

Optimill BF 20 LD



- *Drill press*
- *Max 10kg workpiece weight*
- *With cross table*
- *Digital read out (DRO)*
- *Up \varnothing 16 mm drilling in steel (S235JR)*
- *90 - 3000 min⁻¹*
- *X-Travel: 480 mm*
- *Y-Travel: 175 mm*
- *Z-Travel: 280 mm*

Safety Rules

- *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*

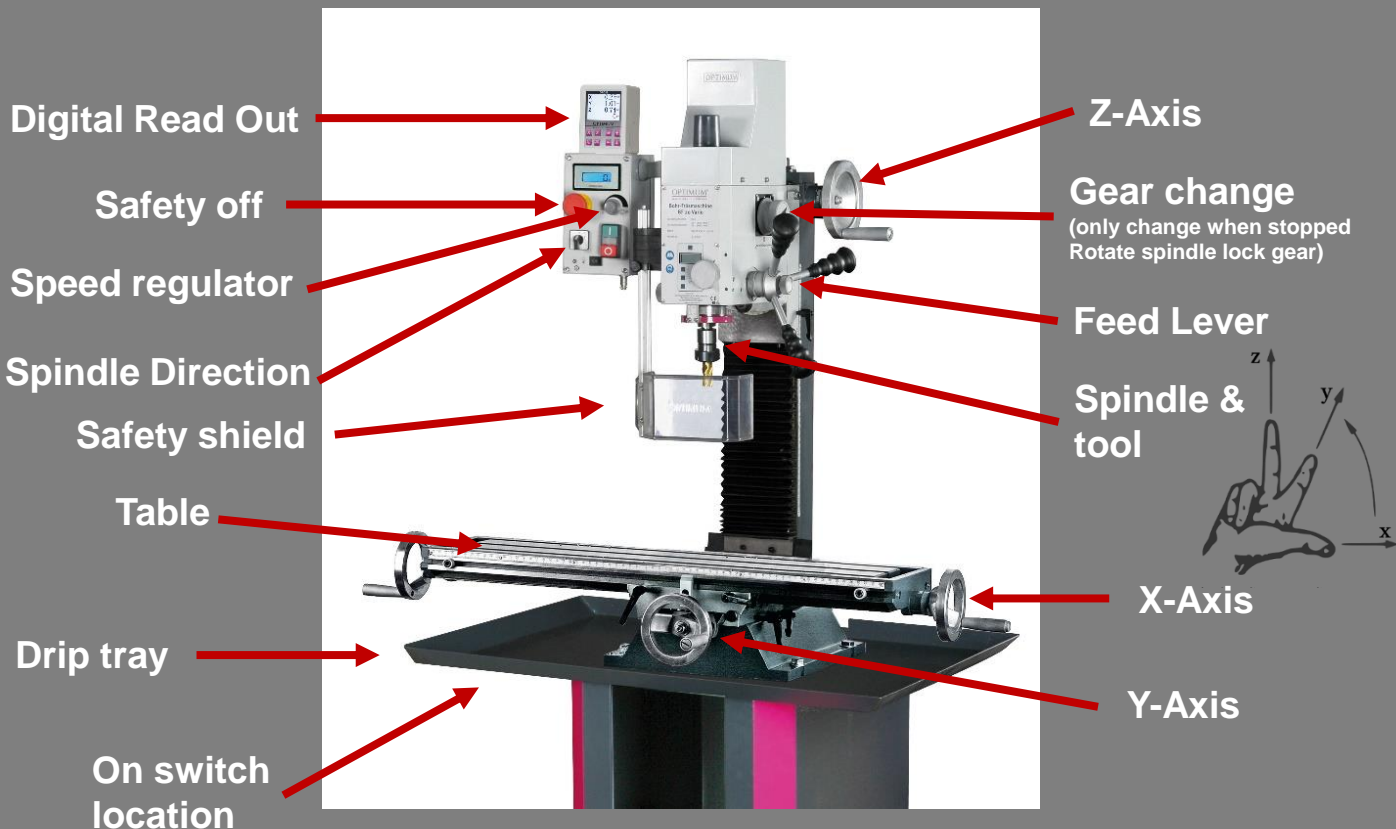
Safety Rules



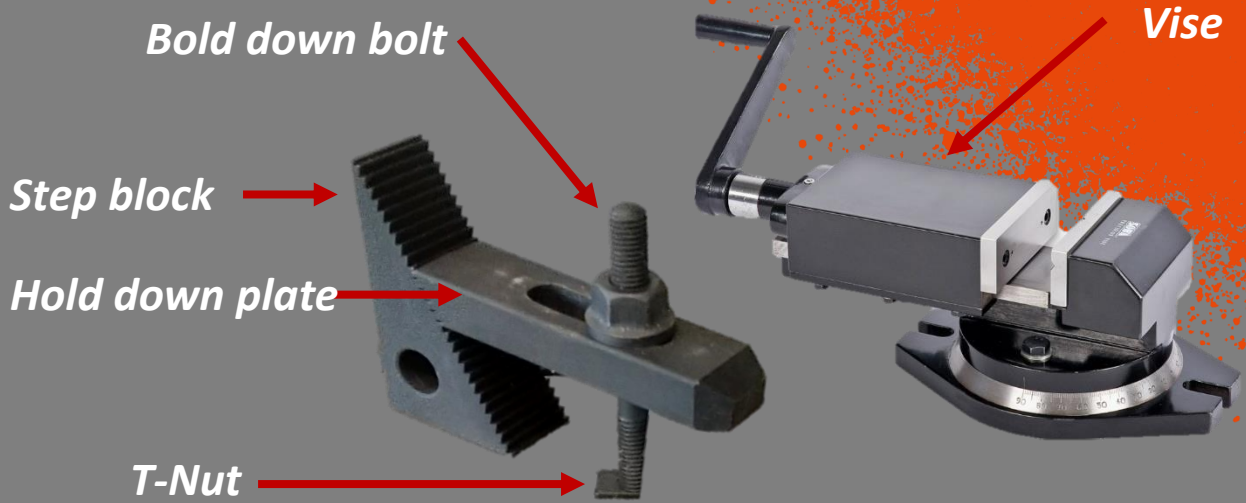
- **Safety goggles**
- **No baggy clothing**
- **No open hair**
- **No jewellery**
 - *Including watches and rings*
- **No gloves**



