

Hydraulic Expanding Clamping Tools



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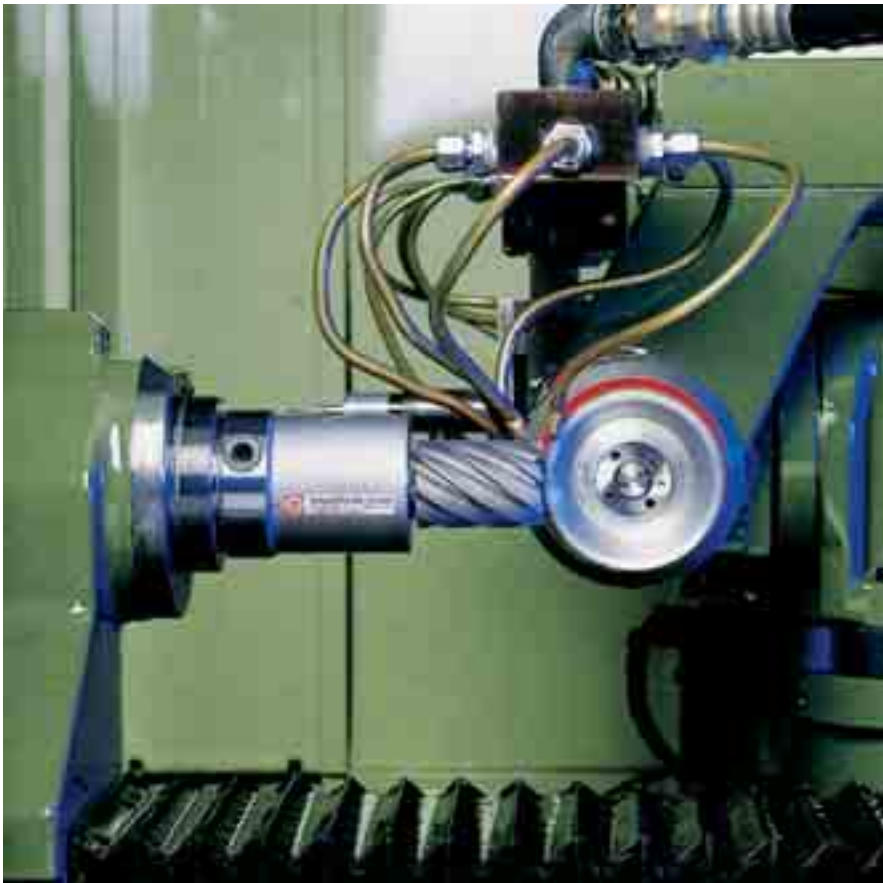
Hydraulic Expanding Clamping Tools

Safe Clamping with High Accuracy

The selection of the right clamping tool has a direct bearing on the operational efficiency and economy of production processes and it has therefore become inconceivable to think of modern production technology without hydraulic expanding clamping tools. They are used in applications which demand regulated clamping forces with maximum concentricity: for workpiece- and tool clamping in all areas of production technology and, because of their excellent concentricity also for inspection and control purposes.

The high concentricity is achieved by the even expansion of the expanding bush. The sealless connection with the base body arrived at by a special manufacturing process ensures lasting operating quality with high precision.

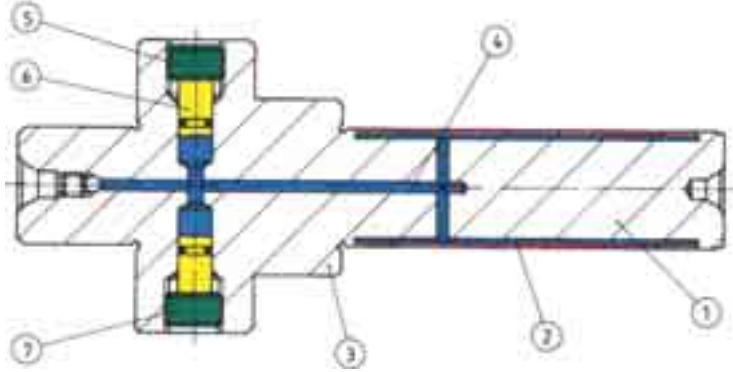
The solution to your clamping problems: hydraulic expanding clamping tools designed and manufactured by us to your requirements.



