



SGUASSERO
RTR AND THERMOPLASTICS MANUFACTURING

Innovation within Tradition





The Company

NSguassero is a leader designer, manufacturer and supplier of high performance anti-corrosive pipe systems for Oil&Gas, Petrochemical, Power Generation, Desalination, Marine and Civil Industries. The Company was founded in 1956 and since then has evolved into a worldwide provider of composite

thermosetting pipe solutions and technologies for most severe applications.

NSguassero is fully committed to promote glass reinforced plastics-GRP as a strong substitute to pipe systems fabricated with traditional materials.

The Factory

NSguassero headquarters and manufacturing plant are located in S. Giorgio di Nogaro industrial area, covering a surface of 16.000 sqm.

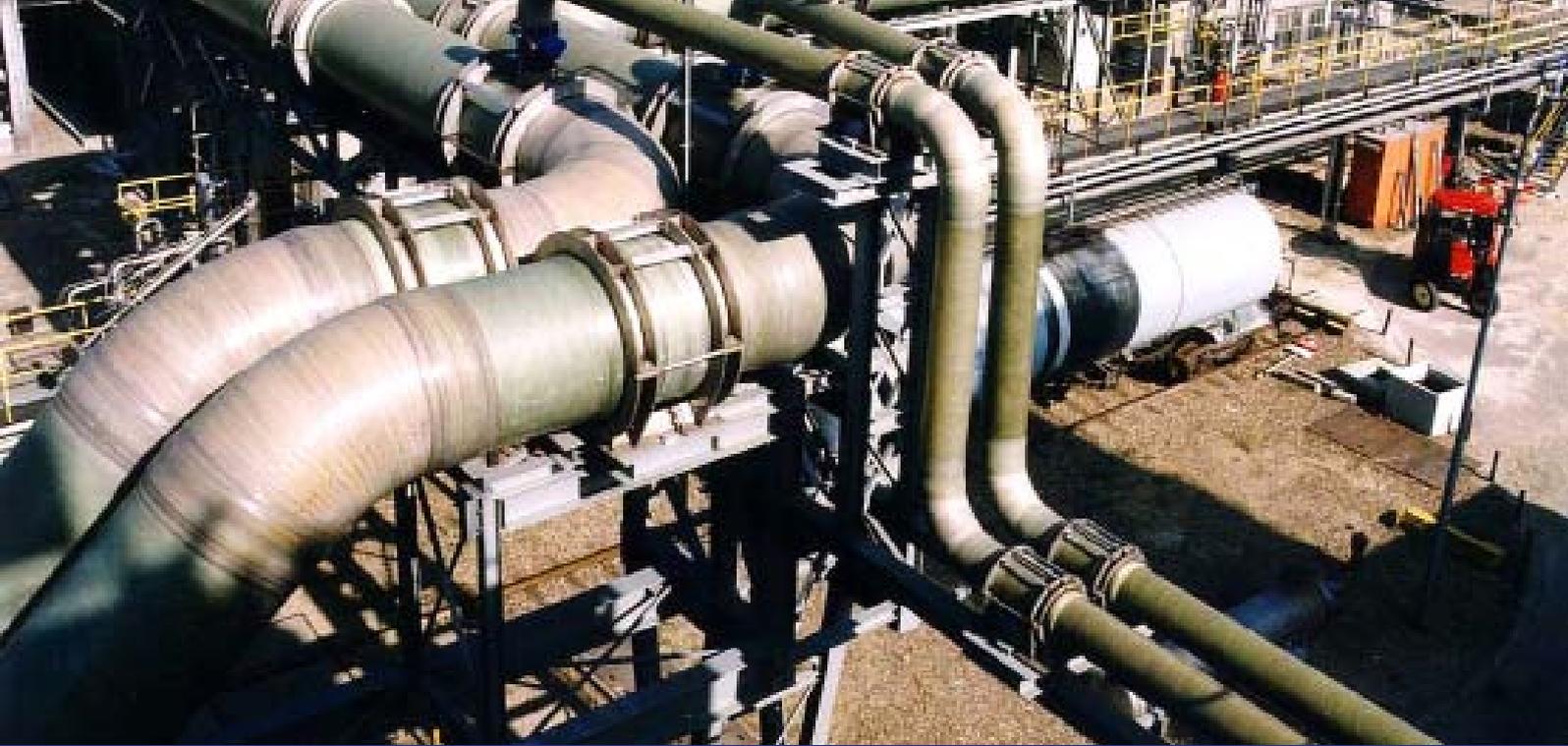
Six automated FW machines continuously operate to achieve a total production capacity of 5.000 ton/year of GRP-GRVE finished products.

Reinforced Thermoplastic materials (PVC, PVC-C, PE, PP, PVDF) are produced on a dedicated line

together with a full range of fittings, including elbows, flanges, tees, reducers, etc.

GRP-GRVE pipes and tanks, as well as all other customized products, are manufactured according to the most stringent international codes and standards. Quality assurance for all products and services is ensured by regular audits and certification processes.





Competitive attributes of GRP

- High strength to weight ratio: resulting in lower transportation and installation costs.
- Durable: longer life compared to traditional metallic materials and maintenance free.
- Non-corrosive: no leakage from corrosion, corrosion proof material towards conveyed fluid, aggressive soils and stray electrical currents.
- Efficient carrier: better hydraulic performance—energy efficient transmission, smooth internal bore constant with time.
- Wide end-market applicability.
- Versatile material: variety of joints and fittings available for both underground and above ground applications.





GRP products

- Diameter range: 25 - 2.200 mm (*)
- Standard Pressure Classes: up to 25bar
- Standard Stiffness Classes: 2.500 - 5.000 - 10.000 Pa
- Standard Bar Lengths: 6m up to 125 mm, 12m for larger sizes.
- Standard Joints: restrained & unrestrained.
- Standard temperature range: UP-GRP up to 60°C, GRVE up to 85°C, GRE up to 100°C

(*) on demand up to 4.000 mm.



