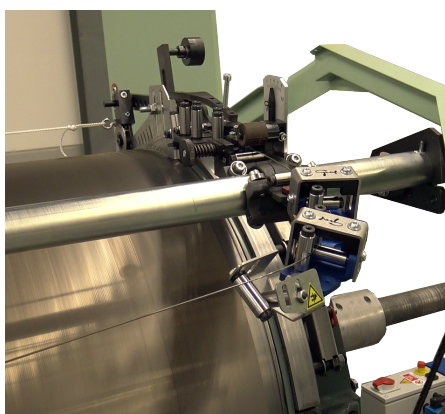




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Translation of the original instructions

MCC mounting equipment



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General information

1 General information

1.1 Subject of these instructions

The metallic card clothing mounting equipment described here was manufactured and marketed by Graf + Cie AG. The term "manufacturer" as used in this document refers to the company Graf + Cie AG.

1.2 Target groups

In addition to the operating company, the target groups for these instructions include:

- Operating personnel – for operation and cleaning instructions
- Maintenance personnel – for troubleshooting and maintenance instructions
- Qualified personnel who have been entrusted by the operating company with carrying out inspections and maintenance on the service machine.

1.3 Information about these instructions

1.3.1 General notes

These instructions include important information on handling the machine during installation, start-up and operation, maintenance and servicing as well as disassembly and disposal.

All the specified warnings and instructions must be observed before working on and with the machine in order to ensure safe, efficient operation in accordance with its intended use.

By observing them, the operating personnel can help to avoid hazards, minimise repair costs and downtime and increase the reliability and service life of the machine.

In addition, the applicable local accident prevention regulations and general safety regulations in the place where the machine is used must be observed.

Carefully read the instructions before starting any work. They are an integral part of the product and must be kept accessible to the relevant personnel at all times.

In addition to these instructions, the instructions for operating the installed components from the respective suppliers, which are included in the overall documentation, also apply. See chapter [Other applicable documents](#) ► 13].

- ➡ Observe the instructions contained in the documentation – in particular the warnings.

General information

1.3.2 Notes on use

Instructions and system reactions

Work steps to be performed by the operating personnel are shown consecutively. The sequence of steps must be observed. The system's reactions to the respective actions by the operating personnel are marked with an arrow.

Example:

- Requirement
- ➡ Work step 1
- ⇒ Reaction to work step 1

Lists

Lists without a mandatory sequence of steps are shown as a list preceded by a bullet point.

Example:

- Item 1
 - Item 1, subitem A
- Item 2

Lists with a mandatory order are displayed as a list preceded by a number.

Example:

1. First
2. Second

References to chapters/pages

References to particular chapters in which procedures and instructions are described are shown as active links.

Example: ([see chapter A](#) ▶ 7); the arrow with the number refers to the page number.

1.3.3 Notes on storage

These instructions are an integral part of the processing machine and must be kept in the immediate vicinity of the machine and be easily accessible to the relevant personnel at all times.

If the instructions are lost, a replacement set can be requested from the manufacturer. For contact details, see [Manufacturer's information](#) ▶ 13].

- ➡ If the system is passed on to third parties, make sure that these instructions are also handed over.


General information









1.3.4 Symbols used

Pictograms








The warnings used in these instructions are also provided with pictograms to clearly indicate the nature of the potential hazard.

The following pictograms are used:

Symbol	Meaning
General symbols	
	General information and useful advice on handling

Symbol	Meaning
Warning symbols	
	General warning symbol
	Warning of electrical voltage
	Warning of pressurised system parts
	Warning of hand injuries
	Warning of crushing hazard
	Warning of hot surface
	Warning of slipping hazard
	Warning of suspended loads

General information



Symbol	Meaning
	Warning against environmental pollution
Symbol	Meaning
Mandatory signs	
	Use eye protection
	Use foot protection
	Use hearing protection
	Use hand protection
	Use head protection
	Use protective clothing

General information

1.3.5 Structure of the warnings



The warnings used in these instructions are introduced by signal words that indicate the extent of the hazard. The warning symbol also indicates the type of hazard. The following warnings are used in these instructions:

Serious injuries or death

	<div data-bbox="516 723 727 769"> DANGER</div> <div data-bbox="300 799 477 828">Danger to life!</div> <div data-bbox="300 851 805 881">Consequences in case of non-compliance...</div> <div data-bbox="300 902 565 932">► Notes on prevention</div>
---	--



A warning of this danger level indicates an imminent dangerous situation. If the dangerous situation is not avoided, it will result in death or serious injury. Follow the instructions in this warning to avoid the risk of death or serious personal injury.

Serious injuries

	<div data-bbox="508 1182 735 1228"> WARNING</div> <div data-bbox="300 1258 470 1288">Risk of injury!</div> <div data-bbox="300 1311 805 1340">Consequences in case of non-compliance...</div> <div data-bbox="300 1361 565 1391">► Notes on prevention</div>
---	---

A warning with this danger level indicates a potentially dangerous situation. If the dangerous situation is not avoided, it may result in death or serious injury. Follow the instructions in this warning to avoid the possible risk of death or serious personal injury.


Minor injuries

	<div data-bbox="513 1641 730 1687"> CAUTION</div> <div data-bbox="300 1717 643 1747">Personal injury caused by...</div> <div data-bbox="300 1770 805 1800">Consequences in case of non-compliance...</div> <div data-bbox="300 1820 565 1850">► Notes on prevention</div>
---	--

A warning with this danger level indicates a potentially dangerous situation. If the dangerous situation is not avoided, it may result in minor or moderate injuries. Follow the instructions in this warning to avoid personal injuries.

General information

Material damage

	NOTICE
	<p>Material damage caused by...</p> <p>Consequences in case of non-compliance...</p> <p>► Notes on prevention</p>

A warning with this danger level indicates possible material damage.

If the situation is not avoided, material damage may occur.

Follow the instructions in this warning to avoid material damage.


Note on safe working

	SAFETY INSTRUCTIONS
	<p>Work safely when...!</p> <p>Carry out all work in compliance with the safety instructions listed below:</p> <p>► Note on working safely</p>

This note contains important information and instructions for working safely during the following steps.

Follow the instructions in this note to prevent accidents and injuries.

Notes and tips

	NOTE
	<p>Note text...</p>

A note indicates additional information that is important for further processing or which simplifies the described work step.



General information

1.4 Liability disclaimer

All information and instructions provided in these instructions have been compiled by taking into consideration the applicable standards and regulations, our state-of-the-art technology and our many years of experience and knowledge.

We reserve the right to make technical changes as part of the further development of the machine described in these instructions. No claims can be derived from the data, figures and descriptions provided in these instructions.

The manufacturer assumes no liability for damage and malfunctions due to:

- Failure to observe these instructions
- Unintended use
- Use of untrained or insufficiently trained personnel
- Use of unauthorised equipment
- Faulty connection
- Preliminary work not included in the scope of supply and services
- Failure to use original spare parts and accessories
- Technical conversions and changes not agreed with the manufacturer
- Failure to carry out required maintenance work
- Performing welding work on the processing machine

The manufacturer is liable for any errors or omissions on our part, excluding further claims, within the framework of our contractual warranty obligations.

1.5 Copyright protection

This documentation is protected by copyright.

All rights reserved, including those of photomechanical reproduction, duplication and distribution via special processes (e.g. data processing, data carriers and data networks), in whole or in part, as well as changes in content and technical specifications.

General information

1.6 Manufacturer's information

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1.7 Other applicable documents

In addition to the instructions provided in these instructions for the machine, the information contained in the information sources listed below must also be taken into consideration:

- Information on the signs on the machine
- Instructions for the components used
- Work instructions provided by the operating company
- Safety data sheets for auxiliary and operating supplies
- Local accident prevention regulations and regional regulations at the place where the machine is used
- Data sheets for the installed components

2 Safety

2.1 General information

This chapter provides important notes on all safety aspects in order to ensure optimum protection of the personnel as well as safe and smooth operation.

In addition to the general safety instructions provided in this chapter, additional safety instructions relevant to the corresponding chapter are provided in each handling chapter.

Hazards that may occur during a specific work step are described before the work step.

Knowledge of the safety and user instructions in these instructions forms the basis for safe handling and smooth operation of this processing machine. Failure to observe the warnings and handling instructions in these instructions may result in considerable danger.

➔ The listed warnings and instructions must be observed.

2.2 Intended use

The machine is designed to mount metallic card clothing and to remove it according to the specifications specified in the technical data. Depending on the basic equipment, the metallic card clothing can be mounted both on flat cards as well as on roller cards. In addition, old clothing can be removed using a stripping reel. A butt welder for welding the wires is included in the scope of delivery.

Any other use or use that goes beyond this is considered improper and is therefore not authorised.

No claims of any kind shall be accepted for damage resulting from incorrect use. These risks shall be borne solely by the operating company.

Foreseeable misuse

Any use of the machine for a purpose other than that specified above is considered improper.

Misuse occurs, for example, if

- the information in these instructions is not observed,
- the processing machine is not used as intended,
- the limits specified in the technical data are not observed,
- the machine is operated in an altered or faulty condition,
- the machine is operated with unauthorised media,
- the machine is used in an explosive environment.

Safety

2.3 Basic safety instructions

The machine was constructed in accordance with the EC Machinery Directive, the technological state of the art and the recognised safety rules.

Dangers and negative impacts can still occur when using the machine:

Observe the following safety instructions to ensure safe handling and smooth operation of this machine:

- Check all machine parts and components for external visible damage before starting the process. Do not operate a damaged machine.
- Only carry out cleaning, maintenance and repair work if the production process has already been stopped or terminated.
- Repairs to the machine must only be carried out by authorised qualified personnel. Improper repairs can result in considerable danger.
- Defective components must only be replaced with original spare parts. Only these parts will ensure that the safety requirements are satisfied.
- Observe the specified deadlines for recurring tests/inspections. In particular, this applies to protective devices and warning devices.
- The machine must only be operated by personnel qualified to do so.

2.4 Particular dangers/residual risks

Danger due to electric current!

Contact with live lines or parts can result in fatal injuries!

- Work on electrical equipment must only be carried out by a qualified electrician or by instructed personnel under the direction and supervision of a qualified electrician in accordance with the established rules of electrical engineering.
- Any defects found in electrical systems/components/equipment must be rectified immediately. If there is an acute danger before then, the processing machine must not be used in a defective condition.
- Machine parts on which inspection, maintenance and repair work is carried out must – where required – be disconnected from the power supply. First check that the disconnected parts are free of voltage, then earth and short-circuit them and insulate adjacent live parts!
- If work on live parts is necessary, enlist the help of a second person who can switch off the main switch in case of an emergency. Cordon off the work area with a red and white safety chain and a warning sign. Only use insulated tools!
- Fuses must not be repaired or bypassed. Only use original fuses with the required amperage.
- If the insulation is damaged, immediately switch off the power supply and have repairs carried out.
- Perform checks according to the intervals for periodic tests and/or inspections specified in the instructions.
- Keep moisture away from live parts to prevent short circuits.



Safety

Entanglement hazards on rotating parts!

There is a risk of being caught and pulled in by the rotating part or wire on rotating parts.

- The system must only be operated by instructed personnel.
- Do not remain in the hazardous areas when the system is running.
- Safety devices must not be bypassed.

Danger of shearing and cutting on parts and wire with sharp edges!

There is a danger of shearing and cutting injuries on parts and wire with sharp edges.

- The system must only be operated by instructed personnel.
- Keep protective covers closed when the system is running.
- Safety devices must not be bypassed.

Danger of burns on hot surfaces and parts.

Parts can become hot. There is a risk of burns if there is contact with the hot parts.

- The system must only be operated by instructed personnel.
- Avoid contact with hot surfaces or wear protective gloves.
- Safety devices must not be bypassed.

Danger due to contact with auxiliary and operating supplies on the processing machine!

There is a danger for the operating personnel through contact with auxiliary and operating supplies.

- Wear the specified personal protective equipment.
- Observe the instructions in the safety data sheets of the hazardous substances.

Danger due to noise!

Noise in the working environment can result in hearing loss.

- The operating company must carry out and document noise level measurements in the working environment after commissioning the machine as well as after conversions and extensions. If the measured sound level exceeds 80 dB(A), the operating company must implement appropriate hearing protection measures.
- If the measured sound level exceeds 85 dB(A), the operating company must prescribe appropriate hearing protection.

Safety

2.5 Emissions

The sound emission measured at the manufacturer's premises is < 80 dB(A).

Depending on local conditions, a higher emission sound pressure level may occur, which may result in noise-induced hearing loss.

The operating company is required to carry out a noise measurement on site.

- The operating company must provide hearing protection if the emission sound pressure level is > 80 dB(A).
- The operating company must prescribe hearing protection at an emission sound pressure level > 85 dB(A).
- In addition, measures must be taken according to the locally applicable legal requirements.

Safety

2.6 Responsibility of the operating company

Since the machine is used in the commercial sector, the operating company that owns the machine is subject to the legal obligations concerning occupational health and safety.

In addition to the safety instructions provided in these instructions, the safety, accident prevention and environmental protection regulations applicable to the operation of the machine must be observed.

The operating company must...

- inform itself about the applicable health and safety regulations. It must also carry out a risk assessment to identify any additional hazards arising from the specific working conditions at the machine operating site. In addition, it must implement this information in the form of instructions for operating the machine.
- carry out and document a noise level measurement after commissioning.
- secure danger points that arise between the processing machine and equipment provided by the customer.
- check whether the instructions it has drawn up correspond to the current status of the regulations during the entire time the machine is in use and adapt them if necessary.
- clearly define the responsibilities of the personnel responsible for installation, operation, maintenance and cleaning.
- ensure that all employees who handle the machine have read and understood the instructions.
In addition, it must train the personnel at regular intervals and instruct them about the dangers posed by the machine.
- regularly check that the personnel work safely and are aware of the hazards while also complying with the instructions.
- ensure that these instructions and all other applicable regulations are accessible to the operating and maintenance personnel.
- define the machine operator's responsibility for the machine and allow the operator to reject instructions from third parties that do not comply with safety requirements.
- provide the relevant personnel with the necessary protective equipment.

In addition, the operating company is responsible for ensuring that the machine is always in a technically perfect condition. The following therefore applies:

The operating company must...

- ensure that these instructions and all other applicable regulations are accessible to the operating and maintenance personnel.
- check and document compliance with the specified cleaning and maintenance intervals.
- have all safety devices checked at regular intervals to ensure that they are functioning properly and are complete.

Safety

2.7 On-site requirements to ensure safe operation

In order to ensure the safe operation of the machine and its components at the operating site, the operating company must fulfil the requirements described below.

The operating company must...

- ensure the load-bearing capacity of the foundation and compliance with the ambient conditions.
- maintain sufficient clearance between the machine and other equipment provided by the customer.
- ensure sufficient lighting at the machine's operating site.
- ensure sufficient aeration and ventilation.
- take suitable fire protection measures.
- attach suitable warning signs and barriers at the installation site to indicate the hazards in the work area.

Safety

2.8 Personnel requirements

2.8.1 Personnel qualifications

Improper handling of the machine by insufficiently qualified personnel may result in substantial personal injury and damage to property.

- ➡ Have all activities performed out only by qualified personnel.

The following qualifications for different areas of activity are designated in these instructions:

Operator

- has been trained by the operating company to carry out the work assigned to them and informed of the potential hazards in the event of improper behaviour.

Fitter

- has the knowledge and experience required to safely set up the machine as well as the operator qualifications.

Specialised personnel

- have the necessary technical training, knowledge and experience, as well as knowledge of the pertinent regulations, to perform the work assigned to them and to independently recognize and prevent potential dangers.

Qualified electrician


- has the necessary training, knowledge and experience, as well as knowledge of the pertinent standards and regulations to perform work on electrical machines and to independently identify and avoid potential dangers.

Technical qualified personnel

Technical qualified personnel have the necessary technical training, knowledge and experience, as well as knowledge of the pertinent standards and regulations to perform work on mechanical, hydraulic and pneumatic equipment and to independently identify and avoid potential dangers. The technical qualified personnel are trained for the specific operating site in which they work and are familiar with the pertinent standards and regulations.

The operating company must ensure that all personnel who work on or with the machine can be expected to reliably perform their work. Individuals whose reaction time is impaired, e.g. by drugs, alcohol or medication, are not authorised to perform such work.

Personnel who are to be trained, instructed or who are undergoing general training may only work on the machine under the constant supervision of experienced personnel.

	<p style="text-align: center;">NOTE</p> <p>When selecting personnel, observe the applicable age and specific occupational regulations at the place where the machine is used.</p>
---	--

Safety

2.8.2 Unauthorized personnel

Unauthorized personnel who do not meet the personnel requirements described above are not aware of the dangers in the work area.

- Keep unauthorized personnel away from the work area.
- If in doubt, address the personnel and direct them away from the work area.
- Stop work as long as unauthorized personnel are in the work area.

2.8.3 Instruction

The operating company must train the personnel concerned at regular intervals.

i	<i>NOTE</i>
	To ensure better tracking, document this training and have the participants sign a document confirming this.



Safety

2.9 Personal protective equipment

The authorised personnel must wear personal protective equipment when working to minimize health risks.



- Always wear the necessary protective equipment for the relevant task when working.
- Follow all instructions regarding personal protective equipment affixed in the work area.
- Comply with the safety requirements specified by the operating company.

Wear the following protective equipment when performing any work on the machine:

	Protective work clothing with low tensile strength
	Protective footwear with steel toe cap and oil-resistant safety sole

When carrying out special work, special protective equipment is also required. This equipment is specified separately in the individual chapters.

Wear the following additional protective equipment when carrying out special work on the machine:


	Safety goggles to protect the eyes from flying parts and liquids
	Work gloves to protect against injuries/burns

2.10 Safety devices on the machine

Missing or malfunctioning safety devices can result in serious injuries.

- Only operate the machine if all safety devices are installed and functioning properly.
- Check that all safety and warning devices are functioning properly on a regular basis.




Dangerous points which cannot be eliminated by design are fitted with protective devices and marked by warning signs on the machine.

	NOTE
	For more information on the safety devices available on this machine, see the Safety devices [41] chapter.


2.11 Signs on the machine

The following warning/hazard signs are attached to the machine components to inform the operating personnel about hazards:

Safety

Symbol	Meaning
	Warning of dangerous electrical voltage
	Warning of crushing hazards
	Warning of foot injuries

- Observe the warning/hazard signs on the machine components.
- Immediately replace lost, damaged or illegible warning/hazard signs.

	NOTE
	For more information on the position and design of the signs on the components of this machine, see the Information signs [► 42] chapter.

2.12 Prohibition of conversions and tampering

Conversions or modifications to the machine, in particular, removing or tampering with the safety devices, are prohibited.

In case of unauthorized conversions or modifications to the machine, the manufacturer's liability and warranty shall expire. This also applies to welding on load-bearing parts.

The electromagnetic behaviour of the machine may be affected by additions or conversions of any kind. Therefore, no changes or additions should be made to the machine without consulting and obtaining the written consent of the manufacturer.

Safety

2.13 Spare parts

The use of wrong or faulty spare parts may result in damage, malfunctions or total failure of the machine and compromise safety.

- Only use original spare parts or spare parts approved by the manufacturer.

The manufacturer accepts no liability for damage resulting from the use of spare and wear parts that have not been approved by the manufacturer.

2.14 Auxiliary and operating supplies

Unauthorized auxiliary and operating supplies may result in damage, malfunctions or total failure of the machine and may compromise safety.

- Only use the auxiliary and operating supplies specified and approved by the manufacturer.

The manufacturer accepts no liability for damage resulting from the use of auxiliary and operating supplies that have not been approved by the manufacturer.

2.15 Accident prevention measures

Observe the following accident prevention instructions when operating the machine:

- Observe and comply with general and local accident prevention and environmental protection regulations.
- Check the processing machine for externally visible damage and defects at least once per shift. Immediately report any changes that have occurred (including operating behaviour changes) to the responsible office/person.
- If the machine is damaged, immediately shut it down and secure it to prevent reactivation.
- Only allow repair and/or maintenance work to be carried out by authorised specialised personnel.
- Before starting any cleaning, maintenance or repair work on the machine, disable the machine's control system. Then have the relevant parts of the system disconnected from the power supply by a qualified electrician and secured against being switched back on.
- Observe the prescribed intervals or those specified in the instructions for periodic tests/inspections. In particular, this applies to protective devices.
- Only use suitable maintenance tools.
- After repair work, reinstall all protective devices and check that the protective device functions properly.

Safety

2.16 Environmental protection

Incorrect handling of environmentally hazardous substances, in particular their incorrect disposal, may result in considerable damage to the environment.

- Observe the indicated disposal instructions.
- If environmentally hazardous substances are accidentally released into the environment, take suitable measures immediately. In case of doubt, notify the competent local authority of the damage.

Operating supplies and untreated waste

The operating supplies used for operating the machine as well as the untreated waste contain substances that are harmful to the environment in some cases. They must not be released into the environment. They must be disposed of in accordance with the locally applicable regulations.

- ➔ Observe the manufacturer's specifications in the instructions for the processing machine.

Lubricants

Lubricants, such as greases and oils contain toxic substances. They must not be released into the environment. They must be disposed of by a specialist disposal company.

- ➔ Observe the manufacturer's specifications for the respective lubricants.

Technical data

3 Technical data

3.1 Connection values

Specifications	Value	Unit
Connection values of variant 1:		
Operating voltage	3 x 400	V _{AC}
Mains frequency	50 - 60	Hz
Connection values of variant 2:		
Operating voltage	220	V _{AC}
Mains frequency	60	Hz
Control voltage	24	V _{DC}

3.2 General data

Specifications	Value	Unit
Type designation	GAV	
Serial number	See type plate	
Year of manufacture	See type plate	
Approx. MCC mounting equipment dimensions (L x W x H)	513 x 500 x 436	mm
Approx. DABW dimensions (L x W x H)	586 x 635 x 560	mm
Approx. MCC mounting equipment weight	230	kg
Approx. DABW weight	95	kg

3.3 Performance values

Specifications	Value	Unit
Drive power	1.5	kW
Stripping reel power	0.75	kW

3.4 Ambient conditions

Specifications	Value	Unit
Ambient temperature range during operation	20 ... 30	°C
Maximum humidity during operation (non-condensing)	65	%

Technical data

3.5 Equipment

Lubricating oil for variator

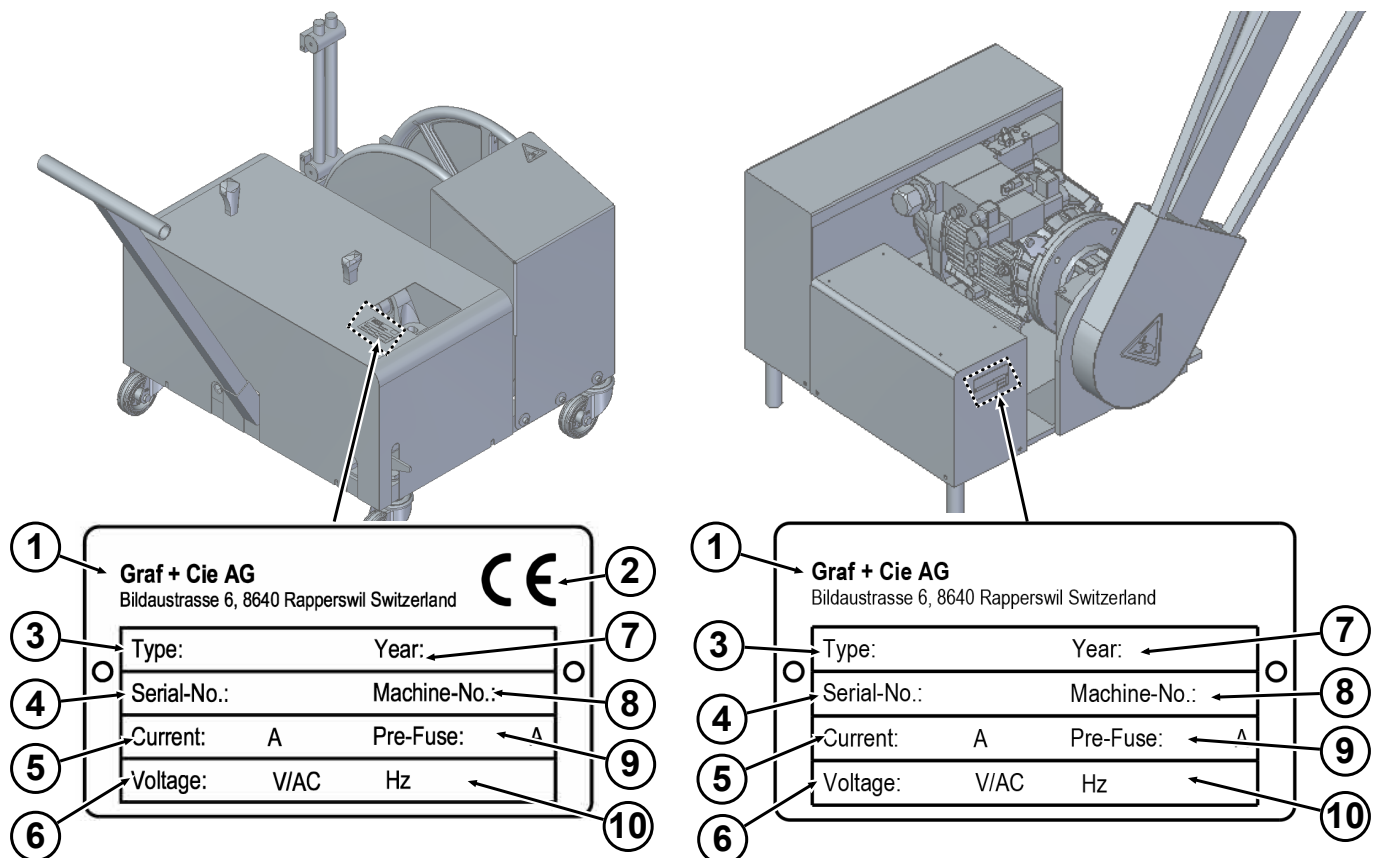
Ambient temperature	Manufacturer			
	Exxon Mobil	Agip	Shell	bp
-15°C / +2°C +5°F / + 35°F	UNIVIS N46	ARNICA 46	TELLUS S2 V 46	BARTRAN HV46
+2°C / +30°C +35°F / +86°F	UNIVIS N68	ARNICA 68	TELLUS S2 V 68	BARTRAN HV68
+30°C / +40°C +86°F / +104°F	SHC 626 or Super 3000X1 5W40	SINT EVOLUTION 5W-40	HELIX ULTRA 5W-40	VISCO 5000 5W-40

If none of the recommended oils are available, use an oil used in the automotive industry. Oils that meet the following specifications can be obtained at petrol stations:

- MULTIGRADE OIL SAE 10W-30 or 15W-40
- MULTIGRADE SYNTETIC OIL SAE 5W-40

Technical data

3.6 Type plate



The machine's type plates are attached to the housings of the stripping reel and MCC mounting drive components, and contain the following information:

Position	Field	Content
1	Manufacturer/authorised representative:	Graf+Cie AG, Bildaustrasse 6 8640 Rapperswil, Switzerland
2	CE	CE mark
3	Type	Type specification
4	Serial-No.	Machine serial number
5	Current (A)	Current intensity in A
6	Voltage (V/AC)	Voltage in V/AC
7	Year	Year of manufacture of the machine
8	Mach-No.	Machine number
9	Pre-Fuse (A)	Pre-fuse in A
10	Voltage (Hz)	Mains frequency in Hz

Design and function

4 Design and function

4.1 Functional description

Mounting device for card clothing

The mounting device for card clothing is used to mount metallic card clothing. Depending on the basic equipment, this can be performed both on flat cards and on roller cards.

The interface between the MCC mounting equipment and the card or roller card is the three-jaw chuck to the roller axle on the machine or an external stand.

The MCC mounting equipment consists of two main elements: the MCC mounting drive and the mounting device for card clothing.

The continuously variable MCC mounting drive (0-65 rpm) can be used to drive all rollers, regardless of the diameter and working width.

The drive can also be used for other GRAF service machines, such as ROD 35, ROD 35/1 or UAV 25 and other machines for mounting lick-in rollers and opener rollers, etc.

The mounting arm makes it possible to mount all metallic card clothing quickly and correctly. The mounting tension in the wire can be checked at all times. If necessary, it can be corrected and/or adjusted during the mounting process.

To set up clothing on the side, a diversion is mounted on the mounting arm, which ensures that the wire runs correctly.

The mounting device is driven by a MCC mounting drive. The "forward and reverse" and "stop" modes can be selected using the remote control.

Stripping reel

The stripping reel is used to decoil metallic card clothing. This can be carried out on flat cards as well as on roller cards and stands. The stripping reel is used in combination with the MCC mounting drive.

The old clothing wire is pulled over a wire redirecting roller to the reel cross bar. When the stripping reel is switched on, the wire is evenly reeled up and a wire ring is formed. The stripping reel produces a constant pulling force by means of a sliding clutch. The stripped wire is only picked up by the stripping reel when the MCC mounting drive turns the roller.

The wire ring can be easily removed from the reel cross bar and disposed of.

Butt welder

The butt welder is included in the delivery and is used for precise and fast welding of all common clothing wires made of steel or iron and aluminium base wires.

The butt welder can be connected to the MCC mounting drive via the socket. The amperage, the upsetting distance and the upsetting pressure for the welding can be set.

There is a clamping device on the butt welder for plastering the welding bead.

MCC mounting drive

The MCC mounting drive is used in combination with the mounting device or the stripping reel to drive the unit when mounting or decoiling metallic card clothing.

Coil stand with tilting handle

The clothing coils are provided on a coil stand during the mounting process. A versatile tilting handle makes it easy to pick up, place and transport the clothing coil on the coil stand.



Design and function

Coil diversion/wire tension relief (optional)

The coil diversion can be used to divert the wire to a higher position during the mounting process.

In addition, the coil diversion can be used to provide smoother wire guidance when mounting by cushioning the vibrations.

The device is mounted on the coil stand. The wire is guided over a redirecting roller. A second roller is used as a counterweight. Two weights can be positioned depending on the profile thickness to adjust the pre-tensioning force.

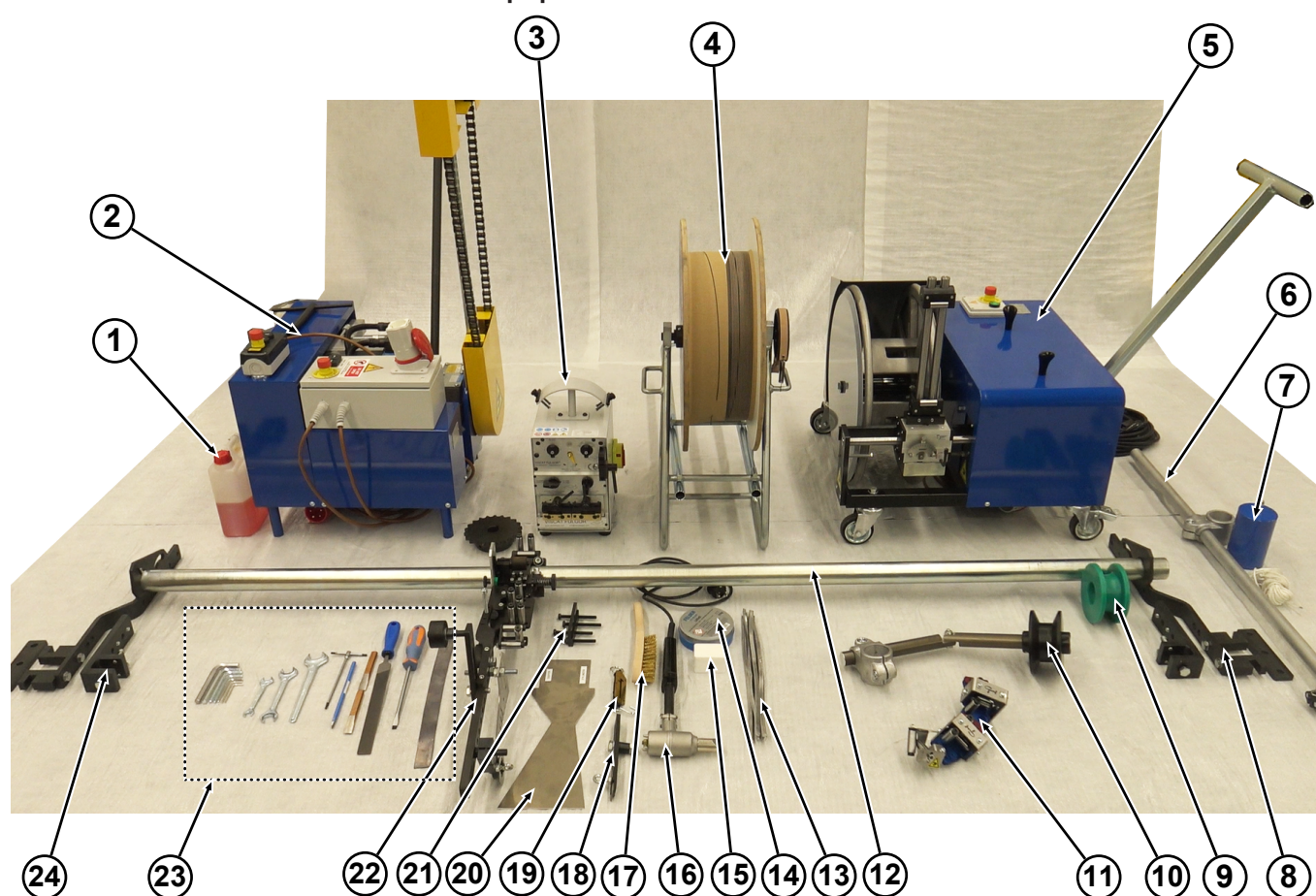
90° wire diversion

If space is limited and to increase safety, we recommend mounting the 90° wire diversion on the mounting arm. It features a variable design so that all possible positions and entry angles are possible by combining the individual elements in various ways. When using the 90° wire diversion, the coil is at the side of the machine and is no longer moved during the mounting process.

Design and function

4.2 Overview

4.2.1 General overview of basic equipment



Item	Component/part
1	1 litre of variator oil
2	MCC mounting drive
3	Butt welder
4	Coil stand with wire coil
5	Stripping reel
6	Rope arm device
7	Weight for rope arm
8	Bracket (guide tube) on the right
9	Wire redirecting roller
10	Redirecting roller for mounting with 90° diversion
11	90° diversion for lateral mounting
12	Guide tube

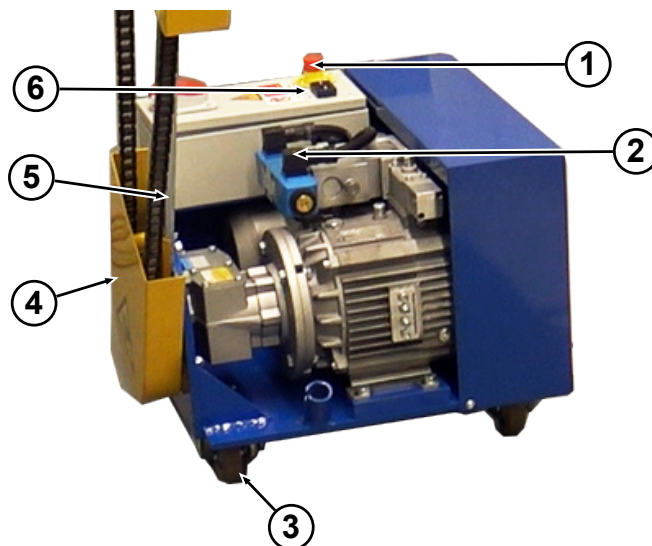
Design and function

Item	Component/part
13	Soldering tin
14	Soldering grease
15	Ammonia stone
16	Soldering iron
17	Wire brush
18	Contact finger
19	Spring balance
20	Pre-bending template
21	Dressing roller adjustment gauge
22	Mounting arm
23	Assembly tools <ul style="list-style-type: none"> - Chisel - Open-end spanners - Files - Allen key
24	Bracket (guide tube) on the left

Design and function

4.2.2 MCC mounting drive overview

MCC mounting drive

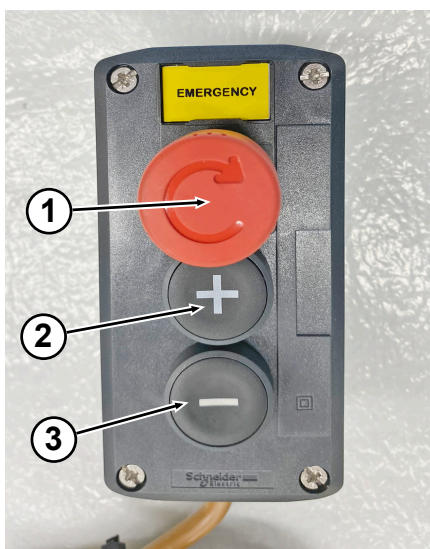


Item	Component/part
1	Emergency stop button
2	Manual switch buttons
3	Wheel with parking brake
4	Protective cover
5	Tensioning arm
6	Shift buttons

Design and function

Remote control

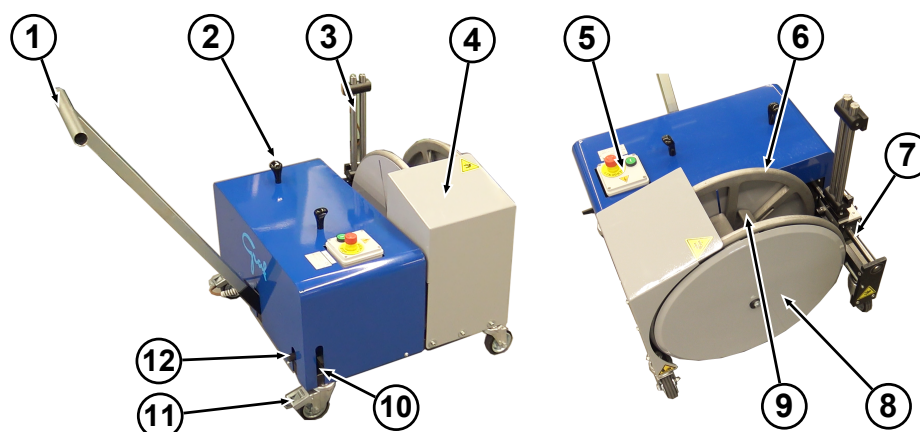
The remote control is connected to the MCC mounting drive and can be positioned as required.



Item	Component/part
1	Emergency stop button
2	"Minus" (-) button
3	"Plus" (+) button

Design and function

4.2.3 Stripping reel overview

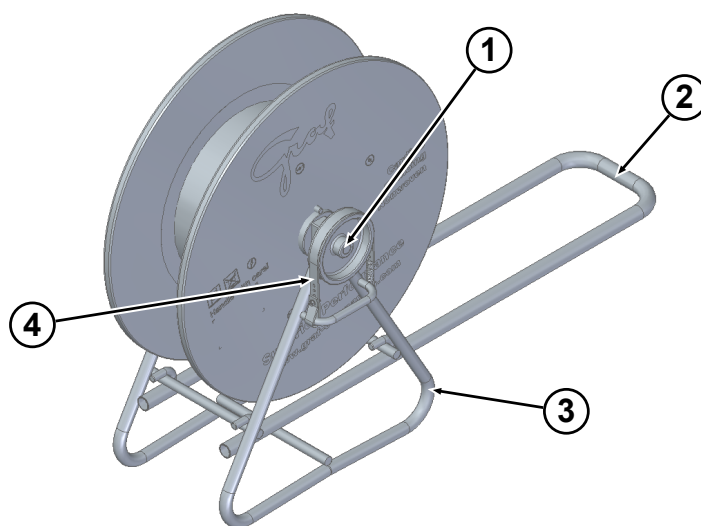


Item	Component/part
1	Transport handle
2	Cable mount
3	Wire guide
4	Protective cover
5	Control unit with emergency stop button and "Start" button
6	Reel cross bar
7	Carriage
8	Protective plate
9	Aluminium clamping segments
10	Slide coupling with lever arm
11	Wheel with parking brake
12	Locking screw

Design and function

4.2.4 Overview of coil stand and wire tension relief

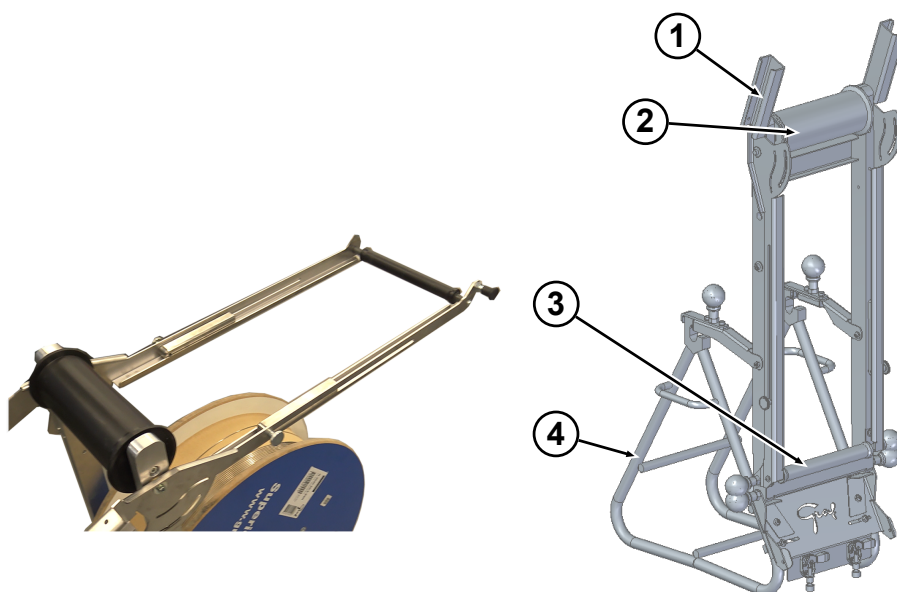
Coil stand



Item	Component/part
1	Shaft with brake disc
2	Tilting bracket
3	Coil frame
4	Leather belt as brake

Design and function

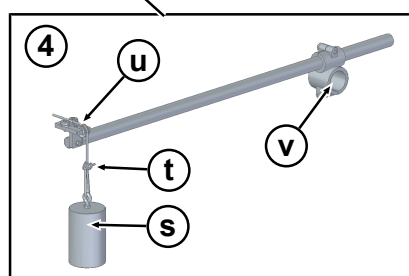
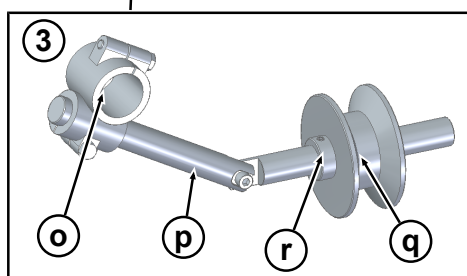
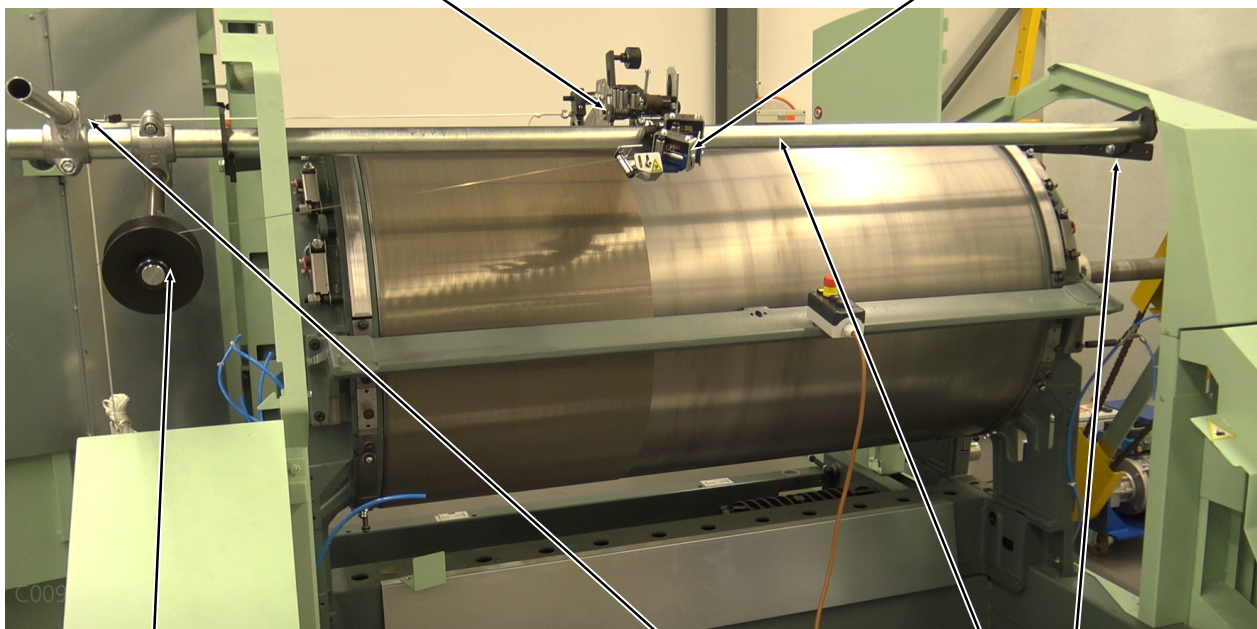
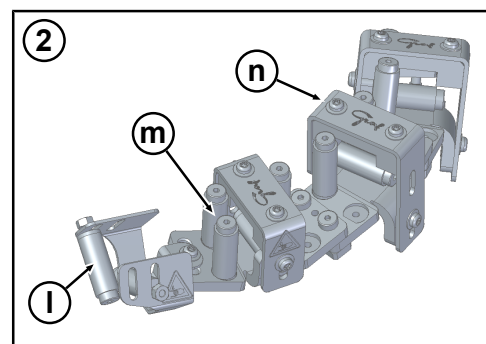
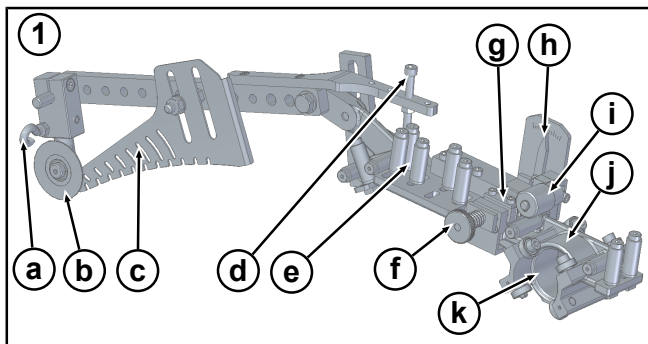
Coil diversion/wire tension relief (optional)



Item	Component/part
1	Guide rail for weights
2	Redirecting roller
3	Balancing roller
4	Coil frame

Design and function

4.2.5 Mounting device overview

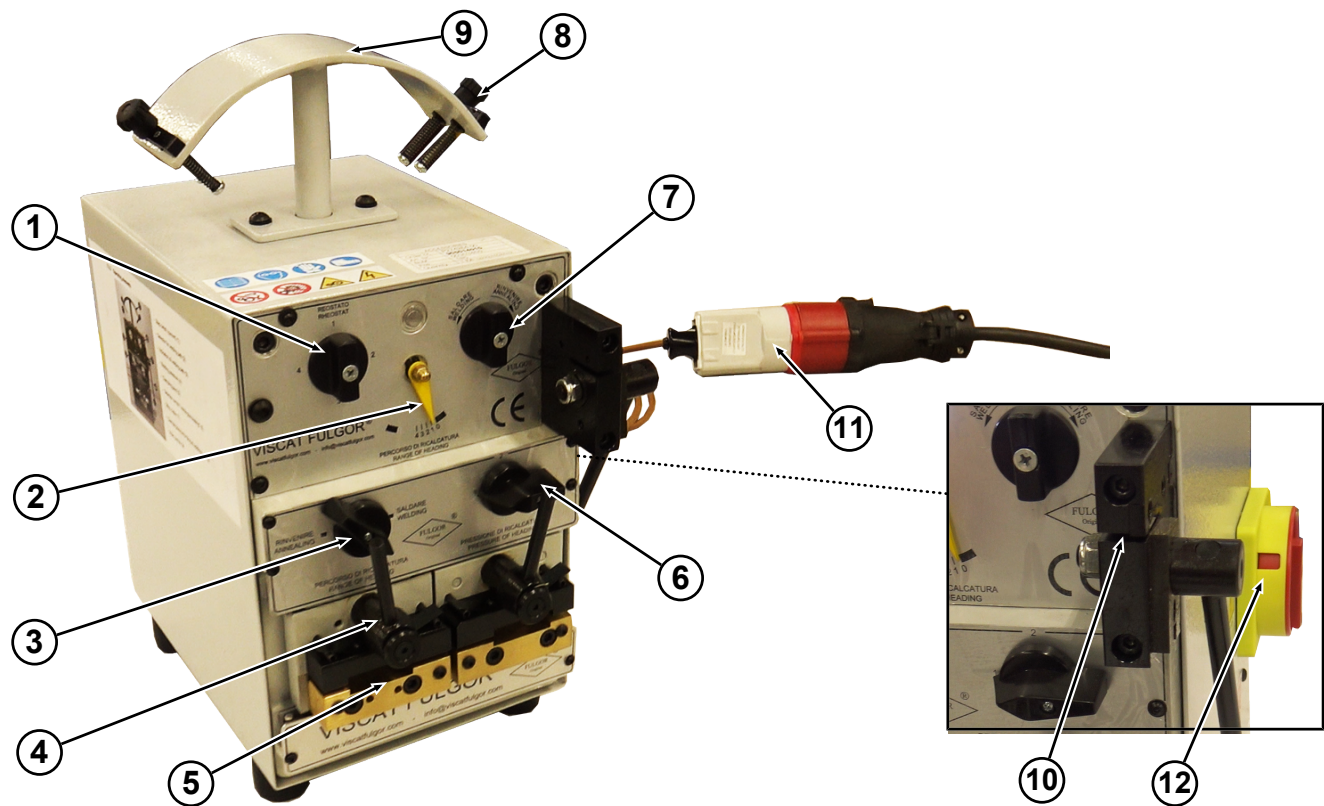


Design and function

Item	Component/part
1	Mounting arm:
a	Ring bolt (rope arm)
b	Press-on roller
c	Intervention protection
d	Adjusting screw (pre-bending)
e	Dressing rollers
f	Brake screw
g	Brake
h	Measuring scale
i	Locking roller
j	Tube mount
k	Guide rollers
2	90° diversion for lateral wire feed-in:
l	Guide entry
m	Dressing rollers
n	Wire positioning device
3	Redirecting roller for lateral wire feed-in:
o	Tube mount
p	Axle
q	Wire redirecting roller
r	Adjusting rings
4	Rope arm with weight
s	Weight
t	Nylon cord
u	Redirecting roller with sheet clamp
v	Tube mount
5	Guide tube
6	Bracket (guide tube)

Design and function

4.2.6 Butt welder overview



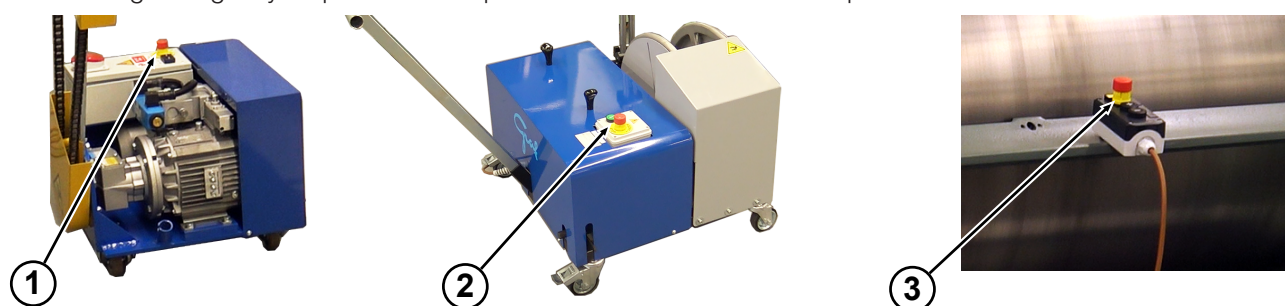
Item	Component/part
1	Step switch (current)
2	Upsetting distance indicator
3	Upsetting distance switch
4	Clamping jaw lever
5	Clamping jaw
6	Upsetting pressure switch
7	"Welding"/"Annealing" selector switch
8	Clamping device fixture
9	Clamping device
10	Wire cutter
11	Connector plug
12	Main switch

Design and function

4.3 Safety devices

Emergency stop button

The following emergency stop buttons are provided on the machine's components:



Item	Component/part
1	MCC mounting drive emergency stop button
2	Stripping reel emergency stop button
3	Remote control emergency stop button (can be positioned variably)

Protective covers

Danger zones on moving parts are protected against direct intervention as far as possible by protective covers. Protective covers which are included in the delivery (such as the contact protection of the mounting arm or the wire positioning device of the diversion) must be mounted before the components are used, if necessary. Always observe the instructions in the assembly descriptions.

Other safety devices

The following safety devices are also installed on the machine:

- Automatic interruption in case of malfunctions without automatic restart
- Fuse protection for the drive with motor protection switches
- Information signs indicating the dangers in the work area

Barrier tape

Danger zones must be extensively blocked off with red and yellow barrier tape.



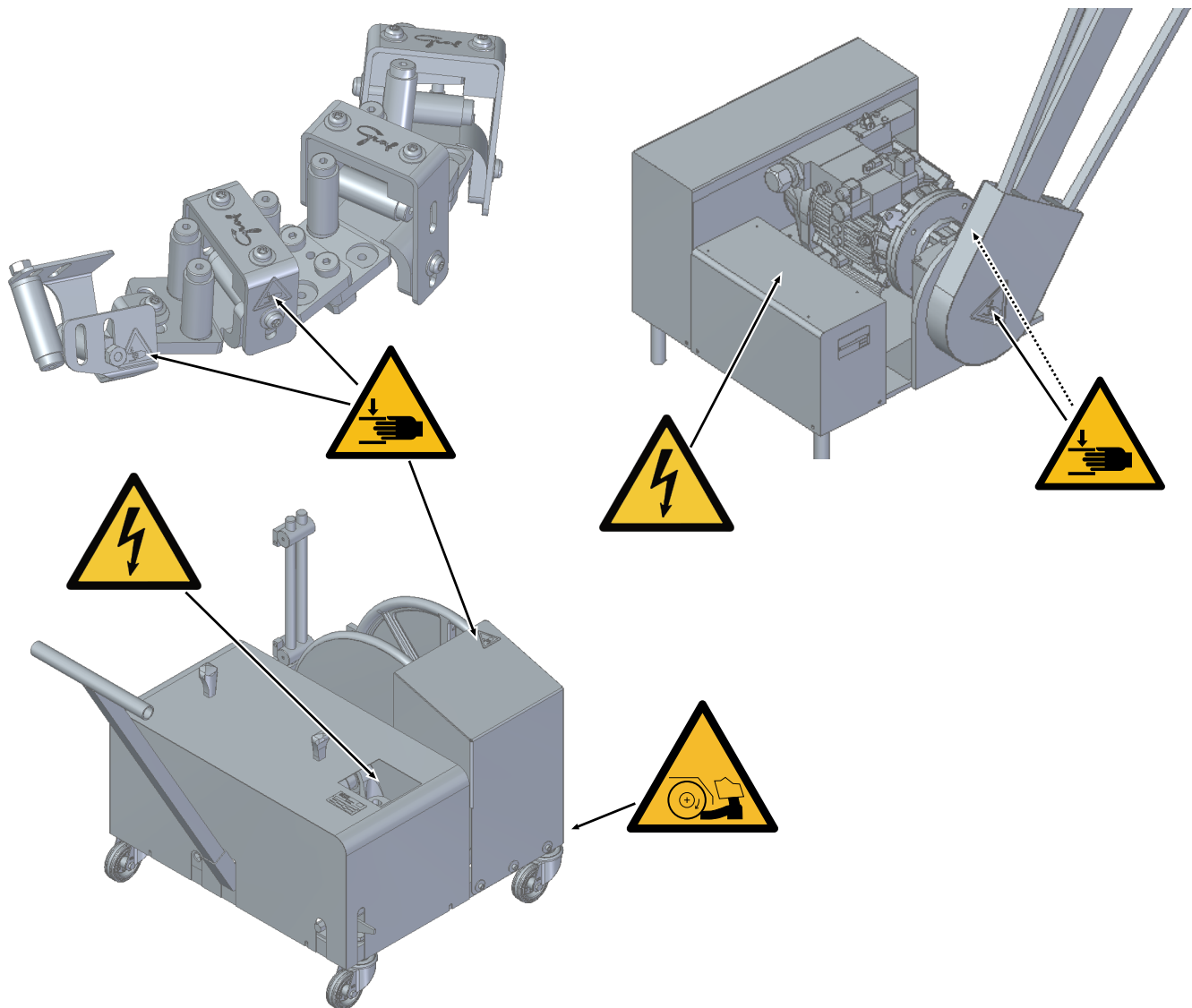
Design and function

4.4 Information signs

Risk of injury due to soiled or otherwise unrecognisable symbols and pictograms on the components of the machine or in its surrounding area:

- Make sure that all safety, warning and operating instructions are always kept in a legible condition.
- Replace damaged symbols and pictograms immediately.
- Never cover, block or remove symbols and pictograms.

The following pictograms are attached to the machine's components:



Transport instructions

5 Transport instructions

5.1 Safety Instructions

	SAFETY INSTRUCTIONS
	<p>Work safely when transporting the machine!</p> <p>Carry out all work in compliance with the safety instructions listed below:</p> <ul style="list-style-type: none"> ▶ Observe the regulations listed in the Safety chapter for all work on/with the machine and its components. ▶ Wear protective equipment according to the accident prevention regulations at the operating site. ▶ Carry out all operating steps according to the information provided in these instructions. ▶ Do not walk under or in front of moving loads. ▶ Do not leave lifted loads unattended. ▶ Make sure there is sufficient free space during transport. ▶ Use caution when lifting and setting down the machine. ▶ Make sure the work area is tidy and clean! Loose components and tools lying on top of each other or around are potential sources of accidents.

Observe the following safety instructions when transporting machine parts:

- The hoist operator must be authorised to do perform this task.
- Only use approved and tested load handling attachments.
- Wear personal protective equipment (protective gloves).
- Secure loose attachments before transport.
- Before lifting the machine parts, all personnel must leave the transport area.
- Ropes or chains must not be damaged and must have the corresponding load capacity.
- Ropes and chains must not be knotted.
- Ropes and chains must not touch sharp edges.
- Only attach ropes or chains to the designated attachment points.
- Do not use the attachment devices of individual machine parts (e.g. transport lugs) to transport other parts.
- Take into consideration the machine's centre of gravity before lifting and select the lifting point so that the machine's centre of gravity is below the lifting point. Attention: risk of tipping over!

Transport instructions

5.2 About the packaging

Packaging/transport boxes

The machine's components are delivered packed in wooden crates suitable for shipment by sea.

Pictograms on the packaging

The transport boxes are marked with symbols and pictograms according to the contents. Always take symbols and pictograms on the crates into consideration.

5.3 Transport with a forklift


packages can be transported using a forklift under the following conditions:

- The forklift must be designed for the weight of the items to be transported.
- The item to be transported must be securely fastened to the pallet.

Personnel:

- Forklift operator
- ➡ Drive the forklift with the fork between or under the beams of the pallet.
- ➡ Move the fork in far enough that it protrudes on the opposite side.
- ➡ Make sure that the pallet cannot tip when the centre of gravity is off-centre.
- ➡ Lift the pallet with the item to be transported and start the transport.

5.4 Transport by crane

	<div style="background-color: orange; color: black; padding: 5px; text-align: center;"> ⚠ WARNING </div> <p>Danger to life due to suspended loads!</p> <p>Danger due to falling parts or uncontrolled, swinging parts.</p> <ul style="list-style-type: none"> ▶ Never walk under suspended loads. ▶ Never attach lifting gear to protruding machine parts or to eyelets on attached components. Make sure that the lifting gear is securely fastened. ▶ Only use approved hoists and lifting gear with sufficient load-bearing capacity. ▶ Transport should only be carried out by trained personnel. ▶ Always take into consideration the machine's centre of gravity due to the risk of tipping over and select the attachment points accordingly.
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Transport instructions

The transport boxes can be transported with a crane under the following conditions:

- the lifting gear must be designed for the weight.
- Minimum load-bearing capacity: 1500 kg.
- The crane operator must be authorised to carry out this work.

