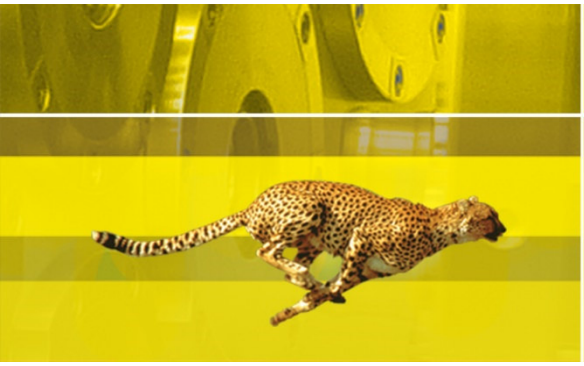
ROEMHELD
HILMA ▪ STARK

STARK.metec zero point clamping system

Operating Manual

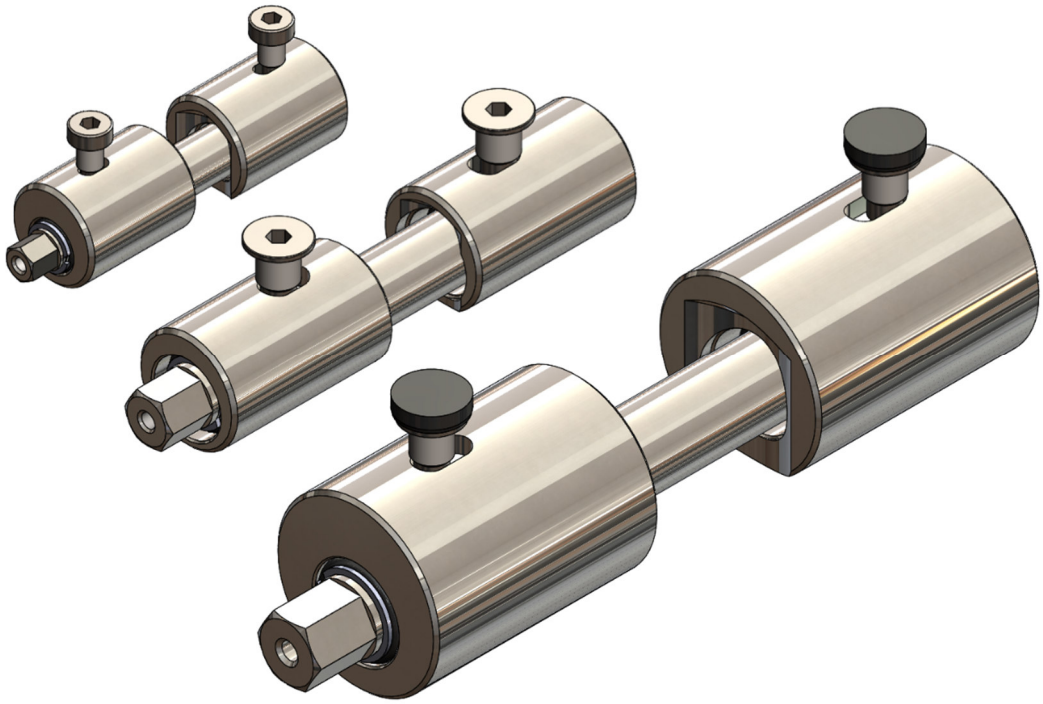
WM-020-439-10-de STARK.metec_en.docx



precise, fast and powerful

STARK.metec 1 / 2 / 3

Art. no.: S2000-001 / S2000-001-1 / S2000-001-2 / S2000-001-3 / S2000-101 / S2000-201 / S03688



Manufacturer:

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1 Table of contents

2 Identification of the partly completed machinery

Product:	Mechanical clamping system
Function:	Clamping and centring of workpiece pallets or workpieces
Product group:	STARK.metec
Article number:	S2000-001 / S2000-001-1 / S2000-001-2 / S2000-001-3 / S2000-101 / S2000-201 / S03688
Trade name:	Corresponds to product group, see above

3 User Instructions

3.1 Purpose of the document

This operating manual

- describes the function, operation and maintenance of the device
- gives important instructions for safe and efficient use of the device

3.2 Revision history

Date	Revision	Name
27/01/2021	Document creation	japr

3.3 Referenced documents

Document	Version	Author
Operating manual of the respective clamping system	-	Stark Spannsysteme GmbH
Assembly drawings with parts lists	-	Stark Spannsysteme GmbH

3.4 Presentation of safety instructions

Safety instructions are identified by a pictogram. The associated signal word describes the extent and severity of the impending hazard.

DANGER

Immediate impending risk for the life and health of persons (serious injuries or even death). Be sure to follow these instructions and the procedures described!

CAUTION

Potentially hazardous situation (minor injuries or material damage). Be sure to follow these instructions and the procedures described!

INFORMATION

Tips for use and particularly useful information.

INSTRUCTION

Obligation to follow the described procedure or method for the safe use of the machine.

4 Fundamental safety instructions

4.1 Intended use

The fast closing clamp is used for clamping vices, pallets with mounting devices for workpieces, workpieces directly or connecting machine or device parts. The workpieces are intended for processing, transporting and measuring.

The intended use also presupposes:

- compliance with all the instructions in the operating manual
- observance of the inspection and maintenance intervals
- use of only OEM parts

4.2 Foreseeable misuse

Any other use than that described in chapter "4.1 Intended use" or any use going beyond this is considered a misuse and is not permitted!

Risks may occur if the product is not used as intended. Improper uses include e.g.:

- exceeding the technical values specified for normal operation
- application for hoist operation and load transportation

The operating company bears sole responsibility for any injury or damage resulting from such improper use. The manufacturer assumes no liability.

