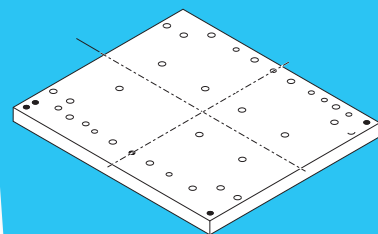
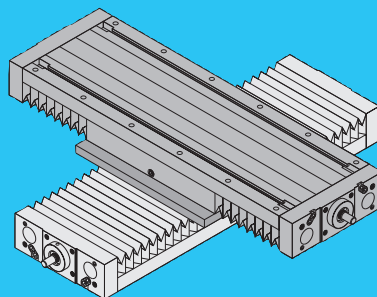
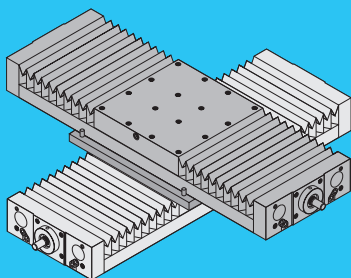
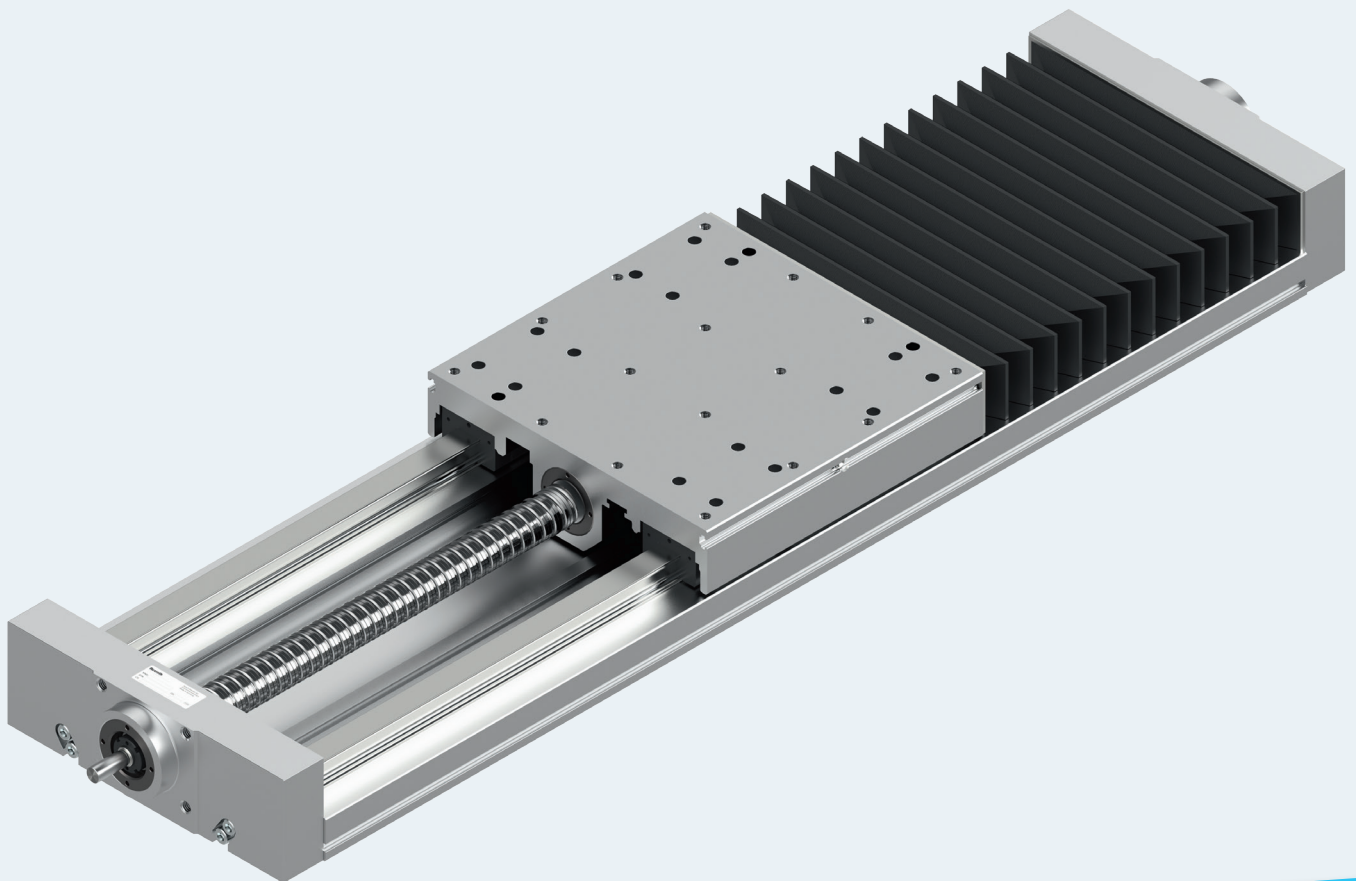


