



RK ROSE+KRIEGER

A Phoenix Mecano Company

RK DuoLine

The new
industry benchmark



RK DuoLine

Greater reliability in automation...

...thanks to RK DuoLine, the new generation of spindles and toothed belts



Width, length and height adjustment

Features:

- Manual or electric drive
- Occasional to multiple adjustments daily
- Low duty cycle
- Low speed
- Medium to high stability

RK DuoLine S spindle unit with trapezoidal screw drive



Move-Tec
continued on page 12

Place-Tec
continued on page 18

**Your application
takes
centre stage**

Control-Tec
continued on page 22

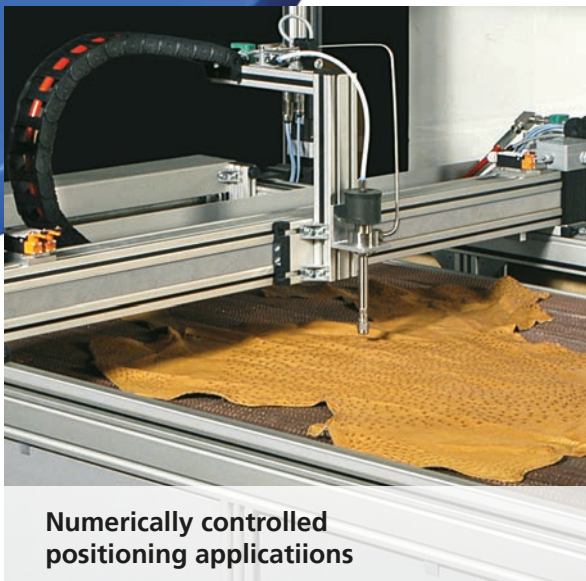


Loading and unloading,
palletising, pick & place

Features:

- High repeatability
- Short cycle times
- High cycle rates
3 shift operation
- High reliability

RK DuoLine Z timing-belt unit



Numerically controlled
positioning applications

Features:

- High positioning accuracy
- Uniform movement sequences
- High drive stiffness
- 3 shift operation
- Extremely reliable

**RK DuoLine S spindle unit
with ball screw**



Key features / technical benefits

Cover strip

- Degree of protection mode IP40

Proximity switch

- Simple installation without protruding contours
- Up to 3 sensors per slot
- Can be installed and changed subsequently

Connection

- For sealing air or vacuum available on request

Anti-vibration screw supportg

- Maximum speed and dynamics regardless of length
- Maintenance- and wear-free
- Up to 8x
- Reduced vibrations

Motor position

- Can be modified at a later stage
- Freely selectable motor position
- Motor can be rotated in 90° carriage

Variable motor connection

- For metal bellows coupling
- For servo coupling with zero backlash

Key features general

- High efficiency
- Low idle torque
- Max. usable travel speed regardless of length
- Central lubricating access on the carriage facilitates maintenance
- Profile slots for fastening the axis both at the sides and underneath
- Slot stones can be subsequently inserted in the side and bottom slots

RK DuoLine S Protect (spindle drive)

- Degree of protection IP40 provided by steel cover strip and seals
- Positioning accuracy ± 0.05 mm when using an integrated linear encoder
- Multiple anti-vibration spindle supports
- Pitch accuracy T5 with ball screw

RK DuoLine R Protect (guide axis)

- Without dedicated drive
- Freely movable carriage



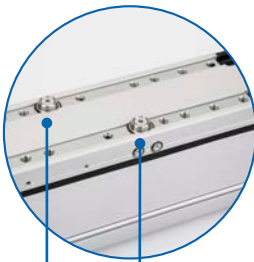
Slot stone strip

- To hold your load securely



Integr. position sensing system

- High positioning accuracy across the entire unit length
- Direct detection of carriage position
- Elasticities of the drive train identifiable and can be off-set by the motor controller



Centring holes

- Reproducible payload position/linear unit



Tapered lubricating nipple

- Central lubricating access on the carriage facilitates maintenance
- RK DuoLine S with trapezoidal thread is lifetime lubricated*
- Alternative connection to permanent lubrication available on request



Clamping bar

- Secures the axis reliably

RK DuoLine Z (toothed-belt drive)

- Degree of protection IP20
- Flexible positioning of motor thanks to pulley boxes with hollow shafts
- Repeat accuracy ± 0.05 mm

RK DuoLine Z Protect (toothed-belt drive)

- Degree of protection IP40 provided by steel cover strip and seals
- Flexible positioning of motor thanks to pulley boxes with hollow shafts
- Repeat accuracy ± 0.05 mm

Variants

RK DuoLine Clean suitable for use in clean-rooms up to ISO class 1



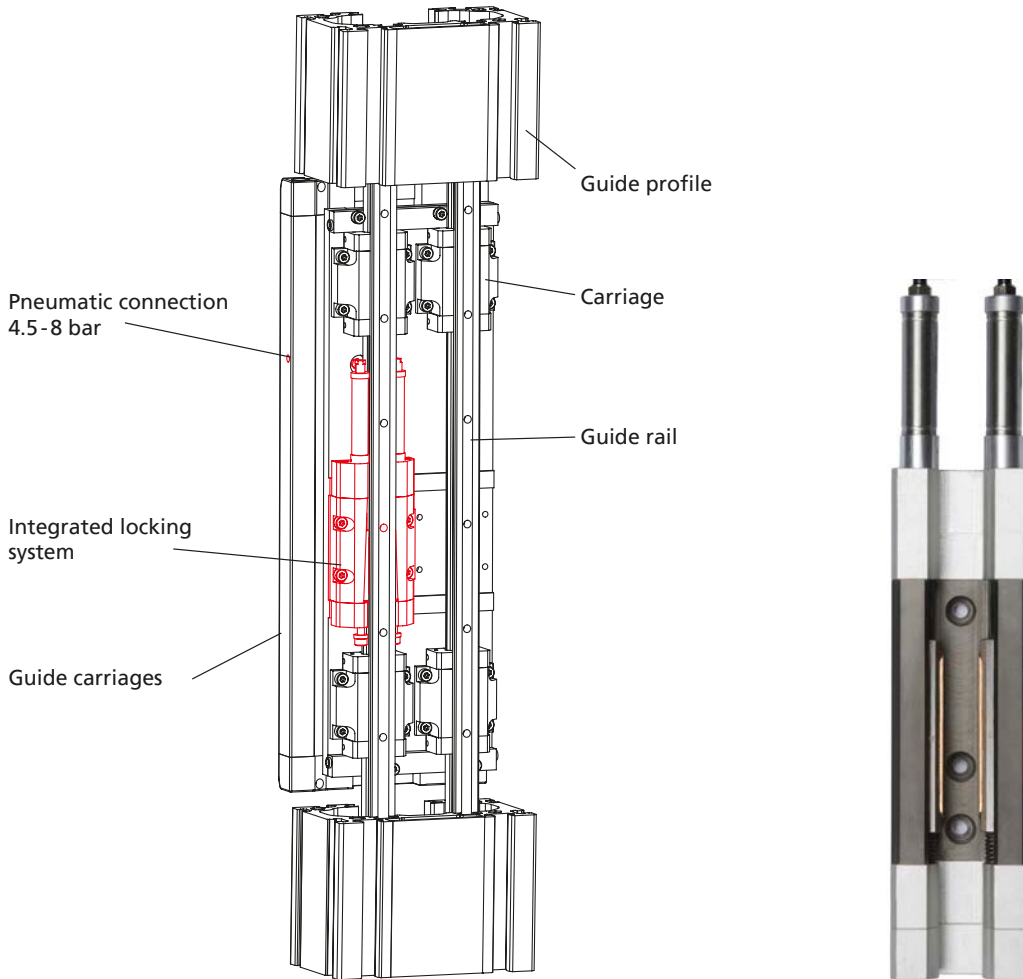
Note:

More information in our RK DuoLine Clean brochure

https://www.rk-rose-krieger.com/fileadmin/catalogue/neuheiten/news_linearachse_duoline_clean_en.pdf

* up to approximately 30 km running performance

Timing-belt- and Spindle units with secure locking function



- As a safeguard for installation, removal and maintenance work
- Guaranteed nominal holding force on greased ball rails thanks to self-amplifying system
- „Safelock“ safety locking device is an approved component in accordance with category 1 of DIN EN ISO 13849-1, which should be considered
- $B_{10} = 1.000.000$ operations (static)
- Performance level PL D achievable. PL E as redundant version available on request
- Integrated locking system. No protruding contours outside the linear axis.
- Overload-proof locking element

	Recirculating ball	Toothed belt	
	RK DuoLine S 160	RK DuoLine Z 120 one ball rail	RK DuoLine Z 160
Nominal holding force Safelock (at $B_{10} = 1.000.000$ operations)	1800 N	2500 N	1800 N
DGUV test certification	Tested based on testing principles GS-MF-01 and GS-MF-28		

Note:

Maximum holding force = 2x nominal holding force.

Emergency braking of a moving load is not proper use.

If the nominal holding force is exceeded, or after every emergency braking, a functional check has to be performed in normal mode as per the operating instructions.

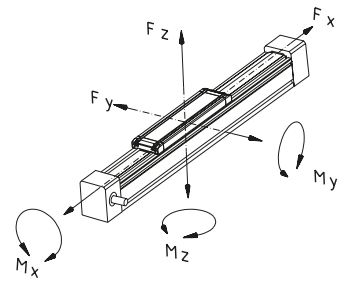
https://www.rk-rose-krieger.com/fileadmin/catalogue/manuals_lineartechnik/99347_safelock.pdf

Properties/Technical data	Load characteristic	8
	General informations/operation conditions.....	9
Version – Move-Tec (Dimensions, order numbers)	RK DuoLine S 60	12
	RK DuoLine S 80	12
	RK DuoLine S 60 R/L	14
	RK DuoLine S 80 R/L	14
Place-Tec	RK DuoLine R 60/80/120.....	16
	RK DuoLine Z 60	18
	RK DuoLine Z 80.....	18
	RK DuoLine Z 120.....	18
	RK DuoLine Z 120 II.....	18
	RK DuoLine Z 160.....	18
	RK DuoLine Z Safelock.....	20
Control-Tec	RK DuoLine S 60	22
	RK DuoLine S 80	22
	RK DuoLine S 120	24
	RK DuoLine S 160	24
	RK DuoLine S Safelock	26
Accessories (Fixing)	Fixation of payload	28
	Clamping bars	29
	Slot stones	29
	Centering Sets	30
	Transmission.....	32
(Drive)	Bevel gear	34
	Drive shaft	36
	Screw-on hub.....	37
	Synchronisation shaft	38
	Motor adapter kit	40
(Position determination)	Limit switch	41

Technical data

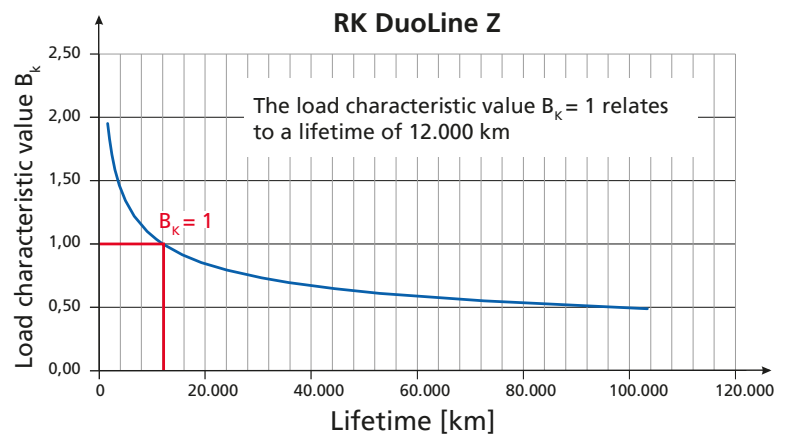
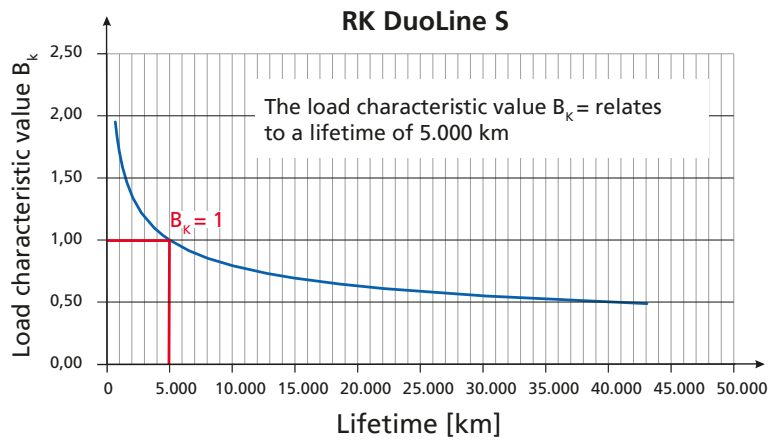
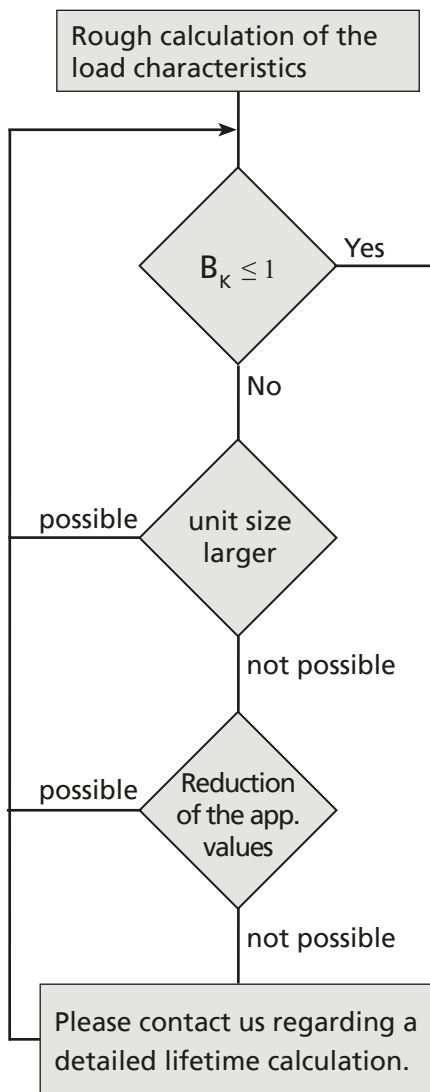
Calculation of the load characteristic to define the lifetime

- 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.