Lift transport boxes or machines as follows:

- ➔ Attach the transport boxes or machine.
- ➔ Do not select a stop angle that is too flat.
- ➔ Make sure that ropes and straps, etc. are not twisted and that the transport boxes are securely fastened.
- ➔ Lift the transport boxes and start the transport.

5.5 Packaging disposal

Dispose of the packaging materials according to the local waste disposal regulations. If necessary, engage a disposal company to dispose of the packaging materials.

5.6 Information on interim storage

Observe the following regulations if machine parts must be stored before installation:

- Keep the machine parts in their packaging until assembly.
- Store the machine parts in a dry place, free of dust and protect them from direct sunlight.
- Observe the ambient conditions for the storage area specified in the technical data.
- Do not store the packages outdoors. In addition, make sure that the floor of the storage area is dry during storage.
- Prevent mechanical shocks and damage during storage.
- In case of extended storage, apply preservation measures and check the state of preservation at regular intervals.

i	NOTE
	<ul style="list-style-type: none"> ▶ The manufacturer accepts no liability for damage resulting from improper storage. ▶ Observe the additional information on storage and preservation in the documentation of the purchased parts.

6 Installation and initial commissioning

i	<div data-bbox="284 576 963 642"><i>NOTE</i></div> <div data-bbox="284 642 963 773"><p>The machine components are delivered pre-installed. Observe the necessary steps for assembling the components in the Handling/operation [▶ 47] chapter.</p></div>
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Handling/operation

7 Handling/operation

7.1 Safety Instructions



SAFETY INSTRUCTIONS



Work safely when operating the machine!

Carry out all work in compliance with the safety instructions listed below:

- ▶ Observe the regulations listed in the [Safety](#) [▶ 14] chapter for all work on/with the machine.
- ▶ Wear protective equipment according to the accident prevention regulations at the operating site.
- ▶ Carry out all operating steps according to the information provided in these instructions.
- ▶ Before starting work, make sure that all covers and safety devices are installed and functioning properly.
- ▶ Never disable safety devices during operation.
- ▶ Make sure the work area is tidy and clean! Loose components and tools lying on top of each other or around are potential sources of accidents.

Handling/operation

7.2 Preparing the card/roller card and work area

	 DANGER
	<p>Danger due to unintentional start-up of the card/roller card!</p> <p>In case of unintentional start-up of the card/roller card during the decoiling or mounting process, there are various hazards which may result in serious injuries or even death!</p> <ul style="list-style-type: none"> ▶ Before starting any work, make sure that the card/roller card is completely shut down and secured against unintentional restarting. ▶ Observe the instructions for stopping the card/roller card in the card/roller card instructions.

To prepare the card/roller card for decoiling or mounting:


- ➡ Switch off the card/roller card.
- ➡ Secure the main switch of the card/roller card against unintentional reconnection using a padlock.
- ➡ Make sure there is a minimum illumination of 300 lux.
- ➡ Disassemble the card/roller card until the rollers can be freely accessed for the work to be carried out (refer to the relevant sections of the card/roller card instructions).
- ➡ Set up a safety barrier around the danger zones using yellow/red barrier tape. This should ideally be carried out with railings, if available.
- ➡ Make sure that there are no unauthorised personnel in the danger zone: the operator is responsible for the danger zone and must immediately stop the machines if anyone approaches the danger zone.

Handling/operation

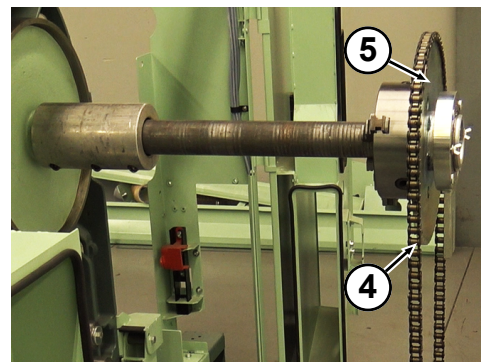
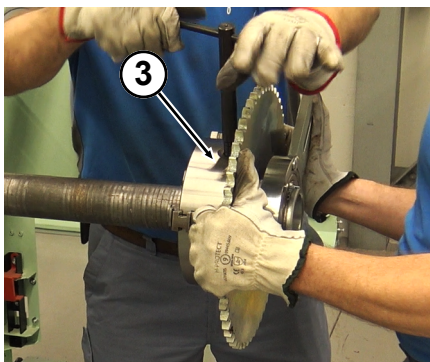
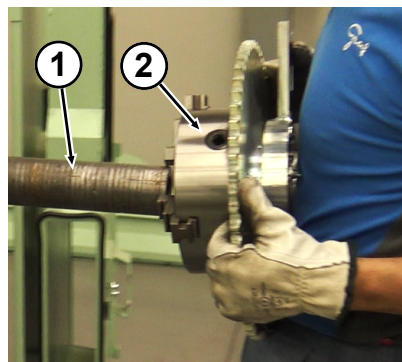
7.3 Assembling/disassembling the MCC mounting drive

Assembling the MCC mounting drive

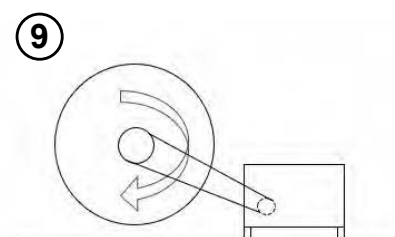
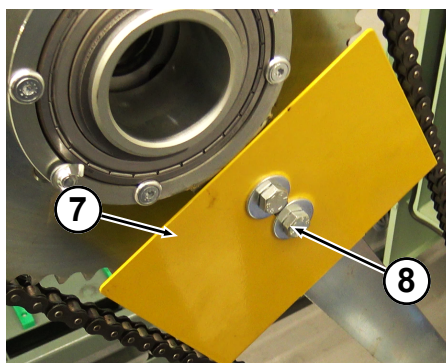
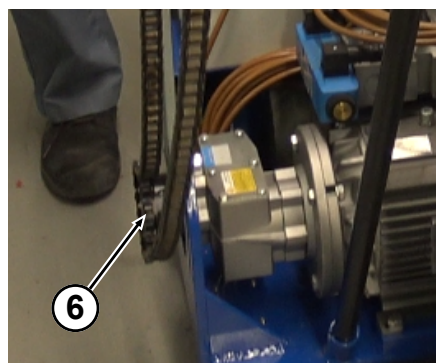
The MCC mounting drive is used in combination with the stripping reel and the mounting device to drive the roller.

	⚠ WARNING
	<p>Risk of injury due to assembly work carried out improperly!</p> <p>There are multiple potential injury hazards when carrying out installation work while the power is connected!</p> <p>► Never perform installation work when the power is connected.</p>

To assemble the MCC mounting drive:




- ➔ If necessary, mount the axle pin extension (1) (not included in the delivery of the MCC) on the card/roller card axle.
- ➔ Place the three-jaw chuck (2) with sprocket on the axle pin extension.
- ➔ Tighten the screws (3) on the three-jaw chuck to mount the three-jaw chuck on the axle pin extension.
- ➔ Place the chain (4) over the sprocket (5) on the axle pin extension.

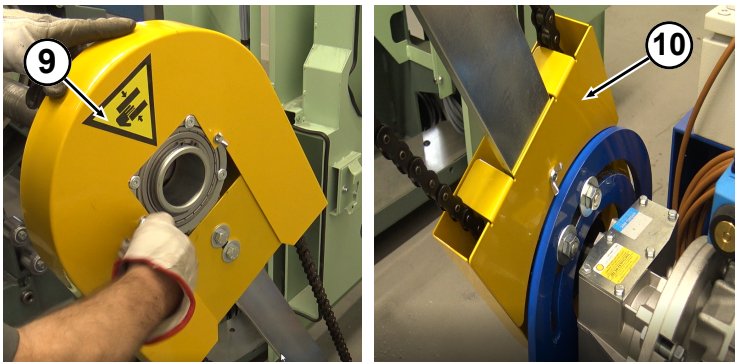


- ➔ Move the MCC mounting drive to the required position:
 - ⇒ Make sure that the braking energy is absorbed by the ground (depending on the direction of rotation of the roller) (9).


Handling/operation

- ⇒ Make sure that the chain and the sprocket on the MCC mounting drive are aligned with each other.
- ➔ Lightly attach the tensioning arm to the MCC mounting drive using two screws.
- ➔ Place the chain over the sprocket (6) on the MCC mounting drive.
- ➔ Place the protective plate (7) over the tensioning arm and the three-jaw chuck.
- ➔ Lightly attach the tensioning arm to the three-jaw chuck using two screws (8).
- ➔ Tension the chain by moving the MCC mounting drive.
 - ⇒ The chain may sag by 2 – 3 cm.
- ➔ Tighten the screws on the MCC mounting drive and on the tensioning arm.
- ➔ Lock the wheels of the MCC mounting drive.

	<p style="text-align: center;">NOTICE</p> <p>Risk of injury on sprockets and rotating parts!</p> <p>If there are no protective plates or if they are insufficiently fastened over the sprockets and rotating parts, there is a danger of being pulled in and of injury.</p> <ul style="list-style-type: none"> ▶ Make sure that the protective plates are properly attached. ▶ Only operate the machine with the protective plates installed.
--	---





- ➔ Place the protective plate (9) over the three-jaw chuck and fasten it with the wing screws.
- ➔ Place the protective plates (10) over the sprocket of the MCC mounting drive (on both sides) and fasten with the wing screws.

	<p style="text-align: center;">⚠ WARNING</p> <p>Risk of falling due to tripping hazards!</p> <p>Cables that are left lying around in a disorderly fashion create tripping hazards.</p> <ul style="list-style-type: none"> ▶ Always route cables in an orderly manner. Make sure that they do not create any tripping hazards.
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Handling/operation


- ➡ Make sure that cables are routed in an orderly manner. Use cable channels if necessary.
- ➡ Establish the power connection.
- ➡ Position the remote control.
- ➡ Make sure that when the control is in your hand or on the rack, no collisions are possible, not even with the wire.
- ⇒ The MCC mounting drive has been assembled

Starting the MCC mounting drive/test run

	<div style="background-color: #f4a460; padding: 5px; text-align: center;">⚠ WARNING</div> <p>Danger of burns from hot variator!</p> <p>The variator heats up to 95°C during operation. There is a risk of burns if it comes into contact with hot surfaces.</p> <ul style="list-style-type: none"> ▶ Do not touch the variator. ▶ Wear heat-resistant protective gloves if necessary. ▶ Before working on the variator, make sure that parts have cooled down.
	<div style="background-color: #d3d3d3; padding: 5px; text-align: center;">NOTE</div> <p>At temperatures < 15°C, we recommend switching on the MCC mounting drive 10 – 20 minutes before use and letting it warm up.</p>

To start the MCC mounting drive, a test run without a wire must first be carried out:

- ➡ Press the "Minus" (-) push button twice.
 - ⇒ The hydraulics are switched on and ensure that the drive can start up smoothly.
- ➡ Press the "Plus" (+) push button at short intervals.
- ➡ Check the direction of rotation:

	<div style="background-color: #0070c0; color: white; padding: 5px; text-align: center;">NOTICE</div> <p>Risk of injury if the direction of rotation is not changed properly!</p> <p>There are various dangers when changing the direction of rotation while the machine is running.</p> <ul style="list-style-type: none"> ▶ Change the direction of rotation only when the MCC mounting drive is stationary.
---	--

⇒ If necessary, change the direction of rotation using the direction of rotation buttons on the MCC mounting drive.

- ➡ Press the "Plus" (+) push button at short intervals until the maximum speed allowed for the roller diameter and machine type is reached. The speed can be measured either by touch or visually using a tachometer.

Handling/operation

- ➔ Check that everything is running smoothly.
- ➔ Press the "Minus" (-) push button at short intervals until the drive is slowed down to a standstill.
- ➔ Check that the roller is completely stationary.
- ⇒ The test run is complete.

Disassembling the MCC mounting drive

After use, disassemble the MCC mounting drive under the following conditions:

- ➔ Disconnect the power supply.
- ➔ Make sure that the machine is switched off and secured against being switched back on.



NOTICE

Danger of tipping over if the disassembly sequence is incorrect!

If the MCC mounting drive is disassembled in the wrong order, there is a risk that it will tip over and cause serious injury.

► Follow the order described below.

- ➔ Disassemble the casings.
- ➔ Loosen the screws on the sprocket of the MCC mounting drive.
- ➔ Lift the chain off the MCC mounting drive sprocket and the shaft sprocket.
- ➔ Completely loosen the screws on the three-jaw chuck.
- ➔ When the MCC mounting drive is vertical, screw the arm back in place.
- ➔ Disassemble the three-jaw chuck and the coupling.
- ➔ Disassemble the tensioning arm from the MCC mounting drive.

Handling/operation

7.4 Removing/decoiling the old clothing

7.4.1 Preparations/conditions

Preparations

When starting work, make sure that

- the card/roller card is shut down and the work area is blocked off (see the [Preparing the card/roller card and work area](#) [► 48] chapter).
- the MCC mounting drive is mounted (see the [Assembling/disassembling the MCC mounting drive](#) [► 49] chapter).

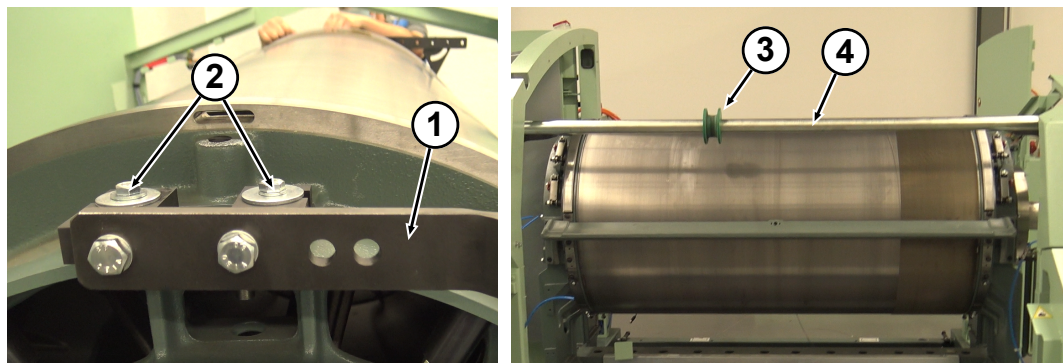
Personal protective equipment

Wear the following personal protective equipment when carrying out any work to remove the clothing:

- Safety goggles
- Safety shoes
- Protective gloves

7.4.2 Assembling the guide tube

To assemble the guide tube to the card:



➡ Mount the brackets (1/right and left) with two screws each (2/component of the card).

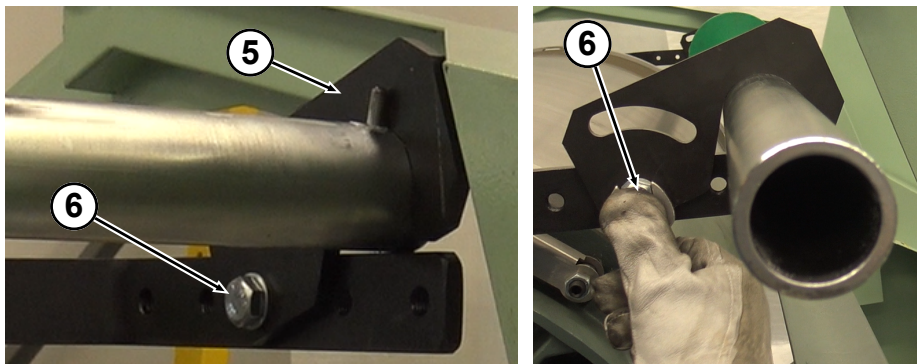


NOTE

Depending on the card/roller card type, there are other fixing positions and attachments for fixing. Take into consideration the information provided in the machine's instructions.

➡ Push the wire redirecting roller (3) onto the guide tube (4).

Handling/operation



- ➔ Place the guide tube on the brackets and close the clamp (5) from above over the guide tube:
 - ⇒ Make sure that the pin from the bearing flange is fixed on one side in the hole of the tube.
 - ⇒ The position of the bearing flanges depends on the card size and can be adjusted by the screw position (6).
- ➔ Tighten the screws (6) of the bearing flanges.
 - ⇒ The guide tube with the decoiling roller is mounted.

7.4.3 Removing the old clothing

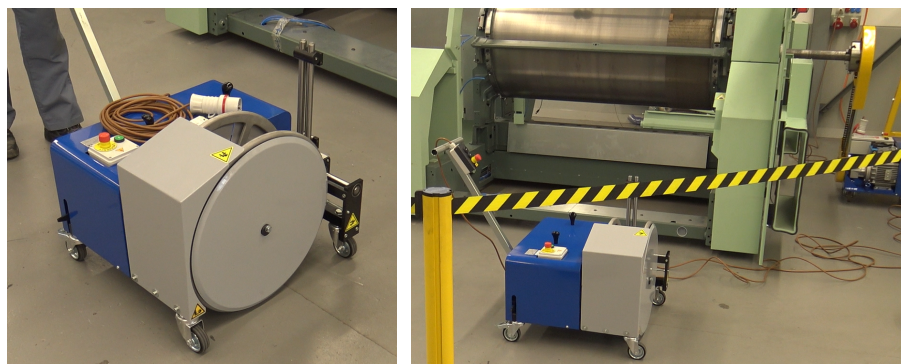
i	NOTE
	If the old clothing was mounted from left to right, open the left side and when starting from the right, open the right side. The clothing is always mounted in the direction of the flat side, i.e. one L-profile to the right, and the mirrored L-profile to the left.

- ➔ Make sure that the MCC mounting drive is correctly attached to the roller and started (see [Assembling/disassembling the MCC mounting drive](#) ► 49).
- ➔ Make sure that the MCC mounting drive is de-energised.
- ➔ Use a sharp, narrow chisel to cut open the clothing at the beginning: make sure that the border wire is not destroyed, but that no loose piece remains at the solder joint, which could injure the operator and damage the machine when turning.

7.4.4 Preparing the stripping reel

i	NOTE
	It may only be uncoiled using the MCC mounting drive on the roller.

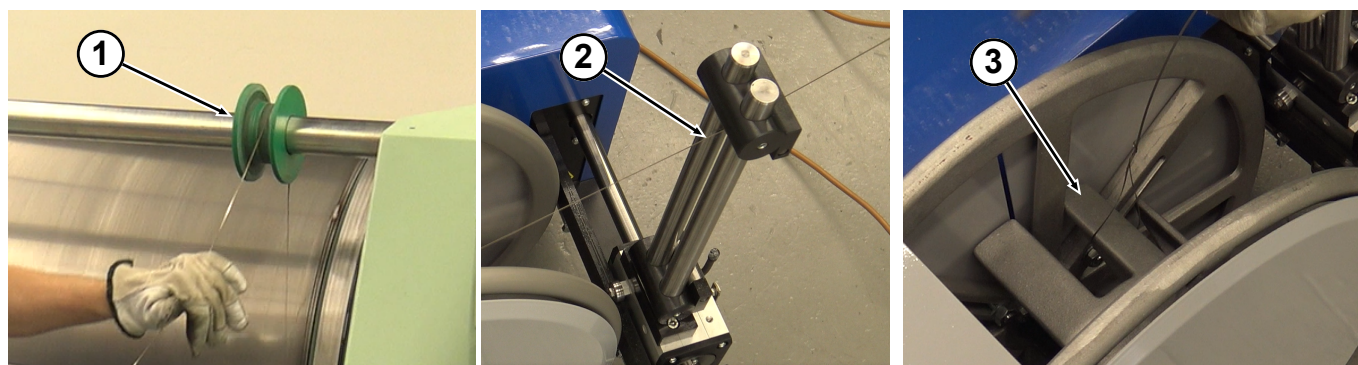
Handling/operation




- ➔ Place the stripping reel in front of the card opposite the beginning of the clothing.
- ➔ Position the remote control on the transport handle of the stripping reel.
- ➔ Connect the stripping reel and the MCC mounting equipment to the power supply.
- ➔ Press the "Start" button and switch on the stripping reel.
- ➔ Check the direction of rotation of the stripping reel:
 - ⇒ Make sure that the reel cross bar rotates anti-clockwise.
- ➔ Switch off the stripping reel again.

7.4.5 Preparing the stripping reel

Guide the wire to the stripping reel



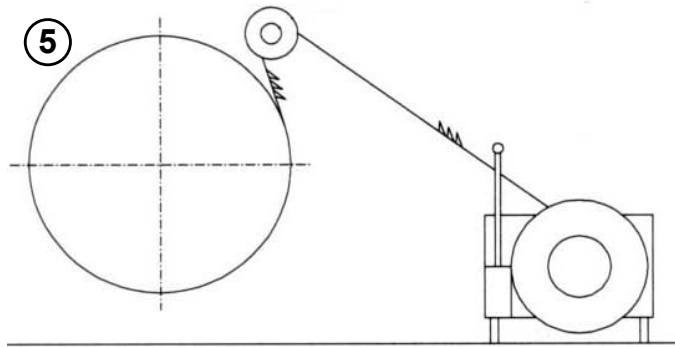
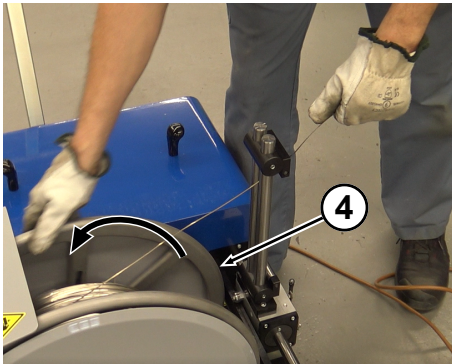
- ➔ Guide the wire over the wire redirecting roller (1) on the guide tube to the stripping reel.
- ➔ Make sure that the wire does not collide with the frame or component, see the infographic (5).

	⚠ WARNING
	<p>Risk of injury due to incorrect wire direction!</p> <p>The incorrect direction of the wire poses a considerable risk of injury.</p> <p>► Make sure that the wire is uncoiled so that the teeth on the wire face against the direction of travel.</p>

- ➔ Guide the wire end through the two guide rods (2).

Handling/operation


- ➔ Fasten the wire end around an aluminium segment (3).



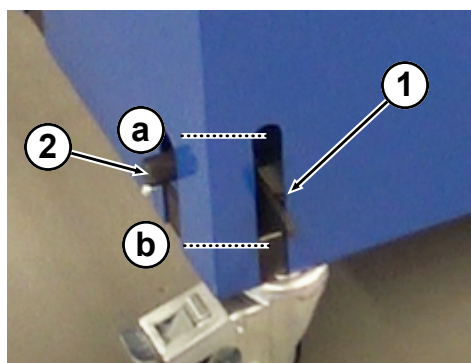
- ➔ Turn the reel cross bar (4) manually until the wire is tensioned.
- ➔ Check the locking rollers for decoiling and loosen if necessary.
- ➔ Make sure that the carriage remains aligned with the position of the redirecting roller and the wire on the roller, so that it is moved slowly along the length of the roller.

Handling/operation

Settings on the stripping reel

	<p style="text-align: center;">NOTICE</p> <p>Risk of material damage if the wire tension is too high and the locking device is inadequate!</p> <p>If the wire tension is too high and/or the locking device is inadequate, there is a risk of the drive overheating or the stripping reel being pulled out of position.</p> <p>► Do not set the wire tension too high and secure the setting: The drive can be started with a very low loop voltage and then slowly increased or adjusted during operation.</p>
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Achieving and securing the correct wire tension by regulating the slip coupling

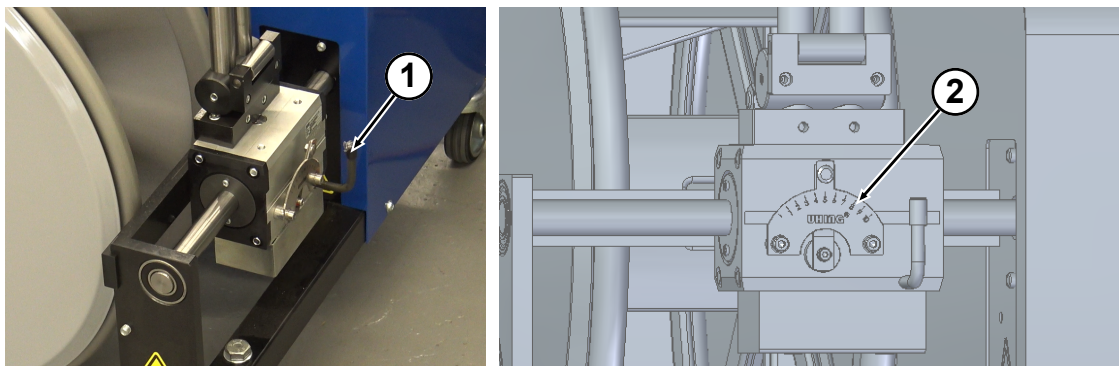


If necessary, the wire tension can be regulated using lever (1):

- Lever in upper position (a):
low wire tension
- Lever in lower position (a):
high wire tension
- Tighten the screw (2) to secure the lever position.

Handling/operation

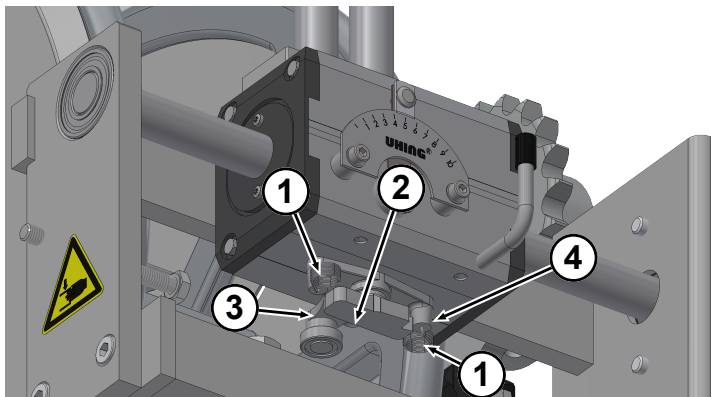
Traversing



If the coiling pattern is not good, the traversing speed of the wire guide can be regulated:

- ➔ Loosen lever (1).
- ➔ Set the required value on the scale (2) (scale 1 – 10).

Replacing the torsion springs




The scope of delivery includes two spare torsion springs (1) for switching the clothing guide.

To change the torsion springs:

- ➔ Ensure that both springs (1) are in a horizontal position.
- ➔ Do not loosen the Allen screw (2). The torsion springs are bent at the ends.
- ➔ Use pliers to lever out the torsion spring on the short side (3) first.
- ➔ Completely disassemble the old torsion springs.
- ➔ Install the new torsion springs, starting with the long side (4).

Handling/operation

7.4.6 Stripping/decoiling

	NOTICE
	<p>Risk of injury when entering and/or reaching into danger zones!</p> <p>The zone between the stripping reel and the card in which the wire to be unwound is guided is considered a danger zone. When entering or reaching into this zone, there is a risk of injury due to the moving wire with sharp edges.</p> <ul style="list-style-type: none"> ▶ During the stripping process, always remain at the transport handle of the stripping reel. ▶ The remote control of the MCC must only be positioned at the transport handle. ▶ Only carry out necessary adjustments when the stripping reel and MCC mounting equipment are switched off.



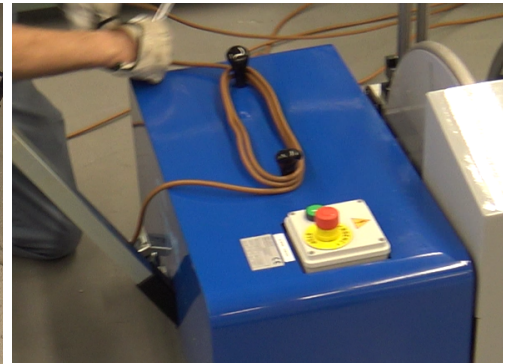
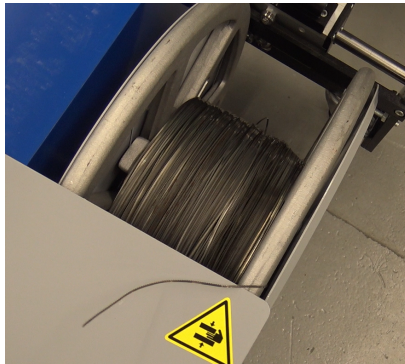
- ➡ Switch on MCC mounting drive and keep it in the neutral position.
- ➡ Press the "Start/Stop" button and switch on the stripping reel.
 - ⇒ The stripping process starts.
 - ⇒ The wire gets traction on the roller from the slip coupling, where the MCC mounting drive counters it.
- ➡ Check whether there is enough or too much pull from the slide coupling and adjust if necessary.
- ➡ When stripping, make sure to constantly monitor the process:
 - ⇒ If necessary, press the "Minus" (-) or "Plus" (+) button and adjust the speed.
 - ⇒ Adjust the position of the stripping reel relative to the redirecting roller by moving the transport handle.
 - ⇒ Listen for noises and initiate remedial measures if necessary.

When the wire is almost completely stripped or the bobbin is filled on the stripping reel (there are approx. 10 turns remaining):

- ➡ Press the "Minus" (-) button on the remote control at short intervals and gradually reduce the speed of the MCC mounting drive until the roller comes to a standstill.
- ➡ Switch off the MCC mounting drive.

Handling/operation

- ➔ Press the "Start/Stop" button and switch off the stripping reel.



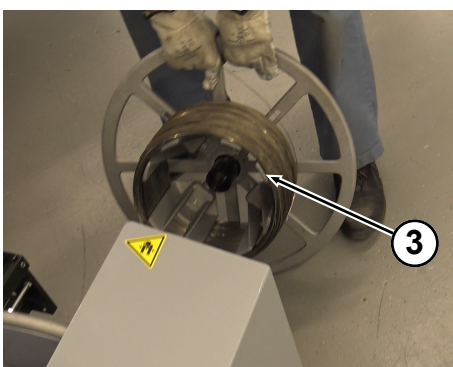
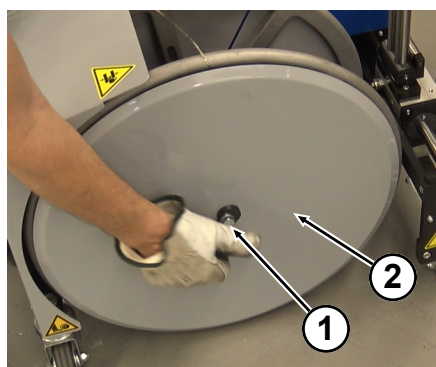
- ➔ Manually guide the wire end over the reel cross bar.
- ➔ Tie the end of the wire to the wire ring in a knot.
- ➔ Disconnect the stripping reel from the power supply. When the drive is no longer needed, supply power to the connection cable.

7.4.7 Removing and disposing of the wire ring

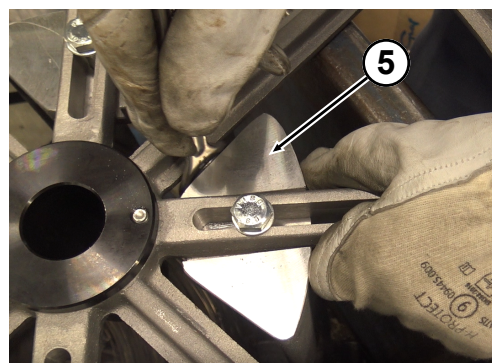
	<p style="text-align: center;">⚠ WARNING</p> <p>Risk of injury when lifting heavy loads!</p> <p>A complete wire ring can weigh up to 60 kg. There is a considerable risk of injury if such heavy components are not lifted properly.</p> <ul style="list-style-type: none"> ▶ Depending on the weight of the wire ring, take appropriate measures as necessary. For example, only lift the wire ring in groups of two or use suitable lifting devices. ▶ The stripping process can be stopped when the unit has only been partially filled and then emptied. Then continue the decoiling process as described.
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Handling/operation

To remove the wire ring:

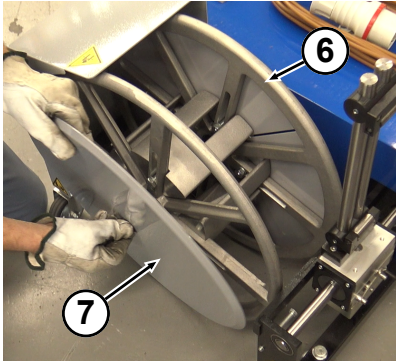


- ➔ Open the fastener (1) on the protective plate (2).
- ➔ Remove the protective plate.
- ➔ Remove the reel cross bar with the wire ring (3) to the side from the axle.
- ➔ Attach the reel cross bar with wire ring to a suitable collection container.



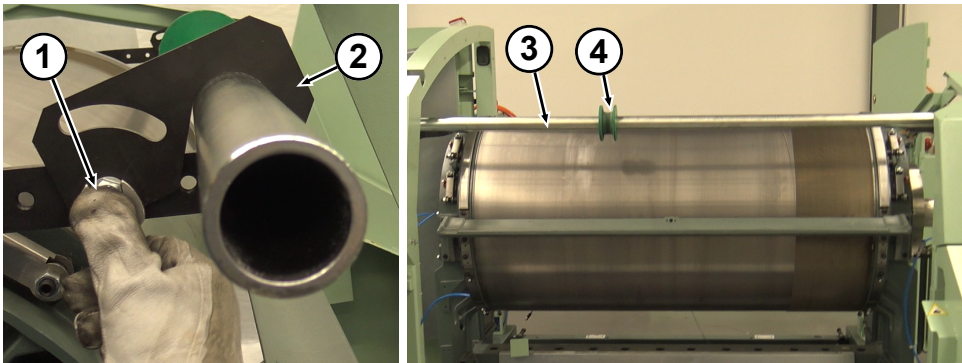
- ➔ Loosen the screws (4) on the aluminium segments (5) and push the aluminium segments slightly inwards.
 - ⇒ The wire ring falls into the collection container.
- ➔ Position the aluminium segments (5) again at the same height on the reel cross bar and tighten:
 - ⇒ If necessary, use a tool such as a measuring stick or a spacer to position the aluminium segments evenly.

Handling/operation



- ➔ Put the reel cross bar (6) back on the axle of the stripping reel:
 - ⇒ Make sure that the reel cross bar (6) is inserted as far as it will go.
- ➔ Put the protective plate (7) back on.
- ➔ Close the fastener on the protective plate.
- ➔ Dispose of the wire ring in an environmentally friendly manner.

7.4.8 Disassembling the guide tube



After completing the decoiling process, the guide tube must be disassembled again:

- ➔ Loosen the screws (1) on the bearing flange (2) of the brackets.
- ➔ Open the bearing flange.
- ➔ Lift off the guide tube (3).
- ➔ Pull the wire redirecting roller (4) off the guide tube.

Handling/operation

7.5 Mounting new clothing

7.5.1 Preparations/conditions

Preparations

When starting work, make sure that

- the card/roller card is shut down and the work area is blocked off (see the [Preparing the card/roller card and work area \[► 48\]](#) chapter).
- the MCC mounting drive is mounted (see the [Assembling/disassembling the MCC mounting drive \[► 49\]](#) chapter).


Personal protective equipment

Wear the following personal protective equipment when carrying out any work to mount the clothing:

- Safety goggles
- Safety shoes
- Protective gloves

7.5.2 Checking the concentricity/removing remaining stock

Checking concentricity

	<div data-bbox="545 1297 699 1343">NOTICE</div> <p>Insufficient results with roller bodies that are non-circular or skewed!</p> <p>Major defects in the roller bodies will be transferred to the clothing and accumulate over the roller width.</p> <ul style="list-style-type: none"> ► Make sure that the tolerances defined by the machine manufacturer are observed. ► If they are not observed, carry out maintenance on the roller before mounting. Follow the manufacturer's instructions for the machine.
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Handling/operation

Removing remaining stock

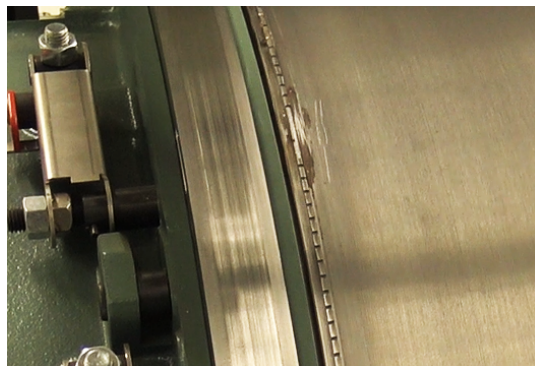


NOTICE

Inadequate results with remaining solder from old clothing on roller bodies!

Remaining old solder on the roller bodies and the border wire will be transferred to the clothing and accumulate over the roller width.

- ▶ Make sure that remaining stock and dirt are completely removed from the roller bodies and the border wire.



To remove remaining stocks of old clothing:

- ➔ Check the roller bodies for remaining stock.
- ➔ Pay particular attention to solder joints on the border wire.
- ➔ If necessary, remove remaining stocks using a file.
- ➔ Clean the roller bodies and the border wire using the brush so that no particles get under the wire.

7.5.3 Checking the border wire

Before each mounting procedure, the roller's border wire must be checked and, if necessary, repaired or replaced.



NOTICE

Material damage in case the work is carried out incorrectly!

If the work is carried out incorrectly, there is a risk of damaging the border wire or the roller.

- ▶ Proceed with caution. Make sure that the border wire and/or roller are not damaged.

Handling/operation

If necessary:

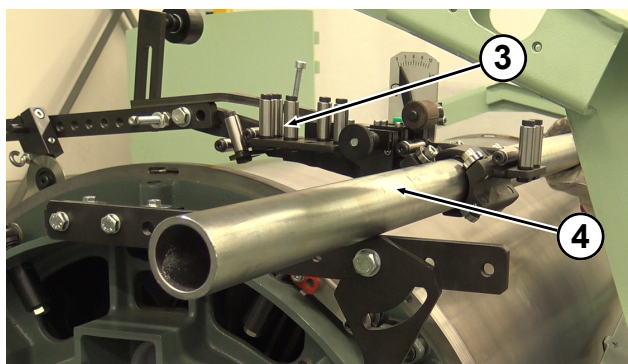
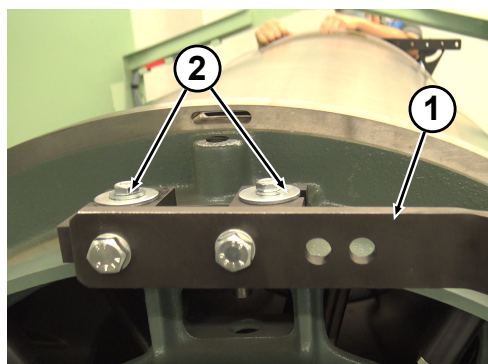
- ➔ Remove the inserted border wire using pliers.
- ➔ Check the recessed groove and clean it if necessary.
- ➔ If necessary, re-punch the recessed groove.
- ➔ Drive in the border wire using a hammer.

7.5.4 Mounting the mounting device

Assembling the mounting device on the guide tube

The clothing is always mounted in the direction of the flat side, i.e. one L-profile to the right, and the mirrored L-profile to the left. The mounting arm must be prepared for this before it is lifted into the machine with the guide bar.

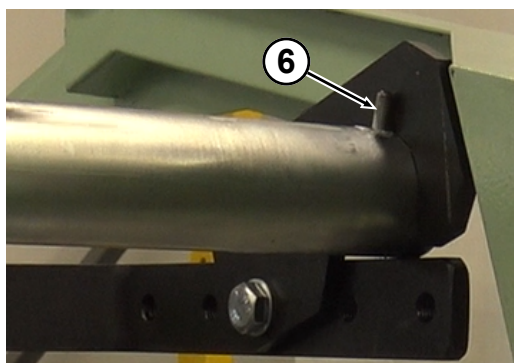
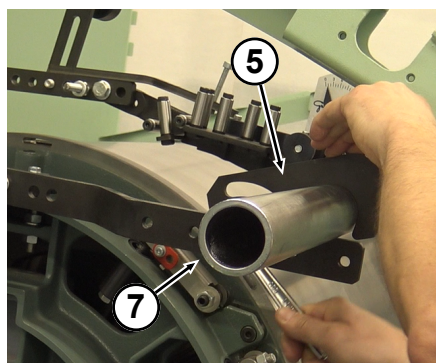
To mount the mounting device:



- ➔ Mount the brackets (1/right and left) with two screws each (2/component of the card).

<div style="font-size: 2em; font-weight: bold; margin-bottom: 5px;">i</div>	NOTE
	Depending on the card/roller card type, there are other fixing positions and attachments for fixing. Take into consideration the information provided in the machine's instructions.

- ➔ Push the mounting arm (3) with the tube mount onto the guide tube (4).

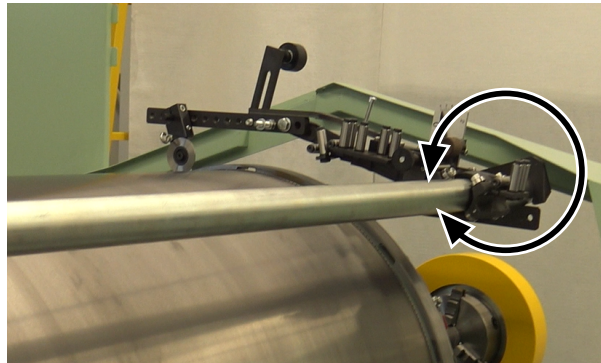
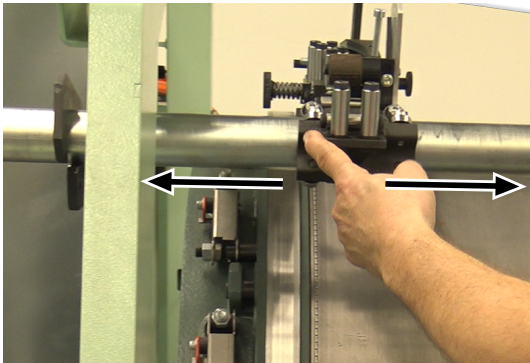


- ➔ Place the guide tube on the brackets and close the bearing flange (5) from above over the guide tube:

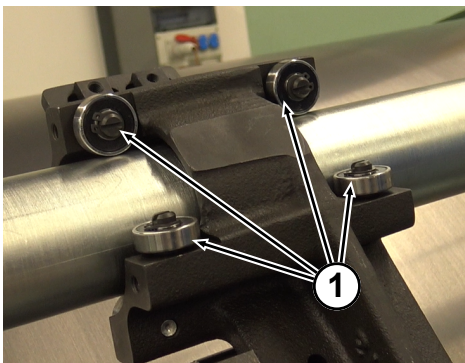
Handling/operation

- ⇒ The position of the bearing flange depends on the card size.
- ⇒ Make sure that the bearing flange is located between the two locking pins (6).
- ⇒ Make sure that the guide tube is horizontal and parallel to the roller (use a spirit level or measuring tool).
- ⇒ Tighten the screws (7).
- ⇒ The guide tube with the decoiling roller is mounted.

Checking the ease of movement



- ⇒ Make sure that the mounting arm can move freely over the guide tube to the left and right.
- ⇒ Make sure that the mounting arm can rotate freely around the guide tube.

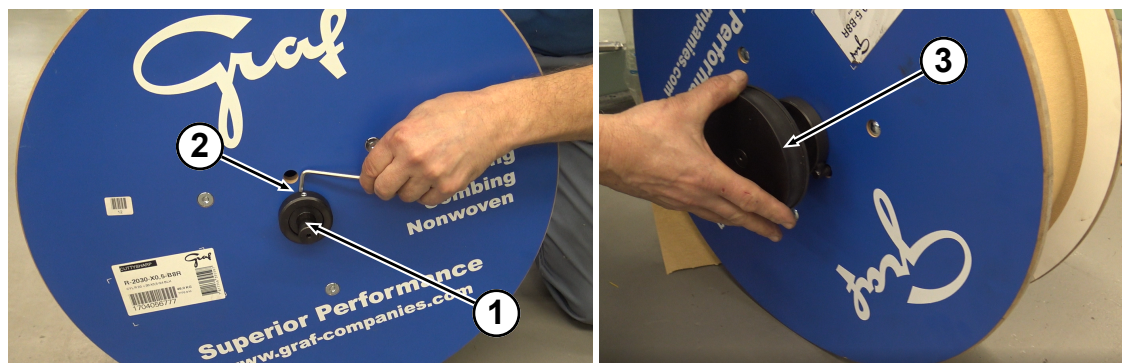


- ⇒ If necessary, adjust the play using the four screws (1):
The smaller the clearance between the bearing and the tube, the better. There must, however, never be an increase in force.
- ⇒ Make sure that there is adequate space to the card, so that the mounting arm can run all the way out and no collisions can occur.


Handling/operation

7.5.5 Preparing the coil and clothing

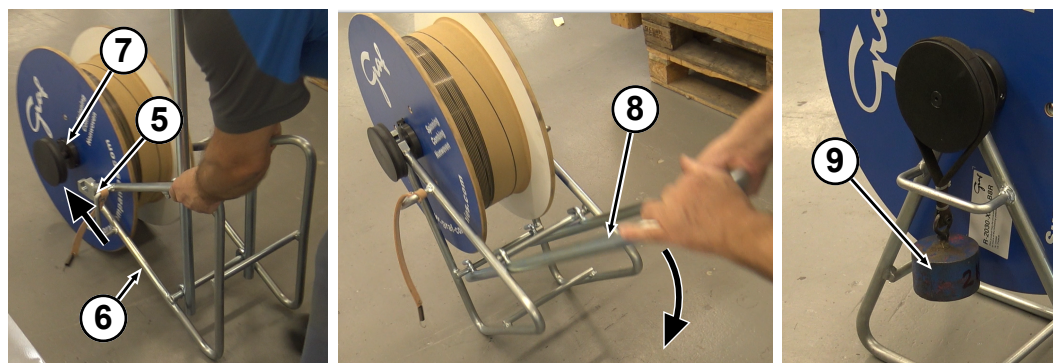
To prepare the coil and clothing for the mounting process:



- ➔ Push the shaft (1) through the hole of the clothing coil and fix the adjusting ring using the screw (2).

<div data-bbox="180 1024 237 1122" data-label="Image">  </div>	NOTE
	<p>The wire must be decoiled from above. If the optional coil diversion/wire tension relief unit is installed, the coil must be turned in the wrong direction so that the wire comes off the top and passes over the integrated diversion, see the Assembling the coil diversion/wire tension relief (optional) [68] chapter.</p>

- ➔ Attach the brake wheel (3) and tighten it.



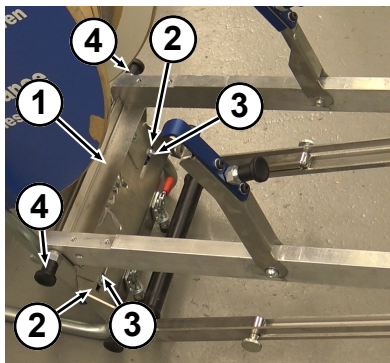
- ➔ Move the coil stand (6) with the holder (5) up to the shaft ends (7) and attach it.
- ➔ Use the tilting handle (8) to set up the coil stand with the clothing coil on it.
- ➔ Remove the tilting handle.
- ➔ Attach weight (9) to brake wheel for braking the coil.

Handling/operation

7.5.6 Assembling the coil diversion/wire tension relief (optional)

Assembling the fixing plate on the coil stand

To assemble the coil diversion on the coil stand, the fixing plate must be assembled on the coil stand once:



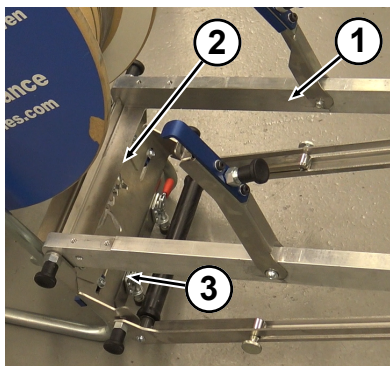
- Attach the fixing plate (1) to the rear of the cross strut so that the opening of the shaft bracket points in the direction of the cross strut.
- Attach the clamping pieces (2) and tighten them with the screws (3).
- Pull out the locking bolts (4) on the fixing plate. The position of the bolts can be fixed by turning them.



NOTE

The fixing plate can remain mounted on the coil stand even if the coil diversion is not used.

Assembling the coil diversion



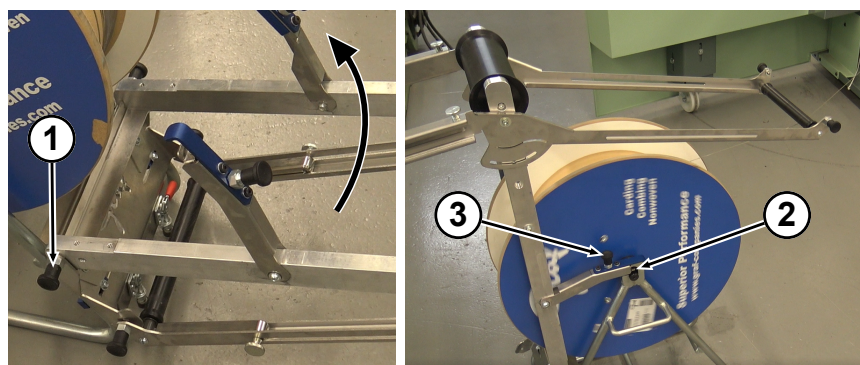
To assemble the coil diversion on the coil stand:

- ➡ Attach the coil diversion (1) to the fixing plate (2).
- ➡ Fix the coil diversion with the locking bolts (3).

Handling/operation

Tilting function of the coil diversion

The coil diversion can perform the tilting function of the tilting handle:



- ➔ Pull out the locking bolt (1) on the coil diversion.
- ➔ Open the coil diversion.
- ➔ Pull out the locking bolt from the lock (2).
- ➔ Fasten the coil diversion to the coil stand using the lock (3).
- ➔ Hook the lock onto the diversion and secure it with the locking bolts.
- ➔ Check that the locking bolt is engaged on both sides.

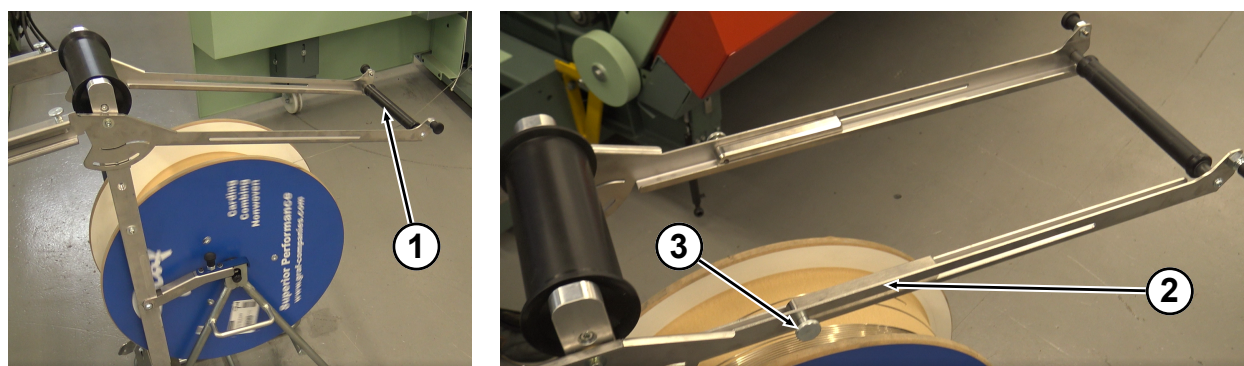
Coil diversion as wire tension relief unit

The coil diversion should only be used with the 90° diversion. When used together, it ensures very safe and ergonomic operation.

The wire tension relief unit eliminates winding unevenness at high speeds or with very thin wires by compensating for the stroke path and further improves the winding pattern on the roller.

When starting the unit, it is normal that the stroke is long and the wire with the lifting roller is almost on the ground until it has settled. The finer and softer the start and stop, the fewer lifting movements there will be. The weight should be selected so that the wire always hangs slightly downwards with the roller and never lifts off.

In addition, the higher position of the wire helps to eliminate collision problems on the machine. If the height is not sufficient, the lifting arm can also be fixed to increase the height and therefore avoid collisions.



To use the coil diversion as a wire tension relief device

- ➔ Place the redirecting roller (1) over the wire.
- ➔ Use weights (2) for adjusting it.

Handling/operation

- ➔ Tighten the screws (3) on the weights.

7.5.7 Assembling the 90° diversion

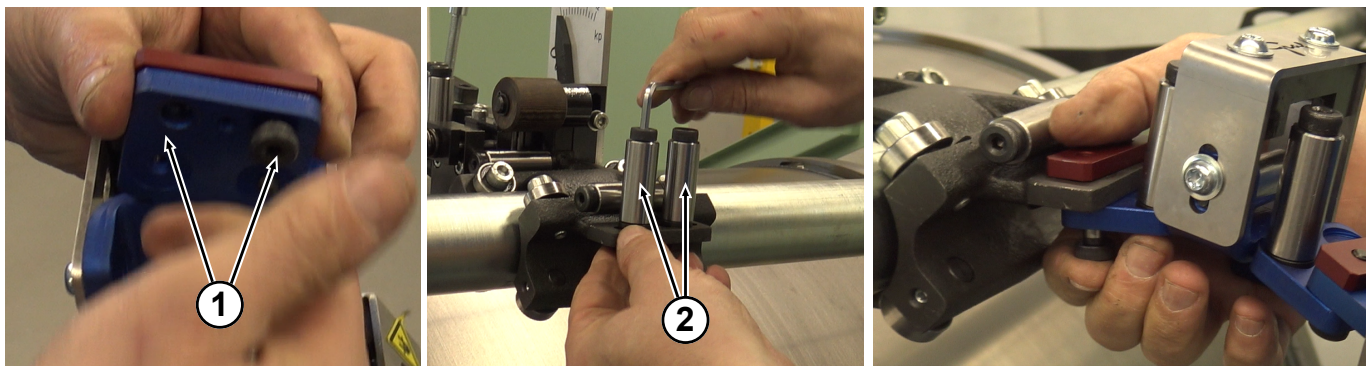
The 90° diversion is used when the wire is drawn up sideways. The diversion must be used with C80 cards. It can, however, also be used with other cards.

For roller cards with limited space between the rollers, we recommend installing the coil outside the machine so that it does not have to be moved along with the card.

The diversion is pre-assembled in a standard position. It can, however, be changed by assembling and turning the individual parts in different ways for all entry angles and slanted angles.

Assembling the diversion on the mounting arm

To assemble the diversion on the mounting arm:



- ➔ Loosen and remove the pre-assembled screws (1) on the diversion.
- ➔ Loosen and remove the two front dressing rollers (2) on the mounting arm.
- ➔ Fix the diversion with two dressing rollers to the holes on the mounting arm.

Assembling the wire positioning devices



NOTICE

Risk of injury if there are no wire positioning devices!

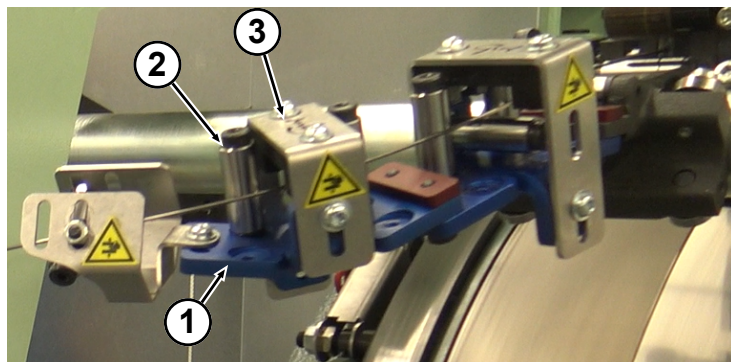
If there are no wire positioning devices installed, there is a risk of the wire breaking out of the diversion during the mounting process. An uncontrolled wire can cause serious injuries.

- Make sure that all wire positioning devices are properly fitted.

Handling/operation

Correcting the entry angle

The individual plates of the diversion can be mounted individually, which allows the entry angle to be corrected:

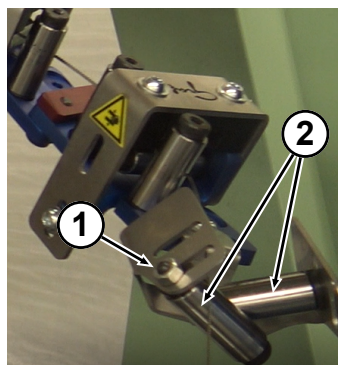


- ➔ Loosen and remove the fitting screws of the required plate (e.g. 1).
- ➔ Arrange the dressing roller (e.g. 2) and the wire positioning device (e.g. 3) as required.
- ➔ Tighten the plate using the fitting screws.
- ➔ Tighten the wire positioning devices.

Setting the X-entry

The X entry is used to guide the wire and reduce vibrations.

To adjust the X-entry

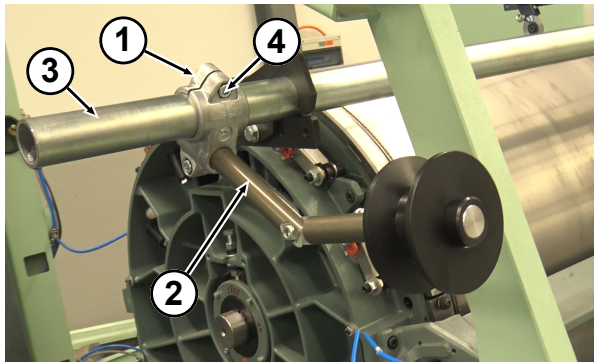


- ➔ loosen the nuts (1) of the dressing rollers (2) to be adjusted.
- ➔ Adjust the dressing rollers so that the wire rests on both dressing rollers.
- ➔ Make sure that the wire also rests on the first horizontal dressing roller of the following segment.
- ➔ Tighten the nuts of the adjusted dressing rollers again.

Handling/operation

7.5.8 Assembling the wire redirecting roller

To assemble the wire redirecting roller:



- ➔ Push the tube mount (1) of the wire redirecting roller (2) onto the guide tube (3).
- ➔ Move the redirecting roller to the required position.
- ➔ Tighten the screw (4).


7.5.9 Checking and changing the brake plates

Selecting the brake plates

The selection of the brake plates depends on the clothing to be mounted.

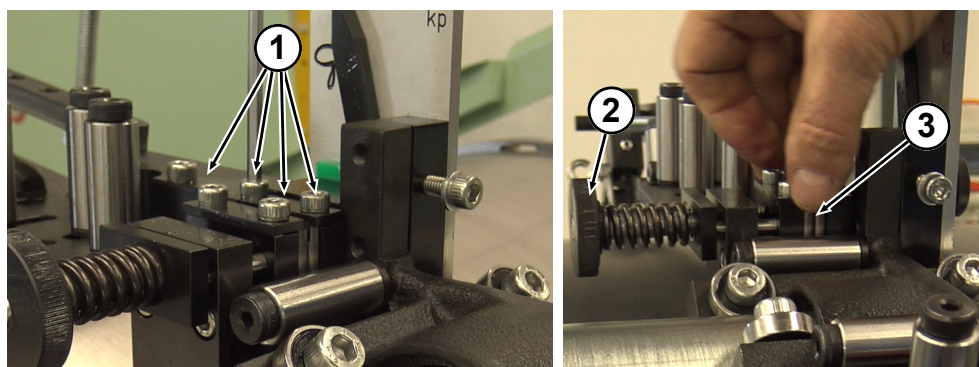
A distinction is made between standard clothing and interlinked clothing. Both variants of the brake plates are available in carbide or ceramic.

Checking and changing the brake plates

	NOTICE
	<p>Clothing damage due to damaged or incorrectly mounted brake plates!</p> <p>If the brake plates are incorrectly installed or heavily worn, they will damage the clothing.</p> <ul style="list-style-type: none"> ▶ Check the brake plates for wear before each mounting process. ▶ If necessary, replace the brake plates. ▶ Make sure that the brake plates are installed correctly. ▶ Remove any abrasion from the previous clothing units from the brake plates and the surrounding area.

Handling/operation

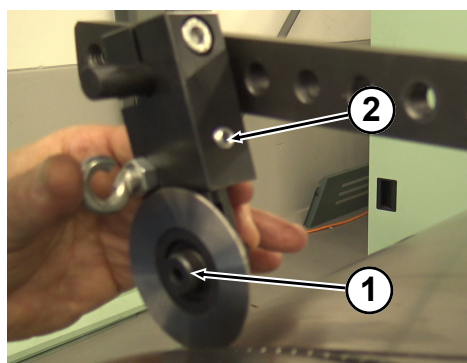
To check the brake plates and change them if necessary:



- ➔ Loosen and remove four hexagon socket screws (1).
- ➔ Loosen the brake screw (2).
- ➔ Remove the old brake plates (3) from the brake plate holder.
- ➔ Clean the brake plate holder and brake plate.
- ➔ Insert the old brake plates or, if necessary, new ones into the brake plate holder.
 - ⇒ Make sure that the brake plates are in the correct position.
 - ⇒ Make sure that the foot of the wire can run in the groove of the brake plate.
- ➔ Lightly screw in four Allen screws.
- ➔ Tighten the brake screw to move the brake plates together.
- ➔ Check that the brake plates are parallel.
- ➔ Tighten the four Allen screws.
- ➔ Using a piece of wire and a spring balance, calibrate the brake force indicator scale and note which number produces the correct brake force for that wire. The scale is not an absolute scale and must be calibrated with the spring balance before each coiling procedure.

