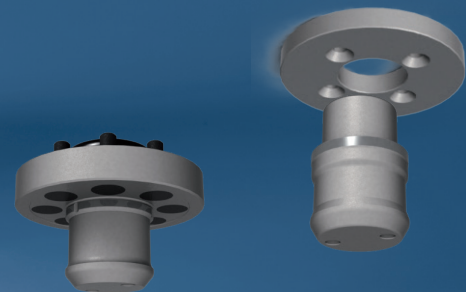
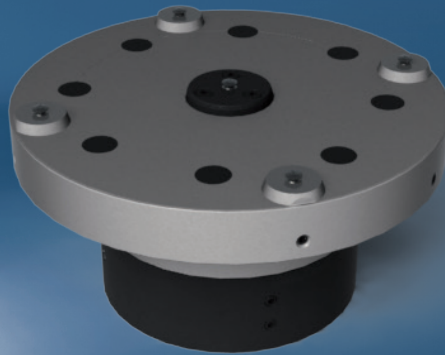
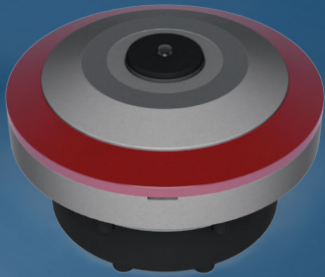




ROEMHELD
HILMA ■ STARK



Zero point clamping system **SPEEDY hydratec 1**

WM-020-290-02-en



Start/Stop Lap/Reset Mode

GO_SPEEDY
00...10...20...30...40..
HYDRATEC

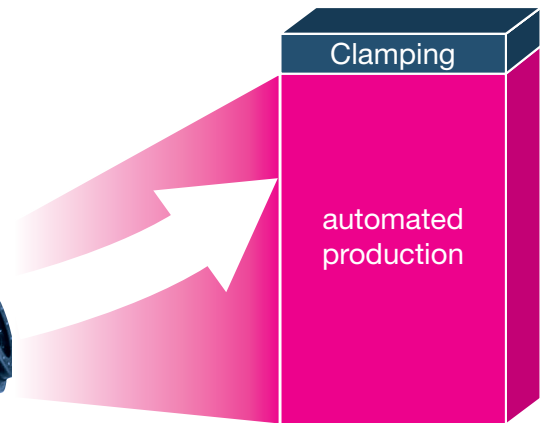


STARK

GO!

Maximum productivity

- Using the zero point clamping system SPEEDY hydratec you will increase your production times to a maximum.
- This clamping element stands for the highest requirements in automation.



Maximum flexibility

- SPEEDY hydratec has a uniform interface that can be arranged variably.
- SPEEDY hydratec features compact design, easy assembly, as well as high, fast changing cycles.

Maximum safety

- Insensitive to soiling due to central locking and effective clearing device.
- Highest possible safety in automation due to integrated polling features (clamped, released, mount control).

SPEEDY hydratec – an investment that pays for itself in a very short time.





STARK clamping systems overview

Differentiation is by the method of actuation and varying size of the retractable nipples:

SPEEDY classic – clamp mechanically / release hydraulically

Most complete and versatile zero point clamping system.

- Four sizes and numerous variants

**SPEEDY classic 1**

Catalogue order no. WM-020-217-02-en

**SPEEDY classic 2**

Catalogue order no. WM-020-276-03-en

**SPEEDY classic 3**

Catalogue order no. WM-020-278-02-en

**SPEEDY classic 4**

Catalogue order no. WM-020-280-01-en

SPEEDY metec – clamp / release mechanically

Robust, mechanical zero point clamping system for easy, low-cost solutions.

- Three sizes

**SPEEDY metec 1**

Catalogue order no. WM-020-293-02-en

**SPEEDY metec 2**

Catalogue order no. WM-020-293-02-en

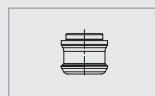
**SPEEDY metec 3**

Catalogue order no. WM-020-293-02-en

SPEEDY airtec – clamp mech. / release pneum.

Pneumatic zero point clamping system.

- One size and numerous variants

**SPEEDY airtec 1**

Catalogue order no. WM-020-288-02-en

SPEEDY hydratec – clamp / release hydraulically

Hydraulic, double action zero point clamping system for the highest clamping speeds.

- One size and numerous variants

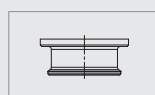
**SPEEDY hydratec 1**

Catalogue order no. WM-020-290-02-en

system 3000 – clamp / release hydraulically

Double action zero point clamping system with small size and high clamping force.

- One size and numerous variants

**system 3000**

Catalogue order no. WM-020-333-02-en

system 4000 – custom systems

Flexible zero point clamping system for mechanical, pneumatic and hydraulic applications.

- One size and numerous variants

**system 4000**

Catalogue order no. WM-020-067-00-en



Table of contents SPEEDY hydratec 1

Information		
	STARK Spannsysteme system overview i.4
	Table of contents SPEEDY hydratec 1 i.5
	Technical data – Transparency from the start i.6
	Technical data – Continuously adjustable clamping force i.7
	Technical data – Tilting torque example calculation i.8
	Function description SPEEDY hydratec 1	
	– Positioning and clamping in one function i.9
SPEEDY hydratec 1		Order no.
	● Flush Mount, ø115mm	6000 002 1.1
	● Flush Mount, ø115mm, release check	6000 003 1.2
	● Flush Mount, ø115mm, release check, with equaliser	6000 005 1.2
	● Flush Mount, ø115mm, release check, without centring	6000 006 1.2
	● Flush Mount, ø142mm, raised supports, release and clamping check	6000 007 1.3
	Hydraulic pump set – Information 1.4
Retractable nipple	● With zero point	804 490 2.1
	● Without centring	804 485 2.1
	● With equaliser	804 495 2.2
Spacer washer	● With O-ring	804 289 2.2
Self-aligning nipple	● With zero point	804 493 2.3
	● Without centring	804 207 2.3
	● With equaliser	804 205 2.4
Nipple fastening	● Variant D	804 125 2.5
	● Variant E	804 120 2.5
Bearing plates	● Hardened, ground, ø60mm	804 298 2.6
	● Hardened, ground, ø138mm	804 284 2.6
Accessories	Retractable nipple key	● AF 22
	Nipple fastening key	● AF22, variant D
	Mechanical insertion force tester	
		804 247 3.1
		804 254 3.1
		504 003 3.2



