

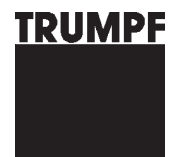
Operator's manual



## TruTool N 1000 (1B2)

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english



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**Guarantee**

**Replacement parts list**

**Addresses**

# 1. Safety

## 1.1 General safety information

- Before putting the machine into service, read the operator's manual and the safety information (Order No. 0373678) in its entirety and carefully follow the instructions given.
- Comply with the safety regulations in accordance with DIN VDE, CEE, AFNOR as well as any other regulations that apply in respective individual countries.



**Danger**

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### **Risk of fatal injury from electric shock.**

- When working with the machine do not touch any electrical lines. The machine is not insulated.
- 



**Warning**

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### **Risk of injury due to improper handling.**

- Always remove the compressed air hose from the machine prior to maintenance work.
  - Check the compressed air hose, connection coupling, and machine for damage each time before using the machine.
  - Wear safety glasses, hearing protection, protective gloves and work shoes when working at the machine.
  - Connect compressed air only when the machine is switched off.
  - Always lay the compressed air hose away from the back of the machine.
- 

## 1.2 Specific safety information



**Warning**

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### **Risk of injury to hands.**

- Do not reach into the processing line with your hands.
  - Use both hands to hold the machine.
- 



**Warning**

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### **Risk of injury from hot and sharp chips.**

**Hot and sharp chips are emitted from the chip dumping at high speed.**

- Make sure the chips are emitted downwards.
  - Use a chip bag (optional).
-



**Warning**

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**Risk of injury due to improper handling.**

- Make sure the machine is always in a stable position when operating it.
  - Never touch the tool while the machine is running.
  - Always operate the machine away from your body.
  - Do not operate the machine above your head.
- 



**Warning**

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**Risk of injury from falling machinery.**

**The entire weight of the machine must be taken up after processing of the work workpiece.**

- Use a suspension bracket (optional) with balancer or safety rope.
- 



**Caution**

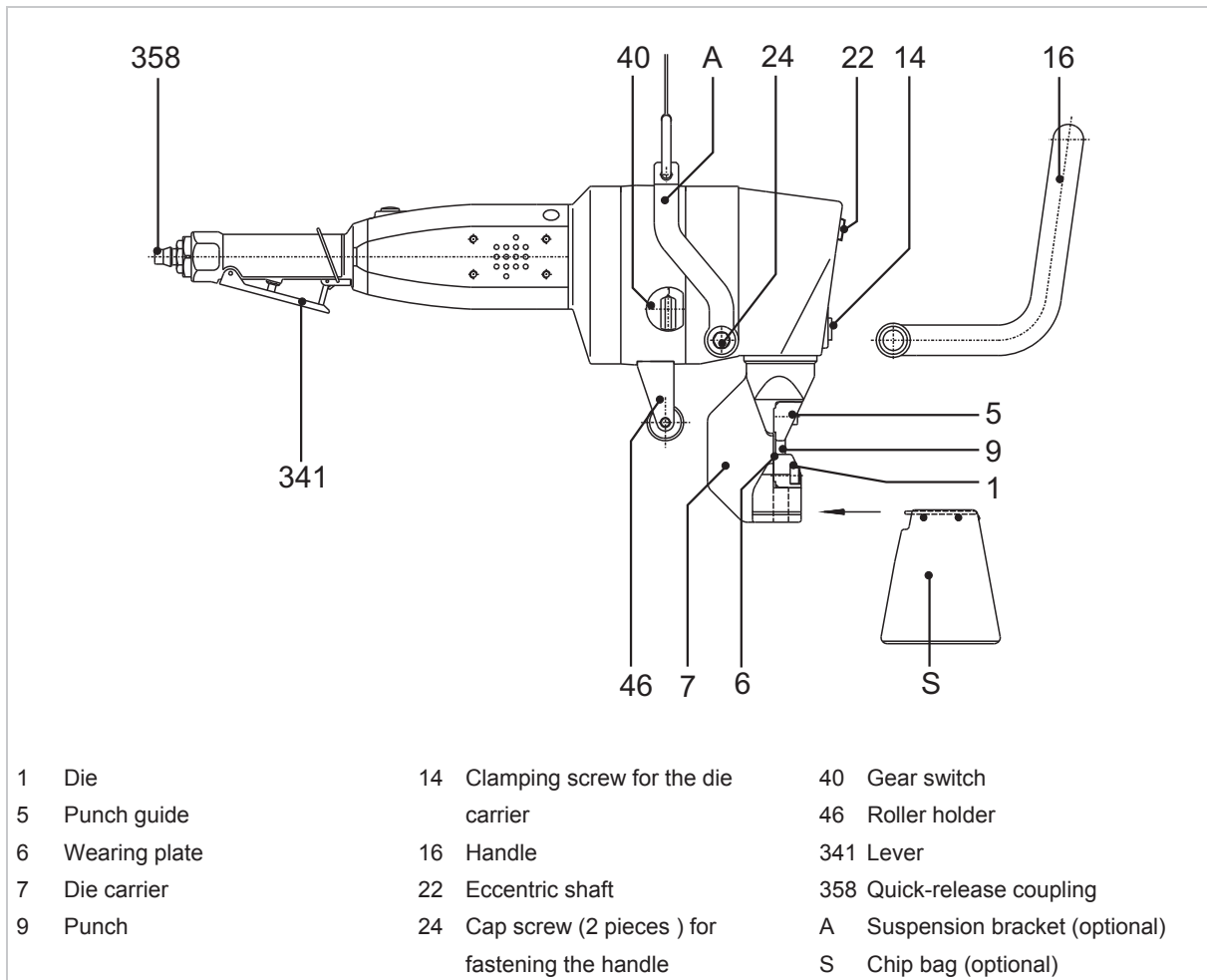
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**Damage to property due to improper handling.**