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

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



At a load characteristic value of $B_k < 1$ higher theoretical lifetime can be achieved.

The illustration is intended as an approximate reflection of the expected lifetime depending on the load characteristic value B_k . Increased speeds, short-stroke, vibrations, impacts, insufficient lubrication or other specific conditions are not taken into account.

Please contact us regarding a detailed lifetime calculation.

Example:

- The load and moments of the application are: $F_z = 200\text{N}$, $M_x = 20\text{ Nm}$ und $M_z = 45\text{ Nm}$
According to the above equation you will have following load characteristic of a RK DuoLine 80: $B_k = 0.55$.

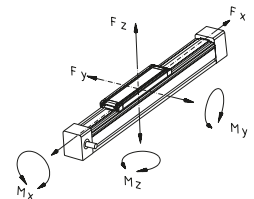
General information / operating conditions

	RK DuoLine Z 60	RK DuoLine Z 80	RK DuoLine Z 120	RK DuoLine Z 120 II	RK DuoLine Z 160
Guidance system	1 Ball rail system	1 Ball rail system	1 Ball rail system	2 Ball rail system	2 Ball rail system
Installation position	any position				
Max. driving torque	28 Nm	67 Nm	141 Nm	141 Nm	220 Nm
Max. speed	5 m/s	5 m/s	5 m/s	5 m/s	5 m/s
Max. acceleration	50 m/s ²	50 m/s ²	50 m/s ²	50 m/s ²	50 m/s ²
Repeat accuracy	± 0.05 mm	± 0.05 mm	± 0.05 mm	± 0.05 mm	± 0.05 mm
Positioning accuracy	with integrated linear encoder ± (0.025 + 0.01 x L) mm; L = travel in meters				
Max. idle torque	2 Nm	2.2 Nm	2.3 Nm	2.3 Nm	2.5 Nm
Drive	HTD-Belts from polyurethan, Pitch 5 mm, Width 20 mm	HTD-Belts from polyurethan, Pitch 8 mm, Width 30 mm	HTD-Belts from polyurethan, Pitch 8 mm, Width 50 mm	HTD-Belts from polyurethan, Pitch 8 mm, Width 50 mm	HTD-Belts from polyurethan, Pitch 8 mm, Width 75 mm
Active Ø pulley wheel	52.52 mm	66.21 mm	76.39 mm	76.39 mm	76.39 mm
Pulley wheel circumference	165 mm	208 mm	239.99 mm	239.99 mm	239.99 mm
Ambient temperature	0 to +60°C	0 to +60°C	0 to +60°C	0 to +60°C	0 to +60°C
Degree of protection	Basic IP 20 / Protect IP 40	Basic IP 20 / Protect IP 40	Basic IP 20 / Protect IP 40	Basic IP 20 / Protect IP 40	Basic IP 20 / Protect IP 40

Dynamic load data

Force [N]

Torque [Nm]



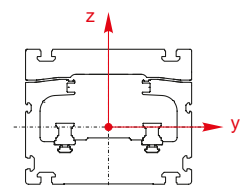
Toothed-belt drive						
Load data	Fx*	Fy	Fz	Mx	My	Mz
Standard guide carriage						
RK DuoLine Z 60	900	700	2500	48	160	140
RK DuoLine Z 80	2000	1000	4100	100	340	300
RK DuoLine Z 120 RK DuoLine Z 120 Safelock	3600	1400	6400	125	550	530
RK DuoLine Z 120 II	3600	2000	6900	205	620	560
RK DuoLine Z 160 RK DuoLine Z 160 Safelock	6000	5100	8900	500	840	810
Extended guide carriage						
RK DuoLine Z 60	900	700	2500	48	250	220
RK DuoLine Z 80	2000	1000	4100	100	590	520
RK DuoLine Z 120	3600	1400	6400	125	890	680
RK DuoLine Z 120 II	3600	2000	6900	205	940	790
RK DuoLine Z 160	6000	5100	8900	500	1200	1150

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

Geometric moment of inertia

[cm⁴]

	Iy	Iz
RK DuoLine Z 60	52.54 cm ⁴	67.41 cm ⁴
RK DuoLine Z 80	127.90 cm ⁴	172.80 cm ⁴
RK DuoLine Z 120	289.5 cm ⁴	627.8 cm ⁴
RK DuoLine Z 120 II	287.3 cm ⁴	597.9 cm ⁴
RK DuoLine 160	437.70 cm ⁴	1455.90 cm ⁴



Technical data

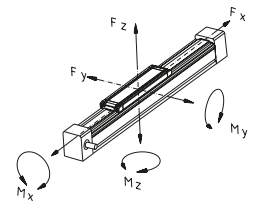
General information / operating conditions

	RK DuoLine S 60	RK DuoLine S 60	RK DuoLine S 80	RK DuoLine S 80
Guidance system	1 Ball rail systems			
Installation position	any position			
Max. driving torque	3.0 Nm	3.4 Nm	9.0 Nm	17 Nm
Max. speed	0.02 m/s	0.283 / 0.467 / 0.747 m/s	0.02 / 0.04 m/s (regardless of travel)	0.24 / 0.94 / 2.4 m/s (regardless of travel)
Max. acceleration	3 m/s ²	20 m/s ²	3 m/s ²	20 m/s ²
Repeat accuracy	± 0.1 mm	± 0.04 mm	± 0.1 mm	± 0.04 mm
Positioning accuracy	-	-	-	with integrated linear encoder ± (0.025 + 0.01 x L) mm; L = travel in meters
Max. idle torque	0.8 Nm	0.5 Nm	1.0 Nm	0.6 Nm
Drive	Trapezoidal thread Ø16, Pitch 4	Ball-and-screw Ø16, Pitch 5, 10, 16mm	Trapezoidal thread Ø20, Pitch 4 or 8 mm, on the right	Ball-and-screw Ø20, Pitch 5, 20 or 50 mm, on the right
Pitch accuracy	(± 0.1 / 300 mm)	T5 (0.023 / 300 mm)	(± 0.1 / 300 mm)	T5 (0.023 / 300 mm)
Duty cycle	S3 30% Basic 1h	S3 100%	S3 30% Basis 1h	S3 100%
Ambient temperature	0 to +60°C	0 to +60°C	0 to +60°C	0 to +60°C
Degree of protection	IP 40	IP 40	IP 40	IP 40

Dynamic load data

Force [N]

Torque [Nm]

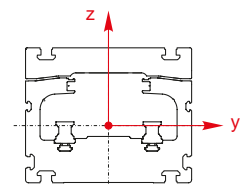


Spindle drive							
Load data	Spindle	Fx	Fy	Fz	Mx	My	Mz
Standard guide carriage							
RK DuoLine S 60	16x4	1400	700	2500	48	160	140
	16x5	840					
	16x10	1300					
	16x16	1300					
RK DuoLine S 80	20x4 / 20x8	2500	1000	4100	100	380	350
	20x5	950					
	20x20	1420					
	20x50	2250					
Extended guide carriage							
RK DuoLine S 60	16x4	1400	700	2500	48	250	220
	16x5	840					
	16x10	1300					
	16x16	1300					
RK DuoLine S 80	20x4 / 20x8	2500	1000	4100	100	620	550
	20x5	950					
	20x20	1420					
	20x50	2250					

Geometric moment of inertia

[cm⁴]

	Iy	Iz
RK DuoLine S 60	48.97 cm ⁴	61.84 cm ⁴
RK DuoLine S 80	116.76 cm ⁴	165.75 cm ⁴



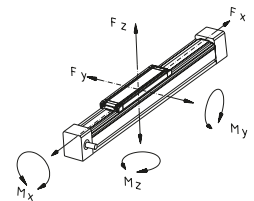
General information / operating conditions

	RK DuoLine S 120	RK DuoLine S 160
Guidance system	2 Ball rail systems	2 Ball rail systems
Installation position	any position	
Max. driving torque	32 Nm	52 Nm
Max. speed	0.24 / 1.2 / 2.4 m/s (regardless of travel)	2 m/s (regardless of travel)
Max. acceleration	20 m/s ²	20 m/s ²
Repeat accuracy	± 0.04 mm	± 0.04 mm
Positioning accuracy	with integrated linear encoder ± (0.025 + 0.01 x L) mm; L = travel in meters	
Max. idle torque	0.7 Nm	0.9 Nm
Drive	Ball-and-screw	
	Ø25, Pitch 5, 25 or 50 mm	Ø32, Pitch 40 mm, on the right
Pitch accuracy	T5 (0.023 / 300 mm)	T5 (0.023 / 300 mm)
Duty cycle	S3 100%	S3 100%
Ambient temperature	0 to +60°C	0 to +60°C
Degree of protection	IP 40	IP 40

Dynamic load data

Force [N]

Torque [Nm]

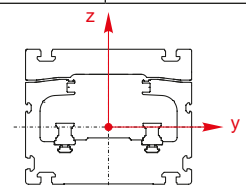


Spindle drive							
Load data	Spindle	Fx	Fy	Fz	Mx	My	Mz
Standard guide carriage							
RK DuoLine S 120	25x5	1240	2000	6900	205	620	560
	25x25	2700					
	25x50	3400					
RK DuoLine S 160 RK DuoLine S 160 Safelock	32x40	8000	5100	8900	500	840	810
Extended guide carriage							
RK DuoLine S 120	25x5	1240	2000	6900	205	940	790
	25x25	2700					
	25x50	3400					
RK DuoLine S 160	32x40	8000	5100	8900	500	1200	1150

Geometric moment of inertia

[cm⁴]

	Iy	Iz
RK DuoLine S 120	287.3 cm ⁴	597.9 cm ⁴
RK DuoLine S 160	437.70 cm ⁴	1455.90 cm ⁴



Versions

Dimensions / ordering data

Order informations:

- Second free concurrent carriage on request
- Also available without screw drive as a torque support
- Lubrication over carriages on request

Spindle unit RK DuoLine S with trapezoidal screw

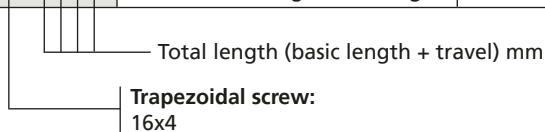
Move-Tec



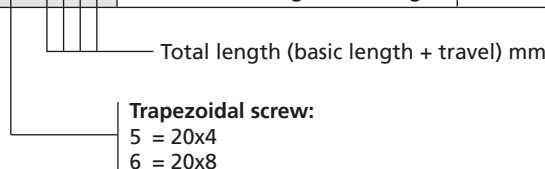
Key feature::

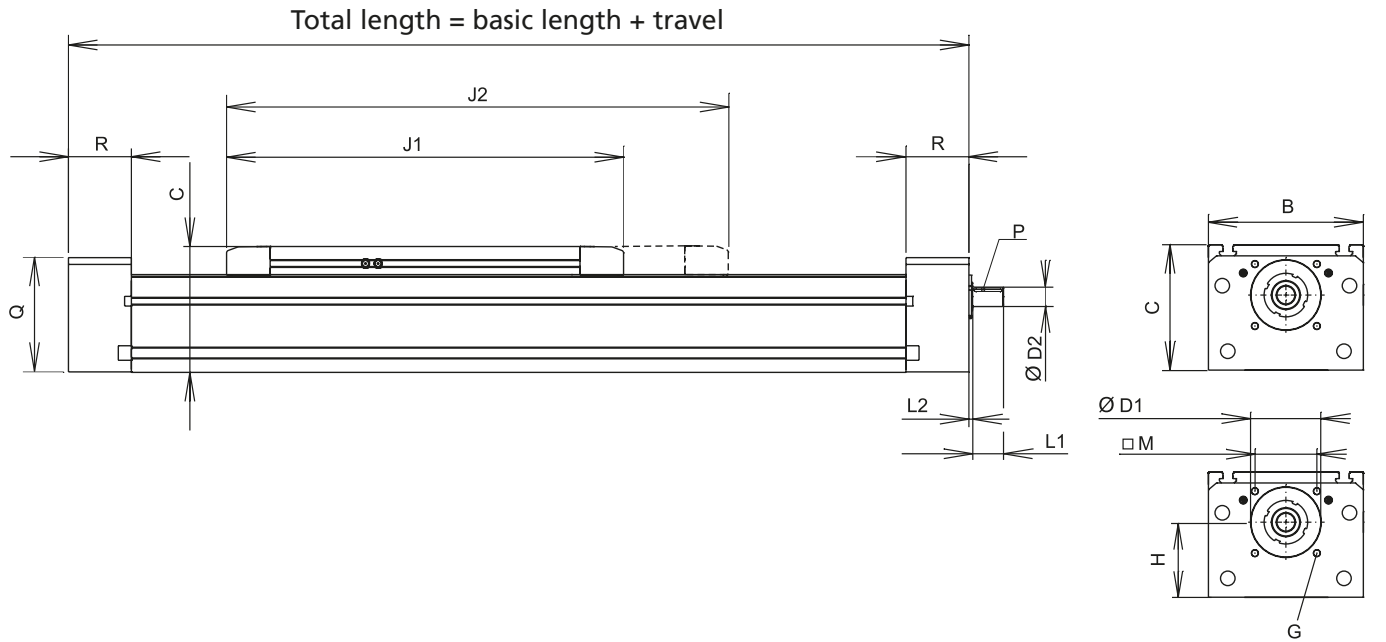
- Lubricated for life up to 30 km running performance

Code No.	Type	Basic length	B	C	D1	D2
TD13A5A1A15B0_ _ _ _ _	RK DuoLine S 60 Protect	321	60	80	Ø32 ^{H7} 2.3 deep	Ø10 _{k7}
TD13A5A1B15B0	RK DuoLine S 60 Protect with extended guide carriage	411	60	80	Ø32 ^{H7} 2.3 deep	Ø10 _{k7}