# Ball Rail Tables TKK

## Connection System

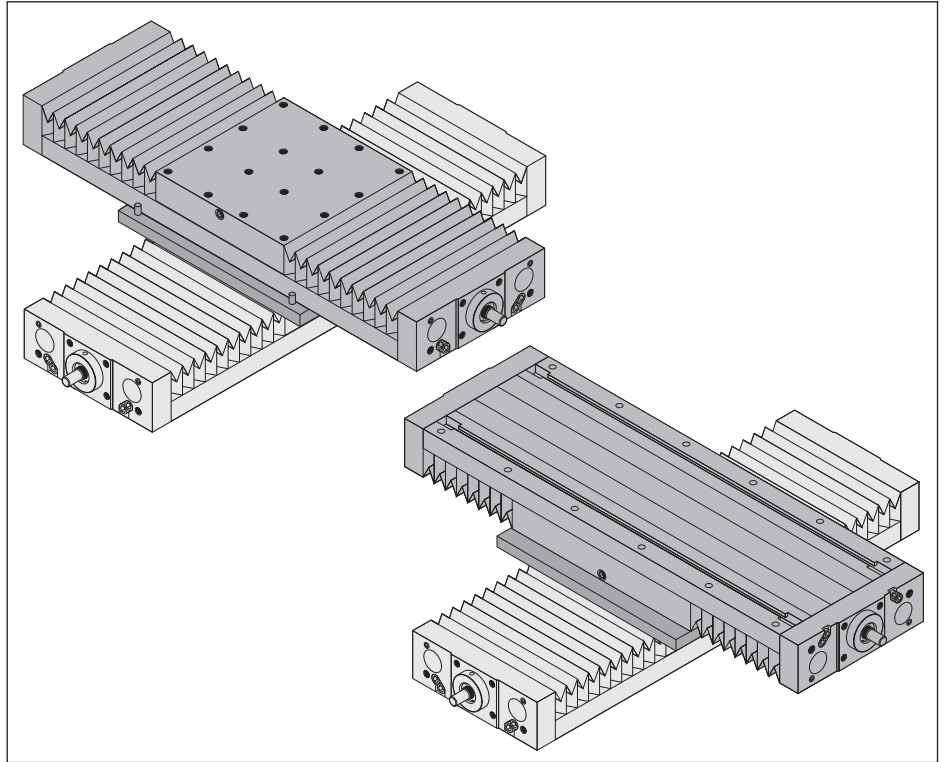
Catalog and instructions



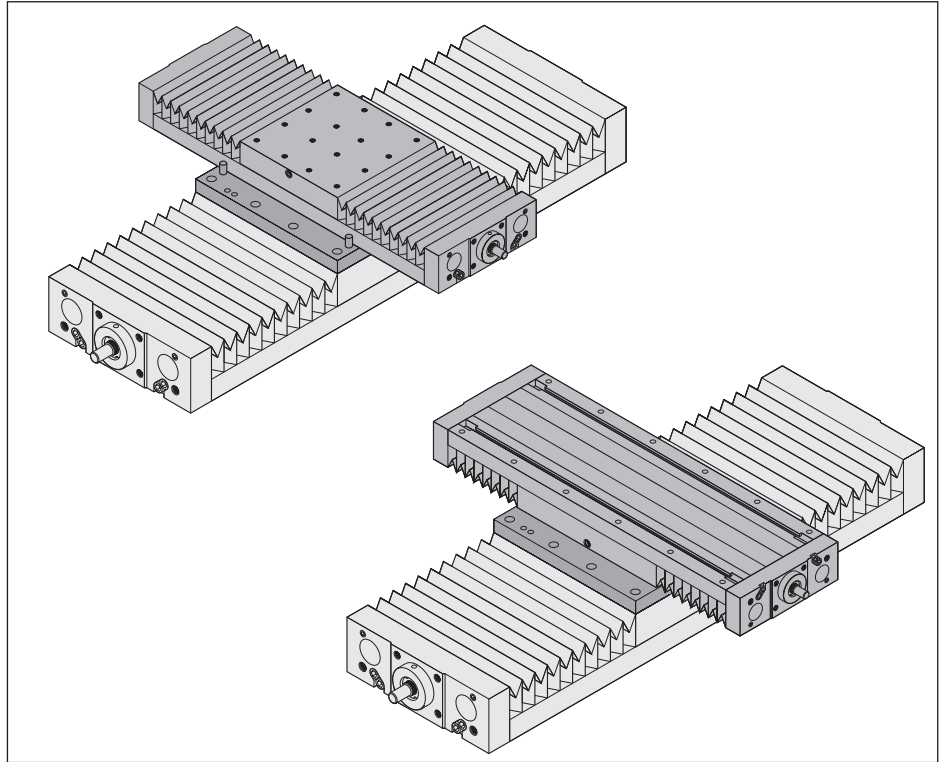
## Connection System

Cross-plates have been designed for easy assembly of X-Y units. They are supplied as assembly kits containing all the screws, pins and sliding blocks required to join the two axes.

### Same-size units can be combined



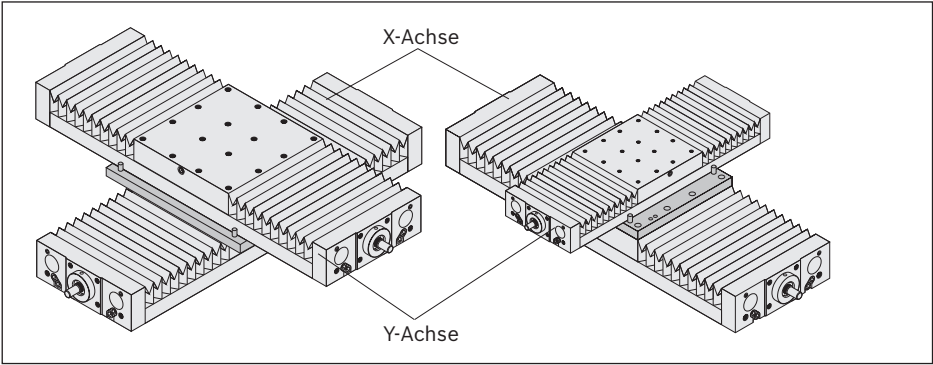
**A unit can be combined with the next largest or smallest size.**



General

In a two-axis unit, the accuracies of the individual axes and of the cross-plate are added, together with the elastic deformation of the Y-axis (not fully supported). However, this deformation can be significantly reduced by the use of the high base plate. The perpendicularities shown in the graphs are calculated maximum values and describe the angular relation of the two axes to each other. They are attained by simple joining and fixing together using existing or predrilled pin-holes, without requiring alignment. More precise perpendicularities can be produced by aligning the Y-axis and drilling the predrilled pin-holes in the cross-plate. The P4 accuracies of the individual axes must be added to the specified angularity.

