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# Rotating Pump Operation, Cavitation Control and Seal Care Training Course

18 – 22 April 2027
Amman

# Rotating Pump Operation, Cavitation Control and Seal Care Training Course

**Ref:** 1716_62908 **Date:** 18 – 22 April 2027 **Location:** Amman **Fees:** 4200 GBP

Rotating Pump Operation, Cavitation Control and Seal Care is a 1-week training course for pump operators, mechanical technicians and reliability engineers who run, inspect and repair centrifugal and positive displacement pumps, and it produces a pump health and failure prevention checklist for one critical pump. Seal leaks, cavitation pitting and bearing failures still drive most unplanned pump outages. Jupiter Prime Training runs this rotating pump operation course.

## Why Rotating Pump Operation, Cavitation Control and Seal Care Matters Now

Plants now run pumps further from their best efficiency point as throughput changes, inviting recirculation and cavitation. Experienced fitters are retiring, so seal set-up and alignment skills must pass to younger crews quickly. Portable vibration meters also give crews more readings to interpret. A refinery or water utility that keeps pumps inside their operating window extends seal and bearing life; one that does not pays in leaks and lost production. The course draws on the international pump, mechanical seal and vibration severity standards, described in general terms.

## Who Gains Most from Rotating Pump Operation, Cavitation Control and Seal Care

- Operators who start, stop and adjust process pumps from the field and control room
- Technicians who fit mechanical seals, change bearings and align couplings
- Staff who take routine vibration, temperature and lubricant readings on pump trains
- Engineers who investigate repeat pump failures and set repair priorities
- Supervisors who sign off pumps after overhaul and return them to service

Operations and maintenance crews from one unit gain most when they attend together.

## Rotating Pump Operation, Cavitation Control and Seal Care Capabilities

Participants move from reading a pump curve to judging whether a machine is healthy, drifting or near failure.

- Apply head-flow, power and efficiency curves to locate the running point — control room operating limits
- Calculate available and required NPSH margin — suction-side corrections
- Specify seal arrangements and flush plans — maintenance planners
- Align couplings with dial and laser methods — bearing life
- Assess vibration and bearing temperature readings — run, watch or stop decisions
- Build a fault tree for a repeat failure — reliability engineers

## Key Rotating Pump Operation, Cavitation Control and Seal Care Terms

- Best efficiency point — the flow at which a centrifugal pump runs with the least loss and lowest internal loading.
- NPSH margin — suction head available at the inlet minus the head the pump requires to avoid cavitation.
- Cavitation — the formation and collapse of vapour bubbles near the impeller eye, causing noise and pitting.
- Seal flush plan — a standard piping arrangement that cools, cleans or pressurises mechanical seal faces.
- Soft foot — a machine foot that does not sit flat, distorting the casing when bolts are tightened.
- Minimum continuous flow — the lowest flow a pump can sustain without damaging recirculation or heating.

## Rotating Pump Operation, Cavitation Control and Seal Care Day by Day

### Day 1: Pump Types and Hydraulic Behaviour

- Centrifugal Versus Positive Displacement Principles — Choosing the Right Machine
- Head-Flow and Power Curves — Locating the Actual Running Point
- System Curves and Throttling Effects — Valve or Speed Control Choice
- Series and Parallel Pump Operation — Standby and Load Sharing Rules
- Relief Valves on Displacement Pumps — Overpressure Protection Settings

### Day 2: Suction Conditions and Cavitation Control

- NPSH Available Calculation From Tank and Line Data — Suction Margin
- Cavitation and Recirculation Symptoms — Distinguishing Noise Sources at the Pump
- Minimum Flow Bypass Arrangements — Protecting Pumps at Low Demand
- Safe Start-Up, Priming and Shutdown Sequences — Avoiding Dry Running
- Impeller Damage Inspection — Repair or Replace Decisions

### Day 3: Mechanical Seals, Bearings and Lubrication

- Single, Dual and Cartridge Seal Designs — Matching Seals to Fluid Hazard
- Seal Flush and Quench Plans — Face Cooling and Leak Containment
- Seal Face Failure Reading — Tracing Leaks to Their Root Cause
- Rolling Element Bearing Fits and Mounting — Early Bearing Life
- Oil Level, Oil Mist and Grease Intervals — Lubrication Schedule Setting

### Day 4: Alignment, Vibration and Fault Diagnosis

- Soft Foot and Pipe Strain Checks — Base and Piping Corrections
- Dial Indicator and Laser Shaft Alignment — Coupling Tolerance Acceptance
- Overall Vibration and Bearing Temperature Readings — Severity Band Decisions
- Spectrum Patterns for Unbalance, Misalignment and Looseness — Fault Identification
- Pump Failure Fault Trees — Repair Priority and Recurrence Prevention

## Day 5: Practising the Pump Health and Failure Prevention Checklist

- Running Point and NPSH Check on a Case Pump — Applying Day 1 and Day 2 Methods
- Seal and Bearing Inspection Sheet — Applying Day 3 Findings
- Alignment and Vibration Record — Applying Day 4 Acceptance Limits
- Operator Round Sheet for Pump Trains — Field Escalation Triggers
- Pump Health and Failure Prevention Checklist — Completed Checklist for One Pump

## Applying Rotating Pump Operation, Cavitation Control and Seal Care After the Course

- Plot the worst pump's running point and calculate its NPSH margin.
- Correct the seal flush plan and alignment of one repeat-failure pump.

## Rotating Pump Operation, Cavitation Control and Seal Care Questions FAQ

### What is rotating pump operation, cavitation control and seal care, and why does it matter now?

It is the practice of running pumps inside their safe hydraulic window and keeping seals, bearings and alignment healthy. Shifting process demands and retiring fitters make it urgent.

### Which roles gain most from rotating pump operation, cavitation control and seal care training?

Pump operators, mechanical technicians and reliability engineers gain most. They run, repair and diagnose the same machines.

### How does rotating pump operation, cavitation control and seal care training differ from a pump sizing course?

It concentrates on running and caring for installed pumps rather than selecting new ones. A sizing course specifies purchases; this one covers suction margins, seals and alignment.

### What do you bring back from rotating pump operation, cavitation control and seal care training?

You bring back a completed health and failure prevention checklist for one pump. It records running point, NPSH margin, seal, alignment and vibration values with escalation triggers.

## Rotating Pump Operation, Cavitation Control and Seal Care: The Way Forward

The pump health and failure prevention checklist first informs whether a suspect pump keeps running, moves to closer watch or comes out for repair. Operators complete it on rounds, technicians act on its findings and reliability engineers trend it across the fleet. After its first use, revisit the vibration and temperature triggers once several months of readings show each pump's normal baseline.