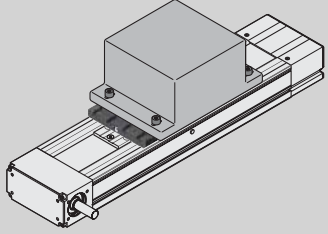
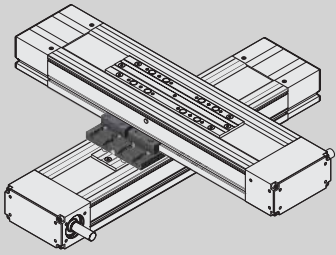
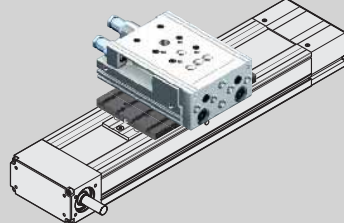

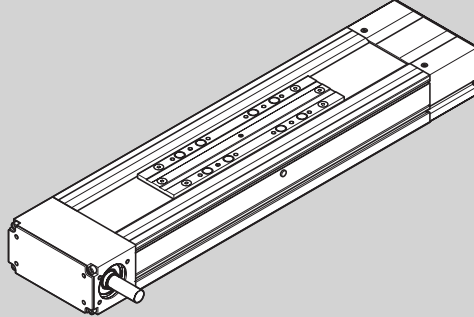
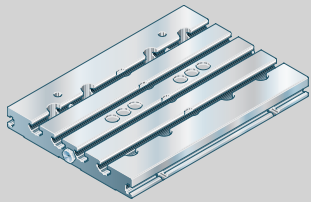
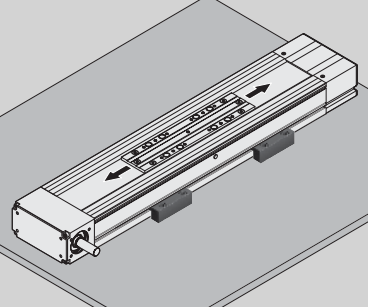
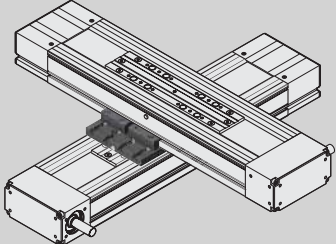
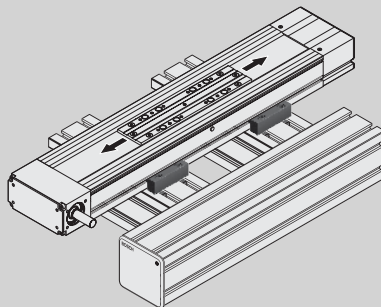


Mounting

# Overview of fastening and attachment options

<p><b>Fastening a customer attachment onto the Compact Module via connection plate</b></p> 	<p><b>Connection of Compact Modules via connection plate and clamping fixtures</b></p> 	<p><b>Fastening of camoLINE automation system <sup>1)</sup> to Compact Modules via connection plate (example: Mini Slide MSC)</b></p> 
<p><b>Fastening to carriage</b></p>		
<p><b>Clamping fixtures</b></p> 	<p><b>Compact Modules CKR or CKK</b></p> 	<p><b>Connection plate</b></p> 
<p><b>Fastening to frame</b></p>		
<p><b>Fastening of Compact Modules to customer-built mounting base via clamping fixtures</b></p> 	<p><b>Connection of Compact Modules via connection plate and clamping fixtures</b></p> 	<p><b>Fastening of Compact Modules on BME<sup>2)</sup> profile construction via connection plates and clamping fixtures</b></p> 

1) see camoLINE catalog R310A 2605

2) BME: Basic mechanical elements from Bosch Rexroth Linear Motion and Assembly Technologies

**General notes**

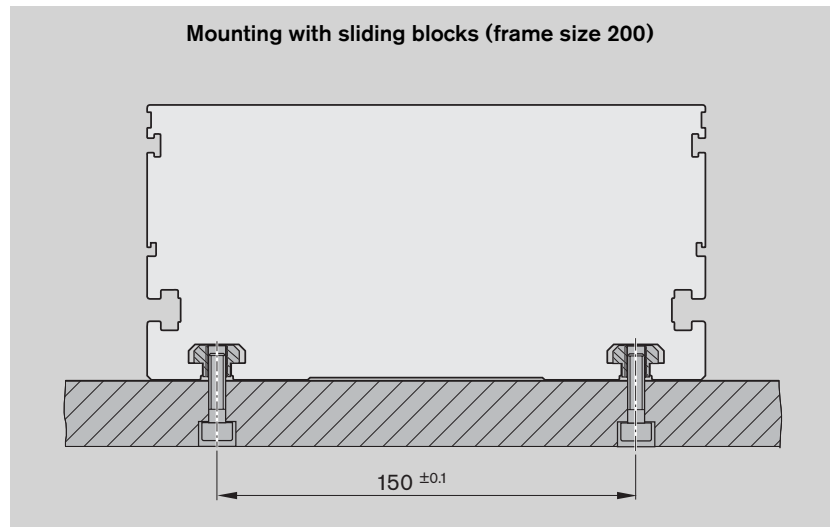
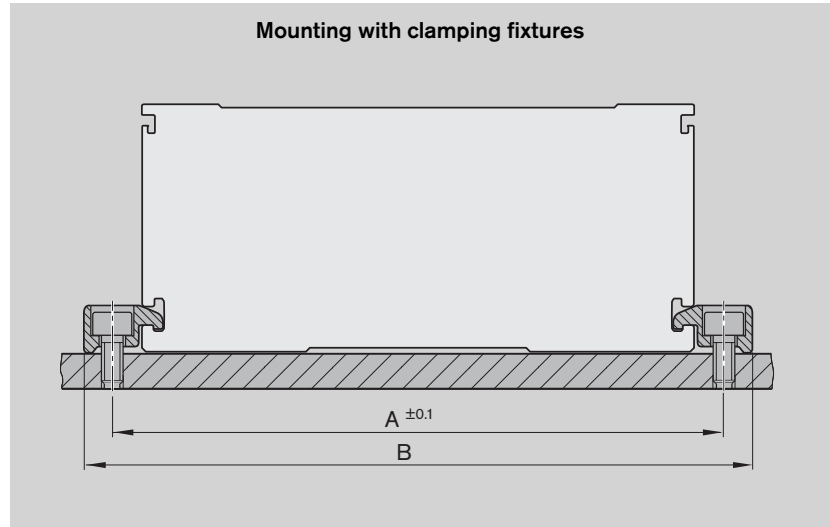
Compact Modules are mounted using clamping fixtures.

**⚠ Do not secure or support the Compact Module at the end enclosures!**

**The frame is the load-bearing part! When mounting Compact Modules, please note the maximum tightening torques listed in the table.**

Frame size	A (mm)	B (mm)
90	102	112
110	126	140
145	161	175
200	222	240

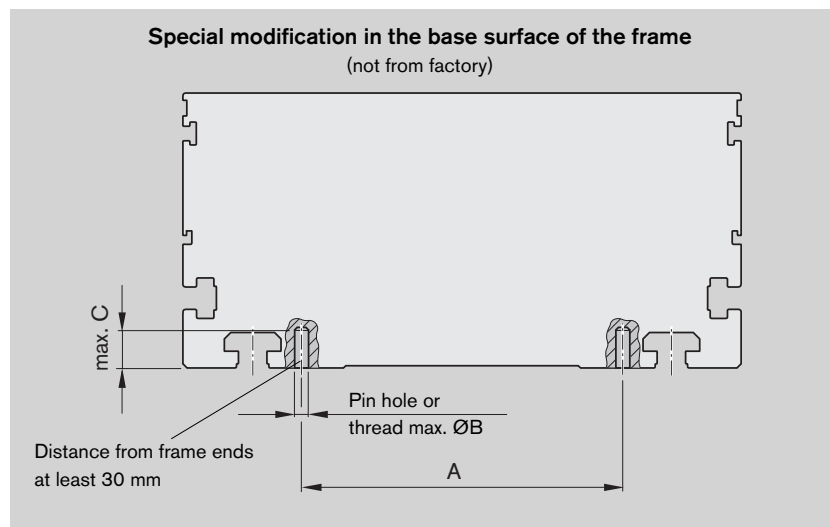
Alternative mounting option with sliding blocks for frame size 200



Mounting by means of special modification in the base surface of the frame is possible.

