



Additional instructions  
for Basic-Line  
electrical installation kit

## 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 suitable Tools 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	Illustration	Description	Number
	<b>71</b> Drag chain 18x37 mm Length each 1000 mm	2		Hammer nut Slot 8 M4 <b>G0</b>	
	<b>72</b> Connection kit Drag chain	2			
	Terminal box 80 x 60 x 40 mm	3		Button flange head screw with pressed washer ISO 7380 M4 x 10 <b>T1</b>	
	Grommet DA 40/80/15 SRT	3		Flat headed screw ISO 7380 M5 x 8 <b>K1</b>	
	Grommet DTS-M20	5		Nut DIN 934 M4 <b>P1</b> M5 <b>P2</b>	
	Starting plate with Terminal block	3		Countersunk screw DIN 7991 M4 x 6 <b>R1</b> M4 x 10 <b>R2</b> M4 x 16 <b>R3</b>	
	End plate terminal block	3		Large washer 4,2 <b>Y1</b>	
	Terminal block	15			
	Cabel Canal 40 x 40 x 250 mm with lid	1			
	Housing reference (2 parts)	3			
	Cable gland M12 with nut	1			

## 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<sup>1)</sup>
- Taps M4, M5 and M6

<sup>1)</sup> 20 mm preferably as a peeling or step drill

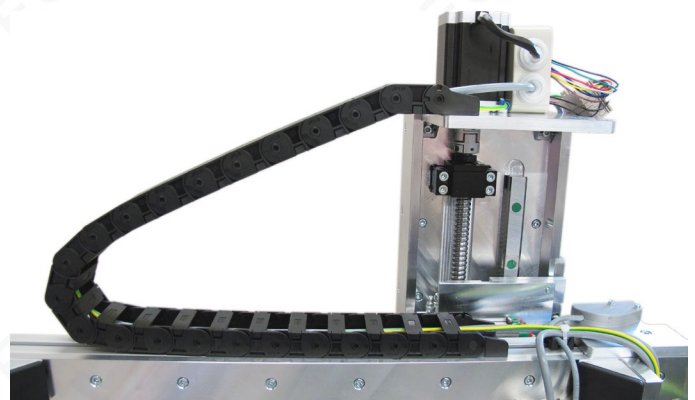
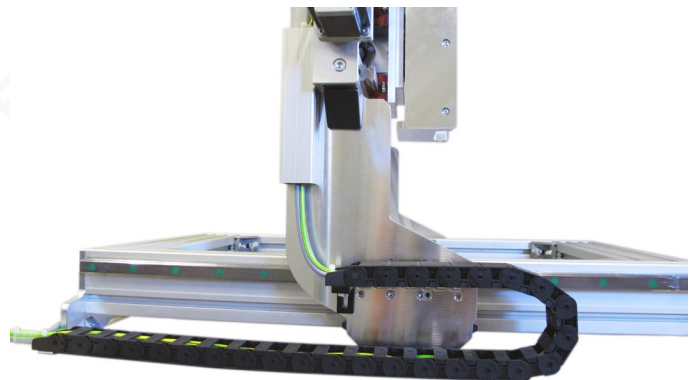
## Assembly

### **i** 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.*



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.

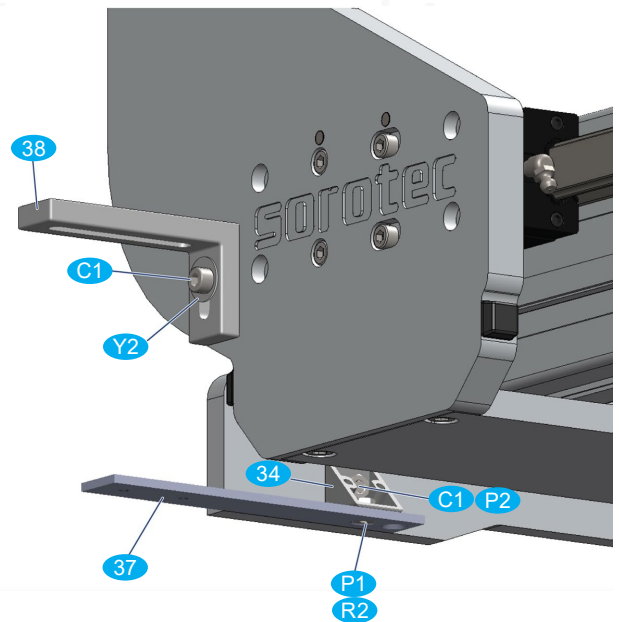


Fig. 3: Drag chain holder and mounting bracket

- Equip the end of the drag chain **71** with a connection kit **72**.
- Screw the drag chain to the bracket **38** using countersunk screws **R3**, washers **Y1** and nuts **P1**.

