



INMOTION ENERGY (OPC) PRIVATE LIMITED

Pressurized Mud Balance

Metal Cup, 4-Scale, Pressurized Rider Balance — Complete with Hard Carrying Case

Model No: IM-PMB-210M

INSTRUCTION MANUAL

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Ver. 1.0

Inmotion Energy (OPC) Private Limited

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Introduction	An atmospheric mud balance reads low on drilling fluids that carry entrained air or gas — foamed, aerated, or gas-cut mud simply weighs less than it should while that gas is trapped in the sample. A pressurized mud balance solves this by compressing the sample under pressure before it's weighed, forcing the trapped gas back into solution so the reading reflects the fluid's true density. The Inmotion Pressurized Mud Balance is a compact, self-contained instrument built around the same lever principle as a standard mud balance, with a sealed, pressurizable metal cup and a hand-operated pressurizing rod added to the kit. No external gas supply or power source is needed.
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Description	The balance cup, piston, and pressure cap form a sealed chamber of fixed volume. Once the cup is filled and capped, the pressurizing rod is fitted to the cap and turned to compress the piston, driving entrained gas back into the fluid before the reading is taken. A knife-edge pivot underneath the beam rests in a cradle on the base or carrying case while the reading is taken, and a rider slides along the beam's scale until the beam is level, confirmed by the bubble vial mounted on the beam. One instrument, four scales — the beam is etched with: • 7.0 – 22.0 lb/gal (pounds per gallon) • 0.80 – 2.60 specific gravity • 50 – 165 lb/ft³ (pounds per cubic foot) • 350 – 1,100 psi/1,000 ft  <i>The pressurized cup and beam assembly, calibration ring and base plate, and pressurizing rod</i>
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Components	Part Number	Description
	IM-PMB-210M-01	Pressurized Mud Balance, complete (w/o case)
	IM-PMB-210M-02	Balance Arm, Stainless Steel (graduated beam)

IM-PMB-210M-03	Rider (Sliding Weight)
IM-PMB-210M-04	Level Bubble Vial
IM-PMB-210M-05	Pressure Cup & Piston Assembly, Stainless Steel
IM-PMB-210M-06	Sealing Ring, Cup/Piston Seal
IM-PMB-210M-07	Base Plate / Pressure Relief Valve Disc
IM-PMB-210M-08	Knife Edge
IM-PMB-210M-09	Pressurizing Rod (Screw-Type Charging Tool)
IM-PMB-210M-10	Hard Carrying Case



Fig. 1 — Sealing ring and base plate/relief valve disc (parts -06 and -07)



Fig. 2 — Pressurizing rod (part -09)

Features

- **Accurate on Gas-Cut Mud** — the pressurizing cup compresses entrained air and gas out of the sample, giving a true density reading where an atmospheric balance would read low.
- **Stainless Steel Construction** — the cup, piston, cap, and beam are built for long-lasting, corrosion-resistant performance in the field.
- **Machined Construction** — precision machining ensures consistency between units and simplifies calibration.
- **Easy-to-Read Scale** — laser-etched graduations provide clear, accurate readings every time.

- Complete Kit — supplied with a hard carrying case and pressurizing rod for safe transport and immediate readiness in the field.

Specifications

Property	Value
Pounds per Gallon	7.0 – 22.0 lb/gal
Specific Gravity	0.80 – 2.60
Pounds per Cubic Foot	50 – 165 lb/ft ³
Pressure Gradient	350 – 1,100 psi/1,000 ft
Accuracy	± 0.1 lb/gal or ± 0.01 specific gravity
Cup Type	Pressurized metal cup with piston and pressure cap
Material of Construction	Stainless steel cup, piston, and cap; stainless steel graduated beam
Applicable Standard	API RP 13B-1 Sec. 4
Case	Hard carrying case (included), doubles as working base
Overall Dimensions (approx.)	21.5" × 5.1" × 4.3" (54.5 × 13.0 × 11.0 cm)
Weight (approx.)	7 lb 11 oz (3.5 kg)

Operation

1. Make sure the cup, piston, and pressure cap are clean and dry before filling.
2. Take the fluid's temperature and log it on your mud report.
3. Draw a fresh sample and fill the cup right to the brim.
4. Seat the piston and thread the pressure cap on with steady, even pressure.
5. Fit the pressurizing rod to the valve on the cap and turn it down until firm resistance is felt. This compresses any entrained air or gas out of the sample so the reading reflects the fluid's true density, even on aerated or gas-cut mud.

✓TIP

A gas-cut or aerated sample will read noticeably higher once fully pressurized than it would on a standard atmospheric mud balance — that difference is the entrained gas being compressed back into solution.

6. Wipe any spilled fluid from the cup and beam, then dry the whole unit completely.

7. Rest the knife edge on its pivot and slide the rider until the beam settles level, confirmed by the bubble centering in the vial.
8. Take your reading from the scale edge of the rider closest to the cup.



