



**ROEMHELD**  
HILMA ■ STARK



**STARK.metec**

Mechanical  
zero point clamping system



**ROEMHELD**  
HILMA ■ STARK



**POWERFUL  
INNOVATIVE  
PROFICIENT  
INDIVIDUAL  
RELIABLE**

The high-tech company STARK Spannsysteme, founded in 1977, is regarded as a pioneer in the development and manufacture of zero point clamping systems, being the first company on the market to specialise exclusively in this technology for decades.

High quality and precision distinguish what is possibly the broadest product range available on the market in the field of highly productive workpiece clamping.

Production is more efficient and flexible with STARK components, products and systems.





AUTOMOTIVE



AVIATION



MACHINE & TOOL  
CONSTRUCTION



MEDICINE

# FOCUS ON INDUSTRIES & MARKETS.

Every customer has specific requirements. Our established and extensive industry expertise allows us to offer you the best solutions, services and products for sustainable and efficient use in your market.

**Simple:** quickly installed  
**Robust:** few individual parts  
**Compact:** high force density  
**Economical:** easy maintenance  
**Fast:** a torque wrench is sufficient



STARK.basic

STARK.connect

STARK.airtec

STARK.hydratec

## STARK Spannsysteme

More productivity through:

- maximum flexibility in production
- maximum process reliability
- reduced manufacturing costs thanks to set-up time optimisation

STARK.etc

STARK.sweeper

STARK.balance

STARK.classic

STARK.plaintec

STARK.easyclick



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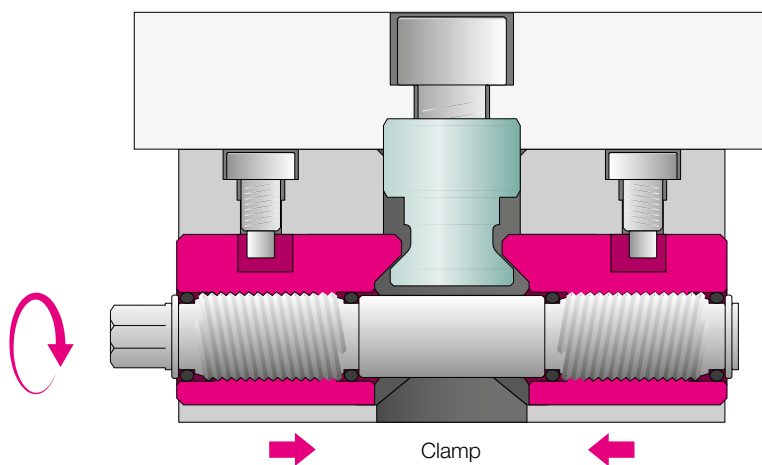
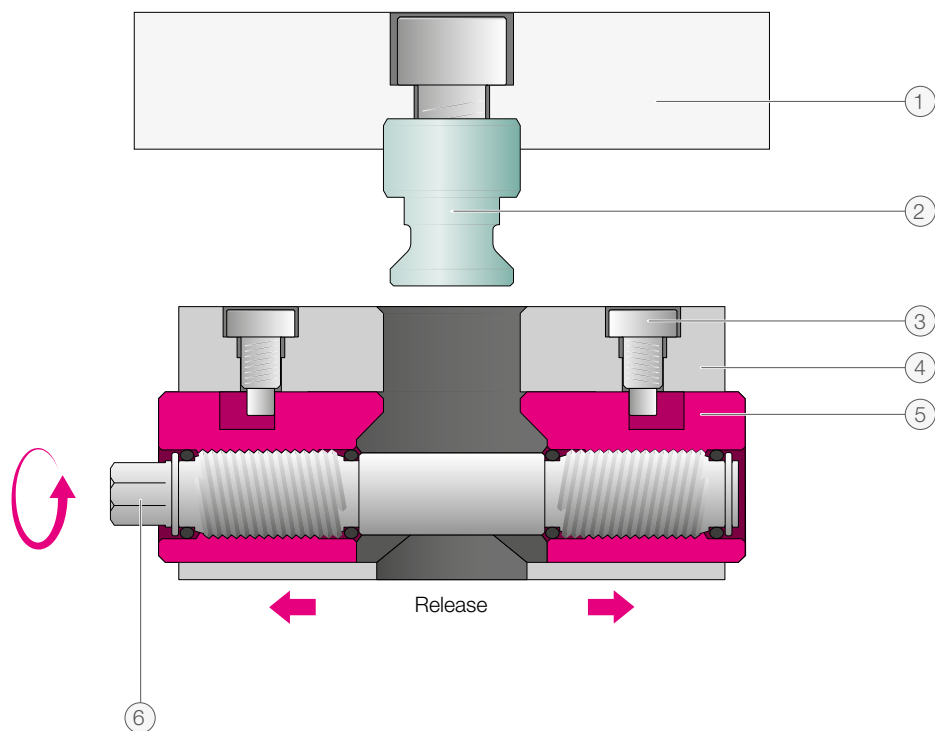
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► Note NEW order numbers – see info, page 19

