



36^a Mostra Convegno EXPOCOMFORT Products News

Environment Friendly

Galletti Spa, an Italian leading company in the air conditioning field, on the occasion of the 36rd Mostra Convegno Expocomfort edition, has completely redesigned the range of the products, introducing significant innovations on the comfort applications, on line with the "Efficiency oriented design philosophy"

Further to the development of innovative solutions like ERGO, the exclusive managing system for air conditioning plants, oriented to reduce the consumption and to increase the efficiency, and the 2x1 patented indoor unit which is unifying the fan coil advantages with the low noise operation of the thermo convector, Galletti S.p.A today has completed its own catalogue in the direction to have high efficiency products even part of an integrated system connectable also to renewable energy

MyCOMFORT LCD Control panel for indoor units with an exclusive logic of regulation

MCE Water chillers and heat pumps air/water designed for R410A refrigerant, auto adaptive set point to operate with low water flow plants and to adapt itself to the outdoor air temperature variations

MPE Water chillers and heat pumps air/water designed for R410A refrigerant, 1 or 2 compressors for each refrigerant circuit for high ESEER, wide working temperature field, auto adaptive set point to work with low water flow plants and to adapt itself to the outdoor air temperature variations

LCE Water chillers /heat pumps air/water, designed for R410A refrigerant, high EER/COP and ESEER/ESCOP, reduced foot print for optimum ration kW/ square meter, free cooling versions

LSE Water chillers /heat pumps air/water, developed for R410A refrigerant, ESEER/ESCOP, free cooling versions

MFE Water chillers and heat pumps air/water designed for R410A refrigerant, wide working temperature field, auto adaptive set point to operate with low water flow plants and to adapt itself to the outdoor air temperature variations, electronic expansion valve.

MXE Heat pumps air/water with high efficiency, designed for refrigerant R410A, wide working temperature field, auto adaptive set point to operate with low water flow plants and to adapt itself to the outdoor air temperature variations

SMARTANK Integrate solution for the sanitary hot water production for heating plants, solar system integration, and **MyComfort** control logic



Thermo hygrometric comfort and interconnectivity

The air conditioning control now is simple and immediate: with the new control panel **my COMFORT**, connection point of the integrate Galletti systems.

The newest microprocessor control panel , with large crystal display (3") , allowed the regulation of the hydronic indoor units to obtain the best Comfort, and the complete control of the air conditioning installation.

The available functionalities complete perfectly the proposal of Galletti for the hydronic indoor units.

◆ Immediate utilization

The new control panel has a large crystal liquid display, rear side illuminated with built in key board to set and to read the operation parameters of the indoor units and the water chillers /heat pump connected.

◆ Managing and economizing

Automatic control of the cooling and heating operations of the unit, based on the air and water temperature

◆ Effective Comfort

MyCOMFORT is able to control and to maintain the hygrometric comfort thanks to a probe measuring the air humidity and allowed to make dehumidification cycles , acting on the valves, ventilation, and water temperature set point

◆ Control

With the software realized by Galletti, the ERGO system has been renovated and simplified.

The total displaying of all the functions is immediate and the programming menu access is possible through the crystal liquid display.

With **MyCOMFORT** it is possible to realize small and large Networks by means of a simple BUS connections between the indoor units (up to 256) and the out door one.

◆ Managing and opportunity

The managing of :

- 3 and 2 ways valves , both ON/OFF and modulating
- Auxiliary devices control (chillers, boiler, zone valve, circulating pumps etc) is carried out by means of free voltage ON/OFF, based on the operation parameters, like water and room temperature and air humidity, and on the time table programming through the weekly timer

◆ Easy installation /start-up

The fast connection terminal boards allowed an easy wiring, the programmability of the function and address is simplified as it occurs directly from the key board and display.



◆ Versions

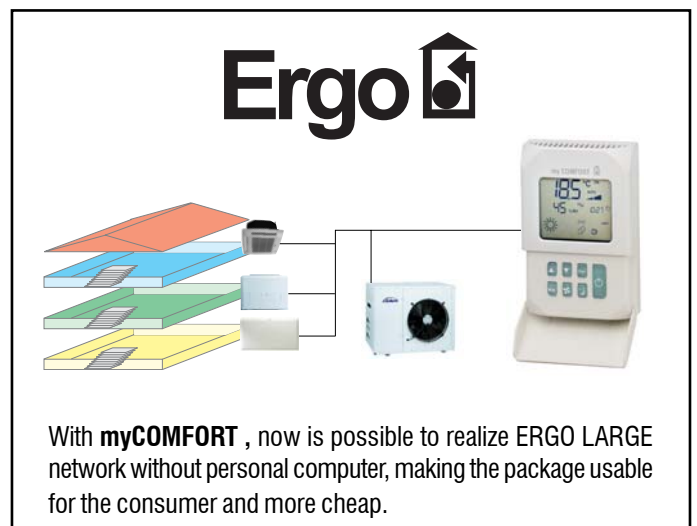
MyCOMFORT is available for wall mounting or on board of the unit, proposed in 3 different versions, for input, output and possibility for the regulation:

- **Base** :indoor units and regulation valves management based on the temperature
- **Medium** : indoor units management (4 ventilation speeds), Ergo system connection, realisation of network small with slave modality
- **Large** : indoor units management (4 ventilation speeds), and regulation vaves based on temperature, humidity , weekly timer, Ergo system connection , realisation of networks small with master modality, rear illuminated display, management of modulating devices

◆ Applicability

The different versions of **My COMFORT** are suitable for the following indoor units:

- ESTRO
- FLAT
- 2x1
- CSW
- WH
- PWN
- UTN
- Areo singlephase



Efficient, silent, adaptable : in one word COMFORT

The chillers and heat pumps of the series MCE has been designed specifically for R410 A refrigerant, for the choice of the components, particularly for heat exchangers size and the logic of the operations.

