

**SKF**

# **SKF lock nuts - the components for quick location**



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**Made by SKF®** stands for excellence. It symbolises our consistent endeavour to achieve total quality in everything we do. For those who use our products, “Made by SKF” implies three main benefits.

**Reliability** – thanks to modern, efficient products, based on our worldwide application know-how, optimised materials, forward-looking designs and the most advanced production techniques.

**Cost effectiveness** – resulting from the favourable ratio between our product quality plus service facilities, and the purchase price of the product.

**Market lead** – which you can achieve by taking advantage of our products and services. Increased operating time and reduced down-time, as well as improved output and product quality are the key to a successful partnership.



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# Fast, easy and efficient mounting

Lock nuts locate bearings and other components on shafts and facilitate mounting and dismantling. SKF supplies a wide range of lock nuts. They ensure long bearing service life and reliable locking and can prevent bearing fitting damages. SKF lock nuts are easy to mount, do not damage the shaft and ensure effective locking.

## Five types to choose from

Of course it would be possible to produce just one lock nut for all requirements, but this would be nothing but a compromise: too expensive for a great number of applications, for many others technically not sufficiently advanced.

Therefore the SKF product range comprises five types, each having its advantages in function and application. SKF lock nuts cover a large range of both metric and inch sizes.



## Fast, easy and efficient mounting



### KMT lock nuts

SKF KMT lock nuts are high precision components. The nut is locked by means

of three radial brass locking pins arranged at the same angle as the thread flanks. This removes the need for a locking washer and keyway. The nut can be accurately located at right angles to the shaft by means of the radial locking pins and can be re-used.



### KMTA lock nuts

SKF lock nuts of KMTA design are manufactured to the same high precision as KMT

lock nuts. The locking principle and the ability to be located at right angles to the shaft are the same as for KMT.

KMTA lock nuts are of a compact design and are intended for applications where space is limited. They can be re-used.



### KMK lock nuts

SKF lock nuts of KMK design lock quickly and safely without the need for a locking

washer and keyway. The KMK nut is locked in position with a steel insert, an integral part of the nut thread, which presses against the shaft thread. The nut remains perpendicular to the shaft when the insert is pressed against the shaft thread. KMK nuts are also re-usable



### KMF lock nuts

SKF has developed a new range of lock nuts with internal locking system to supple-

ment its existing nuts. The special design feature of the KMF lock nuts is the locking principle. A small part of the nut thread is pressed into the shaft thread by a locking screw and prevents the nut from turning.

Mounting and dismounting are easy and the positive locking effect is secure. Keyways in the shaft and additional locking washers are not needed.

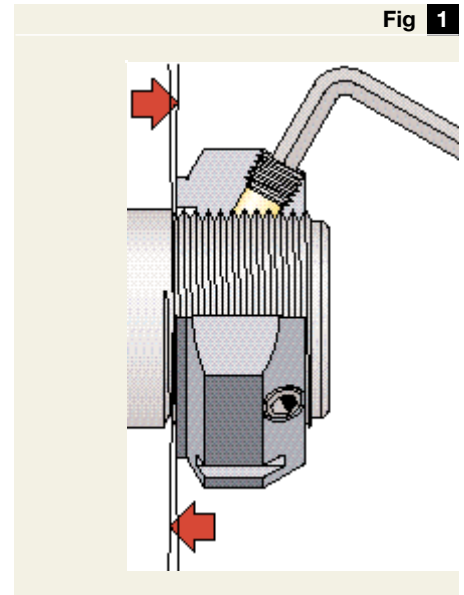
Simple tools can be used similar to those for KM(L) and KMK nuts. KMF nuts are also re-usable.



### KM(L) lock nuts

The SKF lock nut KM(L) when used in conjunction with an MB(L) locking washer is a simple, stable and reliable fastening element.

Simple, stable and reliable fastening element.



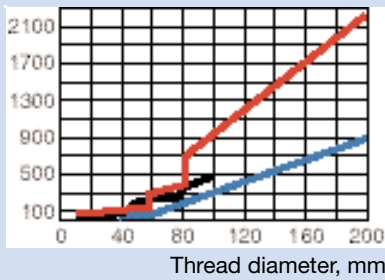
## Adjustable to minimise runout

Both KMT and KMTA lock nuts have the same unique design using three equally spaced locking pins aligned at the same angle to the shaft axis as the thread flanks (→ fig 1). This design makes it very easy to align the lock nut at right angles to the shaft axis. The locking pins can be individually adjusted to minimise radial and axial runouts.

*For further information please refer to the SKF General Catalogue, the SKF catalogue 3766 "Bearing accessories" and the "SKF Interactive Engineering Catalogue".*

Diagram 1

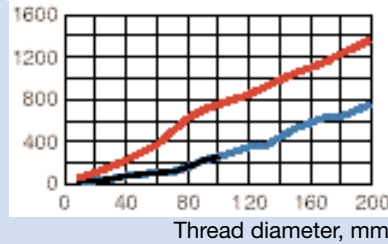
Loosening torque, Nm



**KMT and KMTA**  
**KMK**  
**KMF and KM(L)**

Diagram 2

Permissible axial load, kN



**KMT and KMTA**  
**KMK**  
**KMF and KM(L)**

## SKF spanner set TMHN 7 for lock nuts

It is essential when mounting self aligning bearings on adapter sleeves to obtain the correct radial clearance. Failure to do so will result in a shortened bearing life and a sub-optimal performance. A set of seven spanners has been specially designed for this purpose (→ Table 1).

Each spanner is clearly marked with the correct tightening angle, ensuring that the optimum drive-up the adapter sleeve is obtained. The correct radial clearance will then remain after locking the sleeve nut.

## Loosening torque

Diagram 1 illustrates the locking capability of the nuts described in this brochure. The KM(L) lock nuts have been used together with MB(L) locking washers. The lock nuts were tested on a threaded shaft and screwed tightly against a shoulder. No axial load was applied. The grub screws of the KMT, KMTA, KMK and KMF lock nuts are tightened with the torques stated in the product tables.

## Permissible axial load

KMT and KMTA lock nuts withstand higher axial loads than most other lock nuts because the entire threaded length of the nut can absorb the load (→ Diagram 2).

### SKF lock nut spanner makes an "impossible" job simple

- Seven different spanners for fitting KM lock nuts size 5 to 11.
- Each spanner is clearly marked with the correct tightening angle.
- The spanner engages the nut in four positions giving a secure grip.

