Johndec Engineering Plastics PTY LTD
Engineers of Thermoplastics & Chemical Fume Handling

Unit 1/45 Attwell Street, Landsdale 6065
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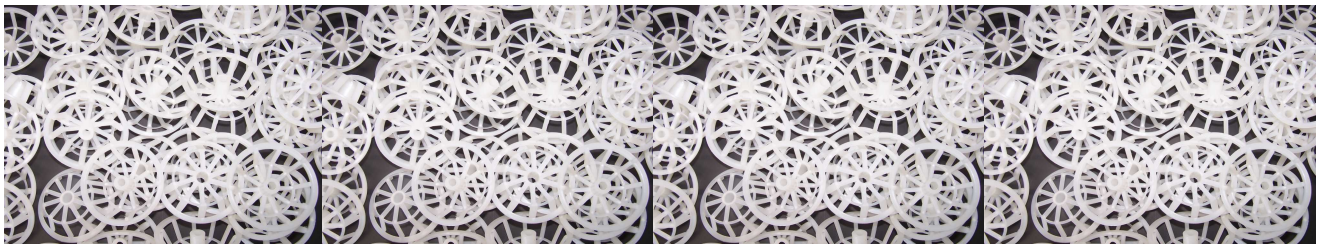
Johndec
SCRUBBER PACKERS
For superior mass transfer efficiency in packed scrubbers and towers



FOR CORROSIVE MISTS, GASES AND ENTRAINED SOLIDS

The high-efficiency packing for air pollution control with lower equipment costs and operating expenses.

- ✓ Up to 53% free volume.
- ✓ 25% the weight of ceramic packing.
- ✓ No breaking in loading.
- ✓ Two to three times more interstitial hold up points.
- ✓ Non-wetting surface for better gas absorption.
- ✓ Lower pressure drops as much as 86%.
- ✓ Non-plugging.

JOHNDEC CONCEPT REVOLUTIONISES MASS TRANSFER ENGINEERING

Johndec packing now has more than 10 years of successful service behind it. Industry now uses Johndec Packing to solve any gas absorption and air pollution control problems involving mass transfer.

The invention of this packing was the result of a new insight into a major transfer principle:-
Re-generation of the scrubbing liquid surface which maximizes absorption capacity is of far more critical importance to gas absorption efficiency that the need for large surface areas - basis on which conventional packing is used.

Johndec Packers greater liquid surface regeneration - and 30% to 40% greater gas absorption capacity. Its unique helical toroid design provides significantly superior agglomeration / dispersion of liquid drops.

Johndec Packers greater free area permits greater gas thru put. The superior gas absorption and higher capacity are achieved with lower energy requirements - smaller fans and pumps, lower horsepower - than required by another type of packing.

ADVANTAGES OF CONVERTING TO JOHNDEC PACKERS

- ✓ Increase gas flow capacities.
- ✓ Improve scrubbing efficiencies to high levels.
- ✓ Provide efficiencies to 99.95% in gas absorption towers.
- ✓ Non-plugging with moderate dust loadings.
- ✓ Eliminate future cost of replacing packing. Minimise investment in fume scrubbers.

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- ✓ Reduce daily operating costs, replacing conventional ceramic or other ting-type packing with permanent Johndec Packers immediately provides the user many of the operating advantages listed above.
- ✓ Converting to Johndec Packers may also eliminate the need for adding or replacing existing equipment in order to accommodate growing plant operation. Higher scrubbing efficiencies provided by replacing old packaging with Johndec Packers may also permit the user to comply with new pollution control legislation.

LIQUID DISTRIBUTION CHARACTERISTICS

As a result of the droplet flow mechanism, mal-distribution of liquid does not occur within heights of packing as great as nine metres. This means high efficiency at low liquid flows. Considerable savings are achieved since there is no need for expensive redistributors with their corresponding extended column length requirements. The use of intermediate support trays are necessitated only by the temperature effect on the structural stability of the packing. Recommended intermediate support distances are as follows: -

- ✓ Three (3) metres at 100°C
- ✓ Fifteen (15) at 90°C
- ✓ Six (6) metres at 50°C
- ✓ Below 50°C, there should be an immediate support plate at nine metre intervals.

FOR BEST GAS ABSORPTION

The superior gas absorption capacity of Johndec Packers compared to other types of packing. A given fresh drop of scrubbing liquid goes through a series of agglomeration / dispersion / surface renewal cycles as it passes over the Johndec Packer filaments. The relatively slight liquid surface renewal in the other conventional packing designs is achieved largely through a surface “rippling” obtaining at the expense of higher energy costs.

FOR REMOVAL OF ENTRAINED PARTICLES

With it unique helical toroid shape, Johndec Packers packing can be used effectively as an entrained liquids and solids from air streams. This is accomplished by allowing the air stream to pass through or around fixed targets - and significantly ore targets per cubic metre that any other extended surface packer - higher efficiencies are obtained. Because the suspended liquid or solid particles have greater inertia, they will tend to impact and deposit on this target rather than follow the air around the targe the better chance it has of striking the target and being removed.

DESIGN ADVANTAGES OF HIGH-EFFICIENCY

- ✓ 20% TO 50% lower column heights.
- ✓ 40% to 70% smaller columns diameters.
- ✓ 75% lighter internals.
- ✓ Smaller fan and motor requirements.
- ✓ Higher flooding limits
- ✓ Good efficiencies at low rates.

The combination of the low weight (120kg m^3) and the use of smaller towers for the same service permit lighter shell construction. A further significant advantage is that “open” support plates of inexpensive construction can be used. This produces a significant saving over the complex cap-type support necessary for heavier packing.

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SCRUBBER PACKER 50mm

Physical data

Nominal Size	50mm
Weight	53 kg/m³
Surface Area	83 m²/m³
Void Fraction	95 %
Material	PP

Pressure drop

Air / Water 20 °C, 1 bar