Studies and bench tests give the possibility to develop an extremely silent range, with high efficiency.

11 models, only cooling and in heating pumps, compose the range, with cooling capacity from 9 to 39 kW and heating capacities from 10 to 44 kW.

◆ **Adaptable for any need**

The wide possibility of configuration in terms of number of models available in the range, and in terms of options and accessories make the MCE series , the perfect product to be adapted to all type of plants and design requirements, reducing the time of installation.

All the options are available with no need to modify the dimensions of the unit

Options

- Built in hydronic kit
- Electronic expansion valve which quickly adapt the operation of the unit to the load variation and maximize the partial loads efficiency
- Heat recovery for hot water production in the summer time to increase the effective efficiency of the system

◆ **Plug&Play**

MCE allowed to incorporate the hydronic kit complete with circulation pump (body and rotor in inox), expansion vessel, buffer tank, safety valve, pressure gauge and water filter.

All the machines are bench tested in the end of the production cycle, to reduce the time of the start up.



◆ **Extremely low sound levels**

The use of extremely silent fans installed in performed profile house, running with low pressure drops thanks to the presence of finned pack heat exchangers with 8mm diameter copper tube. To the partial loads the condensing control (in pressure) decrease the sound level of the unit

Technical compartments and compressors could be acoustically insulated to obtain extremely low noise units.

◆ **Auto adaptive**

The logic of the control allowed to use the ME units with water contents extremely low , modifying the effective set point in function of the real instantaneous thermal loads

The philosophy of the project allowed to combine the auto adaptive logic to the benefit of the built in inertial accumulation , maintaining the same dimensions of the units.

A sensor is measuring the outdoor air temperature modifying automatically the unit setpoint to adapt it to the plant' real needs.

◆ **Interconnectivity**

The MCE water chillers units, are suitable to be connected to ERGO system , as a standard.

On the configuration with advanced microprocessor control, is possible to realize LAN networks with 4 units as per one unit increasing the steps, then the efficiency of the partial load(ESEER).

The LAN net work realisation allowed to minimize the starting currents.

◆ **Smart Defrost logic**

On the heat pump operations the advanced control with microprocessor manage the defrost cycles measuring the effective heat exchange capacity of the finned pack coil, and activating them only when it is necessary.



MCE		09	11	13	15	18	19
Cooling capacity ¹	kW	8,92	11,32	12,62	14,55	16,90	19,37
Power input ¹	kW	3,36	4,37	4,41	5,35	6,57	7,42
Heating capacity ²	kW	10,52	13,19	14,50	16,69	19,67	22,43
Power input ²	kW	3,64	4,46	4,60	5,50	6,68	7,23
EER		2,66	2,59	2,86	2,72	2,57	2,61
ESEER		3,16	3,15	3,45	3,33	3,13	3,05
COP		2,89	2,96	3,15	3,04	2,95	3,10
N° of scroll compressor / circuits		1/1	1/1	1/1	1/1	1/1	1/1
Water flow ¹	l/h	1534	1948	2170	2502	3906	3331
Water pressure drop ¹	kPa	33	53	60	37	51	49
Available head (standard pump) ¹	kPa	118	94	84	104	130	126
Expansion vessel	liters	5	5	5	5	5	5
Water tank	liters	30	30	30	30	50	50
Water connections	inches	1 ¼	1 ¼	1 ¼	1 ¼	1 ¼	1 ¼
Height	mm	1220	1220	1220	1220	1280	1280
Lenght	mm	1250	1250	1250	1250	1590	1590
Width	mm	560	560	560	560	600	600
Sound power level	dB(A)	69	69	69	69	71	71
MCE		23	26	31	34	39	
Cooling capacity ¹	kW	22,48	25,77	31,16	34,13	39,19	
Power input ¹	kW	8,54	9,4	10,71	12,19	13,38	
Heating capacity ²	kW	26,24	29,47	35,15	38,62	44,05	
Power input ²	kW	8,32	9,01	10,69	11,93	13,50	
EER		2,63	2,74	2,91	2,80	2,93	
ESEER		3,09	3,11	3,38	3,33	3,47	
COP		3,16	3,27	3,29	3,24	3,26	
N° of scroll compressor / circuits		1/1	1/1	1/1	1/1	1/1	
Water flow ¹	l/h	3866	4432	5360	5870	6740	
Water pressure drop ¹	kPa	45	61	51	40	43	
Available head (standard pump) ¹	kPa	123	99	127	133	121	
Expansion vessel	liters	5	5	8	8	8	
Water tank	liters	50	50	125	125	125	
Water connections	inches	1 ¼	1 ¼	1 ¼	1 ¼	1 ¼	
Height	mm	1280	1280	1490	1490	1490	
Lenght	mm	1590	1590	1690	1690	1690	
Width	mm	600	600	950	950	950	
Sound power level	dB(A)	71	73	77	77	77	

1 Water temperature 12°C - 7°C, air temperature 35°C

2 Water temperature 40°C - 45°C, dry bulb air temperature 7°C, wet bulb air temperature 6°C



MCE 09 ~ 15



MCE 18 ~ 26



MCE 31 ~ 39

PERFORMA :Efficiency over the limits

Many studies indicate that the energy saving coming from lower waste, and more efficient use of the resources, is the more important source of energy of the next future. With these remarks, to realize efficient machines becomes an obligation.

The Galletti Performa series represents today the state of arts of the energy efficiency and adaptability to the new working temperature standards.

18 models, only cooling and in heating pumps compose the Performa range, with cooling capacity from 4 to 45 kW and heating capacities from 5 to 53 kW.

◆ High efficiency

The choice of the refrigerant R410A , the heat oversized finned pack evaporating coil allowed the development of high efficiency range in both summer and winter working conditions.

The medium summer efficiency of the range , in the cooling mode (EER) is 2,95 when is 3,25 in the heating mode, which corresponds to the A Class Eurovent Energetic Efficiency.

