

## Datasheet

# High Tensile Steel Black Self-Colour Hexagon Socket Cap Head Screws: Metric Thread

**RS Product No: 275197**



Socket caps have a small cylindrical head with tall vertical sides giving them space saving advantages as well as greater tensile strength and they require less side room for wrenches.

- 12.9 grade heat treated high tensile alloy steel
- Threaded in accordance with Din 912 standard
- 1200 MPa maximum tensile strength\* compared to just 800 MPa for structural grade 8.8 so can be used in high tensile applications
- 1100 yield strength\*\* compared to 640-660 MPa depending on the size of the screw for structural grade 8.8
- 970 MPa proof load\*\*\* compared to just 580-600 depending on the size of the screw for structural grade 8.8
- Used for applications with limited space in high tensile applications
- Suitable for use in many industrial applications and similarly medical, construction, electronic & domestic applications
- Requires a Hex key / Allen key

**\*Tensile Strength:** The maximum load in tension (pulling apart) which a material can withstand before breaking or fracturing.

**\*\*Yield Strength:** The maximum load at which a material exhibits a specific permanent deformation.

**\*\*\*Proof Load:** An axial tensile load which the product must withstand without evidence of any permanent set.



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Please view our full range listing below for all 12.9 Grade, Black Self-Colour High Tensile Steel Hexagon Socket Cap Screws

Head Shape	Material	Grade	Thread Size	Length	RS Part No.
Hex Socket Cap	Steel	12.9	M2	4 mm	293274
Hex Socket Cap	Steel	12.9	M2	6 mm	293280
Hex Socket Cap	Steel	12.9	M2	12 mm	293296
Hex Socket Cap	Steel	12.9	M2.5	4 mm	293303
Hex Socket Cap	Steel	12.9	M2.5	6 mm	281647
Hex Socket Cap	Steel	12.9	M2.5	12 mm	281653
Hex Socket Cap	Steel	12.9	M3	6 mm	4679773
Hex Socket Cap	Steel	12.9	M3	8 mm	4679789
Hex Socket Cap	Steel	12.9	M3	10 mm	4679795
Hex Socket Cap	Steel	12.9	M3	12 mm	4679802
Hex Socket Cap	Steel	12.9	M3	15 mm	8229063
Hex Socket Cap	Steel	12.9	M3	16 mm	4679818
Hex Socket Cap	Steel	12.9	M3	20 mm	4679824
Hex Socket Cap	Steel	12.9	M3	25 mm	4679830
Hex Socket Cap	Steel	12.9	M3	30 mm	4679846
Hex Socket Cap	Steel	12.9	M3	35 mm	8229066
Hex Socket Cap	Steel	12.9	M3	40 mm	8229060
Hex Socket Cap	Steel	12.9	M4	6 mm	8229079
Hex Socket Cap	Steel	12.9	M4	8 mm	4679852
Hex Socket Cap	Steel	12.9	M4	10 mm	4679874
Hex Socket Cap	Steel	12.9	M4	12 mm	4679880
Hex Socket Cap	Steel	12.9	M4	16 mm	4679896
Hex Socket Cap	Steel	12.9	M4	20 mm	4679903
Hex Socket Cap	Steel	12.9	M4	25 mm	4679919
Hex Socket Cap	Steel	12.9	M4	30 mm	4679931
Hex Socket Cap	Steel	12.9	M4	35 mm	8229072
Hex Socket Cap	Steel	12.9	M4	40 mm	4679947
Hex Socket Cap	Steel	12.9	M5	8 mm	8229085
Hex Socket Cap	Steel	12.9	M5	10 mm	4679953
Hex Socket Cap	Steel	12.9	M5	12 mm	4679969
Hex Socket Cap	Steel	12.9	M5	16 mm	4679975
Hex Socket Cap	Steel	12.9	M5	20 mm	4679981
Hex Socket Cap	Steel	12.9	M5	25 mm	4679997
Hex Socket Cap	Steel	12.9	M5	30 mm	4680004
Hex Socket Cap	Steel	12.9	M5	35 mm	4680010
Hex Socket Cap	Steel	12.9	M5	40 mm	4680032
Hex Socket Cap	Steel	12.9	M5	50 mm	4680048