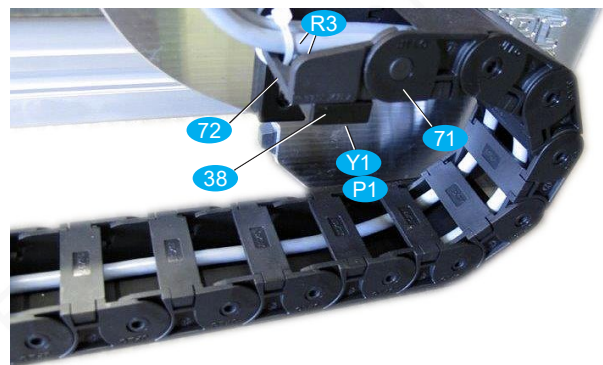


Fig. 4: Mounting drag chain with connection kit on bracket

- 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**.

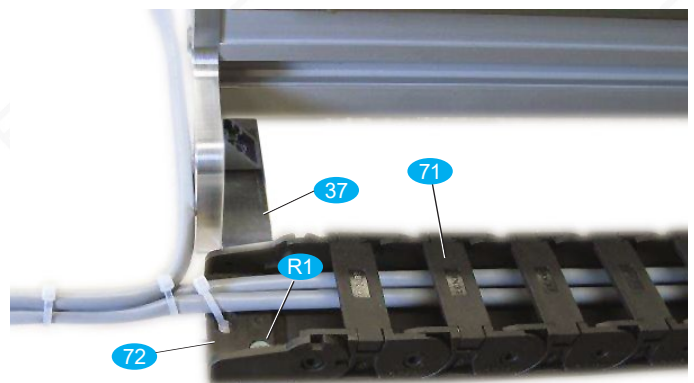


Fig. 5: Mounting drag chain with connection kit on holder



## 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**.

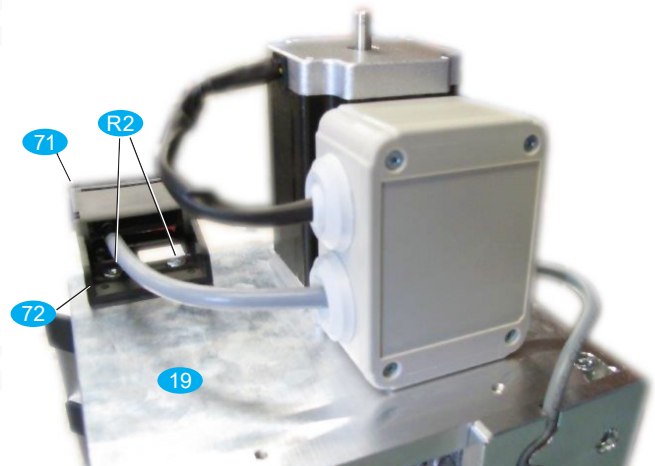


Fig. 6: Mounting drag chain on motor flange

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 **R2** and hammer nut **G0**.

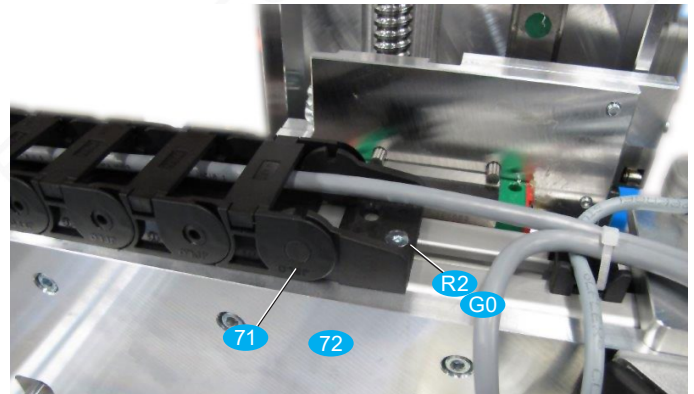


Fig. 7: Installation of drag chain on portal profile

## Cable Canal

Screw the cable duct **79** to the portal cheek using flat-head screws **K1**. Fig. 8 shows the location of the screws at the back of the duct, not the screws themselves.

