1.) General Instruction:-

- Please give full attention to Safety Notes before installation.
- These instructions regarding installation will only valid, if the products meets the selection criteria before installation.
- Ignore & misconception of installation & operation instruction invalidate the product liabilities or warranty by the NMTG Mechtrans Private Limited; same applies if the product id taken apart or changed.

2.) About NSO/NSOI:

- In one direction of rotation there is no contact between the inner and outer ring, the freewheel is in freewheeling operation.
- In the other direction of rotation there is contact between the inner and outer ring; in this direction it is possible to transmit high torque.
- Main function of NSO/NSOI:
  1. Backstop/Holdback
  2. Indexing/Feeding
  3. Overrunning

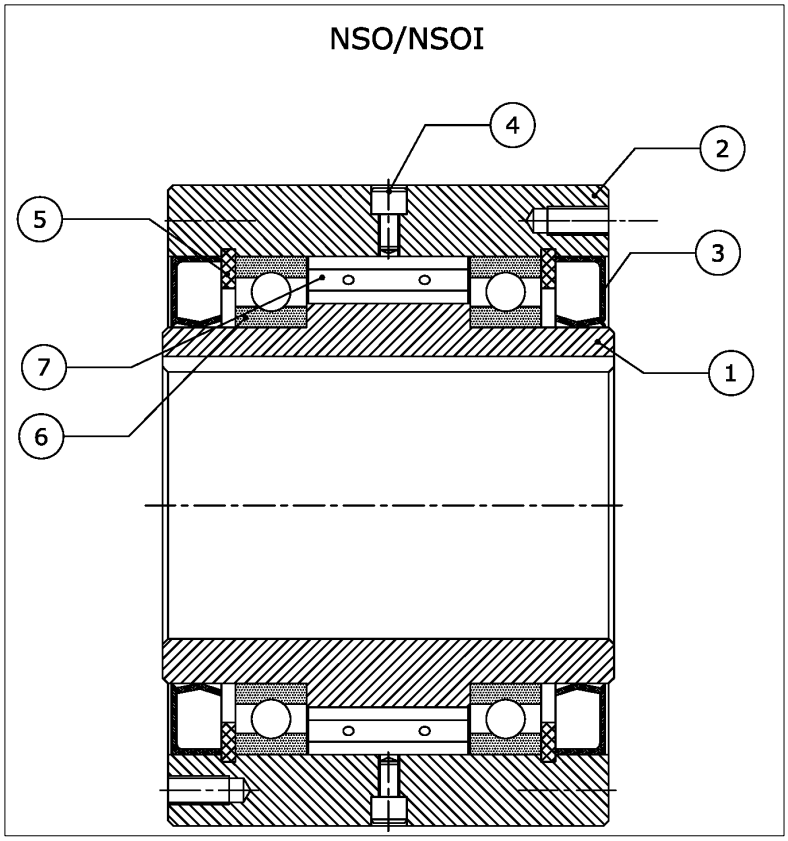
Function of NSO/NSOI:

1. As a Backstop/Holdback:
   Backstop function prevent reverse rotation when input drive is discontinue or power supply failure to input drive. Backstop clutch use to prevent damage caused by power supply failure.
2. As a Indexing:
   Indexing function allows the conversion of reciprocating motion applied to the driving race of the clutch into unidirectional intermittent motion of the driven race.
3. As a Overrunning:
   When drive member rotates faster than driving member, clutch gets disengage automatically. The highest overrunning speed is possible if outer race overruns. This ensures the best performance, reduce heat generation & wear which lead to increase life.

3.) Safety Criteria:

- Installation should be carried out by skilled person only.
- Replacement of any part should be carried out by NMTG only.
- If there is any problem detected in clutch or machine into which it is installed, stopped machine immediately.
- Make sure turning forces are not applied to Holdback or turning shaft of the equipment when conducting inspection or maintenance.
- Pay special attention to the back stopping application to prevent accidents.
- Frequent starting and stopping will apply excessive force on the mounting. Verify mounting strength.
- Inaccurate installation and mounting, various load conditions, wear and tear of parts, and life Expectancy can all affect the performance of a Holdback. Inspect and maintain periodically and Install a safety devise on your equipment.
- Confirm rotational direction prior to installing.

