



**COMEX
GROUP**
TUTTO UN ALTRO CLIMA



Contributing to reducing
the greenhouse effect

IESI

THE HEAT RECOVERY UNIT

ABOUT US ...technological innovation since 1986



OUR MISSION

Founded in 1986 as a manufacturer of industrial furnaces, **Comex Group** has built its history on a fundamental value: technological innovation.

Many years of experience in the heating and air-conditioning sectors, combined with the continuous acquisition of know-how on new technologies and applications, have enabled the company to apply solutions that are always up-to-date using heat pump systems, solar cooling, heat recovery, thermal power stations and, most recently, air sanitation.

Research and innovation have distinguished the company in the heating and air conditioning sector with important advantages for **Comex Group** customers in the areas of energy saving, safety and environmental protection.

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IESI

THE GREEN HEAT RECOVERY UNIT

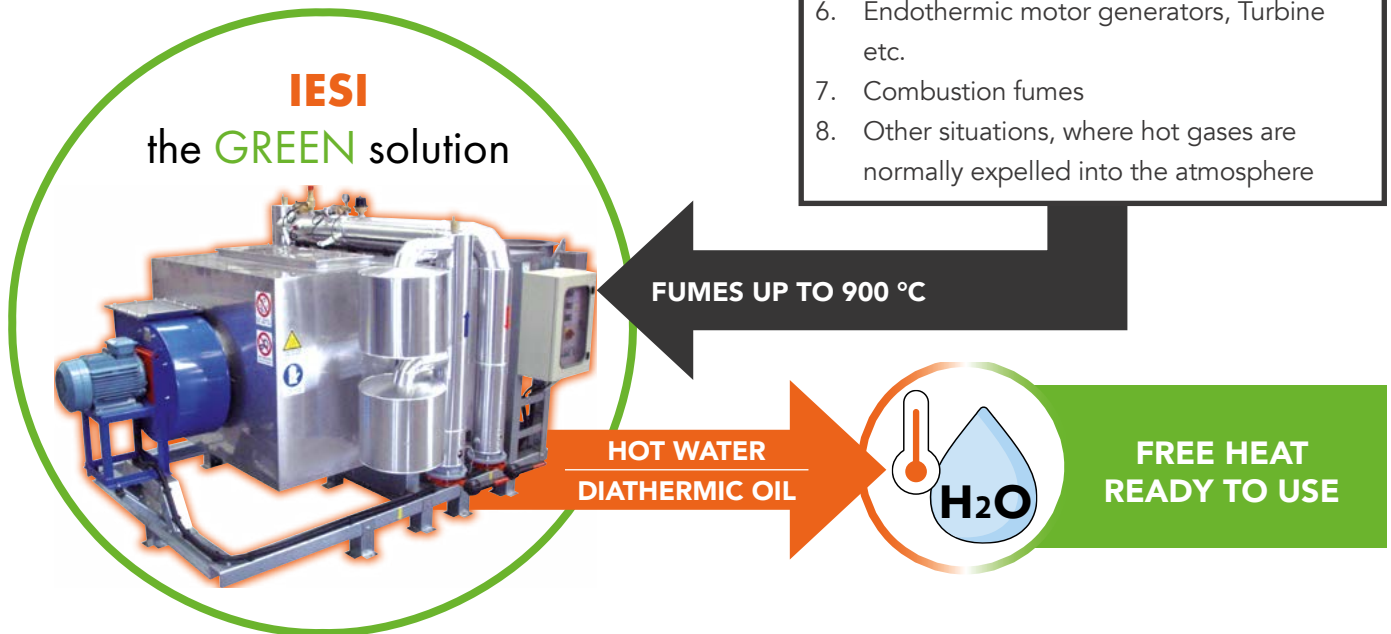
IESI is an innovative patented solution that is part of **Comex Group's Green philosophy**, specifically designed to comply with the European directives (Green Deal EU) and with the guidelines outlined by the **MITE** (Italian Ministry for Ecological Transition) for the development of renewable energy, which aims to reduce the effects of Global Warming for the protection of the environment and biodiversity by 2030.

IESI is a plug-and-play assembled heat recovery plant, which allows the recovery of heat from various thermal sources such as: cooling fluids, superheated air or flue gases, which are dissipated into the free atmosphere through flues.

IESI, thanks to its ability to recover and convert heat from "waste" thermal sources, into hot water or thermal oil, offers a very important contribution to the energy transition towards zero greenhouse gas emissions by 2050.

SOURCES FOR THERMAL RECOVERY

1. Melting furnaces,
2. Reheating furnaces,
3. Heat treatment furnaces,
4. Furnaces for food production,
5. Glassworks,
6. Endothermic motor generators, Turbine etc.
7. Combustion fumes
8. Other situations, where hot gases are normally expelled into the atmosphere



Why **IESI** is the ideal solution?

