



SAFE
with Metabo angle grinders.



metabo[®]

PROFESSIONAL POWER TOOL SOLUTIONS

Uncompromising safety.



THE RISK when working with angle grinders

Almost a quarter of all accidents with power tools are caused by angle grinders. This has been confirmed by a statistical breakdown of the "Deutsche Gesetzliche Unfallversicherung (DGUV)", the German Statutory Accident Insurance. Basically, it is no surprise, since when working with these large and heavy machines high forces and permanent vibrations are present. Especially during continuous operation every user will get fatigued sooner or later. If he then loses control over the machine, things can get dangerous.

4 Forward Planning

What you should keep in mind when choosing the machine and surroundings

5 Dangerous vibrations

At which point do vibrations become dangerous?

THE SOLUTION Safety in all performance classes

NEW

Metabo's angle grinders are leading when it comes to the topic of safety. With the extension of the programme range by the two large 2,400 and 2,600 watt angle grinders with disc brake, Metabo now rounds off its safety range. In the future, Metabo's programme range will have safety angle grinders for any application: from compact 900 powerful 2,600 watt machines.

With safety functions such as an extremely effective braking system, a mechanical safety clutch and an anti-vibration system, Metabo supports you 365 days a year to work without accidents.



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10 The Metabo safety angle grinder From compact to large machines

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Forward planning.

Different factors can influence working with angle grinders. Not only is the right machine important, but also the user and the environment can do their part to ensure safety.

The user

- Is the user trained in **handling the machine**?
- Is the user aware of the **possible risks**? When working with angle grinders for a long time, the user can suffer from fatigue and lose the control over the machine or get injured by the kickback of the machine.
- The user must wear the correct **protective equipment**. This includes safety shoes, ear protection, eye protection, gloves and the spark-resistant work clothes. Depending on the work situation, users should also wear a helmet and fall protection.

The workplace

- Is the workplace **suitable** for the application?
- Are the surroundings **free from flammable objects**?
- Is the workpiece secured **sufficiently**?



THE SOLUTION

More information on our training events / advice services can be obtained from your Metabo contact

The machine

- Is it the **right machine** for this special application?
- Is the machine **functional** and in **impeccable condition**?
- Is the machine equipped with the **correct accessories**, e.g. cutting guard for this special application?
- Is the machine **adapted** to the **working position** by means of the correct position of guard and side handle?



THE SOLUTION

The Metabo safety angle grinders can be found on page 10/11

Dangerous vibrations.

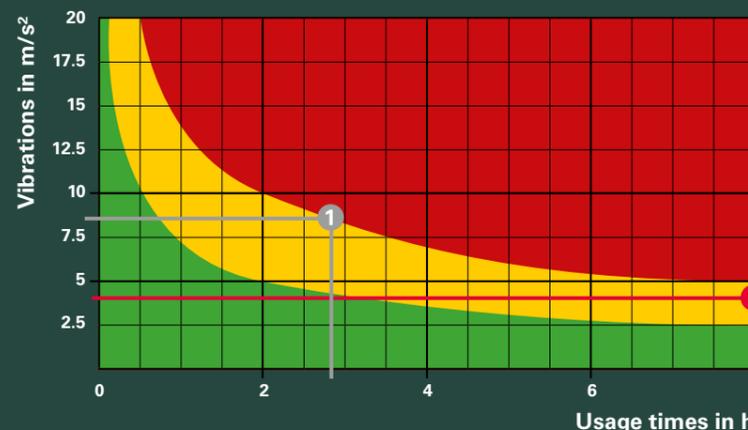
Permanent vibrations can be very tiresome for the user. When working with angle grinders, high forces are acting on hand and arm. In the worst case permanent vibrations can permanently damage the user's health. The narrowing of the blood vessel can lead to the so-called "white finger disease":

In Practice:

EU legislation requires the employer to protect the user from harmful vibrations. When vibrations are considered harmful depends on two factors:

- How high are the vibrations of the used angle grinder?
- For how long does the user use the machine on an 8-hour working day?

