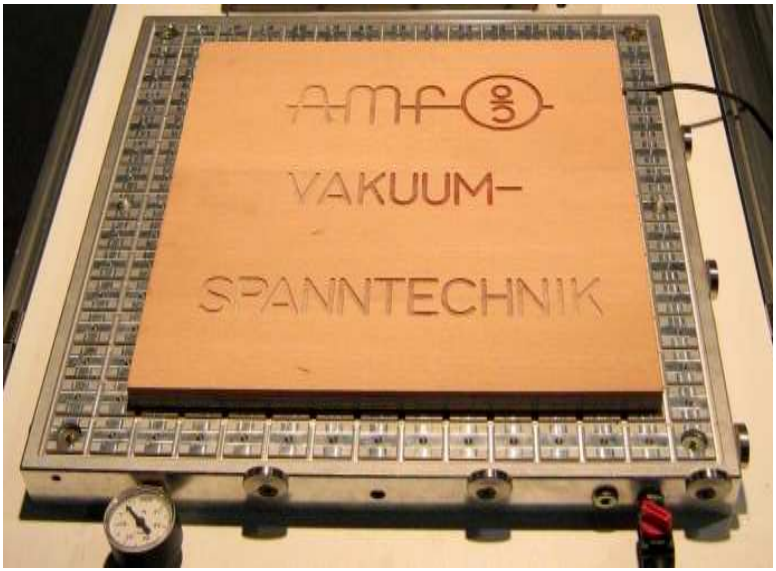
CLAMPING. SCREWING. CLOSING.

BONTHRON & EWING AB
Tellusvägen 13
186 36 VALLENTUNA
08-514 307 60
info@bonthron-ewing.se
www.bonthron-ewing.se

7800 INSTALLATION MANUAL

VACUUM CLAMPING PLATE
ADAPTER PLATE RUBBER
ADAPTER PLATE ALUMINIUM



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GENERAL REMARKS

The present installation manual will assist you in becoming familiar with your new product. For that reason we recommend that you read the documentation and carefully follow all instructions.

For additional information we request that you contact our technical service.

THIS MANUAL

Please consider this installation manual an important component of the delivered system. It should be well taken care of during the entire time the system is in use.

A copy of the present operating manual must be made available to the operating and maintenance personnel.

Please ensure that all additional documents delivered are integrated into this manual. If your system is transferred to a third party, we request that you also pass on this manual

KEEPING OF THE MANUAL

Always handle this manual with care.

It is not permissible to tear out pages or modify it.

Please store these documents protected from heat and humidity.

Andreas Maier GmbH & Co. KG reserves the right to replace parts of the instructions contained herein at any time in the course of product improvement or if construction or commercial changes so demand, without immediately providing a new edition.

As the author of these instructions, Andreas Maier GmbH & Co. KG forbids the reproduction in whole or even in part of these instructions, as well as any provision to third parties without written permission. Any modification of the product requires permission of the manufacturer.

0. Introduction

CAUTION:

The original configuration of this system may not be modified under any conditions.

CAUTION:
Only replacement parts or consumables that meet the original specifications may be used.

The use of this system for purposes other than those which the manufacturer intended can cause harm to the system or to the operator himself.

Symbols used

Machining processes that represent a risk, or can cause injuries or harm to health if they are not properly performed.

Machining processes that may only be performed by qualified specialist personnel. The possibility of residual risks cannot be ruled out.

0.1 Operating personnel

As already mentioned above, certain operations may be performed exclusively by qualified or trained personnel. The following standard features are used to describe the qualification level:

Qualified personnel has sufficient technical knowledge or work experience to be able to recognise and prevent possible dangers of electric current (engineers and technicians).

Trained personnel is appropriately instructed and/or monitored by qualified persons to be able to recognize the dangers and prevent them (personnel assigned to operation or maintenance). It must have the following qualifications:

1. It must be trained and authorized to feed or interrupt voltage.
2. It must be trained in the correct procedure for maintenance and use of equipment in accordance with the standard safety regulations.