**The machine will be damaged or destroyed.**

- Always position the compressed air hose leading away from the machine, at back of the machine. Do not pull the cable over sharp edges.
  - Have servicing and inspections of hand-held compressed air tools carried out by a qualified technician. Only use original TRUMPF accessories.
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## 2. Description



Nibbler TruTool N 1000

Fig. 13447

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## 2.1 Intended use

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### Warning

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#### Risk of injury.

- Only use the machine for work and materials as described under "Intended use".
- 

The TRUMPF Nibbler TruTool N 1000 is a hand tool powered by compressed air used for the following applications:

- Slitting plate-shaped workpieces made of a punchable material such as steel, aluminum, non-ferrous heavy metals, and plastic.
- Slitting of tubes and machining of edged sheet profiles and/or press brake bendings, e.g. for tanks, crash barriers, troughs, etc.
- Nibbling straight or curved exterior and interior cutouts.
- Nibbling along scribed lines or templates.

#### Note

The nibbling process produces cutting edges free of deformations.

## 2.2 Technical data

	Other countries	USA
	Value	Value
<b>Max. material thickness:</b>		
• Steel 400 N/mm <sup>2</sup> .	10.0 mm (1st pass) 8.0 mm (2nd pass)	0.4 in 0.351 in
• Steel 600 N/mm <sup>2</sup> .	7.0 mm (1st pass) 5.0 mm (2nd pass)	0.28 in 0.2 in
• Steel 800 N/mm <sup>2</sup> .	5.0 mm (1st pass) 4.0 mm (2nd pass)	0.2 in 0.157 in
• Aluminum 250 N/mm <sup>2</sup> .	12.0 mm (1st pass) 10.0 mm (2nd pass)	0.472 in 0.4 in
<b>Working speed</b>	1.0 m/min (1st pass) 1.6 m/min (2nd pass)	3.285 ft/min 5.257 ft/min
<b>Smallest radius with curved cutouts</b>	300 mm	11.8 in
<b>Sheet profiles (90°): inside bending radius</b>	min. 12 mm	0.472 in
<b>Starting hole diameter for die</b>	min. 75 mm	2.95 in
<b>Cutting track width</b>	12 mm	0.472 in
<b>Nominal power consumption</b>	2 900 W	2 900 W
<b>Stroke rate with nominal load</b>	210/min (1st pass) 350/min (2nd pass)	210/min 350/min
<b>Weight</b>	14.7 kg	32.412 lbs
<b>Max. operating pressure (flow pressure)</b>	6 bar	87 psi
<b>Air consumption at 6 bar</b>	3.1 m <sup>3</sup> /min	110 cubic ft/min
<b>Inside diameter of the compressed air hose</b>	18 mm	0.7 in (3/4")

Table 1

Vibration	Measured values in accordance with EN 50144
Hand-arm vibration	≤2.5 m/s <sup>2</sup>

Table 2

Measured values were measured while cutting sheet steel 400 N/mm<sup>2</sup> with max. material thickness.

Noise emissions	Measured values in accordance with EN 50144
A-rated sound level L <sub>WA</sub>	86 dB
A-rated acoustic power level at the work place L <sub>PA</sub>	94 dB

Table 3

The noise emission values given are the sum of the measured values and the corresponding uncertainties. They represent an upper value limit which can emerge during measurements.

### 3. Setting work

#### 3.1 Selecting dies

One of the following 3 types of dies can be selected for the machining process, depending on material thickness, tensile strength and type of workpiece.

Make sure that the X distance is as small as possible so that the machine is well clamped and does not rattle.

