



ARES Tec RANGE

High power for thermal power stations from 150 to 7000 kW



ARES Tec range

Flexible and advanced modulating thermal block

From 150 to 900 kW and up to 7000 kW in cascade configuration, electronic controls and automatic management. Immergas collaborates with designers and installers in the construction of thermal power stations for high power centralised systems in apartment blocks, industrial buildings, public buildings, schools, hospitals, etc.

ALL POWERS, ALL MODELS

The range of ARES Tec boilers includes 10 models, from 150 kW to 900 kW. The potential to electronically manage up to 8 boilers in cascade configuration also allows the construction of thermal power stations of up to 7000 kW.

ARES 150 Tec	ARES 350 Tec	ARES 660 Tec
ARES 200 Tec	ARES 440 Tec	ARES 770 Tec
ARES 250 Tec	ARES 550 Tec	ARES 900 Tec
ARES 300 Tec		





BEYOND TECHNOLOGY, SUPPORT FOR PROFESSIONALS

To provide professionals with all necessary information and get the most out of the new ARES Tec solutions, Immergas has a technical team always available to provide guidance or regulations for the design and manufacture of hydraulic and electrical plant schemes.

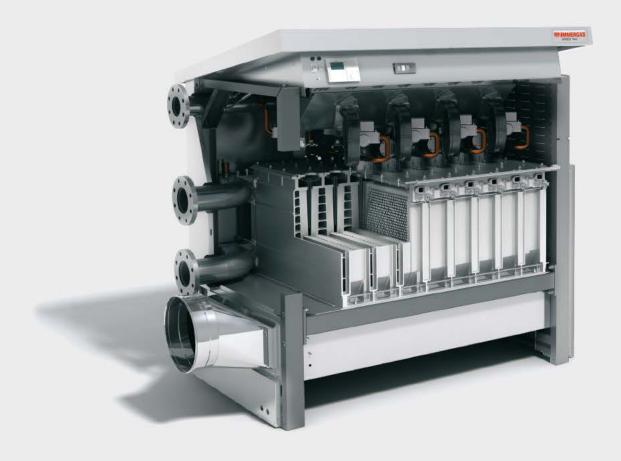
Experts give comprehensive advice covering every aspect from design to budgeting, from installation to routine maintenance in coming years.

ARES TEC RANGE

HIGH POWER AND REDUCED DIMENSIONS

ELECTRONIC CONTROLS AND RELIABILITY

EXTREMELY NOISELESS



MANY BOILERS IN ONE

ARES Tec is not simply a condensing boiler, but a monoblock that combines several independent heating units which are managed by a single electronic control logic.

HIGH EFFICIENCY

The modulation ratio of up to 1:40 allows very high seasonal efficiency.

EXTRAORDINARY POWER/SIZE/WEIGHT RATIO

Small size and high power make ARES Tec the ideal boiler for solving situations in which the station space is reduced or is difficult to achieve in installation.

ELECTRONIC CONTROLS AND RELIABILITY

The electronic control on board the boiler is designed to continue operating even if some heating units are blocked.

EXTREMELY NOISELESS

Despite the high power developed, the innovative technology of combustion circuit and monoblock in aluminium alloy, silicon and magnesium, produces less than 49dBA sound output.



INSTALLATION FLEXIBILITY EVEN OUTDOORS

The serial IPX5D electrical protection allows outdoor installation even if unsheltered. The flue exhaust can be fitted to three sides in all models, and in ARES 150-350 Tec versions, gas and water connections are reversible.

REDUCED ENVIRONMENTAL IMPACT

Burners are modulating radiant premix working at constant CO₂. This is why they have reduced NOx emissions (<31ppm) and create low fluesensitive losses.

EXCLUSIVE ELECTRONIC TECHNOLOGY

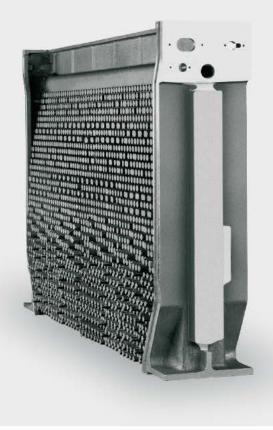
Electronic and temperature controls are fully automatic and already preset for operation. Furthermore, the optional kit enables the system to electronically control up to 8 boilers in a cascade configuration, and prepare it for remote control and management.