Hydraulic expanding chuck for form grinding of milling cutters on a 5-axis CNC tool grinding machine

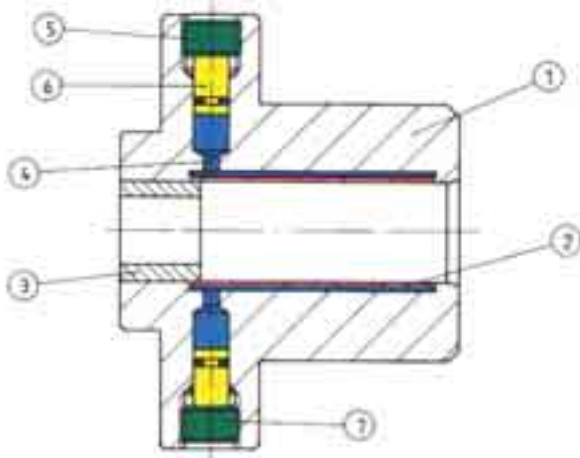
Hydraulic Expanding Clamping Tools

Function and Advantages



Mandrel for I.D. clamping

- 1 base body
- 2 expansion bush
- 3 axial stop
- 4 hydraulic system
- 5 clamping screw
- 6 clamping piston
- 7 adjustment screw (sealed)



