



**CLEAN OIL  
BRIGHT IDEAS**

# Quench Oil Open Bath Quench System

## CJC™ Application Study

**Application Study  
written by:**

Kim Kjær  
C.C.JENSEN A/S  
Denmark

**And**

Kai Kilpia  
Teknoma Oy  
Finland

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### CUSTOMER

Metso Drives Oy, Finland  
Contact Person: Sami Lehtonen

### THE SYSTEM

Open bath quench oil system for large gear wheels.  
**Oil volumes:** 40,000 and 90,000 litres.  
**Oil:** Mobiltherm FD.

### THE PROBLEM

Rapid deterioration of oil leading to short lifetime of oil. Sludge formation between gear teeth leading to uneven hardening and reduced component surface strength. Black spots on metal surfaces from burned oil molecules leading to regular and expensive cleaning of both surface threatened parts and oil reservoir.

### THE SOLUTION

**CJC™ Fine Filters:**

- 1 HDU 3 x 427/81 MZ-EPQTV with  
18 CJC™ Filter Inserts 2 x F 27/27  
Pump: MZ 32-4 1,920 (L/h)
- 2 HDU 2 x 427/81 MZ-EPQTVY each with  
12 CJC™ Filter Inserts 2 x F 27/27  
Pump: MZ 21-4 1,260 (L/h)

**Efficiency:** 3 micron abs., 0.8 micron nom.

**Dirt holding capacity per 2 x F 27/27:** 8 kg.

**Total dirt holding capacity for the systems:** 480 kg.

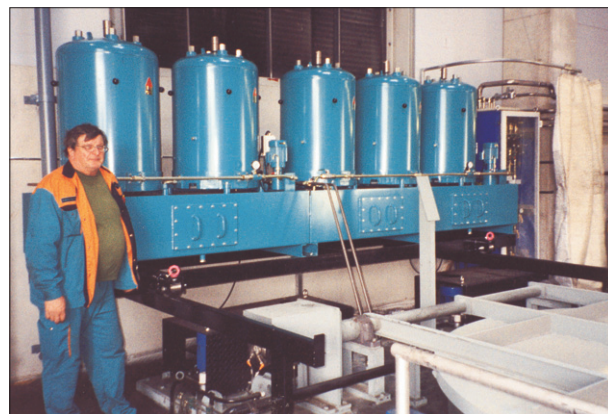
### THE TEST

After installing one HDU 2 x 427/8 L MZ-EPQTVY on the existing 40,000 L system sludge was removed as soon as developed. All problems with uneven hardening disappeared. No black spots were visible on parts after operating the filter for a few days only.

### THE RESULT

So far, oil lifetime has doubled and oil analyses showed no signs of a need for change. From that it can be expected that no cleaning of oil reservoir is necessary. Calculating the payback time of the investment showed that the prolonged lifetime of oil paid the investment within the first 2 years. Taking into consideration the other obvious benefits Metso Drives Oy decided to invest in additional CJC Fine Filters when building a new 90,000 L quench oil bath. The new bath was operating one year prior to installation of the Fine Filters.

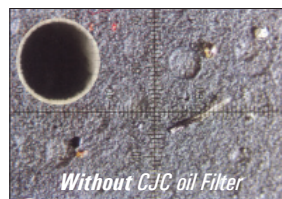
After only 2 days of operating the filters on this system all problems with uneven surface hardening, black spots on parts and sludge formation disappeared.



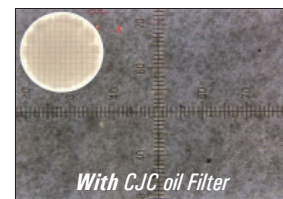
*Mr. Pekka Korhonen at Metso Drives Oy, with the HDU filtration unit for their 90,000 litre system*



*Changing the first set of inserts in the HDU 2 x 427/81 MZ-EPQTVY on the 40,000 litre system*



*Without CJC oil Filter*



*With CJC oil Filter*

*Membrane filter analyses of the quench oil before and after installation of Fine Filters*