Additional instructions for Basic-Line electrical installation kit

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Introduction

These additional instructions contain supplementary information on the “Assembly instructions for the CNC portal milling machine Basic-Line” in order to prepare the CNC portal milling machine for electrical installation.

The supplied electrical assembly kit is only intended for installation on the Basic Line CNC portal milling machines.

Caution!

Only carry out the work if you are familiar with the necessary actions and have suitableTools available.

Sorotec GmbH assumes no liability for damage to property or personal injury that occurs during the assembly or operation of the CNC portal milling machine!

Scope of delivery

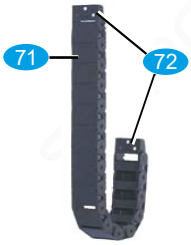
Illustration	Description	Number
	71 Drag chain 18x37 mm Length each 1000 mm	2
	72 Connection kit Drag chain	2
73 	Terminal box (not ITG) 80 x 60 x 40 mm	3 (ITG 0)
74 	Grommet (not ITG) DA 40/80/15 SRT	3 (ITG 0)
75 	Grommet (not ITG) DTS-M20	5 (ITG 0)
76 	Starting plate with Terminal block (not ITG)	3 (ITG 0)
77 	End plate terminal block (not ITG)	3 (ITG 0)
78 	Terminal block (not ITG)	15 (ITG 0)
79 	Cabel Canal 40 x 40 x 250 mm with lid	1
80 	Housing reference (2 parts)	3
81 	Cable gland M12 with nut	1

Illustration	Description	Number
	Hammer nut Slot 8 M4 G0	
	Button flange head screw with pressed washer ISO 7380 M4 x 10 1	
	Flat headed screw ISO 7380 M5 x 8 K1	
	Nut DIN 934 M4 P1 M5 P2	
	Countersunk screw DIN 7991 M4 x 6 R1 M4 x 10 R2 M4 x 16 R3	
	Large washer 4,2 Y1	

Required tools

The following tools and aids must or should be available
during assembly:
• Common hand tools, such as Allen keys, screwdrivers, plastic hammers, etc.
• Marking tools and center punch
• Drill bits 3.3 mm, 4.2 mm, 5 mm, 8 mm,
• 12.5 mm and 20 mm[1)]
• Taps M4, M5 and M6
[1)] 20 mm preferably as a peeling or step drill

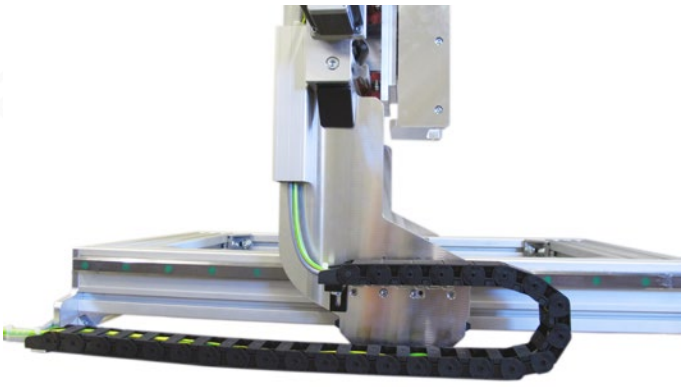
Assembly

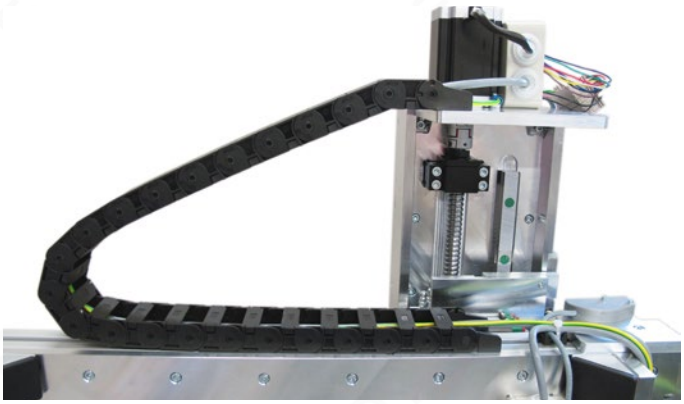
Note:
The drag chain of the X-axis is mounted on the left side of the machine with cable feed from the rear.

