

Special chuck HSA 2-jaw chuck / 3-jaw chuck

HSA 160 (88001862, 88021732, 88029313, 88035481, 88037348, 88039738, 88036995)

HSA 160/2 (88026206, 88029240, 88036160, 88041389)

HSA-NZ 170/2 (88027365)

HSA 180/2 (88036423)

HSA 200 (88002843, 88002909, 88002958, 88004159, 88018669, 88020485, 88026696, 88028474, 88028566, 88039479, 88039429)

HSA 250 (88018463, 88018469, 88019551)

HSA 250/2 (88028004, 88034564)

HSA 265 (88003413, 88003473)

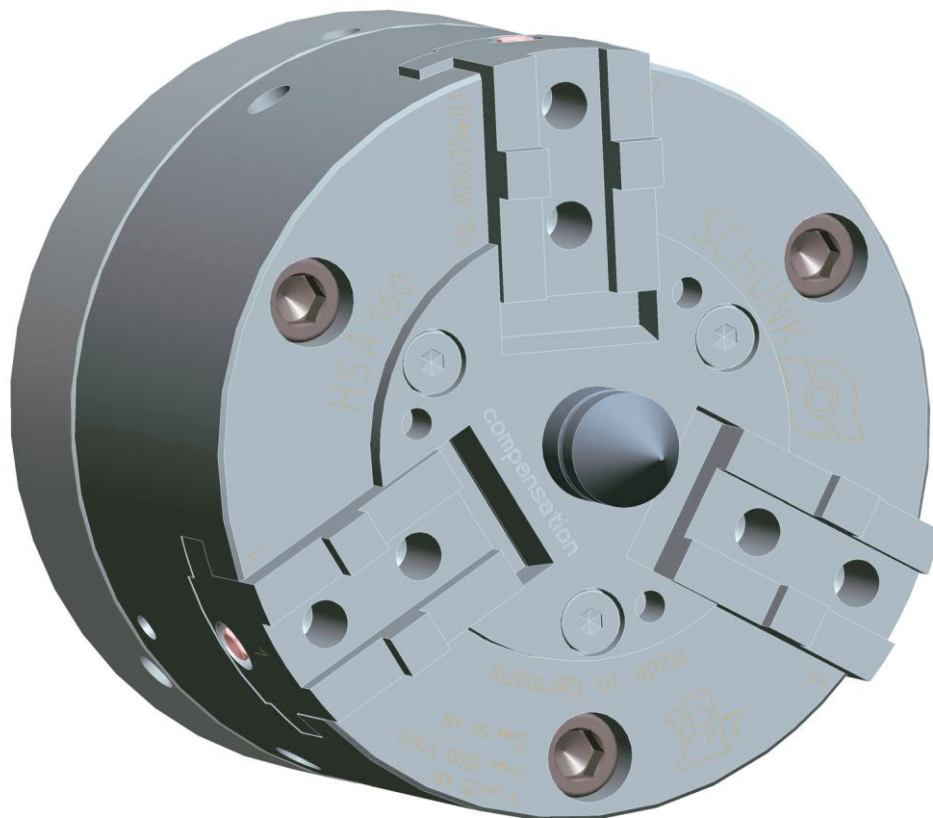
HSA 315 (88037992, 88040302)

HSA 315/2 (88029693)

HSA 400 (88026570)

HSA 630/2 (88019966)

Assembly and Operating Manual



Imprint

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Technical changes:

We reserve the right to make alterations for the purpose of technical improvement.

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Dear customer,

congratulations on choosing a SCHUNK product. By choosing SCHUNK, you have opted for the highest precision, top quality and best service.

You are going to increase the process reliability of your production and achieve best machining results – to the customer's complete satisfaction.

SCHUNK products are inspiring.

Our detailed assembly and operation manual will support you.

Do you have further questions? You may contact us at any time – even after purchase.

Kindest Regards

Your H.-D. SCHUNK GmbH & Co.

Spanntechnik KG

Lothringer Str. 23

D-88512 Mengen

Tel. +49-7572-7614-0

Fax +49-7572-7614-1099

info@de.schunk.com

www.schunk.com



Reg. No. 003496 QM08



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1 General

This operating manual is an integral component of the product and contains important information on safe and proper assembly, commissioning, operation, care, maintenance and disposal. This manual must be stored in the immediate vicinity of the product where it is accessible to all users at all times.

Before using the product, read and comply with this manual, especially the chapter “Basic safety notes”. ([👉 2, Page 6](#))

If the product is passed on to a third party, these instructions must also be passed on.

Illustrations in this manual are provided for basic understanding of the product and may differ from the actual product design.

We accept no liability for damage resulting from the failure to observe and comply with this operating manual.

1.1 Warnings

To make risks clear, the following signal words and symbols are used for safety notes.

	 DANGER Danger for persons. Non-compliance will inevitably cause irreversible injury or death.
	 WARNING Dangers for persons. Ignoring a safety note like this can lead to irreversible injury and even death.
	 CAUTION Dangers for persons. Non-observance can cause minor injuries.

	NOTICE Material damage Information about avoiding material damage.
	! WARNING Warning about hand injuries
	! WARNING Warning about hot surfaces

1.2 Applicable documents

General terms of business

Calculation of the jaw centrifugal forces

("Technology" chapter in the lathe chuck catalog)

The above mentioned documents can be downloaded at
www.de.schunk.com.

2 Basic safety notes

Improper handling, assembly and maintenance of this product may result in risk to persons and equipment if this operating manual is not observed.

Report any failures and damage immediately and repair without delay to keep the extent of the damage to a minimum and prevent compromising the safety of the product.

Only use original SCHUNK spare parts.

2.1 Intended use

The chuck is used to clamp workpieces on machine tools and other suitable technical facilities, paying particular attention to the technical data specified by the manufacturer. The technical data specified by the manufacturer must never be exceeded.

The product is intended for industrial use.

