

# TUBE BENDERS

## HIL-CM TUBE BENDERS INSTRUCTION MANUAL



<sup>®</sup>  
HIL-CM

## FORMERS AND GUIDES FOR MANUAL BENDERS

Formers and guides normally supplied with Hilmor bending machines.

### HOW TO SELECT

Select the type of material to be used, then material size which identifies the correct line. Select the former disc and guide to suit your pipe size. For requirements outside these limits please contact Diversitech's sales team on +44(0)115 900 5858.

### FORMERS AND GUIDES

A comprehensive range of Hilmor's formers and guides are available in both metric and imperial sizes, and can bend a wide variety of materials including copper, conduit and steel pipe, depending on the bending machine being used.

### BENDING MACHINES

Hilmor's pipe benders are constructed from welded steel, giving them the high strength required for a long life even in a tough environment. We provide: Hand Bending Machines, A Frame Electrical Conduit Benders and Tube Benders.

### TUBE BENDERS

Hilmor tube benders are made from strong precision diecastings with integral formers and guides. Lightweight and easy to use, these benders are suitable for bending three sizes of copper, brass and aluminium.

### TRI-TUBE BENDERS

The Hilmor Multi-Mini bender is a small lightweight bender that is able to produce bends of 90 degrees in 1/4", 3/16", 5/16" and 3/8" copper tube.

### CM RANGE

The Hilmor CM range of tube benders is easily portable and is supplied with aluminium formers as standard making it one of the lightest A frames on the market.



## CM35 TUBE BENDER OPERATING INSTRUCTIONS

### Capacities

#### CM35

15, 22, 28 & 35mm copper to BS2871.

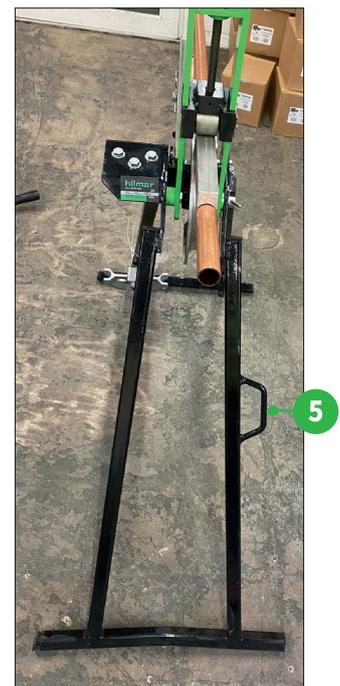
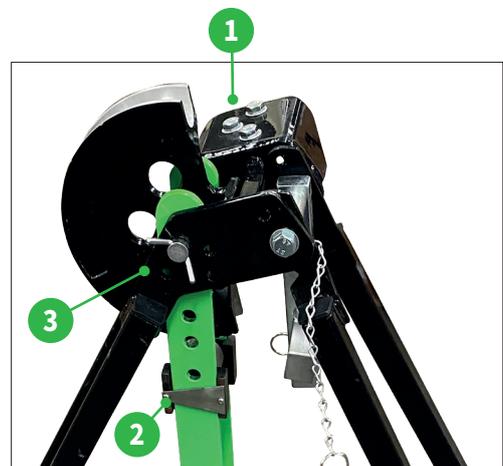
15, 22 & 28mm mild steel to BS4182.

7/8", 1-1/8" copper to BSEN1057

**Note: This machine is designed to bend the materials specified, and should not be used to bend other materials without prior approval of the manufacturer. Refer to figure 1 (over) to identify the parts.**

### SETTING UP

1. Open the stand to its fullest extent and lock the legs in position by inserting the leg pin (1).
2. Place the tube stop (2) in the correct position for the diameter of the former in use (Figure 2).
3. Withdraw the centre pin (3) and insert a former of the appropriate diameter into the bending arm and replace the centre pin.



Open the A frame stand to the widest position.

## CM35 TUBE BENDER OPERATING INSTRUCTIONS

### SETTING UP (CONTINUED)



Insert the retaining pin to fix the A Frame in place.

