UDC 621.882.31 September 1987

Hexagon weld nuts

DIN 929

Sechskant-Schweißmuttern

Supersedes Agust 1983 edition.

In keeping with current practice in standards published by the International Organization for Standardization (ISO), a comma has been used throughout as the decimal marker.

Dimensions in mm

1 Scope

This standard specifies requirements for M 3 to M 16 hexagon weld nuts assigned to product grade A.

2 Dimensions, designations

Except for the welding projections, the hexagon weld nuts are not expected to conform to the designs illustrated here; compliance is only required in the case of the dimensions specified.

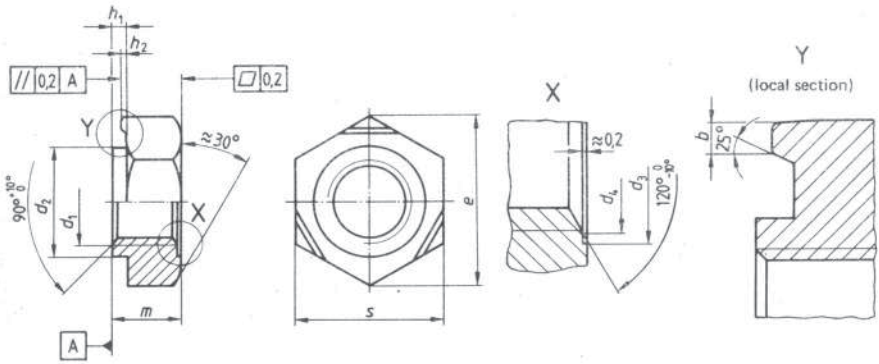


Figure 1.

Designation of an M 10 steel (St) hexagon weld nut:

Weld nut DIN 929 – M 10 – St

The DIN 4000 – 2 – 9 tabular layout of article characteristics shall apply to weld nuts covered in this standard.

Continued on pages 2 to 4

Table 1.

Thread size			b	Limit deviations	d_2 d11	d_3 H13	d_4 max.	e [2] min.	h_1	Limit deviations	h_2	Limit deviations	m h14	s h13	Mass (7,85 kg/dm³) per 1000 units, in kg, ≈
M 3	–	–	0,8	± 0,2	4,5	4,5	3,15	8,15	0,55	0 −0,1	0,25	0 −0,1	3	7,5	0,78
M 4	–	–	0,8		6	6	4,2	9,83	0,65		0,35		3,5	9	1,13
M 5	–	–	0,8		7	7	5,25	10,95	0,7		0,4		4	10	1,73
M 6	–	–	0,9	± 0,22	8	8	6,3	12,02	0,75	0 −0,15	0,4		5	11	2,50
(M 7)	–	–	0,9		9	9	7,35	13,14	0,8		0,5	0 −0,15	5,5	12	3,24
M 8	(M 8 × 1)	–	1	± 0,25	10,5	10,5	8,4	15,38	0,9		0,5		6,5	14	5,27
M 10	(M 10 × 1,25)	(M 10 × 1)	1,25	± 0,3	12,5	12,5	10,5	18,74	1,15	0 −0,2	0,65	0 −0,2	8	17	9,58
–	–	7/16-20 UNF-2B [1]	1,25		13,5	13,5	11,7	20,91	1,4		0,8		10	19	14
M 12	(M 12 × 1,25)	(M 12 × 1,5)	1,25		14,8	14,8	12,6	20,91	1,4		0,8		10	19	13,7
(M 14)	(M 14 × 1,5)	–	1,5	± 0,4	16,8	16,8	14,7	24,27	1,8		1		11	22	21,3
M 16	(M 16 × 1,5)	–	1,5		18,8	18,8	16,8	26,51	1,8		1		13	24	28,5

Use of sizes given in brackets should be avoided where possible.

1) As specified in ANSI B1.1; only to be used for attaching safety belts in cars.

2) $e_{min} = 1{,}12\, s_{min}$.

3 Technical delivery conditions

3.1 General requirements

As specified in DIN 267 Part 1.

3.2 Material

St = steel with a maximum carbon content of 0,25 %.

If a specific steel grade or a different material is required, this shall be agreed on ordering.

3.3 Product grade

Product grade A as specified in ISO 4759 Part 1 or DIN 267 Part 2, with thread tolerance 6 G as specified in DIN 13 Parts 1 and 15 for coarse pitch thread and DIN 13 Parts 5 and 15 for fine pitch thread.

3.4 Proof loads

Assessment of the mechanical properties of the weld nuts prior to welding shall be based on the proof loads listed in table 2.

3.5 Acceptance inspection

As specified in DIN 267 Part 5.

Table 2.