4.3 Modifications or alterations

Unauthorised modifications or alterations will void any liability and warranty on the part of the manufacturer!

Therefore, do not make any modifications or alterations to the device without consultation with and the written approval of the manufacturer.

4.4 Spare and wear parts and auxiliary materials

The use of spare and wear parts from third-party manufacturers can result in risks. Use only OEM parts or parts approved by the manufacturer. The manufacturer will assume no liability for any injury or damage resulting from the use of spare and wear parts and auxiliary materials not approved by the manufacturer.

4.5 Obligations of the operating company

The operating company is obliged to allow only persons to work on or with the clamping devices who

- are familiar with the fundamental occupational health & safety and accident prevention regulations
- have been instructed in the use of the pressure booster and have read and understood this operating manual.

The requirements of EC Directive 2007/30/EC on the use of work equipment must be observed.

4.6 Design for the pallet and fast closing clamp plate

To ensure safe positioning on the fast closing clamp, make sure there is a grip point for a hand on the pallet. If this grip point is not constructively possible, care must be taken when fitting that the hand/fingers are never between the clamping lock plate and the nipple or between the clamping lock plate and the pallet. During the change procedure, only grab the pallet at the front.

DIN EN 349 Safety of machinery – Minimum gaps to avoid crushing of parts of the human body must be observed.

When clamping, do not reach with your fingers into the gap between the fast closing clamp plate and the pallet.

4.7 Danger due to incorrect assembly of the fast closing clamp

The pallet could come loose if the fixing screws are not tightened properly or if the screws are not strong enough.

Measure:
The mounting instructions for strength class, tightening torque and arrangement must be observed.
The product-related data is shown on the enclosed drawing with parts list and in chapter "8 Technical data".

4.8 Influences on service life

Negative influences include:

- Damage to components.
- Undefined forces or defined forces exceeded.
- Heavy contamination (e.g. chips, casting or grinding dust.)
- Aggressive environment, e.g. cooling lubricants or cleaning agents which chemically attack seals / wipers.
- Incorrect preload position or loading position.

4.9 Special warranty conditions

For STARK.metec products with extended spindle or when using a separate spindle extension, please note that a support for the spindle must be fitted in order to maintain the warranty. See chapter "6.4 Extended spindles and separate spindle extensions".

4.10 Choosing the right sockets

At least ½" sockets should be used with STARK.metec products. The torques are too high for ¼" sockets and can cause damage. If in doubt, check the data sheet of the socket used.

5 Description of the clamping device

5.1 General

STARK.metec is a mechanical clamping device that is clamped manually by means of a torque spanner. It is the connection between machine and clamping device and is used for fast and efficient set-up. While one pallet or vice is being processed, another can be set up in parallel.

STARK.metec is available in different versions/with different functions:

- Standard
- with extended temperature range
- with extended spindle

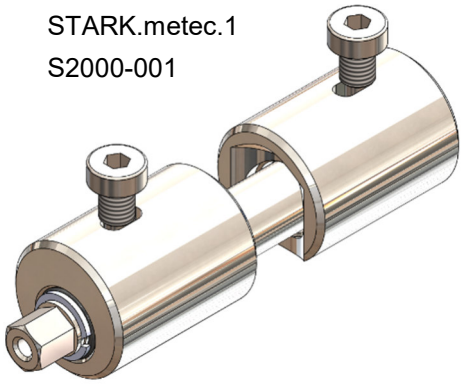
5.2 Description of the versions and functions

STARK.metec **"Standard"** is a clamping lock without special functions.

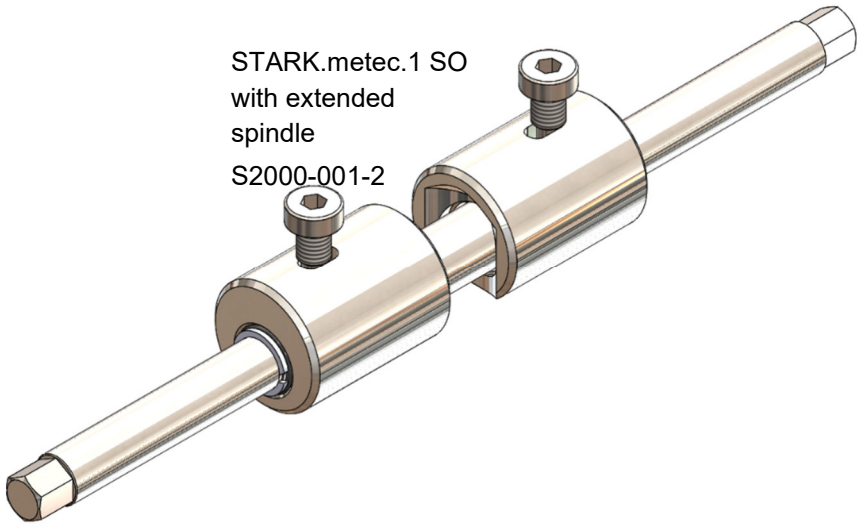
STARK.metec **"with extended temperature range"** is a clamping lock that is exclusively made with FKM seals. These can be used at higher temperatures than standard seals. Temperature range +10°C to +150°C.

STARK.metec **"with extended spindle"** is a clamping lock suitable for larger clamping lock plates. Individual customer-specific designs are listed as examples. Other versions of STARK.metec products with extended spindle are available on request.