Frame size	A (mm)	B (mm)	C <sup>1)</sup> (mm)
90	76	4	7.5
110	92	5	9.0
145	124	6	13.0
200	119	8	16.0

1) Pin-hole and thread depth



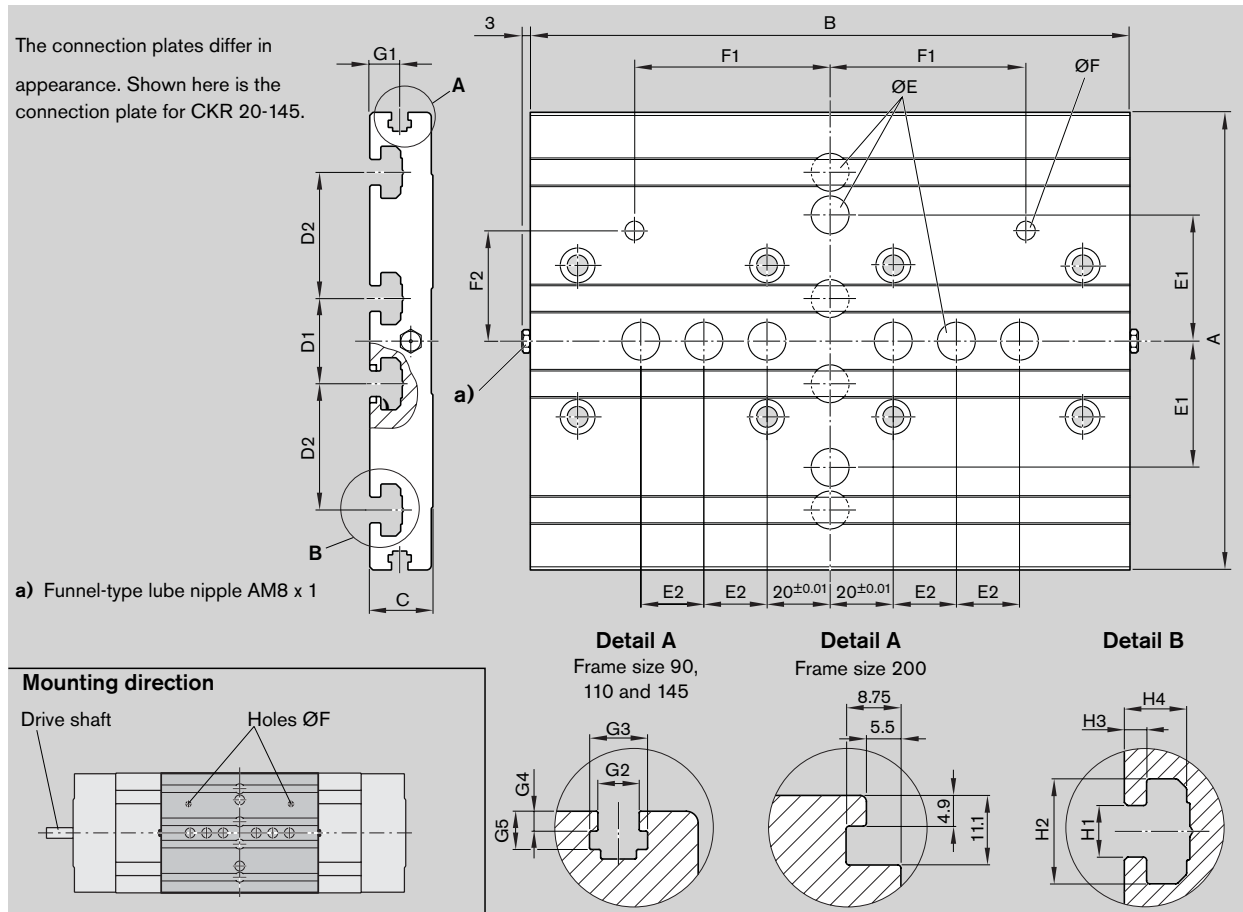
Mounting

# Connection plates

- Connection plate**  
 – for CKK with two carriages  
 – for CKR with long carriage

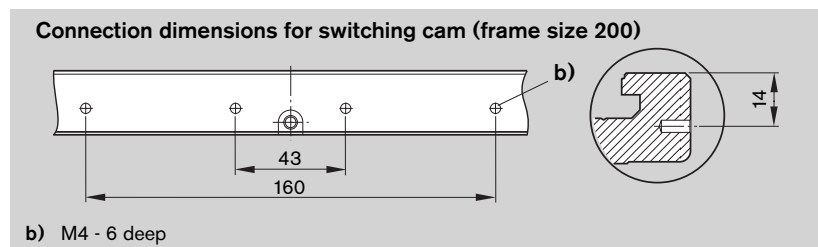
- Function:**
- Fastening of attachments (with sliding blocks)
  - Lubrication possible from two sides (designed for one-point lubrication through only one of the two sides)

- Assembly consists of:**
- Connection plate
  - Mounting accessories for fastening to the carriages
- Sliding blocks are not included with delivery.



Frame size	Dimensions (mm)																			
	A	B	C	D1	D2	ØE <sup>H7</sup>	E1 ±0.01	E2 ±0.01	ØF <sup>H7</sup>	F1 ±0.01	F2 ±0.01	G1	G2	G3	G4	G5	H1	H2	H3	H4
90	90	125	16	20	20	9 - 2.1 deep	–	10	4 - 10 deep	38.0	20	7.6	4.2	7.3	2.0	4.3	6	12.0	3.5	7.7
110	110	155	16	20	20	9 - 2.1 deep	–	10	5 - 10 deep	46.0	42	9.5	5.2	7.3	2.5	4.8	6	12.0	3.5	7.7
145	145	190	20	27	40	12 - 2.1 deep	40	20	6 - 12 deep	62.0	35	9.5	5.2	7.3	2.5	4.8	8	16.5	3.5	9.8
200	200	305	27	40	40	16 - 3.1 deep	–	20	8 - 16 deep	59.5	41	–	–	–	–	–	10	20.1	6.0	12.5

Frame size	Part number for assembly	
	CKK	CKR
90	R0375 300 10	R0375 300 11
110	R0375 400 10	R0375 400 11
145	R0375 500 10	R0375 500 11
200	R0375 600 10	R0375 600 11



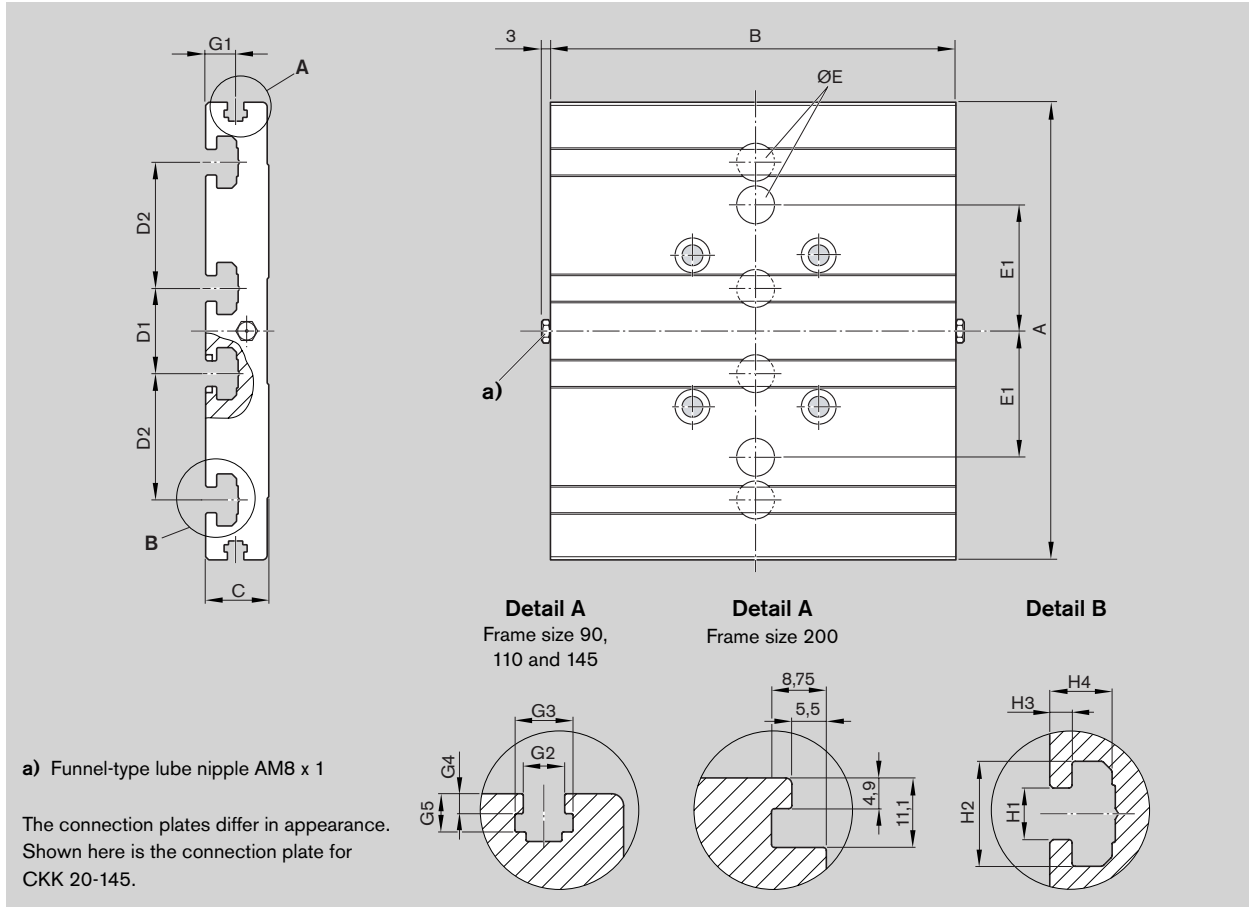
**Connection plate**  
 – for CKK with one carriage  
 – for CKR with short carriage

