




# Operating Manual

## Polishing grinder

**Keep for future reference!**

# Safety

## Glossary of symbols

	gives additional indications
	calls on you to act
	Enumerations

This section of the instruction manual

- explains the meaning and use of the warning notes used in the manual,
- explains how to use the bench grinder properly,
- highlights the dangers that might arise for you or others if these instructions are not obeyed,
- tells you how to avoid dangers.

In addition to following the instructions in this manual, observe

- relevant laws and regulations,
- the legal provisions regarding prevention of occupational accidents.

European standards must be observed during installation, operation, maintenance and repair of the bench grinder.

If European standards are not applied in the national legislation of the country of destination, the specific applicable regulations of each country must be observed.




Where necessary, the required measures must be taken to comply with the specific regulation of each country before the bench grinder is used.

**ALWAYS KEEP THE DOCUMENTATION CLOSE TO THE BENCH GRINDER.**

## 1.1 Safety warnings (Warning notes)

### 1.1.1 Classification of hazards

We classify the safety warnings into various levels. The table below gives an overview of the classification of symbols (pictograms) and warnings for the specific danger and its (possible) consequences.

Pictogram	Alarm expression	Definition/Consequences
	<b>DANGER!</b>	Imminent danger that will cause serious injury or death to personnel.
	<b>WARNING!</b>	Risk: A danger that might cause serious injury or death to personnel.
	<b>CAUTION!</b>	Danger or unsafe procedure that might cause injury to personnel or damage to property.
	<b>ATTENTION!</b>	Situation that could cause damage to the machine and product and other types of damage. No risk of injury to personnel.
	<b>INFORMATION</b>	Application tips and other important or useful information and notes. No dangerous or harmful consequences for personnel or objects.

In the case of specific dangers, we replace the pictogram



## 1.1.2 Other pictograms



Warning - flammable substances!



Activation forbidden!



Pull the mains plug!



Use protective goggles!



Use ear protection!



Use protective gloves!



Use protective boots!



Wear a safety suit!



Protect the environment!



Contact address

## 1.2 Proper use

### Use

The bench grinder is designed and manufactured exclusively for grinding and polishing metals using properly authorised abrasive and polishing grinding-wheels.

The bench grinder must be used exclusively for this purpose.

The bench grinder must not be used to machine material that is hazardous to health or materials that generate dust, such as, for example, wood, Teflon® etc.

**Improper use!** If the grinder is used in any way other than as described above, if it is modified without the authorisation of Optimum Maschinen GmbH or if it is operated with different process data, then it is being used improperly.

We do not take liability for damage caused by improper use.

We would like to stress that any modifications to the construction, or technical or technological modifications which have not been authorised by Optimum Maschinen GmbH will also render the guarantee null and void.

It is also part of proper use that

- the operating values and adjustment data of the grinder are complied with,
- the instruction manual is observed,
- review and maintenance instructions are observed.



### WARNING!

Very serious injury.

It is forbidden to make any modifications or alterations to the operating values of the grinder! These could endanger personnel and cause damage to the grinder.

### 1.3 Possible dangers caused by the grinder

The grinder has undergone a safety inspection (analysis of danger with assessment of risks). Design and construction based on this analysis were carried out with the latest technological advances.

Nonetheless, there remains a residual risk, given that the grinder features

- high revolutions,
- rotating parts
- grinding wheels (emission of sparks)
- electrical voltage and currents.

We have used construction resources and safety techniques to minimise the health risk to personnel resulting from these hazards.

If the grinder is used by personnel who are not duly qualified, there may be a risk resulting from incorrect operation or unsuitable maintenance.



#### INFORMATION

All personnel involved in assembly, commissioning, operation and maintenance must

- be duly qualified,
- follow this instruction manual.

In the event of improper use

- there may be a risk to personnel,
- there may be a risk to the machine and other items,
- correct functioning of the grinder may be affected.

Disconnect the machine whenever cleaning or maintenance work is being carried out.