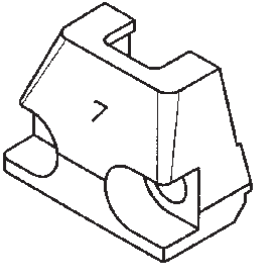
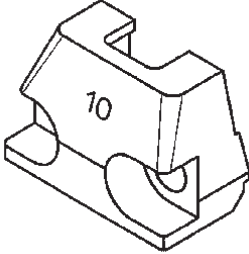
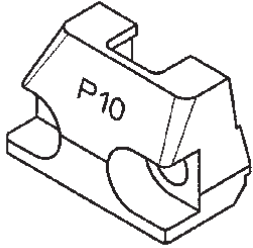
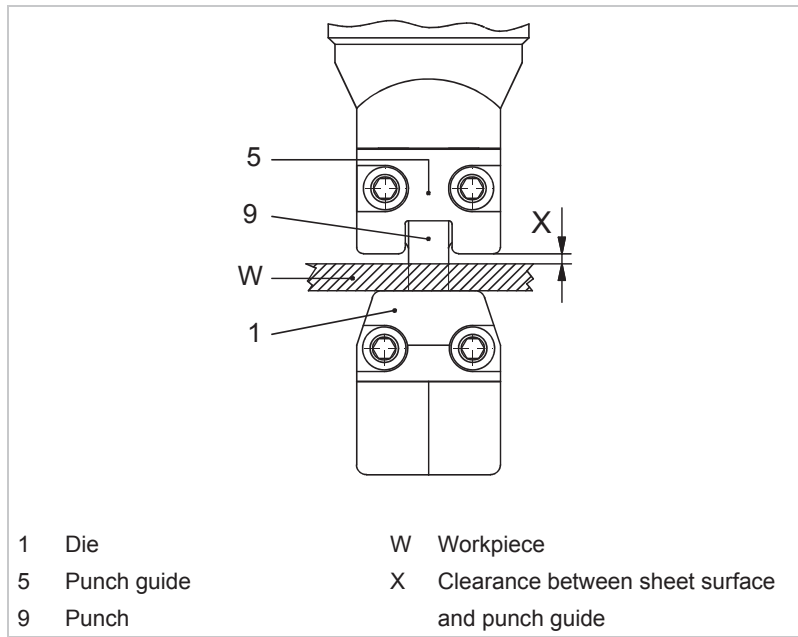
Material	Type of die					
	7		10		P10	
						
	Order No. 112899		Order No. 112898		Order No. 112897	
	Material thickness		Material thickness		Material thickness	
	Level workpieces	Profiles with press brake bending up to 90°	Level workpieces	Profiles with press brake bending up to 90°	Level workpieces	Profiles with press brake bending up to 90°
Aluminum 250 N/mm <sup>2</sup>	5-7 mm	5 mm	> 7-10 mm	> 5-7 mm	> 10-12 mm	> 7-10 mm
Mild steel 400 N/mm <sup>2</sup>	5-7 mm	5 mm	> 7-10 mm	> 5-7 mm	-	> 7-10 mm
Stainless steel 600 N/mm <sup>2</sup>	5-7 mm	5 mm	-	> 5-7 mm	-	-
Stainless steel 800 N/mm <sup>2</sup>	max. 5 mm	5 mm	-	-	-	-

Table 4



Use the die with the greatest feasible height



Clearance between die and punch guide

Fig. 16802

**Note**

The distance between the sheet surface and the punch (x) must remain as small as possible.

**Does severe back-and-forth movement (hammering) occur during the cutting process?**

The reason is an unsuitable die. Excessive tool wear and increasing loads on the machine are the result.

- Use the die with the greatest feasible height.

## 3.2 Selecting punches

To process sheets with different tensile strengths, there are 2 different punches:

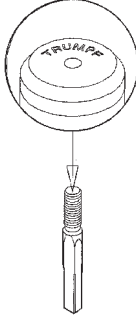
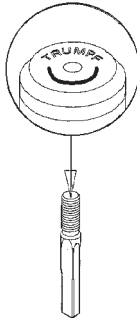
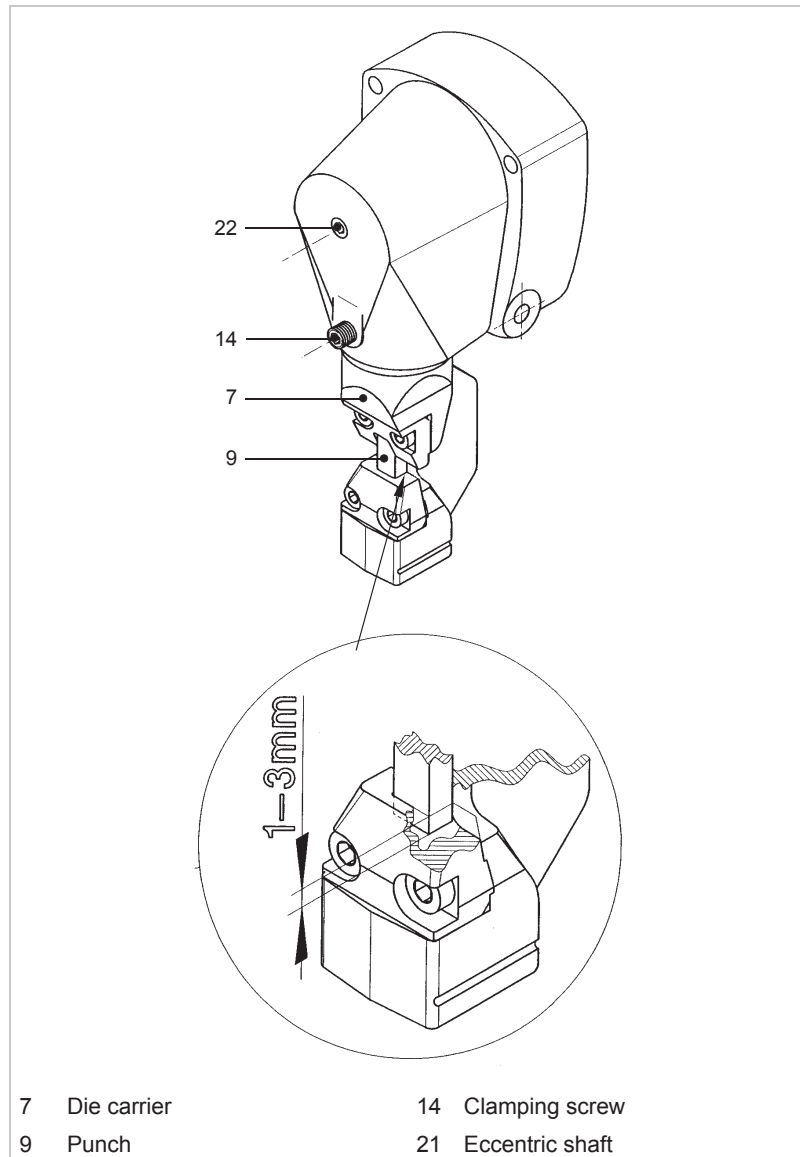
Components	Punch	
	Standard	High-tensile
		