1 BECAUSE IT ALLOWS THE RE-USE OF THERMAL ENERGY

2 BECAUSE HEAT RECOVERY = ENERGY SAVINGS

3 BECAUSE IT IS AN ENVIRONMENTALLY SUSTAINABLE SOLUTION

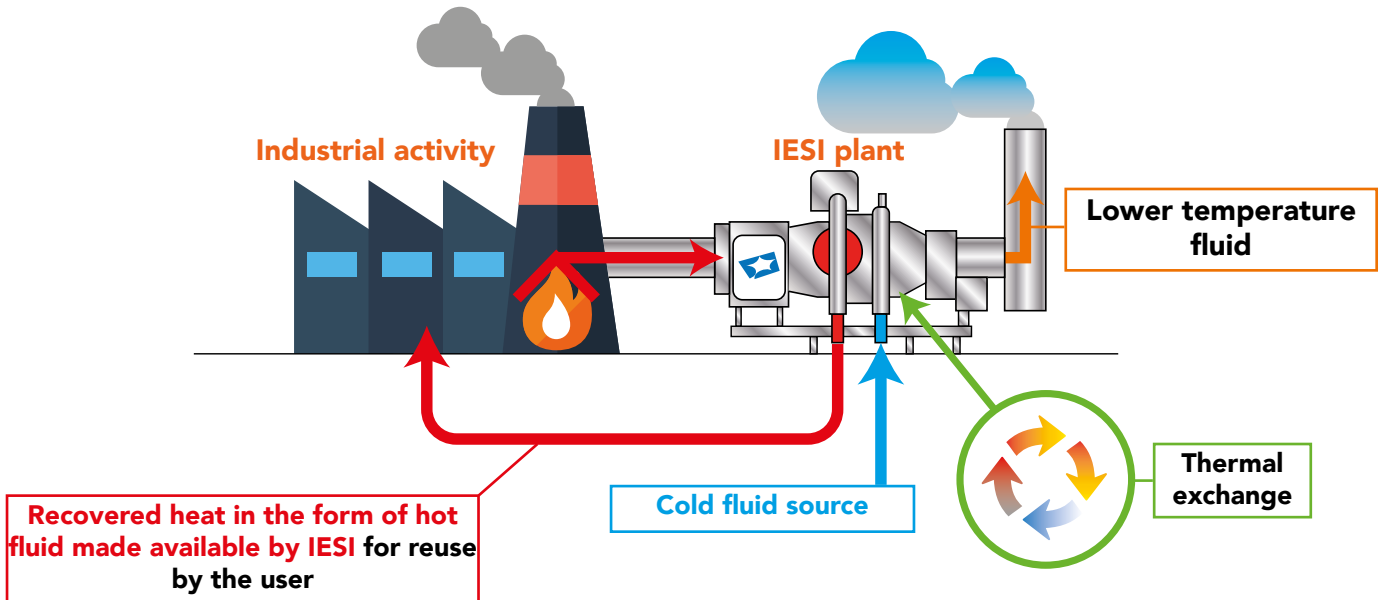


IESI TECHNOLOGY - The heat recovery cycle

The IESI plant is activated when hot fluids pass through it, releasing most of the heat into the secondary fluid for reuse.

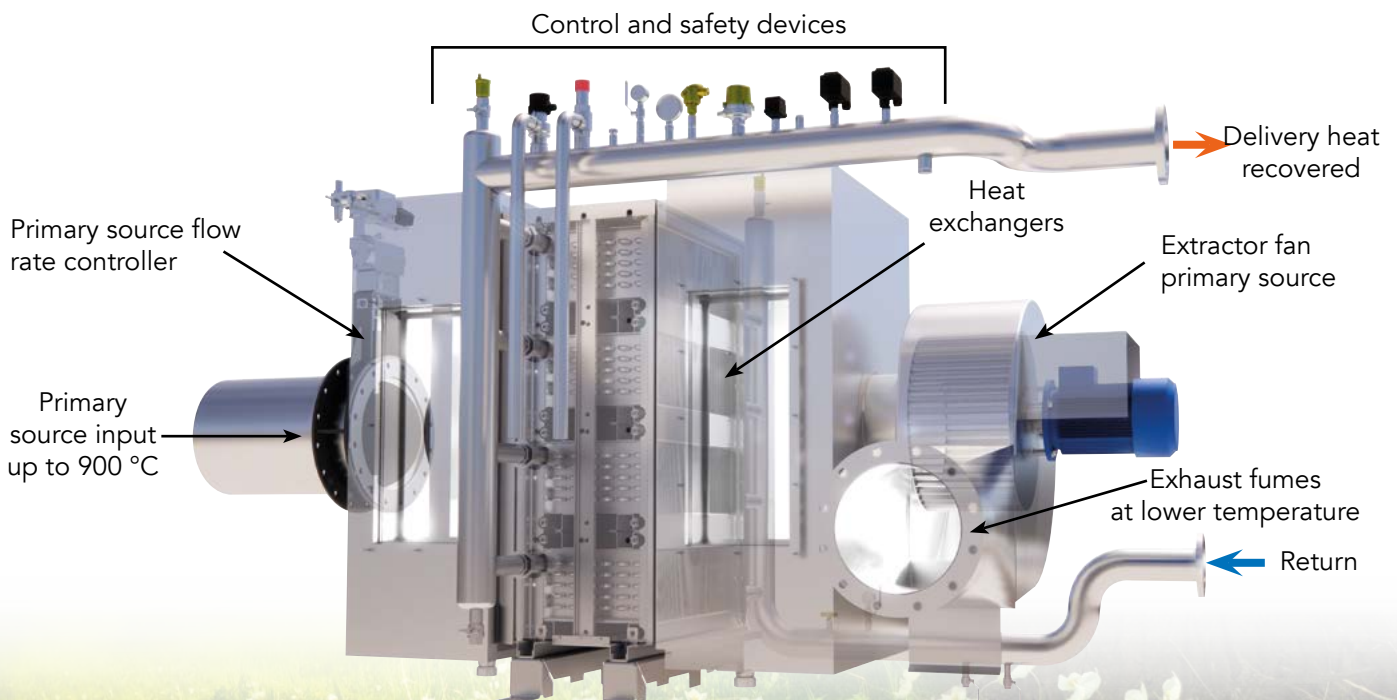
Overall plant efficiency of up to 107% by recovering the sensitive heat contained in the flue gases, plus latent heat, if condensation is required.

