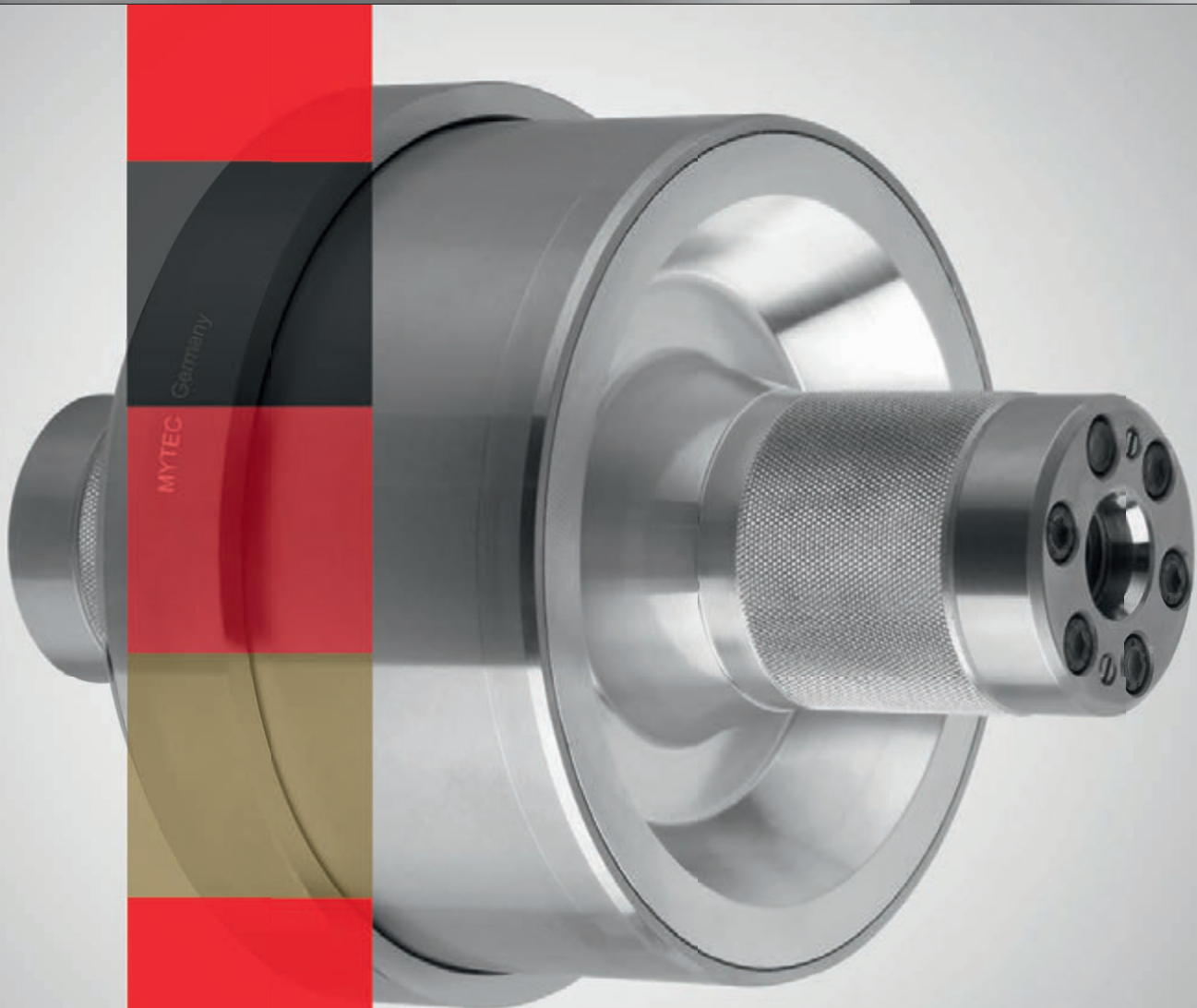
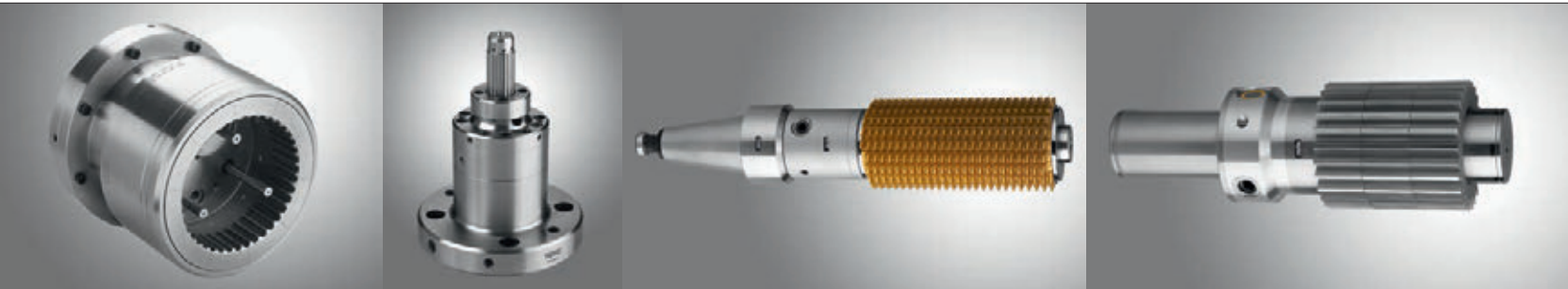


HYDRAULIC **-EXPANDING-** CLAMPING TOOLS





DO YOU HAVE A  
REQUIREMENT  
TO CLAMP THESE  
KIND OF  
WORKPIECES,  
OR SIMILAR  
WORKPIECES?

ASK US!

Mytec  
-Hydraclamp-  
OFFERS YOU  
THE OPTIMAL  
CHUCK



# Table of contents

Corporate	4 - 5
Introduction	6 - 7

## **Systems** 8 - 9

System descriptions	10 - 11
System specifications	12 - 13

## **Special solutions** 14 - 19

## **Workpiece clamping** 21 - 39

Fields of application:	Turning	21 - 23
	Drilling + Reaming	25
	Cylindrical Grinding	27 - 31
	Assembly	32 - 33
	Balancing	34 - 35
	Checking + Measuring	37 - 39

## **Gear production** 41 - 53

Fields of application:	Gear Hobbing	41 - 43
	Gear Shaping	44 - 45
	Gear Shaving	47
	Gear Grinding	49 - 51
	Gear Honing	52 - 53

## **Tool clamping** 55 - 61

Fields of application:	Clamping „tools“	55
	Hob production	57
	Clamping „reamers“	58
	Clamping „hobs“	59
	Clamping „grinding mandrels“	60
	Clamping „grinding wheel“	60 - 61

Enquiry Forms	62
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**Competent customer  
care and consultation -  
from the offer to project  
completion - is natural for  
Mytec -Hydraclamp-**

Mytec -Hydraclamp- has been dedicated to development and manufacture of high-precision clamping tools for workpiece and tool clamping since the company was founded.

Particularly hydraulic expansion clamping technology.

Mytec -Hydraclamp- has been a known entity for decades in the main sectors of the tool construction and machine building industries.

Our corporate goal is to achieve a high level of customer satisfaction through leading technical solutions and unlimited application orientation.

Constant innovation is an important success factor in this process.

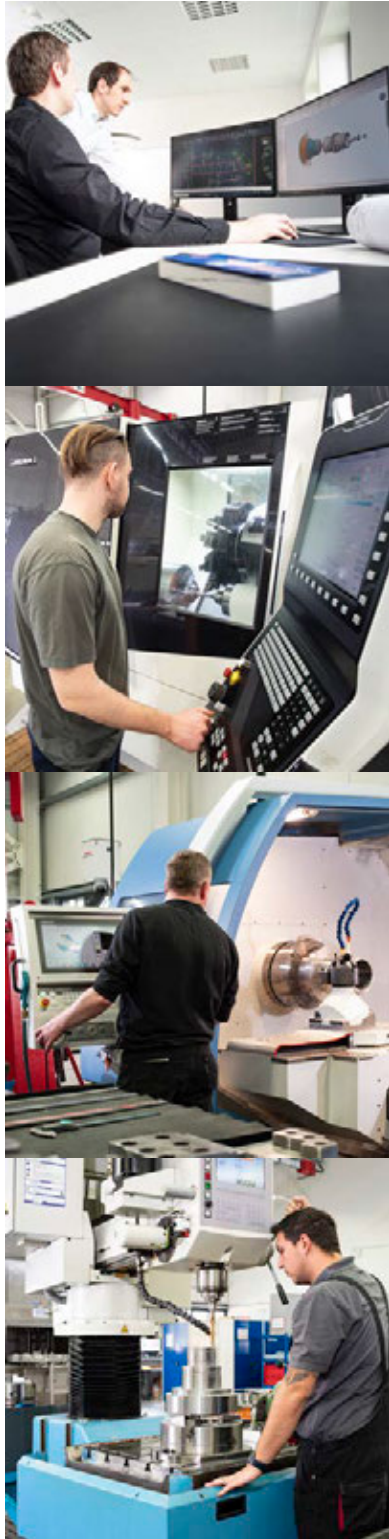
We are the pioneer in seal-less connection technology for hydraulic expansion clamping tools.

Clamping tools from Mytec -Hydraclamp- are in use at well-known companies, particularly in the automotive and aircraft industry, including suppliers, machine tool and machinery building, pump manufacturers, and the electronics industry.

Talk with our engineering department when high-precision workpiece and tool clamping are involved.

**Mytec Präzisionswerkzeuge GmbH**  
**Max-Braun-Strasse 1**  
**D-97828 Marktheidenfeld**

**Phone:** +49 (0) 9391 / 50398-0  
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**Innovative technologies, modern manufacturing techniques and the most highly-qualified employees are the basis of the high-quality precision clamping tools from Mytec -Hydraclamp-**

Mytec -Hydraclamp- is an innovative partner of the precision industry, with the core task of satisfying today's increasing quality requirements through development and manufacturing of highly precise tensioning tools for lathing, hobbing, grinding, measuring and testing, and to contribute to our customer's increased competitive ability.

**Products:** In order to effectively solve the variety of application cases, a broadly diversified product line was developed.

- Hydraulic expansion arbors  
Hydraulic expansion chucks
- Hydraulic expansion arbors  
Hydraulic expansion chucks  
with geared expansion sleeve
- Hydraulic expansion arbors  
Hydraulic expansion chucks  
of light metal
- Complete clamping fixtures  
including peripherals
- Machine spindles with integrated  
hydraulic expansion technology
- Electronic clamping pressure control  
System "Power Control"
- Mechanical sliding sleeve expansion arbors  
and chucks system "Perman"
- Hydraulic lock nut for axial clamping  
system "Hydraclamp"

**Thus complete solutions in all areas where workpiece and tool clamping are required.**



## Hydra expansion elements – the optimal connecting link between workpiece and machine

Using special hydraulic expansion elements, a clamping system has been developed by Mytec -Hydraclamp- that far surpasses all traditional clamping in precision, clamping force, and in transferred torque.

Highly-qualified technology, perfect construction and special materials are the basis for extraordinary performance, for high-precision lathing, hobbing, grinding, testing and measuring.

Hydra expansion arbors and Hydra expansion chucks are manufactured by Mytec in two versions:

1. System **- RS -** replaceable sleeve and precise
2. System **- SL -** seal-less and ultra high-precision

**6** Selection of the respective system is based on the project or use.

Hydra expansion arbors and Hydra expansion chucks for manual and powered clamping are always tailored to the individual project. Consequently we are capable of solving the most difficult requirements without compromise.



**Special hydraulic expansion technology from Mytec -Hydraclamp-, the superior clamping system for**

- more productivity
- more precision
- more profitability in testing, measuring, and in stock removal manufacturing

## Appealing characteristics and performance - the basis of economic manufacturing

### Quality Features

#### 1. Precision

The centricity precision of the Hydraulic expansion elements from Mytec -Hydraclamp- is

≤ 0.005 mm for the - **RS** - system

≤ 0.003 mm for the - **SL** - system  
(When using the intermediate collets, the respective value may increase)

#### 2. Clamping force

With the Hydra expansion system unusually high clamping forces are achieved through high internal pressures.

#### 3. Torque

Due to the absolute friction grip and centered tension, extremely high torques values are achieved. The torque rating can be up to three times greater with special hard coating at the clamping sleeve.

#### 4. Expansion frequency

Mytec -Hydraclamp- guarantees min. 50,000 expansion cycles for its expansion tools (experience has shown that this number is exceeded by a wide margin in normal use) and 12 months of function.

#### 5. Expansion

Hydra expansion tools

System - **RS** -

and System - **SL** -  
normally have a max. expansion of 0.3%, starting from the respective clamping dia.

With the - **RS** - system the expansion can be increased to 1% when using an expansion sleeve made of special material.

#### 6. Hardness

Hydra expansion tools from Mytec - Hydraclamp- have a hardness of 56 HRC and the centers have a hardness of 64 HRC. This ensures a long tool life.

#### 7. Wear

The Hydra expansion tools' closed expansion system, which is absolutely impervious to dirt and chips, combined with high wear resistance, guarantees a long service life.

#### 8. Coating

If the standard hardness of Hydra expansion tools is not sufficient, then a highly wear resistant coating may be applied. The surface hardness of the coating in this case is 80 HRC.

#### 9. Clamping without workpiece

Hydra expansion elements from Mytec - Hydraclamp- can be expanded without a workpiece because the expansion elements are permanently adjusted within the max. expansion of 0.3%.

Over-expansion is not possible due to an integrated stroke limiter. However, at direct admission the max. actuating pressure is prescribed.

#### 10. Setting

If space permits, Hydra expansion elements from Mytec -Hydraclamp- are generally equipped with an adjustment piston. This makes it possible to set expansion for fine clamping, particularly in the case of thin-walled workpieces. Thus deformation is avoided.



## System

- R S -

“Repl. sleeve”

With this **precise** version the expansion sleeve of HSS high speed steel and the base body are connected in such a manner that they can be separated.

In the event of damage wear or dimensional change, the expansion sleeve can be replaced with no problems. The seal is mechanical.

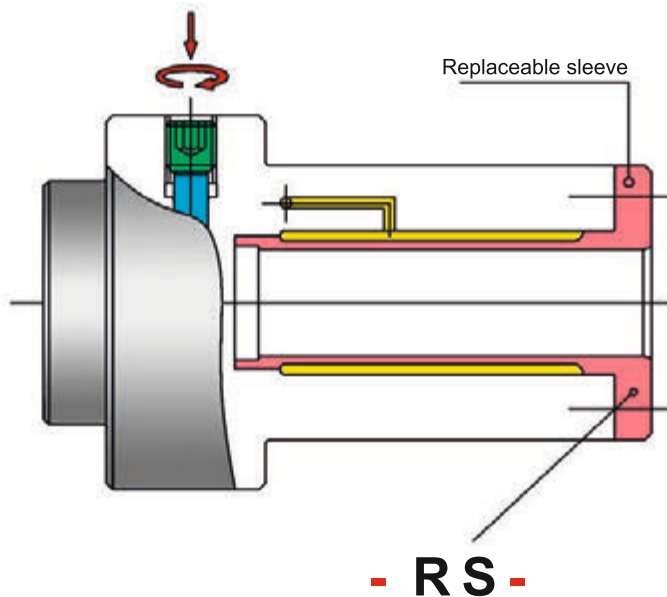
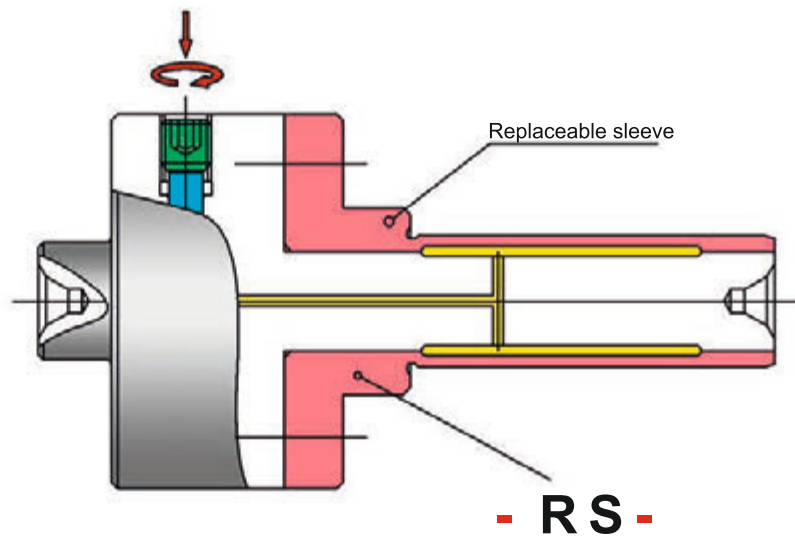
Centricity precision is  $\leq 0.005 \text{ mm}$  (0.0002”).

The expansion is 0.3% starting from the respective clamping diameter with a clamping length of  $2 \times D$ .

### Advantage:

When using an replaceable sleeve made of special material (special plastic or titanium alloy) the expansion is up to 1%.

## SYSTEM - RS - „REPLACEABLE SLEEVE“



## System

- S L -

“Seal-less”

With this **high-precision** design the expansion sleeve of HSS high-speed steel and the base body are inseparably connected in a new Mytec manufacturing process without sealing elements on either end, and are connected to each other in such a manner that they are absolutely sealed. They are leakproof and rupture proof.

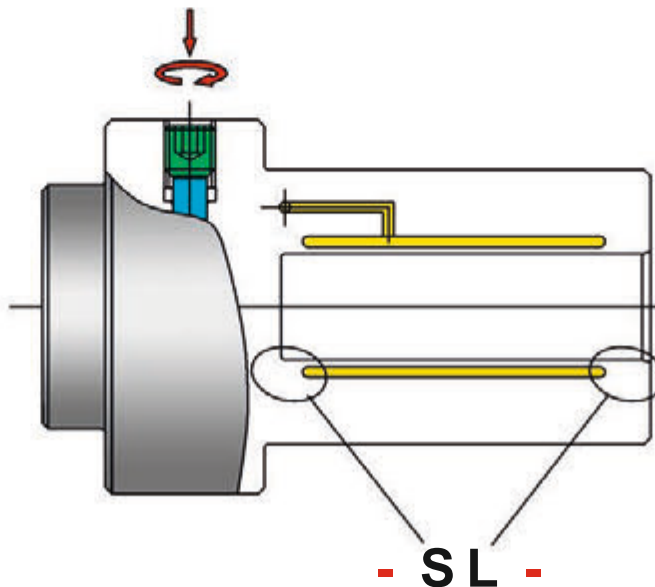
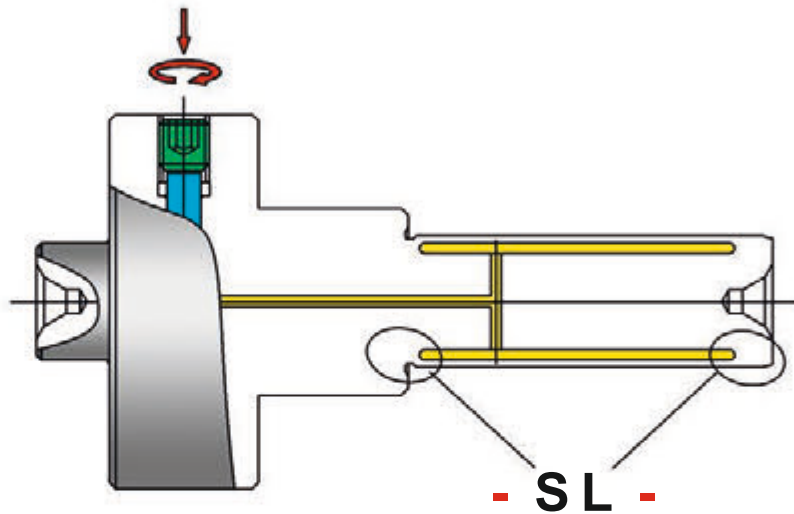
Concentricity precision is  $\leq 0.003 \text{ mm}$  (0.00012”).

The expansion is 0.3% starting from the respective clamping diameter with a clamping length of  $2 \times D$ .

### Advantage:

Higher torsion resistance and precision relative to the system - RS - replaceable sleeve. Design is leakproof and rupture proof.

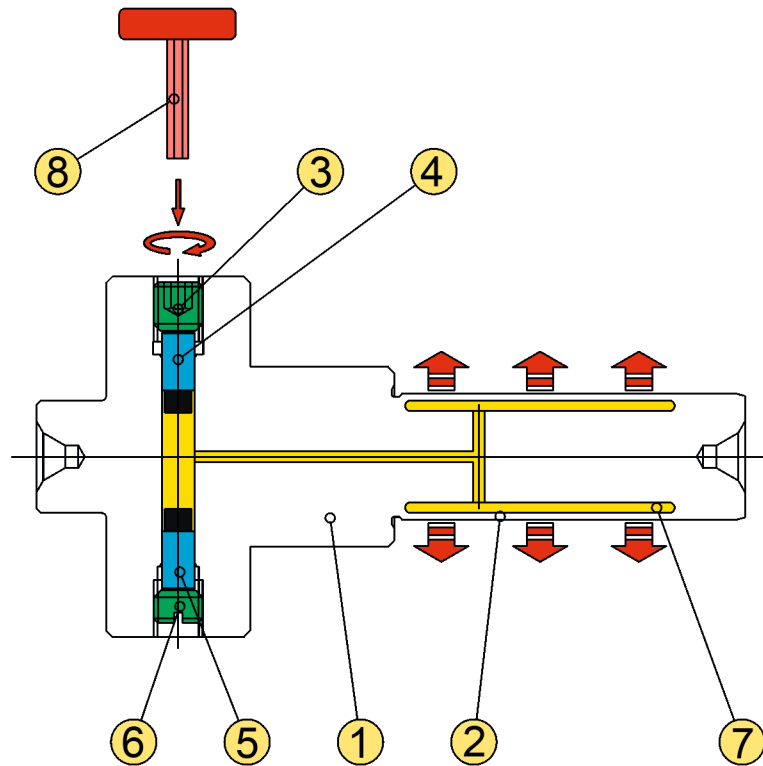
SYSTEM - SL - „SEAL-LESS“



## Structure and function

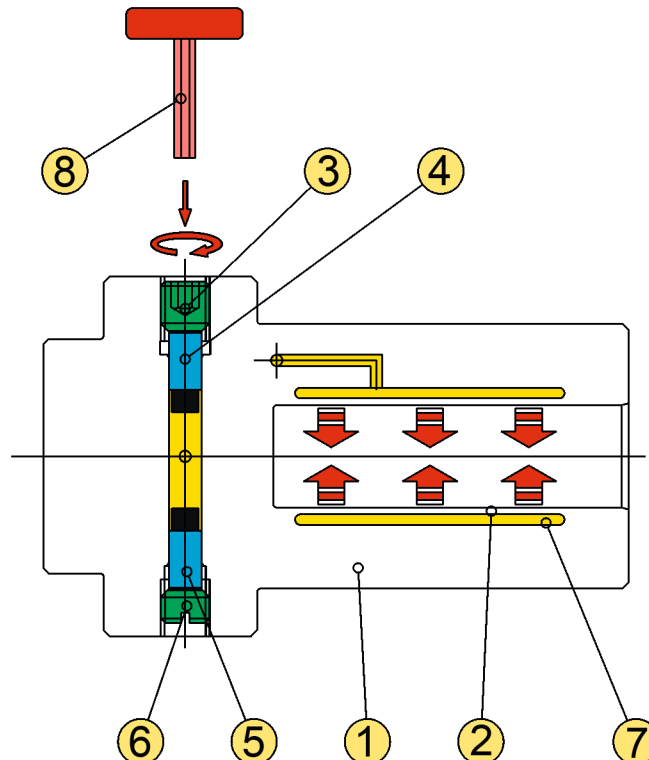
### Structure of the Hydra-expansion arbor

- 1 Base body
- 2 Expansion sleeve
- 3 Actuating screw
- 4 Actuating piston
- 5 Adjusting piston
- 6 Adjusting screw
- 7 Chamber system
- 8 Clamping wrench



### Structure of the Hydra-expansion chuck

- 1 Base body
- 2 Expansion sleeve
- 3 Actuating screw
- 4 Actuating piston
- 5 Adjusting piston
- 6 Adjusting screw
- 7 Chamber system
- 8 Clamping wrench





## Structure and function

of the hand-activated  
Hydra expansion arbors  
and  
Hydra expansion chucks  
from Mytec -Hydraclamp-

### Clamping:

For this type, a clamping wrench (8) is used with which the clamping bolt (3) is screwed in for maximum expansion, or the full clamping force can be adjusted to the stop.

### Safety:

**The stop also serves as stroke limiter, so that over-expansion or damage to the expansion sleeve (2) is not possible.**

When screwing in the expansion bolt (3) the collet piston (4) is activated.

This causes the hydraulic fluid in the chamber system (7) to be pressed against the thin-walled expansion sleeve (2) .

At the same time, the expansion sleeve (2) uniformly expands radially over the entire chucking length both centrically and cylindrically.

### Release:

To release, clamping screw (3) is turned back to the starting position with the clamping wrench (8) .

This triggers the pressure relief and the release of the expansion sleeve.

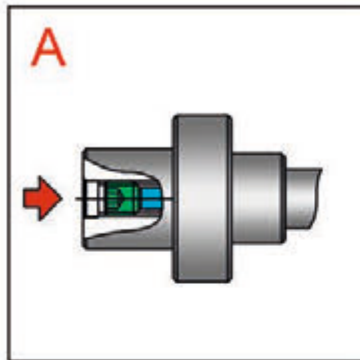
Due to its inherent tension, the expansion sleeve returns precisely to its starting position.