Order No.	112900	120344
Aluminum 250 N/mm <sup>2</sup>	+	
Mild steel 400 N/mm <sup>2</sup>	+	
Stainless steel 600 N/mm <sup>2</sup>		+
Stainless steel 800 N/mm <sup>2</sup>		+

Table 5

### 3.3 Checking penetration depth of the punch



Penetration depth of the punch

Fig. 9015

The penetration depth of the punch into the die should be 1 to 3 mm.

1. Rotate the eccentric shaft (21) until the punch (9) has reached its maximum penetration depth.
2. Loosen clamping screw (14).
3. Rotate the die carrier (7) by 360° as often as needed until the punch penetration depth of 1-3 mm has been achieved. One rotation (360°) corresponds to a height adjustment of 1.75 mm.
4. Tighten clamping screw (14).

## 4. Operation

### 4.1 Working with the TruTool N 1000



**Warning**

#### Risk of injury due to improper handling.

- Make sure the machine is always in a stable position when operating it.
- Never touch the tool while the machine is running.
- Always operate the machine away from your body.
- Do not operate the machine above your head.

#### Switching on the TruTool N 1000

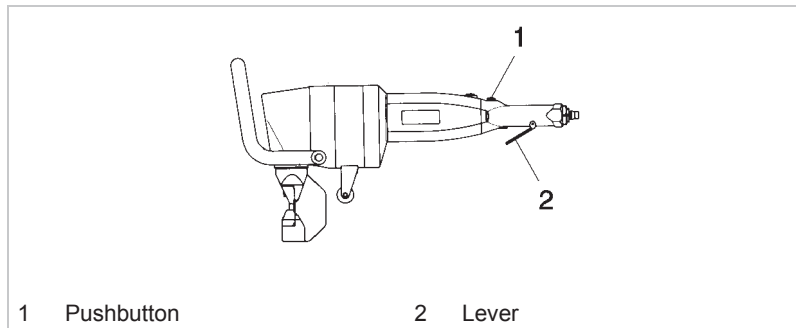


Fig. 10311

#### Continuous operation

1. Press the bracket (1) forwards.
2. Press the lever (2) against the motor housing.

#### Working with the TruTool N 1000

1. Do not move the machine towards the workpiece until full speed has been reached.
2. Machine the material.
  - Machine the desired cutting line
3. In the event that the cutting track ends in the sheet, pull the machine (still running) a few millimeters back towards where the cutting track has already been cut open.
4. Switch off machine.

#### Note

The cutting result is improved and the service life of the punch increased if the cutting track is coated with oil before machining the workpiece.

Material	Oil
Steel	Punching and nibbling oil, Order No. 103387
Aluminum	Wisura oil, Order No. 125874

Recommendation for oil

Table 6

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## Switch off the TruTool N 1000

- Release the lever (2).

The lever springs back to the initial position and the compressed air is interrupted.

## 4.2 Changing the cutting direction

In situations where space is limited, the tool can be mounted in such a way as to have a different cutting direction:

- Mount the tool at an angle turned 90° to the right or to the left (cutting of profiles).
  - Mount the tool at a 180° rotation (nibbling to the rear).
1. Loosen clamping screw (14).
  2. Turn the die carrier (7) in the desired direction.
  3. Retighten the clamping screw (14).

## 4.3 Nibbling with templates

The following requirements must be met when nibbling with templates:

- The template must be at least 5 mm thick.
- The contour of the template must have a clearance of 11.5 mm to the contour to be nibbled out.
- Guide the nibbler in such a way that the exterior cut-out of the punch guide (5) always remains up against the template.
- Observe a minimum radius of 300 mm.

## 4.4 Making interior cutouts

Inner cutouts require a starting hole at least 75 mm in diameter.

## 5. Maintenance



**Warning**

### Risk of injury due to uncontrolled machine movements.

- Remove the compressed air hose when changing tools and before performing any maintenance work on the machine.



**Warning**

### Risk of injury due to incorrect repair work.

#### Machine does not work properly.

- Repair work may only be carried out by a qualified technician.