Table 1

Spanner designation	Nut designation	Bearing designations			
HNM 5	KM 5	1205 EK	2205 EK	1305 EK	–
HNM 6	KM 6	1206 EK	2206 EK	1306 EK	2306 EK
HNM 7	KM 7	1207 EK	2207 EK	1307 EK	2307 EK
HNM 8	KM 8	1208 EK	2208 EK	1308 EK	2308 EK
HNM 9	KM 9	1209 EK	2209 EK	1309 EK	2309 EK
HNM 10	KM 10	1210 EK	2210 EK	1310 EK	2310 EK
HNM 11	KM 11	1211 EK	2211 EK	1311 EK	2311 EK



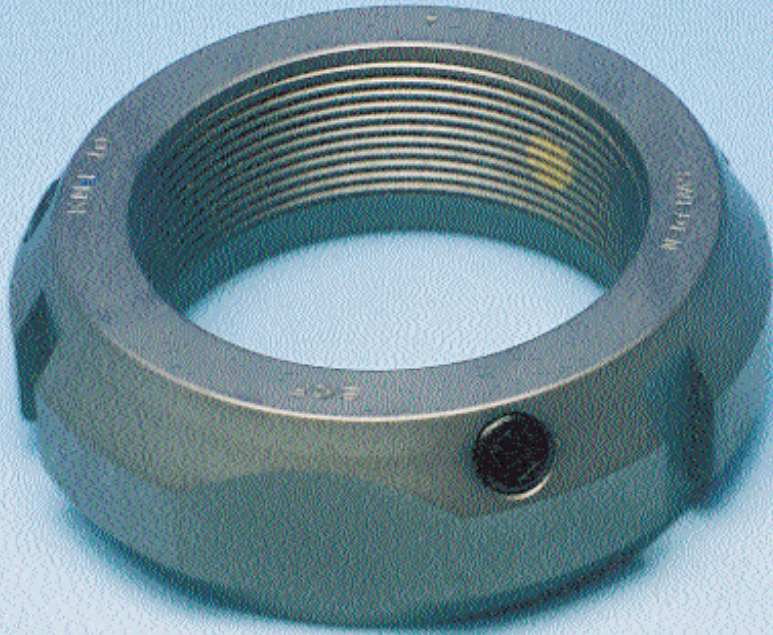
# Keeping a firm grip on trouble-free operation

Trouble-free operation of bearings and other components depends not only on the components in question but also on the adjacent parts. Correct mounting and regular maintenance are no less important in order to prevent unplanned machine downtime. Many operators know this correlation and take appropriate care.

Therefore, SKF lock nuts are used in many different production areas. They contribute to high quality, high reliability and the high precision of the final product.



# KMT lock nuts for high precision



Material: High-strength steel  
Finish: Phosphated and saturated with oil  
Locking pin: Hard drawn brass  
Grub screw: Type MT6SS short pin (DIN 915, 45H)  
Thread tolerance: 5H (ISO 965/3-1980)  
Recommended tolerance for shaft threads: 6g (ISO 965/3-1980)

## A high-precision lock nut

The thread and clamping face are machined in the same set-up. The maximum runout between locating face and thread is 0,005 mm.

## Locks without a locking washer and keyway

KMT lock nuts are locked by three radial brass pins which are arranged at the same angle as the thread flanks. The locking faces of the pins and the nut thread are machined in a single operation.

Shaft keyways are not needed. Expensive machining is therefore avoided and shafts can be of a smaller diameter.

## Simple to align perpendicular to the shaft

KMT lock nuts can be very accurately aligned at right angles to the shaft. The three locking screws enable the nuts to compensate for inaccuracies in adjacent components. The use of a KMT lock nut will therefore minimise radial and axial runout in most assemblies.

## Withstands high axial loads

The KMT design features a very long thread which accommodates high axial forces.

## Ensures very effective locking

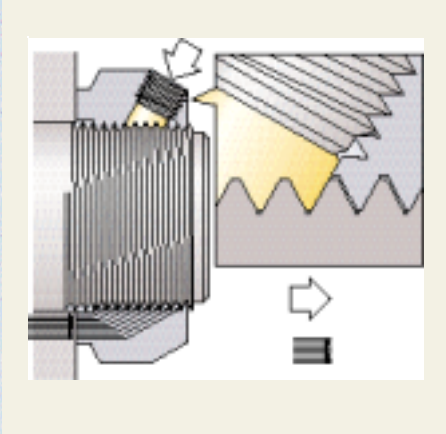
The locking screws have a relatively large diameter so the thread locking force is high with even a moderate tightening. The locking forces are applied in the best possible way because the brass locking pins do not experience any axial forces.

## Re-usable

The brass locking pins do not deform when pressed against the shaft thread by the locking screws. The locking effect is provided entirely by frictional forces. KMT lock nuts can be used time and time again without any loss of precision because the locking elements are not deformed in service.

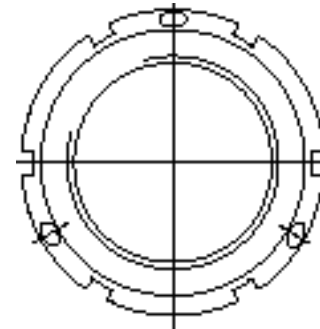
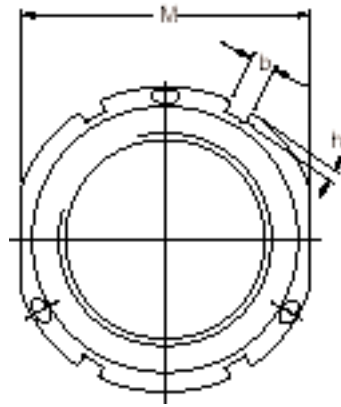
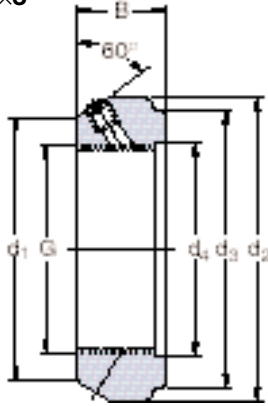
## Simple to mount and dismount

KMT lock nuts are simple to fit and dismount. All nuts incorporate hook spanner notches and additionally up



to size 15 (M 75x2) two spanner flats. The choice of spanner type depends upon the application. The locking grub screws can be tightened using a standard hexagon key or torque wrench. A torque wrench is recommended if an accurate loosening torque limit is required.

