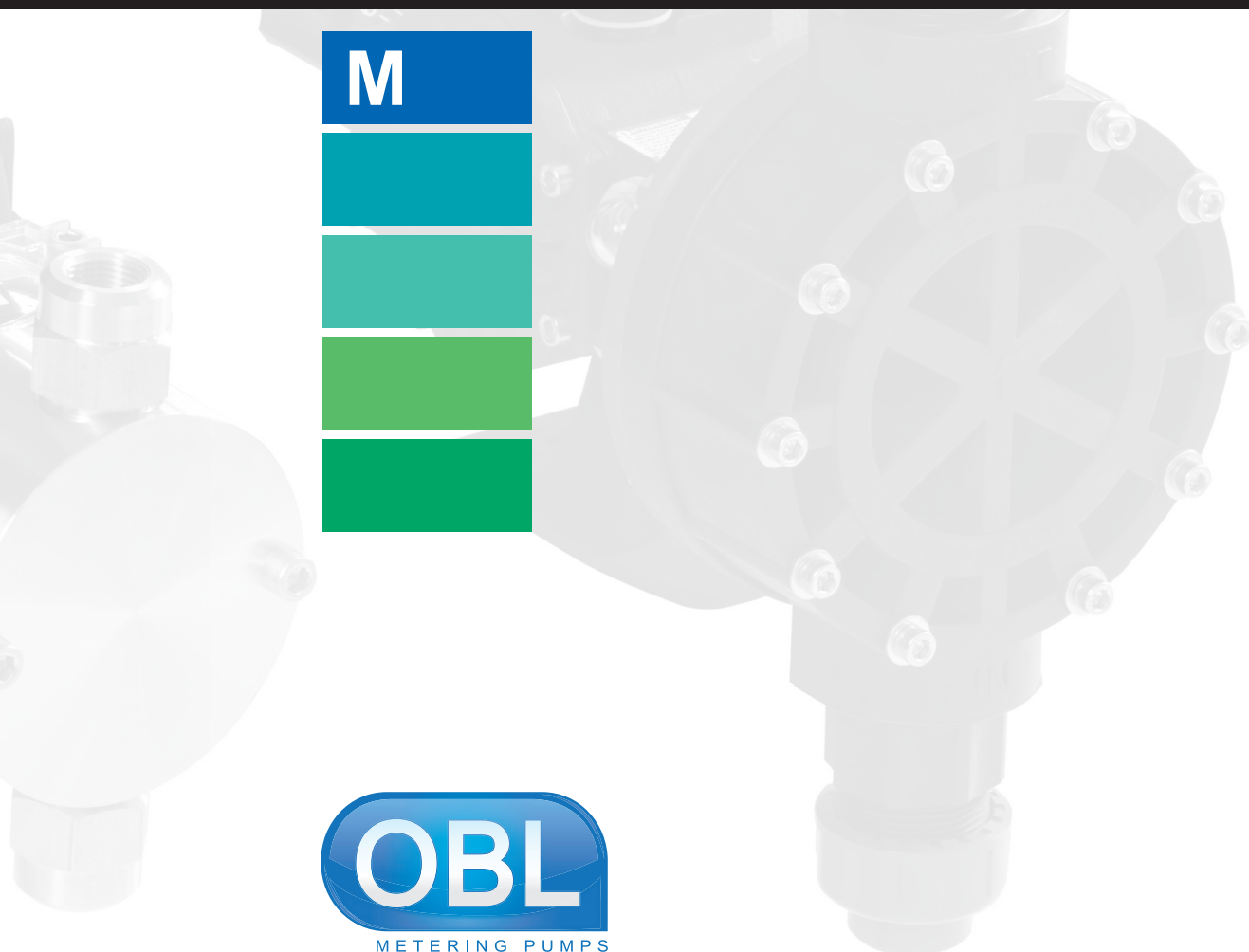




## WATER DIVISION



**Motor UNEL-MEC:**

Motor UNEL-MEC standard 3 phase, 50/60Hz. Single phase and ATEX options available.

