Raschig Super-Ring Plus

Product Bulletin 251

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The design of Raschig Super-Ring was published in 1998 and had set new standards in the performance of random packings.
Nowadays it is called the first fourth generation random packing compared to earlier designs like Raschig-Rings, Pall-Rings and third generation packings. Soon after the Raschig Super-Ring was available to the Industry it was a new reference line for packing comparisons in terms of pressure drop, capacity and efficiency.

FRI and SRP tested

A new Random Packing offers new advantages in performance

RASCHIG GMBH
Mundenheimerstr. 100
D-67061 Ludwigshafen
phone.: +49 (0)621 56 18 - 648
fax: +49 (0)621 56 18 - 627
e-maill: MSchultes@raschig.de
www.raschig.com

RASCHIG USA Inc.
2201 East Lamar Blvd # 240
Arlington, TX 76006 ,USA
phone: +1 817-695-5680
fax: +1 817-695-5697
e-mail: info@raschig-usa.com
www.raschig-usa.com

Raschig Super-Ring Plus

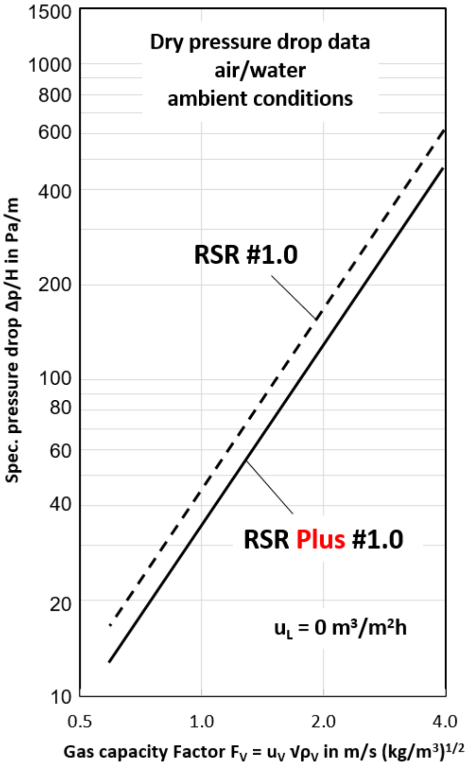
Raschig Super-Ring Plus is the result of a consequent design development based on many years of research. The target was to stay with all advantages of Raschig Super-Ring but improve capacity and reduce pressure drop.

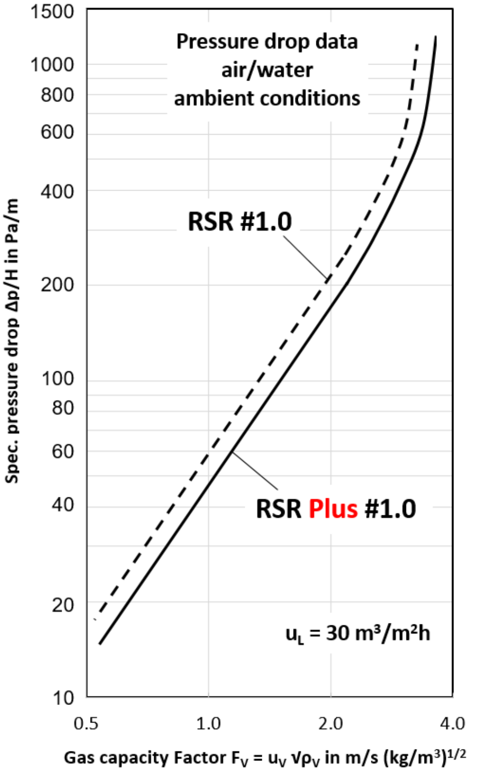
The preferred principles of gas/liquid countercurrent flow, coming along with **Raschig Super-Ring Plus** are as follows:

- **Minimize pressure drop** by arranging flat sinusoidal strips to an extreme open structure
- **Maximize capacity** by film flow preference on continuous sinusoidal strip arrangements
- **Maximize efficiency** by minimizing droplet formation inside the packing
- **Minimize foaming tendency** by minimizing droplet development and low pressure drop
- **Minimize fouling sensitivity** by generating continuous liquid films wetting the entire packing element
- **Maximize the effective surface area** by spreading the liquid film all over the packing
- **Maximize the open column cross section area** by optimized packing orientation
- **Increase mechanical strength** by strip rotation

Raschig Super-Ring **Plus**

The following figures demonstrate the pressure drop advantage of **Raschig Super-Ring Plus** #1.0 compared to Raschig Super-Ring #1.0.





