

ROEMHELD
HILMA ■ STARK

STARK.connect

Operating Manual

WM-020-417-13-en BA STARK.connect

precise, fast and powerful



WM-020-417-13-en BA STARK.connect

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2 Identification of the partly completed machinery

Product:	Fast clamping lock
Function:	Clamping and centring of machine or system elements
Product group:	STARK.connect M
Article number*:	S9000-001 to S9000 ...

* Note NEW order numbers

3 User Instructions

3.1 Purpose of the document

This operating manual

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

3.2 Revision history

Date	Version	Revision	Name
24/04/2018	WM-020-417-10	Document creation	magr
05/11/2018	WM-020-417-11	5.5 Integrated signalling / sensors 9 Technical data	wavo
21/03/2019	WM-020-417-12	5 Description of the fast clamping device 9 Technical data	wavo
14/04/2020	WM-020-417-13	STARK.connect (change of name + presentations) 9 Technical data	chgo

3.3 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 imminent risk to life and health of persons (serious injury or death). Be sure to follow these instructions and the procedures described!



CAUTION

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



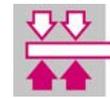
INFORMATION

Application tips and particularly useful information.



INSTRUCTION

Obligation to adopt a particular behaviour or activity for the safe use of the machine.



4 Fundamental safety instructions

4.1 Intended use



The fast clamping lock is used for clamping pallets with mounting devices for workpieces.

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 can arise if the device is not used for its intended purpose. 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 When using rotating machine tools



For rotating applications, the fast clamping lock may only be operated if it is ensured that it is securely clamped. It must also be ensured that the permissible forces acting on the fast clamping lock are not exceeded according to the technical data.

Specialists must be consulted to calculate and design the fast clamping locks for rotating applications. STARK Spannsysteme GmbH provides this service.

4.4 Modifications or alterations



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

Therefore do not make any modifications or alterations to the fast clamping lock and retractable nipple without consultation with and the written approval from the manufacturer.



4.5 Spare and wear parts and auxiliary materials



Only retractable nipples from STARK Spannsysteme GmbH may be used on the remote station and must be installed according to the appropriate data sheet of STARK Spannsysteme GmbH.

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. STARK Spannsysteme GmbH accepts no liability for damage resulting from the use of spare and wear parts or auxiliary materials not approved by STARK Spannsysteme GmbH.

4.6 Obligations of the operating company



The operating company is obliged to allow only persons to work on the fast clamping device who

- are familiar with the fundamental occupational health & safety and accident prevention regulations
- have been instructed in the use of the fast clamping device 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.

4.7 Residual risks



Attention must be paid to the existence of mechanical and pneumatic residual energies at the fast clamping device and the pressure in the cylinders and valves after switching off the fast clamping device!

4.7.1 Spring assembly



Improper disassembly of the fast clamping lock can result in material damage or even injuries due to the internal, pre-tensioned spring assembly. Assembly work may only be carried out by STARK Spannsysteme GmbH.

4.7.2 Malfunction in the hydraulics/ pneumatics during operation



Malfunctions in the hydraulics or pneumatics can lead to an unintentional pressure increase in the release line and subsequently to the release of the fast clamping lock. Particularly in rotating applications, this can result in a significant hazardous situation.

Possible measures to prevent accidental release:

- Mechanical disconnection of the release pressure line (decouple). This means that a pressure increase is no longer possible during operation.
- Decoupling the safety valves from the machine hydraulics/pneumatics. This means that a pressure increase is no longer possible during operation.
- When the hydraulic system is decoupled, the temperature in the system/pallet must not increase, e.g. due to hot chips or machining operations.
- With integrated pressure monitoring in the release circuit of the fast clamping lock, the machine can be stopped in the event of an unintentional pressure increase.



4.7.3 Pressure hazards



Lines or hoses bursting due to excessive pressures can endanger persons and the environment.

Measure:

- Protect hydraulic lines with overpressure safety valves.
- Observe the specified pressure limits.

4.7.4 Danger due to incorrect assembly of the fast clamping lock



Incorrect tightening of the fixing screws or insufficient strength of the screws can cause the pallet to come loose.

Measure:

The mounting instructions for arrangement, strength class and tightening torque must be observed.

4.7.5 Danger during use when rotating



Excessive rotational speed, excessive weight or unbalance can lead to failure of the fast clamping lock. As a result, the pallet could be slung away.

Measure:

It is essential to observe the manufacturer's specifications and regulations regarding maximum values!

4.7.6 Influences on service life

Negative influences include:

- Insufficient filtering of the oil or compressed air: a filter fineness of <math><15\ \mu\text{m}</math> must be guaranteed.
- External mechanical damage to functional components.
- Exceeding the specified forces or unintended load conditions.
- Insufficient ventilation of the hydraulic circuit.
- Overloading due to sudden pressure peaks.
- Excessive piston speeds: the specified release and clamping times must not be undercut due to excessive volume flows (note pump delivery rate)!
- Heavy contamination of the functional parts (e.g. chips, casting or grinding dust, etc.).
- Aggressive media or environmental influences, e.g. coolants or lubricants, cleaning agents, UV radiation. This attacks seals and wipers.
- Incorrect preload position or loading position.
- Damage due to excessive loading and unloading speed.
- Staying too long in the release position leads to unnecessary loads on the seals and springs.



