



RIELLO ADAPTO HYBRID

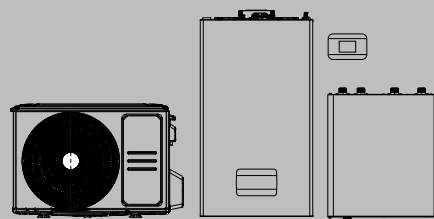
Hybrid systems – Wall-hung solutions

Multi-energy system designed to adapt to multiple system requirements while minimizing space requirements, flexible and easy to install

Suitable for heating, cooling and domestic hot water production

Proprietary intelligence stored in the system interface and also manageable via app

Choice between economic or ecological optimization mode



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PRODUCT DESCRIPTION

RIELLO ADAPTO HYBRID is the factory-made residential hybrid solution, ideal for replacing existing systems, which is part of the energy transition process in which Riello is actively involved. It is a compact and versatile multi-energy system, consisting of the RIELLO ADAPTO 3.5 or 5.0 kW heat pump in R32, the HYBRID hydraulic kit, the START condensing boiler in a combi version (KIS) of 25 or 30 kW, and the advanced system manager Hi, Comfort T300-HY.

RIELLO ADAPTO HYBRID has been designed to adapt to a wide range of system requirements, offering simplicity and flexibility of installation, minimizing the space required both inside and outside the home. The compact hydraulic kit can be easily positioned either under or to the side of the boiler, up to a maximum distance of 15m. Outside, the extremely compact heat pump can be installed either on the floor or suspended on the wall with suitable support brackets, up to a maximum distance of 25m in length and 10m in height from the indoor unit. These features, together with Plug&Play technology, make the system quick and easy to install, ideal for both installers and end users.

In a single solution, RIELLO ADAPTO HYBRID meets heating, cooling, and domestic hot water production needs, ensuring the best comfort throughout the year. It allows combined operation of the heat pump and boiler in heating mode. The combi boiler also provides instant domestic hot water production and, if the system is equipped with fan coils, the heat pump can provide hydronic cooling during the hottest periods.

The smart and intuitive digital user interface orchestrates the operation of the system and allows advanced control of the comfort of the home environment, optimizing consumption and adapting to the needs of users, both those who want to save on bills (economic optimization) and those who are more environmentally conscious (ecological optimization). The operation of RIELLO ADAPTO HYBRID can also be managed remotely, thanks to a specific section of the Hi, Comfort App.

SYSTEM COMBINATIONS

HYBRID SYSTEM	RIELLO ADAPTO HYBRID START 3.5 – 25	RIELLO ADAPTO HYBRID START 3.5 – 30	RIELLO ADAPTO HYBRID START 5.0 – 25	RIELLO ADAPTO HYBRID START 5.0 – 30
OUTDOOR UNIT	RIELLO ADAPTO 3.5	RIELLO ADAPTO 3.5	RIELLO ADAPTO 5.0	RIELLO ADAPTO 5.0
INDOOR UNIT	HYBRID HYDRAULIC KIT	HYBRID HYDRAULIC KIT	HYBRID HYDRAULIC KIT	HYBRID HYDRAULIC KIT
BOILER	START 25 KIS	START 30 KIS	START 25 KIS	START 30 KIS
CONTROL PANEL	Hi, Comfort T300-Hy	Hi, Comfort T300-Hy	Hi, Comfort T300-Hy	Hi, Comfort T300-Hy

HYBRID SYSTEMS

Hybrid systems – Wall-hung solutions

TECHNICAL DATA FOR OUTDOOR AND INDOOR UNITS

DESCRIPTION	notes	UoM	RIELLO ADAPTO	
Outdoor unit			HP OUTDOOR UNIT R32	
			3.5	5.0
Indoor unit			HYBRID HYDRAULIC KIT	
ELECTRICAL FEATURES				
Electrical supply		V/PH/HZ	220-240V/1PH/50HZ	
Nominal power consumption		A	3,67	5,0
Max. absorbed current		A	10	13,5
Min. power consumption		A	1,5	1,9
Max. power consumption		W	2300	2950
Outdoor unit protection degree			IPX4	
Indoor unit protection degree			IPX4	
HYDRAULIC AND GAS CONNECTIONS				
Refrigerant lines (to be connected to port A on the outdoor unit)				
Liquid connections		mm	6,35	
Gas connections		mm	9,52	
Maximum total length		m	25	
Max length with pre-charged gas		m	5	
Max. height difference between outdoor and indoor units		m	10	
COMPRESSOR				
Compressor		Type	ROTARY	
Oil		Type	VG74	
Oil charge		W	0,44	0,50
Refrigerant		Type	R32	
Refrigerant charge		kg	0,71	0,90
Max. permitted pressure		MPa	4.4	
Discharge and suction pressure		MPa	4,3/1,7	
Max. heating frequency		RPS	98	
Min. heating frequency		RPS	26	20
Max. cooling frequency		RPS	55	80
Min. cooling frequency		RPS	25	20
FAN				
Fan		Type	Axial Flow Fan	
Quantity		no.	1	
Nominal air flow		m³/h	2200	2100
Min. speed		RPM	230	
Maximum speed		RPM	900	850
Max. power consumption		kW	0,034	
NOISE LEVELS IN COOLING MODE - ODU				
Sound power		dB(A)	65	
Sound pressure		dB(A)	57	
NOISE LEVELS IN HEATING MODE - ODU				
Sound power		dB(A)	65	
Sound pressure		dB(A)	57	
SOUND LEVELS - IDU				
Sound power		dB(A)	47	53
TEMPERATURES				
Min./max. operating ambient temperature		°C	-15 / 50	
Max. operating temperature of system water (heating)		°C	60	
Min. operating temperature of system water (heating)		°C	24	
Max. operating temperature of system water (cooling)		°C	22	
Min. operating temperature of system water (cooling)		°C	5	

HYBRID SYSTEM ENERGY DATA

DESCRIPTION	UoM	RIELLO ADAPTO	
Outdoor unit		RIELLO ADAPTO 3.5	RIELLO ADAPTO 5.0
Indoor unit		HYBRID HYDRAULIC KIT	
Boiler		START 25/30 KIS	
ROOM HEATING			
TEMPERATE ZONE - LOW TEMPERATURE (30-35°C) EU REG. 811_2013			
Seasonal energy efficiency	%	151	151
SCOP		3,86	3,86
Prated	kW	3,5	5,00
Annual energy consumption	kWh/year	1884	2687
Energy class	D → A+++ (*)	A++	A++
TEMPERATE ZONE - MEDIUM TEMPERATURE (47-55°C) EU REG. 811_2013			
Seasonal energy efficiency	%	111	111
SCOP		2,85	2,85
Prated	kW	3,5	5,00
Annual energy consumption	kWh/year	2548	3637
Energy class	D → A+++ (*)	A+	A+
Outdoor unit sound power	dB(A)	65	65
Indoor unit sound power	dB(A)	47	53
ROOM COOLING TO 7°C - SEASONAL DATA			
Prated (declared cooling capacity) @35°C	kW	3,2	5,0
Seasonal EER (SEER)		4,81	4,60
Annual energy consumption (Qce)	kWh	399	652

NOTES:

The performances comply with the UNI EN 14511 and UNI EN 14825 standards.

(*) The range of energy efficiency class of this hybrid system category is between D and A+++.

HEAT PUMP ENERGY DATA

DESCRIPTION	UoM.	RIELLO ADAPTO	
Outdoor unit		RIELLO ADAPTO 3.5	RIELLO ADAPTO 5.0
Indoor unit		HYBRID HYDRAULIC KIT	
Electrical resistance		-	
ROOM HEATING			
TEMPERATE ZONE - LOW TEMPERATURE (30-35°C) EU REG. 811_2013			
Seasonal energy efficiency	%	150	150
SCOP		3,83	3,83
Prated	kW	3,50	5,00
Energy class	D → A+++ (*)	A++ (*)	A++
Outdoor unit sound power	dB(A)	62	65
Indoor unit sound power	dB(A)	45	53
TEMPERATE ZONE - MEDIUM TEMPERATURE (47-55°C) EU REG. 811_2013			
Seasonal energy efficiency	%	110	110
SCOP		2,83	2,83
Prated	kW	3,50	5,00
Energy class	D → A+++ (*)	A+ (*)	A+
Outdoor unit sound power	dB(A)	65	65
Indoor unit sound power	dB(A)	47	53
ROOM COOLING TO 7°C - SEASONAL DATA			
Prated (declared cooling capacity) @35°C	kW	3,2	5,0
Seasonal EER (SEER)		4,81	4,60
Annual energy consumption (Qce)	kWh	399	652

NOTES

The performances comply with the UNI EN 14511 and UNI EN 14825 standards.

