

ToothLock® Low Profile Clamps 292

Recommended for Driveshaft Applications

Benefits

- Superior radial load performance
- Assembly-friendly and reliable
- High strength suitable for TPE boot
- Weight and space efficient



360° StepLess® Technology: uniform 360° compression and uniform surface pressure

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

CrossTech®: ultra low profile design, very low imbalance on rotating parts

Pre-retaining cup: visual clamp closure verification

ToothLock® Technology: very high and permanent compression rates, outstanding expansion resistance



ToothLock®



CrossTech®



StepLess®

FEATURES

Teeth engagement area

Tensioning hook

ToothLock® technology

Tensioning hook

Pre-retaining hook

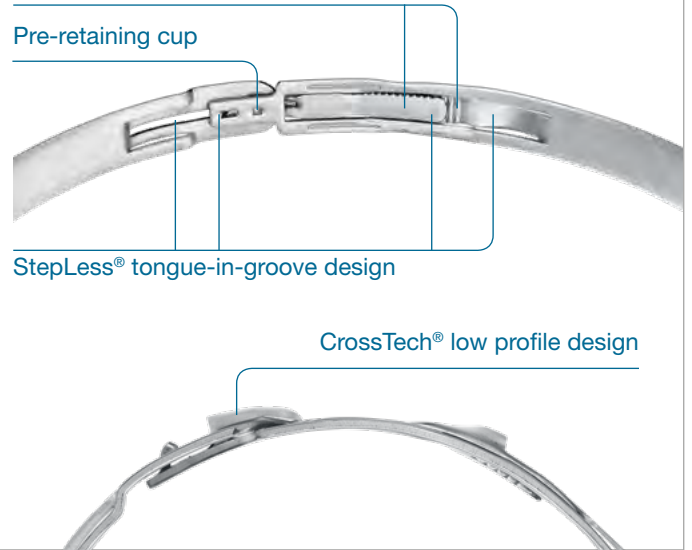


ToothLock® technology

Pre-retaining cup

StepLess® tongue-in-groove design

CrossTech® low profile design



ToothLock® Low Profile Clamps 292

TECHNICAL DATA OVERVIEW

Target applications

Drive shafts (CVJ boots made from TPE)

Other applications upon verification by Oetiker

Material

Stainless Steel, material no. 1.4301/UNS S30400

Corrosion resistance according to DIN EN ISO 9227

≥ 1000 hours

Size range**width x thickness**

57.5 – 126.0 mm

10.0 × 1.0 mm

Sizes

Diameter graduation 0.5 mm

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

PRODUCT DESCRIPTION

ToothLock®

Interlocked with its teeth, the distinctive ToothLock® feature offers extremely high and permanent compression rates and outstanding expansion resistance – strong enough for the toughest connections. It also resists shock and vibration and helps the clamp to withstand thermal stress. The ToothLock® is designed as a self-locking mechanism that provides superior performance. With its multiple tooth-locking positions, it compensates for component tolerances.

CrossTech®

The innovative CrossTech® feature is highly space-efficient and provides an ultra low profile design for a very low imbalance on rotating parts.

Tensioning Hooks

The tensioning hooks are the features used to close the ToothLock® Low Profile Clamp. An Oetiker assembly tool engages both tensioning hooks, and reduces the clamp diameter until the pre-defined closing force is reached.

Clamp Selection

ToothLock® Low Profile Clamp sizes are determined using the largest and smallest diameter in the working range. Ideally the compressed diameter of the parts being damped should be in the middle of the working range.