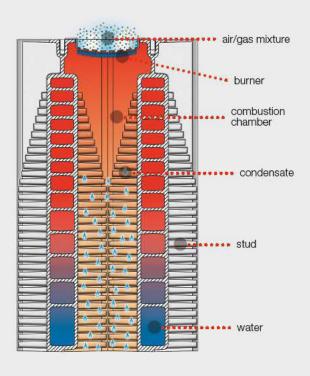
WIDE RANGE OF DEDICATED ACCESSORIES

For the different designs required today, numerous accessories are available to complete the power station such as:

- Safety kit including hydraulic separator or plate heat exchanger for optimal management of the system after the boiler
- · Passivator kit for acid condensate
- · Adjustment kit for additional system zones

.02





CONSTRUCTION TECHNOLOGY

ARES Tec is made up of pre-assembled heating units in aluminium/silicon/magnesium alloy where several complete combustion units work. This alloy ensures high corrosion resistance against acid condensate. Considering the models AREC Tec 150-350, each heating element has an operating range from 12 to 50 kW, whereas starting from the ARES 440 Tec model the range is from 22 to 108 kW.

The water pH must be kept from 6,5 to 8 (15° F) in order to preserve the system with boilers made in aluminium.

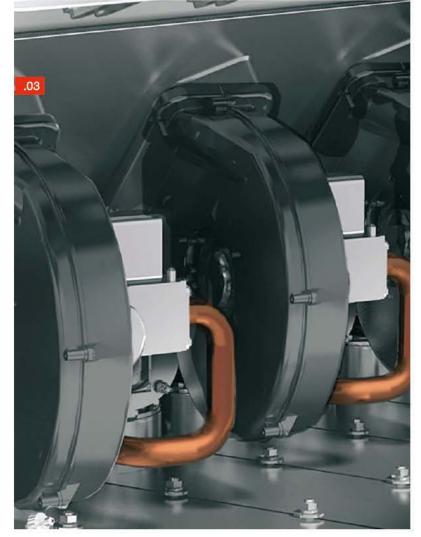
.02 HEATING UNIT

On the flue side a large exchange surface has been created by means of dense studs.

Each heating unit is equipped with:

- modulating radiant premix burner
- two-stage modulating gas valve
- electronic ignition with ionization
- NTC temperature control probes
- safety thermostats and sight glass

The exhausts of the heating units (flue and acid condensate) converge in a special manifold, made of stainless steel and fitted at the base of the boiler.





103 FULL PREMIX

This is achieved with a modulating fan to which the gas valve is fitted to serve each combustion unit. The fan and valve are directly controlled by the electronic system of each burner and managed by the TGC boiler thermostat (see p. 12).

RADIANT COMBUSTION

This system, characterized by the emission of electromagnetic radiation, is the most efficient one for the transmission of thermal energy. The wide surface on which the combustion takes place ensures low temperature combustion and reduced turbulence. Furthermore, all parts are easily accessible for maintenance through an upper access with pivoting door.

