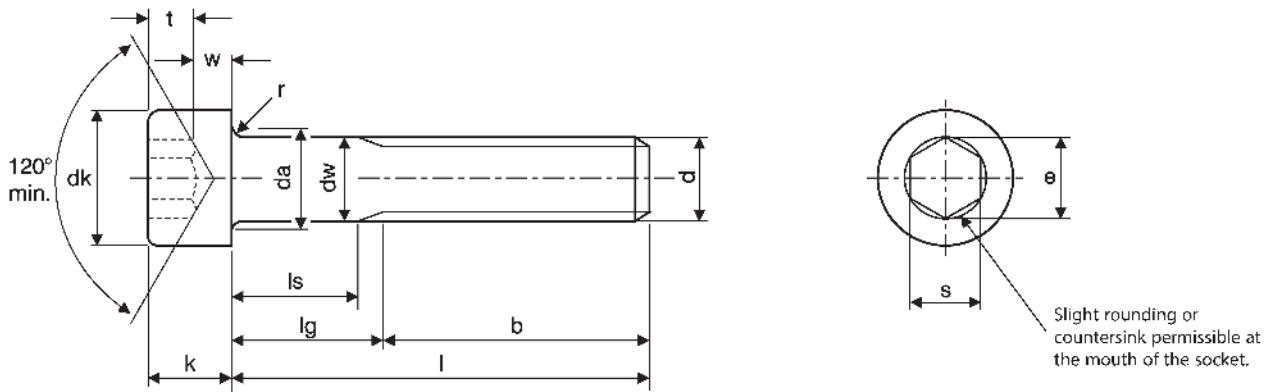


Hexagon Socket Head Screws

EN ISO 4762 (DIN 912)

Grade 12.9



DIN 912 Dimensions of Socket Head Screws

Nominal size and thread diameter d	Pitch of thread P	Thread length b	Head diameter d_k		Transition diameter d_a	Diameter of unthreaded shank d_s		Hex socket width across corners e	Thickness of head k		Radius under head r	Hex socket width across flats s			Hex socket depth t	w
	coarse pitch	max.	min.	max.	max.	min.	max.	min.	min.	max.	nom.	min.	max.	nom.	min.	min.
M10	1.50	32	15.73	16.00	11.20	9.78	10.00	9.15	9.64	10.00	0.4	8.03	8.18	8.00	5.0	4.0
M12	1.75	36	17.73	18.00	13.70	11.73	12.00	11.43	11.57	12.00	0.6	10.03	10.18	10.00	6.0	4.8
M14	2.00	40	20.67	21.00	15.70	13.73	14.00	13.73	13.57	14.00	0.6	12.03	12.21	12.00	7.0	5.8
M16	2.00	44	23.67	24.00	17.70	15.73	16.00	15.73	15.57	16.00	0.6	14.03	14.21	14.00	8.0	6.8
M18	2.50	48	26.67	27.00	20.20	17.73	18.00	17.73	17.57	18.00	0.6	14.03	14.21	14.00	9.0	7.8
M20	2.50	52	29.67	30.00	22.40	19.67	20.00	19.44	19.48	20.00	0.8	17.05	17.23	17.00	10.0	8.6
M22	2.50	56	32.61	33.00	24.40	21.67	22.00	19.44	21.48	22.00	0.8	17.05	17.23	17.00	11.0	9.4
M24	3.00	60	35.61	36.00	26.40	23.67	24.00	21.73	23.48	24.00	0.8	19.07	19.28	19.00	12.0	10.4
M27	3.00	66	39.61	40.00	30.40	26.67	27.00	21.73	26.48	27.00	1.0	19.07	19.28	19.00	13.5	11.9
M30	3.50	72	44.61	45.00	33.40	29.67	30.00	25.15	29.48	30.00	1.0	22.07	22.28	22.00	15.5	13.1
M33	3.50	78	49.61	50.00	36.40	32.61	33.00	27.43	32.38	33.00	1.0	24.07	24.28	24.00	18.0	13.5
M36	4.00	84	53.54	54.00	39.40	35.61	36.00	30.85	35.38	36.00	1.0	27.07	27.28	27.00	19.0	15.3
M42	4.50	95	62.54	63.00	45.50	41.61	42.00	36.57	41.38	42.00	1.2	32.08	32.33	32.00	24.0	16.3
M48	5.00	108	71.54	72.00	52.60	47.61	48.00	41.13	47.38	48.00	1.6	36.08	36.33	36.00	28.0	17.5
M56	5.50	124	83.46	84.00	63.00	55.54	56.00	46.83	56.26	56.00	2.0	41.08	41.33	41.00	34.0	19.0
M64	6.00	140	95.46	96.00	71.00	63.54	64.00	52.53	63.26	64.00	2.0	46.08	46.33	46.00	38.0	22.0
M72	6.00	156	107.46	108.00	79.00	71.54	72.00	62.81	71.26	72.00	2.0	55.10	55.10	55.00	43.0	25.0
M80	6.00	172	119.46	120.00	87.00	79.54	80.00	74.21	79.26	80.00	2.0	65.10	65.40	65.00	48.0	27.0
M90	6.00	192	134.37	135.00	97.00	89.46	90.00	85.61	89.13	90.00	2.5	75.10	75.40	75.00	54.0	32.0
M100	6.00	212	149.37	150.63	107.00	99.46	100.00	97.04	99.13	100.00	2.5	85.12	85.47	85.00	60.0	34.0

