BERTOLOTO & GROTTA

Sleeve for Bearings

Instructions for Assembling and Disassembling Sleeves under Self-aligning Bearings with Tapered Bore

Video 08: ASSEMBLING of WITHDRAWAL SLEEVE under self-aligning ROLLER BEARING with HOOK SPANNER

See the step-by-step procedure at **www.bgl.com.br/en/treinamento.htm**
Technical Videos - **Video 08**

BGL Application Engineering

Contents:

Video 08: **ASSEMBLING** of **WITHDRAWAL SLEEVE** under self-aligning **ROLLER BEARING** with **HOOK SPANNER**

INITIAL ARRANGEMENTS

01

Keep the workplace dry and dust-free.

02

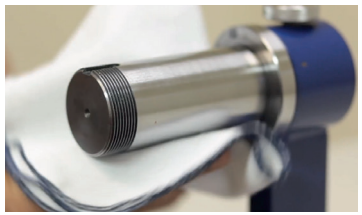
Select the adequate tools.

03

It is important that, before unpacking the parts, you compare the designation of the package with your needs.

04

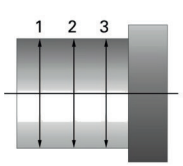
The shaft may show contact corrosion or abrasion and it must be carefully cleaned.

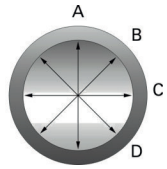


05

Next, check the dimensional precision and the shape of the shaft that will be in contact with the Sleeve.
The shaft dimension must be within the tolerance of maximum h10 and cilindricity IT5/2 or—at low rotations—IT7/2.

⚠ ATTENTION
The shaft diameter must be checked using a micrometer in four positions in two or three planes.





Video 08: **ASSEMBLING** of **WITHDRAWAL SLEEVE** under self-aligning **ROLLER BEARING** with **HOOK SPANNER**

Assembling Procedures

06

Remove the package from the bearing, remove the protective oil from the bore and also from the external diameter.

Note: The shaft needs to be scaled.

07

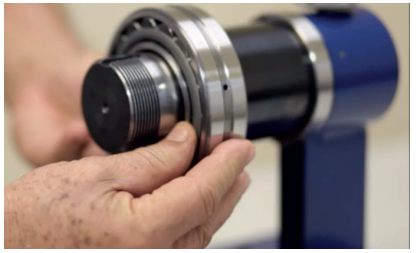
With a feeler gauge, measure the initial clearance between the external ring and the bearing roller which shows to be the most free and write it down for usage with the clearance

Nominal measure of the internal diameter d (bore bearing)		Bearing Radial Clearance Before Assembly							
		Clearence Group							
		C2		Normal		C3		C4	
Greater than	Up to including	max.	min.	max.	min.	max.	min.	max.	min.
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
24	30	0,020	0,030	0,030	0,040	0,040	0,055	0,055	0,075
30	40	0,025	0,035	0,035	0,050	0,050	0,065	0,065	0,085
40	50	0,030	0,045	0,045	0,060	0,060	0,080	0,080	0,100
50	65	0,040	0,055	0,055	0,075	0,075	0,095	0,095	0,120
65	80	0,050	0,070	0,070	0,095	0,095	0,120	0,120	0,150
80	100	0,055	0,080	0,080	0,110	0,110	0,140	0,140	0,180
100	120	0,065	0,100	0,100	0,135	0,135	0,170	0,170	0,220

Radial Clearance Reduction Calculation Example:
Bearing: **22212 K/C3 with 60 mm bore**
Initial Clearance: **0.08 mm**

08

And put it on the shaft.



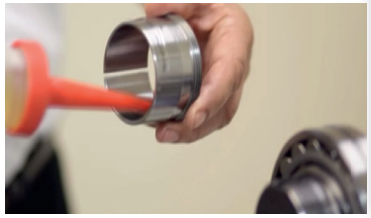
Video 08: **ASSEMBLING** of **WITHDRAWAL SLEEVE** under self-aligning **ROLLER BEARING** with **HOOK SPANNER**

09

Unpack and clean the Sleeve.

