



[Theory](#) – [Procedure](#) – [Demonstration](#)

# Shaft Instruction

## PROCEDURA

### Step 1 – Definisan Ležaj

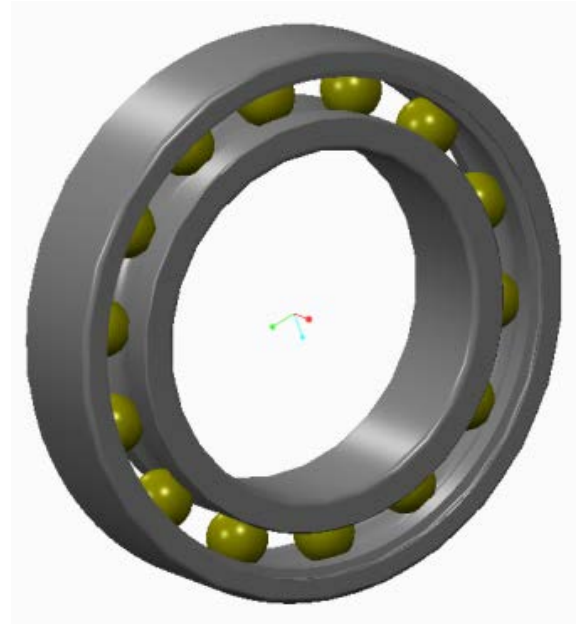
#### [Proračun](#)

J18 Izabran je ležaj

**6010 ( 50 x 80 x 16 )**

CAD Model Ležaja

<http://www.skf.com/group/products/index.html>



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Group > Products > Bearings, units and housings > Ball bearings > Deep groove ball bearings > Deep groove ball bearings, single row

### Deep groove ball bearings, single row

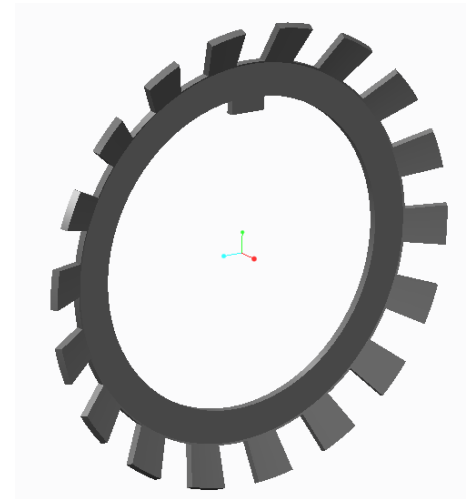
[Tolerances](#), see text  
[Radial internal clearance](#), see text  
[Recommended fits](#)  
[Shaft and housing tolerances](#)

Calculation | **CAD model** | 3D view Export as PDF Print

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Principal dimensions			Basic load ratings		Speed ratings		Designation
d	D	B	dynamic C	static C <sub>0</sub>	Reference speed	Limiting speed	
mm			kN		r/min		-
50	80	16	22,9	16	18000	11000	<b>6010 *</b>

**Calculation factors**  
k<sub>r</sub> 0,025  
f<sub>0</sub> 15



## Step 2 – Definisana Osiguravajuća Podloška

CAD Model MB Podloške

<http://www.skf.com/group/products/index.html>

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**Products**

- Products
- Bearings, units and housings
- Bearing accessories
- Lock nuts
- Product tables

**Lock nuts with locking washer or clip**

- Lock nuts with locking screw
- Lock nuts with integral locking device
- Precision lock nuts with locking pins
- Precision lock nuts with axial locking screws

### MB(L) locking washers

Calculation | **CAD model** | 3D view Export as PDF Print

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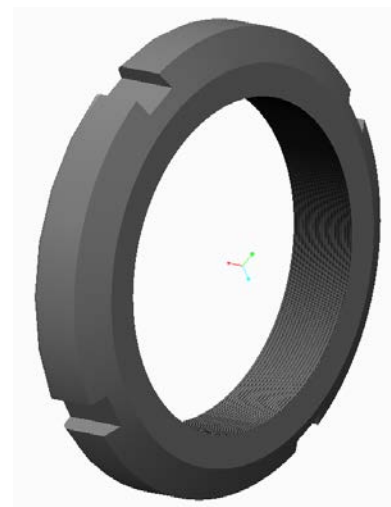
Principal dimensions			Designations	
d	d <sub>2</sub>	B	Locking washer	Appropriate lock nut
mm			-	
50	74	1,25	MB 10	KM 10



