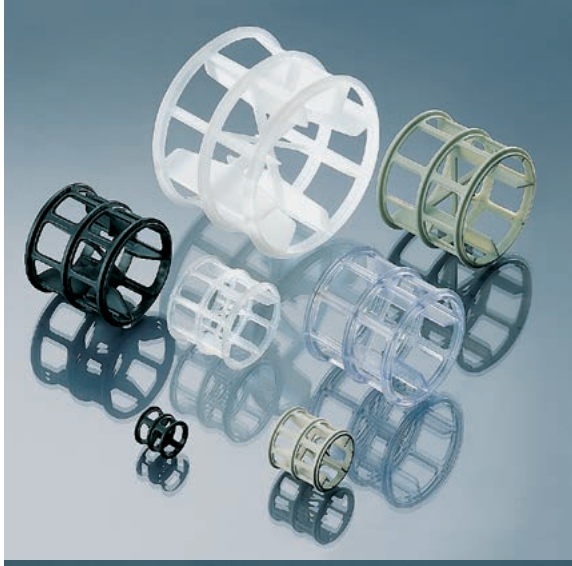
Tower packings for mass and heat transfer processes

High performance products for chemical, petrochemical and environmental applications

High performance with RVT Process Equipment tower packings



Whatever the system, mass transfer, heat transfer or biological, selecting a tower packing that optimizes the total gas to liquid interface with a low pressure drop is important for optimal performance.

RVT's tower packings meet these requirements.

Available in a multitude of geometrical configurations as well as materials of construction, RVT Process Equipment provides a packing for almost every application.

Hiflow® ring

The Hiflow® ring is a 3rd generation high performance tower packing which provides an optimal design of high mechanical stability, void fraction and superior mass transfer. When a higher performance packing is required, the Hiflow® ring is used to handle higher capacities of gas and/or liquid over conventional packing due to its open structure and optimized design without sacrificing mass transfer performance. The mechanical stability and light weight of the Hiflow® rings make them ideal for highly packed beds without requiring additional intermediate support grids. Due to the exceptional mechanical design the tendency for the liquid to migrate to the column wall is minimized.

Hiflow® ring

type size	bulk density kg/m³	surface area m²/m³	void fraction in %
Ceramics			
20-4	693	280	71
35-5	658	128	73
50-6	466	102	81
75-9	485	70	80
Weight data refer to porcelain			
Plastics			
15-7	77	313	91
25-7	90	214	91
38-1	51	150	94
50-0	48	110	94
50-3	52	95	94
50-6	44	90	94
90-7	27	76	97
Weight data refer to polypropylene			
Metals			
25-5	372	185	95
28-5	372	185	95
38-5	255	145	96
40-5	244	143	97
50-5	175	95	98
110-8	147	52	98
Weight data refer to stainless steel 1.4301 (AISI 304) with 0.5 mm and 0.8 mm wall thickness			

Standard materials

Ceramics:	porcelain
Plastics:	PP, PPH, HDPE, PVC C-PVC, PVDF, PFA, others on request
Metals:	carbon steel, stainless steel, titanium, hastelloy, nickel, copper, aluminium

Raflux ring

Raflux rings are a second generation tower packing which are generally classified as a standard tower packing. The next evolution to the cylindrical ring, the Raflux ring has an open structure which reduces the pressure drop while maintaining the same surface area of the packing. Raflux rings are available in a variety of sizes and materials (ceramics, plastics and metals). Known for its balance between mass transfer performance and pressure drop Raflux rings remain one of the most commonly used tower packings in industry.

