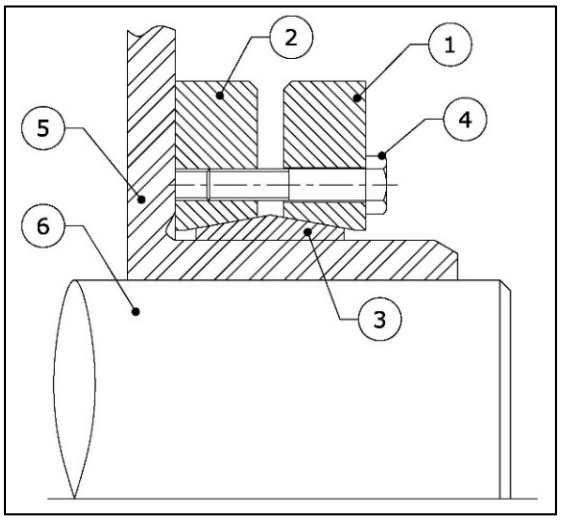
1.) About N4051, N4061, N4071, N4091 & Function:

- N4051, N4061, N4071 & N4091 are used to create friction-tight connection & no play between hollow shaft and solid shaft to transmit torque, axial force and shear force. Torque is transmitted by contact pressure & friction between contact surface. The surface condition and proper tightening of screw is great importance. By appling torque to clamping screw, radial clamping force generated due to taper surface.

2.) Nomenclature:



No.	Nomenclature
1	Front Nut
2	Rear Nut
3	Inner ring
4	Clamping screw
5	Hollow Shaft (Customer Arrangement part)
6	Solid Shaft (Customer Arrangement Part)

3.) Technical Requirement or Safe Operation:

- A good surface finish by machine tool is sufficient. Maximum allowable surface finish: Ra max 3.2µm. Maximum permissible tolerances for Hollow Shaft h8. *(Refer below Tolerance table)* .

Ød$_w$ (Solid Shaft Diameter)		ISO	Maximum Clearence "S" Between Solid Shaft & Hollow Shaft (mm)
Above	Upto		
10	18	H6/g6	0.014
15	30		0.017
30	50	H6/g6	0.032
50	80	H6/g6	0.048
80	120	H7/g6	0.069
120	180		0.079
180	250		0.090
250	315		0.101
315	400		0.111
400	500		0.123
500	630		0.136
630	800		0.154

- **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**

4.) Installation:

- Before Installation be ensure that hollow shaft and shaft are properly clean (ro remove dust particles).
- Apply light coat oil onto hollow shaft (Hub), Shaft at where Shrink Disc is to be located.
- By hand slightly loose clamping screw of shrink disc and push the shrink disc onto the hollow shaft (As shown in Fig.1).
- Once the axial position of shrink disc is fixed then tighten all screw by hand untill screw head face touch to side face of Shrink disc. Start tighten all screws one by one in diametrically circular sequence by using torque wrench (As shown in Fig. 1).

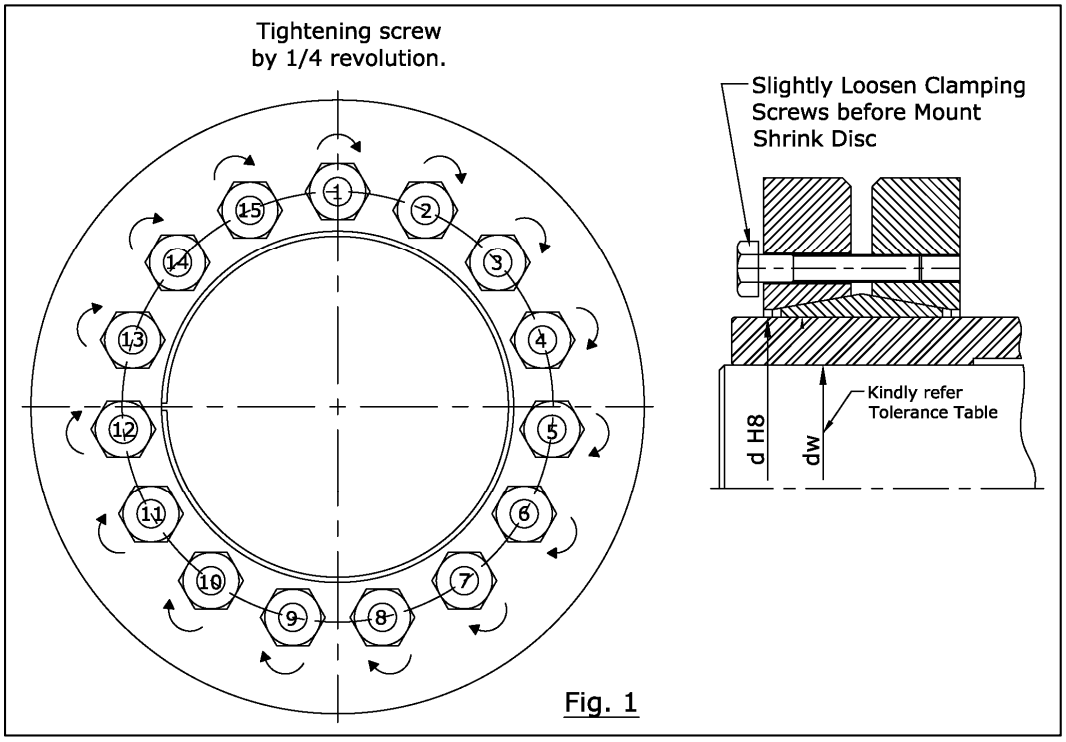


Fig. 1

- 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 pass : Full Ta)*.
  Where Ta = Recommended Tightening torque, please refer Ta as per NMTG drawing or NMTG Shrink Disc Catalogue (as per Model & Size).