**KMT lock nuts**  
**M 10×0,75 – M 200×3**



KMT 0 – KMT 15

KMT 16 – KMT 40

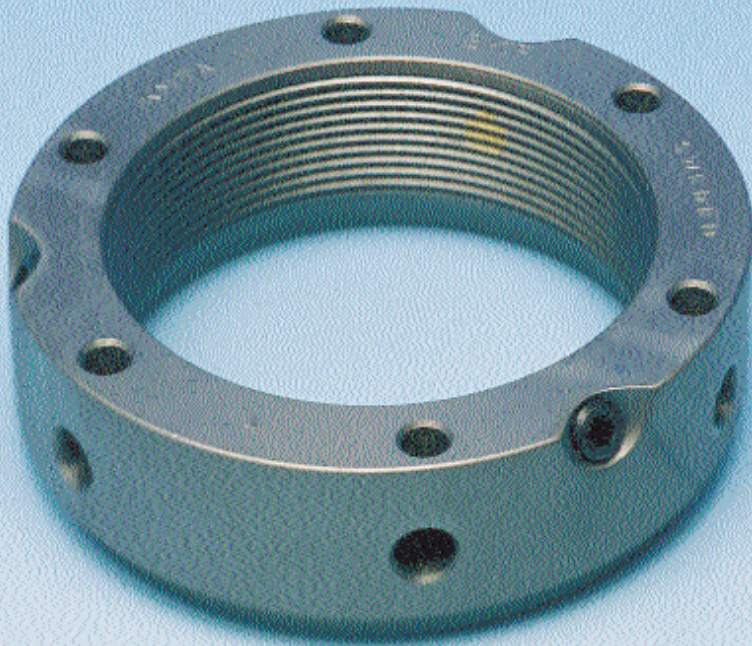
Dimensions									Axial load carrying capacity static	Loosening torque	Grub screws Size	Tightening torque max	Mass	Designations	
G	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>	B	b	h	M						Lock nut	Appropriate hook spanner <sup>1)</sup>
mm									kN	Nm	–	Nm	kg	–	–
<b>M 10×0,75</b>	21	28	23	11	14	4	2	24	35	15	M 5	4,5	0,045	<b>KMT 0</b>	HN 2/3
<b>M 12×1</b>	23	30	25	13	14	4	2	27	40	18	M 5	4,5	0,050	<b>KMT 1</b>	HN 3
<b>M 15×1</b>	26	33	28	16	16	4	2	30	60	20	M 5	4,5	0,075	<b>KMT 2</b>	HN 4
<b>M 17×1</b>	29	37	33	18	18	5	2	34	80	25	M 6	8	0,10	<b>KMT 3</b>	HN 4
<b>M 20×1</b>	32	40	35	21	18	5	2	36	90	35	M 6	8	0,11	<b>KMT 4</b>	HN 5
<b>M 25×1,5</b>	36	44	39	26	20	5	2	41	130	45	M 6	8	0,13	<b>KMT 5</b>	HN 5
<b>M 30×1,5</b>	41	49	44	32	20	5	2	46	160	55	M 6	8	0,16	<b>KMT 6</b>	HN 6
<b>M 35×1,5</b>	46	54	49	38	22	5	2	50	190	65	M 6	8	0,19	<b>KMT 7</b>	HN 7
<b>M 40×1,5</b>	54	65	59	42	22	6	2,5	60	210	80	M 8	18	0,30	<b>KMT 8</b>	HN 8/9
<b>M 45×1,5</b>	60	70	64	48	22	6	2,5	65	240	95	M 8	18	0,33	<b>KMT 9</b>	HN 9/1 0
<b>M 50×1,5</b>	64	75	68	52	25	7	3	70	300	115	M 8	18	0,40	<b>KMT 10</b>	HN 10/11
<b>M 55×2</b>	74	85	78	58	25	7	3	80	340	225	M 8	18	0,54	<b>KMT 11</b>	HN 12/13
<b>M 60×2</b>	78	90	82	62	26	8	3,5	85	380	245	M 8	18	0,61	<b>KMT 12</b>	HN 13
<b>M 65×2</b>	83	95	87	68	28	8	3,5	90	460	265	M 8	18	0,71	<b>KMT 13</b>	HN 14
<b>M 70×2</b>	88	100	92	72	28	8	3,5	95	490	285	M 8	18	0,75	<b>KMT 14</b>	HN 15
<b>M 75×2</b>	93	105	97	77	28	8	3,5	100	520	305	M 8	18	0,80	<b>KMT 15</b>	HN 15/16
<b>M 80×2</b>	98	110	100	83	32	8	3,5	–	620	325	M 8	18	0,90	<b>KMT 16</b>	HN 16/17
<b>M 85×2</b>	107	120	110	88	32	10	4	–	650	660	M 10	35	1,15	<b>KMT 17</b>	HN 17/18
<b>M 90×2</b>	112	125	115	93	32	10	4	–	680	720	M 10	35	1,20	<b>KMT 18</b>	HN 18/19
<b>M 95×2</b>	117	130	120	98	32	10	4	–	710	780	M 10	35	1,25	<b>KMT 19</b>	HN 19/20
<b>M 100×2</b>	122	135	125	103	32	10	4	–	740	840	M 10	35	1,30	<b>KMT 20</b>	HN 20
<b>M 110×2</b>	132	145	134	112	32	10	4	–	800	960	M 10	35	1,45	<b>KMT 22</b>	HN 22

<sup>1)</sup> Hook spanners to DIN 1810, Form A, may also be used



Dimensions								Axial load carrying capacity static	Loosening torque	Grub screws		Mass	Designations	
G	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>	B	b	h			Size	Tightening torque max		Lock nut	Appropriate impact spanner
mm								kN	Nm	–	Nm	kg	–	
<b>M 120×2</b>	142	155	144	122	32	10	4	860	1 080	M 10	35	1,60	<b>KMT 24</b>	718909
<b>M 130×2</b>	152	165	154	132	32	12	5	920	1 200	M 10	35	1,70	<b>KMT 26</b>	718909
<b>M 140×2</b>	162	175	164	142	32	14	6	980	1 320	M 10	35	1,80	<b>KMT 28</b>	718909
<b>M 150×2</b>	172	185	174	152	32	14	6	1 040	1 440	M 10	35	1,95	<b>KMT 30</b>	718909
<b>M 160×3</b>	182	195	184	162	32	14	6	1 100	1 600	M 10	35	2,10	<b>KMT 32</b>	718910
<b>M 170×3</b>	192	205	192	172	32	14	6	1 160	1 750	M 10	35	2,20	<b>KMT 34</b>	718910
<b>M 180×3</b>	202	215	204	182	32	16	7	1 220	1 900	M 10	35	2,30	<b>KMT 36</b>	718910
<b>M 190×3</b>	212	225	214	192	32	16	7	1 280	2 050	M 10	35	2,40	<b>KMT 38</b>	718910
<b>M 200×3</b>	222	235	224	202	32	18	8	1 340	2 300	M 10	35	2,50	<b>KMT 40</b>	718910

# KMTA lock nuts for compact design



Material: High-strength steel  
Finish: Phosphated and saturated with oil  
Locking pin: Hard drawn brass  
Grub screw: Type MT6SS short pin (DIN 915, 45H)  
Thread tolerance: 5H (ISO 965/3-1980)  
Recommended tolerance for shaft threads: 6g (ISO 965/3-1980)

## A high-precision lock nut

The thread and locating face are machined in the same operation. The maximum runout between locating face and thread is 0,005 mm.

## Locks without a locking washer and keyway

KMTA nuts lock in the same way as KMT nuts with three radial brass locking pins. There is no need for a locking washer or keyway. Expensive machining is therefore avoided and shafts can be of a smaller diameter. The brass locking pins and the thread of the nut are machined in a single operation.

## Simple to align perpendicular to the shaft

The KMTA nut can be aligned perpendicular to the shaft with the same accuracy as the KMT design. The locking screws enable the nut to compensate for the inaccuracies of adjacent components on the shaft. Axial and radial runout can be minimized.

## Withstands high axial loads

The KMTA design withstands the same

high axial loads as the KMT lock nuts. This is because the entire length of the nut carries the working axial load.

## Ensures very effective locking

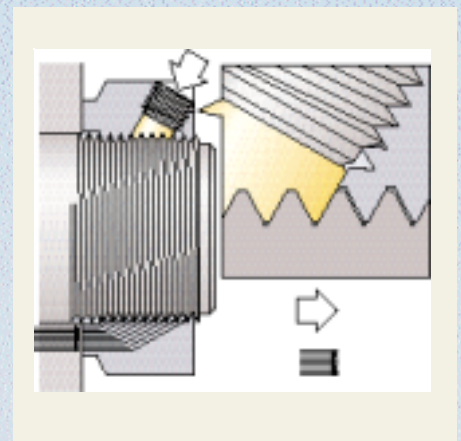
The locking screws are of the largest size practicable in a nut of this design to maximise the locking force with even moderate tightening. The brass locking pins do not absorb a significant part of the total axial load on the nut so the locking forces are utilised in the best possible way.

