

HAFCO METALMASTER TUBE/PIPE BENDING MACHINE

**OPERATING INSTRUCTIONS TO BE USED IN CONJUNCTION WITH
FACTORY MANUAL SUPPLIED**

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Cautions

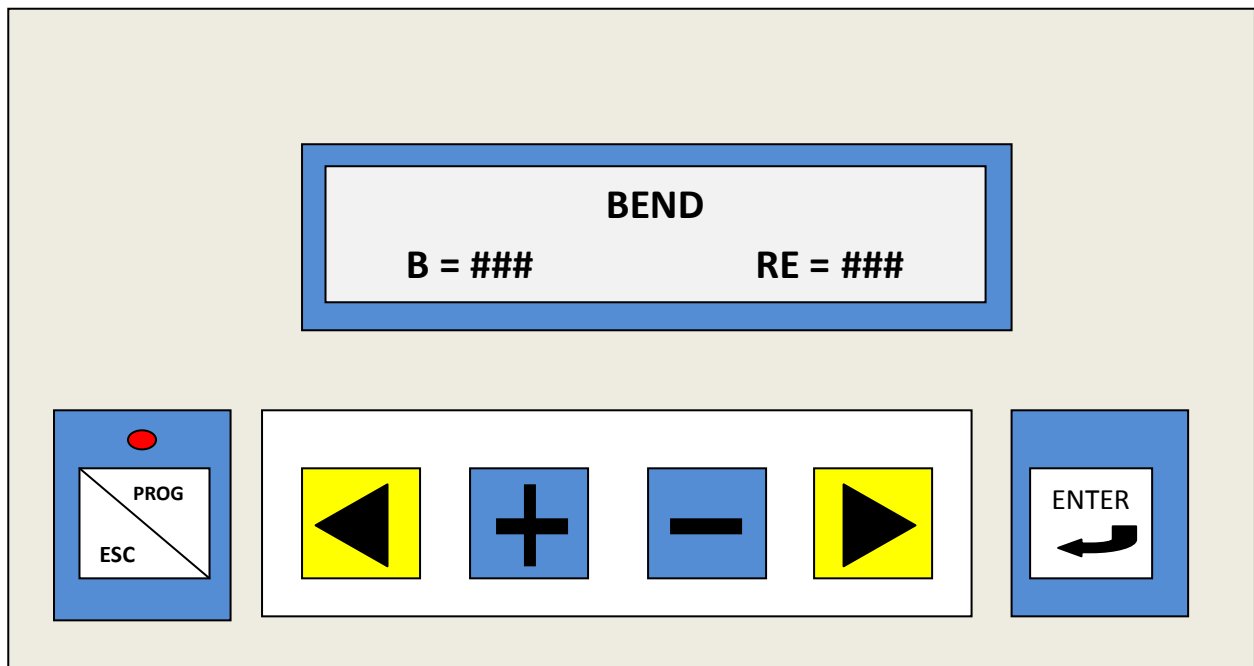
Beware of pinch points

Ensure Safety glasses are worn at all times

PLUG machine in

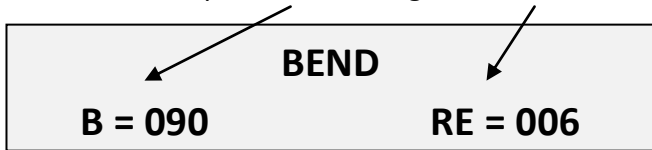
Ensure emergency stop is released (twist clockwise)

The Screen will come up similar to below (with Numbers instead of ###)



A # SINGLE BEND

A bend is made up of a “Bend Angle” and a “Recovery Angle” (or “over bend” for *spring* of workpiece)



Depending on the type of material, wall thickness etc, the “RE” setting will be different and will have to be adjusted as needed by operator.

“B”= “the bend angle you want to do”

“RE” = “the extra angle the machine will go over the B setting” This will have to be worked out from trial and error and it is suggested a list be kept to refer to for future similar bends.

To Set a single bend

“Press the “” arrow once. (“B”, angle can be changed) see *flashing* number on screen.

Press “” or “” button to change number as needed.

Press “” or “” arrow to select digit to change.

When it is set correctly press “ENTER” to set.

To change the “RE” “Recovery Angle” or over bend!

Press the “” arrow once (bend angle can be changed) see *flashing* number,

Press “” or “” button to change number as needed.

Press “” or “” arrow to select digit to change.

When it is set correctly press “ENTER” to set.

To bend

With correct formers and dies fitted, place pipe/tube in position as needed ensuring the retaining ring is well fitted over hook pin on bending die

Ensure the top quick release lever is in the locked position (to rear of machine)

Wind vice handle clockwise to lock tube/bar firmly in place.

Check that the movement and bending of the workpiece will not interfere with anything in the surrounding area.

