



**STARK**



## Zero point clamping system SPEEDY airtec 1

WM-020-289-00-en

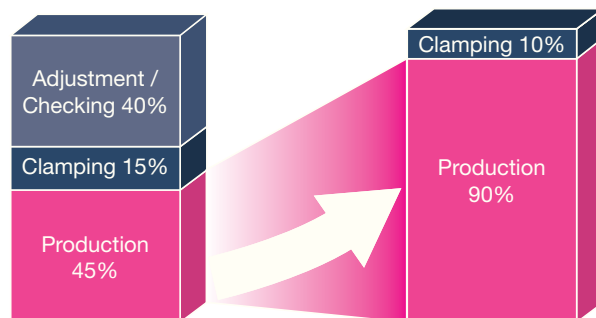
**P r o d u c t s** | *f o r* | **p r o d u c t i v i t y**



# GO!

## Maximum productivity

- With the zero point clamping system SPEEDY airtec you will increase your production times to a maximum. Adjustment and checking processes are no longer necessary at all, this means more time for your production.
- With SPEEDY airtec even trainees can undertake set-up work on your production machines. This feature will lower your costs and makes it possible to load several machines at the same time.



## Maximum flexibility

- SPEEDY airtec has a common interface. As a result all equipment can be used on all machines.

## Maximum machine availability

- Machining can be interrupted for rush jobs and completed later without loss of time.

**SPEEDY airtec – an investment, that will pay for itself in a very short time.**

## Zero point clamping system

**SPEEDY**  
airtec 1



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## 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-020-304-en



**SPEEDY**  
classic 2

Catalogue order no. WM-020-277-en



**SPEEDY**  
classic 3

Catalogue order no. WM-020-279-en



**SPEEDY**  
classic 4

Catalogue order no. WM-020-281-en

### **SPEEDY metec – clamp / release mechanically**

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

- Three sizes



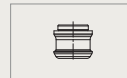
**SPEEDY**  
metec 1

Catalogue order no. WM-020-283-en



**SPEEDY**  
metec 2

Catalogue order no. WM-020-283-en



**SPEEDY**  
metec 3

Catalogue order no. WM-020-283-en

### **SPEEDY airtec – clamp mech. / release pneum.**

Pneumatic zero point clamping system.

- One size and numerous variants



**SPEEDY**  
airtec 1

Catalogue order no. WM-020-289-en

### **SPEEDY hydratec – clamp / release hydraulically**

Hydraulic, double-action zero point clamping system for very high clamping speeds.

- One size and numerous variants



**SPEEDY**  
hydratec 1

Catalogue order no. WM-020-291-en

### **system 3000 – clamp / release hydraulically**

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

- One size and numerous variants



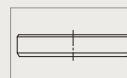
**system** 3000

Catalogue order no. WM-020-066-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-en

Information

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## Zero point clamping system **SPEEDY airtec 1**



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## Zero point clamping system

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## Technical data – transparency from the start

		STANDARD ø 155mm Order no. 5000 001	STANDARD ø 100mm Order no. 5000 101	STANDARD ø 80mm Order no. 5000 201
Maintenance interval	Cycles	700,000	2,000,000	2,000,000
Clamping force <sup>1</sup>	[ N ]	20,000	20,000	20,000
Retention force <sup>2</sup>	[ N ]	55,000	55,000	55,000
Release pressure	[ bar ]	5 – 6	5 – 6	5 – 6
Max. pressure	[ bar ]	10	10	10
Lateral forces max. allowed	[ N ]	7,000	7,000	7,000
Tilting torque	[ Nm ]	800	500	500
Air volume	[ cm3 ]	46	19	19
Operating temperature	[ °C ]	+10 to +80	+10 to +80	+10 to +80
Min. clamping time allowed	[ s ]	0.2	0.2	0.2
Min. release time allowed	[ s ]	0.2	0.2	0.2
Radial pre-positioning <sup>3</sup>	[ mm ]	± 2	± 2	± 2
Max. axial pre-positioning automated loading	[ mm ]	At stop	At stop	At stop
Repeatability <sup>4</sup>	[ mm ]	< 0.005	< 0.005	< 0.005
System accuracy <sup>5</sup>	[ mm ]	< 0.01 *	< 0.01 *	< 0.01 *
Weight	[ kg ]	4.80	1.10	1.00

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

- <sup>1</sup> Clamping force**      The clamping force refers to the load up to which the zero point is guaranteed.  
The clamping force stated must not be exceeded.
- <sup>2</sup> Retention force**      The retention force refers the max. overload at which the nipple will continue to be retained,  
but the zero point has already been left (designed for M12 screw).
- <sup>3</sup> Radial pre-positioning**      The loading device must have play in the case of automated handling.
- <sup>4</sup> Repeatability**      Repeatability generally refers to the accuracy with which the same pallet is positioned  
on changing on the same interface.
- <sup>5</sup> System accuracy**      System accuracy refers to the accuracy resulting from changing several pallets,  
e.g. on different machines.

