



**ROEMHELD**  
HILMA ■ STARK

# SPEEDY basic

Operating instructions

WM-020-379-10-en BA Speedy basic S M L X Y



**precise, fast and powerful**

## SPEEDY basic S / M / L / X / Y

Art. No.: 8000 001 - 8000 ...



WM-020-379-10-en BA Speedy Basic

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## 2 Identification of the partly completed machinery

Product:	Fast closing clamp
Optional:	With blow-out and mount control
Function:	Clamping and centring workpiece pallets
Product group:	Speedy basic S / M / L / X / Y
Article number:	8000 001 to 8000 ...
Trade name:	As per product group, see above

## 3 User information

### 3.1 Purpose of the document

These operating instructions

- describe the function, operation and maintenance of the fast closing clamping device.
- provide important information on the safe and efficient use of the fast closing clamping device.

### 3.2 Depiction of safety instructions

Safety instructions are marked with a pictogram. The respective signal word describes the significance and severity of the impending risk.



#### **DANGER**

**Immediate** risk to life and health of personnel (serious injuries or fatality). It is imperative you follow these instructions and procedures!



#### **CAUTION**

**Possibly** hazardous situation (minor injuries or damage). It is imperative you follow these instructions and procedures!



**INFORMATION** Application tips and particularly useful information



#### **INSTRUCTION**

Obligation related to specific conduct or to take specific action for the safe use of the machine.



## 4 Essential safety instructions

### 4.1 Proper use



The fast closing clamp is used for clamping pallets with mounting fixtures for workpieces.

The workpieces are intended to be machined, transported and measured.

Proper use also includes:

- Following all instructions in this Operating Manual.
- Carrying out inspection and maintenance work.
- Using only genuine parts.

### 4.2 Foreseeable misuse



Any other usage than that stipulated in chapter

„4.1 Bestimmungsgemäße Verwendung“ or a usage in excess of this is a misuse!

In case of improper use risks may arise. Improper use includes e.g.:

- Exceeding the technical data defined for normal operation.
- Using as lifting gear and for transporting loads.

The operator/owner bears the sole responsibility for damage due to improper use. The manufacturer will not accept any liability whatsoever.

### 4.3 On the use of rotating machine tools



On usage in a rotating application the fast closing clamp is only allowed to be operated if it has been ensured that it is safely clamped. It must be ensured that the permissible forces acting on the fast closing clamp as per the specifications are not exceeded. Specialist help is required to calculate and design fast closing clamps for rotating use. Stark Spannsysteme GmbH offers this service.

### 4.4 Modifications or changes



Any unauthorised modifications or changes to the fast closing clamping device render null and void any liability or warranty on the part of the manufacturer. For this reason do not make any changes or additions to the fast closing clamp and at the retractable nipple without consultation with and the written agreement of the manufacturer.



## 4.5 Spare parts, wear parts and auxiliary materials



Only retractable nipples manufactured by Stark Spannsysteme GmbH may be used on the mating element and they must be mounted in accordance with the appropriate data sheet issued by Stark Spannsysteme GmbH.

The use of spare parts and wear parts from other manufacturers can result in risks. Only use genuine parts or parts approved by the manufacturer. Stark Spannsysteme GmbH accepts no liability for damage resulting from the use of spare parts, wear parts or auxiliary materials not approved by the Stark Spannsysteme GmbH.

## 4.6 Obligation by the operator/owner



The operator/owner undertakes the obligation only to allow work on the fast closing clamping device by personnel who

- are familiar with the essential health and safety regulations.
- have been instructed on the operation of the fast closing clamping device and have read and understood this Operating Manual.

The requirements of the EC directive on the use of work equipment at work 2007/30/EC are to be met.

## 4.7 Residual risks



Pay attention to the occurrence of mechanical and pneumatic residual energy on the fast closing clamping device as well as pressure in cylinders and valves after switching off the fast closing clamping device.

### 4.7.1 Spring assembly



If the fast closing clamp is dismantled incorrectly, the internal pre-tensioned spring assembly may cause damage or even injuries. Installation work may only be carried out by Stark Spannsysteme GmbH.

### 4.7.2 Malfunction in the hydraulic/pneumatic system during operation



Malfunctions in the hydraulics or pneumatics may cause an unintentional pressure increase in the release line to occur which releases the fast closing clamp as a result. Especially in a rotating application, a very hazardous situation may arise.

