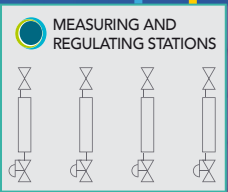
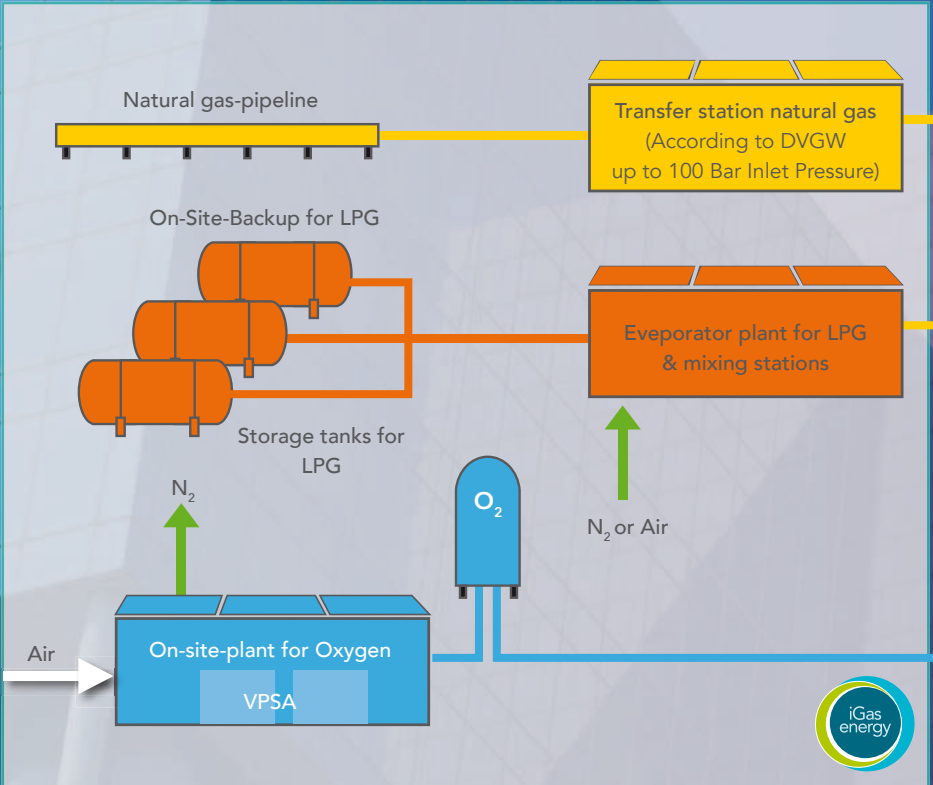
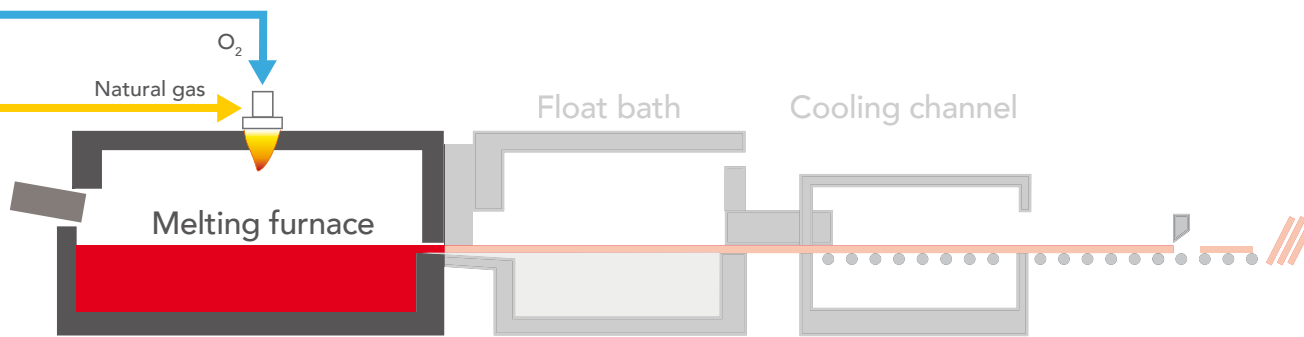


