

HIWIN[®]

Motion Control & Systems



Linear Guideways

Linear guideways

HG/QH series

3.1.10 Dimensions of the HG rail

The HG rails are used for both the HG and QH blocks.

3.1.10.1 Dimensions of HGR_R

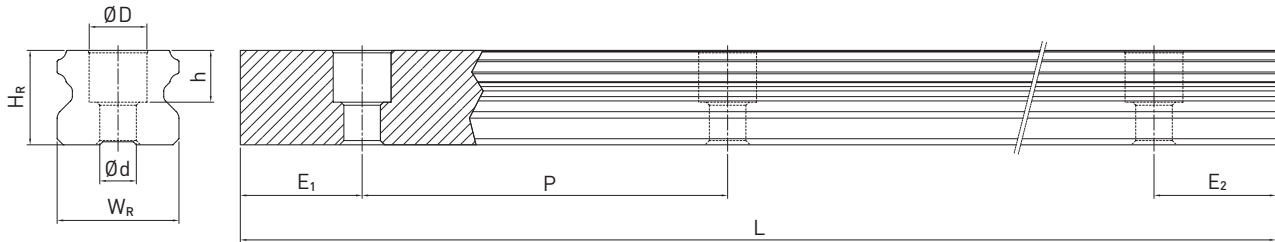


Table 3.9 Dimensions of rail HGR_R

Series/ size	Assembly screw for rail [mm]	Dimensions of rail [mm]						Max. length [mm]	Max. length E ₁ = E ₂ [mm]	E _{1/2} min [mm]	E _{1/2} max [mm]	Weight [kg/m]
		W _R	H _R	D	h	d	P					
HGR15R	M4 × 16	15	15.0	7.5	5.3	4.5	60	4,000	3,900	6	54	1.45
HGR20R	M5 × 16	20	17.5	9.5	8.5	6.0	60	4,000	3,900	7	53	2.21
HGR25R	M6 × 20	23	22.0	11.0	9.0	7.0	60	4,000	3,900	8	52	3.21
HGR30R	M8 × 25	28	26.0	14.0	12.0	9.0	80	4,000	3,920	9	71	4.47
HGR35R	M8 × 25	34	29.0	14.0	12.0	9.0	80	4,000	3,920	9	71	6.30
HGR45R	M12 × 35	45	38.0	20.0	17.0	14.0	105	4,000	3,885	12	93	10.41
HGR55R	M14 × 45	53	44.0	23.0	20.0	16.0	120	4,000	3,840	14	106	15.08
HGR65R	M16 × 50	63	53.0	26.0	22.0	18.0	150	4,000	3,750	15	135	21.18

