

DIN 931

Hex Head Bolt - Partially Threaded



Standard	DIN 931		
Product Type	M1.6 to M39 hexagon head bolts with partial thread; clause 1 assigns product grades A and B over M1.6 to M36.		
Material	Stainless Steel, Carbon Steel, Alloy Steel		
Property Class	A2-70, A4-80 (ISO 3506-1) · 4.8, 8.8, 10.9 (ISO 898-1)		
Surface Finish	Passivated, Plain, Zinc Plated, Hot Dip Galvanized, Dacromet, Phosphate, Blackened		
Size Range	M1.6 - M39	Length Range	6-300 mm
Thread	ISO metric coarse pitch		

BASIS OF SPECIFICATION

WHICH STANDARD GOVERNS WHAT

Dimensions to	DIN 931-1:1987
Carbon steel / Alloy steel mechanical properties to	ISO 898 Part 1
Stainless steel mechanical properties to	ISO 3506-1:2020
Product grade	A / B
Length tolerance	to be agreed
Minimum usable thread length	to be agreed

MECHANICAL PROPERTIES

REQUIRED VALUES PER ISO 3506-1

Class	Rm min.	Yield requirement	Elongation requirement	Hardness	Source
A2-70	700 MPa	Rp0.2 min. 450 MPa	0,4d mm	-	ISO 3506-1
A4-80	800 MPa	Rp0.2 min. 600 MPa	0,3d mm	-	ISO 3506-1

MECHANICAL PROPERTIES

REQUIRED VALUES PER ISO 898-1

Class	Rm min.	Yield requirement	Elongation requirement	Hardness	Source
4.8	420 MPa	Rpf min. 340 MPa (not a test value)	Af min. 0.24	130 - 220 HV	ISO 898-1
8.8	800 MPa	Rp0.2 min. 640 MPa	A min. 12 %	250 - 320 HV	ISO 898-1 (d ≤ M16)
8.8	830 MPa	Rp0.2 min. 660 MPa	A min. 12 %	255 - 335 HV	ISO 898-1 (d > M16)
10.9	1040 MPa	Rp0.2 min. 940 MPa	A min. 9 %	320 - 380 HV	ISO 898-1

DIMENSIONAL DATA - SIZES WE SUPPLY

ALL DIMENSIONS PER THE STANDARD

d Diameter - mm	P Thread Pitch - mm	s (max) Width Across Flats - mm	e (min) Width Across Corners - mm	k Nominal Head Height - mm	b (l ≤ 125) Thread Length - mm	b (125 < l ≤ 200) Thread Length - mm	b (l > 200) Thread Length - mm
M5	0.8	8	8.79	3.5	16	22	-
M6	1	10	11.05	4	18	24	-
M8	1.25	13	14.38	5.3	22	28	-
M10	1.5	17	18.9	6.4	26	32	45
M12	1.75	19	21.1	7.5	30	36	49
M16	2	24	26.75	10	38	44	57
M20	2.5	30	33.53	12.5	46	52	65
M24	3	36	39.98	15	54	60	73

FURTHER SIZES IN THIS STANDARD

ALL DIMENSIONS PER THE STANDARD

Not held in stock. Available to order; minimum order quantity applies.

d Diameter - mm	P Thread Pitch - mm	s (max) Width Across Flats - mm	e (min) Width Across Corners - mm	k Nominal Head Height - mm	b (l ≤ 125) Thread Length - mm	b (125 < l ≤ 200) Thread Length - mm	b (l > 200) Thread Length - mm
M1.6	0.35	3.2	3.41	1.1	9	-	-
M2	0.4	4	4.32	1.4	10	-	-
M2.5	0.45	5	5.45	1.7	11	-	-
M3	0.5	5.5	6.01	2	12	-	-
M3.5	0.6	6	6.58	2.4	13	-	-
M4	0.7	7	7.66	2.8	14	-	-
M7	1	11	12.12	4.8	20	26	-
M14	2	22	24.49	8.8	34	40	53
M18	2.5	27	30.14	11.5	42	48	61
M22	2.5	32	35.72	14	50	56	69
M27	3	41	45.2	17	60	66	79
M30	3.5	46	50.85	18.7	66	72	85
M33	3.5	50	55.37	21	72	78	91
M36	4	55	60.79	22.5	78	84	97
M39	4	60	66.44	25	84	90	103

MARKING
Steel — Required

What	Manufacturer identification mark and the property class symbol (Table 19), for example 8.8
Where	Preferably on the top of the head, embossed or indented; alternatively indented on the side of the head. On flanged products, on the flange
Sizes	d ≥ 5 mm
Clause	ISO 898-1:2013, 10.3.3.1 Hexagon and hexalobular head bolts and screws

Stainless steel — Required

What	Stainless steel grade, the optional letter L, a hyphen and the property class symbol (Table 13, or Table 14 with a leading zero for reduced loadability), together with the manufacturer identification mark, for example A2-70
Where	Preferably on the top of the head, indented or embossed, or on the side of the head, indented. On bolts and screws with flange, on the flange when the manufacturing process does not allow marking on the top of the head
Sizes	$d \geq 5 \text{ mm}$
Clause	ISO 3506-1:2020, 10.3.1 Hexagon head bolts and screws

"All hexagon head bolts and screws of nominal thread diameter $d \geq 5 \text{ mm}$ shall be marked for all stainless steel grades and all property classes, with the stainless steel grade in accordance with Clause 6, with the property class symbol in accordance with Table 13 (fasteners with full loadability) or Table 14 (fasteners with reduced loadability that can be tensile tested with $b \geq 3d$ in accordance with 9.1), and with the manufacturer's identification mark in accordance with 10.2."

Clause 3 of DIN 931 Part 1:1987-09 sets no marking symbol of its own. Steel property classes follow ISO 898 Part 1 and stainless follows DIN 267 Part 11, so the marking obligation comes from those standards.

Steel classes are 5.6, 8.8 and 10.9. Stainless is A2-70 or A4-70 up to and including M20, A2-50 or A4-50 above M20, with C3 and C4 also listed.

Product grade is set by size and length, not by a single letter: grade A for sizes up to and including M24 with l not exceeding $10d$ or 150 mm , whichever is the shorter, and grade B above that.

Clause 4 designation: Hexagon head bolt DIN 931 - M12x80 - 8.8. Where product grade A is required for a size or length that would otherwise be grade B, the letter A is appended, for example Hexagon head bolt DIN 931 - M30x100 - 8.8 - A.

Surface as delivered: steel as processed, and class 8.8 and above may be blackened thermally or chemically; stainless steel and non-ferrous metal are bright.

Confirm the ordered property class before production.

INSPECTION DOCUMENTS WE CAN ISSUE

EN 10204 3.1 material certificate	Can be included when agreed in the order.
Dimensional inspection report	Can be provided for the agreed inspection scope.
Certificate of conformity	Can be issued against the confirmed order requirements.
Mechanical test report	Available when the required tests are agreed before production.
Chemical analysis report	Available when the material verification scope is agreed.
Coating inspection report	Can record the coating checks agreed for the order.

REFERENCES & NOTES

Note: DIN 931 is a withdrawn legacy standard; the current standard for this product is GB/T 5782, ISO 4014. This sheet is built to DIN 931. Dimensions can differ between the two - check the recorded correspondence on our website before substituting one for the other.