Assemblies for connection of base plate to carriage

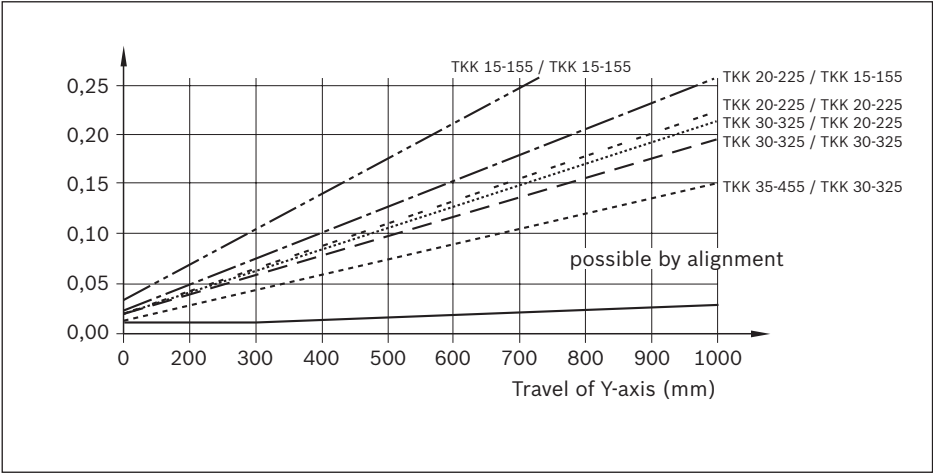


Part numbers of cross-plate assembly kits

Consisting of: cross-plate with all fixings required to join the two axes.

X-Achse	Y-Achse		
	TKK 15-155 AI	TKK 20-225 AI	TKK 30-325 AI
TKK 15-155 AI	R0391 200 11		
TKK 20-225 AI	R0391 200 13	R0391 200 15	
TKK 30-325 AI		R0391 200 17	R0391 200 19
TKK 35-455 AI			R0391 200 21

Perpendicularity of the two axes

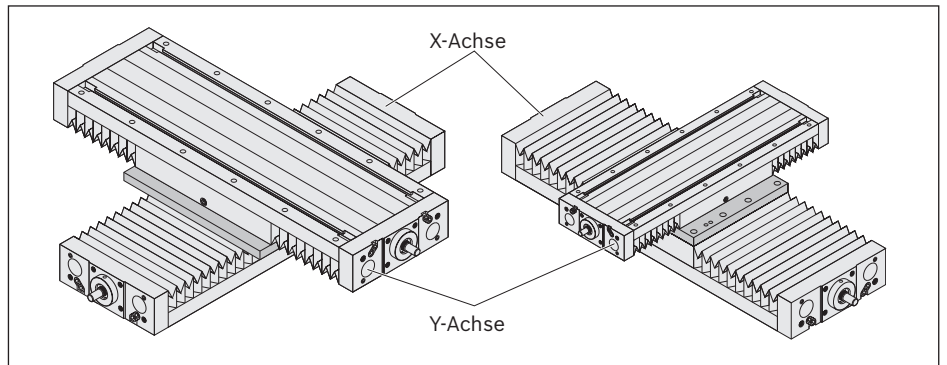


## Note

Fully assembled cross-plates and combinations of steel Ball Rail Tables available on request.

In the case of motor attachment via timing belt side drive, the motor may project into the working area of adjacent axes. Check for any interference contours.

