Ferroli

Omnia ST 3.2

Air-water reversible heat pumps for split installation, with built-in DHW storage tank.

HYBRID FACTORY MADE

OMNIA ST 3.2

Efficiency joins comfort for built-in storage tank

OMNIA ST 3.2 is the evolution of **OMNIA S 3.2** and belongs to the new range of Ferroli **Full Inverter R32** split heat pumps.
"Split" means that the cooling circuit is divided between two units, Outdoor and Indoor. The Outdoor Unit contains the core of the cooling circuit, from the compressor to the fan with the air side exchanger, which is connected to the refrigerant gas pipes to the Indoor Unit.
On the other hand, the Indoor Unit contains the core of the generator's hydraulic circuit with all the main pre-installed components, such as the high-efficiency circulator and the expansion vessel, to allow safe and practical installation.
OMNIA ST 3.2 differs from OMNIA S 3.2 models for having integrated a **Domestic Hot Water tank** directly in the Indoor Unit. This storage tank has a 190L capacity for sizes 4 to 10, and 240L for larger models, from 12 to 16T.
And that's not all! OMNIA ST 3.2 can be customised according to your requirements, with a 18L inertial tank kit, a kit for solar integration of the storage tank or with a kit to manage 2 different zones, classic direct and mixed, if 2 different temperatures are required on the home terminals.
Thanks to its **wide operating range** (among the largest on the market), OMNIA ST 3.2 works **with as low as -25°C** outdoor temperature and produces hot water **up to 65°C** under nominal conditions.
The new **Full Inverter by Ferroli** concept uses DC inverter modulations on the 3 main energy-consuming components of the machine, namely: compressor, fan and pump. This allows the delivered power to be modulated, closely tracking the thermal load and allowing the user **very high efficiencies and significant energy savings**.
Furthermore, the **Full Inverter by Ferroli** reduces inrush currents, avoiding sudden grid surges while guaranteeing a longer service life of the components.
With the **lowest noise levels on the market**, OMNIA ST 3.2 can meet your system requirements, but can also easily be integrated with a Ferroli boiler (find out more about **Factory Made Hybrids** by Ferroli).

THE INDOOR UNIT, THE CORE OF HYDRAULIC DISTRIBUTION

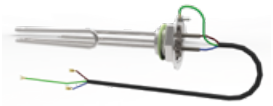
The Outdoor Unit contains the core of the cooling circuit, whereas the Indoor Unit contains the core of the hydraulic circuit.

OMNIA ST 3.2 is much more than a heat exchanger with a pump.
The hydronic module **includes all the main components** of the system and **can be customised** according to the user's needs.

Stainless steel plate exchanger, pressure gauge and pressure sensors, expansion vessel, safety valve, automatic vent and brushless DC circulator only some of the components you'll find inside.