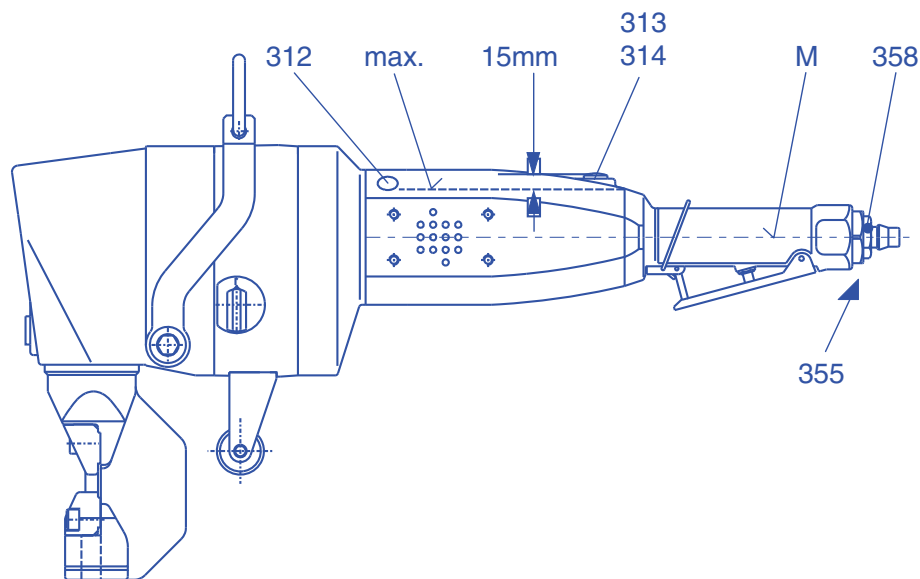


**Caution**

### Damage to property caused by blunt tools.

#### Machine overload.

- Check the cutting edge of the cutting tool hourly for wear. Sharp cutting tools provide good cutting performance and are easier on the machine. Replace punches promptly.



312 Grease nipples for lubricating the motor bearing

313 Screw plug for the oil filling opening

314 O-ring (9.2 x 1.8) under the screw plug

355 Filter

358 Quick-release coupling

M Machine middle axle

max. Maximum height of the oil level when refilling the oil

(15 mm underneath the filling nozzle, when the middle axle of the machine is in horizontal position)

Fig. 10313

### Note

If more oil is filled in, then there will be an unnecessarily large amount of oil expelled through the ventilation opening of the motor housing.

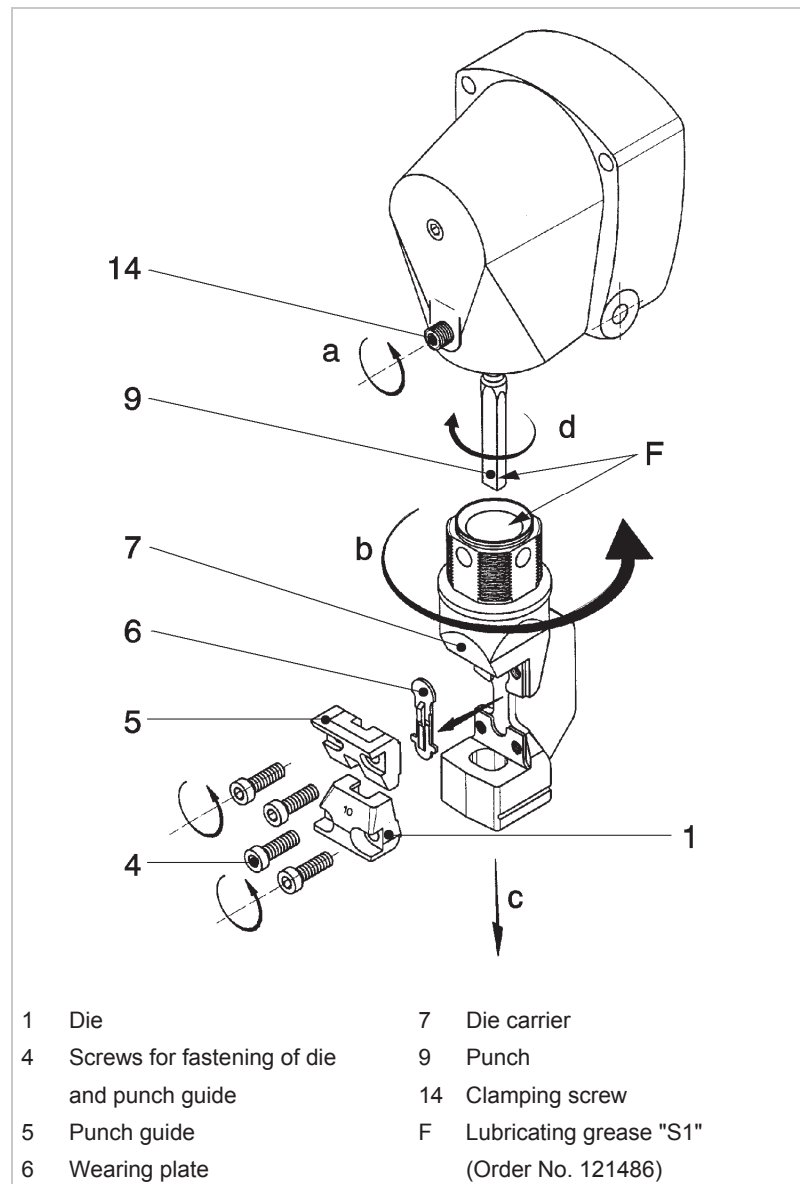
Maintenance point	Procedure and interval	Recommended lubricant	Lubricant Order No.
Punch guide	With each tool change	Lubricating grease "G1"	0344969
Gearbox and gear head	After 300 operating hours, arrange for a qualified technician to relubricate or to replace the lubricating grease.	Lubricating grease "G1"	0139440
Punch	Replace as needed	-	-
Die	Replace as needed	-	-
Wearing plate	Replace as needed	-	-
Motor bearing	Lubricate every 10 hours of operation.	Lubricating grease "G1"	0139440
Oil mist lubrication device	Maintain daily in accordance with the manufacturer's specifications (see "Supplying with power and guaranteeing lubrication", p. 20).	-	-
Filter	Clean every 10 operating hours or when there is a decline in performance.	-	-

