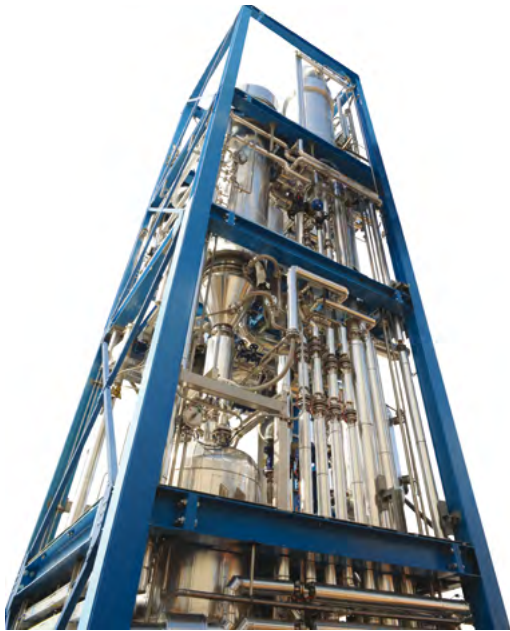




3V Tech is a leading provider of advanced  
**Process Solutions & Process Equipment**



Process Solutions

---



Process Equipment

---

## BRANDS

---

COGEM - MABO - GLASSCOAT - CONSITO

---

---

# Glasscoat

## Equipment, plants and components in Glass-lined steel



Glasscoat is the newest production unit of 3V Tech. A new, state of the art glass lining facility was established in 2008 in Noventa di Piave near Venice, Italy.

The staff at 3V Tech is a mix of engineers and technical specialists that have significant experience in the glass-lining industry. 3V Tech glass lining facility is equipped with customized software controlled electric furnaces. For every new vessel a specific firing program is developed and stored in our central data base. These customized firing programs allow us to exactly reproduce the same firing cycle for repeat jobs and optimize our vessel production to achieve optimum repeatability and prime glass quality. The plant also maintains a well-equipped lab that supports current production and develops new, advanced glass types.

Our primary glass is G2208 has a number of superior characteristics. In addition to its excellent corrosion resistance to acidic process environments, it is distinguished by higher thermal shock resistance and smoother surface finish than other glasses. The G2208 glass is available in: dark blue, light blue and white. The corrosion resistance for all three colors is the same.



Since 2008, Glasscoat has developed two new glass formulations suited for several different applications :

**Phi Glass** is a new formula that improves the limited heat transfer properties of the glass commonly used in the chemical industry and improves heat transfer rates across the glass interface. The glass was developed by the study of the behavior of ceramic particles in hot and cold conditions. Phi Glass is a hybrid glass that includes a percentage of ceramic particles which impart enhanced heat transfer capacity to the glass. This glass is available in light blue color and is the first of its type that has been introduced in the glass lining industry.

**SIGMA Glass** is not the first of its type but it is innovative in the sense that it advances the concept of electrically conductive glass. This glass offers an enhanced electric conductivity through all layers of its lining, from the ground coat up to its last layer, thus making an electrical connection between the process fluid and the substrate. Since the introduction of SIGMA glass to the market it has become the glass preferred by the major manufacturers in central Europe and in Asia.

# Glasscoat

Glasscoat uses a unique application technology that creates a glass with a smoother surface and finer bubble structure resulting in lower air content. The lining consists of several layers applied and fired at temperatures in excess of 800 °C. The unique dust/liquid application technology allows Glasscoat to achieve the final thickness with fewer layers and trapping less air into the glass matrix. The result is a glass with a micro bubble structure and better dielectric properties. As proof we test all vessels to at least a Glasscoat standard of 30.000V - 10.000V to 15.000V Vhigher than the voltage used by other manufacturers in the mar-



GLASSCOAT CUSTOM REACTORS

Glasscoat engineers are familiar with European, American and Chinese pressure vessels codes, cGMP, Explosion Protection standards (ATEX, NEC and NEMA) and are familiar with the often higher technical standards of the major European customer accounts and their counterparts in the rest of the world.

**Glasscoat's product portfolio covers the full range of chemical synthesis from reaction to distillation to separation and drying.**

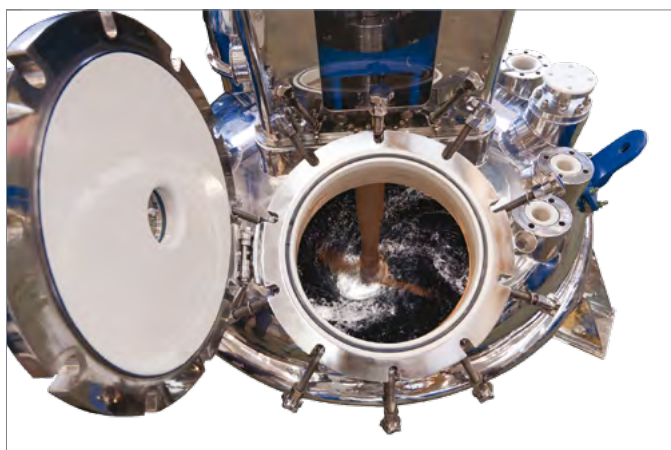
The production of glass lined process equipment is Glasscoat's speciality as it is part of 3V Tech and can therefore rely on the more than 40 years of experience in producing process equipment for the Chemical Synthesis and the Pharmaceutical industries. The cGMP design, clean room suitable and high containment equipment that has been a hallmark of Cogeim designs is also available as reaction equipment from Glasscoat.



