



# HY.REC PROCESS GAS RECOVERY SYSTEM

ECONOMICAL RECOVERY OF PROTECTIVE ATMOSPHERES

# ECONOMICAL RECOVERY OF HYDROGEN AND NITROGEN

HyGear offers a product line of recycling systems to recover nitrogen-hydrogen gas mixtures from the process. The Hy.REC can be installed in various industries like flat glass and metal production.

The economical viability of any industrial gas recycling system depends on the value of the recovered gas in relation to the energy consumption of the system. The Hy.REC systems are designed from a perspective of the lowest possible electricity consumption, which results in the highest economical rate of return.

The Hy.REC is designed to recover the mixed atmosphere from the tin bath in float glass production. With small changes, it can be tailored to other applications for the recovery of hydrogen-nitrogen gas mixtures as well. In order to be cost effective, HyGear has designed the system on low operating pressure to ensure low electricity consumption.

## Applications

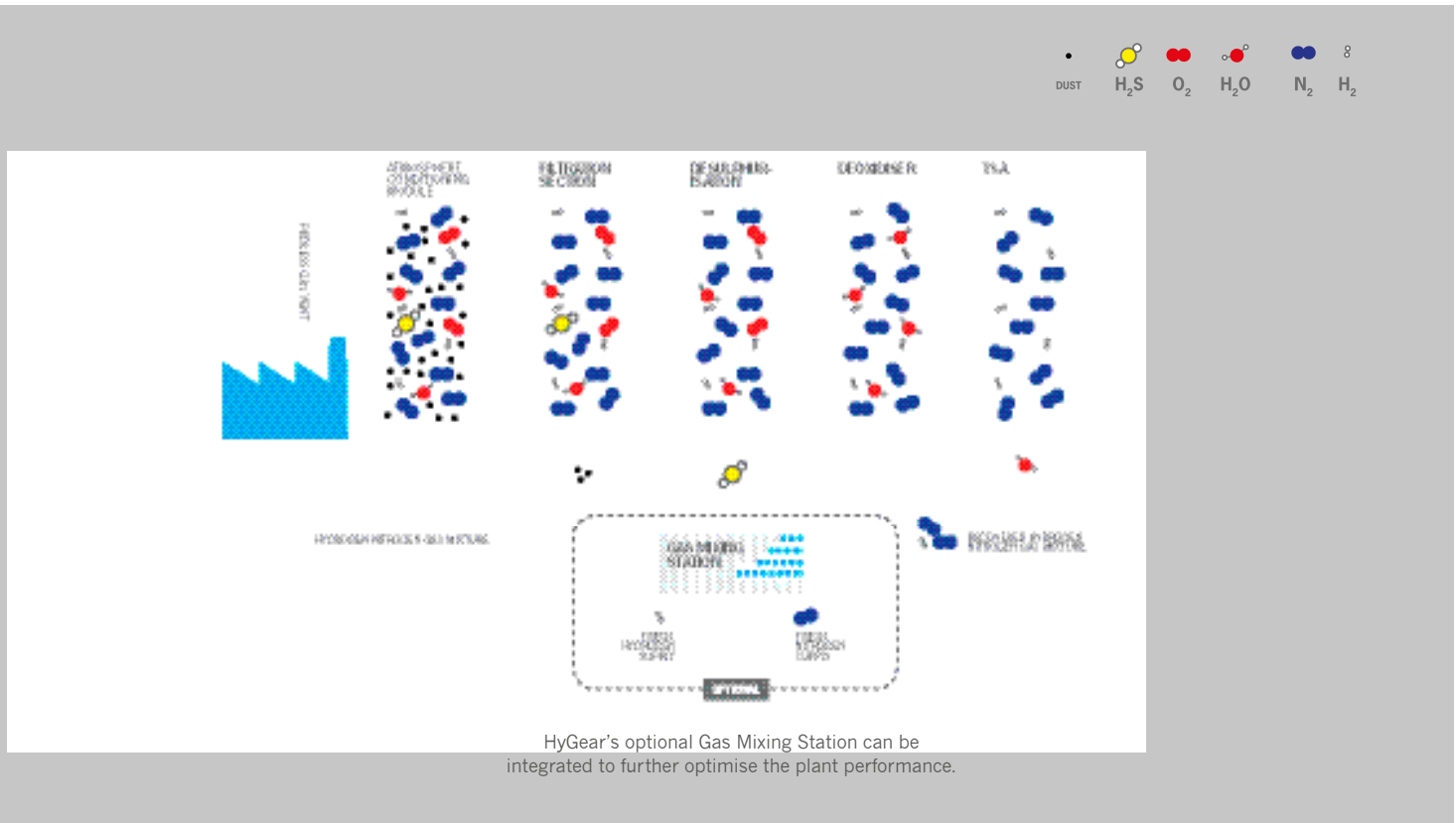
- Flat glass industry
- Metal industry
- Electronics industry
- Food industry
- Chemical industry



## KEY BENEFITS

- Significant cost reduction
- Increased atmosphere refreshment rate
- Improved product quality
- Reduced environmental impact
- Low electricity consumption
- Improved reliability of gas supply
- Integration with gas mixing station
- Autonomous and safe operation

