



STIEFELMAYER

Spanntechnik



Gripping Variety –
STIEFELMAYER Clamping Tools
and Mandrels

STIEFELMAYER-Spanntechnik – Clever Solutions for Difficult Cases

The Success Story

For STIEFELMAYER-Spanntechnik it all started in 1994 with the acquisition and integration of a small company specialising on customised clamping tools.

Since then, this domain has consequently been expanded and supplemented by new, innovative products.



Clamping Technology Today

Today we are a well-respected partner of leading manufacturers of lathes and grinding machines as well as their customers.

With advice, top-quality design, production and service from one source, STIEFELMAYER-Spanntechnik offers solutions leaving the standard far behind and providing the optimum clamping tool for every application.

With the result that set-up times are lowered, production times reduced and therefore costs are cut. More than 10,000 installations all over the world prove that we are right with our clever solutions.

The brochure on hand only provides a small insight into the manifold possibilities with STIEFELMAYER-Spanntechnik.

Ideas in Clamping Technology – Spot-on Solutions

The Products

Chucks and mandrels in abundance.

Clamping Tools at a Glance

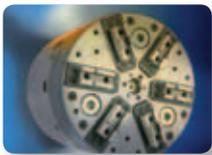
Clamping tools with integrated hydraulic compensation – Better results and reduced machining times.



- **Bolt Chucks SBF** – for sensitive workpieces in large series. Page 7



- **Angle Lever Chucks WHF** – with integrated centrifugal force compensation for large components. Page 9



- **Collet Bar Chucks KAF** – radial clamping for large clamping ranges. Page 8

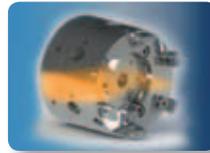


- **Clamping Mandrels SDH** – Gentle clamping for small workpieces. Page 8

STIEFELMAYER Clamping Tools – optimally matched for the specific application



- **Finger Chucks** – convincing by large axial clamping force. Page 10



- **Mechanical Bolt Chucks** – for the transfer of great forces in limited space. Page 13



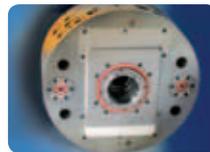
- **Collet Bar Chucks** – for placing long workpieces deep and safely in the chuck. Page 10



- **Wedge Chucks** – versatile, economic and ideal for special applications. Page 13



- **Segment Clamping Mandrels** – for universal centring and clamping. Page 11



- **Indexing Chucks** – highly precise and extremely quick swivelling. Page 14



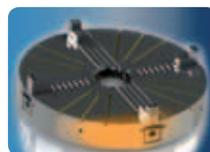
- **Expanding Mandrels** – great force in a confined space. Page 11



- **Diaphragm Chucks** – for sensitive applications with highest demands on centring accuracy. Page 14



- **Lever Operated Chucks** – large strokes with planar pull for crankshafts and camshafts. Page 12



- **Flanged Chucks** – highest precision, made of cast steel. Page 15



- **Eccentric Chucks** – machining of eccentric shafts in one clamping. Page 12



- **Clamping Cylinders and Connection Parts** – provides the force at the clamping chuck. Page 15

STIEFELMAYER Service – To Make Sure That Everything Runs Smoothly at Our Customers'

The Advantage

everything from one source –
right from the start.

What We Do for You – Our Services



Qualified advice in the run-up

The advising of our customers is one of the few opportunities, when our clamping specialists are not thinking of time saving.

In intensive advice discussions they recognise your specific requirements and suggest the optimum solution for your application.



All our designs are
created on state of
the art 3D CAD-systems.



Top-quality design

Clamping tools are designed at Stiefelmayer by experienced design engineers in 3D (Solid-Works).

And because we know that our clamping tools must fulfil highest demands on accuracy, further testing, for example with FEM (finite element analysis), is an inherent part of our design process.

Machining tests in our company

In order to provide you with the maximum possible safety in the run-up, we offer machining tests directly at our company, in particular for the compensating clamping chucks.

We simulate the required operation on our own lathes. Hence, accuracies are no longer only calculated theoretically, but proven by factual results.

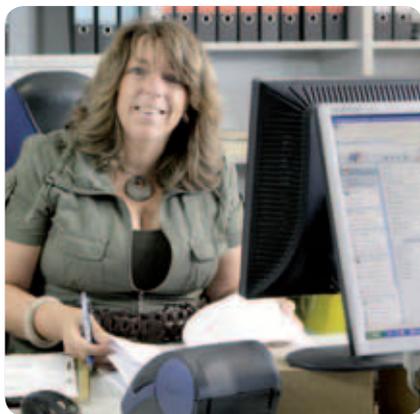
Top-quality execution

Highly precise clamping tools need modern production and testing facilities and – above all – motivated and experienced staff.

