1.) 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.

2.) About NAF & NDF:

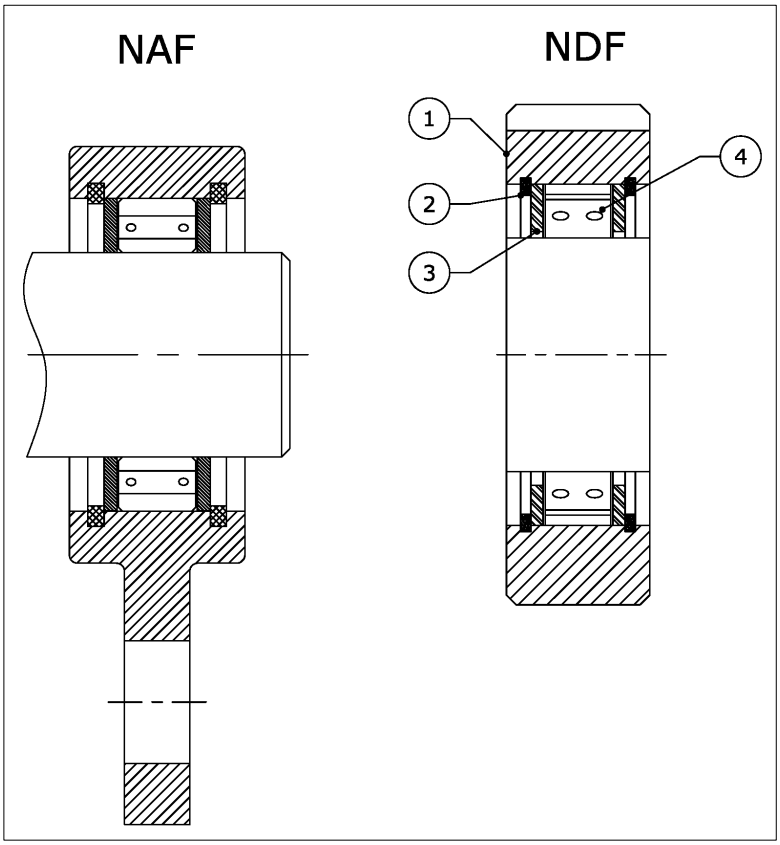
- In one direction of rotation there is no contact between the inner and outer ring, the freewheel is in freewheeling operation.
- In the other direction of rotation there is contact between the inner and outer ring; in this direction it is possible to transmit high torque.
- Main function of NAF & NDF:
  1. Backstop/Holdback

3.) Function of NAF & NDF:

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.

4.) Design:



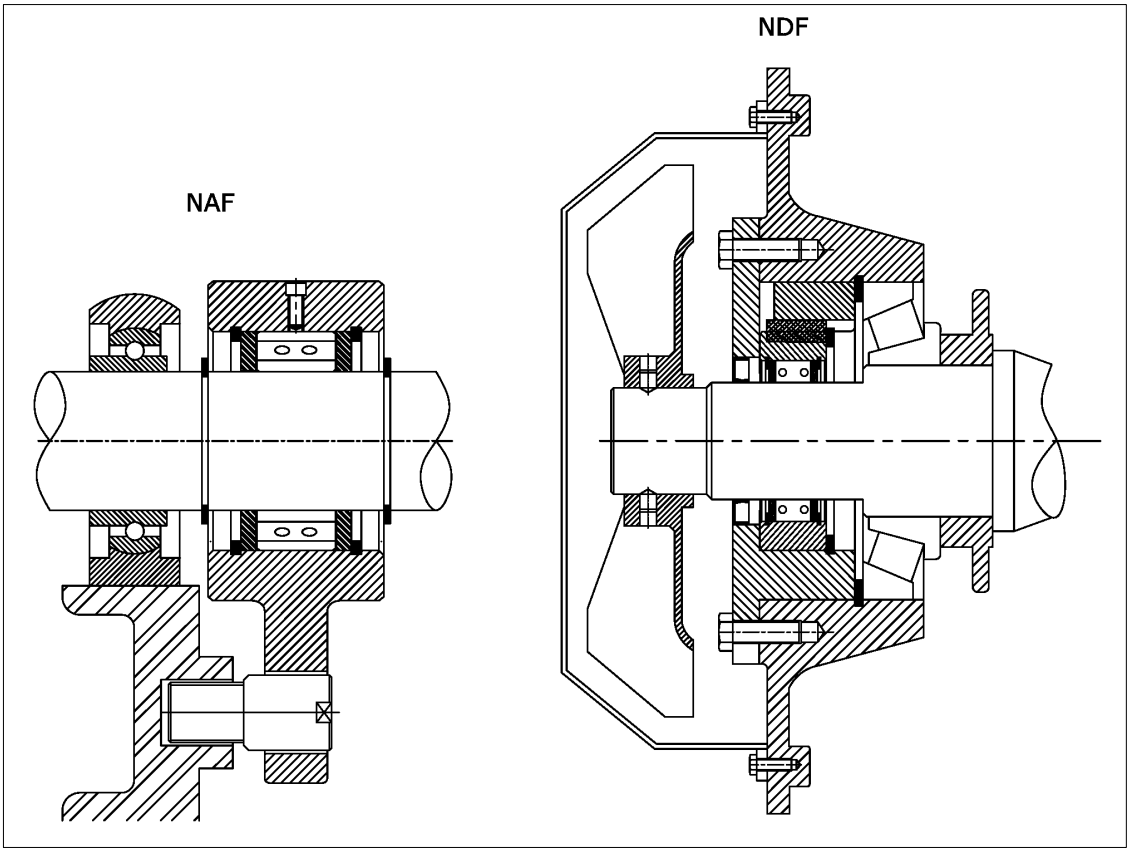
No.	Nomenclature
1	Outer Race
2	Circlip
3	Washer
4	Sprag

