



SMG F1000E

Electric Flange Facing Machine

Operating & Maintenance Manual



Electric (Servo Motor) Driven Variants

For your safety, read this manual carefully and keep it for future reference.

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1. Introduction

Thank you for choosing this Capital Machinery Sales portable flange facing machine. This manual describes the machine's function, performance, operation and precautions, and should be read in full before the machine is used.

Capital Machinery Sales Pty Ltd continually improves its products, and specifications may be updated without prior notice. Images, text and data in this manual are provided for reference; always refer to the actual machine for exact specifications.

Disclaimer of Liability

- Capital Machinery Sales Pty Ltd is not responsible for loss caused by operating the machine outside its designed performance envelope.
- This manual must be read before operating the machine. Capital Machinery Sales Pty Ltd is not liable for loss arising from unreasonable or incorrect operation.
- Do not operate the machine continuously for more than 12 hours under full load. Standard duty is 8 hours per day, reduced to 4 hours per day where ambient temperature exceeds 30°C.
- Use only accessories supplied by Capital Machinery Sales. Loss caused by unauthorised modification or the use of non-approved accessories is not covered.

2. Safety Information

2.1 How to Read the Safety Notices in This Manual

This manual uses the following notice types to draw attention to safety and operating information:



WARNING

Indicates a hazard that could result in serious injury if not avoided.

CAUTION

Indicates a hazard that could result in minor injury or damage to the machine if not avoided.

NOTE

Indicates additional information that helps ensure correct operation.

2.2 Health and Safety

- Read and understand this manual fully before operating the machine.
- Keep this manual with the machine for ready reference.
- Do not use the machine without an air filter/lubricator fitted — operating a pneumatic-driven unit without one will damage the air motor.

- Do not attempt to alter the feed settings while the machine is rotating.
- Do not operate the machine until you fully understand the operating procedure.
- Do not wear loose-fitting clothing or jewellery; tie back long hair and do not wear a hat, to avoid injury to the operator or others nearby.

2.3 Safety Precautions

- Read this manual and check the machine against the packing list before use, and be aware of the safety precautions, machine performance and correct operating method.
- The operator must complete safe-operation training before use.
- The operator must wear appropriate protective clothing and safety glasses.
- Before starting the machine, confirm the supply voltage or air pressure matches the machine's requirements.
- Check that the clamping system is locked before starting the machine.
- Only adjust the workpiece at low speed or in the free (unpowered) position — never adjust the workpiece at high speed.
- Keep hands and objects clear of the equipment when starting it, to prevent injury.
- Keep electrical cabling away from heat, oil and sharp edges.
- If a malfunction or abnormal noise occurs, isolate the power supply immediately and inspect and repair the fault before continuing.
- Do not leave the machine running unattended. Operators may only leave once the machine has stopped, the power supply is isolated and the transmission is in the free (neutral) position.
- Do not use the machine beyond its rated working scope. Capital Machinery Sales is not responsible for consequences arising from such use.
- Do not run the machine beyond its rated cutting capacity, to avoid damage or injury.
- Remove oil residue and swarf after use, and apply anti-corrosive oil to the cutting arm and main shaft.
- Replace worn tooling promptly to maintain machining quality.
- Isolate all power and remove the plug before clearing a blockage, changing tooling, or taking measurements.
- If the machine stalls, do not force it to continue running. Allow the motor to cool naturally, then re-check the feed setting before restarting.
- After the machine stops, switch off the power and return the transmission to the free (neutral) position.
- Do not use the machine in strongly corrosive conditions, in wind and rain, or in flammable or explosive environments.

3. Product Overview and Specifications

3.1 Main Features

- Internally mounted with a small working radius, suitable for confined work areas.
- Compact, lightweight construction that is easy to transport.

