

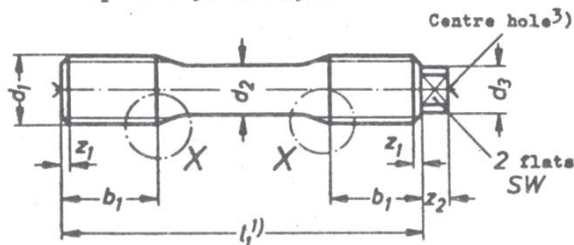
Bolted connections with waisted shank

Stud bolts

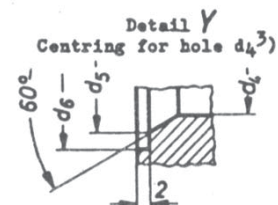
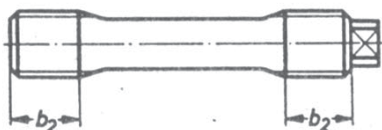
DIN
2510
 Part 3

Schraubenverbindungen mit Dehnschaft; Schraubenbolzen

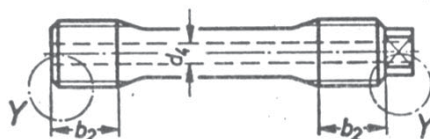
Dimensions in mm

Type L with long thread
 up to M 52 DIN 2510


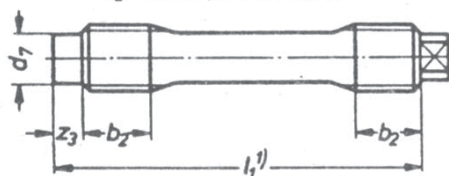
Detail X


Type K with short thread
 up to M 56 DIN 2510


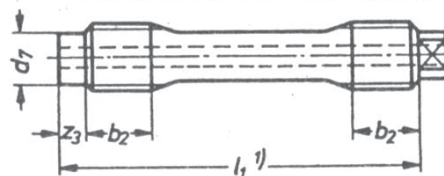
for M 64 DIN 2510 and upwards



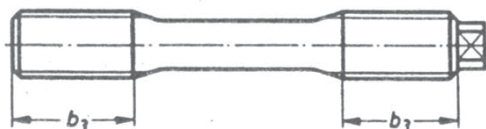
other dimensions and details as for Type L

Type KU with short thread and spacer point
 (only for use with cap nuts at both ends)
 up to M 56 DIN 2510


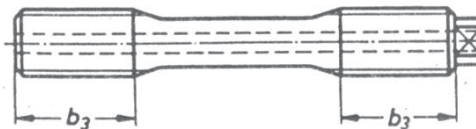
for M 64 DIN 2510 and upwards



other dimensions and details as for Type L and K

Type Z with long thread
 up to M 56 DIN 2510


for M 64 DIN 2510 and upwards



other dimensions and details as for Type L and K

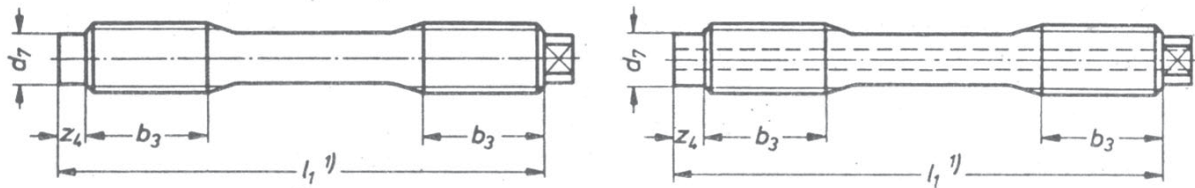
1) and 3) see on page 3

For Explanations see DIN 2510 Part 1

Continued on pages 2 and 3

Type ZU with long thread and spacer point(only for use with cap nuts at both ends)
up to M 56 DIN 2510

for M 64 DIN 2510 and upwards



other dimensions and details as for Type L and K

Designation of a stud-bolt Type L with thread $d_1 = M 30$ and nominal length ($l_1 = 200 \text{ mm}^1$) in 24CrMo5 (code letter G²):