Information

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## Zero point clamping system SPEEDY airtec 1



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### Technical data – tilting torque calculation example profit from our specialist competence

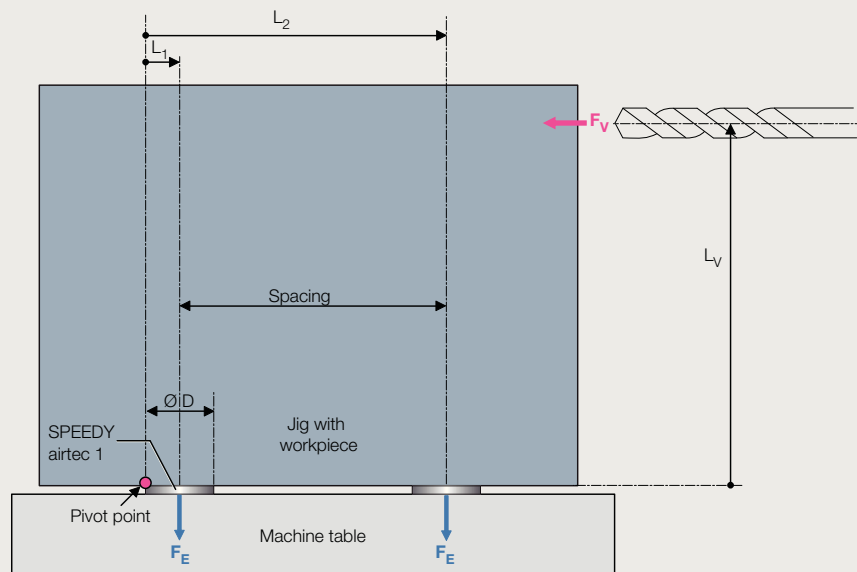


#### Example:

Fast closing clamp plate 4x SPEEDY airtec 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:

$$M_E > 2 \times M_V ?$$

$$M_V = F_V \times L_V = 7,000 \text{ N} \times 0.4 \text{ m}$$

$$M_V = 2,800 \text{ Nm}$$

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

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

$$L_1 = \text{ØD} / 2$$

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

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

$$L_1 + L_2 = 0.129 \text{ m} + 0.20 \text{ m} = 0.329 \text{ m}$$

$$M_E = 2 \times F_E \times (L_1 + L_2) = 2 \times 20,000 \text{ N} \times 0.329 \text{ m}$$

$$M_E = 13,160 \text{ Nm}$$

$$M_E / M_V > 2 ?$$

$$M_E / M_V = 13,160 \text{ Nm} / 2,800 \text{ N}$$

$$M_E / M_V = 4.7 > 2$$

With this design, safety by around a factor of 4.7 is provided.

(All dimensions to be entered in SI units (metres, Newtons))

$M_V$  : 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

Ø D (Bearing ring) : 129 mm = 0.129 m

$L_V$  : 400 mm = 0.40 m

## Zero point clamping system

**SPEEDY**  
airtec 1

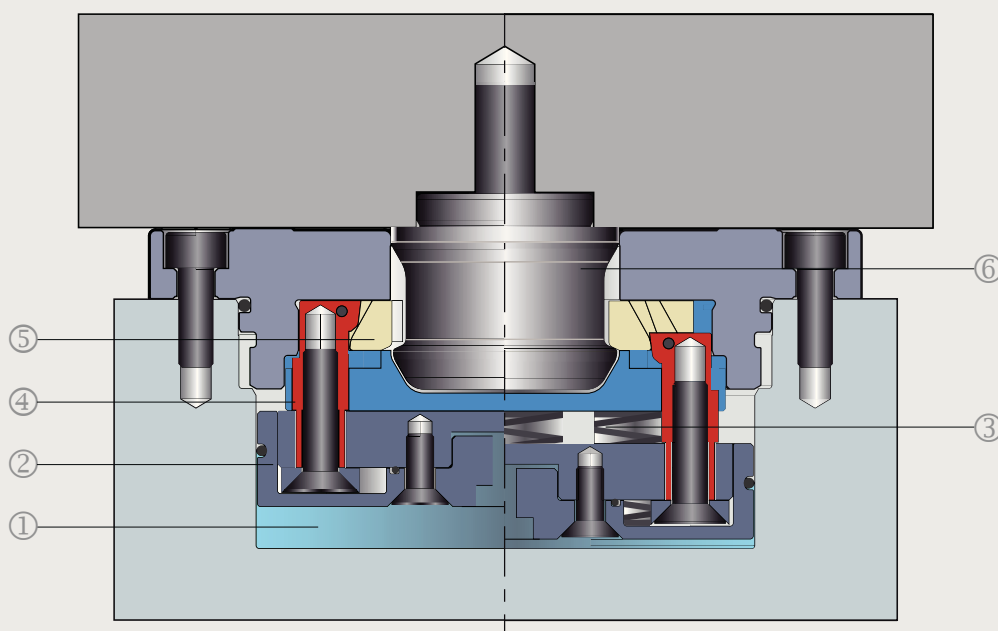


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## Function description SPEEDY airtec 1 – positioning and clamping in one function



### Principle of operation:



### Releasing pneumatically:

- Pneumatic pressure (1) is applied to the piston (2) and the piston moves upward. The spiral springs (3) are pressed together.
- The clamping fingers (4) move upward through the piston (2) and pull the segments (5) to the outside.
- The retractable nipple (6) is released.

### Clamping mechanically:

- The pneumatic pressure is relieved. The pneumatic pressure drops to 0bar.
- The spring pre-load is applied via the piston (2), the piston moves downward.
- The clamping fingers (4) are pulled down by the piston (2) and push the segments (5) toward the inside.
- The retractable nipple (6) is pulled down by the clamping face on the segments (5) and clamped against the bearing surface.