This high performance allows access to tax benefits according to the current regulations.



REUSING DISSIPATED ENERGY MEANS RESPECTING THE ENVIRONMENT

A smart and eco-friendly solution that can be managed online in line with the ecological transition.



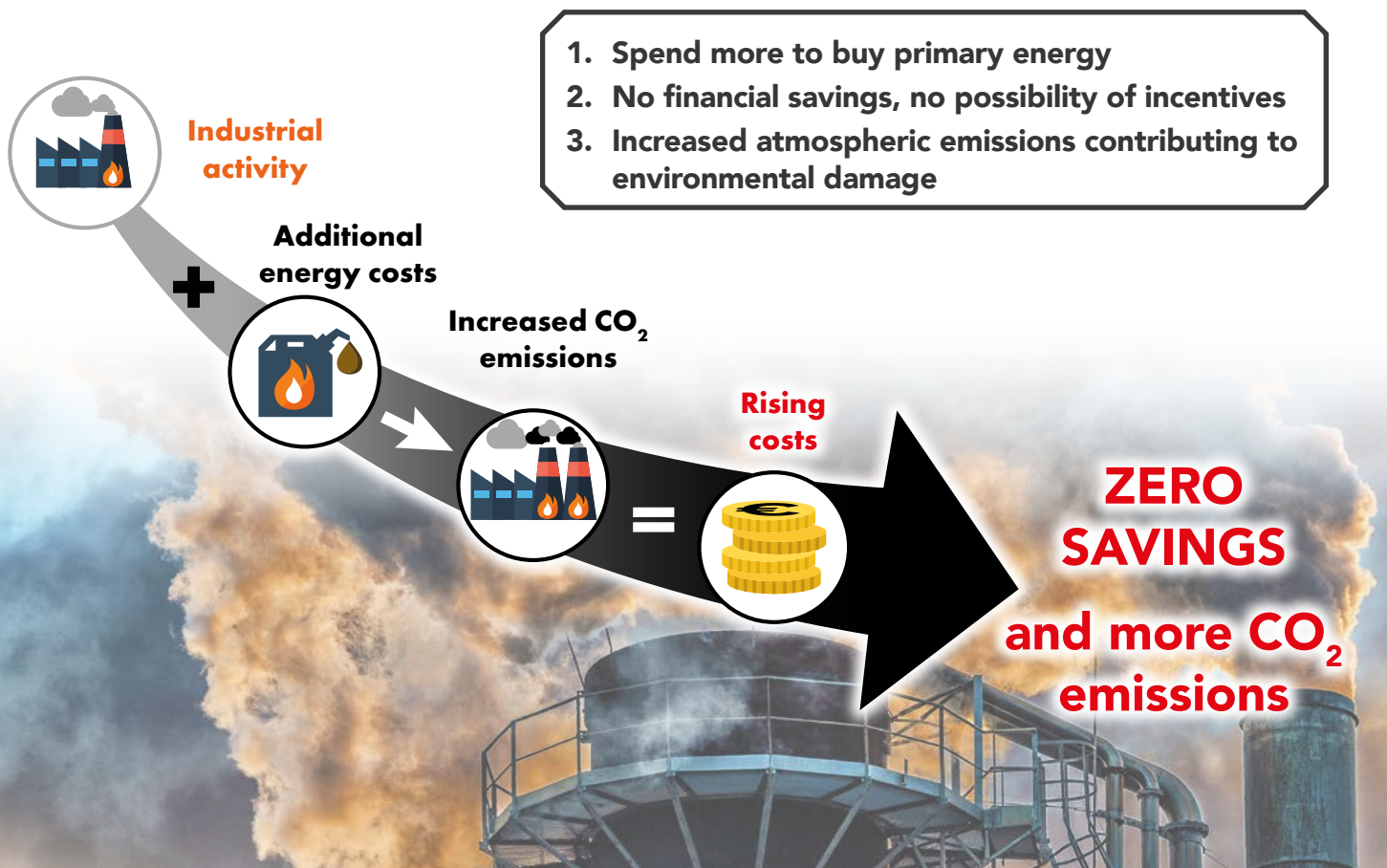
IESI - the eco-friendly solution

Comex Group has been investing in research and development for many years to offer thermotechnical solutions related to the ecological transition, for a circular and sustainable economy.

The IESI power plant remains one of the most popular eco-heat recovery solutions.



Results without IESI



IESI - Main features

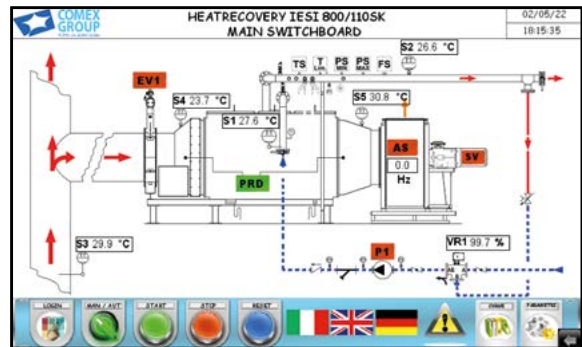
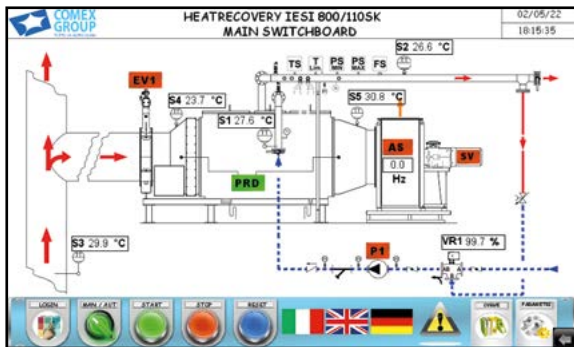
- **The heart of IESI** consists of a one-piece heat recovery unit, consisting of special stainless steel exchangers that can be easily inspected for maintenance.
- **IESI is a custom product**, a machine complete with all safety systems, electrical system, piping and management software, designed with Comex Group's expertise and know-how to obtain excellent functional performance for the customer's use.
- **IESI heat recovery: from 20 kW thermal to ... kW, in the form of thermal fluid**, depending on requirements.

