



INMOTION ENERGY (OPC) PRIVATE LIMITED

Roller Oven with Aging Cell

Variable-Speed Roller Oven for Hot-Rolling Fluid Aging — Complete with Roller Bed and Aging Cell Assembly

Model No: IM-ROAC-4AC

INSTRUCTION MANUAL

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Ver. 1.0

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Introduction

Drilling fluids are commonly aged under simulated downhole conditions to see how their properties evolve at temperature and under continuous agitation, mirroring the fluid's actual time circulating in a wellbore. Hot-rolling aging is the standard laboratory method used to reproduce this combined heat-and-shear exposure ahead of rheology, filtration, and stability testing.

The Inmotion Roller Oven with Aging Cell heats sealed aging cells to a programmed temperature while a motor-driven roller bed continuously rotates them, replicating the combined thermal and mechanical stresses a fluid experiences downhole. Beyond routine mud checks, the same instrument supports aging studies on cement slurries, completion fluids, and additive packages.



Roller Oven with Aging Cell, ready for use, door closed and roller bed loaded

Description

The Inmotion Roller Oven is a self-contained, stainless-steel cabinet unit supplied with its roller bed, aging cells, and this manual. Inside, dual-side heating elements bring the chamber to a programmed setpoint, monitored independently by a digital temperature controller and a secondary digital thermometer for cross-check.

Loaded aging cells rest on five motor-driven rollers that rotate them continuously at a set speed throughout the aging cycle. A programmable timer controls the cycle duration, and a leak-proof door gasket keeps heat loss to a minimum even at the oven's highest working temperatures.



Roller Oven cabinet interior, showing the roller bed and heating chamber

Components

Part Number	Description
IM-ROAC-4AC-01	Roller Oven, Main Cabinet Unit
IM-ROAC-4AC-02	Roller Bed Assembly (5x rollers, 7.5cm dia.)
IM-ROAC-4AC-03	Digital Temperature Controller
IM-ROAC-4AC-04	Digital Thermometer
IM-ROAC-4AC-05	Programmable Timer
IM-ROAC-4AC-06	Roller ON/OFF & Heater ON/OFF Control Panel
IM-ROAC-4AC-07	Main ON/OFF Circuit Breaker
IM-ROAC-4AC-08	Aging Cell Assembly, 500ml (set of 4)
IM-ROAC-4AC-09	Instruction Manual



Fig. 1 — Roller Oven components, with major parts labeled

Aging cells (per API RP 13B-1 Sec. 07) are required for testing and are supplied with each Roller Oven kit. Confirm with your Inmotion sales contact if additional cells are needed for your testing volume.

Features

Variable-Speed Roller Bed — Five stainless steel rollers rotate loaded aging cells at 25–50 RPM, replicating continuous downhole circulation throughout the aging cycle.

Broad Temperature Range — Heats to 500°F (260°C) in 1°F increments, with a digital controller holding temperature to within ±5°F for consistent thermal aging.

Dual Temperature Readout — An independent digital thermometer cross-checks the controller's setpoint, so any sensor drift is caught immediately.

Programmable Timer — Set exact aging durations and let the oven run unattended, including continuous duty cycles of up to one week at a stretch.

Leak-Proof Door Gasket — Rated to withstand 500°F (260°C), the gasket minimizes heat loss and keeps chamber temperature stable throughout long cycles.

Dual-Voltage Power Supply — Runs on AC220V 50Hz as standard or AC120V 60Hz for USA installations, both ±10%, with no manual switching required.

