



Softsynchro[®] 1 / PGR

Softsynchro[®] 3 / PGR

EMUGE

Collet holder Softsynchro[®] / PGR

Operating instruction

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Warnings, symbols

In this operating instruction the following symbols are used:



Attention

Marks special instructions, rules and prohibitions, which are important in order to avoid any damage.

► Please observe these instructions!



Note

Marks application instructions and other useful information.

Sectional view:



Collet holder Softsynchro® / PGR

powRgrip® is a registered trademark of REGO FIX AG

1 Application range, safety instructions and technical data

1.1 Application range, determined use

The collet holders type Softsynchro®/PGR are used on CNC machining centres with synchronous control. They are intended for clamping of taps/cold-forming taps for thread production.

The integrated minimal length compensation on tension and compression compensates arising minimal pitch differences between synchronous spindle and tap/cold-forming tap which would lead to high thread flank friction forces. An eventual increase of the axial force during the thread producing cycle is reduced to a minimum. The resulting advantages are:

- No mis-cutting of the threads
- Optimised tap/cold-forming tap life

The clamping system PGR is a mechanical tool clamping system with extremely high clamping force and excellent concentricity. The system consists of the tool holder, the high-precision collet and a compact clamping unit. The taper collet is pressed up to the plane contact surface into the tool holder with a force up to 90 kN. The arising press fit creates a radial force working on the tool shank via the slotted collet. The tap/cold-forming tap is clamped safe and central.

Normally the collet holders are equipped with one of the following shanks:

- Cylinder shank according to DIN 1835 B+E
- Hollow taper shank according to DIN 69893-HSK-A

The cutting range of each type is indicated in table 1, page 7

The tap/cold-forming tap is locked via collets type PGR-GB (for taps/cold-forming tap with shank tolerance h9 and integrated square). The collets must be chosen depending on their type and the used tap/cold-forming tap, for more information please refer to chapter 2.4.1, page 11.

The collet holders type Softsynchro®/PGR are suitable for coolant pressures up to 50 bar.

The non-determined use exempts the manufacturer from any liability.

1.2 Specifications

Further features of the collet holders type Softsynchro®/PGR are:

- For collet holders with cylindrical shank:
The standardized cylinder shank according to DIN 1835 B+E allows a simple adaptation with the required adaptation shank. For adaptation shanks please refer to the EMUGE main catalogue.
- Quick clamping: tool change within 10 seconds
- Clamping true to the μ : high concentricity guarantees reliable and repeatable tool life values and high surface quality
- Length adjustment of the tap/cold-forming tap through integrated adjusting screw in the collet
- Suitable for VHM and HSS taps/cold-forming taps

1.3 Safety instructions and hints

For all works, i.e. putting into operation, production and maintenance, please observe the details given in the operating instructions.

All relevant safety regulations as well as local instructions are to be observed when working with the collet holders.

Below please find some basic rules:



Attention



- ▶ Please wear gloves during tool change to avoid injury.
- ▶ Basically change the tool yourself to avoid the sudden start of the spindle caused by mis-operating.



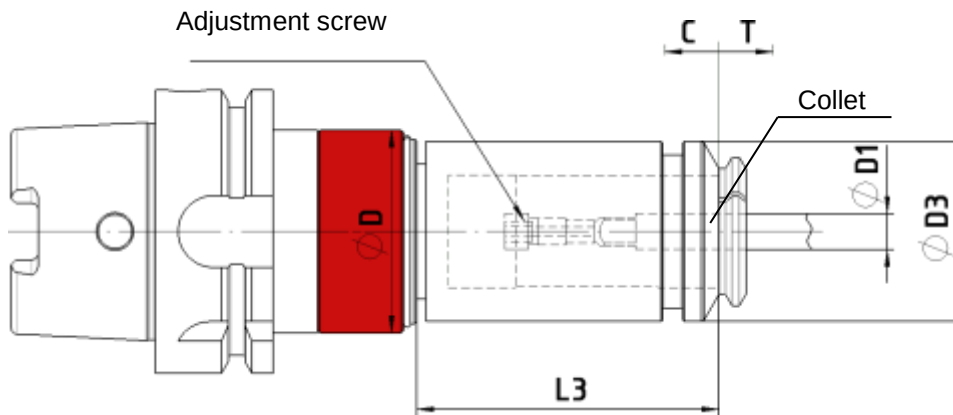
- ▶ Hold the tool when loosening the tool clamping to avoid it falling down and damaging the tool and the work piece.
- ▶ There are maximum values for cutting speeds and feeds for every kind of machining. Please observe such data.
- ▶ Please observe the maximum tool dimensions.
- ▶ Furthermore, the instructions of the tool manufacturers are valid!

