

# Multi Crimp Rings (MCR) 150

Recommended for various Automotive and Industrial Applications

## Benefits

- Ultimate space-saving
- Efficiently and reliably installed
- Optimum sealing, no leakage



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**Full material cross-section over 360°:** constant pressure applied uniformly around the circumference

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**Flexible diameter reduction:** high, adjustable surface pressure, very easy to install

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**Low assembled height:** minimum space requirement, no imbalance on rotating parts

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**Specially formed strip edges:** reduced risk of damage to parts being clamped

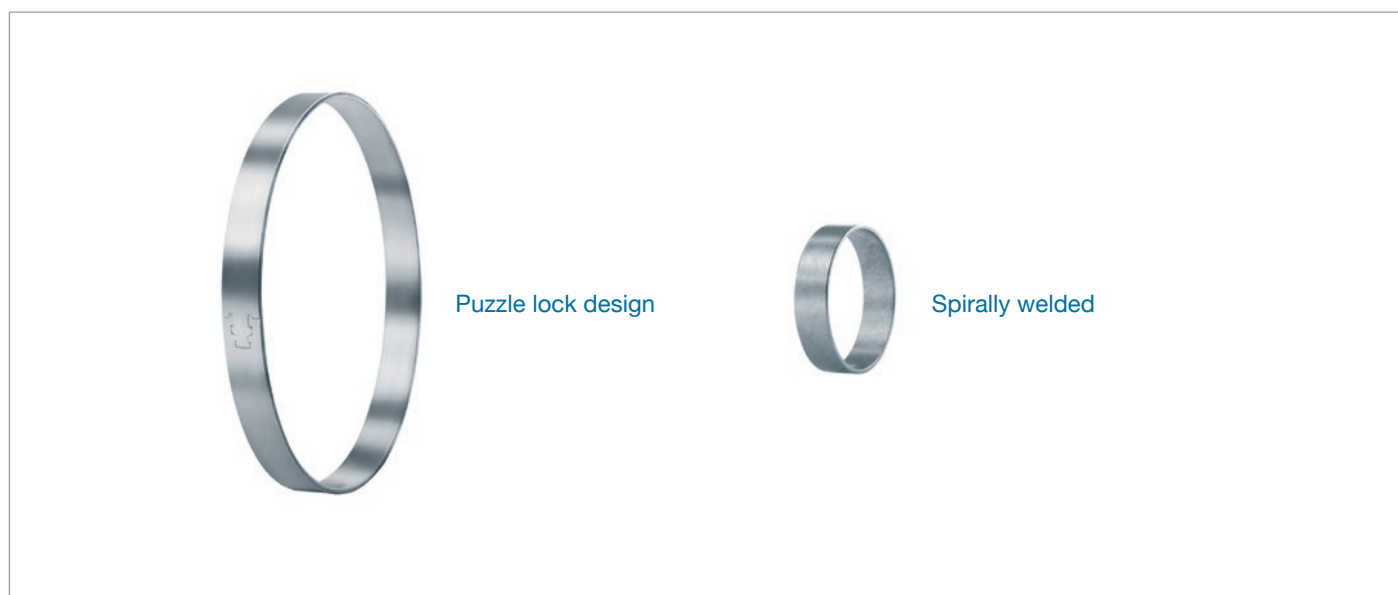
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**Aluminum version:** reduced weight

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StepLess<sup>®</sup>



## Multi Crimp Rings 150

### TECHNICAL DATA OVERVIEW

#### MCR with Puzzle lock design

##### Material

Aluminum, material EN AW-5754

##### Corrosion resistance according to DIN EN ISO 9227

≥ 400 h

##### Size range

24.5 – 120.0 mm

##### Material dimensions

7.0 × 1.5 mm

10.0 × 1.5 mm

##### Diameter reduction \*

Ø 24.5 – Ø 26.5 mm: max. up to Ø 21.9 mm

Ø 27.0 – Ø 39.5 mm: max. 5 mm

Ø 40.0 – Ø 120.0 mm: max. 6 mm

#### MCR spirally welded

##### Material

Stainless steel, material no. 1.4307/UNS S30403

##### Corrosion resistance according to DIN EN ISO 9227

≥ 800 h

##### Size range

5.0 – 50.0 mm

##### Material dimensions

On request

##### Diameter reduction \*

Ø 5.0 – Ø 19.0 mm: application-specific

Ø 19.5 – Ø 30.0 mm: max. 20%

Ø 30.5 – Ø 50.0 mm: max. 6 mm

\* The diameter reduction is dependent on the nominal diameter of the MCR.

## TECHNICAL DATA OVERVIEW

### Puzzle design (interlock)

The interlock is a mechanical connection employing very precise mating elements. Its design creates a positive mechanical connection. It ensures secure connection of the ring ends within the permissible load range.

### Field of application

The **MCR with a puzzle lock** is universally applicable due to its large diameter area, but is especially suitable for thermoplastics.

The **spirally welded MCR** is especially suitable for cooling and heating water circuits as well as for airbag systems.

### Material dimensions

Oetiker Multi Crimp Rings are available in a range of dimensions and materials. The band dimensions should be chosen to take into account the required radial force, the nature of the hose, to ensure the necessary sealing and/or retention properties under the relevant ambient conditions, and any mechanical loads on the MCR.

### Diameter reduction

The maximum possible diameter reduction is dependent on the MCR's nominal diameter. The MCR's nominal diameter should be kept as small as possible in relation to the diameter of the parts being clamped in order to shorten shrinking times, simplify positioning, and reduce the material load on the MCR. Oetiker will be pleased to help you to find the correct choice for your specific application.

A change in the material structure and the band sizes must necessarily take place during assembly. Bear in mind that the smaller the corresponding MCR diameter is, the more drastic these changes will be. The reason for this is the material quantity in relation to the diameter.

The required degree of compression, or the surface pressure exerted on the part being clamped by an MCR depends on the radial force which, in turn, determines the retention and sealing properties.

Each surface pressure must be determined according to the specific application. If the Oetiker shrinking tools specially developed for this purpose are used, an approximately 360° surface pressure of the parts being clamped is achieved without any overlap due to the inner surfaces of the MCR.

### Recommendations for installing MCRs

Oetiker Multi Crimp Rings should be closed using the swaging tools developed for them. The Oetiker Swaging Tool ELS 01 offers many advantages for industrial use, for example, opening of the fixture for optimum accessibility and automatic locking, through to the electronic verification of process parameters for force-priority closure. Alternatively, conventional multi segment hydraulic and pneumatic swaging tools are commercially available. For small lots in the diameter range 5.0 – 25.0 mm, Oetiker provides the Cordless Crimp Pincer CC 20.

### Tolerance compensation

Tolerance compensation when installing Oetiker Multi Crimp Rings depends entirely on the function sequence of the assembly tool. Fundamentally, with diameter-priority assembly of Oetiker Multi Crimp Rings, tolerance compensation is impossible, because the MCR is simply closed to a specified diameter. This means that the tolerances of components exert their full effect on the degree of compression or the surface pressure applied to the part being clamped. With this type of assembly, everything else is subjugated to achieving a defined diameter.

Thus, tolerance compensating assembly of an MCR can only be achieved with force-priority regulation. Or, to put it a different way, the basic principle here is not pressing to a given diameter, but achieving an empirically determined closing force, and so the surface pressure associated with it. With the innovative closure concept of the "Oetiker ELS 01", high process reliability combined with the force-priority, verified assembly of Oetiker Multi Crimp Rings is assured. Gauges for checking the closing force are also available.