LIQUID CONTROLS

IDEX INDIA

PD METER TECHNOLOGY: TRI-ROTOR

Precision measurement for high-value fuels and liquids

Accurate. Reliable.
Built for demanding fuel measurement applications.

Positive displacement metering provides a direct approach to measuring liquid flow. In applications where every litre matters, meter accuracy and long-term repeatability are critical to maintaining reliable measurement and custody transfer.

Liquid Controls brings this technology to demanding applications across **refined fuels, aviation fuel and petroleum products**, including refuellers, aviation fuel bowsers, filling stations, blending systems and oil terminals. Liquid Controls is an IDEX brand focused on precision measurement systems for high-value refined fuels and liquids.

The application at a glance

INDUSTRIES:

APPLICATIONS:

- Refuellers
- Aviation Fuel Bowser
- Filling Stations
- Oil Terminals
- Blending

TYPICAL FLUIDS:

MS | HSD | SKO | ATF | Ethanol

WHY DOES ACCURATE FUEL MEASUREMENT MATTER?

In fuel distribution and transfer, measurement accuracy directly affects inventory control, commercial transactions and operational reliability.

Fuel may pass through multiple points before reaching its final destination. At each stage, accurate measurement helps operators know exactly how much product is being transferred.

THE CHALLENGE

Meter performance can deteriorate when internal clearances increase over time.

WEAR → INCREASED CLEARANCE → INCREASED SLIPPAGE → POTENTIAL LOSS OF ACCURACY

For high-value liquids, even small changes in measurement performance can have commercial implications.

THE REQUIREMENT

A meter for demanding fuel applications needs to provide:

- **HIGH ACCURACY** — Precise measurement across the operating range
- **REPEATABILITY** — Consistent measurement from one transaction to the next
- **RELIABILITY** — Stable performance over extended operation
- **SAFETY** — Dependable operation in demanding fuel-handling environments

HOW DOES TRI-ROTOR PD METER TECHNOLOGY HELP?

The Tri-Rotor positive displacement meter measures liquid by capturing and displacing defined volumes of fluid through the measuring chamber.

As the rotors turn, the movement of the liquid corresponds to a known volume, allowing the meter to provide precise flow measurement.

LIQUID IN

↓

ROTORS DIVIDE THE FLOW INTO CONTROLLED VOLUMES

↓

ROTATION CORRESPONDS TO DISPLACED VOLUME

↓

MEASURED LIQUID OUT

WHY THE ROTOR DESIGN MATTERS

The key advantage highlighted for this application is the absence of metal-to-metal contact within the measuring chamber.
This helps minimise wear within the measuring mechanism.

THE PERFORMANCE CHAIN
No metal-to-metal contact
↓
Reduced wear
↓
No progressive increase in clearances
↓
Reduced potential for slippage
↓
Long-term measurement stability

WHERE DOES TRI-ROTOR TECHNOLOGY ADD VALUE?

Rather than lengthy application descriptions, use five application cards.

- **REFUELLERS**
  Accurate measurement during mobile fuel transfer supports reliable dispensing and transaction control.
- **AVIATION FUEL BOWSERS**
  Aviation fuel demands dependable measurement during aircraft refuelling, where accuracy and operational reliability are critical.
- **FILLING STATIONS**
  Reliable measurement supports controlled fuel dispensing and inventory management.
- **OIL TERMINALS**
  PD metering can support accurate measurement during bulk fuel movement and transfer operations.
- **BLENDING**
  Accurate measurement of different fuel components helps support controlled blending operations.

FLUIDS IN FOCUS:
The Tri-Rotor application can address a range of petroleum and fuel products, including:

- MS
  Motor Spirit
- HSD
  High-Speed Diesel
- SKO
  Superior Kerosene Oil
- ATF
  Aviation Turbine Fuel
- ETHANOL

This broad fluid application makes the technology relevant across multiple points in the fuel distribution chain.
Liquid Controls has a long-standing focus on precision measurement for petroleum, LPG, aviation refuelling and industrial liquid dispensing applications.

WHY CHOOSE LIQUID CONTROLS?

DESIGNED FOR MEASUREMENT PERFORMANCE
Liquid Controls develops precision measurement systems for high-value refined fuels and liquids, with applications spanning mobile and stationary metering.

- **TRI-ROTOR TECHNOLOGY:** A positive displacement architecture designed for precise liquid measurement.
- **REDUCED INTERNAL WEAR** No metal-to-metal contact within the measuring chamber helps reduce wear-related changes in internal clearances.
- **ACCURACY & REPEATABILITY** Stable internal geometry supports consistent measurement performance.
- **APPLICATION VERSATILITY** Suitable for applications ranging from refuelling and fuel dispensing to terminals and blending

INDUSTRY EXPERIENCE
Liquid Controls has been developing flow measurement and electronic registration technologies for fuel and liquid measurement applications for decades.

FROM MEASUREMENT TO COMPLETE FUELING SOLUTIONS

Liquid Controls' portfolio extends beyond the meter itself.
Its solutions include positive displacement flow meters, electronic registration and control products and integrated measurement technologies for demanding fuel applications.

For example, the LCR.IQ electronic register was developed for applications including aviation, refined fuels and LPG, combining measurement registration with features designed to improve usability, diagnostics and data management.

THE LC DIFFERENCE

MEASURE ACCURATELY.
OPERATE RELIABLY.
PROTECT MEASUREMENT INTEGRITY.

PRECISION WHERE EVERY LITRE COUNTS.

LIQUID CONTROLS | *AN IDEX BRAND*

Explore Liquid Controls

IDEX India Pvt. Ltd.
Corporate Office:
5th Solitaire Corporate Park, 167 Guru Hargovindji Road, Chakala, Andheri East, Mumbai - 400093, India
Registered Office & Plant:
Survey No. 206, 208/2, Manjusar, Savli, Near Bombardier Circle, Dist. Vadodara - 391770 India
marcomindia@idexcorp.com | Toll Free: 1800 267 9955 | www.idexindia.in