



Installation manual

EN

centroteX interface

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1 General

1.1 Information about this manual

This manual enables safe and efficient handling of the clamping device.

The manual is a component of the clamping device and must be kept in the immediate vicinity of the clamping device where it is accessible for personnel at all times. Personnel must have carefully read and understood this manual prior to starting all tasks. The basic prerequisite for safe work is compliance with all the safety instructions and handling instructions in this manual.

Illustrations in this manual are provided for a basic understanding and may deviate from the actual model of the clamping device.

It is assumed that the reader is familiar with standard procedures, such as cleaning the mounting surfaces.

1.2 Explanation of symbols

Safety instructions

Safety instructions are indicated by symbols in this operating manual. The safety instructions are introduced by signal words that express the scope of the hazard.

The safety instructions must be strictly adhered to. You must act prudently to prevent accidents, personal injury, and material damage.



DANGER

... indicates an imminent dangerous situation that can result in death or serious injury if it is not avoided.



WARNING

... indicates a possible dangerous situation that can result in death or serious injury if it is not avoided.



CAUTION

... indicates a possible dangerous situation that can result in minor or light injury if it is not avoided.



NOTE

... indicates a possible dangerous situation that can result in material damage if it is not avoided.

Tips and recommendations



... indicates useful tips and recommendations, as well as information for efficient and trouble-free operation.

1.3 Limitations of liability

All information and instructions in this operating manual have been provided under due consideration of applicable standards and regulations, the current state of technology, as well as our many years of experience.

The manufacturer assumes no liability for damage due to:

- Failure to follow the instructions in the manual
- Non-intended use
- Deployment of untrained personnel
- Unauthorized conversions
- Technical changes
- Use of non-approved spare parts
- Use of non-approved accessories

The actual scope of delivery can vary from the explanations and graphic representations provided in this manual in the case of special versions, if supplemental order options are desired, or on the basis of the latest technical changes.

The agreed obligations in the delivery contract, the general terms and conditions, as well as delivery conditions of the manufacturer, and the statutory regulations valid at the time the contract was concluded, apply.

1.4 Balance quality



CAUTION!

Our clamping devices are balanced with balance quality $G = 4$, in one level $n = 1$.

The data on the rotation balance refers to rotationally symmetrical workpieces.

The clamping of not rotationally symmetrical workpieces may not be clamped and/or only be clamped after consultation with the manufacturer.

Balancing bolts and balancing weights at the clamping devices may not be removed / disassembled!

1.5 Max. RPM



CAUTION!

The maximum permissible speed is marked on the product.

By the combination of a clamping device and an add on clamping device a reduction of the maximum permissible speed may be necessary.

- Of all RPMs of the groups specified, the **lowest given RPM** must always be used.

Note that the clamping force is influenced by the centrifugal force of the clamping elements.

- If necessary, adjust the machining force!

1.6 Copyright

This manual is protected by copyright and is provided exclusively for internal purposes.

Delivery of the operating manual to third parties, duplication in any form – including excerpts – as well as exploitation and/or communication of the content, are not permitted [except for internal use] without written approval from the manufacturer.

Actions to the contrary make damage compensation mandatory. We reserve the right to enforce additional claims.

1.7 Scope of delivery



All tools and accessories that are not included in the scope of delivery are marked as optional.

In scope of delivery of the machine adapter:

- 1 machine adapter consisting of
 - Flange
 - Bayonet drawtube adapter

1.8 Spare parts



WARNING!

Safety risk if the wrong spare parts are used!

Incorrect or defective spare parts can cause damage, malfunction, or total failure; they can also impair safety.

- Only use manufacturer's original spare parts.

Only purchase spare parts from authorized dealers or direct from the manufacturer. Addresses are in the appendix.

1.9 Warranty terms

The warranty terms are included in the manufacturer's terms and conditions.

2 Safety

This section provides an overview of all the important safety aspects for optimal protection of personnel, as well as for safe and trouble-free operation.

2.1 Responsibility of the customer

The product is used in industrial applications. Consequently the owner of the product is subject to legal industrial safety obligations.

In addition to the safety instruction in this manual, generally valid safety and accident protection guidelines, and environmental protection guidelines as well as the machines' manual must be adhered to and complied with for the area of implementation of the device.



WARNING!

Risk of injury!

An incorrect media supply [hydraulic, pneumatic], e.g. by damaged or missing seals or pipes, can cause serious personal injury.

- Hydraulic and / or pneumatic tubes must be secured by the machine by check valves and a permanent pressure monitoring!



NOTE!

Malfunction of the safety device by incorrect machine setting!

By a missing or incorrect setting of the machine-side limit switch the clamping control can become invalid.

- In interfaces where no constructive idle stroke is taken into consideration, it must be ensured that the machine-side limit switch control is adjusted to the stroke of the clamping device.

2.2 Personnel requirements



WARNING!

Danger of injury due to insufficient qualification!

Improper handling of the clamping device can cause serious injury or material damage.

- Only have activities performed by personnel who are qualified to perform these activities.

The following qualifications are cited in the operating manual for the various activity areas.

■ **Specialized personnel**

are personnel who due to their specialized training, skills, and experience, as well as knowledge of the applicable regulations, are capable of executing the tasks assigned to them and of recognizing and avoiding possible hazards on their own.

■ **Hydraulic specialist**

The hydraulic specialist has been trained for the particular task area in which he is active and is familiar with the relevant standards and regulations. Due to his specialized training and experience the hydraulic specialist can perform tasks on hydraulic equipment and recognize and avoid possible dangers on his own.

■ **Electric specialist**

The electric specialist has been trained for the particular task area in which he is active and is familiar with the relevant standards and regulations. Due to his specialized training and experience the electric specialist can perform tasks on electric equipment and recognize and avoid possible dangers on his own.

Only persons from whom it can be expected that they reliably execute their work are considered as personnel. Persons whose capability to react is impaired, for instance through drugs, alcohol, or medication, are not approved.

- Comply with age-specific and job-specific regulations that are applicable at the installation site when selecting personnel.

2.3 Intended use

The machine adapter is designed for installation in a machine tool. Within the machine tool the machine adapter is designed exclusively as an interface between machine spindle and clamping device.

The machine adapter should only be mounted, operated, maintained, and cleaned by instructed, specialized personnel.

Intended use also includes compliance with all the instructions in this manual.

The machine adapter is to be used for the case of application contractually agreed between the producer/deliverer and the user, as well as such cases of application described in the product description which are also in accordance with the technical values.

The safe function of the machine adapter is, as far as it can be foreseen, guaranteed when it is used for the intended purpose in accordance with the appropriate safety regulations.

Any use that extends beyond the intended use, or any other use of the machine adapter is considered to be misuse and can cause dangerous situations.



WARNING!

Danger due to misuse!

Misuse of the clamping device can cause dangerous situations.

Particularly refrain from the following uses of the clamping device:

- Use in machines other than machine tools.
- Use in machine tools with technical data other than that specified on the clamping device.

Claims of any type due to damage arising from non-intended use are excluded.

Unintended and improper use of the machine adapter is for example

- if the clamping device is not assembled properly to the machine adapter.
- If safety regulations are disregarded and persons are working at the machine adapter without additional protective devices e.g. for machining.
- If an machine adapter is used for machines or tools for which it is not intended.

2.4 Personal protective equipment

Wearing of personal protective equipment is required to minimize health hazards when working with the device.

- Always wear the protective equipment necessary for the respective task when working with the device.
- Follow the instructions that have been posted in the work area.

Always wear



For all tasks always wear:

Protective work clothing

is tight-fitting work clothing with low resistance to tearing, with tight sleeves, and without projecting parts. It is primarily used to protect against entanglement by moving machine parts.

Do not wear rings, chains, or other jewelry.



Safety footwear

for protection against heavy falling parts and slipping on slippery substrates.

For special tasks wear



Special protective equipment is required when executing special tasks. Separate reference is made to this equipment in the specific sections of this manual. This special protective equipment is explained below:

Hard hat

to protect against falling and flying parts and materials.



Protective goggles

to protect eyes from flying parts and liquid splashes.



Protective gloves

to protect hands from friction, abrasion, puncture wounds, or deeper injuries, as well as from contact with hot surfaces.

2.5 Special dangers

In the following section residual risks are cited that occur due to installation of the adapter in a machine tool. In each case the residual risks that have been determined based on a risk analysis of the machine must be specified by the customer.

- Follow the safety instructions listed here and the warnings in the other sections of this manual to reduce health hazards and to avoid dangerous situations.

Suspended loads



WARNING!

Life-threatening danger due to suspended loads!

Some machine adapters must be lifted with a crane. When lifting the machine adapter there is a life-threatening hazard due to falling parts or parts swinging out of control.

- Never step under suspended loads.
- Never lift suspended loads over persons.
- Comply with the instructions concerning the intended attachment points. Ensure that the sling gear is securely seated!
- Do not attach lifting gear in projecting components.
- Only use approved hoists and sling gear with sufficient bearing capacity.
- Do not use rope and belts that are torn or frayed.

Horizontal / lying parts



WARNING!

Risk of injury due to horizontal transport!