Hexagon Socket Head Screws

EN ISO 4762 (DIN 912)

Grade 12.9

DIN 912 Dimensions of Socket Head Screws (concluded)

d	M10		M12		M14		M16		M18		M20		M22		M24		M27		M30	
	ls min.	lg max.	ls min.	lg max.	ls min.	lg max.	ls min.	lg max.	ls min.	lg max.	ls min.	lg max.	ls min.	lg max.	ls min.	lg max.	ls min.	lg max.	ls min.	lg max.
25	-	4.50	-	5.25	-	6.00	-	6.00												
30	-	4.50	-	5.25	-	6.00	-	6.00	-	7.50	-	7.50								
35	-	4.50	-	5.25	-	6.00	-	6.00	-	7.50	-	7.50	-	7.50						
40	-	4.50	-	5.25	-	6.00	-	6.00	-	7.50	-	7.50	-	7.50		9.00				
45	5.50	13.00	-	5.25	-	6.00	-	6.00	-	7.50	-	7.50	-	7.50		9.00	-	9.00	-	10.50
50	10.50	18.00	-	5.25	-	6.00	-	6.00	-	7.50	-	7.50	-	7.50		9.00	-	9.00	-	10.50
55	15.50	23.00	10.25	19.00	-	6.00	-	6.00	-	7.50	-	7.50	-	7.50		9.00	-	9.00	-	10.50
60	20.50	28.00	15.25	24.00	10.00	20.00	-	6.00	-	7.50	-	7.50	-	7.50		9.00	-	9.00	-	10.50
65	25.50	33.00	20.25	29.00	15.00	25.00	11.00	21.00	-	7.50	-	7.50	-	7.50		9.00	-	9.00	-	10.50
70	30.50	38.00	25.25	34.00	20.00	30.00	16.00	26.00	9.50	22.00	-	7.50	-	7.50		9.00	-	9.00	-	10.50
80	40.50	48.00	35.25	44.00	30.00	40.00	26.00	36.00	19.50	32.00	15.50	28.00	11.50	24.00		9.00	-	9.00	-	10.50
90	50.50	58.00	45.25	54.00	40.00	50.00	36.00	46.00	29.50	42.00	25.50	38.00	21.50	34.00	15.00	30.00	-	9.00	-	10.50
100	60.50	68.00	55.25	64.00	50.00	60.00	46.00	56.00	39.50	52.00	35.50	48.00	31.50	44.00	25.00	40.00	19.00	34.00	-	10.50
110			65.25	74.00	60.00	70.00	56.00	66.00	49.50	62.00	45.50	58.00	41.50	54.00	35.00	50.00	29.00	44.00	20.50	38.00
120			75.25	84.00	70.00	80.00	66.00	76.00	59.50	72.00	55.50	68.00	51.50	64.00	45.00	60.00	39.00	54.00	30.50	48.00
130					80.00	90.00	76.00	86.00	69.50	82.00	65.50	78.00	61.50	74.00	55.00	70.00	49.00	64.00	40.50	58.00
140					90.00	100.00	86.00	96.00	79.50	92.00	75.50	88.00	71.50	84.00	65.00	80.00	59.00	74.00	50.50	68.00
150							96.00	106.00	89.50	102.00	85.50	98.00	81.50	94.00	75.00	90.00	69.00	84.00	60.50	78.00
160							106.00	116.00	99.50	112.00	95.50	108.00	91.50	104.00	85.00	100.00	79.00	94.00	70.50	88.00
180									119.50	132.00	115.50	128.00	111.50	124.00	105.0	120.00	99.00	114.00	90.50	108.00
200											135.50	148.00	131.50	144.00	125.00	140.00	119.00	134.00	110.50	128.00