7.5.10 Changing the press-on roller

If necessary, the press-on roller must be changed:



- ➔ Loosen and remove the fitting shoulder screw (2).
- ➔ Remove the old press-on roller (1).
- ➔ Insert the new press-on roller and tighten it with the hexagon socket screw.

Handling/operation

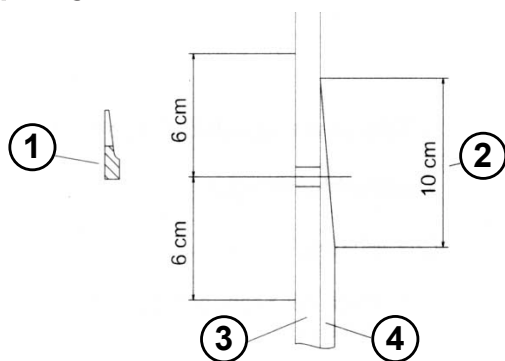
7.5.11 Soldering on wire

Requirement

Make sure that

- the roller is clean and has no remaining stock, remove any remaining stock if necessary (see the [Checking the concentricity/removing remaining stock \[▶ 63\]](#) chapter).
- the border wire is not damaged (see the [Checking the border wire \[▶ 64\]](#) chapter)
- the new wire has no rust or damage.
- the new wire corresponds to the correct type (see marking on the coil).

Preparing the wire and border wire



Item	Component/part
1	Cross-section example for no. 4 clothing wire
2	Soldering area (10 cm)
3	Border wire
4	Clothing



Prepare the wire as follows before soldering:

- ➔ Cut off the end of the wire using wire cutters.
- ➔ File the opposite side (1) of the wire foot so that about 10 cm of the wire is bare and do not touch it with your fingers. The surface must be free of grease and oxide so that the solder bonds well.
- ➔ File the opposite side in a conical shape over a length of about 10 cm (2), so that there are few transitional impacts. This creates a poor mounting pattern.
- ➔ Sand the sanding points using fine-grained sandpaper.
- ➔ File the border wire joint (3) about 6 cm on both sides of the joint (beginning and end of the border wire).

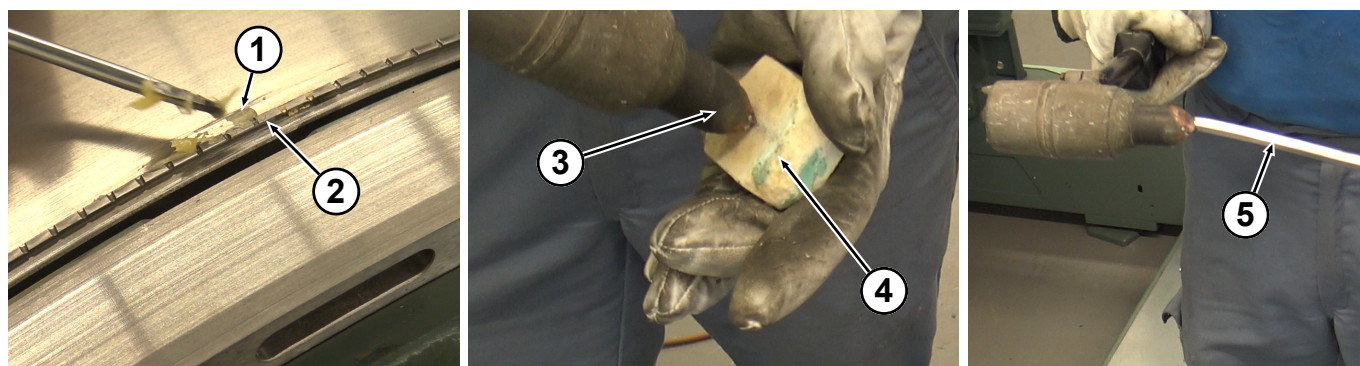
i	NOTE
	Do not touch the ground wire with your bare hands. Grease transferred from your hands makes the soldering process impossible.

Handling/operation

Soldering on wire

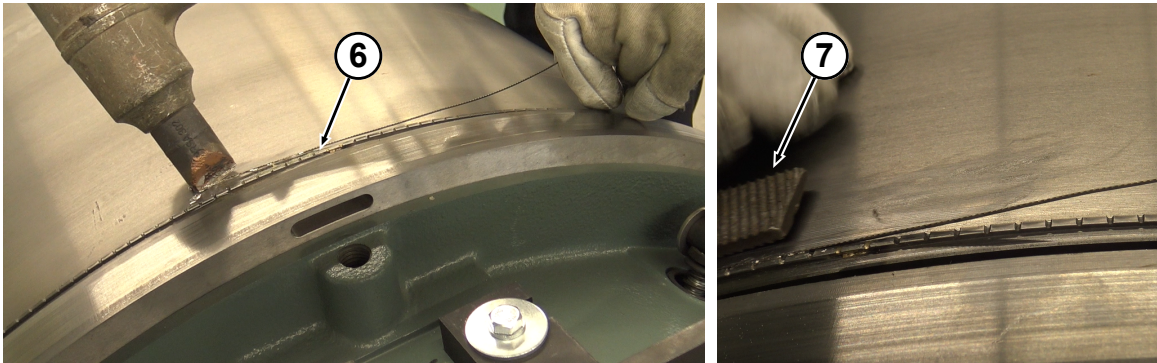
	<p style="text-align: center;">⚠ WARNING</p> <p>Danger of burns from hot soldering iron and hot parts and materials!</p> <p>The soldering iron and materials, such as the wire and solder joints, become very hot during the soldering process. Contact with hot tools, components and materials can result in burns.</p> <ul style="list-style-type: none"> ▶ Do not touch hot surfaces. ▶ Wear heat-resistant protective gloves.
	<p style="text-align: center;">⚠ WARNING</p> <p>Danger due to toxic fumes!</p> <p>When using the ammonia stone, toxic fumes are produced!</p> <ul style="list-style-type: none"> ▶ Do not inhale fumes directly. ▶ Make sure there is sufficient ventilation.

To solder the prepared wire to the border wire of the roller:



- ➡ Use a tool to apply soldering grease (1) along the border wire (2).
- ➡ Connect the soldering iron (3) to the power supply and let the soldering iron heat up.
The heating process takes a few minutes until the solid soldering head is hot enough and can release enough heat.
- ➡ If necessary, clean the soldering iron tip using an ammonia stone (4).
- ➡ Melt the soldering tin (5) with a soldering iron and apply it to the soldering head.
- ➡ Apply soldering tin to the wire using a soldering iron.
Depending on the situation, the solder can be applied to the head and the solder joint several times.

Handling/operation



- ➔ Solder the wire (6) to about 10 cm above the joint of the border wire:
 - ⇒ Make sure that the wire between the solder joint and the coil is not twisted.
 - ⇒ Make sure that the wire is positioned upright on the border wire.
 - ⇒ Check whether the wire is soldered on securely enough. If not, carry out the soldering again.
- ➔ File off excess and protruding solder joints using a file (7).
- ➔ Check whether the wire is soldered on securely enough. If not, carry out the soldering again.
- ⇒ The wire has been soldered on.

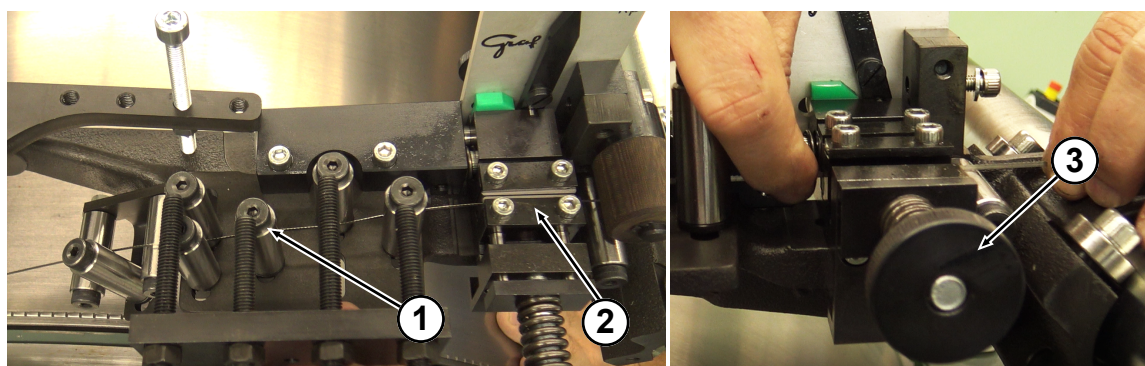
i	NOTE
	We recommend soft soldering (with soldering tin) for standard clothing pieces and in grooves, and hard soldering (with silver solder) for interlinked clothing.

Handling/operation

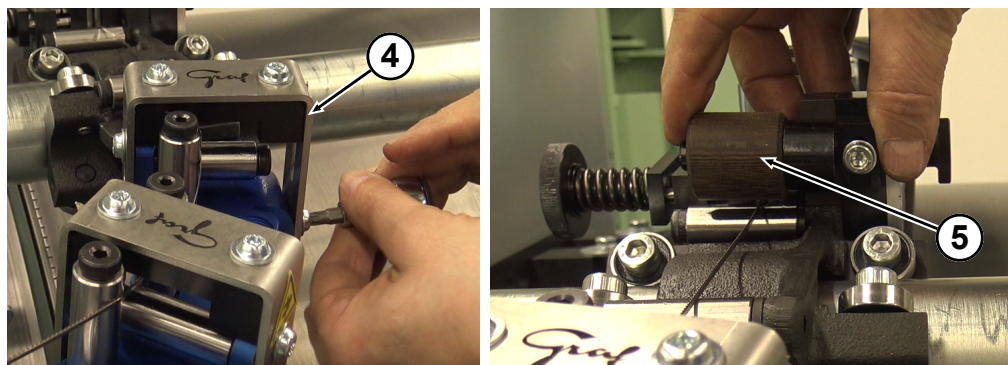
7.5.12 Guiding the wire through the mounting arm

After soldering, guide the wire through the mounting arm as follows:

- ➔ Make sure that the mounting arm with the winding roller is in the front position (slightly after the solder joint) on the border wire.

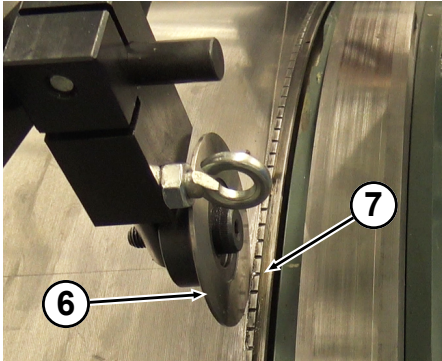


- ➔ Place the wire between the dressing rollers (1).
- ➔ Place the wire between the brake plates (2).
- ➔ Slightly tighten the brake screw (3).



- ➔ If necessary, guide the wire through the 90° diversion (if installed) and mount the wire positioning devices (4). The wire can also be fed through the 90° diversion with the wire positioning devices before soldering.
- ➔ Optionally, assemble the safety roller (5) on the brake unit so that the wire cannot jump out of the brake.

Handling/operation



- ➔ Place the wire between the press-on roller (6) and the border wire (7).
- ➔ Switch on the MCC mounting drive.
- ➔ Press the "Plus" (+) button until the roller slowly rotates and tensions the wire to the brake. If the wire slips too easily in the brake, the braking force must be increased.
- ➔ Press the "Minus" (-) button until the roller stops.
- ➔ Make sure that the wire has been drawn up on the roller at a width of 4 – 5 cm.
- ➔ Stop the roller.
- ➔ Use the lead plate to secure the clothing at the point of contact by tapping on it.
- ➔ Switch off the MCC mounting drive.

7.5.13 Establishing the lateral contact pressure

To ensure that the clothing is properly mounted, it must be pressed against the previous winding by applying pressure from the side.

The press-on installation can be carried out before soldering or after the first windings have been mounted. If the installation is carried out in advance, it is not necessary to switch off the MCC mounting drive and fix it with lead.



NOTICE

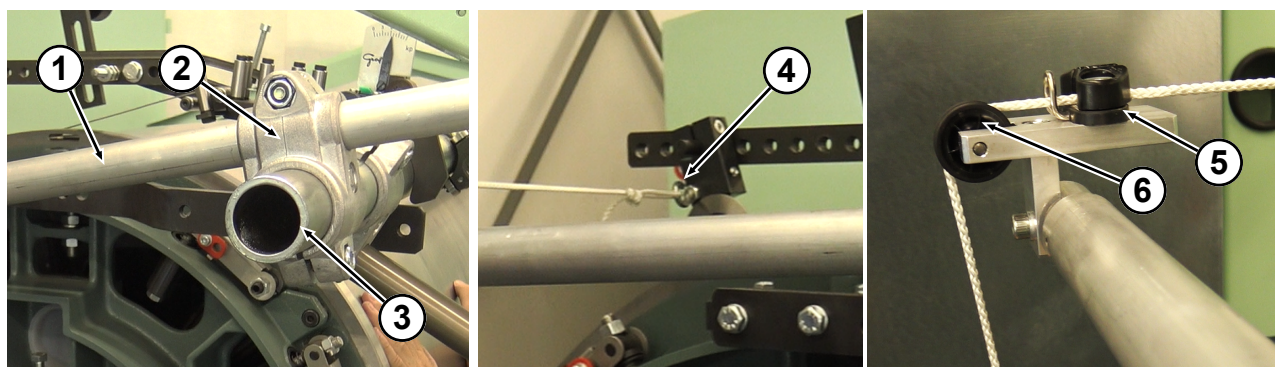
Insufficient quality in case of incorrect contact pressure!

If the contact pressure is not selected correctly or is not carried out correctly, it is not possible to achieve sufficient quality when mounting. If the contact pressure is too low, the wires will not touch each other evenly. If the contact pressure is too high, the wire can jump onto the previous section.

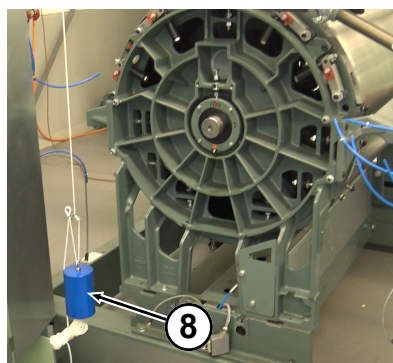
- Make sure that the contact pressure is correctly selected and established.

Handling/operation

To generate the lateral contact pressure:



- ➔ Push the rope arm tensioner (1) with the tube mount (2) over the guide tube (3).
- ➔ Align and tighten the rope arm tensioner.
- ➔ Attach the rope to the hook (4) on the mounting arm using the loop.
- ➔ Guide the rope through the sheet clamp (5) and over the redirecting roller (6) of the rope arm.



- ➔ Attach the weight (8).
 - ⇒ Make sure that the weight does not touch the ground.
 - ⇒ Make sure that no collisions can occur in the upper area with the weight when the mounting arm arrives at the other end of the roller.
 - ⇒ Make sure that the rope and rope arm tensioner, etc. form right angles.

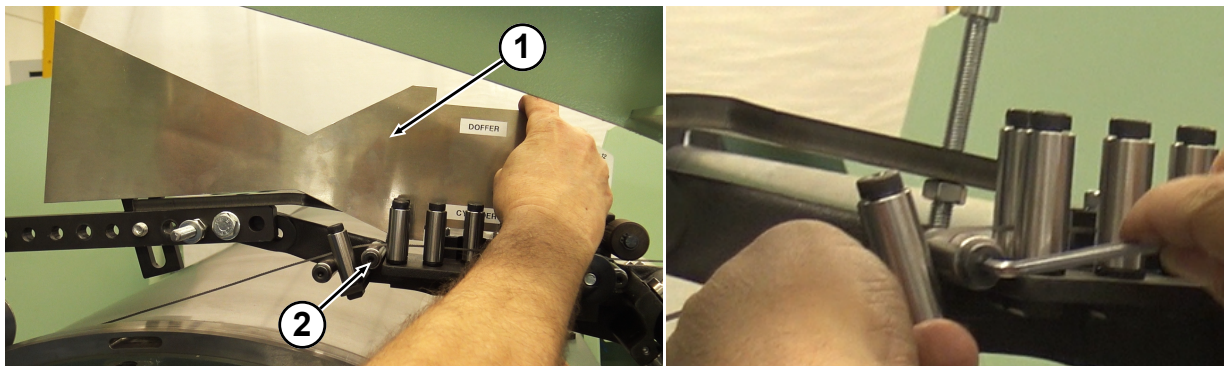


NOTE

We recommend a contact pressure of approx. 6 kg for standard clothing.
We recommend a contact pressure of approx. 10 kg for roller cards and coarse interlinked clothing.

Handling/operation

7.5.14 Adjusting/aligning the mounting arm



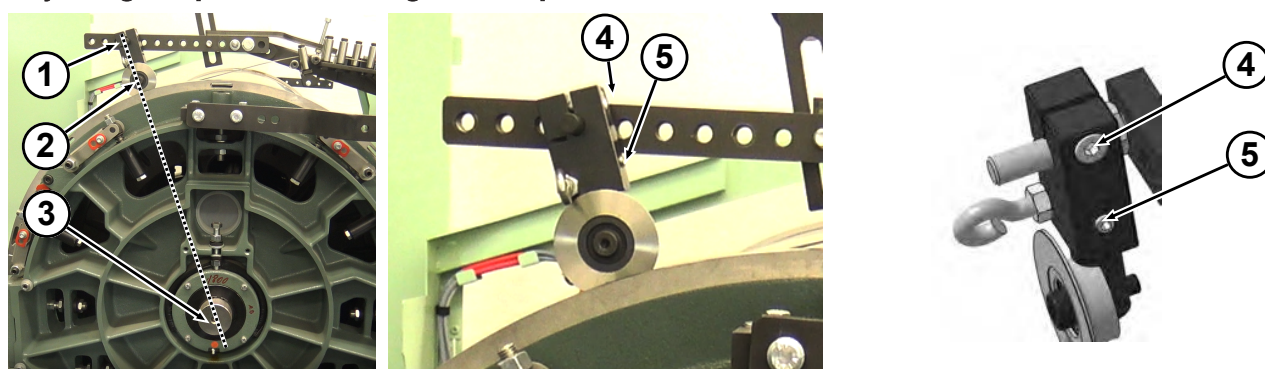
To adjust the pre-bending angle:

- ➔ Attach the angle setting tool (1).
Note which side of the gauge is used for which card type.
- ➔ Check the parallelism in front of the adjustment tool to the mounting arm.
- ➔ If necessary, loosen the screw on the redirecting roller (2) and position the redirecting roller.
- ➔ Tighten the screw again.

	NOTE
i	To check, a wire wrap/rope can be placed loosely on the ground and aligned with the circumference of the roller body.

Handling/operation

Adjusting the position and angle of the press-on roller



To adjust the position of the press-on roller

- ➔ Make sure that the bolt (1) of the press-on roller holder, the press-on roller (2) and the middle of the roller (3) are in line.
- ➔ If necessary, loosen the screw (4) and adjust the position of the press-on roller so that a straight line is formed.


To adjust the running angle of the press-on roller to the clothing infeed from the dressing rollers:

- ➔ Loosen the set screw (5) on the roller mount.
- ➔ Adjust the angle of the press-on roller to the clothing infeed from the dressing roller by turning it.
- ➔ Make sure that the press-on roller runs parallel to the previously set wire.
- ➔ Tighten the screw again.

Adjusting the pre-bend of the mounting arm to the roller

The pre-bending roller sets the angle of the wire, next to the main angle in the mounting arm. If the main angle is too small, the mounting arm can be lengthened or shortened. If this is not enough, the guide tube must be moved to a different position and the angle of the mounting arm can be adjusted. Slight adjustments can be made with the pre-bending roller on the mounting arm. Try to achieve as little pre-bending as possible. The pre-bending of the wire depends on the roller diameter:

- Large diameter, slight pre-bending
- Smaller diameter, more pre-bending

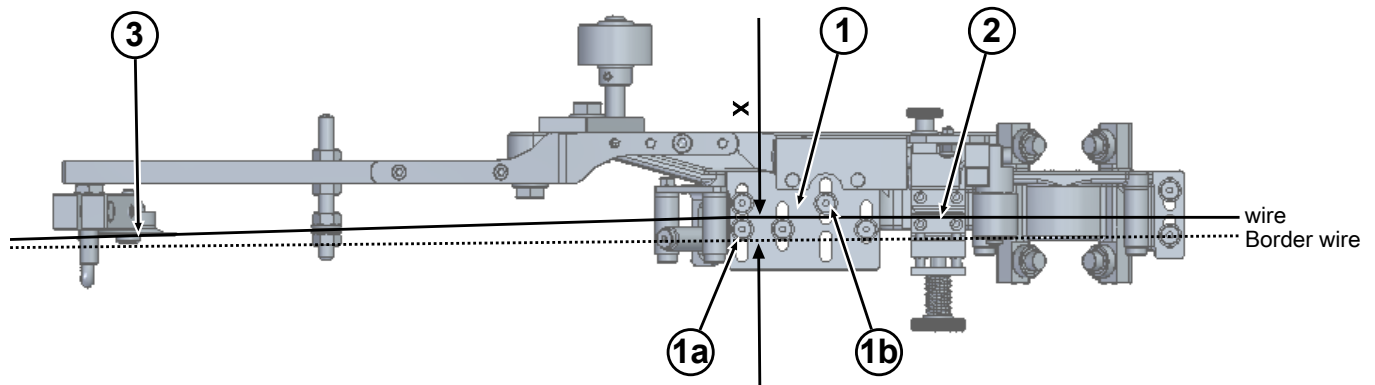
	<p style="text-align: center;">NOTICE</p> <p>Insufficient mounting quality with too much pre-bending!</p> <p>If the wire is pre-bent too much, there is a risk of creating waves and/or serpentine lines. The clothing quality then becomes unsatisfactory.</p> <p>▶ Do not choose too much pre-bending.</p>
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To achieve a proper mounting result, the mounting arm must be correctly adjusted before the mounting process starts.

Handling/operation

Adjusting dressing rollers

To adjust the position of the dressing rollers:



- Loosen all the dressing rollers (1).
 - ⇒ The wire forms a straight line between the brake (2) and the press-on roller (3).
- Push the mounting arm with the press-on roller (3) up to the stop against the border wire of the roller.
- Make sure that there is a distance (x) of 5 – 7 mm between the press-on roller (3) and the brake (2).
- Gently position all the dressing rollers (1) against the wire.
- Make sure that the wire is upright on the roller.
 - If necessary, dress the wire accordingly using the dressing rollers (1a and 1b):
 - ⇒ If the wire tends to fall to the left: move the dressing roller to the left.
 - ⇒ If the wire tends to fall to the right: move the dressing roller to the right.

Handling/operation

7.5.15 Adjusting the mounting tension

Before starting the mounting process, the mounting tension must be adjusted.

To adjust the mounting tension:

- ➡ Make sure that the tension indicator of the mounting arm is set correctly. Check and adjust if necessary (see the [Check and adjust the tension indicator on the mounting arm](#) ► 112] chapter).
- ➡ Press the "Plus" button and apply tension to the wire.
- ➡ Check whether the necessary mounting tension is applied (according to the guide values specified in the following tables).
- ➡ Adjust the mounting tension if necessary.

Guide values for the mounting tension

i	NOTE
	<p>The following guide values may slightly vary for individual machine types.</p> <p>The minimum mounting tension is 5 kp. When the tension falls below 5 kp, the wire is no longer upright, it tilts and a lateral offset is added towards the end of the roller cylinder.</p> <p>One kilopond = 1 kp weighs exactly one kilogram = 1 kg. The values of the spring balance can therefore be used.</p>

Variation of the mounting tension for standard clothing over the roller width

Roller width division vs. wire mounting force

The mounting tension for clothing depends on the roller diameter and the thickness of the clothing. It must be adjusted individually.

100 mm	Middle		100 mm
	Foot thickness	Mounting tension	
9 kp	0.4 – 0.6 mm	5 kp	9 kp
	0.7 – 0.8 mm	6 kp	
	0.9 – 1.0 mm	8 kp	

Doffer

Mounting tension
7 – 9 kp



Handling/operation

Special cases of drum mounting tension

Rieter C4 - C51

30 mm	Middle		30 mm
	Foot thickness	Mounting tension	
9 kp	0.4 – 0.5 mm	5 kp	9 kp
	0.7 – 0.8 mm	6.5 kp	
	0.9 – 1.0 mm	8 kp	

Rieter C60 - C80

With the high-production card C80, special attention must be paid to the force in the middle of the roller. The maximum forces must not be exceeded.

20 mm	Middle		20 mm
	Foot thickness	Mounting tension	
5 – 6 kp	0.4 mm	4 – 5 kp	5 – 6 kp
7 – 8 kp	0.5 – 0.6 mm	5 – 6 kp	7 – 8 kp
9 – 10 kp	0.7 – 0.8 mm	8 kp	9 – 10 kp
9 – 10 kp	0.9 – 1.0 mm	9 kp	9 – 10 kp

Trützschler DK740 from July 1988

20 mm	Middle		20 mm
	Foot thickness	Mounting tension	
9 kp	0.4 – 0.6 mm	5 kp	9 kp
	0.7 – 0.8 mm	6.5 kp	

Trützschler DK760 - TC19

30 mm	Middle		30 mm
	Foot thickness	Mounting tension	
9 kp	0.4 – 0.6 mm	5 kp	9 kp
	0.7 – 0.8 mm	6.5 kp	

Crosrol MK4/5/6/7/8

	Foot thickness	Mounting tension	
	0.4 – 0.5 mm	5 kp	
	0.6 – 0.8 mm	6.5 kp	

Handling/operation

Marzoli C501 - C601

30 mm	Middle		30 mm
	Foot thickness	Mounting tension	
9 kp	0.4 – 0.6 mm	5 kp	9 kp
	0.7 – 0.8 mm	6.5 kp	
	0.9 – 1.0 mm	8 kp	

Marzoli C701

30 mm	Middle		30 mm
	Foot thickness	Mounting tension	
9 – 10 kp	0.4 mm	5 kp	9 – 10 kp
	0.6 mm	6 kp	

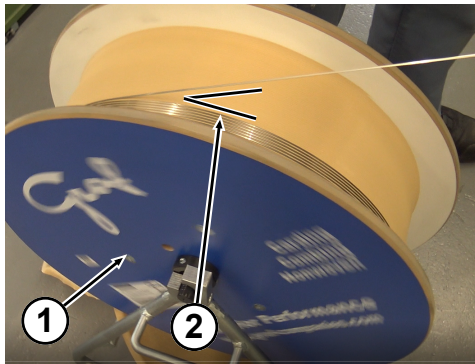
Mounting tension for interlinked clothing

The mounting tension for interlinked clothing depends on the roller diameter and the thickness of the clothing. It must be adjusted individually.

30 mm	Middle		30 mm
	Foot thickness	Mounting tension	
12 kp	32 – 24 thread	10 kp	12 kp
	24 – 16 thread	10 – 12 kp	
	16 – 4 thread	12 kp	

Handling/operation

7.5.16 Checking the coil alignment without a diversion tool



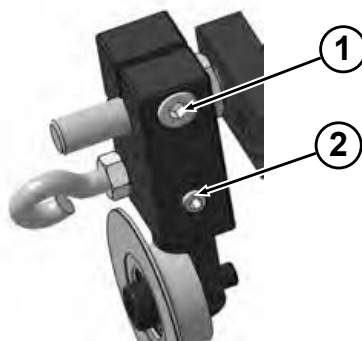
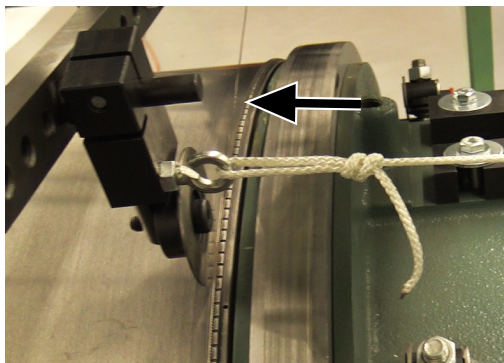
Before starting the mounting process, the coil (1) must be aligned correctly.

- ➔ Make sure that the coil is aligned so that the wire runs from the left with a diversion to the mounting arm if the profile is an L.
- ➔ Make sure the coil is at a slight angle to the cylinder so that a slight "V" (2) is formed.
- ➔ Make sure that the coil is not too far to the left or the right.

7.5.17 Mounting clothing

First revolution

- ➔ Switch on the MCC mounting drive.
- ➔ Press the "Plus" (+) button and slowly start the first revolution.

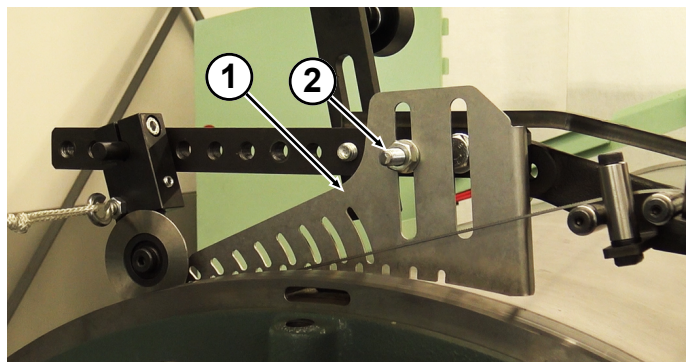


- ➔ After the first revolution, slightly press the wire inwards at the first transition.
- ➔ Check that the wire runs upright.
 - ⇒ If necessary, slightly adjust the angle using the set screw (2).
- ➔ Press the "Minus" (-) button until the roller stops.

Handling/operation

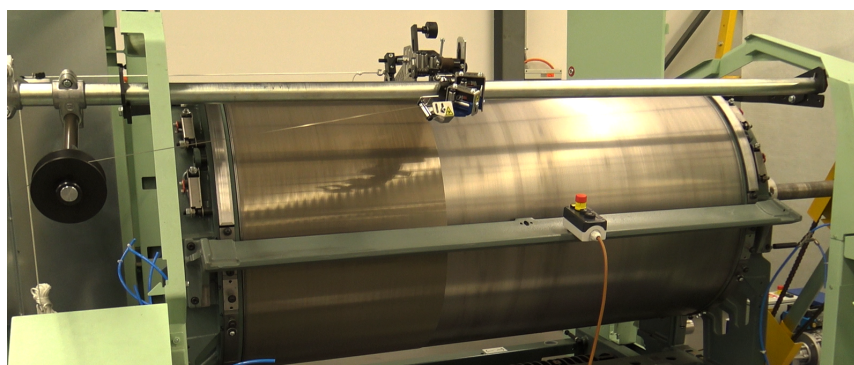
Assembling the protective plate

Once it has been ensured that everything is set up correctly and the mounting process is to be started:



- ➔ Attach the protective plate (1) to the mounting arm.
- ➔ Fix the protective plate with the screw (2).

Mounting



- ➔ Press the "Plus" (+) button until the required speed is reached. The following tables contain guide values for the mounting speeds.
- ➔ Mount the clothing under supervision.

Standard clothing speed

Foot thickness	Drum rotation
0.4 mm	100 m/min
0.5 mm	100 m/min
0.6 mm	100 m/min

Handling/operation

Speed for Rieter card C60 to C70

Foot thickness	Drum rotation	Duration (approx.)
0.4 mm	90 m/min	1 hour 45 min.
0.5 mm	90 m/min	1 hour 25 min.
0.6 mm	90 m/min	1 hour

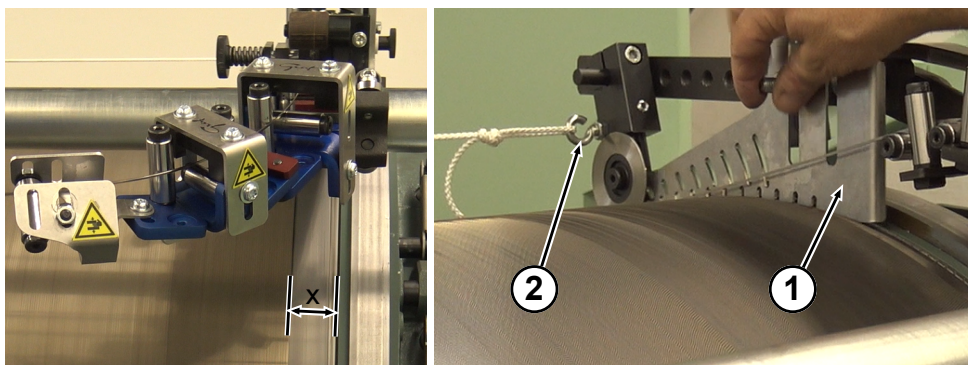
Speed for Rieter card C80

Foot thickness	Drum rotation	Duration (approx.)
0.4 mm	90 m/min	2 hour 30 min.
0.5 mm	90 m/min	2 hour
0.6 mm	90 m/min	1 hour 40 min.

Welding the wire

If the clothing is completely mounted during the mounting process and a new clothing coil has to be provided, the wire ends of the first and second clothing must be welded together. Use the butt welder to weld the ends of the wires (see the [Welding using a butt welder](#) [► 100] chapter).

Stopping the mounting process

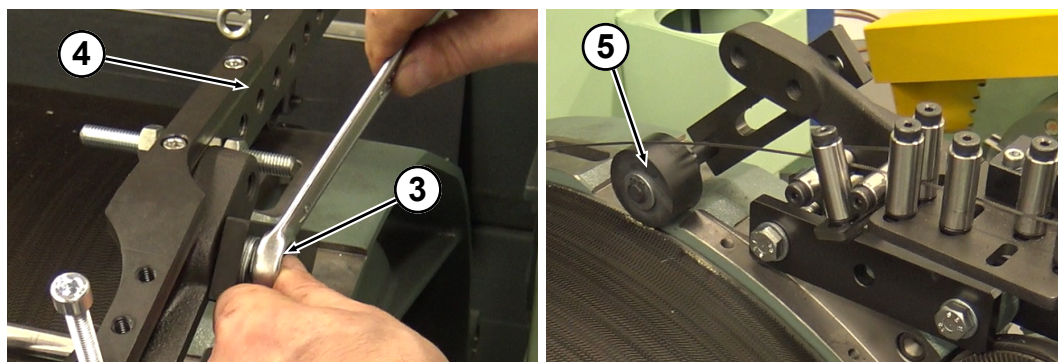


When the clothing is almost completely mounted and the press-on roller is approx. 25 mm (x) from the border wire, the mounting process must be slowly stopped:

- ➔ Press the "Minus" (-) button several times to slowly reduce the speed.
- ➔ Press the "Minus" (-) button until the roller stops.
- ➔ Loosen the screws on the protective plate (1) of the mounting arm and remove the protective plate.
- ➔ Disconnect the rope arm (2).

Handling/operation

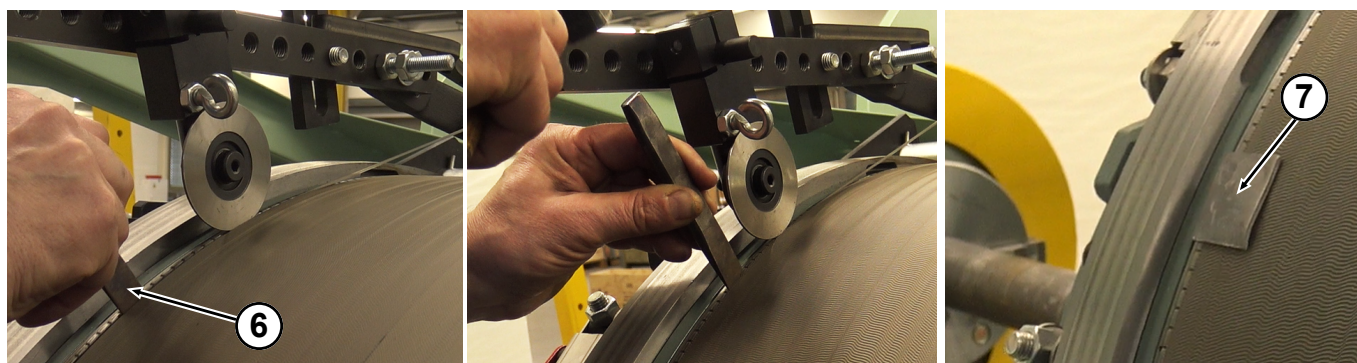
- ➔ If necessary and if the mounting arm does not allow sufficient working space to use a chisel, mount the nylon support roller:



⇒ Mount the nylon support roller (5) using the screw (3).

⇒ Loosen the screws on the mounting arm (4) and remove the mounting arm.

- ➔ Press the "Plus" (+) button until the roller rotates slowly again.



- ➔ Guide the wire (using a chisel/6) and let it run up to the border wire under tension.

- ➔ If necessary, slightly increase the brake tension. To do this, operate the brake screw.

- ➔ During the last rotation, strike the wire with a chisel and hammer (chiseling/staking).

If everything has been carried out correctly, the last possible punching position should be opposite the position where the soldering starts.

- ➔ Press the "Minus" (-) button until the roller stops.

- ➔ Tap the lead plate (7) or leather into the clothing to secure the clothing against any tension loss.



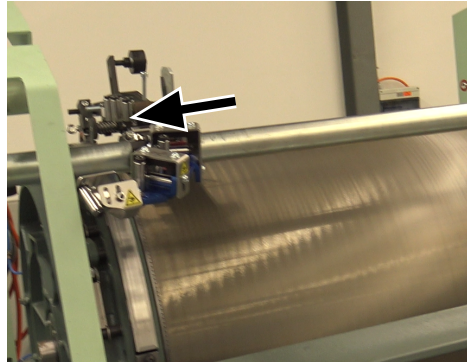
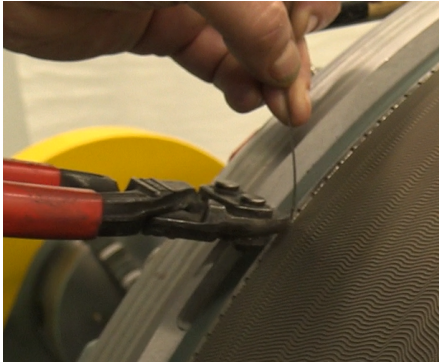
NOTE

We recommend using lead plates for finer clothing and leather for coarser clothing.

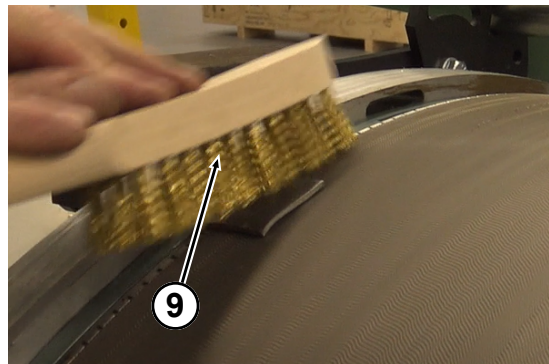
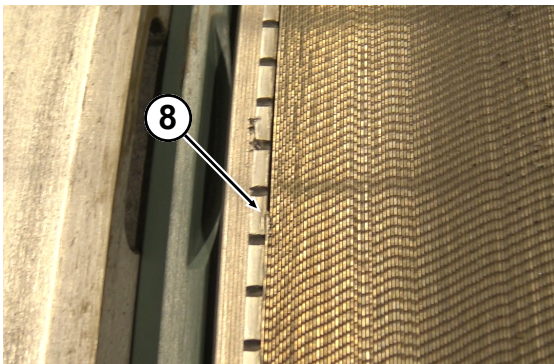
- ➔ Switch off the MCC mounting drive.

- ➔ Loosen the brake screw.

Handling/operation





- ➔ Cut the wire.
- ➔ Push aside the mounting arm or nylon support roller.
- ➔ Drive in the end of the wire using a narrow chisel and a hammer (chiseling/staking).



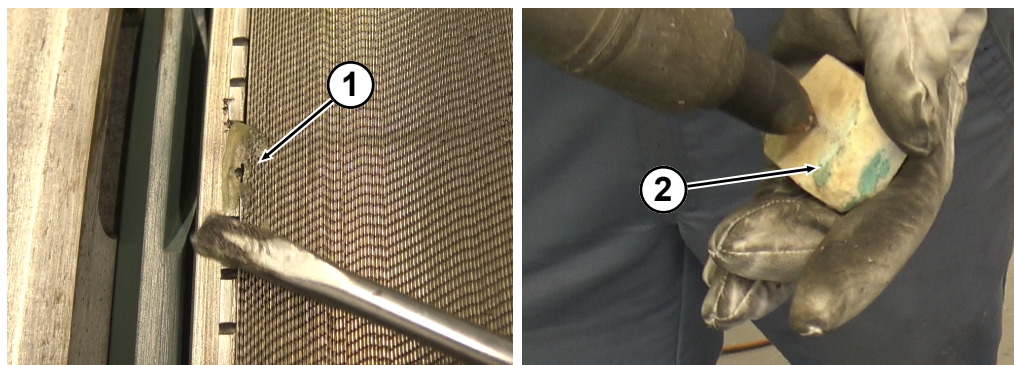
- ➔ Make sure that the wire end (8) is properly positioned inside.
- ➔ Brush out the end of the wire using a wire brush (9).

Handling/operation

7.5.18 Soldering wire

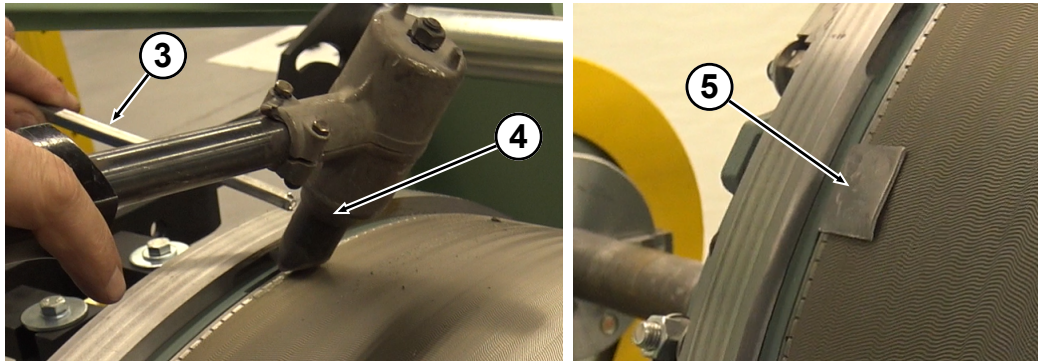
	<p style="text-align: center;">⚠ WARNING</p> <p>Danger of burns from hot soldering iron and hot parts and materials!</p> <p>The soldering iron and materials, such as the wire and solder joints, become very hot during the soldering process. Contact with hot tools, components and materials can result in burns.</p> <ul style="list-style-type: none"> ▶ Do not touch hot surfaces. ▶ Wear heat-resistant protective gloves.
	<p style="text-align: center;">⚠ WARNING</p> <p>Danger due to toxic fumes!</p> <p>When using the ammonia stone, toxic fumes are produced!</p> <ul style="list-style-type: none"> ▶ Do not inhale fumes directly. ▶ Make sure there is sufficient ventilation.

After completing the mounting process, the end of the wire must be soldered:

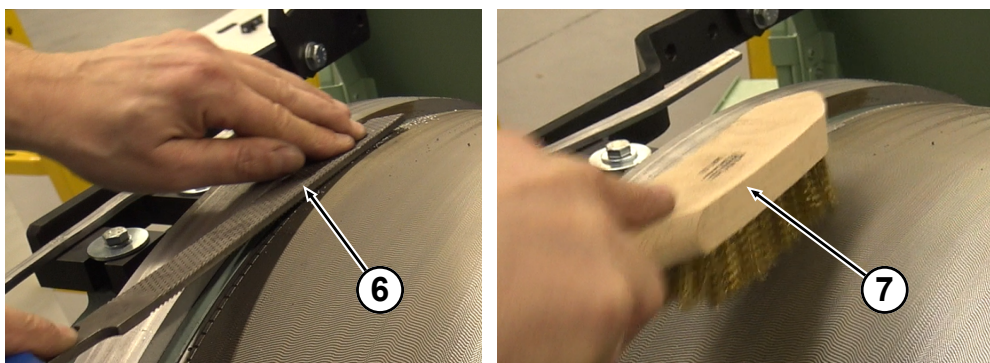


- ➡ Apply soldering grease (1) at the transition between the wire end and the border wire using a suitable tool.
- ➡ Connect the soldering iron to the power supply and let the soldering iron heat up.
The heating process takes a few minutes until the solid soldering head is hot enough and can release enough heat.
- ➡ If necessary, clean the soldering iron tip using an ammonia stone (2).

Handling/operation



- ➔ Melt the soldering tin (3) and apply it to the wire with the soldering iron (4).
- ➔ Solder the wire to about 10 cm above the joint of the border wire.
Depending on the situation, the solder can be applied to the head and the solder joint several times.
- ➔ Remove the fuse (5/lead plate or leather).



- ➔ File off excess and protruding solder joints using a file (6).
 - ➔ Check whether the wire is soldered on securely enough. If not, carry out the soldering again.
 - ➔ Brush off the solder joint with a wire brush (7).
- ⇒ The wire has been soldered on.

i	NOTE We recommend soft soldering (with soldering tin) for standard clothing pieces and in grooves, and hard soldering (with silver solder) for interlinked clothing.
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Handling/operation

7.6 Mounting the doffer

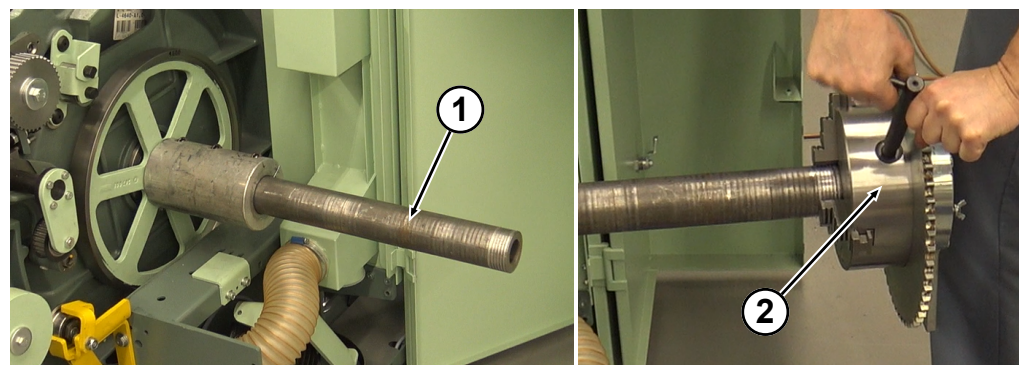
The doffer can be drawn up laterally from the left (machine operator side) using the MCC diversion, coil diversion and redirecting roller. The set-up and mounting process is identical to that for standard clothing (see chapter [Mounting new clothing](#) [▶ 63]). The assembly of the MCC mounting drive and the assembly of the guide tube are different. For more information about this, see

- [Assembling the MCC mounting drive](#) [▶ 93]
- [Mounting the mounting device](#) [▶ 97]

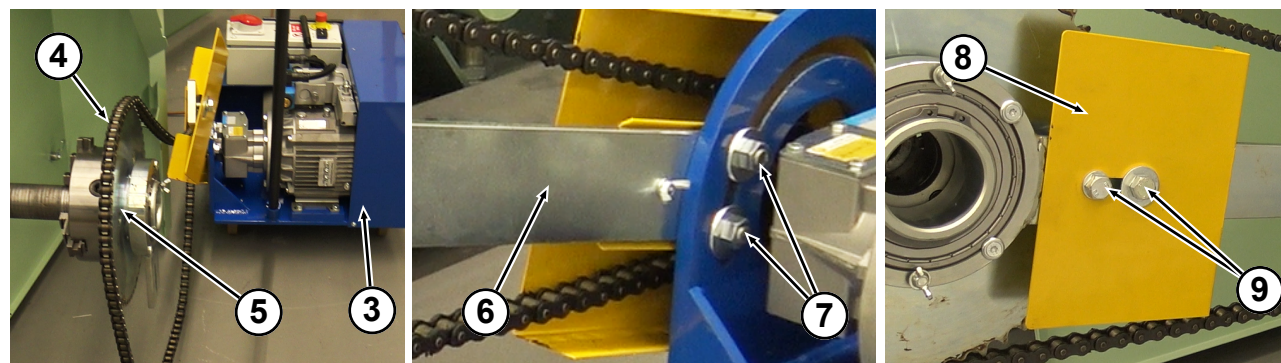
7.6.1 Assembling the MCC mounting drive

	<p style="text-align: center;">⚠ WARNING</p> <p>Risk of injury due to assembly work carried out improperly!</p> <p>There are multiple potential injury hazards when carrying out installation work while the power is connected!</p> <p>▶ Never perform installation work when the power is connected.</p>
---	--

To mount the MCC mounting drive on the doffer:

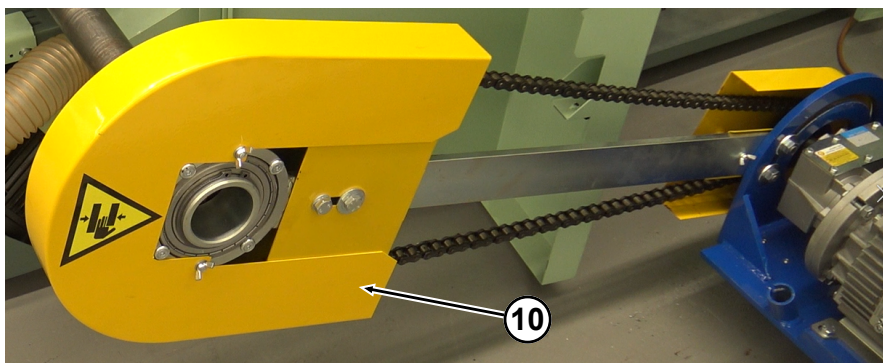


- ➡ If necessary, mount the axle pin extension (1) (not included in the delivery of the MCC) on the doffer.
- ➡ Place the three-jaw chuck (2) on the axle pin extension and mount it.



Handling/operation

- ➔ Move the MCC mounting drive (3) to the required position:
 - ⇒ Make sure that the braking energy is absorbed by the ground (depending on the direction of rotation of the roller).
 - ⇒ Make sure that the chain and the sprocket on the MCC mounting drive are aligned with each other.
- ➔ Place the chain (4) over the sprocket (5) on the axle pin extension.
- ➔ Place the chain over the sprocket on the MCC mounting drive.
- ➔ Lightly attach the tensioning arm (6) to the MCC mounting drive using two screws (7).
- ➔ Place the protective plate (8) over the tensioning arm and three-jaw chuck.
- ➔ Lightly attach the tensioning arm to the three-jaw chuck using two screws (9).
- ➔ Tension the chain by moving the MCC mounting drive.
 - ⇒ The chain may sag by 2 – 3 cm.
- ➔ Tighten the screws on the MCC mounting drive and on the tensioning arm.
- ➔ Lock the wheels of the MCC mounting drive.



- ➔ Place the protective plate (10) over the three-jaw chuck on both sides and fasten it with the wing screws.



NOTICE

Risk of injury on sprockets and rotating parts!

If there are no protective plates or if they are insufficiently fastened over the sprockets and rotating parts, there is a danger of being pulled in and of injury.

- ▶ Make sure that the protective plates are properly attached.
- ▶ Only operate the machine with the protective plates installed.

- ➔ Establish the power connection.
- ➔ Position the remote control.
- ➔ Make sure that when the control is in your hand or on the rack, no collisions are possible, not even with the wire.
- ⇒ The MCC mounting drive has been assembled.


Handling/operation

Starting the MCC mounting drive/test run

i	<p style="text-align: center;">NOTE</p> <p>At temperatures < 15°C, we recommend switching on the MCC mounting drive 10 – 20 minutes before use and letting it warm up.</p>
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To start the MCC mounting drive, a test run without a wire must first be carried out:

- ➔ Press the "Minus" (-) push button twice.
 - ⇒ The hydraulics are switched on and ensure that the drive can start up smoothly.
- ➔ Press the "Plus" (+) push button at short intervals.
- ➔ Check the direction of rotation:

	<p style="text-align: center;">NOTICE</p> <p>Risk of injury if the direction of rotation is not changed properly!</p> <p>There are various dangers when changing the direction of rotation while the machine is running.</p> <p>► Change the direction of rotation only when the MCC mounting drive is stationary.</p>
---	--

- ⇒ If necessary, change the direction of rotation using the direction of rotation buttons on the MCC mounting drive.
- ➔ Press the "Plus" (+) push button at short intervals until the maximum speed allowed for the roller diameter and machine type is reached.
- ➔ Check that everything is running smoothly.
- ➔ Press the "Minus" (-) push button at short intervals until the drive is slowed down to a standstill.
- ➔ Check that the roller is completely stationary.
- ⇒ The test run is complete.

Disassembling the MCC mounting drive

After use, disassemble the MCC mounting drive under the following conditions:

- ➔ Disconnect the power supply.
- ➔ Make sure that the machine is switched off and secured against being switched back on.

Handling/operation



NOTICE

Danger of tipping over if the disassembly sequence is incorrect!

If the MCC mounting drive is disassembled in the wrong order, there is a risk that it will tip over and cause serious injury.

► Follow the order described below.

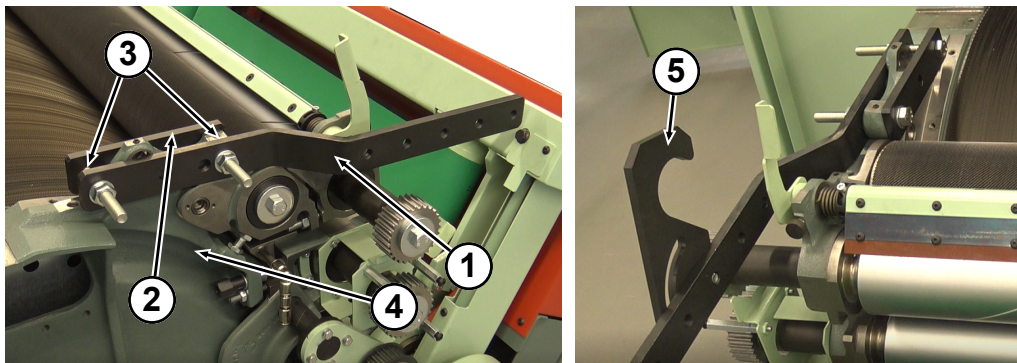
- ➔ Loosen the screws on the sprocket of the MCC mounting drive.
- ➔ Lift the chain off the MCC mounting drive sprocket and the shaft sprocket.
- ➔ Completely loosen the screws on the three-jaw chuck.
- ➔ When the MCC mounting drive is vertical, screw the arm back in place.
- ➔ Disassemble the three-jaw chuck and the coupling.
- ➔ Disassemble the tensioning arm from the MCC mounting drive.

Handling/operation

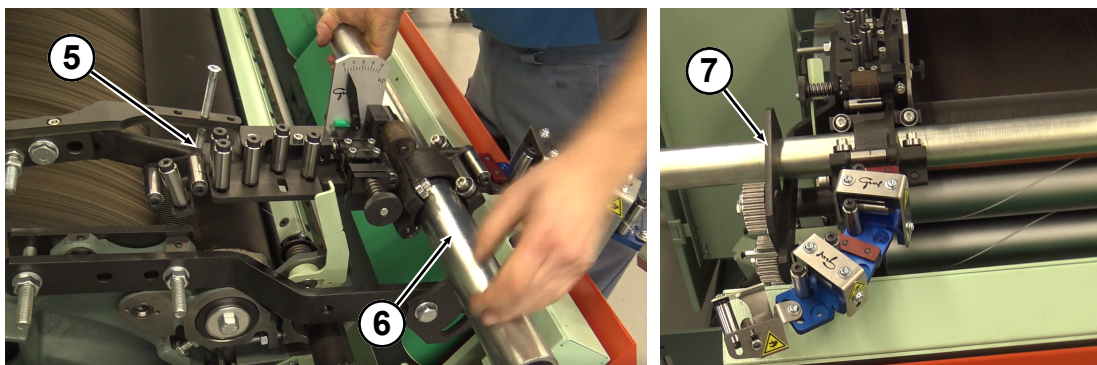
7.6.2 Mounting the mounting device

Assembling the mounting device on the guide tube

To mount the mounting device:



- ➔ Mount the guide tube brackets (1/right and left) with the clamps (2) and screws (3) on the side plate (4) of the doffer.
- ➔ Mount the bracket (5).
 - ⇒ The bracket position depends on the doffer size.



- ➔ Push the mounting arm (5) with the tube mount onto the guide tube (6).
- ➔ Place the guide tube on the brackets and close the bearing flange (7) from above over the guide tube:
 - ⇒ Make sure that the bearing flange is located between the two pins.
 - ⇒ Make sure that the guide tube is horizontal and parallel to the roller (determine by eye).
- ➔ Tighten the screws.
 - ⇒ The guide tube has been assembled.

Checking the ease of movement

- ➔ Make sure that the mounting arm can move freely over the guide tube to the left and right.
- ➔ Make sure that the mounting arm can rotate freely around the guide tube.
- ➔ If necessary, adjust the play using the four screws.
- ➔ Make sure that there is adequate space, so that the mounting arm can run all the way out and no collisions can occur.

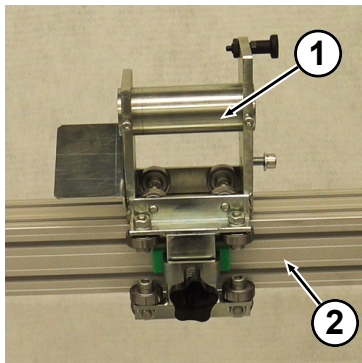
Handling/operation

Additional setup work

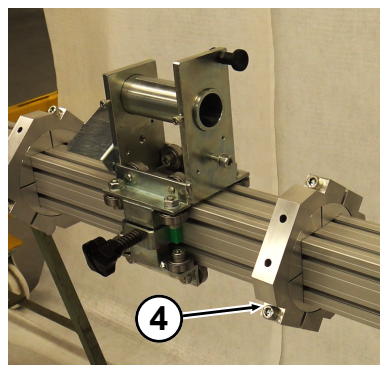
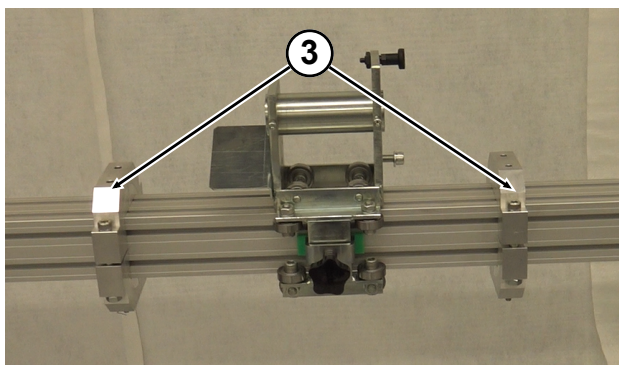
Carry out the other setup work according to the descriptions in the [Mounting new clothing](#) [63] chapters.

7.7 Assembling the mounting frame or roller card

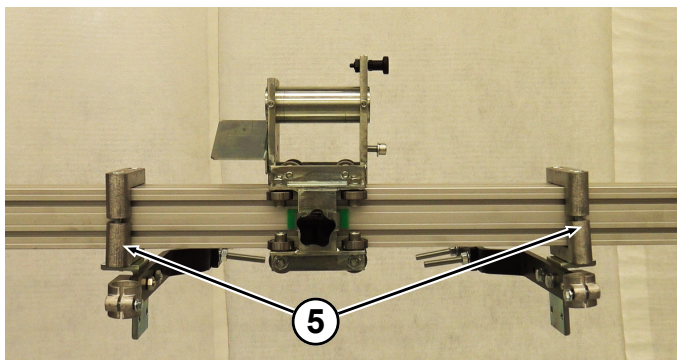
To mount the mounting device:



- ⇒ Push the guide carriage (1) of the mounting arm onto the guide bar (2).
- ⇒ There are two assembly options available:
 - ⇒ **Assembly option 1 (in the roller card)**

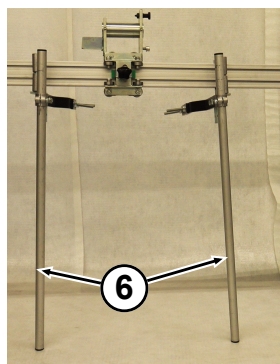


- ⇒ Slide the rotating guide bar bracket (3) onto the guide bar.
- ⇒ The rotating guide bar bracket (3) can be tilted after loosening the screws (4).
- ⇒ **Assembly option 2 (on the mounting frame)**

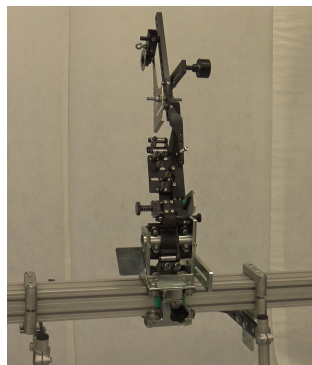


- ⇒ Slide the MCC top part (bracket) (5) onto the guide bar.

