

# MEHP-iS-G07 0051 - 0112

48,1-94,0 kW

Reversible unit, air source for outdoor installation



R R32

SCROLL

P PLATES

(The photo of the unit is indicative and may vary depending on the model)

- ✓ **LOW GWP REFRIGERANT**
- ✓ **HIGH EFFICIENCY AT PARTIAL LOAD**
- ✓ **EXTREMELY SILENT OPERATION**
- ✓ **EXTREME COMPACTNESS**
- ✓ **WIDE OPERATING RANGE**
- ✓ **PLUG&PLAY SOLUTION**
- ✓ **GROUP CONTROLS WITH DYNAMIC MASTER**

### 2.1 PRODUCT FEATURES

#### THE VERSATILE AND MULTI-FUNCTIONAL REVERSIBLE HEAT PUMP FOR ALL APPLICATIONS

The heat pump units are used in many applications, even completely different from each other, for the versatility and flexibility that distinguishes them.

MEHITS' many years of experience combined with MELCO know-how, design specifications and technical support has led to the development of an ideal solution to the main challenges posed by comfort and industrial processes, without making any compromises.

##### COMFORT applications

- Top-level performance at partial load
- Extremely silent unit
- Extremely compact unit
- Extremely large operating map (down to -20°C of outdoor air temperature and up to 65°C of hot water production)
- Plug&play solution, thanks to integrated pumps kit + buffer tank
- DHW production
- Optimized for heating mode

##### PROCESS applications

- Extremely high reliability components
- Fully accessible service points for an easier maintenance
- Availability of refrigerant leak detection options
- Several coil solutions including fin guard silver and hydrophilic treatments

### 3.2 Unit Description

Air source reversible heat pump for outdoor installation, optimized in heating mode, with variable speed Scroll compressors, optimized for R32 in a single-circuit configuration, source-side heat exchanger made with copper tubes and aluminum fins, braze welded plate heat exchanger, electronic expansion valve as standard, variable speed axial-flow fans with BLDC motor and external inverter.

Flexible and reliable unit; it easily adapts to different thermal load conditions thanks to the precise temperature control together with the use of inverter technology. The high performance levels, both full and partial loads, is achieved thanks to the unit's accurate design and to the use of fixed speed motor together with variable speed (inverter) motor.

### 3.3 Key Features

#### LOW GWP REFRIGERANT

The pure refrigerant R32 is an extraordinary eco-sustainable alternative to traditional refrigerant R410A, offering a 66% reduction in terms of GWP, a higher efficiency and a lower refrigerant charge.

#### HIGH EFFICIENCY AT PARTIAL LOAD

Top-level partial load efficiency thanks to proprietary technological solutions at the forefront: VSD scroll compressors, variable speed fans with BLDC motor as standard and advanced control algorithms.

#### EXTREMELY SILENT OPERATION

The best compromise between silence and efficiency, as result of a systematic design oriented to minimize noise levels.

#### EXTREME COMPACTNESS

The precise design and the meticulous attention to the details of each single component make this range the best-in-class solution in terms of footprint per kW.

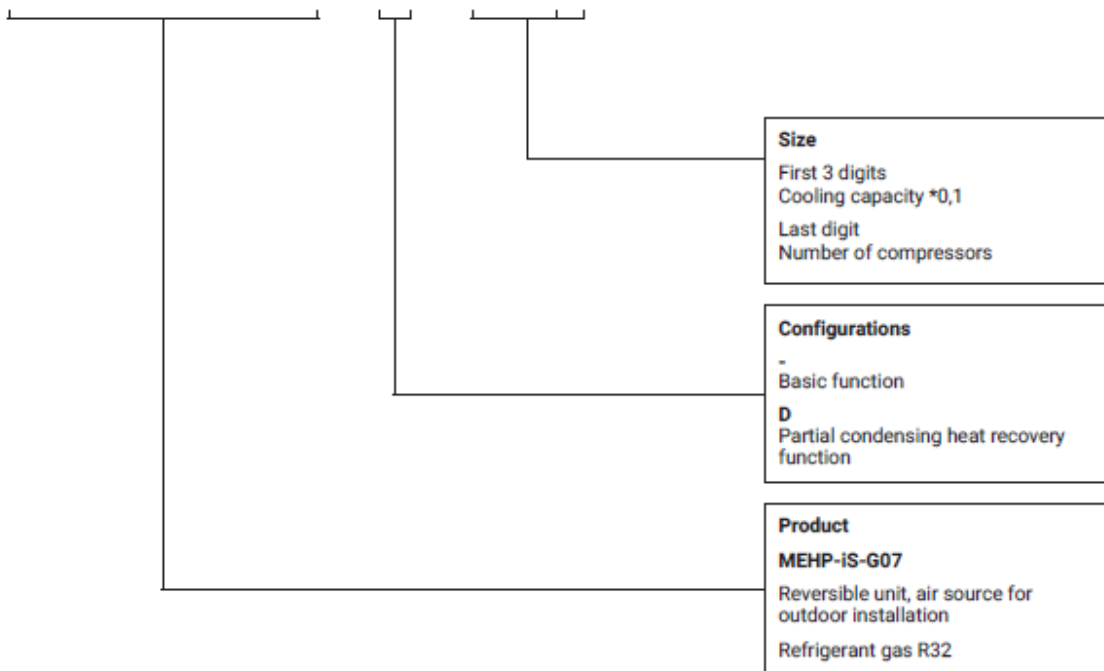
#### WIDE OPERATING RANGE

Unit operation with outdoor air temperature from -20°C up to 40°C in heat pump mode. Production of condenser leaving water temperature from 25°C up to 65°C.

#### PLUG&PLAY SOLUTION

The built-in hydronic module already contains the main water circuit components; it is available as option with single or twin in-line pump, low or high head, fixed or variable speed, expansion vessel and buffer tank.

## MEHP-iS-G07 / D / 0112



## 5.1 Standard unit composition

### Reversible unit, air source for outdoor installation

Air source reversible heat pump for outdoor installation, optimized in heating mode, with variable speed Scroll compressors, optimized for R32 in a single-circuit configuration, source-side heat exchanger made with copper tubes and aluminum fins, braze welded plate heat exchanger, electronic expansion valve as standard, variable speed axial-flow fans with BLDC motor and external inverter.

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The unit is supplied fully refrigerant charged and factory tested. On site installation only requires power and hydraulic connection.

### Structure

Structure specifically designed for outdoor installation. Base and frame in hot-galvanised steel sheet of suitable thickness. All parts polyester-powder painted to assure total weather resistance. Color Munsell 5Y 8/1.

The compressors and most of the components of the cooling circuits are housed in a special box designed to guarantee noise emission reduction and easy inspection.

All the surfaces of the structure have a precise inclination, designed to guarantee complete drainage.

### Refrigerant circuit

Main components of the refrigerant circuit:

- R32 refrigerant
- Electronic expansion valves
- refrigerant line sight glass with humidity indicator
- high and low pressure transducers
- crankcase heater on each ON/OFF compressor
- smart device to maintain the oil temperature of the inverter compressors
- metal mesh filters upstream of the expansion valves
- reversing cycle valve
- Liquid separators



## R32 REFRIGERANT

The refrigerant used in these units is R32, a pure refrigerant, highly efficient and characterized by an ODP (Ozone Depletion Potential) index of 0 (zero) and a GWP (Global Warming Potential) value of 675.