# TECHNOLOGY



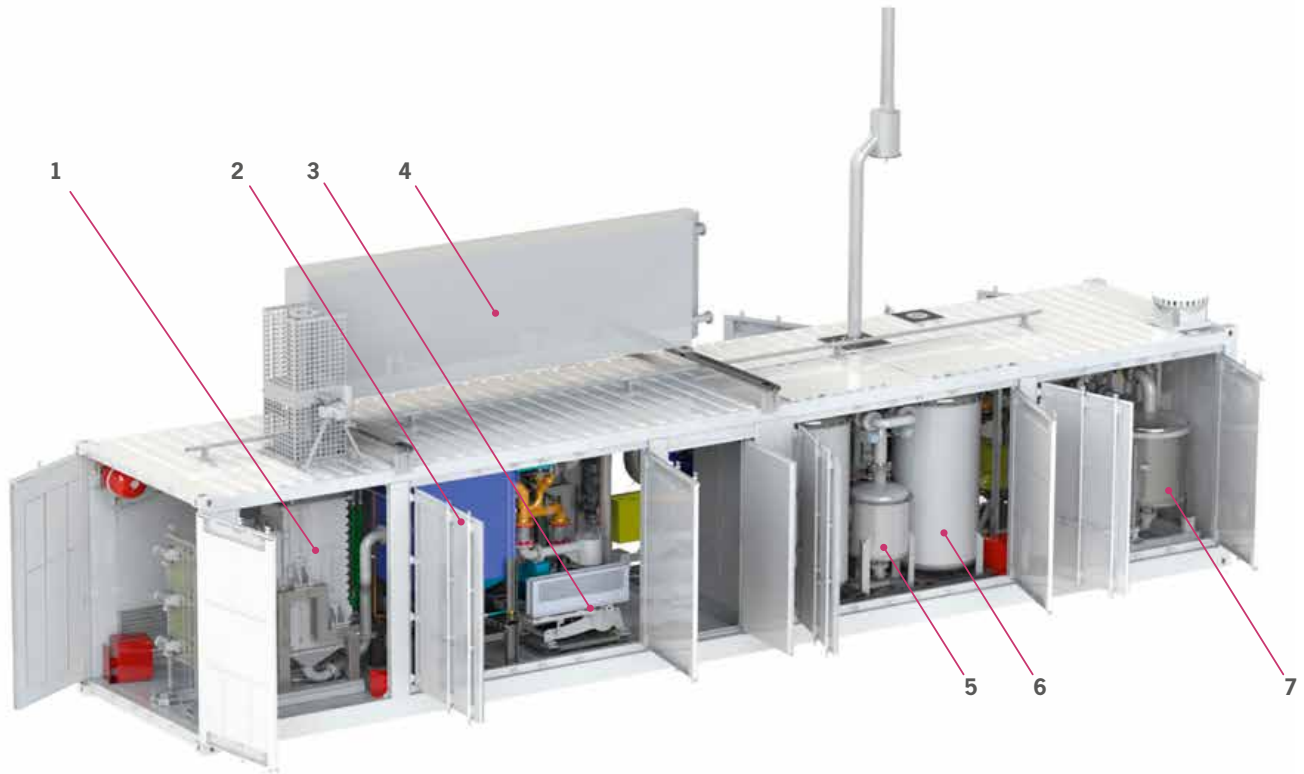
## Mixed atmosphere conditioning

Dust and contaminants complicate pre-processing steps, such as pressurisation and cooling. In the conditioning system advanced technologies are applied that minimise energy losses and safeguard long-term stable operation of the entire system.

## Ultra-low pressure drop TSA

Key part of the integrated post-treatment module is the advanced Temperature Swing Adsorption (TSA) with ultra-low pressure drop to further reduce operational expenses.

# WHAT'S INSIDE



1. Heat exchanger  
2. Dust filter

3. Main blower  
4. Dry cooler

5. Deoxidation unit  
6. Desulphurisation

7. TSA vessel

# SPECIFICATIONS

MODEL	Hy.REC
INPUT	
Flow	Up to 700 Nm <sup>3</sup> /h
Temperature	Up to 450 °C
Pressure	Atmospheric
OUTPUT	
Recovery	Min. 99%
Purity	1% - 10% H <sub>2</sub> in N <sub>2</sub>
Pressure	0.1 - 0.4 bar(g)
Temperature	Ambient
Dewpoint	< -58° C
Total impurities	Max. 5 ppmv
CONSUMPTION	
Nitrogen	< 10 Nm <sup>3</sup> /h
Cooling water	> 12 m <sup>3</sup> /h
Cooling water heat duty	140 kW
Instrument air	Max. 1 Nm <sup>3</sup> /h
Electricity	<38.5 kW
DIMENSIONS	
Size	40 ft
Weight	23,000 kg

All data and values are indicative and based on nominal and non-frost conditions.

Values might differ due to local circumstances and feedstock characteristics.

Normal conditions (Nm<sup>3</sup>) is defined at temperature of 0°C and pressure of 1.013 bar(a).

**IF YOU REQUIRE OTHER SPECIFICATIONS, CONTACT US  
TO ASSIST YOU WITH THE MOST OPTIMAL SOLUTION.**

# CONTACT US

## Netherlands

### FIND US

Westervoortsedijk 73 HG  
6827 AV Arnhem

### MAIL US

P.O. Box 5280  
6802 EG Arnhem

### CONTACT US

+31 88 9494 300  
[info@hygear.com](mailto:info@hygear.com)  
[www.hygear.com](http://www.hygear.com)

### SALES

+31 88 9494 308  
[sales@hygear.com](mailto:sales@hygear.com)

[www.hygear.com](http://www.hygear.com)

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