Before transporting the machine adapter in horizontal condition:

- Put the machine adapter on a non-slip pad
- Screw in two transport eye bolts into the circumference of the machine adapter.

Moving parts



WARNING!

Danger of injury due to moving parts!

Rotating parts of the adapter can cause serious injuries.

- Do not reach into moving parts or handle moving parts during operation.
- Pay attention to the clearance of moving parts.
- Do not open covers when the device is in operation.
- Be aware of afterrun time:
Prior to opening the covers ensure that all parts have come to a standstill.
- Wear tight-fitting protective work clothing in the danger zone.

Missing changing parts



WARNING!

Danger of injury due to missing changing parts!

When operating the adapter without clamping device there is a higher danger of crushing injuries due to the stroke of movable components in the adapter.

- The clamping process may not be initiated without assembled clamping device.

Parts with sharp edges



WARNING!

Risk of injury!

When screwing in individual components such as for example threaded adapter or similar devices that are equipped with an external thread or wear caused by burrs, there is risk of cutting.

- The operation must be done only by qualified personnel.
- Wearing of gloves / [PSA/ Personal protective equipment] is required!



CAUTION!

Risk of injury!

A special use-dependent or job-based design can result in variations in the clamping strokes and thus the clamping force.

- The notes on the associated clamping situations or product drawing must always be observed

2.6 Further warnings



WARNING!

Risk of injury!

Falling down of the clamping device or its parts can cause severe bruises and fractures.

The dead weight of the clamping device or its parts can lead to high physical stress.



CAUTION!

Damage of the product!

Only loosen the product in non-rotating condition!

**WARNING!****Risk of injury!****Missing o-rings or seals may cause severe injuries!**

Due to missing / fallen out O-rings and seals compressed air or hydraulic fluids which are under high pressure may expel!

- Make sure that all O-rings / seals for the hydraulic / pneumatic connections are available and undamaged!
- If necessary lubricate them before assembly and/or during service.

**WARNING!****Danger of injury due to falling components!**

When mounting/dismounting components can falls and cause severe injury and material damage due to high weight and the size of the product.

- Two people are always required for this task.
- For transport of the machine adapter and/or its single parts always use a suitable transport means and suitable transport loops as well as a suitable assembling aid.
- Make sure that a rolling and/or falling of the machine adapter is not possible.
- During transport place the machine adapter on a non-slip tray.

**NOTE!**

In the product screws can be installed which are secured with sealing wax.

- The screws secured with sealing wax must not be opened.

2.7 Clamping force

The achieved clamping force can vary due to the maintenance condition of the adapter [state of lubrication and degree of contamination].

The actuating forces must be checked at regular intervals.



CAUTION!

Damages due to excessive draw and compressive force!

An excessive actuating force may damage the the machine adapter.

- The max. draw force and compressive force may not be exceeded.

2.8 Screws

Moving parts



WARNING!

Danger of injury due to screws and stud screws being accelerated out of the device!!

Screws and stud screws radially attached to the machine adapter can be accelerated out of the device and cause severe injuries.

- At the product radially mounted screws and stud screws which were loosened for assembly and maintenance must be re-tightened with the correct tightening torque! The tightening torque is given at the machine adapter itself, near the screw or threaded pin, and/or given in chapter »Bolt torque«.
- All screws or stud screws that are not marked with a tightening torque specification are tightened with the prescribed tightening torque and locked [medium-strength bonding] in the factory and should only be unscrewed after consultation with the manufacturer! If in doubt you must contact the manufacturer immediately do determine the subsequent procedure.

2.9 Functionality



NOTICE!

With high contamination of the clamping device the functionality is no longer guaranteed.

- The cleaning and maintenance intervals must be observed.

2.10 Environmental protection



NOTE!

Environmental hazard due to incorrect handling!

Incorrect handling of environmentally hazardous substances, particularly improper disposal, can cause significant environmental damage.

- Always comply with the instructions cited below
- If environmentally harmful substances should inadvertently get into the environment, initiate suitable measures immediately. If in doubt notify the responsible municipal authority about the damage.

The following environmentally harmful substances are used:

Lubricants

Lubricants like greases and oils can contain toxic substances. Ensure that they do not get into the environment.

The device must be disposed of by a specialized disposal company.

To achieve trouble-free operational performance of the clamping device only use HAINBUCH lubricants. See the appendix for reference addresses.

3 Technical data

3.1 General information

The centroteX machine adapter is available in different sizes and variants.

Information about e.g.

- dimensions
- weight
- permissible RPM
- maximum actuating force

you will find on the corresponding drawing that you can order at HAINBUCH.



WARNING!

Risk of injury!

Using false technical data can lead to serious personal injury and property damage.

- The technical data [label on the product, assembly drawing] must be observed and may not be modified by the operator!

3.2 Operating conditions

Environment

Specification

Value

Unit

Temperature range

15 - 65

°C

Mechanical actuating

In each possible operating condition the maximum draw force and compressive force may not be exceeded!

3.3 Power specifications



NOTE!

Material damage if the power specifications do not agree!

If the power specifications of clamping device, machine adapter and machine do not agree, severe damage extending to total damage can occur.

- Only assemble clamping devices and adapters in machines with the same power specifications.

Information on maximum clamping force and draw-tube force is provided on the product.

- If the power values become unreadable through the abrasive effect, please refer from the manual and/or get in contact to the manufacturer.

3.4 Type designation

The type designation is on the product and includes the following information:

- 1 ID no. [marked with the # symbol]
- 2 maximum RPM [1/min]
- 3 maximum clamping force [kN]

4 Structure and function

4.1 Overview and brief description

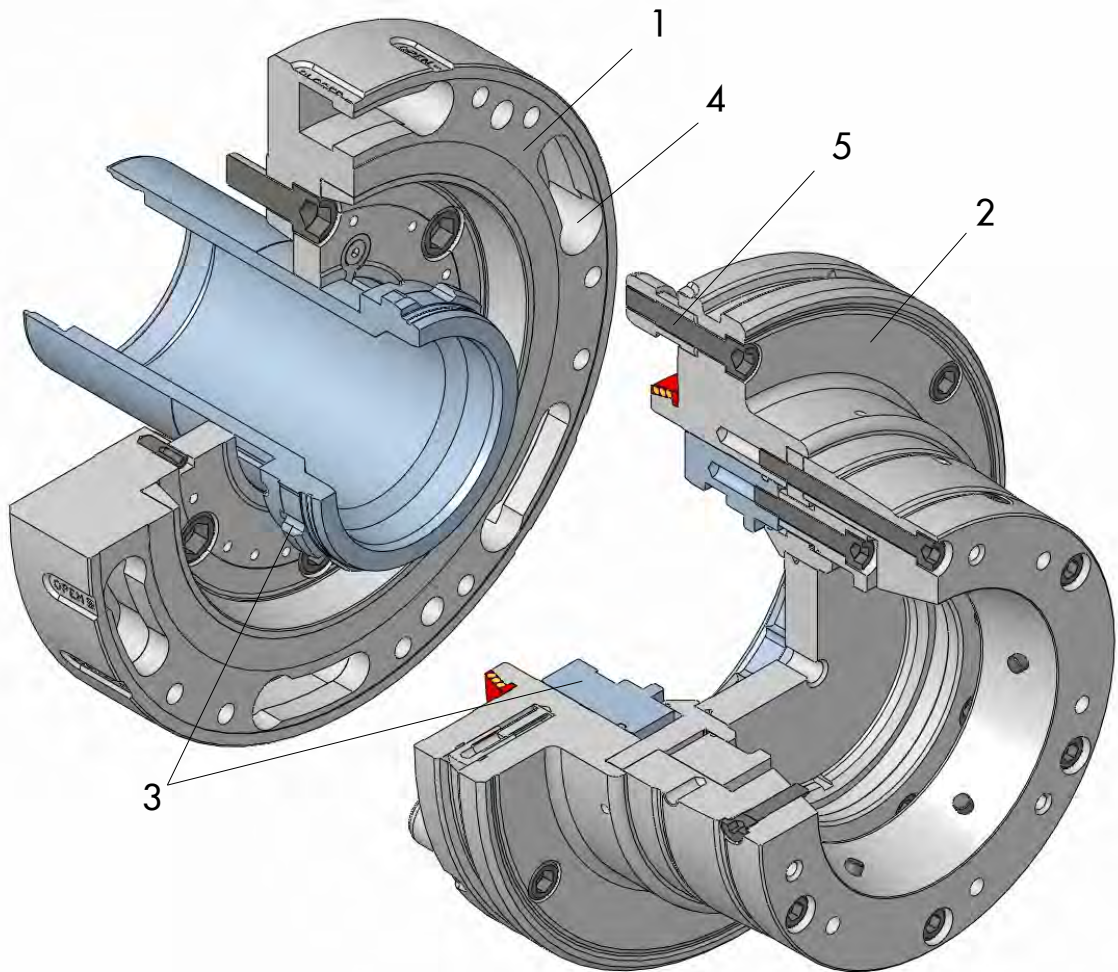


Fig. 1

- | | |
|--|--------------------------|
| 1. centroteX machine adapter | 3. Coupling bayonet |
| 2. Changing unit [clamping device + adapter for clamping device] | 4. Connecting bayonet |
| | 5. Rapid fastening screw |

Brief description

Interlocking of the machine adapter and the changing unit by bayonet and several axial rapid fastening screws which are placed in the changing unit.