1.4 Proprietary rights

The entire contents of these operating instructions are subject to German proprietary rights legislation.

Any form of multiplication, processing, broadcasting, passing on to third parties - also in the form of extracts - and any kind of use outside the boundaries of proprietary rights requires the written consent of EMUGE GmbH&Co.KG.

1.5 Dimensions and technical data



Picture 1: Collet holder Softsynchro®/PGR

Table 1: Technical Data of the collet holder type Softsynchro®/PGR

Type	Cutting range	Clamping range [mm]	Collet size ¹	ØD [mm]	ØD ₃ [mm]	L ₃ [mm]	C ² [mm]	T ³ [mm]
Softsynchro® 1/PGR	M4 - M12 (Nr. 8 – $\frac{7}{16}$)	4,5–10	PGR15GB	34	24	57	0,5	0,5
Softsynchro® 3/PGR	M8 - M20 ($\frac{5}{16}$ – $\frac{3}{4}$)	8–16	PGR25GB	45	40	67	0,5	0,5



Note

The maximum coolant pressure is 50 bar.

Further outer dimensions of the individual types depend on the required shank.

The dimensions may be taken from the EMUGE main catalogue or may be given by your EMUGE-representative.

¹ Length compensation on compression

² Length compensation on tension

2 Putting the collet holders into operation

2.1 Unpacking

- Take the collet holder from the packing
- Clean the collet holder with a duster to remove any conservation oil



Note

- ▶ Do not use any aggressive solvents.
- ▶ Do not use fibrous materials i.e. steel wool.
- ▶ Clean the collet holder as described in the cleaning directions, see chapter 2.4.3, page 12.



The collet holder is now ready for operation.

Exception:

Type with **hollow taper shank (HSK)**. Please refer to chapter 2.2.1, page 9, for how to put this collet holder into operation.

2.2 First putting into operation



Note

For collet holders with HSK-shank (hollow taper shank) the coolant-lubricant tube must be mounted prior to putting into operation, see chapter 2.2.1, page 9

The collet holders are inserted into the machine manually or - if provided - by the tool exchanger.

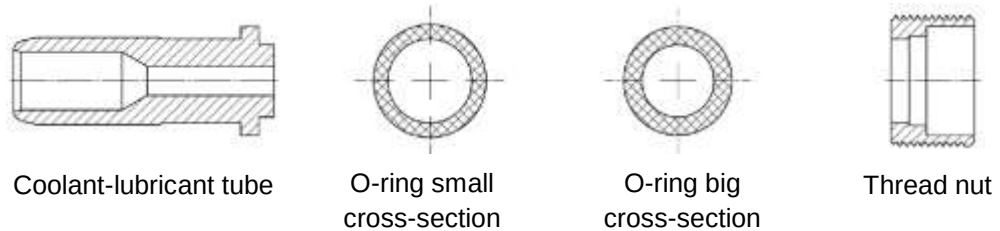


Attention

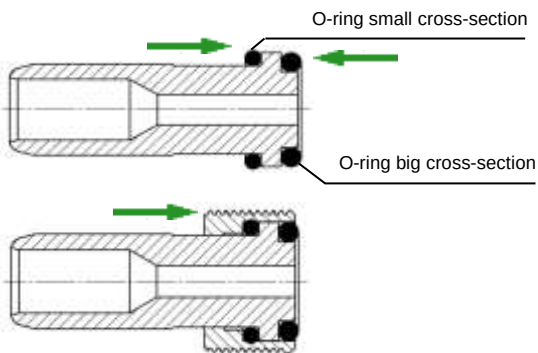
- ▶ The exchange of the collet holder must not be executed while the machine spindle rotates!
- ▶ Only use tool shanks suitable for the specific machine.
- ▶ Make sure the tool is correctly clamped.
Otherwise: Risk of accident by spinning of the tool!
- ▶ Please see also the indications in the operating instruction of your machine tool!