### OPERATING

1. Place the bending arm **(4)** in an upright position. Place the tube under the stop and bed it into the groove of the former.
2. Fit the guide over the tube, with its knife edges in the groove of the former (Figure 3).
3. Hold the bending arm, twist the handle, screwing the roller into approximately the right position.
4. Pull the bending arm downwards until the roller presses firmly against the back of the guide.
5. Pull steadily on the bending arm until you have achieved the desired degree of bend. Take care that the roller does not run off the end of the guide. Re-position the guide if necessary.
6. For packing and transport, locate the bending arm between the front legs and secure with the pin. Fold the machine flat and lock with the retaining pin. The machine may now be carried by its carrying handle **(5)**.

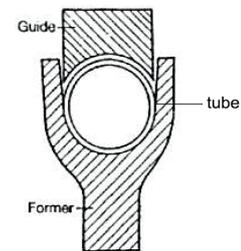
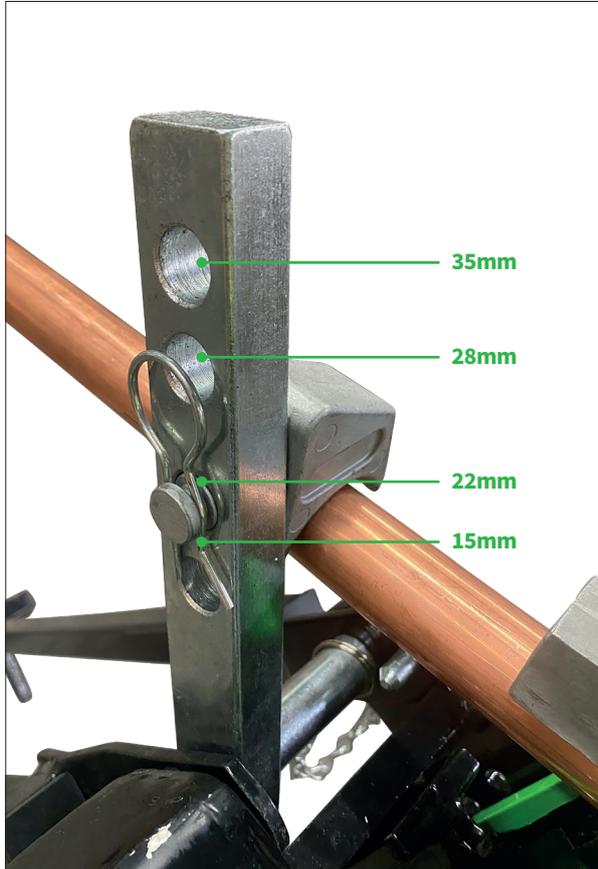


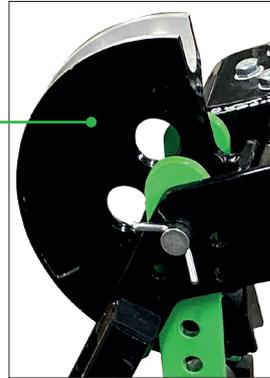
Figure 3

**Note: For best results always apply a small amount of grease to the former and guide.**

## CM35 TUBE BENDER OPERATING INSTRUCTIONS



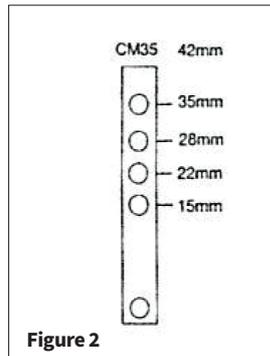
Place the tube stop in the correct position for the pipe size being sent



Select the correct former disc for the pipe size being used



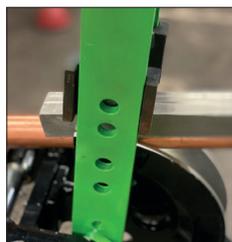
Remove the centre pin to allow the former disc to be put in place and then replace the centre pin to hold the former disc in position



Insert the pipe under the tube stop and into the former disc



Turn the handle to lift the roller



Slide the guide under the roller and allow 25mm to protrude beyond the edge of the former disc



Turn the handle to lower the roller until it touches the top of the guide.

Then turn back ½ a full turn to allow some free movement.