Some of the components shown are part of the CNC portal milling machine kit.

The supplied drag chains with 1 m each can be shortened or lengthened as required.

The terminal boxes 73 *are not required for a machine with integrated drives (output stage on stepper or servo motor). The relevant parts of this manual can then be ignored.*





Figures 1 and 2: drag chains on the X and Y axes of the Basic Line

Drag chain X axis

- Screw the 20 x 20 mm bracket angle 34 to the
- rear face plate using cylinder head screws C1 and nuts P2.
- Screw the drag chain holder 37 with
- countersunk screws R2 and nuts P1 to the 20 x 20 mm angle.
- Mount the mounting bracket 38 with the cylinder head screw C1 and washer Y2 together with the drag chain on the portal cheek.

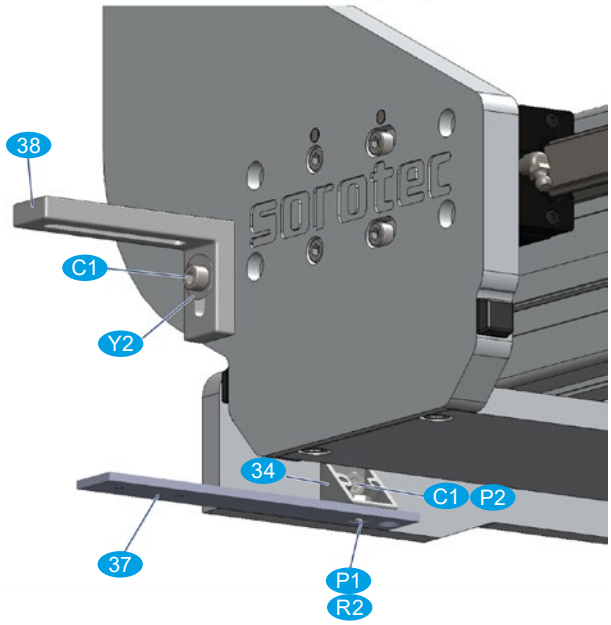


Fig. 3: Drag chain holder and mounting bracket

- Equip the end of the drag chain 71 with a
- connection kit 72 bestücken.
- Screw the drag chain to the bracket 38 using countersunk screws R3, washers Y1 and nuts K.

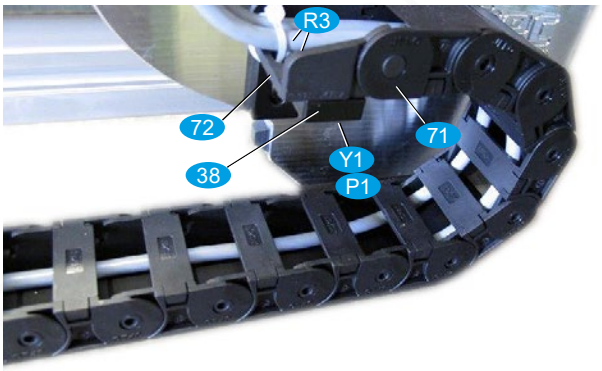


Fig. 4: Mounting drag chain with connection kit on bracket

- Equip the other end of the drag chain 71 with a connection kit 72.
- Screw the drag chain to the drag chain holder 37 using countersunk screws R1.

