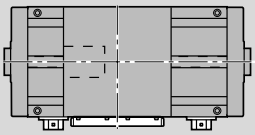
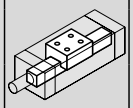
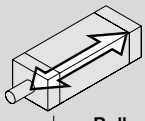
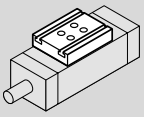
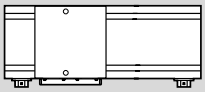
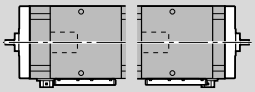
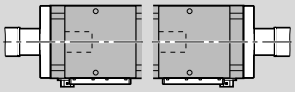
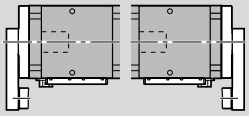
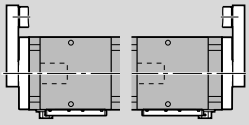
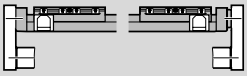
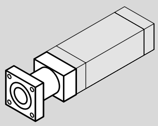
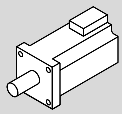
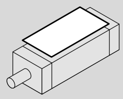
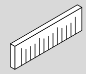
TKK 15-155 Al Components and Ordering

Part number, length R1460 205 00, ... mm Reference edge  Switches	Dimension drawing	Guideway  Base plate, low	Drive unit  Ball screw journal keyway	Ball screw 16 x 10	Ball screw 16 x 16	Ball screw 20 x 5	Ball screw 20 x 20	Carriage  Carriage length L_{ca} 150 mm Preload 2%	150 mm Preload 8%	220 mm Preload 2%	220 mm Preload 8%
Without drive (without end-plates) **OA01** 	OA01	01		00				01	02	03	04
Without motor mount and motor **OF01**  **OF04**	OF01 OF04	01	ø10 (fixed bearing end)	01	07	13	19	01	02	03	04
			ø10 (fixed bearing end) [1]	04	10	16	22				
With motor mount and coupling, with or without motor **MF01**  **MF02**	MF01 MF02	01	ø10 (fixed bearing end)	01	07	13	19	01	02	03	04
With timing belt side drive, with or without motor **RV01**  **RV02**	RV01-RV04	01	ø11 (floating bearing end)	03	09			01	02	03	04
RV03  **RV04**											
			ø14 (floating bearing end)			15	21	01	02	03	04
RV05  **RV06**	RV05 RV05										

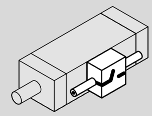
1) With keyway

Please check whether the selected combination is a permissible one (load capacities, moments, maximum speeds, motor data, etc.)!

For more information on ordering, see order example.

i	Motor attachment[2] Mounting orientation 		Motor 		Cover PU bellows  without	Cover PU bellows with	Position measuring system  without	Position measuring system Glass scale
	OA01	00	without	00	00	on request	00	on request
	OF01-OF04	00	without	00	00	01		
1	MF01-MF02	02	MSK 040C	86[3]				
				87[4]				
		06	MSM 040B	74[3]				
				75[4]				
		04	VRDM 397	37[3]				
				38[4]				
			VRDM 3910	39[3]				
				40[4]				
		05	VRDM 3913	41[3]				
				42[4]				
1	RV01-RV04	41	MSK 040C	86[3]				
	RV05-RV06	42						
1.5	RV01-RV04	43		87[4]				
	RV05-RV06	44						
1	RV01-RV04	53	MSM 040B	74[3]				
	RV05-RV06	54						
1.5	RV01-RV04	55		75[4]				
	RV05-RV06	56						
1	RV01-RV04	45	MSK 040C	86[3]				
	RV05-RV06	46						
1.5	RV01-RV04	47		87[4]				
	RV05-RV06	48						
1	RV01-RV04	49	MSM 040B	74[3]				
	RV05-RV06	50						
1.5	RV01-RV04	51		75[4]				
	RV05-RV06	52						

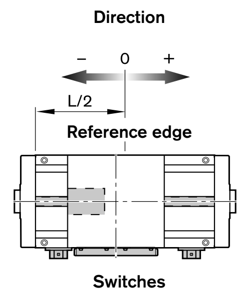
Switches (1st, 2nd, 3rd), switching cam, socket, plug, cable duct



Without switches

without switch	00
without cable duct	

With switches



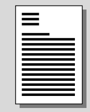
External switches

	Switching cam, external	External socket/plug (loose)
PNP NC		
11-A +/–... mm		
PNP NO		
13-A +/–... mm		
Mechanical		
15-A +/–... mm	16	17

Cable duct (loose)

Cable duct	20 - X....

Documentation

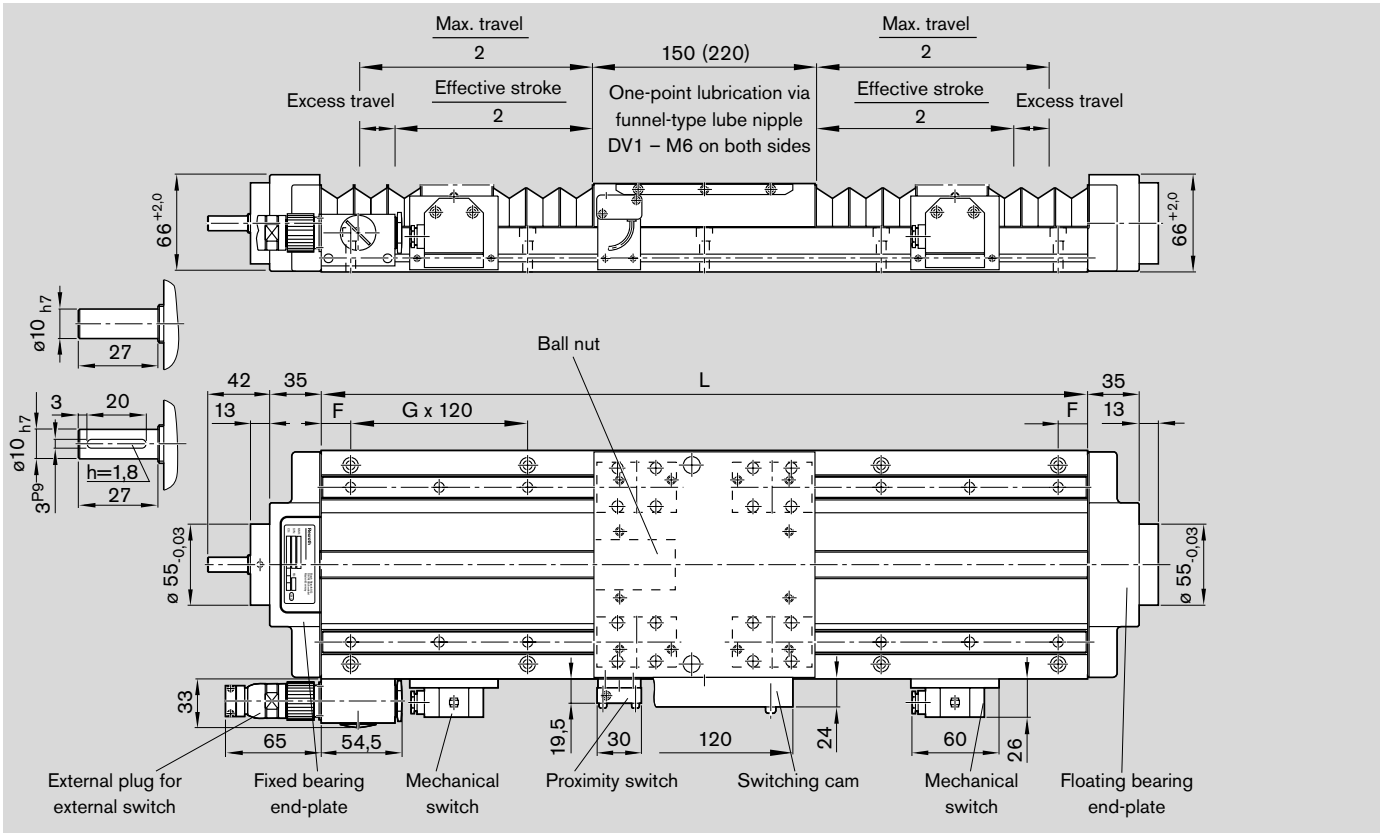


Standard report	Special report
01	02 Friction moment
	03 Lead deviation
	04 Travel accuracy
	05 Positioning accuracy

2) Attachment kit also available without motor (when ordering enter “00” for motor)
3) Without brake
4) With brake

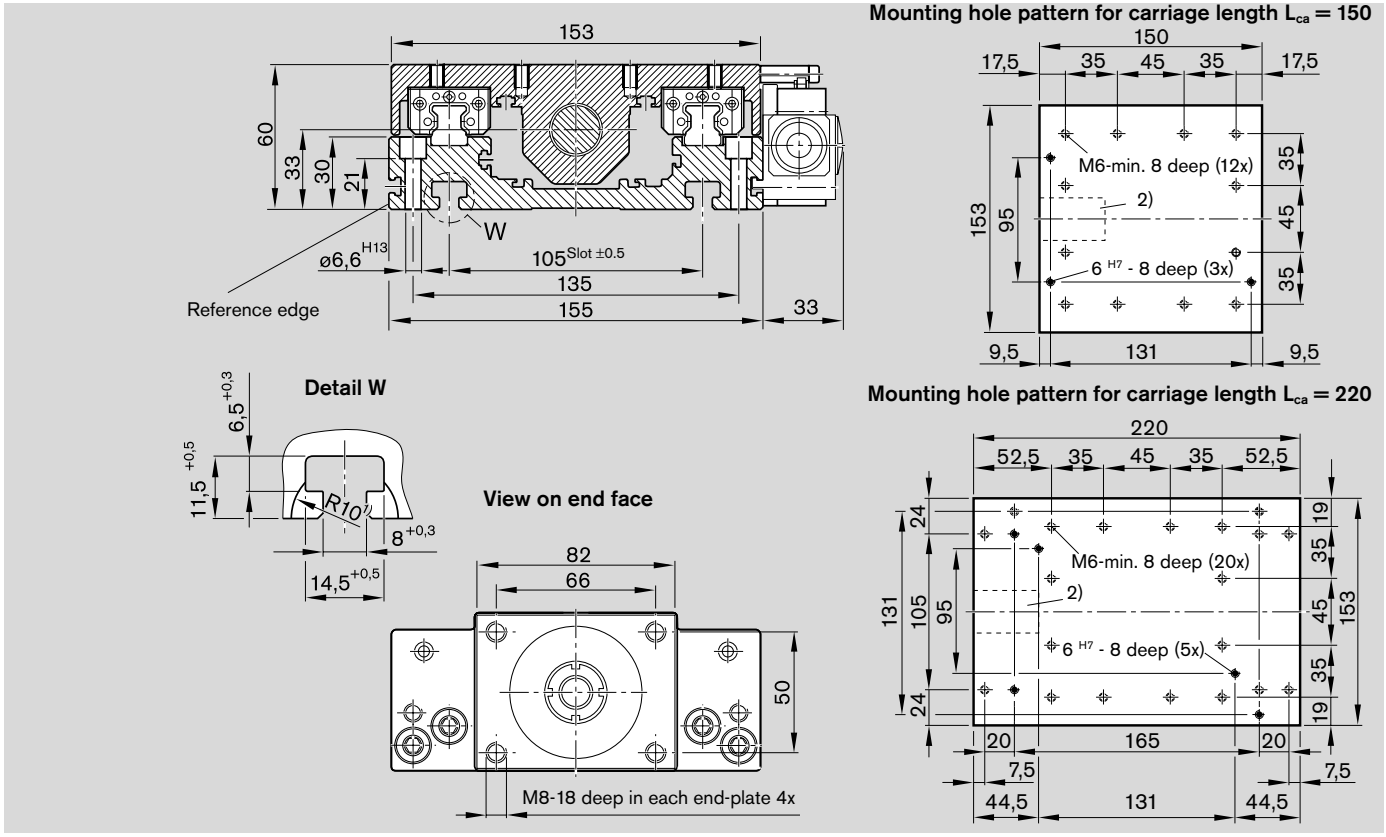
------- Optional

TKK 15-155 Al – Dimensions



Length L	Counterbored mounting hole spacing	Max. travel (mm) for carriage length with bellows		without bellows	
(mm)	F - G x 120 - F	150	220	150	220
220	50 - 1 x 120 - 50	-	-	60	-
280	20 - 2 x 120 - 20	68	-	120	-
340	50 - 2 x 120 - 50	117	59	180	110
400	20 - 3 x 120 - 20	166	109	240	170
460	50 - 3 x 120 - 50	216	158	300	230
520	20 - 4 x 120 - 20	265	207	360	290
580	50 - 4 x 120 - 50	315	257	420	350
640	20 - 5 x 120 - 20	364	306	480	410
700	50 - 5 x 120 - 50	414	356	540	470
760	20 - 6 x 120 - 20	463	405	600	530
820	50 - 6 x 120 - 50	512	454	660	590
880	20 - 7 x 120 - 20	562	504	720	650
940	50 - 7 x 120 - 50	611	553	780	710
1000	20 - 8 x 120 - 20	661	603	840	770
1060	50 - 8 x 120 - 50	710	652	900	830
1120	20 - 9 x 120 - 20	759	702	960	890
1180	50 - 9 x 120 - 50	809	751	1020	950
1240	20 - 10 x 120 - 20	858	800	1080	1010
1300	50 - 10 x 120 - 50	908	850	1140	1070
1360	20 - 11 x 120 - 20	957	899	1200	1130
1420	50 - 11 x 120 - 50	1007	949	1260	1190
1480	20 - 12 x 120 - 20	1056	998	1320	1250
1540	50 - 12 x 120 - 50	1105	1048	1380	1310

