

R RICHTIG
KOMPETENTE
Automatisierungstechnik

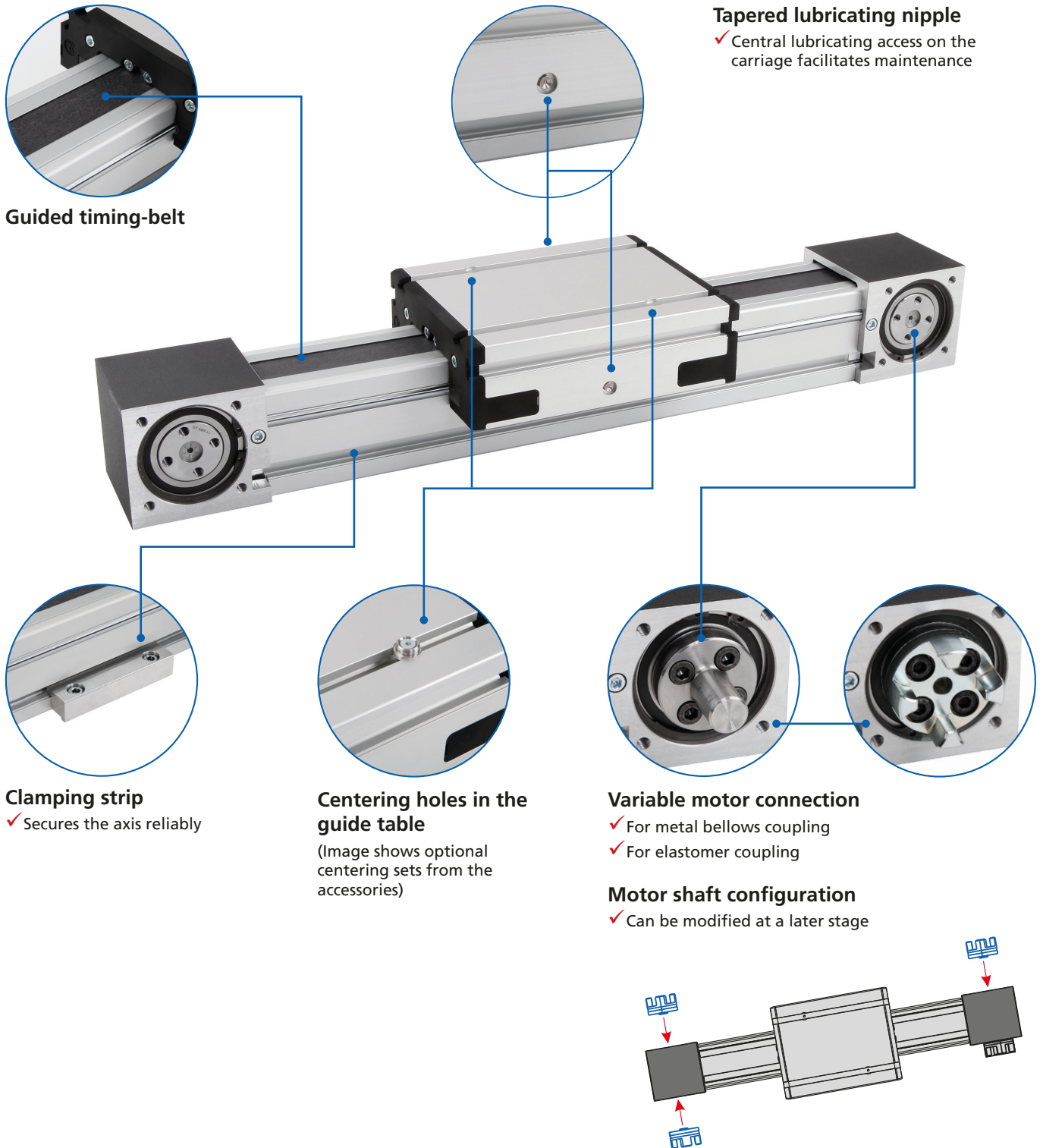

RK ROSE+KRIEGER
A Phoenix Mecano Company

The new value class...



RK MonoLine
up to 10 m/s

Key features / technical benefits



Tapered lubricating nipple
 ✓ Central lubricating access on the carriage facilitates maintenance

Guided timing-belt

Clamping strip
 ✓ Secures the axis reliably

Centering holes in the guide table
 (Image shows optional centering sets from the accessories)

Variable motor connection
 ✓ For metal bellows coupling
 ✓ For elastomer coupling

Motor shaft configuration
 ✓ Can be modified at a later stage

Key features

General

- High efficiency
- Low idle torque
- Max. usable travel speed regardless of length
- Central lubricating access on the carriage facilitates maintenance

RK MonoLine

- Degree of protection IP20
- Flexible positioning of motor thanks to pulley boxes
- Repeat accuracy ± 0.05 mm
- Guided timing-belt

