



Choose TOTEM, smart heat and power

The TOTEM is a high-efficient micro-cogenerator fueled by natural gas that produces heat and power while protecting the environment.

22 to 50 kW heat / 10 to 25 kW power

TOTEM
by asja

MODEL		TOTEM 10	TOTEM 20	TOTEM 25
POWER @ data recorded at the rated electric power and water inlet of 70°C unless specified; methane @ 20mbar, the data related to LHV=10.2 kWh/Nm³; air inlet @ 25°C and 101.3 kPa				
Rated electric power	kW	10.0	20.0	25.0
Power modulation range*	kW	≥ 5	≥ 7.5	
Rated thermal power	kW	21.6 (25.2 ^{**})	41.9 (48.5 ^{**})	50.2 (57.6 ^{**})
Net electrical efficiency	%	29.6	31.2	32.5
Total efficiency	%	93.6 (104.3 ^{**})	96.5 (106.8 ^{**})	97.8 (107.4 ^{**})
Seasonal space heating energy efficiency ^{***}	%	200	226	251
Engine	Fire 1400cc (FCA)			
Engine Control Unit	Magneti Marelli			
Fuel	natural gas, biomethane			
Methane (CH ₄)	Nm³/h	3.31	6.28	7.54
Emission settings (NOx) @ 5% O ₂	mg/Nm³	≤10		
Emission settings (CO) @ 5% O ₂	mg/Nm³	≤10		

DIMENSIONS AND WEIGHTS

h x w x l (rigged up with panels - standard)	cm	128 x 79.5 x 192	
Weight (fluid-filled)	kg	720	780

* subject to local grid connection technical requirements

** referred to the input water temperature 35°C

*** as defined by regulation EU No. 811/2013, EN 50465/2015



TOTEM systems fulfil already the most demanding efficiency requirements, introduced by the EU Regulation 811/2013 (energy labelling) in force from 26/09/2019.

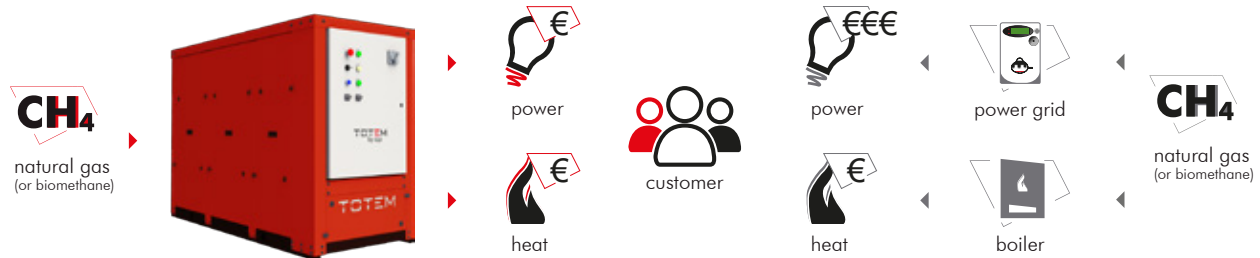
All pictures shown are for illustration purpose only and may not depict some components.

heat and power on demand

TOTEM is an innovative micro-cogenerator, made in Italy, the evolution of the first micro-cogenerator in the world designed by FIAT Research and Development Center in 1977.

TOTEM consists of an innovative internal combustion engine of FIAT 500, manufactured by Fiat Chrysler Automobiles and designed to be fueled with natural gas, coupled with the alternator for power production. Thanks to an efficient system utilizing a heat exchanger, engine exhaust heat is recovered and provided to the customer.

In addition, TOTEM is equipped with the TOTEM OS operating system to achieve some of the best efficiencies and operating performances in the marketplace today.



certified quality

Currently TOTEM is available in 10, 20 and 25 kW power (respectively in 22, 42 and 50 kW heat).

Micro-CHP Manufacturer ASJA AMBIENTE ITALIA (ISO 9001-BS OHSAS 18001 - ISO 14001 certified), aims to be a leader in the field of small scale cogeneration following an approach of the extreme quality and transparency: the TOTEM is indeed the first micro-cogenerator whose performances and compliances are measured by Micro-cogeneration laboratory of Politecnico di Milano and verified by TÜV Rheinland that also certified TOTEM's compliance with the most restrictive technical and safety regulations.

