

Positive displacement meters series BM 200 - BM 400 - BM 600



BM 200



BM 600



BM 400

www.isoilmeter.com



Positive displacement meters series BM 200 - BM 400 - BM 600

ISOIL PD meter series **BM** sizes 2", 3", 4" and 6" offers high accuracy: +/- 0,1% with a repeatability of +/- 0,01%, over a large range of flow rate. This accuracy remains constant during long periods of use.

Visual indication of the flow rate measured can be obtained when associated with mechanical register or electronic flow computer directly mounted on the meter or remote by means of a pulses emitter (see VEGA II or VEGA T leaflets).

Applications

- » loading and unloading of tank trucks, tank wagons and barges
- » aircraft refuelling
- » transfer of petrochemical products from refineries to depots in pipelines
- » calibration of other meters and tanks

Filtering and air elimination

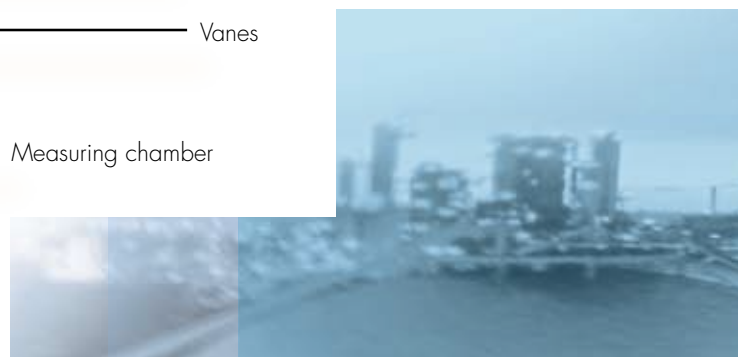
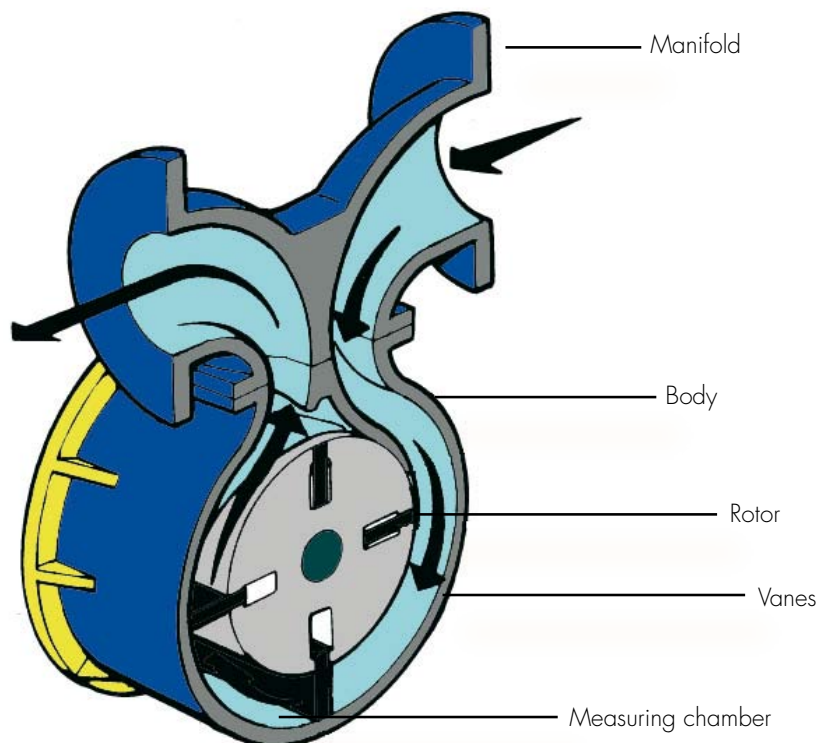
To assure a measuring accuracy and preserve the meter from damage, the fluid under measurement must be properly filtered and air or gas must be eliminated. Isoil produces a wide range of strainers and strainer - air separators (see FA - FDA leaflet).

Operation

While rotating, the vanes are driven by the internal surface of the single body. This means that the self - lubricating vanes are always in contact with the internal surface of measuring chamber, therefore product leakage is avoided and though high accuracy is granted.

The calibration mechanism allows micrometric adjustment. It is not necessary to change gears.

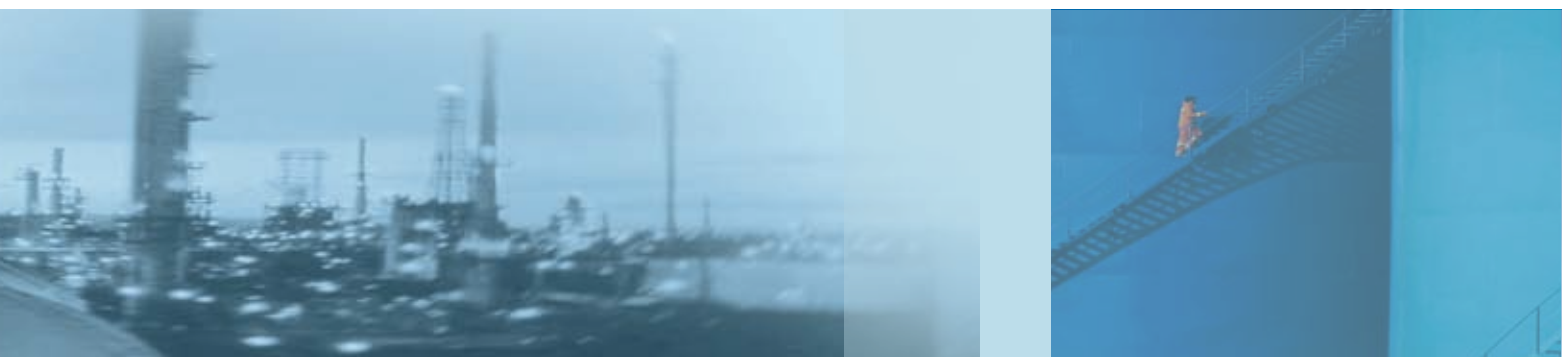
When an electronic counter is used, the calibration mechanism is substituted with a 90° driving gear, if the electronic counter is mounted directly on the meter. If the electronic counter is remote, the meter mounts a pulses emitter or encoder (see Encoder Isoil 6422 data sheet).