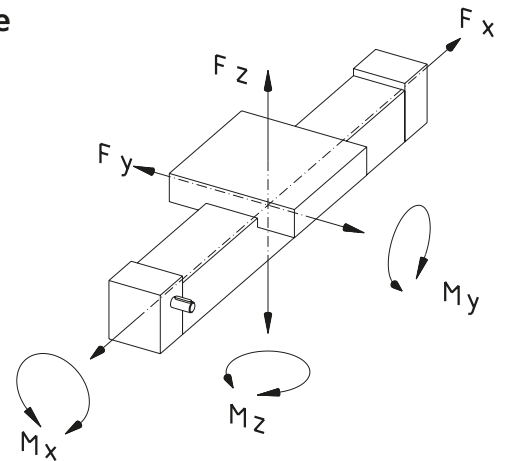
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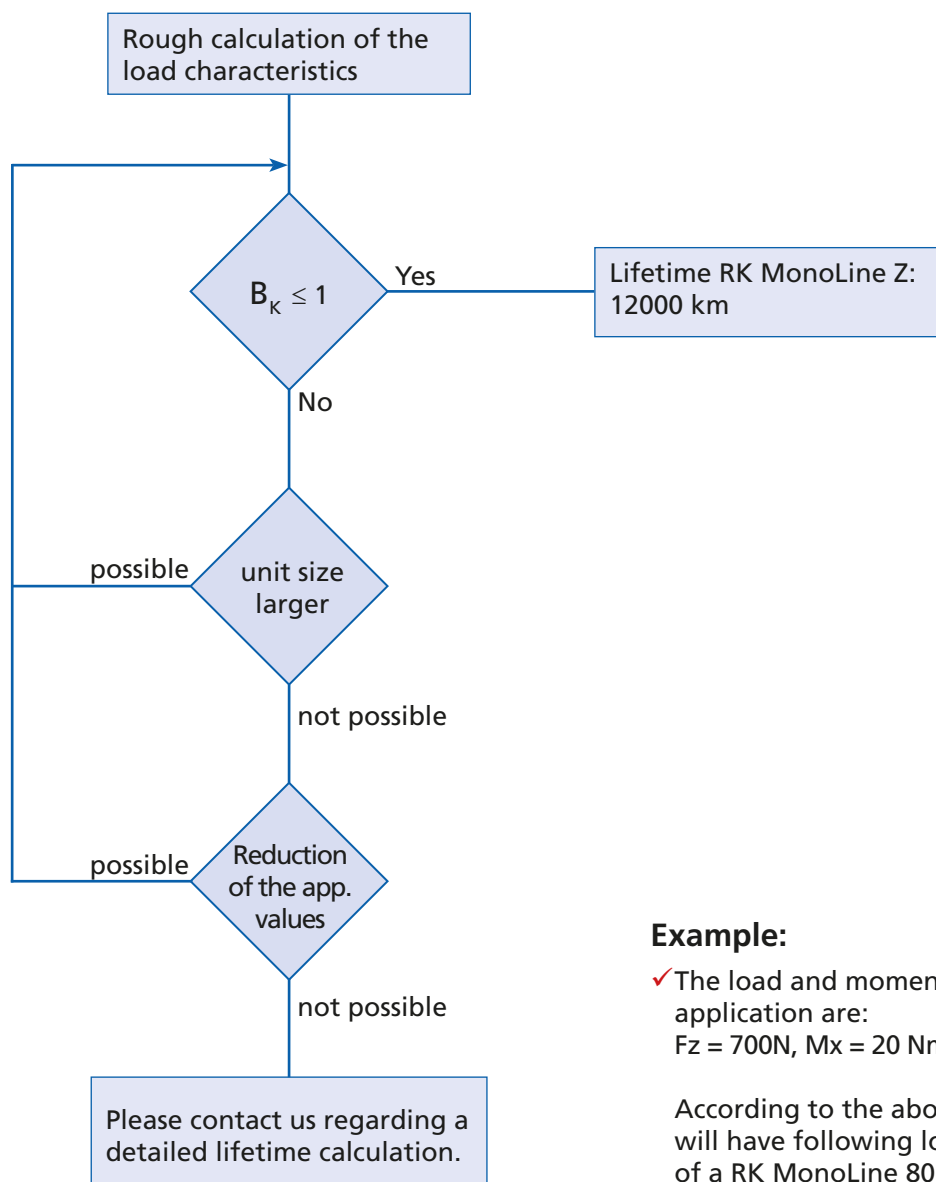
Calculation of the load characteristic to define the lifetime

- The lifetime of linear units are in accordance with the average loads and moments of an application. The load characteristic can approximately calculated by following equation with simultaneously appearing load and moments.

$$\text{Load characteristic} = \frac{\text{Application values (z.B. } F_y)}{\text{Catalog values (z.B. } F_{y_{\max}})}$$



$$\text{Load characteristic } B_k = \frac{F_y}{F_{y_{\max}}} + \frac{F_z}{F_{z_{\max}}} + \frac{M_x}{M_{x_{\max}}} + \frac{M_y}{M_{y_{\max}}} + \frac{M_z}{M_{z_{\max}}} \leq 1$$



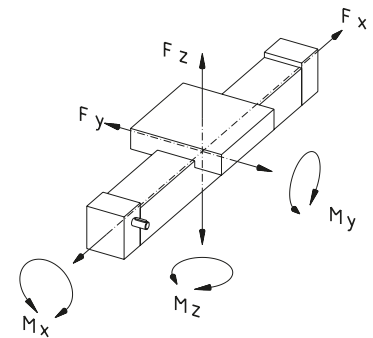
Example:

- ✓ The load and moments of the application are:
F_z = 700N, M_x = 20 Nm und M_z = 45 Nm

According to the above equation you will have following load characteristic of a RK MonoLine 80: B_k = 0,63.

General information / operating conditions

	RK MonoLine Z 40	RK MonoLine Z 80
Guidance system	1 Ball rail system	
Installation position	any position	
Max. driving torque	6,5 Nm	79 Nm
Max. speed	5 m/s	10 m/s
Max. acceleration	20 m/s ²	20 m/s ²
Repeat accuracy	± 0,05 mm	± 0,05 mm
Pitch accuracy	± 0,1 mm/300 mm travel	
Max. no-load torque	0,35 Nm	1,0 Nm
Drive	GT Belts from neoprene, Pitch 5 mm, Width 15 mm	GT Belts from neoprene, Pitch 8 mm, Width 40 mm
Active Ø pulley wheel	27,08 mm	61,12 mm
Pulley wheel circumference	85 mm	192 mm
Ambient temperature	0 to +60°C	0 to +60°C
Degree of protection	IP 20	IP 20



Dynamic load data

Force [N]

Torque [Nm]

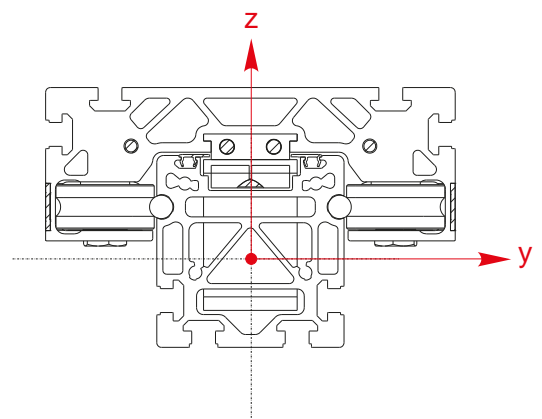
Toothed-belt drive						
Load data	F _x *	F _y	F _z	M _x	M _y	M _z
Standard guide carriage						
RK MonoLine Z 40	480	1100	694	14	35	55
RK MonoLine Z 80	2600	4367	2509	95	188	327
Extended guide carriage						
RK MonoLine Z 40	480	1100	694	14	65	102
RK MonoLine Z 80	2600	4367	2509	95	351	611

