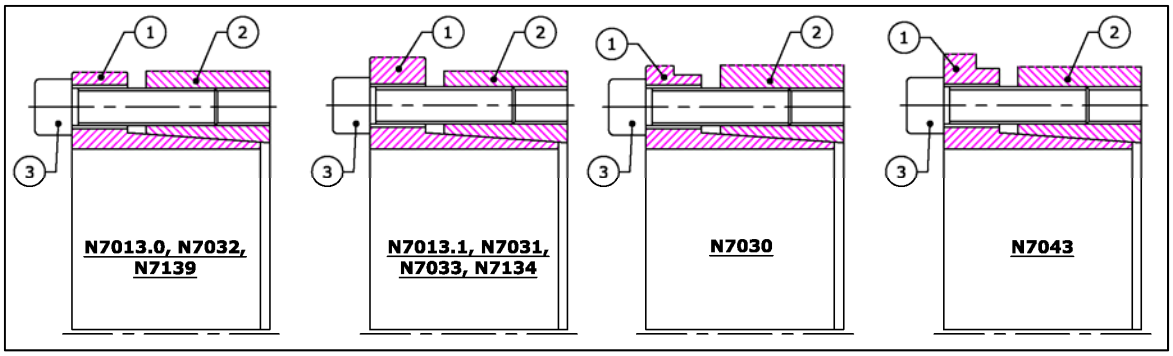
1.) About N7013.0, N7030, N7031, N7032, N7033, N7134, N7319 & N7043 Function:

- N7013.0, N7013.1, N7030, N7031, N7032, N7033, N7134, N7319 & N7043 Locking Assemblies are internal clamping device to provide backlash free mounting of hub on shaft.Torque is transmitted by contact pressure & friction between contact surface(s). Condition surface and proper tightening of screw is great importance.By appling torque to clamping screw(s), radial clamping force generated due to taper surface.The radial clamping force press outer ring into the hub bore and inner ring onto the shaft and create a friction connection at respective contact surfaces.

2.) Nomenclature:



No.	Nomenclature
1	Inner Ring
2	Outer Ring
3	Allencap Screws

3.) Technical Requirement for safe operation:

- A good surface finish by machine tool is sufficient. Maximum allowable surface finish: Ra max 3.2µm. Maximum permissible tolerances for hub bore is H8 & for Shaft is h8.
- **Note :**
  1) **Don't use oil containing molybdenum sulphide or high-pressure additives or grease of any kind.**
  2) **For Tightening of screws, Torque wrench must be used. Do not uses Allen keys otherwise required Technical parameters will not be achieved.**
  3) **During installation be ensure that Shaft and hub should be kept concentric and eliminate an effect of self-weight of Hub & Shaft upon the locking assembly by balancing them.**

4.) Installation:

- Before Installation be ensure that hub bore and shaft are properly clean (No dust particles).
- Apply light coat oil into hub & on shaft at where Locking assembly is to be located.
- First of all,loosen the clamping screw by hand.
- Slide the locking assembly onto the shaft & into hub and after confirming the correct position of locking assembly, in respect of hub then hand tighten all screws in diametrically opposed sequence.
- Once the axial position of locking assembly is fixed then tighten all screws one by one in diametrically opposed sequence by using **Torque Wrench**. (As mention in Fig. 1)

- At a time tighten screws by 1/4 revolution with help of torque Wrench for several passes*(Set torque wrench for 1st pass : 1/3 Ta ; 2nd pass : 2/3 Ta; 3rd or More pass: Full Ta or 5% more)*.
  Where Ta= Max. Tightening Torque.
- The tightening process is completed only when no one screw turn at specified tightening torque value.
  *(**IMPORTANT:** Improper installation generates uneven tension in tightening screws and ultimately Which transfers uneven pressure distribution at shaft and hub connection, Lead to Malfunctioning of locking assembly.)*