Handling/operation



⇒ Assemble the supports (6) to the MCC top part (bracket) (5).



⇒ Assemble the mounting arm on the guide carriage.

Handling/operation

7.8 Welding using a butt welder

Preparing and clamping the wire ends



NOTICE

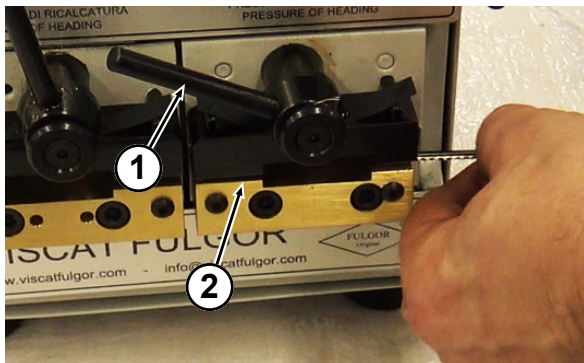
Incorrectly prepared and incorrectly clamped wire ends will cause poor welding results!

If the wire ends are not prepared and/or clamped correctly, a correct and stable welding bead cannot be created.

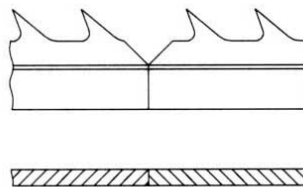
- Before starting to weld, make sure that the wire ends are prepared properly and clamped correctly.

To prepare the wire ends for welding:

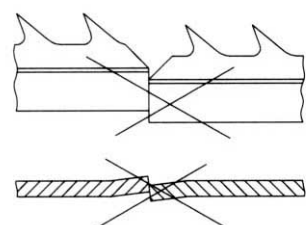
- ➔ Cut the wire ends at approx. $45^\circ - 60^\circ$ to the wire base and file them into shape.



③

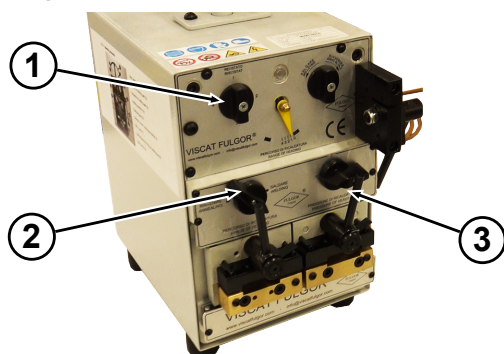


④



- ➔ Open the eccentric clamping lever (1) on the clamping jaws (2) and guide the wire ends through the clamping jaws from the right and left.
- ➔ Make sure that the wire ends touch each other exactly (3: correct; 4: wrong):
 - ⇒ The point of contact of the wire ends must be precisely in the middle between the clamping jaws.
 - ⇒ Clamp the wire ends in precise alignment so that they meet without any transition.
- ➔ Close the eccentric clamping lever on the clamping jaws.

Setting the controls



Handling/operation

The setting of the controls depends on the clothing to be welded. On the butt welder, the

- current (1),
- upsetting distance (2) and
- upsetting pressure (3) values

must be pre-set. The following table provides guide values for the settings.

Wire profiles in mm	Level selection		
	Current	Upsetting distance	Upsetting pressure
1.5 x 0.35 to 4.0 x 1.1 3.2/V 28" to 4.0/V 20-24"	1	1	1
4.0 x 1.2 to 5.5 x 1.3 4.0/V 14-18G" to 50/V 16-24G"	1	1 - 2	1
5.5 x 1.3 to 10 x 2.5 5.0/V 8-14G" to 100/V 4G"	1 - 2 1 - 2	2	1 - 2 2

Welding

Weld the wire ends as follows:

- ➔ Connect the power supply to the butt welder.
- ➔ Switch on the butt welder.
- ➔ Make sure that the controls are set according to the wire.



- ➔ Turn the "Welding"/"Annealing" selector switch (1) to the left and hold until the welding (3) is completed and the display (2) is set to "0".
The unit controls all parameters. Keep the selector switch in the welding position until the unit has finished welding and cooled down.
- ➔ Release the eccentric clamping lever on the clamping jaws.
- ➔ Remove the wire.
⇒ The wire is "hard welded".

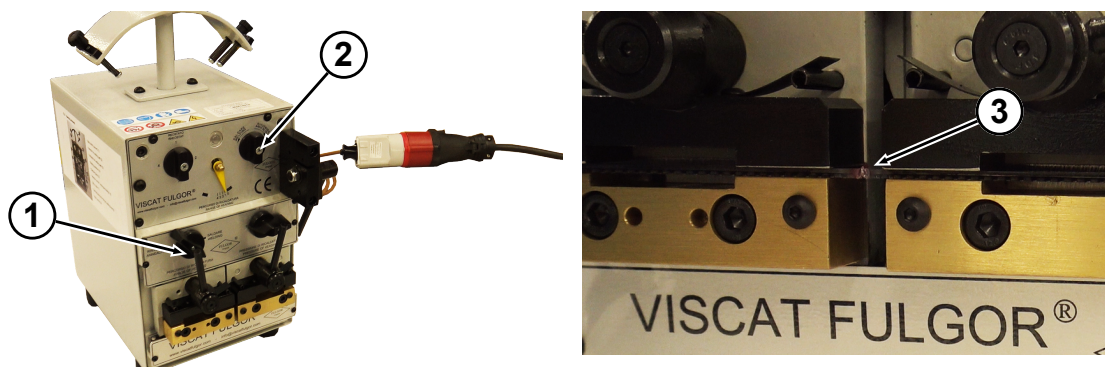
Annealing the welding beads

The welding beads of the metallic card clothing must be annealed after welding. If the welding beads are not treated, the weld seam will break when it is mounted. Inspect the weld seam to make sure that there are no alignment errors and that the entire joint is properly welded. If everything is all right, the next step is soft annealing. Aluminium base wires do not need to be annealed.

Handling/operation

To anneal the welding beads of the metallic card clothing:

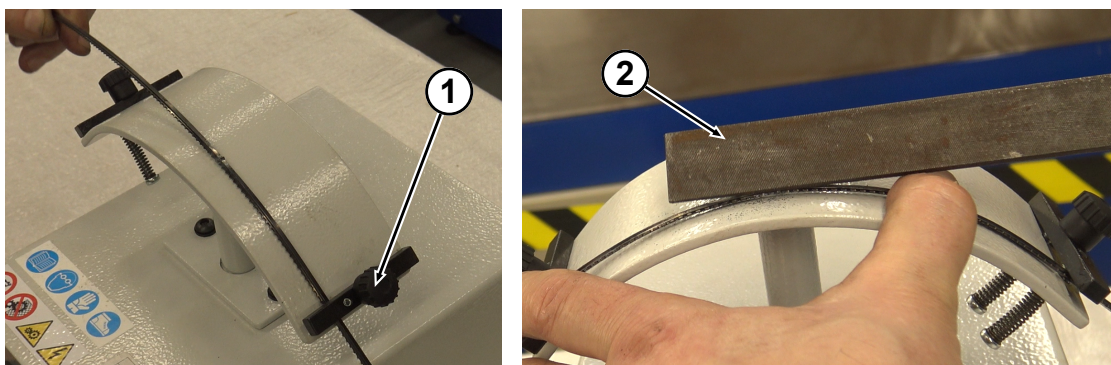
- ➔ Place the wire between the clamping jaws.
- ➔ Make sure that the welding bead is in the middle between the clamping jaws.
- ➔ Close the eccentric clamping lever on the clamping jaws.



- ➔ Set the upsetting distance switch (1) to "Rivenire".
- ➔ Turn the "Welding"/"Annealing" selector switch (2) clockwise in pulses until the wire glows dark red (3).
- ➔ Maintain the temperature of the tempering colour light red to yellow/red by turning and releasing the "Welding"/"Annealing" selector switch at intervals for approx. 5 – 8 seconds.
- ➔ Allow the wire to cool down.
- ➔ Release the eccentric clamping lever on the clamping jaws.
- ➔ Remove the wire.
- ⇒ The wire is "annealed".

Plastering the welding bead

To plaster the welding bead:



- ➔ Clamp the wire on both sides in the clamping device (1).
- ➔ File off the welding bead with a file (2).
- ➔ Make sure that the transition does not have any gradations on all surfaces. .

Handling/operation



NOTE

If the welding bead is difficult to clean, it must be re-annealed, as the hardness has not been sufficiently reduced.

To compensate for colour differences on the wire in black or low-scaling wires, it can be annealed a second time after plastering.

Completing the welding process

If a suitable welding result is achieved:

- ➔ Switch off the butt welder.
- ➔ Disconnect the butt welder from the power supply.

8 Faults

8.1 Safety



SAFETY INSTRUCTIONS

Work safely while troubleshooting!

Carry out all work in compliance with the safety instructions listed below:

- ▶ Observe the regulations listed in the [Safety \[▶ 14\]](#) chapter for all work on/with the machine.
- ▶ All troubleshooting work must only be carried out by specialised personnel (see the [Personnel requirements \[▶ 20\]](#) chapter).
- ▶ Work on electrical systems must only be carried out by qualified electricians (see the [Personnel qualifications \[▶ 20\]](#) chapter).
- ▶ Wear protective equipment in accordance with the applicable accident prevention regulations when carrying out any troubleshooting work.
- ▶ Before starting work, switch off the electrical supply and secure it against being switched on again.
- ▶ Make sure there is sufficient assembly clearance before starting work.
- ▶ Make sure that the assembly area is tidy and clean! Loose components and tools lying on top of each other or around are potential sources of accidents.
- ▶ If parts have been removed or misaligned, make sure they are assembled correctly, reinstall all fastening elements and observe the screw tightening torques.
- ▶ Observe the instructions on environmental protection.

Faults

8.2 What to do in case of faults that pose a danger

In general, the following applies:

- In case of faults that pose an immediate danger to persons or property, switch off the machine immediately.
- Determine the cause of the fault.
- Notify the person in charge at the operating site of the fault.
- If it is necessary to enter danger zones or intervene in danger zones when carrying out troubleshooting work, secure the machine against being switched on again.
- Have the fault rectified by authorised specialised personnel.

Faults

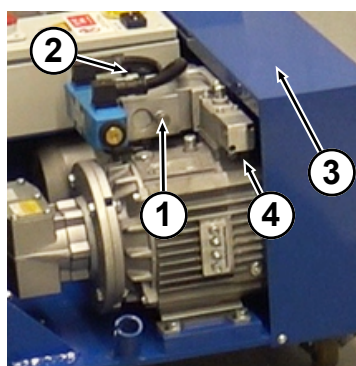
8.3 Possible faults

Possible MCC mounting drive faults

Fault	Measure	Description
MCC mounting drive		
The mounting drive accelerates too slowly.	Set the acceleration.	Always take into consideration the information in the instructions of the variator in the annex (see the Annex [▶ 117] chapter).
The mounting drive accelerates too quickly.	Set the acceleration.	
The mounting drive brakes too slowly.	Set the braking speed.	Follow the other instructions in the Troubleshooting work [▶ 107] chapter.
The mounting drive brakes too quickly.	Set the braking speed.	
The mounting drive runs backwards or does not stop.	Adjusting the mounting drive.	
Reduced initial speed	Set the reduced initial speed.	
Stripping reel		
The coupling makes noises	Clean the running surface	
Mounting device		
Insufficient mounting result	The mounting device is not set correctly.	Adjusting/aligning the mounting arm [▶ 80]
	The tension indicator on the mounting arm does not show the correct value. As a result, the mounting tension has not been set correctly.	Check and adjust the tension indicator on the mounting arm [▶ 112]
	The mounting tension has not been set correctly.	Adjusting the mounting tension [▶ 83]

Faults

8.4 Troubleshooting work



The mounting drive accelerates too slowly/accelerates too quickly

To adjust the acceleration of the mounting drive:

- ➡ If the acceleration is too fast, turn the screw (1) anti-clockwise.
- ➡ If acceleration is too slow, turn the screw (1) clockwise.

The mounting drive brakes too quickly/too slowly

To set the braking speed:

- ➡ If braking is too slow, turn the screw (2) anti-clockwise.
- ➡ If the braking is too fast, turn the screw (2) clockwise.

The mounting drive runs backwards or does not stop



⚠ WARNING

Risk of accident when working with the mounting drive switched on!

There are various hazards when working on the mounting drive when it is switched on.

- ▶ Before starting work, make sure that the mounting drive is switched off and secured against being switched on again.
- ▶ Before switching on the mounting drive again, make sure that the protective covers are properly installed.

Faults

To adjust the mounting drive:

- ➔ remove the protective cover (3).
- ➔ Turn the screw (4) anti-clockwise using the spanner supplied. The lock nut does not have to be loosened for this.

Reduced initial speed


To adjust the initial speed:

- ➔ Start the mounting drive and let it warm up for about 20 minutes.
- ➔ Manually press the solenoid valve slider two to three times to change the initial speed in both directions (acceleration and deceleration).

8.5 Measures after completing the troubleshooting work

After completing the troubleshooting work and before switching the unit back on, carry out the following measures:

- ➔ Tighten the screw connections that were previously loosened.
- ➔ Clean the running surfaces
- ➔ Make sure that the safety devices and covers that were previously removed are properly installed again.
- ➔ Make sure that all tools and working materials used have been removed from the work area.
- ➔ Clean the work area and, if necessary, remove any substances that have escaped, such as liquids, processing materials or similar. Dispose of them in an environmentally-friendly manner.
- ➔ Make sure that all safety devices are installed and functioning properly.

	⚠ DANGER
	<p>Danger to life due to premature restart!</p> <p>When switching the unit on again, there is a risk of injury to persons who are inside or reaching into the danger zone.</p> <p>► Before switching the unit back on, make sure that there are no other people in the danger zone or intervening in the danger zone.</p>

Maintenance

9 Maintenance

9.1 Safety



SAFETY INSTRUCTIONS

Work safely when carrying out maintenance work!

Carry out all work in compliance with the safety instructions listed below:

- ▶ Observe the regulations listed in the [Safety \[▶ 14\]](#) chapter for all work on/with the machine.
- ▶ All maintenance work must only be carried out by specialised personnel (see the [Personnel requirements \[▶ 20\]](#) chapter).
- ▶ Work on electrical systems must only be carried out by qualified electricians (see the [Personnel qualifications \[▶ 20\]](#) chapter).
- ▶ Wear protective equipment in accordance with the applicable accident prevention regulations when carrying out any troubleshooting work.
- ▶ Before starting work, switch off the electrical supply and secure it against being switched on again.
- ▶ Make sure there is sufficient assembly clearance before starting work.
- ▶ Make sure that the assembly area is tidy and clean! Loose components and tools lying on top of each other or around are potential sources of accidents.
- ▶ If parts have been removed or misaligned, make sure they are assembled correctly, reinstall all fastening elements and observe the screw tightening torques.
- ▶ Observe the instructions on environmental protection.

Maintenance

9.2 Repairs

i	<div><i>NOTE</i></div> <p>Repairs to the machine and its components are not considered maintenance work and must only be carried out by trained technicians or service personnel of the manufacturer.</p>
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9.3 Maintenance intervals

9.3.1 Notes

The

- maintenance work prescribed on the following pages and
- the maintenance work on purchased components must be carried out in accordance with the corresponding documentation

to ensure safe and smooth operation of the machine.

The specified maintenance intervals are based on our many years of experience and knowledge. If excessive wear of wear parts is identified or if malfunctions occur more frequently, the operating company must shorten the time between the maintenance intervals in an appropriate manner.

Keep a maintenance log to verify that the prescribed maintenance work has been carried out.

i	<div><i>NOTE</i></div> <p>The verification that the prescribed maintenance work has been carried out is a prerequisite for making any warranty claims.</p>
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Maintenance

9.3.2 Maintenance plan

Interval	Component	Maintenance work	Description
Before each use	Mounting device	Check brake plates and replace them if necessary.	Checking and changing the brake plates [► 72]
	Mounting device	Check the dressing roller for wear and replace if necessary.	
	Mounting device	Check pre-bending roller and replace if necessary.	
	Mounting device	Check the press-on roller for damage and replace if necessary.	Changing the press-on roller [► 73]
	Mounting device	Measure the braking force using a spring balance and calibrate the display to the measured value	Check and adjust the tension indicator on the mounting arm [► 112]
	MCC mounting drive	Check the oil level and top it up if necessary.	Checking the oil level [► 112]
	Coil stand	Lubricate the slide bearing point on the coil stand with a few drops of oil in the aluminium mount.	
	Stripping reel	Clean the liner guide of the stripping reel to remove any dirt.	
At the latest, after mounting max. 10 clothing sets	Mounting device	Check the tension indicator on the mounting arm and adjust if necessary.	Check and adjust the tension indicator on the mounting arm [► 112]
	Mounting device	Oil the tension indicator mechanism.	
	MCC mounting drive	Clean the chain and sprockets. Grease the chain from time to time.	
Every 1000 cards	Stripping reel	Change the slip belt	

Maintenance

9.4 Maintenance work


9.4.1 Checking the oil level

The oil level of the MCC mounting drive must be checked:

- ➔ Make sure that the oil inspection glass is at least half full.
- ➔ Top it up with oil if necessary.

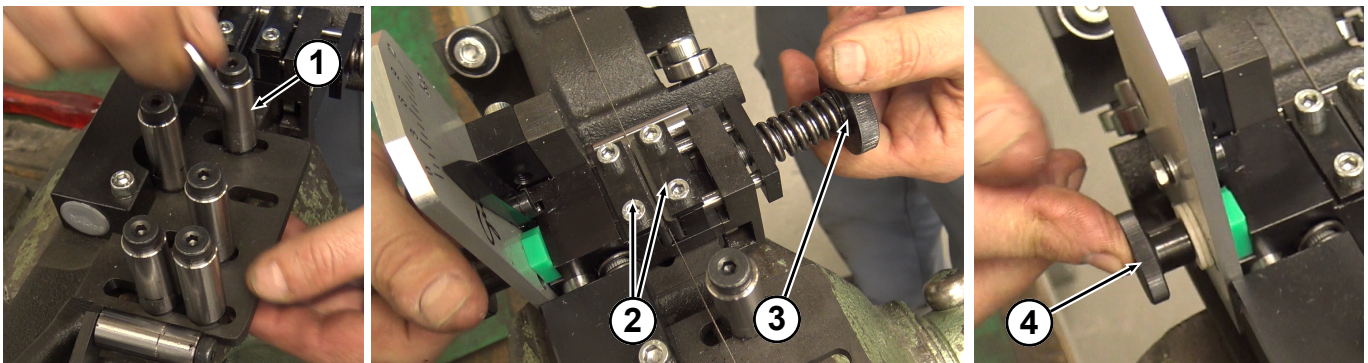
9.4.2 Check and adjust the tension indicator on the mounting arm

At the latest after mounting 10 clothing sets, the tension indicator of the mounting arm must be checked and readjusted if necessary.

	<p style="text-align: center;">NOTICE</p> <p>Insufficient mounting result if the tension display is incorrect!</p> <p>An incorrect tension indicator results in an incorrectly set mounting tension. If the mounting tension is not correct, a satisfactory mounting result cannot be achieved.</p> <p>► Check and adjust the tension indicator at regular intervals.</p>
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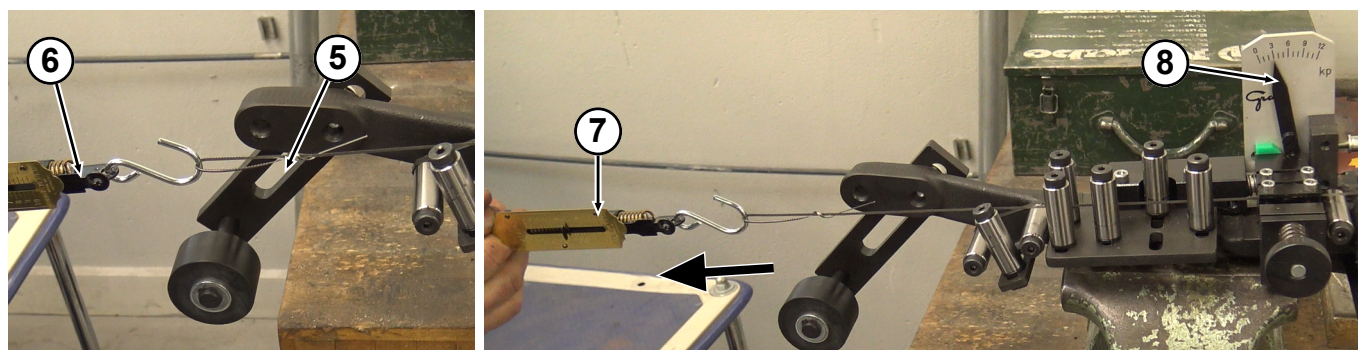
To check the tension indicator:

- ➔ Place a wire of about 3 metres between the dressing roller.



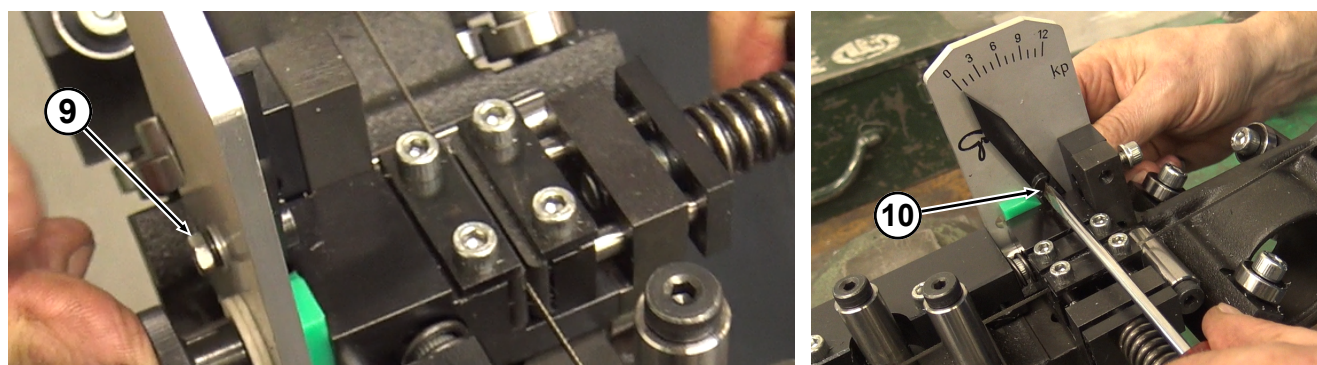
- ➔ Loosen the dressing rollers (1) and set them aside so that the tension on the wire is not restricted.
- ➔ Insert the wire into the brake.
- ➔ Make sure that the wire is guided correctly between the brake plates (2).
- ➔ Slightly tighten the brake screw (3).
- ➔ Slightly loosen screw (4) at the rear of the brake unit so that there is some play.

Maintenance



- ➔ Form a loop (5) at the end of the wire.
- ➔ Attach the spring balance (6) to the wire loop.
- ➔ Slightly pull the spring balance with your finger.
- ➔ Check whether the tension indicated on the spring balance (7) corresponds to the tension indicator of the mounting arm (8).

If the deviation exceeds 1 kg, the tension indicator pointer must be readjusted:





- ➔ Loosen the screw (9) on the back of the tension indicator.
- ➔ Move the pointer (10) to the required position.
- ➔ Tighten the screw again.
- ➔ Make sure that the pointer is not fixed too tightly so that it can still be moved.
- ➔ Check the tension indicator again using the spring balance.

Maintenance

9.5 Measures after completing the maintenance work

After completing the maintenance work and before switching the unit on, carry out the following steps:

- ➔ Check that all the screw connections that were previously loosened are tight.
- ➔ Check that all the safety devices and covers that were previously removed are properly installed again. Clean the work area and, if necessary, remove any substances that have escaped, such as liquids, processing materials or similar.
- ➔ Make sure that all tools, materials and other equipment used have been removed from the work area.
- ➔ Make sure that all safety devices are functioning properly.

	 DANGER
	<p>Danger to life due to premature restart!</p> <p>When switching the unit on again, there is a risk of injury to persons who are inside or reaching into the danger zone.</p> <p>► Before switching the unit back on, make sure that there are no other people in the danger zone or intervening in the danger zone.</p>

Disassembly and disposal

10 Disassembly and disposal

10.1 Safety



SAFETY INSTRUCTIONS

Work safely while disassembling and disposing of the machine!

Carry out all work in compliance with the safety instructions listed below:

- ▶ Observe the regulations listed in the Safety chapter for all work on/with the machine.
- ▶ The disassembly work must only be carried out by specialised personnel (see the Personnel requirements chapter).
- ▶ Work on electrical systems must only be carried out by qualified electricians (see the Personnel qualifications chapter).
- ▶ Wear protective equipment according to local accident prevention regulations when carrying out any disassembly and disposal work.
- ▶ Before starting the disassembly work, switch off the electrical supply and permanently disconnect it.
- ▶ Make sure there is sufficient space before starting work.
- ▶ Make sure that the workplace is tidy and clean! Loose components and tools lying on top of each other or around are potential sources of accidents. Handle exposed parts with sharp edges with care.
- ▶ Disassemble the parts properly. Be aware of the high dead weight of some of the parts. Use hoists if necessary. Secure the parts so that they do not fall down or topple over.
- ▶ Incorrect handling of environmentally hazardous substances, in particular incorrect disposal, may result in considerable damage to the environment. If environmentally hazardous substances are accidentally released into the environment, take appropriate measures immediately and notify the competent local authority of the damage.


Disassembly and disposal

10.2 Decommissioning and disassembly

To decommission the machine:

- ➔ Switch off the power supply of the entire system and disconnect the system from the power supply.
- ➔ Disassemble the machine and its components.
- ➔ Store the machine and its components (see the [Information on interim storage](#) [▶ 45] chapter) or
- ➔ Disassemble the machine and its components in compliance with the applicable local health and safety and environmental protection regulations.

10.3 Disposal

	NOTICE
	<p>Environmental damage from incorrect disposal!</p> <p>Lubricants and other auxiliary supplies are subject to special waste treatment and must only be disposed of by authorised specialist companies! Disassembled components must be recycled:</p> <ul style="list-style-type: none"> ▶ Scrap metals. ▶ Recycle plastic elements. ▶ Dispose of remaining components separated according to material properties. The local authorities or specialist disposal companies can provide information on environmentally-friendly disposal.

Pre-treat and dispose of components according to the following table:

Components	Pre-treatment	Disposal
Mechanical components	Clean	Scrap
Grease	Remove, clean	See safety data sheet
Oils	Drain, pump off	See safety data sheet

Annex

11 Annex

11.1 Declaration of Conformity

i	<i>NOTE</i>
	<p>The next pages contain a sample Declaration of Conformity [▶ 118] and a sample Declaration of Incorporation [▶ 119]. The original Declaration of Conformity or Declaration of Incorporation of the machine are supplied separately with the machine.</p>



EC Declaration of conformity

Graf + Cie AG
Bildastrasse 6
CH-8640 Rapperswil
T +41 55 221 71 11
F +41 55 221 72 33
www.graf-companies.com

Rapperswil,

Graf + Cie AG declare that the product:

Designation: **Type:**

Serial No.:
Machine -No.:

fulfils the following relevant provisions:

2006/42/EC (EC Machinery Directive)
including their modifications

Reference to the harmonised standards:

EN 60204-1 Safety of machines – Electrical equipment of machines,
Part 1: General requirements

Responsible for the documentation: Quality Manager
Graf + Cie AG, Bildastrasse 6, 8640 Rapperswil, Switzerland

Graf + Cie AG

Managing Director Graf Group

Head R&D



EC Declaration of incorporation

Graf + Cie AG
Bildastrasse 6
CH-8640 Rapperswil
T +41 55 221 71 11
F +41 55 221 72 33
www.graf-companies.com

Rapperswil,

Graf + Cie AG declare that the product:

Designation: Type:

Serial-No.:
Machine -No.:

fulfils the following relevant provisions:

2006/42/EC (EC Machinery Directive)
including their modifications

Reference to the harmonised standards:

EN 60204-1 Safety of machines – Electrical equipment of machines,
Part 1: General requirements

Responsible for the documentation: Quality Manager
Graf + Cie AG, Bildastrasse 6, 8640 Rapperswil, Switzerland

Graf + Cie AG

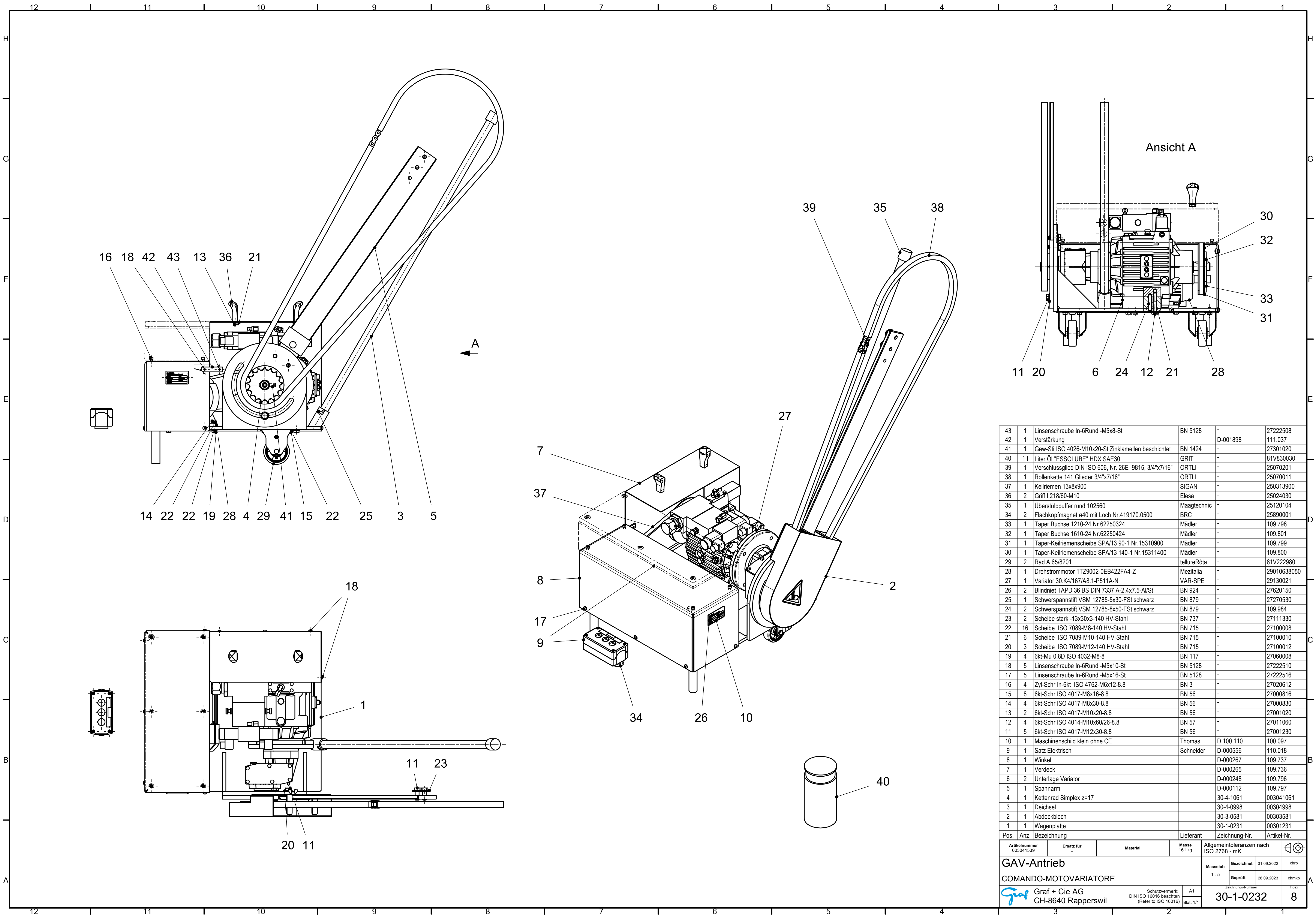
Managing Director Graf Group

Head R&D

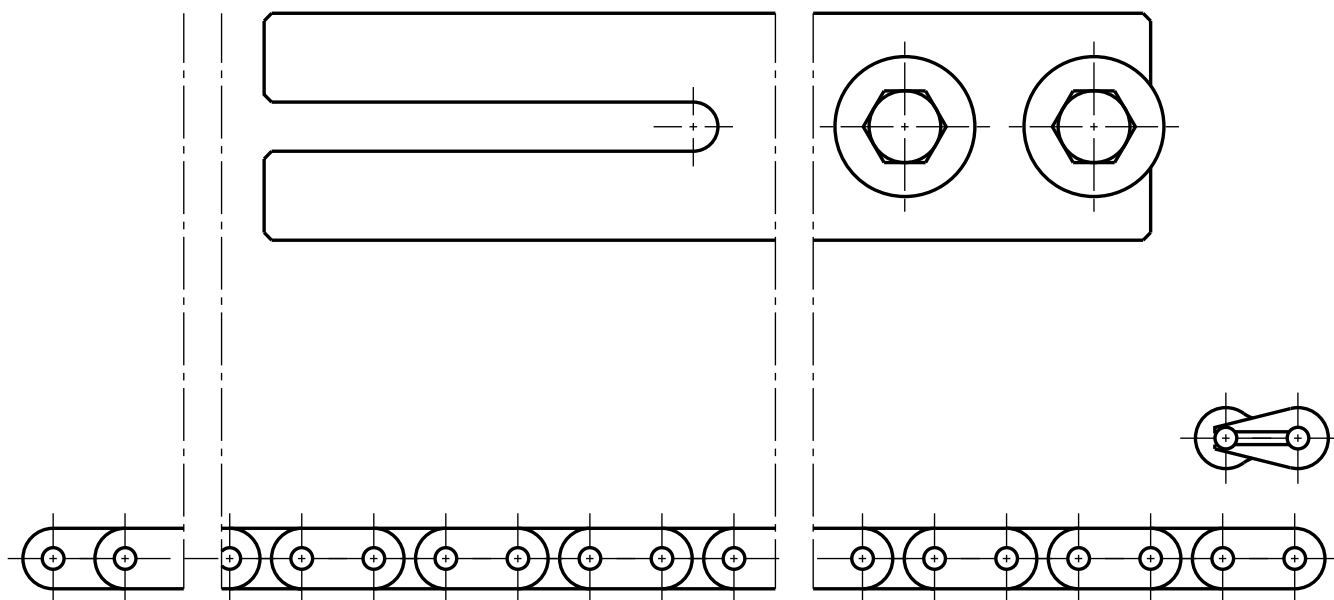
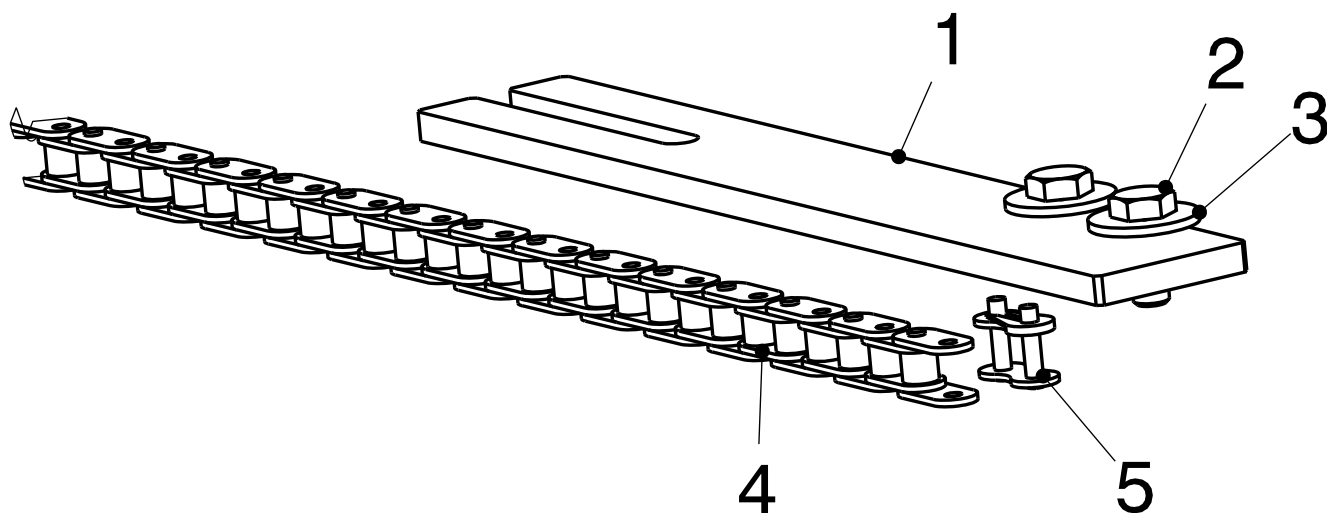
11.2 Plans, diagrams and other applicable documents

The following plans, diagrams and other applicable documents are an integral part of the overall documentation

1. [MCC machine drawings and parts lists \[► 121\]](#)
2. [MCC & DABW spare parts list \[► 162\]](#)
3. [MCC electrical diagram \[► 166\]](#)
4. [DABW machine drawings and parts lists \[► 190\]](#)
5. [DABW electrical diagram \[► 195\]](#)



43	1	Linsenschraube In-6Rund -M5x8-St	BN 5128	-	27222508
42	1	Verstärkung		D-001898	111.037
41	1	Gew-Sti ISO 4026-M10x20-St Zinklamellen beschichtet	BN 1424	-	27301020
40	1 l	Liter Öl "ESSOLUBE" HDX SAE30	GRIT	-	81V830030
39	1	Verschlussglied DIN ISO 606, Nr. 26E 9815, 3/4"x7/16"	ORTLI	-	25070201
38	1	Rollenkette 141 Glieder 3/4"x7/16"	ORTLI	-	25070011
37	1	Keilriemen 13x8x900	SIGAN	-	250313900
36	2	Griff I.218/60-M10	Elesa	-	25024030
35	1	Überstülpuffer rund 102560	Maagtechnic	-	25120104
34	2	Flachkopfmagnet ø40 mit Loch Nr.419170.0500	BRC	-	25890001
33	1	Taper Buchse 1210-24 Nr.62250324	Mädler	-	109.798
32	1	Taper Buchse 1610-24 Nr.62250424	Mädler	-	109.801
31	1	Taper-Keilriemenscheibe SPA/13 90-1 Nr.15310900	Mädler	-	109.799
30	1	Taper-Keilriemenscheibe SPA/13 140-1 Nr.15311400	Mädler	-	109.800
29	2	Rad A.65/8201	tellureRöta	-	81V222980
28	1	Drehstrommotor 1TZ9002-0EB422FA4-Z	Mezitalia	-	29010638050
27	1	Variator 30 K4/167/A8.1-P511A-N	VAR-SPE	-	29130021
26	2	Blindniet TAPD 36 BS DIN 7337 A-2.4x7.5-AI/St	BN 924	-	27620150
25	1	Schwerspannstift VSM 12785-5x30-FSt schwarz	BN 879	-	27270530
24	2	Schwerspannstift VSM 12785-8x50-FSt schwarz	BN 879	-	109.984
23	2	Scheibe stark -13x30x3-140 HV-Stahl	BN 737	-	27111330
22	16	Scheibe ISO 7089-M8-140 HV-Stahl	BN 715	-	27100008
21	6	Scheibe ISO 7089-M10-140 HV-Stahl	BN 715	-	27100010
20	3	Scheibe ISO 7089-M12-140 HV-Stahl	BN 715	-	27100012
19	4	6kt-Mu 0,8D ISO 4032-M8-8	BN 117	-	27060008
18	5	Linsenschraube In-6Rund -M5x10-St	BN 5128	-	27222510
17	5	Linsenschraube In-6Rund -M5x16-St	BN 5128	-	27222516
16	4	Zyl-Schr In-6kt ISO 4762-M6x12-8.8	BN 3	-	27020612
15	8	6kt-Schr ISO 4017-M8x16-8.8	BN 56	-	27000816
14	4	6kt-Schr ISO 4017-M8x30-8.8	BN 56	-	27000830
13	2	6kt-Schr ISO 4017-M10x20-8.8	BN 56	-	27001020
12	4	6kt-Schr ISO 4014-M10x60/26-8.8	BN 57	-	27011060
11	5	6kt-Schr ISO 4017-M12x30-8.8	BN 56	-	27001230
10	1	Maschinenschild klein ohne CE	Thomas	D.100.110	100.097
9	1	Satz Elektrisch	Schneider	D-000556	110.018
8	1	Winkel		D-000267	109.737
7	1	Verdeck		D-000265	109.736
6	2	Unterlage Variator		D-000248	109.796
5	1	Spannarm		D-000112	109.797
4	1	Kettenrad Simplex z=17		30-4-1061	003041061
3	1	Deichsel		30-4-0998	003040998
2	1	Abdeckblech		30-3-0581	00303581
1	1	Wagenplatte		30-1-0231	00301231
Pos.	Anz.	Bezeichnung	Lieferant	Zeichnung-Nr.	Artikel-Nr.
Artikelnummer 003041539		Ersatz für	Material	Masse 161 kg	Allgemeintoleranzen nach ISO 2768 - mK
GAV-Antrieb				Massstab 1 : 5	Gezeichnet 01.09.2022 chrp
COMANDO-MOTOVARIATORE				Geprüft 28.09.2023	chmko
Graf + Cie AG CH-8640 Rapperswil				Zeichnungs-Nummer 30-1-0232	Index 8
Schutzvermerk: DIN ISO 15016 beachten (Refer to ISO 15016)				A1 Blatt 1/1	



5	1	Verschlussglied DIN ISO 606, Nr. 26E 9815, 3/4"x7/16"		25070201
4	1	Rollenkette Nr.9815, DIN ISO 606, 177 GL. 3/4"x7/16"		25070013
3	2	Scheibe Carrosserie 13x37x3	BN 729	27111340
2	2	Sechskantschraube DIN 933-M12x30-8.8	BN 56	27001230
1	1	Spannarmverlängerung für C80		30-3-720
Pos.	Menge	Bezeichnung	Lieferant	Bemerkung

Änderungen:				Gehört zu Zeichnung -	
1)		6)		Ersetzt durch -	
2)		7)		Ersatz für -	
3)		8)		Allgemeintoleranzen nach ISO 2768 - mK	
4)		9)			
5)		10)			

Spannarmverl. u. Rollenkette GAV für C80 und Krempel			Massstab	Gezeichnet	22.08.19	chdim
			1:2	Geprüft	22.08.19	chcd



Graf + Cie AG
CH-8640 Rapperswil

Schutzvermerk:
ISO 16016 beachten
(Refer to ISO 16016)

30-4-1600,0

**Comando Elettroidraulico a distanza con
azzeramento per variatori serie K Cod. 67
(disponibile anche senza azzeramento)**

Il comando elettroidraulico con azzeramento cod.67, permette di regolare a distanza la velocità del variatore su tutto il campo di variazione in modo graduale, con accelerazione e decelerazione indipendenti dal moto. L'azzeramento consente di ripartire da zero giri ad ogni accensione della macchina.

Il comando elettroidraulico è costituito da:

Un cilindro idraulico a doppio effetto **13-26** con un dispositivo meccanico a molla **19** annesso per rimettere in posizione intermedia il pistone **26**, per realizzare l'azzeramento;

Una elettrovalvola **47** a quattro vie, tre posizioni per il funzionamento a comando elettrico.

FUNZIONAMENTO

Il comando elettroidraulico funziona quando il variatore è messo in moto da un motore elettrico o altro meccanismo e la pompa di alimentazione del variatore invia olio in pressione alla elettrovalvola **47** e al cassetto **20**. Eccitando i solenoidi dell'elettrovalvola **47**, si consente all'olio in pressione di passare attraverso i condotti del cassetto **20**, e quindi nella camera I del cilindro. L'olio in pressione, agendo sul pistone **26** solidale all'albero **3**, alla campana **2** ed all'anello eccentrico del variatore **0**, li sposta a destra determinando un aumento di portata della pompa del variatore e, di conseguenza, l'inizio della rotazione oraria dell'albero di uscita del variatore (se l'olio viene caricato nella camera II, cioè si eccita l'altro solenoide, la rotazione è antioraria). L'olio che si trova nella camera II ritorna al serbatoio attraverso il cassetto **20** e l'elettrovalvola **47**.

Interrompendo l'eccitazione dell'elettrovalvola **47** e di conseguenza l'alimentazione dell'olio nella camera I, il gruppo pistone **26-1-2-0** si arresta nella posizione raggiunta grazie al cassetto **20**, perfettamente stagno, che permette il mantenimento della quantità d'olio presente nelle camere I e II.

Ogni qualvolta si arresta il motore che aziona il variatore, si interrompe l'alimentazione dell'olio in pressione 'P' al comando. In questo modo lo stesso cassetto **20** mette in comunicazione tra loro le camere I e II attraverso i condotti **A** e **B** permettendo al meccanismo a molla **19** di richiamare rapidamente in posizione il gruppo di regolazione **26-1-2-0**, rimettendo così l'albero del variatore a zero giri (il variatore partirà così sempre da zero giri).

Il comando è provvisto inoltre di due dispositivi per la regolazione della portata (**A** e **B**) posti su entrambi i condotti interni al cassetto **20** che permettono di regolare indipendentemente la risposta del comando in un tempo variabile tra 3 e 30 secondi.

Il comando è stato realizzato per soddisfare l'esigenza di regolare a distanza, su entrambi i sensi, il variatore con tempi di regolazione rapidi e con la possibilità di rimettere l'albero di uscita a zero giri a motore fermo.

N.B. Se il comando, ogni qualvolta si arresta il motore che aziona il variatore, non riportasse a zero giri l'albero di uscita, ma ad un numero di giri prossimo a zero, è necessario regolare il dispositivo di azzeramento.

Allentare la ghiera **16**, ruotare verso destra o verso sinistra il tappo comando **18** fino a che l'albero di uscita non si ferma, riavvitare quindi la ghiera **16**. L'operazione è da eseguirsi con variatore in funzione.

**Remote Electrohydraulic control Code 67, with
zeroing attachment for VAR-SPE hydraulic
infinitely variable gears**

The electrohydraulic control code 67 permits the remote adjustment of the speed, over the full range, with gradual and independent acceleration and deceleration. The zeroing device allows the variator starts from zero rpm at every starting.

The speed control is composed by:

A double-acting hydraulic cylinder **13** with piston **26**, connected with the zeroing mechanical device **19** in order to reset the position of the piston **26**, to get zero rpm;

A four way, three position electrovalve **47**.

OPERATION

The code 67 speed control operates when the variator is driven by an electric motor or other mechanism; by this way, the feeding pump can supply oil under pressure to the valve **47** and to the block **20**. By exciting the valve solenoids **47**, the oil can pass through pipings of block **20**, and then to the chamber I of the cylinder. The oil under pressure, operating on the piston **26**, integral with pin **3** and with the eccentric ring **0**, pushes them to the right, so causing an oil flow rate on the variator pump, and consequently the clockwise rotation of the output shaft (if the oil is supplied to the chamber II, by exciting the other solenoid, the rotation is counter-clockwise). The oil in chamber II returns to the tank by the block **20** and electrovalve **47**.

Switching off the solenoid of valve **47** and so the oil flow under pressure to the chamber I, the piston group **26-1-2-0** stops in the achieved position by the block **20**, perfectly hermetic, that allows to keep the present oil quantities in the chambers I and II.

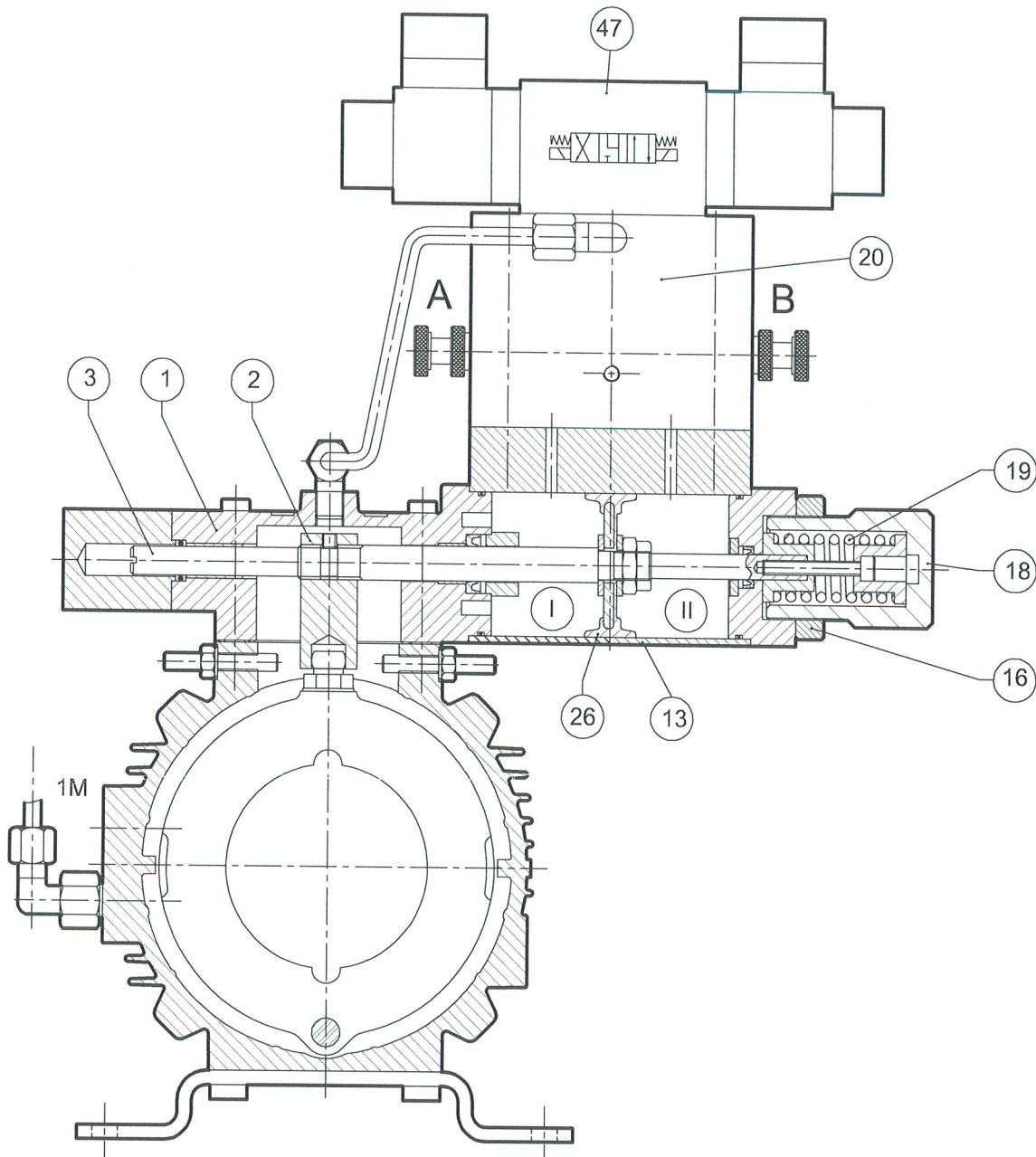
Every time you switch off the electric motor, you stop the supply of oil under pressure to the speed control. By this way, the chamber I and II are connected by pipings inside the block **20**, allowing the spring device **19** to recall immediately the piston-group **26-1-2-0**, coming back to zero the output shaft of the variator (so the variator always starts from zero rpm).

The control is provided with two flow control valves (**A** and **B**), set one on each internal pipings of block **20** for independent adjustment of the control response time, within the value from 3 to 30 seconds.

The control allows the remote adjustment of variator speed in both the directions of rotation, with quick variation changes and with the possibility of zeroing the output shaft.

NOTE: if a true zero speed position on output shaft is not reached by the control, the zeroing device must be re-adjusted.

Loosen bush **16**, turn the small lid cap **18** to the right or to the left side, till the output shafts stands, then re-tighten bush **16**.



Variatore visto frontalmente all'albero di uscita
Variator seen in front of the output shaft

N.B.

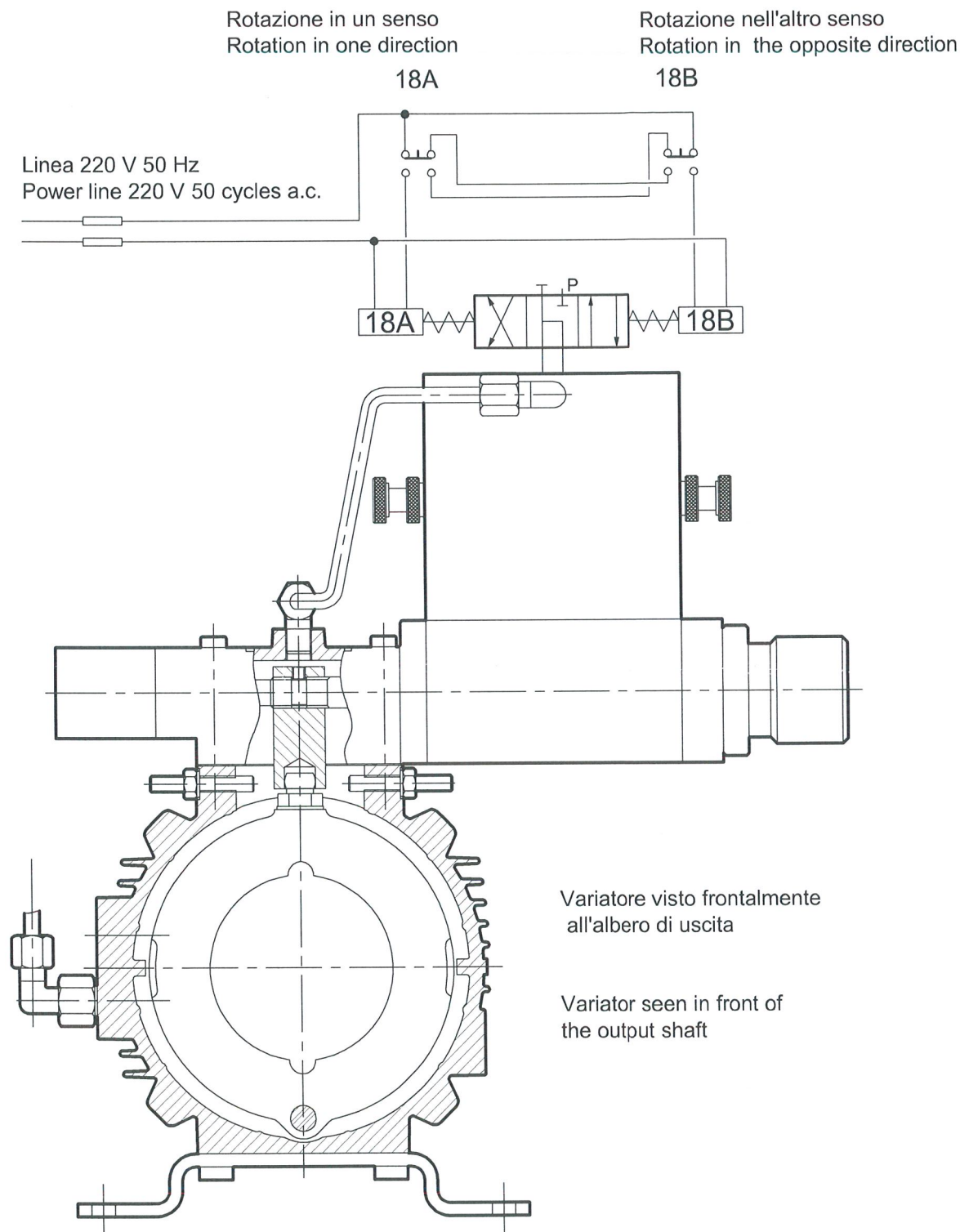
Di normale costruzione comando di regolazione disposto a destra, su richiesta a sinistra.

Note:

Normally the speed control is supplied on the right side, on request also on the left side.

SCHEMA ELETTRICO

WIRING DIAGRAM

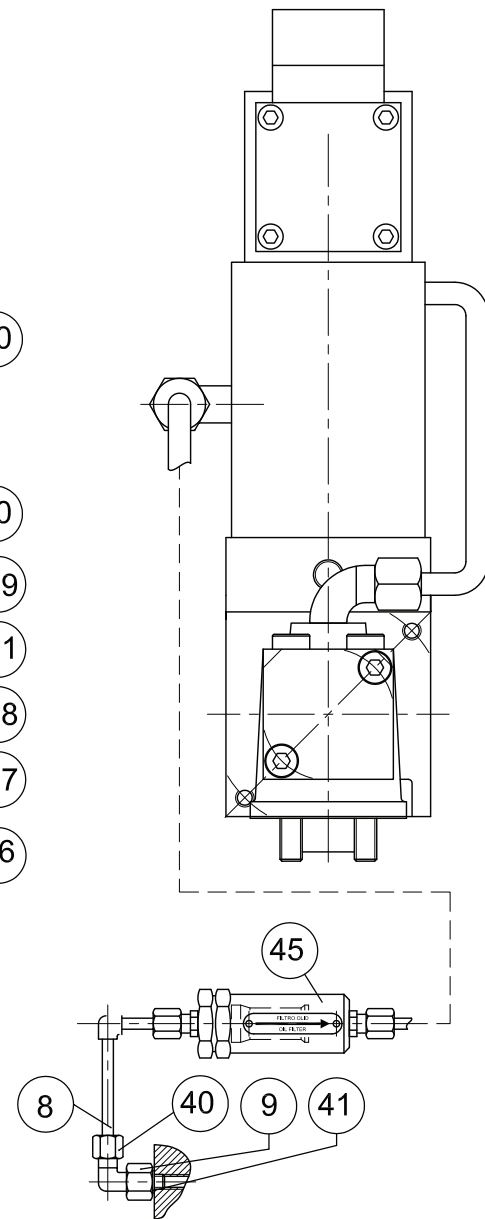
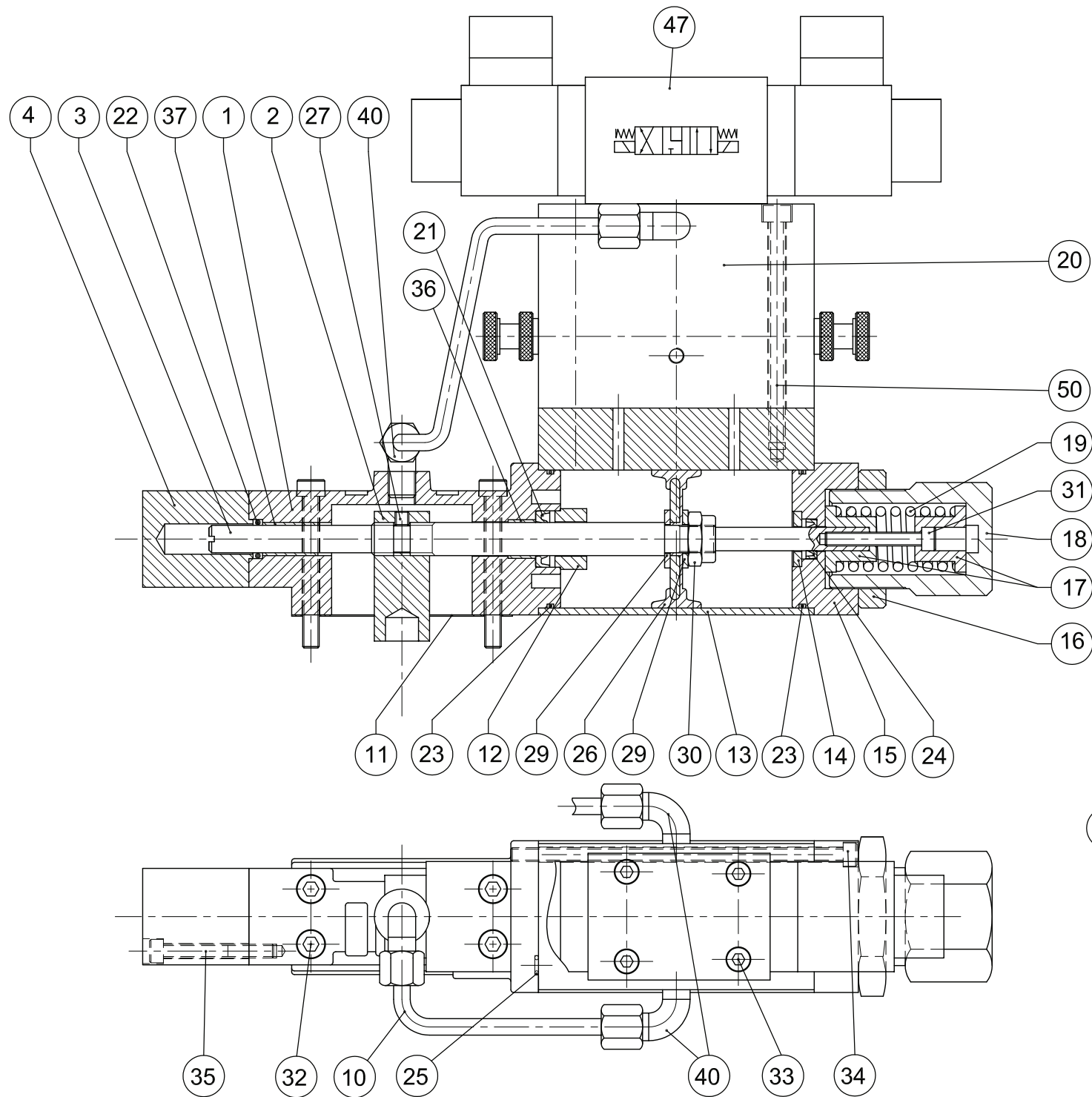


N.B.