## Re-usable

The brass locking pins are not deformed when pressed against the shaft thread. The locking effect is purely as a result of frictional forces. Since the locking pins are not deformed the KMTA nut can be re-used without any loss of precision.

## Simple to mount and dismount

The KMTA lock nut is simple to mount and dismount. The nuts all have both radial and axial holes. Hook spanners may be used on the radial holes, pin spanners on the axial holes. The lock-

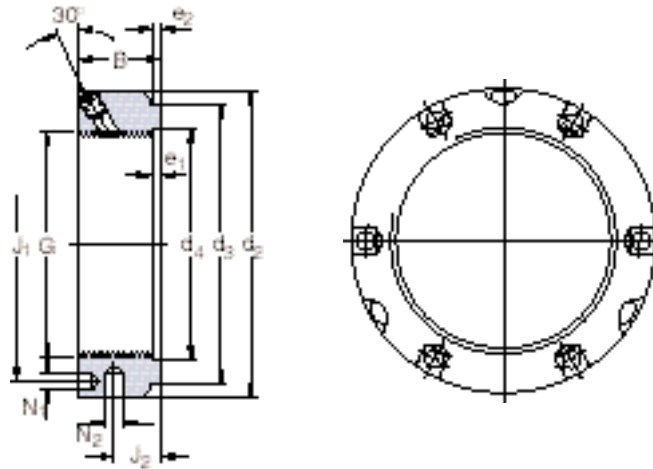


ing grub screws can be tightened with either a standard hexagon key or torque wrench. A torque wrench is recommended if an accurate loosening torque limit is required.

## Fine threads

KMTA lock nuts in sizes 11 to 15 have metric series fine thread pitches, these complement the metric series standard pitches of the KMT series.

**KMTA lock nuts**  
**M 25×1,5 – M 200×3**



Dimensions												Axial load carrying capacity static	Loosening torque	Grub screws Size	Tightening torque max	Mass	Designations	
G	d <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>	B	J <sub>1</sub>	J <sub>2</sub>	N <sub>1</sub>	N <sub>2</sub>	e <sub>1</sub>	e <sub>2</sub>	Lock nut						Appropriate hook spanner to DIN 1810 Form B	
mm												kN	Nm	-	Nm	kg	-	
<b>M 25×1,5</b>	42	35	26	20	32,5	11	4,3	4	2	2	130	45	M 6	8	0,13	<b>KMTA 5</b>	B 40-42	
<b>M 30×1,5</b>	48	40	32	20	40,5	11	4,3	5	2	2	160	55	M 6	8	0,16	<b>KMTA 6</b>	B 45-50	
<b>M 35×1,5</b>	53	47	38	20	45,5	11	4,3	5	3	3	190	65	M 6	8	0,19	<b>KMTA 7</b>	B 52-55	
<b>M 40×1,5</b>	58	52	42	22	50,5	12	4,3	5	3	3	210	80	M 6	8	0,23	<b>KMTA 8</b>	B 58-62	
<b>M 45×1,5</b>	68	58	48	22	58	12	4,3	6	3	3	240	95	M 6	8	0,33	<b>KMTA 9</b>	B 68-75	
<b>M 50×1,5</b>	70	63	52	24	61,5	13	4,3	6	4	4	300	115	M 6	8	0,34	<b>KMTA 10</b>	B 68-75	
<b>M 55×1,5</b>	75	70	58	24	66,5	13	4,3	6	4	4	340	135	M 6	8	0,37	<b>KMTA 11</b>	B 68-75	
<b>M 60×1,5</b>	84	75	62	24	74,5	13	5,3	6	4	4	380	150	M 6	8	0,49	<b>KMTA 12</b>	B 80-90	
<b>M 65×1,5</b>	88	80	68	25	78,5	13	5,3	6	4	4	460	170	M 6	8	0,52	<b>KMTA 13</b>	B 80-90	
<b>M 70×1,5</b>	95	86	72	26	85	14	5,3	8	4	4	490	285	M 8	18	0,62	<b>KMTA 14</b>	B 95-100	
<b>M 75×1,5</b>	100	91	77	26	88	13	6,4	8	4	4	520	305	M 8	18	0,66	<b>KMTA 15</b>	B 95-100	
<b>M 80×2</b>	110	97	83	30	95	16	6,4	8	5	4	620	325	M 8	18	1,00	<b>KMTA 16</b>	B 110-115	
<b>M 85×2</b>	115	102	88	32	100	17	6,4	8	5	4	650	660	M 10	35	1,15	<b>KMTA 17</b>	B 110-115	
<b>M 90×2</b>	120	110	93	32	108	17	6,4	8	5	5	680	720	M 10	35	1,20	<b>KMTA 18</b>	B 120-130	
<b>M 95×2</b>	125	114	98	32	113	17	6,4	8	5	5	710	780	M 10	35	1,25	<b>KMTA 19</b>	B 120-130	
<b>M 100×2</b>	130	120	103	32	118	17,5	6,4	8	5	5	740	840	M 10	35	1,30	<b>KMTA 20</b>	B 120-130	
<b>M 110×2</b>	140	132	112	32	128	17	6,4	8	5	5	800	960	M 10	35	1,45	<b>KMTA 22</b>	B 135-145	
<b>M 120×2</b>	155	142	122	32	140	17	6,4	8	5	5	860	1 080	M 10	35	1,85	<b>KMTA 24</b>	B 155-165	
<b>M 130×3</b>	165	156	132	32	153	17	6,4	8	5	5	920	1 200	M 10	35	2,00	<b>KMTA 26</b>	B 155-165	
<b>M 140×3</b>	180	166	142	32	165	17	6,4	10	5	5	980	1 320	M 10	35	2,45	<b>KMTA 28</b>	B 180-195	
<b>M 150×3</b>	190	180	152	32	175	17	6,4	10	5	5	1 040	1 440	M 10	35	2,60	<b>KMTA 30</b>	B 180-195	
<b>M 160×3</b>	205	190	162	32	185	17	8,4	10	5	5	1 100	1 600	M 10	35	3,15	<b>KMTA 32</b>	B 205-220	
<b>M 170×3</b>	215	205	172	32	195	17	8,4	10	5	5	1 160	1 750	M 10	35	3,30	<b>KMTA 34</b>	B 205-220	
<b>M 180×3</b>	230	215	182	32	210	17	8,4	10	5	5	1 220	1 900	M 10	35	3,90	<b>KMTA 36</b>	B 230-245	
<b>M 190×3</b>	240	225	192	32	224	17	8,4	10	5	5	1 280	2 050	M 10	35	4,10	<b>KMTA 38</b>	B 230-245	
<b>M 200×3</b>	245	237	202	32	229	17	8,4	10	5	5	1 340	2 200	M 10	35	3,85	<b>KMTA 40</b>	B 230-245	

# KMK lock nuts for simple mounting



Material: High-strength steel  
Finish: Phosphated and saturated with oil  
Locking insert: Steel  
Grub screw: Type MP6SS (DIN 913, 45H)  
Thread tolerance: 5H (ISO 965/3-1980)  
Recommended tolerance for shaft threads: 6g (ISO 965/3-1980)

## Locks without a locking washer and keyway

The locking effect of the KMK lock nut is given by a loose steel insert, an integral part of the thread, being pressed against the shaft thread by a grub screw. Shaft keyways are not needed. Expensive machining is therefore avoided and shafts can be of a smaller diameter.