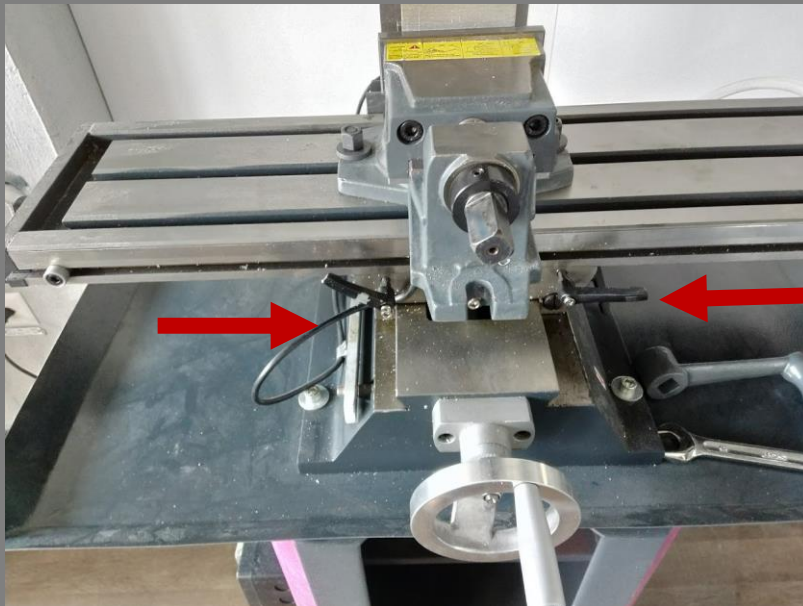
Terms



Workpiece Holding

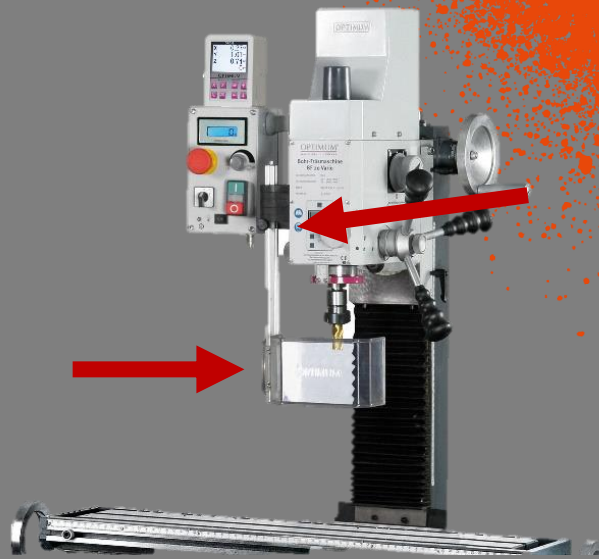


Axis Locking



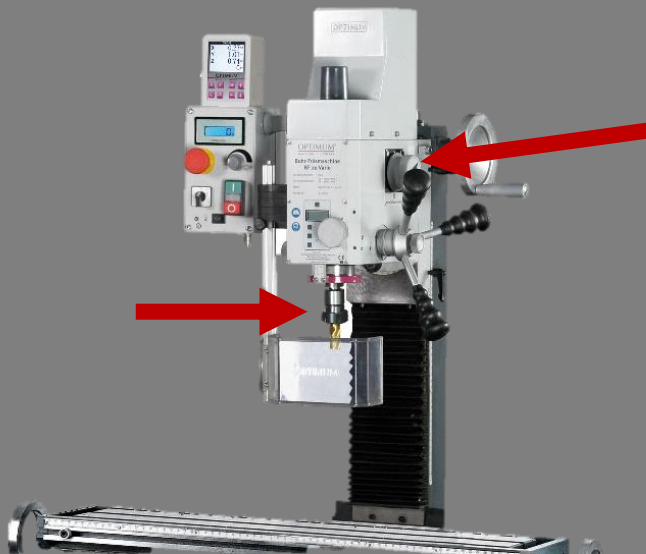
The Axis can be locked with this screws.

Shield Adjustment



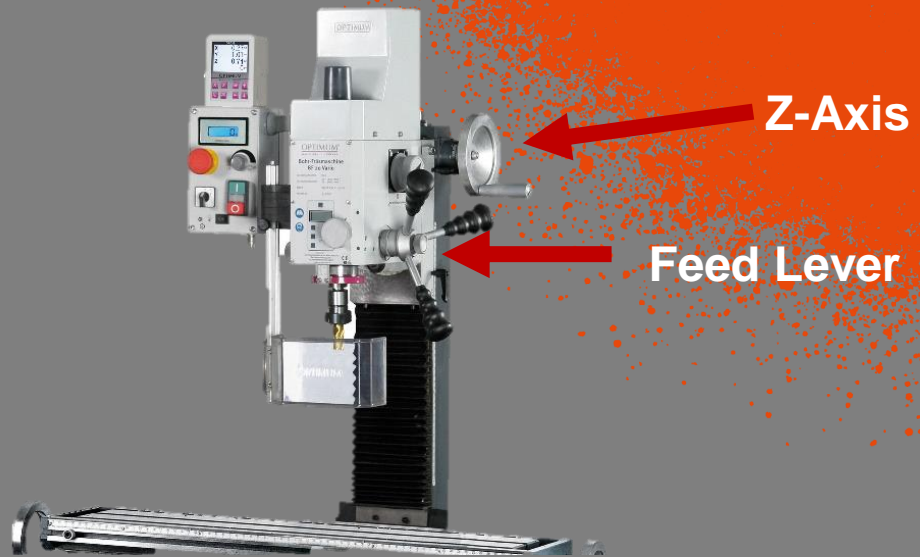
The shield can be moved by untightening this screw. Make sure do have the shield in place when drilling.