Before commissioning the equipment, the customer is obligated to make sure:

1. that the personnel has obtained, read and understood the installation manual;
2. that the personnel follows the instructions provided.

0.2 Trained personnel

- MACHINE OPERATORS: One or more persons who, based on appropriate instructions from the owner of the vacuum clamping plate, are assigned and authorised to operate it and connected devices. Another prerequisite is the complete knowledge and unrestricted understanding of the contents of the present handbook.

0.3 Individual protective equipment

The personnel mentioned in the previous section must wear the appropriate protective clothing that is required for the use of the working machine on which the vacuum clamping plate is installed.
Safety shoes are required, whereas the necessity of wearing hearing protectors, safety hats and safety goggles must be judged by the operator.
The wearing of loose clothing that could become caught in the movable machine components is not permitted.

0.4 General Safety Instructions

The following regulations and recommendations correspond to the applicable legal regulations and are largely based on the observance of such safety regulations.

ANDREAS MAIER GMBH & CO. KG is not liable for any harm to persons or property that can be traced back to disregarding the applicable safety regulations and/or the instructions contained in the present handbook.

All affected operators are therefore urged to follow and apply the instructions below and to strictly comply with the applicable accident protection regulations in the respective country where the system is installed and used.

All ordinary and extraordinary maintenance steps must be undertaken with the power supply cut off.

Transportation, installation, operation and ordinary or extraordinary maintenance of the control device may be undertaken only by personnel meeting the requirements in sections 01. and 0.2.

0.5 Behaviour in case of emergency

It is recommended that the operating and maintenance instructions of the machine at which the vacuum clamping plate is installed be applied in emergencies.

In case of emergency take the provided extinguishing measures and assure that no water comes into contact with components carrying power.

0.6 Restrictions on usage

The device may be used solely for the uses specified in the installation manual, and only in combination with the components recommended and approved by ANDREAS MAIER GMBH & CO. KG .

0.7 Unintended or improper usage

The vacuum clamping unit is not suitable for use in explosive environments.

An unintended usage can:

- **cause injury to the personnel.**

Avoid, in particular:

- **inappropriate operating parameters.**
- **lacking or insufficient maintenance.**
- **use of unintended equipment.**
- **disregard of the installation manual.**
- **unstable or unsafe mounting.**

In case of any doubt regarding a usage, please contact ANDREAS MAIER GMBH & CO. KG to determine whether this would be improper usage under the existing circumstances.

0.8 Type plates

A manufacturer's type plate in conformity with statutory regulations is affixed to the vacuum clamping plate.

CAUTION:

Type plates must not be removed under any conditions, even if the equipment is to be resold.

Should the type plate be damaged or become detached, please contact ANDREAS MAIER GMBH & CO. KG to obtain a copy.

In all communications with ANDREAS MAIER GMBH & CO. KG please always mention the model stamped on the type plate.

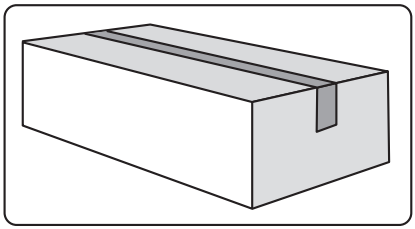
Disregarding these provisions releases ANDREAS MAIER GMBH & CO. KG from any liability for damage or accidents caused thereby. In this case, the operating company is solely liable to the authorities.

1. Transport and Storage

Every device is carefully tested before shipping. Upon receipt of the product, please check the integrity of the packaging and contents (subject to other instructions on the part of ANDREAS MAIER GMBH &

CO. KG), to ensure that the equipment was not damaged during transport and that the delivery corresponds to the specification of the order

Please report any defects or damage immediately to ANDREAS MAIER GMBH & CO. KG and the shipper who is liable for the transport damage.



CAUTION:
Any defects or damage must be protested within 10 days of the receipt of the product.

KEEP THE PACKAGING MATERIAL FOR LATER TRANSPORT.