2.2.1 Assembly of the coolant-lubricant tube for quick-change tap holders with shank type HSK (hollow taper shank DIN 69893A)

a) Components



b) Prepare coolant-lubricant tube



1. Slide on the two O-rings

2. Slide on thread nut

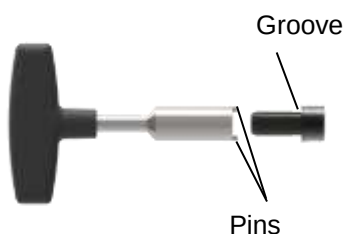
c) Mount coolant-lubricant tube in the shank



Note

Required tool:

Choose appropriate assembly wrench for the shank size
(For the assembly wrench please refer to the EMUGE main catalogue, category accessories)



1. Plug assembly wrench on the coolant-lubricant tube

Watch the position of the pins against the grooves!



2. Screw coolant-lubricant tube in the shank

2.3 Re-putting into operation

If the collet holder is back into operation as described in chapter 4, page 15, please go through the following steps:

- Clean the collet holder with a duster to remove any conservation oil

**Note**

- ▶ Do not use any aggressive solvents.
- ▶ Do not use fibrous materials i.e. steel wool.

- If necessary, prepare the collet holder as described in chapter 2.2, page 8

2.4 Collets

2.4.1 Application

The adaptation of the tap/cold-forming tap is executed via collets type PGR and/or PGR-GB. These powRgrip® collets have a taper shank with plane contact surface and a central bore for the tool shank. With collets type PGR the tap/cold-forming tap is centred and clamped via the clamping diameter, the shank tolerance must be h6. With collets type PGR-GB the torque arising during the thread producing operation is additionally transferred via the square, integrated in the collet; tap/cold-forming tap with shank tolerance h9 may be used.

The powRgrip® collets have an integrated adjusting screw. With a pre-adjustment tool the length of the tool system can be pre-adjusted.



Note

Owing to the better torque transmission and the possibility to use tools with shank tolerance h9, we would recommend the use of collets type PGR-GB.

The collet sizes for the according collet holders may be taken from table 1, page 7. The clamping diameter is indicated by the used tap/cold-forming tap.

2.4.2 Assembly instruction for the collets and tap/cold-forming tap



Attention

- ▶ Do not press in the collet without a tap/cold-forming tap!
Pressing in collets without a tool will destroy the collet!
- ▶ Before clamping, clean and degrease collet and tap/cold-forming tap as described in the cleaning directions!
Dirt and grease reduce clamping force, accuracy and tool life.

2.4.3 Cleaning directions



Clean the powRgrip® interface of the collet holder, i.e. with a taper cleaner (see catalogue, chapter accessories) or with a clean towel.



Degrease powRgrip® collet, dip in a clean, fat-dissolving and oil-free solvent, i.e. alcohol, cleaning solvent.

Dry collet. Only use compressed air if it is clean and oil-free (no maintenance unit done before).



Set collet into tool holder.



Degrease tap/cold-forming tap shank, by dipping into clean, fat-dissolving and oil-free solvent, i.e. alcohol, cleaning solvent.

