

GE+

MODULAR FLUE SYSTEM

EASY AND FAST TO INSTALL SYSTEM FOR
HIGH PERFORMANCE APPLICATIONS



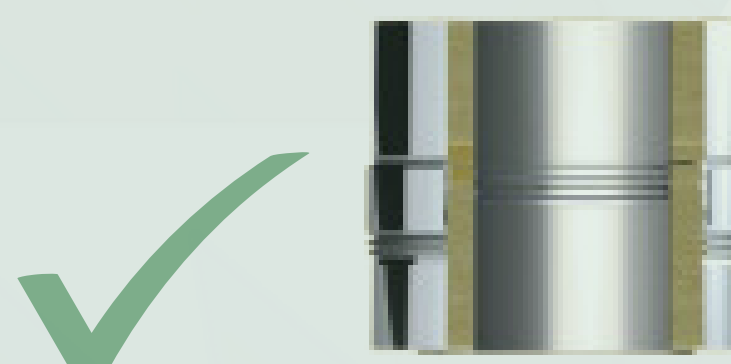
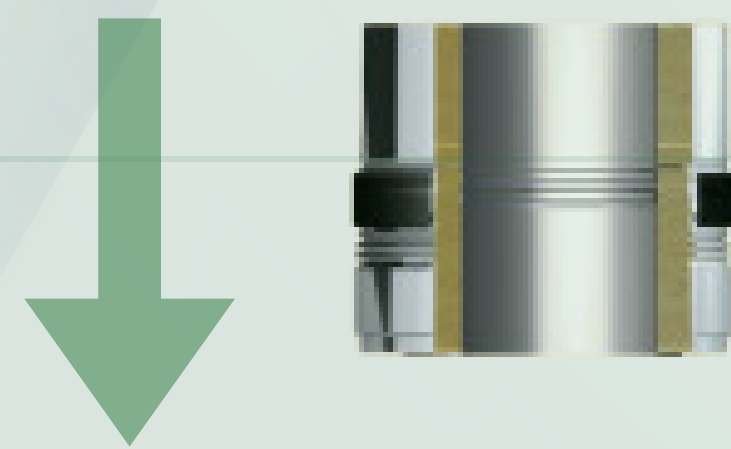
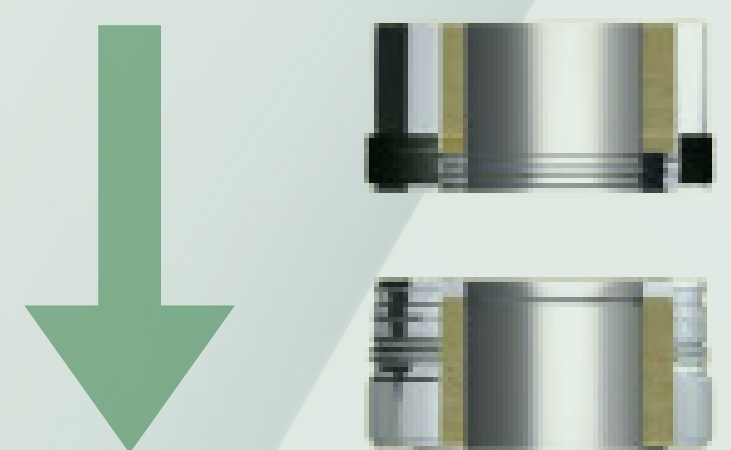
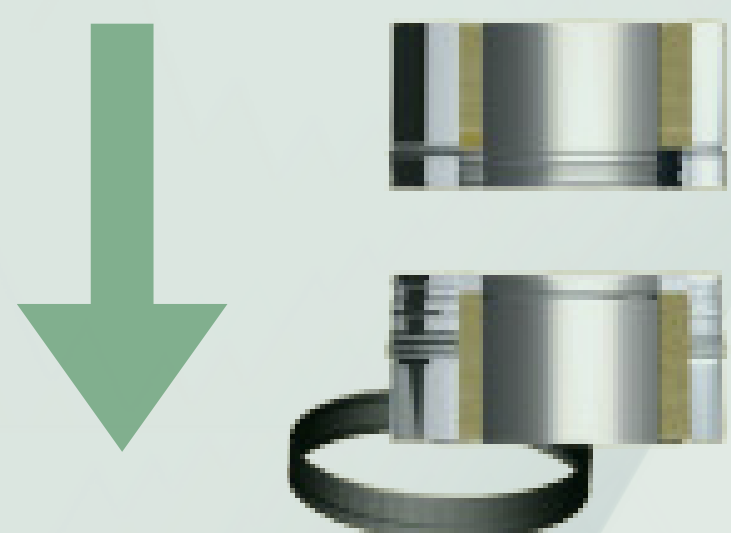
Modular flue system designed specifically to work in conditions of high temperature (up to 600°C) and high pressure (up to 5,000 Pa.) The GE+ chimney is available in three versions : GE30+, GE50+ and GE100+. The main difference between them is the insulation thickness.