1.1 Transport

In order to avoid damage to the vacuum clamping plate, observe the following points during transport:

Do not remove the original packaging until the time of assembly. It is recommended to keep the packaging for any future transport. If you dispose of the packaging, you must comply with the applicable legal regulations for waste disposal.

1.2 Storage

The following points must be observed for storage:

The storage location must offer adequate protection against environmental influences.

The ambient temperature at the storage location must lie between 10℃ and 50℃.

2. Description of the system

2.1 Proper Use

The vacuum clamping plate is used for clamping workpieces in order to work on them mechanically.

A complete safety-related system generally contains sensors, evaluation units, signalling devices and plans for secure shutdowns. The manufacturer of a system or machine is responsible
for assuring its proper overall functioning. ANDREAS MAIER GMBH & CO. KG is not capable of guaranteeing all properties of a complete system or
machine. ANDREAS MAIER GMBH & CO. KG does not accept any liability for recommendations given or implied by the description below. No new guarantee, warranty or liability claims beyond the general delivery conditions of ANDREAS MAIER GMBH & CO. KG can be derived.

CAUTION:
Every user of the vacuum clamping plate must determine through his own risk analysis what safety category can be achieved for his system or machine.

2.2 Obligations of the Operator

The operator of the vacuum clamping plate is obligated to constantly maintain the device and its connected components in proper condition. The device if there are defects in the vacuum clamping plate or connected components. The device must not be put back into operation until all defects have been completely rectified.
The operator of the vacuum clamping plate is obligated to instruct operating personnel about handling the device. This includes, in particular, paying attention to this installation manual.

The operator of the vacuum clamping plate is obligated to keep this installation manual in a generally accessible location.

2.3 Hazards from Pneumatic Energy

Pneumatic energy can cause injuries.

For the above reasons, the vacuum clamping plate must be switched off immediately in case of damage to pneumatic components. The device must not be switched back on until all damage has been repaired.

Work on the device's pneumatic components must only be carried out by qualified technicians.

Before work is performed on pneumatic components, the following safety rules must always be observed.

- Switch off pressure to pneumatic components.
- Verify pressure is off.
- Secure pneumatic supply to prevent it from being switched back on.

2.4 Hazards from Modifications

No design modifications may be made to the vacuum clamping plate. Defective components must only be replaced with original spare parts from the device manufacturer.

3. Technical data

3.1 Design

Base plate of high-strength aluminium
Integrated Venturi nozzle
Integrated sound absorber
Vacuum meter
Shut-off valve
6 eccentric stops with countersunk screws
2 m pneumatic hose
Plug-in nipple for compressed air connection
10 m sealing cord dia. 4.5 mm

3.2 Ambient Conditions for Operation

Position of use	any
Ambient temperature	10℃ to 50℃

4. Short Description, Mounting

4.1 Short Description

Lateral grooves or fastening holes allow the vacuum clamping plate to be fastened to a base plate
(e.g. machine table).
It is also no problem to integrate the vacuum clamping plate into the AMF "Zero-Point" clamping system (see the AMF catalogue "Zero-Point Systems") through the existing locating holes (K20).

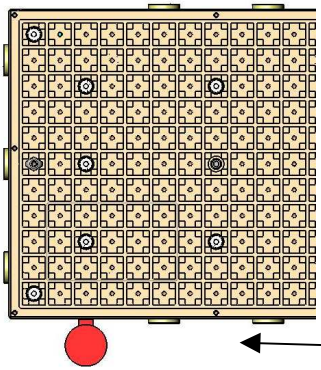
Simple positioning of the workpiece is achieved through holes for stop pins or lateral eccentric stops that can be adjusted in height.

The vacuum clamping plate has grooves and suction points on its upper side. By inserting the sealing cord into the grooves, one or more fields can be defined for the desired workpiece size.