### Power-activated:

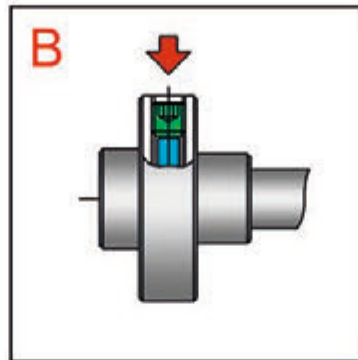
**For power-activated hydraulic expansion tools from Mytec -Hydraclamp-, the clamping process is executed via the tensioning fixture of a machine.**

**(See system specification – activation types, page 12)**

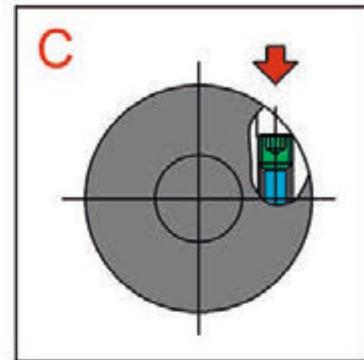
## Actuation location possibilities:



**Axial**

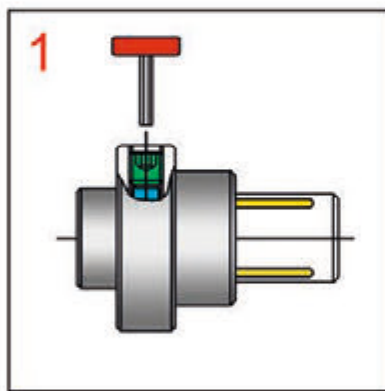


**Radial**

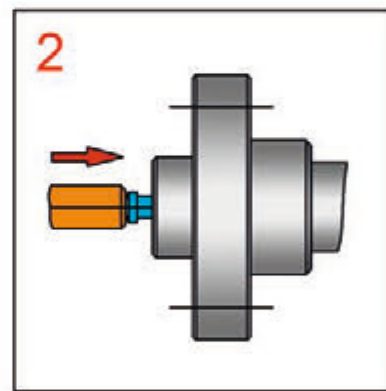


**Tangential**

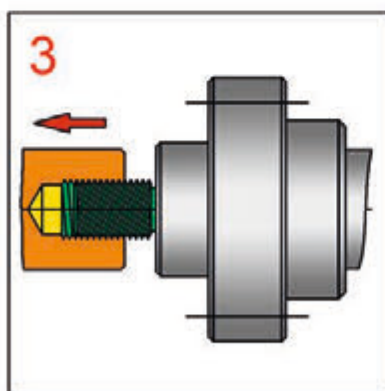
## Activation Types:



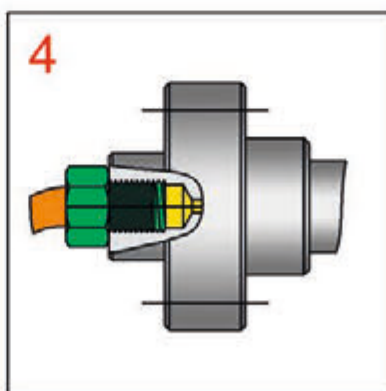
**Manual:**  
with clamping wrench



**Automatic:**  
with clamping cylinder  
and push rod

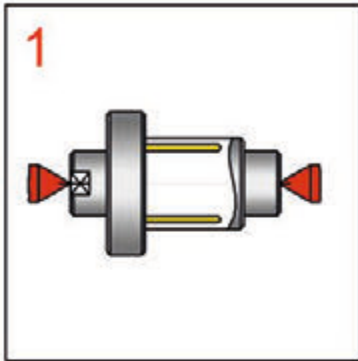


**Automatic:**  
with clamping cylinder  
and drawbar

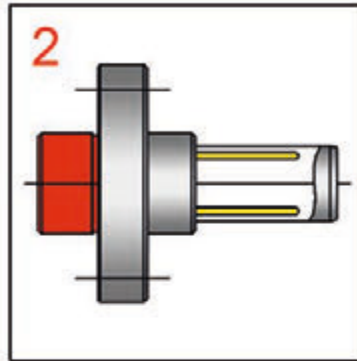


**Automatic:**  
direct pressure from the  
machine's hydraulic system

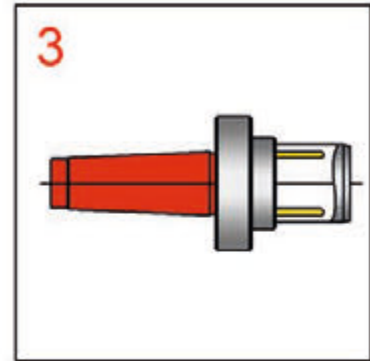
## Machine connections:



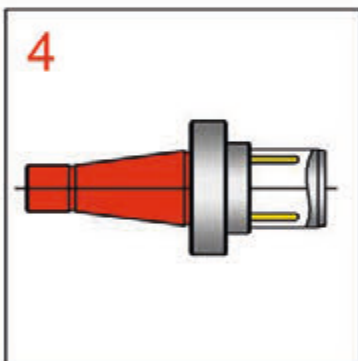
Between centers



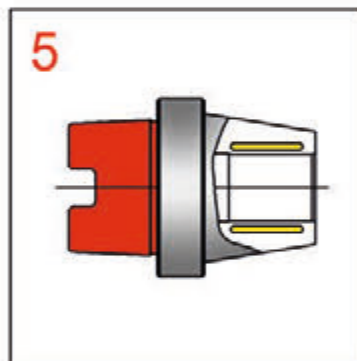
Flange,  
cylindrical centering



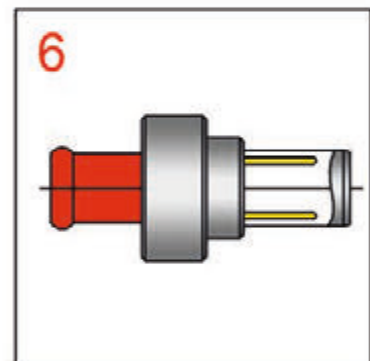
Morse tapers or  
metric DIN tapers



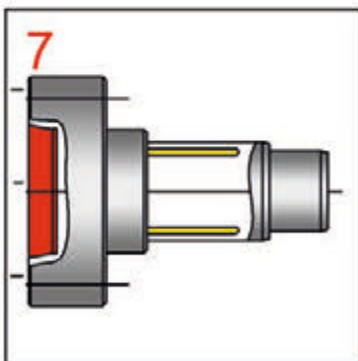
Steep tapers DIN2080  
(SK / MAS BT / CAT)



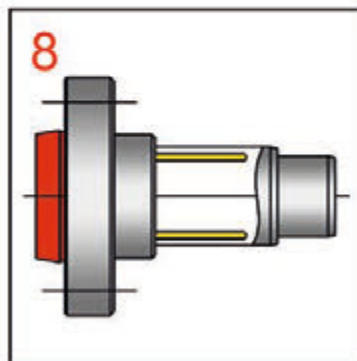
HSK



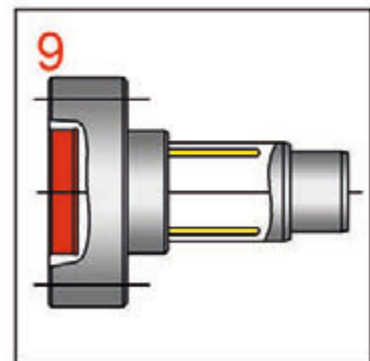
Reishauer connection



Flange,  
short taper mount  
(DIN / ISO) interior



Flange,  
short taper mount  
(DIN / ISO) exterior



Flange,  
cylindrical centering

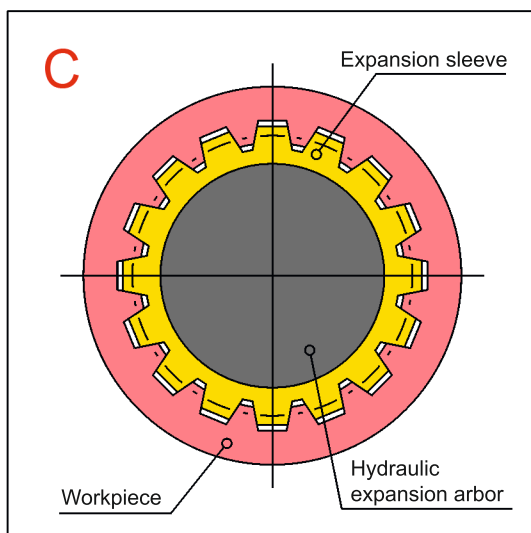
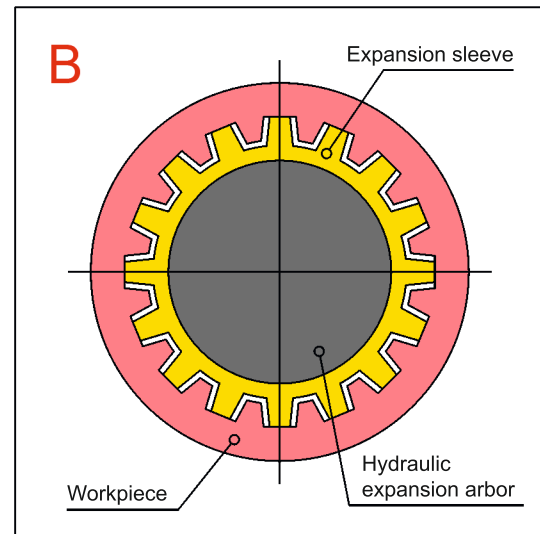
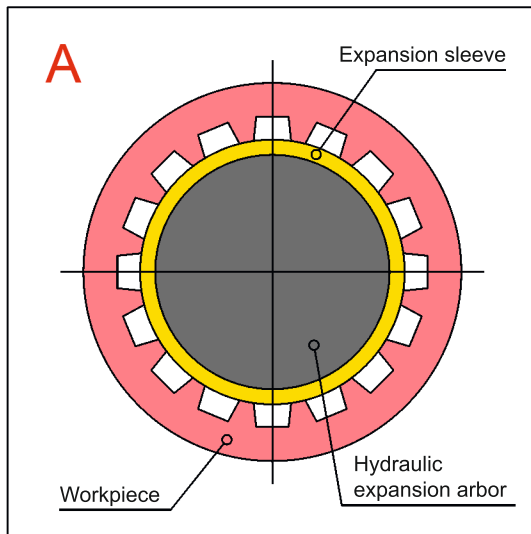
In addition to the illustrated standard tool connections, Hydra-expansion tools from Mytec can also be supplied with any other special connection.

Thus they can be used in any position in the machine or fixture.



## Clamping of gears, sliding gears, or drive parts in the internal tooth system with a Hydra expansion arbor

Here the system can clamp in the root circle, on the tip circle or in the tooth flanks

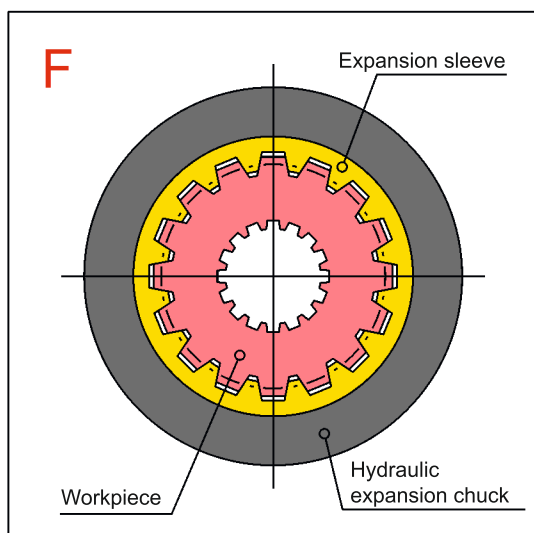
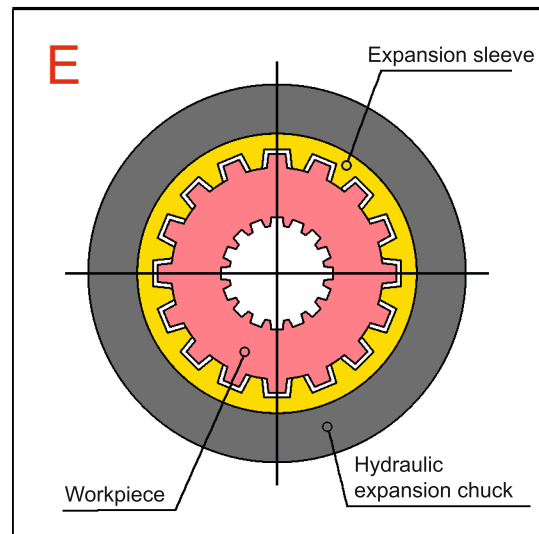
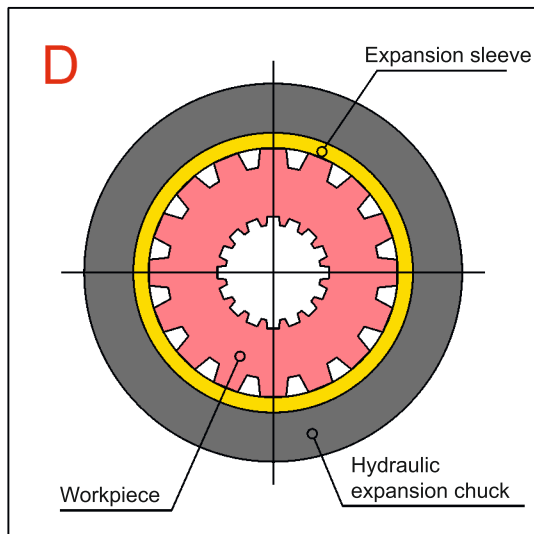


### Illustration:

- A** Clamping on the tip circle
- B** Clamping in the root circle
- C** Clamping in the tooth flanks

## Clamping of gears, sliding gears, or drive parts in the external tooth system with a Hydra expansion chuck

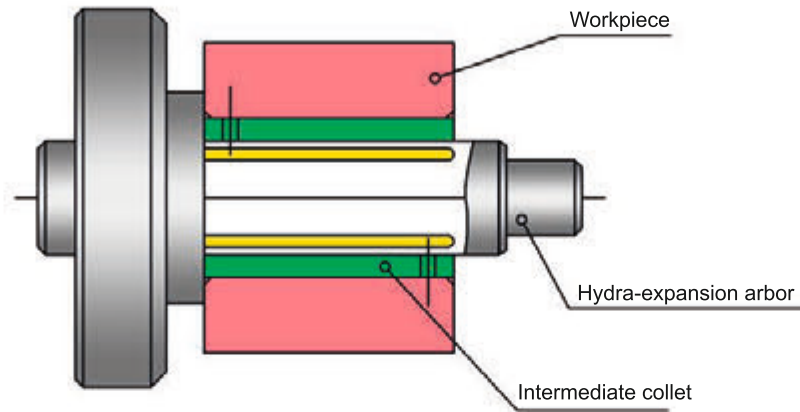
Here you can clamp in the root circle, on the tip circle  
or in the tooth flanks



### Illustration:

- D** Clamping on the tip circle
- E** Clamping in the root circle
- F** Clamping in the tooth flanks

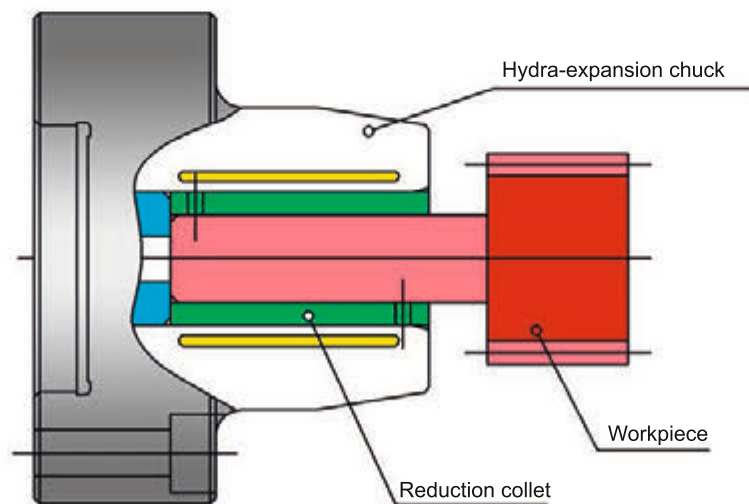
## Clamping workpieces and tools via intermediate collets on a Hydra expansion arbor or in a Hydra expansion chuck



## Example 1

**Hydra expansion arbor with open intermediate collet. By using intermediate collets with different clamping diameters the application area is significantly extended.**

16

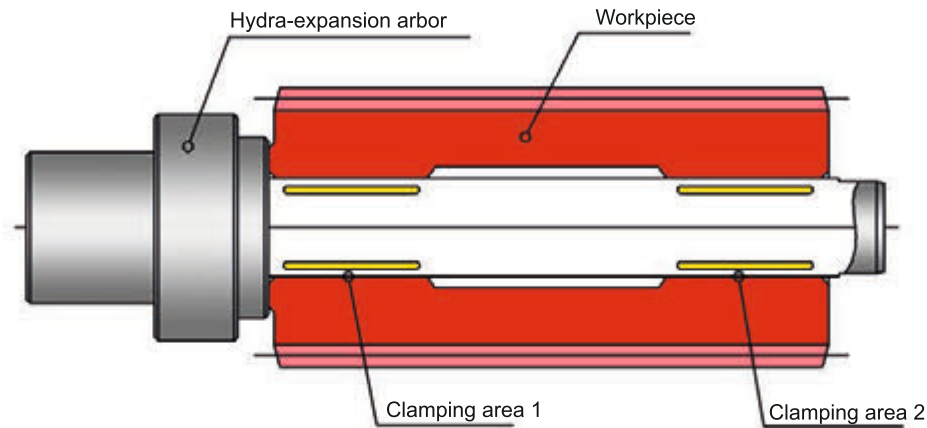


## Example 2

**Hydra expansion chuck with built-in reduction collet. By using reduction collets with different clamping diameters the application area is significantly extended.**



## Clamping workpieces and tools with long connection bore or relieved bore such as with hob cutters

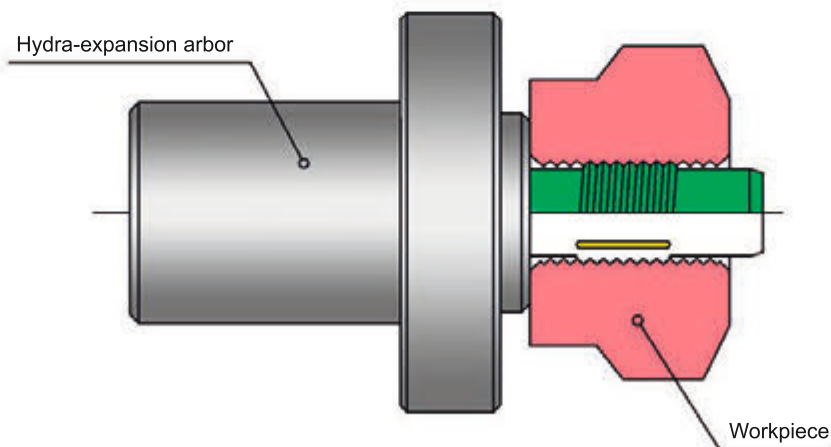


### Example 3

Due to a lack of stability with long connection bores and the hazard of breaking the expansion sleeve, multiple clamping areas are used for a relieved bore. The clamping areas can be activated individually or in combination, as desired.

17

## Clamping workpieces with internal thread

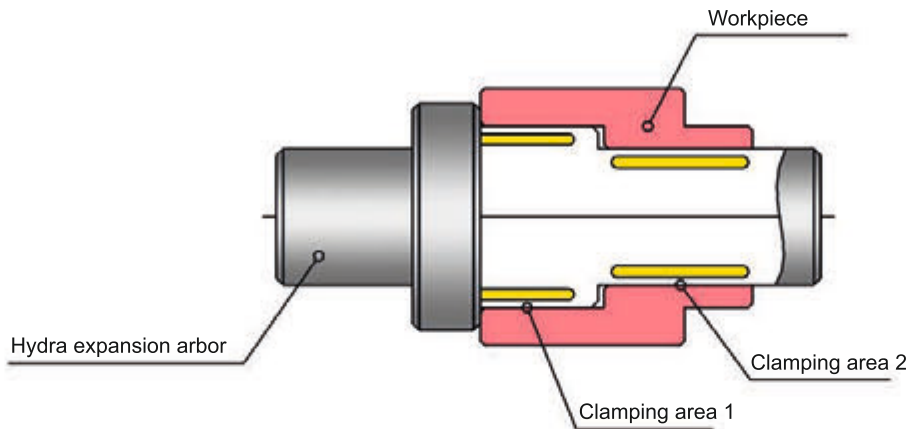


### Example 4

Workpieces with internal thread can be clamped using a profile-ground expansion sleeve without play and with high-precision on a Hydra expansion arbor in the thread flanks.

## Clamping workpieces and tools with stepped bores

Direct admission of the workpiece in stepped bores with two clamping areas

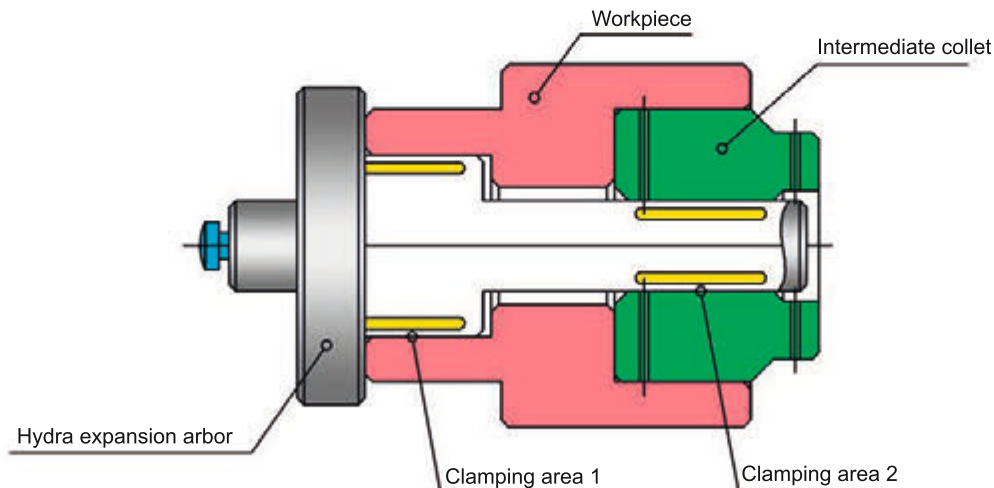


### Example 5

Each clamping area is adapted to the respective bore tolerance. The different clamping areas can be designed in such a manner that they can be pressurized individually or at the same time.

18

## Locating the workpiece in stepped bores with two clamping areas (Clamping area 2 using a intermediate collet)



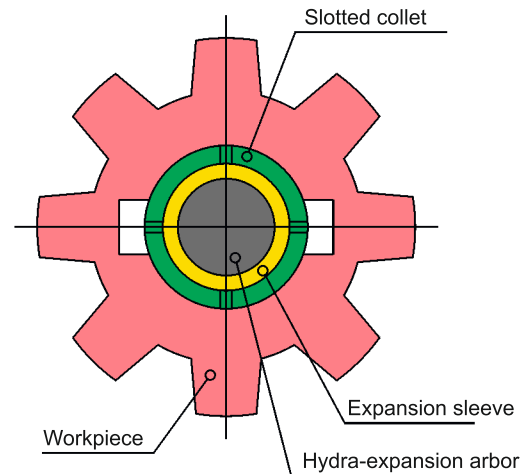
### Example 6

In the left locating bore of the workpiece the system clamps directly with clamping area 1. The front, larger locating bore of the workpiece can only be clamped via a slotted intermediate collet. Even in this case the different clamping areas can be laid out in such a manner that they can be pressurized individually or at the same time.

## Clamping workpieces and tools with interrupted clamping surface or special contour in the locating bore

### Example 7

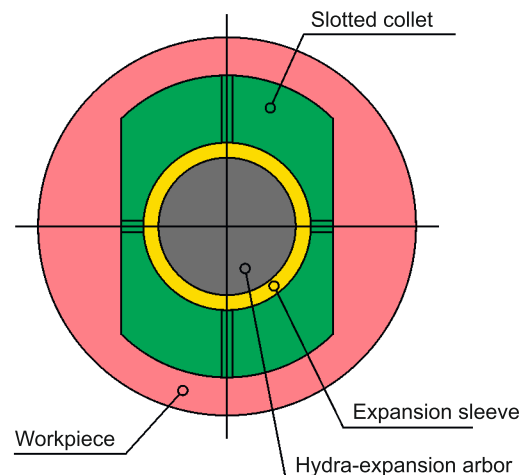
Interior clamping of a gear in the locating bore through a Hydra expansion arbor or via an intermediate collet.



19

### Example 8

Interior clamping of a workpiece with polygon contour by a Hydra expansion arbor or via a profiled intermediate collet.



Normally clamping on a surface that is not rotationally symmetric, or in a bore that is not rotationally symmetric is impossible due to the risk of breakage.

However, this process can be ensured by using a profiled intermediate collet.

In this regard, it makes no difference whether a Hydra expansion arbor is used for interior clamping or a Hydra expansion chuck is used for exterior clamping.