Stud-bolt L M 30 x 200 DIN 2510 - 24CrMo5

Thread d_1 acc. to DIN 2510 Part 2	M12	M16	M20	M24	M27	M30	M33	M36	M39	M42	M45	M48	M52	M56
d_2	8,5	12	15	18	20,5	23	25,5	27,5	30,5	32,5	35,5	37,5	41	44
d_3	8	12	14	14	18	18	25	25	28	28	32	32	36	40
d_7	8	12	13	16	18	21	24	26	30	32	34	37	40	45
b_1	20	23	28	32	35	39	42	45	48	52	55	58	62	—
b_2	13	16	20	24	27	30	33	36	39	42	45	48	52	56
b_3	27	31	36	42	47	50	53	57	60	64	66	70	74	79
r	10	10	10	16	16	16	16	20	20	20	20	20	20	25
SW	7	10	11	11	13	13	22	22	24	24	27	27	30	32
$z_1 \text{ max.}$	1,75	2	2,5	3	3	3,5	3,5	4	4	4,5	4,5	5	5	5,5
z_2	4	5	6	6	6	6	9	9	10	10	11	11	12	13
z_3	11	14	16	17	19	19	21	23	23	24	25	26	26	28
z_4	7	8	9	8	10	12	14	14	14	15	15	19	18	19
Centre η note	A 1,6						A 2,5							

Thread d_1 acc. to DIN 2510 Part 2	M64	M72x6	M80x6	M90x6	M100x6	M110x6	(M120x6)	M125x8	M140x8	(M150x8)	M160x8	(M170x8)	M180x8
d_2	51	58,5	66	75	84	92,5	102	106	118	127	136	145	154
d_3	42	50	50	50	50	50	50	50	65	65	65	65	65
d_4	18	25	25	25	25	25	25	25	36	36	36	36	36
d_5	25	32	32	32	32	32	32	32	43	43	43	43	43
d_6	30	37	37	37	37	37	37	37	48	48	48	48	48
d_7	52	56	63	74	86	97	105	—	—	—	—	—	—
b_1	—	—	—	—	—	—	—	—	—	—	—	—	—
b_2	64	72	80	90	100	110	120	125	140	150	160	170	180
b_3	88	95	103	112	122	132	142	—	—	—	—	—	—
r	25	25	25	25	25	25	32	32	32	32	32	32	32
SW	36	41	41	41	41	41	41	41	55	55	55	55	55
$z_1 \text{ max.}$	6	6	6	6	6	6	6	8	8	8	8	8	8
z_2	14	15	15	15	15	15	15	15	18	18	18	18	18
z_3	28	28	28	28	28	28	30	—	—	—	—	—	—
z_4	20	20	19	20	19	19	20	—	—	—	—	—	—
Centre η note	A 4						A 6,3						

Bracketed sizes should be avoided where possible.

1), 2) and 3) see on page 3

Technical conditions of delivery and materials according to DIN 267 Part 13

Type: m according to DIN 267 Part 13

f only to special order. The designation in this case reads, e.g.:

Stud-bolt L M 30 x 200 DIN 2510 - f - 24CrMo5

Marking: according to DIN 267 Part 13

Unless agreed to the contrary when ordering, the marking should be applied to the end face of the point z_2 .

If stud-bolts of Types K, KU, Z or ZU for M 64 DIN 2510 and upwards are required without hole d_4 , then the letter O should be inserted in the designation, e.g.:

Stud-bolt KO M 100 x 6 x 600 DIN 2510 - 24CrMo5

1) Nominal length l_1 to be stated when ordering (see also DIN 2510 Part 1)

2) Instead of the code number the code letter of the material may also be stated in the designation. In such cases the designation reads, e.g.:

Stud-bolt L M 30 x 200 DIN 2510 - G

3) Centring according to DIN 332 and detail Y only for stud-bolts of type f.