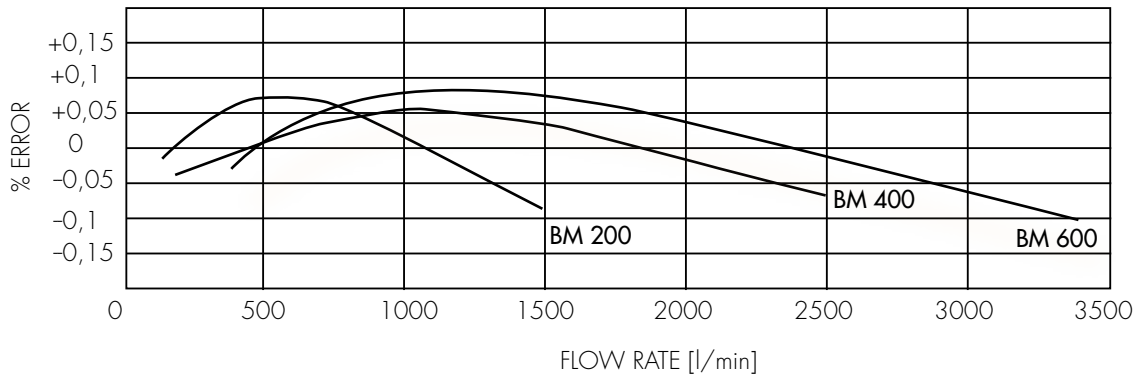
Technical specifications

	STANDARD			UPON REQUEST
	BM 200	BM 400	BM 600	BM 200 BM 400 BM 600
EU Directives compliance				
PED (dir. 97/23/CE)	Compliant directive 97/23/CE, with risk category depending on the measured liquid			
ATEX (dir. 94/9/CE)	Non electrical equipment, compliant directive 94/9/CE, suitable for installation in hazardous area II 2G, marking Ex II 2 G c T1 ... T6			
Working conditions				
Flow rate:	[100 ; 1,300] l/min @ 10 cSt	[200 ; 2,400] l/min @ 10 cSt	[300 ; 3,400] l/min @ 10 cSt	
	1,400 l/min with jet fuel (*)	2,600 l/min with jet fuel (*)	4,000 l/min with jet fuel (*)	
Working pressure:	1,000 KPa max	1,000 KPa max	1,000 KPa max	Higher available upon request
Test pressure:	1,700 KPa	1,700 KPa	1,700 KPa	Higher available upon request
Working temperature:	[-30; +100] °C	[-30; +100] °C	[-30; +100] °C	Higher and lower available upon request
Construction				
Manifold and flanges:	Carbon Steel with corrosion prevention treatment	Carbon Steel with corrosion prevention treatment	Carbon Steel with corrosion prevention treatment	Carbon Steel for low temperature
Body:	Carbon Steel with corrosion prevention treatment	Carbon Steel with corrosion prevention treatment	Carbon Steel with corrosion prevention treatment	Carbon Steel for low temperature
Covers:	Carbon Steel with corrosion prevention treatment	Carbon Steel with corrosion prevention treatment	Carbon Steel with corrosion prevention treatment	Carbon Steel for low temperature
Rotor:	Aluminium	Aluminium	Aluminium	Stainless Steel SS316
Vanes:	Graphite	Graphite	Graphite	PTFE
Gaskets:	Nitrile	Nitrile	Nitrile	Viton or PTFE
Ball bearings:	Stainless Steel	Stainless Steel	Stainless Steel	Graphite bushes
Coupling:	Viton lip seal	Viton lip seal	Viton lip seal	Mechanical or magnetic drive
Flanged:	3" ANSI150 RF	4" ANSI150 RF	6" ANSI150 RF	Other sizes and standards
Readout (with mechanical register)	litres	litres or m ³	m ³	Others upon request
Volume per revolution:	2.275 litres	4.55 litres	6.825 litres	
Flow direction:	Left (IN) to right (OUT)	Left (IN) to right (OUT)	Left (IN) to right (OUT)	Right (IN) to left (OUT)
Performances				
Accuracy:	± 0.1%	± 0.1%	± 0.1%	
Repeatability:	± 0.01%	± 0.01%	± 0.01%	
Pressure drop:	Refer to the diagram attached	Refer to the diagram attached	Refer to the diagram attached	

