



PETROL

Metering Systems

Petrol Metering Systems Srl - Via delle Valli, 25 - 04011 Aprilia (LT) Italy
Tel.: ++39.06.92727658 - Fax: ++39.06.92860025
Web: www.petrolms.it - E-mail: petrolms@petrolms.it

"PETROL" TETRA-ROTORS PD METERS

Vertical design



Models 212, 612 and 114 are double case PD meters basically using the Roots operating principle but with two (2) rotors shifted at 45° keyed on each shaft to nullify vibrations and pressure pulsation.

Inner housing may be manufactured in cast iron or in the various grades of stainless steel up to Aisi 316L while the outer housing may be manufactured in cast steel or in stainless steel thus permitting their use in almost any liquid industrially used.

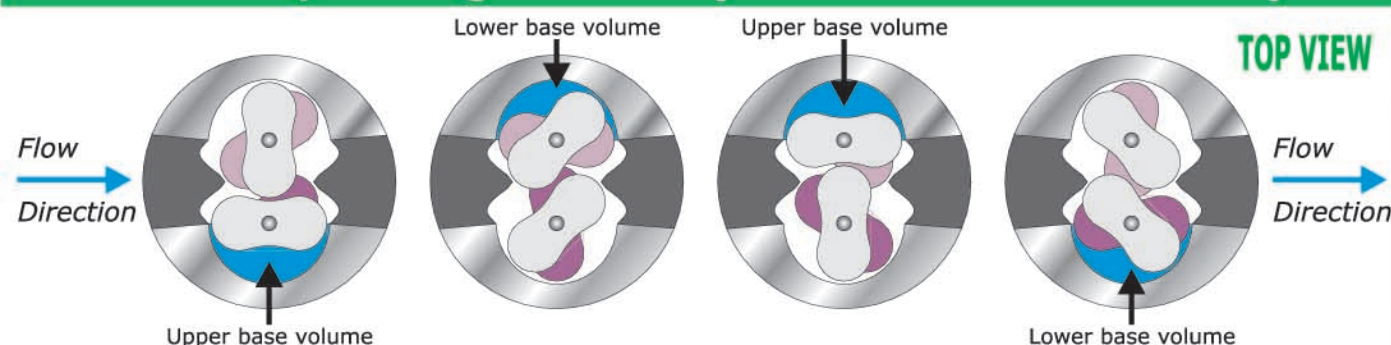
These PD meters are specially designed for installations in pipelines, in marine terminals for ships loading and unloading and as main components of skidded metering systems where a very high repeatability is required together with a very easy and reduced maintenance.

Models 212 - 114



For PD meters main features see back page - For references see general catalogue (on request) - For materials/identification code see inner pages

Operating scheme (Tetra-rotors mechanism)



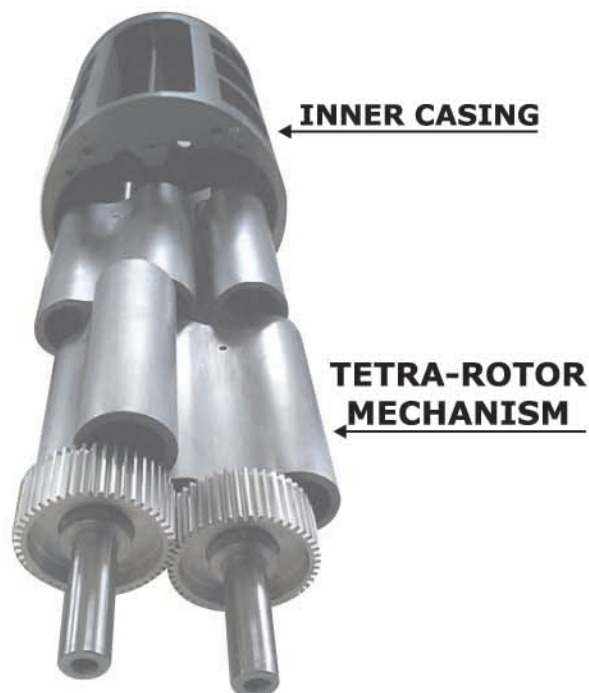
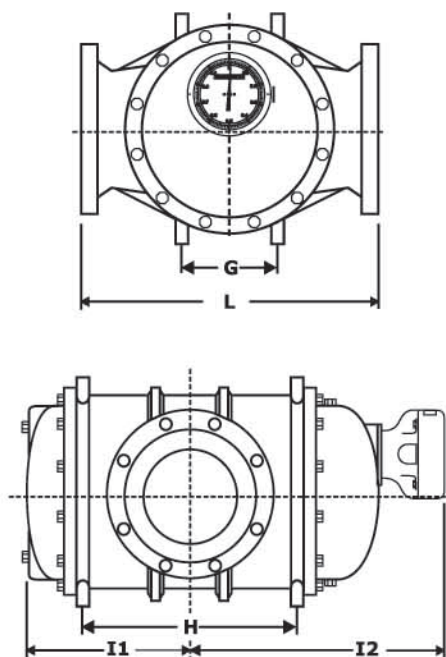
Flow-rate ranges (m³/h)