Acceptance processes recorded in detail as well as extensive test runs for every clamping chuck are a matter of course for us.

Punctuality in delivery

We set great store by punctual delivery of our clamping tools. Because we want to keep your trust in us. That is why we will not give you any promises for unrealistic delivery dates. But we will be reliable in keeping our promises.



Our highly qualified staff ensures
reliable and timely order processing.

**We would be glad to advise you in all questions around special
rotary clamping technology.**

Please contact us: spanntechnik@stiefelmayer.de

STIEFELMAYER Service – Today and Tomorrow for Your Highest Efficiency

The Care-free Package

reliable support by our STIEFELMAYER
all-round service.

Everything for Your Clamping Tools: Maintenance – Repair – Spare Parts



Clamping tools
prior to general
overhaul by our
specialists.

- Removal
- Exchange of worn out elements
- Functional test and optimisation



Ongoing maintenance

Even after delivery of our clamping tools we will be there for you at any time, if you want on-going service and support (of all manufacturers), making sure that your clamping tools are always flawlessly operating for you.

Repair by specialists

Not only the design and production, but also the repair of clamping chucks (of all manufacturers) is part of our specialties.

Our experienced staff executes repair work thoroughly, flexibly and fast. Of course with cost estimate to make the costs transparent for you.

Spare parts fast re-produced

Because our clamping chucks are produced individually, we do not keep a large stock of them.

Thanks to our flexible production organisation, spare parts, e.g. special jaws, are also available from us at very short notice.

Every clamping tool is thoroughly tested before delivery. This is done on specifically developed test stands.



We produce our clamping products on up-to-date machine tools.
Pictured here: 5 axes milling centre.

What can we do for you? You would like to have your clamping chucks maintained, but have a tight time frame?

We would be pleased to organise transport and maintenance as complete package for you taking into consideration your time schedule.

Please contact our service:

spanntechnik-service@stiefelmayer.de

The Clamping Tools – Clamping Chucks with Hydraulic Compensation

The Characteristics

specifically for thin-walled workpieces
sensitive to deformation.

Clamping Tools with Integrated Hydraulic Compensation: Better Results and Reduced Machining Times

With this line of clamping tools we offer high-quality products in the matter of highly precise workpiece clamping.

Thanks to the integrated hydraulic compensation, extremely thin-walled workpieces can be clamped safely and free of deformation – even at high cutting rates.

This means for our customers: cost saving by clearly better machining results and reduced machining times.

The Hydraulic Principle of Compensation

is based on separating the centring process from the actual clamping process. First of all, the inserted workpiece is sensitively centred mechanically without any deformation. The clamping chucks are each operated separately hydraulically.

This means that at the end of the centring process all of the chucks are applying the same force to the workpiece. Only then, the required clamping force is applied by increasing the hydraulic pressure.

The great advantage of this unique and patented compensation principle:

No round shape is forced on the workpieces by the clamping tools before machining – there is practically no transfer of circularity errors from the outside to the inside (or – in the case of chucks that clamp on the inside – from the inside to the outside).

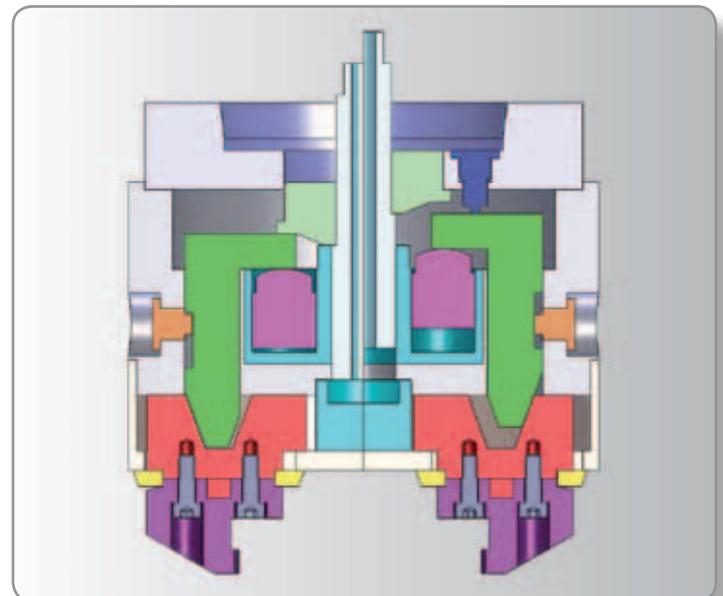


Diagram of a collet bar chuck KAF with hydraulic compensation – open (left) – closed (right)

Optional centrifugal force compensation

All our hydraulic compensation chucks can be fitted with centrifugal force compensation for tasks at high speeds.

