

# *OptiFlo*

*Air Operated Diaphragm Pumps*

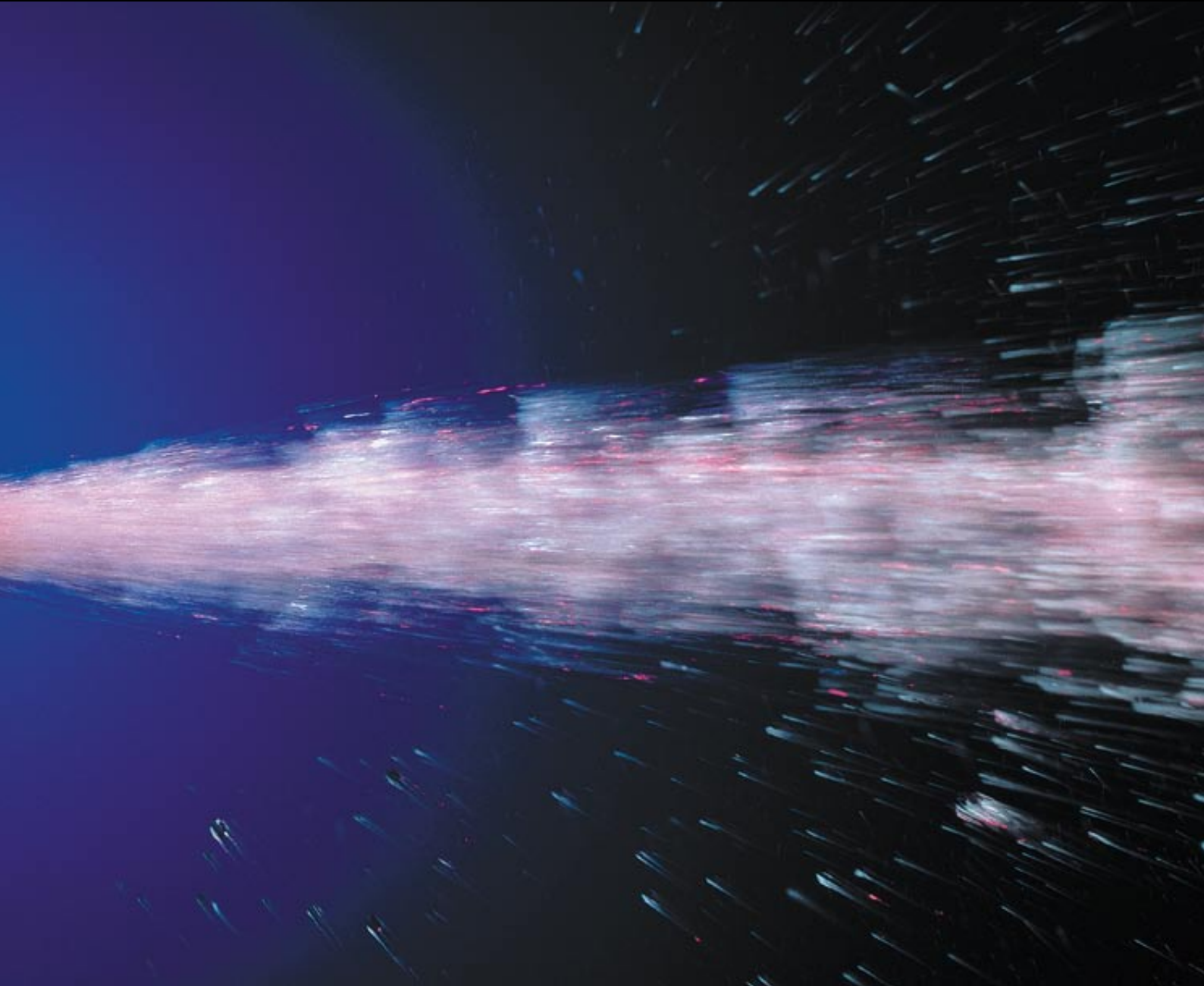


# Reduced pulsation



*Johnson Pump has solved the problems inherent in conventional AODD pumps. How? With revolutionary new technology that we have incorporated into our latest innovation – OptiFlo.*

# on – efficient flow



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## The five steps to our unique AODD solution

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**Step 1:** Develop a new non-stalling air motor that works with all types of air – dry, moist, dirty or oily – without icing problems.