Maintenance table

Table 7

## 5.1 Replacing the tool

If the punch and/or die is blunt or the type of application changes, the tools must be reground or replaced.




Replacing the tool

Fig. 9764

## Replacing the punch

1. Loosen clamping screw (14).
2. Rotate the die carrier (7) by 45°.
3. Pull die carrier (7) out towards the bottom.



- 
- 
4. Remove punch (9) by rotating it.
  5. Lightly lubricate the square part of the punch and die carrier bore hole with lubricating grease "G1" (TRUMPF Order No. 139440).
  6. Insert the punch (9) by rotating it.
  7. Align the punch to 45°.
  8. Install the die carrier (7).
  9. Check the depth of penetration of the punch.

## **Changing the die and the punch guide**

1. To replace the die and the punch guide, unscrew the fixing screws (4).
2. Clean support areas on the die carrier (7).
3. Take care to ensure that the replacement parts are clean.
4. Lubricate the guide surfaces of the punch guide with lubricating grease "G1" (Order No. 139440).
5. Screw the fastening screws tightly when mounting the die and the punch guide (torque 16.5 Nm). Use original screws only.

## 5.2 Resharpener tools

### Punch

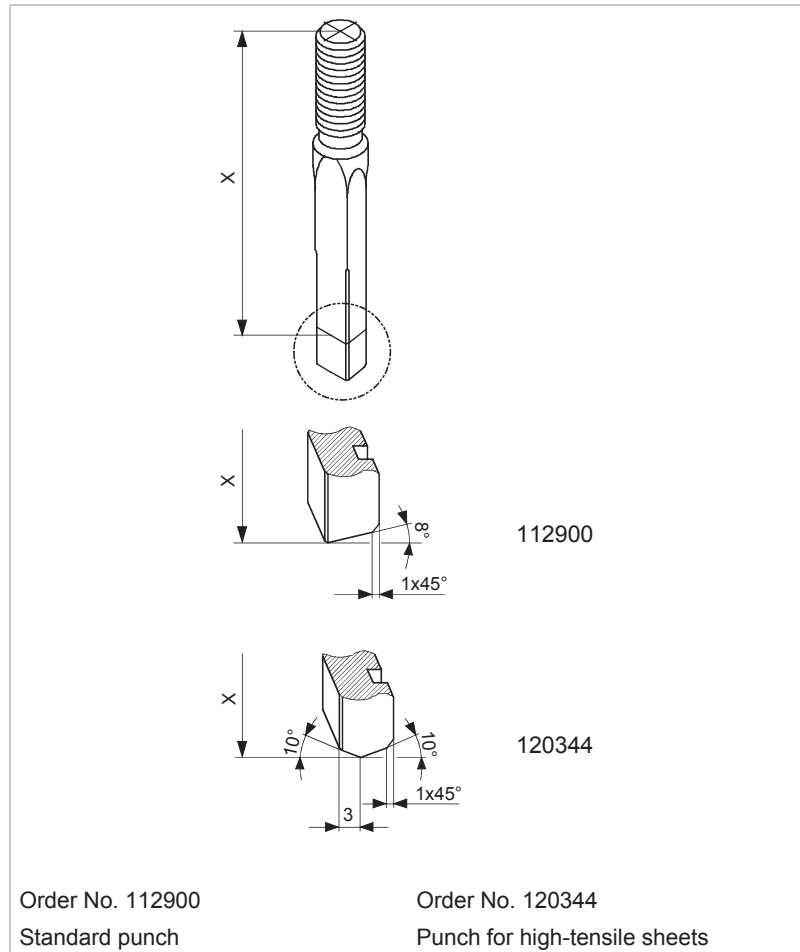


Fig. 9017

The punch can be reground for a total of 5 to 10 mm, depending on which die it is utilized with (see following Table).

- Regrind the grinding surface in accordance with the diagram, making sure that it is well-cooled during the process.
- Lightly apply fine-grained oil stone to the cutting edge.
- Observe a minimum length of 89 mm. Shorter punches must be replaced (risk of collision).