## Functions

**The workpiece is clamped with approx. 2 – 3 turns!**

- Workpiece/nipple pallet (1) is clamped/released with approx. 2 - 3 turns on the spindle (6)
- Guide screw (3) fixes the installed STARK.metec in fast closing plate/installation housing (4)
- Wedge bolts (5) clamp retractable nipple (2) precisely to zero point



- 1 Workpiece/nipple pallet
- 2 Retractable nipple
- 3 Guide screw
- 4 Fast closing plate/  
installation housing
- 5 Wedge bolts
- 6 Actuation of the spindle

## Benefits

The STARK.metec product family consists of three robust mechanical zero point clamping systems with high retention force, 12 kN / 20 kN / 50 kN. STARK.metec is a solid, mechanical zero point clamping system that enables simple and cost-effective zero point clamping solutions.

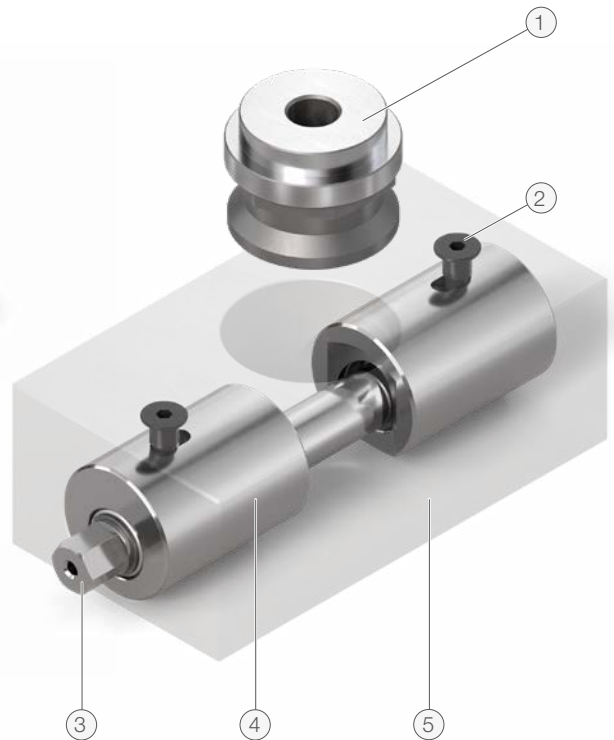
**STARK.metec.1**  
12 kN retention force



**STARK.metec.2**  
20 kN retention force



**STARK.metec.3**  
50 kN retention force



- 1 Retractable nipple
- 2 Guide screw
- 3 Actuation of the spindle
- 4 Wedge bolts
- 5 Installation housing

## OPTIMISE SET-UP TIMES AND INCREASE FLEXIBILITY

- Easy to handle – a torque wrench is sufficient
- No media (compressed air, hydraulics) required
- Low set-up times due to short operating times
- No one-sided transverse forces on the retractable nipple during the clamping process
- Simple and robust construction with a long service life
- Low acquisition costs, fast amortisation

## MANY AREAS OF APPLICATION

- Universal applicability as a construction element
- Workpiece clamping using vices or other clamping devices
- Direct mounting in your own workpiece holders such as brackets, cubes or plates
- Workpiece direct clamping





## ELEMENT

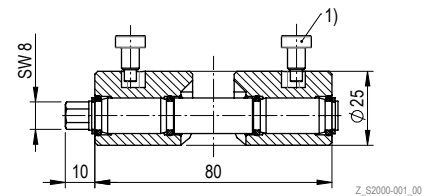
### STARK.metec.1



Zero point clamping system made of high-quality tool steel. The system is mechanically operated

#### Properties

- Retention force: 12 kN
- Spindle tightening torque: 60 Nm
- Actuation: 2.5 revolutions
- Plate thickness: min. 40 mm
- Weight: 0.27 kg
- Installation according to data sheet D034



z\_S2000-001\_00

1) Screws included in scope of delivery and shown in installation position

Order number	Article designation	Operating temperature	Material
S2000-001	SE M1 M 120	+ 10 to + 80 °C	Tool steel, NBR