## Axial force carried by the entire length of thread

Axial forces on the lock nut are carried by the nut thread flanks and not by the steel insert.

## Effective locking

The steel insert is free to float both axially and radially. This ensures that it presses perpendicular on the shaft. The friction within the nut thread is thus increased and effective locking obtained. The locking action of the steel insert has no effect on the runout of a mounted KMK lock nut.

## Re-usable

The steel insert is pressed by a locking screw against the shaft thread without any deformation of the insert or thread. The locking effect is a function of frictional force alone. Since the locking insert is not deformed the KMK lock nut can be re-used with no loss of precision.

## Simple to mount and dismount

KMK lock nuts are simple to mount and dismount. Four hook spanner notches are provided around the circumference.

The locking screw can be tightened using a standard hexagon key or a torque wrench.

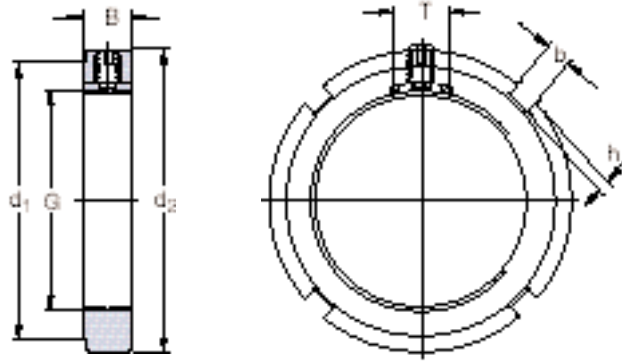
A torque wrench is recommended to achieve an accurate loosening torque limit.

## Close tolerances

The thread and locating face are machined in the same operation. The maximum runout between the thread and the locating face is 0,02 mm.

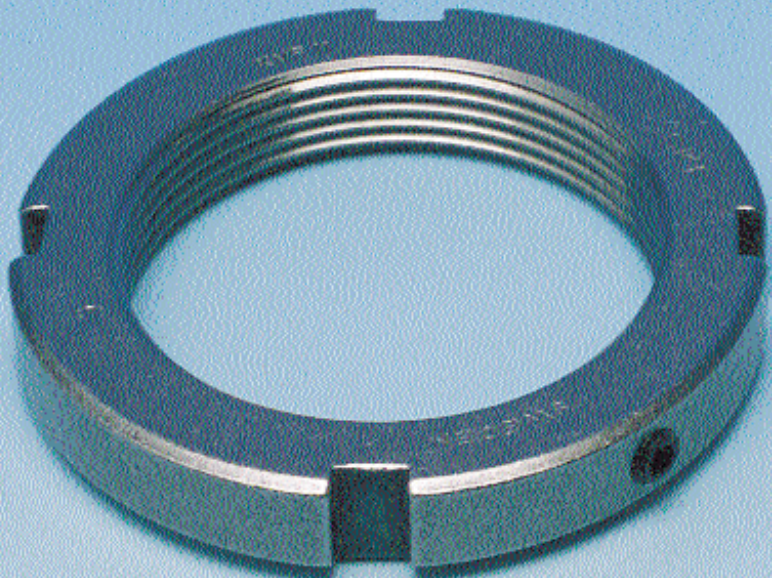


**KMK lock nuts**  
**M 10×0,75 – M 100×2**



Dimensions							Axial load carrying capacity static	Loosening torque	Grub screw		Mass	Designations	
G	d <sub>1</sub>	d <sub>2</sub>	B	b	h	T			Size	Tightening torque max		Lock nut	Appropriate hook spanner
mm							kN	Nm	–	Nm	kg	–	
<b>M 10×0,75</b>	16	20	8	3	2	4	9,8	8	M 4	2	0,014	<b>KMK 0</b>	–
<b>M 12×1</b>	18	22	8	3	2	4	11,8	9	M 4	2	0,016	<b>KMK 1</b>	HN 1
<b>M 15×1</b>	21	25	8	4	2	4	14,6	12	M 4	2	0,019	<b>KMK 2</b>	HN 2
<b>M 17×1</b>	24	28	8	4	2	4	19,6	13	M 4	2	0,024	<b>KMK 3</b>	HN 3
<b>M 20×1</b>	28	32	8	4	2	4	24	16	M 4	2	0,03	<b>KMK 4</b>	HN 4
<b>M 25×1,5</b>	34	38	9	5	2	10	31,5	29	M 5	4	0,03	<b>KMK 5</b>	HN 5
<b>M 30×1,5</b>	41	45	9	5	2	10	36,5	35	M 5	4	0,06	<b>KMK 6</b>	HN 6
<b>M 35×1,5</b>	48	52	9	5	2	10	50	40	M 5	4	0,07	<b>KMK 7</b>	HN 7
<b>M 40×1,5</b>	53	58	11	6	2,5	12	62	67	M 6	8	0,11	<b>KMK 8</b>	HN 8
<b>M 45×1,5</b>	60	65	11	6	2,5	12	78	76	M 6	8	0,14	<b>KMK 9</b>	HN 9
<b>M 50×1,5</b>	65	70	13	6	2,5	12	91,5	84	M 6	8	0,18	<b>KMK 10</b>	HN 10
<b>M 55×2</b>	69	75	13	7	3	12	91,5	172	M 8	18	0,19	<b>KMK 11</b>	HN 11
<b>M 60×2</b>	74	80	13	7	3	12	95	188	M 8	18	0,20	<b>KMK 12</b>	HN 12
<b>M 65×2</b>	79	85	14	7	3	14	108	203	M 8	18	0,24	<b>KMK 13</b>	HN 13
<b>M 70×2</b>	85	92	14	8	3,5	14	118	219	M 8	18	0,28	<b>KMK 14</b>	HN 14
<b>M 75×2</b>	91	98	14	8	3,5	14	134	235	M 8	18	0,33	<b>KMK 15</b>	HN 15
<b>M 80×2</b>	98	105	18	8	3,5	16	173	378	M 8	18	0,45	<b>KMK 16</b>	HN 16
<b>M 85×2</b>	103	110	18	8	3,5	16	190	401	M 10	35	0,52	<b>KMK 17</b>	HN 17
<b>M 90×2</b>	112	120	18	10	4	16	216	425	M 10	35	0,65	<b>KMK 18</b>	HN 18
<b>M 95×2</b>	117	125	20	10	4	16	236	448	M 10	35	0,76	<b>KMK 19</b>	HN 19
<b>M 100×2</b>	122	130	20	10	4	16	255	472	M 10	35	0,80	<b>KMK 20</b>	HN 20

# KMF lock nuts with new locking principle



Material: High-strength steel  
Finish: Saturated with oil  
Locking device: Screw  
Grub screw: Type MT6SS  
(DIN 915, 45H)  
Thread tolerance: 5H  
(ISO 965/3-1980)  
Recommended tolerance for shaft  
threads: 6g (ISO 965/3-1980)

## **Locks without a locking washer and keyway**

The locking effect of the KMF lock nut is achieved by tightening a screw in a threaded blind hole. This causes the thread of the nut to plastically deform and the bulge so produced to press against the shaft thread. Shaft keyways are not needed. Expensive machining is therefore avoided and shafts can be of a smaller diameter.