(*) version with "aviation trim" (no copper or copper alloys in the wetted parts)

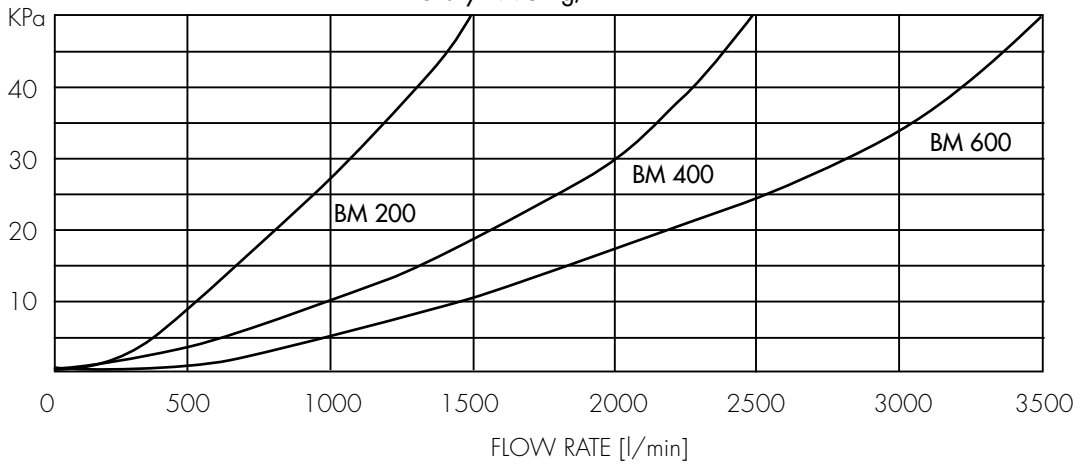


Accuracy curves



Pressure drop curves

Viscosity at 15°C = 2 cSt
Density = 795 Kg/m³



BMM 400
Master Meter with trolley



Accessories

Pulses emitter

Encoder 6422 Eex-d. Pulses emitter EM 345 Eex-i incorporated in Veeder Root 7887 register

Mechanical temperature compensation

Setting "alfa" coefficient (only with Veeder Root 7887 register)

With VEGA II compensation

Is achieved by an algorithm based on "alfa" coefficient or density

Unit drum (for Master Meter)

Allows the reading of the tens of litre

Instant flow rate

Mechanical needle indicator

Ticket printer

Veeder Root. Zero start or cumulative

Preset

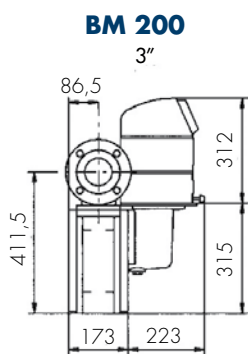
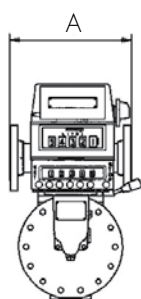
Veeder Root 7889, with one or two pneumatic micro switches or electric micro switches Eex-d ATEX

Extension for electronic or mechanical counter

L = 250 mm, 500 mm, 1000 mm and 3000 mm

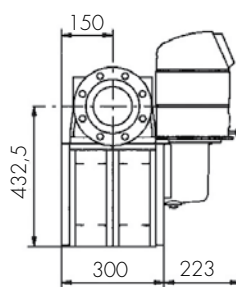
ISE automatic valve

3" or 4". 2 stages or Multistep closure. Flow limiting. No return



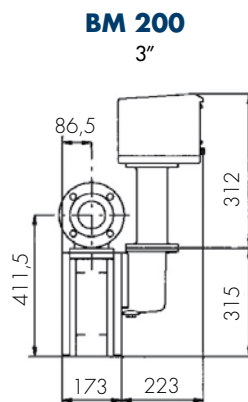
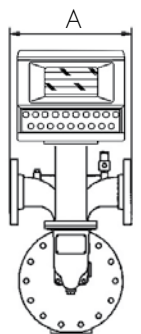
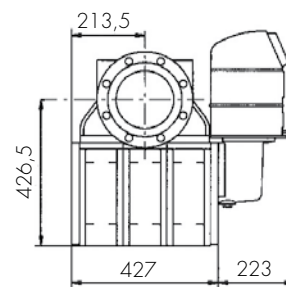
BM 400

4"



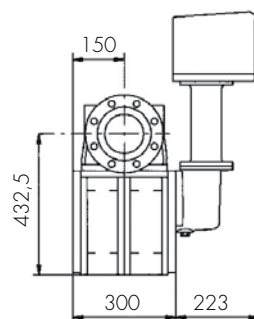
BM 600

6"



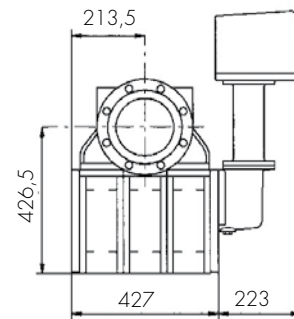
BM 400

4"



BM 600

6"