GAS SUPPLY SYSTEMS

for the flat glass industry







NATURAL GAS
LPG
OXYGEN

► MELTING FURNACE

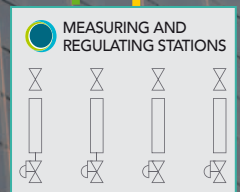
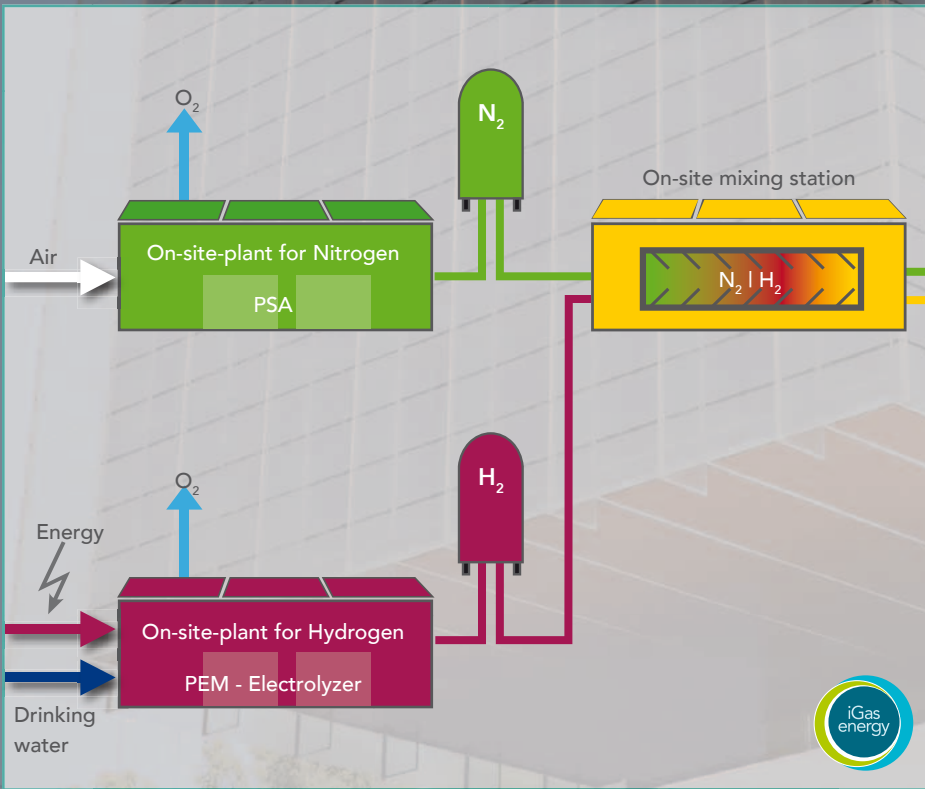
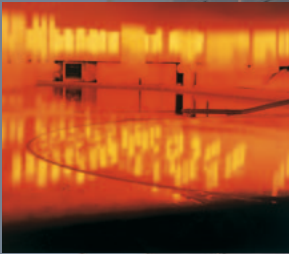
iGas energy delivers all-in solutions for gas supply to the furnace – covering the entire system from the transfer point of the supplier up to the metering lines. Customized pressure control and measuring plants, in turnkey state, ensure trouble-free natural gas supply to the process. According to the individual requirements, the gas pressure control systems are equipped with a gas filter and gas

