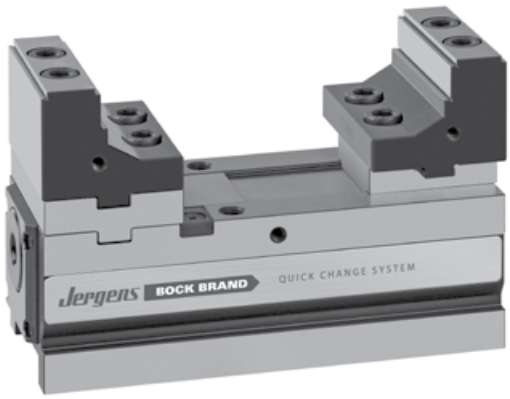
Operating Manual

Including installation and assembly instructions
For incomplete machines as per Machinery Directive 2006/42/EC

81000 5-Axis 80mm Manual Fixed Jaw Vise
81200 5-Axis 80mm Hydraulic Fixed Jaw Vise
81100 5-Axis 120 mm Manual Fixed Jaw Vise
81300 5-Axis 120mm Hydraulic Fixed Jaw Vise



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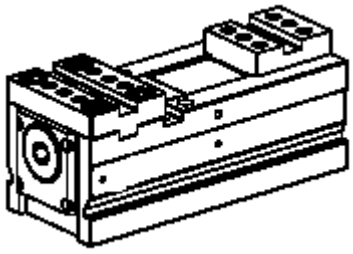
In order to ensure safe and appropriate operation, read this operating manual thoroughly prior to installation and commissioning!

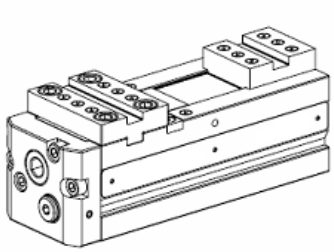
1.1 Product lines

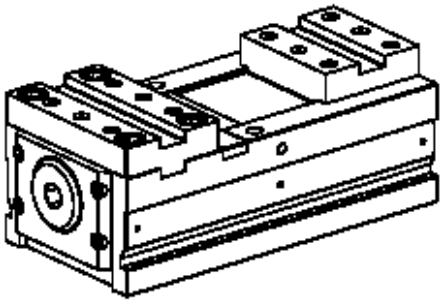
mechanical **hydraulic**

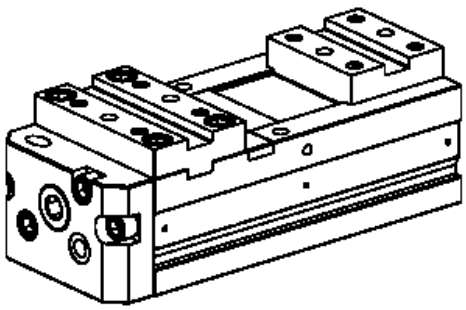
80mm Manual and Hydraulic Vise

81000
81200









120mm Manual and Hydraulic

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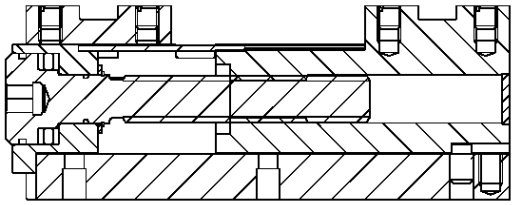
Vise

81100
81300

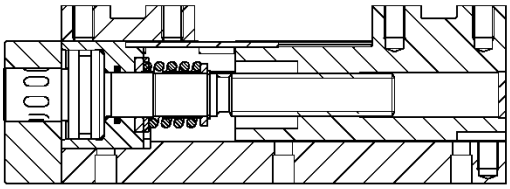
1.2 Description

Manual
81000 & 81100



- Spindle drive
- Build-up of the clamping force using a torque wrench

Hydraulic
81200 & 81300



- Adjusting the clamping range by means of the spindle
- Hydraulic clamping, single-acting