STARK.metec.1
S2000-001



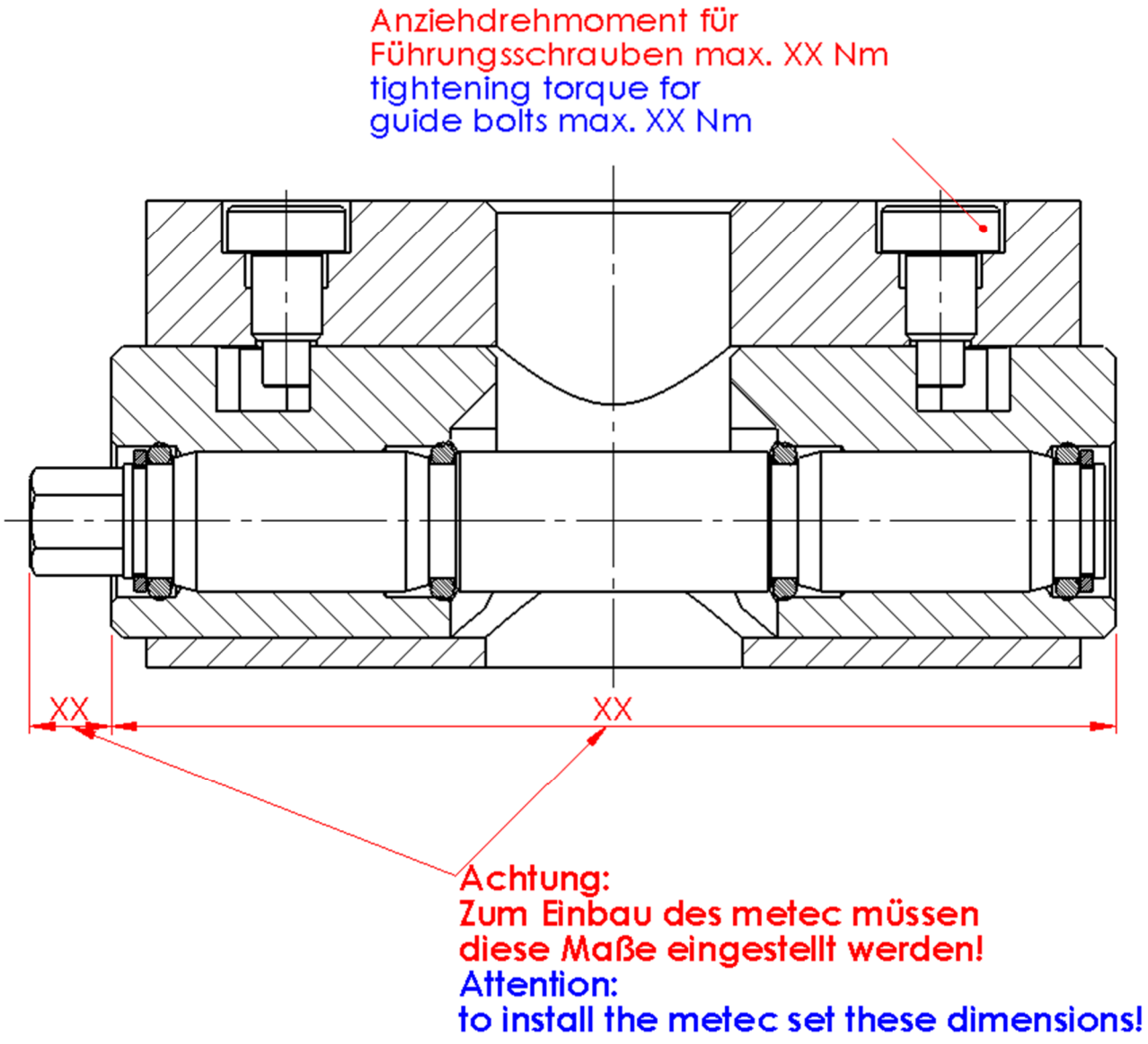
STARK.metec.1 SO
with extended
spindle
S2000-001-2



6 Installation/removal of fast closing clamp

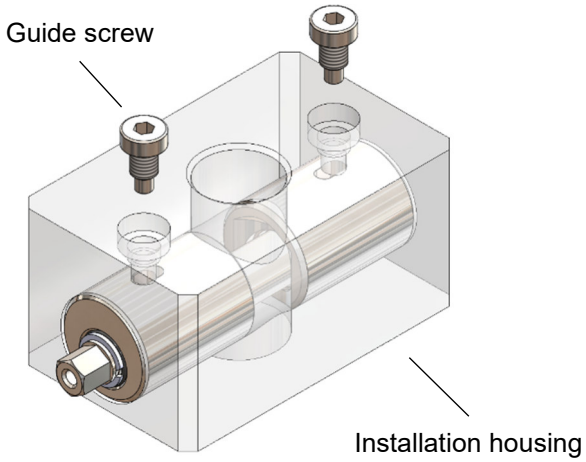
6.1 Installation

For installation, the dimensions listed in the respective data sheet (D034, D045 or D078) must be set. Then insert the clamping lock into the cleaned installation hole. The STARK.metec is positioned using the supplied guide screws. The tightening torques can be found in the data or dimension sheet.

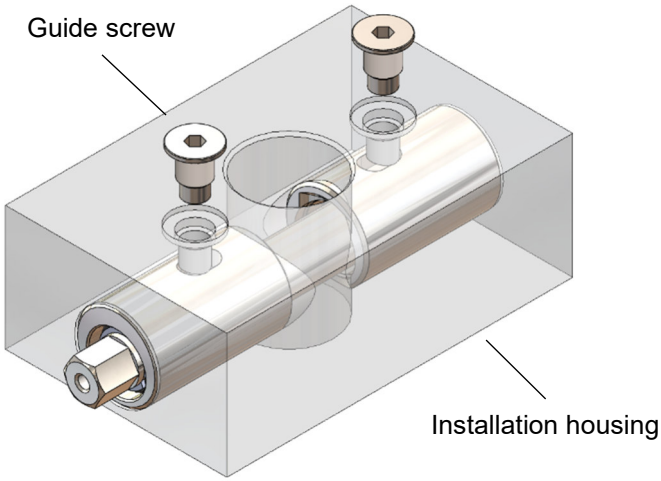


The STARK.metec.3 also has screw covers that should only be fitted after a functional test.