20





Field of application: *Turning*

## Example 9

### Hydra-Clamping-Arbor

**Actuation:** Hand actuated  
Radially

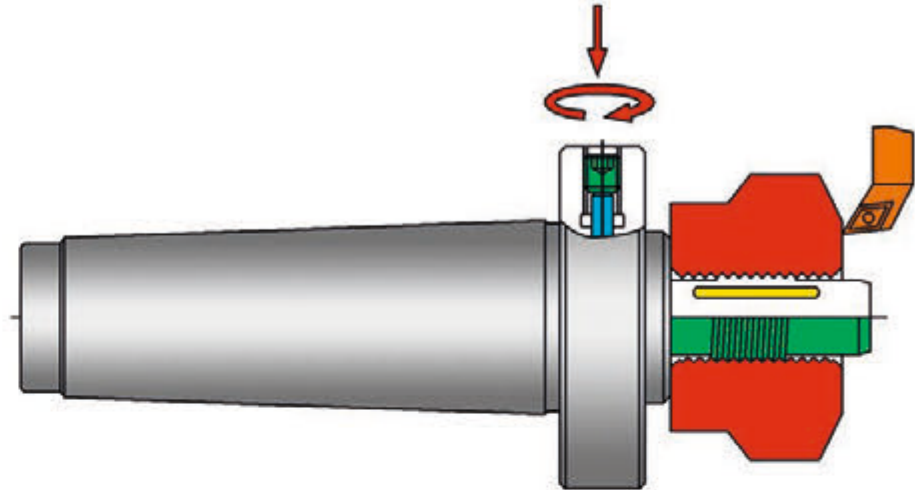
**Mounting:** Morse taper 5

**Workpiece:** Adjusting nut

**Machine:** Lathe

**Application:** Turning of the outer contour

**Advantage:** High run-out accuracy  $\leq 0,006$  mm (0.00024") of the internal thread to the outer contour; clamping on the grinded thread profile of a sleeve



## Example 10

### Hydra-Clamping-Arbor

**Actuation:** Hand actuated  
Radially

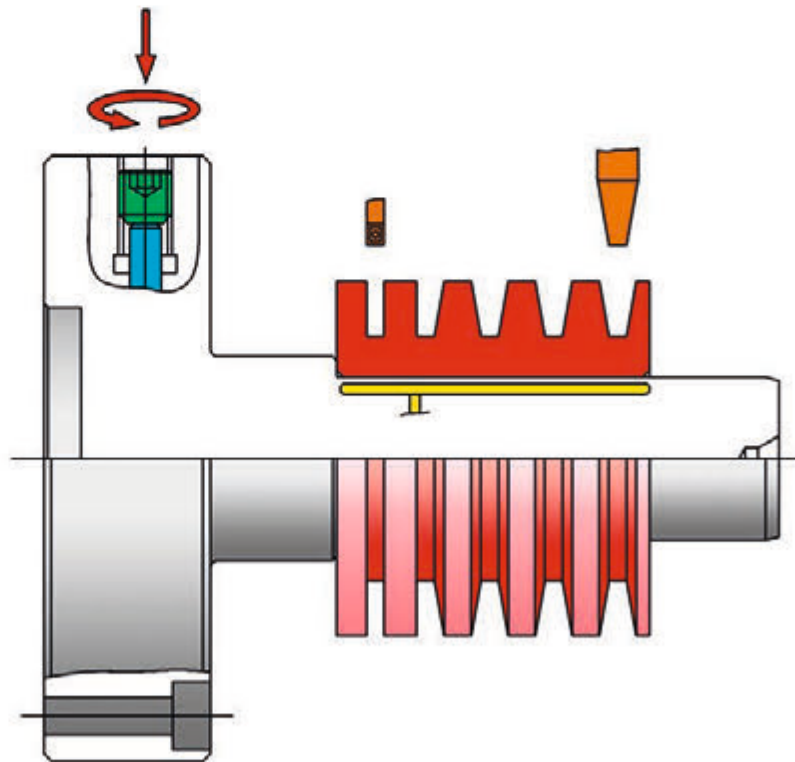
**Mounting:** Flange; cyl. centering

**Workpiece:** Pulley

**Machine:** CNC-lathe

**Application:** Turning of the outer contour and the turned grooves

**Advantage:** High run-out accuracy  $\leq 0,006$  mm (0.00024") of the outer contour to the location hole; adjustable clamping force without work-piece deformation

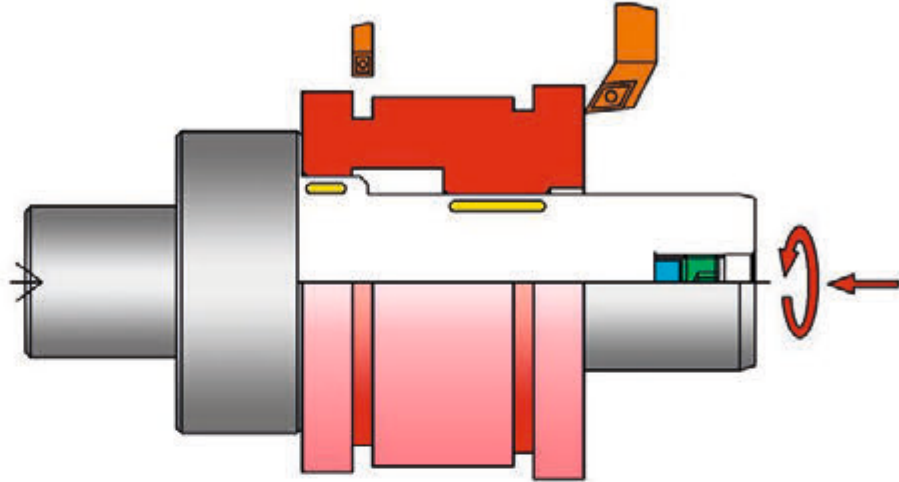


Field of application: **Turning**

## Example 11

### Hydra-Clamping-Arbor

- Actuation:** Hand actuated  
Axially
- Mounting:** Cyl. shaft; support by tailstock
- Workpiece:** Adapter bush
- Machine:** CNC-lathe
- Application:** Turning of the outer contour and the turning grooves
- Advantage:** High run-out accuracy  $\leq 0,005 \text{ mm}$  (0.0002") of the inside dia. to the outer contour; clamping with 2 clamping areas on the bearing seats

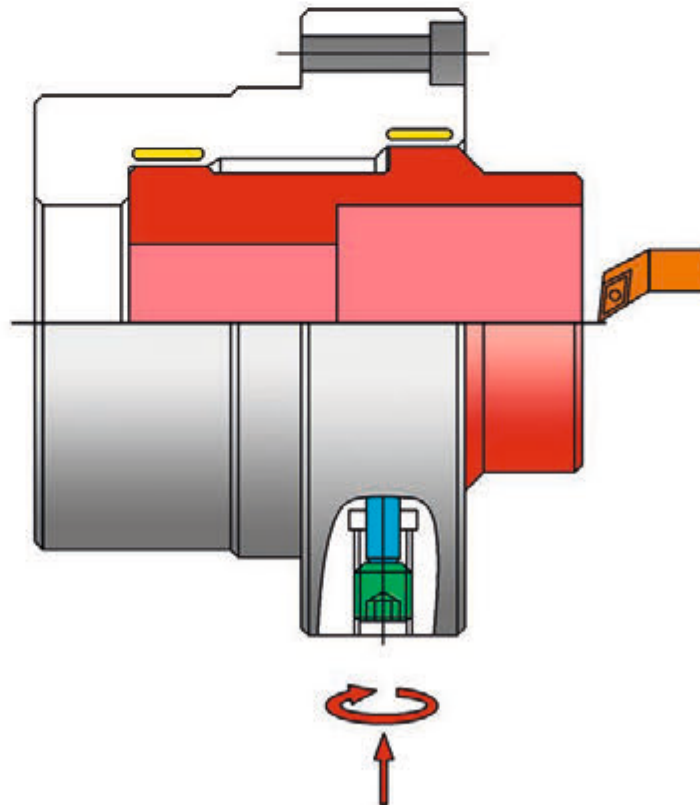


22

## Example 12

### Hydra-Clamping-Chuck

- Actuation:** Hand actuated  
Radially
- Mounting:** Flange, cyl. centering
- Workpiece:** Bushing
- Machine:** CNC-lathe
- Application:** Turning of the inner contour
- Advantage:** High run-out accuracy  $\leq 0,006 \text{ mm}$  (0.00024") from the inner contour to the outer diameter; clamping with 2 clamping areas makes optimal centering and run-out accuracy possible

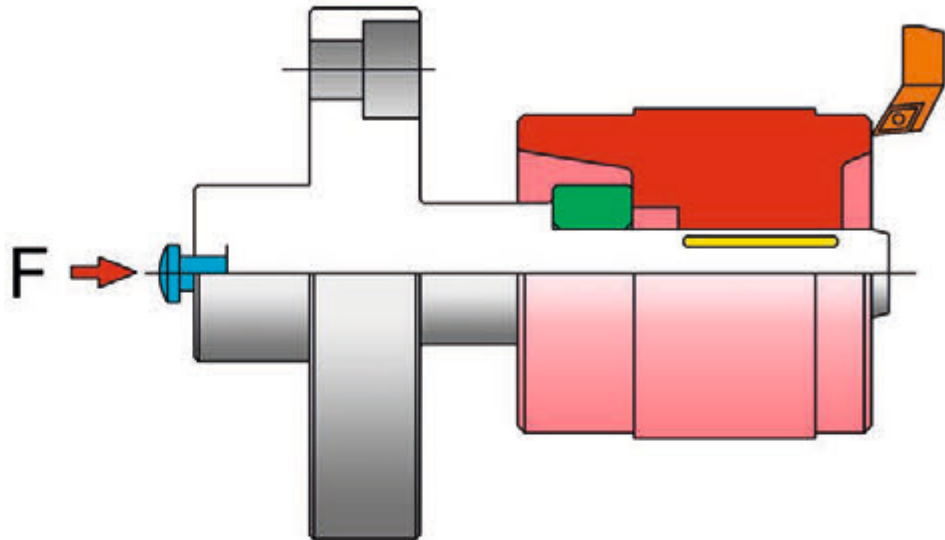


Field of application: *Turning*

## Example 13

### Hydra-Clamping-Arbor

**Actuation:** Power actuated  
Axially  
**Mounting:** Flange; cyl. centering  
**Workpiece:** Motor anker  
**Machine:** CNC-lathe  
**Application:** Turning of the outer  
contour  
**Advantage:** High run-out accuracy  
 $\leq 0,006 \text{ mm}$  (0.0002");  
autom. loading;  
support by tailstock

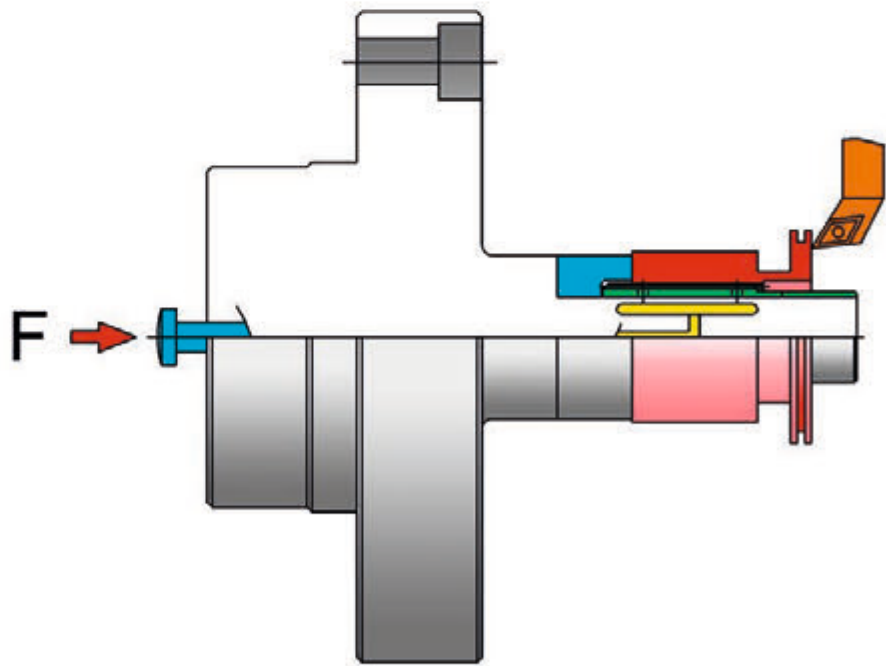


23

## Example 14

### Hydra-Clamping-Arbor

**Actuation:** Power actuated  
Axially  
**Mounting:** Flange; cyl. centering  
**Workpiece:** Transmission part  
with internal spline  
**Machine:** CNC-lathe  
**Application:** Turning of the outer  
contour  
**Advantage:** High  
run-out accuracy  
 $\leq 0,006 \text{ mm}$  (0.0002")  
of the inner gearing to  
the outer contour;  
high precise clamping  
on form-grinded  
sleeve in the gearing;  
autom. loading;  
support by tailstock





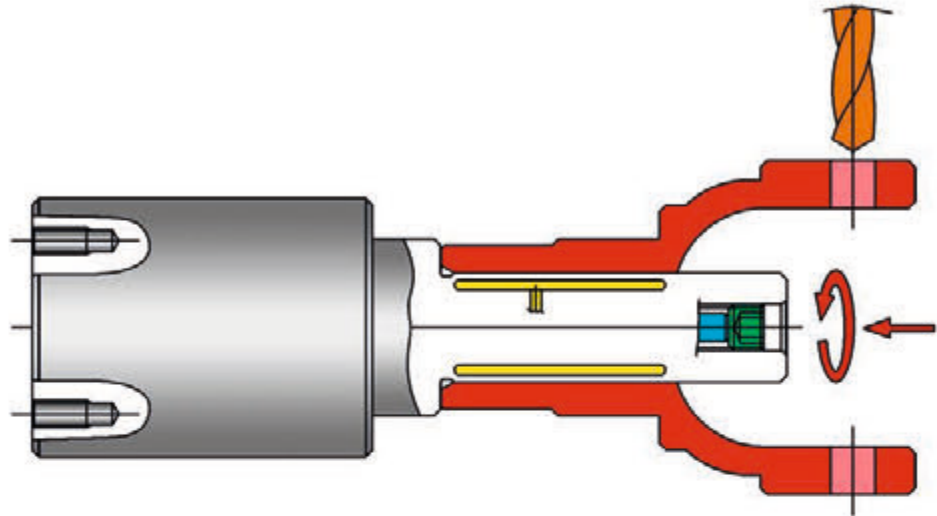


Field of application: *Drilling and reaming*

## Example 15

### Hydra-Clamping-Arbor

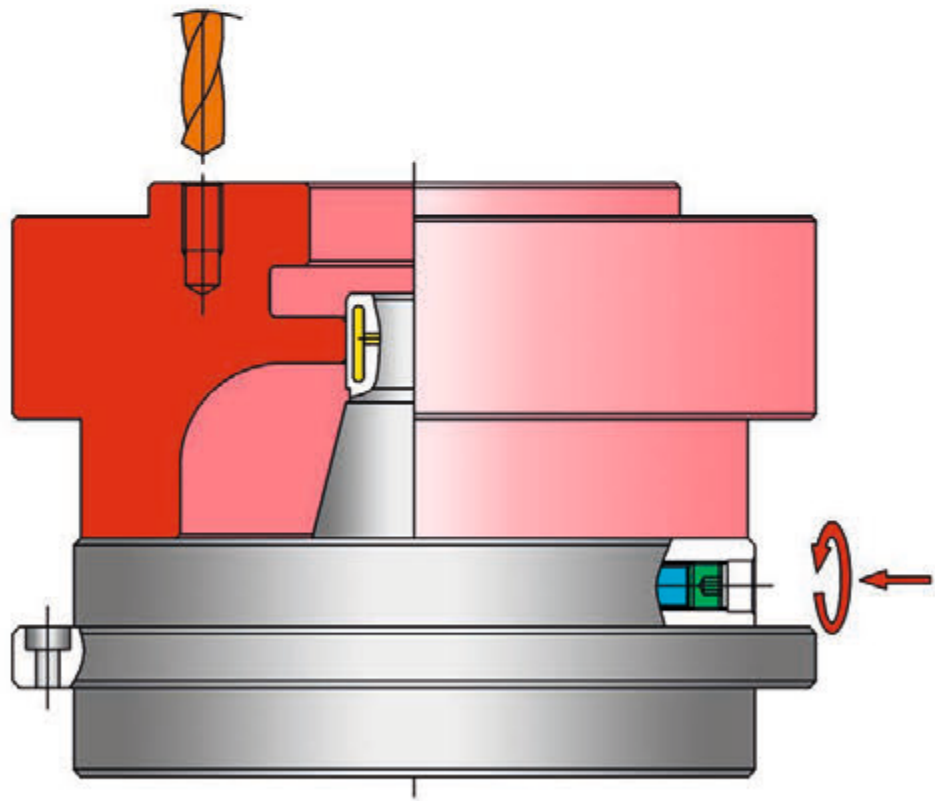
**Actuation:** Hand actuated  
**Mounting:** Axially  
**Workpiece:** Axle-Part  
**Machine:** Drilling machine  
**Application:** Drilling and reaming  
**Advantage:** Precise squared and positioned clamping; clamping high precise and reproduceable

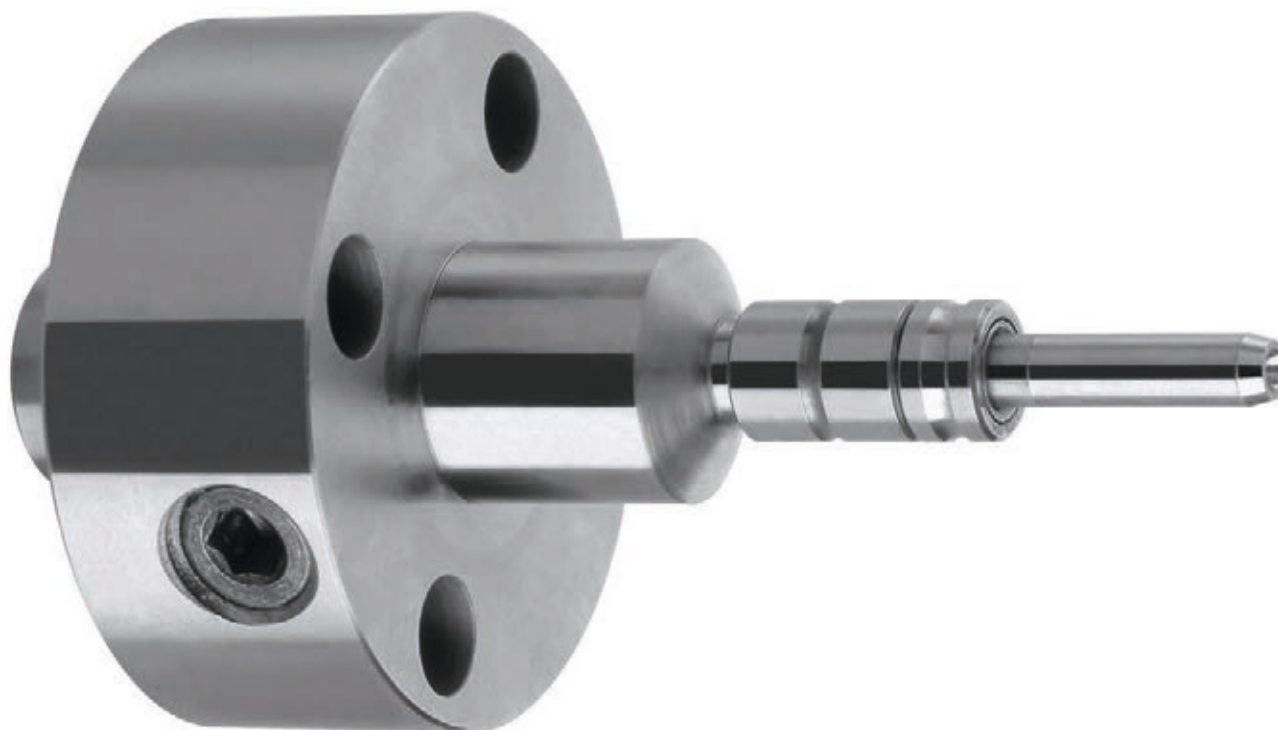


## Example 16

### Hydra-Clamping-Arbor

**Actuation:** Hand actuated  
**Mounting:** Radially  
**Workpiece:** Pump case  
**Machine:** CNC-drilling machine  
**Application:** Drilling, reaming and tapping  
**Advantage:** Precise squared and positioned clamping; clamping high precise and reproduceable





26

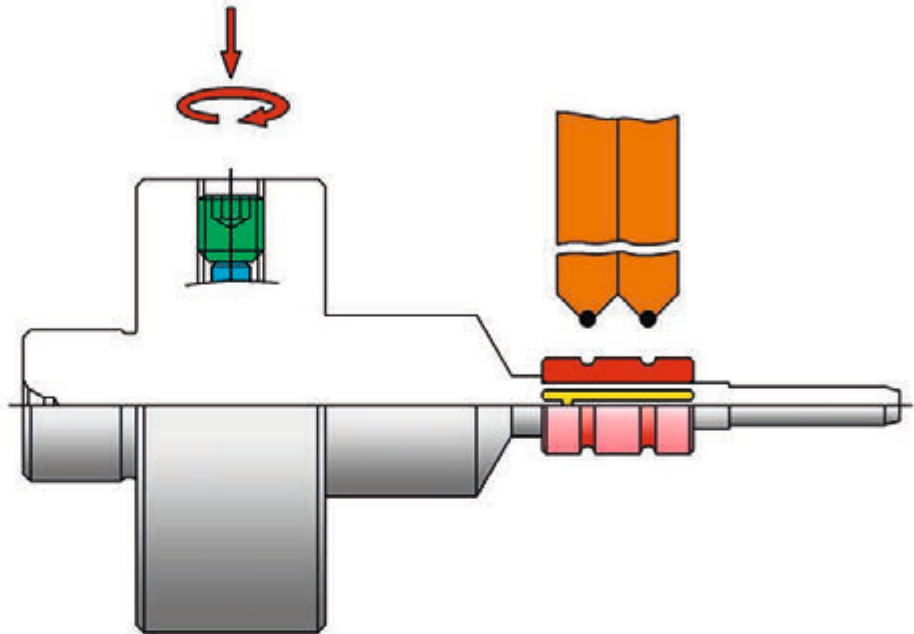


Field of application: **Cylindrical grinding „external“**

## Example 17

### Hydra-Clamping-Arbor

**Actuation:** Hand actuated  
**Mounting:** Radially  
**Workpiece:** Bearing bush  
**Machine:** Profile-grinding machine  
**Application:** Profile-grinding of the race-groove  
**Advantage:** High run-out accuracy  $\leq 0,002$  mm (0.00008") of the bore to the race-groove; clamping dia. till 6 mm are possible

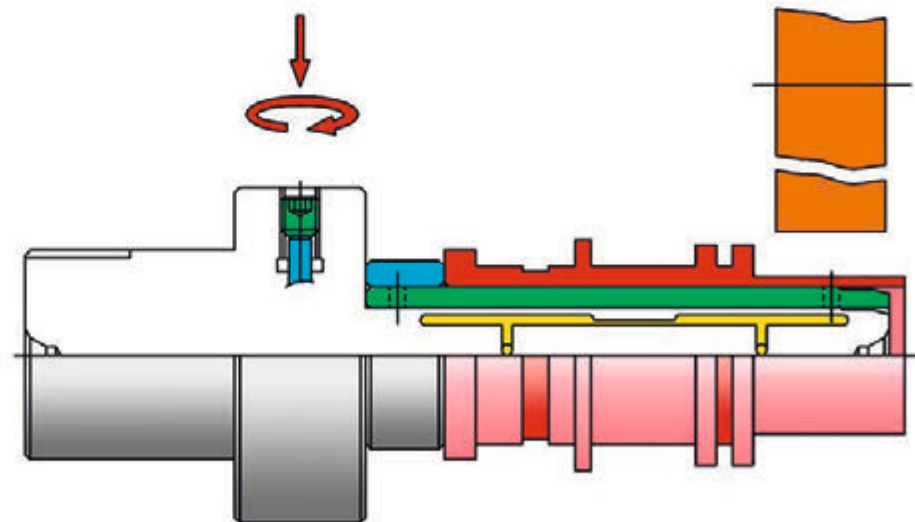


27

## Example 18

### Hydra-Clamping-Arbor

**Actuation:** Hand actuated  
**Mounting:** Between centers  
**Workpiece:** Pin bushing  
**Machine:** Cyl.-grinding machine  
**Application:** Cyl.-grinding of the outside dia.  
**Advantage:** High run-out accuracy  $\leq 0,003$  mm (0.00012"); with interchangeable intermediate sleeve for different work-piece diameters; no deformation at the workpiece

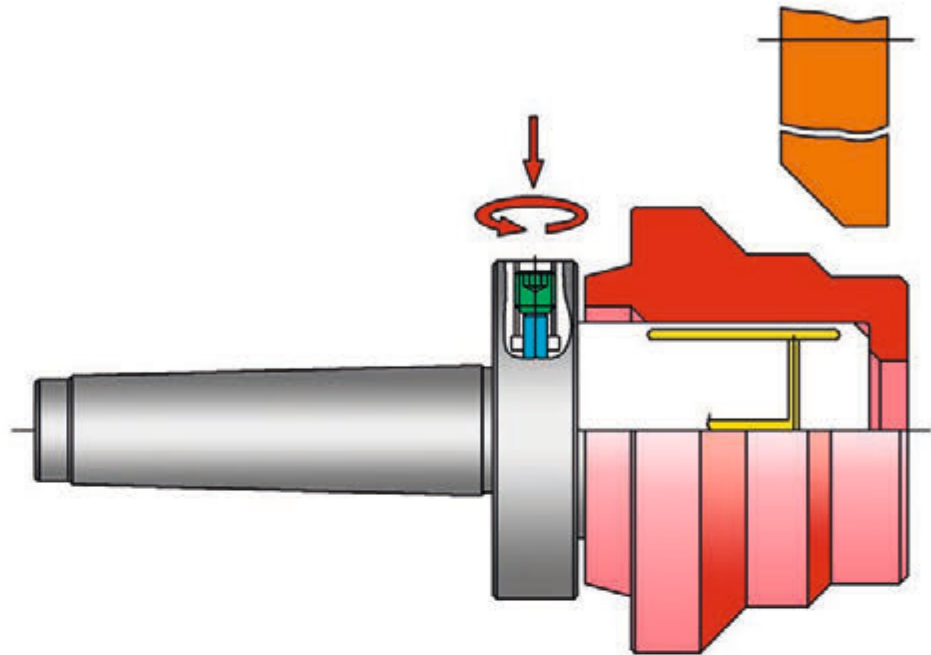


Field of application: **Cylindrical grinding „external“**

## Example 19

### Hydra-Clamping-Arbor

**Actuation:** Hand actuated  
Radially  
**Mounting:** Morse taper 4  
**Workpiece:** Run sleeve  
**Machine:** CNC-cyl.-grinding machine  
**Application:** Cyl.-grinding of the outer contour  
**Advantage:** High run-out accuracy  $\leq 0,002$  mm (0.00008"); clamping of the workpiece internal in the ball-bearing seat; high accuracy from the ball-bearing seat to the outer diameter.