(*) The range of energy efficiency class of this product category is between D and A+++

HYBRID SYSTEMS

Hybrid systems – Wall-hung solutions

UNI 11300 PARTS 3 AND 4: PERFORMANCE ACCORDING TO UNI EN 14511 AND UNI EN 14825

OUTDOOR UNIT (ODU):

RIELLO ADAPTO 3.5

INDOOR UNIT (IDU):

HYBRID HYDRAULIC KIT

HEATING full load data				
Dry bulb temperature air inlet (°C)	Water flow rate (m³/h)	Water temperature outlet (°C)	Capacity (kW)	COP
-15	0,6	35	2,00	1,70
-7	0,6	35	2,90	2,34
2	0,6	35	2,89	3,10
7	0,6	35	3,50	4,00
12	0,6	35	3,55	4,40
-15	0,6	45	2,10	1,40
-7	0,6	45	2,89	2,00
2	0,6	45	2,75	2,70
7	0,6	45	3,50	3,40
12	0,6	45	3,55	3,80
-7	0,39	55	2,80	1,60
2	0,39	55	2,70	1,90
7	0,39	55	3,50	2,50
12	0,39	55	3,50	3,00
COOLING full load data				
Dry bulb temperature air inlet (°C)	Water flow rate (m³/h)	Water temperature outlet (°C)	Capacity (kW)	EER
35	0,55	7	3,20	2,90
35	0,55	18	3,30	4,40
27	0,55	7	3,30	3,80
27	0,55	18	3,40	4,90
46	0,55	7	1,95	1,70

HEATING – Partial load data					
Tbival (-7°C)		A	B	C	D
Outdoor temperature (°C)		-7	2	7	12
PLR – Climate load factor		0,88	0,54	0,35	0,15
DC – Full load power		2,90	2,89	3,50	3,55
COP at full load		2,34	3,10	4,00	4,40
COP at partial load		2,33	3,28	3,47	3,68
CR – Load factor		1,00	0,65	0,35	0,15
f COP – Adjustment factor		1,00	1,06	0,87	0,84
COOLING – Partial load data					
Condition (A) 35°C		Pdc (declared cooling capacity)		3,24	kW
		EERd (declared EER)		3,08	-
		Cdc (degradation coefficient)		0,983	-
Condition (B) 30°C		Pdc (declared cooling capacity)		2,46	kW
		EERd (declared EER)		4,25	-
		Cdc (degradation coefficient)		0,969	-
Condition (C) 25°C		Pdc (declared cooling capacity)		1,61	kW
		EERd (declared EER)		6,21	-
		Cdc (degradation coefficient)		0,932	-
Condition (D) 20°C		Pdc (declared cooling capacity)		1,53	kW
		EERd (declared EER)		5,49	-
		Cdc (degradation coefficient)		0,936	-

HEATING

The performances comply with the UNI EN 14511 and UNI EN 14825 standards.
Partial load performance refers to a water flow temperature of 35°C.

COOLING

Performance according to UNI EN 14825 standards

UNI 11300 PARTS 3 AND 4: PERFORMANCE ACCORDING TO UNI EN 14511 AND UNI EN 14825

OUTDOOR UNIT (ODU):

RIELLO ADAPTO 5.0

INDOOR UNIT (IDU):

HYBRID HYDRAULIC KIT

HEATING full load data				
Dry bulb temperature air inlet (°C)	Water flow rate (m³/h)	Water temperature outlet (°C)	Capacity (kW)	COP
-15	0,86	35	3,90	2,00
-7	0,86	35	4,00	2,30
2	0,86	35	4,80	3,30
7	0,86	35	5,00	4,20
12	0,86	35	5,10	4,80
-15	0,86	45	3,70	1,70
-7	0,86	45	3,80	1,90
2	0,86	45	4,70	2,70
7	0,86	45	5,00	3,20
12	0,86	45	5,00	3,90
-7	0,54	55	3,70	1,70
2	0,54	55	4,60	2,00
7	0,54	55	5,00	2,50
12	0,54	55	4,80	2,90
COOLING full load data				
Dry bulb temperature air inlet (°C)	Water flow rate (m³/h)	Water temperature outlet (°C)	Capacity (kW)	EER
27	0,86	7	5,10	4,00
27	0,86	18	5,00	5,20
35	0,86	7	5,00	2,80
35	0,86	18	5,10	5,00
46	0,86	7	3,70	1,90
HEATING - Partial load data				
Tbival (-7°C)	A	B	C	D
Outdoor temperature (°C)	-7	2	7	12
PLR - Climate load factor	0,88	0,54	0,35	0,15
DC - Full load power	4,00	4,80	5,00	5,10
COP at full load	2,30	3,30	4,20	4,80
COP at partial load	2,40	3,02	4,10	3,63
CR - Load factor	1,00	0,56	0,35	0,15
f COP - Adjustment factor	1,00	0,91	0,98	0,76
COOLING - Partial load data				
Condition (A) 35°C	Pdc (declared cooling capacity)		5,0	kW
	EERd (declared EER)		2,70	-
	Cdc (degradation coefficient)		0,90	-
Condition (B) 30°C	Pdc (declared cooling capacity)		3,85	kW
	EERd (declared EER)		3,62	-
	Cdc (degradation coefficient)		0,90	-
Condition (C) 25°C	Pdc (declared cooling capacity)		2,40	kW
	EERd (declared EER)		5,60	-
	Cdc (degradation coefficient)		0,90	-
Condition (D) 20°C	Pdc (declared cooling capacity)		2,10	kW
	EERd (declared EER)		7,70	-
	Cdc (degradation coefficient)		0,90	-

RISCALDAMENTO

Prestazioni secondo norme UNI EN 14511:2013

Le prestazioni a carico parziale sono riferite ad una temperatura di mandata acqua di 35°C.

RAFFRESCAMENTO

Prestazioni secondo norme UNI EN 14825

OPERATING RANGE

INDOOR UNIT:

HEATING CYCLE		Min.	Max.
Room air (DB: Dry Bulb)	°C	5	30
Outdoor air (DB: Dry Bulb)	°C	-15	24
COOLING CYCLE			
Room air (DB: Dry Bulb)	°C	16	32
Outdoor air (DB: Dry Bulb)	°C	10	50

The limits are based on the following conditions:

Pipe length: 5m

Height difference: 0m

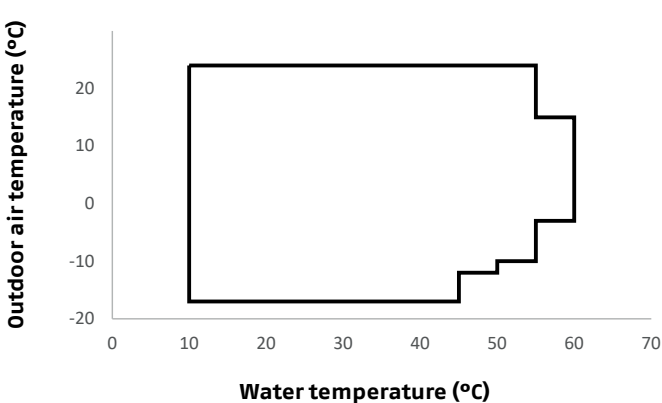
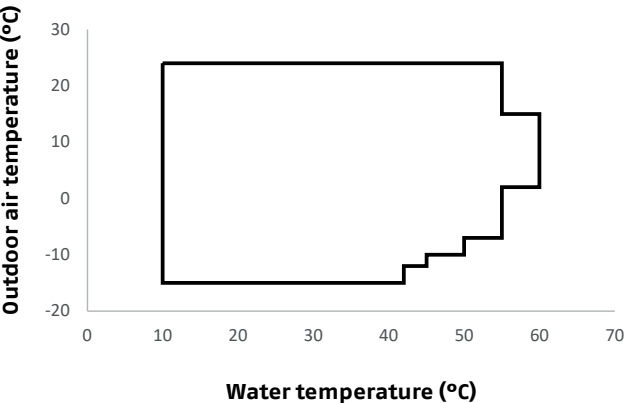
Air flow: max.

OUTDOOR UNIT:

HEATING MODE

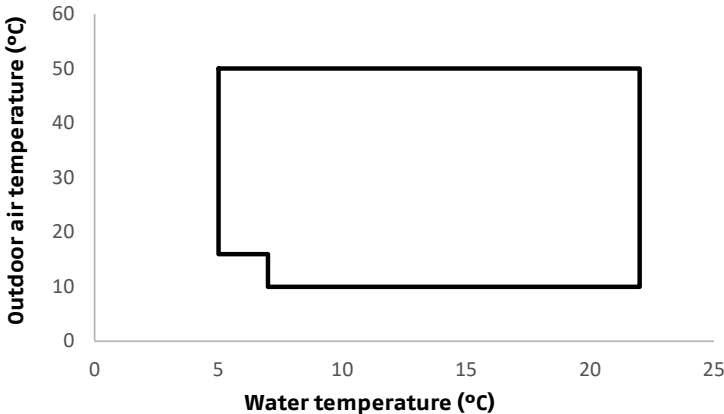
3.5 kW

5.0 kW



COOLING MODE

3.5 – 5.0 kW



TECHNICAL DATA FOR BOILER START KIS

DESCRIPTION	NOTES	UoM.	START 25 KIS			START 30 KIS		
Type of gas			G20	G230	G31	G20	G230	G31
Appliance category								
Type of appliance			B23P-B53P-C13-C13X-C33-C33X-C43-C43X-C53-C53X-C83-C83X-C93-C93X					
HEATING								
Nominal heat flow (Hi)		KW	20,00			25,00		
Nominal heat output (80-60°C)		KW	19,38			24,38		
Nominal heat output (50-30°C)		KW	20,92			26,78		
Reduced heat flow (Hi)		KW	3,10	3,10	5,00	3,95	3,95	5,00
Reduced heat output (80-60°C)		KW	2,94	2,94	4,74	3,79	3,79	4,81
Reduced heat output (50-30°C)		KW	3,04	3,04	4,91	4,09	4,09	5,19
DOMESTIC WATER								
Nominal heat flow (Hi)		KW	25,00			30,00		
Nominal heat output	(1)	KW	25,00			30,00		
Reduced heat flow (Hi)		kW	3,10	3,10	5,00	3,95	3,95	5,00
Reduced heat output	(1)	kW	3,10	3,10	5,00	3,95	3,95	5,00
EFFICIENCY								
Useful efficiency Pn max-Pn min (80-60°C)		%	96,9 - 94,7			97,5 - 96,0		
Useful efficiency Pn max-Pn min (50-30°C)		%	104,6 - 98,0			107,1 - 103,6		
Useful efficiency 30% (return 30°C)		%	109,1			108,8		
Average D performance Range Rated (80-60°C)		%	97,0			97,3		
Average D performance Range Rated 30% (30°C return)		%	109,3			109,0		
Combustion efficiency		%	97,2			97,7		
Chimney losses with burner on (Pn max)		%	2,8			2,3		
Chimney losses with burner off		%	0,09			0,08		
Shell losses with burner on (Pn max)		%	0,3			0,2		
FLUE GAS SYSTEMS								
NOx class - UNI EN 15502			6			6		
Residual head concentric flue gas 0,85 m Ø60-100 mm		Pa	60			60		
Residual head separate flue gas 0,5 m Ø80 mm		Pa	180			190		
Residual boiler head without pipes and without flange		Pa	186			196		
ELECTRICAL CHARACTERISTICS								
Electrical power (Pel max heating- Pel max DHW)		W	62 - 95			85 - 102		
Electric power of circulator (1000 W)		W	42			42		
Power supply		V - Hz	230-50			230-50		
Electrical protection level		IP	X5D			X5D		
HEATING OPERATION								
Max. pressure		bar	3			3		
Min. pressure for standard operation		bar	0,25			0,25		
Max. temperature:		°C	90			90		
H2O heating temperature selection range		°C	20/45 - 40/80			20/45 - 40/80		
Pump: max. head available to the system		mbar	408			408		
at flow rate of		l/h	1000			1000		
Diaphragm expansion vessel		W	8			8		
Preload expansion vessel		bar	1			1		
DHW OPERATION - INSTANT VERSION								
Max. pressure		bar	8			8		
Min. pressure		bar	0,5			0,5		
Hot water quantity with Δt 25°C		l/min	14,3			17,2		
with Δt 30°C		l/min	11,9			14,3		
with Δt 35°C		l/min	10,2			12,3		
Min. domestic water flow		l/min	2			2		
H2O DHW temperature selection range.		°C	37/60			37/60		
Flow regulator		l/min	10			12		
AIR AND FLUES FLOW								
Type of gas			G20	G230	G31	G20	G230	G31
Heating air flow		Nm³/h	24,3	24,1	24,8	30,4	30,1	31,0
DHW air flow		Nm³/h	30,4	30,1	31,0	36,4	36,2	37,2

HYBRID SYSTEMS

Hybrid systems – Wall-hung solutions

DESCRIPTION	NOTES	UoM.	START 25 KIS			START 30 KIS		
Heating flue gas flow		Nm ³ /h	26,3	26,4	26,4	32,9	33,1	32,9
DHW flue gas flow		Nm ³ /h	32,9	33,1	33,0	39,4	39,7	39,5
Max. heating flue gas mass flow		g/s	9,1	9,3	9,3	11,3	11,6	11,6
Max. DHW flue gas mass flow		g/s	11,4	11,7	11,6	13,6	14,0	13,9
Min. flue gas mass flow		g/s	1,4	1,4	2,3	1,8	1,8	2,3
Min. DHW flue gas mass flow		g/s	1,4	1,4	2,3	1,8	1,8	2,3
EMISSION VALUES AT MAX. AND MIN. FLOW RATES WITH GAS ⁽²⁾								
Type of gas			G20	G230	G31	G20	G230	G31
Max.								
CO s.a. less than		p.p.m	140	80	140	150	130	150
CO ₂		%	9,0	10,0	10,0	9,0	10,0	10,0
NOx s.a. less than		p.p.m	50	50	40	50	50	40
Flues temperature		°C	77	78	81	70	71	72
Min.								
CO s.a. less than		p.p.m	10	10	30	10	10	20
CO ₂		%	9,0	10,0	10,0	9,0	10,0	10,0
NOx s.a. less than		p.p.m	30	50	40	40	50	50
Flues temperature		°C	64	61	63	63	59	60

(1) Average value between the various operating conditions in DHW mode.

(2) Test performed with concentric flue Ø60-100 mm – length 0,85 m – water temperature 80-60°C.

ERP TECHNICAL DATA FOR START KIS

DESCRIPTION	Symbol	UoM	START 25 KIS	START 30 KIS
Seasonal space heating energy efficiency class	-	D → A+++ ⁽¹⁾	A	A
Water heating energy efficiency class	-	F → A+ ⁽²⁾	A	A
Rated heat output	P _{nom}	kW	19	24
Seasonal space heating energy efficiency	η _s	%	93	93
USEFUL HEAT OUTPUT				
At rated heat output, high-temperature regime (*)	P ₄	kW	19,4	24,4
At 30% of rated heat output and low-temperature regime (**)	P ₁	kW	6,5	8,2
USEFUL EFFICIENCY				
At rated heat output and high-temperature regime (*)	η ₄	%	87,3	87,6
At 30% of rated heat output and low-temperature regime (**)	η ₁	%	98,5	98,2
AUXILIARY ELECTRICITY CONSUMPTION				
At full load	e _{lmax}	W	32,0	38,0
At part load	e _{lmin}	W	12,0	12,0
In Stand-by mode	PSB	W	3,0	3,0
OTHER PARAMETERS				
Standby heat losses	P _{stby}	W	30,0	32,0
Pilot flame energy consumption	P _{ign}	W	-	-
Annual energy consumption	Q _{HE}	GJ	42	56
Sound power level, indoors	L _{WA}	dB	50	53
NOx emissions	NOx	mg/kWh	22	22
ACQUA CALDA SANITARIA				
Declared load profile			XL	XL
DHW energy efficiency	η _{wh}	%	84	84
Daily electricity consumption	Q _{elec}	kWh	0,133	0,152
Daily fuel consumption	Q _{fuel}	kWh	23,183	23,306
Annual electricity consumption	AEC	kWh	29	33
Annual fuel consumption	AFC	GJ	18	18

(*) High-temperature regime means: 60°C Return and 80°C Flow of the boiler.

(**) Low temperature regime means for condensing boilers 30°C, for low-temperature boilers 37°C and for other heaters 50°C return temperature.

(1) The range of energy efficiency class of this products category is between D and A+++.

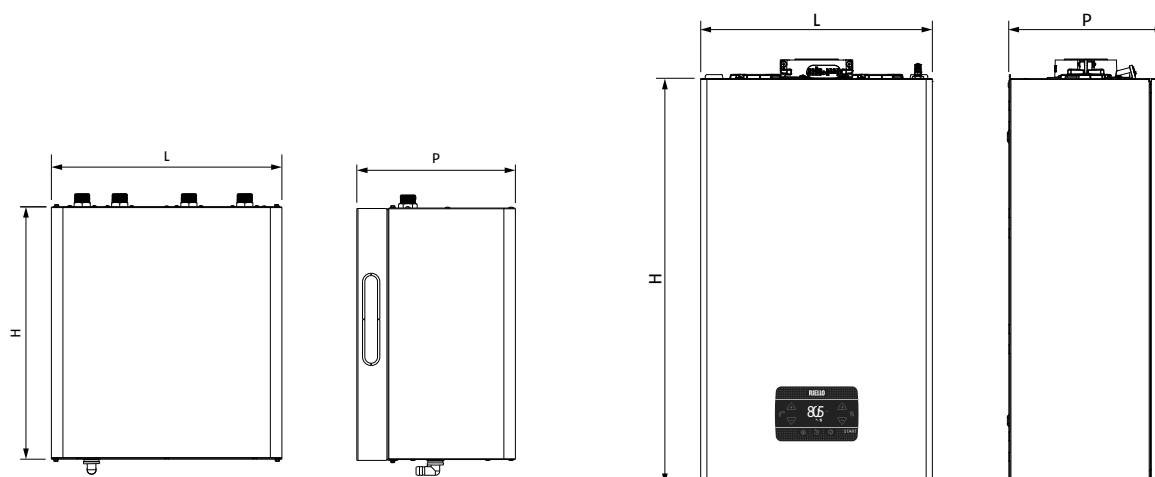
(2) the range of energy efficiency class of this products category is between F and A+

NOTE

With reference to Delegated Regulation (EU) No 811/2013, the data shown in the table can be used to complete the product fiche and labelling for space heaters, combination heaters, packages of space heaters, temperature controls and solar devices:

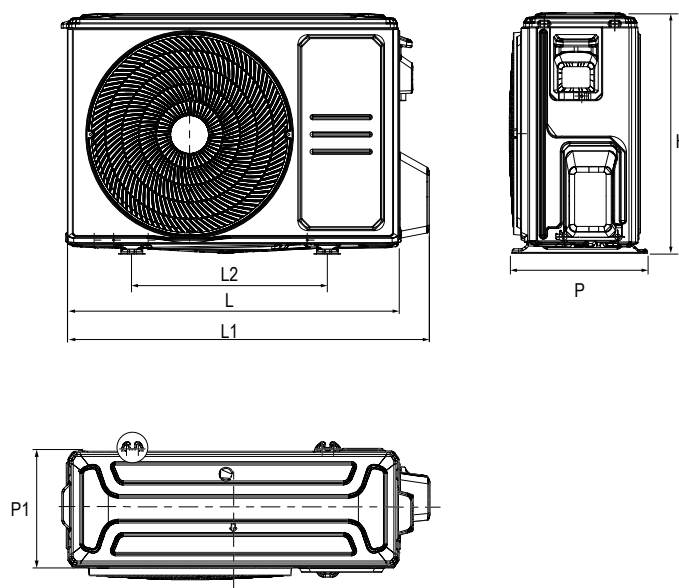
	CLASS	BONUS
OUTDOOR PROBE	II	2%
OT+ REMOTE CONTROL	V	3%
OUTDOOR PROBE + OT+ REMOTE CONTROL	VI	4%

OVERALL DIMENSIONS AND WEIGHTS



INDOOR UNIT AND BOILER

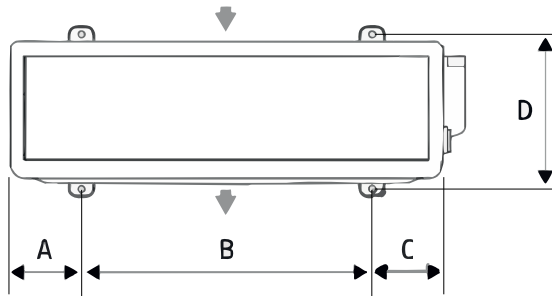
MODELS		UoM.	Hybrid hydraulic kit	START	
OUTDOOR UNIT				25 KIS	30 KIS
Height	H	mm	436	700	700
Width	W	mm	400	400	400
Depth	D	mm	275	275	275
Net weight		kg	19,5	28,5	30,0



OUTDOOR UNIT

MODELS		UoM.	RIELLO ADAPTO	
OUTDOOR UNIT			3.5	5.0
Height	H	mm	557	554
Width	W	mm	771	805
Width	W1	mm	839	874
Width	W2	mm	452	511
Depth	D	mm	304	321
Depth	D1	mm	274	299
Weight		kg	28,1	31,9

INSTALLATION DIMENTIONS



Installation dimentions

REF.	UoM	RIELLO ADAPTO	
		3.5	5.0
A	mm	156,5	123,6
B	mm	452	511
C	mm	159,5	180,4
D	mm	286	346

INSTALLATION LOCATION

PRELIMINARY WARNINGS FOR R32

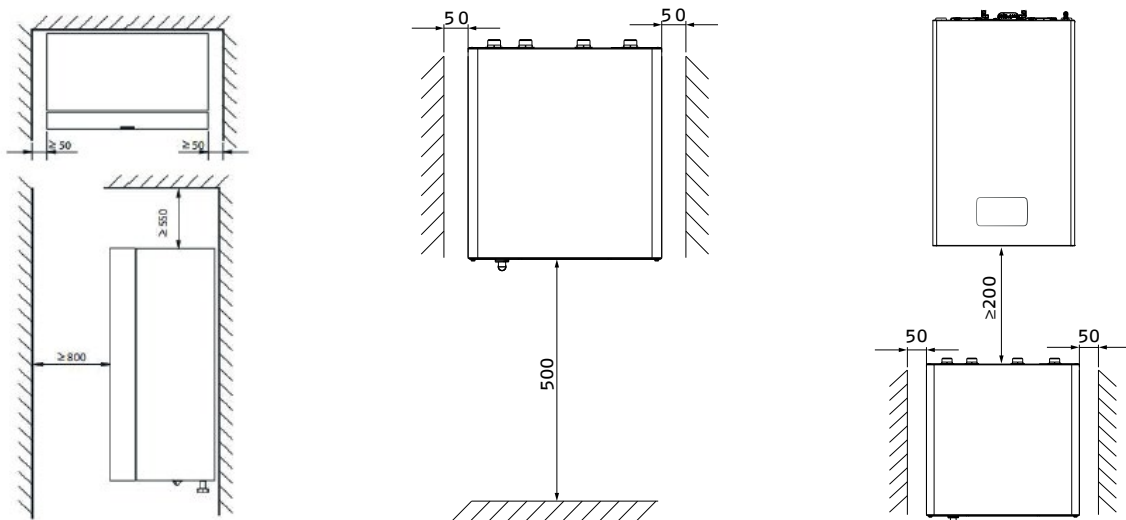
The appliance must be installed in well-ventilated areas with a minimum floor space as shown below in the 'OUTDOOR UNIT' section, depending on the total refrigerant charge of the circuit. The refrigerant charge refers to the total charge of the circuit, which is the sum of the factory charge and any additional charge. For the quantity of refrigerant gas charged in the unit, refer to the technical plate on the matching outdoor unit. If the appliance is located in a poorly ventilated area, precautions must be taken to prevent stagnation in the event of a refrigerant leak, so as not to create a risk of fire or explosion. The appliance must be placed in a room where there are no continuously operating open flames (e.g., a gas appliance in operation) or sources of ignition (e.g., an electric heater in operation). Any ventilation openings must be kept free from obstacles.

Perform the following checks:

- carry out safety checks to ensure that the risk of combustion is minimized
- avoid working in confined spaces
- delimit the area around the workspace
- ensure safe working conditions around the area by controlling flammable material.

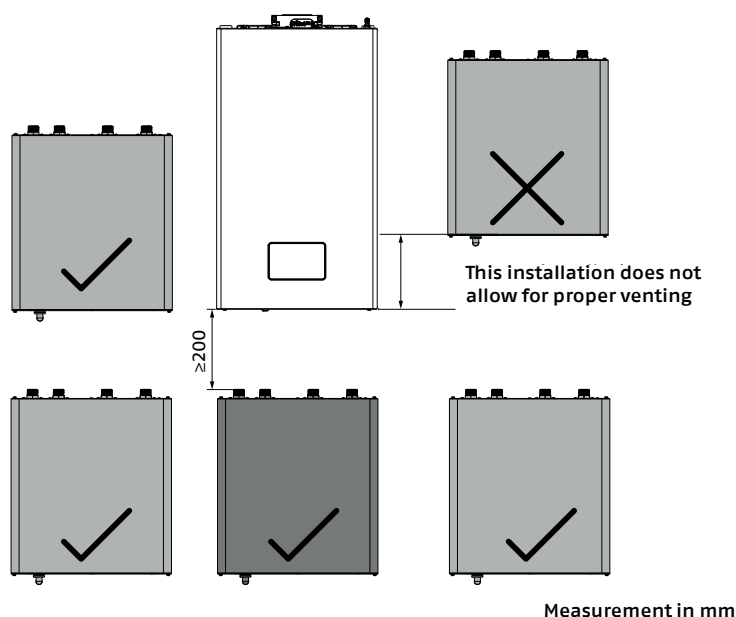
INDOOR UNIT

The clearance areas for installation and maintenance of the appliance are shown in the figure. The specified spaces are necessary to avoid obstructions to air flow and to allow normal cleaning and maintenance operations.



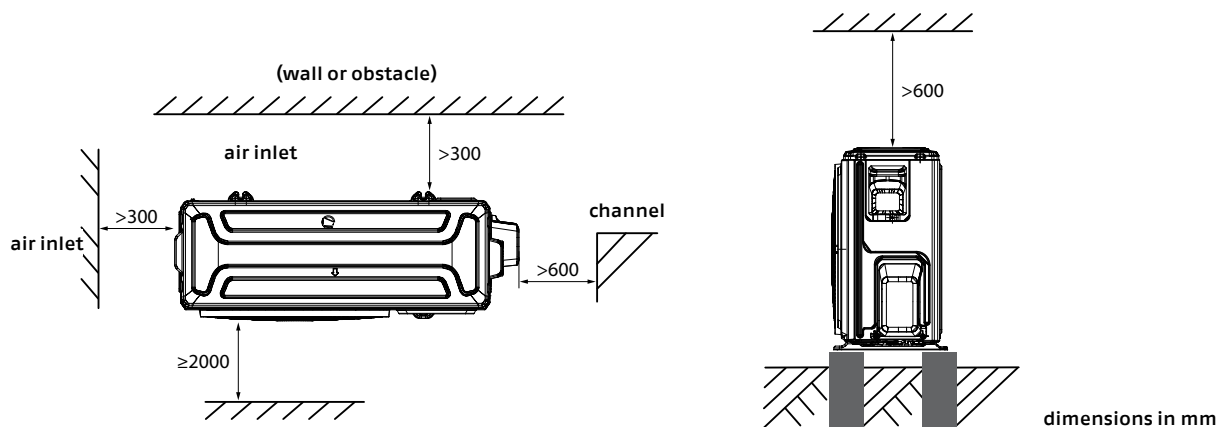
Position the appliance, keeping in mind that:

- it must be installed on a wall capable of supporting its weight;
- it must not be positioned above a stove or other cooking appliance;
- it is forbidden to leave flammable substances in the room where the kit is installed.
- the hydraulic kit must be installed below the boiler or to the side of it, at a distance equivalent to a linear pipe with a 3/4" section not exceeding 15 meters on the flow side and 15 meters on the return side.
- the hydraulic kit cannot be positioned above the vertical level of the boiler



OUTDOOR UNIT

The clearance areas for installation and maintenance of the appliance are shown in the figure. The specified spaces are necessary to avoid obstructions to air flow and to allow normal cleaning and maintenance operations.