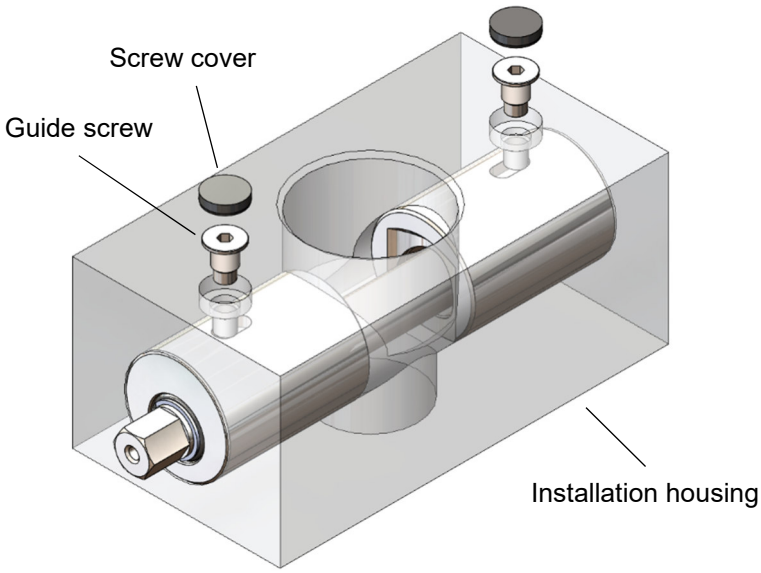
STARK.metec.1
S2000-001



STARK.metec.2
S2000-101

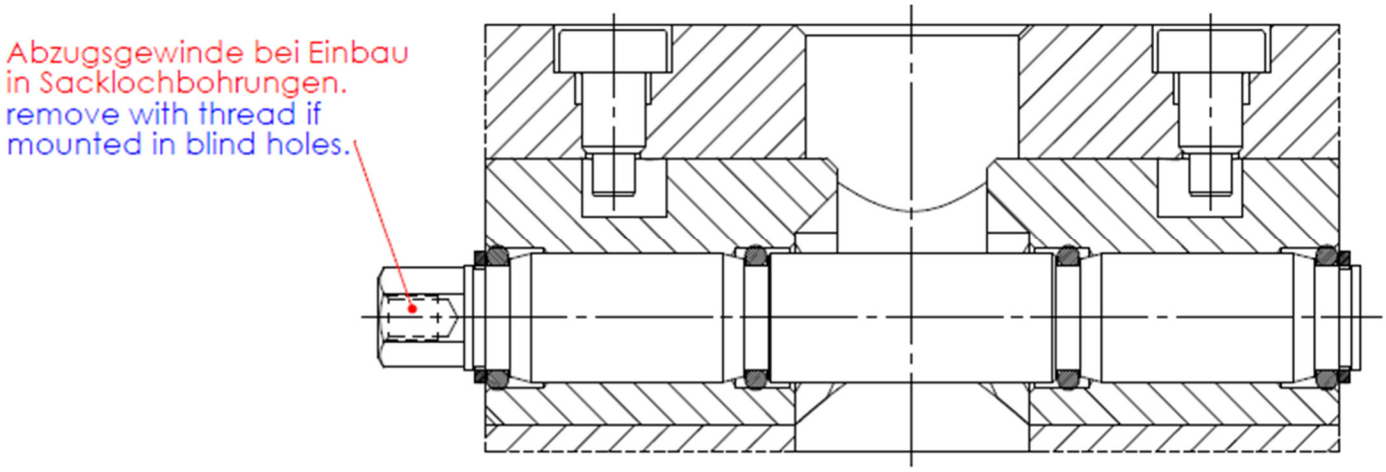


STARK.metec.3
S2000-201



6.2 Removal

For removal, first remove the guide screws. The clamping lock is then pushed out through the installation hole. In case of installation in a blind hole, the pulling-off thread in the spindle can be used to pull out the STARK.metec.