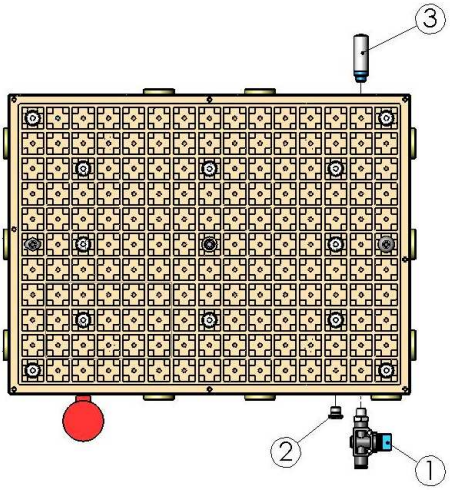
Customers' fixture plates can additionally be fixed using a sword or locating pin.

Typical applications are milling and grinding operations. The vacuum clamping plate is ready to use right away – all of the necessary components are included in the scope of supply.

4.2 Operation with compressed air



Screw the
vacuum meter
with the sealing ring into the
vacuum clamping plate.

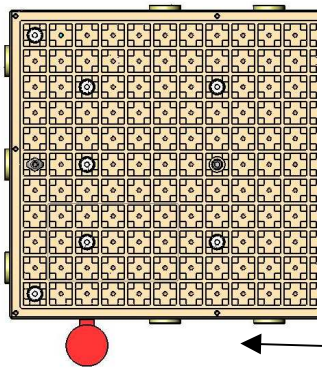


Screw in shut-off valve 1 and
blanking screw 2.

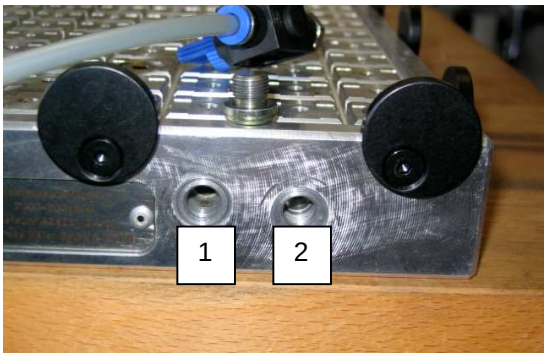
Screw in the silencer 3 across
from the shut-off valve.

Plug the pneumatic hose ∅ 6
mm into the shut-off valve 1.

4.3 Operation with vacuum pump

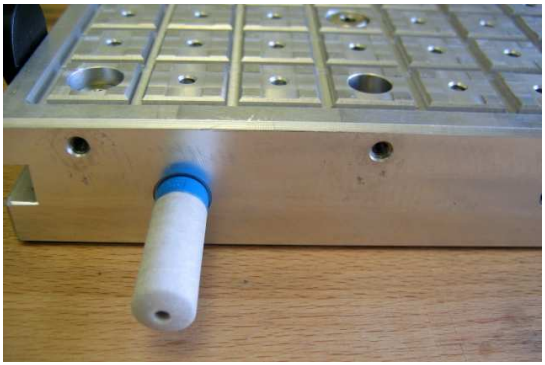


Screw the
vacuum meter
with the sealing ring into the
vacuum clamping plate.



Screw the shut-off valve 1 into the connection 1.

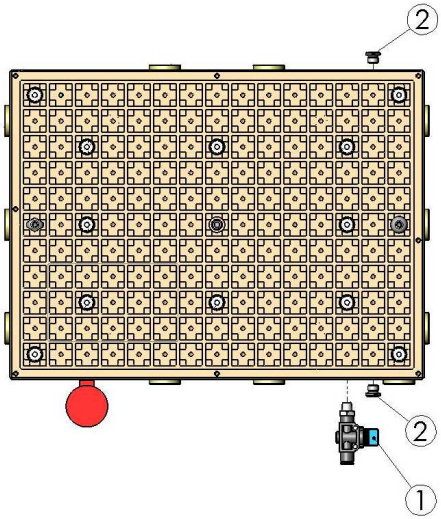
Seal the connection 2 with the blanking screw 2.



