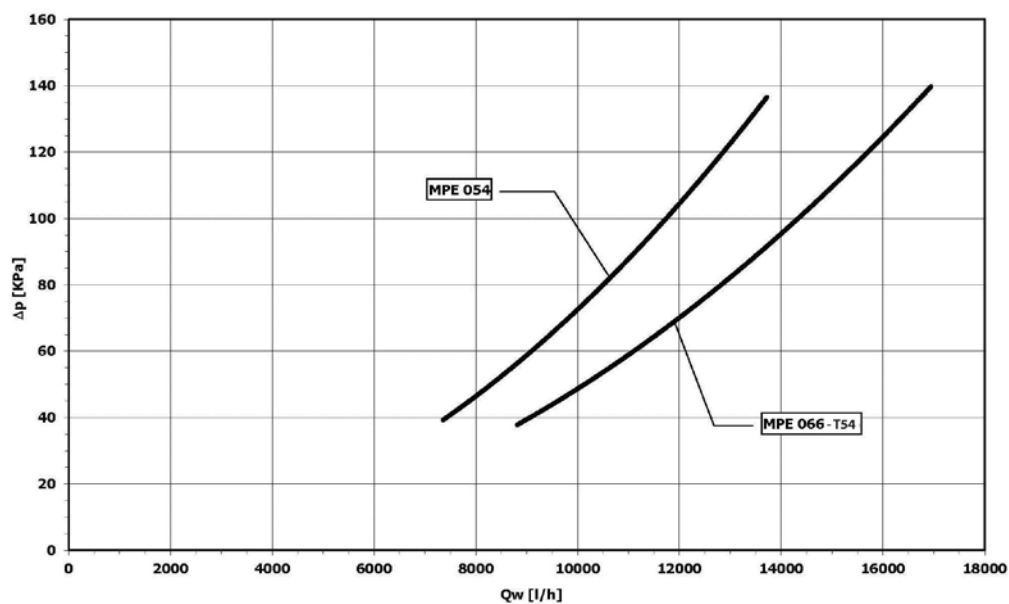
» MPE 009 - T42



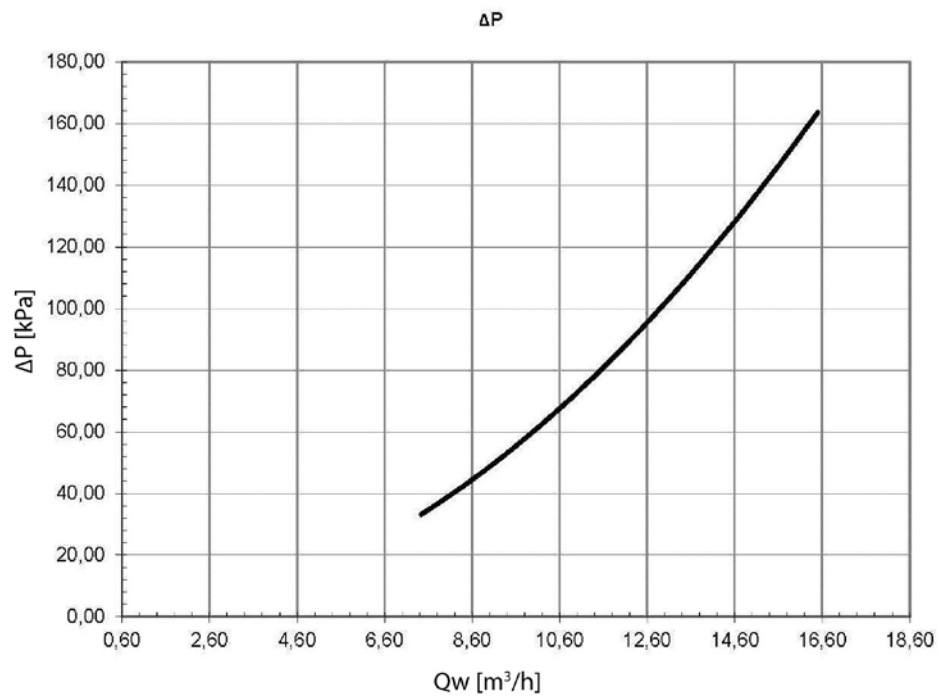
» MPECT18-T23-T25



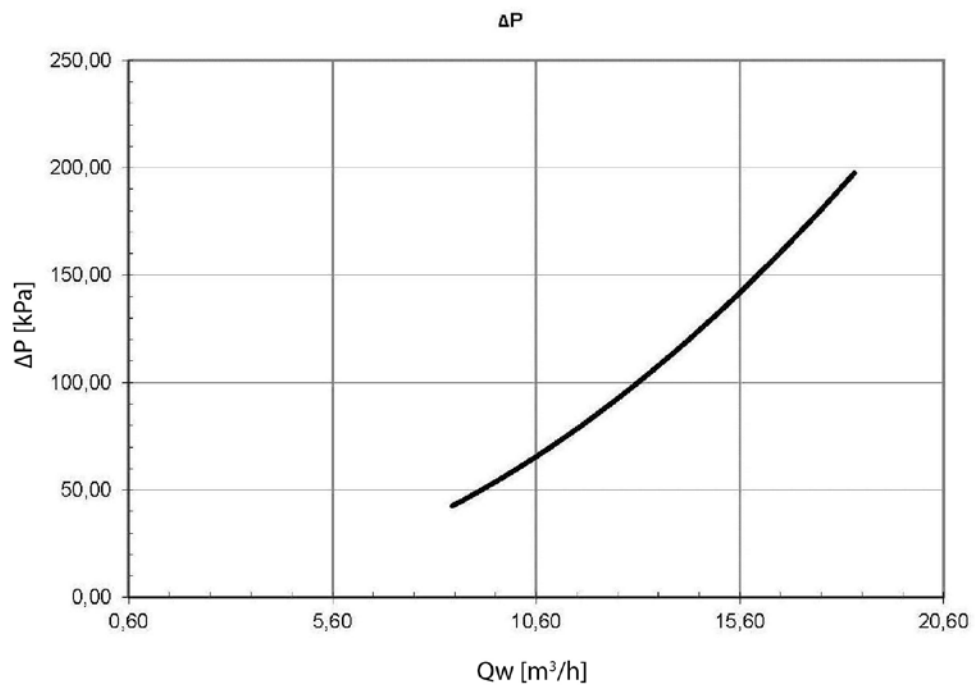
» MPE 54 - 66



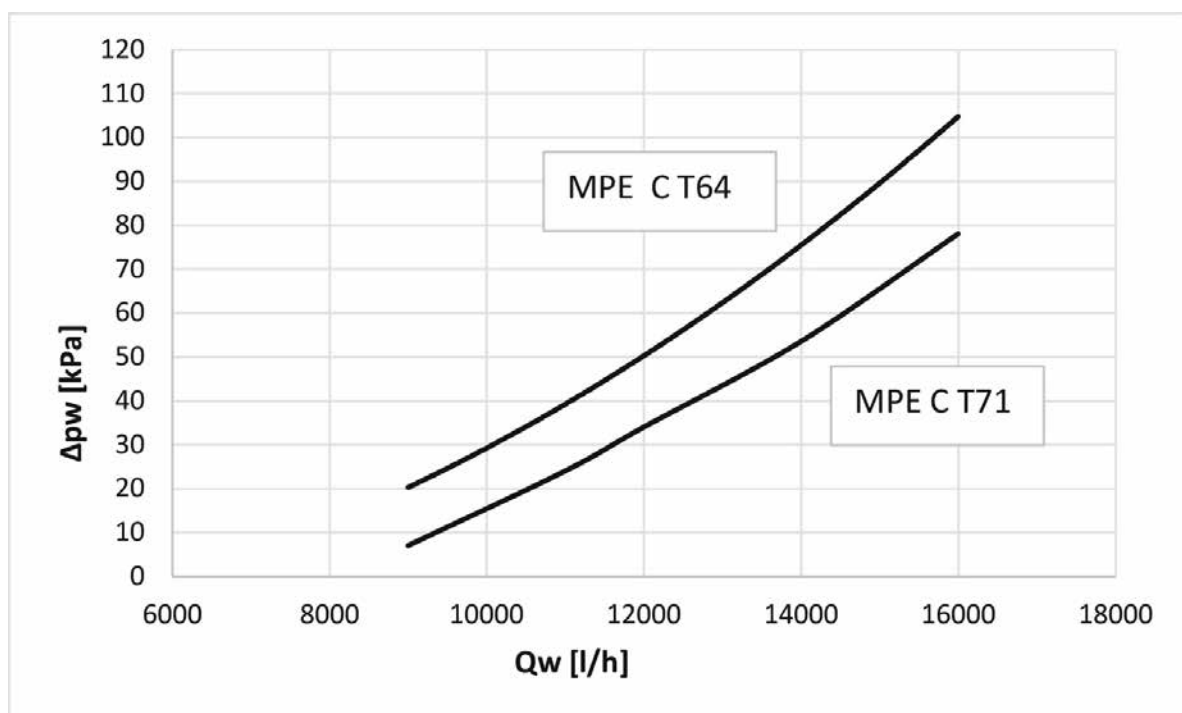
» MPE HT54



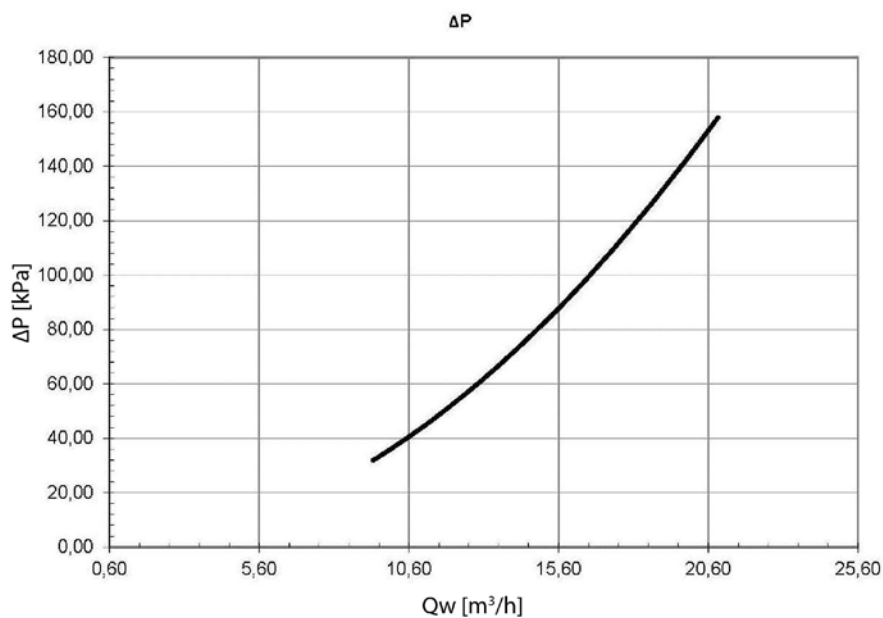
» MPET61

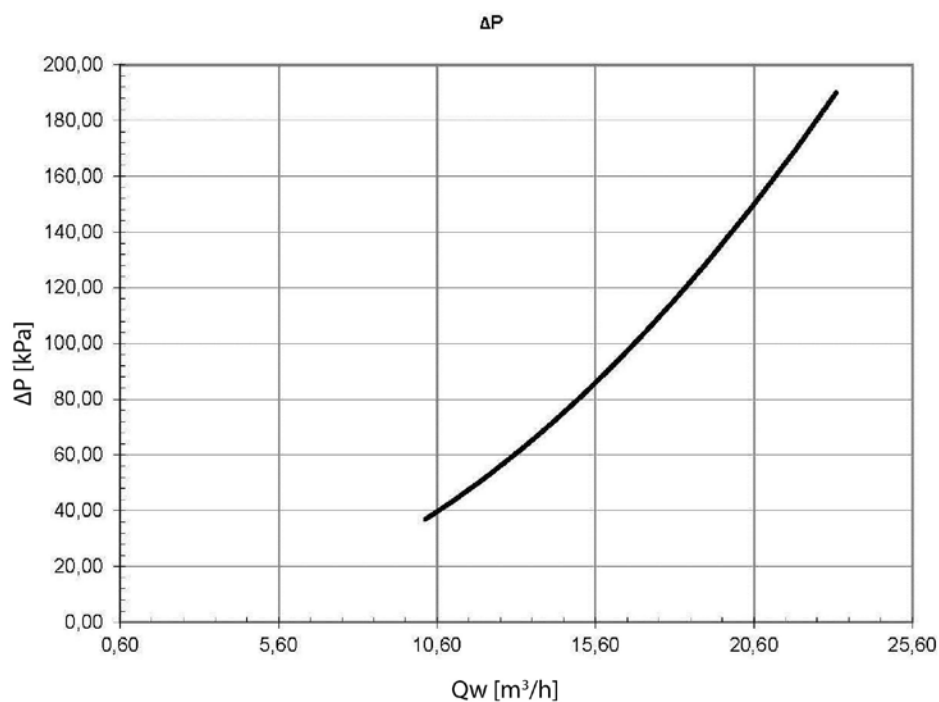


» MPE CT64 - T71



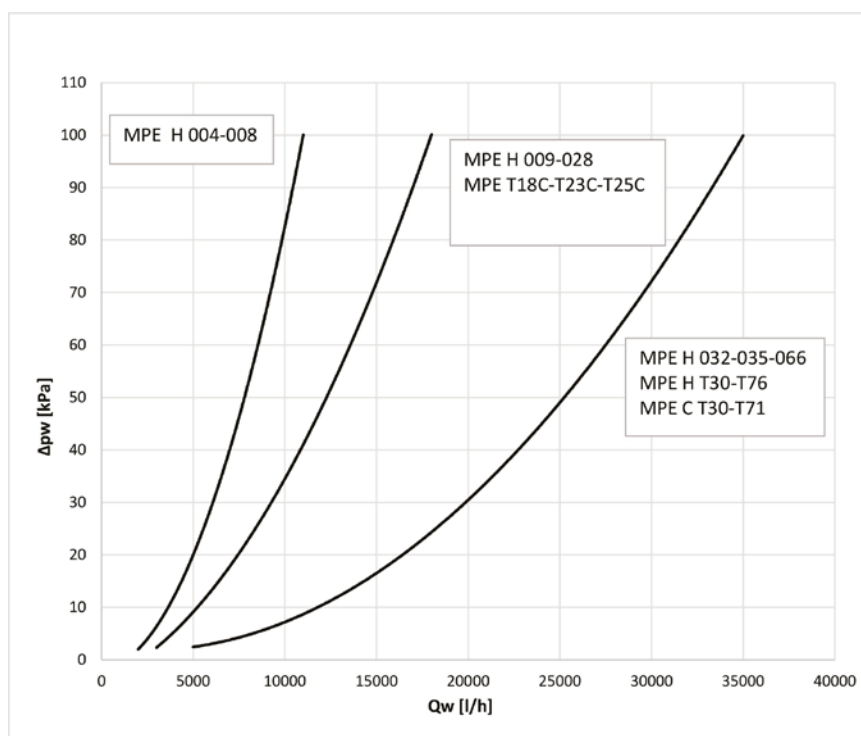
» MPE HT69 - MPE CT57





## 9.2 Y FILTER PRESSURE DROPS

The table below shows the pressure drops of the Y filter ( $\Delta p$ ) as a function of the water flow rate ( $Q_w$ ), assuming an average water temperature of 10 °C,



