# OETIKER

## Miniature Clamps

Medical
Bio-medical
Pharmaceutical

Scientific Instruments
Electrical / Electronic
Connections

Computer

Communication

Robotic Equipment

**OETIKER** ®

Connecting Technology

# OETIKER
# Connecting Technology
# Miniature Clamps

## Contents

### The OETIKER Group World-Wide

It is and shall continue to be a primary objective of the OETIKER Group to provide customers with safe, reliable products. OETIKER revolutionized the art of clamping hose, tubing and other objects made of common and the most difficult to seal and fasten materials. The company is committed to providing products that are continuously tested and evaluated to assure the highest standard in quality and performance.

Founded in Switzerland in 1943, today the OETIKER Group is a multinational company and is networked to provide a full complement of customer service, design and engineering support.

OETIKER manufactures product through strategically located facilities throughout the world. The products are manufactured to common standards, and are available through OETIKER sales offices in many countries, and selected distributors. The OETIKER name is trademark protected and the history of many patents is evidence of the importance of the OETIKER name in clamping and coupling technology the world over. The OETIKER Logo signifies that the product has been produced to quality standards demanded by the founder, Hans Oetiker, and customers world wide.

### Quality Standards

All companies within the OETIKER group have quality certification in accordance with ISO/TS 16949 standards for production, research and development and ISO 9002 for sales and supply. Most OETIKER Clamps conform to SAE J1508 specifications.

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# OETIKER Miniature Clamps
# Product Chart

| Page | Clamp Type | Product Group | Size Range mm | Width mm | Thickness mm | Zinc Plated | Stainless |
|---|---|---|---|---|---|---|---|
| 4 | 2-Ear Clamps | 101 & 151 | 4.1 - 46.0 | 3.5 - 10.0 | | x | x |
| 5 | 1-Ear Clamps | 153 | 3.3 - 17.5 | 3.0 - 6.0 | | | x |
| 6 | 1-Ear Clamps with Insert | 154 | 2.9 - 17.5 | 5.5 - 8.2 | | | x |
| 7 | Stepless® Ear Clamps | 167 | 6.5 - 120.5 | 5.0 - 10.0 | 0.5 - 1.0 | | x |
| 8 | Stepless® Low Profile Clamps | 168 | 10.5 - 19.0 | 0 - 0 | 9.0 x 0.5 | | x |
| 8 | Miniature Multi Crimp Rings | 150 | 0 - 0 | 0 - 0 | 0 - 0 | | x |

**High Tech Hose and Tubing Connections for Medical, Bio-medical, Pharmaceutical Industries as well as Scientific Instruments and Devices.**

**For Electrical / Electronic Connections on Computer, Communication, Robotic Equipment or Automotive Harnesses, etc.**

**OETIKER Miniature Clamps**
for applications calling for top quality precision clamping, on which a life may depend.

**OETIKER Miniature Clamps**
are used on equipment such as endoscopic and videoscopic instruments, peristaltic and other types of medical pumps, blood and gas analysers, dialysis equipment, filtration, disposables, respiratory, etc. They are seal-assured so that no cross-contamination, and no leakage of contaminated fluid can occur.

**OETIKER Miniature Clamps**
2-Ear Clamp style – are especially popular as a strain relief for single or multiple wire conductor cables or insulation. They provide excellent tri-directional protection and are suitable for insert and overlay molding.

**OETIKER Miniature Clamps**
stepless – because of their interior design, will not damage low durometer and soft thin-walled hose or silicone material, stiff synthetic tubing or any insulation material. Clamps will prevent leakage and negative pressures will be held steady.

**OETIKER Miniature Clamps and Rings**
**for outside diameters as small as 2.5 mm to assure leak-free sealing and fastening solutions. Suitable for hose supply lines with chemicals, ink, liquids and gases. Clamps are vibration proof.**

**OETIKER products are used in a wide range of materials in industries such as to name a few:**
- communication, computerized equipment
- electrical control systems and wiring
- food and beverage dispensing equipment
- housing construction, mobile homes, recreational vehicles
- medical and life-support systems
- pharmaceutical, scientific instruments
- plant maintenance, heavily vibrating equipment
- automobiles, auto aftermarket
- off-road equipment

# OETIKER
# 2-Ear Clamps
**Product Group 101 & 151**

original size

This is the first "original" OETIKER Ear Clamp invented. It came onto the market in 1951 and revolutionized clamping. To this day, it has remained a best-seller.

The 2-ear clamp has an increased clamping range over the 1-ear clamps. The closed "ear" geometry provides an inherent retained load and a spring action in the clamp, permitting expansion and contraction during thermocycling or vibrating conditions. For proper installation and seal, both "ears" must be crimped closed.

