SwissChuck
Precision Workholding

CLAMPING TECHNOLOGY

SPECIAL SOLUTIONS II

BESPOKE SPECIAL SOLUTIONS

You define the task and we develop and implement the solution!

Special clamping chucks are tailor-made products. They are adapted to your specific requirements. The designs are matched to the work piece and to the individual machine concepts. Moreover, at SwissChuck you benefit from know-how that has been gained over decades and from using the most modern technologies.

It is our aim to minimise your costs by supporting your manufacturing processes. Special solutions from SwissChuck are designed to generate sustained added value. Simply said: our products will let you optimise your processes, enhance your performance and increase your productivity. It works best if you involve us from as early as the projection stage or the manufacturing planning.

Our team will be at your service. Test us!

Projects & Engineering
For complex tasks, we mobilise our engineering know-how in the form of a project team. Projects are closely examined on location, together with you and with the support of other participants as required, and then possible approaches to coming to solutions are worked out.

Design
Our competent engineers take those approaches and convert them into production-ready products. Drawings of assemblies and individual components, 3D models or 3D presentations and bills of materials are created here.

Quality & Manufacturing
Our manufacturing and test facilities are equipped to meet our high standards. At SwissChuck, every single staff member guarantees to deliver quality work – meaning success for you.

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Precision Workholding

CONTENTS

LEVER CHUCK

2x3 FL 150 So

Workpieces: Impellers
Operation: Grinding of OD contours in the compression area

Clamping Task

- Precise clamping of different workpieces
  · OD clamping on shaft on two planes
  · Quick change-over of top jaws; without regrinding of the clamping diameters
  · Taking into account the possible collision points on the machine

Clamping System

– 2x3 jaw lever chuck
  · 3 jaws, concentric clamping
  · Compensating function between the two clamping planes (Compensation of diameter tolerances on the clamping diameters)
  · Clamping locations arranged on two different planes
  · Sufficient clearance for long shafts
  · Sufficient jaw stroke for unimpeded loading and unloading
  · Axial end-stop with checking for the presence of the workpiece
  · Precision interface between base and top jaws
  · Sealed unit
  · Actuation via pneumatic force clamping cylinder

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Suitability as per machining process:

A
Cylindrical grinding

B
Eccentric grinding

C
Turning

D
Hard turning

E
Combination turning/hard turning

F
Milling/drilling

2x3 FL 150 So

– With or without centrifugal force compensation

Explanation of symbols:
SwissChuck.com

Technical characteristics	
Max. OD diameter	150 mm
Overall height (without top jaws)	91 mm
Max. clamping force	4 kN
Max. RPM	3000 1/min

COMPENSATING LEVER CHUCK

4 AFL 200 So

Workpieces: Tungsten carbide hobs of varying dimensions
Operation: Grinding of tooth profile

Clamping task

- Clamping of workpiece between centers
  · Rigid angular drive coupling of workpieces
  · Simple change-over between different workpieces
  · Requires transfer of high torque

Clamping system

– 4-jaw compensating lever chuck
  · Compensating clamping with 2 or 4 jaws
  · Low interference contour for longitudinal grinding
  · Exchangeable jaws
  · Exchangeable centers
  · Sealed unit
  · Hydraulically actuated

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Precision Workholding

4 AFL 200 So

Suitability as per machining process:

A
Cylindrical grinding

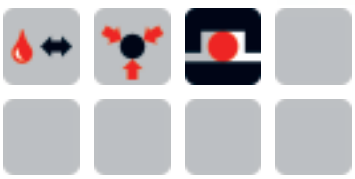
B
Eccentric grinding

C
Turning

D
Hard turning

E
Combination turning/hard turning

F
Milling/drilling



Explanation of symbols:
SwissChuck.com

Technical characteristics	
Max. OD diameter	200 mm
Overall height (without top jaws)	206 mm
Max. actuating pressure	5 MPa
Max. RPM	1000 1/min

INCLINED BOLTS CHUCK

5 OVZLH 160 So

Workpieces: milling cutter
Operation: Grinding of thread profile

Workpiece blank

Workpiece

Clamping tasks

- Precise and rigid clamping of varying workpieces
  · External clamping with short clamping lengths
  · Using axial end-stop with checking for the presence of the workpiece
  · Quick change of top jaws, without need for regrinding of the clamping location
  · Taking into account the interfering contours on the machine side

Clamping system

– 5 Inclined bolts chuck with jaws
  · Concentric clamping
  · Rigidly guided inclined bolts
  · Sufficient stroke for unimpeded loading and unloading
  · Exchangeable end-stops
  · Exchangeable top jaws
  · Precision interfaces between slant jaws and top jaws
  · Sealed unit
  · Hydraulically activated

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5 OVZLH 160 So

Suitability as per machining process:

A
Cylindrical grinding

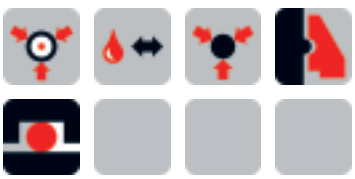
B
Eccentric grinding

C
Turning

D
Hard turning

E
Combination turning/hard turning

F
Milling/drilling



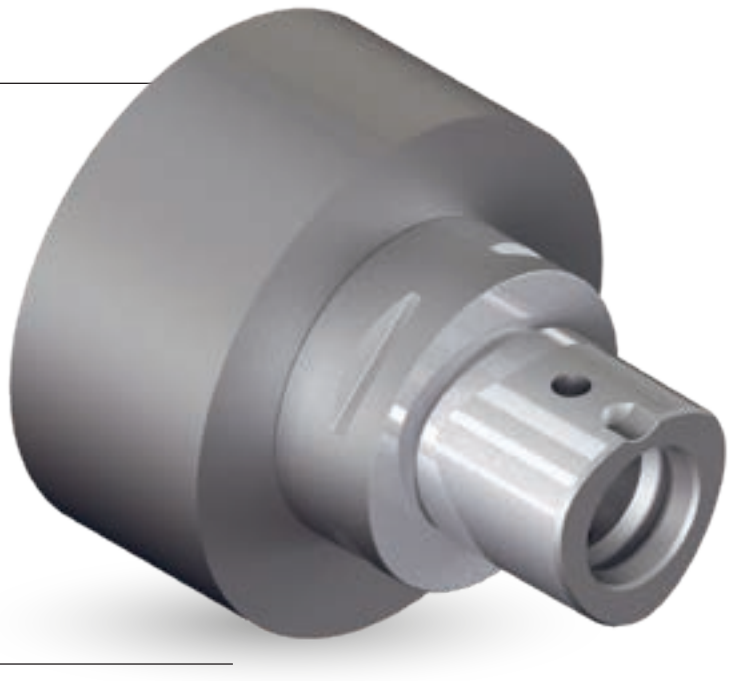
Explanation of symbols:
SwissChuck.com

Technical characteristics	
Max. OD diameter	180 mm
Overall height (without top jaws)	201 mm
Max. actuating pressure	3 MPa
Max. RPM	2500 1/min

PRECISION FOUR-JAW CLAMPING CHUCK

4 OVEK 450 So

Workpieces: Polygon tool holders
Operations: Grinding the polygon and the adjacent front end



Clamping task

- Clamping and aligning the workpieces in the flanks of the four grooves
- Enough opening stroke to load the work piece C6 with a diameter of 130mm at the rear end
  · requires a radial jaw stroke of 41 mm
- Plunge for ø90 of 200 mm
- Stable clamping

Clamping system

- Hydraulically operated four-jaw chuck with special functions
  · fast radial stroke of 39 mm
  · precision radial stroke of 2 mm
  · opposite pairs of jaws controlled separately
- Accurately adjusted top jaws => jaw change without readjusting
- Clamping repeatability <= 0.01 mm
- Workpiece-specific accessories:
  · interchangeable top jaws for work pieces C3 to C8
- Sealed clamping chuck, the base jaw area is protected by an active air purge system against contamination

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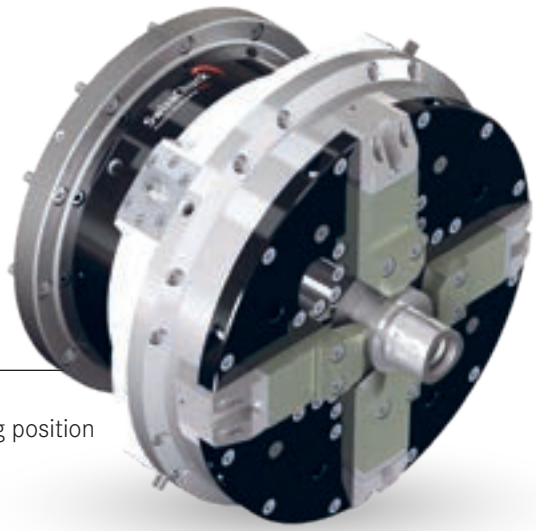
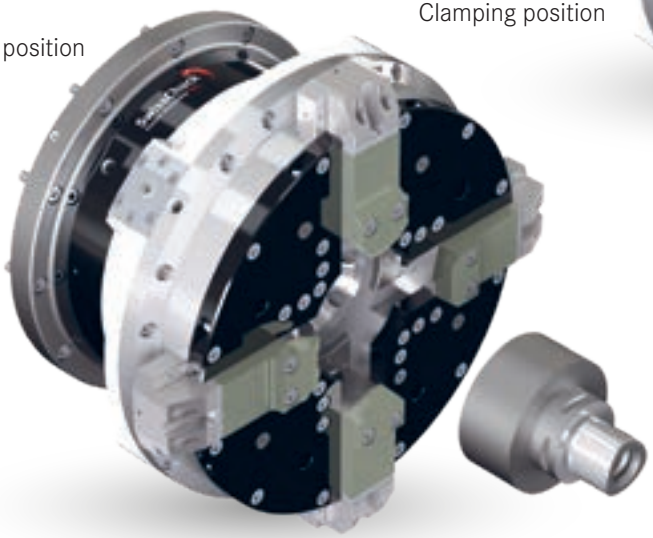
4 OVEK 450 So