1.3 Safety information

- Before commissioning the system, take into account the working area of the machine to make sure that there is no possibility of collision.
- Fasten the machine vise firmly to the machine bed using screws.
- The work piece clamping forces must be such as to ensure that there is no possibility of the work piece being moved by the machining forces.
- Use of a torque wrench for clamping a manual vise is recommended. (observe max. values, see 1.5)
- When using hydraulic versions, only part of the hydraulic stroke must be used as the space for work piece insertion in order to ensure safe clamping (see 2.4)
- Check the clamping force at regular intervals using a load cell.
- Remove the torque wrench after the clamping process is complete.
- Adjust the insertion gap between work piece and clamping jaw to 4mm maximum. **Avoid pinch point!**

1.4 Scope of supply

- Machine vise 81000, 81200, 81100 or 81300 with appropriate handle. (torque wrench and clamping jaws are not part of the supply)

1.5 Technical data

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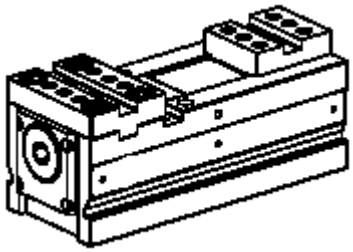
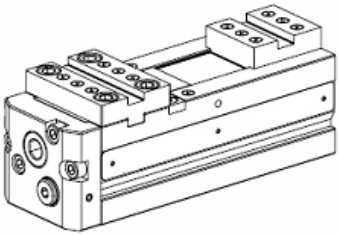
81000 Manual



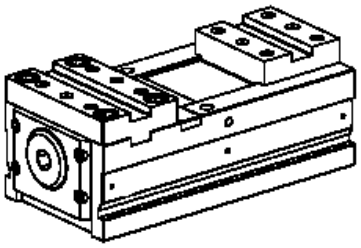
- Jaw width: 80 mm
- Max. clamping force: 25 kN
- Max. torque: 60 Nm

81200 Hydraulic



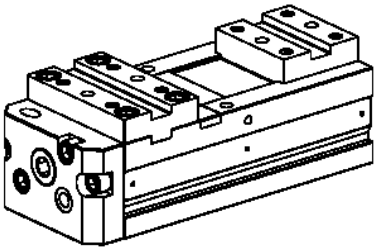
- Jaw width: 80 mm
- Max. clamping force: 20 kN
- Max. hydraulic pressure: 270 bars
- Hydraulic stroke: 4 mm

81100 Manual



- Jaw width: 120 mm
- Max. clamping force: 40 kN
- Max. torque: 100 Nm

81300 Hydraulic



- Jaw width: 120 mm
- Max. clamping force: 40 kN
- Max. hydraulic pressure: 270 bars
- Hydraulic stroke: 4 mm

2.1 Fastening to the machine bed

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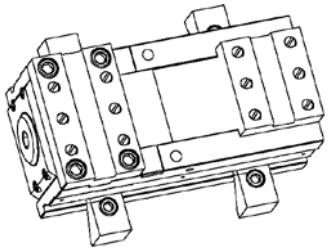
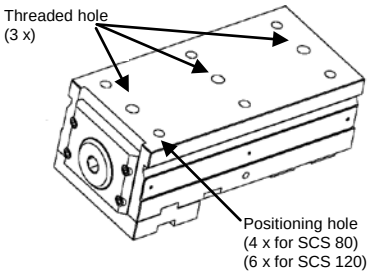
The machine vise must be fastened in such a way that it cannot be moved by the machining forces.

- Before commissioning the system, take into account the working area of the machine to make sure that there is no possibility of collision.
- Remove any unevenness and any debris, which may be present between the locating surface and the base.



- Fastening using claws (available as accessories)



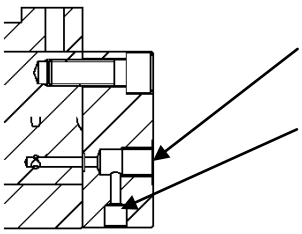
- Fastening through threaded holes
- Aligning using positioning holes in the lower base

2.2 Power unit

The power unit should operate intermittently with pressure switches for automatic pressure control and for machine protection. If the pressure drops by 10% below the set value the pressure switch for automatic pressure control causes the motor to start again. If the clamping pressure drops by more than 15% the machine is stopped.

2.3 Hydraulic oil connection and bleeding

The 81200 or 81300 Hydraulic vise is connected to the power unit through an oil port G1/4" and a flanged connection Ø10H7 (for plug-in connection). The system is connected to the power unit either through the oil port or through the flange. The oil supply line up to the clamping system must be well bled.
Oil recommendation: HLP32 or HLP46 according to DIN 51524.