**Material**
– **101** Zinc plated carbon steel SAE 1008/1010 or DIN 1.0338
– **151** Stainless steel UNS S30400 or DIN 1.4301

*clamp size range*
 4.1  -  46.0 mm
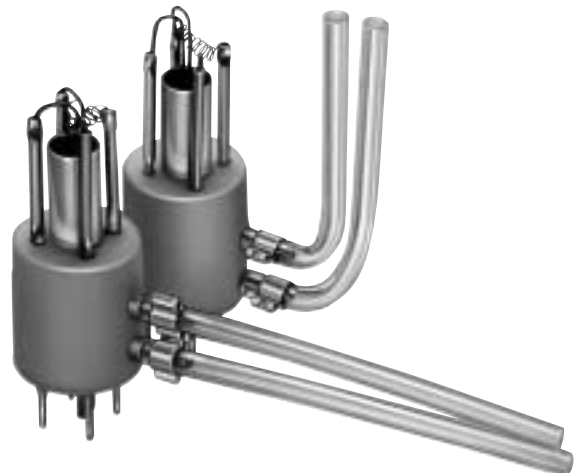
**Installation**
See page 9.

**Standard Series**

| item no. zinc plated | item no. stainless steel | size ref. mm | clamp range | | width mm |
|---|---|---|---|---|---|
| | | | mm | inches | |
| 10100000 | 15100000 | 4.1 | 3.1 - 4.1 | .122 - .161 | 3.5 |
| 10100001 | 15100001 | 4.5 | 3.5 - 4.5 | .138 - .177 | 3.5 |
| 10100002 | 15100002 | 5.0 | 3.4 - 5.0 | .134 - .197 | 5.0 |
| 10100004 | 15100003 | 7.0 | 5.0 - 7.0 | .197 - .276 | 6.0 |
| 10100008 | 15100004 | 9.0 | 7.0 - 9.0 | .276 - .354 | 7.0 |
| 10100011 | 15100023 | 11.0 | 8.1 -11.0 | .319 - .433 | 7.0 |
| 10100016 | 15100006 | 13.0 | 10.8 -13.0 | .425 - .512 | 7.0 |

**Narrow Width Series – 3 mm wide**

| item no. zinc plated | item no. stainless steel | size ref. mm | clamp range | | width mm |
|---|---|---|---|---|---|
| | | | mm | inches | |
| 10100003 | 15100031 | 5 | 3.4 - 5.0 | .134 - .197 | 3.0 |
| 10100005 | 15100033 | 7 | 5.0 - 7.0 | .197 - .276 | 3.0 |
| 10100009 | 15100029 | 9 | 7.0 - 9.0 | .276 - .354 | 3.0 |
| 10100012 | 15100051 | 11 | 8.0 -11.0 | .315 - .433 | 3.0 |
| 10100016 | 15100028 | 13 | 11.0 -13.0 | .433 - .512 | 3.0 |

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## Features

- popular for miniature sizes 3.3 mm
- smallest closing dia. is 2.9 mm (.114 in.)
  #9 French Catheter Scale
- one-piece design offers quick and easy installation
- for air and fluid media lines
- commonly used where a low profile protrusion and a small, snug clamp range is of the essence