Clamping position



Loading position

Suitability as per machining process:

A
Cylindrical grinding

B
Eccentric grinding

C
Turning

D
Hard turning

E
Combination turning/hard turning

F
Milling/drilling

Explanation of symbols:
SwissChuck.com

Technical characteristics	
Outside diameter	450 mm
Max. interference ø	492 mm
Overall height	274 mm
Mass	218 kg
Stroke per jaw	41 mm
Max. clamping diameter	130 mm
Max. clamping force	60 kN
Permissible rpm	300 1/min
Number of lines:	
• Hydraulic	4
• Pneumatic	1
Pressure up to	4.5 MPa

TOOL GRIND CHUCK

OFTGC **2-20 So | 18-36 So | 34-52 So**

Work pieces: HSS or carbide tap
HSS or carbide drill
HSS or carbide cutter
Operations: Grinding tools of solid material

Clamping task

- Centric holding of blanks with high run-out accuracy
- Stable clamping of the work pieces
- Covering a wide clamping range

Clamping system

- Hydraulically operated collet chuck
- Precision interface between clamping chuck and add-on parts
- Aligning not necessary
- Clamping range with three chucks from 2 mm to 52 mm
- Clamping chuck is protected and lubricated by an oil-carrying air purge system against contamination

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Suitability as per machining process:

A
Cylindrical grinding

B
Eccentric grinding

C
Turning

D
Hard turning

E
Combination turning/hard turning

F
Milling/drilling

OFTGC

OFTGC 2-20 So | OFTGC 18-36 So | OFTGC 34-52 So

Explanation of symbols:
SwissChuck.com

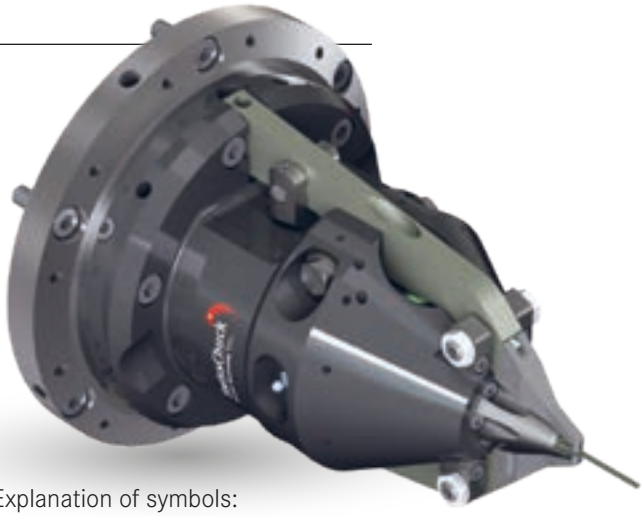
Technical characteristics	
Outside diameter	180 mm
Overall height	210 mm
Max. rpm	1500 1/min
Max. clamping force	12 kN
Run-out accuracy	< 0.01 mm
Number of lines:	
• Hydraulic	2
• Pneumatic	1
Pressure up to	3.2 MPa

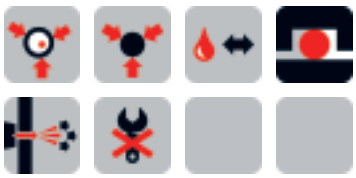
COMPENSATING LEVER CHUCK

2 AFL 150 So

Work pieces: HSS or carbide tap
HSS or carbide drill
HSS or carbide cutter

Operations: Grinding tools of solid material





Explanation of symbols:
SwissChuck.com

Suitability as per machining process:

A
Cylindrical grinding

B
Eccentric grinding

C
Turning

D
Hard turning

E
Combination turning/hard turning

F
Milling/drilling

Clamping task

- Positioning of the blanks between centers
- Precise, deformation-free clamping of the work pieces at the width across flats
- Covering a wide clamping range

Clamping system

- Hydraulically operated lever chuck
- Slip stick free movements of the levers
- Interchangeable centre points with precision interface
- Aligning not necessary
- Easily exchangeable clamping jaws
- Compact size
- Clamping chuck protected by an active air purge system against contamination

Technical characteristics	
Outside diameter	150 mm
Overalll height	156 mm
Max. rpm	1500 1/min
Max. clamping force	40 N
Run-out accuracy	< 0.01 mm
Number of lines:	
• Hydraulic	2
• Pneumatic	1
Pressure up to	3.2 MPa

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SLANT JAW CHUCK

2x3 ZLH 180 So

Work pieces: Shafts for textile machines
Operations: Turning the complete shaft end

Explanation of symbols:
SwissChuck.com

Suitability as per machining process:

A
Cylindrical grinding

B
Eccentric grinding

C
Turning

D
Hard turning

E
Combination turning/hard turning

F
Milling/drilling

Clamping task

- Stable and precise clamping at defined clamping positions
- Prevention of disruptions or damage to the work pieces, caused by swarf

Clamping system

- Cylinder operated chuck with 2 x 3 centrically inclined bolts
- Use of a bell with pre-centring disk in order to prevent swarf entering the clamping area
- Strong and stable clamping by applying the inclined bolt concept
- Clamping chuck hermeticaly sealed, filled with oil

Technical characteristics	
Outside diameter	180 mm
Overall height	174 mm
Max. rpm	5000 1/min
Max. clamping force	75 kN
Run-out accuracy	< 0.01 mm

SWIVEL FINGER CHUCK

2x3 FLD 350 So

Workpieces: Bevel gear / gear parts
Operation: Grinding or hard turning of bores, outside diameters or faces



Clamping task

- Fixturing and referencing in the gear tooth section
- Axial clamping of the workpieces
- Concentric internal clamping
- Concentric external clamping
- Very short changeover times (<= 3 minutes)
- Simple and safe handling
- Optimized for vertically mounted chuck configuration

Clamping system

- Cylinder actuated swivel finger chuck with
  - Axial clamping via three swivel fingers on pitch circle 317 mm for large workpieces up to ø250
  - Axial clamping via three swivel fingers on pitch circle 196 mm for workpieces <= ø130
  - Precision interface between chuck and accessory sets – repeatability of positioning < 0.01 mm
  - Quick changeover interface for swivel fingers
  - Accessory set mounted on intermediate plate featuring interface
  - Passage for coolant

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2x3 FLD 350 So

Suitability as per machining process:

A
Cylindrical grinding

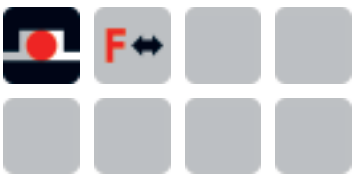
B
Eccentric grinding

C
Turning

D
Hard turning

E
Combination turning/hard turning

F
Milling/drilling



Explanation of symbols:
SwissChuck.com

Technical characteristics	
OD diameter	350 mm
Overall height w/o accessories	230 mm
Weight	100 kg
Swivel angle	75°
Max. axial stroke swivel finger	6 mm
Max. clamping force	15 kN
Max. RPM	2200 1/min

2x3 FLD 350 So

Axial clamping with external swivel fingers

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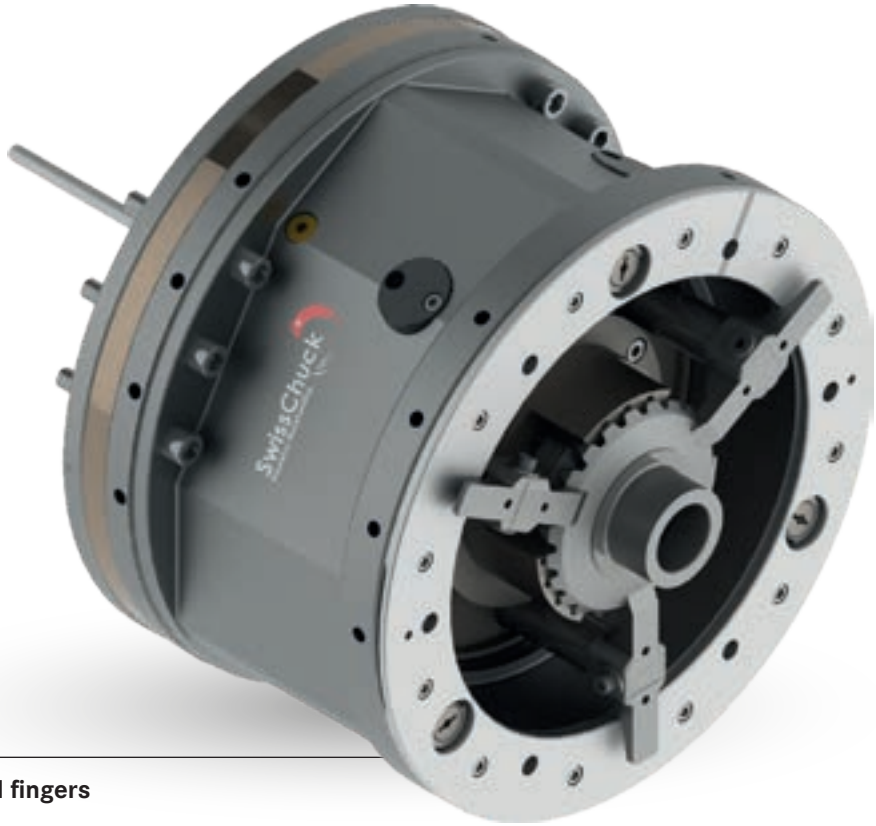
Workpiece specific accessories

consisting of:

– Location matrix for the positioning of the bevel gear,
  mounted on an intermediate plate featuring a precision interface
– Complete set of 3, including a quick change over interface



2x3 FLD 350 So

Axial clamping with internal swivel fingers

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Precision Workholding

Workpiece specific accessories

consisting of:

– Location matrix for the positioning of the bevel gear, mounted on an intermediate plate featuring a precision interface
– Complete set of 3, including a quick change over interface

2x3 FLD 350 So

External clamping with collet chuck
Integrated into 2x3 FLD 350 So
↗ <= 0.01 Retraction to axial end-stop

Workpiece specific accessories

consisting of:
- Collet chuck mounted on an intermediate plate featuring a precision interface
- Changeable collets
- Changeable end-stops with checking for presence of workpiece

2x3 FLD 350 So

Internal clamping with mandrel
Integrated into 2x3 FLD 350 So
↗ <= 0.01 Retraction to end-stop

Workpiece specific accessories

consisting of:
- Mandrel mounted on an intermediate plate featuring a precision interface
- Changeable expansion sleeves
- Changeable end-stops with checking for presence of workpiece

SWIVEL FINGER CHUCK

3 FLD 448 So

Workpieces: Cam rings
Operation: Grinding of internal contours

Clamping task

- Mounting and referencing of the workpieces inside of the bores
- Axial clamping of the workpieces
- Short change over times (<= 5 minutes)
- Simple and safe handling

Clamping system

- Hydraulically actuated swivel finger chuck with
  - 3 swivel fingers on pitch circle 368 mm for workpieces up to a max. ø330 mm
  - Precision interface between chuck and accessory sets – repeatability of positioning < 0.01 mm
  - Quick changeover interface for swivel fingers
  - Accessory set mounted on intermediate plate with precision interface
  - 6 ejection pistons for unloading of workpieces

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Precision Workholding

Suitability as per machining process:

A
Cylindrical grinding

B
Eccentric grinding

C
Turning

D
Hard turning

E
Combination turning/hard turning

F
Milling/drilling

3 FLD 448 So

Explanation of symbols:
SwissChuck.com

Technical characteristics	
OD diameter	448 mm
Overall height w/o accessory	167 mm
Weight	120 kg
Finger swivel angle	75°
Max. axial stroke swivel finger	6 mm
Max. clamping force	15 kN
Max. RPM	1000 1/min
Ejection stroke	40 mm

3 FLD 448 So

Swivel finger chuck with:
- Precision interface to accessory sets
- Quick-change interface to swivel fingers
- Quick-change for workpiece specific ejectors

Workpiece specific accessories

consisting of:
- Axial end-stop with positioning pin, mounted on intermediate plate featuring a precision interface
- 3 swivel fingers with quick-change interface
- 3 ejectors with quick-change interface

Mounting of chuck

– with precision interface between spindle flange and clamping system
– Positioning accuracy ≤ 0.002 mm
– Other clamping systems that feature the same interface can be mounted in a time-saving manner,
  For example:
  · Hydraulically actuated chucks of different sizes
  · Manually operated chucks

PRECISION POWER CHUCK

3 KCHP 160 with special tooling set

Workpieces: sealing ring of varying sizes
Operation: Grinding of sealing seats

Clamping task

– Low deformation clamping of varying workpiece
  · Extremely high roundness requirements <= 0.005 mm
  · Fast change-over of pendulum jaws without need of regrinding the clamping diameter

Clamping system

– 3 jaw precision power chuck
  · Concentric external clamping with standard precision power chuck
  · Jaw system with 12 compensating clamping points
  · Exchangeable internal self-aligning chucks
  · Exchangeable axial end-stops
  · Sealed unit
  · Actuation via pneumatic force clamping cylinder

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Precision Workholding

3 KCHP 160 So

Suitability as per machining process:

A
Cylindrical grinding

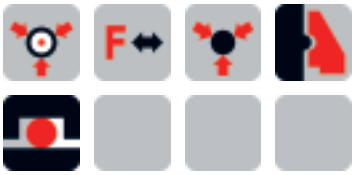
B
Eccentric grinding

C
Turning

D
Hard turning

E
Combination turning/hard turning

F
Milling/drilling



Explanation of symbols:
SwissChuck.com

Technical characteristics	
Max. OD diameter	180 mm
Overall height (without top jaws)	201 mm
Max. clamping force	8 kN
Max. RPM	2750 1/min

SPECIAL MANDRELS

SCPBM 100 So / SCPBM 130 So / SCPBM 165 So

Workpieces: Bearing rings
Operation: Hard turning of the complete external contour

Clamping task

– Low deformation clamping of varying workpieces
  · In the pitch circle of the internal gearing
  · Efficient change-over of the clamping pins
  · Exchangeable axial end-stops
  · Simple change of the mandrels on the basis of a pneumatic interface
  · Pneumatic check for workpiece presence
  · Actuation via pneumatic force clamping cylinder

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Precision Workholding

Suitability as per machining process:

A
Cylindrical grinding

B
Eccentric grinding

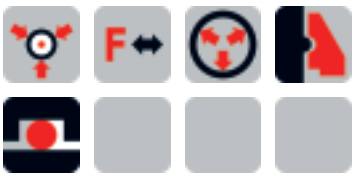
C
Turning

D
Hard turning

E
Combination turning/hard turning

F
Milling/drilling

SCPBM 100 So / SCPBM 130 So / SCPBM 165 So



Explanation of symbols:
SwissChuck.com

Technical characteristics	
OD diameter	220 mm
Overall height	184 mm
Max. clamping force	30 kN
Max. RPM	500 1/min

TRITON®-PLUS 370

TRITON®-PLUS 370

Workpieces: Gear parts and other workpieces
Operation: Grinding or hard turning of bores, OD diameters and faces

Clamping task

- Precise clamping of different workpieces
  - · External clamping
  - · Internal clamping
  - · Pitch circle clamping
  - · Quick change-over of top jaws without regrinding of clamping location
  - · Changing of top jaws between chucks of equal design without incurring loss of accuracy

Clamping system

- Precision 3-jaw chuck
  - · Precision 3-jaw chuck with large through bore
  - · Internal and external clamping
  - · Equally suitable for small delicate and large massive workpieces
  - · Flexible concept of usage
    - Application of axial end-stops
    - Application of pre-centering
    - Application of centerpoints in combination of external clamping
  - · Precision interfaces between base and top jaws

SwissChuck
Precision Workholding

TRITON®-PLUS 370

– With or without compensation of the centrifugal force

Suitability as per machining process:

A
Cylindrical grinding

B
Eccentric grinding

C
Turning

D
Hard turning

E
Combination turning/hard turning

F
Milling/drilling

Explanation of symbols:
SwissChuck.com

Technical characteristics	
OD diameter	370 mm
Overall height without accessories	140 mm
Weight	89 kg
Stroke per jaw	5.4 mm
Max. clamping force	100 kN
Max. actuation force	60 kN
Max. RPM	3000 1/min mit Fliehkraftausgleich

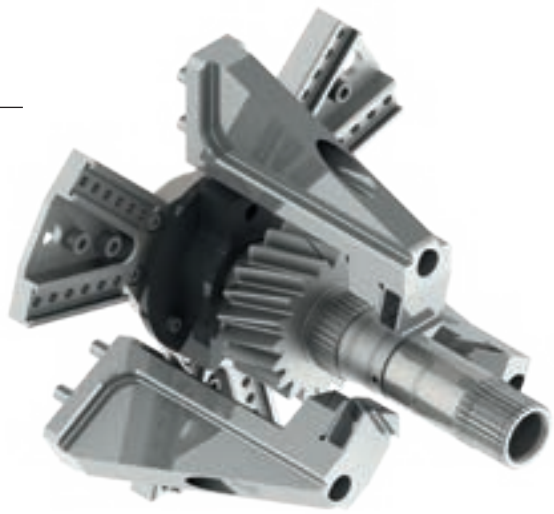
TRITON®-PLUS 370

External clamping of transmission part

Operation:
– Grinding and hard turning of bore

Workpiece specific accessories

consisting of:
– Centerpoint insert
– Centerpoint
– Loading aid
– Top jaws with retraction function