5 Description of the fast clamping device

5.1 General

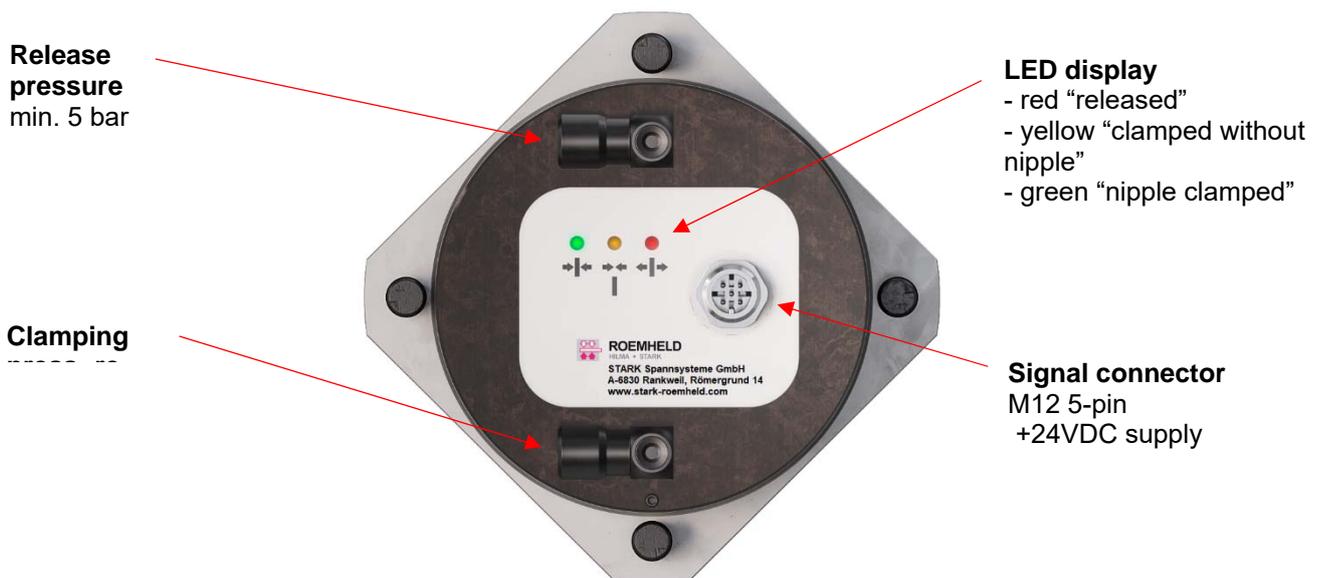
The products of the STARK.connect series are fast clamping locks made of high-quality tool steel and housings made of anodised, high-strength aluminium with very small space requirements due to compact external dimensions. The system is mechanically tensioned with springs, pneumatically power-enhanced and pneumatically released. The integrated spring assembly makes the STARK.connect self-locking.

The integrated interrogation unit detects and signals the clamping state using three signals (clamped, released, incorrectly clamped) via LEDs directly on the rear of the element and digitally for transmission to a higher-level control system. The query is designed to be fail-safe and suitable for use in welding systems.

The product series is designed for installation in systems for vehicle shell construction, assembly systems and for connecting machine elements. It is suitable for use in welding environments (weld-proof). It can also be used for all common machining processes such as milling, grinding, eroding, as well as on test benches and assembly devices. Ideal for automatic loading.

5.2 Operating principle

The STARK.connect is a pneumatically operated zero point clamping system. A piston is held in the clamping position by springs. The piston has a double-acting pneumatic design. Both of the pneumatic connections for release and reclamping or the electrical control and visual display of the clamping state are located at the rear of the element.



Release

When the release pressure is applied, the piston is moved into the release position against the spring force. The form fit of the embracing balls is released and the retractable nipple is pressed out (excavation path) - signal: "released".

Clamping without retractable nipple or faulty tensioning

If the release pressure is relieved, the piston retracts. If there is no retractable nipple in the system, the end position is reached - signal: "clamped without retractable nipple".



Clamping with retractable nipple

If a retractable nipple is within the axial tolerance (“axial pre-positioning”), the form fit between the retractable nipple and the piston is produced with the rotating balls when the piston is retracted. The piston continues to move, the retractable nipple is retracted until the system is reached (up to the maximum pull-in force). The piston is held in a distinct intermediate position by spring force – “clamped with retractable nipple” signal.

The form fit is retained until the release connection is pressurised. This must be observed on the control side with regard to personal safety.

Clamping force increase

The spring-loaded pull-in force can be pneumatically increased. If the clamping pressure is applied with 5 bar, the pull-in force can be increased to 3,000 N.

5.3 Compensation options

Depending on the requirement, there are many possibilities to compensate tolerances with different materials and device sizes. In principle, the compensation can be carried out on the machine or device side.

- Compensation via fast clamping lock ± 0.75 mm
- Compensation via retractable nipple $AG \pm 0.05$ mm / $OZ \pm 0.2$ mm

The following symbols are used to describe the compensation options and different fits.