Possible measures to prevent unintentional release:

- Disconnect the release pressure pipe (decouple) mechanically. As a result a pressure increase during operation is then no longer possible.
- Decouple the safety valves from the machine hydraulics/pneumatics. As a result a pressure increase during operation is then no longer possible.
- If the hydraulics are decoupled, there must be no temperature increase in the system/pallet, e.g. caused by hot swarf or machining processes.
- With integrated pressure monitoring in the release circuit for the fast closing clamp, the machine can be stopped if there is an unintentional pressure increase.



#### 4.7.3 Hazard due to overpressure



Pipes or hoses bursting due to overpressure can place personnel and the environment at risk.

Action:

- Secure hydraulic lines with overpressure-safety valves
- Observe data on pressure limits.

#### 4.7.4 Hazard due to incorrect mounting of the fast closing clamp



The pallet could be released due to incorrect tightening of the fastening screws or insufficient screw strength.

Action:

The mounting data on arrangement, property class and tightening torque are to be followed.

#### 4.7.5 Hazard on use in a rotating application



Excessive speed, excessively high weight or imbalance may cause the failure of the fast closing clamp. As a consequence, the pallet could be thrown off.

Action:

It is imperative you comply with specifications and regulations from the manufacturer regarding the maximum values!

#### 4.7.6 Aspects that may affect service life

The service life may be affected by:

- Inadequate filtering of the oil or the compressed air: a filter fineness of < 15 µm is to be ensured.
- External mechanical damage to functional components.
- Exceeding the forces stated or load cases not intended.
- Inadequate bleeding of the hydraulic circuit.
- Overload due to sudden pressure spikes.
- Excessively high piston speeds: the release or clamping times must not be less than stated due to high flow rates (pay attention to the performance of the pump)!
- Heavy soiling of functional parts (e.g. swarf, casting or grinding dust etc.)
- Aggressive media or environmental effects, e.g. coolants or lubricants, cleaning agents, UV radiation. Seals and scrapers will be attacked.
- Incorrect pre-load setting or loading position
- Damages caused by excessive loading and unloading speed.
- An excessively long time in the released position will result in unnecessary loads on the seals and springs



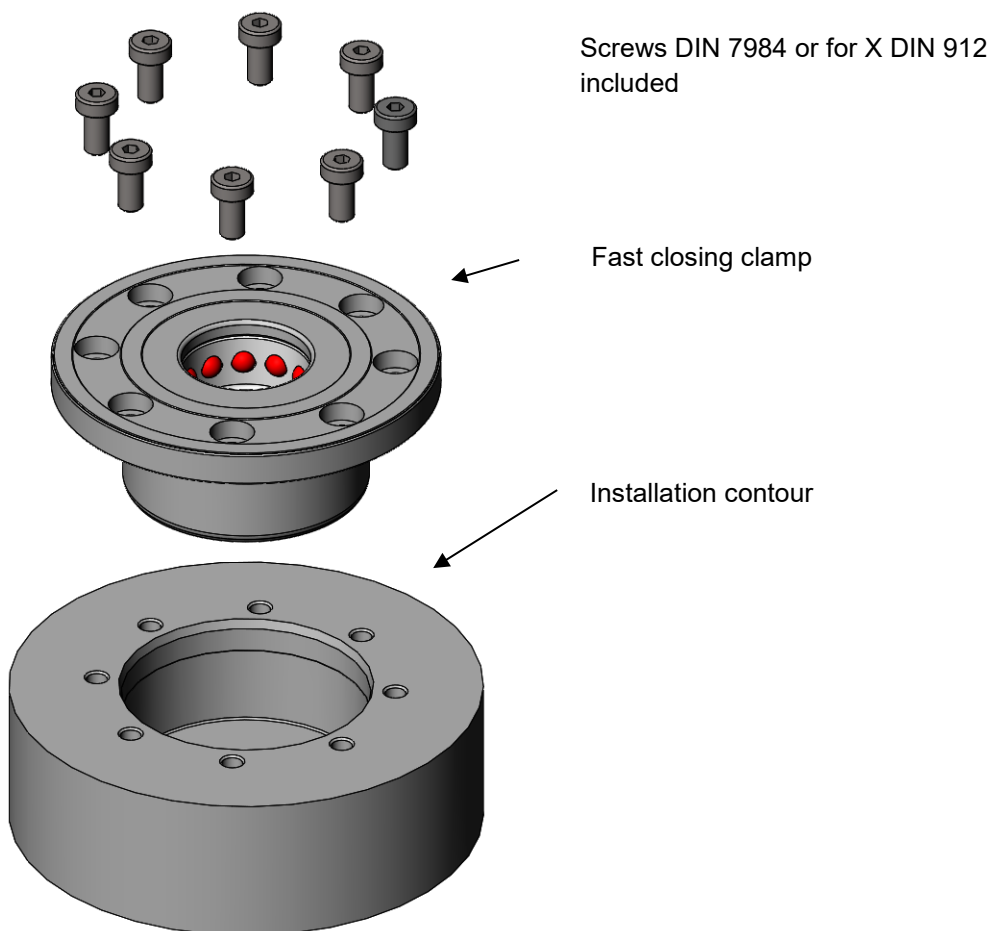
## 5 Description of fast closing clamping device