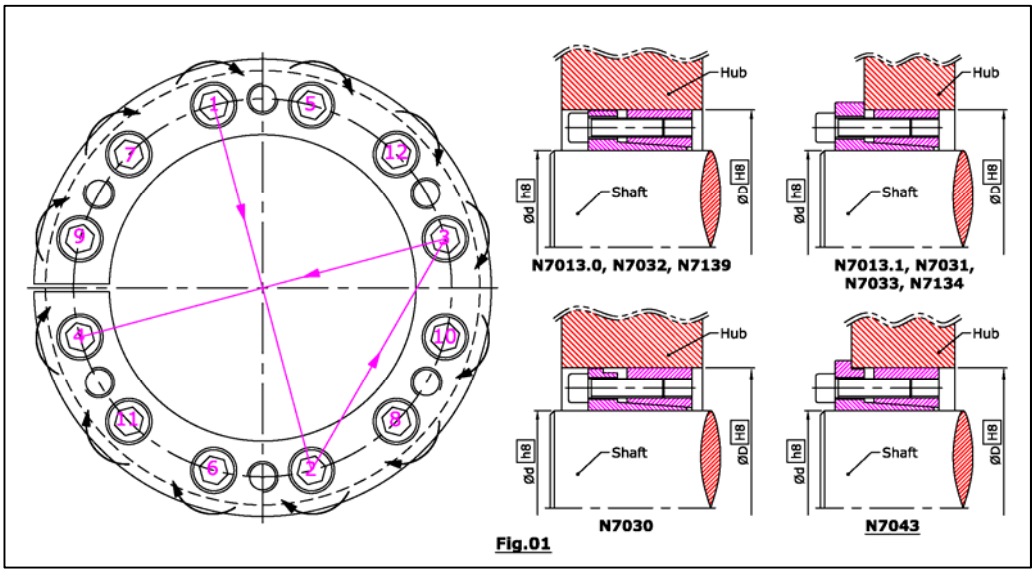


Fig.01

Torque wrench torque	No. of Pass	Bolt Sequence	Tightening of screws
1/2 Ta	P_1 , P_2 , P_3 , P_4 ,...n	1,2 ,3 ,4, ...	By 1/4 Revolution
2/3 Ta	P_1 , P_2 , P_3 , P_4 ,...n	1,2 ,3 ,4, ...	By 1/4 Revolution
Ta or 5% more	P_1 , P_2 , P_3 , P_4 ,...n	1,2 ,3 ,4, ...	By 1/4 Revolution

Tightening Torque:

Model	N7013.0	N7013.1	N7030	N7031	N7032	N7033	N7134	N7139	N7043
Screw Size	Ta (Nm)	Ta (Nm)	Ta (Nm)	Ta (Nm)	Ta (Nm)	Ta (Nm)	Ta (Nm)	Ta (Nm)	Ta (Nm)
M4	-	-	-	-	-	-	-	5	4.8
M5	-	-	-	-	-	-	-	-	9.8
M6	17	17	17	17	14	17	-	17	16.7
M8	41	41	41	41	35	41	41	41	40.2
M10	83	83	83	83	70	83	-	-	81.3
M12	145	145	145	145	125	145	-	-	-
M14	-	-	230	230	190	230	-	-	-
M16	-	-	355	355	-	-	-	-	-
M22	-	-	-	-	-	930	-	-	-

Here, above mention value of tightening torque (Ta) is maximum. Please refer approved drawing for actual value of tightening torque as per your application.

5.) Removal:

- Loosen the clamping screws uniformly one by one with the help of torque wrench in diametrically opposed sequence in multiple steps by 1/4 revolution (As shown in Fig.) for each step to Prevent misalignment of the clamping surfaces and breaking of screws. Don't loose single screw at a time, otherwise it may lead to tilt inner ring and outer ring and damage of locking assembly occurs.

