

1 User information

1.1 Purpose of document

These instructions are an integral part of the product supplied and contain important information for the safe installation, commissioning, operation, servicing and maintenance.

These instructions must be read before using the product and must be observed during operation, in particular the "General safety instructions" section.

1.2 Illustration of safety instructions

DANGER	
	Indicates imminent danger. If the information is ignored, death or serious injury (permanent disability) will result.
WARNING	
	Indicates a potentially dangerous situation. If the information is ignored, it is possible that death or serious injury (permanent disability) will result.
WARNING	
	Indicates a potentially dangerous situation. If the information is ignored, it is possible that material damage and light to medium injury will result.
NOTE	
	Indicates general information, useful tips for users and work recommendations which do not impact on the health and safety of operators. ... underscores useful tips and recommendations as well as information for efficient and trouble-free operation.
CAUTION	
	Indicates a potentially dangerous situation. If the information is ignored, material damage will result. ... points out a potentially dangerous situation that can lead to material damage if it is not avoided.

2 General safety instructions

2.1 Intended use

The clamping device may only be used in accordance with the technical data and has been designed for stationary application on milling machines in an industrial environment.

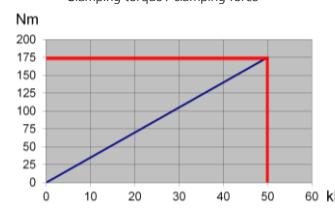
Using the device in accordance with the intended purpose includes compliance with the commissioning, installing and operating instructions, and with the environmental and service conditions as provided by the manufacturer.

The manufacturer accepts no liability for damage resulting from non-intended use.

2.1.1 Technical data

Version	max. torque	max. clamping force
SC2.0 160	175 Nm	50 kN

Clamping torque / clamping force



Exceeding the max. torque results in damage to the spindle.

Weight:

SC2.0 160 L-280 without system jaws: 17 kg
SC2.0 160 L-480 without system jaws: 30 kg

For further data, please see www.gressel.ch

2.2 Reasonably foreseeable misapplication

Any application that is not in accordance with the "Intended use" or exceeds such intended use is considered not in accordance with the regulations, and is forbidden. Any other use of the device is subject to confirmation from the manufacturer.

Examples of foreseeable misapplication

- Clamping device used on rotating systems.
- Clamping widely protruding workpieces.
- Clamping workpieces with a weight of over 20 kg in vertical position without an additional protection against the workpiece falling out as a protective measure for the operator.

2.2.1 Alterations and modifications

In the case of unauthorised alterations and modifications of the clamping device, the manufacturer's liability ceases and any warranty is voided.

2.2.2 Spare and wear parts and auxiliary material

Only use original parts or parts approved by the manufacturer.
Using spare and wear parts by third party manufacturers may lead to risk.

2.3 Residual risk

The user is responsible for applying the correct workpiece clamping.
New clamps have to be carefully checked by qualified personnel with relevant training.

One always needs to allow for the risk that the workpiece may slip or be dislodged, even when the clamping device is functioning correctly. This is due to the different geometries to be clamped, contact surfaces, clamping friction values, processing force, wrong manipulation of the milling machine etc.

Protective devices are to be attached to the processing machine that will protect the operator from any tool or workpiece parts that may be ejected.
It is mandatory that operators and others in the proximity of the processing machine wear protective goggles.

Do not use methods of operation that impair the function and operational safety.

2.3.1 Jaw change

Damage may result if system jaws are insufficiently tightened.

2.3.2 Notes on clamping technology

The operator is responsible for ensuring that the clamping geometry and clamping forces are suitable for the intended processing.
We recommend that clamping be carried out with a torque wrench in order to achieve consistent clamping results. The clamping forces can only be achieved if the clamping device functions correctly and the workpiece is correctly held in the device.
Regular servicing and cleaning in accordance with the operating instructions is mandatory in order to ensure correct function. When clamping thin-walled elastic workpieces, e.g. tubes or packages, it is possible that the clamping force is significantly reduced due to yielding of the workpiece. When clamping with a high degree of force, the clamping force is significantly reduced due to the increased frictional forces in the sliders.

2.4 Duties of the organisation in charge

The organisation in charge of the device undertakes to only allow operatives to work on the device:

- who are familiar with the basic health and safety regulations and regulations for the prevention of accidents.
- who have completed appropriate induction for working with the machine.
- who have read and understood these operating instructions.

2.5 Operator duties

All persons who have been instructed to work with the machine undertake to:

- observe the basic regulations for health and safety and for the prevention of accidents.
- read and understand the section on safety and the safety instructions in these operating instructions prior to working with the machine, and to observe these instructions.

2.6 Operator qualification

The installation, initial setup, fault analysis and periodic monitoring have to be carried out by competent personnel with the relevant qualifications.

2.7 Personal protective equipment

WARNING	
	Ejected hot fragments can lead to serious eye injury. The regulations for safety at work and the prevention of accidents always have to be observed when working with the machine. Personal protection equipment must be worn at all times, in particular safety boots, gloves and safety goggles.

2.8 Warranty

Warranty	24 months
Maximum service life	50'000 clamping cycles

The warranty period is valid from the date of delivery ex-works, provided the machine is used as intended and subject to the following conditions:

- Compliance with concurrent documents.
- Compliance with environmental and operating conditions.
- Compliance with the specified maintenance and lubrication intervals.
- Observance of the maximum service life.

Parts in contact with workpieces are not covered by the warranty.

Warranty – Maximum service life

24 months or 50'000 clamping cycles

3 Description

The SC2.0 is designed for clamping unprocessed and machined workpieces against the fixed jaw.