Length L	Counterbored mounting hole spacing	Max. travel (mm) for carriage length with bellows		without bellows	
(mm)	F - G x 120 - F	150	220	150	220
1600	20 - 13 x 120 - 20	1155	1097	1440	1370
1660	50 - 13 x 120 - 50	1204	1146	1500	1430
1720	20 - 14 x 120 - 20	1254	1196	1560	1490
1780	50 - 14 x 120 - 50	1303	1245	1620	1550
1840	20 - 15 x 120 - 20	1353	1295	1680	1610
1900	50 - 15 x 120 - 50	1402	1344	1740	1670
1960	20 - 16 x 120 - 20	1451	1394	1800	1730
2020	50 - 16 x 120 - 50	1501	1443	1860	1790
2080	20 - 17 x 120 - 20	1550	1492	1920	1850
2140	50 - 17 x 120 - 50	1600	1542	1980	1910
2200	20 - 18 x 120 - 20	1649	1591	2040	1970
2260	50 - 18 x 120 - 50	1699	1641	2100	2030
2320	20 - 19 x 120 - 20	1748	1690	2160	2090
2380	50 - 19 x 120 - 50	1797	1739	2220	2150
2440	20 - 20 x 120 - 20	1847	1789	2280	2210
2500	50 - 20 x 120 - 50	1896	1838	2340	2270
2560	20 - 21 x 120 - 20	1946	1888	2400	2330
2620	50 - 21 x 120 - 50	1995	1937	2460	2390
2680	20 - 22 x 120 - 20	2045	1987	2520	2450
2740	50 - 22 x 120 - 50	2094	2036	2580	2510
2800	20 - 23 x 120 - 20	2143	2085	2640	2570
2860	50 - 23 x 120 - 50	2193	2135	2700	2630



1) Min. 25 deep (4x)
2) Ball nut

Effective stroke
For safe operation, the excess travel must be longer than the braking distance. The acceleration travel can be taken as a guideline value for the braking distance. In most cases, 2x the ball screw lead (P) will be sufficient.
Example for P = 5 mm:
Excess travel (braking distance)
≈ 10 mm
Recommended standard configuration:
– 2 mechanical switches
– 1 proximity switch

Effective stroke = max. travel – 2 · excess travel

Distance between switch activation points of two switches		
Switch position	**For switch combination**	**Min. spacing** (mm)
external	mechanical – mechanical	60.0
	mechanical – proximity	45.0
	proximity – proximity	12.5

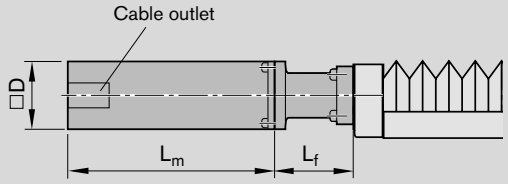
Maximum switch activation point
The switch activation point characterizes the position of the center of the carriage after travel. The zero point is at L/2.

Maximum switch activation point = 0.5 · max. travel – excess travel

TKK 15-155 Al – Dimension Drawings, Motor Attachment

Motor attachment with motor mount and coupling

MF01, MF02

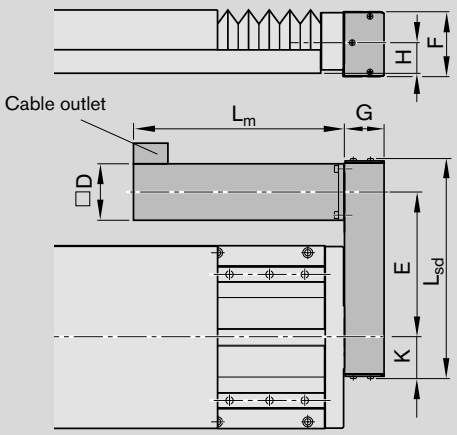


Motor	Dimensions (mm)		
	L_m	D	L_f
MSK 040C	185.5[1)] 215.5[2)]	82	90
MSM 040B	157.5[1)] 191.5[2)]	80	90
VRDM 397	110.0[1)] 156.5[2)]	85	90
VRDM 3910	140.0[1)] 186.5[2)]		
VRDM 3913	170.0[1)] 216.5[2)]		

1) Without brake
2) With brake

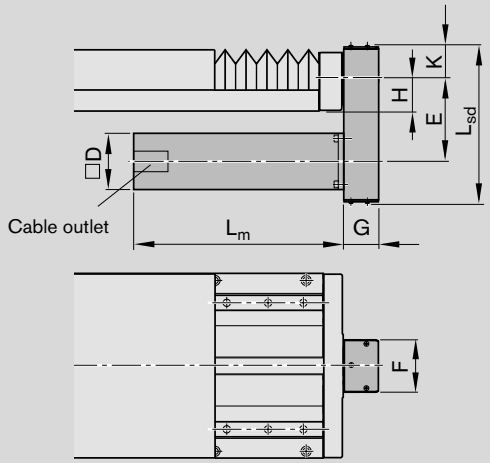
Motor attachment via timing belt side drive

RV01 - RV04



Motor	Dimensions (mm)								
	L_m	D	G	H	L_{sd}	E		K	F
						i=1	i=1.5		
MSK 040C	185.5[1]	82	51	33	272	157.5	162.0	47.5	88
	215.5[2]								
MSM 040B	157.5[1]								
	191.5[2]								

RV05 - RV06



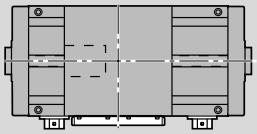
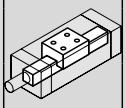
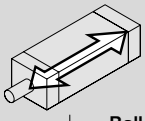
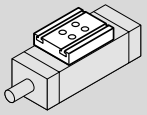
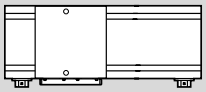
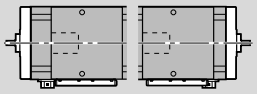
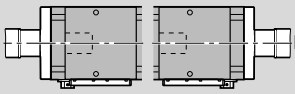
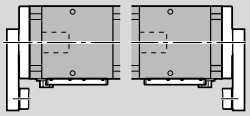
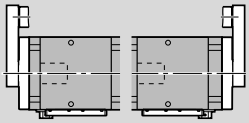
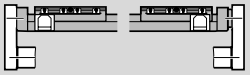
Motor	Dimensions (mm)								
	L_m	D	G	H	L_{sd}	E		K	F
						i=1	i=1.5		
MSK 040C	185.5[2]	82	51	33	231	122.5	122.0	47.5	88
	215.5[2]								
MSM 040B	157.5[1]								
	191.5[2]								

1) Without brake
2) With brake

Note for multi-axis units
(e.g. X-Y tables)
For multi-axis units with motor attachment via timing belt side drive, the motor may project into the working area of adjacent axes. Check for any interference contours.

For motor dimensions, see “Motors.”

TKK 20-225 Al Components and Ordering

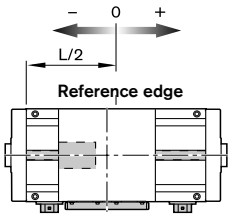
Part number, length R1460 305 00, ... mm Reference edge  Switches	Dimension drawing	Guideway  Base plate low	high	Drive unit  Ball screw journal keyway	Ball screw 20 x 5	20 x 20	25 x 5	25 x 10	25 x 25	Carriage  Carriage length L_{ca} 220 mm Preload 2%	8%	320 mm Preload 2%	8%
Without drive (without end-plates) **OA01** 	OA01	01	11		00					01	02	03	04
Without motor mount and motor **OF01**  **OF04**	OF01 OF04	01	11	ø10 (fixed bearing end)	01	07				01	02	03	04
				ø10 (fixed bearing end)[1]	04	10							
				ø14 (fixed bearing end)			13	19					
				ø14 (fixed bearing end)[1]			16	22					
				ø14 (fixed bearing end)					25	05	06	07	08
				ø14 (fixed bearing end)[1]					28				
With motor mount and coupling, with or without motor **MF01**  **MF02**	MF01 MF02	01	11	ø10 (fixed bearing end)	01	07				01	02	03	04
				ø14 (fixed bearing end)			13	19		01	02	03	04
									25	05	06	07	08
With timing belt side drive, with or w/o motor **RV01**  **RV02** **RV03**  **RV04** **RV05**  **RV06**	RV01-RV04 RV05 RV06	01	11	ø14 (floating bearing end)	03	09	15	21		01	02	03	04
									27	05	06	07	08

1) With keyway

Please check whether the selected combination is a permissible one (load capacities, moments, maximum speeds, motor data, etc.)!
For more information on ordering, see order example.

Motor attachment[2] Mounting orientation			Motor		Cover PU bellows		Position measuring system		Switches (1st, 2nd, 3rd), switching cam, socket, plug, cable duct	Documentation	
					without	with	without	Glass scale		Standard report	Special report
	i										
		OA01	00	without	00	00	on request	00	on request	Without switches without switch / without cable duct: 00	01	02 Friction moment
		OF01-OF04	00	without	00	00	01	00	on request	With switches	01	02 Friction moment
	1	MF01-MF02	02	MSK 040C	86[3]	00	01	00	on request	With switches	01	03 Lead deviation
	1	MF01-MF02	02	MSK 040C	87[4]	00	01	00	on request	With switches	01	03 Lead deviation
	1	MF01-MF02	08	VRDM 397	37[3]	00	01	00	on request	With switches	01	03 Lead deviation
	1	MF01-MF02	08	VRDM 397	38[4]	00	01	00	on request	With switches	01	03 Lead deviation
	1	MF01-MF02	08	VRDM 3910	39[3]	00	01	00	on request	With switches	01	03 Lead deviation
	1	MF01-MF02	08	VRDM 3910	40[4]	00	01	00	on request	With switches	01	03 Lead deviation
	1	MF01-MF02	09	VRDM 3913	41[3]	00	01	00	on request	With switches	01	03 Lead deviation
	1	MF01-MF02	09	VRDM 3913	42[4]	00	01	00	on request	With switches	01	03 Lead deviation
	1	MF01-MF02	10	MSM 040B	74[3]	00	01	00	on request	With switches	01	03 Lead deviation
	1	MF01-MF02	10	MSM 040B	75[4]	00	01	00	on request	With switches	01	03 Lead deviation
	1	MF01-MF02	12	MSK 050C	88[3]	00	01	00	on request	With switches	01	03 Lead deviation
	1	MF01-MF02	12	MSK 050C	89[4]	00	01	00	on request	With switches	01	03 Lead deviation
	1	MF01-MF02	04	MSK 040C	86[3]	00	01	00	on request	With switches	01	04 Travel accuracy
	1	MF01-MF02	04	MSK 040C	87[4]	00	01	00	on request	With switches	01	04 Travel accuracy
	1	MF01-MF02	11	MSM 040B	74[3]	00	01	00	on request	With switches	01	04 Travel accuracy
	1	MF01-MF02	11	MSM 040B	75[4]	00	01	00	on request	With switches	01	04 Travel accuracy
	1	MF01-MF02	13	MSK 050C	88[3]	00	01	00	on request	With switches	01	04 Travel accuracy
	1	MF01-MF02	13	MSK 050C	89[4]	00	01	00	on request	With switches	01	04 Travel accuracy
	1	RV01-RV04	45	MSK 040C	86[3]	00	01	00	on request	With switches	01	05 Positioning accuracy
	1	RV05-RV06	46	MSK 040C	86[3]	00	01	00	on request	With switches	01	05 Positioning accuracy
	1.5	RV01-RV04	47	MSK 040C	87[4]	00	01	00	on request	With switches	01	05 Positioning accuracy
	1.5	RV05-RV06	48	MSK 040C	87[4]	00	01	00	on request	With switches	01	05 Positioning accuracy
	1	RV01-RV04	49	MSM 040B	74[3]	00	01	00	on request	With switches	01	05 Positioning accuracy
	1	RV05-RV06	50	MSM 040B	74[3]	00	01	00	on request	With switches	01	05 Positioning accuracy
	1.5	RV01-RV04	51	MSM 040B	75[4]	00	01	00	on request	With switches	01	05 Positioning accuracy
	1.5	RV05-RV06	52	MSM 040B	75[4]	00	01	00	on request	With switches	01	05 Positioning accuracy
	1	RV01-RV04	53	MSK 050C	88[3]	00	01	00	on request	With switches	01	05 Positioning accuracy
	1	RV05-RV06	55	MSK 050C	88[3]	00	01	00	on request	With switches	01	05 Positioning accuracy
	2	RV01-RV04	54	MSK 050C	89[4]	00	01	00	on request	With switches	01	05 Positioning accuracy
	2	RV05-RV06	56	MSK 050C	89[4]	00	01	00	on request	With switches	01	05 Positioning accuracy

