GB - ENGLISH

Operating Instructions

Dear Customer,

Many thanks for the confidence you have shown in us with the purchase of your new machine. This manual has been prepared for the owner and operators of a **FX-383V milling drilling centre** 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

The Seller guarantees that the supplied product is 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, accidental damage, repair, inadequate maintenance or cleaning and normal wear and tear.

Guarantee and/or warranty claims must be made within twelve months from the date of purchase (date of invoice). Any further claims shall be excluded.

This warranty includes all guarantee obligations of the Seller and replaces all previous declarations and agreements concerning warranties.

The warranty period is valid for eight hours of daily use. If this is exceeded, the warranty period shall be reduced in proportion to the excess use, but to no less than three months.

Returning rejected goods requires the prior express consent of the Seller and is at the Buyer's risk and expense.

and Conditions (GTC). The GTC can be viewed at www.jettools.com or can be sent by post upon request.

The Seller reserves the right to make changes to the product and accessories at any time.

3. Safety

3.1 Authorized use

This milling drilling centre is designed for milling and drilling machinable metal and plastic materials only. Machining of other materials is not permitted and may be carried out in specific cases only after consulting with the manufacturer.

Never cut magnesium-
high danger to fire!

The workpiece must allow to safely be loaded and clamped for machining.

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 metalworking 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

Metalworking 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.

Remove all loose clothing and confine long hair.

Before operating the machine, remove tie, rings, watches, other jewellery, and roll up sleeves above the elbows.

Wear safety shoes; never wear leisure shoes or sandals.

Always wear the approved working outfit.

Do **not** wear gloves.

Wear goggles when working

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

Keep work area well lighted.

The machine is designed to operate in closed rooms and must be bolted to the cabinet stand or a solid work bench.

Make sure the machine cannot tip.

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.

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

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

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 dump environment and do not expose it to rain.

Work only with well sharpened tools.

Always close the chuck guard and pulley cover before you start the machine.

Remove the chuck key and wrenches before machine operation.

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

Do not remove chips and work piece 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.

Never place your fingers in a position where they could contact any rotating tool, chuck or cutting chips.

Secure work piece against rotation. Use fixtures, clamps or a vice to hold the work piece.
Never hold the work piece with your hands alone.

When using a vice, always fasten it to the table.

Never do any works “freehand” (hand-holding the work piece rather than supporting it).

Never move the head while the machine is running.

If a work piece overhangs the table such that it will fall or tip if not held, clamp it to the table or provide auxiliary support.

Check the save clamping of the work piece before starting the machine.

Remove cutting chips with the aid of an appropriate chip hook when the machine is at a standstill only.

Never stop the rotating chuck or tool with your hands.

Measurements and adjustments may be carried out when the machine is at a standstill only.

Setup work may only be carried out after the machine is protected against accidental starting by pressing the emergency stop button.

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

Do not use wire wheels or grinding wheels on this machine.

To avoid injury from parts thrown by the spring, follow instructions exactly as given when adjusting the spring tension of the quill (see chapter 7, Fig 11)

3.3 Remaining hazards

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

The rotating chuck, tool and cutting chips can cause injury.

Thrown and hot work pieces and cutting chips can lead to injury.

Chips, dust and noise can be health hazards. Be sure to wear personal protection gear such as safety goggles, dust mask and ear protection.

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

Drilling capacity	32 mm
Face milling capacity	75 mm
Motor	1,5kW
Mains supply	3~400V, PE, 50Hz
Spindle speed variable	150 – 2500 RPM
Spindle travel	150 mm
Spindle taper	MT 3
Spindle diameter	75 mm
Table size	730 x 210 mm
X-Axis travel	370 mm
Y-Axis travel	170 mm
T-Slots 3	16mm
Machine dimensions (L x W x H)	1100 x 910 x 2100 mm
Machine weight	280 kg

4.2 Noise emission

Acoustic pressure level (EN ISO 11202):
Idling at maximum speed 73,8 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

