

Setting up Ahha Software for milling and using tool offsets

Definitions

Absolute Zero:-

This is the position automatically set by the action of Homing the machine.

It can be set manually but we strongly recommend that the automatic home is used.

It is also the position that relative zero is relative to. By that we mean that if an Absolute Zero is moved by say 10mm then the Relative Zero will be moved by the same amount.

Relative Zero:-

The name given by Fanuc and Ahha to the zero point the programme refers to. If you move X +10. mm in a programme in absolute programme mode you will end up +10mm away from the relative zero. Relative zero is also referred to as programme zero on some CNC controls.

Absolute Display Mode:-

In Absolute display mode the axis position displays show the distance between the current axis position and Absolute Zero. Indicated by Abs being displayed just beneath the axis position values. Pressing the A key toggles between absolute and relative display mode. i.e. every press of the A key switches from one to the other. Absolute display mode is only normally used during setting. At all other times it is much better and sometimes even essential to be in relative display mode.

Relative Display Mode:-

In Relative display mode the axis position displays show the distance between the current axis position and Relative Zero. Indicated by Rel being displayed just beneath the axis position values. This is the display mode that the control should be in during all normal operations

Setting Up The Machine

Homing the machine:-

Always set home in Absolute Display Mode.

Press the Home key and follow the prompt. The machine will move to the axis limit switches in the direction set up in the parameters. On detecting the switch it will move off slowly and when the switch releases will automatically set the Absolute Zero and clear the Absolute Display.

With precision limit switches we have had machines repeat Absolute Zero within .0002".

Absolute Zero can also be set by moving the axis to be set to the required home position and pressing the C key followed by the Enter key followed by the key designating the axis to be set or A if you are setting all axes at the same time. We strongly recommend using automatic home.

Setting The Relative Zero:-

Toggle the axis display to Absolute Display Mode with the A key. Jog the Axis to the required position and press the S key followed by the Enter key followed by the key designating the axis to be set. Beware of using the A key to set all axes as you may have the Z axis away from its zero. It is not normal to set the Z Relative Zero to a different position to Z Absolute Zero as it is preferable to use tool length offsets to set Z to accommodate the fact that when using more than one tool the tool tips will more than likely all be a different distance to the top of the job which is usually taken as the reference point for Z axis positioning. The Z axis Absolute Zero is normally set when Z is at the top of its travel. When you have set the relative zero check your setting by jogging any axis a short distance and then pressing the G key which causes the axes to move to the Relative Zero. At this point switch to Relative Display Mode with the A key. Please note that if you set the Relative Zero while in Relative Display Mode the axis displays are NOT updated until a move takes place. If you set Z axis to a Relative Zero that is different to the Z Axis Absolute Zero when pressing the G key the Z axis will first move to the Z axis Absolute Zero and then to the Z axis Relative Zero. To avoid this

if you really if you really need to have the Z Relative Zero in a different place we recommend you move the Z Absolute Zero instead of the Z Relative Zero.

A good way to get a clear understanding of the different Zeros is to set your X and Y Relative Zero's and move the axis to various positions, then toggle between the Absolute and Relative Display mode studying the axis position displays. Remembering always that the programming zero is the Relative Zero.

This document will be added to shortly