Intended use also means that the user has read and understood this operating manual in its entirety, especially the chapter “Basic safety notes”.

The maximum RPM of the chuck and the required clamping force must be determined by the user for the respective clamping task based on the applicable standards and technical specifications of the manufacturer.

(See also “Calculations for clamping force and RPM” in the chapter “Technical data”). ([👉 6, Page 17](#))

2.2 Not intended use

The product is not being used as intended if, for example,

- It is used as a press, a punch, a chuck, a load-handling device or as lifting equipment.
- It is used in working environments that are not permissible.
- Workpieces are not clamped properly, paying particular attention to the clamping forces specified by the manufacturer.
- People work on machines or technical equipment that do not comply with the EC Machinery Directive 2006/42/EC, in violation of the applicable safety regulations.

- The technical data for use of the product specified by the manufacturer are exceeded.

2.3 Notes on particular risks

This product may pose a danger to persons and property if, for example:

- It is not used as intended;
- It is not installed or maintained properly;
- The safety and installation instructions, local applicable safety and accident prevention regulations or the EC Machinery Directive are not observed.



DANGER

Possible risk of fatal injury to operating personnel due to the workpiece falling down or being flung out in the event of a power failure!

In the event of a power failure, the chuck's clamping force may fail immediately and the workpiece may be released in an uncontrolled manner. This poses a risk of death or injury to the operating personnel and can result in serious damage to the system.

- Due to the carried out and documented danger assessment and risk evaluation, the machine manufacturer and its operator have to ensure that appropriate measures have been taken in order to maintain the clamping force of the chuck until the machine's standstill, and to secure the workpiece correspondingly (e.g. via a crane or a suitable hoist).
- The machines and facilities must fulfill the minimum requirements of the EC Machinery Directive 2006/42/EC; specifically, they must have effective technical measures to protect against possible mechanical hazards.



! DANGER

Possible risk of fatal injury to operating personnel if a jaw breaks or if the chuck fails because the technical data have been exceeded and a workpiece is released or parts fly off!

- The technical data specified by the manufacturer for using the chuck must never be exceeded.
- The chuck may only be used on machines and facilities that fulfill the minimum requirements of the EC Machinery Directive 2006/42/EC; specifically, they must have effective technical measures to protect against possible mechanical hazards.



! DANGER

Possible risk of fatal injury to operating personnel from clothing or hair being caught on the chuck and being dragged into the machine

Loose clothing or long hair may become caught on projecting parts of the chuck and be drawn into the machine.

- The machines and facilities must fulfill the minimum requirements of the EC Machinery Directive 2006/42/EC; specifically, they must have effective technical measures to protect against possible mechanical hazards.
- Always wear tight-fitting clothing and a hairnet when working on the machine and the chuck.



! WARNING

Risk of injury due to dropping the chuck during transport, installation or removal.

- Take special care in the danger zone when transporting, installing or removing the chuck.
- Note the relevant load securing regulations for working safely with cranes, ground conveyors, lifting gear and load-handling equipment.


⚠ CAUTION

Danger of slipping and falling in case of dirty environment where the chuck is used (e.g. by cooling lubricants or oil).

- Make sure the work environment is clean before beginning assembly and installation tasks.
- Wear suitable safety shoes.
- Observe the safety and accident prevention regulations during operation of the chuck, especially in connection with machining centers and other technical equipment.


⚠ CAUTION

Danger of limbs being crushed by opening and closing of the chuck jaws during manual loading and unloading or when replacing moving parts.

- Do not reach between the jaws.
- Wear safety gloves.
- Observe the safety and accident prevention regulations during operation of the chuck, especially in connection with machining centers and other technical equipment.


⚠ CAUTION

Risk of burns due to workpieces with high temperatures.

- Wear protective gloves when removing the workpieces.
- Automatic loading is preferred.


⚠ CAUTION

Risk of damages due to incorrect choice of clamping position for chuck jaws on workpiece.

If an incorrect clamping position is chosen for the chuck jaws on workpiece, the base and the top jaws may be damaged.

- The T-nuts combine the top jaws with the base jaws and they should never protrude over the base jaws in radial direction.
- The outer diameter of the screwed top jaws must not exceed the outer diameter of the chuck by more than 10%.



⚠ CAUTION

Hazard from vibration due to imbalanced rotating parts and noise generation.

Physical and mental strains due to imbalanced workpieces and noise during the machining process on the clamped and rotating workpiece.

- Ensure the chuck's axial and concentric runout.
- Check options for remedying imbalances on special top jaws and workpieces.
- Reduce the speed.
- Wear hearing protection.

2.4 Notes on safe operation

- The machine spindle may only be started up when clamping pressure has built up in the cylinder and clamping has followed in the permitted work area.
- Unclamping may only be possible when the machine spindle has come to a standstill.
- If the clamping energy fails, the workpiece must remain firmly clamped until the spindle is shut down and the workpiece is secured.
- The technical safety requirements in the respective operating instructions must be observed exactly.

Functional test

After installation of the chuck, its function must be checked prior to start-up.

Two important points are:

- **Clamping Force!** The clamping force of the chuck must be achieved at max. operating force/pressure.
- **Stroke control!** The stroke of the clamping piston must allow a safety zone at the front and rear end position. The machine spindle may only be started when the clamping piston has passed through the safety zone. Only limit switches that meet the requirements for safety limit switches specified in DIN EN 60204-1 may be used.

When determining the necessary clamping force to machine a workpiece, take the centrifugal force acting on the chuck jaws into account (according to VDI 3106).

If the chuck jaws are changed, adjust the stroke control to the new situation.

Speed



! DANGER

Possible risk of fatal injury to operating personnel if the chuck's top speed is exceeded and a workpiece is released or parts fly off.

If the machine tool or technical equipment can reach a higher speed than the chuck's top speed, a reliable speed limiter must be installed and proof must be provided that the speed limiter is effective.

Maintenance instructions

The chuck's reliability and safety can only be guaranteed if the operator complies with the manufacturer's maintenance instructions.

