

Chisel Mortising Machine

OWNER'S OPERATING MANUAL & SERVICE INSTRUCTIONS

MODEL: CMS3816R

CAUTION: Read the instruction manual before using the appliance

INTRODUCTION

GB - ENGLISH

Operating Instructions

Dear Customer,

Many thanks for the confidence you have shown in us with the purchase of this chisel mortising machine. This manual has been prepared for the owner and operators of a **CMS3816R Mortiser** to promote safety during installation, operation and maintenance procedures. Please read and understand the information contained in these operating instructions and the accompanying documents. To obtain maximum life and efficiency from your machine, and to use the machine safely, read this manual thoroughly and follow instructions carefully.

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1. Declaration of conformity

On our own responsibility we hereby declare that this product complies with the regulations* listed on page 2. Designed in consideration with the standards**.

2. Warranty

We guarantee that the supplied product(s) is/are free from material defects and manufacturing faults.

This warranty does not cover any defects which are caused, either directly or indirectly, by incorrect use, carelessness, damage due to accidents, repairs or inadequate maintenance or cleaning as well as normal wear and tear.

Further details on warranty (e.g. warranty period) can be found in the General Terms and Conditions (GTC) that are an integral part of the contract.

These GTC may be viewed on the website of your dealer or sent to you upon request.

We reserve the right to make changes to the product and accessories at any time.

3. Safety

3.1 Authorized use

This mortiser is designed for mortising wood and similar materials only. Machining of other materials is not permitted and may be carried out in specific cases only after consulting with the manufacturer.

The proper use also includes compliance with the operating and maintenance instructions given in this manual.

The machine must be operated only by persons familiar with its operation and maintenance and who are familiar with its hazards.

The required minimum age must be observed.

The machine must only be used in a technically perfect condition.

When working on the machine, all safety mechanisms and covers must be mounted.

In addition to the safety requirements contained in these operating instructions and your country's applicable regulations, you should observe the generally recognized technical rules concerning the operation of woodworking machines.

Any other use exceeds authorization. In the event of unauthorized use of the machine, the manufacturer renounces all liability and the responsibility is transferred exclusively to the operator.

3.2 General safety notes

Woodworking machines can be dangerous if not used properly. Therefore the appropriate general technical rules as well as the following notes must be observed.



Read and understand the entire instruction manual before attempting assembly or operation.



Keep this operating instruction close by the machine, protected from dirt and humidity, and pass it over to the new owner if you part with the tool.

No changes to the machine may be made.

Daily inspect the function and existence of the safety appliances before you start the machine. Do not attempt operation in this case, protect the machine by unplugging the power cord.

Before operating the machine, remove tie, rings, watches, other jewellery, and roll up sleeves above the elbows. Remove all loose clothing and confine long hair.

Wear safety shoes; never wear leisure shoes or sandals.

Always wear the approved working outfit:

- safety goggles
- ear protection
- dust protection



Do not wear gloves while operating this machine.



Install the machine so that there is sufficient space for safe operation and workpiece handling.

Keep work area well lighted.

The machine is designed to operate in closed rooms and must be bolted stable on firm and levelled table surface or on the supplied cabinet stand.

Make sure that the power cord does not impede work and cause people to trip. Keep the floor around the machine clean and free of scrap material, oil and grease.

Stay alert!

Give your work undivided attention.

Use common sense. Do not operate the machine when you are tired.

Keep an ergonomic body position. Maintain a balanced stance at all times.

Do not operate the machine under the influence of drugs, alcohol or any medication. Be aware that medication can change your behaviour.



Never reach into the machine while it is operating or running down.



Keep children and visitors a safe distance from the work area.

Never leave a running machine unattended. Before you leave the workplace switch off the machine.

Do not operate the electric tool near inflammable liquids or gases. Observe the fire fighting and fire alert options, for example the fire extinguisher operation and place.

Do not use the machine in a damp environment and do not expose it to rain.

Before machining, remove any nails and other foreign bodies from the workpiece.

Work only with well sharpened tools.

Machine only stock which rests securely on the table.

Always close the chuck cover before you start the machine.

