# Produzione Misuratori Volumetrici P E T R O L Metering Supervisione

# "Petrol" PD meters

Main applications - Pictures

- "Petrol" PD meters for Cruise Ships
- "Petrol" PD meters for Skidded Metering Stations
- "Petrol" PD meters for Truck Loading Facilities
- "Petrol" PD meters on Storage Vessels
- "Petrol" PD meters for Marine Terminals
- "Petrol" PD meters for Rail Tankers Loading Systems
- "Petrol" PD meters for Mini Skids

#### "Petrol" PD meters are currently used in Power Plants, Chemical, Petrochemical, Pharmaceutical, Crude oil plants and so on.

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# "Petrol" PD meters for Cruise Ships

#### On this ship are in service the underdetailed

"Petrol" PD meters: n. 1 mod. FA112-1P2-C5 on bunkering line.

rincess



- n. 2 mod. FA22-12-C5 for lubricants control.
- n. 2 mod. FA14C-1P2-F8 for laundry water control.
- n. 4 mod. FA12AA-1P2-B1 for control of sea water to shafts bearings.
- n.12 mod. FL22-1P2-C5 for engines consumption control.





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# "Petrol" PD meters for Skidded Metering Stations

### Characteristics: · Pipe diameter 48".

- · Max flow rate 8.000 m3/h.
- · N.7 "Petrol" 16" size PD Meters.
- · Bi-Directional meter prover.



16" "Petrol" PD m<mark>eters</mark>



Battery of 7 16" "Petrol" PD meters

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# "Petrol" PD meters for Truck Loading Facilities



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# "Petrol" PD meters on Storage Vessels









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# "Petrol" PD meters for Marine Terminals



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# "Petrol" PD meters for Rail Tankers Loading Systems



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# "Petrol" PD meters for Mini Skids



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#### "P etrol" PD meters for liquids M ain characteristics

#### A. Double case construction

In this type of construction the metering mechanism, called hereinafter inner housing ass'y (inner casing plus rotors, shafts and gears), is a sub-ass'y operating, testable and replaceable in any moment.

During the line flushing or the "start-up" operations the inner housing ass'y can be therefore removed from the outer housing flanged to the piping without removing the entire PD meter from the line and consequently avoiding any damage to the metering mechanism during such operations.

In addition there is a drastic reduction of the time required for the PD meter maintenance being normally enough to remove and maintain only the inner housing ass'y, without the need of removing the entire PD meter from the line.

Furthermore PD meters may be manufactured with different construction materials either for the outer housing either for the inner housing ass'y (inner casing plus rotors shafts and gears) and its accuracy is not influenced by the operating pressure because of the inner housing always works in conditions of "balance pressure" and consequently the "base volume" is not modified by eventual pressure fluctuation.

#### **B.** Floating type rotors

The rotors never touch each other nor they touch the other parts composing the "base volume" but are synchronized by a couple of timing gears mounted outside the inner casing. The rotors are not therefore subject to wear which means that the PD meter does not need any re-calibration with the time due to the wear of the parts composing the "base volume".

#### C. Reduced maintenance

The adoption on a standard basis of the magnetic transmission to drive the counter (which means a static seal between the wetted parts and the dry parts of the PD meter) and of carbon bearings instead of ball bearings to support the rotor shafts, as well as the double case construction and the floating type rotors, reduce the maintenance of our PD meters to a real minimum.

#### D. Capability of metering viscous liquids

Due to our PD meters operating principle and to the manufacturing procedures there are no problems for the measure of viscous liquids. In facts the rotor profile of the PD meters is worked out with constant profile cutters.

It is therefore very easy to produce PD flowmeters with different "clearances" and consequently also suitable for the measurement of very very viscous liquids (50.000 mPa,s and over).

#### E. Certifications/Omologations

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1. Certificate of Conformity ISO 9001 : 2000 n CERT -09578-2001-AQ-ROM-SINCERT dated November 23th, 2001 issued by Det Norske Veritas Italy.

2. Approval n. 347828 dated 28/07/70, issued by Italian Weight and Measure Department, for legal and custody transfer applications in Italy.