Direction



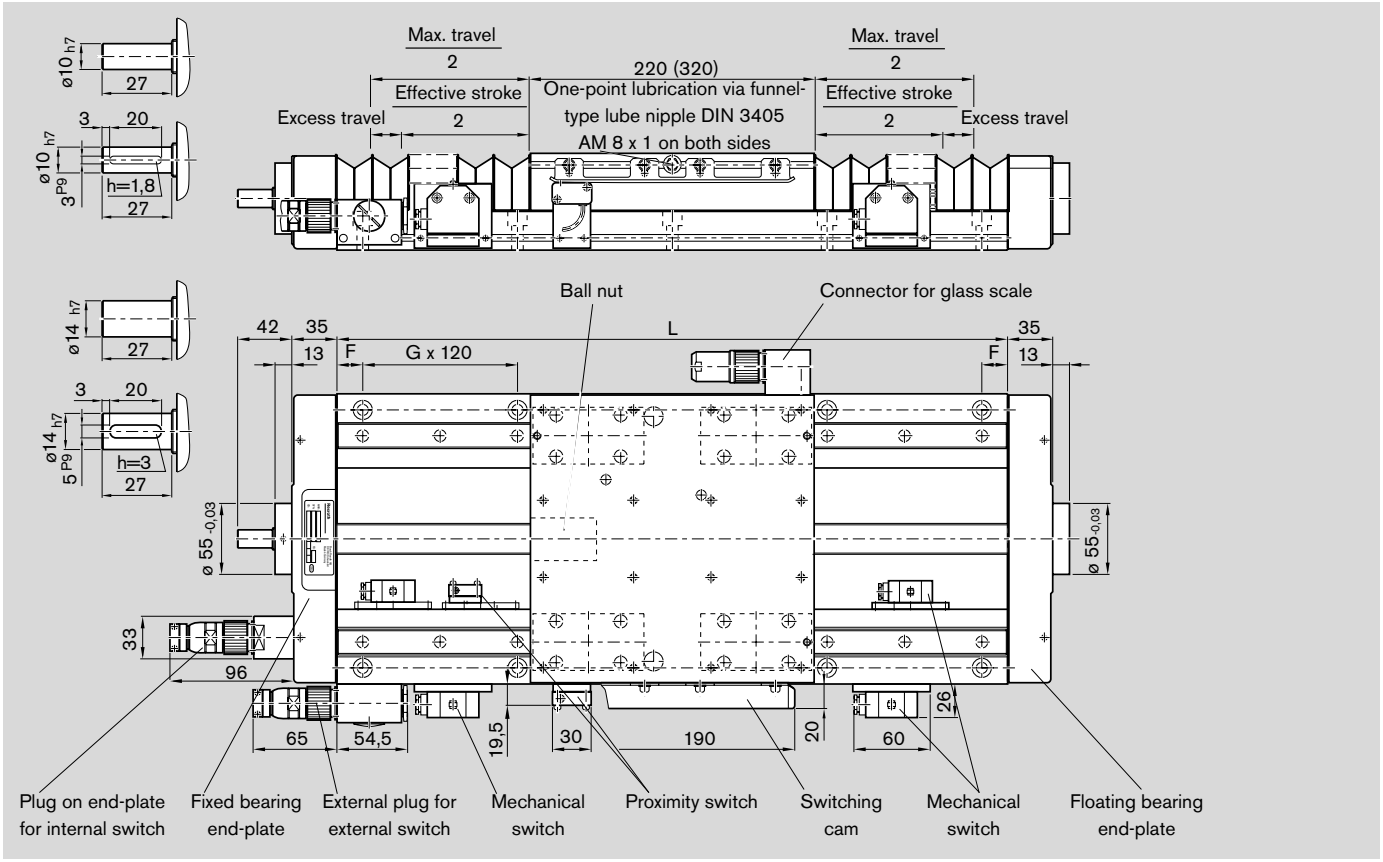
Switches

Without switches		
without switch / **without cable duct**	00	
With switches		
Internal switches		
PNP NC / 01-I +/–... mm	**Socket/plug on end-plate, switching cam**	07
PNP NO / 03-I +/–... mm		
Mechanical / 05-I +/–... mm		
External switches		
PNP NC / 11-A +/–... mm	**Switching cam, external**	**External socket/plug (loose)** 17
PNP NO / 13-A +/–... mm		
Mechanical / 15-A +/–... mm	16	
Cable duct (loose)		
Cable duct	20 - X....	

------- Optional

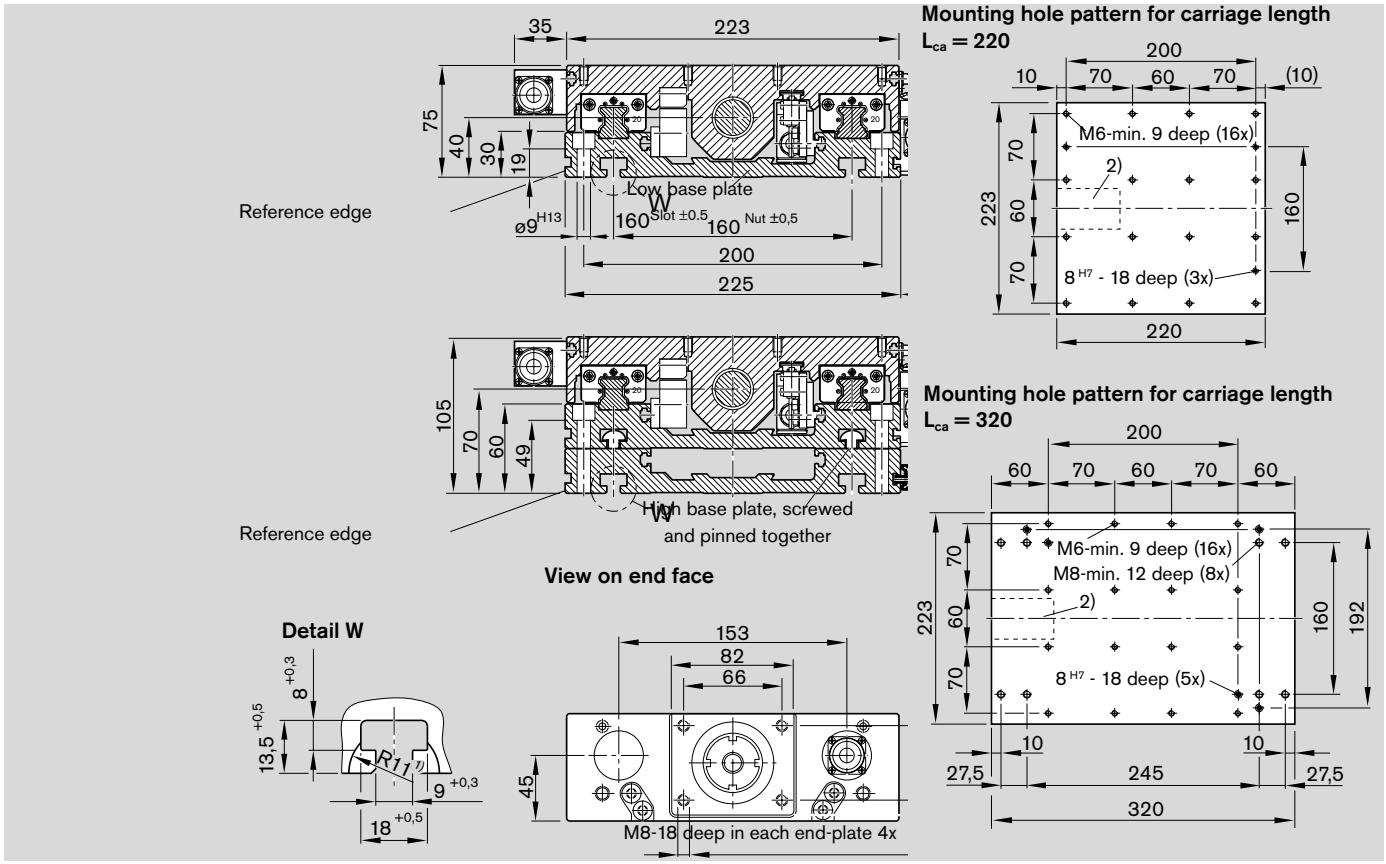
2) Attachment kit also available without motor (when ordering enter “00” for motor)
3) Without brake
4) With brake

TKK 20-225 Al – Dimensions



Length L	Counterbored mounting hole spacing	Max. travel (mm) for carriage length with bellows		without bellows	
(mm)	F - G x 120 - F	220	320	220	320
340	50 - 2 x 120 - 50	70	-	110	-
400	20 - 3 x 120 - 20	122	-	170	-
460	50 - 3 x 120 - 50	174	86	230	130
520	20 - 4 x 120 - 20	226	138	290	190
580	50 - 4 x 120 - 50	278	190	350	250
640	20 - 5 x 120 - 20	330	242	410	310
700	50 - 5 x 120 - 50	382	294	470	370
760	20 - 6 x 120 - 20	434	346	530	430
820	50 - 6 x 120 - 50	486	398	590	490
880	20 - 7 x 120 - 20	538	450	650	550
940	50 - 7 x 120 - 50	590	502	710	610
1000	20 - 8 x 120 - 20	642	554	770	670
1060	50 - 8 x 120 - 50	694	606	830	730
1120	20 - 9 x 120 - 20	746	658	890	790
1180	50 - 9 x 120 - 50	798	710	950	850
1240	20 - 10 x 120 - 20	850	762	1010	910
1300	50 - 10 x 120 - 50	902	814	1070	970
1360	20 - 11 x 120 - 20	954	866	1130	1030
1420	50 - 11 x 120 - 50	1006	918	1190	1090
1480	20 - 12 x 120 - 20	1058	970	1250	1150
1540	50 - 12 x 120 - 50	1110	1022	1310	1210
1600	20 - 13 x 120 - 20	1162	1074	1370	1270

Length L	Counterbored mounting hole spacing	Max. travel (mm) for carriage length with bellows		without bellows	
(mm)	F - G x 120 - F	220	320	220	320
1660	50 - 13 x 120 - 50	1214	1126	1430	1330
1720	20 - 14 x 120 - 20	1266	1178	1490	1390
1780	50 - 14 x 120 - 50	1318	1230	1550	1450
1840	20 - 15 x 120 - 20	1370	1282	1610	1510
1900	50 - 15 x 120 - 50	1422	1334	1670	1570
1960	20 - 16 x 120 - 20	1474	1386	1730	1630
2020	50 - 16 x 120 - 50	1526	1438	1790	1690
2080	20 - 17 x 120 - 20	1578	1490	1850	1750
2140	50 - 17 x 120 - 50	1630	1542	1910	1810
2200	20 - 18 x 120 - 20	1682	1594	1970	1870
2260	50 - 18 x 120 - 50	1734	1646	2030	1930
2320	20 - 19 x 120 - 20	1786	1698	2090	1990
2380	50 - 19 x 120 - 50	1838	1750	2150	2050
2440	20 - 20 x 120 - 20	1890	1802	2210	2110
2500	50 - 20 x 120 - 50	1942	1854	2270	2170
2560	20 - 21 x 120 - 20	1994	1906	2330	2230
2620	50 - 21 x 120 - 50	2046	1958	2390	2290
2680	20 - 22 x 120 - 20	2098	2010	2450	2350
2740	50 - 22 x 120 - 50	2150	2062	2510	2410
2800	20 - 23 x 120 - 20	2202	2114	2570	2470
2860	50 - 23 x 120 - 50	2254	2166	2630	2530



1) 27 deep (4x)
2) Ball nut

Effective stroke
For safe operation, the excess travel must be longer than the braking distance. The acceleration travel can be taken as a guideline value for the braking distance. In most cases, 2x the ball screw lead (P) will be sufficient.
Example for P = 5 mm:
Excess travel (braking distance) ≈ 10 mm
Recommended standard configuration:
– 2 mechanical switches
– 1 proximity switch

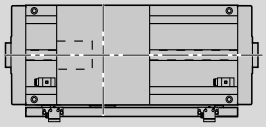
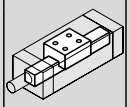
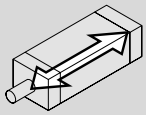
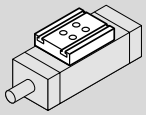
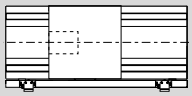
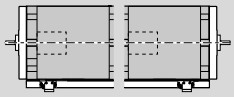
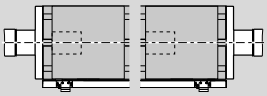
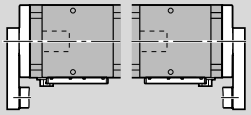
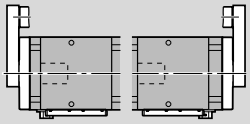
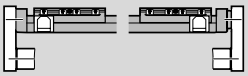
Effective stroke = max. travel – 2 · excess travel

Distance between switch activation points of two switches		
Switch position	**For switch combination**	**Min. spacing** (mm)
external	mechanical – mechanical	60.0
	mechanical – proximity	45.0
	proximity – proximity	12.5
internal	mechanical – mechanical	70.0
	mechanical – proximity	50.0
	proximity – proximity	25.0

Maximum switch activation point
The switch activation point characterizes the position of the center of the carriage after travel. The zero point is at L/2.