Specifications regarding the maximum or minimum size of the workpiece must be observed.

Do not remove chips and workpiece parts until the machine is at a standstill.

Do not stand on the machine.

Connection and repair work on the electrical installation may be carried out by a qualified electrician only.



Have a damaged or worn power cord replaced immediately.

Make all machine adjustments or maintenance with the machine unplugged from the power source.



3.3 Remaining hazards

When using the machine according to regulations some remaining hazards may still exist.

The rotating drill bit can cause injury.

Thrown workpieces and workpiece parts can lead to injury.

Dust and noise can be health hazards. Be sure to wear personal protection gear such as safety goggles and dust mask. Use a suitable dust collection system.

The use of incorrect mains supply or a damaged power cord can lead to injuries caused by electricity.



4. Machine specifications

4.1 Technical data

Motor speed	1720 rpm
Drill chuck capacity	1-13mm
Chisel capacity	16 x 16mm
Chisel shank capacity	Ø25/Ø19mm
Head stroke	100mm
Table Size	180x150mm
Fence size	180 x 40mm
Base Size	310x270mm
Chisel centre to fence max	65mm
Under holddown capacity	90mm
Maximum vertical distance table to chisel bushing	110mm
Over Size(LxWxH)	275x440x640mm
Net weight	42 kg
Mains	120v/230v ~1/N/PE 50/60Hz
Input power	550 W S1
Output power	400 W S1

4.2 Noise emission

Acoustic pressure level (EN 11202):

Idling 67,4 dB (A)

In operation 75,5 dB (A)

The specified values are emission levels and are not necessarily to be seen as safe operating levels.

As workplace conditions vary, this information is intended to allow the user to make a better estimation of the hazards and risks involved only.

4.3 Content of delivery

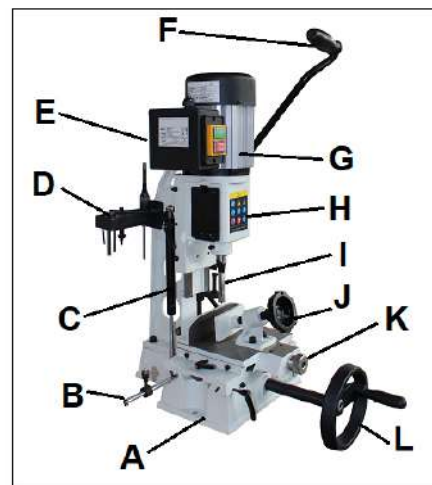




Fig 1

- A.....Base
- B.....Stop Rod & Locking Handle
- C.....Gas Return Strut
- D.....Tool Holder
- E.....On/Off Switch Electrical Box
- F.....Feed Handle
- G.....Motor
- H.....Chuck Housing & Access Covers
- I.....Chisel and Drill Bit
- J.....Hold Down Clamp
- K...Table Control Knob-Forward-Back
- L.....Table Hand Wheel-Side-to-Side
- M.....Sliding Plate Locking Handle
- N.....Handle Locking Handle
- O.....Depth Stop Lock Lever
- P.....Fence

13mm drill chuck
 Chuck key
 Spindle extension
 3/4" (Ø25/Ø19mm) chisel bushing
 Fence assembly
 Work hold down
 Handle
 Gas spring
 Operating manual
 Spare parts list.

5. Transport and start up

5.1 Transport and installation

The machine is designed to operate in closed rooms and must be bolted stable on a firm and levelled table surface.

5.2 Assembly

If you notice transport damage while unpacking, notify your supplier immediately. Do not operate the machine!

Dispose of the packing in an environmentally friendly manner.

Clean all rust protected surfaces with a mild solvent.

Release the Mortising Head Assembly.

The Mortiser's head assembly is secured in the 'down' position for transporting, and must be freed for operation.

1. Loosen the locking hex head Screw (A, Part #64) that is located on the left side of the mortising head, next to the Gas Spring (B, part #57). FIG. 2.