Type

Dimension A

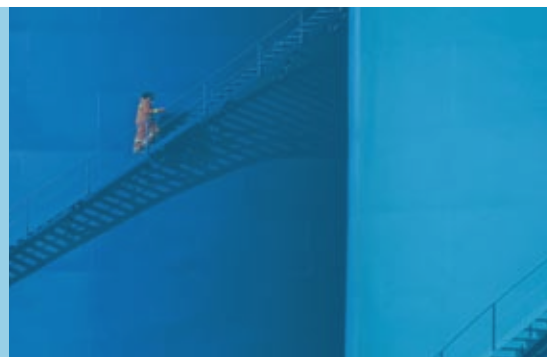
Weight

BM 200	356 mm	54 Kg
BM 400	430 mm	102 Kg
BM 600	733 mm	155 Kg

Accessories

Weight

VR Counter	6 Kg
Preset	5 Kg
Printer	5 Kg
VEGA II Counter	20 Kg



Positive displacement meters series BM 200 - BM 400 - BM 600



ISOIL
I M P I A N T I
The solutions that count

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Contatori volumetrici
Tipo LBM 1000 - LBM 3000

P.D. Meters
Type LBM 1000 - LBM 3000



ISOIL 
I M P I A N T I

Le soluzioni che contano
The solutions that count

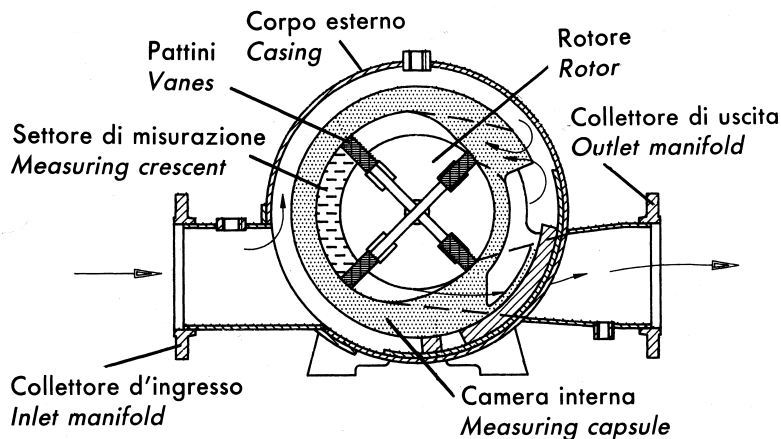
Azienda certificata ISO 9001
ISO 9001 certified company

Descrizione

I contatori ISOIL della serie LBM sono da 8", 10" a doppio corpo, di tipo volumetrico. Per il loro principio di funzionamento, sperimentato da lungo tempo, offrono un'eccezionale precisione su un campo esteso di portata. Questa precisione è mantenuta anche dopo lunghi periodi d'impiego. La costruzione è semplice e funzionale: il rotore e i pattini, che sono a contatto con il liquido, sono le uniche parti in movimento. Pur mantenendo l'elevata precisione di misura e semplicità costruttiva dei misuratori a singolo corpo, i misuratori a doppio corpo sono ideali per un'ampia gamma di pressioni: fino a 10.000 KPa (100 bar). Consentono inoltre lo smontaggio della camera di misura senza dover rimuovere la cassa esterna dalla linea. La testata indicatrice elettronica Vega permette la lettura e l'impostazione dei parametri, per la realizzazione delle funzioni di totalizzazione, predeterminazione, compensazione a 15°C e linearizzazione della curva di errore. Inoltre è possibile la trasmissione a distanza dei dati. Per maggiori informazioni consultare il prospetto "Testata elettronica Vega". In alternativa il contatore può essere fornito di testata meccanica Veeder Root con indicazione a 5 grandi cifre; una manopola permette l'azzeramento. Una serie di 8 piccole cifre compone un totalizzatore non azzerabile. La lettura è in m³. L'impiego e la manutenzione dei contatori ISOIL serie LBM è facilitata in quanto molti componenti sono identici e intercambiabili fra loro. Il contatore LBM 1000 ha una sola camera di misura, il modello LBM 3000 ne ha due.

Utilizzazione

- Carico di serbatoi vagoni cisterne e navi.
- Trasferimento di prodotti petroliferi in raffinerie depositi e oleodotti.
- Calibrazione di altri contatori, e cisterne (Master meters).



Elevata precisione

I pattini sono guidati, nel loro movimento, dalla superficie interna del corpo. Significa che in ogni istante il pattino tocca la superficie interna del corpo impedendo trafile di prodotto. Il meccanismo di calibrazione permette una registrazione micrometrica, con l'utilizzo di una chiave speciale. L'operazione è molto semplice e non occorre sostituire gli ingranaggi. Con testata elettronica Vega la taratura è digitale e il meccanismo di calibrazione è sostituito da un semplice rinvio a 90°.

Filtri e Filtri degasatori

Per una precisa misurazione il liquido deve essere accuratamente filtrato e degasato. Le reti filtranti consigliate sono: 100 mesh per benzine, kerosene e acqua, 60 mesh per gasoli e 40 mesh per prodotti densi.

