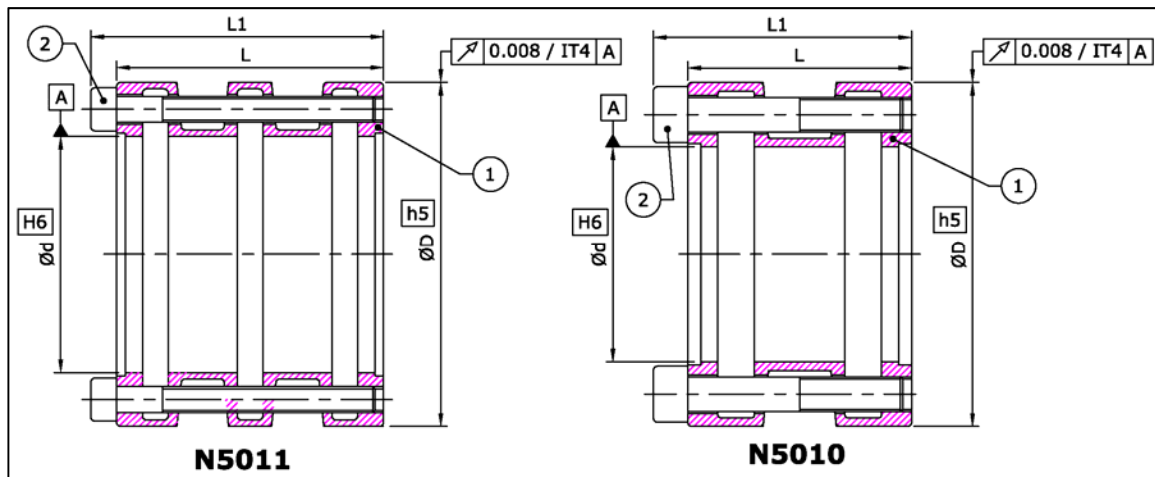


1.) About N5010, N5011 & Function:

- N5010, N5011 clamping sleeves are classified as friction-locked shaft-hub connections. Using clamping screws to initiate axial clamping achieves a uniform lateral contraction thanks to the base body's special geometry. The diaphragms are raised, widening the outer diameter and reducing the inner diameter, to create the required contact with shaft and hub for transmitting torques and axial forces. Therefore the connection is easy to assemble and quick to undo without the need for applying additional force.
- N5010, N5011 Clamping sleeves assembly consists of a clamping sleeve and clamping screws for integrated clamping initiation. In contrast to tapered clamping sets, the one-piece cylindrical clamping sleeve has no tolerance-heavy joints and can therefore achieve a higher degree of precision.

2.) Nomenclature:



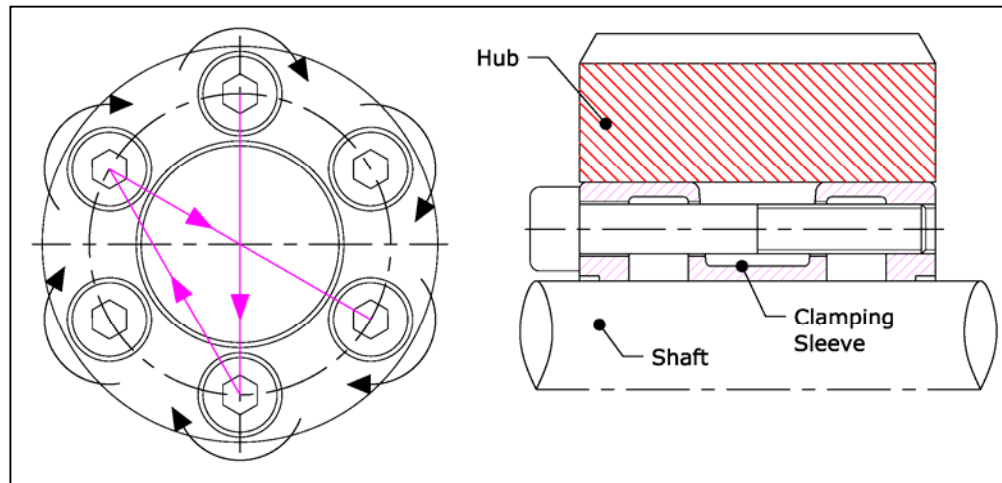
No.	Nomenclature
1	Clamping Sleeve
2	Clamping Screws

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 Shaft is h5/h6 & for Hub bore is H6/H7.
- The Concentricity of Hub bore / Outer diameter of Clamping Sleeve must be: 008 mm (< 80mm) & IT4 (> 80 mm)
- Note :**
 - Don't use oil containing molybdenum sulphide or high-pressure additives or grease of any kind.
 - During installation be ensure that Shaft and hub should be kept concentric and eliminate an effect of self-weight of Hub & Shaft upon the Clamping sleeve 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 Clamping sleeve is to be located.
- First of all,slightly loosen the clamping screws by hand.
- Slide the clamping sleeve completely in between the shaft & hub and after confirming the correct position of clamping sleeve, In respect of hub then hand tighten all screws in diametrically opposed sequence until fully removed the clearance with hub and shaft. Uniform removal of clearance is particularly important for good radial run-out.
- Once the axial position of Clamping sleeve is fixed then tighten all screws one by one in diametrically opposed sequence by using **Torque Wrench**. (As mention in Fig.)
- 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 pass: Full Ta or 5% more*).
- Where Ta= 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 clamping sleeve.)



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

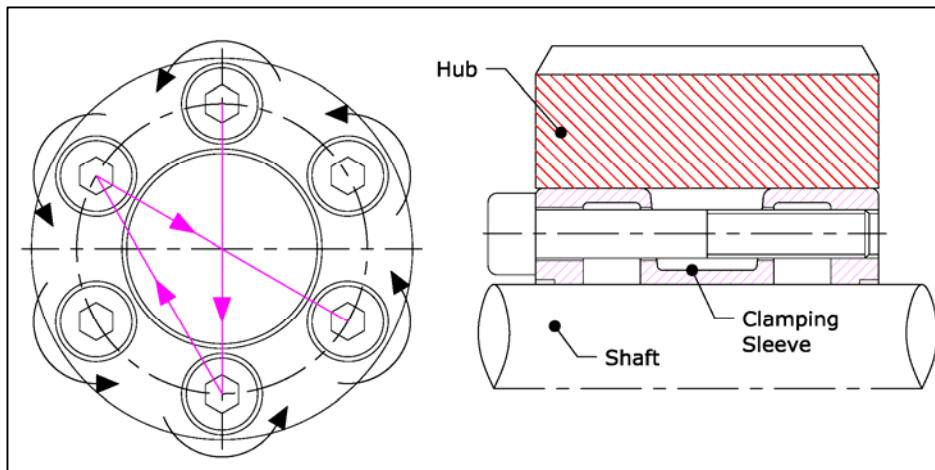
Tightening Torque:

Clamping Screw Size	M3	M4	M5	M6	M8	M10
Ta(Nm)	2	5	7 & 10	13 & 17	25 & 40	60

Note: Above mention value of tightening torque is maximum. Please refer Catalogue tightening torque value as per given for perticular Clamping sleeve size or 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 damage of clamping screw occurs.
- After removing the screws, Remove whole assembly from shaft & hub.



6.) Reuse:

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

7.) Maintenance:

- Clamping sleeve N5010, N5011 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 for Short term storage.
- 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.