| item no. stainless steel | size ref. mm | clamp range mm | clamp range inches | width mm |
|---|---|---|---|---|
| 15300000 | 3.3 | 2.9 - 3.3 | .114 - .130 | 3.0 |
| 15300001 | 3.5 | 3.0 - 3.5 | .118 - .138 | 3.0 |
| 15300002 | 4.1 | 3.3 - 4.1 | .130 - .161 | 4.0 |
| 15300046 | 4.6 | 3.7 - 4.6 | .146 - .181 | 4.0 |
| 15300003 | 5.1 | 4.1 - 5.1 | .161 - .201 | 4.0 |
| 15300047 | 5.6 | 4.5 - 5.6 | .181 - .220 | 4.0 |
| 15300004 | 6.1 | 5.1 - 6.1 | .201 - .240 | 4.0 |
| 15300005 | 6.6 | 5.6 - 6.6 | .221 - .260 | 4.0 |
| 15300006 | 7.0 | 6.1 - 7.0 | .240 - .276 | 4.0 |
| 15300007 | 7.5 | 6.5 - 7.5 | .256 - .296 | 5.0 |
| 15300008 | 8.0 | 6.8 - 8.0 | .268 - .315 | 5.0 |
| 15300009 | 8.3 | 7.1 - 8.3 | .280 - .327 | 5.0 |
| 15300010 | 8.7 | 7.5 - 8.7 | .295 - .343 | 5.0 |
| 15300011 | 9.0 | 7.5 - 9.0 | .295 - .354 | 6.0 |
| 15300012 | 9.5 | 8.1 - 9.5 | .312 - .374 | 6.0 |
| 15300013 | 10.0 | 8.5 - 10.0 | .335 - .394 | 6.0 |
| 15300014 | 10.5 | 9.1 - 10.5 | .358 - .413 | 6.0 |
| 15300015 | 11.0 | 9.3 - 11.0 | .366 - .433 | 6.0 |
| 15300016 | 11.3 | 9.6 - 11.3 | .378 - .445 | 6.0 |
| 15300017 | 11.8 | 10.1 - 11.8 | .398 - .465 | 6.0 |
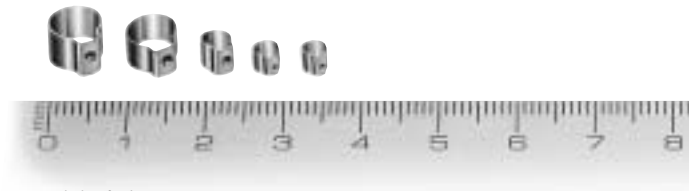


original size

OETIKER 1-Ear Clamps are commonly used where a low profile protrusion and a small, snug clamp is of the essence.

## Material

**– 153** Stainless steel UNS S30400 or DIN 1.4301

*clamp size range*
 3.3 - 17.5 mm

## Installation

See page 9.

# OETIKER
# 1-Ear Clamps with Insert

**Product Group 154**

OETIKER 1-Ear Clamps (with Insert) are ideal for very demanding hose or tubing clamping applications, such as rubber or synthetic materials.

The thin "Insert" has an oval outward dimple which is positioned precisely under the clamp ear, effectively preventing material from being lifted into the ear gap during clamp closure. This double dimple combination in the insert and clamp creates a particularly strong all-around effective compression seal.

Ideally suited for inkjet printer hose connections, for automotive, medical, pharmaceutical and scientific instrument grade hose and tubing, and a wide variety of applications.

## Material
**– 154** Clamp: Stainless steel UNS S30400 or DIN 1.4301
Insert: Stainless steel UNS S30200 or DIN 1.4310

*clamp size range*
2.9 - 17.5 mm
larger sizes on request

## Installation
See page 9.

### Features
• Clamps can be effectively closed as small as 2.5 mm (.098 in) – # 8 French Catheter Scale
• the curled edges of the "insert" prevent cutting or damage to hose or tubing materials particularly when subjected to strong pulsation, expansion and contraction
• light weight, strong and tamper resistant

| item no. stainless steel | size ref. mm | clamp range mm | inches | width mm |
|---|---|---|---|---|
| 15400010 | 3.3 | 2.5 - 2.9 | .098 - .114 | 5.5 |
| 15400011 | 3.5 | 2.7 - 3.1 | .106 - .122 | 5.5 |
| 15400012 | 4.1 | 2.9 - 3.7 | .114 - .146 | 5.5 |
| 15400054 | 4.6 | 3.3 - 4.2 | .130 - .165 | 5.5 |
| 15400013 | 5.1 | 3.7 - 4.7 | .146 - .185 | 5.5 |
| 15400055 | 5.6 | 4.2 - 5.2 | .165 - .205 | 5.5 |
| 15400014 | 6.1 | 4.7 - 5.7 | .185 - .224 | 5.5 |
| 15400015 | 6.6 | 5.2 - 6.2 | .205 - .244 | 5.5 |
| 15400016 | 7.0 | 5.6 - 6.5 | .220 - .256 | 6.4 |
| 15400017 | 7.5 | 5.9 - 7.0 | .232 - .276 | 6.4 |
| 15400018 | 8.0 | 6.3 - 7.5 | .248 - .291 | 6.4 |
| 15400019 | 8.3 | 6.6 - 7.8 | .260 - .307 | 6.4 |
| 15400020 | 8.7 | 7.0 - 8.2 | .275 - .323 | 6.4 |
| 15400021 | 9.0 | 7.0 - 8.5 | .276 - .335 | 7.4 |
| 15400022 | 9.5 | 7.5 - 9.0 | .295 - .354 | 7.4 |
| 15400023 | 10.0 | 8.0 - 9.5 | .315 - .374 | 7.4 |
| 15400024 | 10.5 | 8.5 - 10.0 | .335 - .394 | 7.4 |
| 15400025 | 11.0 | 8.8 - 10.5 | .347 - .413 | 7.4 |
| 15400026 | 11.3 | 9.1 - 10.8 | .358 - .425 | 7.4 |
| 15400027 | 11.8 | 9.6 - 11.3 | .378 - .445 | 7.4 |