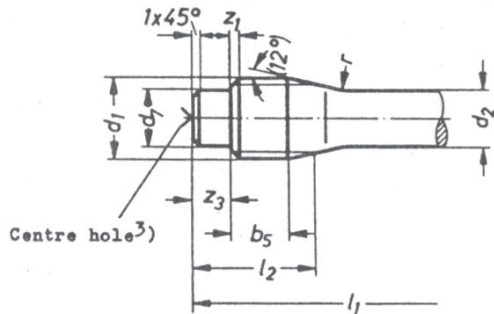
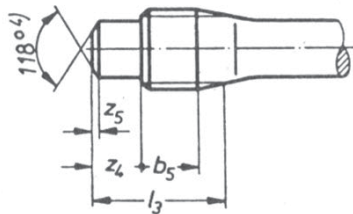
Bolted connections with waisted shank

Studs

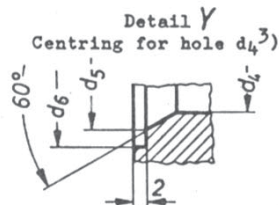
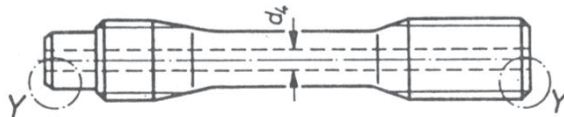
DIN
2510
 Part 4

Schraubenverbindungen mit Dehnschaft; Stiftschrauben

Dimensions in mm

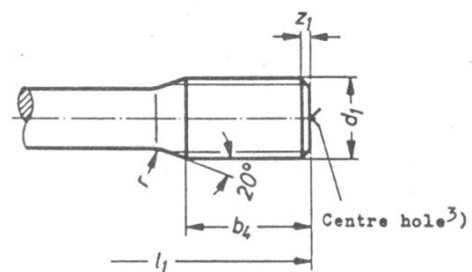
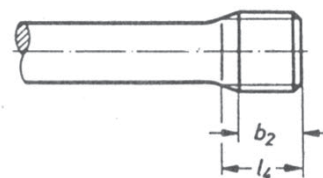
Metal endType G with flat bearing faceType H with coned bearing face

other dimensions and details as for Type G

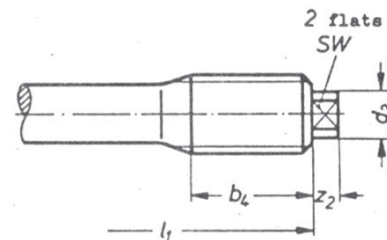
Heating hole for M 64 DIN 2510⁵⁾

1) to 5) see on page 3

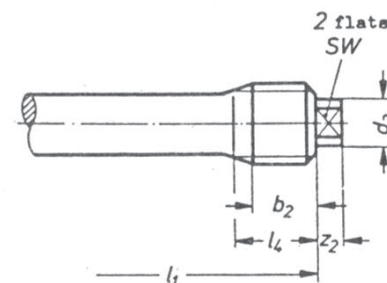
For Explanations see DIN 2510 Part 1

Nut endType P with long threadType Q with short thread

other dimensions and details as for Type P

Type R with long thread and point

other dimensions and details as for Type P

Type S with short thread and point

other dimensions and details as for Type P

Continued on pages 2 and 3

Designation of a stud with metal end of Type G and nut end of Type R with thread $d_1 = M 30$ and nominal length $l_1 = 150 \text{ mm}^{(1)}$ in 24CrMo5 (code letter G2)):

