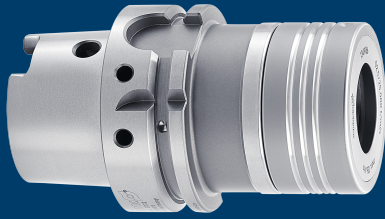


ER precision collet chuck



Assembly and Operating Manual

1 General

1.1 About this manual

This manual is part of the product and contains important information for safe and correct use. It must be kept accessible at all times. Personnel must have read and understood this manual before starting any work. All safety notes and the associated specifications in particular must be observed and complied with. Illustrations may differ from the actual design.

1.2 Applicable documents

- General terms of business
- Catalog data sheet of the purchased product

The other applicable documents can be downloaded from schunk.com.

1.3 Warranty

The warranty is valid for 24 months from the date of delivery from the production facility if the product is used as intended and in compliance with the prescribed operating data.

Wear parts and parts that come in contact with the tool or machine are not covered by the warranty.

1.4 Illustration of warnings

WARNING

Dangers for persons!

Non-observance can lead to irreversible injury and even death.

CAUTION

Dangers for persons!

Non-observance can cause minor injuries.

CAUTION

Material damage!

Information about avoiding material damage.

1.5 Scope of delivery

- Product
- Assembly and Operating Manual

1.6 Accessories

The following accessories for the product are available separately:

- Actuation key for tightening and loosening the clamping nut
- ER collet chucks for clamping different tools

2 Basic safety notes

2.1 Notes on safe operation

- Never combine multiple product extensions.
- Long, projecting or heavy tools may only be clamped if the speed of rotation is reduced according to the ambient and operating conditions on site. The level of reduction is the responsibility of the operator and must ensure safe operation of the product.
- Maintain and service the product on a regular basis.
- All repair work must be performed by SCHUNK.
- The operational safety and function of the product must not be impaired by external influences.
- Follow the country-specific applicable safety, accident prevention, and environmental protection regulations for the application field of the product.

2.2 Appropriate use

- The product is used to clamp rotationally symmetric tools.
- The product is intended for industrial use.
- The product is intended for installation in a machine/automated system. The applicable guidelines for the machine/automated system must be observed and complied with.
- The product may only be used and operated within the scope of the technical data and the specifications in this manual, ▶ Chap. 3.

2.3 Inappropriate use

The product is not being used as intended if:

- The product is used for clamping workpieces.
- The information in the technical data is not observed when using and operating the product ▶ Chap. 3.
- The maintenance and storage instructions are not observed ▶ Chap. 5.
- The product is used with heat shrinking technology.

2.4 Ambient conditions and operating conditions

The ambient and operating conditions must correspond or be adapted to the version of the product and the specifications in the technical data.

2.5 Structural changes, spare parts

Structural changes such as modification and reworking, e.g. additional threads, bore holes or attachments, may only be carried out with the written approval of SCHUNK. Only use original spare parts and spares authorized by SCHUNK.

2.6 Personnel qualifications

- All operations may only be carried out by personnel that are qualified and instructed for the respective operation.
- Personnel qualifications must comply with the on-site country-specific requirements and laws.

2.7 Personal protective equipment

- When working on and with the product, follow the respective country-specific legal requirements for occupational health and safety, and wear the necessary personal protective equipment.
- Follow country-specific accident prevention regulations and the general safety notes.

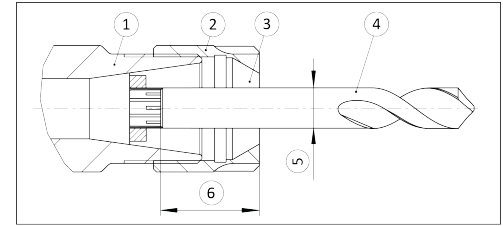
2.8 Transport

To avoid product damage, the transport and handling of the product must be adapted according to the version, weight and packaging of the product. If necessary, use additional aids.

3 Technical data

Operating temperature range [°C]	+20 ... +50
Max. coolant pressure [bar]	100 *
Clamp bridge up to h10 [mm]	0.5 – 1
Collet chuck type	DIN 6499 / ISO 15488 (ER/ESX)

* When combined with a sealed collet, the collet chuck is sealed.