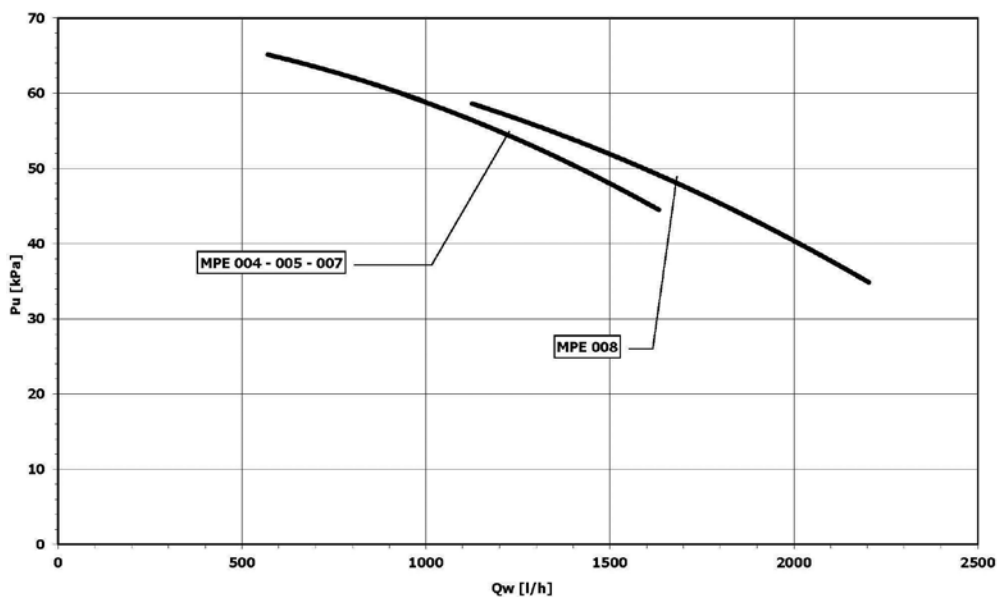
## 10 AVAILABLE PRESSURE HEAD

### 10.1 UNIT AVAILABLE PRESSURE HEAD

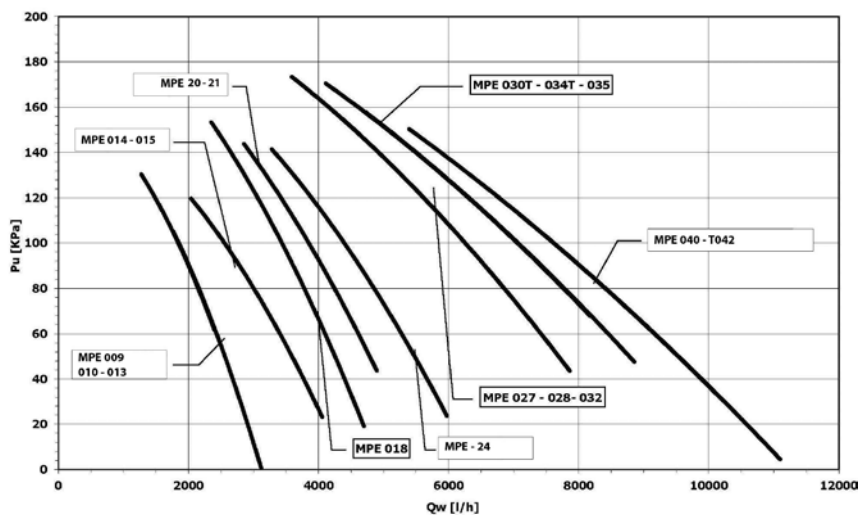
The tables and diagrams show the total head of the pump (Pump Head) as a function of the water flow rate ( $Q_w$ ), assuming an average water temperature of 10 °C.

Note: in order to calculate the available head, subtract to the total pump head the pressure drop of the heat plate exchanger and the Y filter

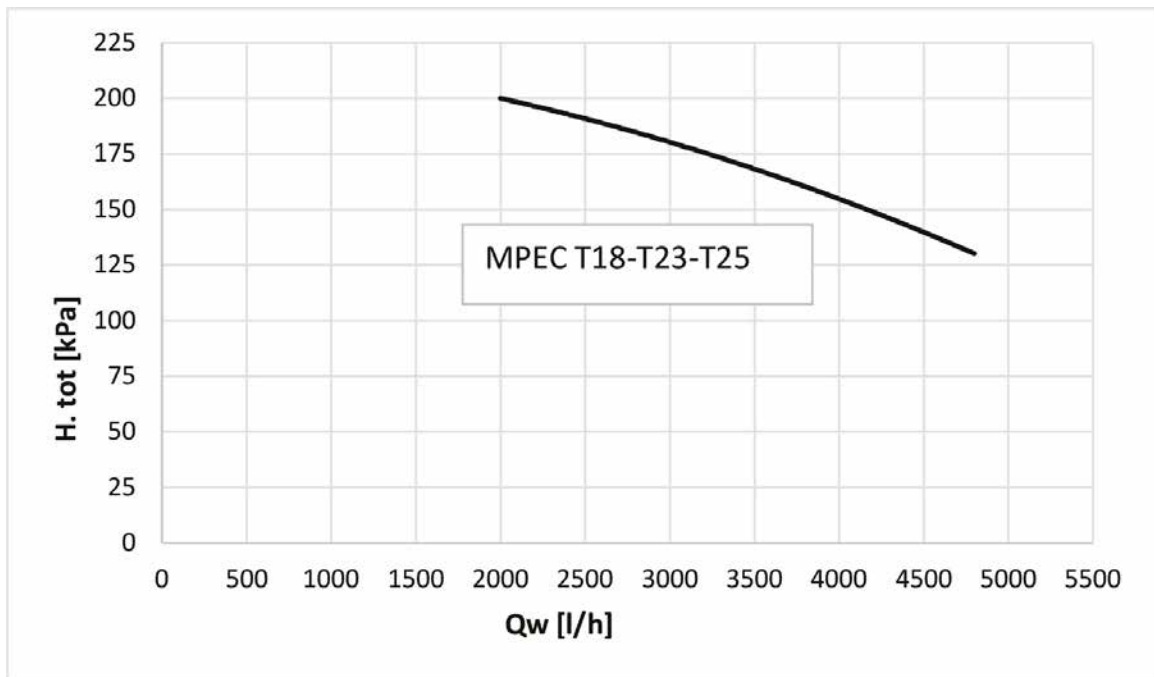
» MPE H 004 - 008



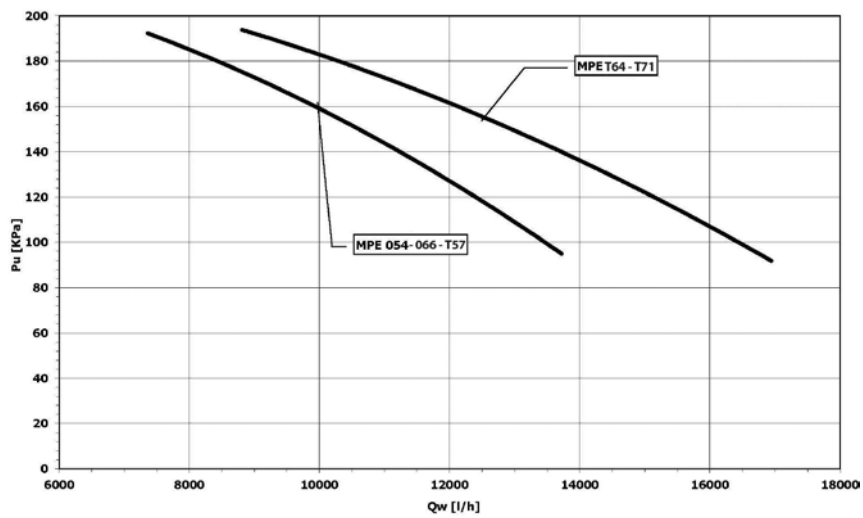
» MPE 009 - T42



» MPE C T18-T23-T25

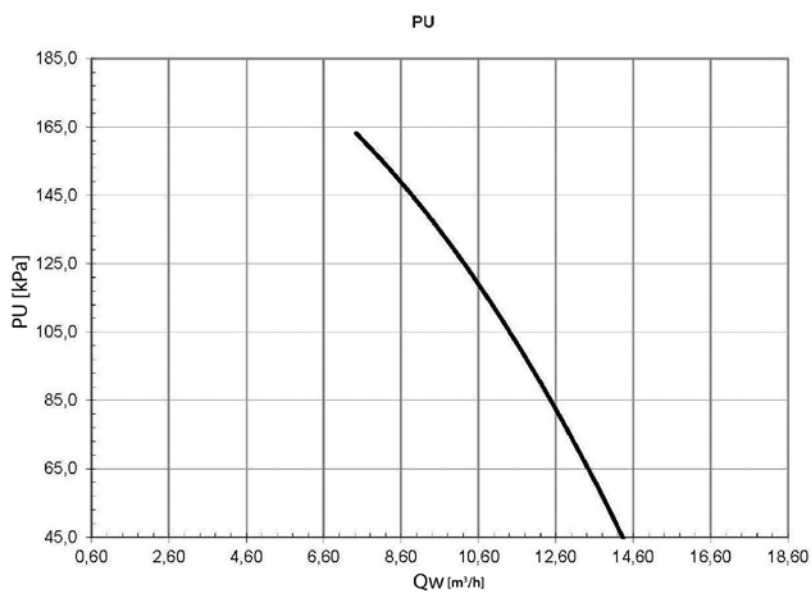


» MPE 54 - 66 - T57 - T64 - T71

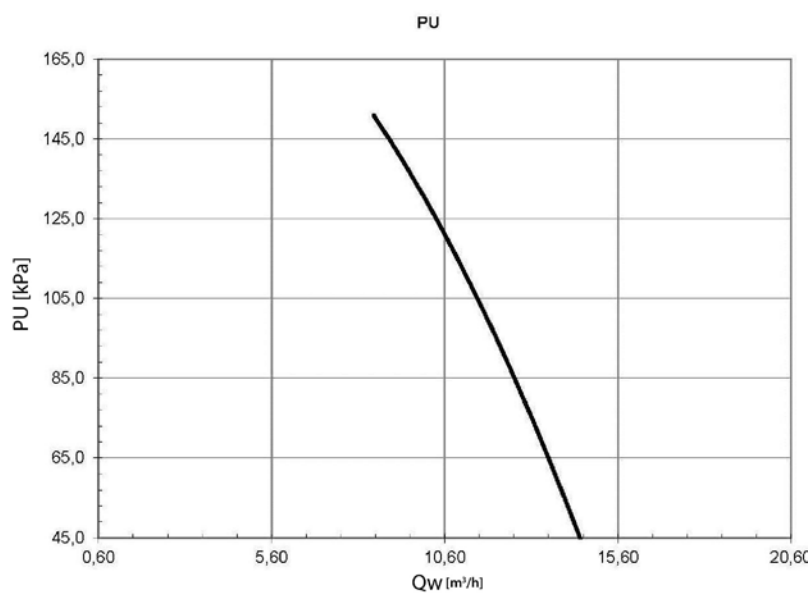




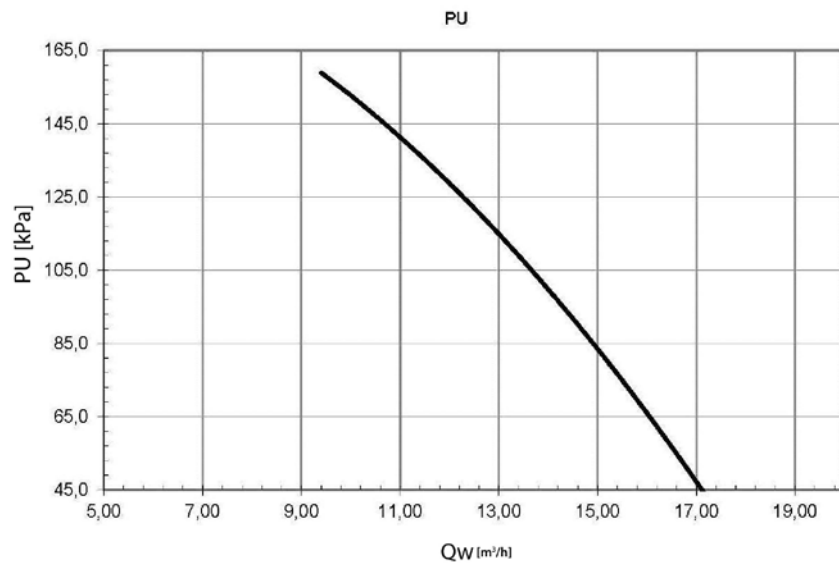
» MPE T54



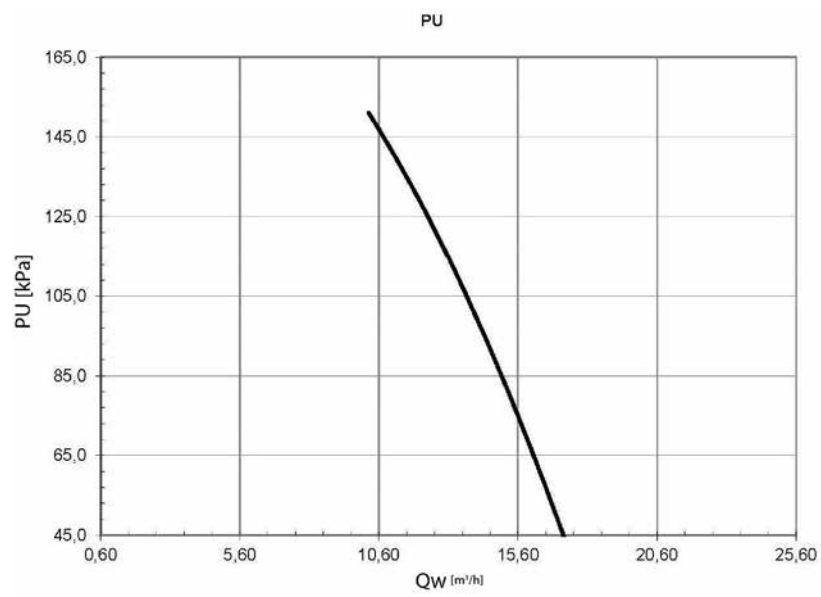
» MPE T61



» MPET69



» MPET76



## 11 WATER CIRCUIT

When setting up the water circuit of the unit, it is advisable to follow the directions below and in any case comply with local or national regulations.

