

DIABON® tubes for heat exchanger

SGL Carbon is a leading producer of graphite shell and tube heat exchanger which are sold under the brand name DIABON. With more than 4000 references and more than 70 years of design and manufacturing expertise DIABON heat exchanger are considered as quality benchmark for corrosive applications. The performance of heat exchanger is strongly determined by the graphite tubes.

Tube materials

We offer three different tube types depending on customer requirements and the application. All tubes are based on an optimized recipe on grain size to achieve a perfect balance between mechanical strength and ductility. Highest efficiency, safety and reliability for our customers' processes are the result.

All tube material grades are suitable up to 200 °C material temperature and available in all standard tube dimensions.

- **DIABON NK1:**
Phenolic resin impregnated graphite tube. Recommended for standard applications with normal requirements on heat exchanger efficiency and fouling/cleaning cycles.
- **DIABON NS1:**
Phenolic resin impregnated graphite tube. Recommended for applications with high requirements on heat exchanger efficiency (compact design) and minimized fouling/cleaning cycles.
- **DIABON NS2:**
Phenolic resin impregnated graphite tube with reduced resin content. Recommended for very high corrosion resistance and applications with demanding requirements on heat exchanger efficiency (compact design) and minimized fouling/cleaning cycles.



↑ DIABON graphite tubes equipped with CARBOGUARD

Tube enhancement options

- **CARBOGUARD®**
CARBOGUARD – developed by SGL Carbon – is a carbon fiber reinforcement of graphite and silicon carbide parts. DIABON tubes equipped with CARBOGUARD increase the operational reliability and safety of your application. It extends the range of application under high-stress conditions like temperature/ or pressure shocks.
- **Resin free design**
DIABON tubes can be manufactured without a resin layer inside the tube. This design is beneficial for very clean requirements or for falling film applications.

By the way: DIABON phenolic resin impregnated graphite is certified by FDA (Food and Drug Administration)

Material data of DIABON® tubes

Typical properties	Units	DIABON
Impregnation media		phenolic resin
Max. service temperature	°C	up to 200
Bulk density	g/cm ³	> 1.85
Flexural strength	MPa	> 52
Compressive strength	MPa	> 85
Tensile strength	MPa	> 28
Thermal conductivity (longitudinal/radial)	Wm ⁻¹ K ⁻¹	up to 130/70 [certified by TÜV]

Customer benefits

	DIABON NK1	DIABON NS1	DIABON NS2
HX efficiency	Industry standard	Compactness up to + 40 % more efficient	Compactness up to + 40 % more efficient
Corrosion and temperature resistance	High performance	High performance	Superior performance up to + 30 % better

DIABON tube quality

All our DIABON tubes are produced by SGL Carbon. They have to pass three core quality tests before they leave our workshops. A stringent and consequent quality monitoring is applied acc. ISO 9001:

- Leakage test at > 20 bar air
- Leakage test after any special machining or processing cementing if applicable
- pressure test after equipment assembly, before shipment



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