Description

The ISOIL P.D. meter LBM series are positive displacement type, double case and the available size are 8" - 10". By virtue of excellent design and development over a number of years, they are noted for their exceptional accuracy over a very wide range, and in service, this accuracy is maintained over a long period of use. Simplicity is a noteworthy feature: the rotor and rotor vanes, constantly immersed in liquid, are the only moving parts. The double case P.D. meters are suitable for a wide range of pressure till 10.000 KPa (100 bar) even maintaining the high measuring precision and manufacturing simplicity of the single case meters. Moreover they permit the disassembling of the measuring chamber without removing the external case from the line. Vega electronic counter permits reading and setting of the parameters necessary to perform the following functions: totalization, presetting, temperature compensation at 15°C and the linearization of the meter's error curve. It's possible the remote transmission of data. For further informations consult "Electronic counter Vega" leaflet. In alternative the P.D. meter can be supplied with Veeder Root mechanical counter, with 5 large-figure drum, that can be reset by means of a lever. A smaller 8 figure drum gives the total quantity and this totalizer cannot be reset. The reading can be in m³ or gallons. Service and maintenance of ISOIL LBM series P.D. meters are facilitated by the use of many parts that are identical and interchangeable in the two models. LBM 1000 has only one measuring chamber, LBM 3000 two.

Uses

- Loading of tanks, tank wagons, and barges.
- Transfer of petrochemical products in refineries depots, and pipelines.
- Calibration of other meters and vessels (Master meters).

High precision

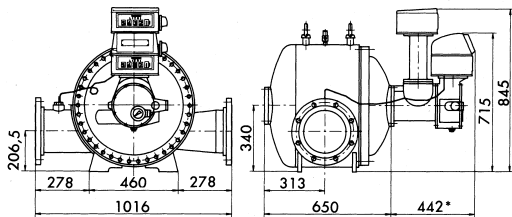
During their movement the vanes are driven by the internal surface of the body. This means that the self-lubricating vanes are in continuous contact with the internal surface of the body, avoiding product leakage. The calibrating mechanism permits a micrometric adjustment and easy calibration by means of a special key. It isn't necessary to substitute gears. When the electronic counter Vega is used, calibration is digital and calibration mechanism is substituted by a 90° driving gear.

Strainers and Strainers-air separators

For an accurate metering the liquid has to be correctly filtered and deaerated. Suggested filtration: 100 mesh for gasoline, kerosene and water, 60 mesh for diesel oil and 40 mesh for viscous products.

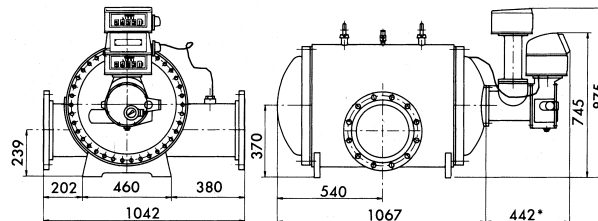
**Contatore con testata meccanica
P.D. meter with mechanical counter**

LBM 1000
8"



* Senza compensatore la quota è 323
Without compensator dimension is 323

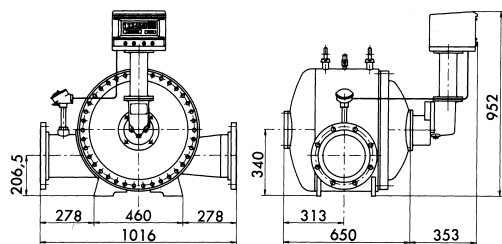
LBM 3000
10"



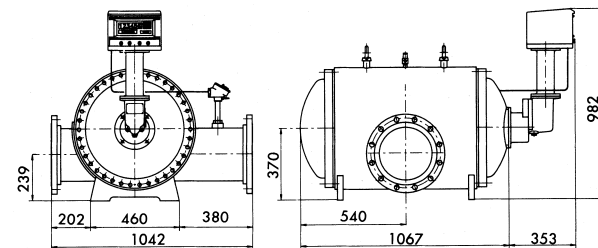
* Senza compensatore la quota è 323
Without compensator dimension is 323

**Contatore con testata elettronica
P.D. meter with electronic counter**

LBM 1000
8"



LBM 1000
8"



	Contatore Meter LBM 1000	Contatore Meter LBM 3000	Testata Counter	Preset Preset	Stampatore Ticket printer	Testata Vega Counter Vega
Pesi/Weight Kg	430	795	6	5	5	15

Caratteristiche tecniche

	LMB 1000	LMB 3000
Portata l/min	7850*	15700*
	*Per prodotti con viscosità 3÷10 cSt.	
Letture testata	m ³	
Massima pressione di esercizio	ANSI 150 RF: 1930 KPa ANSI 300 RF: 3200 KPa Per pressioni superiori a 3200 KPa chiedere in sede.	
Temperatura di esercizio	min. -10°C max. +100°C Altri campi temperatura su richiesta	

Technical characteristics

	LMB 1000	LMB 3000
Flow rate l/min	7850*	15700*
	*For products with viscosity of 3÷10 cSt.	
Counter reading	m ³	
Maximum Working Pressure	ANSI 150 RF: 1930 KPa ANSI 300 RF: 3200 KPa For pressure higher than 3200 KPa consult factory.	
Temperatura di esercizio	min. -10°C max. +100°C Others temperature range on request	

Materiali di costruzione

Corpo esterno	Acciaio al carbonio
Corpo interno	Ghisa Meehanite
Rotore	Ghisa Meehanite
Pattini	Alluminio e rilsan
Guarnizioni	Viton
Cuscinetti	Acciaio inox