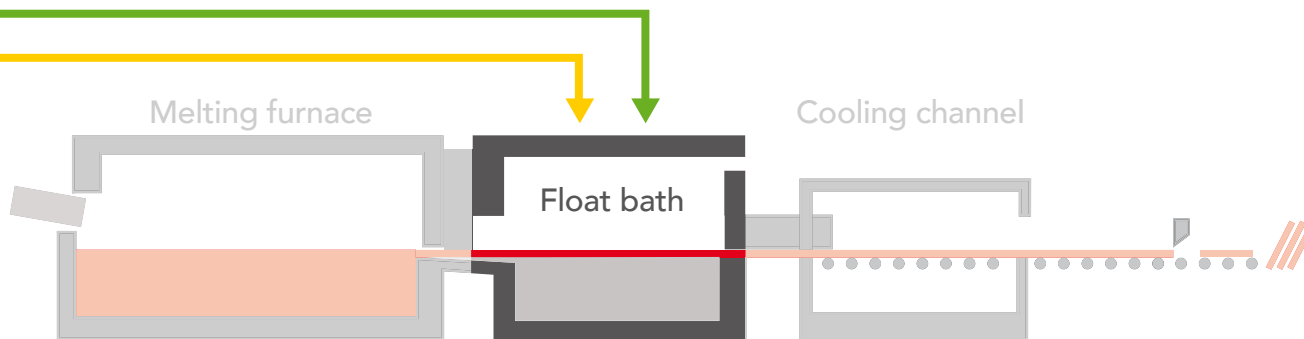
pre-heating and have a redundant design.

In order to reduce the gas consumption and thus to improve energy efficiency, VPSA plants are available, which increase the oxygen concentration in the air and reduce the nitrogen oxide formation at the same time. The nitrogen content in the exhaust gas of the VPSA can be purified in a sup-

plementary stage, and in purified state, can be used subsequently for the float bath itself.

A safe supply can be provided on the basis of liquefied natural gas. iGas energy solutions comprise the tanks, vaporization and mixing plants for LPG gas and air, thoroughly designed to achieve an outstanding energy efficiency.





► FLOATBATH

Nitrogen and Protective Gas

PSA plants are available to supply nitrogen and protective gas to the float bath. For supplying the float bath with nitrogen and protective gas, iGas energy supplies PSA systems that generate gaseous nitrogen or oxygen directly on site in the purity and quantity desired by the customer.

In connection with catalytic De-Oxo after cleaning, our nitrogen systems reach the purity required for the float bath.

Hydrogen

For the production of hydrogen, iGas energy uses on-site electrolyzers outfits, based on cascaded PEM Stacks, to be operated simply by current and drinking water.

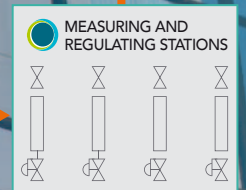
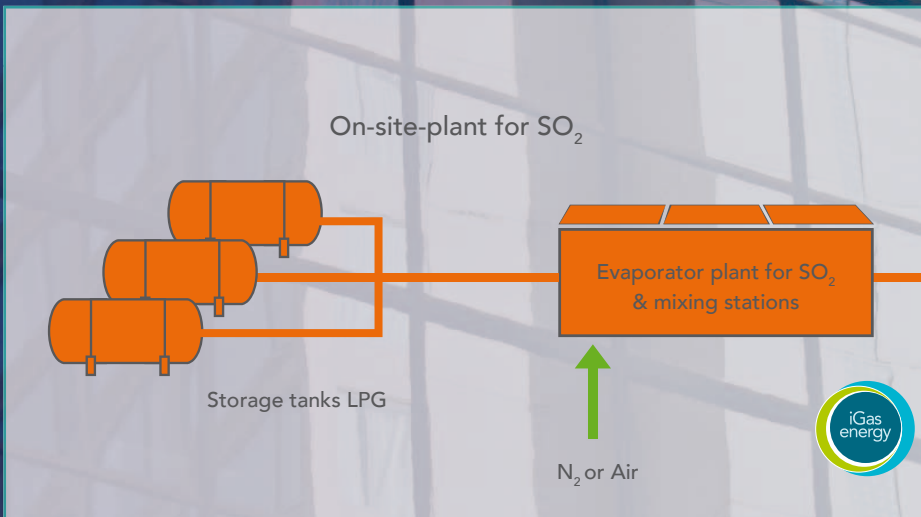
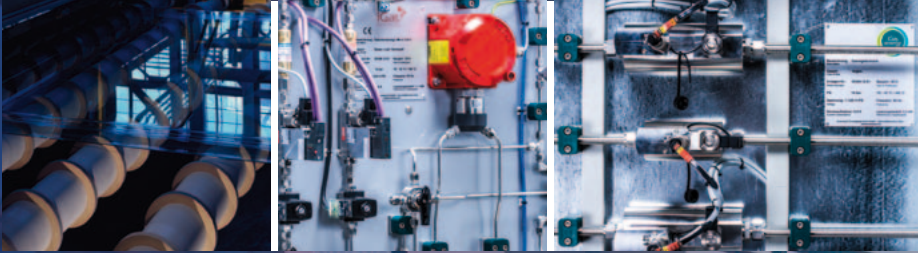
Their operation is not difficult at all, since neither commodities – like 30 % caustic potash solution – nor major maintenance procedures are required. The produced hydrogen disposes of a pressure of 40 bar and, after passing a further compression stage, can be stored in any quantity. The safety of these plants is guaranteed by physical separation of hydrogen and oxygen, in the form of a membrane.