Maximum switch activation point = 0.5 · max. travel – excess travel

TKK 20-225 St Components and Ordering

Part number, length R1460 300 00, ... mm Reference edge  Switches	Dimension drawing	Guideway  Base plate, low	Drive unit  Ball screw journal keyway	Ball screw 20 x 5	Ball screw 20 x 20	Ball screw 25 x 5	Ball screw 25 x 10	Carriage  Carriage length L_{ca} 220 mm Preload 2%	220 mm Preload 8%	320 mm Preload 2%	320 mm Preload 8%
Without drive (without end-plates) **OA01** 	OA01	01		00				01	02	03	04
Without motor mount and motor **OF01**  **OF04**	OF01 OF04	01	ø10 (fixed bearing end)	01	07			01	02	03	04
			ø10 (fixed bearing end) [1]	04	10						
			ø14 (fixed bearing end)			13	19				
			ø14 (fixed bearing end) [1]			16	22				
With motor mount and coupling, with or without motor **MF01**  **MF02**	MF01 MF02	01	ø10 (fixed bearing end)	01	07			01	02	03	04
			ø14 (fixed bearing end)			13	19	01	02	03	04
With timing belt side drive, with or w/o motor **RV01**  **RV02**	RV01-RV04	01	ø14 (floating bearing end)	03	09	15	21	01	02	03	04
RV03  **RV04**											
RV05  **RV06**	RV05 RV06										

1) With keyway

Please check whether the selected combination is a permissible one (load capacities, moments, maximum speeds, motor data, etc.)!
For more information on ordering, see order example.

Motor attachment[2] Mounting orientation	i			Motor		Cover PU bellows without	Cover PU bellows with	Position measuring system without	Position measuring system Glass scale	Switches (1st, 2nd, 3rd), switching cam, socket, plug, cable duct	Documentation Standard report	Documentation Special report
		OA01	00	without	00	00	on request	00	on request	Without switches without switch / without cable duct: 00	01	02 Friction moment
		OF01 OF04	00	without	00	00	01			With switches Direction: – 0 + ; L/2 ; Reference edge Switches		03 Lead deviation
	1	MF01 MF02	02	MSK 040C	86[3] / 87[4]							
			08	VRDM 397	37[3] / 38[4]							
				VRDM 3910	39[3] / 40[4]							
			09	VRDM 3913	41[3] / 42[4]							
			10	MSM 040B	74[3] / 75[4]							
			12	MSK 050C	88[3] / 89[4]							
	1	MF01 MF02	04	MSK 040C	86[3] / 87[4]					Internal switches PNP NC / 01-I +/–... mm PNP NO / 03-I +/–... mm Mechanical / 05-I +/–... mm Socket/plug on end-plate, switching cam: 07		04 Travel accuracy
			11	MSM 040B	74[3] / 75[4]							
			13	MSK 050C	88[3] / 89[4]							
	1.5	RV01-RV04	47	MSK 040C	86[3]					External switches PNP NC / 11-A +/–... mm PNP NO / 13-A +/–... mm Mechanical / 15-A +/–... mm Switching cam, external: 26 External socket/plug (loose): 17		
		RV05-RV06	48		87[4]							
	1	RV01-RV04	49	MSM 040B	74[3]							05 Positioning accuracy
		RV05-RV06	50									
	1.5	RV01-RV04	51		75[4]							
		RV05-RV06	52									
	1	RV01-RV04	53	MSK 050C	88[3]					Cable duct (loose) Cable duct / 20 - X....		
		RV05-RV06	55									
	2	RV01-RV04	54		89[4]							
		RV05-RV06	56									

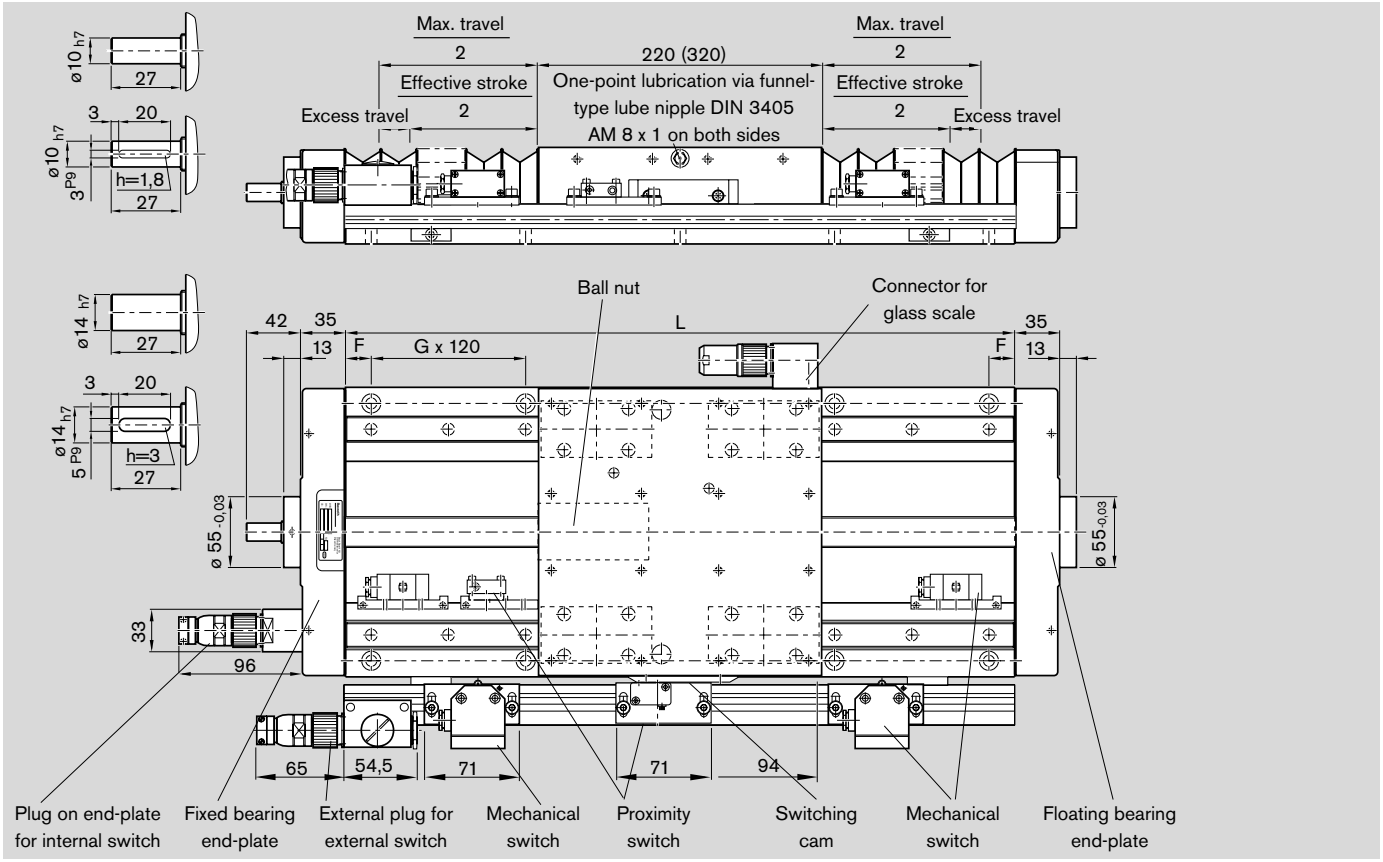
2) Attachment kit also available without motor (when ordering enter “00” for motor)

3) Without brake

4) With brake

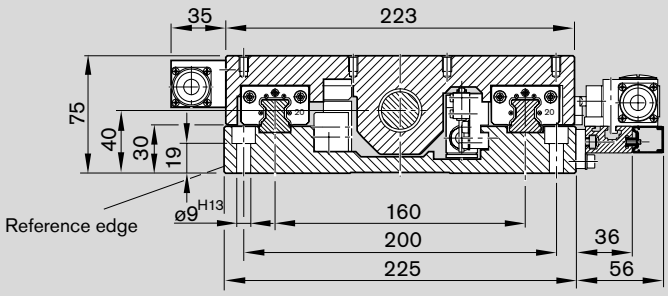
------ Optional

TKK 20-225 St – Dimensions

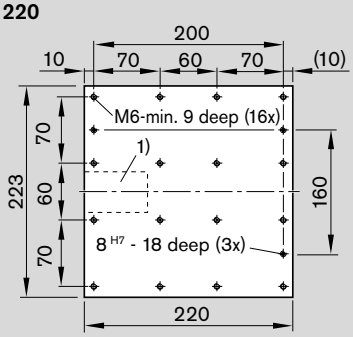


Length L	Counterbored mounting hole spacing	Max. travel (mm) for carriage length with bellows		without bellows	
(mm)	F - G x 120 - F	220	320	220	320
340	50 - 2 - 120 - 50	70	-	110	-
400	20 - 3 - 120 - 20	122	-	170	-
460	50 - 3 - 120 - 50	174	86	230	130
520	20 - 4 - 120 - 20	226	138	290	190
580	50 - 4 - 120 - 50	278	190	350	250
640	20 - 5 - 120 - 20	330	242	410	310
700	50 - 5 - 120 - 50	382	294	470	370
760	20 - 6 - 120 - 20	434	346	530	430
820	50 - 6 - 120 - 50	486	398	590	490
880	20 - 7 - 120 - 20	538	450	650	550
940	50 - 7 - 120 - 50	590	502	710	610
1000	20 - 8 - 120 - 20	642	554	770	670
1060	50 - 8 - 120 - 50	694	606	830	730
1120	20 - 9 - 120 - 20	746	658	890	790
1180	50 - 9 - 120 - 50	798	710	950	850
1240	20 - 10 - 120 - 20	850	762	1010	910
1300	50 - 10 - 120 - 50	902	814	1070	970
1360	20 - 11 - 120 - 20	954	866	1130	1030
1420	50 - 11 - 120 - 50	1006	918	1190	1090
1480	20 - 12 - 120 - 20	1058	970	1250	1150
1540	50 - 12 - 120 - 50	1110	1022	1310	1210
1600	20 - 13 - 120 - 20	1162	1074	1370	1270

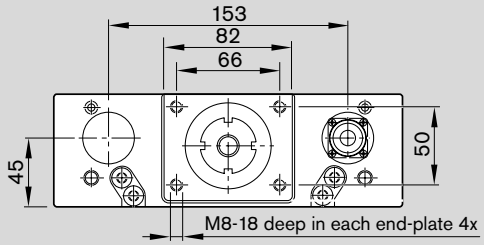
Length L	Counterbored mounting hole spacing	Max. travel (mm) for carriage length with bellows		without bellows	
(mm)	F - G x 120 - F	220	320	220	320
1660	50 - 13 x 120 - 50	1214	1126	1430	1330
1720	20 - 14 x 120 - 20	1266	1178	1490	1390
1780	50 - 14 x 120 - 50	1318	1230	1550	1450
1840	20 - 15 x 120 - 20	1370	1282	1610	1510
1900	50 - 15 x 120 - 50	1422	1334	1670	1570
1960	20 - 16 x 120 - 20	1474	1386	1730	1630
2020	50 - 16 x 120 - 50	1526	1438	1790	1690
2080	20 - 17 x 120 - 20	1578	1490	1850	1750
2140	50 - 17 x 120 - 50	1630	1542	1910	1810
2200	20 - 18 x 120 - 20	1682	1594	1970	1870
2260	50 - 18 x 120 - 50	1734	1646	2030	1930
2320	20 - 19 x 120 - 20	1786	1698	2090	1990
2380	50 - 19 x 120 - 50	1838	1750	2150	2050



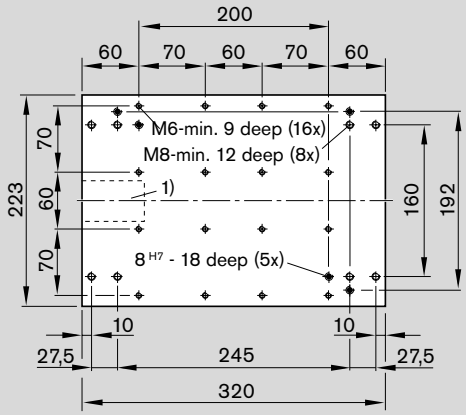
Mounting hole pattern for carriage length L_{ca} = 220



View on end face



Mounting hole pattern for carriage length L_{ca} = 320



1) Ball nut

Effective stroke
For safe operation, the excess travel must be longer than the braking distance. The acceleration travel can be taken as a guideline value for the braking distance. In most cases, 2x the ball screw lead (P) will be sufficient.
Example for P = 5 mm:
Excess travel (braking distance)
≈ 10 mm
Recommended standard configuration:
– 2 mechanical switches
– 1 proximity switch

Effective stroke = max. travel – 2 · excess travel

Distance between switch activation points of two switches		
Switch position	**For switch combination**	**Min. spacing** (mm)
external	mechanical – mechanical	62.0
	mechanical – proximity	49.0
	proximity – proximity	35.0
internal	mechanical – mechanical	70.0
	mechanical – proximity	50.0
	proximity – proximity	25.0

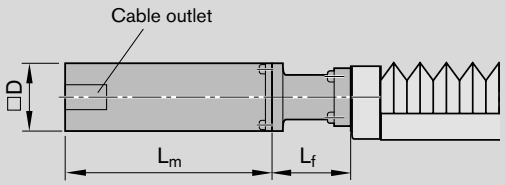
Maximum switch activation point
The switch activation point characterizes the position of the center of the carriage after travel. The zero point is at L/2.

