MADE IN GERMANY

VEREINIGTE
FÜLLKÖRPER-FABRIKEN
GMBH & CO. KG

+++Tower Packings+++Inert-Balls+++Catalyst Support Materials+++Column Internals+++Droplet Separators+++

VFF-Power-Pak®

Maximum performance - Innovation - Quality

Please give us a call
+ 49 (0) 26 23 / 895 - 10

VFF-patent

VFF – Experience that pays off

Founded in 1967, VFF very quickly developed into the biggest manufacturer of random packings and inert balls in Europe due to permanent innovations and highest quality standards. In the meantime, VFF is a globally acting company with more than 20 agencies.

From the decades of cooperation with the customers and the intense involvement in the product, VFF can fall back on comprehensive know-how, which formed the basis of the completely new development of the VFF-Power-Pak®, a modern high-performance ceramic random packing.

The VFF-Power-Pak® was developed for a circle of customers with highest demands and offers an extremely low pressure drop with the best possible mass transfer! The VFF-Power Pak® reaches a previously unattainable capacity and impresses through stability at great filling heights.

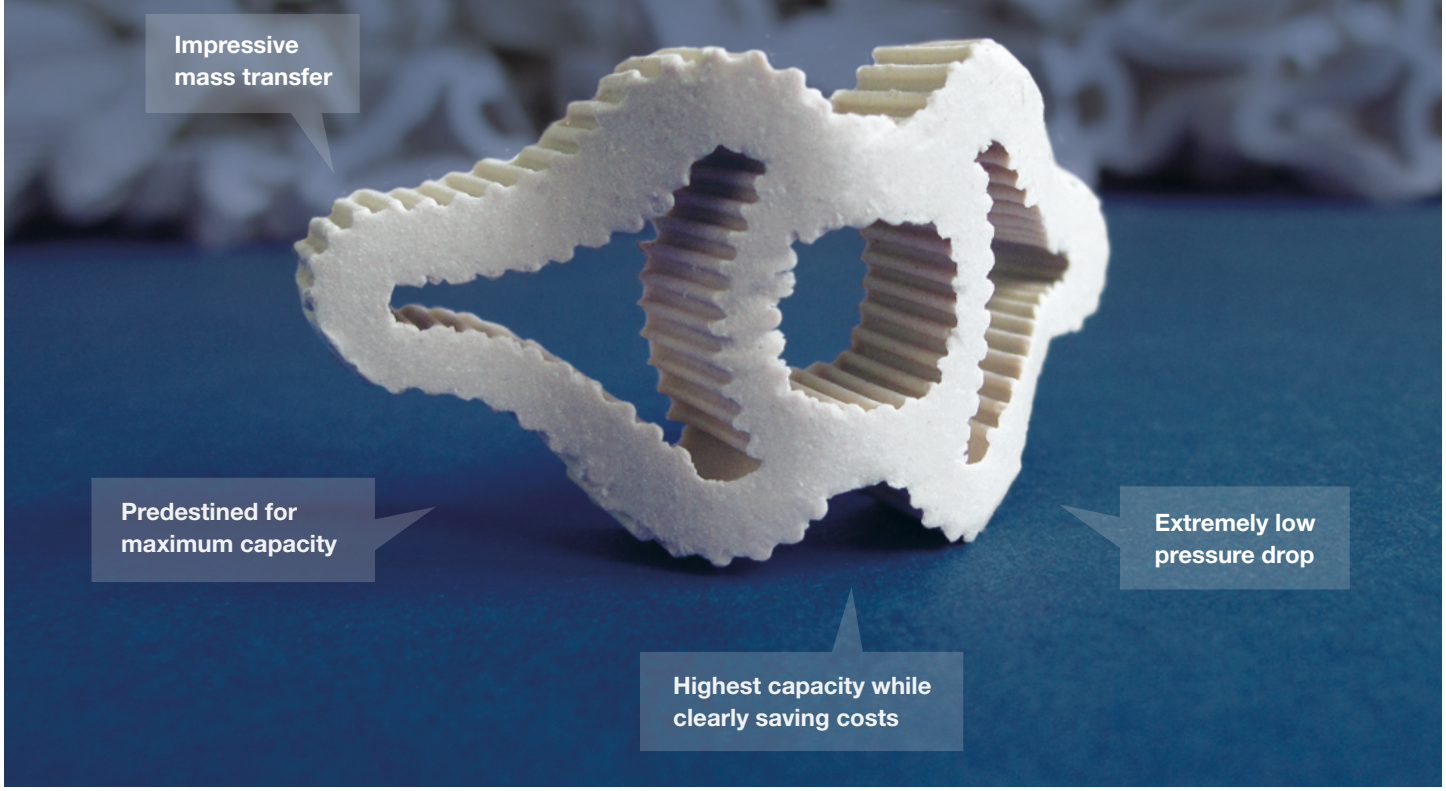
You can also find further information about VFF's products online at **www.vff.com**