Code No.	Type	Basic length	B	C	D1	D2
TD13A2A1A1_ B0_ _ _ _ _	RK DuoLine S 80 Protect	370	80	100	Ø42 ^{H7} 2.3 deep	Ø14 _{k7}
TD13A2A1B1_ B0	RK DuoLine S 80 Protect with extended guide carriage	502	80	100	Ø42 ^{H7} 2.3 deep	Ø14 _{k7}





[mm]

G	H	J1	J2	L1	L2	M	P	Q	R	Max. travel	Mass [kg]	
											Basic length	per 100 mm travel
M5-10 deep	47.7	245	-	17.2	2.8	33x24	3x3x12	72.2	38	2664	3.44	0.60
M5-10 deep	47.7	-	335	17.2	2.8	33x24	3x3x12	72.2	38	2574	4.26	0.60

[mm]

G	H	J1	J2	L1	L2	M	P	Q	R	Max. travel	Mass [kg]	
											Basic length	per 100 mm travel
M6-18 deep	57.5	278	-	30	3.8	□46±0.2	5x5x25	89	46	2890	6.74	0.96
M6-18 deep	57.5	-	410	30	3.8	□46±0.2	5x5x25	89	46	2758	8.01	0.96

Versions

Dimensions / ordering data

Order informations:

- Lubrication over carriages on request
- Extended carriages on request

Spindle unit RK DuoLine S with trapezoidal screw

Move-Tec

Version

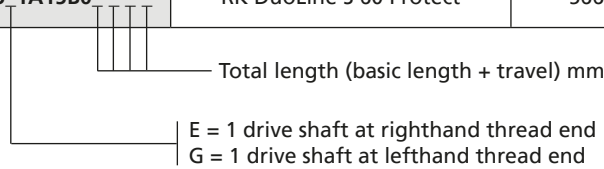
- Right and lefthand thread
RK DuoLine S 60 16x4
RK DuoLine S 80 20x4



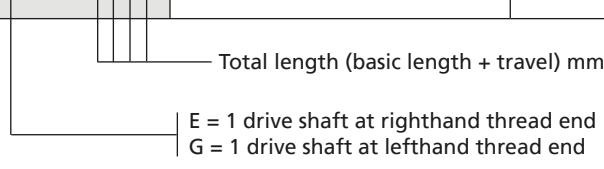
Key feature::

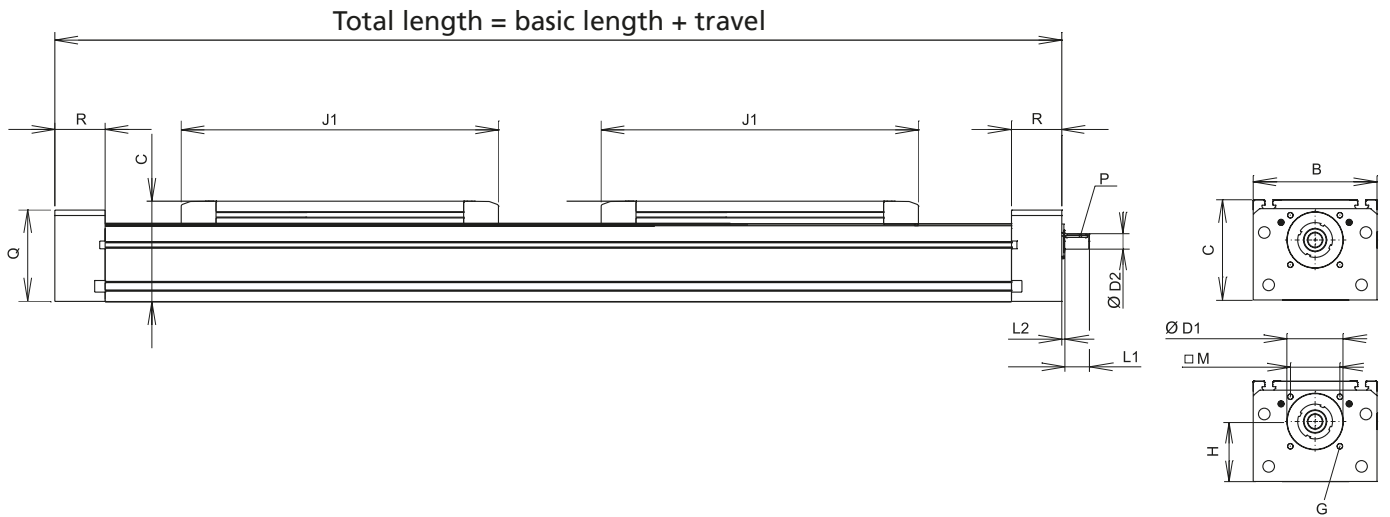
- Lubricated for life up to 30 km running performance

Code No.	Type	Basic length	B	C	D1	D2
TD13A5_1A15B0	RK DuoLine S 60 Protect	566	60	80	Ø32 ^{H7} 2.3 deep	Ø10 _{k7}



Code No.	Type	Basic length	B	C	D1	D2
TD13A2_1A15B0	RK DuoLine S 80 Protect	648	80	100	Ø42 ^{H7} 2.3 deep	Ø14 _{k7}





[mm]

G	H	J1	L1	L2	M	P	Q	R	Max. travel	Masse [kg]	
										Basic length	per 100 mm travel
M5-10 deep	47.7	245	17.2	2.8	33x24	3x3x12	72.2	38	2476	5.97	0.60

[mm]

G	H	J1	L1	L2	M	P	Q	R	Max. travel	Masse [kg]	
										Basic length	per 100 mm travel
M6-18 deep	57.5	278	30	3.8	□46±0.2	5x5x25	89	46	2890	11.7	0.96

Versions

Dimensions / ordering data

Order informations:

- Longer travel lengths on request
- Integrated linear encoder as option

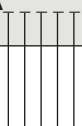
Guide

- Ideal as additional / secondary support for the RK Duoline with toothed belt or spindle.

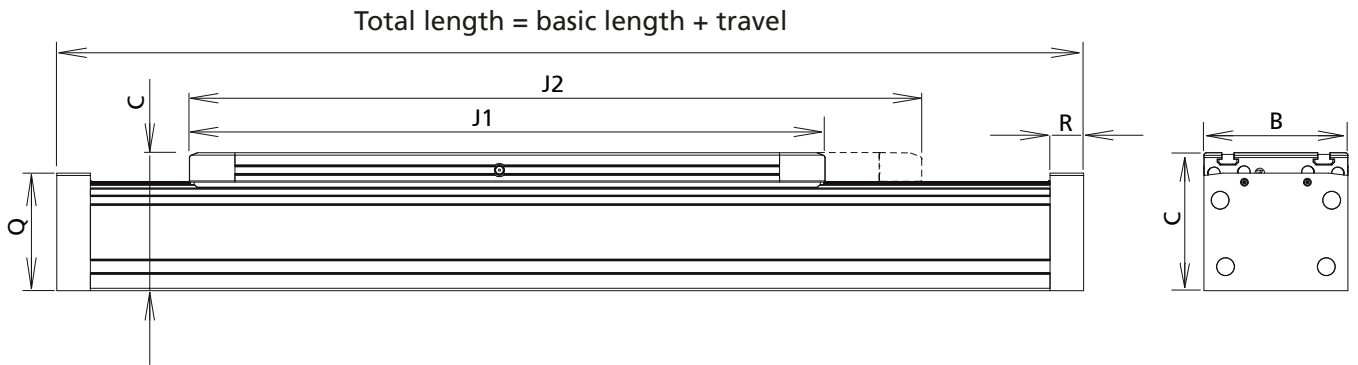
Place-Tec and Control-Tec



Code No.	Type	Basic length	B	C
TD14A5T1A11A0 _ _ _ _	RK DuoLine R 60 Protect	295	60	80
TD14A5T1B11A0 _ _ _ _	RK DuoLine R 60 Protect with extended guide carriage	385		
TD14A2T1A11A0 _ _ _ _	RK DuoLine R 80 Protect	352	80	100
TD14A2T1B11A0 _ _ _ _	RK DuoLine R 80 Protect with extended guide carriage	484		
TD14A3T1A11A _ _ _ _	RK DuoLine R 120 Protect one ball rail guide	472	120	115
TD14A3T1B11A	RK DuoLine R 120 Protect one ball rail guide with extended guide carriage	616		



Total length = basic length + total travel (mm)



[mm]

J1	J2	Q	R	max. travel	Mass [kg]	
					Basic length	per 100 mm travel
245	-	70	22	3587	3.73	0.54
-	335			3497	4.46	0.54
278	-	97	22	7692	5.22	0.83
-	410			7560	6.89	0.83
386	-	98	28	7584	9.76	1.19
-	530			7440	12.16	1.19

Versions

Dimensions / ordering data

Order informations:

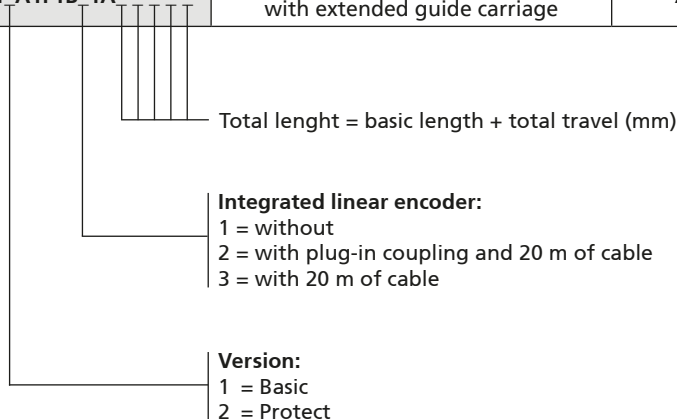
- Longer travel lengths on request
- Also available without screw drive as a torque support
- Connection for sealing air or vacuum available on request

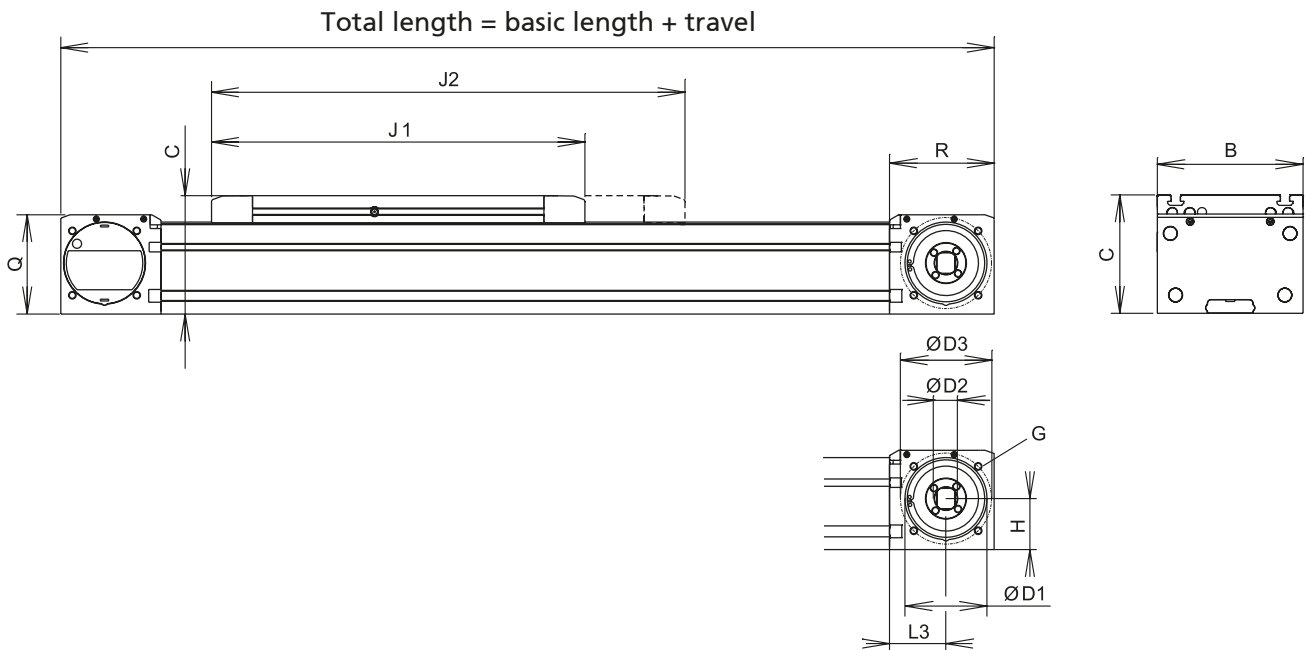
Timing-belt unit RK DuoLine Z

Place-Tec



Code No.	Type	Basic length	B	C	D1	D2
TD1_A5F1A11A0_	RK DuoLine Z 60	405	60	80	62 ^{H7} 5 deep	15H6
TD1_A5F1B11A0_	RK DuoLine Z 60 one ball rail guide with extended guide carriage	495				
TD1_A2F1A_1A_	RK DuoLine Z 80	468	80	100	75 ^{H7} 7 deep	16H6
TD1_A2F1B_1A_	RK DuoLine Z 80 with extended guide carriage	600				
TD1_A3F1A_1A_	RK DuoLine Z 120 one ball rail guide	606	120	115	90 ^{H7} 3.5 deep	20H6
TD1_A3F1B_1A_	RK DuoLine Z 120 one ball rail guide with extended guide carriage	750				
TD1_A4F1A_1A_	RK DuoLine Z 120 two ball rail guides	606				
TD1_A4F1B_1A_	RK DuoLine Z 120 two ball rail guides with extended guide carriage	750				
TD1_A1F1A_1A_	RK DuoLine Z 160	630	160	130	90 ^{H7} 3.5 deep	25H6
TD1_A1F1B_1A_	RK DuoLine Z 160 with extended guide carriage	780				





[mm]

D3	G	H	J1	J2	L3	Q	R	max. travel	Mass [kg]		
									Basic length	per 100 mm travel	
72.1±0.2	M6-12 deep	33.8	245	–	44	70	80	5753	4.65	0.54	
			–	335					5.38	0.54	
90.5±0.2	M8-12 deep	40.1	278	–	52	85	95	7722	7.84	0.83	
			–	410					9.51	0.83	
100±0.2	M8-16 deep	46.8	386	–	62	98	110	7614	16.33	1.19	
			–	530					18.72	1.19	
			386	–					5614	16.33	1.19
			–	530					5470	18.72	1.19
100±0.2	M8-28 deep	56	410	–	62	109	110	9010	25.76	1.80	
			–	560					8860	28.16	1.80

