UDC 621.882.27

December 1986

Masonry and foundation bolts

DIN 529

Steinschrauben

Supersedes December 1972 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.

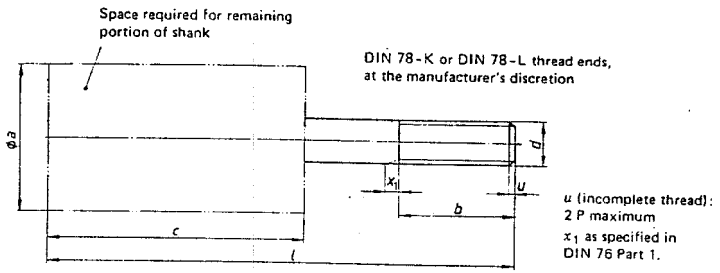
Dimensions in mm

1 Scope and field of application

This standard specifies the characteristics of M 8 to M 72 × 6 masonry and foundation bolts. They are designed for use in masonry, concrete foundations and the like. The shape of the shank is optional; compliance is only required in the case of the maximum dimensions specified (space requirement dimensions). Some of the customary types of shank have been given as examples, together with the relevant dimensions and symbols. The resistance to stripping has not been specified since it depends largely on the material into which the bolts are to be embedded. The proof loads (loadbearing capacity) associated with property class 3.6 bolts (up to and including M 36) as specified in ISO 898 Part 1 shall apply to bolts prior to assembly.

2 Dimensions

See clause 4 for shank types.



The diameter of the unthreaded shank portion may be either equal to the thread diameter (normal shank) or approximately equal to the pitch diameter (reduced shank), at the manufacturer's discretion.

Continued on pages 2 to 5

Table 1.

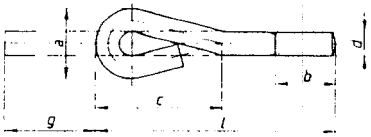
Thread size d	M 8	M 10	M 12	M 16	M 20	M 24	M 30	M 36	M 42	M 48	M 56	M 64	M72 × 6
P[1])	1,25	1,5	1,75	2	2,5	3	3,5	4	4,5	5	5,5	6	6
b $^{+2P}_{0}$	20	25	30	40	50	60	75	90	105	120	140	160	180
a max.	25	32	40	55	65	80	100	120	140	160	185	210	250
c max.	55	55	70	90	110	130	160	190	230	260	290	340	370
c min.	35	45	55	70	85	100	120	140	160	180	210	250	290
l													
80													
100													
125													
160													
200													
250													
320													
400													
500													
630													
800													
1000													
1250													
1600													
2000													
2500													
3200													

The range of preferred lengths is indicated by stepped lines. No tolerances have been specified for length l. They depend on the respective shapes of the customary bolts.

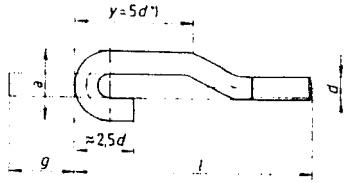
1) P = pitch of thread (coarse pitch thread).

3 Types of shank (examples)

Type A

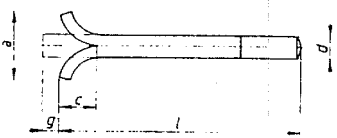


Type B (from M 16)

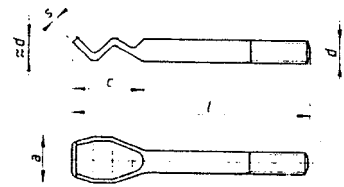


*) Higher values of y shall be subject to agreement.

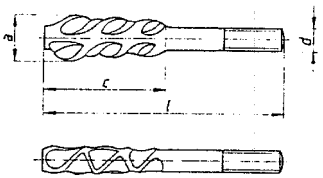
Type C, hot formed



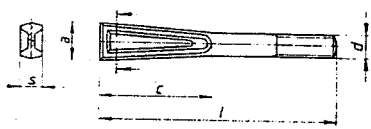
Type D (up to M 24)



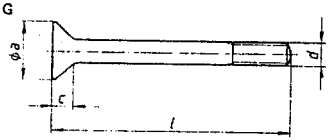
Type E (up to M 48)



Type F (up to M 48)



Type G



g = straight length

Table 2.