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TRITON®-PLUS 370

Clamping in pitch circle of transmission parts

Operation:
– Grinding and hard turning of bore

Workpiece specific accessories

consisting of:
– Base and intermediary jaws
– Guide bushing with inserted clamping element, adjustable to helix angle
– Pre-centering
– Axial end-stops

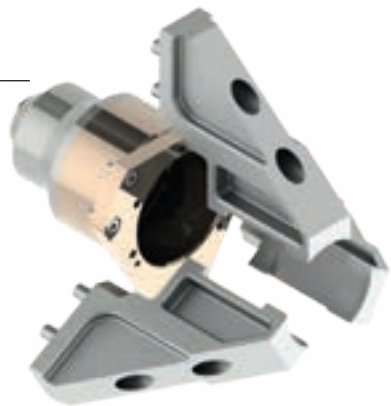
TRITON®-PLUS 370

External clamping of gear shaft

Operation:
– Grinding or hard turning of bore

Workpiece specific accessories

consisting of:
– Hardened, ground in top jaws
– Sleeve with centerpoint for additional positioning and axial end-stop



TRITON®-PLUS 370

External clamping of diverse ball heads

Operation:
– Grinding of spherical form

Sphere-Ø260, ca. 87 kg, Clamping-ø100

Sphere-Ø85, ca. 3.3 kg, Clamping-ø32

Workpiece specific accessories

consisting of:
– Hardened, ground in top jaws with retraction to axial end-stop
– Precision interface between base jaws and top jaws
– Radially simply adjustable axial end-stops
– Radially simply adjustable pre-centering as a loading aid

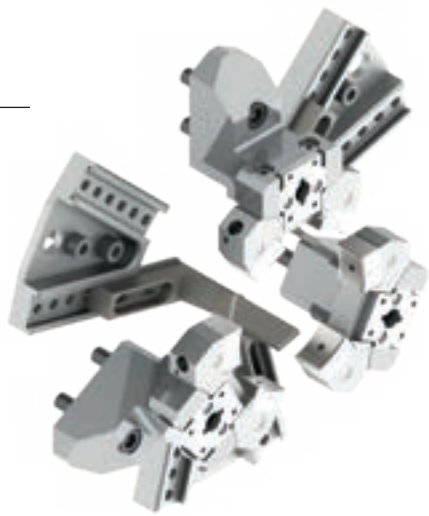
TRITON®-PLUS 370

Clamping on tip circle of thin-walled gear part

Operation:
– Grinding or hard turning of bore

Workpiece specific accessories

consisting of:
– Compensating jaws for 6-point clamping
– Exchangeable top jaws to compensating jaws for different clamping diameters
– Precision interface between compensating jaws and top jaws
– Radially adjustable axial end-stops



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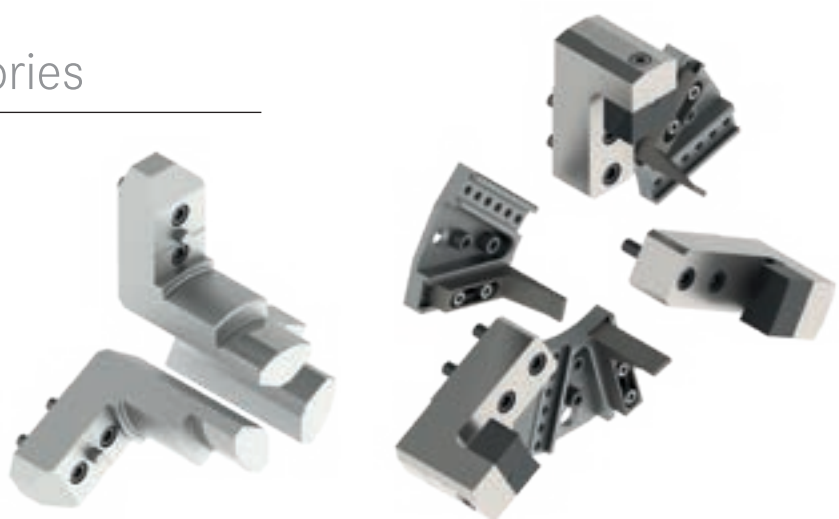
TRITON®-PLUS 370

Tip circle and internal clamping on heavy gear part

Operation:
– Grinding or hard turning of bore

Workpiece specific accessories

consisting of:
– Basic top jaws
– Exchangeable top jaws for different clamping diameters
– Radially adjustable axial end-stops



HYDRAULICALLY OPERATED INDEXING CHUCK

3 HSKCHS 400 So

Work pieces: Various pump casings
Operations: Turning the centric and eccentric inside diameters and the adjacent end faces

Clamping task

- Clamping the work piece on a short, cylindrical surface
- Positioning by a positioning pin in a manufacturing bore
- It must be possible to manufacture eccentric dimensions 5.0, 6.3, 8.0, 10.0, 12.6 and 16.0 mm
- The flatness deviation of the end faces may not exceed 0.01 mm.
- High run-out accuracy
- Stable clamping

Clamping system

- Hydraulically operated three-jaw indexing chuck – turnable inside chucks
- Manually adjustable eccentric dimension
- Automated indexing from centric to eccentric position
- Accurately adjusted top jaws => jaw change without readjusting
- Clamping repeatability <= 0.01 mm
- Workpiece-specific accessories:
  · Interchangeable top jaws
  · Interchangeable axial end stops with integrated positioning pins
- Clamping chuck hermeticaly sealed

SwissChuck
Precision Workholding

3 HSKCHS 400 So

Suitability as per machining process:

A
Cylindrical grinding

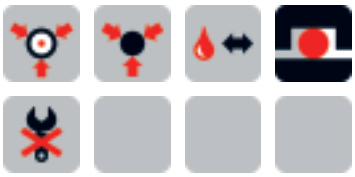
B
Eccentric grinding

C
Turning

D
Hard turning

E
Combination turning/hard turning

F
Milling/drilling



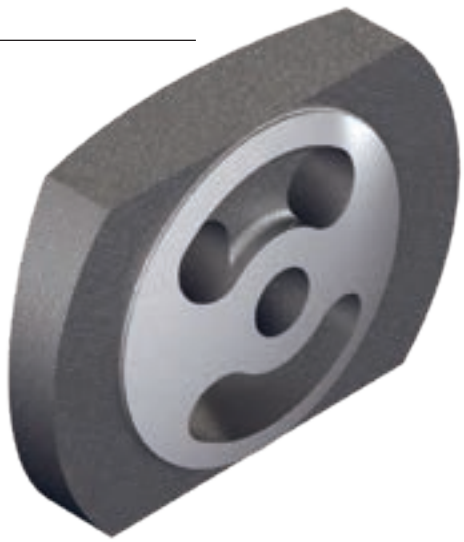
Explanation of symbols:
SwissChuck.com

Technical characteristics	
Outside diameter	400 mm
Overall height	218 mm
Mass	200 kg
Max. rpm	900 1/min
Jaw stroke	3 mm
Max. clamping force	100 kN
Number of hydraulic lines	8
Pressure up to	4.0 MPa

HYDRAULICALLY OPERATED CONSOLE AND COMPENSATING CHUCK

2 OVEK-M 270 So

Work pieces: Control lenses to hydraulic pumps
Operations: Grinding the spherical shape and the bore



Clamping task

- Referencing the control lenses:
  · in the bore
  · to the radius at the back
  · optionally: - to the center plane of the side surfaces (centric clamping)
  - at the lower side surface (console type clamping)
- Clamping at the side surfaces with hardly any deformation

Clamping system

- Hydraulically operated two-jaw chuck
- Hydraulically controllable function changing between centric and console type clamping
- Retractable centering mandrel with interchangeable centring pin
- Accurately adjusted top jaws => jaw change without readjusting
- Clamping repeatability <= 0.01 mm
- Workpiece-specific accessories:
  · top jaws
  · centring pins
- Clamping chuck hermetically sealed with patented circulating oil lubrication

SwissChuck
Precision Workholding

Suitability as per machining process:

A
Cylindrical grinding

B
Eccentric grinding

C
Turning

D
Hard turning

E
Combination turning/hard turning

F
Milling/drilling

2 OVEK-M 270 So

Explanation of symbols:
SwissChuck.com

Technical characteristics	
Outside diameter	292/270 mm
Overall height	144 mm
Max. clamping width	154 mm
Max. clamping force	20 kN
Displacement stroke of the centring plunger	25 mm
Number of hydraulic lines	6
Pressure up to	4.0 MPa

PRECISION INDEXING CHUCK

HSCH 280 So

Work pieces: Hydraulic motor shaft
Operations: Grinding the eccentrically placed ball sockets

Clamping task

- Clamping the body at the outside diameter
- Axial end stop at the shoulder
- Checking for presence of the workpiece at the axial end stop
- Precise sevenfold, partial indexing
- High positioning accuracy
- Manual or automatic loading