► Note NEW order numbers – see info, page 19

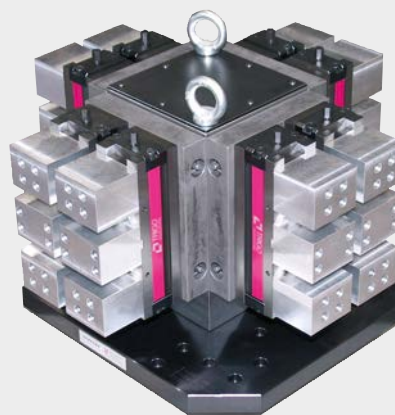
### STARK.metec.1 application example

#### Easy handling and quick retrofit with STARK.metec

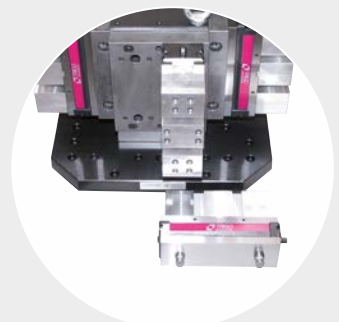
With the solid STARK.metec, you can set up easily and with zero-point accuracy. Due to the purely mechanical operation, machine vices, workpieces or even devices can be changed easily, quickly and cleanly.

#### Benefits that are worthwhile

- High level of clamping safety
- No media (pneumatics/hydraulics) are required for the clamping process – a wrench is sufficient
- Clamp and loosen with approx. 2 - 3 turns on the spindle (right-hand/left-hand thread).
- High retention forces with low tightening torque on the spindle
- Low installation costs, fast amortisation



Machine vices with STARK.metec mounted on a machine bracket.





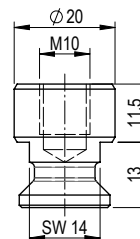
## RETRACTABLE NIPPLE

### STARK.metec.1 – NP retractable nipple



Retractable nipple suitable for clamping locks from the STARK.metec.1 series

- Retractable nipple with zero point
- Weight: 0.04 kg
- Installation according to data sheet D035



Z\_S2000-009\_00

Order number	Article designation	Material
S2000-009	EB M1 NP 200 10 045	Tool steel

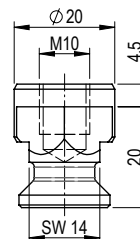
► Note NEW order numbers – see info, page 19

### STARK.metec.1 – AG retractable nipple



Retractable nipple suitable for clamping locks from the STARK.metec.1 series

- Retractable nipple with equaliser in an axis (floating area in an axis  $\pm 0.025$  mm)
- Weight: 0.04 kg
- Installation according to data sheet D035



Z\_S2000-010\_00

Order number	Article designation	Material
S2000-010	EB M1 AG 200 10 045	Tool steel

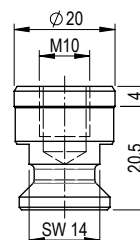
► Note NEW order numbers – see info, page 19

### STARK.metec.1 – OZ retractable nipple



Retractable nipple suitable for clamping locks from the STARK.metec.1 series

- Retractable nipple without centring (floating range circumferential  $\pm 0.25$  mm)
- Weight: 0.04 kg
- Installation according to data sheet D035



Z\_S2000-011\_00

Order number	Article designation	Material
S2000-011	EB M1 OZ 200 10 045	Tool steel

► Note NEW order numbers – see info, page 19



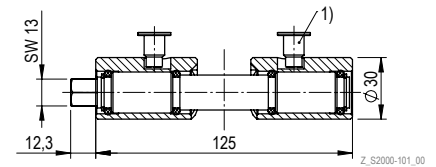
## ELEMENT

### STARK.metec.2



Zero point clamping system made of high-quality tool steel. The system is mechanically operated

- Retention force: 20 kN
- Spindle tightening torque: 80 Nm
- Actuation: 2.5 revolutions
- Plate thickness: min. 45 mm
- Weight: 0.58 kg
- Installation according to data sheet D045



1) Screws included in scope of delivery and shown in installation position

Order number	Article designation	Operating temperature	Material
S2000-101	SE M2 M 200	+ 10 to + 80 °C	Tool steel, NBR

► Note NEW order numbers – see info, page 19

### STARK.metec.2 application example

#### Retrofitting made easy with STARK.metec

Set-up costs are the main cost drivers in one-off production and varying series production. With the STARK.metec mechanical zero point clamping system, ongoing series production can be interrupted simply. Changing the device, pallet or just the machine vice is done with zero-point accuracy in just a few minutes.