With two hands, press simultaneously the left hand and right hand buttons and hold buttons in until bending is complete, Display will count up to total of the bend angle (B+RE) and when fingers are released the bending arbour will return to “0” ready for next bend.

Check angle bent and if more needed reset “RE” and rebend.

Note; the bending die will remain where it finished and after release of the workpiece it will have to be returned to home position by hand before the next .

NB ; Releasing one or both of the buttons while bending will bring up “ “INTERRUPT” on the screen.

To continue, press both buttons again. Or remove workpiece and continue to full bend to allow bending arbour to return to “Zero point” automatically.

B

Entering into Programmed bends

Press “**Prog/ESC**” button. **RED** light above this button will go on and screen will show “**LIST BEND**”

**LIST
BEND**

Press “” arrow. Screen will show “**LIST PROGRAM**”

**LIST
PROGRAM**

Press the “**ENTER**” button. The screen will show

LOAD P=1 C=1
B= ### RE= ###

“**P**” is the program number. Pressing the “” arrow will count up to 50 programs. Pressing the “” arrow will count back down!

“**C**” is the number of the bend in each program (1 to 9)

C

Editing a program

After entering into programme mode as above.

select the number of the “**PROGRAM**” or bend you wish to edit by pressing the “” or “” arrow.

Then press “**ENTER**” Button

LOAD PROGRAM?
P=###

Press “**ENTER**” again, this will put you into the program to **Run** it or **Edit** it.

To **Edit**, press the “” or “” button to select the bend number in the program you want to change.

When you have the correct program, Press the “” arrow once (bend angle can be changed) see *flashing* number.

Press “” or “” button to change number as needed.

Press “” or “” arrow to select digit to change.

When it is set correctly press “**ENTER**” to set.

To change the “**RE**” ”Recovery Angle” or over bend!

Press the “” arrow once (bend angle can be changed) see *flashing* number,

Press “” or “” button to change number as needed.

Press “” or “” arrow to select digit to change.

When it is set correctly press “**ENTER**” to set.

D

To Run a program (See section B “*Entering into programmed bends*” first)

Select the number of the “**PROGRAM**” or bend you wish to edit by pressing the “” or “” arrow.
Then press “**ENTER**” Button

LOAD PROGRAM?
P=###

Press “**ENTER**” again, this will put you into the program to **Run** it or **Edit** it.

To Run the Program selected

- # With correct formers and dies fitted, place pipe/tube in position as needed ensuring the retaining ring is well fitted over hook pin on bending die.
 - # Ensure the top quick release lever is in the locked position (to rear of machine)
 - # Wind vice handle clockwise to lock tube/pipe firmly in place.
 - # Check that the movement and bending of the workpiece will not interfere with anything in the surrounding area.
 - # With two hands, press simultaneously the left hand and right hand buttons and hold buttons in until bending is complete, (Display will count up to total of the bend angle (**B+RE**) and when fingers are released the bending arbour will return to “0” ready for next bend.
 - # Release tube/pipe by pulling the top quick release lever forward
 - # Reposition tube/pipe as needed for the second bend if programmed. Then relock the tube/pipe in place.
 - # With two hands, press simultaneously the left hand and right hand buttons and hold buttons in until bending is complete,
- Repeat above as needed depending on number of bends programmed in.

NB

; Releasing one or both of the buttons while bending will bring up “**INTERRUPT**” on the screen.
To continue, press both buttons again. Or remove workpiece and continue to full bend to allow bending arbour to return to “Zero point” automatically.

A

F.A.Q

Will my bender Repeat bends the same

When repetition bending the **Same** (Material, Diameter & Angle) you can achieve a 0.1 degree tolerance.

Once the Angle and "RE" has been set. Ensure that between bends you **only** loosen the Quick Acton lever without adjusting the hand wound screw.

Will all grades of steel bend the same

No. ("RE" or Spring back)varies for different types of steel i.e. Mild Steel is less than that used for Stainless.

How do I stop thin Wall Tubing getting crushed

When wall thickness is below 2mm a "Counter Former Die" (Slip Die) must be used, also it must be lubricated with a free flowing thin lubricant such as "Inox"

How do I stop stainless tube getting "Wrinkles" on it?

When bending Stainless Steel requires a lot of pressure on the "Counter Former Die", if not enough pressure will get rippling effects on the inside of the tube.

NB; When Bending ERW Tube, only require light pressure as will squash the tube wall.

When I use a "Counter Former Die" (Slip Die) my tube ends up with scratches in!

If you find scratch marks were the "counter former die" is picking up on the tube and scratching, use 1200 wet and dry on the Bronze counter former which will remove these scratches and also ensure lubricate in used when bending

Can I use the "RE" angle on the same tube and size for different bend angles?

No. You will have to calculate "RE" for each angle even on the same tube and if you want to bend a series on different bends, the accuracy would be approx 0.7 degree.