

Allow customers to, confidently and smoothly, handle media in harshest conditions of corrosion, fouling, temperature and pressure.

Allow customers to push forward the efficiency and cost effectiveness of their chemical processes.

- **PROCESS SYSTEMS**
- **GRAPHITE & SiC HEAT-EXCHANGERS**
- **ANTI CORROSION EQUIPMENT FOR CHEMICAL PROCESSES INDUSTRIES**



Graphite Technology

The Graphite Experts Company

www.graphite-technology.com

Welcome to Graphite Technology world

Our Mission

With their years of experience, which our employees have gained in several companies in the graphite industry, and their knowhow in engineering, construction, manufacturing and service, our aim is to offer and supply to you perfect process systems, equipment and components made of graphite and silicon carbide. And we do that at a very competitive price without compromising quality nor reliability.

Christian HUG

Chemicals & Polymers Specialty

CEO

20 years experience in research and fabrication of graphite equipment
Founder of Graphite Technology.



Our Company

Graphite Technology – a synonym for innovative solutions using graphite components for the chemical and pharmaceutical industries. You can rely on graphite and SiC, and you can rely on the specialists of Graphite Technology – The Graphite Experts Company!

Since years specialists at GRAPHITE TECHNOLOGY have developed and constructed graphite components with a high resistance to corrosion. Our engineering team performs not only process design for heat exchangers, but also stress/mechanical calculations for the equipment which comply with worldwide standards.

Most modern installations for the 2 most important steps of production : blocks deep hole drilling and impregnation

A Western management working for years in the graphite business with experienced workforce staff.

Silicon carbide Hexoloy® SE

Hexoloy® SE SiC offers an excellent alternative materials to metals, super-alloys for very corrosive applications where graphite has limitation.

Main properties are ;

- Extreme hardness
- High strength
- Virtual universal corrosion resistance
- High temperature stability
- High thermal conductivity
- High thermal shock resistance
- FDA approval



- Hexoloy® SE SiC is produced by pressureless sintering of submicron silicon carbide powder in a proprietary extruding process of Saint Gobain Ceramics. It is completely impervious without any use of any impregnants which can be an advantage for high purity applications.

Typical applications using...

- Nitric acid ($\text{HNO}_3 > 15\%$)
- Sulfuric acid ($\text{H}_2\text{SO}_4 > 85\%$)
- Bromine and chlorine compounds
- Very oxidative media

Hexoloy® is a trademark of Saint Gobain Ceramics.
www.hexoloy.com

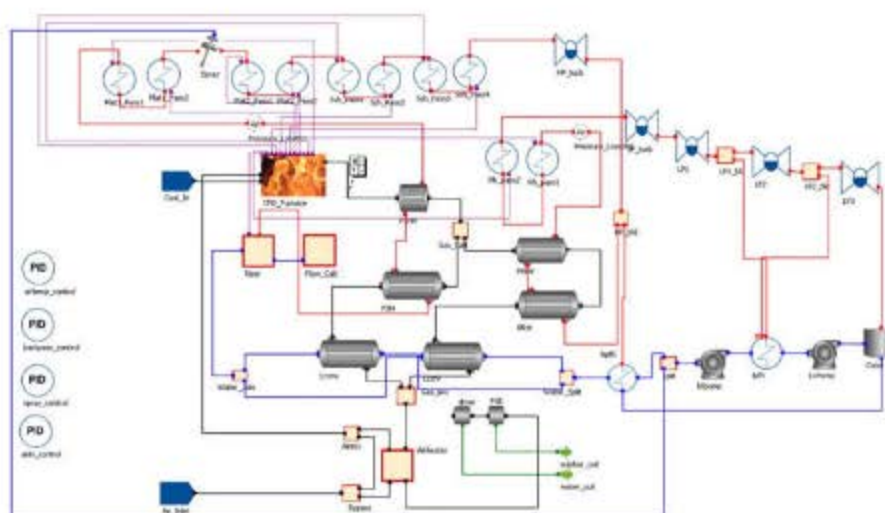


Process systems

Graphite Technology design and manufacture process systems for the following applications ;

- Waste water and gas treatment
- Concentration, crystallization by evaporation with hydrochloric acid, sulfuric acid, or phosphoric acid.
- Separation and purification of corrosive chemical products.
- Sulfuric acid dilution
- Vacuum steam jet technology

Our graphite equipment associated with technologies like MVR, TVR reduce greatly the operating costs thanks to energy saving and minimized capital costs.