In the air/water simulator the pressure drop and capacity advantage of **Raschig Super-Ring Plus #1.0** became obvious. The packing opens up the column cross section area by its special design which results in noticeable fluiddynamic benefits. A **capacity advantage of 8 %** and **pressure drop reduction of 10 %** was measured.

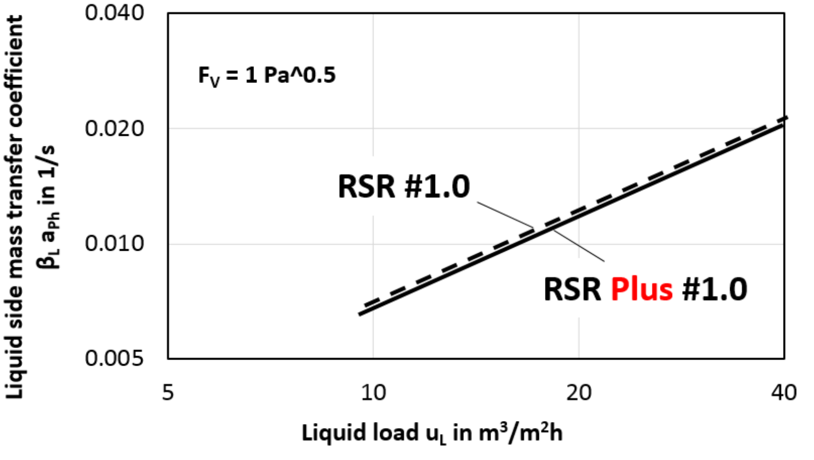
Table 1: Technical data of the **Raschig Super-Ring Plus**

Size	Material	Weight kg/m^3	Surface area m^2/m^3	Free Volume %
1.0	Metal	220	150	98
2.0	Metal	150	100	98