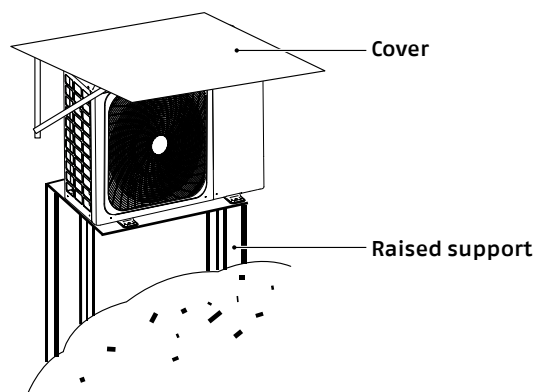
HYBRID SYSTEMS

Hybrid systems – Wall-hung solutions

Prevention of snow accumulation

In case of snow, lift the unit above the base pad to prevent ice buildup and damage to the coil. Hung the unit high enough to exceed common snow accumulation, with a minimum height of 18 inches (approximately 45 cm).

In cold weather conditions

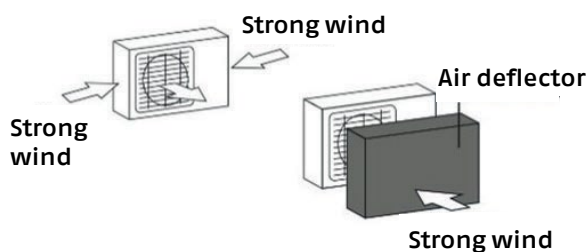


The image is purely indicative

SPECIAL CONSIDERATIONS FOR EXTREME WEATHER

If the unit is exposed to strong winds

Install the unit so that the air outlet fan is at a 90-degree angle to the wind direction. If necessary, build a barrier in front of the unit to protect it from extremely strong winds.



If the unit is often exposed to heavy rain or snow

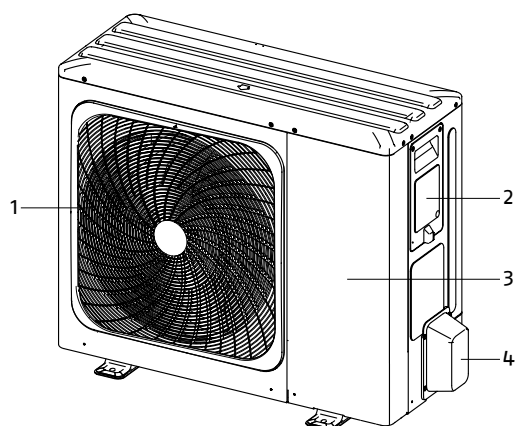
Build a shelter over the unit to protect it from rain or snow. Be careful not to obstruct the airflow around the unit.

If the unit is often exposed to salty air (coastal locations)

Use an outdoor unit specifically designed to resist corrosion.

SYSTEM LAYOUT

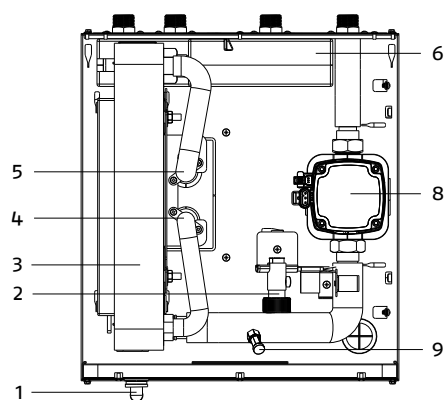
OUTDOOR UNIT



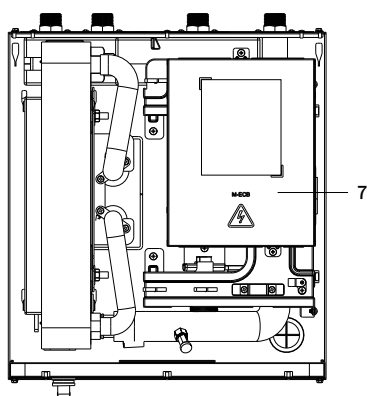
- 1 Electric fan grille
- 2 Electrical connection panel
- 3 Access panel
- 4 Hydraulic connection panel

The image is purely indicative

INDOOR UNIT



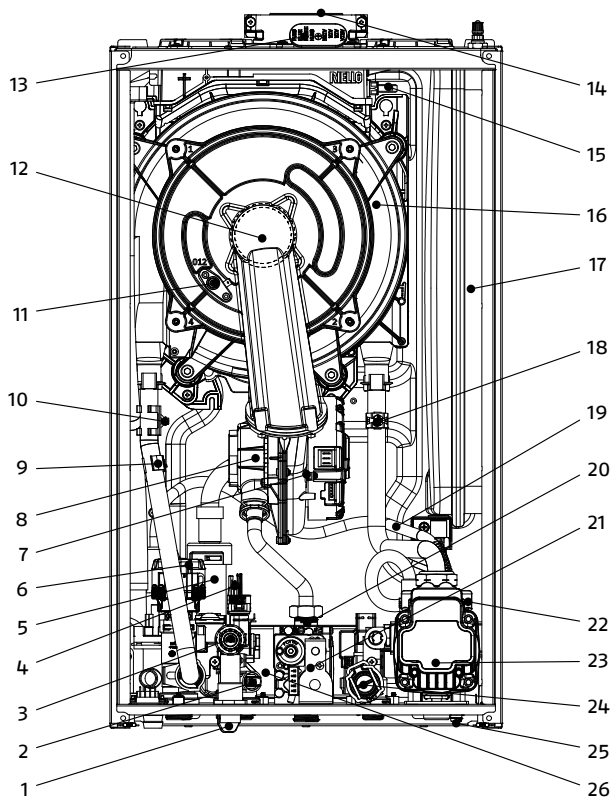
- 1 Drain pipe
- 2 Flow meter
- 3 Gas-water plate heat exchanger
- 4 Refrigerant liquid exchanger outlet
- 5 Refrigerant gas exchanger inlet
- 6 Hydraulic separator
- 7 Electrical connection box
- 8 Circulator (7 m)
- 9 Drain tap



HYBRID SYSTEMS

Hybrid systems – Wall-hung solutions

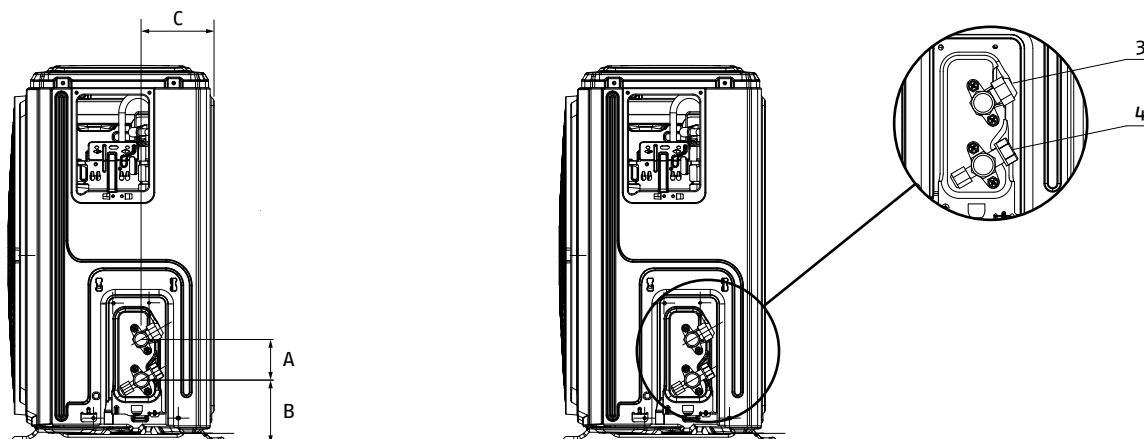
BOILER



- 1 Filling tap
- 2 DHW NTC probe
- 3 Safety valve
- 4 Pressure transducer
- 5 Siphon
- 6 Three-way valve
- 7 Fan
- 8 Mixer
- 9 NTC flow probe
- 10 Limit thermostat
- 11 Electrode
- 12 Burner
- 13 Flue gas air intake cap
- 14 Flue gas exhaust
- 15 Flue gas probe
- 16 Heat exchanger
- 17 Expansion vessel
- 18 NTC return probe
- 19 Degassing tube
- 20 Gas diaphragm
- 21 Gas valve
- 22 Air vent valve
- 23 Circulator
- 24 Flow meter
- 25 System drain tap
- 26 DHW exchanger