Graphite Round Blocks Heat Exchangers

Heat exchangers are made of stack of graphite blocks assembled with PTFE gaskets.

The blocks are drilled in a row pattern and the heat is transferred through the graphite material.

The corrosive medium flows through the axial process holes.

The service medium passes through the horizontal blocks holes due to a metal baffle cage construction.

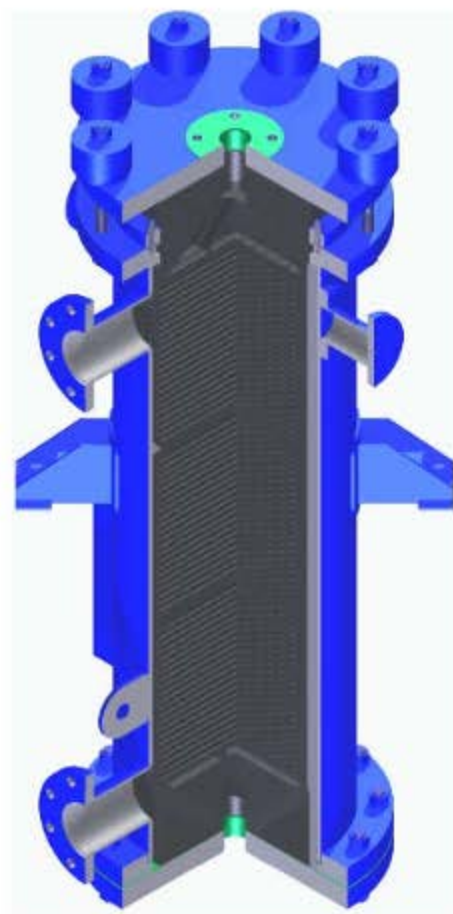
The complete unit is maintained under compression with unique proprietary springs system.

Can replace equipment made of high nickel alloys, SS316 at advantageous cost.

Advantages of our blocks type equipment

- Compactness
- Modular construction
- Fast assembly / disassembly
- Standardize d spare parts.
- Possibility to use corrosive media on both side with a protective coating/lining on shell side.
- Outstanding corrosion resistance.
- SHOCK PROTECT® design of blocks against water / steam hammering
- STABLE LOAD® design of compression spring against stress fatigue

Consult our marketing brochure "Graphite blocks heat exchangers" for more information



Graphite Shell & Tubes Heat Exchangers

Heat exchangers are made of graphite tubes cemented between 2 graphite tubesheets.

The bundle is introduced in a metal or FRP shell.

The corrosive medium flows in tube side.

The service medium passes in shell side through baffle made of graphite, metal or plastic.

The complete unit is maintained under compression with our unique proprietary springs system STABLE LOAD®.

2 types of tubes proposed.

Our tubes GT-A are adapted to high fouling process. With special surface properties, the fouling process is reduced allowing extended time between cleaning period. For application like phosphoric acid for fertilizer production, this tube bring lower operation cost at much competitive cost.

Our tubes GT-B for higher corrosion and temperature resistance.