1 Chuck body	2 Clamping nut
3 collet	4 Tool
5 Shank diameter "d"	6 Minimum clamping depth

Minimum clamping depth [mm]

Shank diameter "d" [mm]	Minimum clamping depth [mm]
$d \leq 10$	20
$10 < d < 25$	$2 \times d$
$d \geq 25$	$1.8 \times d$

max. tightening torque [Nm]

Type	Shank diameter "d" [mm]	max. tightening torque [Nm]
ER11 P Mini	1 – 1.5	6
	2 – 2.5	8
	3 – 7	10
ER16 P Mini	1 – 1.5	8
	2 – 2.5	10
	3 – 3.5	15
	4 – 5.5	20
ER16 P	6 – 10	30
	1 – 1.5	10
	2 – 2.5	15
	3 – 3.5	20
ER20 P	4 – 5.5	25
	6 – 8	40
	9 – 10	50
	1 – 1.5	15
ER25 P	2 – 2.5	20
	3 – 3.5	25
	4 – 5.5	30
	6 – 8	50
	9 – 13	70
ER32 P	1 – 3	25
	3.5 – 5.5	35
	6 – 6.5	55
	7 – 9	60
	10 – 14	90
ER40 P	15 – 16	100
	2 – 3	35
	3.5 – 4.5	50
	5 – 6.5	60
	7 – 9	90
	10 – 14	100
	15 – 16	110
	17 – 20	140
	4 – 4.5	60
	5 – 6.5	70
7 – 9	100	
10 – 11	110	
12 – 14	120	
15 – 16	130	
17 – 20	170	
21 – 26	190	

The load limits of the spindle holder must be observed.

Thread for clamping nut

Type	Thread for clamping nut
ER11 P Mini	M8x1
ER16 P Mini	M11x1
ER 16 P	M11x1
ER 25 P	M18x1.5
ER 32 P	M24x1.5
ER 40 P	M28x1.5

Holding force [Nm]

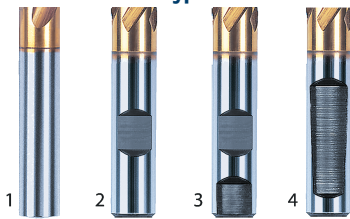
Shank diameter "d" [mm]	ER16 P	ER20 P	ER25 P	ER32 P	ER40 P
6	40				
8	60	75			
10	90	100	110		
12		150	160	175	
14			195	210	
16			220	240	280
18				290	360
20				330	410
26					530

max. speed of rotation [RPM]

Type	Shank diameter "d" [mm]	Max. speed of rotation [RPM] **	
		Overhang length L1 up to 125 mm	Overhang length L1 over 125 mm
ER 16 P	1 – 10	40,000	20,000
ER 20 P	1 – 13	40,000	20,000
ER 25 P	1 – 16	35,000	15,000
ER 32 P	2 – 20	35,000	15,000
ER 40 P	4 – 26	20,000	10,000

** depending on the interface to the spindle, the tool type and the tool length.

3.1 Permitted shank types



- Shank type according to DIN 1835-1 form A and DIN 6335 form HA
 - Shank type according to DIN 1835-1 form B and DIN 6335 form HB (Ø up to 20 mm)
 - Shank type according to DIN 1835-1 form B and DIN 6335 form HB (Ø from 25 mm)
 - Shank type according to DIN 1835-1 form E and DIN 6335 form HE
- Tool shanks with reliefs (forms 2, 3 and 4) can impair the balancing grade and concentricity of the overall system.

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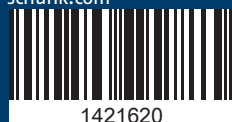
Technical changes:

We reserve the right to make technical improvements.

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4 Operation

4.1 Basic information

WARNING

Risk of injury due to ejected parts!

The max. speed of rotation of the machine/automated system must be reduced when using long, projecting or heavy tools and with extensions.

CAUTION

Risk of injury from tools with sharp edges!

Sharp edges on tools can cause cuts.

- Wear protective gloves when assembling the tool.

CAUTION

Material damage due to burrs and dirt!

- The tool must be free of burrs and dirt at the shank.

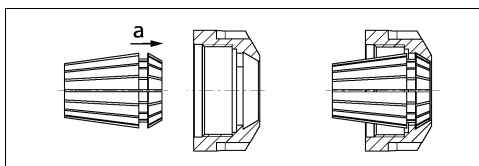
CAUTION

Material damage due to incorrect minimum clamping depth!

Too small a clamping depth of the tool leads to a loss of accuracy and torque on the product.