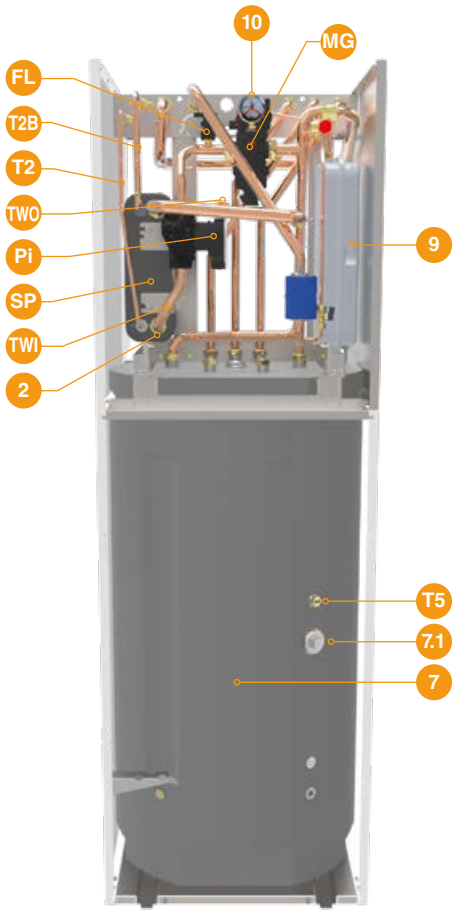
SOLAR KIT

DHW STORAGE TANK ELECTRICAL RESISTOR



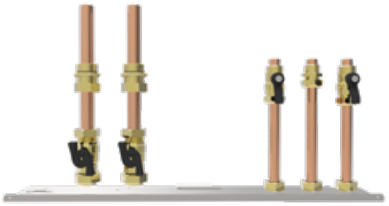
DHW EXPANSION VESSEL

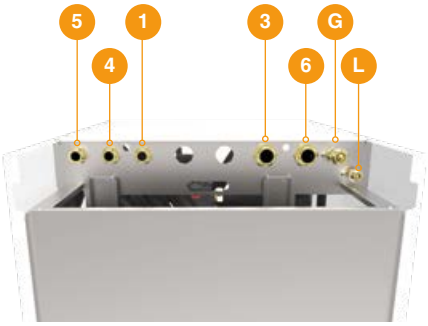
2-ZONE KIT



18 L INERTIAL TANK KIT

CONNECTION KIT





KEY

1 DHW recirculation pipe
2 Water drain valve
3 System delivery
4 DHW delivery
5 DHW return
6 System return
7 DHW storage tank
7.1 DHW storage tank electrical resistor (accessory)
8 DHW storage tank expansion vessel (accessory)
9 Expansion vessel
10 Water pressure gauge
FL Flow switch
G Gas line
L Liquid line
MG System water multipurpose unit
Pi Water circulator
SP Plate heat exchanger
T2 Heat pump liquid refrigerant temperature probe
T2B Heat pump refrigerant gas temperature probe
T5 DHW storage tank temperature probe
TWO Plate heat exchanger inlet water temperature probe
TWI Plate heat exchanger outlet water temperature probe

THE CONTROL SYSTEM

The user interface has been equipped with **Capsense technology**, with a 2.8" graphical display, which allows the user to conveniently and simply interact with the product.

- **MODBUS PROTOCOL**. It can be interfaced with BMS/BACS automation and management systems.
- **HEATING AND COOLING**. The **Full Inverter** modulation closely tracks the desired setpoints, with the option to set hot and cold climatic curves, further optimising consumption for the user.
- **DOMESTIC HOT WATER (DHW) PRODUCTION**. When the DHW temperature probe calls, the machine automatically diverts to the DHW storage tank with a dedicated DHW Setpoint. 3-way diverter valve supplied as standard.
- **SMART GRID INPUT FROM PHOTOVOLTAIC AND MAINS**. Digital **Smart Grid** inputs to manage one input from the photovoltaic system and from the mains. These allow consumption and utility bill costs to be optimised.
- **DHW STORAGE TANK ELECTRICAL RESISTOR**. The DHW electrical integration serves as an integration, anti-legionella or reserve source in the event of an anomaly.
- **FAST DHW**. Priority to DHW production to bring the storage tank to the setpoint in the shortest possible time.
- **ANTI-LEGIONELLA FUNCTION**. Allows the weekly anti-legionella cycles to be set.
- **SILENT MODE**. Reduces the compressor frequency and fan speed to reduce noise significantly. Programmable in time bands.
- **ON/OFF** from an external contact. Activation and deactivation via an external contact (for example from a zone thermostat).
- **HOT/COLD** from external contacts. Summer/winter switching signal from the outside (for example from the zone thermostat).
- **ECO FUNCTION**. Dedicated setpoint for "**Eco**" mode. Can be set with a daily time band.
- **ANTI-FROST PROTECTION**. Heat pump heating mode with circulator set to ON and any electric booster.

THE BRAND NEW CONNECT CRP AND CONNECT CRP ZONE

The interface on the machine communicates easily with the new smart **Connect CRP** systems, which can manage up to 8 thermostats (7 Connect CRP Zone + 1 Connect CRP that in turn, has all the chronothermostat functions) divided into 2 zones: **one direct and one mixed**.

Connect CRP is the brand new remote controller and is accessible via an **APP**, which is available for both **iOS** and **Android**.
The **Connect CRP Zone**, on the other hand, is a Zone thermostat that communicates with the Connect CRP via **RF**.
IT can be placed in a classic 502 box or left stand-alone on its practical table feet.