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# OETIKER
# Stepless® Ear Clamps
# 167
**Product Group 167**

## Features
- precise tongue-in-groove stepless design provides smooth, inner band circumference for 360° uniform seal
- narrow band for concentrated seal compression
- smooth edged bandsteel prevents damage to hose
- light weight, strong low clearance design

| item no. standard | item no. degreased | size ref. mm | clamp range mm | clamp range inches | width mm |
|---|---|---|---|---|---|
| 16702453 | 16702487 | 6.5 | 5.3 - 6.5 | .209 - .256 | 5.0 |
| 16700001 | 16700983 | 7.0 | 5.8 - 7.0 | .228 - .275 | 5.0 |
| | 16703192 | 7.5 | 6.3 - 7.5 | .248 - .295 | 5.0 |
| 16700002 | 16700984 | 8.0 | 6.8 - 8.0 | .268 - .315 | 5.0 |
| 16700003 | 16700985 | 8.7 | 7.0 - 8.7 | .275 - .343 | 5.0 |
| 16700004 | 16700986 | 9.5 | 7.8 - 9.5 | .307 - .374 | 5.0 |
| 16700005 | 16700987 | 10.0 | 8.3 - 10.0 | .327 - .394 | 5.0 |
| 16700006 | 16700988 | 10.5 | 8.8 - 10.5 | .347 - .413 | 5.0 |
| 16702492 | 16702614 | 10.9 | 8.2 - 10.9 | .378 - .429 | 5.0 |
| 16700007 | 16702989 | 11.3 | 9.8 - 11.3 | .398 - .445 | 5.0 |
| 16700008 | 16700990 | 11.8 | 10.1 - 11.8 | .395 - .453 | 5.0 |

The term "Stepless" relates to the absence of gaps or steps on the clamp's inner circumference. The unique tongue-in-groove design provides uniform compression and a 360° seal.

Standard Series Stepless Ear Clamps were perfected for demanding applications where lighter, thin-walled hose or tubing is being used.

Stepless Ear Clamps are available in a variety of styles for Low Profile or Heavy Duty Clamping. Request separate catalog.

## Material
- **167** Stainless steel band UNS S30400 or DIN 1.4301
- Alternate materials optional such as UNS S31600 or DIN 1.4401, 400 or 500 monel

## Standard Series
| clamp size range | width / thickness |
|---|---|
| 6.5 - 11.8 mm | 5.0 x 0.5 mm |
| 11.9 - 120.5 mm | 7.0 x 0.6 mm |
| 21.0 - 120.5 mm | 9.0 x 0.6 mm |

## Clamp Installation
See page 9.

# OETIKER
# Stepless® Low Profile Clamps

Product Group **168**

OETIKER Stepless Low Profile Clamps with only a scant 1.6 mm protrusion from outside of clamp band have been developed for applications with clearance restrictions. They are custom sized to assure the correct compression ratio for individual applications. Clamp designs vary and they may be custom shaped.

OETIKER Stepless Low Profile Clamps do not have the inherent spring action normally provided by OETIKER Clamps with an "Ear". Their seal retention relies solely on the expansion force created by the elasticity of the material being clamped.

OETIKER Stepless Low Profile Clamps are reusable for service and inspections. These clamps can be opened and re-installed several times and can be wrapped around an assembly.

**Material**
– **168** Stainless steel band UNS S30400 or DIN 1.4301
–     Alternate materials optional

| clamp size range | width / thickness |
|---|---|
| 10.5 - 19.0 mm | 9.0 x 0.5 mm |
| 19.5 - 110.0 mm | 7.0 x 0.6 mm |
| 25.0 - 120.0 mm | 9.0 x 0.6 mm |

larger sizes on request

**Installation**
Installation instructions on request.

# OETIKER
# Miniature Multi Crimp Rings

Product Group **150**

Specifically suited for medical devices, scientific or diagnostic instruments and other small diameter tubing applications. Typical thread wraps, UV bond and adhesives, etc. are both time consuming, non-consistent and often have a relatively high failure rate. These Multi Crimp Rings will seal tubing such as silicone, polyurethane, PVC, to name a few.