## **Axial force carried by entire length of thread**

Axial forces on the lock nut are carried by the nut thread flanks. The locking force is exploited to the maximum since the bulge under the locking screw does not support the axial load.

## **High locking efficiency**

When the nut is locked, the bulge presses at right angles to the shaft. The friction in the nut thread increases and produces efficient locking. There is no influence on the perpendicularity. The loosening torque is higher than when a locking washer is used.

## **Re-usable**

The bulge beneath the locking screw does not deform the shaft thread and locking is solely a result of friction. To dismount, the nut should be given a slight radial knock where the screw is. This will cause the bulge to disappear.

## **Simple to mount and dismount**

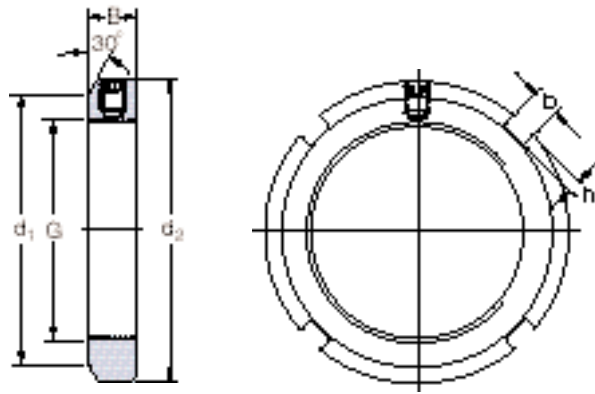
KMF lock nuts are simple to mount and dismount. Notches are provided in the circumference to take a hook spanner. The locking screw can be tightened using a standard hexagonal key or a torque wrench.

A torque wrench is recommended if an accurate loosening torque is required.

## **Close tolerances**

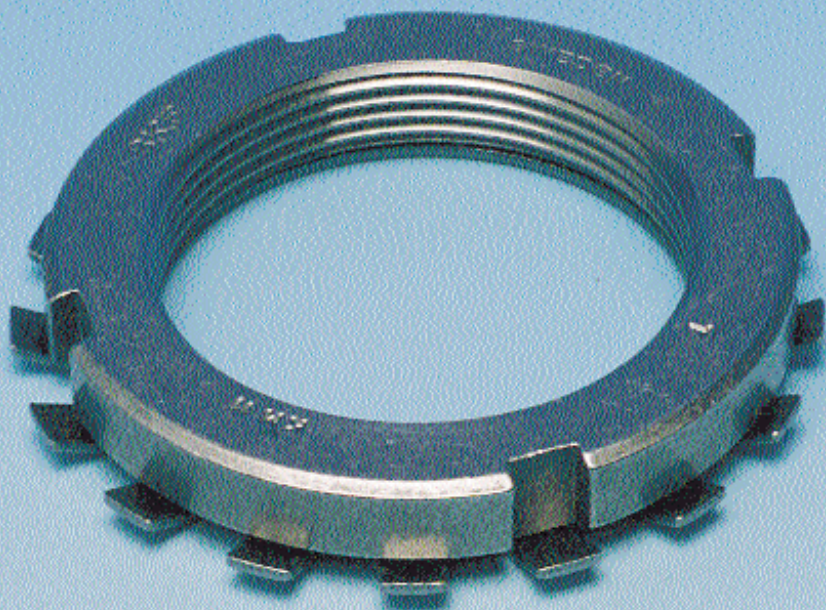
The thread and locating face are machined in a single operation. The maximum axial runout between the thread and the locating face is 0,04 mm max.

**KMF lock nuts**  
**M 12×1 – M 75×2**



Dimensions						Axial load carrying capacity static	Loosening torque	Grub screw		Mass	Designations	
G	d <sub>1</sub>	d <sub>2</sub>	B	b	h			Size	Tightening torque max		Lock nut	Appropriate hook spanner
mm						kN	Nm	–	Nm	kg	–	
<b>M 12×1</b>	17	22	9,5	3	2	11,8	17	M 5	4	0,019	<b>KMF 1</b>	HN 1
<b>M 15×1</b>	21	25	9,5	4	2	14,6	21	M 5	4	0,023	<b>KMF 2</b>	HN 2
<b>M 17×1</b>	24	28	9,5	4	2	19,6	24	M 5	4	0,023	<b>KMF 3</b>	HN 3
<b>M 20×1</b>	26	32	9,5	4	2	24	28	M 5	4	0,032	<b>KMF 4</b>	HN 4
<b>M 25×1,5</b>	32	38	9,5	5	2	31,5	35	M 5	4	0,038	<b>KMF 5</b>	HN 5
<b>M 30×1,5</b>	38	45	9,5	5	2	36,5	42	M 5	4	0,052	<b>KMF 6</b>	HN 6
<b>M 35×1,5</b>	44	52	10	5	2	50	49	M 5	4	0,073	<b>KMF 7</b>	HN 7
<b>M 40×1,5</b>	50	58	11,5	6	2,5	62	80	M 6	8	0,10	<b>KMF 8</b>	HN 8
<b>M 45×1,5</b>	56	65	11,5	6	2,5	78	94	M 6	8	0,13	<b>KMF 9</b>	HN 9
<b>M 50×1,5</b>	61	70	12,5	6	2,5	91,5	100	M 6	8	0,16	<b>KMF10</b>	HN 10
<b>M 55×2</b>	67	75	12,5	7	3	91,5	110	M 6	8	0,17	<b>KMF 11</b>	HN 11
<b>M 60×2</b>	73	80	12,5	7	3	95	120	M 6	8	0,18	<b>KMF 12</b>	HN 12
<b>M 65×2</b>	79	85	12,5	7	3	108	130	M 6	8	0,20	<b>KMF 13</b>	HN 13
<b>M 70×2</b>	85	92	12,5	8	3,5	118	140	M 6	8	0,23	<b>KMF 14</b>	HN 14
<b>M 75×2</b>	90	98	13	8	3,5	134	150	M 6	8	0,27	<b>KMF 15</b>	HN 15

# KM(L) lock nuts with locking washers



Material: High-strength steel or spheroidal graphite cast iron  
Finish: Saturated with oil  
Locking washer: Sheet of steel  
Thread tolerance: 5H  
(ISO 965/3-1980)  
Recommended tolerance for shaft threads: 6g (ISO 965/3-1980)

## Locks with a locking washer

The KM(L) nut is used in combination with an MB(L) locking washer and key-way for effective locking.

## Easy to mount and dismount

KM(L) lock nuts can be mounted and dismounted easily with both hook and impact spanners. These spanners can be supplied by SKF.

## Wide range of sizes

SKF can supply KM(L) lock nuts with both metric and inch threads as standard.

Details of lock nuts larger than metric size 40 (designated HM), inch size lock nuts and lock nuts for use with a locking clip can be found in the SKF General Catalogue or the SKF catalogue 3766 "Bearing accessories"

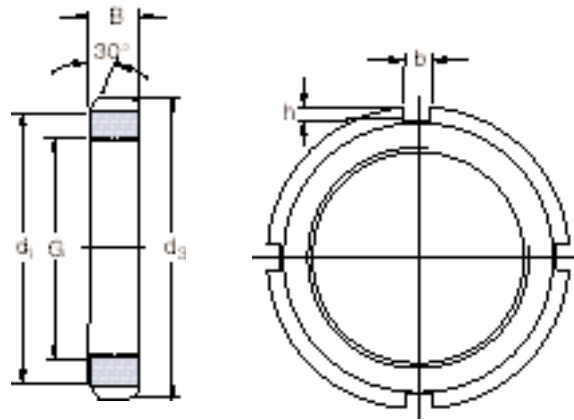
Details of the locking washers to suit these sizes can also be found in these catalogues.