Maximum switch activation point = 0.5 · max. travel – excess travel

TKK 20-225 – Dimension Drawings, Motor Attachment

Motor attachment with motor mount and coupling

MF01, MF02

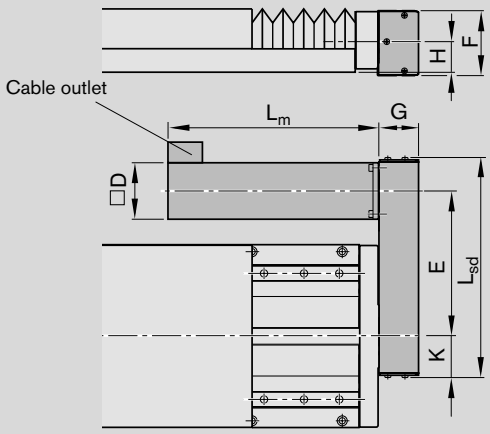


Motor	Dimensions (mm)		
	L_m	D	L_f
MSK 040C	185.5[1)]	82	90
	215.5[2)]		
MSM 040B	157.5[1)]	80	90
	191.5[2)]		
MSK 050C	203.0[1)]	98	115
	233.0[2)]		
VRDM 397	110.0[1)]	85	90
	156.5[2)]		
VRDM 3910	140.0[1)]		
	186.5[2)]		
VRDM 3913	170.0[1)]		
	216.5[2)]		

1) Without brake
2) With brake

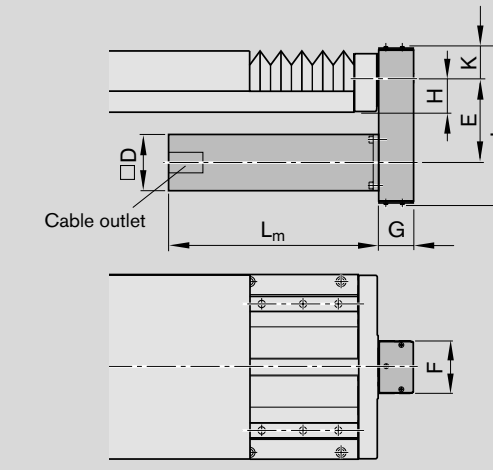
Motor attachment via timing belt side drive

RV01 - RV04



Motor	Dimensions (mm)									
	L_m	D	G	H	L_{sd}	i = 1	i = 1.5	E i = 2	K	F
MSK 040C	185.5[1]	82	51	40	322	210.0	213.5	–	47.5	88
	215.5[2]									
MSM 040B	157.5[1]									
	191.5[2]									
MSK 050C	203.0[1]	98	66	40	367	230.0	–	235.0	56.0	116
	233.0[2]									

RV05, RV06



Motor	Dimensions (mm)									
	L_m	D	G	H	L_{sd}	i = 1	i = 1.5	E i = 2	K	F
MSK 040C	185.5[1]	82	51	40	231	122.5	122.0	–	47.5	88
	215.5[2]									
MSM 040B	157.5[1]									
	191.5[2]									
MSK 050C	203.0[1]	98	66	40	287	155.0	–	155.0	56.0	116
	233.0[2]									

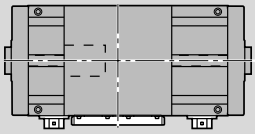
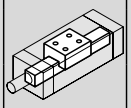
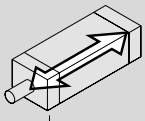
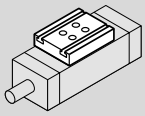
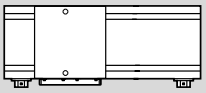
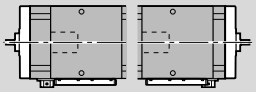
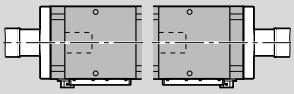
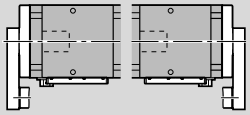
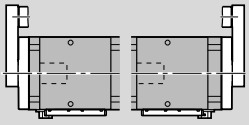
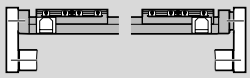
1) Without brake
2) With brake

Note for steel version
In type RV01 and RV02 with externally mounted switches:
– No switches may be mounted in the motor area!

Note for multi-axis units
(e.g. X-Y tables)
For multi-axis units with motor attachment via timing belt side drive, the motor may project into the working area of adjacent axes. Check for any interference contours.

For motor dimensions, see “Motors.”

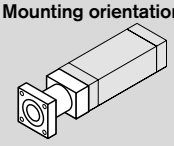
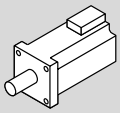
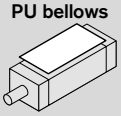
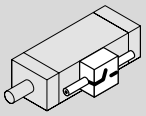
TKK 30-325 Al Components and Ordering

Part number, length R1460 405 00, ... mm Reference edge  Switches	Dimension drawing	Guideway  Base plate		Drive unit  Ball screw					Carriage  Carriage length L_{ca}				
		low	high	Ball screw journal keyway	32 x 5	32 x 10	32 x 20	32 x 32	320 mm Preload 2%	320 mm Preload 8%	450 mm Preload 2%	450 mm Preload 8%	
Without drive (without end-plates) **OA01** 	OA01	01	11		00				05	06	07	08	
Without motor mount and motor **OF01**  **OF04**	OF01 OF04	01	11	ø16 (fixed bearing end)	07	13	19	25	05	06	07	08	
				ø16 (fixed bearing end) [1]	10	16	22	28					
With motor mount and coupling, with or without motor **MF01**  **MF02**	MF01 MF02	01	11	ø16 (fixed bearing end)	07	13	19	25	05	06	07	08	
With timing belt side drive, with or without motor **RV01**  **RV02**	RV01 - RV04	01	11	ø19 (floating bearing end)	09	15	21	27	05	06	07	08	
RV03  **RV04**													
RV05  **RV06**	RV05 RV06												

1) With keyway

Please check whether the selected combination is a permissible one (load capacities, moments, maximum speeds, motor data, etc.)!

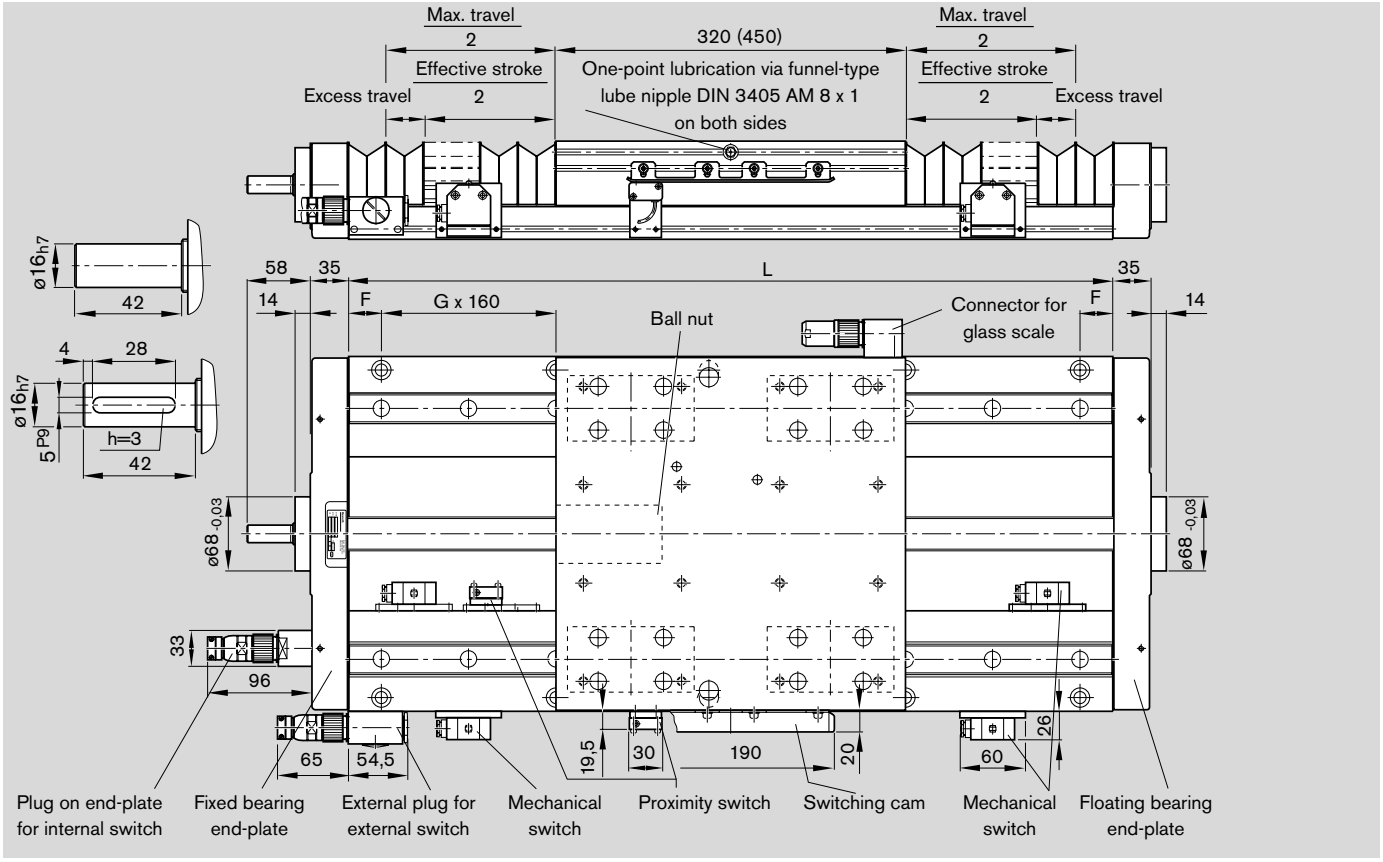
For more information on ordering, see order example.

	Motor attachment[2] Mounting orientation			Motor		Cover PU bellows		Position measuring system		Switches (1st, 2nd, 3rd), switching cam, socket, plug, cable duct	Documentation	
												
	i					without	with	without	Glass scale		Standard report	Special report
		OA01	00	without	00	00	on request	00	on request	**Without switches** **without switch** / **without cable duct**: 00	01	02 Friction moment
		OF01-OF04	00	without	00	00	01			**With switches** **Direction** – 0 + L/2 **Reference edge** **Switches**		
	1	MF01-MF02	09	MSK 060C	90[3]							03 Lead deviation
					91[4]							
			08	MSK 076C	92[3]							
					93[4]							
	1	RV01-RV04	77	MSK 060C	90[3]	00	01	00	on request	**Internal switches** **PNP NC** / 01-I +/–... mm **PNP NO** / 03-I +/–... mm **Mechanical** / 05-I +/–... mm: **Socket/plug on end-plate, switching cam** 07	01	04 Travel accuracy
		RV05-RV06	78									
	2	RV01-RV04	79		91[4]					**External switches** **PNP NC** / 11-A +/–... mm **PNP NO** / 13-A +/–... mm **Mechanical** / 15-A +/–... mm: **Switching cam, external** 16; **External socket/plug (loose)** 17		05 Positioning accuracy
		RV05-RV06	80							**Cable duct (loose)** Cable duct: 20 - X....		