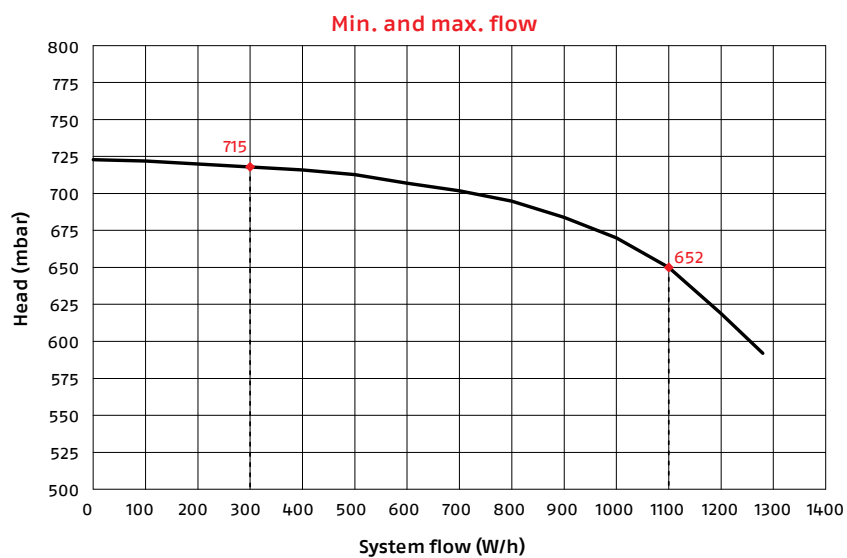
HYDRAULIC CONNECTIONS

RIELLO ADAPTO 3.5 - 5.0

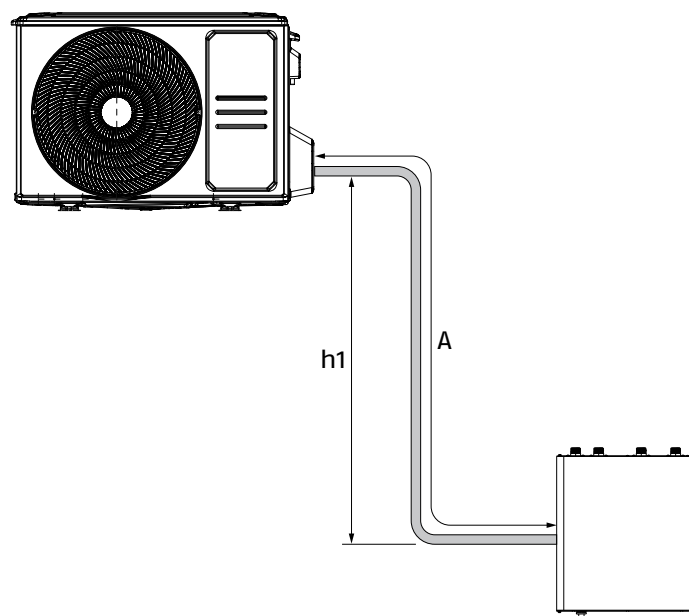


	DESCRIPTION	UoM	Riello ADAPTO 3.5	Riello ADAPTO 5.0
1	Hole for electrical connections	Ø mm	-	-
2	Condensate drain hose connection (included)	Ø mm	-	-
3	Refrigerant gas connection	inches (SAE Flare)	Ø 3/8"	
		mm	Ø 9,52	
4	Refrigerant liquid connection	inches (SAE Flare)	Ø 1/4"	
		mm	Ø 6,35	
A		mm	56	60
B		mm	82	95
C		mm	100	151

RESIDUAL HEAD DIAGRAM - INDOOR UNIT



REFRIGERANT CONNECTIONS BETWEEN OUTDOOR UNIT AND INDOOR UNIT



DESCRIPTION		UoM	3.5 kW	5.0 kW
Min. length allowed in development	A	m	3	
Max. length allowed in development	A	m	25	
Elevation difference limit between the 2 units	h1	m	10	
Length of the connection pipes without additional gas charge		m	5	
Additional charge		g/m	12	

HYDRAULIC SYSTEM

WATER IN HEATING SYSTEMS

Before installation, the terminal and system must be cleaned and pressure tested as follows:

- Before connecting the equipment to the hydraulic system and the terminal, clean the hydraulic system and the terminal with clean water tap water at least 3 to 5 times until the waste water is free of impurities (UNI 8065).
- If the system is installed on old systems, clean the system using appropriate products, the water in the system must be treated and comply with the UNI CTI 8065 2019 standard.

CHEMICAL-PHYSICAL CHARACTERISTICS

The chemical-physical features of the water must comply with the European standard EN 14868 and the tables below:

ALUMINUM GENERATORS with furnace output < 150 kW			
		First filling water	Fully operational water (*)
ph		-	7-8
Hardness	°F	< 15°	-
appearance		clear	-
Iron	mg/kg	-	< 0,5
Copper	mg/kg	-	<0,1

(*) System water values after 8 weeks of operation.

NEW HEATING SYSTEMS

The first filling of the system must be done slowly; once filled and deaerated, the system should not need any further refilling. During the first start-up, the system must be brought to its maximum operating temperature to facilitate deaeration (too low a temperature prevents the escape of gases).

RETROFITTING OF EXISTING HEATING SYSTEMS

When replacing a boiler, if the water quality in existing systems complies with the requirements, refilling is not recommended. If the water quality does not comply with the requirements, water reconditioning or system separation is recommended (water quality requirements must be met in the boiler circuit).

SYSTEM WATER CONTENT AND FLOW

- Always ensure a minimum flow of 300 l/h when there is an active heating/cooling demand.
- If the system volume is less than 20 litres, we recommend installing an accumulator on the heating system return (optional kit available on request).

ELECTRICAL CONNECTIONS

BOILER

The START KIS boiler leaves the factory fully wired. The following connections are sufficient:

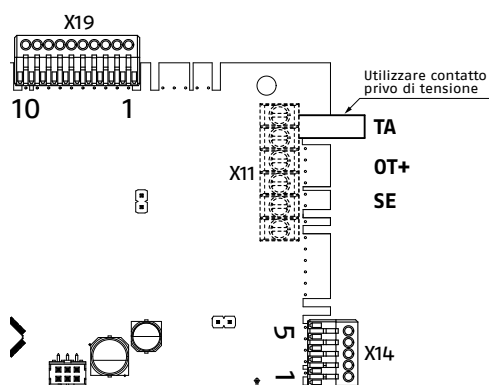
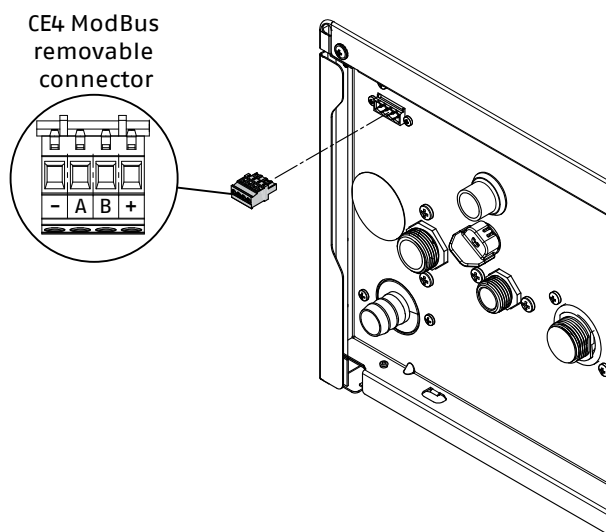
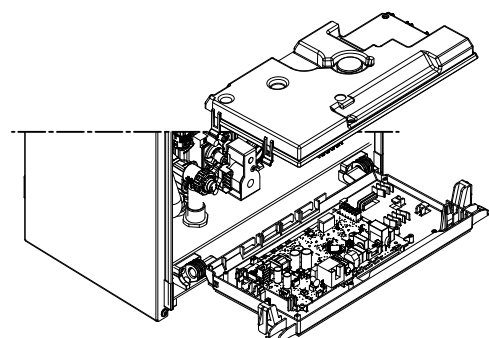
- to the single-phase 230V-50Hz mains supply, using the cable provided;
- to the 485 Bus (- A B +);
- to the low temperature thermostat (TBT);
- to the room thermostat (TA/OT+) - dry contact (Opentherm);
- to the external probe (SE).

The connection to the mains must be made via a separation device with an omnipolar opening of at least 3.5 mm (EN 60335-1, category III). The appliance operates on 230 Volt/50 Hz alternating current and complies with EN 60335-1.

If replacing the power cable, use a HAR H05V2V2-F type cable, 3 x 0,75 mm², max. external diameter 7 mm.

It is mandatory:

- to use an omnipolar magnetothermic switch, a feeder disconnecter, compliant with CEI-EN standards (contact opening of at least 3mm);
- to respect the W (Phase) and N (Neutral) connections;
- to use cables with a cross-section greater than or equal to 1,5 mm², complete with terminal lugs.
- to establish an effective ground connection.



OUTDOOR AND INDOOR UNIT

Instructions for electrical power connections

It is necessary to install an omnipolar switch with:

- an opening $> 3 \text{ mm}$;
- a breaking capacity $\geq 16 \text{ A}$;
- an outdoor unit power supply conductor cross-section $\geq 1,5 \text{ mm}^2$.
- a modBus communication cable cross-section $0,75 \text{ mm}^2$

The power supply for the indoor unit is taken from the outdoor unit (conductor cross-section $\geq 0.5 \text{ mm}^2$).

