



CLEAN OIL
BRIGHT IDEAS

CJC™ Application Study

Application Study
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2000

THE PROBLEM

Oil in quenching plants is exposed to very high rate of contamination ingress. The typical types of contaminants are:

- **Solid Particles:** Dust, metal particles and rust are invariably introduced into the quench oil together with the parts to be hardened.
- **Water:** Introduced through condensation or cooler leakages.
- **Oxidation Deposits (resins):** In combination with the frequently very high temperature of the quench oil, the above contaminants will accelerate the decomposition of the oily residue, reduce the efficiency of the oil coolers, the aqua alarm system and the quenching process in general.
- **Cracking Deposits (resins):** When large molecules are exposed to heat and even small amounts of oxygen, they crack into small particles. These deposits tend to stick to the surfaces of the quenched parts, making subsequent cleaning and machining difficult.

THE SOLUTION

The **CJC™ Fine Filter** combines 3 μm absolute filtration with absorption of water and resinous deposits.

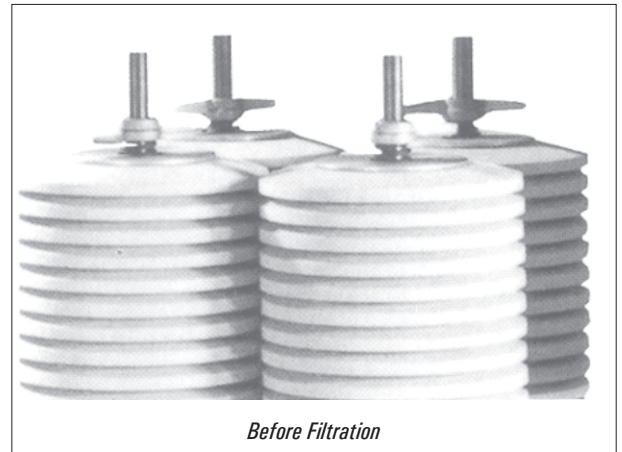
All **CJC™ Filter Inserts** are true depth filters made from semi-chemical cellulose. The long filter passage (from the outside and inwards) ensures long service life and low operation costs.

THE RESULTS

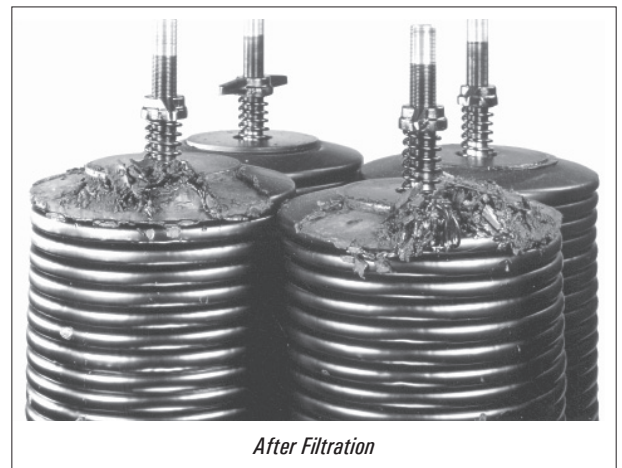
- Cleaner washing baths, and thus extended service intervals and reduced postquenching treatment of the hardened parts.
- Easier tank cleaning.
- Improved surface quality on treated parts.
- Extended oil replacement intervals.
- Reduced risk of fire due to reduced water content (water absorbed in filter insert).

THE SYSTEM

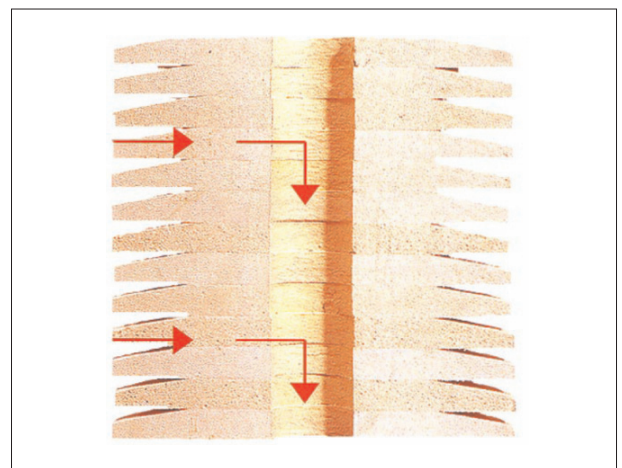
CJC™ Fine Filter HDU 427/108 MZ with
CJC™ Filter Insert F 27/27 (3 μm abs.)