Hydraulic oil port G¼ on the rear

Hydraulic oil port from below
Plug-in connection part no. 8.0530.0023
required, available as accessory
(connection is possible through the base plate)

2.4 Adjusting the clamping range

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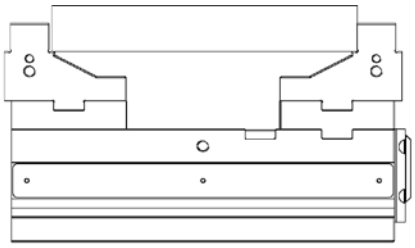
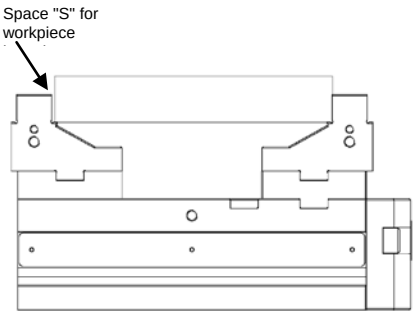
Mechanical



- The clamping range is adjusted by turning the spindle.
  An overlap of the clamping range is obtained by turning the clamping jaws or by displacing the fixed jaw.

Hydraulic

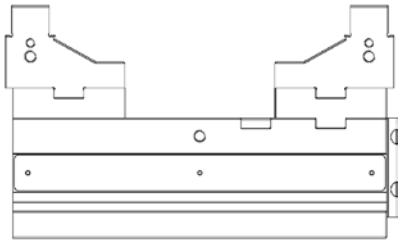


- The clamping range is adjusted by turning the spindle.
- The space "S" for work piece insertion must be between 1 and 3 mm.

Attention:
Do not use the full power stroke as the space for inserting the work piece. During clamping, this would cause the clamping slide to make contact with the inner stop and the work piece will not be clamped. In the case of flexible work pieces it may be necessary to close the slide before clamping using a wrench.

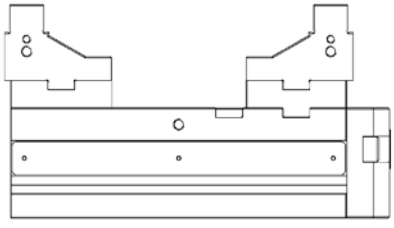
2.5 Clamping and unclamping

Manual



- By turning the spindle clockwise using a torque wrench, clamping force is applied to the extent of the selected torque (do not use a screwdriver).
- Observe maximum values, see technical data 1.5.
- For unclamping, turn the spindle counter-clockwise.

Hydraulic



- By switching on the power unit, the work piece is clamped with a force proportional to the adjusted pressure, see technical data 1.5. For unclamping, a directional valve is actuated, and the integral spring resets the slide into its home position.

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Attention:

After a longer standstill (e.g. during week-ends) the clamping pressure may have dropped. Please check the pressure before machining work pieces and re-clamp if necessary.
After having activated the emergency switch, the work pieces must be re-clamped, as the hydraulic system is disconnected when the emergency switch is activated.

3.1 Trouble shooting, hydraulic version

Failure	Cause	Remedial action
The work piece is not clamped at all or not sufficiently clamped.	The slide moves against the inner stop.	Reduce the insertion space, see 2.4
	The operating pressure is too low.	Adjust to a higher pressure on the power unit
	Flexible work piece.	Manually close the slide before clamping
When pressure is relieved, the clamping slide does not return to its home position or returns very slowly to its home position.	Too much resistance in the return line.	Increase the cross section of the line or reduce its length.
	Directional valve is dirty or defective.	Clean the directional valve or replace it if necessary.
	Hydraulic oil is too viscous.	Use hydraulic oil HLP32 or HLP46 acc. to DIN 51524.
	Return spring is defective.	Replace the return spring
	Clamping slides jammed due to an accumulation of dirt.	Clean the machine vice. Check the guideways for surface damage, repair them if necessary.

3.2 Maintenance and care

Generally, the clamping system does not require any special maintenance beyond that which is normal for this type of clamping element. However, depending on the application, the space around the spindle and the spindle itself must be lubricated using a grease containing molybdenum.

Proceed as follows for these vises:

- Undo the stop screws on the housing.
- Pull the housing including the spindle off the basic body by turning the spindle to the left.
- Clean all components, grease them and reinstall them in the reverse order.
- Make sure that the spindle and the slide move smoothly.