**Permits standardization and quick std motor availability on site.**

**Aluminum anodized casing:**

Improved corrosion resistance against aggressive fumes.  
**Extends pump life and lowers life-cycle cost.**

**Spring return mechanism with oversized bearing.**

**Extends pump life and lowers life-cycle cost.**

**Large number of pumphead locking screw (12 pcs in large models).**

**Reliable and effective sealing during operations.**

**3pcs threaded connector (PP models), Metric or Inch standard:**

BSP or NPT thread allows easy and simple connection to pipeline.  
**Reduces cost and time of installation and maintenance.**

**Models with flowrate up to 50 l/h double valve standard, optional on request untill 155 l/h (Ø108mm):**

Increased accuracy when operating at low flow.  
**Enhance application flexibility.**

**Individual gearbox reducer for each pumphead:**

Now you can have pumpheads with different S.P.M.  
**Enhances application flexibility.**

**Individual adjustment for each pumphead:**

Manual adjustment standard via graduate knob or electric actuator as optional available.  
**Enhances application flexibility.**

Multiple unit:  
 All possible combination until 10 pumpheads

**Multi headed option (limit according pump size):**

- different materials (metallic and Non metallic)
- different duty points (max flow rates and pressure)

**Enhances application flexibility.**

**NEW DESIGN****ENHANCED FLEXIBILITY****STURDIER****NEW DESIGN****ATEX**

ALL models comply to ATEX (2014/34/CE) Group II, Category 3 (zone 2/22).

**Injection molded PVDF pumphead:**

PVDF pumphead:  
 Combination of PVDF pumphead, PTFE seats and PYREX check valves provides broad chemical compatibility.  
**Permits standardization on single pump for multiple liquids and applications.**

**PTFE coated cast iron diaphragm chamber (large models):**

Increased resistance in case of liquid spillage to reduce maintenance cost.  
**Extends pump life and lowers life-cycle cost.**

**ATEX**

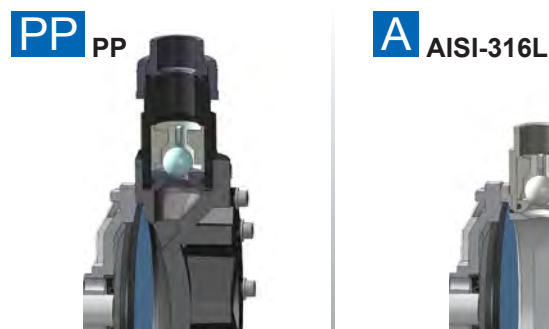
ALL models comply to ATEX (2014/34/CE) Group II, Category 3 (zone 2/22).

Duplex unit with manifolds:  
 To have flowrate up to 1.042 l/h



## Sectional view

### THREADED CONNECTIONS



### FLANGED CONNECTIONS



#### FEATURE & BENEFITS

Valve & Seat material options: Ceramic, Stainless Steel, Incoloy-825, Hastelloy C-276.

Increased performance when handling high density and viscous as well highly abrasive and aggressive fluids while minimizing cost impact.

**Extends pump life and lowers life-cycle cost.**

## Diaphragm Structure

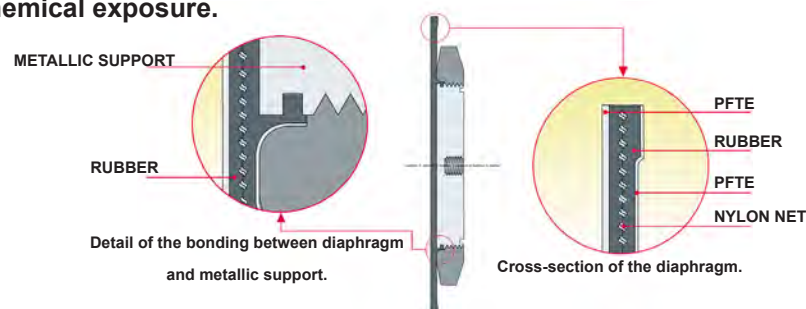
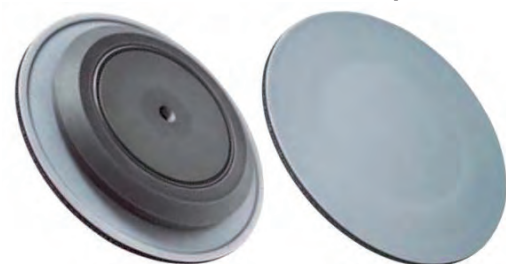
The mechanical diaphragm works giving the swept volume, acting basically as plunger, and as a separator between casing and pumped fluid. The OBL's unique mechanical diaphragm design allows controlled volumetric displacement and ensures linear proportionality between flow rate and percentage of stroke.

#### FEATURE & BENEFITS

PP diaphragm back-support ring:

Protection against discharge overpressure.

**Reduces downtime and cleanup, minimizes chemical exposure.**



## Flowrate linearity

The OBL mechanical diaphragm pump functioning reflect the same linearity of flowrate as a plunger pump.