Integrated control

We offer all types of our hydraulic compensation chucks with integrated hydraulic control (Typ „G“). Thus, the clamping chucks series „G“ can be operated with a standard cylinder and a standard machine controller.

Clamping tools with hydraulic compensation at a glance:

Bolt chucks SBF – Collet bar chucks KAF –
Angle lever chucks WHF – Clamping mandrels SDH

The Clamping Technology – Bolt Chucks SBF by STIEFELMAYER

The Hydraulic Compensation Principle

gentle centring and reliable clamping.

Bolt Chucks SBF: For Sensitive Workpieces in Large Series

The bolt chuck SBF is used for workpieces sensitive to deformation that are to be clamped radially and with planar pull.

The SBF is especially suited for products that are to be manufactured in large series.

Technical features:

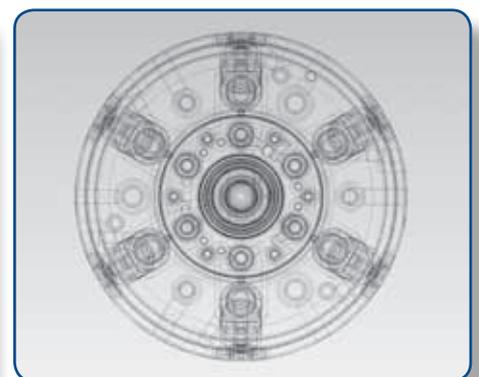
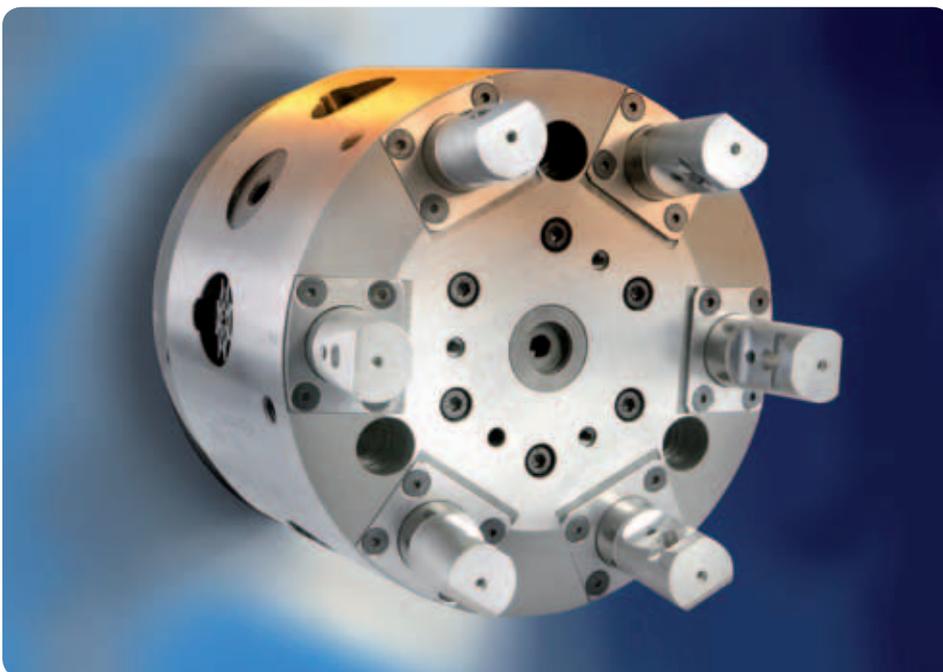
- radial clamping with planar pull
- high rate of revolutions due to low loss of centrifugal force
- no lifting of the workpiece from the workpiece support, even at high speeds
- high clamping stroke for loading and unloading operations
- available as inside clamping or outside clamping chuck
- chuck sizes from 170 mm to 600 mm
- air-abutting control (option)
- chuck gasket (option)



SBF, inside clamping with 5 clamping jaws. Due to their special technical layout the hydraulic compensation chucks can also be built with 5 and more clamping jaws.

Typical applications:

- brake disks
- brake drums
- flanges
- caps
- small bearings etc.



Clamping chuck SBF, external clamping, for thin-walled bearings

SBF, hermetically sealed, for the machining of cams, for example.

The Clamping Tools KAF and SDH – For Small Clamping Surfaces and Small Workpiece Diameters

The Construction

high-precise production –
for a long lifetime.