◆ High efficiency on the partial loads

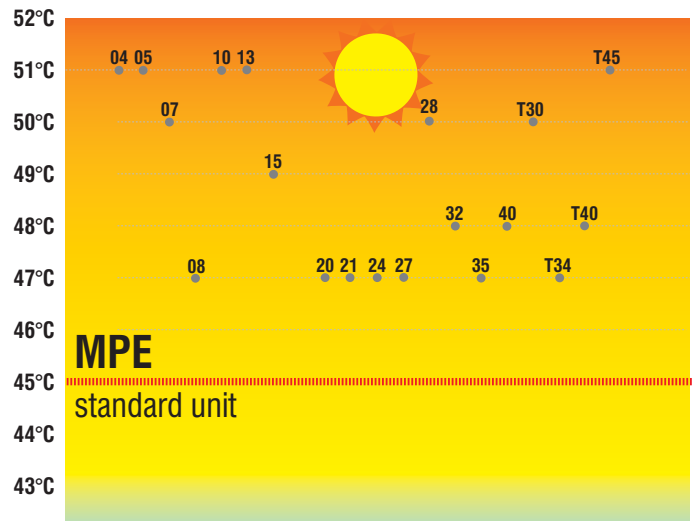
It is proved that the effective thermal load of the air conditioning plant on the 90% of the time, 60% lower than the nominal load. For this reason it is important to be able to modulate capacity of the unit to adapt it to the effective capacity required from the plant. For cooling capacities over 30 Kw, the series will be executed with 2 compressors and one refrigerant circuit .

2 capacity steps on the same refrigerant circuit means to adapt the capacity to the load conditions required, and to increase the efficiency on the reduced loads operations thanks to the oversized exchanging surface (ESEER)

◆ Further the conventional working limits

No stops any more on the critical summer' days

The MPE series grant the cooling water production even with 51°C outdoor temperature!



The over sizing of the finned pack heat exchanger, surface, rows and type of fins, allowed the unit to operate in cooling mode even with high outdoor summer temperatures

The version MPET, double compressors, one circuit, the unit stops the operation even on the limit temperature:

The microprocessor control activate the partial operation, doubling the condensing surface available of each compressor.

On the winter time operation, the outdoor air probe modify automatically the set-point to allowed the compressor to work always on the optimal conditions, avoiding low pressures stops (interruption).

- ◆ Sound level extremely low
- ◆ Effective Auto Adaptive Set point
- ◆ Plug & Play
- ◆ Intelligent defrost logic
- ◆ Interconnectivity with Ergo and Lan networks
- ◆ Adaptable for each needs for the high number of models and options

MPE		004	005	007	008	010	013	015	018	020	024
Cooling capacity ¹	kW	4,11	5,10	6,66	8,40	9,25	12,9	15,0	17,2	19,6	23,8
Power input ¹	kW	1,35	1,70	2,26	3,09	3,22	4,16	5,16	6,32	7,12	8,10
Heating capacity ²	kW	4,72	5,86	7,77	9,95	10,9	15,1	17,6	20,0	23,0	27,2
Power input ²	kW	1,46	1,81	2,41	3,25	3,62	4,70	5,49	6,63	7,16	8,11
EER		3,06	3,01	2,95	2,72	2,87	3,10	2,90	2,72	2,75	2,94
ESEER		3,54	3,39	3,32	3,36	3,38	3,41	3,69	3,53	3,30	3,42
COP		3,24	3,25	3,23	3,07	3,00	3,21	3,21	3,02	3,21	3,35
N° of scroll compressors / circuits		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
Water flow ¹	l/h	707	877	1146	1445	1591	2219	2577	2958	3373	4094
Water pressure drop ¹	kPa	3	4	5	7	34	59	38	51	51	59
Available head (standard pump) ¹	kPa	63	61	57	53	116	83	103	129	123	116
Expansion vessel	liters	1	1	1	1	5	5	5	5	5	5
Water tank	liters	n.d.	n.d.	n.d.	n.d.	30	30	30	50	50	50
Water connection	inches	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
Height	mm	760	760	760	760	1220	1220	1220	1280	1280	1280
Lenght	mm	990	990	990	990	1250	1250	1250	1590	1590	1590
Width	mm	450	450	450	450	560	560	560	600	600	600
Sound power level	dB(A)	66	66	67	67	69	69	69	71	71	72

MPE		027	028	032	035	040	T30	T34	T40	T45
Cooling capacity ¹	kW	26,6	28,1	31,5	35,0	39,7	30,0	34,1	39,6	44,6
Power input ¹	kW	9,33	8,65	10,1	11,5	12,8	10,4	12,6	13,6	16,4
Heating capacity ²	kW	30,0	31,4	35,6	39,3	45,2	34,5	39,4	46,5	52,7
Power input ²	kW	8,89	9,14	10,4	11,6	13,1	10,9	12,8	14,0	16,3
EER		2,85	3,25	3,13	3,04	3,11	2,88	2,70	2,90	2,72
ESEER		3,36	3,77	3,63	3,61	3,68	4,17	4,11	4,15	4,04
COP		3,37	3,43	3,41	3,39	3,44	3,18	3,08	3,33	3,24
N° of scroll compressors / circuits		1/1	1/1	1/1	1/1	1/1	2/1	2/1	2/1	2/1
Water flow ¹	l/h	4575	4833	5421	6021	6823	5160	5857	6806	7663
Water pressure drop ¹	kPa	34	40	51	41	43	30	39	45	57
Available head (standard pump) ¹	kPa	124	143	126	130	119	150	134	117	97
Expansion vessel	liters	5	8	8	8	8	8	8	8	8
Water tank	liters	50	125	125	125	125	125	125	125	125
Diametro attacchi idraulici	inches	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
Height	mm	1280	1490	1490	1490	1490	1490	1490	1490	1490
Lenght	mm	1590	1990	1990	1990	1990	1990	1990	1990	1990
Width	mm	600	950	950	950	950	950	950	950	950
Sound power level	dB(A)	72	73	73	73	75	72	72	72	72

1 Water temperature 12°C - 7°C, air temperature 35°C

2 Water temperature 40°C - 45°C, dry bulb air temperature 7°C, wet bulb air temperature 6°C

MPE 04~ 08



MPE 10 ~ 15



MPE 18 ~ 27



**MPE 28 ~ 40
MPE T30 ~ T 45**



LCE: Wide range and configuration

The use of R410A in units properly designed for this kind of refrigerant is giving many advantages thanks to the high heat exchange coefficient and to the lower pressure drop of the coils. This brings to an increase of the efficiency, reliability and energy saving.