TOTEM 25 BS version, designed for North American market, has achieved the prestigious UL certification.



give more together



TOTEM micro-cogenerators are designed for cascade operation with other TOTEM units: this is intended to generate heat and power for the several needs, maximizing efficiency and bill savings.

TOTEM, the applications



SPA

micro-cogenerator **2 x TOTEM 25**
unit function **space heating, tubs and domestic hot water**
annual savings **57,600 €**



swimming pool

micro-cogenerator **1 x TOTEM 25**
unit function **heating of semi-olympic and children's pools, domestic hot water**
annual savings **22,100 €**



food farming

micro-cogenerator **2 x TOTEM 20**
unit function **space heating and hot water for production processes**
annual savings **34,000 €**



gym

micro-cogenerator **1 x TOTEM 20**
unit function **space heating, small pool and domestic hot water**
annual savings **14,000 €**



retirement home

micro-cogenerator **2 x TOTEM 25**
unit function **space heating and domestic hot water**
annual savings **36,000 €**



rehabilitation center

micro-cogenerator **1 x TOTEM 25**
unit function **heating of hot tubs, space heating and hot water**
annual savings **26,800 €**



hotel

micro-cogenerator **1 x TOTEM 25**
unit function **space heating and domestic hot water**
annual savings **21,800 €**