Connection to the drawtube of the machine is simultaneous by the coupling bayonet.

The advantage of centroteX:

- Ideal for big clamping devices or admissions
- Limit of turning speed specified by clamping device
- Standardization with one interface in work shop possible.

4.2 Optional Accessories

The accessories described here are not included in the scope of delivery.

Lubricating grease and grease gun are required for cleaning and preservation of the clamping device.

4.2.1 Monteq

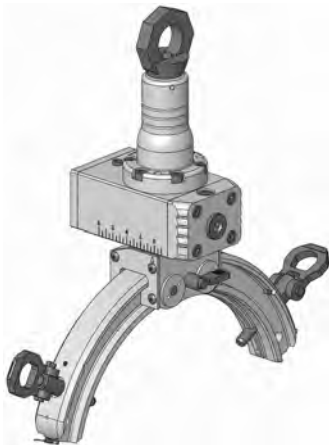


Fig. 2

With the mounting aid »Monteq« clamping devices with assembled clamping device adapter can be transported to the machine adapter, assembled to the machine, and locked.

The Monteq is available in different variants and can be ordered at HAINBUCH.

4.2.2 Grease



Fig. 3

The universal grease for chuck and mandrel lubrication is supplied in a 1000g can. The order number for the universal grease is 2085/0003; it can be ordered from HAINBUCH.

4.2.3 Grease gun



Fig. 4

The grease gun is filled with universal grease, which is pressed into the clamping device. The grease gun has a pointed mouthpiece. The order number for the grease gun is 2086/0004; it can be ordered from HAINBUCH.

5 Transporting, packaging and storing

5.1 Safety instructions for transporting

Unbalanced package



WARNING!

Danger of falling due to an unbalanced package

Packed goods can have an unbalanced package. If attached incorrectly the package can tip and cause life-threatening injuries.

- Note the markings on the packages.
- Attach the crane hook in such a manner that it is located above the center of gravity.
- Carefully lift and see if the load tilts. If necessary change the attachment.



Transport!

- For transport always use a suitable clamping means / crane.
- Make sure that a rolling / falling of the clamping device is not possible.

5.2 Symbols on the packaging



Fragile

Identifies packages with fragile or sensitive contents. Handle the packed goods with care; do not allow them to fall, and do not subject them to impact.



Protect from moisture

Keep packed goods dry and protected against moisture.

5.3 Transport inspection

Check delivery immediately upon receipt to ensure that delivery is complete and to identify any transport damage.

Proceed as follows if there is apparent external damage:

- Do not accept the delivery, or only accept it with reservation.
- Note the extent of transport damage on the transport documents or on the transport company's delivery ticket.
- Submit a complaint.



Report any defect as soon as it is detected. Claims for damage compensation can only be enforced during the applicable periods for giving notice of lack of conformity.

5.4 Unpacking and inner-company transportation



The adapter is packed vertically and has threaded holes.

Lifting eye bolts can be screwed into these threaded holes.

To safely lift the adapter out of the package it must be hooked into a crane depending on the weight.

For transporting with transport trolley the adapter must be positioned in standing condition. Make sure that a non-slip pad has been laid.

All tools and accessories which are not in scope of delivery are marked as optional in the operating instructions.

- Two people are required for this task.
- Special tools required:
 - Crane from weight 15 kg
 - Lifting eye bolts
- 1. Screw lifting eye bolt into the thread of the adapter.
- 2. Hook the load-handling equipment into the lifting eye bolt.
- 3. Use a crane to carefully lift the adapter out of the transport packaging and put it down on a stable, level substrate.

5.5 Packaging

About the packaging

Individual packages are packed according to the expected transport conditions. Environmentally-friendly materials have been used exclusively for the packaging.

Packaging should protect the specific components from transport damage, corrosion, and other damage until installation. Therefore do not destroy the packaging, remove it just before installation.



The packed goods are sealed in foil airtight and packed in cartons. See the »Technical Data« section for the specific weight of the respective sizes.

Handling packaging materials

Dispose of packaging materials in accordance with the respectively valid statutory regulations and local guidelines.



NOTE!

Improper disposal causes environmental damage!

Packaging materials are valuable raw materials and in many cases they can be reused, or they can be effectively treated and recycled.

- Dispose of packaging materials in an environmentally responsible manner.
- Comply with locally applicable disposal guidelines. If necessary commission a specialized company to dispose of packaging.

5.6 Storing



Under certain circumstances instructions for storage and subsequent storage are affixed to the packages that extend beyond the requirements cited here. Comply with these instructions accordingly.

Storage of packages Only store packages under the following conditions:

- Do not store outdoors.
- Store in a dry and dust-free location
- Do not expose to aggressive media
- Protect from direct sunlight
- Avoid mechanical vibration
- Storage temperature: 15 bis 35 °C
- Relative humidity: max. 60 %
- For storage periods longer than 3 months:
 - Check the general condition of all parts and the packaging at regular intervals.
 - Touch up or re-apply anti-corrosion agents as needed

Subsequent storage Only re-store the machine adapter under the following conditions:

- Thoroughly clean the machine adapter prior to subsequent storage [see section »Cleaning«]
- Thoroughly oil and grease the machine adapter [see section »Cleaning«].
- Store the clamping device in airtight foil
- The machine adapter must be stored securely in position. If this is not guaranteed, use a suitable container for the machine adapter or equip the shelf with a circumferential securing edge.

6 Assembly



WARNING!

During the initial installation of the clamping device severe injuries may occur.

- The initial installation must be done only by qualified personnel.
- All screws remaining in the clamping must be tightened firmly.
- All tools and keys must be removed after installation.
- Always wear personal protective equipment!

6.1 Pre-consideration

- Screws are tightened according to the size of the screw and the general torque.
To avoid axis-parallel warpage under load and to get stiffness turn in the screws evenly.
- To avoid precision error clean the screw joint surfaces and also the mating surfaces, see »Maintenance«.
The ex works wetting of the plate surfaces and the clamping element is only corrosion protection. It's not functionally lubricated.
- The insertion of lubricant is provided only on the mechanical surfaces. Pay attention to the instructions for lubricants in the chapter »Maintenance«.
- Avoid too much lubricant on the bearing surface, as this can cause face runout.
- Seal rings [e.g. o-ring, quad-ring seal] and sealing surfaces must be lubricated.
Note the information in the chapter »Maintenance«.
- Note that the function surfaces [plate surface, mating surface, cone surface and seal surface] may not be damaged.



CAUTION!

Wear safety shoes during the assembly and maintenance work.

Make sure that the starting of the spindle is impossible.



CAUTION!

Risk of injury!

Unexpected start up of the tool spindle can cause severe injury.

- Make sure that the system is pressure-free and that a restart of the machine can be excluded!

6.2 Preparation of the centroteX machine adapter for assembly

Special tools required:

- Allen wrench
- Crane and eye bolts from weight 15 kg.

The centroteX machine adapter is delivered as package.

To mount the centroteX machine adapter on the machine, following preparative steps are necessary:

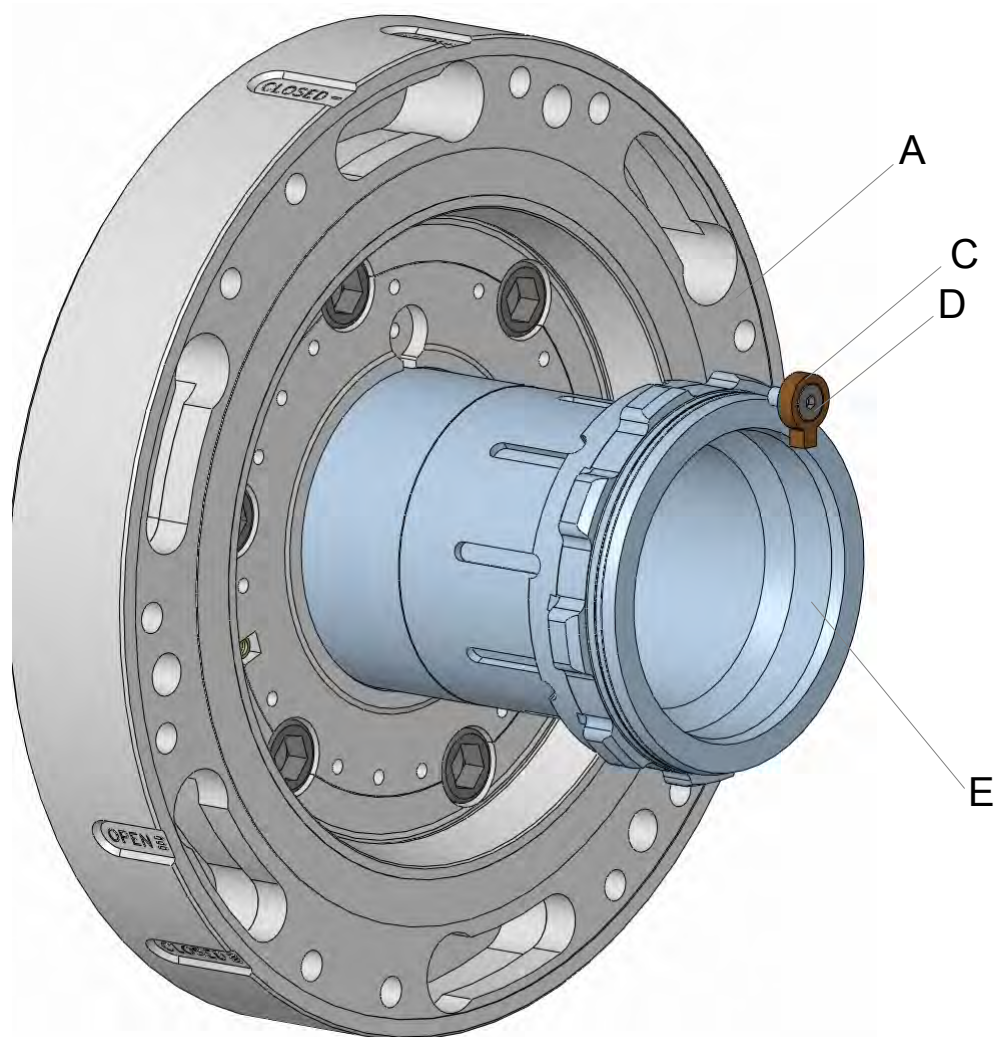


Fig. 5

1. Loosen and remove the mounting screw [D] and remove the positioning ring [C] from the flange [A].
2. Take the bayonet drawtube adapter [E] out of the spindle flange [A].

The machine adapter is prepared for assembly.

6.3 Installation



WARNING!

Danger of injury due to unintentional start-up of a machine spindle!

Unexpected start up of a machine spindle can cause severe injury.

- Only run the machine in set-up mode or jog mode.
- Set the axial clamping force of the machine tool on the lowest setting.
- Always remove immediately all the tools and wrenches from the clamping device after use.
- Unscrew all eye bolts from the clamping device and remove them from the interior of the machine.
- Prior to switching on automatic mode close all protective doors or hoods that are present on the machine tool.



CAUTION!

Risk of injury!

Bending into the machine work area can cause severe head injuries. Unexpected start up of the tool spindle can cause severe injury.

- Make sure that the system is pressure-free and that a restart of the machine can be excluded!



CAUTION!

Risk of injury!

Contamination of the mechanism can influence/reduce the stroke, thus the clamping device may not be actuated correctly.

- Clean the product regularly [see chapter »Maintenance and service«].



WARNING!

Danger of injury due to vertical suspended spindle!

Bending into the machine work area when assembling overhead can cause severe head injuries.

- Secure components prior to overhead assembly.
- For assembly on a vertically suspended spindle always use a suitable mounting aid.



Transport!

- For transport always use a suitable clamping means / crane.
- Make sure that a rolling / falling of the clamping device is not possible.

Special tools required:

- Allen wrench
- Torque wrench with screwdriver bit for hexagon socket head screws
- rubber mallet
- Crane and eye bolts from weight 15 kg
- Oil stone
- Dial gauge with stand

6.3.1 Assembly of the centroteX machine adapter

To mount the centroteX machine adapter on the machine, following steps are necessary:

1. Move the drawtube into front end position.



NOTE!

Lubricating is intended only on the mechanical bearing surfaces.

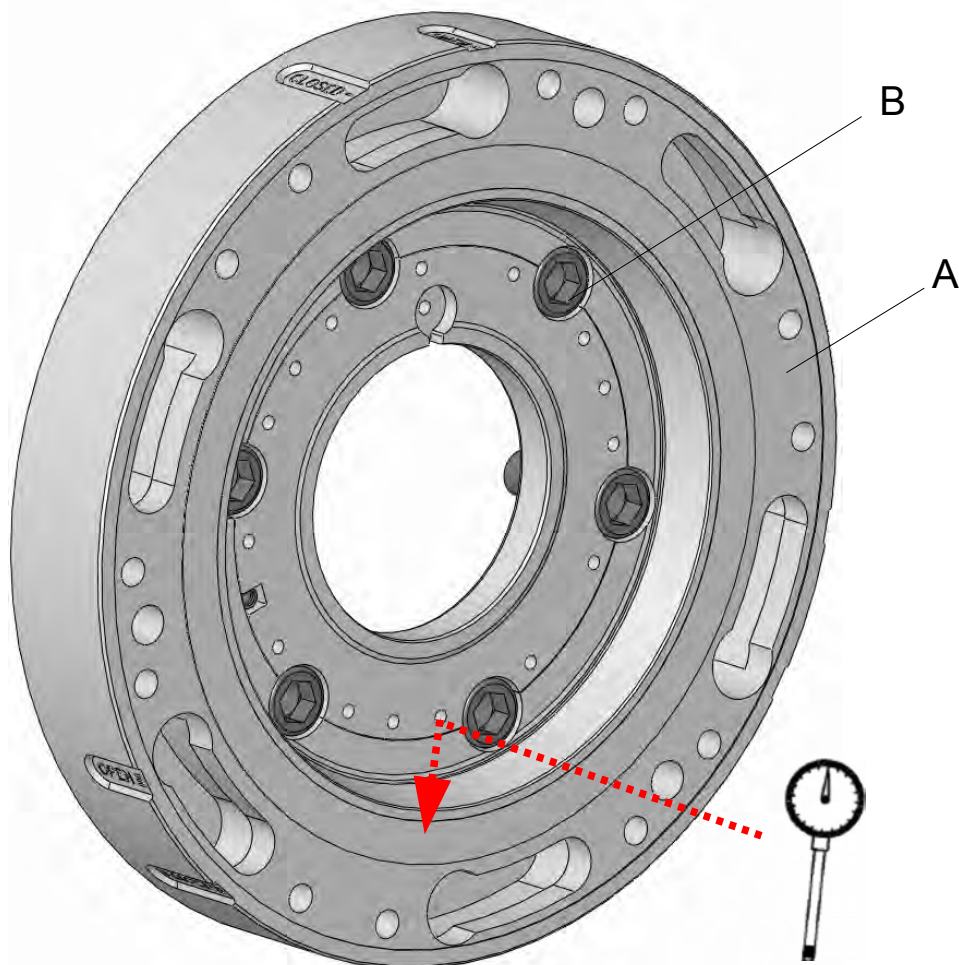


Fig. 6

2. Screw the transport lifting eye bolts into the circumference of the machine adapter and secure it on a crane.
3. Put the machine adapter [A] on the machine.
4. Screw in the cylindrical screws [B] and fasten them just hand-tight.
5. Check the concentricity at the internal cone [ideally $\leq 0,005$ mm], if necessary correct carefully with a plastic hammer.

6. Tighten the cylindrical screws [B] with the requested torque.
7. Separate the machine adapter [A] from the crane. Loosen and remove the transport eye bolts from the machine adapter.
8. If present:
Screw an additional drawtube adapter [E1] in the bayonet adapter [E] till end stop and bond it with medium strength.

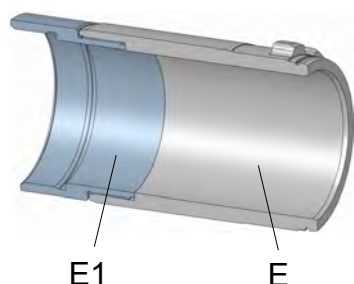


Fig. 7

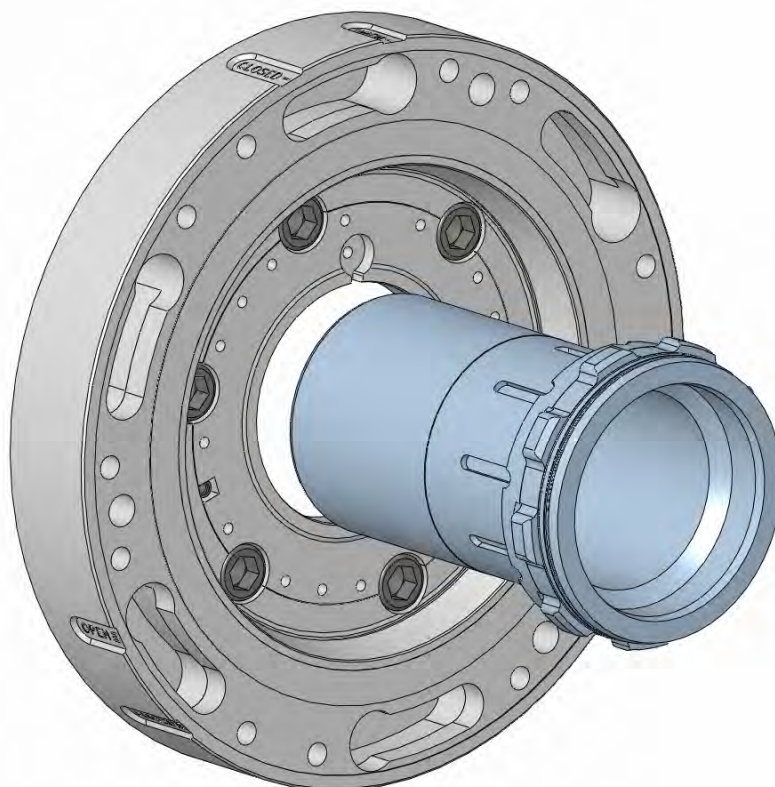


Fig. 8

9. Screw the bayonet drawtube adapter into the drawtube of the machine until the required setting dimension is reached.



NOTE!

