

INSULATING VACUUM-FORMED SHAPES



METALS



CERAMICS



GLASS



SPECIAL
FURNACES



FUELS
CHEMICALS
ENERGY

top technology |
creates confidence

RATH

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INSULATING VACUUM-FORMED SHAPES

The shapes are vacuum formed from high-quality mineral or high-temperature wool.

The formulations and post treatment of the the vacuum-formed products depend on application requirements. Upon request, the products can be fired, surface-hardened or through-hardened.

Features

- › Great thermal insulation properties
- › Lightweight
- › High temperature resistance
- › Low heat storage capacity
- › Good corrosion resistance
- › Comprehensive range of custom-designed shapes
- › Easy to install
- › Excellent machinability

Typical applications

- › Dental, laboratory and industrial furnaces
- › Insulation for boilers and heaters
- › Thermal insulation in household appliances
- › Vacuum furnaces
- › Hardening furnaces
- › Microwave furnaces
- › Stack Linings
- › Expansion joints and seals
- › Casting tubes and cones
- › Kiln furniture
- › Thermal insulation with integrated heating elements
- › Hot gas filtration
- › Thermal Analytical Equipment



DENTAL FURNACE KERFORM KVS 121

Advantages of Rath's vacuum-formed products

- › Designed to meet specific application and requirements.
- › Low heat storage capacity and excellent thermal shock resistance allow fastest heating and cooling curves and short firing cycles.
- › Long service life due to high chemical and thermal stability.
- › Use of bio-soluble high-temperature wool represents an alternative to ceramic fibres.



Information in the product designation

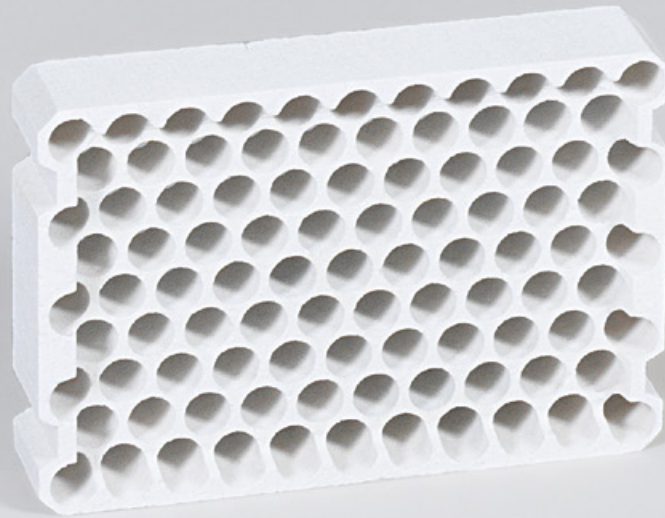
The information to be found in the product designation is explained using the example of Altraform® KVF 161:

Altraform®	Product Name
KVF	Typ F - flexible S - with organic components R - suitable for reducing furnace atmospheres
16	Classification temperature (1/100 °C)
1	Post-treatment classes (see right side)

Post-treatment classes (0 to 7)

- 0 = Untreated
- 1 = Dried
- 2 = Surface-hardened
- 3 = Through-hardened
- 4 = Fired
- 5 = Fired and surface-hardened
- 6 = Fired and full-hardened
- 7 = Fired and double full-hardened

PRODUCT GROUP	NEWVAC	EVAC	PRIIFORM
Basic raw material	Mineral wool	Alkaline earth silicate wool	Polycrystalline wool
Max. application temperature [°C]	1,000	1,300	1,400
Available bulk densities according to EN 1094-34 [kg/m³]	300	300-700	300-600
Typical thermal conductivity according to DIN EN 993-14 at 1,000 °C [W/mK]	0.25	0.27	0.24
Available products	Newvac MV 10 Newvac MVF 10 Newvac MVS 10	Evac EV 12 Evac EVF 13 Evac EVS 12...13	Prioform PVS 14
Available formats	Plates, cylinders, pre-formed shapes	Plates, cylinders, pre-formed shapes	Plates, cylinders, pre-formed shapes
Standard dimensions			
Plates (L × W × Th in mm)	1,000 × 500 × 5...100	1,000 × 500 × 5...100	900 × 600 × 20...100
Cylinder (diameter × length in mm)	20...300 × 300	20...300 × 300	20...600 × 50...600
Pre-formed shapes	customized	customized	customized



SPARK PLUG HOLDER (ALTRAFORM® KVR 174/700)