**Function:**

- Fastening of attachments (with sliding blocks)
- Lubrication possible from two sides (designed for one-point lubrication through only one of the two sides)

**Assembly consists of:**

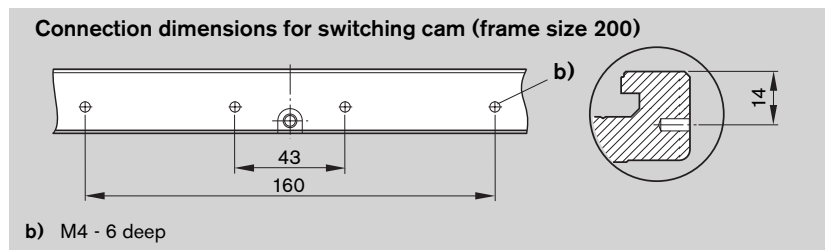
- Connection plate
  - Mounting accessories for fastening to the carriages
- Sliding blocks are not included with delivery



Frame size	Dimensions (mm)															
	A	B	C	D1	D2	ØE <sup>H7</sup>	E1 ±0.01	G1	G2	G3	G4	G5	H1	H2	H3	H4
90	90	60	16	20	20	9 - 2.1 deep	-	7.9	4.2	7.6	2.0	4.3	6	12.0	3.5	7.7
110	110	60	16	20	20	9 - 2.1 deep	-	6.0	5.2	9.5	2.5	4.8	6	12.0	3.5	7.7
145	145	80 <sup>1)</sup>	20	27	40	12 - 2.1 deep	40	10.0	5.2	9.5	2.5	4.8	8	16.5	3.5	9.8
200	200	190	27	40	40	16 - 3.1 deep	-	-	-	-	-	-	10	20.1	6.0	12.5

Frame size	Part number for assembly	
	CKK	CKR
90	R0375 300 15	R0375 300 16
110	R0375 400 15	R0375 400 16
145	R0375 500 15	R0375 500 16
200	R0375 600 15	R0375 600 16

1) CKR 20-145: 125



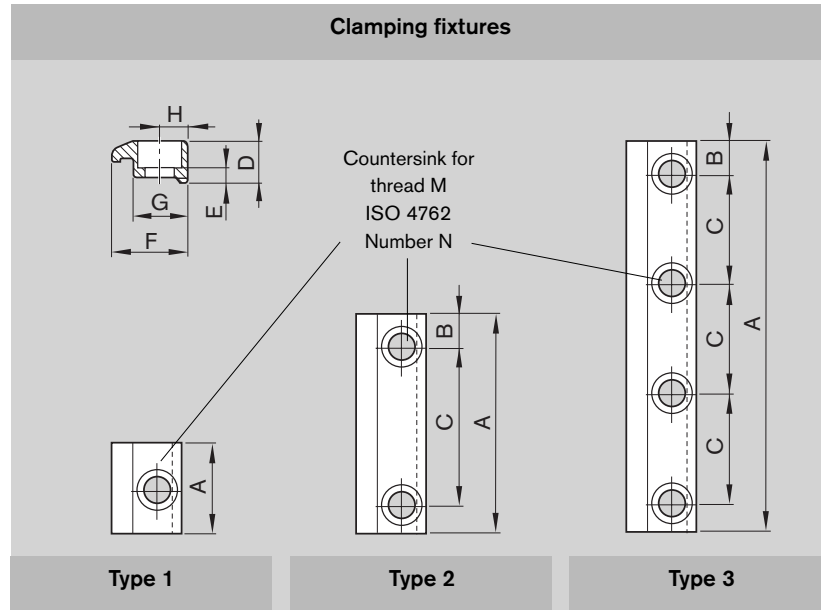
Mounting

# Mounting accessories

## Clamping fixtures

Recommended number of clamping fixtures:

- Type 1: 6 pieces per meter and side
- Type 2: 4 pieces per meter and side
- Type 3: 3 pieces per meter and side

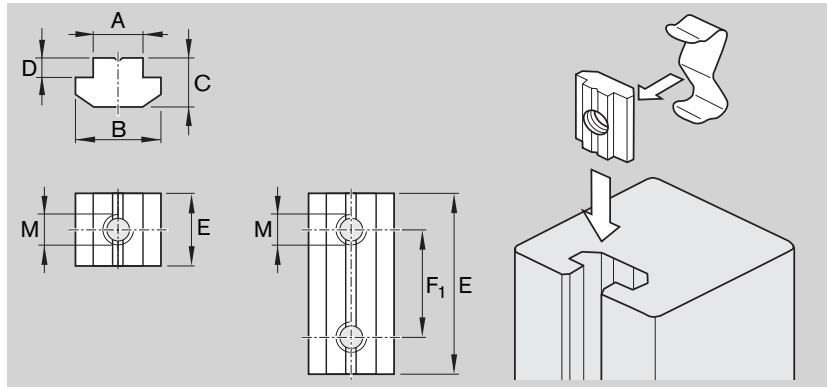


Frame size	For thread	Type	Number of holes N	Dimensions (mm)								Part number
				A	B	C	D	E	F	G	H	
90	M4	1	1	25	-	-	9	4.6	14.5	10.5	5	R0375 310 00
		3	4	87	6.0	25		4.6				R0375 310 02
		3	4	107	8.5	30		4.6				R0375 310 03
		2	2	72	11.0	50		3.2				R0375 310 13
		2	2	62	11.0	40		3.2				R0375 310 15
		3	4	77	8.5	20		4.6				R0375 310 26
110 and 145	M5	3	4	107	8.5	30	11.5	4.8	19.3	14.0	7	R0375 410 02
		3	4	77	8.5	20		4.8				R0375 410 26
	M6	1	1	25	-	-	11.5	5.3	19.3	14.0	7	R0375 510 00
		3	4	142	11.0	40		5.3				R0375 510 02
		2	2	72	11.0	50		3.2				R0375 510 09
		2	2	62	11.0	40		3.2				R0375 510 11
		2	2	47	8.5	30		5.3				R0375 510 23
		2	2	78	19.0	40		14.8				R0375 510 97
200	M8	2	2	108	19.0	70	27.5	16.3	29	19.0	9	R1175 290 26
		2	2	88	19.0	50		14.8				R1175 290 96
		2	2	78	19.0	40		14.8				R1175 290 97

CKR Compact Modules: When installing the clamping fixtures, observe a minimum distance of 10 mm to the end face of the frame.

### Sliding blocks and springs

For fastening attachments on the connection plate.  
The spring serves as a mounting and positioning aid.