Collet Bar Chucks KAF: Radial Clamping with Large Clamping Ranges

The purely radial clamping version of the hydraulic clamping chuck covers an even greater clamping range per chuck size.

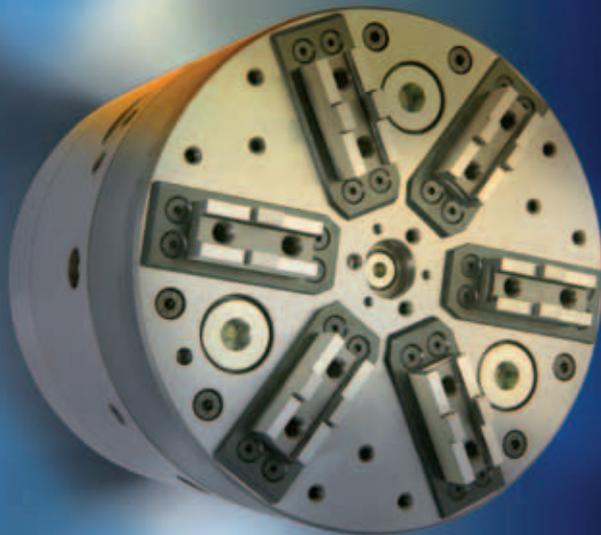
Due to the purely radial clamping movement, workpieces with relatively small clamping surfaces can be safely clamped with the KAF.

Technical features:

- pure radial clamping
- large clamping range
- mechanical centring
- available as inside or outside clamping chuck
- chuck sizes from approx. 200 to 400 mm
- fast jaw change (option)
- air-abutting control (option)
- centrifugal force compensation (option)

Typical applications:

- flanges
- caps
- gear rings
- impellers
- bevel wheels etc.



Collet bar chuck KAF – in this version the jaw guidances are completely sealed.

Clamping Mandrels SDH: Gentle Clamping for Small Workpieces

Clamping mandrels SDH are suitable for small workpiece diameters.

The clamping mandrel SDH has the advantage of gentle application of the centring force, one of the secrets of the low-deformation hydraulic STIEFELMAYER clamping principle.

As with other clamping chuck types, the segment clamping jaws are controlled separately, resulting in as little deformation as possible of the machined workpieces.



Clamping mandrel SDH for long, thin-walled sleeves

STIEFELMAYER WHF – Inside and Outside Clamping in One Clamping Chuck

The Design

based on profound know-how and
long years of experience.

Angle Lever Chucks WHF: with Integrated Centrifugal Force Compensation for Large Components

The angle lever chuck WHF is used when large components are to be clamped with little distortion. The angle lever chuck achieves variable inside and outside clamping in one clamping tool.

The integrated centrifugal force compensation and the excellent re-run accuracy, also for large clamping chucks, lead the machining of large ball bearings, bevel wheels, gear rings & Co. to highest precision.

Technical features:

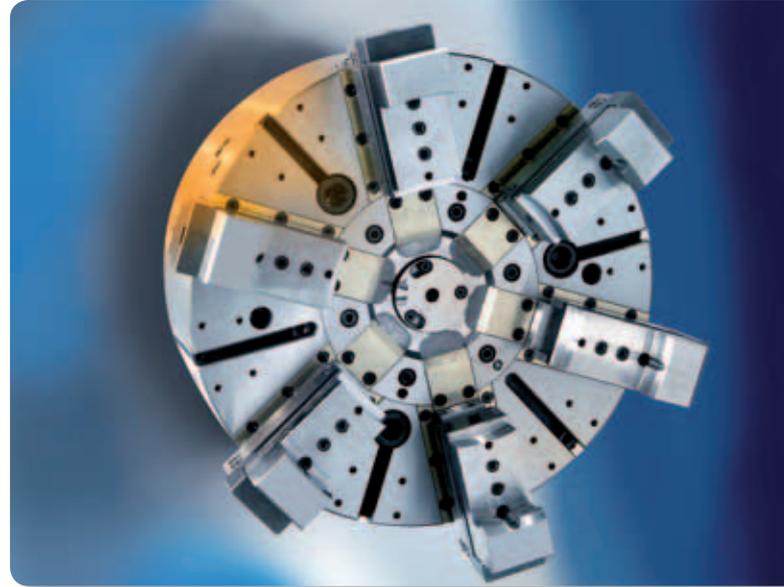
- pure radial clamping
- high jaw stroke
- inside and outside clamping in one chuck
- mechanical centring
- integrated centrifugal force compensation
- high re-run accuracy, also for big sizes
- chuck sizes from 250 to 2000 mm
(bigger sizes upon request)
- multiple cross nuts with dirt covering
(option)

