

## Cleaning of Annular Groove Heat Exchangers

### Fouling of graphite heat exchangers

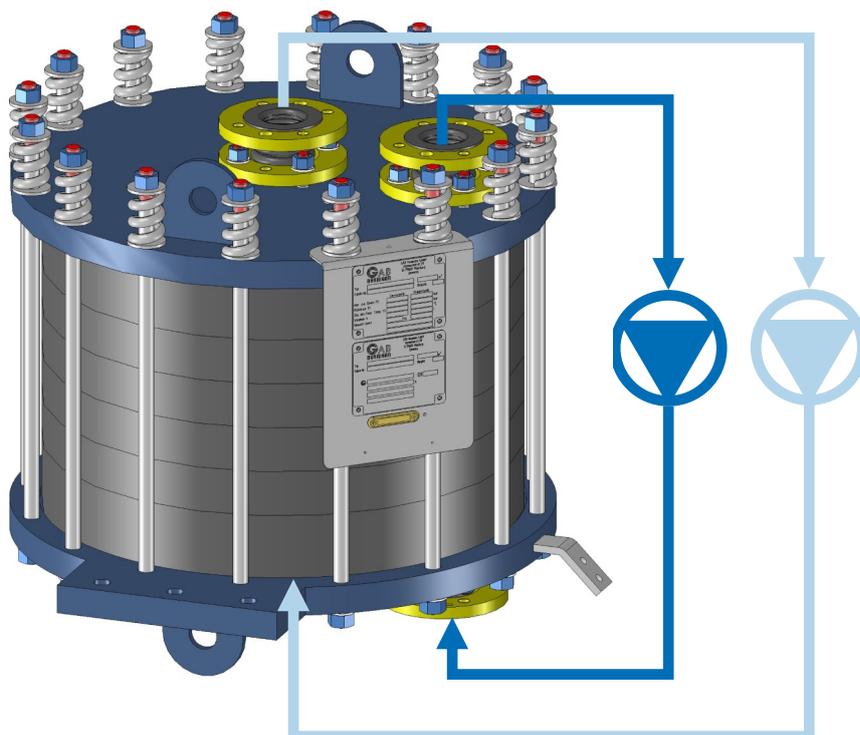
Fouling might reduce significantly the overall efficiency of heat exchangers. Graphite heat exchangers are no exceptions to the rule. Thanks to their unique design (highly turbulent flows, absence of dead spots) annular groove have a much lower tendency to foul than any other types of graphite heat exchangers.

### Chemical cleaning

Nonetheless whenever necessary (strong fouling, high pressure drop, or low heat transfer efficiency) annular groove heat exchanger should be cleaned either on process and/or on service side. Thanks to their design and their outstanding corrosion resistance (impervious graphite on both sides) GAB Neumann's annular groove heat exchangers should be preferably chemically cleaned. This is the easiest, most efficient (rather aggressive chemicals can be used), and also most respectful method to thoroughly clean the whole heat exchanger.

### Recirculation of cleaning fluids

Chemically adapted cleaning fluids should be circulated on each side of the heat exchanger until the fouling layer has been properly removed. The temperatures, pressures, and flowrates shall be adapted to the application, materials in contact with the fluids. After chemical cleaning the heat exchanger should be properly rinsed.



### Features

Outstanding corrosion resistance on both sides

Possibility to use aggressive chemicals to perform a thorough cleaning

Possibility to get back to original performance without risking to damage the heat exchanger

Easy proven process. It only necessitates a corrosion resistant pump and a tank.

Possibility to monitor the performance of the cleaning process

Low cost

High plant availability

### Chemical Apparatus Services

GAB Neumann offers a complete range of services for the cleaning of process equipment that includes the cleaning itself as well as the determination of the most adapted chemicals for a given application.

