OIL FILTRATION SYSTEMS

CJC™ Application Study

Hydraulic Oil - Plastic Injection Moulder

INDUSTRY

Application Study written by:
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2000

CUSTOMER

Wavin Metalplast-Buk
Ul. Dobieżyńska 43
64-320 Buk, Poland

THE SYSTEM

STORK Plastic Injection Moulding Machine type SX 3000/2100, each with approximately 720 L of Shell Tellus ISO VG 46 oil.

THE SOLUTION

A **CJC™ FineFilter HDU 27/27 P** was installed, (stationary filter with a pump flow of 400 L./h), using one **CJC™ FilterInsert B 27/27**, 3 micron absolute, i.e. 98.7% of all solid particles ≥3 µm and approximately 50% of all particles ≥0.8 µm will be retained in one pass.

The CJC™ FilterInsert is capable of absorbing both oxidation products, solid particles and water. The dirt holding capacity is 4 L.

THE TEST

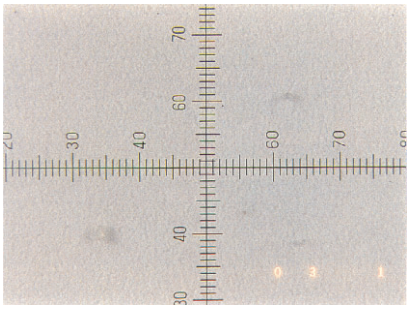
The Fine Filter unit was installed on the machine in 1993, when the machine was set up at the Wavin premises in Buk. Wavin have CJC™ Filters on all their machines.

The oil samples were taken through a sampling point before the CJC™ Filter.

The oil on this machine has not been changed since October 1997 and the condition of the oil is still excellent.

The filter inserts are replaced once a year.

At Wavin Metalplast in Buk, Poland all STORK plastic injection moulding machines are equipped with CJC™ Fine Filters.



The oil analysis were performed by Filtrex Services, Hoorn, The Netherlands. For further information on test results and CJC™ Oilcare Units, please contact C.C.Jensen A/S, Filter Sales Dept.

THE RESULT

Hydraulic System on STORK Plastic Injection Moulder			
	>2 micron:	**>5 micron:**	**>15 micron:**
No. of particles/100 mL:	4874	2693	513
ISO 4406 Class:		13/12/10	
NAS 1638 Class:		4	
Colour of membrane:		White	
Water content:		46 ppm	

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Filtration test by STORK PLASTICS on Plastic Injection Moulding Machines

INDUSTRY

STORK ANALYSIS RESULTS

The sophisticated hydraulics of modern, high-tech plastic injection moulding machines call for maximum oil cleanliness to secure accurate operation.
In their continued effort to optimize operation reliability and repeatability STORK PLASTICS have tested CJC™ Offline FineFilters on their state-of-the-art range of SX 2000/1000 injection moulders.
Even the very finest of contaminating particles - solids and water - are a constant threat to the liability and lifetime of the fine hydraulic components (including the oil) of an injection moulding machine.

Consequently, STORK PLASTICS found it sensible - both economically and technically - to investigate the effect of an additional fine filtration system on the SX 2000/1000 machines.

The offline principle, where the fine filter is equipped with its own pump, working in a separate filtration circuit, was chosen because of the round-the-clock operation facility.
Operating the filter during main hydraulic system shut downs greatly increases the filter efficiency and reduces the contamination reduction time. This is particularly important during the running in of new machines when the contamination level is prone to rise.

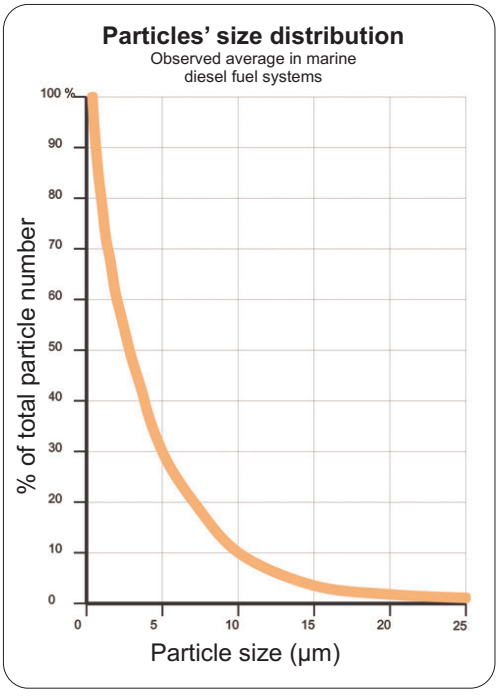
When running the filtration test on the SX 2000/1000 in December 1992 STORK decided to take samples (upstream filter) at relatively close intervals. The results are given in the next column.

STORK recommends an oil cleanliness level of ISO 16/12 , NAS 6 or better for maximum component security. As the chart shows, this value was more than achieved after 8 hours of operation.
After some 100 hours the cleanliness level stabilized at ISO 12/11, NAS 5-4. Such clean oil prevents sudden increases in the contamination ingress from having a harmful effect on the hydraulic components and prolongs the lifetime of the oil, very often to five years or more.

The large dirt and water capacity of the CJC™ FilterInsert ensures that the attractive operational economy is feasible even when maintaining oil cleanliness level as low as ISO 12/10.

Hours of operation		
Hours:	**ISO Class:**	**NAS Class:**
0	16/15	9
1	16/13	7
8	13/11	5
25	13/12	6
100	12/11	5
200	12/10	4

Results of the particle count oil analysis, presented as contamination classes.
(According to ISO 4406 and NAS 1638.)



The above graph shows how particles in a normal hydralic oil system are size distributed.

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