INKOMA - GROUP

ALBERT manufactured spindles

ALBERT

Maschinenfabrik ALBERT GmbH
Technologiepark 2
A - 4851 Gampern - Austria

phone: +43/(0)7682-39080-10
fax: +43/(0)7682-39080-99
e-mail: office@albert.at
internet: www.ALBERT.at

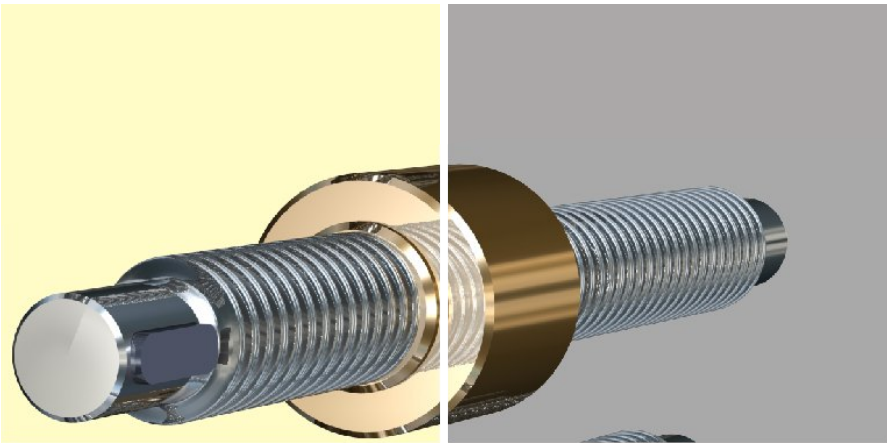
We reserve the right to make technical changes.
2014-1-MP-OE-e © INKOMA-GROUP