1 Milling drilling Machine
1 Machine stand
1 Coolant system
1 Operating tools
1 Operating manual

4.4 Machine Description

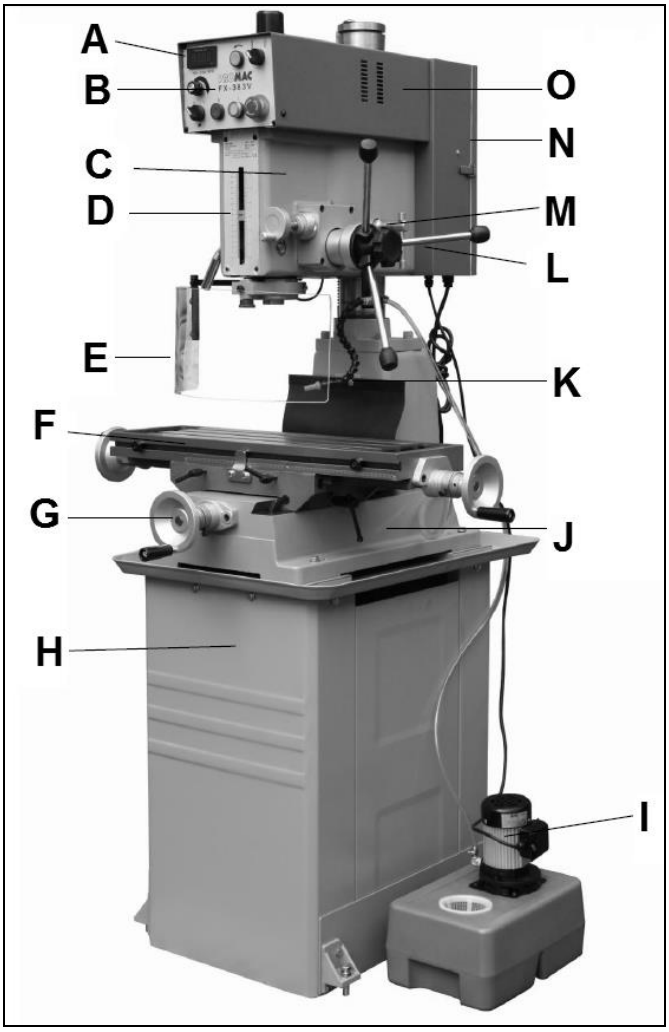


Fig 1

A….Digital tachometer

B….Control panel

C….Machine head

D….Depth scale

E….Safety Guard

F….Work table

G….Hand wheel

H….Stand

I…..Pump with coolant tank

J….Machine base

K….Coolant nozzle

L….Quill feed levers

M….Head lock handle

N….Electric box

O….Pulley cover

Fig 2

A. ON Switch – Starts the motor.

B. OFF Switch – Stops the motor. As the power still exists, pressing ON will restarts the machine.

C. Emergency Stop Switch – Stops the machine immediately. As the machine is without any power. Turn the switch clockwise to unlock the switch before starting the machine.
NOTE: To restart the machine, 5 to 7 seconds of waiting is needed for the inverter to release the current.

D. Reverse Switch – Reverses the spindle rotation. Used for executing a tapping operation.

E. Tachometer–Displays the rate of spindle rotation in RPM.

F. Spindle Speed Control knob – Changes the speed of spindle rotation.

G. Pump Switch – Starts the coolant flow for cutting.

H. Drilling/Tapping Selector – Selects the mode of operation.

Fig 3

The **coolant tank** (Fig 3) holds coolant, which pumped to the work piece for cooling and lubricating while cutting. Before the operation of a new machine, add coolant to the coolant tank. When iron filings clog the screen, cleaning will be required. Before cleaning, take off the screen and drain out the coolant.

Fig 4

The **machine head** (Fig 4) can be rotated 360° around the column. It allows more flexibility in work piece sizes.

Turn off the machine.

Unlock the head handles (I–Fig. 2).

Use the riser handle to raise or lower the head. Firmly grip the head and push left or right to rotate the head.

Lock the head handles (I).

Always keep the machine head locked after the height of head is set as requirement.

Warning!
Failure to lock the head handles may result in damage of the machine and personal injury.

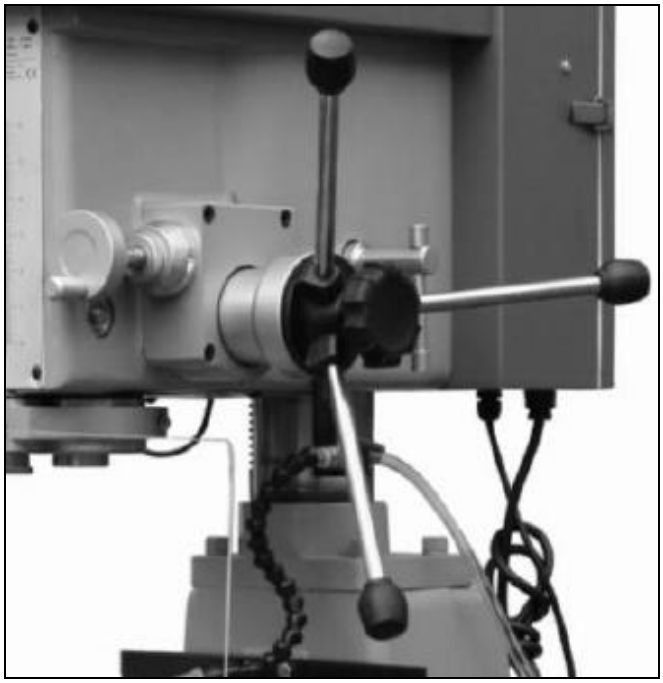


Fig 5

Lowering the spindle
Lowering the spindle lowers the drilling or cutting tool. There are two methods for lowering the cutting tool.
a) One method is to use the down-feed lever arms.
The lever handles are for gross and quick movements.

b) The second method uses the micro-feed hand wheel which handles fine and slow movements.

Using the lever arms
Grab the lever handle knob and pull down. Remember not to release the levers unless the quill is locked or the spindle has reached the top position. Use the lever handles to control the ascent when raising the spindle.