### 5.1 General

The fast closing clamp is the connection between the machine and the means of clamping the workpiece. There are corresponding retractable nipples on the means of clamping; these are used for quick set-up. While machining is in progress on one pallet, the others can be set-up.

### 5.2 Mounting and installation

#### 5.2.1 SPEEDY basic S / M / L / X





1. Check the installation contour for Speedy basic for dimensional accuracy and surface finish. Important: The transition from the chamfer to the centre bore must be free of burrs; otherwise the O-ring may be damaged (leaks and failure of the fast closing clamp). All parts must be clean, this statement also applies to all supply lines. (Deep bores, pipes, hoses, etc.).



**Important:** Dirt and aggressive media can result in faults or failure of the fast closing clamp.

2. Thoroughly grease the centre bore and O-ring then insert the fast closing clamp into the bore until the O-ring is in the locating and centre bore. When doing so, observe the position of the counterbore and threaded holes. For the SPEEDY basic with equaliser, also pay attention to the required equaliser direction.
3. The centering collar of the fast closing clamp has an allowance for interference from the centre bore of the installation contour. To move evenly into the fitting without causing damage, screw 2 screws into the opposite countersinks and threaded holes until the screw heads lie without force in the countersinks (do not yet tighten). Screw in the two screws alternately in several stages until the screw heads, thereby pulling in the fast closing clamp as straight as possible against the face in the bore. When doing so, make sure that the fast closing clamp is not just tightened on one side. Screw in the remaining screws and tighten them all to the appropriate tightening torque (pay attention to leaflet enclosed).
4. After assembling all SPEEDY basic hydraulic units, vent the fast closing clamp plate and the supply lines. Observe instructions in chapter "7 Inbetriebnahme, Bedienung und Betrieb"! Do not exceed the permissible operating pressure (pay attention to leaflet enclosed).



**Important:** Only apply pressure to fast closing clamping plate when it is screwed in position. Check the recess of all balls on all SPEEDYs. Perfect functioning of the SPEEDY is only ensured when the retractable nipple can be inserted and removed from the locating bore without applying force. If the retractable nipple of one or more SPEEDYs cannot be inserted or removed from the locating bore without using force, then the SPEEDY in question must be dismantled and checked as per "6.2 Ausbau Schnellspanverschluss" Item 1 – 4. Repeat Item 2 – 4 of "6.1 Einbau Schnellspanverschluss".



All installation data sheets for the SPEEDYs are on the website at:

**http://www.stark-inc.com/Deutsch/Downloads/index.php.** Simply log in with the rubric "installation dimensions" and you will immediately receive an e-mail with your user name and password.

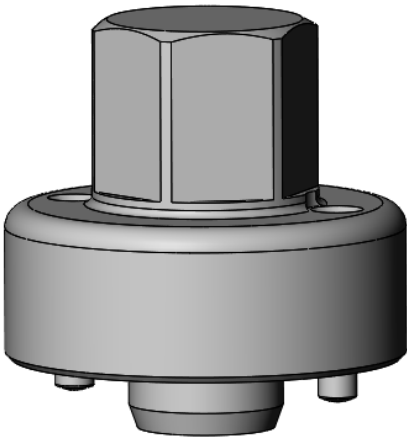
## Training courses

Stark Spannsysteme GmbH provides training courses to train your operators and service personnel. Training courses are held on site or at Stark Spannsysteme GmbH. Please contact us for information. We would be pleased to advise you!

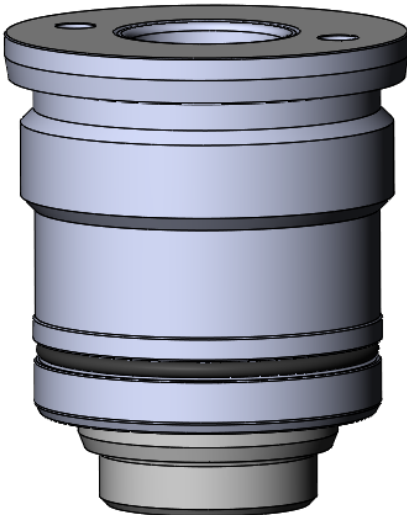




### 5.2.2 SPEEDY basic L



The same instructions as described in 5.2.1 apply, however the SPEEDY basic Y is screwed into the plate using a central external thread. It is recommended to use the spanner for installation for this purpose; this tool is available as order no. 8000 899.