Technical features (SDH):

- inside clamping
- clamping diameter from approx. 45 to 100 mm
- excellent re-run accuracy

Typical applications (SDH):

- small rings, e.g. ball bearings



Angle lever chuck WHF, diameter up to 1300 mm,
equipped with quick jaw change

Typical applications:

- big bearings
- bevel wheels
- gear rings
- big, thin-walled
out-of-round rings

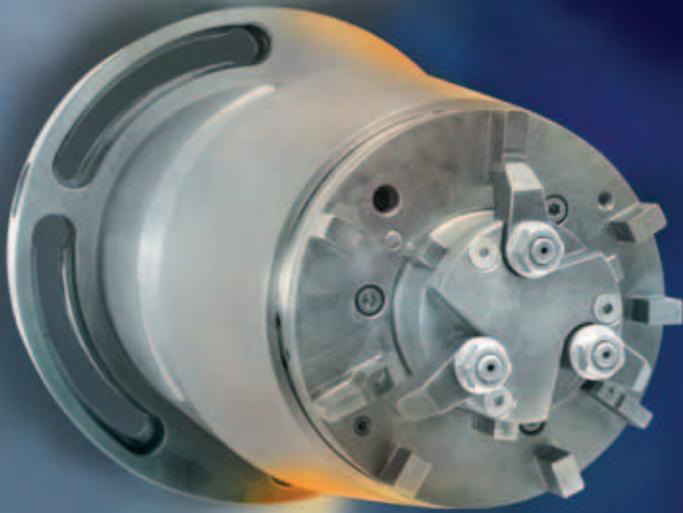


A look into our assembly: preparation of a large chuck body.

The Special Clamping Tools – STIEFELMAYER Finger Chucks and Collet Bar Chucks

The Special Clamping Chucks

more than 10,000 successful installations
all over the world.



**Example for the combination of clamping methods:
Finger chuck with integrated segment clamping mandrel for centring**

Finger Chucks: Great Axial Clamping Force – Even for Asymmetric Workpieces

Finger chucks are used in many variations. This chuck type is made for applications where radial clamping is not possible or would lead to workpiece distortion.

Finger chucks clamp axially across the face of workpieces. the clamping fingers can be positioned at will, this allows safe and precise clamping also of asymmetric workpieces.

Similar to „swing arm clamps“ the clamping fingers swivel out of the way to easy workpiece loading. Centring of the workpieces is accomplished with pins, rings, mandrels or self-centring jaw chucks, depending on the individual application.

Collet Bar Chucks: For the Deep and Safe Positioning of Long Workpieces

Using the collet bars integrated in the body of the chuck we can set the point of force application relatively far from the point of actual workpiece clamping.

This means that our customers can place long (e.g. wave-shaped) workpieces deep in the chuck and clamp them safely.

The collet bar chucks can also be fitted with a large passage. This means that the workpieces can be loaded via the back of the chuck in the case of complete hollow clamping.

**Collet bar chuck with ceramic sealing – as protection against
extremely abrasive chips.**



Clamping tools at a glance: Finger chucks – Collet bar chucks – Segment clamping mandrels – Expanding mandrels – Lever operated chucks – Eccentric chucks – Mechanical bolt chucks – Wedge chucks – Indexing chucks – Diaphragm chucks – Flanged chucks – Clamping cylinders and Connection parts

The Clamping Technology – Segment Clamping Mandrels and Expanding Mandrels

The Mandrels

can be combined variably,
for small and large diameters.

Segment Clamping Mandrels: For Universal Centring and Clamping

Segment clamping mandrels have a relatively large clamping stroke, unlike slide bush clamping mandrels, for example.

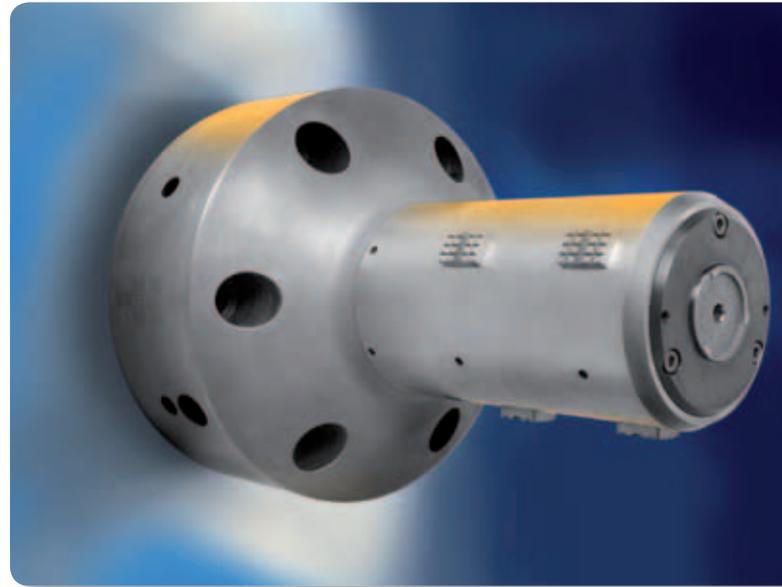
They can be used universally for centring or clamping.