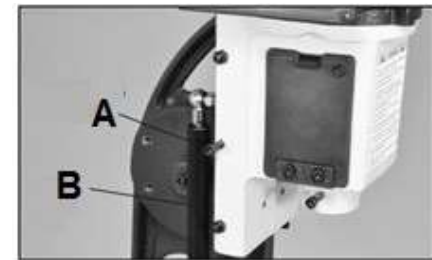


Fig 2

Install the Feed Handle (#1) into the Handle Shaft (#5), and secure it in place with the Locking Handle Screw (#4). The handle's lower end has a milled slot on the outside surface. The locking handle's screw should be positioned in this slot when secured. FIG. 3.

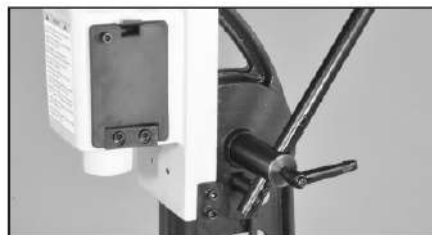


Fig 3

Install the Front Hand Wheel, which moves the sliding table left or right.

1. Attach the Handle Shaft (#84) onto the Gear Shaft (#83) which extends out from the front of the machine's Base (#25). The hex Screw (#86) threads through both shafts to secure them together. FIG. 4.



Fig 4

2. Remove the Phillips Screw and Washer (#71, 73) that are on the end of the handle shaft.
3. Slide the Hand Wheel (#85) onto the handle shaft. The locating key in the handle shaft must be positioned in the keyway slot in the hand wheel's center hole. FIG. 5.
4. Secure the hand wheel in position with the washer and screw that were removed in Step 1.



Fig 5

Install the Stop Rods.

Two stop rods and adjustable stop collars are supplied for installation on the left and right of the machine base. They can be set to restrict the left or right movement of the lower sliding table, so boring of long mortise holes will be accurate and consistent if multiple work pieces are drilled.

1. Slide an adjustable Stop Collar Assembly (#74, 75) onto each of the Stop Rods (#76), and lightly tighten them in place so that they do not move. FIG. 6.



Fig 6

2. Loosen the two Set Screws (#56) that are located on the machine base's dovetail way, just above the holes bored to take the stop rods. FIG. 6.
3. Insert the stop rods into the base holes and secure them in place by tightening the set screws that were loosened in step 2. FIG. 7.



Fig 7

Note: The stop collars can be moved along the stop rods and also rotated so that the adjustable locking Handles (#74) do not interfere with the sliding table.

Install the Tool Holder (#27) onto the upper left side of the column using two hex Screws with Washers (#18). FIG. 8.



Fig 8

Installing the Mortising Chisel and Drill Bit

1. Open the chuck access Cover (#14)(A) and loosen the side bushing set Screw (#86)(B). FIG. 9.

2. The Mortiser's head comes bored with a 1" diameter hole for chisels with 1" shanks. For other diameter chisels shanks, the use of the 3/4" or 5/8" bushing is required. Install the bushing (FIG. 9, C), if needed, and slightly tighten the bushing set screw to keep the bushing in place.



Fig 9

3. Open the chuck jaws to allow the drill bit to be inserted into the chuck, and then insert the chisel into the mortiser's head, or head with a bushing installed.

4. Tighten the bushing set screw to secure the chisel in place. FIG. 10, A.

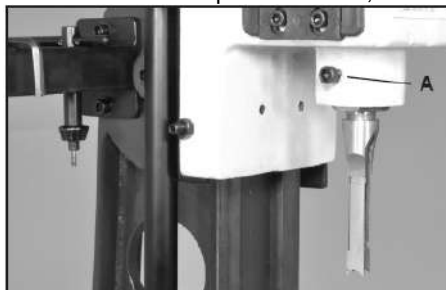


Fig 10

5. Using the chuck key, tighten the drill bit in place making sure that 1,5mm to 4mm of the drill bit point is lower than the chisel point. This distance will depend on wood

hardness and mortising depth requirements. FIG. 11, B.