OUTER EXPANSION

The GE30+/GE50+ range outer wall includes an expansion bellow in the straight length 202



EASY AND QUICK ASSEMBLY



GAS TIGHTNESS

- Gas tightness class H1 (up to 5,000 Pa) at the connection point between elements through a silicone joint on the outer wall. The locking band presses the joint, ensuring tightness, while also covering and protecting it from external agents.
- Outer Wall: Butt-welded on every chimney piece.

TEMPERATURE CLASS T600 (UP TO 600 ° C)

- The GE30+ range is heat-insulated using rockwool with a thickness of 30 mm and a density of 130 kg/m³, whereas the GE50+ and GE100+ insulation have a density of 100 kg/m³ and a thickness of 50 mm and 100 mm, respectively.
- The three ranges are CE-certified for the evacuation of exhaust gases produced by power generators and fire pumps. Their walls are not guided by any thermal bridge elements.
- The most suitable range for a specific installation will be determined depending on the maximum temperature required on the outer wall, the type of installation, and the prevailing regulations.
- For the GE30+ and GE50+ ranges, the outer wall of the straight elements (202) includes a bellow on the male end, which ensures correct absorption of the expansions in the outer wall. This way, it is not required to install an extra element before each offset to absorb the expansions.
- One of the main criteria for selection between the GE30+, the GE50+, and the GE100+ range is the temperature for the outer wall of the chimney.

STABLE AND RESISTANT

- The overlap between elements is 40mm, which confers stability and robustness to the system, especially to horizontal sections and during its installation.
- The locking bands fit directly to the outer wall, giving rigidity to the ensemble and making the silicone joint redundant to ensure the mechanical stability of the chimney.

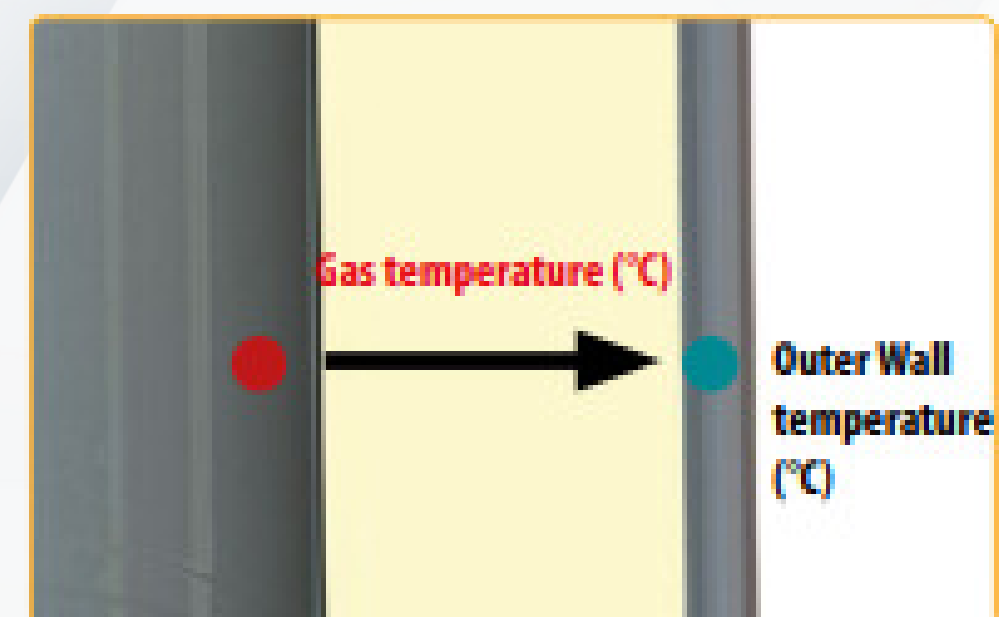
RELIABLE AND EASY TO INSTALL

- It is not required to apply lubricant nor apply high pressure to the elements to carry out the installation.
- The installation of the outer seal is simple and, thanks to its position in the chimney, it is possible to verify visually that it has been correctly installed. Therefore, it is a completely reliable system.
- It can be totally dismantled

OUTERWALL TEMPERATURE

- One of the main criteria for selection of the GE+ range is the temperature for the outer wall of the chimney.
- The following table shows the values calculated in the same depending on the features of the facility.

°C	GE30+		GE50+		GE100+	
	Indoor installation	Outdoor installation	Indoor installation	Outdoor installation	Indoor installation	Outdoor installation
200	54	24	49	22	39	19
300	70	32	63	28	48	21
400	87	42	77	35	57	25
450	96	48	85	39	62	27
500	106	55	92	45	67	29
550	115	63	101	51	72	32
600	126	72	109	57	78	35



Calculation assumptions:

Inside installation: ambient temperature 25 °C, vertical installation, interior diameter 450 mm. Outside installation: ambient temperature 15 °C, vertical installation, interior diameter 450 mm, wind speed 2 m/s. To obtain a calculation adapted to a specific installation, contact VOLTUMACHINE.