The limits of the usage time results from these criteria as shown in the diagram.



Effective operating time in h

- > trigger value 2.5 m/s²
- > limit 5 m/s²

Examples:

- 1 Using a competitor machine with vibrations of 8.3 m/s², the user can work for 2h 54 min. without exceeding the exposure limit
- 2 Using a Metabo machine with active anti-vibration system and vibrations of 4.0 m/s², the user can work for an entire working day (8 h) without risk of exceeding the exposure limit

However, what happens if the limit is exceeded, the user works longer with the machine than prescribed?

Depending on to what extent the limits are exceeded, a medical examination is sensible or even urgently required.

Exceeding the trigger value (yellow area)

- Set up vibration reduction programme
- Offer occupational health screening
- Instructions to employees about hazards from vibrations

Exceeding the exposure limit (red area)

- Emergency measures for reduction required e.g. use of machines with less vibrations
- Instigation of regular occupational health screening (mandatory examination)
- Instructions to employees about hazards from vibrations



THE SOLUTION

The Metabo anti-vibration system can be found on page 6

Safety for man and machine.



THE RISK: loss of control



THE SOLUTION: anti-vibration system



Less vibrations – longer application times

The Auto-balancer from Metabo compensates unbalances for cutting and grinding discs. The Metabo VibraTech (MVT) decouples the handle areas and reduces the vibrations additionally

Your benefits:

- 50% less hand-arm vibration
- Low-fatigue working
- Longer application times

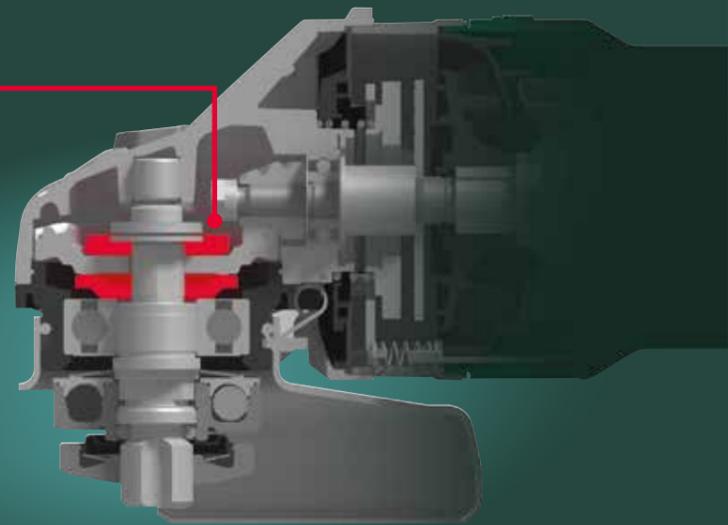
THE SOLUTION: safety clutch



Miminal kickback – maximum control

If the disc jams when cutting in material, the power of the machine can hit the user through the kickback with full power. To prevent this, the mechanical safety clutch reduces the kickback to the lowest level on the market.

For large angle grinders, this task is taken over by the electronic safety shutdown



THE SOLUTION: restart protection



Gentle and safe restart

Users literally get a grip of switching on the machine: Thanks to the gentle soft start, the machine starts up smoothly to its maximum speed.

The user is protected even after a sudden power interruption, for example in the event of a power cut: The restart protection prevents that the still active machine starts up after power has been restored. The angle grinder must first be switched off and then switched on again.



THE SOLUTION: special machines



Whether over head or in narrow angles – special applications require particular machines. For working overhead, for example, the WEPBA 19-180 is ideal as it weighs only about three kilos.

A flat-head angle grinder helps whenever things get tight. Time-consuming applications with wire brushes of makeshift constructions are a thing of the past.

THE SOLUTION: multi-position handle

In tight or difficult working situations and in changing positions, the multi-position handle (order no. 627362000) that can be adjusted by 180° ensures that the user has everything under control.





