

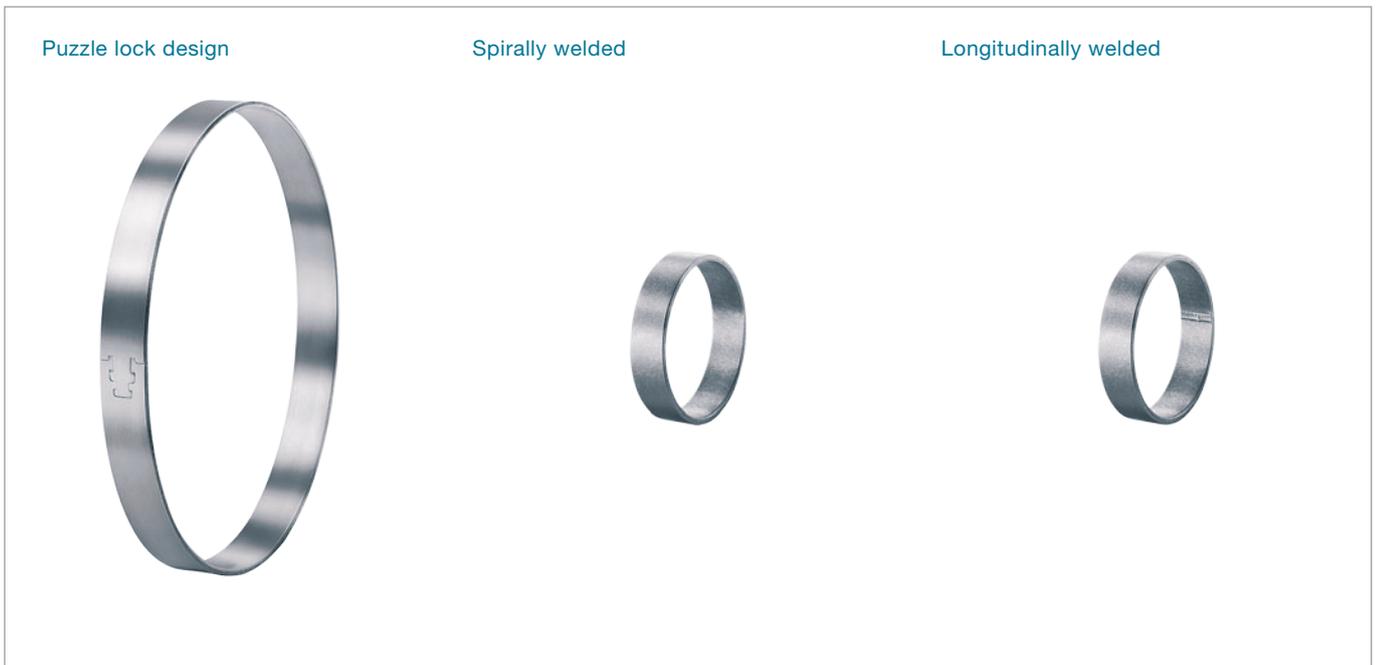
Technical Data Sheet

Multi Crimp Rings

Product Group 150



Connecting Technology



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

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

Nominal diameter up to 120 mm: suitable for universal application, in particular for thermoplastic components

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

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

Aluminium version*: reduced weight

Multi Crimp Rings Product Group 150

Materials

Puzzle lock: aluminium, Material No. 3.3535

Spirally welded: stainless steel, Material No. 1.4301/
UNS S30400

Longitudinally welded: aluminium

Range

Diameter range

5.0–120.0 mm*

* Depending on product type

Some diameters and product variants are only available if an appropriate minimum quantity is ordered.

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.

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.

OETIKER Multi Crimp Rings should be closed using the swaging tools developed and approved for them by OETIKER. The maximum practical diameter reduction depends on the diameter selected, as follows:

MCR diameter from 27 to 40 mm

Max. diameter reduction = 5 mm

MCR diameter from 40.5 to 120 mm

Max. diameter reduction = 6 mm

In the larger diameter range, the maximum diameter reduction is also restricted by the segment radii of the swaging tool. These must be chosen to correspond to the required outside diameter of the MCR after installation.

The installation process necessarily involves changes to the structure of the band material and changes in band dimensions, because the diameter reduction of an MCR is caused by the tool.

It is important to take into account that these changes become more severe the smaller the diameter of the selected MCR. The reason for this is that the quantity of material available, in effect the length of band, becomes smaller as the diameter is reduced. The band length is reduced according to the formula:

Reduction in circumference = diameter reduction $\times \pi$

For shorter installation times, easier positioning and lower stresses in the MCR material, the nominal diameter of the MCR should be as close as possible to the diameter of the part being clamped.

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. The load on the interlock element is determined by the reaction force that counters the surface pressure. The surface pressure must be individually determined for each application.

When the specially developed OETIKER swaging tool is used, the inner surface of an MCR applies an almost completely uniform surface pressure to the part being clamped over the full 360°. The result: optimum installation and practically no out-of-balance forces from projecting parts.

Spirally welded

As an alternative to OETIKER Multi Crimp Rings with interlock, in the range 4 mm to 50 mm, OETIKER Multi Crimp Rings are available made from spirally welded stainless steel tube (Material No. 1.4301/UNS S30400).