Gear Change



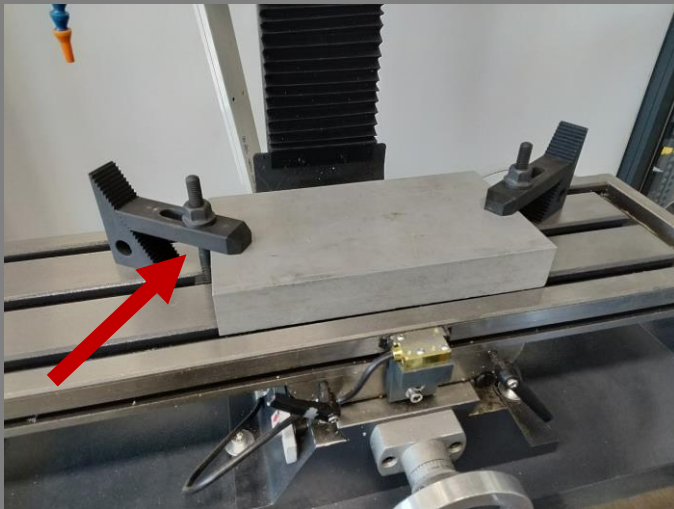
If you need to change the gear, make sure the machine is turned of and then rotate the gear wheel while slowly rotating the spindle by hand. You will feel the gears interlocking.

Drilling



Use the plunger to drill into something. Do not use the z-axis for cutting into a material.

Direct Workpiece holding



Make sure not to drill through your piece into the table! If needed place a piece of scrap material underneath your workpiece.

Make sure the table is clean. First remove the tool. Then make sure the hold down plate is horizontal and the step block is as far as possible from the bolt.

Using a Vise



Make sure that you use the washers when screwing the vise to the table.



. Clean the table and then push the vise all the way to the back to have it roughly aligned with the x-axis. Secure it on the table using the t-nuts.

Parallels



ATTENTION: Make sure not to cut into the parallel set!

After this one can use a vise and a pair of parallel sets. Make sure the workpiece lays on the parallel sets. If needed use a rubber hammer.

Tool Change

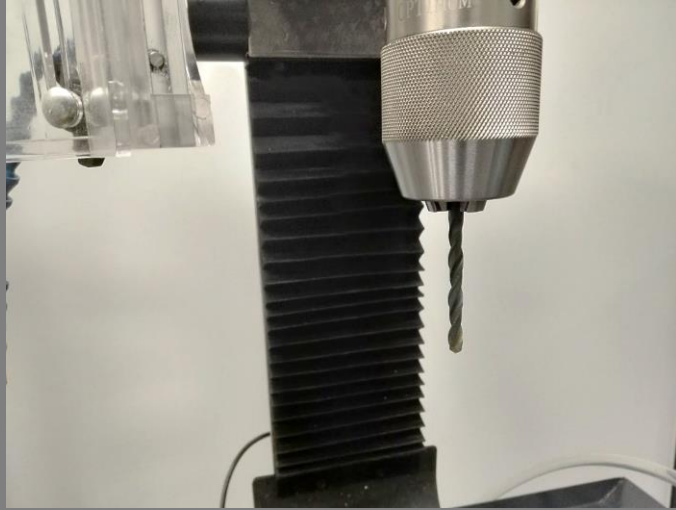


When changing a tool, always make sure to put a piece of cloth underneath the tool. If the tool falls down this will secure it from breaking.



Hold the tool with one hand and insert into the spindle. Secure it with the other hand while holding on to it. Only let go of the tool if you are sure its secure.

Tool Change



Tighten the tool holder with both hands. Make sure the tool is inserted as far as possible.