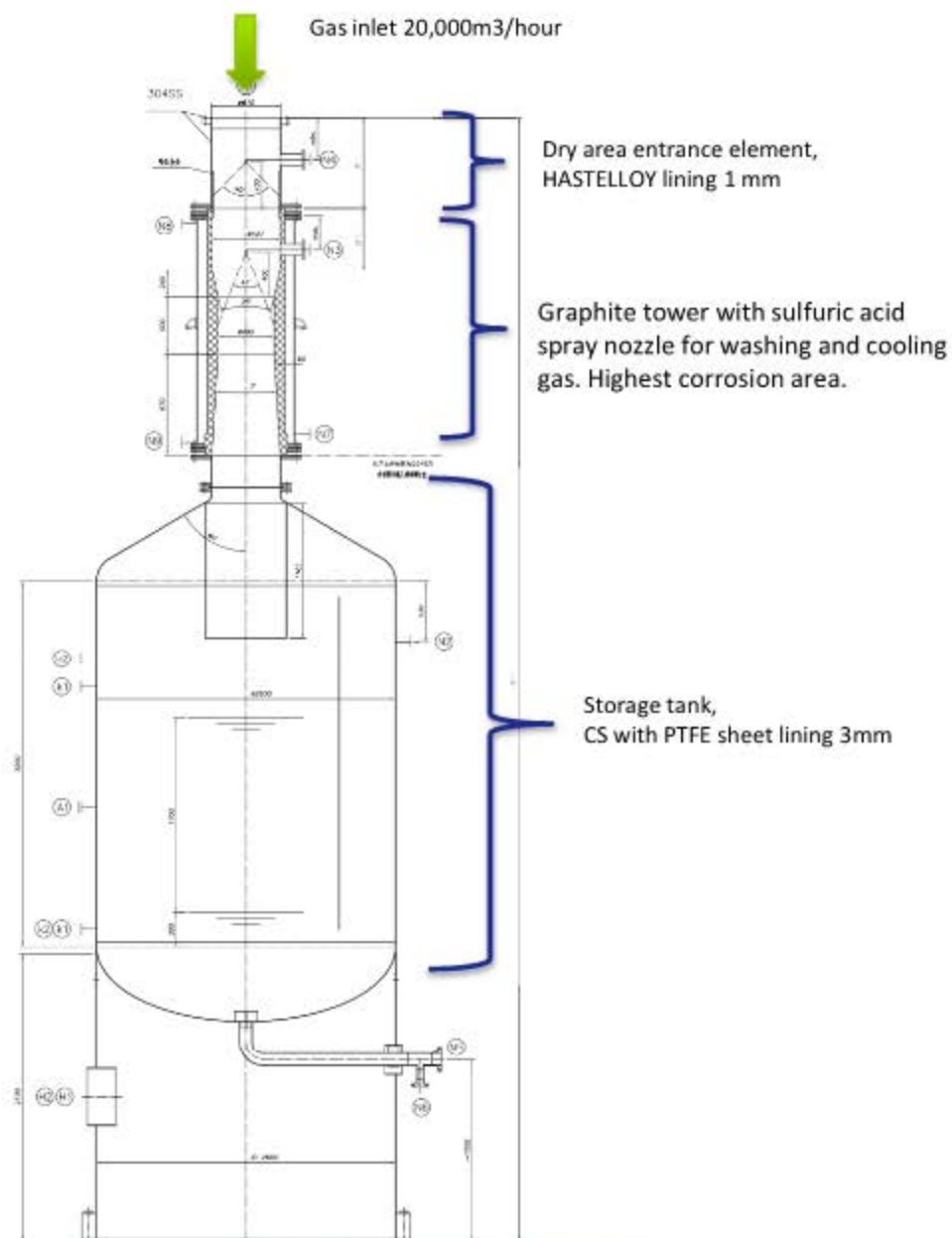
Advantages of our graphite tubes type equipment

- Big heat transfer area available.
- High process/service section for big flow (9,000 m³/h).
- Gaskets limited at tubesheet location.
- Outstanding corrosion resistance.
- STABLE LOAD® design of compression spring against stress fatigue.
- Erosion reinforcement as an option.
- Tubes are available with carbon fiber reinforcement for application with high vibrations and mechanical stress.
- Gasketed baffle on service side for cooler.

