

# **COMPACT DRILLING MACHINE**

## **HANDBOOK**

13mm Capacity – Five Speed  
Bench Drilling Machine

# **MEDDINGS**

MEDDINGS MACHINE TOOLS  
IVYBRIDGE DEVON  
PL21 9LL

TEL: 01752 313323

## Table of Contents

		Page
<b>1) HEALTH &amp; SAFETY</b>	Specification	3
	Manual handling	3
	COSHH	3
	Noise	3
	Guards	3
	Head Raising Mechanism	3
<b>2) INSTALLATION:</b>	Foundations	4
	Electrical supply	4
	Safety circuits	4
<b>3) OPERATIONAL USE</b>	Good practice	5
<b>4) MACHINE OPERATION</b>	Power On indication.	6
	No Volt starter.	4
	Speed selection.	6
	Work holding	6
	Drill chuck	6
	Depth gauge	7
<b>5) MAINTENANCE</b>	Periodic checks	7
	Lubrication	7
	Quill-return spring	8
<b>6) GUARANTEE</b>		8
<b>7) MACHINE DRAWINGS</b>	Refer to Compact main index for;	
	Machine Index (1)	
	Exploded views & parts lists (4)	
	Electrical schematic (1)	
	Base fixing centres (1)	

**Please ensure that you have read, and understand, these instructions fully before attempting to set up or operate the machine.**

### 1) Health & Safety

- a) Meddings Machine Tools Limited are suppliers of Drilling / Milling Machines, Circular Cut-Off and Band Sawing Machines, Scroll and Jigsaws, together with ancillary equipment and machine tools in general. These items are articles and not substances and therefore are not covered by the Control of Substances Hazardous to Health Regulations 1988. However, the following should be considered within the Health and Safety at Work Regulations and the Supply of Machinery Safety Regulations 1992. (CE marking).
- b) This machine is designed for and is only suitable for the conventional drilling of wood, metal and plastics. Any other use constitutes "improper use"; for which the manufacturer cannot be held liable. The user carries sole responsibility for such use.
- c) Products are supplied to a quoted specification. Modifications made to any machines by the users are at their responsibility. Risks associated with the machining of specific substances are the responsibility of the user.
- d) All exposed bare metal on the drilling machine has been coated with anti-rust compound, which must be removed. Suitable solvents are white spirit or turpentine.
- e) The bench mounted Compact drill weighs, approximately 54 kg.
- f) It should be noted that the machine has a high centre of gravity and so will require mechanical handling techniques appropriate to the weight and size of the product.
- g) The machine may be lifted by the use of slings under the head, after ensuring that the head is securely locked to the column. It is recommended that personnel employed in the receipt, unloading and siting of our products be provided with the appropriate level of hand protection and safety footwear commensurate with the risk.
- h) It is essential to check that the machine is complete and undamaged before use
- i) Machine mechanisms use a variety of oils and greases. The following information applies across the complete range of substances used and is for general information only. Your own COSHH system should be referred to for specific substances:

<i>Inhalation:</i>	Not normally a hazard
<i>Eye Contact:</i>	Wash with copious amounts of water
<i>Skin Contact:</i>	Wash with soap and water
<i>Ingestion:</i>	Take water or milk, do not induce vomiting.

- Working Practices:* Good housekeeping and personal hygiene are essential, when working with lubricants it is recommended that appropriate personal protective equipment be used.
- Medical Aid:* This should be sought in case of eye contact, ingestion, or signs of allergic reaction. If in doubt, ask.
- Fire:* Most oils and greases are inflammable. Standard safety precautions in dealing with such materials should be observed.
- Metalworking Fluids:* Refer to, "Working safely with metal working fluids". HSE Publication: INDG365)

- j) Under certain operating conditions excessive noise levels may emanate from machining. Under these circumstances, suitable ear protection should be provided and worn. Under no-load conditions machine noise levels are less than 80 dB A (measured at a height of 1.6 metres, 1 metre from the front of the machine).
- k) The machine is provided with guards for both chuck and spindle drive belt. These guards should be fitted on installation and kept in place at all times. They should only be removed once the machine has been isolated from the mains.
- l) The Compact is fitted with a head-raising mechanism, operated by a rotary handle on the column. The head is locked into position using a bolt on the left-hand side of the machine. Before the handle is turned to change the vertical position of the head, this bolt must be slackened off and the head must be in contact with the mechanism's collar. Once the desired position has been reached the bolt must be tightened again before the drill is used. Care should be taken not to over tighten the bolt.
- m) Machine setting and adjustments should always be made by a trained operator with the machine power isolated.