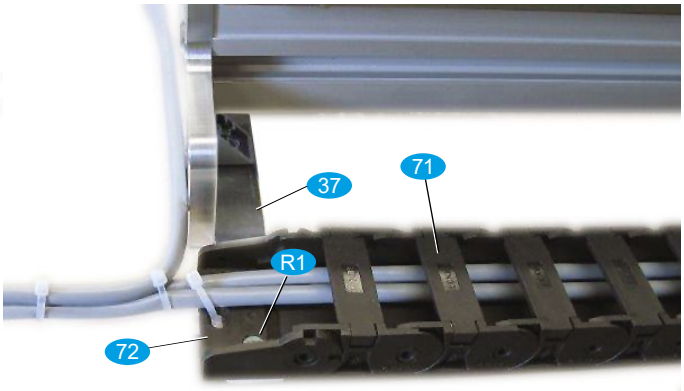


Fig. 5: Mounting drag chain with connection kit on holder

Drag chain Y axis

Equip the end of the drag chain 71 with the connection kit 72 and screw it to the motor flange Z 19 using countersunk screws R2.

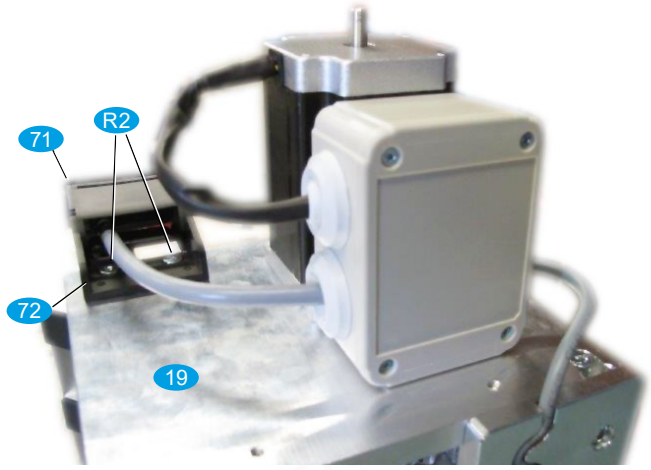


Fig. 6: Mounting drag chain on motor flange

Equip the other end of the drag chain 71 with the connection kit 72 and screw it to the aluminum profile of the portal with countersunk screw R3 and hammer nut G0.

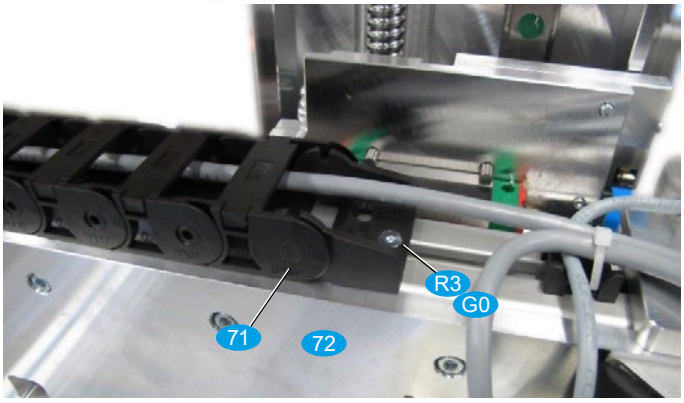


Fig. 7: Installation of drag chain on portal profile

Cable Canal

Screw the cable duct 79 to the portal cheek using flat-head screws K1.

