



| DRUM FILTER LUBRICATION FLOW MONITORING

ELIMINATE FALSE ALARMS, RECOVERING LABOUR HOURS, AND REMOVING PRODUCTION RISK

FLOMEC's only true drop-in, reed-free replacement ended three years of EMF-induced meter failures, eliminating daily maintenance interventions and protecting critical coal production.

PRODUCT SOLUTION

In-place upgrade to FLOMEC® OM Oval Gear Flow Meters

CLIENT

Tier-1 NSW coal producer

LOCATION

Hunter Valley, NSW

APPLICATION

Drum-Filter Gearbox & Bearing Lube Metering

The customer had spent over a year searching for a reed-free replacement for the flow meters on its coal-fines drum filters, and was unsuccessful. Every loop-powered positive-displacement meter on the market used a reed switch. The only reed-free alternatives were more expensive 4-wire 4-20mA analogue instruments that required new cable runs. Meanwhile, EMF from the drum filters' drive motors was magnetising the existing reed contacts and tripping the line on false no-flow alarms one to two times per day, sustained for over three years.

Great Plains Industries Australia replaced 30 meters with 30 FLOMEC OM Series Flow Meters on a solid-state, two-wire, loop-powered Hall-effect PCB — a straight drop into the existing loop. With the OM Series Flow Meters in place the lockups stopped.

| THE PROBLEM |

THREE CONVERGING FAILURE MODES ON THE EXISTING LUBE METERS

The site's three drum screen filters separate coal fines from water at roughly **2,000 t/hr**. The recovered product valued at approximately **\$280,000 AUD/hr**. Each filter carries oval gear flow meters on the gearbox lubrication and the four hydrodynamic bearings that keep the machine turning. The installed Macnaught MX meters used a reed switch feeding an ERA Series 4-20mA instrument, and were failing in three converging modes:

01 MOTOR-INDUCED EMF

Electromagnetic interference from the adjacent drive motor caused the reed contacts to stick, generating false no-flow conditions that were indistinguishable from genuine process alarms at the DCS.

02 SLURRY-DRIVEN VIBRATION

Persistent slurry-induced vibration weakened the reed springs, degrading contact behaviour over time - creating an ongoing source of measurement and alarm reliability issues.

03 A MARKET WITH NO ANSWER

The market offered no practical replacement. All loop-powered PD flow meters used reed switches, while the only reed-free options required costly 4-wire installations and new cable runs. Despite an extensive year-long search, no supplier could provide a like-for-like retrofit.