## Assemblies for connection of carriage to carriage

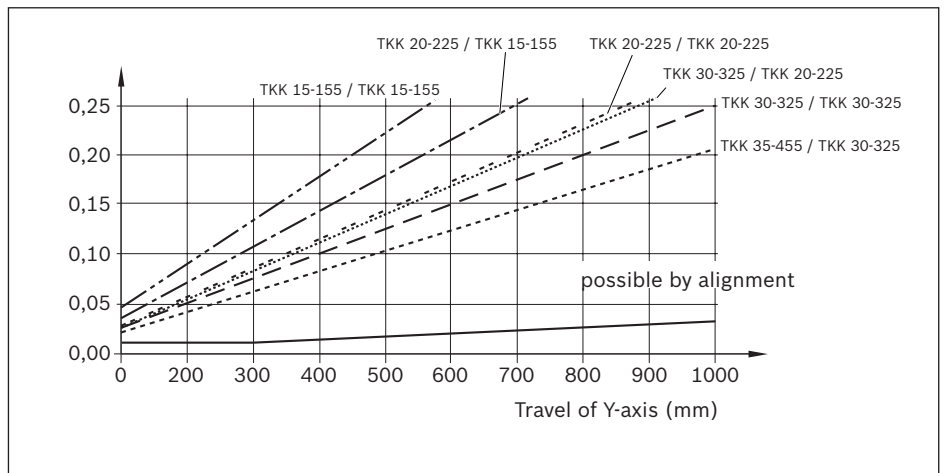


## Part numbers of cross-plate assembly kits

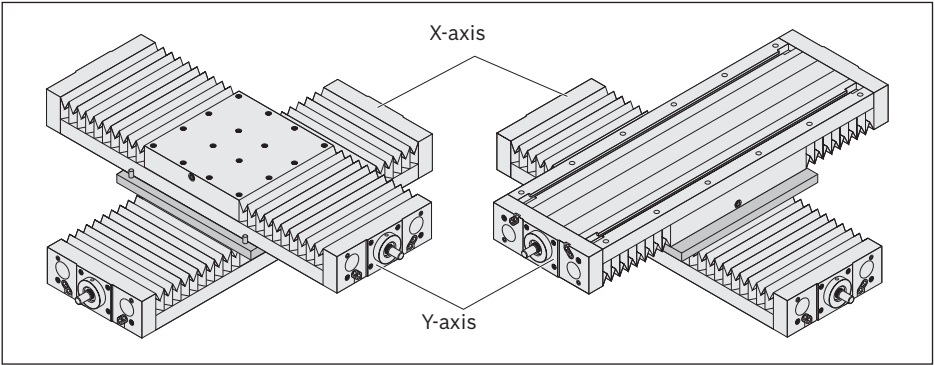
Consisting of: cross-plate with all fixings required to join the two axes.

X-axis	Y-axis		
	TKK 15-155 AI with $L_{ca} = 220$	TKK 20-225 AI with $L_{ca} = 320$	TKK 30-325 AI with $L_{ca} = 450$
TKK 15-155 AI	R0391 200 12		
TKK 20-225 AI	R0391 200 14	R0391 200 16	
TKK 30-325 AI		R0391 200 18	R0391 200 20
TKK 35-455 AI			R0391 200 22

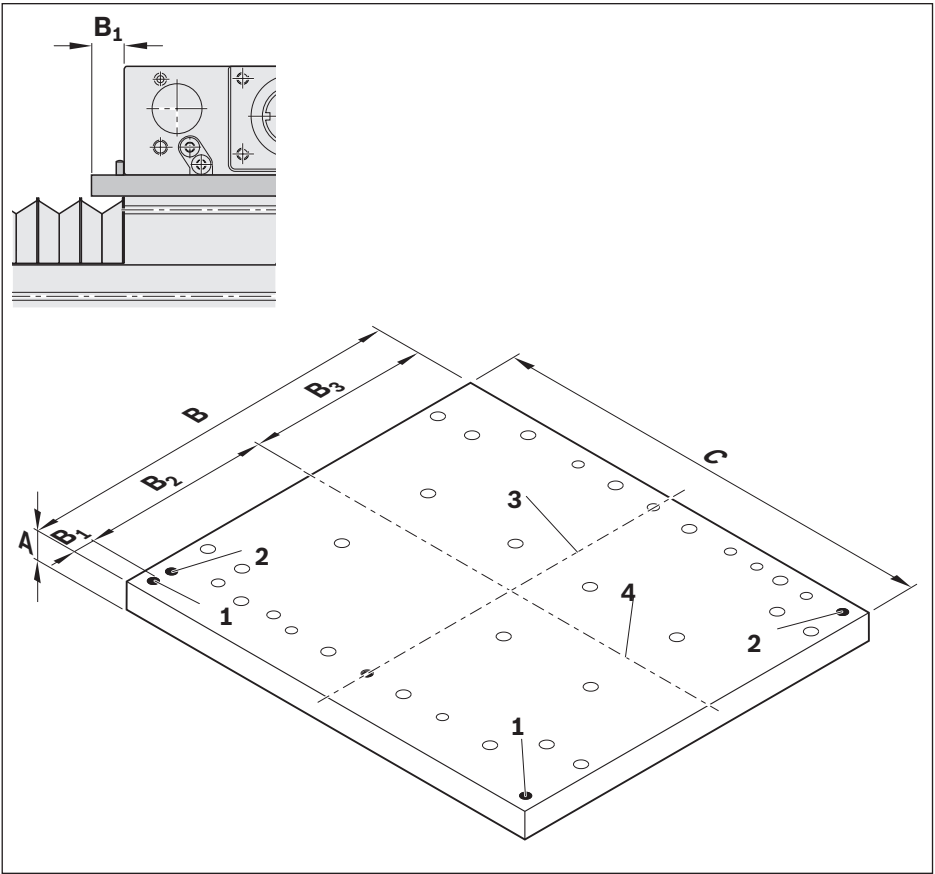
## Perpendicularity of the two axes



Dimensions of the cross-plates when connecting Ball Rail Tables of the same size

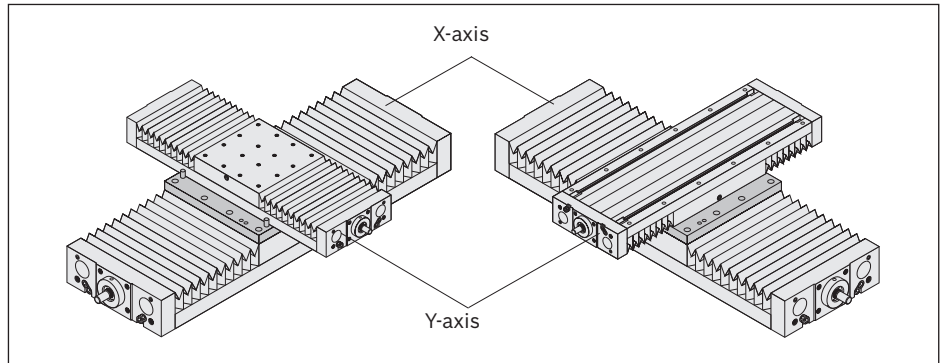


- 1 Pin-holes for joining the Y-axis in base-plate to carriage combinations
- 2 Pre-drilled pin-holes for pinning the Y-axis in base-plate to carriage combinations
- 3 X-axis centerline
- 4 Y-axis centerline