IESI INDUSTRY 4.0 - technology, safety and efficiency COMEX GROUP

DESIGN IN LINE WITH THE 'INDUSTRY 4.0' MODEL WITH REMOTE MANAGEMENT

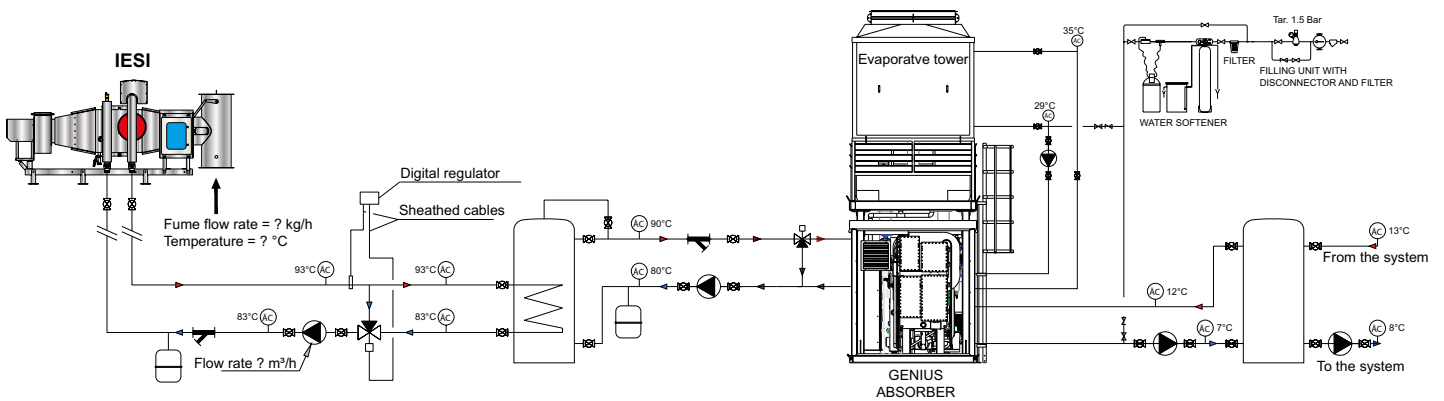
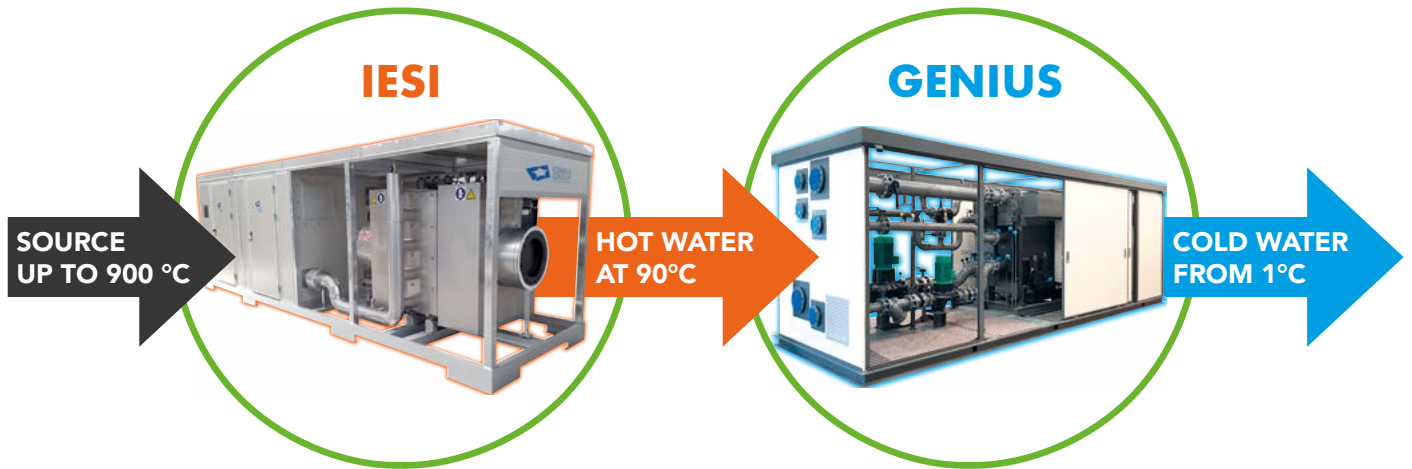
Remote management service to guarantee performance over time and for scheduled maintenance

The remote management software is built ad-hoc for the customer, allowing constant control of the various components, with activation/deactivation functions as well as analysis and monitoring, for management of the sliding temperature ON / MODULE / OFF.



IESI + GENIUS ...the cold is served!

The thermal energy recovered with IESI can become the free power source of the Genius lithium bromide absorber for the production of chilled water up to 1°C.
The range of cooling capacity available with the absorbers varies from 150 kW up to 7 MW.



The diagram is to be considered indicative and not binding, as each IESI system is custom-built, according to the actual plant requirements and application needs of the customer.

