

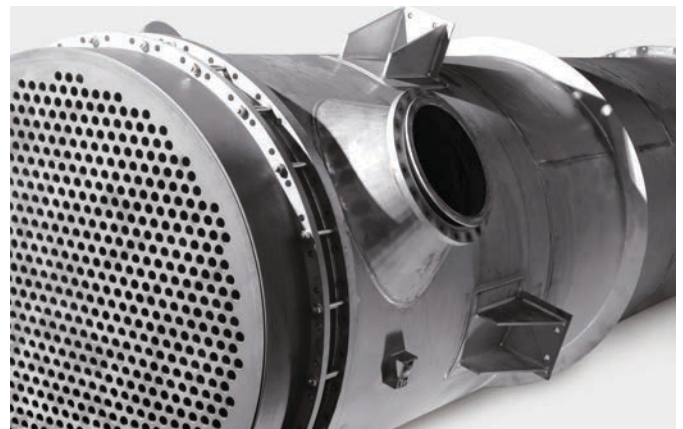
## DIABON® graphite shell and tube heat exchanger

As a leading supplier for more than 70 years, and with 4500 references we continuously provide optimized shell and tube heat exchangers for your specific requirements. Our wide range of advanced graphite materials combined with a superior constructive design ensure a most efficient and reliable operation.

Your benefits include significantly reduced operational costs and minimized risks when processing critical corrosive media. With a worldwide engineering team, eight dedicated production sites and a network of service hubs we are a reliable partner close to our valued customers.

### Customer benefits

- **Extreme corrosion resistance:** full material impregnation with first class phenolic resins and a wide range of graphite qualities (fine and ultra-fine graphite etc.)
- **Robustness:** robust design and monolithic tubesheets up to 1600 mm in diameter to enable high plant availability. Significant reduced risk of damages/unplanned production stops.
- **Safety:** up to 10 – 20 times less tube breakages at critical operation conditions when using our carbon fiber reinforcement technology.
- **Compactness:** ultra efficient graphite tube qualities with heat conductivities up to 11 130/1 70 W/mK (certified by TÜV). Reduced fouling by lower wall temperatures.
- **Flexibility:** large range of design and material options (e. g. falling film, multi-pass, gas/liquid separation etc.)
- **Maintenance friendly:** easy to clean and quick repair procedures for minimized shut down times.
- **Service excellence:** fast and competent services along with the complete lifecycle offered by our global service network.



↑ DIABON graphite shell and tube heat exchanger

### Example applications

- **Corrosive media:** e. g. hydrochloric acid, sulphuric acid, phosphoric acid, hydrofluoric acid, halogenated hydrocarbons etc.
- **Functions:** heating, cooling, condensation, evaporation, absorption, heat recovery by interchanger

