

## VSP-leak detection units and vacuum boxes

### General

Vacuum leak testers of the VSP series enable fast and reliable leak testing of the weld seams of containers, pipelines and many other welded constructions using the bubble test method according to DIN EN 1593.

This test method can also be used to inspect castings for continuous defects (cracks, porosities). Leak detection with VSP devices is carried out e.g. before a pressure test. VSP devices are used instead of the pressure test if this would only be possible with an unrealistically high effort or if the pressure test, e.g. in the case of components with thin walls compared to their dimensions, could only provide conditionally informative results.

VSP leak testers and vacuum bells are also used in particular in cases where the components to be tested are only accessible from one side or when open constructions are involved (for example, tank bottoms or catch basins).

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### Procedure

In the test method used with VSP devices, the area of the weld seam or casting surface to be tested for leaks is wetted with a foaming test agent. Aqueous solutions are suitable for this purpose, such as those used for testing compressed air / and gas systems, e.g. **MR® 99 Safety Leak Detector**.

After applying the test liquid, the test area is covered with a vacuum bell adapted to the construction geometry. The vacuum bell is connected to the leak tester via a vacuum hose and is evacuated within seconds when the valve is pressed.

A foam fungus quickly forms under the viewing pane of the vented vacuum bell jar in the event of a continuous fault. In this way, any leaks can be easily localised and then repaired.

The leak detection limit that can be realised under practical test conditions is about  $10_{-5}$  to  $10_{-4}$  Pa\*m<sub>3</sub>/s ( $10_{-4}$  to  $10_{-3}$  mbar\*l/s) due to the procedure. To ensure that even small leaks can be reliably detected, the vacuum under the bell must be maintained for at least 30 seconds.

\*\*technical changes reserved!\*\*

## VSP-leak detection units and vacuum boxes

### VSP-Leak detection unit

#### Technical description:

VSP-Leak detection units have proven their worth especially because of their robust structure and suitability for use on construction sites. They offer tailor-made solutions adjusted to the customer's requirements and fields of application.

Low maintenance, self-lubricating vacuum pumps with a suction power approx. 8 m<sup>3</sup>/h built in a stable welded steel tube framework with two carrying handles, equipped with vacuum meter, vacuum regulation valve, air filter, dirt filter, water separator, splash-proof protective motor switch as well as 3 m cable.



Order number: 820

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## VSP-leak detection units and vacuum boxes

### VSP-Vacuum boxes

VSP-Vacuum boxes consist of an approx. 100 mm wide break-proof sight glass made of highly transparent, flexible polycarbonate which is equipped with a special soft rubber seal.

The vacuum box is evacuated by a freely swivelling valve which seals in any orientation. The valve has a conical adapter for the ½" vacuum hose. We also deliver connection couplings instead of the conical adapter if required.

All VSP-vacuum boxes are equipped with a vacuum meter to avoid misinterpretation due to a wrong testing vacuum. Economic length lies between 500 and 750 mm. Other lengths are available on request.



Overlap fillet weld-vacuum box



90° Fillet weld-vacuum box



Round vacuum boxes



270° Fillet weld-vacuum box




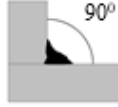
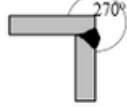



3x270° Edge weld-vacuum box

**\*\*technical changes reserved!\*\***

**VSP-leak detection units and vacuum boxes**


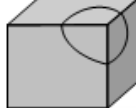
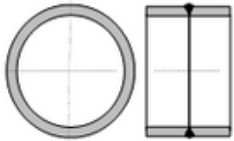
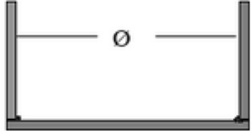
**Available vacuum bells and which welds can be tested:**

<p><b><u>Butt seam-vacuum box</u></b> The economic length is between 500 - 750mm <b>Order number: 150mm (1082), 250mm (1481), 300mm (1865) 500mm (1016), 600mm (1061), 750mm (1439)</b></p>	
<p><b><u>Overlap fillet weld vacuum box</u></b> The economic length is between 500 - 750mm  <b>Step height 6 mm</b> for platethicknesses approx. 3 - 9mm, <b>500mm (1623), 600mm (121), 750mm (427)</b> <b>Step height 8 mm</b> for plate thicknesses approx. 5 - 11mm, <b>500mm (1300), 600mm (1457), 750mm (1447)</b> <b>Step height 10 mm</b> for plate thicknesses approx. 7 - 13mm, <b>500mm (717), 600mm (1510), 750mm (1217)</b></p>	
<p><b><u>90°-Fillet weld vacuum box</u></b> (straight version for box-shaped containers) The economic length is between 500 - 600mm <b>Order number: 1557</b></p>	
<p><b><u>Miniature 90°- Fillet weld vacuum box</u></b> incl. reducing adapter (straight design for box shaped containers)  Special design for testing the 90° edges of collecting basins according to the German „GefStoffVO“ for dangerous liquids (for basin heights from approx. 40 mm) <b>Order number: 1475</b></p>	
<p><b><u>270°-Fillet weld vacuum box</u></b>  Roof-like construction with rounded edges for testing the <b>outer</b> 90° edge <b>Order number: 1558</b></p>	
<p><b><u>3x90° Edge weld vacuum box</u></b>  For testing the <b>inner</b> 3x90° edge seams <b>Order number: 1404</b></p>	