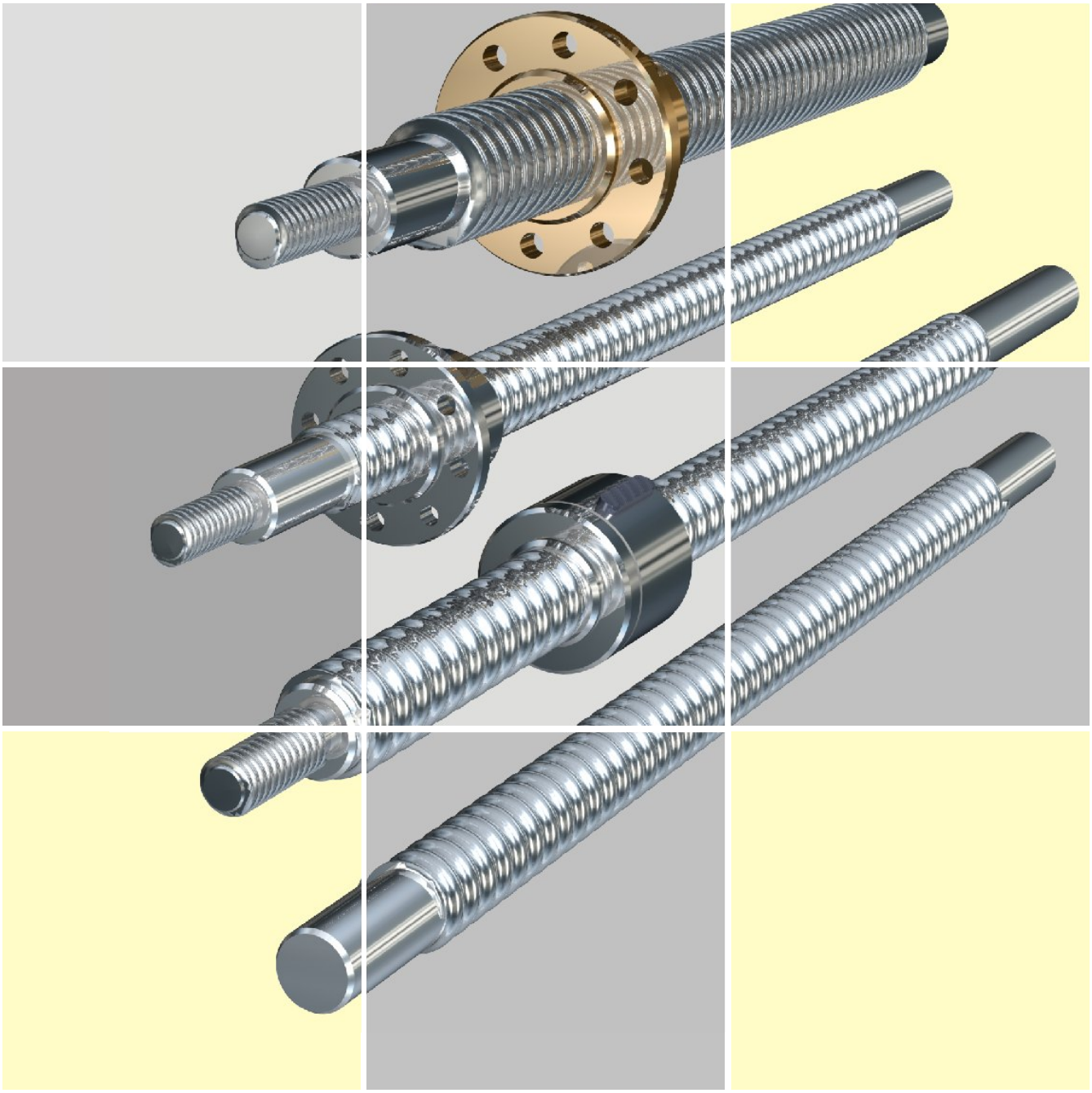
Product description

ALBERT Spindles - spindle and nut manufacturer

ALBERT has been known as a specialist spindle manufacturer for over 30 years. Bespoke spindles can be produced to customer requirements in various materials as a complete finished part inclusive of any turning, milling or surface treatment required. An extensive range of spindles can be delivered within short delivery times.

Should you require any further information about our products or our company then please contact us, as we are always available to help.



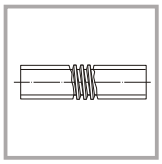


Contents list

ALBERT manufactured spindles

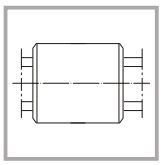
Technical information — page 253 - 254

trapezoidal / buttress thread spindles
versions



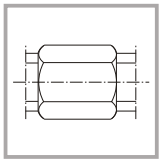
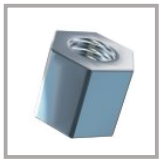
Trapezoidal spindles — page 255

standard dimensions



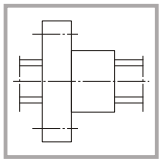
TMZY Cylindrical nut — page 256 - 257

for applications where space is critical

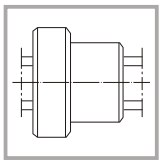
TMSK Hexagon nut — page 256 - 257

for applications where space is critical



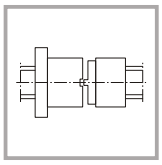
TMFL Flanged nut — page 256 - 257

for standard applications



TMB Trapezoidal flanged nut — page 258 - 259

for standard applications



TMFLSI Flanged nut with safety nut — page 258 - 259

allows measurement of the wear in the nut and
takes over the load in the event of failure of the nut thread

Technical information

Trapezoidal / buttress thread spindles

ALBERT trapezoidal / buttress thread spindles are always provided with both the spindle and mating nut.

ALBERT spindles are manufactured to very high levels of accuracy.

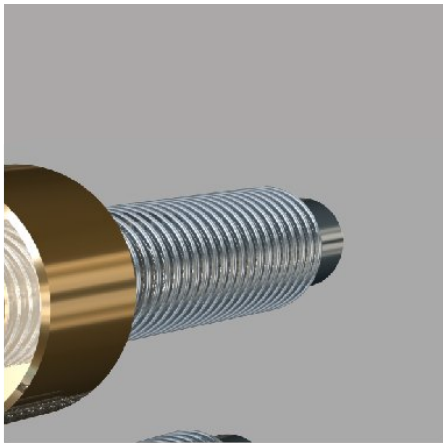
The ISO metric trapezoidal thread is manufactured according to DIN 103.

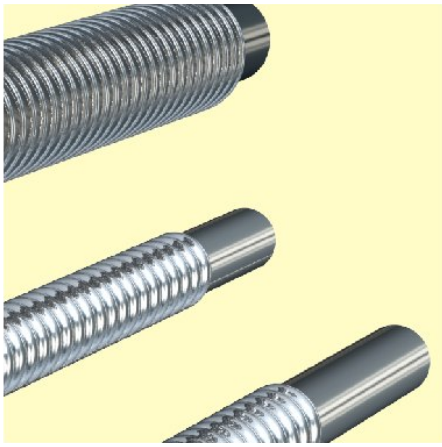
The buttress thread is manufactured according to DIN 513.

