

# Synthetic Resin Impregnated Graphite Tubes Graphilor® 3

## Material Information (W-4)

### Synthetic resin impregnated graphite tubes

- Our synthetic resin-impregnated graphite tubes are extruded, sintered, and impregnated at Mersen.
- They are used for the manufacture and repair of all types of graphite shell and tube heat exchangers.
- A compact microstructure, a homogeneous grain size structure and a thorough impregnation of the graphite, as well as a perfect mechanical processing are the key criteria for the quality, performance and operational reliability of the tubes.

Outstanding corrosion resistance against acids, solvents, chlorides and other halogenated compounds

6,21 m long monolithic tubes without any joint

Excellent thermal conductivity

Superior mechanical strength (G30-00-220) even under high thermal load

Very good thermal shock resistance

Four standard tube diameters (25/16, 32/22, 37/25, 51/38 mm)

Properties	Units	Value
Maximum length without a joint	m	6,21
Tensile strength at 20°C (depending on Ø)	N/mm <sup>2</sup>	≥ 30
Bending strength at 20°C (depending on Ø)	N/mm <sup>2</sup>	45 - 60
Compression strength at 20°C (depending on Ø)	N/mm <sup>2</sup>	90 - 150
Decrease of the tensile strength per 10K up to 220°C (as per AD 2000-Merkblatt)	%	0
Bursting pressure at 20°C (depending on Ø)	bar (g)	60 - 100
Maximum allowable temperature	°C	220
Modulus of Elasticity	N/mm <sup>2</sup>	1,5 x 10 <sup>4</sup>
Thermal conductivity (radial direction)	W/(m·K)	≥ 50
Mean coefficient of thermal expansion (between 20 and 200°C)	1/K	3 x 10 <sup>-6</sup>
Density	g/cm <sup>3</sup>	≥ 1,8

### Impregnation process

- In a specific impregnation process, the originally porous graphite tubes get thoroughly impregnated with a high-performance synthetic resin and cured.
- This ensures an excellent mechanical strength, an outstanding corrosion resistance, as well as a very low permeability rate.

Design pressure: -1 bar to +7 bar (tube side), to +11 bar (shell side)

Design temperature: -30°C to +220°C

### Further information

- For detailed information on corrosion resistance see our Material Information W-2

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Graphite and SiC Heat Exchangers and Process Equipment