NB. Do not over tighten the roller onto the guide

## CM35 TUBE BENDER OPERATING INSTRUCTIONS

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### SAFETY NOTES

Stand the machine on a level surface. If convenient, anchor it to the floor. Sometimes, the type of bend or the amount of force applied will tend to make the machine lift. If this happens, you or an assistant should steady it.

This is a precision machine for use in tough environments. Make sure that you always use the stop and retaining pins, and keep the working parts clean and in good condition.

Only genuine spares and accessories should be fitted to this machine.  
Do not try to adapt it yourself.

**Always use a small amount of lubricant on the guide and former to improve bending performance and extend the life of your bender.**

## CM35 TUBE BENDER OPERATING INSTRUCTIONS

### BENDING TO OUTSIDE MEASUREMENTS

Mark off the tube to the required distance. For example, if the measurement from the end of the tube to the outside of the bend is to be 600mm, mark off 600mm (Figure 4). Insert the measured part in the machine so that it rests against tube stop E (Figure 5), and push the tube right into the former. Place a square against the mark on the tube and slide the tube until the square touches the outside edge of the former at X in Figure 5. The tube is now in the correct position for bending.

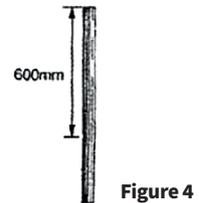


Figure 4

### BENDING TO INSIDE MEASUREMENTS

If the measurement is from the end of the tube to the inside of the bend, mark off 600mm and place the tube in the machine as per “sending to outside measurements” - but slide the tube until the square (coinciding with the mark) touches the bottom of the groove in the former - at K in Figure 5.

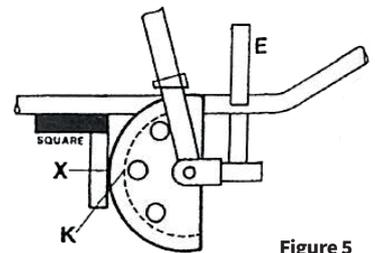


Figure 5

**Note: The principle explained above maybe applied to make a bend at a given distance from another bend, depending on whether the measurement is from outside to outside or outside to inside of bend.**

### OFFSETS

After making the first bend (usually to 45°). place the tube in the machine as shown in Figure 6, resting it against the stop E and bedding it into the groove of the former.

Suppose the offset required is to measure 100mm (Figure 6).

Place a straight-edge (or piece of straight material) against the outside edge of the former and parallel to the tube at V, and adjust the tube in the machine until you obtain the required measurement.

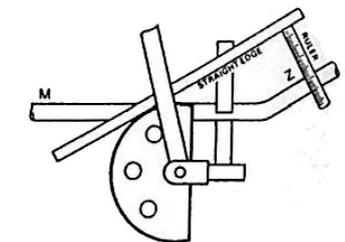


Figure 6

**Note: The set will increase as you push the tube to the right, and decrease as you push it to the left in figure 6. When you have obtained the correct measurement, bend in the usual manner until the tube M is parallel with Z.**

If you want to make a number of similar offsets, make the first bend in all the tubes. Then place one tube in the machine to the correct measurement and mark it at the spot where it touches the stop. Use this one as a template and mark the remaining tubes.

Straight-edges are no longer required when a template has been made.

## PART CODES AND SPARE PARTS

Part code	Description		
<b>Kits</b>			
HIL-CM35-15-28	A Frame Bender 15, 22 & 28mm formers and guides		
HIL-CM35-7/8-1 1/8	A Frame Bender 7/8" & 1 1/8" formers and guides		
<b>Parts</b>			
HIL-CM35-15DISC	15mm Former Disc		
HIL-CM35-22DISC	22mm Former Disc		
HIL-CM35-28DISC	28mm Former Disc		
HIL-CM35-7/8DISC	7/8" Former Disc		
HIL-CM35-1-1/8DISC	1 1/8" Former Disc		
			
		HIL-CM35-15GUIDE	15mm GUIDE
		HIL-CM35-22GUIDE	22mm GUIDE
		HIL-CM35-28GUIDE	28mm GUIDE
		HIL-CM35-7/8GUIDE	7/8" GUIDE
HIL-CM35-1-1/8GUIDE	1 1/8" GUIDE		





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