3. CEE approval certificate for model of measuring instruments n. 99.03.01.002 dated 19/09/99, issued by Italian Weight and Measure Department, for the legal use in European Common Market (CEE) countries.

4. Approval certificate n. 314 dated 06/10/94 issued by the Russian authority called Gosgortechnadzor, for the legal use in this country.

5. Approval certificate n. CE PED.07.0150.04/1866 dated December 28th, 2004, issued by Det Norske Veritas Italy, for a comply with the requirements of Directive 97/23/EC.

6. Certificate of conformity n. RWTUV-8-04-ATEX-0067-I-PMS dated March 4th, 2004 by RWTUV, for equipment intended for use in Potentially Explosive Atmospheres Directive 94/9/EC article 8 (1) b) ii).

#### F. Production range

1. 1" through 16" sizes, permitting the accurate measurement of liquid flow-streams from few hundreds of liters per hour to many hundreds of cubic metres per hour.

2. Max. operating pressure up to 150 Bar and max. operating temperatures up to 230 C.

3. Availability of all the construction materials industrially used from cast iron to cast steel and to the various grades of stainless steel up to AISI 316 L, in relation to chemical aggresiveness of metered liquids.

For the measure of diluted hydrocloric acid and diluted sulphuric acid an "all resin" version ("moplen") with hastelloy B shafts and screws is available.

4. Local totalization of metered volumes on non reset counter, or on reset counter and/or on ticket printer, zero-start or accumulative type.

5. Local set-stop counters with mechanic, electric or pneumatic operation of the shut-off valve, once delivered the preselected liquid volumes.

6. Remote electric/electronic set-stop systems realized by means of intrinsecally safe or explosion proof pulse transmitters and electro-mechanic/electronic panel type preset counters with an electric output signal, once delivered the preselected liquid volumes.

7. Local pneumatic set-stop systems realized by means of pneumatic pulse transmitters and pneumatic panel type preset counters, with a pneumatic output signal once delivered preselected liquid volumes.

8. Remote transmission of metered volumes by means of intrinsecally safe/ explosion proof transmitters and remote analog or digital pulses processing.

9. Availability of protecting devices like strainers and deareators.

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CAST BODY STRAINERS



"Petrol" basket type strainers are used for screening foreign particles present in the fluid in order to protect the PD flowmeters thus allowing for their proper function and durability.





# FEATURES

- Maximum effective screeing area with minimum pressure losses.
  - High strength of filter elements to resist pressure differentials there-across thus assuring stable operation.
  - Simple design and high safety of operation against pressure.
    - Accessible construction and serviceability.

## Identification code



#### Screeners

- Mesh standard
  40, 80, 200
- Options
  20, 60, 100, 160 mesh
- Special mesh on request

MAX PRESSURE				
Code Mpa				
А	1			
L	2			
М	6,2			
Н	11			
Х	>11			

<b>BODY MATERIALS</b>						
Code	Body/Covers	Gaskets				
А	cast iron	Universal SA				
С	cast steel	Universal SA				
Е	AISI 304	AISI 304 Teflon				
F	AISI 316	Teflon				
G AISI 316L		Teflon				

SCREENER MATERIALS			
Code	Basket		
7	AISI 304		
8	AISI 316		
9	AISI 316L		

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# STRAINERS DIMENSIONS

Strainers out-line dimensions						
Size	L	E	L1	L2		
1″ 2″ 3″ 4″	295 320 385 515	150 174 230 280	163 198 259 325	101 106 133 166		

Dimensions valid for flanges ANSI 150 RF and UNI PN 10/16 For other ratings dimensions consult factory





# PRESSURE DROP





# **OPTIONS**

- "PETROL" strainers may be supplied complete with:
  - Stainless steel floating type air/vapor eliminator head (Mod.11-AV).
  - Connections for differential pressure indicator/switch.
  - Differential pressure indicator.
  - Differential pressure switch.
- "PETROL" strainers may be manufactured in other construction materials in accordance to customer specific need.
- Flanges options
  - Size 1" may be supplied flanged 1 1/2"
  - Size 2" may be supplied flanged 3"

# Final destination:





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