#### WARNING!

**The grinder may only be used with the safety devices activated.**

**Disconnect the grinder immediately if a failure is detected in the safety devices!**

**All additional installations carried out by the operator must incorporate the prescribed safety devices.**

**As the machine operator, this will be your responsibility!**

☞ "Safety devices" on page 8

### 1.4 Qualification of personnel

#### 1.4.1 Target group

This manual is addressed to

- operators
- users
- maintenance staff.

The warning notes therefore refer to both operation and maintenance of the bench grinder.

Determine clearly and unequivocally who will be responsible for the different activities on the machine (use, maintenance and repair).

Vague or unclear assignment of responsibilities constitutes a safety hazard!

Always disconnect the grinder plug from the mains. This will prevent it being used by unauthorised personnel.

## 1.4.2 Authorised personnel



### WARNING!

**Incorrect use and maintenance of the grinder causes danger for personnel, objects and the environment.**

**Only authorised personnel may operate the bench grinder!**

personnel authorised to use and perform maintenance are the trained and instructed technical staff working for the operator and manufacturer.

### The operator must

Obligations  
of the  
operator

- train staff,
- instruct staff regularly (at least once a year) on
  - all safety standards that apply to the machine,
  - operation,
  - accredited technical guidelines,
- check staff's understanding,
- document training/instruction,
- require staff to confirm participation in training/instruction by a signature,
- check whether the staff are aware of safety and of dangers in the workplace and whether they observe the instruction manual.

### The user must

Obligations  
of the  
user

- have received training in operation of the bench grinder,
- know the function and principle of operation,
- before the machine is first used
  - have read and understood the instruction manual,
  - be familiar with all safety devices and regulations.

additional  
qualification  
require-  
ments

For work on the following machine components there are additional requirements:

Electrical machine: Only an electrician or person working under the instructions and supervision of an electrician.

## 1.5 User positions

The user must stand in front of the bench grinder.



### INFORMATION

The bench grinder's mains plug must be accessible

## 1.6 Safety devices

Use the grinder only with properly functioning safety devices.

Stop the grinder immediately if there is a failure in the safety device and when the grinder is not being used.

It is your responsibility!

If a safety device has been activated, the grinder must only be used when

- the cause of the failure has been removed,
- it has been verified that there is no resulting danger for personnel or objects.



**WARNING!**

If you bypass, remove or override a safety device in any other way, you are endangering yourself and other personnel working with the grinder. The possible consequences are

- very serious injury resulting from a blow-out of the grinding wheels,
- injuries to the eyes resulting from emission of sparks,
- hand injuries,
- fatal electrocution.

The bench grinder includes the following safety devices:

- A power switch (I / O) with an EMERGENCY function
- A transparent spark-guard for each grinding wheel
- An adjustable protective guard with a shaft cover on each grinding wheel.

**1.6.1 Power Switch (I / O)**

The switch is fitted with an EMERGENCY function. Open the switch cover to turn the grinder on.

Close the cover after you have switched the machine on to ensure that the EMERGENCY function operates correctly.

## 1.7 Safety check

Check the bench grinder at least once per shift. Inform the person responsible immediately of any damage, defect or change in operating function.

Check all safety devices

- at the beginning of each shift (with the machine stopped),
- once a week (with the machine in operation),
- after every maintenance and repair operation.

Check that "Forbidden", Warning and Information labels and the markings on the bench grinder.

- can be clearly made out (if not, clean them),
- are complete.

## 1.8 Individual protection gear

For specific work, equipment for personal protection as protection equipment is required. This includes:

- a safety helmet,
- protective goggles or face guard,
- safety gloves,
- safety shoes with steel toe cap,
- ear protection.

Before starting work check that the proper gear is available in the workplace.



### CAUTION!

Dirty or contaminated body protection gear can cause disease.

Clean your individual protection gear

- each time after it has been used,
- regularly, at least once a week.



### Individual protection gear for special work

Protect your face and eyes: During all work, and specifically work during which your face and eyes are exposed to hazard, a safety helmet with a face guard should be worn.



Use safety gloves when you lift or handle sharp-edged components manually.



Wear safety shoes when you position, dismantle or transport heavy components.