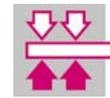
NP – with zero point



AG – with compensation

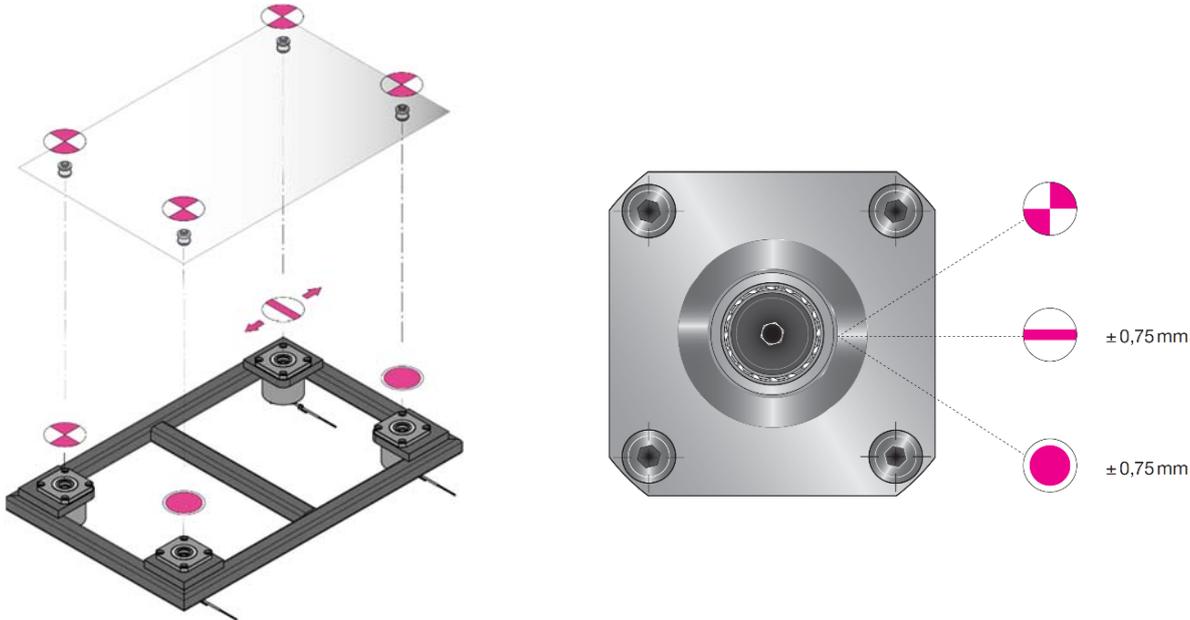


OZ – without centring



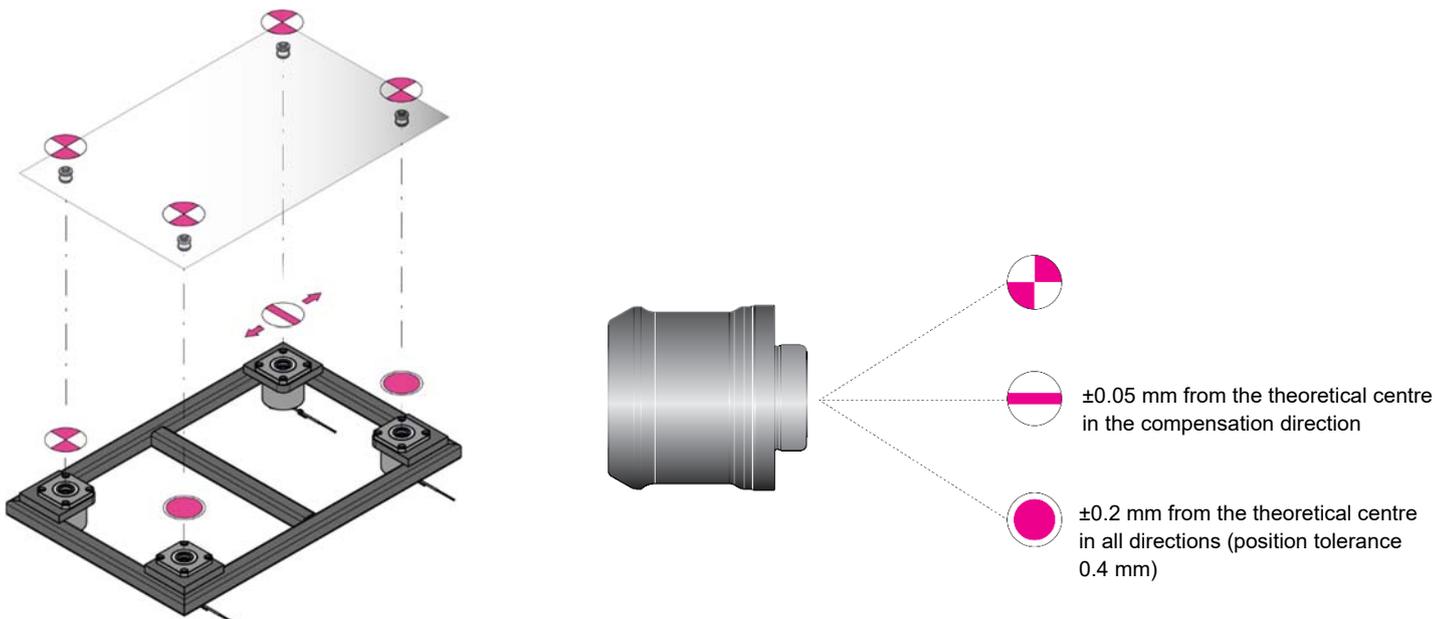
5.3.1 Compensation via fast clamping lock

If the compensation is implemented using different elements (with zero point, with compensation and without centring), zero point nipples must always be used on the device side. In doing so, the greatest possible compensation can be achieved.



