

## MECHANICAL DIAPHRAGM METERING PUMPS

*The OBL MB series are mechanical diaphragm pumps with spring return mechanism, eccentric shaft and thrust ring. They combine the working characteristics of a plunger pump with the sealing advantages of a diaphragm pump. Thanks to the quality and simple-design of the diaphragm, these pumps are easy-handling.*

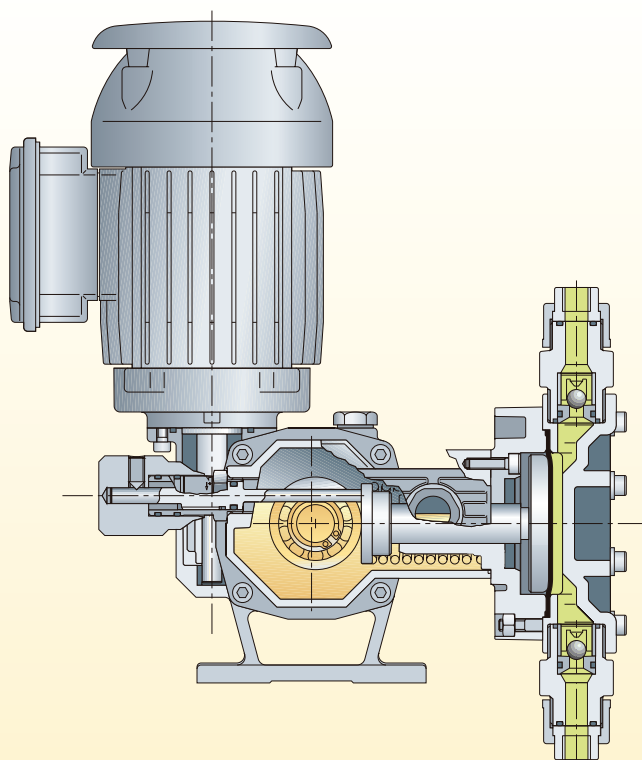
### GENERAL FEATURES

- Diaphragm, economic, robust, compact metering pump.
- The mechanical diaphragm works, both giving the swept volume, acting basically as plunger, and as separator between crank gear and the handled fluid.
- Easy and minimum maintenance required, thanks to the reduced number of components.
- The OBL's unique (patented) mechanical diaphragm design ensures linearity between flow rate and percentage of stroke. The flow rate is virtually unaffected by the working pressure variations.
- Leak-free pump, due to OBL's stress-proof diaphragm.
- High working safety:
  - No external moving parts.
  - Leak-free operations.
- Max suction lift **1,5 m.w.c.** (see operating manual).