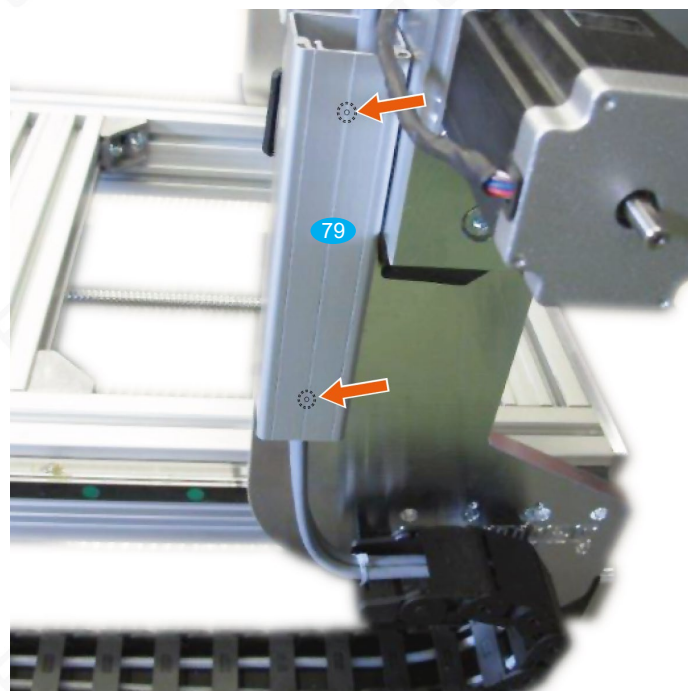


Fig. 8: Installation of cable duct on portal cheek

## 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

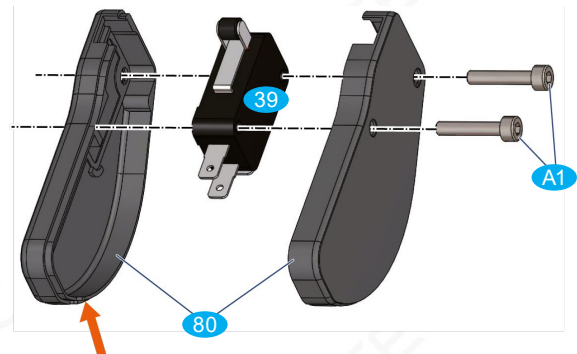


Fig. 9: Housing with reference switch. The red arrow indicates the cut-out for cable entry