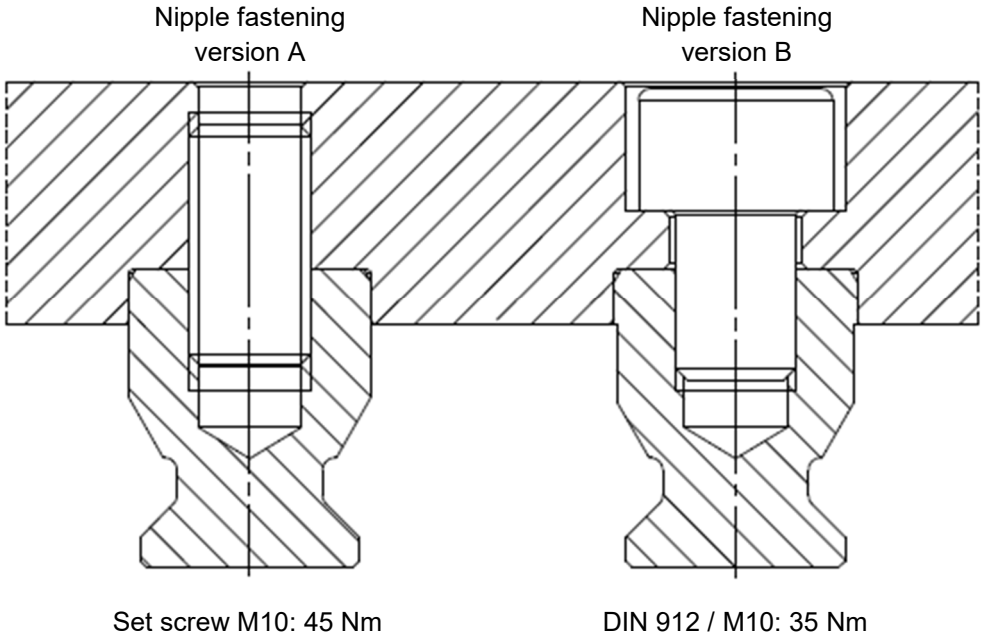


6.3 Retractable nipple

The pallets with the clamping devices are built by the operating company itself or on its behalf. Only original retractable nipples from STARK Spannsysteme GmbH may be used for the pallet. The locating bores must be manufactured according to data sheet D029-3 and assembly must be carried out according to the STARK data sheet specifications (D035 and D029-3).

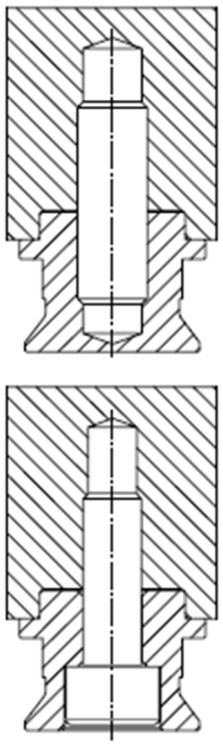
Glue in set screws with Loctite 222, use set screws, strength 10.9, without hexagon socket.

STARK.metec.1



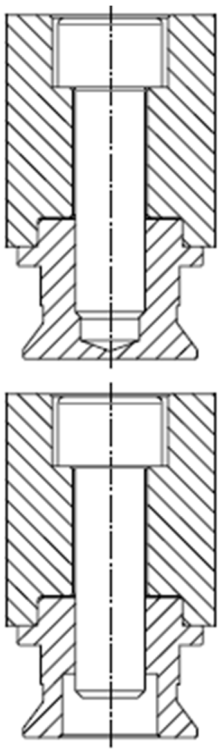
Retractable nipple STARK.metec.1 max. screw-in depth 10 mm.