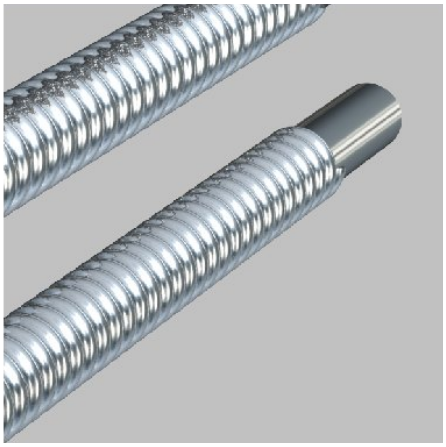
Standard spindles are manufactured from heat treatable steel, drawn or peeled,h11. The lead tolerance is ±0,1 mm per 300 mm length for a single start right hand thread.

Multi-start or left-handed threads are available upon request.

Thread quality: 7 e







Versions

The ALBERT trapezoidal/buttress thread spindles are manufactured by two different methods:

Whirled trapezoidal spindle:
The whirled trapezoidal spindle is manufactured by a multi-point cutting tool rotating at high speed around the spindle and material is removed from the base material in a staggered cutting movement.
Whirling is a more cost effective technique than rolling and the process also allows external diameters to be produced to finished sizes and customised designs to be manufactured.

Machined trapezoidal spindle:
As with the whirled trapezoidal spindle, the machined trapezoidal thread is manufactured by means of a cutting action. However, the cutting tool is in constant contact with the material and does not rotate around the spindle. Spindles with a low lead and short thread length are usually produced in this way.

Whirled buttress thread spindle:
Whirled buttress thread spindles are manufactured by a multi-point cutting tool rotating at high speed around the spindle and material is removed from the base material in a staggered cutting movement.
(Same method as for whirled trapezoidal spindles)

Buttress thread spindles are used for applications with high unilateral axial loads (such as plate levellers or roll straighteners in metal processing)

Technical information

Trapezoidal / Buttress thread spindles

Trapezoidal spindles

Material:
Standard material C45K
Special materials 42CrMo4, 1.4305, 1.4571
or materials as requested by the customer

Spindle lengths:
Based on standard stock bar length of 6 metres
gives a possible thread length of up to approx. 5500mm.
Special lengths of up to 12 metres are possible
(depending on material availability).
In case of longer lengths, spindles may also be manufactured
in a split or screw-connected version.

Special dimensions:
can be manufactured from ⌀20mm to ⌀190mm,
with a lead of 4mm, 5mm, 6mm, 7mm, 8mm,
9mm, 10mm, 12mm, 14mm, 16mm and 20mm

Number of starts:
upon request, spindles can be manufactured in
two- or three-start versions.

Lead direction:
the right handed thread is the standard design although left hand
versions are available upon request.

Spindle ends:
can be manufactured according to customer drawings.

Nuts:
Manufacturing of the nut is produced in line with the corresponding
spindle. Special nut designs are possible in accordance with
customer requirements.

Buttress thread spindles

Material:
Standard material C45K
Special materials 42CrMo4, 1.4305, 1.4571
or materials as requested by the customer

Spindle lengths:
Based on standard stock bar length of 6 metres
gives a possible thread length of up to approx. 5500mm.
Special lengths of up to 12 metres are possible
(depending on material availability).
In case of longer lengths, spindles may also be manufactured
in a split or screw-connected version.

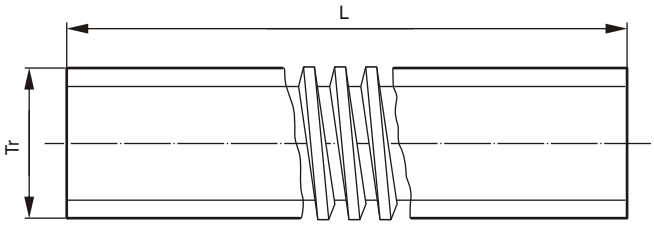
Buttress thread:
can be manufactured from ⌀100mm to ⌀190mm,
with a lead of 16mm and 20mm

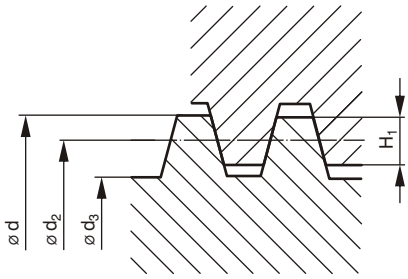
Spindle ends:
can be manufactured according to customer drawings.

Nuts:
Manufacturing of the nut is produced in line with the corresponding
spindle. Special nut designs are possible in accordance with
customer requirements.