- For lubrication, we recommend our tried and tested special grease, LINO MAX. Unsuitable lubricants can have a negative impact on the functioning of the chuck (clamping force, coefficient of friction, wear characteristics).
(For product information about LINO MAX, see the "Accessories" chapter of the SCHUNK lathe chuck catalog or contact SCHUNK).
- Use a suitable high-pressure grease gun to ensure that you reach all the greasing areas.
- To ensure correct distribution of the grease, move the clamping piston to its end positions several times, lubricate again, and then check the clamping force.
- We recommend checking the clamping force using a clamping force tester before starting a new production run and between maintenance intervals. "Only regular checks can guarantee optimal safety."
- The clamping force should always be measured in the state of the chuck as used for the current clamping situation. If top jaws with clamping steps are used, measuring must be performed in the same step as for the respective clamping task. In the event of high operating speeds, clamping force losses must be

accounted for due to the centrifugal force acting on the chuck jaws. The operating clamping force must in this case be determined by means of dynamic measurement.

- Move the clamping piston through to its end position several times after 500 clamping strokes, at the latest. (This moves the lubricant back to the surfaces of the force transmission. This means that the clamping force is retained for longer).

Safety notes for servicing

Follow all the applicable legal norms for health and safety during servicing. Use suitable personal protective equipment, especially protective gloves, goggles and safety boots, paying particular attention to the operating system and hazard assessment.



DANGER

Possible risk of fatal injury to operating personnel due to chuck failure if the servicing instructions for the chuck are disregarded!

The servicing instructions specified by the manufacturer must be complied with to ensure safe operation of the chuck.

Work must be carried out by qualified specialist personnel with the relevant safety training.

Use of special chuck jaws

When using special chuck jaws, please observe the following rules:

- The chuck jaws should be designed to be as light and as low as possible. The clamping point must be as close as possible to the chuck face (clamping points at a greater distance lead to greater surface pressure in the jaw guidance and can significantly reduce the clamping force).
- Do not use welded jaws.
- If for constructional reasons the chuck jaws in special design are heavier than the top jaws assigned to the clamping device, greater centrifugal forces must be accounted for when defining the required clamping force and the recommended speed.
- Screw the jaw mounting screws into the bore holes furthest apart.

- The maximum recommended speed may only be operated in conjunction with maximum actuating force and only with the chuck in optimal, fully functioning condition.
- If the chuck is involved in a collision, it must be subjected to a crack test before using it again. Replace damaged parts with original SCHUNK spare parts.
- Replace the chuck jaw mounting screws if there are signs of wear or damage. Only use screws with a quality of 12.9.

2.4.1 Substantial modifications

No substantial modifications may be made to the chuck.

If the operator carries out a substantial modification to the chuck, the product shall no longer conform to the EC Machinery Directive 2006/42/EC.

2.5 Personnel qualification

Assembly and disassembly, commissioning, operation and repair of the chuck may be performed only by qualified specialists who have been instructed with respect to safety.

All persons who are assigned to operate, maintain and repair our chuck must have access to the operating manual, especially the chapter “Fundamental safety instructions”. We recommend that the operator create in-house safety operating instructions.

Persons in training may be assigned to machines and technical equipment in which a chuck is mounted only if they are under the constant guidance and supervision of qualified specialists.

2.6 Organizational measures

Obeying the rules

Via suitable organizational measures and instructions, the operator must ensure that the relevant safety rules are obeyed by the persons asked to operate, maintain and repair the chuck.

Checking the behavior of personnel

The operator must at least occasionally check that the personnel are behaving in a safety conscious manner and are aware of the potential hazards.

Danger signs

The operator must ensure that the signs concerning safety and hazards mounted on the machine where the chuck is mounted are clearly legible and are observed.

Faults

If a fault occurs on the chuck and this fault endangers safety or if a problem is suspected due to production characteristics, the machine tool where the chuck is mounted must be immediately stopped and remain shut down until the fault has been located and remedied. Only allow specialists to remedy faults.

Spare parts

Only ever use original SCHUNK spare parts.

Environmental regulations

Comply with the applicable legal norms when disposing of waste.

2.7 Using personal protective equipment

When using this product, you must comply with the relevant health and safety at work rules and you must use the required personal safety equipment (minimum: category 2).

2.8 2-jaw chuck

The values for the total clamping force, recommended speed and actuating force are embossed on the chuck body.

The base jaws are aligned in the front stroke position. The top jaws only align after 10 mm of piston stroke.

Only parts that are flat in the clamping direction or on which compensation is only expected in the jaw guidance direction can be clamped.

3 Warranty

If the product is used as intended, the warranty is valid for 12 months from the date of delivery from the production facility under the following conditions:

- Observe the applicable documents ([☞ 1.2, Page 5](#))
- Observe the environmental and operating conditions.
- Observation of the maximum clamping cycles ([☞ 6, Page 17](#))
- Observe the mandatory maintenance and lubrication intervals. ([☞ 9, Page 26](#))

Parts touching the work piece and wearing parts are not part of the warranty.

4 Torques per screw

Tightening torques for mounting screws used to clamp the chuck on lathes or other suitable technical equipment
(screw quality 10.9)

Screw size	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24	M27	M30
Admissible torque M_A (Nm)	13	28	50	88	120	160	200	290	400	500	1050	1500

Tightening torques for mounting screws used to attach top jaws onto the chuck (screw quality 12.9)

Screw size	M6	M8	M10	M12	M14	M16	M20	M24
Torque M_A (Nm)	16	30	50	70	130	150	220	450

5 Scope of delivery

1 HSA power chuck in the version ordered

HSA 160

(Id-No. 88001862, 88021732, 88029313, 88035481, 88037348, 88039738, 88036995)

HSA 160 – 2-jaw chuck

(Id-No. 88026206, 88029240, 88036160, 88041389)

HSA-NZ 170 – 2-jaw chuck

(Id-No. 88027365)

HSA 180 – 2-jaw chuck

(Id-No. 88036423)

HSA 200

(Id-No. 88002843, 88002909, 88002958, 88004159, 88018669, 88020485, 88026696, 88028474, 88028566, 88039479, 88039429)

HSA 250

(Id-No. 88018463, 88018469, 88019551)

HSA 250 – 2-jaw chuck

(Id-No. 88028004, 88034564)

HSA 265

(Id-No. 88003413, 88003473)

HSA 315

(Id-No. 88037992, 88040302)

HSA 315 – 2-jaw chuck

(Id-No. 88029693)

HSA 400

(Id-No. 88026570)

HSA 630 – 2-jaw chuck

(Id-No. 88019966)

1 Intermediate flange (Item 10)

Fastening screws – Chuck on mounting and mounting on spindle.