1. Su espressa richiesta si possono fornire i solenoidi delle elettrovalvole con alimentazione a 110V – 50Hz c.a. oppure 24V c.c.
2. Su espressa richiesta si possono fornire valvole a comando pneumatico azionabili ad aria compressa con valore minimo di 3 bar.
3. La pulsantiera non è fornita con il comando.

Note:

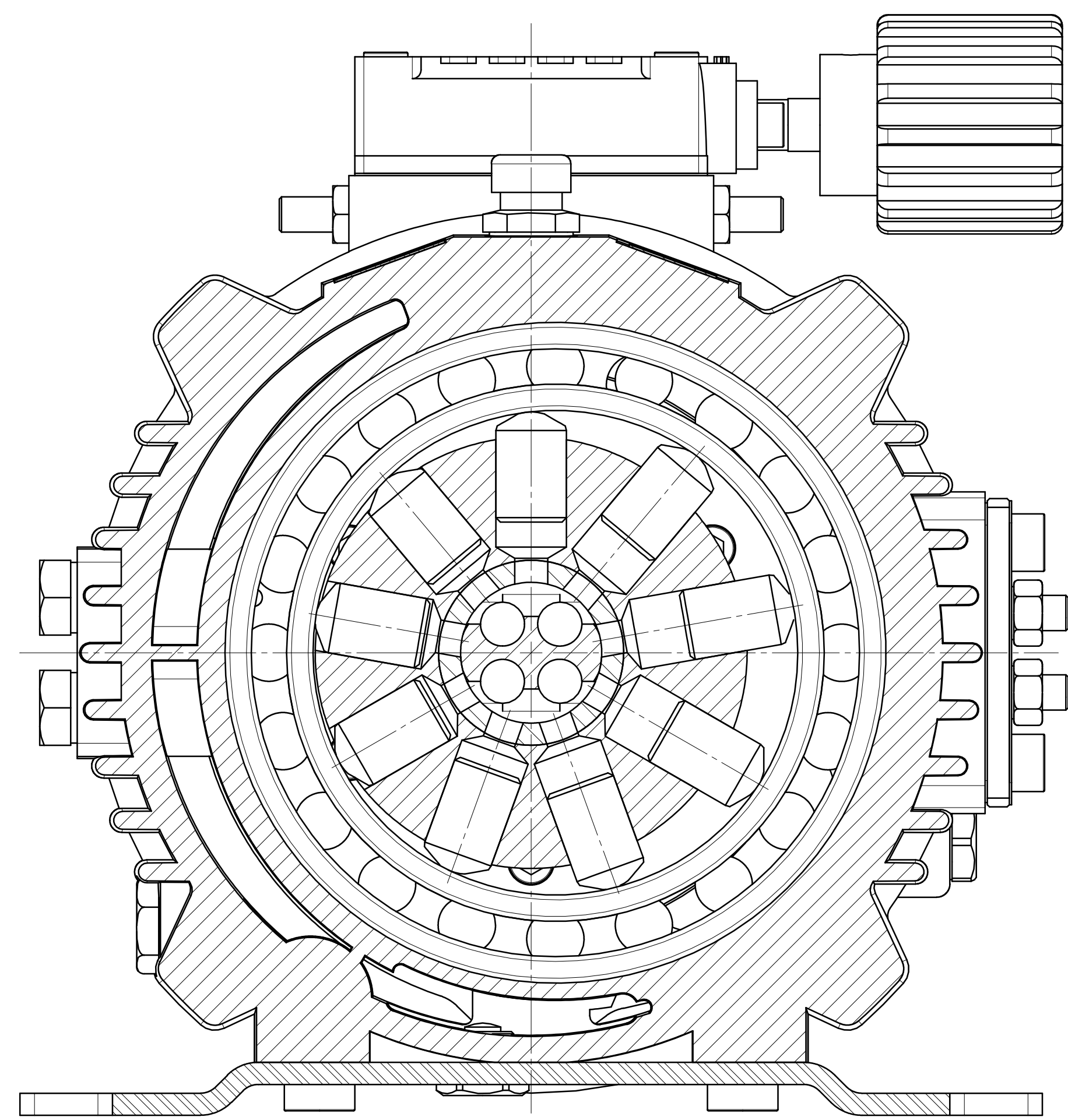
1. On request it's possible to supply the solenoid valve for 110V – 50Hz a.c. or 24V d.c.
2. On expressed request it's possible to supply pneumatic valve, with minimum value 3 bar.
3. The push-button is not supplied with the control code 67.



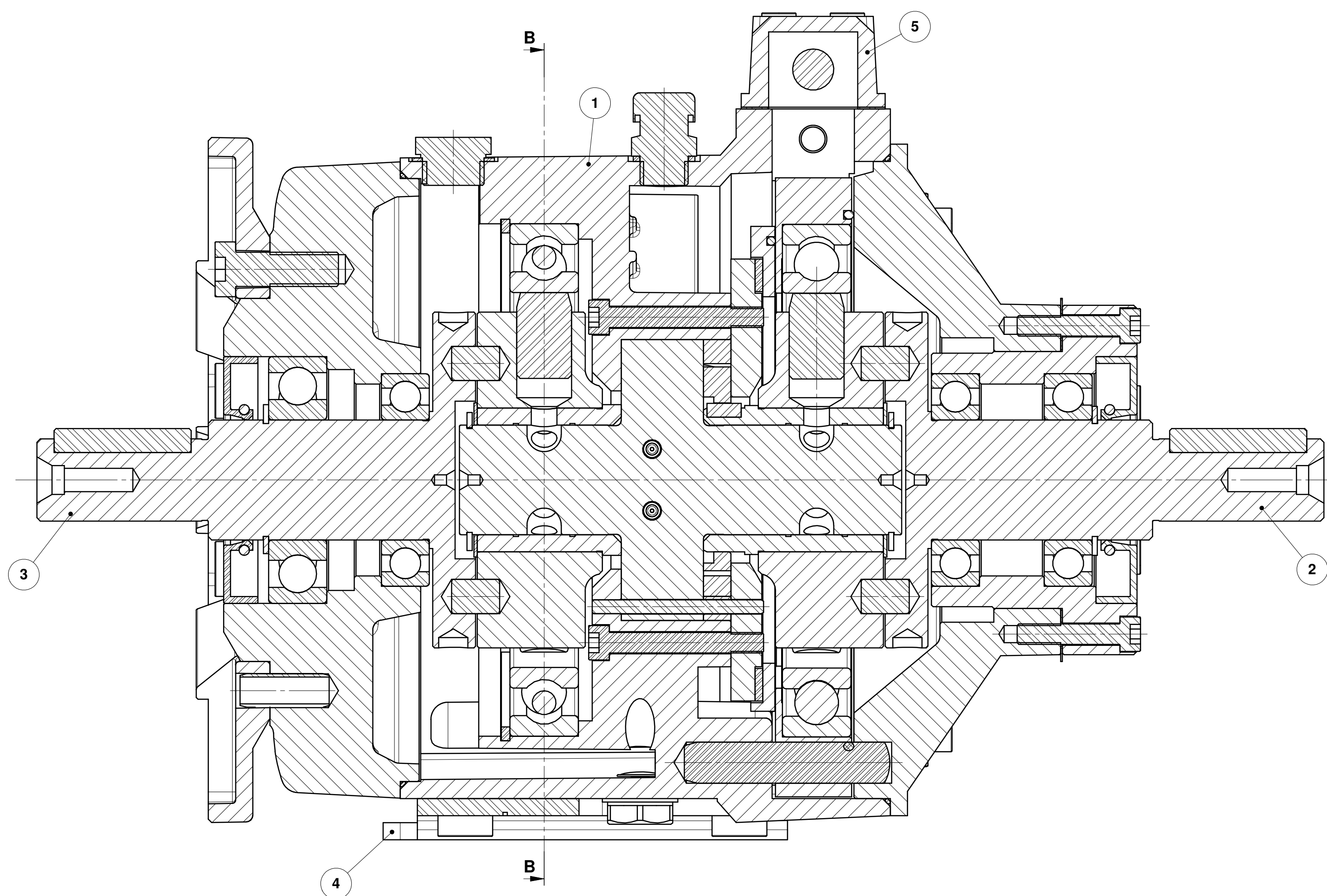
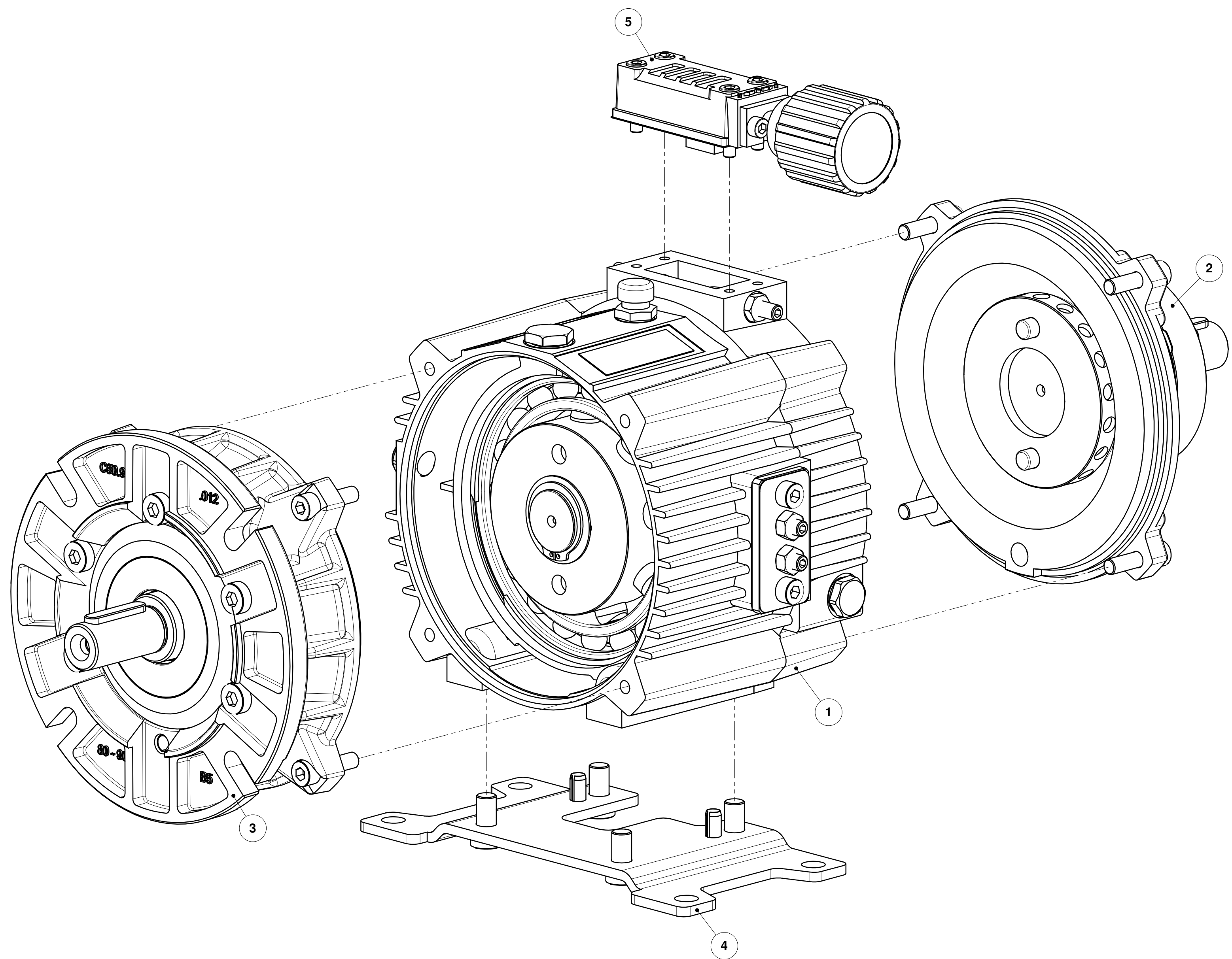
PROPRIETÀ RISERVATA VAR-SPE RESERVED PROPERTY OF VAR-SPE	OGGETTO : Comando cod. 67 per variatore tipo K2			VAR-SPE s.p.a. Tavernelle (VI) ITALY SOSTITUISCE IL SOSTITUITO DAL K2COM67
	MAT.	DIM./DIS. MOD.	KG	
	T.T.	DIS. RAMP	IL 10/12/01	
	Formato A3	HRC-	VER. IL	
NOTE :			SCALA -- Q.TA	

K2COM67				
N°	N° Disegno	Descrizione	Description	Q.tà
1	102-46.A2.010	Cassa comando	Control housing	1
2	102-46.A2.030	Campana regolazione eccentricità	Eccentricity control block	1
3	102-67.A2.070	Alberino di regolazione	Adjustment shaft	1
4	102-31.A2.070	Coperchio cassa comando	Control housing cover	1
8	102-31.A2.100	Tubazione pressione pompa aus.	Aux. pump pressure pipe	1
9	102-46.A2.090	Attacco prelievo press.	Coupling	1
10	102-65.A2.120	Tubazione di scarico	Drain pipe	1
11	100-10.A2.055	Guarnizione	Gasket	1
12	102-52.A2.140	Bussola	Bush	1
13	102-67.A2.060	Cilindro	Cylinder	1
14	102-65.A2.080	Bussola	Bush	1
15	102-65.A2.050	Coperchio cilindro	Cylinder cover	1
16	102-65.A2.110	Ghiera	Ring nut	1
17	102-65.A2.100	Bussola porta molla	Spring holder bush	2
18	102-65.A2.120	Tappo comando	Control plug	1
19	102-52.A2.060	Molla (102-52.A4-A10.060)	Spring holder bush	1
20	102-67.11.011	Cassetto distributore	Distributo block	1
21		Guarnizione a labbro DDI 050	Lip seal DDI 050	1
22		Guarnizione Parker 5-614(OR 112)	Gasket Parker 5-614(OR 112)	1
23		Guarnizione Parker 2-032 (OR 2187)	Gasket Parker 2-032 (OR 2187)	2
24		Guarnizione a labbro DDI 031	Lip seal DDI 031	1
25		Guarnizione Parker 2-007 (OR 102)	Gasket Parker 2-007 (OR 102)	1
26		Guarnizione TDUOP 50-76 CORCOS	Guarnizione TDUOP 50-76 CORCOS	1
27		Vite M5x5 UNI 5923	Screw M5x5 UNI 5923	1
29		Rosetts per viti M10 UNI 6592	Washer M10 UNI 6592	2
30		Dado aut. M10x1 basso UNI 7473	Selflocking nut M10x1 UNI 7473	1
31		Vite M5x35 UNI 5931	Screw M5x35 UNI 5931	1
32		Vite M6x55 UNI 5931	Screw M6x55 UNI 5931	4
33		Vite M5x45 UNI 5931	Screw M5x45 UNI 5931	4
34		Vite M5x120 UNI 5931	Screw M5x120 UNI 5931	2
35		Vite M5x40 UNI 5931	Screw M5x40 UNI 5931	2
36		Boccola permaglidle PAP 1210 P10	Bushing permaglidle PAP 1210 P10	1
37		Boccola permaglidle PAP 1020 P10	Bushing permaglidle PAP 1020 P10	1
40		Raccordo angolo 1/8" Gas	Union elbow 1/8" Gas	4
41		Rondella alluminio 8x12x1	Washer aliminium 8x12x1	1
45		Filtro olio	Oil filter	1
47		Elettrovalvola Atos DHI-0713	Electro-valve Atos DHI-0713	1
49		Raccordo diritto 1/8" Gas	Pipe fitting 1/8" Gas	3
50		Vite M6x80 UNI 5931	Screw M6x80 UNI 5931	4

N.B. Il cassetto distributore rif. N° 20 va montato in maniera uguale alla serie STANDARD seguendo la lista pezzi del disegno d'assieme 102-67.11.002

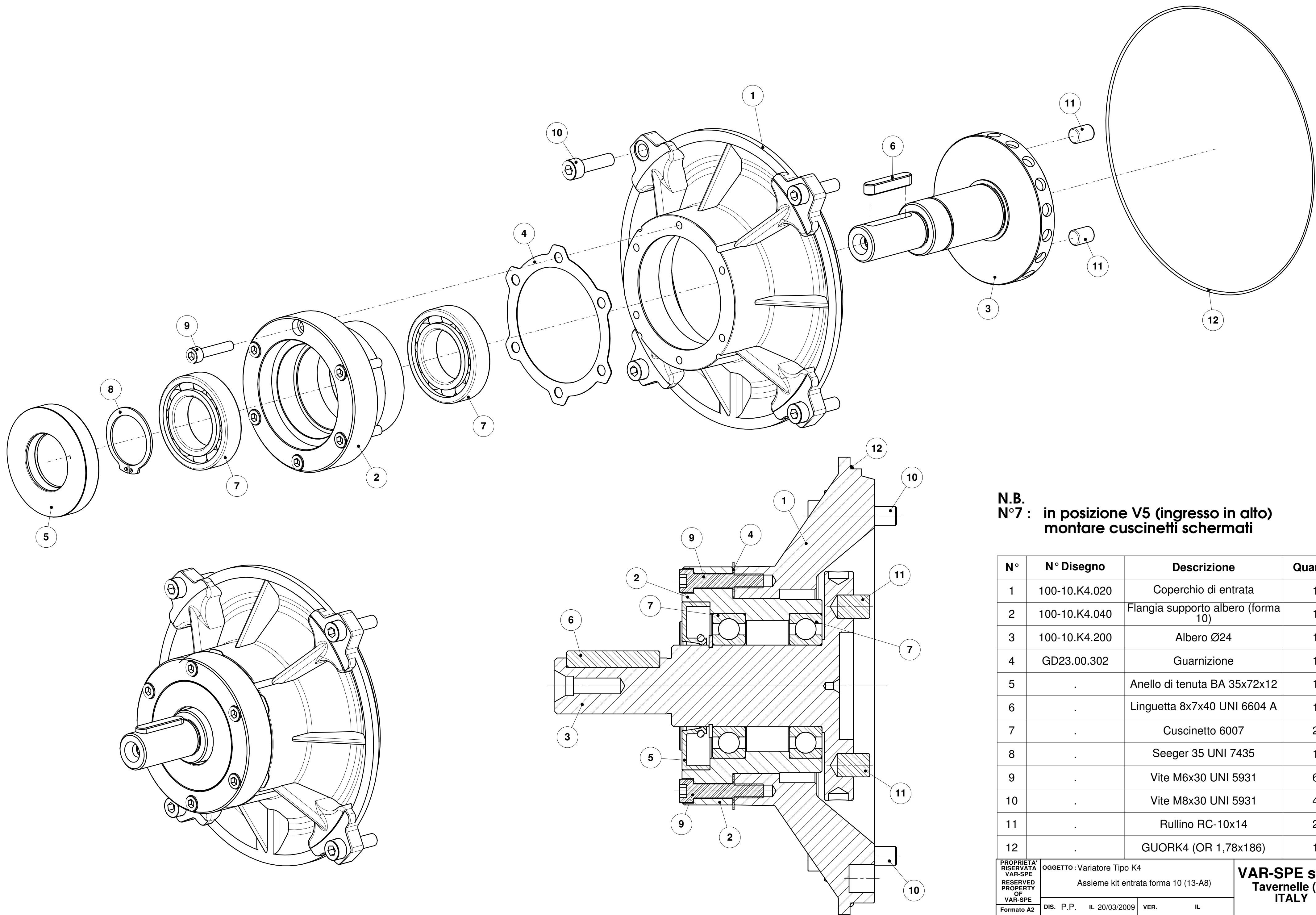


SEZIONE B-B



N°	N° Disegno	Descrizione	Quantità
1	K4MODBASE	Assieme modulo base K4	1
2	K4KITENTMD24	Assieme kit entrata forma 10 (13-A8)	1
3	K4KITUSC90B5	Assieme kit uscita 90B5 (13-A8)	1
4	K4PIEDIA8	Assieme kit piedini per variatore tipo A8	1
5	K2COM00	Assieme kit comado cod. 00	1

PROPRIETÀ RISERVATA VAR-SPE RESERVED PROPERTY OF VAR-SPE	OGGETTO : Variatore Tipo K4 Assieme K4 con piedi A8, albero entrata maschio e flangia uscita		VAR-SPE s.p.a. Tavernelle (VI) ITALY
	DIS. P.P. IL 02/04/2009	VER. IL	
Formato A1			DISEGNO K4.10.A8.1
NOTE : .	SOST. IL SOST. DAL		

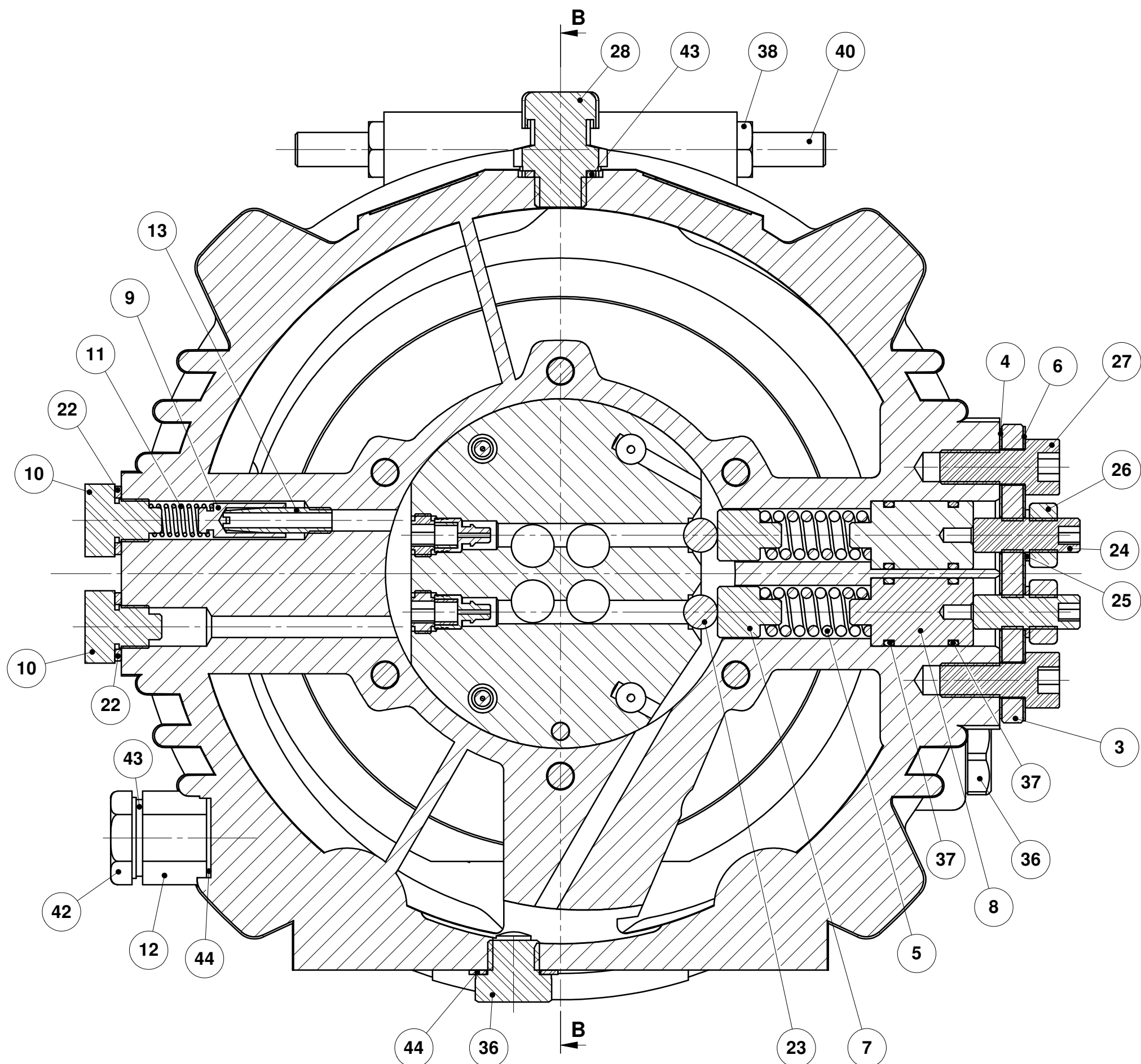
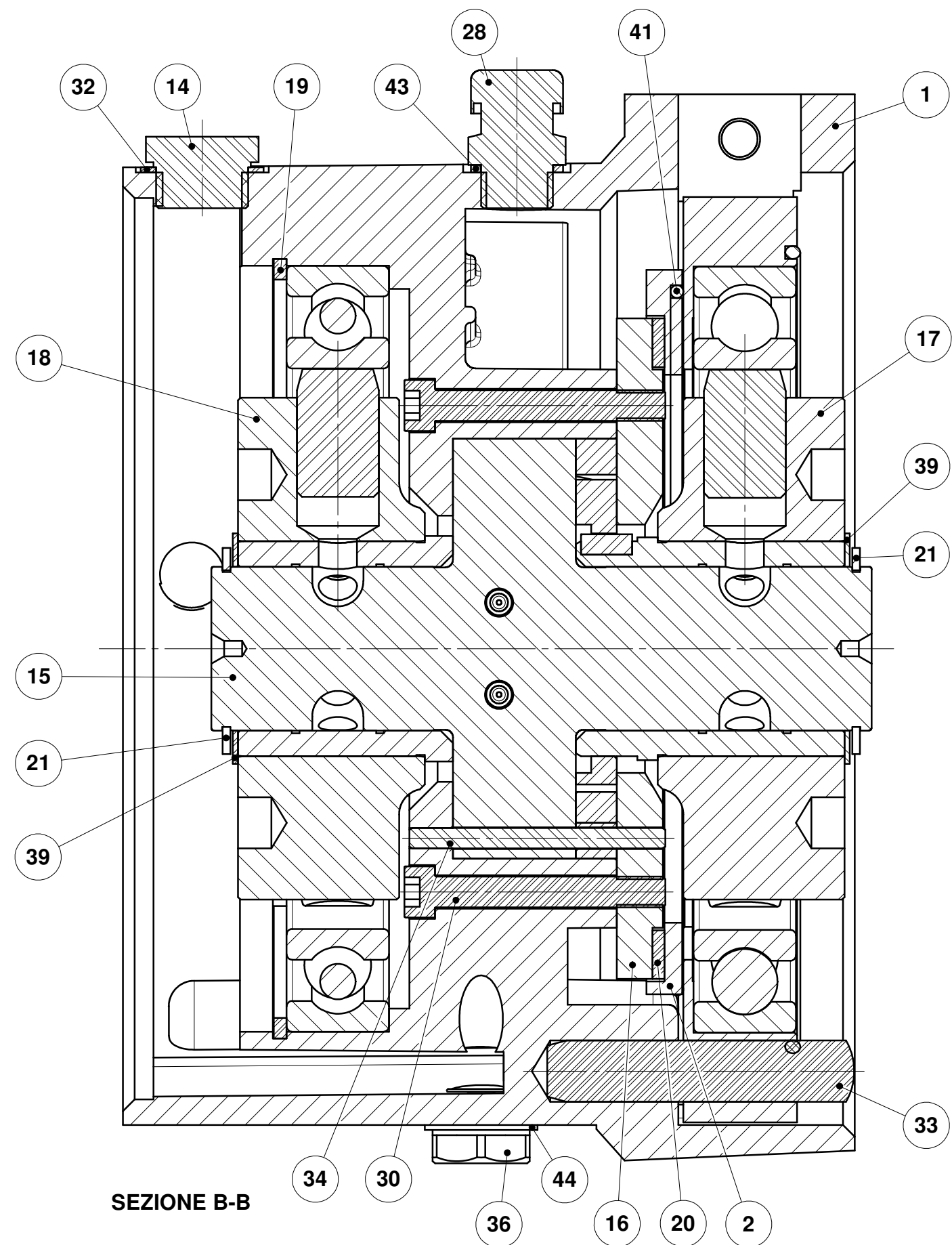
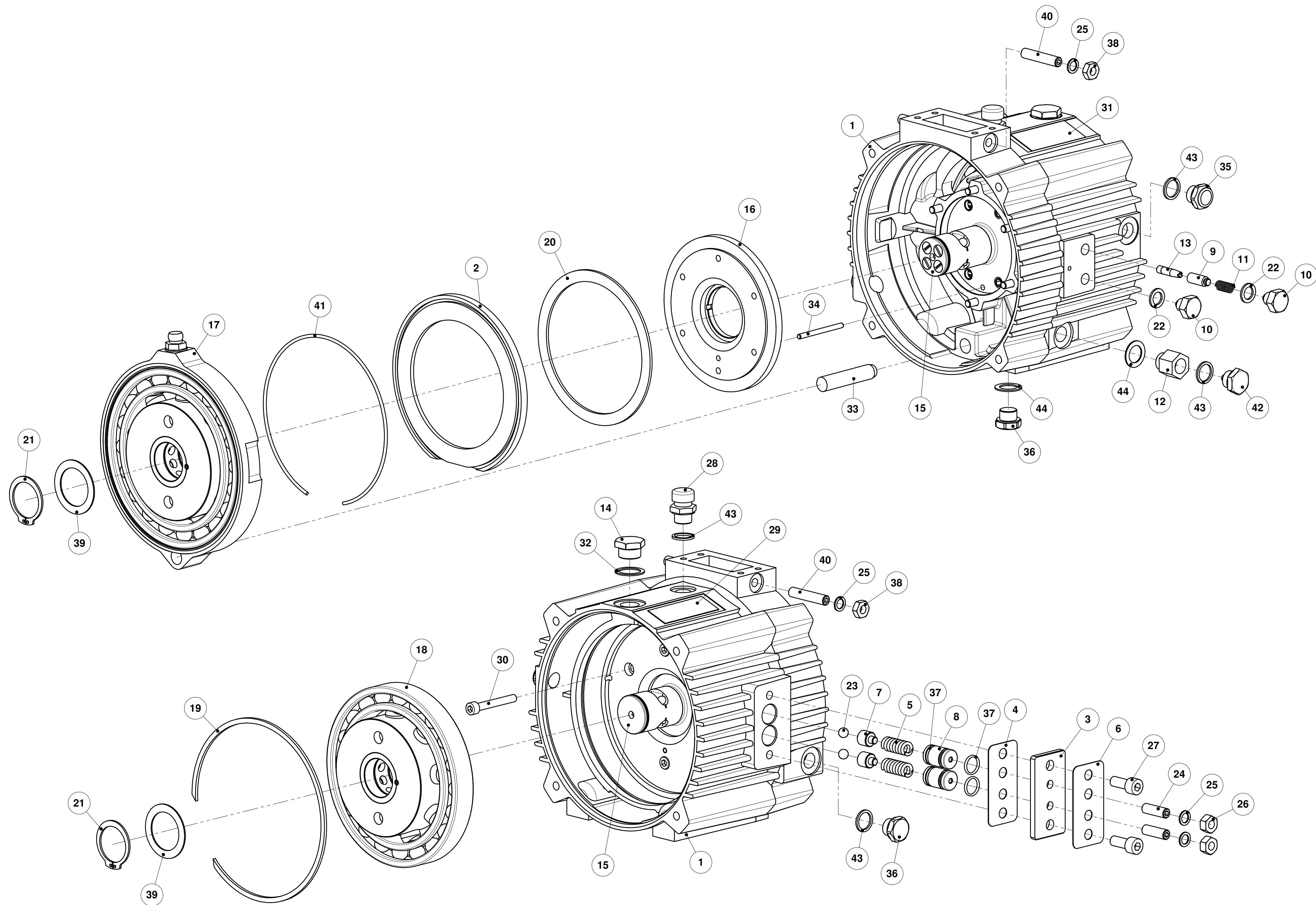


N.B.
N°7 : in posizione V5 (ingresso in alto)
montare cuscinetti schermati

N°	N° Disegno	Descrizione	Quantità
1	100-10.K4.020	Coperchio di entrata	1
2	100-10.K4.040	Flangia supporto albero (forma 10)	1
3	100-10.K4.200	Albero Ø24	1
4	GD23.00.302	Guarnizione	1
5	.	Anello di tenuta BA 35x72x12	1
6	.	Linguetta 8x7x40 UNI 6604 A	1
7	.	Cuscinetto 6007	2
8	.	Seeger 35 UNI 7435	1
9	.	Vite M6x30 UNI 5931	6
10	.	Vite M8x30 UNI 5931	4
11	.	Rullino RC-10x14	2
12	.	GUORK4 (OR 1,78x186)	1

PROPRIETÀ RISERVATA VAR-SPE RESERVED PROPERTY OF VAR-SPE Formato A2	OGGETTO : Variatore Tipo K4		VAR-SPE s.p.a. Tavernelle (VI) ITALY
	Assieme kit entrata forma 10 (13-A8)		
	DIS. P.P.	IL 20/03/2009	

NOTE : .	SOST. IL	DISEGNO K4KITENTMD24
	SOST. DAL	



N°	N° Disegno	Descrizione	Quantità
1	100-10.K4.010	Cassa	1
2	100-10.K4.070	Anello di rasamento	1
3	100-10.K4.250	Piastrina Valvola Max Pressione	1
4	100-10.K4.255	Guarnizione valvola max. pressione	1
5	100-10.K4.260	Molla valvola max. pressione	2
6	100-10.K4.270	Targhetta codice MM	1
7	100-10.K4.280	Cilindretto valvola max. pressione	2
8	100-10.K4.290	Pistoncino valvola max. pressione	2
9	100-10.K2.300	Cappello valvola	1
10	100-10.K2.320	Tappo spillo	2
11	100-10.K2.440	Molla valvola di max pressione pompa ausiliaria	1
12	100-10.K2.500	Manicotto per tappo magnetico	1
13	100-10.K2.790	Spillo	1
14	100-10.A2.810	Tappo chiusura cod. 8	1
15	K4KITAD	Assieme albero e valvoline	1

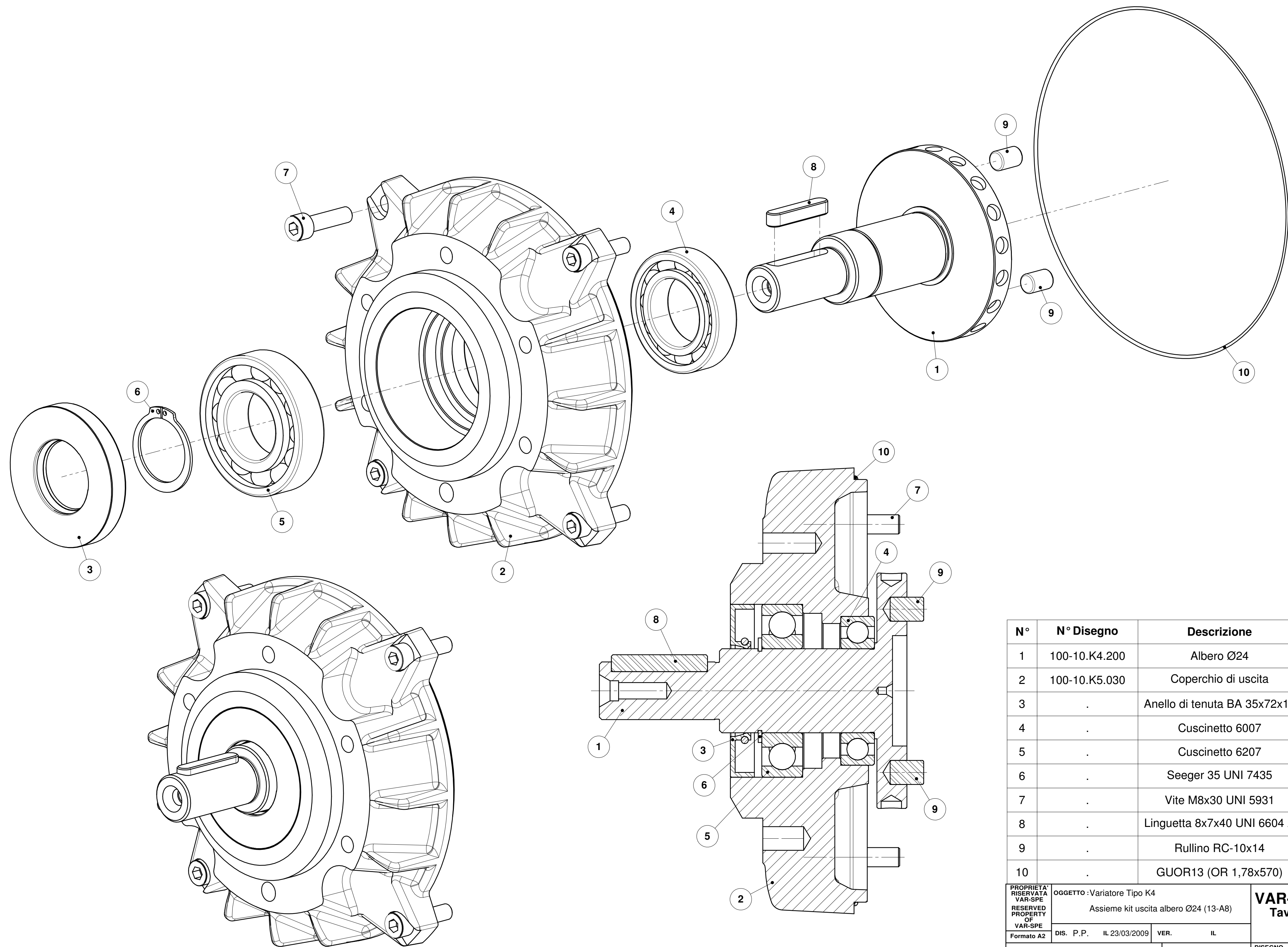
N°	N° Disegno	Descrizione	Quantità
16	K4KITPA	Assieme pompa ausiliaria	1
17	K4KITPAE	Assieme pompa primaria	1
18	K4KITPSC	Assieme gruppo secondario	1
19	.	Anello di spallamento SB 150	1
20	.	Anello ondulato LMKAS 130	1
21	.	Seeger 32 UNI 7435	2
22	.	Rosetta in alluminio 10x16x1,5	2
23	.	Sfera di acciaio 5/16" DIN 5401	2
24	.	Grano M8x25 UNI 5923	2
25	.	Rosetta in alluminio 8x12x1	4
26	.	Dado M8 UNI 5588	2
27	.	Vite M8x20 UNI 5931	2
28	.	Tappo sfiato TTCF-1 14x1,5	1
29	.	Targhetta tipo olio	1
30	.	Vite M6x45 UNI 5931	6

N°	N° Disegno	Descrizione	Quantità
31	.	Targhetta tipo variatore	1
32	.	Rosetta in alluminio 18x24x1	1
33	.	Spina 12x60 DIN 6325	1
34	.	Spina 4x50-B UNI 2338	1
35	.	Tappo livello KLSS 1415	1
36	.	Tappo cieco M14x1,5	2
37	.	Or 2050 (Parker 2-014)	4
38	.	Dado M8 UNI 5589	2
39	.	Rosetta 32x45x1 DIN 988	2
40	.	Vite M8x40 UNI 5923	2
41	.	Cordino in nylon Ø2,5	1
42	.	Tappo scarico magnetico M14x1,5	1
43	.	Guarnizione fibra rossa 18x14,2x1,5	4
44	.	Rosetta in alluminio 14x22x1	2

PROPRIETÀ RISERVATA VAR-SPE RESERVED PROPERTY OF VAR-SPE	OGGETTO : Variatore Tipo K4	
	Assieme modulo base K4	
	DIS. P.P. IL 30/03/2009	VER. IL
	NOTE : .	SOST. IL SOST. DAL

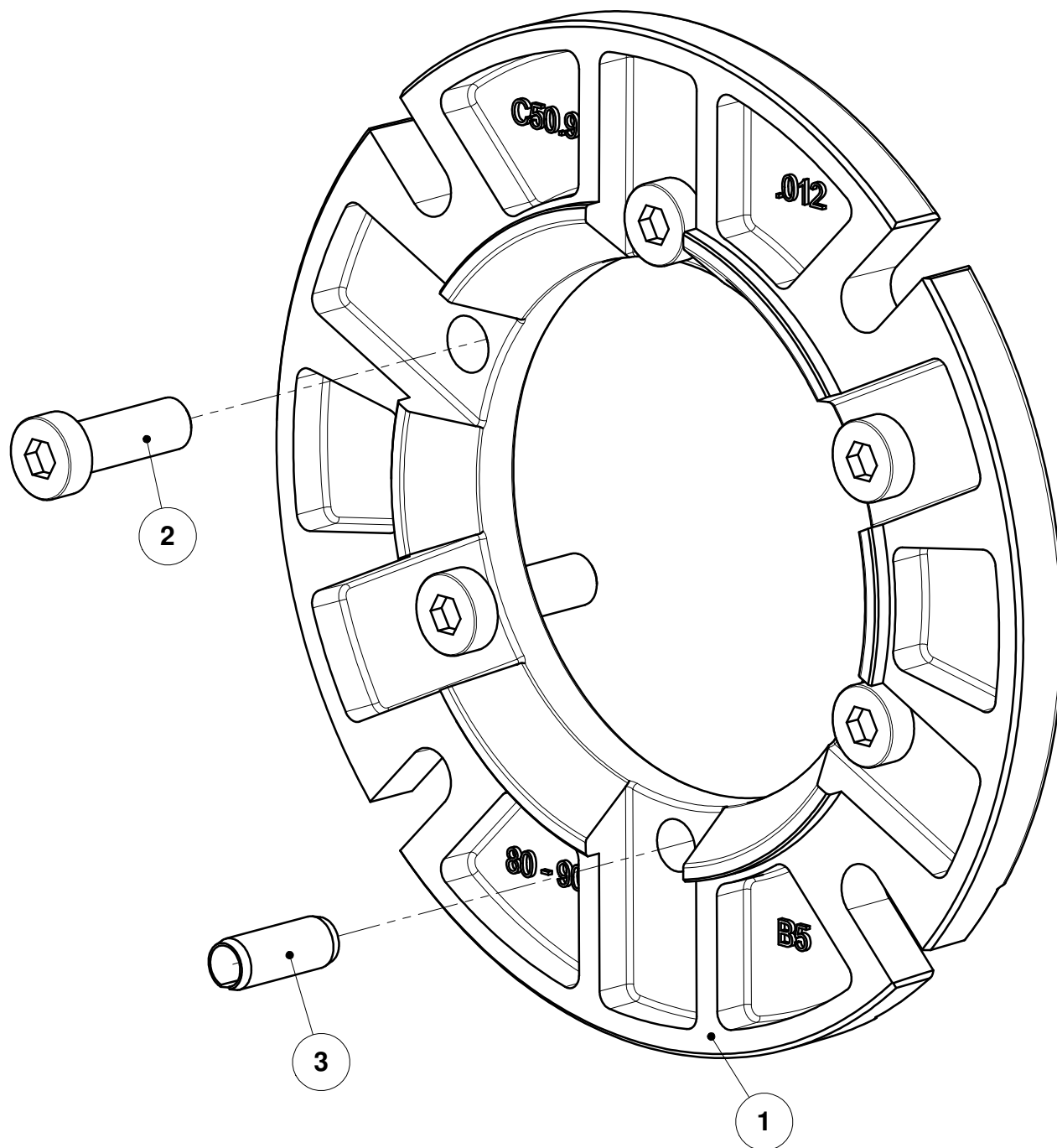
VAR-SPE s.p.a.
Tavernelle (VI)
ITALY

DISEGNO
K4MODBASE

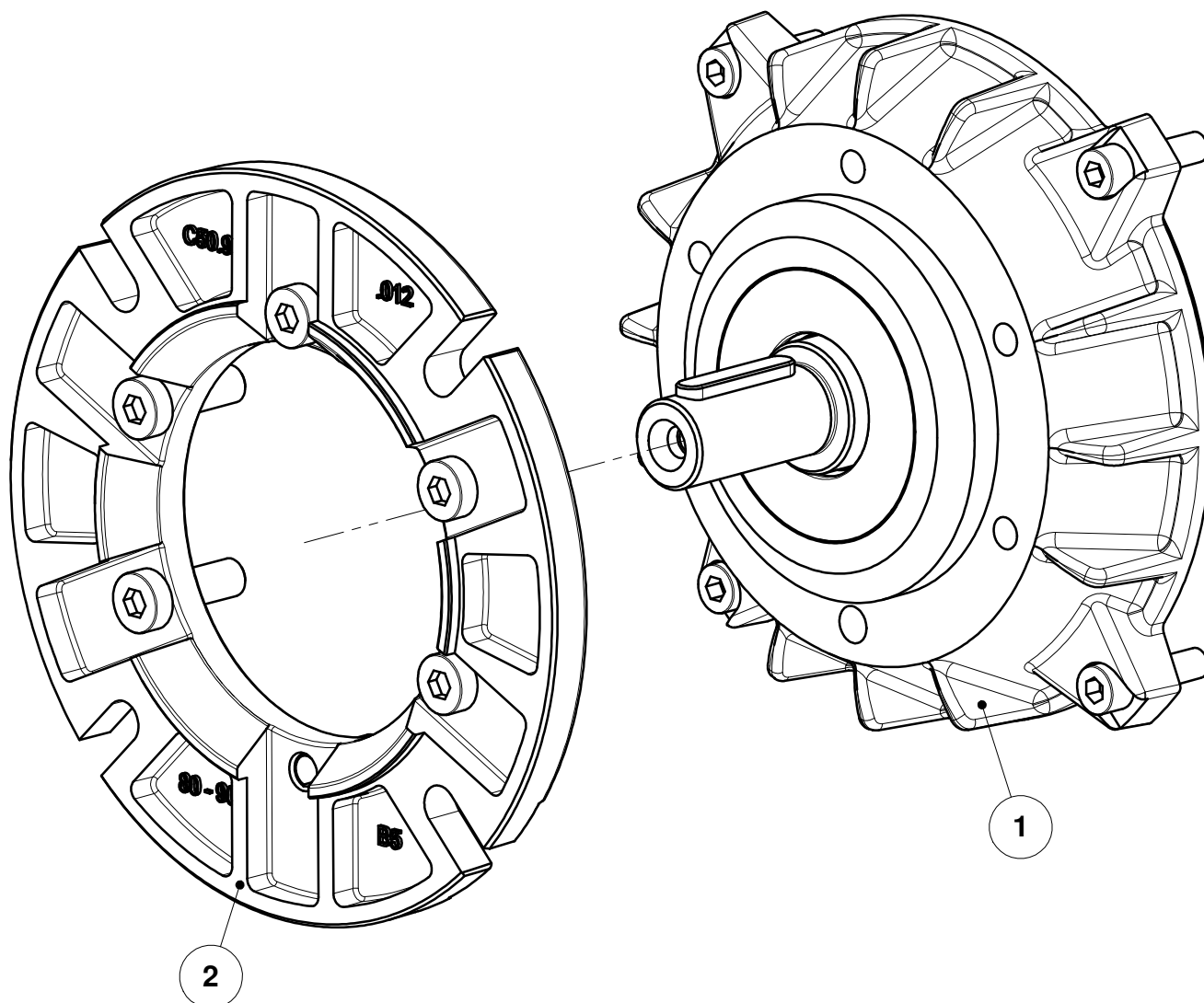


N°	N° Disegno	Descrizione	Quantità
1	100-10.K4.200	Albero Ø24	1
2	100-10.K5.030	Coperchio di uscita	1
3	.	Anello di tenuta BA 35x72x10	1
4	.	Cuscinetto 6007	1
5	.	Cuscinetto 6207	1
6	.	Seeger 35 UNI 7435	1
7	.	Vite M8x30 UNI 5931	4
8	.	Linguetta 8x7x40 UNI 6604 A	1
9	.	Rullino RC-10x14	2
10	.	GUOR13 (OR 1,78x570)	1

PROPRIETÀ RISERVATA VAR-SPE RESERVED PROPERTY OF VAR-SPE Formato A2	OGGETTO : Variatore Tipo K4 Assieme kit uscita albero Ø24 (13-A8)		VAR-SPE s.p.a. Tavernelle (VI) ITALY
	DIS. P.P.	IL 23/03/2009	VER. IL
NOTE : .			DISEGNO K4KITUSCD24
			SOST. IL
			SOST. DAL

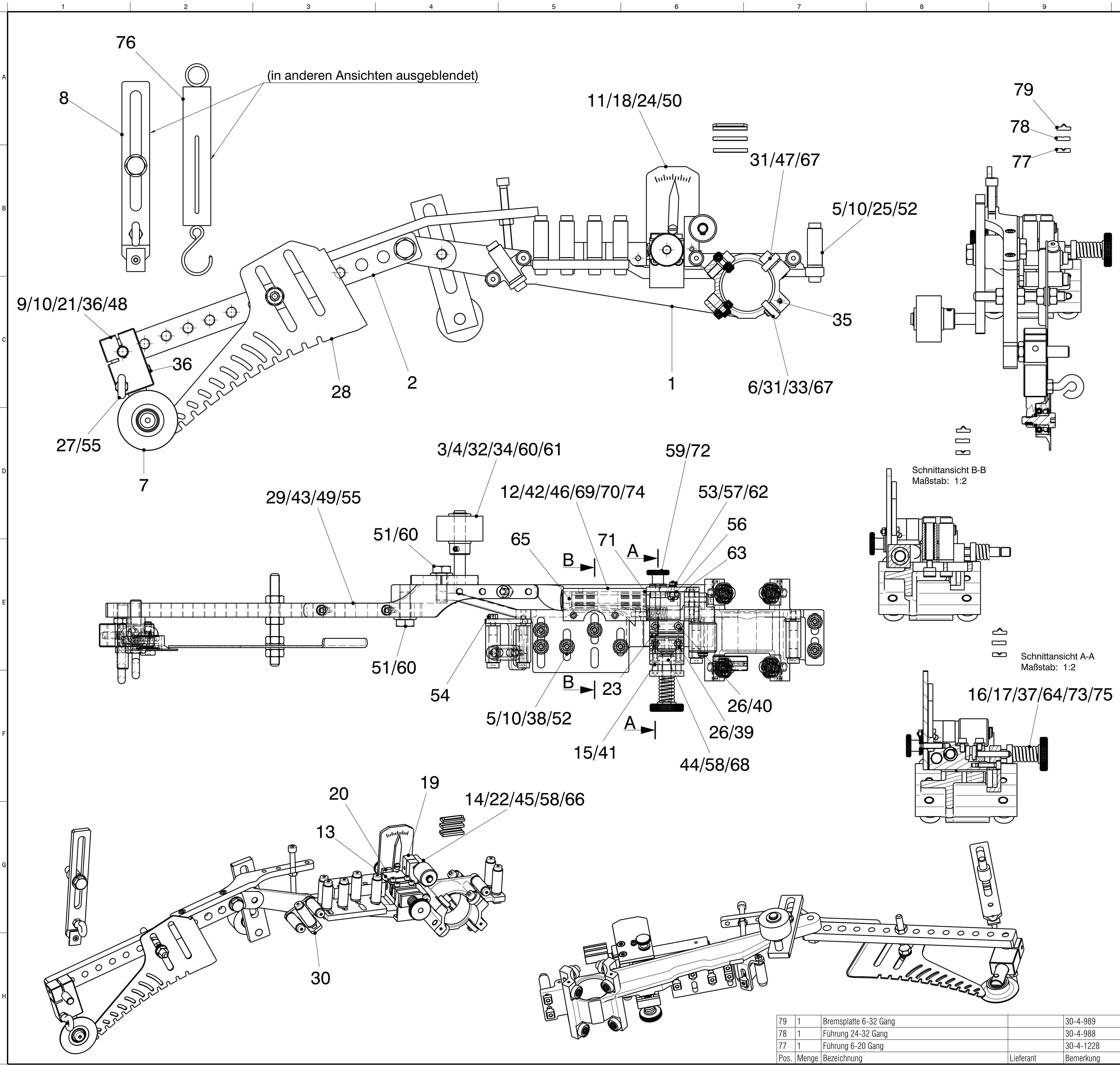


N°	N° Disegno	Descrizione	Quantità
1	C50.9.012	Flangia 90B5	1
2	.	Vite M10x30 UNI 9327	5
3	.	Spina UNI 6874 10x26-st	1
PROPRIETÀ RISERVATA VAR-SPE RESERVED PROPERTY OF VAR-SPE		OGGETTO : Variatore Tipo K4 Assieme kit flangia uscita 90B5	
		VAR-SPE s.p.a. Tavernelle (VI) ITALY	
Formato A4		DIS. P.P. IL 14/10/2009	VER. IL
NOTE : .		SOST. IL	DISEGNO
		SOST. DAL	K4KITFLU90B5

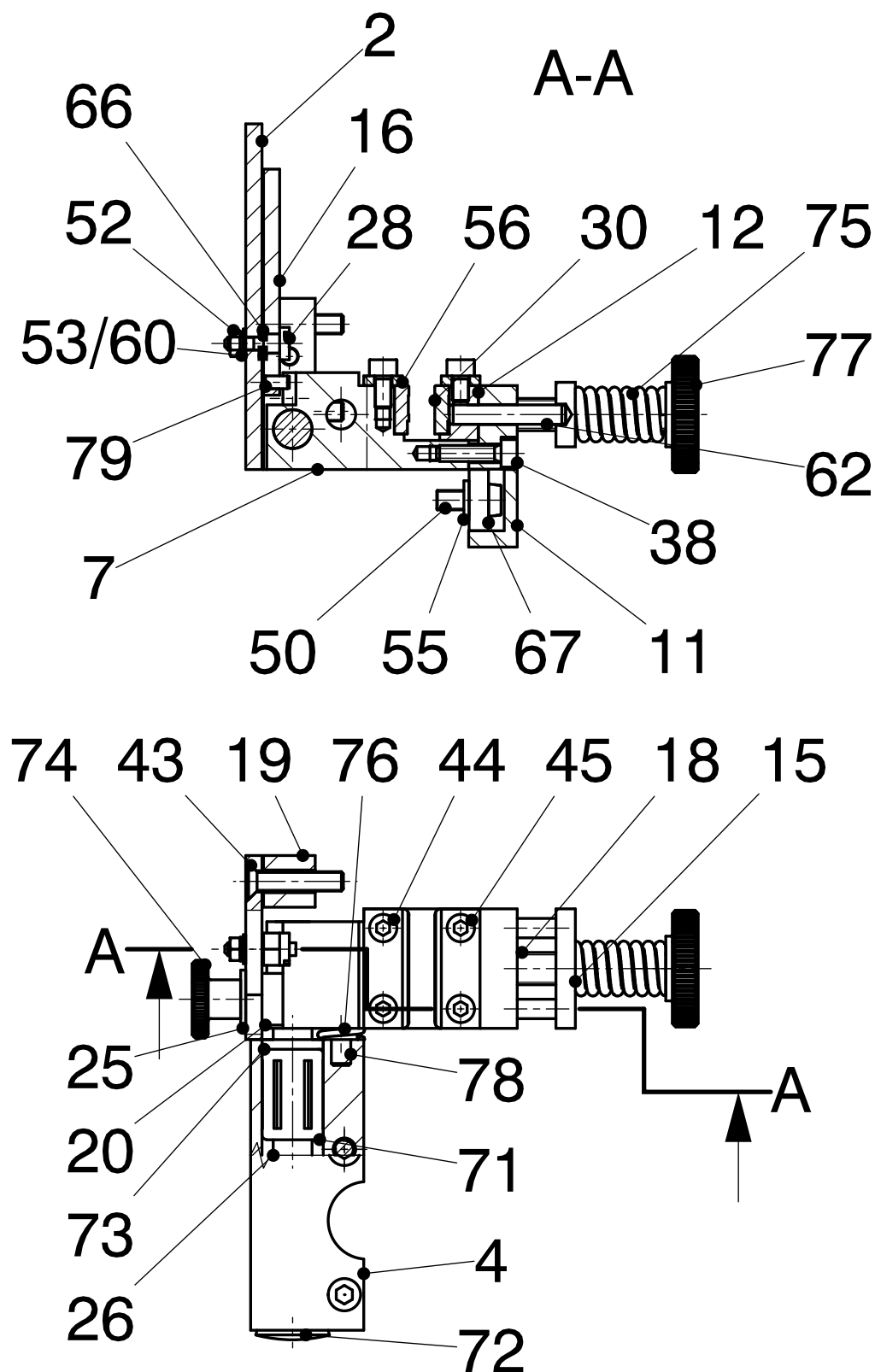


N°	N° Disegno	Descrizione	Quantità
1	K4KITUSCD24	Kit uscita albero Ø24 (13-A8)	1
2	K4KITFLU90B5	Assieme kit flangia uscita 90B5	1

PROPRIETA' RISERVATA VAR-SPE RESERVED PROPERTY OF VAR-SPE	OGGETTO : Variatore Tipo K4 Assieme kit uscita 90B5 (13-A8)		VAR-SPE s.p.a. Tavernelle (VI) ITALY
	Formato A4	DIS. P.P. IL 23/03/2009	
NOTE : .		SOST. IL	DISEGNO
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Änderungen:

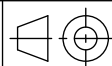
1) Nr. 4545	08.08.18	yf	6)
2)			7)
3)			8)
4)			9)
5)			10)

Gehört zu Zeichnung -

Ersetzt durch -

Ersatz für -

Allgemeintoleranzen nach
ISO 2768 - mK



Bremsvorrichtung

GAV

Massstab	Gezeichnet	07.08.18	yf
1:1	Geprüft	08.08.18	cd



Graf + Cie AG
CH-8640 Rapperswil

Schutzvermerk:
ISO 16016 beachten
(Refer to ISO 16016)

Z0-4-1696,1

(9S) Baukastenstückliste - 00Z041696 BREMSVORRICHTUNG

GAV Standort: CH Schweiz Überarb: Alt.: - (alle

Datensätze)

ch.yf (1 von 1)

Menge pro	Lager-ME	Pos.	Bezeichnung	Drawing no	Komponente	Status
1.000	EA	0020	SKALAPLATTE GAV	30-3-0435,2	00303435	10
1.000	EA	0040	FÜHRUNG GAV	30-3-0437,5	00303437	10
1.000	EA	0070	BREMSHALTER GAV	30-3-0438,4	00303438	10
1.000	EA	0110	BREMSBACKE GAV	30-4-1062,3	003041062	10
1.000	EA	0120	KLEMMPLATTE GAV	30-4-1063,3	003041063	10
1.000	EA	0150	BRIDE GAV	30-4-1064,1	003041064	10
1.000	EA	0160	ZEIGER GAV	30-4-1065,0	003041065	10
1.000	EA	0180	STIFTSCHR M10X50		27181050	10
1.000	EA	0190	DISTANZSTÜCK GAV	30-4-1067,1	003041067	10
1.000	EA	0200	DISTANZSTÜCK GAV	30-4-1068,1	003041068	10
2.000	EA	0250	U-SCHEIBE POLYAMI 6,4X18X1,6		27110618	10
1.000	EA	0260	ZYL-STIFT H 12X120 GEH.GESCHL		272512120	10
1.000	EA	0280	ZYL-SCHR MIT BUND GAV	30-4-1071,1	003041071	10
2.000	EA	0300	HARTMETALLPLAT.ISO K10 GAV	30-4-1094,9	003041094	10
2.000	EA	0380	ZYL-SCHR IN-6KT M5X20		27020520	10
2.000	EA	0430	SE-SCHR IN-6RUND M6X30		27170630	10
2.000	EA	0440	ZYL-SCHR IN-6KT M5X10		27020510	10
2.000	EA	0450	ZYL-SCHR IN-6KT M 5X 8		27020508	10
1.000	EA	0500	ZYL-SCHR M6X16		27040616	10
1.000	EA	0520	6KT-MUTTER M4		27060004	10
1.000	EA	0530	U-SCHEIBE M4		27100004	10
1.000	EA	0550	U-SCHEIBE M6		27100006	10
2.000	EA	0560	KLEMM-PLÄTTCHEN GAV	30-4-1524,0	003041524	10
1.000	EA	0600	FED-RING M4		27120004	10
2.000	EA	0620	ZYL-STIFT H 6X36 GEH.GESCHL		27250636	10
1.000	EA	0660	PASS-SCHEIBE 4X8X0,5		2747040805	10
1.000	EA	0670	RILLENKUGELLAGER 626-2Z		266262Z	10
2.000	EA	0710	KUGELHÜLSE KH 1228		26KH1228	10
1.000	EA	0720	SCHUTZSTOPFEN TL-4-193		27604193	10

