

Flow



Double Case PD Flow Meters

Double Case Positive Displacement Flow Meters are specially designed to eliminate effect of line pressure on the metering chamber. Available in a wide range of flow capacities, the double case design ensures a high accuracy alongwith ease of servicing 'in-situ'.

DESIGN FEATURES

- Safe and rugged construction
- Double case design prevents distortion of measuring chamber due to line pressure fluctuations and ensures high accuracy
- Easy access to measuring chamber without need of removing the outer casing ensures minimum downtime
- Unique wear compensating vane design for sustained accuracy over a wide flow range
- Separate meter manifold prevents pipeline stresses from being transmitted to the measuring chamber
- Modular construction ensures interchangeable parts lower inventory of spares and ease of service
- Low pressure drop
- Mechanical or electronic readout

PRINCIPLE OF OPERATION

The Double Case PD Flow Meter consists of an outer casing with measuring capsule fixed inside. The measuring capsule consists of a bulk meter body, rotor with vane blades and two internal covers. Outer end cover and manifold, bolted to the outer casing, form a closed chamber around the measuring capsule to keep it under equilibrium pressure all the time.

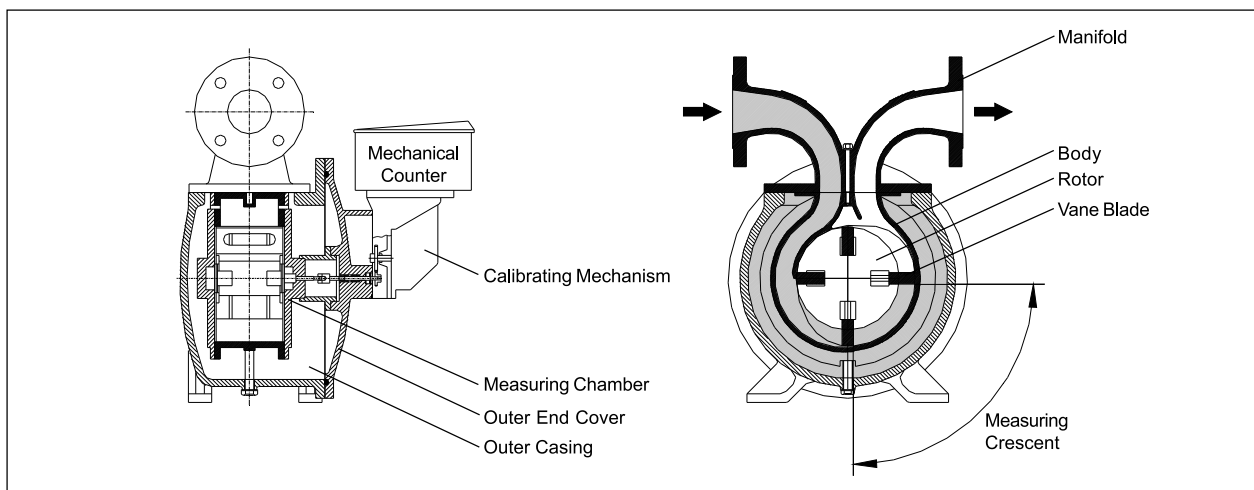
The product enters the Flow Meter measuring capsule through the manifold inlet and at the same time fills up the space between the outer casing and the measuring capsule. This effectively *pressure balances* the measuring capsule and prevents distortion due to line pressure



fluctuations to ensure a high metering accuracy. The separate manifold design further enhances the performance and accuracy by preventing distortion due to pipe line stresses.

The liquid on entering the measuring chamber causes the rotor to revolve by exerting pressure on the vane blades. The proximity of the rotor to the body forms an efficient seal, while the profile of the body ensures that the vane blades are guided through the measuring crescent. The vane blades divide the liquid into segments and each revolution of the rotor displaces four such segments.

The rotor spindle transmits the drive through a pressure tight lip seal in the meter front cover to the pulse transmitter or the calibrating mechanism, which calibrates the meter output for a corrected counter readout. All mechanical Double Case PD Flow Meters are fitted with Veeder Root mechanical counters.



APPLICATIONS

- Tank truck and rail wagon gantry filling
- Refineries and high pressure metering in petrochemical, process and chemical industries
- Blending and batching in lube plants, process control and chemical industries
- Microprocessor based automation, remote control and data acquisition systems.