Before Filtration



After Filtration





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THE INSTALLATION

Because of the continuous ingress of dirt into a quench oil system the **CJC™ Fine Filter** must be a stationary unit, connected as shown on below drawing, and in operation 24 hours a day.

The CJC™ range of products also includes equipment for particle and water removal from skimmed quench oil (from washing baths), enabling the reuse of the oil.

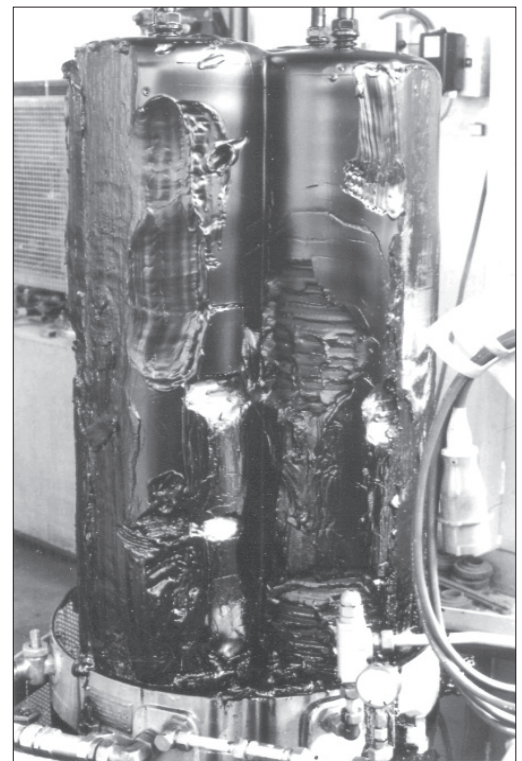
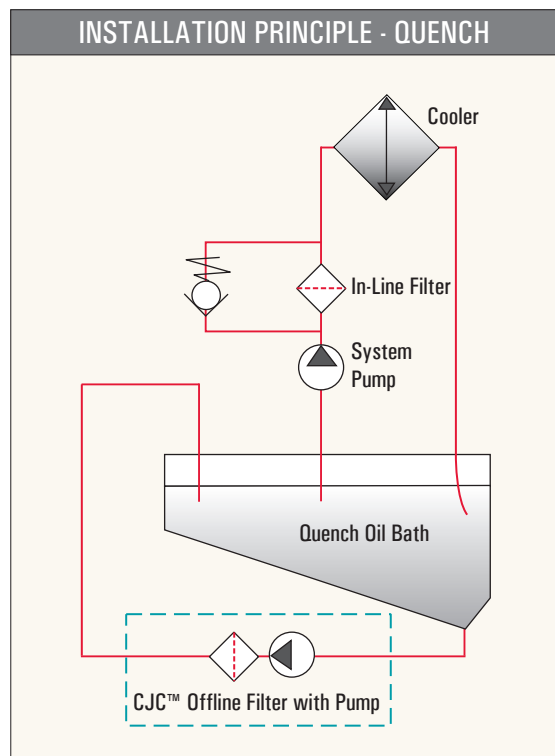
SERVICES INTERVALS

A HDU 427/108 unit requires replacement of the filter insert after approximately 6 months in operation.

In the case illustrated below the theoretical dirt holding capacity of the CJC™ Unit of 64 kg turned out to be an impressive 160 kg in real life.

The main features of the CJC™ Filter Insert are:

- Particle removal down to 3 micron
- Water absorption
- Resin absorption



GUIDING DIMENSIONING TABLE

System Volume Max.	CJC™ Fine Filter Type	Insert Volume	Dirt Holding Capacity	Pump flow
1,000 ltr.	HDU 27/81 PV-QV	36 ltr.	12 kg	90 ltr./h
2,000 ltr.	HDU 27/108 P-QV	48 ltr.	16 kg	200 ltr./h
4,000 ltr.	HDU 427/54 P-QV	96 ltr.	32 kg	400 ltr./h
8,000 ltr.	HDU 427/81 MZ-QV	144 ltr.	48 kg	600 ltr./h
10,000 ltr.	HDU 427/108 MZ-QV	192 ltr.	64 kg	800 ltr./h
20,000 ltr.	HDU 2x427/81 MZ-QV	288 ltr.	96 kg	1,200 ltr./h
40,000 ltr.	HDU 3x427/81 MZ-QV	432 ltr.	144 kg	1,900 ltr./h