10

Put a thin film of oil on the internal and external surfaces of the Sleeve. This procedure will help in the assembling process.



11

Put the Sleeve on the shaft. If necessary, enlarge it inserting a screwdriver in the slot and then move it under the bearing until you get a firm contact.

12

Oil the thread and the chamfered face of the Nut that will be in contact with the Sleeve.

13

Screw the nut to the shaft until the Sleeve--shaft-bearing set is firmly set.

Video 08: **ASSEMBLING** of **WITHDRAWAL SLEEVE** under self-aligning **ROLLER BEARING** with **HOOK SPANNER**

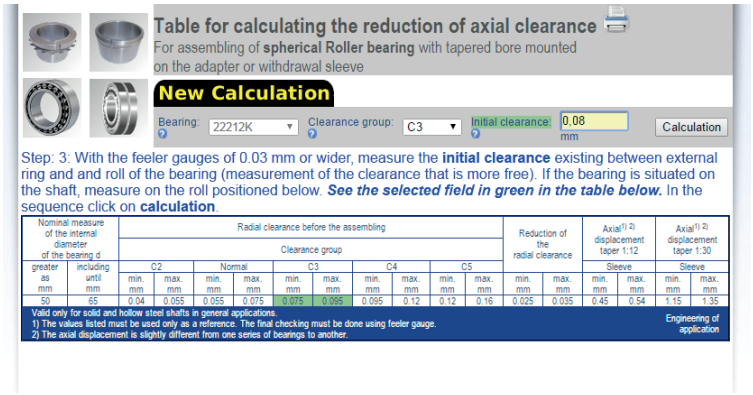
14

Perform the online calculation of clearance reduction accessing:

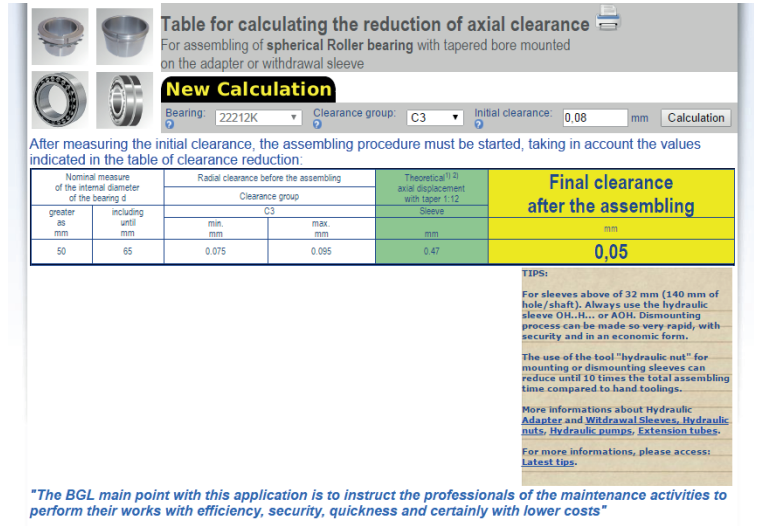
www.bgl.com.br/en/catalogo

Step 1

Step 2



Step 3



"The BGL main point with this application is to instruct the professionals of the maintenance activities to perform their works with efficiency, security, quickness and certainly with lower costs"

Video 08: **ASSEMBLING** of **WITHDRAWAL SLEEVE** under self-aligning **ROLLER BEARING** with **HOOK SPANNER**

15

You can also consult the Printed **Table of Radial Clearance Reduction** to assemble Self-Aligning Roller Bearings with Tapered Bore. Order yours from BGL.