2) Attachment kit also available without motor (when ordering enter “00” for motor)
3) Without brake
4) With brake

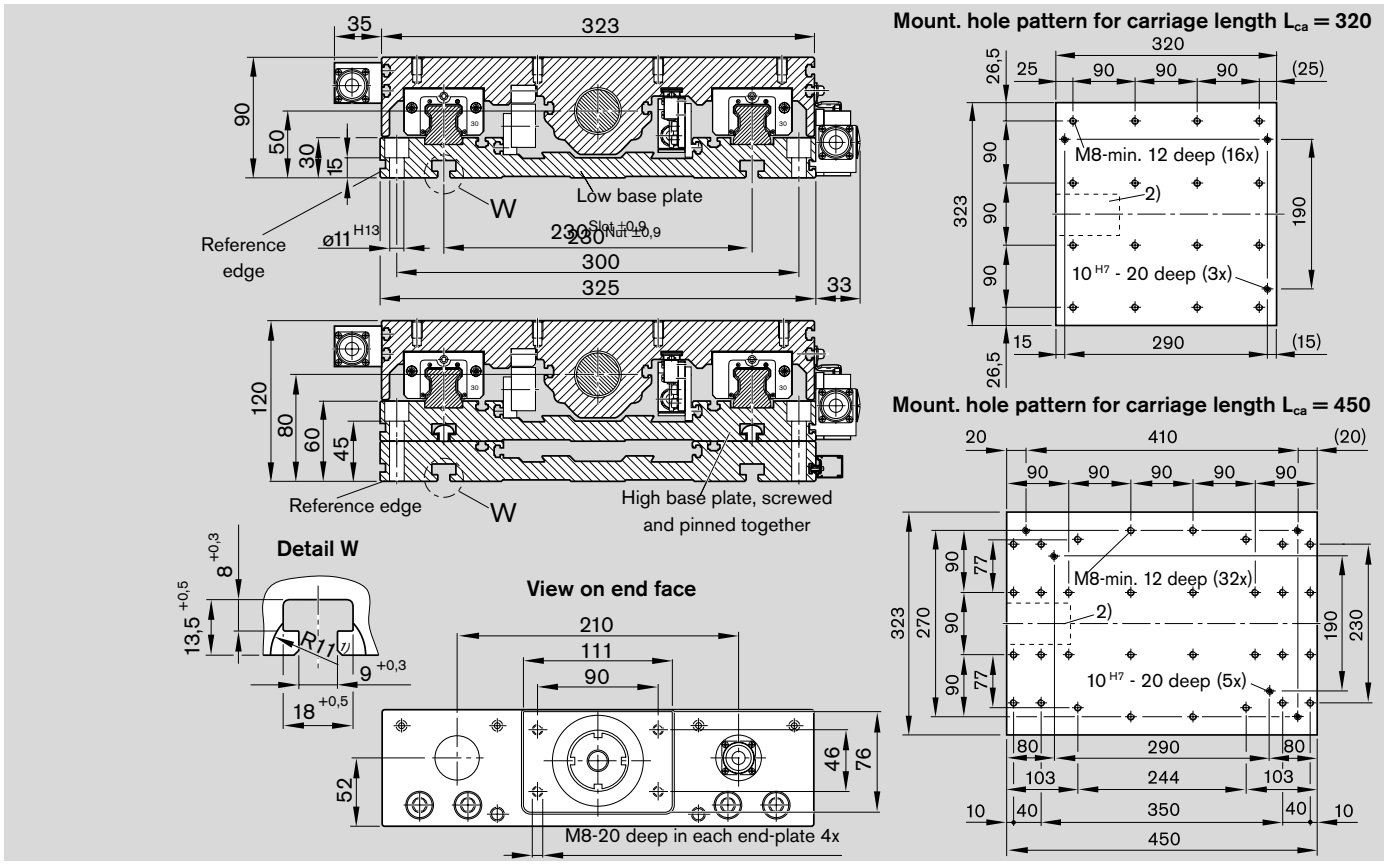
------- Optional

TKK 30-325 Al – Dimensions



Length L	Counterbored mounting hole spacing	Max. travel (mm) for carriage length			
		with bellows		without bellows	
(mm)	F - G x 160 - F	320	450	320	450
540	30 - 3 x 160 - 30	154	-	210	-
620	70 - 3 x 160 - 70	225	109	290	160
700	30 - 4 x 160 - 30	297	180	370	240
780	70 - 4 x 160 - 70	368	251	450	320
860	30 - 5 x 160 - 30	439	322	530	400
940	70 - 5 x 160 - 70	510	394	610	480
1020	30 - 6 x 160 - 30	582	465	690	560
1100	70 - 6 x 160 - 70	653	536	770	640
1180	30 - 7 x 160 - 30	724	604	850	720
1260	70 - 7 x 160 - 70	795	679	930	800
1340	30 - 8 x 160 - 30	866	750	1010	880
1420	70 - 8 x 160 - 70	938	821	1090	960
1500	30 - 9 x 160 - 30	1009	892	1170	1040
1580	70 - 9 x 160 - 70	1080	963	1250	1120
1660	30 - 10 x 160 - 30	1151	1035	1330	1200

Length L	Counterbored mounting hole spacing	Max. travel (mm) for carriage length			
		with bellows		without bellows	
(mm)	F - G x 160 - F	320	450	320	450
1740	70 - 10 x 160 - 70	1223	1106	1410	1280
1820	30 - 11 x 160 - 30	1294	1177	1490	1360
1900	70 - 11 x 160 - 70	1365	1248	1570	1440
1980	30 - 12 x 160 - 30	1436	1320	1650	1520
2060	70 - 12 x 160 - 70	1507	1391	1730	1600
2140	30 - 13 x 160 - 30	1579	1462	1810	1680
2220	70 - 13 x 160 - 70	1650	1533	1890	1760
2300	30 - 14 x 160 - 30	1721	1605	1970	1840
2380	70 - 14 x 160 - 70	1792	1676	2050	1920
2460	30 - 15 x 160 - 30	1864	1747	2130	2000
2540	70 - 15 x 160 - 70	1935	1818	2210	2080
2620	30 - 16 x 160 - 30	2006	1889	2290	2160
2700	70 - 16 x 160 - 70	2077	1961	2370	2240
2780	30 - 17 x 160 - 30	2148	2032	2450	2320
2860	70 - 17 x 160 - 70	2220	2103	2530	2400



1) 27 deep (4x)
2) Ball nut

Effective stroke
For safe operation, the excess travel must be longer than the braking distance. The acceleration travel can be taken as a guideline value for the braking distance. In most cases, 2x the ball screw lead (P) will be sufficient.
Example for P = 5 mm:
Excess travel (braking distance)
≈ 10 mm
Recommended standard configuration:
– 2 mechanical switches
– 1 proximity switch

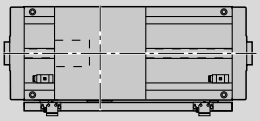
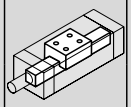
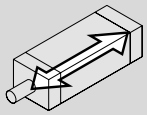
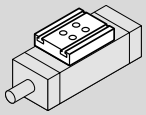
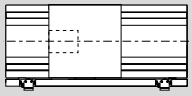
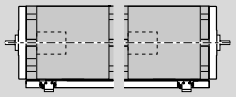
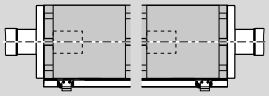
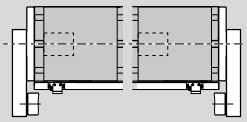
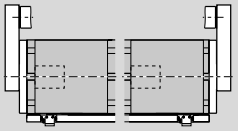
Effective stroke = max. travel – 2 · excess travel

Distance between switch activation points of two switches		
Switch position	**For switch combination**	**Min. spacing** (mm)
external	mechanical – mechanical	60.0
	mechanical – proximity	45.0
	proximity – proximity	12.5
internal	mechanical – mechanical	70.0
	mechanical – proximity	50.0
	proximity – proximity	25.0

Maximum switch activation point
The switch activation point characterizes the position of the center of the carriage after travel. The zero point is at L/2.

Maximum switch activation point = 0.5 · max. travel – excess travel

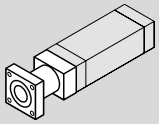
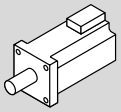
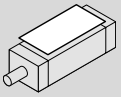
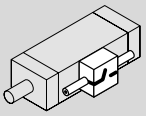
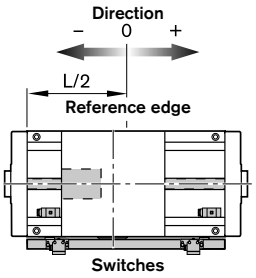
TKK 30-325 St Components and Ordering

Part number, length R1460 400 00, ... mm Reference edge  Switches	Dimension drawing	Guideway  Base plate, low	Drive unit  Ball screw journal keyway	Ball screw 32 x 5	Ball screw 32 x 10	Ball screw 32 x 20	Ball screw 32 x 32	Carriage  Carriage length L_{ca} 320 mm Preload 2%	320 mm Preload 8%	450 mm Preload 2%	450 mm Preload 8%
Without drive (without end-plates) **OA01** 	OA01	01		00				05	06	07	08
Without motor mount and motor **OF01**  **OF04**	OF01 OF04	01	ø16 (fixed bearing end)	07	13	19	25	05	06	07	08
			ø16 (fixed bearing end) [1]	10	16	22	28				
With motor mount and coupling, with or without motor **MF01**  **MF02**	MF01 MF02	01	ø16 (fixed bearing end)	07	13	19	25	05	06	07	08
With timing belt side drive, with or without motor **RV01**  **RV02**	RV01-RV04	01	ø19 (floating bearing end)	09	15	21	27	05	06	07	08
RV03  **RV04**											
RV05  **RV06**	RV05 RV06										

1) With keyway

Please check whether the selected combination is a permissible one (load capacities, moments, maximum speeds, motor data, etc.)!

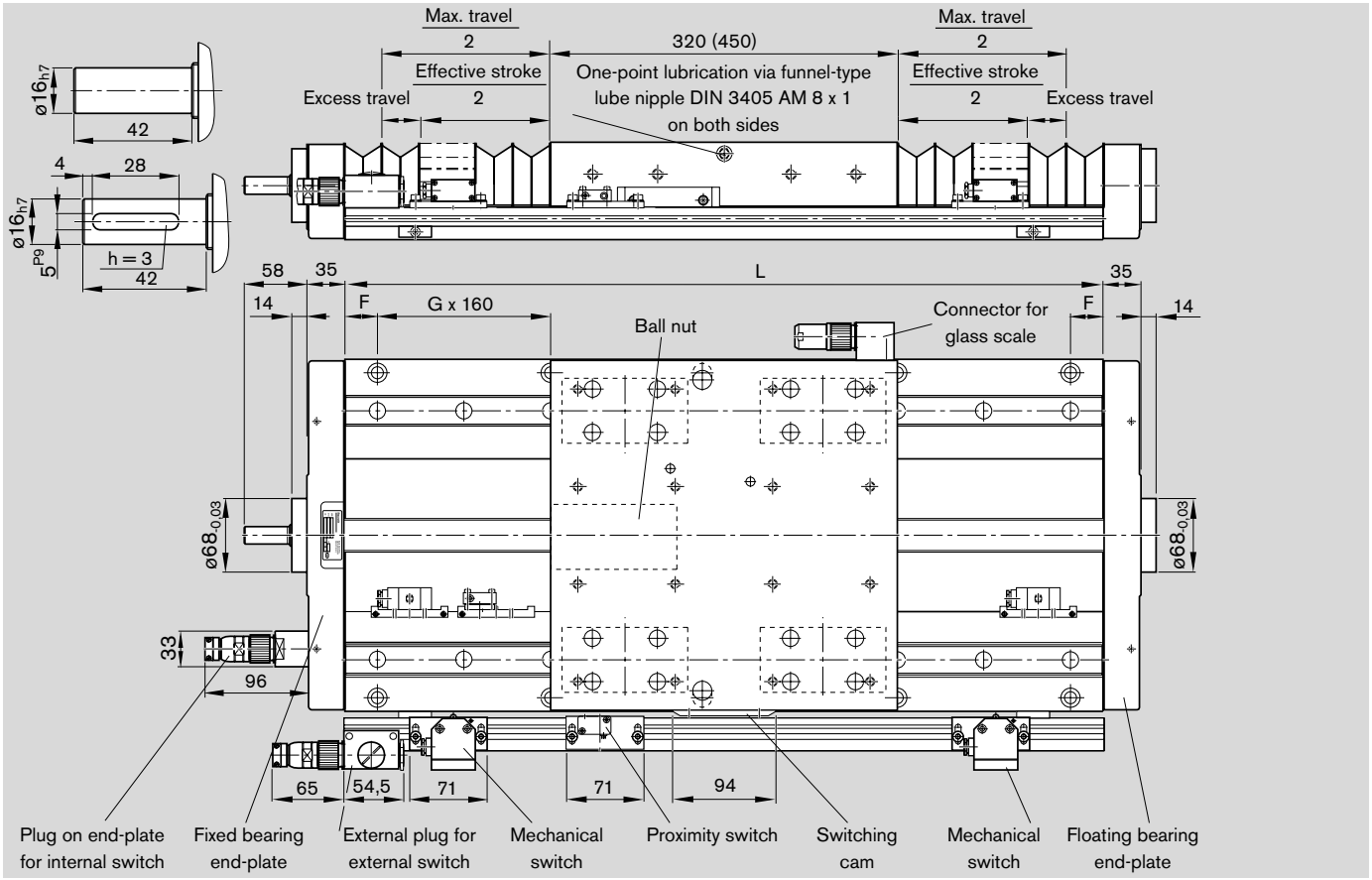
For more information on ordering, see order example.

	Motor attachment[2)] Mounting orientation  i			Motor 		Cover PU bellows  without	with	Position measuring system  without	Glass scale	Switches (1st, 2nd, 3rd), switching cam, socket, plug, cable duct 	Documentation Standard report	Special report
		OA01	00	without	00	00	on request	00	on request	**Without switches** **without switch** **without cable duct** 00	01	02 Friction moment
		OF01-OF04	00	without	00	00	01			**With switches** 		
	1	MF01-MF02	09	MSK 060C	90[3)]							03 Lead deviation
					91[4)]							
			08	MSK 076C	92[3)]							
					93[4)]							
	1	RV01-RV04	77	MSK 060C	90[3)]					**Internal switches** **PNP NC** 01-I +/–... mm **PNP NO** 03-I +/–... mm **Mechanical** 05-I +/–... mm **Socket/plug on end-plate, switching cam** 07		04 Travel accuracy
		RV05-RV06	78									
	2	RV01-RV04	79		91[4)]					**External switches** **PNP NC** 11-A +/–... mm **PNP NO** 13-A +/–... mm **Mechanical** 15-A +/–... mm **Switching cam, external** 26 **External socket/plug (loose)** 17		05 Positioning accuracy
		RV05-RV06	80							**Cable duct (loose)** Cable duct 20 - X....		