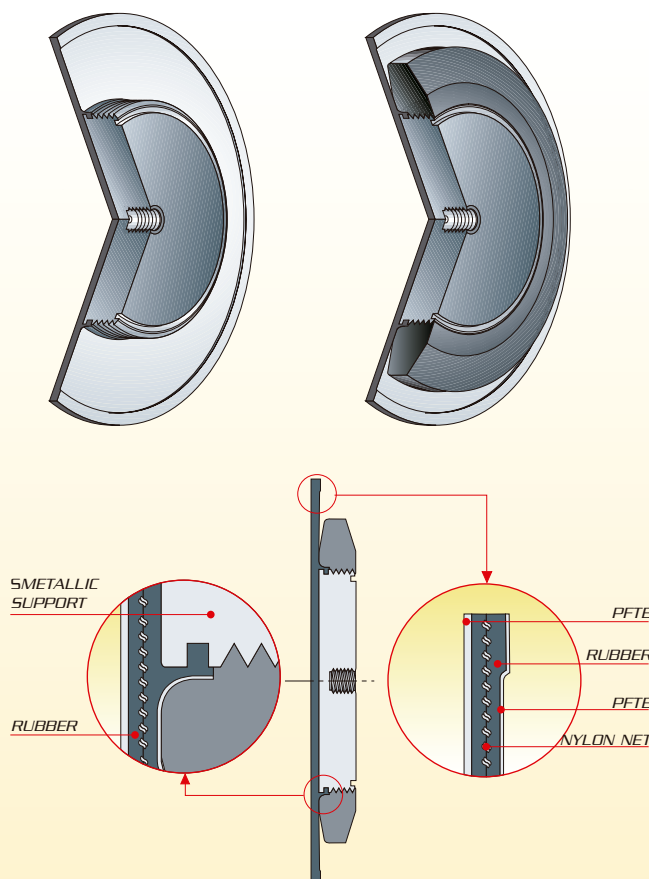


Flow rates: • **155 L/h**  
 Strokes: • **2 mm, 4 mm.**

### SECTIONAL VIEW



### DIAPHRAGM SECTIONAL VIEW



## TECHNICAL DATA

### 50 Hz

TYPE	STROKES / 1"	MAX FLOW RATE l/h	MAX PRESS. BAR		CONNECTIONS			
					THREADED		FLANGED	
			3PH	1PH	PP	A	PP	A
MB11	36	11	12	12	3/8" g.f.- B5PF		DN15	
MB16	50	16	12	12	3/8" g.f.- B5PF		DN15	
MB23	70	23	12	12	3/8" g.f.- B5PF		DN15	
MB31	95	31	8	8	3/8" g.f.- B5PF		DN15	
MB37	115	37	8	8	3/8" g.f.- B5PF		DN15	
MB50	155	50	8	8	3/8" g.f.- B5PF		DN15	
MB35	36	35	6	6	3/8" g.f.- B5PF		DN15	
MB49	50	49	6	6	3/8" g.f.- B5PF		DN15	
MB75	70	75	6	6	3/8" g.f.- B5PF		DN15	
MB101	95	101	6	6	3/8" g.f.- B5PF		DN15	
MB120	115	120	6	6	3/8" g.f.	1" g.f.	DN15	
MB155	155	155	6	6	3/8" g.f.	1" g.f.	DN15	

### 60 Hz

MB9	30	9	12	12	3/8" g.f.- B5PF		DN15	
MB14	43	14	12	12	3/8" g.f.- B5PF		DN15	
MB28	84	28	12	12	3/8" g.f.- B5PF		DN15	
MB36	114	36	8	8	3/8" g.f.- B5PF		DN15	
MB45	138	45	8	8	3/8" g.f.- B5PF		DN15	
MB42	43	42	6	6	3/8" g.f.- B5PF		DN15	
MB58	60	58	6	6	3/8" g.f.- B5PF		DN15	
MB90	84	90	6	6	3/8" g.f.- B5PF		DN15	
MB121	115	121	6	6	3/8" g.f.	1" g.f.	DN15	
MB145	138	145	6	6	3/8" g.f.	1" g.f.	DN15	

## MODEL NUMBER

### KEY TO SYMBOLS

PP	PP CONSTRUCTION
A	AISI-316L CONSTRUCTION
PP11	PP CONSTRUCTION+AISI-316L VALVE AND SEAT
PP32	PP CONSTRUCTION + HASTELLOY C VALVE - INCOLOY 825 SEAT
Z	OBL 4÷20 mA ELECTRIC ACTUATOR
W	3÷15 PSI PNEUMATIC ACTUATOR
F	UNI-DIN FLANGED CONNECTIONS
FA	ANSI FLANGED CONNECTIONS

MB | 37 | PP | F | Z

AISI 316L MB metering pumps with electric actuators Z.



### FlowRate:

- 11÷50 L/h (Stroke 2mm.)
- 35÷155 L/h (Stroke 4mm.)

### Motors:

- Threephase special **0,20** kW  
4 Poles - IP55 - I.C.L.F - 5I - IEC 34-1

Δ	- 230 V - 50 Hz
λ	- 400 V - 50 Hz
Δ	- 220÷290 V - 60 Hz
λ	- 380÷500 V - 60 Hz

- Singlephase special **0,24** kW  
4 Poles - IP55 - I.C.L.F - 5I - IEC 34-1

Δ	- 220÷240 V - 50 Hz
λ	- 110÷115 V - 50 Hz
Δ	- 220÷230 V - 60 Hz
λ	- 110÷115 V - 60 Hz

### Pump:

- Single unit only

### Adjustment:

- 0-10 scale micrometer knob.

### Materials:

- Aluminium casing
- Glass reinforced **PP** pump head **AISI 316L**

### Weight:

- 10÷25 Kgs

## CONTROL SYSTEM

- **Manual:** With 0-10 scale micrometer knob.
- **Electric:** Via **OBL** designed **Z** type electrical actuator.
- **Pneumatic:** By means of a **3÷15** PSI, type **W**, pneumatic actuator

## STANDARD MANUAL ADJUSTMENT

- Adjustment via 0-10 scale micrometer knob.



## ELECTRIC ACTUATOR

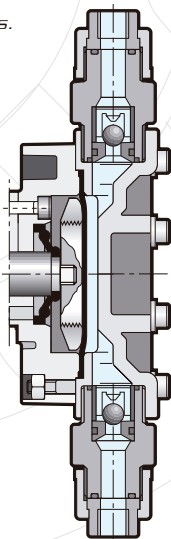
- Capacity automatic adjustment according to:
  - 4÷20 mA
  - 0÷20 mA
  - 20÷4 mA
  - 0÷10 V.
- Pulses:
  - 0,2÷2 Hz
  - 1,5÷30 Hz
- RS 485 communication protocol



## ↓ PUMP HEADS

### ↓ PP

PP heads.  
"PP" execution.  
Threaded connections.