Technical data	Unit of measu- rement	ARES 150 Tec	ARES 200 Tec	ARES 250 Tec	ARES 300 Tec	ARES 350 Tec
Code	N.G. L.P.G.	3.023590 3.023590GPL	3.023591 3.023591GPL	3.023592 3.023592GPL	3.023593 3.023593GPL	3.023594 3.023594GPL
CE certificate		1312BT5287	1312BT5287	1312BT5287	1312BT5287	1312BT5287
Number of heating units		3	4	5	6	7
Nominal heat output (ref. P.C.I.)	kW	150	200	250	300	348,0
Minimum heat output (ref. P.C.I.)	kW	12	12	12	12	12
Nominal heat output (80/60 °C)	kW	146,1	195,2	244,5	294,0	341,8
Minimum heat output (80/60 °C)	kW	11,7	11,7	11,7	11,7	11,7
Nominal heat output (50/30 °C)	kW	150,0	200,4	251,3	302,7	354,6
Minimum heat output (50/30 °C)	kW	12,8	12,8	12,8	12,8	12,8
Efficiency at nominal heat output (80/60 °C)	%	97,4	97,6	97,8	98,0	98,2
Efficiency at minimum heat output (80/60 °C)	%	97,16	97,16	97,16	97,16	97,16
Efficiency at nominal heat output (50/30 °C)	%	100,0	100,2	100,5	100,9	101,9
Efficiency at minimum heat output (50/30 °C)	%	106,5	106,5	106,5	106,5	106,5
Chimney system losses with burner ON	%	2,2	2,2	2,0	1,9	1,7
Casing losses with burner ON	%	0,4	0,2	0,2	0,1	0,1
Casing losses with burner OFF	%	0,1	0,1	0,1	0,1	0,1
NOx class		5	5	5	5	5
Weighted NOx	mg/kWh	53,8	53,8	53,8	53,8	53,8
Gas flow rate to burner at max. and min. heat output with methane (G20)	m³/h	15,9 – 1,3	21,1 – 1,3	26,4 – 1,3	31,7 – 1,3	37,0 – 1,3
Maximum pressure available at chimney base	Pa	100	100	100	100	100
Flue exhaust mass flow rate at nominal heat output	kg/h	245,2	326,9	408,6	490,3	568,8
CO ₂ at nominal/minimum heat input (G20)	%	9,1/9,1	9,1/9,1	9,1/9,1	9,1/9,1	9,1/9,1
CO at 0% of O ₂	ppm	<77	<77	<77	<77	<77
Maximum flue exhaust temperature (net value - not considering room temperature 20 °C)	°C	45,1	46,5	47,3	48,2	49,1
Maximum operating temperature	℃	90	90	90	90	90
Heating system adjustable temperature	℃	25-85	25-85	25-85	25-85	25-85
Maximum operating pressure of heating circuit	bar	6	6	6	6	6
Maximum condensate output	kg/h	23,0	30,6	38,3	45,9	53,6
Power supply	V/Hz	230/50	230/50	230/50	230/50	230/50
Maximum electric power	W	210	290	362	435	507
Electrical insulation rating (closed cover)	IP	X5D	X5D	X5D	X5D	X5D
Gross weight	kg	236	295	325	386	419
Boiler water capacity	litres	14,2	18,3	22,4	26,5	30,6



Cleaning of the systems. The water of the heating systems must be suitably treated to ensure the correct operation of the boiler and avoid any blockages inside the appliance.



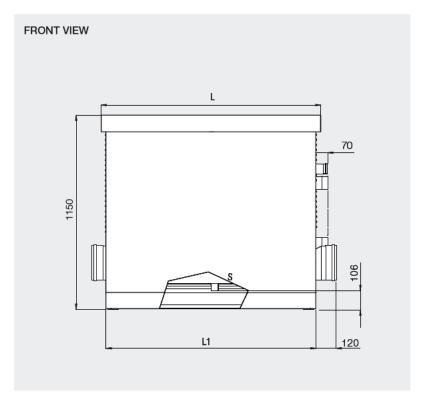
Technical data	Unit of measu- rement	ARES 440 Tec	ARES 550 Tec	ARES 660 Tec	ARES 770 Tec	ARES 900 Tec
Code	N.G. L.P.G.	3.023595 3.023595GPL	3.023596 3.023596GPL	3.023597 3.023597GPL	3.023598 3.023598GPL	3.023599 3.023599GPL
CE certificate		1312BS4959	1312BS4959	1312BS4959	1312BS4959	1312BS4959
Number of heating units		4	5	6	7	8
Nominal heat output (ref. P.C.I.)	kW	432	540	648	756	864
Minimum heat output (ref. P.C.I.)	kW	22	22	22	22	22
Nominal heat output (80/60 °C)	kW	424,27	530,33	636,40	742,47	848,53
Minimum heat output (80/60 °C)	kW	20,57	20,57	20,57	20,57	20,57
Nominal heat output (50/30 °C)	kW	445,39	557,82	670,03	783,22	900,29
Minimum heat output (50/30 °C)	kW	23,94	23,94	23,94	23,94	23,94
Efficiency at nominal heat output (80/60 °C)	%	98,21	98,21	98,21	98,21	98,21
Efficiency at minimum heat output (80/60 °C)	%	93,5	93,5	93,5	93,5	93,5
Efficiency at nominal heat output (50/30 °C)	%	103,1	103,3	103,4	103,6	104,2
Efficiency at minimum heat output (50/30 °C)	%	108,8	108,8	108,8	108,8	108,8
Chimney system losses with burner ON	%	1,57	1,57	1,57	1,57	1,57
Casing losses with burner ON	%	0,1	0,1	0,1	0,1	0,1
Casing losses with burner OFF	%	0,1	0,1	0,1	0,1	0,1
NOx class		5	5	5	5	5
Weighted NOx	mg/kWh	47,0	47,0	47,0	47,0	47,0
Gas flow rate to burner at max. and min. heat output with methane (G20)	m³/h	45,68 – 2,33	57,10 – 2,33	68,52 – 2,33	79,94 – 2,33	91,36 – 2,33
Maximum pressure available at chimney base	Pa	100	100	100	100	100
Flue exhaust mass flow rate at nominal heat output	kg/h	699,0	874,0	1049,0	1224,0	1399,0
CO ₂ at nominal/minimum heat input (G20)	%	9,1/9,3	9,1/9,3	9,1/9,3	9,1/9,3	9,1/9,3
CO at 0% of O ₂	ppm	<95	<95	<95	<95	<95
Maximum flue exhaust temperature (net value - not considering room temperature 20 °C)	°C	45,4	45,5	45,5	45,5	45,3
Maximum operating temperature	°C	90	90	90	90	90
Heating system adjustable temperature	°C	25-85	25-85	25-85	25-85	25-85
Maximum operating pressure of heating circuit	bar	6	6	6	6	6
Maximum condensate output	kg/h	73,4	91,7	110,0	128,4	146,7
Power supply	V/Hz	230/50	230/50	230/50	230/50	230/50
Maximum electric power	W	626	783	940	1096	1252
Electrical insulation rating (closed cover)	IP	X5D	X5D	X5D	X5D	X5D
Gross weight	kg	585	643	707	806	858
Boiler water capacity	litres	73,0	88,0	103,0	118,0	133,0