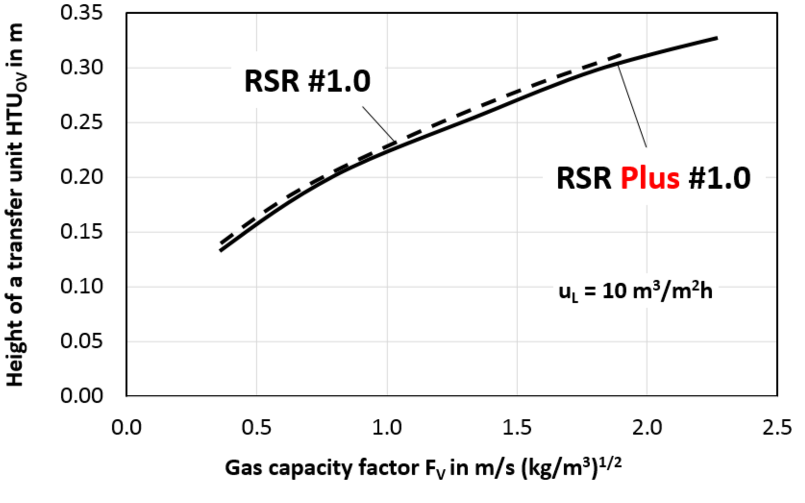
Raschig Super-Ring Plus

Mass transfer efficiency of metal

Desorption of CO_2 from water into an atmospheric air stream

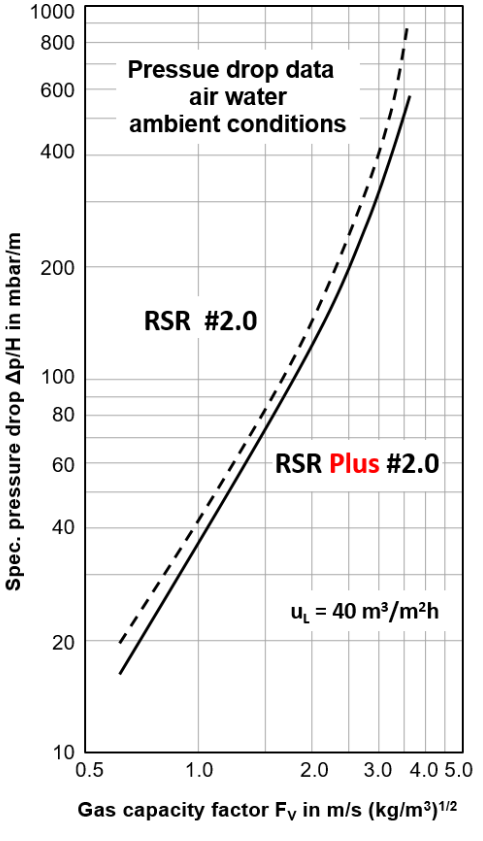


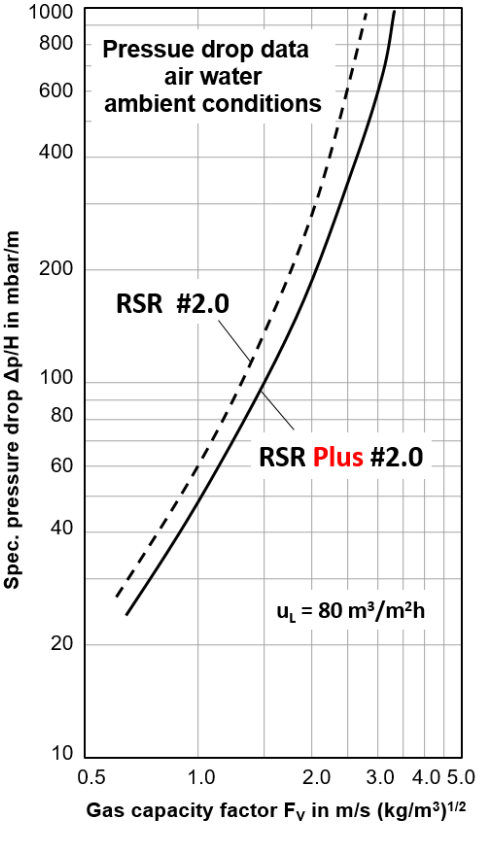
Absorption of NH_3 from air in water in the gaseous phase



Raschig Super-Ring Plus

The following figures demonstrate the pressure drop advantage of **Raschig Super-Ring Plus** #2.0 compared to Raschig Super-Ring #2.0.





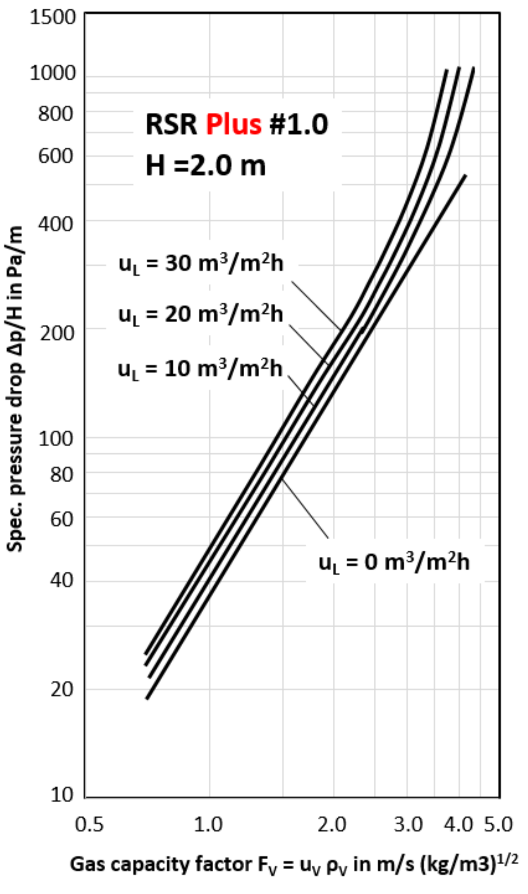
In the air/water simulator the pressure drop and capacity advantage is also proved for **Raschig Super-Ring Plus #2.0**. A **capacity advantage of 8 %** and **pressure drop reduction of 10 %** was measured.