Clamping system

- Hydraulically operated sevenfold precision indexing chuck
- Indexing around eccentric axis
- Interlocking the indexing positions free of play, with monitoring
- Interchangeable axial end stops with check in presence of workpiece
- Clamping chuck hermeticaly sealed

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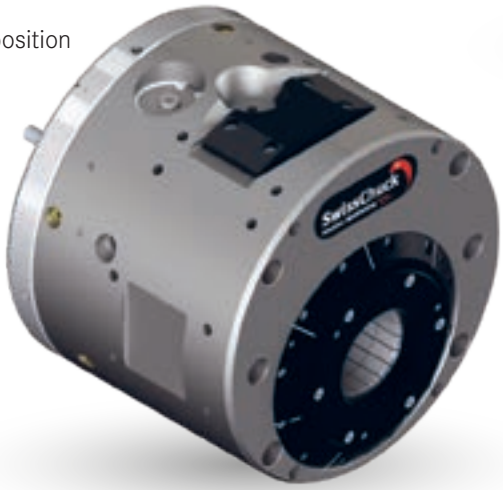
Precision Workholding

HSCH 280 So

Clamping position



Loading position

Suitability as per machining process:

A
Cylindrical grinding

B
Eccentric grinding

C
Turning

D
Hard turning

E
Combination turning/hard turning

F
Milling/drilling

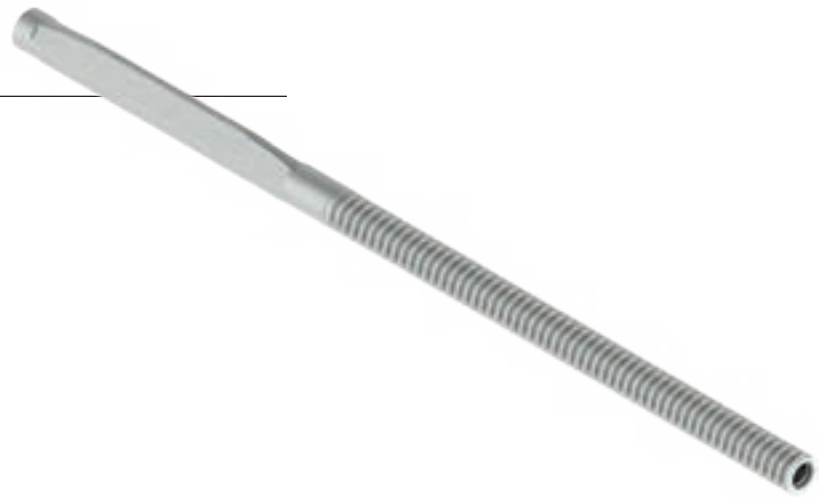
Explanation of symbols:
SwissChuck.com

Technical characteristics	
Outside diameter	280 mm
Overall height	246 mm
Mass	97 kg
Max. clamping diameter	70 mm
Max. clamping force	22.5 kN
Permissible rpm	1000 1/min
Number of lines:	
• Hydraulic	4
• Pneumatic	1
Pressure up to	6.0 MPa

SPECIAL CONSOLE CHUCK

VARKO 200 So

Workpieces: Steering shafts
Operation: Grinding of the ball thread



Clamping task

– Highly repeatable and rigid clamping of different workpieces
  · Vertical positioning of the workpiece with adjustable console jaws
  · Lateral positioning of the workpiece via the two upper jaws
  · Possible correction of symmetry at the upper jaws
  · Simple exchange of the workpiece specific accessories
  · Large jaw stroke for unhindered loading

Clamping system

– 3-jaw console chuck
  · The vertically positioned jaw acts as a bracket jaw and moves against an end-stop
  · The end-stop can be adjusted by +/-0.5 mm
  · The two upper jaws, which clamp centrically, can be adjusted in line with the vertical symmetry plane
  · The longitudinal end-stop in the check's center can be easily changed
  · Sealed unit
  · Hydraulically actuated

SwissChuck
Precision Workholding

Suitability as per machining process:

A
Cylindrical grinding

B
Eccentric grinding

C
Turning

D
Hard turning

E
Combination turning/hard turning

F
Milling/drilling

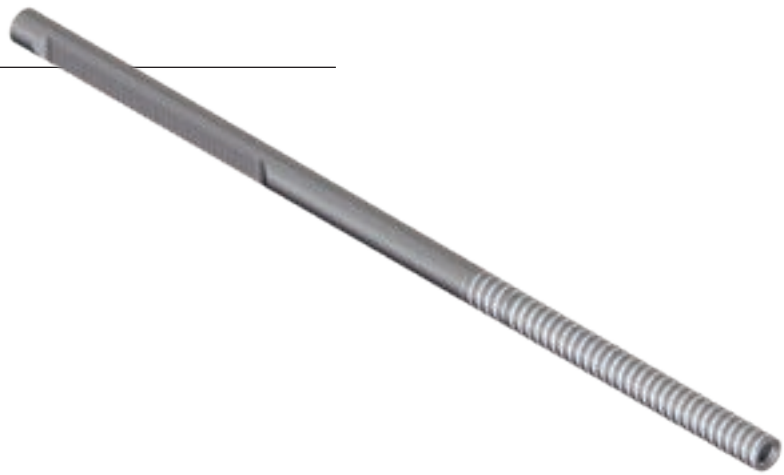
VARKO 200 So

Explanation of symbols:
SwissChuck.com

Technical characteristics	
Max. OD diameter	198 mm
Overall height including top jaws ca.	170 mm
Max. actuation pressure	3.5 MPa
Max. RPM	500 1/min

HYDRAULIC STEERING SHAFT CLAMPING SYSTEM

2Z 3A 200 So



Work pieces: Various steering shafts
Operations: Grinding the ball screw

Clamping task

- Positioning the shafts in a defined tooth space
- Detecting the position of the clamping diameter
- Clamping the shafts near the ball screw with hardly any deformation
- Simple exchanging of work piece specific interchangeable tooling

Clamping system

- Two-part clamping system, consisting of:
  · concentric chuck
  · compensating chuck
- Complemented with interchangeable adaptors with various design heights
- Work piece specific tooling
  · centring jaws
  · clamping jaws
  · sensing elements
  · axial end stops

SwissChuck
Precision Workholding

Suitability as per machining process:

A
Cylindrical grinding

B
Eccentric grinding

C
Turning

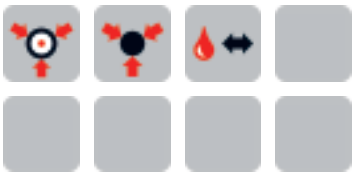
D
Hard turning

E
Combination turning/hard turning

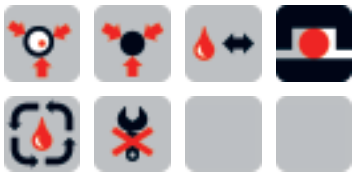
F
Milling/drilling

2Z 3A 200 So

Concentric chuck



Compensating chuck



Explanation of symbols:
SwissChuck.com

Technical characteristics	
Outside diameter	198 mm
Overall height without adaptors	193 mm
Mass	38 kg
Max. rpm	500 1/min
Max. clamping force	35 kN
Number of hydraulic lines	8
Pressure up to	5.0 MPa

HYDRAULIC COMPENSATING CHUCK *HYDRAULICALLY DISPLACE-ABLE COMPENSATING CHUCK*

6 OVARZ 448 So | *6 OVARZV 448-50 So*

Work pieces: Large crankshafts up to 4 m lengh and a weight of 1000 kg

Operations: Grinding the pin and main bearings
Grinding the pin and main bearings and the shaft ends (6 OVARZV 448-50 So)

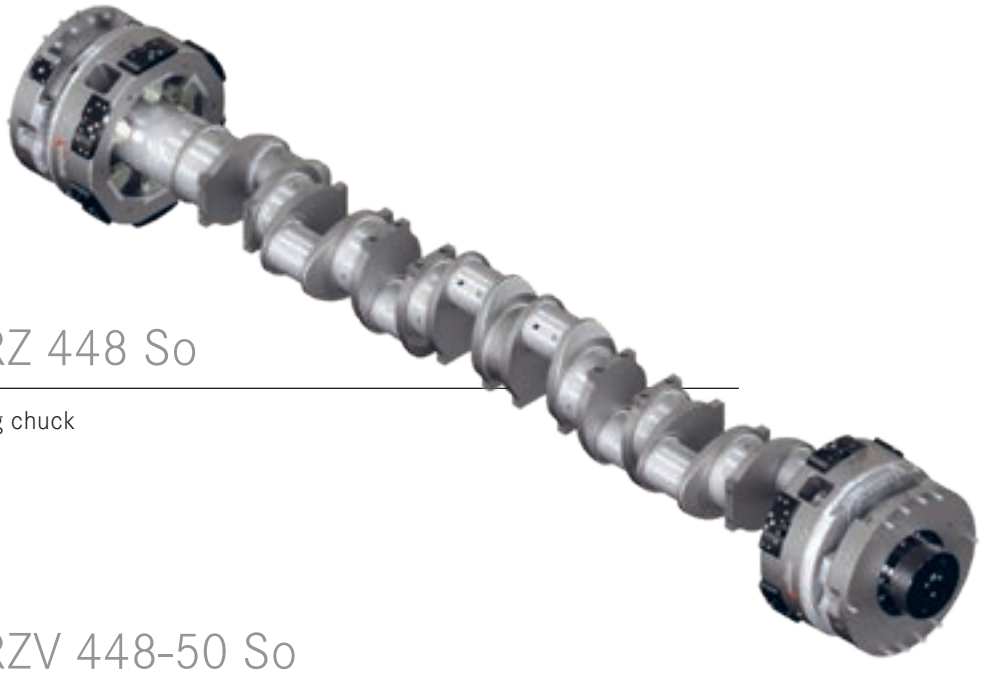
Clamping task

- Positioning of the crankshafts between centers
- Compensating chucking at shaft ends
- Three-dimensional compensation of distortions that could occur as a result of grinding operations on the work piece
- Continuous retraction to the centre point
- High clamping force
- Radial accessibility for measuring sensor at the shaft end
- *The retractable chuck allows a complete machining including the shaft ends possible with (6 OVARZV 448-50 So)*