SPECIFICATIONS

Type : Positive displacement rotary vane

Casing : Double

Sizes and Capsule : 80 mm, single capsule
(Models TLD-01 and TLD-02)
: 80 mm, double capsule
(Models TLD-03 and TLD-04)
: 100 mm, double capsule
(Models TLD-05 and TLD-06)
: 100 mm, triple capsule
(Models TLD-07 and TLD-08)
: 150 mm, triple capsule
(Models TLD-09 and TLD-10)

Flow Range : 136 - 1500 lpm
(Models TLD-01 and TLD-02)
: 205 - 2100 lpm
(Models TLD-03 and TLD-04)
: 227 - 2300 lpm
(Models TLD-05 and TLD-06)
: 295 - 3000 lpm
(Models TLD-07 to TLD-10)

(Maximum flow rates can be uprated by 30% for ATF and certain liquids)

End Connections : 150 Class, ANSI B 16.5, FF/RF/
300 Class,

Meter Hand of Discharge *(when facing the counter)* : Left hand entry, right hand discharge
(for even meter model nos.)
Right hand entry, left hand discharge
(for odd meter model nos.)

Drive : Positive gear train

Counter : Mechanical - 5 digit reset, 8 digit non-reset totaliser (Veeder Root 7887)
Veeder Root 7887
: Mechanical - 5 digit E-type counter
: Electronic - flameproof counter

Unit of Registration : Litres (TLD-01/02)
Deca-litres (TLD-03 to TLD-10)
(Other units available on request)

Accuracy : Better than $\pm 0.10\%$
(In accordance with IS:2801)

Repeatability : Better than $\pm 0.02\%$

Rangeability : 100% to 10% of maximum flow rate

Maximum Working Pressure : 150 PSI
300 PSI (Optional)

Temperature : Upto 70°C (Standard)
Upto 200°C (Special)

Viscosity : 0.5 cst to 200 cst
(Consult factory for liquid viscosity above 200 cst)

Pulse Output (Optional) : 100 PPR, TTL compatible

MATERIALS OF CONSTRUCTION

Outer Casing and Cover : Cast Steel ASTM A 216 WCB

Manifold : Cast Steel ASTM A 216 WCB
(for TLD-01 to TLD-06)
Carbon Steel (Fabricated)
(for TLD-07 to TLD-10)

Meter Body : Cast Steel ASTM A 216 WCB
(Optional)
Stainless Steel AISI 316 (Optional)

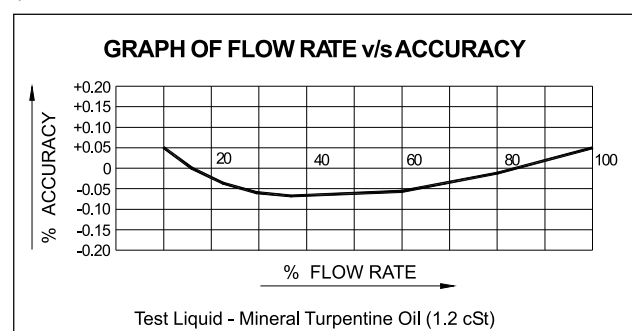
Rotor : Aluminium alloy LM-25 (Standard)
Stainless Steel AISI 316 (Optional)