**Step 2:** Invent a new type of air valve – an ingenious pneumatic device that switches the distribution of air between the air chambers in a fraction of a second.

**Step 3:** Design a central flow path, giving less hydraulic loss and reduced air consumption.

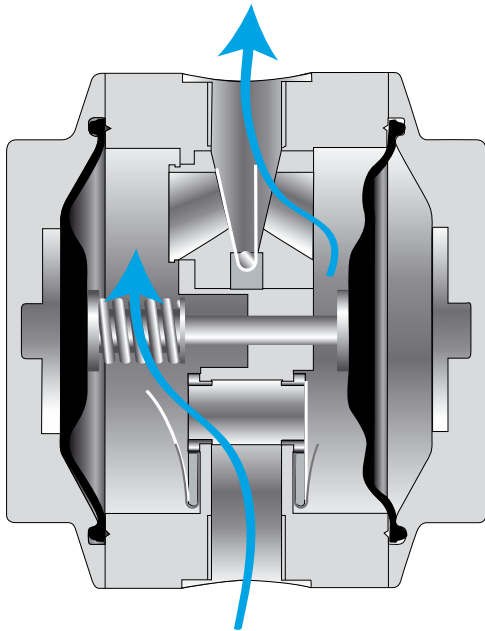
**Step 4:** Develop a flexible diaphragm suspension, which eliminates “dead ends” and gives lower pulsation.

**Step 5:** Replace the usual noisy ball valves with flap valves, thereby reducing pulsation and improving the suction capability.

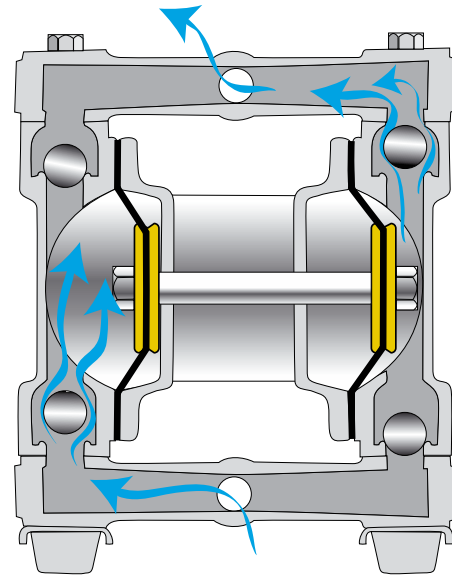
These five steps together create an engineering high tech OptiFlo! The challenger that improves and

# The OptiFlo way

**Central flow in OptiFlo**



**Peripheral flow in a conventional AODD pump**



## New solutions to old problems

AODD pumps haven't really changed much over the years. The basic design has remained the same. Until now! With OptiFlo, Johnson Pump can introduce a new way of thinking.

Johnson Pump has invested a lot of time in product development, searching for innovative solutions to existing problems.

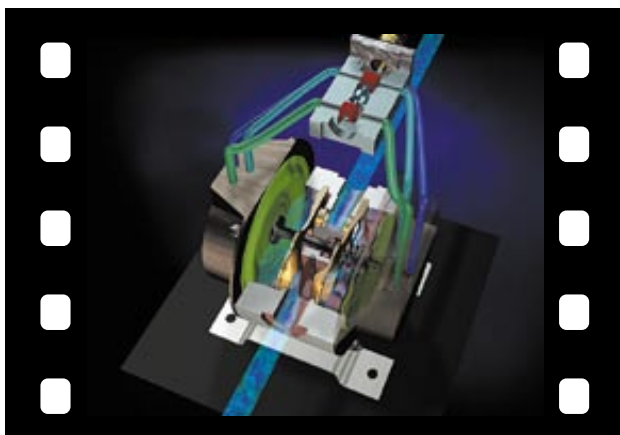
Radical new concepts, much imagination and several patented inventions were needed. The result?

A compact and robust AODD pump with lower pulsation that works silently and gives better performance at a lower life cycle cost.