2) Attachment kit also available without motor (when ordering enter “00” for motor)
3) Without brake
4) With brake

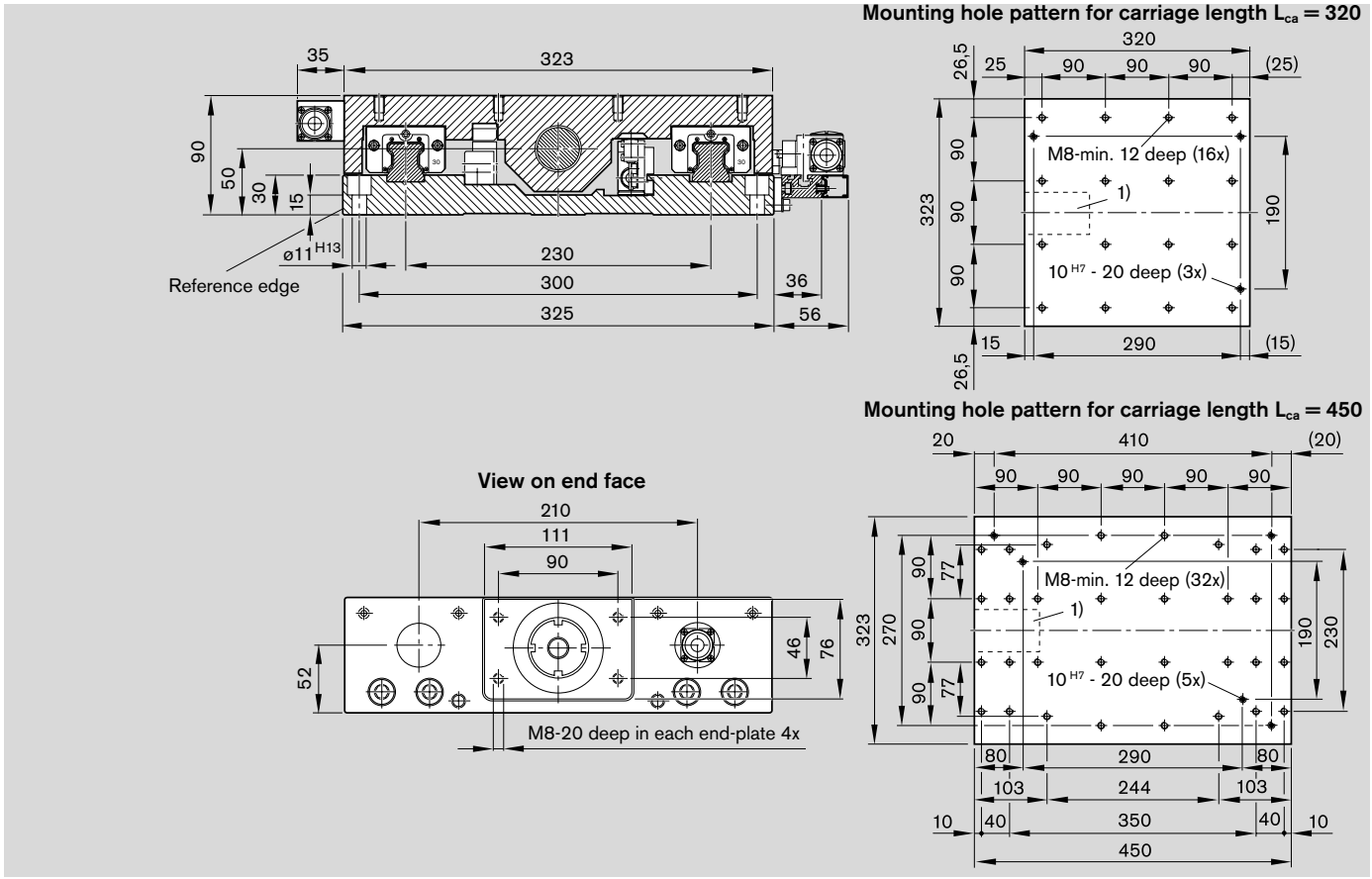
------- Optional

TKK 30-325 St – Dimensions



Length L	Counterbored mounting hole spacing	Max. travel (mm) for carriage length			
		with bellows		without bellows	
(mm)	F - G x 160 - F	320	450	320	450
540	30 - 3 x 160 - 30	154	-	210	-
620	70 - 3 x 160 - 70	225	109	290	160
700	30 - 4 x 160 - 30	297	180	370	240
780	70 - 4 x 160 - 70	368	251	450	320
860	30 - 5 x 160 - 30	439	322	530	400
940	70 - 5 x 160 - 70	510	394	610	480
1020	30 - 6 x 160 - 30	582	465	690	560
1100	70 - 6 x 160 - 70	653	536	770	640
1180	30 - 7 x 160 - 30	724	604	850	720
1260	70 - 7 x 160 - 70	795	679	930	800
1340	30 - 8 x 160 - 30	866	750	1010	880
1420	70 - 8 x 160 - 70	938	821	1090	960
1500	30 - 9 x 160 - 30	1009	892	1170	1040
1580	70 - 9 x 160 - 70	1080	963	1250	1120
1660	30 - 10 x 160 - 30	1151	1035	1330	1200

Length L	Counterbored mounting hole spacing	Max. travel (mm) for carriage length			
		with bellows		without bellows	
(mm)	F - G x 160 - F	320	450	320	450
1740	70 - 10 x 160 - 70	1223	1106	1410	1280
1820	30 - 11 x 160 - 30	1294	1177	1490	1360
1900	70 - 11 x 160 - 70	1365	1248	1570	1440
1980	30 - 12 x 160 - 30	1436	1320	1650	1520
2060	70 - 12 x 160 - 70	1507	1391	1730	1600
2140	30 - 13 x 160 - 30	1579	1462	1810	1680
2220	70 - 13 x 160 - 70	1650	1533	1890	1760
2300	30 - 14 x 160 - 30	1721	1605	1970	1840
2380	70 - 14 x 160 - 70	1792	1676	2050	1920



1) Ball nut

Effective stroke
For safe operation, the excess travel must be longer than the braking distance. The acceleration travel can be taken as a guideline value for the braking distance. In most cases, 2x the ball screw lead (P) will be sufficient.
Example for P = 5 mm:
Excess travel (braking distance)
≈ 10 mm
Recommended standard configuration:
– 2 mechanical switches
– 1 proximity switch

Effective stroke = max. travel – 2 · excess travel

Distance between switch activation points of two switches		
Switch position	**For switch combination**	**Min. spacing** (mm)
external	mechanical – mechanical	62.0
	mechanical – proximity	49.0
	proximity – proximity	35.0
internal	mechanical – mechanical	70.0
	mechanical – proximity	50.0
	proximity – proximity	25.0

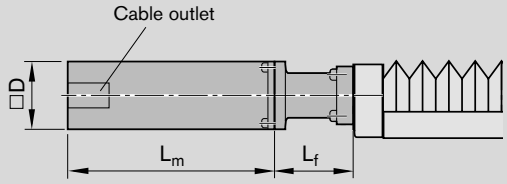
Maximum switch activation point
The switch activation point characterizes the position of the center of the carriage after travel. The zero point is at L/2.

Maximum switch activation point = 0.5 · max. travel – excess travel

TKK 30-325 – Dimension Drawings, Motor Attachment

Motor attachment with motor mount and coupling

MF01, MF02

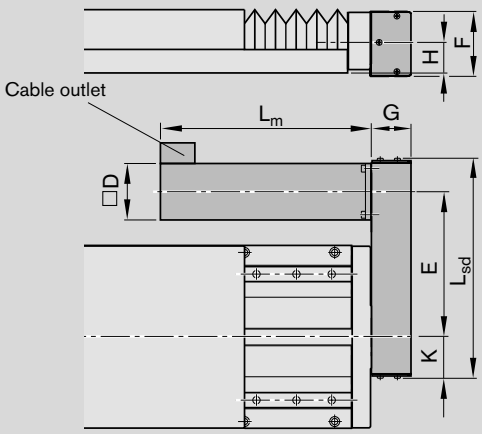


Motor	Dimensions (mm)		
	L_m	D	L_f
MSK 060C	226.0[1)] 259.0[2)]	115	125
MSK 076C	292.5[1)2)]	140	133

1) Without brake
2) With brake

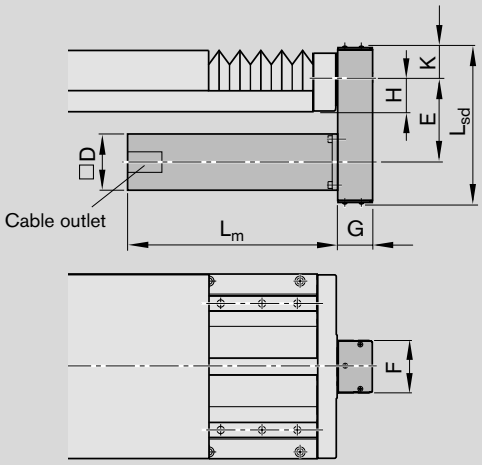
Motor attachment via timing belt side drive

RV01 - RV04



Motor	Dimensions (mm)								
	L_m	D	G	H	L_{sd}	E i = 1	E i = 2	K	F
MSK 060C	226[1)] 259[2)]	82	51	50	403	267.5	265	56	116

RV05, RV06



Motor	Dimensions (mm)								
	L_m	D	G	H	L_{sd}	E i = 1	E i = 2	K	F
MSK 060C	226[1)] 259[2)]	82	51	50	300	165	162	56	116

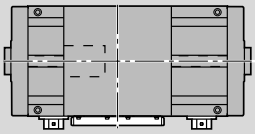
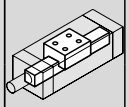
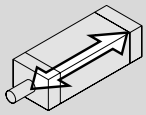
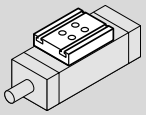
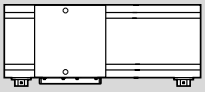
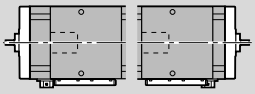
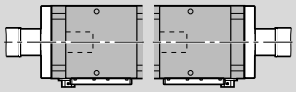
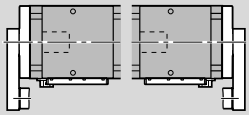
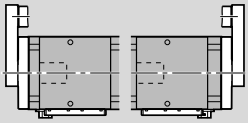
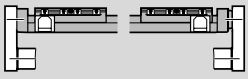
1) Without brake
2) With brake

Note for steel version
In type RV01 and RV02 with externally mounted switches:
– No switches may be mounted in the motor area!

For motor dimensions, see “Motors.”

Note for multi-axis units
(e.g. X-Y tables)
For multi-axis units with motor attachment via timing belt side drive, the motor may project into the working area of adjacent axes. Check for any interference contours.

TKK 35-455 Al Components and Ordering

Part number, length R1460 505 00, ... mm Reference edge  Switches	Dimension drawing	Guideway  Base plate, low	Drive unit  Ball screw journal keyway	Ball screw 40 x 5	Ball screw 40 x 10	Ball screw 40 x 20	Ball screw 40 x 40	Carriage  Carriage length L_{ca} 450 mm Preload 2%	Carriage length L_{ca} 450 mm Preload 8%
Without drive (without end-plates) **OA01** 	OA01	01		00				05	06
Without motor mount and motor **OF01**  **OF04**	OF01 OF04	01	ø25 (fixed bearing end)	25	31	37	43	05	06
			ø25 (fixed bearing end) [1]	28	34	40	46		
With motor mount and coupling, with or without motor **MF01**  **MF02**	MF01 MF02	01	ø25 (fixed bearing end)	25	31	37	43	05	06
With timing belt side drive, with or without motor **RV01**  **RV02**	RV01-RV04	01	ø24 (floating bearing end)	27	33	39	45	05	06
RV03  **RV04**									
RV05  **RV06**	RV05 RV06								

1) With keyway

Please check whether the selected combination is a permissible one (load capacities, moments, maximum speeds, motor data, etc.)!