HSA 160, HSA 160/2, 200, 250, 315, 400 and 630/2:

T-nuts with screws, or groove combinations with 2 screws
(Item 14)

HSA-NZ 170, HSA 180/2:

4 Screws for mounting

1 Set of top jaws

HSA 315/2:

2 Screws DIN EN ISO 4762 (for mounting the top jaws)

1 Operating manual

6 Technical data

For the technical data for the chucks, refer to the enclosed drawings.

Balancing:

The HSA chuck is balanced in accordance with DIN ISO 1940. For balancing, a balancing grade of G 6.3 is selected and the mass and maximum recommended speed of the chuck are used as reference values. It applies to self-centering clamping using the bushing.

Warranty and maximum clamping cycles

Length of warranty	12 Months
Maximum clamping cycle number	300 000 Cycles

6.1 Calculation of the clamping force based on the speed:

$$\Sigma S = a \cdot F \pm 0.00001096 \cdot (M \cdot r + K) \cdot n^2$$

Total clamping force = Static clamping force $\pm$ Loss of centrifugal force

The loss of centrifugal force must not exceed 50% of the static clamping force.

$\pm$: Minus (–) applies to O.D. clamping and plus (+) to I.D. clamping

ΣS : Total clamping force in N

M: Mass of all top jaws with T-nuts and screws in kg

r: Distance from chuck center to center of gravity of top jaws in mm

K: Constant for the base jaw

K = 3077.0 on HSA 630/2

K = 460.2 on HSA 400

K = 630.0 on HSA 315

K = 646.0 on HSA 315/2

K = 401.2 on HSA 265

K = 293.8 on HSA 250

K = 196.0 on HSA 250/2

K = 84.2 on HSA 200

K = 83 on HSA 180/2

K = 46.6 on HSA-NZ 170/2

K = 69.5 on HSA 160

K = 46.3 on HSA 160/2

F: Actuating force in N

n: Speed in rpm

a: Static chuck constant:

1.94 on HSA-NZ 170

2.00 on HSA 160, 180/2, HSA 200

2.40 on HSA 265, HSA 250, HSA 250/2, HSA 400

2.30 on HSA 315

2.50 on HSA 315/2

Maximum distance from front face of chuck to center of workpiece (reach):

HSA 160: 30 mm

HSA 160/2: 30 mm

HSA-NZ 170/2: 35 mm

HSA 180/2: 35 mm

HSA 200: 46 mm

HSA 250: 46 mm

HSA 250/2: 46 mm

HSA 265: 46 mm

HSA 315: 55 mm

HSA 315/2: 55 mm

HSA 400: 75 mm

HSA 630/2: 100 mm

(Greater jaw distances after consultation with clamping technology technical sales team)

6.2 Grades of Accuracy

Tolerances for run-out accuracy and axial run-out accuracy correspond to the Technical Supply Terms for lathe chucks as per DIN ISO 3089.

6.3 Permissible imbalance

The permissible imbalance for lathe chucks is quality class G 6.3 as per DIN ISO 1940-1.

7 Assembly

The specified item numbers for the corresponding individual components relate to the enclosed drawings or to the Drawings chapter ([🔗 12, Page 30](#)).

7.1 Pre-assembly measures

Carefully lift the product (e.g. using suitable lifting gear) from the packaging.

	⚠ CAUTION
	Danger of injury due to sharp edges and rough or slippery surfaces Use personal protective gear, especially safety gloves.

Check the delivery for completeness and for transport damage.

7.2 Assembly of the HSA chuck

- Check the machine spindle nose and ready-machined intermediate flange for radial and axial run-out. The permissible limit is 0.005 mm in accordance with DIN 6386 and ISO 3089.
- The contact surface must be chamfered and completely clean at the bore holes.
- Unscrew the cylindrical screws (Item 18) and remove the guide bushing (Item 4, 11, or 13).
- Actuate the clamping cylinder to slide the draw tube to the front position (see illustration: "Mounting the chuck")

HSA 160, 160/2, NZ 170/2, 180/2, 200, 250, 250/2, 265, 315, 315/2 and 400:

- Screw the intermediate flange (Item 10) onto the spindle using the screws (Item 19).
- Move the guide part (Item 5) to the front position.
- Raise the chuck in front of the spindle lug using an assembly belt or eye bolt until it is flush with the center of the spindle.

- Screw the power chuck onto the draw tube as far as it will go. (Make sure that the draw tube thread is flush.)
The HSA 160,160/2, HSA-NZ 170/2,180/2, HSA 250, HSA 250/2 and HSA 400 is screwed onto the draw bar using the screw (Item 15). (The screw must also be flush with the draw bar thread.)
- The chuck is screwed onto the intermediate flange (spindle) using the screws (Item 17).
The run-out can be aligned as follows: Slightly loosen the screws (Item 17). Fit a dial gauge on the cylindrical surface of the chuck body (Item 1). Align the run-out using the set-screws (Item 23). Tighten the screws (Item 17) alternately.

