JUPITER PRIME
Consulting • Training • Advisory
جوبيتر برايم للاستشارات والتدريب

COURSE BROCHURE

# Rolling Bearing Fitting, Mounting and Removal Training Course

20 – 24 September 2027
Casablanca

# Rolling Bearing Fitting, Mounting and Removal Training Course

**Ref:** 1768_64882 **Date:** 20 – 24 September 2027 **Location:** Casablanca **Fees:** 4900 GBP

Rolling Bearing Fitting, Mounting and Removal is a 1-week training course for mechanical fitters, millwrights and maintenance planners who install and replace bearings on pumps, motors, fans and gearboxes, and it ends with a bearing installation record for one machine. Poor fitting remains a leading cause of early bearing failure, so the quality of each mounting decides how long a rebuilt machine runs. Jupiter Prime Training offers this course to crews who own that craft.

## Why Rolling Bearing Fitting, Mounting and Removal Matters Now

Three forces shape bearing work today. Experienced fitters are retiring, and the habits they carried, from heating limits to clearance feel, are not always written down. Plants run machines longer between overhauls, so a bearing damaged during fitting has more hours in which to fail. Reliability engineers also trace more breakdowns back to installation faults such as wrong fits, hammer blows and contaminated grease. Crews that mount and remove bearings by method get longer runs and fewer repeat jobs; crews that rely on force and guesswork pay twice for the same repair.

## Who Gains Most from Rolling Bearing Fitting, Mounting and Removal

- Fitters who press, heat and drive bearings onto shafts and into housings
- Millwrights who rebuild pumps, fans and gearboxes during shutdowns
- Planners who prepare job packs, tooling and spare bearings for overhauls
- Workshop leads who check clearances and sign off rebuilt machines
- Lubrication technicians who select and apply grease and oil at assembly

Rotating equipment workshops gain most when fitters, a planner and the workshop lead attend together and leave with one shared fitting routine.

## Rolling Bearing Fitting, Mounting and Removal Capabilities

Participants practise each mounting and removal method until the right choice for a given shaft, housing and bearing size becomes routine.

- Specify shaft and housing fits from load direction and bearing type — machining and spares orders
- Apply induction heating within safe temperature limits — interference fit assembly
- Test radial internal clearance with feeler gauges before and after mounting — tapered bore acceptance
- Calculate axial drive-up for hydraulic nut mounting — workshop lead sign-off
- Assess raceway marks to separate fitting faults from lubrication or load faults — repeat failure prevention
- Build a removal sequence with pullers and oil injection that protects shaft seats — shutdown planner

## Key Rolling Bearing Fitting, Mounting and Removal Terms

- Interference fit — a fit where the shaft is slightly larger than the bearing bore, so the ring grips the shaft and cannot creep.
- Radial internal clearance — the free movement of one ring relative to the other in the radial direction before mounting reduces it.
- Axial drive-up — the distance a tapered bore bearing is pushed along its seat to set the required clearance reduction.
- Induction heater — a device that heats a bearing evenly by electromagnetic induction so it expands enough to slide onto a shaft.
- Oil injection method — pumping oil between a bearing bore and its seat to separate the surfaces for mounting or removal.
- False brinelling — shallow marks on raceways caused by vibration while a bearing is stationary, often during transport or standby.

## Rolling Bearing Fitting, Mounting and Removal Day by Day

### Day 1: Bearing Types, Loads and Fits

- Ball, Roller and Thrust Bearing Families — Matching Bearing Type to Duty
- Rotating and Stationary Load Analysis — Choosing the Tight Ring
- Shaft and Housing Tolerance Tables — Specifying Machining Limits
- Seat Measurement With Micrometers and Bore Gauges — Accepting or Rejecting Shafts
- Clean Assembly Area and Handling Rules — Preventing Contamination at Fitting

### Day 2: Mounting Methods for Cylindrical Seats

- Induction Heater Set-Up and Temperature Control — Avoiding Overheated Rings
- Fitting Tools and Sleeves for Cold Mounting — Force Through the Correct Ring
- Oven and Oil Bath Heating Comparison — Choosing a Heating Method
- Housing Mounting and Outer Ring Alignment — Preventing Pinched Bearings
- Locating and Floating Bearing Arrangements — Allowing Thermal Shaft Growth

### Day 3: Tapered Bores, Hydraulic Nuts and Clearance

- Adapter and Withdrawal Sleeve Mounting — Selecting Sleeve Arrangements
- Hydraulic Nut Drive-Up Measurement — Setting Correct Clearance Reduction
- Feeler Gauge Clearance Checks — Accepting Spherical Roller Bearings
- Lock Nut and Lock Washer Securing — Preventing Loosening in Service
- Grease Fill Quantity and Oil Level Setting — First-Run Temperature Control

### Day 4: Removal Without Damage and Failure Marks

- Mechanical and Hydraulic Puller Selection — Protecting Shafts and Housings
- Oil Injection Dismounting of Large Bearings — Safe Release of Interference
- Bearing Condition Inspection After Removal — Reuse or Scrap Decision
- Raceway Mark Patterns From Misfit and Misalignment — Tracing Installation Faults
- Contamination, Corrosion and Electrical Erosion Signs — Separating Fitting From Service Causes

## Day 5: Practising the Bearing Installation Record

- Pump Bearing Replacement Case — Applying Day 2 Heating and Fitting
- Fan Spherical Roller Bearing Case — Applying Day 3 Drive-Up and Clearance
- Gearbox Teardown Case — Applying Day 4 Removal and Mark Reading
- Job Pack and Tooling List Preparation — Planning the Next Overhaul
- Bearing Installation Record Completion — Handover to the Workshop Lead

## Applying Rolling Bearing Fitting, Mounting and Removal After the Course

- Measure shaft seats and record clearances on the next three bearing changes, then compare results with the tolerance tables used in the course.
- Replace hammer-and-drift fitting in one workshop bay with heater and fitting-tool methods, and log first-run bearing temperatures.

## Rolling Bearing Fitting, Mounting and Removal Questions FAQ

### What is rolling bearing fitting, mounting and removal, and why does it matter now?

It is the craft of seating bearings on shafts and in housings with the correct fit, clearance and lubrication, and taking them out without damage. It matters now because fitting faults cause many early failures while experienced fitters retire.

### Which roles gain most from rolling bearing fitting, mounting and removal?

Fitters and millwrights who handle bearings directly gain most. Planners and workshop leads who prepare overhauls and accept rebuilt machines also gain a clearer basis for their checks.

### How does rolling bearing fitting, mounting and removal differ from a bearing damage analysis course?

The focus is hands-on installation and removal rather than detailed failure investigation. You spend most time on fits, heating, drive-up and pullers, reading failure marks only to spot fitting errors.

### What do you bring back from rolling bearing fitting, mounting and removal?

You bring back a completed installation record for one machine, listing seat measurements, method, clearances and lubricant. Your workshop can reuse it as the template for every bearing change.

## Rolling Bearing Fitting, Mounting and Removal: The Way Forward

The bearing installation record captures seat sizes, mounting method, clearance readings and grease fill for each bearing change. Its first use is deciding whether a rebuilt machine is fit to return to service. Fitters complete it and workshop leads sign it. After several overhauls, revisit the tolerance and heating limits it records against first-run temperatures and failure marks.