

Space-saving Screws Overview

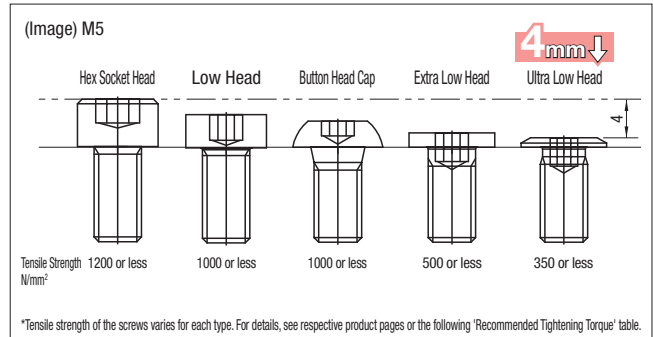
Advantages of Space-saving Screws

- Total weight of the machine is reduced due to space saved in joining parts.
- Provides shock-absorption for screw head after the design.

(Image) When changing from Hex Socket Head Cap Screws to Ultra Low Head screws, in case of M5, height of the head becomes 1mm from 5mm and thus, saves 4mm (80%) of the space.

Disadvantages of Space-saving Screws

- Reduces strength due to reduction in height of the head part.



Height of the head part (Standard E) comparison table

Product lineup	Hex Socket Head Cap Screws	Low Head Cap Screws	Button Head Cap Screws	Extra Low Head Cap Screws	Ultra Low Head Cap Screws
Photo of outer appearance					
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M Dia.	2	2	1.3	1.1 (Min.*)	0.5
	2.5	2.5	1.5	1.3 (Min.*)	0.6
	3	3	1.65	1.5	0.8
	4	4	2.2	1.5	0.9
	5	5	2.75	1.5	1
	6	6	3.3	1.5	1.2
	8	8	4.4	1.5	-
	10	10	5.5	1.5	-
	12	12	-	-	-

* Height of the head part vary as per the material.

Recommended Tightening Torque (Reference)

Product lineup	Low Head Cap Screws			Extra Low Head Cap Screws		Ultra Low Head Cap Screws	
	Steel (High Strength)	Steel, Stainless Steel (High Strength)	Stainless Steel	Steel	Stainless Steel	Hex Sockets	Hexalobular
Strength Class	10.9	8.8 A4-80	A2-50	5.8(M10 4.8)	-	-	-
Tensile Strength (N/mm ²)	1040	800	500	500(M10 400)	400	350(M2 200)	350(M2 200)
M Dia.	2	-	0.25	0.25	0.25	0.16	0.178
	2.5	-	0.42	0.82	0.42	0.35	-
	3	1.1	0.8	0.9	0.8	0.6	0.63
	4	4.0	1.8	1.8	1.6	1.1	1.5
	5	6.1	3.6	3.2	3.0	2.2	3.0
	6	10.5	7.2	5.2	5.0	5.0	5.2
	8	18.4	10.8	9.0	8.6	-	-
	10	-	31.5	16.2	15.4	-	-
	12	-	45.0	-	-	-	-

* These values are for reference. Suitable tightening torque vary according to the environment of usage.

Dimensions of counter boring and screw hole

Thread (d)	Low Head					Extra Low Head (*) Stainless Steel dimensions					Low Head (Hex Sockets)					Ultra Low Head (Hexalobular)				
	d'	dk	D'	k	H'	d'	dk	D'	k	H'	d'	dk	D'	k	H'	d'	dk	D'	k	H'
M2	2.5	3.8	5	1.3	1.5	2.5	4	5	1.1 (1.5)	1.3 (1.7)	2.5	4	5	0.5	0.7	2.5	4	5	0.5	0.7
M2.5	3	4.5	5.5	1.6	1.8	3	5	6	1.3 (1.5)	1.5 (1.7)	3	5	6	0.6	0.8	-	-	-	-	-
M3	3.5	5.5	6.5	2	2.3	3.5	6	7	1.3 (1.5)	1.6 (1.8)	3.5	6	7	0.8	1.1	3.5	7	8	0.8	1.1
M4	4.5	7	8	2.8	3.2	4.5	8	9	1.5	1.9	4.5	8	9	0.9	1.3	4.5	8	9	0.9	1.3
M5	5.5	8.5	9.5	3.5	3.9	5.5	9	10	1.5	1.9	5.5	9	10	1	1.4	5.5	9	10	1	1.4
M6	6.5	10	11	4	4.5	6.5	10	11	1.5	2	6.5	10	11	1.2	1.7	6.5	12	13	1.2	1.7
M8	9	13	14	5	5.6	9	13	14	1.5	2.1	-	-	-	-	-	-	-	-	-	-
M10	11	16	17.5	6	6.8	11	16 (15)	17.5 (16.5)	1.5	2.3	-	-	-	-	-	-	-	-	-	-
M12	14	18	20	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

