

## Johnson Screens' Support Grids Solve Leakage Issues of Molecular Sieve



### Introduction

A natural gas plant in the Southern United States installed Johnson Screens' Vee-Wire® support grids, in their molecular sieve dehydrators, to replace the mesh grating assembly that was becoming an increasingly greater maintenance issue and molecular sieve containment problems.

### Background

The natural gas plant had three molecular sieve dehydrator vessels outfitted with a Johnson Screens Vee-Wire support grids. The support grids have performed with no maintenance or repairs since their installation. In the 14 years since the installation, an additional vessel was added to increase plant capacity. The engineering firm that designed the vessel supplied a mesh grating assembly with a non Vee-Wire support grid. Shortly after the installation of the alternative support grid, the plant began to have maintenance and leakage issues with the newly supplied mesh and grating assembly.

## Problem

The mesh assembly leaked molecular sieve, requiring several shutdowns to patch and repair the assembly. The failure experienced at the plant commonly occurs with mesh due to mesh's inherent lack of strength. In addition, there were problems sealing the edges of the mesh panels inside the vessel. As a result, the dehydrator lost molecular sieve that moved through the plant, causing costly and difficult maintenance problems and diminishing plant capacity.

## Solution

Johnson Screens was contacted to design a new Vee-Wire support grid to replace the mesh grating assembly. After completing the new grid, Johnson Screens' field service representatives provided the installation services.

The field service team first removed the leaking mesh grating assembly. Then the Vee-Wire support grid was installed using J-bolts to prevent uplift of the bed support during operation. Rope packing was installed between the vessel wall and the grid OD to prevent the possibility of bypass at the vessel/grid interface.

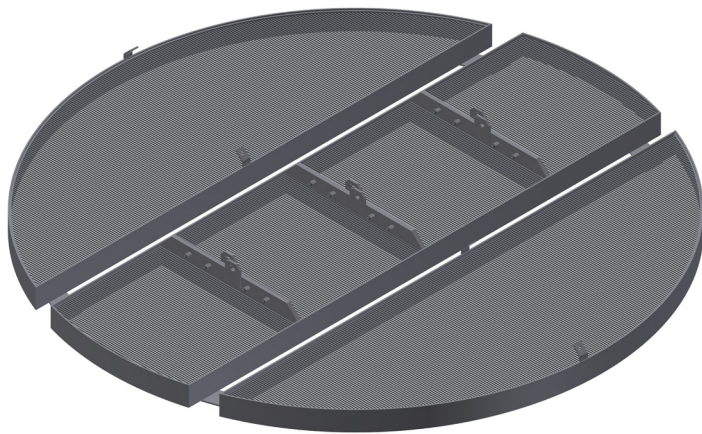
The expensive maintenance problem was solved in the molecular sieve dehydrator vessels. "No gas plant wants to go through this type of outage since a load of molecular sieve and downtime can be costly," said key plant personnel. The plant was pleased with the results of the Vee-Wire support grid. During a follow-up visit to their plant, it was confirmed that the replacement grid was running as well as the original Vee-Wire support grids that have been operating continuously without repairs for over twenty years.

## Note

Johnson Screens' support grid design has continued to improve, making the construction simpler and less expensive to produce, while at the same time maintaining a highly reliability and durable product.

An updated design to the annulus seal ensures ease of installation, greater thermal growth allowance and improved sealing capabilities.

In large diameter molecular sieve dehydrators, additional technology advances have been developed to further secure the Johnson Screens support grid. The technology results in greater reliability of the unit through improvements in the sealing design.



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