We have already realised clamping mandrels for many different requirements.

Examples include clamping mandrels with retractable workpiece contacts, several clamping rows, integrated centring and clamping function, pneumatic stroke control, integrated actuation cylinder and much more.



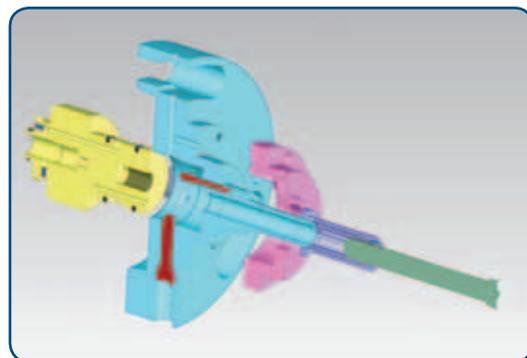
Always the right torque – assembly of a STIEFELMAYER clamping tool.



Segment clamping mandrel with two rows

Expanding Mandrels: Great Force in a Relatively Confined Space

Expanding mandrels can not only transfer great clamping forces, but also realise different clamping diameters by using different clamp collets.



Clamp collets can be designed with or without axial pull depending on the application.

A special type are the biconical collets. They are often used to centre relatively long workpieces on two levels and to clamp them safely.

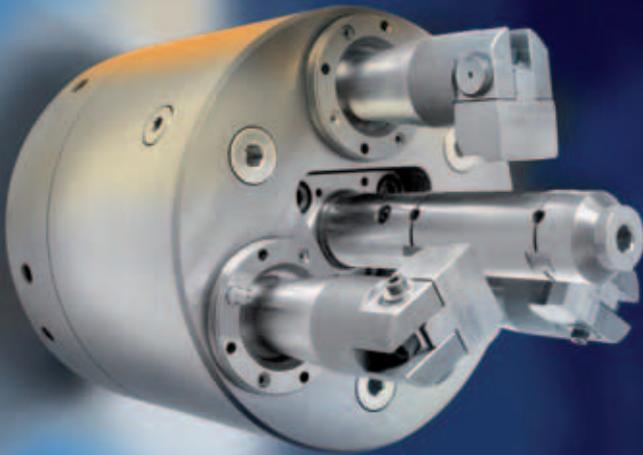
Biconical mandrel for independent clamping on two levels

The Clamping Tools – Lever Operated Chucks and Eccentric Chucks by STIEFELMAYER

The Specialties

short machining times
by clever design.

Example for a lever operated chuck with integrated segment clamping mandrel with two rows for centring the workpiece



Lever Operated Chucks: Large Stroke with Planar Pull for Camshafts and Crankshafts

Lever operated chucks enable especially large projection of the clamping jaws. This means that large strokes can be realised with simultaneous planar pull.

The clamping jaws can also be made retractable if used with a tip or a front carrier. Typical workpieces for lever operated chucks are crankshafts or camshafts.

Technical features:

- large stroke with planar pull
- almost maintenance-free design possible
- optional design as centric or compensating clamping tool
- retractable clamping jaws possible

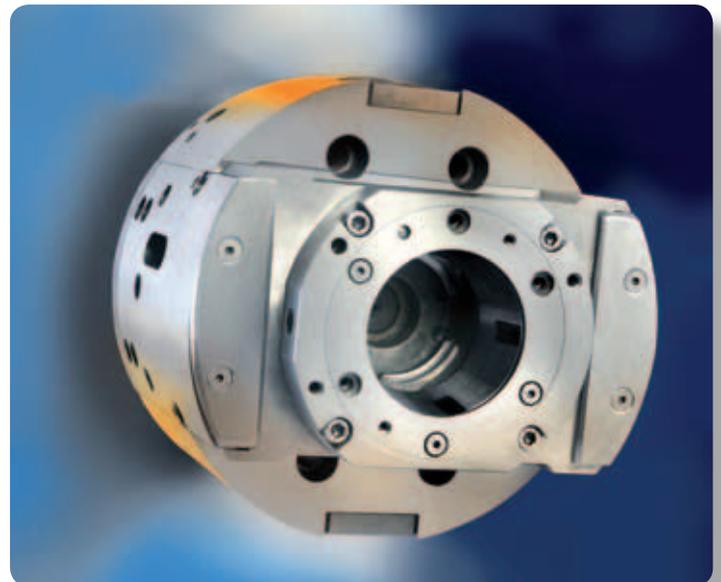
Eccentric Chucks: For the Machining of Eccentric Shafts in One Clamping

Eccentricities of up to 6 mm can be infinitely set with the STIEFELMAYER eccentric chuck.

