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Replacement of thrust bearing with improved type

REASON FOR SUGGESTION:

Recently the output demand of the turbine and compressor is increasing. So, we have developed thrust bearing for higher load.

The improvement is as follows.

1) Direct lubrication nozzle is applied to supply necessary oil, and used oil in the bearing housing is quickly drained.
2) Copper alloy is applied as back metal of bearing pad to improve cooling capability.
3) Off set of the bearing pad pivot is applied to increase oil film thickness, and has improved the load ability.
4) The shape of leveling plate was improved to reduce friction.

A sufficient improvement of the bearing metal temperature can be achieved by these modifications.

DETAILS OF SUGGESTION:

The outline of modification is as follows.

1) When J type thrust bearing is installed, new K type bearing can be fit in the existing space because axial size is smaller than J type thrust bearing. Bearing housing is needed to be replaced.

2) When K type thrust bearing is already used for existing, there is no need for replacing bearing housing. Modification of drain hole and replacement of bearing are required.
Improved Thrust Bearing

12 Pads
(For High Speed Turbine)

6 Pads

LUBRICATING TYPE

OIL FLOOD TYPE
CONVENTIONAL

NON-FLOOD TYPE
IMPROVED

DRAIN OIL FLOW

FLOOD

A-A

NON-FLOOD

B-B

ROTOR

PAD

A

B

OIL

DRAIN OIL FLOW
IMPROVED LEVELER
(REduced FRICTION TYPE)

CONVENTIONAL TYPE

TOP LEVELING PLATE

BOTTOM LEVELING PLATE

IMPROVED TYPE

PAD

NOZZLE PIECE

LARGE FRICTION
(DUE TO SURFACE CONTACT)

SMALL FRICTION
(DUE TO LINE CONTACT)

SUMMARY
HIGH RELIABILITY OF THRUST BEARING

★ NON-FLOOD TYPE
★ IMPROVED LEVELER
★ COPPER ALLOY BACK METAL
★ OFF-SET PIVOT

EFFECT OF APPLICATION in Ethylene Plant

ACTUAL TEMP. [°C]

:ORIGINAL BRG.
:IMPROVED BRG.