Refrigerant gases are classified according to their degree of toxicity and flammability (ISO 817-2014).

The R32 is classified as A2L: the first digit defines toxicity (A: NON-TOXIC), while the last digits define the flammability level (2L: MILDLY FLAMMABLE - low burning velocity). It is classified by PED Directive into Group 1.

With regard to flammability, it is important to underline that the R32 is flammable only in high concentrations.

The triggering occurs only in the presence of a very high energy source, such as a flame with a minimum temperature of 648°C.

Moreover the flame propagation speed is very low, equal to 0.10 m/s.

It should be noted that if the power source is turned off, the flame is extinguished.

The Lower Flammability Limit (LFL Index) is 0.307 kg / m<sup>3</sup>.

## ADVANTAGES OF THE R32

Comparing the characteristics of the R32 refrigerant with the R410A we obtain a series of advantages such as:

- It is more efficient
- At the same cooling capacity, the amount of refrigerant charge is reduced
- Reduces the electrical consumption of the machine
- As pure gas it is easy to load and recover
- Has a significantly reduced environmental impact

• All operations on the unit must be performed by trained and qualified personnel on flammable refrigerants handling, in accordance with the relevant local standards and codes of practice.

• The refrigerant is heavier than air and can stagnate, reaching a dangerous concentration. To avoid risks, maintain a safe environment by ensuring adequate ventilation.

• The units must be installed in such a way as to prevent any refrigerant leaks from flowing into the buildings or any place where it could cause damage to people, animals or properties. Pay particular attention to the presence and disposition of any external air intakes, doors, shutters, etc.

• Do not braze pipes and components containing refrigerant.

• Do not use flames to cut / open pipes.

• The hydraulic circuit must be designed in such a way as to prevent the release of refrigerant gas inside the buildings or in any case in places where it can cause damage to people, animals or properties.

## Compressors

Mitsubishi hermetic fixed and variable speed scroll compressors, designed to ensure high performance in any load condition. The first three sizes 0051, 0061 and 0071 (first module) have a single inverter driven compressor in a single-circuit configuration. The sizes 0082, 0092, 0102, 0112 feature a hybrid tandem configuration (1+i) with variable speed and fixed speed compressors working in the same refrigerant circuit. The logic adjusting the use of resources (1+i) has been specifically worked out so that, when the unit is started, the inverter compressor is always the first one to start, with consequent reduction of the starting currents, and it is also the last one to cut out.

The operation of the bi-compressor units is guaranteed even if a failure or disabling of the variable speed compressor inverter occur (the ON/OFF resource continues to operate) and, vice versa, if the ON/OFF compressor stop the variable speed resource continues to run.

In this way, the requested cooling capacity is continuously supplied and the perfect stability of outlet water temperature is ensured.

Added to this, depending on the required load condition, the logic privileges the most efficient combination between constant-speed compressor and variable-speed compressor (thanks to the continuous adjustment of the inverter compressor and to the step adjustment of the constant-speed compressor).

Compressor enclosure provided as standard with soundproofing insulation in polyester fiber mat (thickness of 30 mm).

### Constant-speed compressor

Mitsubishi Electric hermetic scroll compressors complete with a crankcase heater, electronic overheating protection with centralised manual reset and a two-pole electric motor.

### Variable speed compressor

The Mitsubishi Electric inverter scroll compressor uses a BLDC brushless Permanent Magnet Motor design to provide higher efficiency across a wider range of applications and with an oil sump heater. Inverter logic ensures a soft start that reduces inrush current. The Mitsubishi Electric frequency converter is coupled with harmonic filters, making it compliant with industry standards. The correct oil supply to each compressor is guaranteed.

### Plant side heat exchanger

Braze welded AISI 316 plate heat exchanger. The heat exchanger is lined on the outside with 9 mm thick closed-cell neoprene lagging to prevent condensation, with a thermal conductivity of 0,33 W/mK at 0°C.

### Source side heat exchanger

Finned coil exchanger made from copper tubes and aluminium fins. The aluminium fins are correctly spaced to guarantee optimum heat exchange efficiency. The differentiated circulation suitably distributes the liquid in the coil during the expansion phase.

To optimize the defrost, a large condensate drain pan supplied as standard under the coils, equipped as standard with electric resistances, with a precise slope for correct condensate drainage and with a removable bottom panel for an easier cleaning. It is necessary to provide also heated drain pipes.



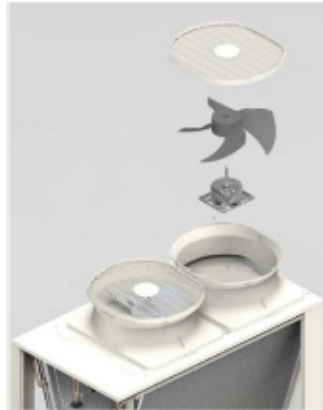


### Fan section source side

The ventilation section combines high-end Mitsubishi Electric proprietary technologies. Mitsubishi Electric variable speed axial fans with BLDC motors and inverters (Mitsubishi Electric brand), diameter 700 mm, housed in aerodynamic bell-mouths complete with safety grille (Mitsubishi Electric layout), designed for maximum efficiency combined with the lowest noise level.

The bell-mouth, with pure aerodynamic and non-structural function, are mounted above the unit in order to ensure easy maintenance/replacement.

Electric motor with built-in overload protection.



### Electrical and control panels

The electrical power panel is separated from the electrical control panel: the opening of the second box is constrained by the removal of the voltage and the opening of the power box. Both panels are designed according to MELCO standard and built in compliance with the EN60204-1 standard and are complete respectively with the following components.

Electrical power panel:

- general door lock isolator
- Phases sequence control
- control circuit transformer
- numbered cables
- automatic circuit breakers for compressors and fans
- power supply 400V/3ph/50Hz+PE

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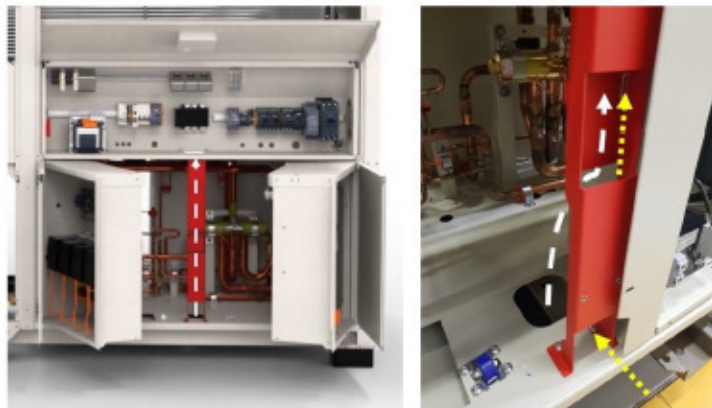
Electrical control panel:

- Electronic control W3000+
- auxiliary 4-20mA analogue input
- Pump control relay + 0-10V modulating signal to control an external variable speed pump with the VPF.E control logic (plant-side constant  $\Delta T$  for plants with primary circuit only and terminals with bypass)
- control circuit terminal board (design according to Poka Yoke standardization technique)
- Outdoor air temperature probe
- terminals for cumulative alarm block
- remote ON/OFF terminals
- PCB (Printed Control Board) for all signals connection

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A rod is available to keep the electrical panel open, for an easier unit maintenance.