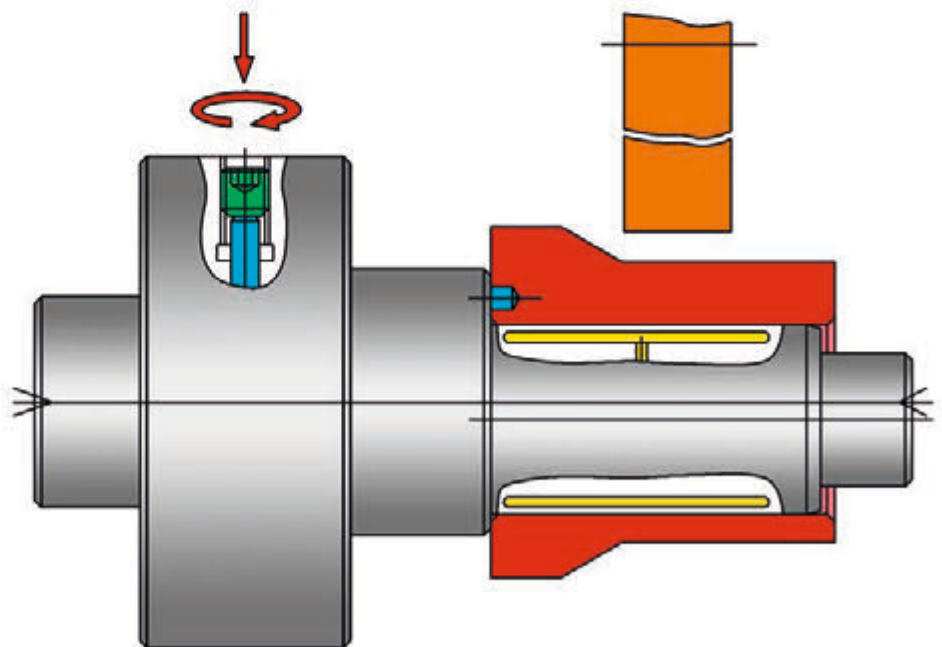


28

## Example 20

### Hydra-Clamping-Arbor

**Actuation:** Hand actuated  
Radially  
**Mounting:** Between centers  
**Workpiece:** Eccentric bush  
**Machine:** CNC-cyl.-grinding machine  
**Application:** Cyl.-grinding of the outer contour  
**Advantage:** High run-out accuracy  $\leq 0,002$  mm (0.00008") and dimensional accuracy at the eccentric; precise transference of the required eccentricity of the Clamping-Arbor to the workpiece

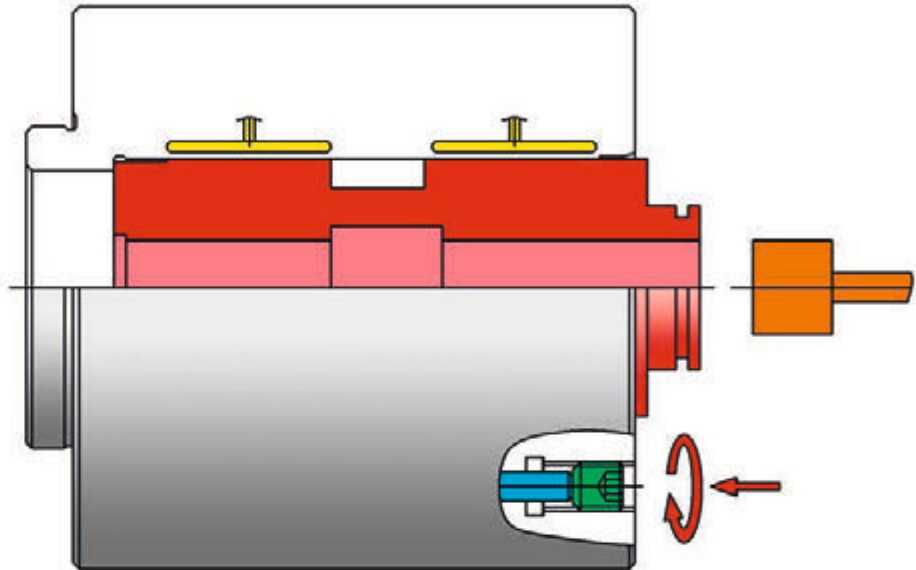


Field of application: *Cylindrical grinding „internal“*

## Example 21

### Hydra-Clamping-Chuck

**Actuation:** Hand actuated  
Axially  
**Mounting:** Flange, cyl. centering  
**Workpiece:** Spindle case  
**Machine:** CNC-internal grinding machine  
**Application:** Ground-hole grinding  
**Advantage:** High  
run-out accuracy  
 $\leq 0,003 \text{ mm}$   
(0.00012");  
clamping with 2  
clamping areas on  
the bearing-seats  
makes a high run-  
out accuracy of the  
ground bore possible

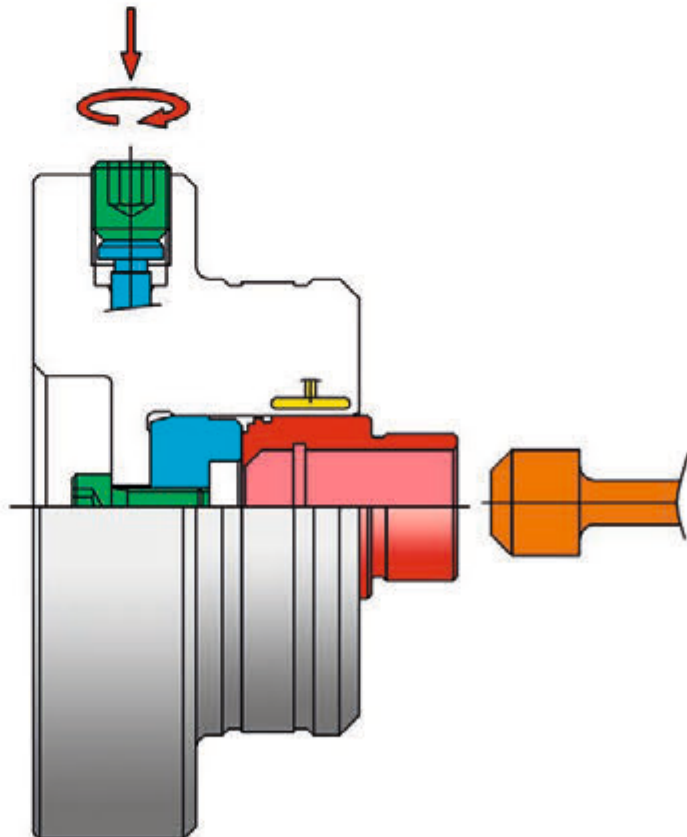


29

## Example 22

### Hydra-Clamping-Chuck

**Actuation:** Hand actuated  
Radially  
**Mounting:** Flange; cyl. centering  
**Workpiece:** Valve bush  
**Machine:** CNC-internal grinding machine  
**Application:** Grinding of the valve  
seat  
**Advantage:** High  
run-out accuracy  
 $\leq 0,002 \text{ mm}$   
(0.00008");  
improvement of the  
running qualities of  
the valve piston





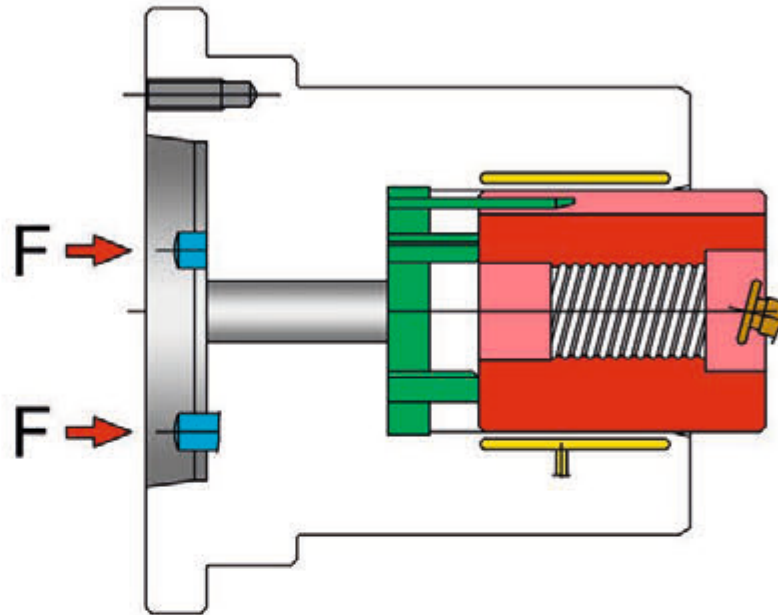
# Workpiece clamping

Field of application: **Cylindrical grinding**  
„internal“ - „external“

## Example 23

### Hydra-Clamping-Chuck

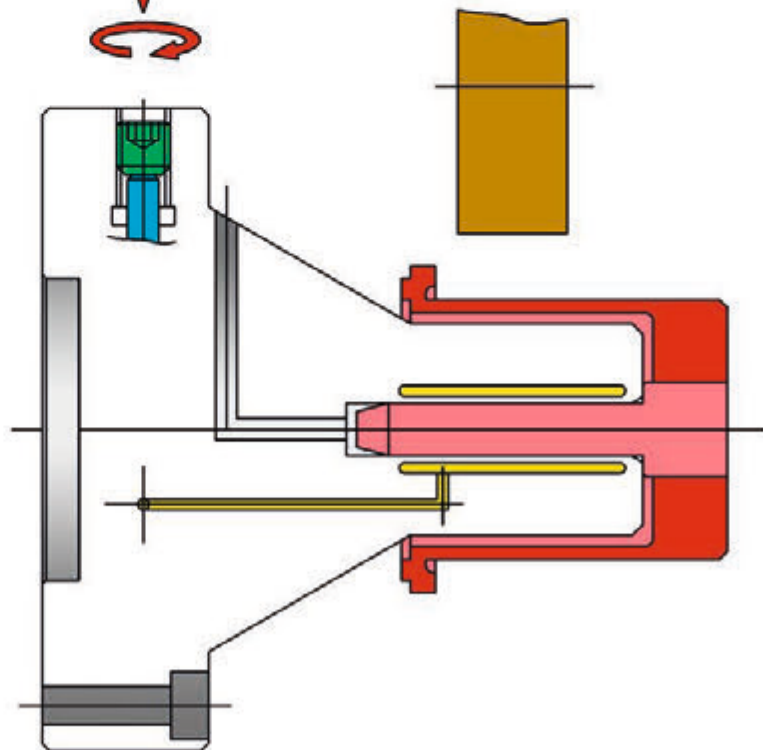
**Actuation:** Power actuated  
**Mounting:** Axially  
Flange; short  
taper centering  
**Workpiece:** Steering nut  
**Machine:** CNC-internal profile  
grinding machine  
**Application:** Grinding of the race-  
groove  
**Advantage:** High run-out accuracy  
and face run-out  
accuracy  
 $\leq 0,003 \text{ mm}$   
(0.00012");  
clamping on the built-  
in dia. with position  
fastening,  
therefore better  
running qualities of  
the race-groove after  
the mounting



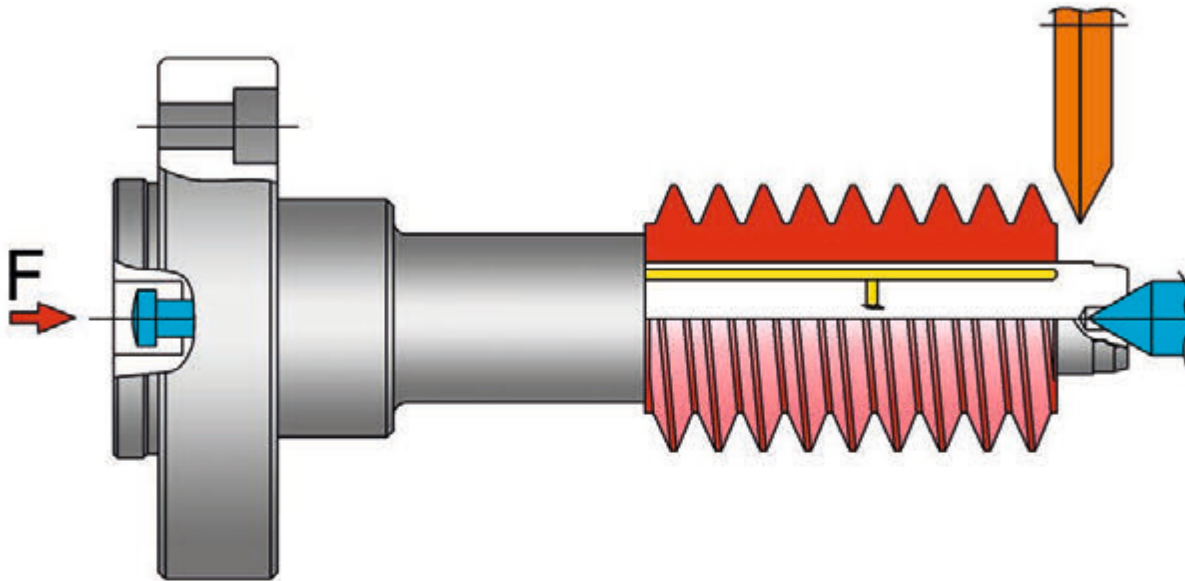
## Example 24

### Hydra-Clamping-Chuck

**Actuation:** Hand actuated  
**Mounting:** Radially  
Flange; cyl. centering  
**Workpiece:** Stator case  
**Machine:** Cyl. grinding machine  
**Application:** Grinding of the outer  
contour  
**Advantage:** High  
run-out accuracy  
 $\leq 0,003 \text{ mm}$   
(0.00012");  
clamping on  
centering pivot,  
therefore parallelism  
to the axis of the  
outside dia.



Field of application: **Profile-grinding**

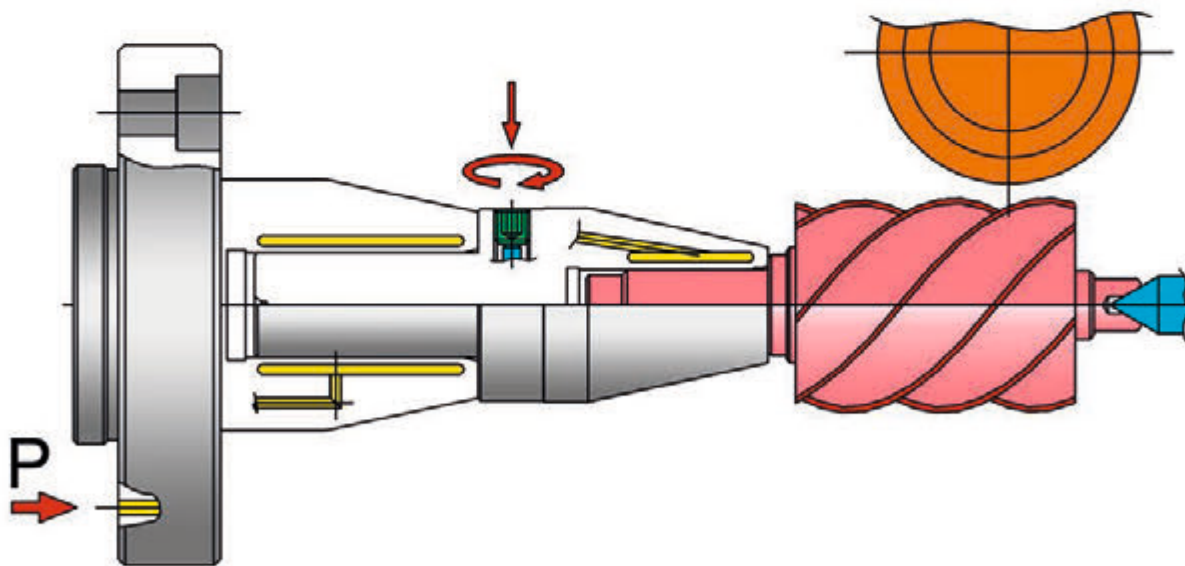


## Example 25

### Hydra-Clamping-Arbor

**Actuation:** Power actuated, axially  
**Mounting:** Flange; cyl. centering; support by tailstock  
**Workpiece:** Worm  
**Machine:** CNC-profile-grinding machine  
**Application:** Profile-grinding  
**Advantage:** High run-out accuracy  $\leq 0,003$  mm (0.00012") of the worm profile to the ground hole

31



## Example 26

### Hydra-Clamping-Chuck

**Actuation:** Hand actuated, radially  
**Mounting:** Flange; cyl. centering and Hydra-Clamping-Chuck; support by tailstock  
**Workpiece:** Rotor  
**Machine:** CNC-profile-grinding machine  
**Application:** Profile-grinding  
**Advantage:** High run-out accuracy  $\leq 0,003$  mm (0.00012") of the rotor profile to the shaft of the rotor; Hydra-Clamping-Chuck will be fitted with the rotor outside of the machine. Following the Hydra-Clamping-Chuck with the rotor will be fitted into the machine location, which is designed as a Hydra-Clamping-Chuck, will be inserted and clamped autom. by the machine hydraulic.

# Workpiece clamping

Field of application: **Mounting**

## Example 27

### Hydra-Clamping-Arbor

**Actuation:** Hand actuated  
Radially

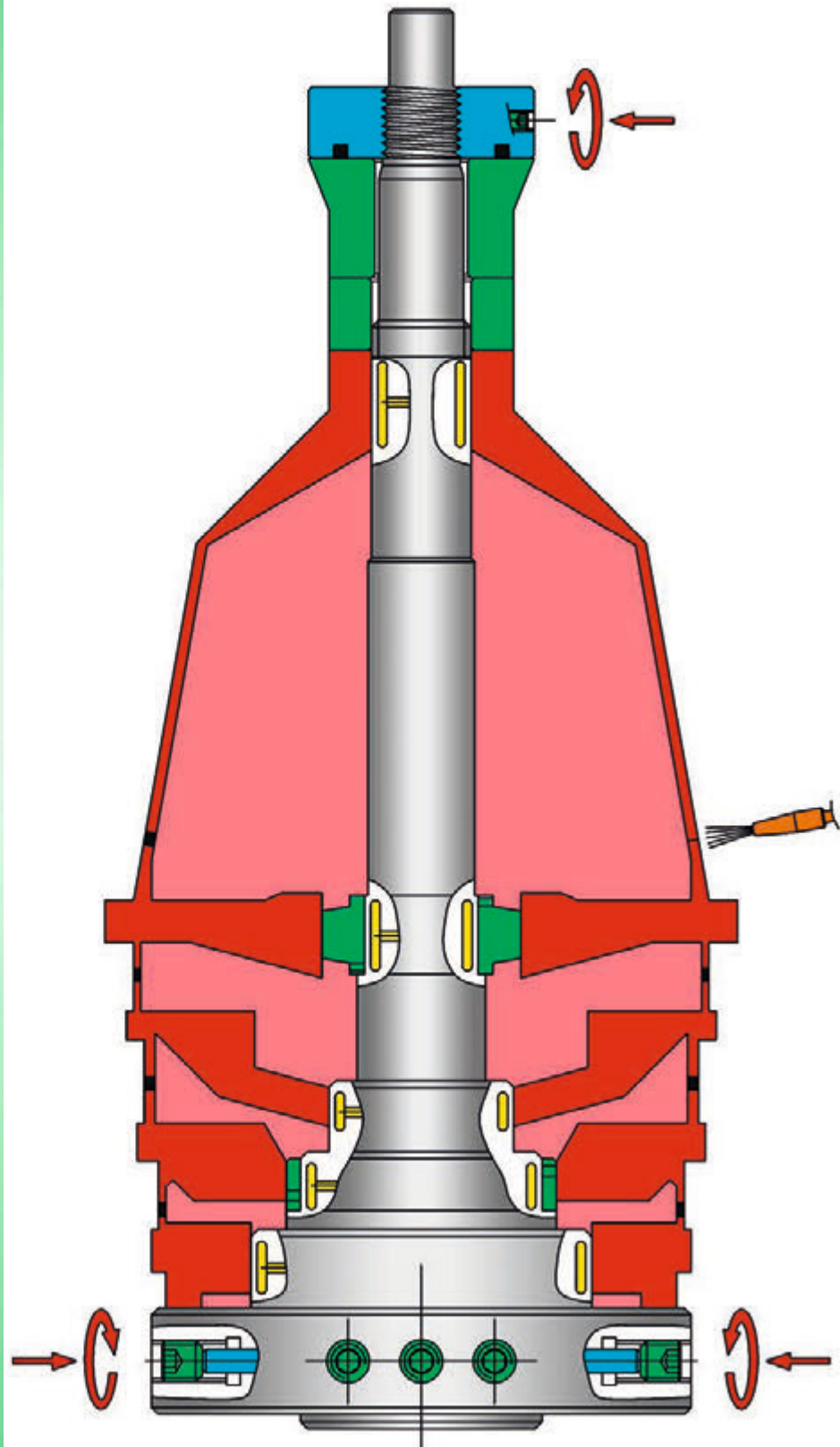
**Mounting:** Flange; cyl. centering

**Workpiece:** Turbine case

**Machine:** Vacuum-laser-welding machine

**Application:** Laser-welding

**Advantage:** High precise centering and clamping of the single turbine casing parts by 5 clamping areas; all 5 clamping areas will be actuated single; different location dia. will be covered with a interchangeable intermediate sleeve; axial clamping of the single parts with hydraulic axial clamping nut from Mytec-Hydraclamp-; after welding the single parts, the arrangement of the single location holes are in true alignment

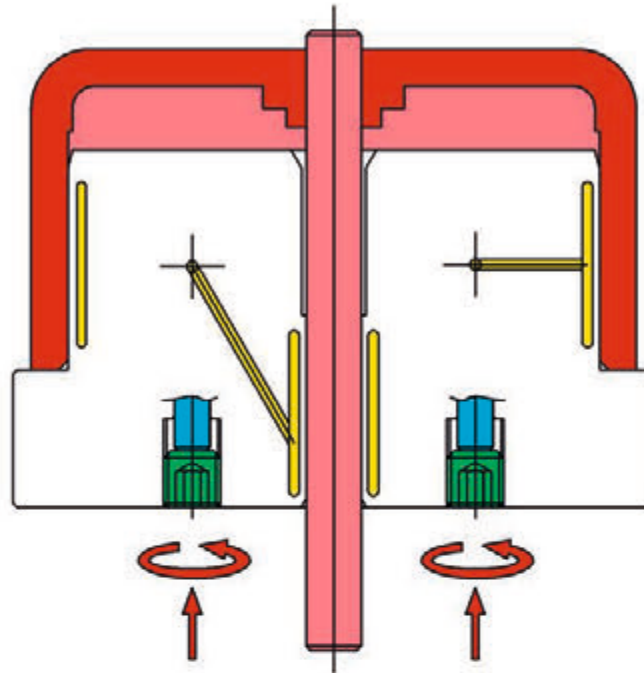


Field of application: **Mounting**

## Example 28

### Hydra-Clamping-Arbor and Chuck

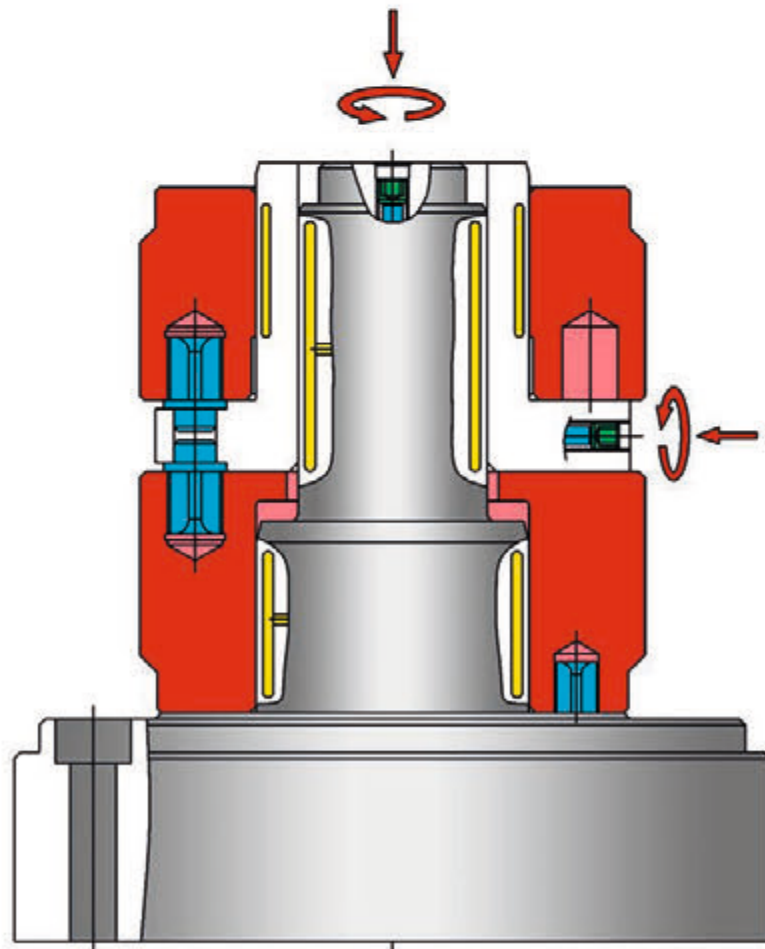
**Actuation:** Hand actuated  
**Location :** Axially  
**Workpiece:** Mounting device  
**Machine:** Stator case with location spindle  
**Application:** Drier  
**Advantage:** Bonding of the location spindle into the stator case  
 High precise positioning of the stator case and the location spindle; after the bonding precisely located position of the location spindle in the stator case



## Example 29

### Hydra-Clamping-Arbor

**Actuation:** Hand actuated  
**Location:** Axially + radially  
**Workpiece:** Flange  
**Machine:** Pump case  
**Application:** Drilling machine  
**Advantage:** Pin 2 parts together  
 High precision positioning of 2 parts; localizing of the top part by additional, on the basic arbor with a 2<sup>nd</sup> Hydra-Clamping-Arbor



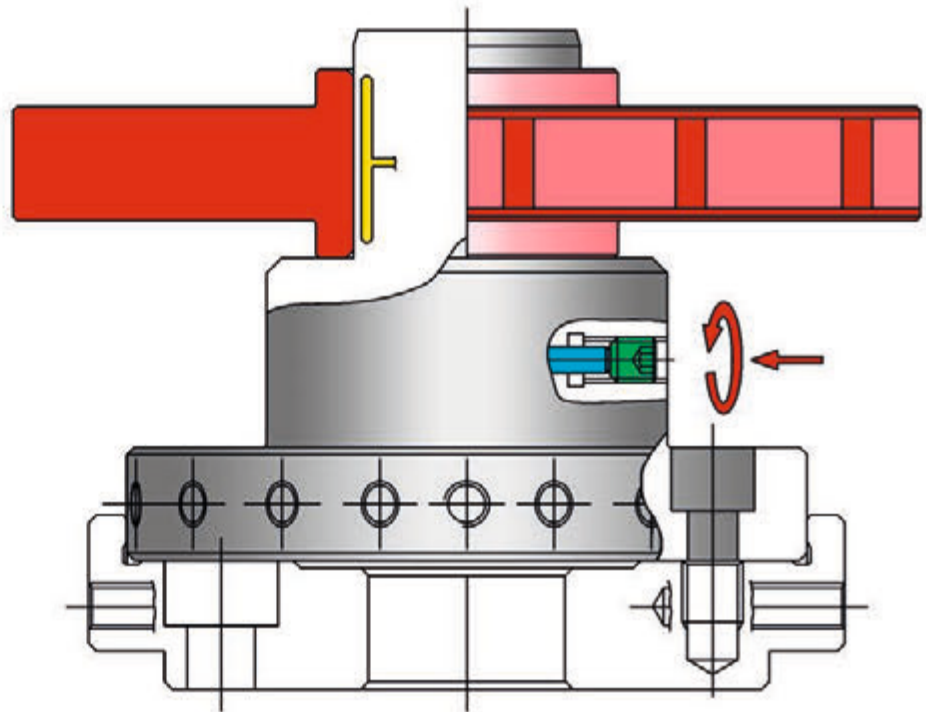
# Workpiece clamping

Field of application: **Balancing**

## Example 30

### Hydra-Clamping-Arbor

**Actuation:** Hand actuated  
**Mounting:** Radially  
**Workpiece:** Brake disk  
**Machine:** Balancing machine  
**Application:** Balancing  
**Advantage:** High run-out accuracy  $\leq 0,003 \text{ mm}$  (0.0002") of the clamping-tool makes the improvement of balancing accuracy possible. By using different intermediate sleeves, you can work with different workpieces with one arbor. It is possible to actuate the Hydra-arbor also by a drawbar.

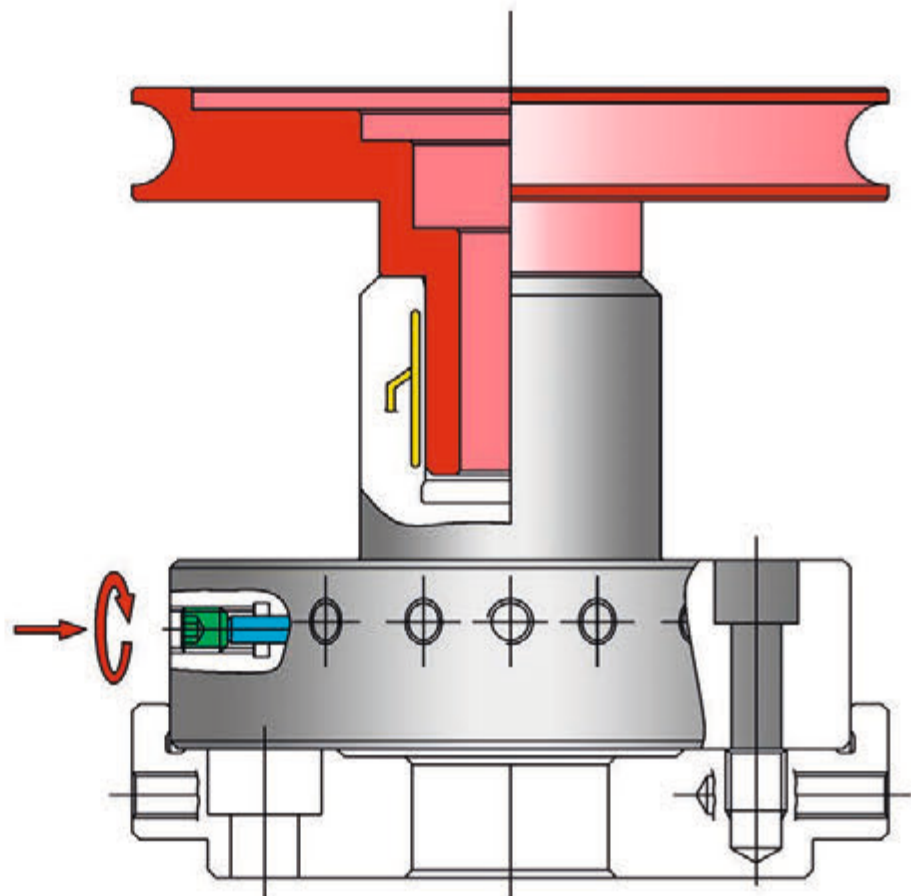


34

## Example 31

### Hydra-Clamping-Chuck

**Actuation:** Hand actuated  
**Mounting:** Flange  
**Workpiece:** Driving flange  
**Machine:** Balancing machine  
**Application:** Balancing  
**Advantage:** High run-out accuracy  $\leq 0,003 \text{ mm}$  (0.0002"). High active force quality by centering without play at the workpiece connection. It is possible to actuate the Hydra-chuck also by a drawbar.