TECHNICAL DATA

OUTDOOR UNIT TECHNICAL DATA			4	6	8	10	12	14	16	12T	14T	16T
Electric power supply		V-ph-Hz	220/240-1-50							380/415-3-50		
Type of compressor		-	Twin Rotary DC									
No. of compressors / No. of cooling circuits		no.	1/1									
Type of Exchanger		-	finned coil									
No. / Type of fans		-	1 x DC axial									
Cooling fittings - liquid line		-	1/4" SAE/Ø 6.35		3/8" SAE/Ø 9.52							
Cooling fittings - gas line		-	5/8" SAE / Ø 15.88									
Type of coolant		-	R32									
GWP		kg-CO_2 eq.	675									
Factory refrigerant charge ***		kg/t-CO_2 eq.	1.5 / 1.01		1.65 / 1.11		1.84 / 1.24					
Cooling lines (max length / max vertical difference)		m	30 / 20									
SWL - Sound power level in heating *	A7W35	dB(A)	55	58	59	60	65	65	69	65	65	69
	Max	dB(A)	60	61	61	62	65	65	69	65	65	69
	Sil. 1	dB(A)	56	56	57	58	62	62	63	62	62	63
	Sil. 2	dB(A)	53	53	55	55	56	56	56	56	56	56
SWL - Sound power level in cooling *	A35W18	dB(A)	56	58	60	60	64	64	69	64	64	69
	Max	dB(A)	60	61	61	62	65	65	69	65	65	69
	Sil. 1	dB(A)	55	57	57	58	62	62	63	62	62	63
	Sil. 2	dB(A)	52	54	54	54	56	56	56	56	56	56
Maximum absorbed current		A	12	14	16	17	25	26	27	10	11	12
Net weight		kg	58		77		96			112		

INDOOR UNIT TECHNICAL DATA		10	16	16T
Electric power supply	V-ph-Hz	220/240-1-50		380/415-3-50
Type of Exchanger	-	Brazed stainless steel plates		
Type of pump	-	Electronic circulator (8 mH_2O)	Electronic circulator (9 mH_2O)	
System expansion vessel volume	l	10		
System water safety valve calibration	bar	3		
System hydraulic connections	-	1" GAS F		
DHW hydraulic connections	-	3/4" GAS F		
Cooling fittings - liquid line **	-	3/8" SAE / Ø 9.52		
Cooling fittings - gas line	-	5/8" SAE / Ø 15.88		
Minimum system water content	l	40	40	
DHW storage tank volume	l	190	240	
System electric heating	kW	3		6
DHW storage tank electric heating (accessory)	kW	1.5		
DHW expansion vessel volume(accessory)	l	8		
DHW storage tank water safety valve calibration	bar	9		
SWL - Indoor unit sound power level	dB(A)	42	43	
Maximum absorbed current	A	14		10
Net weight	kg	192	224	

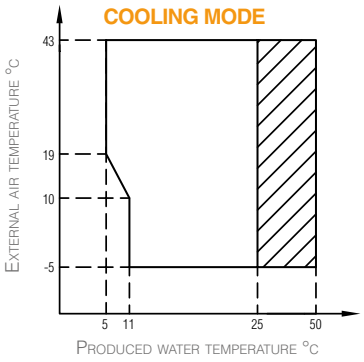
*** SWL** = Sound power levels, referring to $1x10^{-12}$ W with unit operating in conditions: A7W35 = source : air in 7°C DB 6°CWB / system : water in 30°C out 35°C. **A35W18** = source : air in 35°C DB / system : water in 23°C out 18°C **Max** = in maximum conditions in heating / cooling mode **Sil. 1** = if silenced level 1 is active in heating / cooling mode **Sil. 2** = if silenced level 2 is active in heating / cooling mode The Total sound power level in dB(A) is measured in accordance with standard ISO 9614. ****** A reduction from 3/8" SAE to 1/4" SAE is supplied for liquid line Ø 6.35 to be combined with outdoor units mod.4-6. ******* The factory refrigerant charge allows a maximum length of 15-metre cooling lines. The maximum length of the cooling lines is 30 metres: in this case, the charge must be integrated during the installation.