Extremely easy power cable connection thanks to the precise design of the structure with the front entrance or from the basement of the unit and a convenient direct connection to the electrical connectors



The electrical panel that contains the compressor frequency converters features a forced convection heat transfer. The boxes are equipped with special metal sheet labyrinth plates to prevent dust or snow suction.

#### **Certification and applicable directives**

The unit complies with the following directives and relative amendments:

- CE - Declaration of conformity certificate for the European Union
- 2014/35/EC Low Voltage Directive
- 2014/30/EC EMC Directive
- ErP Directive 2009/125/EC
- Machinery Directive 2006/42/EC
- PED Directive 2014/68/EC
- WEEE (Waste Electrical and Electronic Equipment) Directive
- EAC - Product quality certificate for Russian Federation
- ISO 14001 - Company Environmental Management System certification
- ISO 9001 - Company Quality Management System certification



[ SI System ]

MEHP-IS-G07		0051	0061	0071	0082	0092	0102	0112	
Power supply		V/ph/Hz 400/3/50 400/3/50 400/3/50 400/3/50 400/3/50 400/3/50 400/3/50							
<b>PERFORMANCE</b>									
<b>COOLING ONLY (GROSS VALUE)</b>									
Cooling capacity	(1)	kW	48,10	53,11	60,09	68,39	74,18	85,99	93,98
Total power input	(1)	kW	17,00	19,95	25,48	24,91	30,10	31,86	37,61
EER	(1)	kW/kW	2,829	2,668	2,357	2,747	2,465	2,696	2,500
<b>COOLING ONLY (EN14511 VALUE)</b>									
Cooling capacity	(1)(2)	kW	48,00	53,00	60,00	68,30	74,10	85,90	93,80
EER	(1)(2)	kW/kW	2,810	2,640	2,340	2,730	2,450	2,680	2,480
<b>HEATING ONLY (GROSS VALUE)</b>									
Total heating capacity	(3)	kW	49,92	59,86	69,87	79,89	89,85	100,1	110,0
Total power input	(3)	kW	14,39	17,65	21,98	23,95	28,53	29,65	34,19
COP	(3)	kW/kW	3,465	3,403	3,177	3,343	3,151	3,382	3,216
<b>HEATING ONLY (EN14511 VALUE)</b>									
Total heating capacity	(3)(2)	kW	50,00	60,00	70,00	80,00	90,00	100,3	110,3
COP	(3)(2)	kW/kW	3,440	3,380	3,150	3,320	3,120	3,350	3,180
<b>COOLING WITH PARTIAL RECOVERY</b>									
Cooling capacity	(4)	kW	49,90	55,10	62,34	70,95	76,96	89,22	97,50
Total power input	(4)	kW	16,44	19,28	24,62	24,09	29,10	30,81	36,36
Desuperheater heating capacity	(4)	kW	14,39	17,02	21,96	20,98	25,61	26,76	31,89
<b>EXCHANGERS</b>									
<b>HEAT EXCHANGER USER SIDE IN COOLING</b>									
Water flow	(1)	l/s	2,300	2,540	2,874	3,270	3,547	4,112	4,494
Pressure drop at the heat exchanger	(1)	kPa	14,4	17,6	22,5	17,2	20,2	20,8	24,9
<b>HEAT EXCHANGER USER SIDE IN HEATING</b>									
Water flow	(3)	l/s	2,410	2,889	3,373	3,856	4,337	4,832	5,311
Pressure drop at the heat exchanger	(3)	kPa	15,8	22,7	31,0	23,9	30,2	28,7	34,7
<b>PARTIAL RECOVERY USER SIDE IN REFRIGERATION</b>									
Water flow	(4)	l/s	0,695	0,822	1,060	1,012	1,236	1,292	1,539
Pressure drop at the heat exchanger	(4)	kPa	11,1	15,5	25,7	11,6	17,3	13,3	18,8
<b>REFRIGERANT CIRCUIT</b>									
Compressors nr.		N*	1	1	1	2	2	2	2
Number of capacity steps		N*	0	0	0	0	0	0	0
No. Circuits		N*	1	1	1	1	1	1	1
Regulation			Stepless	Stepless	Stepless	Stepless	Stepless	Stepless	Stepless
Min. capacity step		%	27	27	27	22	22	20	20
Refrigerant			R32	R32	R32	R32	R32	R32	R32
Theoretical refrigerant charge		kg	12,0	12,0	12,0	18,0	18,0	25,0	25,0
Oil charge		kg	3,50	3,50	3,50	7,00	7,00	7,00	7,00
Rc (ASHRAE)	(5)	kg/kW	0,25	0,23	0,20	0,27	0,24	0,29	0,27
<b>FANS</b>									
Quantity		N*	2	2	2	3	3	4	4
Air flow		m³/s	5,89	5,89	5,89	8,89	8,89	11,77	11,77
Total fans power input		kW	0,88	0,88	0,88	1,41	1,41	1,88	1,88
<b>NOISE LEVEL</b>									
Total sound Pressure	(6)	dB(A)	59	60	62	62	63	63	63
Total sound power level in cooling	(7)(8)	dB(A)	77	78	80	80	81	82	82
Total sound power level in heating	(7)(9)	dB(A)	77	78	80	80	81	82	82
<b>SIZE AND WEIGHT</b>									
A	(10)	mm	2085	2085	2085	2600	2600	3225	3225
B	(10)	mm	1100	1100	1100	1100	1100	1100	1100
H	(10)	mm	2400	2400	2400	2400	2400	2400	2400
Operating weight	(10)	kg	710	710	710	960	960	1085	1085

Notes:

- 1 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.
- 2 Values in compliance with EN14511
- 3 Plant (side) heat exchanger water (in/out) 40,00°C/45,00°C; Source (side) heat exchanger air (in) 7,0°C - 87% R.H.
- 4 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C; Plant (side) heat exchanger recovery water (in/out) 40,00°C/45,00°C.
- 5 Rated in accordance with AHRI Standard 550/590
- 6 Average sound pressure level at 1m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.
- 7 Sound power on the basis of measurements taken in compliance with ISO 9614.
- 8 Sound power level in cooling, outdoors.
- 9 Sound power level in heating, outdoors.
- 10 Unit in standard configuration, without optional accessories.

