

# PUMP & SYSTEM TRAINING

## REDUCE COSTS – INCREASE PROFITS

The aim of these courses is to give attendees the knowledge required to reduce the massive costs associated with owning and running pumps. You can do this by designing more efficient and effective systems, selecting more suitable pumps and managing on site equipment better.

Organisations spend millions of dollars buying, running and repairing pumps. Nine out of ten pumps fails early. If you can improve reliability you will reduce the cost of owning your pumps considerably.

Power is a major cost for your organisation. If you can reduce the amount of power required to run your pumps, you will reduce the cost of owning them considerably.

This course will give attendees the ability to improve pump reliability and reduce power consumption and therefore make a huge difference to your organisation's profitability.

Specifically attendees can expect to:

### Course Aims

- Understand how the system controls the pump
- Learn how to read a pump curve and how pumps really operate
- Learn how the flowrate impacts on pump reliability – what is the reliable operating range
- Design better systems and select better pumps, leading to improved reliability
- Avoid operational problems that lead to pump failures
- Understand what cavitation is, why it occurs and how to avoid it
- Know how pumps should be installed and commissioned – avoid those common commissioning failures
- Design systems which will minimise power consumption – optimise system design
- Design systems for which you can get a reliable pump
- Purchase reliable equipment
- Learn why pumps vibrate and why seals and bearings fail
- Implement best practice in pump monitoring and maintenance
- Get to the root cause of pump failures and solve re-occurring problems
- Understand why pumps lose performance
- Reduce costs – improve reliability

### Course 1 – Pumping Fundamentals

- Introduction
- Centrifugal vs Positive Displacement Pumps
- Basic Operating Principles
- System Resistance and Head
- Understanding how the system controls the pump
- The Pump Performance Curve
- Flow Control – Control Valve vs Variable Speed Drive
- Pump Selection
- Pumps in Parallel – Pumps in Series
- The Affinity Laws
- Net Positive Suction Head and Cavitation
- Installation and Commissioning

### Course 2 – Advanced Pumping

- The Total Cost of Ownership – Reducing these costs with better system design, better pump selection and better control methods
- Sealing Options – Mechanical Seals, Gland Packing, Seal-less Pumps
- Pump Construction and Reliability
- Pump Operation and Reliability – Low Flow and High Flow
- Specifying and Purchasing Reliable Equipment
- Maintenance – What gets missed
- Monitoring – Why it's so important
- Troubleshooting
- Wear vs Performance – what's really happening

Each course runs for one day – 8 hours each. You can book into both or book into Course 1 initially and come back at a later date to complete Course 2. It is a requirement that attendees have completed Course 1 prior to attending Course 2.

## Strategic Achievement

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