5.3.2 Compensation via retractable nipple

The classical approach to implement compensation is to use different types of retractable nipples:

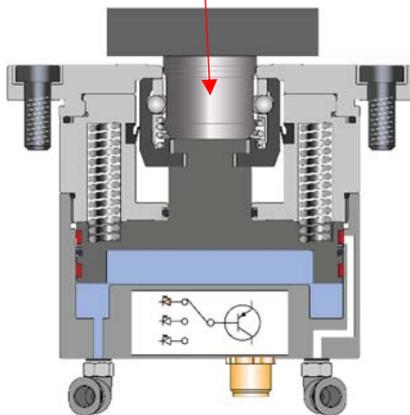


5.4 Lifting out of the fit

The elements of the STARK.connect family have, in addition to active insertion, an active ejection/lift-out of the standard retractable nipple from the fit of the element.

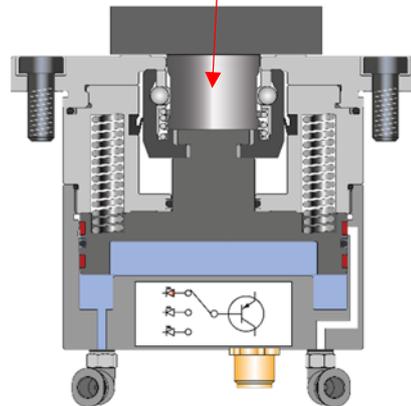
Especially when loading with robots, it can be advantageous to work without lift-out. In these cases, an undesired interaction between robot and clamping elements can occur. The robot can prevent the ejection of the retractable nipples (counterforce), so that the “released” position cannot be reached (faulty signalling). A possible solution is to switch the robot to “soft” (weight force compensation). However, if this cannot be done, shortened retractable nipples that are not ejected can also be used.

“Standard” retractable nipple



Release with lift-out (1.5 mm)

“Shortened” retractable nipple



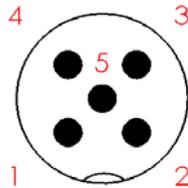
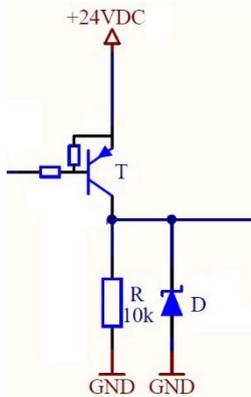
Released without lift-out

The use of shortened nipples has no effect on all other functions (e.g. active retraction path). All types of retractable nipple assembly are also retained without restriction.

5.5 Integrated signalling / sensors

5.5.1 Electrical control

The integrated interrogation unit must be supplied with a nominal voltage of +24 VDC. The respective clamping condition is indicated by an individual signal (“clamped without nipple”, “clamped nipple” or “released”). The signal lines are designed as PNP outputs with a 10 kΩ pull-down resistor and each have a maximum continuous current capacity of 200 mA¹.



M12 connector, male,
5-pin, A-coding

Assignment	Description	Signal
Pin 1	+24 VDC	Supply
Pin 2	Signal “clamped without nipple”	PNP
Pin 3	GND	Supply
Pin 4	Signal “nipple clamped”	PNP
Pin 5	Signal “released”	PNP
Shield	Not applied	

Depending on the application, the individual information of the elements can be further processed or sum information can be generated by a simple parallel connection.² Please note, however, that a clamping element without a signal (e.g. dirty voltage) cannot be detected!

Commercially available T-distributors or Y-cables can be used for a parallel connection. It must also be ensured that all interconnected elements are in the same supply circuit, otherwise equalising currents can impair the function. If you need support with the selection, then just contact us.



Example 1: An element is properly clamped and displays the “green” signal. A second element is also clamped, but with contamination between the support surface and pallet – this element does not produce any signal at all. If these two clamping elements are connected in parallel, the sum information is “green”.

Example 2: An element is properly released and therefore displays the “red” signal. Another element could not be released (e.g. pneumatic hose torn out). This still produces the “green” signal for clamped. In this case, two signals, “green” and “red”, are displayed as sum information.

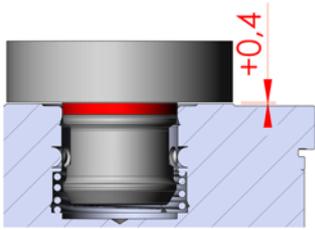
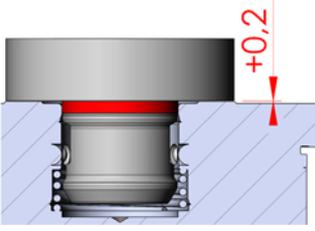
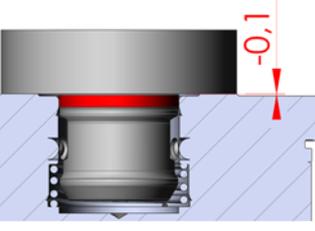
¹ 100 mA for a delivery date before 14/08/2018

² A parallel connection is only possible from delivery date 14/08/2018

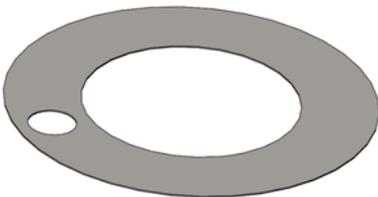
5.5.2 Switching points

If the element is released, the piston moves to the end position and signals “released” regardless of the ambient conditions. If no retractable nipple is clamped, the piston moves to the other end position and signals “clamped without retractable nipple”. These two signals cannot be influenced by the use of the element (installation situation, device tolerances, etc.) and the associated retractable nipple.

