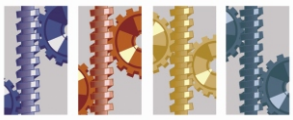
OIL FILTRATION SYSTEMS

# CJC™ Application Study

## Gear Oil - Coal Mill Gear



INDUSTRY


***Application Study written by:***
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*Denmark*

***In co-operation with:***
*Jørgen Brix Andersen*
*ELSAM A/S*


*2004*

### CUSTOMER

ELSAM A/S, Studstrupværket.
ELSAM has 6 central power stations in Denmark.

### THE SYSTEM

Babcock MPS 190 Rolling Coal Mill.
The purpose is to grind the coal into fine and good firing material.
Oil system: Volume 1800 L of Mobil gear oil 632, ISO VG 320.

### THE PROBLEM

Oil analysis showed a high content of metal particles and resin; indicating wear on the components; possibly because of other particles. Furthermore resin is created because of the high temperatures. Since the oil film is approx. 2 micron, the very small particles entered the bearing instead of the oil, and caused damage.

### THE SOLUTION

**CJC™ FineFilter HDU 27/81 P-DE,** with a pump flow of 250 l/h.
**CJC™ FilterInsert B27/27** (3 micron abs.) was used.

### THE TEST

One filter unit was installed to see the difference in the oil - with or without the CJC filter. After 3 months the results were clear, and 7 more filters were installed on the remainder of the coal mills. Subsequently 17 filter units have been installed at ELSAM A/S on coal mill gears.

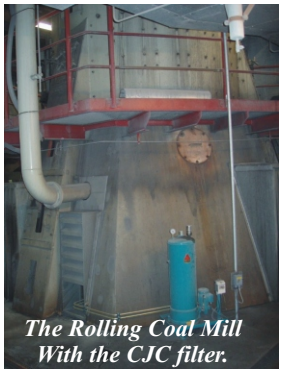
### THE RESULT

The first sample taken had an ISO code 21/17/13. After 1 month with the CJC filter installed the ISO code was reduced to 16/15/12. After 3 months the cleanliness level was further reduced to an ISO code 15/13/7.
1,304,472 of 2 micron particles were reduced to 18,195, meaning, CJC filter had removed 98% of those particles. Furthermore, the resin was totally removed.

### COMMENTS

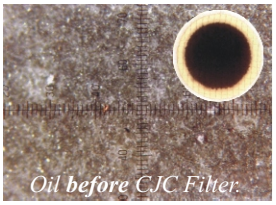
***Jørgen Brix Andersen, Elsam A/S:***
*"As the oil analyses show, we have achieved cleaner oil, after we have installed CJC filters on our 8 coal mills. The need for oil change is gone, and the risk of a breakdown in the bearings has been extremely reduced. An oil change cost € 3,230 per gear. "*

*The power plant "Studstrupværket".*

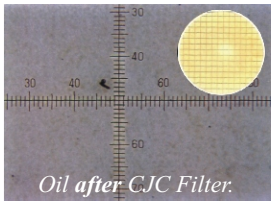


*The Rolling Coal Mill With the CJC filter.*

*CJC™ FineFilter HDU 27/81.*



*Oil before CJC Filter.*

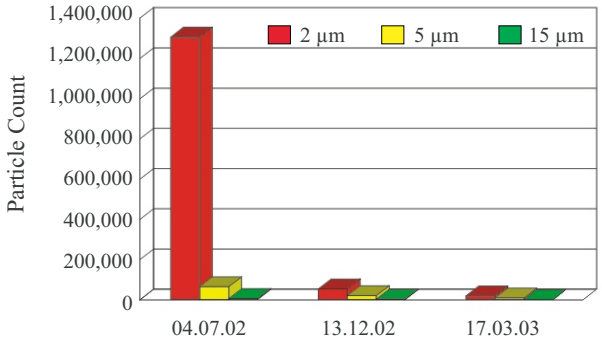


*Oil after CJC Filter.*

### THE RESULT

| | ISO Code | 2 µm |
|---|---|---|
| **Before CJC Filter:** | 21/17/13 | 1,304,472 |
| **After 1 month with CJC Filter:** | 16/15/12 | 52,781 |
| **After 3 months with CJC Filter:** | 15/13/7 | 18,195 |

### Particles





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