PD meter model	Flanges size (DN)	Viscosity in mPa.s				
		> 0.5	2	10	150	500
212L	250	150÷850	130÷850	90÷900	60÷900	40÷800
212	300	150÷750	130÷750	90÷800	60÷800	40÷700
612	300	200÷1000	180÷1000	130÷1100	85÷1100	55÷900
612P	350	200÷1200	180÷1200	130÷1300	85÷1300	55÷1100
114	350	250÷1350	230÷1350	160÷1500	100÷1500	70÷1250
114R	400	250÷1500	230÷1500	160÷1600	100÷1600	70÷1400

Flow rate ranges shown in the table at the left are referred to continuous service (8/24 hours of operation per day). For intermittent service the max flow rate may be increased by 15%. The table has been prepared very conservatively to allow anybody to ask for a quotation or to select a "Petrol" PD meter, provided operating temperature is below 80 °C. It is possible to use "Petrol" PD meters for flow rates and viscosities outside mentioned ranges but in such cases it is necessary to consult the factory. The max allowed flow rate is about 25% higher than that shown in the table. PD meters accuracy is in accordance with the official approvals issued by Italian Ministry for installation in Italy and in European Countries.

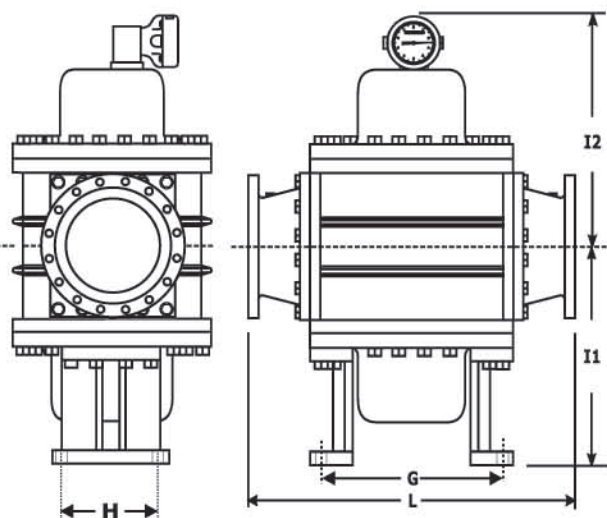
Mod. 110-112

Horizontal design



Mod. 212-612-114

Vertical design



Tests

- All the outer housings are tested at a pressure 1,5 times the max. operating pressure printed in the PD meter name-plate;
- Performance tests are carried out with water as liquid medium and with a 25 KI calibrated tank (see picture at the right) sealed by Italian Weight and Measure Dept., as reference volume.



Precautions

- The majority of PD meters troubles is caused by solid particles which entering the metering mechanism, block the rotors. Remove the flanges' protections just before PD meter installation and be sure that the PD meter inlet line has been properly cleaned before the start-up
- The use of a protection strainer mounted just upstream the PD meter or directly coupled on the PD meter inlet flange is strongly recommendly.
- Use the PD meter within the flow rate range, pressure and temperature values printed in the name-plate and be sure that the flow direction agrees with the arrow stamped on equipment body.