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Head Shape	Material	Grade	Thread Size	Length	RS Part No.
Hex Socket Cap	Steel	12.9	M6	12 mm	4680060
Hex Socket Cap	Steel	12.9	M6	14 mm	8229313
Hex Socket Cap	Steel	12.9	M6	15 mm	8229088
Hex Socket Cap	Steel	12.9	M6	16 mm	4680076
Hex Socket Cap	Steel	12.9	M6	20 mm	4680105
Hex Socket Cap	Steel	12.9	M6	25 mm	4680082
Hex Socket Cap	Steel	12.9	M6	30 mm	4680098
Hex Socket Cap	Steel	12.9	M6	35 mm	4680111
Hex Socket Cap	Steel	12.9	M6	40 mm	4680127
Hex Socket Cap	Steel	12.9	M6	45 mm	4680133
Hex Socket Cap	Steel	12.9	M6	50 mm	4680149
Hex Socket Cap	Steel	12.9	M6	55 mm	8229082
Hex Socket Cap	Steel	12.9	M6	60 mm	4680155
Hex Socket Cap	Steel	12.9	M6	70 mm	275018
Hex Socket Cap	Steel	12.9	M8	12 mm	529696
Hex Socket Cap	Steel	12.9	M8	16 mm	529703
Hex Socket Cap	Steel	12.9	M8	20 mm	529719
Hex Socket Cap	Steel	12.9	M8	25 mm	529725
Hex Socket Cap	Steel	12.9	M8	30 mm	4680161
Hex Socket Cap	Steel	12.9	M8	35 mm	4680177
Hex Socket Cap	Steel	12.9	M8	40 mm	4680199
Hex Socket Cap	Steel	12.9	M8	45 mm	4680206
Hex Socket Cap	Steel	12.9	M8	50 mm	4680212
Hex Socket Cap	Steel	12.9	M8	55 mm	4680228
Hex Socket Cap	Steel	12.9	M8	60 mm	4680234
Hex Socket Cap	Steel	12.9	M8	65 mm	8229091
Hex Socket Cap	Steel	12.9	M8	70 mm	275052
Hex Socket Cap	Steel	12.9	M8	80 mm	4680256
Hex Socket Cap	Steel	12.9	M8	100 mm	4680284



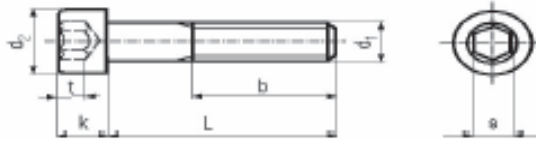
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Head Shape	Material	Grade	Thread Size	Length	RS Part No.
Hex Socket Cap	Steel	12.9	M10	20 mm	4680278
Hex Socket Cap	Steel	12.9	M10	25 mm	4680290
Hex Socket Cap	Steel	12.9	M10	30 mm	4680313
Hex Socket Cap	Steel	12.9	M10	35 mm	4680329
Hex Socket Cap	Steel	12.9	M10	40 mm	529810
Hex Socket Cap	Steel	12.9	M10	45 mm	275096
Hex Socket Cap	Steel	12.9	M10	50 mm	529826
Hex Socket Cap	Steel	12.9	M10	55 mm	275103
Hex Socket Cap	Steel	12.9	M10	60 mm	529832
Hex Socket Cap	Steel	12.9	M10	65 mm	4680335
Hex Socket Cap	Steel	12.9	M10	70 mm	4680341
Hex Socket Cap	Steel	12.9	M10	80 mm	4680357
Hex Socket Cap	Steel	12.9	M10	90 mm	275147
Hex Socket Cap	Steel	12.9	M10	100 mm	275153
Hex Socket Cap	Steel	12.9	M10	120 mm	4680363
Hex Socket Cap	Steel	12.9	M12	25 mm	4680385
Hex Socket Cap	Steel	12.9	M12	30 mm	4680391
Hex Socket Cap	Steel	12.9	M12	40 mm	4680408
Hex Socket Cap	Steel	12.9	M12	45 mm	4680414
Hex Socket Cap	Steel	12.9	M12	50 mm	4680420
Hex Socket Cap	Steel	12.9	M12	55 mm	275181
Hex Socket Cap	Steel	12.9	M12	60 mm	529898
Hex Socket Cap	Steel	12.9	M12	65 mm	275197
Hex Socket Cap	Steel	12.9	M12	70 mm	275204
Hex Socket Cap	Steel	12.9	M12	80 mm	275226
Hex Socket Cap	Steel	12.9	M12	90 mm	4680436
Hex Socket Cap	Steel	12.9	M12	100 mm	4680442
Hex Socket Cap	Steel	12.9	M12	120 mm	4680458
Hex Socket Cap	Steel	12.9	M16	40 mm	4680492
Hex Socket Cap	Steel	12.9	M16	50 mm	4680515
Hex Socket Cap	Steel	12.9	M16	60 mm	275327
Hex Socket Cap	Steel	12.9	M16	70 mm	275349
Hex Socket Cap	Steel	12.9	M16	80 mm	275361
Hex Socket Cap	Steel	12.9	M16	100 mm	275383
Hex Socket Cap	Steel	12.9	M16	120 mm	4680543



