

# Diaphragm pumps

## most versatile pumps on the market

### ■ Working principle

Tapflo diaphragm pump is driven by compressed air. Two diaphragms are working simultaneously to prime and push the liquid through the pump system. Valve balls work as check valves to let the liquid through in the right direction.

During each cycle the air pressure on the back of the discharging diaphragm is equal to the head pressure on the liquid side. Tapflo diaphragm pumps can therefore be operated against a closed discharge valve with no adverse affect to the life of the diaphragms.

#### Suction

One diaphragm creates a suction action when being pulled back from the housing.

DISCHARGE

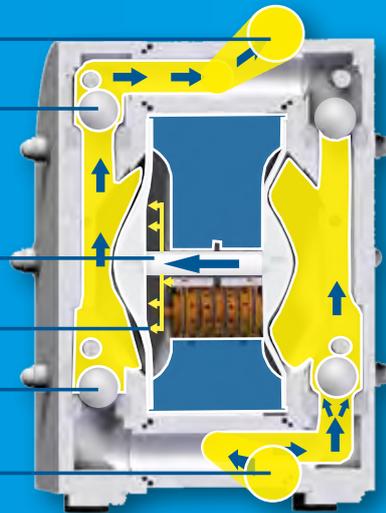
OPEN

DIAPHRAGM STROKE

AIR

CLOSED

SUCTION



#### Discharge

The other diaphragm simultaneously transmits the air pressure to the liquid in the housing, pushing it towards the discharge port.

### ■ Fast facts

<b>Capacity</b>	<b>0-820 l/min</b> 0 - 216 US gal/min	<b>Pump materials</b>	PE, PTFE, aluminium, cast iron ,stainless steel AISI 316L, and PTFE coated aluminium
<b>Pressure</b>	<b>0 - 8 bar (max 16 bar for TF series)</b> 0 - 116 PSI (max 200 PSI for TF series)		
<b>Connection sizes</b>	<b>1/4" up to 3" (DN8 - DN80)</b>		

### ■ Features & Benefits

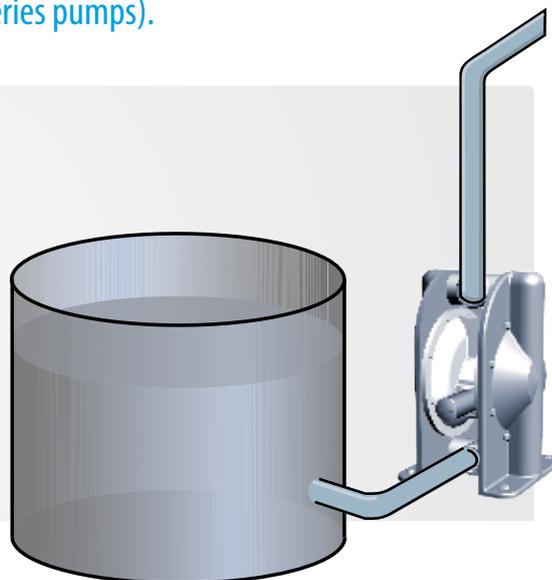
- ✓ **Run dry without damage**  
Easy to use, no need of guarding device
- ✓ **Infinitely variable flow control**  
Flexible and easy to adjust
- ✓ **Self priming up to 5 m from dry suction pipe**  
More options of installation
- ✓ **No electricity needed**  
Explosion proof versions  
Ex-zone 1 available  
(ATEX group II, cat 2)
- ✓ **Few components**  
Low down time and maintenance costs
- ✓ **Solid, strong and long life design**  
Low maintenance costs
- ✓ **Lubrication free air distribution system**  
Saves the environment from pollution
- ✓ **Air operated**  
Can run against a closed pipe or closed valve without damage. Easy to install without special training (no electricity)

## How to install Tapflo pumps

The Tapflo pumps are flexible in their ease of installation. The in- and outlet ports are infinitely turnable more than 180° to fit your piping system (PE & PTFE and metal series pumps).

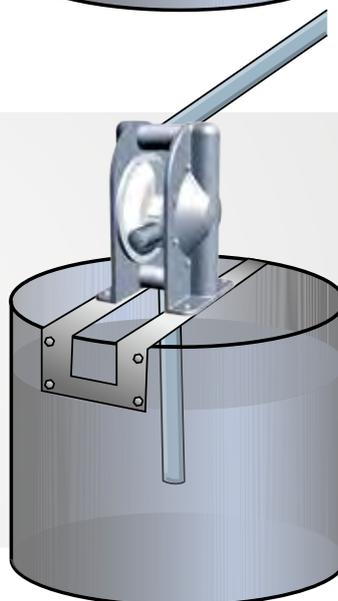
### Flooded

The piping system is designed with a positive suction head. This is the best way of installation where it is necessary to completely evacuate all liquid from the container, or where viscous (thick) products are transferred.