Frame size	For thread	Dimensions (mm)					Part number of sliding block	Part number of spring	
		A	B	C	D	E			F <sub>1</sub>
90 and 110	M4	6	11.5	4	1	12	-	3 842 523 140	3 842 523 145
	M5					45	30	R0391 710 09	-
	M5					12	-	3 842 523 142	3 842 523 145
145	M4	8	16.0	6	2	16	-	3 842 514 928	3 842 516 685
	M5					16	-	3 842 514 929	3 842 516 685
	M6					16	-	3 842 514 930	3 842 516 685
	M6					50	36	R0391 710 08	-
	M8					16	-	3 842 514 931	3 842 516 685
	M8					16	-	3 842 514 931	3 842 516 685
200	M4	10	19.5	10.5	5	20	-	R3447 012 01	3 842 516 669
	M5					20	-	3 842 528 741	3 842 516 669
	M6					20	-	3 842 528 738	3 842 516 669
	M8					20	-	3 842 528 735	3 842 516 669
	M8					90	70	R0391 710 07	-
	M8					90	70	R0391 710 07	-

### Tightening torques of fastening screws

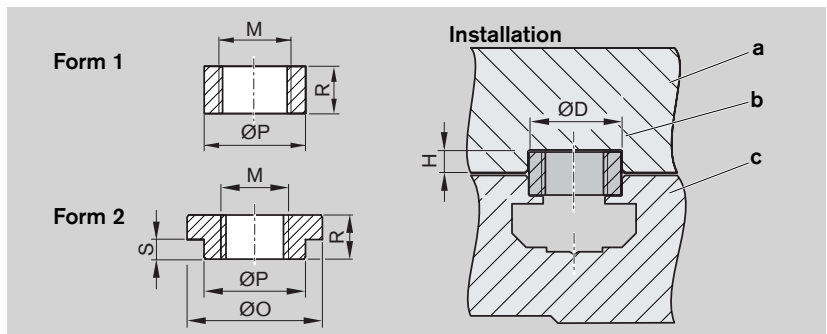
with friction factor 0.125  
strength class 8.8

8.8	M4	M5	M6	M8	
	Nm	2.7	5.5	9.5	23

### Centering ring

The centering ring serves as a positioning aid and positive lock for the customer-built attachments on the connection plate.

- a) Customer-built attachment
- b) Centering ring
- c) Connection plate



Frame size	Form	Part number	Dimensions (mm)						
			D <sup>H7</sup>	H <sup>+0.2</sup>	M	O <sub>ke</sub>	P <sub>ke</sub>	R	S
90 and 110	1	R0396 605 00	9	2.1	M6	-	9	4	-
	2	R0396 605 03	12	2.1	M6	12	9	4	2.1
145	1	R0396 605 01	12	2.1	M8	-	12	4	-
	2	R0396 605 04	16	2.1	M8	16	12	5	2.1
200	1	R0396 605 02	16	3.1	M10	-	16	6	-

Mounting

# Mounting Compact Modules to BME<sup>1)</sup> profile system

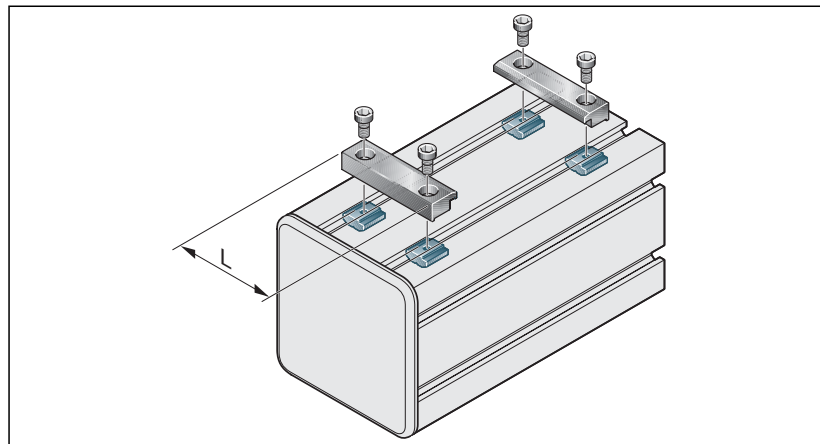
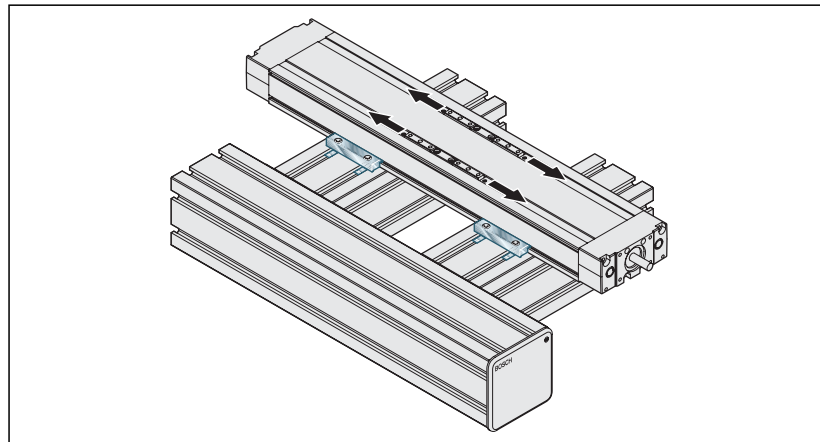
## Clamping fixture kits

Clamping fixture kits serve to rapidly install the Compact Modules on suitable substructures. The screw spacing is designed for profiles with modular dimensions 40 and 50. The clamping fixtures are fastened to the module frame. The Compact Module can be equipped with 1 or 2, short or long carriages.

### Clamping fixture kit consisting of

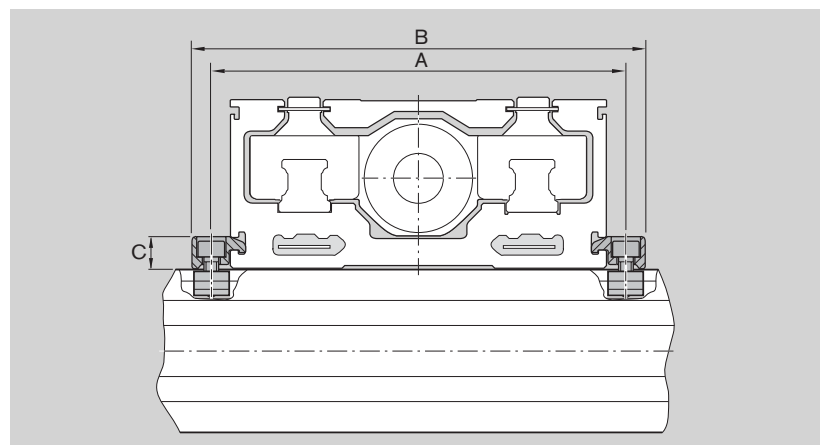
- Clamping fixtures
- Socket head cap screws
- Sliding blocks

1) BME: Basic mechanical elements from Bosch Rexroth



Frame size	Thread	Modular dimension	L (mm)	Part number
90	M4	50	72	R0391 200 82
		40	62	R0391 200 83
110 and 145	M6	50	72	R0391 200 84
		40	62	R0391 200 85
200	M8	50	88	R0391 200 88
		40	78	R0391 200 89

Frame size	Dimensions (mm)		
	A	B	C
90	102	112	9.0
110	126	140	11.5
145	161	175	11.5
200	240	222	27.5