Dimensions

Trapezoidal spindles - standard dimensions





Size	Dimensions [mm]						Accuracy [µm/300mm]	Straightness [mm/1000mm]
	d	$d_{2\ min}$	$d_{2\ max}$	d_3	H_1	P		
Tr 20 x 4	20	17,640	17,905	15	2	4	100	0,5
Tr 20 x 6	20	16,571	16,882	13	3	6	100	0,5
Tr 24 x 5	24	21,094	21,394	18	2,5	5	100	0,5
Tr 26 x 6	26	22,547	22,882	19	3	6	100	0,5
Tr 30 x 6	30	26,547	26,882	23	3	6	100	0,5
Tr 40 x 7	40	36,020	36,375	32	3,5	7	100	0,5
Tr 40 x 8	40	35,468	35,868	31	4	8	100	0,5
Tr 50 x 8	50	45,468	45,868	41	4	8	100	0,5
Tr 50 x 9	50	44,935	45,360	40	4,5	9	100	0,5
Tr 60 x 9	60	54,935	55,360	50	4,5	9	100	0,5
Tr 60 x 12	60	53,355	53,830	47	6	12	100	0,5
Tr 65 x 12	65	58,355	58,830	52	6	12	100	0,5
Tr 70 x 10	70	64,425	64,850	59	5	10	100	0,5
Tr 70 x 12	70	63,355	63,830	57	6	12	100	0,5
Tr 90 x 12	90	83,355	83,830	77	6	12	100	0,5
Tr 90 x 16	90	81,250	81,810	72	8	16	100	0,5
Tr 100 x 12	100	93,330	93,830	86	6	12	100	0,5
Tr 100 x 16	100	91,250	91,810	82	8	16	100	0,5
Tr 120 x 14	120	112,290	112,820	104	7	14	100	0,5
Tr 120 x 16	120	111,250	111,810	102	8	16	100	0,5
Tr 140 x 16	140	131,250	131,810	122	8	16	100	0,5
Tr 160 x 20	160	149,188	149,788	138	10	20	100	0,5

Size	Lead angle at flank diameter	Theoretical efficiency	Mass of spindle per m [kg/m]	Moment of intertia [cm^4]	Section modulus [cm^3]	Polar moment of inertia [cm^3]	Mass moment of inertia [kg m^2 /m]
Tr 20 x 4	4°20'	0,40	2,00	0,236	0,318	0,637	$2,96 \times 10^{-5}$
Tr 20 x 6	6°24'	0,51	1,76	0,140	0,216	0,431	$6,38 \times 10^{-5}$
Tr 24 x 5	4°14'	0,41	2,85	0,460	0,526	1,052	$1,65 \times 10^{-4}$
Tr 26 x 6	4°44'	0,44	3,22	0,640	0,673	1,347	$2,13 \times 10^{-4}$
Tr 30 x 6	4°02'	0,40	4,44	1,374	1,194	2,389	$4,04 \times 10^{-4}$
Tr 40 x 7	3°29'	0,37	8,13	5,170	3,217	6,434	$1,35 \times 10^{-3}$
Tr 40 x 8	4°3'	0,40	7,96	4,533	2,925	5,849	$1,28 \times 10^{-3}$
Tr 50 x 8	3°10'	0,34	12,94	13,871	6,766	13,533	$3,42 \times 10^{-3}$
Tr 50 x 9	3°36'	0,37	12,69	12,566	6,283	12,566	$3,28 \times 10^{-3}$
Tr 60 x 9	2°57'	0,33	18,00	26,400	11,000	22,000	$7,30 \times 10^{-3}$
Tr 60 x 12	4°02'	0,40	17,94	23,953	10,193	20,386	$6,54 \times 10^{-3}$
Tr 65 x 12	3°43'	0,38	21,40	35,891	13,804	27,608	$9,31 \times 10^{-3}$
Tr 70 x 10	2°48'	0,32	26,00	51,800	18,200	36,400	$1,40 \times 10^{-2}$
Tr 70 x 12	3°25'	0,36	25,18	51,817	18,181	36,363	$1,29 \times 10^{-2}$
Tr 90 x 12	2°36'	0,30	43,75	172,470	44,797	89,595	$3,86 \times 10^{-2}$
Tr 90 x 16	3°33'	0,37	41,13	131,914	36,644	73,287	$3,46 \times 10^{-2}$
Tr 100 x 12	2°20'	0,27	54,78	281,078	64,616	129,231	$6,05 \times 10^{-2}$
Tr 100 x 16	3°10'	0,35	51,78	221,935	54,130	108,261	$5,48 \times 10^{-2}$
Tr 120 x 14	2°15'	0,26	84,00	573,962	110,377	220,755	$13,4 \times 10^{-2}$
Tr 120 x 16	2°36'	0,30	76,76	531,338	104,184	208,368	$1,20 \times 10^{-1}$
Tr 140 x 16	2°12'	0,27	106,70	1087,450	178,271	365,541	$2,32 \times 10^{-1}$
Tr 160 x 20	2°25'	0,29	138,00	1780,270	258,010	516,021	$3,88 \times 10^{-1}$