Technical data – Transparency from the start

SPEEDY hydratec order no.		6000 002	6000 003	6000 005	6000 006	6000 007
Catalogue page		1.1	1.2	1.2	1.2	1.3
Flush Mount module		●	●	●	●	●
Bearing surface		●	●	●	●	
Raised supports						●
Release check (2 bar)			●	●	●	●
Clamping check (2 bar)						●
Element with zero point		●	●			●
Element with equaliser				●		
Element without centring					●	
Maintenance interval	Cycles	750,000	750,000	750,000	750,000	750,000
Max. clamping force ¹ at 140bar	[N]	20,000	20,000	20,000	20,000	20,000
Retention force ² at 140bar	[N]	38,000	38,000	38,000	38,000	38,000
Min. release pressure	[bar]	20	20	20	20	20
Max. operating pressure	[bar]	140	140	140	140	140
Extraction force at max. release pressure	[N]	20,000	20,000	20,000	20,000	20,000
Extraction, retraction distance **	[mm]	4.5	4.5	4.5	4.5	4.5
Lateral forces max. permitted	[N]	7,000	7,000	7,000	7,000	7,000
Max. tilting torque (diagonally across supp.)	[Nm]	500	500	500	500	850 (1150)
Oil volume for clamping and releasing	[cm ³]	14	14	14	14	14
Air volume – clearing device	[l/min.]	80l/min 6bar	80l/min 6bar	80l/min 6bar	80l/min 6bar	100l/min 6bar
Operating temperature	[°C]	+10 to +80	+10 to +80	+10 to +80	+10 to +80	+10 to +80
Min. permitted clamping time	[s]	0.5	0.5	0.5	0.5	0.5
Min. permitted release time	[s]	0.5	0.5	0.5	0.5	0.5
Radial pre-positioning ³	[mm]	± 2	± 2	± 2	± 2	± 2
Axial pre-positioning	[mm]	- 0.3	- 0.3	- 0.3	- 0.3	- 0.3
Max. loading angle	[°]	± 1.5	± 1.5	± 1.5	± 1.5	± 1.5
Repeatability ⁴	[mm]	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
System accuracy ⁵	[mm]	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Weight	[kg]	2.90	3.20	3.20	3.20	4.10
Oil, air connection on the bottom flange	O-ring	O-ring	O-ring	O-ring	O-ring	O-ring

* With appropriate version and adjustments, accuracies in the µ-range are possible.

** Other extraction and retraction distances possible on request.



Technical data – Terminology – definitions

- 1 **Clamping force** Clamping force refers to the load up to which the zero point is guaranteed. The clamping force stated must not be exceeded. Due to the adjustable clamping force, there is a maximum, at the maximum clamping pressure (see table below).
- 2 **Retention force** Retention force refers to the max. overload up to which the nipple will continue to be retained, but the zero point has already been left (designed for M10 screw).
- 3 **Radial pre-positioning** The loading device must, during manual and automated loading, yield without the application of force.
- 4 **Repeatability** Repeatability refers as a rule to the accuracy with which the same pallet in a specific orientation is changed on the same interface.
- 5 **System accuracy** System accuracy refers to the accuracy obtained on changing several pallets, e.g. on different machines.



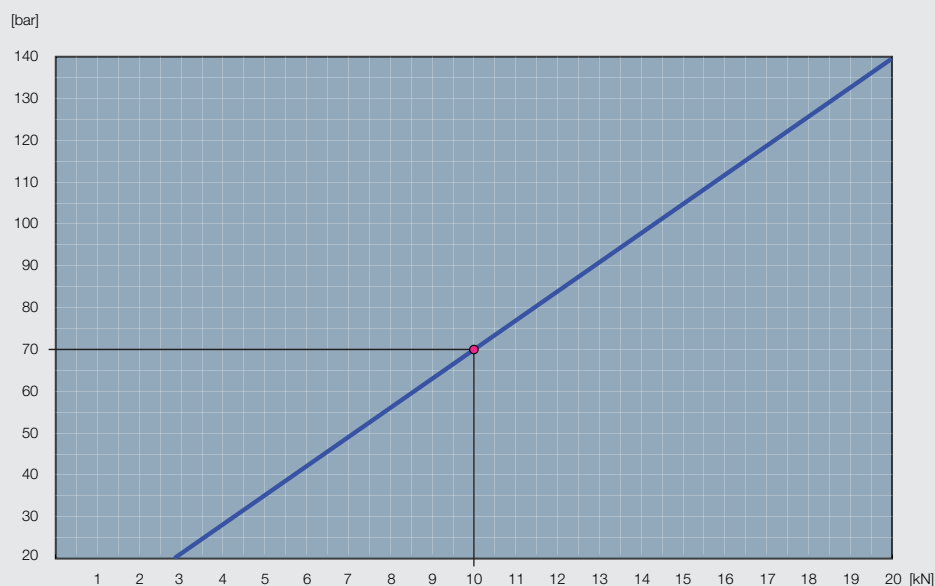
Variable clamping force with SPEEDY hydratec.

The continuously adjustable clamping force makes it possible to optimally clamp different workpieces. By adjusting the clamping pressure, unnecessarily high forces are not applied to the workpiece. As a result the receptacles or pallets do not need to be as strong, depending on the machining - the result is advantages in handling and price.

A key aspect, e.g. during milling, is ensuring an adequate, but not excessively high clamping force during the machining to be able to absorb the machining forces. Workpiece clamping based on shape and force is ideal.

Depending on the clamping pressure, there is a clamping force of:

Clamping force / clamping pressure diagram



Example calculation:

Hydraulic clamping pressure = 70bar. According to the diagram this will give a clamping force of 10,000N.