Raflux ring

type size	bulk density kg/m³	surface area m²/m³	void fraction in %
Ceramics without cross partition			
25	610	220	73
35	572	165	76
50	528	120	78
75	638	98	78
80	672	80	79
100	670	64	71
Ceramics with cross partition			
35	638	165	72
38	594	150	73
50	572	118	75
75	672	101	71
80*	927	110	61
100*	504	87	64

Weight data refer to stoneware, deviations possible due to particularities of production process

*structured packing

Plastics			
15-7	77	313	91
25-0	90	220	90
25-8	79	220	91
38-8	68	175	92
50-1	52	110	94
50-7	41	85	94
50-8	58	110	93
90-0	56	86	94
90-8	38	86	96

Weight data refer to polypropylene

Metals			
15-3	340	360	96
25-5*	393	215	95
35-5*	285	145	96
38-5	250	135	95
50-5*	207	112	97
70-7	198	78	98
90-8	165	65	98

Weight data refer to stainless steel 1.4301 (AISI 304) with standard wall thickness between 0.3 mm and 1.0 mm

*also available with crimps

Standard materials

Ceramics: stoneware

Plastics: PP, PPH, HDPE, PVC, C-PVC, PVDF, PFA, others on request

Metals: carbon steel, stainless steel, titanium, hastelloy, nickel, copper, aluminium

RMSR – RVT metal saddle ring

The RMSR (RVT metal saddle ring) is one of the industry's highest performance metal random tower packing which has an excellent mass transfer efficiency while maintaining a very low pressure drop. Although it has an open structure the design provides a high mechanical stability able to withstand heavy liquid loading and extremely tall bed heights. Additionally the RMSR tower packing generates a uniformly packed bed inside the column ensuring optimal gas-liquid interaction and minimal channeling.

RVT metal saddle ring (RMSR)

type size	bulk density kg/m³	surface area m²/m³	void fraction in %
Metals			
25-3	228	235	97
40-4	241	170	97
50-4	158	115	98
60-4	127	90	98
70-5	116	67	98

Weight data refer to stainless steel 1.4301 (AISI 304)
with standard wall thickness between 0.3 mm and 0.6 mm

HiDur® inert ceramic ball

Balls are the simplest design of all packings. Refineries and petrochemical plants are the primary users for balls as they are using them as catalyst support media. While balls can technically be used for packed bed applications they are rarely utilized as they have an extremely high pressure drop with relatively low surface area.

HiDur® inert ceramic ball

type size	bulk density kg/m³	surface area m²/m³	void fraction in %
Ceramics			
1/8"	1350	720	44
1/4"	1350	520	44
3/8"	1350	360	44
1/2"	1350	275	45
3/4"	1350	190	45
1"	1350	144	45
1 1/2"	1350	100	45
2"	1350	72	45

Weight data refer to stoneware, deviations possible due to particularities of production process

Standard materials

Ceramics: stoneware, alumina

Saddles

Saddles are classified as standard tower packing. Even though high performance tower packings are leading the way in terms of superior performance the saddle tower packing is still utilized in many applications due to its proven performance and cost effectiveness.

Ceramic saddles are still the number one selling ceramic product in acid industries as they have excellent mechanical and corrosion properties at uncomparable low costs. A further application is the utilization in regenerative thermal oxidizers (RTO).

Saddle

type size	bulk density kg/m³	surface area m²/m³	void fraction in %
Ceramics			
# 0,5	770	540	67
# 0,75	660	338	72
# 1	616	250	74
# 1,5	561	164	76
# 2	540	120	77
# 3	513	68	78

Weight data refer to stoneware, deviations possible due to particularities of production process

Hiflow® saddles

type size	bulk density kg/m³	surface area m²/m³	void fraction in %
Ceramics			
# 2	528	132	79
# 3,5	440	78	81

Berl saddle

type size	bulk density kg/m³	surface area m²/m³	void fraction in %
Ceramics			
$^3/_8$”	840	660	65
$^3/_4$”	700	430	68
1”	630	260	70
$1\,^1/_2$”	580	178	73
2”	540	120	75

Weight data refer to stoneware, deviations possible due to particularities of production process

Standard materials

Ceramics: stoneware, mullite, alumina

Structured packings

Besides random tower packing, RVT Process Equipment also provides a broad range of innovative and conventional structured packings in metallic, thermoplastic and ceramic materials.