ORDER INFORMATION

Item No.	Ref. No.	Delivery-Ø (mm)	Working range (mm)	
			Min.-Ø	Max.-Ø
29200000	057.5-1010R	61.8	57.5	60.1
29200002	058.0-1010R	62.3	58.0	60.6
29200004	058.5-1010R	62.8	58.5	61.1
29200006	059.0-1010R	63.3	59.0	61.6
29200008	059.5-1010R	63.8	59.5	62.1
29200010	060.0-1010R	64.3	60.0	62.6
29200012	060.5-1010R	64.8	60.5	63.1
29200014	061.0-1010R	65.3	61.0	63.6
29200016	061.5-1010R	65.8	61.5	64.1
29200018	062.0-1010R	66.3	62.0	64.6
29200020	062.5-1010R	66.8	62.5	65.1
29200022	063.0-1010R	67.3	63.0	65.6
29200024	063.5-1010R	67.8	63.5	66.1
29200026	064.0-1010R	68.3	64.0	66.6
29200028	064.5-1010R	68.8	64.5	67.1
29200030	065.0-1010R	69.3	65.0	67.6
29200032	065.5-1010R	69.8	65.5	68.1
29200034	066.0-1010R	70.3	66.0	68.6
29200036	066.5-1010R	70.8	66.5	69.1
29200038	067.0-1010R	71.3	67.0	69.6
29200040	067.5-1010R	71.8	67.5	70.1
29200042	068.0-1010R	72.3	68.0	70.6
29200044	068.5-1010R	72.8	68.5	71.1
29200046	069.0-1010R	73.3	69.0	71.6
29200048	069.5-1010R	73.8	69.5	72.1
29200050	070.0-1010R	74.3	70.0	72.6
29200052	070.5-1010R	74.8	70.5	73.1
29200054	071.0-1010R	75.3	71.0	73.6
29200056	071.5-1010R	75.8	71.5	74.1
29200058	072.0-1010R	76.3	72.0	74.6
29200060	072.5-1010R	76.8	72.5	75.1
29200062	073.0-1010R	77.3	73.0	75.6
29200064	073.5-1010R	77.8	73.5	76.1
29200066	074.0-1010R	78.3	74.0	76.6
29200068	074.5-1010R	78.8	74.5	77.1
29200070	075.0-1010R	79.3	75.0	77.6
29200072	075.5-1010R	79.8	75.5	78.1
29200074	076.0-1010R	80.3	76.0	78.6
29200076	076.5-1010R	80.8	76.5	79.1
29200078	077.0-1010R	81.3	77.0	79.6
29200080	077.5-1010R	81.8	77.5	80.1
29200082	078.0-1010R	82.3	78.0	80.6
29200084	078.5-1010R	82.8	78.5	81.1
29200086	079.0-1010R	83.3	79.0	81.6
29200088	079.5-1010R	83.8	79.5	82.1
29200090	080.0-1010R	84.3	80.0	82.6
29200092	080.5-1010R	84.8	80.5	83.1
29200094	081.0-1010R	85.3	81.0	83.6
29200096	081.5-1010R	85.8	81.5	84.1
29200098	082.0-1010R	86.3	82.0	84.6
29200100	082.5-1010R	86.8	82.5	85.1
29200102	083.0-1010R	87.3	83.0	85.6
29200104	083.5-1010R	87.8	83.5	86.1
29200106	084.0-1010R	88.3	84.0	86.6
29200108	084.5-1010R	88.8	84.5	87.1
29200110	085.0-1010R	89.3	85.0	87.6
29200112	085.5-1010R	89.8	85.5	88.1
29200114	086.0-1010R	90.3	86.0	88.6
29200116	086.5-1010R	90.8	86.5	89.1
29200118	087.0-1010R	91.3	87.0	89.6
29200120	087.5-1010R	91.8	87.5	90.1
29200122	088.0-1010R	92.3	88.0	90.6
29200124	088.5-1010R	92.8	88.5	91.1
29200126	089.0-1010R	93.3	89.0	91.6
29200128	089.5-1010R	93.8	89.5	92.1
29200130	090.0-1010R	94.3	90.0	92.6
29200132	090.5-1010R	94.8	90.5	93.1
29200134	091.0-1010R	95.3	91.0	93.6
29200136	091.5-1010R	95.8	91.5	94.1
29200138	092.0-1010R	96.3	92.0	94.6
29200140	092.5-1010R	96.8	92.5	95.1
29200142	093.0-1010R	97.3	93.0	95.6
29200144	093.5-1010R	97.8	93.5	96.1
29200146	094.0-1010R	98.3	94.0	96.6
29200148	094.5-1010R	98.8	94.5	97.1
29200150	095.0-1010R	99.3	95.0	97.6
29200152	095.5-1010R	99.8	95.5	98.1
29200154	096.0-1010R	100.3	96.0	98.6
29200156	096.5-1010R	100.8	96.5	99.1
29200158	097.0-1010R	101.3	97.0	99.6
29200160	097.5-1010R	101.8	97.5	100.1
29200162	098.0-1010R	102.3	98.0	100.6
29200164	098.5-1010R	102.8	98.5	101.1
29200166	099.0-1010R	103.3	99.0	101.6
29200168	099.5-1010R	103.8	99.5	102.1
29200170	100.0-1010R	104.3	100.0	102.6