PERFORMANCE DATA			4	6	8	10	12	14	16	12T	14T	16T
A7W35	Rated heat output	kW	4.20	6.35	8.40	10.0	12.1	14.5	15.9	12.1	14.5	15.9
	Rated absorbed power	kW	0.82	1.28	1.63	2.02	2.44	3.15	3.53	2.44	3.15	3.53
	COP	W/W	5.10	4.95	5.15	4.95	4.95	4.60	4.50	4.95	4.60	4.50
	Water flow rate	l/h	722	1092	1445	1720	2081	2494	2735	2081	2494	2735
	Useful static pressure	kPa	78	70	50	33	51	33	23	51	33	23
A7W45	Rated heat output	kW	4.30	6.30	8.30	10.0	12.3	14.1	16.0	12.3	14.1	16.0
	Rated absorbed power	kW	1.13	1.70	2.16	2.67	3.32	3.92	4.57	3.32	3.92	4.57
	COP	W/W	3.80	3.70	3.85	3.75	3.70	3.60	3.50	3.70	3.60	3.50
	Water flow rate	l/h	740	1084	1428	1720	2116	2425	2752	2116	2425	2752
	Useful static pressure	kPa	78	70	51	33	50	37	23	50	37	23
A7W55	Rated heat output	kW	4.40	6.00	7.50	9.50	11.9	13.8	16.0	11.9	13.8	16.0
	Rated absorbed power	kW	1.49	2.03	2.36	3.06	3.90	4.68	5.61	3.90	4.68	5.61
	COP	W/W	2.95	2.95	3.18	3.10	3.05	2.95	2.85	3.05	2.95	2.85
	Water flow rate	l/h	473	645	86	1021	1279	1484	1720	1279	1484	1720
	Useful static pressure	kPa	83	79	77	72	82	75	66	82	75	66
A35W18	Rated cooling capacity	kW	4.50	6.50	8.30	9.90	12.0	13.5	13.6	12.0	12.9	13.6
	Rated absorbed power	kW	0.82	1.35	1.64	2.18	3.04	3.75	3.77	3.04	3.49	3.77
	EER	W/W	5.50	4.80	5.05	4.55	3.95	3.60	3.61	3.95	3.70	3.61
	Water flow rate	l/h	774	1118	1428	1703	2064	2322	2563	2064	2322	2563
	Useful static pressure	kPa	77	69	52	34	53	41	30	53	41	30
A35W7	Rated cooling capacity	kW	4.70	6.50	7.45	8.20	11.5	12.4	14.0	11.5	12.4	14.0
	Rated absorbed power	kW	1.36	2.17	2.22	2.52	4.18	4.96	5.60	4.18	4.96	5.60
	EER	W/W	3.45	3.00	3.35	3.25	2.75	2.50	2.50	2.75	2.50	2.50
	Water flow rate	l/h	808	1118	1281	1410	1978	2133	2408	1978	2133	2408
	Useful static pressure	kPa	77	69	60	53	55	49	37	55	49	37

The values refer to units without any optional features or accessories. Data declared according to **EN 14511: EER** (Energy Efficiency Ratio) = ratio of cooling capacity in relation to absorbed power **COP** (Coefficient Of Performance) = ratio of heat output in relation to absorbed power **A7W35** = source : air in 7°C DB 6°C WB / system : water in 30°C out 35°C **A7W45** = source : air in 7°C DB 6°C WB / system : water in 40°C out 45°C **A7W55** = source : air in 7°C DB 6°C WB / system : water in 47°C out 55°C **A35W18** = source : air in 35°C DB / system : water in 23°C out 18°C **A35W7** = source : air in 35°C DB / system : water in 12°C out 7°C

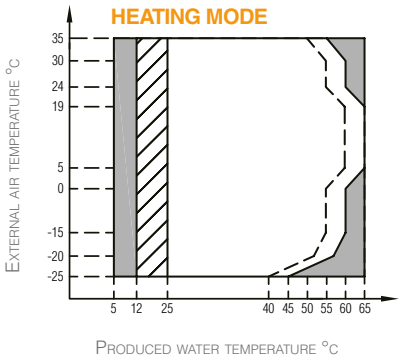
HEAT PUMP OPERATING LIMITS

COOLING MODE



Operating range with heat pump with possible limitation and protection

HEATING MODE

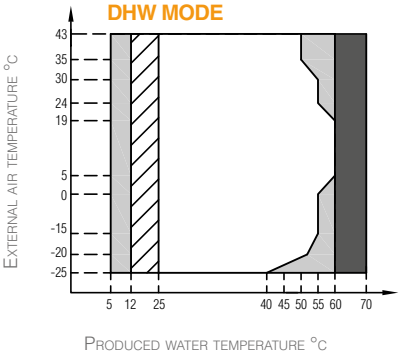


Operating range with heat pump with possible limitation and protection

With IBH (internal backup heater) installed

Maximum inlet water temperature for heat pump operation

DHW MODE



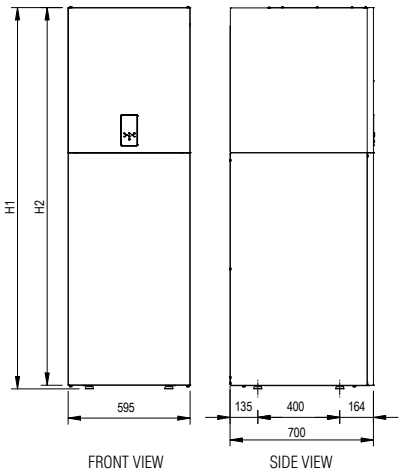
Operating range with heat pump with possible limitation and protection