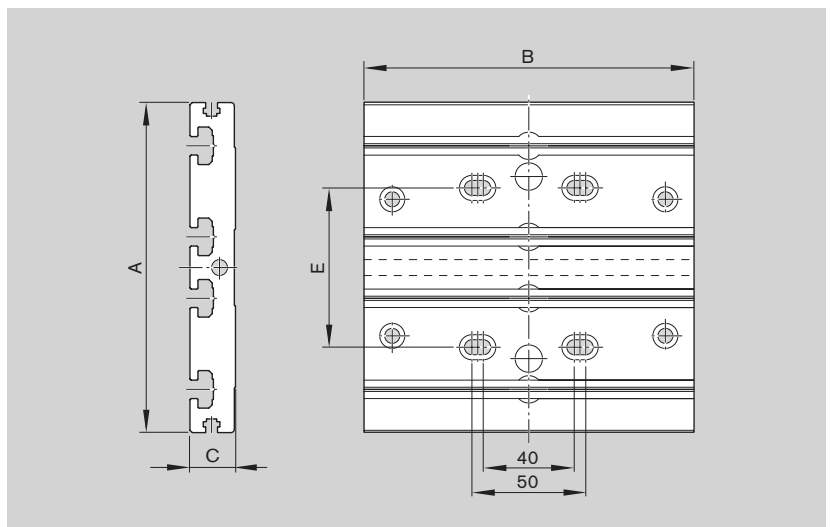
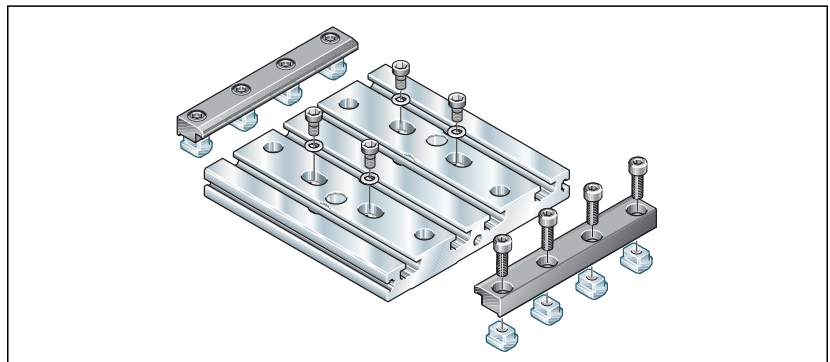
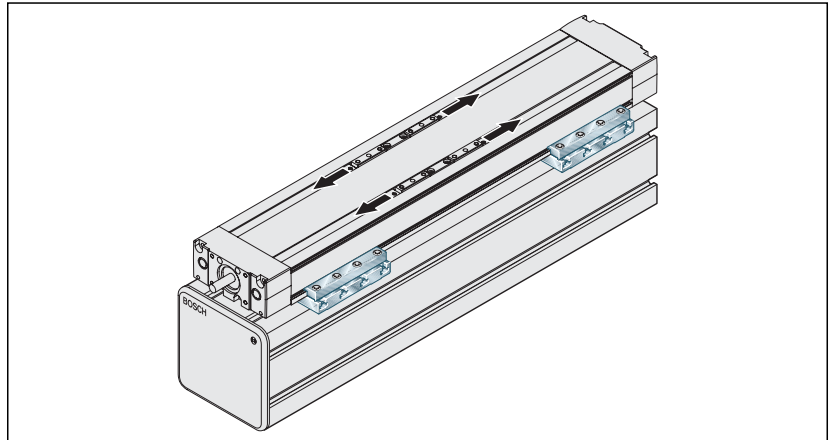


### Connection plate kits

Connection plate kits are designed for profiles with modular dimensions 40, 45, and 50. The connection plates are fastened to the module frame. The Compact Module can be equipped with 1 or 2, short or long carriages.

#### Connection plate kit consisting of

- Connection plate
- Clamping fixtures
- Socket head cap screws
- Nuts for T-slot
- Washers
- Sliding blocks



Frame size	Dimensions (mm)				Weight (kg)	Part number
	A	B	C	E		
90	145	145	20	70	1.1	R0391 201 91
110	145	145	20	70	1.2	R0391 201 92
145	145	180	20	70	1.4	R0391 201 93

Mounting

# Connection of Compact Modules via cross-plate

## Y-axis connected by the frame (carriage travels)

**Connection kit consisting of:**

- Clamping fixtures
- Sliding blocks
- Screws
- Centering rings

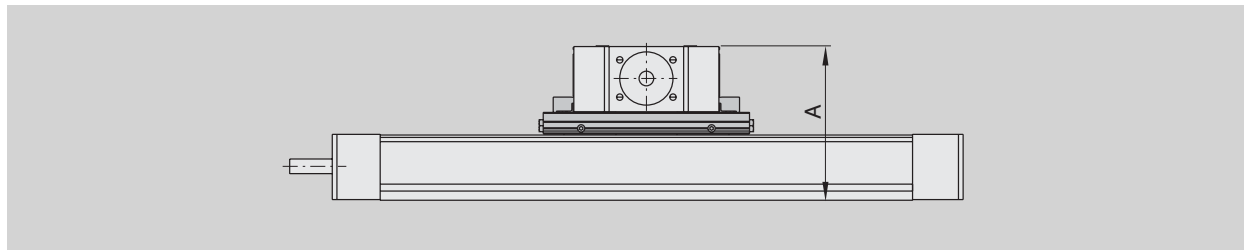
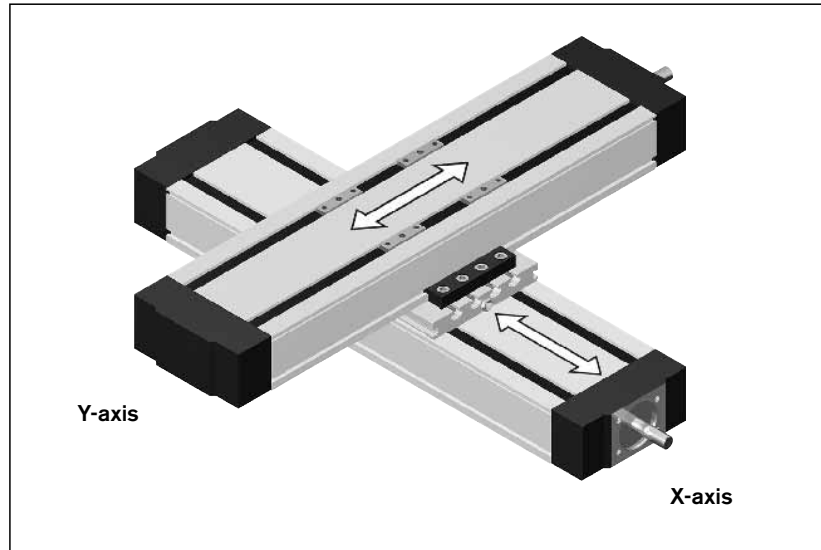
**Versions:**

**X-axis**

Select carriages and long connection plate according to table "Components and ordering" (option number 41).

**Y-axis**

The number of carriages and the connection plate can be freely selected according to table "Components and ordering".



Frame size	Y-axis (any carriage version)			
	90	110	145	200
90	R0391 200 45			
	A (mm)	96		
	Weight (kg)	0.2		
110	R0391 200 45		R0391 200 46	
	A (mm)	106	A (mm)	116
	Weight (kg)	0.2	Weight (kg)	0.3
145	R0391 200 47		R0391 200 48	
	A (mm)	135	A (mm)	150
	Weight (kg)	0.3	Weight (kg)	0.4
200	R0391 200 49		R0391 201 45	
	A (mm)	192	A (mm)	227
	Weight (kg)	0.4	Weight (kg)	0.8

X-axis (Compact Module with connection plate - option no. 41)

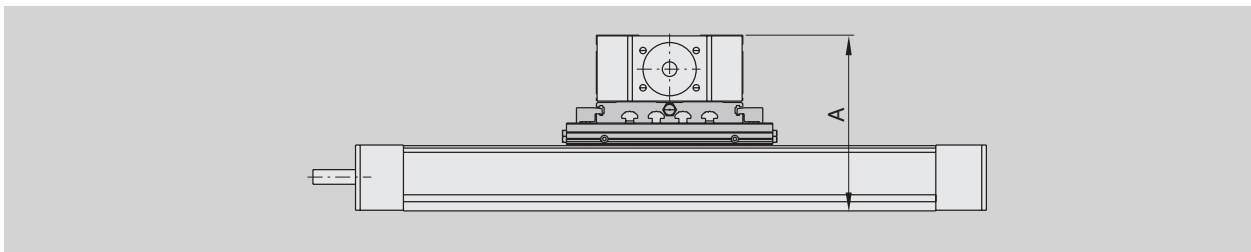
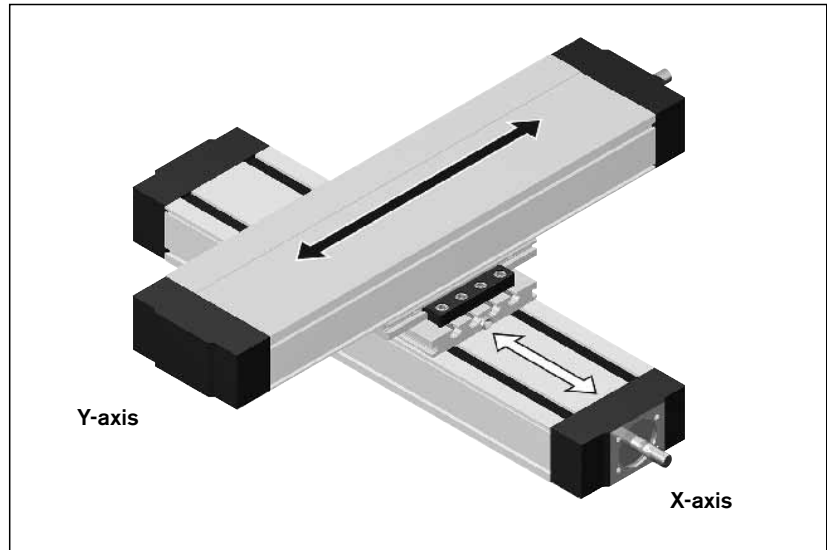
**Y-axis connected by the carriage (frame travels)**

**Connection kit consisting of:**

- Clamping fixtures
- Sliding blocks
- Screws
- Centering rings

**Version:**

Select X-axis and Y-axis with long connection plate according to table "Components and ordering" (option number 41).