THE RISK: bursting and breaking of discs

THE SOLUTION The right accessories

Quality is the be-all and end-all, even when it comes to safety. Low-quality discs can break. Metabo offers the right cutting and grinding discs for any application. The discs are manufactured according to the highest safety standards and exceed international standards and safety requirements such as EN 12413 and the ones of oSa (organisation for safety of abrasives). This guarantees highest quality and safety. The particularly smooth running operation thanks to minimal imbalance of the discs also ensures significantly less wear and very long tool life.



Cutting discs "Flexiarapid Super" Inox HydroResist

- Super quick with very long service life thanks to the use of special corundums
- Super-thin high-performance disc for all steel and stainless steel applications
- Cutting discs for quiet, precise cutting, cuts without burrs



Ø x thickness	Version	Order no.
125 x 0.8 mm	—	616209000
125 x 1 mm	—	616220000
125 x 1.6 mm	—	616222000
150 x 1.6 mm	—	616224000
180 x 1.6 mm	—	616226000
180 x 1.6 mm	—	616227000
230 x 1.9 mm	—	616228000
230 x 1.9 mm	—	616229000

Grinding discs "Flexiamant Super" steel

- Universal disc for all metal processing requirements
- Especially suitable for deburring and grinding edges, also for cast processing
- Good material removal with extremely good tool life



Ø x thickness	Version	Order no.
125 x 6 mm	—	616486000
150 x 6 mm	—	616487000
180 x 6 mm	—	616277000
180 x 7.2 mm	—	616276000
230 x 6 mm	—	616279000

You can find a comprehensive range of grinding wheels at metabo.com

Grinding wheels rotate very fast and the generated forces are very high. Using the wrong or no guard at all is improper and very dangerous. According to DIN EN 60745-2-3, a guard is prescribed from a disc diameter of 55 mm.

A cover on both sides of at least 175° of the disc circumference is mandatory for all cutting discs (shape 41 and 42). Metabo offers corresponding cutting guards for the different disc diameters.

Cutting guard clip

- Simply clamp on the existing guard of the compact angle grinder

Grinding wheel Ø	Order no.
125 mm	630352000
150 mm	630353000



Abrasive cutting blade guards, semi-enclosed, with quick adjustment

Grinding wheel Ø	Suitable for	Order no.
180 mm	Angle grinder Ø 180 mm (with clamping lever at the guard)	630356000
180 mm	Angle Grinder RT Ø 180	630383000
230 mm	Angle grinder Ø 230 mm (with clamping lever at the guard)	630357000
230 mm	Cordless angle grinder Ø 230 mm	630363000

THE RISK: after loss of control



THE SOLUTION: brake



In an emergency the disc stops within a matter of seconds

In the event of loss of control, the integrated deadman switch shuts down the machine immediately when the user releases the switch. The mechanical disc brake brakes the disc after switching off within a matter of seconds – also when the power is interrupted.

THE SOLUTION: fall protection



When working at great heights, third parties can get injured by falling machines.

With the integrated fall protection, the user can secure the machine using a snap hook. This prevents the machine from falling down after losing control.