With STARK.metec, alignment processes of the machine vices are completely eliminated. Positioning and clamping easily with approx. 2 - 3 turns and with a retention force of up to 50 kN.

- Time saving due to minimum set-up times
- Throughput increase
- Competitive advantages due to maximum flexibility
- Optimum reproducibility



## RETRACTABLE NIPPLE

## STARK.metec.2 – NP retractable nipple

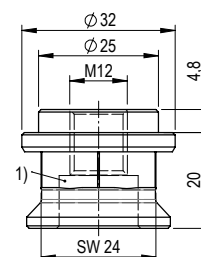


Retractable nipple suitable for clamping locks from the STARK.metec.2 series

- Retractable nipple with zero point
- Weight: 0.1 kg
- Installation according to data sheet D029-3

Order number	Article designation	Material
S2000-109	EB M2 NP 250 12 048	Tool steel

► Note NEW order numbers – see info, page 19



Z\_S2000-109\_00

1) Countersink for M10 screw

## STARK.metec.2 – AG retractable nipple

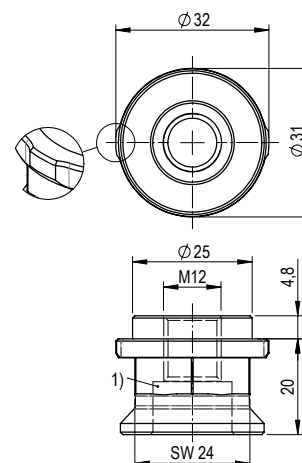


Retractable nipple suitable for clamping locks from the STARK.metec.2 series

- Retractable nipple with equaliser in an axis (floating area in an axis  $\pm 0.07$  mm)
- Weight: 0.1 kg
- Installation according to data sheet D029-3

Order number	Article designation	Material
S2000-110	EB M2 AG 250 12 048	Tool steel

► Note NEW order numbers – see info, page 19



Z\_S2000-110\_00

1) Countersink for M10 screw

## STARK.metec.2 – OZ retractable nipple

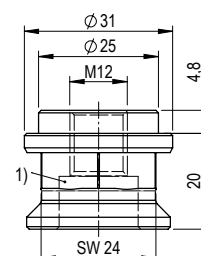


Retractable nipple suitable for clamping locks from the STARK.metec.2 series

- Retractable nipple without centring (floating range circumferential  $\pm 0.5$  mm)
- Weight: 0.1 kg
- Installation according to data sheet D029-3

Order number	Article designation	Material
S2000-111	EB M2 OZ 250 12 048	Tool steel

► Note NEW order numbers – see info, page 19



Z\_S2000-111\_00

1) Countersink for M10 screw



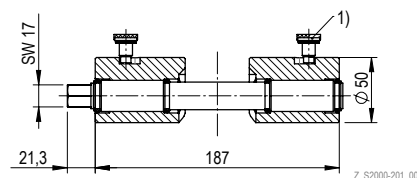
## ELEMENT

### STARK.metec.3



Zero point clamping system made of high-quality tool steel. The system is mechanically operated

- Retention force: 50 kN
- Spindle tightening torque: 70 Nm
- Actuation: 3.5 revolutions
- Plate thickness: min. 80 mm
- Weight: 2.25 kg
- Installation according to data sheet D078



1) Screws included in scope of delivery and shown in installation position

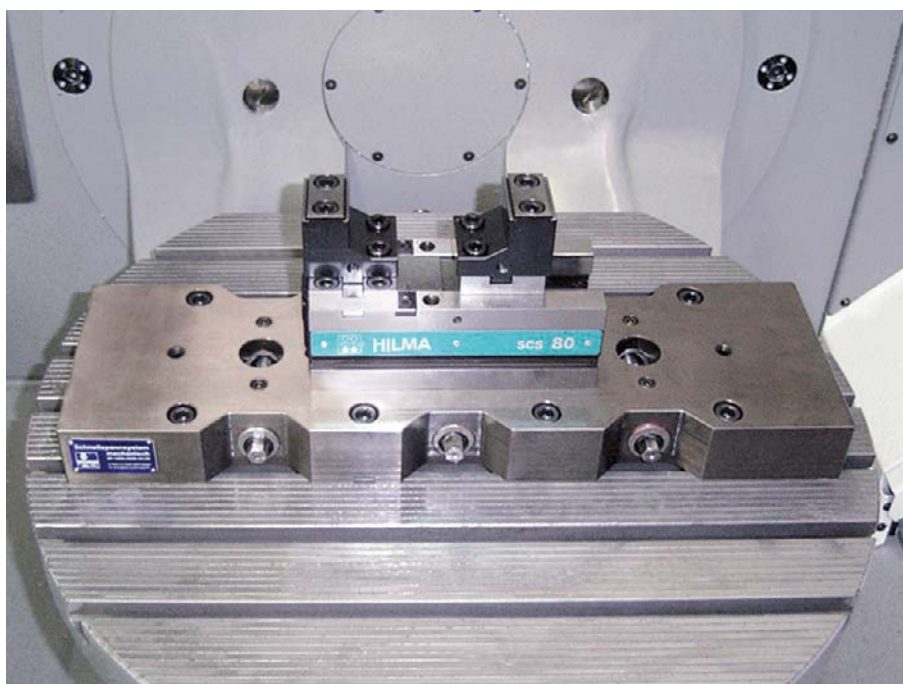
Order number	Article designation	Operating temperature	Material
S2000-201	SE M3 M 500	+ 10 to + 80 °C	Tool steel, NBR