Stud GR M 30 x 150 DIN 2510 - 24CrMo5

Thread d_1 acc. to DIN 2510 Part 2	M 12	M 16	M 20	M 24	M 27	M 30	M 33	M 36	M 39	M 42	M 45
d_2	8,5	12	15	18	20,5	23	25,5	27,5	30,5	32,5	35,5
d_3	8	12	14	14	18	18	25	25	28	28	32
d_7	8,5	12	15	18	21	23	26	28	31	33	36
b_2	13	16	20	24	27	30	33	36	39	42	45
b_4	23	27	33	38	43	46	51	54	57	61	64
b_5	10	13,5	16,5	20	22,5	25	27,5	30	32,5	35	37,5
l_2	19,5	24	30,5	36,5	39	44,5	47	52	54,5	60	62,5
l_3	21	26	33	39,5	42	48	50,5	56	58,5	65	67,5
l_4	16	19,5	24	29	32	36	39	42,5	45,5	49,5	52,5
r	10	10	10	16	16	16	16	20	20	20	20
SW	7	10	11	11	13	13	22	22	24	24	27
$z_1 \text{ max.}$	1,75	2	2,5	3	3	3,5	3,5	4	4	4,5	4,5
z_2	4	5	6	6	6	6	9	9	10	10	11
z_3	4,5	5	7	8	8	9,5	9,5	10,5	10,5	12	12
z_4	6	7	9,5	11	11	13	13	14,5	14,5	17	17
z_5	1	1,5	1,5	2	2	2,5	2,5	3	3	3,5	3,5
Centre hole ²⁾	A 1,6					A 2,5					

Thread d_1 acc. to DIN 2510 Part 2	M 48	M 52	M 56	M 64	M 72×6	M 80×6	M 90×6	M 100×6	M 110×6	(M 120×6)
d_2	37,5	41	44	51	58,5	66	75	84	92,5	102
d_3	32	36	40	42	50	50	50	50	50	50
d_4	—	—	—	18	25	25	25	25	25	25
d_5	—	—	—	25	32	32	32	32	32	32
d_6	—	—	—	30	37	37	37	37	37	37
d_7	38	42	45	52	60	68	78	88	98	108
b_2	48	52	56	64	72	80	90	100	110	120
b_4	67	72	77	88	96	104	115	125	136	147
b_5	39,5	43,5	46,5	53,5	60,5	67,5	76,5	85,5	94,5	103,5
l_2	67	71	77	86,5	93,5	100,5	109,5	118,5	127,5	136,5
l_3	73	76,5	83	90	97	104,5	114	123,5	132,5	142
l_4	56,5	60,5	65	74	82	90	100	110	120	130
r	20	20	25	25	25	25	25	25	25	32
SW	27	30	32	36	41	41	41	41	41	41
$z_1 \text{ max.}$	5	5	5,5	6	6	6	6	6	6	6
z_2	11	12	13	14	15	15	15	15	15	15
z_3	13	13	14,5	15,5	15,5	15,5	15,5	15,5	15,5	15,5
z_4	18,5	18,5	20,5	19	19	19,5	20	20,5	20,5	21
z_5	4	4	4,5	2,5	2,5	3	3,5	4	4	4,5
Centre hole ³⁾	A 2,5			A 4				A 6,3		

The bracketed size should be avoided where possible.

1), 2) and 3) see on page 3

Technical conditions of delivery and materials according to DIN 267 Part 13

Type: m according to DIN 267 Part 13

f only to special order. The designation in this case reads, e.g.:

Stud GR M 30 x 150 DIN 2510 - f - 24CrMo5

Marking: according to DIN 267 Part 13 -

Unless agreed to the contrary when ordering, the marking should be applied to the end face of the point z_2 or to the end face at the nut end.

- 1) Nominal length l_1 to be stated when ordering (see also DIN 2510 Part 1)
- 2) Instead of the code number the code letter of the material may also be stated in the designation. In such cases the designation reads, e.g.:
Stud GR M 30 x 150 DIN 2510 - G
- 3) Centring according to DIN 332 and detail Y only for studs of type f.
- 4) For M 64 DIN 2510 and upwards the angle is 150°
- 5) If studs for M 64 DIN 2510 and upwards are required without hole d_4 , the letter O should be inserted in the designation, e.g.:
Stud GRO M 64 x 400 DIN 2510 - 24CrMo5

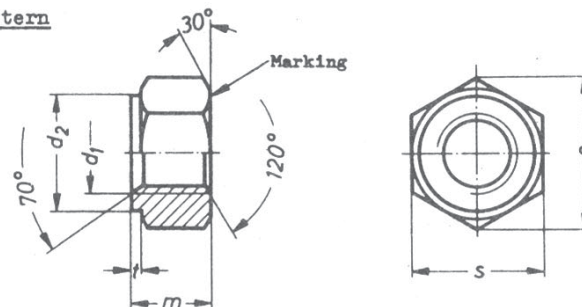
Hexagon nuts for use with bolts
with waisted shank