Materials of construction

External body	Carbon steel
Internal body	Cast iron Meehanite
Rotor	Cast iron Meehanite
Vanes	Aluminium and rilsan
Gaskets	Viton
Bearings	Stainless steel

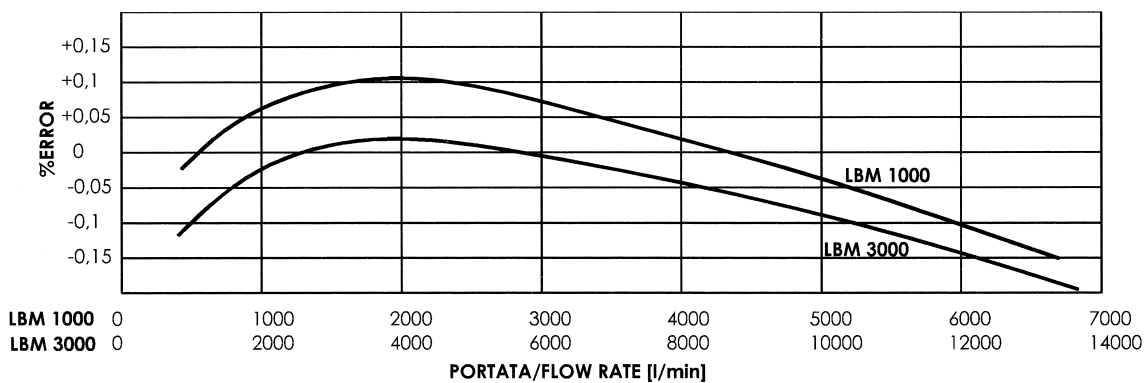
Accessori

Valvola automatica	8", 10" ANSI 150 - Corpo in acciaio al carbonio - Diaframma in NBR - Funzioni di chiusura in 2 stadi - Limitazione di portata - Non ritorno
Emettitore d'impulsi	Modello 1264 in custodia antideflagrante con contatto di prossimità o encoder - Modello 345 a sicurezza intrinseca - Impulsi in uscita 1, 5, 50, 100 per litro - Altre uscite a richiesta.
Compensatore automatico di temperatura	Meccanico con impostazione del coefficiente α o elettronico (testata Vega)
Unit drum	Permette una elevata precisione di lettura del contatore (per Master Meters)

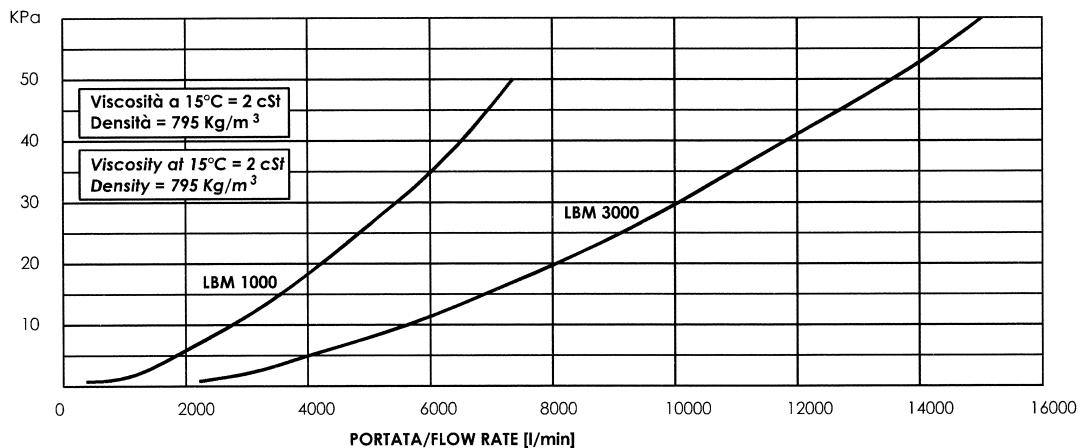
Accessories

Automatic valve	8", 10" ANSI 150 - Body in carbon carbon steel - Diaphragm in NBR - Two Stages shut-off - Flow limiting - Non return
Pulser emitter	1264 model in EEx-d housing with proximity switch or encoder - Intrinsically safe type 345 - Pulse output: 1, 5, 50, 100 per litre - Other pulses output on request
Automatic temperature compensator	Mechanical setting α coefficient or electronic (Vega counter)
Unit drum	Increases accuracy in the counter's reading (for Master Meters)

Curve di precisione Typical accuracy curves



Perdita di carico Pressure drop



Isoil Impianti Spa si riserva di apportare migliorie ai propri prodotti. Pertanto le specifiche qui descritte possono variare senza obbligo alcuno di informare l'utilizzatore, che può verificarne l'aggiornamento presso il costruttore. Il costruttore declina ogni responsabilità dall'uso di specifiche non aggiornate.

Isoil Impianti Spa reserves to improve its own products. Therefore specifications contained herein are subject to change without previous notice and the user should verify their validity with the manufacturer. The manufacturer assumes no responsibility for the use of specifications which may have been modified.

