UDC 621.882.39

April 1971

Lifting Eye Nuts

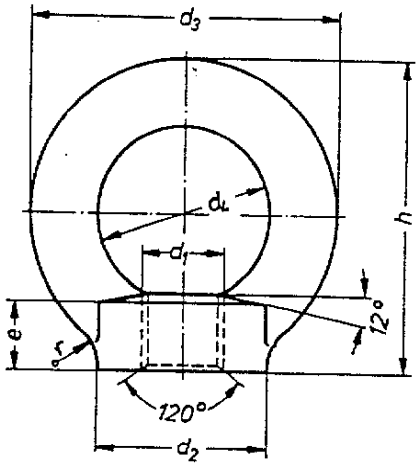
DIN 582

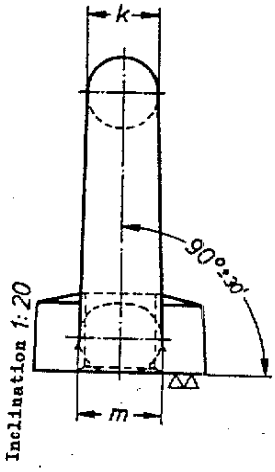
Ringmuttern

Dimensions in mm

1. Dimensions and designation

Surfaces to Series 2 DIN 3141





Designation of a lifting eye nut with thread d_1 = M 20:

Lifting eye nut M 20 DIN 582

d_1	M 8	M 10	M 12	M 16	M 20	M 20×2	M 24	M 24×2	M 30	M 30×2	M 36	M 36×3	M 42	M 42×3	M 48	M 48×3	M 56	M 56×4	M 64	M 64×4	M 72×6	M 72×4	M 80×6	M 80×4	M 100×6	M 100×4
d_2	20	25	30	35	40		50		65		75		85		100		110		120		150		170		190	
d_3	36	45	54	63	72		90		108		126		144		166		184		206		260		296		330	
d_4	20	25	30	35	40		50		60		70		80		90		100		110		140		160		180	
e	8,5	10	11	13	16		20		25		30		35		40		45		50		60		70		80	
h	36	45	53	62	71		90		109		128		147		168		187		208		260		298		330	
k	8	10	12	14	16		20		24		28		32		38		42		48		60		68		75	
m	10	12	14	16	19		24		28		32		38		46		50		58		72		80		88	
r	4	4	6	6	8		12		15		18		20		22		25		25		35		35		40	
Weight kg/pieces ≈	0,05	0,09	0,16	0,24	0,36		0,72		1,32		2,08		3,11		5,02		6,69		9,30		18,5		27,3		36,4	
Maximum load due to suspended item in kg[1])																										
Direction of pull: for one nut	140	230	340	700	1200		1800		3600		5100		7000		8600		11 500		16 000		21 000		28 000		38 000	
Direction of pull: for two nuts total	95	170	240	500	830		1270		2600		3700		5000		6100		8 300		11 000		15 000		20 000		27 000	

[1]) See also Section 3

Continued on page 2
Explanations on page 2

2. Technical conditions of delivery

2.1. Material

Lifting eye nuts according to this Standard shall be made only from steel C 15 according to DIN 17210. They must be normalized and exhibit a minimum notched bar impact strength of 80 J/cm² (ISO keyhole notched specimen) or 90 J/cm² (DVM specimen).

2.2. Finish

Lifting eye nuts must be properly drop-forged. The dimensions of the unmachined component and the amount of flash and die mismatch shall conform to the permissible variations for forging grade F according to DIN 7526.
Forging defects are not permitted if they adversely affect the utilization of the lifting eye nuts to an appreciable extent.
The blanks must be descaled after normalizing.

2.3. Thread

Metric thread according to DIN 13 Part 1
Tolerance class medium (m) according to DIN 13 Part 15

2.4. Testing and acceptance

The manufacturer guarantees that the provisions of Sections 2.1 to 2.3 have been observed. Special acceptance testings may be agreed.
The notched bar impact strength shall be tested according to DIN 50115 on a specimen taken from the normalized basic material.

2.5. Marking

The shoulder of each lifting eye nut must bear the material symbol C 15 and the manufacturer's symbol.

2.6. Mode of delivery

Lifting eye nuts are to be delivered in such a manner as to provide a high degree of protection against mechanical damage in transit.

3. Assembly

Lifting eye nuts must always be tightened so that they bear solidly on the surface they contact. Loads at right angles to the plane of the eye are prohibited.
When a specific position in relation to an axis, edge or the like is specified for the lifting eye nut when screwed on, shims should be used if necessary in order to rule out unacceptable loading.
The load values apply only when the lifting eye nuts are used on a metric bolt thread of medium tolerance class, the thread length being not less than 0.8 d_1 and the tensile strength of the bolt not in excess of 500 N/mm².

Explanations

For DIN 580 Part 1 dealing with lifting eye bolts a new issue bearing the number DIN 580 was published in September 1970. Prior to this new issue tensile tests were carried out on lifting eye bolts both at right angles to the axis and also at 45° to the axis in the plane of the eye. The aim of the tests was to determine the onset of permanent deformation and the breaking load. As a result of the tests the load values specified in DIN 580 were laid down. These values are higher than before and they apply only to lifting eye bolts made of C 15, an adequate safeguard against the onset of permanent deformation being adopted in the calculation.
The results of these tests and the load values derived from them are applicable to lifting eye nuts, provided that certain conditions are specified for the bolts onto which the lifting eye nuts are screwed. Another precondition is that the lifting eye nuts should be made of C 15 material which is tougher than St 34. Therefore, the load values as specified in this Standard apply only to lifting eye nuts bearing the material symbol C 15. For lifting eye nuts not marked in this way the load values applying hitherto hold good in accordance with the Table below.
Reference should also be made to the fact that under overload conditions the bolt can be regarded as the weaker component if its tensile strength is not considerably higher than 500 N/mm². When the lifting eye nuts are used in conjunction with high strength bolts the fracture site moves to the nut when overloaded. Therefore, in the interests of a straightforward clarification of possible causes of accidents, this combination should be avoided.
Compared with the February 1956 Issue of DIN 582 Part 1, the following amendments and additions have also been made:

a) The permissible dimension variations have been deleted and superseded by a reference to DIN 7526.
b) The intermediate sizes previously listed on page 2 of DIN 582 Part 1 have been deleted.
c) The technical conditions of delivery have been newly formulated and defined.
d) A Section entitled "Assembly" has been included and in this the minimum requirements for the bolt thread have also been specified.
e) The addition "Part 1" to the standard sheet number has been deleted because DIN 582 Part 2 was withdrawn as long ago as 1967.

	d_1	M 8	M 10	M 12	M 16	M 20	M 20×2	M 24	M 24×2	M 30	M 30×2	M 36	M 36×3	M 42	M 42×3	M 48	M 48×3	M 56	M 56×4	M 64	M 64×4	M 72×6	M 72×4	M 80×6	M 80×4	M 100×6	M 100×4
	Maximum load due to suspended item in kg																										
Direction of pull	for one nut		85	150	220	380	570	1050	1700	2500	3400	5200	6500	8700	13 000	17 000	20 000
	for two nuts total							950	1700	2500	3500	5000	6300	8000	11 000	16 000	20 000