Raschig Super-Ring Plus

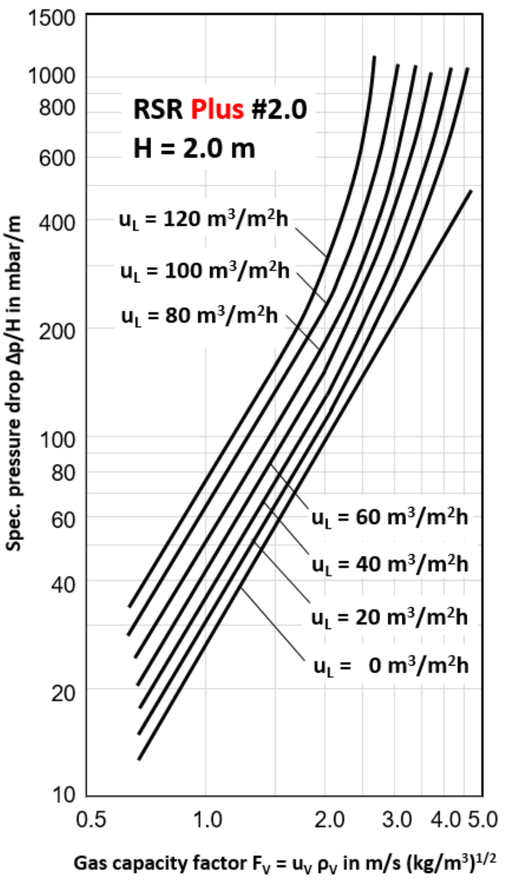
Pressure Drop data

system: air/water

Raschig Super-Ring Plus #1.0
Column diameter: 0.288 m

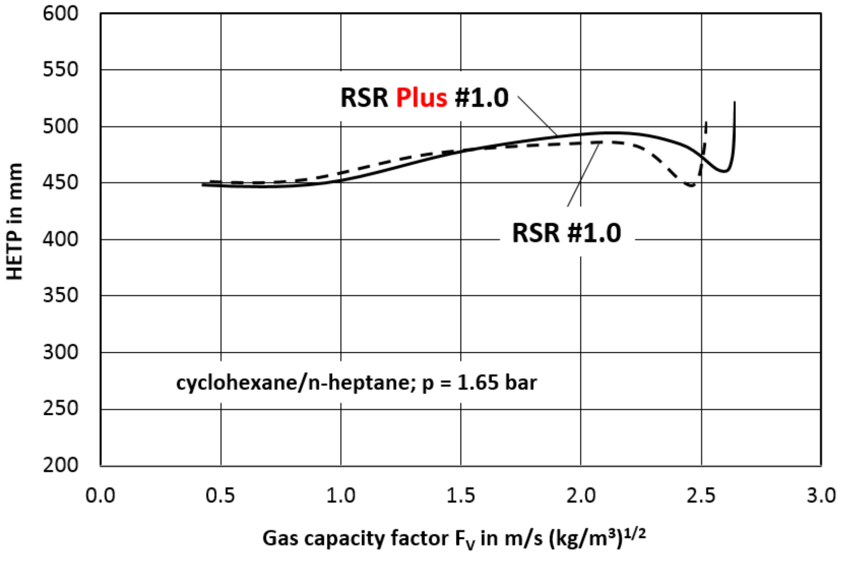


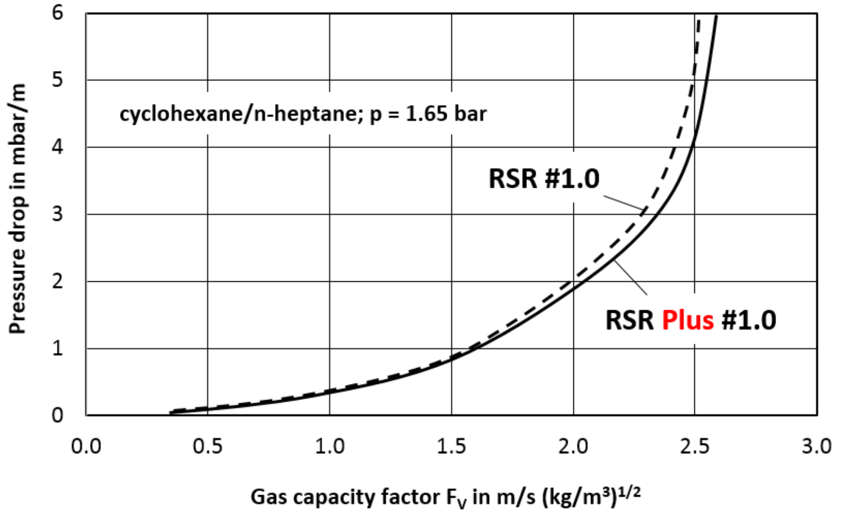
Raschig Super-Ring Plus #2.0
Column diameter: 0.450 m