## Close tolerances

The thread and locating face are machined in the same operation. The maximum runout between the thread and locating face is between 0,04 and 0,06 mm depending on the size of the lock nut.

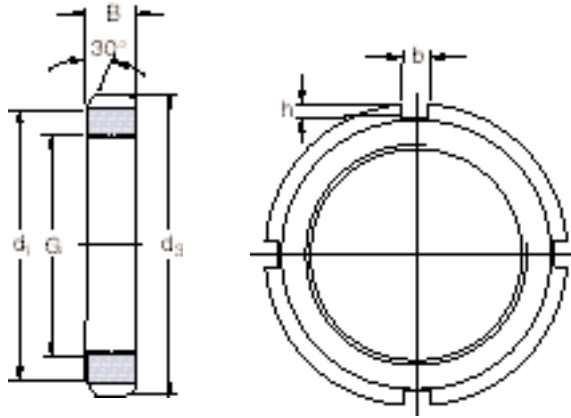


**KM lock nuts**  
**M 10×0,75 – M 115×2**



Dimensions						Axial load carrying capacity static	Mass	Designations		
G	d <sub>1</sub>	d <sub>3</sub>	B	b	h			Lock nut	Appropriate locking washer	hook/impact spanner
mm						kN	kg	-		
<b>M 10×0,75</b>	13,5	18	4	3	2	9,8	0,006	<b>KM 0</b>	MB 0	-
<b>M 12×1</b>	17	22	4	3	2	11,8	0,008	<b>KM 1</b>	MB 1	HN 1
<b>M 15×1</b>	21	25	5	4	2	14,6	0,012	<b>KM 2</b>	MB 2	HN 2
<b>M 17×1</b>	24	28	5	4	2	19,6	0,012	<b>KM 3</b>	MB 3	HN 3
<b>M 20×1</b>	26	32	6	4	2	24	0,020	<b>KM 4</b>	MB 4	HN 4
<b>M 25×1,5</b>	32	38	7	5	2	31,5	0,028	<b>KM 5</b>	MB 5	HN 5
<b>M 30×1,5</b>	38	45	7	5	2	36,5	0,038	<b>KM 6</b>	MB 6	HN 6
<b>M 35×1,5</b>	44	52	8	5	2	50	0,058	<b>KM 7</b>	MB 7	HN 7
<b>M 40×1,5</b>	50	58	9	6	2,5	62	0,078	<b>KM 8</b>	MB 8	HN 8
<b>M 45×1,5</b>	56	65	10	6	2,5	78	0,11	<b>KM 9</b>	MB 9	HN 9
<b>M 50×1,5</b>	61	70	11	6	2,5	91,5	0,14	<b>KM 10</b>	MB 10	HN 10
<b>M 55×2</b>	67	75	11	7	3	91,5	0,15	<b>KM 11</b>	MB 11	HN 11
<b>M 60×2</b>	73	80	11	7	3	95	0,16	<b>KM 12</b>	MB 12	HN 12
<b>M 65×2</b>	79	85	12	7	3	108	0,19	<b>KM 13</b>	MB 13	HN 13
<b>M 70×2</b>	85	92	12	8	3,5	118	0,22	<b>KM 14</b>	MB 14	HN 14
<b>M 75×2</b>	90	98	13	8	3,5	134	0,27	<b>KM 15</b>	MB 15	HN 15
<b>M 80×2</b>	95	105	15	8	3,5	173	0,36	<b>KM 16</b>	MB 16	HN 16
<b>M 85×2</b>	102	110	16	8	3,5	190	0,42	<b>KM 17</b>	MB 17	HN 17
<b>M 90×2</b>	108	120	16	10	4	216	0,51	<b>KM 18</b>	MB 18	HN 18
<b>M 95×2</b>	113	125	17	10	4	236	0,58	<b>KM 19</b>	MB 19	HN 19
<b>M 100×2</b>	120	130	18	10	4	255	0,68	<b>KM 20</b>	MB 20	HN 20
<b>M 105×2</b>	126	140	18	12	5	290	0,81	<b>KM 21</b>	MB 21	HN 21
<b>M 110×2</b>	133	145	19	12	5	310	0,89	<b>KM 22</b>	MB 22	HN 22
<b>M 115×2</b>	137	150	19	12	5	315	0,91	<b>KM 23</b>	MB 23	718909

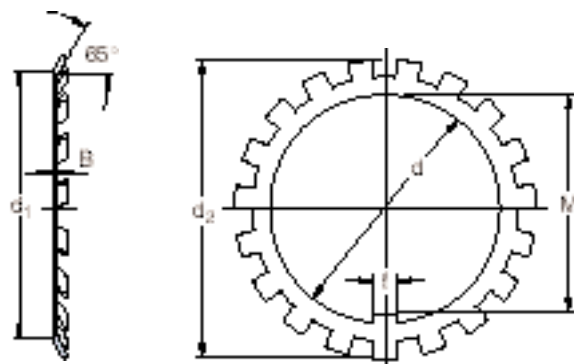
**KM(L) lock nuts**  
**M 120×2 – M 200×3**



Dimensions						Axial load carrying capacity static	Mass	Designations		
G	d <sub>1</sub>	d <sub>3</sub>	B	b	h			Lock nut	Appropriate locking washer	impact spanner
mm						kN	kg	-		
<b>M 120×2</b>	135	145	20	12	5	265	0,69	<b>KML 24</b>	MBL 24	718909
	138	155	20	12	5	340	0,98	<b>KM 24</b>	MB 24	718909
<b>M 125×2</b>	148	160	21	12	5	360	1,10	<b>KM 25</b>	MB 25	718909
<b>M 130×2</b>	145	155	21	12	5	285	0,84	<b>KML 26</b>	MBL 26	718909
	149	165	21	12	5	365	1,20	<b>KM 26</b>	MB 26	718909
<b>M 135×2</b>	160	175	22	14	6	430	1,40	<b>KM 27</b>	MB 27	718909
<b>M 140×2</b>	155	165	22	12	5	305	0,92	<b>KML 28</b>	MBL 28	718909
	160	180	22	14	6	430	1,40	<b>KM 28</b>	MB 28	718909
<b>M 145×2</b>	171	190	24	14	6	520	1,85	<b>KM 29</b>	MB 29	718909
<b>M 150×2</b>	170	180	24	14	5	390	1,30	<b>KML 30</b>	MBL 30	718909
	171	195	24	14	6	530	1,85	<b>KM 30</b>	MB 30	718909, 718910
<b>M 155×3</b>	182	200	25	16	7	540	2,05	<b>KM 31</b>	MB 31	718910
<b>M 160×3</b>	180	190	25	14	5	405	1,40	<b>KML 32</b>	MBL 32	718909
	182	210	25	16	7	585	2,25	<b>KM 32</b>	MB 32	718910
<b>M 165×3</b>	193	210	26	16	7	570	2,30	<b>KM 33</b>	MB 33	718910
<b>M 170×3</b>	190	200	26	16	5	430	1,60	<b>KML 34</b>	MBL 34	718910
	193	220	26	16	7	620	2,55	<b>KM 34</b>	MB 34	718910
<b>M 180×3</b>	200	210	27	16	5	450	1,80	<b>KML 36</b>	MBL 36	718910
	203	230	27	18	8	670	2,70	<b>KM 36</b>	MB 36	718910
<b>M 190×3</b>	210	220	28	16	5	475	1,90	<b>KML 38</b>	MBL 38	718910
	214	240	28	18	8	695	3,00	<b>KM 38</b>	MB 38	718910
<b>M 200×3</b>	222	240	29	18	8	625	2,60	<b>KML 40</b>	MBL 40	718910
	226	250	29	18	8	735	3,30	<b>KM 40</b>	MB 40	718910, 718911