VFF Power-Pak® – maximum performance in ceramics

The VFF Power-Pak®, a VFF-patent, is a completely newly designed high-performance tower packing in ceramic with a similar profile to structured packings but which retains all the many benefits of random packings. Its innovative shape developed by VFF leads to an extremely low pressure drop with an impressive mass transfer! VFF Power-Pak® is a high-performance random packing designed for maximum capacity. Compared with a conventional random packing with an equivalent rated value the mass transfer of the new VFF Power-Pak® is verifiably better. The specific pressure drop of this innovative high-performance random packing puts the tried-and-tested in the shade.

In other words: The VFF Power-Pak® offers optimum capacity with significant cost savings! This random packing, which is a significant improvement on the previous state of the art, can only be produced using the manufacturing process newly developed by VFF.

In order to still be able to maintain the quality and know-how lead of the VFF products in future and to extend them even further, VFF continues to rely on "100 % Made in Germany" for its products. Naturally all VFF products are certified in accordance with DIN EN ISO 9001.



VFF-Power-Pak® – technical data

Physical and chemical properties

Physical properties

Description	Specific surface area	Free volume
	m^2 / m^3	%
VFF-Power-Pak No.1-K	300	76
VFF-Power-Pak No.2-K	140	80

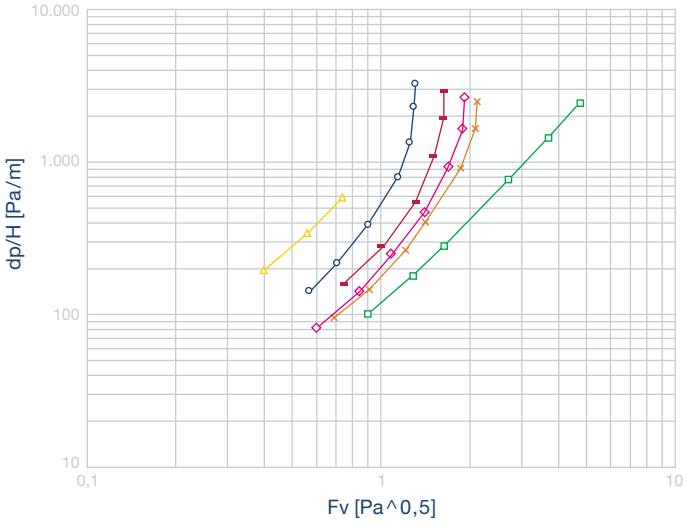
Physical/chemical properties of ACIDUR® special stoneware - average values

SiO_2	~70%
Al_2O_3	at least 20%
$Fe_2O_3 + TiO_2$	2...4 %
$K_2O + Na_2O$	< 4 %
MgO + CaO	< 1 %
Density	approx. 2,3...2,5 g / cm^3
Acid resistance (DIN 51102)	~ 99 %
Alkali resistance (DIN 51103)	~ 95 %

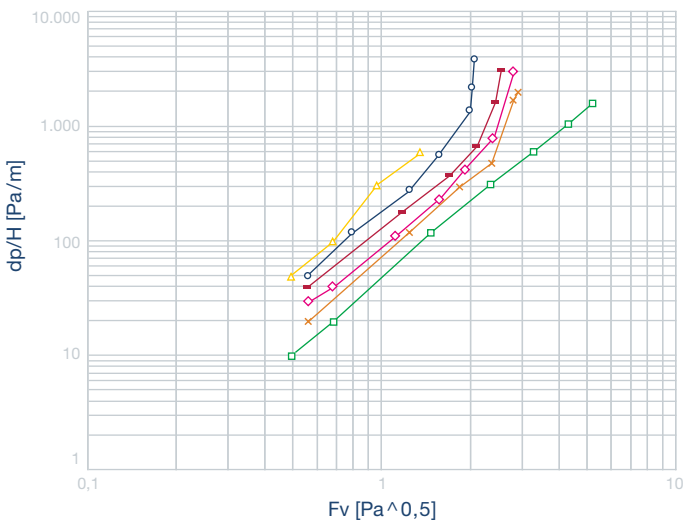
Pressure drop diagram

System: water/air at 20 °C and 1 bar abs
Specific pressure drop (dp/H) vs. gas load factor (Fv) with various irrigation densities (uL)