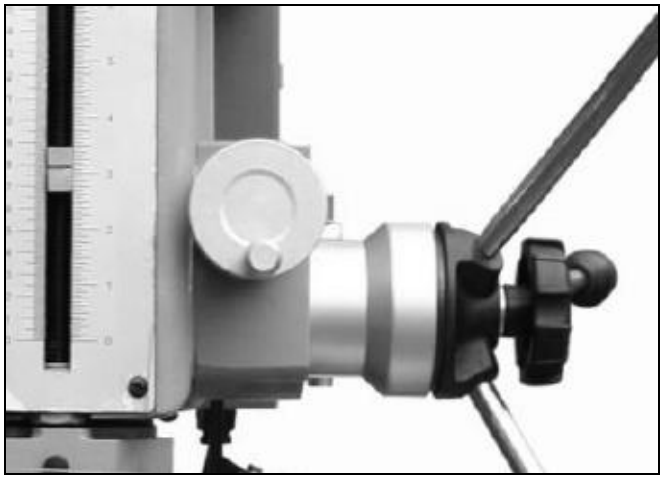


Fig 6

The **Micro-feed hand wheel** (Fig 6) is used to make fine adjustments while down feeding the spindle.

Simply grab the handle on the hand wheel and turn.

Turn the hand wheel clockwise for down and counter clockwise for up. Use the micro-feed hand wheel to make precise movement.

Depth measurements can be monitored precisely by observing the micro-adjusting indicator behind the hand wheel.
1 revolution = 2.5mm or 1inch.

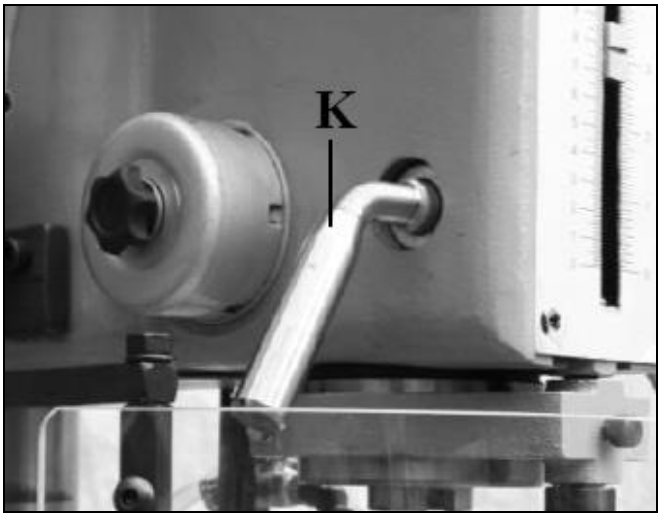


Fig 7

Locking the quill
The machine head is equipped with a quill lock to lock the depth of the spindle. It is useful for setting the tool depth for milling and drilling.

Simply rotate the quill lock handle (K)until tight. Rotate counter clockwise to release the quill.

Leave the quill lock released when not need for an operation.

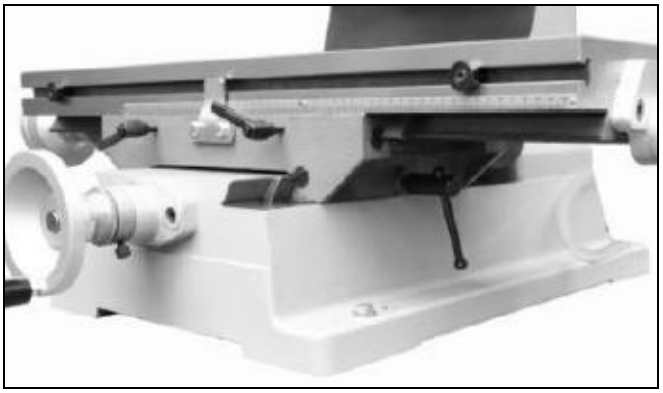


Fig 8

The Machine base
The machine base consists of a cross table and base assembly. The machine base is used to hold the work piece. The table is able to move forward and backwards, left and right for adjusting and milling the work piece.

5. Transport and start up

5.1 Transport and installation

The machine will be delivered in a closed crate.

For transport use a forklift or hand trolley. Make sure the machine does not tip or fall off during transport.

The machine is designed to operate in closed rooms and must be bolted to the cabinet stand or a solid work bench.

Make sure the machine cannot tip!

For packing reasons the machine is not completely assembled.

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 petroleum, diesel oil or a mild solvent.