### Step 3 – Definisana Osiguravajuća Navrtka

CAD Model KM Navrtke

<http://www.skf.com/group/products/index.html>



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Group > Products > Bearings, units and housings > Bearing accessories > Lock nuts > KM(L) lock nuts with locking washer

### KM(L) lock nuts with locking washer

Calculation **CAD model** 3D view Export as PDF Print

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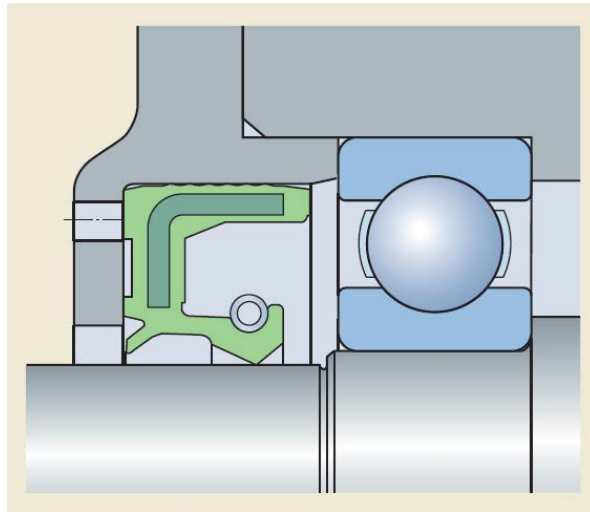
Thread size	Principal dimensions			Axial load carrying capacity	Designations		
	$d_3$	B	G		Lock nut	Appropriate locking washer	Appropriate spanner
mm	mm	-	-	static	-	-	-
50	70	11	M 50x1.5	91,5	KM 10	MB 10	HN 10-11

Technical drawing showing dimensions:  $d_1$  61,  $d_3$  70, B 11, G M 50x1.5,  $30^\circ$ , b 6, h 2,5.



### Step 4 – Definisana Zaptivka

CAD Model HMSA10 Zaptivke [Link](#)



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Group > Products > Seals > Industrial seals > Power transmission seals > Radial shaft seals

**Products** [Seals](#) [Industrial seals](#) [Power transmission seals](#) **Product tables**

### Radial shaft seals

Shaft requirements  
Housing bore requirements  
Permissible speeds  
Chemical and thermal resistance

[Calculation](#) | [CAD model](#) | [3D view](#) | [Export as PDF](#) | [Print](#)

[View full table](#) | [Imperial](#) | [Metric](#)

Product table filter

**Designs and variants:**  | 
 **Designation:**  | 
 **Shaft diameter range:**  <  $d_1$  <  | 
 **Exact shaft diameter:**  $d_1 =$

Principal dimensions			Design	Lip material	Designation	US stock number
Shaft $d_1$	Bore	Nominal seal width b				
46	59	12	HMSA10	RG	46X59X12 HMSA10 RG	563198
46	59	12	HMSA10	V	46X59X12 HMSA10 V	563200
46	65	10	HMSA10	RG	46X65X10 HMSA10 RG	563962
46	65	10	HMSA10	V	46X65X10 HMSA10 V	563964
47	65	10	HMSA10	RG	47X65X10 HMSA10 RG	563737
47	65	10	HMSA10	V	47X65X10 HMSA10 V	563739
47	70	10	HMSA10	RG	47X70X10 HMSA10 RG	563689
47	70	10	HMSA10	V	47X70X10 HMSA10 V	563691
47	90	10	HMSA10	RG	47x90x10 HMSA10 RG	-
47	90	10	HMSA10	V	47x90x10 HMSA10 V	-
48	62	8	HMSA10	RG	48X62X8 HMSA10 RG	692525
48	62	8	HMSA10	V	48X62X8 HMSA10 V	-
48	65	10	HMSA10	RG	48X65X10 HMSA10 RG	-
48	65	10	HMSA10	V	48X65X10 HMSA10 V	-
48	68	10	HMSA10	RG	48X68X10 HMSA10 RG	563178
48	68	10	HMSA10	V	48X68X10 HMSA10 V	563180
48	70	10	HMSA10	RG	48X70X10 HMSA10 RG	563284
48	70	10	HMSA10	V	48X70X10 HMSA10 V	563286
48	72	7	HMSA10	RG	48X72X7 HMSA10 RG	563240
48	72	7	HMSA10	V	48X72X7 HMSA10 V	563242
48	72	8	HMSA10	RG	48X72X8 HMSA10 RG	563244
48	72	8	HMSA10	V	48X72X8 HMSA10 V	563246
48	72	10	HMSA10	RG	48X72X10 HMSA10 RG	563102
48	72	10	HMSA10	V	48X72X10 HMSA10 V	563104