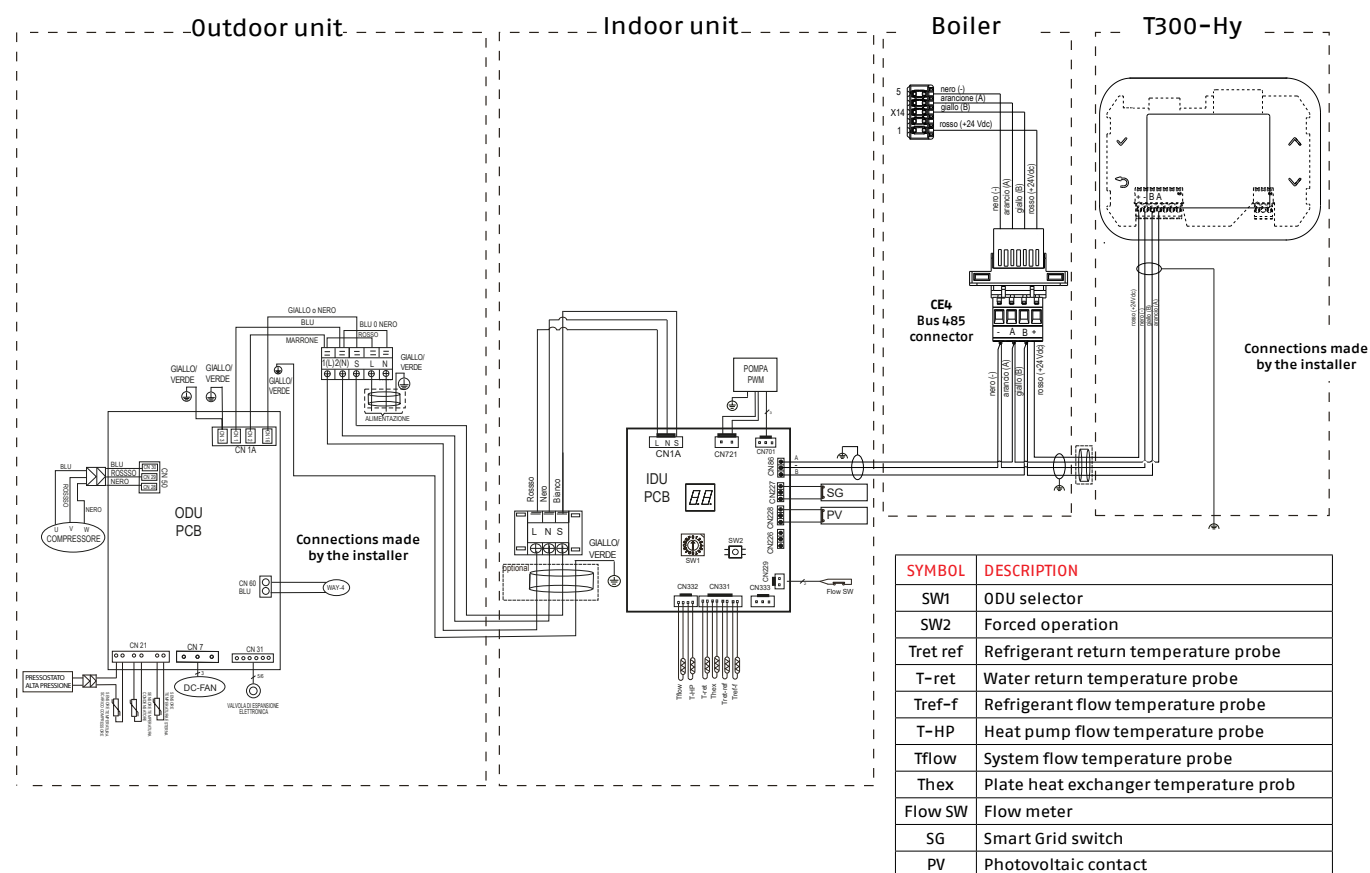
Prepare the power and signal cable (not included as standard) between the outdoor unit and the indoor unit terminal block.

Connect the Modbus cable (not included as standard) to the CE4 connector on the boiler, the CN86 connector on the indoor unit, and the T300-Hy.

The recommended total length for the connection between the T300-Hy, boiler, and hydraulic module is $\leq 30 \text{ m}$ (use shielded cable).

CONTROL PANEL

Refer to the wiring diagram below for specific instructions on the electrical connections to be made.



HYBRID SYSTEMS

Hybrid systems – Wall-hung solutions

CONTROL PANEL

GENERAL INFORMATION



The T300-Hy is the system's user interface and the device that houses the system optimization logic. At the same time, it can be used to control the room temperature of the area in which it is installed.

When used as a machine interface, the device mainly manages the operation of the system components. Heating and cooling requests are managed using an external room thermostat or T200 connected via radio frequency.

When used as a machine interface + room control, in addition to its system interface functions, the device can also regulate the temperature of the room in which it is installed.

The touch interface of the Hi, Comfort T300-Hy is extremely simple and intuitive. The icon display and drop-down menus are elements that promote smart use of the product.

The four side buttons described below allow you to easily perform all the operations necessary for programming and customizing the device.

SYMBOL	DESCRIPTION
	Confirm
	Delete Return to the main screen (press > 2 second) Reset anomaly
	Browsing within a menu - scroll up
	Browsing within a menu - scroll down

When paired with the T300-Hy RF, the Hi, Comfort T200 Thermostat allows for optimal control of comfort within each room of the home, managing up to a maximum of 8 zones, including the main one.

CONSTRUCTION DESCRIPTION FOR SPECIFICATIONS

RIELLO ADAPTO is an R32 electric heat pump outdoor unit specifically designed for use in residential hybrid applications. It can be used in combination with the Hybrid Hydraulic Kit indoor unit, which allows it to operate in conjunction with the combination boilers in the START range.

RIELLO ADAPTO contributes to heating demands either simultaneously with the boiler or alternately, depending on the optimization mode set by the user via Hi, Comfort T300-Hy, the hybrid system's energy manager. If fan coils are present in the system, RIELLO ADAPTO can also meet cooling needs.

The outdoor unit is designed to be installed outside the home, either on the ground or mounted on a wall using appropriate mounting brackets (not included as standard). The Riello Adapto comes complete with a condensate drain fitting and vibration dampers.

The HYBRID HYDRAULIC KIT is the indoor unit of the split heat pump that allows it to be integrated with the boiler. The hydraulic kit is to be installed inside the home, suspended below the boiler or to the side of it, at a distance equivalent to a 3/4" linear pipe not exceeding 15 meters for the supply line and 15 meters for the return line.

The connecting pipes between the hydraulic kit and the boiler are not included as standard. The HYBRID HYDRAULIC KIT comes complete with a 90° gas connection pipe, a 90° liquid connection pipe, a drain nozzle/water outlet pipe, a drain nozzle gasket, a condensate drain pipe, two expansion anchors, and four 3/4" gaskets.

Management of the available heat sources (boiler and heat pump), the system circulator, all electric actuators, and the regulation of heating or cooling temperatures is carried out through the built-in logic of the system electronics and the T300-Hy.

Programming and operational control of the hybrid system are carried out via the T300-Hy remote control, which, when properly programmed, can also be used as a room thermostat for the area in which it is installed.

FEATURES

- RIELLO ADAPTO and the HYBRID HYDRAULIC KIT, in combination with HI, COMFORT T300-HY, and a combined model from the START range, constitute Riello's factory-made multi-energy residential system, which meets the needs for heating, (hydronic) cooling, and domestic hot water production in a single system for year-round home comfort.
- The system achieves energy efficiency class A++ / A+ for heating (under average climatic conditions, at 55°C and 35°C, respectively) and energy efficiency class A for domestic hot water.
- A compact and versatile solution designed to adapt to a wide range of system requirements while minimizing space requirements both inside and outside the home:
 - a compact hydronic kit that can be easily installed either below or next to the boiler, up to a maximum distance of 15m;
 - a compact heat pump that can be installed either on the floor or mounted on the wall using appropriate mounting brackets, up to a maximum distance of 25m in length and a 10m height difference from the indoor unit.
- Plug&Play technology for simple, fast, and flexible installation.
- Proprietary system intelligence integrated into the system interface and manageable remotely via the Hi, Comfort app.
- Focus on user needs and the option to choose between "Economy" mode—for lower utility bills—or "Eco" mode—to help reduce CO₂ emissions.

OUTDOOR UNIT COMPONENTS

- Pre-painted sheet metal cover
- ABS air outlet grille
- Electric fan unit consisting of a axial fan and a variable-speed motor
- Heat exchanger consisting of copper tubes and aluminum fins with a turbulent flow design. The heat exchangers are treated against salt corrosion with two coatings: a layer of acrylic resin and a second layer of hydrophilic material
- GMCC (Guangdong Meizhi Compressor Ltd) R32 rotary compressor mounted on anti-vibration mounts and housed in a dedicated compartment
- Axial flow fan
- Microprocessor-based control board with a PWM + PAM DC inverter control system.
- Bidirectional electronic expansion valve

HYBRID SYSTEMS

Hybrid systems – Wall-hung solutions

- Extended operating range: -15 to +24°C for heating and 10 to 50°C for cooling
- Outdoor unit complete with connection covers

INDOOR UNIT COMPONENTS

- Casing made of white pre-painted sheet metal
- Pre-cut side panels to facilitate refrigerant pipe connections
- Hydraulic connections: supply to the system, supply from the boiler, return to the boiler, return from the system
- Drain pipe for condensate that may form during cooling
- Flow switch
- Gas-water plate heat exchanger
- Electrical connection box
- 7m circulator with PWM control system
- System water drain valve
- Temperature sensors: heat pump supply, refrigerant gas, system return, refrigerant liquid, gas-to-water heat exchanger, and supply

BOILER COMPONENTS

Start is a Type C wall-mounted condensing boiler designed for heating and domestic hot water production: depending on the flue gas exhaust accessory used, it is classified into the following categories: B23P; B53P; C13, C13x; C33, C33x; C43, C43x; C53, C53x; C83, C83x; C93, C93x. Wall-mounted condensing boilers featuring a primary heat exchanger made of AISI 441 stainless steel and a pneumatic combustion system that ensures reliability, efficiency, and low emissions under all conditions. 1:8 modulation across the entire range