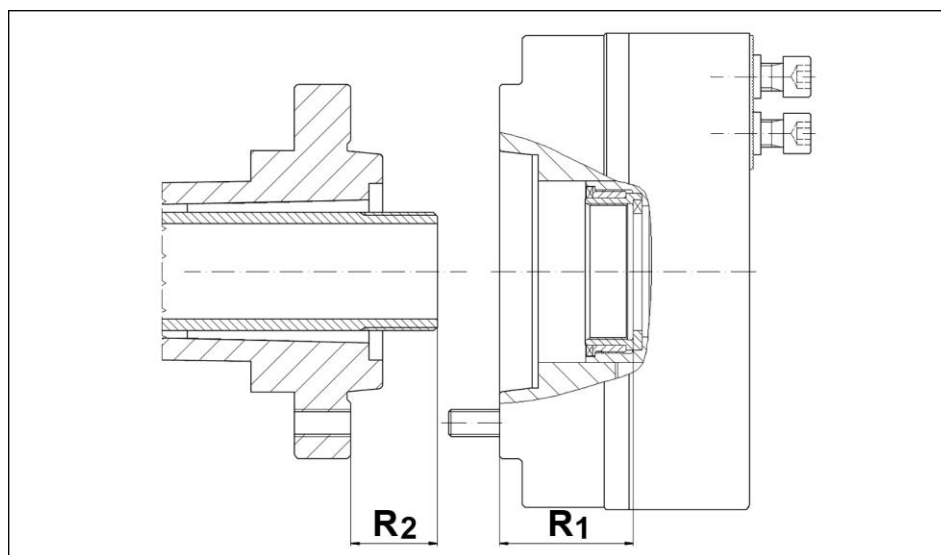
HSA 630/2:

- Lift the chuck with the flange screwed on (Item 10) in front of the spindle lug using an eye bolt until it is flush with the center of the spindle. The bore holes for the screws (Item 17) should be flush with the threaded holes in the spindle.
- Screw onto the draw bar using the screw (Item 15). (The screw (Item 17) must also be flush with the draw rod thread.)
- Slightly tighten the screws (Item 17) alternately. Also slightly tighten the screws (Item 19).
- The run-out can be aligned as follows: Place a dial gauge on the cylindrical surface of the chuck body (Item 1). Adjust the set-screws (Item 23) to align the run-out. Securely tighten the screws (Item 17 and 19) alternately.

Tighten the fastening screws, quality class 10.9, using a torque wrench. (See "Screw tightening torques" chapter [\(4, Page 15\)](#)).
On no account tighten the Allen key with an extension pipe or with hammer blows.

All HSA chuck types:

- Fit the guide bushing for the compensating clamping (Item 4) or self-centering clamping (Item 13) using the screws (Item 18).



Mounting the chuck

Cylinder piston in foremost position

R1 = Push the chuck piston to its foremost position and measure with a depth gauge

R2 = R1 – 0.5 mm (max. – 1 mm)

8 Chuck function

The item numbers specified for the corresponding individual components relate to chapter drawings. ([👉 12, Page 30](#))

8.1 Functional principle

The HSA compensation chuck in wedge-hook design is actuated by a rotating solid or through-hole cylinder. The axial tensile or pressure forces are converted to the radial jaw clamping force by the wedge hook angle in the piston and base jaws.

Special feature: The guide part (Item 5) is moved in a fitting in the spindle.

Compensation clamping with guide bushing (Item 4):

The guide part (Item 5) transmits the actuating force of the cylinder to a piston (Item 3) with floating bearing. Therefore, the base jaws can be adjusted for a workpiece mounted off-center. The top jaws adjust to an eccentrically positioned workpiece within the specified limits (see drawing).

The base jaws are therefore capable of compensating clamping (with even pressure from all sides of the jaws) of a workpiece that is eccentric between the center point (Item 12) and the clamping face (external circular area). A cylindrical part can be clamped in a defined eccentric position without a center point.

The base jaws are aligned in the front stroke position. The top jaws only align after around 1/3 of a piston stroke to the left.

HSA 2-jaw chucks: Only parts that are flat in the clamping direction or on which compensation is only expected in the jaw guidance direction can be clamped.

Self-centering clamping with guide bushing (Item 11, 13):

The piston (Item 3) is moved in a fitting in the guide bushing (Item 11, 13). The compensating function of the piston (Item 3) is blocked. Therefore, the base jaws (Item 2) can only clamp in a central position.

8.2 Replacement or renewal of jaws

Chuck jaws for maximum repeat clamping accuracy must be turned or ground in the chuck under clamping pressure. Self-centering clamping (see drawing) must be selected in this case.

- When turning or grinding, ensure that the turning ring or turning pin is clamped by the top jaws and not by the base jaws.
- Tighten the jaw mounting screws to the specified torque.
([☞ 4, Page 15](#))

Tighten the jaw mounting screws, quality class 12.9, using a torque wrench. On no account tighten the Allen key with an extension pipe or with hammer blows. See "Screw tightening torques" chapter ([☞ 4, Page 15](#)).

8.3 Disassembly and assembly of the Chuck

The chuck can only be disassembled once it has been removed.
(See "HSA chuck assembly" chapter ([☞ 7.2, Page 19](#))).



! WARNING

Risk of injury due to the power chuck falling during transportation, installation or removal

During transportation and when installing or removing the power chuck, ensure it does not fall.

HSA 160, HSA 160/2, HSA 180/2, HSA 200, HSA 250, HSA 250/2, HSA 265, HSA 315 and HSA 315/2

- Unscrew the cylindrical screw (Item 18) and remove the guide bushing (Item 4, 11, or 13).
- Pull the guide part (Item 5) with piston (Item 3) out of the chuck body (Item 1). Pull out the bolt (Item 7). The guide part (Item 5) and the piston (Item 3) can be detached from one another by twisting the parts by 60° (bayonet connection).
- Slide the base jaws (Item 2) inwards out of the guide and remove from the chuck body.
- If fitted, remove the set-screw (Item 22) and then the screw (Item 15) and nut (Item 6).