Thread size as in table 1			Proof load, in N
M 3	–	–	3 800
M 4	–	–	6 800
M 5	–	–	11 000
M 6	–	–	15 500
M 7	–	–	22 300
M 8	M 8 × 1	–	28 300
M 10	M 10 × 1,25	M 10 × 1	44 800
–	–	7/16-20 UNF-2B	53 600
M 12	M 12 × 1,25	M 12 × 1,5	65 300
M 14	M 14 × 1,5	–	89 700
M 16	M 16 × 1,5	–	123 000

The proof load values given shall apply both to coarse pitch thread and fine pitch thread nuts.

4 Representation in drawings

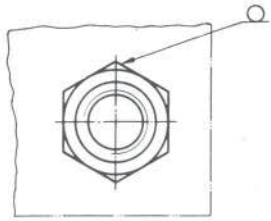


Figure 2.

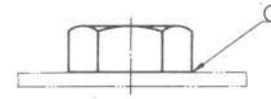


Figure 3.

5 Connecting dimensions

(prior to welding)

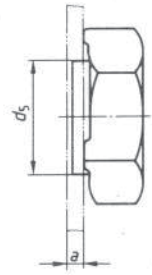


Figure 4.

Table 3.

Thread size as in table 1			Plate thickness, a		Bore diameter, d_5
			min	max	H11
M 3	–	–	0,63	2,5	4,5
M 4	–	–	0,75	3	6
M 5	–	–	0,88	3,5	7
M 6	–	–	0,88	4	8
M 7	–	–	0,88	4	9
M 8	M 8 × 1	–	1	4,5	10,5
M 10	M 10 × 1,25	M 10 × 1	1,25	5	12,5
–	–	7/16–20 UNF–2B	1,25	5	13,5
M 12	M 12 × 1,25	M 12 × 1,5	1,5	5	14,8
M 14	M 14 × 1,5	–	2	6	16,8
M 16	M 16 × 1,5	–	2	6	18,8

Standards referred to

DIN 13 Part 1	ISO metric screw threads; 1 mm to 68 mm diameter coarse pitch threads; nominal sizes
DIN 13 Part 5	ISO metric screw threads; 1 mm and 1,25 mm fine pitch threads in the range 7,5 mm to 200 mm nominal diameter; nominal sizes
DIN 13 Part 15	ISO metric screw threads; fundamental deviations and tolerances for screw threads of 1 mm and larger
DIN 267 Part 1	Fasteners; technical delivery conditions; general requirements
DIN 267 Part 2	Fasteners; technical delivery conditions; types of finish and dimensional accuracy
DIN 267 Part 5	Fasteners; technical delivery conditions; acceptance inspection (modified version of ISO 3269, 1984 edition)
DIN 4000 Part 2	Tabular layouts of article characteristics for bolts and nuts
ISO 4759 Part 1	Tolerances for fasteners; bolts, screws and nuts with thread diameters $\geq 1{,}6$ and ≤ 150 mm and product grades A, B and C
ANSI B 1.1	Unified inch screw threads (UN and UNR thread form) [1]

Other relevant standard

DIN 928 Square weld nuts

Previous editions

DIN 929: 09.65, 12.72, 08.83.

Amendments

The following amendments have been made to the August 1983 edition.

a) Dimension *f* has been deleted.

b) The design of the welding projections has been specified more precisely.

Explanatory notes

The specifications given for weld nuts in the December 1972 edition of this standard stated that they should comply with property class 8 and be weldable. Since then, the proof load values specified for nuts in international documents have been increased (see ISO 898 Part 2), this involving a recalculation of the nut heights (see DIN 970).

Increasing the nut heights, i.e. bringing them into line with specifications for nuts having full loadability, proved impractical, since weld nut mounting is largely automated and frequently (e.g. in the motor car industry) mounting involves the use of so-called nut holders. Changing the nut dimensions would thus have given rise to considerable difficulties (retooling), which would not have been offset by the advantage of a slightly higher resistance to stripping.

Therefore, this revision of the standard no longer specifies a property class but continues to specify the same dimensions. Instead of the property class, the standard now specifies steel with a maximum carbon content of 0,25 %. Owing to tolerance position G of the thread, the proof load values for weld nuts have been reduced as compared to those specified in DIN 267 Part 4 for nuts with coarse pitch thread, to 97 % for sizes up to and including M 7 and to 97,5 % for sizes over M 7 (cf. clause 1 of ISO 898 Part 2). This, however, does not preclude mating the nuts with property class 8.8 bolts.

International Patent Classification

F 16 B 37/06

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[1] Obtainable from: *Beuth Verlag GmbH (Auslandsnormenverkauf)*, Burggrafenstraße 6, D-1000 Berlin 30.