Information

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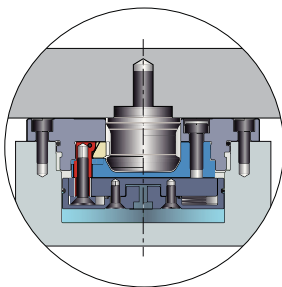
## Zero point clamping system **SPEEDY** airtec 1



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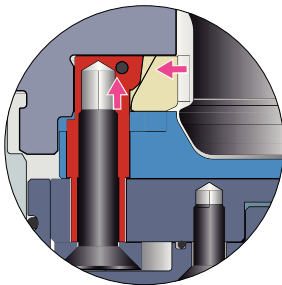
Proven technology with system –  
original down to the smallest detail

**Advantages  
to be worth it!**



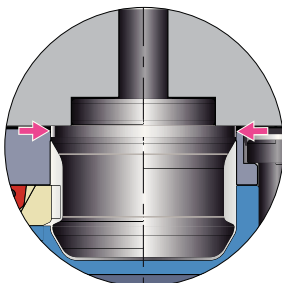
### Design

- Compact design (Flush Mount, screw-fit or module)
- High retention force, enormous power density
- Maintenance-free, designed for large number of load changes (> 2 million in continuous test)
- Made of high quality tool steel and chromium steel
- Actuation with clean air, from 5bar to release
- Can be operated without additional service unit
- Environmentally friendly and clean operation (no oil)
- Particularly suitable for oil-free environment, e.g in the foodstuffs, aerospace industry or medical sector.



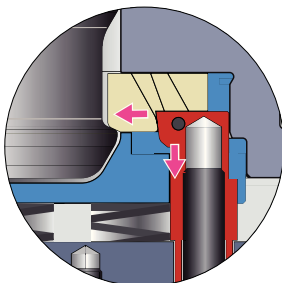
### Positive action operation

- The segments are actuated mechanically
- Powerful and secure clamping is ensured at all times
- In an endurance test over 3 million clamping cycles tested, full functionality even under extreme conditions.
- Functions reliably in any installation position
- Very short clamping and release time – 0.2sec



### Cylindrical fit

- Due to the cylindrical fit, high lateral forces can be absorbed by the fast closing clamp during the machining
- Ideal pre-centring for Römheld coupling elements without coupling travel, data sheet F9.461



### Segments

- Due to the optimal all-round positive clamping action of the clamping segments, the retractable nipple is retained stably and securely in the fast closing clamp.

## Zero point clamping system

**SPEEDY**  
airtec 1



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### STANDARD 155

- Flush Mount
- Bearing ring
- Round  $\varnothing 155\text{mm}$



#### Characteristics:

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

Due to low height little space needed. Can be installed as a module.

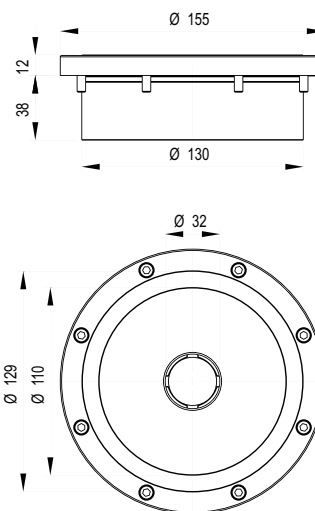
Is clamped mechanically and released pneumatically.

#### Application:

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

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

Particularly suitable for oil-free environment, e.g. in the foodstuffs, aerospace industry or medical sector.

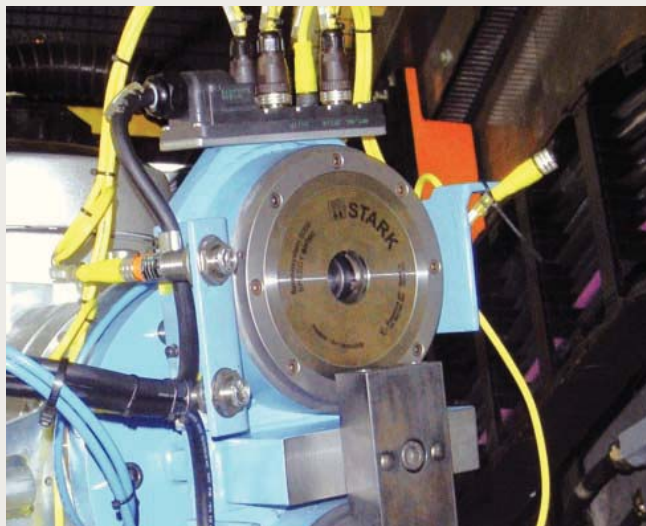


Z 5000 001

Order no.	Retention force	Clamping force	Pressure to release	Weight	Data sheet
5000 001	55,000N	20,000N	5 – 6bar	4.80 kg	D062/066



#### Practical example:



SPEEDY airtec 1 fast closing clamp, built into a robot arm for changing workpieces. Pallet identification and presence check via sensors on the changer arm.

SPEEDY airtec

1.1

## Zero point clamping system SPEEDY airtec 1



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### STANDARD 100

- Flush Mount
- Bearing ring
- Round  $\varnothing 100\text{mm}$



#### Characteristics:

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

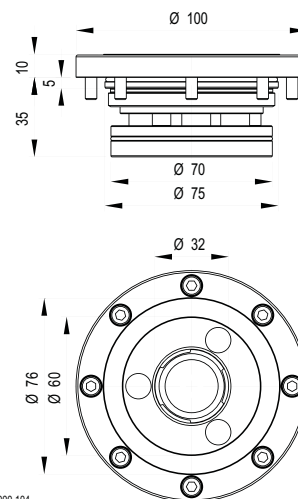
Due to low height can be fitted taking up little space from 40mm.