STARK.metec.2 and STARK.metec.3



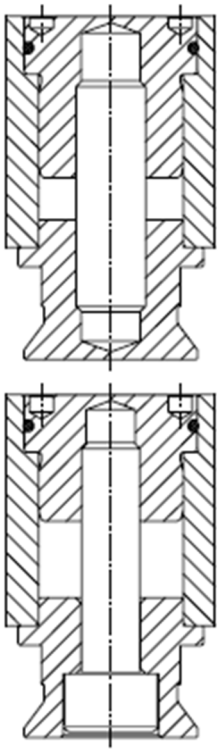
Nipple fastening version A

Set screw M12: 85 Nm
DIN 912 / M10: 45 Nm
DIN 912 / M16: 200 Nm



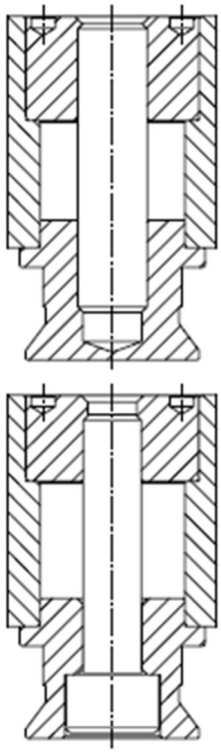
Nipple fastening version B

DIN 912 / M10: 45 Nm
DIN 912 / M16: 200 Nm



Nipple fastening version D

Set screw M12: 85 Nm
DIN 912 / M10: 45 Nm
DIN 912 / M16: 200 Nm



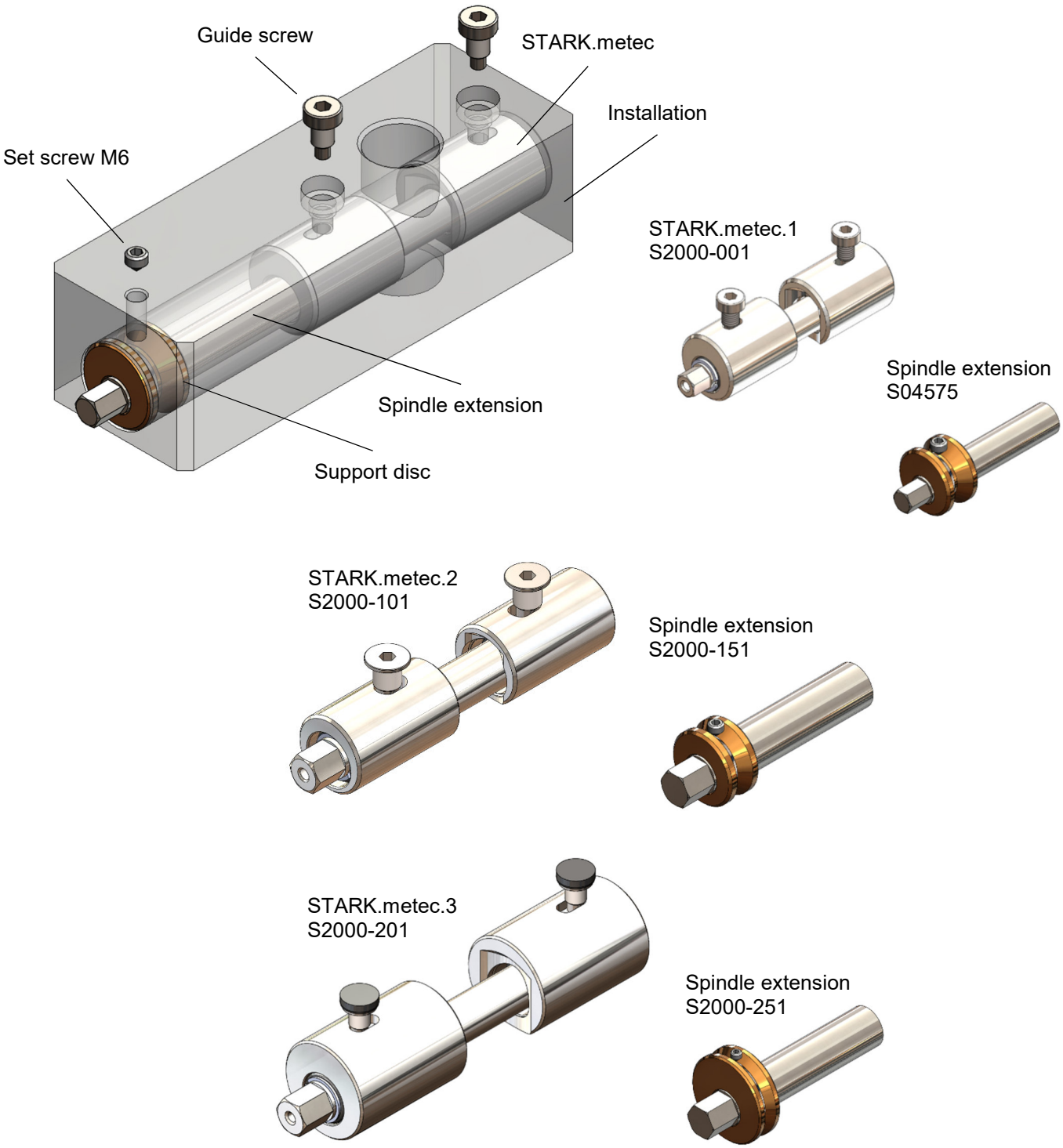
Nipple fastening version E.1

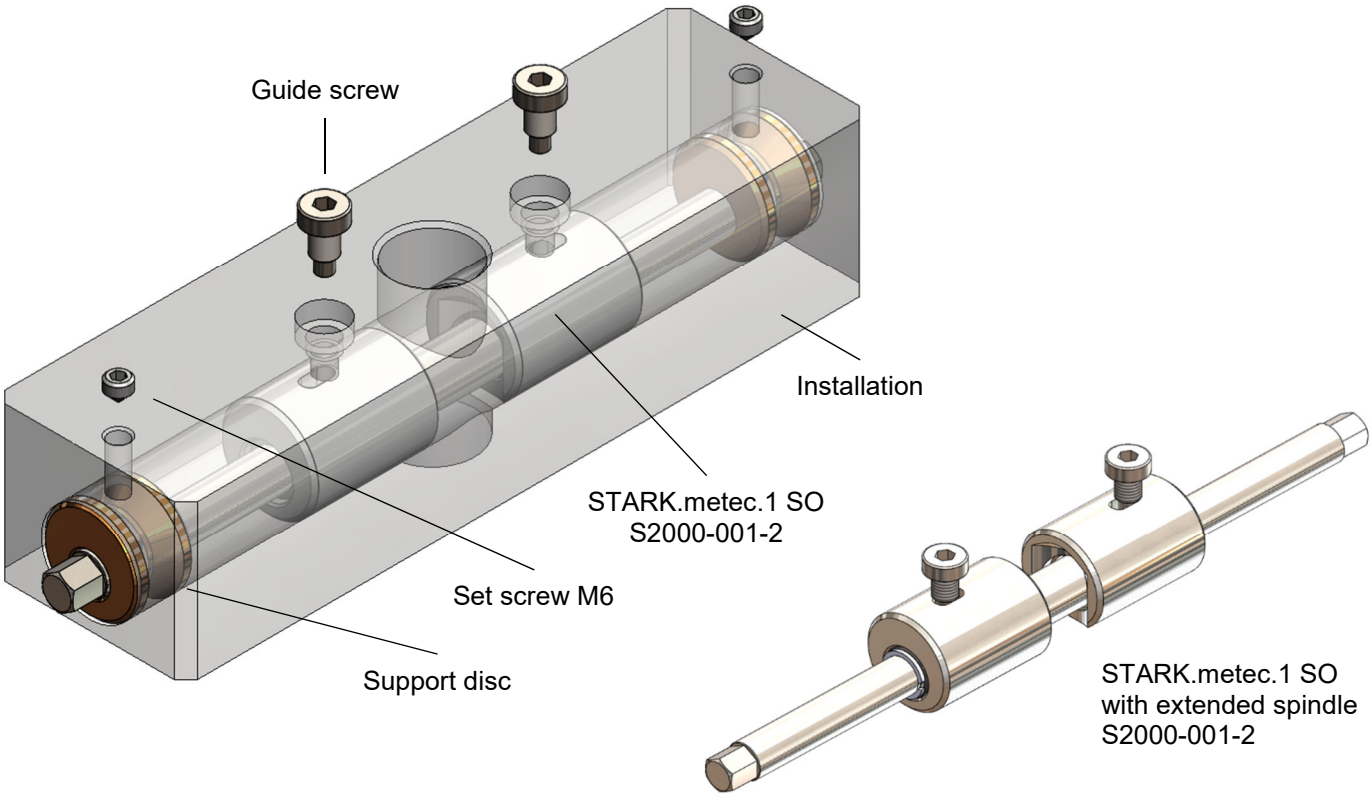
Set screw M12: 85 Nm
DIN 912 / M10: 45 Nm
DIN 912 / M16: 200 Nm