- Not available

Data certified in EUROVENT

## 8 TECHNICAL DATA SEASONAL EFFICIENCY IN HEATING (EN14825 VALUE)

Data Book  
MEHP-IS-G07 0051 - 0112\_202203\_EN R32

[ SI System ]

MEHP-IS-G07 - LOW TEMPERATURE application			0051	0061	0071	0082	0092	0102
Power supply		(V/ph/Hz)	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
<b>WEATHER CONDITIONS - AVERAGE</b>								
Rated heat output at T <sub>designh</sub>	(1)(2)	kW	40	48	55	64	72	80
Bivalent temperature	(1)(2)	°C	-7	-7	-7	-7	-7	-7
SCOP	(1)(2)		4,39	4,33	4,34	4,35	4,12	4,30
Seasonal space heating energy efficiency	(1)(2)	%	172	170	171	171	162	169
Seasonal space heating energy efficiency class	(1)(2)		A++	A++	A++	A++	A++	-

1 Seasonal space heating energy efficiency class LOW TEMPERATURE [REGULATION (EU) N. 813/2013]

2 Type of calculation with variable flow and variable temperature.

MEHP-IS-G07 - MEDIUM TEMPERATURE application			0051	0061	0071	0082	0092	0102
Power supply		(V/ph/Hz)	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
<b>WEATHER CONDITIONS - AVERAGE</b>								
Rated heat output at T <sub>designh</sub>	(1)(2)	kW	40	48	48	64	64	82
Bivalent temperature	(1)(2)	°C	-7	-7	-7	-7	-7	-7
SCOP	(1)(2)		3,43	3,37	3,37	3,37	3,23	3,39
Seasonal space heating energy efficiency	(1)(2)	%	134	132	132	132	126	133
Seasonal space heating energy efficiency class	(1)(2)		A++	A++	A++	A++	A++	-

1 Seasonal space heating energy efficiency class MEDIUM TEMPERATURE [REGULATION (EU) N. 813/2013]

2 Type of calculation with variable flow and variable temperature.

Data certified in EUROVENT

MEHP-IS-G07 - LOW TEMPERATURE application			0112
Power supply		(V/ph/Hz)	400/3/50
<b>WEATHER CONDITIONS - AVERAGE</b>			
Rated heat output at T <sub>designh</sub>	(1)(2)	kW	89
Bivalent temperature	(1)(2)	°C	-7
SCOP	(1)(2)		4,32
Seasonal space heating energy efficiency	(1)(2)	%	170
Seasonal space heating energy efficiency class	(1)(2)		-

1 Seasonal space heating energy efficiency class LOW TEMPERATURE [REGULATION (EU) N. 813/2013]

2 Type of calculation with variable flow and variable temperature.

MEHP-IS-G07 - MEDIUM TEMPERATURE application			0112
Power supply		(V/ph/Hz)	400/3/50
<b>WEATHER CONDITIONS - AVERAGE</b>			
Rated heat output at T <sub>designh</sub>	(1)(2)	kW	82
Bivalent temperature	(1)(2)	°C	-7
SCOP	(1)(2)		3,43
Seasonal space heating energy efficiency	(1)(2)	%	134
Seasonal space heating energy efficiency class	(1)(2)		-

1 Seasonal space heating energy efficiency class MEDIUM TEMPERATURE [REGULATION (EU) N. 813/2013]

2 Type of calculation with variable flow and variable temperature.

[ SI System ]

### ENERGY EFFICIENCY

#### SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)

##### Ambient refrigeration

MEHP-IS-G07			0051	0061	0071	0082	0092	0102	0112
Prated,c	(1)	kW	48,0	53,0	50,0	58,3	74,1	85,0	93,8
SEER	(1) (2)	-	4,63	4,56	4,46	4,49	4,46	4,81	4,75
Performance η <sub>s</sub>	(1) (3)	%	182,0	180,0	175,0	177,0	175,0	189,0	187,0

Notes:

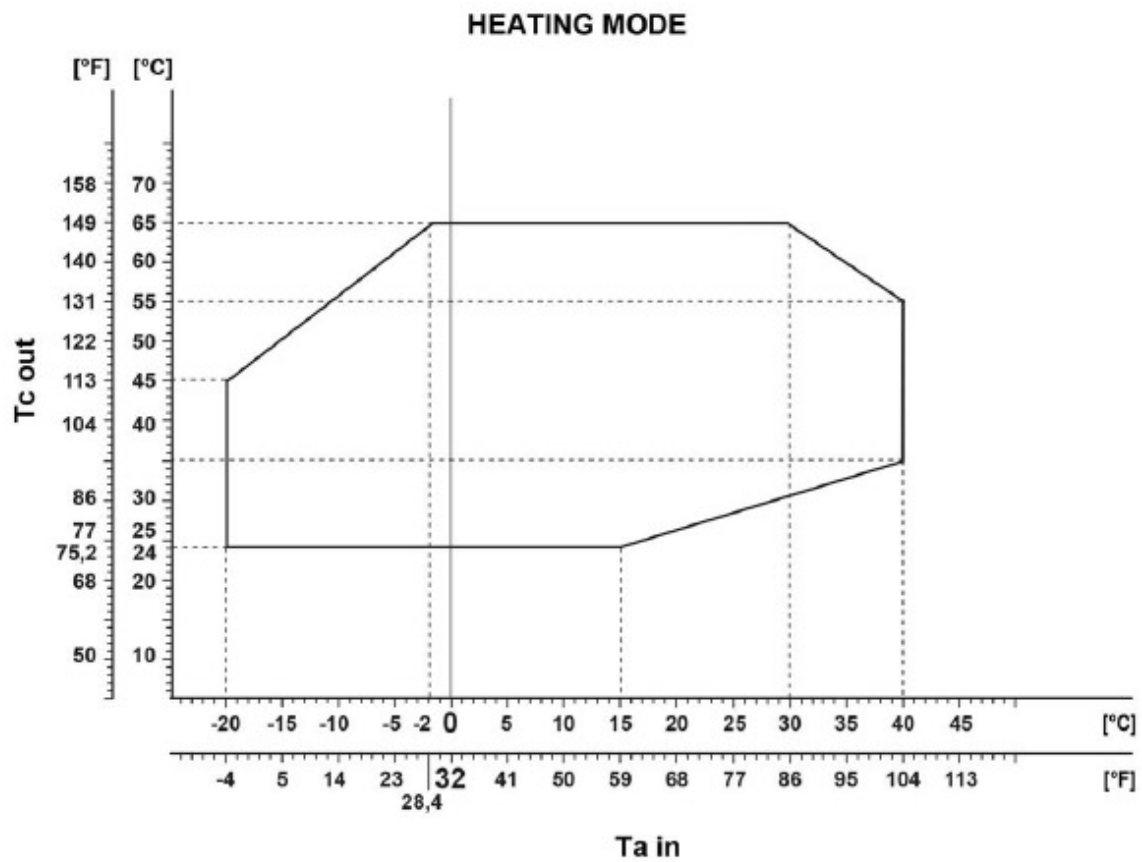
(1) Parameter calculated according to [REGULATION (EU) N. 2016/2281]

(2) Seasonal energy efficiency ratio

(3) Seasonal space cooling energy efficiency

The units highlighted in this publication contain R32 [GWP<sub>100</sub> 677] fluorinated greenhouse gases.