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3.3 Service / Maintenance

SERVICE HOTLINE + 877.426.2504

Customers abroad

- Please contact the JERGENS, INC. general importer or your local dealer.

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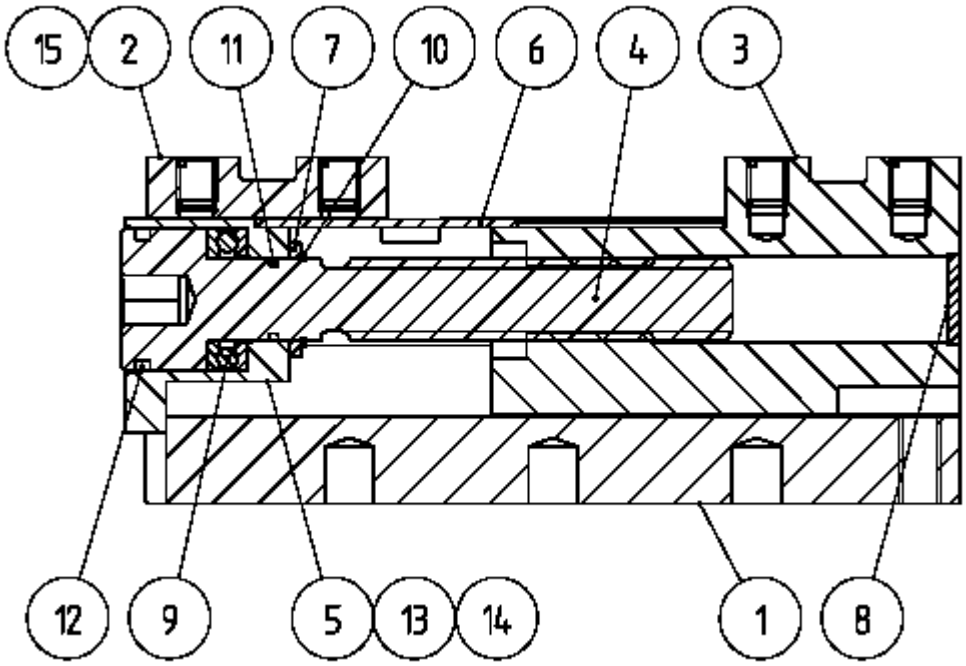
3.4 Spare parts

81000 80mm Manual Vise



Item	Designation	Spare part no.	Quantity
1	Lower part	5.2051.0874	1
2	Fixed jaw	5.2052.0185	1
3	Slide	5.2040.0436	1
4	Spindle	5.2043.0215	1
5	Housing	5.1310.0425	1
6	Cover sheet	5.0485.0021	1
7	Washer	5.1022.0279	1
8	Cover	5.1215.0861	1
9	Deep groove ball thrust bearing	1.0711.0003	1
10	Circlip	1.0471.0020	1
11	O-ring	1.9503.0094	1
12	O-ring	1.9503.0030	1
13	Setscrew	1.0913.0055	2
14	Cheese head screw	1.7984.0018	4
15	Cheese head screw	1.6912.0068	4

