



Supplementary instructions for the electrical assembly kit

For the CL Line CNC portal milling machine kit

Introduction

These additional instructions contain supplementary information on the "Assembly instructions for the milling kit" in order to prepare the CNC portal milling machine for electrical assembly. The electrical assembly kit supplied is intended exclusively for assembly on the CL Line CNC portal milling machines.



Caution!

Only carry out the work if you are familiar with the necessary actions and suitable tools are available. Sorotec GmbH assumes no liability for damage to property or personal injury occurring during assembly or operation of the CNC portal milling machine!

Scope of delivery

Illustration	Description	Number
	71 Drag chain 18 x 37 mm Length 1000 mm each	2
	72 Connecting kit drag chain	2
	Terminal box 80 x 60 x 40 mm	3
	Grommet DA 40/8/15 SRT	3
	Grommet DTS-M20	5

Illustration	Description	Number
	Initial plate with terminal block	3
	Endplate terminal block	3
	Terminal block	15
	Cable duct 40 x 40 x 180 mm with cover	1
	Switch housing reference switch (two parts)	3
	Cable gland M12 with nut	1
	Hammer nut Slot 8 M4	1



Illustration	Description	Number
 K	Nut DIN 934 M4	2
	Flat head screw DIN 7380 M4 x 10 M M5 x 8 L	6 2

Illustration	Description	Number
	Countersunk screw DIN 7991 M4 x 6 P1 M4 x 10 P2 M4 x 16 P3	2 3 2
 Y1	Washer DIN 9021 4,2	2

Component assembly

The following illustrations show the component assembly for cable routing on the left side of the machine and feed from the rear. This is only to be understood as an assembly suggestion; With the components of the electrical assembly kit, for example, a mirror-inverted structure or the cable feed from the front can be implemented. The following must be taken into account when planning:

- Local conditions for machine installation against a wall or in a corner
- Accessibility to the components for subsequent maintenance or repair work
- Components used such as stepper motors and their connection options
- Cable routing and accessibility to the control cabinet

Tools needed

The following tools and aids must or should be available during assembly:

- Common hand tools, such as Allen keys, screwdrivers, plastic hammers, etc.
- Scribing tool and center punches
- Drills 3.3 mm, 4.2 mm, 5 mm, 8 mm, 12.5 and 20 mm¹⁾
- Taps M4, M5 and M6

¹⁾ 20 mm preferably as a cone or step drill

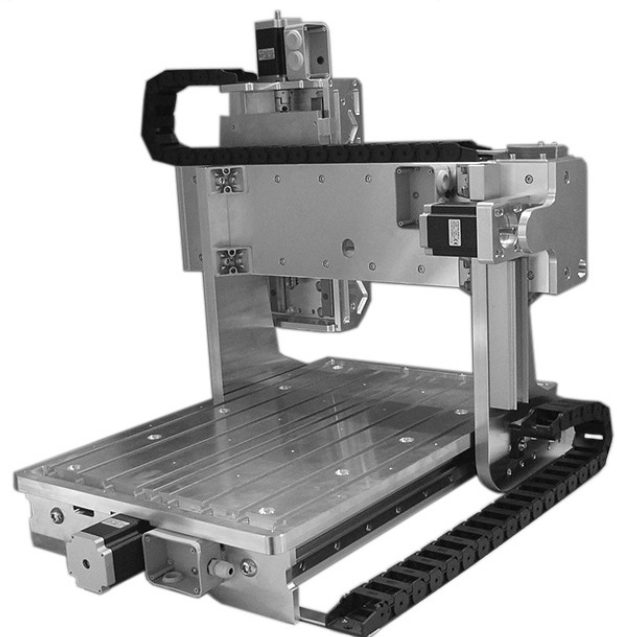


Fig. 1: Compact-Line portal milling machine with drag chains, terminal boxes, etc. (rear view)

Drag chain X axis

Note:

Foot holder with holder for drag chain holder **37**, drag chain holder X **38**, bracket for drag chain X **39**, cylinder head screws M5 x 16 **C2** and M5 x 20 **C4** so as washer **Y2** are part of the CNC portal milling machine kit. The drag chains supplied, each 1 m long, can be shortened or lengthened as required.

- Screw the foot holder with drag chain holder **37** to the front or rear end plate with cylinder screws **C4**.
- Use countersunk screws **P2** to screw the drag chain holder X **37** to the foot holder **38** with the mount for the drag chain holder **37**.
- An M5 thread is prepared in the gantry frame to screw on the bracket for drag chain X **39**.