VOLTUMACHINE
INGENIERÍA CAFETERA

MODULAR FLUE SYSTEM FOR GENERATORS AND ENGINES.

Insulated double-walled metal chimney,
designed specifically to work in conditions
of high temperature (up to 600°C) and high
pressure (up to 5.000 Pa)

MAIN FEATURES

- Tightness class H1 (up to 5.000 Pa in overpressure)
- Maximum working temperature: 600 °C
- 40 mm overlap between elements
- Outer silicone seal to ensure the tightness of the system
- Expansion bellow included on straight lengths
- Safety end in the edges of all pieces, for improved security and mechanical resistance

MATERIALS

- Inner Wall:
 - Stainless steel AISI 304 BA (1.4301) or AISI 316L BA (1.4404)
 - Thickness:
 - 0,4 mm from ØND 80 to 600 mm
 - 0,6 mm from ØND 650 to 800 mm

AVAILABLE DIAMETERS

GE30+

Ø80, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 550, 600 MM

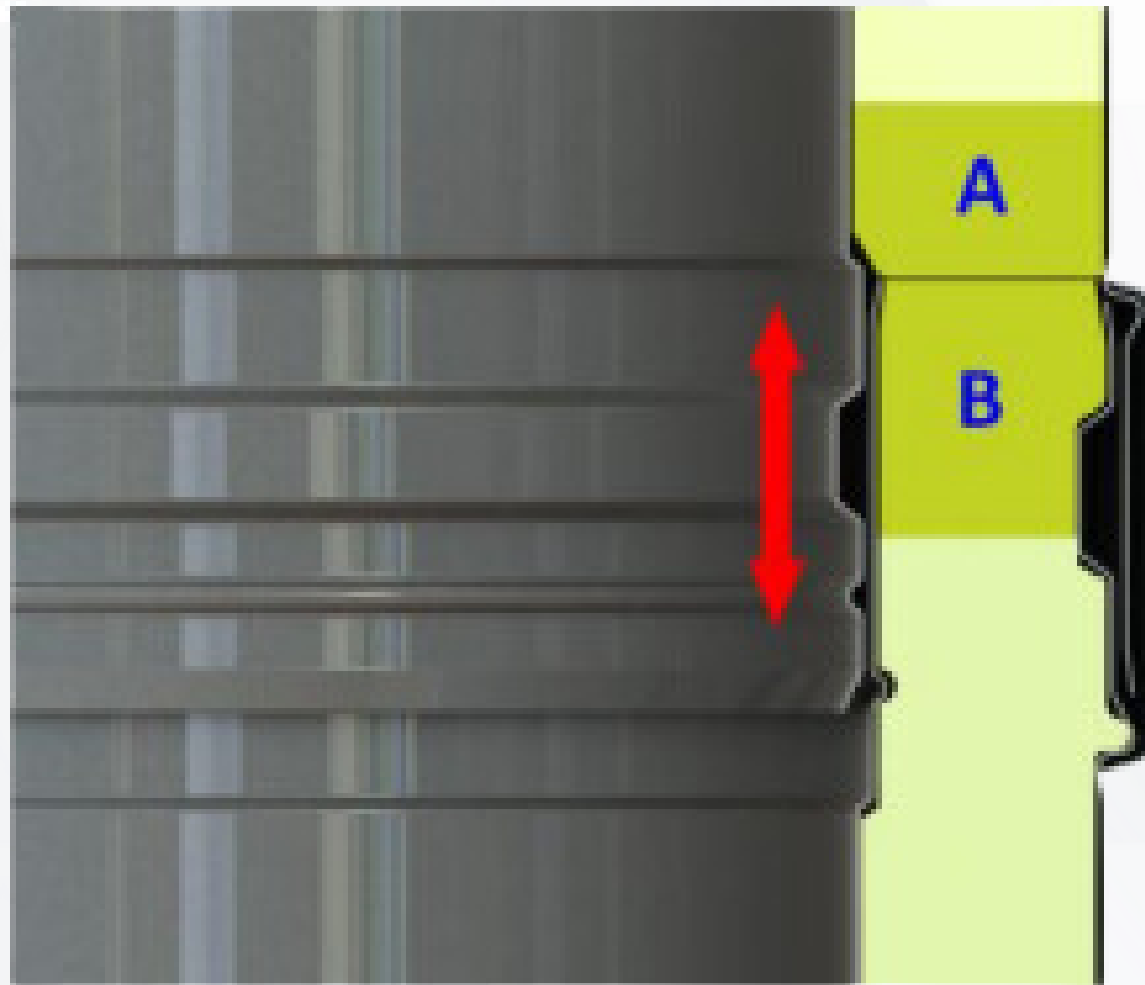
GE50+/GE100+

Ø80, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800 MM



DESCRIPTION

Thermal Expansion



The flue gas temperature of a power generator engine can reach 600°C. Since the material of the inner wall is stainless steel, it experiences a thermal expansion of approximately 10 mm per meter. In the Dinak GE+ system, thermal expansion is absorbed by each joint between elements, as indicated in the picture on the side.