Radial Clearance Reduction Calculation Example:

Bearing: **22212 K/C3 with 60 mm bore**

Initial Clearance: **0.08 mm**

Reduction: **0.03 mm**

Final Clearance: **0.05 mm**

Nominal measure of the internal diameter d (bore bearing)		Bearing Radial Clearance Before Assembly										Reduction of Bearing Radial Clearance		Axial Taper "S" 1)2)			
		Clearence Group												Axial Displacement Taper 1:12		Axial Displacement Taper 1:30	
		C2		Normal		C3		C4		C5							
Greater than	Up to including	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
24	30	0,020	0,030	0,030	0,040	0,040	0,055	0,055	0,075	-	-	0,010	0,015	0,250	0,290	-	-
30	40	0,025	0,035	0,035	0,050	0,050	0,065	0,065	0,085	0,085	0,105	0,015	0,020	0,300	0,350	–	–
40	50	0,030	0,045	0,045	0,060	0,060	0,080	0,080	0,100	0,100	0,130	0,020	0,025	0,370	0,440	–	–
50	65	0,040	0,055	0,055	0,075	0,075	0,095	0,095	0,120	0,120	0,160	0,025	0,035	0,450	0,540	1,150	1,350
65	80	0,050	0,070	0,070	0,095	0,095	0,120	0,120	0,150	0,150	0,200	0,035	0,040	0,550	0,650	1,4	1,65
80	100	0,055	0,080	0,080	0,110	0,110	0,140	0,140	0,180	0,180	0,230	0,040	0,050	0,660	0,790	1,650	2,000
100	120	0,065	0,100	0,100	0,135	0,135	0,170	0,170	0,220	0,220	0,280	0,050	0,060	0,790	0,950	2	2,35
120	140	0,080	0,120	0,120	0,160	0,160	0,200	0,200	0,260	0,260	0,330	0,060	0,075	0,930	1,100	2,300	2,800
140	160	0,090	0,130	0,130	0,180	0,180	0,230	0,230	0,300	0,300	0,380	0,070	0,085	1,050	1,300	2,65	3,2
160	180	0,100	0,140	0,140	0,200	0,200	0,260	0,260	0,340	0,340	0,430	0,080	0,095	1,200	1,450	3,000	3,600
180	200	0,110	0,160	0,160	0,220	0,220	0,290	0,290	0,370	0,370	0,470	0,090	0,105	1,300	1,600	3,3	4
200	225	0,120	0,180	0,180	0,250	0,250	0,320	0,320	0,410	0,410	0,520	0,100	0,120	1,450	1,800	3,700	4,450
225	250	0,140	0,200	0,200	0,270	0,270	0,350	0,350	0,450	0,450	0,570	0,110	0,130	1,600	1,950	4	4,85
250	280	0,150	0,220	0,220	0,300	0,300	0,390	0,390	0,490	0,490	0,620	0,120	0,150	1,800	2,150	4,500	5,400
280	315	0,170	0,240	0,240	0,330	0,330	0,430	0,430	0,540	0,540	0,680	0,135	0,165	2,000	2,400	4,95	6
315	355	0,190	0,270	0,270	0,360	0,360	0,470	0,470	0,590	0,590	0,740	0,150	0,180	2,150	2,650	5,400	6,600
355	400	0,210	0,300	0,300	0,400	0,400	0,520	0,520	0,650	0,650	0,820	0,170	0,210	2,500	3,000	6,2	7,6
400	450	0,230	0,330	0,330	0,440	0,440	0,570	0,570	0,720	0,720	0,910	0,195	0,235	2,800	3,400	7,000	8,500
450	500	0,260	0,370	0,370	0,490	0,490	0,630	0,630	0,790	0,790	1,000	0,215	0,265	3,100	3,800	7,8	9,5
500	560	0,290	0,410	0,410	0,540	0,540	0,680	0,680	0,870	0,870	1,100	0,245	0,300	3,400	4,100	8,400	10,300
560	630	0,320	0,460	0,460	0,600	0,600	0,760	0,760	0,980	0,980	1,230	0,275	0,340	3,800	4,650	9,5	11,6
630	710	0,350	0,510	0,510	0,670	0,670	0,850	0,850	1,090	1,090	1,360	0,310	0,380	4,250	5,200	10,600	13,000
710	800	0,390	0,570	0,570	0,750	0,750	0,960	0,960	1,220	1,220	1,500	0,350	0,425	4,750	5,800	11,9	14,5
800	900	0,440	0,640	0,640	0,840	0,840	1,070	1,070	1,370	1,370	1,690	0,395	0,480	5,400	6,600	13,500	16,400
900	1000	0,490	0,710	0,710	0,930	0,930	1,190	1,190	1,520	1,520	1,860	0,440	0,535	6,000	7,300	15	18,3
1.000	1.120	0,530	0,770	0,770	1,030	1,030	1,300	1,300	1,670	1,670	2,050	0,490	0,600	6,400	7,800	16,000	19,500
1.120	1.250	0,570	0,830	0,830	1,120	1,120	1,420	1,420	1,830	1,830	2,250	0,550	0,670	7,100	8,700	17,8	21,7
1.250	1.400	0,620	0,910	0,910	1,230	1,230	1,560	1,560	2,000	2,000	2,450	0,610	0,750	8,000	9,700	19,900	24,300
1.400	1.600	0,680	1,000	1,000	1,350	1,350	1,720	1,720	2,200	2,200	2,700	0,700	0,850	9,100	11,100	22,7	27,7
1.600	1.800	0,750	1,110	1,110	1,500	1,500	1,920	1,920	2,400	2,400	2,950	0,790	0,960	10,200	12,500	25,600	31,200