Fig 11

6. The chisel must be set square to the fence. This can be done by two means:
A - Remove the Clamping Assembly (#37+) from the table (#42) to gain access to the chisel. Place a square against the fence and side of the chisel. FIG. 12. If an adjustment is needed, loosen the bushing set screw and rotate the chisel until it is square with the fence. Then tighten the bushing set screw. Re-install the clamping assembly once the chisel is set.
B - The back side of the square chisel can also be set parallel to the Fence (#45), by advancing the fence until it touches the chisel. - The chisel can be adjusted/rotated in the bushing (as in A above).

- Or the Fence can be adjusted to the chisel by loosening the fence's Screws (#44) and shifting the fence until it touches the back surface of the chisel. Then tighten the fence screws to secure the fence in position.

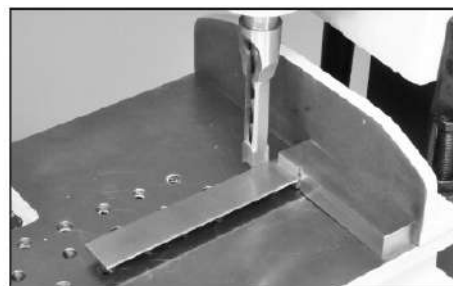


Fig 12

5.3 Mains connection

Mains connection and any extension cords used must comply with applicable regulations.

The mains voltage must comply with the information on the machine licence plate.

The mains connection must have a 10 A surge-proof fuse.

Connections and repairs to the electrical equipment may only be carried out by qualified electricians.

5.4 Dust collection

Use a suitable dust collection and filtration system to avoid a high dust concentration in the air.

Dust the machine down after each use and as necessary.

5.5 Starting operation

You can start the machine with the green on button. The red button on the main switch stops the machine.

6. Machine operation

6.1 Depth Stop

Drilling depths of the mortiser can be set with the adjustments on the right side of the column.

To set a specific depth for mortising with the chisel and bit;

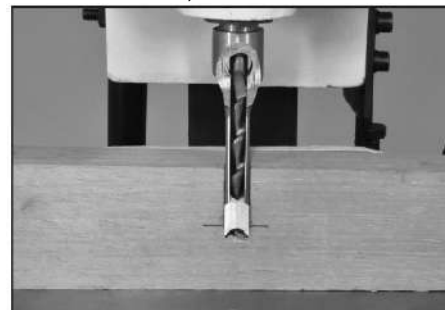


Fig 13

1. Mark your mortise depth on the side of your work piece, or scrap material, for reference. Position the chisel and bit that you will be using against this mark. FIG. 16. To keep the mortising head in this location, the locking head Screw (#64) can be tightened.

NOTE: The depth of the mortise should be set to the chisel point, not to the tip of the drill bit. The extra depth cut by the drill bit will allow room for any excess glue.

2. Position the depth stop Plate (#81, FIG. 14, A) along the Guide Column Rod (#10) until the hex head Bolt (#79) hits the Depth Stop Plate (#12), B, that is mounted on the mortiser's head.

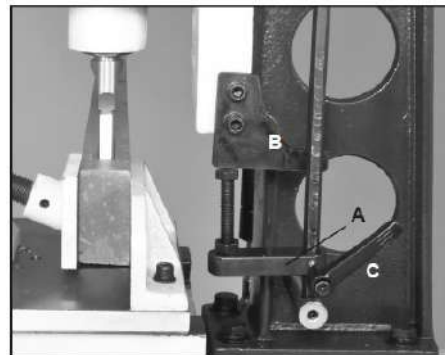


Fig 14

3. Lock the stop plate in position with the Handle Screw (#8) C. The depth stop is set for your drilling. If further fine tuning is needed, the Bolt (#79) can be adjusted

and locked in position with the hex Nut (#80).

4. Unlock the head Screw (tightened in step 1) so that the mortising head is released.

Adjust the fence.

Adjust the hold down so it touches the top of the workpiece and allows it to slide left or right.

Turn on the machine and feed chisel and bit steadily into the workpiece by pulling down the operating handle.

Note: The rate of feed must be fast enough to prevent burning at the tip of the drill bit, but not so fast as to cause the machine to stall. The different rates of feed for different woods must be learned by experience.

After the first cut, the workpiece is moved. The direction of movement must allow the chips to clear freely (Fig 15).