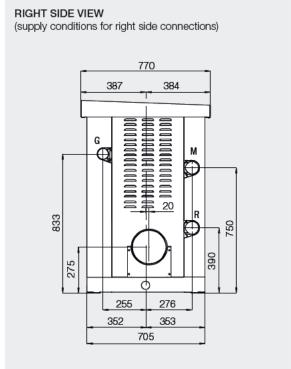


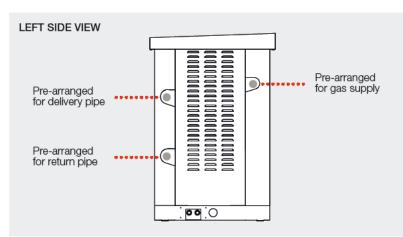
Cleaning of the systems. The water of the heating systems must be suitably treated to ensure the correct operation of the boiler and avoid any blockages inside the appliance.

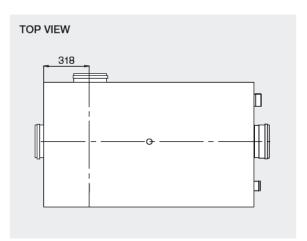
Sizes and connections

ARES 150-350 Tec









Dimensions	ARES 150 Tec	ARES 200 Tec	ARES 250 Tec	ARES 300 Tec	ARES 350 Tec
Chimney connection (mm)	150	150	200	200	200
Width L (mm)	764	1.032	1.032	1.300	1.300
Width L1 (mm)	706	974	974	1.242	1.242

Hydraulic connections				
Gas	Gas Condensate Drain System			
mm/inch	mm	mm/inch		
G	S	R	М	
50/2"	40	64/2 ^{1/2} "	64/2 ^{1/2} "	

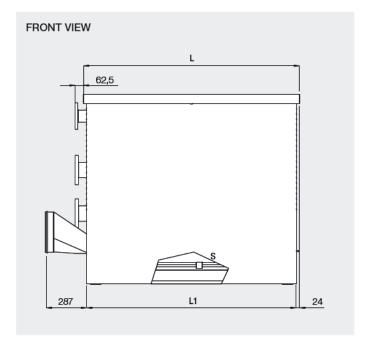
Key

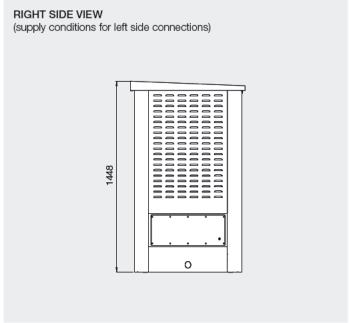
G	Gas supply (flanged)
S	Condensate drain
M	System delivery pipe (flanged)
R	System return pipe (flanged)