RK DuoLine Z Safelock 120/160

Versions

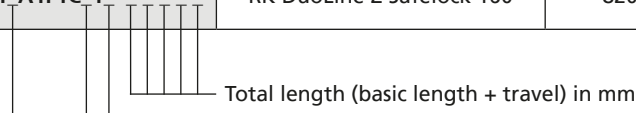
Dimensions / ordering data

Order information:

- Longer travel lengths on request



Code No.	Type	Basic length	B	C	ØD1	ØD2	ØD3
TD1_A3F1C_1_ _ _ _ _	RK DuoLine Z Safelock 120	836	120	115	90 ^{H7}	20 ^{H6}	100±0.2
TD1_A1F1C_1	RK DuoLine Z Safelock 160	820	160	130	90 ^{H7}	25 ^{H6}	100±0.2



Total length (basic length + travel) in mm

Version:

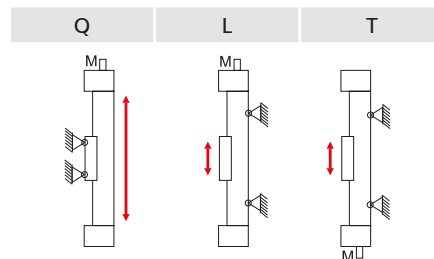
- Q = Motor at top / Profile traverses
- L = Motor at top / Carriage traverses
- T = Motor at bottom / Carriage traverses

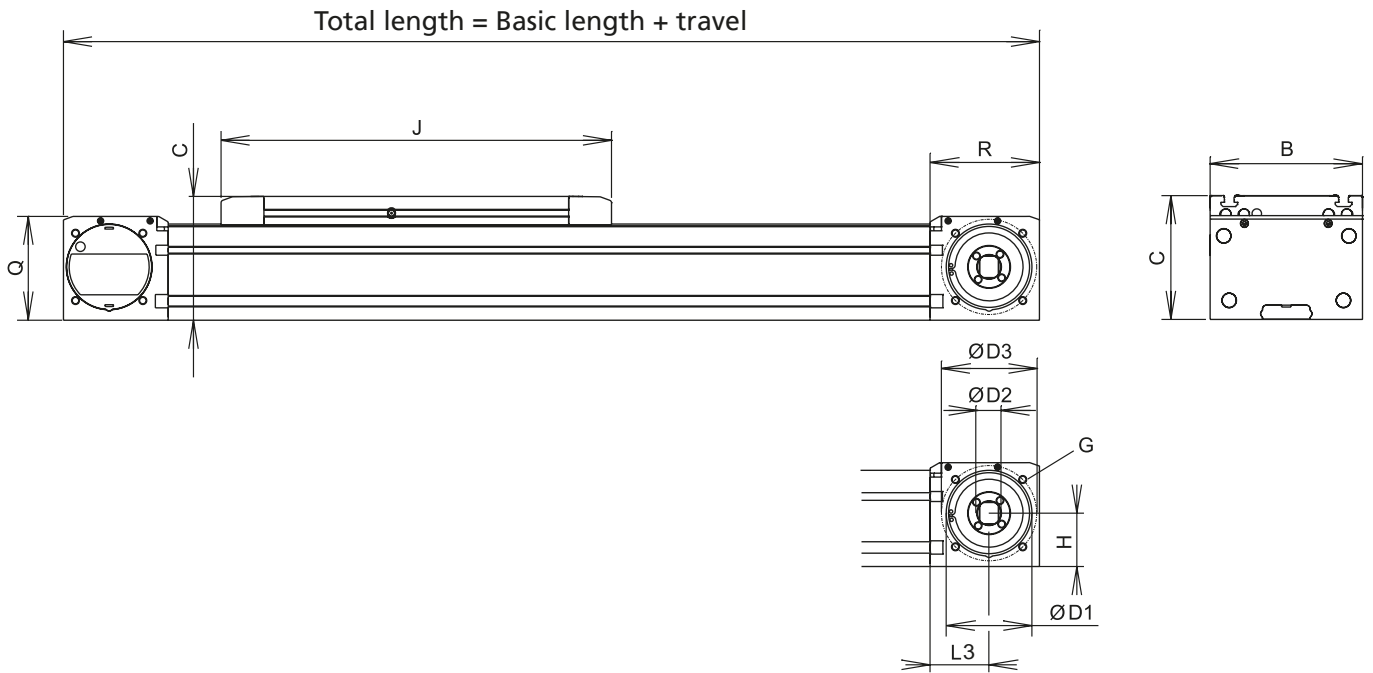
Integrated position sensing system:

- 1 = without
- 2 = with plug-in coupling and 20 m of cable
- 3 = with 20 m of cable

Degree of protection:

- 1 = Basic
- 2 = Protect (IP 40 via cover strip)





[mm]

G	H	J	L	Q	R	max. travel	Mass [kg]	
							Basic length	per 100 mm travel
M8-16 deep	46.8	616	62	98	110	7384	21.27	1.19
M8-28 deep	56	600	62	109	110	9380	30.20	1.80

Versions

Dimensions / ordering data

Order informations:

- Second free concurrent carriage on request
- Also available without screw drive as a torque support

Spindle unit RK DuoLine S with ball screw

Control-Tec



Code No.	Type	Basic length			B	C	D1	D2
		Total length of up to 812 mm	Total length of 813 -1899 mm	Total length of 1900 mm				
TD13A5A1A1_A0_	RK DuoLine S 60 Protect	321	391	471	60	80	Ø32 ^{H7} 2.3 deep	Ø10 _{k7}
TD13A5A1B1_A0	RK DuoLine S 60 Protect with extended guide carriage	411	481	561				

Total length = basic length + total travel (mm)

Ball screw:
 1 = 16x5
 2 = 16x10
 3 = 16x16

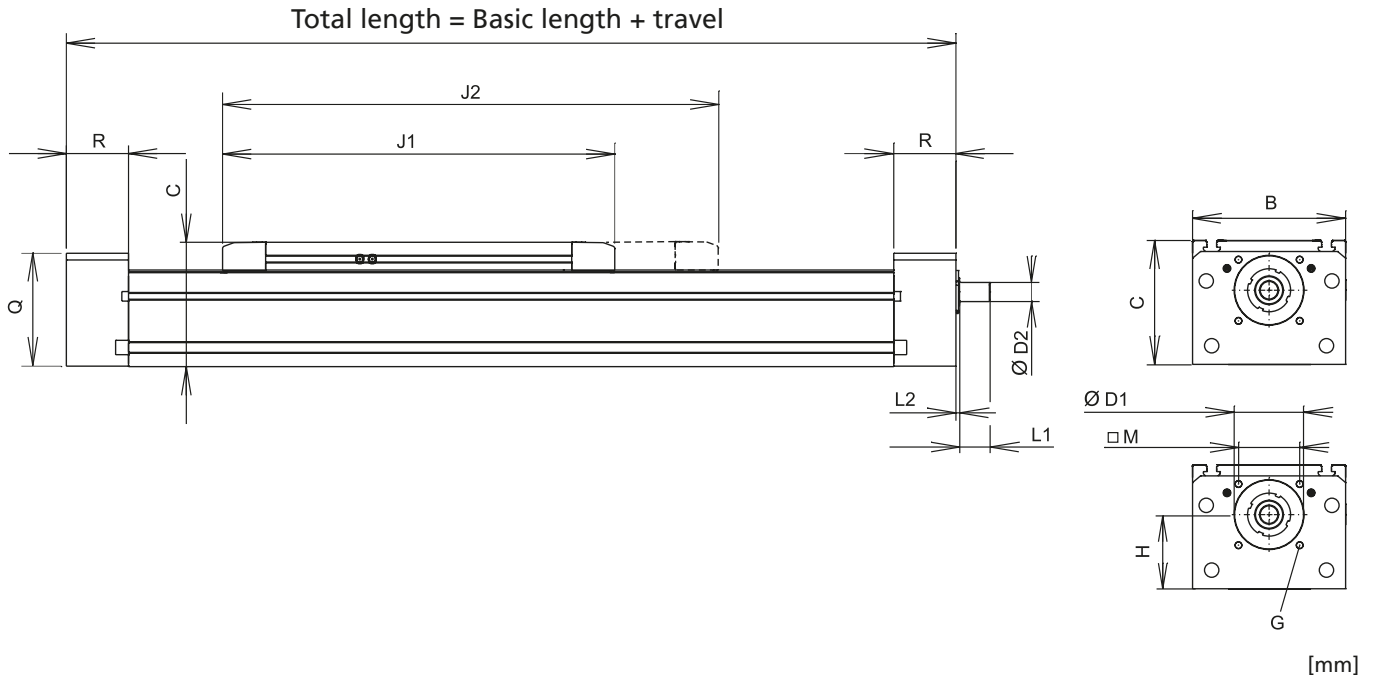
Code No.	Type	Basic length			B	C	D1	D2
		Total length of up to 1171 mm	Total length of 1172-3051 mm	Total length of 3052 mm				
TD13A2A1A_A0_	RK DuoLine S 80 Protect	370	415	495	80	100	Ø2 ^{H7} 2.3 deep	Ø14 _{k7}
TD13A2A1B_A0	RK DuoLine S 80 Protect with extended guide carriage	502	547	627				

Total length = basic length + total travel (mm)

Integrated linear encoder:

- 1 = without
- 2 = with plug-in coupling and 20 m of cable
- 3 = with 20 m of cable

Ball screw:
 3 = 20x5
 1 = 20x20
 2 = 20x50



G	H	J1	J2	L1	L2	M	Q	R	max. travel	Mass [kg]	
										Basic length	per 100 mm travel
M5-10 deep	47.7	245	-	17.2	2.8	33x24	72.2	38	2664	3.44	0.60
		-	335							4.26	0.60

[mm]

G	H	J1	J2	L1	L2	M	Q	R	max. travel	Mass [kg]	
										Basic length	per 100 mm travel
M6-18 deep	57.5	278	-	30	3.8	□46±0.2	89	46	4440	6.74	0.96
M6-18 deep	57.5	-	410	30	3.8	□46±0.2	89	46	4368	8.01	0.96

Versions

Dimensions / ordering data

Order informations:

- Second free concurrent carriage on request
- Also available without screw drive as a torque support

Spindle unit RK DuoLine S with ball screw

Control-Tec

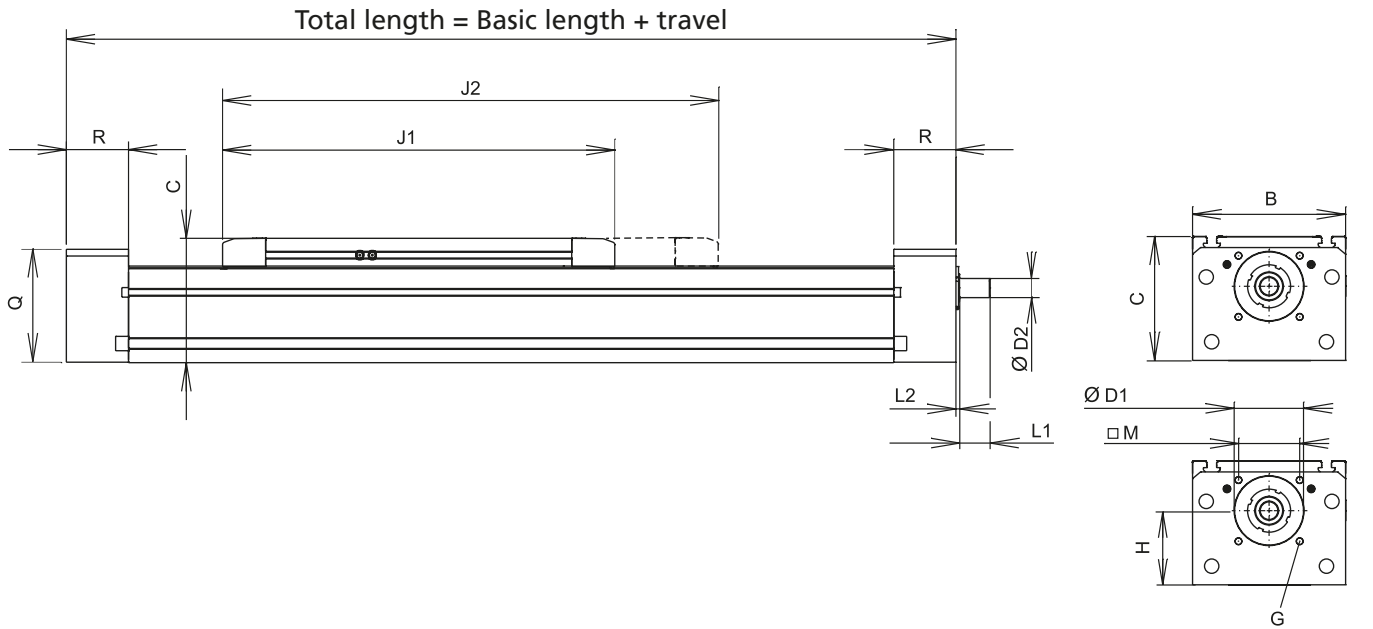


Code No.	Type	Basic length		B	C	D1	D2
		Total length of up to 3042 mm	Total length of 3043 mm				
TD13A4A1A1_A0_-----	RK DuoLine S 120 Protect	498	614	120	115	Ø55 ^{H7} 2.3 deep	Ø16 _{k6}
TD13A4A1B_A0	RK DuoLine S 120 Protect with extended guide carriage	642	758				

Total length = basic length + total travel (mm)
 Integrated linear encoder:
 1 = without
 2 = with plug-in coupling and 20 m of cable
 3 = with 20 m of cable
 Ball screw:
 1 = 25x5
 2 = 25x25
 3 = 25x50

Code No.	Type	Total length of up to 1350 mm	Basic length		B	C	D1	D2
			Total length of 1351-3350 mm	Total length of 3351 mm				
TD13A1A1A12A0_-----	RK DuoLine S 160 Protect	540	602	702	160	130	Ø2 ^{H7} 2.3 deep	Ø20 _{k7}
TD13A1A1B_2A0	RK DuoLine S 160 Protect with extended guide carriage	690	752	852	160	130	Ø2 ^{H7} 2.3 deep	Ø20 _{k7}