IESI - Additional kits

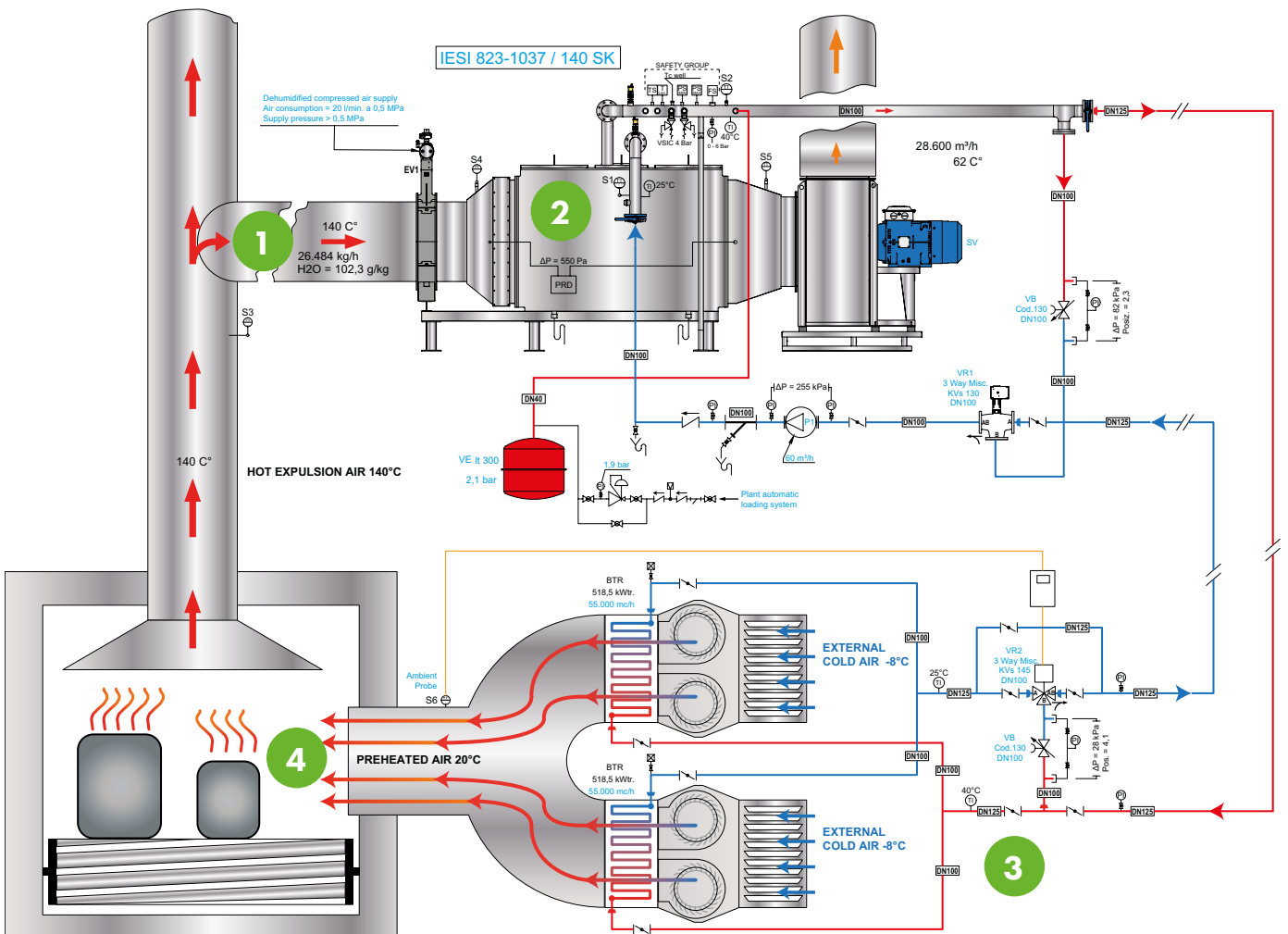
- **Power modul kit:** it is a combined system with valves (2 or 3-way), for the modulation of the source of energy to be recovered at the inlet of IESI, managed by plc, to keep constant the IESI flue gas inlet and water outlet temperatures constant.
- **Thermal aid kit:** it guarantees a constant thermal power at the outlet of IESI in the conditions in which the source of thermal energy to be recovered is intermittent or insufficient to supply the envisaged utilities such as: radiators, fan-coils, AHUs for heating, lithium bromide absorbers for the production of chilled water.