Chuck for O.D. clamping

Function

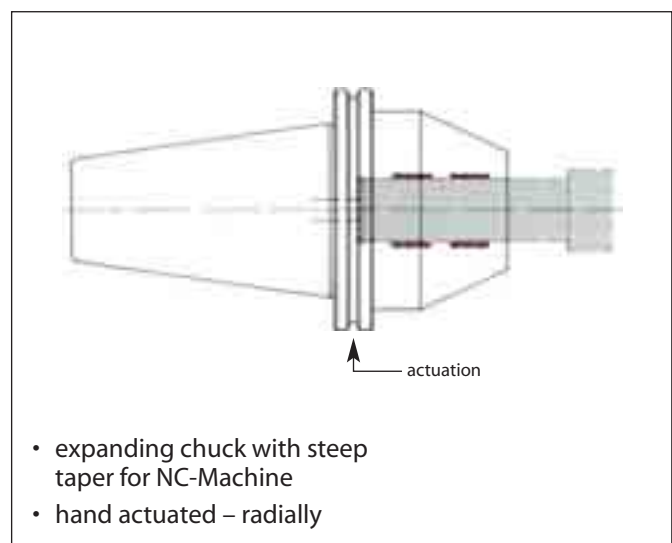
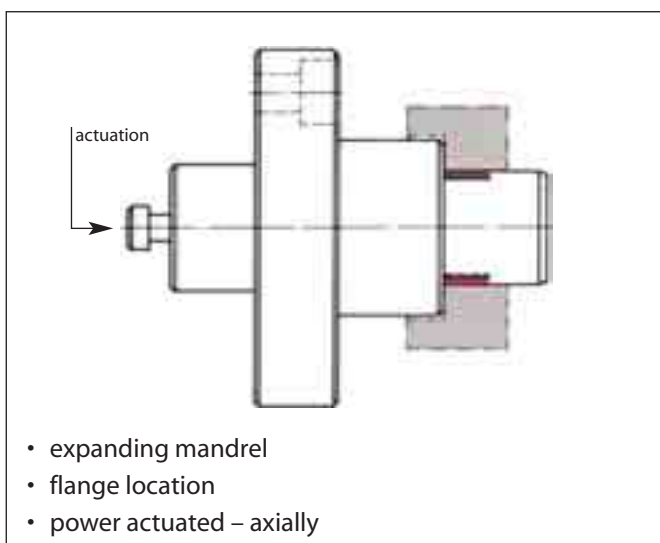
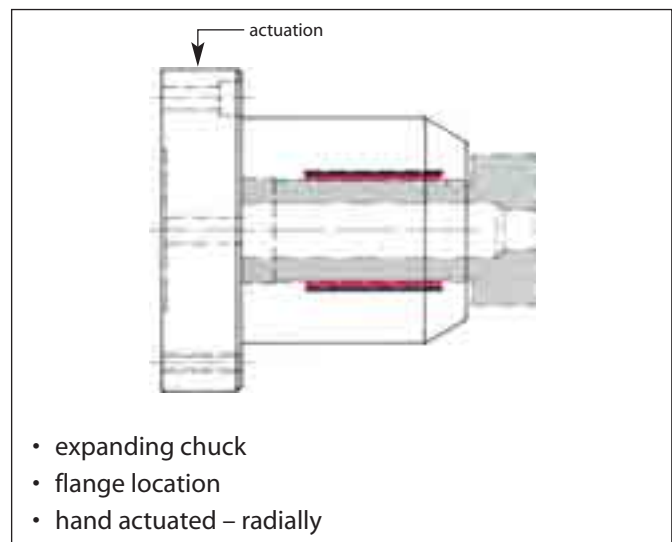
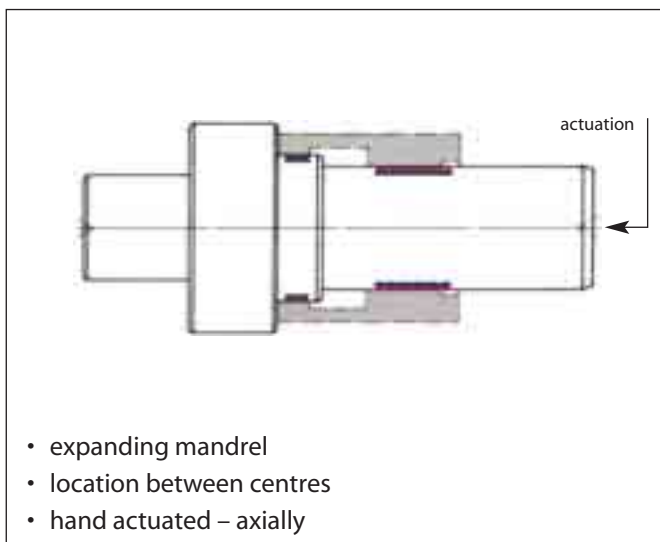
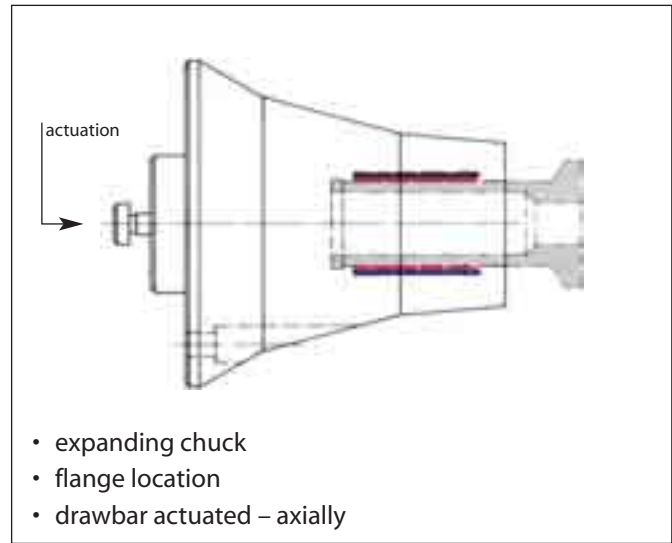
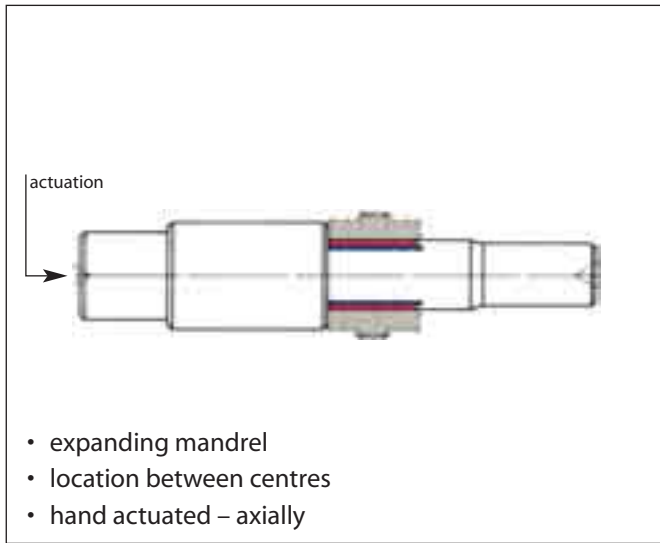
The clamping piston (6) is actuated with limited stroke by the clamping screw (5), thus pressurising the oil in the hydraulic system (4) against the thin-walled expanding bush (2) made of high quality tool steel. This bush expands along its whole length absolutely cylindrically and concentrically. After pressure has been released the expanding bush returns to its original position.