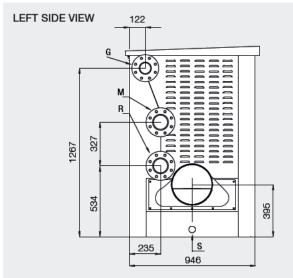


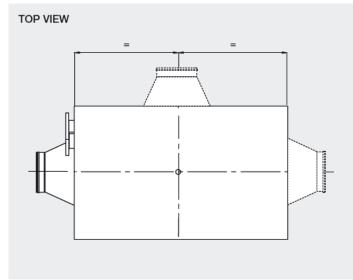
Sizes and connections

ARES 440-900 Tec









Dimensions	ARES 440 Tec	ARES 550 Tec	ARES 660 Tec	ARES 770 Tec	ARES 900 Tec
Chimney connection (mm)	250	250	300	300	300
Width L (mm)	1.087	1.355	1.355	1.623	1.623
Width L1 (mm)	1.039	1.307	1.307	1.575	1.575

Hydraulic connections					
Gas Condensate Drain System					
mm/inch	mm	mm/inch			
G	S	R	М		
80/3"	40	100/4"	100/4"		

Key

G	Gas supply (flanged)
S	Condensate drain
M	System delivery pipe (flanged)
R	System return pipe (flanged)



The ARES Tec thermoregulation system is designed with two levels corresponding to two devices installed in the boiler: TGC and GCI. Both can be reached by lifting the waterproof cover off using the pneumatic system with gas shock absorbers.

BOILER THERMOREGULATOR CONTROLLER (TGC)

This manages the operation of ARES Tec both in terms of modulation and in terms of operation with weather compensation. Furthermore, it can control a direct heating circuit, a mixed one and a DHW circuit with possible recirculation. It is equipped with external probe, mixed delivery probe (to control the mixed zone), global delivery probe and boiler probe as standard.

BOILER BACK-UP MANAGEMENT (GCI)

The GCI control unit has two basic functions for ARES Tec. Firstly, during standard operation, it can control a modulating (0-10 V) or a traditional pump, it can send alarms remotely and monitor the system operation by means of a remote management system (Modbus).

Secondly, in case of failures that cannot be reset via the TGC or for urgent operations, it can activate ARES Tec in an emergency mode by bypassing the TGC thermoregulation and running the boiler at a maximum power of 50% with a delivery temperature that can be set using specific electrical resistors supplied with the boiler.



To operate several ARES Tec in a cascade configuration or to manage systems with a greater number of zones, additional optional kits are available.

CASCADE REGULATOR KIT CODE 3.023667

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With this accessory, the system can manage up to a maximum of 8 ARES Tec in cascade thus reaching a modulation range from 22 to 6.912 kW (e.g. with 8 ARES 900 Tec).

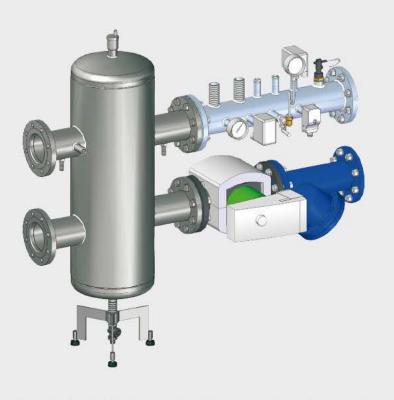
EXPANSION KIT FOR ZONE CONTROL CODE 3.023664

This kit includes two system probes, and allows to manage other 2 direct/mixed zones up to a maximum of 7 modules that can be controlled by a bifilar connection; in this way, considering the zones managed by TGC, it is possible to manage up to 15 direct/mixed zones, 1 DHW circuit and 1 solar circuit.