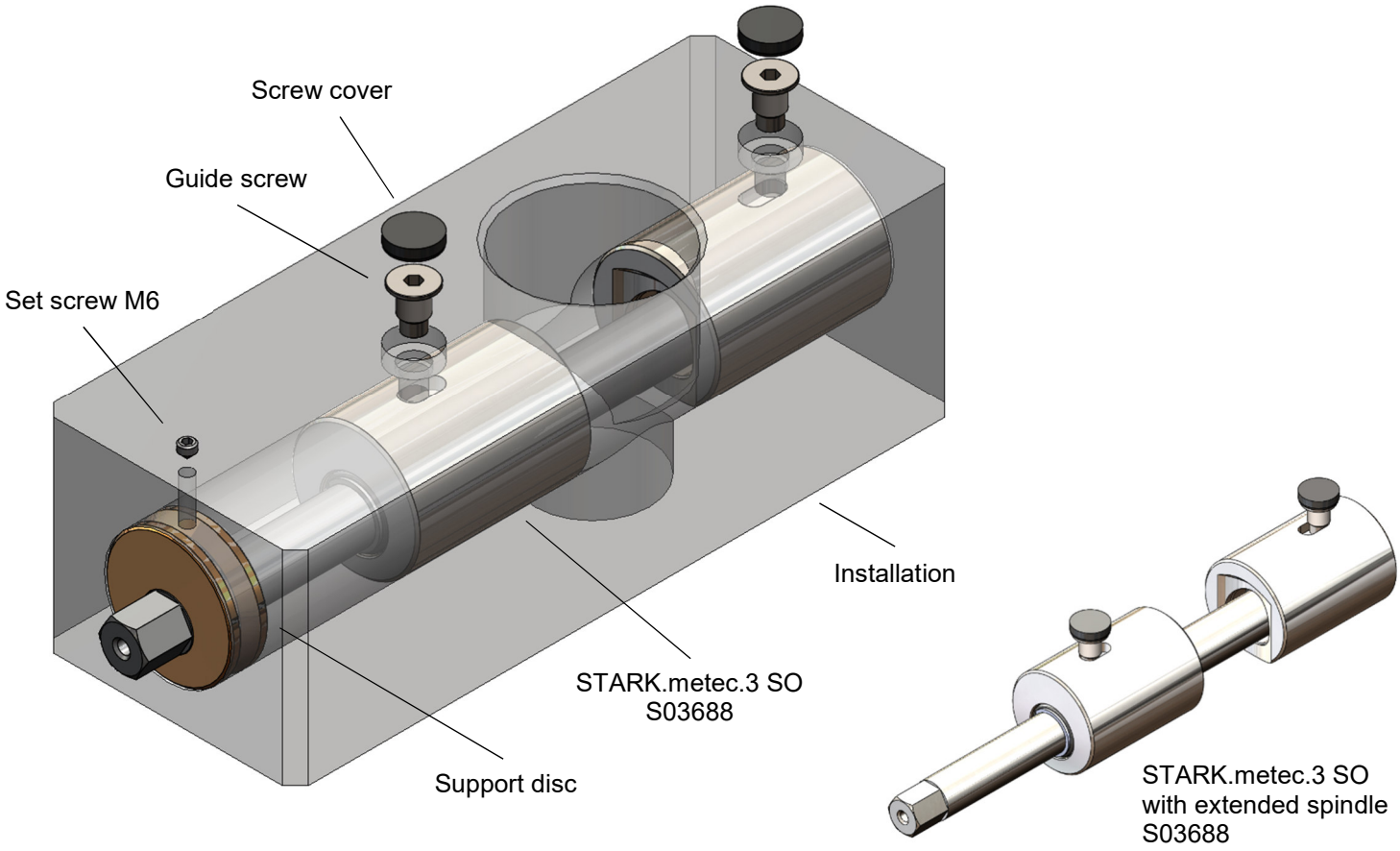
Retractable nipple Stark.metec.2 with blind hole – max. screw-in depth 16 mm.

6.4 Extended spindles and separate spindle extensions

For STARK.metec products with an extended spindle, a support for the spindle must be fitted. For the STARK.metec products, there is an optional separate spindle extension with support disc, which can be combined with the STARK.metec product. The supports should ideally be placed in the front third of the extensions and are necessary for the warranty of the products. To prevent dirt, it is recommended that the installation contour is flush with the support disc.





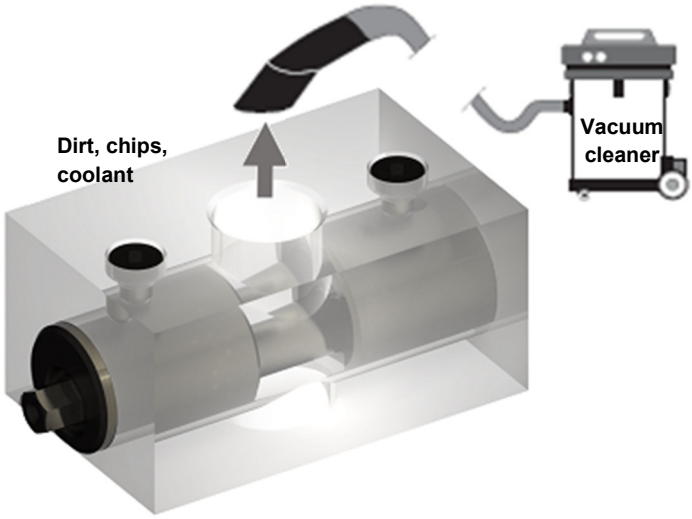


Other versions of STARK.metec products with extended spindle available on request.