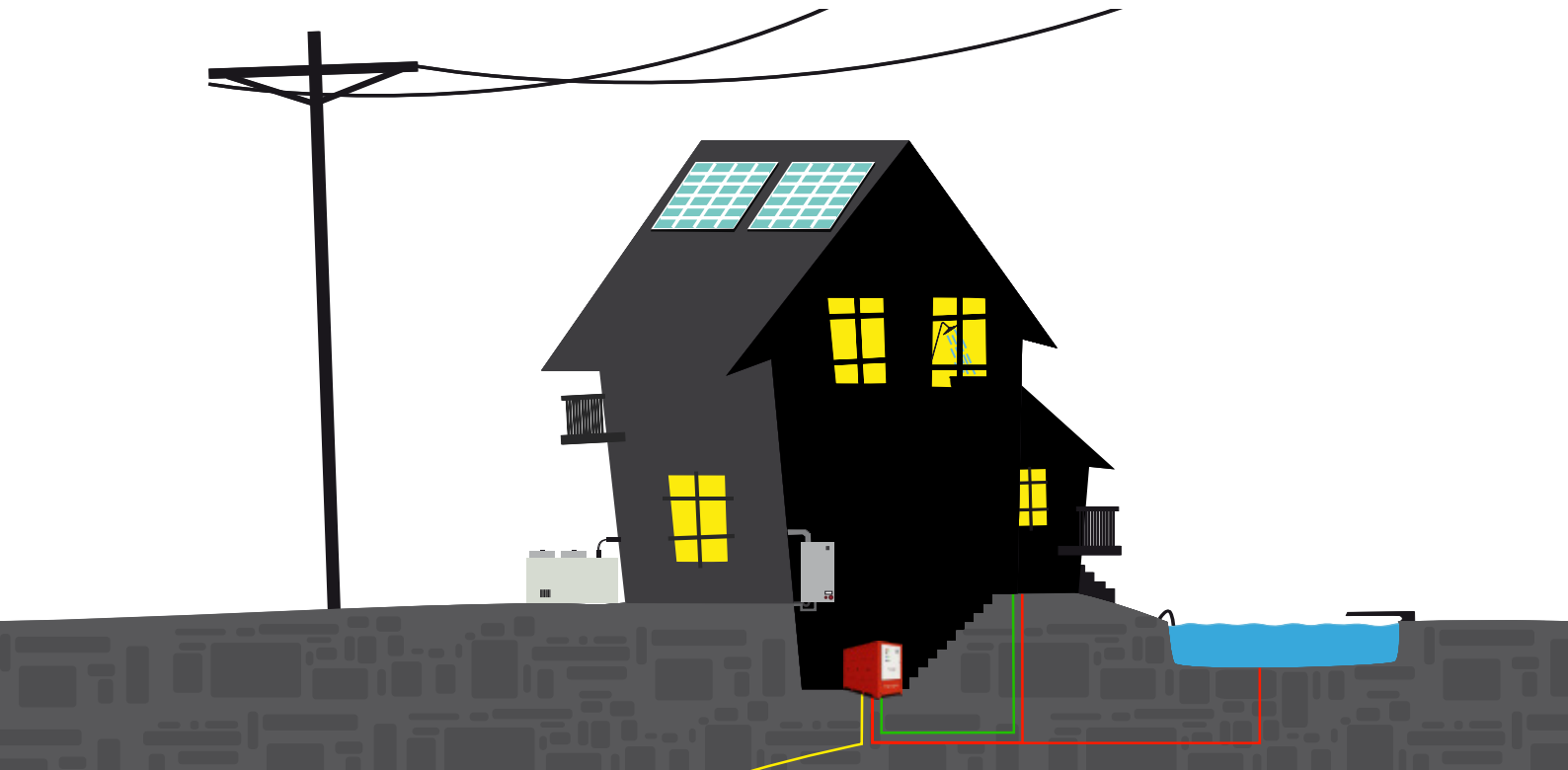
condominium

micro-cogenerator **1 x TOTEM 20**
unit function **space heating and domestic hot water**
annual savings **13,200 €**

smart energy

An innovative software platform designed for the Smart Building and a modern control system and data acquisition allows TOTEM to coordinate and get integrated with existing and future energy equipment (solar panels, boilers, heat pumps, etc.), letting the entire system achieve maximum efficiency.

This feature makes it compatible with all electric heat pumps available on the market, which will benefit from the electricity produced at low cost by TOTEM, enhancing the savings to the end user.



the best relationship between energy produced and emissions

The TOTEM is the most efficient micro-cogenerator with the lowest emissions into the atmosphere thanks to the stoichiometric control of the carburation and to an efficient catalyst.

NO_x emissions (nitrogen oxides) of TOTEM are:

- 25 times lower than the set limits established for boilers in the region of Lombardia, that are the stringent at national level;
- 9 times lower than the boilers with the lowest emissions (class 5).

NO_x is one of the most dangerous atmospheric pollutants for human health because they are the precursors to form other harmful substances (mainly PM).

NO_x emissions

average of the boilers installed nationwide¹

230 mg/Nm³

limits for boilers in the Region of Lombardia²

178 mg/Nm³

boilers class 5 (lowest emissions)