LCE range is made of 17 models, in cooling and heating versions, with cooling capacity from 45 to 320 kW, characterized by a wide range of constructive versions and options.

♦ Versions

All the constructive versions are equipped with electronic expansion valve as standard, to maximise the efficiency at partial loads.

Cooling only

Free-Cooling

Heat pump

Thanks to the particular technical solutions the operation range of the heat pumps can be extended from -10°C to -15°C as external air temperature with water production at 40°C:

- Electronic Expansion Valve;
- Separation of the air section for condensing coil;
- Smart defrost system;
- Double cycle inversion (on refrigerant circuit side and on water circuit side);

Versions

The possibility to realize many refrigerant circuits for the same size allows you to personalize the efficiency levels both at full load and at partial load:

- Single circuit – double compressor up to the size 160 (Efficiency Pack Twin).
- Double circuit – double compressor from size 90 up to size 160.
- Double circuit – 4 compressors from size 90 up to size 320.

The solution with 2 compressors with one refrigerant circuit is giving an increase in the efficiency at partial loads reaching values for **ESEER higher than 4**.

The models with double circuit / double compressor are giving high values for the efficiency at full load (EER and COP).

Models with 4 compressors allow to the unit to supply the capacity on 4 different steps, adjusting it according to the real thermal load of the plant. This helps to reduce the start up current.

♦ Acoustic execution

Standard **S**

Low Noise **L**

Quite **Q**

♦ Reduction of the unit dimensions/transport costs

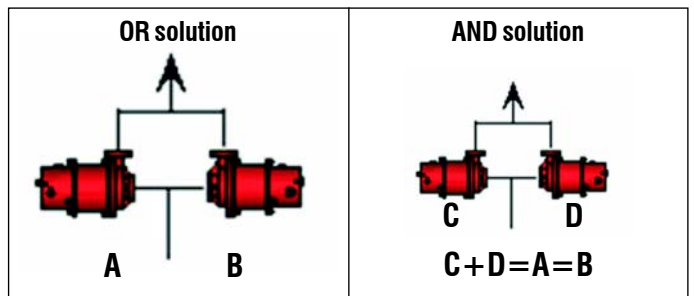
Reduction of the foot-print and increase of the power-density(kW/m²). Thanks to the reduction of the depth (1180 mm up to the size 160) it is possible to reduce the transport costs.



♦ Hydraulic options

A Complete hydraulic kit can be mounted inside the unit without changing the dimensions, with possibility to choose the water pump.

- Single pump, standard or up-rated head pressure.
- Double pump solution OR: standard or up-rated head pressure, single operation. The pumps can work alternatively on time/damage basis.
- Double pump solution AND.
Standard or up-rated head pressure, simultaneous operation. If the pumps are connected in parallel, they can supply the nominal water flow in the simultaneous operation.



In case of partial loads the operation is restricted to one only pump that reduces the value of the water flow to 1/3 of the nominal value with an average reduction of the pumping costs equal to 30%.

♦ Interconnectivity

Ergo Network as standard.

With advanced microprocessor:

- LAN network realization;
- GSM kit for data reading and setting from mobile phone;
- WEB kit for data reading and setting from remote PC through the access to the IP address of the unit or of the unit network.