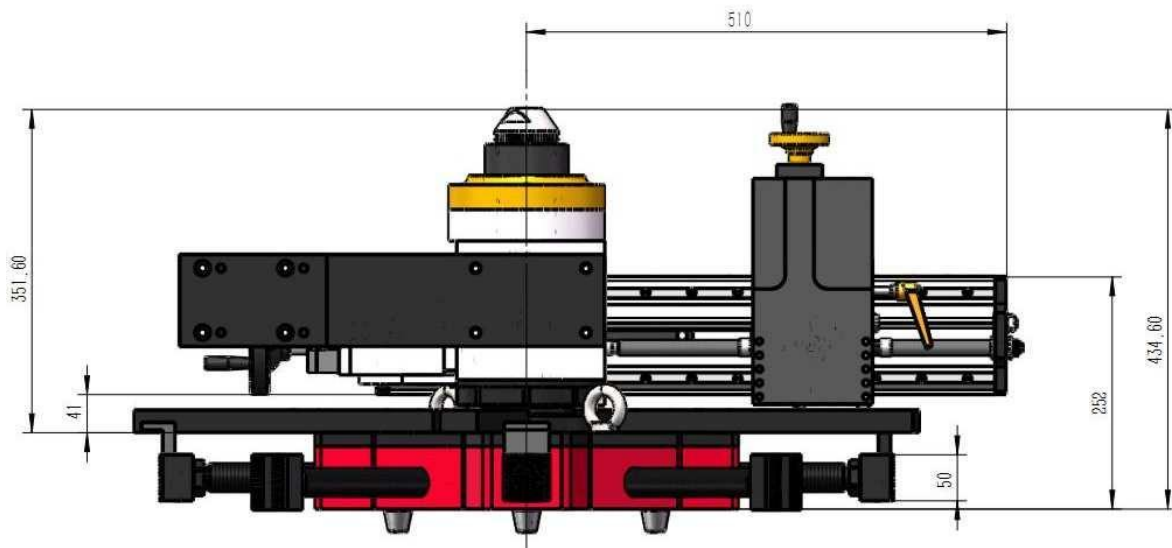
- Modular design for easy assembly and disassembly.
- Fitted with a preload braking system for intermittent cutting and high productivity.
- Can be used horizontally, vertically, inverted, tilted or in any orientation.
- Machines flat faces, water lines, continuous grooves and various sealing profiles, including RF and RTJ.
- Available with pneumatic drive or electric (servo motor) drive.
- Suitable for cast iron, alloy structural steel, stainless steel and other metals, for flange sealing surface repair and general flange facing operations.

3.2 Technical Data

Parameter	Value
Minimum facing diameter	Ø160 mm
Maximum facing diameter	Ø1000 mm
Minimum clamping diameter	Ø158 mm
Maximum clamping diameter	Ø820 mm
Rotating speed	0–33 RPM
Tool post travel	102 mm
Tool holder rotation angle	±30°
Machine drive	Pneumatic or Electric (Servo Motor)
Air pressure (pneumatic drive)	0.6–0.8 MPa, flow 1.798 m ³ /min
Servo motor power (electric drive)	1500 W

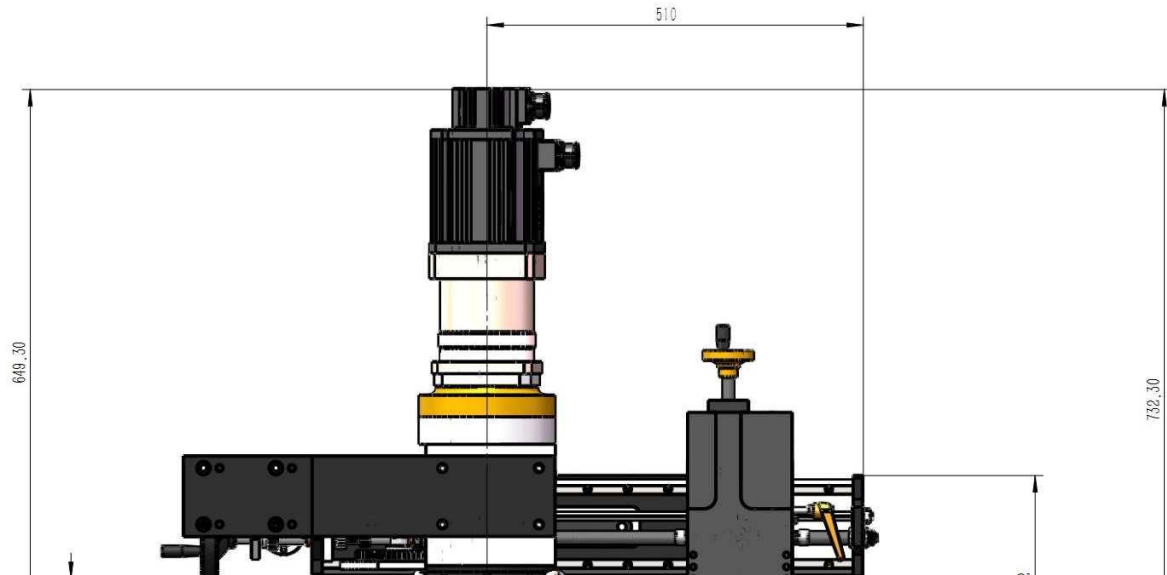
3.3 Machine Diagrams

Pneumatic Driven



Electric (Servo Motor) Driven

The electric variant uses a 1500 W AC servo motor in place of the pneumatic motor, giving precise, electronically controlled rotation speed without the need for a compressed air supply. See section 5.5 for servo motor setup and speed settings.