Frame size		Y-axis (Compact Module with connection plate – option number 41)							
		90		110		145		200	
X-axis (Compact Module with connection plate – option no. 41)	90	R0391 200 45							
		A (mm)	112						
		Weight (kg)	0.2						
	110	R0391 200 45		R0391 200 46					
		A (mm)	122	A (mm)	132				
		Weight (kg)	0.2	Weight (kg)	0.3				
	145			R0391 200 47		R0391 200 48			
				A (mm)	151	A (mm)	170		
				Weight (kg)	0.3	Weight (kg)	0.4		
	200					R0391 200 49		R0391 201 45	
						A (mm)	212	A (mm)	254
						Weight (kg)	0.4	Weight (kg)	0.8

Mounting

# Connection of Compact Modules via angle brackets

## Y-axis connected by the frame (carriage travels)

**Connection kit consisting of:**

- Angle brackets
- Clamping fixtures
- Sliding blocks
- Screws
- Centering rings

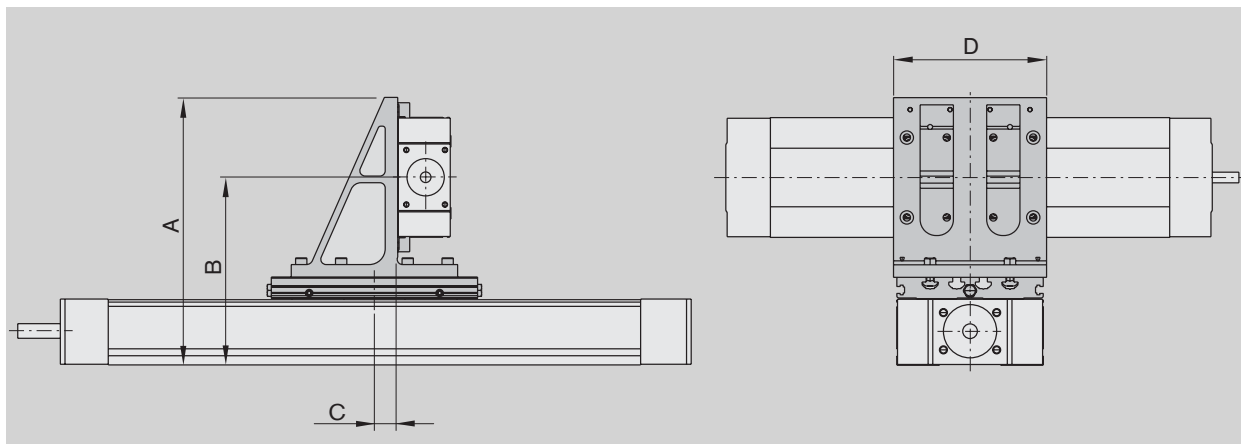
**Versions:**

**X-axis**

Select carriages and long connection plate according to table "Components and ordering" (option number 41).

**Y-axis**

The number of carriages and the connection plate can be freely selected according to table "Components and ordering".



Frame size	Y-axis (any carriage version)												
	90			110			145			200			
X-axis (Compact Module with connection plate – option number 41)	90	R0391 101 26											
		Dimensions (mm)				(kg)							
		A	B	C	D								
		191	131	17.5	115	1.1							
	110	R0391 101 26						R0391 101 27					
		Dimensions (mm)				(kg)		Dimensions (mm)				(kg)	
		A	B	C	D			A	B	C	D		
		201	141	17.5	115	1.1		226.5	152	18.5	145	1.5	
	145							R0391 101 28					
		Dimensions (mm)				(kg)		Dimensions (mm)				(kg)	
		A	B	C	D			A	B	C	D		
								248	176	21	145	2.1	
							R0391 101 29						
	Dimensions (mm)				(kg)		Dimensions (mm)				(kg)		
	A	B	C	D			A	B	C	D			
							286	193.5	21	175	2.8		
200							R0391 101 30						
	Dimensions (mm)				(kg)		Dimensions (mm)				(kg)		
	A	B	C	D			A	B	C	D			
							337	244.5	28	190	6.0		
							R0391 101 31						
	Dimensions (mm)				(kg)		Dimensions (mm)				(kg)		
	A	B	C	D			A	B	C	D			
							375	283	28	245	7.7		

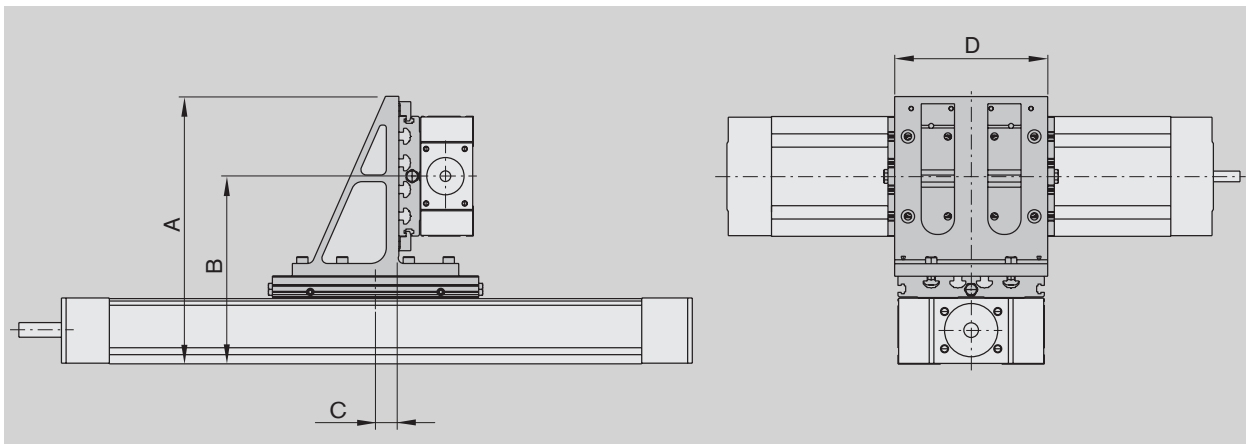
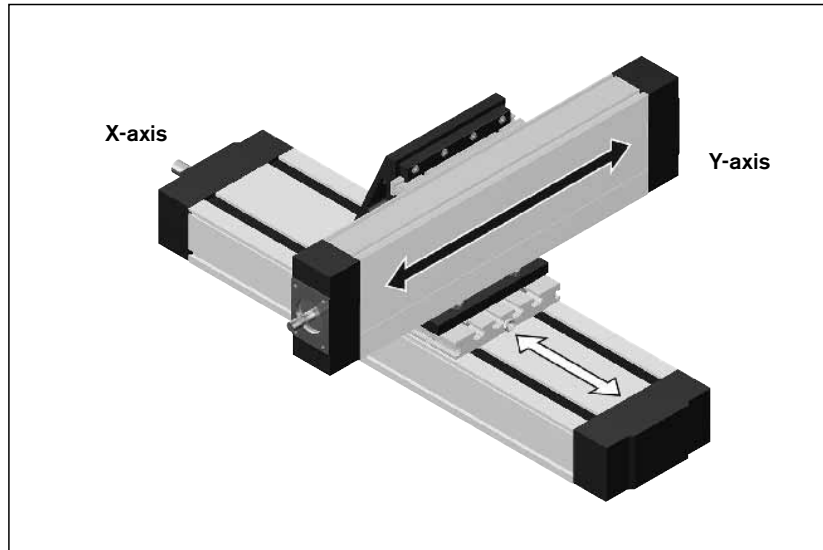
**Y-axis connected by the carriage (frame travels)**

**Connection kit consisting of:**

- Angle brackets
- Clamping fixtures
- Sliding blocks
- Screws
- Centering rings

**Version:**

Select X-axis and Y-axis with long connection plate according to table "Components and ordering" (option number 41).