### 5.3 Removal of fast closing clamp

1. Prior to starting removal, the system must be completely de-pressurised. Interrupt the energy supply to the source of pressure, ensure that it cannot be unintentionally put back into operation and then relieve any residual pressure (e.g. take account of non-return valves, shut-off valves and suchlike).
2. Evenly undo and remove all screws or unscrew the SPEEDY basic Y using the spanner for installation.
3. 2 counterbore holes each have a thread. A set screw must first be turned in to each of the two threaded holes under the counterbores to ensure that the threaded bore cannot be damaged by the pressure from the ejector screw. After this, press the SPEEDY basic evenly out of the fitting with the two ejector screws (this is not required for the SPEEDY basic Y).
4. On the variants that are released hydraulically, the locating bore must be vented; otherwise pulling out the clamping elements will cause a vacuum.



## 6 Start-up, operating and operation

### 6.1 Putting in operation for the first time

- Visually inspect the entire machine and the fast closing clamps
- Instruct unauthorised personnel to leave the machine
- Check the fast closing clamp for pneumatic/hydraulic leaks
- Check the release pressure and the hydraulic oil levels

### 6.2 Function check

- When all clamping elements connected to the same circuit are fitted as described and tightened to the appropriate tightening torque, connect the pneumatic or hydraulic pressure generator to the circuit.
- Release: Slowly and carefully increase the pneumatic or hydraulic pressure to the release pressure. During this process check the clamping elements for leaks; if necessary, immediately switch off source of pressure and rectify the leak. Attention: Risk of slipping on escaped oil!
- Switch on and check the blow out air to make sure enough air is flowing out of the nozzle. Check the nozzle for ease of movement.
- If you are prompted to check the mount, then the supply line must be checked for tightness.

### 6.3 Operating and operation



The speed when moving the retractable nipple into the quick-release elements must be less than 100 mm/s; otherwise, the retractable nipple and quick-release elements can be damaged.



Only pressurise the fast closing clamp for the pallet-changing process.

**Do not subject it to constant pressure (released)!**

- Set the release pressure of the fast closing clamps (see chapter "Technische Daten 9")
- Monitor the max. operating pressure of the fast closing clamps. Set the overpressure safety valve to max. 5 bar above the max. operating pressure (see chapter "Technische Daten 9")

### 6.4 SPEEDYs with blow-out function and mount control



Blowing out and clearing throws up swarf!

Take suitable safety measures, e.g. wear safety glasses, cover, protective doors...

Make sure there is sufficient air supply (see chapter "Technische Daten 9").

- First switch on the blow out air; it must remain activated during the entire loading time
- Release the SPEEDY after approx. 3 seconds
- Replace the pallet
- Clamp the SPEEDY
- Only switch off the blow out air now and switch over to mount control
- Start the machine if the mount control is successful



## 7 Servicing and maintenance

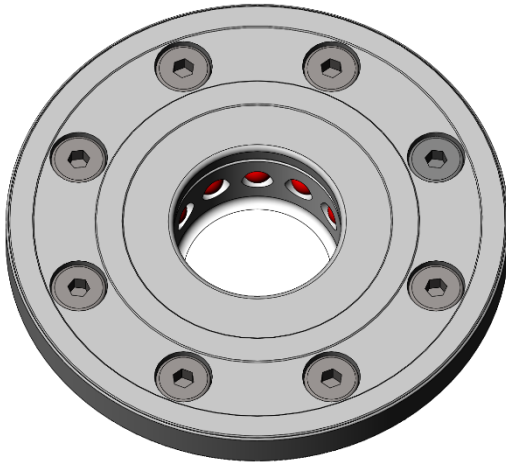
### 7.1 Function check



Check the SPEEDY for correct function. With the SPEEDY released, check the recess of all balls.



If the retractable nipple cannot be inserted and removed from the locating bore without the use of force then immediate servicing is required from Stark Spannsysteme GmbH. If servicing is not undertaken, safe clamping of the retractable nipple is no longer possible. There is a risk of accidents!



#### Monthly:

Check the recess of all balls with the fast closing element released.

#### Yearly or after 5000 clamping cycles:

Check all functions of the fast closing elements. If one or more functions are no longer working correctly then immediate servicing by Stark Spannsysteme GmbH is required.