DIN
2510
Part 5

Schraubenverbindungen mit Dehnschaft; Sechskantmuttern

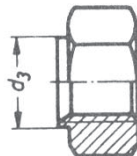
Dimensions in mm

Type NF regular pattern



Nuts countersunk on
both sides down to
the thread diameter

Type TF for internal centring using extension sleeve Type D according to DIN 2510 Part 7



other dimensions and details as for Type NF

Designation of a hexagon nut Type NF with thread $d_1 = M 30$ in 24CrMo5 (code letter G¹⁾):

Hexagon nut NF M 30 DIN 2510 - 24CrMo5

Thread d_1	M 12	M 16	M 20	M 24	M 27	M 30	M 33	M 36	M 39	M 42	M 45	M 48	M 52	M 56
d_2	21	26	31	35	40	45	49	53,5	58,5	63,5	68,5	73,5	78,5	83,5
d_3	14,5	18,5	22,5	26,5	30,5	33,5	36,5	39,5	42,5	45,5	49,5	53,5	57,5	63
e	mg	23,91	29,56	35,03	39,55	45,20	50,85	55,37	60,79	66,44	72,09	77,74	83,39	89,04
	m	24,49	30,14	35,72	39,98	45,63	51,28	55,80	61,31	66,96	72,61	78,26	83,91	89,56
m	12	16	20	24	27	30	33	36	39	42	45	48	52	56
s	22	27	32	36	41	46	50	55	60	65	70	75	80	85
t	2	2	2	3	3	3	3	3	3	3	3	4	4	4
Weight kg/1000 pieces $\approx$	31	52	86	124	181	260	330	425	560	705	900	1120	1340	1590

Bracketed sizes should be avoided where possible.

Continuation of Table on page 2

¹⁾ see page 2

For Explanations see DIN 2510 Part 1

Continued on page 2

Continuation of Table of page 1

Thread d_1	M 64	M 72x6	M 80x6	M 90x6	M 100x6	M 110x6	(M 120x6)	M 125x8	M 140x8	(M 150x8)	M 160x8	(M 170x8)	M 180x8
d_2	93,5	103,5	113,5	128	143	153	168	178	198	208	218	228	253
d_3	71	79	87	97	107	119	129	134	149	159	174	180	196
e mg	105,77	117,07	128,37	145,09	162,04	173,34	190,30	202,27	223,91	235,21	—	—	—
min. m	106,37	117,67	129,34	145,77	162,74	174,02	191,49	201,59	224,70	236,00	247,30	258,60	284,68
m	64	72	80	90	100	110	120	125	140	150	160	170	180
s	95	105	115	130	145	155	170	180	200	210	220	230	235
t	4	4	4	4	5	5	5	5	5	5	5	5	5
Weight kg/1000 pieces $\approx$	2230	2980	3830	5550	7700	9250	13100	14900	20100	22800	26000	29400	41000

Technical conditions of delivery and materials according to DIN 267 Part 13

Type: mg according to DIN 267 Part 13

m only to special order. The designation in this case reads, e.g.:

Hexagon nut NF M 30 DIN 2510 - m - 24CrMo5

Marking: according to DIN 267 Part 13

The marking must not be applied to the bearing face, but instead should preferably be placed on the end face.