		Y-axis (Compact Module with connection plate – option number 41)															
Frame size	90	110				145				200							
X-axis (Compact Module with connection plate – option number 41)	90	R0391 101 26															
		Dimensions (mm)				(kg)											
		A	B	C	D												
		191	131	17.5	115	1.1											
	110	R0391 101 26					R0391 101 27										
		Dimensions (mm)				(kg)		Dimensions (mm)				(kg)					
		A	B	C	D			A	B	C	D						
		201	141	17.5	115	1.1	226.5	152	18.5	145	1.5						
	145	R0391 101 28					R0391 101 29										
		Dimensions (mm)				(kg)		Dimensions (mm)				(kg)					
		A	B	C	D			A	B	C	D						
							248	176	21	145	2.1	286	193.5	21	175	2.8	
200	R0391 101 30					R0391 101 31											
	Dimensions (mm)				(kg)		Dimensions (mm)				(kg)						
	A	B	C	D			A	B	C	D			A	B	C	D	
	337	244.5	28	190	6.0	375	283	28	245	7.7							

Mounting

# Connection of Compact Modules via angle brackets

## Z-axis connected by the frame (carriage travels)

Connection kit consisting of:

- Angle brackets
- Clamping fixtures
- Sliding blocks
- Screws
- Centering rings

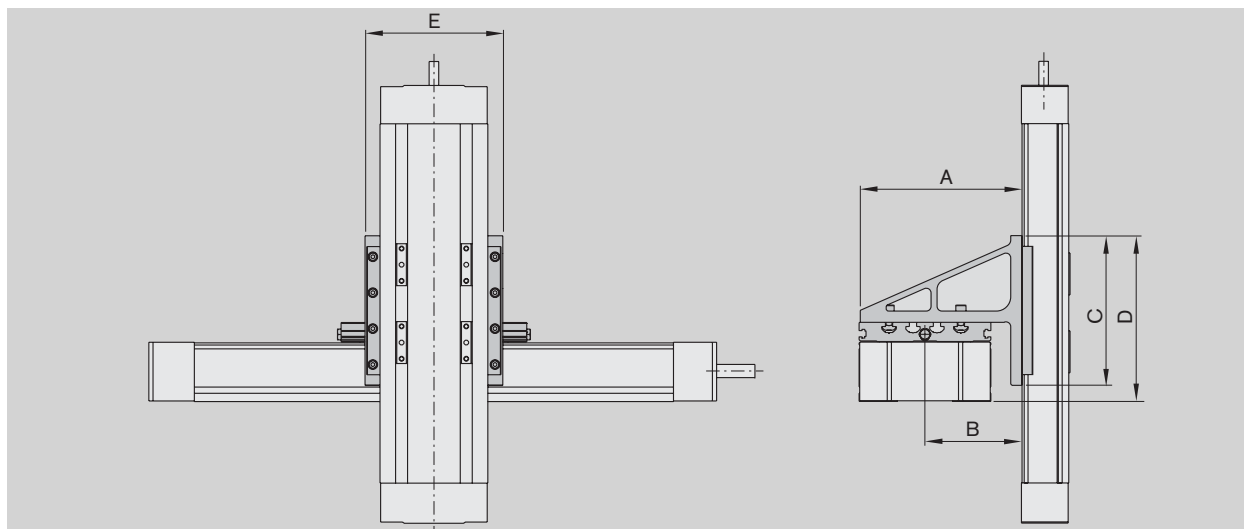
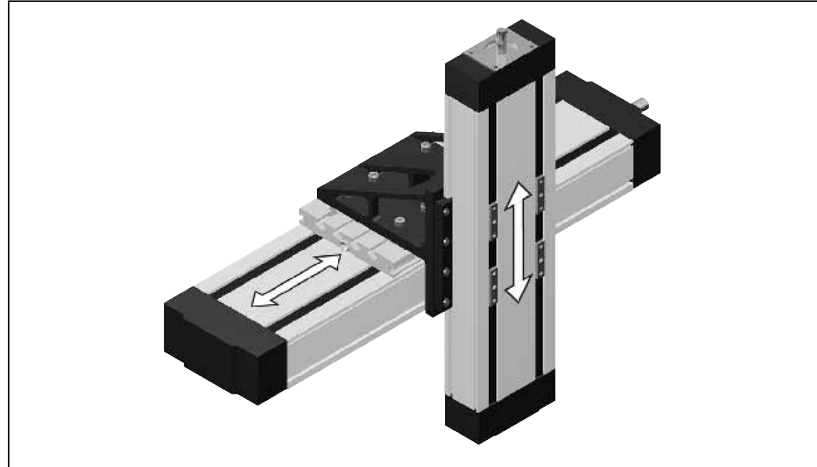
**Versions:**

**X-axis**

Select carriages and long connection plate according to table "Components and ordering" (option number 41).

**Z-axis**

The number of carriages and the connection plate can be freely selected according to table "Components and



Frame size	Z-axis (any carriage version)																			
	90		110			145			200											
X-axis (Compact Module with connection plate - option number 41)	90		110			145			200											
	R0391 101 26		R0391 101 27			R0391 101 29			R0391 101 35											
	Dimensions (mm)		Dimensions (mm)			Dimensions (mm)			Dimensions (mm)											
	(kg)		(kg)			(kg)			(kg)											
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E					
	135	75	125	136	115	160	86	142	155	145	201	108.5	155	183.5	175	248	148	190	230	185
	1.1					1.5					2.8					5.6				
	110	R0391 101 32		R0391 101 33			R0391 101 34			R0391 101 35										
	Dimensions (mm)		Dimensions (mm)			Dimensions (mm)			Dimensions (mm)											
	(kg)		(kg)			(kg)			(kg)											
A	B	C	D	E	A	B	C	D	E	A	B	C	D	E						
135	81	125	138.5	115	175	102.5	155	183.5	145	248	148	190	230	185	248	156	270	290	245	
1.1					2.1					5.6					7.7					
145	R0391 101 33		R0391 101 34			R0391 101 35			R0391 101 36											
Dimensions (mm)		Dimensions (mm)			Dimensions (mm)			Dimensions (mm)												
(kg)		(kg)			(kg)			(kg)												
A	B	C	D	E	A	B	C	D	E	A	B	C	D	E						
175	102.5	155	183.5	145	201	108.5	155	183.5	175	248	148	190	230	185	248	156	270	290	245	
2.1					2.8					5.6					7.7					
200	R0391 101 34		R0391 101 35			R0391 101 36			R0391 101 37											
Dimensions (mm)		Dimensions (mm)			Dimensions (mm)			Dimensions (mm)												
(kg)		(kg)			(kg)			(kg)												
A	B	C	D	E	A	B	C	D	E	A	B	C	D	E						
248	148	190	230	185	248	148	190	230	185	248	156	270	290	245	248	156	270	290	245	
5.6					5.6					7.7					7.7					

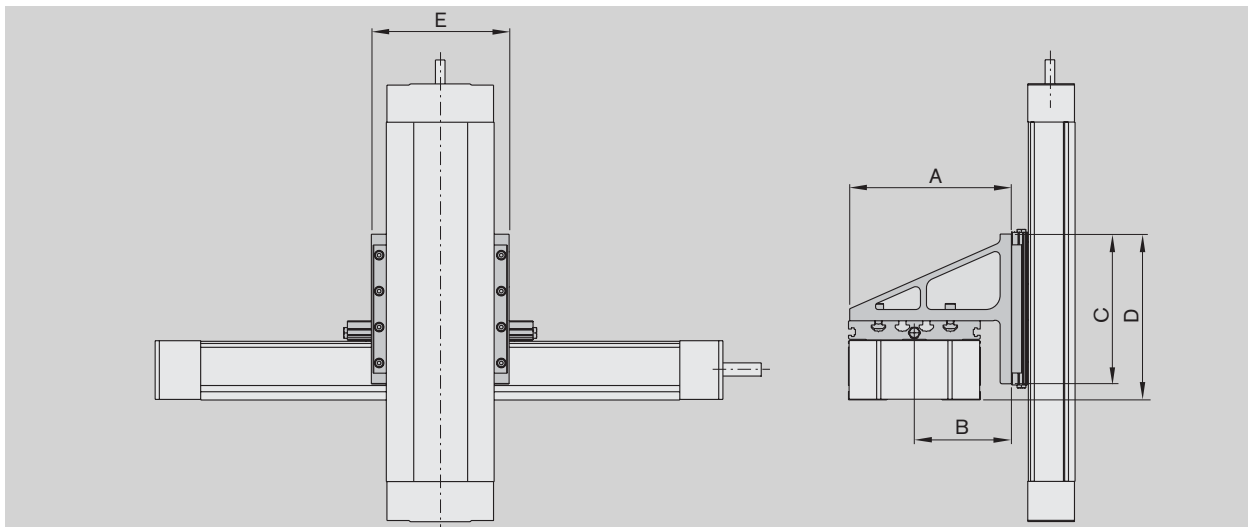
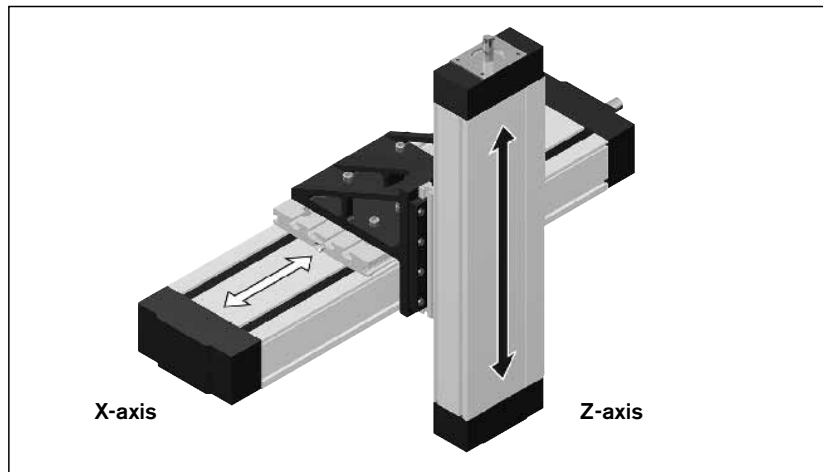
**Z-axis connected by the carriage (frame travels)**