Connect the pipes to the chiller using flexible couplings to prevent the transmission of vibrations and to compensate thermal expansions.

Install the following components on the piping:

- Temperature and pressure indicators for routine maintenance and monitoring of the unit. Pressure control on the water side allows to assess the correct functioning of the expansion tank and to detect water leakage in advance.
- Traps on incoming and outgoing pipes for temperature measurements, which can provide a direct reading of the operating temperatures.
- Regulating valves (gate valves) for isolating the unit from the water circuit.
- **Metal mesh filter (supplied), with a mesh size no greater than 1 mm, to be fitted on the inlet pipe to protect the exchanger from scale or impurities present in the pipes.**
- Air vent valves, to be placed at the highest points of the water circuit for the purpose of bleeding air. (The internal pipes of the unit are fitted with small air vent valves for bleeding the unit itself: this operation may only be carried out when the unit is disconnected from the power supply).
- Drainage valve and, where necessary, a drainage tank for emptying out the equipment for maintenance purposes or when the unit is taken out of service at the end of the season. (A 1" drainage valve is provided on the optional water buffer tank: this operation may only be carried out when the unit is disconnected from the power supply).

It is of fundamental importance that the incoming water supply is hooked up to the connection marked "Water Inlet".

Otherwise the evaporator would be exposed to the risk of freezing since the antifreeze thermostat would not be able to perform its function; moreover the reverse cycle would not be respected in the cooling mode, resulting in additional risks of malfunctioning.

The dimensions and position of plumbing connections are shown in the dimension tables at the end of the manual.

The water circuit must be set up in such a way as to guarantee that the nominal flow rate of the water supplied to the evaporator remains constant (+/- 15%) in all operating conditions.

A standard feature of MPE units is a device for controlling the flow rate (flow switch or differential pressure switch) in the water circuit in the immediate vicinity of the evaporator.

### 11.1 WATER CONTENT AND CHARGING OF EXPANZION TANK SYSTEM

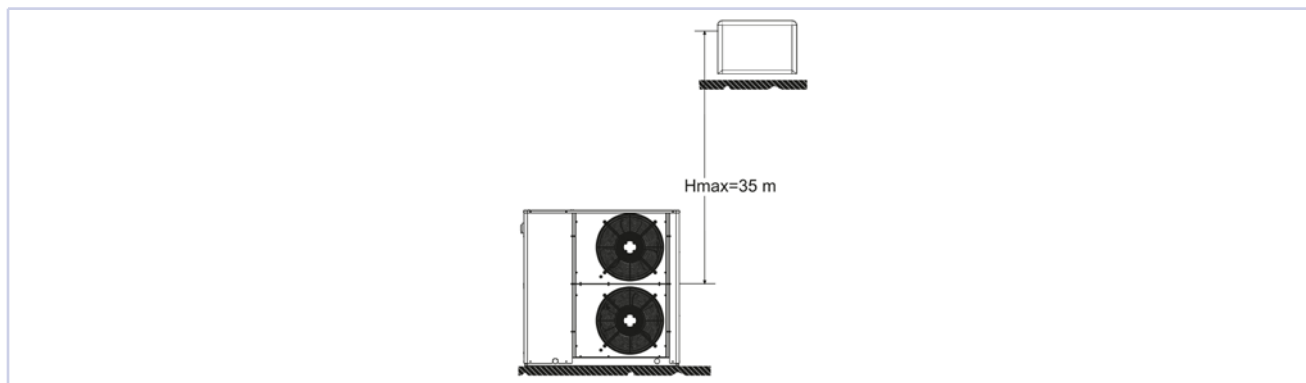
In models without a water storage reservoir it is necessary to assure that the content of water within the system does not fall below 3.5 litres/kW in the case of cooling-only models and 4.5 litres/kW in the case of heat pump models. This level is necessary to prevent the water temperature from falling below the indoor unit enabling threshold during defrost cycles.

**N.B.** kW in reference to rated capacity

The expansion tank is pre-charged to a pressure of 1.5 bars, sufficient for systems with a maximum height difference (H in the figure at the side) of 13 metres.

For greater height differences, refer to the table below in order to adjust the charging pressure of the expansion tank accordingly.

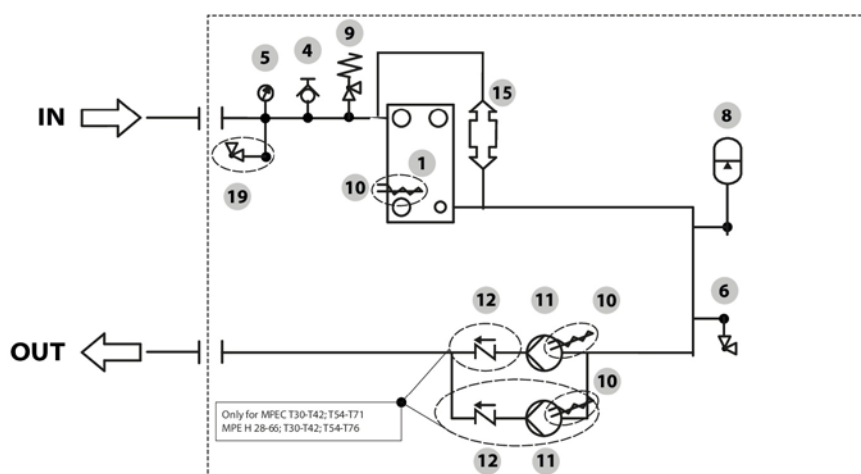
In no case should you exceed the maximum height difference  $H_{max} = 35$  m.



Models	Height difference of system (m)	Charging pressure of expansion tank	Maximum system water content
<b>MPE H 004 - 008</b>	<5	0,7	38
	7	0,9	36
	10	1,2	32
	13	1,5	29
	15	1,7	27
<b>MPE CT18-T25 ; MPE H 010 - 027</b>	<13	1,7	145
	15	1,5	133
	20	2,7	105
	25	2,2	77
	30	3,1	49
<b>MPE 028 - 066 ; MPET30 - T42 - T54 - T76 MPE CT54 - T71</b>	<13	1,5	231
	15	1,7	213
	20	2,2	168
	25	2,7	124
	30	3,1	79

## 11.2 WATER CIRCUIT

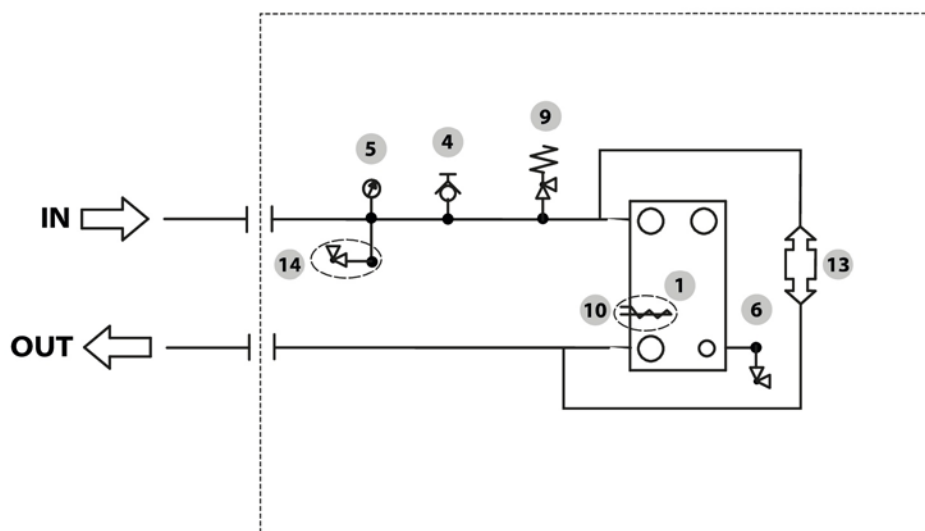
» MPE ( evaporator and pump)



### LEGEND

- |                                       |  |
|---------------------------------------|--|
| <b>1</b> Evaporator                   | <b>12</b> Clapet valve                 |
| <b>2</b> -                            | <b>13</b> -                            |
| <b>3</b> -                            | <b>14</b> -                            |
| <b>4</b> Air purge valve              | <b>15</b> Differential pressure switch |
| <b>5</b> Pressure gauge               | <b>16</b> -                            |
| <b>6</b> Drain                        | <b>17</b> -                            |
| <b>7</b> -                            | <b>18</b> -                            |
| <b>8</b> Expansion tank               | <b>19</b> Water charge                 |
| <b>9</b> Safety valve                 | ----- Internal and external borderline |
| <b>10</b> Antifreeze electric heating | ————— OPTIONAL                         |
| <b>11</b> Hydraulic pump              |  |

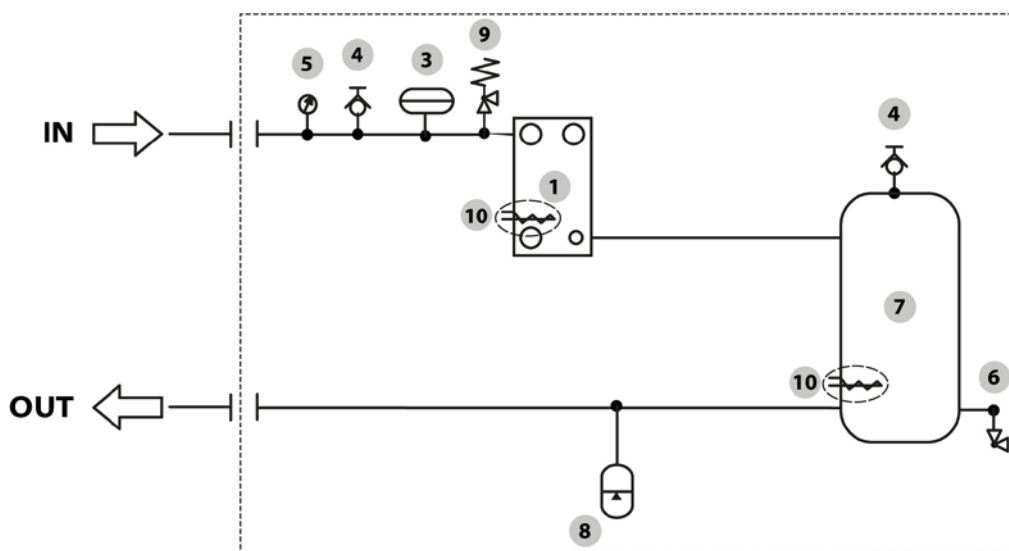
» MPE (evaporator)



**LEGEND**

- |          |                 |           |  |
|----------|-----------------|-----------|--|
| <b>1</b> | Evaporator      | <b>9</b>  | Safety valve                           |
| <b>2</b> | -               | <b>10</b> | Antifreeze electric heating            |
| <b>3</b> | -               | <b>11</b> | -                                      |
| <b>4</b> | Air purge valve | <b>12</b> | -                                      |
| <b>5</b> | Pressure gauge  | <b>13</b> | Differential pressure switch           |
| <b>6</b> | Drain           |           | ----- Internal and external borderline |
| <b>7</b> | -               |           | ——— OPTIONAL                           |
| <b>8</b> | -               |           |  |

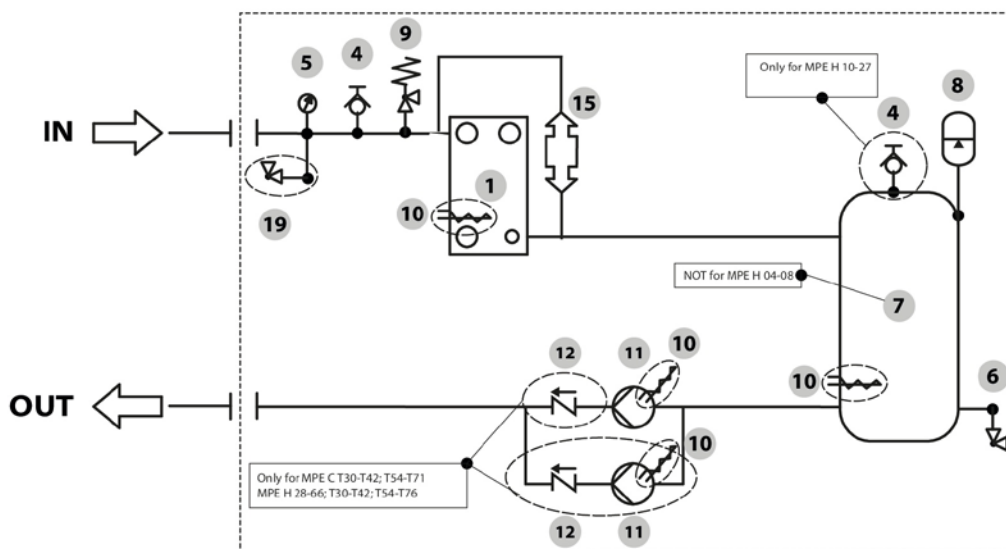
» MPE (evaporator and tank)



