



Metal Packings Process Data

Product Bulletin 201

Subject	page
▪ Raschig Super-Ring® Plus	2
▪ Raschig Super-Ring®	3
▪ Pall-Ring	4
▪ Ralu-Ring®	5
▪ Raschig-Ring	6
▪ Raschig Super-Pak®	7
▪ Raschig-Pak	8
▪ Multiplication factors	9
▪ Nomenclature	10

Superior performance by design™

RASCHIG GMBH
RASCHIG USA Inc.

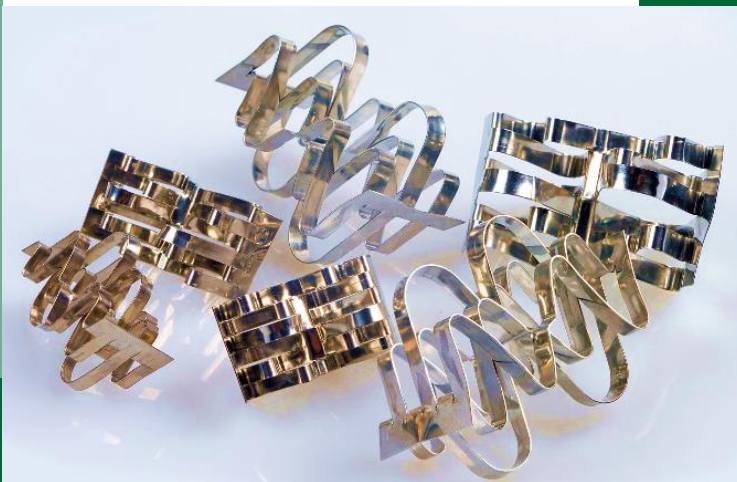


Raschig GMBH
Mundenheimer Strasse 100
D-67061 Ludwigshafen
phone: +49 (0)621 56 18 - 652
fax: +49 (0)621 56 18 - 627
e-mail: masstransfer@raschig.de
www.raschig.com

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

Size	Surface m ² /m ³	Free Vol. %
0.7	175	98
1	150	98
2	100	98



Raschig Super-Ring®

Size	Surface m ² /m ³	Free Vol. %
0.3	315	96
0.5	250	97
0.7	180	98
1	150	98
1.5	120	98
2	100	98
3	80	98



Pall-Ring

Size	Surface m ² /m ³	Free Vol. %
10x0.3	515	94
15x0.3	360	95
25x0.5	215	95
25.0.6	215	95
38x0.6	135	96
50x0.8	105	96
80x1.2	80	96



Ralu-Ring®

Size	Surface m ² /m ³	Free Vol. %
25x0.4	215	98
38x0.4	135	97
38x0.5	135	97
50.0.4	105	98
50x0.5	105	98





Raschig-Ring

Size	Surface m ² /m ³	Free Vol. %
5x5x0.3	1000	87
6x6x0.3	900	89
8x8x0.3	630	91
10x10x0.3	500	92
10x10x0.5	500	89
12x12x0.3	430	94
12x12x0.5	430	90
15x15x0.3	350	95
15x15x0.5	350	92
25x25x0.5	220	95
25x25x0.8	220	92
38x38x0.8	150	93
50x50x0.8	110	95
80x80x1.2	65	96
100x100x1.5	65	94





Raschig Super-Pak®

Raschig Super-Pak®



Size	Style		Surface m ² /m ³	Free Vol. %
150		Y	150	98
200	X	Y	200	98
250	X	Y	250	98
300		Y	300	98
350	X	Y	350	97
400		Y	400	97
500		Y	500	96
750		Y	750	96



Raschig-Pak



Raschig-Pak
(equivalent to Mellapak)

Size	Style			Surface (m ² /m ³)	Free Vol. %
125	X	Y	-	125	98
170	X	Y	-	170	98
200	X	Y	-	200	98
250	X	Y	HC	250	98
300	X	Y	-	300	98
350	X	Y	HC	350	97
500	X	Y	HC	500	98
500 Gauze	X	-	-	500	95





Process Data Metal Packings

All of the given weights refer to the stainless steel (AISI 304) in the indicated material thickness.

Other wall thickness available upon request.

The weights for other metals are obtained by multiplication with the following factors:

- Aluminium 0,35
- Monel and Nickel 1,13
- Copper 1,14
- Brass 1,09
- Titan 0,6
- Hastelloy 1,3

The technical data are average values and approximate sizes.

Subject to changes and improvements.

No claims may be derived from the information given.



Nomenclature

Latin symbols

a	m^2/m^3	specific surface area of packing
a_{Ph}	m^2/m^3	specific effective surface area of packing
C_S	m/s	$= u_V (\rho_V / (\rho_L - \rho_V))^{1/2}$ capacity factor
D_S, d_S	m	column diameter
F_V, F_G	$m/s (kg/m^3)^{1/2}$	$= u_V (\rho_V)^{1/2}$ gas capacity factor
F	-	Packing factor
g	m/s^2	$= 9.81 m/s^2$, acceleration
H	m	section height
HETP	m	height equivalent to a theoretical plate
HTU_{OV}	m	overall gas side height of a transfer unit
$k_G a_{Ph}$	1/s	volumetric mass transfer coefficient in gas phase
$k_L a_{Ph}$	1/s	volumetric mass transfer coefficient in liquid phase
L	kg/h	Liquid mass flow rate
h_L	m^3/m^3	superficial liquid hold-up
n_{th}	-	number of theoretical stages
p	bar	pressure
u_L	m^3/m^2h	superficial liquid velocity
u_V	m/s	superficial gas velocity
V, G	kg/h	Vapor mass flow rate

Greek symbols

$\beta_V a_{Ph}$	1/s	volumetric mass transfer coefficient in gas phase
$\beta_L a_{Ph}$	1/s	volumetric mass transfer coefficient in liquid phase
ρ_L	kg/m^3	liquid density
ρ_V	kg/m^3	gas density
$\Delta p/H$	mbar/m	specific pressure drop
η	Pas, kg/(ms)	dynamic viscosity

Subscripts

FI	flooding condition
L	liquid phase
V	vapour phase