With IBH (internal backup heater) installed

With TBH (heating of DHW electrical heater) installed

NOTE DHW MODE: Produced water temperature means the water temperature produced by the unit and not the DHW temperature available to the user which depends on this parameter and of the surface of the coil of the DHW tank.parametro e della superficie del serpentino dell'eventuale bollitore ACS.

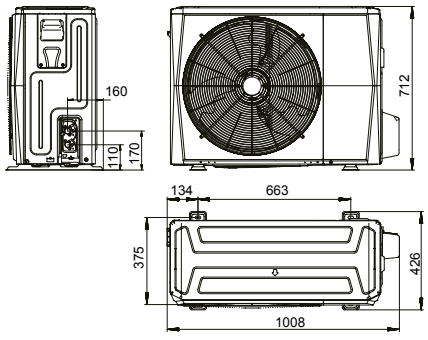
OVERALL DIMENSIONS OF INDOOR UNIT



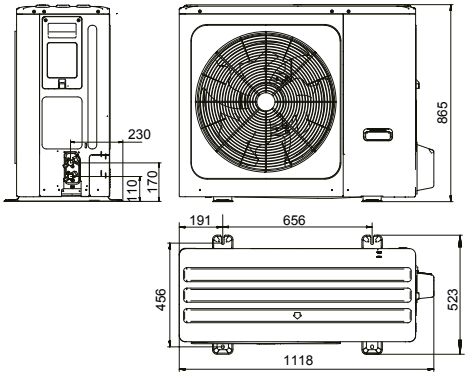
MODELS		10	16
H1	mm	1860	2110
H2	mm	1842	2092
H3	mm	1832	2082