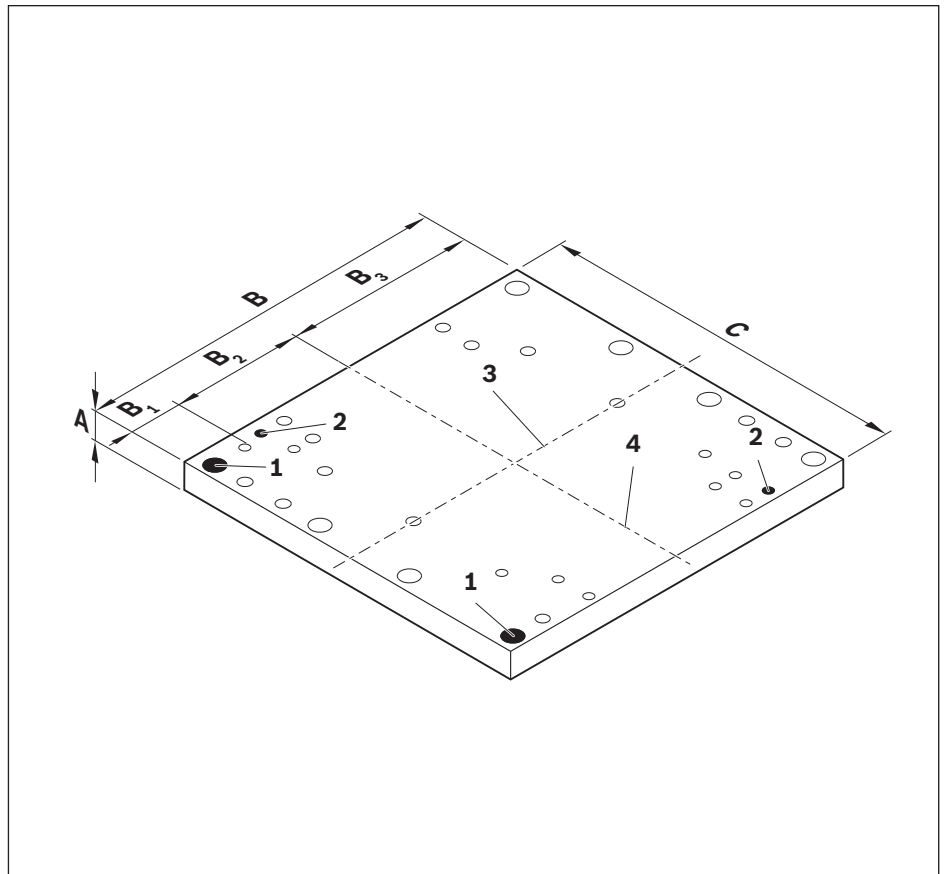


Part number of assembly kit	Dimensions (mm)					
	A	B	C	B <sub>1</sub>	B <sub>2</sub>	B <sub>3</sub>
R0391 200 11	18	165	220	11	77,5	76,5
R0391 200 12						
R0391 200 15	18	240	320	16	112,5	111,5
R0391 200 16						
R0391 200 19	25	340	450	16	162,5	161,5
R0391 200 20						

**Dimensions of the cross-plates when connecting Ball Rail Tables to next largest or next smallest size**



- 1 Pin-holes for joining the Y-axis in base-plate to carriage combinations
- 2 Pre-drilled pin-holes for pinning the Y-axis in base-plate to carriage combinations
- 3 X-axis centerline
- 4 Y-axis centerline



Part number of assembly kit	Dimensions (mm)					
	A	B	C	B <sub>1</sub>	B <sub>2</sub>	B <sub>3</sub>
R0391 200 13	18	220	220	32,5	77,5	110
R0391 200 14						
R0391 200 17	18	320	320	47,5	112,5	160
R0391 200 18						
R0391 200 21	25	400	450	37,5	162,5	200
R0391 200 22						