## Terminal boxes (not ITG-version\*)

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

### **i** \*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.

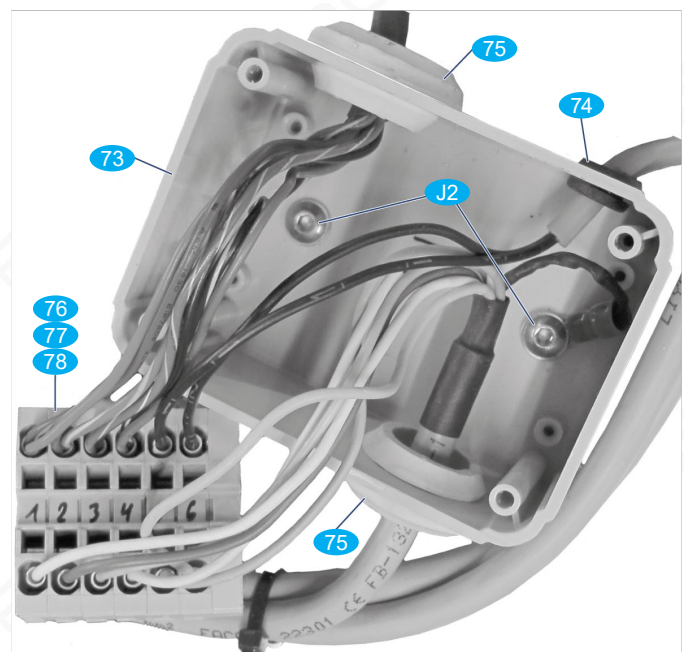


Fig. 10: Terminal box with bushings and terminal blocks

## Terminal box X axis:

- Drill and deburr the terminal box **73** with  $\varnothing$  5 mm
- Drill and deburr the terminal box on the side with  $\varnothing$  20 mm for large grommets **75**.
- Drill and deburr the terminal box on the side with  $\varnothing$  12.5 mm for M12 cable gland **81**.
- Drill and deburr the bottom of the terminal box
- with  $\varnothing$  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  $\varnothing$  3.3 mm and then cut M4 thread.
- Drill and deburr the hole for the cable entry  $\varnothing$  8 mm (if not there already).
- Insert grommets **74** / **75** and M12 cable gland into the terminal box.
- Screw the terminal box with fastening screws.

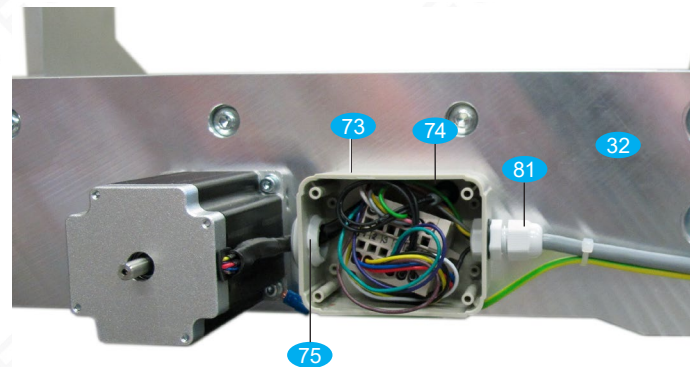
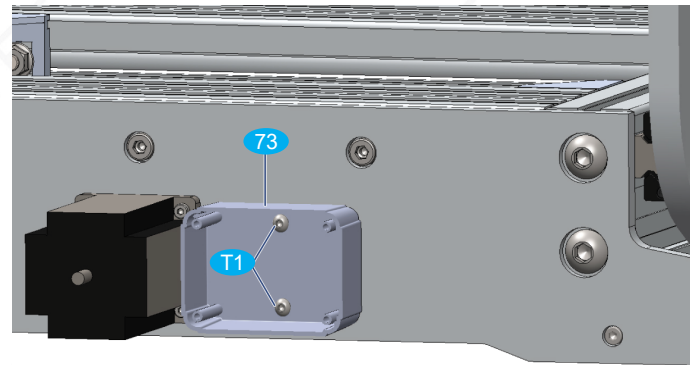


Fig. 11: Assembly of the X-axis terminal box

## Terminal box Y axis:

- Drill and deburr the terminal box **73** with  $\varnothing$  5 mm.
- 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 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  $\varnothing$  3.3 mm and then cut M4 thread.
- Drill and deburr the hole for the cable entry  $\varnothing$  8 mm.
- Insert grommets **74** / **75** and M12 cable gland into the terminal box.
- Screw the terminal box with screws **T1**

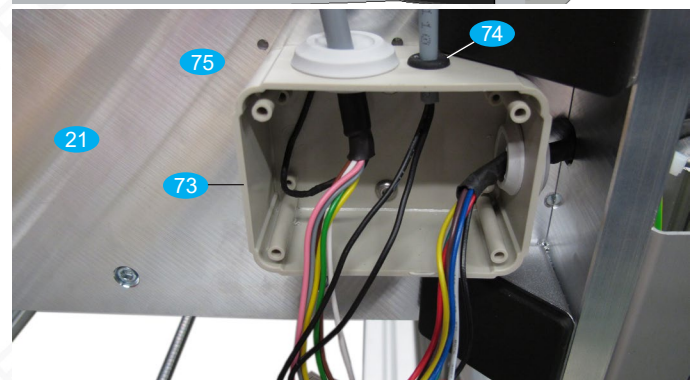
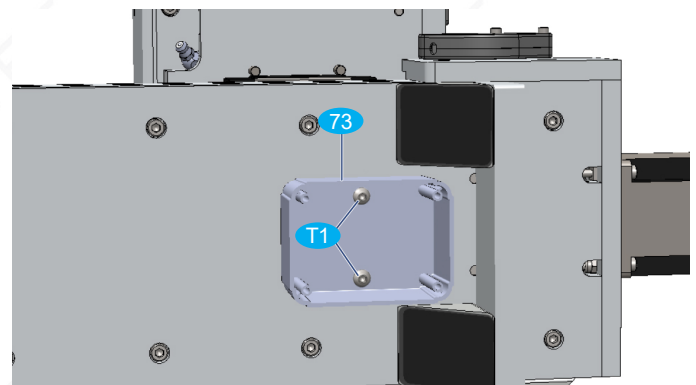