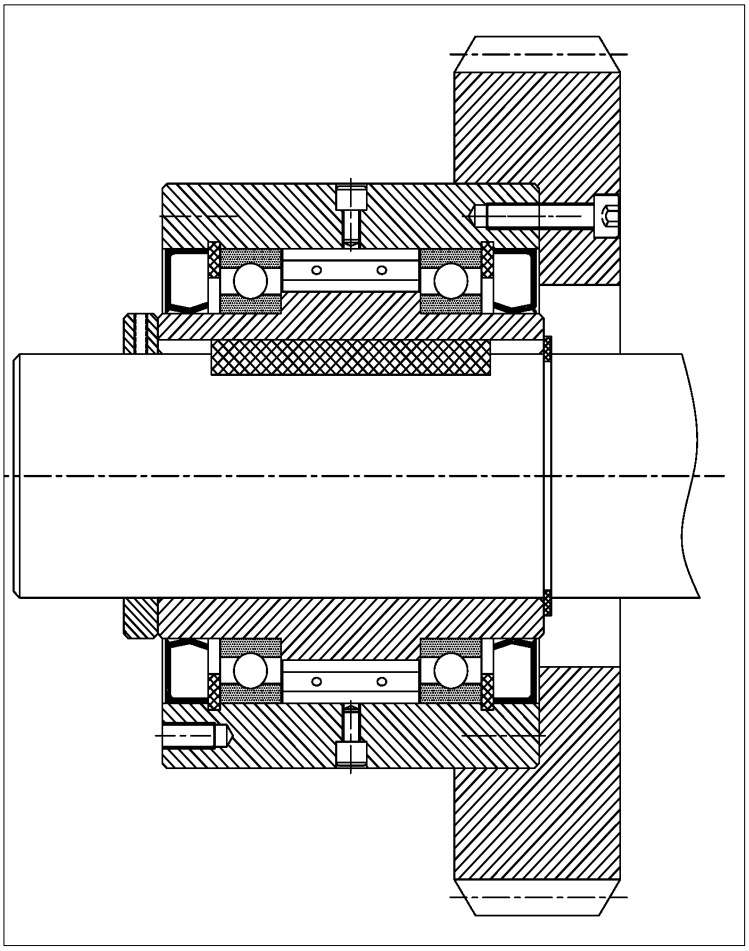
4.) Design:



No.	Nomenclature
1	Inner Race
2	Outer Race
3	Oil seal
4	Lubrication screw
5	Circlip
6	Bearing
7	Sprag

5.) Installation:

- During installation, apply pressure only on inner race.
- **Note: Use oil lubrication when mounting arrangement within 5 degree of horizontal. Grease lubrication used for non-horizontal orientation.**
- By applying pressure on outer ring, may lead to damage of bearing. To remove dust particles and other unwanted things, it is acceptable for oil lubricated clutch to be immersed in hot, clean oil before mounting.
- Secure position of inner race in axial direction with the help of shaft collar & retainer ring.
- Mount other arrangement to the outer race as per application. Mounting Component at Outer race should have H7 or G7 Tolerance.
- Tapped mounting holes are provided on both end of outer race. Centering of other arrangement over outer race like gears, pulley etc. is required to avoid load concentration.
- Proper installation required to avoid torsional vibration.



- **Tightening Torque**

Bolt Size	M8	M10	M12	M16
Ta(Nm)	34	66	115	290

Note:

I. **Use bolt with grade 10.9 only.**

II. **Required machine shaft Tolerance: h6.**

6.) Change in direction of rotation:

- Changing of the direction of rotation for this model is achieved by turning around Clutch (Because of Symmetric model, No need to interchange Covers).

7.) Lubrication:

Oil	Operating -20°c to +20°c Ambient -40° to -15°c	Operating +10°c to +50°c Ambient -15° to +15°c	Operating +40°c to +70°c Ambient +15° to +30°c	Operating +50°c to +85°c Ambient +30° to +50°c	Grease
ISO – VG 51519	10	22	46	100	
KLUBER	CRUCOLAN 10	CRUCOLAN 22	CRUCOLAN 46	CRUCOLAN 100	POLYLUB WH2
MOBIL	VELOCITE No.6	VELOCITE No.10	VACTRA MEDIUM VG46	VACTRA HEAVY VG100	MOBILUX 2
BP	ENERGOL CS10	ENERGOL CS22	ENERGOLCS 46	ENERGOL RC 100	ENERGREASE LS2
ARAL	SUMOROL CM10	SUMOROL CM22	MOTANOL HE46	DEGOL CL 1OOT	ARALUB HL2
ESSO	SPINESSO 10 NUTO H10	SPINESSO 22 NUTO H22	TERESSTIC T46 NUTO H46	NUTO 100	BEACON 2
FUCHS	RENOLIN MR3	RENOLIN DTA22	RENOLIN DTA46	RENOLIN MR30	RENOLIT LZR2
SHELL	MORLINA 10	MORLINA 22	MORLINA 46	MORLINA 100	ALVANIA G2
TOTAL	AZZOLA ZS10	AZZOLA ZS22	AZZOLA ZS46	AZZOLA ZS100	MULTIS 2
DEA	ASTRON HL10	ASTRON HL22	ASTRON HL46	ASTRON HL100	GLISSANDO 20

- For long, effective and smooth performance, it is mandatory to check lubricant condition and lubrication level.
- **Note: Don't use oil containing molybdenum sulphide or high-pressure additives or grease of any kind.**
- Initially change oil after 10 hours of operation. Afterwards change lubricant every 2000 hours and every 1000 hours in a dirty environment. Oil level and oil condition as well as rotating seals should be checked regularly. For working temperature below -40°C and above 100°C, Please contact us.
- When working temperature is above 80°c, then check lubrication regularly.
- For indexing application, oil with kinematic viscosity 10 mm^2/s at normal working condition.