Technical data – Tilting torque example calculation

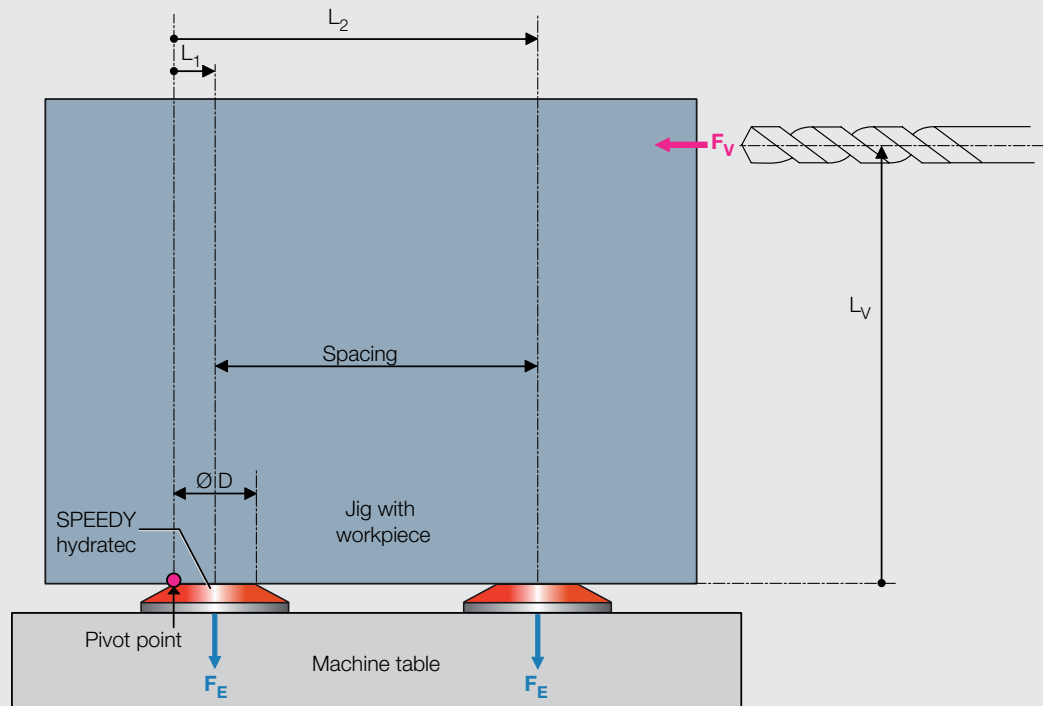
Profit from our specialist competence

**Example:**

Fast closing clamp plate 4x SPEEDY classic 1 with 200 x 200 spacing and max. feed force of 7 kN with distance of 400 mm.

Question:

Due to the predominance of roughing work, the system is to be checked for double safety. Are the insertion force, number of fast closing clamps and the selected spacing right for this application?

**Solution:**

$$M_E > 2 \times M_V ?$$

$$M_V = F_V \times L_V = 7.000 \text{ N} \times 0,4 \text{ m}$$

$$M_V = \mathbf{2.800 \text{ Nm}}$$

$$M_E = 2 \times (F_E \times L_1) + 2 \times (F_E \times L_2)$$

$$M_E = 2 \times F_E \times (L_1 + L_2)$$

$$L_1 = \text{ØD} / 2$$

$$L_2 = \text{ØD} / 2 + \text{Spacing}$$

$$L_1 + L_2 = \text{ØD} + \text{Spacing}$$

$$L_1 + L_2 = 0,60 \text{ m} + 0,200 \text{ m} = 0,260 \text{ m}$$

$$M_E = 2 \times F_E \times (L_1 + L_2) = 2 \times 20.000 \text{ N} \times 0,260 \text{ m}$$

$$M_E = \mathbf{10.400 \text{ Nm}}$$

$$M_E / M_V > 2 ?$$

$$M_E / M_V = 10.400 \text{ Nm} / 2.800 \text{ N}$$

$$M_E / M_V = \mathbf{3,7 > 2}$$

M_V : Moment from feed force

M_E : Moment from insertion force

F_V : Feed force (7.000 N)

F_E : Insertion force (20.000 N)

Spacing = 200 mm = 0,20 m

ØD : 60 mm = 0,060 m

L_V : 400 mm = 0,40 m

With this design, safety by around a factor of 3,7 is provided.

Here the pressure could be reduced to 76bar to achieve a double safety margin
(All dimensions to be entered in SI units (metres, Newtons))

Function description SPEEDY hydratec –

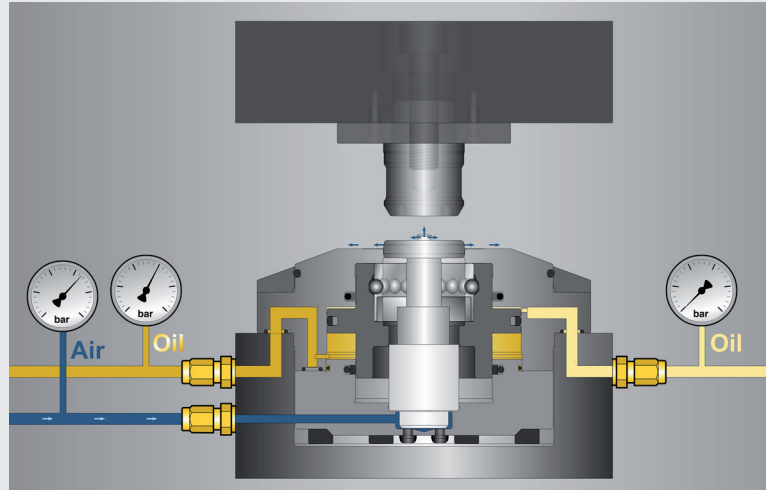
Positioning and clamping in one function

**Principle of operation:**

You can see the entire process as an animation at www.stark-inc.com

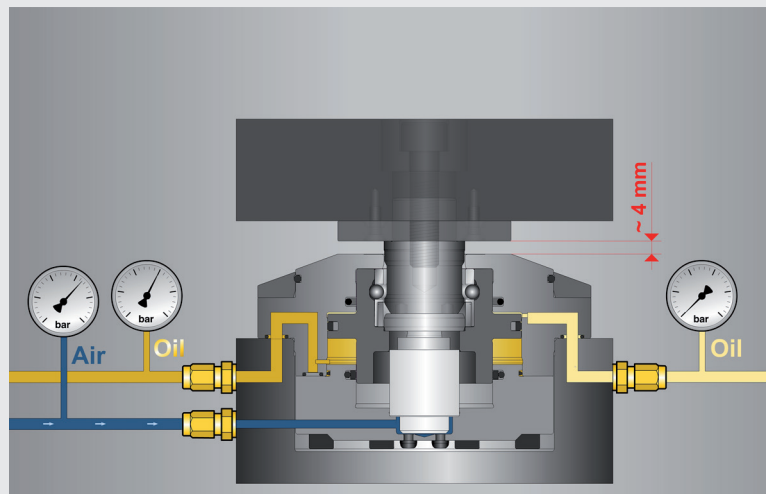
hydratec released:

The highly effective clearing device and the central locking keep the bearing surface and the positioning hole clean.