## 10.1 Operating limits - Graphs



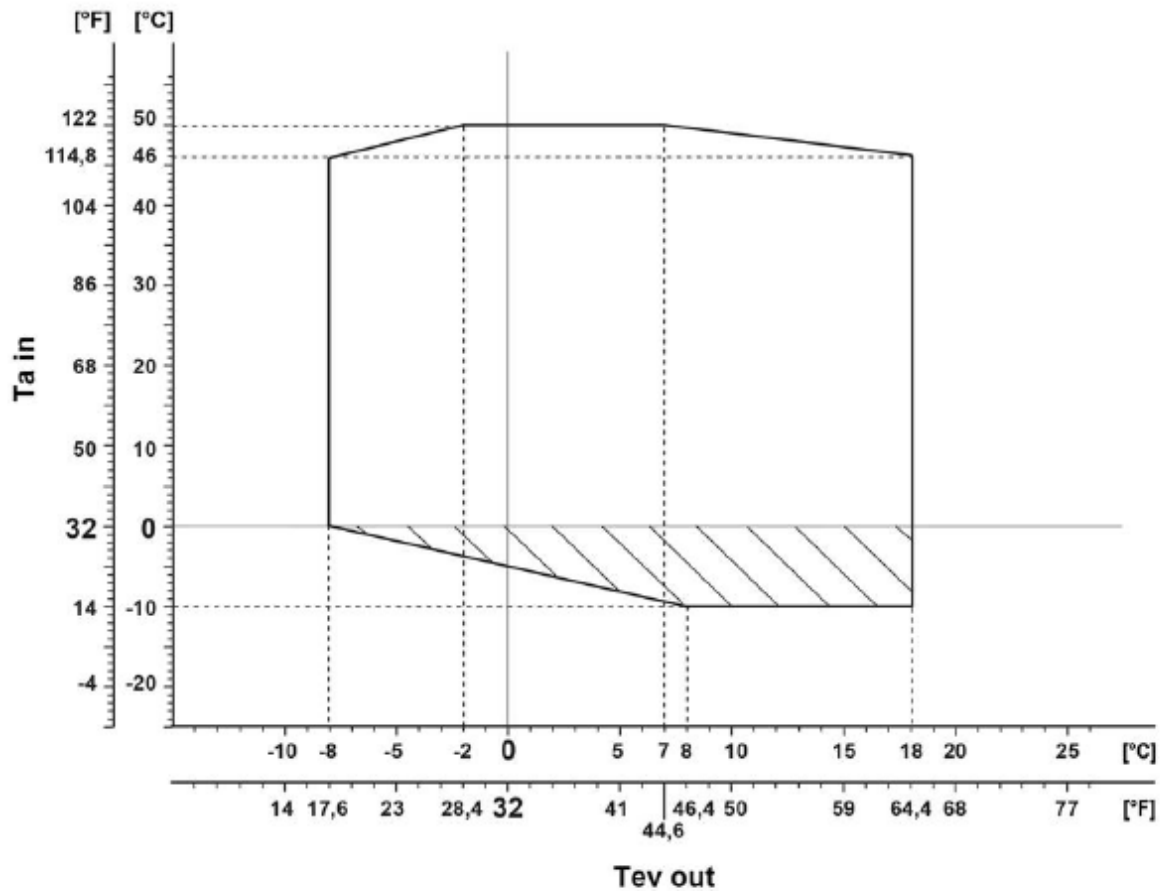
**$T_{a\ in}$**  Outdoor air temperature  
 **$T_{c\ out}$**  Condenser leaving water temperature

In particular operating conditions the unit can work with forced ventilation, at partial loads or with derating compressors. For any specific information please refer to the ElcaWorld software selection.

For the specific temperature limits of each model please refer to the selection software ElcaWorld.



## COOLING MODE



**Ta in** Outdoor air temperature

**Tev out** Evaporator leaving water temperature



Required: Antifreeze heaters on pipes (opt. 2431)

Antifreeze heaters on pipes, pumps\*, and buffer tank\* (opt. 2432 or 2433) \*if present

In particular operating conditions the unit can work with forced ventilation, at partial loads or with derating compressors. For any specific information please refer to the ElcaWorld software selection.

For the specific temperature limits of each model please refer to the selection software ElcaWorld.

## 11 HYDRAULIC DATA

Data Book  
MEHP-IS-G07 0051 - 0112\_202203\_EN R32

[ SI System ]

**Water flow and pressure drop**

Water flow in the plant (side) exchanger is given by:

$$Q = P / (4,186 \times Dt)$$

Q: water flow (l/s)

Dt: difference between inlet and outlet water temp. (°C)

P: heat exchanger capacity (kW)

Pressure drop is given by:

$$Dp = K \times (3,6 \times Q)^2 / 1000$$

Q: water flow (l/s)

Dp: pressure drop (kPa)

K: unit size ratio

SIZE	Power supply V/ph/Hz	HEAT EXCHANGER USER SIDE					HEAT RECOVERY EX. USER SIDE			
		K	Q min l/s	Q max l/s	C.A.S. l	C.a. min l	K	Q min l/s	Q max l/s	C.A.S. l
MEHP-IS-G07 /0051	400/3/50	210	1,667	3,889	6,20	400	-	-	-	-
MEHP-IS-G07 /0061	400/3/50	210	1,667	5,556	6,20	480	-	-	-	-
MEHP-IS-G07 /0071	400/3/50	210	1,667	5,556	6,20	560	-	-	-	-
MEHP-IS-G07 /0082	400/3/50	124	2,222	7,222	7,10	640	-	-	-	-
MEHP-IS-G07 /0092	400/3/50	124	2,222	7,222	7,10	720	-	-	-	-
MEHP-IS-G07 /0102	400/3/50	95,0	2,778	8,889	8,10	800	-	-	-	-
MEHP-IS-G07 /0112	400/3/50	95,0	2,778	8,889	8,10	880	-	-	-	-
MEHP-IS-G07 /D /0051	400/3/50	210	1,667	3,889	6,20	400	1767	-	0,917	0,44
MEHP-IS-G07 /D /0061	400/3/50	210	1,667	5,556	6,20	480	1767	-	1,083	0,44
MEHP-IS-G07 /D /0071	400/3/50	210	1,667	5,556	6,20	560	1767	-	1,361	0,44
MEHP-IS-G07 /D /0082	400/3/50	124	2,222	7,222	7,10	640	871	-	1,306	0,63
MEHP-IS-G07 /D /0092	400/3/50	124	2,222	7,222	7,10	720	871	-	1,583	0,63
MEHP-IS-G07 /D /0102	400/3/50	95,0	2,778	8,889	8,10	800	613	-	1,667	0,76
MEHP-IS-G07 /D /0112	400/3/50	95,0	2,778	8,889	8,10	880	613	-	1,972	0,76

Q min: minimum water flow admitted to the heat exchanger  
Q max: maximum water flow admitted to the heat exchanger  
C.a. min: minimum water content admitted in the plant  
C.A.S.: Exchanger water content

## 12 ELECTRICAL DATA

Data Book  
MEHP-IS-G07 0051 - 0112\_202203\_EN R32

## 12.1 ELECTRIC DATA

[ SI System ]