Fig. 12: Installation of terminal box Y-axis



## Terminal box Z axis:

- Drill and deburr the terminal box **73** with  $\varnothing$  5 mm
- 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 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  $\varnothing$  3.3 mm and then cut M4 thread.
- Drill and deburr the hole for the cable entry  $\varnothing$  8 mm.
- Insert grommets **74** / **75** and M12 cable gland into the terminal box.
- Screw the terminal box with screws **T1**.

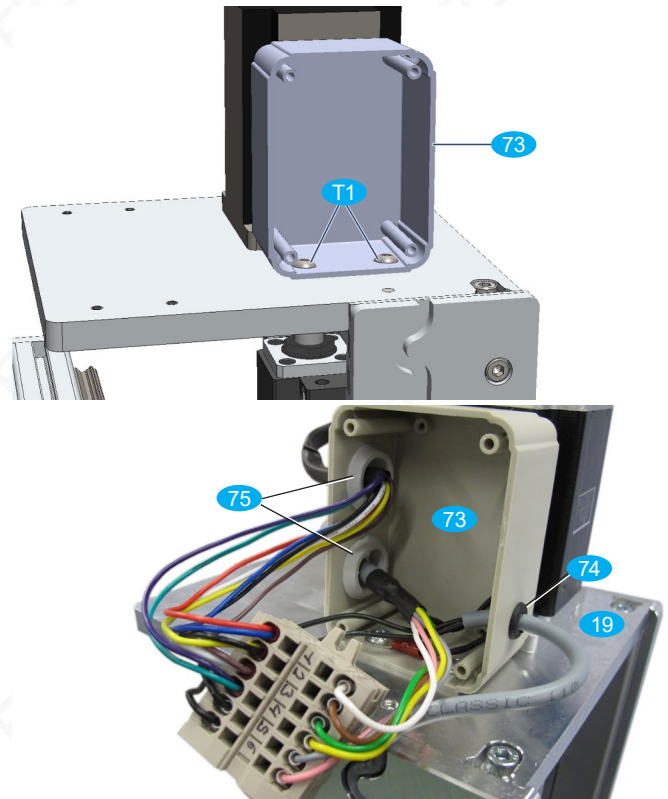
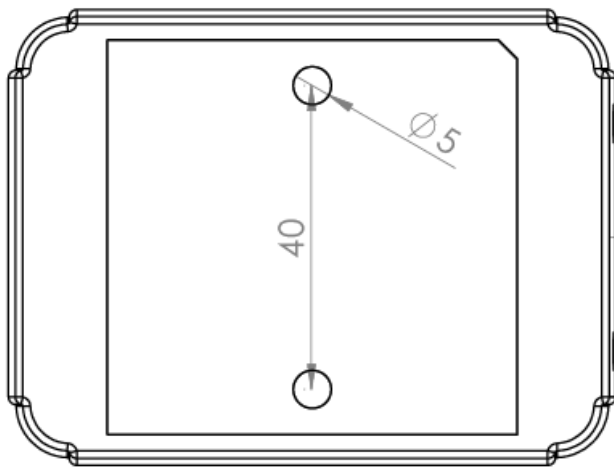
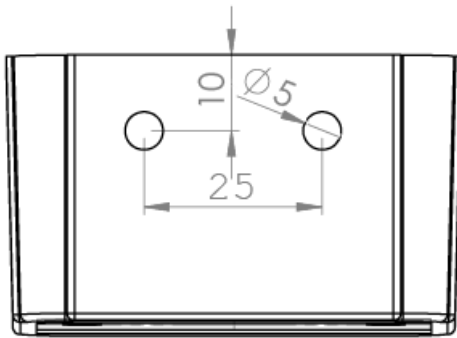
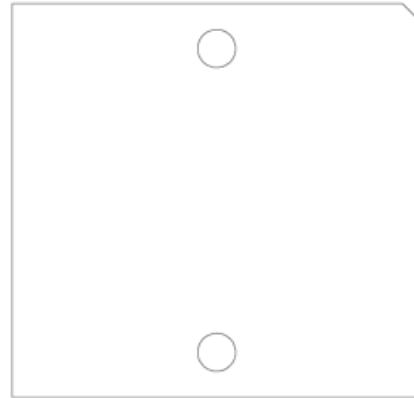