This peculiarity is highlighted in the flow chart on the side. By the trend of the flow lines is clear the linear proportionality between flowrate and adjustment.

#### FEATURE & BENEFITS

Multiple layer PTFE diaphragm:

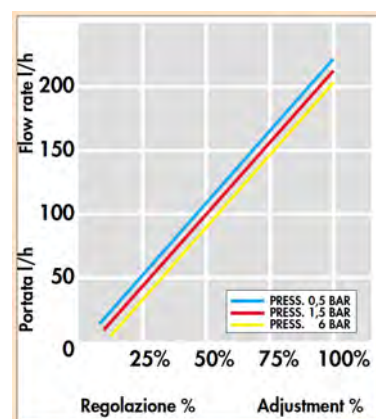
Flowrate is virtually unaffected by the working pressure variations (1% less every additional bar above 1,5 bar).

- Protection against corrosive fume entering diaphragm chamber.

- Reduced friction against back-support ring.

- Leak-free pump, due to OBL's stress-proof diaphragm.

**Extends pump life and lowers life-cycle cost.**



## Markets & Applications

OBL pumps are designed to cover the needs of your system and other applications listed below:

### BOILERS Water Quality Control



- Corrosion Inhibitors (Oxygen scavengers, etc) Anti-scaling reagents.
- Conductivity control (chemistry adjustment) pH control (acids and caustics).
- ORP (Oxidation-Reduction Potential) Anti-fouling and biological growth control (Biocides).

### CHEMICAL



- Various Additive and Reactors (Chemical Reaction Process).
- Drum / Tote.
- Injection, Mixing and much more.

### MINING



- Ore Separation: Leaching process (cyanides, sulphuric acid, solvents, etc.).
- Flotation collectors (polymers, etc). Defoamers emulsifiers. Depressants and Dispersant chemicals (Iron sulfide).
- Dust control (Dosing of wetting chemicals).

### COOLING TOWERS Water Quality Control



- Corrosion Inhibitors, Anti-scaling reagents, pH control (acids and caustics).
- ORP (Oxidation-Reduction Potential) Anti-fouling and biological growth control (Biocides).

### WATER TREATMENT Chemical Addition



- Odors Control (Hydrogen peroxide, Potassium permanganate, Activated carbon).
- Ph control (dosing of acids and caustics).
- Flotation and Clarification (Aluminium Sulfate, PAC, Ferric Chloride).
- Disinfection (Chlorine, Sodium Hypochlorite).

### PULP AND PAPER



- Whitening and Bleaching process (Hydrogen Peroxide, Hypochlorite, Chlorine).
- Sizing (fillers, e.g. starch, polymers), Strengthening (Urea based chemicals, etc.), Pigmentation (dyes, pigments, etc).
- De-inking chemicals in recycling paper process (Sodium silicates, Sodium Hydroxide, Lime, Calcium Chloride, etc.).