Is clamped mechanically and released pneumatically.

#### Application:

For flush mounting in machine pallets, plates, angles, cubes, towers and swivelling yokes.  
Can be used for all common machining tasks such as milling, turning, grinding, eroding as well as on test stands for mounting devices.

Particularly suitable for oil-free environment, e.g. in the foodstuffs, aerospace industry or medical sector.



Z 5000 104

Order no.	Retention force	Clamping force	Pressure to release	Weight	Data sheet
5000 104	55,000N	20,000N	5 – 6bar	1.00kg	D074

### STANDARD 100

- Flush Mount module
- Bearing ring
- Round  $\varnothing 100\text{mm}$



#### Characteristics:

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

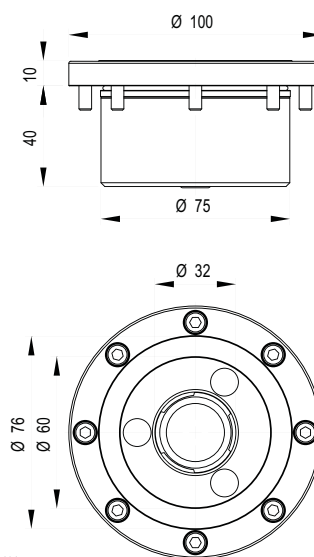
Due to low height little space needed.  
Can be installed as module. Can also be used with low wall thickness.

Is clamped mechanically and released pneumatically.

#### Application:

For flush mounting in machine pallets, plates, angles, cubes, towers and swivelling yokes.  
Can be used for all common machining tasks such as milling, turning, grinding, eroding as well as on test stands for mounting devices.

Particularly suitable for oil-free environment, e.g. in the foodstuffs, aerospace industry or medical sector.



Z 5000 101

Order no.	Retention force	Clamping force	Pressure to release	Weight	Data sheet
5000 101	55,000N	20,000N	5 – 6bar	1.10kg	D088

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1.2

## Zero point clamping system

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airtec 1



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### STANDARD 80

- Screw-fit
- Bearing ring
- Round ø80mm



#### Characteristics:

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

Due to low height little space needed (can be installed even from plate thickness of 40 mm).

Flush Mount variant with fine thread, suitable spanner for installation order no. 5000 310.

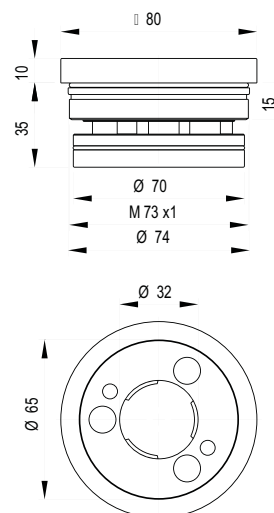
Is clamped mechanically and released pneumatically.

#### Application:

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

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

Particularly suitable for oil-free environment, e.g in the foodstuffs, aerospace industry or medical sector.



Z5000 201

Order no.	Retention force	Clamping force	Pressure to release	Weight	Data sheet
5000 201	55,000N	20,000N	5 – 6bar	1.00kg	D073

SPEEDY airtec

1.3

## Zero point clamping system **SPEEDY airtec 1**

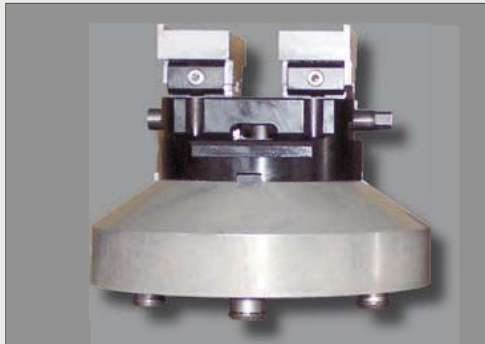


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### Practical example:

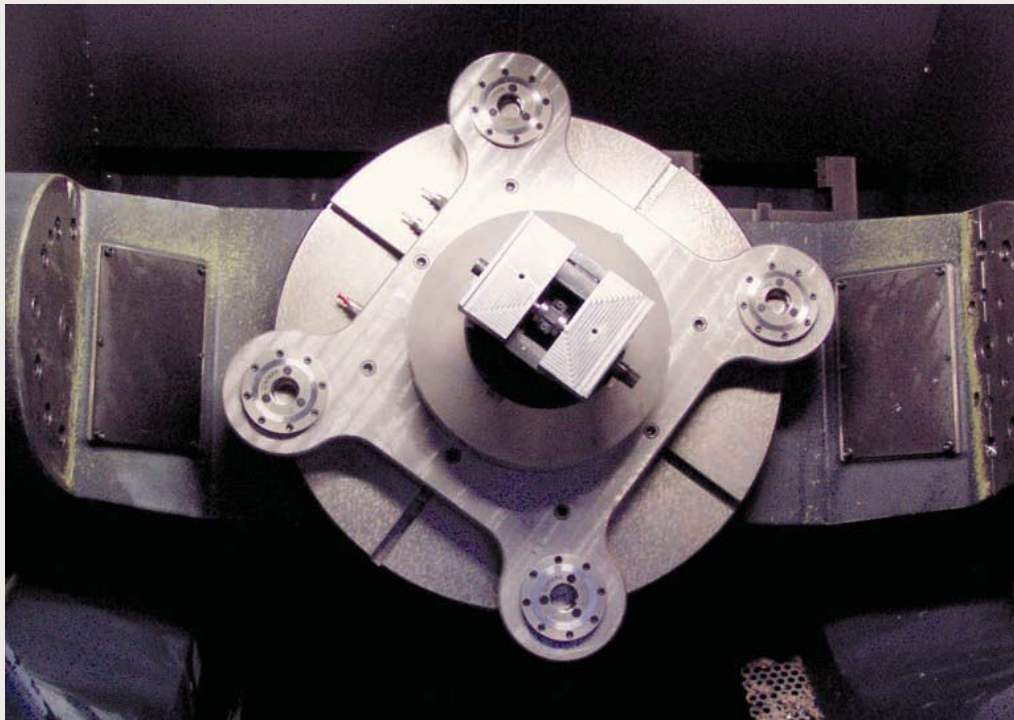
Jig change in seconds, from machine vice to three-jaw chuck. Simply release pneumatically, change jig and clamp.



