Saint-Gobain
NorPro

Ceramic Packing Loading Guidelines

Packaging

NorPro® ceramic packings are supplied in small cartons or bags. Inspect the product packaging for physical integrity prior to lifting or movement to ensure that it has not deteriorated. Damaged or deteriorated packaging can create hazards to personnel or to equipment.

Handling

Do not open packaging until the goods are ready for installation. Use proper personal protective equipment and safe handling procedures in accordance with the Safety Data Sheet/ Product Information Sheet.

Loading

NorPro® ceramic mass transfer packings, including Proware™ saddles, super saddles and Raschig rings, may be loaded into a tower through chutes equipped with loading socks or directly from their original shipping cartons or bags. Likewise, HexPak™, Snowflake™ and TyPak® heat transfer packings may be loaded in the same way. These products are referred to as random packings because they will fall in random orientation as they are poured into a tower during loading.

Larger cylindrical packings like Proware™ cross partition rings are typically stacked by hand inside a tower using a deliberate pattern.

Always inspect the vessel and remove any foreign material before loading. Inspect fixed supports and screens to make sure they are intact and firmly secured.

Once loading is completed, make sure that all packaging, boards and other extraneous materials are removed from the tower.

Random Packings

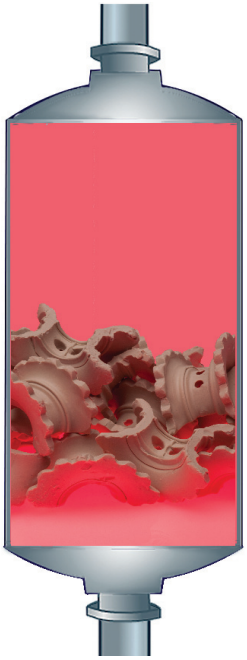
Random packings are typically poured into the tower using the “dry” method. In some cases, the “wet” method may be appropriate.

Saint-Gobain NorPro Ceramic Products

Proware™ Saddles
Proware™ Super Saddles
Proware™ Raschig Rings

Carbon Raschig Rings
Proware™ Cross Partition Rings

HexPak™ Heat Transfer Packing
Snowflake™ Heat Transfer Packing
Ty-Pak® Heat Transfer Packing



“Dry” Loading Method

When packings are poured into a tower, the sock or shipping packaging should be lowered to the proper height above the surface of the bed and opened slowly and carefully.

Begin pouring the packing at the lowest possible point in the tower and work upward, spreading the packing evenly over the cross sectional area of the tower as it is filled. This will ensure uniform loading density and reduce the likelihood of packing breakage and flow maldistribution during operation. Avoid dumping the packing into large piles; this will create variations in packing density. To minimize breakage and compaction, limit the free-fall distance of the packing to less than two feet.

In larger towers, temporary plywood decking should be placed on top of the packing surface to provide footing for installers as the tower is filled. Avoid excessive walking during the loading; this can cause breakage or compaction of the packing. Do not stand directly on the surface of the packing.

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Loading Guidelines

Stacked Packings

Stacked packings. like cross partition rings, are manually placed inside the tower in a planned arrangement. Stacked packings may be used as a secondary support layer directly above the packing support or as the tower fill in applications associated with unusually high flow rates and low pressure drops. In these applications, stacked packing may offer performance benefits.

Stacked packing may be installed with either a diamond or a square pattern.

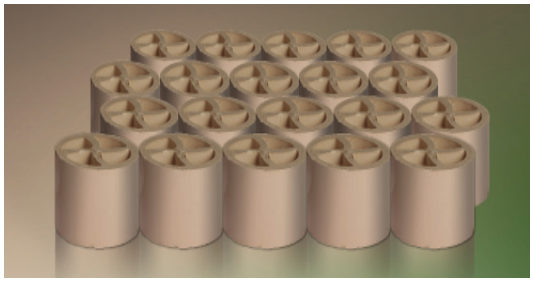
Free space may also be varied by either aligning or offsetting each subsequent layer of stacked packing. Resistance to flow will be minimized by aligning each layer. Better distribution and contact will be achieved by offsetting each layer.

"Dry" Loading (Continued)

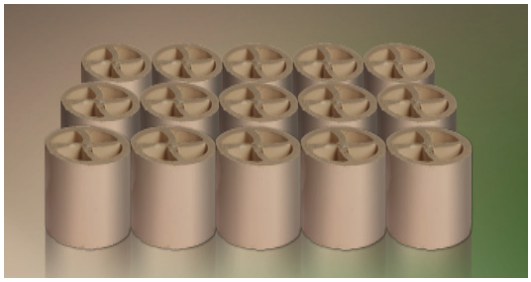
The tower should be loaded to achieve the intended packing voidage. Extra packing is typically loaded to allow for settling during operation. The top of the packed bed should be leveled.

"Wet" Loading Method

Some applications are suitable for loading the packing into a water-filled tower. This procedure can reduce breakage and assure maximum randomness in the bed. At least four feet of water, if possible, should be kept above the surface of the packed bed at all times; preferably the water level should be up to the loading manway. However the "wet" packing method should not be used in a dry process or in towers not designed to withstand a hydrostatic head.



Diamond Pattern: Provides greater surface area per cubic foot.



Square Pattern: Provides a higher percentage of free gas space.

Visit www.norpro.saint-gobain.com or contact one of our sales offices for more information on the selection of NorPro® mass transfer or heat transfer ceramic packings.

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