Screw the mounting bracket to the gantry frame with a cylinder screw **C2** and washer **Y2**.

- Equip the ends of the drag chain **71** with the connection kit **72**.
- Screw the drag chain to the drag chain holder X with countersunk screws **P1**.

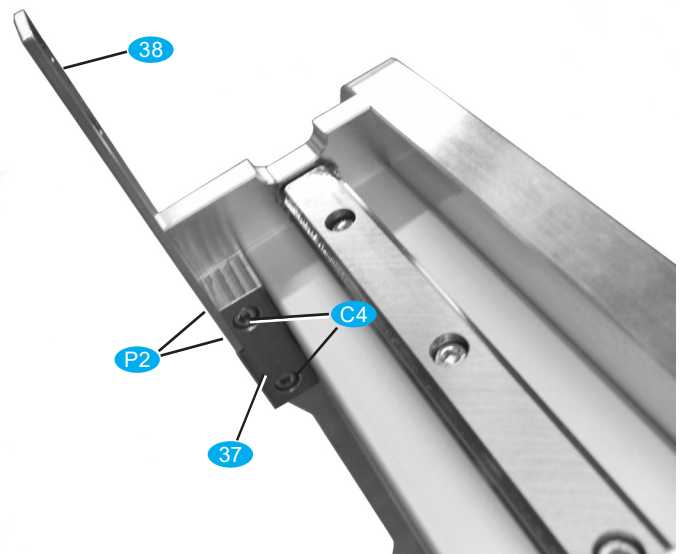


Fig. 2: Foot holder with drag chain holder

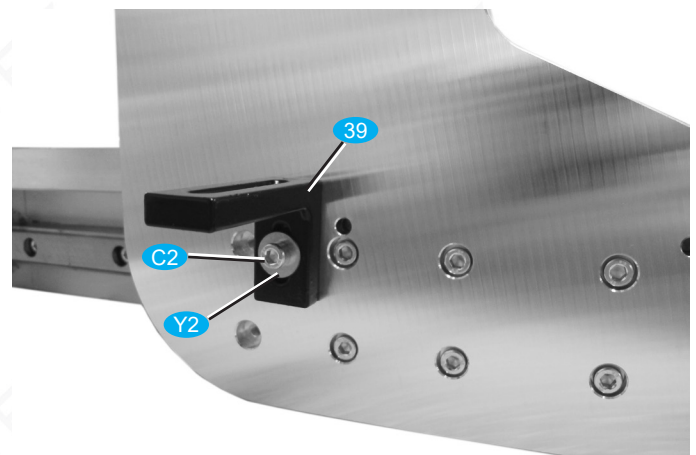


Fig. 3: Mounted bracket

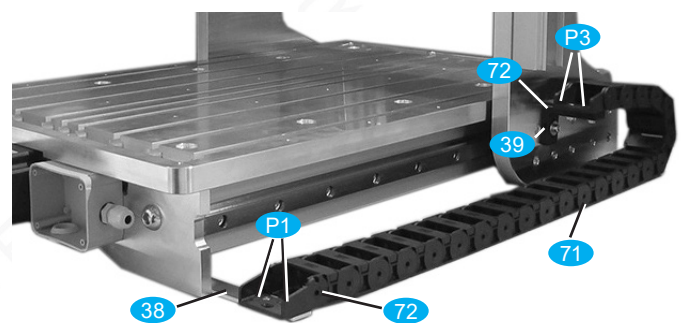


Fig. 4: Mounted drag chain X

Drag chain Y axis

- Equip the ends of the drag chain **71** with the
- connection kit **72** and screw it to the motor
- flange Z **20** (countersunk screws M4 x 10 **P2**).

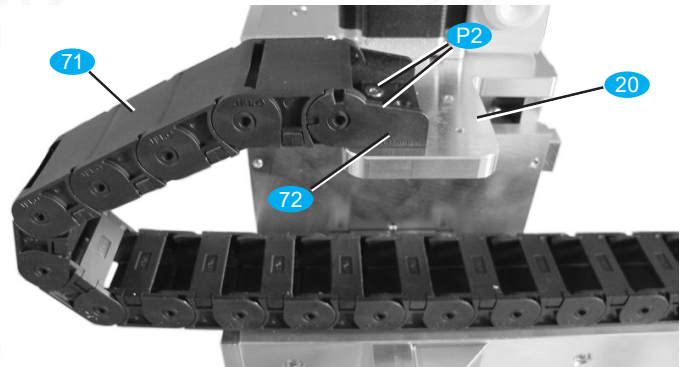


Fig. 5: Installation of the Y drag chain on the motor flange

- Screw the bottom end of the drag chain to of the aluminum profile of the portal (countersunk screws M4 x 16 **P3**, hammer nut M4 **F**).

