

Graphite Annular Groove Heat Exchanger RA/WA Series

Product Information (RN-12)

Graphite Annular Groove Heat Exchanger

- Heat exchanger for heating or cooling of highly corrosive liquid media
- Resistant against virtually all leaches, acids, solvents and halogens
- Resistant to corrosion on one side: RA series
- Resistant to corrosion on both sides: WA series
- Wavy groove design (optional)

Features

Optimal resistance to corrosion

Both flow sections are variable and create high turbulence

No gaskets and therefore no risk of leakage

Small overall height

Excellent heat transfer performance

Self-cleaning

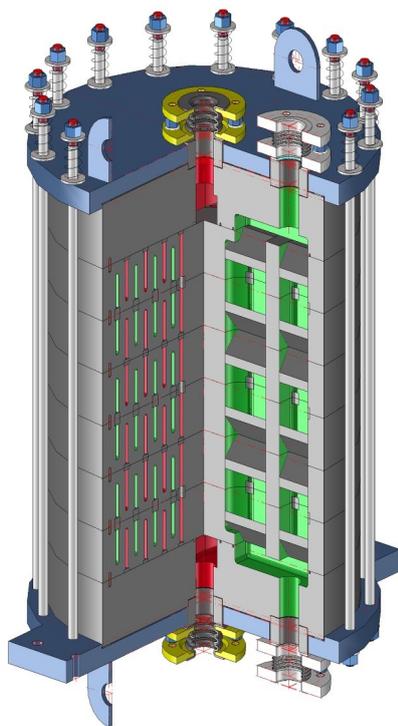
No cross-contamination

Low maintenance cost

High plant availability

Design

- Cylindrical graphite discs with spiral groove arrangement
- Three different groove widths possible
- Parallel groove arrangement of between 1 and 21 grooves
- Gasket-free, completely fused annular groove discs
- Graphite block nozzles for both, product and utility connections
- Thermal expansion compensation using tie rods and helical springs
- Carbon fiber reinforcement (optional)
- Max. transfer area: 55 m² (592 ft²)
- Max. disc diameter: 900 mm (36")



Graphite annular groove heat exchanger
(cross section)

Potential Applications

- Heating or cooling of hydrochloric or sulphuric acids and halogenated solvents
- Thermal oil heating of corrosive products
- Heating of process media in biofuel production (with optional wavy-groove arrangement)
- Heat transfer between two corrosive media
- Use as feed preheater for a column sump

Design parameters

-1 bar to +6 (+10) bar
max. allowable pressure

Full vacuum to 90 psig
(150 psig)

-30 (-60)°C to +180 (+200)°C
-22°F (-74°F) to 356°F (392°F)
max. allowable temperature

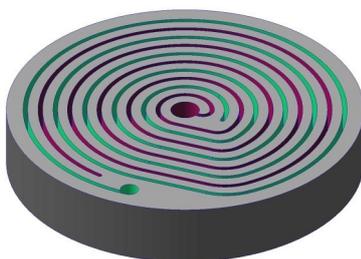
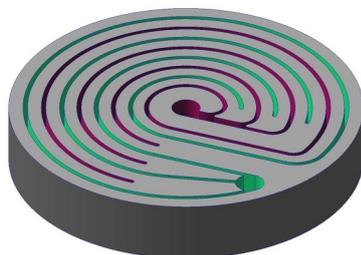
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Materials Used and Material Options

Graphite	Phenolic formaldehyde resin-impregnated graphite GAB GPX1 / GPX1T resp. GAB GPX2 with low resin content (optional)
Gaskets	n/a (fused discs)
Steel parts	Pressure plates and flanges: carbon steel (optional stainless steel) Rods, nuts, springs: stainless steel

Design and Inspection

- Annular groove heat exchangers are designed, manufactured and inspected according to AD 2000 Merkblatt (in compliance with the European Pressure Equipment Directive, PED)
- Other design and manufacturing standards upon request



Specifications and Price Quotes

For a detailed offer, please provide the following data:

- Quantity and physical properties of the process and service medium
- Required inlet and outlet temperatures
- Operational pressure and allowed pressure drops
- Further process details (optional)
- Please fill out our questionnaire: WS 1550

Examples for variable flow conditions using a parallel set-up of grooves

Additional Information

- Data sheet RN-12 includes information on terminology and main dimensions
- Further precisions and complementary information (brochures, corrosion resistance charts, product information, data sheets,...) are available for download at www.gab-neumann.de.

Advantages

- Robust design
- Modular setup
- Easy assembly
- High operational safety
- Easy mechanical cleaning

Technical Perfection

- Application preferred in single-purpose and mono plants
- Optimal thermal performance at compact dimensions
- Long lifetime

Economically Outstanding

- Low-cost alternative to shell & tube exchangers for small and medium-sized transfer areas
- Low maintenance and spare part cost
- Best price level
- Short lead times