ORDER INFORMATION

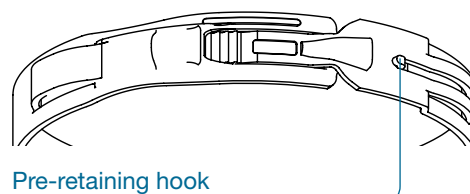
Item No.	Ref. No.	Delivery-Ø (mm)	Working range (mm)	
			Min.-Ø	Max.-Ø
29200172	100.5-1010R	104.8	100.5	103.1
29200174	101.0-1010R	105.3	101.0	103.6
29200176	101.5-1010R	105.8	101.5	104.1
29200178	102.0-1010R	106.3	102.0	104.6
29200180	102.5-1010R	106.8	102.5	105.1
29200182	103.0-1010R	107.3	103.0	105.6
29200184	103.5-1010R	107.8	103.5	106.1
29200186	104.0-1010R	108.3	104.0	106.6
29200188	104.5-1010R	108.8	104.5	107.1
29200190	105.0-1010R	109.3	105.0	107.6
29200192	105.5-1010R	109.8	105.5	108.1
29200194	106.0-1010R	110.3	106.0	108.6
29200196	106.5-1010R	110.8	106.5	109.1
29200198	107.0-1010R	111.3	107.0	109.6
29200200	107.5-1010R	111.8	107.5	110.1
29200202	108.0-1010R	112.3	108.0	110.6
29200204	108.5-1010R	112.8	108.5	111.1
29200206	109.0-1010R	113.3	109.0	111.6
29200208	109.5-1010R	113.8	109.5	112.1
29200210	110.0-1010R	114.3	110.0	112.6
29200212	110.5-1010R	114.8	110.5	113.1
29200214	111.0-1010R	115.3	111.0	113.6
29200216	111.5-1010R	115.8	111.5	114.1
29200218	112.0-1010R	116.3	112.0	114.6
29200220	112.5-1010R	116.8	112.5	115.1
29200222	113.0-1010R	117.3	113.0	115.6
29200224	113.5-1010R	117.8	113.5	116.1
29200226	114.0-1010R	118.3	114.0	116.6
29200228	114.5-1010R	118.8	114.5	117.1
29200230	115.0-1010R	119.3	115.0	117.6
29200232	115.5-1010R	119.8	115.5	118.1
29200234	116.0-1010R	120.3	116.0	118.6
29200236	116.5-1010R	120.8	116.5	119.1
29200238	117.0-1010R	121.3	117.0	119.6
29200240	117.5-1010R	121.8	117.5	120.1
29200242	118.0-1010R	122.3	118.0	120.6

ASSEMBLY

Closing position – visual clamp closure indicators

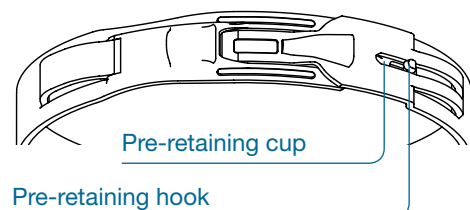
As supplied

The pre-retaining hook is engaged in the supplied condition. Teeth are visible.