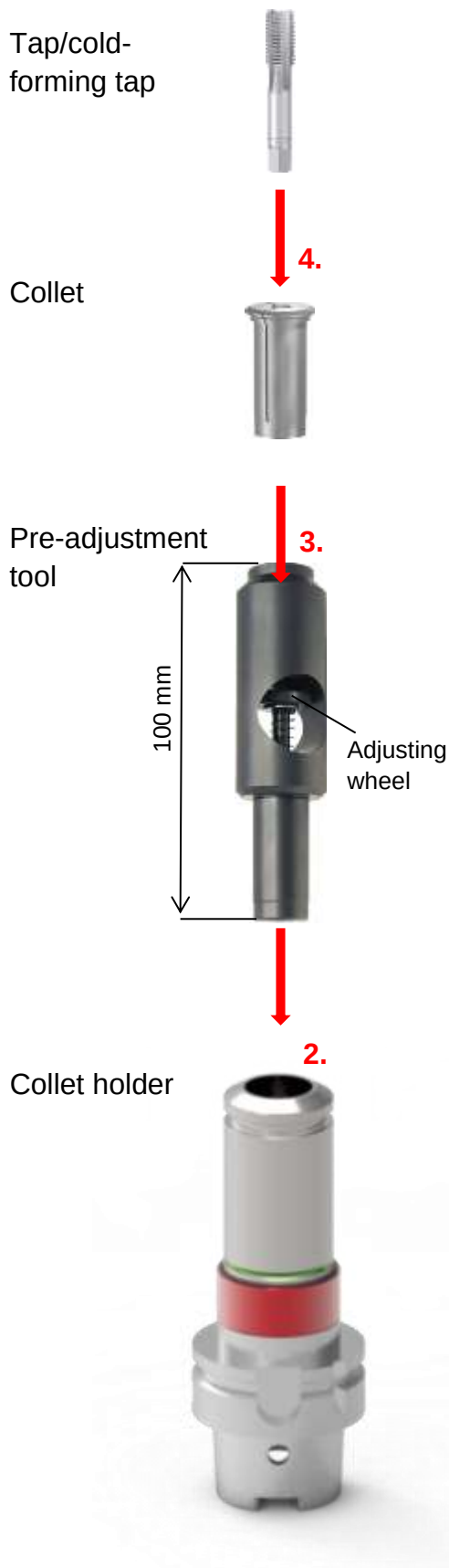


Insert tap/cold-forming tap into the powRgrip® collet.

When using a PGR-GB collet with integrated square, the tap/cold-forming tap must be turned into position in order to be inserted into the square of the collet.

Press in tap/cold-forming tap, using clamping unit as described in the operating instruction of the powRgrip® unit or pre-adjust the length as described in chapter 2.4.4, page 13.

2.4.4 Length adjustment



1. Pick up collet holder

2. Set pre-adjustment tool in the collet holder

3. Set collet into pre-adjustment tool

4. Set tap/cold-forming tap into collet

5. Adjust tap/cold-forming tap length by turning the adjusting wheel



Note

Observe min./max. clamping length for tap/cold-forming tap shanks, as described in the operating instruction of the clamping unit.

Reduce overall length by 100 mm for the pre-adjustment tool

6. Remove pre-adjustment tool

7. After length adjustment press in tap/cold-forming tap using the clamping unit as described in the operating instruction of the powRgrip® unit.

2.5 Remove tap/cold-forming tap and collet

Loosen tap/cold-forming tap using the clamping unit, as described in the operating instruction of the powRgrip® unit.

As soon as the unclamping operation is completed, the tap/cold-forming tap and the collet can be removed from the collet holder.

3 Maintenance

3.1 Maintenance schedule

What?	When?	Who?
External cleaning	Periodically, depending on the degree of dirt	Operator

3.2 External cleaning

Clean the collet holder at periodic intervals with a duster, depending on how dirty the holder is.



Attention

Before clamping please make sure the collet holder is oil-free in the area of the powRgrip® interface, same for collet and tool shank. Eventually clean these components as described in the cleaning directions, chapter 2.4.3 page 12.

4 Storage when not in use

If the collet holder is taken out of service, please go through the following steps:

- Clean the collet holder with a duster
- Spray the collet holder with preservation oil to avoid rusting



Attention

- ▶ Do not use any aggressive solvents.
- ▶ Do not use fibrous materials i.e. steel wool.
- ▶ Before storage, all evidence of coolant and machining residues must be removed!

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Operating instruction

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Please keep the operating instruction for future use!

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