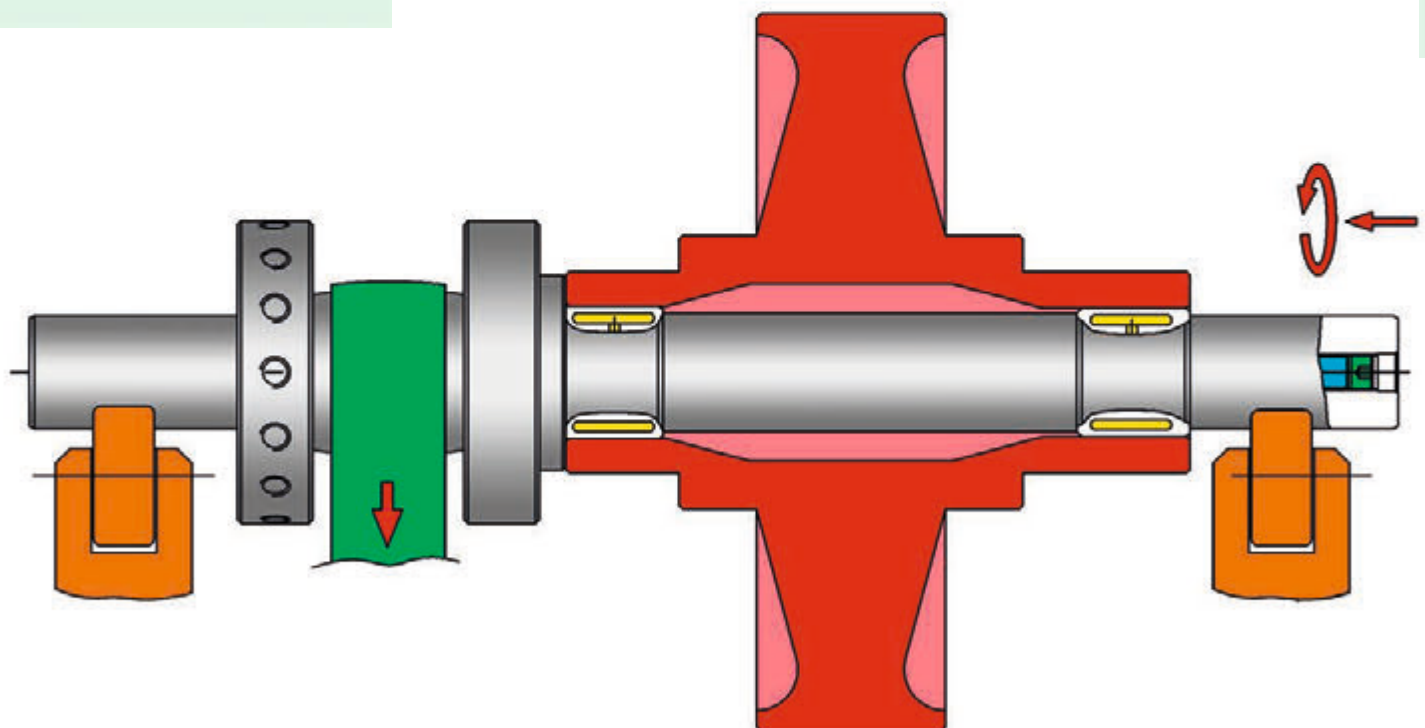
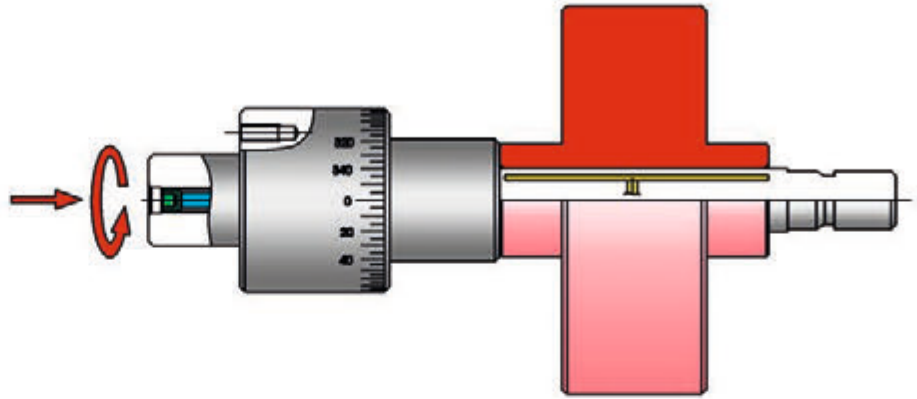


Field of application: **Balancing**

## Example 32

### Hydra-Clamping-Arbor

**Actuation:** Hand actuated  
**Mounting:** Radially  
**Workpiece:** Ventilation wheel  
**Machine:** Balancing machine  
**Application:** Balancing  
**Advantage:** High precise clamping; run-out accuracy  $\leq 0,005$  mm (0.0002") at the balancing action; fast retrofit at the workpiece changing



35

## Example 33

### Hydra-Clamping-Arbor

**Actuation:** Hand actuated, axially  
**Mounting:** On rolls  
**Workpiece:** Turbine wheel  
**Machine:** Balancing machine  
**Application:** Balancing  
**Advantage:** High precise clamping; run-out accuracy  $\leq 0,005$  mm (0.0002") at the balancing action; clamping with 2 clamping areas

36



Field of application: *Checking and measuring*

## Example 34

### Hydra-Clamping-Arbor

**Actuation:** Hand actuated  
Axially

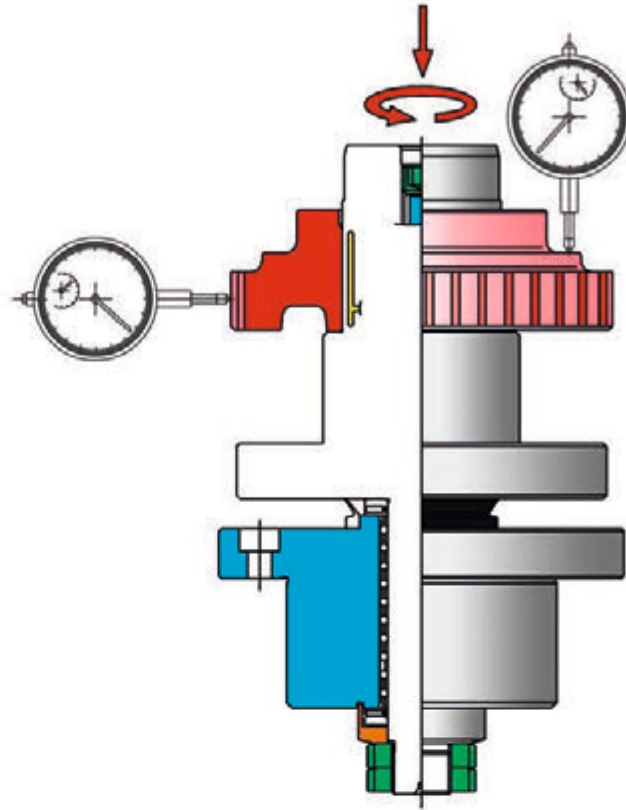
**Mounting:** Flange; cyl. centering

**Workpiece:** Measuring fixture

**Machine:** Gearwheel

**Application:** Checking of run-out accuracy and face run-out accuracy

**Advantage:** Run-out accuracy  $\leq 0,003$  mm (0.00012"); the Hydra-Clamping-Arbor is 0,002 mm (0.00012") accurately seated by using a pre-clamped bearing bushing and an axial bearing



37

## Example 35

### Hydra-Clamping-Arbor

**Actuation:** Hand actuated  
Radially

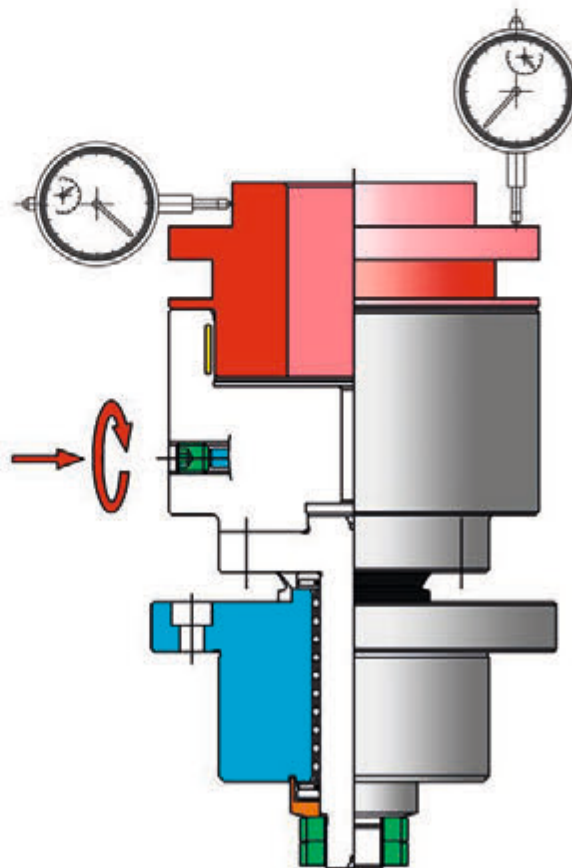
**Mounting:** Flange; cyl. centering

**Workpiece:** Hub

**Machine:** Measuring fixture

**Application:** Checking of run-out accuracy and face run-out accuracy

**Advantage:** Run-out accuracy  $\leq 0,003$  mm (0.00008"); the Hydra-Clamping-Chuck is 0,002 mm (0.00008") accurately seated by using a preclamped bearing bushing and an axial bearing

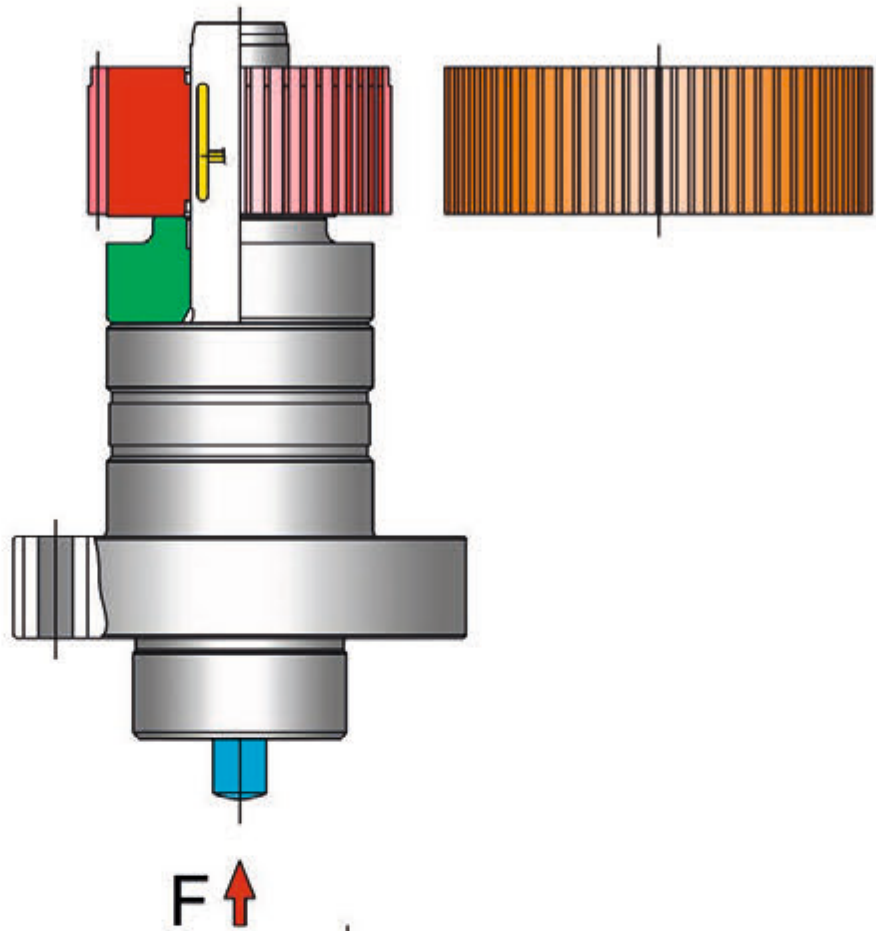


Field of application: *Checking and measuring*

## Example 36

### Hydra-Clamping-Arbor

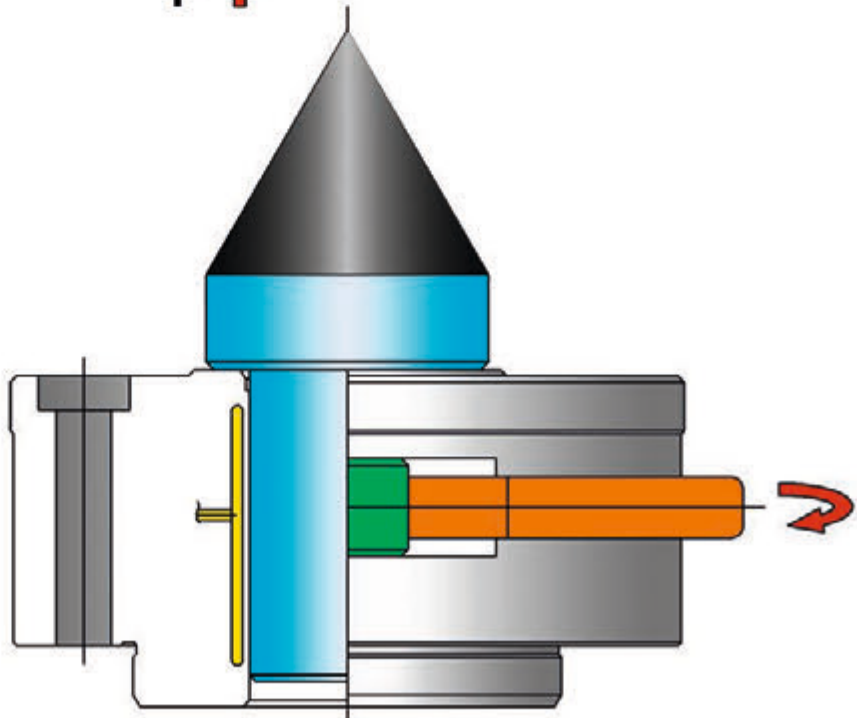
**Actuation:** Power actuated  
**Mounting:** Flange; cyl. centering  
**Workpiece:** Gearwheel  
**Machine:** Measuring machine  
**Application:** Gear checking  
**Advantage:** High run-out accuracy  $\leq 0,002$  mm (0.00008"); high capacity of resistance to wear at automatic loading by hard coating of the clamp. dia. with a surface hardness of the coating of 80 HRC



## Example 37

### Hydra-Clamping-Chuck

**Actuation:** Hand actuated Radially (rocker, lever)  
**Mounting:** Flange; cyl. centering  
**Workpiece:** Locating centers  
**Machine:** Measuring machine  
**Application:** Measuring and checking  
**Advantage:** Run-out accuracy  $\leq 0,002$  mm (0.00008"); clamping with rocker-mechanism, therefore very fast retrofitting possible

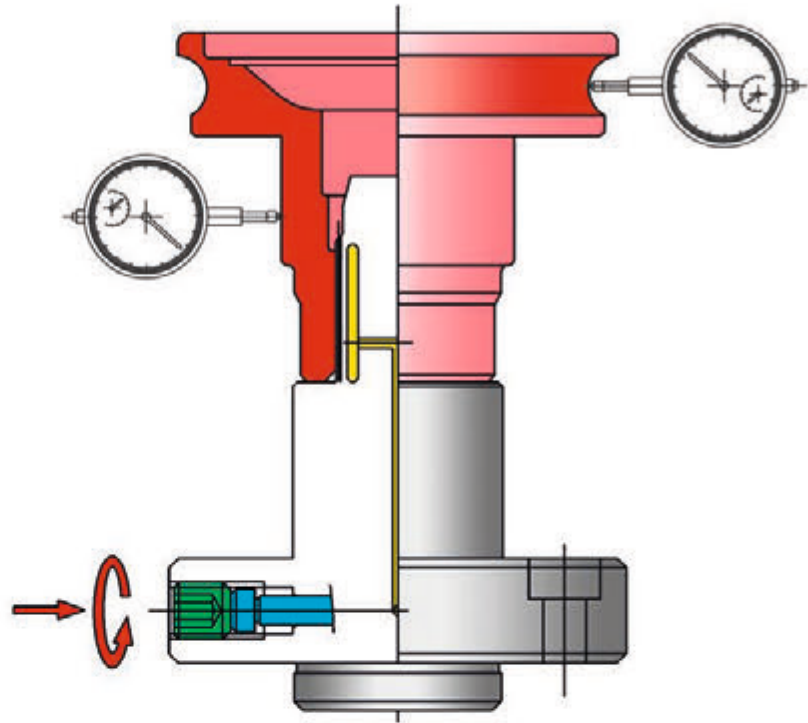


Field of application: *Checking and measuring*

## Example 38

### Hydra-Clamping-Arbor

**Actuation:** Hand actuated  
Radially  
**Mounting:** Flange; cyl. centering  
**Workpiece:** Driving flange  
**Machine:** Measuring machine  
**Application:** Measuring and checking of the outer contour  
**Advantage:** Run-out accuracy  $\leq 0,002$  mm (0.00008"); clamping of a sleeve with external gearing in the tooth profile

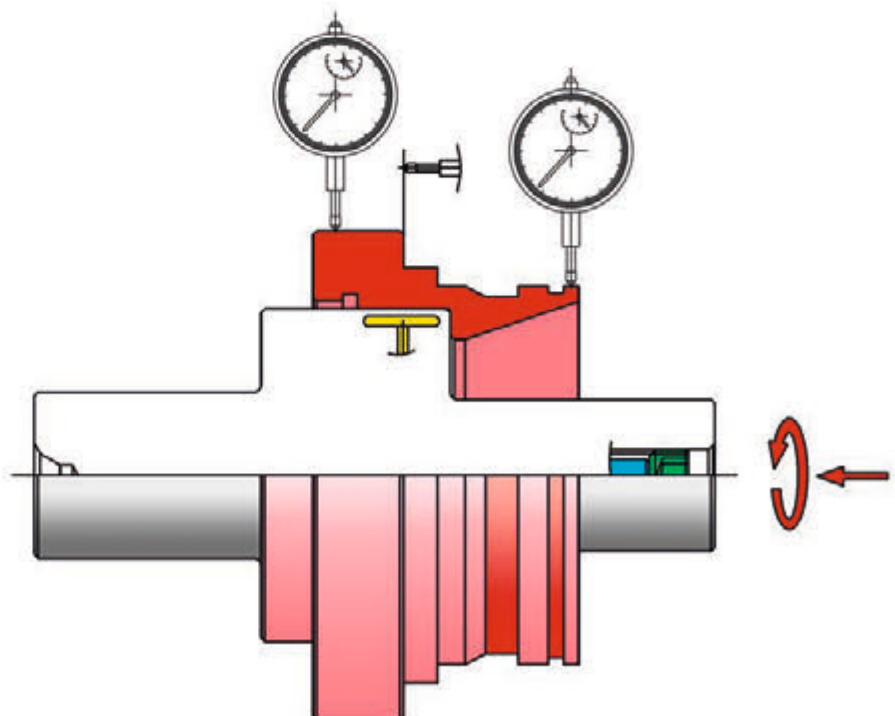


39

## Example 39

### Hydra-Clamping-Arbor

**Actuation:** Hand actuated  
Axially  
**Mounting:** Between centers  
**Workpiece:** Adapter bushing  
**Machine:** Measuring fixture  
**Application:** Checking of run-out accuracy and face run-out accuracy  
**Advantage:** Run-out accuracy  $\leq 0,002$  mm (0.00008"); no deformation of the workpiece because of a sensitive actuation





40



Field of application: ***Gear Hobbing***

## Example 40

### Hydra-Clamping-Arbor

**Actuation:** Power actuated  
Axially

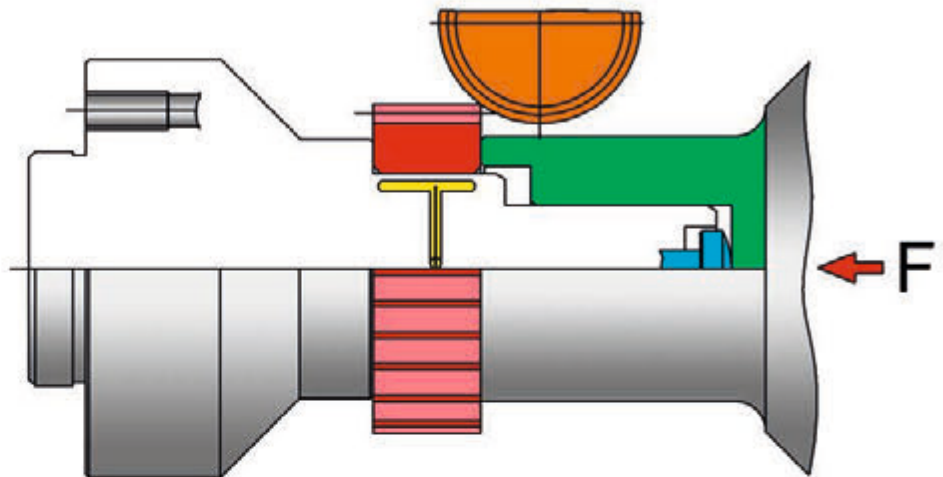
**Mounting:** Flange; cyl. centering

**Workpiece:** Gearwheel

**Machine:** CNC-Gear-hobbing machine

**Application:** Gear Hobbing

**Advantage:** High run-out accuracy  $\leq 0,003$  mm (0.00012"); tailstock center actuation through holder. Additionally the workpiece is being positioned axially by a holder; automatic loading



## Example 41

### Hydra-Clamping-Chuck

**Actuation:** Power actuated  
Axially

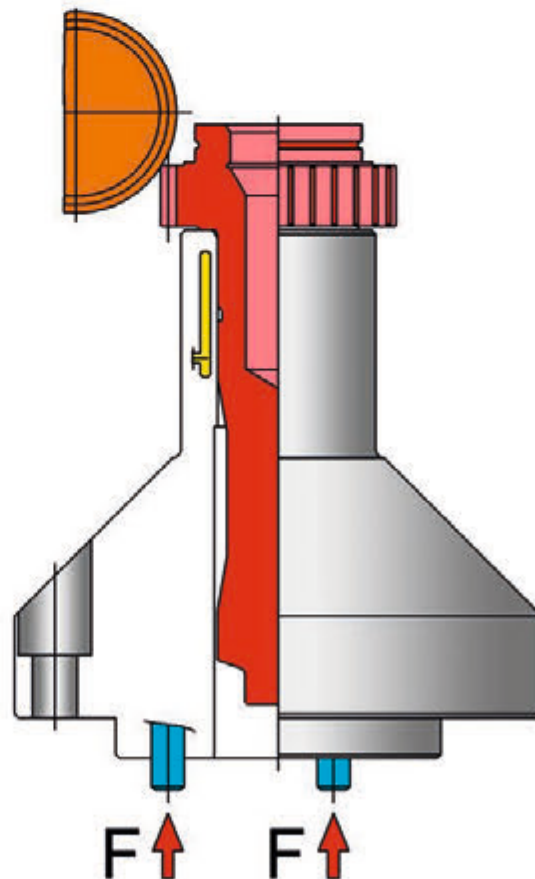
**Mounting:** Flange; cyl. centering

**Workpiece:** Main shaft

**Machine:** CNC-Gear-hobbing machine

**Application:** Gear Hobbing

**Advantage:** High run-out accuracy and high face run-out accuracy  $\leq 0,003$  mm (0.00012"), because of high stiffness and stability of the Hydra-Clamping-Chuck, there is no axial support necessary



Field of application: ***Gear Hobbing***

## Example 42

### Hydra-Clamping-Arbor

**Actuation:** Power actuated  
Axially

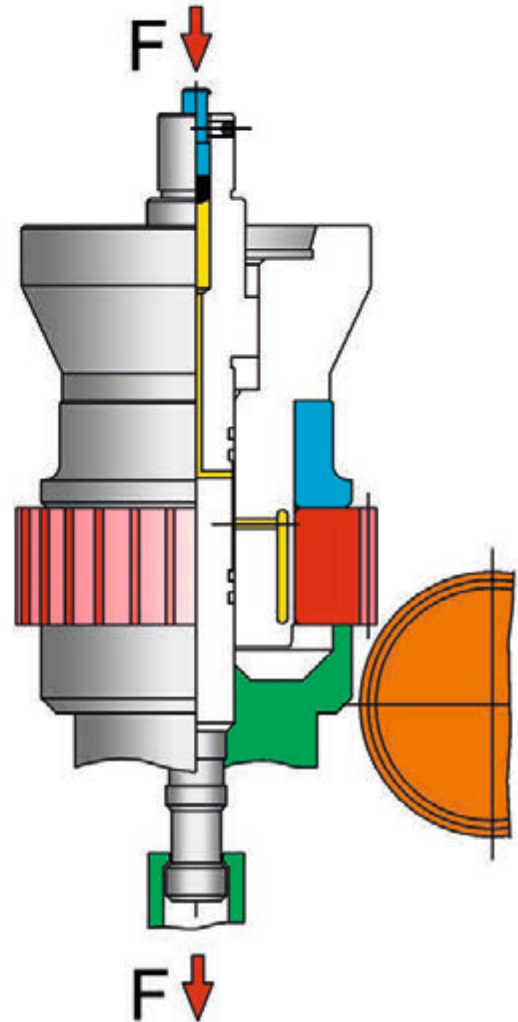
**Mounting:** Flange; short taper

**Workpiece:** Gearwheel

**Machine:** CNC-Gear-hobbing machine

**Application:** Gear Hobbing

**Advantage:** High precision centering of the gear; run-out accuracy  $\leq 0,003 \text{ mm}$  (0.00012"); Thus quieter running in the assembled stage is achieved. Additionally the workpiece is being clamped axially by a holder.