*Initial tension of the timing belt 0,8 x F_x

Geometric moment of inertia

[cm⁴]

	I _y	I _z
RK MonoLine Z 40	12,15 cm ⁴	13,60 cm ⁴
RK MonoLine Z 80	155,82 cm ⁴	172,79 cm ⁴



RK MonoLine R 40 / 80 – Versions

Order information:

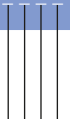
- Longer travel lengths on request

Version ■ Guide

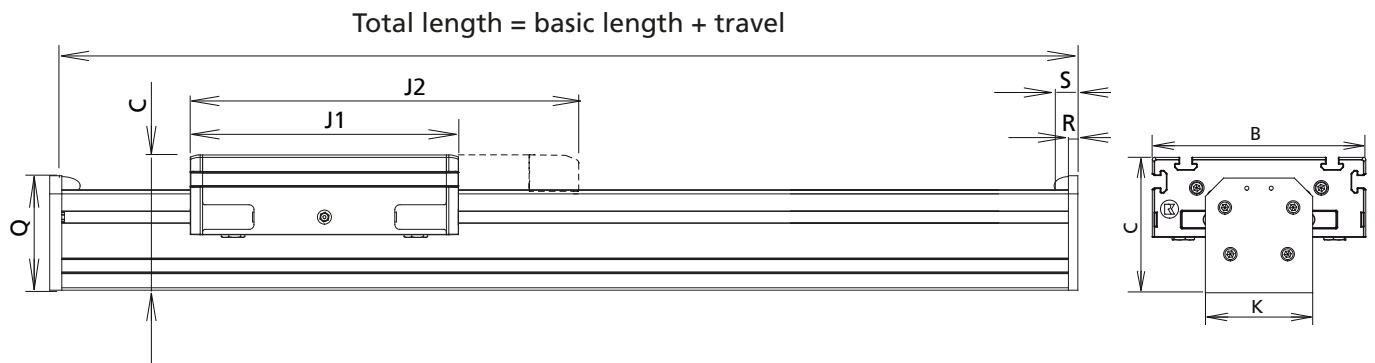
Ideal as additional / secondary support for the RK MonoLine with toothed belt



Code No.	Type	Basic length	B	C
TB15B1T4A11A0 _ _ _ _	RK MonoLine R 40	144	97	60
TB15B1T4B11A0 _ _ _ _	RK MonoLine R 40 with extended guide carriage	224		
TB15B3T4A11A0 _ _ _ _	RK MonoLine R 80	240	175	111
TB15B3T4B11A0	RK MonoLine R 80 with extended guide carriage	370		



Total length = basic length + total travel (mm)



[mm]

J1	J2	K	Q	R	S	max. travel	Mass [kg]	
							Basic length	per 100 mm travel
132	–	46	52	6	21	5465	1,20	0,25
–	212						1,74	
220	–	88	94	10	25	5750	4,21	0,78
–	350						6,49	

Dimensions / ordering data

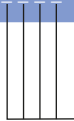
Order information:

- Longer travel lengths on request
- Also available without screw drive as a torque support

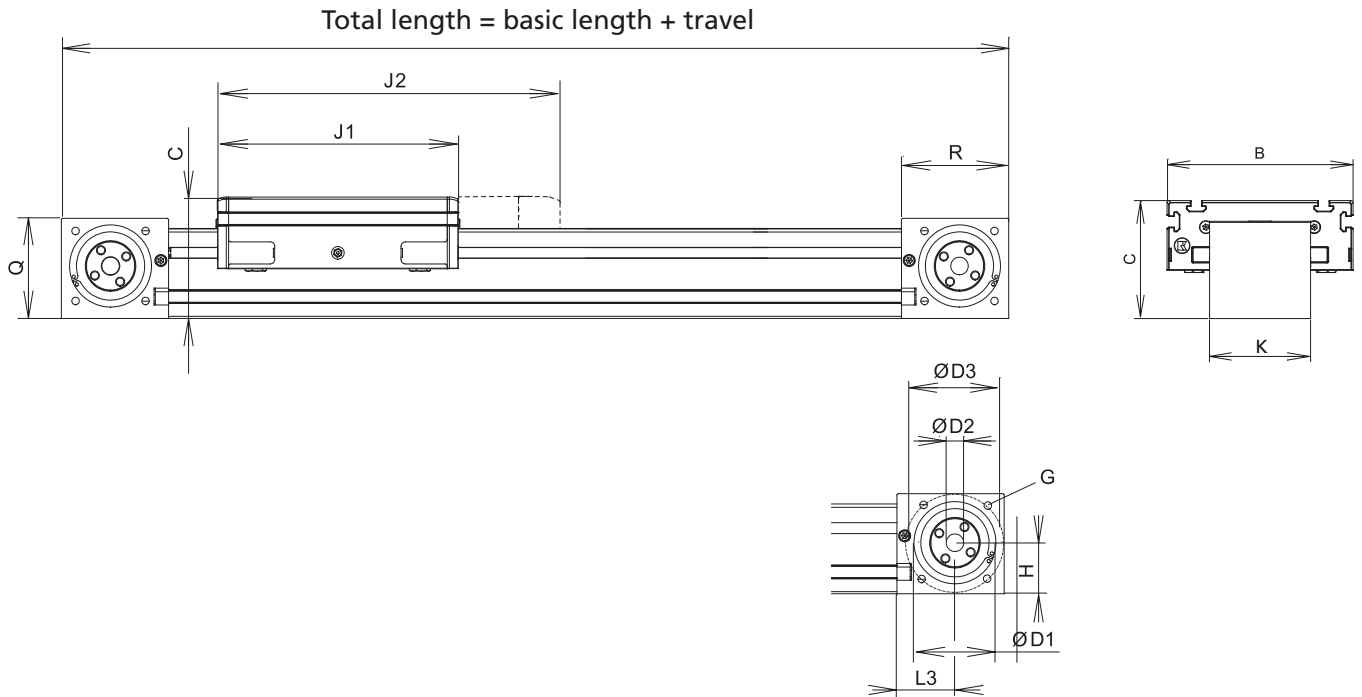
Timing-belt unit RK MonoLine Z Place-Tec