Quick change pallet with machine vice for 5-sided machining.



Quick change pallet with three-jaw chuck for 5-sided machining.



SPEEDY airtec 1 Standard 100, installed in fast closing clamp plate. Customer-specific design with two different spacings for flexible machining – *clamping force of 20kN per fast closing clamp.*

SPEEDY airtec

1.4

## Zero point clamping system

**SPEEDY**  
airtec 1



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### STANDARD Surface Mount housing

- Surface Mount
- With clamping ring



#### Characteristics:

Fast closing clamp Surface Mount housing made of 1.0570, nitrided, suitable for SPEEDY airtec 5000 001.

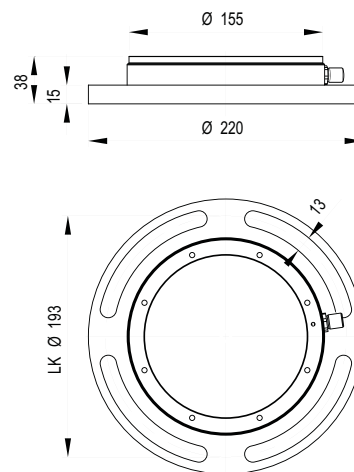
Due to low height, low assembly of 50 mm.

Is fastened to the machine table using four screws DIN 912.

#### Application:

For surface mounting on machine pallets, plates, angles, cubes, towers and swivelling yokes.

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



Z 5000 050

Order no.	Weight
5000 050	2.20kg



#### Practical example:



Standard Surface Mount housing SPEEDY airtec 1 with clamping ring and pneumatic connection.

SPEEDY airtec

1.5



## Zero point clamping system SPEEDY airtec 1



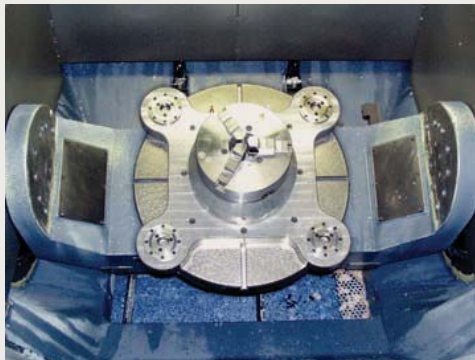
**STARK**

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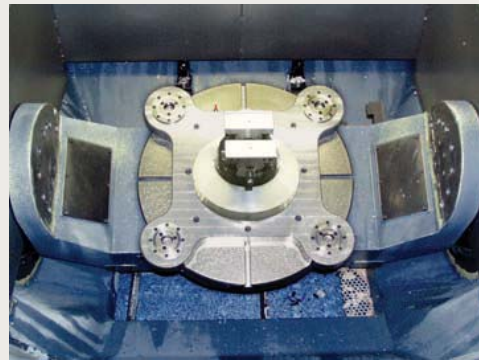
### Your advantages:

Five workpiece changes without zero point clamping system per shift result in approximately 100 minutes of set-up time. During this time it is not possible to machine any workpieces – the machine is stationary! With STARK zero point clamping system, the set-up time during a shift is reduced to 20 minutes, that means 80 minutes more machine running time – the machine is producing!

**This means approx. 420 hours (!) additional machine capacity per year.**



8x quick change pallet with 3-jaw chuck for 5-sided machining, clamped with 4 SPEEDY airtec 1 with 20kN per fast closing clamp.



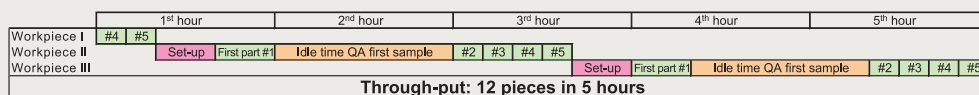
8x quick change pallet with machine vice for 5-sided machining, clamped with 4 SPEEDY airtec 1 with 20kN per fast closing clamp.

### From the bottleneck to the production machine:

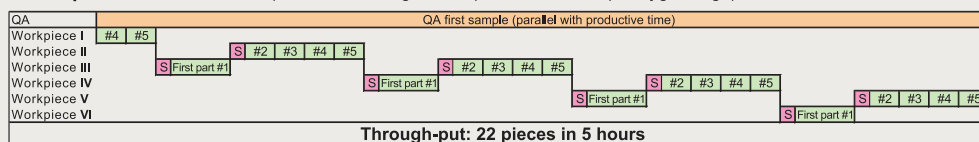
The Gantt chart shows further advantages:

- Quality assurance parallel to productive time is a crucial factor due to the short set-up time.
- The batch size is less important.
- Rush jobs can be inserted without problems.

