

# SORG

## Powering up to take emissions down



### LOOK FORWARD TO CLEANER GLASS ON A GREATER SCALE, WITH THE WORLD'S FIRST HYBRID FURNACE

It's crunch time for the glass industry. Renewable sources and sustainable processes are the only way forward if we're to turn the energy-intensive production of glass into an environmentally-friendly material of choice for the future.

Glass is 100 per cent recyclable, but the power required and emissions produced are creating

an almost impossible challenge for manufacturers worldwide. Especially when facing increasingly strict limits on air pollutants and emission trading, of which classical combustion technology is the enemy. And especially in light of the Paris Climate Accord, which demands a 60 per cent reduction in carbon emissions by 2030 and carbon neutrality by 2050. Compliance will be essential for staying competitive and ensuring future economic growth.

Many different innovations

have been considered to provide a sustainable energy supply, including electricity and alternative fuels such as hydrogen, oxygen and biodiesel. All are currently being trialled and tested, but in general these energies do not provide enough power and stability to operate a furnace and keep temperatures constant, to ensure the sustained high quality of the finished products.

### THE ALL-ELECTRIC VSM® FURNACE

SORG introduced the all-

Glass is 100 per cent recyclable, but the power required and emissions produced are creating an almost impossible challenge for manufacturers worldwide. Glassmakers now need to use sustainable energy to stay competitive and ensure future economic growth. SORG's response to this is the CLEAN Melter<sup>®</sup>, the result of a combination of extensive practical experiences in furnace design and proven mathematical modelling.

raw materials compared to fossil heated furnaces.

Besides electricity being more expensive than natural gas – up to now – in most parts of the world and therefore uneconomical for standard glasses, a lower melting capacity means that a single all-electric furnace might only supply one or two production machines.

### COMBINING THE BEST OF BOTH TECHNOLOGIES WITH THE CLEAN MELTER<sup>®</sup>

Having patented the world's first hybrid furnace to support larger applications and to overcome the limits mentioned above, we are getting much closer to safeguarding the future for everyone to benefit from carbon neutral energy.

The CLEAN Melter<sup>®</sup> is the result of a combination of extensive practical experiences in furnace design and the proven mathematical modelling carried out by SORG's inhouse experts.

With the best of both electric and combustion technologies, the CLEAN Melter<sup>®</sup> can increase its electric share to as much as 80 per cent, leaving 20 per cent fossil fuel to take over and recharge the electric capacity.

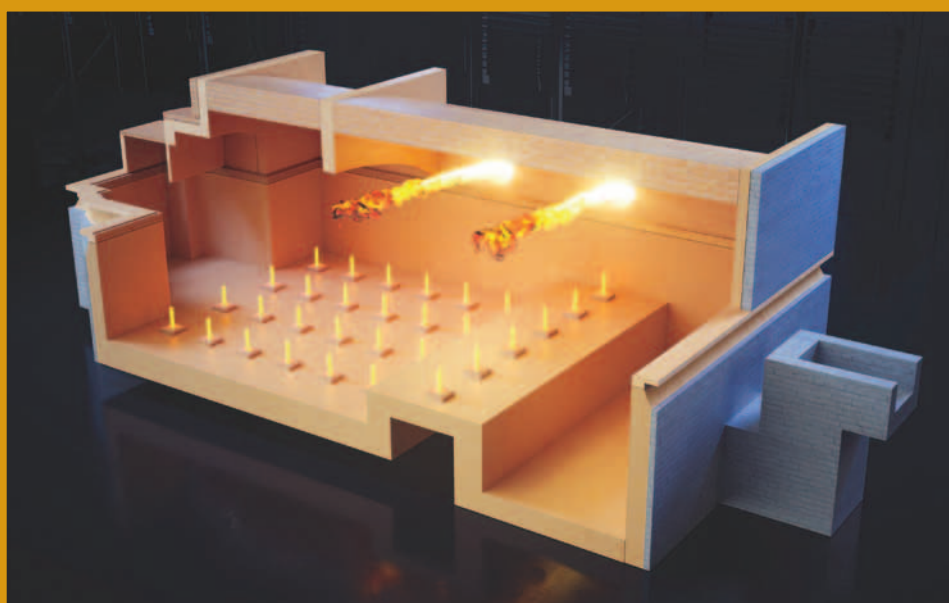
This results in much lower

a size limit of around 200 metric tonnes per day.

Reducing and neutral glasses are difficult to produce with all-electric furnaces today. Moreover, the all-electric furnace is more sensible regarding pull changes and variances in

electric VSM<sup>®</sup> furnace 50 years ago and has provided electric boosters for over 500 fossil-fired furnaces worldwide. Always thinking ahead and investing in cleaner technologies to tackle climate change, we continually aim to optimise productivity and reduce emissions.

Although it's better than fossil fuel, electric melting has certain limitations, such as in the possible meter size and pull. Requiring an even layer of batch to be spread across the whole surface of the melt, all-electric furnaces have



## HYBRID FURNACES



energy consumption and carbon emissions, while also offering huge cost savings and greater flexibility in terms of pull variations, raw materials and raw material changes – all without affecting glass quality. The furnace's refining shelf stabilizes the melting process, with the increased glass temperature above reducing viscosity and releasing all blisters on the surface. With decades of refining shelf experience, SORG knows that without it, the required quality of glass is not achievable.

Heated by air/gas firing or oxygen/gas firing, replacing gas with green hydrogen is also possible for zero carbon emissions. Better still, depending on locality, the CLEAN Melter® can even start as a conventional combus-

tion furnace with electric boosting and be converted later without any further modifications.

#### THE RIGHT TIME, THE RIGHT PARTNER

SORG has unrivalled knowledge of electric and hybrid melting, along with a vision to give the glass industry greater sustainability. And, says SORG, this technology is now in place, ready to make it a reality.

Supported by a 'Value by design' ethos, three combined companies deliver a unique range of products and services. With entire teams dedicated to electric and hybrid melting, SORG supports customers at every stage. From the supply and storage of raw materials through to conditioned glass and cullet return

systems, as well as expert maintenance and a dedicated after-sales service, the company's tailor-made sustainable solutions provide the lowest total cost of ownership.

The thinking behind this revolutionary hybrid concept is really simple – because both our own future and that of our planet depend on it. ■

**SORG** | VALUE  
BY  
DESIGN

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