ADDITIONAL ADJUSTMENT KITS AVAILABLE

Description	Code
Zone manager kit (to control and display the parameters of the single zone excluding the relevant menu from TGC)	3.023665
Modulating room thermostat kit (to partially adjust the room temperature from the installation room without excluding the relevant menu from TGC)	3.023666
Flow probe kit (to control also zone 1 of TGC as a mixed zone or to control D.H.W. in a storage tank with solar thermal integration)	3.023700
Solar collector probe kit	1.028812
Wall-mount kit for cascade regulator	3.023668
Interface kit for modem connection and tele-management (not including modem connection)*	3.023669

^{*} Software is available on-line for free download. Please contact Customer Services for more information.



Example about safety kit complete with pump and hydraulic separator

SAFETY KIT COMPLETE WITH PUMP AND HYDRAULIC SEPARATOR

Available in 5 versions, this kit is designed to complete the system and includes:

SAFETY KIT

- Pressure gauge (manometer not included) with pipe damper and threeway valve for connecting the control manometer
- Thermometer
- Inspection openings: approved for insertion of control devices
- Stub pipes G1 ¼": for inserting safety valves
- Safety thermostat with setting < 100 °C
- Manual reset pressure switch for minimum pressure (0.5 - 1.7 bar)
- Adjustable safety pressure 1÷5 bar
- Paddle flow switch to stop the generator in case of pump stop

Y" FILTER

This protects the thermal module from any impurities not intercepted during system start.

MODULATING PUMP CLASS A

This balances the power supplied with the hydraulic flow in all conditions of system operation leaving the pre-set thermal head unaltered and fully exploiting the condensation. Furthermore, a considerable electric saving is possible especially in the warmer seasons.

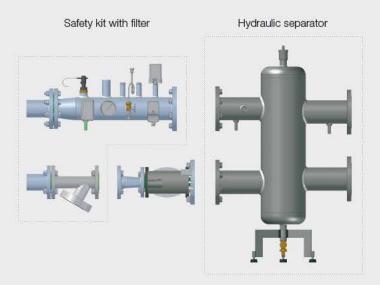
■ HYDRAULIC SEPARATOR

Equipped with an air vent, this also allows the collection of any circuit impurities. Adjustable height.

The kit does not include the tested expansion tank, safety valve (2 for 660-770-900 versions), drain valve and manometer since these need to be sized according to the characteristics of the system.

Description	Code	Maximum power (kW)
Safety kit complete with pump and hydraulic separator for 150 model	3.023645	150
Safety kit complete with pump and hydraulic separator for 200-250 models	3.023646	250
Safety kit complete with pump and hydraulic separator for 300-350 models	3.023647	350
Safety kit complete with pump and hydraulic separator for 440-770 models	3.023648	756
Safety kit complete with pump and hydraulic separator for 900 model	3.023649	864





Example about installation with safety kit, hydraulic separator and pump dimensioned by designer

SAFETY KIT WITH FILTER AND HYDRAULIC SEPARATOR KIT

If in the planning phase the pump is dimensioned by designer, it is possible to order the safety kit with filter and hydraulic separator kit, which are available with various set-ups depending on the power installed. These kits are made by the same components listed in the description on page 14.

SAFETY KIT WITH FILTER

Description	Code	Maximum power (kW)
Safety kit with filter for 150 - 350 models	3.023656	350
Safety kit with filter for 440 - 770 models	3.023657	756
Safety kit with filter for 900 model	3.023658	864

HYDRAULIC SEPARATOR KIT

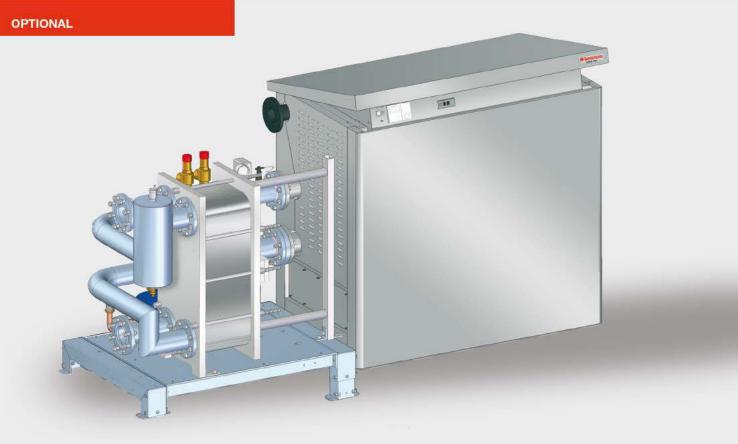
Description	Code	Maximum power (kW)	
Hydraulic separator for 150 - 350 models	3.023659	350	
Hydraulic separator for 440 - 900 models	3.023660	864	

If kits are installed outdoors (even with pump), special casings are available to protect them from atmospheric agents.