Total length = basic length + total travel (mm)
 Integrated linear encoder:
 1 = without
 2 = with plug-in coupling and 20 m of cable
 3 = with 20 m of cable



[mm]

G	H	J1	J2	L1	L2	M	Q	R	max. travel	Mass [kg]	
										Basic length	per 100 mm travel
M6-18 deep	72.7	386	-	30	2.5	□46±0.2	104	55	4591	14.57	1.49
		-	530							16.74	1.49

[mm]

G	H	J1	J2	L1	L2	M	Q	R	max. travel	Mass [kg]	
										Basic length	per 100 mm travel
M8-22 deep	78	410	-	32	3.7	□64±0.2	118	65	4300	23.26	2.21
M8-22 deep	78	-	560	32	3.7	□64±0.2	118	65	4150	26.59	2.21

Versions

Dimensions / ordering data

Order information:

- Longer travel lengths on request

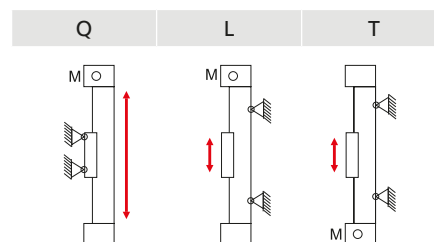


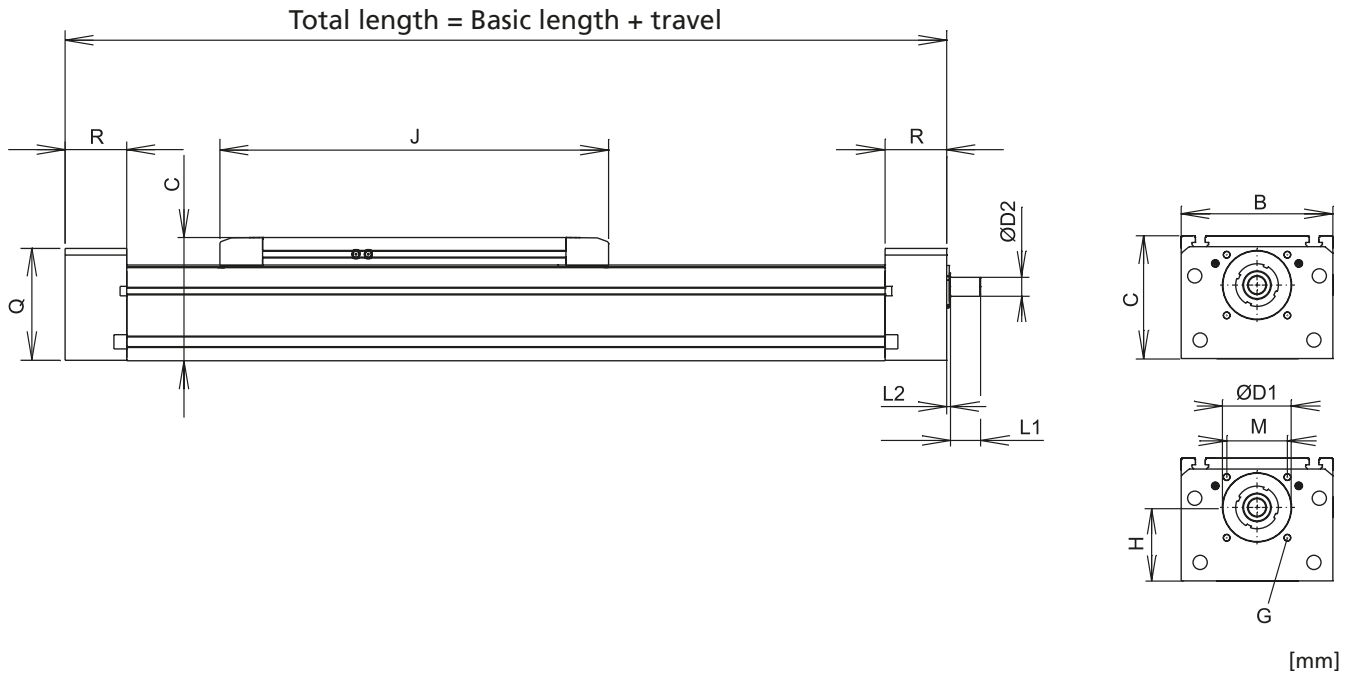
Code No.	Type	Spindle	Basic length	B	C	ØD1	ØD2	G
TD13A1A1C_1_0	RK DuoLine S Safelock 160	32x40	805	160	130	75 ^{H7}	20 _{h8}	M8-22 deep

Total length (basic length + travel) in mm

Version:
 Q = Motor at top / Profile traverses
 L = Motor at top / Carriage traverses
 T = Motor at bottom / Carriage traverses

Integrated position sensing system:
 1 = without
 2 = with plug-in coupling and 20 m of cable
 3 = with 20 m of cable





H	J	L1	L2	M	Q	R	max. travel	Mass [kg]	
								Basic length	per 100 mm travel
78	675	32	3.7	□64±0.2	118	65	4275	31.66	2.21

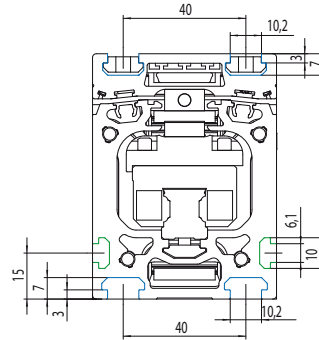
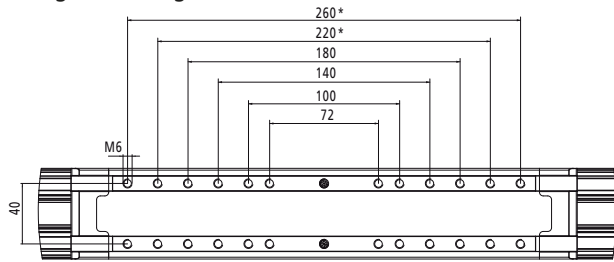
Fixation

Fixation of payload

- Two slot stone strips 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 DuoLine R/S/Z 60

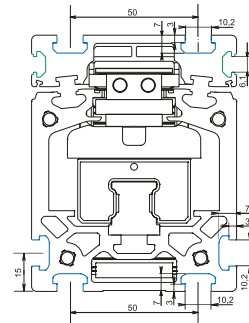
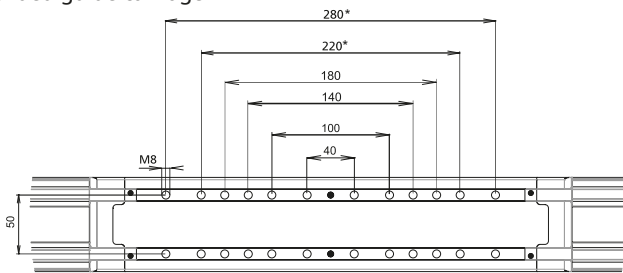
*only with version with extended guide carriage



- 20 slot geometry
- 30 slot geometry

RK DuoLine R/S/Z 80

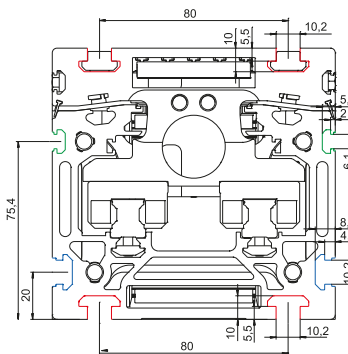
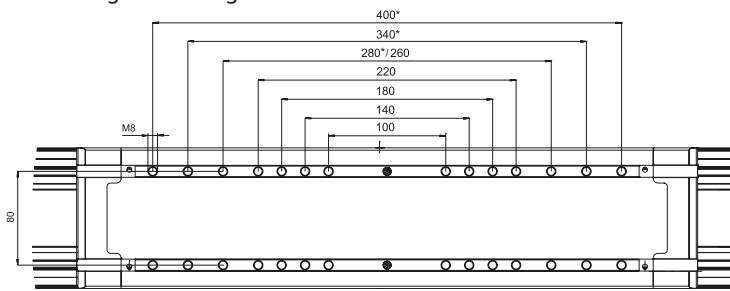
*only with version with extended guide carriage



- 20 slot geometry
- 30 slot geometry

RK DuoLine R/S/Z 120

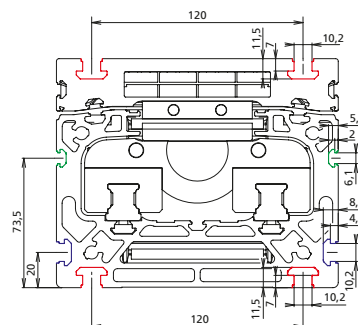
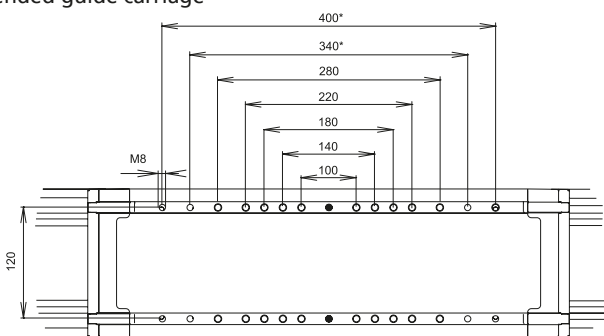
*only with version with extended guide carriage



- 20 slot geometry
- 30 slot geometry
- 40 slot geometry

RK DuoLine S/Z 160

*only with version with extended guide carriage



- 20 slot geometry
- 30 slot geometry
- 40 slot geometry

Clamping bars

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

Material:
Natural anodised aluminium, zinc plated fixation material.

Scope of delivery:
2 clamping bars with fixation material

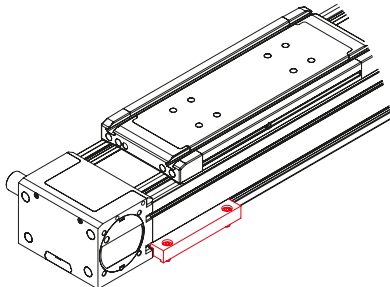
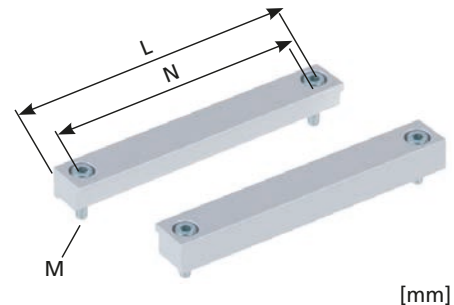
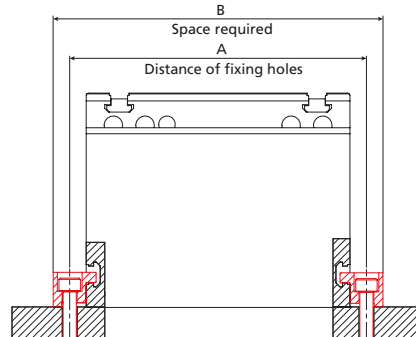


Fig. 1: Ground assembly



[mm]

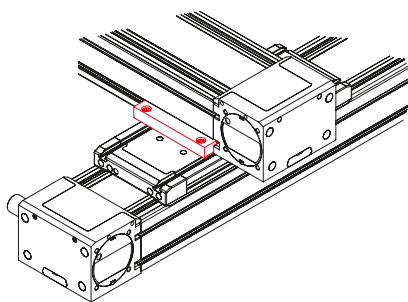


Fig. 2: Crossing units

Code No.	Type	Abb.	A	B	L	M	N
91818	RK DuoLine 60 ground assembly	1	72	91	57	M6	40
	RK DuoLine 60 crossing to 60	2					
91886	RK DuoLine 80 ground assembly	1	100	122	76	M8	50
	RK DuoLine 80 crossing to 80	2					
91812	RK DuoLine 120 ground assembly	1	140	160	116	M8	80
	RK DuoLine 120 crossing to 120	2					
	RK DuoLine 160 crossing to 120	2					
91802	RK DuoLine 160 ground assembly	1	180	200	156	M8	120
	RK DuoLine 160 crossing to 160	2					
	RK DuoLine 120 crossing to 160	2					

Order instruction slot stones:

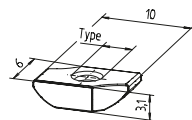
- Purchase only in lot sizes and a multiple of that, see product table below

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

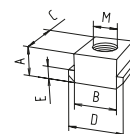
Material:
zinc plated steel

Slot stones

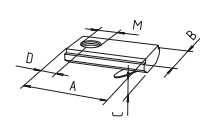
Slot stone -B-
can be swivelled into the slot



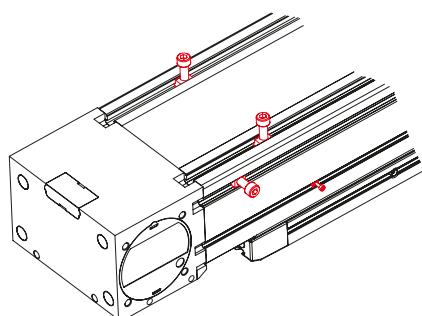
Slot stone -N-
can be slid into the slot



Slot stone -K-
can be swivelled into the slot



[mm]



View of DuoLine from below

Code No.	Type	lot sizes	Slot geometry	A	B	C	D	E	M	F [N]
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

Fixation

Centering Sets for RK DuoLine

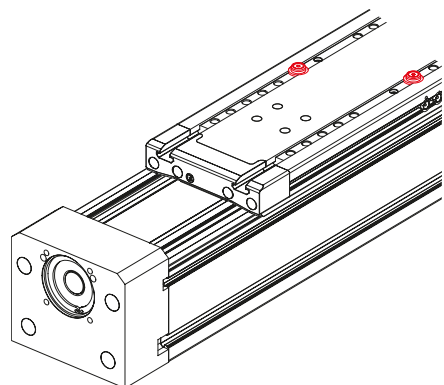


Fig. 1: Slide centering

- The following positions could be defined exactly during the design process per set
 - Load capacity
 - Linear unit
- Reproducible position of the load capacity
- Reduced assembly/disassembly time of the load capacity or the linear unit
- Accuracy of the centering bolts h6
- To use for all RK DuoLine linear units in Basic and Protect design from October 2015 production date