### 7.2 Maintenance interval of spring assembly

On reaching the clamping cycles or replacement intervals, maintenance of fast closing clamp is required from Stark Spannsysteme GmbH (see chapter "Technische Daten 8" Maintenance interval of the spring assembly). Please contact us to coordinate service work:

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

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

E-mail: [verkauf@stark-inc.com](mailto:verkauf@stark-inc.com)



### 7.3 Cleaning

In principle, soiling inside the fast closing clamp is not allowed. Clean depending on the application and change interval.



#### Well-established practice!

The fast closing clamp may be blown out and off using compressed air.



#### Correct and better!

Vacuum clean to remove swarf, dirt and coolant from the fast closing clamp.



### 7.4 General cleaning

The fast closing clamp must be dismantled for general cleaning. Installation work may only be carried out by Stark Spannsysteme GmbH. During all work make sure of compliance with the necessary safety measures without exception and in their entirety.



**Hazard warning:** The fast closing clamp is permanently under spring pressure! Do not open the housing – there is a risk of injuries and damage!

The product is not allowed to be cleaned using:



- Corrosive or caustic ingredients
- Organic solvents such as halogenated or aromatic hydrocarbons and ketones (thinners, acetone etc.). These substances can irreparably damage the seals.

The element must be cleaned at regular intervals. During this process, free especially areas between the bore - ball holder - housing of swarf and any liquids. In case of heavy soiling the cleaning must be carried out at shorter intervals.



## 7.5 Storage:

### Before first-time use:

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

### Extended storage after usage:

Before storing, clean the fast closing clamp (see chapter "Generalreinigung 8.4") and carry out corrosion protection measures.

### After extended storage:

After extended storage (from approx. 3 years), the seals are to be changed before renewed use. In principle this task must be undertaken by Stark Spannsysteme GmbH.

## 7.6 Disposal / recycling:

All parts and substances in the fast closing clamping device must be sorted by material and disposed of in accordance with local regulations and guidelines.



**Hazard warning:** The fast closing clamp is permanently under spring pressure! Do not open the housing – there is a risk of injuries and damage!



## 8 Specifications

		basic SH	basic SP	basic MH	basic MP	basic LH	basic LP
Maintenance interval of spring assembly		80,000	80,000	80,000	80,000	80,000	80,000
Retention force 1)	[ N ]	15,000	5,000	30,000	9,000	55,000	23,000
Oil release pressure	[ bar ]	20	-	20	-	25	-
Air release pressure	[ bar ]	-	5.5	-	5.5	-	5.5
Max. pressure	[ bar ]	80 *	10	80 *	10	60 *	10
Oil/air volumes	[ cm <sup>3</sup> ]	4.5	4.5	12	12	25	25
Operating temperature	[ °C ]	10-80	10-80	10-80	10-80	10-80	10-80
Min. permissible clamping time	[ s ]	1	1	1	1	1	1
Min. permissible release time	[ s ]	1	1	1	1	1	1
Radial pre-positioning 2)	[ mm ]	± 1	± 1	± 1	± 1	± 1	± 1
Max. axial pre-positioning	[ mm ]	- 0.3	- 0.3	- 0.3	- 0.3	- 0.3	- 0.3
Repeatability 3)	[ mm ]	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Weight	[ kg ]	approx. 0.5	approx. 0.5	approx. 1.5	approx. 1.5	approx. 3.8	approx. 3.8

		basic XP	basic YP
Maintenance interval of spring assembly		80,000	80,000
Retention force 1)	[ N ]	400	88
Oil release pressure	[ bar ]	-	-
Air release pressure	[ bar ]	5.5	5.5
Max. pressure	[ bar ]	10	10
Oil/air volumes	[ cm <sup>3</sup> ]	1.4	1.6
Operating temperature	[ °C ]	10-80	10-80
Min. permissible clamping time	[ s ]	1	1
Min. permissible release time	[ s ]	1	1
Radial pre-positioning 2)	[ mm ]	± 1	± 1
Max. axial pre-positioning	[ mm ]	- 0.3	- 0.3
Repeatability 3)	[ mm ]	< 0.01	< 0.01
Weight	[ kg ]	approx. 0.06	approx. 0.22

- 1 Retention force:** The retention force refers to the max. overload at which the nipple will continue to be retained, but the zero point has already been left.
- 2 Radial pre-positioning:** The loading device must have play on manual or automated handling.
- 3 Repeatability:** Repeatability generally refers to the accuracy with which the same pallet is positioned on changing on the same interface.