42

## Example 43

### Hydra-Clamping-Arbor

**Actuation:** Power actuated  
Axially

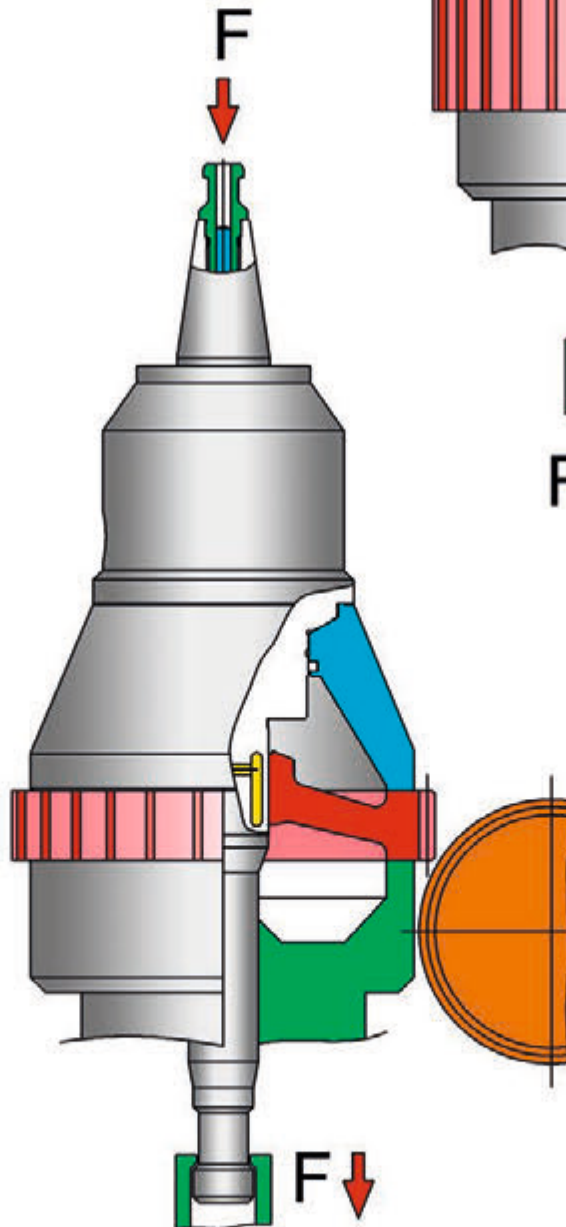
**Mounting:** Steep taper 40

**Workpiece:** Gearwheel

**Machine:** CNC-Gear-hobbing machine

**Application:** Gear Hobbing

**Advantage:** High precise centering of the gear; run-out accuracy  $\leq 0,003 \text{ mm}$  (0.00012"); Additionally the workpiece is being clamped by a holder; compensation of the run-out mistakes at the workpiece by a pendulum holder



## Example 44

### Hydra-Clamping-Arbor

**Actuation:** Power actuated  
Axially

**Mounting:** Flange, cyl. centering

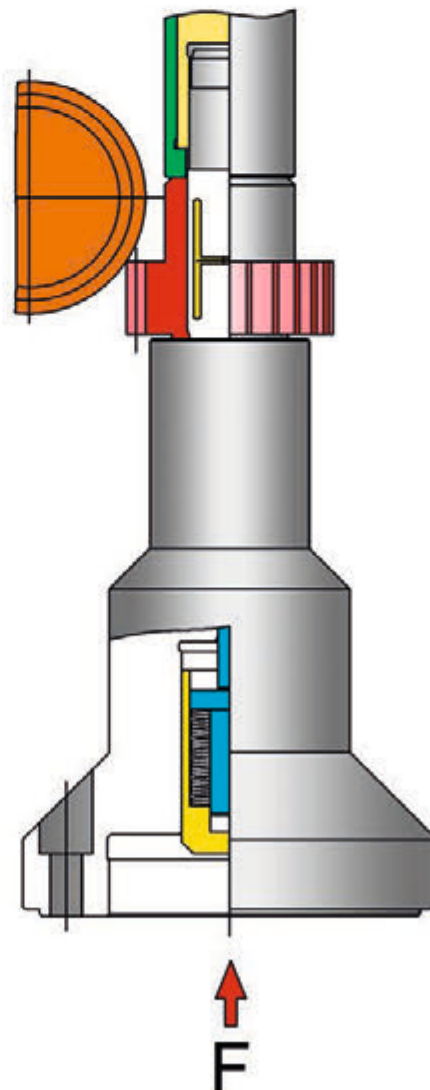
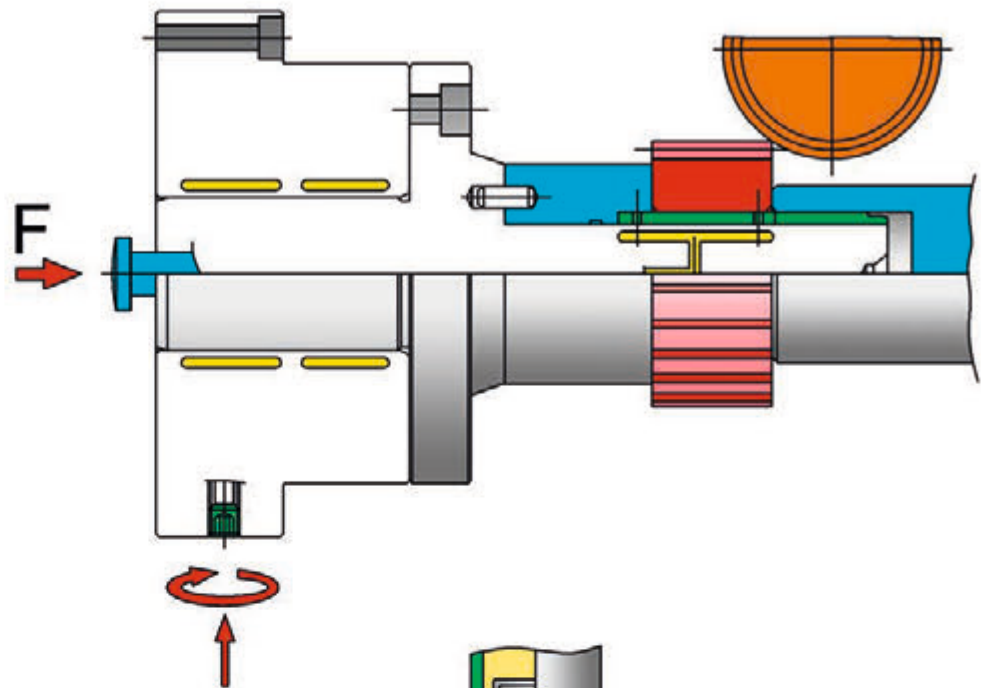
**Workpiece:** Gearwheel

**Machine:** CNC-Gear-hobbing machine

**Application:** Gear Hobbing

**Advantage:** High run-out accuracy and high face run-out accuracy  $\leq 0,003$  mm (0.00012"); clamping on a sleeve; sleeve highly wear resistant hard-coated to 80 HRC; Additionally the workpiece is being positioned axially by a holder; automatic loading; because of the use of a Hydra-Clamping-Chuck as a quick change base-chuck there is a precise and quick tool-change possible

Field of application: ***Gear Hobbing***



## Example 45

### Hydra-Clamping-Arbor

**Actuation:** Power actuated  
Axially

**Mounting:** Flange, short taper

**Workpiece:** Gearwheel

**Machine:** CNC-Gear-hobbing machine

**Application:** Gear Hobbing

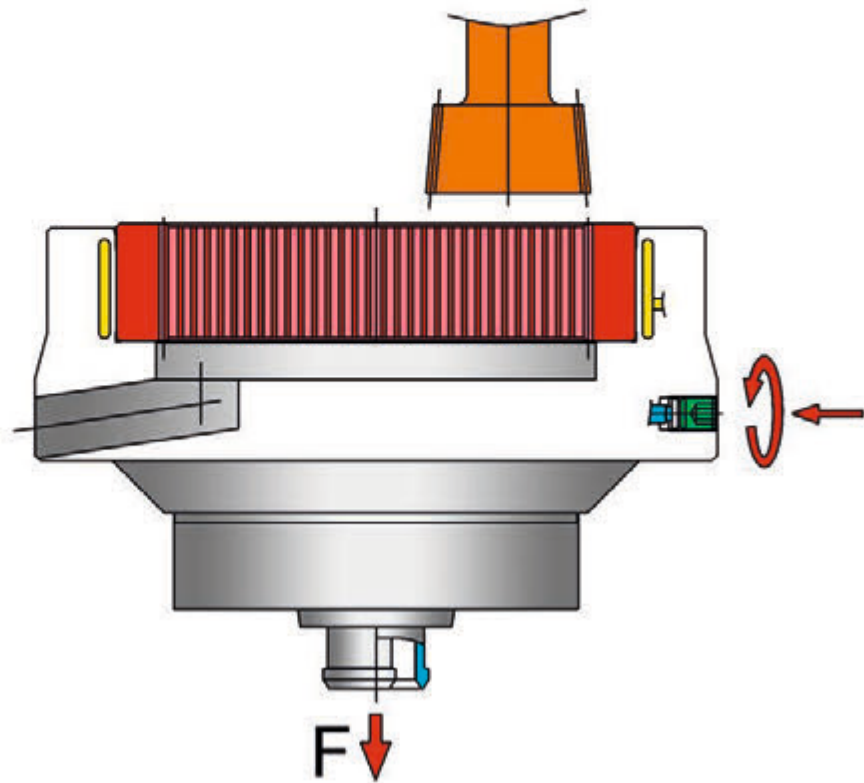
**Advantage:** High run-out accuracy and high face run-out accuracy  $\leq 0,003$  mm (0.00012"); Additionally the workpiece is being positioned axially by a holder; automatic loading

Field of application: ***Gear Shaping***

## Example 46

### Hydra-Clamping-Chuck

**Actuation:** Hand actuated  
Radially  
**Mounting:** By straight pin  
**Workpiece:** Internal geared wheel  
**Machine:** Gear shaping machine  
**Application:** Shaping of the internal gearing  
**Advantage:** High run-out accuracy  $\leq 0,003$  mm (0.00012"); various workpiec mountings with intermediate sleeve possible

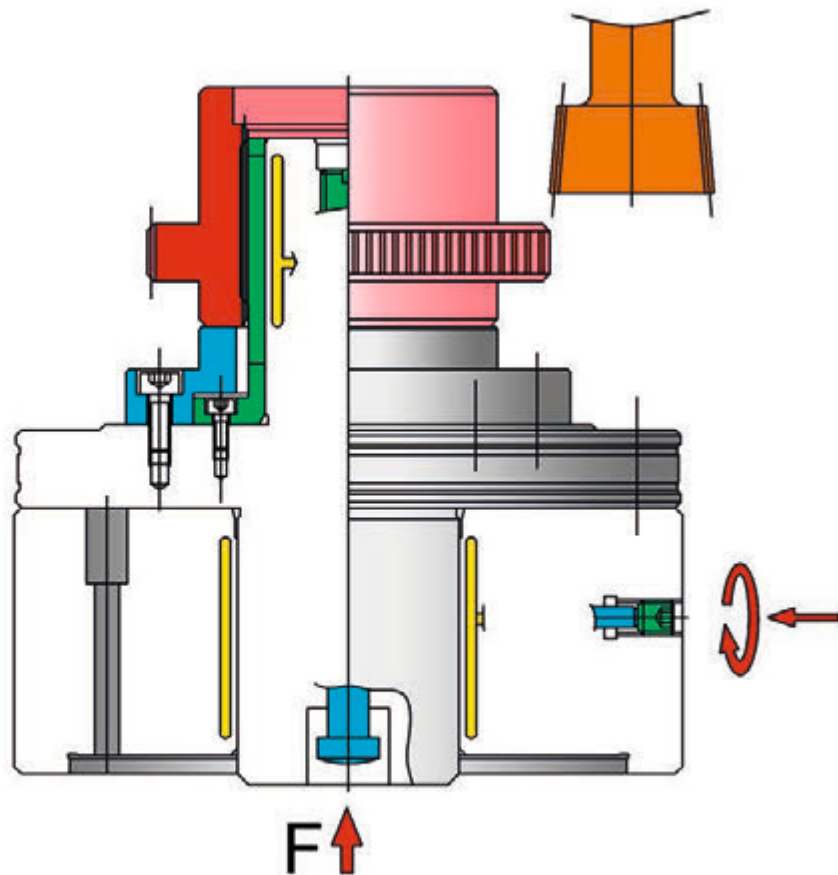


44

## Example 47

### Hydra-Clamping-Arbor

**Actuation:** Power actuated  
Axially  
**Mounting:** Flange, cyl. centering in Hydra-Clamping-Base-Chuck  
**Workpiece:** Gear transmission  
**Machine:** Gear shaping machine  
**Application:** Gear Shaping  
**Advantage:** High run-out accuracy and high face run-out accuracy  $\leq 0,003$  mm (0.00012"); clamping in the internal gearing of the workpiece by form-ground intermediate sleeve





Field of application: ***Gear Shaping***

## Example 48

### Hydra-Clamping-Chuck

**Actuation:** Power actuated  
Axially

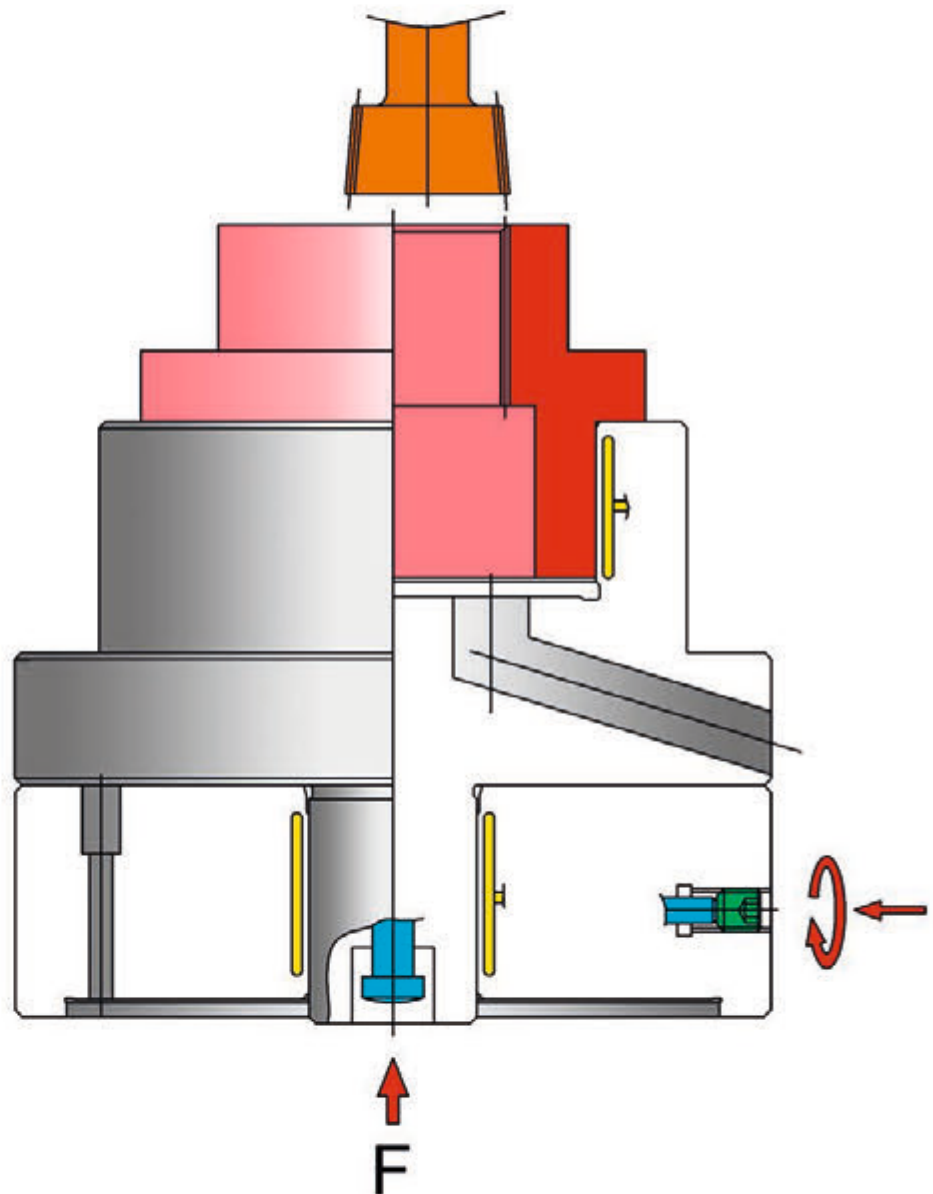
**Mounting:** Flange; cly. centering  
in Hydra-Clamping-  
Base-Chuck

**Workpiece:** Driving flange

**Machine:** Gear shaping  
machine

**Application:** Shaping of the  
internal gearing

**Advantage:** High run-out accuracy  
and high face run-out  
accuracy  
 $\leq 0,005 \text{ mm (0.0002")}$ ;  
because of the use  
of a Hydra-Clamping-  
Chuck as quick  
change base-chuck,  
there is a precise and  
quick tool-change  
possible





46



Field of application: ***Gear Shaving***

## Example 49

### Hydra-Clamping-Arbor

**Actuation:** Power actuated  
Axially by push cap  
attached to the  
tailstock

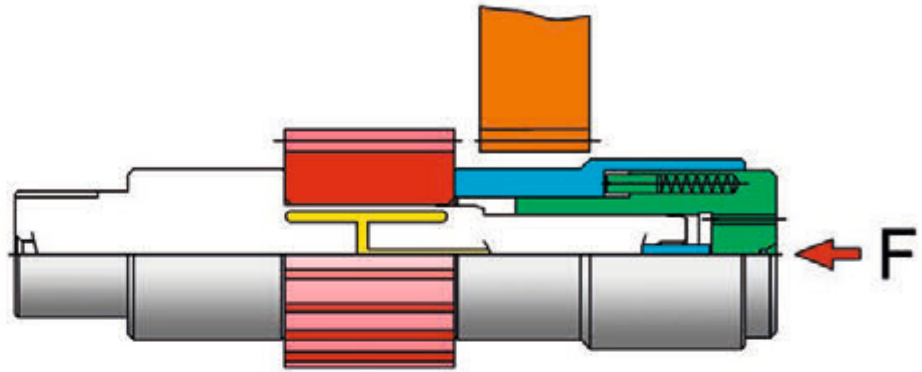
**Mounting:** Between centers

**Workpiece:** Gearwheel

**Machine:** Gear shaving  
machine

**Application:** Gear Shaving

**Advantage:** High run-out accuracy  
 $\leq 0,003$  mm  
(0.00012");  
quick change of  
workpiece possible



47

## Example 50

### Hydra-Clamping-Arbor

**Actuation:** Power actuated  
Axially by push cap  
attached to the  
tailstock

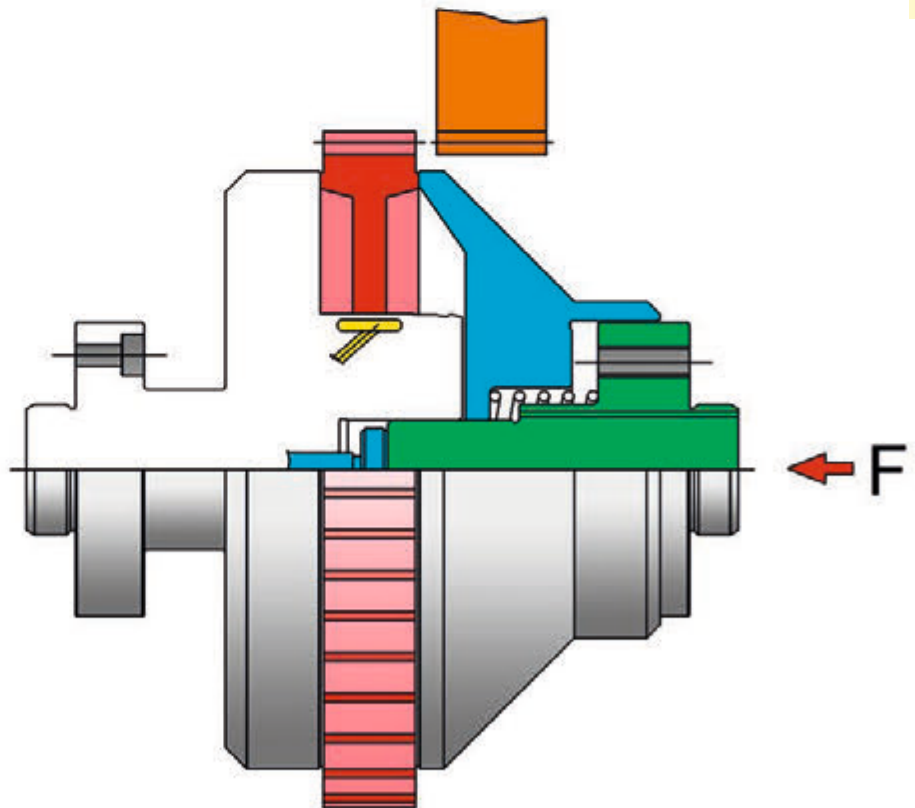
**Mounting:** Flange; cyl. centering

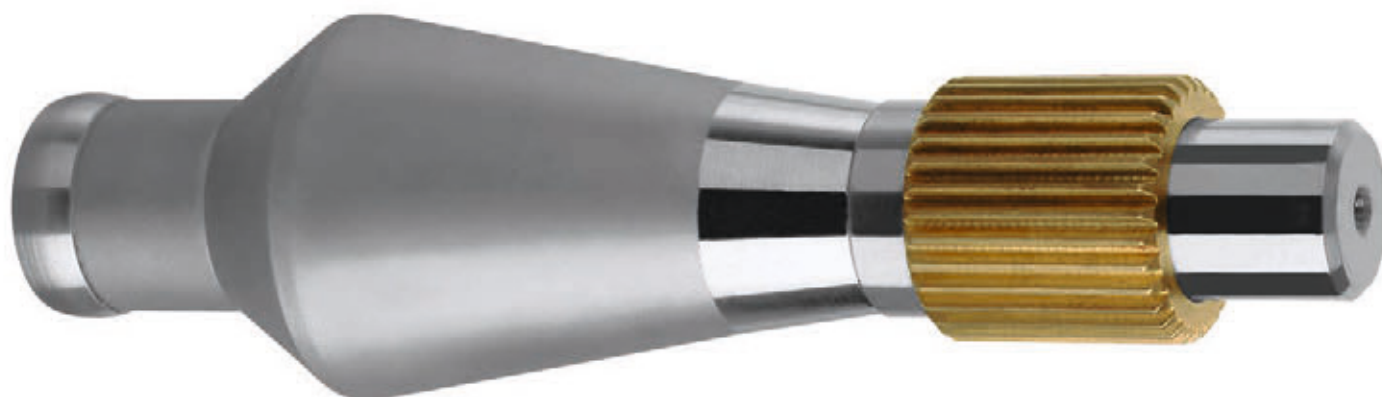
**Workpiece:** Gearwheel

**Machine:** Gear shaving  
machine

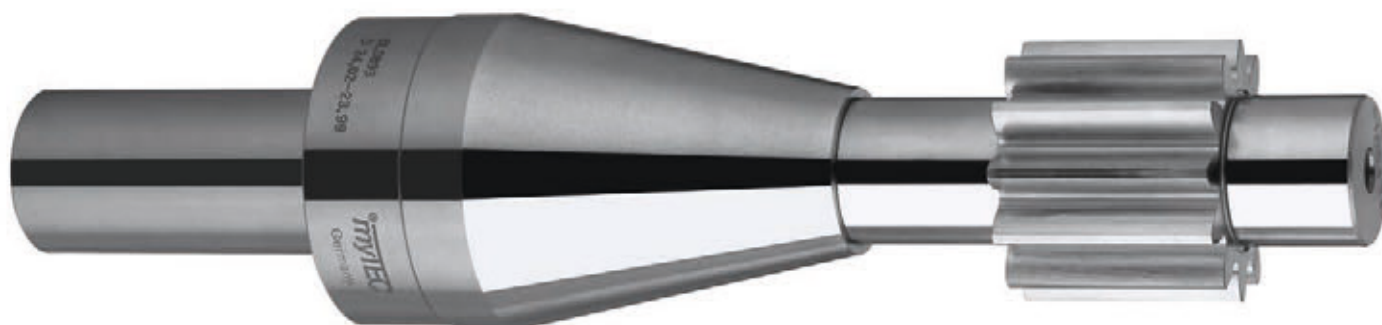
**Application:** Gear Shaving

**Advantage:** High run-out accuracy  
and  
high face run-out  
accuracy  
 $\leq 0,003$  mm  
(0.00012");  
axially positioned by  
a holder, therefore  
elimination of the  
vibration of the  
workpiece; automatic  
workpiece loading

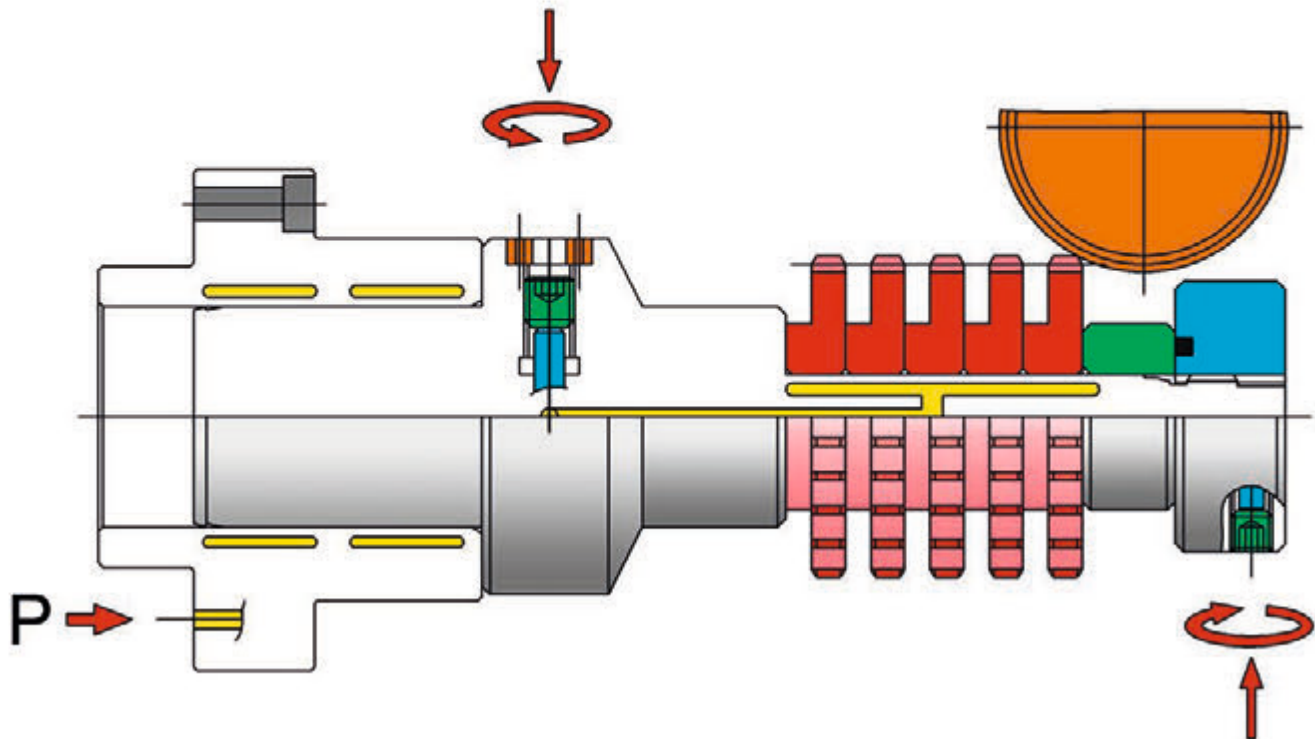




48



Field of application: ***Gear Grinding***

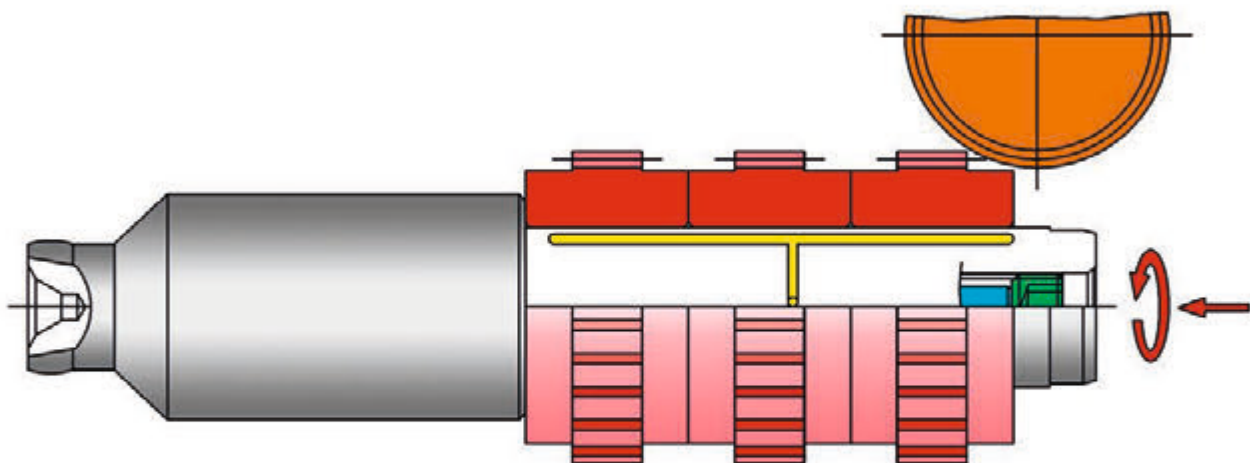


## Example 51

### Hydra-Clamping-Arbor

**Actuation:** Hand actuated, radially  
**Mounting:** Flange; cyl. centering in Hydra-Clamping-Base-Chuck  
**Workpiece:** Gearwheel  
**Machine:** Tooth profile grinding machine  
**Application:** Grinding of the tooth profile  
**Advantage:** High run-out accuracy and high face run-out accuracy  $\leq 0,003 \text{ mm}$  ( $0.00012''$ ); because of the use of a power actuated Hydra-Clamping-Chuck as a quick change base-chuck, precise and quick retrofitting possible