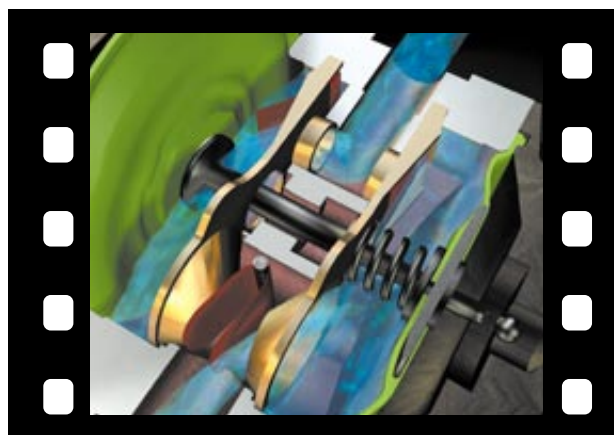
|  |   |
|--|---|
| Lower pulsation gives a strong, even flow, and less vibration. This results in better performance at a lower cost. | Extremely compact design with centre flow - perfect for built in applications.  |
| Central flow path minimises energy losses and reduces air consumption.   | Pneumatic controlled Airmotor with self-sealing port elements eliminates any demand for cleaned air supply.                                   |
| Flap valves are silent – no rattle – and allow the pump to operate in any mounting position.                       | On-line design – instant change of all wear parts on site.  |
| Simple design makes servicing, by unskilled personnel, easier and more cost effective and reduces down time.       | The FDS (Flexible Diaphragm Suspension) technology minimizes the stress on the diaphragms and hence increases the service life substantially. |



# The OptiFlo challenge



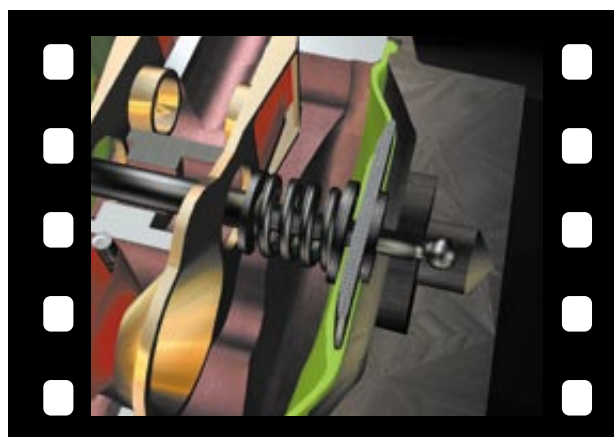
A closer look inside OptiFlo clearly shows why, in every respect, OptiFlo is a completely breakthrough in AODD pump design. A design that is simple and compact, yet full of new patents and smart solutions.



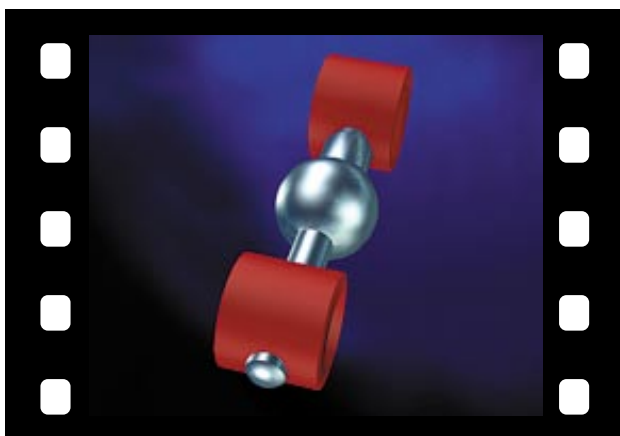
Instead of forcing the fluid round four transverse directions, OptiFlo pumps it straight through on a central flow path. This reduces hydraulic losses and gives a stronger, even flow. The principle is simple – straightforward is best!