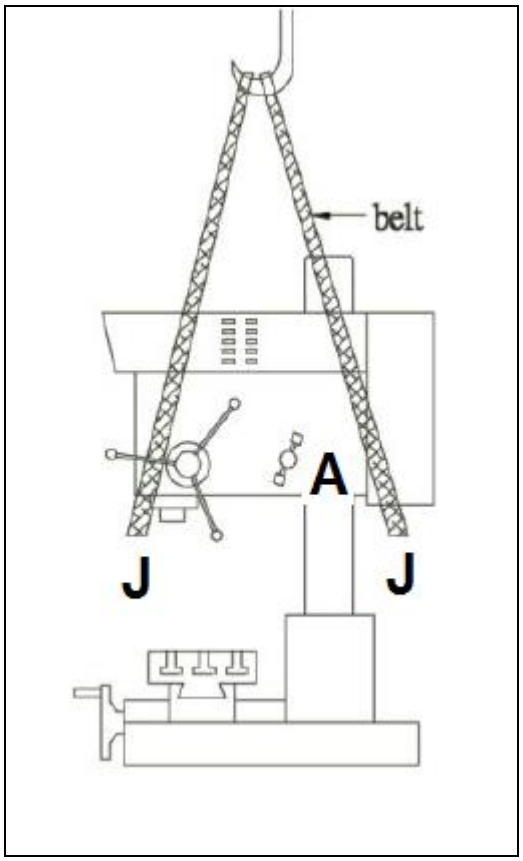


Fig 9

Caution:
The machine is heavy (280 kg)!
Assure the sufficient load capacity and proper condition of your lifting devices.
Never step underneath suspended loads.

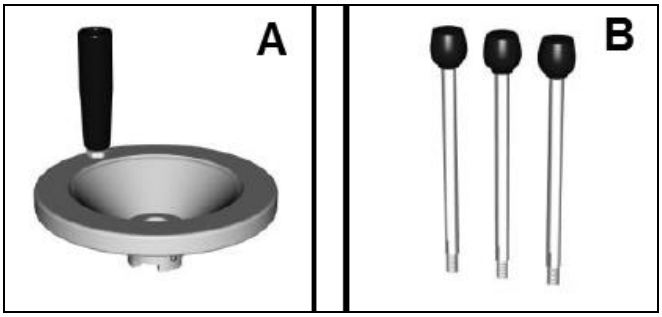
Remove the fixing bolts of the machine.

Positioning the Machine
Check to see if the head is secured to the column with Head locking handle (A).

WARNING:
Failure to lock the machine head may result in machine damage or personal injury.

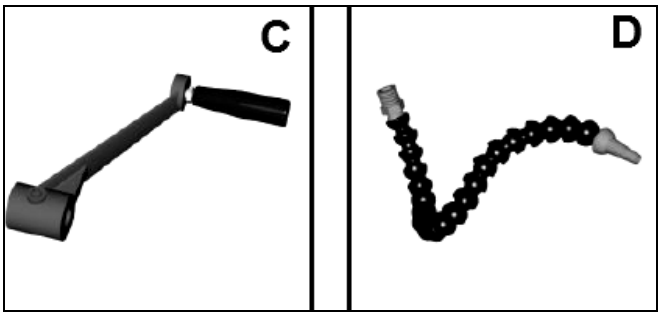
Position a belt (with a load capacity of approximate 280kgs) at two points (J) to lift the machine.

The head of the machine can be rotated 360o, so choose a location with enough space and solid foundation.



Assembling Loose Parts
Add the hand wheels(A) to the cross table. Secure in place by tighten the set screw with an allen #3 wrench.

Add the quill feed levers (B) to the quill feed shaft head and tighten down with a wrench.



Add Riser handle (C) to the shaft. Secure it in place by tighten the set screw with an allen #5 wrench

Coolant nozzle (D, come with an optional coolant system)
Optional coolant system comes with the machine, the nozzle would be installed ready on machine.

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.

Only use power cords marked H07RN-F.

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

If the machine cannot be operated after the wires have been connected, please check the following items:
If the Emergency switch is released.
If the door of the electrical cabinet is properly closed and switched ON (locked).
If the safety guard is in the proper position (closed).

5.4 Initial lubrication

The machine must be serviced at all lubrication points before it is placed into service!
Failure to comply may cause serious damage.

5.5 Starting operation

Changing the spindle speed
The speed can be changed while machine is running. Then the spindle speed can be adjusted to the proper cutting RPM by using the spindle speed control knob (F). The spindle speed ranges from 150 rpm to 2500 rpm.

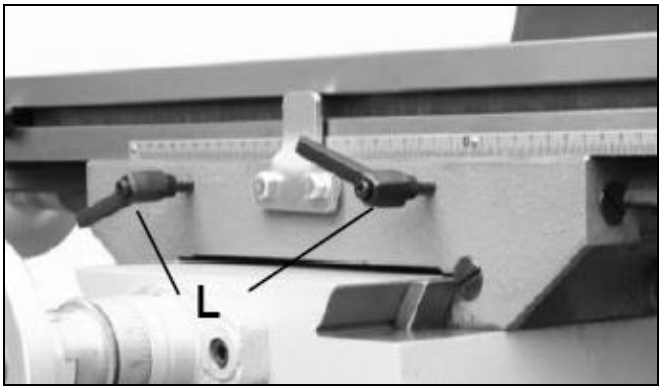
Operation Cycle
Check if the 3 items mentioned in 5.3 were done properly.

Check that the head is secure.
Warning!
Failure to secure the head can result in damage of the machine and personal injury.