## 2) INSTALLATION:

- a) Machines must be suitably secured by the securing holes provided and suitable fastenings to an appropriate flat surfaced workbench or the floor. Hole dimensions are shown separately in the compacts drawing index.
- b) Do not excessively tighten securing fasteners to over stress cast iron base of machine.
- c) This machine is requires a single phase 230 V electrical supply. It is supplied fitted with a 13 Amp British plug.
- d) Prior to use, and at regular intervals, carry out the following checks:
- i) No Volt Starter:

*Green Button:* When this is pressed the machine will start.

*Red Button:* When this is depressed power is cut from the motor and the machine slows down and stops.

- ii) Safety Switch: With the machine running remove the locking nut and raise the belt cover. Power should be cut from the motor as the belt cover is raised by 10 to 15 mm. While the belt cover is raised, if the green button is pressed the motor must not start. If it does, readjust the safety micro switch.
- iii) When the belt cover is fully lowered and secured the motor must not restart until the green button is pressed.
- iv) With the machine running switch off the isolator or remove the plug. The machine will stop. When the isolator is switched on or the plug replaced the machine must not restart until the green button is pressed.
- e) If the machine fails any of the above electrical tests and cannot be corrected by adjusting the micro switch, the machine must not be used and a competent electrician consulted.
- f) With all these tests completed satisfactorily and the guard fitted, the machine is ready for use by a suitably trained operator, taking due regard of all the information set out in this Hand Book and accepted safe working practice

### **3) OPERATIONAL USE**

- a) Machines should only be operated by a suitably trained and qualified operator.
- b) The following good practice should always be followed:
  - i) Always wear safety glasses when using a drilling machine.
  - ii) Always wear safety shoes.
  - iii) Always wear a hat or hairnet if you have long hair.
  - iv) Always keep your hands away from the rotating tool.
  - v) Always ensure that workpiece is clamped firmly by suitable fixing devices.
  - vi) Always isolate the drilling machine before carrying out any maintenance on it.
  - vii) Never wear gloves or finger rings when using a drilling machine.
  - viii) Never run the machine unsupervised.
  - ix) Never remove swarf with your hands, use a chip-hook.
  - x) Never attach chuck key to the machine by cord or chain.

- xi) Check that the bit or other tool is correctly mounted before switching on.
- xii) Take special care to observe the tool manufacturer's directions particularly with regard to coolant, maximum tool speed and feed!
- xiii) Only use original "Meddings" spare, tools and accessories

#### 4) MACHINE OPERATION

- a) Using the plug supplied, connect the machine to a suitable power supply. The green 'Power On' lamp should be lit.
- b) The drill is started by pressing the green button and stopped by pressing the red button. These buttons are the normal method for starting and stopping. When making adjustments, or when setting, always switch off at the isolator or unplug.
- c) Always select a speed suitable for the tooling used and application. To change speed the following procedure should be followed:
  - i) Remove nut on the top of the belt cover and remove cover.
  - ii) Loosen the locking nut, then slacken the serrated locking screw to remove the belt tension .
  - iii) Select the required pulley ratio to give the desired drilling speed. A label is attached to the head casting adjacent to the belt tensioning mechanism detailing the no-load drilling speeds for a given pulley ratio.
  - iv) Tighten the serrated locking screw and then finally tighten the locking nut.

N.B. This will provide sufficient tension for the drive belt, applying further tension to the belt will reduce the life of the bearings.
- d) The machine will not start until the belt cover is closed. Always secure the belt cover by adequately tightening the locking nut.
- e) The workpiece should be secured to the base as required.
- f) The chuck provided is a three jaw, 0 to 13mm type which fits onto the male tapered (No 6 JT) portion of the main spindle. The drill bit can be changed as follows:
  - i) Open the clear front of the drill guard by releasing the sprung loaded plunger on the left of the guard and lift the hinged front
  - ii) Select the correct drill bit for the job and insert into the chuck. Tighten the chuck with the key provided and ensure that the drill bit is correctly centred. Remove and stow the chuck key.
  - iii) Close the drill guard ensuring correct relocation of the sprung plunger. On the side of the guard are two thumbscrews that secure the clear drill guard, also allowing for height adjustment. In operation, the thumbscrews should be left loose to allow the drill guard to rise and fall.