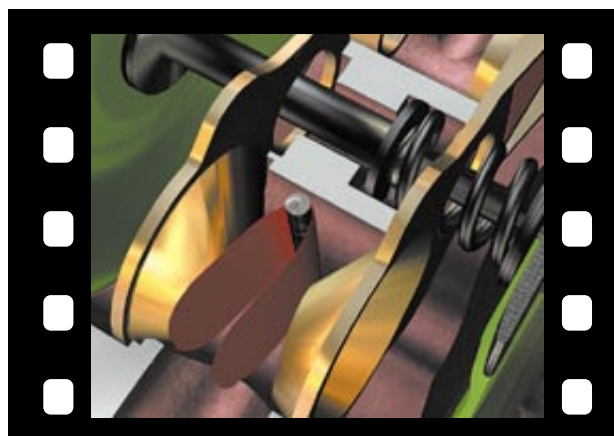
The new self-cleaning and non-stalling pneumatic air motor works with any kind of air — dry or moist, dirty or oily.



The patented Flexible Diaphragm Suspension (FDS technology) is one of the keys to the low pulsation of OptiFlo. The diaphragms are not fixed to the shaft, thus creating an overlapping motion and a low-pulsating, even flow.



The Frictionless Pivoting Valve (FPV technology) is an ingenious innovation. The design facilitates the very fast switches in direction of air distribution that are needed to keep the diaphragms in overlapping motion. A new patent and a breakthrough for AODD pumps.

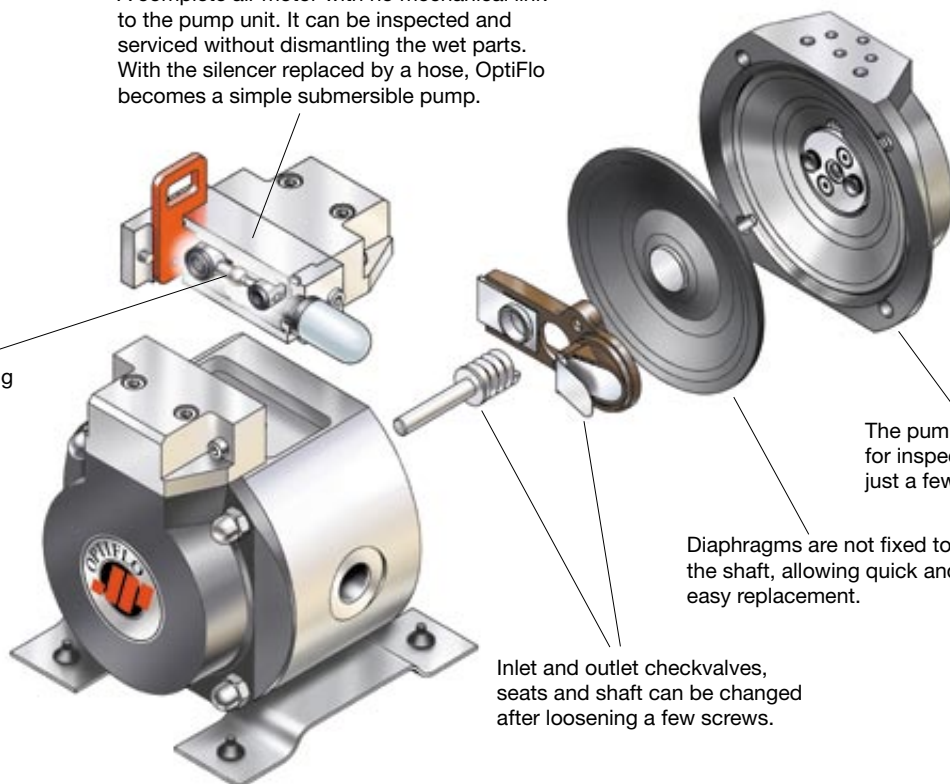


Flap valves work in all positions, and OptiFlo can therefore be mounted upside down if necessary. Flap valves are quiet – unlike the traditional ball valves with their noisy rattles. They also handle solid particles better.

# Can be opened in next to no time

A complete air motor with no mechanical link to the pump unit. It can be inspected and serviced without dismantling the wet parts. With the silencer replaced by a hose, OptiFlo becomes a simple submersible pump.

The heart of the air motor, the FPV (Frictionless Pivoting Valve), is easily accessible.



The pump can be opened for inspection or service in just a few minutes.

Diaphragms are not fixed to the shaft, allowing quick and easy replacement.

Inlet and outlet checkvalves, seats and shaft can be changed after loosening a few screws.

