DEUTSCHE NORM September 2001

Coupling nuts (LL series) for use with compression couplings

DIN 3870

ICS 23.040.60

This standard, together with DIN EN ISO 8434-1, November 1997 edition, supersedes May 1985 edition.

Lötlose und gelötete Rohrverschraubungen – Überwurfmuttern der Reihe LL

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.

Foreword

This standard has been prepared by Technical Committee *Rohrverschraubungen* of the *Normenausschuss Rohrleitungen und Dampfkesselanlagen* (Pipelines and Pressure Vessels Standards Committee).

The specifications for S and L series coupling nuts and for type A nuts for use with cutting rings as in DIN 3861 and 24° cone metric couplings as in DIN 3865 (excluding series LL 3 and LL 16 fittings) are now given in DIN EN ISO 8434-1.

Amendments

This standard differs from the May 1985 edition in that it has been editorially revised to bring it into line with the specifications given in DIN EN ISO 8434-1.

Previous editions

DIN 4601: 1930-08; DIN 7606: 1936-07, 1937-11, 1939-09, 1941-02, 1947-05; DIN 3870: 1954-11, 1957-05, 1961-08, 1965-09, 1983-01, 1985-05.

All dimensions are in millimetres.

1 Scope

This standard specifies the design and dimensions of extra-light duty series (LL) coupling nuts for use with compression couplings.

2 Normative references

This standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the titles of the publications are listed below. For dated references, subsequent amendments to or revisions of any of these publications apply to this standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies.

Continued on pages 2 and 3.

Translation by DIN-Sprachendienst.

In case of doubt, the German-language original should be consulted as the authoritative text.

© No part of this translation may be reproduced without the prior permission of *DIN Deutsches Institut für Normung e. V.*, Berlin. *Beuth Verlag GmbH*, 10772 Berlin, Germany, has the exclusive right of sale for German Standards *(DIN-Normen)*.

Ref. No. DIN 3870 : 2001-09
English price group 05 *Sales No. 0105*
05.02

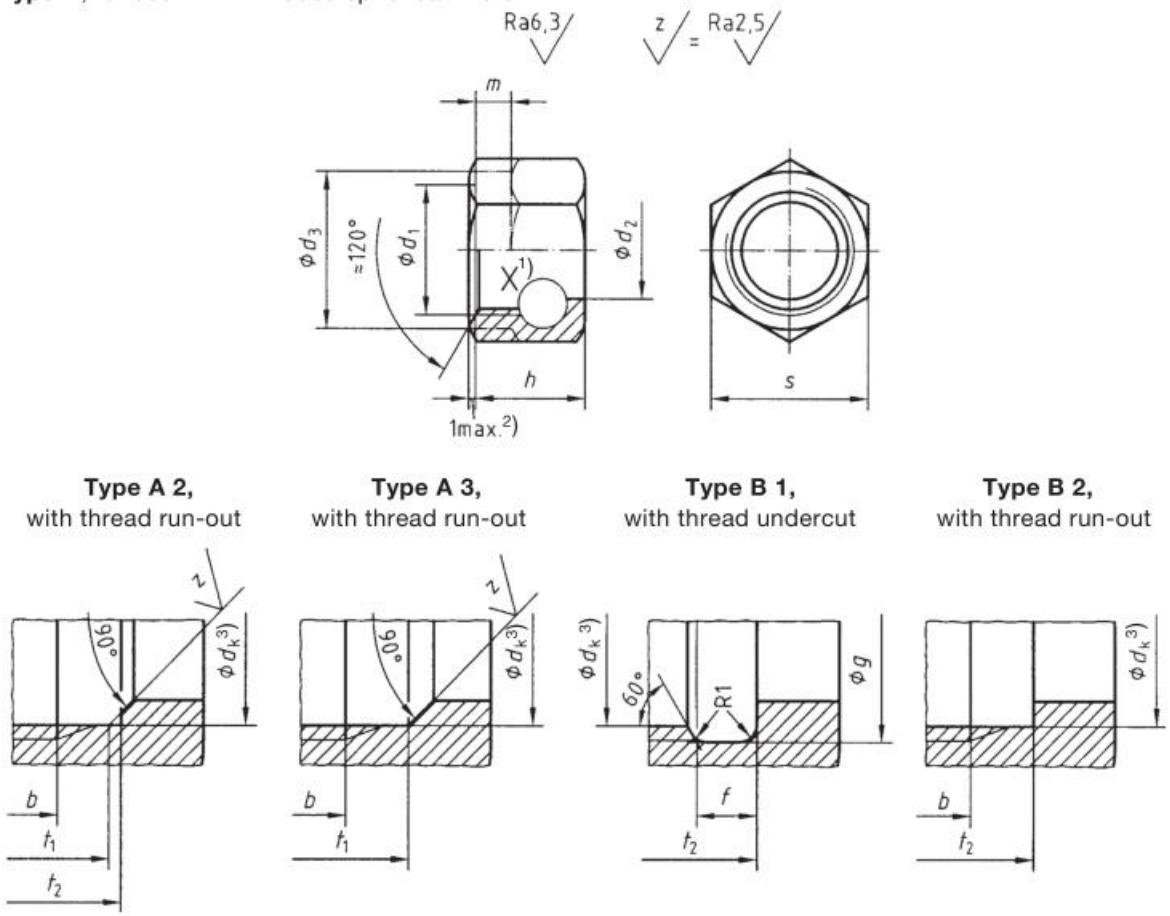
DIN 13-5	General purpose ISO metric screw threads – Nominal sizes for 1 mm and 1,25 mm fine pitch threads with diameters from 7,5 mm to 200 mm
DIN 13-6	General purpose ISO metric screw threads – Nominal sizes for 1,5 mm fine pitch threads with diameters from 12 mm to 300 mm
DIN 13-7	General purpose ISO metric screw threads – Nominal sizes for 2 mm fine pitch threads with diameters from 17 mm to 300 mm
DIN 3859-1	Compression fittings and couplings – Technical delivery conditions
DIN 3861	Compression rings (ferrules) for use with compression couplings – Design and type W compression ends (ports)
DIN 3863	Spherical liners for use with compression couplings – Design and type U and Y ports
DIN 3865	Compression fittings and couplings – 24° reducing nipples for use with type W compression ends as in DIN 3861
DIN EN ISO 4042	Fasteners – Electroplated coatings (ISO 4042 : 1999)
DIN EN ISO 8434-1	Metallic tube connections for fluid power and general use – Part 1: 24° compression fittings (ISO 8434-1 : 1994)
DIN ISO 965-2	ISO general purpose metric screw threads – Tolerances – Part 2: Limits of sizes for general purpose external and internal screw threads – Medium quality (ISO 965-2 : 1998)