MEHP-IS-G07

SIZE	Power supply V/ph/Hz	Maximum values								
		n	Compressor			Fans (1)		Total (1)(2)		
			F.L.I. [kW]	F.L.A. [A]	L.R.A. [A]	F.L.I. [kW]	F.L.A. [A]	F.L.I. [kW]	F.L.A. [A]	S.A. [A]
0051	400/3/50	1	1x28.2	1x47.4	-	2x0.92	2x2.5	30,10	52	5
0061	400/3/50	1	1x32.6	1x55.3	-	2x0.92	2x2.5	34,50	60	5
0071	400/3/50	1	1x32.6	1x55.3	-	2x0.92	2x2.5	34,50	60	5
0082	400/3/50	2	1x28.2+1x13.7	1x47.4+1x22.7	1x0+1x90	3x0.92	3x2.5	44,70	78	144,9
0092	400/3/50	2	1x28.2+1x13.7	1x47.4+1x22.7	1x0+1x90	3x0.92	3x2.5	44,70	78	144,9
0102	400/3/50	2	1x32.6+1x15.9	1x55.3+1x27.2	1x0+1x132	4x0.92	4x2.5	52,20	93	197,3
0112	400/3/50	2	1x32.6+1x15.9	1x55.3+1x27.2	1x0+1x132	4x0.92	4x2.5	52,20	93	197,3

F.L.I.: Full load power

F.L.A.: Full load current

L.R.A.: Locked rotor amperes for single compressor

S.A.: Inrush current

(1) Values calculated referring to the version with the maximum number of fans working at the max absorbed current

(1)(2) Safety values to be considered when cabling the unit for power supply and line-protections

Data valid for standard units without any additional option.

Voltage tolerance: 10%

Maximum voltage unbalance: 2%

Give the typical operating conditions of units designed for outdoor installation, which can be associated (according to reference document IEC 60721) to the following classes:  
- climatic conditions class 4K4H: air temperature range from -20 up to 55°C (\*), relative humidity range from 4 up to 100%, with possible precipitations, at air pressure from 70 and 106 kPa and a maximum solar radiation of 1120 W/m<sup>2</sup>

- special climatic conditions negligible

- biological conditions class 4B1 and 4C2: locations in a generic urban area

- mechanically active substances class 4S2: locations in areas with sand or dust representative of urban areas

- mechanical conditions class 4M1: locations protected from significant vibrations or shocks

The required protection level for safe operation, according to reference document IEC 60529, is IP43XW (protection against access, to the most critical unit's parts, of external devices with diameter larger than 1 mm and rain).

The unit can be considered IP44XW protected, i.e. protected against access of external devices (with diameter larger than 1 mm) and water in general.

(\*) for the unit's operating limits, see "selection limits" section



**13 FULL LOAD SOUND LEVEL**

Data Book  
MEHP-IS-G07 0051 - 0112\_202203\_EN R32

## MEHP-IS-G07

SOUND POWER LEVEL IN COOLING									
SIZE	Octave band [Hz]								Total sound level dB(A)
	63	125	250	500	1000	2000	4000	8000	
	Sound power level dB								
0051	84	77	76	74	72	69	64	60	77
0061	85	78	77	75	73	70	65	61	78
0071	87	80	79	77	75	72	67	63	80
0082	87	80	79	77	75	72	67	63	80
0092	88	81	80	78	76	73	68	64	81
0102	89	82	81	79	77	74	69	65	82
0112	89	82	81	79	77	74	69	65	82

**Working conditions**

Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.

Sound power on the basis of measurements taken in compliance with ISO 9614.

Such certification refers specifically to the sound Power Level in dB(A). This is therefore the only acoustic data to be considered as binding.

Sound power level in cooling, outdoors.

## MEHP-IS-G07

SOUND PRESSURE LEVEL									
SIZE	Octave band [Hz]								Total sound level dB(A)
	63	125	250	500	1000	2000	4000	8000	
	Sound pressure level dB								
0051	66	59	58	56	54	51	46	42	59
0061	67	60	59	57	55	52	47	43	60
0071	69	62	61	59	57	54	49	45	62
0082	69	62	61	59	57	54	49	45	62
0092	70	63	62	60	58	55	50	46	63
0102	70	63	62	60	58	55	50	46	63
0112	70	63	62	60	58	55	50	46	63

**Working conditions**

Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.

Average sound pressure level at 1m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.

**FULL LOAD SOUND LEVEL**

Data Book  
MEHP-IS-G07 0051 - 0112\_202203\_EN R32

MEHP-IS-G07

SOUND POWER LEVEL IN HEATING									
SIZE	Octave band [Hz]								Total sound level dB(A)
	63	125	250	500	1000	2000	4000	8000	
	Sound power level dB								
0051	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	77
0061	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	78
0071	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	80
0082	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	80
0092	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	81
0102	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	82
0112	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	82

**Working conditions**

Plant (side) heat exchanger water (in/out) 40,00°C/45,00°C; Source (side) heat exchanger air (in) 7,0°C - 87% R.H.

Sound power on the basis of measurements taken in compliance with ISO 9614.

Such certification refers specifically to the sound Power Level in dB(A). This is therefore the only acoustic data to be considered as binding.

Sound power level in heating, outdoors.

N.A.: Not available

MEHP-IS-G07

SOUND PRESSURE LEVEL									
SIZE	Octave band [Hz]								Total sound level dB(A)
	63	125	250	500	1000	2000	4000	8000	
	Sound pressure level dB								
0051	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	59
0061	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	60
0071	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	62
0082	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	62
0092	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	63
0102	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	63
0112	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	63