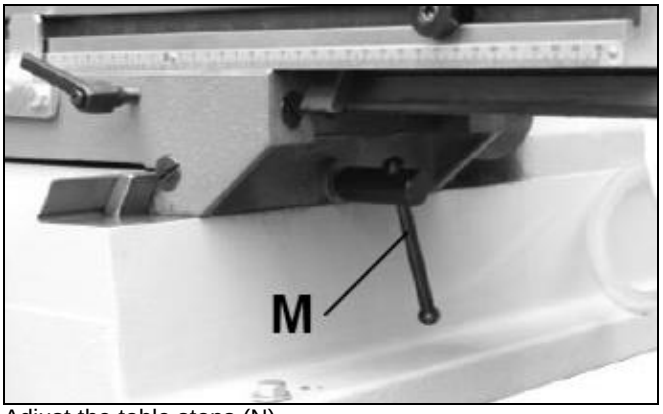
Secure the work piece to the table by using a vise or table blocks.

Use the table hand wheels to position the work piece. Y-axis for forward and backwards, X-axis for left and right.

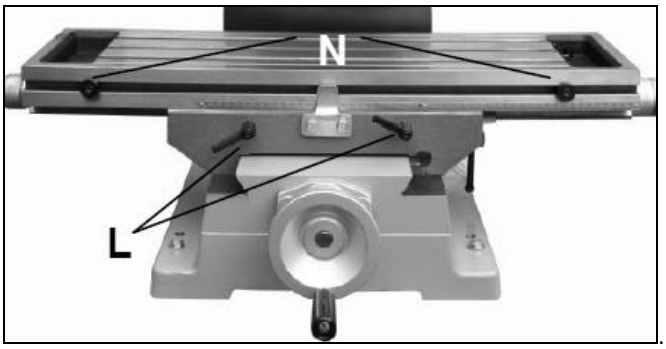
Lock the table using two lock levers (L) for Y-axis, the lock handle (M) for X-axis. Turn clockwise to lock and counter-clockwise to unlock.



Suggested uses are as follows.
- Lock both tables when drilling.
- Lock the table of the non-milling axis when milling.



Adjust the table stops (N).



Use the spindle down feed levers to bring the tip of the drill to the surface of the work piece and hold.

Set the depth stop (D, Fig 1) to the required depth.

Lift the drill or tapping bit off the work piece a bit.

Select the proper transmission mode and spindle speed (H).

Press start button switch (A) to begin spindle rotation (F).

Turn ON coolant pump lever switch (G), if necessary.

Warning!
For safety concern, please press the emergency switch to shut down the machine completely after use. Pressing the stop button alone does not release the remaining power in the machine.

6. Machine operation

Warning:
Setup work may only be carried out after the machine is protected against accidental starting.
With pressed emergency stop button.

Never place your fingers in a position where they could contact any rotating tool, chuck or cutting chips.

Remove cutting chips with the aid of an appropriate chip hook when the machine is at a standstill only.

Never stop the rotating chuck or tool with your hands.

Always close the chuck guard before you start the machine.

Secure work piece to the table with clamps or a vice to prevent rotating with the drill bit.

When using a vice, always fasten it to the table.

Check the save clamping of the work piece, chuck and tools before starting the machine.

Never do any works “freehand” (hand-holding the work piece rather than supporting it on the table).

Support long work pieces with helping roller stands.

Always adjust the depth stop to prevent drilling into the table or into the workholding device.

Feed a drill bit into the material with only enough force to allow the drill bit to work. Feeding too slowly may cause burning of the work piece or tool. Feeding too quickly may cause the motor to stop and/or the drill bit to break.

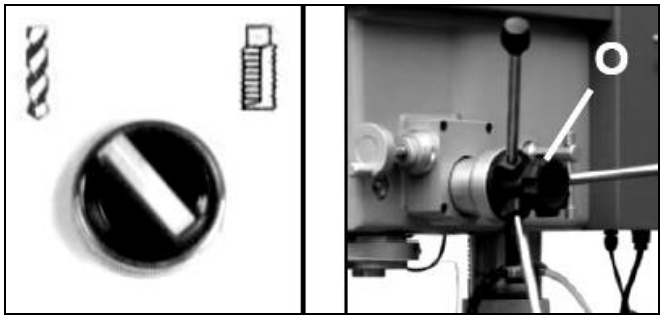
Do not use wire wheels or grinding wheels on this machine.

Never cut magnesium-
high danger to fire!

Measurements and adjustments may be carried out when the machine is at a standstill only.

In case of danger push the emergency stop button.

6.1 In Milling Mode



Use the depth handle to lower the milling tool to the work piece and lock into position by rotating its depth lock knob (O). The depth stop is now fixed at zero.

