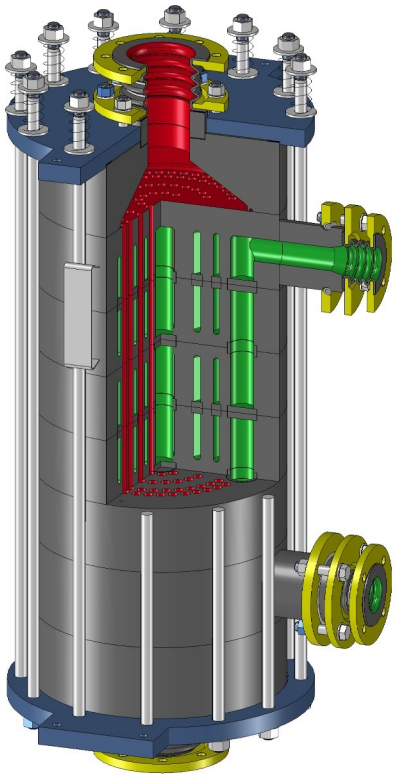
Graphite Annular Groove Condenser GN/GH Series

Product Information (GN-1)

Graphite Annular Groove Condenser

- Impregnated graphite heat exchanger for condensing duties in corrosive applications
- Resistant against corrosion by virtually all leaches, acids, solvents, halogens and their alloys
- Specifically designed for post-condensing purposes and for media with significantly different heat transfer
- Resistant to corrosion on both product and service sides, i.e. useful for heat recovery during corrosive processes
- Vertical (GN) or horizontal execution (GH)
- GMP-compliant (optional)



Graphite annular groove condenser GN series (cross section)

Design

- Cylindrical graphite discs with straight channels for product condensation
- Cylindrical bores for large transfer area and large cross section on the product side
- Annular grooves with high turbulence on the utility side
- Gasket-free, completely fused annular groove discs
- Thermal expansion compensation using tie rods and helical springs
- Detachable headers (optional)
- GMP-compliant (optional) (sight glass, CIP spray ball, depending on unit size)

- Max. transfer area: 100 m² (1076 ft²) (product side)
- Max. disc diameter: 900 mm (36“)

Potential Applications

- Vent cooling of exhaust gas or vent condensing of corrosive vapors, e.g. in compliance with VOC regulations (volatile organic compound)
- Condensing and separation of corrosive vapors at vacuum pump inlets or outlets
- Heat recovery by cooling / condensing tail gas, e.g. from incineration

Features

Optimal corrosion resistance

Large product-side cross-section

Excellent heat transfer performance

Self-cleaning

No critical swelling stress cracks caused by organic solvents

No cross-contamination

No gaskets and therefore no risk of leakage

Small overall height, compact design

Low maintenance cost

High plant availability

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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Graphite and SiC Heat Exchangers and Process Equipment

Graphite Annular Groove Condenser GN/GH Series

Materials Used and Material Options

Graphite	Phenolic formaldehyde resin-impregnated graphite GAB GPX1 / GPX1T resp. GAB GPX2 with low resin content (optional)
Reinforcement	Carbon fiber fabric (optional)
Gaskets	None (fused discs) Optional flat gaskets (with detachable headers)
Steel parts	Pressure plates and flanges: carbon steel (optional stainless steel) Rods, nuts, springs: stainless steel

Optionally FDA conformity declaration for all product-side MOC (GMP-compliant design)

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

Graphite annular groove condenser
GN3-06-9/GMP

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

Additional Information

- Data sheets GN-1 and GH-1 include information on terminology and 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

Competitive pricing

Short lead times

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