They are equipped with:

- Pneumatic combustion system that guarantees reliability, efficiency, and low emissions under all conditions; designed to operate with mixtures of natural gas and up to 20% hydrogen. The 25 and 30 kW models are also certified for operation with propane-enriched air
- Maximum heat output adjustable to the system's heating demand, for operation in the boiler's own heating mode. Once the desired power setting (maximum heating) is set, record the value and, for subsequent checks, refer to the new value
- High-efficiency on/off circulator, already connected hydraulically and electrically, factory-set with a 6-meter head curve; a 7-meter circulator is available as an accessory
- Anti-lockout system that initiates an operating cycle every 24 hours of inactivity, with the function selector in any position
- Main circular heat exchanger made of AISI 441 stainless steel
- Low-emission premix burner (Class 6 NO_x, per UNI EN 15502-1), fan, highly modulating mixer, and gas diaphragm. Available as an accessory kit with a check valve (clapet) for connection to positive-pressure flue systems.
- Available as an accessory kit: an air filtration system integrated into the boiler, consisting of a filter made of elastic, tear-resistant polyolefin fibers
- Hydraulic connections with DIN-type connection sequences and specific accessories for replacement of older boilers
- Fill valve, bleed valve
- Siphon with safety ball within the boiler's overall dimensions
- Drain valve
- Pressure transducer
- Safety valve
- Return sensor, flue gas sensor, and supply sensor
- Automatic antifreeze system, which activates when the primary circuit water temperature drops below 5°C. This system is always active and ensures the boiler is protected down to an ambient temperature of 0°C at the installation site
- Limit thermostat
- Flame detection electrode
- Ignition transformer
- Equipped with a flue gas analysis port cap
- 8-liter expansion tank
- Hydraulic three-way valve (stepper)
- High-efficiency brazed-plate domestic hot water heat exchanger designed and manufactured by RIELLO, which enables the production of domestic hot water in condensing mode with maximum stability
- Manual fill valve
- Water meter
- Lower air vent valve
- Touchscreen control panel with machine interface functionality, displaying system settings and providing

access to parameters. The main screen displays the domestic hot water sensor temperature in the center, unless a heat demand is in progress; in that case, it displays the boiler flow temperature, the water pressure in the system, information regarding the current date and time, and, if available, the measured outdoor temperature

- Standard OT+ Input

CONTROL PANEL

The unit's user interface, called Hi, Comfort T300-HY, can be operated remotely. This interface can be installed at a maximum distance of 30 m. It is connected to the control unit via a 3 x 0,35 mm² shielded cable. It is an extremely simple and intuitive interface designed for the system user to set the operating temperatures of the heating and air conditioning systems and the domestic hot water storage tank.

RIELLO ADAPTO HYBRID complies with the following directives:

- LVD: 2014/35/EU Low Voltage Directive
- EMC: 2014/30/EU Electromagnetic Compatibility Directive
- ErP: 2009/125/EC: Ecodesign Directive for Energy-Related Products
- PED: 2014/68/EU: Pressure Equipment Directive (PED)
- REACH: 1907/2006: Regulation on the Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH = Registration, Evaluation, Authorization of CHemicals)
- RoHS: 2011/65/EU: Regulations governing the use of hazardous substances in electrical and electronic equipment (RoHS = Restriction of Hazardous Substances)
- RED 2014/53/EU: Radio Equipment Directive
- GAR 2016/426/EU: European Regulation on Gas-Fired Appliances

HEAT PUMP TECHNICAL DATA

TECHNICAL SPECIFICATIONS COMMON TO ALL MODELS

- Energy efficiency class for heating (low temperature): A++
- Energy class for heating (medium temperature): A+

RIELLO ADAPTO HYBRID 3.5

Cooling performance [A35 / W7]

- Nominal capacity: 3,20 kW
- Power consumption: 1,10 kW
- EER: 2,90

Heating performance [A7 / W35]

- Capacity: 3,50 kW
- Power consumption: 0,88 kW
- COP: 4,0

RIELLO ADAPTO HYBRID 5.0

Cooling performance [A35 / W7]

- Nominal capacity: 5,00 kW
- Power consumption: 1,79 kW
- EER: 2,80

Heating performance [A7 / W35]

- Capacity: 5,00 kW
- Power consumption: 1,19 kW
- COP: 4,20

BOILER TECHNICAL DATA

TECHNICAL SPECIFICATIONS COMMON TO ALL MODELS

N0x Class: Class 6 according to European Standard UNI EN 15502

Seasonal energy efficiency class for heating according to EU Regulation 811/2013: A

Operating pressure: 3 bar

HYBRID SYSTEMS

Hybrid systems – Wall-hung solutions

START 25 KIS-IS

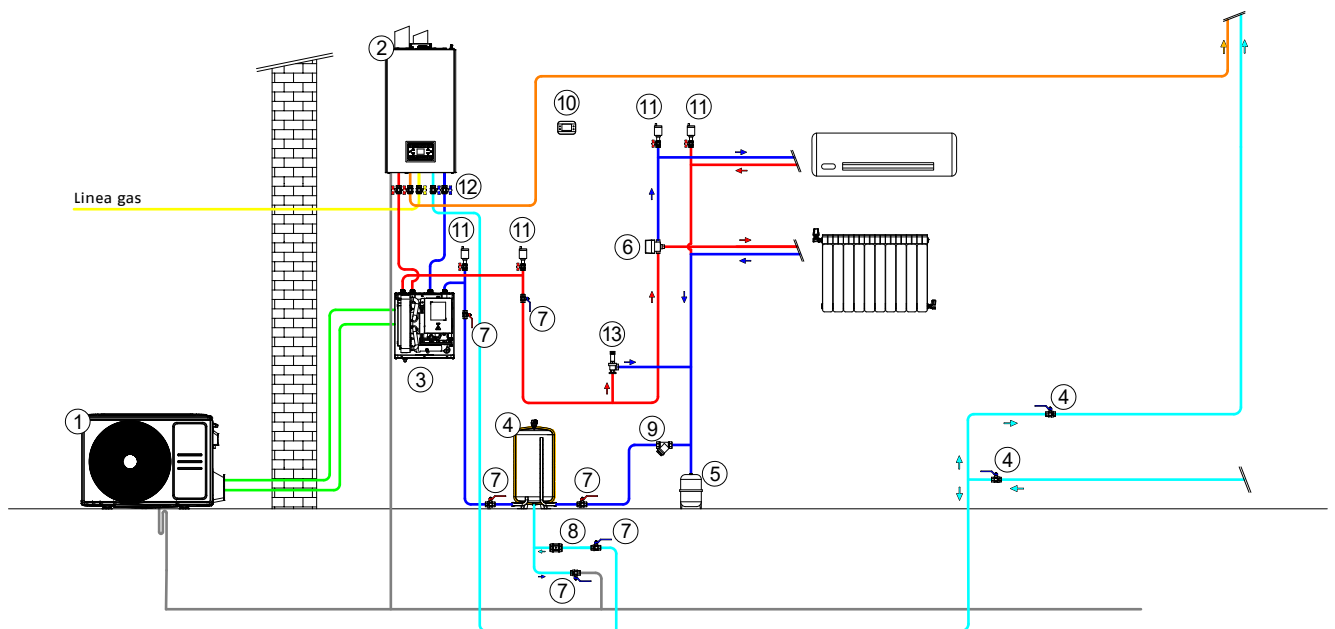
- Max. ÷ min. nominal heat output (PCI): 20 ÷ 3,1 kW (G20)
- Max. ÷ min. nominal heat output at 80–60°C: 19,4 ÷ 2,9 kW (G20)
- Max. to min. nominal heat output at 50–30°C: 20,9 to 3,0 kW (G20)
- Modulation ratio: 1 : 8 (domestic hot water)
- Indoor unit dimensions (HxWxD): 700 x 400 x 275,5 mm approx.

START 30 KIS

- Nominal heat output max ÷ min (PCI): 25 ÷ 3,9 kW (G20)
- Max. ÷ min. nominal heat output at 80–60°C: 24,4 ÷ 3,8 kW (G20)
- Max. to min. nominal heat output at 50–30°C: 26,8 to 4,1 kW (G20)
- Modulation ratio: 1 : 8 (domestic hot water)
- Indoor unit dimensions (HxWxD): 700 x 400 x 275,5 mm approx.

SYSTEM EXAMPLE

HEATING, COOLING, AND DHW SYSTEM WITH HEAT PUMP, HYDRAULIC KIT, AND COMBINED BOILER



- 1 Heat pump outdoor unit
- 2 Boiler with circulator and vessel
- 3 Heat pump indoor unit
- 4 Inertial storage
- 5 Expansion vessel
- 6 Summer-winter diverter valve(*)
- 7 Globe valve

- 8 Non-return valve
- 9 Filter
- 10 T300-Hy control panel
- 11 Deaerator
- 12 Under-boiler tap kit
- 13 Adjustable bypass valve

(*) Management is handled by the installer.

This image shows a full page of white paper with horizontal dotted lines. The lines are evenly spaced and run across the width of the page, providing a guide for handwriting practice. There are no margins, text, or other markings on the page.

RIELLO

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RIELLO
ADAPTO HYBRID

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