OUTDOOR CASING KIT

Description	Code
Outdoor casing for safety kit and hydraulic separator from 150 kW to 350 kW	3.023670
Outdoor casing for safety kit and hydraulic separator from 440 kW to 900 kW	3.023671





Example of ARES Tec > 660 kW

SAFETY KIT COMPLETE WITH PUMP AND PLATE HEAT EXCHANGER

Ideal kit for systems where the primary circuit of the boiler needs to be completely separate from that of the plant, for example in the presence of old fashioned plants with high risks of dirt inside the circuit, disjunctions between open vessel/closed vessel circuits, or to allow the use of antifreeze liquid in smaller quantities in case of installation of the boiler outdoors.

Available in 6 versions, this kit is designed to complete the system by adding:

STAINLESS STEEL PLATE EXCHANGER SAFETY KIT

■ 1 SAFETY VALVE (2 SAFETY VALVES FOR 660-770-900 kW)

- 3-way drain valve ½"
- Manometer and damper tube for manometer
- Thermometer with trap G½"
- Minimum pressure switch with manual reset from 0.5 to 1.7 bar
- Safety pressure switch 1-5 Bar G1
- Immersion thermostat 100 °C
- Inspection opening G½" L = 100
- Coupling M/F ½"
- Paddle flow switch for intervention in case of water circulation stop
- Stub pipe adapters

- MODULATING PUMP CLASS A (SEE CHARACTERISTICS ON PAGE 17)
- EXPANSION TANK 24 LITRES (VER. 440-900) AND 8 LITRES (VER. 150-350)
- **MATTIC AIR VENT**
- **≥ DELIVERY/RETURN PIPE**
- DRAIN VALVE ¾"
- ☑ FLANGES / ADAPTERS, CONNECTORS AND ADJUSTABLE SUPPORT COMPONENTS

Description	Code	Maximum power (kW)
Safety kit complete with pump and plate heat exchanger for 150-200 models	3.023650	200
Safety kit complete with pump and plate heat exchanger for 250-350 models	3.023651	350
Safety kit complete with pump and plate heat exchanger for 440-550 models	3.023652	550
Safety kit complete with pump and plate heat exchanger for 660 model	3.023653	660
Safety kit complete with pump and plate heat exchanger for 770 model	3.023654	770
Safety kit complete with pump and plate heat exchanger for 900 model	3.023655	900

TECHNICAL SPECIFICATIONS OF THE PLATE HEAT EXCHANGERS INCLUDED IN THE KIT ACCORDING TO THE BOILER

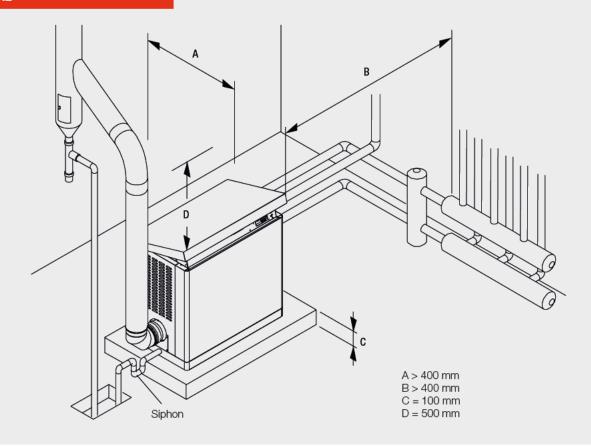
Туре	Boiler	Number of plates	Primary circuit flow rate (m³) M/R 80°/65°	Secondary circuit flow rate (m³) M/R 70°/60°	Δp (mH₂O) Primary circuit ΔT 15 °C	Δp (mH ₂ O) Secondary circuit ΔT 10 °C
Safety kit complete with pump and plate heat exchanger for 150-200 models	ARES 150 Tec	32	8,62	12,93	1,0	2,0
Safety kit complete with pump and plate heat exchanger for 150-200 models	ARES 200 Tec	32	11,49	17,24	1,7	3,4
Safety kit complete with pump and plate heat exchanger for 250-350 models	ARES 250 Tec	50	14,37	21,55	1,4	2,9
Safety kit complete with pump and plate heat exchanger for 250-350 models	ARES 300 Tec	50	17,24	25,86	2,0	4,1
Safety kit complete with pump and plate heat exchanger for 250-350 models	ARES 350 Tec	50	20,11	30,17	2,6	5,5
Safety kit complete with pump and plate heat exchanger for 440-550 models	ARES 440 Tec	77	25,29	37,93	0,5	1,0
Safety kit complete with pump and plate heat exchanger for 440-550 models	ARES 550 Tec	77	31,61	47,41	0,8	1,6
Safety kit complete with pump and plate heat exchanger for 660 model	ARES 660 Tec	77	37,93	56,90	1,1	2,5
Safety kit complete with pump and plate heat exchanger for 770 model	ARES 770 Tec	104	44,25	66,38	0,9	1,9
Safety kit complete with pump and plate heat exchanger for 900 model	ARES 900 Tec	104	51,72	77,59	1,3	2,4