Clamping system

- Hydraulically operated six-jaw chuck
- *Hydraulically operated six-jaw chuck with displaceable compensating chuck (6 OVARZV 448-50 So)*
- Rigid base unit with interface to centre points
- Elastical element between base unit and six-jaw chuck
- Integrated retraction unit for secure holding at centre point
- High clamping forces
- Clamping chuck hermeticaly sealed
- Simple interchangeability of the top jaws and centers

SwissChuck
Precision Workholding



6 OVARZ 448 So

Compensating chuck

6 OVARZV 448-50 So

Retractable
compensating chucks

Suitability as per machining process:

A
Cylindrical grinding

B
Eccentric grinding

C
Turning

D
Hard turning

E
Combination
turning/hard turning

F
Milling/drilling

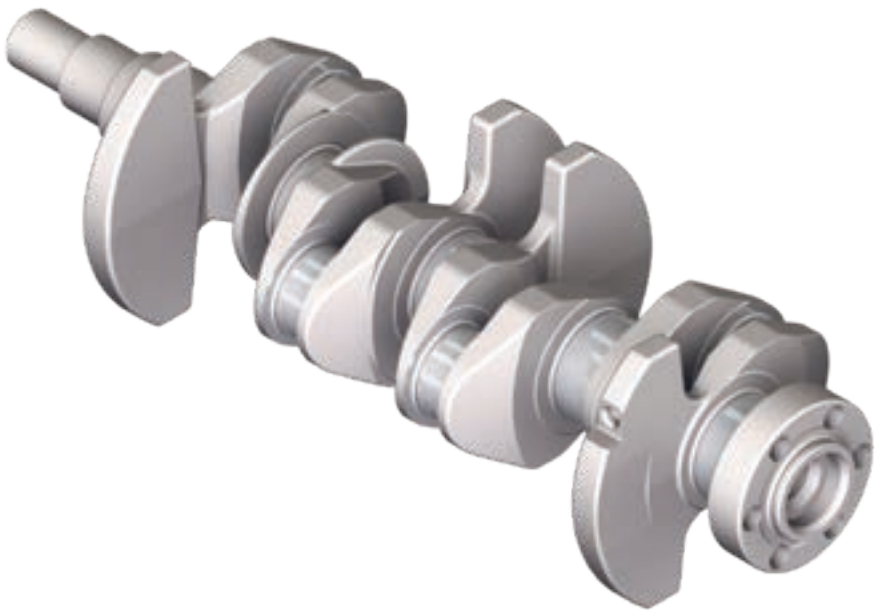
Explanation of symbols:
SwissChuck.com

Technical characteristics	6 OVARZ 448 So	6 OVARZV 448-50 So
Outside diameter	470 mm	470 mm
Overall height	277 mm	414 mm
Mass	210 kg	326 kg
Stroke per jaw	5 mm	5 mm
Displacement stroke of the chuck	–	50 mm
Max. clamping diameter	305 mm	305 mm
Max. clamping force	88 kN	88 kN
Number of hydraulic lines	4	6
Pressure up to	8.0 MPa	8.0 MPa

BRACKET COMPEN-SATING CHUCK

2 AFLD 230 So

Work pieces: Motor vehicle crankshafts
Operations: Grinding the crank pins



Clamping task

- Vertical loading, directly to clamping position
- Positioning of the crankshafts between centers
- Clamping at the first and last pre machined main bearings (run-out error vis-à-vis centres) with hardly any deformation

Clamping system

- Hydraulically operated twist finger type console chuck
- Hydraulically operated displaceable centre points, moving inside a clamping chuck against a fixed end stop, compensating opposite side
- Sensing elements to detect the position of the clamping diameter without distortion of the crankshaft
- Console jaws moving to a fixed position, given by the sensing elements
- Twist fingers with interchangeable top jaws clamping the crankshaft with sufficient force

SwissChuck
Precision Workholding

2 AFLD 230 So

Suitability as per machining process:


A
Cylindrical grinding

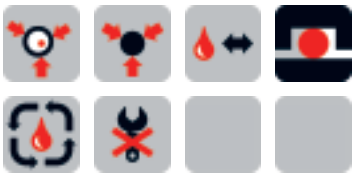

B
Eccentric grinding


C
Turning


D
Hard turning


E
Combination turning/hard turning


F
Milling/drilling



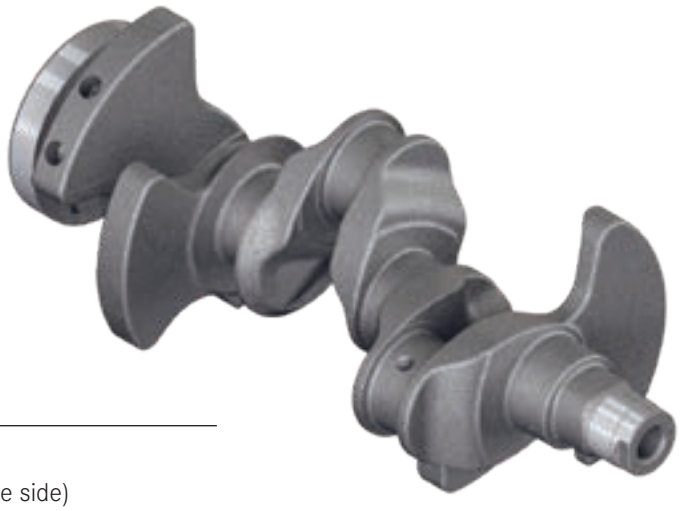
Explanation of symbols:
SwissChuck.com

Technical characteristics	
Outside diameter	230 mm
Overall height	212 mm
Mass	47 kg
Stroke per jaw	5 mm
Max. clamping diameter	50 mm
Max. clamping force	15 kN
Number of hydraulic lines	7
Pressure up to	6.0 MPa

CENTRAL DRIVE SYSTEM

MAS So

Work pieces: Motor vehicle crankshafts
Operations: Synchronous machining of both shaft ends



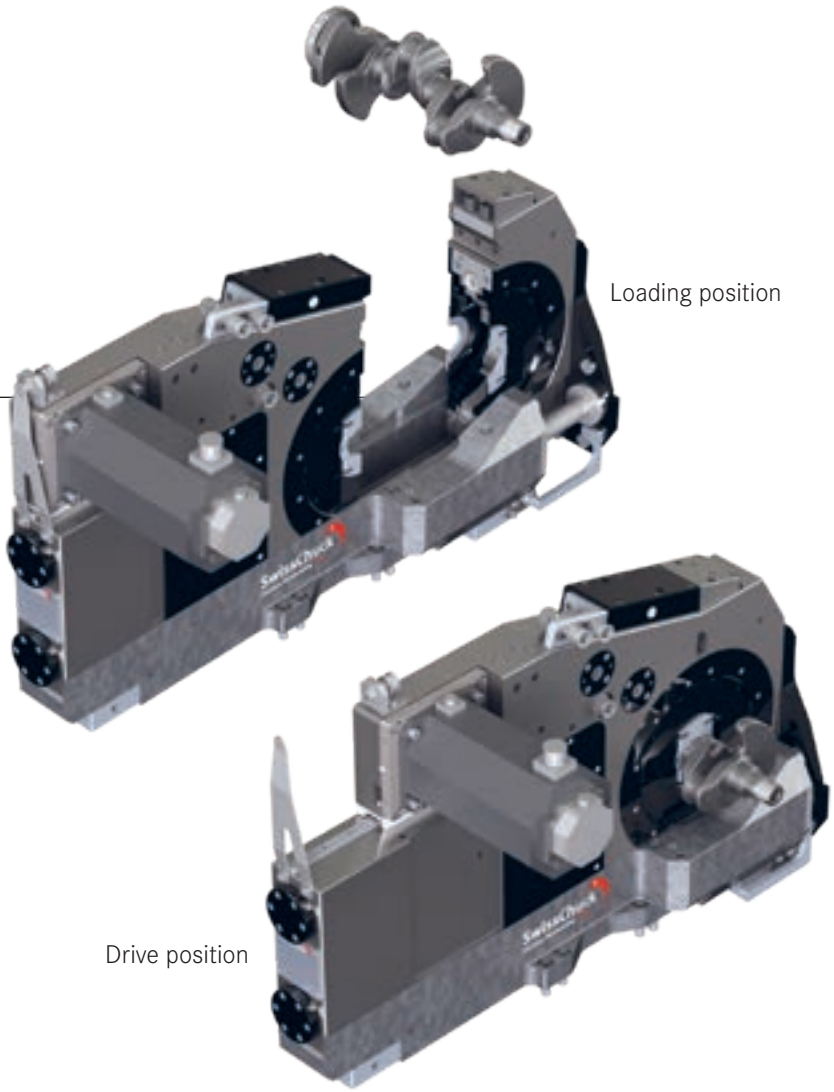
Task

- Permit vertical loading directly into clamping position
- Referencing the crankshafts between centers (on machine side)
- Supporting the crankshafts with steady rests on both sides of the MAS possible
- Torque transfer at face panels of the central crankpin
- Running of the split drive wheel almost vibration free
- Width of the main geometry max. 85 mm (interfering contours to the steady rests)
- Consideration of all interfering contours in the machine