### Step 5 – Kreirati novi Podsklop 14-40X-XX-2-10

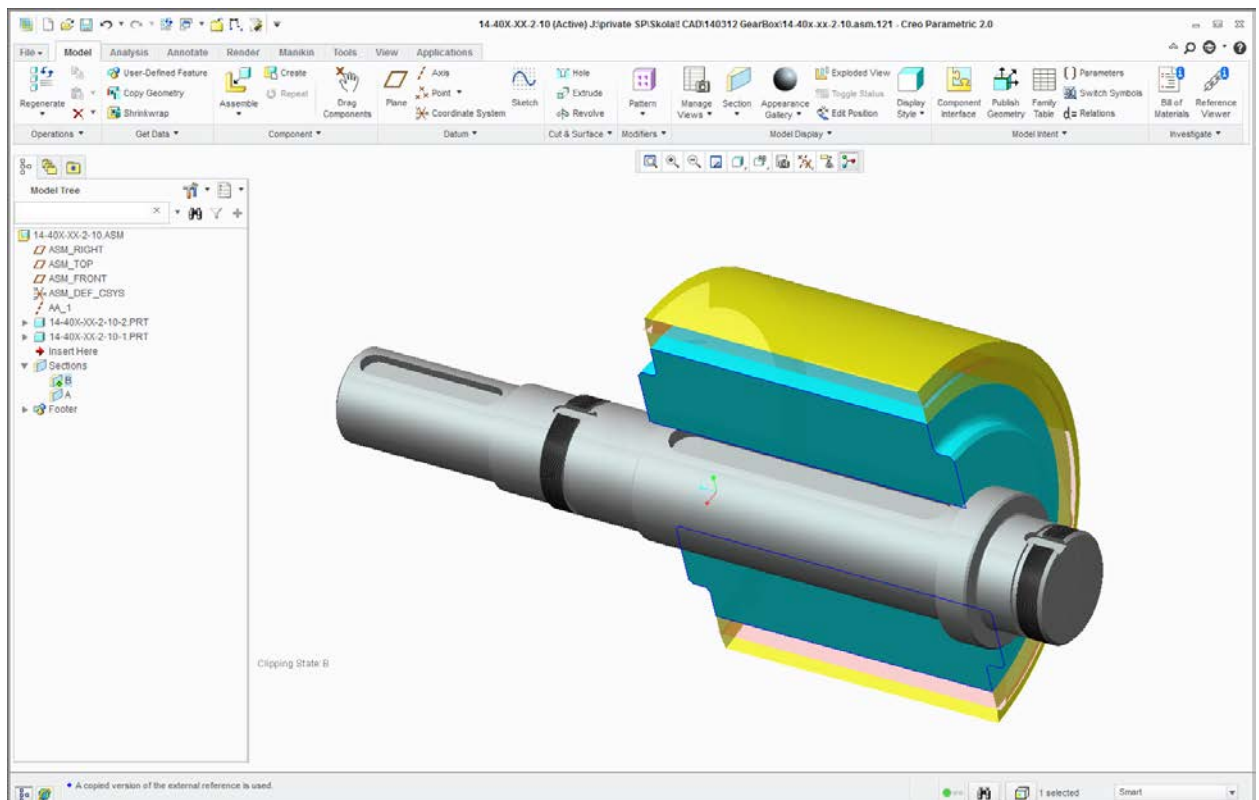
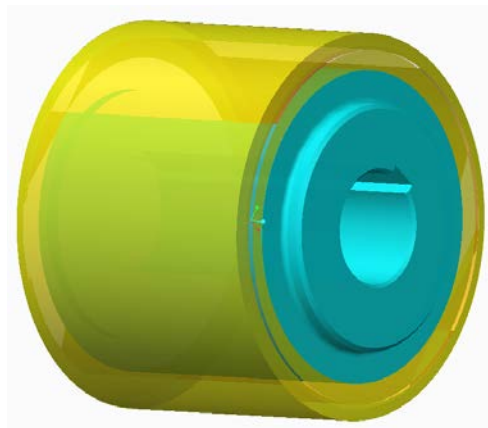
Vratilo Pogonsko