HSA-NZ 170/2

- Remove all screws (Item 26) and then remove the center (Item 16). Unscrew the screws (Item 18) and remove the cover (Item 13). Then unscrew further screws (Item 18) and remove the guide bushing (Item 4).
- Pull the guide part (Item 5) with piston (Item 3) out of the chuck body (Item 1). Pull out the bolt (Item 7). The guide part (Item 5) and the piston (Item 3) can be detached from one another by twisting the parts by 60° (bayonet connection).
- Slide the base jaws (Item 2) out of the guide and remove from the chuck body.
- Remove the set-screw (Item 22). Remove the screw (Item 15) and nut (Item 6).

HSA 400

- Unscrew the cylindrical screw (Item 18) and remove the guide bushing (Item 4 or 11).
- Unscrew the screws (Item 29) from the chuck body.
- Remove the guide strips (Item 8 and 9). The base jaws (Item 2) can now be removed.
- Pull the guide part (Item 5) with piston (Item 3) out of the chuck body (Item 1). Pull out the bolt (Item 7). The guide part (Item 5) and the piston (Item 3) can be detached from one another by twisting the parts by 60° (bayonet connection).
- Remove the set-screw (Item 22). Remove the screw (Item 15).

HSA 630/2

- Unscrew the cylindrical screw (Item 18) and remove the guide bushing (Item 4 or 11).
- Remove the cylindrical screw (Item 19) and set-screws (Item 23). Remove the mounting (Item 10).
- Pull the guide part (Item 5) with piston (Item 3) out of the chuck body (Item 1). Pull out the bolt (Item 7). The guide part (Item 5) and the piston (Item 3) can be detached from one another by twisting the parts by 60° (bayonet connection).
- Unscrew the screws (Item 8) out of the chuck body and slide the base jaws outwards.

- The center point (Item 12) can be released from the guide bushing (Item 4) by exerting a slight pressure.
- Remove the set-screw (Item 22). Remove the screw (Item 15) and nut (Item 6).

When assembling the base jaws, make sure that the number of notches on the base jaw matches the numbering on the jaw guide.

Only use genuine SCHUNK spare parts when replacing damaged parts. The chuck must be completely assembled, including all the small components, before start-up. Each small component may have a safety function in the chuck.

Tighten the screws with a torque wrench. See "Screw tightening torques" chapter. The screws have a quality class of 10.9 and 8.8.

[\(👉 4, Page 15\)](#)

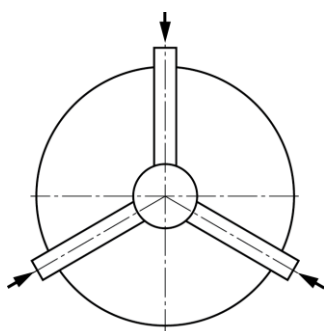
Degrease and clean all parts and check them for damage.

Before assembly, grease well with LINO MAX special grease.

The chuck is assembled in the same way but in reverse order.

9 Maintenance

9.1 Lubrication



Position of lubrication nipple

To maintain the safe function and high quality of the chuck, it has to be regularly lubricated at the lubrication nipples. Use SCHUNK LINO MAX special grease for this purpose.

- For optimum grease distribution, the clamping piston must travel the entire clamping stroke several times after lubrication.

Operating conditions:

Depending on the operating conditions, the function and clamping force must be checked after a certain period of operation

([9.2, Page 26](#)). The most accurate way to measure the clamping force is with a clamping force tester.

Technical condition:

When the smallest possible actuating pressure is applied (clamping cylinder), the base jaws must move evenly. This method only provides a limited indication and does not replace measurement of the clamping force.

- If the clamping force has dropped too far or if the base jaws and clamping piston no longer move properly, the chuck has to be disassembled, cleaned, and relubricated.

Only use genuine SCHUNK spare parts when replacing damaged parts.

9.2 Maintenance intervals

Lubrication of the grease areas:

Lubrication interval	Strain
every 25 hours	normal / coolant utilization
every 8 hours	high / coolant utilization
after 1200 hours or as needed	Total cleaning with disassembly of the chuck, depending on type and degree of contamination

9.3 Changing the top jaws

When changing the top jaws the serration must be cleaned and greased with SCHUNK special grease LINO MAX.

10 Disposal

After decommissioning, place the chuck in a position that enables any liquids in the chuck to drain out.

- Collect the escaping liquids and dispose of them properly in line with the statutory provisions.
- Remove any identifiable plastic or aluminum parts installed in or on the chuck and dispose of them properly in line with the statutory provisions.
- Dispose of the chuck's metal parts as scrap metal.

Alternatively, you can return the chuck to SCHUNK for proper disposal.

11 Parts lists

When ordering spare parts, it is imperative to specify the type, size and above all the manufacturing no of the chuck.

Seals, sealing elements, screw connections, springs, bearings, screws and wiper bars plus parts coming into contact with the workpiece are not covered by the warranty.

