ETH STUDENT PROJECT HOUSE

DRILL PRESS

Alduro BM-14
Max 30kg workpiece weight
Up Ø 16 mm drilling in steel (S235JR)
490 - 2510 min^{-1}

SAFETY

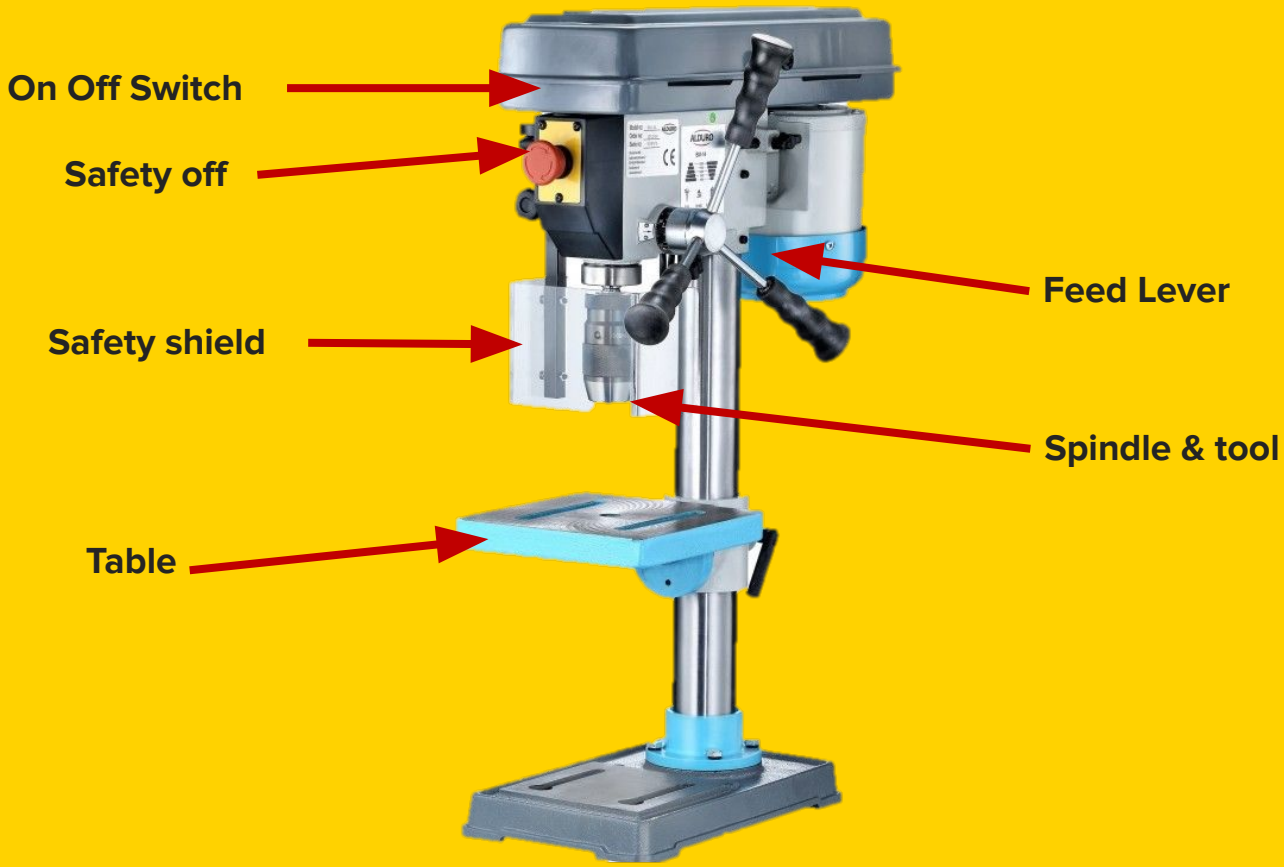
Behaviour

- Make sure your workpiece is secured
- Do not change tools when spindle is moving
- Never touch moving spindle
- Always keep your hands away from the moving spindle
- No towels near moving parts
- No measuring or marking when machine is running
- Only clean the machine when turned off
- Never change the safety systems

Equipment

- Safety goggles
- No baggy clothing
- No open hair
- No jewelry (Including watches and rings)
- No gloves

TERMS


On Off Switch
Safety off
Safety shield
Table
Feed Lever
Spindle & tool

ADDONS

Schield adjustment

The shield can be moved by untightening this screw. Make sure do have the shield in place when drilling.

Holding the workpiece

For to hold a workpiece a vise must be used. It is not allowed to use the machine without the vise. Be careful not to cut into the vise or the table.