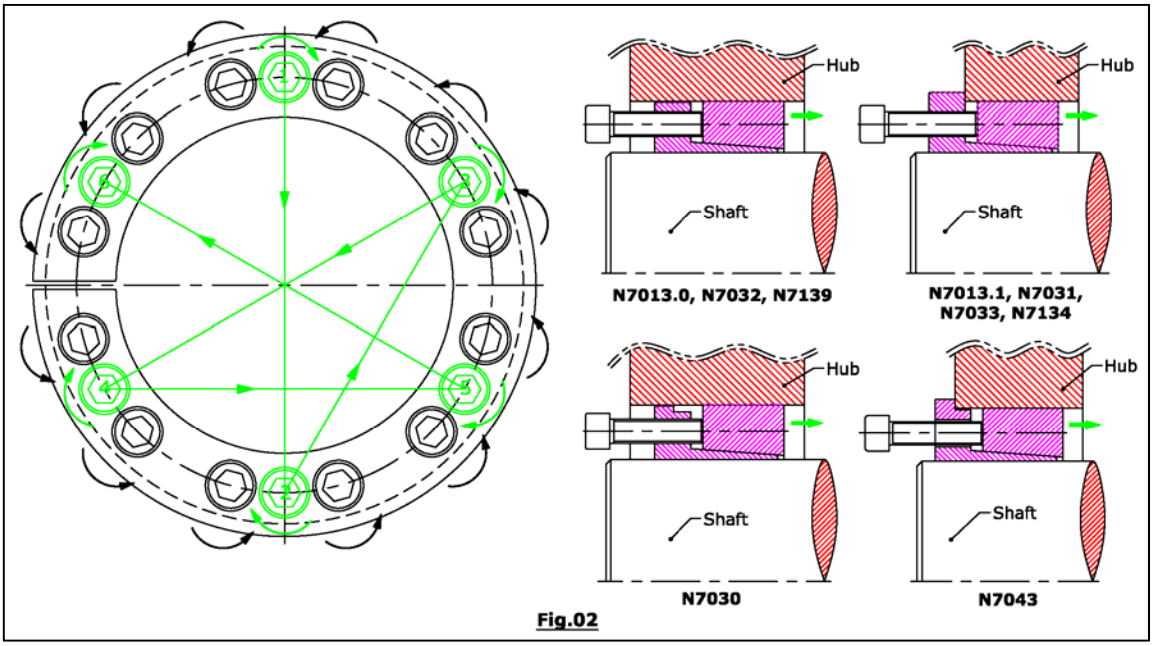


Fig.02

- After loosing Screws, Removed some Screws which are clamped on locking assembly or nearest to removal holes and those screws insert into removal tapped holes (as shown in Fig.02).
- Apply tightning torque to removal screws by torque wrench, Continue this procedure for several passes & after the outer ring of locking assembly will be release.
- After lossen assembly, Remove whole assembly from shaft & hub.

6.) Reuse:

- For reuse of locking assembly, re-lubricate inner ring, outer ring and clamping screws. If any damage found in parts of locking assembly,then replacement of whole assembly required. Before reuse of locking assembly's screws, please recheck screws length & if they have been elongated, during operating condition- can't reused, hense replace (with same size and grade).

7.) Maintenance:

- Locking assembly N7013.0, N7013.1, N7030, N7031, N7032, N7033, N7134, N7319 & N7043 are maintenance free. We therefore recommend to check tightening Torque of the clamping screws every time maintenance is performed on the machine.

(All Figures shown in instructions are for easy understanding of installation and removal processes.)

8.) Storage Preservation and Instruction:

- NMTG Product is supplied with an oil film as Rust & Corrosion Protection as per below instruction.
- This protection is renewed at regular intervals which depends on Environmental condition at Storage site. (Temperature, Atmosphere, etc.)

➢ **Maximum Storage period is 6 Months for Short-term Storage**.

Please follow Instruction for Preservation & Storage of NMTG Products:

- Once NMTG Product is used then clean all its parts with clean cloth.
- Lubricate all parts with rust preventive oil S-VCI 415 or equivalent & assemble as it was & packed in plastic bag.
- After wrapping in plastic bag, Material is packed by S-VCI 131 or equivalent rust preventive paper & store.
- Keep it in dry place and free from dust.
- Do not expose to open or corrosive environment.
- Keep away from direct Sunlight.
- Avoid Mechanical Shock & Vibration.
- Storage Temperature: -10 to +60°C.
- Relative Humidity: Maximum 95%, non-condensing.

For Long term Storage (1 Year):

Please follow Instruction for Preservation & Storage of NMTG Products:

- Once NMTG Product is used then clean all its parts with clean cloth.
- Lubricate all parts with rust preventive oil S-VCI 415 or equivalent & assemble as it was & packed in special Vacuum bag.
- After wrapping in Vacuum bag, Material is packed & store.
- Keep it in dry place and free from dust.
- Do not expose to open or corrosive environment.
- Keep away from direct Sunlight.
- Avoid Mechanical Shock & Vibration.
- Storage Temperature: -10 to +60°C.
- Relative Humidity: Maximum 95%, non-condensing.