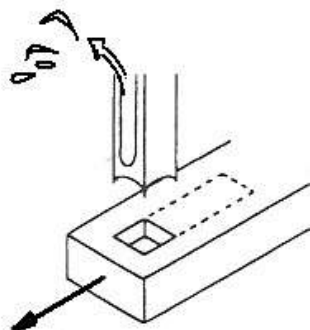


Fig 15

When cutting deep mortises, make the cut in several stages of approx. 25mm each, to allow chips to clear.

To prevent breakout at the back of the workpiece when cutting through mortises, use a piece of scrap material under the workpiece as support.

6.2 Table Controls

Moving the table allows you to create a perfectly straight rectangular mortise with a series of cuts.

To control the table:

1. Move the forward/backward handwheel (A Fig 8) to move the table toward or away from the operator.
2. Move the left/right handwheel (B Fig 16) to move the table horizontally.

Fig 16

3. Use the table stop handles (D Fig 16) to control how far the table moves to the left and right.

Note: Use the table stop handles to set the left and right ends of the mortise when setting up to cut a mortise.

Adjusting the Work Table

The top Table (#42) that holds your work piece, adjusts forward and backwards on dovetail ways, FIG. 17, A. The table movement is controlled by the small knurled Knob (#38) (B).

1. To tighten or loosen the movement of the table, pressure on the dovetails can be adjusted with the 2 Screws and Nuts (# 54, 53). FIG. 17, C. These put pressure on the Drift Plate (#55) which rests against the table's dovetails.
2. To secure the table in one spot so that it will not move, the hex head Screw (#64) (D) can be fastened down. This is recommended for repetitive drilling of mortises on multiple work pieces.

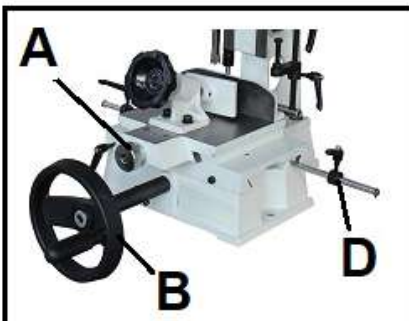


FIG. 17

Adjusting the Lower Sliding Plate

The lower supporting Sliding Plate (#52) adjusts the top table left and right on a separate set of dovetail ways. FIG. 18, A. The front Hand Wheel (#33) (B) controls the side-to-side table movement.

1. To tighten or loosen the movement of the sliding plate, pressure on the dovetails can be adjusted with the 3 Screws and Nuts (# 47, 48) that are located in the front of the sliding plate. FIG. 18, C. These put pressure on the Drift Plate (#24) which rests against the plate's dovetails.
2. To secure the sliding plate in one spot so that it will not move, the Handle Screw (#49) (D) can be fastened down. This is recommended for repetitive drilling in a single location on multiple work pieces.

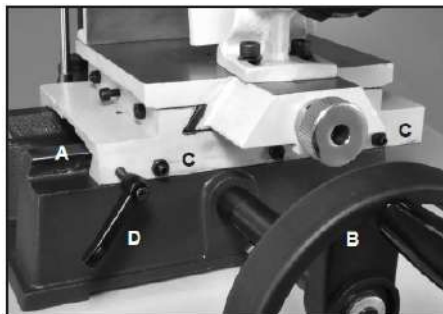


Fig 18

6.3 Table Clamps

The Table Clamp Assembly (#37) can be adjusted to hold different sizes of work against the fence for the accurate drilling of mortises.

The Table has rows of multiple pre-drilled holes that the Clamp Base Casting and Pin (#37, 18) fit into to adjust for clamping different material widths. FIG. 19.

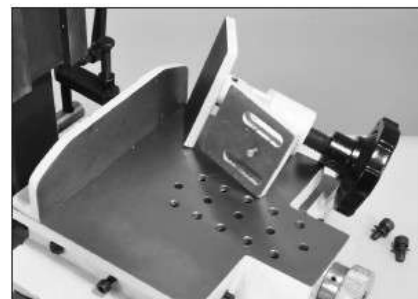


Fig 19

The front Clamp Plate (#43) will rotate slightly to give pressure on irregular shaped pieces, and the Clamping Base (#37) can be angled to conform to tapered work pieces. The two Bolts (#32) can be loosened and tightened to secure the fence in position for maximum holding power. FIG. 20.