LCE		045³	050³	060	070	080	090	100	120	140
Cooling capacity ¹	kW	47,9	52,9	63,3	69,2	76,5	92,2	102,7	124,1	138,4
Power input ¹	kW	16,2	18,2	21,4	24,2	27,8	31,3	37,7	40,8	45,9
Heating capacity ²	kW	55,3	61,0	70,5	78,1	86,0	103,2	116,3	136,0	155,7
Power input ²	kW	15,8	17,8	21,0	23,46	26,8	29,5	34,2	38,3	43,6
EER efficiency pack 1		n.d.	n.d.	n.d.	n.d.	n.d.	2,94	2,72	3,04	3,01
EER efficiency pack 2		2,95	2,91	2,96	2,86	2,75	2,94	2,72	3,04	3,01
EER efficiency pack 3		n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	3,01	3,00
ESEER efficiency pack 1		n.d.	n.d.	n.d.	n.d.	n.d.	3,45	3,40	3,88	3,93
ESEER efficiency pack 2		4,06	4,04	4,05	4,01	3,98	4,00	3,95	4,22	4,18
ESEER efficiency pack 3		n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	4,09	4,10
COP efficiency pack 1		n.d.	n.d.	n.d.	n.d.	n.d.	3,31	3,23	3,34	3,39
COP efficiency pack 2		3,50	3,43	3,35	3,33	3,21	3,32	3,23	3,35	3,39
COP efficiency pack 3		n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	3,36	3,39
Expansion vessel	liters	8	8	8	8	8	12	12	12	12
Water tank	liters	200	200	200	200	200	300	300	415	415
Standard height	mm	n.d.	n.d.	1720	1720	1720	1720	1720	1720	1720
Standard leght	mm	n.d.	n.d.	2010	2010	2010	2360	2360	3190 ⁵	3190 ⁵
Standard width	mm	n.d.	n.d.	1185	1185	1185	1185	1185	1185	1185
Low Noise height	mm	1720	1720	1720	1720	1720	1720	1720	1720	1720
Low Noise leght	mm	2010	2010	2360	2360	2360	3190	3190	3540	3540
Low Noise width	mm	1185	1185	1185	1185	1185	1185	1185	1654	1654
Quite height	mm	1720	1720	1720	1720	1720	1720	1720	1720	1720
Quite leght	mm	2010	2010	2360	2360	2360	3190	3190	3540	3540
Quite width	mm	1185	1185	1185	1185	1185	1185	1185	1654	1654
Sound power levels S/L/Q	dB(A)	nd/42/39	nd/42/39	52/44/41	52/44/41	52/44/41	53,5/45/42	53,5/45/42	54/49/41	54/49/41
LCE		160	170⁴	190	210	240	270	290	320	
Cooling capacity ¹	kW	155,0	162,0	186,6	209,0	236,9	271,6	295,5	313,9	
Power input ¹	kW	56,3	50,5	64,4	77,0	86,6	95,8	104,4	111,8	
Heating capacity ²	kW	176,1	188,3	212,4	235,6	272,5	307,2	329,8	350,8	
Power input ¹	kW	51,3	55,6	65,2	73,0	85,12	95,86	104,2	112,6	
EER efficiency pack 1		2,75	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	
EER efficiency pack 2		2,75	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	
EER efficiency pack 3		2,76	3,21	2,90	2,71	2,74	2,84	2,83	2,81	
ESEER efficiency pack 1		3,61	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	
ESEER efficiency pack 2		3,87	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	
ESEER efficiency pack 3		3,75	4,16	4,04	4,00	4,01	4,10	4,12	4,18	
COP efficiency pack 1		3,29	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	
COP efficiency pack 2		3,30	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	
COP efficiency pack 3		3,26	3,39	3,26	3,23	3,20	3,20	3,17	3,12	
Expansion vessel	liters	12	25	25	25	25	25	25	25	
Water tank	liters	415	600	600	600	600	765	765	765	
Standard height	mm	1720	1720	1720	1720	2174	2174	2174	2174	
Standard leght	mm	3190 ⁵	3540	3540	3540	3540	4296	4296	4296	
Standard width	mm	1185	1654	1654	1654	1654	1654	1654	1654	
Low Noise height	mm	1720	n.d.	1720	2174	2174	2174	2174	2174	
Low Noise leght	mm	3540	n.d.	3540	3540	3540	4296	4296	4296	
Low Noise width	mm	1654	n.d.	1654	1654	1654	1654	1654	1654	
Quite height	mm	1720	n.d.	1720	2174	2174	2174	2174	2174	
Quite leght	mm	3540	n.d.	3540	3540	3540	4296	4296	4296	
Quite width	mm	1654	n.d.	1654	1654	1654	1654	1654	1654	
Sound power levels S/L/Q	dB(A)	54/49/41	55/nd/nd	55/49/41	55/49/41	55/50/41	56/51/42	56/51/42	56/51/42	

1 = water temp. 12/7°C air temp. 35°C

2 = water temp. 40/45°C air 7°C U.R. 90%

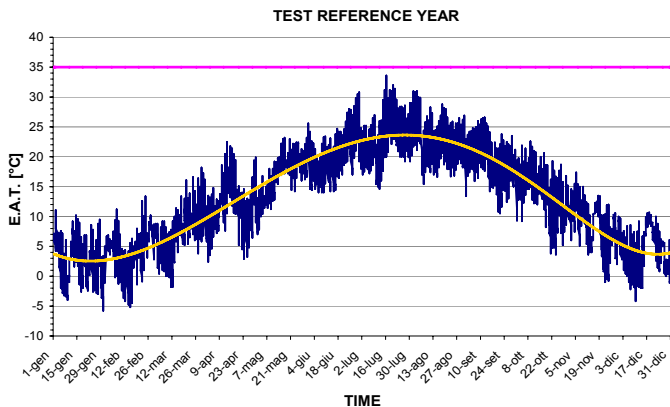
3 = Only available for L (low noise) and Q (quiet) version

4 = L (low noise) e Q (quiet) version not available

5 = "efficiency pack 3" version lenght = 3540 mm

LSE : wide range and configurability

In spite of the water chillers/heat pumps choice is based on the full load of the plant, the effective thermal load of the air conditioning plant is on the 90% of the time, 60% lower than the nominal load.



12 models, only cooling and in heating pumps compose the LSE range, with cooling capacity from 360 to 920 kW (620 kW for the heat pump) and use only scroll compressors with 2 or 4 refrigerant circuits.

◆ High efficiency on the partial loads

The number of compressors depends on the size, from 2 to 3 for each refrigerant circuit, multiplying the partial steps.

The high number of the partial loads allowed the unit to adapt its capacity to the effective needs of the plant, with particular **advantage** at the partial loads comparing to the traditional screw compressors.

The microprocessor control distributes automatically and divide the running operations of the compressors, with the result to increase their life.

On the partial load operations, the compressors work with oversized exchange surface realising more advantageous thermodynamic cycles, thanks to the use of standard electronic expansion valves on all models.

◆ Versions

- Cooling only
- Free-Cooling
- Heat pump, up to 620 kW.

◆ Hydraulic Options

Built in Hydronic kits

- Single pump, standard head or up rated
- Double pump OR solution, standard head or up rated
- Double pump AND solution : standard head or up rated



◆ Enlarged working limits

Using :

- Electronic expansion valve
- Dedicate air section for
- Smart Defrost logic
- Double reversing cycle extends the working field of the heat pump unit , from $-10\text{ }^{\circ}\text{C}$ to $-15\text{ }^{\circ}\text{C}$ the outdoor air temperature with water production at $40\text{ }^{\circ}\text{C}$

◆ Acoustic executions

Standard **S**

Low Noise **L**

Quite **Q**

◆ Interconnectivity

The use of advanced microprocessor as standard allows :

- LAN network realization;
- Ergo Network
- GSM kit for data reading and setting from mobile phone;
- WEB kit for data reading and setting from remote PC through the access to the IP address of the unit or of the unit network.