(9S) Baukastenstückliste - 00Z041696 BREMSVORRICHTUNG

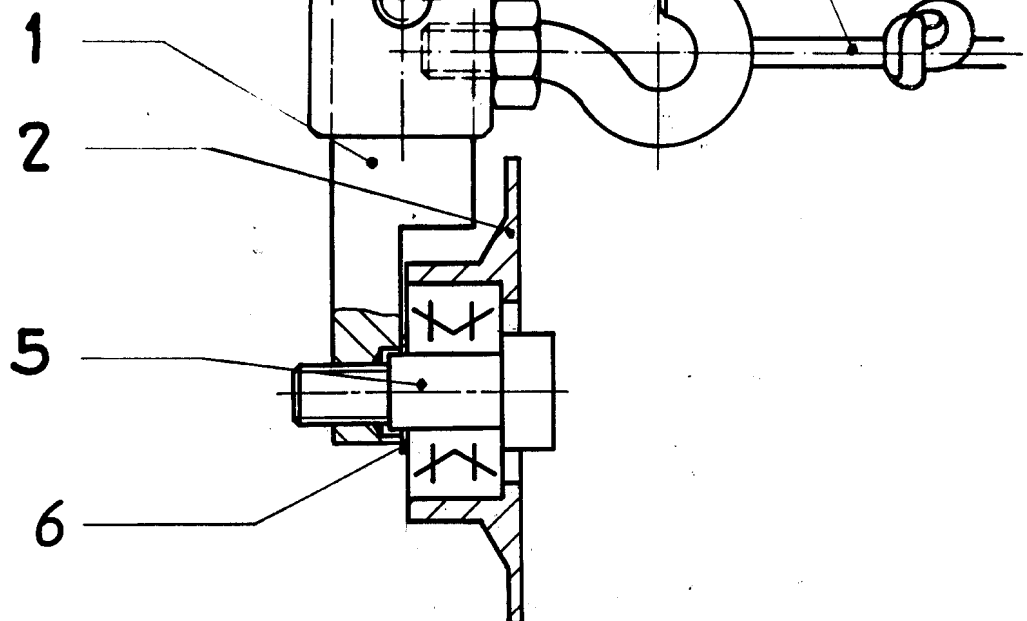
GAV Standort: CH Schweiz Überarb: Alt.: - (alle

Datensätze)

ch.yf (1 von 1)

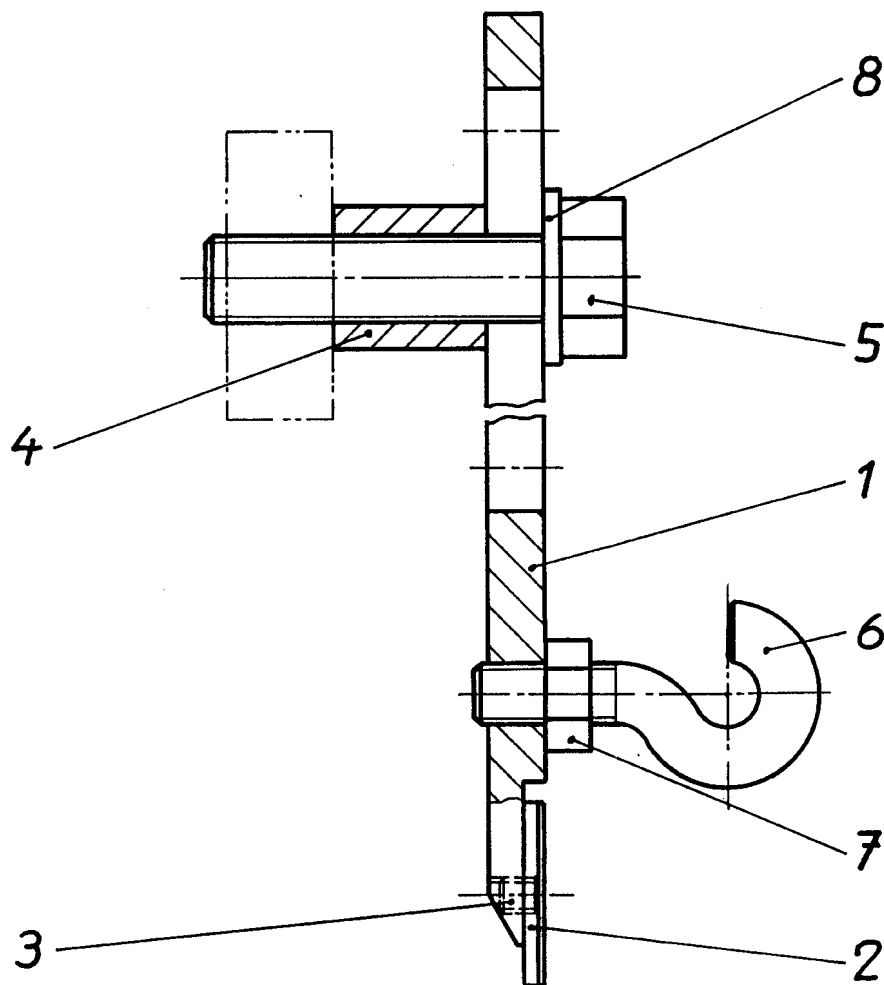
Menge pro	Lager-ME	Pos.	Bezeichnung	Drawing no	Komponente	Status
1.000	EA	0730	DICHTRING G12X19X3		2500G1219	10
1.000	EA	0740	RÄNDELSCHR HOCH M6X25		274410625	10
1.000	EA	0750	NORMDRUCKFEDER 32X17X3.2		27423232	10
1.000	EA	0760	NORMDRUCKFEDER 27X14.5X2.0		27420227	10
1.000	EA	0770	RÄNDELMU FLACH M10		27430010	10
1.000	EA	0780	ZYL-SCHR IN-6KT M6X8		27020608	10
1.000	EA	0790	ZYL-STIFT H 4X8 GEH.GESCHL		27250408	10

GAV-Oberteil
Zchnng. 30-1-179

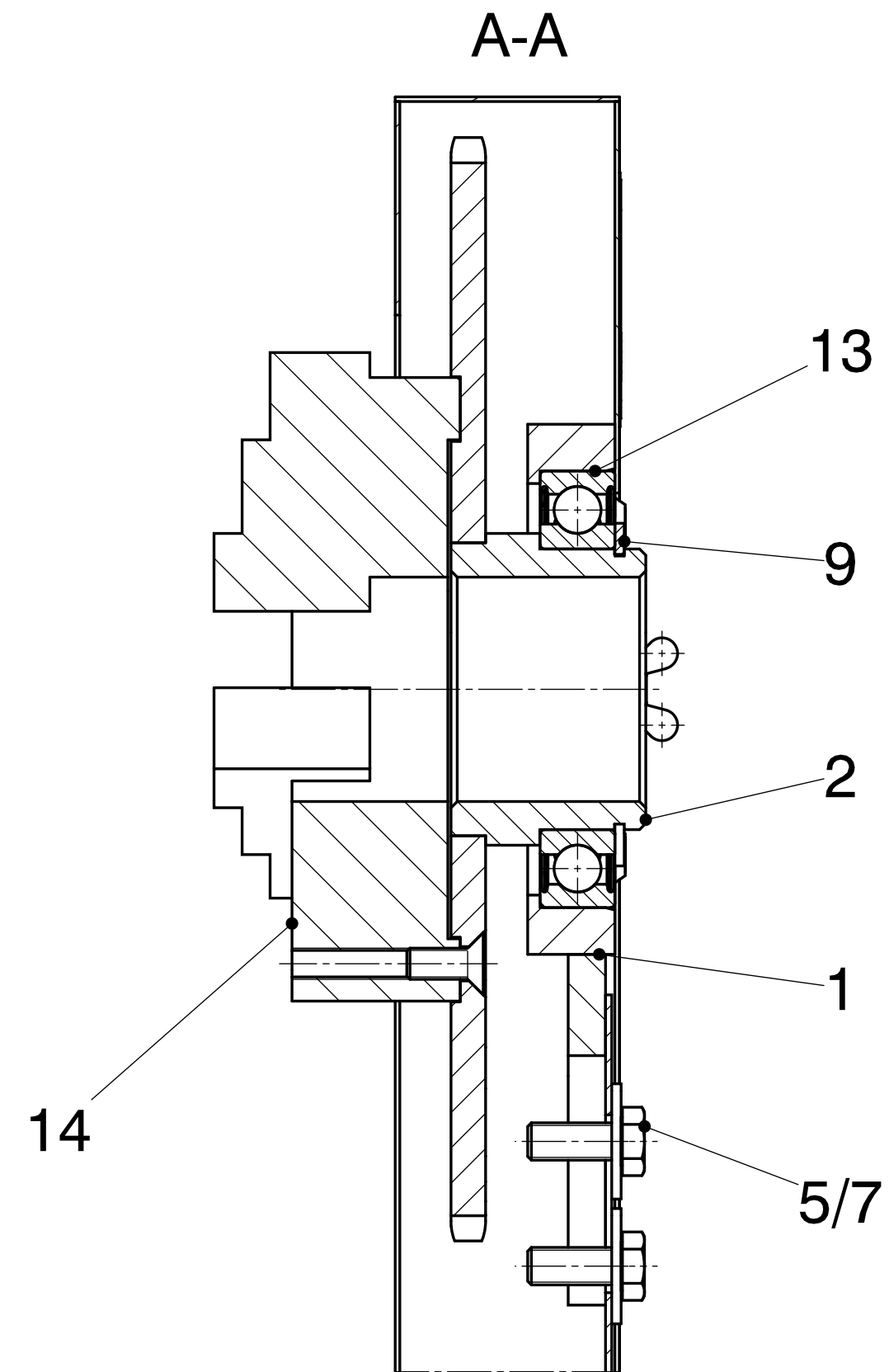
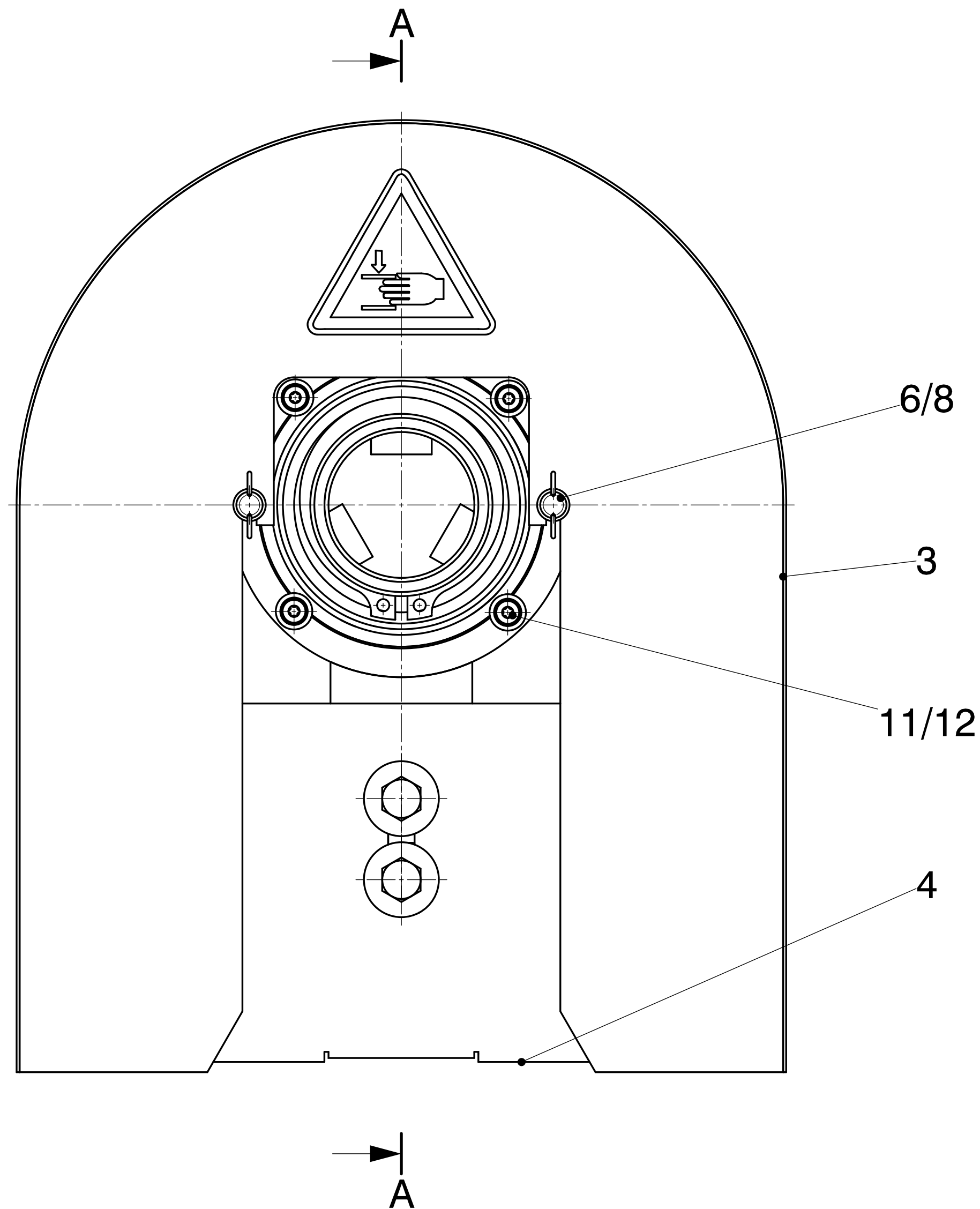


1	Pass-Scheibe	6	$\phi 10 \times 16 \times 0,5$			274 7101605
1	Pass-Schulterachr.	5	$\phi 10 \times 16 / M8$	7379		2754101608
		4				
		3				
1	Anpressrolle	2				30-4-1244
1	Rollenhalter	1				30-4-981
Stück	Gegenstand	Pos.	Werkstoff	VSM	Modell	Bemerkung
II	I	Aenderungen: 4.6.91CH Gehört zu Zeichnung:				
		Ersetzt durch Ersatz für gl. Nummer				
		▽ geschruppt (11) ▽▽ geschlichtet (12) ▽▽▽ feingeschlichtet (13)	13b geschliffen 14 geschliffen n. d. Härten 15 geschabt	18 Kanten gebrochen 22 einsatzgehärtet 23 gehärtet	Maße ohne Toleranz sind mit $\pm 0,2$ mm einzuhalten.	
Anpressrolle für normale GS-Garnituren zu GAV-Oberteil			Maßstab 1:1	Gezeichnet Geprüft Gesehen	4.6.91 CH	
Graf & Cie AG, Rapperswil			30-4-1005		4	AI

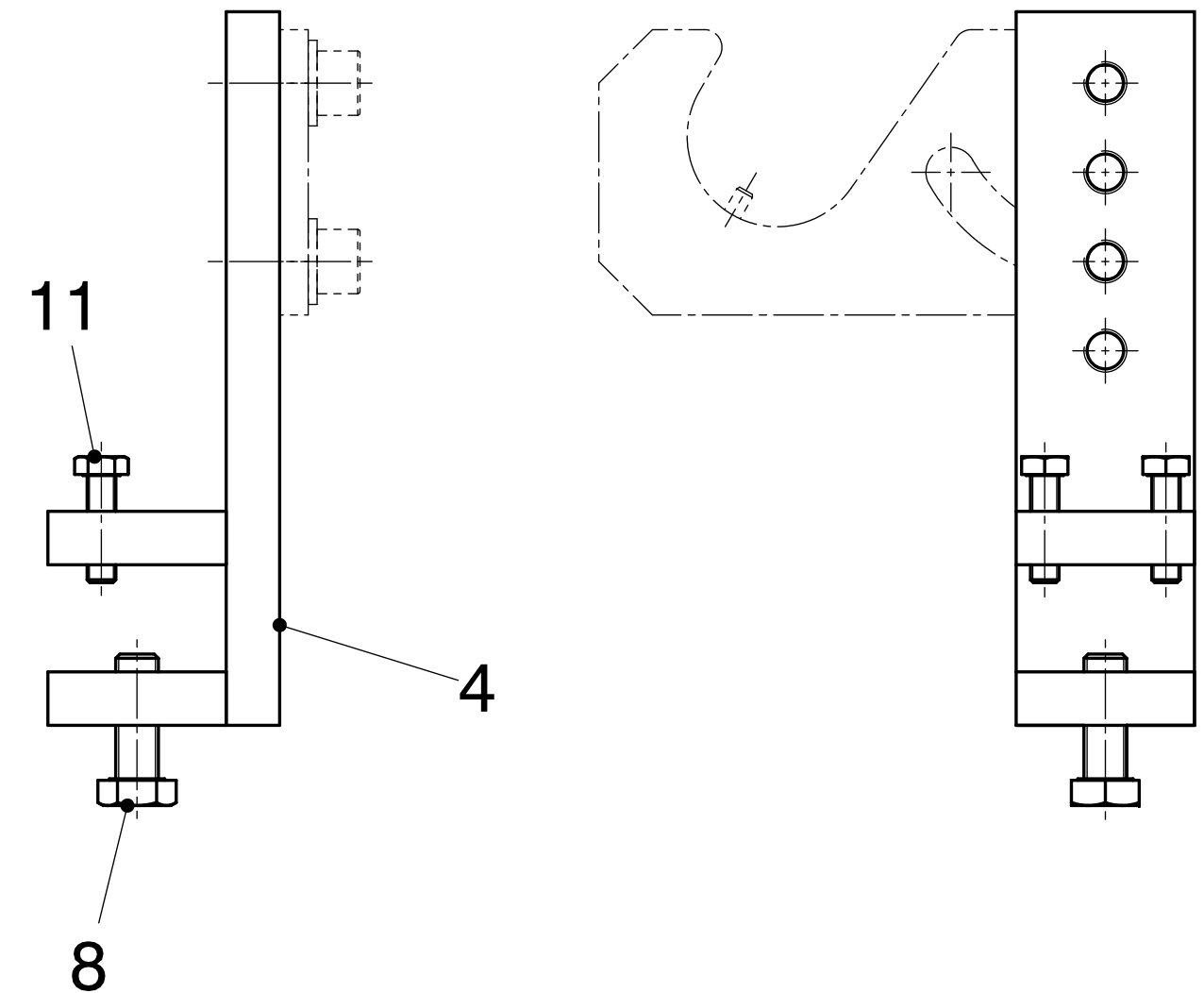
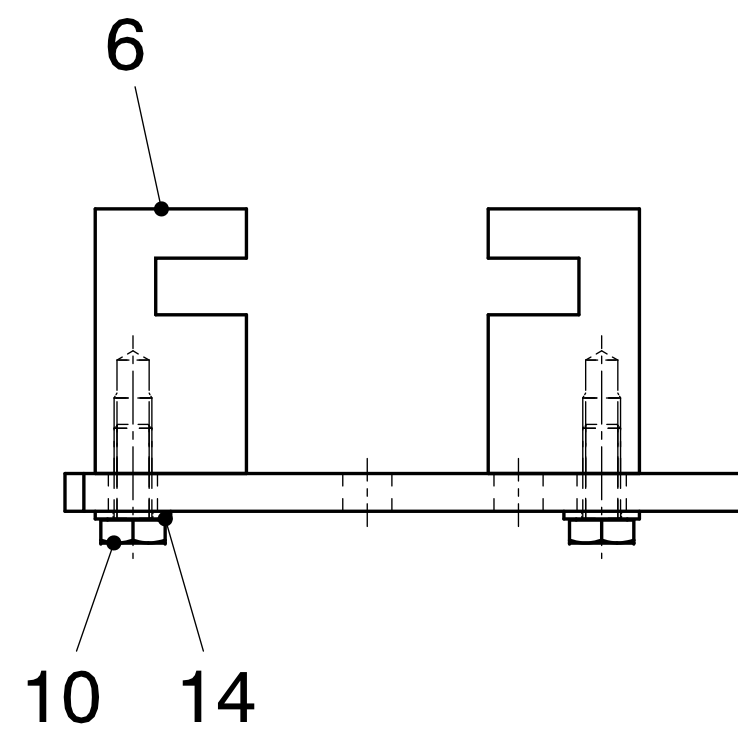
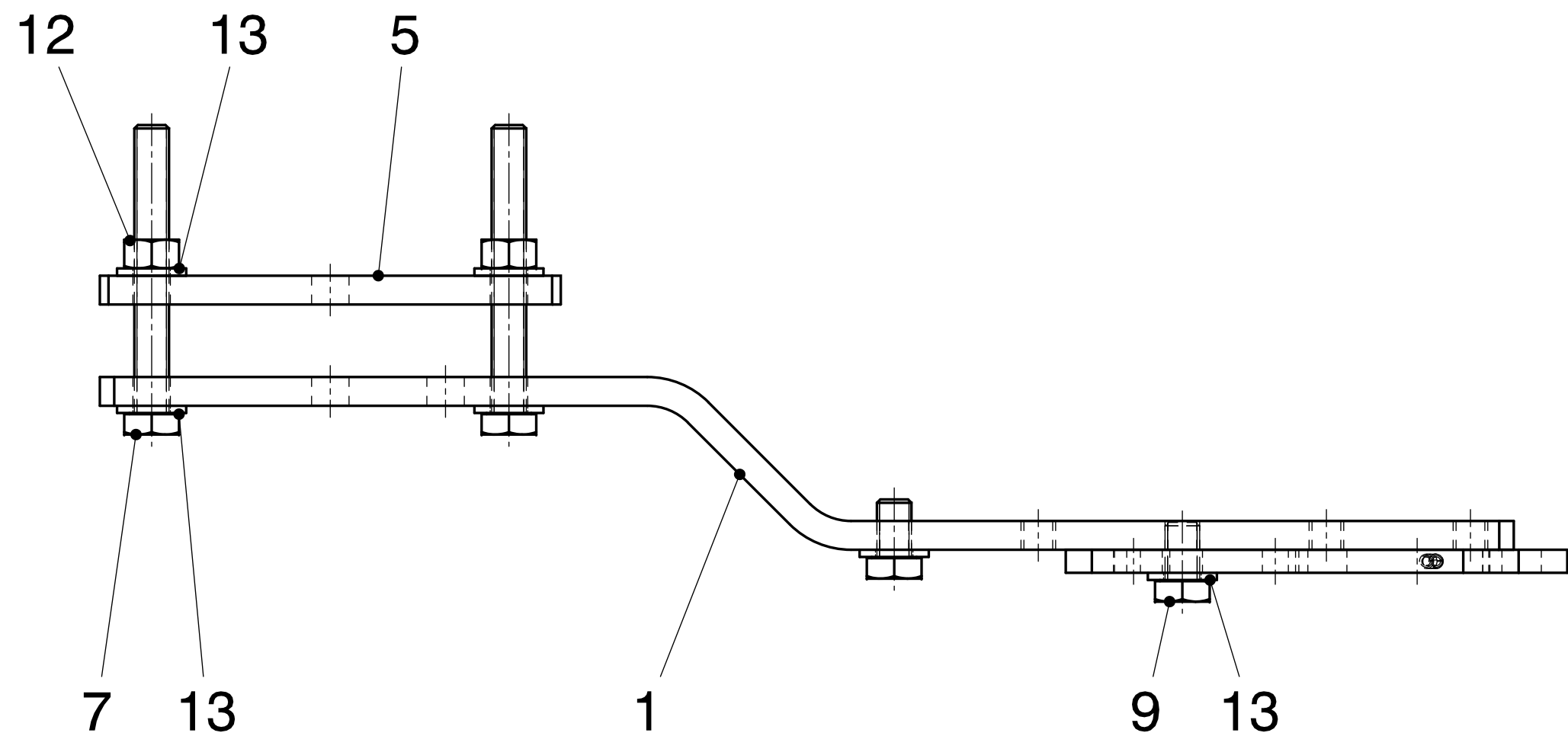
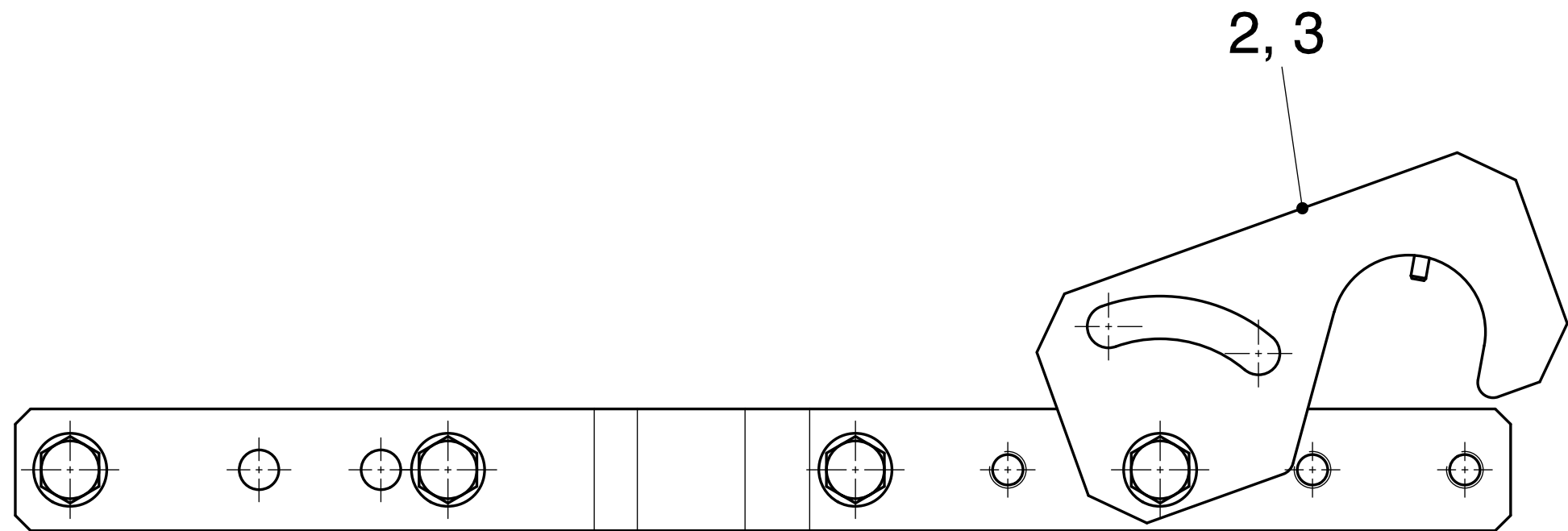
1	1	6kt-Mutter	6	M8	934		27060008	
1	1	Zyl-Schr In-6kt	5	M8x30	912		27020830	
			4					
1	1	Ringschraube	3				30-4-587	
1	1	Rollenhalter	2				30-4-1341	
1	-	Anpressrolle	1				30-4-1366	
-	1	Anpressrolle	1				30-4-1340	
Stück		Gegenstand	Pos.	Werkstoff	VSM	Modell	Bemerkung	
I		Änderungen:				Gehört zu Zeichnung		
für Profil 75V bis 100V für Profil 32V bis 60V	1)	Nr. 1031 27.04.99	RP	6)		Ersetzt durch		
	2)			7)		Ersatz für		
	3)			8)		Allgemeintoleranzen		
	4)			9)		SN 258440 - m		
	5)			10)				
E	Anpressrolle kompl. GAV für verkettete Garnituren				Massstab	Gezeichnet	11.11.94	RP
					1:1	Geprüft		
Graf + Cie AG, Rapperswil					30-4-1343, 1			



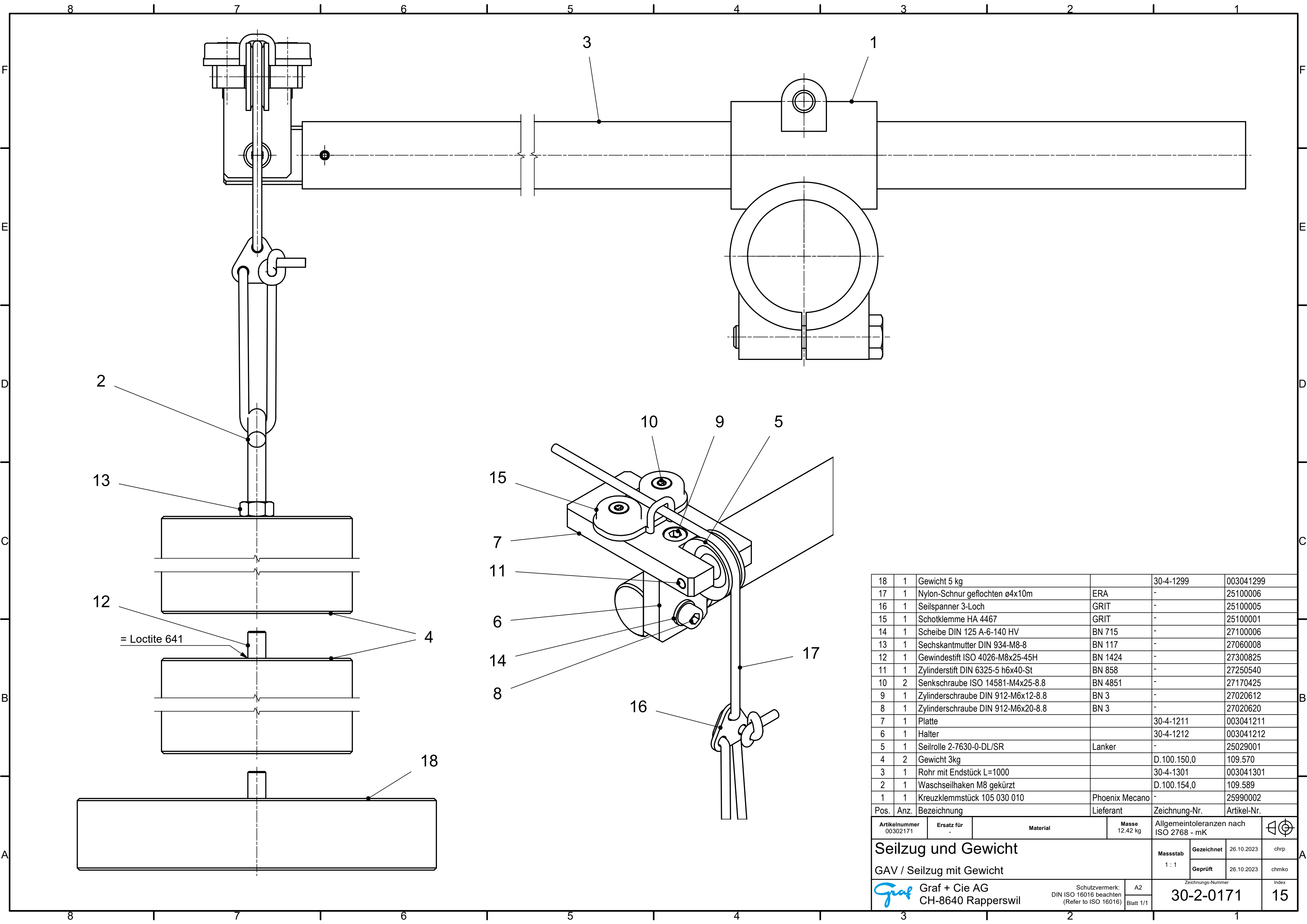
1	U-Sch. A-mg	8	M12	125A	27100012	
1	6-kt Mu	7	M8	934	27060008	
1	Ringschraube	6			30-4-587	
1	6 kt-Schr	5	M12x50	933	27001250	
1	Distanzbüchse	4			30-4-1255	
1	Se-Schr In-6 kt	3	M5x8	7991	27170508	
1	Hartmetallplatte	2			30-4-921	
1	Anpressfinger lang	1			30-3-508	
Stück	Gegenstand	Pos.	Werkstoff	VSM	Modell	Bemerkung
II	I	Änderungen: 9.8.88 Q 17.11.88 Q 5.1.89 Q				
		Gehört zu Zeichnung:		Ersetzt durch Ersatz für		
		✓ Grundsymbol, Formgebung freigestellt		N12.... N1 Rauheitsklassen nach	Maße ohne Toleranz	
		✓ Bearbeitung durch Spanabnahme		VSM 10230 und 10231	sind nach DIN 7168 „mittel“	
		✓ Spanabnahme nicht erlaubt		einzuhalten.		
Anpressfinger lang zu GAV - Ober teil; Crosrol MK4, Rieter C4				Maßstab	Gezeichnet	22.4.85 Q
				%	Geprüft	
				Gesehen		
Graf & Cie AG, Rapperswil				30-4-1206		3 AI



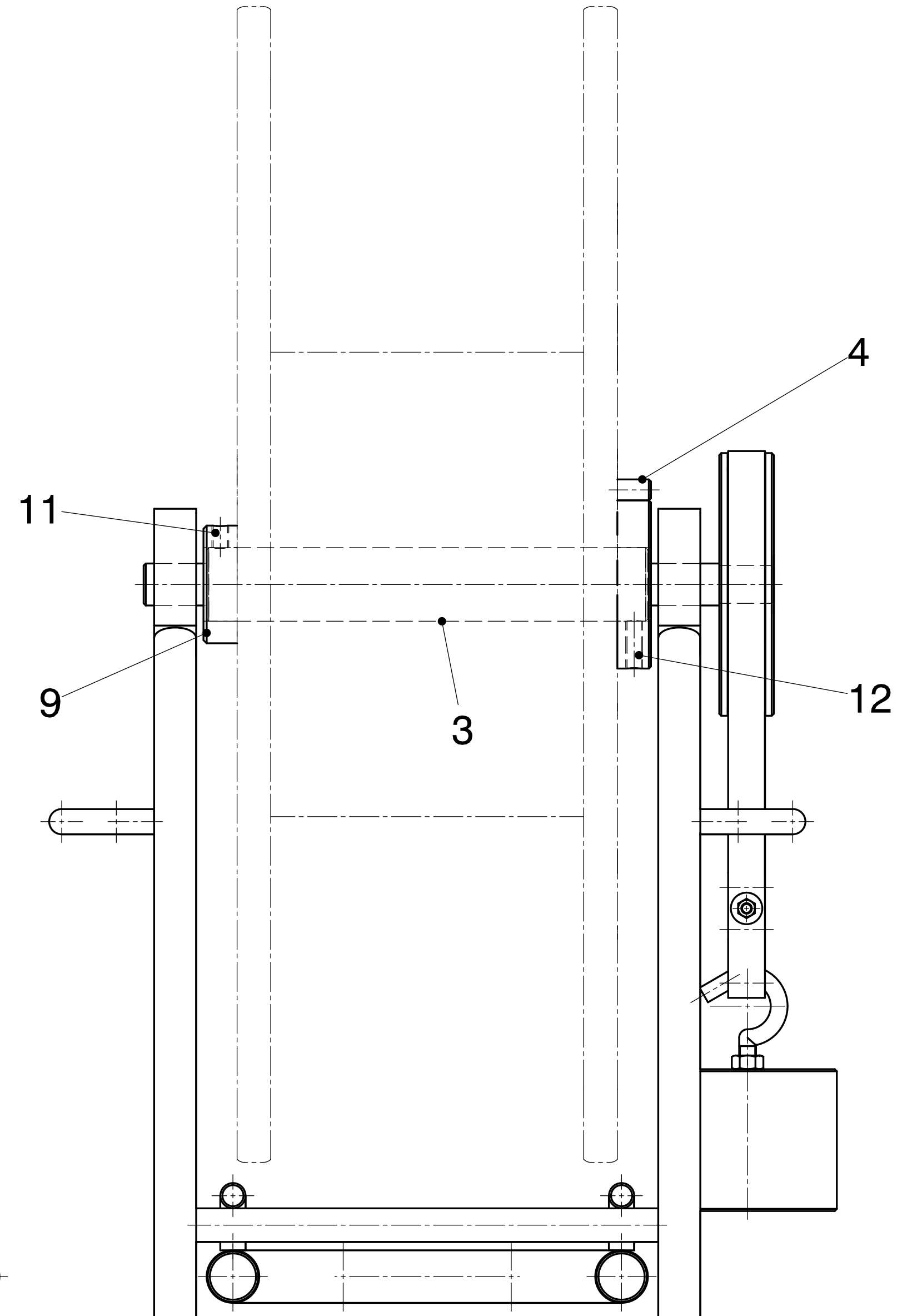
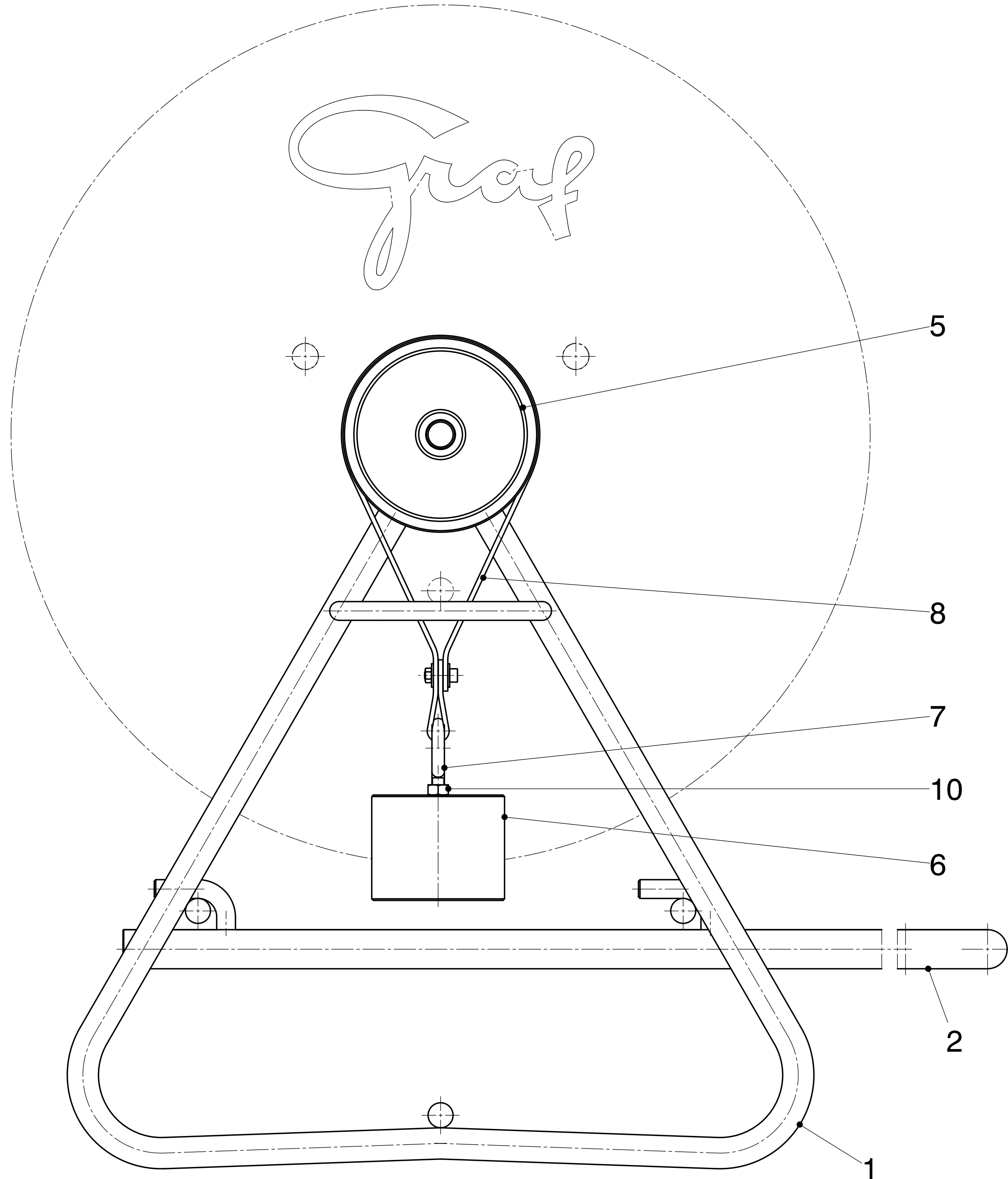
14	1	Dreibackenfutter ø200	GRDE	25320091
13	1	Rillenkugellager 6018-2Z	SKF	2660182Z
12	4	Scheibe 90° SN 213912-6-St	BN 1276	27160006
11	4	Senkschraube ISO 14581-M6x12-8.8	BN 4851	27170612
10	3	Senkschraube DIN 7991-M10x25-10.9	BN 1422	27171025
9	1	Sicherungsring DIN 471-90x3	BN 818	27280090
8	2	Scheibe stark 6-140 HV	BN 737	27110616
7	2	Scheibe Carrosserie 13x37x3	BN 729	27111340
6	2	Flügelschraube DIN 316-M6x16-St	BN 276	27800616
5	2	Sechskantschraube DIN 933-M12x30-8.8	BN 56	27001230
4	1	Abdeckblech oben		30-2-334
3	1	Abdeckblech		30-2-254
2	1	Kettenrad		30-2-253
1	1	Büchse		30-2-130
Pos.	Menge	Bezeichnung	Lieferant	Bemerkung
Änderungen:			Gehört zu Zeichnung -	
1) Nr. 345	28.09.95	sto	6)	Ersetzt durch -
2) Nr. 1303	03.11.00	RP	7)	Ersatz für -
3) Nr. 4721	29.09.19	chyf	8)	
4) Nr. 4773	17.01.20	chyf	9)	Allgemeintoleranzen nach
5)			10)	ISO 2768 - mK
Spannrad			Massstab	Gezeichnet
GAV-Antrieb			1:2	17.01.20
Graf			Geprüft	20.01.20
Graf + Cie AG				chyf
CH-8640 Rapperswil				chcd
Schutzvermerk: ISO 16016 beachten (Refer to ISO 16016)			30-2-252,4	




14	4	Scheibe DIN 125 A-10-140 HV	BN 715	27100010
13	12	Scheibe DIN 125 A-12-140 HV	BN 715	27100012
12	4	Sechskantmutter DIN 934-M12-8	BN 117	27060012
11	4	Sechskantschraube DIN 933-M8x30-8.8	BN 56	27000830
10	4	Sechskantschraube DIN 933-M10x25-8.8	BN 56	27001025
9	4	Sechskantschraube DIN 933-M12x20-8.8	BN 56	27001220
8	2	Sechskantschraube DIN 933-M12x35-8.8	BN 56	27001235
7	4	Sechskantschraube DIN 933-M12x100-8.8	BN 56	270012100
6	4	Halter		30-4-873
5	2	Bride		30-4-872
4	2	Halter		30-3-357
3	1	Lagerflansch		00303222I
2	1	Lagerflansch		003030222
1	2	Arm		30-2-145
Pos.	Menge	Bezeichnung	Lieferant	Bemerkung
Änderungen:				
1)	08.02.84	Oe	6)	11.11.93
2)	29.04.87	Oe	7)	15.07.94
3)	11.10.88	Oe	8)	Nr. 2563
4)	23.05.89	RP	9)	Nr. 5096
5)	10.06.92	FI	10)	02.03.22
Gehört zu Zeichnung -			Ersetzt durch -	
Ersatz für -			gleiche Nummer	
Allgemeintoleranzen nach			ISO 2768 - mK	
Halterungen			Massstab	
GAV			1:2	
Graf + Cie AG			Gezeichnet	
CH-8640 Rapperswil			01.03.79	
Schutzvermerk:			Burg	
ISO 16016 beachten			Geprüft	
(Refer to ISO 16016)			03.02.22	
A2			chcd	
30-2-170,9				



18	1	Gewicht 5 kg		30-4-1299	003041299
17	1	Nylon-Schnur geflochten ø4x10m	ERA	-	25100006
16	1	Seilspanner 3-Loch	GRIT	-	25100005
15	1	Schotklemme HA 4467	GRIT	-	25100001
14	1	Scheibe DIN 125 A-6-140 HV	BN 715	-	27100006
13	1	Sechskantmutter DIN 934-M8-8	BN 117	-	27060008
12	1	Gewindestift ISO 4026-M8x25-45H	BN 1424	-	27300825
11	1	Zylinderstift DIN 6325-5 h6x40-St	BN 858	-	27250540
10	2	Senkschraube ISO 14581-M4x25-8.8	BN 4851	-	27170425
9	1	Zylinderschraube DIN 912-M6x12-8.8	BN 3	-	27020612
8	1	Zylinderschraube DIN 912-M6x20-8.8	BN 3	-	27020620
7	1	Platte		30-4-1211	003041211
6	1	Halter		30-4-1212	003041212
5	1	Seilrolle 2-7630-0-DL/SR	Lanker	-	25029001
4	2	Gewicht 3kg		D.100.150,0	109.570
3	1	Rohr mit Endstück L=1000		30-4-1301	003041301
2	1	Waschseilhaken M8 gekürzt		D.100.154,0	109.589
1	1	Kreuzklemmstück 105 030 010	Phoenix Mecano	-	25990002
Pos.	Anz.	Bezeichnung	Lieferant	Zeichnung-Nr.	Artikel-Nr.
Artikelnummer 00302171		Ersatz für -	Material	Masse 12.42 kg	Allgemeintoleranzen nach ISO 2768 - mK
Seilzug und Gewicht				Massstab 1 : 1	Gezeichnet 26.10.2023 chrp
GAV / Seilzug mit Gewicht				Geprüft 26.10.2023 chmko	Index 15
Graf		Graf + Cie AG CH-8640 Rapperswil	Schutzvermerk: DIN ISO 16016 beachten (Refer to ISO 16016)	A2 Blatt 1/1	Zeichnungs-Nummer 30-2-0171




Stückliste siehe 30-4-1347

Änderungen:					Gehört zu Zeichnung -			
1) Nr. 5116	31.03.22	chrp	6)		Ersetzt durch -			
2)			7)		Ersatz für -			
3)			8)		Allgemeintoleranzen nach ISO 2768 - mK			
4)			9)					
5)			10)					
GAV-Haspelrahmen					Massstab	Gezeichnet	24.02.97	RP
GAV					1:1	Geprüft	07.04.22	chcd
 Graf + Cie AG CH-8640 Rapperswil					Schutzvermerk: ISO 16016 beachten (Refer to ISO 16016)		A2	30-2-258,1

12	1	Gewindestift ISO 4026-M8x20-45H	BN 1424	27300820
11	1	Gewindestift ISO 4026-M8x10-45H	BN 1424	27300810
10	1	Sechskantmutter DIN 934-M8-8	BN 117	27060008
9	1	Stellring DIN 705 A-35-St	BN 868	27360035
8	1	Bremsband		D.100.155
7	1	Waschseilhaken M8 gekürzt		D.100.154
6	1	Gewicht 3kg		D.100.150
5	1	Bremsrad		30-4-1326
4	1	Mitnehmer		30-4-767
3	1	Welle		30-3-573
2	1	Kippbügel		30-2-257
1	1	Ständer		30-2-256
Pos.	Menge	Bezeichnung	Lieferant	Bemerkung

Änderungen:			Gehört zu Zeichnung - 30-2-258	
1) Nr. 5116	31.03.22	chrp	6)	Ersetzt durch -
2)			7)	Ersatz für -
3)			8)	Allgemeintoleranzen nach ISO 2768 - mK
4)			9)	
5)			10)	

GAV-Haspelrahmen GAV			Massstab	Gezeichnet	12.12.96	RP
			1:1	Geprüft	07.04.22	chcd

	Graf + Cie AG CH-8640 Rapperswil	Schutzvermerk: ISO 16016 beachten (Refer to ISO 16016)	A4	30-4-1347,1

1 27/32/43

35/38

12/13/31/34

11/41

33

8/16/26

26/27/34

23/24/37

9/26

10/26

18/26

22

19/26

17/26

5

15

4

14

20/21/35/39/42

Mit Loctite sichern

2/3/30/36

34/40

SchnittansichtA-A
Maßstab: 1:2

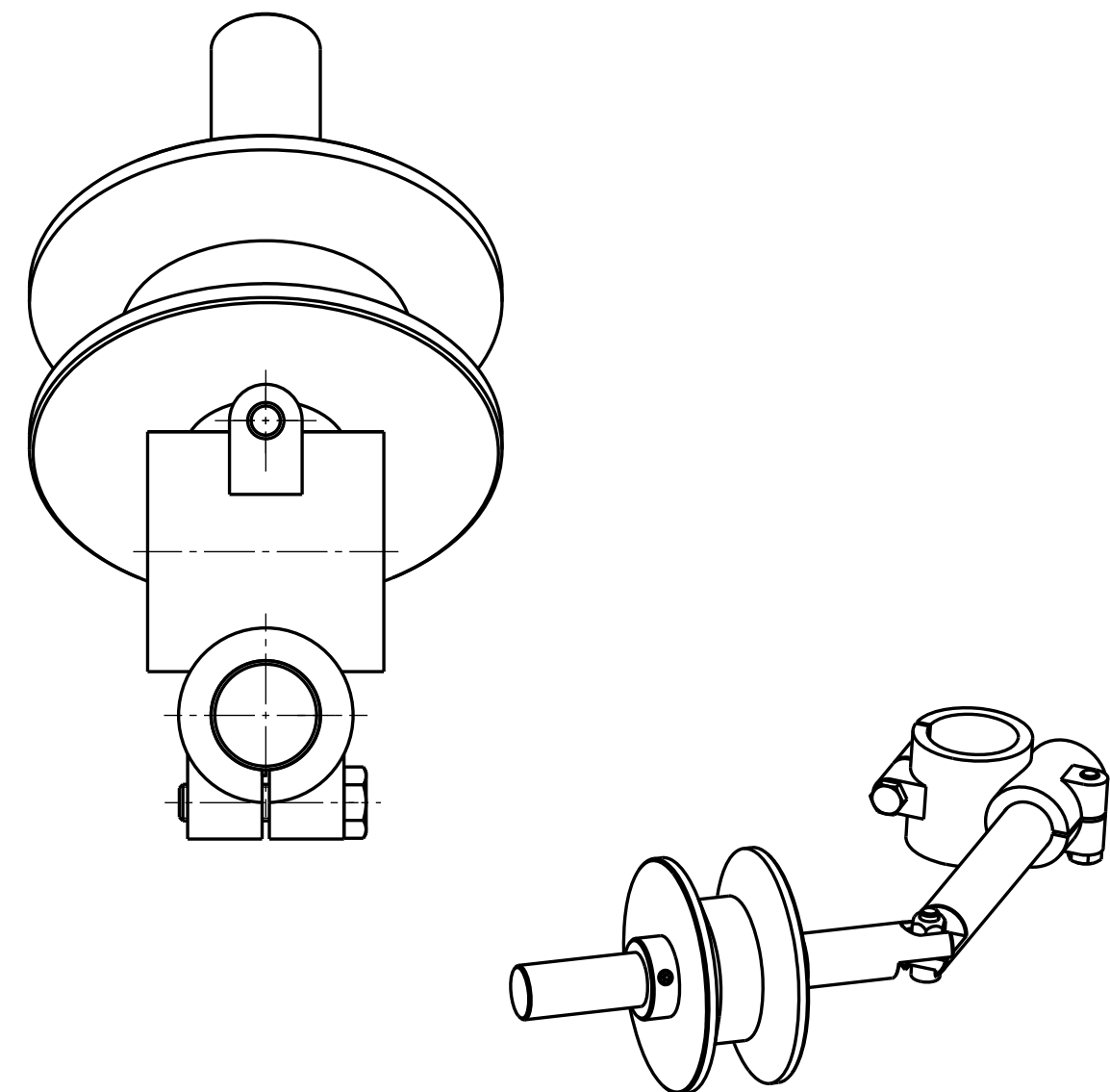
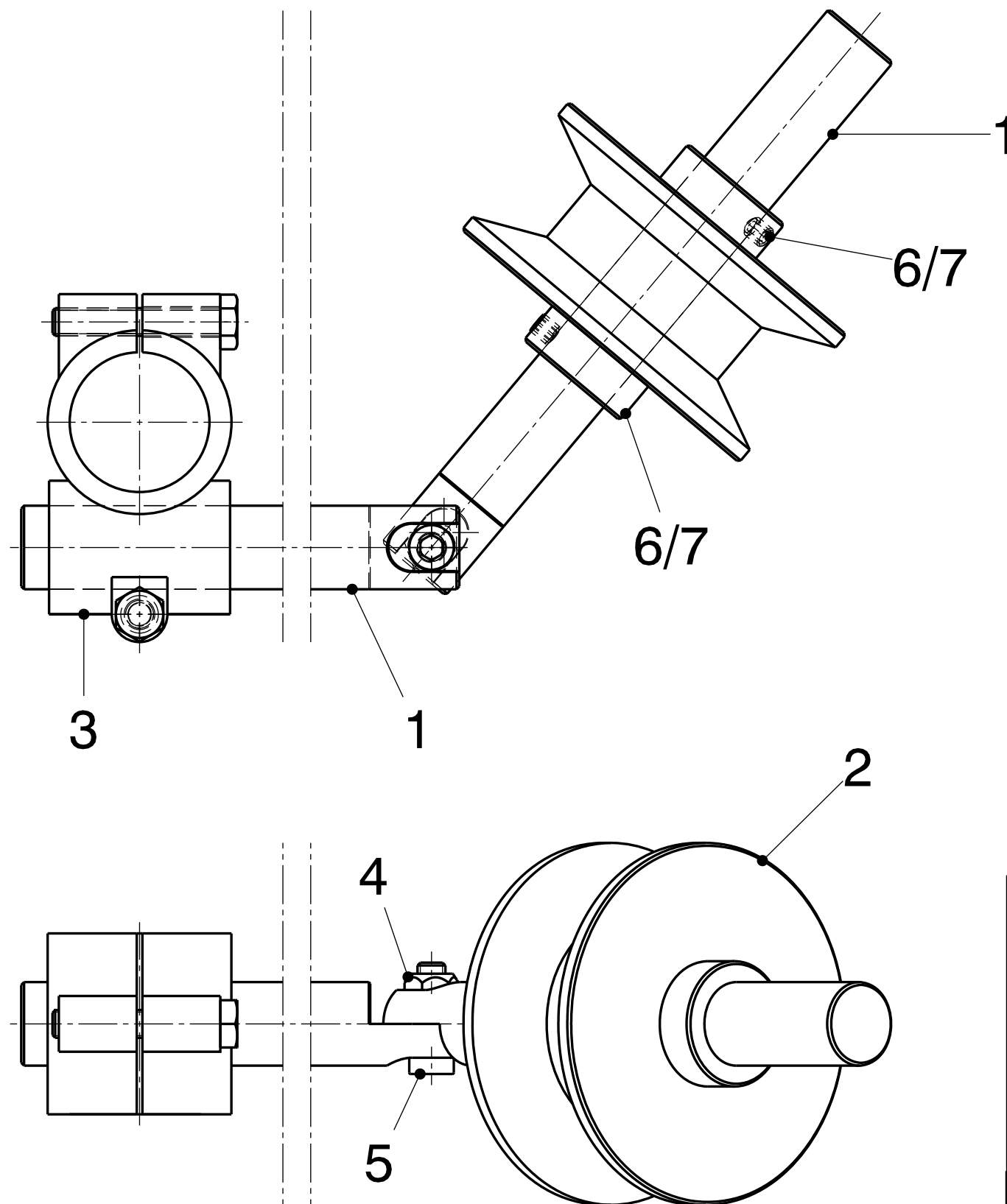
6/7/29

28

25

SchnittansichtB-B
Maßstab: 1:2

43	2	Linsenschraube eco-fix-M6x30-4.8	BN 5128	27222630
42	2	GSM-1517-20	Igus	2691151720
41	2	Rändelschraube hoch DIN 464-M6x10	BN 1452	274410610
40	2	Zylinderschraube DIN 912-M6x22-8.8	BN 3	27020622
39	2	Zylinderschraube DIN 912-M6x25-8.8	BN 3	27020625
38	2	Zylinderschraube DIN 912-M6x14-8.8	BN 3	27020614
37	8	Zylinderschraube DIN 912-M4x6-8.8	BN 3	27020406
36	2	Sicherungsring DIN 471-15x1	BN 818	27280015
35	4	Scheibe Carrosserie 6x20x1.5	BN 732	27110620
34	8	Scheibe DIN 125 A-6-140 HV	BN 715	27100006
33	2	Druckfeder Nr.43 0.8x8.3x29	Spiral AG	274200829
32	2	Tellerfeder DIN 2093 C-16x8.2x0.4-FSt	BN 1375	27130054
31	4	Pass-Schulter-schraube ISO 7379-6x8/M5-12.9	BN 1359	2754060805
30	2	Rillenkugellager 15x32x9 6002-2RS1	SKF	2660022RS
29	2	Nadelhülse HK 1210	HYDREL	26HK1210
28	2	GFM-1214-24	Igus	2691121424
27	4	Sicherungsmutter DIN 985-M6-6	BN 161	27076506
26	13	Linsenschraube eco-fix-M6x12-4.8	BN 5128	27222612
25	2	Linsenschraube eco-fix-M5x8-4.8	BN 5128	27222508
24	2	Anschlagpuffer GN 452-15-10-M4-S-55	Hanser	25026006
23	2	Schubstangenspanner GN 840-50-ASD (closed)	Hanser	25101023
22	6	Nacharbeit Rastbolzen GN 607.3-6-8,5-ST		30-4-1620
21	2	Lager-Achse GAV		30-4-1608
20	2	Lagerzapfen GAV		30-4-1607
19	1	Versteifung unten GAV		30-2-328
18	1	Versteifung oben GAV		30-2-327
17	2	Klemmkeil Seite		30-3-741
16	1	Klemmkeil		30-4-1609
15	1	Stütze Umlenkrolle links		30-3-731
14	1	Stütze Umlenkrolle rechts		30-3-729
13	2	Verriegelung Federteil		30-4-1606
12	2	Verriegelung Stütze		30-4-1605
11	2	Ausgleichsgewicht		30-3-735
10	1	Fixierblech rechts		30-3-734
9	1	Fixierblech links		30-3-733
8	1	Fixierblech Haspel		30-2-325
7	1	Ausgleichsrolle		30-3-732
6	1	Achse Ausgleichsgewicht		30-3-730
5	1	Griff links		30-2-324
4	1	Griff rechts		30-2-323
3	1	Umlenkrolle einteilig		30-3-765
2	1	Welle feststehend		30-3-764
1	2	Seitenteil Umlenkung		30-3-725
Pos.	Menge	Bezeichnung	Lieferant	Bemerkung
Änderungen:			Gehört zu Zeichnung -	
1)	Nr. 4739	07.11.2019 chdim 6)	Ersetzt durch -	
2)	Nr. 4756	29.11.2019 chdim 7)	Ersatz für -	
3)	Nr. 4766	08.01.2020 chdim 8)		
4)	Nr. 4817	20.03.2020 chdim 9)	Allgemeintoleranzen nach	
5)	Nr. 4841	25.05.2020 chdim 10)	ISO 2768 - mK	
Umlenkung Haspel			Massstab	Gezeichnet
GAV mit Umlenkung			1:5	21.10.19
			Geprüft	26.05.20
Graf + Cie AG				chdim
CH-8640 Rapperswil				chjr
Schutzvermerk: ISO 16016 beachten (Refer to ISO 16016)			30-2-322,5	



7	2	Gewindestift ISO 4026-M8x8-45H	BN 1424	27300808
6	2	Stellring DIN 705 A-30-St	BN 868	27360030
5	1	Zylinderschraube DIN 912-M10x30-8.8	BN 3	27021030
4	1	Sicherungsmutter DIN 985-M10-6	BN 161	27076510
3	1	Kreuzklemmstück 105 030 010	EHS	25990002
2	1	Draht-Umlenkrolle GAV		30-3-770
1	2	Achse		30-4-1612
Pos.	Menge	Bezeichnung	Lieferant	Bemerkung