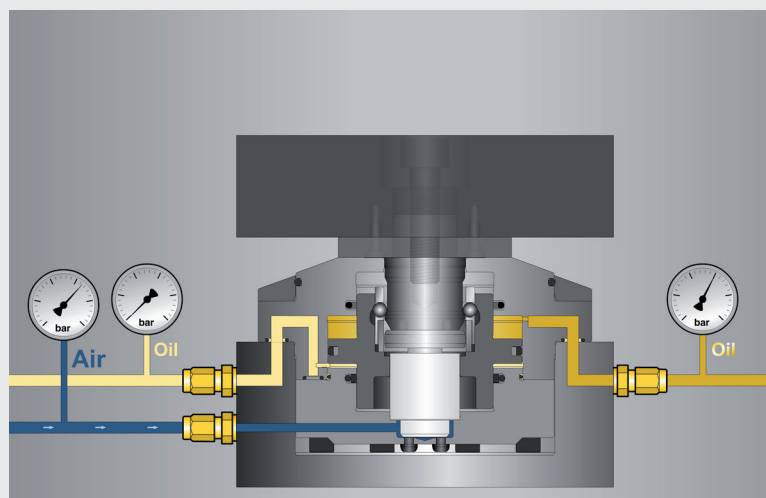
Feed pallet:

The central locking is pushed down out of the way and the pallet is positioned at a distance of exactly 4.5 mm * in the correct position for the clamping process. If couplings are used, these are then also in the required axial position for exact engagement.

* Other distances possible as an option

hydratec clamped:

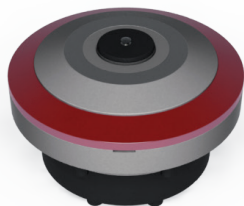
The clamping pressure is now applied to the system. Protection is normally provided using a non-return valve that can be opened. The pipe for the clearing air is now used to poll whether the pallet is in contact. Clamping elements with further options such as release check and clamping check that poll the piston directly are available in the STARK range.





STANDARD

- Module
- Bearing surface
- Clearing device
- Pneumatic mount control
- Central locking



Characteristics:

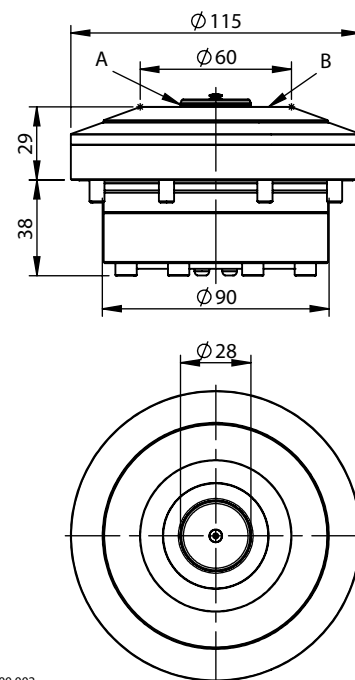
Flush Mount fast closing clamp module made of high quality tool steel.

Due to the compact dimensions, requires little space. Can be installed as a module, in plates or directly in the machine table. Double action fast closing clamp. Is clamped and released hydraulically. Due to its short cycle times, particularly suitable for automation. Positioning is via the precision bore (A) and via the bearing surface (B). Intelligent clearing system for cleaning the bearing surface and the precision bore. Mount control via differential pressure, blocking air possible.

Application:

For flush mounting in machines, machine pallets, plates, angles, cubes, mounting towers and swivelling yokes.

Can be used for all common machining tasks such as milling, grinding, eroding as well as on test stands and mounting devices. Ideal for automated loading.



Z 6000 002

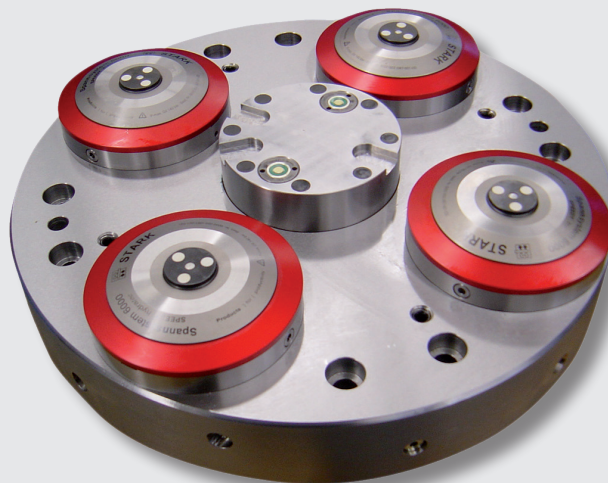
Order no.	Retention force	Clamping force	Pressure max. *	Weight	Data sheet
6000 002	38,000N	20,000N	140bar	2.90kg	D070

* Pressure to release and to clamp the hydratec. See also page i.7.



Practical example:

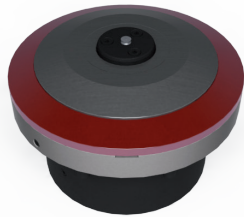
Fast closing clamp plate with four SPEEDY hydratec. In the middle there is a double coupling for passing hydraulics to the jig. The hydratec is matched to the coupling travel and the axial feed of the Römheld couplings.





STANDARD

- Module
- Bearing ring
- Clearing device
- Pneumatic mount control
- Pneumatic release check
- Central locking



Characteristics:

Flush Mount fast closing clamp module made of high quality tool steel.

Due to the compact dimensions, requires little space. Can be installed as a module, in plates or directly in the machine table. Double action fast closing clamp. Is clamped and released hydraulically. Due to its short cycle times, particularly suitable for automation.

Positioning is via the precision bore (A) and via the bearing surface (B). Equalisation with little force is possible on elements with equaliser and without centring.

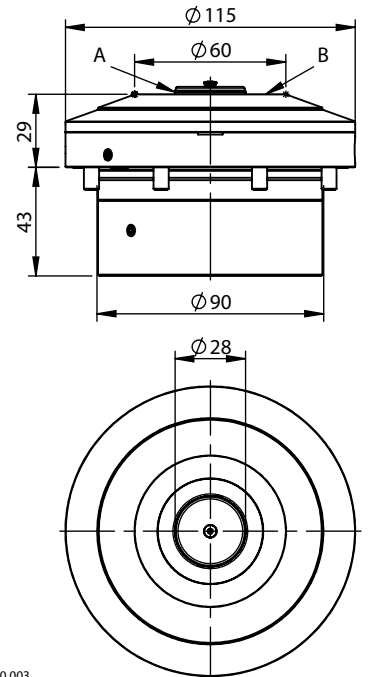
Intelligent clearing system for cleaning the bearing surface and the precision bore. Mount control via differential pressure, blocking air possible.

The pneumatic release check provides additional safety in the overall system.

Application:

For flush mounting in machines, machine pallets, plates, angles, cubes, mounting towers and swivelling yokes.

Can be used for all common machining tasks such as milling, grinding, eroding as well as on test stands and mounting devices. Ideal for automated loading.