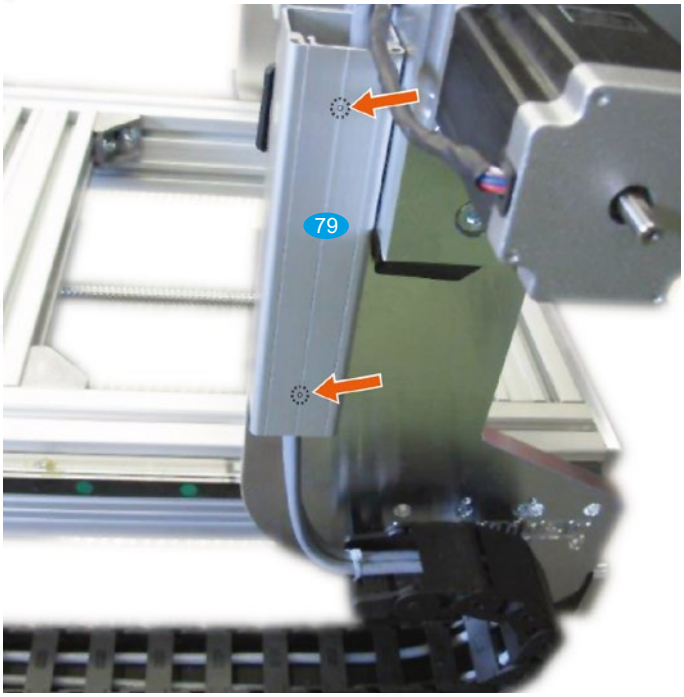


Fig. 8: Installation of drag chain on portal cheek

Housing for reference switch

The housings for the reference switches are made in two parts each. When installing, the shims from the CNC portal milling machine kit are no longer used.

The connection cables of the reference switches are led outside through the recess in the switch housing.

The assembly takes place at the installation locations described in the assembly instructions for the milling kit:

- X axis - page 11
- Y axis - page 16
- Z axis - page 21

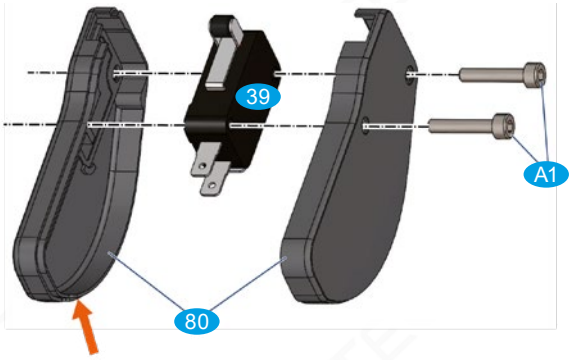


Fig. 9: Housing with reference switch. The red arrow indicates the cut-out for cable entry

Terminal boxes (not ITG-version*)

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

***Note:**
In machines with integrated drives, the cables are routed through the respective drag chain directly to the control without intermediate clamping.

- Small grommets 74 fit for reference switch cables
- The M12 cable gland 81 (see illustration on page 5 above) holds the X-axis supply cable
- Large grommets 75 fit the supply cables of the Y and Z axes as well as all axis drives.

When connecting the cables later, 1 start plate with terminal block 76, 5 terminal blocks 78 and 1 end plate 77 must be strung together to connect the cables.

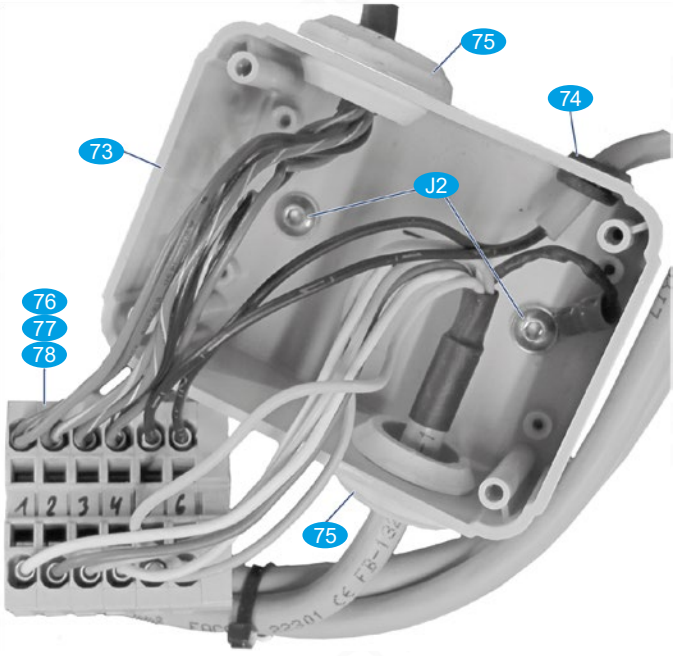


Fig. 10: Terminal box with bushings and terminal blocks

Terminal box X axis:

- Drill and deburr the terminal box 73 with Ø 5 mm
- Drill and deburr the terminal box on the side with Ø 20 mm for large grommets 75.
- Drill and deburr the terminal box on the side with Ø 12.5 mm for M12 cable gland 81.
- Drill and deburr the bottom of the terminal box
- with Ø 8 mm for small grommets 74.

