

FURNACES

Effective GLASS SERVICE ITALY technology leverages oxygen in sustainable Working End

Delivering its own impactful response to EU challenges, Glass Company aims to cut fuel consumption and CO₂ emissions by at least 40 percent by supplying the oxygen-gas skid.

TECHNOLOGY ANTICIPATING THE EU GREEN DEAL

As the European Union tightens decarbonization targets for heavy industry (-55 percent CO₂ by 2030) and gas prices remain volatile with significant increases in energy process costs, Glass Service Srl, the Italian leader in combustion sys-

tems for glass manufacturers, has signed an agreement for the supply of a new gas-oxygen combustion system for the working end.

ACCELERATING DECARBONIZATION FOR THE INDUSTRY

Following the success at last installations, Glass Service replicates the oxygen-gas technology with his customer for the 11-zone working end combustion system. Targets: -40 percent gas and CO₂, and +5 percent energy efficiency.

THE TECHNOLOGY AND ITS

BENEFITS

The custom-designed combustion system consists of:

- 1 main reduction skid for gas and oxygen
- 4 regulation skids for the working end zones (11 total), each equipped with a nitrogen (N₂) purge line for both gas and oxygen lines.

THE SYSTEM INTEGRATES

- Oxygen as a comburent (O₂) for cleaner, high-efficiency combustion.
- Dynamic control system for the 11 zones, regulating flows and mixtures in real time to reduce waste and emission peaks.

INNOVATION ALIGNED WITH FIT FOR 55

The shift from air combustion to oxygen combustion represents a technological leap because:

1. Eliminates nitrogen from the process (75 percent reduction in flue gas volume).
2. Reduces heat that gets lost in flue gases due to lower volumes from nitrogen elimination.
3. Shorter, more intense flames (+30 percent heat transfer).
4. Exceeds current BAT (Best



Pioneering a transformative leap in sustainable glass manufacturing with its advanced oxygen-gas combustion system, GLASS SERVICE ITALY is slashing fuel use and CO₂ emissions by 40 percent. Fully in synchrony with EU Green Deal goals, this innovation sets a new benchmark for decarbonisation in the hard-to-abate glass industry.

Available Techniques) limits with:

- Combustion efficiency >92 percent
- NO_x emissions <150 mg/Nm³
- Hydrogen compatibility (up to 30 percent blend without retrofitting).

“Using oxygen instead of air drastically reduces fossil fuel consumption, flue gas volumes, and heat dispersion, cutting NO_x and CO₂ emissions while improving the thermal stability of the working end.”

Oliver Bellina,
Glass Service

IMPLICATIONS FOR EU DECARBONIZATION

Each Std m³ of gas saved = 2Kg CO₂ avoided.

Full alignment with:

- EED (Energy Efficiency Directive)
- Tax credits for alternative fuels

CASE STUDY

The projects already concluded with success demonstrated:

- 22-month full ROI.
- 7 - 10 percent improved thermal stability.
- 40 percent NO_x reduction.
- 55 percent natural gas savings.
- sensible reduction in CO₂ emissions.



- Lower combined costs for fuel purchases and CO₂ quotas (ETS Directive).

2. Simple retrofit for transitioning to H₂ blends (up to 30 percent).
3. Immunity from future carbon taxes.

WHY THIS TECHNOLOGY MATTERS (CLASSIFIED AS HARD-TO-ABATE)

The Glass Service experience proves that oxy-fuel combustion is the most effective technical solution for the glass industry to achieve decarbonization, thanks to:

1. Dual benefit: Gas savings + carbon credits (Emission Trading System).

“After successfully optimizing consumption obtained in the early projects, we can now replicate and implement this solution as a Glass Service standard best practice.”
Fulvio Puccioni, Glass Service

glass
SERVICE

**GLASS SERVICE
ITALY**

Via Cascina Lari, 24
56028 San Miniato (PI) - Italy
glass-service@glassservice.it
www.glassservice.it