OptiFlo is very easy to install and maintain thanks to its compact and well thought-out design. With a few turns of the wrist, you can quickly open the pump and access its vital parts. Service and maintenance of traditional AODD pumps are costly and time-consuming. But with OptiFlo, that's a thing of the past. And because OptiFlo works in any position, there are no restrictions on how you mount it.

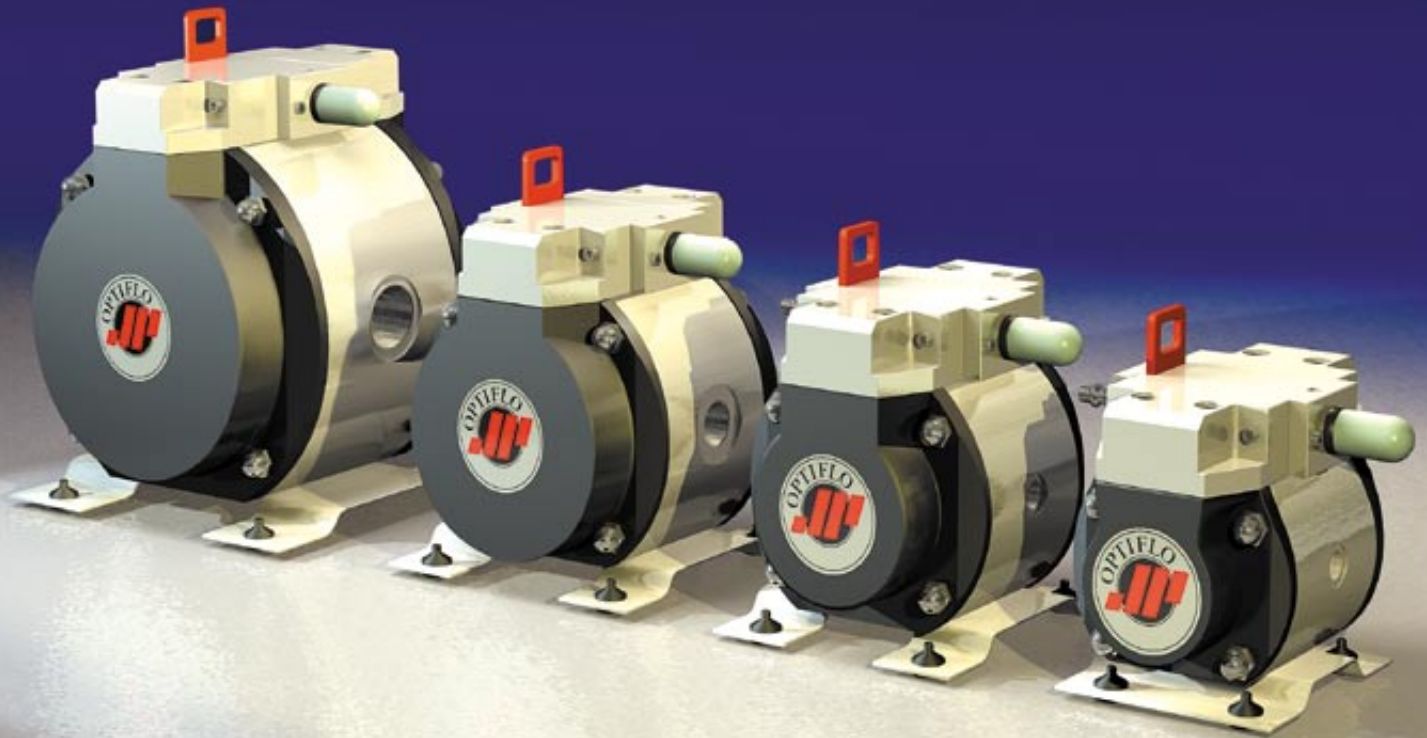
## Works in closed systems

Thanks to the central flow principle and the fact that the diaphragms are not fixed to the shaft, they do not come under excessive stress from the system pressure if the air supply fails. Thus, OptiFlo can be integrated into closed pumping systems.