5.) Installation:

- Clean housing bore for the outer race and surface of shaft for inner race.
- Determine shaft rotation direction prior the clutch installation. Check the shaft tolerance should be controlled within **h6/j6.**
- When clutch is used as a backstop, the drive must not be started in the direction opposite the freewheeling direction of clutch.
- The Clutch is designed to fit in a housing with shaft as inner race & Outer race having keyway which connects customer part.
- Apply pressure only on front side of outer race during installation on housing bore.
- While installing Clutch on shaft, slight rotate shaft in the freewheeling direction.
- Make sure that axial position of the outer race with cage after assembling will such that there is no play between any parts.

- **NOTE:**
  - Due to direct contact of sprag with shaft, shaft must be required to be ground & Hardened to 60 HRC & Surface finish (Ra) 0.3 to 0.5 micron, Taper not to exceed 8 micron per inch (25.4 mm).
  - For using this type of Clutch, Shaft must be carburized: To an Effective depth of 1.2/1.5 mm grinding.

- Concentricity: Shaft to be supported in bearings such that Shaft & Housing are concentric within 0.05 mm TIR.
- For NAF: Provide stop bolt in torque arm with radial clearance with 1-3% of bolt's diameter & also for axial lock provide circlip on both side.



6.) Lubrication:

- Fill specific oil with specific qty. from below table.
- Provide oil level up to the mid shaft for horizontal mounting of NDF model.
- For working condition above +100°c & below -40°c then contact NMTG.

Oil table			
Ambient temperature	**For ambient temperatures from 0° to 50° C**	**For ambient temperatures from - 15° to + 15° C**	**For ambient temperatures from - 40° to 0° C**
Kinematic Viscosity at 40° C, ISO-VG	**46/68 [mm2/s]**	**32 [mm2/s]**	**10 [mm2/s]**
AGIP	OSO 46/68	OSO 32	OSO 10
ARAL	VITAM GF 46/68	VITAM GF 32	VITAM GF 10
BP	ENERGOL HLP 46/68	ENERGOL HLP 32	AERO HYDRAULIC 1
CASTROL	VARIO HDX	VARIO HDX	ALPHASYNTH 15
CHEVRON	EP HYDRAULIC OIL 46/68	EP HYDRAULIC OIL 32	HYJET IV
DEA	ASTRON HLP 46	ASTRON HLP 32	ASTRON HLP 10
ELF	ELFOLNA 46	ELFOLNA 32	ELF AVIATION HYDRAULIC OIL 20
ESSO	NUTO H 46/68	NUTO H 32	UNIVIS J 13
KLÜBER	LAMORA HLP 46/68	LAMORA HLP 32	Klüberoil 4 UH1-15
MOBIL	D.T.E. 25/26	D.T.E. 24	AERO HF A
SHELL	TELLUS OIL 46/68	TELLUS OIL 32	TELLUS OIL 10
Other manufacturers	Gearbox- or hydraulic oils without solid lubricants ISO-VG 46/68	Gearbox- or hydraulic oils without solid lubricants ISO-VG 32; Automatic transmission fluids [ATF]	Gearbox- or hydraulic oils without solid lubricants ISO-VG 10; Note setting point! Aviation hydraulic oils ISO-VG 10

7.) Lubrication Change:

- Change the lubricant after first 20 hours, then every 2000 hours thereafter.
- During the first oil change, all particles accumulated during the "running" procedure should be removed from the freewheel.
- Subsequent oil changes must be performed after every 2000 min. operating hours.
- If oil is changed at longer intervals, we recommended using the synthetic lubricant MOBIL SHC 626.
- If this lubricant is used, it must be changed after every 4000 operating hours.

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.