UDC 621.889.2-034.14

September 1975

Turnbuckles
Made from Steel Tube or Round Steel Bar

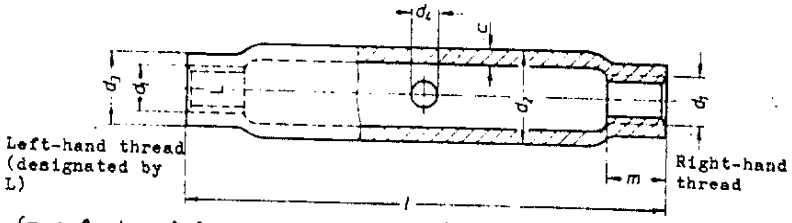
DIN 1478

Spannschlösser aus Stahlrohr oder Rundstahl

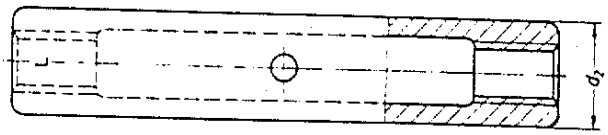
Dimensions in mm

SP Turnbuckle nut

up to M 48 (manufactured from tube)



from M 56 upwards (manufactured from round steel bar)



other dimensions and details as in upper illustration

Thread at both end faces countersunk at 120° down to the major thread diameter. End faces machines at right angles to the thread axis.

Designation of a turnbuckle nut SP with right and left-hand thread d_1 = M 12:

Turnbuckle nut SP M 12 DIN 1478

SP AE Turnbuckle (turnbuckle nut SP with welding ends AE according to DIN 1480)

Designation of a turnbuckle SP AE consisting of a turnbuckle nut with two welding ends according to DIN 1480 with right and left-hand thread d_1 = M 12:

Turnbuckle nut SP AE M 12 DIN 1478

d_1	M 6	M 8	M 10	M 12	M 16	M 20	M 24	M 30	M 36	M 42	M 48	M 56	M 64	M 72×6	M 80×6
d_2	17,2	17,2	21,3	25	30	33,7	42,4	51	63,5	70	82,5	90	100	110	120
d_3 min.	9	12	15	18	24	30	33	41	50	60	72	-	-	-	-
d_4	6	8	8	10	10	12	12	16	16	20	20	25	25	30	30
c	2,9	3,6	4	4	4,5	5	5,6	6,3	8	8,8	10	15	16	17	18
l	110	110	125	125	170	200	255	255	295	330	355	355	425	425	440
m	7,5	10	12	15	20	24	29	36	43	51	58	68	77	87	96
Adjustability ≈	90	85	95	90	120	140	180	160	180	200	210	190	240	210	210

Technical conditions of delivery according to DIN 267

Material for turnbuckle nut:

up to M 48: St 35 according to DIN 1629
permissible: seamless steel tube according to DIN 2448

from M 56 upwards: St 50-2 according to DIN 17100
permissible: round steel bar according to DIN 1013
Other materials by agreement

Type: 8 according to DIN 267 Part 2
If surface protection is required, the designation is to be supplemented according to DIN 267 Part 9.

Hexagon nuts according to DIN 555 or DIN 934, with right and left-hand thread, are to be specially ordered.

Welding ends according to DIN 1480

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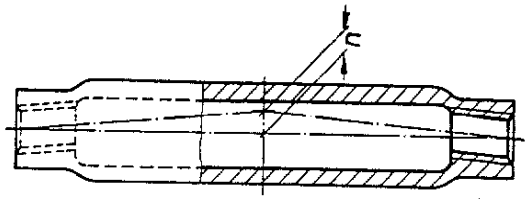
Explanations on page 2

The following applies to the permissible variation of coaxiality of the threaded ends:



d_1	M 6	M 8	M 10	M 12	M 16	M 20	M 24	M 30	M 36	M 42	M 48	M 56	M 64	M 72×6	M 80×6
n	0,4		0,5		0,6		0,7	0,8	0,9	1	1,1	1,2	1,4	1,5	

Explanations

As compared with DIN 1478 Part 1, Issue of April 1942×, the present Standard contains the following amendments and additions:

a) The dimensions of turnbuckle nuts up to M 48 have been related to tubes according to DIN 2448 and brought into line with DIN 82004.

b) The thread lengths m have been expressed in terms of the thread diameter. They are now ≈1.2 d_1. However, the overall lengths of the turnbuckles have not been changed.

c) The dimensions of the hole d_4 have been partly altered.

d) Marking with "L" has been stipulated for the end with a left-hand thread.

e) The check holes originally envisaged for inspecting the depth of engagement of the welding ends have not been included because there was no confirmation of their technical necessity; economic considerations also weighed against such stipulations. However, it is strongly recommended that the necessary care be exercised when fitting the turnbuckles.

f) The values for adjustability have been corrected. They correspond to ≈ $l - (2\,m + d_4)$.

g) The designation of turnbuckle nuts and turnbuckles has been amended and brought into line with DIN 1479 and DIN 1480.

h) Normally, property class 3.6 is applicable to welding ends according to DIN 1480. The axial load capacity of the turnbuckles should therefore be based at the least on these connecting parts, for which DIN 267 Part 3 stipulates a yield strength of 200 N/mm² (≈20 kp/mm²). In the sense of DIN 1050, however, a minimum tensile stress of σ_{zul} = 112 N/mm² (≈11.2 kp/mm²) would have to be adopted as the maximum for the welding end. This gives the following permissible loads:

d_1	M 6	M 8	M 10	M 12	M 16	M 20	M 24	M 30
Permissible load N	2250	4100	6500	9300	17 700	27 000	39 200	62 500

d_1	M 36	M 42	M 48	M 56	M 64	M 72×6	M 80×6
Permissible load N	91 000	125 000	165 000	230 000	300 000	385 000	485 000
	–	–	–	305 000*)	400 000*)	515 000*)	650 000*)

*) calculated at 150 N/mm² (≈ 15 kp/mm²) for welding ends of St 52-3.

The above permissible loads apply to normal use with welding ends according to DIN 1480. The actual load capacities of the turnbuckles must, if necessary, also be determined by calculation for each individual case by reference to the stressed parts.

j) Details of materials have been specified.