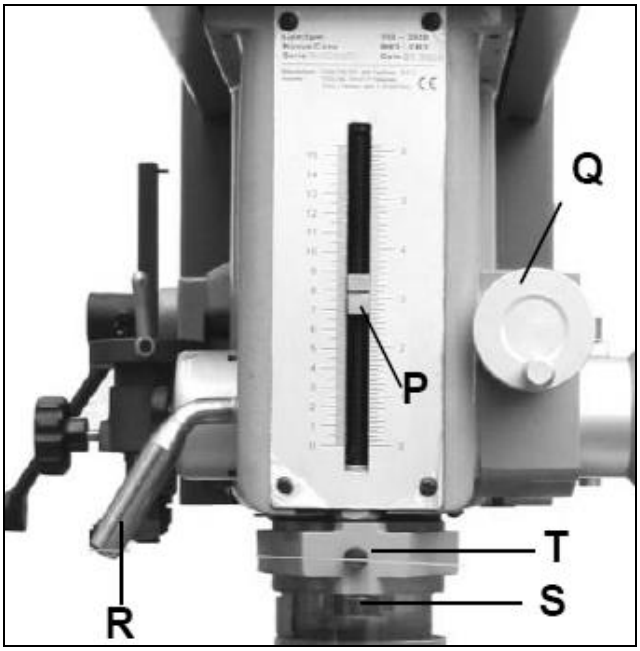


Fig 10

Set the milling depth stop (P) by turning the knob (S) to the desired depth.

Unlock the table, use the table lock levers (L) and lock handle (M).

Use the table hand wheels to begin milling.

Lower the quill, use the micro-feed hand wheel (Q) and lock it by using the quill lock handle (R). Any further depth adjustment requires the unlocking of the quill before using the micro-feed hand wheel (Q). To unlock, rotate the lock handle counter-clockwise and push in.

6.2 In Drilling Mode

Use the depth handle to bring the tip of the drill bit to the surface of the work piece and lock the quill with quill lock handle (R).

Set the drilling depth stop (P) by turning knob (S) to required depth.

Unlock the quill lock handle (R) by turning counter-clockwise and pushing it in.

Begin drilling by using the quill feed levers.

6.3 In Tapping Mode

In general, use low speeds for tapping. Tapping at high RPM will tap more quickly, but there is a danger of damage to the work piece and tool.
Tapping requires an accurate setting for the depth stop to allow the machine to switch tapping direction and the removal of the tapping bit.

Use the depth handle to bring the tip of the tapping bit to the surface of the work piece and lock the quill lock handle (R).

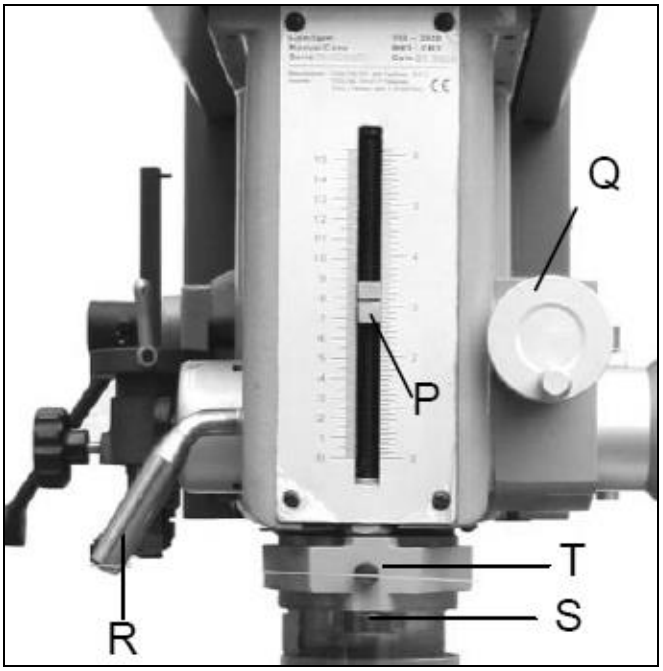
Set the depth stop (M-tig.6) by turning the knob (S) for tapping the required depth.

Unlock the quill lock handle (R) by turning counter-clockwise and pushing in.

Begin tapping by using the quill feed levers.

NOTE:
While tapping, pause the spindle down feed at the bottom of the operation to allow the breaking and reversal of rotation of the spindle

6.4 Setting the Depth stop



Set the depth to zero by lowering and holding the cutting tools to the surface of the work piece.

Unlock the depth scale by turning the lock knob (T)

Set the depth stop by rotating the depth stop knob (S) to the desired depth.

Lock the depth scale by turning the lock knob (T)

Removing the tools from spindle bore
They are two types of chuck arbors and their removal is slightly different.

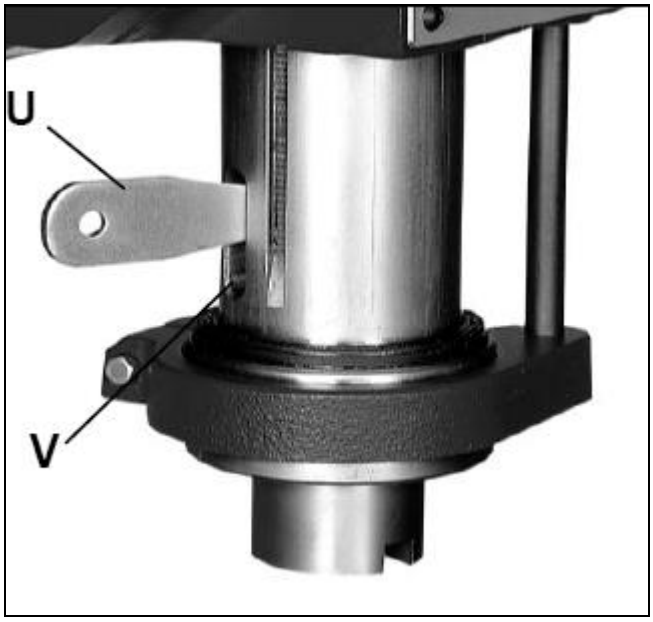
Non-Treaded Type
Disconnect machine from power supply.

