

DIN 938

Double End Stud - Metal End 1d



Standard	DIN 938		
Product Type	Double end studs with a metal-end engagement length of about 1 x d, thread sizes M3 to M52.		
Material	Carbon Steel, Stainless Steel		
Property Class	8.8 (ISO 898-1) · A2-70, A4-80 (ISO 3506-1)		
Surface Finish	Zinc Plated, Hot Dip Galvanized, Dacromet, Blackened, Phosphate, Plain, Passivated		
Size Range	M3 - M52	Length Range	12-400 mm
Thread	ISO metric coarse pitch, with fine pitch options		

BASIS OF SPECIFICATION

WHICH STANDARD GOVERNS WHAT

Dimensions to	DIN 938:2012-12
Carbon steel / Alloy steel mechanical properties to	DIN EN ISO 898-1
Stainless steel mechanical properties to	ISO 3506-1:2020
Product grade	A
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)

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	bm Metal End Thread Length - mm	b (l ≤ 125) Thread Length - mm	b (125 < l ≤ 200) Thread Length - mm	b (l > 200) Thread Length - mm	ds (max) Stud Shank Diameter - mm	ds (min) Stud Shank Diameter - mm	x1 Thread Runout x1 - mm	x2 Thread Runout x2 - mm
M4	0.7	4	14	20	-	4	3.82	1.75	0.9
M5	0.8	5	16	22	-	5	4.82	2	1
M6	1	6	18	24	-	6	5.82	2.5	1.25
M8	1.25	8	22	28	-	8	7.78	3.2	1.6
M10	1.5	10	26	32	45	10	9.78	3.8	1.9
M12	1.75	12	30	36	49	12	11.73	4.3	2.2
M16	2	16	38	44	57	16	15.73	5	2.5
M20	2.5	20	46	52	65	20	19.67	6.3	3.2

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	bm Metal End Thread Length - mm	b (l ≤ 125) Thread Length - mm	b (125 < l ≤ 200) Thread Length - mm	b (l > 200) Thread Length - mm	ds (max) Stud Shank Diameter - mm	ds (min) Stud Shank Diameter - mm	x1 Thread Runout x1 - mm	x2 Thread Runout x2 - mm
M3	0.5	3	12	18	-	3	2.86	1.25	0.7
M7	1	7	20	26	-	7	6.78	2.5	1.25
M14	2	14	34	40	53	14	13.73	5	2.5
M18	2.5	18	42	48	61	18	17.73	6.3	3.2
M22	2.5	22	50	56	69	22	21.67	6.3	3.2
M24	3	24	54	60	73	24	23.67	7.5	3.8
M27	3	25	60	66	79	27	26.67	7.5	3.8
M30	3.5	30	66	72	85	30	29.67	9	4.5
M33	3.5	32	72	78	91	33	32.61	9	4.5
M36	4	35	78	84	97	36	35.61	10	5
M39	4	38	84	90	103	39	-	10	5
M42	4.5	42	90	96	109	42	41.61	11	5.5
M45	4.5	45	96	102	115	45	44.61	11	5.5
M48	5	48	102	108	121	48	47.61	12.5	6.3
M52	5	52	110	116	129	52	51.54	12.5	6.3

MARKING
Steel — Required

What	Manufacturer identification mark and the property class symbol of Table 19, or the alternative symbol of Table 21. Required only for property classes 5.6, 8.8, 9.8, 10.9 and 12.9/12.9
Where	On the unthreaded part of the stud. If that is not possible, the property class goes on the nut end and the manufacturer identification mark may be omitted. For studs with an interference fit, the property class goes on the nut end and the manufacturer identification mark may be omitted
Sizes	d ≥ 5 mm
Clause	ISO 898-1:2013, 10.3.3.4 Studs

"The marking is required for studs of property classes 5.6, 8.8, 9.8, 10.9 and 12.9/12.9, and of nominal diameter d ≥ 5 mm."

Table 2 of DIN 938:2012-12 sets no marking symbol of its own; steel property classes follow DIN EN ISO 898-1, so the marking obligation comes from there. The Werkstoff row carries only Stahl, with no stainless or non-ferrous column.

Classes are 5.6, 8.8 and 10.9 for M3 to M39, and by agreement above M39; footnote b states other property classes or materials are by agreement.

The designation must distinguish the two thread ends. Stiftschraube DIN 938 - M12 x 80 - 8.8 is the interference-fit end at tolerance class Sk 6; Sn 4 is written in when that class is wanted; Fo marks a stud without an interference fit; and where the two ends have different pitches both are written, metal end first: Stiftschraube DIN 938 - M12 - M12 x 1,25 x 80 - 8.8.

A physical marking rule hides in the length table: for studs above the dashed stepped line, b is less than x1 plus 1,2 bm, so the nut end must be given a rounded end to DIN EN ISO 4753 to tell the two ends apart, unless the property class mark is applied to the face of the nut end instead.

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: Dimensional values follow the selected execution standard. Material properties and batch test results are included only when declared or supported by the applicable certificate or test report.