Tools

Wood



Metal



Metal



Metal



Metal



Bigger holes







*Sinking
(max 300rpm)*


*Tapping
(by hand)*

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

Cutting Values

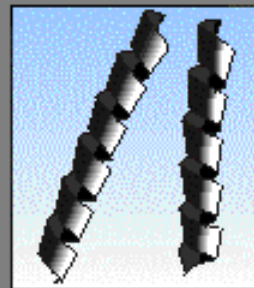
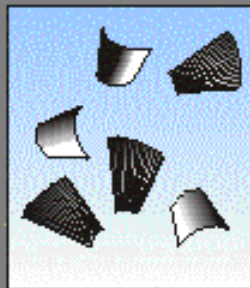
Drehzahltable

						
	Holz und Holzwerkstoffe	Stahl St 37	Edelstahl	Aluminium	Messing	Kunststoffe
	HSS-Spiralbohrer oder Holzspiralbohrer	HSS-Spiralbohrer	HSS-Spiralbohrer	HSS-Spiralbohrer	HSS-Spiralbohrer	HSS-Spiralbohrer oder Stufenbohrer
Bohrer Ø	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! 

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

Chip Formation

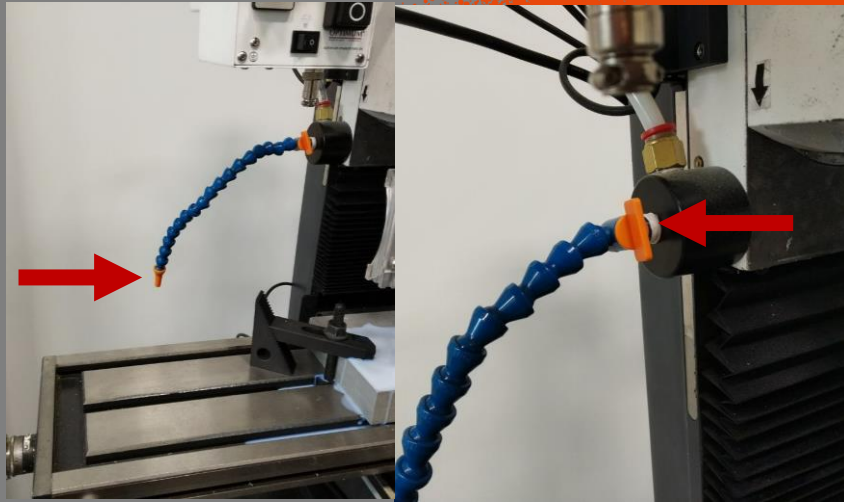


GOOD

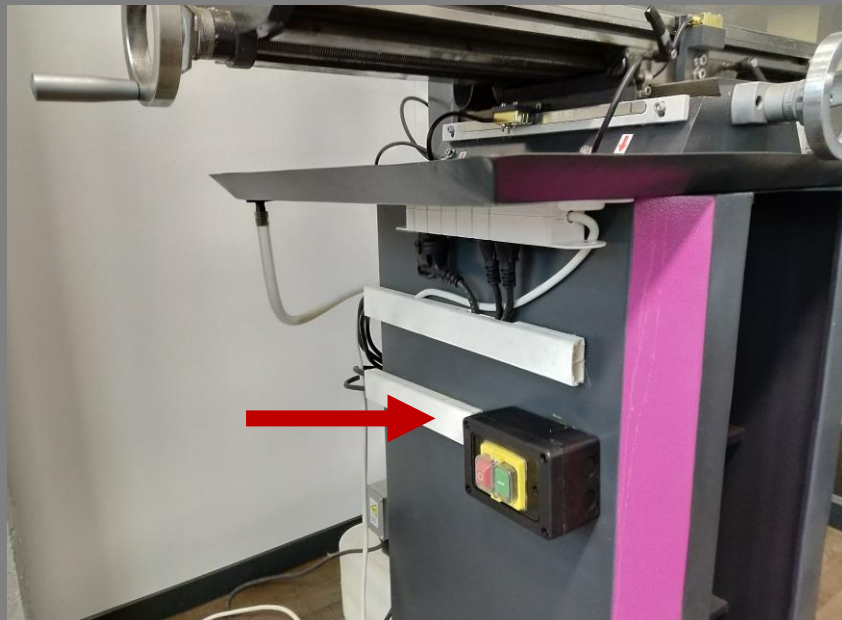
BAD

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

Cooling



To keep your tool in a good condition and create a good cutting surface, sufficient cooling is required. Before turning on the cooling system make sure the hose is closed and pointed at the drip tray.