Special products

KERFORM	ALTRAFORM®	KERHEAT	KERASETTER
Aluminium silicate wool	Polycrystalline wool with alumina content > 72 %	Aluminium silicate wool/Polycrystalline wool with alumina content > 72 %	Aluminium silicate wool / Polycrystalline wool with alumina content > 72 %
1,600	1,800	1,500	1,800
250-700	100-750	300-350	1000-1700
0.22	0.18	0.26	0.40
Kerform KV 10...14 Kerform KVF 10...15 Kerform KVS 10...16	Altraform® KVF 16 Altraform® KVS 16...18 Altraform® KVR 16...17	Kerheat KVS 12...15	Kerasetter KVS 12...18 Kerasetter KVR 16
Plates, cylinders, pre-formed shapes	Plates, cylinders, pre-formed shapes	Plates, cylinders, half-shells with embedded heating elements	Plates, customized kiln furniture
1,000 × 500 × 5...100	900 × 600 × 20...100	1,000 × 1,000 × 100	600 × 450 × 10...30
20...600 × 50...600	20...600 × 50...600	up to 700 × 500	up to 700 × 500
customized	customized		



KERFORM KV GROUP



KERFORM PLATE



EVAC EV, EVS, EVF, CS

KERFORM

Vacuum-formed products made of high-quality aluminium silicate wool, polycrystalline wool with an alumina content greater 72 % and organic and inorganic binders. Kerform is resistant to most acids and bases with the exception of hydrofluoric acid, phosphoric acid and strong alkalis. Various finishing classes determine the applicability of the pre-formed shapes. The max. application temperature is, depending on the type, between 1,000 °C and 1,600 °C.

Typical applications:

- > Thermal insulation in industrial furnaces
- > Custom machined parts for Thermal Analytical Equipment
- > Thermal Insulation for laboratory furnaces
- > Thermal insulation in dental furnaces
- > Foundry equipment
- > Accessories for glass furnaces
- > Sealing material
- > Kiln furniture

PRIIFORM

New high-performance thermal insulation material consisting of polycrystalline wool, fillers and organic and inorganic binders. Priiform offers excellent corrosion resistance, very low thermal conductivity and good thermal shock resistance. The vacuum-formed products can be easily processed and have a very smooth surface. Various finishing classes determine the applicability of the vacuum-formed products. The max. application temperature is 1,400 °C.

Typical applications:

- > Thermal insulation in laboratory furnaces
- > Thermal insulation in thermal analysers
- > Thermal insulation in dental furnaces
- > Thermal insulation in industrial furnaces
- > Foundry equipment
- > Kiln furniture

EVAC

Vacuum-formed products made of high-quality alkaline earth silicate wool, fillers and organic and inorganic binders. The high-temperature insulation wool used in this product is not classified according to REACH. Various finishing classes determine the applicability of the pre-formed shapes, which are applicable only in dry and non-corrosive atmospheres.

The max. application temperature reaches, depending on the type, up to 1,300 °C. Due to the properties of the wool, however, usability is to be checked carefully for any application at more than 1,000 °C. Evac is available in plate form as well as in customer-specific geometries.

Typical applications:

- > Thermal insulation in boiler systems and household appliances
- > Thermal insulation for thermal analysers and laboratory furnaces
- > Thermal insulation in industrial furnaces
- > Sealing material