LSE		360	400	440	470	540	580	620
Cooling capacity ¹	kW	355,5	394,4	439,0	468,2	539,1	586,1	622,1
Power input ¹	kW	132,4	149,4	163,6	176,4	189,6	210,8	229,2
Heating capacity ²	kW	406,4	451,9	482,0	509,3	602,0	639,1	675,0
Power input ²	kW	127,7	142,4	157,5	169,0	193,5	208,8	224,2
EER		2,68	2,64	2,68	2,65	2,84	2,78	2,71
ESEER		3,79	3,75	3,80	3,76	4,10	4,01	3,85
COP		3,18	3,17	3,06	3,01	3,11	3,06	3,01
N° of scroll compressors / circuits		6 / 2	6 / 2	6 / 2	6 / 2	8 / 4	8 / 4	8 / 4
Water flow ¹	l/h	61141	67831	75508	80532	92731	100817	107005
Water pressure drop ¹	kPa	39	48	47	54	46	54	61
Expansion vessel	liters	25	25	25	25	50	50	50
Water tank	liters	600	600	800	800	1230	1230	1230
Standard height	mm	2350	2350	2350	2350	2350	2350	2350
Standard length ³	mm	3000	3000	4000	4000	5000	5000	5000
Standard width	mm	2200	2200	2200	2200	2200	2200	2200
Low Noise height	mm	2350	2350	2350	2350	2350	2350	2350
Low Noise length ³	mm	3000	4000	4000	5000	5000	5000	7000
Low Noise width	mm	2200	2200	2200	2200	2200	2200	2200
Quite height	mm	2350	2350	2350	2350	2350	2350	2350
Quite length ³	mm	4000	4000	4000	5000	5000	7000	7000
Quite width	mm	2200	2200	2200	2200	2200	2200	2200
Sound power levels S/L/Q	dB(A)	62/54/47	62/55/47	63/55/48	63/56/48	64/56/48	64/56/49	64/57/49
LSE		700	780	860	920			
Cooling capacity ¹	kW	705	784	861	918			
Power input ¹	kW	240	293	322	349			
EER		2,94	2,68	2,67	2,63			
ESEER		4,18	3,87	3,78	3,73			
N° of scroll compressors / circuits		9 / 4	10 / 4	11 / 4	12 / 4			
Water flow ¹	l/h	121177	134814	148106	157956			
Water pressure drop ¹	kPa	42	52	63	72			
Expansion vessel	liters	50	50	50	50			
Water tank	liters	1230	1230	1230	1230			
Standard height	mm	2350	2350	2350	2350			
Standard length ³	mm	7000	7000	7000	7000			
Standard width	mm	2200	2200	2200	2200			
Low Noise height	mm	2350	2350	2350	2350			
Low Noise length ³	mm	7000	7000	7000	7000			
Low Noise width	mm	2200	2200	2200	2200			
Quite height	mm	2350	n.d.	n.d.	n.d.			
Quite length ³	mm	7000	n.d.	n.d.	n.d.			
Quite width	mm	2200	n.d.	n.d.	n.d.			
Sound power levels S/L/Q	dB(A)	65/57/49	65/57/nd	65/57/nd	65/57/nd			

1 = water temp. 12/7°C air temp. 35°C

2 = water temp. 40/45°C air 7°C U.R. 90%

3 = Free cooling version length = + 300 mm

EXCELIA: high efficiency 365 days/year

Galletti has developed this product for the hot water production for space heating and service purpose more and more requested by independent houses with the aim to reduce the primary energy consumption and the running costs comparing to the conventional gas or electrical systems, thanks to the high efficiency:

COP average 3,3 (A Class of Eurovent Energetic Efficiency)
EER average 3,23 (A Class of Eurovent Energetic Efficiency)

♦ Heating operations Optimization

- Counter flow heat exchanger on the heating model
- Finned coil with wide fin steps
- Desuperheating on the tubes present on the bottom side of the finned heat exchanger side
- Heating cable on the basement on the finned coil internal part
- Easy condensing draining

♦ 365 days /year working operations

The MXE heat pumps has been designed to work, in heating mode, with outdoor air temperature from -15° to + 30°C, producing hot water up to 55°C, and in cooling mode with outdoor air temperature from -10°C to +45°C

The electronic expansion valve and the condensing control (on pressure base) contribute to enlarge the working (operation) field.



- ♦ Smart defrost system
- ♦ Electronic expansion valve
- ♦ Pressure condensing control
- ♦ Noise level very low
- ♦ Auto adaptive set point
- ♦ Hydraulic Plug & Play (integrated pump kit + tank)
- ♦ Interconnectivity to Ergo and Lan Network

MXE		009	011	014	016	019	021
Heating capacity ²	kW	8,46	10,6	14,2	16,6	18,7	21,0
Power input ²	kW	2,99	3,47	4,47	5,24	5,71	6,31
Cooling capacity ¹	kW	7,46	9,3	12,2	14,4	16,1	18,5
Power input ¹	kW	2,71	3,38	4,03	5,24	5,54	6,21
COP		3,23	3,42	3,46	3,41	3,50	3,53
EER		3,19	3,10	3,10	2,96	3,10	3,17
ESEER		3,92	3,73	3,77	3,59	3,85	3,79
N° of scroll compressors / circuits		1/1	1/1	1/1	1/1	1/1	1/1
Water flow ²	l/h	1454	1821	2442	2853	3221	3605
Water pressure drop ²	kPa	33	23	39	40	34	23
Available head ²	kPa	118	125	103	98	143	149
Expansion vessel	liters	5	5	5	5	5	5
Water tank	liters	30	30	30	30	82	82
Water connections	inches	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
Height	mm	1220	1220	1220	1220	1280	1280
Length	mm	1250	1250	1250	1250	1590	1590
Width	mm	560	560	560	560	600	600
Sound power level	dB(A)	69	69	69	69	71	71

¹ Water temperature 12°C - 7°C, air temperature 35°C

² Water temperature 40°C - 45°C, dry bulb air temperature 7°C, wet bulb air temperature 6°C

Floor: radiant cooling and heating

MFE range is a specific product for the production of cold and hot water for radiant panels plants. It is made of 7 different models, available in cooling and heating versions.