d	M33		M36		M42		M48		M56		M64		M72		M80		M90		M100	
	ls min.	lg max.	ls min.	lg max.	ls min.	lg max.	ls min.	lg max.	ls min.	lg max.	ls min.	lg max.	ls min.	lg max.	ls min.	lg max.	ls min.	lg max.	ls min.	lg max.
50	-	10.50																		
55	-	10.50	-	12.00																
60	-	10.50	-	12.00	-	13.50														
65	-	10.50	-	12.00	-	13.50														
70	-	10.50	-	12.00	-	13.50	-	15.00												
80	-	10.50	-	12.00	-	13.50	-	15.00	-	16.50										
90	-	10.50	-	12.00	-	13.50	-	15.00	-	16.50	-	18.00								
100	-	10.50	-	12.00	-	13.50	-	15.00	-	16.50	-	18.00	-	18.00						
110	14.50	32.00	-	12.00	-	13.50	-	15.00	-	16.50	-	18.00	-	18.00						
120	24.50	42.00	16.00	36.00	-	13.50	-	15.00	-	16.50	-	18.00	-	18.00	-	18.00				
130	34.50	52.00	26.00	46.00	-	13.50	-	15.00	-	16.50	-	18.00	-	18.00	-	18.00				
140	44.50	62.00	36.00	56.00	21.50	44.00	-	15.00	-	16.50	-	18.00	-	18.00	-	18.00	-	18.00		
150	54.50	72.00	46.00	66.00	31.50	54.00	-	15.00	-	16.50	-	18.00	-	18.00	-	18.00	-	18.00	-	18.00
160	64.50	82.00	56.00	76.00	41.50	64.00	27.00	52.00	-	16.50	-	18.00	-	18.00	-	18.00	-	18.00	-	18.00
180	84.50	102.00	76.00	96.00	61.50	84.00	47.00	72.00	56.00	56.00	-	18.00	-	18.00	-	18.00	-	18.00	-	18.00
200	104.50	122.00	96.00	116.00	81.50	104.00	67.00	92.00	48.50	76.00	30.00	60.00	-	18.00	-	18.00	-	18.00	-	18.00
220	124.50	142.00	116.00	136.00	101.50	124.00	87.00	112.00	68.50	96.00	50.00	80.00	34.00	64.00	-	18.00	-	18.00	-	18.00
240	144.50	162.00	136.00	156.00	121.50	144.00	107.00	132.00	88.50	116.00	70.00	100.00	54.00	84.00	38.00	68.00	-	18.00	-	18.00
260	164.50	182.00	156.00	176.00	141.50	164.00	127.00	152.00	108.50	136.00	90.00	120.00	74.00	104.00	58.00	88.00	38.00	68.00	-	18.00
280	184.50	202.00	176.00	196.00	161.50	184.00	147.00	172.00	128.50	156.00	110.00	140.00	94.00	124.00	78.00	108.00	58.00	88.00	38.00	68.00
300	204.50	222.00	196.00	216.00	181.50	204.00	167.00	192.00	148.50	176.00	130.00	160.00	114.00	144.00	98.00	128.00	78.00	108.00	58.00	88.00

Hexagon Socket Head Screws

EN ISO 4762 (DIN 912)

Grade 12.9

Specification for bolts and reference standards

Characteristic		Standard
Material		Steel
General Requirements		As specified in DIN 267 Part 1.
Thread	Tolerance	5g6g for property class 12.9; 6g ^a for other property classes.
	Standard	ISO 261, ISO 965.
Mechanical Properties	Property Class (material)	d ≤ M39 ^b : 8.8; 10.9; 12.9 d > M39: as agreed
	Standard	DIN ISO 898 Part 1
Tolerances on dimensions and form	Product Grade	A
	Standard	ISO 4759/1/DIN ISO 4759 Part 1
Surface finish		Black oxide (thermal or chemical)
		DIN 267 Part 2 shall apply with regard to surface roughness.
		DIN 267 Part 19 shall apply with regard to the permissible surface defects.
		DIN 267 Part 9 shall apply with regard to electroplating.
		If different electroplating or other surface protection is desired, this shall be agreed upon at the time of ordering
Acceptable inspection		DIN 267 Part 5 shall apply with regard to acceptance testing.
<p>a Only for screws without surface protection, 6g makes it possible for normal coating thicknesses to be applied in accordance with DIN 267 Part 9 but the reference line shall not be exceeded. Depending on the coating thickness required, a larger fundamental deviation shall be selected than for the g position. A larger fundamental deviation may impair the stripping strength of the screw/nut connection.</p> <p>b In ISO 4762, only up to M36 or below.</p>		