Manufacturing methods

NSguassero Reciprocal Filament Winding technology used for GRP pipe production consists of impregnated glass reinforcing strands with a matrix of Unsaturated Polyester, Vinylester or Epoxy Resins applied to a mandrel under controlled tension and pre-determined patterns up to the required thickness. Hand lay-up manufacturing method is used for manufacturing of fittings. Reinforced thermoplastic pipes and tanks are produced either by Hand lay-up or Filament Winding methods, depending on

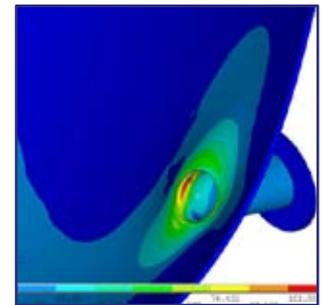
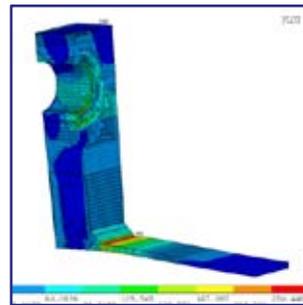
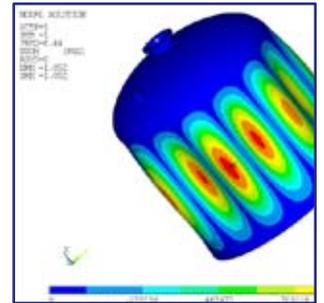
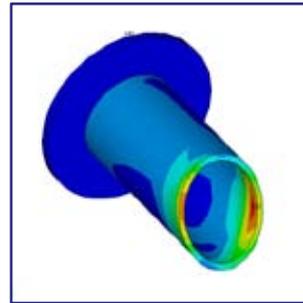
sizes and characteristics. All prefabricated spools are laminated, inspected and tested at the factory prior to shipping. Every step of the manufacturing process, including raw materials procurement, product inspection and testing, is routinely subjected to inspection both internally and externally by spot check and quality control procedures.

Engineering Services

NSguassero provides a full spectrum of engineering services, ranging from professional advice to planning and engineering design for all phases of industrial projects, from the feasibility study and conceptual design to the plant commissioning and start up.

The following services are provided:

- consultancy;
- feasibility studies;
- project management;
- basic design;
- safety and environmental studies;
- detailed engineering;
- procurement services;
- construction supervision;
- commissioning and start up assistance.





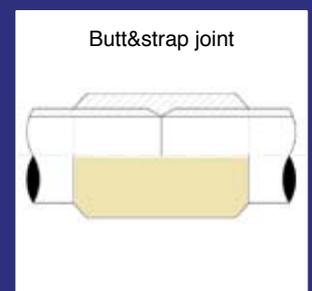
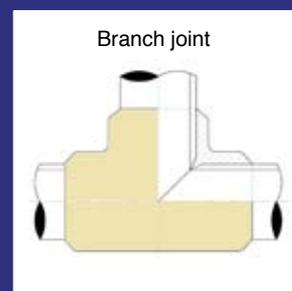
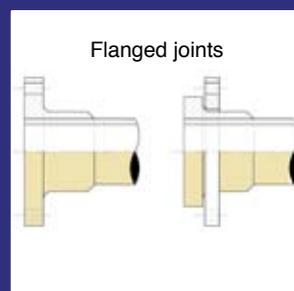
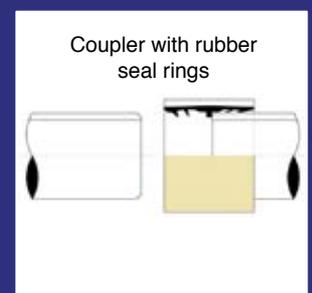
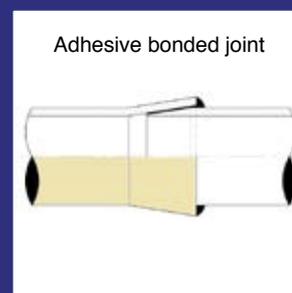
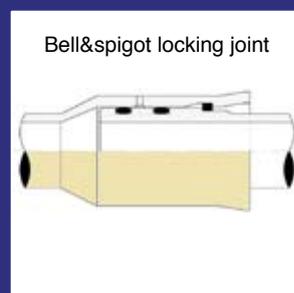
Hybrid System Concept

The engineering services provided by NSguassero allow the use of Restrained as well as Unrestrained Joints in one underground system at the same time. The result is a higher design flexibility and the possibility to install GRP pipe systems without thrust anchor blocks, using soil friction, burial depth and other design parameters to achieve required performances at lower cost.



Available joints

- Restrained Joints-Pipe joints capable of withstanding internal pressure and axial load due to pressure: bell&spigot locking joint, flanged (fixed or stub end with loose flange), butt&strap or branch joints, adhesive bonded joints.
- Unrestrained Joints-Pipe joints capable of withstanding only hoop loading due to internal pressure: coupler with rubber seal rings, bell&spigot, mechanical couplings.





Certifications and Approvals

- UNI EN ISO 9001 by DNV
- ABS Certificate of Design assessment
- BV Type Approval Certificate
- CCS Type Approval
- DNV Type Approval
- Germanisher LLOYD's Type Approval
- KIWA Certificate
- KIWA-KOMO Product Certificate
- LR Type Approval
- NKK Certificate of Approval
- RINA Certificate
- TUV Certificate

The information contained here in is general in nature and is not intended to express any warranty of any type whatsoever nor shall any be implied.





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