The range is characterised by high efficiency level both in cooling mode and in heating mode:

Average EER 3,83 (Eurovent Energy Efficiency Class A)
Average COP 4,02

- ◆ **Water produced in cooling mode up to 20°C**

The oversized finned pack heat exchanger and the oversized electronic expansion valve give higher energy efficiency level also with high evaporating temperature;

- ◆ **Heat Pumps Optimized for the operation in heating**

Plate heat exchanger with counter current operation in the heating mode. The production of hot water for radiant systems with low temperature allows you to reach high energy efficiency values.

- ◆ **Extended operation range**

The electronic expansion valve and the condensing control, allow to the unit to work in heating mode, with external air temperature up to -10°C and in cooling mode up to + 45°C. In this way you can extend the operation range of the unit.



- ◆ **Noise level very low**
- ◆ **Electronic expansion valve**
- ◆ **Auto adaptive set point**
- ◆ **Hydraulic Plug & Play (integrated pump kit + tank)**
- ◆ **Pressure condensing control**
- ◆ **Smart defrost system**
- ◆ **Interconnectivity to Ergo and Lan Network**

MFE		005	006	008	013	017	020	023
Cooling capacity ²	kW	5,24	6,62	8,62	12,5	17,1	19,8	23,2
Power input ²	kW	1,52	1,84	2,49	3,54	4,72	5,89	6,95
Heating capacity ¹	kW	4,91	6,30	8,10	11,5	15,6	18,3	21,7
Power input ¹	kW	1,38	1,70	2,20	3,28	4,10	4,95	5,89
EER		3,81	3,91	3,68	3,94	3,93	3,58	3,62
ESEER		3,39	3,36	3,16	3,40	3,59	3,35	3,40
COP		3,98	4,07	3,94	3,93	4,18	4,00	4,06
N° of scroll compressors / circuits		1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1
Water flow ¹	l/h	901	1139	1483	2150	2941	3402	3984
Water pressure drop ¹	kPa	3	4	10	61	58	72	98
Available head ¹	kPa	61	58	49	84	62	102	94
Expansion vessel	liters	1	1	1	5	5	5	5
Water tank	liters	n.d.	n.d.	n.d.	30	30	30	50
Water connections	inches	1	1	1	1 1/4	1 1/4	1 1/4	1 1/4
Height	mm	760	760	760	1220	1220	1490	1490
Length	mm	990	990	990	1250	1250	1990	1990
Width	mm	450	450	450	560	560	600	600
Sound power level	dB(A)	66	66	67	69	69	71	71

¹ Water temperature 23°C - 18°C, air temperature 35°C

² Water temperature 30°C - 35°C, dry bulb air temperature 7°C, wet bulb air temperature 6°C

SMARTANK: Integrated renewable solutions

The heat production and the availability of sanitary hot water can be realized using exclusively renewable energy sources, in a more convenient way compared to the traditional gas systems.

The use of high efficiency heat pumps, in combination with heating solar systems as a substitution of systems which use fossil sources, can reduce significantly the CO₂ Emission.

A heat pump whose seasonal COP is equal to 3, has got the same emission of greenhouse gases as a condensation boiler. If the electric energy is produced using the "green technology", the emission of greenhouse gases is much higher.

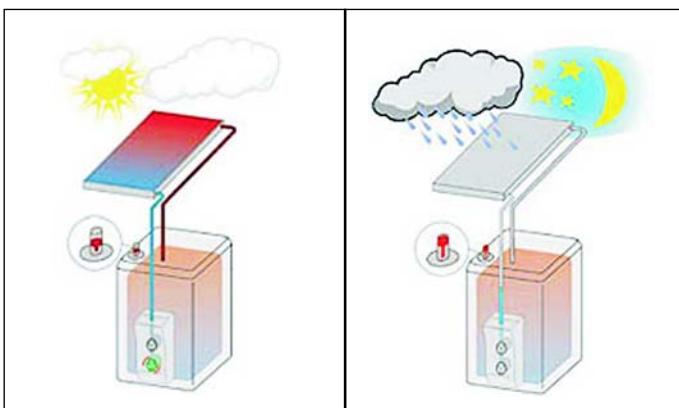
The use of high efficiency air/water heat pumps in Mediterranean areas represents the best solution both in terms of gas emission and in terms of cost reduction.

The Smart Tank solution allows you to produce hot water for the sanitary purpose and in heating plants by integration of renewable energy: heat pump and thermal solar system.

Smart Tank is a thermal accumulator (water tank), with capacity 500l, realized in synthetic material with a double wall. The gap between the two walls is filled with polyurethane foam, which is able to grant a very high level of thermal insulation.

The tank is filled with water one only time when it is started up, and it is never substituted. It is heated through a high efficiency heat pump (which is made of a stainless steel heat exchanger), but you also have the possibility to have an integration with a solar system and with a direct exchange.

The solar integration is managed independently by a regulation system mounted on the Smart Tank, that activates the pumps of the solar system. In case the solar energy is not enough, the pumps are stopped automatically.