**LEGEND**

- |          |                 |           |  |
|----------|-----------------|-----------|--|
| <b>1</b> | Evaporator      | <b>7</b>  | Buffer tank                            |
| <b>2</b> | -               | <b>8</b>  | Expansion tank                         |
| <b>3</b> | Flow switch     | <b>9</b>  | Safety valve                           |
| <b>4</b> | Air purge valve | <b>10</b> | Antifreeze electric heating            |
| <b>5</b> | Pressure gauge  |           | ----- Internal and external borderline |
| <b>6</b> | Drain           |           | ——— OPTIONAL                           |

» MPE (evaporator, pump and tank)



**LEGEND**

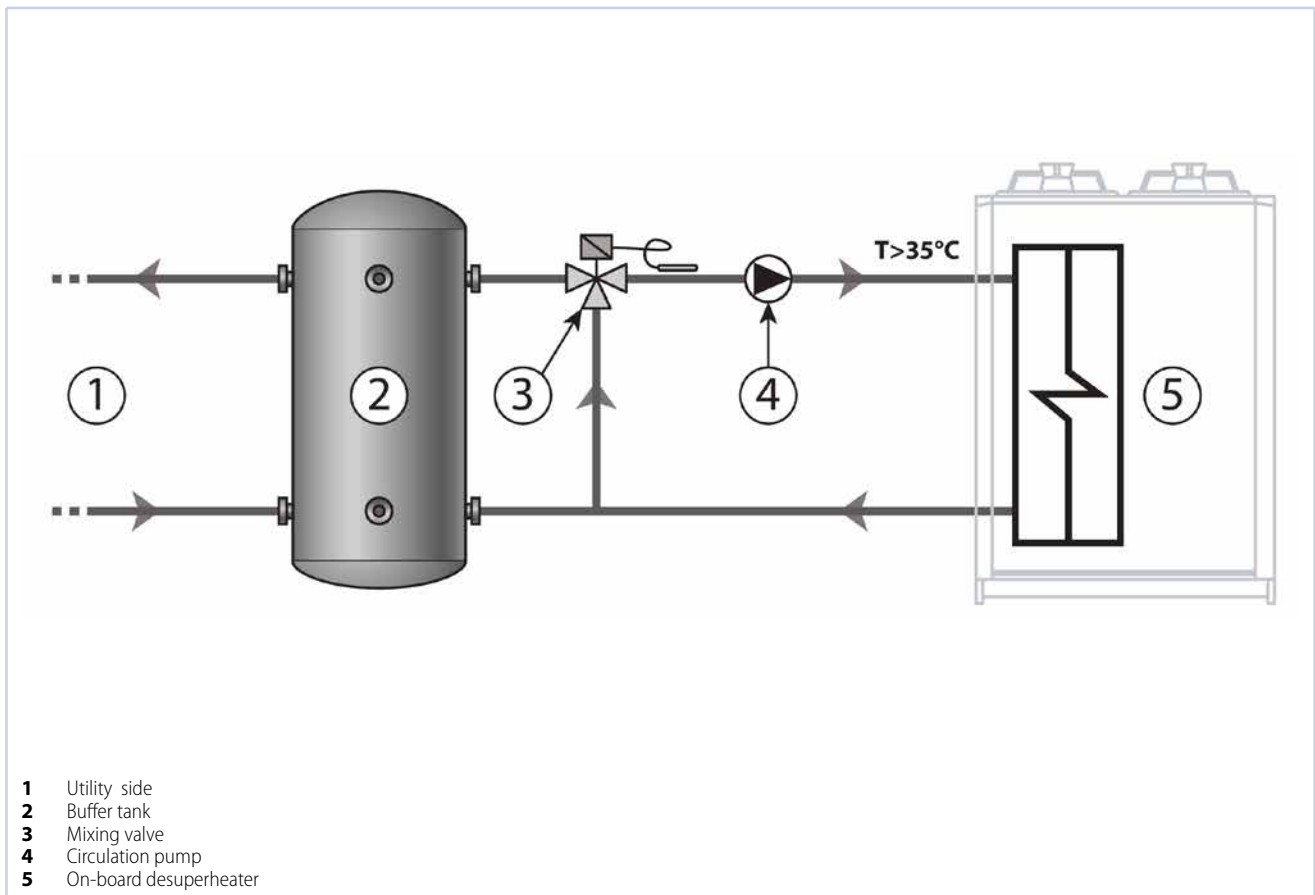
- |                                       |  |
|---------------------------------------|--|
| <b>1</b> Evaporator                   | <b>12</b> Clapet valve                 |
| <b>2</b> -                            | <b>13</b> -                            |
| <b>3</b> -                            | <b>14</b> -                            |
| <b>4</b> Air purge valve              | <b>15</b> Differential pressure switch |
| <b>5</b> Pressure gauge               | <b>16</b> -                            |
| <b>6</b> Drain                        | <b>17</b> -                            |
| <b>7</b> Buffer tank                  | <b>18</b> -                            |
| <b>8</b> Expansion tank               | <b>19</b> Water charge                 |
| <b>9</b> Safety valve                 | ----- Internal and external borderline |
| <b>10</b> Antifreeze electric heating | ————— OPTIONAL                         |
| <b>11</b> Hydraulic pump              |  |

## 11.3 DE-SUPERHEATER

### 11.3.1 Recommended water circuit

The partial heat recovery option is provided by a braze-welded plate heat exchanger placed in series on the compressor delivery (typically in series in relation to the finned pack condenser). Its size is designed to limit pressure drops on the refrigerant side to a minimum.

All units equipped with a heat recovery kit have modulating condensation control as a standard feature. To prevent unbalances from occurring in the cooling circuit in the event of start-ups with very low water temperatures at the recuperator inlet ( $<35^{\circ}\text{C}$ ), the recovery system water circuit should be configured as shown in the following figure. A low recuperator inlet water temperature would cause low condensation temperatures and thus an insufficient pressure differential on the expansion valve with the consequent risk of tripping the safety devices.



The bulb of the 3-way mixer valve is placed at the de-superheater exchanger inlet. By mixing the hot water produced by the recovery with colder water from the tank, it reduces the time needed for the system to reach full operating capacity to a few moments.

A buffer tank must be placed between the unit and the utility since the demand for hot water and its availability are not simultaneous, because it needs the compressors to be running.

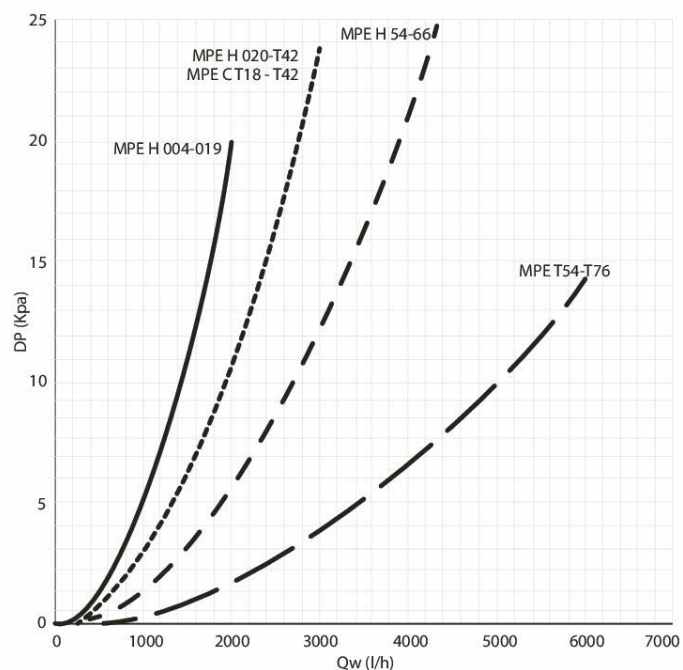
Note that the heat recovery capacity is tied to the delivered cooling capacity and therefore decreases proportionately in partial load situations: this aspect should be taken into account when choosing the size of the storage tank.

The partial heat recovery option is supplied only with the de-superheater exchanger. The other components of the circuit laid out in the previous figure are not included in the supply.



### 11.3.2 Water pressure drop

» Water pressure drop desuperheater



### 11.3.3 Heating capacities corrective factors

» De-Superheater heating capacities corrective factors

Air temperature (K)	Inlet water temperature / Outlet water temperature		
-	40/50	50/55	50/60
30	0,92	0,71	0,63
35	0,93	0,76	0,69
40	0,94	0,79	0,74

## 12 INSTALLATION CLEARANCE REQUIREMENTS

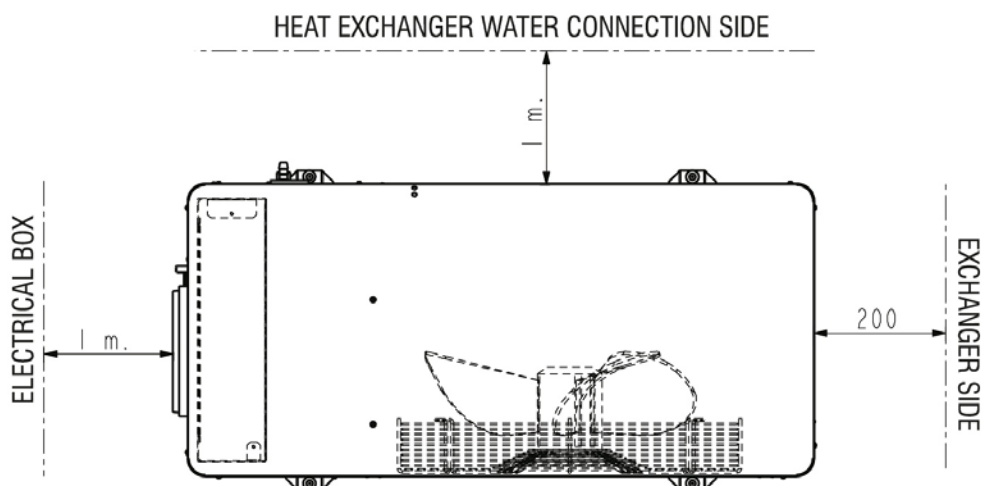
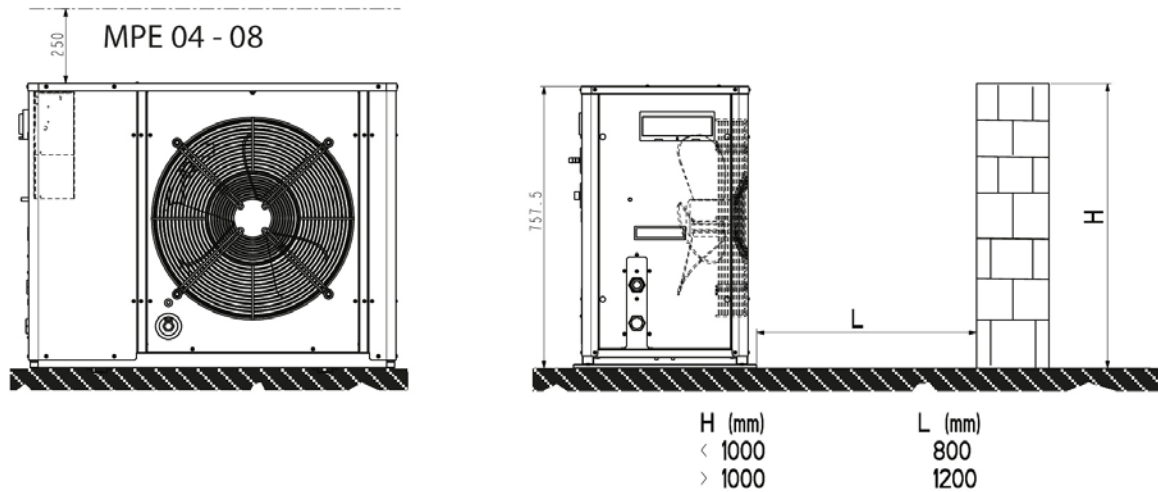
To guarantee the proper functioning of the unit and access for maintenance purposes, it is necessary to comply with the minimum installation clearance requirements shown in figures Spazi installazione MPE H 04 - 08 , spazi installazione MPE 09-15 , spazi installazione MPE H 18-27; MPE C T18-T25 , spazi installazione MPE 28-40 - T30 - T42 and spazi installazione MPET54 - T76 .