Raschig Super-Ring Plus
SRP tested

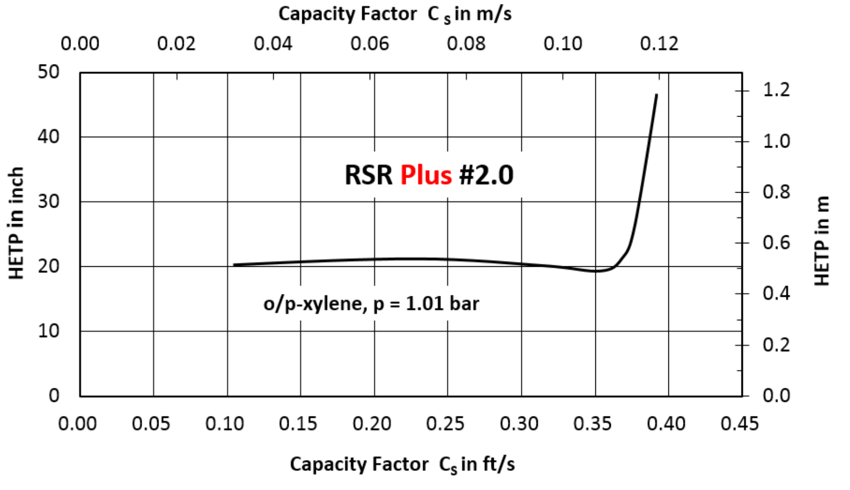
Height equivalent to a theoretical plate HETP and pressure drop per meter of packing height for metal under distillation test conditions

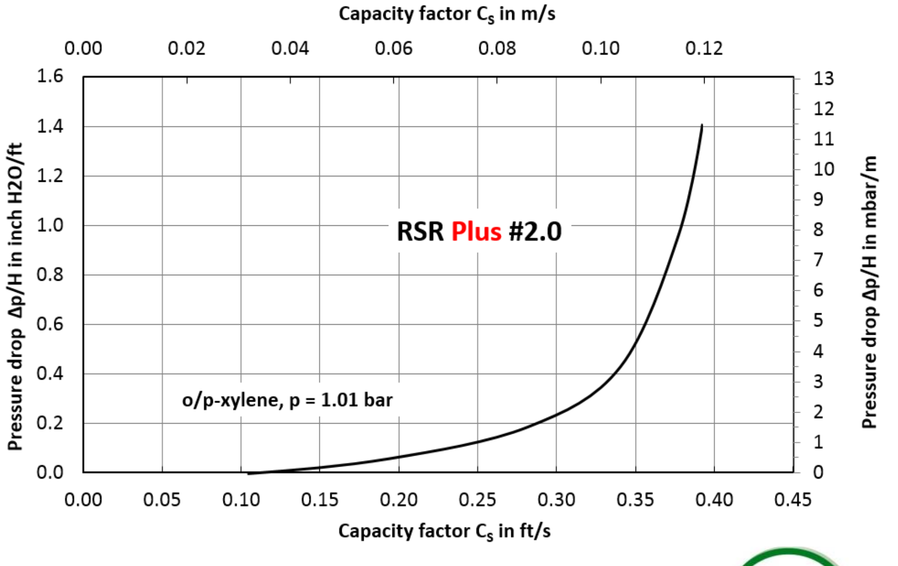




Raschig Super-Ring Plus
FRI tested

Height equivalent to a theoretical plate HETP and pressure drop per meter of packing height for metal under distillation test conditions





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Raschig Super-Ring Plus

Height equivalent to a theoretical plate HETP and flooding curve of packing for metal under distillation test conditions