Two M4 threads are required in the rear faceplate 32 to screw the terminal box together and an 8 mm hole is required for the cable entry.

- Position the terminal box, transfer 5 mm and 8 mm holes in the bottom of the terminal box.
- Remove terminal box and punch holes.
- Drill and lower the fixing holes Ø 3.3 mm and then cut M4 thread.
- Drill and deburr the hole for the cable entry Ø 8 mm.
- Insert grommets 74 / 75 and M12 cable gland into the terminal box.
- Screw the terminal box with fastening screws.

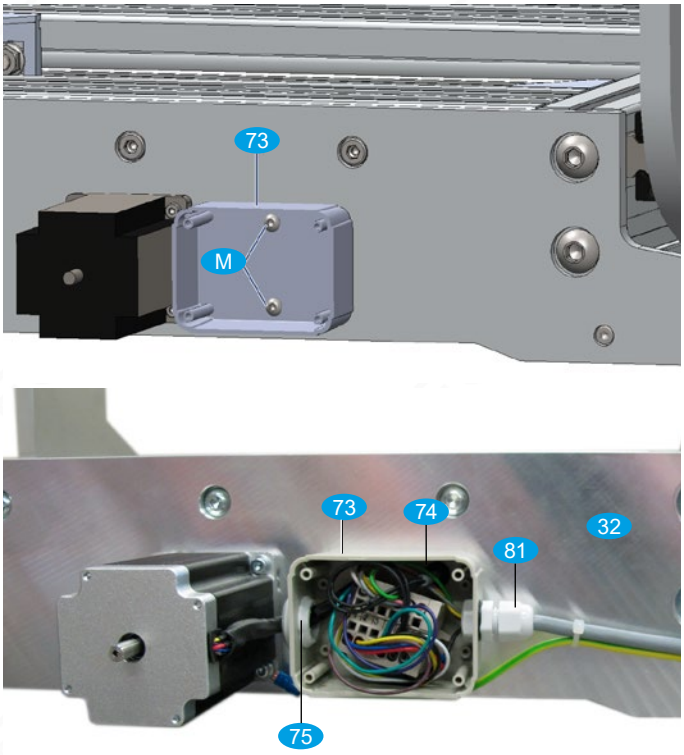


Fig. 11: Assembly of the X-axis terminal box

Terminal box Y axis:

- Drill and deburr the terminal box 73 with Ø 5 mm.
- Drill and deburr the terminal box with Ø 20 mm for large grommets 75.
- Drill and deburr the terminal box with Ø 8 mm for small grommet 74.

Two M4 threads are required to screw the terminal box into the gantry beam 21.

- Position the terminal box, transfer 5 mm and 8 mm holes in the bottom of the terminal box.
- Remove terminal box and punch holes.
- Drill and lower the fixing holes Ø 3.3 mm and then cut M4 thread.
- Drill and deburr the hole for the cable entry Ø 8 mm.
- Insert grommets 74 / 75 and M12 cable gland into the terminal box.
- Screw the terminal box with fastening screws.