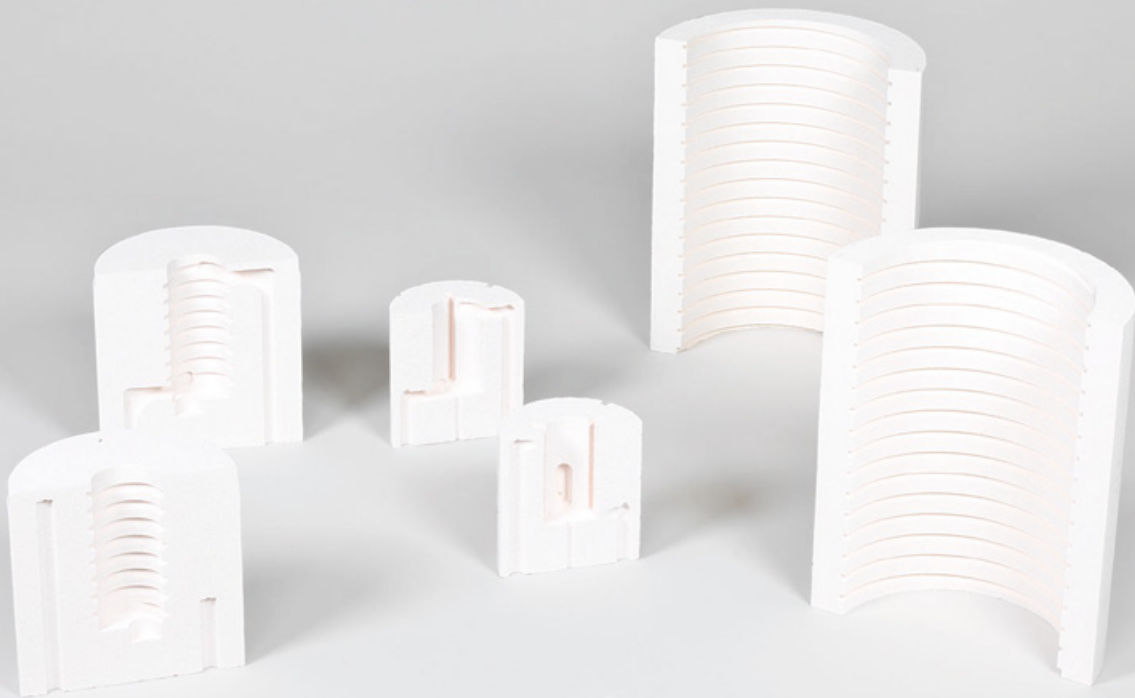
NEWVAC

Vacuum-formed products made of high-quality mineral wool, fillers and organic and inorganic binders. The fibre used for this product is not classified according to REACH. Various finishing classes determine the applicability of the pre-formed shapes, which may be used solely in dry and non-corrosive atmospheres.

The max. application temperature is, depending on the type, between 600 °C and 1,000 °C. Newvac is available in plate form as well as in customized geometries.

Typical applications:

- > Thermal insulation in boiler systems and household appliances
- > Thermal insulation for thermal instruments and laboratory furnaces
- > Sealing material



ALTRAFORM® KVS

KERASSETTER

Made of high-quality aluminium silicate and alumina wools, fillers and organic and inorganic binders. Kerasetter products are used as kiln furniture in the dental, electronics and ceramics industries and as construction materials for furnaces and laboratory equipment.

KERHEAT

Vacuum-formed products with integrated heating elements. The pre-formed shapes are, depending on the application, produced from various high-temperature insulation wools with different Al_2O_3 contents.

The max. application temperature is 1,300 °C. The max. wall thickness for plates amounts to 100 mm. For pipes, shells and muffs, even component thicknesses up to 150 mm are possible.

ALTRAFORM®

Vacuum-formed products made of highly pure polycrystalline wool with an alumina content > 72 % and organic and inorganic binders. Altraform® offers best corrosion and thermal shock resistance. Various finishing classes determine the applicability of the pre-formed shapes.

Typical applications:

- > Thermal insulation in industrial furnaces
- > Thermal insulation in thermal instruments
- > Foundry equipment
- > Accessories for glass furnaces
- > Sealing material
- > Kiln furniture

Legend:

- from polycrystalline wool not classified according to REACH
- from fibre not classified according to REACH

ACS – ALTRA[®] COMPOSITE SYSTEM



ACS SYSTEM

The ACS lining system is an engineered insulation system assembled from pre-formed shapes.

Depending on application and service requirements the characteristics of the various refractory materials can be combined to result in a lining with optimized thermal, physical and chemical properties. The ACS modular system eliminates the traditional problems of excessive shrinkage, stress cracking and roof sagging that often cause failure of high-temperature ceramic fiberboard insulation in furnaces and kilns.

- › Modular composite construction designed using CAD (2D & 3D)
- › Wide range of available, easily processable materials that can be machined to precise pre-formed shapes
- › Flat roof construction
- › Lower risk of shrinkage and stress cracking due to its modular design
- › High temperature resistance
- › Comprehensive range of shapes
- › Application temperatures up to 1,800°C
- › Rapid thermal cycling due to excellent thermal shock resistance
- › High corrosion-resistance
- › Long service life
- › Particular suitability for linings with integrated heating elements
- › Suitable for furnaces with changing furnace atmospheres and pressures

› Typical applications

- › Dental, laboratory and industrial furnaces
- › Production of optical glass fibres
- › Thermal treatment of touch screen glass
- › Production of ceramic high-performance materials and technical ceramics
- › Manufacture of microelectronic components
- › Chemical vapour deposition
- › Vacuum furnaces

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