Code No.	Type	Basic length	B	C	D1	D2
TB12B1F4A11A0 _ _ _ _	RK MonoLine Z 40	250	97	60	32 ^{H7} 3 deep	8 ^{H6}
TB12B1F4B11A0 _ _ _ _	RK MonoLine Z 40 with extended guide carriage	330				
TB12B3F4A11A0 _ _ _ _	RK MonoLine Z 80	416	175	111	75 ^{H7} 4,5 deep	16 ^{H6}
TB12B3F4B11A0	RK MonoLine Z 80 with extended guide carriage	546				



Total length = basic length + total travel (mm)



[mm]

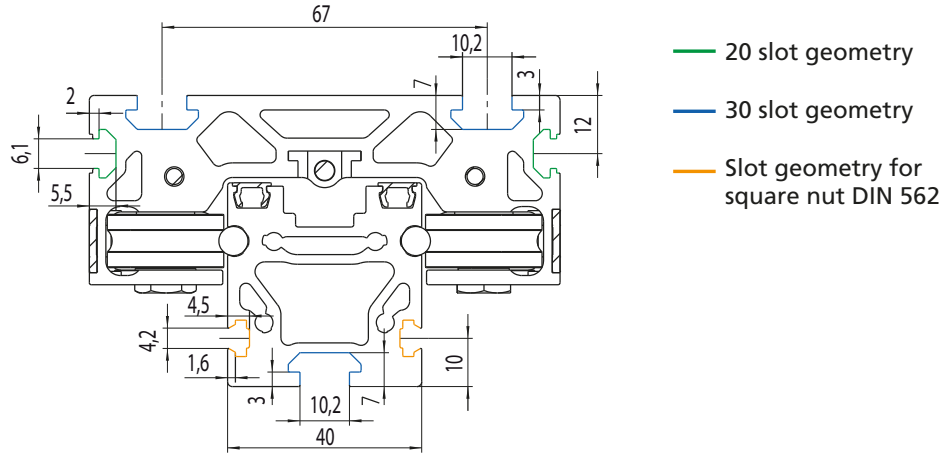
D3	G	H	J1	J2	K	L3	Q	R	max. travel	Mass [kg]	
										Basic length	per 100 mm travel
41±0,2	M5-10 deep	25,7	132	–	48	32	51,6	59	5465	1,94	0,27
			–	212						2,49	0,27
90,5±0,2	M8-14 deep	48	220	–	95	53	91,5	98	5780	9,61	0,84
			–	350						11,92	0,84

Fixation

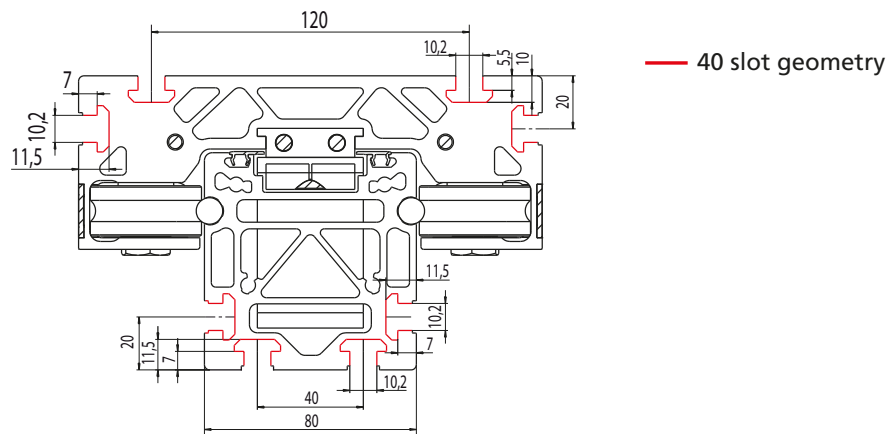
Fixation of payload

- Two profile slots have been inserted in the guide carriage on which fittings can be securely attached in a variety of ways
- Profile slots in the guide carriage and guide profiles facilitate fixation

RK MonoLine R/Z 40



RK MonoLine R/Z 80



Clamping strips

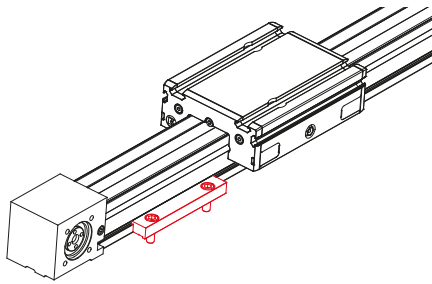


Fig.1: Ground assembly

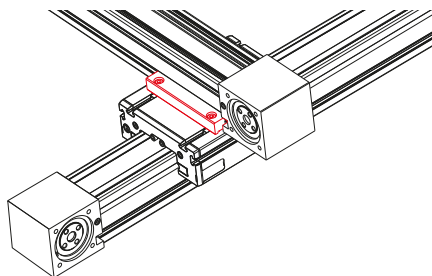
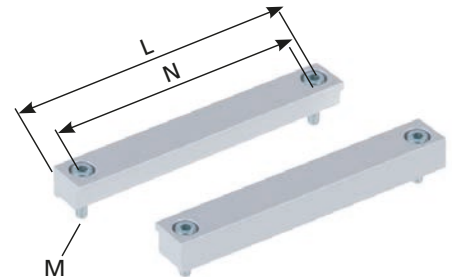
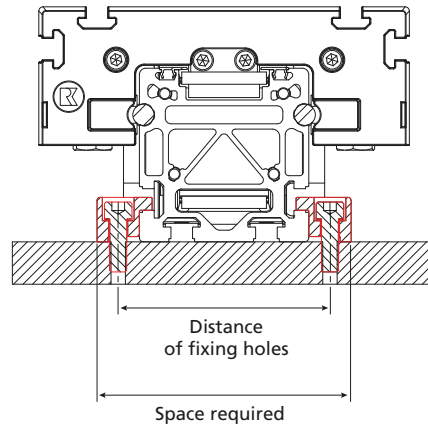


Fig.2: Crossing units

- Clamping strips facilitate fixation of the linear unit to the chassis or two units to a crossing table

Material:
Natural anodised aluminium, galvanised fixation material.
Scope of delivery:
2 clamping strips with fixation material



