

# Missing pump power

The importance of looking at the bigger drivetrain picture and data comparisons

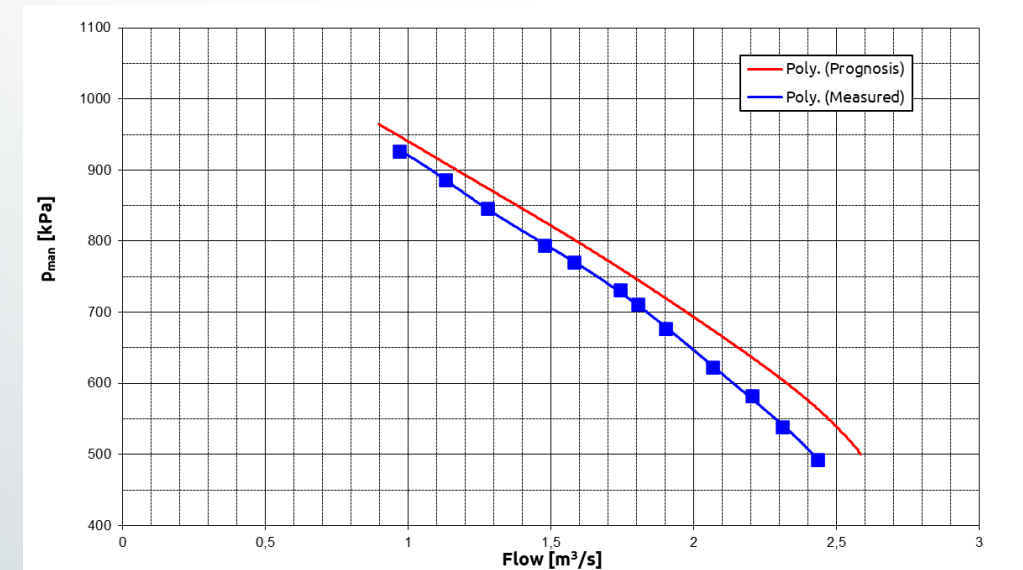
## Customers challenge

During the commissioning and testing of a dredge pump powered by a 16-cylinder diesel engine, the QH-curve (the pump's performance graph) did not meet expectations. Initially, it was unclear whether the issue was a manufacturing fault inside the pump or a problem with the engine, which appeared to be running normally at first glance.

## Our approach

To rule out any pump defects, we must accurately measure the QH-curve. Our MDS engineer noticed that as the flow rate increased, the pump could not maintain its required speed.

When a pump demands more power than an engine can provide, the engine speed naturally drops due to its torque-speed characteristics. While we usually use affinity law calculations to "correct" these figures and look at the pump in isolation, it is vital to consider how the entire drivetrain performs as a single unit. To get the full picture, our engineer compared the calculated hydraulic power<sup>1</sup> against the flow rate and asked the engine representative to double-check the engine's live data.



QH-curve showing lower performance, particularly at higher flow rate



Performance test by pumping water

# Case – Missing pump power

## Root cause

The additional hydraulic power curves clearly showed a drop in performance compared to similar setups we have tested in the past. These findings prompted a closer inspection of the engine, which revealed a faulty fuel injector. Because one of the 16 injectors was failing, the engine could not reach its full power capacity. This case proves the important value of monitoring two key parameters: pump head and flow rate. By using hydraulic power as a benchmark, we have now extended our quality checks beyond the pump itself to the performance of the entire drivetrain.

## Results & key takeaways



Root cause resolved: A proactive attitude revealed a mechanical defect in the engine that was almost overlooked. The pump performance could be concluded healthy.



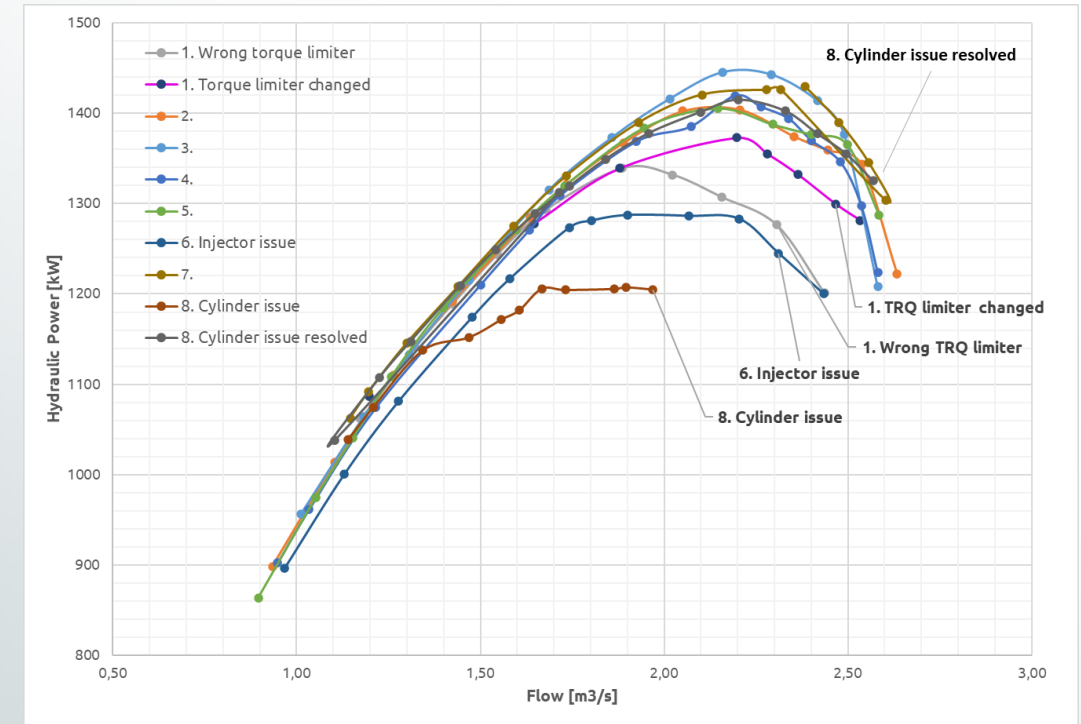
Swift diagnosis: Experience and intelligence enabled a perspective on the bigger drivetrain picture.



Specialized expertise: Knowing the performance behavior through historical data allows for increased attention to anomalies.



Onsite insight: Direct communication on board with other engineers on board is essential for fault finding.



*Comparative curves of hydraulic power VS flow rate allow more insight.*

## Ready to solve your challenges?

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