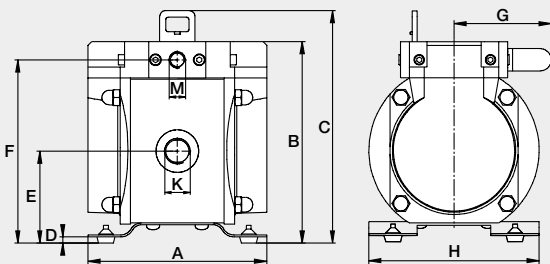
## APPLICATIONS

OptiFlo will give you better performance at lower cost.  
Here are some examples of where and when OptiFlo can be used.

| INDUSTRY                          | APPLICATION/PRODUCT  | INDUSTRY          | APPLICATION/PRODUCT                                    |
|-----------------------------------|--|-------------------|--|
| Construction/<br>General Industry | Draining of tanks and sumps, sampling, fuels   | Pharmaceuticals   | Syrups, alcohol, glycerine, oils, sorbitol             |
| Aviation                          | Filling/emptying of fuel and glycol  | Workshops         | Oil, coolants, waste oil                               |
| Paint Industry                    | Solvents, resin, paint, wood preservatives, varnish, stain, latex, acetone, turpentine | Water Industry    | Polymers (flocculants), sludge, chemicals, sampling    |
| Chemical Industry                 | Acids, alkalies, suspensions, stabilisers, resins, waste recovery, solvents, glues     | Paper Industry    | Ink, solvents, resin, dispersions, latex, glues        |
| Cosmetics                         | Body/skin lotions, shampoo, soap emulsions, lotions, liquid soap                       | Refineries        | Tank cleaning, oil sludge, petroleum                   |
|                                   |  | Surface Treatment | Galvanic baths, solvents, acids, caustic soda, varnish |
|                                   |  | Marine            | Dewatering bilges and holds, sewage                    |

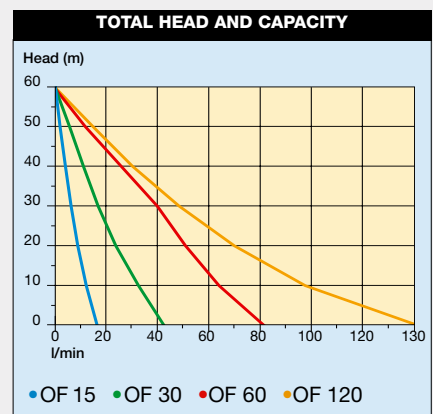


# Technical specifications



| DIMENSIONS |     |     |     |     |      |     |     |     |        |      |
|------------|-----|-----|-----|-----|------|-----|-----|-----|--------|------|
|            | A   | B   | C   | D   | E    | F   | G   | H   | K      | M    |
| OF 15      | 147 | 123 | 140 | 2.5 | 53   | 110 | 100 | 141 | 1/4"   | 3/8" |
| OF 30      | 147 | 145 | 170 | 2.5 | 64.5 | 130 | 100 | 141 | 3/8"   | 3/8" |
| OF 60      | 147 | 164 | 189 | 2.5 | 74   | 149 | 100 | 141 | 3/4"   | 3/8" |
| OF 120     | 178 | 210 | 235 | 2.5 | 97   | 195 | 100 | 184 | 1 1/4" | 3/8" |

| TECHNICAL DATA            |  |  |  |  |
|---------------------------|--|--|--|--|
| DATA                      | OF 15                                      | OF 30                                      | OF 60                                      | OF 120                                     |
| Max capacity (l/min)      | 20   | 40   | 80   | 130  |
| Max pump pressure (bar)   | 7  | 7  | 7  | 7  |
| Max air pressure (bar)    | 7  | 7  | 7  | 7  |
| Weight version PP/AL (kg) | 1.8/2.5                                    | 2.7/3.7                                    | 3.6/4.9                                    | 6.9/9.8                                    |
| <b>MATERIAL</b>           |  |  |  |  |
| Pump housing              | PP or Al                                   | PP or Al                                   | PP or Al                                   | PP or Al                                   |
| Diaphragm                 | PTFE (standard)<br>NBR, EPDM<br>on request | PTFE (standard)<br>NBR, EPDM<br>on request | PTFE (standard)<br>NBR, EPDM<br>on request | PTFE (standard)<br>NBR, EPDM<br>on request |







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