For more information on use, plant design, etc. contact the Comex Group technical department.

IESI INCREASES THE EFFICIENCY OF A FURNACE PLANT IN GERMANY

Type of user	Textile Industry
Process cycle	Fabric drying
Type of intervention	Heat recovery from the saturated air expelled from the dryer with preheating of the external fresh air by raising the external temperature from -8°C to 20°C
Fuel saving	142.400 sm ³ /year of methane gas
CO ₂ savings	272 Tons/year
Pay back	14 months

THERMAL RECOVERY CYCLE



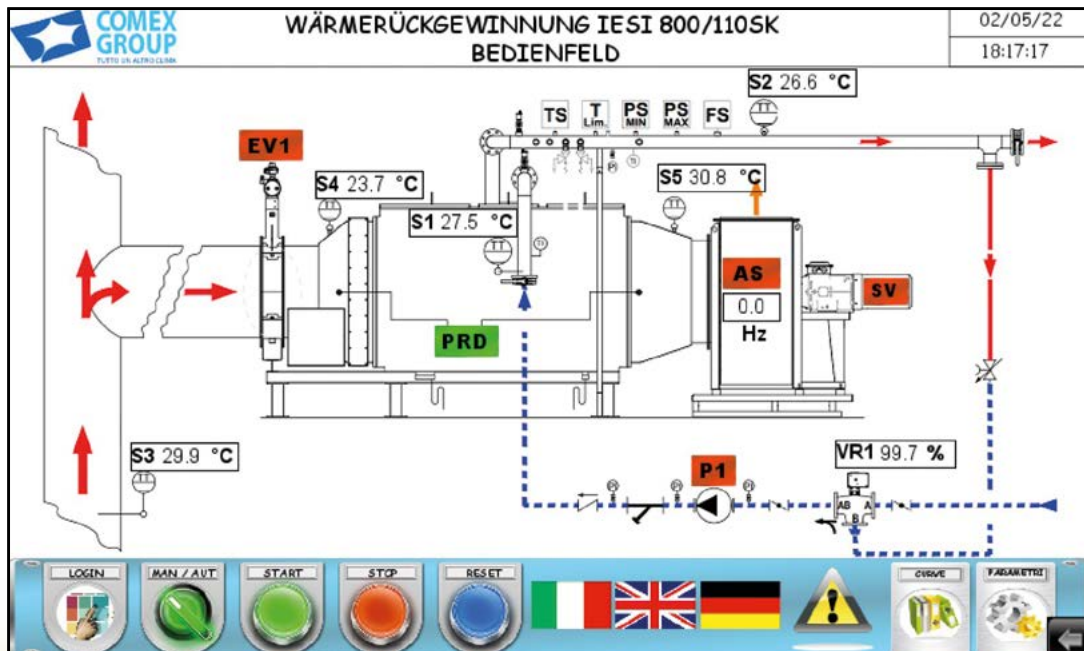
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IESI - case history Germany