Pay attention to the setting dimension and its tolerance!

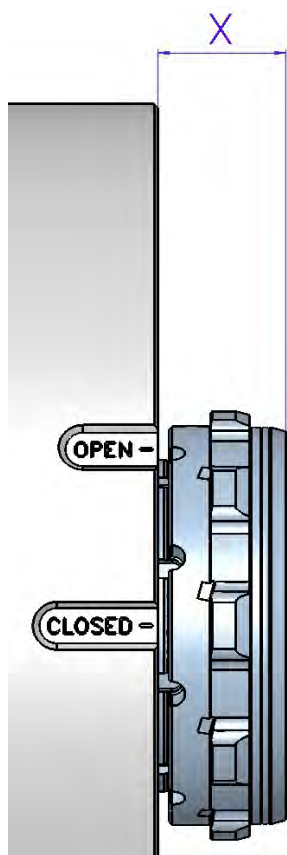


Fig. 9

The setting dimension defines the axial distance of the front face of the bayonet drawtube adapter to the flange in front end position of the drawtube. This dimension is shown on the clamping situation drawing.

10. After adjusting the setting dimension, turn the bayonet drawtube adapter so that the nearest groove [C] and the anti-twist protection [D] align.

11. Insert the positioning ring [D] and fasten the related screw [see following figure].

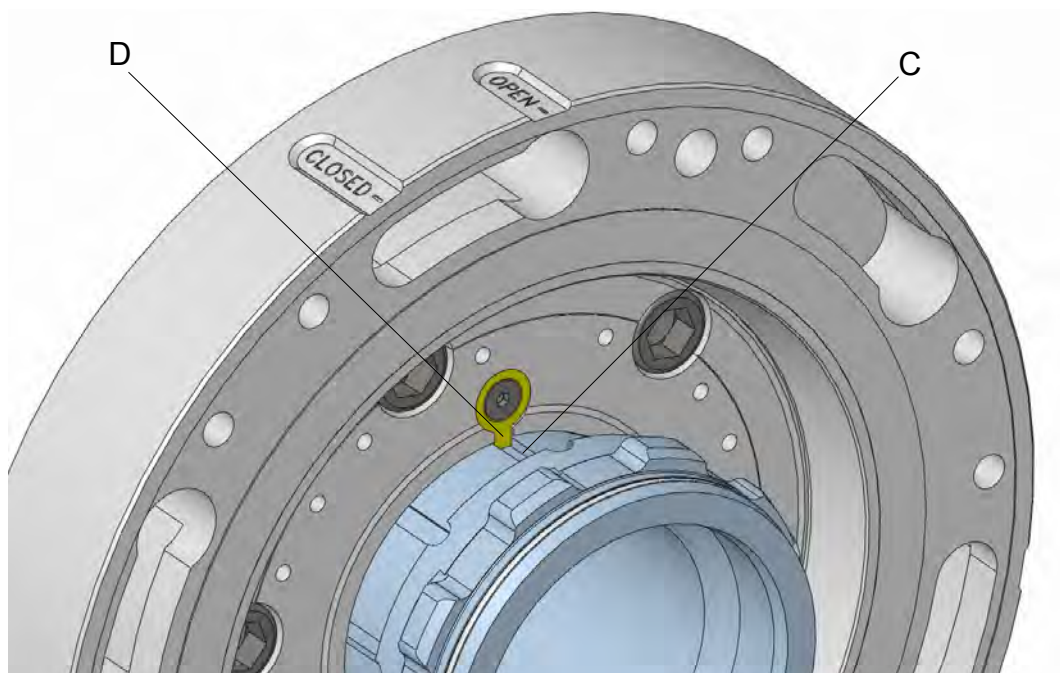


Fig. 10

The centroteX machine adapter is installed and ready for the mounting of the changing unit.

6.3.2 Assembly of changing unit

Usually a changing unit is delivered as assembled unit, but in exceptional cases it might be necessary to mount a clamping device on its corresponding adapter right at the site of operation.

In this case the clamping device adapter is delivered in single parts.

The assembly of the clamping device onto the corresponding clamping device adapter is shown exemplary with a 3-jaw chuck with rotatable threaded adapter.



Pay also attention to the manual of the clamping device!

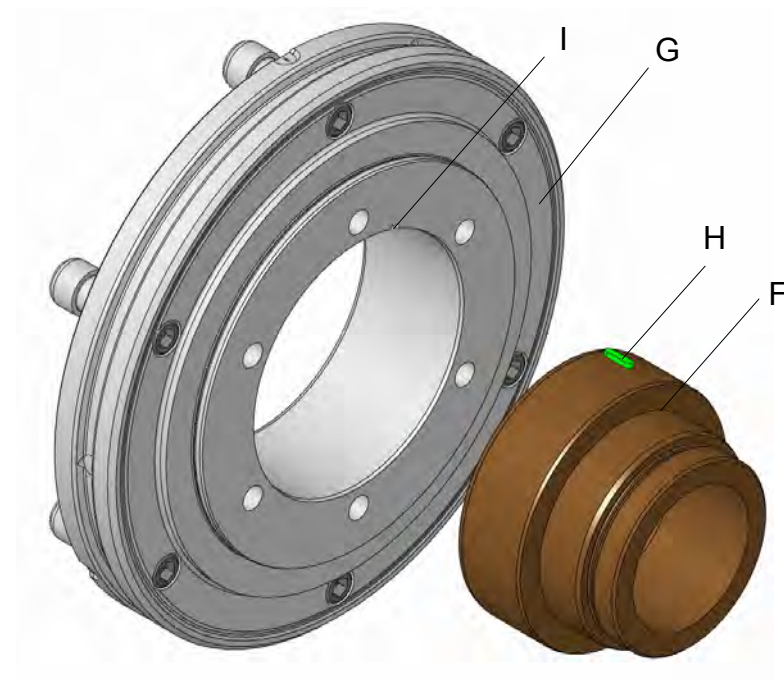


Fig. 11

1. Place the bayonet drawtube adapter [F] in the appropriate spindle flange [G].



The correct position of the bayonet is secured by a feather key [F] or similar and the corresponding groove [I].

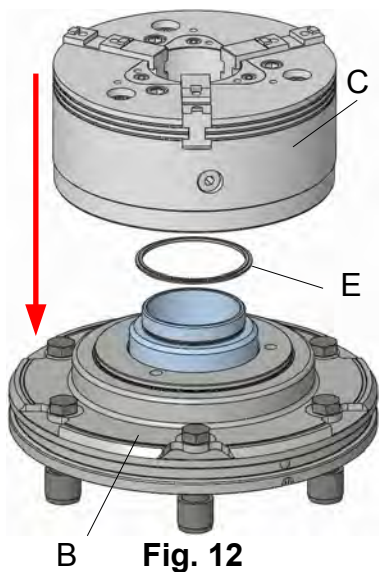


Fig. 12

For additional assembly of a tuning washer:

2. Place the clamping device adapter [B] onto a non-slip pad by using a suitable transport means / crane. The connection side of the clamping device [C] must show upwards.
3. Place the tuning washer [E] [option] onto the clamping device adapter [B].
4. Place the clamping device [C] carefully over the tuning washer [E] [option] onto the clamping device adapter [B] by using a suitable transport means / crane.

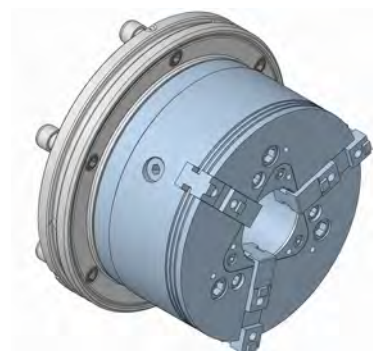


Fig. 13

5. Screw the connecting thread of the clamping device on the connecting thread of the bayonet drawtube adapter until the end.

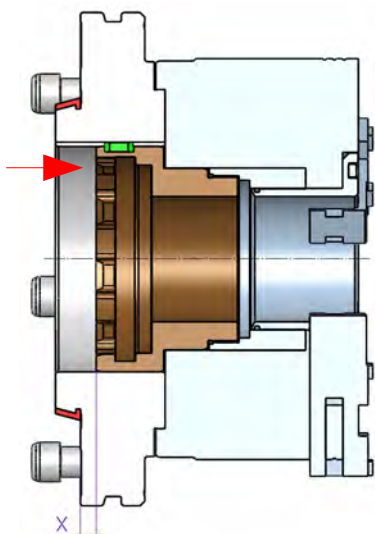


Fig. 14

6. Push the bayonet drawtube adapter to the foremost position and measure the dimension X.

! NOTE!

For every for this adapter designed clamping device is the setting dimension recorded on its assembly drawing respectively in its manual.

- The dimension measured in step 6. has to match with this!