Z 6000 003

Element with zero point (standard)



Order no.	Retention force	Clamping force	Pressure max. *	Weight	Data sheet
6000 003	38,000N	to 20,000N	140bar	2.70kg	D071

Element with equaliser



Order no.	Retention force	Clamping force	Pressure max. *	Weight	Data sheet
6000 005	38,000N	to 20,000N	140bar	2.70kg	D071

Element without centring



Order no.	Retention force	Clamping force	Pressure max. *	Weight	Data sheet
6000 006	38,000N	to 20,000N	140bar	2.70kg	D071

* Pressure to release and to clamp the hydratec. See also page i.7.



Information:

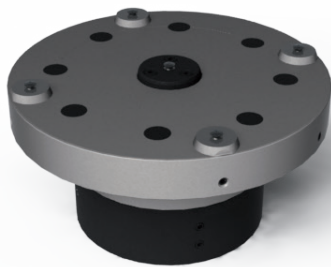
Depending on the application, there can be significant advantage if all retractable nipples are of the same type. This configuration will make automatic fitting considerably easier and, in many cases, actually make it possible in the first place. For this purpose STARK has a range of hydratec in which the required equalising functions are already incorporated.

An increasing number of machining concepts include direct workpiece clamping in the automation. STARK is the right partner for you.



STANDARD

- Module
- Raised supports with clearing nozzles
- Clearing device
- Pneumatic mount control
- Pneumatic clamping check
- Pneumatic release check
- Central locking



Characteristics:

Flush Mount fast closing clamp module made of high quality tool steel.

Due to the compact dimensions, requires little space. Can be installed as a module, in plates or directly in the machine table. Double action fast closing clamp. Is clamped and released hydraulically. Due to its short cycle times, particularly suitable for automation.

Positioning is via the precision bore (A) and via the bearing surface (B). Equalisation with little force is possible on elements with equaliser and without centring.

Intelligent clearing system for cleaning the raised supports and the precision bore. Mount control via differential pressure, blocking air possible.

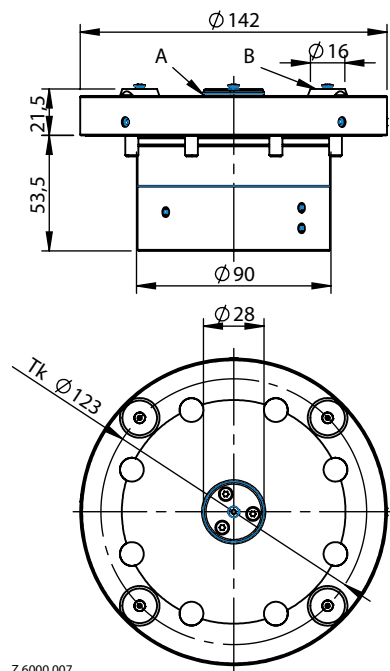
The pneumatic clamping and release check provides additional safety in the overall system.

Application:

For flush mounting in machine pallets, plates, angles, cubes, towers and swivelling yokes.

For all common machining tasks such as milling, turning, grinding, eroding as well as on test stands for mounting devices.

Ideal for automated loading.



Order no.	Retention force	Clamping force	Pressure max. *	Weight	Data sheet
6000 007	38,000N	20,000N	140bar	4.10kg	D094/D097

* Pressure to release and to clamp the hydratec. See also page i.7.



Practical example:



Hydraulic pump set

- Double action version
- With control panel
- Ready to connect

Characteristics:

Every application has different requirements on function and safety. The hydraulic and pneumatic operation and monitoring can be combined in one unit. An experienced engineer from STARK will be available to assist you during design.

Options:

With integrated hydraulic and electrical control via remote control with 7m cable (with Harting connector).

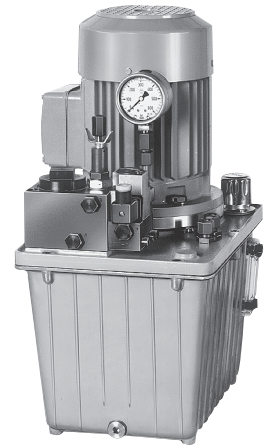
Function triggered using control panel with illuminated pushbuttons.

Including hydraulic oil HLP32 and electrical connection with 10m long cable and CEE 5/16 connector.

PLC controller for release check, clamping check, system control. Outputs and inputs for the CNC control of the machine.

And much more!

Talk to us. STARK offers individual solutions for your application



Symbol photo



Practical example:

Fully integrated control system on a STARK set-up station with slewing functions in two axes and zero point clamping system.





Retractable nipple

- With zero point

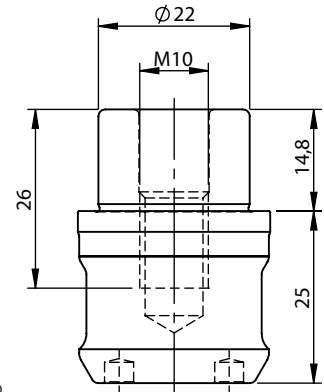
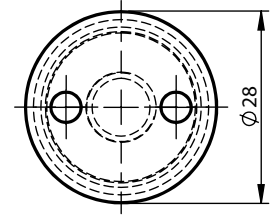


Characteristics:

Retractable nipple with zero point.

Application:

For positioning and clamping on machine pallets, machine vices, chucks, jigs, direct workpiece clamping.



Z 804 490

Order no.	Screw quality	Tightening torque at the nipple	Tightening torque at the screw	Weight	Data sheet
804 490	min. 10.9	73Nm	48Nm	0.13kg	D027

Retractable nipple

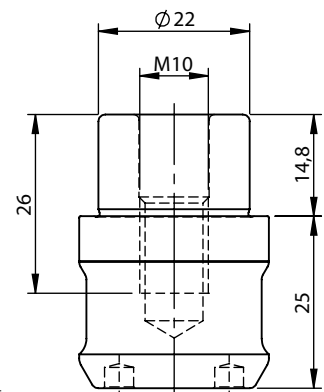
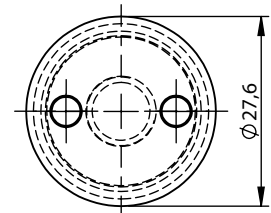


Characteristics:

Retractable nipple without centring.

Application:

For positioning and clamping on machine pallets, machine vices, chucks, jigs, direct workpiece clamping.