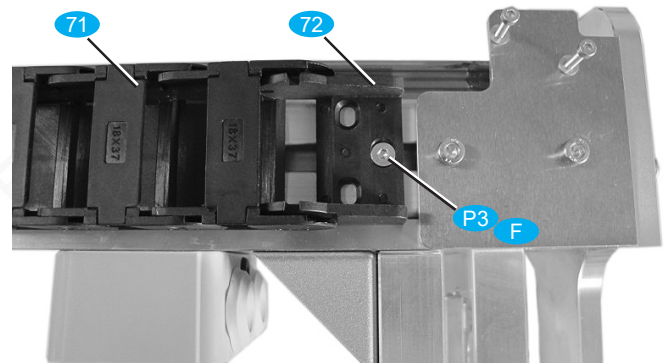


Fig. 6: Installation of the Y drag chain at the lower end

Cabel duct

Screw the cable duct **79** to the portal cheek with flat head screws M5 x 8 **L**.

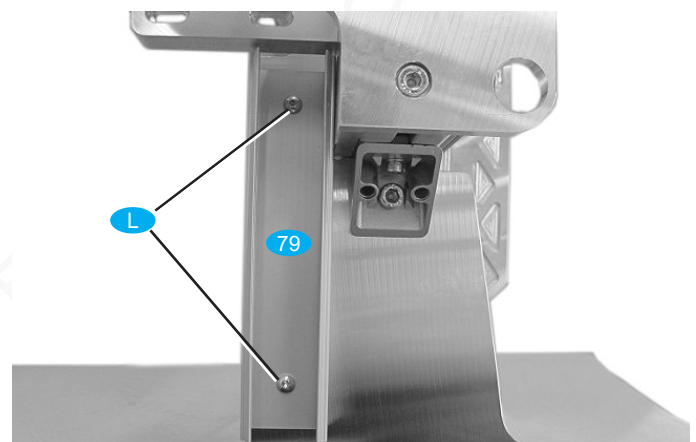


Fig. 7: The cable duct on the portal cheek

Housing for reference switch

i Note:

Reference switch **39** and cylinder head screws **A1** are part of the CNC portal milling machine kit.

The two-part housing **80** and the reference switch **39** are assembled as a group with two cylinder head screws **A1** each. The insert foils from the CNC portal milling machine kit are no longer used for this.

The connection cables of the reference switches are fed out through the recess in the switch housing (red arrow in Fig. 8).

The assembly takes place at the installation locations that are described in the assembly instructions for the milling kit at the following points:

- X-Achse: Page 11
- Y-Achse: Page 18
- Z-Achse: Page 21

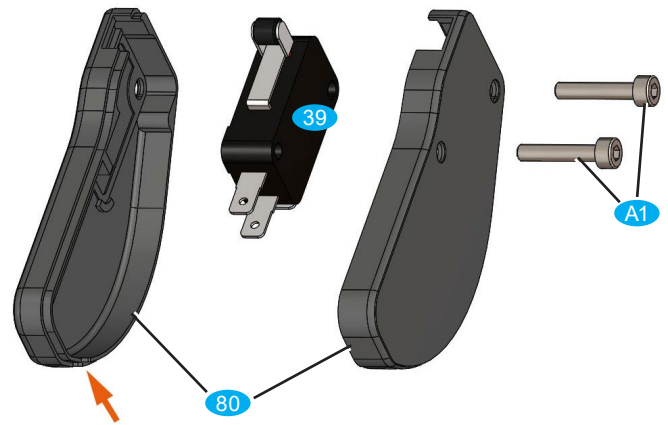


Fig. 8: Reference switch / housing assembly

Terminal boxes

The terminal boxes **73** are intended for connecting the reference switches and the axis drives.

- small grommets **74** for reference switch cables
- Cable gland M12 **81** for supply cable X-axis
- large grommets **75** for supply cable Y and Z axis as well as all axle drives

When connecting the cables later, 1 starter plate with terminal block **76**, 5 terminal blocks **78** and 1 end plate **77** are to be lined up to connect the cables.

i Note:

The electrical connection of the axis drives is described in the instructions for the controller, the associated circuit diagrams and in the motor data sheets.