The signalling of the “clamped” state, however, is influenced by the interaction of the element with the retractable nipple and thus also depends on the respective installation situation. If the signalling is not correct, check the following switching points in the application:

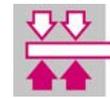
<p>From a gap of 0.4 mm between the pallet and contact surface on the element, a “clamped” signal is no longer displayed.</p>	
<p>Up to a gap of 0.2 mm between the pallet and contact surface on the element, “clamped” is reliably displayed.</p>	
<p>Even if the retractable nipple protrudes by up to 0.1 mm (into the element), a “clamped” signal is reliably displayed.</p>	

For larger devices where the flatness or parallelism of the support surfaces cannot be established with sufficient accuracy, or where there is distortion due to weight forces, clean signalling due to violation of the above tolerances is not guaranteed.



If the respective application of the accuracy requirements allows it, a certain device error can be compensated by placing spacers (art. no.* S9000-902) under the retractable nipples.

* Note NEW order numbers



5.5.3 Frequently asked questions about sensors (FAQs)

The following is an overview of typical error patterns and possible remedies:

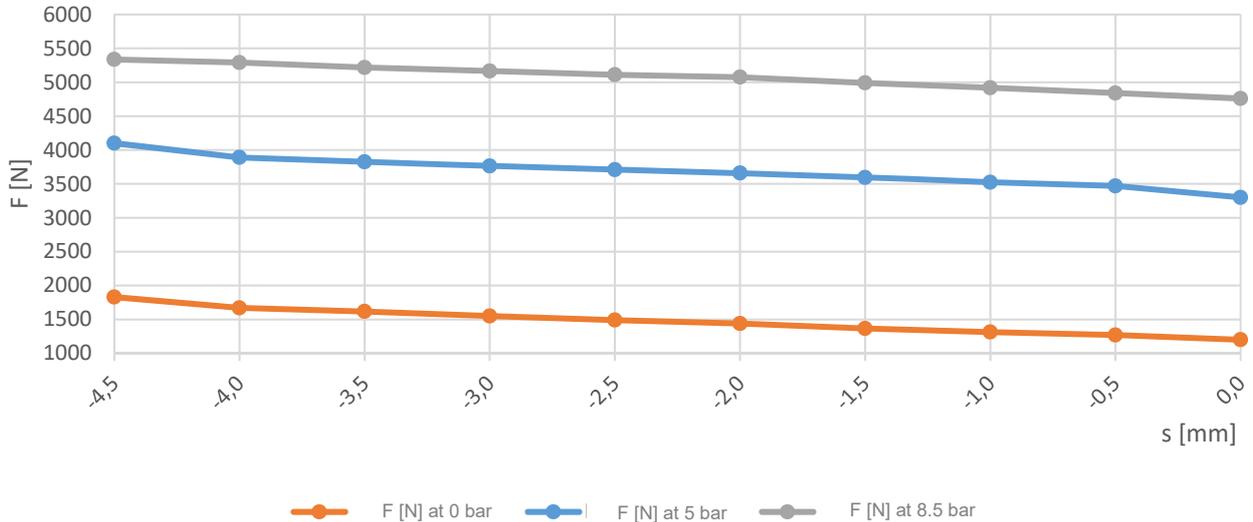
Error	Possible cause	Possible remedy
"Released" signal is not reached	The device cannot be lifted because a robot presses against it	Switch the robot to "soft"
		Use shortened retractable nipple
	The device cannot be lifted out because it is too heavy	Increase release pressure
		Use shortened retractable nipple
"Clamped" signal is not reached	The retractable nipple is drawn in too little, e.g. due to distortion of the device	Check the dimensional accuracy of the device
		Increase clamping pressure
		Place nipple (art. no*. S9000-902)
No signal is reached at all	Signal or supply line not connected	Check the wiring or the power supply
	Short-circuit due to incorrect pin assignment (see 5.5.1)	The sensors must be replaced at the factory

* Note NEW order numbers

5.6 Force curves

The following diagram shows the course of the pull-in force as a function of the applied clamping pressure. The path-dependent decrease of the pull-in force in all pressure ranges results from the decreasing pre-tensioning force of the spring assembly.