General tolerances to DIN ISO 2768 - medium

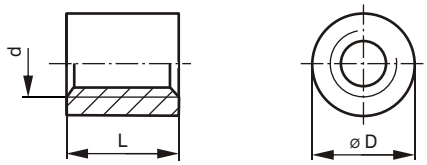
Trapezoidal spindle nuts - standard series - dimensions

TMZY - Cylindrical nut

Thread quality: 7H ISO DIN 103

Material: CuZn brass
Bz bronze
further materials upon request

Lead direction: R - right-handed thread, L - left-handed thread



Ordering example:

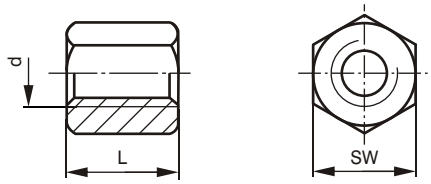
Cylindrical nut
Trapezoidal thread size
Lead direction
Material (bronze)

TMZY - 30x6 - R - Bz

TMSK - Hexagon nut

Thread quality: 7H ISO DIN 103

Material: C45K steel
CuZn brass
Bz bronze
further materials upon request



Ordering example:

Hexagon nut
Trapezoidal thread size
Material (bronze)

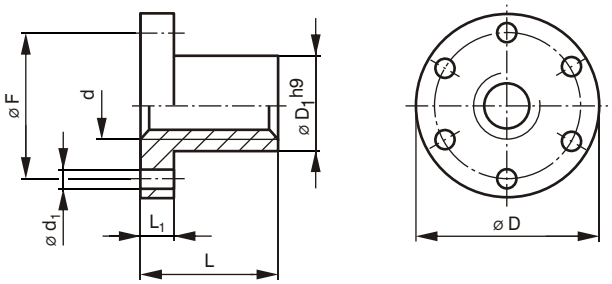
TMSK - 30x6 - Bz

TMFL - Flanged nut

Thread quality: 7H ISO DIN 103

Material: CuZn brass
Bz bronze
further materials upon request

Lead direction: R - right-handed thread, L - left-handed thread



Ordering example:

Flanged nut
Trapezoidal thread size
Lead direction
Material (bronze)

TMFL - 30x6 - R - Bz

Order code	Dimensions [mm]			Material	Mass (Bz) approx. [kg]
	d	D	L		
TMZY-20x4	Tr 20x4	45	30	CuZn, Bz	0,32
TMZY-20x6	Tr 20x6	45	30	CuZn, Bz	0,31
TMZY-24x5	Tr 24x5	50	36	CuZn, Bz	0,45
TMZY-26x6	Tr 26x6	50	39	CuZn, Bz	0,45
TMZY-30x6	Tr 30x6	60	45	CuZn, Bz	0,78
TMZY-40x7	Tr 40x7	80	60	CuZn, Bz	1,87
TMZY-50x8	Tr 50x8	90	75	CuZn, Bz	2,69
TMZY-60x9	Tr 60x9	100	90	CuZn, Bz	3,63
TMZY-60x12	Tr 60x12	100	90	CuZn, Bz	3,51
TMZY-65x12	Tr 65x12	110	98	CuZn, Bz	4,85
TMZY-70x10	Tr 70x10	110	105	CuZn, Bz	4,70
TMZY-90x12	Tr 90x12	135	135	CuZn, Bz	8,41
TMZY-90x16	Tr 90x16	135	135	CuZn, Bz	8,04
TMZY-100x12	Tr 100x12	150	150	CuZn, Bz	12,50
TMZY-100x16	Tr 100x16	150	150	CuZn, Bz	11,23
TMZY-120x14	Tr 120x14	165	180	CuZn, Bz	13,80
TMZY-120x16	Tr 120x16	165	180	CuZn, Bz	13,49
TMZY-140x16	Tr 140x16	on request			
TMZY-160x20	Tr 160x20	on request			

Special sizes upon request
General tolerances to DIN ISO 2768 - medium

Order code	Dimensions [mm]			Material	Mass (C45K) approx. [kg]
	d	SW	L		
TMSK-20x4	Tr 20x4	30	30	C45K, CuZn, Bz	0,17
TMSK-20x6	Tr 20x6	30	36	C45K, CuZn, Bz	0,17
TMSK-24x5	Tr 24x5	36	36	C45K, CuZn, Bz	0,2
TMSK-26x6	Tr 26x6	36	39	C45K, CuZn, Bz	0,2
TMSK-30x6	Tr 30x6	46	45	C45K, CuZn, Bz	0,43
TMSK-40x7	Tr 40x7	65	60	C45K, CuZn, Bz	1,3
TMSK-50x8	Tr 50x8	75	75	C45K, CuZn, Bz	1,8
TMSK-60x9	Tr 60x9	90	90	C45K, CuZn, Bz	2,8
TMSK-60x12	Tr 60x12	90	90	C45K, CuZn, Bz	2,8
TMSK-65x12	Tr 65x12	100	90	C45K, CuZn, Bz	3,0
TMSK-70x10	Tr 70x10	100	100	C45K, CuZn, Bz	3,1