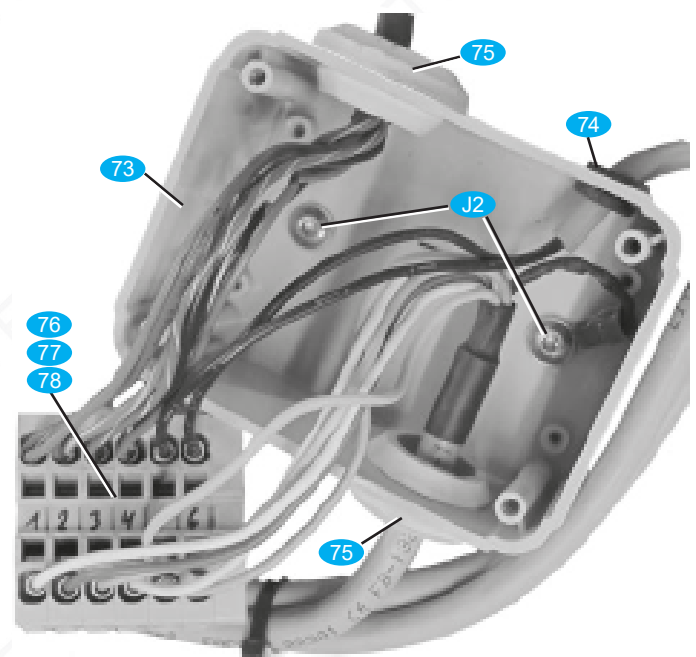


Fig. 9: Terminal box with wiring example

Terminal box X axis

- Drill and deburr the terminal box **73** with \varnothing 5 mm according to the template at the end of these instructions.
- Drill and deburr the terminal box with \varnothing 20 mm for the large grommet **75**.
- Drill and deburr the terminal box with \varnothing 8 mm for the small grommet **74**.
- Drill and deburr the terminal box with \varnothing 12.5 mm for the M12 cable gland **81**.

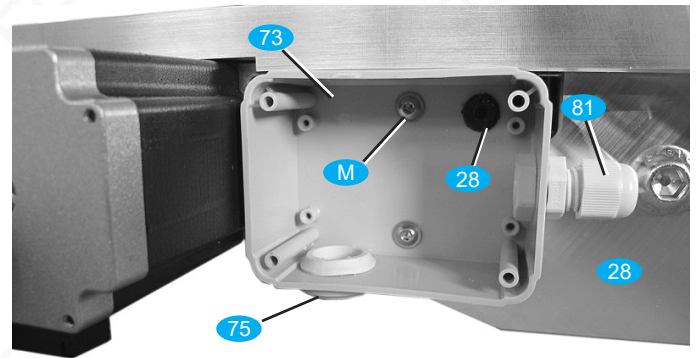


Fig. 10: X axis terminal box, prepared for wiring

To screw the terminal box, two M4 threads are required in the rear face plate next to the stepper motor.

- Position the terminal box and transfer the 5 mm holes in the bottom of the terminal box to the plate.
- Remove the terminal box and mark the center points of the holes.
- Drill with \varnothing 3.3 mm and then cut thread M4.
- Insert grommets and cable gland in the terminal box.
- Screw the terminal box with the fastening screws.

Terminal box Y axis

- Drill and deburr the terminal box **73** with \varnothing 5 mm according to the template at the end of these instructions.
- Drill and deburr the terminal box with \varnothing 20 mm for large grommets **75**.
- Drill and deburr the terminal box with \varnothing 8 mm for the small grommet **74**.

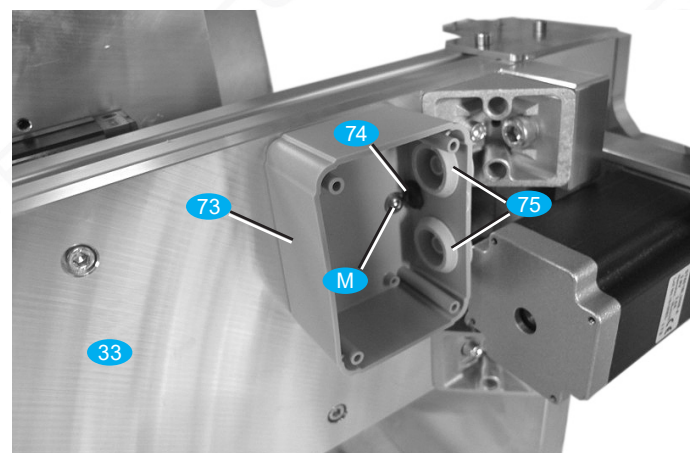


Fig. 11: Terminal box Y axis

To screw the terminal box, two M4 threads are required at the back of the portal beam next to the stepping motor.