Code No.	Type	Fig.	A	B	L	M	N
91841	RK MonoLine 40 ground assembly	1	52	65	97	M6	67
91842	RK MonoLine 40 crossing to 40	2					
91812	RK MonoLine 80 ground assembly	1	100	120	116	M8	80
91813	RK MonoLine 80 crossing to 80	2					

[mm]

Order instruction:

- Purchase only in lot sizes and a multiple of that, see product table below

- Slot stones can be inserted and positioned at the guide profile and guide carriage

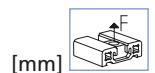
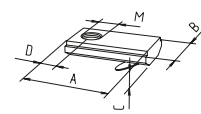
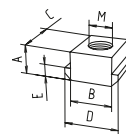
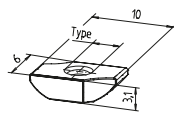
Material: galvanised steel

Slot stones

Slot stone -B- can be swivelled into the slot

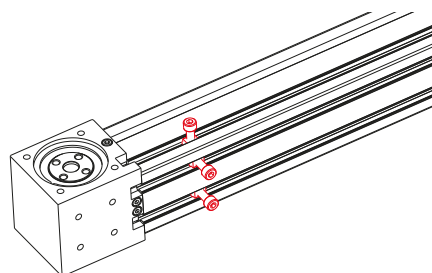
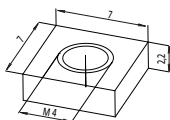
Slot stone -N- can be slid into the slot

Slot stone -K- can be swivelled into the slot



[mm]

Square nut DIN 562



View of DuoLine from below

Code No.	Type	lot sizes	Slot geometry	A	B	C	D	E	M	F [N]
Square nut										
qzd1003261	M4	10, 20, 30... pcs	for square nut DIN 562							
Slot stone -B-										
E00017CEE	M3	10, 20, 30... pcs	20							
E00058CEE	M4	10, 20, 30... pcs	20							
Slot stone -N-										
4006202	M8	10, 20, 30... pcs	30	5	10	13	13	3	M8	4000
4026206	M8	10, 20, 30... pcs	40	8	10	13	15	4	M8	9000
Slot stone -K-										
4006211	M5	10, 20, 30... pcs	30	21	12	4	7	-	M5	5000
4006212	M6	10, 20, 30... pcs	30	21	12	4	7	-	M6	5000
4016212	M6	10, 20, 30... pcs	40	21	14	4	7	-	M6	5000

Centering Sets for RK MonoLine

- The following positions could be defined exactly during the design process per set
 - Load capacity
- Reproducible position of the load capacity
- Reduced assembly/disassembly time of the load capacity
- Accuracy of the centering bolts h6
- To use for all RK MonoLine linear units

Scope of delivery per set:
2 centering bolts and fixing material

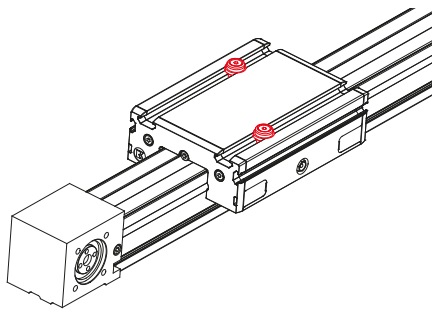
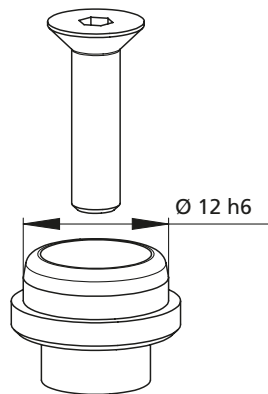
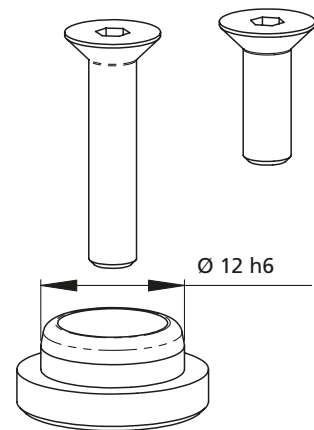


Fig. 1: Slide centering

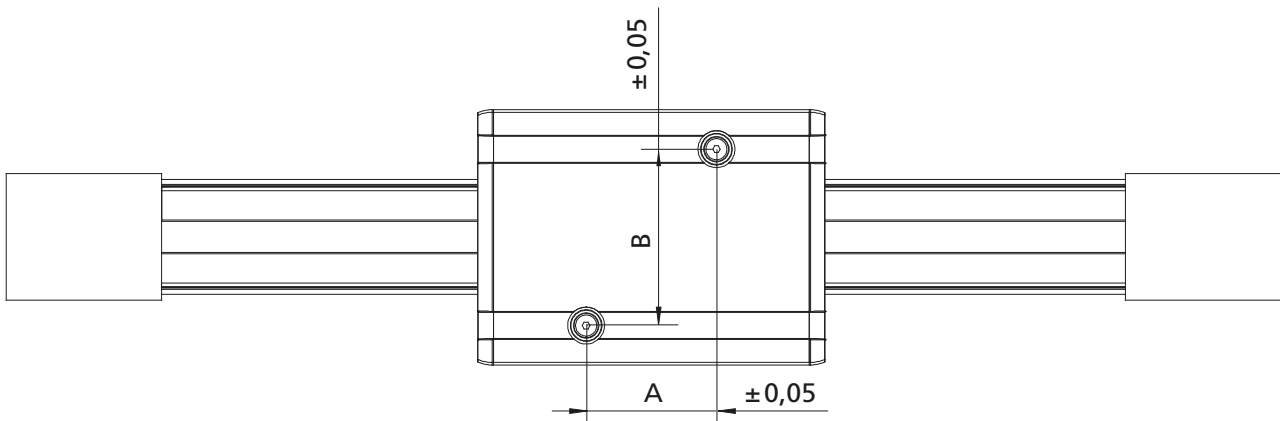
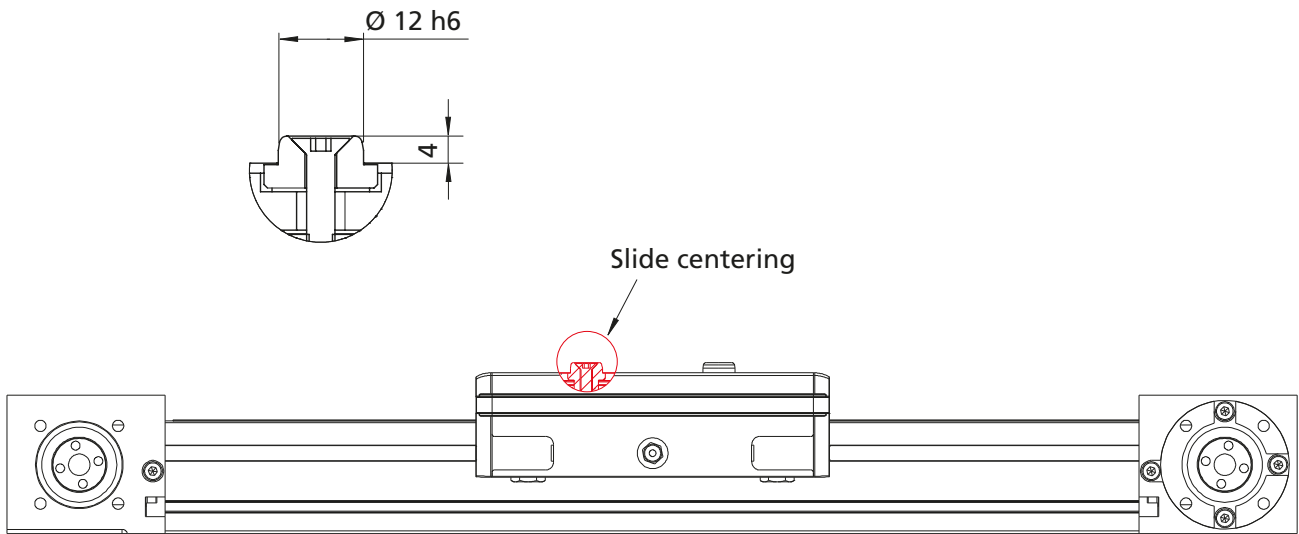