► Note NEW order numbers – see info, page 19

### STARK.metec.3 application example

#### Quick and easy assembly of the machine vice with STARK.metec

With a retention force of 50 kN per clamping position, the STARK.metec.3 is ideal for 5-sided machining.





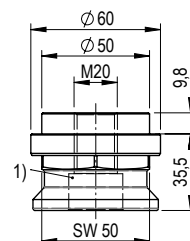
## RETRACTABLE NIPPLE

## STARK.metec.3 – NP retractable nipple



Retractable nipple suitable for clamping locks from the STARK.metec.3 series

- Retractable nipple with zero point
- Weight: 0.68 kg
- Installation according to data sheet D029-3



Z\_S2000-209\_00

1) Countersink for M16 screw

Order number	Article designation	Material
S2000-209	EB M3 NP 500 20 098	Tool steel

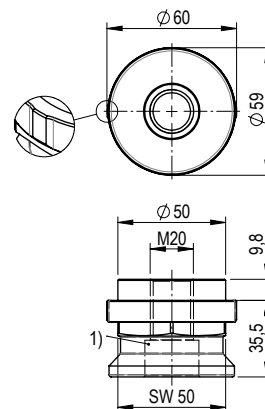
► Note NEW order numbers – see info, page 19

## STARK.metec.3 – AG retractable nipple



Retractable nipple suitable for clamping locks from the STARK.metec.3 series

- Retractable nipple with equaliser in an axis (floating area in an axis  $\pm 0.14$  mm)
- Weight: 0.68 kg
- Installation according to data sheet D029-3



Z\_S2000-210\_00

1) Countersink for M16 screw

Order number	Article designation	Material
S2000-210	EB M3 AG 500 20 098	Tool steel

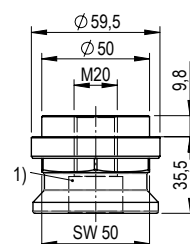
► Note NEW order numbers – see info, page 19

## STARK.metec.3 – OZ retractable nipple



Retractable nipple suitable for clamping locks from the STARK.metec.3 series

- Retractable nipple without centring (floating range circumferential  $\pm 0.25$  mm)
- Weight: 0.68 kg
- Installation according to data sheet D029-3