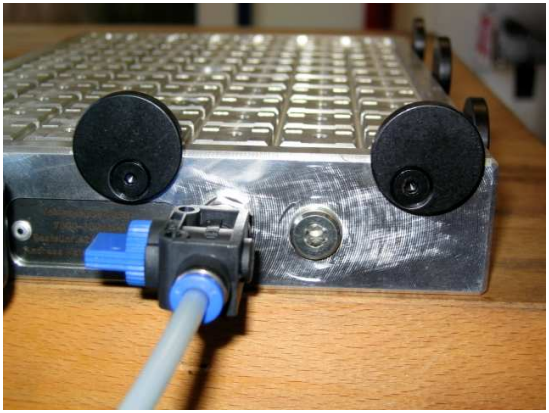
Remove the silencer on the reverse side.

Seal this opening with a blanking screw 2.

(See spare parts list order no. 374553)



The vacuum plate is now prepared.



Plug the pneumatic hose ∅ 6 mm into the shut-off valve 1.

4.4 Mounting, spare parts

Orient the vacuum clamping plate on the machine table

The vacuum clamping plate can be fastened through lateral grooves or the mounting holes.

Alternatively, the vacuum clamping plate can be integrated into the AMF "Zero-Point" clamping system (see the AMF catalogue "Zero-Point Systems") without difficulty through the existing receiving holes (K20).

Item	Designation	Article no.	Order no.	Size
1	Shut-off valve	7800AV	374587	G1/8
2	Blanking screw	908-G1/8	374553	G1/8
3	Silencer	7800VSD	374579	G1/8

5. Disassembly, disposal

5.1 Disassembly

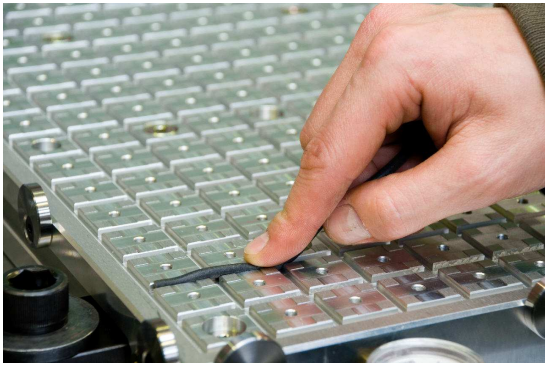
For disassembly, switch pressure off to the vacuum clamping plate.

5.2 Disposal

The vacuum clamping plate must be disposed of according to legal regulations.

6. Operation

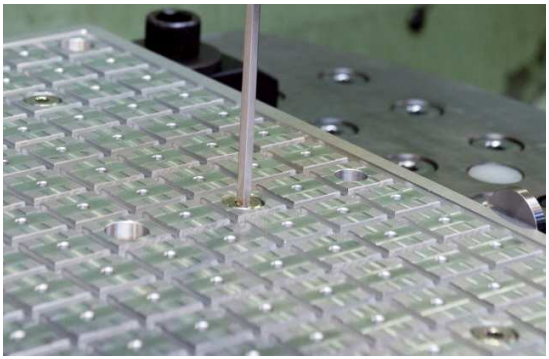
6.1 Operation



The sealing cord is placed into the grid of the vacuum clamping plate.
In doing so, choose the largest possible surface below the workpiece.
The sealing cord must delimit a closed area. Lay the seams carefully against each other.

The suction point must be within the closed area.

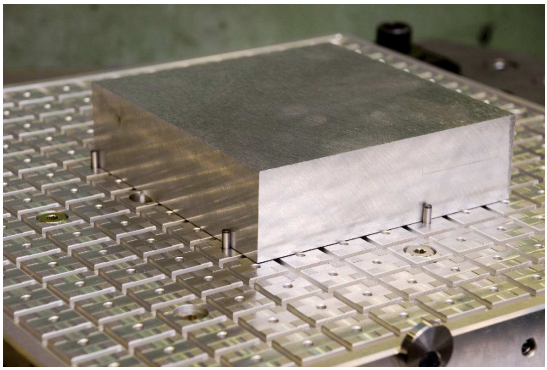
By means of individual grid allocation it is also possible to clamp and machine multiple, different workpieces at the same time.



Several suction points also permit clamping of multiple workpieces as well as different ones.

