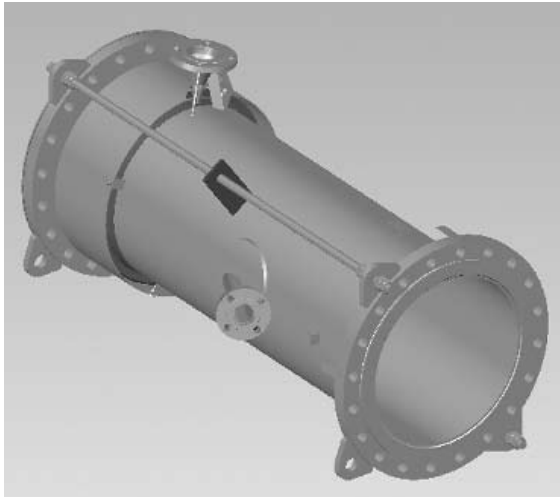


## Leak monitoring metal expansion joint in critical environments

**Service:** Eliminate effect of pressure and vibrations



<b>Pressure range:</b> 2 BarG	<b>Medium:</b> Chemicals
<b>Temperature:</b> 66°C	<b>Country of installation:</b> Belgium
<b>Movements:</b> Axial	<b>Country of placing the order:</b> Holland
<b>Dimension:</b> DN500	

### Description of application:

Replacement of a leaking bellows in a large petrochemical plant. A two ply testable metal expansion joint is proposed to prevent leakage from the bellows being exposed to the environment and minimize the risk of shutdowns due to a leaking bellows. A two ply testable bellows has two plies and each ply is independently designed for the full system design conditions. Two individual cylindrical tubes are formed: the hollow space between the tubes allows for a wire mesh to be fitted between the tubes/plies. At one end of the bellows a test port is welded, and to the outer ply tangent a second test port is welded. Gauges, leak monitors, pop up detectors or direct monitoring to the control room could be attached to the test ports to give the inspector immediate access to information that there is an inner ply leak to plan a refurbishment or replacement in future shutdowns. The inspector can carry out pressure decay tests between the plies both on line and during a shutdown to ensure the integrity of both plies. In this case welding integrity and product quality were controlled by using NDT (non-destructive tests) such as dye penetrant, X-ray, pressure- and leaktests. Surface treatment was also part of the two ply package solution.