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

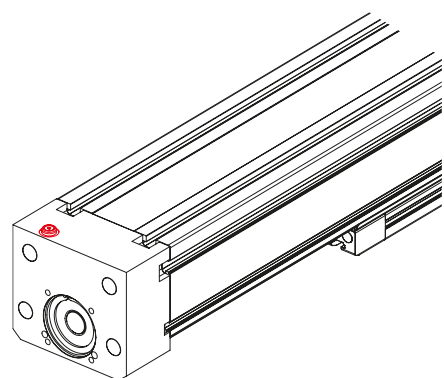
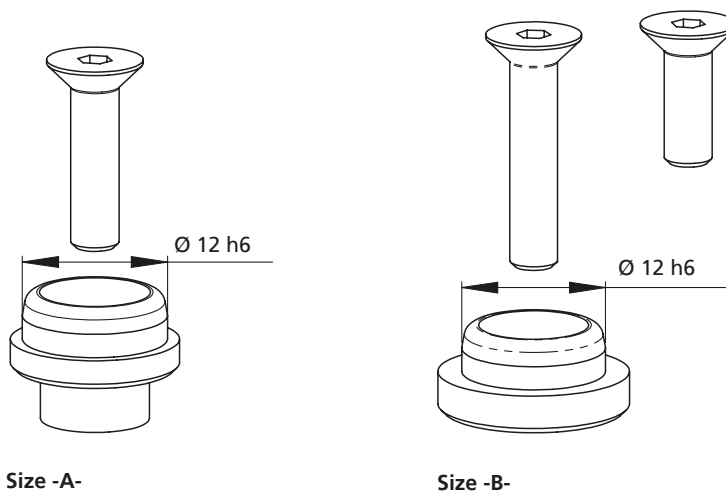
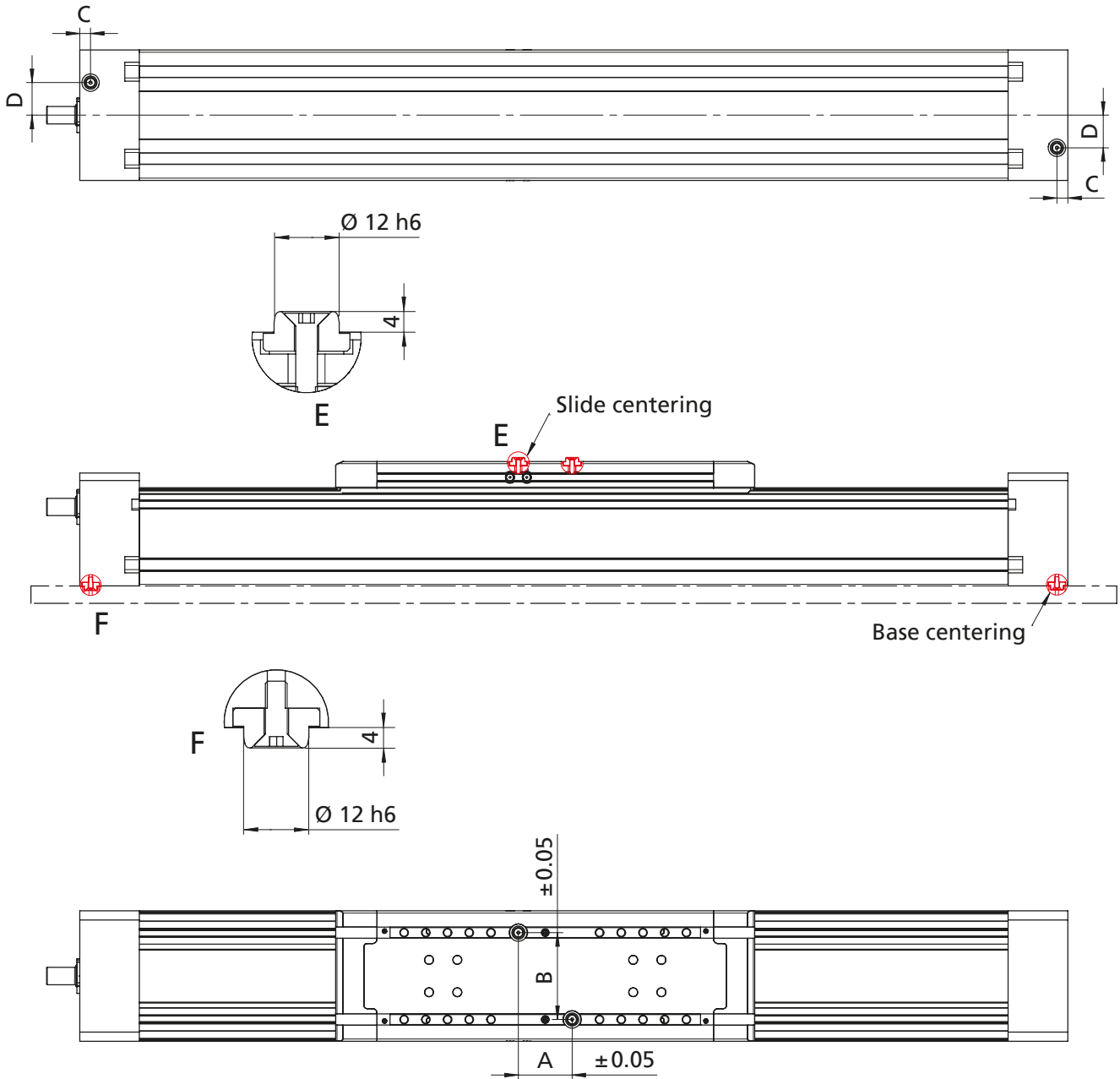


Fig. 2: Base centering



Code No.	Type	Use for
91898	Centering Set Size -A-	Slide centering RK DuoLine Z 60 + Z 80
91899	Centering Set Size -B-	Slide centering RK DuoLine Z 120 + Z 160 RK DuoLine Z 120/160 Safelock RK DuoLine S 160 Safelock Base centering RK DuoLine Z 60 + Z 80 + Z 120 + Z 160 RK DuoLine Z 120/160 Safelock RK DuoLine S 160 Safelock



[mm]

Type	A	B	C	D
RK DuoLine S + Z 60	42	40	10	0
RK DuoLine S + Z 60 with extended guide carriage	48	40	10	0
RK DuoLine Z 80	65	50	10	15
RK DuoLine S 80	*	*	10	15
RK DuoLine S + Z 80 with extended guide carriage	70	50	10	15
RK DuoLine S + Z 120	49,5	80	10	30
RK DuoLine S + Z 120 with extended guide carriage	250	80	10	30
RK DuoLine S + Z 160	70	120	10	40
RK DuoLine S + Z 160 with extended guide carriage	366	120	10	40

*Note: Centering on request only with special drill holes in the slide / clamp strips possible

Drive

Transmission



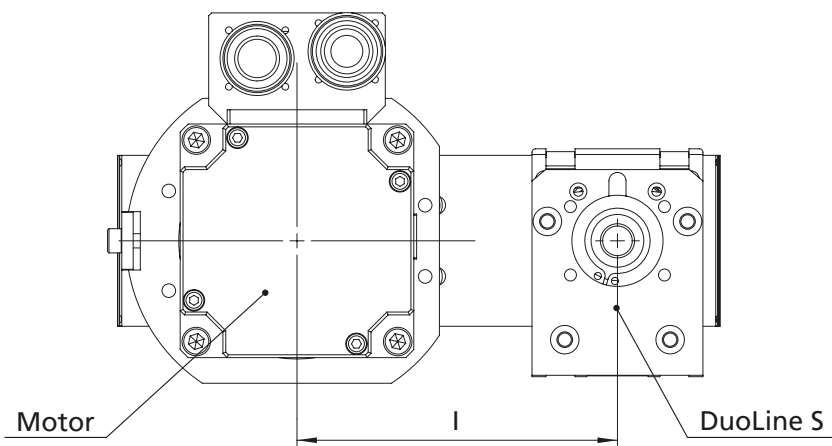
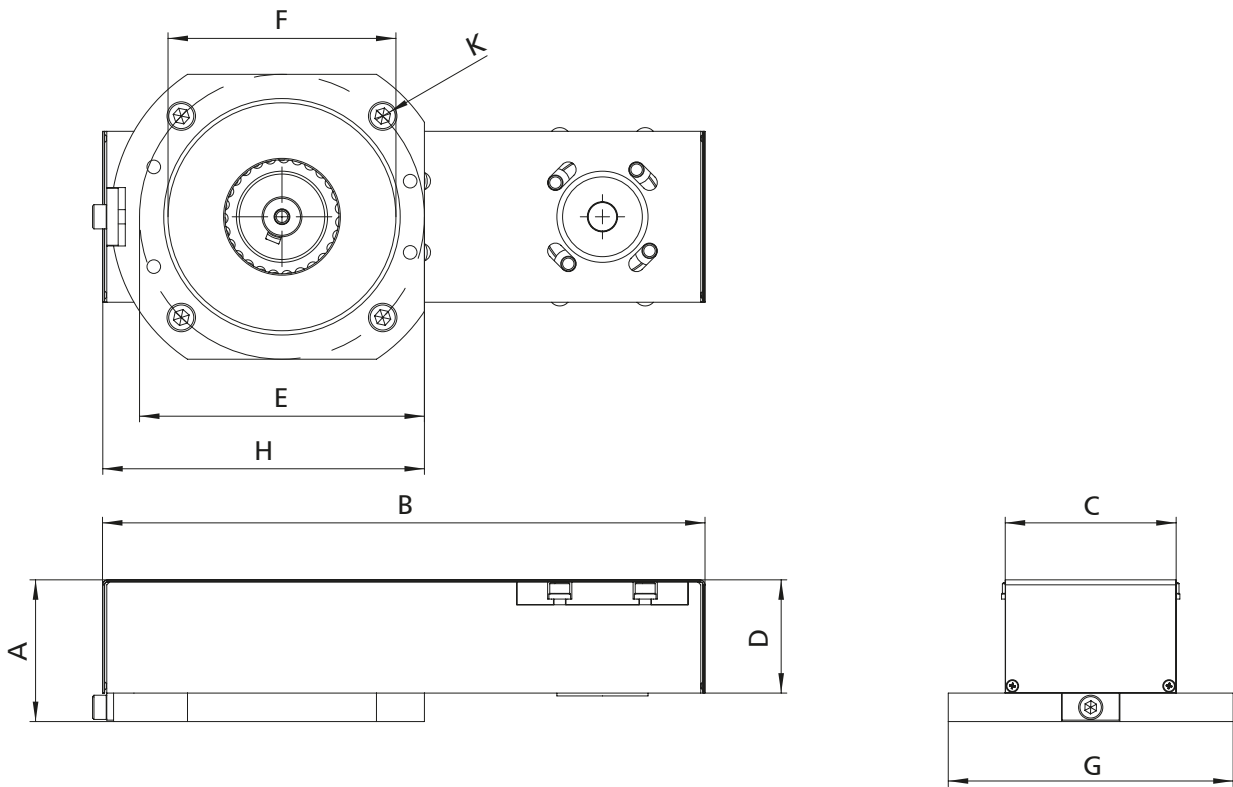
- For parallel-axis motor configuration
- Freely selectable position of motor in 90° increments, position can be subsequently modified at any time
- Freely selectable position of timing-belt transmission in 90° increments, position can be subsequently modified at any time
- Fits any RK DuoLine S Protect
- Reduction 1:1
- No load data or speed restrictions of the respective RK DuoLine S
- Motor adaptation suitable for RK-AC servomotors without gear and SEW RF 17 Three-phase motors Ø 120
- We can also adapt customer motors if required

Scope of delivery:
Transmission complete with fixing material and motor adaptation, not fitted.

General information

Type	Protection class (fitted)	Required radial forces of motor shaft [N]
Transmission for RK DuoLine 60 S IP 40 400	IP 40	400
Transmission for RK DuoLine 80 S IP 40 600	IP 40	600
Transmission for RK DuoLine 120 S IP 40	IP 40	600

Code No.	Type	Motor flange	Motor shaft Ø	Suitable for motor
98330A1A1A1	Transmission for RK DuoLine 60 S	IM B5 56	14	RK-AC 240 without gear
98331A1A1B2	Transmission for RK DuoLine 80 S	IM B5 63	19	RK-AC 470 without gear
98332A1A1B2	Transmission for RK DuoLine 120 S			
98331A1A1A3	Transmission for RK DuoLine 80 S	IM B5 56	20	SEW RF 17 Three-phase motor Ø 120
98332A1A1A3	Transmission for RK DuoLine 120 S			



[mm]

A	B	C	D	E	F	G	H	I	K	Masse [kg]
49,75	211.5	60	39.75	100	80 ^{F7} 4.5 deep	100	113	112.5	M6/ 10 deep	1.0
59,75	245.5	80	49.75	115	95 ^{F7} 4.5 deep	100	118	144	M8/ 10 deep	2.0
59,75	285.5	80	49.75	115	95 ^{F7} 4.5 deep	100	118	184.5	M8/ 10 deep	2.2
59,75	245.5	80	49.75	100	80 ^{F7} 4.5 deep	120	123.5	144	M8/ 10 deep	2.0
59,75	285.5	80	49.75	100	80 ^{F7} 4.5 deep	120	123.5	184.5	M8/ 10 deep	2.2

RK DuoLine

Drive

Bevel gear

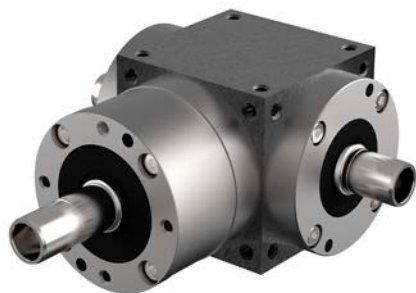
Order information:

- Reductions 1:1.5, 1:2, 1:3, 1:4 or 1:5 on request

- Fits all third-generation RK DuoLine S
- Can be retrofitted
- Low torsional backlash
- Low noise level
- Spiral tooththing