≤61 mg/Nm³

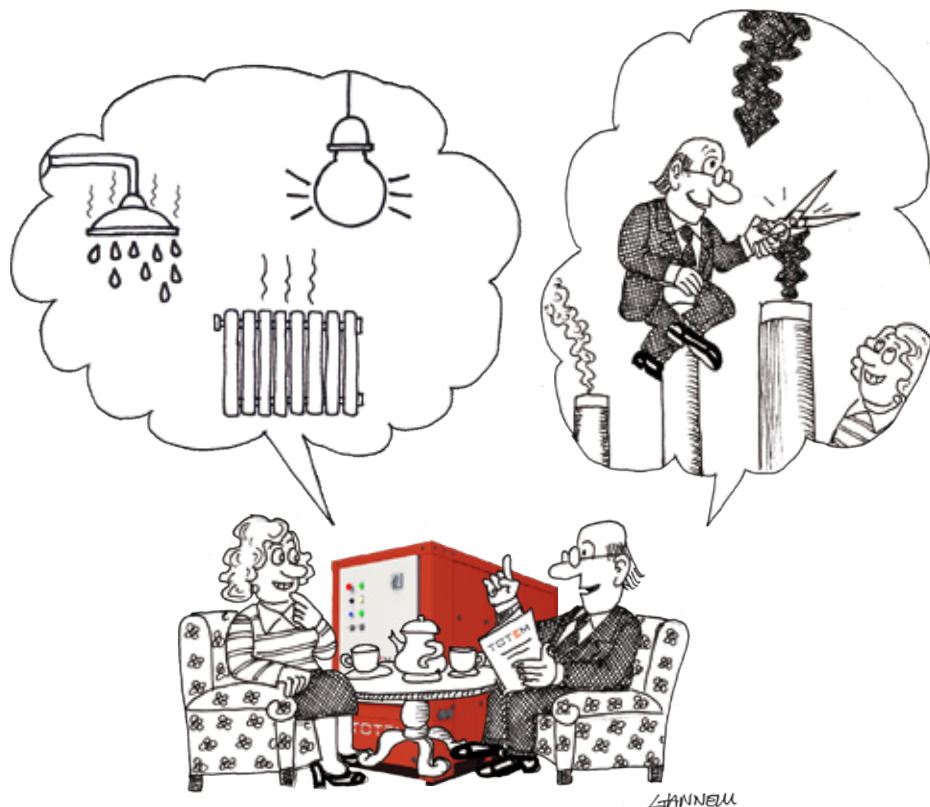
TOTEM³

≤7 mg/Nm³

¹ data from the ISPRA report 262/2017

² limits in Lombardia region for "Rehabilitation zones"

³ quota attributed to the thermal energy; total emissions: ≤ 10 mg/Nm³



Can you produce
heat without
harming the
environment? With
TOTEM, you can!

The last few months have been characterized by the highest level of carbon dioxide in the atmosphere ever recorded. We need to protect our planet and at the same time to cut energy costs that weigh heavily on everyone's economic balance by using all available efficient and environmentally friendly technologies. The TOTEM micro-cogenerator is the answer to these different needs.

TOTEM is

✓ rewarding

TOTEM is a great and safe investment.
The extremely low operation costs give a very short payback period (around 2 years).

✓ efficient

With a compact design for an easy installation in tight spaces, TOTEM is a multi-fuel micro-cogenerator (can be fired with natural gas or biomethane) that ensures an efficiency close to 100%.

✓ high tech

TOTEM is equipped with the latest technologies by Fiat Chrysler Automobiles (FCA) and Magneti Marelli as well as with the TOTEM OS operation system to achieve the best performances.

✓ reliable

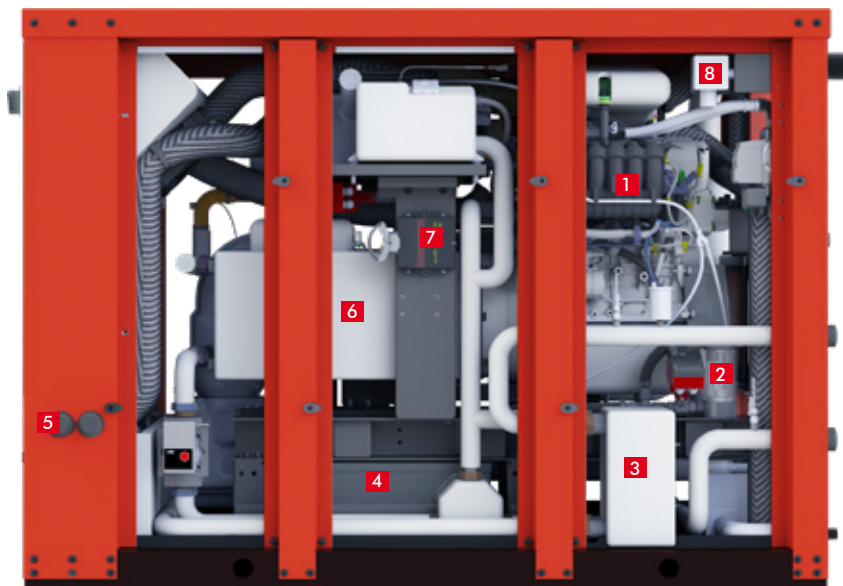
The All-In package, a full service maintenance contracts to ensure high levels of efficiency and reliability of the unit over unit life time. In addition, TOTEM has an innovative software cloud platform, through which the unit can be monitored remotely and in a timely manner.

✓ quiet

Thanks to its advanced technology TOTEM turns out to be quieter than a conversation between two people.

✓ modular

TOTEM micro-cogenerators are designed for cascade operation to meet the heat and power user demand.



**MAGNETI
MARELLI**

- 1 FIAT 500 engine (Fire 1400cc)
- 2 oil level switch
- 3 customer's water heat exchanger
- 4 drain oil tank
- 5 electrical connections
- 6 alternator
- 7 machine control unit
- 8 natural gas safety sensor



TOTEM micro-cogenerators are designed and produced in Italy by Asja Ambiente Italia spa. Since 1995 Asja has been operating in the sector of renewable energy production, energy efficiency and in the reduction of greenhouse gas emissions that cause climate change.

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