# Glasscoat

Glasscoat produces glass-lined pressure vessels according to the DIN and BN standards and according to ASME Code. Standard vessels, such as jacketed and agitated reactors, storage tanks, receivers, columns, pipes, and vessel accessories are all part of our standard product line.

As one of the world's leading specialists in glass-lining, Glasscoat also manufactures high pressure vessels such as hydrogenators as well as very specialized glass-lined equipment such as thin film evaporators, condensers, falling film evaporators, double cone dryers and blenders, nutsche filters, separation columns, vapor lines, jacketed piping, phase separators and very complex geometries like large helices. With our expertise in glassing, Glasscoat is willing and able to glass-line geometries that other companies will not even attempt.



3V PHARMA REACTOR

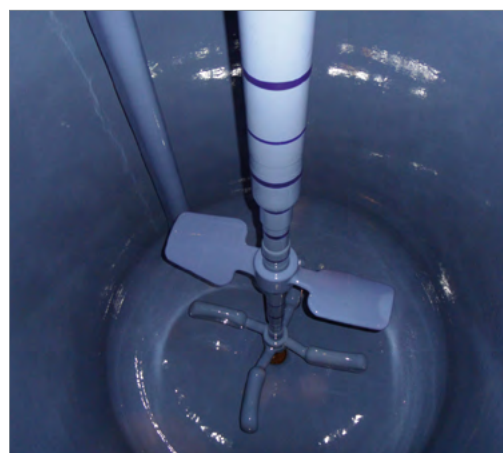


BICONICAL DRYER-BLENDER

Glasscoat reactors can be equipped with conventional one-piece agitators or our 3V Press-Lock Agitation System mixing technology. 3V Press-Lock agitators are specially designed for better mass transfer, heat transfer and gas dispersion. We can design mixers for very specific applications and optimize mixing solutions for multipurpose chemical synthesis, covering a wide spectrum of process conditions.



