

SICABON® SiC shell and tube heat exchanger

Innovative tube sheet layout – unmatched in safety and reliability

Silicon Carbide (SiC) shell and tube heat exchanger are a perfect solution, if process requirements push other materials like exotic metals or graphite beyond their limits. These are typically the most critical and harsh applications at customer sites, requiring the safest and most reliable equipment.

Compared to other highly corrosion resistant materials, operational safety of ceramic equipment relies on first class sealing technologies. Based on our experiences in hundreds of installations, we further improved our state-of-the-art sealing concept to a trendsetting, innovative tube sheet layout (patent pending).

By applying a temperature stable and corrosion resistant intermediate plate made of SiC, the performance and tightness of our SICABON heat exchanger is assured. Even within harsh, cyclic applications this design has proven its outstanding capabilities for significantly increased service life: Zero leaks and no deformation of now ceramic based sealing surfaces is verified within substantial heating and cooling cycles on test bench and in field applications.



↑ Sicabon shell and tube-HX with SiC intermediate plate and SiC-tubes

Customer benefits

- **Unmatched safety:** innovative tube sheet layout including double O-ring design
- **Maximum reliability:** optimized sealing system, gasket seats mainly within temperature stable, non-deforming SiC intermediate plate
- **Minimized total cost of ownership (TCO):** extension of service intervals and reduction of maintenance costs
- **Extensive corrosion resistance:** use of sintered SiC materials enables extreme corrosion resistance even at high temperatures

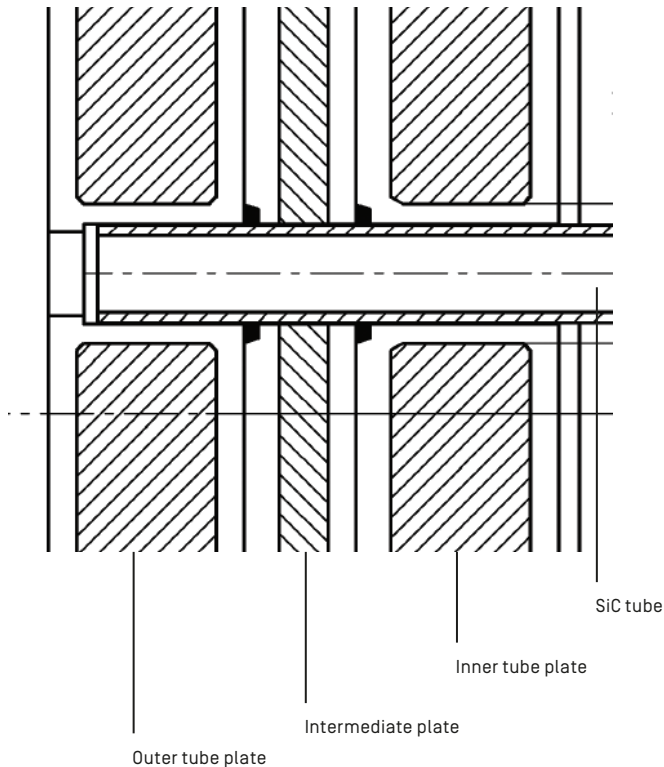
Decisive details in design

- **Tube sheet layout:** SiC intermediate plate comprising design complexity, combined with two simplified tubeplates
- **Sealing system:** significant reduction of polymer-based sealing areas (> 70 %), deflection temperature of sealing seats > 200 °C
- **Ease in handling:** overall design dedicated and optimized for ceramic components; minimized risk in case of maintenance
- **Retrofit:** new tube sheet layout compatible for retrofitting of all installed equipment

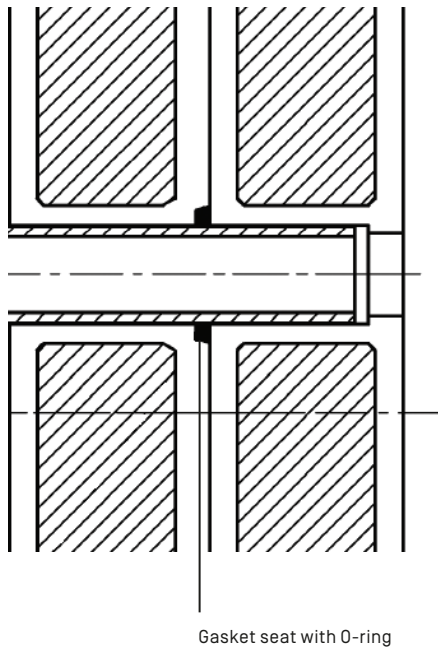
Details on options for retrofitting of existing equipment

All SICABON tube sheet layouts sold by SGL CARBON GmbH (including FLUROSIC® by Dr. Schnabel GmbH) can be modified to the new SiC intermediate plate design. Depending on the detailed layout the scope of modifications necessary is defined as follows:

Clamped design, double gasket



Clamped design, single gasket



↑ Tubesheet design options (schematic) compatible for retrofitting

Scope of modification

- Replacement of intermediate plate
- Installation of intermediate plate made of SiC
- Double number of gaskets

Effect to installed equipment

- Equipment remains identical in dimensions
- Extension of equipment length [-30 mm]
- No change in connection at service side



Graphite Materials & Systems | SGL CARBON GmbH
Sales Europe/Middle East/Africa | pt-europe@sglcarbon.com
Sales Americas | pt-americas@sglcarbon.com
Sales Asia/Pacific | pt-asia@sglcarbon.com
www.sglsprocesstechnology.com

TIS SHX-IP.00

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