Änderungen:				Gehört zu Zeichnung -	
1) Nr. 4891	04.09.2020	chdim	6)	Ersetzt durch -	
2)			7)	Ersatz für -	
3)			8)	Allgemeintoleranzen nach	
4)			9)	ISO 2768 - mK	
5)			10)		

Umlenkrolle

GAV

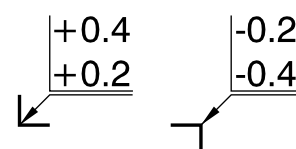


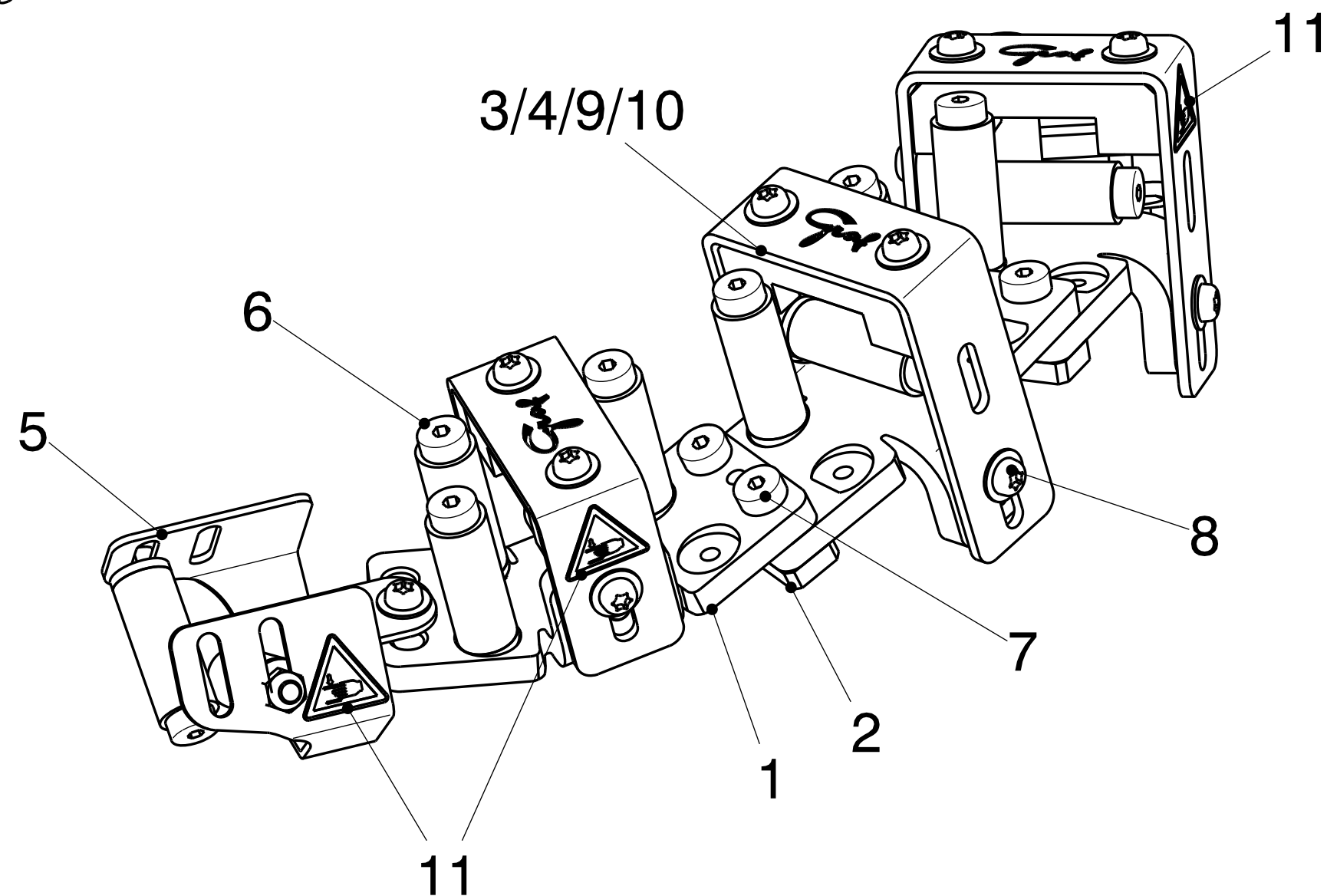
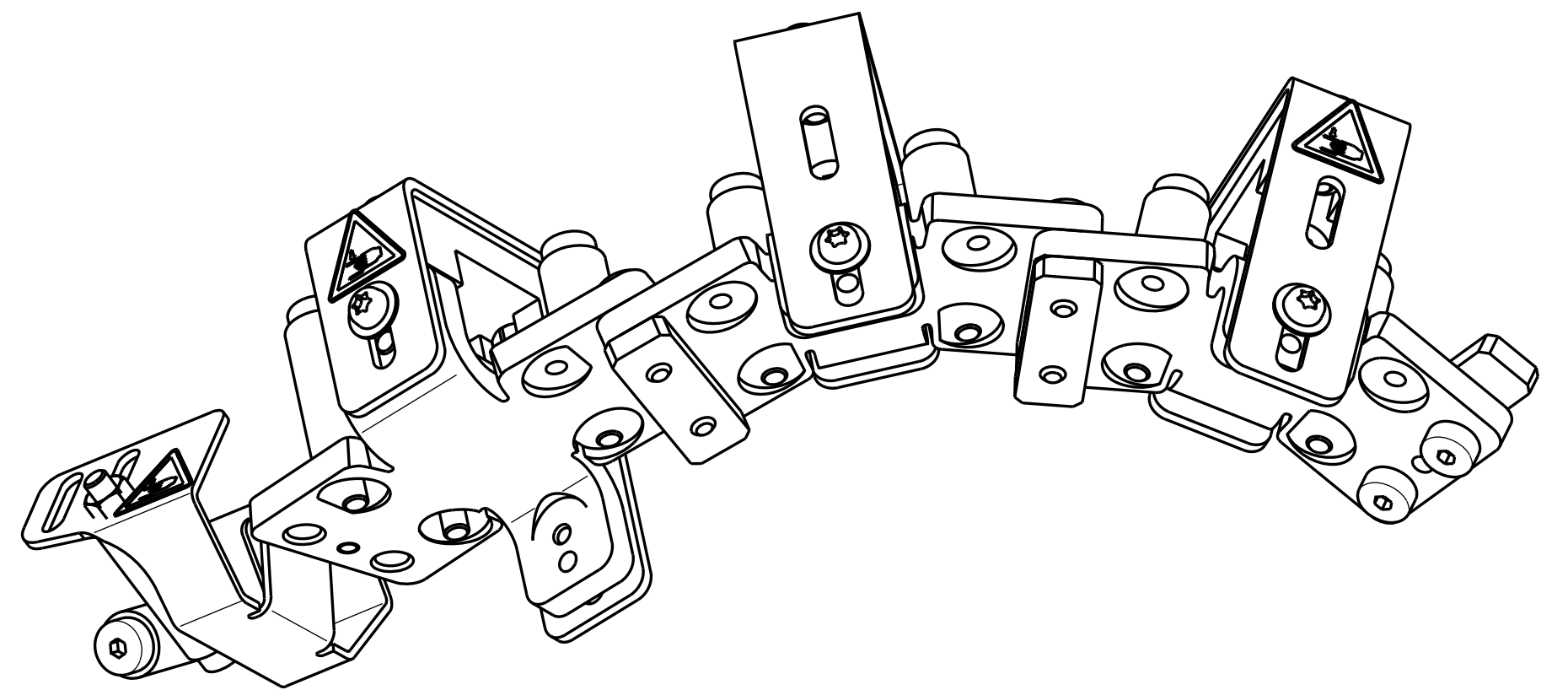
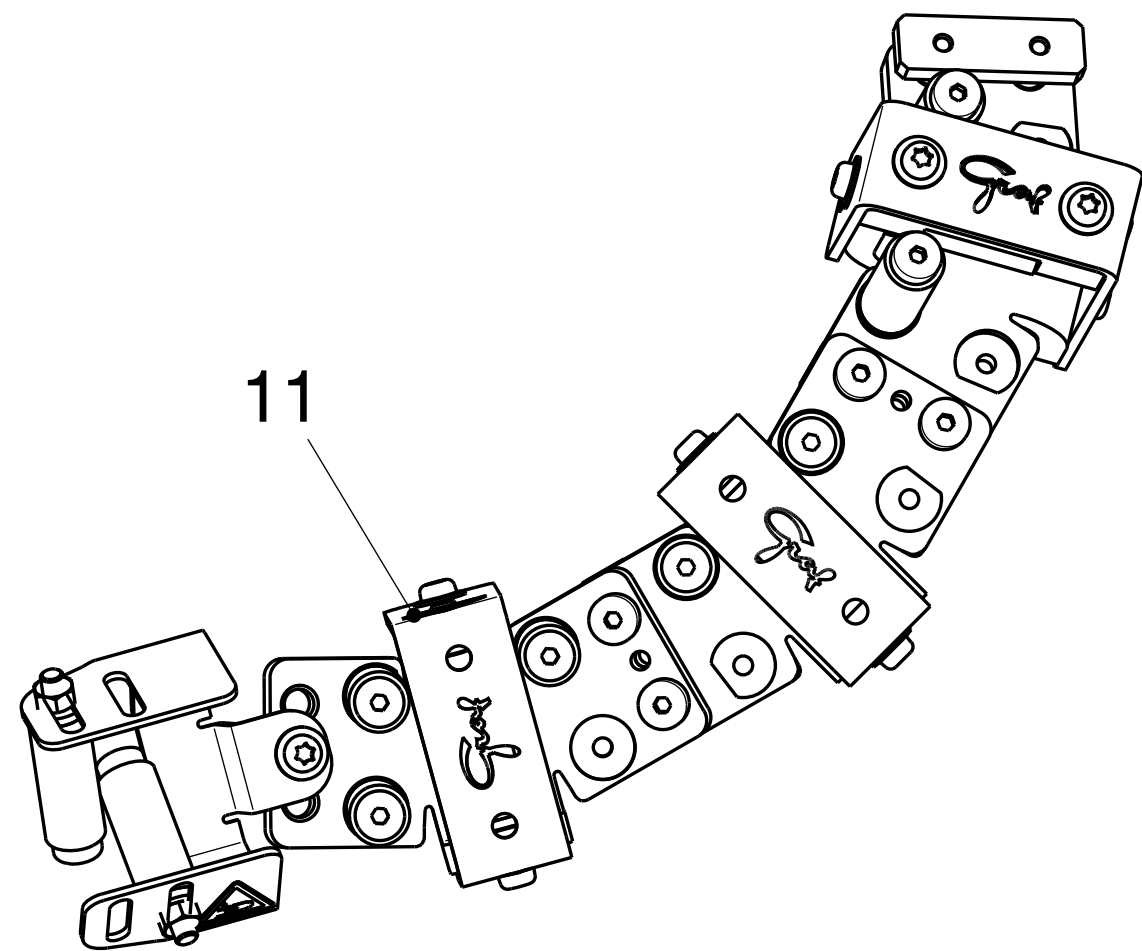
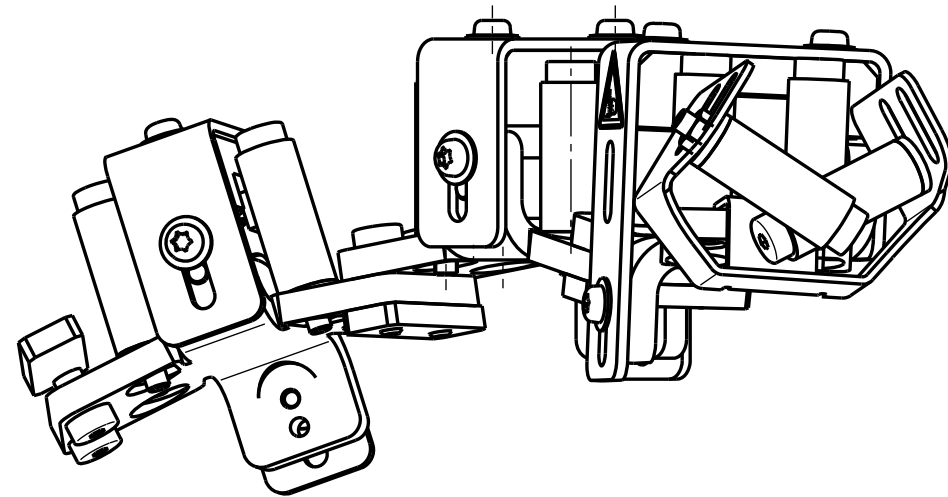
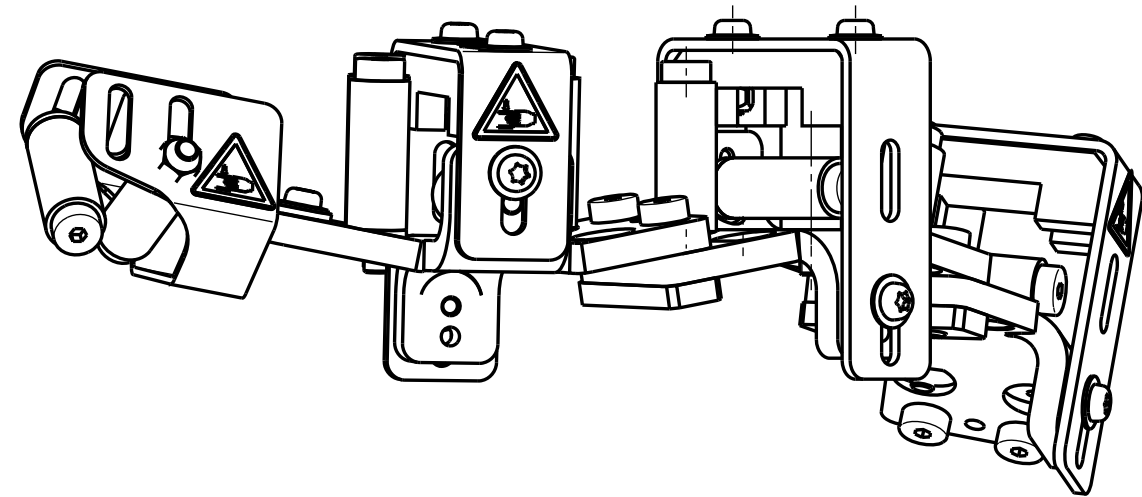
Graf + Cie AG
CH-8640 Rapperswil

Schutzvermerk:
ISO 16016 beachten
(Refer to ISO 16016)

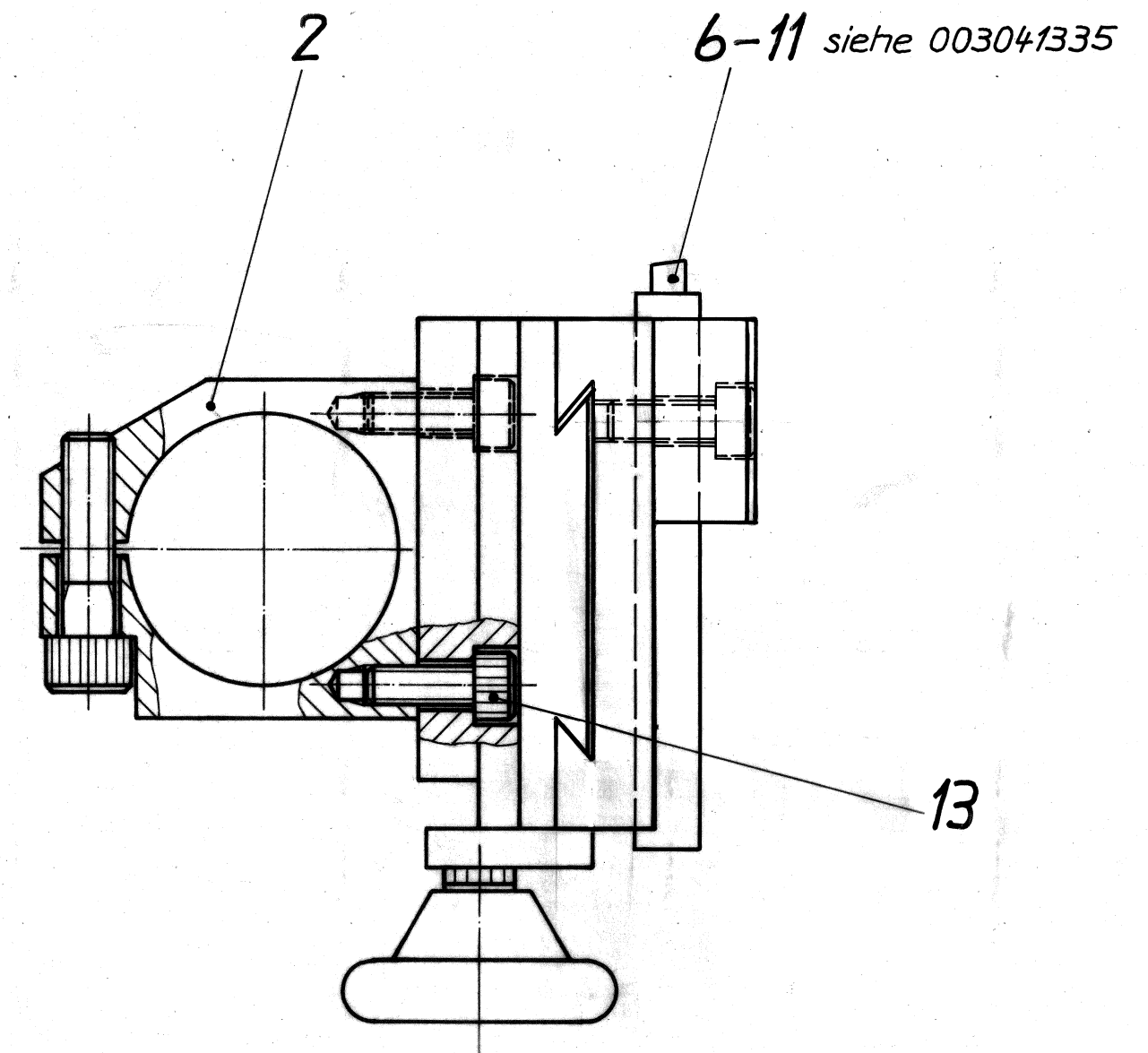
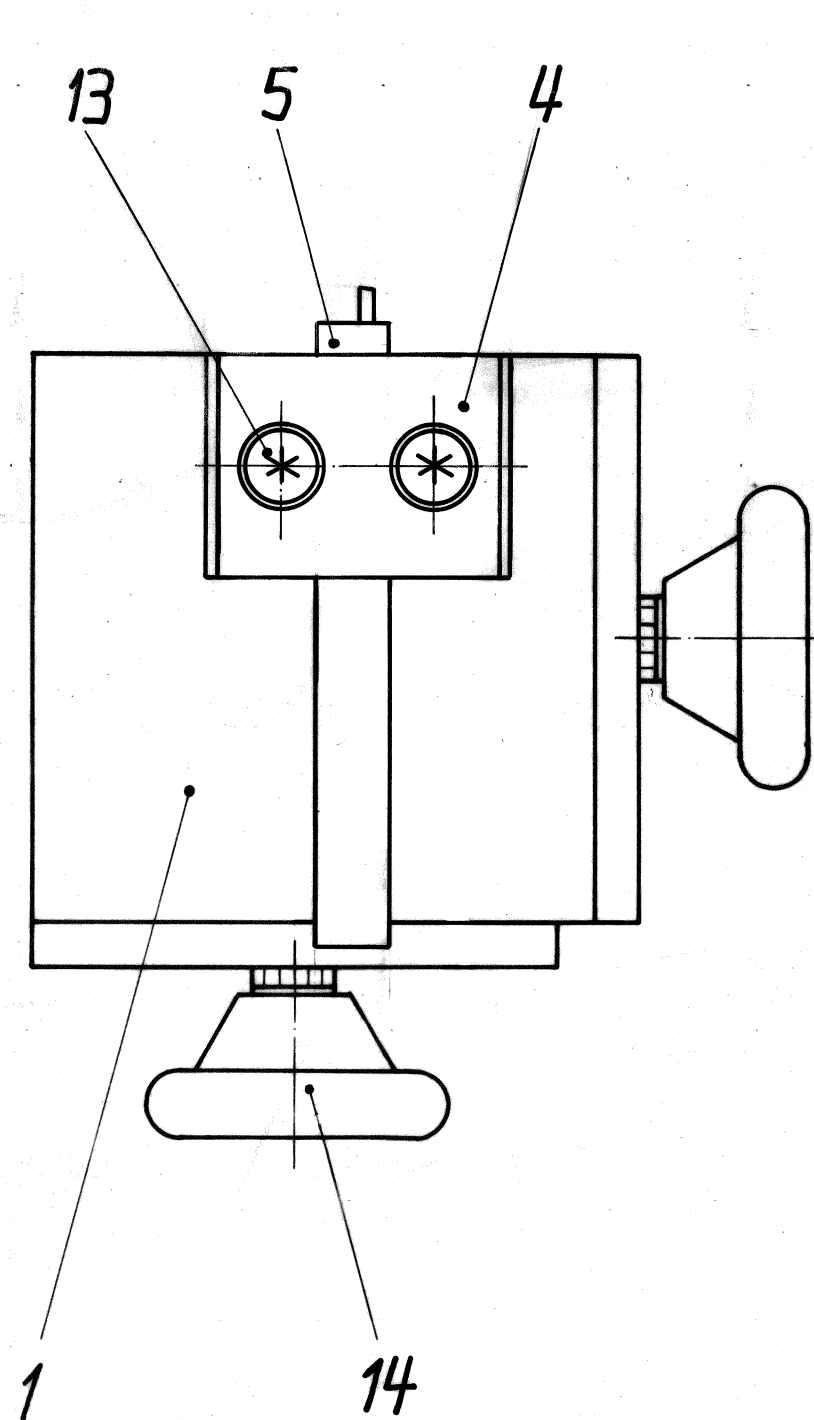
Massstab	Gezeichnet	16.12.19	chdim
1:2	Geprüft	04.09.20	chcd

30-3-745,1





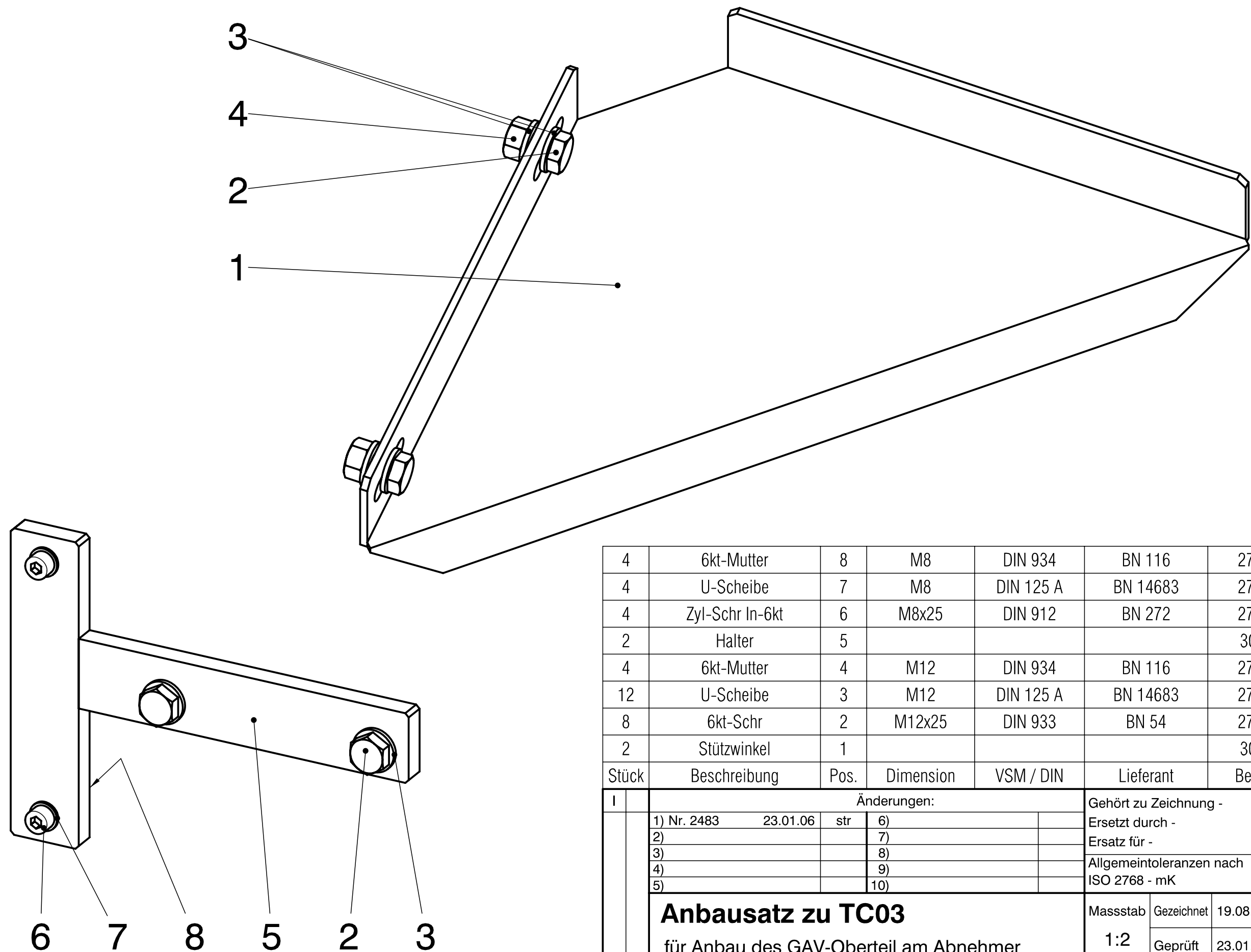
11	4	Warnung vor Handverletzungen 3000371	Gr. 25mm	25910299
10	6	Sicherungsmutter DIN 985-M6-6	BN 161	27076506
9	6	Linsenschraube eco-fix-M6x20-4.8	BN 5128	27222620
8	7	Linsenschraube eco-fix-M6x10-4.8	BN 5128	27222610
7	6	Pass-Schulter-schraube ISO 7379-8x12/M6-12.9	BN 1359	2754081206
6	12	Dressierrolle mit Schraube und U-Scheibe		30-4-1325
5	1	X-Einlauf GAV		30-3-744
4	3	Halteblech Übersprungsicherung		30-3-0752
3	3	Übersprungsicherung GAV		30-3-736
2	3	Gewindeplatte		30-4-1602
1	3	Grundkörper Umlenkung		30-3-723
Pos.	Menge	Bezeichnung	Lieferant	Bemerkung
Änderungen:				
1)	Nr. 4738	04.11.2019	chdim	6)
2)	Nr. 4798	24.02.2020	chdim	7)
3)				8)
4)				9)
5)				10)
Gehört zu Zeichnung -			Ersetzt durch -	
			Ersatz für -	
Allgemeintoleranzen nach			ISO 2768 - mK	
ISO 2768 - mK				
Umlenkung GAV-Arm			Massstab	Gezeichnet 22.10.19 chdim
GAV mit Umlenkung			1:2	Geprüft 13.03.20 chcd
Graf + Cie AG CH-8640 Rapperswil			Schutzvermerk: ISO 16016 beachten (Refer to ISO 16016)	
			30-2-321,2	



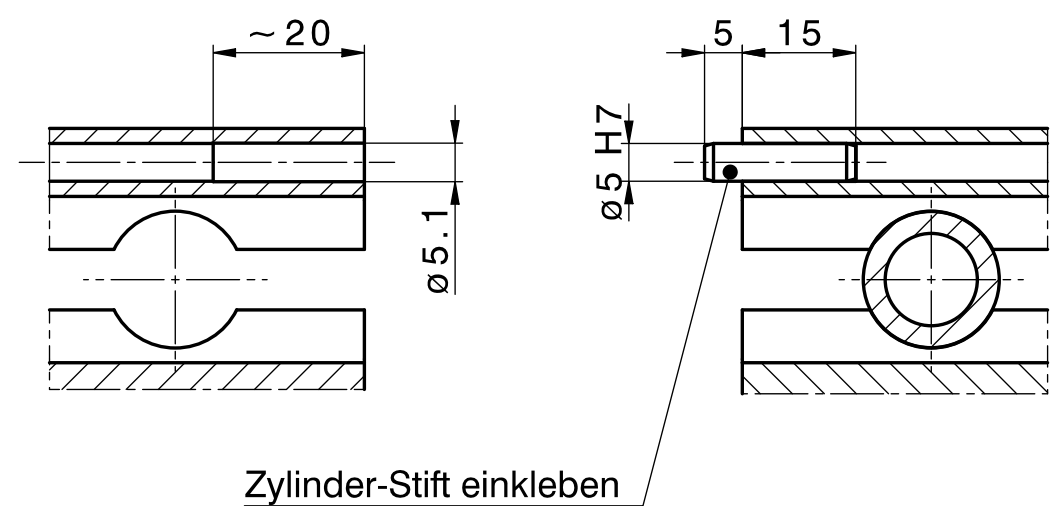
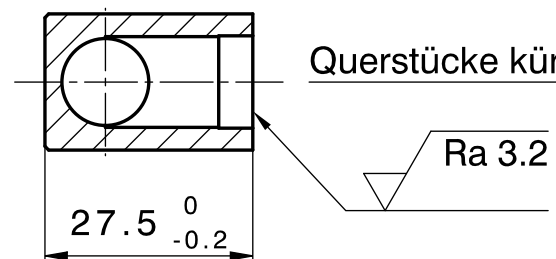
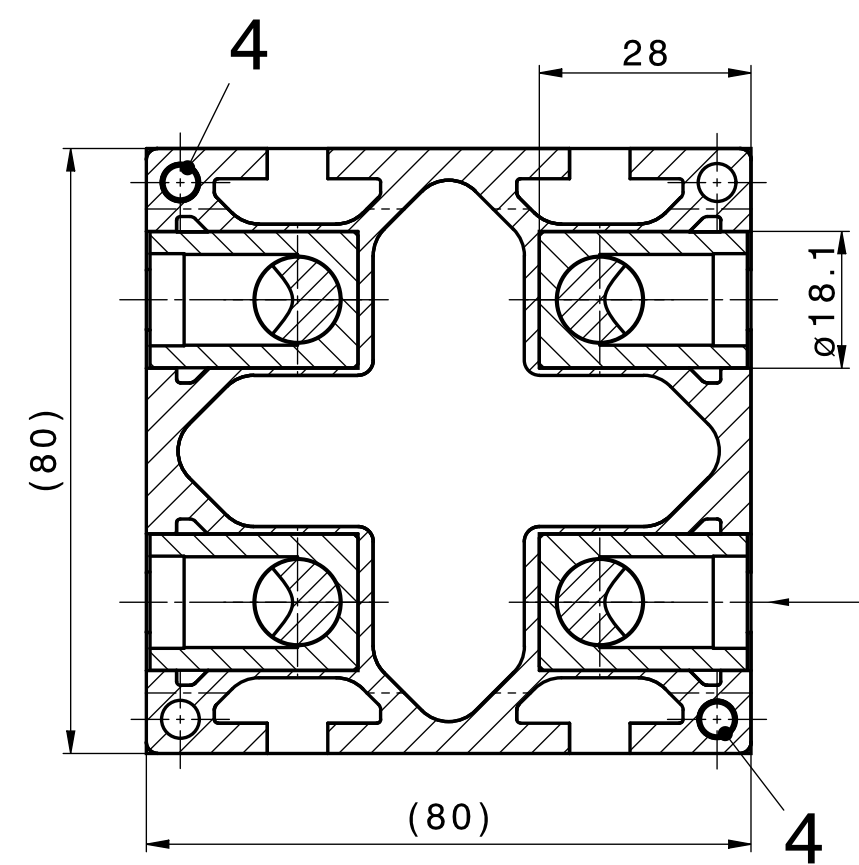
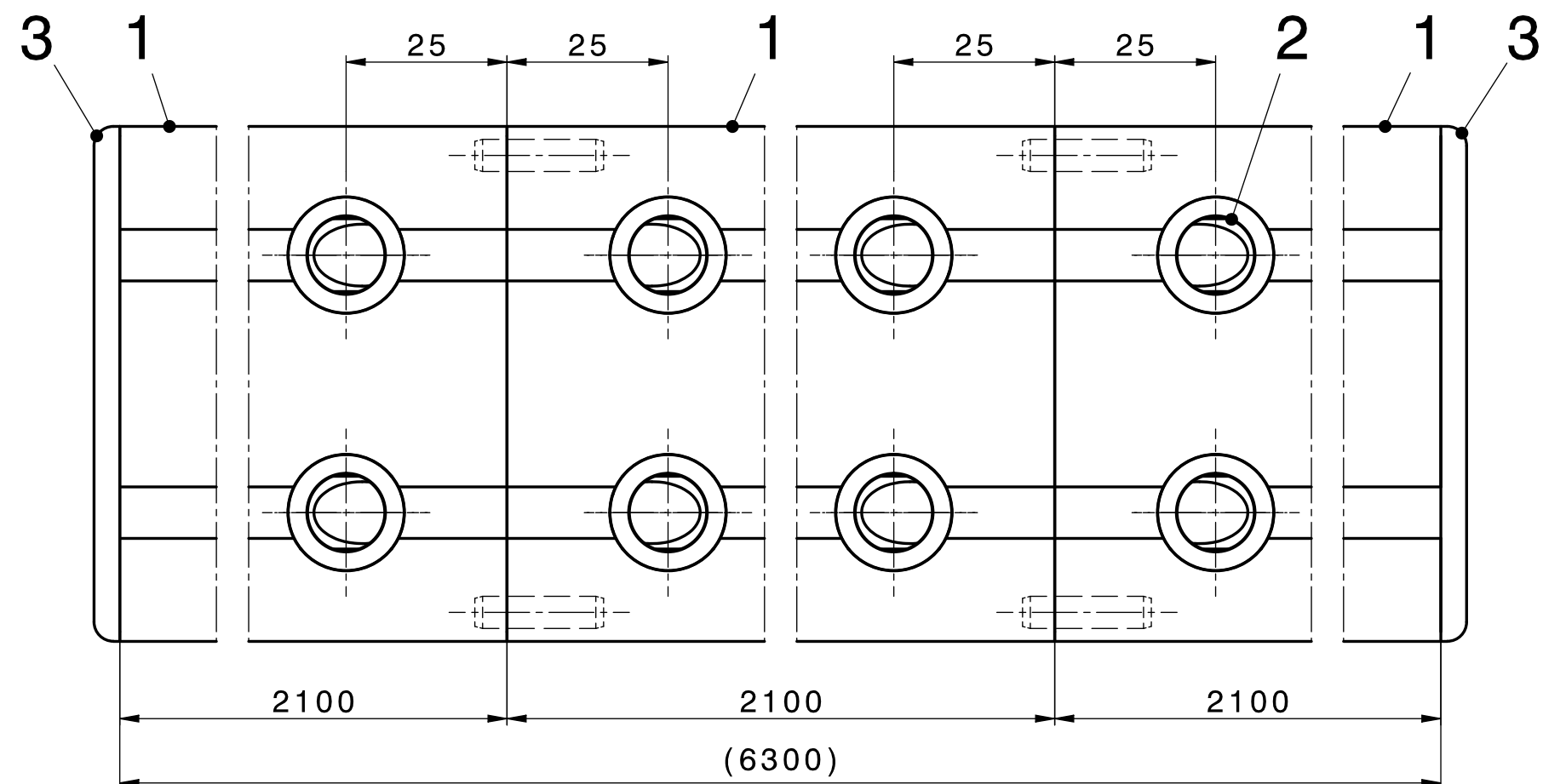
Stückliste 30-4-1261

Stück	Gegenstand	Pos.	Werkstoff	VSM	Modell	Bemerkung
II	I	<p>Aenderungen:</p> <p>Gehört zu Zeichnung:</p> <p>✓ Grundsymbolsymbol, Formgebung freigestellt N12 ... N1 Rauheitsklassen nach Maße ohne Toleranz ✓ Bearbeitung durch Spanabnahme VSM 10230 und 10231 sind nach DIN 7168 „mittel“ ✓ Spanabnahme nicht erlaubt einzuhalten.</p>				
Einstechvorrichtung				Maßstab	Gezeichnet	12.1.89
GAV				1:1	Geprüft	
					Gesehen	
Graf & Cie AG, Rapperswil				30-3-538		AI

			30				
			29				
			28				
			27				
			26				
			25				
			24				
			23				
			22				
			21				
			20				
			19				
			18				
			17				
			16				
			15				
	2	Sterngriff	14	VC. 692/40B-M8	ELESA		25020012
	6	Zyl-Schr In-6kt	13				27020616
			12				
			11				
			10				
			9				
			8				
			7				
			6				
	1	DIADDEC-Stahlhalter	5				25200010
	1	Bride	4				30-4-1260
			3				
	1	Klemmbride	2				30-3-529
	1	Kreuzkulisse	1				30-3-539
Stück	Gegenstand		Pos.	Werkstoff	VSM	Modell	Bemerkung
II	I	Änderungen:			Gehört zu Zeichnung 30-3-538		
		1) Nr. 2300 21.04.05 RP			Ersetzt durch		
		2)			Ersatz für gleiche Nummer		
		3)			Blatt 1/1		
		4)					
		5)					
		Einstechvorrichtung GAV			Masstab	Gezeichnet	14.07.93 RP
					%	Geprüft	
						Gesehen	
		Graf + Cie AG, Rapperswil			30-4-1261, 1		

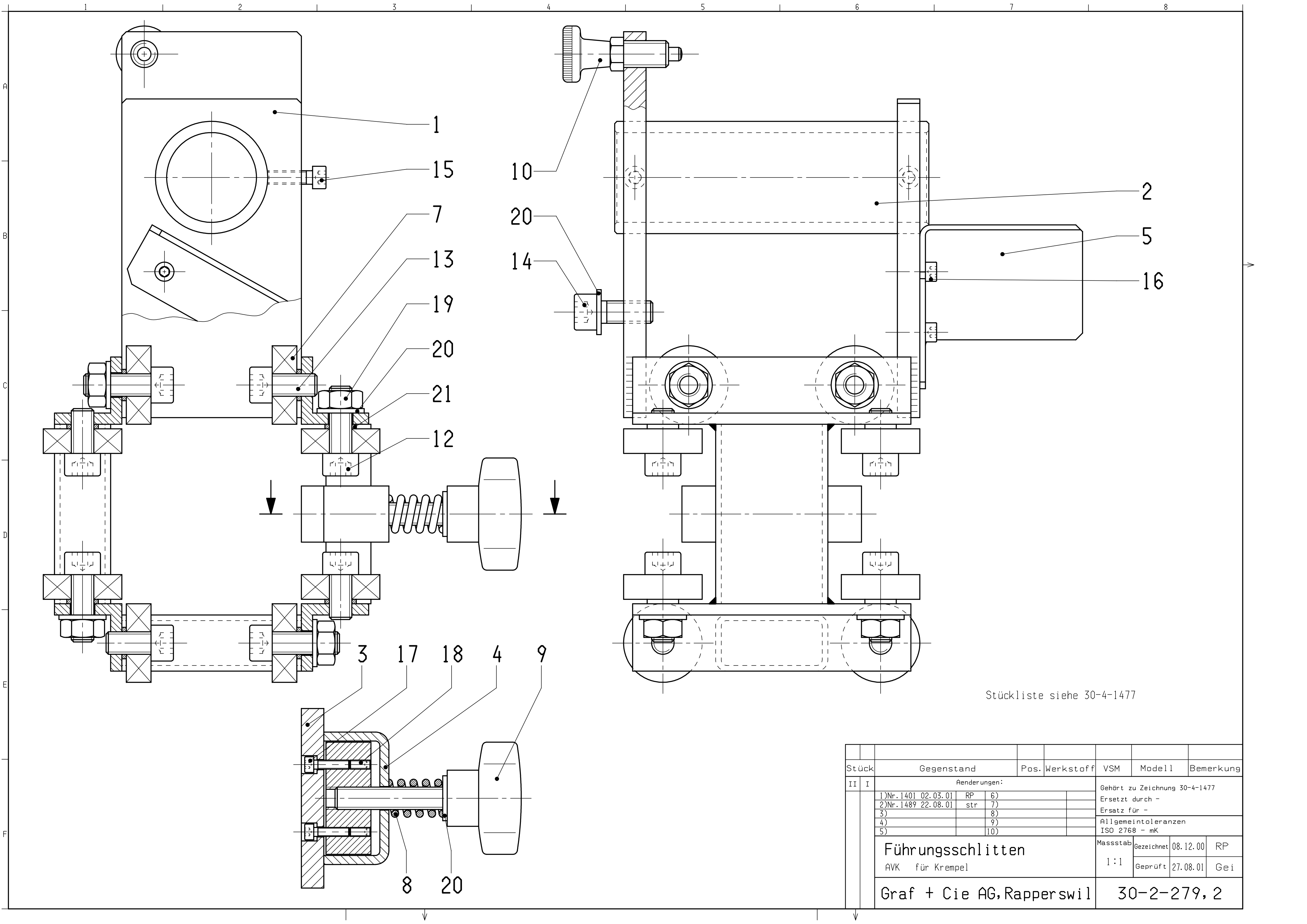


4	6kt-Mutter	8	M8	DIN 934	BN 116	27060008
4	U-Scheibe	7	M8	DIN 125 A	BN 14683	27100008
4	Zyl-Schr In-6kt	6	M8x25	DIN 912	BN 272	27020825
2	Halter	5				30-3-664
4	6kt-Mutter	4	M12	DIN 934	BN 116	27060012
12	U-Scheibe	3	M12	DIN 125 A	BN 14683	27100012
8	6kt-Schr	2	M12x25	DIN 933	BN 54	27001225
2	Stützwinkel	1				30-3-662
Stück	Beschreibung	Pos.	Dimension	VSM / DIN	Lieferant	Bemerkung
I	Änderungen:				Gehört zu Zeichnung - Ersetzt durch - Ersatz für - Allgemeintoleranzen nach ISO 2768 - mK	
	1) Nr. 2483	23.01.06	str	6)		
	2)			7)		
	3)			8)		
	4)			9)		
	5)			10)		
Anbausatz zu TC03					Massstab	Gezeichnet
für Anbau des GAV-Oberteil am Abnehmer					1:2	19.08.05
Graf + Cie AG, Rapperswil					Geprüft	23.01.06
						str
						Gei
					30-3-663,1	



4	4	Zylinderstift DIN 6325-5 h6x20-St	BN 858	27250520					
3	2	Abdeckkappe C40-10	KANYA	7060800040					
2	8	Profilverlängerung C24-00	KANYA	7560800024					
1	3	Grundprofil 80x80 C01-4-02/2100	KANYA	7560802100					
Pos.	Menge	Bezeichnung	Lieferant	Bemerkung					
Änderungen:			Gehört zu Zeichnung -						
1)	Nr. 1326	29.11.00	RP	6)	Ersetzt durch -				
2)	Nr. 1402	05.03.01	RP	7)					
3)	Nr. 1756	07.11.02	RP	8)	Ersatz für -				
4)	Nr. 4995	28.06.21	chrp	9)					
5)				10)	Allgemeintoleranzen nach				
					ISO 2768 - mK				
Führung Montageausführung						Massstab	Gezeichnet	28.06.21	chrp
GAV / UAV 25 für Arbeitsbreite 1.5 m bis 5.5 m						1:1	Geprüft	28.06.21	chjr
 Graf + Cie AG CH-8640 Rapperswil						Schutzvermerk: ISO 16016 beachten (Refer to ISO 16016)			
						60-3-390,4			


			30				
			29				
			28				
			27				
			26				
			25				
			24				
	1	Gabelschlüssel	23	SW 17/19			25151719
	1	6kt-Stiftschlüssel	22	SW 8			25160008
	1	6kt-Stiftschlüssel	21	SW 6			25160006
	1	6kt-Stiftschlüssel	20	SW 5			25160005
			19				
	4	U-Scheibe	18	M10	125A	BN 713	27100010
	4	6kt-Mutter	17	M10	934	BN 116	27060010
	4	6kt-Schr	16	M10x30	933	BN 54	27001030
	2	6kt-Schr	15	M12x30	933		27001230
	8	U-Scheibe	14	M12	125A	BN 713	27100012
	4	6kt-Mutter	13	M12	934	BN 116	27060012
	4	6kt-Schr	12	M12x100	933		270012100
	6	Zyl-Schr In-6kt	11	M8x20	912	BN 272	27020820
	4	Verschluss-Stopfen rund 30x2	10	90304		PHOEN	81V211132
	2	RD-Alu-Rohr blank 30x2 L=1000	9	823 020 19999		PHOEN	81V211130
	2	Laschenklemmstück LW30	8	173 000 00020		PHOEN	81V211120
	3	Flanschklemmstück VH 80	7	228 000 04026		PHOEN	25990012
	2	Bride	6				30-4-872
	2	Befestigungswinkel	5				30-4-1469
	1	Seilzughalter	4				30-3-637
	2	Arm	3				30-2-145
	1	Stützrollenarm	2				003041476
	1	Führungsschlitten	1				003041477
Stück	Gegenstand		Pos.	Werkstoff	DIN	Modell	Bemerkung
II	I	Änderungen:			Gehört zu Zeichnung 30-2-277		
		1)Nr.1398 01.03.01	RP	6)	Ersetzt durch		
		2)Nr.1447 05.06.01	AP	7)	Ersatz für 30-4-1470,1		
		3)Nr.2563 10.07.06	str	8)	Blatt 1/1		
		4)		9)			
		5)		10)			
Anbauteile GAV-Oberteil AVK für Krempel					Masstab	Gezeichnet	07.12.00 RP
					%	Geprüft	10.05.06 Gei
Graf + Cie AG, Rapperswil					30-4-1470, 3		

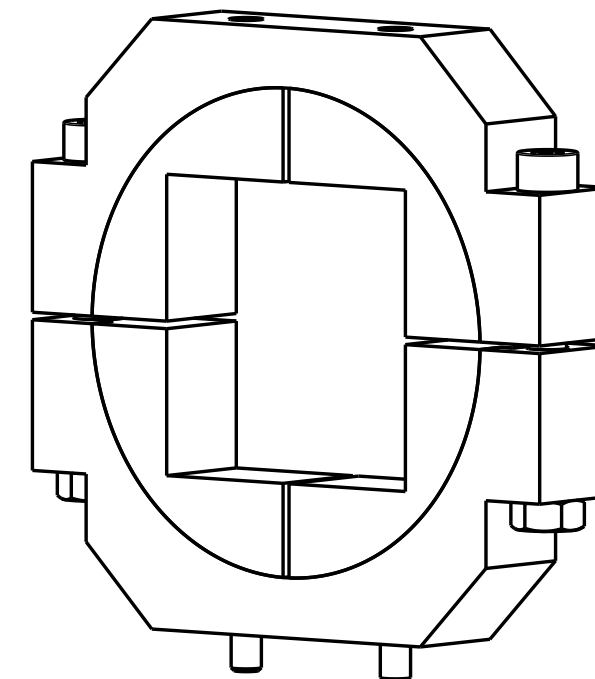
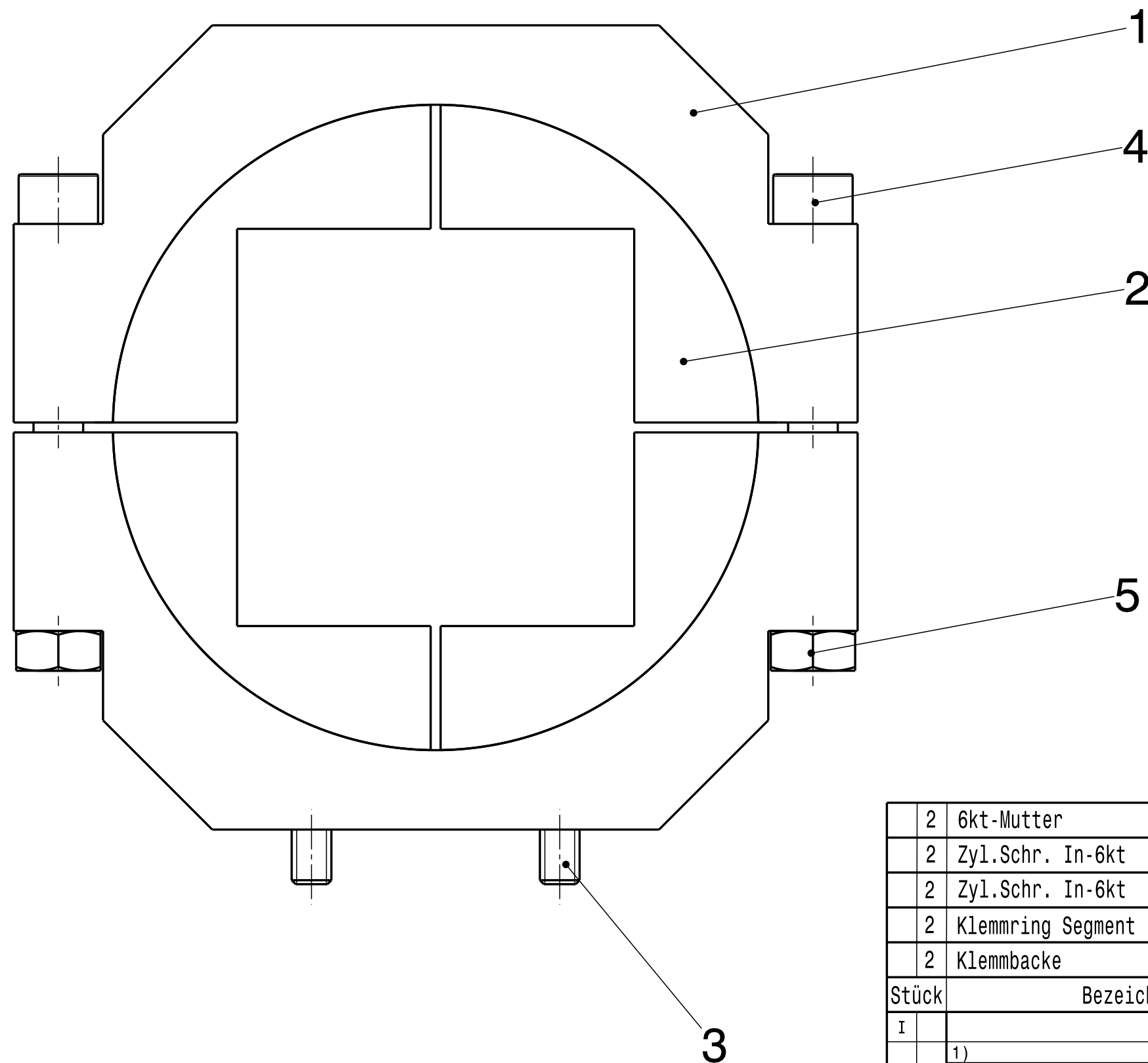


Stückliste siehe 30-4-1477

Stück		Gegenstand			Pos.	Werkstoff	VSM	Modell	Bemerkung	
II	I	Änderungen:					Gehört zu Zeichnung 30-4-1477			
		1)Nr. 1401	02.03.01	RP	6)		Ersetzt durch -			
		2)Nr. 1489	22.08.01	str	7)		Ersatz für -			
		3)			8)		Allgemeintoleranzen			
		4)			9)		ISO 2768 - mK			
		5)			10)					
		Führungsschlitten					Masstab	Gezeichnet	08.12.00	RP
		AVK für Krepel					1:1	Geprüft	27.08.01	Gei
		Graf + Cie AG, Rapperswil					30-2-279, 2			

[illegible]

			30					
			29					
			28					
			27					
			26					
			25					
			24					
			23					
			22					
1	Bedienungs-Anleitung		21				96001222	
			20					
			19					
			18					
			17					
6	U-Sch		16	M12	125A	BN 14683	27100012	
4	U-Sch		15	13x37x3	9021B	BN 729	27111340	
			14					
5	6kt-Schr		13	M12x25	933	BN 54	27001225	
1	6kt-Schr		12	M12x35	933	BN 54	27001235	
4	6kt-Schr		11	M12x50/30	931	BN 55	27011250	
			10					
			9					
			8					
			7					
4	Befestigungs-Winkel		6				30-4-1554	
1	Drahführungsrolle lang		5				30-4-1551l	
			4					
2	Befestigungsplatte		3				30-3-679	
			2					
1	Ausleger		1				30-2-291	
Stück		Bezeichnung		Pos.	Dimension	VSM/DIN	Lieferant	Bemerkung
I	Änderungen:					Gehört zu Zeichnung - 30-3-677		
	1) Nr. 3285	11.04.12	RP	6)	Ersetzt durch -			
	2)			7)	Ersatz für -			
	3)			8)				
	4)			9)				
	5)			10)				
Zubehör Thibeaup Excellence GAV zum Aufziehen von Thibeaup Excellence Krempel					Massstab	Gezeichnet	02.05.11	RP
					%	Geprüft	11.04.12	av
 Graf + Cie AG CH-8640 Rapperswil					Schutzvermerk: ISO 16016 beachten (Refer to ISO 16016)			
30-4-1555,1								



Isometrische Ansicht
Maßstab: 1:2

2	6kt-Mutter	5	M10	934	BN116	27060010
2	Zyl.Schr. In-6kt	4	M10x90/32	912	BN2	27031090
2	Zyl.Schr. In-6kt	3	M8x16	912	BN272	27020816
2	Klemmring Segment	2				30-3-658
2	Klemmbacke	1				30-2-286
Stück	Bezeichnung	Pos.	Werkstoff	VSM/DIN	Dimension	Bemerkung
I	Änderungen:			Gehört zu Zeichnung -		
	1)	6)		Ersetzt durch -		
	2)	7)		Ersatz für -		
	3)	8)		Allgemeintoleranzen nach		
	4)	9)		ISO 2768 - mK		
	5)	10)				
Führungsprofilhalterung drehbar				Massstab	Gezeichnet	10.02.04
GAV				1:1	Geprüft	r1
Graf + Cie AG, Rapperswil				30-3-659,0		

Sequence	Quantity	Comp Description	UM	Component
0001	2.000	STEMMER / FLACHMEISSEL B=18MM	EA	25171025
0002	1.000	GABELSCHLÜSSEL SW24	EA	25150024
0003	1.000	GABELSCHLÜSSEL SW17/19	EA	25151719
0004	1.000	6KT-STIFTSCHLÜSSEL SW 2,5	EA	25160002
0005	1.000	6KT-STIFTSCHLÜSSEL SW 3	EA	25160003
0006	1.000	6KT-STIFTSCHLÜSSEL SW 4	EA	25160004
0007	1.000	6KT-STIFTSCHLÜSSEL SW 5	EA	25160005
0008	1.000	6KT-STIFTSCHLÜSSEL SW 6	EA	25160006
0009	1.000	6KT-STIFTSCHLÜSSEL SW 8	EA	25160008
0010	1.000	6KT-STIFTSCHLÜSSEL SW10	EA	25160010
0011	1.000	ELEKTR.MEISSEL BP	EA	25171022
0012	1.000	LÖTKOLBEN TYP GH 320/400 W	EA	109.580
0014	1.000	LÖTFETT-BÜCHSE A 250GR	EA	25190001
0015	1.000	LÖTZINN	KG	25190011
0016	1.000	SALMIAKSTEIN - 65 X 45 X 20 MM	EA	25190021
0017	1.000	SCHRAUBENZIEHER	EA	25170004
0018	1.000	GABELSCHLÜSSEL SW10/13	EA	25151013
0020	1.000	BRONCEDRAHTBÜRSTE 5043 3-REI.	EA	80001840
0021	1.000	BLEISTREIFEN (COIL6M) 420X2,0	EA	176042015
0022	1.000	STULPSCHACHTEL 500X150X100 MM	EA	93120020
0024	1.000	FRÄSERFEILE LÄNGE 10"	EA	25172010
0025	1.000	FEILENHEFT ART.59505 L=110MM	EA	25172010I
0026	1.000	WINKELSCHR.DREHER 4MM BETA 951	EA	81V219623

Spare and wear parts GAV

Pos.	Qty	Item description	Item No.	Qty per machine
GAV-Antrieb komplett siehe Zeichnung 30-1-0232 MCC mounting drive complete see drawing 30-1-0232				
-	1	GAV-Antrieb komplett MCC mounting drive complete	003041539	1
4	1	Kettenrad z=17 Sprocket 17 teeth	003041061	1
27	1	Variator	29130021	1
-	1	Magnetspule zu Variator Magnet coil for variator	24020025	2
28	1	Drehstrommotor Three-phase motor	29010638050	1
30	1	Keilriemenscheibe Taper ø140 Toothed belts disk Taper ø140	109.800	1
31	1	Keilriemenscheibe Taper ø90 Toothed belts disk Taper ø90	109.799	1
32	1	Taper Büchse 1610 Taper clamping bush 1610	109.801	1
33	1	Taper Büchse 1210 Taper clamping bush 1210	109.798	1
34	1	Flachtopfmagnet Flat pot magnet	25890001	2
37	1	Keilriemen 13 X 8 X 900 V-Belt 13 X 8 X 900	250313900	1
38	1	Rollenkette 141 Glieder Roller Chain 141 links	25070011	1
40	1	Liter Schmieröl Essolube HDX SAE30 für Variator Liter lubricating oil Essolube HDX SAE30 for variator	81V830030	-
Aufzieharm komplett siehe Zeichnung 30-1-179 / 30-4-1005 / 30-4-1206 Mounting arm complete see drawing 30-1-179 / 30-4-1005 / 30-4-1206				
-	1	Aufzieharm komplett mounting arm complete	00301179	1
-	1	Bremsvorrichtung komplett Braking device complete	00Z041696	1
4	1	Nylonrolle zur Abstützung Supporting roller nylon	00304668	1
5	1	Dressierrolle mit Schraube, U-Scheibe und Mutter Dressing roller with screw, washer and nut	003041325	12
7	1	Anpressrolle mit Kugellager und Schaft für normale Garnituren Press-on roller with ball bearing and shaft for normal clothing	003041005	1
2	1	Anpressrolle mit Kugellager ohne Schaft für normale Garnituren Press-on roller with ball bearing without shaft for normal clothing	003041244	1
8	1	Anpressfinger mit Hartmetall-Plättchen Press-on finger with carbide plate	003041206I	1
2	1	Hartmetallplättchen zu Anpressfinger Carbide plate for press-on finger	00304921	1
2	1	Keramikplättchen zu Anpressfinger Ceramic plate for press-on finger	003041587	1
-	1	Anpressrolle für verkettete Garnituren 32V bis 60V Press-on roller for interlinked wires 32V to 60V	003041343	1
22	1	Niederhalterolle ø30x32mm Hold down roller ø30x32mm	00304984	1
23	1	Hartmetall Bremsplättchen ohne Nute für normale Garnituren Carbide brake plate without groove for normal clothing	003041094	2
23	1	Keramik Bremsplättchen ohne Nute für normale Garnituren Ceramic brake plate without groove for normal clothing	003041522	2
23	1	Hartmetall Bremsplättchen Dachform für verkettete Garnituren 6-32 Gang/Zoll Carbide brake plate roof shape for interlinked clothing 6-32 treads/inch	00304989	1

23	1	Keramik Bremsplättchen Dachform für verkettete Garnituren 6-32 Gang/Zoll Ceramic brake plate roof shape for interlinked clothing 6-32 treads/inch	00303660	1
23	1	Hartmetall Bremsplättchen V für verkettete Garnituren 6-20 Gang/Zoll Carbide brake plate V for interlinked clothing 6-20 treads/inch	003041228	1
23	1	Keramik Bremsplättchen V für verkettete Garnituren 6-20 Gang/Zoll Ceramic brake plate V for interlinked clothing 6-20 treads/inch	00303661	1
23	1	Hartmetall Bremsplatte V für verkettete Garnituren 24-32 Gang/Zoll Carbide brake plate V for interlinked clothing 24-32 treads/inch	00304988	1
23	1	Keramik Bremsplättchen V für verkettete Garnituren 24-32 Gang Ceramic brake plate V for interlinked clothing 24-32 treads/inch	00303678	1
74	1	Druckfeder 27x14,5x2 zu Führung Pressure Spring 27x14,5x2 for guidance	27420227	1
75	1	Druckfeder 32x17x3.2 zu Bremsvorrichtung Pressure Spring 32x17x3.2 for braking device	27423232	1

Spannrad komplett siehe Zeichnung 30-2-252
Clamping sprocket complete see drawing 30-2-252

-	1	Spannrad komplett Clamping sprocket complete	00302252	1
2	1	Kettenrad z=57 Sprocket 57 teeth	00302253	1
14	1	Dreibackenfutter 30-120mm Three-jaw chuck 30-120mm	25320091	1

Halterung siehe Zeichnung 30-2-170
Brackets see drawing 30-2-170

-	1	Halterung Brackets	00302170	1
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Seilzug und Gewicht komplett siehe Zeichnung 30-2-171
Rope arm complete see drawing 30-2-171