IESI INCREASES THE EFFICIENCY OF A FURNACE PLANT IN GERMANY



IESI - Remote plant management in Germany



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IESI TRANSFORMS THE GENERATOR GROUP INTO COGENERATOR

Type of user	Tourism sector
Process cycle	Domestic hot water production
Type of intervention	Heat recovery from diesel generator sets
Fuel saving	191.000 kg/year of diesel fuel
CO ₂ savings	605 Tons/year
Pay back	15 months



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IESI - case history Shipbuilding Industry

IESI TRANSFORMS THE GENERATOR GROUP INTO TRIGENERATION

Type of user	Shipbuilding Industry
Process cycle	Power generation by da generator group
Type of intervention	Thermal recovery from generator set for 1350 kW of cooling energy production by LiBr Genius absorption chiller
Fuel saving	217.312 kg/year of diesel fuel
CO ₂ savings	688 Tons/year
Pay back	19,5 months



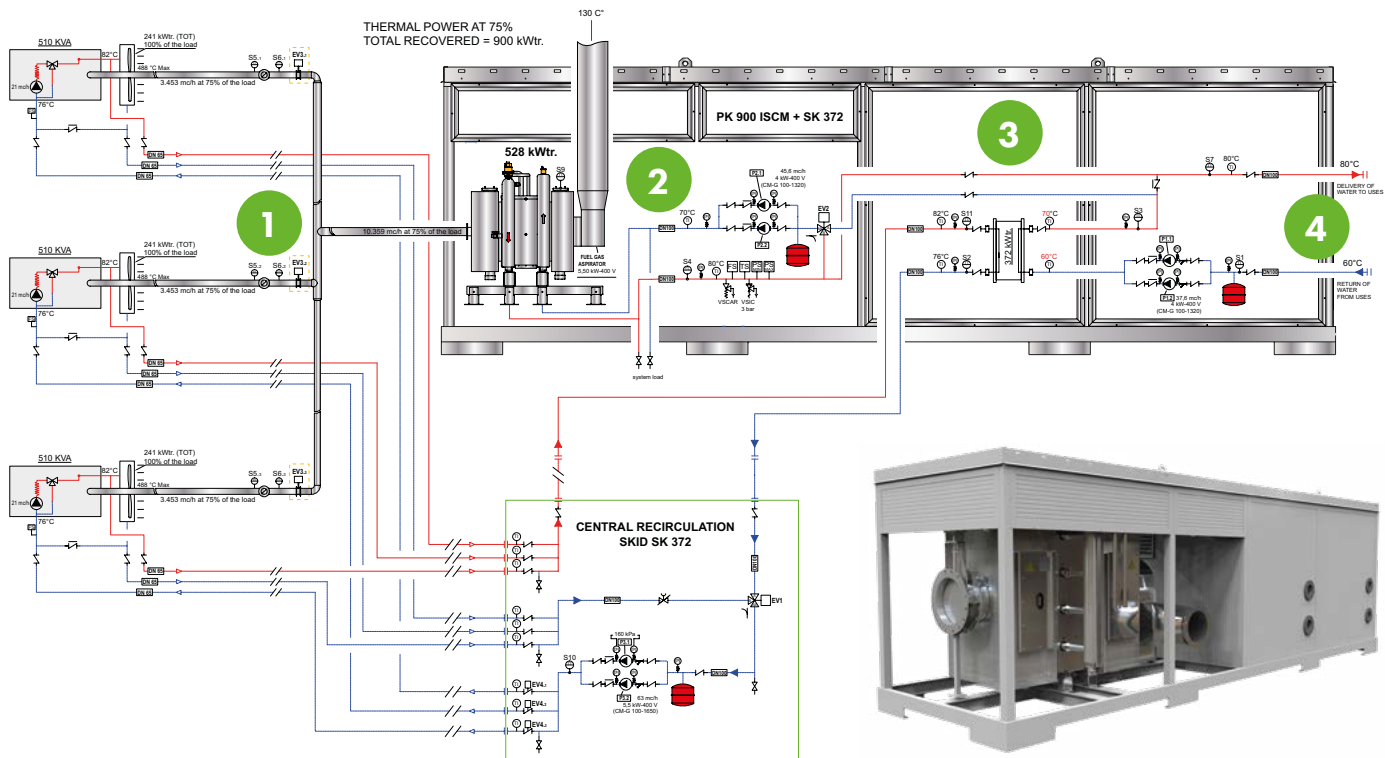
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IESI - case history Residential complex