Z 804 485

Order no.	Screw quality	Tightening torque at the nipple	Tightening torque at the screw	Weight	Data sheet
804 485	min. 10.9	73Nm	48Nm	0.13kg	D027



Retractable nipple

- With equaliser

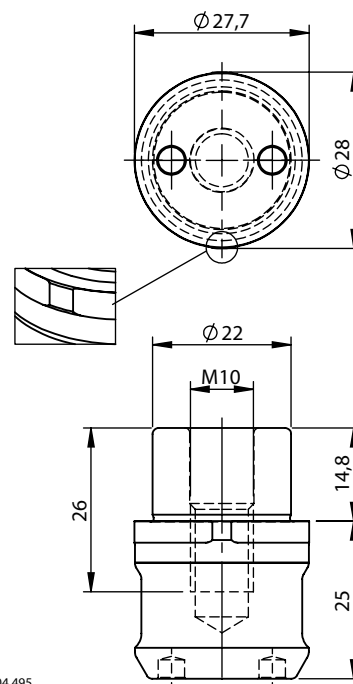


Characteristics:

Retractable nipple with equaliser in one axis (blade shape).

Application:

For positioning and clamping on machine pallets, machine vices, chucks, jigs, direct workpiece clamping.

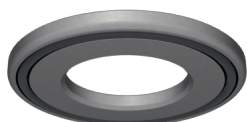


Z 804 495

Order no.	Screw quality	Tightening torque at the nipple	Tightening torque at the screw	Weight	Data sheet
804 495	min. 10.9	73Nm	48Nm	0.13kg	D027

Spacer washer

- With O-ring



Characteristics:

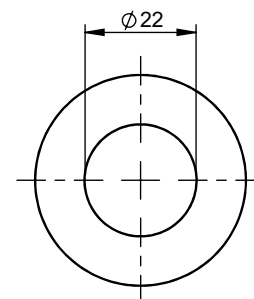
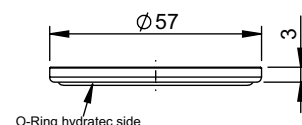
Spacer washer with seal

Application:

Is used for equalising the raised supports (e.g. 6000 007). The O-ring incorporated seals the centre bore with the pallet clamped so that the system can then be checked pneumatically via the raised supports.

Fitting:

The spacer ring is fitted and fastened with the retractable nipple. The O-ring is fitted on the hydratec side.



Z 804 289

Order no.	Weight	Data sheet
804 289	0.02kg	-



Self-aligning nipple

● With zero point



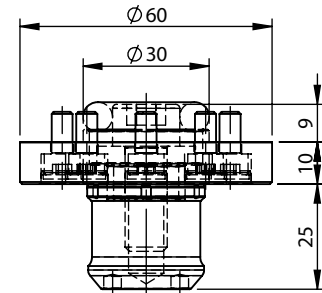
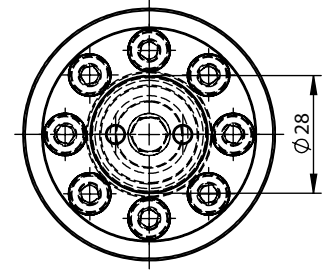
Characteristics:

Self-aligning retractable nipple with zero point.

Application:

For positioning and clamping on machine pallets, machine vices, chucks, jigs, direct workpiece clamping.

Has advantages on assembly, e.g. in unfavourable angular situations. For this purpose the front part of the nipple is equipped with a self-aligning function for gentle loading.



Z 804 203

Order no.	Self-aligning func.	Tightening torque	Screw	Weight	Data sheet
804 493	± 1.5mm	5Nm		0.30kg	D085

Self-aligning nipple



Characteristics:

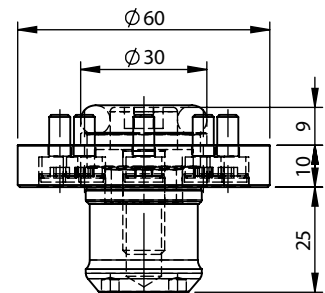
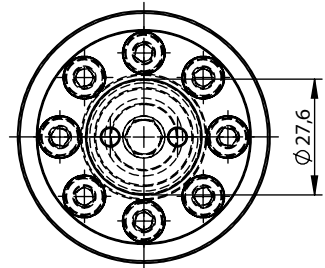
Self-aligning retractable nipple without centring.

Application:

The self-aligning nipple compensates for manufacturing tolerances and thermal expansion.

For positioning and clamping on machine pallets, machine vices, chucks, jigs, direct workpiece clamping.

Has advantages on assembly, e.g. in unfavourable angular situations. For this purpose the front part of the nipple is equipped with a self-aligning function for gentle loading.



Z 804 207

Order no.	Self-aligning func.	Tightening torque	Screw	Weight	Data sheet
804 207	± 1.5mm	5Nm		0.30kg	D085

Self-aligning nipple

- With equaliser



Characteristics:

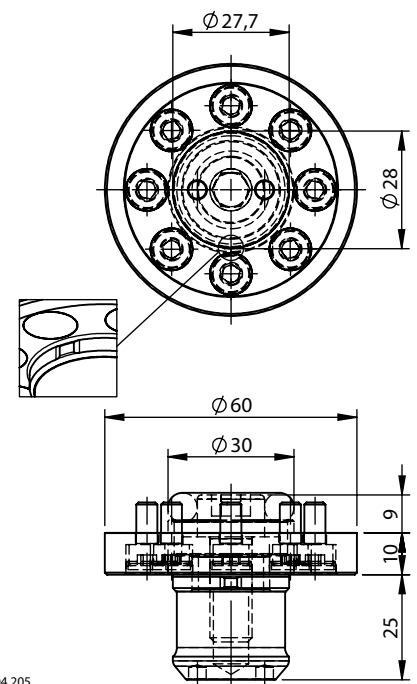
Self-aligning retractable nipple with equaliser on one axis.

Application:

The equaliser function compensates for manufacturing tolerances and thermal expansion.