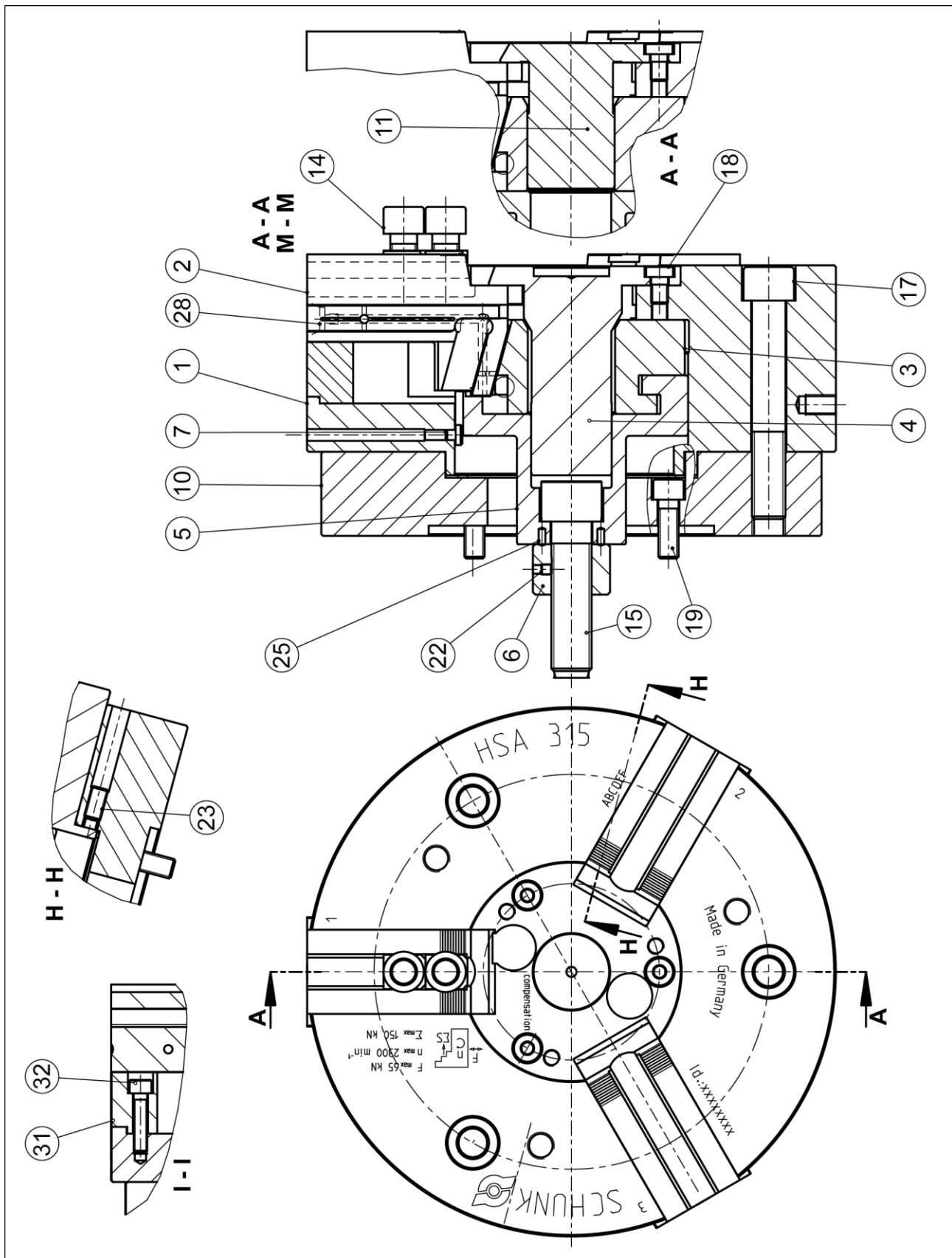
HSA 160, HSA 160/2, HSA 180/2, HSA 200, HSA 250, HSA 265, HSA 315, HSA 315/2, HSA 400 and HSA 630/2

Item	Designation
1	Chuck body
2	Base jaws (1 set)
3	Piston
4	Compensating guide bushing
5	Guide part
6	Nut
7	Bolt
8	Screw
8/9	Guide strip (HSA 400)
10	Chuck flange (intermediate flange)
11	Guide bushing, self-centering
12	Center point
13	Guide bushing, self-centering
14	T-nuts or screws
15	Mounting screw
17	Screw
16	Screw
18	Screw
19	Screw
20	Flanged nut (HSA 315/2)
22	Set-screw
23	Set-screw
25	Pressure piece
28	Lubrication nipple
31	Filler piece (HSA 315)
32	Screw (HSA 315)