Thread size, d		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
	A, B, C	24	30	36	48	60	75	95	115	135	155	180	200	240
	D	16	20	24	32	40	48	–	–	–	–	–	–	–
$a \pm 3$	E	16	20	24	32	40	48	60	72	85	98	–	–	–
	F	14	16	20	25	30	35	45	55	65	75	–	–	–
	G	20	25	30	40	50	60	75	90	105	120	140	160	180
	A	45	55	65	85	105	125	155	190	220	250	290	335	370
	C	12	15	18	24	30	36	45	54	63	72	84	96	110
	D	24	30	36	48	60	72	–	–	–	–	–	–	–
$c \pm 5$	E	45	55	70	90	100	135	150	180	260	260	–	–	–
	F	50	50	55	85	95	120	130	190	200	220	–	–	–
	G	5	6	7	10	12	14	18	22	25	29	34	38	43
	A	30	38	45	60	75	90	115	135	155	180	210	235	260
$g \approx$	B	–	–	–	45	55	70	90	110	125	140	165	185	215
	C	5	7	8	11	14	18	24	30	34	40	45	50	60
	D	3	3,5	4	5	6	8	–	–	–	–	–	–	–
$s \pm 1,5$	F	6	8	10	14	18	22	26	30	36	42	–	–	–

4 Technical delivery conditions

Material		Steel
General requirements		As specified in DIN 267 Part 1.
Thread	Tolerance class	8g
	Standard	DIN 13 Part 15
Mechanical properties	Property class (material)	3.6 Other property classes or materials are subject to agreement.
	Standard	ISO 898 Part 1
Limit deviations, geometrical tolerances	Product grade	C
	Standard	ISO 4759 Part 1
Surface finish		As processed. DIN 267 Part 9 shall apply with regard to electroplating. DIN 267 Part 10 shall apply with regard to hot dip galvanized parts.
Acceptance inspection		DIN 267 Part 5 shall apply with regard to acceptance inspection.

5 Designation

Designation of an M 20 masonry or foundation bolt (shank type at the manufacturer's discretion) of length *l* (nominal size) = 400 mm and assigned to property class 3.6 [1]:

Masonry or foundation bolt DIN 529 – M 20 × 400 – 3.6

If a particular shank type is required, for instance type A, the relevant symbol shall be stated in the designation, e.g.:

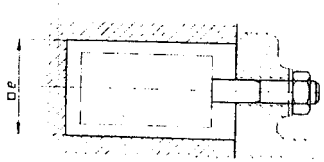
Masonry or foundation bolt DIN 529 – A M 20 × 400 – 3.6

If it is intended to supply these masonry or foundation bolts with hexagon nuts as specified in DIN 555 and with washers as specified in DIN 125 or DIN 126, symbol Mu shall be added to the designation for nuts and symbol SHB for washers, e.g.:

Masonry or foundation bolt DIN 529 B M 20 × 400 – 3.6 – Mu – SHB

It is, however, recommended that this designation be avoided and the nuts be ordered separately since nuts as specified in DIN 972 (ISO nuts) should be used instead of nuts specified in DIN 555 for the range up to and including M 39.

6 Application



See table 1 for e.

[1] Where no property class or material is given in existing documentation, property class 3.6 shall also apply. In future property class or type of material shall be stated in the designation.

Standards referred to

DIN 13 Part 15	ISO metric screw threads; fundamental deviations and tolerances for screw threads of 1 mm and larger
DIN 76 Part 1	Thread run-outs and thread undercuts for ISO metric screw threads as specified in DIN 13
DIN 78	Thread ends, lengths of projection of thread ends for ISO metric screw threads as defined in DIN 13
DIN 125	Washers; medium (previously bright) type, primarily for use with hexagon bolts and nuts
DIN 126	Washers; coarse (previously rough) type, primarily for use with hexagon bolts and nuts
DIN 267 Part 1	Fasteners; technical delivery conditions; general requirements
DIN 267 Part 5	Fasteners; technical delivery conditions; acceptance inspection (modified version of ISO 3269, 1984 edition)
DIN 267 Part 9	Fasteners; technical delivery conditions; components with electroplated coatings
DIN 267 Part 10	Fasteners; technical delivery conditions; hot dip galvanized components
DIN 555	M 5 to M 100 × 6 hexagon nuts; product grade C
DIN 972	M 5 to M 39 hexagon nuts; style 1; product grade C (modified version of ISO 4034)
ISO 898 Part 1	Mechanical properties of fasteners; bolts, screws and studs
ISO 4759 Part 1	Tolerances for fasteners. Part 1: Bolts, screws and nuts with thread diameters between 1,6 (inclusive) and 150 mm (inclusive) and product grades A, B and C

Previous editions

DIN 529 Part 1: 01.42, 07.53, 05.60.
DIN 529: 12.70, 12.72.

Amendments

The following amendments have been made in comparison with the December 1972 edition.

a) The content of the standard has been editorially revised and brought into line with the new basic standards on bolts and screws.

b) Design G has been included.

c) The previous design g as specified in DIN 267 Part 2 has been replaced by product grade C as specified in ISO 4759 Part 1.

d) The technical delivery conditions have been amended.

International Patent Classification

E 04 B 1/41