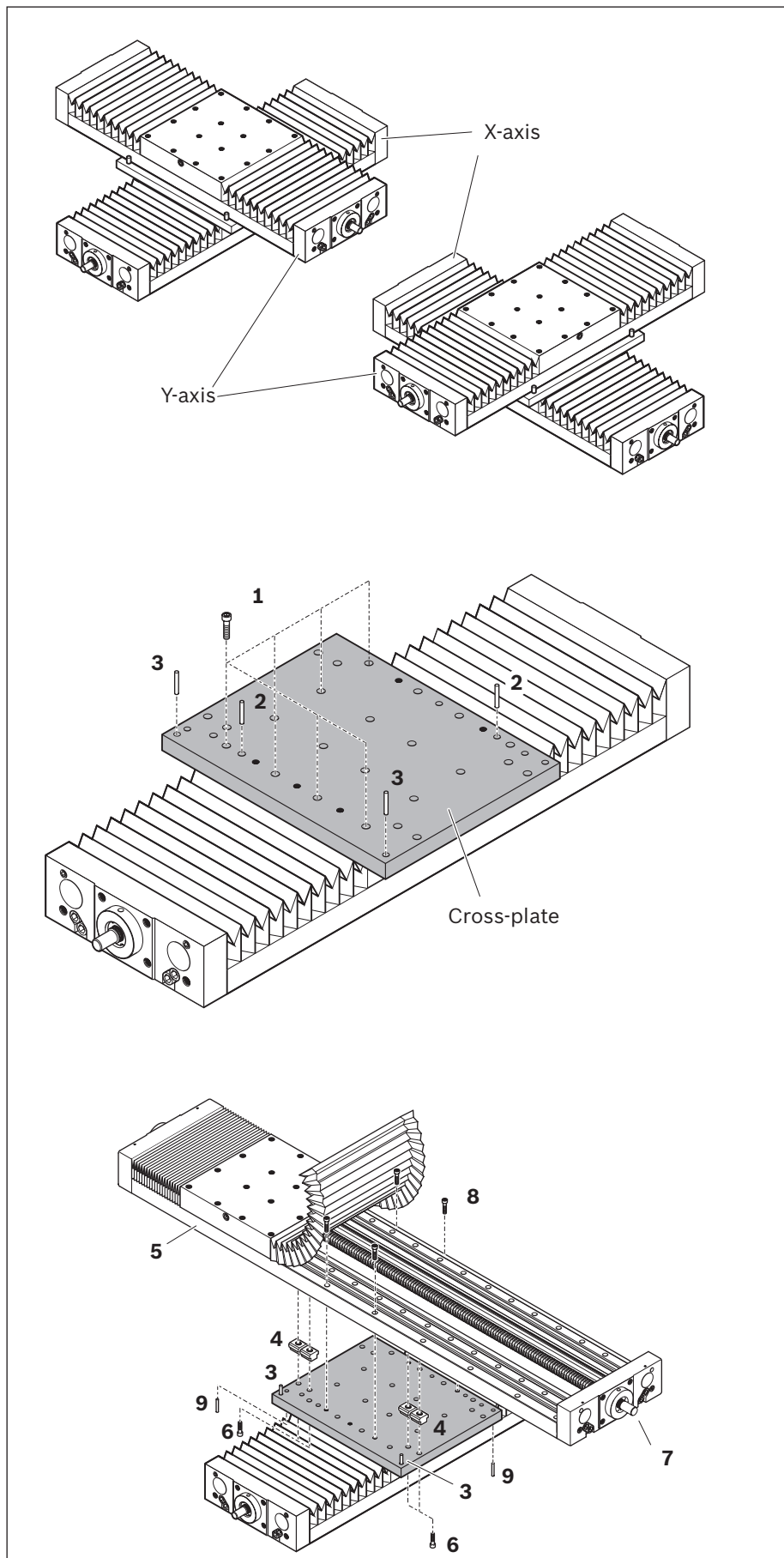
## Mounting X-Y tables

### Mounting two ball rail tables of the same size (base plate on carriage)

⚠ The attachments on X-Y tables must be mounted with care to ensure they cannot be damaged!

► Note the desired direction of installation.

1. Fix the cross-plate to the X-axis carriage with screws (1) and pins (2).
2. Insert the straight pins (3) for locating the Y-axis base plate. Insert and position four pairs of T-nuts (4) in the T-slots of the Y-axis base plate.
3. Place the Y-axis table on the cross-plate and lay it with the reference edge of the base plate (5) on the locating pins (3).
4. Fix the cross-plate from underneath to the Y-axis base plate or to the ready-positioned T-nuts using screws (6).
5. Move the Y-axis carriage away from the cross-plate zone by turning the BSD (7).
6. Remove the Y-axis bellows covering the cross-plate zone. ➡ remove bellows covering.
7. Fix the Y-axis base plate to the cross-plate from above with screws (8) in the corresponding threaded cross-plate holes.
8. Drill holes in the Y-plate base plate from underneath through the pre-drilled pin holes in the cross-plate (transfer the drill-hole pattern of the cross-plate to the base plate), deburr and fix with pins (9).