Switching backwards and forwards between centric and eccentric machining can be done with a running spindle – an advantage that leads to reduced machining times for the workpiece.

Technical features:

- „on the fly“ offsetting:
centric – eccentric – centric
- up to 6 mm eccentricity, fully adjustable
- mechanical lock, hydraulically actuated
- speed up to 3000 RPM
- automatic out-of-round compensation
- for clamping diameters up to 40 mm



Eccentric chuck, diameter 200 mm. The eccentric position is adjusted precisely under rotation to 0.01 mm.

Clamping tools at a glance: Finger chucks – Collet bar chucks – Segment clamping mandrels – Expanding mandrels – Lever operated chucks – Eccentric chucks – Mechanical bolt chucks – Wedge chucks – Indexing chucks – Diaphragm chucks – Flanged chucks – Clamping cylinders and Connection parts

The Clamping Technology – Mechanical Bolt Chucks and Wedge Chucks

The Application

for complex and versatile turning operations.

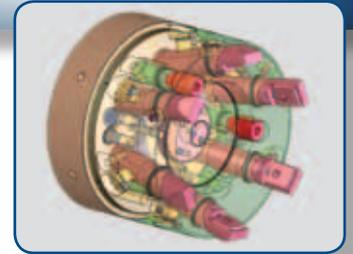
Mechanical Bolt Chucks: For the Transfer of Great Forces in a Limited Space

Mechanical bolt chucks are suitable for clamping situations in which high forces have to be transferred in a relatively confined space.

Mechanical bolt chucks have the advantage that high speeds are also possible without centrifugal force compensation. Bolt chucks can also be realised in a low-maintenance design.



Bolt chuck for the clamping of gear wheels



Please find more information on our complete range of clamping tools...



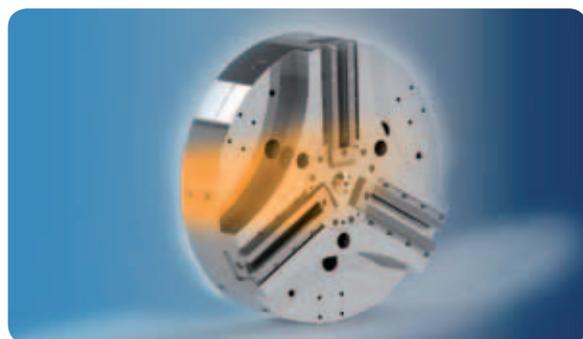
Wedge Chucks: Versatile, Economic and Ideal for Special Tasks

Wedge chucks are very popular and versatile clamping chuck types. STIEFELMAYER has a broad range of special designs and sizes.

We also develop the optimum solution for the particular clamping task for our wedge chucks and use extreme care in design. The result is a chuck with very high precision and reliable function for wedge applications.



Combined special chuck on wedge chuck basis, for thin-walled aluminium workpieces: with centrifugal force compensation, clampable supports and many other functional components



Contrary to customary collet bar chucks the chuck shown here has a 100 percent centrifugal force compensation

The Clamping Tools – Indexing Chucks and Diaphragm Chucks

The Advantages

extremely short machining times by
quick swivelling with tandem cylinders.

Indexing Chucks: Highly Precise and Extremely Quick Swivelling

STIEFELMAYER indexing chucks have a technical feature that has a direct positive result on the machining time for the material: Thanks to activation with tandem cylinders, an extremely quick swivelling process is possible in all positions (90°, 180°, 270°).

Here, the clamping chuck has an unusually high degree of accuracy, with the tappets at right angles of 0.04 mm to each other.

