

Technical Data Sheet

Screw Clamps and Universal Clamps



Connecting Technology



H.W. ECKHARDT
CORPORATION
ENGINEERED FASTENERS



Choice of engagement positions: clamp can be adjusted to several different nominal diameters

Narrow Band: concentrated transmission of clamping force, complies with SAE J1508 Type SSPC

360° Stepless®: uniform compression, or uniform surface pressure.

Burr-free strip edges: reduced risk of damage to the part being clamped

Self-tensioning: compensates for thermal cycle diameter changes

Stepless® Screw Clamps Product Group 178

Material

PG 178 Band, spacer, retaining elements (D-nut):

Stainless Steel, Material no. 1.4301/UNS S30400

Screw: Stainless Steel, Material no. 1.4319/UNS S30200

Spring: 17-7PH (aerospace quality)

Series

Size range	width x thickness
18.0 – 255.0 mm	9.0 x 0.6 mm

Some sizes are only available if an appropriate minimum quantity is ordered.

Oetiker Stepless® Screw Clamps are available in two versions: Oetiker Stepless® Screw Clamps and Self-Tensioning Stepless® Screw Clamps.

Material thickness

Oetiker Stepless® Screw Clamps and Self-Tensioning Stepless® Screw Clamps are made from strip material 9 mm wide and 0.6 mm thick. The dimensions of the strip ensure optimum sealing with EPDM rubber and silicone hoses, while taking into account the necessary radial force, the compressibility of the hose, the sealing/retaining properties and the environmental conditions.

Interlock

The closure is a mechanical interlock whose function is to provide secure retention of the round clamp geometry. The interlock can be opened to permit radial installation of the clamp, and at the same time provides a simple way of relocating the interlock features to obtain alternative diameters prior to tightening.

The data in this catalog are based on many years experience. They are intended for reference, not as design specifications.

Positions for diameter changes

Sizes 24–42 mm

- 3 different positions
- diameter change for each step 1.6 mm

Sizes 45–55 mm

- 3 different positions
- diameter change for each step 2.1 mm

Sizes 60–255 mm

- 5 different positions
- diameter change for each step 2.0 mm

Screw: M4 x 0.7

Screw head: combination of hexagon head with cross-socket

Assembly Recommendations

1. Turn screw anti-clockwise until it stops at the “D” nut.
2. For radial installation or change of diameter, unlatch the interlock.
3. Position the open clamp around the hose. Locate the tongue in the groove and position the apertures of the mechanical interlock over the mating features. Engage the interlock at the smallest possible diameter.
4. Tighten the screw to the required torque. Do not exceed the maximum permissible tightening torque.
5. A gap of > 3 mm should exist between the D-nuts. This ensures that there is sufficient movement for the clamp to reduce in diameter when the spring of the self-tensioning clamp expands during contraction of the hose. If the gap between the D-nuts is less than the recommended 3 mm, proceed to step 6. (Only applicable to Self-Tensioning Spring Screw Clamps).
6. Turn the screw anti-clockwise to loosen the Self-Tensioning Screw Clamp.
7. Relocate the interlock in the next smaller diameter position.
8. Tighten the screw to the required torque. Do not exceed the maximum permissible tightening torque.

Maximum average, static torque guide:

Spring without color identification (sizes 24.0–31.0 mm):

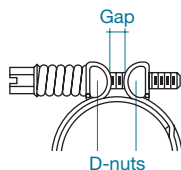
90–100 Ncm Max (8–9 inch pound-force max.)

Green spring (sizes 32.0 mm and larger):

135–200 Ncm Max (12–18 inch pound-force max.)

The values indicated above are based on maximum clamp torque capacity and common hose materials. Low durometer hardness hoses may require alternative or lower torque values and should be verified by means of product compatibility investigations.

For Stepless® Screw Clamps the minimum gap between D-nuts should be > 3mm.



Tolerance compensation with Stepless® Screw Clamps

Oetiker Stepless® Screw Clamps and Self-Tensioning Stepless® Screw Clamps should be tightened to the optimum torque as specified in the guide. This torque takes into account the required degree of compression, the necessary radial force, and the maximum torque resistance of the screw and clamp band. By using a defined and constant torque at installation, compensation for component tolerances will always be available and the radial force will remain approximately the same.

The spring on Oetiker Self-Tensioning Stepless® Screw Clamp serves as a compensation element to accommodate changes in diameter resulting from thermal expansion and contraction or vibration. This feature gives Screw Clamps optimum sealing performance even in applications where there are strong thermal influences.

Order information

Item No.*	Ref. No.*	Item No.**	Ref. No.**	Size range (mm)
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Band width 9 mm, thickness 0.6 mm

17800120	024-9	17800170	024S9	18 – 24
17800122	028-9	17800172	028S9	22 – 28
17800124	032-9	17800174	032S9	26 – 32
17800125	036-9	17800175	036S9	30 – 36
17800126	040-9	17800176	040S9	34 – 40
17800127	045-9	17800177	045S9	37.5 – 45
17800128	050-9	17800178	050S9	42.5 – 50
17800129	055-9	17800179	055S9	47.5 – 55
17800130	060-9	17800180	060S9	49 – 60
17800131	065-9	17800181	065S9	54 – 65
17800132	070-9	17800182	070S9	59 – 70
17800133	075-9	17800183	075S9	64 – 75
17800134	080-9	17800184	080S9	69 – 80
17800135	085-9	17800185	085S9	74 – 85
17800136	090-9	17800186	090S9	79 – 90
17800137	095-9	17800187	095S9	84 – 95
17800138	100-9	17800188	100S9	89 – 100
17800139	105-9	17800189	105S9	94 – 105
17800140	110-9	17800190	110S9	99 – 110

* Stepless® Screw Clamps

** Self-Tensioning Screw Clamps

For Self-Tensioning Stepless® Screw Clamps, the minimum diameter of the clamping range is 1 mm larger than that given in the above table.

Alternative diameters on request.