Place a thin wood plant on the worktable to protect the surface of the worktable.

Raise the worktable to about 250mm under the bit.

Lower the spindle about 100mm and lock by using the quill lock (R, Fig 10) or the lock knob of the down feed levers.

Place the drift key (U) into the aperture (V) of the quill and tap the end of the drift key (U) with a hammer to tap until the bit or chuck arbor falls down.



Treaded Type
Disconnect the machine from the power supply.

Place a wooden board on the cross table to protect its surface.

Take off the cap at the top of the spindle.

Raise the arbor bolt just above the top of the spindle shaft. Use a hex wrench and rotate the arbor bolt.

Tap the top of the arbor bolt than taper has been loose, holding chuck arbor and turn detach the arbor bolt.

7. Setup and adjustments

Warning:
Setup and adjustment work may only be carried out after the machine is protected against accidental starting. Push the emergency stop button and disconnect from the power source!

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.

Daily maintenance:

Daily apply oil:
DIN 51502 ISO VG68
(e.g. BP Maccurat 68, Castrol Magna BD 68, Mobil Vectra 2)

- Apply oil on entire length of saddle slideways

- Oil the lubrication fittings

- Spindle quill
apply oil on entire length.

Weekly maintenance:

Weekly apply oil:
DIN 51502 CG ISO VG68
(e.g. BP Maccurat 68, Castrol Magna BD 68, Mobil Vectra 2)

- Oil feed spindles on entired length

- Oil leed screws on entired length

- Oil rack on entired length

- Oil all bright surfaces to avoid corrosion

- Check all covers und the emergency-button

Decommissioning
If the machine is not going to be used for a long time, then we advise the following:

- Disconnect the mains socket.

- Empty the coolant tank (if available)

- Clean the machine thoroughly and protect appropriately (grease).

- If necessary, cover the machine with a tarpaulin.

Return spring
The return spring raises the spindle. This can be periodically tightened when the spindle fails to return properly.

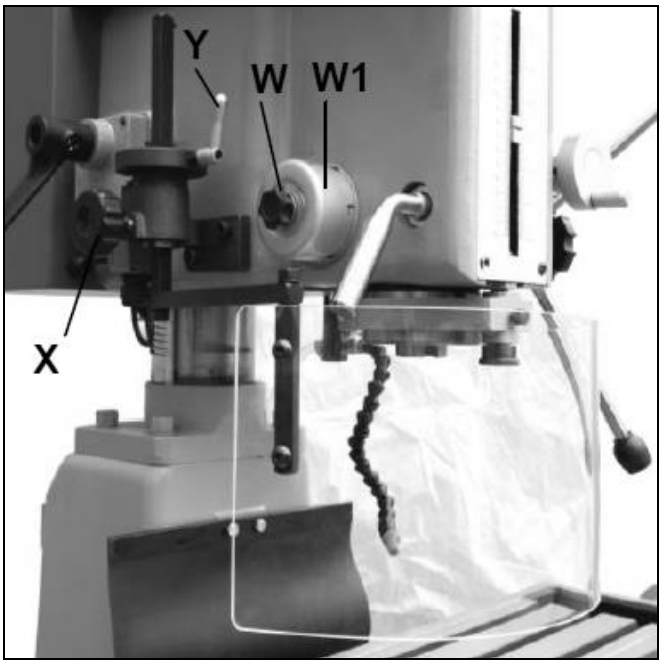


Fig 11

Loosen the grip knob (W)

Turn the spring case (W1) to tighten the spring.

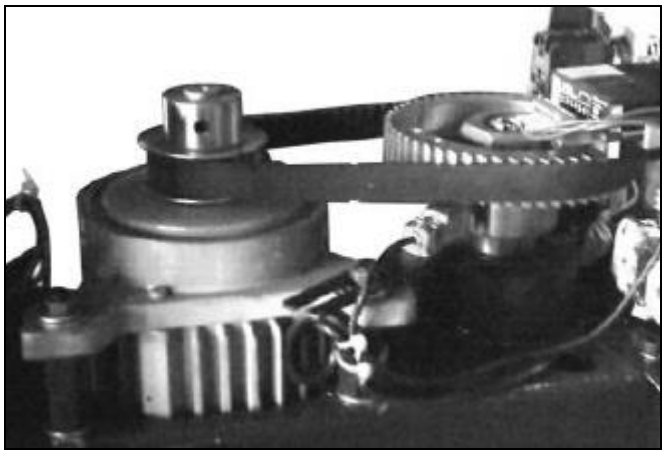
Tighten the grip knob (W) to lock in place.