Manufacturing process

A special feature of the manufacture of this type of MCR is the spiral rolling and welding of flat strip material to form tubes. This process was specially developed for the well-proven 1-Ear and 2-Ear Clamps from tube, and ensures the uninterrupted, robust geometry of these MCRs, known as the "One-piece Design". Flat strip material is rolled at an angle of approximately 45° into a forming die and the spiral seam of the tube so formed is TIG welded.

Subsequent calibration and cutting-off processes generate the appropriate MCR dimensions, and an abrasive barrel-finishing process eliminates burrs.

Diameter reduction

The maximum possible diameter reduction of MCRs made from tube is also diameter-dependent. It should be kept as small as possible. OETIKER will be pleased to help you find the correct choice for your specific application.

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.

Tolerance compensation

Tolerance compensation when installing OETIKER Multi Crimp Rings depends entirely on the function sequence of the installation tool. Fundamentally, with diameter-priority installation 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 installation, everything else is subjugated to achieving a defined diameter. Thus, tolerance compensating installation 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 installation of OETIKER Multi Crimp Rings is assured. Gauges for checking the closing force are also available.

MCR AL – longitudinally welded

On request

The OETIKER Group: www.oetiker.com

Headquarters Switzerland
Hans Oetiker AG
Maschinen- und Apparatefabrik
Oberdorfstrasse 21
CH-8812 Horgen (Zürich)
T +41 44 728 55 55
F +41 44 728 55 15
info@ch.oetiker.com

Austria
Hans Oetiker
Maschinen- und Apparatebau
Ges.m.b.H.
Eduard-Klinger-Strasse 19
A-3423 St. Andrä-Wördern
T +43 2242 33 994-0
F +43 2242 33 997
info@at.oetiker.com

Belgium
Oetiker Belgium N.V./S.A.
Maaltecenter – Blok “G”
Derbystraat 301
9051 Gent/St. Denijs-Westrem
T +32 9 252 25 55
F +32 9 252 25 56
info@be.oetiker.com

Canada
Oetiker Limited
203 Dufferin Street South
P. O. Box 5500
Alliston, Ontario L9R 1W7
T +1 705 435 4394
info@ca.oetiker.com

P. R. China
Oetiker Industries (Tianjin) Ltd.
10 Shuangchenzhong Road
Beichen High Tech Industrial Park
Tianjin 300400
T +86 22 2697 1183
F +86 22 2697 1380
info@cn.oetiker.com

Czech Republic
Hans Oetiker spol. s r. o.
Videnska 116
CZ-37833 Nová Bystrice
T +420 384 386513
F +420 384 386386
info@cz.oetiker.com

France
Oetiker Sarl
9, rue Jean Moulin
ZA du Pré Fusé
F-77348 Pontault-Combault Cedex
T +33 1 60 29 90 39
F +33 1 64 40 90 23
info@fr.oetiker.com

Germany
Hans Oetiker
Metallwaren- & Apparatefabrik GmbH
Üsenbergerstrasse 13
D-79346 Endingen a. K.
T +49 76 42 6 84-0
F +49 76 42 6 84-125
info@de.oetiker.com

Kurt Allert GmbH & Co. KG
Postfach 1160
Austrasse 36
D-78727 Oberndorf a. N.
T +49 74 23 87 70-0
F +49 7 4 23 87 70-87
info@allert.oetiker.com

Hong Kong
Oetiker Far East Limited
2210 Tuen Mun Central Square
22 Hoi Wing Road
Tuen Mun NT
T +852 2459 8211
F +852 2459 8322
info@hk.oetiker.com

Hungary
Oetiker Hungaria KFT
Vasvári P. U. 11
H-9800 Vasvár
T +36 94 370 630
F +36 94 370 533
info@hu.oetiker.com

India
Oetiker India Private Ltd.
N-14, Additional Patalganga
Industrial Area
Village Chavane, Khalapur
Rasayani 410 220
Dist. Raigad
T +91 2192 250107-12
F +91 2192 250105
info@in.oetiker.com

Japan
Oetiker Japan Co. Ltd.
Kaneko Bldg. A
5-3-5 Nakamachi-dai, Tsuzuki-ku
Yokohama 224-0041
T +81 45 949 3151
F +81 45 949 3152
info@jp.oetiker.com

Netherlands
Oetiker Benelux B.V.
Hertzstraat 38
NL-6716 BT Ede
T +31 318 63 71 71
F +31 318 63 34 89
info@nl.oetiker.com

Spain
Oetiker España, S. A.
Pol. Ind. Las Salinas
C/Puente, 18
E-11500 El Puerto
de Santa María (Cádiz)
T +34 956 86 04 40
F +34 956 87 17 07
info@es.oetiker.com

United Kingdom
Oetiker UK Limited
Foundry Close
GB-Horsham, Sussex RH13 5PX
T +44 1403 26 04 78
F +44 1403 24 06 90
info@uk.oetiker.com

USA
Oetiker, Inc.
6317 Euclid Street
Marlette, Michigan 48453-0217
T +1 989 635 3621
F +1 989 635 2157
info@us.oetiker.com