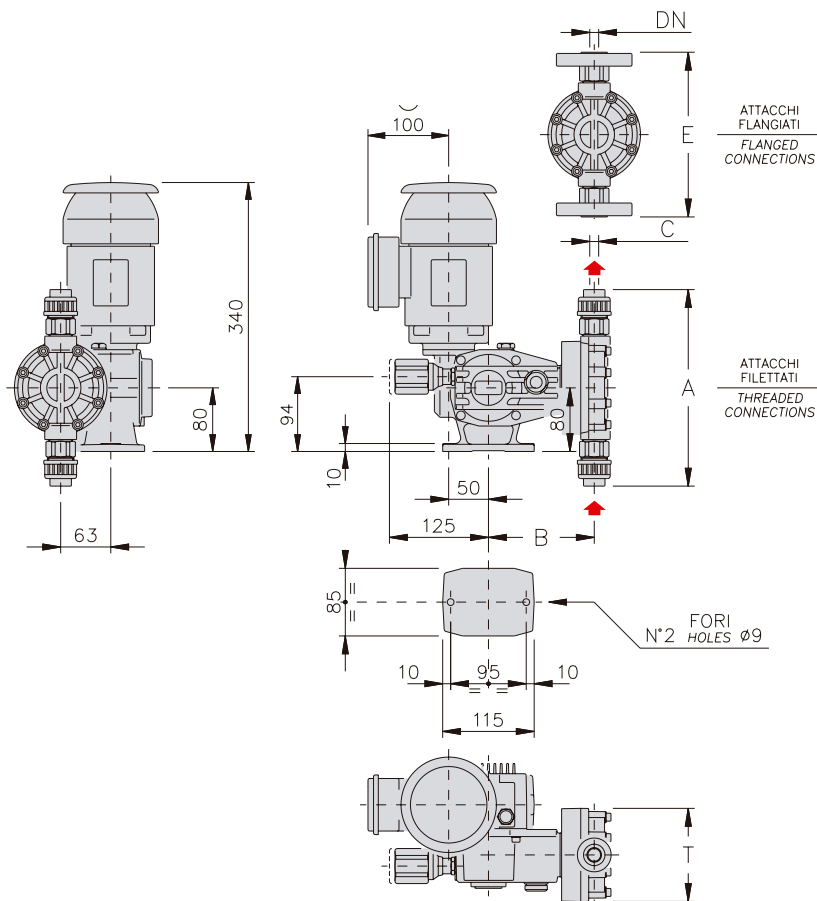


- Single valve ball.
- Suction and discharge connections both threaded and flanged (on demand).
- Max. suction lift 1.5 m.w.c. (see operating manual).
- Max. temperature of dosed chemical: 45 °C.

### ↓ MATERIALS OF CONSTRUCTION

PARTS	PP	PP11	PP32	A
LIQUID END	PP	PP	PP	AISI 316L
VALVE GUIDE	PP	PP	PP	PP
VALVE SEAT	PVC	AISI 316L	INCOLOY 825	AISI 316L
VALVE	PYREX	AISI 316L	HASTELLOY C-276	AISI 316L
VALVE SEAL	VITON (FPM)	VITON (FPM)	VITON (FPM)	VITON (FPM)
VALVE HOUSING	PP	PP	PP	AISI 316L
DIAPHRAGM	TEFLON (PTFE)	TEFLON (PTFE)	TEFLON (PTFE)	TEFLON (PTFE)

### ↓ OVERALL DIMENSIONS



### CONSTRUCTION CHARACTERISTICS

- Glass reinforced PP pump head support ensures chemical compatibility with any dosed liquid.
- Leak-free diaphragm pump head.
- Smooth and linear adjustment, either stationary or running, by means of micrometer knob.
- ± 2% accuracy within 10 to 100% of the nominal flow rate.

- MB series diaphragm metering pump with PP pump head.



TYPE		AISI 316 L					PP					DN	
50Hz	60Hz	A	B	C g.f.	E	T Ø	A	B	C g.f.	E	T Ø	UNI	ANSI
MB11	MB9	166	132.5	3/8" g.f. BSPF	180	114	237	133	3/8" g.f. BSPF	201	117	15	1/2"
MB16	MB14	166	132.5	3/8" g.f. BSPF	180	114	237	133	3/8" g.f. BSPF	201	117	15	1/2"
MB23		166	132.5	3/8" g.f. BSPF	180	114	237	133	3/8" g.f. BSPF	201	117	15	1/2"
MB31	MB28	166	132.5	3/8" g.f. BSPF	180	114	237	133	3/8" g.f. BSPF	201	117	15	1/2"
MB37	MB36	166	132.5	3/8" g.f. BSPF	180	114	237	133	3/8" g.f. BSPF	201	117	15	1/2"
MB50	MB45	166	132.5	3/8" g.f. BSPF	180	114	237	133	3/8" g.f. BSPF	201	117	15	1/2"
MB35	MB42	181	132	3/8" g.f. BSPF	195	129	251	133	3/8" g.f. BSPF	215	133	15	1/2"
MB49	MB58	181	132	3/8" g.f. BSPF	195	129	251	133	3/8" g.f. BSPF	215	133	15	1/2"
MB75	MB90	181	132	3/8" g.f. BSPF	195	129	251	133	3/8" g.f. BSPF	215	133	15	1/2"
MB101		181	132	3/8" g.f. BSPF	195	129	251	133	3/8" g.f. BSPF	215	133	15	1/2"
MB120	MB121	200	133.5	1/2" g.f. BSPF	200	129	251	133	3/8" g.f. BSPF	215	133	15	1/2"
MB155	MB145	166	132.5	3/8" g.f. BSPF	180	114	237	133	3/8" g.f. BSPF	201	117	15	1/2"