Turn on the cooling system at the left side.

Cooling



Adjust the coolant flow so its small but steady and place to nozzle so that the tool gets covered with coolant.



When done make sure to close the valve, move the nozzle to the side so it will drip in the drip tray and clean everything.

Walk trough Optimill BF 20 LD

- *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*

Trouble Shooting

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

Setup Tools



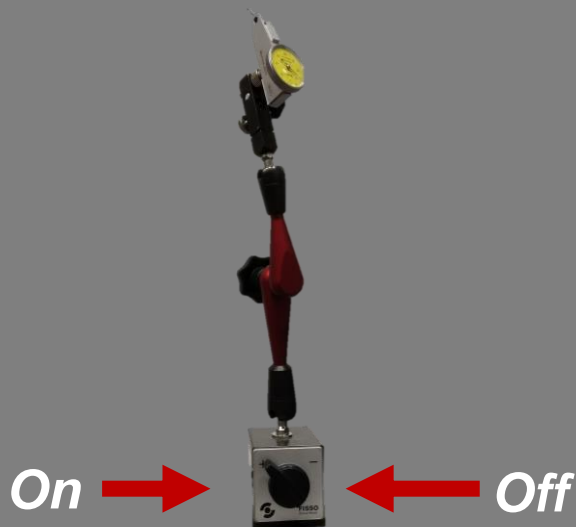
Zentrox



Dial gauge

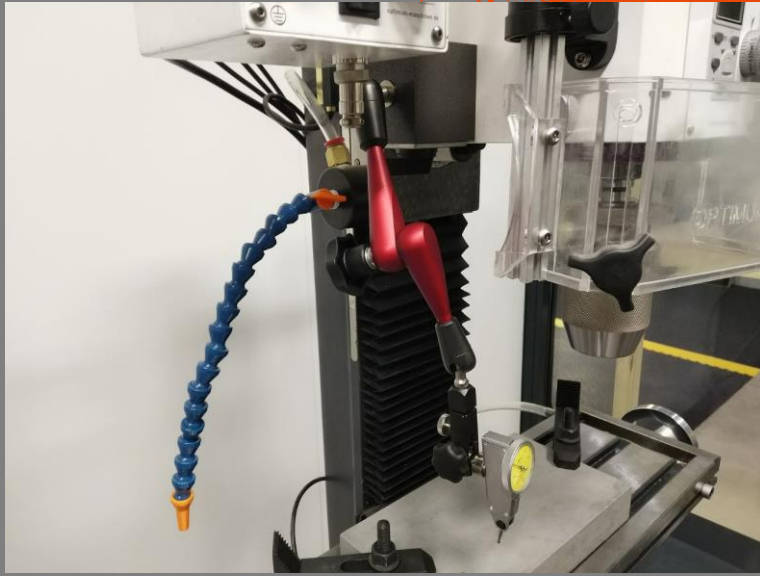
If you want to work precisely it is important to know where your zero position is. To align our workpiece and find the zero position we use the following.