Advantages

- concentricity 1-3 μm up to clamping diameter 50 mm
- high clamping force; finely adjustable
- expansion range max. 0,3% of the clamping diameter
- clamping also possible without workpiece
- expanding bush made from high quality tool steel
- resistant to swarf and maintenance free
- no pressure loss excellent accuracy rating over long periods
- good rigidity against bending and torsional movement therefore vibration-proof

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Application Examples



Questionnaire for Hydraulic Expanding Clamping Tools

please photocopy

Company: Address: Telephone: Telefax:	Department: Name: Enquiry-no.: Date: e-mail:
1. Workpiece or tool to be clamped	Clamping diameter _____ mm Expansion rate: max 0,3% of clamping diameter Effective clamping length Ls _____ mm True running accuracy of axial location face to clamping diameter 0.0 _____ mm Tolerance: _____ mm Material _____ Feed of workpiece/tool: <input type="checkbox"/> manual <input type="checkbox"/> automatic Please enclose drawing of the part to be clamped.
2. Process on Workpiece	<input type="checkbox"/> Turning <input type="checkbox"/> Honing/Lapping <input type="checkbox"/> Milling <input type="checkbox"/> Boring/Reaming <input type="checkbox"/> Grinding Cutting data: Speed _____ 1/min Feed _____ mm/rev. Cutting depth _____ mm Workpiece is to be: <input type="checkbox"/> inspected/measured <input type="checkbox"/> balanced Please mark positions on workpiece drawing: point of clamping = red locating point = green surface to be machined/measured = blue
3. Location of Clamping Tool	<input type="checkbox"/> between centres <input type="checkbox"/> taper shank: MK _____ SK _____ DIN/ASA _____ <input type="checkbox"/> Flange fastening Short taper size _____ DIN/ASA _____ Cylindrical location _____ Please include drawing of spindle head or sketch of flange with dimensions.
4. Clamping Actuation	<input type="checkbox"/> Manual actuation <input type="checkbox"/> Power actuation: Setting range of clamping installation Pressure from N _____ to _____ N <input type="checkbox"/> Direct supply: Pressure from bar _____ to _____ bar The clamping force is introduced (please enclose sketch or drawing) <input type="checkbox"/> axially <input type="checkbox"/> through the centre <input type="checkbox"/> radially <input type="checkbox"/> adjacent to centre bore <input type="checkbox"/> tangentially In addition, is separate/secondary workpiece clamping to be used? Type of clamping: _____ _____ _____ (please enclose sketch or drawing) Required true running accuracy and concentricity on the clamping tool ____ mm
5. Balancing of hydraulic clamping tool required?	<input type="checkbox"/> without workpiece <input type="checkbox"/> with workpiece balancing quality _____ nominal speed _____ 1/min permissible imbalance _____
6. Requirement	Pieces _____ Requested delivery date _____
7. Other Details	(eg. thermal factors, coolants etc.) _____ _____ _____
8. Enclosures	<input type="checkbox"/> Drawing of part to be clamped (drawing of workpiece/tool) <input type="checkbox"/> Drawing of spindle head <input type="checkbox"/> Drawing of connecting flange <input type="checkbox"/> Drawing/sketch of clamping force supply <input type="checkbox"/> Drawing/sketch of separate workpiece clamping



Freewheels

Backstops

Automatic protection against reverse running of conveyor belts, elevators, pumps and fans.