7. Should this dimensions not match, screw the clamping device off the thread of the bayonet drawtube adapter until [X] and correct the tuning washer as needed.

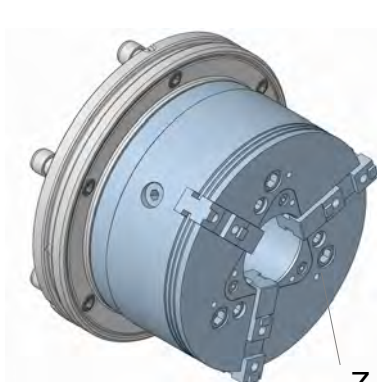


Fig. 15

8. Mount the clamping device with the attached cylindrical screws [Z] on the clamping device adapter.
9. Fasten the cylindrical screws [Z] with the given torque see chapter »Maintenance«.
10. Check and if necessary correct the concentricity of the clamping device.
For information therefor, have a look at the manual of the clamping device.

Z The clamping device is mounted on its belonging adapter.

11. Install the new assembly on the centroteX machine adapter [see chapter »Assembly of the special clamping device«].

6.3.3 Assembly of the changing unit respectively the clamping device

The changing unit is delivered as group.

For the assembly of the changing unit on the machine adapter the following steps are to be done:

1. Move the drawtube into front end position.



NOTE!

Lubricating is intended only on the mechanical bearing surfaces.

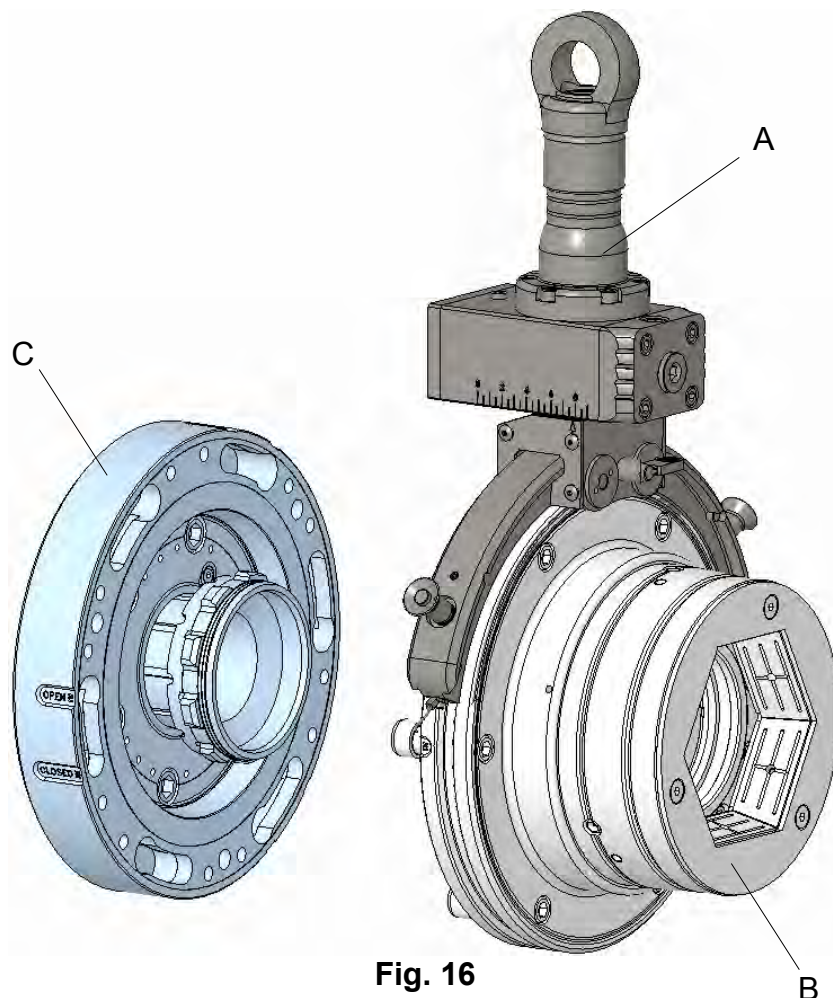


Fig. 16



NOTE!

To mount the changing unit [B], an assembling aid called »Monteq« [A] is available.

- The assembling aid »Monteq« simplifies the installation on the machine adapter [C] and increases the changing precision significant.

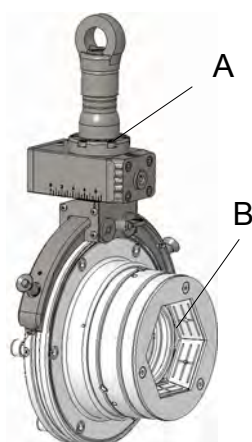


Fig. 17

2. Attach the assembling aid »Monteq« [A] to a crane.
3. Connect the optional available Monteq [A] to the changing unit [B] to mount that on the machine adapter [see therefor the manual of the Monteq].

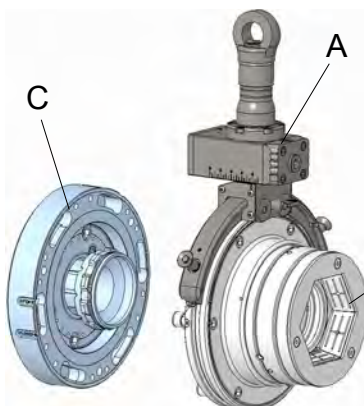


Fig. 18

4. Lift the changing unit in front of the machine adapter [C].

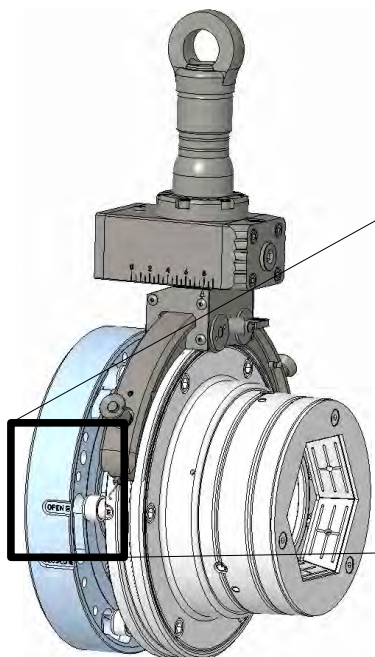
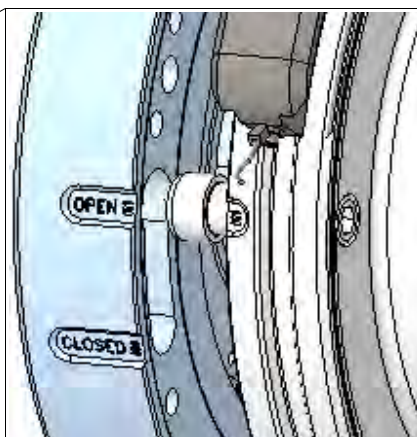


Fig. 19

5. Put the changing unit on the machine adapter. In doing so check that the related markings align.



NOTE!

Not all Monteq are designed for rotating the changing unit.

- If the changing unit may not be rotated: for locking the clamping device rotate the spindle together with the assembled machine adapter by using a suitable tool.

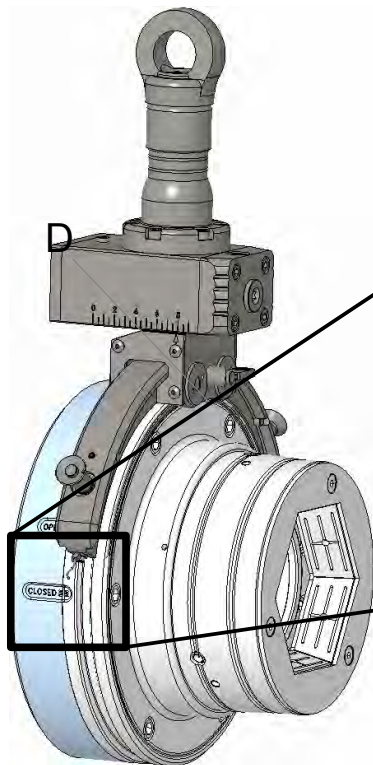
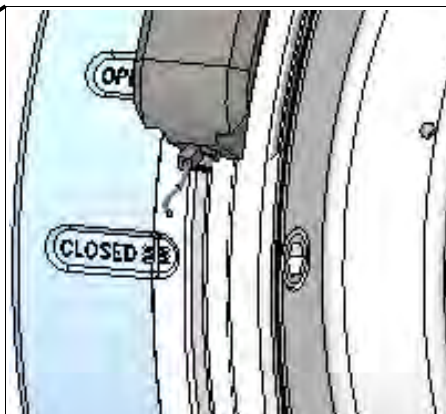


Fig. 20

6. Twist the changing unit in the bayonet or the spindle with assembled machine adapter until the marking is set to »CLOSED«.



The best possible assembly repeatability can be achieved if the mounting screws are tightened step by step in several steps.

E.g. all screws

- In the first step with 25 Nm
- In the second step with 60 Nm
- In the third step with the maximum tightening torque, see »Maintenance«.