| THE COST |

ACTUAL – LABOUR LOSS

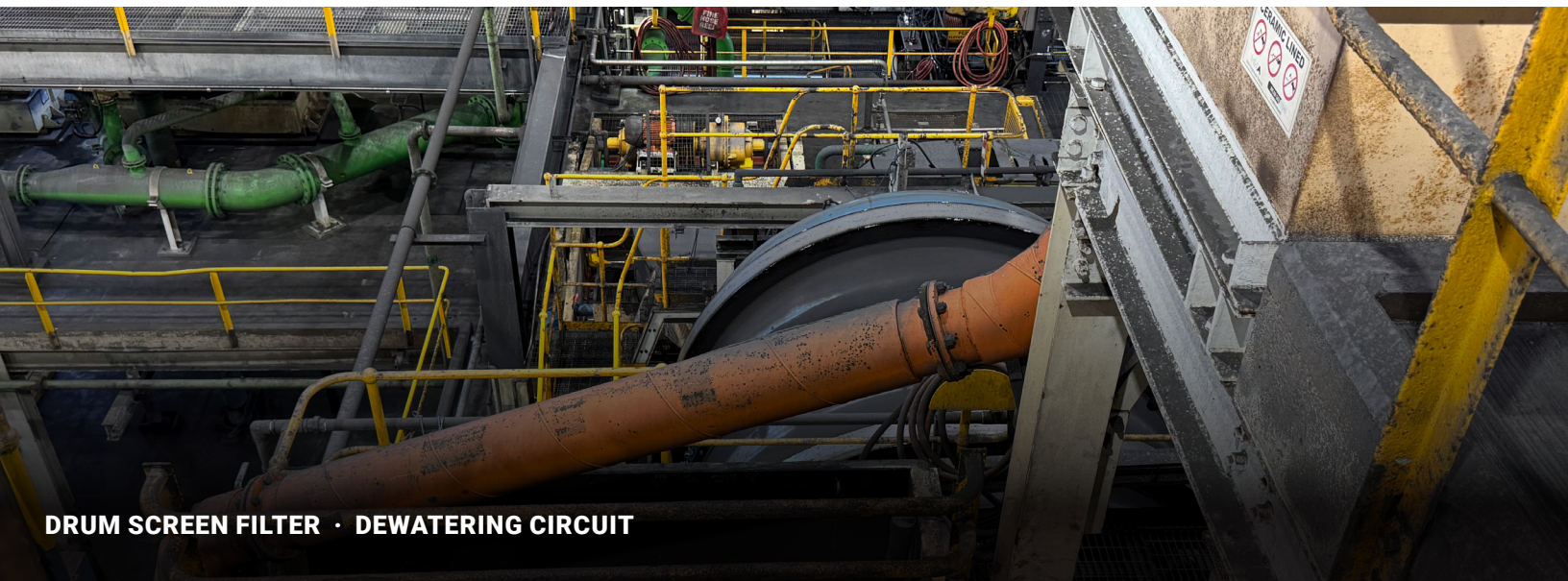
180-360 HRS/YR

30-60 minutes of technician time per shift, walking down to free a stuck meter with a shifting spanner. These issues sustained for more than three years before the retrofit.

EXPOSED – FINES TO WASTE

\$4,500 AUD/MINUTE

If a drum filter stayed offline more than a few minutes, coal backed up through the washery and fines were diverted to waste. Across the three filters, that exposure ran behind every alarm event.



DRUM SCREEN FILTER · DEWATERING CIRCUIT

NO REED SWITCH. NO NEW CABLES. NO COMPROMISES.

A reed-free Hall-effect platform that drops directly into existing two-wire loops, eliminating recurring failures while avoiding costly infrastructure changes.

01 SOLID-STATE SENSING

A Hall-effect sensor reads the oval-gear rotor magnets with no physical contact. No reed, nothing to magnetise, nothing to vibrate loose – immune to the motor EMF and slurry vibration that defeated the reed switch.

02 DROP-IN COMPATIBLE

Dimensionally matched to the Macnaught MX ½" and ¾" meters. Thirty units retrofitted across the three drum filters. The only field work was re-terminating to the existing loop.

03 TWO-WIRE, LOOP-POWERED 4-20mA

An on-board microcontroller converts pulse rate to a proportional 4-20mA signal, powered from the existing two-wire loop. No auxiliary supply, no 4-wire pull, no rewiring – to our knowledge the only loop-powered, reed-free PD-meter retrofit on the market.