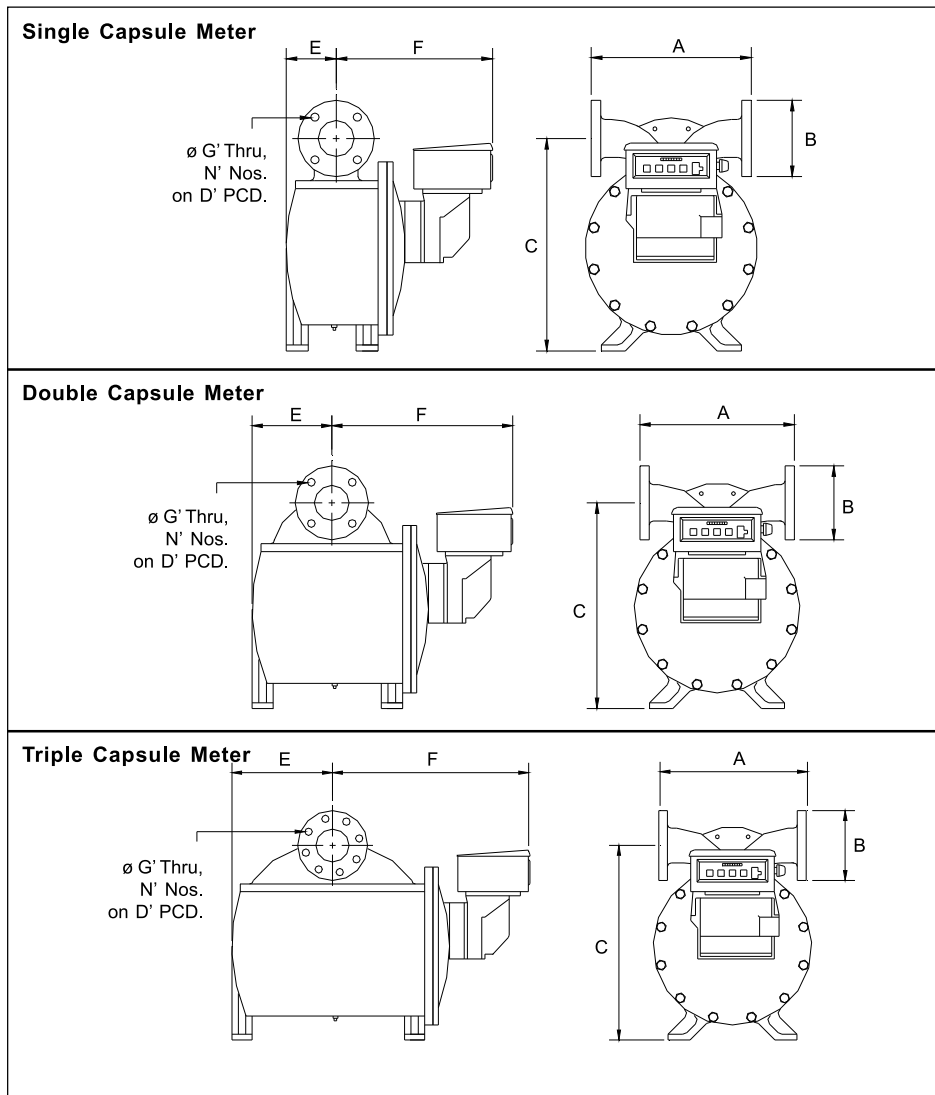
Vanes : Resin impregnated Morganite
CY10C

Bearings : Stainless steel AISI 440 C

Seals : Nitrile (Standard)
Viton (Optional)

Wetted Parts : Stainless Steel AISI 410 and 304





| Model | Size | Capsule | Flow Rate (LPM) | | Manifold | Dimensions | | | | | | | |
|------------------|----------------|---------|-----------------|------|----------|------------|-------|-----|-------|-----|-----|----|---|
| | | | Min | Max | | A | B | C | D | E | F | G | N |
| TLD-01 TLD-02 | 80 mm (3") | Single | 136 | 1500 | CS WCB | 400 | 190.5 | 500 | 152.4 | 125 | 390 | 19 | 4 |
| TLD-03 TLD-04 | 80 mm (3") | Double | 205 | 2100 | CS WCB | 400 | 190.5 | 500 | 152.4 | 189 | 460 | 19 | 4 |
| TLD-05 TLD-06 | 100 mm (4") | Double | 227 | 2300 | CS WCB | 500 | 228.6 | 560 | 190.5 | 189 | 460 | 19 | 8 |
| TLD-07 TLD-08 | 100 mm (4") | Triple | 295 | 3000 | CS FAB | 500 | 228.6 | 560 | 190.5 | 265 | 530 | 19 | 8 |
| TLD-09 TLD-10 | 150 mm (6") | Triple | 295 | 3000 | CS FAB | 500 | 279.4 | 560 | 241.3 | 265 | 530 | 22 | 8 |