Video 08: **ASSEMBLING** of **WITHDRAWAL SLEEVE** under self-aligning **ROLLER BEARING** with **HOOK SPANNER**

16

With a Hook Spanner HN tighten the nut.

17

Using again the feeler gauge check the radial clearance reduction until you reach the calculated clearance. If necessary, tighten it again.

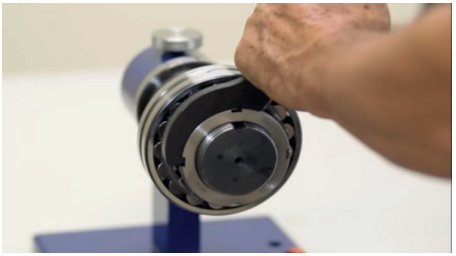
Note: After this procedure, make sure the bearing is well set.

18

Remove the Nut and insert the MB Lockwasher.

19

Tighten the Locknut firmly using the HN Hook Spanner.



Video 08: **ASSEMBLING** of **WITHDRAWAL SLEEVE** under self-aligning **ROLLER BEARING** with **HOOK SPANNER**

20

Align the nearest notch of the Nut with the external jut of the Washer and, with the help of a pricker, bend it.

21

To finish, make sure the bearing can be turned easily with your hands.

To disassemble, see **Video 14** at **www.bgl.com.br/en/treinamento.htm**

TR TRAINING KIT

Practical and dynamic training which helps salespeople and technical staff in their learning.

With the TR KIT you can take your training where you want and as many times as you want.

TR-BGL Kit product available for sale. Consult your distributor.

For more information, see:

Complete Electronic Catalog:
www.bgl.com.br/en/catalogo

Assembling Instructions:
www.bgl.com.br/en/treinamento.htm

Online Reduction Calculation:
www.bgl.com.br/en/calculo_reducao

Catalog Download:
www.bgl.com.br/en/catalogos-folders.htm

Reference Technical Standards:
ABNT NBR 16535-1: SLEEVES FOR BEARINGS
ABNT NBR 16535-2: LOCKNUTS AND LOCKWASHERS

BGL®
BERTOLOTO & GROTTA

Sleeve for Bearings
ISO 9001 | since 1957

BGL - Bertoloto & Grotta Ltda
Av. Major José Levy Sobrinho, 1296
CEP 13486-190 | Limeira – SP | Brasil
Phone +55 19 3451-8510
info@bgl.com.br
facebook.com/bglbuchas
www.bgl.com.br