VFF-Power-Pak® No.1-K, Aspec: 300 m²/m³



VFF-Power-Pak® No.2-K, Aspec: 140 m²/m³



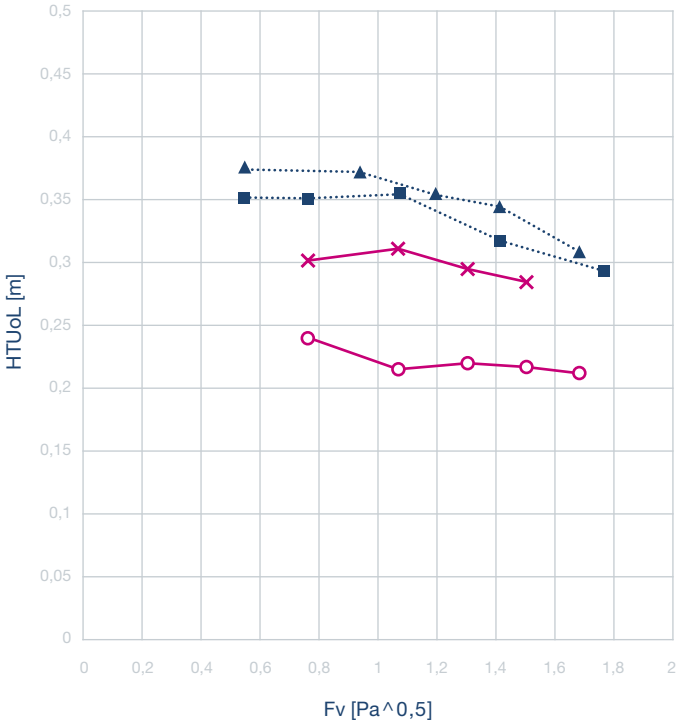
dp/H [Pa/m] (uL = 0 m/h)
dp/H [Pa/m] (uL = 20 m/h)
dp/H [Pa/m] (uL = 30 m/h)
dp/H [Pa/m] (uL = 40 m/h)
dp/H [Pa/m] (uL = 60 m/h)
dp/H [Pa/m] (uL = 100 m/h)

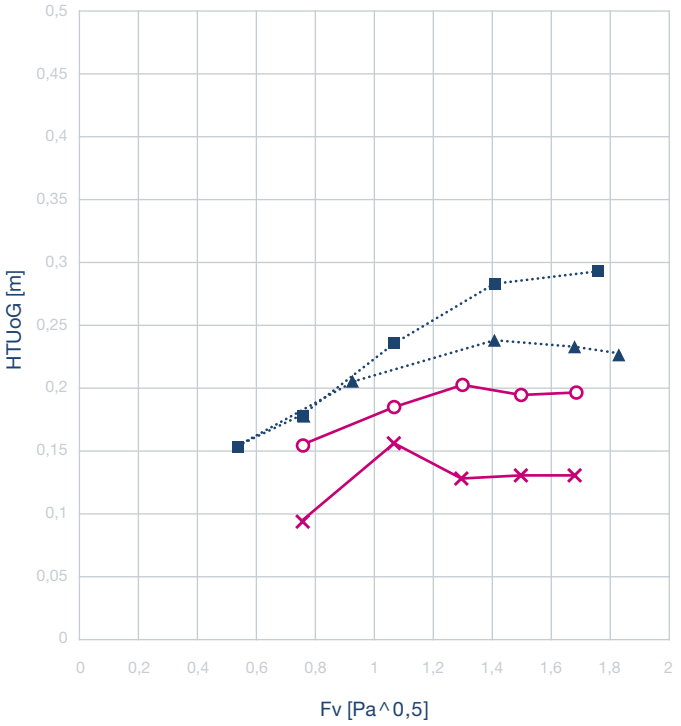
VFF-Power-Pak® – technical data

Mass transfer diagram

System: water/air at 20 °C and 1 bar abs
HTUog values for the absorption of NH3 from air with water
HTUol values for the desorption of CO2 from water with air
HTU values vs. gas load factor (Fv) with various irrigation densities (uL)

VFF-Power-Pak® No.1-K (Aspec: 300 m²/m³) and VFF-Power-Pak® No.2-K (Aspec: 140 m²/m³)





VFF-Power-Pak® No.1-K

- HTUoL [m] (uL = 20 m/h)
- HTUoL [m] (uL = 40 m/h)

VFF-Power-Pak® No.1-K

- HTUoG [m] (uL = 20 m/h)
- HTUoG [m] (uL = 30 m/h)

VFF-Power-Pak® No.2-K

- HTUoL [m] (uL = 20 m/h)
- HTUoL [m] (uL = 40 m/h)

VFF-Power-Pak® No.2-K

- HTUoG [m] (uL = 20 m/h)
- HTUoG [m] (uL = 30 m/h)

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TÜVRheinland® CERT ISO 9001

DESIGN: **BUERO ZOCKOLL**