IESI TRANSFORMS THE GENERATORS GROUP INTO COGENERATOR

Type of user	Residential complex
Process cycle	Domestic hot water production
Type of intervention	Heat recovery from diesel generators sets
Fuel saving	277.000 kg/year of diesel fuel
CO ₂ savings	877 Tons/year
Pay back	20 months

THERMAL RECOVERY CYCLE



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IESI - case history Aluminium foundry

IESI RECOVERS THE HEAT FROM FUMES AND TRANSFORM IN HOT WATER

Type of user	Aluminium foundry
Process cycle	Vacuum evaporator-concentrator
Type of intervention	Hot water production from flue gas heat recovery from melting furnaces, for vacuum evaporator-concentrator supply
Fuel saving	166.500 sm ³ /year of methane gas
CO ₂ savings	318 Tons/year
Pay back	26 months



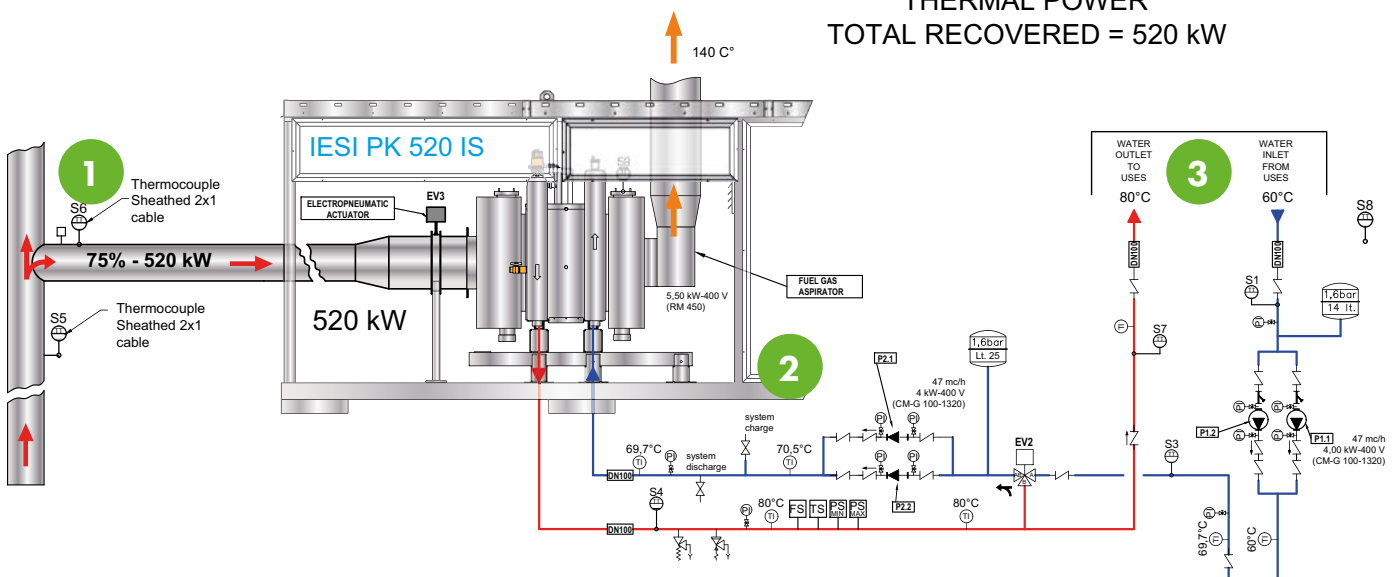
IESI TRANSFORMS THE GENERATOR GROUP INTO COGENERATOR

Type of user	Food industry
Process cycle	Domestic hot water production for industrial use
Type of intervention	Heat recovery from combustion fumes of cooking ovens
Fuel saving	257.000 sm ³ /year of methane gas
CO ₂ savings	491 Tons/year
Pay back	16 months

THERMAL RECOVERY CYCLE



THERMAL POWER
TOTAL RECOVERED = 520 kW



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IESI - case history Aluminium foundry

IESI RECOVERS THE HEAT FROM FUMES AND TRANSFORM IN HOT WATER

Type of user	Aluminium foundry
Process cycle	Vacuum evaporator-concentrator
Type of intervention	Hot water production from flue gas heat recovery from melting furnaces, for vacuum evaporator-concentrator supply
Fuel saving	63.400 sm ³ /year of methane gas
CO ₂ savings	121 Tons/year
Pay back	3,5 years



SISTEMI IBRIDI



INDUSTRIAL OVENS



LITHIUM BROMIDE ABSORPTION CHILLER



ADIABATIC COOLERS



SPLIT SYSTEMS



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