3.1.10.2 Dimensions of HGR_T

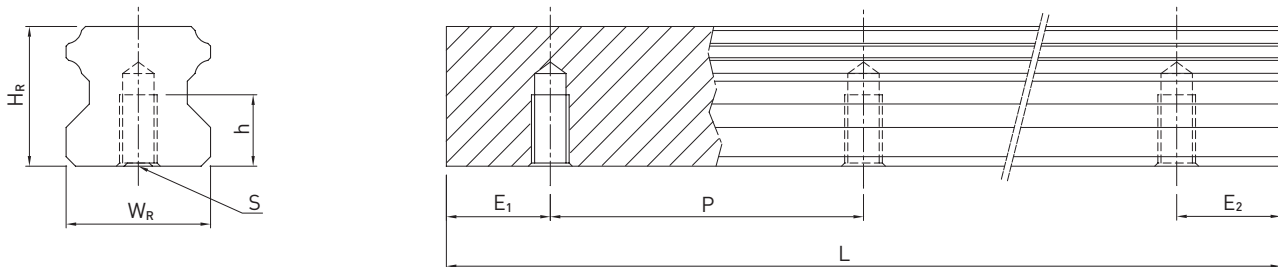


Table 3.10 Dimensions of rail HGR_T

Series/ size	Dimensions of rail [mm]					Max. length [mm]	Max. length E ₁ = E ₂ [mm]	E _{1/2} min [mm]	E _{1/2} max [mm]	Weight [kg/m]
	W _R	H _R	S	h	P					
HGR15T	15	15.0	M5	8	60	4,000	3,900	6	54	1.48
HGR20T	20	17.5	M6	10	60	4,000	3,900	7	53	2.29
HGR25T	23	22.0	M6	12	60	4,000	3,900	8	52	3.35
HGR30T	28	26.0	M8	15	80	4,000	3,920	9	71	4.67
HGR35T	34	29.0	M8	17	80	4,000	3,920	9	71	6.51
HGR45T	45	38.0	M12	24	105	4,000	3,885	12	93	10.87
HGR55T	53	44.0	M14	24	120	4,000	3,840	14	106	15.67
HGR65T	63	53.0	M20 ¹⁾	30	150	4,000	3,750	15	135	21.73

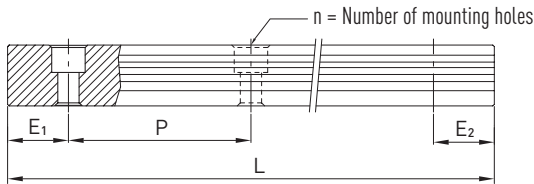
¹⁾ Deviating from DIN 645

Note:

1. The tolerance for E is +0.5 to -1 mm for standard rails and 0 to -0.3 mm for joints.
2. If the E_{1/2} dimensions are not indicated, the maximum possible number of mounting holes will be determined under consideration of E_{1/2} min.
3. The rails are shortened to the required length. If the E_{1/2} dimensions are not indicated, these will be carried out symmetrically.

3.1.10.3 Calculating the length of rails

HIWIN offers rails in customized lengths. To prevent the risk of the end of the rail becoming unstable, the value E must not exceed half of the distance between the mounting holes (P). At the same time, the value E_{1/2} should be between E_{1/2} min and E_{1/2} max so that the mounting hole does not rupture.



F.3.2

$$L = (n - 1) \times P + E_1 + E_2$$

L Total length of the rail [mm]
n Number of mounting holes
P Distance between two mounting holes [mm]
E_{1/2} Distance from the middle of the last mounting hole to the end of the rail [mm]

3.1.10.4 Tightening torques for mounting bolts

Insufficient tightening of the mounting bolts strongly compromises the precision of the linear guideway; the following tightening torques are therefore recommended for the relevant screw sizes.

Table 3.11 Tightening torques of the mounting bolts according to ISO 4762-12.9

Series/size	Screw size	Torque [Nm]	Series/size	Screw size	Torque [Nm]
HG/QH_15	M4 × 16	4	HG/QH_35	M8 × 25	30
HG/QH_20	M5 × 16	9	HG/QH_35	M10	70
HG/QH_25	M6 × 20	13	HG/QH_45	M12 × 35	120
HG/QH_30	M8 × 25	30	HG_55	M14 × 45	160
HG/QH_30	M10	70	HG_65	M16 × 50	200

3.1.10.5 Cover caps for mounting holes of rails

The cover caps are used to keep the mounting holes free of chips and dirt. The standard plastic caps are provided with each rail. Optional cover caps must be ordered separately.

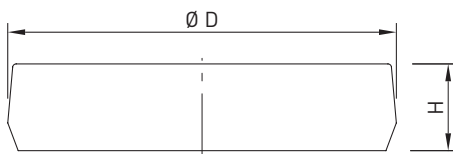


Table 3.12 Cover caps for mounting holes of rails

Rail	Screw	Article number			Ø D [mm]	Height H [mm]
		Plastic	Brass	Steel		
HGR15R	M4	5-001342	5-001344	—	7.5	1.1
HGR20R	M5	5-001348	5-001350	5-001352	9.5	2.2
HGR25R	M6	5-001353	5-001355	5-001357	11.0	2.5
HGR30R	M8	5-001358	5-001360	5-001362	14.0	3.3
HGR35R	M8	5-001358	5-001360	5-001362	14.0	3.3
HGR45R	M12	5-001322	5-001324	5-001327	20.0	4.6
HGR55R	M14	5-001328	5-001330	5-001332	23.0	5.5
HGR65R	M16	5-001333	5-001335	5-001337	26.0	5.5