Specifications

Model Number	IM-ROAC-4AC
Working Power Supply	AC220V 50Hz (standard) or AC120V 60Hz (USA), ±10%
Working Temperature Range	100°F – 500°F (38°C – 260°C), 1°F increments
Temperature Tolerance	±5°F
Roller Configuration	5 rollers, 7.5cm dia. × ~60cm length
Rolling Speed	25 – 50 RPM (variable)
Display	Digital controller & thermometer, 60–600°F (15–325°C) range
Controls	Roller ON/OFF, Heater ON/OFF, Timer ON/OFF Bypass, Main ON/OFF
Aging Cell Capacity	4 aging cells, ~500ml each
Housing	303 SS cabinet, 304 SS rollers, mobile casters
Compliance / Target Standard	API RP 13B-1, Section 07



Aging cell assembly components — cell body, end caps, and O-ring seals, sized to API RP 13B-1 Sec. 07 test geometry

Operation

1. Confirm the oven is on a level, ventilated surface and the power supply matches the unit's rating; check that the door gasket and roller bed are clean and free of residue before use.
2. Prepare drilling fluid samples per your test procedure and load them into the aging cells, sealing each cell with its O-ring and end cap; check every cell for leaks before loading.
3. Arrange the sealed aging cells evenly across the roller bed.
4. Close and latch the oven door securely.
5. Switch on Main ON/OFF, then Heater ON/OFF, and set the target temperature on the Temp. Controller.
6. Turn on Roller ON/OFF to begin rotating the loaded cells.
7. Set the required duration on the programmable Timer, then switch Timer ON/OFF (use Bypass for continuous, untimed operation).
8. Allow the oven to reach and hold the set temperature, checking progress against the independent digital thermometer.
9. At the end of the cycle, switch off Heater ON/OFF and Roller ON/OFF, then let the oven and cells cool fully before opening the door and removing samples.

⚠️ IMPORTANT

Aging cells build up internal pressure as their contents heat — never open a cell while it is warm or immediately after a cycle. Let cells cool fully to room temperature, then vent slowly and wear heat-resistant gloves and eye protection when opening them.

Calibration

Verification Check

1. Inspect the door gasket, aging cell O-rings, and roller bushings for wear or damage before calibrating.
2. Confirm the digital temperature controller and digital thermometer are both connected and powered.
3. Set the temperature controller to a known reference point (e.g. 200°F) and allow the chamber to stabilize.
4. Compare the controller's reading against the independent digital thermometer — the two should agree within $\pm 5^{\circ}\text{F}$.
5. If the discrepancy exceeds tolerance, recalibrate or replace the affected sensor before running further tests.
6. With cells loaded, run the roller bed and confirm rotation speed falls within 25–50 RPM using a tachometer or timed rotation count.

✓ TIP

Run this quick verification any time results seem inconsistent, and always before a critical test series — it takes only a few minutes and catches most sensor and gasket issues early.

- Wipe down the cabinet interior and exterior after each use, removing any spilled fluid promptly to prevent corrosion.
- Inspect the door gasket regularly and replace it as soon as it cracks, hardens, or stops sealing fully.
- Check aging cell O-rings before each use; discard and replace any that are worn, flattened, or hardened.
- Keep roller bushings clean and free of drilling fluid residue so cells rotate smoothly.
- Confirm the instrument and power cord are properly earthed/grounded before each use.
- Never open an aging cell while it is hot or still under pressure — allow a full cooldown first.
- Store spare O-rings, end caps, and cell components in a clean, dry location.

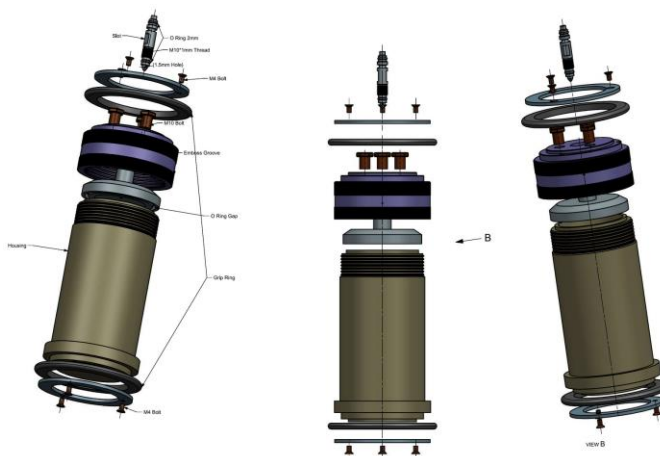


Fig. 2 — Aging cell assembly, exploded view — housing, grip rings, O-rings, and embossed groove seal