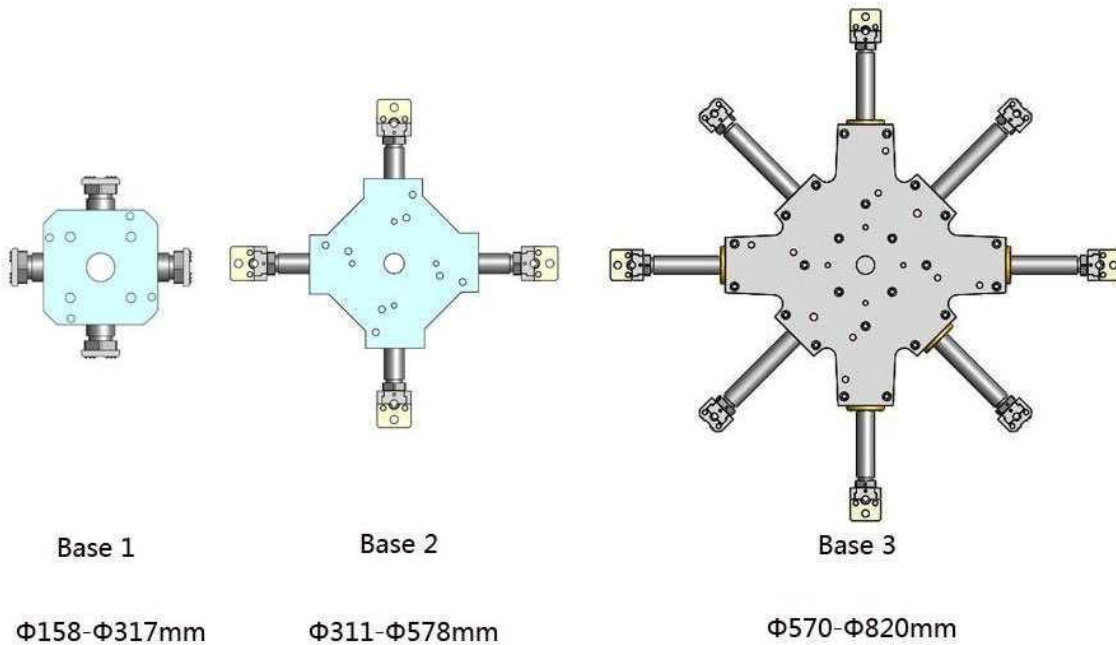
4. Installation

4.1 Machine Base Selection and Installation

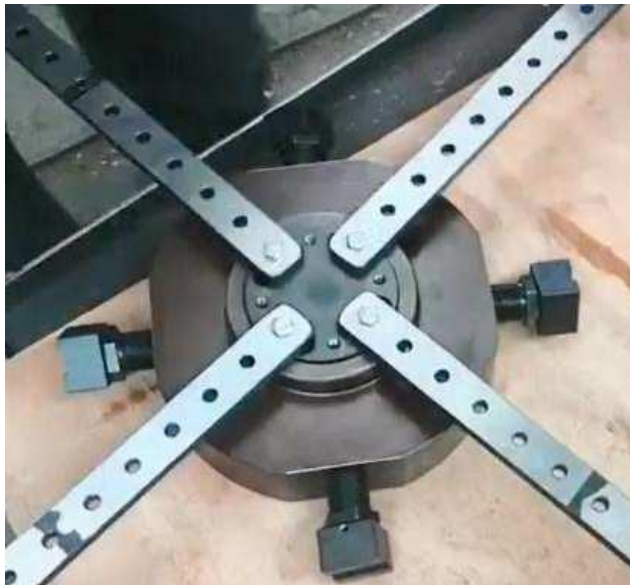
Measure the mounting inner bore of the flange to be machined and confirm it falls within the machine's working parameters (see section 3.2).