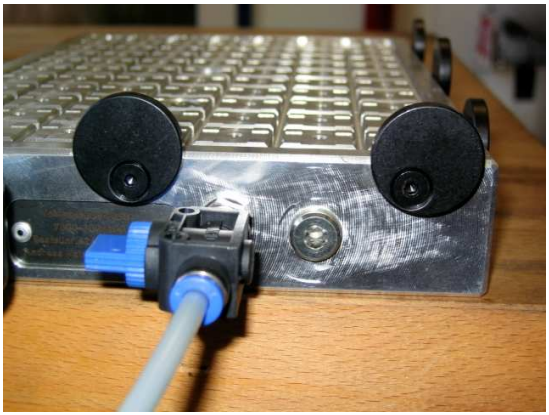
Open the corresponding suction point within the sealing cord area.
Seal all other suction points with blanking screws.

The height-adjustable eccentric stops absorb the sliding forces, and can be adjusted individually to the workpiece height.



Alternatively, simple positioning of the workpieces can be made by marking off with stop pins.
The displacement forces are absorbed here, too.

Operation with compressed air:
Actuating the shut-off valve generates the vacuum by means of the integrated venturi nozzle technology and clamps the workpiece.



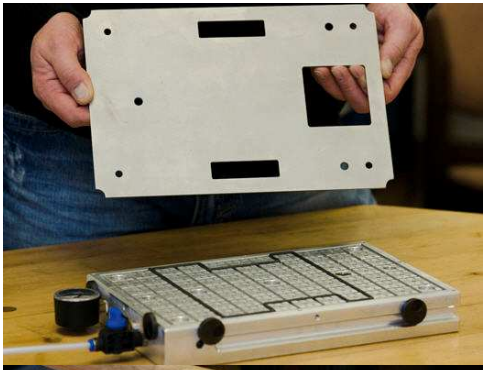
Operation with vacuum pump:
The workpiece is clamped by switching on the vacuum pump and actuating the shut-off valve.

After processing, first clean the workpiece and the device with an industrial vacuum.

The vacuum is removed by actuating the shut-off valve or switching off the vacuum pump.
The workpiece is released and can be removed.

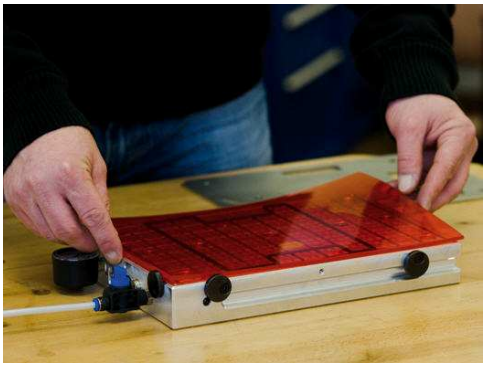
6.2 Operation with rubber adapter mat

The good coefficient of friction of the
rubber adapter mat offers especially good resistance to displacement forces that arise during processing. In addition, cuts of up to 2 mm in depth into the adapter mat are not a problem. Since the adapter mat is not subject to wear, it can be reused almost any number of times by using contours that are more and more similar.



The sealing cord is placed into the grid of the vacuum clamping plate. The cord is placed almost up to the area to be worked on in the workpiece.

Within the marked clamping surface, holes are punched in the adapter mat on a wooden plate with a hole punch of dia. 3-5 mm. The punched holes must be within the area of the grid cuts of the vacuum clamping plate.

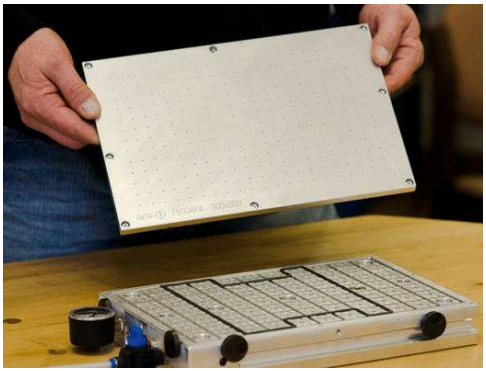


The adapter mat is placed onto the vacuum clamping plate.