Outline dimensions

Mod.	L	I1	I2	G	H
110	625	335	554	202	405
112	650	395	615	250	524
212	1200	678	750	662	350
612	1300	778	845	662	350
114	1400	825	890	662	350

Dimensions valid for PD meters flanged
ANSI 150 RF and UNI PN 10/16

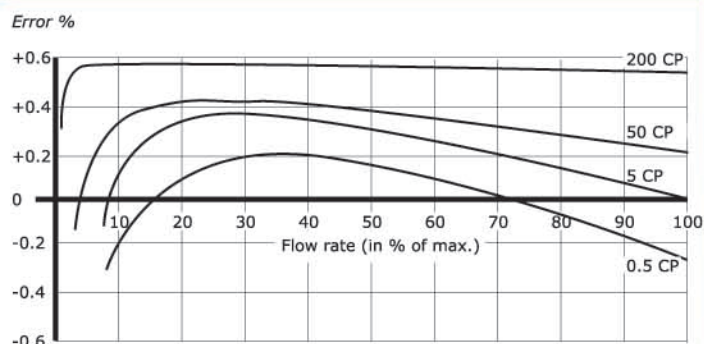
Outer housing materials

CODE	Body/Covers	Gaskets
C	Cast steel	Universal SA
E	AISI 304	Teflon
F	AISI 316	Teflon
Magnetic transmission to drive the counter (standard)		

Inner housing materials

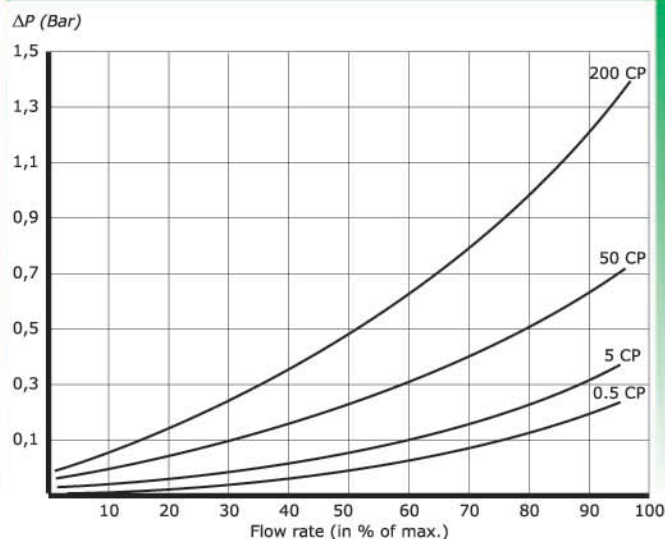
CODE	Casing/Covers	Rotors
5	Cast iron	Cast iron
7	AISI 304	AISI 304
8	AISI 316	AISI 316
Impregnated carbon bearings to support rotors' shafts (standard)		

Accuracy curves

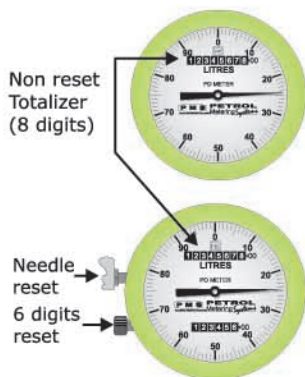


The graph shows only the trend of the accuracy curve for liquids of different viscosity. Curves may then be shifted up and down along the *Error %* axis with the calibrator.

Pressure drop



Counter models



MOD. 12

10 figures non reset type totalizer (8 on digits + 2 on dial)

For electronic counters, explosion proof or control room version, see general catalogue.

MOD. 22

8 figures reset type counter (6 on digits + 2 on dial) plus 8 digits non reset totalizer.

The needle scope is to increase the counter resolution.
One needle revolution = one (1) unit of the totalizer.