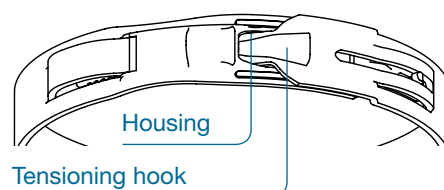
Minimum closure (largest diameter in working range)

The pre-retaining cup becomes visible and the teeth are no longer visible.



Maximum closure (smallest diameter in working range and nominal diameter)

The tensioning hook is almost in contact with the housing.



Working range

The working range of the ToothLock® Low Profile Clamp is only functional between the minimum and the maximum closure amounting to a 2.5 mm diameter range. The as shipped diameter is 4.2 mm larger than the minimum diameter, thus offering a large overall diameter range.

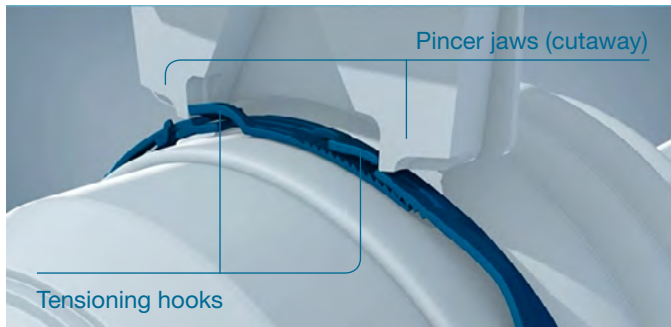
Assembly Recommendations

This clamp can be installed using a manual clamping tool with torque wrench or with the Electro-Pneumatic Controller EPC 01 – for high volume installations as well as for process reliable installations. By using the EPC 01 complete process monitoring is available, including 100% data recording.

ASSEMBLY

Assembly Instructions

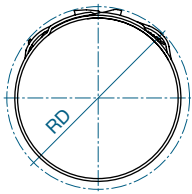
To close a clamp, the pincer jaws must be engaged with both tensioning hooks. By operating either the EPC 01 or closing the manual pincer, the simultaneous movement of the two tensioning hooks reduces the diameter of the ToothLock® Low Profile Clamp.



Rotation diameter

The rotation diameter (RD) of an assembled clamp can be a critical design parameter for applications that rotate in close proximity to adjacent components.

$$RD = \text{closed inside diameter} + 8.7 \text{ mm}$$



CVJ boot assembly

When using the 292 clamp on special design boots especially for in-board Tripod joint, it is necessary to align the clamp correctly to achieve a robust connection.

"Teeth Engagement Area" should be positioned at the thinnest area of the boot wall, where there are no recesses. This precise alignment ensures outstanding stability and the highest reliability for your application. During the validation process, it is recommended to submit the applications to your local Oetiker experts.

Assembly Tools

Manual

Clamping tool 292	Item No. 14100378
Torque wrench	Item No. 14100098



Clamping Tool with Torque Wrench

Force-monitored: Electronically controlled

HO 5000 ELT w/o pincer head*	Item No. 32000347
HO 5000 EL w/o pincer head*	Item No. 32000335
Pincer head HO-10.5-32.3-77° EL	Item No. 13900847
Replacement-jaw kit	Item No. 13900848
Calibration set	Item No. 13900942

* Standard cable length is 3 meters.
Other dimensions available on request.



Installation data

Material dimension	Size range	Maximum closing force
10 x 1.0 mm	57.5 – 118.0 mm	3900 N
10 x 1.0 mm	118.5 – 126.0 mm	3500 N

Important note

The closing force is intended as a guide, which may vary depending on the type and tolerances of parts being clamped. To ensure optimum clamp selection, we recommend conducting functional tests with several assemblies.