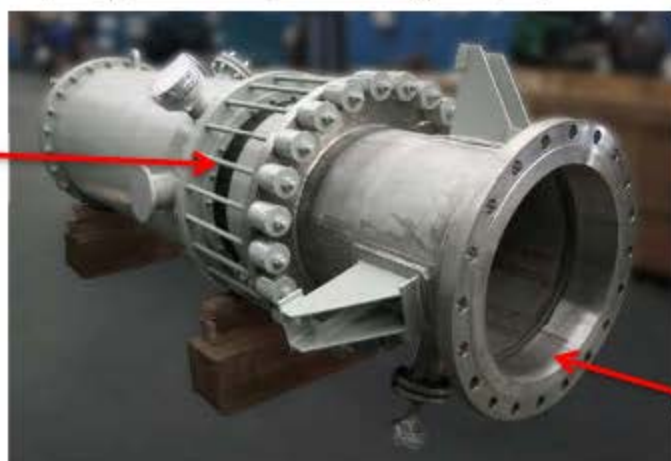


Graphite scrubber tower

Example ; hot gas with SO_x from an incinerator, 300°C with peak at 400°C

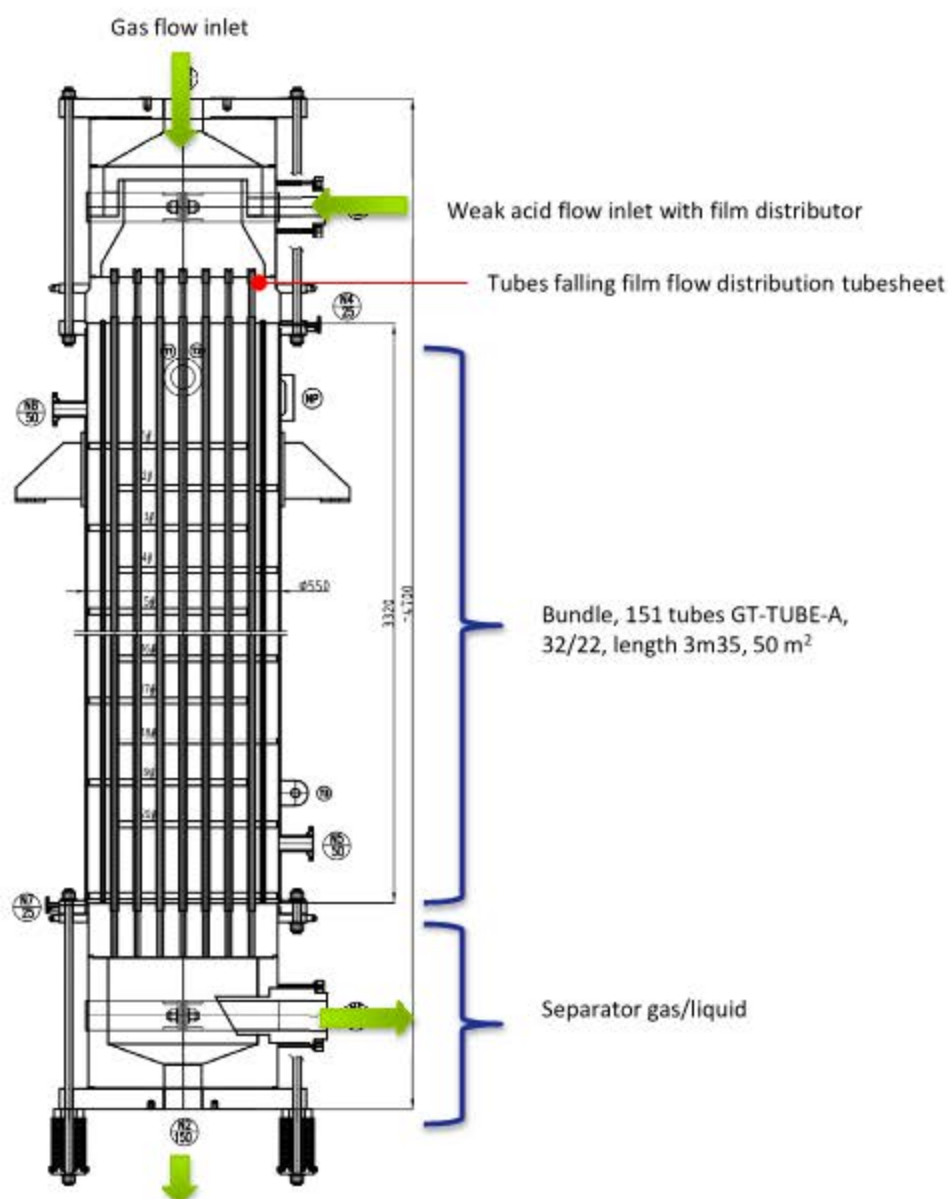


Graphite column with cooling water jacket shell.
Top graphite element in GT-CARB for higher temperature resistance.