## 1.9

### Safety during operation

This operation manual will alert you to actual danger involved in operating the bench grinder.



#### WARNING!

Prior to activating the bench grinder please double-check whether this will

- not lead to any danger with respect to people,
- will not cause any damage to equipment.

Avoid unsafe working practises:

- Check that no one can be endangered as a result of the work to be initiated.
- The instructions in this manual must be observed during assembly, handling, maintenance and repair.
- Do not work on the grinder if your concentration is reduced, for example, because you are taking medication.
- Observe the rules for preventing accidents issued by your association for the prevention of occupational accidents and safety in the workplace or other inspection authorities.
- Inform the inspector of any danger or failure.



#### WARNING!

Danger of fire and explosion from emission of sparks.

Do not operate the bench grinder close to flammable or explosive substances.

## 1.10

### Safety during maintenance

Report and document any changes

Inform operators timely on maintenance and repair work.

Report all safety relevant changes or performance details of the bench grinder. Document all changes, have the operation manual changed accordingly and train the machine operators.



#### Disconnecting the bench grinder and making it safe

Unplug the machine from the mains before beginning any maintenance or repair work.

Check that all machine components and hazardous voltages have been disconnected.

Place a warning sign on the machine.

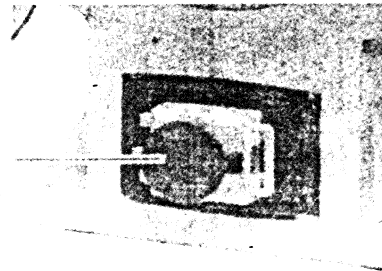


#### WARNING!

Before reconnecting the plug to the mains, make sure that the bench grinder's power (I / O) switch is in the OFF (O) position.



Power (I / O) Switch  
(behind protective lid)



Illustr 1-4: Power (I / O) switch

### **1.10.2 Mechanical maintenance work**

Remove all protection and safety devices before beginning maintenance work and re-install them once the work has been completed. These include:

- Covers
- Safety indications and warning signs
- Earth (ground) connection

If you remove protection or safety devices, refit them immediately after completing the work.

Check that they are working properly!

### **1.11 Accident report**

Inform your superiors and Optimum Maschinen GmbH immediately in the event of accidents, possible sources of danger and any actions which almost led to an accident (near misses).

There are many possible causes.

The sooner they are notified, the faster the causes can be eliminated.



#### **INFORMATION**

In the description of work with and on the grinder we highlight the specific dangers of this work.

### **1.12**

#### **Electrical system**

☛ "Maintenance" on page 18

Have the machine and/or the electric equipment checked regularly, and at least every six months.

Eliminate immediately all defects such as loose connections, defective wires etc.

A second person must be present during work on live components, to disconnect the power in the event of an emergency.

Disconnect the bench grinder immediately if there are any anomalies in the power supply!

## 2

# Assembly



### INFORMATION

Before the machine is first used the transparent spark-guards and the supports for tools must be fitted on the bench grinder.

(☞ Illustr. 1-2: "Transparent spark-guard" on page 9)

Take into account the following maximum distances:

- Transparent spark-guard and grinding wheel: max. 2mm
- Tool support and grinding wheel: max. 2mm



### WARNING!

Adjust the protective cover when the grinding wheel is worn down.

The operating aperture in the protective covers should not exceed the space required for machining the parts.

### 2.1

#### Parts list

Check the bench grinder immediately on delivery for transportation damage or missing components. Remove all separate parts from the cardboard box and check them against the following list.

- Bench grinder
- 2 supports for workpieces
- 2 transparent spark-guards
- Operating manual

### 2.2

#### Storage



### NOTICE!

Inappropriate storage could damage or ruin important machine components.

Store the packed or already unpacked components only when the specified ambient conditions are observed: ☞ "Ambient Conditions" on page 14

Request information from Optimum Maschinen GmbH if the bench grinder and auxiliary units are to be stored for a period longer than 3 months under ambient conditions other than those specified.

