

DIABON® columns, vessels and reactors

SGL Carbon's corrosion resistant DIABON columns, vessels and reactors are used in numerous applications involving highly corrosive media such as hydrochloric acid (HCl) and phosphoric acid (H₃PO₄).

Based on our impervious DIABON graphite grades, a broad corrosion resistance and thermal shock tolerance are achieved, resulting in highest operational flexibility and reliability. Due to its inherent mechanical stability our equipment performs well even at conditions down to full vacuum. A combination of machining, cementing and steel construction opens up a wide variety of designs. We have also developed the optional CARBOGUARD® carbon fiber wrapping technology to further improve the mechanical stability of our graphite equipment.

SGL Carbon's DIABON graphite units are used mostly in the chemical and pharmaceutical industries as well as in the agrochemical, food, electronic, solar and environmental industries. Our unique range of offerings comprises the design and manufacturing of units as well as process internals.

Our scope for DIABON columns, vessels and reactors includes:

- Equipment supply
- Equipment design
- Basic engineering of the whole system
- Detail engineering
- Delivery and design of skid mounted units
- After sales service
- Debottlenecking

With our experienced engineering, service and manufacturing teams, we can also support you to improve the performance of existing columns. Typically, SGL Carbon along with the customer review the installation and process situation of the column to maintain the best performance and reliability of your unit.

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



↑ Segmented DIABON tunnel tray section (inner diameter 2.20 m)

Customer benefits

- **Excellent corrosion resistance:** full range of graphite and impregnation qualities available (ultra-fine and fine-grain graphite, PTFE or phenolic resin impregnation, etc.)
- **Robustness and safety:** very high level of operational reliability and safety by sturdy design and use of impervious DIABON graphite
- **Convenience:** cost-effective package solutions including high performance internals like distributors, grids, bubble cup/tunnel trays, raschig rings, packings etc. made of PTFE, PFA, graphite or innovative carbon fiber based materials
- **Cleanliness:** ideal for high purity applications according to GMP (good manufacturing practice); FDA approval available; semiconductor and electronics applications depending on setup
- **Reliability:** long operational lifetime based on engineering know-how and experience from many references (e. g. proven continuous trouble-free operation for 10+ years in food grade H₃PO₄ production)
- **Service excellence:** fast and competent services for process and design engineering, startup, repair and spare parts

Typical applications

DIABON columns are used to separate, purify, rectify, condense, vaporize, absorb, quench, wash, scrub or desorb mixtures of fluids. They are used for example in:

- Purification (defluorination) of phosphoric acid
- Adiabatic adsorption of hydrogen halides
- Absorption and desorption of hydrogen chlorides
- Separation of acid mixtures by distillation
- Purification of highly aggressive flue gases

Did you know?

SGL Carbon has provided the **largest graphite columns** produced until now to customers in the phosphoric acid industry. Diameters of more than 2.4 meters were realized. Larger diameter design and manufacturing is our unique know-how, resulting in economic and reliable column solutions [e. g. installed large diameter columns have been in trouble free operation since 2006].



↑ SIGRABON support grid for packed column

We provide a large range of **high performance column internals** made of graphite, CFRP, CFRC or PTFE (e. g. tunnel-, sieve or bubble cap trays, liquid distributors, liquid collectors, structured packing, support grids, retaining grids, feed tubes for liquids and gases, etc.).

Data of DIABON® columns, vessels and reactors

Typical properties	Units	DIABON columns, vessels and reactors
Main application		High corrosive and/or high purity applications, especially at low pressure
Typical design		Cylindrical, DIABON based
Typical section diameters	mm	up to 3000*
Typical section lengths	mm	up to 3500*
Nozzle diam.	mm	min. 150
Typical temperature range	°C	up to 220 (material temperature)
Typical pressure range	barg	Preferably low pressure – 1/1.5*
Height of column		No limits
Vacuum resistance		given
Internals options		Full set of high performance internals available made of PTFE, graphite, CFRP, CFRC, e. g. feed pipes, liquid (re-)distributors, structured packings, bubble cap or tunnel trays, support grids, etc.
Standard connections		DIN/ANSI/JIS
Typical pressure codes		PED 2014/68/EU; ASME
Special features		CARBOGUARD (carbon fiber wrapping)

*Special designs, exceeding the typical data above are possible but must be assessed individually. Do not hesitate to contact us for any special requests.



↑ DIABON column with bubble cap trays (inner diameter 2.20 m)



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