Special sizes upon request
General tolerances to DIN ISO 2768 - medium

Order code	Dimensions [mm]							Material	Mass (Bz) approx. [kg]
	d	d_1	D	D_1	F	L	L_1		
TMFL-20x4	Tr 20x4	7	55	32	45	44	12	CuZn, Bz	0,3
TMFL-20x6	Tr 20x6	7	55	32	45	44	12	CuZn, Bz	0,3
TMFL-24x5	Tr 24x5	7	55	32	45	44	14	CuZn, Bz	0,3
TMFL-26x6	Tr 26x6	7	62	38	50	46	14	CuZn, Bz	0,4
TMFL-30x6	Tr 30x6	7	62	38	50	46	14	CuZn, Bz	0,4
TMFL-40x7	Tr 40x7	9	95	63	78	73	16	CuZn, Bz	1,7
TMFL-50x8	Tr 50x8	11	110	72	90	97	18	CuZn, Bz	2,6
TMFL-60x9	Tr 60x9	11	125	85	105	99	20	CuZn, Bz	3,7
TMFL-60x12	Tr 60x12	11	125	85	105	99	20	CuZn, Bz	3,6
TMFL-65x12	Tr 65x12	17	180	95	140	120	30	CuZn, Bz	8,9
TMFL-70x10	Tr 70x10	17	180	95	140	120	30	CuZn, Bz	8,82
TMFL-90x12	Tr 90x12	22	225	130	180	140	34	CuZn, Bz	18,14
TMFL-90x16	Tr 90x16	22	225	130	180	140	34	CuZn, Bz	17,5
TMFL-100x12	Tr 100x12	26	260	140	200	160	37	CuZn, Bz	19,7
TMFL-100x16	Tr 100x16	26	260	140	200	160	37	CuZn, Bz	19,5
TMFL-120x14	Tr 120x14	28	300	160	230	170	40	CuZn, Bz	33,8
TMFL-120x16	Tr 120x16	28	300	160	230	170	40	CuZn, Bz	33,5
TMFL-140x16	Tr 140x16	on request							
TMFL-160x20	Tr 160x20	on request							

Special sizes upon request
General tolerances to DIN ISO 2768 - medium.

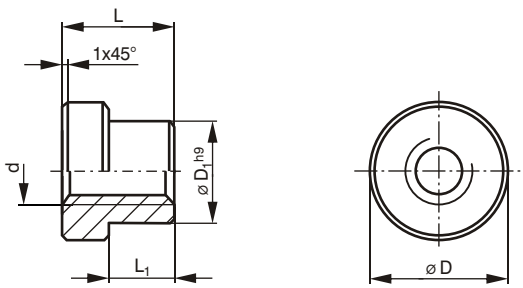
Trapezoidal spindle nuts - standard series - dimensions

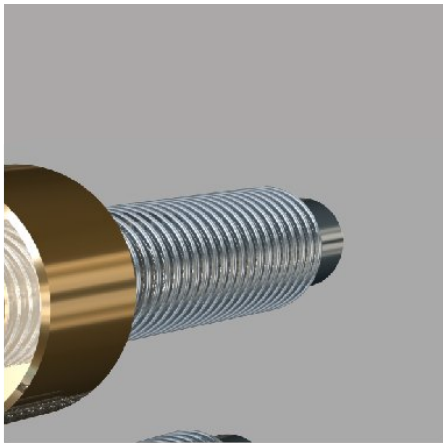
TMB - Trapezoidal flanged nut

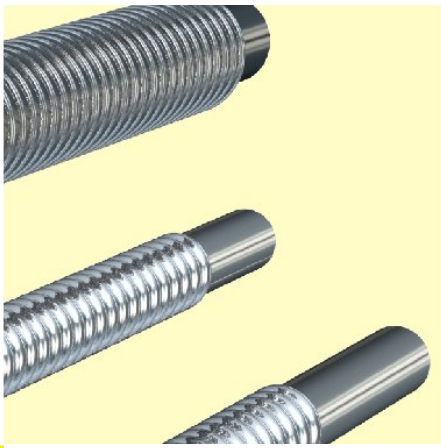
Thread quality: 7H ISO DIN 103

Material: CuZn brass
Bz bronze
further materials upon request

Lead direction: R - right-handed thread, L - left-handed thread







Ordering example:

Trapezoidal flanged nut
Trapezoidal thread size
Lead direction
Material (bronze)

TMB - 30x6 - R - Bz

TMFLSI - Flanged nut with safety nut

Thread quality: 7H ISO DIN 103

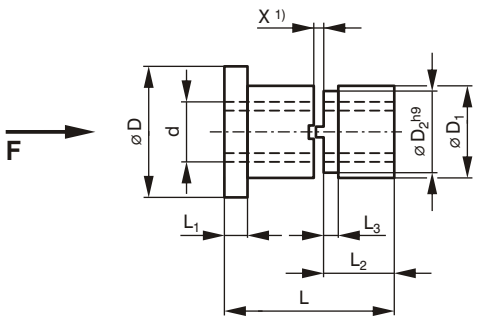
Material: CuZn brass
Bz bronze
further materials upon request

Lead direction: R - right-handed thread, L - left-handed thread

Load direction is **important** - please indicate when ordering!

Drive-type connection of both nuts with slot and web, drilled and secured by pins - available upon request.

Dimensions applicable to a short safety nut, long safety nuts are available upon request.



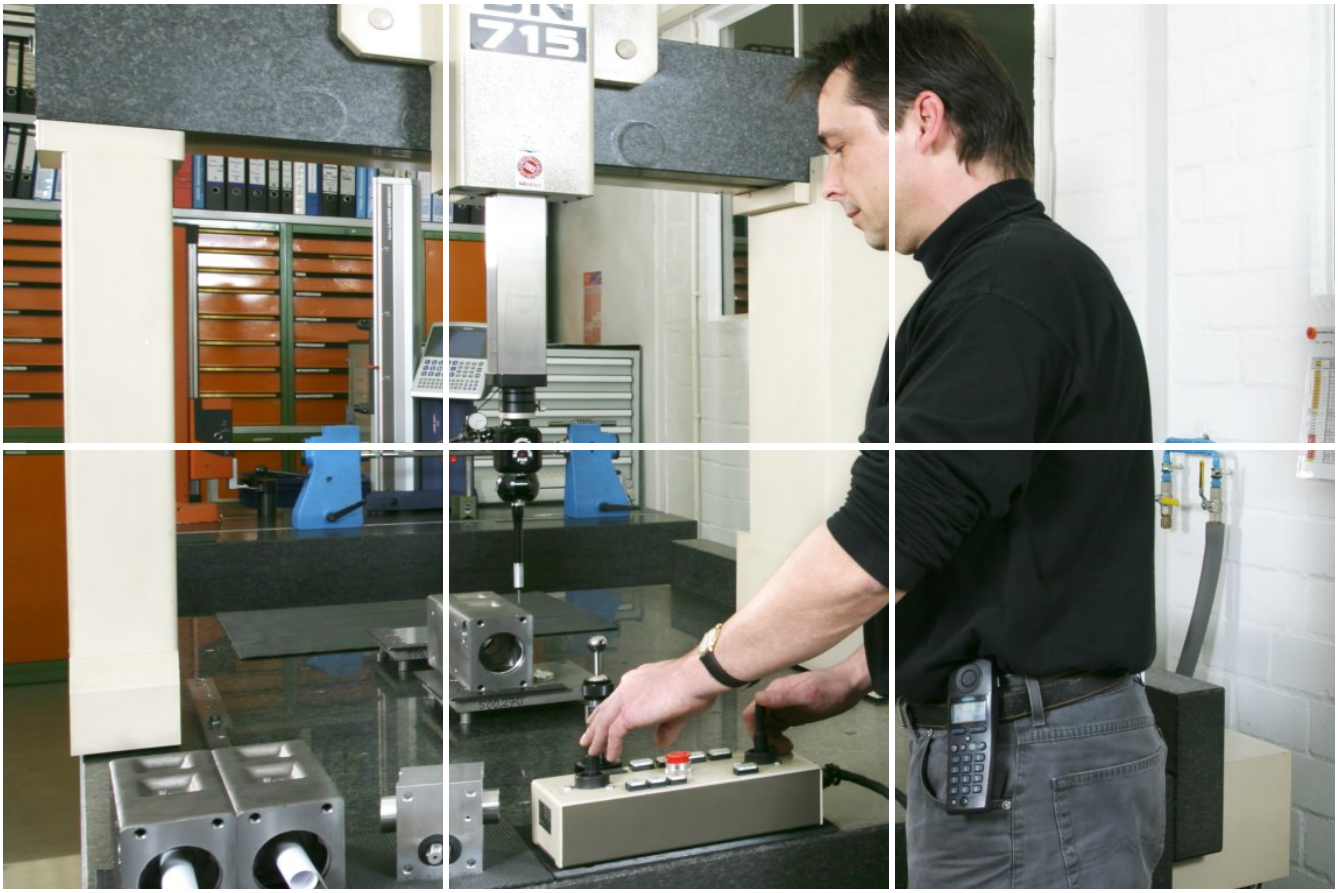
Ordering example:

Flanged nut with safety nut
Trapezoidal thread size
Lead direction
Material (bronze)

TMFLSI - 30x6 - R - Bz

Order code	Dimensions [mm]					Material	Mass (Bz) approx. [kg]
	d	D	D_1	L	L_1		
TMB-20x4	Tr 20x4	49	40	32	22	CuZn, Bz	0,3
TMB-20x6	Tr 20x6	49	40	32	22	CuZn, Bz	0,29
TMB-24x5	Tr 24x5	49	40	32	22	CuZn, Bz	0,25
TMB-26x6	Tr 26x6	74	50	40	20	CuZn, Bz	0,87
TMB-30x6	Tr 30x6	74	50	40	20	CuZn, Bz	0,8
TMB-40x7	Tr 40x7	84	70	60	40	CuZn, Bz	1,55
TMB-50x8	Tr 50x8	109	90	75	50	CuZn, Bz	3,34
TMB-60x9	Tr 60x9	109	90	75	50	CuZn, Bz	2,7
TMB-60x12	Tr 60x12	109	90	75	50	CuZn, Bz	2,59
TMB-65x12	Tr 65x12	119	90	100	70	CuZn, Bz	3,37
TMB-70x10	Tr 70x10	154	130	120	85	CuZn, Bz	11,0
TMB-90x12	Tr 90x12	154	130	120	85	CuZn, Bz	9,67
TMB-90x16	Tr 90x16	154	130	120	85	CuZn, Bz	8,02
TMB-100x12	Tr 100x12	190	150	145	100	CuZn, Bz	15,3
TMB-100x16	Tr 100x16	190	150	145	100	CuZn, Bz	15,1
TMB-120x14	Tr 120x14	220	160	155	105	CuZn, Bz	17,9
TMB-120x16	Tr 120x16	220	160	155	105	CuZn, Bz	17,75
TMB-140x16	Tr 140x16	on request					
TMB-160x20	Tr 160x20	on request					

Special sizes upon request
General tolerances to DIN ISO 2768 - medium

Order code	Dimensions [mm]									Material	Mass (Bz) approx. [kg]
	d	D	D_1	D_2	L	L_1	L_2	L3	X		
TMFL-20x4	Tr 20x4	59	45	43	55	10	20	10	3	CuZn, Bz	0,25
TMFL-20x6	Tr 20x6	59	45	43	55	10	20	10	3	CuZn, Bz	0,23
TMFL-24x5	Tr 24x5	84	45	43	71	20	28	10	3	CuZn, Bz	0,3
TMFL-26x6	Tr 26x6	84	45	43	71	20	28	10	3	CuZn, Bz	0,29
TMFL-30x6	Tr 30x6	84	45	43	71	20	28	10	3	CuZn, Bz	0,28
TMFL-40x7	Tr 40x7	94	70	67	93,5	20	30	10	3,5	CuZn, Bz	0,7
TMFL-50x8	Tr 50x8	119	85	82	136	25	55	10	6	CuZn, Bz	1,8
TMFL-60x9	Tr 60x9	119	85	82	136	25	55	10	6	CuZn, Bz	1,6
TMFL-60x12	Tr 60x12	119	85	82	136	25	55	10	6	CuZn, Bz	1,55
TMFL-65x12	Tr 65x12	129	100	95	171	30	65	10	6	CuZn, Bz	2,76
TMFL-70x10	Tr 70x10	129	100	95	171	30	65	10	6	CuZn, Bz	2,6
TMFL-90x12	Tr 90x12	164	120	117	208	35	80	10	8	CuZn, Bz	4,1
TMFL-90x16	Tr 90x16	164	120	117	208	35	80	10	8	CuZn, Bz	4
TMFL-100x12	Tr 100x12	200	145	140	243	45	90	10	8	CuZn, Bz	7,7
TMFL-100x16	Tr 100x16	200	145	140	243	45	90	10	8	CuZn, Bz	7,5
TMFL-120x14	Tr 120x14	230	155	152	258	50	95	10	8	CuZn, Bz	8,7
TMFL-120x16	Tr 120x16	230	155	152	258	50	95	10	8	CuZn, Bz	8,5
TMFL-140x16	Tr 140x16	on request									
TMFL-160x20	Tr 160x20	on request									

Special sizes upon request
General tolerances to DIN ISO 2768 - medium