SOCKET HEAD CAP SCREWS DIN 912/ ISO 4762 / ANSI B 18.3.1 M



Head Diameter d2 based on Knurled Head

Thread Size d1	M36		(M39)		M42		(M45)		M48		M56		M64	
Thread Pitch	4		4		4.5		4.5		5		5.5		6	
Thread Length b	84		NA		96		NA		108		124		140	
Head Dia. d2	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
DIN 912 (1983)	53.54	54.46	57.54	58.46	62.54	63.46	66.54	67.46	71.54	72.46	83.46	84.54	95.46	96.54
ISO 4762 (1997)	53.54	54.46			62.54	63.46			71.54	72.46	83.46	84.54	95.46	96.54
ANSI B 18.3.1 M (1986)	53.37	54.46			62.31	63.46			71.27	72.46				
Head Height k	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
DIN 912 (1983)	35.38	36.00	38.38	39.00	41.38	42.00	44.38	45.00	47.38	48.00	55.26	56.00	63.26	64.00
ISO 4762 (1997)	35.38	36.00			41.38	42.00			47.38	48.00	55.26	56.00	63.26	64.00
ANSI B 18.3.1 M (1986)	35.64	36.00			41.61	42.00			47.58	48.00				
Key Size nominal s	27		27		32		32		36		41		46	
	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
DIN 912 (1983)	27.065	27.275	27.065	27.275	32.08	32.33	32.08	32.33	36.08	36.33	41.08	41.33	46.08	46.33
ISO 4762 (1997)	27.065	27.275			32.08	32.33			36.08	36.33	41.08	41.33	46.08	46.33
ANSI B 18.3.1 M (1986)	27.065	27.319			32.080	32.461			36.080	36.461				
Key Engagement t	min.		min.		min.		min.		min.		min.		min.	
DIN 912 (1983)	19		22		24		24		28		34		38	
ISO 4762 (1997)	19				24				28		34		38	
ANSI B 18.3.1 M (1986)	18				21				24					

Thread Size d1	M72		M80		M90		M100	
Thread Pitch	6		6		6		6	
Thread Length b	156		172		192		212	
Head Dia. d2	min.	max.	min.	max.	min.	max.	min.	max.
DIN 912 (1983)	107.46	108.54	119.46	120.54	134.37	135.63	149.37	150.63
Head Height k	min.	max.	min.	max.	min.	max.	min.	max.
DIN 912 (1983)	71.26	72.00	79.26	80.00	89.13	90.00	99.13	100.00
Key Size nominal s	55		65		75		85	
	min.	max.	min.	max.	min.	max.	min.	max.
DIN 912 (1983)	55.10	55.40	65.10	65.40	75.10	75.40	85.12	85.47
Key Engagement t	min.		min.		min.		min.	
DIN 912 (1983)	43		48		54		60	

Property Class	12.9		8.8=d 16mm		8.8=d 16mm		10.9		A2 /A4-50		A2 /A4-70		A2 /A4-80	
Tensile Strength	176900 psi		116000 psi		120350 psi		150800 psi		72500 psi		101500 psi		116000 psi	
Yield Strength	159500 psi		92800 psi		95700 psi		136300 psi		30450 psi		65250 psi		87000 psi	
Rockwell Hardness (HRC)	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
	39	44	22	32	23	34	32	39	NA	NA	NA	NA	NA	NA

Property Class	Steel	Steel	Stainless Steel
	12.9	8.8 & 10.9	A2 & A4
Finish	Furnace Black		Plain
Thread Tolerance	5g6g	6g	

Diameters & Lengths With ( ) are not recommended for new design.  
M1.4, 2.6, 39 and 45 are no longer included in DIN 912.  
M1.4, 2.6, 18, 22, 27, 33, 39, and 45 are no longer included in ISO 4762.  
The basic difference between DIN 912-12.9 (1983) / ISO 4762-12.9 (1997) and ANSI B 18.3.M (1986) is both DIN and ISO have a thread tolerance of 5g6g, while ANSI has a thread tolerance of 4g6g, which may not be readily available on a worldwide basis.  
ANSI B 18.3.1 M is only available in Property Class 12.9.

For More Detailed Information, Please Refer To Complete DIN, ISO, or ANSI Standard, Which Are The Governing Standards.  
DIN 912 (1983) / ISO 4762 (1997) / ANSI B 18.3.1M (1982) - LGF 06/01/08 See Next Page For Additional Information