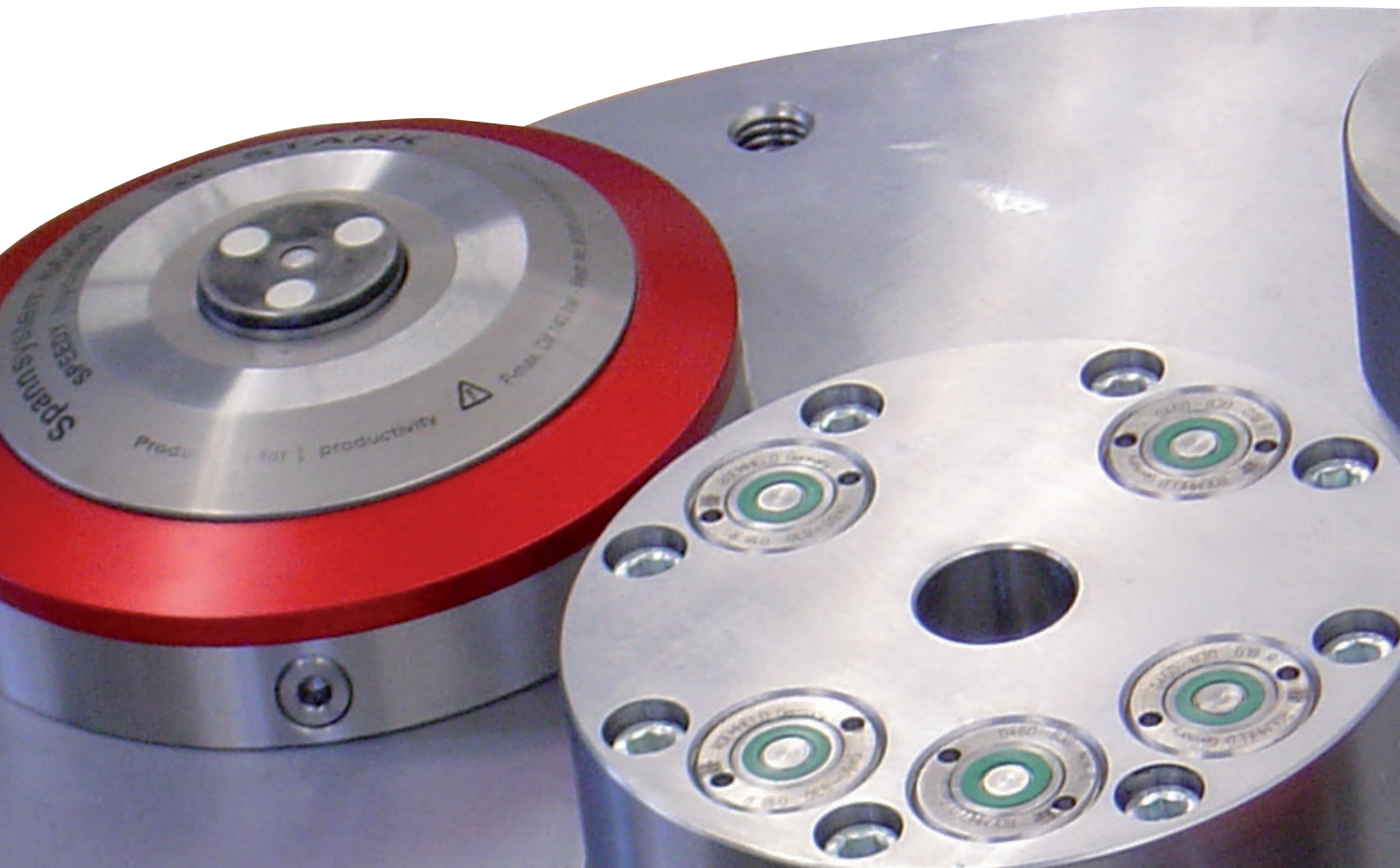
For positioning and clamping on machine pallets, machine vices, chucks, jigs, direct workpiece clamping.

Has advantages on assembly, e.g. in unfavourable angular situations. For this purpose the front part of the nipple is equipped with a self-aligning function for gentle loading.



Z 804 205

Order no.	Self-aligning func.	Tightening torque	Screw	Weight	Data sheet
804 205	± 1.5mm	5Nm		0.30kg	D085



For data sheets and 3D data see www.stark-inc.com

Retractable nipple



Nipple fastening D

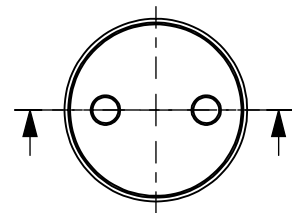
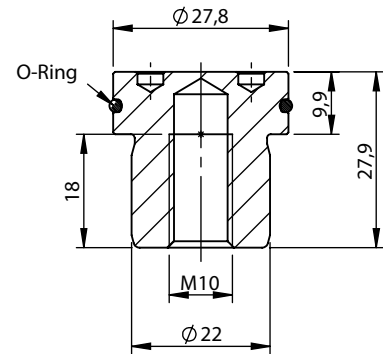


Characteristics:

Makes it possible to fasten the nipple with one clamping action. As a result the highest accuracy is achieved. The integrated O-ring prevents the entry of coolant during machining.

Application:

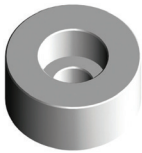
Machine pallets, machine vices, chucks, jigs, direct workpiece clamping. Spanner for installation 804 254 (p. 3.1) is used to lock. Tightening is to be undertaken via the nipple.



Z 809 125

Order no.	Weight	Data sheet
809 125	0.09kg	D027

Nipple fastening E

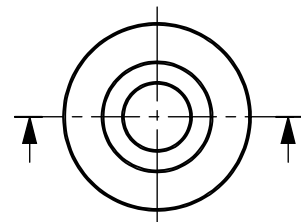
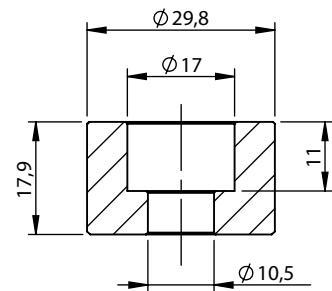


Characteristics:

Makes it possible to fasten the nipple in one clamping action. As a result the highest accuracy is achieved.

Application:

Machine pallets, machine vices, chucks, jigs, direct workpiece clamping.

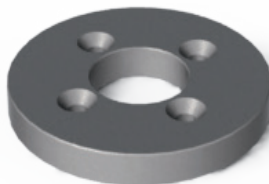


Z 809 120

Order no.	Weight	Data sheet
809 120	0.07kg	D027

Bearing plate 60

- Hardened
- Ground



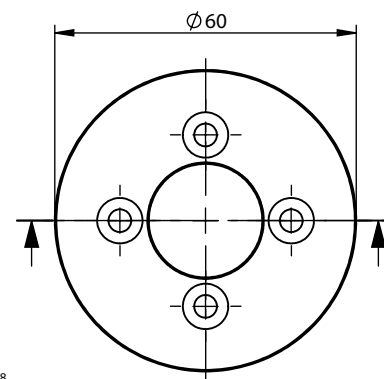
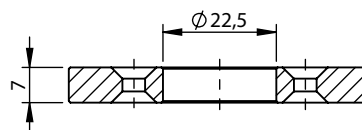
Characteristics:

Hardened and ground bearing plate.

Application:

Bearing plate for SPEEDY hydratec. For usage with unhardened pallet surfaces.