Top metal element with HASTELLOY lining

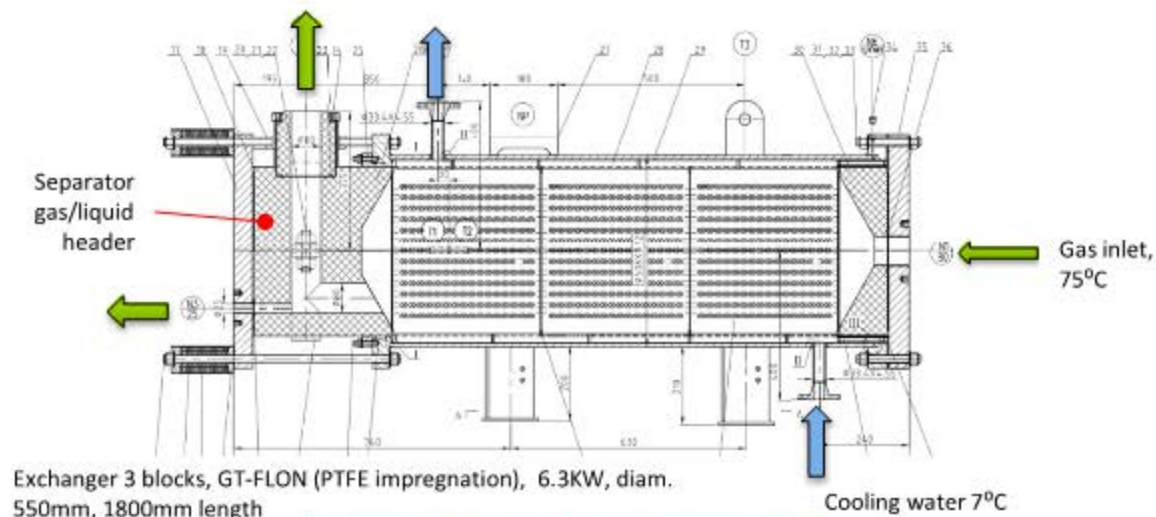
Graphite falling film absorber



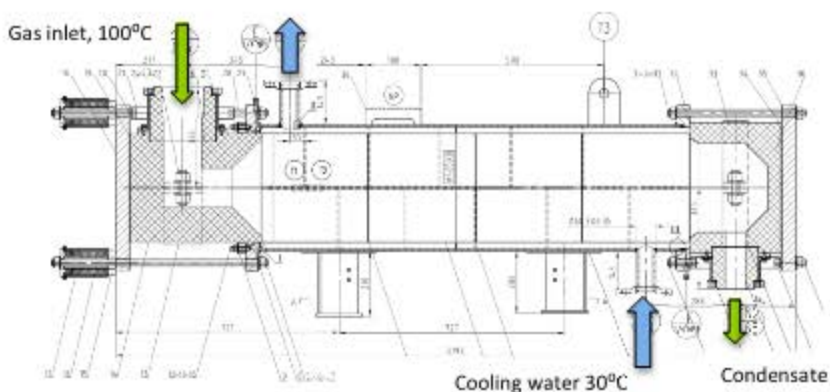
Set of waste gas treatment absorbers in GT KELITE and GT-FLON

Graphite condenser

Case #1 : replacement of equipment in SS 316, corrosion issue. Media with few % hydrochloric acid.



Case #2 : replacement of glass tubes condenser and sub cooler for pharmaceutical application. Multipurpose medias (use of thionyl chloride (SOCl2), phenolic impregnated graphite with corrosion issue).



Proposal exchanger 4 blocks , GT-FLON (PTFE impregnation), 250KW, diam. 400mm, 2200mm length.





Graphite Technology

Graphite column & internals

Distributor plates for Tantalum, graphite and glass lined tower



Distributors for MCA application



Graphite GT-KELITE tower

Packing support grids for Tantalum and glass lined tower

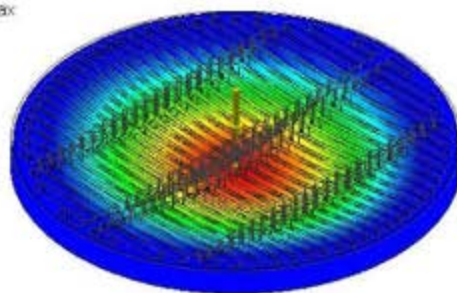


Graphite GT-KELITE grids for 5 tons packing load



Displacement

Type: Displacement
Unit: mm
05/09/2012, 14:03:32
0.1137 Max
0.091
0.0682
0.0455
0.0227
0 Min





