

# Mounting

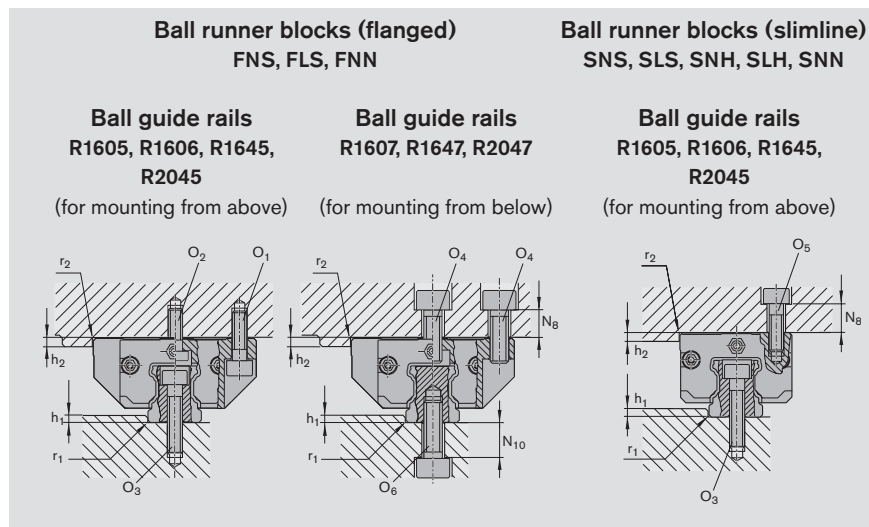
## Reference edges, corner radii, screw sizes and tightening torques

### Note

The combinations shown here are examples. Basically, any ball runner block may be combined with any of the ball guide rail types offered.

**⚠ Always check the safety of the screws in the case of high lift-off loads!** 233

## Guide rail with normal and long runner blocks



## Dimensions and recommended limits for side load if no additional lateral retention is provided

Size	Dimensions (mm)							Screw sizes					
								Ball runner block				Ball guide rail	
								O <sub>1</sub>	O <sub>2</sub> <sup>2)</sup>	O <sub>4</sub> <sup>1) 2)</sup>	O <sub>5</sub>	O <sub>3</sub>	O <sub>6</sub>
	$h_1$ min	$h_1$ max	$h_2$	$N_8$	$N_{10}$	$r_1$ max	$r_2$ max	ISO 4762 4 pcs	DIN 6912 2 pcs	ISO 4762 6 pcs	ISO 4762 4 pcs	ISO 4762	ISO 4762
15	2.5	3.5	4	6	7.0	0.4	0.6	M4x12	M4x10	M5x12	M4x12	M4x20	M5x12
20	2.5	4.0	5	9	9.5	0.6	0.6	M5x16	M5x12	M6x16	M5x16	M5x25	M6x16
				10 <sup>3)</sup>	—								
25	3.0	5.0	5	10	12.0	0.8	0.8	M6x20	M6x16	M8x20	M6x18	M6x30	M6x20
				11 <sup>3)</sup>	—								
30	3.0	5.0	6	10	9.0	0.8	0.8	M8x25	M8x16	M10x20	M8x20	M8x30	M8x20
35	3.5	6.0	6	13	13	0.8	0.8	M8x25	M8x20	M10x25	M8x25	M8x35	M8x25
45	4.5	8.0	8	14	13	0.8	0.8	M10x30	M10x25	M12x30	M10x30	M12x45	M12x30
55	7.0	10.0	10	20	23	1.2	1.0	M12x40	M12x30	M14x40	M12x35	M14x50	M14x40
65	7.0	10.0	14	22	26	1.2	1.0	M14x45	M14x35	M16x45	M16x40	M16x60	M16x45

### Permissible side load

The recommended limits for permissible side loads without additional lateral retention indicate the approximate upper limits for screws in two strength classes. In other cases, the permissible side load must be calculated from the screw tension force. This can be up to about 15% less when using screws in strength class 10.9 instead of 12.9.

Screw strength class	Permissible side load without lateral retention <sup>4)</sup>					
	Ball runner block				Ball guide rail	
	O <sub>1</sub>	O <sub>2</sub> <sup>7)</sup>	O <sub>4</sub>	O <sub>5</sub>	O <sub>3</sub>	O <sub>6</sub>
8.8 <sup>5)</sup>	11% C	15% C	23% C	11% C	6% C	6% C
8.8 <sup>6)</sup>	8% C	13% C	18% C	8% C	4% C	4% C
12.9 <sup>5)</sup>	18% C	22% C	35% C	18% C	10% C	10% C
12.9 <sup>6)</sup>	14% C	18% C	26% C	14% C	7% C	7% C

- When mounting the runner block from above using only 4 O<sub>4</sub> screws:  
Permissible side load 1/3 lower, and lower rigidity
- For runner block mounting with 6 screws:  
Tighten the centerline screws with the tightening torque M<sub>A</sub> for strength class 8.8.
- Ball Runner Block SNN
- Calculated with stiction coefficient  $\mu = 0.12$
- Ball Runner Blocks FNS, FNN, SNS, SNN, SNH
- Ball Runner Blocks FLS, SLS, SLH
- When mounting with 2 O<sub>2</sub> screws and 4 O<sub>1</sub> screws

### Recommended tightening torques M<sub>A</sub> of the fastening screws per VDI 2230

for  $\mu_K = \mu_G = 0.125$

		M4	M5	M6	M8	M10	M12	M14	M16
8.8	M <sub>A</sub> max (Nm)	2.7	5.5	9.5	23	46	80	125	195
12.9		4.6	9.5	16.0	39	77	135	215	330