

Ferrolì



Omnia S 3.2

Air-water reversible heat pumps for split installation. R32 Full Inverter Technology





OMNIA S 3.2

Silence, efficiency and design



OMNIA S 3.2 is the new range of **R32 Full Inverter** split heat pumps by Ferrol.

The range includes an Outdoor Unit with the core of the cooling circuit, 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.

The split installation of **OMNIA S 3.2**, with only the gas pipes between the outdoor and indoor unit, is **synonymous with safety** with regard to any freezing issue, even at the lowest temperatures (down to -25°C) and in the case of no power.

All the units fulfil the most extreme needs of winter and summer air conditioning, in fact, they can produce **hot water of up to 65°C** , which makes them suitable for practically all heating systems, radiant or with fan coils or radiators, including the production of domestic hot water (DHW), via an external storage tank.

The new **Full Inverter by Ferrol** 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 Ferrol** concept guarantees sound levels that are among the lowest on the market, avoiding sudden surges in the mains while guaranteeing a longer useful life cycle of the components.

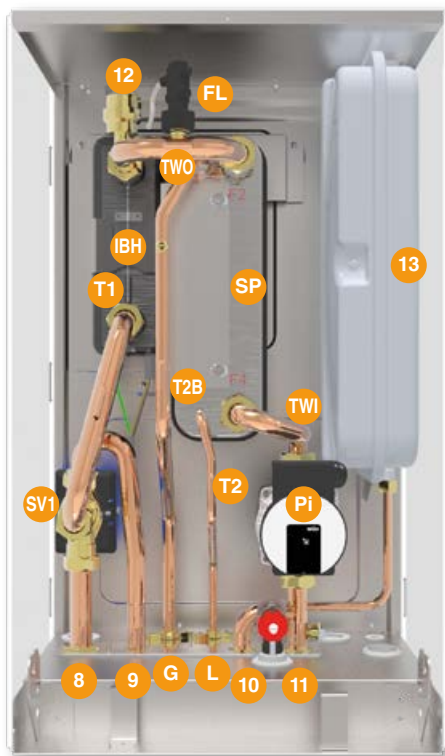
THE INDOOR AND OUTDOOR UNITS OF OMNIA S 3.2

The **Outdoor Unit** contains the core of the cooling circuit, whereas the **Indoor Unit** contains the core of the hydraulic circuit. They are interconnected by **ecological R32 refrigerant gas** pipes, which have allowed us to combine high efficiency with a reduced environmental impact. Thanks to its **675 GWP**, which is about one third of the GWP of R410a, it helps to reduce equivalent CO₂ emissions, which are the main causes of global warming.

The heat pumps use the Outdoor Unit to draw heat from the air outside the home and convey it to the water of your system, through an exchanger in the Indoor Unit. It is precisely for this reason that they can achieve **such high efficiencies**, exploiting the energy already present in the air outside the home in a **renewable** way.

The new **Full Inverter by Ferroli** concept then does the rest, tracking the thermal loads precisely and without waste (modulating the compressor, pump and fan) and manages to achieve even greater efficiencies, guaranteeing **significant savings in the utility bill**, without stressing the components and with very low sound levels.

OMNIA S 3.2 can be used as a single generator in the system or integrated with other sources, such as a Ferroli boiler (**read more about our Factory Made Hybrids**).



KEY

- 1 Axial fan with brushless DC motor complete with protective grilles
- 2 Cooling liquid receiver and separator
- 3 Twin Rotary Compressor with DC Inverter motor on vibration damping supports and with double soundproofing insulation to minimise vibrations and noise
- 4 Cooling connections
- 5 Control, power and inverter boards
- 6 Outdoor air temperature probe already installed on the unit
- 7 Gas/air exchange coil
- 8 System delivery
- 9 DHW delivery
- 10 DHW return
- 11 System return
- 12 Automatic air vent valve
- 13 Expansion vessel
- 14 Water pressure gauge
- FL Flow switch
- G Gas line
- IBH Electric system heater
- L Liquid line
- Pi Water circulator
- SP Plate heat exchanger
- SV1 Diverter valve
- T1 Heat pump outlet water temperature probe
- T2 Heat pump liquid refrigerant temperature probe
- T2B Heat pump refrigerant gas temperature probe
- TWI Plate heat exchanger inlet water temperature probe
- TWO 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										
Type of fans	-	DC axial										
No. of fans	no.	1										
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 diff.)	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				