Troubleshooting

Symptom	Possible Cause	Recommended Action
Oven doesn't reach the set temperature	Heating element fault, or door gasket not sealing	Inspect the heating elements and door gasket for damage; replace as needed
Rollers don't rotate	Roller ON/OFF switch fault, or drive motor/belt issue	Check the switch and roller drive motor/belt; contact Inmotion Energy if the problem persists
Temperature controller and thermometer disagree	Sensor drift or a wiring fault	Recalibrate per the Calibration section; replace the affected sensor if the discrepancy continues
Aging cell leaks during the cycle	Worn O-ring, or cap not fully seated	Replace the O-ring and reseal the cap; confirm the cell isn't damaged or over-tightened

Still stuck after trying the above? Set the instrument aside and get in touch with Inmotion Energy (see Company & Contact Information, page 14).



Inspect the control panel, door gasket, and hinge hardware regularly for wear or damage

Warranty and Return Policy

Warranty

Inmotion Energy (OPC) Private Limited stands behind the materials and workmanship of every instrument it ships. For eighteen (18) months from the invoice date, if a product turns out not to meet its stated specifications through no fault of the buyer, and we're notified in writing once the issue is found, we'll repair or replace it at our discretion, subject to the exclusions below.

This coverage assumes normal use, in line with the operating conditions described in this manual. It does not stretch to cover use outside those conditions, nor to flaws that were plainly visible on arrival but went unreported.

Beyond what's stated here, Inmotion Energy doesn't offer any other express or implied warranty — including, to the extent the law allows, implied warranties of merchantability or fitness for a particular purpose.

Coverage does not extend to damage or loss caused by:

- Installation, operation, or upkeep that doesn't follow this manual
- Misuse, carelessness, or accidental damage
- Adjustment or repair carried out by anyone other than Inmotion Energy or an authorized service provider
- Storage conditions or exposure beyond what normal field use implies
- Parts or components sourced from outside Inmotion Energy
- Ordinary wear items — aging cell O-rings and the door gasket, for example

Returns and Repairs

Pack anything you're sending back carefully — Inmotion Energy can't take responsibility for damage caused by inadequate packaging in transit.

If you're returning a unit that isn't defective, do so within thirty (30) days of your invoice; a restocking charge may apply, and the item needs to arrive in its original condition to qualify for a refund.

Before shipping anything back, reach out to us with your invoice number, a description of the issue, and your contact details so we can set expectations. Send equipment to:

Inmotion Energy (OPC) Private Limited

Attn: Service & Repair

186, 1st Main Road, Vijaya Bank Layout, Bilekahalli

Bangalore, Karnataka – 560076, India

Questions before then? Reach our support team at info@inmotionenergy.in.

Ordering & Replacement Parts

Send the Inmotion Energy sales team a note about what you're working on, and we'll get back with a recommendation and a quote. Aging cells and O-ring seal kits are kept in stock and shipped on request.

Have this ready when you reach out:

- Model / catalog number (IM-ROAC-4AC)
- The part number and description you need (see Components, page 5)
- How many you need
- Your company name, shipping address, and a contact point



Aging cells and roller bed components, as supplied with each unit

Company & Contact Information

Inmotion Energy has spent years supplying precision testing instruments and drilling tools to operators working with drilling fluids, cements, and completion fluids. Working out of our Bangalore facility, we serve customers across India and the Middle East. Being an independent manufacturer means our customers come first, not a parent company's agenda.

Industries We Serve

- Onshore & offshore drilling contractors
- National & independent oil companies
- Mud engineering & testing laboratories
- Well completion & workover operations

Why Choose Us

- Every unit goes through rigorous checks before it ships
- Spares and replacements move fast, so downtime doesn't stack up
- Designs proven in the field, built to keep working

Contact Details

Inmotion Energy (OPC) Private Limited

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Every Inmotion Roller Oven ships complete and ready to test