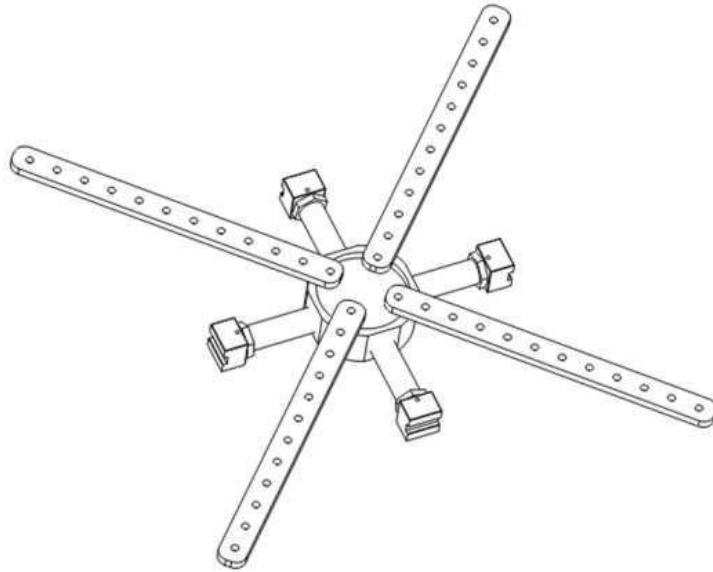
Select and install the appropriately sized expansion base for the bore diameter:



Screw the base components into the selected base until they sit approximately 6 mm below the inside bore mounting dimension.



A hook-up or a fixed level ruler can be used to support the base while it is positioned in the bore.

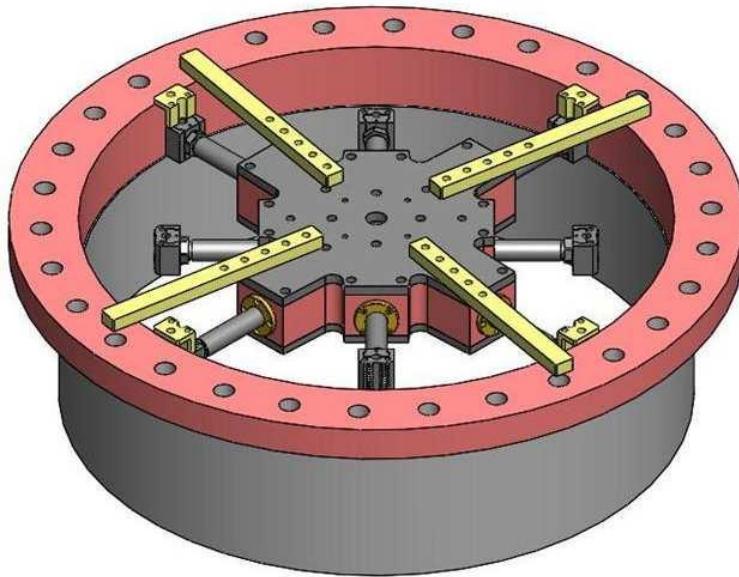


Bolt the fixed level ruler onto the base, ensuring the ruler overlaps the bore dimension by at least 25 mm.





Position the base into the flange bore and screw out the jacking bolts as required. Fine adjustments are made by tightening and loosening opposing jacking bolts.