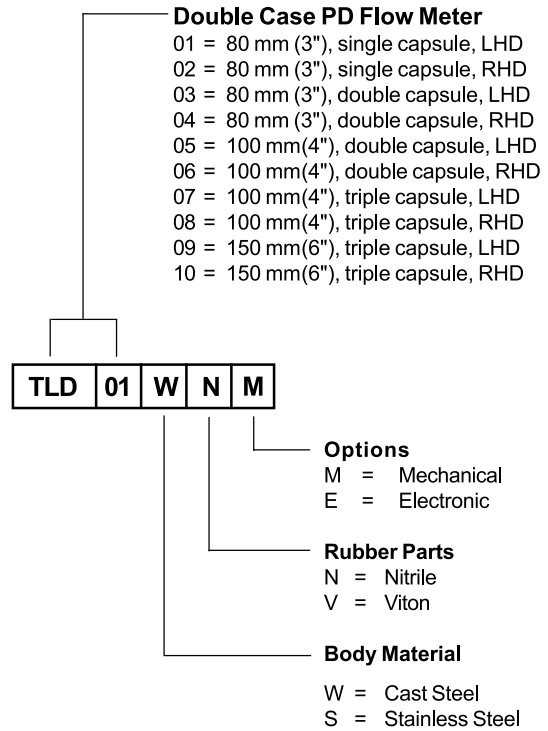
**ACCESSORIES :
MECHANICAL**

- Strainer cum Air Eliminator
- Mechanical Preset Valve
- Rate of Flow Indicator
- Flow Governor
- Digital Control Valve
- Back Pressure Valve
- Slow Close Valve
- Air Separator
- Counter Swivel
- Extended Counter Drive
- Proving Tank
- Ticket Printer
- Siphon Breaker
- Insulation Barrier

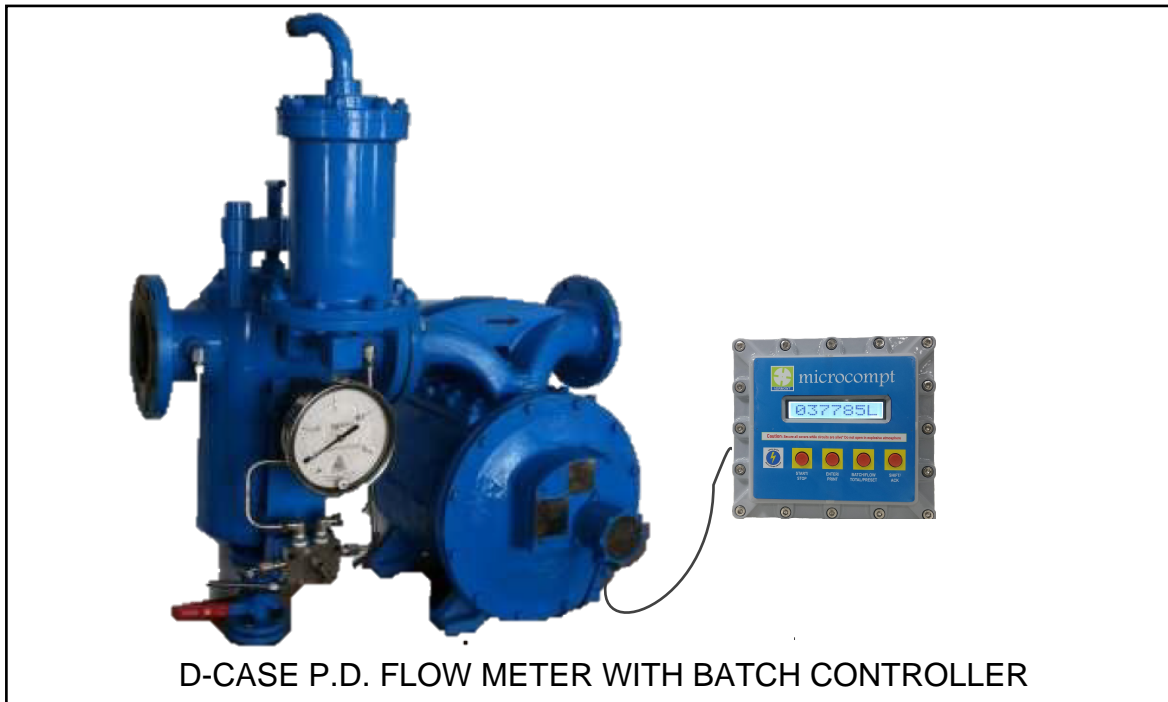
**ACCESSORIES :
ELECTRONIC**

- Pulse Transmitter
- Digital Preset Counter for Batching
- Digital Counter with Totaliser and Rate of Flow Indicator
- Digital Rate of Flow Indicator
- 4-20 mA Converter
- Solenoid Shut-off Valve
- Electrical Preset Switch
- Temperature Sensor
- Card Reader
- Grounding Unit

MODEL DESIGNATION



To specify type of counter in mechanical Double Case PD Flow Meters, add suffix "R" for Veeder Root counter and suffix "E" for E-type counter.



• Specifications are subject to change without notice.
 • All dimensions are in mm unless otherwise specified.

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