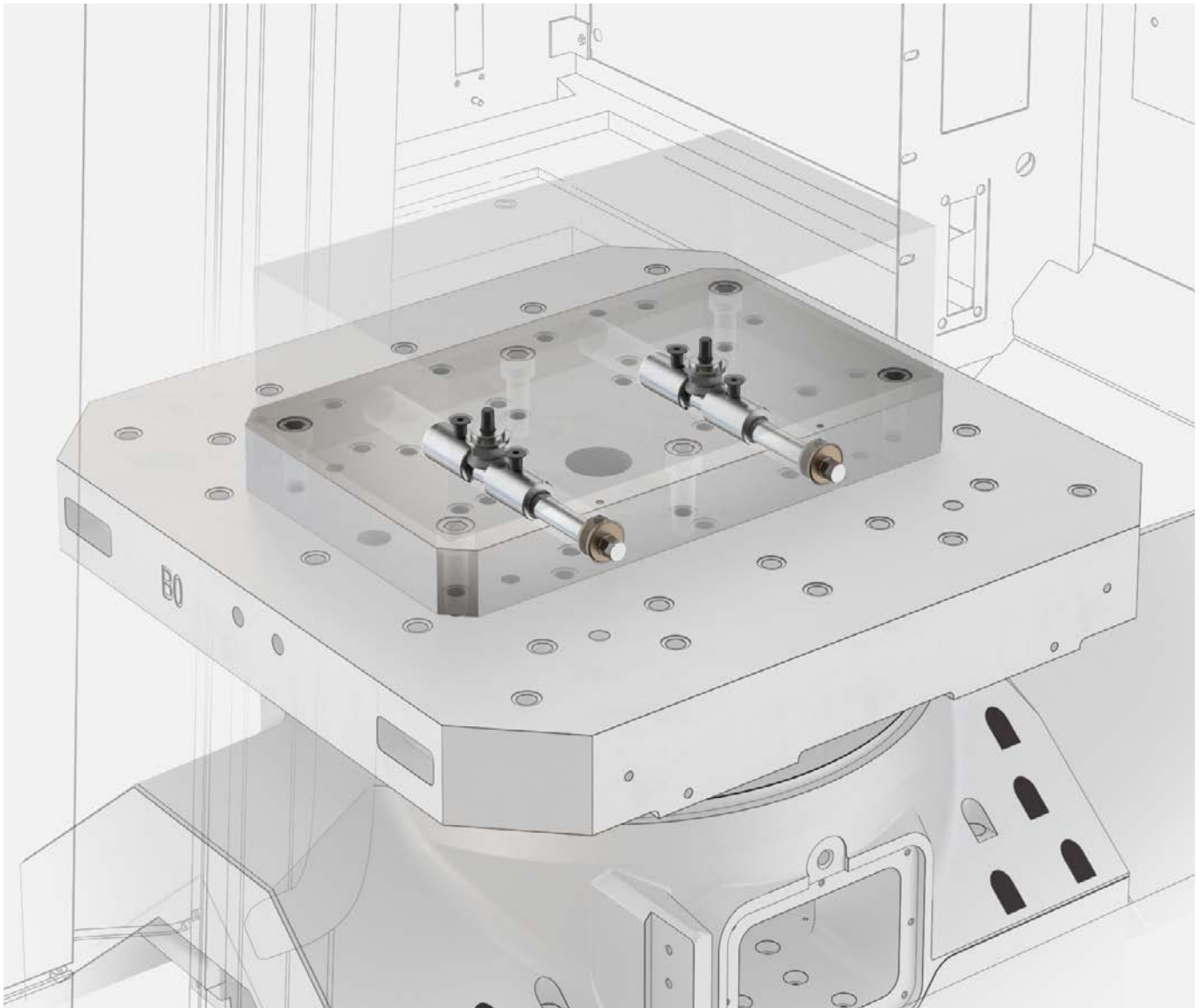
Z\_S2000-211\_00

1) Countersink for M16 screw

Order number	Article designation	Material
S2000-211	EB M3 OZ 500 20 098	Tool steel

► Note NEW order numbers – see info, page 19

## Application example – milling machines



### Typical application for milling machines

- Zero point clamping system with two STARK.metec.2 elements (S2000-101)
- The suitable spindle extension allows flexible handling and prevents dirt from penetrating the bore
- No media (pneumatic/hydraulic) are required for the clamping process – a wrench is sufficient
- The system is ideally suited for direct workpiece clamping (e.g. in tool & mould making)

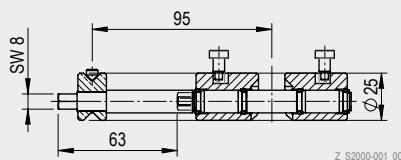


**INFO**

**STARK.metec spindle extension**

The spindle extension makes it possible to easily operate deeper recessed STARK.metec. Contamination in the bore can also be effectively prevented with this.

- Flexible handling due to adapted spindle extensions
- Reliably prevents dirt from entering the bore (particularly suitable for assembly in the centre of the fast closing clamp plate)