#### Before: bottleneck machine



#### After: production machine (due to shortening of set-up and exact zero point jig change)



Key:

Unchanged:		Elapsed time for first part 20 minutes Elapsed time per part after QA approval: 10 minutes Idle time until approval available: 60 minutes
Changed:		
Before:	Set-up	Set-up time (with screws, sliding blocks, etc.): 20 minutes
After:	S	Set-up time with STARK zero point clamping system (repeatability 5 µm): 5 minutes QA first sample in parallel with productive time

SPEEDY airtec

1.6

## Zero point clamping system

**SPEEDY**  
airtec 1



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### Retractable nipple

- With zero point
- Short collar

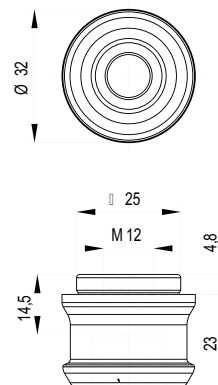


#### Characteristics:

Retractable nipple with zero point.

#### Application:

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



Countersink for screw DIN 912

Z 5000 012

Order no.	Screw quality	Tightening torque at the nipple	Tightening torque at the screw	Weight	Data sheet
5000 012	min. 8.8	45Nm	60Nm	0.10kg	D029

### Retractable nipple

- With zero point
- Long collar

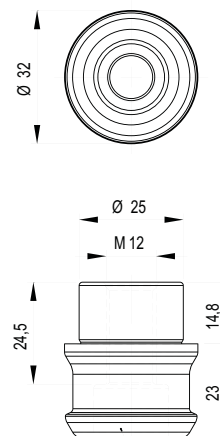


#### Characteristics:

Retractable nipple with zero point.

#### Application:

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



Countersink for screw DIN 912

Z 5000 009

Order no.	Screw quality	Tightening torque at the nipple	Tightening torque at the screw	Weight	Data sheet
5000 009	min. 8.8	45Nm	60Nm	0.13kg	D029

Retractable nipple

2.1



## Zero point clamping system **SPEEDY** airtec 1



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### Retractable nipple

- With equaliser
- Short collar

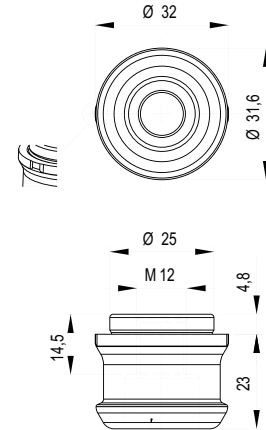


#### Characteristics:

Retractable nipple with equaliser on one axis (sword shape).

#### Application:

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



Countersink for screw DIN 912

Order no.	Screw quality	Tightening torque at the nipple	Tightening torque at the screw	Weight	Data sheet
5000 013	min. 8.8	45Nm	60Nm	0.10kg	D029

### Retractable nipple

- With equaliser
- Long collar

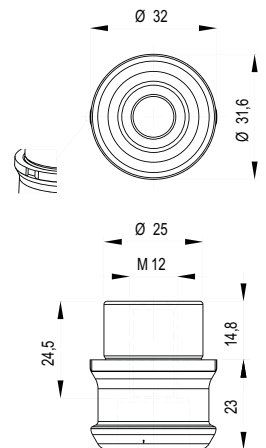


#### Characteristics:

Retractable nipple with equaliser on one axis (sword shape).

#### Application:

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



Countersink for screw DIN 912

Z 5000 010

Order no.	Screw quality	Tightening torque at the nipple	Tightening torque at the screw	Weight	Data sheet
5000 010	min. 8.8	45Nm	60Nm	0.13kg	D029

Retractable nipple

2.2

## Zero point clamping system

**SPEEDY**  
airtec 1



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### Retractable nipple

#### ● Short collar

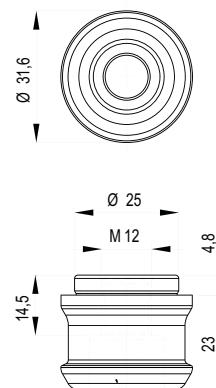


#### Characteristics:

Retractable nipple without centring.

#### Application:

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



Countersink for screw DIN 912

Z 5000 014

Order no.	Screw quality	Tightening torque at the nipple	Tightening torque at the screw	Weight	Data sheet
5000 014	min. 8.8	45Nm	60Nm	0.10kg	D029

### Retractable nipple

#### ● Long collar

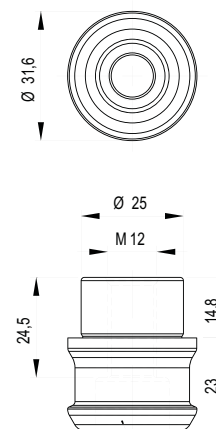


#### Characteristics:

Retractable nipple without centring.

#### Application:

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



Countersink for screw DIN 912

Z 5000 011

Order no.	Screw quality	Tightening torque at the nipple	Tightening torque at the screw	Weight	Data sheet
5000 011	min. 8.8	45Nm	60Nm	0.13kg	D029

Retractable nipple

2.3

## Zero point clamping system **SPEEDY airtec 1**



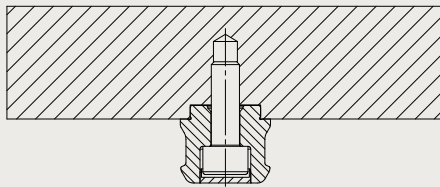
**STARK**



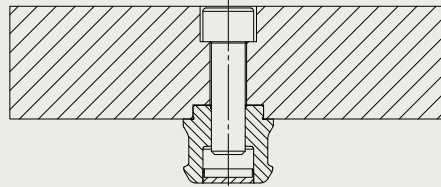
### Product information:

Installation examples – retractable nipple SPEEDY airtec 1.