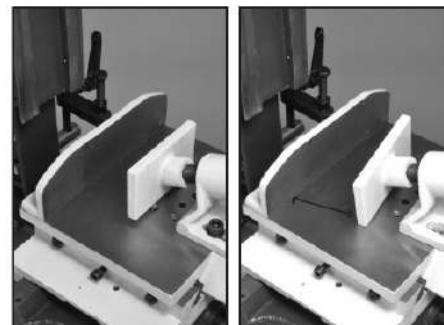


Fig 20

Note: make sure the machine is attached to a firm and stable support surface, to prevent it from tipping during operation. Two holes in the base are supplied for this purpose.

Always keep your hands well clear of the rotating bit.

Always close the chuck cover before you start the machine.

Support long workpieces with helping roller stands.

7. Setup and adjustments

General note:

Setup and adjustment work may only be carried out after the machine is protected against accidental starting by pulling the mains plug.

7.1 Installing chisel and bit

Disconnect the machine from the power source (unplug).

Open the chuck access doors on both sides of the head.

Insert the chisel bushing (3, Fig 21) with the hole facing forward into the head.

Insert chisel and bit together.

Tighten the screw (2, Fig 21) just enough to hold the chisel (4, Fig 21) in place.

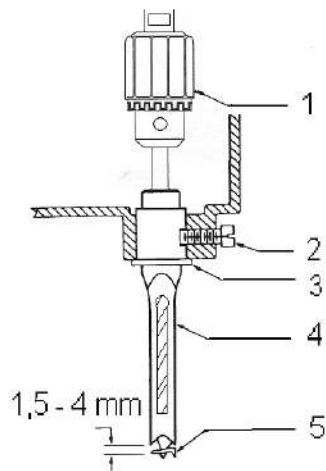
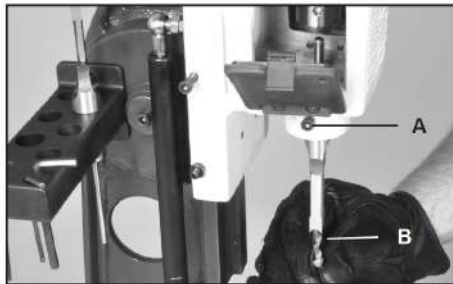


Fig 21

Note: The slot in the chisel should face to the right or left side only. The opening will allow chips to escape during operation.

Push the chisel up as far as possible into the head. Then lower the chisel 1,5 to 4mm, depending on the type of wood being worked. Tighten the screw to hold the chisel in place.

Push the bit up through the chisel opening as far as it will go. Lock the drill bit in place with the chuck key.

Loosen the screw and push the chisel up against the bushing and tighten the screw. This should provide the proper distance between the points of the chisel and the bit.

Close the chuck access doors before starting the machine.

Using bits with shorter shanks:

It will be necessary to attach the spindle extension.
Place a 10mm open spanner on the motor spindle and use the chuck key to unscrew the chuck.
Attach the spindle extension to the chuck and reinstall.

7.2 To make a mortise:

1. Layout the desired mortise on the workpiece and clamp the workpiece in place with the table clamps and vise.
2. Use the table controls to align the mortising chisel with the layout lines (see Fig 22) and set the depth and table stops.

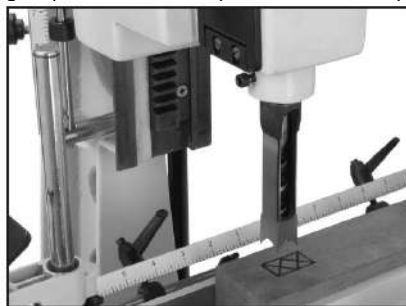


Fig 22

3. Turn the mortising machine **ON** and use the operating handle to steadily feed the mortising chisel into the workpiece.

7.3 Work Stop

The work stop allows you to cut a mortise in the same place on multiple identical parts.