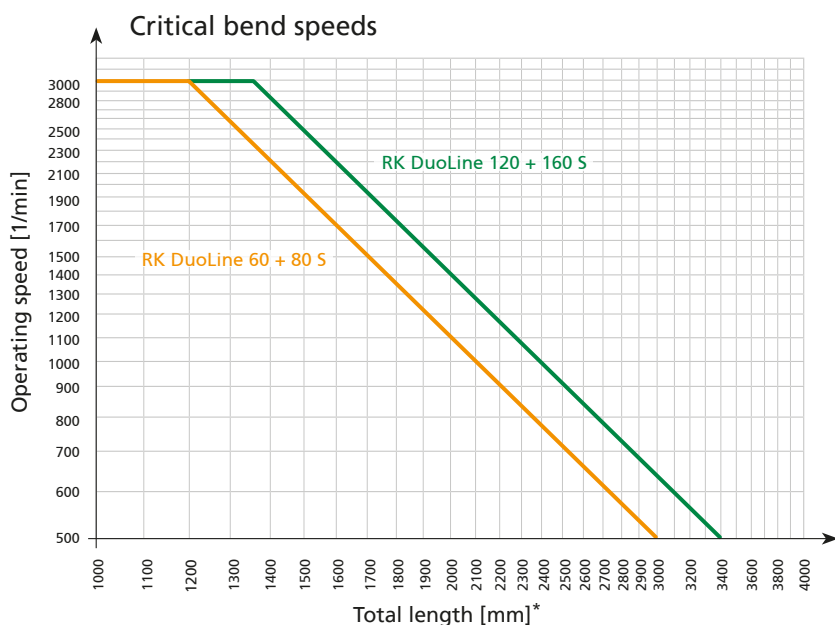
Scope of delivery:

Bevel gear 1:1, Fastenings on RK DuoLine and synchronisation shaft depending on system



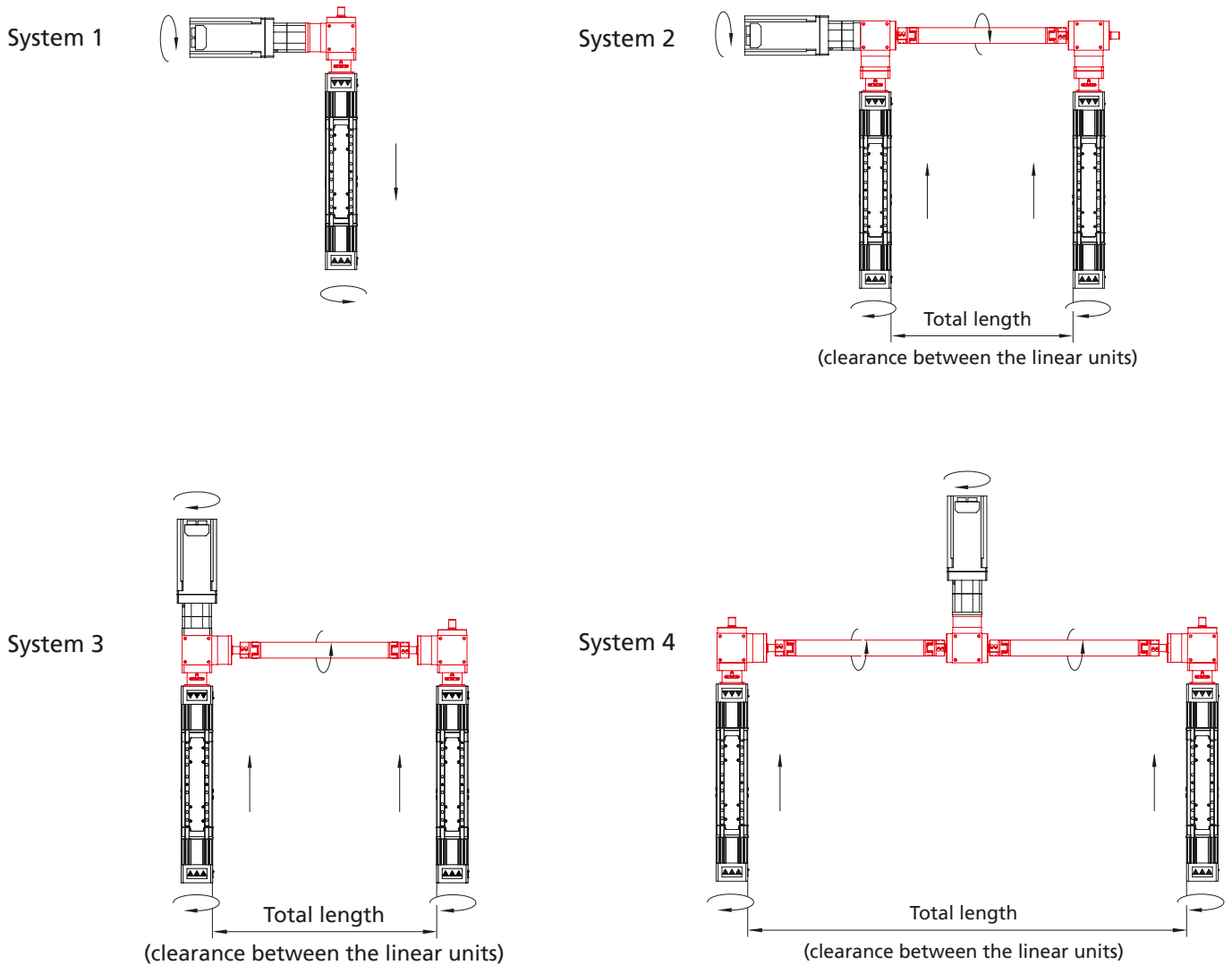
Technical data bevel gear

		For RK DuoLine 60 and 80 S	For RK DuoLine 120 and 160 S
Reduction		1:1	1:1
Drive speed	min ⁻¹	3000	3000
Torsional backlash at output shaft	arcmin	≤ 9	≤ 8
Efficiency at full load	%	> 98	> 98
Running noise at 1500 rpm	db(A)	≤ 70	≤ 74
Weight	Kg	4.5	8
Surface		Primer RAL 9005 – black matt	
Geometric moment of inertia	Kgcm ²	1.79	3.88
Idle torque	Nm	0.4	0.9



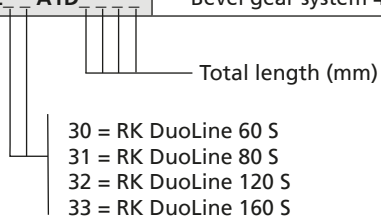
*To calculate the critical bending speed of system 4, use half of the total length.

Bevel gear for RK DuoLine S



[mm]

Code No.	Type	Basic length (minimum length)		Max. length (clearance)		Weight [kg]		
		60 + 80 S	120 + 160 S	60 + 80 S	120 + 160 S	Basic length		per 100 mm travel
						60 + 80 S	120 + 160 S	
982__A1A0000	Bevel gear system 1	-	-	-	-	5.5	9.5	-
982__A1B_ _ _ _	Bevel gear system 2	199	199	2984	3331	10.5	15.5	0.1
982__A1C_ _ _ _	Bevel gear system 3	304	319	3089	3451	10.5	15.5	0.1
982__A1D	Bevel gear system 4	563	638	6153	6942	10.5	15.5	0.1



Note: Additional information, dimensions, accessories and necessary tools for assembling the bevel gears can be found Catalog Linear Technology (Chapter: Motors and controls).

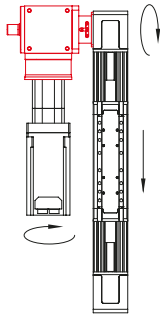
RK DuoLine

Drive

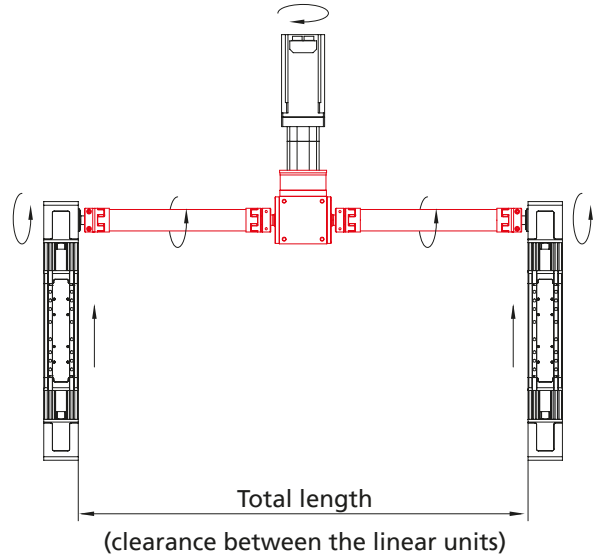
Bevel gear for RK DuoLine Z

- The following combination options are available on request

System 1



System 4



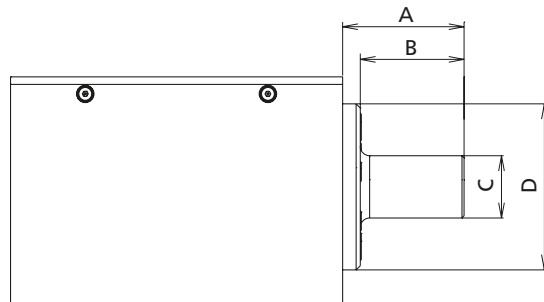
Drive shaft

- The RK DuoLine 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
91328	RK DuoLine Z 60	Drive shaft for metal bellows coupling	28.6	25	16	44
91312	RK DuoLine Z 80		35	31.5	20	52
91320	RK DuoLine Z 120		45.5	39	25	74
9720000	RK DuoLine Z 160		58.5	50	30	80

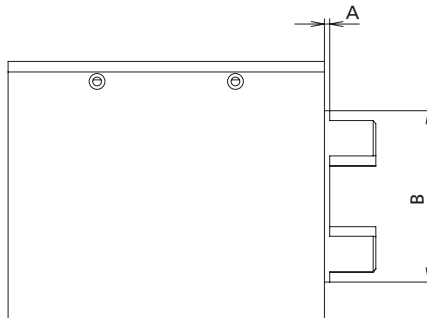
Screw-on hub

- The RK DuoLine Z is fitted as standard with a hollow shaft
- This can be retrofitted with a screw-on hub as an optional extra

Scope of delivery:
screw-on hub with fixation material



For servo coupling with zero backlash



[mm]					
Code No.	Type	Version	Size	A	B
91318	RK DuoLine Z 60	Screw-on hub for KTR type Rotex GS servo couplings with zero backlash	GS 19	5.5	40
91338	RK DuoLine Z 80		GS 24	6.5	55
91321	RK DuoLine Z 120		GS 28	2	65
91327	RK DuoLine Z 160		GS 38	4.5	80

Drive

Synchronisation shaft

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

Scope of delivery:
Synchronisation shaft with fixation material

Max. transfer torque:

RK DuoLine Z 60	28 Nm
RK DuoLine Z 80	67 Nm
RK DuoLine Z 120	141 Nm
RK DuoLine Z 160	220 Nm

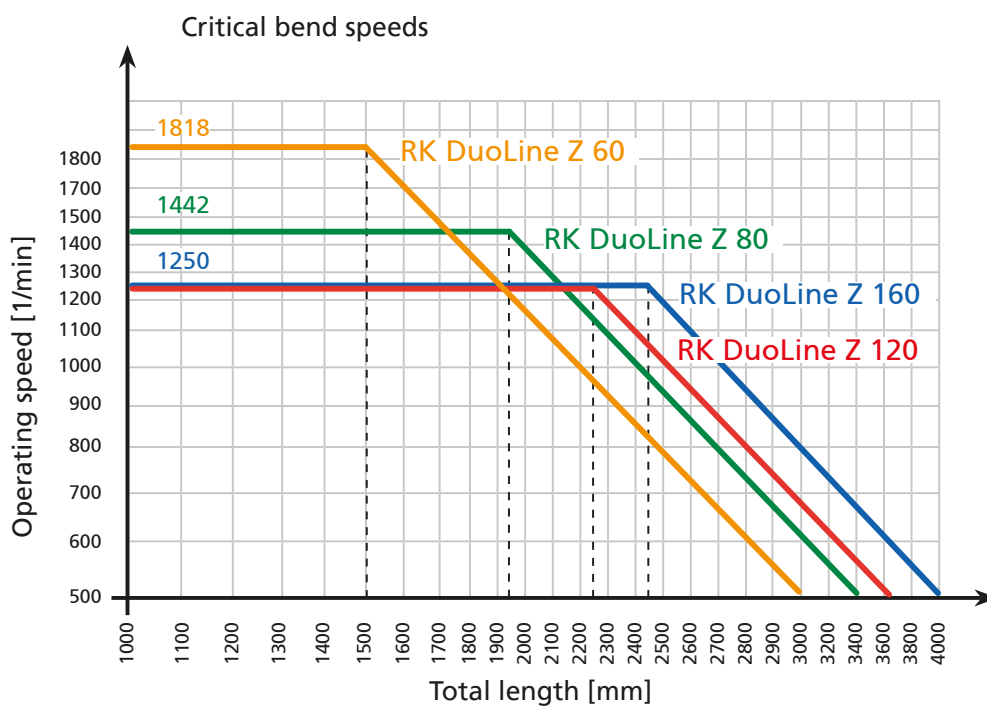
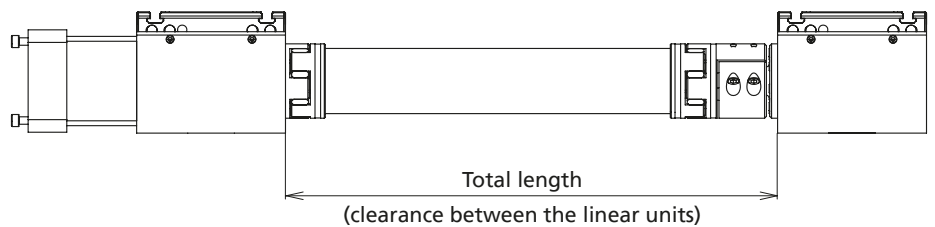
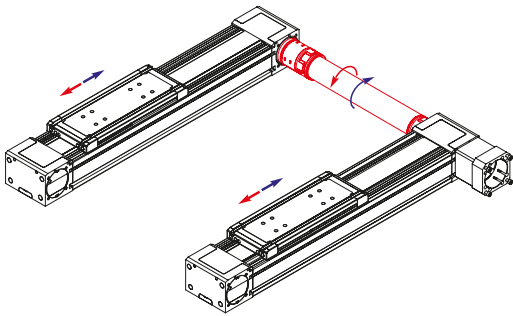