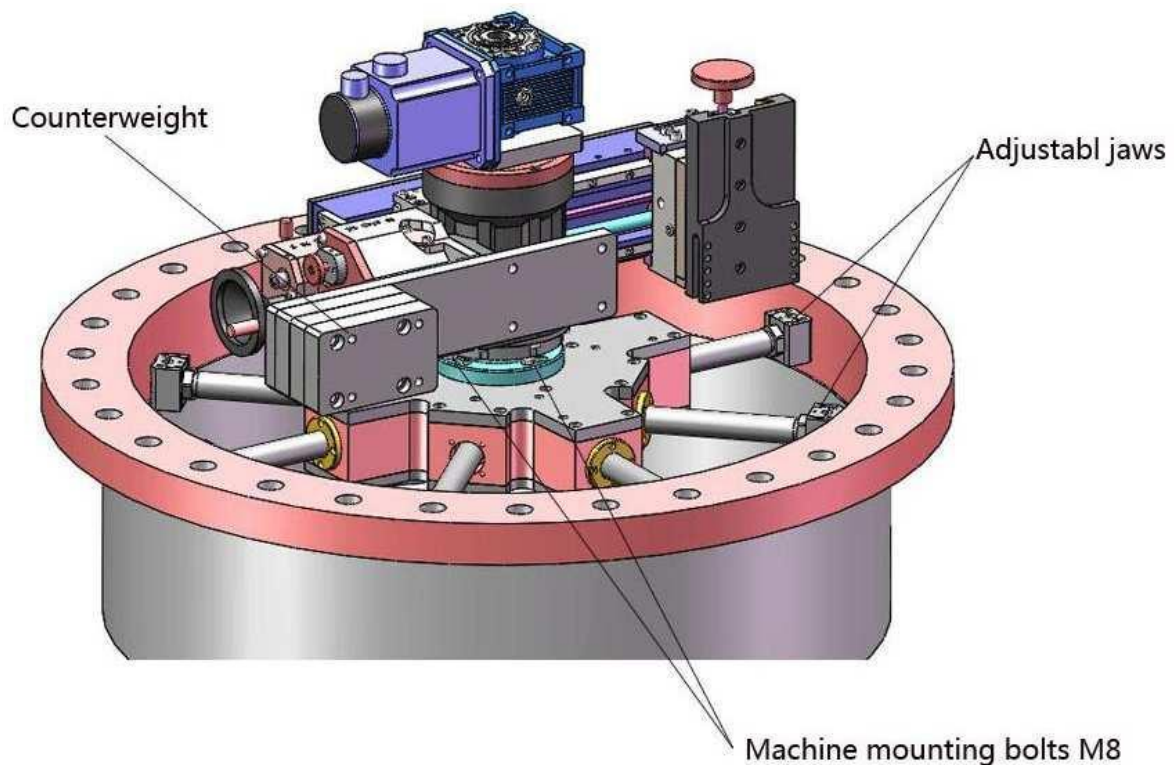


Once the base is installed and level, remove the fixed level ruler.



4.2 Machine Body Installation and Adjustment

The base and the machine body are connected by a nut.



1. Fit four M8 mounting bolts to the base, positioned 20 mm from the base's mounting surface.
2. Ensure the tool holder is at the top of its travel and the tool is removed, so the tool holder cannot contact the flange face during installation.
3. Install the main unit onto the base and secure the four M8 mounting bolts. The locating pin on the underside of the main shaft engages with the pin hole on the base to ensure accurate positioning.

4. Loosen the retaining nut and adjust the position of the working arm to suit the size of the flange face.



5. For precise positioning, fit a magnetic-base dial indicator to the tool holder and use it to true up the centre, horizontal and vertical alignment. Adjust the expansion blocks as required.