GT-FIN : gas heaters/coolers



GT-JET : ejector mixers and jet vacuum technologies



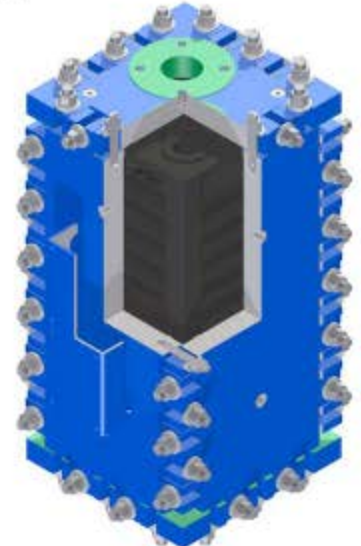
GT-PLATE : plates and frame heat exchangers

- From 1 to 50m²
- Up to 260 °C, 10 barg



GT-BATH : immersed heaters/coolers

- From 1 to 10m²
- Up to 180 °C, 10 barg



GT-CUBIC : cubical block heat exchangers

- From 1 to 50m²
- Up to 500 °C, 15 barg



GT-DISC : discs and frame heat exchangers

- From 1 to 100m²
- Up to 260 °C, 10 barg



GT-PF : pipings and fittings

- Up to 500°C and 10 barg
- Custom design & lab scale



GT-CP : special equipment for chemical reactions

- Up to 500°C and 6 barg
- Custom design & lab scale

Graphite / SiC Equipments

Main applications = cooler, condenser, evaporator, heater

Industry	Product	Equipment / spare parts
Agrochemical & Heavy Chemical	Caustic soda, Hydrochloric acid, Sulphuric acid, Hydrofluoric acid, Phosphoric acid, Ammonium sulphate...	Brine heater, Chlorine gas cooler, Hydrochloric acid synthesis furnace, SO ₂ gas cooler, Acid cooler of super phosphate of lime, Sulphuric acid dilution plant, Acid heater, Absorber, Cooler, Evaporator
Electrolytic refining & Mining and pickling of metals	Copper, Lead, Tin, Zinc, Carbon steel, Stainless steel with Nitric acid, hydrofluoric acid, hydrochloric acid...	Heater, Cooler, Evaporator, Tank
Fine Chemical & Pharmaceuticals	Medicines, Insecticides, Dyestuffs, Plasticizer, Detergents, Cosmetics, Chlorinated Paraffin, ..	Evaporator, Condenser, Heater, Cooler, Distiller, Mixer, Pump, Ejector, Hydrochloric (HCl) gas scrubber
Food	Sodium glutamate, Amino acid, Fatty acids...	Evaporator, Heater, Cooler, Condensers
Petrochemical Industry	Acrylonitrile, Propylene, PVC, Perchloroethylene, Propylene oxide, Styrene, Toluene, Synthetic rubber, Methylene chloride, Acetone, Ethylene dichloride, Phenol...	Anhydrous hydrogen chloride plant, Heat Exchangers, Hydrochloric gas absorbers & scrubbers, Reactors, Condensers, Heat Recovery
Synthetic Fibers	Vinyl chloride, Vinyl acetate, Viscose rayon, Nylon...	Anhydrous hydrogen chloride plant, Condenser, Cooler, Heater, Spin bath heater, Evaporator
Photovoltaic	Solar cells	Hydrochloric acid synthesis furnace

After-Sales Service

- Start-up & Operating assistance
- Dedicated maintenance during lifetime of your units
- Quick support - Field Service - Spare-Parts available

We can replace and repair your existing graphite parts (cubic, blocks, shell and tubes) at competitive price and high quality.

Customer Focused – Consultant Service

We develop individual solutions in close collaboration with you.

With our many years of experience, we are able to optimize your project in terms of materials selection and design.

Most of the time we are able to propose alternative optimized solution, with limited or even without piping modification.





Graphite Technology

Customers choosing our solutions

CABB BASF AURUBIS
AKZO NOBEL ICL
TISCO APERAM ANDRITZ
LISCO SOLVAY BOREALIS
POSCO ELKEM ENDURA
SMS PRAYON BOLIDEN
BAOSTEEL ARKEMA
DANIELI HONEYWELL
ACERINOX VERSALIS
SYNGENTA CABOT
FORMOSA PLASTICS KCC
CHANGCHUN PLASTICS

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Contact us to identify our distributor close to you



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