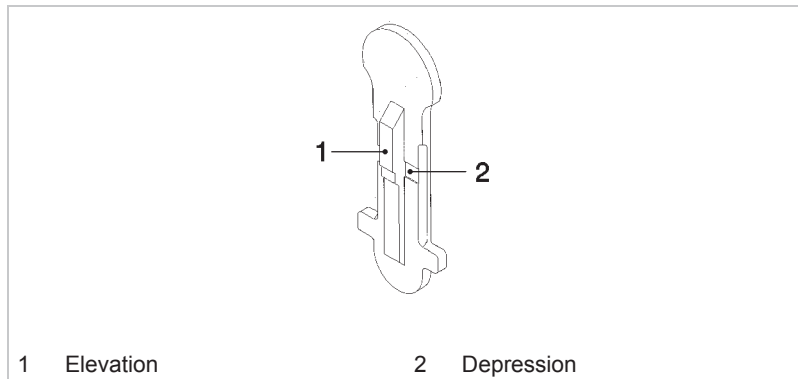
Type of die	Minimum length X	Regrinding reserve
P10	92 mm	5 mm
10	89.5 mm	7.5 mm
7	87 mm	10 mm
5	85 mm	12 mm

Table 8

## Dies

Dies can not be resharpened.

### 5.3 Checking/replacing the wearing plate



Wearing plate

Fig. 9762

The wearing plate protects the die carrier against excessive wear (Order No. 112922).

1. Replace the wearing plate when the raised part (1) is worn down.
2. Replace the wearing plate when the depression (2) is no longer visible.

#### Note

Excessive wearing can overload the machine and lead to a worsening of cutting quality.

## 5.4 Supplying with power and guaranteeing lubrication



Caution

**Damage to property due to improper handling.**

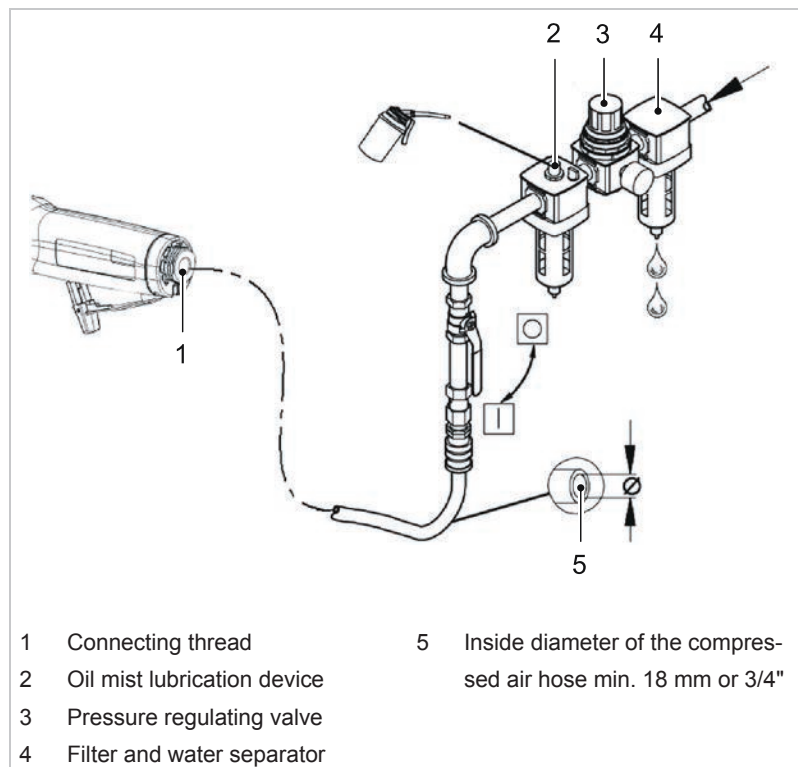
**Failure of the compressed air motor.**

- Do not exceed the maximum operating pressure.
- Regularly lubricate the compressed air motor. Alternately, install an oil mist lubrication device into the compressed air line.

### Supplying compressed air

#### Prerequisite

- Pressure regulating valve and connecting thread are set up correctly.



Compressed air supply

Fig. 52385

1. Install the filter and water separator (4).
2. Drain/check the water separator daily.

#### Note

- To ensure a supply of compressed air the tube cross-sections in the entire line system must be twice to three times the size of the inside diameter of the compressed air hose.
- Secure the compressed air hose against undesired movements using a compressed air safety device.

## Checking the oil supply

- Hold a piece of paper in front of the exhaust air vent in the motor housing when the machine is running.

The oil supply is sufficient when oil spots appear.

