

INDIRECT STEAM GENERATORS (ISG)

PRODUCT OVERVIEW

ENEVA Indirect Steam Generators (ISG) are advanced steam production systems designed to generate saturated or superheated steam without direct combustion, utilizing an existing heat source such as thermal oil, high-pressure steam or hot water.

This approach eliminates the need for a dedicated boiler system, providing a compact, efficient and flexible solution for facilities with intermittent or moderate steam demand.

By separating the primary heating fluid from the secondary steam circuit, ENEVA systems ensure safe, controlled and reliable steam generation tailored to process requirements.

MAIN ADVANTAGES

- Steam generation without direct firing
- No need for burner, fuel system or chimney infrastructure
- High efficiency with no flue gas losses
- Ideal for low or variable steam demand
- Flexible operation with high turn-down capability
- Clean and controlled steam production
- Compact system with reduced investment cost
- Suitable for hygienic (clean steam) applications



ENEVA ENGINEERING APPROACH

Each ENEVA ISG unit is engineered based on plant-specific conditions:

- Available heat source characteristics
- Required steam capacity and pressure
- Load variation profile
- Process safety and control requirements

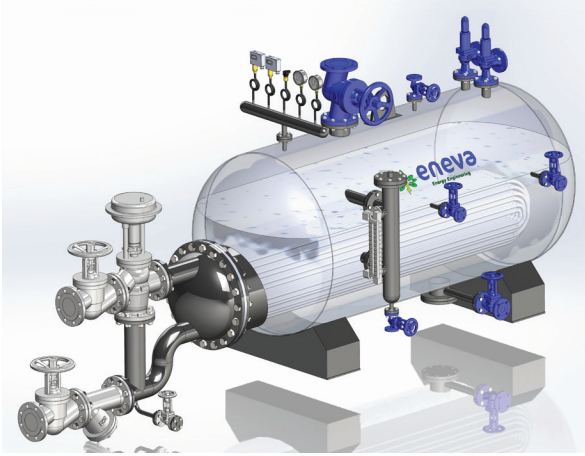
Special design considerations include:

- Optimized heat transfer surface
- Controlled water/steam volume ratio
- Thermal expansion and stress management
- Easy maintenance with removable tube bundles

For hygienic applications, fully stainless steel Clean Steam Generators are available.

CONSTRUCTION AND MANUFACTURING FEATURES

- Removable tube bundle design for easy maintenance
- Optimized steam drum and water volume
- Welded construction with strict quality procedures
- Integrated insulation and compact layout
- Designed for long operational life



Steam Type	Saturated or superheated steam
Thermal Capacity	Up to 10 MW
Design Pressure	15 barg shell side, 30 barg tube side
Heat Source	Thermal oil, steam or hot water
Construction	Shell & tube type with removable bundle
Configuration	Horizontal or vertical
Materials	Carbon steel or stainless steel
Design Standard	EN 12953 / PED (optional)
Control System	PLC-based automation
Steam Quality	Dry steam with stable output

DESIGN AND WORKING PRINCIPLE

ENEVA indirect steam generators operate based on heat exchange between two separate fluid circuits:

- The primary fluid (thermal oil, high-pressure steam or hot water) flows inside tube bundles
- Feedwater is introduced outside the tube bundle
- Heat is transferred through the tube surfaces
- Steam is generated in the shell side without mixing with the primary fluid

The system is designed to provide:

- Sufficient water volume to absorb sudden load fluctuations
- Adequate evaporation surface for dry and stable steam production
- Controlled operation via primary fluid control valves (2-way or 3-way)

For efficient operation:

- A pressure difference of approximately 2 bar is sufficient in steam-to-steam systems
- A temperature difference of approximately 10°C is sufficient in thermal oil applications

TYPICAL APPLICATIONS

- Food and beverage industry
- Textile and process industries
- Chemical and petrochemical plants
- Hospitals and hygienic steam applications
- Auxiliary steam systems in energy plants
- Facilities with intermittent steam demand

DELIVERY OPTIONS

- Expertise in indirect heat transfer systems
- Custom-engineered solutions for each process
- Compliance with international standards
- High operational safety and efficiency
- Reliable performance for critical applications

WHY ENEVA?

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- Custom-engineered solutions for each process
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