To use the extendable workstop:

1. Attach the work stop to the base as shown on Fig 23.
2. The stop collars can be moved along the stop rods and also rotated so that the adjustable locking Handles (#74) do not interfere with the sliding table.



Fig 23

7.4 180° Head rotation

Remove the four hex socket cap screws at the base and rotate head and column 180°.
Doing this will enable you to outboard mortise taller items.

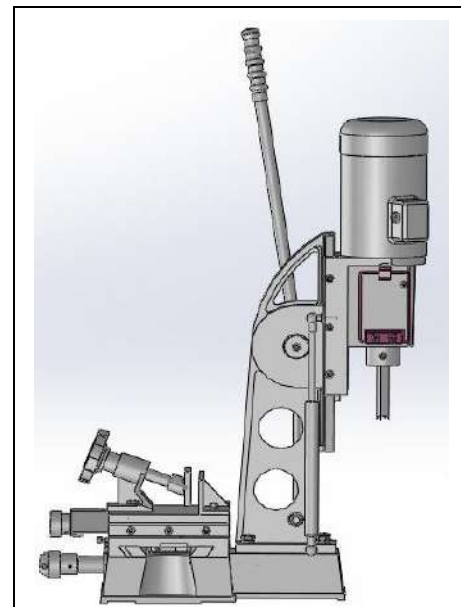


Fig 24

7.5 Sharpening chisel and bit

The chisel and bit should be kept sharp for best performance.

Sharpen the bit by using a small file, following the original shape of the bit.

File the inside edge of the spur (A, Fig 25), the sides of the centre point (B, Fig 25) and the cutting edge inwards toward the flute of the bit (C, Fig 25)

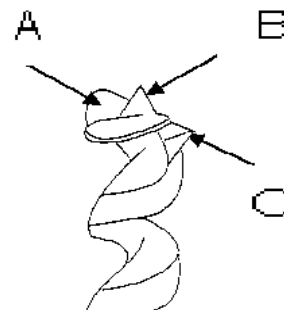


Fig 25

Do not file the outside edges of the spur as this will affect the diameter of the bit.

Sharpen the chisel on the cutting edge inside only.

8. Maintenance and inspection

General notes:
Maintenance, cleaning and repair work may only be carried out after the machine is protected against accidental starting by pulling the mains plug.

The mortise requires only minor maintenance, such as lubrication, routine adjustments and sharpening of chisel and bit.

Clean the machine regularly.

Defective safety devices must be replaced immediately.

Repair and maintenance work on the electrical system may only be carried out by a qualified electrician.

9. Trouble shooting

Motor doesn't start

*No electricity-
check mains and fuse.

*Defective switch, motor or cord-
consult an electrician.

Chisel clogged with chips

*Clearance chisel to bit not enough-
set bit 1,5 to 4mm below chisel.

*chips cannot clear the chisel-
observe chisel slot and working order.

Burned Wood

*Feed too slow-
increase feedrate.

*Worn chisel or bit-
sharpen chisel and bit.

10. Environmental protection

Protect the environment.

Your appliance contains valuable materials which can be recovered or recycled. Please leave it at a specialized institution.



This symbol indicates separate collection for electrical and electronic equipment required under the WEEE Directive (Directive 2012/19/EC) and is effective only within the European Union.

11. Available accessories

Refer to the information from supplier.