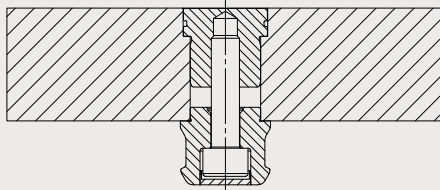
Variant A



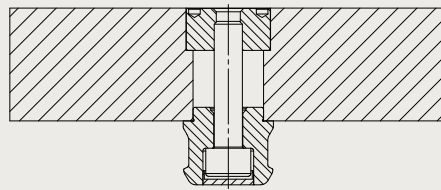
Variant B



Variant D



Variant E



Z 001

- Variant A: For applications in which no nipple bores are allowed on the pallet surface, or for direct workpiece clamping.
- Variant B: Simple nipple fastening from above if accuracy between the position of the nipple and the top of pallet is not especially important.
- Variant D, E: These fastening variants are to be preferred. The precision bore for the nipple and all necessary positioning bores on the pallet can be made in one work step. As a result the accuracy between the positions is very high. For these variants special nipple fastenings (on page 3.1) are available.

Retractable nipple

2.4

## Zero point clamping system

**SPEEDY**  
airtec 1



**STARK**

### Nipple fastening D

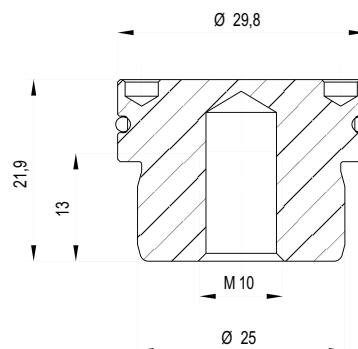


#### Characteristics:

Makes it possible to manufacture the nipple fastening in one work step. As a result the highest accuracy is achieved.

#### Application:

Machine pallets, machine vices, chucks, jigs, direct workpiece clamping. Spanner for installation order no. 804 254 (see page 5.2).



Z 804 267

Order no.	For nipple ø	Tightening torque	Tightening torque	Weight	Data sheet
804 267	25mm	45Nm	60Nm	0.05kg	D029

### Nipple fastening E

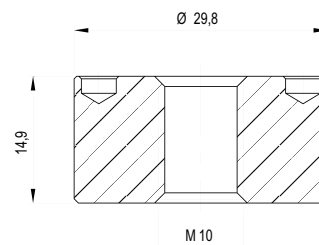


#### Characteristics:

Makes it possible to manufacture the nipple fastening in one work step. As a result the highest accuracy is achieved.

#### Application:

Machine pallets, machine vices, chucks, jigs, direct workpiece clamping. Spanner for installation order no. 804 254 (see page 5.2).



Z 804 266

Order no.	For nipple ø	Tightening torque	Tightening torque	Weight	Data sheet
804 266	25mm	45Nm	60Nm	0.05kg	D029

Nipple fastening

3.1

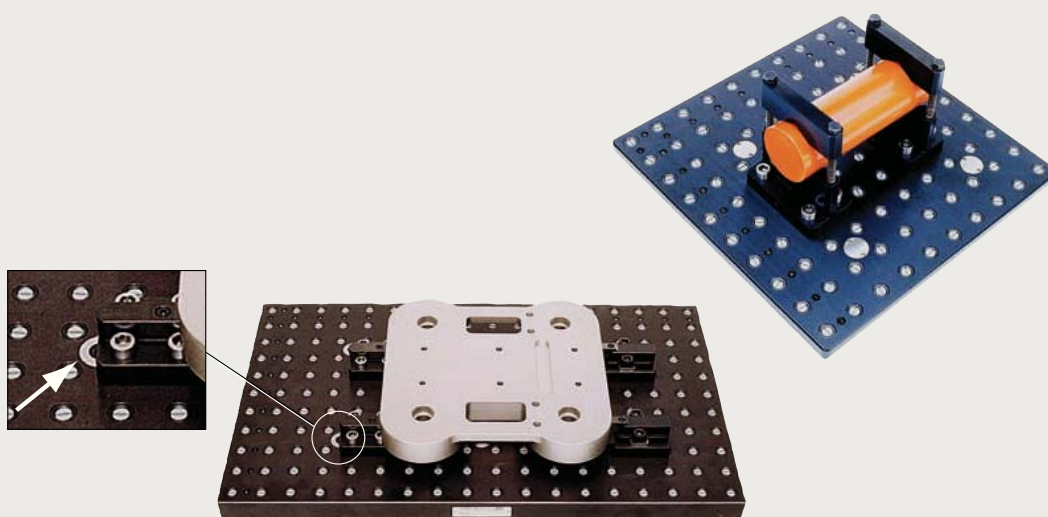
## Zero point clamping system **SPEEDY** airtec 1



**STARK**



Practical example:



Nipple fastening variant D and E. Makes it possible to manufacture the nipple fastening in one work step. As a result the highest accuracy is achieved.