7. Tighten the cylindrical screws [D] with the required torque.

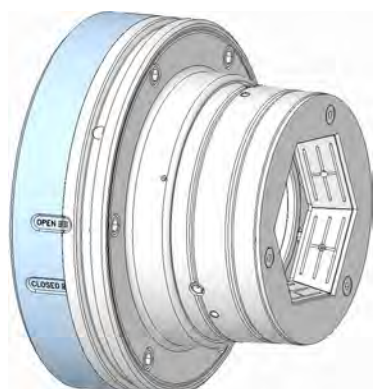


Fig. 21

8. Remove the Monteq.
The changing unit is assembled.



WARNING!

Risk of injury!

Bending in the working area of the machine can cause severe head injuries!

6.4 Inspections



NOTE!

Material damage due to damaged clamping devices!

A damaged, incomplete, or unbalanced clamping device can significantly damage or even destroy the machine tool and the workpiece.

- Only install undamaged, complete, and precisely balanced clamping devices.
- If in doubt contact the manufacturer.

Ensure the following points prior to each installation and start-up of the clamping device:

- All cylindrical screws of the clamping device must be present and tightened with the proper tightening torque.
- The balance screws [if provided] of the clamping device must all be present and undamaged.
- All rubber segments must be intact; this means that they are neither torn, nor are they porous at any point.
- All edges and bearing surfaces are intact; this means that they are neither broken nor do they show any signs of wear.
- The set speed of the machine tool should not exceed the maximum permissible speed of the clamping device.
- The maximum actuating force specified on the perimeter of the clamping device must not be exceeded.
- The axial actuating force of the machine must be sufficiently high.
- All mounting tools must be removed from the interior of the machine.
- Clamping device and workpiece must be compatible – check the clamping diameter regularly.
- The workpiece must be clamped into the clamping device with sufficient workpiece tension.
- Do a a measurement of clamping force.

6.5 Control of the stroke position



WARNING!

Crushing danger from moving parts!

Crushing danger from moving parts during controlling the stroke position!

Gaps, caused while controlling the stroke position, can cause severe injury.

- Only do the controlling of the stroke position with assembled changing parts.
- Only run the machine in set-up mode or jog mode.
- Do not reach into moving parts or handle moving parts during operation.
- Note the gap dimensions of moving parts.
- Wearing of gloves / [PSA] is required!

6.6 Activities after production is concluded

1. Move the clamping device into unclamped position.
2. Switch off the machine tool and safeguard it from being switched on again.
3. Open the protective door or hood.
4. Clean the clamping device and a possibly mounted add on clamping device and adapter of chips and production residues using a soft, lint-free cloth and oil them lightly.
5. Close the protective door or hood.

7 Disassembly, subsequent storage, disposal

If there is break in production that lasts longer than 3 days, the clamping device must be disassembled and properly stored in accordance with the manufacturer's specifications [see section »Transport, packaging, storage«].

Prior to disassembling:

- Put the machine in set-up mode.
- Remove fuels and auxiliary materials, as well as residual processing materials and dispose of these items in an environmentally-responsible manner.

7.1 Safety

Safeguarding against restart



DANGER!

Life-threatening danger if restarted without authorization

When disassembling there is danger of the energy supply being switched on inadvertently. This poses a life-threatening hazard for persons in the danger zone.

- Prior to starting the tasks switch off all energy supplies and safeguard them from being switched on again.



WARNING!

Danger of injury due to falling components!

When mounting components can fall and cause severe injury and material damage.

- Two people are always required for this task.
- Use a crane.
- For assembly on a vertically suspended spindle always use a suitable mounting aid.



WARNING!

Danger of injury due to vertical suspended spindle!

Bending into the machine work area when assembling overhead can cause severe head injuries.

- Secure components prior to overhead assembly.
- For assembly on a vertically suspended spindle always use a suitable mounting aid.

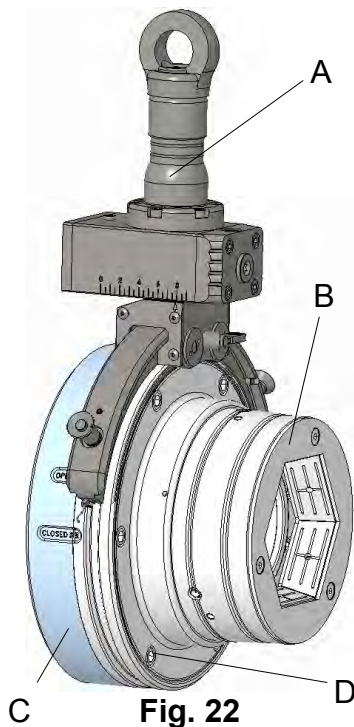


Transport!

- For transport always use a suitable clamping means / crane.
- Make sure that a rolling / falling of the clamping device is not possible.

7.2 Disassembly of the changing unit respectively clamping device

For the disassembly of the changing unit from the centroteX machine adapter the following steps are to be done:



1. Move the drawtube into front end position.
2. Secure the assembling aid »Monteq« [optional] at a crane.
3. Put the Monteq [A] onto the changing unit [B].
4. Loosen the cylindrical screws [D] for only 1-2 turns.
5. Unlock the changing unit by the bayonet.
6. Remove the changing unit from the centroteX machine adapter [C] by using the assembling aid Monteq [optional].
7. Place the Monteq safely and separate it from the crane.
8. The changing unit respectively the clamping device is disassembled.

7.3 Disassembly of the centroteX machine adapter

For the disassembly of the centroteX machine adapter from the machine the following steps are to be done:

1. Move the drawtube into front end position.

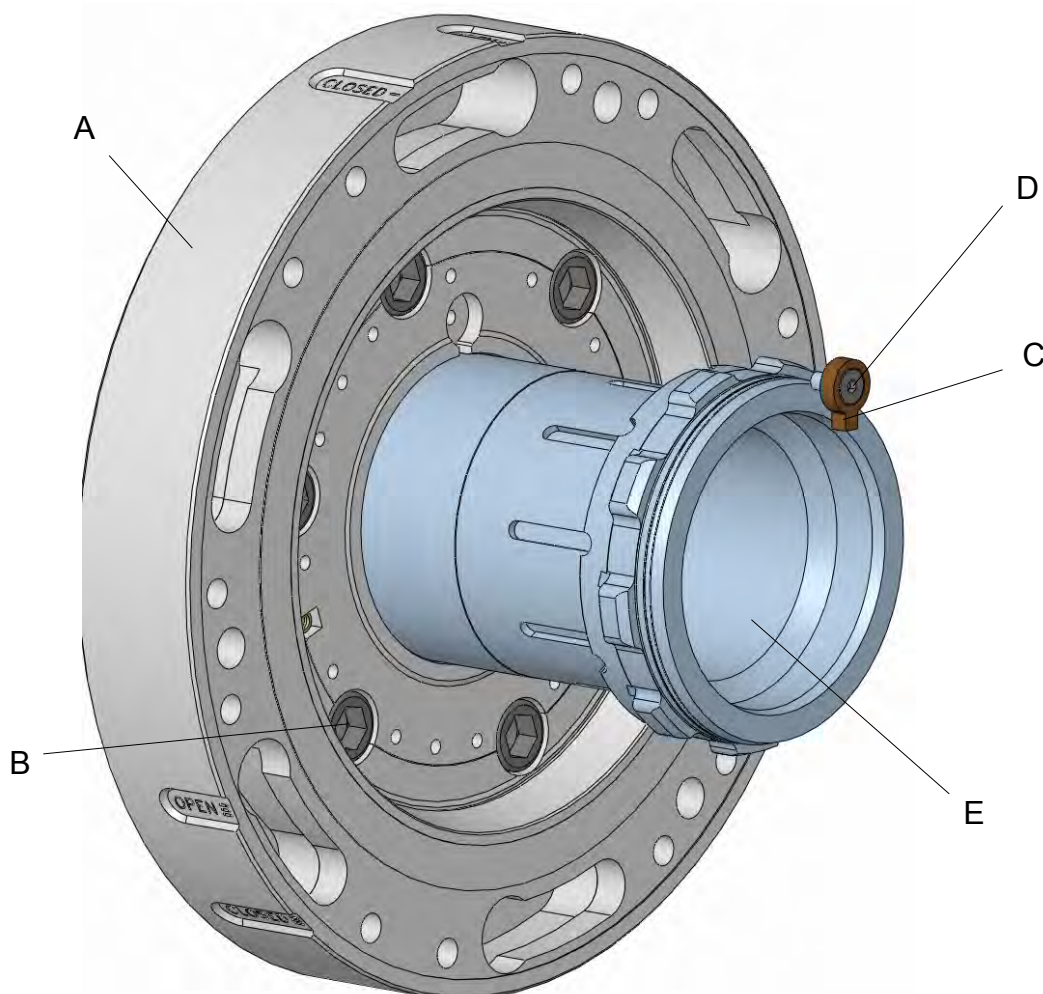


Abb. 23

2. Loosen and remove the mounting screw [D].
3. Remove the positioning ring [C] from the flange [A].
4. Unscrew the bayonet drawtube adapter [E] from the drawtube of the machine.
5. Screw in the transport eye bolts into the circumference of the flange [A] and secure it at a crane.
6. Loosen and remove the cylindrical screws [B].
7. Remove the flange [A] from the machine.