Parts List CMS3816R Mortiser

Index No.	Part No.	Description	Size	Qty.
1	JBM4-001	Operating Lever		1
2	JBM4-002KR	Motor		1
	JBM4-002MF	Motor Fan (not shown)		1
	JBM4-002SCE	Starting Capacitor(not shown)		1
	JBM4-002MC	Motor Cover (not shown)		1
	JBM4-002BL	Motor Label (not shown)		1
3	JBM4-003	Switch Box		1
4	JBM4-004	Handle Screw		1
5	JBM4-005	Operating Shaft		1
6	JBM4-006	Hex. Nut	M10	1
7	JBM4-007	Screw		1
8				
9	JBM4-009	Set Screw		1
10	JBM4-010	Guide Column		1
11	JBM4-011	Socket Head Cap Screw	M6x12	2
12	JBM4-012	Localizer		1
13	JBM4-013	Cap Screw	M5x8	6
14	JBM4-014	Cover		2
15	JBM4-015	Headstock Casing		1
16	JBM4-016	C-Ring		1
17	JBM4-017	Washer	6	3
18	JBM4-018	Pin		1
19	JBM4-019	Socket Head Cap Screw	M6x25	1
20	JBM4-020	Chisel Bushing		1
21*	JBM4-021	Chisel (Optional Accessory)		NA
22	JBM4-022	Screw		1
23	JBM4-023	Hex Nut	M10	1
24	JBM4-024	Drift		1
25	JBM4-025	Base		1
26	JBM4-026	Socket Head Cap Screw	M6x16	2
27	JBM4-027	Tool Holder		1
28	JBM4-028	Gear	10	1
29	JBM4-029	Socket Head Cap Screw	M6x16	2
30	JBM4-030	Flat Washer	6	2
31	JBM4-031	Set Screw	M6x8	1
32	JBM4-032	Socket Head Cap Screw	M8x16	2
33	JBM4-033	Table Clamp Handwheel		1
34	JBM4-034	Set Screw	M6x10	1
35	JBM4-035	Lead Screw		2
36	JBM4-036	Flat Washer	8	1
37	JBM4-037	Connecting Bend		1
38	JBM4-038	Table Control Knob		1
39	JBM4-039	Lead Screw		1
40	JBM4-040	Pin	4x30	1
41	JBM4-041	Lead Nut		1
42	JBM4-042	Table		1
43	JBM4-043	Clamp Plate		1
44	JBM4-044	Socket Head Cap Screw	M6x16	4
45	JBM4-045	Fence		1
46	JBM4-046	Spring Washer	10	4
47	JBM4-047	Set Screw	M6x30	3
48	JBM4-048	Hex Nut	M6	3
49	JBM4-049	Handle Screw		1
50	JBM4-050	Flat Screw	M6x12	4
51	JBM4-051	Rack		1
52	JBM4-052	Sliding Plate		1
53	JBM4-053	Hex Nut	M6	2

Parts List for CMS3816R Mortiser

Index No.	Part No.	Description	Size	Qty.
54	JBM4-054	Set Screw	M6x30	2
55	JBM4-055	Drift		1
56	JBM4-056	Set Screw	M6x6	2
57	JBM4-057	Gas Spring		1
58		LOGO Plate		1
59	JBM4-059	Flat Washer		4
60	JBM4-060	Gear		1
61	JBM4-061	Hex Bolt	M10x30	4
62	JBM4-062	Flat Screw	M6x16	1
63	JBM4-063	Flat Washer		1
64	JBM4-064	Handle Screw		1
65	JBM4-065	Hex Nut	M6	2
66	JBM4-066	Chuck	1-13mm	1
67	JBM4-067	Switch	DZ-6-2	1
68	JBM4-068	Column		1
69	JBM4-069	Rack		1
70	JBM4-070	Flat Screw	M6x16	6
71	JBM4-071	Flat Screw	M6x14	1
72	JBM4-072	Power Cord		1
73	JBM4-073	Flat Screw	6	1
74	JBM4-074	Handle Screw		2
75	JBM4-075	Setting Collar		2
76	JBM4-076	Distance Stop Rod		2
77	JBM4-077	Grip Sleeve		1
78	JBM4-078	Drift		1
79	JBM4-079	Hex Bolt	M8x50	1
80	JBM4-080	Hex Nut	M8	1
81	JBM4-081	Plate		1
82	JBM4-082	C -Ring		2
83	JBM4-083	Gear Shaft		1
84	JBM4-084	Handle Shaft		1
85	JBM4-085	Hand Wheel		1
86	JBM4-086	Socket Head Cap Screw	M6x25	1
87	JBM4-087	Warning Label		1
88	JBM4-088	ID Label		1
89	JBM4-089	Motor Label		1
90	JBM4-090	Setting Collar		2
91	JBM4-091	Handle Screw		2

Wiring Diagram for CMS3816R Mortiser

~ 120 or 230V, 50/60Hz