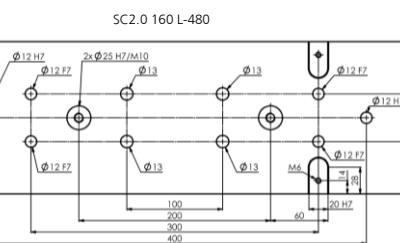
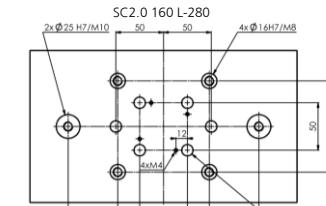
3.1 Function

Direct vice with a driven mechanical via a thread.

The clamping force is generated mechanically and the clamping force transmission is linear across the whole clamping range.

4 Operation

4.1 Aligning / Fastening



4.2 Jaw change

- Release cylinder screws and remove the jaws.
- Clean and oil the contact surfaces, e.g. with MOTOREX Supergliss 68 K.
- Insert the system jaws and tightened the cylinder screw with a torque of 50 Nm.

4.3 Clamping range

The maximum adjustment range via the spindle is 50 mm.

Failure to comply with this rule can result in insufficient workpiece clamping and hence to loss of workpieces and damage.

5 Servicing, cleaning and maintenance

Make sure that the sliding surface between the system jaws and the base body as well as the spindle is free of chips when adjusting the clamping range.

Cleaning / Lubrication

Clean and oil the running surfaces, spindle and bearing of the vice regularly, e.g. with MOTOREX Supergliss 68 K.

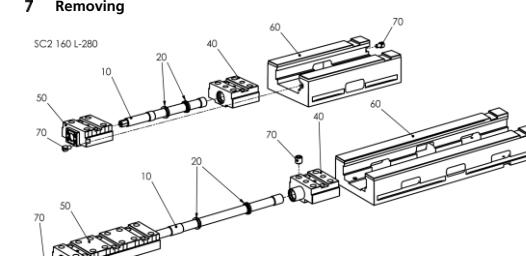
6 Troubleshooting / Eliminating faults

Vice is hard to operate

Disassemble system jaws and clean the entire clamp.

If this does not result in an improvement of the function, the vice can be further dismantled in accordance with the description below.

7 Removing



• Removal of the securing elements (pos. 70).

- By turning the spindle (pos. 10) to the left, turn the sliders (pos. 40 and 50) off the spindle. As a rule, the two inside wipers (pos. 20) are also pulled out of the slides and remain positioned for the installation on the inside of the spindle.
- Clean the system completely and remove guide surfaces with a whetstone.

8 Assembly

- Re-grease the thread of the spindle and at the sliders using e.g. EP high-performance grease, such as LAGERMEISTER WHS 2002, NLGI class 1-2
- Oil the running surfaces and guides of the vice using e.g. with MOTOREX Supergliss 68 K.
- Turn the spindle (pos. 10) into the slider (pos. 40) until the spindle is at the back.
- Turn slider (pos. 50) onto the spindle until the two sliders (pos. 40 and 50) meet.
- Turn rear slider (pos. 40) so that the complete slider unit can be pushed into the base body (pos. 60).
- Remount the securing elements (pos. 70).
- Open the vice and check whether the two wipers (pos. 20) engage in the groove of the sliders again and if necessary press them in with a tool.

Important:

The high degree of precision of the SC2.0 is achieved using a processing step while it is mounted. The components of different vices must not be interchanged.

9 Swivel and adapter plate

Processing the first side

Clamping with grip clamping steps of 3, 8 or 18 mm.

Processing the second side

Clamping on tungsten carbide coated side. When clamping the system jaws may yield slightly. The workpiece position must be measured.

9.1 Fitting the 6-fold reversible jaws

- Determine the mounting positions of the 6-fold reversible jaws. The best clamping results are achieved when clamping parts as far out as possible.
- Move the cover screws so that the selected clamping position is available.
- Position the 6-fold reversible jaws and loosely insert the cylinder screws.
- Turn the 6-fold reversible jaws on to the required clamping faces and slightly Pre-clamp the workpiece so that the clamping faces are parallel to, and touch, the workpiece.
- Use a torque of 80 Nm to tighten the cylinder screws of the 6-fold reversible jaws.

Important:

When the clamping faces of the 6-fold reversible jaws are not aligned parallel to the workpiece surface it is possible that the 6-fold reversible jaw becomes loose through the clamping force.

9.2 Servicing, cleaning and maintenance

The upper shoulder of the swivel peg must be greased regularly.

Turn the swivel plate once a week so that the lubricating film can be rebuilt. Lubrication of the swivel peg is recommended once a year.

9.3 Troubleshooting / Eliminating faults

Swivel plate is difficult to turn

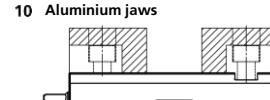
- Disconnect the swivel plate and push the swivel peg from below out of the swivel plate.
- Check the vice guide and swivel plate surface for indentations or deformations. If necessary, re-grind the plate and the vice guide.
- Check the peg for soiling.
- Check that the O-rings are correctly positioned. The upper O-ring must make good contact.
- Lubricate the entire system with grease and reassemble.

When handling, the swivel plate should not be turned upside down.

Important:

When the clamping faces of the 6-fold reversible jaws are not aligned parallel to the workpiece surface it is possible that the 6-fold reversible jaw becomes loose through the clamping force.

10 Aluminium jaws



Important:

Mill the system jaw to a maximum depth of the screw head. Ensure that the clamping cross-section is sufficient.

11 Taking out of service

The clamping device and all accessories can be disposed of as scrap metal without any risk.

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