7.4 Subsequent storage of the clamping device

The clamping device must be cleaned and treated with corrosion protection for subsequent storage [see section »Cleaning«].



NOTE!

The storage conditions are specified in the section »Transport, packaging and storage«.

7.5 Disposal

If a return or disposal agreement has not been concluded, then recycle disassembled components.



CAUTION!

Risk of injury due to leaking fluids!

Hydraulically or pneumatically operated clamping devices may contain residues of liquids. Uncontrolled leakage of fluids can lead to severe injuries.

- Open the pressure relief screw and drain remaining liquid.
- Discard the liquid.



NOTE!

Improper disposal causes environmental damage!

Lubricants and other auxiliary materials are subject to treatment as special waste, and should only be disposed of by approved specialist companies!



NOTE!

Composite materials!

For disposal clamping devices which include composite materials [mineral cast, CFK] must be returned at HAINBUCH!

Local municipal authorities or specialized disposal companies provide information on environmentally-responsible disposal.

8 Maintenance

Environmental protection

Comply with the following instructions for environmental protection when performing maintenance work:

- At all lubricating points where lubricant is applied by hand, remove escaping, used, or excess grease, and dispose of it in accordance with applicable local regulations.
- Collect used oil in suitable containers and dispose of it in accordance with applicable local regulations.

8.1 General

Cleanliness of the appropriate end-stop as well as the guidance diameters are conditions for reaching the concentricity and perpendicularity tolerances. Clean these surfaces with an appropriate cleaner.



CAUTION

Danger of injury due to improper handling of cleaners!

Improper handling of cleaners can cause health impairments.

- Always comply with the safety data sheets and guidelines provided by the manufacturer of the cleaning agent for handling/using the cleaners.



CAUTION

Danger of injury due to loss of clamping force!

Fouling of the adapter can cause the adapter to lose considerable clamping force.

- Always comply with the maintenance and cleaning intervals specified in this manual.



Risk of injury!

Slipping while the lubricating with a grease gun can lead to severe cuts!

8.2 Cleaning



NOTE!

Material damage if cleaned with compressed air!

Cleaning the clamping device with compressed air can force metal chips into thread and grooves. This can damage or even destroy the clamping device.

- Never clean the clamping device with compressed air!



Fig. 24

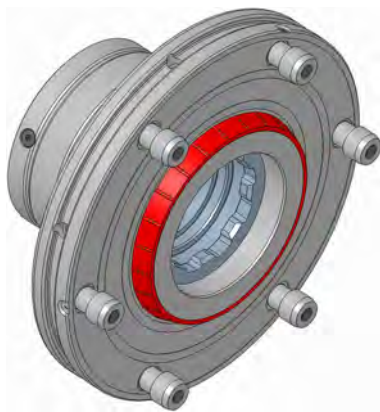


Fig. 25

- Auxiliary material required:
 - Ester-free, non-polar cleaning agent
 - Soft, lint-free cloth
- 1. Disassemble the machine adapter [see section »Disassembling the machine adapter«].
- 2. Clean all the components listed below with cleaning agent and a cloth; remove all oil and grease residues:
 - machine adapter
 - Bayonet adapter
 - Taper seat
 - Cylindrical screws
 - centreX interface
 - Quick-acting screws

8.3 Preservation

- Special tools required:
 - Universal grease 2085/0003
 - Grease gun
 - Oil stone
 - Soft, lint-free cloth



Fig. 26

1. Disassemble the adapter [see section »Disassembling the adapter«].
2. Hone all the bearing surfaces of the adapter with an oil stone.
3. Lightly grease all cylindrical screws. Remove excess grease with a cloth.
4. Remount the adapter.
5. Screw all cylindrical screws into the adapter again and tighten them finger-tight.



For subsequent storage tightening the cylindrical screws finger-tight suffices. This facilitates re-commissioning and protect the cylindrical screws.

6. Lightly grease all interior and outer surfaces of the adapter. Remove excess grease with a cloth.
7. Pack the adapter airtight in foil. Place it on a level, impact-free storage location and safeguard it from falling.

8.4 Use of lubricant

With the usage of lubricant you may only use grease that corresponds to the requirements concerning bond, pressure-stability and solubility in lubricating coolant. In addition no dirt particles may be in the grease; they cause run errors if they come in in-between two mating surfaces.

We recommend for this the following lubricant:

HAINBUCH grease

See optional Accessories

Alternatives:

Lubricant	Manufacturer	Product
Universal grease	OKS	OKS 265
	MicroGleit	GP 355
	Klüber	QNB 50
	Zeller & Gmelin	DIVINOL SD24440
	Bremer & Leguill	RIVOLTA W.A.P.
Special grease	Klüber	MICROLUBE GL 261

8.5 Maintenance schedule

Maintenance tasks are described in the sections above that are required for optimal and trouble-free operation.

If increased wear is detected during regular inspections, then reduce the required maintenance intervals according to the actual indications of wear.

Contact the manufacturer, [see the service address on the back] if you have questions concerning maintenance tasks and intervals.

Interval	Maintenance task
Daily	Visual inspection and complete cleaning in case of heavy contamination [see section »Cleaning«]
Every 36 hours of operation	Clean the adapter [see section »Cleaning«]
	Grease the adapter [see section »Preservation«]
Every 6 months and/or with heavy contamination	Completely disassemble and clean the adapter [see section »Cleaning«]. If necessary send the adapter back to HAINBUCH for special cleaning.



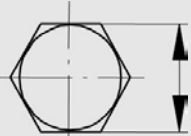
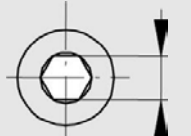
For proper operation of the machine adapter and the clamping device, especially with internal flushing with KSS and/or with use of tools with internal flushing: make sure that the cooling lubricant is cleaned and/or purified and does not contain particles >100µm [filtered with mesh width 100µm].

8.6 Bolt torque

Metric ISO thread

The guide values for bolt tightening torque for achieving the highest permissible pre-tension for metric ISO thread are specified in Nm in the table.

- Total friction coefficient $\mu_{\text{tot}} = 0,12$

Diameter	 [mm]	 [mm]	Torque for screw quality 10.9 [Nm]
M 4	7	3	4
M 5	8	4	7
M 6	10	5	12
M 8	13	6	25
M 10	17	8	50
M 12	19	10	100
M 16	24	14	220
M 20	30	17	400
M 24	36	19	600

The table shows the prescribed values.

Knowledge of the applicable guidelines and configuration criteria are the prerequisites.

9 Trouble shooting

Possible fault causes and the tasks to correct these faults are described in the following section.

If faults occur more frequently, the maintenance intervals must be shortened to correspond to the actual system load.

Contact the manufacturer if there are faults that cannot be corrected by following the instructions below; see the service address on the back of this operating instruction.

9.1 Safety

Trouble shooting

The following always applies:

1. For faults that pose a direct danger for personnel and or property immediately execute the emergency-stop function of the machine.
2. Determine the cause of the fault.
3. If correction of the fault requires work in the danger zone, put the machine in set-up mode.
4. Immediately inform the responsible parties at the installation site of the fault.
5. Depending on the type of fault, either have authorized specialized personnel correct the fault, or correct it yourself.



The trouble shooting table provided below lists personnel who are authorized to correct the fault.

6. If there is a fault that was not caused by the clamping device the cause of the fault may be in the machine area. See the operating manual for the machine in this regard.

9.2 Trouble shooting table

Fault	Possible cause	Fault correction	Corrected by
Problems while dismantling the adapter from the machine.	Contamination on the quick-acting screws.	Try to dismantle the adapter, otherwise contact HAINBUCH. Clean the quick-acting screws.	Specialist
Clamping device does not open or release stroke is not sufficient.	The adjusting dimension is wrong.	Check the adjusting dimension, correct it if necessary.	Specialist
Dimensional deviation on the work piece	Contamination on the centreX interface	Disassemble the clamping device from the adapter. Clean the taper and the reception.	Specialist
	Concentricity error of the adapter	Check the concentricity at the taper of the adapter, correct if necessary.	
Clamping force is too low	Work piece is under-dimensioned	Replace with a suitable clamping unit	Specialist
Clamping unit cannot be mounted.	Bayonet is not correctly adjusted.	Check the bayonet position, correct if necessary.	Specialist

9.3 Start-up after corrected fault

After correcting the fault execute the following steps to start up again:

1. Reset the emergency-stop device
2. Acknowledge the fault on the machine tool controller
3. Ensure that no one is in the danger zone
4. Start the machine tool

10 Appendix

10.1 Service Hotline

Order Hotline

Quickly ordered and delivered. A call is all it takes:
+49 7144. 907-333

Schedule Hotline

Current status of your order? Just call:
+49 7144. 907-222

24h emergency call

Has there been a crash or other technical emergency?

Our experts are at your service around the clock:
+49 7144. 907-444

10.2 Representatives

The sales partners and service employees listed below are available for further consultation or support.

10.2.1 Europe

Austria

HAINBUCH in Austria GmbH SPANNENDE TECHNIK

Pillweinstr. 16
5020 Salzburg
Phone +43 662 825309
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E-mail: verkauf@hainbuch.at
Internet: www.hainbuch.at

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