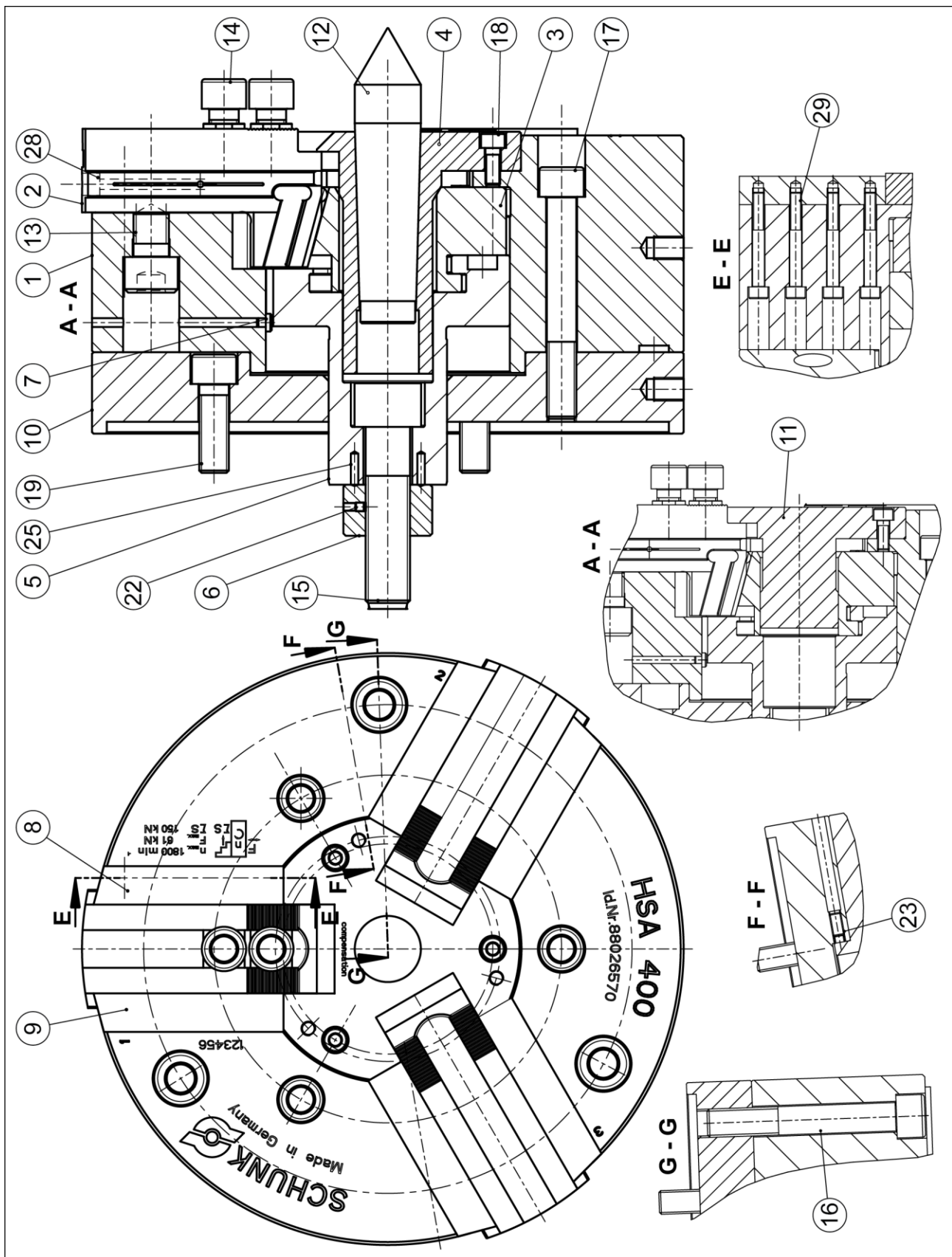
HSA-NZ 170

Item	Designation
1	Chuck body
2	Base jaws (1 set)
3	Piston
4	Compensating guide bushing
5	Guide part
6	Nut
7	Bolt
10	Chuck flange
13	Cover
14	Screws
15	Screw
16	Center point
17	Screws
18	Screws
19	Screws
22	Set-screw
23	Set-screw
26	Screws
28	Lubrication nipple
29	Set-screw
90	Pin

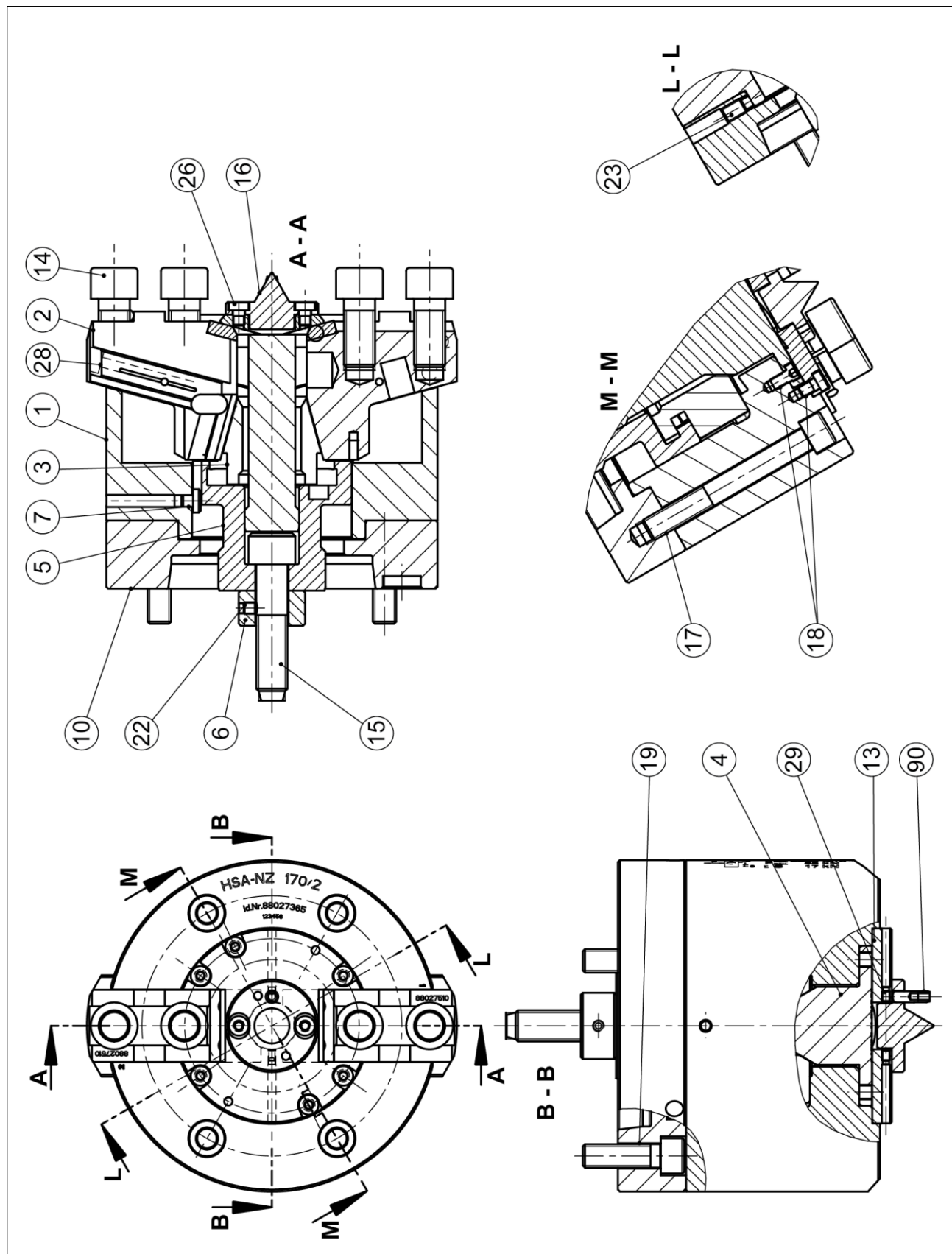
12 Drawings



HSA 315 - without center point



HSA 400 - Compensation chuck with center point



HSA-NZ 170 - Compensation chuck