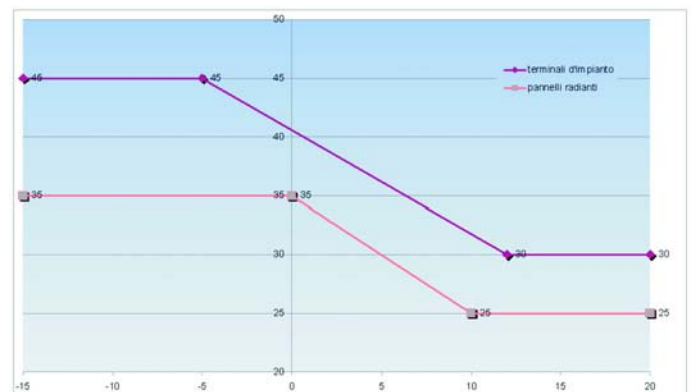
The system is regulated by a control panel **myCOMFORT SMART**, that can manage the operation of the heat pump and the start up of the circulation pump.

♦ Integrated Heating

The mounted probe can measure the water temperature inside the tank; if this temperature is lower than a pre-defined value, the heat pumps will be started (the solar energy is not enough in this case); if the water temperature will continue to decrease, it will be started up also an additional electric heater or any other alternative heating source (neither the solar or the heat pump are enough in this case);

♦ Mixing Valve of the heating system

Regulation of the discharge water temperature towards the heating system; the reference set is calculated according to the value of the external air temperature (air probe mounted in the heat pump) and according to the value of the defined climatic curve.

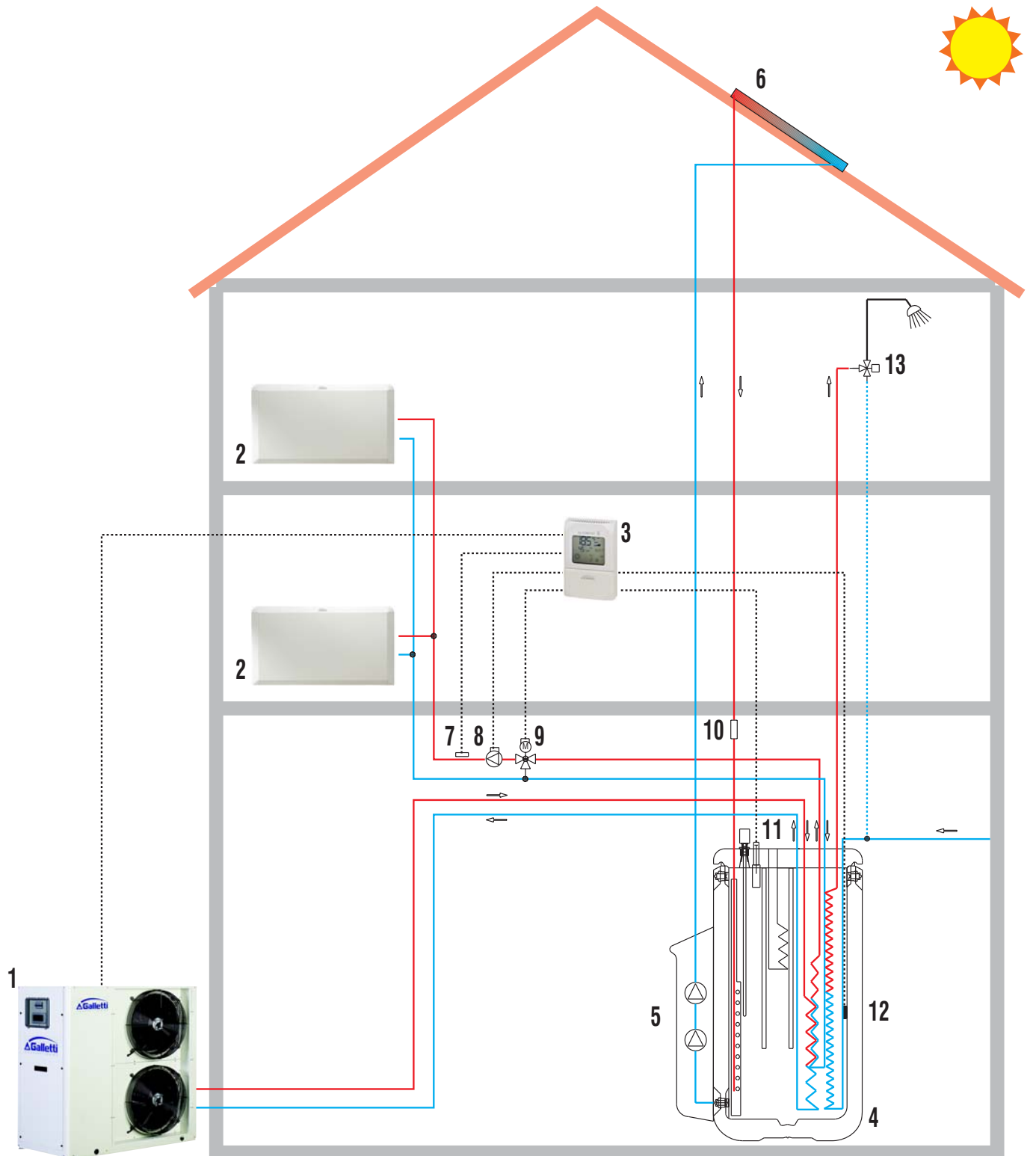


♦ Circulation Pump of the heating system

This is managed according to the defined ON/OFF time slot (weekly timer).

Lay-out - Plant for heating and sanitary hot water production

Hot water production in SMARTANK accumulator with air/water heat pump MXE in integration with the solar system



- | | |
|--|--|
| <ul style="list-style-type: none"> 1 MXE high efficiency air/water heat pump 2 FLAT fan coil units 3 myCOMFORT SMART system control panel 4 SMARTANK accumulator 5 Pumps and Solaris system regulation 6 Plate Solar panel SOLARIS 7 Outlet Heating probe | <ul style="list-style-type: none"> 8 Heating system circulation pump 9 Mixing valve 10 Flow switch 11 Integrative electric heater 12 SMARTTANK accumulator probe 13 Thermostatic mixer |
|--|--|



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