Size -A-



Size -B-

Code No.	Type	Use for
91898	Centering Set Size -A-	Slide centering RK MonoLine Z 40
91899	Centering Set Size -B-	Slide centering RK MonoLine Z 80

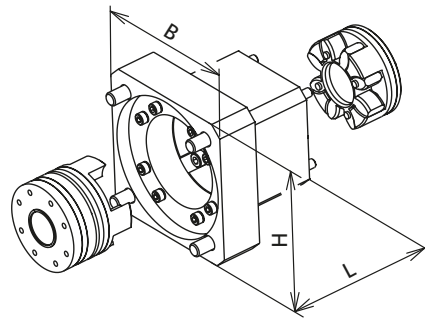
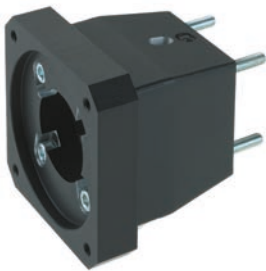


[mm]		
Type	A	B
RK MonoLine Z 40	49,5	67
RK MonoLine Z 40 with extended guide carriage		
RK MonoLine Z 80	100	120
RK MonoLine Z 80 with extended guide carriage		

Motor adapter kit for RK AC servomotors

- Servomotors from the RK standard range can be easily connected
- Complete motor adapter kits manufactured to your specifications on request

Scope of delivery:
Motor adapter kit, elastomer coupling and fixation material



Type	Servo motors without gearbox	
	RK-AC 240	RK-AC 470
MonoLine Z 40	949132	–
MonoLine Z 80	–	949133

Type	Servo motors with gearbox			Three phase motors	
	RK-AC 112	RK-AC 260	RK-AC 345	90/120 W	180/250 W
MonoLine Z 40	949109	–	–	949111	949112
MonoLine Z 80	949113	949115	949116	–	949117

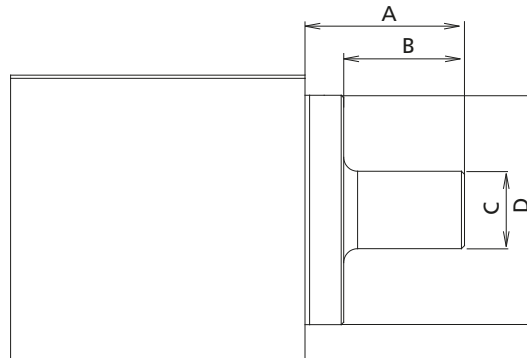
Drive shaft

- The RK MonoLine Z is fitted as standard with a hollow shaft
- This can be retrofitted with a drive shaft as an optional extra

Scope of delivery:
Drive shaft with fixation material



For metal bellows coupling



[mm]

Code No.	Type	Version	A	B	C	D
91323	RK MonoLine Z 40	Drive shaft for metal bellows coupling	32,5	23	14	32
91324	RK MonoLine Z 80		53,5	39	25	74

Drive / Position determination

Synchronising shaft

- For torque transmission with parallel linear units
- Synchronisation of the guide carriages by zero point alignment

Scope of delivery:
Synchronising shaft with fixation material

Max. transfer torque:

RK MonoLine Z 40 6,5 Nm
RK MonoLine Z 80 47 Nm

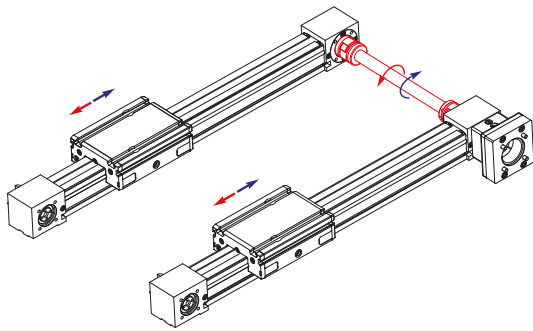
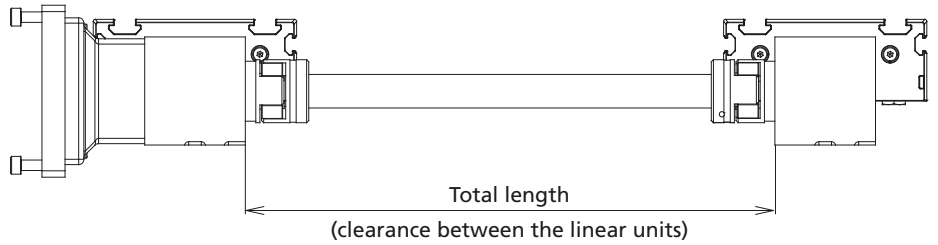