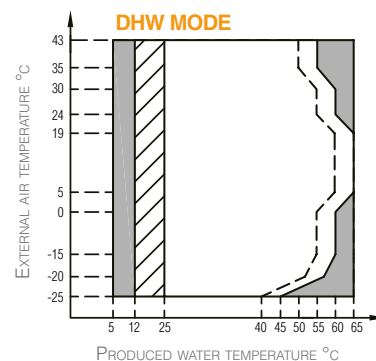
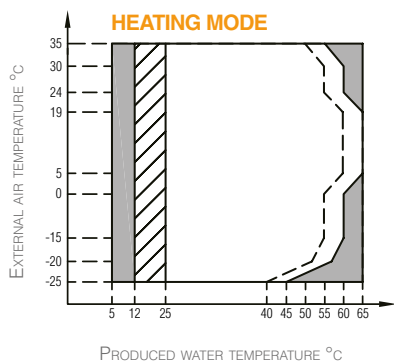
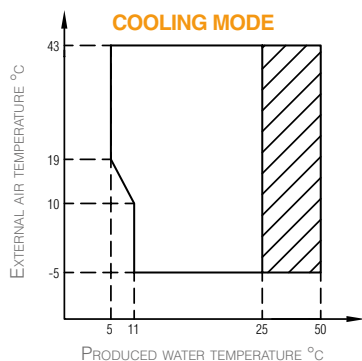
INDOOR UNIT TECHNICAL DATA		10	16	16T
Electric power supply	V-ph-Hz	220/240-1-50		380/415-3-50
Type of Exchanger	-	Brazed stainless steel plates		
Type of pump	-	Electronic circulator (8 mH ₂ O)	Electronic circulator (9 mH ₂ O)	
System expansion vessel volume	l	10		
System water safety valve calibration	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	
Min coil surface for DHW storage tank (min/recommended)	enamelled steel	m ² 1.4 / 2.5	1.75 / 4.0	
	steel	m ² 1.7 / 3.0	2.5 / 5.6	
System electric heating	kW	3		6
SWL - IU sound power level	dB(A)	42	43	
Maximum absorbed current	A	14		10
Net weight	kg	34	36	37

* 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
A7W45	Useful static pressure	kPa	81	76	61	47	58	42	34	58	42	34
	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
A7W55	Water flow rate	l/h	740	1084	1428	1720	2116	2425	2752	2116	2425	2752
	Useful static pressure	kPa	81	76	62	47	57	45	33	57	45	33
	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
A35W18	COP	W/W	2.95	2.95	3.18	3.10	3.06	2.95	2.85	3.05	2.95	2.85
	Water flow rate	l/h	473	645	806	1021	1279	1484	1720	1279	1484	1720
	Useful static pressure	kPa	83	81	80	77	85	79	71	85	79	71
	Rated cooling capacity	kW	4.50	6.50	8.30	9.90	12.0	12.9	13.6	12.0	12.9	13.6
A35W7	Rated absorbed power	kW	0.82	1.35	1.64	2.18	3.04	3.49	3.77	3.04	3.49	3.77
	EER	W/W	5.50	4.80	5.05	4.55	3.95	3.70	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	80	75	62	48	58	49	40	59	49	40
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	80	75	68	63	61	56	46	61	56	46	

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



Operating range with heat pump with possible limitation and protection

Operating range with heat pump with possible limitation and protection

Operating range with heat pump with possible limitation and protection

With IBH (internal backup heater) installed

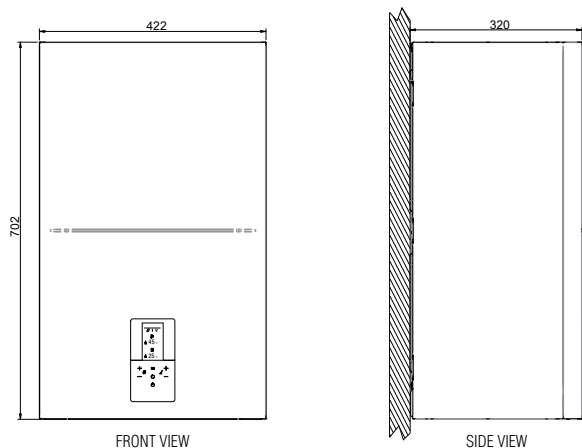
With IBH (internal backup heater) installed

Maximum inlet water temperature for heat pump operation

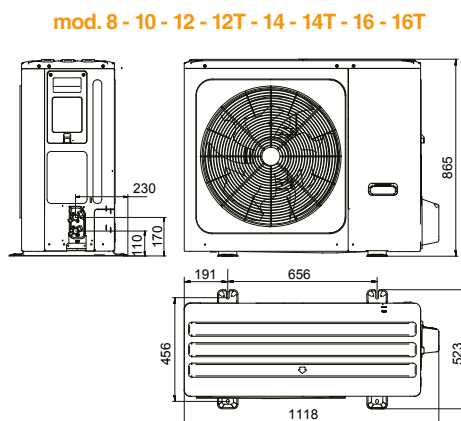
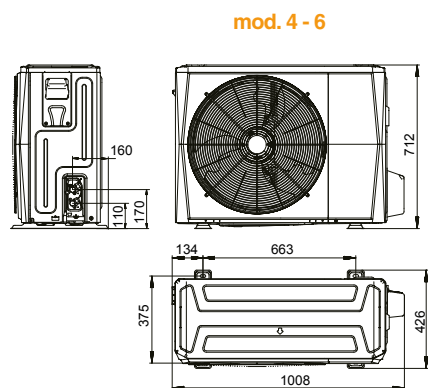
Maximum inlet water temperature for heat pump operation

NOTE DHW MODE: produced water temperature implies the temperature of the water produced by the unit and not the temperature of the DHW available to the user, which is a function of this parameter and of the surface area of the coil of any DHW cylinder.