- Verify that there are no obstacles in front of the fans air outlet.
- Avoid any and all situations of backflow of hot air between air outlet and inlet of the unit.
- If even only one of the above conditions is not fulfilled, please contact the manufacturer to check for feasibility.
- In the design of the MPE series, special care has been taken

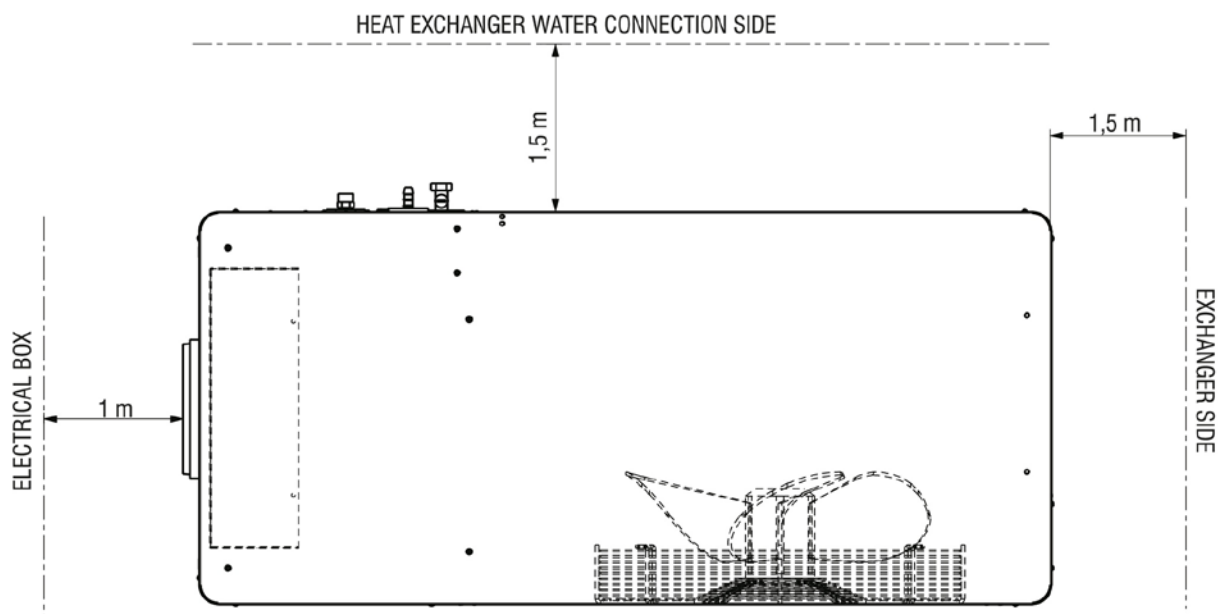
- to minimise noise and vibrations transmitted to the ground.
- Even greater insulation may be obtained, however, by using vibration damping base supports (available as optional accessories).
- If vibration damping base supports are adopted, it is strongly recommended also to use vibration damping couplings on the water pipes.
- Whenever the unit is to be sited on unstable ground (various types of soil, gardens, etc.) it is a good idea to provide a supporting base of adequate dimensions.

**⚠ WARNING** Heat pump units produce condensation while operating in the heating mode.

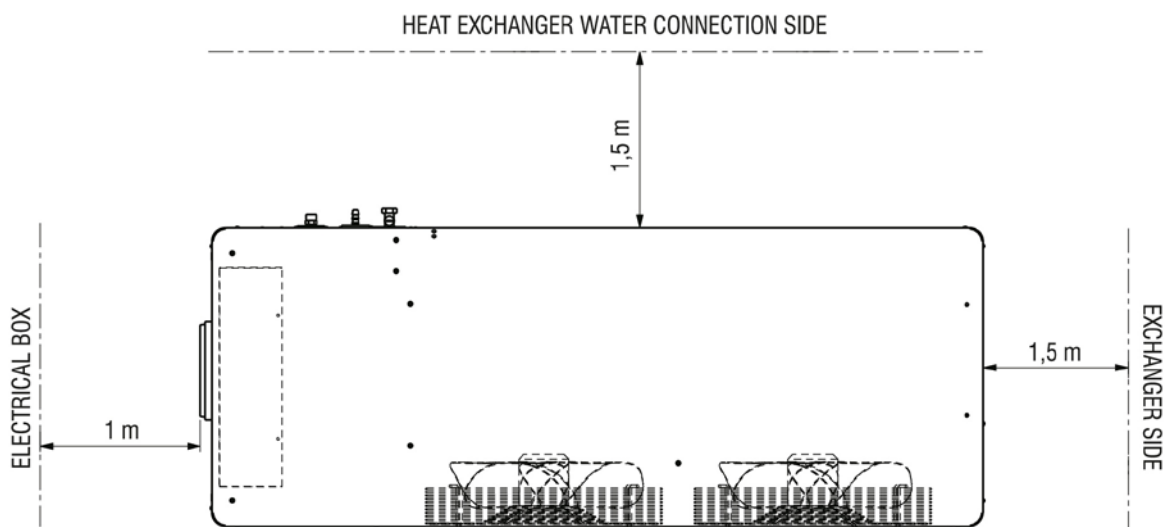
» MPE H 04 - 08



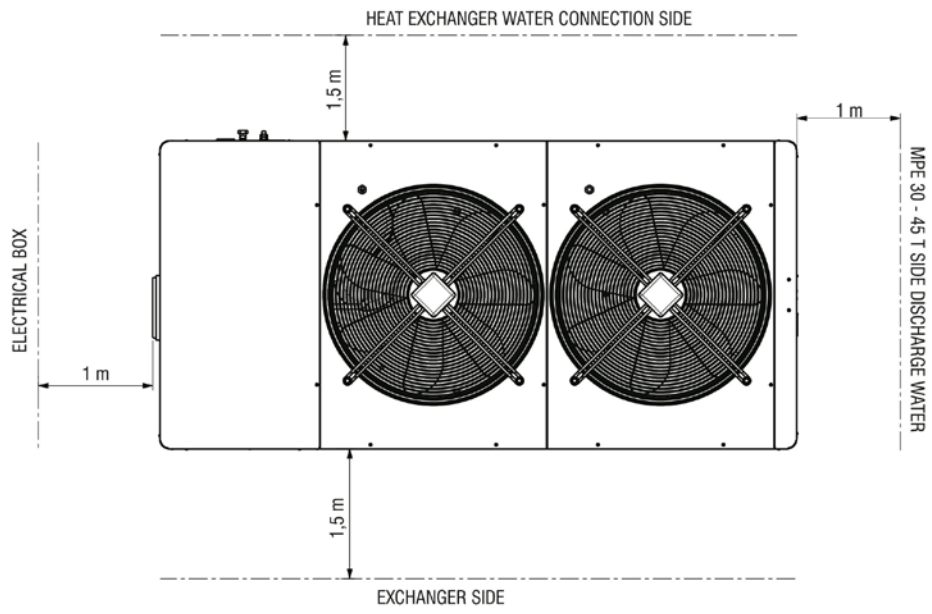
» MPE 09 - 15



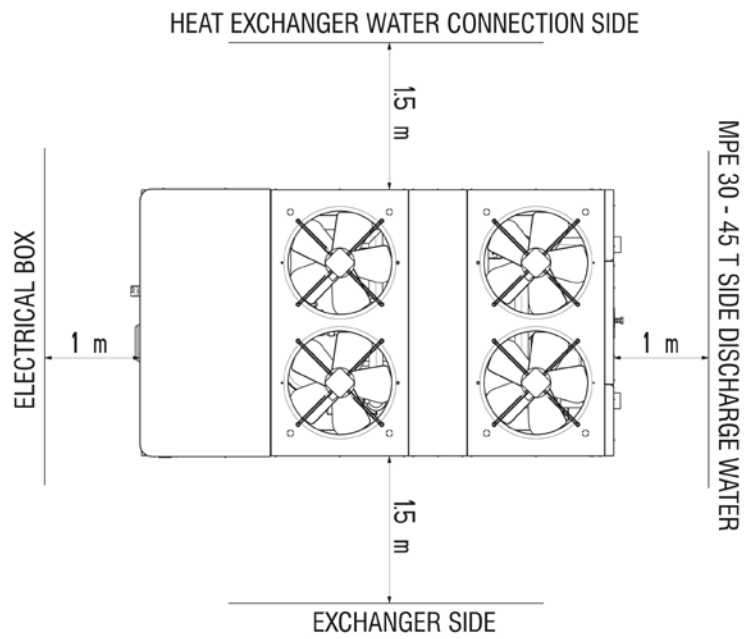
» MPE T18-T25



» MPE 28 - 40 - T30 - T42



» MPE T54 - T76



## 13 SITING AND DAMPERS

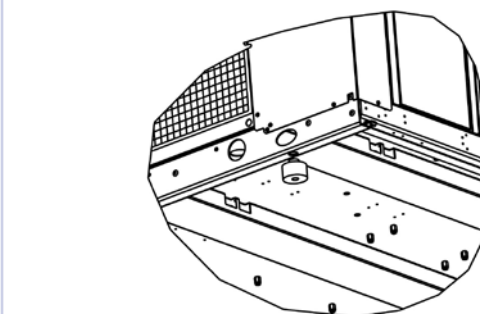
It is important to bear in mind the following aspects when choosing the best site for installing the unit:

- Size and origin of water pipes;
- Location of the power supply;
- Solidity of the supporting surface;
- Avoid obstacles to the outflow of air from the fan which could cause back suction (see section on 14 Dimensions p. 38);
- Direction of prevalent winds: (position the unit so as to prevent prevalent winds from interfering with the fan air flow). Prevalent winds opposing the fan air flow will result in a maximum air temperature below the value indicated in the operating limits;
- Avoid the possible reverberation of sound waves; do not install the unit in narrow or cramped spaces;
- Ensure adequate accessibility for maintenance or repairs (see section on 14 Dimensions p. 38).

This appliance is not intended to be used by children or persons

with physical, sensorial or mental problems, inexperienced or unprepared, without supervision. Be careful that children do not approach the appliance.

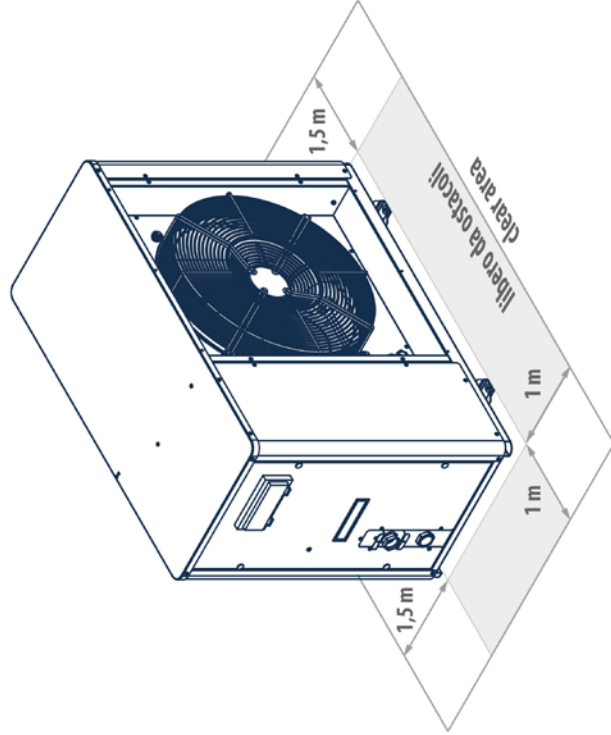
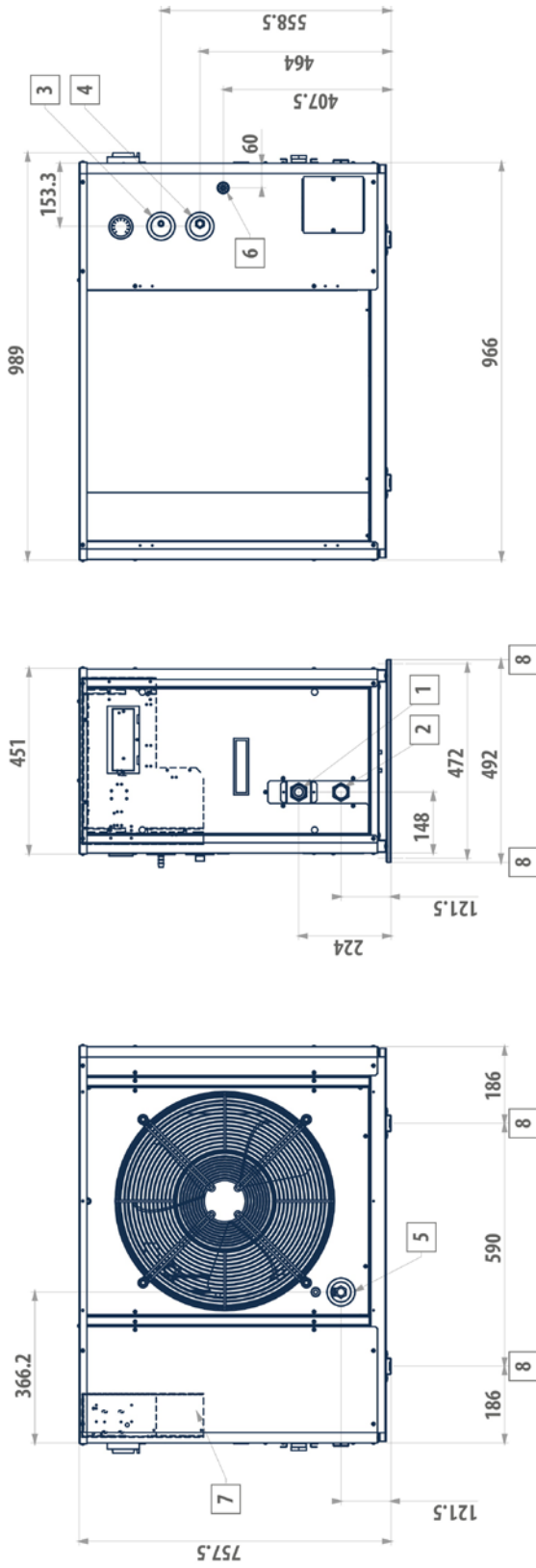
» Vibration dampers