- g) The starwheel rotates in an anti-clockwise direction to lower the drill. Only moderate pressure should be required to drill, if excess force is needed this would indicate incorrect drill speed selection, incorrect or blunt drill bit, or wrong cutting fluid.
- h) To use the depth gauge follow the following steps:
  - i) Switch off the machine.
  - ii) With drill bit fitted, lower the quill until the drill bit touches the workpiece at the point where the hole is to be drilled.
  - iii) Holding the drill tip in this position move the lower gauge nut to align its bottom face with the desired depth on the scale. Lock into position with the upper lock nut.
  - iv) Commence drilling. Drill until the gauge nut meets the scale block and stops.

## 5) MAINTENANCE

- a) **ALWAYS ISOLATE THE MACHINE FROM THE MAINS ELECTRICITY BEFORE CARRYING OUT ANY MAINTENANCE.**
- b) Weekly checks for free movement of starwheel handle and correct operation of all safety devices.
- c) Monthly checks should be made on general condition of machine and that it is correctly set. Drive belt should be checked for condition and signs of excessive stretch, replacing if necessary. Grease quill and splines, oil activating gear shaft.
- d) The majority of this drilling machine's bearings are shielded and greased for life. Use Shell Alvaina R3 grease or similar. This grease should also be used on the rack teeth and spindle splines. To grease the quill rack teeth lower the quill using the starwheel and apply grease using a brush to the teeth at the rear of the quill. Work the quill up and down several times and wipe off excess grease.
- e) The quill-activating shaft is fitted with an "oilite" type bush and will not require lubrication under normal conditions. However, the quill-return spring, like all springs, will fatigue over time and should be inspected, greased regularly and replaced periodically. If the quill return spring is broken the quill and spindle assembly will be fully extended and if raised will, by its own weight, fully extend when released. **CHECK THAT THERE IS FREE MOVEMENT THROUGHOUT THE FULL TRAVEL OF THE QUILL.**
  - i) The spring box assembly is located on opposite side of drilling machine head to starwheel feed handle. Prise off black plastic spring box cover using small screwdriver.
  - ii) Undo grub screw located on underside of head that locks and locates spring box. At least four full turns.

- iii) Pull spring box out of side of machine. A slight twisting action whilst pulling may facilitate. Remove all parts of broken spring.
- iv) Holding spring box in a soft jawed vice cover spring with a suitable cloth, in case of "C" retaining clip coming off unexpectedly. Manually push new spring out of its C retainer into box whilst locating outer end into the location slot (It may be necessary to lightly tap end of spring into location slot using a flat nosed punch and hammer). If spring has not fully ejected from C retaining clip, prise clip off with a suitable screwdriver. Spring should coil clockwise from outside diameter towards centre.
- v) Push assembled spring box back into side of machine making sure that spring does not come out of box and that centre tang locates into slot on end of rack pinion shaft. Make sure spring box is fully into position.
- vi) Raise quill by rotating star wheel clockwise to highest position. Using quill locking screw knob, secure in this position.
- vii) Tighten spring box locking and location grub screw until slight friction can be felt when spring box is rotated.
- viii) Turn spring box anti-clockwise until quill assembly weight is balanced when quill-locking knob is released, add a further half turn anti-clockwise and fully tighten spring box locking grub screw. To obtain a perfect balanced quill return further slight adjustment may be required, but **DO NOT OVER TENSION RETURN SPRING** to the extent where it is nearly coil bound as this will result in premature spring failure.
- ix) Using a brush apply grease (Shell ALVAINA R3 or similar) liberally to the spring coils. Push spring box cover back on.

## 6) GUARANTEE

- a) All goods are guaranteed against defective workmanship and material for a period of twelve months from date of dispatch.
- b) Parts, which prove defective within this time under normal operations and service when owned by the original user, will be replaced, but no claim for expenditure upon them or for consequential damage will be entertained.
- c) Replacements must be accepted as complete satisfaction of all conditions or warranties. Bought out components and proprietary items such as electric motors, starters, chucks, etc are not included in this guarantee. However, the purchaser will be entitled to receive from us all rights and benefits derived from any guarantee given to us by the manufacturers of such items.