Parallel mounting

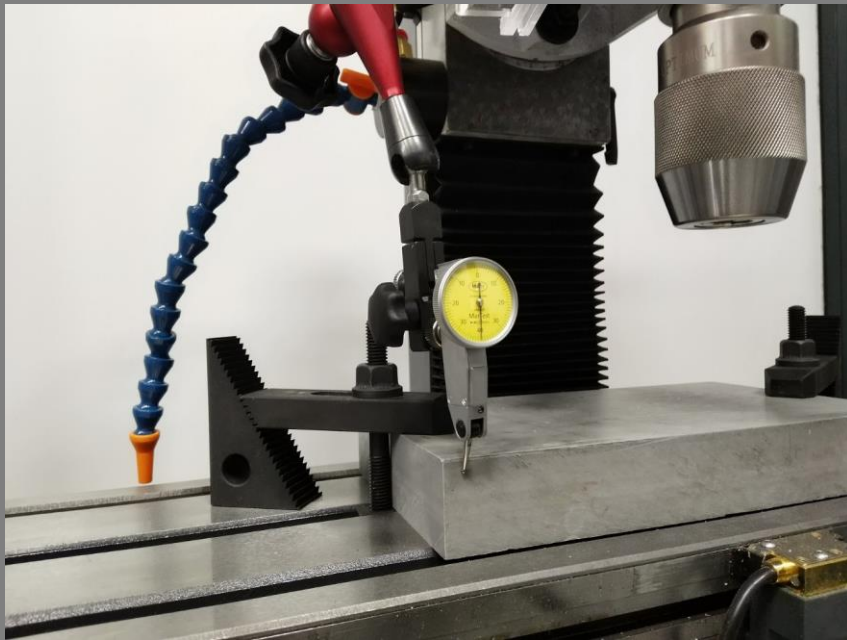


To make sure your part is mounted parallel to the axis, first secure your part and use the magnetic dial gauge.

Parallel mounting



Place the dial gauge on the machine as shown.



Now move the table around so the probe is touching the material (there is some space to go, but be careful not to overgo the scale. The probe can also be moved by hand to touch on the other side of the dial.)

Parallel mounting



Use the axis to move the table and see how the dial is changing. The easiest is to move the table until you have a multiple of ten (easy to see).

Try to get the value only change a little bit. A rubber hammer can be used to move a part while being held down with medium force.



The same procedure can be applied for the vise. Tighten the left side and measure at the back side of the vise. Straighten you vise by hitting it lightly with the rubber hammer here. Using this method you will have it straight fast.

Zentrofix



If you want to find the position of the edge of your workpiece use the Zentrofix. Insert it in the toolholder and make sure the speed is set to a minimum before turning the machine on. Then speed up to 400 rpm.



Make sure the Zentrofix is not moving centered. Then approach the edge slowly.

Zentrox

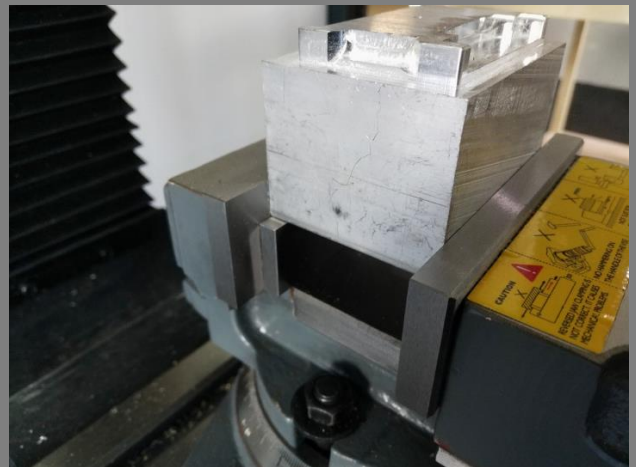
*When touching the edge
the tool will first be
centered...*



*And at some instance
move to the side again.
This is your edge!
Remember to
add/subtract the tool
radius (2mm/5mm).*



*When using the vise,
again measure the zero
position at the back side.*



Zero Position

To set the axis to 0 on the digital read out, just press the axis (x or y) button and wait for a few seconds while the value is blinking. The display will then read 0.



To set the z-zero of your part insert a tool and move the z axis very carefully until it is close to the surface. Now use the plunger until you see a minimal amount of chip being produced. Keep in mind the tip of the drill bit it not flat.



Now set the zero for the plunger by using this button.



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