Identification code

F A 212 - 12 - F 8

- F** PD meter type
- A** Max pressure
- 212** PD meter model
- 12** Counter model
- F** Outer housing materials
- 8** Inner housing materials

Standard flanges according to ANSI or UNI codes.
Special flanges according to other codes on request

How to select

- **PD meter type**
F standard **FJ** jacketed
- **Max Pressure**
(See table)
- **PD meter model**
From the table "flow rate ranges" select the PD meter model more suitable for the specific needs with reference to the type/viscosity of liquid to be metered.

➤ Accessories

P for electric pulses
Insert above codes after the first number of the counter model, ex. -1P2- or/and -2P2-.
For temperatures above 80°C use mod. AK-5 fin-cooler.
To read from the top use mod. AM-6 angle adaptor. for all the horizontally designed PD meters
Vertically designed PD meters are always equipped with mod. AM-6 angle adaptor.

➤ Construction materials

From the relevant "tables" select the construction materials more suitable for the specific needs for what concerns both the outer housing and the inner housing.
For other construction materials consult the factory.

Max pressure

CODE	Mpa
A	1
L	2
M	6,2
H	11
X	>11

"PETROL" TETRA-ROTORS PD METERS

Horizontal design



Main features

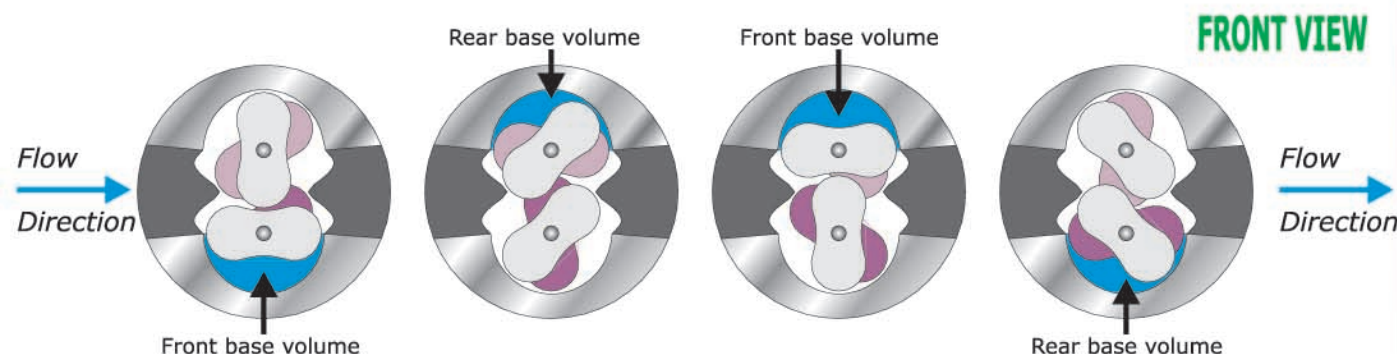
Detailed description in the general catalogue available on request

- Double case construction
- Floating rotors
- Magnetic transmission
- Carbon bearings
- Change gear calibrator (auto check)
- Construction materials
- Max operating pressure up to 15 MPa
- Max operating temperature up to 230°C
- Capability of metering viscous liquids
- Excellent accuracy and repeatability
- Reduced maintenance

Models 110 - 112



Operating scheme (Tetra-rotors mechanism)



Flow-rate ranges (m^3/h)

PD meter model	Flanges size (DN)	Viscosity in mPa.s				
		> 0.5	2	10	150	500
110H	200	70÷400	60÷400	45÷450	30÷450	20÷360
110	250	70÷400	60÷400	45÷450	30÷450	20÷360
112L	250	100÷550	85÷550	55÷550	35÷550	25÷500
112	300	100÷550	85÷550	55÷550	35÷550	25÷500

To select a PD meter the viscosity of the liquid to be metered is the most important characteristic to be known. PD meter size and relevant flow-rate range directly depends from its value.

For notes on flow-rate ranges see front page
For references see general catalogue (on request)
For materials/identification code see inner pages