**MB(L) locking washers**

d 10 – 200 mm



Dimensions						Mass	Designation	Dimensions						Mass	Designation
d	d <sub>1</sub>	d <sub>2</sub>	B	f	M			d	d <sub>1</sub>	d <sub>2</sub>	B	f	M		
mm						g	-	mm						g	-
10	13,5	21	1	3	8,5	1,0	<b>MB 0</b>	115	137	159	2	12	110,5	107	<b>MB 23</b>
12	17	25	1	3	10,5	2,0	<b>MB 1</b>	120	135	152	2	14	115	70	<b>MBL 24</b>
15	21	28	1	4	13,5	3,0	<b>MB 2</b>		138	164	2	14	115	108	<b>MB 24</b>
17	24	32	1	4	15,5	3,0	<b>MB 3</b>	125	148	170	2	14	120	115	<b>MB 25</b>
20	26	36	1	4	18,5	4,0	<b>MB 4</b>	130	145	161	2	14	125	80	<b>MBL 26</b>
25	32	42	1,25	5	23	6,0	<b>MB 5</b>		149	175	2	14	125	115	<b>MB 26</b>
30	38	49	1,25	5	27,5	8,0	<b>MB 6</b>	135	160	185	2	14	130	140	<b>MB 27</b>
35	44	57	1,25	6	32,5	11	<b>MB 7</b>	140	155	172	2	16	135	90	<b>MBL 28</b>
40	50	62	1,25	6	37,5	13	<b>MB 8</b>		160	192	2	16	135	135	<b>MB 28</b>
45	56	69	1,25	6	42,5	15	<b>MB 9</b>	145	172	202	2	16	140	165	<b>MB 29</b>
50	61	74	1,25	6	47,5	16	<b>MB 10</b>	150	170	189	2	16	145	100	<b>MBL 30</b>
55	67	81	1,5	8	52,5	22	<b>MB 11</b>		171	205	2	16	145	180	<b>MB 30</b>
60	73	86	1,5	8	57,5	24	<b>MB 12</b>	155	182	212	2,5	16	147,5	200	<b>MB 31</b>
65	79	92	1,5	8	62,5	30	<b>MB 13</b>	160	180	199	2,5	18	154	140	<b>MBL 32</b>
70	85	98	1,5	8	66,5	32	<b>MB 14</b>		182	217	2,5	18	154	215	<b>MB 32</b>
75	90	104	1,5	8	71,5	35	<b>MB 15</b>	165	193	222	2,5	18	157,5	240	<b>MB 33</b>
80	95	112	1,75	10	76,5	46	<b>MB 16</b>	170	190	211	2,5	18	164	150	<b>MBL 34</b>
85	102	119	1,75	10	81,5	53	<b>MB 17</b>		193	232	2,5	18	164	240	<b>MB 34</b>
90	108	126	1,75	10	86,5	61	<b>MB 18</b>	175	200	222	2,5	20	174	160	<b>MBL 36</b>
95	113	133	1,75	10	91,5	66	<b>MB 19</b>		203	242	2,5	20	174	260	<b>MB 36</b>
100	120	142	1,75	12	96,5	77	<b>MB 20</b>	180	210	232	2,5	20	184	170	<b>MBL 38</b>
105	126	145	1,75	12	100,5	83	<b>MB 21</b>		214	252	2,5	20	184	260	<b>MB 38</b>
110	133	154	1,75	12	105,5	91	<b>MB 22</b>	185	222	245	2,5	20	194	220	<b>MBL 40</b>
									226	262	2,5	20	194	280	<b>MB 40</b>

# The SKF Group - a worldwide corporation

SKF is an international industrial Group operating in some 130 countries and is world leader in bearings.

The company was founded in 1907 following the invention of the self-aligning ball bearing by Sven Wingquist and, after only a few years, SKF began to expand all over the world.

Today, SKF has some 45 000 employees and around 80 manufacturing facilities spread throughout the world. An international sales network includes a large number of sales companies and some 7 000 distributors and retailers. Worldwide availability of SKF products is supported by a comprehensive technical advisory service.

The key to success has been a consistent emphasis on maintaining the highest quality of its products and services. Continuous investment in research and

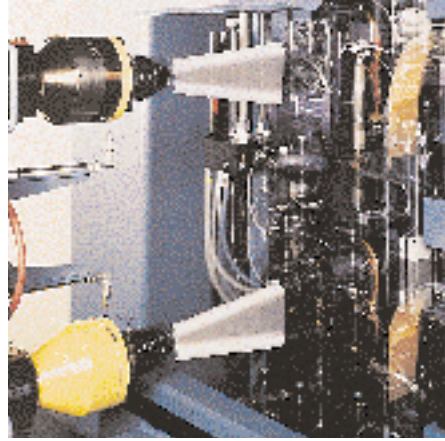
development has also played a vital role, resulting in many examples of epoch-making innovations.

The business of the Group consists of bearings, seals, special steel and a comprehensive range of other high-tech industrial components. The experience gained in these various fields provides SKF with the essential knowledge and expertise required in order to provide the customers with the most advanced engineering products and efficient service.





*The SKF Group is the first major bearing manufacturer to have been granted approval according to ISO 14001, the international standard for environmental management systems. The certificate is the most comprehensive of its kind and covers more than 60 SKF production units in 17 countries.*



*The SKF Engineering & Research Centre is situated just outside Utrecht in The Netherlands. In an area of 17 000 square metres (185 000 sq.ft) some 150 scientists, engineers and support staff are engaged in the further improvement of bearing performance. They are developing technologies aimed at achieving better materials, better designs, better lubricants and better seals – together leading to an even better understanding of the operation of a bearing in its application. This is also where the SKF Life Theory was evolved, enabling the design of bearings which are even more compact and offer even longer operational life.*



*SKF has developed the Channel concept in factories all over the world. This drastically reduces the lead time from raw material to end product as well as work in progress and finished goods in stock. The concept enables faster and smoother information flow, eliminates bottlenecks and bypasses unnecessary steps in production. The Channel team members have the knowledge and commitment needed to share the responsibility for fulfilling objectives in areas such as quality, delivery time, production flow etc.*



*SKF manufactures ball bearings, roller bearings and plain bearings. The smallest are just a few millimetres (a fraction of an inch) in diameter, the largest several metres. SKF also manufactures bearing and oil seals which prevent dirt from entering and lubricant from leaking out. SKF's subsidiaries CR and RFT S.p.A. are among the world's largest producers of seals.*



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