OVERALL DIMENSIONS OF OUTDOOR UNIT

mod. 4 - 6

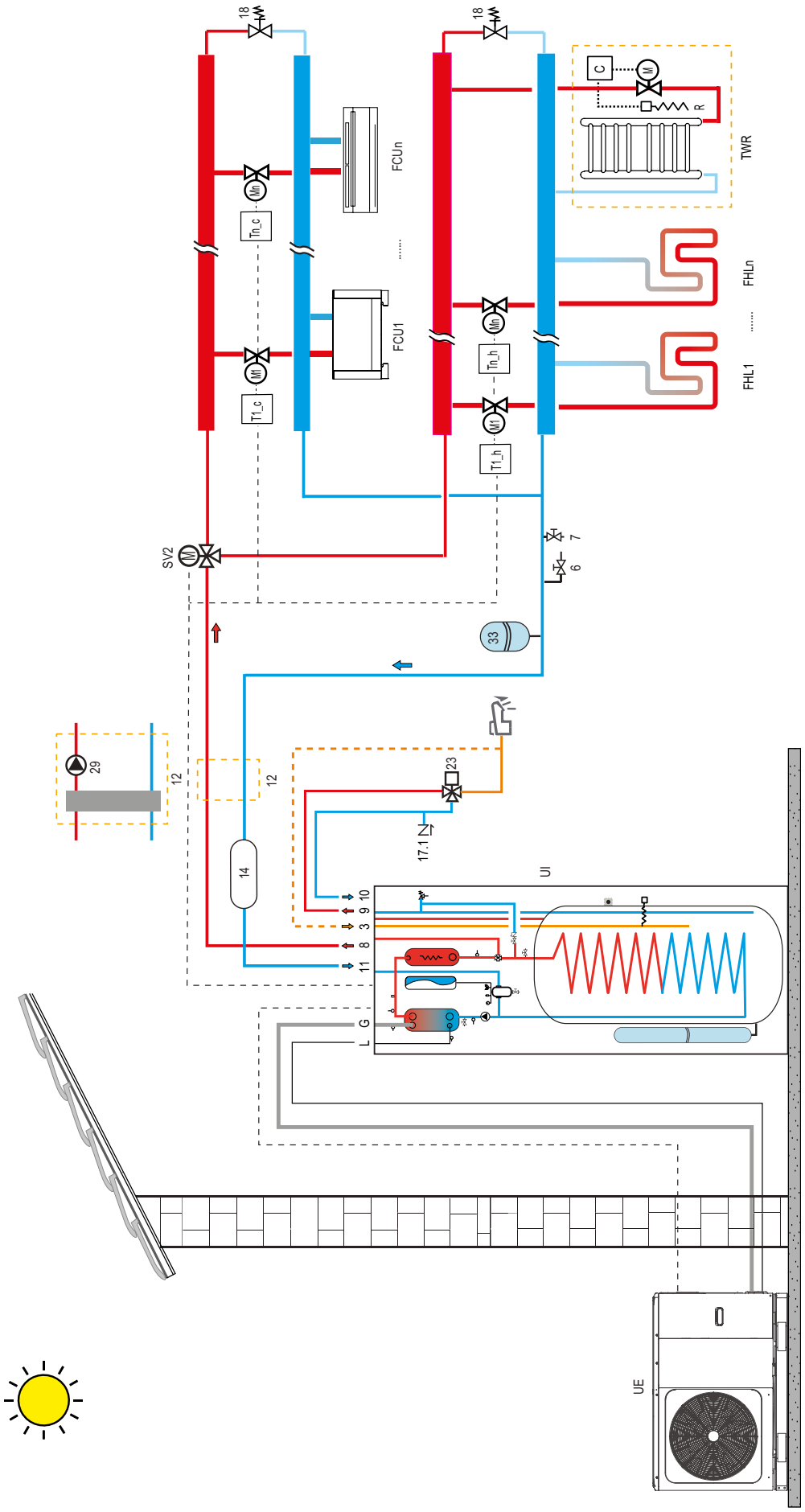


mod. 8 - 10 - 12 - 12T - 14 - 14T - 16 - 16T



MODELS		4	6	8	10	12	14	16	12T	14T	16T
Package (WxHxD)	mm	1065x800x485		1190x970x560							
Gross weight	kg	65		94		114			130		

EXAMPLE OF THE OMNIA ST SYSTEM DIAGRAM



KEY

3 DHW recirculation pipe **6** Water loading **8** System outlet **9** DHW outlet **10** DHW inlet **11** System inlet **12** Hydraulic separator and booster pump (not supplied), evaluate if needed to be installed in case of great system water pressure drops **13** DHW storage tank (not supplied) **13.1** DHW boiler electric resistor (accessory) **14** System water inertial tank (accessory) **17** Check valve **17.1** Check valve (not supplied) **18** Bypass valve (not supplied) **21** DHW expansion vessel (not supplied) **22** DHW safety valve (accessory) **23** Thermostatic mixer (not supplied) **33** System expansion vessel (not supplied) **37** Solar circuit expansion vessel (not supplied) **FCU 1 ... n** Fan coils: can only be used for cooling with radiant underfloor heating, or for cooling and heating without a radiant floor **FHL 1 ... n** Radiant floor / radiator only zone heating **G** Gas Line **L** Liquid Line **P_o** External pump (not supplied), evaluate if needed to install based on the system water pressure drop, controlled by the heat pump **P_s** Solar circuit water pump (not supplied) **SV2** Three-way valve for heating / cooling zone (not supplied) **T1_c – Tn_c** Cooling request room thermostat (not supplied) **T1_h – Tn_h** Cooling request room thermostat (not supplied) Ts Temperature probe for solar panel (accessory) **TWR** Integration of a towel warmer in the bathroom: if connected to the heating system it must be integrated with an electrical resistor (R) activated by the control (C), which simultaneously closes the valve (M); if not connected to the system, heating is only supplied by the electrical resistor (R), activated by the control (C) **IU** Indoor unit **OU** Outdoor unit - - - - Electrical connection

NOTICE FOR SALES AGENTS:
With a view to constantly improve its production range and customer satisfaction levels, the Company hereby specifies that aesthetic and/or dimensional features, specifications and accessories may be subject to changes.

Please place the utmost care to ensure all technical and/or sales documents (lists, catalogues, brochures, etc.) provided to the final Customer are updated according to the latest edition.

code 89AG30021/00 - 09.2021

Ferroli SpA
37047 San Bonifacio (VR) Italy - Via Ritonda 78/A
tel. +39.045.6139411
fax +39.045.6100233
www.ferroli.com
export@ferroli.com