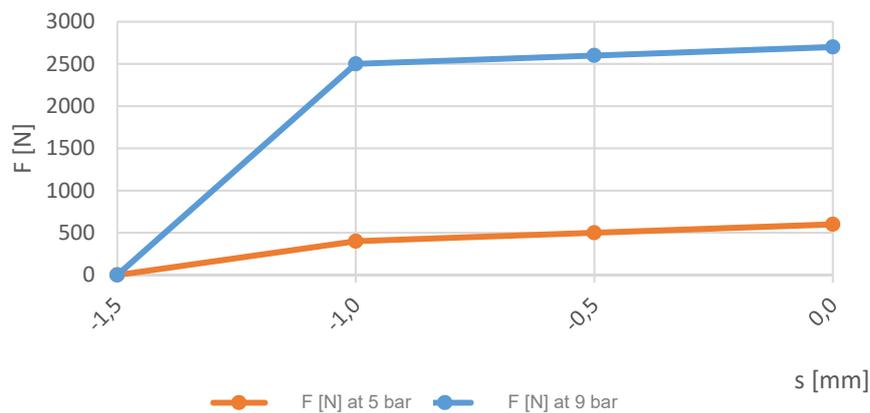
Pull-in force as a function of the path at different clamping pressures



The specified pull-in force of 3,000 N at a pneumatic clamping pressure of 5 bar is achieved or exceeded over the entire path.

The following diagram shows the course of the counterforce of the element when a release pressure of 5 bar is applied. This force is relevant, for example, if a workpiece is to be placed with a robot and positioned against the "output" of the element.

Counterforce when release pressure is applied



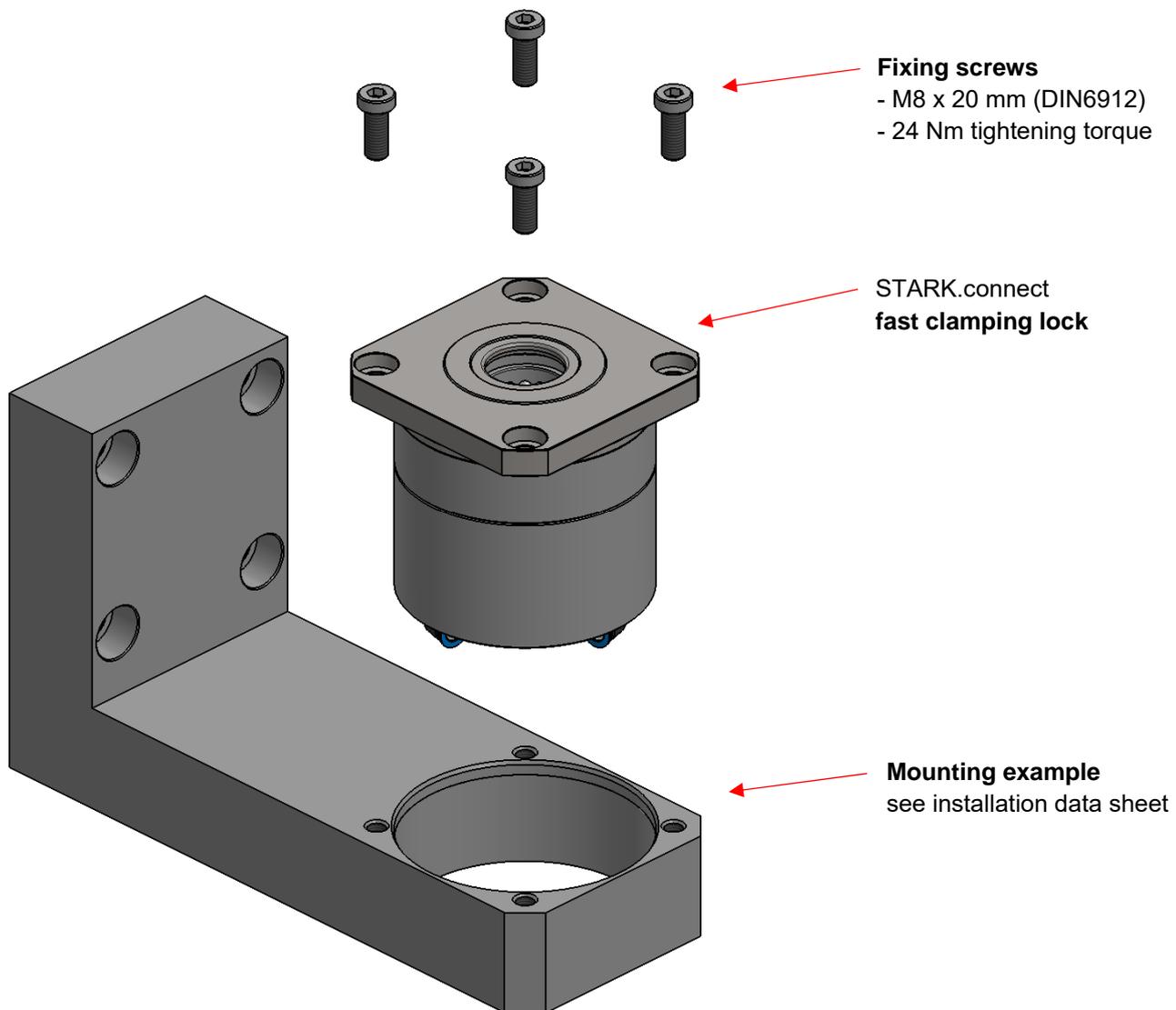
At the specified release pressure of 5 bar, for example, a robot has to apply around 600 N to press the workpiece onto the flat support.

6 Assembly and installation

The element is completely pre-assembled when supplied. The four M8 fixing screws provided are used for installation. Two pre-assembled 90° push-in fittings for connecting the release and clamping lines cables are included when delivered.