Fig. shows synchronising shaft

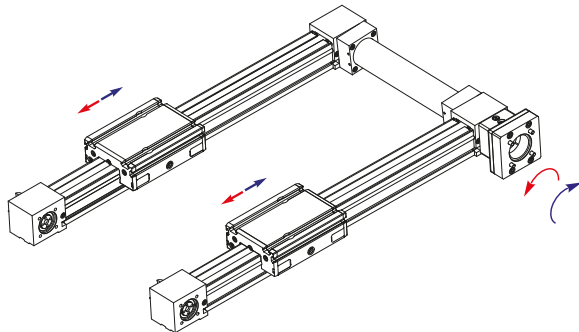
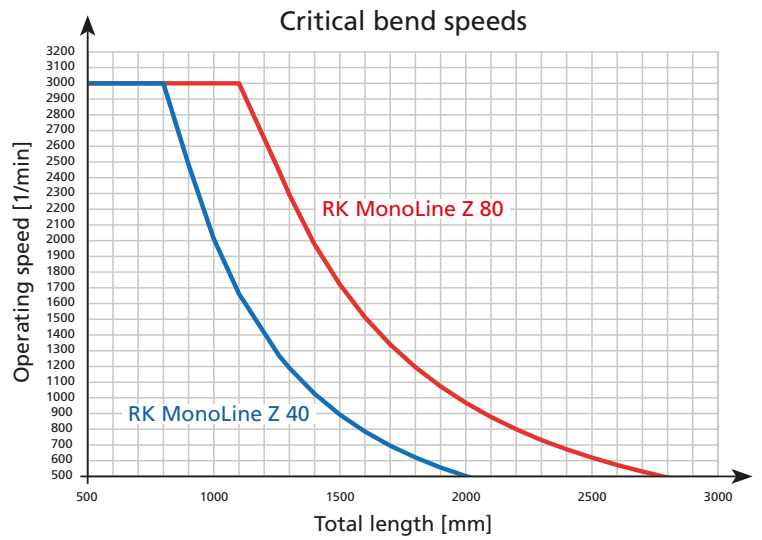


Fig. shows synchronising shaft with protection



[mm]

Code No.	Type	Basic length (minimum length)	Max. length (clearance)	Weight [kg]	
				Basic length	per 100 mm travel
92520400_ _ _ _	Synchronising shaft RK DuoLine Z 40	105	2000	0,19	0,05
92520800_ _ _ _	Synchronising shaft RK DuoLine Z 80	220	2800	1,09	0,13

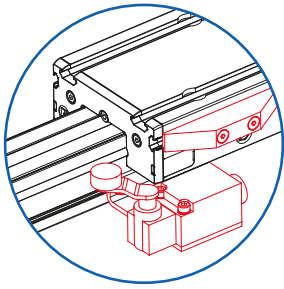
Total length [mm]

[mm]

Code No.	Type	Basic length (minimum length)	Max. length (clearance)	Weight [kg]	
				Basic length	per 100 mm travel
92521400_ _ _ _	Synchronising shaft RK DuoLine Z 40 with protection	105	2000	0,45	0,15
92521800_ _ _ _	Synchronising shaft RK DuoLine Z 80 with protection	220	2800	1,99	0,30

Total length [mm]

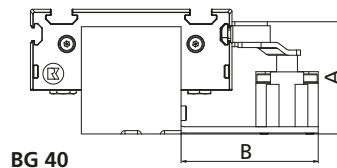
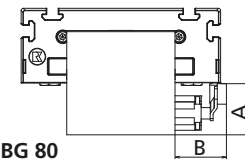
Mechanical limit switch



- External fixation on the guide profile

Scope of delivery:
Limit switch with set of fixing items

Limit switch	
Voltage	max. 230 V AC
Max. switching current	4 A
Max. starting current	10 A
Operating frequency	max. 5000 / h
Mechanical lifetime	20x10 ⁶ cycles
Axis leverage adjustment	locking by 360°
Degree of protection	IP67
Ambient temperature	-30°C to +80°C


BG 40

BG 80

Code No.	Type	A	B	Version
91925	RK MonoLine 40	54	66	NO / NC, mechanical limit switch
91926	RK MonoLine 80	45	45,5	

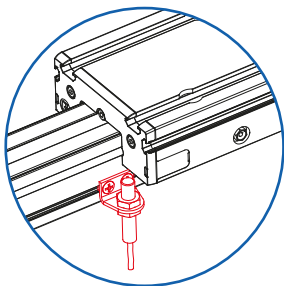
Actuator for Mechanical limit switch

- Fixation to carriage

Scope of delivery:
Actuator and set of fixing items

Code No.	Type
91927	RK MonoLine 40
91928	RK MonoLine 80

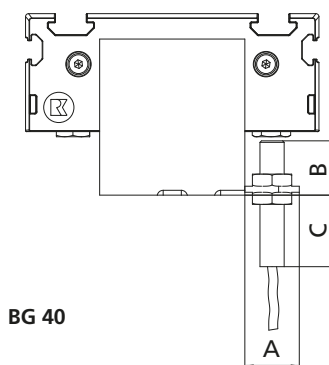
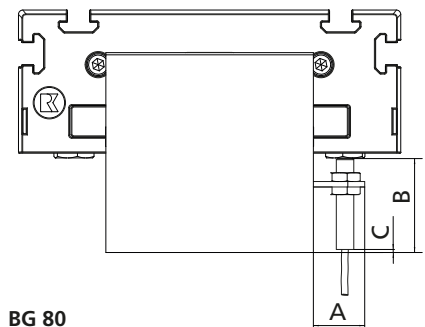
External inductive limit switch