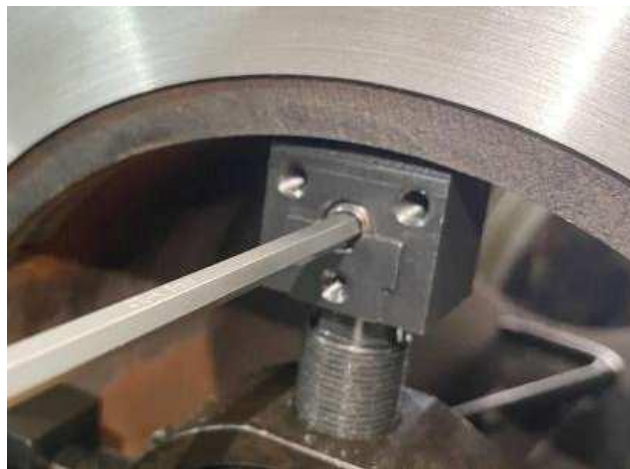
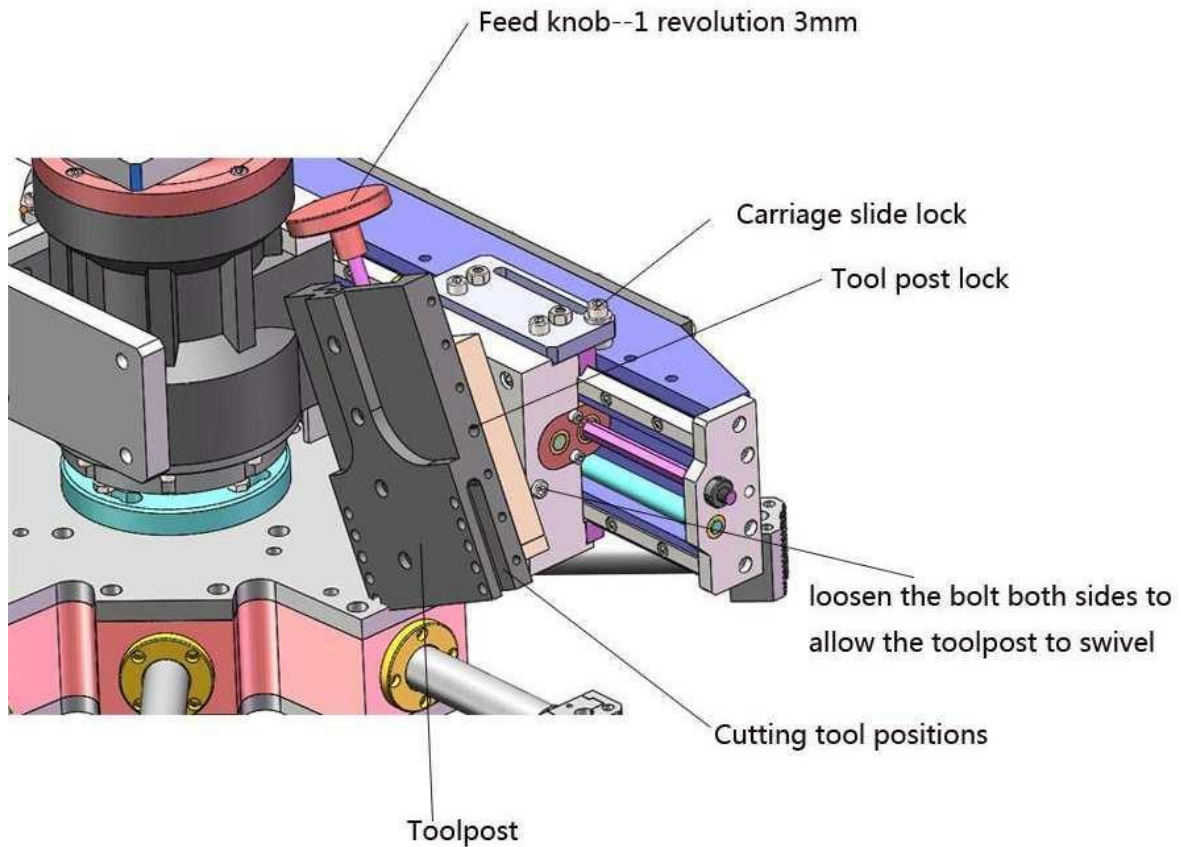


6. Before machining, confirm that all fixing bolts are tight.

5. Operation

5.1 Tool Post Setting

The tool holder can be swivelled to any angle about its axis. Loosen the two M12 rotation locking screws on either side to rotate the tool holder; after setting the required angle, re-tighten both screws. This function is used for sealing grooves, chamfering and similar profiles.