## Lubricating the compressed-air motor

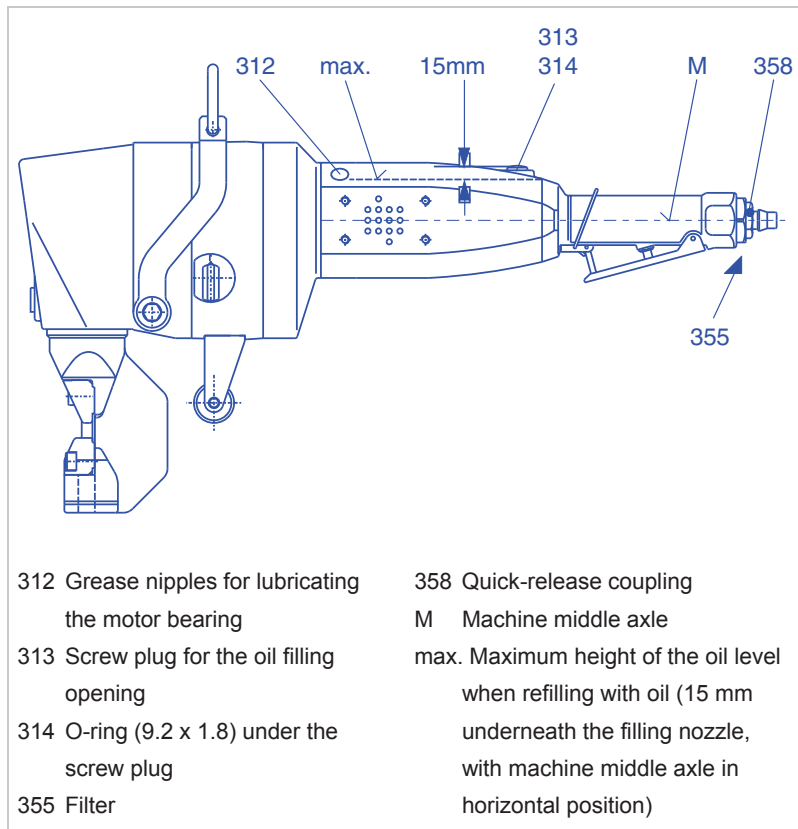


Fig. 10313

There are 2 ways of lubricating the compressed-air motor:

1. Through the **internal oil chamber** with short operating times or changing utilization sites.
  - Before every start-up, check whether the oil chamber is filled to the maximum oil level (see Fig. 10313, p. 21).
  - Fill up the oil through the opening in the screw plug every operating hour (313).

### Information

The oil level in the machine may not exceed the maximum height (max.).

If more oil is filled in, then there will be an unnecessarily large amount of oil expelled through the ventilation opening of the motor housing.

2. In cases of continuous operation, install an **oil mist lubrication device** in the compressed air line (e.g. Atlas Copco DIM 25).

### **Lubricating speed limiters and ball bearings**

- Lubricate speed limiters (324) and ball bearings with gear lubricant during the regular maintenance of the machine (see replacement parts list).

#### **Note**

Handle the speed limiter (324) with special care, because damage could lead to excessive rpms.

### **Lubricating motor bearings**

- Relubricate the ball bearing in the motor flange every 10 operating hours through the grease nipples (312) with a grease gun (see Fig. 10313, p. 21).

#### Recommended lubricant

- BP Energol RD 80 (-15° to +10°C/+5° to +50°F).
- BP Energol RD-E80 (+10° to +30°C/+50° to +86°F).
- Shell Tellus Oil 15 (-15° to +10°C/+5° to +50°F).
- Torculla 33 (+10° to +30°C/+50° to +86°F).

## **5.5 Replacing fins**

Worn fins decrease machine performance.

- Have the fin set checked and replaced as needed by a qualified technician.

#### **Note**

Only use original replacement parts and observe the information on the rating plate.

## **5.6 Cleaning filters**

To avoid throttling and/or a drop in performance:

- Clean the filter (355) every 10 operating hours (see Fig. 10313, p. 21).

## 6. Original accessories and nonreparable items


TruTool N 1000	Supplied original accessories	Nonreparable items	Options	Order No.
Set of tools (punch and die, mounted)	+			
Rapid-release coupling (machine-side part)	+			114094
Rapid-release coupling (hose-side part)	+			114095
Handle	+			103555
Allen key DIN 911-12	+			067920
Allen key DIN 911-5	+			067857
2 cap screws M14x45 for fastening the handle DIN 912	+			105083
Lubricating grease "S1" (25 g)	+			0121486
Operator's manual	+			0128626
Safety instructions (printed in red)	+			125699
Punch (standard)		+		112900
Punch (high-tensile sheets)		+		120344
Die for 5 mm (type of die 5)		+		130651
Die for 5-7 mm (type of die 7)		+		112899
Die for 7-10 mm (type of die 10)		+		112898
Die for profile sheet 5-7 mm (type of die P10)		+		112897
Wearing plate		+		112922
Chip bag			+	115215
Punching and nibbling oil for steel (0.5 l)	+			103387
Punching and nibbling oil for aluminum (1 l)			+	125874
Case			+	121585
Suspension bracket			+	105001
Muffler for motor, complete			+	0114244
Sleeve	+			0376078
Fin set (4 x)		+		1440002

Table 9

### Ordering original parts and nonreparable parts

To ensure the correct and fast delivery of original parts and nonreparable parts:

1. Specify the order number.
2. Enter further order data:
  - Voltage data
  - Quantity
  - Machine type

- 
- 
3. Specify the complete shipping information:
    - Correct address.
    - Desired delivery type (e.g. air mail, courier, express mail, ordinary freight, parcel post).
  4. Send the order to the TRUMPF representative office. Refer to the address list at the end of the document for TRUMPF service addresses.