Drive system

- Clamping system, consisting of three main modules:
  · base unit with interface to grinding machine
  · drive unit
  · revolving unit
- Rotation by a special split drive wheel
- Protected by an active air purge system against contamination
- Air sensing system for functional monitoring
- Various proximity sensors
- Workpiece-specific interchangeable parts

MAS So



Suitability as per machining process:

A
Cylindrical grinding

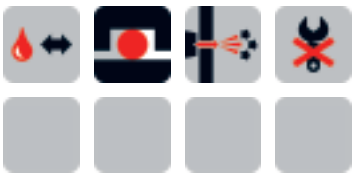
B
Eccentric grinding

C
Turning

D
Hard turning

E
Combination turning/hard turning

F
Milling/drilling



Explanation of symbols:
SwissChuck.com

Technical characteristics	
Overall dimensions	220 x 557 x 946 mm
Clearance for loading	220 mm
Construction width	85 mm
Mass	301 kg
Transferrable torque	50 Nm
Max. rpm	200 1/min
Number of lines:	
• Hydraulic	6
• Pneumatic	4
Pressure up to	4.0 MPa

PRECISION INDEXING CHUCK

3 SKGCH 315 So

Work pieces: Different spray nozzles
Operations: Roughing and finishing of the nozzle bores and the center bore

Clamping task

- Clamping the body at the outside diameter
- Axial end stop at the shoulder
- Automatic loading with checking for presence of workpiece
- High repeat accuracy:
  Repeated indexing back and forth with a test shaft. At a distance of 60 mm a concentricity of the indexing axis <= 0.01 mm
- Easy mounting/demounting of the work piece specific interchangeable parts
- Guaranteeing accessibility for tools

Clamping system

- Hydraulically operated three-jaw precision indexing chuck
- 180° indexing around transverse axis
- Interlocking both indexing positions free of play, with monitoring
- Optimal discharge of cuttings
- Top jaws with precision interface => jaw change without readjusting
- Clamping repeatability <= 0.01 mm
- Indexing accuracy <= 0.01 mm
- Interchangeable axial end stops with check in presence of workpiece
- Clamping chuck hermeticaly sealed

SwissChuck
Precision Workholding

3 SKGCH 315 So

Loading position

Position indexed 180°

Suitability as per machining process:

A
Cylindrical grinding

B
Eccentric grinding

C
Turning

D
Hard turning

E
Combination turning/hard turning

F
Milling/drilling

Explanation of symbols:
SwissChuck.com

Technical characteristics	
Outside diameter	315 mm
Overall height	163 mm
Mass	69 kg
Stroke per jaw	0.8 mm
Max. clamping diameter	50 mm
Max. clamping force	7.5 kN
Permissible rpm	200 1/min
Number of lines:	
• Hydraulic	4
• Pneumatic	2
Pressure up to	6.0 MPa

DOUBLE PITCH CIRCLE CLAMPING CHUCK

DPLC 270 So

Work pieces: Clutch gear
Operations: Grinding the bore, reference by both pitch circle diameters

Clamping task

- Clamping in the pitch circles of both gearings
- Axial end stop at the front
- Simple automatic loading
- Tooling for different work pieces

Clamping system

- Cylinder-operated clamping chuck with collets
- Gearing with larger pitch circle diameters must be positioned for loading
- Inside collet with special turning mechanism for reliable gripping into the gearing teeth
- Interchangeable collets and axial end stops
- Use with special power-operated double piston clamping cylinders and additional lines for hydraulics and pneumatics

SwissChuck
Precision Workholding

DPLC 270 So

Loading position

Clamping position

Suitability as per machining process:

A
Cylindrical grinding

B
Eccentric grinding

C
Turning

D
Hard turning

E
Combination turning/hard turning

F
Milling/drilling

Explanation of symbols:
SwissChuck.com

Technical characteristics	
Outside diameter	270 / 302 mm
Overall height	249 mm
Mass	84 kg
Radial strokes:	
• outer collet	4.5 mm
• inner collet	6.0 mm
Max. outside ø	110 mm
Max. total clamping force	30 kN
Permissible rpm	1500 1/min
Number of lines:	
• Hydraulic	2
• Pneumatic	1

SPRING FINGER CHUCK

3 OSC 240 So

Work pieces: Gear wheels
Operations: Synchronous grinding of bore, taper, outer diameter and end faces

Clamping task

- Clamping in pitch circle ø
- Axial end stop at the front
- Integration in hydrostatic central bearing
- Automatic loading
- Sufficient free space for grinding wheels

Clamping system

- Spring force-operated three-jaw chuck
- Docking point for hydraulics and for opening the chuck
- Pre-centring pins to prevent misloading
- Interchangeable and axial end stops
- Checking for presence of the workpiece at the axial end stop

SwissChuck
Precision Workholding

3 OSC 240 So

Machining side right

Machining side left

Suitability as per machining process:

A
Cylindrical grinding

B
Eccentric grinding

C
Turning

D
Hard turning

E
Combination turning/hard turning

F
Milling/drilling

Explanation of symbols:
SwissChuck.com

Technical characteristics	
Outside diameter	240 / 200 mm
Overall height	110 mm
Radial jaw stroke	1.4 mm
Max. outside ø	100 mm
Max. clamping force	16 kN
Permissible rpm	1000 1/min
Number of lines:	
• Hydraulic	1
• avaPneumatic	1

TWIST FINGER AXIAL CLAMPING CHUCK WITH CENTRING JAWS

3 FLD 155 So

Work pieces: Thin-walled gear wheels
Operations: Hard turning and grinding of the bore and front face

Clamping task

- Centring at the outside diameter
- Run-out accuracy < 0.015 mm
- Clamping without deformation
- High run-out accuracy of the bore after machining
- Axial end stop at the front
- Automatic loading
- Easily exchangeable tooling for a big variety of work pieces
- Range of the max. outside ø: 30 – 63 mm
- Maximum workpiece thickness: 50 mm

Clamping system

- Cylinder-operated twist finger chuck
- Sensitive centring jaws
- Easily exchangeable axial clamping jaws, centring jaws and axial end stops
- Checking for presence of the workpiece at the axial end stop
- Integrated cleaning of jaws and axial end stop

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Precision Workholding

3 FLD 155 So

Loading position

Clamping position

Suitability as per machining process:

A
Cylindrical grinding

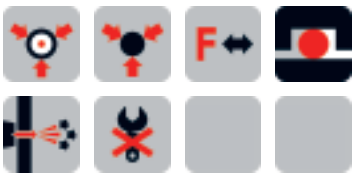
B
Eccentric grinding

C
Turning

D
Hard turning

E
Combination turning/hard turning

F
Milling/drilling



Explanation of symbols:
SwissChuck.com

Technical characteristics	
Outside diameter	155 mm
Overall height	130 mm
Mass	15 kg
Strokes:	
• radial centring jaws	1.4 mm
• axial clamping jaws	1.0 mm
Max. outside ø	63 mm
Max. axial clamping force	8 kN
Permissible rpm	6000 1/min
Number of lines:	
• cooling agent	1
• compressed air	2

INDEXING CHUCK 0 TO 20°

HS 210 So

Work pieces: Acetabulum made of synthetic material for artificial hip-joint

Operations: Accurate turning of the axis parallels and of the part inclined towards the axis

Clamping task

- Taking over the workpiece from the sub spindle
- Machining the part parallel to the axis
- Indexing to an angle position between 0 and 20°
- Machining the inclined part
- Automatic loading of the workpieces
- Automatic exchanging of collets
- 24 hours unmanned manufacturing

Clamping system

- Two-part clamping chuck, where the inside chuck is inclined 10° vis-à-vis the C axis
- Interchangeable collets for automated change over
- Pull in and locking mechanism for the collets in the inside chuck
- Coupling unit for multiple rotary feed unit
- Indexing is in accordance with defined rotation of the spindle

SwissChuck
Precision Workholding

HS 210 So

Centric position

Indexed position

Suitability as per machining process:

A
Cylindrical grinding

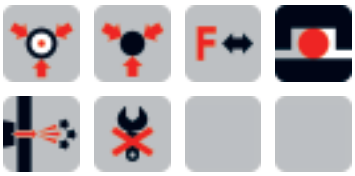
B
Eccentric grinding

C
Turning

D
Hard turning

E
Combination turning/hard turning

F
Milling/drilling



Explanation of symbols:
SwissChuck.com

Technical characteristics	
Outside diameter of the chuck	210 mm
Overall height	202 mm
Mass of the chuck	32 kg
Permissible rpm	4000 1/min
Number of lines:	
• Hydraulic	4
• Pneumatic	5

HYDRAULIC TWO-JAW COMPENSATING CHUCK

2 OVEKA 210 So

Work pieces: Turbine blades
Operations: Roughing and finish milling of the blades

Clamping task

- Docking the workpiece in a loading station outside the machine room
- Positioning of the work piece between centers
- Compensating chucking
- Clamping force must be retained in a way that the workpiece cannot shift during transportation from the loading station to the machine room
- Interface between clamping chuck and spindle nose is HSK 100
- Hydraulic interfaces with leakage-proof couplings

Clamping system

- Compensating two-jaw lever chuck with additional locking plungers
- Spring loaded centre point
- HSK interface
- Interface to handling system
- Leakage-free couplings for hydraulic feeding
- Tooling for various workpieces

SwissChuck
Precision Workholding

2 OVEKA 210 So

Clamping position

Suitability as per machining process:

A
Cylindrical grinding

B
Eccentric grinding

C
Turning

D
Hard turning

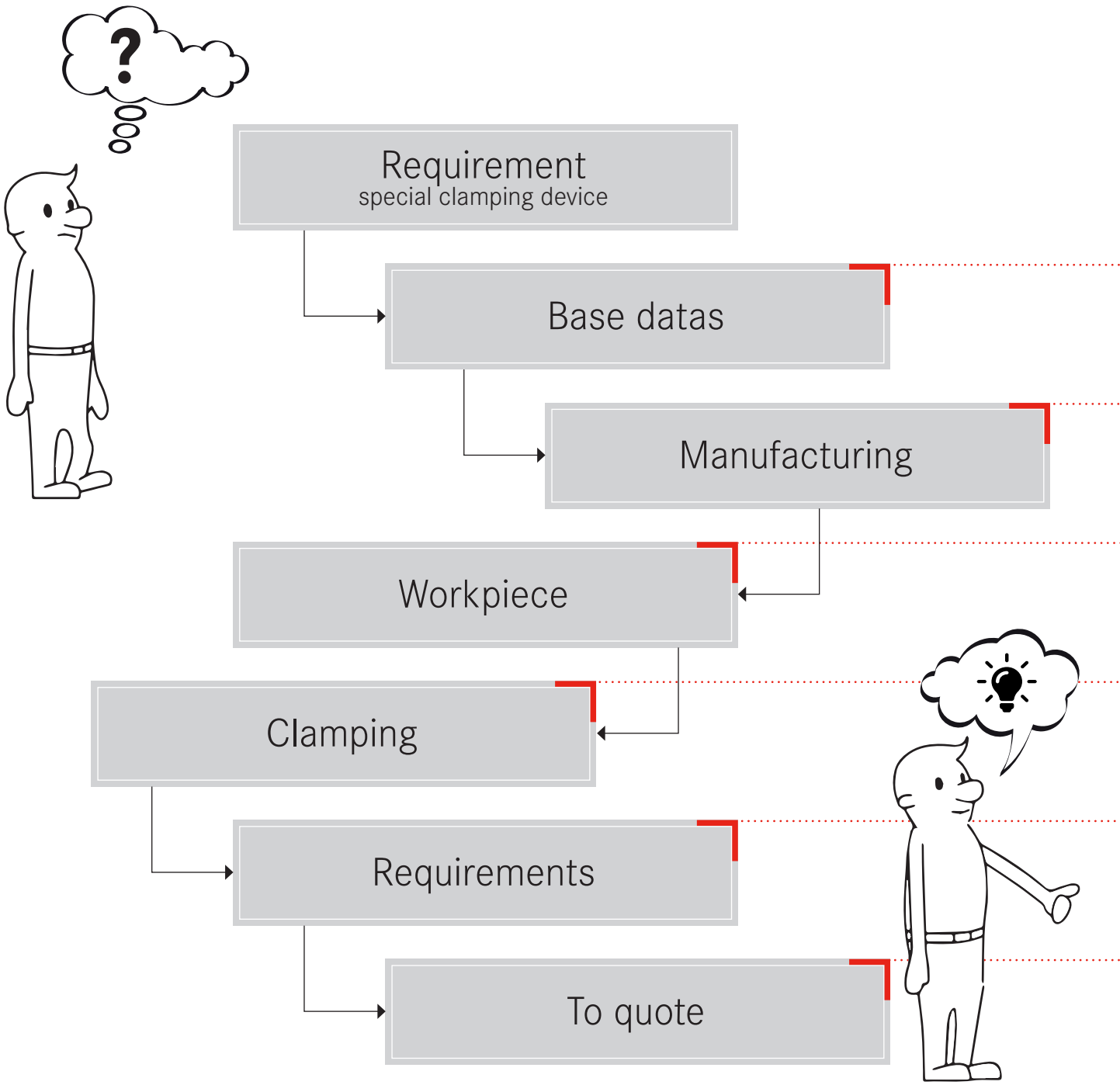
E
Combination turning/hard turning

F
Milling/drilling

Explanation of symbols:
SwissChuck.com

Technical characteristics	
Outside diameter of the chuck	210 mm
Overall height	180 mm
Stroke per jaw	7.5 mm
Mass of the chuck	36 kg
Clamping force at 8 MPa	32 kN
Permissible rpm	500 1/min
Number of lines:	
• Hydraulic	3
• Locking air	1

SPECIFICATION DATA SHEET



SwissChuck
Precision Workholding

The following information is relevant for the procurement process:

Base datas

Date: ..... Customer: ..... Phone-No: .....
Quote-No: ..... Address: ..... Fax: .....
Written by: ..... PO code, city: ..... Email: .....
Required quoting date: ..... Country: .....

Manufacturing

☐ Ginding ☐ Turning ☐ Hard turning ☐ Combined
Note: .....

Workpiece

Description: ..... Part-No: ..... Note: .....
Material: ..... Heat treatment: ....

Clamping surface	**End stop surface**	
☐ Rough ☐ Turned	☐ Rough ☐ Turned	Note: .....
☐ Milled ☐ Ground	☐ Milled ☐ Ground	.....
Diameter:	Between ø:	.....
Tolerance:	And ø:	.....
Allowance:	At dimension:	.....

Clamping

☐ OD ☐ ID ☐ Between centers ☐ Others
Note .....

☐ Aut loading ☐ Man loading ☐ Coolant ☐ Air sensing. ☐ Positioning
Note .....

Machine	Spindle / Spindlenose	Actuator .....
Horizontal	Max speed	Type .....
Vertical	P max:	Balancing .....

☐ Manual chuck ☐ Hydr. operated ☐ Pneum. operated

Requirements

Cycle time ..... Specific .....
Dim ..... Dim ..... Dim .....
Tol ..... Tol ..... Tol .....

To quote

No of chucks ..... Actuator ..... Top Tooling .....
Mounting parts .....
☐ Binding quote ☐ Budget price

EXPLANATION OF SYMBOLS


Chucks are hermetically sealed


External clamping


Compensating clamping


Drawbar actuated


Hydraulic actuated


Internal clamping


Pneumatic actuated


Precision interface


Concentricity


Clamping range


Sealing air


Circculating lubrication


Movable Chuck


Low maintenance


Repeatability


Centric clamping

SwissChuck
Precision Workholding

«**SwissChuck** – is your partner for workpiece clamping where precision clamping technology is needed»

SwissChuck develops and produces highly-precise clamping devices. You have the workpiece, the grinding machine – we have the suitable high-precision chuck or develop the customized special clamping technique! Whether centric grinding, eccentric grinding, turning or hard turning – SwissChuck is your partner for workpiece clamping where precision clamping technology is needed.

Try us! You have a special workpiece for clamping and want to optimize the production process. We develop and manufacture customized clamping systems.

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KCHP/VKCHP
High-precision force chuck

SAP to KCHP
Automated drive carrier

KFHP
Precision power chuck

KCHSF
Centrifugal force chuck

VMCHP
Diaphragm chuck

LZK/LSK-S
Collet chuck with clamping lamellas

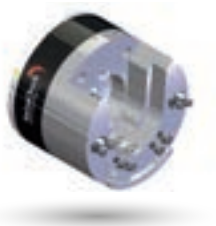
DL
Collet expanding mandrel

TGC/FTGC
Tool chuck

OVEK
High-precision force chuck

OVEKA
Compensating chuck

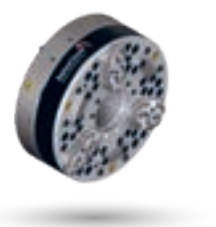
OVEKAV
Moving compensating chucks



FLD/AFLD
Twist finger type console chuck

SPECIAL SOLUTIONS
Tailor made solutions

PZLHM
Pneumatic force clamping cylinder



TRITON®
Precision lathe chuck

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