- By applieng tightning torque to clamping screw, front nut and rear nut pulled together over inner ring. With the help of clamping force generated by clamping screw, friction connection between contact surface of hollow shaft and solid shaft generated.
- The tightening process is completed only when no one screw turn at specified tightening torque value.
- Be sure that, during installation position of inner ring with respect to hollow shaft remain unchanged.

For Apply Tightening Torque by Torque Wrench:

Torque wrench torque	Pass	1 st attempt	Tightening of screws
1/3 Ta	1 , 2 , 3 , 4 ,... n	1,2 ,3 ,4, ...	By 1/4 Revolution
2/3 Ta	1 , 2 , 3 , 4 ,... n	1,2 ,3 ,4, ...	By 1/4 Revolution
Ta or 5% more	1 , 2 , 3 , 4 ,... n	1,2 ,3 ,4, ...	By 1/4 Revolution

Tightening Torque:

N4051		N4071		N4091		N4061	
Screw Size	Ta (Nm)	Screw Size	Ta (Nm)	Screw Size	Ta(Nm)	Screw Size	Ta(Nm)
-	-	M5	4	M8 (50 X 95)	25	M4	2.4
-	-	M6	12	M8 (95 X 105)	28	M5 (Up to 20 x 46)	4
-	-	M8	30	M8 (62 X 115) (68 X 118)	30	M5 (for 21 x 50, 24 x 50 & 30 x 52)	5
M10	59	M10	59	M10	59	M6	12
M12	100	M12	100	M12	100	M8	30
M16	250	M16	250	M16	250	M10	59
M20	490	M20	490	M20 (190 x 350)	470	M12	100
-	-	-	-	M20	490	M16	250
-	-	M24	840	M24	840	-	-
-	-	M27	1250	M27	1250	-	-

- **Above mention value of tightening torque is maximum. Please refer drawing for actual value of tightening torque as per your application.**

5.) Removal:

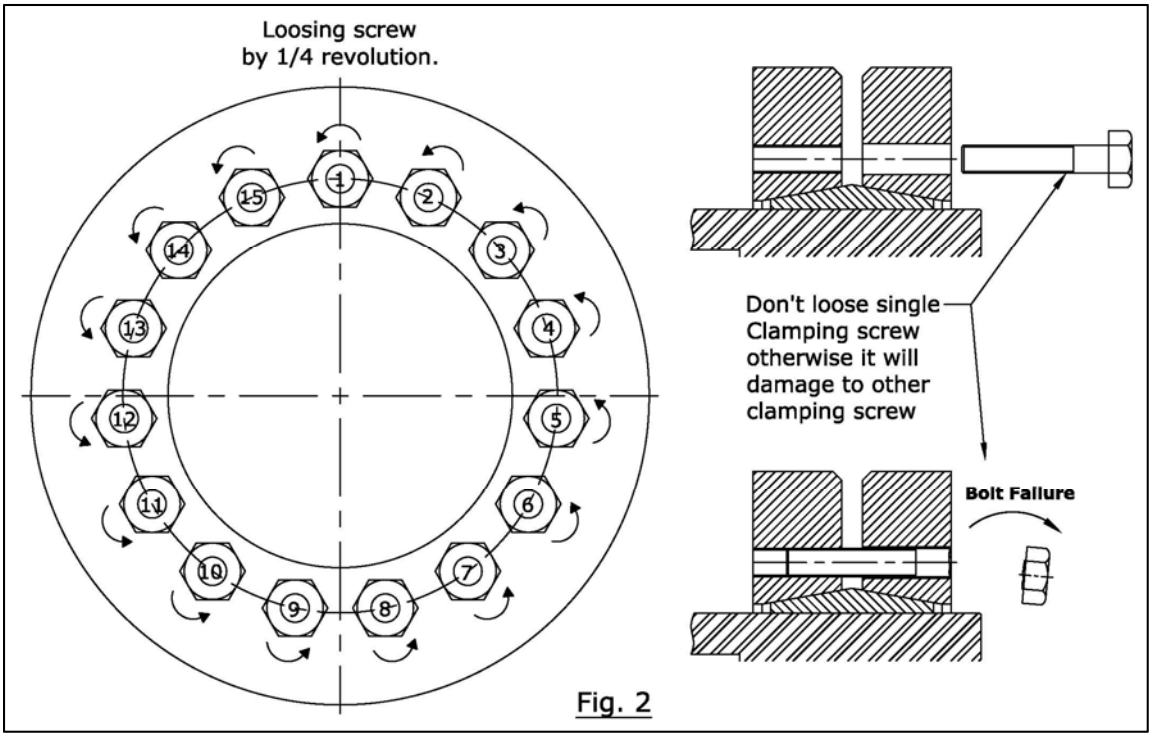


Fig. 2

- Loosen the clamping screws uniformly in multiple steps by 1/4 revolution for each step to Prevent misalignment of the clamping surfaces and breaking of screws.(As shown in Fig. 2)
- In similar manner loosen all screw one by one in diametrically circular sequence by 1/4 revolution with help of torque wrench because of completely loosen of single screw at a time tilt front nut & rear nut may lead to damage of shrink disc.
- N4051, N4061, N4071 & N4091 model is self-releasing so after loosening all screws shrink disc should automatically release.

6.) Reuse:

- Completely dismentle the shrink disc and clean, re-lubricate inner ring, front nut, rear nut and clamping screws. If any damage found in parts of shrink disc then replacement of whole shrink disc required. Before reuse of shrink disc's screws please check screws length because of during operating condition if they have been elongated so they cannot be used further so replace with same size and grade.

7.) Maintenance:

- Shrink Disc N4051, N4061, N4071 & N4091 are maintenance free. We therefore recommend to check tightening torque of the clamping screws each 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.