49



## Example 52

### Hydra-Clamping-Arbor

**Actuation:** Hand actuated, axially  
**Mounting:** Between centers (Reishauer)  
**Workpiece:** Gearwheel  
**Machine:** Tooth profile grinding machine  
**Application:** Grinding of the tooth profile  
**Advantage:** High run-out accuracy and high face run-out accuracy  $\leq 0,003 \text{ mm}$  ( $0.00012''$ ); several workpieces with different bore tolerances are being ground simultaneously

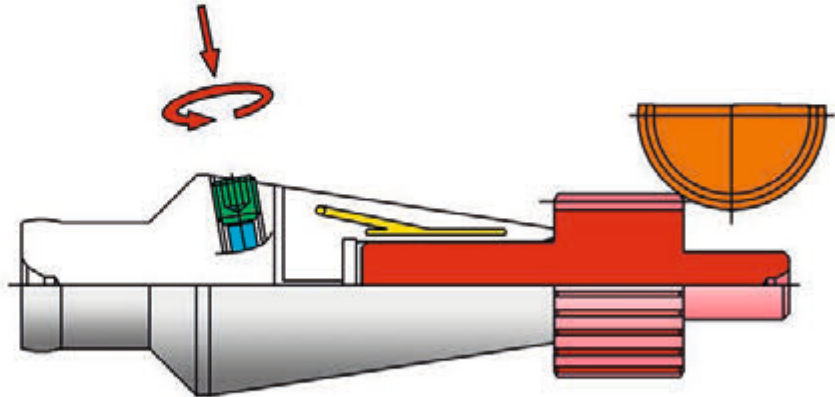


Field of application: ***Gear Grinding***

## Example 53

### Hydra-Clamping-Chuck

**Actuation:** Hand actuated  
**Mounting:** Radially  
 Between centers  
 (Reishauer)  
**Workpiece:** Pinion Gear  
**Machine:** Tooth profile grinding machine  
**Application:** Grinding of the tooth profile  
**Advantage:** High  
 run-out accuracy  
 $\leq 0,003 \text{ mm}$   
 (0.00012") from the  
 bearing seat to the  
 splines

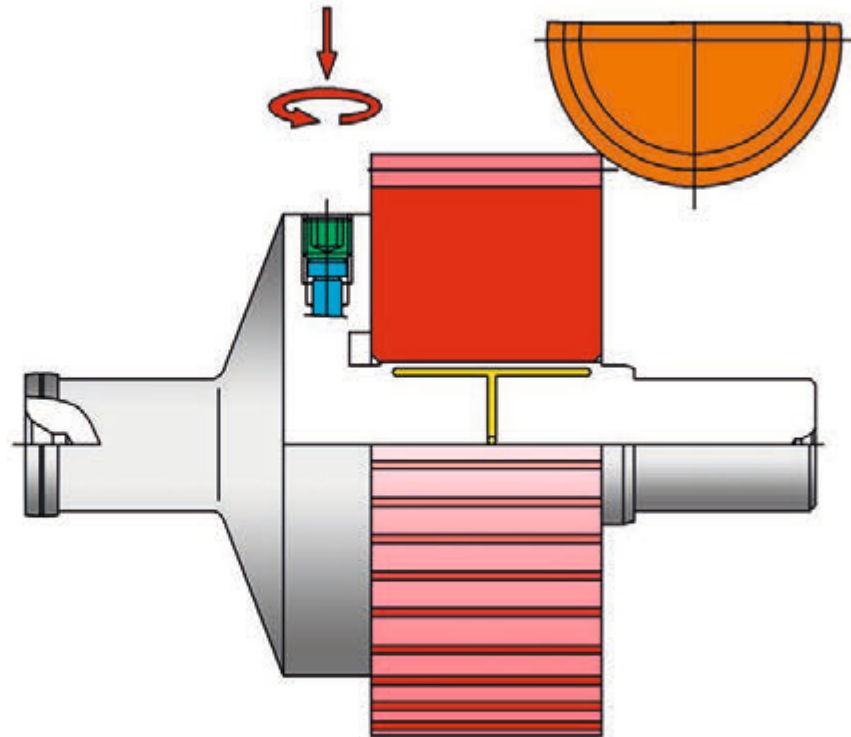


50

## Example 54

### Hydra-Clamping-Arbor

**Actuation:** Hand actuated  
**Mounting:** Radially  
 Between centers  
 (Reishauer)  
**Workpiece:** Gearwheel  
**Machine:** Tooth profile grinding machine  
**Application:** Grinding of the tooth profile  
**Advantage:** High run-out accuracy  
 and  
 high face run-out  
 accuracy  
 $\leq 0,003 \text{ mm}$   
 (0.00012") from the  
 splines to the ground  
 hole



Field of application: ***Gear Grinding***

## Example 55

### Hydra-Clamping-Arbor

**Actuation:** Power actuated  
Axially

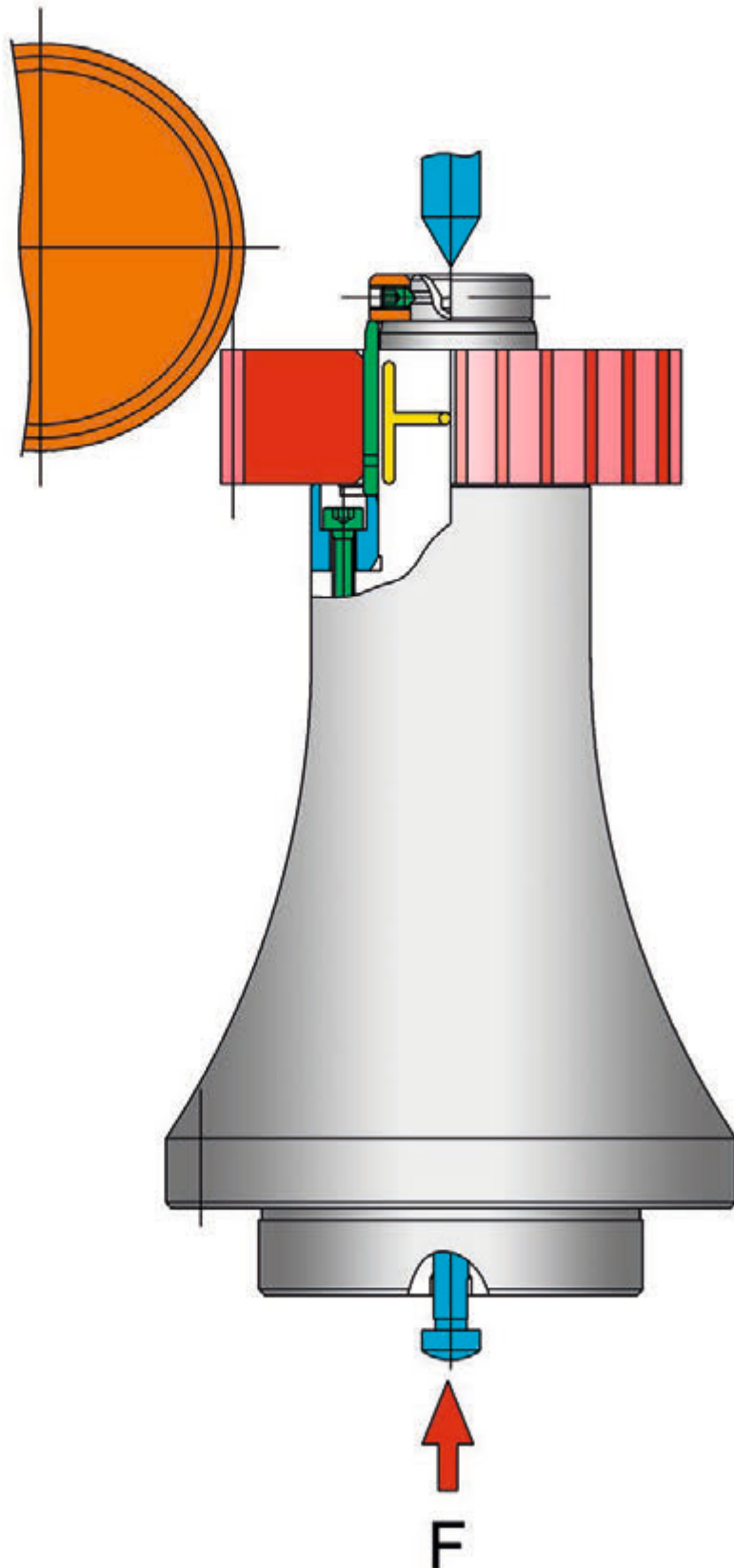
**Mounting:** Flange; cyl. centering

**Workpiece:** Gearwheel

**Machine:** Tooth profile grinding machine

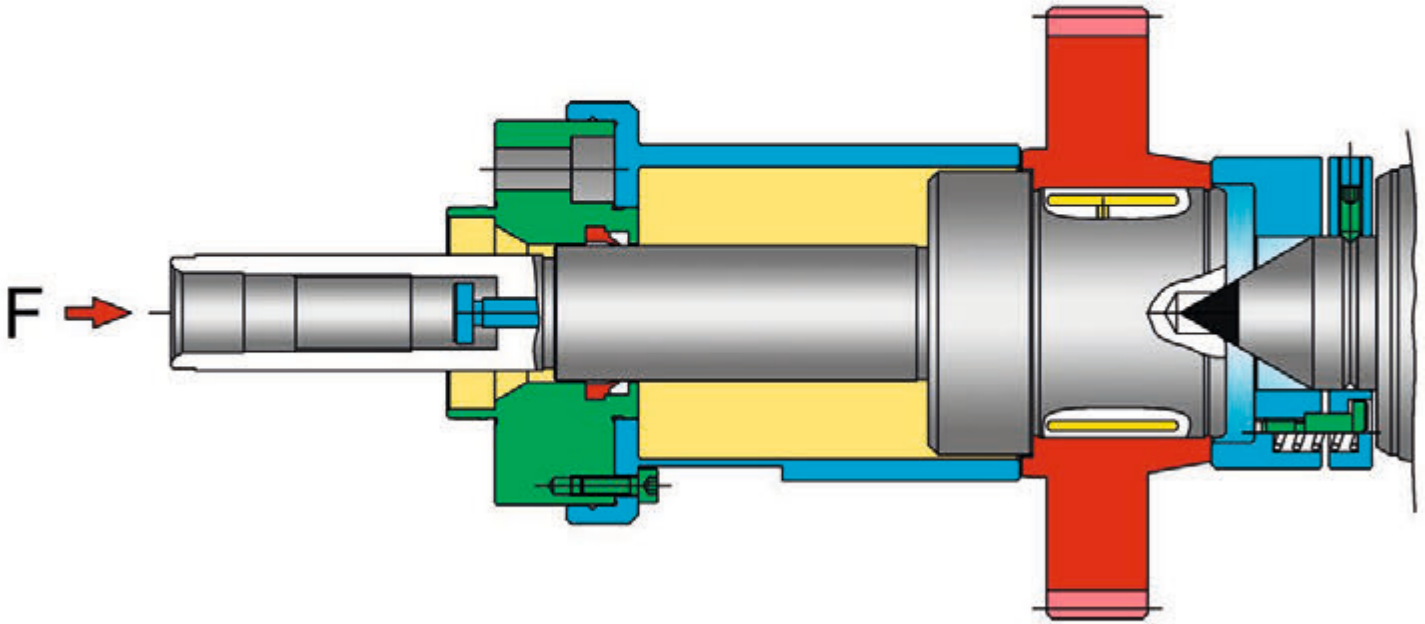
**Application:** Grinding of the tooth profile

**Advantage:** High  
run-out accuracy  
 $\leq 0,003 \text{ mm}$   
(0.00012")  
with interchangeable  
intermediate sleeve  
for different workpiece  
diameters. High  
resistance to wear at  
automatic loading by  
hard-coating of the  
sleeve with a surface  
hardness of the  
coating of 80 HRC.



# Gearwheel production

Field of application: ***Gear Honing***

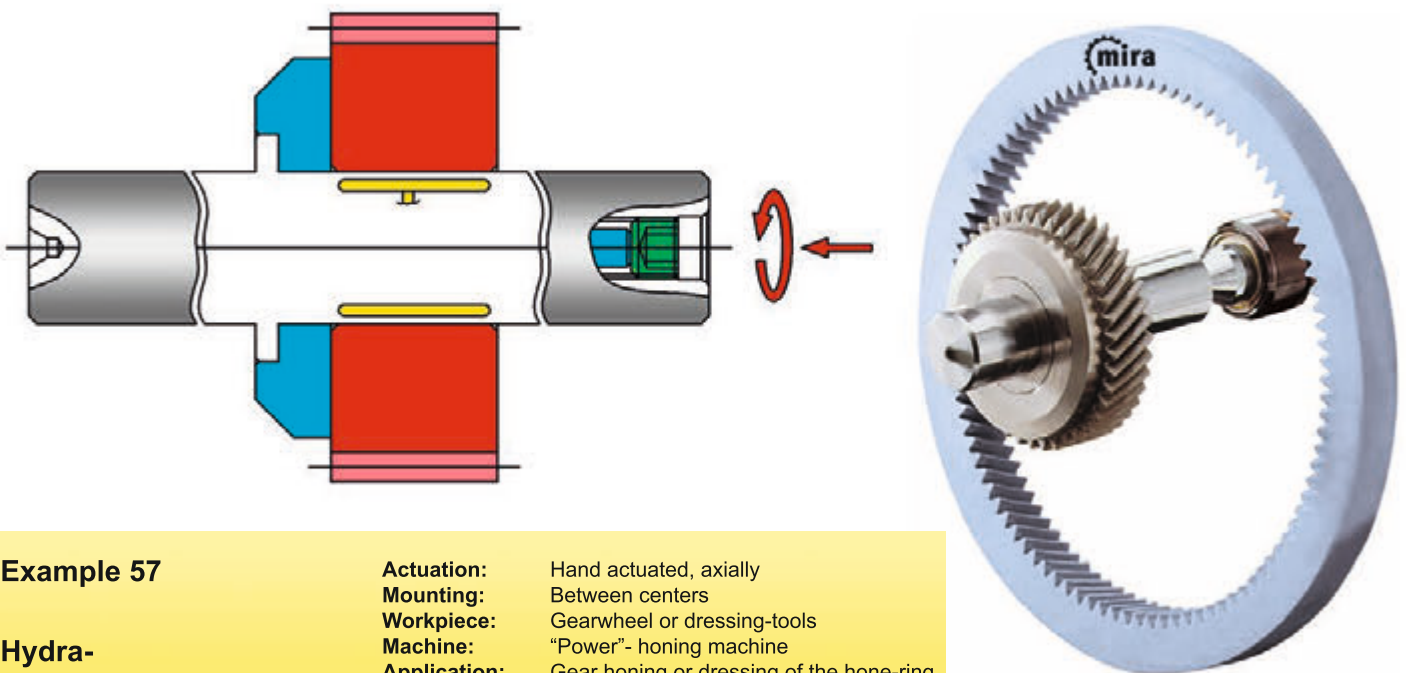


## Example 56

52

Hydra-  
Clamping-Arbor

**Actuation:** Power actuated, axially  
**Mounting:** Flange; cyl. centering  
**Workpiece:** Gearwheel  
**Machine:** „Fässler“ honing machine  
**Application:** Gear honing  
**Advantage:** High run-out accuracy and high face run-out accuracy  $\leq 0,002 \text{ mm}$  (0.00008"); axial support by tailstock; axially positioned by a holder



## Example 57

Hydra-  
Clamping-Arbor

**Actuation:** Hand actuated, axially  
**Mounting:** Between centers  
**Workpiece:** Gearwheel or dressing-tools  
**Machine:** "Power"- honing machine  
**Application:** Gear honing or dressing of the hone-ring  
**Advantage:** High run-out accuracy and high face run-out accuracy  $\leq 0,002 \text{ mm}$  (0.00008")

Field of application: ***Gear Honing***

## Example 58

### Hydra-Clamping-Chuck

**Actuation:** Hand actuated  
Radially

**Mounting:** Flange; cyl. centering

**Workpiece:** Driving flange

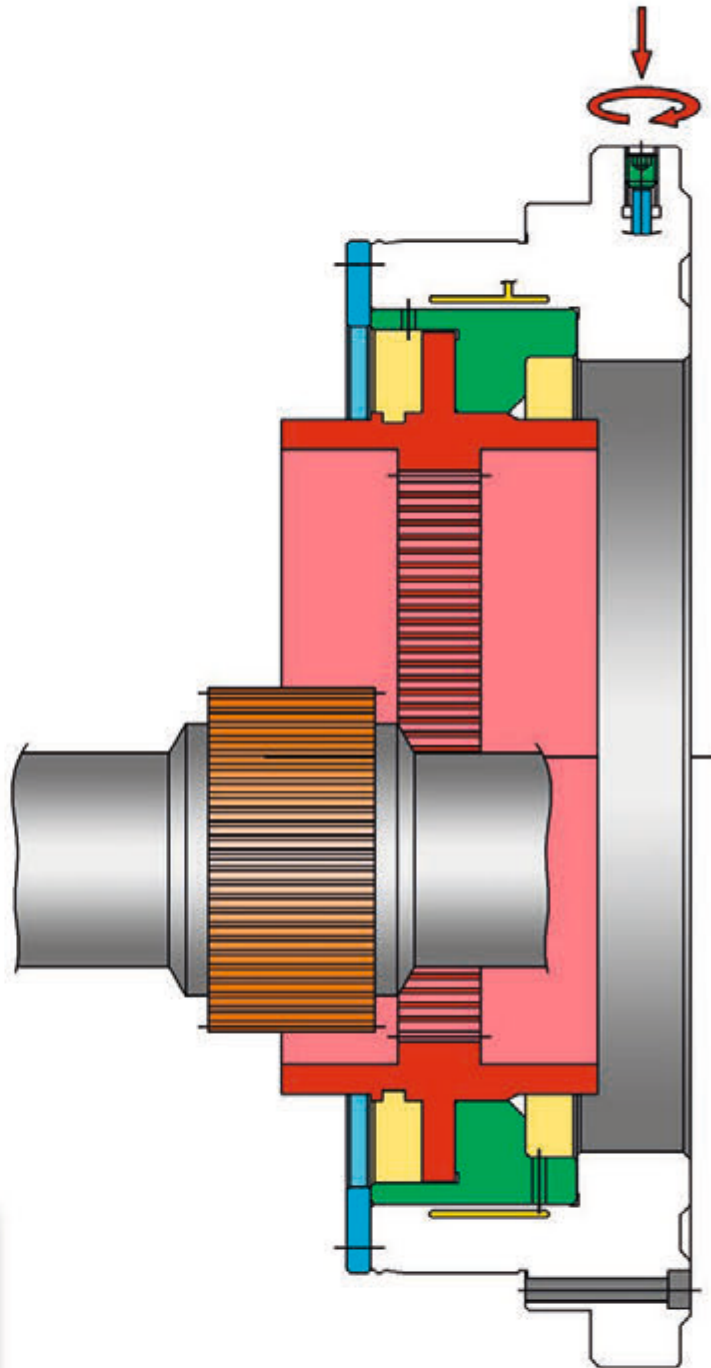
**Machine:** Gear honing machine

**Application:** Honing of the internal gearing

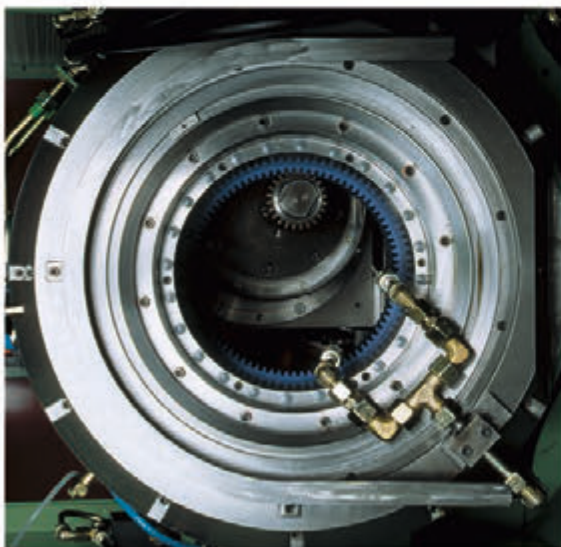
**Advantage:** High run-out accuracy  
and face  
run-out accuracy  
 $\leq 0,005 \text{ mm (0.0002")}$ .

Hydra-Clamping-  
Chuck mounted into  
the hone-ring casting.

To eliminate the  
deformation of the  
driving flange, the  
pressure of the  
Hydra-Clamping-  
Chuck will be  
monitored by a  
pressure sensor and  
will be controlled by  
„Power Control“-  
electronic pressure  
control- from Mytec  
-Hydraclamp- with  
interchangeable  
intermediate sleeve  
for different workpiece  
diameters



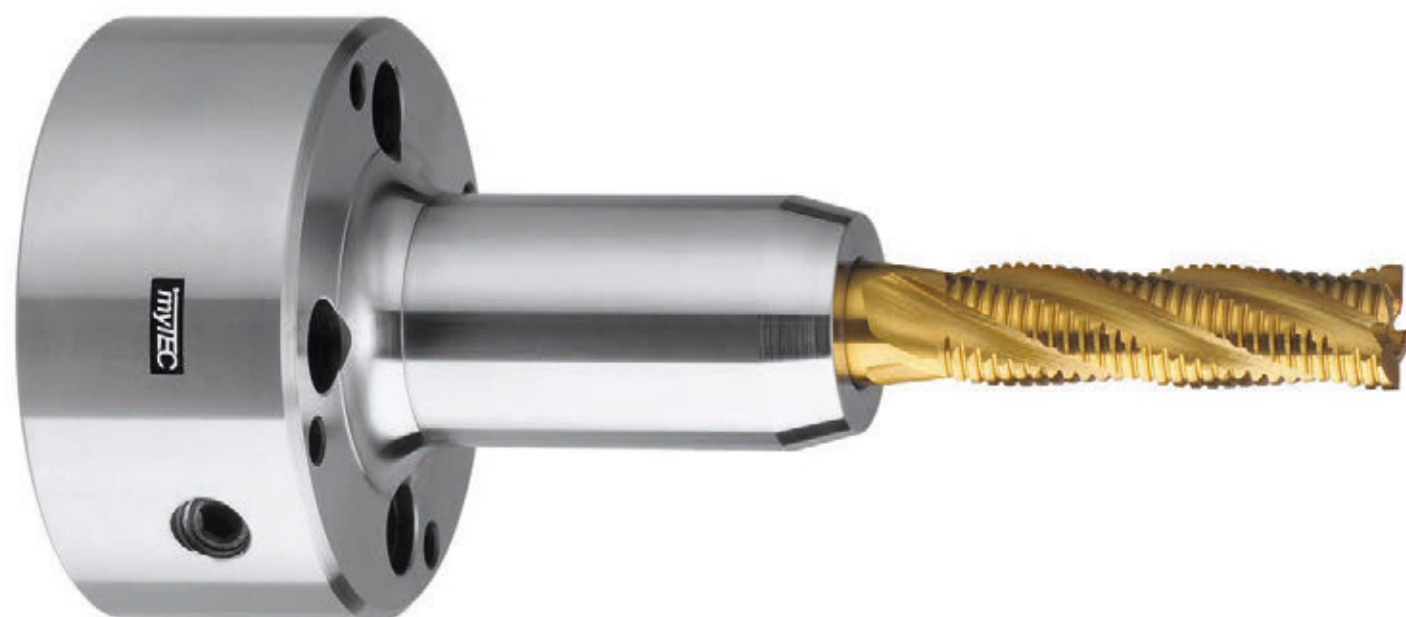
53



**Photo:** In the "Präwema" high performance gear honing machine mounted Hydra-Clamping-Chuck, where ceramic honing rings will be lightly clamped for high efficient finishing of hardened gears producing excellent results.



54



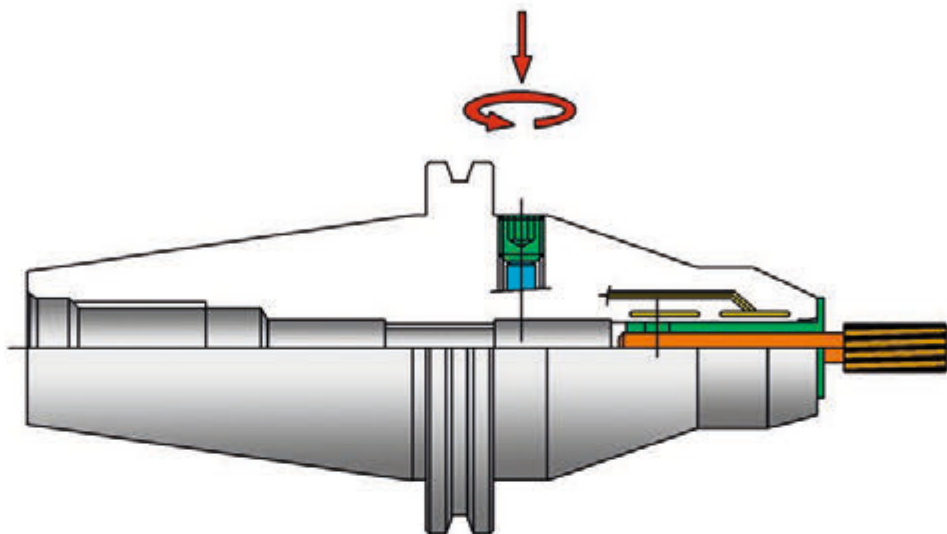


Field of application: **Drilling - milling - reaming - tool-grinding**

## Example 59

### Hydra-Clamping-Chuck

**Actuation:** Hand actuated  
Radially  
**Mounting:** SK50  
**Workpiece:** Endmill  
**Machine:** Tool grinding machine  
**Application:** Tool-grinding  
**Advantage:** High run-out accuracy  $\leq 0,003$  mm (0.00012"); slim chuck contour for grinding wheel clearance. With interchangeable intermediate sleeves for different workpiece dia. This Hydra-Clamping-Chuck could also be delivered for various tool sizes and also with power actuation.