**Connection kit consisting of:**

- Angle brackets
- Clamping fixtures
- Sliding blocks
- Screws
- Centering rings

**Version:**

Select X-axis and Z-axis with long connection plate according to table "Components and ordering" (option number 41).



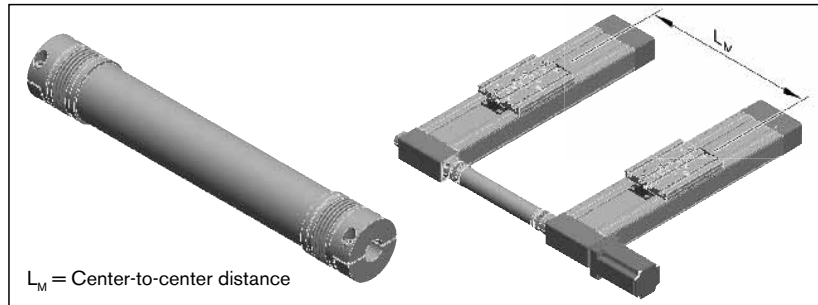
Frame size	Z-axis (Compact Module with connection plate – option number 41)																
	90				110				145				200				
X-axis (Compact Module with connection plate – option number 41)	90	R0391 101 26															
		Dimensions (mm)					(kg)										
		A	B	C	D	E											
		135	75	125	136	115	1.1										
	110	R0391 101 32															
		Dimensions (mm)					R0391 101 27										
		Dimensions (mm)					(kg)										
		A	B	C	D	E	A	B	C	D	E						
		135	81	125	138.5	115	160	86	142	155	145	1.5					
	145	R0391 101 33															
		Dimensions (mm)					(kg)										
		Dimensions (mm)					R0391 101 29										
	A	B	C	D	E	A	B	C	D	E							
	175	102.5	155	183.5	145	201	108.5	155	183.5	175	2.8						
200	R0391 101 34																
	Dimensions (mm)					(kg)											
	Dimensions (mm)					R0391 101 35											
	A	B	C	D	E	A	B	C	D	E							
	248	148	190	230	185	248	156	270	290	245	7.7						

Accessories

# Connecting shafts for Compact Modules CKR

## Connecting shafts

- Compensate for misalignments
- Are backlash-free and torsionally stiff
- Bridge large distances between axes
- Can be mounted radially using split clamping hubs (installation and removal without shifting pre-aligned axes)
- Dynamically balanced

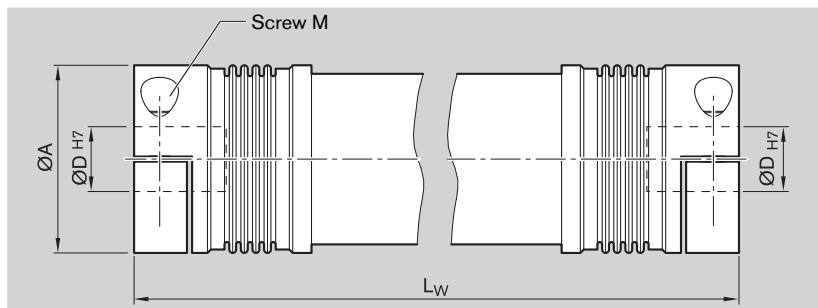


## Material

Bellows: highly flexible stainless steel  
 Connecting tube and clamping hub: aluminum

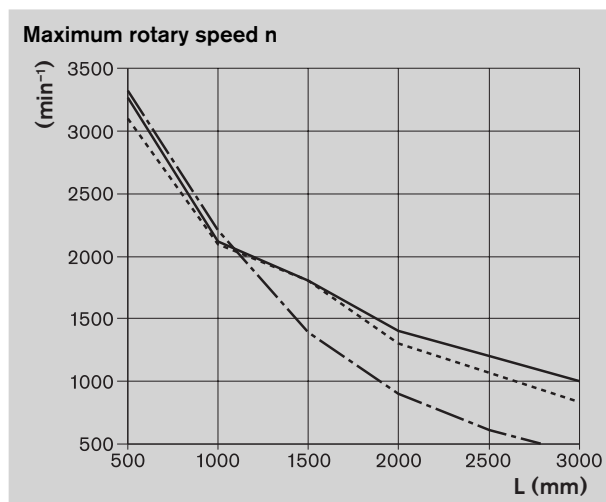
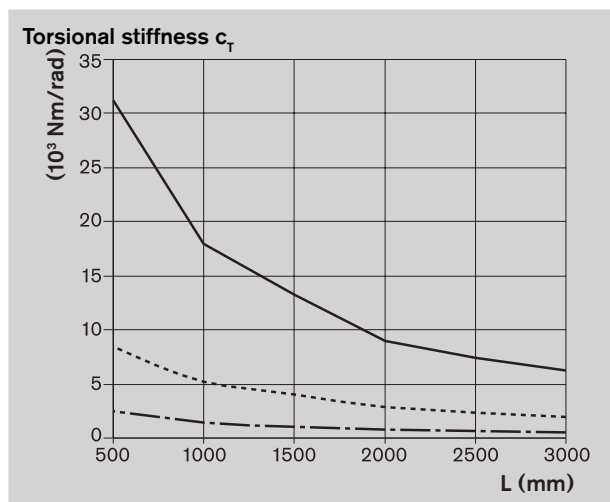
## Ordering data

Please state the part number and length  $L_W$ .  
 For example: R021E 510 07,  
 $L_W = 550$  mm



Size	Part number	Dimensions (mm)						$M_A$ (Nm)
		A	D	M	$L_{Wmin}$	$L_{Wmax}$	$L_W$	
CKR 12-90	R021E 00139	40	10	M4	100	3000	$L_M - 95$	5
CKR 15-110	R021E 00140	55	14	M6	140	3000	$L_M - 113$	15
CKR 20-145	R021E 00141	55	19	M6	140	3000	$L_M - 148$	15
CKR 25-200	R021E 00142	81	24	M10	190	3000	$L_M - 205$	70

Size	Part number	$M_S$ (Nm)	$M_N$ (Nm)	Mass moment of inertia	Weight
				( $10^{-6}$ kgm <sup>2</sup> )	(kg)
CKR 12-90	R021E 00139	17	10	$0.028 \cdot L_W(\text{mm}) + 80$	$0.0007 \cdot (L_W(\text{mm}) - 100) + 0.34$
CKR 15-110	R021E 00140	45	30	$0.7 \cdot L_W(\text{mm}) + 250$	$0.0013 \cdot (L_W(\text{mm}) - 140) + 1.2$
CKR 20-145	R021E 00141	45	30	$0.7 \cdot L_W(\text{mm}) + 250$	$0.0013 \cdot (L_W(\text{mm}) - 140) + 1.2$
CKR 25-200	R021E 00142	225	150	$2.7 \cdot L_W(\text{mm}) + 1300$	$0.0019 \cdot (L_W(\text{mm}) - 190) + 3.3$



- CKR 25-200
- CKR 15-110/CKR 20-145
- - - CKR 12-90