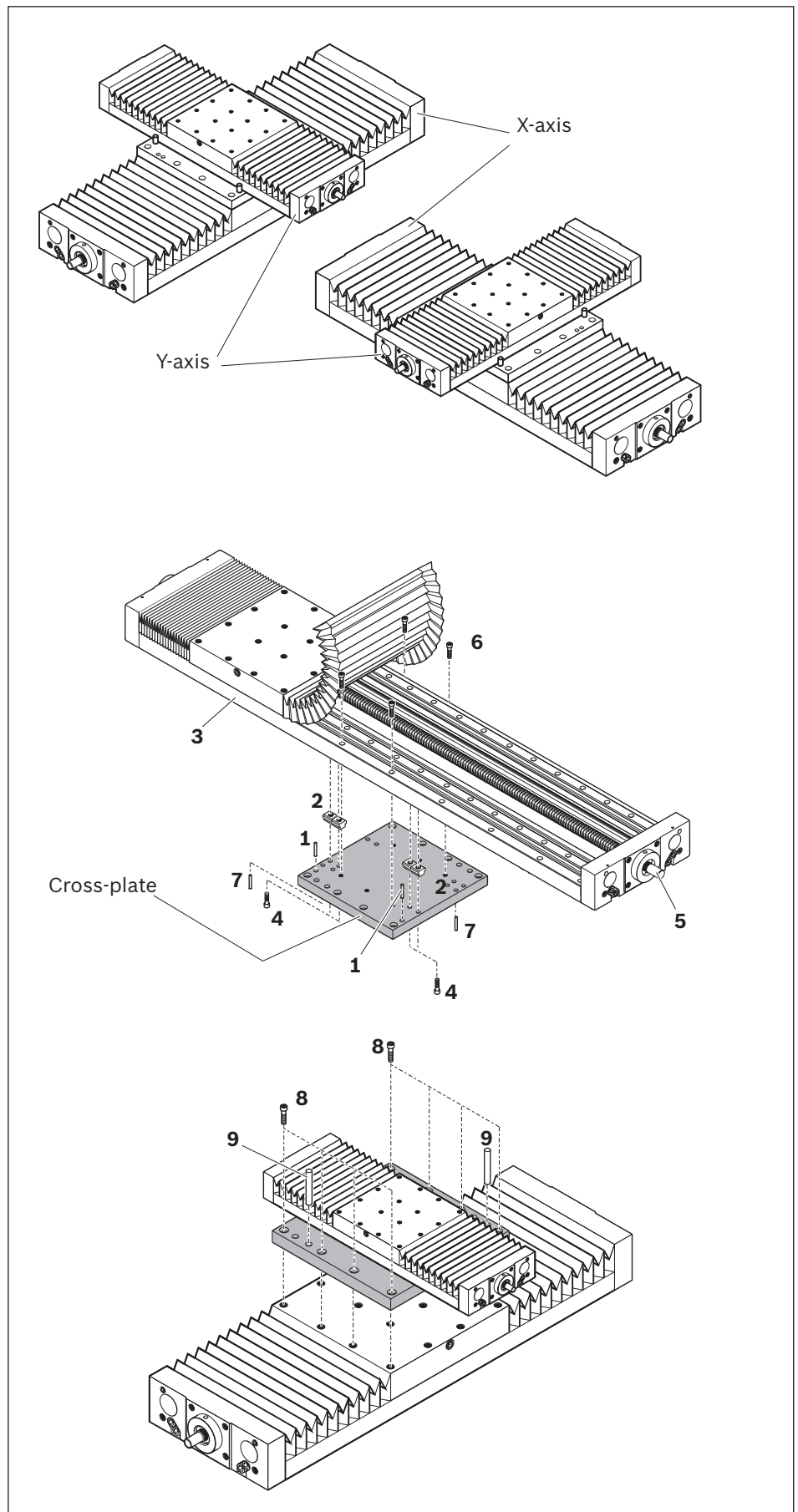




## Mounting a ball rail table of the next smaller size (base plate on carriage)

⚠ **The attachments on X-Y tables must be mounted with care to ensure they cannot be damaged!**

1. Drive straight pins (1) into the cross-plate for locating the Y-axis base plate.
2. Insert and position four pairs of T-nuts (2) in the T-slots of the Y-axis base plate.
3. Place the Y-axis table on the cross-plate and lay it with the reference edge of the base plate (3) on the locating pins (1).
4. Fix the cross-plate from underneath to the Y-axis base plate or to the ready-positioned T-nuts using screws (4).
5. Move the Y-axis carriage away from the cross-plate zone by turning the BSD (5).
6. Remove the Y-axis bellows covering the cross-plate zone. ➡ remove bellows covering.
7. Fix the Y-axis base plate from above to the cross-plate with screws (6) in the corresponding threaded cross-plate holes.
8. Drill holes in the Y-plate base plate from underneath through the pre-drilled pin holes in the cross-plate (transfer the drill-hole pattern of the cross-plate to the base plate), deburr and fix with pins (7). Note the desired direction of installation.
9. Place the Y-axis table with mounted cross-plate on the carriage of the X-axis table.
10. Fix the cross-plate from above to the X-axis carriage with screws (8) and pins (9).

