

DIN 7991

Hex Socket Countersunk Head Screw



Standard	DIN 7991		
Product Type	Hex Socket Countersunk Head Screw		
Material	Carbon Steel, Alloy Steel, Stainless Steel		
Property Class	8.8, 10.9, 12.9 (ISO 898-1) · A2-70, A4-80 (ISO 3506-1)		
Surface Finish	Zinc Plated, Dacromet, Blackened, Phosphate, Plain, Passivated		
Size Range	M3 - M24	Length Range	6-300 mm
Thread	ISO metric coarse pitch		

BASIS OF SPECIFICATION

WHICH STANDARD GOVERNS WHAT

Dimensions to	DIN 7991:1986-01
Carbon steel / Alloy steel mechanical properties to	ISO 898 Part 1
Stainless steel mechanical properties to	ISO 3506-1:2020
Product grade	A
Thread length	to be agreed
Minimum usable thread length	to be agreed

MECHANICAL PROPERTIES

REQUIRED VALUES PER ISO 898-1

Class	Rm min.	Yield requirement	Elongation requirement	Hardness	Source
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
12.9	1220 MPa	Rp0.2 min. 1100 MPa	A min. 8 %	385 - 435 HV	ISO 898-1

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

DIMENSIONAL DATA - SIZES WE SUPPLY

ALL DIMENSIONS PER THE STANDARD

d Diameter - mm	P Thread Pitch - mm	s Hex Socket Size - mm	dk Head Diameter - mm	k Nominal Head Height - mm
M3	0.5	2	6	1.7
M4	0.7	2.5	8	2.3
M5	0.8	3	10	2.8
M6	1	4	12	3.3
M8	1.25	5	16	4.4
M10	1.5	6	20	5.5
M12	1.75	8	24	6.5
M16	2	10	30	7.5
M20	2.5	12	36	8.5

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 Hex Socket Size - mm	dk Head Diameter - mm	k Nominal Head Height - mm
M14	2	10	27	7
M18	2.5	12	33	8
M22	2.5	14	36	13.1
M24	3	14	39	14

MARKING
Steel — Not usual - marked only if the purchaser requires it

What	If the purchaser requires marking, the system of 10.3 applies: manufacturer identification mark and property class symbol
Where	Where the head shape allows it
Sizes	All sizes
Clause	ISO 898-1:2013, 10.3.3.5 Other types of bolts and screws

"Marking is not usual for screws with flat countersunk head, oval countersunk head, cheese head, pan head or similar head shapes that are slotted, cross-recessed, or with socket or other internal driving feature."

Stainless steel — Required

What	Stainless steel grade (Clause 6), property class symbol (Table 13, or Table 14 with a leading zero for reduced loadability) and manufacturer identification mark
Where	For cap screws and cheese head bolts and screws, preferably on the top of the head, indented or embossed, or on the side of the head, indented; other head shapes on the head
Sizes	$d \geq 5$ mm
Clause	ISO 3506-1:2020, 10.3.2 Hexagon socket or hexalobular socket bolts and screws

"Hexagon socket bolts and screws and hexalobular socket bolts and screws of nominal thread diameter $d \geq 5$ 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 7991:1986-01 sets no marking symbol of its own; steel follows ISO 898 Part 1, stainless follows DIN 267 Part 11 and non-ferrous follows DIN 267 Part 18.

Steel carries class 8.8 only in this edition. Stainless is A2-70 up to and including M20 and A2-50 above it. Non-ferrous is CuZn copper-zinc alloy, preferably CU2 or CU3 at the manufacturer choice. Other property classes or materials are subject to agreement.

The standard gives its own default, which is unusual and belongs on the certificate: if no property class is specified in the documents available, property class 8.8 shall apply.

Footnote 1 puts a hardness check inside acceptance for class 8.8: HV 250 to 320 up to and including M16, and HV 255 to 335 above M16.

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 7991 is a withdrawn legacy standard; the current standard for this product is ISO 10642. This sheet is built to DIN 7991. Dimensions can differ between the two - check the recorded correspondence on our website before substituting one for the other.

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