The workpiece to be processed is placed on it and fixed using the adjustable eccentric stops.

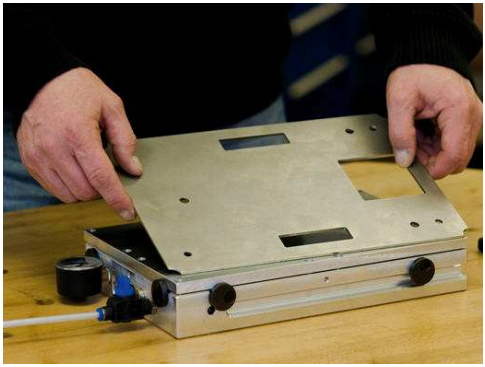
6.3 Operation with aluminium adapter plate

Preferred uses of the aluminium adapter plate are for processing of thin sheet metal, foils, boards and even paper. The aluminium adapter plate can be overcut up to 2 mm (removal of cuts).



The sealing cord is placed into the grid of the vacuum clamping plate. The cord is placed almost up to the area to be worked on in the workpiece.

The adapter plate is screwed to
the vacuums clamping plate
.



The workpiece to be worked on is placed on it.

The workpiece is fixed using the adjustable
eccentric stops.

7. Maintenance

Maintenance Table

Activity	Interval
Clean vacuum clamping plate	Regularly
Clean silencer	As needed
Clean suction point	As needed
Check sealing cord	Regularly

8. Faults, troubleshooting

Only trained personnel may perform work to eliminate errors.

Fault: Vacuum is not generated

Cause	Remedy
Compressed air is lacking	Check hoses and valves
Dirt in suction point	Clean suction point
Dirt between workpiece and vacuum clamping plate	Clean workpiece and vacuum cleaning plate
Sealing cord does not lie correctly in groove	Re-insert sealing cord, pay attention to direct contact at seam
Sealing cord defective	Insert new sealing cord
Silencer clogged	Unscrew and clean silencer
Compressed air tubing of vacuum tubing is kinked	Lay tubing without kinks

Fault: Vacuum is too low

Cause	Remedy
Dirt in suction point	Clean suction point
Dirt between workpiece and vacuum clamping plate	Clean workpiece and vacuum cleaning plate
Sealing cord does not lie correctly in groove	Re-insert sealing cord, pay attention to direct contact at seam
Sealing cord defective	Insert new sealing cord
Silencer clogged	Unscrew and clean silencer
Compressed air tubing of vacuum tubing is kinked	Lay tubing without kinks
Incorrect pressure in com-	Set operating pressure to 3.5 bar for

pressed air line	max. suction rate
Low vacuum	Replace shut-off valve 2/2

Fault: Holding force is too low to work on workpiece

Cause	Remedy
Workpiece surface raw or uneven	Use smooth and even workpieces
Workpiece surface too small	Enlarge workpiece surface: do not cut through it, but break out part
Workpiece surface too small	Use additional stops for workpiece
Diameter of the compressed air tubing or vacuum tubing is too small	Use larger tubing diameter
Compressed air tubing or vacuum tubing too long	Use shorter tubing
Incorrect pressure in compressed air line	Set operating pressure to 3.5 bar for max. suction rate
Vacuum pump suction too weak	Inquire about other size of the vacuum pump at AMF