## ► Technical data

| Ø DIAPH./<br>STROKE | 50 Hz                         |                      |                       | 60 Hz                   |                  |                      | MAX PRESS. bar |     | CONNECTIONS   |               |               |                       |                       |                       | MOTOR kW   |            |            |            |
|---------------------|-------------------------------|----------------------|-----------------------|-------------------------|------------------|----------------------|----------------|-----|---------------|---------------|---------------|-----------------------|-----------------------|-----------------------|------------|------------|------------|------------|
|                     | TYPE                          | STROKES / 1          | MAX FLOW<br>RATE l/h  | TYPE                    | STROKES / 1      | MAX FLOW<br>RATE l/h |                |     | THREADED      |               |               | FLANGED               |                       |                       |            |            |            |            |
|                     |                               |                      |                       |                         |                  |                      | 3ph            | 1ph | A             | PP            | S562          | A                     | PP                    | S562                  | 3ph        | 1ph        |            |            |
| 2<br>94             | M 7<br>M 11<br>M 16<br>M 23   | 25<br>36<br>50<br>70 | 7<br>11<br>16<br>23   | M 9<br>M 14<br>M 19     | 30<br>43<br>60   | 9<br>14<br>19        | 12             | 12  | 3/8"<br>BSP f | 3/8"<br>BSP f | /             | DN 15<br>1/2"<br>ANSI | DN 15<br>1/2"<br>ANSI | /                     | 0,25<br>KW | 0,25<br>KW |            |            |
|                     | M 31<br>M 37<br>M 50          | 95<br>115<br>155     | 31<br>37<br>50        | M 28<br>M 36<br>M 45    | 84<br>114<br>138 | 28<br>36<br>45       | 10             | 10  |               |               |               |                       |                       |                       |            |            |            |            |
| 4<br>108            | M 35<br>M 49<br>M 75<br>M 101 | 36<br>50<br>70<br>95 | 35<br>49<br>75<br>101 | M 42<br>M 58<br>M 90    | 43<br>60<br>84   | 42<br>58<br>90       | 10             | 10  |               | 1/2"<br>BSP f | 1/2"<br>BSP f | DN 15<br>1/2"<br>ANSI | DN 15<br>1/2"<br>ANSI | DN 15<br>1/2"<br>ANSI |            |            | 0,37<br>KW | 0,37<br>KW |
|                     | M 120<br>M 155                | 115<br>155           | 120<br>155            | M 118<br>M 145          | 114<br>138       | 118<br>145           | 10             | 10  |               |               |               |                       |                       |                       |            |            |            |            |
| 6<br>138            | M 102<br>M 131                | 36<br>50             | 100<br>132            | M 119                   | 43               | 120                  | 8              | 8   | 3/4"<br>BSP f | 3/4"<br>BSP f | 3/4"<br>BSP f | DN 20<br>3/4"<br>ANSI | DN 20<br>3/4"<br>ANSI | DN 20<br>3/4"<br>ANSI | 0,37<br>KW | 0,37<br>KW |            |            |
|                     | M 201<br>M 261                | 70<br>95             | 197<br>260            | M 158<br>M 236          | 60<br>84         | 158<br>236           | 7              | 7   |               |               |               |                       |                       |                       |            |            |            |            |
|                     | M 321<br>M 421                | 115<br>155           | 320<br>420            | M 312<br>M 384          | 114<br>138       | 312<br>384           | 6              | 6   |               |               |               |                       |                       |                       |            |            |            |            |
| 6<br>165            | M 150<br>M 190<br>M 301       | 36<br>50<br>70       | 150<br>200<br>300     | M 180<br>M 228<br>M 360 | 43<br>60<br>84   | 165<br>228<br>350    | 5              | 5   | 1"<br>BSP f   | 1"<br>BSP f   | 1"<br>BSP f   | DN 25<br>1"<br>ANSI   | DN 25<br>1"<br>ANSI   | DN 25<br>1"<br>ANSI   |            |            | 0,37<br>KW | 0,37<br>KW |
|                     | M 431<br>M 521                | 95<br>115            | 435<br>520            | M 519                   | 114              | 515                  |                | 4   |               |               |               |                       |                       |                       |            |            |            |            |

## ► Material of construction

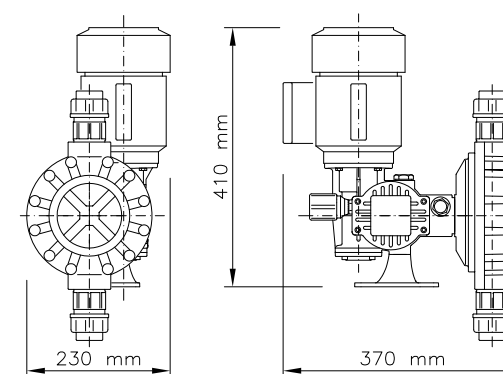
| COMPONENTS    | A         | PP    | PP11      | PP32            | S562  |
|---------------|-----------|-------|-----------|-----------------|-------|
| PUMP HEAD     | AISI-316L | PP    | PP        | PP              | PVDF  |
| DIAPHRAGM     | PTFE      | PTFE  | PTFE      | PTFE            | PTFE  |
| VALVE GUIDE   | PP        | PP    | PP        | PP              | PVDF  |
| VALVE SEAT    | AISI-316L | PVC   | AISI-316L | INCOLOY-825     | PTFE  |
| VALVE (BALL)  | AISI-316L | PYREX | AISI-316L | HASTELLOY C-276 | PYREX |
| VALVE HOUSING | AISI-316L | PP    | PP        | PP              | PVDF  |
| VALVE SEAL    | FPM       | FPM   | FPM       | FPM             | PTFE  |
| FLANGE        | AISI-316L | PVC   | PVC       | PVC             | PVDF  |