On the male side (detail B), both walls are welded using a stainless steel spacer. In contrast, on the female side (detail A), the spacer is only attached to the outer wall. Therefore, the inner wall is fixed on the male side but is free to expand on the female side, as indicated in the picture by the red arrow.

As a result, there is no need for additional expansion bellows before or after every offset or base support, as required in a flanged system that cannot absorb thermal expansion at each joint.

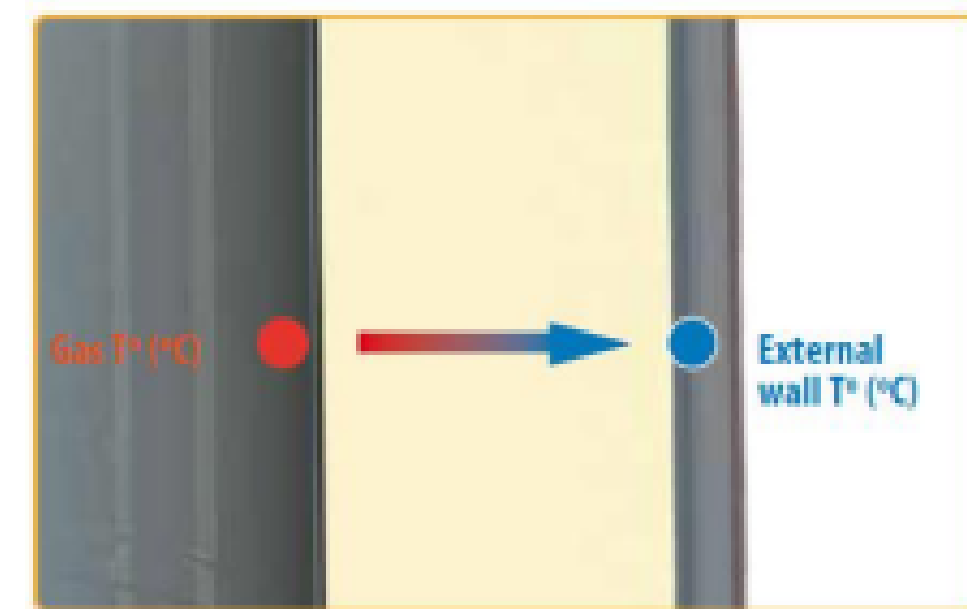
Usually, an expansion bellow requires strong and substantial supports to function correctly. The absence of additional expansion bellows eliminates the need for these types of supports, as thermal expansion does not exert any force on the chimney's structure. In this sense, in a spigot & socket system like the GE+, the chimney itself experiences less stress, thus reducing the risk of possible failures due to fatigue phenomena in the supports or joints.

The only condition for the GE+ regarding this matter is that the chimney should always start from a fixed point to prevent engine vibrations from being transmitted to the chimney.

TEMPERATURE CLASS T600 (UP TO 600°C)

- GE+ ranges are CE-certified for the evacuation of exhaust gases produced by power generators and fire pumps. Their walls are not guided by any thermal bridge elements.
- The most suitable range for a specific installation will be determined depending on the maximum temperature required on the outer wall, the type of installation and the prevailing regulations. In the following table is shown the temperatures of the outer wall depending on the flue gas temperature, and depending on the model of chimney:

	GE30+		GE50+		GE100+	
Flue gas temperature (°C)	Indoor Installation	Outdoor Installation	Indoor Installation	Outdoor Installation	Indoor Installation	Outdoor Installation
450	96	48	85	39	62	27
500	106	55	92	45	67	29
550	115	63	101	51	72	32
600	126	72	109	57	78	35



STABLE AND RESISTANT

The overlap between elements is 40mm, which confers stability and robustness to the system, especially in horizontal sections and during installation.

RELIABLE AND EASY TO INSTALL

It is not required to apply lubricant or apply high pressure to the elements to carry out the installation. The installation of the outer seal is simple, and thanks to its position in the chimney, it is possible to visually verify that it has been correctly installed.

SEISMIC RESISTANCE

For each specific installation, calculations can be made for the supporting system according to Eurocode 8 "EN 1998-1 Design of structures for earthquake resistance - Part 1: General rules, seismic actions, and rules for buildings" in order to fulfill the requirements established by it.