In the case of outdoor installation of safety kits equipped with pump and plate heat exchanger, special casings are available to protect them from atmospheric agents.

CASING KIT

Description	Code
Outdoor casing for safety kit and plate heat exchanger from 150 kW to 350	3.023672
Outdoor casing for safety kit and plate heat exchanger from 440 kW to 900	3.023673

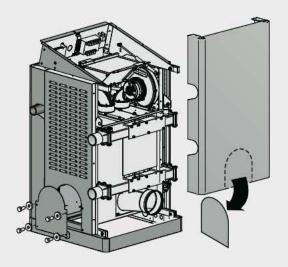


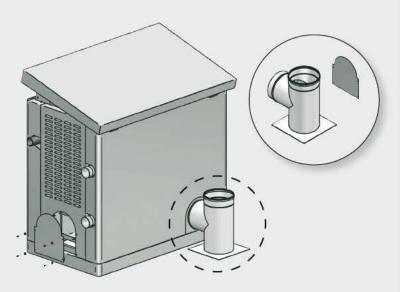


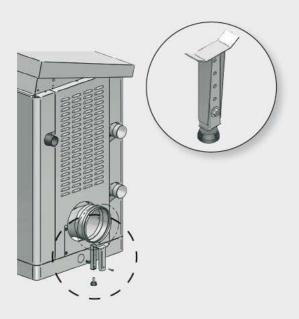
KIT FOR CONDENSATE DRAIN MANAGEMENT

ARES Tec is designed to have a special siphon outside the boiler for proper disposal of acidic condensate. To ensure the necessary hydraulic head, the boiler must be installed on a base of at least 10 cm (see figure) or alternatively a trap can be made in the boiler room floor with a depth of 10 cm to house the siphon. To neutralize the condensate, kits are available and sized according to the boiler power.

Description	Code	Maximum power (kW)	Maximum flow rate (I/h)	Dimensions H x L x W (mm)
Condensate neutralizer kit up to 1500 kW (included granulate)	3.023662	1500	550	280x670x470
Granulate kit 25 kg (for complete charge kit code 3.023662)	3.023663			







ARES Tec boilers are approved for operation in open chamber forced draught (B_{23}) and must be connected to a chimney that is perfectly impermeable to the condensation formed by product combustion and constructed with suitable corrosion-resistant materials. Therefore a proper design sizing is fundamental.

FLUE EXHAUST MANAGEMENT KIT

The ARES 150-350 Tec versions can have the flue exhaust on the right (provided as standard) or left side; a specific optional kit must be used for a flue exhaust on the back.

The ARES 440-900 Tec versions can have the flue exhaust on the left (provided as standard), right or rear without using the optional kit.

FLUE EXHAUST KIT

Description	Code
Rear flue discharge kit for 150 - 200 models	3.023701
Rear flue discharge kit for 250 - 350 models	3.023674
Supporting kit for side flue discharge (all models)	3.023675



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Design, manufacture and post-sale assistance of gas boilers, gas water heaters and related accessories