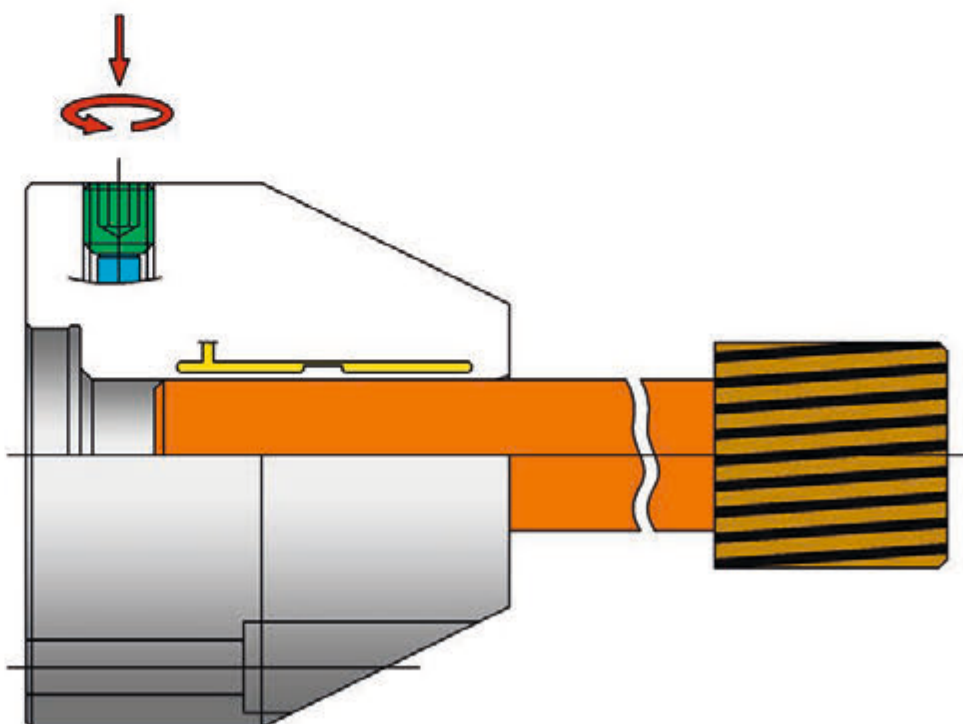


55

## Example 60

### Hydra-Clamping-Chuck

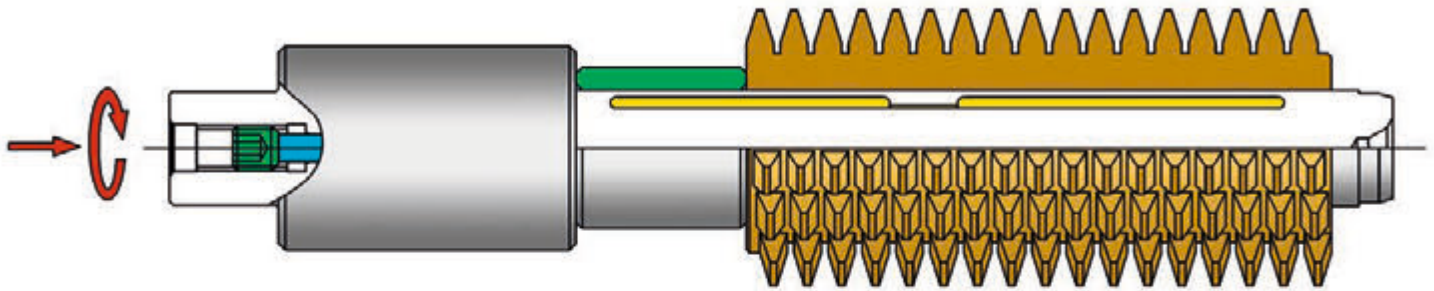
**Actuation:** Hand actuated  
Radially  
**Mounting:** Flange; cyl. centering  
**Workpiece:** Reamer  
**Machine:** Machining center  
**Application:** Reaming  
**Advantage:** High run-out accuracy  $\leq 0,003$  mm (0.00012"); therefore longer life of the reamer and highest roundness of the bore



56



Field of application: **Hob Production**

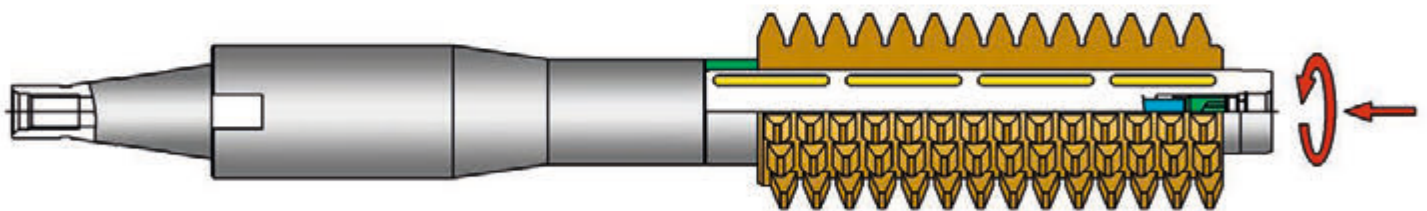


## Example 61

### Hydra-Clamping-Arbor

**Actuation:** Hand actuated, axially  
**Mounting:** Between centers  
**Workpiece:** Hobs  
**Machine:** Measuring machine / grinding machine  
**Application:** Measuring, checking and grinding  
**Advantage:** High run-out accuracy and high face run-out accuracy  $\leq 0,003$  mm (0.00012"). Ground spacer makes the clamping of different hob lengths possible and extends the operating range.

57



## Example 62

### Hydra-Clamping-Arbor

**Actuation:** Hand actuated, axially  
**Mounting:** Steep taper 40  
**Workpiece:** Hobs  
**Machine:** CNC-form-grinding machine  
**Application:** Form-grinding  
**Advantage:** High run-out accuracy and face run-out accuracy  $\leq 0,003$  mm (0.00012"). Ground spacer makes the clamping of different hob lengths possible and extends the operating range.

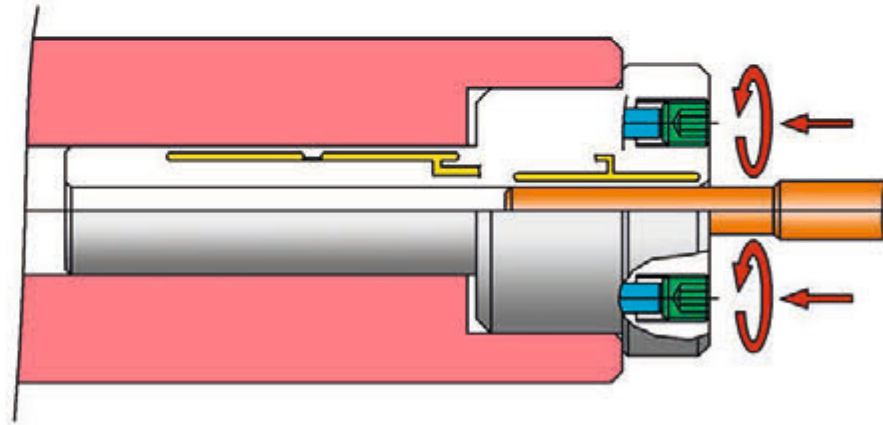
# Tool clamping

Field of application: **Drilling - reaming - adjusting**

## Example 63

### Hydra-Clamping-Arbor

**Actuation:** Hand actuated  
Axially  
**Location:** Cyl. shaft with integrated clamping  
**Workpiece:** Reamer  
**Machine:** Transfer machine  
**Application:** Reaming  
**Advantage:** High run-out accuracy  $\leq 0,003$  mm (0.00012"); Through an additional expanding sleeve in the mounting shaft, centering free of play in the motor-spindle. Expanding areas being separately actuated.

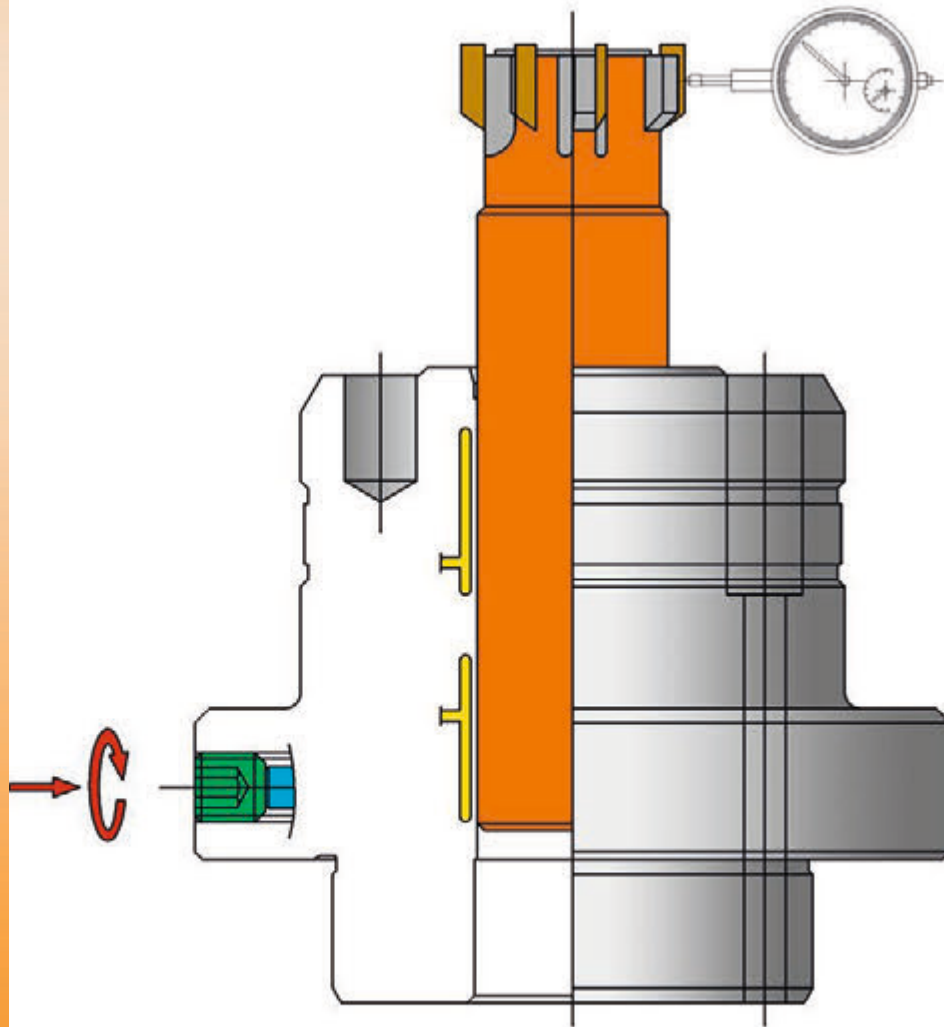


58

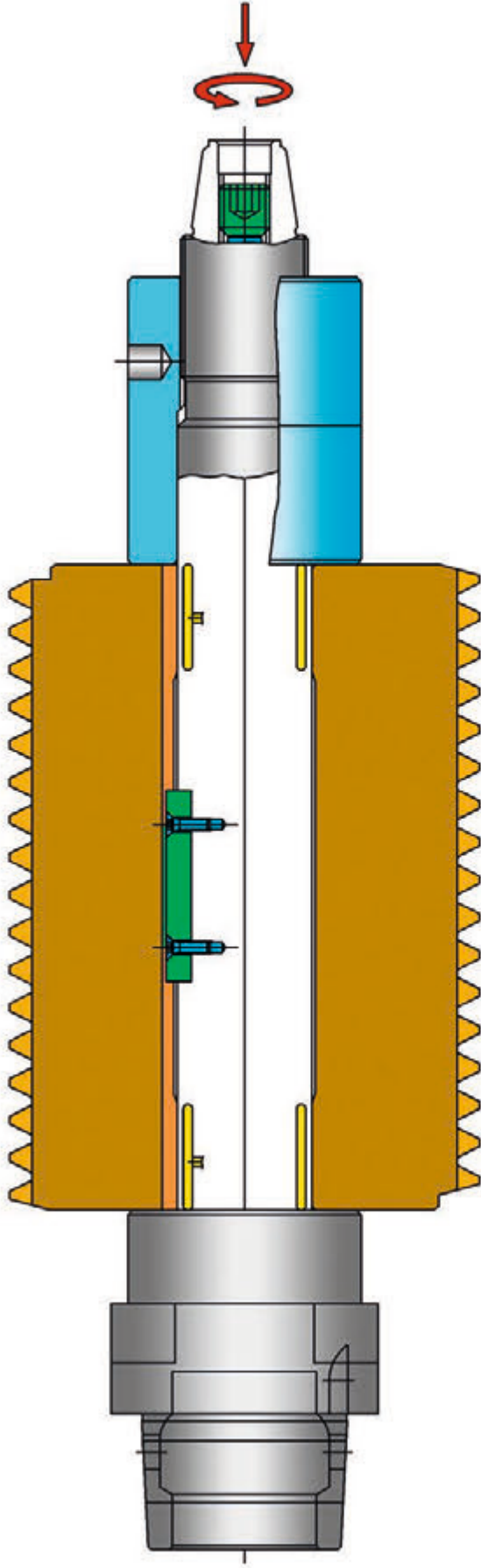
## Example 64

### Hydra-Clamping-Chuck

**Actuation:** Hand actuated  
Radially  
**Location:** Flange  
**Workpiece:** Adjustable reamer  
**Machine:** Preset device  
**Application:** Adjusting  
**Advantage:** High run-out accuracy  $\leq 0,002$  mm (0.00008"); therefore even height of cutting edges = reducing of wear. High surface quality and highest roundness of the bore.







## Field of application: *Hobbing*

### Example 65

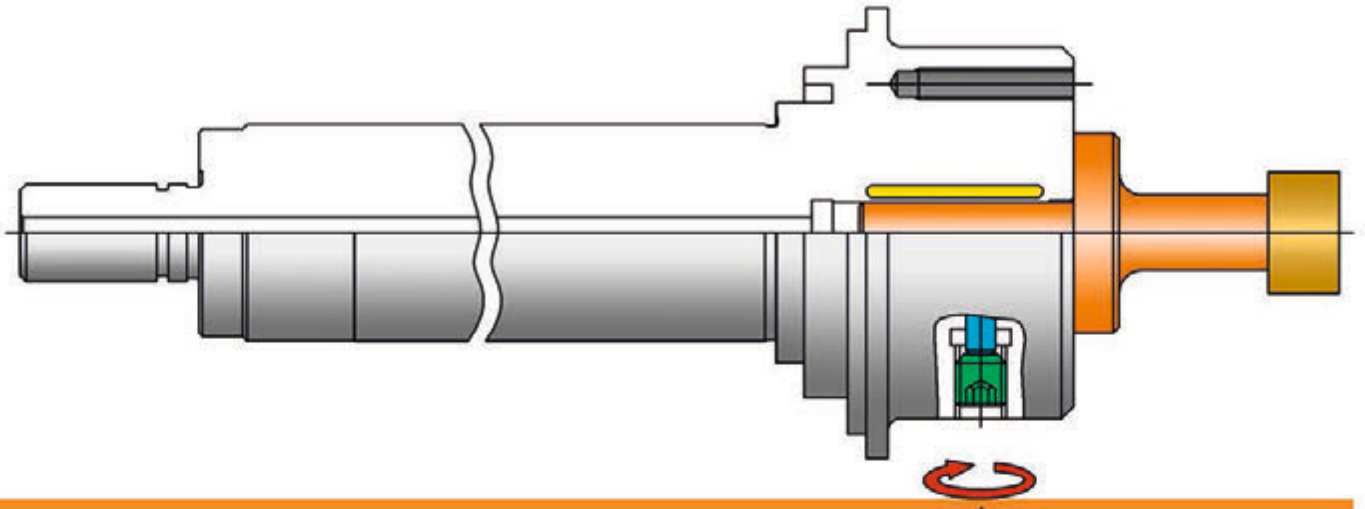
### Hydra- Clamping-Arbor

<b>Actuation:</b>	Hand actuated, axially
<b>Mounting:</b>	HSK
<b>Workpiece:</b>	Hobs
<b>Machine:</b>	CNC-hobbing machine
<b>Application:</b>	Hobbing
<b>Advantage:</b>	High run-out accuracy and high face run-out accuracy $\leq 0.003$ mm (0.00012"); 2 clamping areas; transmission of torque by feather key. Axial locating by high precision axial-nut. Because of extremely high run-out accuracy the tool life was 5 times greater than with previous tooling.



# Tool clamping

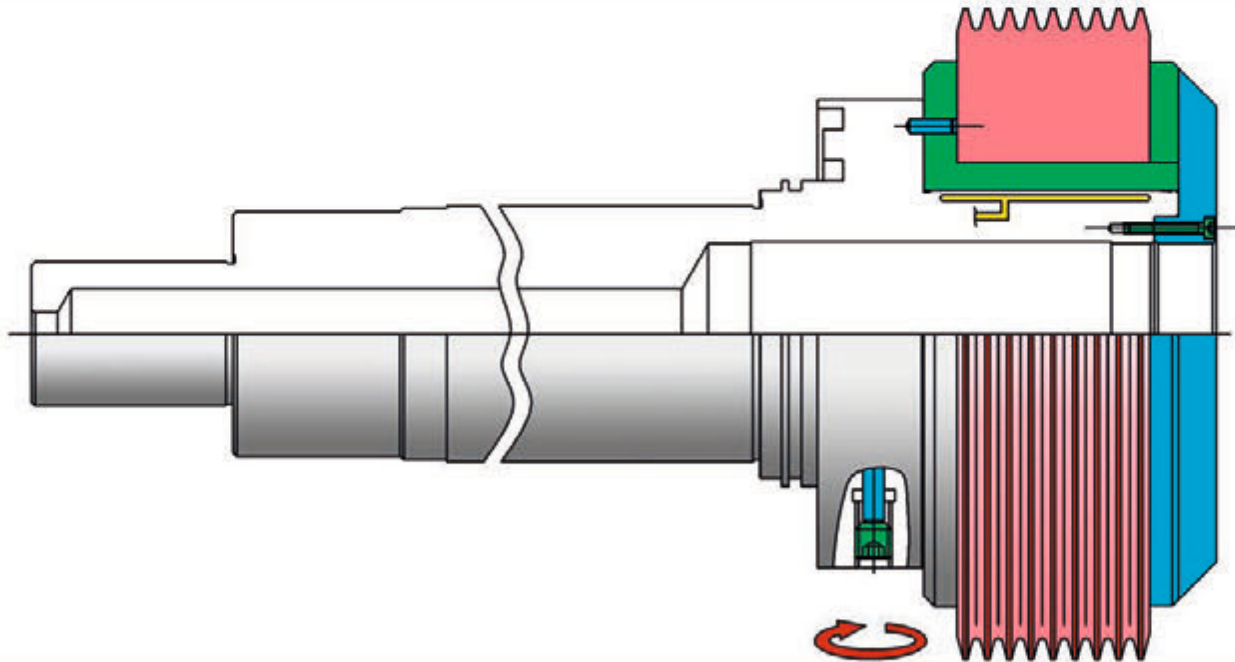
Field of application: **CNC - grinding**



## Example 66

### Hydra-Clamping-Chuck

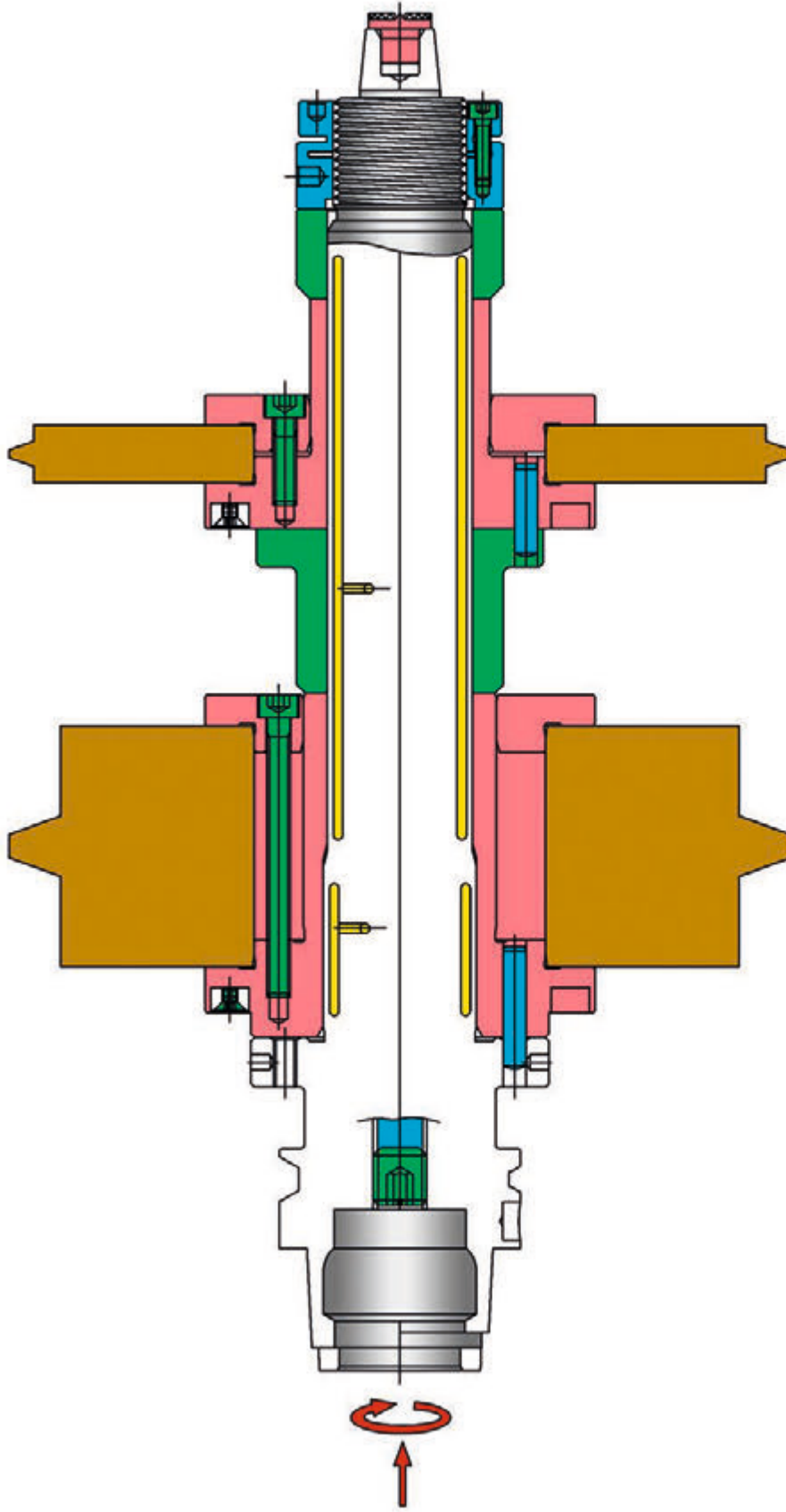
**Actuation:** Hand actuated, radially  
**Mounting:** Complete machine spindle with integrated Hydra-Clamping-Chuck  
**Workpiece:** Grinding tool  
**Machine:** CNC-grinding machine  
**Application:** CNC-grinding  
**Advantage:** High run-out accuracy  $\leq 0,003 \text{ mm}$  (0.00012"). Improved tool life. High RPM's are possible because of high gripping pressure and torques, as well as internal coolant supply in the Hydra-Clamping-Chuck. Complete machine spindle precisely balanced.



## Example 67

### Hydra-Clamping-Arbor

**Actuation:** Hand actuated, radially  
**Mounting:** Complete machine spindle with integrated Hydra-Clamping-Arbor  
**Workpiece:** Grinding wheel flange with mounted form-grinding wheel or dressing rolls  
**Machine:** CNC-grinding machine  
**Application:** CNC-grinding or grinding wheel dressing  
**Advantage:** High run-out accuracy  $\leq 0,003 \text{ mm}$  (0.00012"); quick and high precise changing of the grinding wheels or dressing rolls; no vibrations by frictional engaged clamping; complete machine spindle precisely balanced



Field of application: **CNC - grinding**

Example 68

Hydra-  
Clamping-Arbor

**Actuation:** Hand actuated, axially  
**Mounting:** Complete grinding spindle with HSK-adapter  
**Workpiece:** Grinding wheel flanges with mounted form-grinding wheels  
**Machine:** CNC-gear-grinding machine  
**Application:** CNC-form-grinding  
**Advantage:** High run-out accuracy and high face run-out accuracy  $\leq 0,003$  mm;  
quick and high precision changing of the grinding wheels;  
no vibrations by frictional engaged clamping;  
complete grinding spindles precisely balanced;  
axial clamping by high precision axial adjusting nut

# Questionnaire for processing inquiries

Company: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 Postal code/City: \_\_\_\_\_  
 Contact: \_\_\_\_\_

Telephone: \_\_\_\_\_  
 Fax: \_\_\_\_\_  
 E-mail: \_\_\_\_\_  
 Date: \_\_\_\_\_

**Please copy and fill out this page and include it with every inquiry.**

## Clamping of workpiece or tool

Clamping diameter \_\_\_\_\_ mm / "  
 Active clamping length LS \_\_\_\_\_ mm / "  
 Axial eccentricity of the locating surface for  
 Clamping diameter 0.0 \_\_\_\_\_ mm / "  
 Tolerance: \_\_\_\_\_  
 Material: \_\_\_\_\_  
 Workpiece / tool loading:  
☐ Manual ☐ Automatic

**Please include always a drawing of the workpiece or tool to be clamped along with the enquiry.**

## Use for

- ☐ Turning ☐ Honing / lapping  
☐ Milling ☐ Measuring / testing  
☐ Drilling / reaming ☐ Balancing  
☐ Grinding ☐ Centering

Please mark in the workpiece drawing  
 Clamping area : RED  
 Backstop area : GREEN  
 to be machined / measured : BLUE

## Receptacle of the expansion tool

- ☐ Between centers ☐ Cantilever  
☐ Taper shank: MK \_\_\_\_\_ SK \_\_\_\_\_ HSK \_\_\_\_\_ DIN / ASA \_\_\_\_\_  
☐ Reishauer ball Ø 30 ☐ Reishauer ball Ø 65  
☐ Short taper size \_\_\_\_\_ DIN \_\_\_\_\_

**Please include spindle head drawing or sketch of the flange with dimension information.**

## Clamp activation

- ☐ Hand-actuation ☐ Power-activated ☐ Tension clamping ☐ Pressure clamping  
☐ Direct clamping Pressure from \_\_\_\_\_ bar to \_\_\_\_\_ bar

## Clamping direction

- ☐ Axial ☐ Radial ☐ Tangential ☐ Centric

Is balancing of expansion tool necessary ?

- ☐ Without workpiece ☐ With workpiece

Balancing quality Q \_\_\_\_\_ Nominal speed \_\_\_\_\_ 1 / min

Required residual unbalance \_\_\_\_\_ g / mm

- ☐ Hard coating of the expansion sleeve ☐ Wear protection ☐ Torque increase

## Requirement

Quantity \_\_\_\_\_ Desired delivery time \_\_\_\_\_ ( weeks)

## Use conditions

(for example thermal influence, coolant etc.) \_\_\_\_\_

## Appendices

- ☐ Drawing of the piece to be clamped (workpiece-/ tool drawing) ☐ Drawing of the mounting flange  
☐ Spindle head drawing ☐ Drawing / data sheet of the stroke and axial pressure





**myTEC**<sup>®</sup>  
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