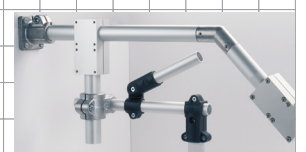
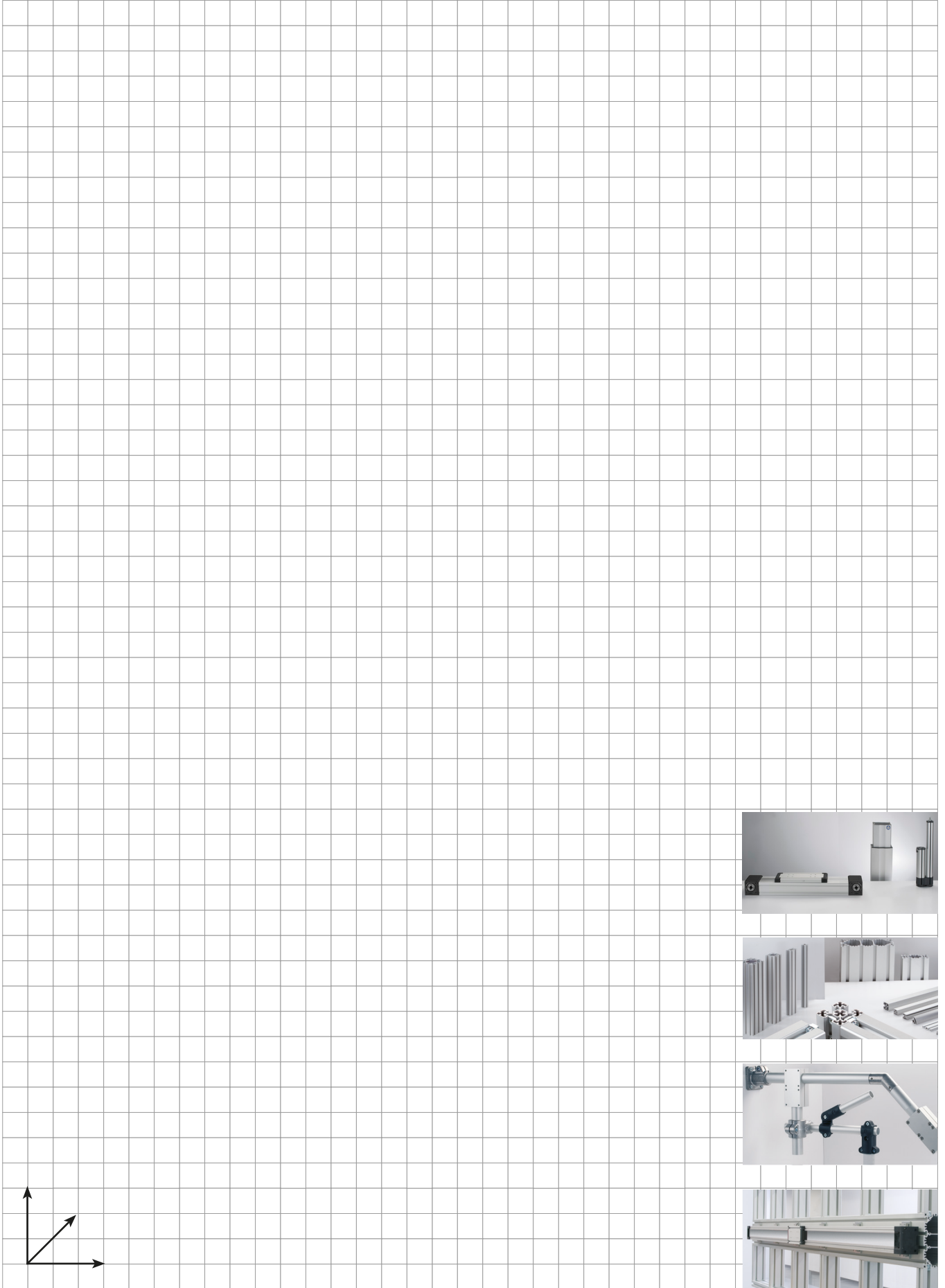
- External fixation on the guide profile

Scope of delivery:
Limit switch with set of fixing items

Limit switch	
Voltage	10...30 VDC
Max. switching current	150 mA
Operating distance	2 mm for steel
Degree of protection	IP 67
Cable length	2m
Ambient temperature	-25°C to +70°C


BG 40

BG 80

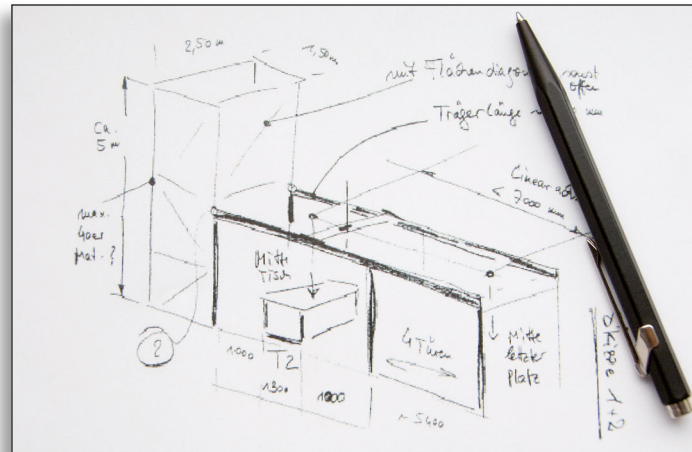
Code No.	Type	A	B	C	Version
92850	RK MonoLine 40	18	18	24	Changeover, External inductive limit switch M8x1
92851	RK MonoLine 80	43	23,5	1,4	



Our service

Do you need to focus your resources on other tasks and are you looking for a competent partner you can rely on? Working in close collaboration with you, our specialists will develop solutions tailor-made to meet your needs. If you wish, we can also assemble and commission the units on site.

- **Just make a sketch of your requirements**



- **Our product specialists will devise a solution for you**



- **We can deliver your turnkey solution or assemble and commission it for you on site**



R RENOWNED
KNOW-HOW


RK ROSE+KRIEGER

A Phoenix Mecano Company

**LINEAR-
PROFILE-
CONNECTING-
MODULE-
TECHNOLOGY**



FAX reply form

Yes, I would like to know more about
RK linear technology, please:

send me the Linear Technology catalogue

send me details of your product range in PDF
format on a CD-ROM

contact me

Company: _____

Contact partner: _____

Department: _____

Address: _____

Tel. + Fax: _____

E-mail: _____


RK ROSE+KRIEGER
A Phoenix Mecano Company

Connecting and positioning systems

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