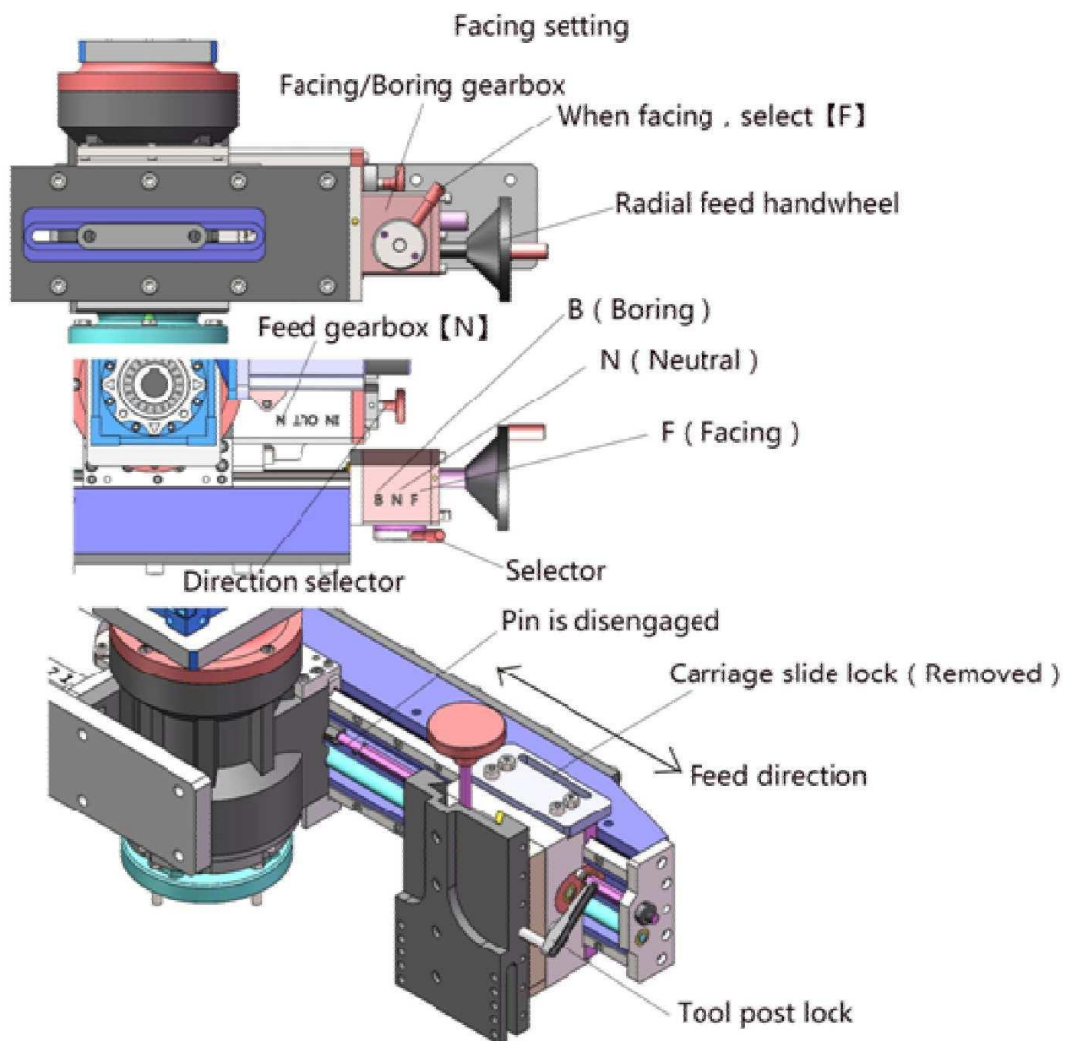
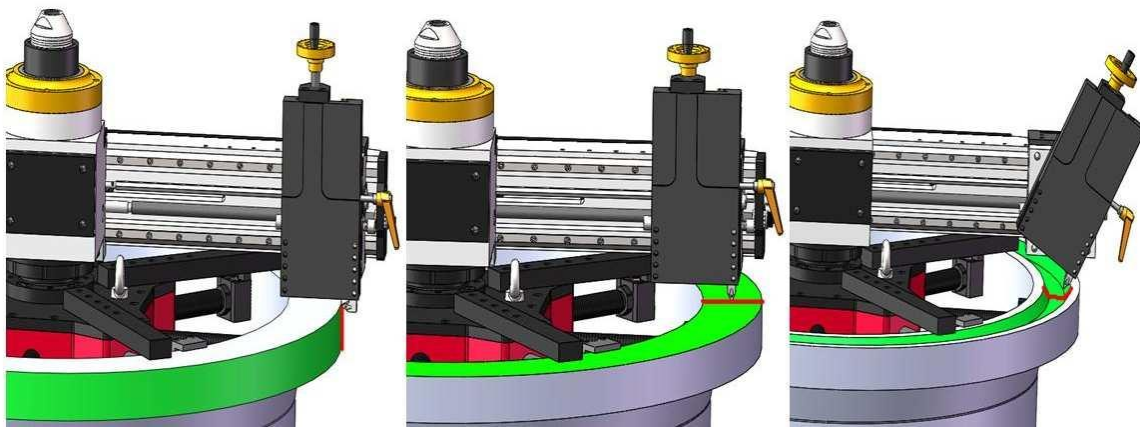


NOTE

When facing (plane machining): remove the slide plate locking bolt (M8) and lock the tool holder locking handle.

When boring: install and lock the slide plate locking bolt (M8), and release the tool holder locking handle.

5.2 Facing Processing



1. Move the gearbox selector (IN / OUT / N) to the N (neutral) position.
2. Remove the slide plate locking bolt (M8).
3. Switch the gear selector to the F (Facing) position, gently turning the horizontal feed handwheel to help the gear engage.

Tip: Make sure the gear has fully engaged before proceeding.