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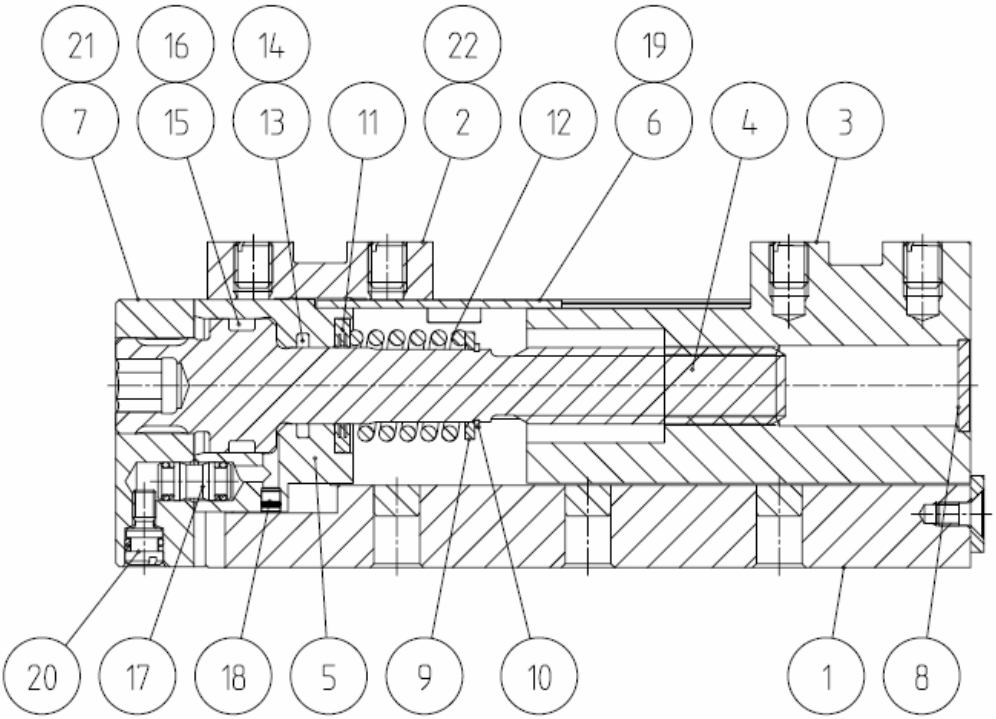
3.4 Spare parts

81200 80mm Hydraulic Vise



Item	Designation	Spare part no.	Quantity
1	Lower part	5.2051.0967	1
2	Fixed jaw	5.2052.0185	1
3	Slide	5.2040.0480	1
4	Spindle	5.2043.0236	1
5	Cylinder	5.2010.1190	1
6	Cover sheet	5.0485.0021	1
7	Bearing plate	5.2060.0094	1
8	Cover	5.1215.0861	1
9	Bushing	5.1022.0295	1
10	Circlip	1.0471.0019	1
11	Cylindrical roller thrust bearing	1.2542.0028	1
12	Pressure spring	1.2098.0276	1
13	Turc-stepseal	1.9604.0020	1
14	O-ring	1.9500.0022	1
15	Supporting ring	1.9614.0147	1
16	O-ring	1.9500.0028	1
17	Plug-in connection	8.0530.0023	1
18	Screw plug	1.0901.0005	1
19	Setscrew	1.0913.0055	2
20	Plugscrew	7.3624.0010	1
20	Cheese head screw	1.0912.2081	4
15	Cheese head screw	1.6912.0068	4

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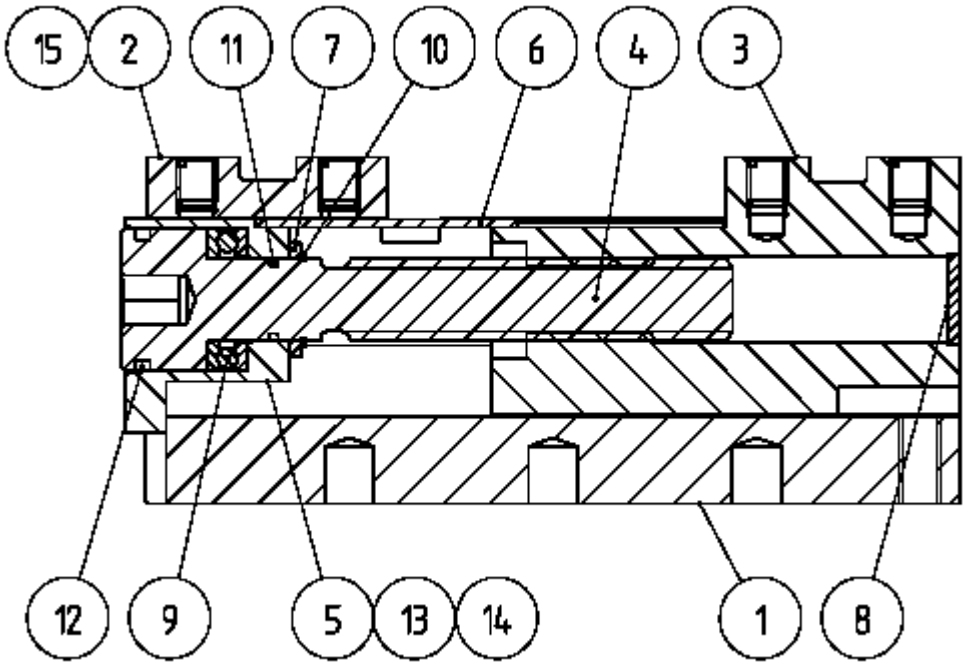
3.4 Spare parts

