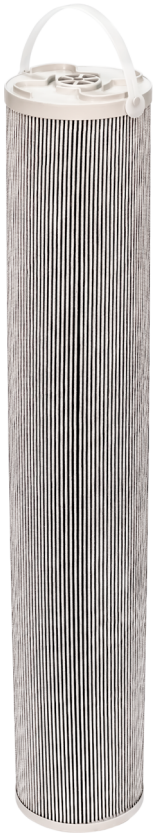
Donaldson HY-PRO™

VUD Reduces Oil Consumption

Prevents Unnecessary Downtime and Reduces Maintenance & Fluid Costs

The Problem

An Australian aluminum refinery was consistently performing premature gearbox lube oil changes on 7 base drive units due to oil and particulate contamination. With an average operating ISO code of 20/18/16 and average water levels of 4742ppm, the 360 liters / 90 gallons of ISO VG320 gear oil was being changed far too often. Cost per gearbox oil change (excluding crane, lost production, labor) is $17,962.60 which adds up to $125,738.20 for all 7 units.



The Solution

Conditioning gearbox lube oil is a huge opportunity for savings. By removing dirt and water the lube oil can be used until another characteristic of the oil fails (i.e. viscosity or additive) which can result in exponentially longer fluid life and prevent gearbox failure. To remove the particulate and water from the oil a Donaldson Hy-Pro V5 vacuum dehydrator was selected to remove all phases of water (free, dissolved, emulsified) and remove particulate with an oversized 3M ($\beta 5[c] > 1000$) filter element. The V5 was rotated between the 7 top drives on a 2-day service interval rapidly purifying the oil by turning the sump volume 75 times daily.

The Results

On each unit, water was rapidly reduced an average of 98% from 4742ppm to 96ppm. Particulate contamination size 4µ[c] and larger decreased by 95% as average ISO code decreased from 20/18/16 to 15/13/8. The refinery increased reliability and profitability while reducing the environmental impact of premature oil disposal. Oil life has been extended reducing the need for oil changes. Gearbox life should also extend by 2.5x under these conditions, leading to even more substantial savings.

2.5x gearbox life extension

with new ISO codes based on the Bearing Life Extension table below

Roller Contact Bearing Life Extension

Current ISO Code	New ISO Code 2 x Life	New ISO Code 3 x Life	New ISO Code 4 x Life	New ISO Code 5 x Life
28/26/23	25/23/19	22/20/17	20/18/15	19/17/14
27/25/22	23/21/18	21/19/16	19/17/14	18/16/13
26/24/21	22/20/17	20/18/15	18/16/13	17/15/12
25/23/20	21/19/16	19/17/14	17/15/12	16/14/11
24/22/19	20/18/15	18/16/13	16/14/11	15/13/10
23/21/18	19/17/14	17/15/12	15/13/10	14/12/9
22/20/17	18/16/13	16/14/11	14/12/9	13/11/8
21/19/16	17/15/12	15/13/10	13/11/8	
20/18/15	16/14/11	14/12/9		
19/17/14	15/13/10	13/11/8		
18/16/13	14/12/9			
17/15/12	13/11/8			

[1]Calculations based on 10gpm flow rate & 24/7 operation.

Want to find out more? Get in touch.
hyprofiltration.com
info@hyprofiltration.com
+1 317 849 3535

Donaldson HY-PRO™

F119876 - 121525 - TF