OVERALL DIMENSIONS OF INDOOR UNIT

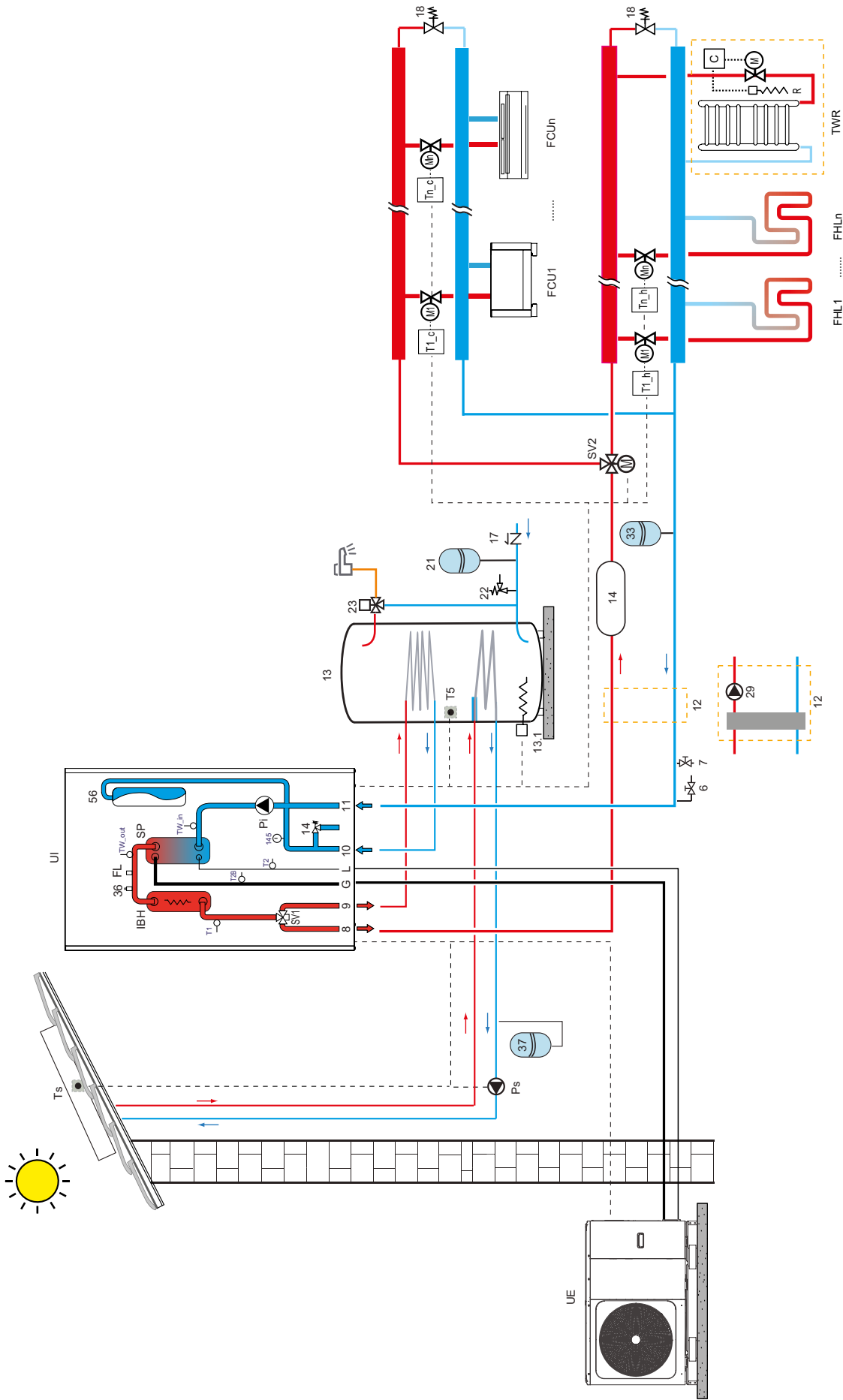


OVERALL DIMENSIONS OF OUTDOOR UNIT



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 S SYSTEM DIAGRAM



KEY
 6 Water drain (not supplied) 7 Water loading (not supplied) 8 DHW 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) 14 System water inertial tank (not supplied) 17 Check valve (not supplied) 18 Bypass valve (not supplied) 21 DHW expansion vessel (not supplied) 22 DHW safety valve (not supplied) 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 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 T1_c - Tn_c Cooling request room thermostat (not supplied) T1_h - Tn_h Heating request room thermostat (not supplied) TWR Integration of a towel warmer (accessory) TWR Temperature probe for solar panel (accessory) TWR integration of a towel warmer: 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.

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