¹⁾ Instead of the code number the code letter of the material may also be stated in the designation. In such cases the designation reads, e.g.:

Hexagon nut NF M 30 DIN 2510 - G

Cap nuts for use with bolts
with waisted shank

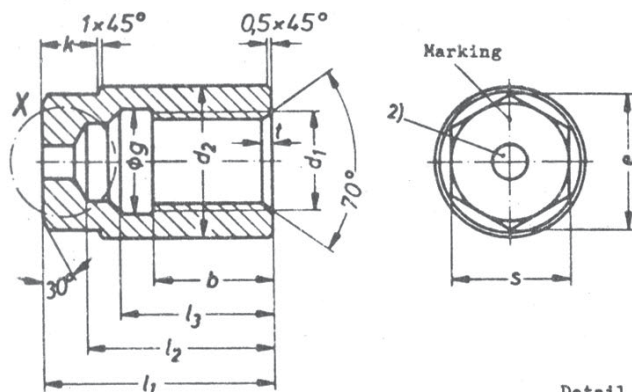
DIN
2510

Part 6

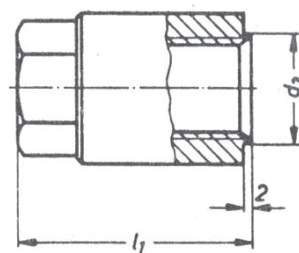
Schraubenverbindungen mit Dehnschaft; Kapselmuttern

Dimensions in mm

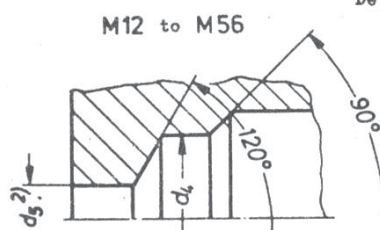
Type AF regular pattern



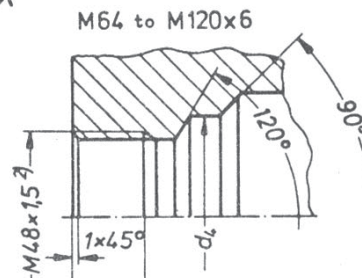
Type BF for internal centring
with extension sleeve D
according to DIN 2510 Part 7



other dimensions and
details as for Type AF



M12 to M56



M64 to M120x6

Designation of a cap nut of Type AF with thread $d_1 = M\ 30$ in 24CrMo5 (code letter G¹):
Cap nut A FM 30 DIN 2510 - 24CrMo5

Thread d_1	M 12	M 16	M 20	M 24	M 27	M 30	M 33	M 36	M 39	M 42	M 45
b	18	20,5	24	27,5	30,5	35	38	40,5	43	46	48,5
d_2	21	26	31	35	40	45	49	53,5	58,5	63,5	68,5
d_3	14,5	18,5	22,5	26,5	30,5	33,5	36,5	39,5	42,5	45,5	49,5
d_4	9	13	15	17,5	20	23	26	28	31,5	33,5	36
d_5	4	6	6	10	10	10	10	10	10	10	10
e min.	18,90	21,10	26,75	30,14	35,72	39,98	45,63	45,63	51,28	55,80	55,80
k	7	10	13	14	16	17	22	22	23	23	26
l_1	33	40	49	56	62	68	77	82	86	92	98
l_2	29,5	34,5	40	45,5	50,5	55	60	64,5	67	72	74,5
l_3	23	27,5	32	37,5	40,5	45	48	52,5	55	60	62,5
g	13	17	21	25	28	31	34	37	40	43	46
s	17	19	24	27	32	36	41	41	46	50	50
t	2	2	2,5	3	3	3,5	3,5	4	4	4,5	4,5
Weight kg/1000 pieces	70	110	190	240	370	510	700	840	1070	1370	1600

For Footnotes see page 2

Continuation of Table on page 2

For Explanations see DIN 2510 Part 1

Continued on page 2

Thread d_1	M 48	M 52	M 56	M 64	M 72×6	M 80×6	M 90×6	M 100×6	M 110×6	(M 120×6)
b	53,5	57	60,5	69,5	77	84	93	102	111	120
d_2	73,5	78,5	83,5	93,5	105	115	130	146	160	176
d_3	53,5	57,5	63	71	79	87	97	107	119	129
d_4	39	42	47,5	54	58	65	77	89	100	108
d_5	10	10	10	—	—	—	—	—	—	—
e min.	61,31	66,96	72,61	83,91	89,56	100,72	117,67	134,62	151,42	162,72
k	26	27	27	32	32	36	41	45	50	54
l_1	103	109	115	130	140	152	168	183	199	214
l_2	81,5	85	90,5	99,5	107	114	123	132	141	152
l_3	67,5	71	76,5	85,5	93	100	109	118	127	136
g	49	53	57	65	73	81	91	101	111	121
s	55	60	65	75	80	90	105	120	135	145
t	5	5	5,5	6	6	6	6	6	6	6
Weight kg/1000pieces	1900	2400	2900	4200	5700	7300	10700	14800	19900	20100

The bracketed size should be avoided where possible.