MPE	DAMPERS
04 - 08	4
09 - 15	4
18 - 27 - T18 - T25	4
28 - 66	6
T30 - T45	6
T54 - T76	6

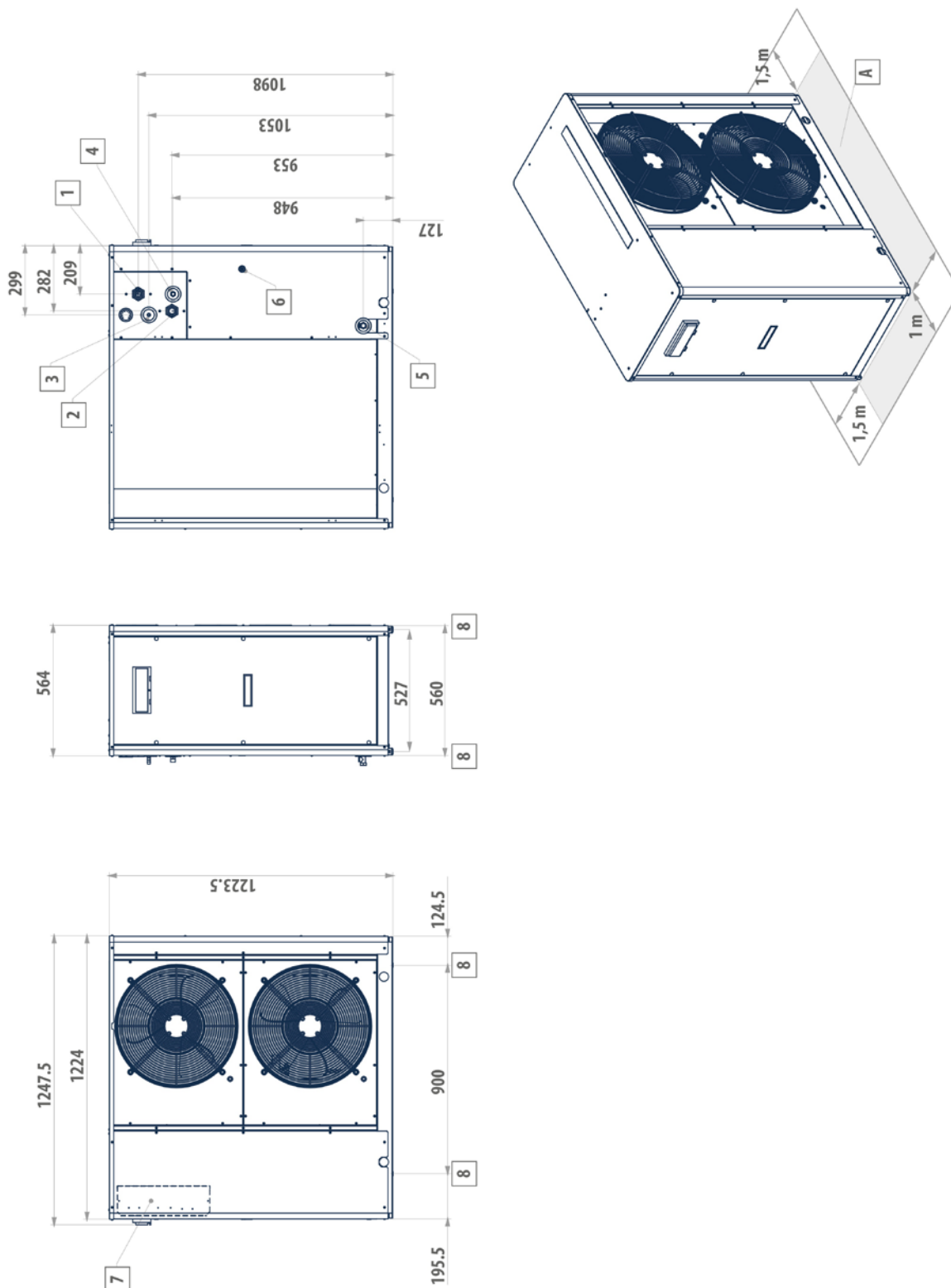
# 14 DIMENSIONS

» MPE H 04 - 08



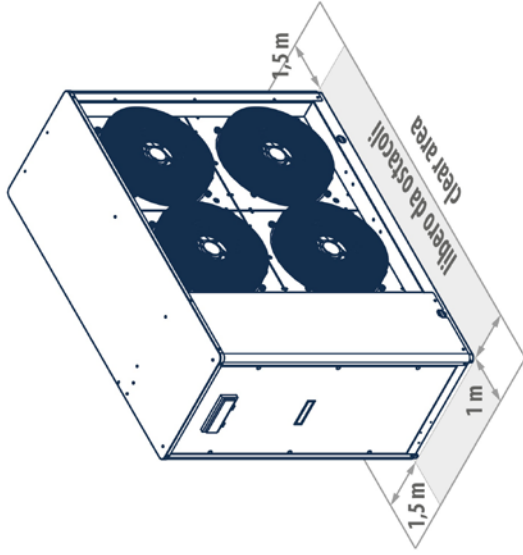
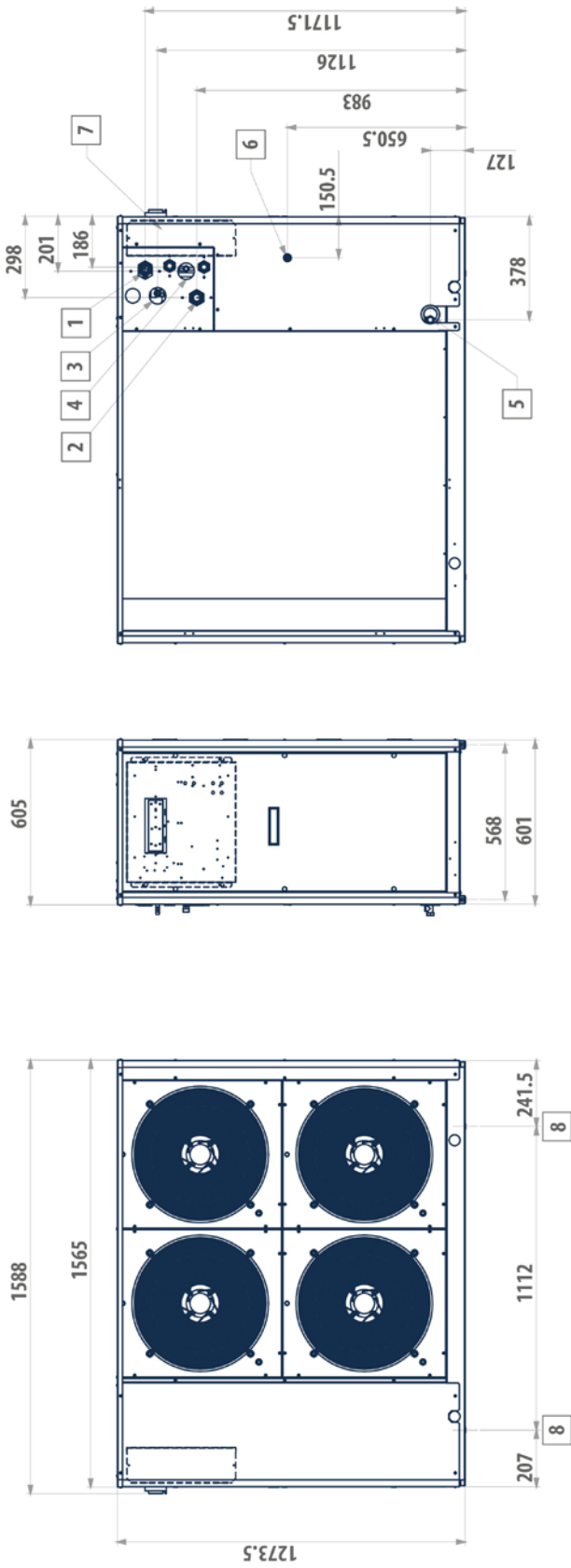
- LEGEND**
- 1 Water inlet 1" female
  - 2 Water outlet 1" female
  - 3 Safety valve discharge outlet provided with rubber ring holder
  - 4 Water supply 1/2" female (optional tap)
  - 5 Water drainage 1/2" female
  - 6 Power supply  $\varnothing$  28 mm
  - 7 Electric control board
  - 8 Vibration dampers

» MPE 09 -15



**LEGEND**

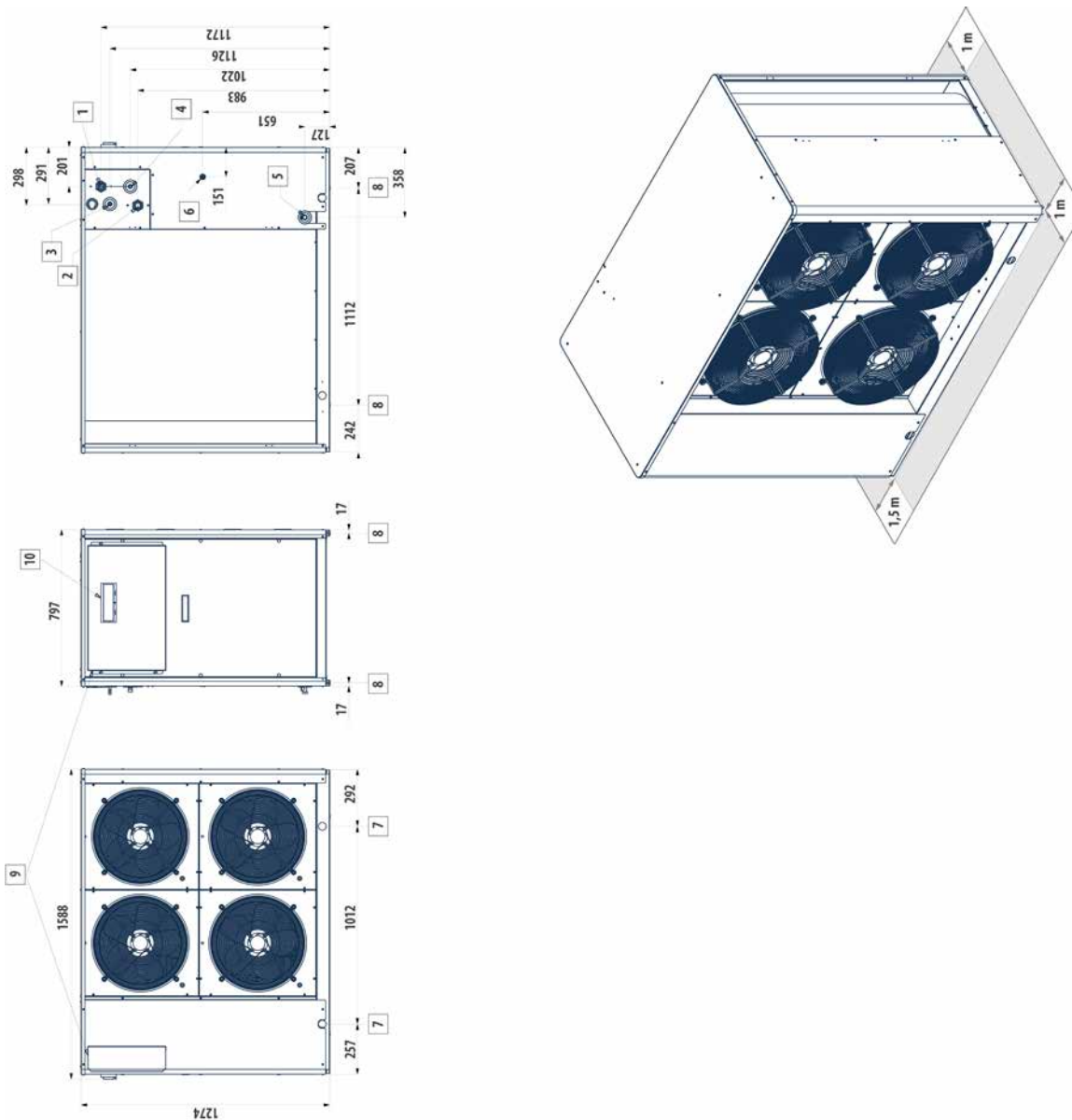
- 1** Water inlet 1" female
- 2** Water outlet 1" female
- 3** Safety valve discharge outlet provided with rubber ring holder
- 4** Water supply 1/2" female (optional tap)
- 5** Water drainage 1/2" female
- 6** Power supply  $\varnothing$  28 mm
- 7** Electric control board
- 8** Vibration dumpers



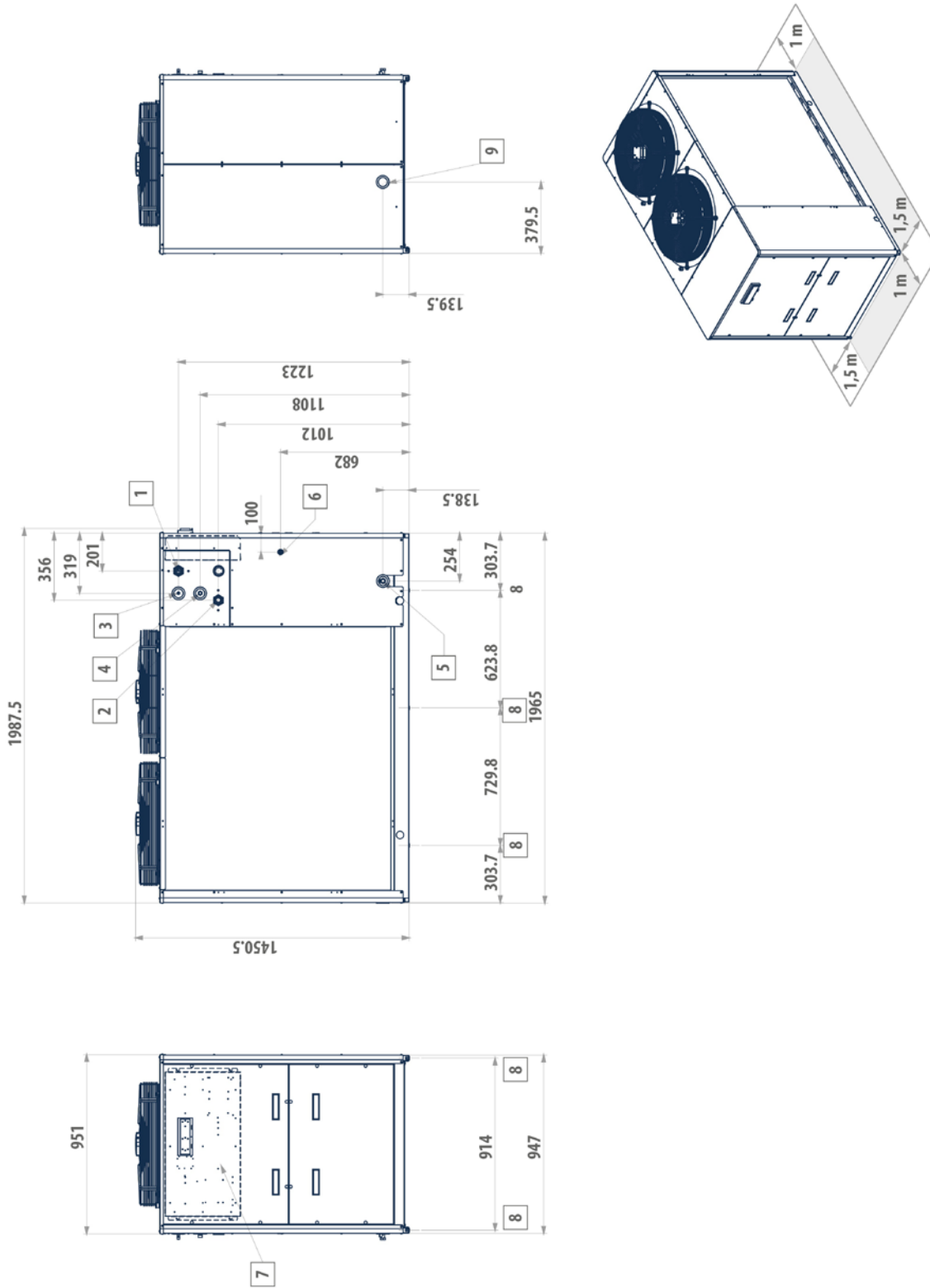
- LEGEND**
- 1** Water inlet 1" 1/4 female
  - 2** Water outlet 1" 1/4 female
  - 3** Safety valve discharge outlet provided with rubber ring holder
  - 4** Water supply 1/2" male (optional tap)
  - 5** Water drainage 1/2" female
  - 6** Power supply  $\varnothing$  28 mm
  - 7** Electric control board
  - 8** Vibration dumpers