Structured packings made of plastics

– Lattice structured packings Hiflow® PLUS made of PP, PE and PPH
– Conventional structured packings made of PP, PE, PPH, PVDF and PTFE

Structured packings made of metals

– X (60°) or Y (45°) corrugation angles
– Standard (type N) or high-capacity (type S) corrugation geometry
– Smooth or textured surface
– Perforated or unperforated
– 0.1 mm to 0.4 mm metal sheet thickness
– Materials: carbon steel, stainless steel, others on request

Ceramic packings

– For high temperatures and corrosive process conditions

Biological carrier media

Biological treatment systems are becoming more commonplace in both air and water pollution control applications.

For these processes RVT offers carrier media with the appropriate specific surface area, the most suited geometry and material selected.

Bioflow

type size	bulk density kg/m³	surface area m²/m³	void fraction in %
Plastics			
Bioflow 9	145	800	9 x 7
Bioflow 401	88	305	40/45 x 35

Materials

PE-/PP-regranulate,
PE, virgin black,
PE, virgin natural

Cylindrical rings

Cylindrical rings represent the most basic form of standard packing and are available in a vast range of materials (plastic, metal and ceramic) and thicknesses. Due to the high mechanical strength and the wide range of material, cylindrical rings can be adapted to almost any process or system.

Cylindrical rings

type size	bulk density kg/m³	surface area m²/m³	void fraction in %
Ceramics			
6	1050	700	54
8	1000	623	57
10	820	499	64
15	780	274	66
25	610	174	73
38	550	121	76
50	520	86	77
80	536	81	77
100	670	64	71

Weight data refer to stoneware, deviations possible due to particularities of production process

Plastics			
15-1,5	164	350	81
25-1,5	138	220	85
35-1,5	82	150	90
50-1,75	71	110	92
80-2,5	66	65	93

Weight data refer to polypropylene

Metals			
15-5	567	360	93
25-5	393	215	95
35-5	285	145	96
50-5	207	112	97

Weight data refer to stainless steel 1.4301 (AISI 304)

Support systems

In acid applications, due to the agressive nature of the gaseous and liquid components being handled, support plates of special design, manufactured from acid resistant ceramic materials, are used almost exclusively.

Depending on your specific needs, the appropriate support plate can be supplied.

Standard materials

Ceramics: stoneware

Plastics: PP, PPH, HDPE, PVC, C-PVC, PVDF, PFA

Metals: carbon steel, stainless steel, titanium, hastelloy, nickel, copper, aluminium

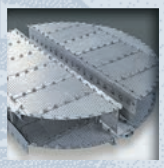
RVT Process Equipment GmbH
Range of products

The way to RVT Process Equipment

Tower packings for mass and heat transfer

Structured packings for mass and heat transfer

Column internals



Mass transfer trays

Biological carrier media

Turn-key units for waste gas scrubbing

Ammonia recovery processes

Combustion plants for the disposal of exhaust air, waste gases and liquid media

Our addresses

RVT Process Equipment GmbH
Paul-Rauschert-Straße 6
96349 Steinwiesen
Germany

Phone +49 (0) 9262 77-0
Fax +49 (0) 9262 77-771
E-Mail info@rvtpe.de

RVT Process Equipment, Inc.
9047 Executive Park Drive
Suite 222
Knoxville, TN 37923, USA

Phone +1 (865) 694-2089
Fax +1 (865) 560-3115
E-Mail info@rvtpe.net

Kunshan
RVT Process Equipment Co., Ltd
No. 66 - 68, Shaojing Road
Development Zone Kunshan
215300 Kunshan
Jiangsu province
P.R. China

Phone +86 (512) 55 18 82 52
Fax +86 (512) 55 18 81 87
E-Mail info.cn@rvtpe.com

www.rvtpe.com

Tower packings
03/2015