\*\*\*technical changes reserved!\*\*\*

**VSP-leak detection units and vacuum boxes**

**Available vacuum bells and which welds can be tested:**

<p><b><u>Miniature 3x90° Edge weld vacuum box</u></b> incl. reducing adapter</p> <p>Special design for testing the <b>inner</b> 90° edges of collecting basins according to the German „GefStoffVO“ for dangerous liquids (for basin heights from approx. 40 mm) <b>Order number: 271</b></p>																									
<p><b><u>3x270° Edge weld vacuum box</u></b></p> <p>For testing the <b>outer</b> 3x270° edge seams <b>Order number: On request</b></p>																									
<p><b><u>Vacuum boxes for testing butt welded circumferential seams</u></b></p> <p>In the miniature-version the sight glass preformed at nominal size covers two diameter ranges; i.e. it is expansible to the next higher diameter range.</p> <p>(Miniature-) Circumferential seam vacuum box (DN25-DN80) Circumferential seam vacuum box (DN100–DN1600) <b>Order number: On request</b></p>																									
<p><b><u>Vacuum boxes for testing circumferential fillet welds</u></b></p> <p>The vacuum boxes are tailor-made for the resp. container diameter at an economical length of 500 – 750 mm.</p> <p>90° Circumferential fillet welds vacuum box</p> <p><b>Order number:</b></p> <table border="1" data-bbox="165 1603 826 1861"> <tr> <td>139</td> <td>(diameter approx. 2000-2600)</td> <td>Length: 500mm</td> </tr> <tr> <td>1755</td> <td>(diameter approx. 2500-3200)</td> <td>Length: 500mm</td> </tr> <tr> <td>1094</td> <td>(diameter approx. 3100-3850)</td> <td>Length: 600mm</td> </tr> <tr> <td>1848</td> <td>(diameter approx. 3600-4650)</td> <td>Length: 600mm</td> </tr> <tr> <td>469</td> <td>(diameter approx. 4250-5850)</td> <td>Length: 600mm</td> </tr> <tr> <td>1920</td> <td>(diameter approx. 5400-8300)</td> <td>Length: 700mm</td> </tr> <tr> <td>1763</td> <td>(diameter approx. 8000-10500)</td> <td>Length: 700mm</td> </tr> <tr> <td>251</td> <td>(diameter from 10000)</td> <td>Length: 700mm</td> </tr> </table>	139	(diameter approx. 2000-2600)	Length: 500mm	1755	(diameter approx. 2500-3200)	Length: 500mm	1094	(diameter approx. 3100-3850)	Length: 600mm	1848	(diameter approx. 3600-4650)	Length: 600mm	469	(diameter approx. 4250-5850)	Length: 600mm	1920	(diameter approx. 5400-8300)	Length: 700mm	1763	(diameter approx. 8000-10500)	Length: 700mm	251	(diameter from 10000)	Length: 700mm	
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## VSP-leak detection units and vacuum boxes

### Available vacuum bells and which welds can be tested:

<p><b><u>Vacuum boxes for special test requirements</u></b></p> <p>Round vacuum boxes Square and angular vacuum boxes with rounded edges <b>Order number: On request</b></p>	
<p><b><u>Highly flexible, special vacuum boxes</u></b></p> <p>Vacuum boxes with an extremely highly flexible sight glass for adaptation to geometries with curved surfaces with more than one curvature axes, measurements approx. 100 x 150 mm and bigger. <b>Order number: On request</b></p>	
<p><b><u>Specially designed vacuum boxes</u></b></p> <p>For many test requirements which are not mentioned here, e.g. for leak testing of overlapping round seams (sleeves), connecting piece seams and many other special geometries, vacuum boxes have already been designed, or may be designed according to a sample or drawing. <b>Order number: On request</b></p>	

**Interested? Then send us your detailed inquiry, including drawings of the test pieces so that we can tailor make our product for your purposes.**

### Suggested products

MR® 99, Safety Leak Detector, aerosol can, 400 ml content (1 VE = 12 cans)  
MR® 99, Safety Leak Detector, ready-to-use solution in 10 L  
MR® 99 A, safety leak detector, water-soluble concentrate in 10 L containers (mixing ratio 1:10)

### Delivery forms



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