14-40X-XX-2-10-01



Zupčanik Pogonski

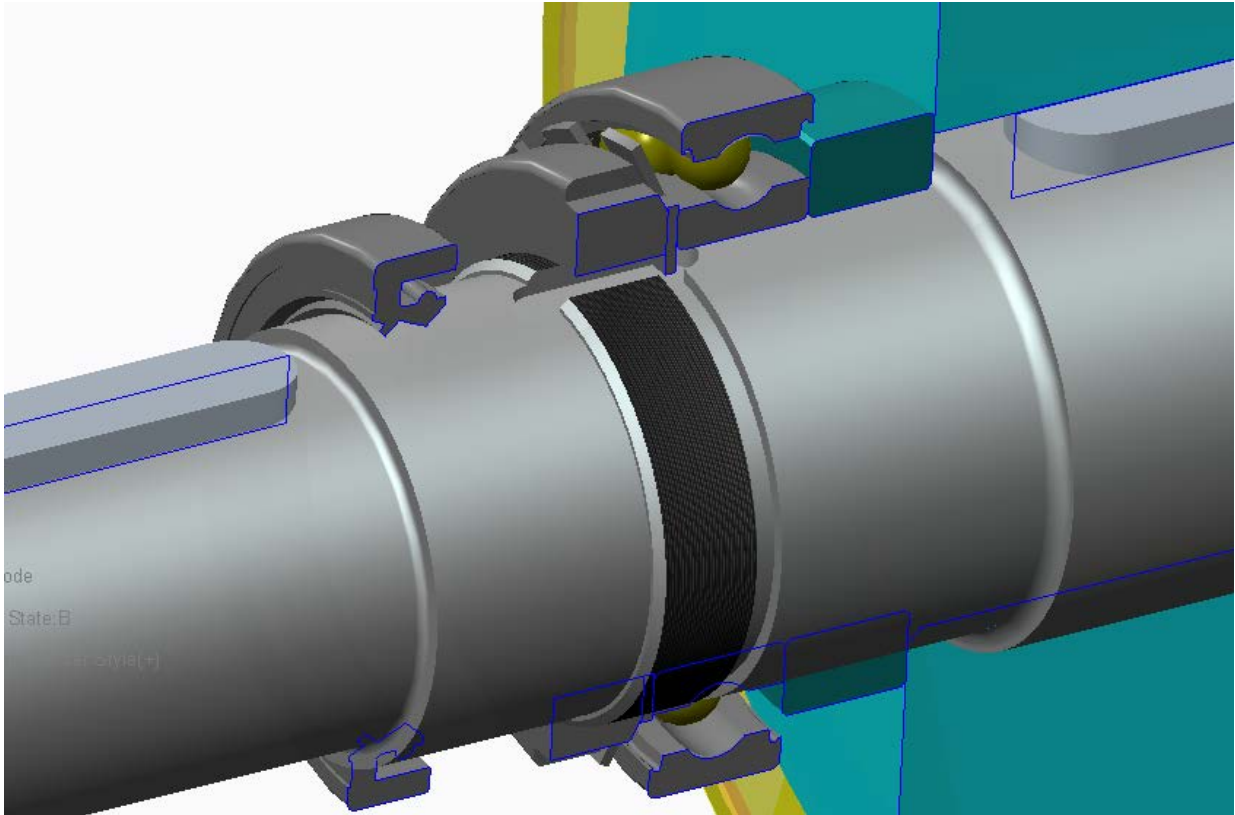
14-40X-XX-2-10-02



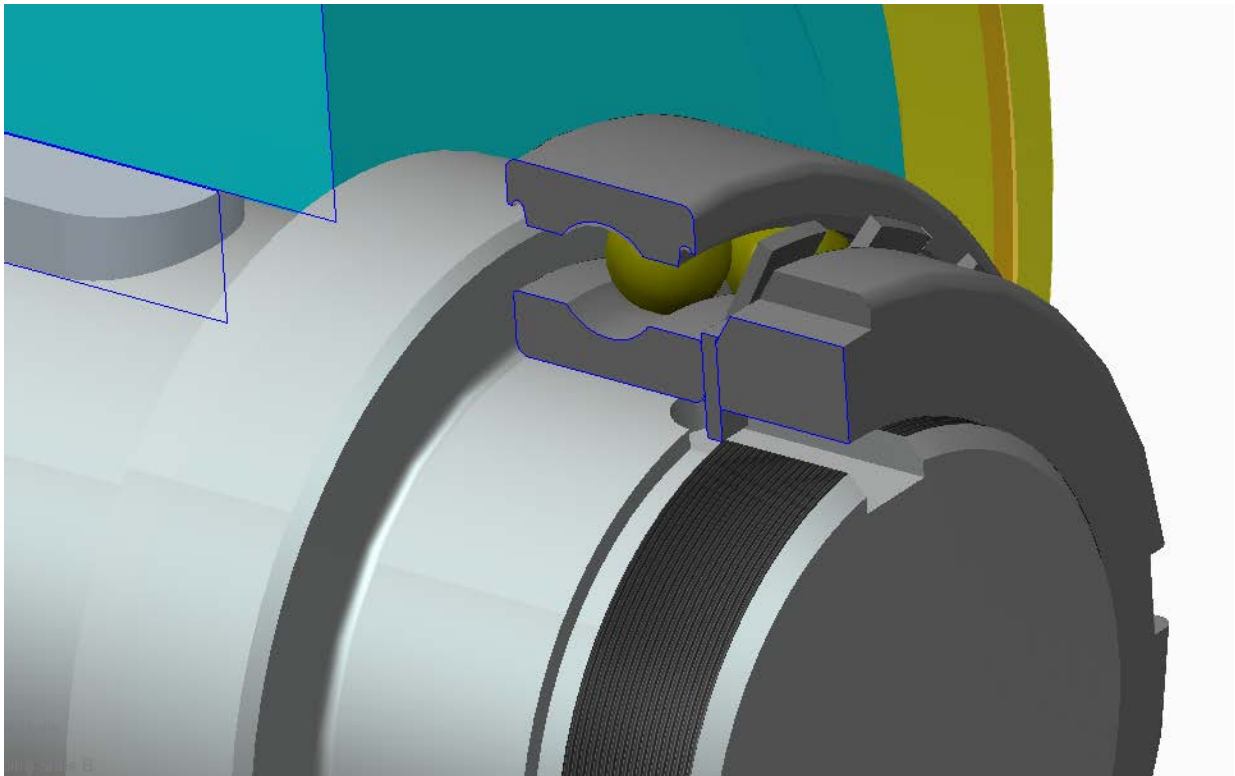




**Step 5 – Montiran podsklop u osloncu A**



**Step 5 – Montiran podsklop u osloncu B**





## Step 6 – Promena Parametara Vratila

3D CAD parametrizovan model – Creo

1. Uskladiti prečnike na vratilu
2. Uskladiti mere dužine, promenom parametara vratila

The screenshot displays the Creo Parametric 2.0 software interface. The main window shows a 3D model of a gear box assembly with a shaft. The Model Tree on the left lists the assembly structure, including sub-assemblies like 14-40X-XX-2-10-1 and 14-40X-XX-2-10-3. A context menu is open over the 14-40X-XX-2-10-1 part, showing options like Activate, Regenerate, Open, and Edit Parameters. The Parameters dialog box is open in the foreground, showing the parameter table for the selected part.

Name	Type	Value	Desi...	Acce...	Sour...	Desc...	Restr...	Un
DESCRIPTION	String	VRATILU POGONSKO	<input checked="" type="checkbox"/>	<input type="checkbox"/>	User-Defi...			
MODELED_BY	String		<input type="checkbox"/>	<input type="checkbox"/>	User-Defi...			
PTC_MATERIAL_NAME	String	E335 (C0645)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	User-Defi...		<input checked="" type="checkbox"/>	
KOMADA	Integer	1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	User-Defi...			
PRIPADNOST_SKLOPU	String	14-40X-XX-2-10	<input checked="" type="checkbox"/>	<input type="checkbox"/>	User-Defi...			
NAPOMENA	String		<input checked="" type="checkbox"/>	<input type="checkbox"/>	User-Defi...			
A_1	Integer	80	<input type="checkbox"/>	<input type="checkbox"/>	User-Defi...			
B_1	Integer	26	<input type="checkbox"/>	<input type="checkbox"/>	User-Defi...			
C_1	Integer	49	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Relation			
D_1	Integer	158	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Relation			
E_1	Integer	15	<input type="checkbox"/>	<input type="checkbox"/>	User-Defi...			
F_1	Integer	32	<input type="checkbox"/>	<input type="checkbox"/>	User-Defi...			
G_1	Integer	190	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Relation			
B_G1	Integer	160	<input type="checkbox"/>	<input type="checkbox"/>	User-Defi...			
X_1	Integer	2	<input type="checkbox"/>	<input type="checkbox"/>	User-Defi...			
L_V1	Integer	360	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Relation			

### Sketch