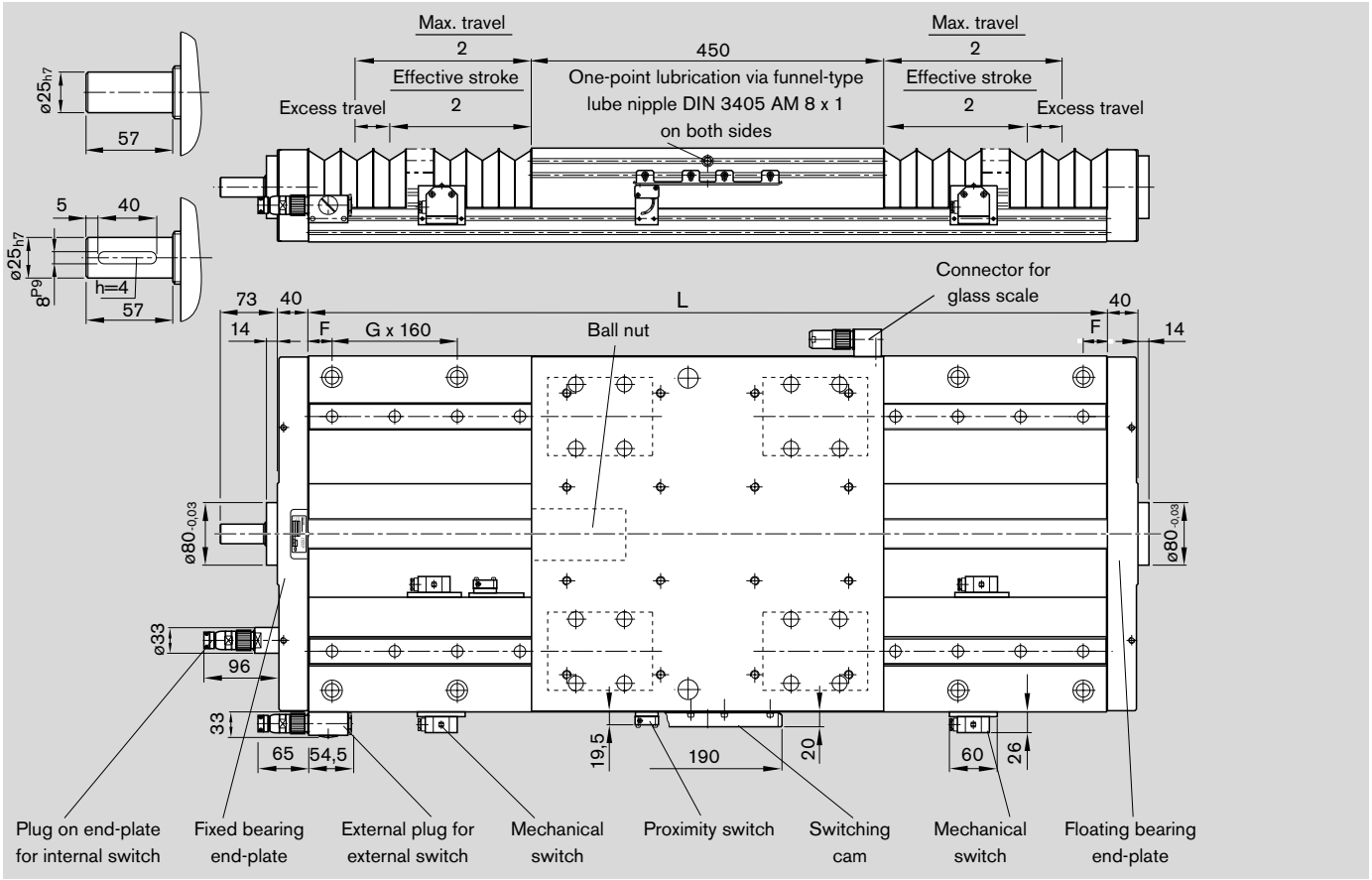
For more information on ordering, see order example.

	Motor attachment Mounting orientation			Motor		Cover PU bellows		Position measuring system		Switches (1st, 2nd, 3rd), switching cam, socket, plug, cable duct	Documentation	
						without	with	without	Glass scale		Standard report	Special report
	i											
		OA01	00	without	00	00	on request	00	on request	Without switches without switch / without cable duct: 00	01	02 Friction moment
		OF01-OF04	00	without	00	00	01			With switches		
	1	MF01-MF02	08	MSK 076C	92[2]					Direction: − 0 + ; L/2 ; Reference edge ; Switches		03 Lead deviation
					93[3]							
	1	RV01-RV04	53	MSK 076C	92[2]					Internal switches PNP NC / 01-I +/−... mm / PNP NO / 03-I +/−... mm / Mechanical / 05-I +/−... mm: Socket/plug on end-plate, switching cam 07		04 Travel accuracy
		RV05-RV06	54									
	2	RV01-RV04	55		93[3]					External switches PNP NC / 11-A +/−... mm / PNP NO / 13-A +/−... mm / Mechanical / 15-A +/−... mm: Switching cam, external 16; External socket/plug (loose) 17		05 Positioning accuracy
		RV05-RV06	56							Cable duct (loose) Cable duct: 20 - X....		

2) Without brake
3) With brake

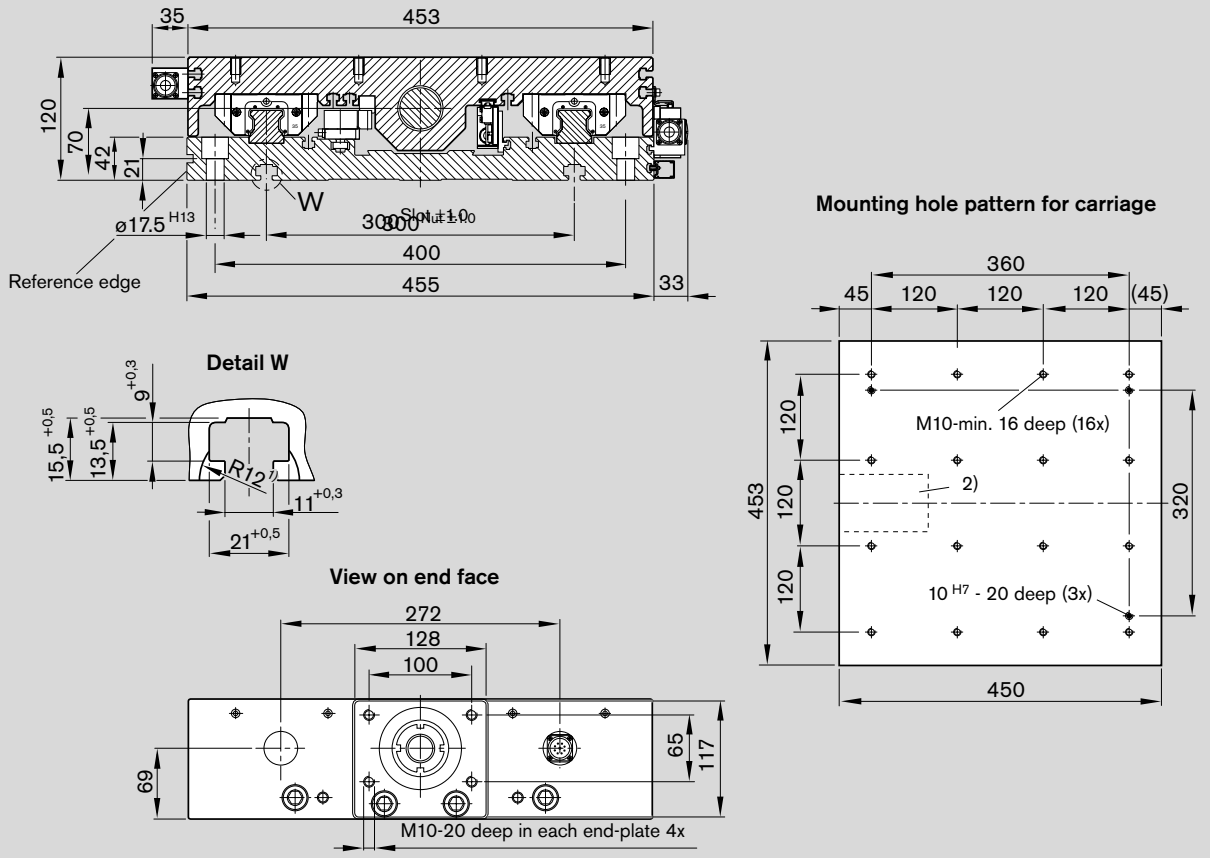
------- Optional

TKK 35-455 Al – Dimensions



Length L (mm)	Counterbored mounting hole spacing F - G x 160 - F	Max. travel (mm) with bellows	without bellows
620	70 - 3 x 160 - 70	110	160
700	30 - 4 x 160 - 30	183	240
780	70 - 4 x 160 - 70	256	320
860	30 - 5 x 160 - 30	328	400
940	70 - 5 x 160 - 70	401	480
1020	30 - 6 x 160 - 30	474	560
1100	70 - 6 x 160 - 70	546	640
1180	30 - 7 x 160 - 30	619	720
1260	70 - 7 x 160 - 70	692	800
1340	30 - 8 x 160 - 30	746	880
1420	70 - 8 x 160 - 70	837	960
1500	30 - 9 x 160 - 30	910	1040
1580	70 - 9 x 160 - 70	982	1120
1660	30 - 10 x 160 - 30	1055	1200
1740	70 - 10 x 160 - 70	1127	1200

Length L (mm)	Counterbored mounting hole spacing F - G x 160 - F	Max. travel (mm) with bellows	without bellows
1820	30 - 11 x 160 - 30	1200	1360
1900	70 - 11 x 160 - 70	1273	1440
1980	30 - 12 x 160 - 30	1345	1520
2060	70 - 12 x 160 - 70	1418	1600
2140	30 - 13 x 160 - 30	1491	1680
2220	70 - 13 x 160 - 70	1563	1760
2300	30 - 14 x 160 - 30	1636	1840
2380	70 - 14 x 160 - 70	1709	1920
2460	30 - 15 x 160 - 30	1781	2000
2540	70 - 15 x 160 - 70	1854	2080
2620	30 - 16 x 160 - 30	1927	2160
2700	70 - 16 x 160 - 70	1999	2240
2780	30 - 17 x 160 - 30	2072	2320
2860	70 - 17 x 160 - 70	2144	2400



1) 27 deep (4x)
2) Ball nut

Effective stroke
For safe operation, the excess travel must be longer than the braking distance. The acceleration travel can be taken as a guideline value for the braking distance. In most cases, 2x the ball screw lead (P) will be sufficient.
Example for P = 5 mm:
Excess travel (braking distance)
≈ 10 mm
Recommended standard configuration:
– 2 mechanical switches
– 1 proximity switch

Effective stroke = max. travel – 2 · excess travel

Distance between switch activation points of two switches		
Switch position	**For switch combination**	**Min. spacing** (mm)
external	mechanical – mechanical	60.0
	mechanical – proximity	45.0
	proximity – proximity	12.5
internal	mechanical – mechanical	70.0
	mechanical – proximity	50.0
	proximity – proximity	25.0

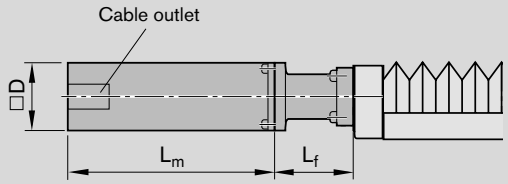
Maximum switch activation point
The switch activation point characterizes the position of the center of the carriage after travel. The zero point is at L/2.

Maximum switch activation point = 0.5 · max. travel – excess travel

TKK 35-455 Al – Dimension Drawings, Motor Attachment

Motor attachment with motor mount and coupling

MF01, MF02

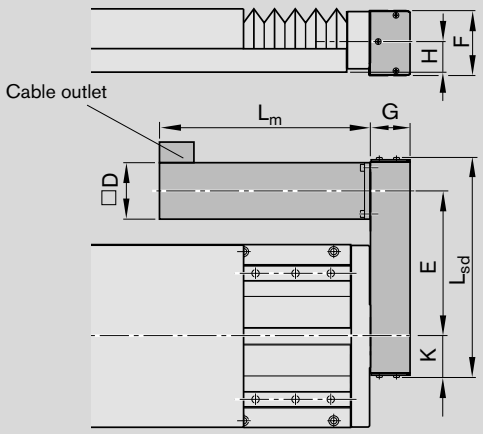


Motor	Dimensions (mm)		
	L_m	D	L_f
MSK 076C	292.5[1)2)]	140	140

1) Without brake
2) With brake

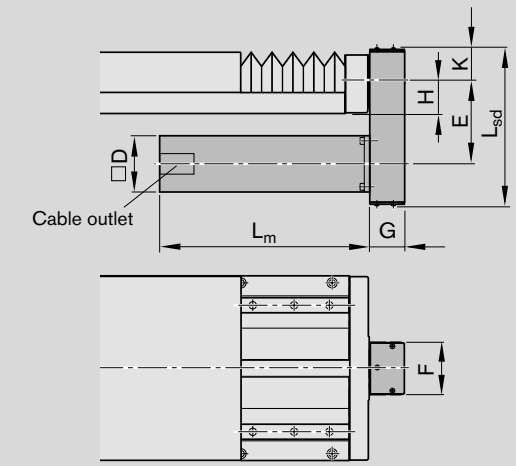
Motor attachment via timing belt side drive

RV01 - RV04



Motor	Dimensions (mm)								
	L_m	D	G	H	L_{sd}	E		K	F
						i = 1	i = 2		
MSK 076C	292.5[1)2)]	140	90	70	519	350	348.5	77	140

RV05, RV06



Motor	Dimensions (mm)							
	L_m	D	G	H	L_{sd}	E		K
						i = 1	i = 2	
MSK 076C	292.5[1)2)]	140	90	70	409	239	238	77

1) Without brake
2) With brake

For motor dimensions, see “Motors.”

Note for multi-axis units
(e.g. X-Y tables)
For multi-axis units with motor attachment via timing belt side drive, the motor may project into the working area of adjacent axes. Check for any interference contours.