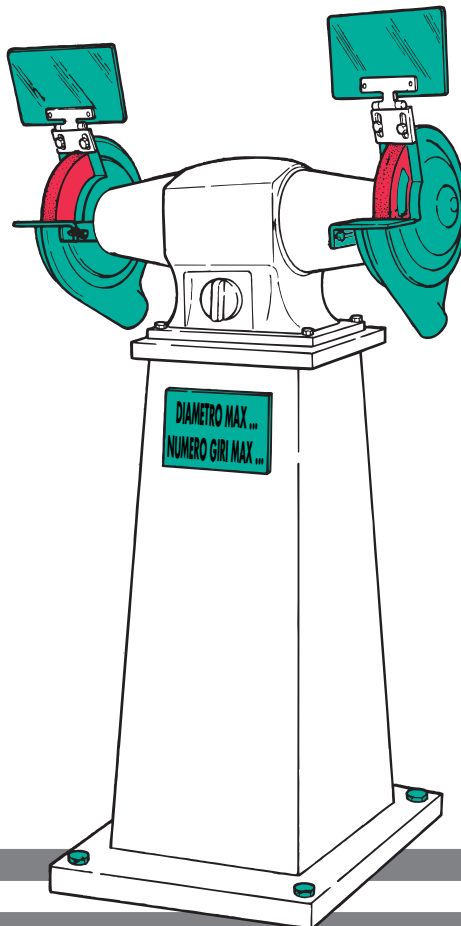


2.4.7 Fixed grinder

Legislative Decree 81/08 App. V and VI, Presidential Decree 459/96 App. I,



HAZARD

PROTECTION

Machine used for roughing, deburring and sharpening, which uses a disc-shaped rotary tool, made from an abrasive matrix (grinding wheel). Normally, machines have two wheels side-by-side, with different grain sizes or shape, which rotate at the same time. The workpiece must be placed on the special support and must be held firmly by the operator or with appropriate tools.

2.4.7.1 HAZARDS

Contact, crushing and abrasion with the rotary tool (grinding wheel)

The wheel must be protected by a robust fixed guard ([see 2.2.3.2 "Fixed guards"](#)) (sleeve), which protects the entire portion of the wheel's circumference not involved with the machining (normally $\frac{3}{4}$ of it).

The remaining portion of the wheel's circumference remains uncovered and accessible for the machining. There must be a flat, adjustable workpiece support, placed in front of the uncovered portion of grinding wheel, to help the operator to keep the workpiece stable. The support must be kept at a maximum distance of 2 mm from the rotating grinding wheel to prevent the workpiece becoming wedged.

Ejection of splinters or other material

On the top of the sleeve, there must be a splinter-protection guard, which is easy to adjust and made of an unbreakable material, to intercept most splinters and particles of grinding wheel and machined material that could be ejected towards the operator's face.

The guard must be totally transparent to ensure good visibility during machining.

GRINDING WHEEL No.	
MAX DIAMETER mm	
CRANKSHAFT rpm	
MATRIX TYPE	

Exploding grinding wheel

Particular attention must be paid to the diameter and maximum rpm of the grinding wheel, which must be compatible with the machine characteristics. Otherwise, the wheel could explode, with serious danger to the operator and other people nearby.

Therefore, there should be a sign close to the grinder, indicating the maximum diameter of grinding wheel that can be fitted for each type of matrix and the corresponding rpm of the shaft.

Grinding wheels should be fitted and changed by expert, trained

staff as an error during this phase (for example, excessive tightening or positioning) can cause the wheel to explode.

2.4.7.2 CONTROL EQUIPMENT

Starting

The only way to start the machine is to use specific control devices (see 2.2.6.1 "Starting") that are easy to recognise and are protected against the risk of being accidentally activated (e.g. dual-action lever, pushbutton with guard ring, etc.).

Unexpected restart

Spontaneous restarts (see 2.3 "Machine electrical systems") of the machine after power is restored must be prevented using a specific device.

Emergency stop

All machines must have at least one emergency stop device (see 2.2.6.4 "Emergency stop") placed within easy reach of the operator.

2.4.7.3 ERGONOMICS

Positioning

The machine must be installed safely and stably ensuring free access to the work area.

It is good practice to install grinders by a wall.

2.4.7.4 OCCUPATIONAL HEALTH AND SAFETY

Noise

Find out the noise level to which staff are exposed when using the machine and follow the employer's instructions.

Emissions

If the grinder is used regularly and continuously, it must be fitted with an appropriate local exhaust ventilation system (see 3.6 “Local exhaust ventilation systems”).

If there is no local exhaust ventilation system, when the grinder is used for prolonged machining, the operator must wear a protective mask (see 5.5 “Respiratory protective equipment”).

2.4.7.5 PERSONAL PROTECTIVE EQUIPMENT

The machining work must be assessed carefully so that the use of PPE can be defined:



Safety glasses (see 5.4 “Eye and face protection”); it is recommended that they are used even when the splinter-protection guard is correctly positioned as particles ejected at high speed can ricochet and hit the operator’s face from several directions. Note that normal glasses are not safety glasses.



Gloves (see 5.6.4 “Gloves giving protection from mechanical risks”) protecting against mechanical risks. Gloves that are too thick can be a hazard if small workpieces need to be held.



Safety shoes (see 5.7 “Foot protection”) with protective toe cap (S1).



Protective mask (see 5.5 “Respiratory protective equipment”), e.g. FFP1S type when there is metal dust, if there is no local exhaust ventilation system and prolonged machining is required.



Hearing protectors (see 5.3 “Hearing protection”).

2.4.7.6 OPERATING INSTRUCTIONS

The machine must come with a manual, in Italian, explaining correct use and maintenance, including a programme of periodic inspections.

2.4.7.7 OCCUPATIONAL HEALTH AND SAFETY ACTIONS

Before use

- Read the Operating Instructions and be trained on using the machine.
- Check that the guards (see 2.2.3 “Guards”) and safety devices (see 2.2.5 “Safety devices”) are present and positioned correctly.
- Check that the emergency stop button works (see 2.2.6.4 “Emergency stop”).
- Position the workpiece support correctly no more than 2 mm from the external diameter of the grinding wheel.
- Clean the splinter-protection guard carefully, making it transparent, and position it correctly.
- Check the condition of the grinding wheel.

- Activate the exhaust system if the work conditions require one to be installed.
- Wear clothes that cannot become entangled with the rotating tool/spindle (e.g. scarves, overalls or shirts with cuffs not fastened); tie back long hair.
- Wear the PPE indicated in this data sheet.

During use

- Position the workpiece on the support and then press it against the grinding wheel gradually and for short periods. Let the grinding wheel run freely between one period and the next, to give it time to cool down.
- Avoid using compressed air to clean the machine.
- Report any malfunctions or faults promptly to the supervisor.
- If abnormal vibrations are detected during machining, switch off the machine immediately and contact the supervisor.

After use

- Switch off the machine.
- Leave the area around the machine (especially the workstation) clean and tidy.