6.1 Fast clamping lock installation

Before installing the fast clamping lock, the installation contour for the STARK.connect must be checked for dimensional accuracy and surface quality.



After inserting the element, the four fixing screws M8 x 20 mm (DIN6912, screw quality 8.8) can be tightened evenly with a torque of 24 Nm.



Due to the design, the **rotatory orientation** of the connections is undefined. The pneumatic connections can be rotated, but the locking of the plug is specified. When designing the system, space must therefore be provided for the cable outlet.

After the mechanical fixing of the element, the release and clamping lines can be connected. A 90° M5 push-in fitting for an external hose diameter of Ø 6 mm is provided at the factory for this purpose.



In order to ensure that the elements function continuously, appropriate air quality must be provided. Stark's specifications therefore refer to a purity according to ISO 8573-1:2010 [7:4:4].

6.2 Removing the fast clamping lock

The system must be completely depressurised before disassembly is started. Disconnect the energy supply to the pressure generator, prevent unintentional commissioning and reduce possible residual pressures (e.g. non-return valves, stopcocks and similar).

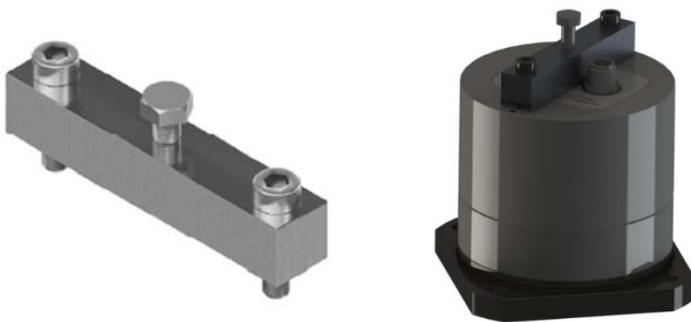
Both of the pneumatic and electrical connections must be disconnected from the element before disassembly or it must be ensured that the lines are long enough so that they can be disconnected after removal of the element.

To disassemble, simply loosen all four screws evenly and remove them. Two of the existing fixing holes are provided with an internal thread M10. The STARK.connect can be lifted evenly out of the fit using two M10 jack screws.

6.3 Emergency release

If the compressed air supply fails or the clamping element cannot be released for any other reason, an emergency release can be carried out as follows:

1. Remove the pneumatic connections and the electrical plug connection.
2. A "bridge" can now be fitted in the threaded holes of the pneumatic connections. The two M5 screws only have to be adjusted manually.
3. The clamping piston can now be pushed into position with the central M6 hexagon head screw loosened: First, a few mm must be overcome without force. In doing so, the adhesive film is pierced (there is a through hole in the cover underneath). When the screw comes into contact with the piston, a further piston travel of approx. 9 mm must be passed through to the top dead centre. The clamping piston is now positioned inside the fast clamping lock.
4. The retractable nipple is released.
5. The affected clamping element must be replaced and possibly sent to us for service (depending on the cause, only the adhesive film may need to be replaced).
6. Check the retractable nipple for damage and replace if necessary.



The "Bridge emergency release" article is available under order number* S9000-900

* Note NEW order numbers

7 Commissioning, handling and operation

7.1 During initial commissioning

- Perform a visual inspection of the entire machine or system and the fast clamping lock.
- Check the fast clamping lock for pneumatic tightness.
- Check the release and clamping pressure as well as the electrical connection of the element.

7.2 Functional check

- If all clamping elements connected to the same circuit are installed as described above and tightened with the appropriate torque, the pneumatic pressure generator can be connected to the circuit.
- Release: Slowly and carefully increase the pressure to the release pressure. When doing so, check the clamping elements for leaks, switch off the pressure generator immediately if necessary and eliminate the leakage.
- Clamp: Slowly and carefully increase the pressure to the clamping pressure. When doing so, check the clamping elements for leaks, switch off the pressure generator immediately if necessary and eliminate the leakage.
- The clamping condition is indicated on the rear LEDs - Check that the LEDs match the existing clamping condition (“released”, “clamped with nipple” and “clamped without nipple”).

7.3 Operation



The speed when retracting the retractable nipples into the fast clamping elements must be less than 100 mm/s, otherwise the retractable nipples and fast clamping elements may be damaged.



Only pressurise the fast clamping lock for the actual change procedure.
Do ***not*** leave under permanent pressure (released)!

- Set the release pressure of the fast clamping locks (see chapter 9 Technical data).
- Monitor the max. operating pressure of the fast clamping locks. Set the excess pressure safety valve to max. 5 bar above the max. operating pressure (see chapter 9 Technical data).

8 Maintenance and repair

8.1 Functional check



Check the fast clamping lock for proper function: When the fast clamping lock is released, check that all balls move back. If the retractable nipple cannot be inserted and removed without force into the locating bore when loosened, servicing by STARK Spannsysteme GmbH is required immediately. If no service is performed, safe clamping of the retractable nipple is not possible.



Monthly:

Check that all balls move back when the clamping element is released.

Yearly or after 5000 clamping cycles:

Check all functions of the fast clamping element. If one or more functions are no longer in perfect working order, servicing by STARK Spannsysteme GmbH is necessary immediately.