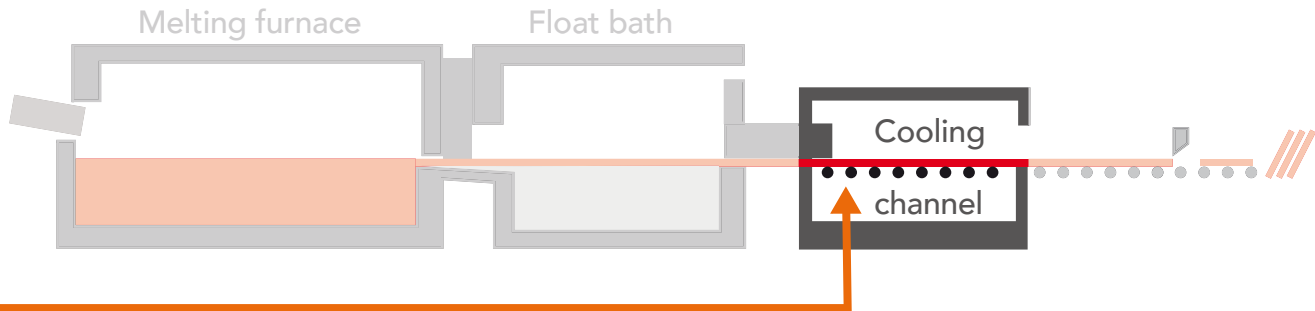
NITROGEN
HYDROGEN
PROTECTIVE GAS

Mixing Stations

Gas mixing plants from iGas energy ensure maximum safety, precision of the gas composition and maximum availability. Mixing stations for float glass production can be customized with respect to all relevant parameters: Pressure, volume flow and gas concentration. A major advantage of these configurations is the dynamic cascade proportion control, which ensures homogenous and stable mixing fractions in any operating point.

Delivered mixing stations are ready to operate, mounted in containers and completely inspected.