Grease:

- Generally grease is used for long maintenance free. Ready for both horizontal and vertical mounting application. We suggest to clean, remove, inspect and re-grease after two years of operation.
- Excessive amount of grease may lead to malfunction of clutch. Fill grease approx. 30% to 40% of free space.

Oil Level:

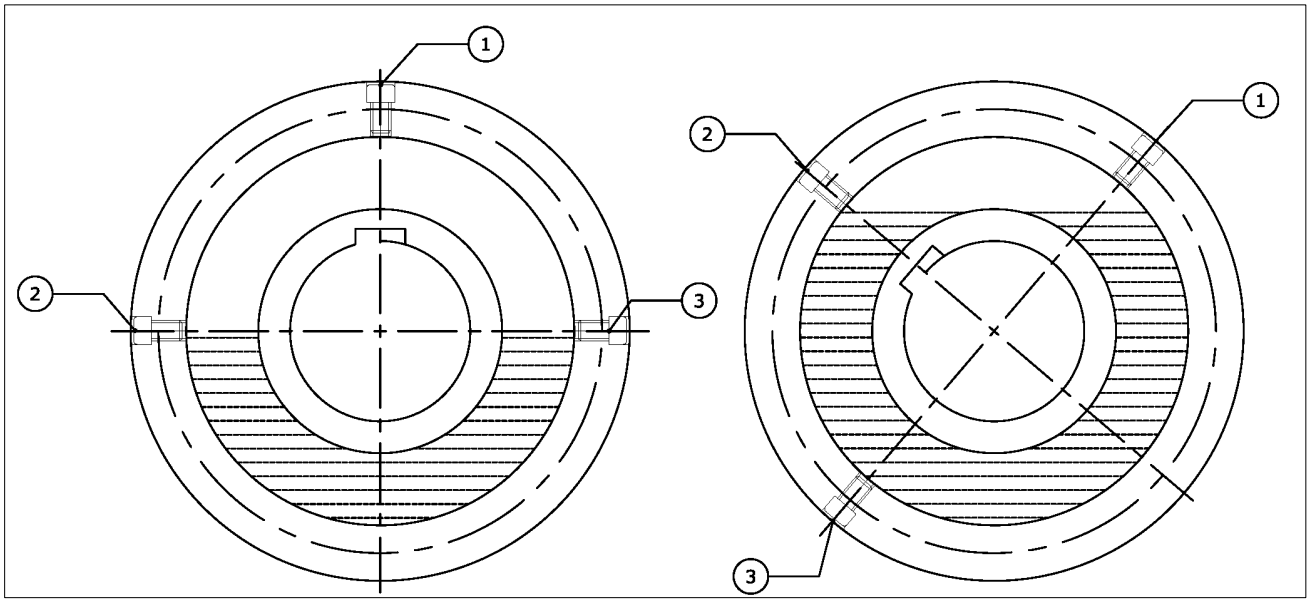
- Oil lubrication is provided with particular oil mention in above table.
- Check oil level every month or 160 Hr. of operation, which take place first. For indexing application where operating speed is above 160 strokes per minute require frequent oil level inspection.

- **For overrunning and backstopping:**

- First rotate clutch as shown in fig. 01.
- Remove oil screw 2 & 1 or 3 & 1 and add oil through lubrication hole 1 until oil starts flow from hole 2 or 3.(Fill ½ of free space).
- Tight lubrication screw 2 & 1 or 3 & 1 with washer to prevent leakage.

- **For indexing:**

- First rotate clutch as shown in fig. 02.
- Remove lubrication screw 2 & 1 and add oil from hole 2 until oil starts flow from hole 1. (Fill 7/8 of free space)
- Tight lubrication screw 2 & 1 with washer to prevent leakage.



Oil/Grease change:

- Rotate clutch till the lubrication screw reached at bottom position.
- Remove lubrication screw to drain oil from clutch. After oil drainage, fill whole clutch with mineral spirits and tight lubrication screw.
- Rotate clutch for some time to break up and dissolve any oily residue.
- Remove mineral spirits by removing lubrication screw and tight screw.
- Lubricate clutch with specified oil/grease.
- When replacing of oil take place, drain whole oil and clean clutch with mineral spirits. Do not mix oil with any solvent containing carbon sulphide.
- Wipe all grease form clutch.
- Fill new grease into all fittings until clean grease flows out around the oil seal of the clutch. Fill lubrication at normal working temperature condition.

8.) Preservation Instruction:

- Once the clutch has been used then clean the all parts of it with clean cloth.
- Lubricate all parts with rust preventive oil S-VCI 415 or equivalent and 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.

9.) Storage:

- Keep dry and free from dust.
- Avoid mechanical shocks and vibration.
- Do not expose to corrosive environment.