### Product information

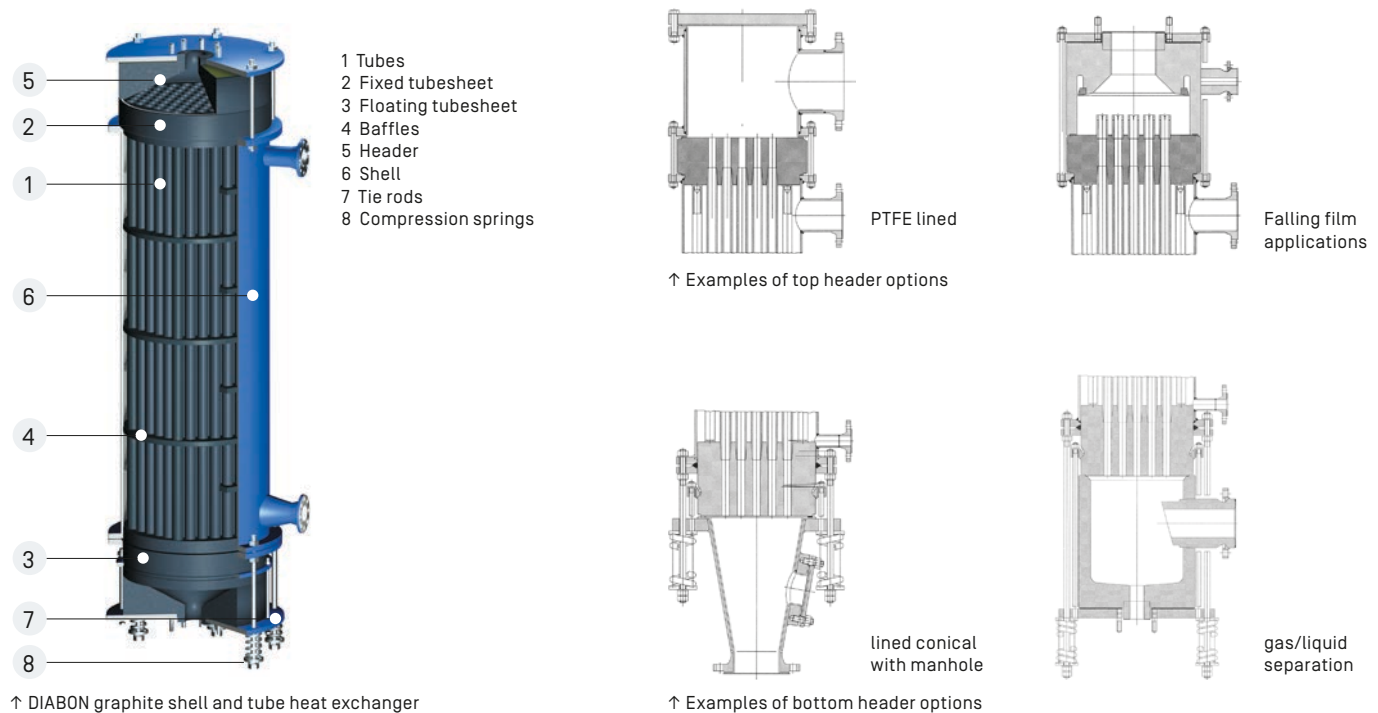
- Highest heat conductivities on the market at up to 11 130/1 70 W/mK allow for up to 40 % more compact heat exchangers compared to other manufacturers and can reduce the tendency of fouling significantly.
- CARBOGUARD® carbon fiber reinforcement has proved a safe operation at critical operation conditions, e. g. tube leakage protection up to 2 – 5 bar of differential pressure even with cracked tubes, increased bursting pressure by 30 – 40 %, and shatter guard.
- Unmatched technological leadership, e. g. abrasion resistant by CrO<sub>2</sub> coated weir sleeves, resin film free tubes (inside, for very clean requirements), water cooled headers etc.
- We ensure full quality control starting from the raw materials to the final product with a global uniform quality control system which includes (but is not limited to) extensive testing of all parts (e. g. 20 bar air test; mechanical and tightness tests etc.)

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

## Data of DIABON® graphite shell and tube heat exchanger

Technical specifications	Units	DIABON graphite shell and tube heat exchanger
Main applications		corrosive heating, cooling, evaporation, absorption and condensation
Standard tube diameter (outside/inside)	mm	25/15, 32/22, 37/25 or 50/37
Standard tube length	mm	1500 to 9000 [0.5 m steps]
Heat exchange area	m <sup>2</sup>	0.5 up to 1500
Standard design pressure	barg	-1/6 (higher pressures up to 12 barg on request)
Max. design temperature	°C	200
Standard connections		DIN/ANSI
Tube materials		DIABON NK1, NS1 or NS2 (phenolic resin impregnated graphites)
Tubesheet materials		DIABON N, NS1 or NS2 (phenolic resin impregnated graphites)
Header materials		DIABON N, NS1 or NS2; lined steel (rubber, PTFE, glass), stainless steel etc.
Shell materials		carbon steel, stainless steel; lined steel (rubber, PTFE, glass) etc.
Shell sealing		O-ring (standard) or stuffing box
Optional design features		CARBOGUARD – carbon fiber reinforcement Abrasion protection by CrO <sub>2</sub> coated weir sleeves Resin film free tubes for high purity applications
Available pressure codes		PED 97/23 EC, AD2000-Merkblatt; ASME acc. Sec. VIII Div. 1 (U-stamp); GB Code; CODAP etc.

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



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