- Position the terminal box and transfer the 5 mm holes in the bottom of the terminal box to the portal beam.
- Remove the terminal box and mark the center points of the holes.
- Drill with \varnothing 3.3 mm and then cut thread M4.
- Insert grommets in the terminal box.
- Screw the terminal box with the fastening screws.

Terminal box Z axis

- Drill and deburr the terminal box **73** with \varnothing 5 mm according to the template at the end of these instructions.
- Drill and deburr the terminal box with \varnothing 20 mm for large grommets **75**.
- Drill and deburr the terminal box with \varnothing 8 mm for the small grommet **74**.

To screw the terminal box, two M4 threads are required on top of the motor flange Z next to the stepper motor.

- Position the terminal box and transfer 5 mm holes at the side of the terminal box.
- Remove the terminal box and mark the center points of the holes.
- Drill with \varnothing 3.3 mm and then cut thread M4.
- Insert grommets in the terminal box.
- Screw the terminal box with the fastening screws.

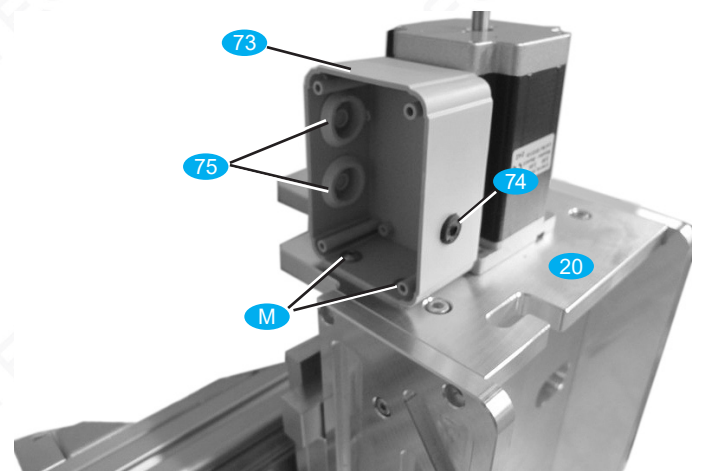
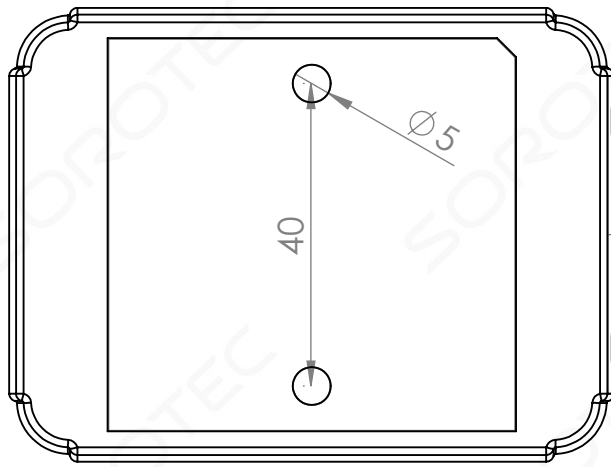
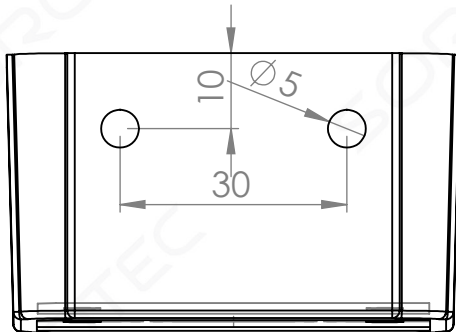
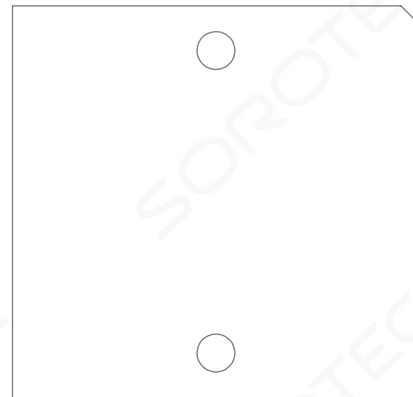


Fig. 12: X axis terminal box, prepared and assembled



Drilling template X and Y axis



Drilling template Z axis



C-Line drilling templates for junction boxes (scale 1:1 / DO NOT SCALE)