» MPE CT18-T23-T25

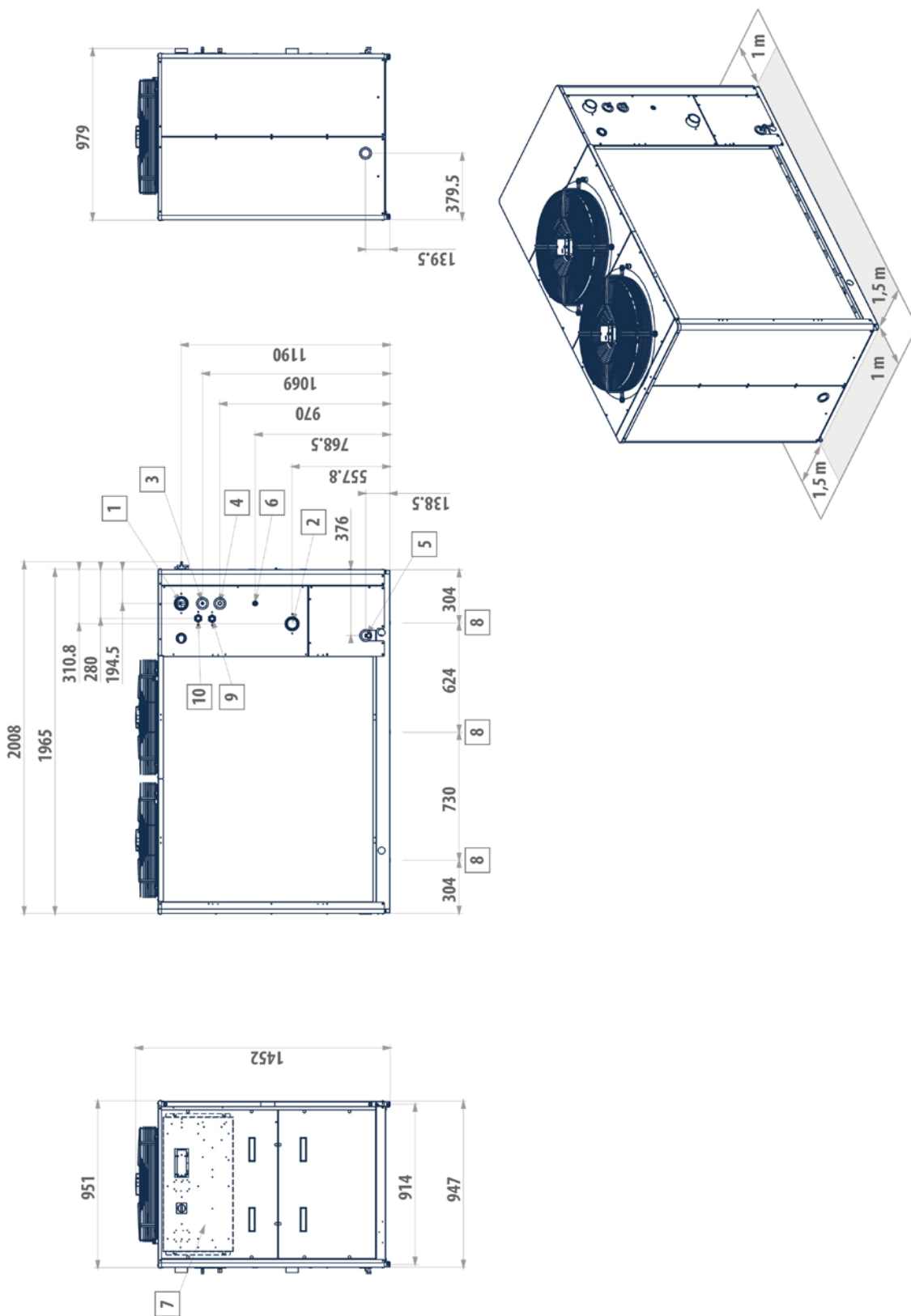


- LEGEND**
- 1 Water inlet 1" 1/4 female
  - 2 Water outlet 1" 1/4 female
  - 3 Safety valve discharge outlet provided with rubber ring holder
  - 4 Water supply 1/2" male (optional tap)
  - 5 Water drainage 1/2" female
  - 6 Power supply Ø 28 mm
  - 7 Lifting points
  - 8 Vibration dumpers
  - 9 Electric control board
  - 10 User interface

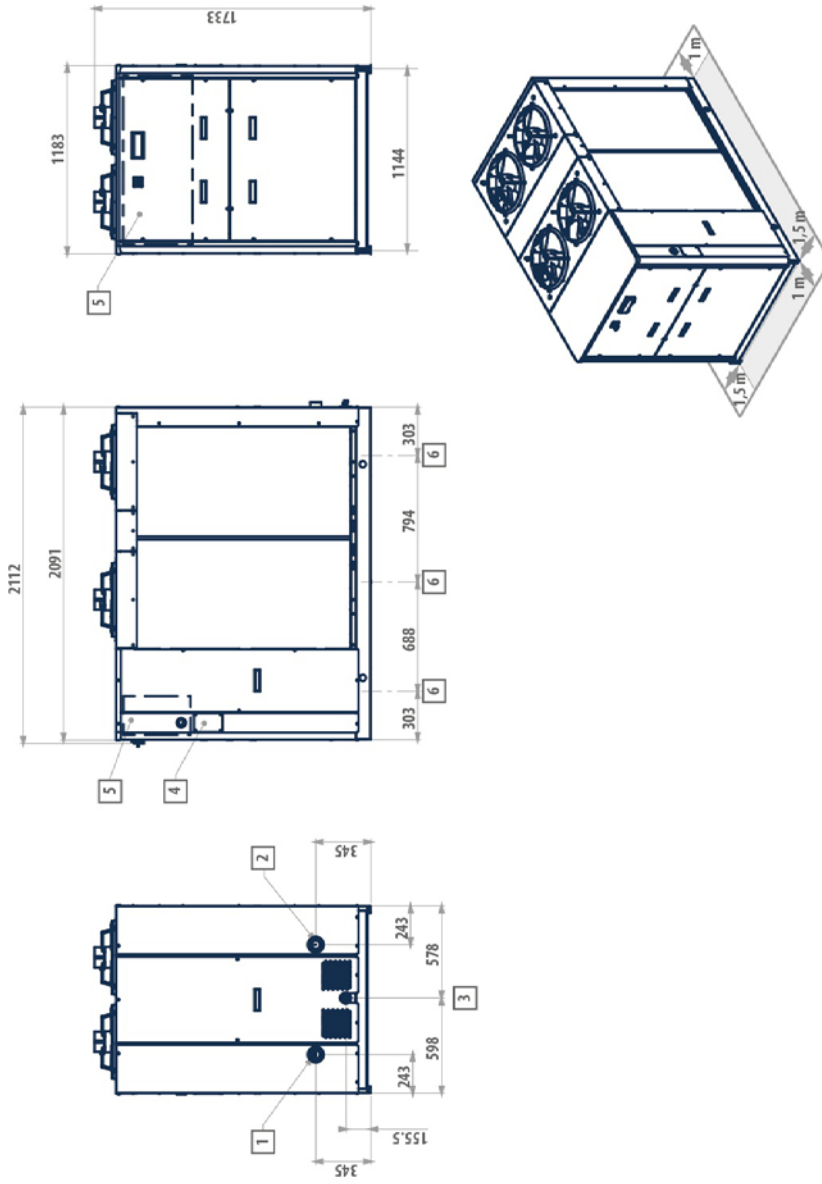


- LEGEND**
- 1** Water inlet 1" 1/4 female
  - 2** Water outlet 1" 1/4 female
  - 3** Safety valve discharge outlet provided with rubber ring holder
  - 4** Water supply 1/2" male (optional tap)
  - 5** Water drainage 1/2" female
  - 6** Power supply ø 37 mm
  - 7** Electric control board
  - 8** Vibration dampers

» MPE H 54 - 66



- LEGEND**
- 1 Water inlet 2" female
  - 2 Water outlet 2" female
  - 3 Safety valve discharge outlet provided with rubber ring holder
  - 4 Water supply 1/2" male
  - 5 Water drainage 1/2" female
  - 6 Power supply
  - 7 Electric control board
  - 8 Fastening points for vibration dampers (accessory)



- LEGEND**
- 1 Water inlet 2" female
  - 2 Water outlet 2" female
  - 3 Safety valve discharge outlet provided with rubber ring holder
  - 4 Water supply 1/2" male
  - 5 Water drainage 1/2" female
  - 6 Vibration dampers

## 15 ELECTRICAL DATA

### 15.1 ELECTRICAL CONNECTIONS

All operations must be performed by qualified service personnel in accordance with current laws and regulations. For any electrical work on the unit, refer to the electric diagrams supplied with the unit. It is recommended to make sure that:

- The characteristics of the mains power supply are adequate for the electrical inputs specified in the table of electrical data.

**⚠ WARNING** Before carrying out any job on electrical parts, make sure the power supply is disconnected. Check that the mains electricity supply is compatible with the specifications (voltage, number of phases, frequency) shown on the unit rating plate. The supply voltage may not undergo fluctuations exceeding  $\pm 5\%$  of the rated voltage. The electrical connections must be made in accordance with the wiring diagram provided with the unit and the regulations in force.

**⚠ WARNING** Never attempt to modify internal electrical connections: any undue modifications will immediately invalidate the warranty.

**An all-pole circuit breaker must be used on the electric panel upstream, conform to IEC Standards (contacts must be open at least of 3 mm), with suitable interruption capacity and differential protection, according to the electrical data tables in 15.2 Electrical data paragraph, described below, and installed as close as possible to the device.**

For the machine power supply line, use H07RN-F rubber flexible cables, with section as indicated in the tables in section 15.2 Electrical data . For the cable passage, use sheaths and channels suitable for outdoor installation. Provide a line switch and delayed-type fuses with features as indicated in the tables in section 15.2 Electrical data paragraph. To access the electric control board it is necessary to remove the inspection panel (figure 15.1 Access to electrical control board) by taking out the screws; introduce the power cable into the unit through the bushing on the side panel; then bring it to the electric control board through the cable holder provided.

Tighten the wires securely to the terminals and clamp the cable in place with the cable holder (figure 15.1 Access to electrical control board).

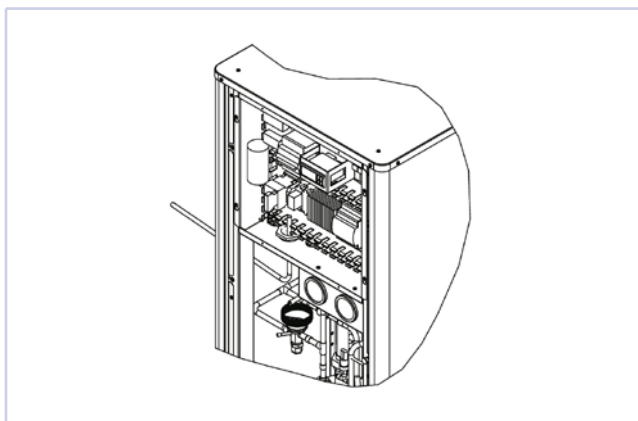
To preserve the protection degree of the machine, use a cable gland compatible with the sheath or power cable diameter, in correspondence to the unit side panel hole.

**wire to the terminal provided on the electric control board (see the electric control board layout supplied with the unit), marked  $\perp$ .**

If you wish to include:

- a remote on/off switch
- a remote switch for changing over between the cooling and heating mode (MPE H only),
- a remote alarm indicator

**It is a good idea to do so at this stage of the installation procedure, by connecting the switches or PCDS remote control (accessory) to the electric control board terminals as directed in section 15.2 Electrical data and using the unit wiring diagram as your reference.**



**An earth connection is mandatory: connect the earthing**

## 15.2 ELECTRICAL DATA

» MPE C

MPE			T18	T23	T25	T30	T34	T42	T54	T57	T64	T71
Maximum power input		kW	10,1	15,9	16,1	20,9	24,4	21,7	27,0	28,2	31,6	35,4
Maximum current absorption		A	16,2	25,5	25,8	33,5	39,1	34,8	43,3	45,2	58,7	56,8
Start up current		A	85	95	96	100	116	164	177	182	196	238
Startup current with soft starter		A	65	73	74	78	90	123	134	138	149	179
Fan motor rated power		kW	0,14	0,14	0,14	0,32	0,32	0,32	0,40	1,80	1,80	1,80
Pump motor rated power - LP pumps		kW	0,37	0,37	0,37	0,55	0,55	0,55	1,30	1,30	1,30	1,30
Pump motor rated current - LP pumps		A	2,72	2,72	2,72	3,00	3,00	3,00	5,90	5,90	5,90	5,90
Power supply		V-ph-Hz	400 - 3N - 50									
Auxiliary power supply		V-ph-Hz	230 - 1 - 50									
PCDS connecting cables		mm <sup>2</sup>	1	1	1	1	1	1	1	1	1	1
PCD connecting cables		mm <sup>2</sup>	AWG22									
Cross-section area of power cables	(1)	mm <sup>2</sup>	10,0	16,0	16,0	10,0	16,0	16,0	16,0	16,0	16,0	25,0
Safety fuse F		A	40	50	50	40	50	63	63	63	63	80
Circuit breaker IL		A	40	50	50	50	50	63	63	63	63	80

(1) The shown section is to be considered as the minimum recommended section. The cables must be chosen in compliance with CEI - UNEL 35024/1. standard.