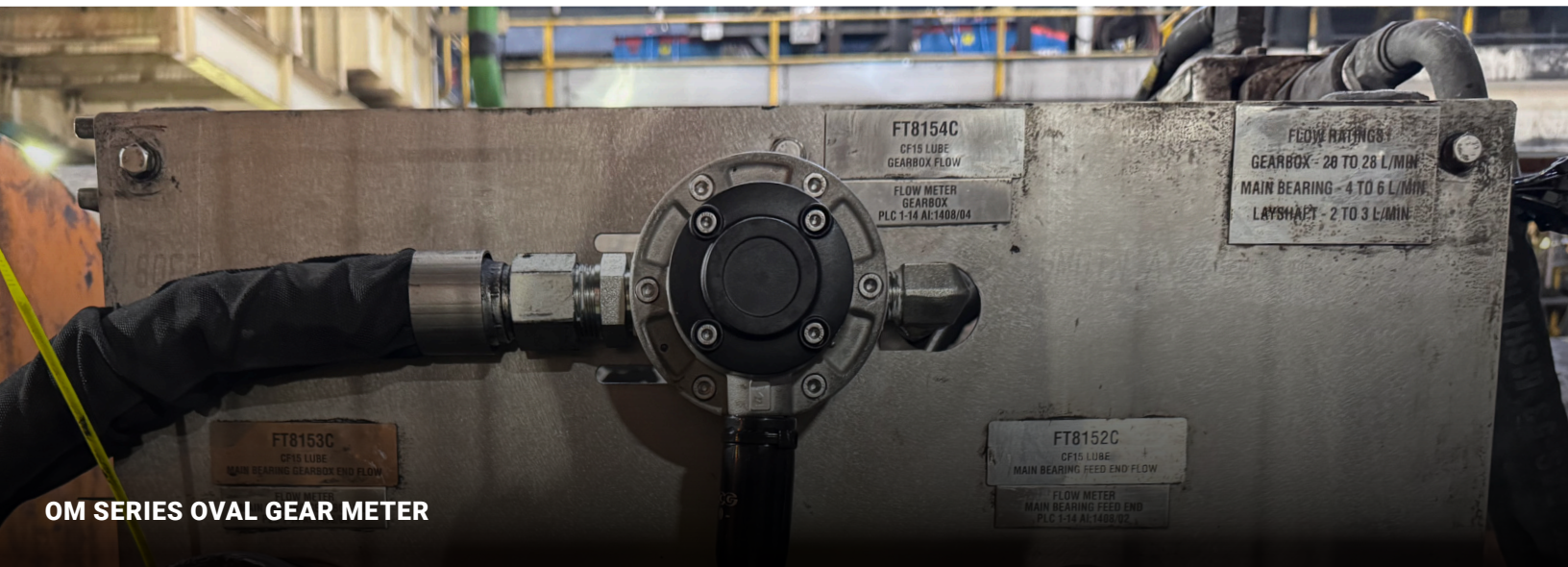
04 FIELD-RECONFIGURABLE OVER USB

Span set over USB in minutes, online, with no specialist tooling – as demonstrated during commissioning.

COMMISSIONING – AN UNPLANNED DEMONSTRATION

The meters fit directly into the existing housings, connected seamlessly to the current loop, and operated successfully on the first power-up. Initial readings were inaccurate, however, when it was discovered that the supplied 20 mA scaling values were incorrect. Rather than creating a significant issue, the situation became a compelling demonstration of the platform's field-serviceability. Each meter was connected via USB and re-scaled to the correct **value in approximately five minutes while remaining in service and without being removed from the installation.**

What previously would have required returning the instrument to a bench for recalibration was resolved quickly and efficiently at the point of use.



OM SERIES OVAL GEAR METER

PROVEN RESULTS FOLLOWING THE FLOMEC OM SERIES DROP-IN INSTALLATION

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EMF-INDUCED LOCKUPS

The FLOMEC solution delivered an immediate reliability improvement across all 30 meters. A process that had previously experienced 1-2 reed-switch-related events per day operated without recurrence following installation of the new meters.

180-360 HRS/YR

TECHNICIAN TIME RECOVERED

What had been a recurring maintenance task — spending 30-60 minutes per shift freeing stuck reed switches — was removed entirely, resolving a problem that had challenged the operation for more than three years.

\$4,500 AUD/MIN

FINES-TO-WASTE EXPOSURE REMOVED

Eliminated a persistent operational risk: every alarm previously carried the potential for fines - related diversion across the site's three-filter, 2,000 t/hr process. Following installation, that pressure was removed from day-to-day operations.

2-WIRE

REED-FREE DROP-IN ALTERNATIVE

Loop-powered and reed-free — a true drop-in beside reed-switch and 4-wire analogue PD meters.

**NO REED-SWITCH FAILURES.
NO ROUTINE INTERVENTION.
NO COMPROMISES ON ACCURACY.**

Just 30 FLOMEC® OM Series Flow Meters providing reliable performance, measurable maintenance savings, and a process control loop that finally delivers the truth!

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