The high durability guarantees the highest accuracy over a long period. Ideal in combination with the standard option of system control.



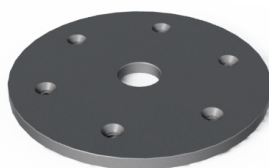
Z 804 298

Order no.	Weight	Data sheet
804 298	0.12kg	D085

Fastening screws (countersunk head screw Torx M4x12) included with the items supplied

Bearing plate 138

- Hardened
- Ground



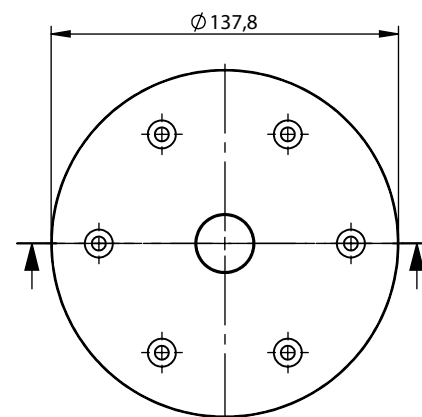
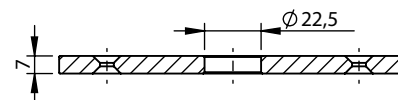
Characteristics:

Hardened and ground bearing plate.

Application:

Bearing plate for SPEEDY hydratec. For usage with unhardened pallet surfaces.

The high durability guarantees the highest accuracy over a long period. Ideal in combination with the standard option of system control.



Z 804 284

Order no.	Weight	Data sheet
804 284	0.80kg	D033-2

Fastening screws (countersunk head screw Torx M4x12) included with the items supplied



Retractable nipple key

● AF 22

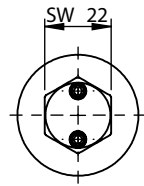
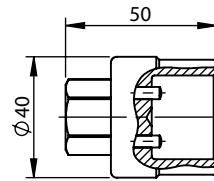


Characteristics:

Retractable nipple key for fitting and removing SPEEDY retractable nipples.

Application:

Screwing in place the retractable nipples. (804 254 not shown)



Z 804 247

Order no.	Across flats	Weight
804 247	AF22	0.15kg
804 254	AF22 (for nipple fastening 804 125)	0.15kg



Practical example:

Fast closing clamp plate with four SPEEDY hydratec. In the middle a quadruple coupling for passing hydraulics to the jig. The hydratec is matched to the coupling travel and the axial feed of the Römheld couplings. A particularly effective clearing nozzle keeps the couplings clean.





Mechanical insertion force tester

• Direct force indication in kN



Characteristics:

With the aid of the SPEEDY insertion force tester the insertion force on SPEEDY hydratec fast closing clamps is reliably checked.

Using the insertion force tester you can measure directly how much force is applied and can be absorbed by the SPEEDY hydratec zero point clamping system. This method is significantly more reliable than a pressure measurement and can save a lot of time during checking.

STARK recommends an annual preventive check on the fast closing clamps (note operating manual).

Application:

Installers, fitters and operators who assemble, fit, service, maintain and operate the SPEEDY hydratec zero point clamping systems.

They should be familiar with the use of hydraulic equipment.

Attention: all service and maintenance work is only allowed to be undertaken by personnel trained by STARK.

Order no.	Description	Weight
504 003	Mechanical insertion force tester SPEEDY hydratec	2.70kg
	Bearing ring	0.50kg
	SPEEDY hydratec retractable nipple adapter	0.80kg
	Set weight:	4.00kg



Information:

The system accuracy depends not only on the geometry of the joint, the insertion force of the zero point clamping systems also has a significant impact on a positive, stable joint.

For safety reasons regular insertion force checks are recommended on the SPEEDY hydratec zero point clamping system.

For this purpose, STARK offers a fully mechanical insertion force tester. Its principle of operation is based on a linear change in the length of components that is proportional to force. The length change is converted into a force and indicated on an analogue dial gauge.

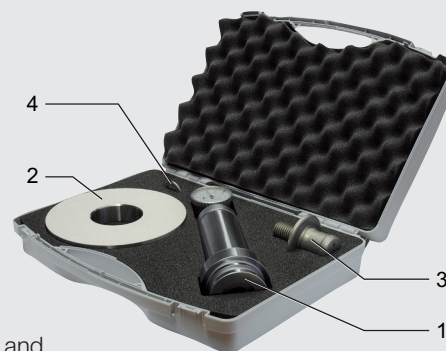
The mechanical insertion force tester is characterised by its accuracy (measurement precision $\pm 3\%$) and robustness. Low cost and reliable, without any electronics. We supply the mechanical insertion force tester calibrated, with inspection stamp and measuring instructions in a high quality plastic box.

STARK provides training courses for training your operators and service personnel. Training courses are held either on site or at Stark Spannsysteme GmbH.

Please ask for information, we would be pleased to advise you.

Supplied in plastic case:

(L390 x W280 x H110)



Symbol photo

Insertion force tester (1) with calibration certificate and operating manual in plastic box, with bearing ring (2), retractable nipple adapter (3) and optional spacer washer (4)

Calibration:

STARK recommends annual calibration of the insertion force tester. For calibration the insertion force tester can be sent to STARK in the original plastic box.

Only the original ...



...fits together!

**For this reason
our customers receive:**

- A manufacturer's guarantee
- A function guarantee
- Warranty protection
- A range of fits







ROEMHELD
HILMA ■ STARK

STARK zero point clamping systems



*Consultation, planning, design, production, installation, service –
all from a single source!*

Cost savings in manufacturing are these days increasingly only possible during machine set-up and by shortening the process times. Your production will be significantly faster by using zero point clamping systems.

Key aspects such as focusing on bottlenecks (TOC), shortening of cycle times, batch sizes and inventory reduction, to name but a few advantages, are implemented quickly in manufacturing by using STARK zero point clamping systems.

Utilise the extensive experience and flexibility of specialists in zero point clamping technology to optimise your production.

The double action clamping system SPEEDY hydratec is robust in use and designed for the fastest possible changing processes. Due to its compact design, the SPEEDY hydratec only requires little space for installation, as a result very small spacings can be realised easily.

Due to the special retractable nipple contour and the matched radii, the bore is not damaged on insertion in the SPEEDY. No swarf can be jammed in the cylindrical bore and due to the optimal application of force – the retractable nipples are fixed positively and highly accurately by the clamping mechanism – bending or lifting is not possible and as a result high positioning accuracy is guaranteed.

Positioning, clamping, releasing – SPEEDY hydratec integrates everything in an intelligent hydraulic zero point clamping system.

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Fax +43 5522 37 400-700

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