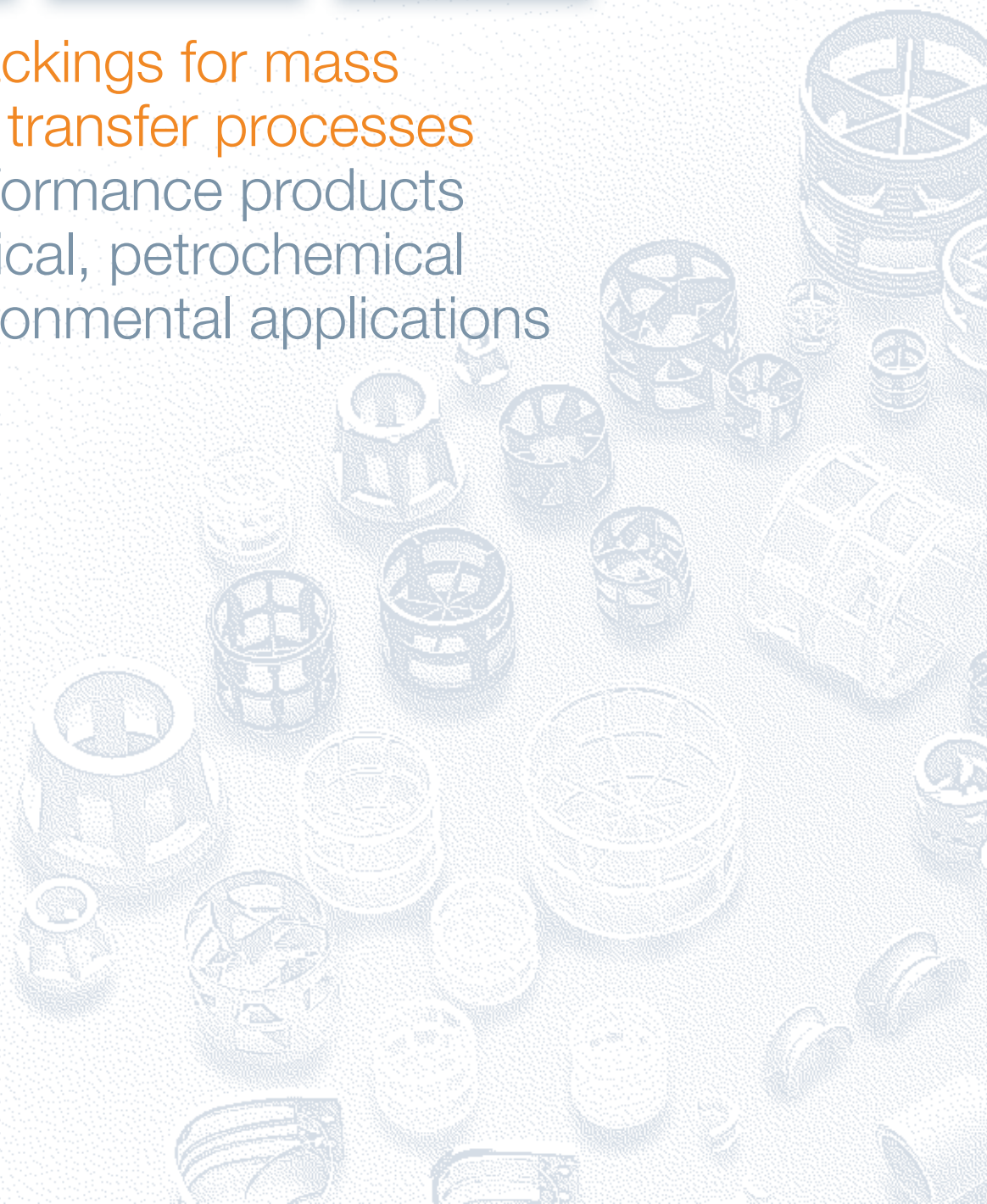




## Tower packings for mass and heat transfer processes

High performance products for chemical, petrochemical and environmental applications



# High performance with RVT Process Equipment tower packings



Whatever a 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 sought after 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 can handle higher capacities of gas and/or liquid than 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/m <sup>3</sup>	surface area m <sup>2</sup> /m <sup>3</sup>	void fraction in %
<b>Ceramics</b>			
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

<b>Plastics</b>			
15-7	80	313	91
25-7	85	214	91
38-1	51	150	94
50-0	50	110	94
50-3	52	95	94
50-6	46	90	94
90-7	27	76	97

Weight data refer to polypropylene

<b>Metals</b>			
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/m <sup>3</sup>	surface area m <sup>2</sup> /m <sup>3</sup>	void fraction in %
<b>Ceramics without cross partition</b>			
25	610	220	73
35	572	165	76
50	528	120	78
75	638	98	78
80	672	80	79
100	670	64	71

<b>Ceramics with cross partition</b>			
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

<b>Plastics</b>			
15-7	80	313	91
25-0	90	220	90
25-8	78	220	91
38-8	68	175	92
50-1	52	110	94
50-7	41	85	94
50-8	60	110	93
90-0	56	86	94
90-8	38	86	96

Weight data refer to polypropylene

<b>Metals</b>			
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 0.3mm and 1.0mm

\*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/m <sup>3</sup>	surface area m <sup>2</sup> /m <sup>3</sup>	void fraction in %
<b>Metals</b>			
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 0.3mm and 0.6mm



### 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/m <sup>3</sup>	surface area m <sup>2</sup> /m <sup>3</sup>	void fraction in %
<b>Ceramics</b>			
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/m <sup>3</sup>	surface area m <sup>2</sup> /m <sup>3</sup>	void fraction in %
<b>Ceramics</b>			
# 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®

type size	bulk density kg/m <sup>3</sup>	surface area m <sup>2</sup> /m <sup>3</sup>	void fraction in %
<b>Ceramics</b>			
# 2	528	132	79
# 3,5	440	78	81



### Berl saddle

type size	bulk density kg/m <sup>3</sup>	surface area m <sup>2</sup> /m <sup>3</sup>	void fraction in %
<b>Ceramics</b>			
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

RVT Process Equipment provides next to random tower packings 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 to 0.4mm metal sheet thickness
- Materials: carbon steel, stainless steel, others on request

#### Ceramic packings

- For high temperatures and corrosive process conditions



### Biological carrier media

In both air and water pollution control applications biological treatment systems are becoming more commonplace.

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/m <sup>3</sup>	surface area m <sup>2</sup> /m <sup>3</sup>	void fraction in %
<b>Plastics</b>			
Bioflow 9	145	800	9 x 7
Bioflow 40	92	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/m <sup>3</sup>	surface area m <sup>2</sup> /m <sup>3</sup>	void fraction in %
<b>Ceramics</b>			
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

<b>Plastics</b>			
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

<b>Metals</b>			
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 aggressive 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



# The way to RVT Process Equipment



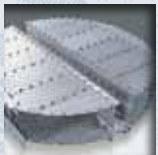
Tower packings for mass and heat transfer



Structured packings for mass and heat transfer



Column internals



Mass transfer trays



Biological carrier media



Waste gas scrubbing plants



Ammonia recovery processes



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



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