81100 120mm Manual Vise



Item	Designation	Spare part no.	Quantity
1	Lower part	5.2051.0875	1
2	Fixed jaw	5.2052.0187	1
3	Slide	5.2040.0437	1
4	Spindle	5.2043.0216	1
5	Housing	5.1310.0426	1
6	Cover sheet	5.0485.0022	1
7	Washer	1.0988.0025	1
8	Cover	5.1215.0958	1
9	Cylindrical roller bearing	1.5412.0002	1
10	Circlip	1.0471.0025	1
11	O-ring	1.9503.0167	1
12	O-ring	1.9503.0168	1
13	Setscrew	1.0913.0055	2
14	Cheese head screw	1.0912.0107	4
15	Cheese head screw	1.6912.0085	4

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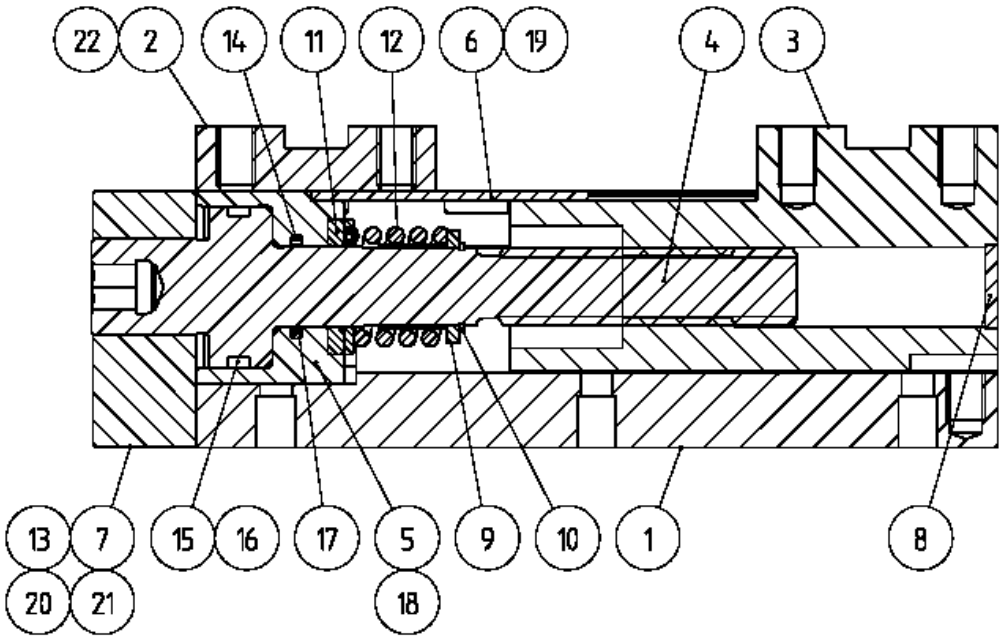
3.4 Spare parts

81300 120mm Hydraulic Vise



Item	Designation	Spare part no.	Quantity
1	Lower part	5.2051.0876	1
2	Fixed jaw	5.2052.0187	1
3	Slide	5.2040.0438	1
4	Spindle	5.2043.0217	1
5	Cylinder	5.2010.1152	1
6	Cover sheet	5.0485.0022	1
7	Bearing plate	5.2060.0089	1
8	Cover	5.1215.0958	1
9	Bushing	5.1315.0343	1
10	Circlip	1.0471.2024	1
11	Cylindrical roller thrust bearing	1.2542.0027	1
12	Pressure spring	1.2098.0443	1
13	Plug-in connection	8.0530.0023	1
14	O-ring	1.9500.0029	1
15	O-ring	1.9500.0044	1
16	Supporting ring	3000775	2
17	Turc Stepseal	1.9604.0023	1
18	Screw plug	1.0901.0005	1
19	Setscrew	1.0913.0055	2
20	Plugscrew	7.3624.0010	1
20	Cheese head screw	1.6912.0085	4
15	Cheese head screw	1.6912.2126 + 1.0912.0124	2+2

Subject to modification.