



Case Study

Membrane Belt Filter Pumping

CerWat (now CERT), Georgia Tech, GA

The Challenge

Emulsification of oil, water mix
Filtration through membrane belt filter

The Discflo Solution

Discflo outperformed all other major types of pump
No emulsification of oil
Fastest filter times

CerWat, an independent test company with facilities in Tennessee, has conducted a series of tests on how different pumps pump emulsions for membrane filter applications. The researchers looked at the amount of emulsification, shearing and dissipation each pump caused when a solution of detergent, oil and water was circulated for 30 minutes, then filtered through a membrane. The models tested were: a centrifugal pump; an air-diaphragm pump; a lobe pump; two types of PC pump; and a Discflo pump.

The results were as follows:

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| Centrifugal: | Oil completely emulsified after 15 minutes and no flow through the filter. |
| Diaphragm: | Oil was broken into small islands (dissipated) but not really emulsified. Filtered through OK. |
| Lobe: | No oil visible on water surface after 30 minutes but fluid was able to filter through the membrane. Fluid was dissipated but not completely emulsified. |
| PC 1: | Oil appeared to be completely emulsified after 15 minutes and would not flow through the filter. |
| PC 2: | After 30 minutes, there were a few oil droplets on the water surface but most had emulsified. Less than half of sample was filtered through. |
| Discflo: | No visible shearing after 30 minutes. The oil still formed large slicks on water surface. Filtered through in the fastest time. |

Conclusion: The Discflo pump outperformed the other types of pumps in (a) not emulsifying the oil, and (b) passing through the membrane filter quickly.

The Discflo pump's ability to handle oil without emulsification is due to its unique laminar-flow pumping mechanism. Known as the Discpac, the pumping mechanism comprises a series of parallel rotating discs that operate on the principles of "boundary layer" and "viscous drag", establishing a pulsation-free, laminar flow pattern through the pump. More information at www.Discflo.com.

CerWat (Center of Excellence in Rotary Wing Aircraft Technology) is part of a group of research centers set up by Georgia Tech in early 1990. The center now operates under the name Center of Excellence in Rotocraft Technology (CERT).

Call Discflo now to find out how our pumps can solve your problems.



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