Technical features:

- extremely high swivelling speed (0.4 sec.)
- equal swivelling time in all positions
- high re-run accuracy due to sturdy mechanics and hydraulic control
(< 0.003 mm for one-sided clamping)
- mechanical check of swivelling position
- centric or one-sided clamping variant



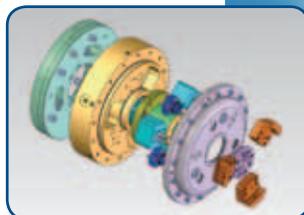
Combined swivelling and eccentric chuck –
for the clamping of shafts with multiple machining

Diaphragm Chucks: For Sensitive Applications with Highest Demands on Centring Accuracy

Diaphragm chucks have a high re-run centring accuracy ($< 0,005$ mm).

The membranes move in the elastic range of the material. Release is either on the machine side or by means of integrated pneumatic or hydraulic cylinders.

Here we have already realised membrane clamping chucks in many different sizes and designs for many sensitive applications.



Clamping tools at a glance: Finger chucks – Collet bar chucks – Segment clamping mandrels – Expanding mandrels – Lever operated chucks – Eccentric chucks – Mechanical bolt chucks – Wedge chucks – Indexing chucks – Diaphragm chucks – Flanged chucks – Clamping cylinders and Connection parts

The Clamping Technology – Flanged Chucks, Clamping Cylinders and Connection Parts

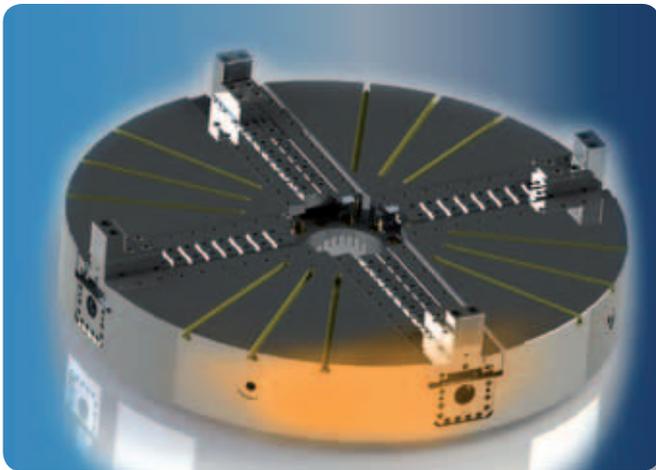
The Performance

custom-made clamping cylinders and connection parts for every application.

Flanged Chucks: Highest Precision – Steel Cast

STIEFELMAYER flanged chucks utilise the highest precision design, manufactured in cast steel.

Thanks to hand-lapped precision spindles and ground clamping jaws, the clamping jaws can be quickly shifted with little force exertion, another plus for the operator.



Smooth-running and highly precise design



Top: Special clamping cylinders with 6-times oil distributor
Bottom: Special pull rod with oil gasket

Technical features:

- cast steel
- jaws hardened and ground
- manual lapping of precision spindles
- max. clearance: 0.03 mm to 0.05 mm (all diameters)
- plate diameters 400 mm to 1200 mm (bigger sizes on demand)
- excellent planar run on jaw steps and face surface
- Example with flanged chuck size 500 mm:
planar run jaw steps 0.06 mm,
planar run face surface 0.03 mm

Clamping Cylinders and Connection Parts: Provide the Force at the Clamping Chuck

As a specialist for clamping technology we offer you the complete solution for your clamping task.

This also includes connection parts between the clamping chuck and clamping cylinder as well as a choice of hydraulic clamping cylinders.

At a glance:

- Connection parts with or without oil gasket
- Hydraulic cylinder, specifically also for hydraulic compensation clamping chucks (SBF, KAF)
- Double cylinders, triple cylinders
- Multiple oil distributor, special design depending on requirement

STIEFELMAYER – The Company Group at a Glance



STIEFELMAYER- Clamping Tools

- | Special chucks
- | Special mandrels



STIEFELMAYER- Metrology

- | 3D coordinate metrology
- | Measuring software
- | Accessories



STIEFELMAYER- Laser Technology

- | Laser cutting
- | Laser hardening
- | Laser welding

Our Complete Range of Clamping Tools

Clamping tools with integrated hydraulic compensation:

- | Bolt chucks (SBF)
- | Collet bar chucks (KAF)
- | Angle lever chucks (WHF)
- | Segment clamping mandrels (SDH)

More special clamping tools:

- | Finger chucks
- | Collet bar chucks
- | Segment clamping mandrels
- | Expanding mandrels
- | Lever operated chucks
- | Eccentric chucks
- | Mechanical bolt chucks
- | Wedge chucks
- | Indexing chucks
- | Diaphragm chucks
- | Flanged Chucks
- | Face drivers
- | Clamping cylinders, connection parts
- | etc.

Our Services:

- | Feasibility studies
- | Production tests
- | Installations of clamping chucks
- | Chuck repairs
- | Maintenance



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