Chapter 6 Gear assembly

6.1 Advice on gear assembly

When assembling the gear pair, please note the following recommended points.

(1) Beware of gear with scratches and rust, handle gear with care.
Small scratch marks may cause noise.

(2) Remove sharp edges near tooth flank.
It is advisable to perform chamfering by semi top process to remove sharp edges on the Tooth tip. If chamfering is not performed, be sure to find and remove scratch marks or burrs on the gear.

(3) Measure the backlash.
Backlash regardless big or small causes noise. It is necessary to maintain proper backlash. If not, it is necessary to adjust centre distance. For details on KG-Backlash, please refer to page 24 of Technical Data and page 23 of front pages.

(4) Confirm tooth bearing.
Noise and oscillation is caused by poor tooth contact. Poor tooth bearing also harms the durability of the gear. Please refer to page 96 of section 6.4 for more on tooth contact.

(5) Use suitable type of lubricating oil in proper amounts.
Refer to pages 99 to 103 of sections 6.5 and 6.6 for suitable type of lubricating oil in proper amounts.

(6) Perform warm up and test run.
We recommend that warm up and test run be performed before actual operations in order to improve hardness and strength of tooth flank.

(When applying Heat treatment to pinion only) Especially for Worm gear pair, warm up and test run is recommended to improve area of tooth bearing and surface strength.
Tooth profile for Worm gear pair has complicated curved surface compared with other gears making it difficult to fabricate Worm gear pair with improved accuracy. There are limitations to surface roughness when processed with lath only.
It is necessary to perform warm up and test run for Worm gear pair. Do not apply full load or close to full load to Worm gear pair or scuffing will occur easily.
For Warm up and Test run, gives improved evenness of tooth flank and increased tooth contact area (per square measure), which reduces the load (per square measure). It will also improve wear resistance against work hardening of tooth flank.
Therefore it provides a longer lifespan for the gear and reduces the noise level and oscillation.
Method of Warm up and Test run. Firstly check the tooth contact while applying empty load and then gradually increase load to the gear.
We recommend changing all the lubricating oil after warm up and test run. Subsequently we recommend that the lubricating oil be changed every 6 months or 25,000 hours which ever comes first.

In addition, take note of dynamic balance and assembling method as recommended.