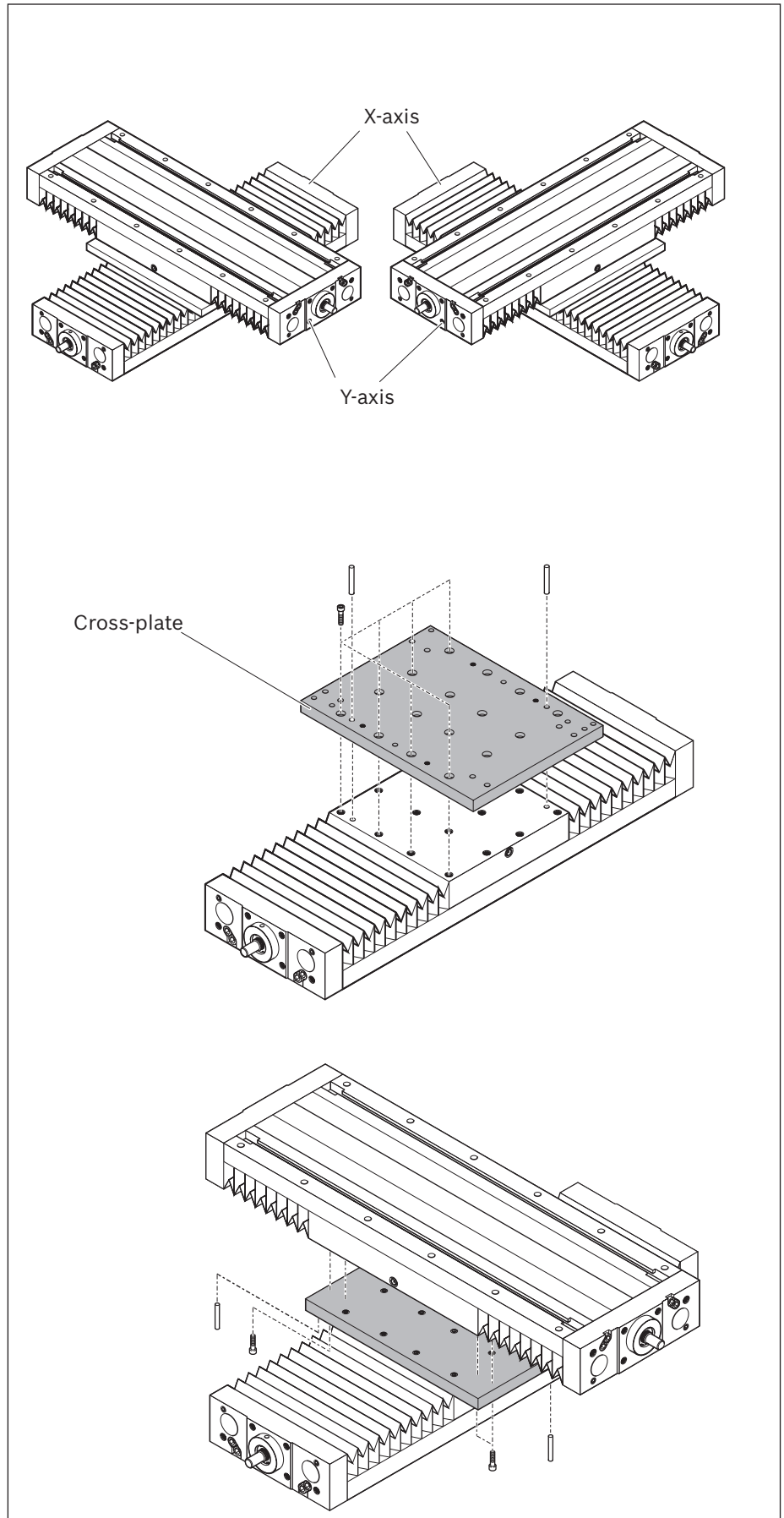


### Mounting two ball rail tables of the same size (carriage to carriage)

⚠ **The attachments on X-Y tables must be mounted with care to ensure they cannot be damaged!**

► Note the desired direction of installation.

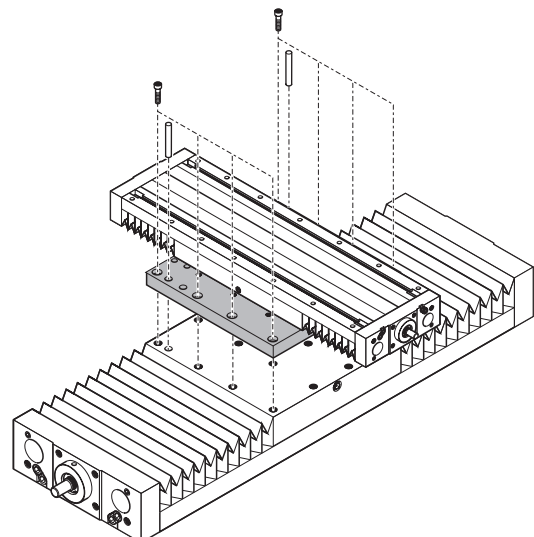
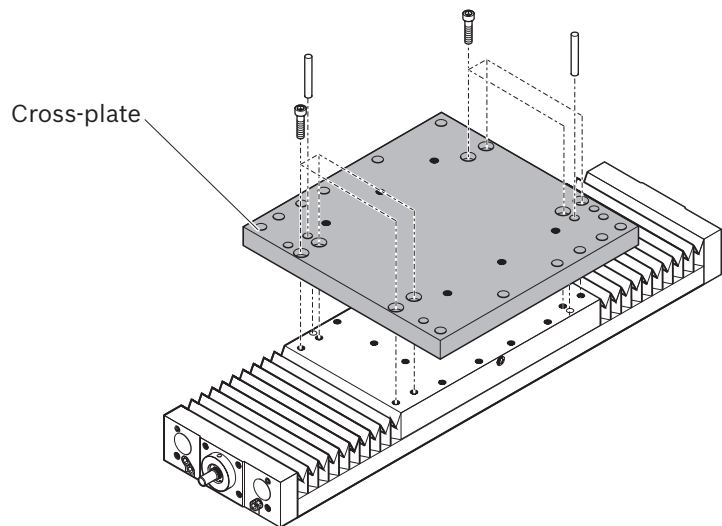
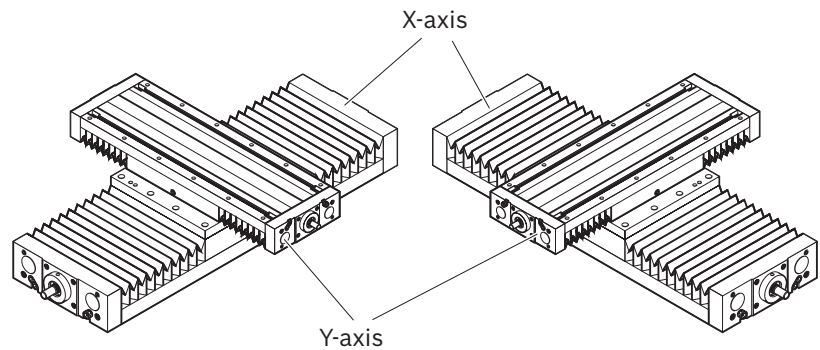
1. Screw and pin the cross-plate to the X-axis carriage.
2. Place the Y-axis ball rail table upside down on the cross-plate.
3. Screw and pin the cross-plate from underneath to the Y-axis carriage.



### Mounting a ball rail table of the next smaller size (carriage to carriage)

⚠ **The attachments on X-Y tables must be mounted with care to ensure they cannot be damaged!**

- Note the desired direction of installation. Screw and pin the cross-plate to the Y-axis carriage.
1. Place the Y-axis ball rail table, complete with mounted cross-plate, upside down on the X-axis carriage.
  2. Screw and pin the cross-plate from above to the X-axis carriage.



**Bosch Rexroth AG**

Ernst-Sachs-Straße 100  
97424 Schweinfurt, Germany  
Tel. +49 9721 937-0  
Fax +49 9721 937-275  
[www.boschrexroth.com](http://www.boschrexroth.com)

**Find your local contact person here:**

<https://www.boschrexroth.com/contact>



The data specified above only serves to describe the product.  
Due to the continuing development of our products, no statements concerning a certain condition or suitability for a certain application can be derived from our information. The information given does not release the user from the obligation of their own judgment and verification. Please note that our products are subject to a natural process of wear and aging.