## ► Identification code

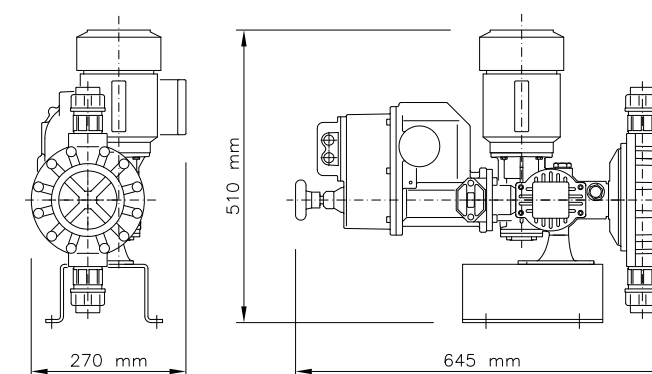
| M 236 PP DV FA ZC |                                                 |
|-------------------|-------------------------------------------------|
| M                 | PUMP TYPE                                       |
| 236               | MAX FLOWRATE l/h                                |
| PP                | PUMPHEAD EXECUTION                              |
| ...A...           | AISI-316L                                       |
| ...PP...          | POLIPROPILENE (PP)                              |
| ...PP11...        | PP + AISI-316L VALVES & SEATS                   |
| ...PP32...        | PP + INCOLOY-825 VALVES & HASTELLOY C-276 SEATS |
| ...S562...        | PP + PTFE VALVES & PYREX SEATS                  |
| DV                | VALVES EXECUTION                                |
| ...SV...          | SINGLE VALVE                                    |
| ...DV...          | DOUBLE VALVE                                    |
| FA                | CONNECTIONS                                     |
| ...B...           | THREADED BSP f                                  |
| ...N...           | THREADED NPT f                                  |
| ...F...           | FLANGED UNI-DIN                                 |
| ...FA...          | FLANGED ANSI                                    |
| ZC                | ADJUSTMENT                                      |
| “...”             | GRADUATE KNOB AND VERNIER                       |
| ...W...           | PNEUMATIC ACTUATOR                              |
| ...Z...           | ELECTRIC ACTUATOR                               |

## ► Overall dimensions

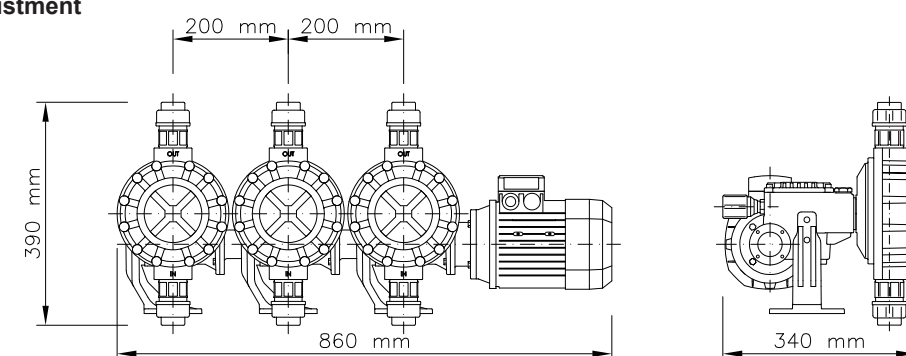
SINGLE PUMP - Manual Adjustment



SINGLE PUMP - Electric Actuator Adjustment



MULTIPLE PUMP - Manual Adjustment



## ► Safe area

On all pumps M, ME, R, XRN it is possible to automate the control system by installing the OBL's electric actuator Z type (ZC or ZP).

### ELECTRIC ACTUATOR CHARACTERISTICS

- IP 66 standard
- 115/230V – 1 – 50/60 Hz
- 4-20 mA feedback signal
- Manual emergency override
- Anticondensation heater (on demand)
- External automatic/manual selector (on demand)
- Flow-rate limiter (Q.max trimmer) allows to reduce the pump maximum flow-rate (corresponding to 20 mA command signal) up to 50% of the nameplate rated capacity.

The flowrate is adjusted according to following input signals:

- 4-20 mA, 0-20 mA, 20-4 mA and 0-10 V
- Pulses (0÷2 Hz - 0÷30 Hz)
- RS 485 communication protocol
- Profibus DP-V0



## OBL DESIGN

## ► Hazardous Area: ATEX version

On request the pumps M, R, XRN can be made comply with the requirements of the ATEX European Directive. Even the control system can be comply with that Directive, by installing the ATEX electric actuator Z type (ZR or ZG).

### ELECTRIC ACTUATOR CHARACTERISTICS

- ATEX II 2GD EEx-d IIB T4 IP6X
- 115/230V – 1 – 50/60 Hz
- Manual emergency override
- Anticondensation heater (on demand)
- 4-20 mA pilot signal
- 4-20 mA feedback signal



## ATEX

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