Fig. 13: Installation of Z-axis terminal box

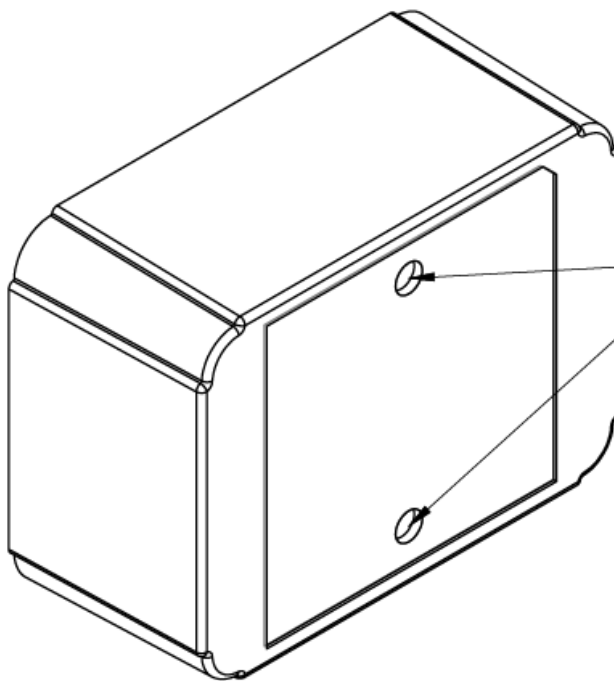
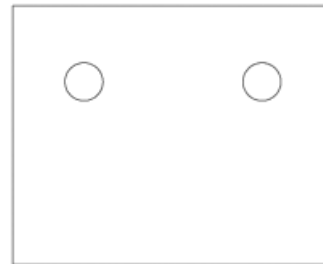
Bohrschablonen Verteilerdosen (Masstab 1:1 / NICHT SKALIEREN)



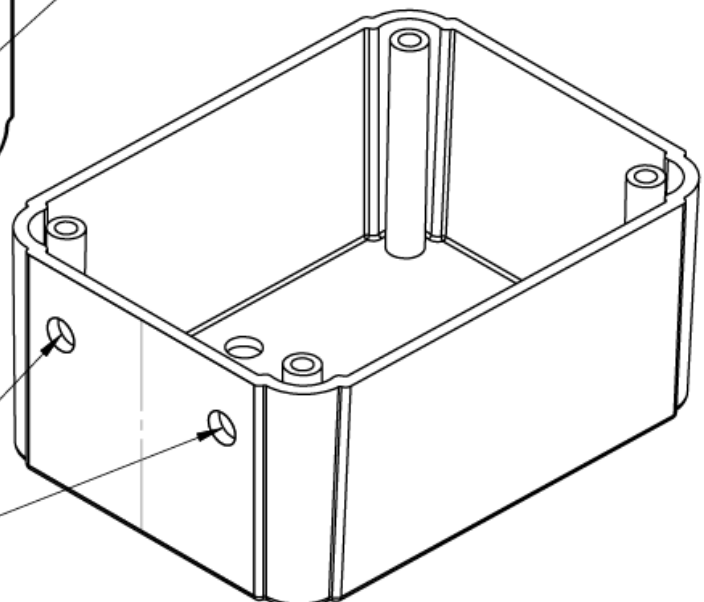
Bohrschablone X- und Y-Achse



Bohrschablone Z-Achse



Bohrungen bei  
X- und Y-Achse



Bohrungen  
Z-Achse