Nipple fastening

3.2

## Zero point clamping system

**SPEEDY**  
airtec 1



**STARK**

### Set plate 2

#### ● Surface Mount



#### Characteristics:

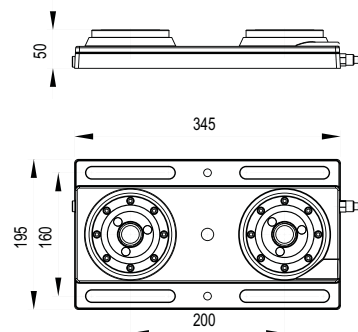
The set plate 2 can be used on almost any machine table due to the slots and the sliding blocks with pins. Simple alignment is possible due to the precision bores.

The set plates can thus be rapidly and precisely adjusted by the customer to the grid or T slot tables on any machine table.

#### Application:

For surface mounting on machine pallets, plates, angles, cubes, towers and swivelling yokes.

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



Z 5000 710

Order no.	Retention force*	Clamping force*	Pressure to release	Spacing	Weight
5000 710	55,000N	20,000N	6bar	200mm	15.00kg

\* Retention force and clamping force per fast closing clamp SPEEDY airtec.

#### Set contents

1x set plate 2x

2x retractable nipples with zero point

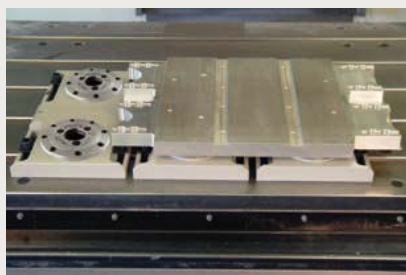
2x retractable nipples with equaliser

order no. 5000 012

order no. 5000 013



#### Practical example:



SPEEDY airtec module plate, designed for clamping using 6 fast closing clamps.

Set plate 2

4.1

## Zero point clamping system **SPEEDY airtec 1**



**STARK**



### Product information:

Application with coupling elements that do not require any coupling stroke.  
Römheld data sheet F9.461.

- Positioning using SPEEDY airtec retractable nipples (1)
- Automatic coupling during clamping
- Smooth surface (2) – easy to clean the couplings

**Advantages  
to be worth it!**



### Characteristics:

Coupling elements are used for the provision of hydraulic oil and air, other media on request.  
The coupling element does not require any coupling stroke, can only be coupled de-pressurised.  
The necessary positioning is ensured together with the SPEEDY airtec fast closing clamp.

### Application:

Coupling elements are used on machine tools with pallet changers to transfer hydraulic oil and compressed air from the machine table to the jigs.



Set plate 2

4.2

## Zero point clamping system

**SPEEDY**  
airtec 1



**STARK**

### Spanner for installation

#### • AF 24

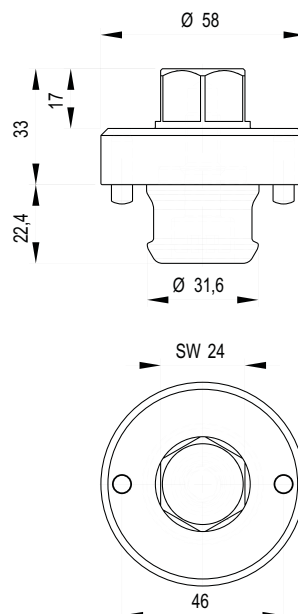


#### Characteristics:

Spanner for installation.

#### Application:

Installation and removal of  
SPEEDY airtec order no. 5000 201.



Order no.	Size	Weight
5000 310	AF24	0.60kg

During assembly pay attention to the torque of 250Nm, as per technical information.

### Torque wrench



#### Characteristics:

Adjustable torque wrench.

#### Application:

Fitting and removing retractable  
nipples. Note torque data in the  
related operating instructions!

Order no.	Adjusting range	Weight
804 255	5 – 50Nm	0.60kg
804 256	20 – 100Nm	0.90kg
804 309	60 – 300Nm	1.40kg

During assembly pay attention to the torque, as per technical information.

Accessory

5.1



## Zero point clamping system **SPEEDY airtec** 1



**STARK**

### Spanner for installation for nipple fastening D / E

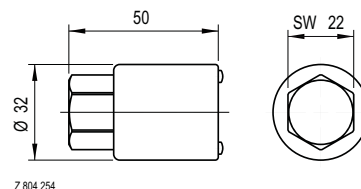


#### Characteristics:

Spanner for installation for fitting the nipple fastening D / E

#### Application:

Installation and removal, nipple fastening D / E, order no. 804 267 and 804 266.



Order no.	Size	Weight
804 254	AF22	0.08kg

During assembly pay attention to the torque, as per technical information.

### Slide coupling

- Can be switched

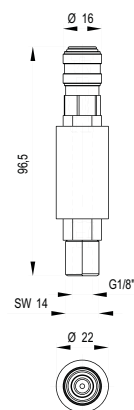


#### Characteristics:

Pneumatic coupling element with slide valve for SPEEDY airtec.

#### Application:

Actuation of the fast closing clamps SPEEDY airtec.



Order no.	Connection	Weight
5000 300	G1/8"	0.20kg

### Coupling nipple

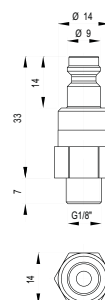


#### Characteristics:

Coupling nipple for SPEEDY airtec in conjunction with coupling art. no. 5000 300.

#### Application:

For the connection and actuation of the fast closing clamps SPEEDY airtec.



Order no.	Connection	Weight
5000 301	G1/8"	0.05kg

Accessory

5.2

Only the original ...



...fits together!

**For this reason  
our customers receive:**

- Manufacturer's guarantee
- Function guarantee
- Warranty protection
- Selection of fits