MPE			T30	T34	040	T40	T44	T54	T61	T69	T76
Maximum power input		kW	20,9	24,4	22,4	26,6	30,8	27,0	29,9	32,3	39,4
Maximum current absorption		A	33,5	39,1	40,0	47,0	63,0	43,3	53,0	57,0	69,0
Start up current		A	100	116	164	150	150	177	187	202	229
Startup current with soft starter		A	78	90	112	93	110	134	138	149	169
Fan motor rated power		kW	0,32	0,32	0,32	0,32	0,32	0,40	0,40	0,40	0,40
Fan motor rated current		A	1,75	1,75	1,75	1,75	1,75	1,80	1,80	1,80	1,80
Pump motor rated power - LP pumps		kW	0,55	0,55	0,55	0,55	0,55	1,30	1,30	1,30	1,30
Pump motor rated current - LP pumps		A	3,00	3,00	3,00	3,00	3,00	5,90	5,90	5,90	5,90
Power supply		V-ph-Hz	400 - 3N - 50								
Auxiliary power supply		V-ph-Hz	230 - 1 - 50								
Cross-section area of power cables	(1)	mm <sup>2</sup>	10,0	16,0	10,0	16,0	16,0	16,0	16,0	16,0	25,0
PCD connecting cables		mm <sup>2</sup>	AWG22								
PCDS connecting cables		mm <sup>2</sup>	1	1	1	1	1	1	1	1	1
Safety fuse F		A	40	50	40	63	63	63	63	63	80
Circuit breaker IL		A	50	50	50	63	63	63	63	63	80

(1) The shown section is to be considered as the minimum recommended section. The cables must be chosen in compliance with CEI - UNEL 35024/1. standard.

- The maximum input power is the mains power that must be available in order for the unit to work.
- The maximum current absorption refers to the current that will trigger the internal safety devices of the unit. It is the maximum current allowed in the unit. This value may never be exceeded; it must be used as a reference for determining the size of the power supply line and the related safety devices (refer to the wiring diagram supplied with the units). Cross-section area of cables: 4 A/mm<sup>2</sup> approx.

» MPE H

MPE		004M	005M	007M	008	008M	010	010M	013	015
Maximum power input	kW	2,00	2,30	3,00	5,00	5,00	7,20	5,10	8,90	10,5
Maximum current absorption	A	9,00	11,0	11,0	9,00	17,6	12,0	24,0	15,0	18,0
Start up current	A	38	44	44	49	88	49	98	64	67
Startup current with soft starter	A	26	30	30	34	66	33	68	44	46
Fan motor rated power	kW	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14
Fan motor rated current	A	0,64	0,64	0,64	0,64	0,64	0,64	0,64	0,64	0,64
Pump motor rated power - LP pumps	kW	0,14	0,14	0,14	0,14	0,14	0,37	0,37	0,37	0,37
Pump motor rated current - LP pumps	A	0,58	0,58	0,58	0,58	0,58	2,00	2,00	2,00	2,00
Power supply	V-ph-Hz	230 - 1 - 50	230 - 1 - 50	230 - 1 - 50	400 - 3N - 50	230 - 1 - 50	400 - 3N - 50	230 - 1 - 50	400 - 3N - 50	400 - 3N - 50
Auxiliary power supply	V-ph-Hz	230 - 1 - 50	230 - 1 - 50	230 - 1 - 50	230 - 1 - 50	230 - 1 - 50	230 - 1 - 50	230 - 1 - 50	230 - 1 - 50	230 - 1 - 50
Cross-section area of power cables	(1) mm <sup>2</sup>	4,00	4,00	6,00	4,00	6,00	4,00	6,00	4,00	4,00
PCD connecting cables	mm <sup>2</sup>	AWG22								
PCDS connecting cables	mm <sup>2</sup>	1	1	1	1	1	1	1	1	1
Safety fuse F	A	16	16	20	10	25	16	32	20	20
Circuit breaker IL	A	20	20	25	16	25	20	32	25	25

(1) The shown section is to be considered as the minimum recommended section. The cables must be chosen in compliance with CEI - UNEL 35024/1. standard.

MPE		018	020	024	027	028	032	035	040	054
Maximum power input	kW	12,5	13,6	14,5	18,0	18,3	18,9	21,8	22,4	22,7
Maximum current absorption	A	22,0	24,0	26,0	32,0	32,0	34,0	38,0	40,0	40,0
Start up current	A	76	105	159	133	134	166	162	164	163
Startup current with soft starter	A	51	72	110	91	91	114	111	112	110
Fan motor rated power	kW	0,14	0,14	0,14	0,14	0,32	0,32	0,32	0,32	0,61
Fan motor rated current	A	0,64	0,64	0,64	0,64	1,75	1,75	1,75	1,75	2,65
Pump motor rated power - LP pumps	kW	0,37	0,37	0,37	0,37	0,55	0,55	0,55	0,55	0,90
Pump motor rated current - LP pumps	A	2,00	2,00	2,00	2,00	3,00	3,00	3,00	3,00	4,90
Power supply	V-ph-Hz	400 - 3N - 50								
Auxiliary power supply	V-ph-Hz	230 - 1 - 50								
PCD connecting cables	mm <sup>2</sup>	AWG22								
PCDS connecting cables	mm <sup>2</sup>	1	1	1	1	1	1	1	1	1
Safety fuse F	A	25	25	32	32	32	32	40	40	50
Circuit breaker IL	A	25	25	32	32	32	40	40	50	63
Cross-section area of power cables	(1) mm <sup>2</sup>	6,00	6,00	10,0	10,0	10,0	10,0	10,0	10,0	16,0

(1) The shown section is to be considered as the minimum recommended section. The cables must be chosen in compliance with CEI - UNEL 35024/1. standard.

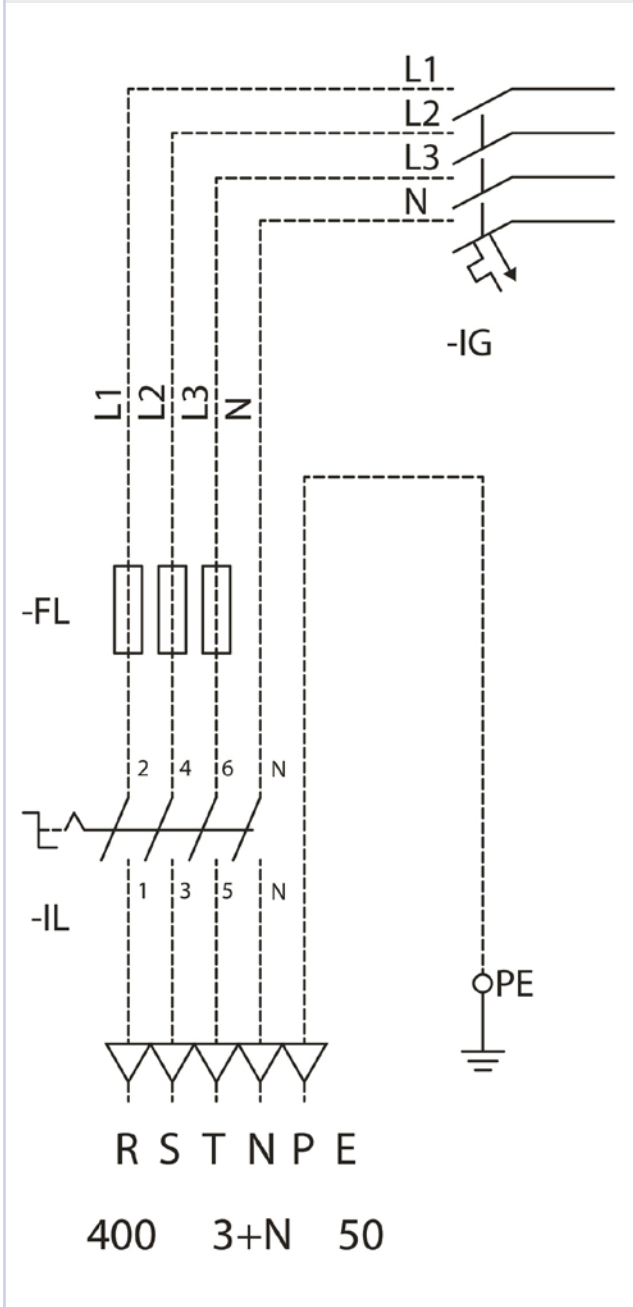
MPE		T30	T34	T42	T54	T61	066	T69	T76	
Maximum power input	kW	20,9	24,4	21,7	27,0	29,9	23,3	32,3	39,4	
Maximum current absorption	A	37,0	43,0	44,0	48,0	53,0	41,0	57,0	69,0	
Start up current	A	86	96	164	177	187	165	202	229	
Startup current with soft starter	A	64	71	123	130	138	112	149	169	
Fan motor rated power	kW	0,32	0,32	0,32	0,40	0,40	0,61	0,40	0,40	
Fan motor rated current	A	1,75	1,75	-	1,80	1,80	2,65	1,80	1,80	
Pump motor rated power - LP pumps	kW	0,55	0,55	0,55	1,30	1,30	0,90	1,30	1,30	
Pump motor rated current - LP pumps	A	3,00	3,00	3,00	5,90	5,90	4,90	5,90	5,90	
Power supply	V-ph-Hz	400 - 3N - 50								
Auxiliary power supply	V-ph-Hz	230 - 1 - 50								
PCD connecting cables	mm <sup>2</sup>	AWG22								
PCDS connecting cables	mm <sup>2</sup>	1	1	1	1	1	1	1	1	
Safety fuse F	A	40	50	63	63	63	50	63	80	
Circuit breaker IL	A	50	50	63	63	63	63	63	80	
Cross-section area of power cables	(1) mm <sup>2</sup>	10,0	16,0	16,0	16,0	16,0	16,0	16,0	25,0	

(1) The shown section is to be considered as the minimum recommended section. The cables must be chosen in compliance with CEI - UNEL 35024/1. standard.

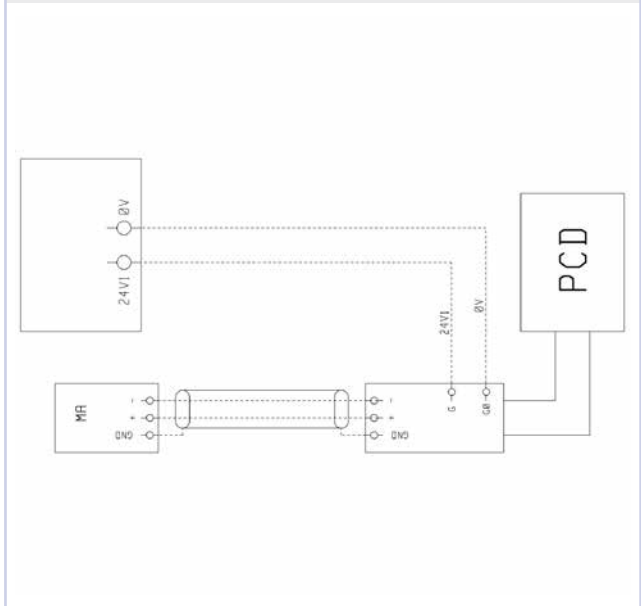
- The maximum input power is the mains power that must be available in order for the unit to work.
- The maximum current absorption refers to the current that will trigger the internal safety devices of the unit. It is the

maximum current allowed in the unit This value may never be exceeded; it must be used as a reference for determining the size of the power supply line and the related safety devices (refer to the wiring diagram supplied with the units). Cross-section area of cables: 4 A/mm<sup>2</sup> approx.

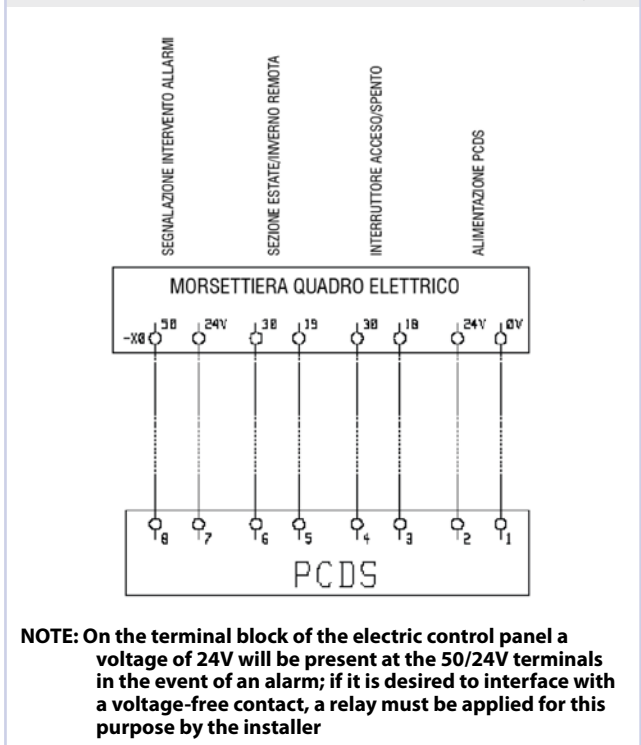
» Main electrical connection of units



» PCD remote control panel electrical connection diagram



» PCDS remote control panel electrical connection diagram













Galletti S.p.A Organization has a Management System Certified by Kiwa Cermet Italia S.p.A, according to the UNI EN ISO 9001:2015, UNI EN ISO 14001:2015 and UNI ISO 45001:2018 standards.

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