														SAFETY Solutions																	
Model	Order no.	Ø 125 mm	Ø 150 mm	Ø 180 mm	Ø 230 mm	Rated input power in watt	Battery pack voltage in Volt	Output power in watt	No-load speed in /min	Torque in Nm	Vibration when grinding in m/s ² *	Weight in kg		S-automatic safety clutch	Electronic safety shutdown	Auto-balancer	MVT side handle	Disc brake	deadman switch	Drop Secure	Restart protection	Marathon motor	Brushless motor	Tool-free disc change	Constant electronics	Soft start	Slim handle area	Rotating handle	Side handle can be mounted in 3 positions		
1,250 Watt series – the endurance stars for quick work progress																															
	WPB 12-125 Quick	600428	■			1,250		780	11,000	3.4	6.0	2.6		■			■	■	■			■									
	WBA 12-125 Quick	600436	■			1,250		780	11,000	3.4	4.0	2.6		■		■	■	■				■									
1,550 Watt – flat-head angle grinders for safe working in acute angles																															
	WEPBF 15-150 Quick	613085		■		1,550		940	9,600	3.9	6.8	2.9			■		■	■	■		■										
1,700 / 1,750 Watt series – the productivity geniuses for industrial continuous use																															
	WEBA 17-125 Quick	600514	■			1,700		1,040	11,000	3.7	4.0	2.7		■		■	■	■	■		■	■			■	TC	■				
	WEPBA 17-125 Quick	600548	■			1,700		1,040	11,000	3.7	4.0	2.7		■		■	■	■	■		■	■			■	TC	■				
	WEPBA 17-150 Quick	600552		■		1,700		1,040	9,600	4.3	4.5	2.8		■		■	■	■	■		■	■			■	TC	■				
	WEPBA 17-150 Quick DS	600553		■		1,700		1,040	9,600	4.3	4.5	2.8		■		■	■	■	■	■	■	■			■	TC	■				
	WEPBA 17-125 Quick RT	601097	■			1,750		1,070	11,000	3.8	6.0	2.7		■		■	■	■	■		■	■			■	TC	■	■			
	WEPBA 17-150 Quick RT	601098		■		1,750		1,070	9,600	4.4	6.1	2.8		■		■	■	■	■		■	■			■	TC	■	■			
1,900 Watt series – the productive lightweight with Ø 180 mm																															
	WEPBA 19-180 Quick RT	601099			■	1,900		1,240	8,200	5	4.9	2.9		■		■	■	■	■		■	■			■	TC	■	■			
2,400 / 2,600 Watt series – maximum power for demanding cutting and grinding jobs																															
	WEPBA 24-180 MVT Quick	606480			■	2,400		1,600	8,450	14	3.9	6.0			■	■	■	■	■		■	■			■		■		■	■	■
	WEPBA 24-230 MVT Quick	606481			■	2,400		1,600	6,600	17	3.9	6.2			■	■	■	■	■		■	■			■		■		■	■	■
	WEPBA 26-230 MVT Quick	606482			■	2,600		1,800	6,600	18	3.7	6.6			■	■	■	■	■		■	■			■		■		■	■	■
Cordless angle grinders with powerful brushless motor																															
	WPB 18 LTX BL 125 Quick	613075	■			18		9,000			5.0	2.6			■			■	■		■	■			■		■				
	WPB 36-18 LTX BL 230	613102			■	2x 18		6,600			8.2	6.5			■		■	■	■		■	■			■		■		■	■	■
	WPB 36 LTX BL 230	613101			■	36		6,600			8.2	6.1			■		■	■	■		■	■			■		■		■	■	■

*Tri-axis vibration values according to EN 60745-2-3

Metabo services: simple, safe, fair.



SMART SERVICE

Repairs after the warranty period and wear repairs are taken care of in a fast and uncomplicated manner.

INDIVIDUAL SERVICE

Within the context of a personal consultation, an individual service concept will be designed based on your requirements.

XXL 3 YEARS WARRANTY

All machines come with a free 3-year XXL warranty – a simple registration is enough.



3 year battery pack warranty on all Li-Power and LiHD battery packs without a restriction on charging cycles.

Extensive application analysis

Our technicians assess your applications and tasks on site to offer you a solution that meets your requirements.

Consultation on site

Our consultation services on site include for example vibration measurements or the training of your employees. We will gladly inform you how you can integrate safety in your daily work and prevent occupational accidents.

Try, then buy

Let us convince you of the quality and performance of our machines and the matching accessories and test the machines yourself. We would be pleased to compile individual test packages.

Metabowerke GmbH
Metabo-Allee 1
D-72622 Nürtingen
www.metabo.com

metabo[®]
PROFESSIONAL POWER TOOL SOLUTIONS