Fig. 3 — The complete kit in its carrying case, with the pressurizing rod alongside and spare parts labeled

#	Part Number	Description
1	IM-PMB-210M-02	Balance Arm, Stainless Steel
2	IM-PMB-210M-03	Rider (Sliding Weight)
3	IM-PMB-210M-04	Level Bubble Vial
4	IM-PMB-210M-05	Pressure Cup & Piston Assembly
5	IM-PMB-210M-08	Knife Edge
6	IM-PMB-210M-09	Pressurizing Rod
7	IM-PMB-210M-10	Hard Carrying Case

9. Bleed the pressure off at the relief valve before removing the rod or cap. Empty the sample, then wipe the instrument down and dry it before putting it away.

⚠IMPORTANT

Never remove the pressure cap or pressurizing rod while the cup is still under pressure. Always bleed pressure off at the relief valve first, and wear gloves and eye protection any time drilling fluids, cements, or completion brines are handled.

	Reporting Results Round the reading to the nearest 0.1 lb/gal, 1 lb/ft³, 0.01 SG, or 10 psi/1,000 ft — whichever unit your report calls for.
Calibration	Basic Calibration Every unit leaves the factory calibrated with its original cap and seal fitted. A quick fresh-water check like the one below is good practice before any critical test run, and confirms the instrument hasn't drifted. 1. Wipe the instrument down and make sure it's completely dry before you start. 2. Fill the cup with clean fresh water at roughly room temperature (about 70°F / 21°C). 3. Rest the knife edge on its pivot and set the rider to 8.33 lb/gal — equivalent to 1.00 SG or 62.3 lb/ft³. 4. Watch the bubble. A centered bubble means the instrument is in balance; an off-center bubble means it isn't. ✓TIP <i>Fresh water carries no entrained gas, so the reading should be identical whether or not the cup is pressurized. Checking both ways is a useful way to confirm the pressurizing mechanism isn't adding a false offset of its own.</i> When to Recalibrate • Whenever the cap, piston, or sealing ring is swapped out. • After a drop, impact, or any other physical damage. • If a fresh-water check no longer lands on 8.33 lb/gal (1.00 SG). • On whatever routine schedule your facility's QA/QC program calls for. ⚠IMPORTANT <i>Swapping in a different cap or seal can shift the instrument's balance point, even if the replacement looks identical. Re-run the calibration check whenever those parts change.</i>
Maintenance	1. Give the knife edge, rider, bubble vial, and sealing ring a quick look-over before each test — the vial should be clear and crack-free, and the seal should show no cracking or flattening. 2. Rinse the instrument after every test; a mild solvent helps if cement or other stubborn residue is involved. Nothing should be left clinging to any surface.

3. Dry everything completely before putting it away.
4. Keep the balance in its carrying case between uses — the knife edge, beam graduations, and pressure cap threads are easy to damage if left loose.
5. Any time a part is swapped or readings start looking off, run through the Calibration check again (page 6).

NOTE

Never dunk the assembled balance in water — clean the cup, piston, and cap on their own if they need a deeper wash. Handle the beam gently; a bent arm from a drop or knock will throw off every reading afterward.

Troubleshooting

Symptom	Possible Cause	Recommended Action
Beam won't settle level, even with the rider pushed to its limit	Too much or too little weight adjustment, or a pressurizing fault	Run the fresh-water check under Calibration (page 6)
Reading doesn't change after pressurizing	Pressure cap or seal not fully seated, or relief valve stuck open	Check the seal and cap threads; reach out to Inmotion Energy if the relief valve looks damaged
Readings bounce around between tests	Cup wasn't quite full, or air got trapped inside	Refill the cup and make sure the piston is fully seated with no visible air gap
Rider won't stay put, or slides too easily	Beam surface worn or damaged	Check the beam closely for wear; reach out to Inmotion Energy about a replacement
Hard to tell where the bubble is sitting	Vial is dirty, damaged, or fouled with residue	Clean the vial and beam; swap the vial if it's cracked or clouded
Pitting or corrosion showing up on the beam, cup, or cap	Instrument wasn't dried thoroughly, or was exposed to something corrosive	Make cleaning and drying after every use a habit (see Maintenance, page 7)

Still stuck after trying the above? Set the instrument aside and get in touch with Inmotion Energy (see Company & Contact Information, page 9).

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 — the bubble vial and sealing ring, 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 <i>Questions before then? Reach our support team at info@inmotionenergy.in.</i>
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. Spares and seals are kept in stock and shipped on request. Have this ready when you reach out: • Model / catalog number (IM-PMB-210M) • The part number and description you need (see Components, page 3) • How many you need

	Your company name, shipping address, and a contact point
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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 186, 1st Main Road, Vijaya Bank Layout, Bilekahalli, Bangalore, Karnataka – 560076 Phone: +91 96637 44619 Email: info@inmotionenergy.in Website: inmotionenergy.in
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