3 Dimensions and designation

Design details left unspecified in figure 1 shall be selected as appropriate.

Type A (cf. DIN EN ISO 8434-1).

Type B, for use with DIN 3863 spherical liners.



Thread countersunk to major diameter.

1) Thread run-out or thread undercut (optional).

2) For cold-pressed coupling nuts, a maximum overspill of 1 mm is permitted.

3) Thread minor diameter.

Figure 1: Nut dimensions (notation)

Designation of a type B coupling nut with thread run-out or thread undercut (B), extra-light duty series (LL), made of steel (St), for a 12 mm pipe outside diameter (12):

Nut DIN 3870 – B LL 12

If a specific thread design is required, this shall be incidated in the designation by including the relevant type number.

EXAMPLE:

Designation of a type B coupling nut with thread run-out (B 2), extra-light duty series (LL), made of copper-zinc alloy (MS), for a 12 mm pipe outside diameter (12):

Nut DIN 3870 – B 2 LL 12 – MS

Table 1: Nut dimensions

Compression coupling		Nominal pressure, in bar, for type		Thread size (d_1), for type		d_2	d_3[1]	b	g	h	m[1]	s	t_2	f
Series	Pipe outside diameter	A	B	A	B	B A11		min.	+ 0,2 0				+ 0,2 0	+ 0,5 0
LL (extra-light duty)	3	—	25	—	M10 × 1	4,5	11,8	5	10	10,5	3,5	12	8	2,5
	5			—	M10 × 1	6,5	11,8	5,5	10	11,5	3,5	12	8,5	2,5
	6			—	M12 × 1,5	7,5	13,8	7	12	14,5	4	14	10,5	3,5
	8			—	M14 × 1,5	9,5	16,8	7	14	14,5	4	17	10,5	3,5
	10			—	M16 × 1,5	11,5	18,8	8	16	15,5	4	19	11,5	3,5
	12			—	M18 × 1,5	13,5	21,8	8	18	15,5	5	22	11,5	3,5
	15			—	M22 × 1,5	17	26,8	8,5	22	17	5	27	12,5	3,5
	16[2]	25		M22 × 1,5	—	—	—	8,5	—	17	—	27	12,5	—
	18	—		—	M26 × 1,5	20	31,8	8,5	26	18	5	32	13	3,5
	22			—	M30 × 1,5	24	35,8	8,5	30	17	7	36	13	3,5
	28			—	M38 × 1,5	31	45,8	9,5	38	19	7	46	14,5	3,5
	35			—	M45 × 1,5	38	49,8	10	45	19,5	8	50	15	3,5
	42			—	M52 × 1,5	45	59,6	10,5	52	20	8	60	15	3,5

[1] Turned collar, with dimensions d_3 and m at the manufacturer's discretion.
[2] Applies only to compressed air brake systems.

4 Materials

The standard material of coupling nuts shall be steel, as specified in DIN 3859-1. Other materials specified in DIN 3859-1 shall be the subject of agreement, and the relevant symbol added to the designation. In cases where a given manufacturing process (e.g. brazing) requires the use of other materials, these shall be selected with regard to the stress involved.

5 Screw thread and finish

Coupling nuts shall be provided with an ISO metric screw thread as specified in DIN 13-5 to DIN 13-7, medium tolerance quality as in DIN ISO 965-2.

The standard finish shall be Fe/Zn 8c2C as in DIN EN ISO 4042. Other types of finish (cf. DIN 3859-1) shall be the subject of agreement, with the relevant symbol being included in the designation.

6 Technical delivery conditions

The technical delivery conditions specified in DIN 3859-1 shall apply.