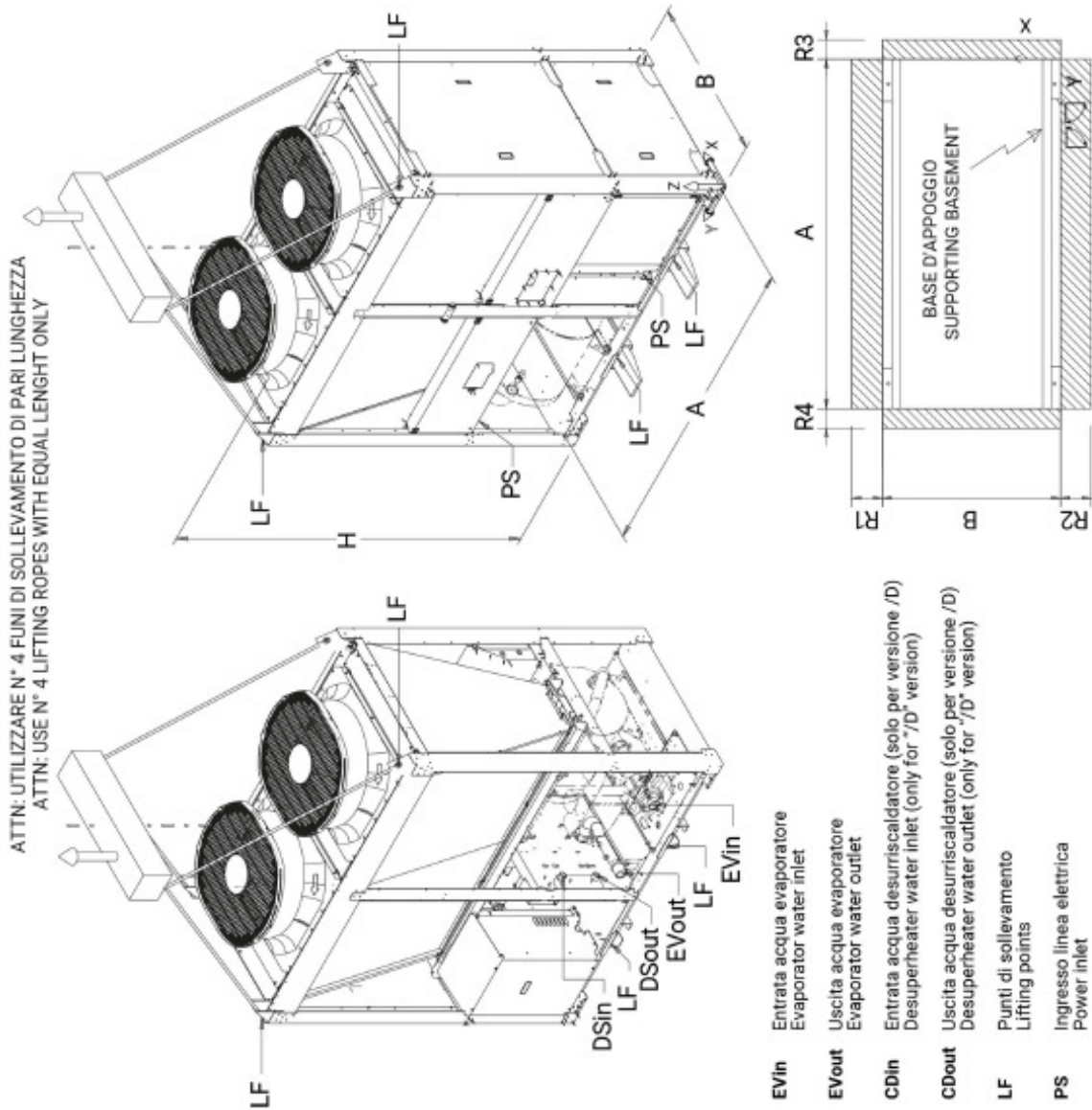
**Working conditions**

Plant (side) heat exchanger water (in/out) 40,00°C/45,00°C; Source (side) heat exchanger air (in) 7,0°C - 87% R.H.

Average sound pressure level at 1m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.

N.A.: Not available

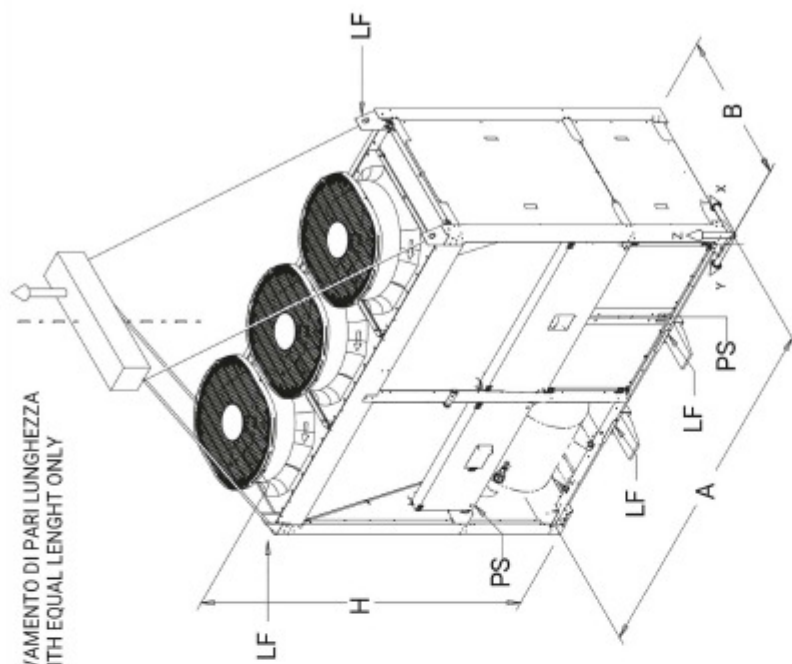
14 DIMENSIONAL DRAWINGS



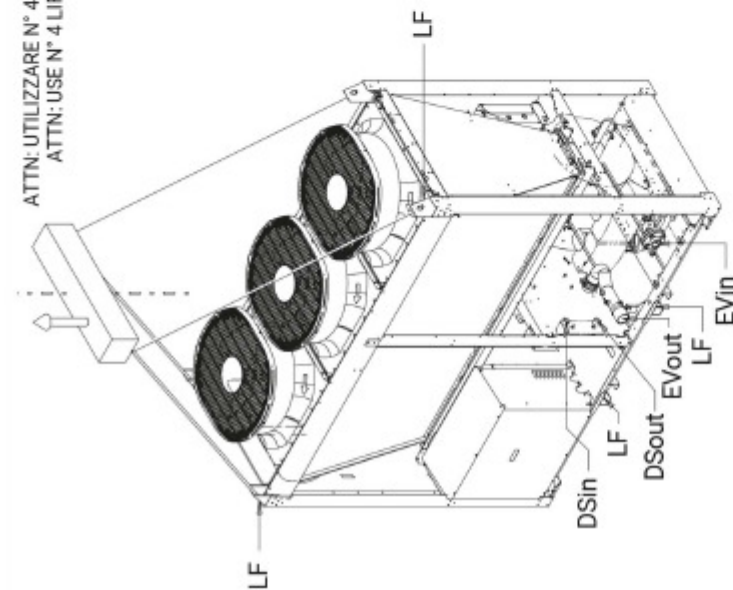
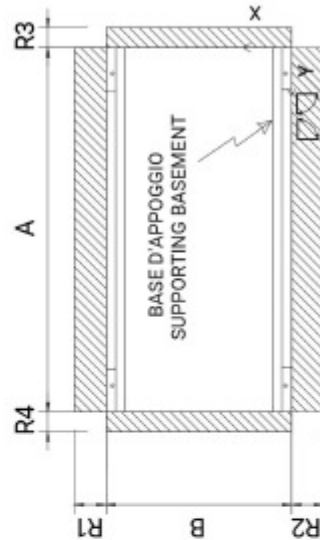
[ SI System ]

SIZE	DIMENSIONS AND WEIGHTS				CLEARANCE				HEAT EXCHANGER USER SIDE		HEAT RECOVERY EX. USER SIDE	
	A	B	H	WEIGHT	R1	R2	R3	R4	IN/OUT		IN/OUT	
	[mm]	[mm]	[mm]	[kg]	[mm]	[mm]	[mm]	[mm]	TYPE	Ø	TYPE	Ø
MEHP-IS-G07 /0051	2085	1100	2400	710	1000	1000	400	400	E1	2"	-	-
MEHP-IS-G07 /0061	2085	1100	2400	710	1000	1000	400	400	E1	2"	-	-
MEHP-IS-G07 /0071	2085	1100	2400	710	1000	1000	400	400	E1	2"	-	-
MEHP-IS-G07 /D /0051	2085	1100	2400	710	1000	1000	400	400	E1	2"	B1	1"1/4
MEHP-IS-G07 /D /0061	2085	1100	2400	710	1000	1000	400	400	E1	2"	B1	1"1/4
MEHP-IS-G07 /D /0071	2085	1100	2400	710	1000	1000	400	400	E1	2"	B1	1"1/4