Safety guard
This clear plastic shield should be used whenever conducting a drilling or tapping operation.

Clean the safety guard periodically to provide a clear view of the work piece.
Adjustments can be done as follows:
Lock the vertical height by adjusting knob (X, Fig 11).

Use lever (Y) to lock the horizontal rotation and position of the safety chuck guard.

Belt replacement
This machine is designed with a timing pulley and belt to provide greater braking response and torsion strength. Timing belt should be replaced when the belt is worn or broken.



Open the machine head cover.

Loosen screws to free the motor.

Slide the motor toward the pulley.

Lift out or remove the timing belt.

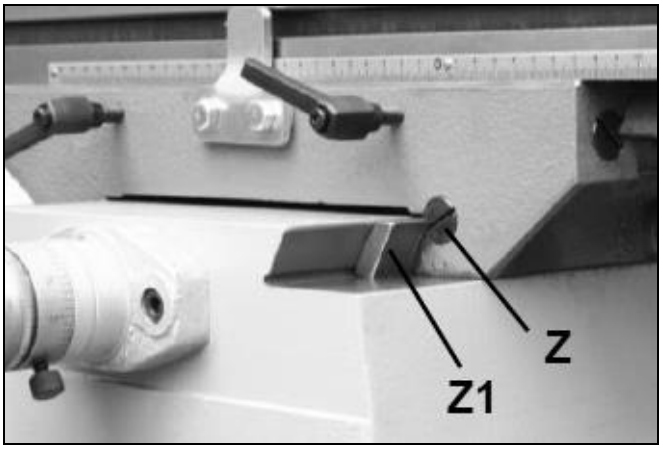
Replace the belt.

Slide the motor away from the pulley to tighten the belt. Check that the belt teeth sit well in the grooves of the timing pulley. Tension should be loose enough to allow 5-10mm movement when pushing the belt from the side.

Tighten screws to secure the motor in place.

Replace the cover.

Adjusting the table slack
The machine is equipped with gib strip (Z1) adjustment to compensate for wear and excess slack on cross-table.



Adjust the gib strip by turning the gib strip screw (Z) with a large screwdriver for excess slack. If the gib strip P is to tight, loosen the gib strip screw by turning it counter-clockwise.

-The table should feel a slight drag when moving the table.

8. Troubleshooting the inverter

Prior to operating all electronic parts, the following aspects should be taken into consideration first

Note: Only eligible and qualified personnel can make electronic adjustments.

1. Disconnect machine from power supply.
2. Electronic parts are extremely sensitive, do not use hands or metal tools to remove or install such parts.
3. As remaining voltage still exists in the capacitor even after the electric current has been cut off, wait until the light disappears from the lighted display completely before proceeding with any work to prevent any accidents or hazards from occurring.
4. Pay close attention to the electronic circuit board so that they are free from any defects.
5. Never connect the alternating current directly to the output connector (U/V/W) of the speed adjuster. The electronic self-diagnosis program can notify you of situations like motor overloading and too low or too high voltage, etc. When the program detects an error, the machine will stop immediately and such error will be displayed on the inverter's digital display. Follow the solutions to correct any errors. Close the electrical cabinet and connect machine to power supply.

Code	Error description	Solution
O.C	* The voltage inverter detects the output current exceeds the normal value.	* Check if voltage of the motor matches with that of the voltage inverter. * Check connection between the voltage inverter & the motor. * Check if the motor is overloaded.
O.U	* The voltage inverter of the motor is detected with a D.C. high voltage lateral pressure value that exceeds the acceptable range.	* Check if the circuit input voltage matches with that of the voltage inverter. * Frequent on/off and switches between clockwise and reverse directions result in self-protection from high D.C. high voltage lateral pressures.
O.H	* The touch pole of the voltage inverter of the motor indicates overheat.	* Check if the circuit input voltage matches with that of the voltage inverter. * Ensure the cooling device be free of any foreign objects or dirt.
O.L	* The frequency converter detects the output exceeds 150% of normal standards for 1 minute.	* Check if the motor is overloaded. Ex: 1. Cutters and tools are blunt? 2. Spindle diameter, gear, speed and volume of feeds proper?
o.c.A **o.c.d** **d.c.n**	* Electric current is too large during acceleration. * Electric current is too large during deceleration. * Electric current is too large during operation.	* Check if the output connection of the motor adjuster is insulated improperly.
C.F.F	* Grounding or safety wire mistakes	* Check if grounding is proper. * Replace safety fuses. * When the diode shows the same mistake numbers continuously on the monitor, ask for more information from the after-sales service center.

C.F 1-3	Abnormal detection inside the frequency converter	* Place the machine outside the circuit. * Restart the machine. * When the diode shows the same mistake numbers continuously on the monitor, ask for more information from the after-sales service center.

9. Environmental protection

Protect the environment.

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

10. Available accessories

Refer to the pricelist.