-	1	Seilzug und Gewicht komplett Rope arm complete	00302171	1
2	1	Hacken für Gewicht Chop for weight	109.589	1
4	1	Gewicht 3 kg Weight 3 kg	109.570	2
-	1	Gewicht 5 kg Weight 5 kg	003041299	-
5	1	Seilrolle rope pulley	25029001	1
15	1	Schottklemme mit Bügel Rope clamping mechanism	25100001	1
16	1	Nylon Schnur ø4 x 3m Nylon rope ø4 x 3m	25100006	1
17	1	Seilspanner 3-Loch Rope tensioner 3-hole	25100005	1

Haspelrahmen komplett siehe Zeichnung 30-2-258
Coil frame complete see drawing 30-2-258

-	1	Haspelrahmen komplett Coil frame complete	003041347	1
6	1	Gewicht 3 kg Weight 3 kg	109.570	1
7	1	Hacken für Gewicht Chop for weight	109.589	1
8	1	Bremsband Brake tape	109.674	1

Umlenkung Haspel komplett siehe Zeichnung 30-2-322
Optional Coil diversion complete see drawing 30-2-322

-	1	Umlenkung Haspel komplett Optional Coil diversion complete	00302322	1
3	1	Umlenkrolle einteilig diversion roller one-piece	00303765	1
7	1	Ausgleichsrolle Compensating roll	00303732	1
29	1	Nadelhülse HK1210 Needle bearing HK1210	26HK1210	2

Umlenkrolle komplett siehe Zeichnung 30-3-745
Guide roller lateral winding complete see drawing 30-3-745

-	1	Umlenkrolle komplett Guide roller lateral winding complete	00303745	1
2	1	Draht-Umlenkrolle seitlich Guide roller lateral	00303770	1

Umlenkung GAV Aufzieharm komplett siehe Zeichnung 30-2-321
Guide roller GAV lateral complete see drawing 30-3-745

-	1	Umlenkung GAV Aufzieharm komplett Guide roller GAV lateral complete	00302321	1
1	1	Grundkörper Umlenkung Groundplate lateral winding	00303723	3
2	1	Gewindeplatte Threaded plate	003041602	3
3	1	Übersprungsicherung Jump over secure	00303736	3
5	1	X Einlauf seitlich aufziehen X inlet lateral winding	00303744	1
6	1	Dressierrolle mit Schraube, U-Scheibe und Mutter Dressing roller with screw, washer and nut	003041325	12
7	1	Pass-Schultererschraube Shoulder screw	2754081206	6

Diverses / Various

-	1	Führungsrohr Guide tube	00303655	1
-	1	Montagewerkzeug Mounting tools	00304733	1
-	1	Runder Kardenanschlussstecker Circular shaped plug	24500050	1
-	1	Stumpf-Schweissapparat Butt-welder	905014010	1
-	1	Verlängerungskabel 10m Extension cable 10m	003041586	1
-	1	Lehren zu Rieter 60" Karden Gauges for Rieter 60" cards	003041466	1
-	1	Anbausatz zu Trützscher TC03 bis TC10 für Anbau Aufzieharm am Abnehmer Attachment kit for Trützscher TC03 to TC10 for attachment mounting arm to the doffer	00303663	1
-	1	Lötkolben Soldering iron	109.580	1
-	1	Lötfett Büchse à 250 g Soldering paste tin 250 g	25190001	-
-	1 kg	Lötzinn Soldering tin	25190011	-
-	1	Salmiakstein Ammonia stone	25190021	1
-	1	Broncedrahtbürste Bronze brush	80001840	1
-	1	Garniturenmeissel Wire chisel	25171022	1

Draht-Abwickler komplett siehe Zeichnung 30-1-206
Stripping reel complete see drawing 30-1-206

-	1	Draht-Abwickler komplett 50 Hz Stripping reel complete 50 Hz	003041474	1
-	1	Draht-Abwickler komplett 60 Hz Stripping reel complete 60 Hz	003041474I	1
28	1	Zahnscheibe 50 Hz / z=24 Tooth wheel 50Hz / z=24	003041473	1
27	1	Zahnscheibe 60 Hz / z=20 Tooth wheel 60Hz / z=20	003041472	1
11	1	Flachriemenscheibe Belt pulley	00303563	1
15	1	Zahnscheibe Innendurchmesser 20 mm Tooth wheel inner diameter 20 mm	003041280	1
16	1	Zahnscheibe Innendurchmesser 35 mm Tooth wheel inner diameter 35 mm	003041281	1
35	1	Drehstrommotor Three-phase motor	29010538050C	1
36	1	UHING-Rollringgetriebe UHING rollring drive	25900021	1
-	1	Torsionsfeder zu UHING-Rollringgetriebe Torsion spring for UHING rollring drive	25900023	1
45	1	Zahnriemen 345 L 100 Toothed belt 345 L 100	2506345L100	1
44	1	Zahnriemen 322 L 075 Toothed belt 322 L 075	2506322L075	1
14	1	Dressierrolle Dressing roller	00304917	2
24	1	Kettenrad z=22 Sprocket 22 teeth	003041333	1
25	1	Draht-Umlenkrolle Guide roller	003041345	1

Karde C80 // Zusätzliche Komponenten GAV
Card C80 // add parts GAV

003041633

-	1	Spannarmverlängerung und Rollenkette zu Antrieb Clamping arm extension and roller chain to drive	003041600	1
-	1	Halterung komplett Bracket complete	00302329	1
-	1	Optional seitliches aufziehen Optional lateral winding	003041631	1

Krempel // Zusätzliche Komponenten GAV
Roller card // add parts GAV

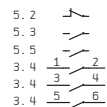
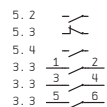
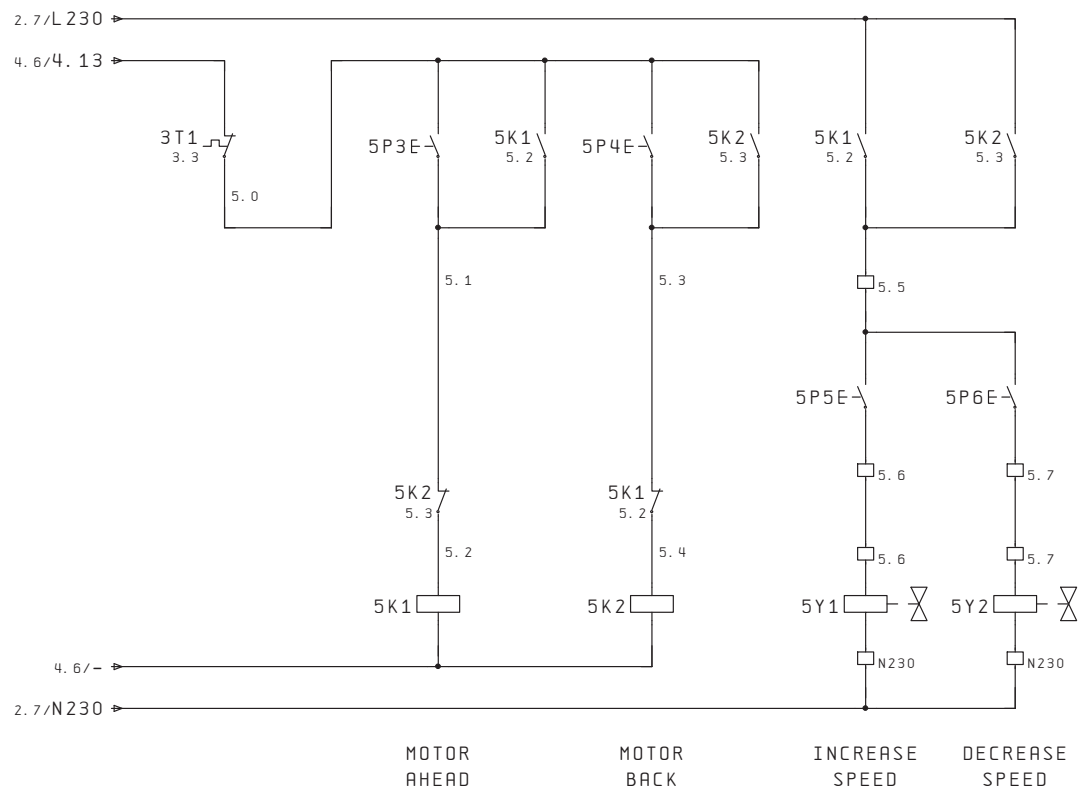
003041636

-	1	Alu-Profil dreiteilig 80x80mm 3-part aluminium carrier 80x80	00603390	1
-	1	Führungsschlitten für GAV Aufzieharm Guide carriage for GAV mounting arm	003041470	1
-	1	Führungsprofilhalterung drehbar Rotatable guide profile holder	00303659	2
-	1	Hartmetall Bremsplättchen für L-Drähte (Morel mit grosser Fussbreite) Carbide brake plate for L-wires (Morel with large foot width)	003041254	1
-	1	Anpressrolle für verkettete Garnituren 75V bis 100V Press-on roller for interlinked wires 75V to 100V	003041343I	1
-	1	Anbausatz zum Aufziehen von Thibeau eXcelle Krempel Attachment kit for mounting Thibeau eXcelle roller card	003041555	1
-	1	Einstechvorrichtung Grooving device	003041335	1
-	1	Gewicht 5 kg Weight 5 kg	003041299	-

0	1	2	3	4	5	6	7	8	9
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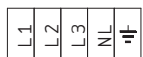
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CONTRACT		DIAGRAM GI003A22		PROJED		REGULATION	
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DESTINATION			DESIGNER				
			BUILDER Elettromeccanica Frigeni Walter & C snc Via Petrarca 19 24052 Azzano San Paolo - BERGAMO				

			Data	MACHINE GAV SAFETY		GRAF ITALIA	WIRING DIAGRAM SCHEMA ELETTRICO	GI003A22		=	
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1) Nr.5319	08.02.2024	MB	Plot.	20. Dic. 2023				110.018		D-000556,1	
Modifiche	Data	Nome	Norm.							Pag. 1 12	



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CAVO FROR

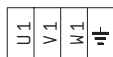


CAVO 5X1.5mmq
MT 6



POWER SUPPLY 400V 50/60HZ
ARRIVO LINEA 400V 50/60HZ

MT0.30
GP217



TRECCIOLA 1.5mmq
MT 0.60



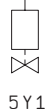
Kw 1.5
A 3.35

MOTOR
MOTORE

MT0.16
GP212



TRECCIOLA 1.5mmq
MT 0.50

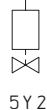


SOLENOID VALVE INCREASE SPEED
EV AUMENTA VELOCITA'

MT0.28
GP212

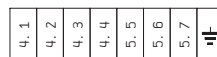


TRECCIOLA 1.5mmq
MT 0.60



SOLENOID VALVE DECREASE SPEED
EV DIMINUISCE VELOCITA'

CAVO FROR



CAVO 10X1mmq
MT 6

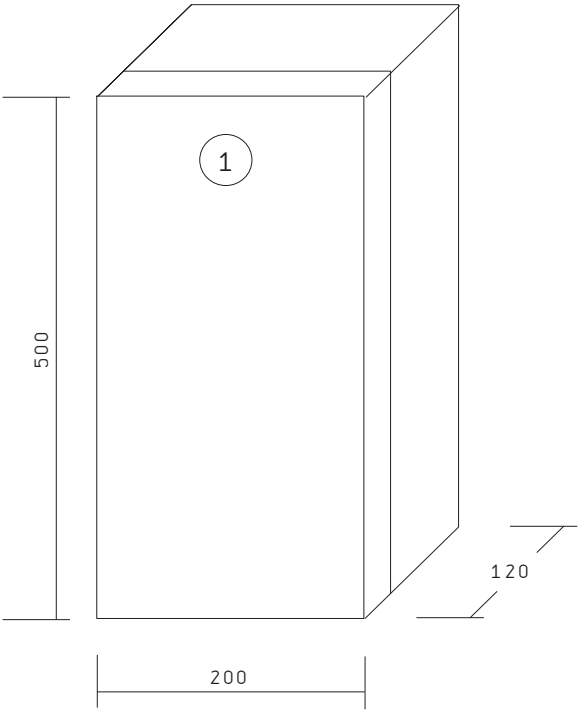


TO SWITCH BOARD
ALLA PULSANTIERA DI COMANDO

			Data		MACHINE GAV SAFETY	GRAF ITALIA	TERMINAL BLOCK MORSETTIERA	GI003A22	=	
			Diseg.						+	
1) Nr.5319	08.02.2024	MB	Plot.	20. Dic. 2023				110.018		Pag. 6
Modifiche	Data	Nome	Norm.					D-000556,1		12

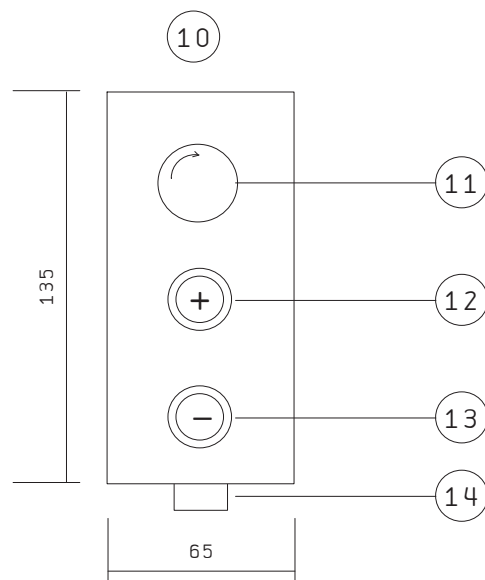
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FRONT VIEW



6										8			
			Data	MACHINE GAV SAFETY		GRAF ITALIA		PANEL LAY-OUT		GI003A22		=	
			Diseg.	BAT								+	
1) Nr.5319	08.02.2024	MB	Plot.	20. Dic. 2023						110.018		D-000556,1	Pag. 7
Modifiche	Data	Nome	Norm.										12

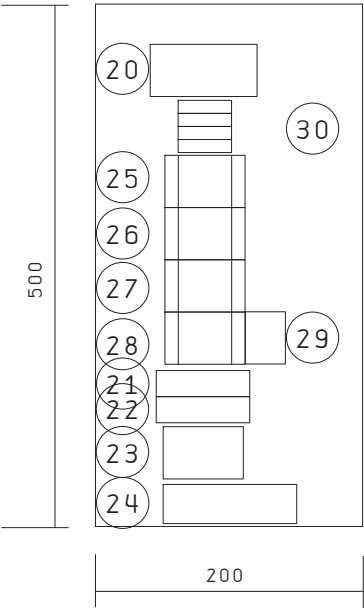
PUSH BUTTON PANEL



			Data		MACHINE GAV SAFETY	GRAF ITALIA	PANEL LAY-OUT	GI003A22		=	
			Diseg.	BAT						+	
1) Nr.5319	08.02.2024	MB	Plot.	20. Dic. 2023						110.018	D-000556,1
Modifiche	Data	Nome	Norm.							12	

[illegible]

INTERNAL VIEW

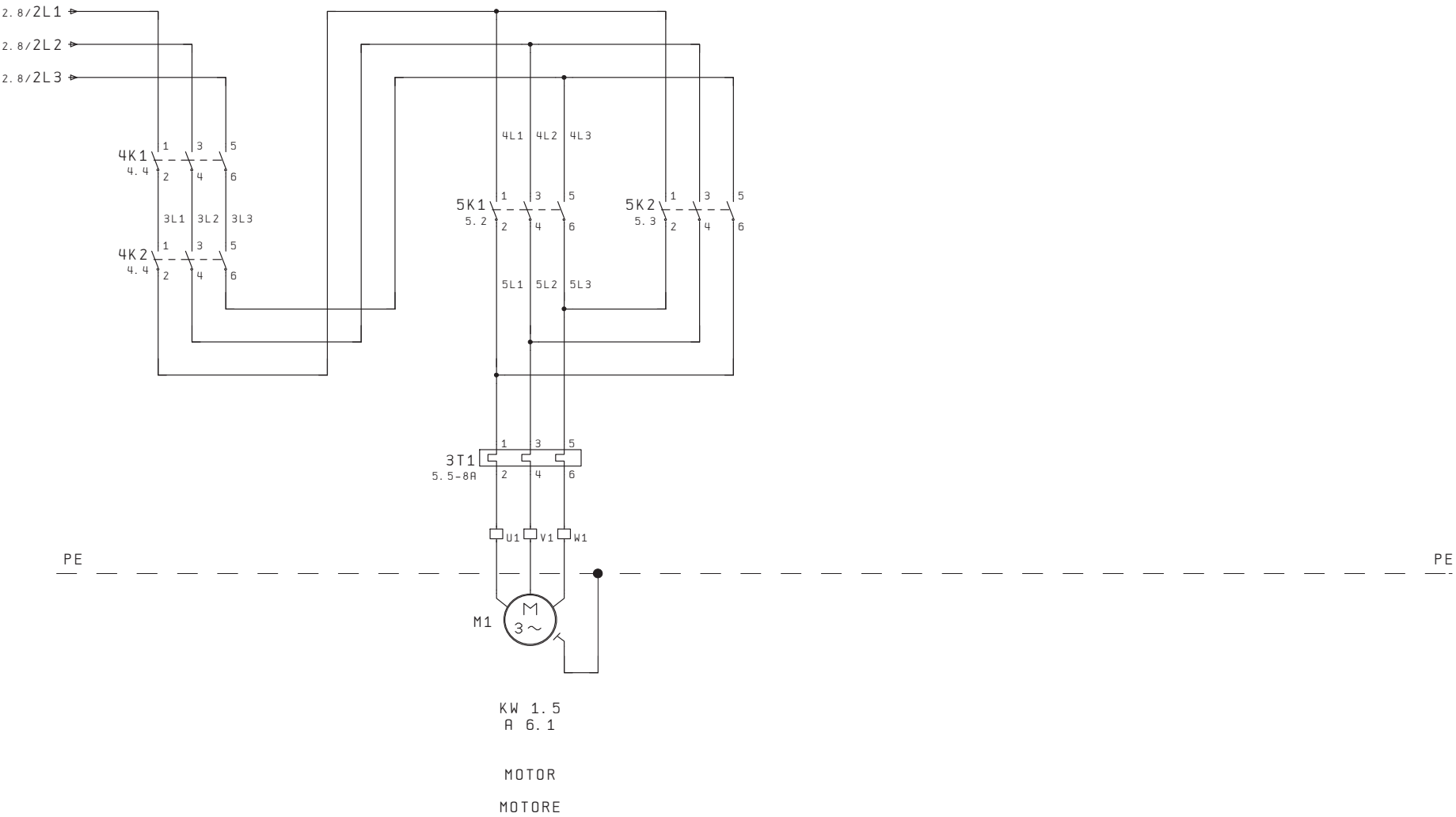


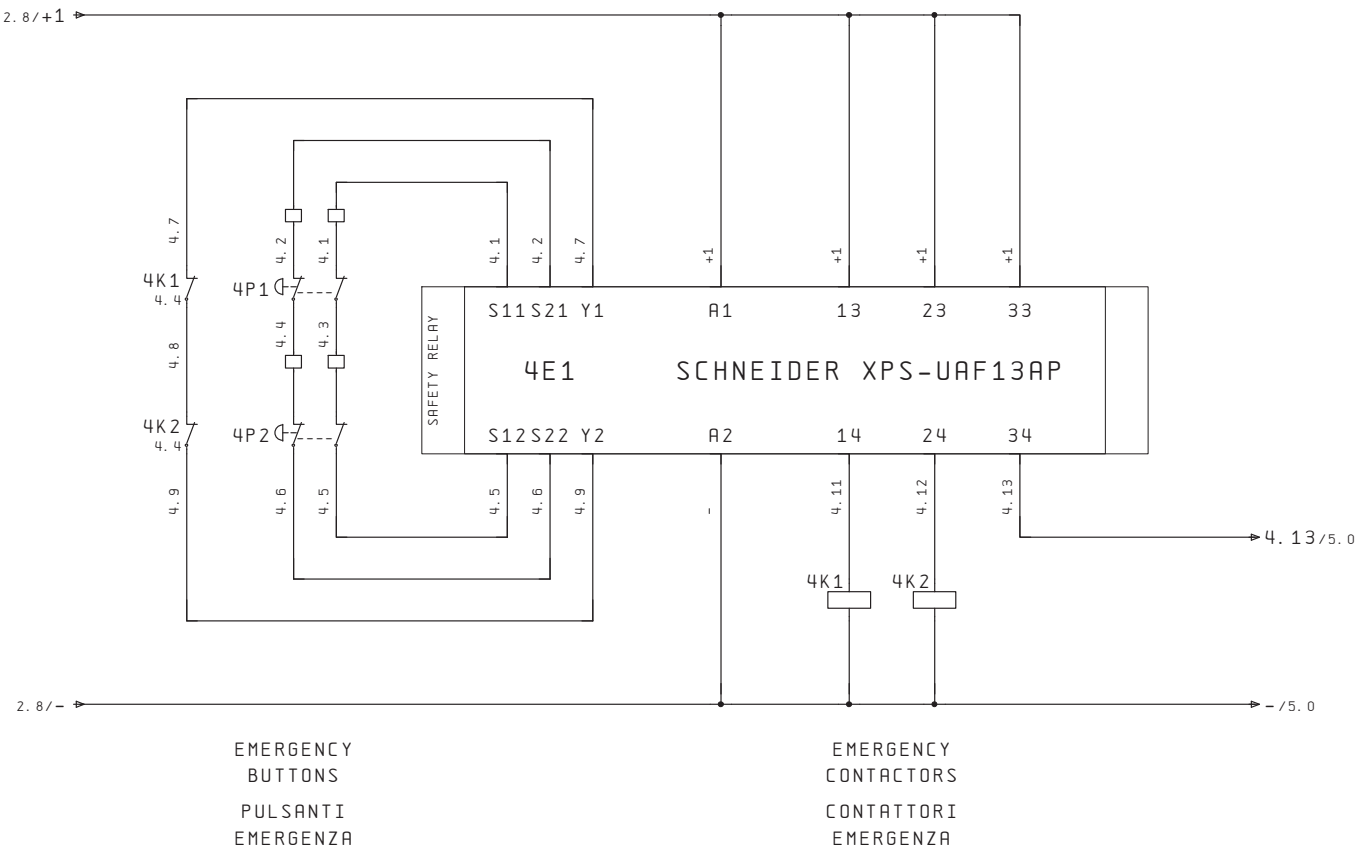
[illegible]

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1		AS-BUILT	BAT				
0		ISSUED FOR CONSTRUCTION	BAT				
REV	DATE		DESIGNED	VERIFIED	APPROVED		
CONTRACT		DIAGRAM GI007A22		PROJED		REGULATION	
DESCRIPTION QUADRO ELETTRICO GAV SAFETY				CUSTOMER GRAF ITALIA Via Zanica 47/49 24126 - BERGAMO			
DESTINATION				DESIGNER			
				BUILDER Elettromeccanica Frigeni Walter & C snc Via Petrarca 19 24052 Azzano San Paolo - BERGAMO			

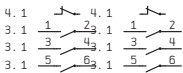
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			Plot.	18. Ott. 2022			110.114		D-000645,0	Pag. 1
Modifiche	Data	Nome	Norm.							12

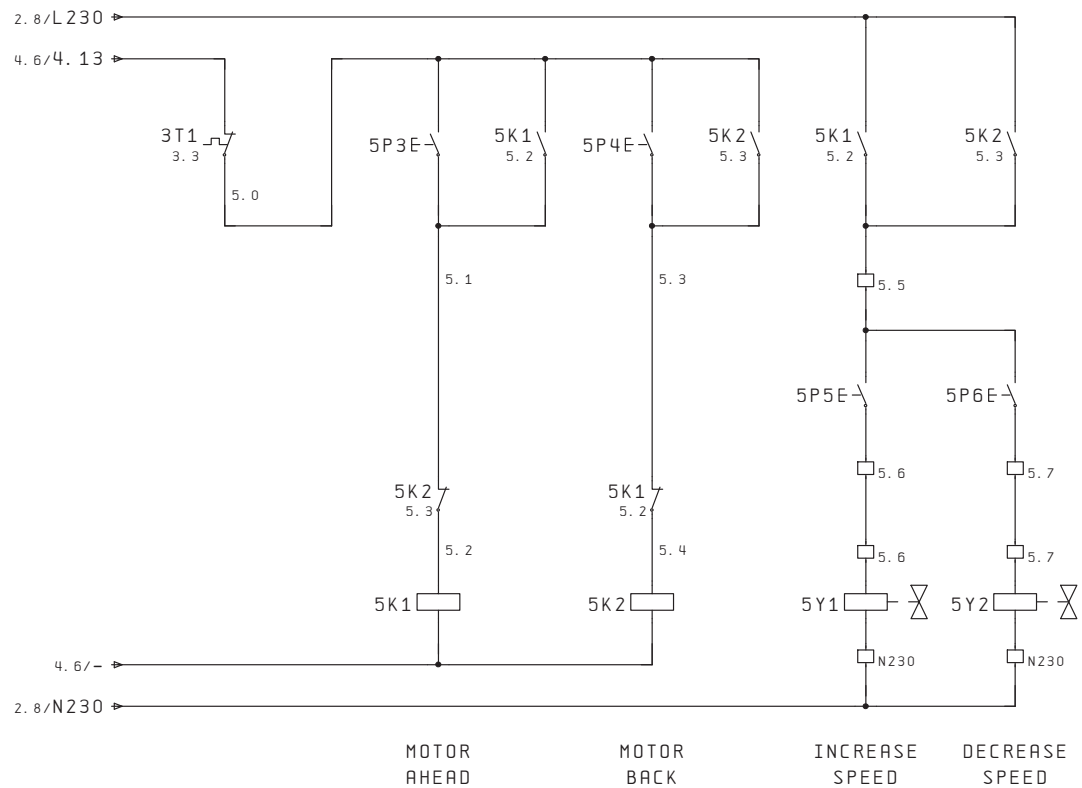




EMERGENCY
BUTTONS
PULSANTI
EMERGENZA

EMERGENCY
CONTACTORS
CONTATTORI
EMERGENZA





MOTORE AVANTI

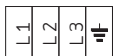
MOTORE INDIETRO

AUMENTA VELOCITA'

DIMINUISCE VELOCITA'



CAVO FROR

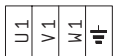


CAVO 4X1.5mmq
MT 5



POWER SUPPLY 230V 50/60HZ
ARRIVO LINEA 230V 50/60HZ

MT0.25
GP217



TRECCIOLA 1.5mmq
MT 0.70



Kw 1.5
A 6.1

MOTOR
MOTORE

MT0.15
GP212



TRECCIOLA 1.5mmq
MT 0.30



SOLENOID VALVE INCREASE SPEED
EV AUMENTA VELOCITA'

MT0.30
GP212

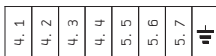


TRECCIOLA 1.5mmq
MT 0.45



SOLENOID VALVE DECREASE SPEED
EV DIMINUISCE VELOCITA'

CAVO FROR

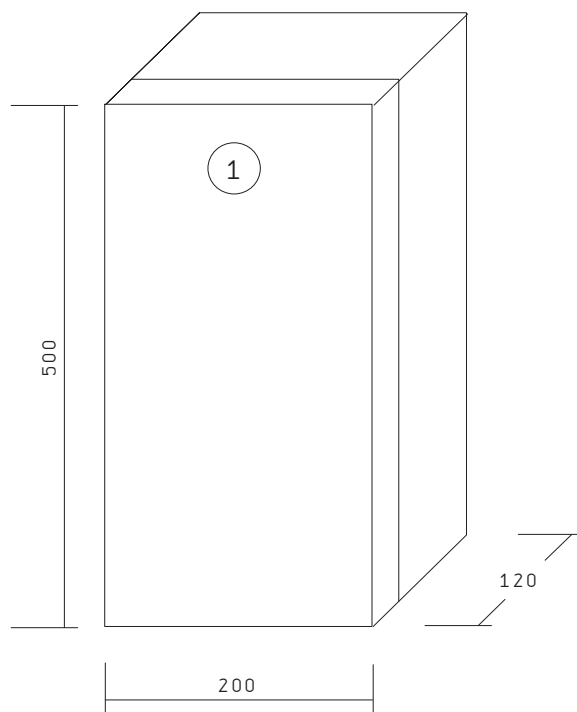


CAVO 8X1mmq
MT 5

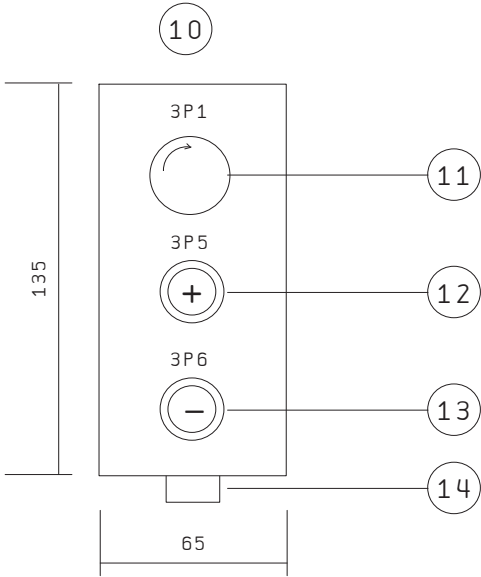


TO SWITCH BOARD
ALLA PULSANTIERA DI COMANDO

FRONT VIEW

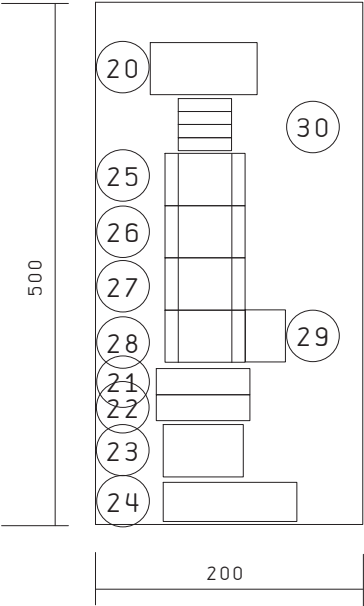


PUSH BUTTON
PANEL

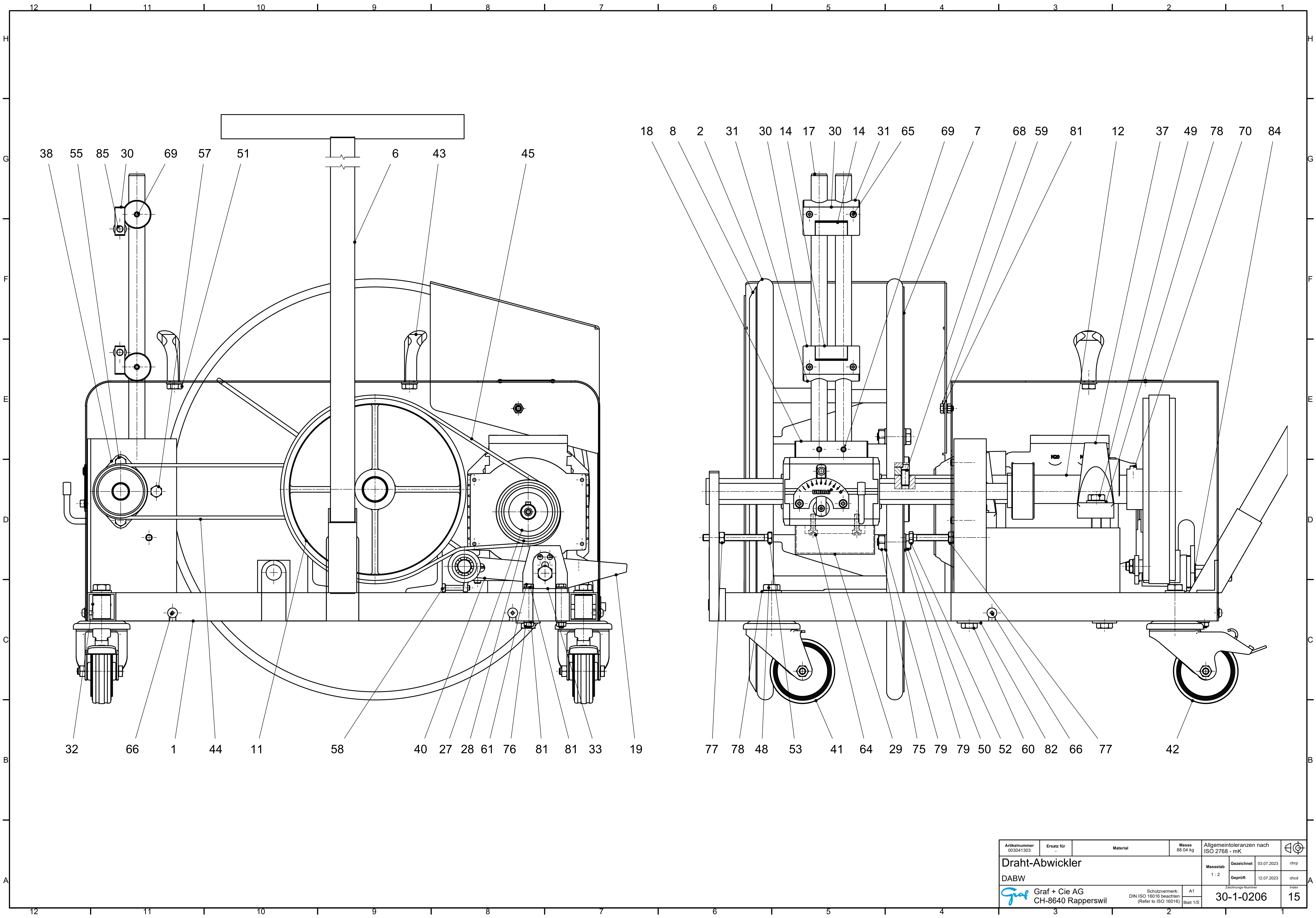


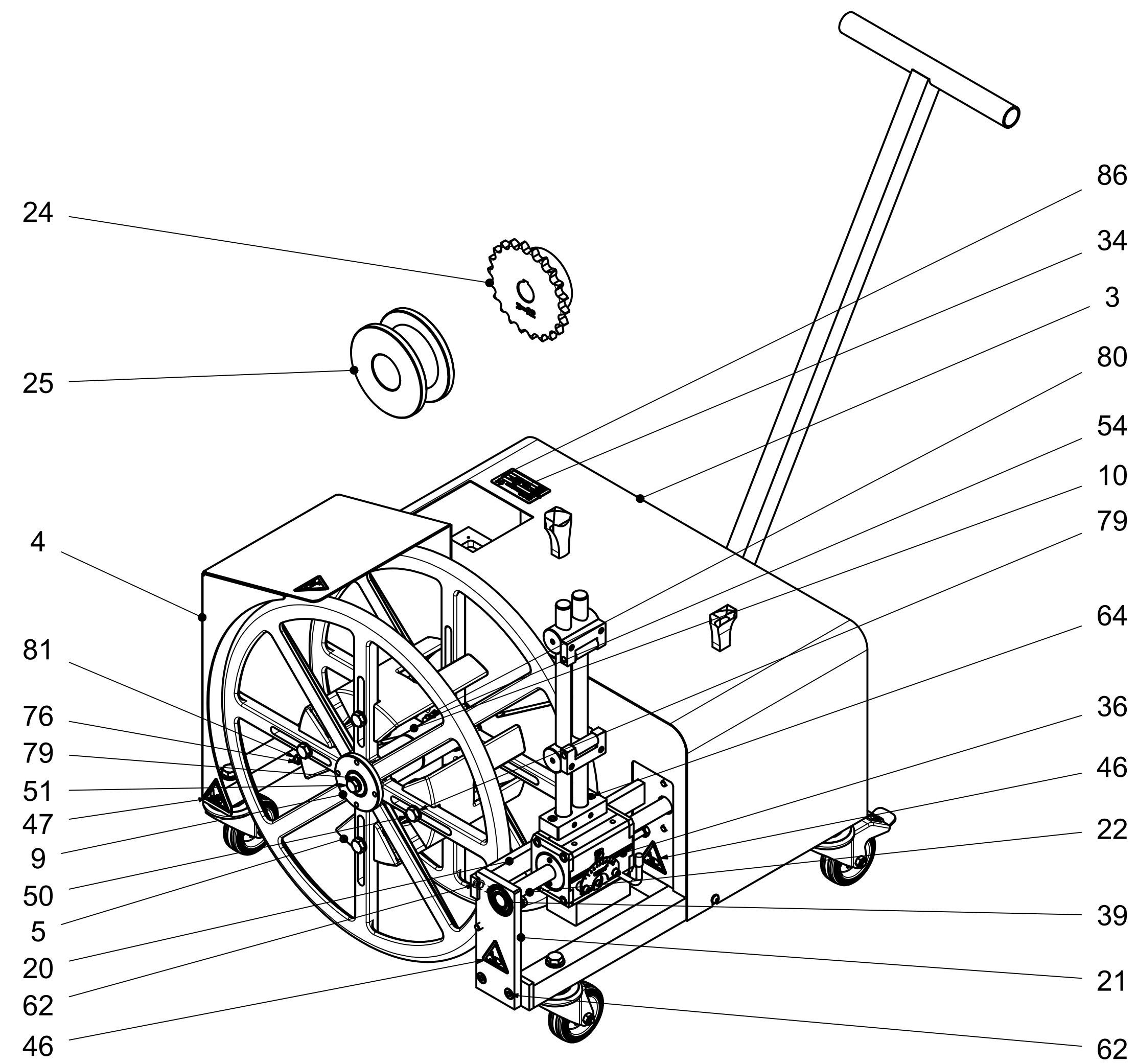
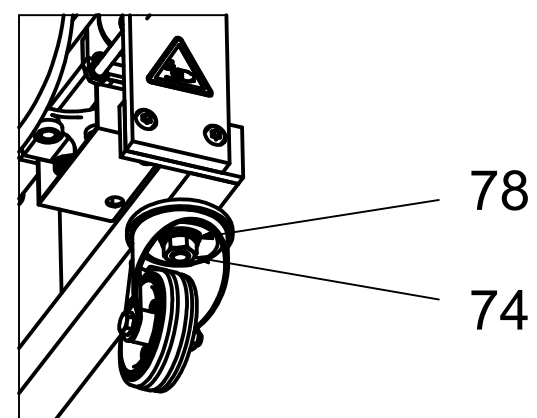
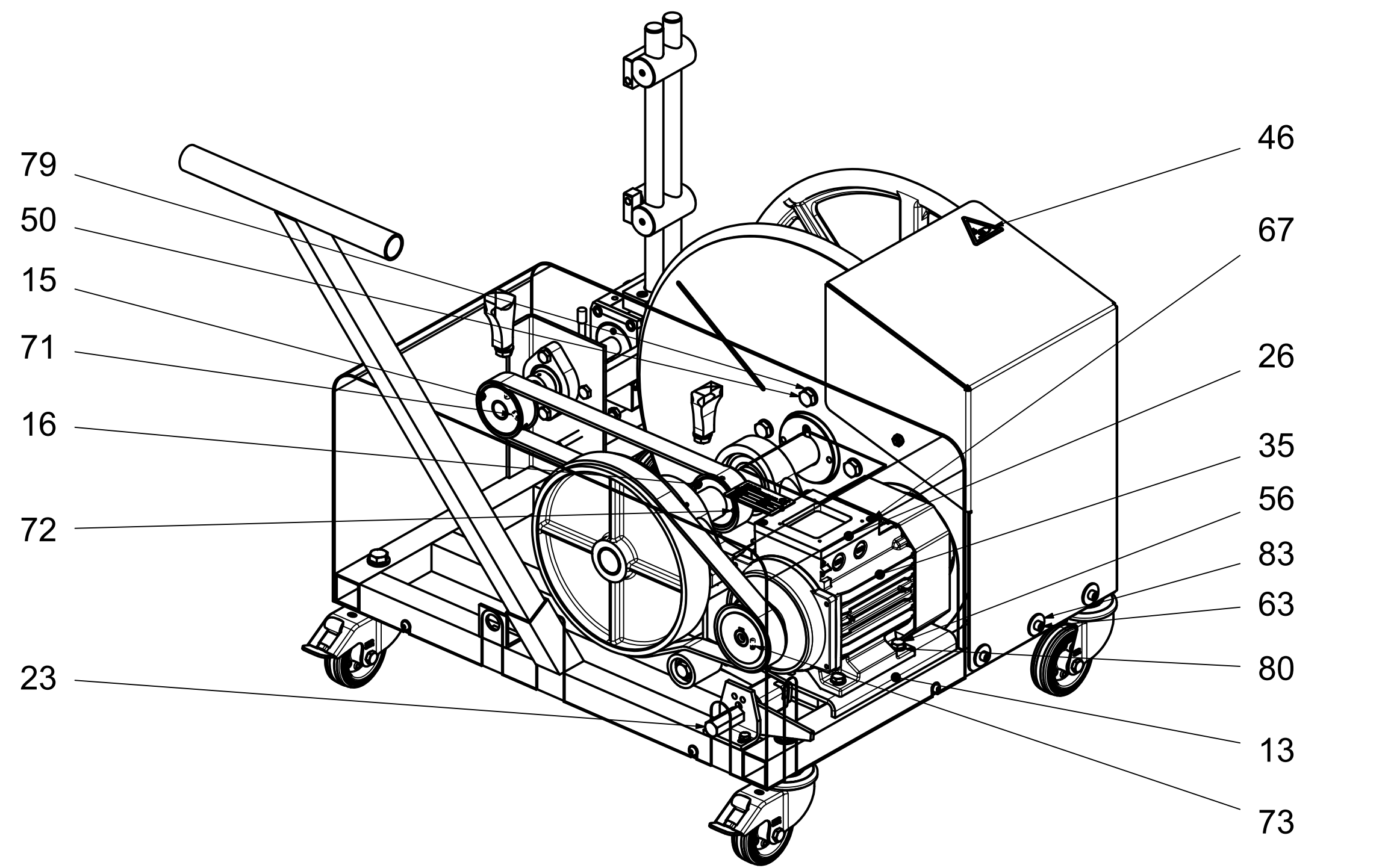
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INTERNAL VIEW



[illegible]







Artikelnummer 003041303	Ersatz für	Material	Masse 88.04 kg	Allgemeintoleranzen nach ISO 2768 - mK			
Draht-Abwickler DABW				Massstab 1 : 5	Gezeichnet 03.07.2023	chrp	Index 15
					Geprüft 12.07.2023	chod	
 Graf + Cie AG CH-8640 Rapperswil		Schutzvermerk: DIN ISO 15016 beachten (Refer to ISO 15016)		A1	Zeichnungs-Nummer 30-1-0206		Blatt 2/5

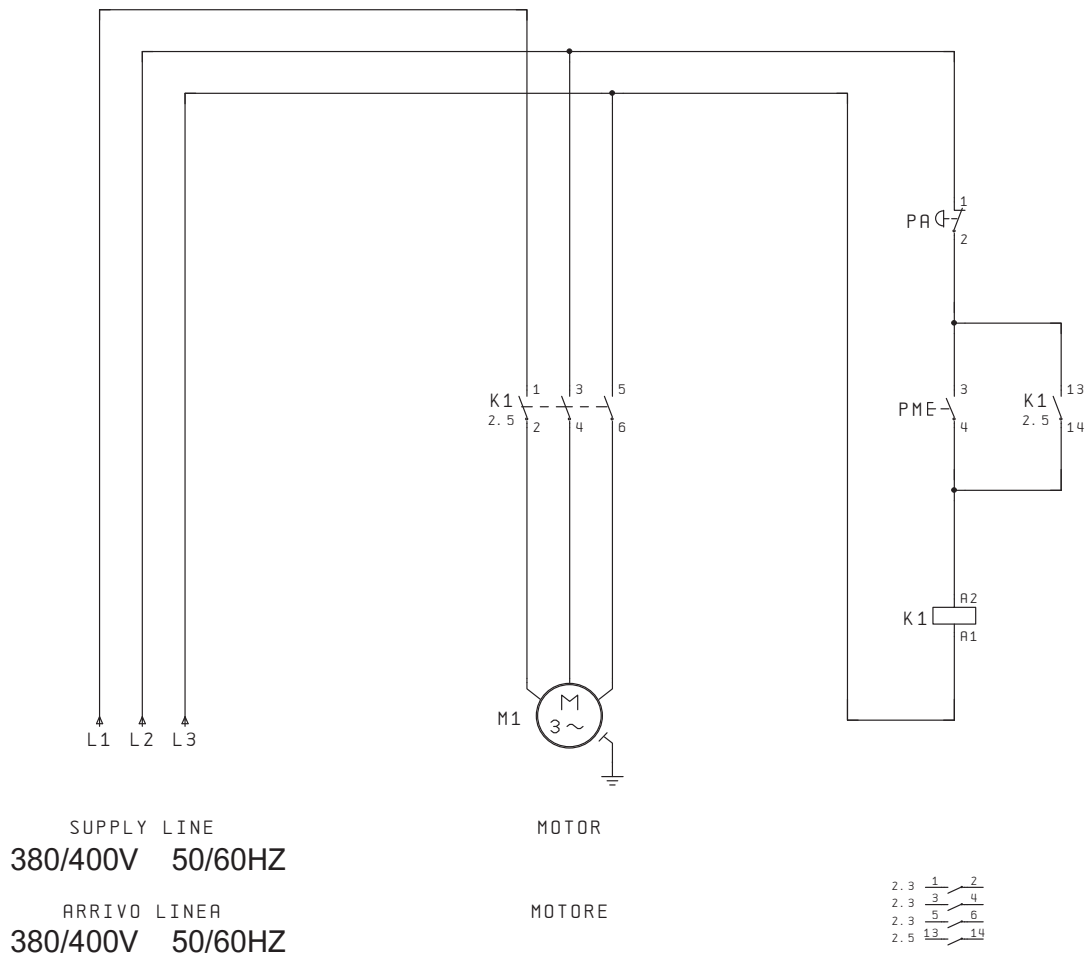
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39	1	Rillenkugellager 6004-2RS	SKF	-	2660042RS
38	1	Flanschlager FLCTE 20	Uiker	-	26FLCTE20
37	2	Stehlager komplett PASE35	Ina (Hydrel)	-	26PASE35
36	1	Rollringgetriebe RG3-20-2MCRF	UHING	-	25900021
35	1	Drehstrommotor M3AA 80 ME-4 B3	ABB	-	29010538050C
34	1	Maschinenschild klein mit CE	Thomas	D.100.109	100.096
33	1	Winkel		D-001586	110.813
32	4	Distanzbüchse		30-4-1585	003041585
31	2	Sicherungselement		30-4-1550	003041550
30	2	Dressierrollen-Halter		30-4-1549	003041549
29	1	Feder-Schutz		30-4-1523	003041523
28	1	Zahnriemenpulley z = 24 / 50 Hz	auf KA	30-4-1473	003041473
27	1	Zahnriemenpulley z = 20 / 60 Hz	auf KA	30-4-1472	003041472
26	1	Distanzplatte		30-4-1376	003041376
25	1	Draht-Umlenkrolle		30-4-1345	003041345
24	1	Kettenrad z=22		30-4-1333	003041333
23	1	6kt-Schraube		30-4-1327	003041327
22	1	Stahlwelle		30-4-1314	003041314
21	1	Lagerflansch		30-4-1308	003041308
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19	1	Hebel		30-4-1306	003041306
18	1	Stangenhalter		30-4-1305	003041305
17	2	Stahlwelle		30-4-1282	003041382
16	1	Zahnscheibe		30-4-1281	003041281
15	1	Zahnscheibe		30-4-1280	003041280
14	2	Dressierrolle		30-4-0917	00304917
13	1	Motorschlitten		30-3-0577	00303577
12	1	Welle		30-3-0568	00303568
11	1	Flachriemenscheibe		30-3-0563	00303563
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8	1	Seitenblech		30-2-0336	00302336
7	1	Seitenblech hinten		30-2-0320	00302320
6	1	Hebelarm		30-2-0238	00302238
5	4	Spannsegment		30-2-0085	00302085
4	1	Verdeck vorne		30-1-0266	00301266
3	1	Verdeck		30-1-0207	00301207
2	2	Haspelkreuz		30-1-0203	00301203
1	1	Ständer		30-1-0202	00301202
Pos.	Anz.	Bezeichnung	Lieferant	Zeichnung-Nr.	Artikel-Nr.
Artikelnummer 003041303		Ersatz für -	Material	Masse	Allgemeintoleranzen nach ISO 2768 - mK
Draht-Abwickler DABW				Gezeichnet	03.07.2023
				Geprüft	12.07.2023
 Graf + Cie AG CH-8640 Rapperswil				Zeichnungs-Nummer	
				30-1-0206	
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79	15	Scheibe ISO 7089-M10-140 HV-Stahl	BN 715	-	27100010
78	12	Scheibe ISO 7089-M12-140 HV-Stahl	BN 715	-	27100012
77	2	6kt-Mu 0,8D UNI 5592-M8-PA 6.6	BN 81	-	27060008II
76	5	6kt-Mu 0,8D ISO 4032-M6-8	BN 117	-	27060006
75	4	Sechskantmutter DIN 934-M10-8	BN 117	-	27060010
74	4	Sechskantmutter DIN 934-M12-8	BN 117	-	27060012
73	1	Gew-Sti In-6kt ISO 4026-M5x12-St	BN 28	-	27300512
72	2	Gew-Sti In-6kt ISO 4026-M6x8-St	BN 28	-	27300608
71	2	Gew-Sti In-6kt ISO 4026-M6x10-St	BN 28	-	27300610
70	1	Gewindestift ISO 4027-M8x14-45H	BN 29	-	982208014
69	6	Gew-Sti ISO 4026-M8x10-St Zinklamellen beschichtet	BN 1424	-	27300810
68	1	Gew-Sti ISO 4026-M10x20-St Zinklamellen beschichtet	BN 1424	-	27301020
67	2	Se-Schr In-6Rund ISO 14581-M5x20-8.8	BN 4851	-	27170520
66	4	Linsenschraube In-6Rund -M5x10-St	BN 5128	-	27222510
65	4	Zyl-Schr In-6kt ISO 4762-M4x16-8.8	BN 3	-	27020416
64	4	Zyl-Schr In-6kt ISO 4762-M6x20-8.8	BN 3	-	27020620
63	3	Zylinderschraube DIN 912-M6x45-8.8	BN 3	-	27020645
62	3	Zylinderschraube DIN 912-M8x16-8.8	BN 3	-	27020816
61	2	6kt-Schr ISO 4014-M6x50/18-8.8	BN 57	-	27010650
60	2	Sechskantschraube DIN 931-M10x50-8.8	BN 57	-	27011050
59	1	6kt-Schr ISO 4017-M6x12-8.8	BN 56	-	27000612
58	2	6kt-Schr ISO 4017-M6x30-8.8	BN 56	-	27000630
57	1	Sechskantschraube DIN 933-M8x16-8.8	BN 56	-	27000816
56	4	6kt-Schr ISO 4017-M8x20-8.8	BN 56	-	27000820
55	2	Sechskantschraube DIN 933-M8x25-8.8	BN 56	-	27000825
54	4	Sechskantschraube DIN 933-M8x30-8.8	BN 56	-	27000830
53	1	6kt-Schr ISO 4017-M8x80-8.8	BN 56	-	27000880
52	1	6kt-Schr ISO 4017-M8x90-8.8	BN 56	-	27000890
51	3	6kt-Schr ISO 4017-M10x20-8.8	BN 56	-	27001020
50	8	Sechskantschraube DIN 933-M10x35-8.8	BN 56	-	27001035
49	4	6kt-Schr ISO 4017-M12x35-8.8	BN 56	-	27001235
48	4	6kt-Schr ISO 4014-M12x65/30-8.8	BN 57	-	27011265
47	1	Warnung vor Fussverletzung 50mm	Schärer	-	25910302
46	3	Warnung vor Handverletzungen 3000372	Schärer	-	25910300
45	1	Zahnriemen 345 L100	Uiker	-	2506345L100
44	1	Zahnriemen 345 L075	Uiker	-	2506322L075
43	2	Griff I.218/60-M10	Elesa	-	25024030
42	2	Lenkrolle LER-VE 80R FI 536441-203	Blickle	-	25029203
41	2	Lenkrolle LER-VE 80R 536409-203	Blickle	-	25029202
Pos.	Anz.	Bezeichnung	Lieferant	Zeichnung-Nr.	Artikel-Nr.
Artikelnummer 003041303		Ersatz für -	Material	Masse	Allgemeintoleranzen nach ISO 2768 - mK
Draht-Abwickler DABW				Massstab	Gezeichnet 03.07.2023 chrp
					Geprüft 12.07.2023 chcd
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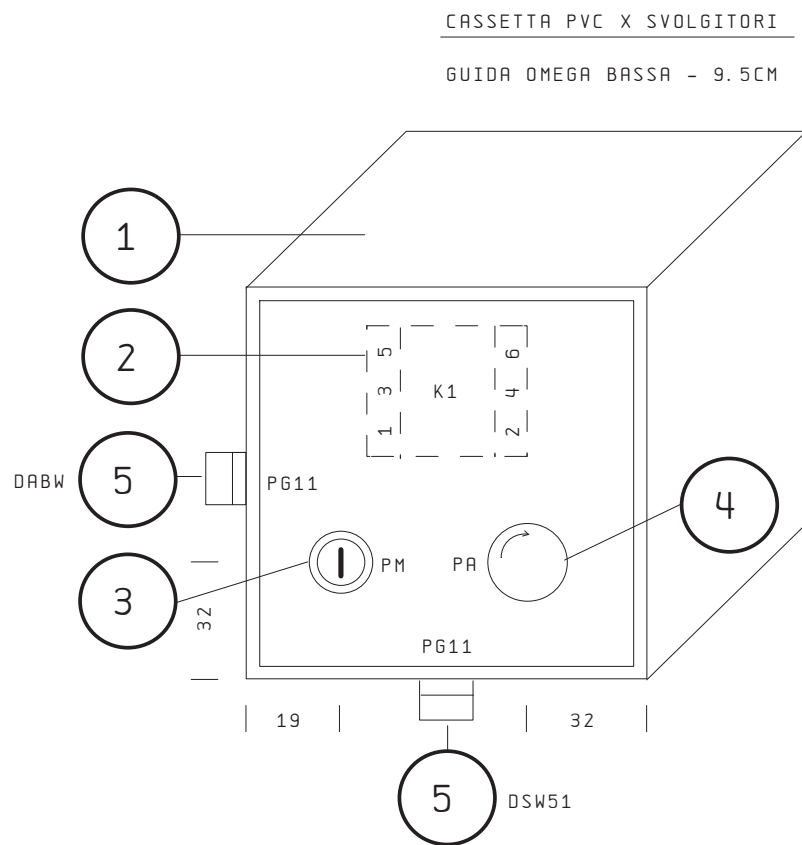
86	2	Blindniet TAPD 36 BS DIN 7337 A-2.4x7.5-Al/St	BN 924	-	27620150
85	2	Zylinderstift DIN 6325-8 h6x70-St	BN 858	-	27250870
84	1	Fächerscheibe DIN 6798 A-M8	BN 781	-	27150008
83	3	Scheibe Carosserie 7x25x1.8	BN 732	-	27110725
82	2	Scheibe DIN 9021-10-140 HV	BN 729	-	27111030
81	8	Scheibe ISO 7089-M6-140 HV-Stahl	BN 715	-	27100006
80	8	Scheibe ISO 7089-M8-140 HV-Stahl	BN 715	-	27100008
Pos.	Anz.	Bezeichnung	Lieferant	Zeichnung-Nr.	Artikel-Nr.

Artikelnummer 003041303		Ersatz für -	Material	Masse	Allgemeintoleranzen nach ISO 2768 - mK			
Draht-Abwickler DABW					Massstab	Gezeichnet	03.07.2023	chrp
						Geprüft	12.07.2023	chcd
 Graf + Cie AG CH-8640 Rapperswil				Schutzvermerk: DIN ISO 16016 beachten (Refer to ISO 16016)		Zeichnungs-Nummer		Index
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1		AS-BUILT	BAT				
0		ISSUED FOR CONSTRUCTION	BAT				
REV	DATE		DESIGNED	VERIFIED	APPROVED		
CONTRACT		DIAGRAM GI005A22		PROJED		REGULATION	
DESCRIPTION		CUSTOMER					
WIRING DIAGRAM DABW		GRAF ITALIA Via Zanica 47/49 24126 - BERGAMO					
DESTINATION		DESIGNER					
		BUILDER					
		Elettromeccanica Frigeni Walter & C snc Via Petrarca 19 24052 Azzano San Paolo - BERGAMO					



0	1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---	---



			Data		MACHINE DABW	GRAF ITALIA	POWER CIRCUIT	GI005A22	=	
			Diseg.	BAT			CIRCUITO POTENZA		+	
1) Nr.5319	08.02.2024	MB	Plot.	19. Dic. 2023				110.113	D-000644,1	Pag. 3
Modifiche	Data	Nome	Norm.							4

0		1		2		3		4		5		6		7		8		9	
3																			
POS.		SIGLE		DENOMINATION				MAKE				TYPE							
1				PANEL BOX				GEWISS				GW44114							
				CASSETTA															
2		K1		CONTACTOR				ISKRA				K03M-10							
				CONTATTORE															
3		PM		PUSH BUTTON START				SCHNEIDER				ZB5-AA333 ZB5-AZ101							
				PULSANTE MARCIA															
4		PA		PUSH BUTTON EMERGENCY				SCHNEIDER				ZB5-AS834 ZB5-AZ102							
				PULSANTE EMERGENZA															
5				CABLEPRESSER				CEMBRE				1900. 11 11420. 11							
				PRESSACAVO															
				CABLE				CEAM				4G1. 5mmq							
				CAVO															

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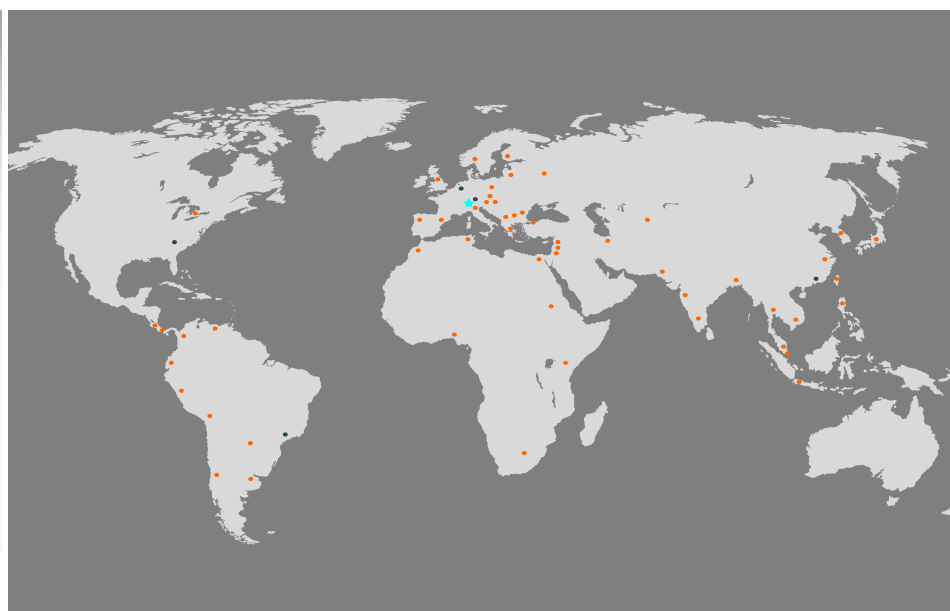
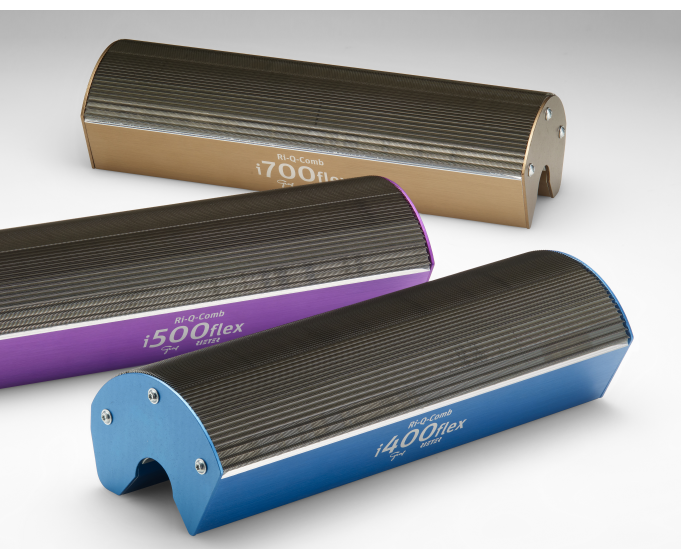
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