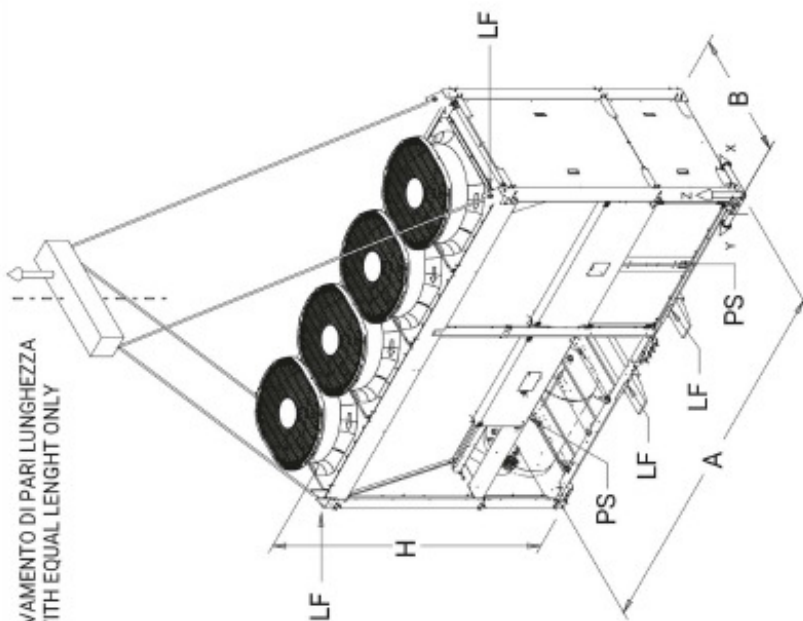
ATTN: UTILIZZARE N° 4 FUNI DI SOLLEVAMENTO DI PARI LUNGHEZZA  
ATTN: USE N° 4 LIFTING ROPES WITH EQUAL LENGTH ONLY



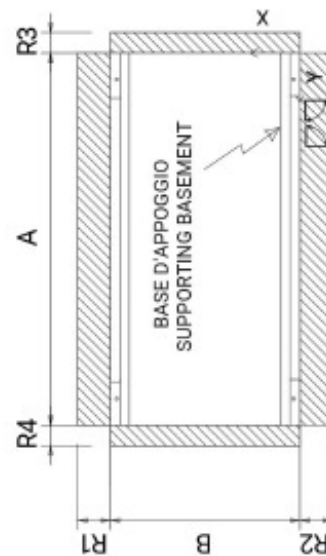
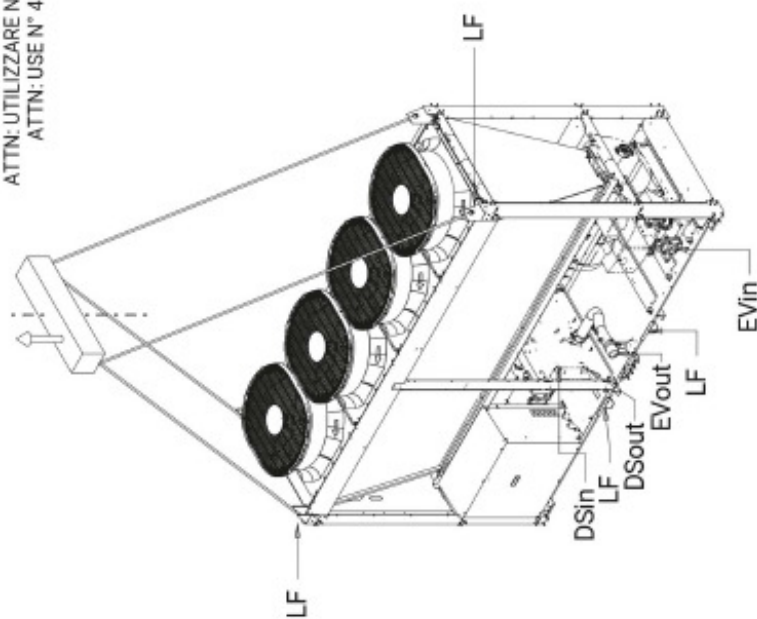
- EVin** Entrata acqua evaporatore  
Evaporator water inlet
- EVout** Uscita acqua evaporatore  
Evaporator water outlet
- CDin** Entrata acqua desurriscaldatore (solo per versione /D)  
Desuperheater water inlet (only for "/D" version)
- CDout** Uscita acqua desurriscaldatore (solo per versione /D)  
Desuperheater water outlet (only for "/D" version)
- LF** Punti di sollevamento  
Lifting points
- PS** Ingresso linea elettrica  
Power inlet

[ SI System ]

SIZE	DIMENSIONS AND WEIGHTS				CLEARANCE				HEAT EXCHANGER USER SIDE		HEAT RECOVERY EX. USER SIDE	
	A	B	H	WEIGHT	R1	R2	R3	R4	IN/OUT		IN/OUT	
	[mm]	[mm]	[mm]	[kg]	[mm]	[mm]	[mm]	[mm]	TYPE	Ø	TYPE	Ø
MEHP-IS-G07 /0082	2600	1100	2400	960	1000	1000	400	400	E1	2"1/2	-	-
MEHP-IS-G07 /0092	2600	1100	2400	960	1000	1000	400	400	E1	2"1/2	-	-
MEHP-IS-G07 /D /0082	2600	1100	2400	960	1000	1000	400	400	E1	2"1/2	B1	1"1/4
MEHP-IS-G07 /D /0092	2600	1100	2400	960	1000	1000	400	400	E1	2"1/2	B1	1"1/4



ATTN: UTILIZZARE N° 4 FUNI DI SOLLEVAMENTO DI PARI LUNGHEZZA  
ATTN: USE N° 4 LIFTING ROPES WITH EQUAL LENGTH ONLY



- EVin** Entrata acqua evaporatore  
Evaporator water inlet
- EVout** Uscita acqua evaporatore  
Evaporator water outlet
- CDin** Entrata acqua desurriscaldatore (solo per versione /D)  
Desuperheater water inlet (only for "/D" version)
- CDout** Uscita acqua desurriscaldatore (solo per versione /D)  
Desuperheater water outlet (only for "/D" version)
- LF** Punti di sollevamento  
Lifting points
- PS** Ingresso linea elettrica  
Power inlet

[ SI System ]

SIZE	DIMENSIONS AND WEIGHTS				CLEARANCE				HEAT EXCHANGER USER SIDE		HEAT RECOVERY EX. USER SIDE	
	A	B	H	WEIGHT	R1	R2	R3	R4	IN/OUT		IN/OUT	
	[mm]	[mm]	[mm]	[kg]	[mm]	[mm]	[mm]	[mm]	TYPE	Ø	TYPE	Ø
MEHP-IS-G07 /0102	3225	1100	2400	1085	1000	1000	400	400	E1	2"1/2	-	-
MEHP-IS-G07 /0112	3225	1100	2400	1085	1000	1000	400	400	E1	2"1/2	-	-
MEHP-IS-G07 /D /0102	3225	1100	2400	1085	1000	1000	400	400	E1	2"1/2	B1	1"1/4
MEHP-IS-G07 /D /0112	3225	1100	2400	1085	1000	1000	400	400	E1	2"1/2	B1	1"1/4