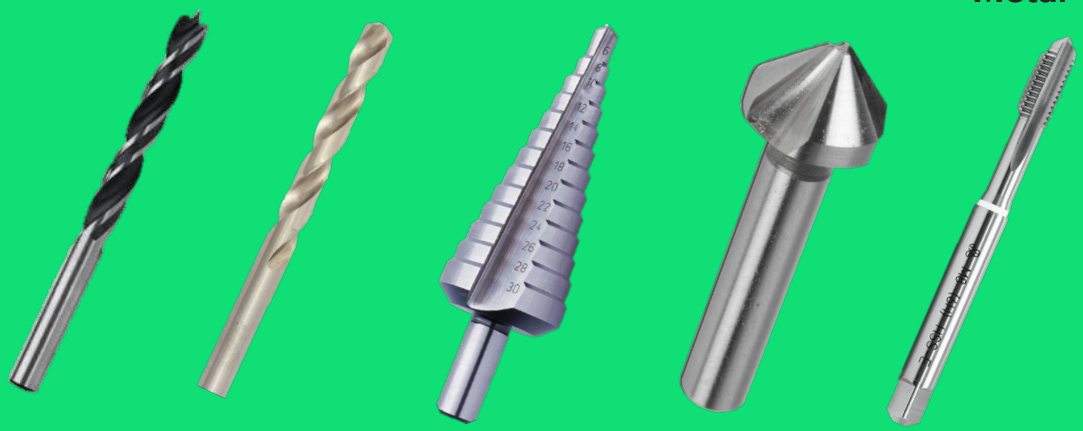
TOOLS

Changing tools

Place a towel underneath the tool, then place the tool in the collet and tighten it while holding it with one hand. Afterwards tighten the tool holder with both hands. Make sure the tool is inserted as far as possible.

Tools

Depending on your material you will need a special drill bit.
All metal drill bits can also be used on plastics.



Wood

Metal

Metal

Bigger holes

Metal

Sinking (max 300rpm)

Metal

Tapping (by hand)

CUTTING VALUES

Different materials and tool diameters require different cutting speed. Please use the following table to get the right settings.

Drehzahltabelle

Bohrer Ø	Holz und Holzwerkstoffe HSS-Spiralbohrer oder Holzspiralbohrer	Stahl St 37 HSS-Spiralbohrer	Edelstahl HSS-Spiralbohrer	Aluminium HSS-Spiralbohrer	Messing HSS-Spiralbohrer	Kunststoffe HSS-Spiralbohrer oder Stufenbohrer
	Drehzahlen in U/min					
2 mm	3500	2600	2000	5000	4000	2300
3 mm	3000	2200	1600	4500	3500	1900
4 mm	2600	1800	1250	4000	3100	1500
5 mm	2250	1500	1000	3500	2750	1250
6 mm	1950	1250	800	3050	2400	1050
7 mm	1650	1060	660	2650	2100	900
8 mm	1400	900	560	2330	1800	775
9 mm	1180	770	490	2000	1540	660
10 mm	980	660	430	1730	1300	580
11 mm	800	580	375	1480	1080	510
12 mm	650	510	330	1250	860	450
13 mm	520	450	300	1050	700	400
14 mm	420	400	270	870	550	360
15 mm	360	350	250	730	450	320
16mm	310	310	220	610	380	290
18 mm	280	270	200	510	330	270
20 mm	265	250	185	420	300	250
25 mm	250	240	170	350	280	235
30 mm	240	230	160	280	260	220

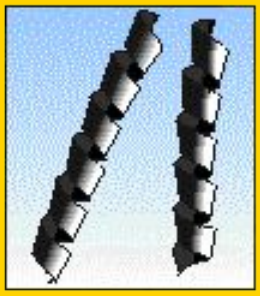
Merke: Beim **Senken** mit dem Kegelsenker verwenden wir bei allen Materialien eine Drehzahl, die einem **Bohrer von 15 mm** entspricht!

CHIP FORMATION

There are different kinds of chip. Illustrated below you can see which we want an which not. The right combination of speed and feed creates the correct kind of chip.







GOOD **BAD**

WORKFLOW

- **Select material and tool**
- **Secure your material on the table**
- **Insert and secure your tool**
- **Check cuttings speed**
- **Make sure all the safety measures are taken**
- **Clothing**
- **Jewellery**
- **Safety equipment**
- **No Gloves**
- **Safety goggles**

COMMON PROBLEMS

- **Machine does not turn on**
  - Legi System
  - On button (left side under the drip tray)
  - Safety off
- **Tool wobbles around**
  - Tool not inserted properly