8.2 Spring assembly maintenance interval

When the clamping cycles or replacement intervals have been reached, the fast clamping lock must be serviced by STARK Spannsysteme GmbH (see chapter 9 Technical data).

Please contact us to coordinate the service work:

Tel.: +43(0)5522/37400-0

Fax: +43(0)5522/37400-700

E-mail: verkauf@stark-roemheld.com & info@stark-roemheld.com

8.3 Cleaning

No contamination is permitted in the fast clamping lock. Cleaning depends on the application and replacement interval.



Widespread practice!

The fast clamping lock may be blown out and off with compressed air.



Correct and improved!

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



8.4 General cleaning

For general cleaning, the fast clamping lock must be dismantled. Assembly work may only be carried out by STARK Spannsysteme GmbH. The necessary safety measures must be observed in their entirety and without exception during all work.



Hazard information: The fast clamping lock is permanently under spring pressure! Do not open the housing – there is a risk of personal injury or material damage!

The product may not be cleaned with:



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

The element must be cleaned at regular intervals. In particular, the area of the bore - ball holder - housing must be cleaned of chips and other liquids. In case of heavy contamination, cleaning must be carried out at shorter intervals.

8.5 Storage

Until first use:

If you do not use the fast clamping lock immediately, please store it dry and dust-free in its original packaging.

Long period of storage after use:

Before storage, clean the fast clamping lock (see chapter "8.4 General cleaning") and carry out suitable measures for corrosion protection.

After long period of storage:

After a long period of storage (approx. 3 years), the seals must be replaced before the system is used again. This must always be done by STARK Spannsysteme GmbH.

8.6 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.



Hazard information: The fast clamping lock is permanently under spring pressure! Do not open the housing – there is a risk of personal injury or material damage!



9 Technical data

		STARK.connect M NP	STARK.connect M AG	STARK.connect M OZ
Order number*****		S9000-001	S9000-002	S9000-003
Article designation		SM KM P 030 G095 ST NP	SM KM P 030 G095 ST AG	SM KM P 030 G095 ST OZ
Design		Module		
Function		with zero point	with compensation	without centring
Special function		with sensor unit		
Electrical query- release control & clamp control*		yes	yes	yes
Maintenance interval (max. number of clamping cycles)	[cycles]	2,000,000	2,000,000	2,000,000
Compensation	[mm]	0	±0.75 (in compensation direction)	±0.75 (in all directions)
Pull-in force ¹ depressurised	[N]	1,200	1,200	1,200
Pull-in force ¹ at 5 bar / 20 bar clamping pressure	[N]	3,000 / 8,500	3,000 / 8,500	3,000 / 8,500
Retention force ²	[N]	10,000	10,000	10,000
Min. release pressure	[bar]	5	5	5
Max. operating pressure	[bar]	10 / 20 ***	10 / 20 ***	10 / 20 ***
Excavation force at 5 bar	[N]	500	500	500
Excavation path**	[mm]	1.5	1.5	1.5
Total retraction path**	[mm]	4.5	4.5	4.5
Max. permitted lateral forces ³	[N]	7,000	7,000 ****	-
Air volume (release/clamp)	[cm ³]	64	64	64
Operating temperature	[°C]	+ 10 to + 80	+ 10 to + 80	+ 10 to + 80
Min. permitted clamping time / release time	[s]	0.5	0.5	0.5
Radial pre-positioning ⁴	[mm]	± 1	± 1	± 1
Max. axial prepositioning ⁵	[mm]	- 3	- 3	- 3
Max. loading angle	[°]	± 1.5	± 1.5	± 1.5
Repeat accuracy ⁶	[mm]	< 0.05	< 0.05	< 0.05
System accuracy ⁷	[mm]	< 0.1	< 0.1	< 0.1
Weight	[kg]	1.8	1.8	1.8
Air connection	[mm]	M5	M5	M5
Electrical connection	[mm]	M12 5-pin	M12 5-pin	M12 5-pin
Voltage range	[V]	24 (18 to 34)	24 (18 to 34)	24 (18 to 34)
Protection class	[IP]	67	67	67
Typ. current consumption	[mA]	40	40	40
Continuous current ⁸	[mA]	200	200	200

* released, incorrectly clamped/clamped without nipple

*** with connection S953-273, S953-272

***** note NEW order numbers

** other excavation/retraction paths possible on request

**** 90 degrees in compensation direction

¹ **Pull-in force:** This is the load up to which the zero point is guaranteed. The retractable nipple is actively retracted 4.5 mm with this force.

² **Retention force:** This is the maximum overload at which the nipple is still held but has already left the zero point.

³ **Lateral force:** The permitted force only applies to retractable nipples with zero point and retractable nipples with 90° compensation to the compensation direction.

⁴ **Radial prepositioning:** The loading device must be powerless and flexible for manual and automated loading.

⁵ **Axial prepositioning:** The max. distance between the retractable nipple and the piston crown (limit stop before clamping) so that clamping occurs with a form fit. Within this tolerance, the retractable nipple is retracted with the specified pull-in force on the flat support.

⁶ **Repeat accuracy:** This usually indicates the accuracy that refers to the change of the same pallet position-oriented on the same interface.

⁷ **System accuracy:** This refers to the accuracy resulting from changing several pallets, e.g. on different machines.

⁸ **Continuous current:** This specification refers to the maximum continuous current of an output.