BE TYPE REACTOR



3V PRESS-LOCK

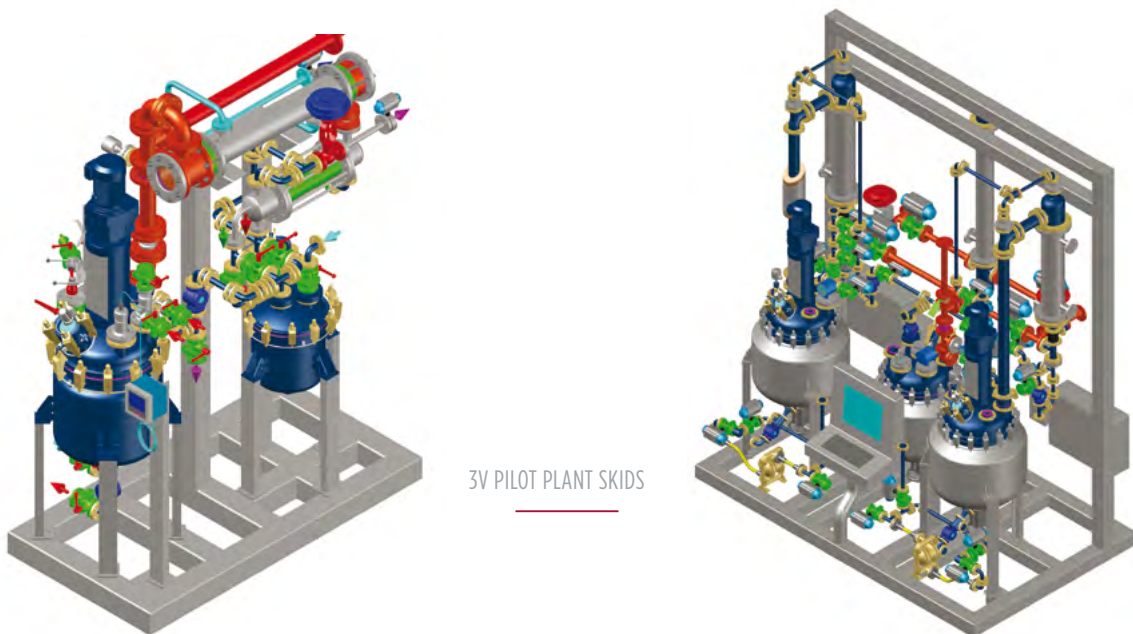


# Glasscoat

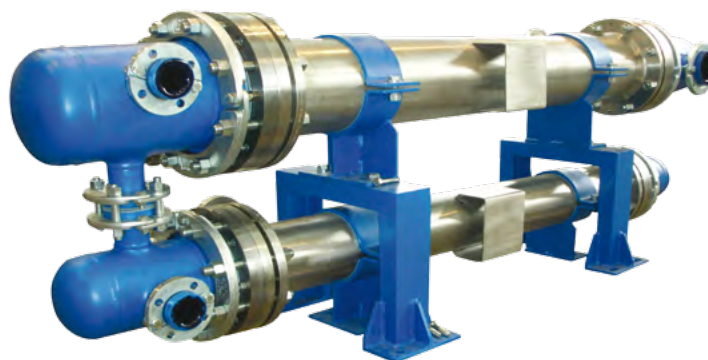
3V Tech Process Solutions division supports the Glasscoat, Cogeim and Mabo engineers in the design and selection of the optimal solution for each customer's specific requirements.

Instead of just offering individual pieces of equipment, the 3V Tech Process Solutions approach is to leverage our full spectrum of capabilities to offer complete packaged solutions for process equipment for reaction, evaporation, thermal separation, solid-liquid separation and rectification.

3V Tech Process Solutions creates complete, skid mounted systems with full PLC, instrumentation, valves, fittings and other components in conjunction with the best combination of equipment from the Glasscoat, Cogeim and Mabo product lines in most construction materials. In this way 3V Tech can create a customized solution tailored to the individual needs of each customer.



3V PILOT PLANT SKIDS



SHELL AND TUBE HEAT EXCHANGERS  
SF WITH TUBES IN SIC

Glasscoat also offers Vessel Re-glassing

# Aftermarket

## Our Field Service Engineers are ready to assist you

Our field service team is composed of experienced engineers and supported by a skilled back office team. We are strategically located in Italy, the UK, USA and China. Each engineer is equipped with parts, tools and the necessary safety equipment to be able to carry out his service requirements.

All technicians are fully trained to be able to comply with both local and international safety law requirements. Our team can carry out service and repair on our own equipment as well as on competitive equipment.



### Our team is available to support customers for :

#### Installation Supervision, Commissioning, Start up & Validation

After the equipment has been delivered our service team is ready to supervise the installation, carry out the Site Acceptance Test (SAT), start up the equipment and, if required, validate its performance.



#### Customer Training

To make sure the equipment runs appropriately and to provide day by day maintenance we are available to train customers with a mix of practical and theoretical training sessions.



#### After Sales Assistance

At 3V Tech we know that equipment reliability during its entire lifecycle is of the utmost importance. Therefore we provide all our clients with a list of critical parts that our customers should keep in their storage, in order to perform a quick replacement in case of breakdown, minimizing unnecessary production downtime. If parts are not available at customer site, 3V Tech spare parts department will respond quickly to your queries.

# Aftermarket

## Preventive Maintenance

Proper equipment operation and maintenance ensures optimal equipment performance and reduces the risk of downtime. This leads to longer equipment service life, lower costs of ownership and greater profitability. We start with a general assessment of the installed equipment and then offer different levels of service based on the need.

## Equipment Assessment & Refurbishments

With spark test, thickness mapping and mechanical inspection we can provide an assessment of the equipment status and propose refurbishments to maintain your glass-lined equipment performing at best.

## Retrofits & Upgrades to Improve Performance

Together with our technical department we can offer retrofits and upgrades to help customers improve equipment performance. This activity can be carried out on site or at one of our specialized manufacturing facilities

## Re-Glassing

In case Customer needs to re-glass a part or a complete reactor or vessel, this can be done in our specialized workshop.

## Equipment Re-Certification

In case of need to change process design or of installation in a new plant, with the support of our Technical and Quality Department, we can support customers during the re-certification (PED, ATEX etc.) process of the equipment.

## Quality Spare Parts Delivery & Field Service

During the equipment life, to ensure continuous process performance, our Back Office Team is available to provide a complete list of spares and our Field Service Team is available to carry out intervention for preventive maintenance to reduce the risk of unplanned shut down. Our Field Service Team is available for interventions and repairs of mechanical components and special repairs on glass lined reactors with Tantalum, PTFE or Hastelloy plugs, patches or sleeves.





**3V Tech** s.p.A

---

Piazza Della Libertà 10 • 24121 Bergamo, Italy  
Tel +39 035 0761 311 • Fax +39 035 236 461  
Info@3v-tech.com • www.3v-tech.com