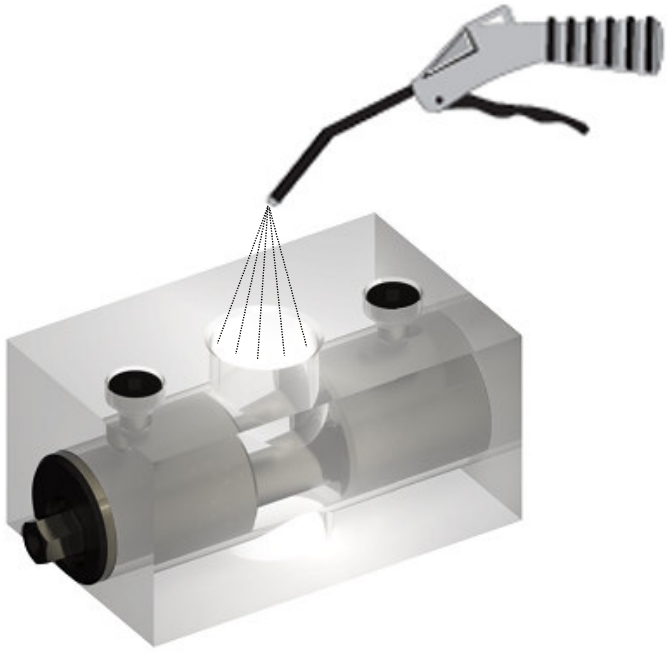
7 Maintenance and repair

7.1 Surface cleaning

Correct!
Extraction and suction of chips, dirt and coolant from the clamping lock.



Possible!
The clamping lock may be blown off or wiped with compressed air.



As a matter of principle, no contamination is permitted in the clamping lock.
Cleaning depends on the application and replacement interval.

7.2 General cleaning

For general cleaning, the entire area of the nipple as well as the clamping area and the support surfaces must be cleaned of all dirt.
Only an authorised service technician may carry out installation work on the clamping locks.
The necessary safety measures must be observed in full and without exception during all work.

Damage to components!

The product may not be cleaned with:

- corrosive or caustic components or
- organic solvents such as halogenated or aromatic hydrocarbons and ketone (nitro thinner, acetone etc.), as this can destroy the seals.

The element must be cleaned at regular intervals. In particular, the area of the piston or bolt housing must be cleaned of chips and other liquids.
In case of heavy contamination, cleaning must be carried out at shorter intervals.

7.3 Storage:

Until installation:
If you do not use the fast closing clamp immediately, please store it dry and dust-free in its original packaging.

Long period of storage after use:
Before storage, clean the fast closing clamp (see chapter “8.3 General cleaning”) and take suitable measures for corrosion protection.

After long period of storage:
After a long period of storage (approx. 3 years), replace the O-rings before use.

7.4 Disposal / recycling

All parts, auxiliary materials and process media of the fast clamping device must be separated according to type and disposed of in accordance with the local regulations and directives.

8 Technical data

	S2000-001 / S2000-001-x	S2000-101	S2000-201 / S03688
Max. retention force	12 kN	20 kN	50 kN
Tightening torque	60 Nm	80 Nm	70 Nm
Activation	2.5 revolutions	2.5 revolutions	3.5 revolutions
Width across flats	AF 8	AF 13	AF 17
Min. plate thickness	min. 40 mm	min. 45 mm	min. 80 mm
Guide screw tightening torque	18 Nm	18 Nm	18 Nm
Sealing material	NBR / FKM*	NBR	NBR
Temperature range	+10 ° to +80 °C / +10 ° to +150 °C*	+10 ° to +80 °C	+10 ° to +80 °C

*S2000-001-1

Info: New order numbers!

In the course of a system adaptation within the ROEMHELD Group, the order numbers for STARK clamping systems have been adapted and standardised.

- NEW: All order numbers start with **S**
- NEW: Hyphen **-** instead of blank space

S5000**-**104
instead of
5000 104

Examples

New order numbers	Old order numbers	*Modifications*
S04342	S04342	*No modification*
S5000-104	5000 104	***S** prefix, hyphen **-** instead of blank space*

9 Manufacturer's declaration

Declaration of Conformity
Konformitätserklärung

We / Wir

STARK Spannsysteme GmbH

Römergrund 14
A-6830 Rankweil
Austria

declare under our sole responsibility that the product
erklären in alleiniger Verantwortung, dass das Produkt

Type: STARK.metec

No.: S2000-001 / S2000-001-1 / S2000-001-2 / S2000-001-3 / S2000-101 / S2000-201 / S03688

to which this declaration relates, corresponds to the following standards
auf das sich diese Erklärung bezieht, mit den folgenden Normen übereinstimmt

2006/42/EC	Machines, Addendum II A

and the following standards were applied.
und dass die folgenden Normen zur Anwendung gelangten.

EN 292-1/2	Safety of Machinery, devices and equipment Sicherheit von Maschinen, Geräten und Anlagen

A technical documentation exists completely. The instruction manual for the product is available.
Eine technische Dokumentation ist vollständig vorhanden. Die zum Produkt gehörende Betriebsanleitung liegt vor.

Stark Spannsysteme GmbH — Rankweil, 27/01/2021

Martin Greif
Managing Director / Geschäftsführer