4. When machining a flat face, lock the tool holder locking handle.

5.3 Boring Processing

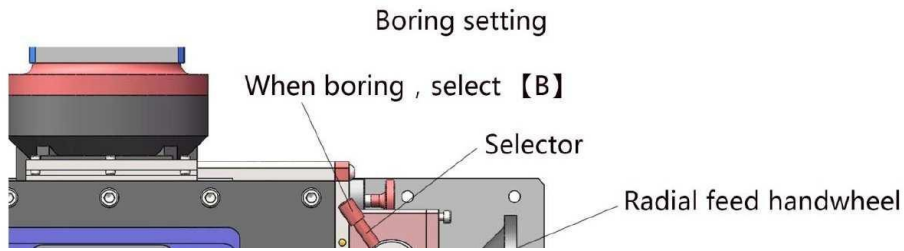


Diagram reproduced as it appears in the original manufacturer manual (partial).

1. Move the gearbox selector (IN / OUT / N) to the N (neutral) position.
2. Release the tool holder locking handle.
3. Switch the gear selector to the B (Boring) position. While engaging the gear, rotate the tool holder feed handwheel so the locating pin seats fully in its slot.

Tip: Confirm the pin has seated correctly in the slot before proceeding.

4. Once the tool holder position is confirmed, lock the slide plate locking bolt (M8).

5.4 Feed Speed and Direction Settings

Feed direction is set with the feed direction pull rod (IN / OUT / N) and feed speed with the feed speed pull rod (gear positions 1–3).

Facing Processing Feed Speed

Feed direction	Gear position	Feed speed (mm/r)
IN	1	0.128
IN	2	0.191
IN	3	0.383
OUT	1	0.164
OUT	2	0.246
OUT	3	0.492

Boring Processing Feed Speed

Feed direction	Gear position	Feed speed (mm/r)
IN	1	0.09
IN	2	0.138
IN	3	0.277
OUT	1	0.119

Feed direction	Gear position	Feed speed (mm/r)
OUT	2	0.178
OUT	3	0.356

5.5 Installing the Machine Drive

This machine can be fitted with either a pneumatic drive or an Electric (Servo Motor) drive. Install the drive appropriate to your machine configuration.

Pneumatic Drive

- Fit an air compressor with an air storage tank to ensure a continuous air supply — without one, the machine will stop working during operation.
- Fit an air filter. Moisture in the compressed air supply can corrode the gears in the air motor.

NOTE

Apply professional-grade air tool oil to the air motor before and after each use.

Electric (Servo Motor) Drive

The servo motor operates on a 1-phase, 220 V, 50 Hz mains supply.

- Processing stainless steel: set the servo speed to 2200–2500 (motor speed units per controller display).
- Processing carbon steel: set the servo speed to 2600–2800 (motor speed units per controller display).

NOTE

Adjust the feed rate to suit the material being processed.

6. Maintenance

Follow the schedule below to keep the machine in good working order.

Period	Action	Lubrication
After use	Clean the rails, carriage feed screw, tool post, tool post feed screw and the machine generally.	Light oil or WD-40 (or equivalent). Check the air filter/lubricator.
Weekly	Grease the gearbox nipple (2 strokes max) and the linear bearing (2 strokes max).	G39 semi-fluid Elf TL (or equivalent).
Quarterly	Remove the motor cover screws, grease the main gear, check adjustment and grease the drive gear.	G39 semi-fluid Elf TL (or equivalent).

Period	Action	Lubrication
Quarterly	Check carriage operation and adjust as necessary. Check lead screw backlash and tool post backlash.	—
Storage	If the machine will be stored for an extended period, clean it thoroughly and spray WD-40 into the pneumatic motor.	—

7. Troubleshooting

The table below covers common faults. If a fault persists or falls outside this table, contact Capital Machinery Sales technical support (see section 8).

Fault	Possible cause	Action
Machine will not rotate when the air/power supply is on	Check whether the machine rotates freely by hand	Contact technical support
	Air supply not available	Check the air supply
	Faulty drive motor	Check the drive motor — contact technical support
	Faulty air valve	Check operation of the valve
	Incorrect air supply	Check the air volume/pressure
Machine will not traverse	Feed selector not correctly engaged	Check the gear is fully engaged
	Direction lever not correctly engaged	Check the gear is fully engaged
	Facing/boring lever not correctly engaged	Check the gear is fully engaged
Poor surface finish on flange	Worn tool tip	Replace the tool
	Flange not clamped securely	Check and tighten all mounting screws and tension blocks
	Feed rate too high	Reduce the feed rate
	Worn track guide	Inspect and contact Capital Machinery Sales
	Machine not running in balance	Adjust the machine balance (counterweight)
	Loose tool	Tighten the tool
	Loose working arm	Tighten the working arm screws