Technical conditions of delivery and materials: according to DIN 267 Part 13

Type: m according to DIN 267 Part 13

Marking: according to DIN 267 Part 13

The marking must not be applied to the bearing face.

- ¹⁾ Instead of the code number the code letter of the material may also be stated in the designation. In such cases the designation reads, e.g.:

Cap nut AF M 30 DIN 2510 - G

- ²⁾ Plain hole up to M 56

Threaded hole for screw plug M 48 × 1.5 DIN 908 for M 64 and upwards

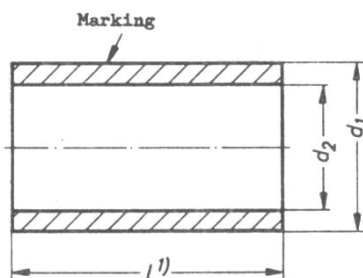
If cap nuts without hole are required, the letter O should be inserted in the designation, e.g.:

Cap nut AF OM 30 DIN 2510 - G

Sleeves for use with bolts
with waisted shankDIN
2510
Part 7

Schraubenverbindungen mit Dehnschaft; Dehnhülsen

Dimensions in mm

Type D for centring by the nutType E for centring by the outside diameter of the threadDesignation of an extension sleeve of Type D of outside diameter $d_1 = 45$ mm and length ($l = 80$ mm¹) in 24CrMo5 (code letter G2)):

Extension sleeve D 45 x 80 DIN 2510 - 24CrMo5

d_1	21	26	31	35	40	45	49	53,5	58,5	63,5	68,5	73,5	78,5	83,5
d_2	Type D	15	19	23	27	31	34	37	40	43	46	50	54	58
	Type E	13	17	21	25	28	31	34	37	40	43	46	49	53
for bolts	M 12	M 16	M 20	M 24	M 27	M 30	M 33	M 36	M 39	M 42	M 45	M 48	M 52	M 56
Weight Type D	1,33	1,91	2,74	3,06	3,85	5,37	5,70	7,70	9,7	13,0	13,5	15,6	17,2	17,6
kg/m $\approx$ Type E	1,68	2,36	3,28	3,70	5,03	6,50	7,70	9,20	11,2	14,6	15,9	18,5	20,2	22,8

d_1	93,5	105	115	130	146	160	(176)	184	204	(220)	238	(250)	270
d_2	Type D	72	80	88	98	108	120	130	135	150	160	175	181
	Type E	65	73	81	91	101	111	121	126	141	151	161	171
for bolts	M 64	M 72x6	M 80x6	M 90x6	M 100x6	M 110x6	M 120x6	M 125x8	M 140x8	M 150x8	M 160x8	M 170x8	M 180x8
Weight Type D	21,8	28,5	33,8	45,0	59,0	69,0	87,0	96,0	118	141	160	183	210
kg/m $\approx$ Type E	27,8	35,1	41,0	53,0	69,0	82,0	101	111	134	158	189	205	247

Bracketed sizes should be avoided where possible.

Technical conditions of delivery and materials: according to DIN 267 Part 13Type: according to DIN 267 Part 13Marking: according to DIN 267 Part 13

The marking must not be applied to the end faces.

¹) Length l to be stated when ordering (see also DIN 2510 Part 1)²) Instead of the code number the code letter of the material may also be stated in the designation. In such cases the designation reads, e.g.:

Extension sleeve D 44 x 80 DIN 2510 - G

For Explanations see DIN 2510 Part 1