Isoil Impianti spa - Italy

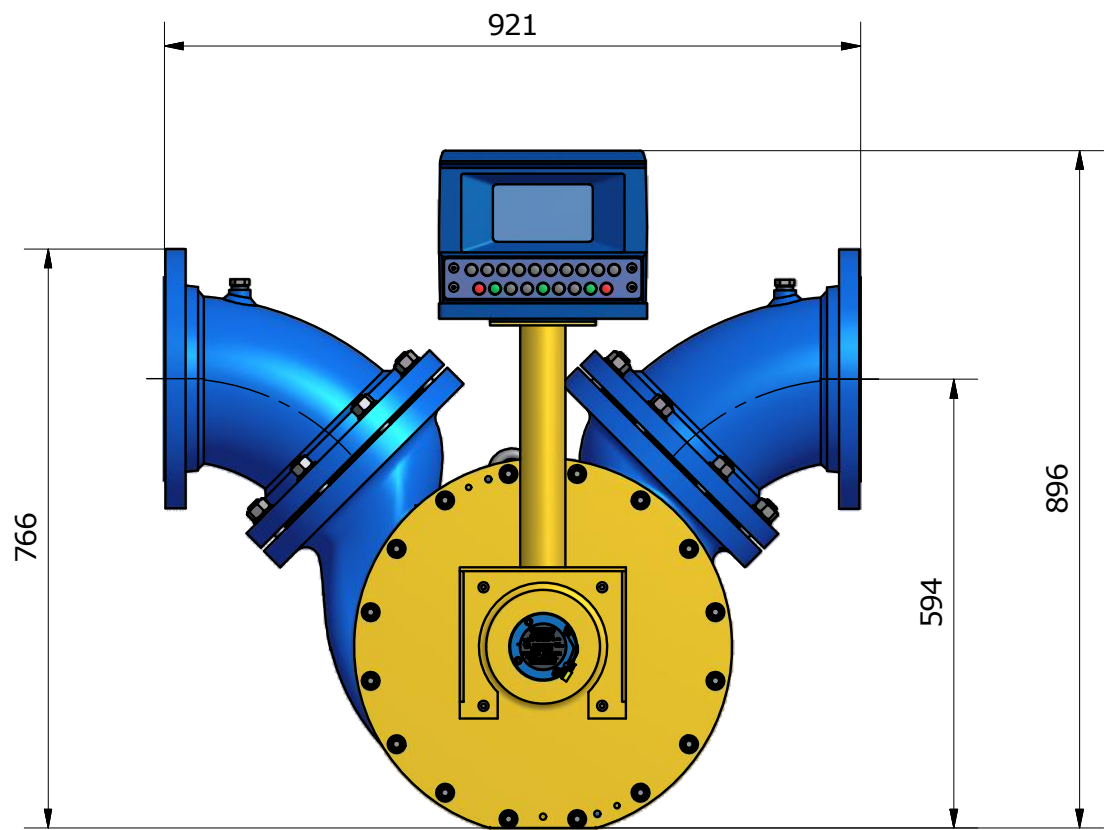
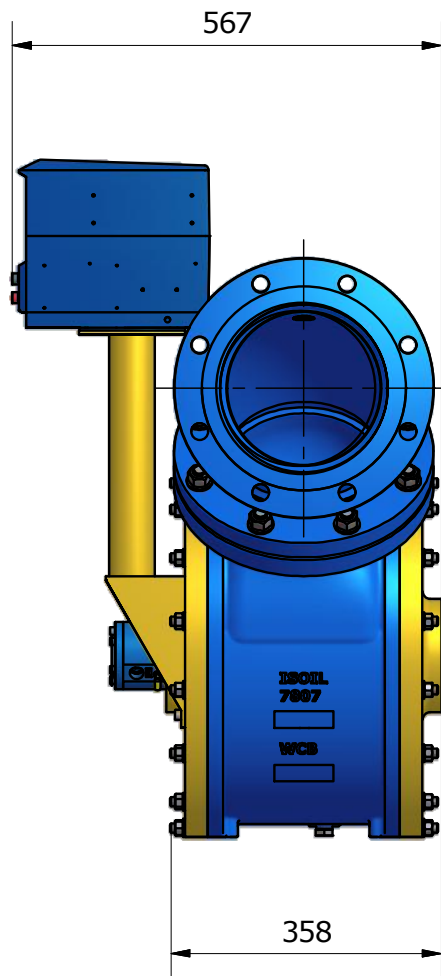
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ISOIL 
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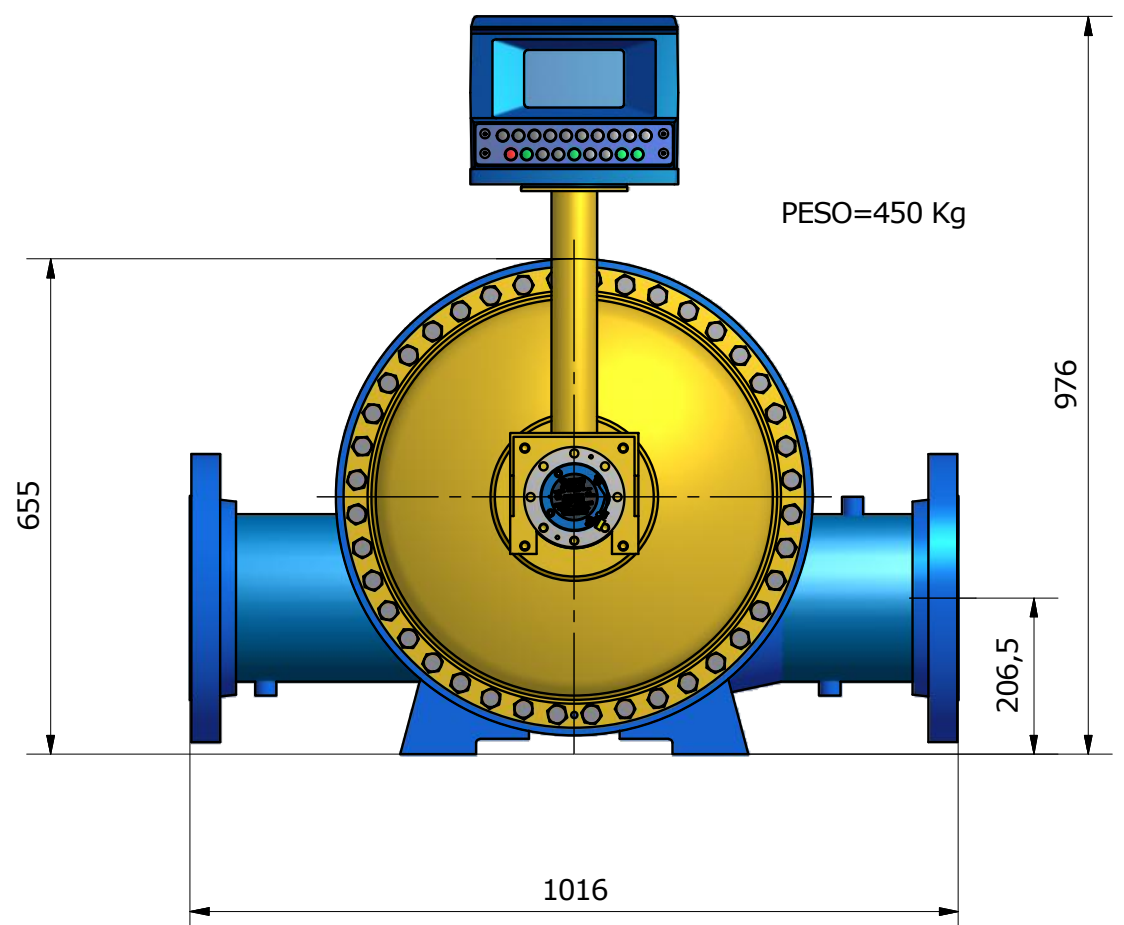
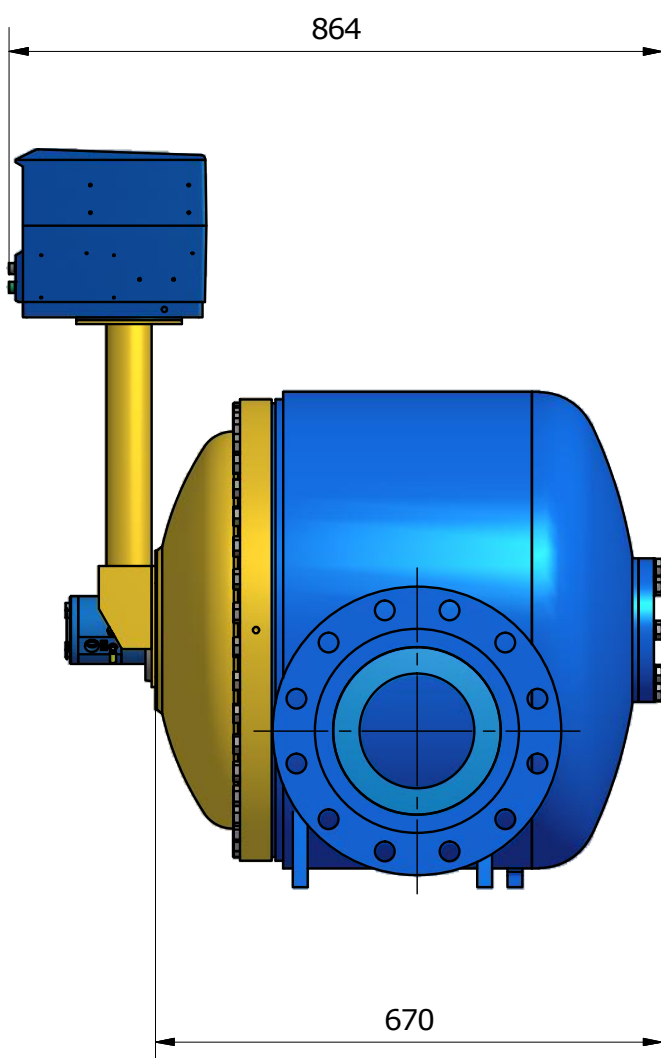
L6 A '%/\$\$'

PESO STIMATO=330 Kg



L6 A '%/\$\$\$'

PESO=450 Kg



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Codice /		Controllato Fontana	Data 22/03/12
ISOIL IMPIANTI Albano Sant'Alessandro (Bg) ITALY	Disegno n° 7800	Formato originale: A3	Scala: / Foglio: 1
	Indice revisioni		Le quote, dove non diversamente indicato, sono espresse in mm
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OGNI FORMA DI RIPRODUZIONE DEL PRESENTE DISEGNO E' VIETATA A TERMINE DI LEGGE PROPRIETA' RISERVATA			ISOIL IMPIANTI S.p.A