Installation example  
STARK.metec.1 with spindle extension



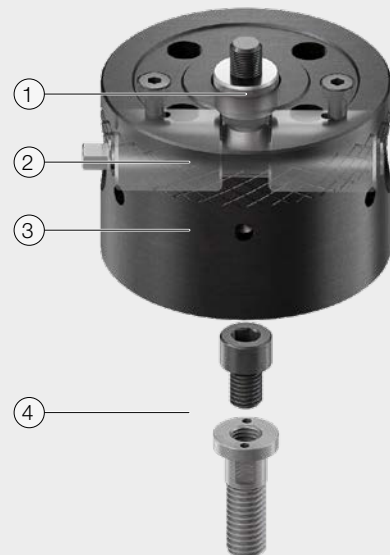
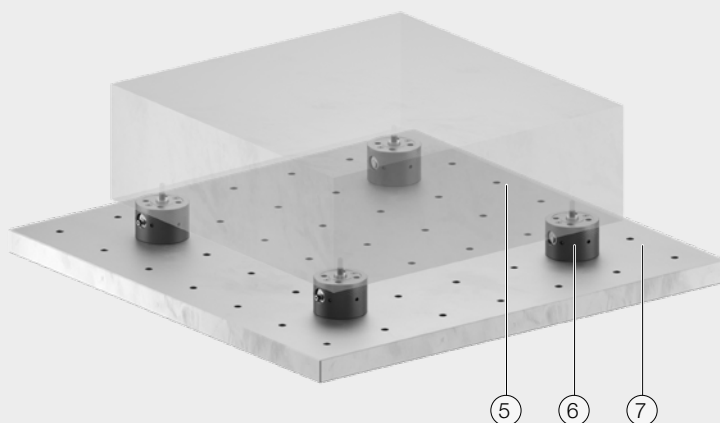
**INFO**

**STARK.metec surface-mounted housing**

**Do you want to gain height?**

STARK.metec zero point clamping systems are also available with surface-mounted housing.

As the practical example shows, the elements of the STARK.metec product family can also be integrated very well into self-made structures.



- 1 STARK.metec retractable nipple
- 2 STARK.metec element
- 3 Surface-mounted housing
- 4 Fixing screws for surface-mounted housing/base plate
- 5 Workpiece
- 6 Surface-mounted housing with STARK.metec
- 7 Base plate

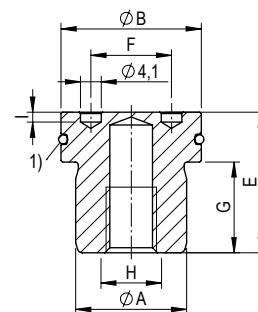
## NIPPLE FASTENING

### Nipple fastening D



Counterpart for assembling the retractable nipple according to the version "D".

- Allows to make the nipple fastening with one clamping
- Mounting key or face wrench recommended for counterholding
- Installation according to data sheet D029-3
- Operating Manual WM-020-439-xx-xx



Z\_Nippelbefestigung\_D\_00

1) O-ring included in scope of delivery

Order number	Article designation	øA	øB	øC	øD	E	F	G	H	I	Weight
S804-263	NB 30 28 25 18 M12 NI D	25	29.8	27.4	24	27.9	24	18	M12 x 18	2	0.1 kg
S804-267	NB 30 22 25 12 M10 NI D	25	29.8	27.4	24	21.9	24	12	M10 x 13	3	0.05kg

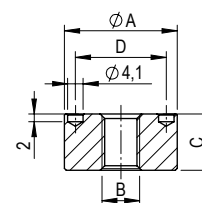
► Note NEW order numbers – see info, page 19

### Nipple fastening E.1



Counterpart for assembling the retractable nipple according to the version "E.1".

- Allows to make the nipple fastening with one clamping. Mounting key or face wrench recommended for counterholding
- Installation according to data sheet D029-3
- Operating Manual WM-020-439-xx-xx



Z\_Nippelbefestigung\_E.1\_00

Order number	Article designation	øA	O	C	D	Weight
S804-265	NB 30 18 00 00 M12 NI E1	29.8	M12	17.9	24	0.09kg
S804-266	NB 30 15 00 00 M10 NI E1	29.8	M10	14.9	24	0.05kg

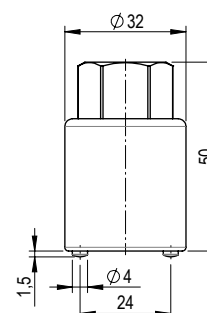
► Note NEW order numbers – see info, page 19

### Key for nipple fastening D & E.1



For assembly and disassembly of the retractable nipples according to versions "D & E.1"

- Width across flats SW22
- Tightening torque, see installation data sheets of retractable nipples.



Z\_S804-254\_00

Order number	Article designation	Dimensions	Weight
S804-254	Key for nipple fastening M10	ø32 mm / 50 mm	0.16kg

► Note NEW order numbers – see info, page 19



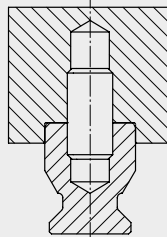
**INFO**

Retractable nipple fastening versions

**STARK.metec.1**

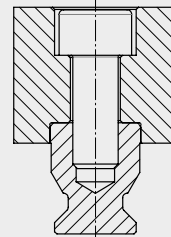
**Version A**

For applications where nipple bores are not permitted on the surface (e.g. pallet top) or for direct workpiece clamping. This version is not possible for retractable nipples with equaliser.