Catalogue 88

Indexing Freewheels

For gradual feed of materials.



Catalogue 80

Overrunning Freewheels

Automatic engaging and disengaging of drives.



Catalogue 80

Housing Freewheels

Automatic engaging and disengaging for multi-motor drives for installations with continuous operation.



Catalogue 80.1

Freewheel Elements

Cage Freewheels, Sprag Sets and Freewheel Chains.



Catalogue 89

Brakes

Industrial Disc Brakes

Manual Activated – Manual Release.



Catalogue 46

Industrial Disc Brakes

Spring Activated – Pneumatically, Hydraulically, Electromagnetically or Manual Release.



Catalogue 46

Industrial Disc Brakes

Pneumatically Activated – Spring Release.



Catalogue 46

Industrial Disc Brakes

Hydraulically Activated – Spring Release.



Catalogue 46

Fail-Safe Clamping Units

For secure and precise positioning of piston rods.



Catalogue 32

Torque and Force Limiters

Torque Limiter with Screw Face

Reliable overload protection for tough operating conditions.



Catalogue 45

Torque Limiter with Rollers

With double or single Roller. Through ratcheting or disengaging, also for 360° synchronous running.



Catalogue 45

Torque Limiter with Spherical Rollers

Reliable overload protection with maximum response accuracy. Also backlash free.



Catalogue 45

Torque Limiter with Friction Linings

RIMOSTAT Torque Limiter for constant torque. Belleville Spring Torque Limiter for simple release.



Catalogue 45

Force Limiter

Reliable axial overload protection in piston rods.



Catalogue 49

Couplings

Flexible Couplings

Large, safe radial and angular misalignments. Minimum resiliency.



Catalogue 44

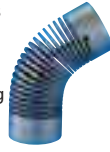
Flange couplings

Rigid, easily removable shaft coupling with no-play cone clamping elements



HELICAL-Flexures Shaft Couplings

Design to meet requirements for specific applications. Connecting components can be integrated to save space.



Catalogue 43

HELICAL-Flexures Spring Elements

Single Spring element with maximum resistance to wear.



Catalogue 43

Clamping Coupling

For the automatic coupling of rolls. Fast, safe and free from slipping connection.



Shaft-Hub-Connection

Cone Clamping Elements

For shaft-hub connections. High torques with small dimensions.



Catalogue 31

Two-part Shrink Discs

External clamping connection. Advantages: Simple, secure mounting even without torque wrench.



Catalogue 31.1

Three-part Shrink Discs

External clamping connection for the fastening of hollow shafts on solid shafts



Catalogue 31

Star Discs

Ideal for shaft-hub-connection for frequent release.



Catalogue 30

Star Spring Washers

Axial spring elements for preloading of ball bearings.



Catalogue 20

Precision Clamping Fixtures

Standard Parts for Clamping Fixtures

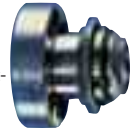
The RINGSPANN-System for the manufacture of your own precision clamping fixtures.



Catalogue 14

Standard Clamping Fixtures

Standard programme in high precision, ready manufactured Chucks and Mandrels.



Catalogue 13

Special Clamping Fixtures

Custom made solutions for specific clamping problems.



Glidebush Mandrels

Universal, cost effective standard series. Fast tool change to other clamping diameters.



Catalogue 15

Hydraulic Expanding Clamping Tools

Mandrels and chucks with high concentricity. Clamping several work pieces in one process possible.



Catalogue 16