SULPHUR DIOXIDE

NITROGEN

SILAN

CARBON DIOXIDE

► COOLING CHANNEL

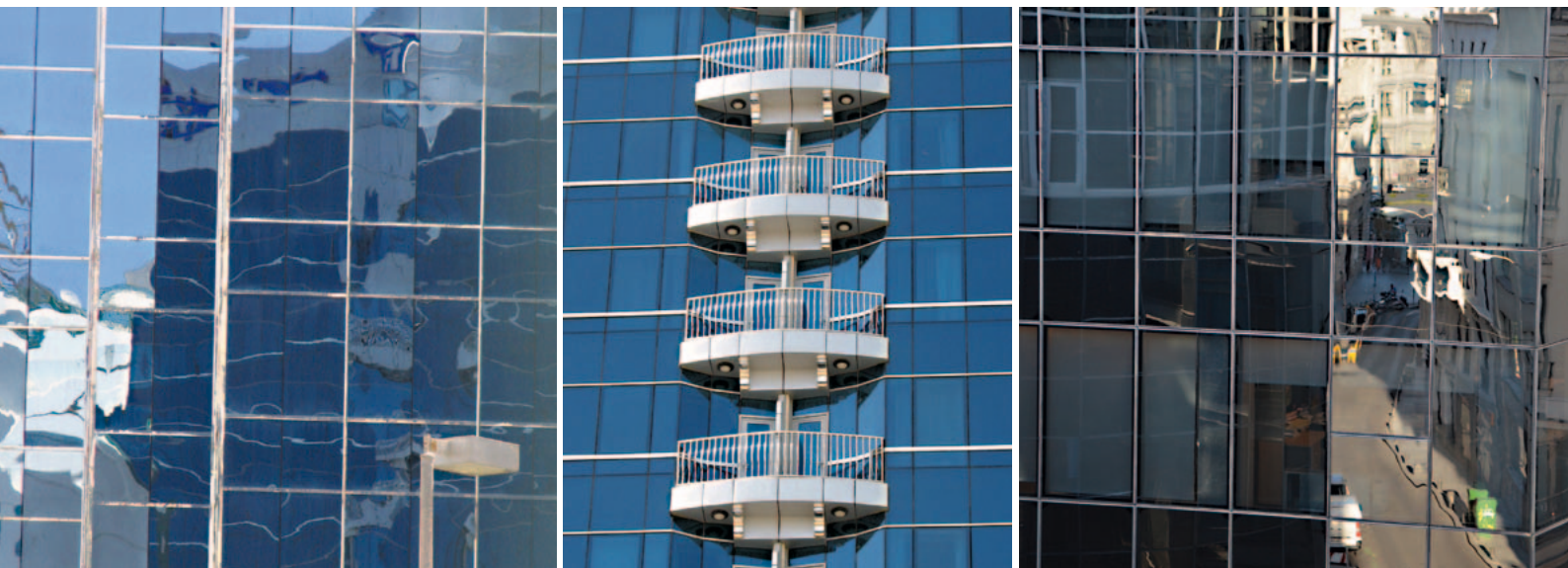
A complete solution is also available for sulphur dioxide supply, required for the first rolls of the cooling channel. After passing corresponding regulation of pressure and volume flow, the system feeds the substance to the tubes connected to the lances in the cooling furnace. Metering procedure is performed either manually by flowmeters and metering valves, or automatically by the process control.

The gaseous sulphur dioxide originates from the upper part of the store tank, which is heated electrically or alternatively by the exhaust air of the float glass plant (applicable for the entire storage room). Thus, the reserve containers are also heated to a medium temperature of more than 20 °C – an important aspect particularly for the winter time.

To ensure maximum safety, the entire equipment, e.g. pressure

regulators, valves, tubes and connecting elements consist of stainless steel. Gas losses are prevented by helium tight bellows-type valves and low-leaking fittings.

Equipment for glass finishing and coating is available as well: iGas energy delivers appropriate most accurate gas mixing and metering plants, usually required for reflector production.



iGas energy develops and produces plants around the topic "gases in industry". The profound experience of supplying gas for the thermoprocessing is based here. The company also uses this know-how in plants for production of hydrogen from renewable energies and the efficient recovery of valuable substances from organic waste products.

iGas is part of the SK Group. In collaboration with the group's sisters it exploits a wide range of synergies, for example in automation technology.

● Resource-saving circular economy

Complete recycling of valuable substances and energy from aqueous organic waste into material cycles.

● Hydrogen from renewables

Power-to-X plants for storage of renewables on the basis of energy conversion into hydrogen by high-pressure PEM-electrolysis.

● Innovative gas technology

Plant technology for supplying industrial processes with gases.



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