Fig. shows Synchronisation shaft



[mm]

Code No.	Type	Basic length (minimum length)	Max. length (clearance)	Weight [kg]	
				Basic length	per 100 mm travel
92548_ _ _ _	Synchronisation shaft RK DuoLine Z 60	127	2985	0.53	0.09
92538_ _ _ _	Synchronisation shaft RK DuoLine Z 80	157	3400	1.07	0.12
92519_ _ _ _	Synchronisation shaft RK DuoLine Z 120	182	3994	1.38	0.15
92510_ _ _ _	Synchronisation shaft RK DuoLine Z 160	227	4075	3.42	0.22


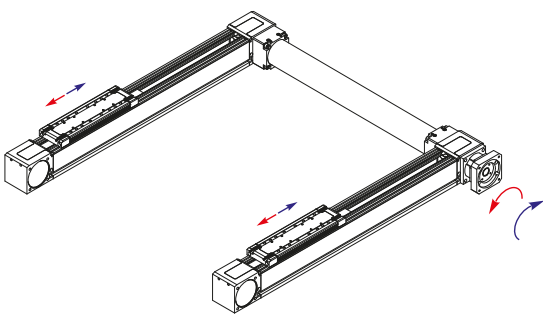

 Total length [mm]

Fig. shows Synchronisation shaft with protection



[mm]

Code No.	Type	Basic length (minimum length)	Max. length (clearance)	Weight [kg]	
				Basic length	per 100 mm travel
92521700_ _ _ _	Synchronwelle RK DuoLine Z 60 with protection	127	2985	1.0	0.24
92521710_ _ _ _	Synchronwelle RK DuoLine Z 80 with protection	157	3400	1.96	0.29
92521720_ _ _ _	Synchronwelle RK DuoLine Z 120 with protection	182	3994	2.53	0.36
92521730_ _ _ _	Synchronwelle RK DuoLine Z 160 with protection	227	4075	5.38	0.44

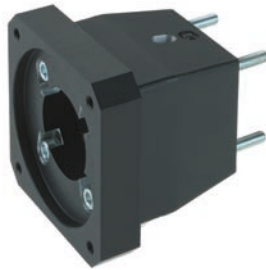
 Total length [mm]

Drive / Position determination

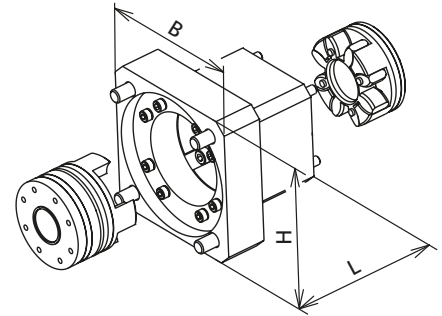
Motor adapter kit for RK AC servomotors

cope of delivery:
 Motor adapter kit, backlash free servo coupling and fixation material

- Servomotors from the RK standard range can be easily connected



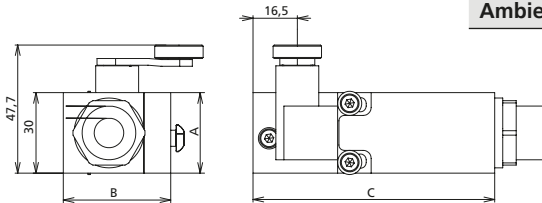
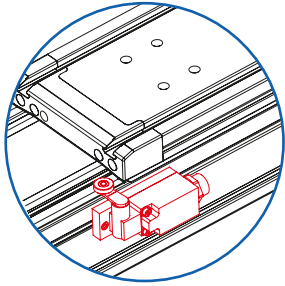
- Complete motor adapter kits manufactured to your specifications on request



Type	Servo motors without gearbox				
	RK-AC 118	RK-AC 240	RK-AC 470	RK-AC 800	RK-AC 1252 RK-AC 1776 RK-AC 2521
RK DuoLine Z 60	-	949376	-	-	-
RK DuoLine Z 80	-	-	949357	-	-
RK DuoLine S 60	949388	949389	-	-	-
RK DuoLine S 80	-	949367	949366	-	-
RK DuoLine S 120	-	949123	949124	949125	-
RK DuoLine S 160	-	-	-	949340	949342
Bevel gear system 1 and 4 for RK DuoLine S 60 + 80	-	949130	949131	-	-
Bevel gear system 1 and 4 for RK DuoLine S 120 + 160	-	-	949135	949136	949137
Bevel gear system 2 and 3 for RK DuoLine S 60 + 80	-	949139	949140	-	-
Bevel gear system 2 and 3 for RK DuoLine S 120 + 160	-	-	949141	949142	949143

Type	Servo motors with gearbox					Three phase motors	
	RK-AC 112	RK-AC 260 RK-AC 280	RK-AC 345	RK-AC 800	RK-AC 1252 RK-AC 1776 RK-AC 2521	90/120 W	180/250 W
RK DuoLine Z 60	949374	949375	-	-	-	949377	949378
RK DuoLine Z 80	949350	949353	949354	-	-	949355	949117
RK DuoLine Z 120	-	949371	949370	949370	-	949372	949373
RK DuoLine Z 160	-	-	949344	949344	949345	-	-
RK DuoLine S 60	949387	-	-	-	-	-	-
RK DuoLine S 80 trapezoidal thread	949360	949364	-	-	-	949368	949369
RK DuoLine S 80 ball screw	949360	949364	-	-	-	949363	949365
RK DuoLine S 120	949121	949122	-	-	-	949126	949127
RK DuoLine S 160	-	-	949341	949341	949343	-	-

Mechanical limit switch



- External fixation on the guide profile

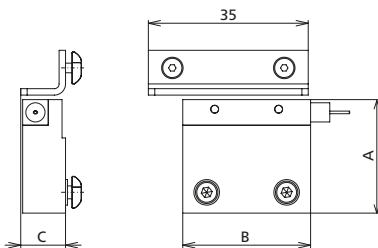
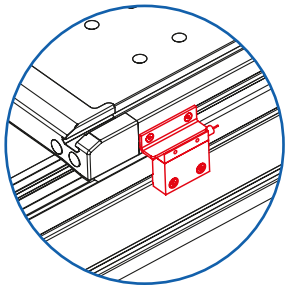
Scope of delivery:

Limit switch with set of fixing items

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

Code No.	Type	A	B	C	Version
92848	RK DuoLine 60	49	39	82	NO / NC, mechanical limit switch
91919	RK DuoLine 80	63	40	83	
92701	RK DuoLine 120	31	40	97	
91910	RK DuoLine 160	30	40	90	

External inductive limit switch



- External fixation on the guide profile

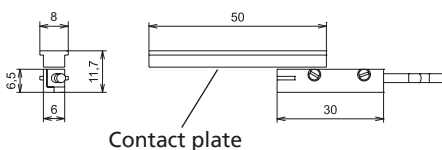
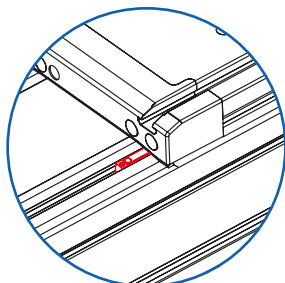
Scope of delivery:

Limit switch with set of fixing items

Voltage	10...30 VDC
Max. switching current	100 mA
Operating frequency	max. 5 kHz
Mechanical lifetime	independent of operating cycles
Operating distance	1.5 mm
Degree of protection	IP67
Cable length	5 m
Ambient temperature	-25°C to +70°C

Code No.	Type	A	B	C	Version
92838	RK DuoLine 60	52,8	25	10	NO, External inductive limit switch
92819	RK DuoLine 80	71,5	25	10	
92840	RK DuoLine 120	22	40	14	
92810	RK DuoLine 160	35,5	40	14	

Internal inductive limit switch



- Proximity switch integrated in the guide profile – no protruding contours

Scope of delivery:

Proximity switch with set of fixing items

Code No.	Type	Version
92828	RK DuoLine 60	NC, Internal inductive limit switch
92820*	RK DuoLine 80 RK DuoLine 120 RK DuoLine 160	

*On this limit switch, the slot must be sealed off with a cover profile

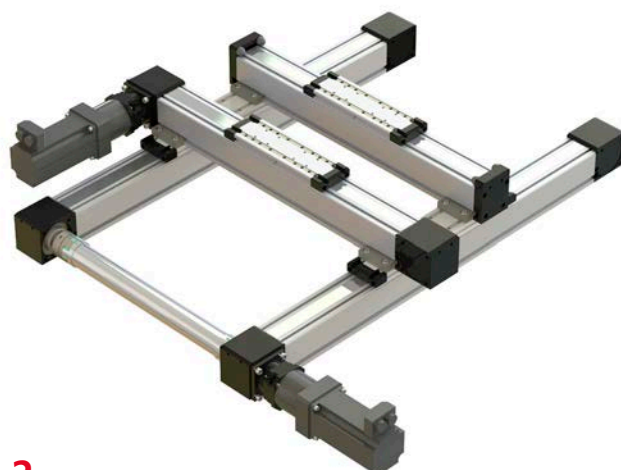
Cover profile

Code No.	Version		
E00024DAC	bar	black	2.000 mm

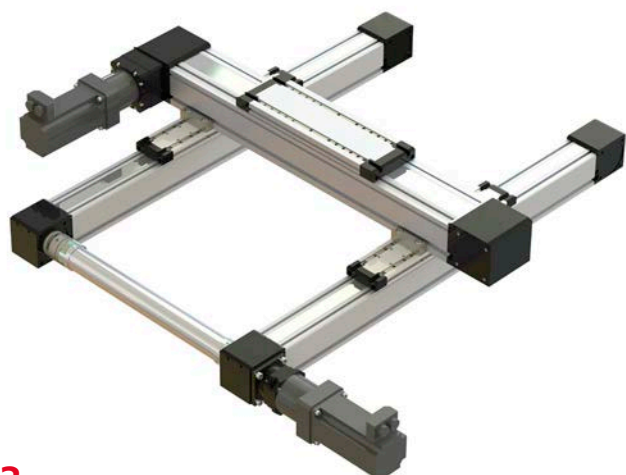
Assembly examples



1



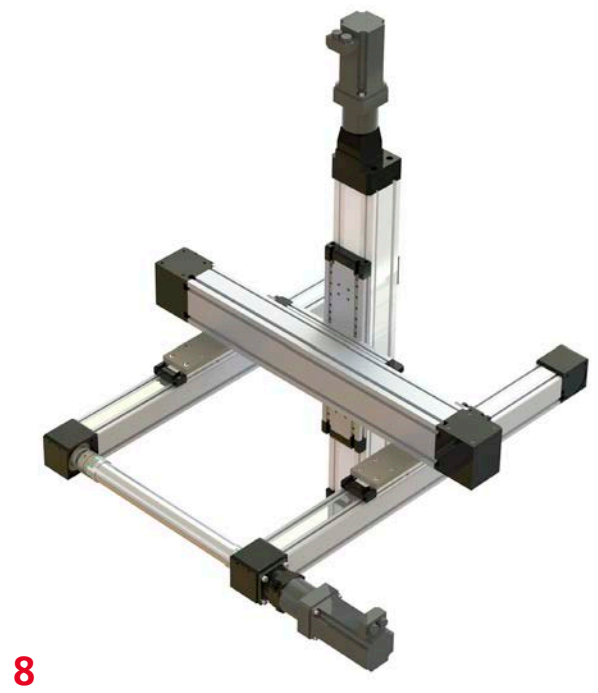
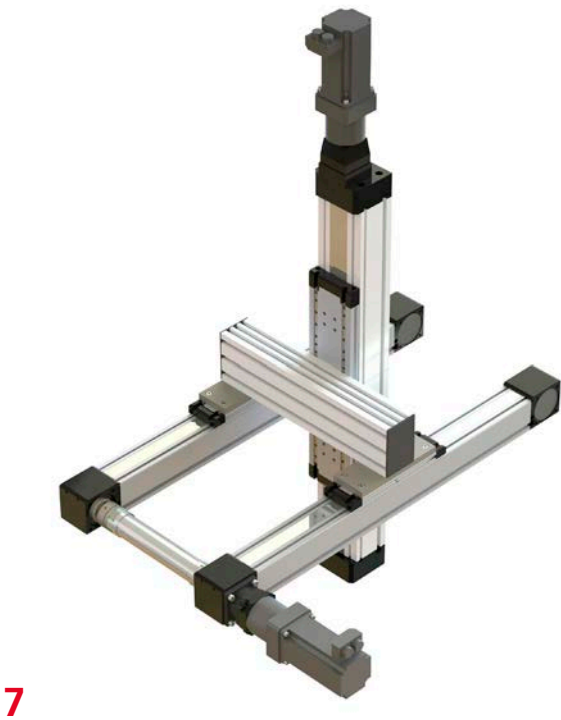
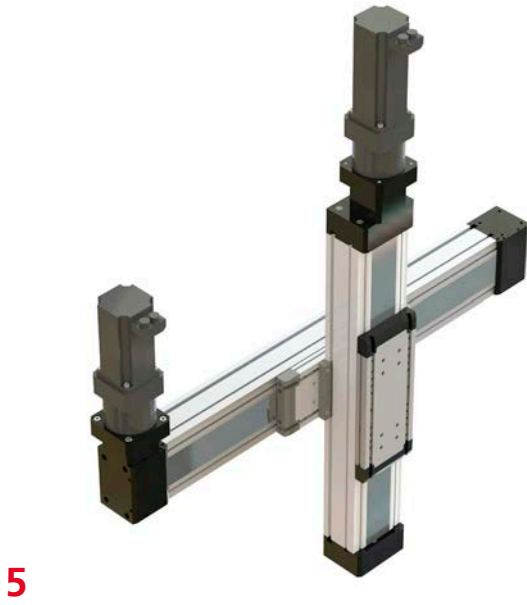
2



3



4





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