**Material**
– **150**     stainless steel UNS S30400 or DIN 1.4301

**Clamp Installation**
See page 9.

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Careful selection and installation of an OETIKER clamp is important to ensure a proper seal or fastened application. OETIKER supplied or recommended tools should be used. OETIKER Ear Clamps are intended for one-time use only. Prying open the clamp renders the product non-functional. Tampering is visible.

For proper installation and seal, the ear(s) must be crimped closed.

- As a guide: select size nearest to, yet slightly larger than outside diameter to be clamped with connection fully assembled

OETIKER invites customers to submit samples with relevant application information, to determine the best suited clamp for your product and installation method.

Item no. 14100117
Narrow Jaw Pincers

Item no. 14100183
Side Jaw Pincers

Item no. 14100118
Standard Pincers

Item no. 14100120
Miniature Clamp Pincers with adjustable closure stop for clamps up to 11.8 mm diameter.

Item no. 14100085
Miniature Clamp Pincers without adjustable closure stop (not shown)

Miniature Clamp Pincers may be autoclaved

**Installation example**
Position clamp on hose with end fitting inserted.
Close clamp ear(s) fully.

opening permissable
after crimping
use of straight jaw pincers

use of side jaw pincers
held parallel to hose

use of pneumatic power tool

**Remove** clamp by cutting through outer edge of ear with pincers.

To remove stepless or adjustable clamps, grip band end and pull over ear.

# OETIKER
# Typical Medical Applications

OETIKER Miniature Clamps –
smallest closure is 2.5 mm / .098″

2-Ear Clamp provides a strong leak-proof seal on dispensing
equipment component.

OETIKER Clamps provide a strong, tamper resistant seal
that will not damage medical / pharmaceutical or food and
beverage grade hose and tubing.

Miniature 1-Ear Clamps with insert ensure a positive seal on
this high vacuum application.

OETIKER Ear Clamp maintains a 360° seal on this critical
component for a medical breathing device. Quick, positive
seal without damaging delicate plastic.

OETIKER 1-Ear Clamps with insert are designed for
demanding, difficult to seal nylon or wire braided hoses or
tubing.

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① **2-Ear Clamp for tri-directional strain relief protection.**

② **2-Ear Clamp for strain relief.**

③ **2-Ear Clamp for tri-directional strain relief protection – symmetrical clamp "ears" sit precisely in molded groove.**

**2-Ear Clamp holding a cable loop in place ensuring a non-slip grip.**

**1-Ear Clamp provides strain relief on multi-conductor electrical cables**

**1-Ear Clamp securing a plastic cap onto a fabric buffer and quartz glass tube. Strong seal, yet will not crack the quartz tube.**

**2-Ear Clamp maintaining a critical seal – meshgrounding onto a substrate of co-axial cable.**

# OETIKER
# Miniature Clamps
## for Medical and Electrical Applications

## OETIKER Products

### Clamps and Rings

Permanent, tight connection will only
be released if required.
For all clamping and pressure ranges,
hard or soft materials, hoses,
cables or ropes.
Made from tube or band, stepless,
self-tensioning or reusable.
Simple and straightforward to use.
Tools and accessories available.

### Couplings

**Swing Couplings SC:**
Safely swing to connect. Connect
easily and quickly with no force required
and no loss of pressure in the system.
Full flow. Compatible with
most current adaptor profiles.
**Quick Action Couplings SV:***
Fast and safe connection due to two-stage
uncoupling. Various models available.
Extensive range of accessories.
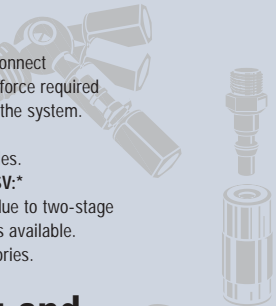
### Sandblasting and Surface Technique*

**Sandblasting Technique:**
Sandblasting equipment, jet rooms and
cubicles, recovery and filter plants, safety
equipment.
**ROTOL Surface Technique:**
Deburring and polishing machines, treatment
materials, planning and setting up of
complete plants for effective surface treatment
and refining.

### Special Products*

Research and development of products as well as
solutions for them to be integrated into assembly procedures
internally or on customer's request repeatedly lead to
innovative special products such as the dismountable
OETIKER crutch holder.
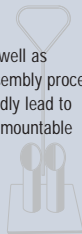
* Only available from Switzerland

**Internet: www.oetiker.com**

OETIKER has been developing connecting
technology for over 50 years.
OETIKER products are manufactured by its
own companies in line with ISO/TS 16949 and
sold worldwide by subsidiary companies or
agents in over 40 countries. Numerous
patents are proof of continuous innovation.

www.oetiker.com

## OETIKER ®
### Connecting Technology