Concrete Pumping and Placement: Boom and Line Pump Setup, Blockages and Safety

19 – 23 September 2027
Jeddah - Corniche four-star



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Introduction:

Concrete pumping and placement go wrong on site in predictable ways: an outrigger pad sinks into soft fill, a delivery line blocks halfway through a slab, a hose whips on restart, a boom swings too close to overhead cables, or trucks bunch and then stop while the placing gang waits. Each stoppage risks cold joints, injuries and wasted loads. This Core Concept course gives pump operators, line hands and concreting supervisors a disciplined routine for setting up boom and line pumps, laying and anchoring pipework, priming, pumping, clearing blockages and washing out. Participants produce a Pump Setup Checklist and Slab Pour Plan for a case pour.

Course Objectives:

- Identify truck-mounted boom pumps, trailer line pumps and separate placing booms, their hydraulic circuits, valves and wear parts, and match each to a pour
- Assess a pumping position for access, ground bearing, slopes, overhead lines and exclusion zones, and set outriggers with suitable cribbing and pads
- Lay out, couple, reduce and anchor steel delivery pipework and end hoses so the line stays secure under pumping pressure
- Prime, pump, pace and wash out a pump, recognise the signs of an approaching blockage and clear one safely with the line depressurised
- Coordinate truck arrivals, pumping rate and the placing, vibrating and finishing gang through agreed signals and radio calls
- Complete pre-start inspections, wear checks and pour records, and produce a Pump Setup Checklist and Slab Pour Plan for a case slab

Target Audience:

- Operators who drive, set up and run boom and line pumps on building and civil sites
- Line hands who lay, couple, anchor and dismantle delivery pipework and end hoses
- Concreting foremen who direct the placing, vibrating and finishing gang during a pour
- Site supervisors who book pumps, sequence truck deliveries and sign off pour areas
- Plant and workshop technicians who inspect pump hydraulics, pipework and wear parts

Course Outline:

Day 1: Concrete Pump Families, Components and Hydraulic Circuits

- Truck-Mounted Boom Pump, Trailer Line Pump and Separate Placing Boom Comparison
- Twin Piston Delivery Cylinders, S-Tube and Rock Valve Change-Over Cycle
- Hopper, Agitator, Grille and Water Box Functions on the Pump Unit
- Open and Closed Loop Hydraulic Circuits, Accumulators and Pressure Gauges
- Boom Sections, Slewing Ring, Remote Control Handset and Emergency Stop

Day 2: Placement System Safety Rules and Pumpable Concrete Basics

- ASME B30.27 Material Placement Systems: Operator, Line Hand and Signaller Duties
- Pumpable Concrete Indicators: Slump Range, Fines Content and Maximum Aggregate Size
- Line Pressure Build-Up From Distance, Height, Bends and Reducer Tapers
- Delivery Pipe Wall Wear, Clamp Couplings and Pipe Support Loading Rules
- Overhead Power Line Clearance Distances, Spotter Duties and Boom Proximity Alarms

Day 3: Pump Positioning, Outrigger Setup and Delivery Line Rigging

- Pump Position Survey: Access Route, Slope, Excavation Edges and Buried Services
- Outrigger Footprint Loads, Cribbing Mats and Ground Bearing Pad Sizing
- Horizontal and Vertical Line Layout With Bends, Reducers and Wall Brackets
- Anchoring Pipework on Slab Edges, Risers and Deck Penetrations
- Priming the Line With Grout Slurry and Controlled First Delivery

Day 4: Blockages, Hose Whip, Clean-Out and Pump Upkeep

- Early Blockage Signs: Rising Pressure, Hopper Starvation and Valve Knock
- Blockage Location and Clearing With Reverse Stroking and Depressurised Pipework
- End Hose Whip Exclusion Zone and Restart Procedure After a Stoppage
- Washout Methods: Go-Devil Sponge Ball, Water Flushing and Catch Basket
- Daily Pre-Start Inspection, Greasing Points and Wear Part Replacement Log

Day 5: Inspection Walkthrough: Pump Setup Checklist and Slab Pour Plan

- Case Slab Brief: Podium Deck, Restricted Access and Overhead Cables
- Truck Arrival Spacing, Batching Plant Calls and Placing Rate Matching
- Placing Gang Coordination: Discharge Order, Poker Vibrator Spacing and Screeding
- Pump Position and Line Route Walkthrough Against the Setup Checklist
- Pour Records: Delivery Tickets, Pump Hours, Incidents and Handover Notes

Skills You Will Gain:

- Pump Component Recognition
- Outrigger Bearing Assessment
- Delivery Line Rigging
- Line Priming Technique
- Blockage Diagnosis
- Overhead Line Hazard Control
- Pour Rate Coordination
- Pump Pre-Start Inspection

Why Attend This Course:

- Take back a Pump Setup Checklist and Slab Pour Plan walked through on a case podium deck
- Stop a blockage or a sinking outrigger before it halts the pour and strands loaded trucks
- Keep line hands and the placing gang out of whip, boom and power line danger zones with clear rules
- Compare pumping routines with operators and supervisors from building, infrastructure and industrial sites

Conclusion:

A pour runs smoothly when the pump stands on firm ground, the line is anchored, the trucks arrive at a steady rhythm and everyone knows the signals. The course moves from pump families, valves and hydraulics, through placement system safety rules and pumpable concrete basics, to positioning, outriggers, line rigging and priming, then blockages, hose whip, washout and daily upkeep. The final day walks a case slab from pump position to handover notes and produces a Pump Setup Checklist and Slab Pour Plan ready for the next pour.