**Version B**

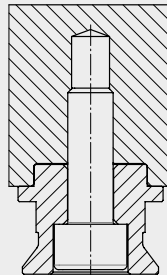
Simple nipple fastening from above when no particular accuracy is required between the position of the nipples and the top of the pallet.



**STARK.metec.2**  
**STARK.metec.3**

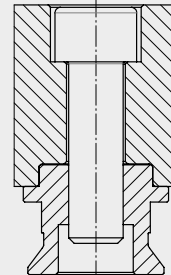
**Version A**

For applications where nipple bores are not permitted on the pallet surface or for direct workpiece clamping.



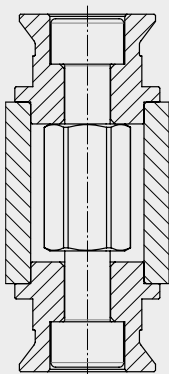
**Version B**

Simple nipple fastening from above when no particular accuracy is required between the position of the nipples and the top of the pallet.



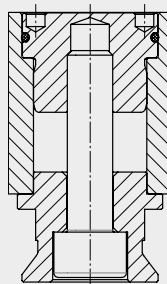
**Version C**

Ideal fastening version for clamping in laterally inverted manufacturing. Highest level of accuracy is guaranteed because the nipples are fastened in the same locating bore.

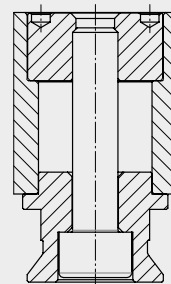


**Version D**

These fastening versions are preferable. The fitting bore for the nipple and all necessary positioning bores on the pallet can be produced in one operation. This results in the highest level of accuracy of the positions to each other. Special nipple fastening is required for these versions.



**Version E.1**





## ACCESSORIES

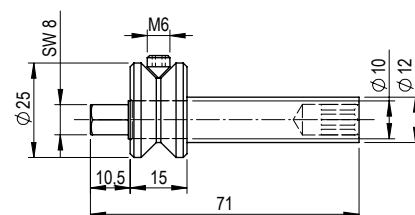
### STARK.metec.1 spindle extension



Spindle extension suitable  
for STARK.metec.1 clamping lock

**Properties**

- Extension: 63 mm
- Weight 0.09 kg



Z\_S04575\_00

Order number	Material
S04575	Tempered steel, bronze

► Note NEW order numbers – see info, page 19

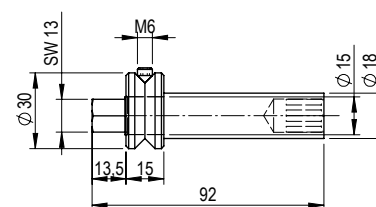
### STARK.metec.2 spindle extension



Spindle extension suitable  
for STARK.metec.2 clamping lock

**Properties**

- Extension: 79 mm
- Weight 0.2 kg



Z\_S2000-151\_00

Order number	Material
S2000-151	Tempered steel, bronze

► Note NEW order numbers – see info, page 19

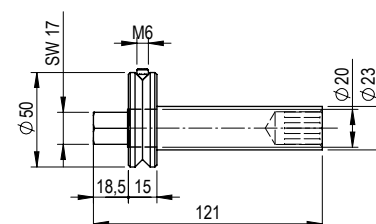
### STARK.metec.3 spindle extension



Spindle extension suitable  
for STARK.metec.3 clamping lock

**Properties**

- Extension: 103 mm
- Weight 0.5 kg



Z\_S2000-251\_00

Order number	Material
S2000-251	Tempered steel, bronze

► Note NEW order numbers – see info, page 19

## STARK.metec list of order numbers

► Note NEW order numbers

S04575	18	S2000-211	13
S2000-001	8	S2000-251	18
S2000-009	9	S804-254	16
S2000-010	9	S804-263	16
S2000-011	9	S804-265	16
S2000-101	10	S804-266	16
S2000-109	11	S804-267	16
S2000-110	11		
S2000-111	11		
S2000-151	18		
S2000-201	12		
S2000-209	13		
S2000-210	13		

### INFO

#### NEW order numbers

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

- NEW: all order numbers start with **S**
- NEW: hyphen - instead of blank space

## S2000-101

instead of  
2000 101

#### Examples

NEW order number	OLD order number	Modifications
<b>S04575</b>	S04575	No modification
<b>S2000-101</b>	2000 101	<b>S</b> prefix, hyphen - instead of blank space



**ROEMHELD**  
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