### 2.3

#### Installation and assembly

#### 2.3.1

##### Requirements of installation site

Organise the work area so that the bench grinder can function in accordance with the safety precautions.

The operating area for operation, maintenance and repair must not be obstructed.



### INFORMATION

Access to the bench grinder's power plug must be kept free.

### 2.3.2 Assembly

☞ "Qualification of personnel" on page 7

Check the horizontal orientation of the base of the grinder with a spirit level.

Secure the bench grinder to the base using the holes bored for this purpose.



#### ATTENTION!

Tighten the securing screws into the bench grinder only until they are secure and tight enough for the grinder not to move during operation.

If the securing screws are too tight and the base is uneven, the bench grinder's base plate may break.

### 2.3.3 First use



#### WARNING!

If the bench grinder is first used by inexpert personnel, it can endanger personnel and equipment.

We do not take responsibility for damage caused by incorrect commissioning.

Power supply

☞ "Power connection" on page 13

Connect the bench grinder's mains plug to the power supply. Check the fuse protection of the power supply against the technical information for the grinder's input power.



#### INFORMATION

For connecting the 400-volt bench grinder a CEE-400V plug must be fitted.

☞ "Qualification of personnel" on page 7



#### ATTENTION!

Check the rotating direction of the motor.

If the motor turns in the wrong direction, it can cause the grinder to break down.

The turning direction of the motor is marked on the protective cover of the grinding wheel.

The motor should turn clockwise!



#### ATTENTION!

The grinding wheels may have been damaged during transport.

Let the bench grinder run empty for approximately five minutes.

☞ "Individual protection gear" on page 10

Use the prescribed protection equipment.

## 3

# Operating



Only operate the bench grinder when the following conditions have been met:

- The bench grinder is in perfect technical condition.
- The bench grinder is being used only for the intended use.
- The operating manual is being adhered to.
- All safety devices are in place and active.

Immediately remedy failures or have them remedied. Immediately stop the machine as soon as a failure of the functions occurs and secure the machine against accidental or unauthorised operation.

Immediately report any change to the responsible person.

### 3.1

#### Before beginning work

Before beginning work always check that the piece is free of oil, grease and remains of paint. This will ensure that the grinding wheels do not become blocked or dirty.

Check the state of the grinding wheels. If they are dirty or muddied, they must be scraped clean or replaced.

### 3.2

#### During work

If necessary, make a first grind of the piece using the rough grinding wheel and then re-grind it using the fine wheel.

☞ "Proper use" on page 6

Avoid overheating the bench grinder.

Apply only slight pressure to the piece.

If a wheel has become very dirty, the surface should be scraped with a hand-held leveller.

Respect the environment when disposing of grinding wheels.



## 4 Maintenance

In this chapter you will find important information about

- Inspection
- Maintenance
- Repairs

of the bench grinder.



### ATTENTION !

Properly-performed regular maintenance is an essential prerequisite for

- safe operation,
- fault-free operation,
- long service life of the bench grinder and
- the quality of the products you manufacture.

Installations and equipment from other manufacturers must also be in optimum condition.

### 4.1 Safety



#### WARNING!

The consequences of incorrect maintenance and repair work may include:

- Very serious injury to personnel working on the bench grinder
- Damage to the bench grinder

Only qualified personnel should carry out maintenance and repair work on the bench grinder

#### 4.1.1 Preparation



#### WARNING!

Only carry out work on the bench grinder if it has been unplugged from the mains power supply.

☛ "Disconnecting the bench grinder and making it safe" on page 11

Position a warning sign.

#### 4.1.2 Restarting

Before restarting run a safety check.



#### WARNING!

Before connecting the bench grinder you must check that

- there is no danger for personnel,
- the bench grinder is undamaged.

### 4.2 Revision and maintenance

The type and extent of wear depends to a large extent on the individual usage and service conditions.

If the bench grinder is used in accordance with the instructions, it is largely maintenance-free.

#### **4.2.1 Changing the grinding wheels**

The grinding wheel must be replaced whenever the distance between the external diameter of the wheel and the edge of the grinding wheel cover is greater than 6 mm.