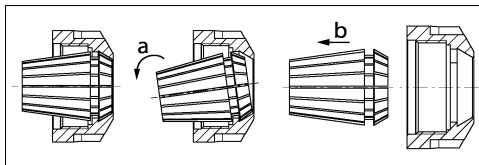
- Observe the minimum clamping depth of the tool.

4.2 Mounting the collet chuck



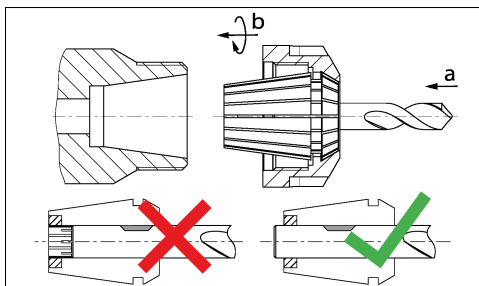
- Check collet chuck and clamping nut for damage.
- Clean collet chuck and clamping nut. **NOTE:** Ensure maximum cleanliness for high run-out accuracy.
- Insert collet chuck axially into face of clamping nut (a).

4.3 Changing the collet chuck



- Loosen the clamping nut with the actuation key.
- Remove the tool from the collet chuck.
- Tilt to remove the collet chuck from the face of the clamping nut (a).
- Remove collet chuck (b).
- Install new collet chuck ▶ Chap. 4.2.

4.4 Clamping the tool



- Insert the tool to the minimum clamping depth ▶ Chap. 3 in the clamping nut with mounted collet chuck (a).
- Loosely screw the clamping nut with fitted collet chuck and tool onto the chuck body by hand (b). **IMPORTANT! Do not tighten the clamping nut!**
- Check the clamping depth of the tool and, if necessary, slide it to the desired length dimension or stop. **IMPORTANT! Observe the minimum clamping depth ▶ Chap. 3 and position any recesses correctly!**
- Tighten the clamping nut with the actuation key. Observe the maximum tightening torque ▶ Chap. 3.

NOTE: The tool must not rest against the chuck body, otherwise run-out may be impaired.

TIP: Reduce tightening torque by 30% during "finishing" to optimize the process – better damping properties!

4.5 Assembly of the product

- Position the product with tool correctly in the machine interface and tighten.

NOTE: Observe the machine manufacturer's specifications!

- Check that the product is in the correct position and securely clamped in the machine.

Important! Safe clamping of the product in the machine must be ensured!

4.6 Tool changes

CAUTION

Material damage due to contamination!

Chips or dirt can damage the collet chuck during tool changes and negatively affect the run-out.

- Keep the collet chuck clean when changing tools.

- Loosen the clamping nut with the actuation key.
- Remove the tool from the collet chuck.
- Clamp new tool ▶ Chap. 4.4.

5 Maintenance and storage

5.1 Cleaning the clamping bore

Clean the clamping bore during every tool change with a cleaning agent containing solvents and a cleaning brush.

5.2 Cleaning the mount and taper

Clean the taper of the collet chuck and the mount of the chuck body every time the tool is changed.

NOTE: Ensure maximum cleanliness for high run-out accuracy.

5.3 Lubricating the clamping nut

CAUTION

Allergic reactions if lubricating grease comes into contact with the skin.

- Wear protective gloves to lubricate the clamping screw.

It is necessary to adapt the cleaning and lubrication of the clamping nut to the ambient conditions. Especially in the case of high clamping frequencies, high operating temperatures, and dirt or abrasive dust. For optimum lubrication of the clamping nut, we recommend copper paste MOLYKOTE CU 7439 (100 g tube, ID 9247204).

- Remove clamping nut ▶ Chap. 4.3.
- Clean the clamping nut and thread and check for damage to the thread flanks. Replace if necessary.
- Lubricate the thread of the clamping nut.

5.4 Storage

- Lightly oil the entire surface of the product.
- Only store the product in an unclamped state and protected against corrosion.
- Store the product in a suitable transport container.
- Protect the product from excessive temperature fluctuations.

All repair work must be performed by SCHUNK!

If you have any questions regarding maintenance and servicing, our technical after-sales service is available during our business hours:

Service telephone: +49-7133-103-2956
service.toolholder@de.schunk.com

6 Disposal

- Follow local regulations on dispatching product components for recycling or proper disposal.
- Alternatively, you can return the product to SCHUNK for correct disposal.