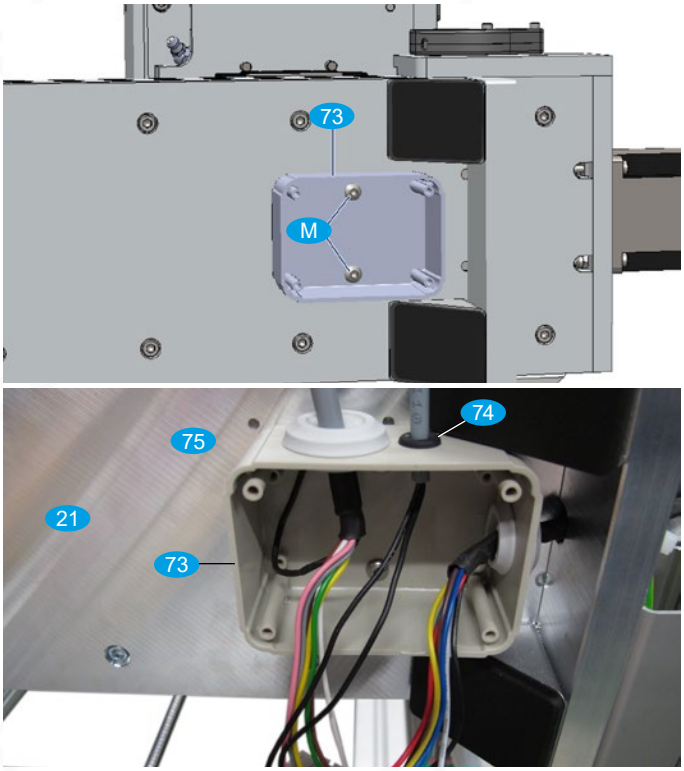


Fig. 12: Installation of terminal box Y-axis

Terminal box Z axis:

- Drill and deburr the terminal box 73 with Ø 5 mm
- Drill and deburr the terminal box with Ø 20 mm for large grommets 75.
- Drill and deburr the terminal box with Ø 8 mm for small grommet 74.

Two M4 threads are required in the motor flange Z 19 to screw the terminal box.

- Position the terminal box, transfer 5 mm and 8 mm holes in the bottom of the terminal box.
- Remove terminal box and punch holes.
- Drill and lower the fixing holes Ø 3.3 mm and then cut M4 thread.
- Drill and deburr the hole for the cable entry Ø 8 mm.
- Insert grommets 74 / 75 and M12 cable gland into the terminal box.
- Screw the terminal box with fastening screws M.

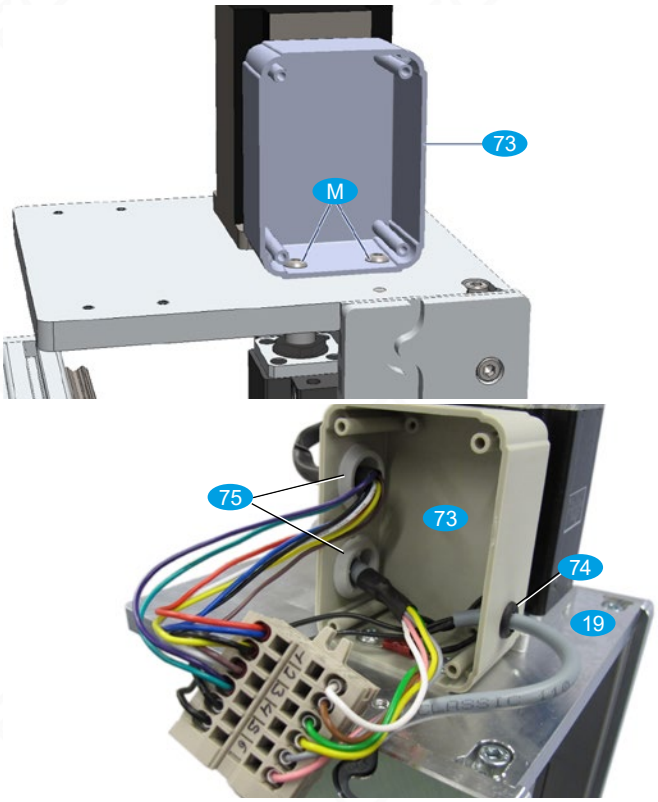


Fig. 13: Installation of Z-axis terminal box