9. RESIDUAL RISK ANALYSIS

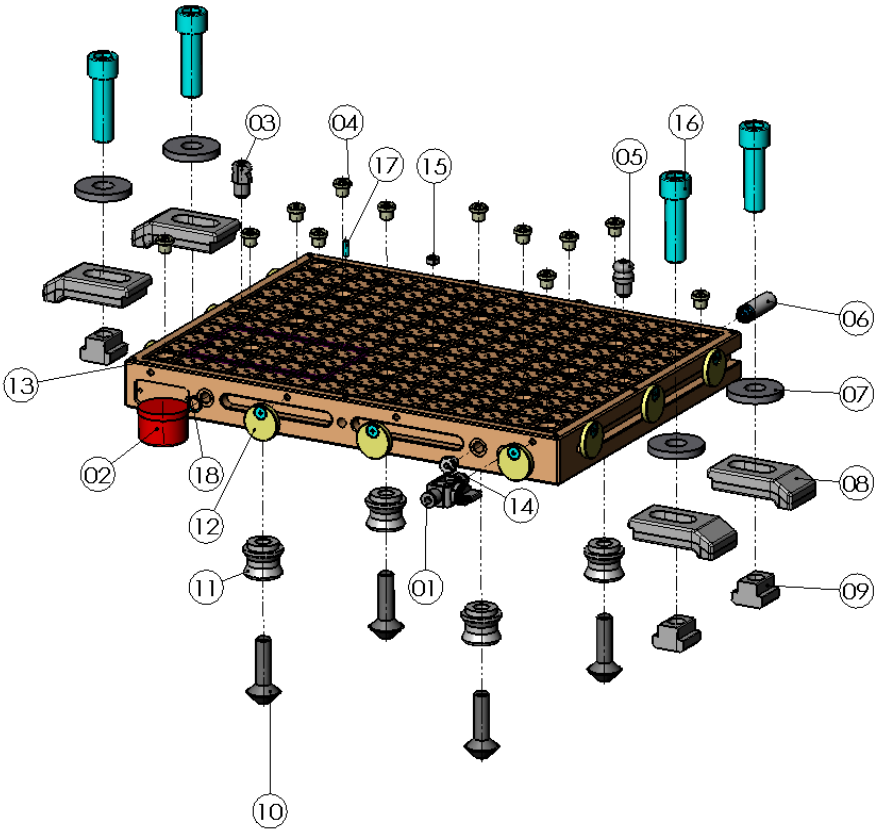
The manufacturing of the vacuum clamping plate took into account the constructive criteria and the applicable safety regulations above all else: nevertheless, certain possible residual risks cannot be excluded.

In this chapter, the dangers to which the operator may be exposed under certain circumstances will be described.

Since the vacuum clamping plate is intended for use on a tool machine, in addition to understanding this manual, the operator must also be familiar with the installation instructions of the tool machine and be informed of its residual risks.

The protective equipment necessary for operating the vacuum clamping plate is therefore the same as that which would have to be worn at the corresponding machine tool.

10. Spare Parts



Item	Designation	Article no.	Order no.	Size
1	Shut-off valve	7800AV	374587	G1/8
2	vacuum meter	7800V	374694	
3	Sword pin	7800VSB	374637	
4	Blanking screw	908-G1/8	374553	G1/8
5	Locating pin	7800VAB	374629	
6	Silencer	7800VSD	374579	G1/8
7	Disc	DIN 6340	82867	6340-M16
8	Clamping shoe	6325	74682	
9	Nut for T-slots	DIN 508	80069	M16x18
			80184	M16x20
			155630	M16x22
			159418	M16x24
			159426	M16x28
10	Engagement nipple screw	6370ZNS-001	374678	K20
11	Zero point nipple	6370ZN-20	374645	K20
	Slit nipple		374652	K20
	Undersized nipple		374660	K20
12	Eccentric stop with countersunk screw	7800E	374538	Dia 30
13	Sealing cord	7800D	374512	10m
14	Blanking screw	908-G1/8	374553	G1/8
15	Suction filter	7800VAF	374884	G1/8
16	Cylinder screw	ISO 4762-M16x55	343335	M16x55
17	Cylinder pin	ISO 8734-4x12-A	374603	M4x12-A
18	Sealing ring	7800VD	425058	G1/8
	Plug-in nipple for quick coupling	7800VNS	374595	Inside dia. 6 mm
	Pneumatic hose	2800W-06	374611	Hose dia. 6mm

AMF

CLAMPING. SCREWING. LOCKING.

BONTHRON & EWING AB

Tellusvägen 13
136 86 VALLENTUNA
08-514 307 60
info@bonthron-ewing.se
www.bonthron-ewing.se