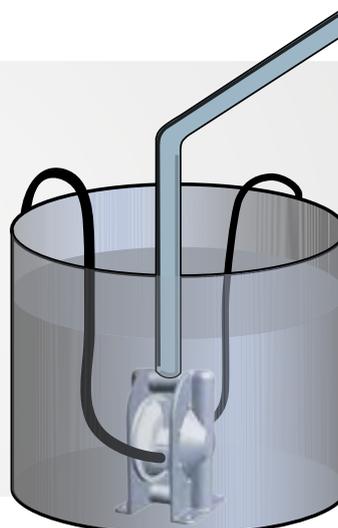
### Selfpriming

The Tapflo pump is designed to pull a high vacuum. It is able to evacuate an empty suction pipe without any damage to the pump. The suction lift is up to 5 meter (16.4') from an empty suction pipe and up to 8 meter (26.2') from a wetted pipe. The suction capability depends on the pump size (see pages 16, 23, 28).



### Submerged

All Tapflo pumps may be submerged into the liquid. It is important to make sure that all components which are in contact with the liquid are chemically compatible. The air exhaust must be led to the atmosphere by means of a hose.



## Key components of the Tapflo pump

Three major components are especially vital for the function of the pump...

### Long life diaphragms

With our experience of diaphragm manufacturing since the early start, we are able to supply unique technology compression molded diaphragms of utmost quality.

Tapflo diaphragms are of composite construction, superior for continuous heavy duty service, with a completely smooth surface in contact with the liquid. This results in no leak through and a diaphragm which is easy to keep clean.

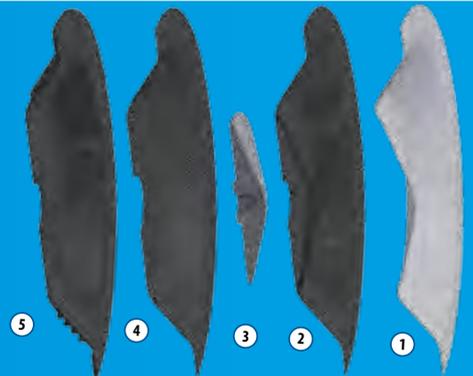
The diaphragms are available in various materials and colours to suit any requirements, they are made from PTFE TFM, PTFE TFM modified for solvents, EPDM, NBR or FKM.



### ■ Composite construction

An advanced process of performing, curing, trimming and finishing result in a long life composite diaphragm that will last for many millions of stroke cycles. All compounds are specially developed and optimized for composite diaphragm technology and compression molding production. Components are chemically bonded by bonding agents and adhesives.

- (1) PTFE TFM layer | (2) Elastomer upper half | (3) Core (metal)
- (4) Fabric | (5) Elastomer lower half



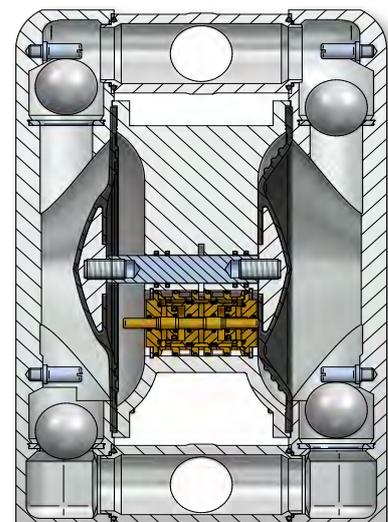
### Energy saving drive

The air valve is the driving heart of the pump, distributing the compressed air to the chambers behind the diaphragms. The air valve is placed in the middle of the pump between the diaphragms, to achieve short air ways and a minimum of so called dead volumes. This all together is the key to a reliable and energy saving drive.

The Tapflo air valve has no deadlock position – the pump will always start automatically when air is supplied to the pump.

The valve body is made from brass or optional PET or stainless steel AISI 316.

It is made for maintenance free duty with no lube air, thanks to the ingenious sealing system. It will not only save your money for lubrication, it will also protect environment from pollution.



## Ball check valves

The Tapflo pump is fitted with four check valves, making sure that the liquid is transferred in the right direction through the pump.

The ball type valve is the most simple and reliable valve design. It has a good sealing capability and is easy to keep clean and to replace if necessary.

The ball valve materials are available in EPDM, NBR (nitrile), PTFE, AISI 316, polyurethane and ceramic to suit any kind of liquid.



## Flap valves (Sanitary pump only)

Flap valves are used when pumping liquids containing big solids without damage. We are able to pump solids up to 50 mm in both T225 and T425 pump sizes and an impressive 100 mm in the T825 4" pump. Pumps can reach dry suction lift of 4,5 meters.

Tapflo flap valves are durable, have only two spare parts and are hygienic thus easier to clean.



## Magnetic ball lifters (Sanitary & EHEDG pump only)

Possibility to drain the content of the pump is crucial in most hygienic applications. Ball lifting system from Tapflo could not have been easier.

Magnetic ball lifters are implemented in Sanitary and Aseptic EHEDG series AODD pumps, to enable pump emptying without removing it from the installation when no other draining option is available. Rotating the pump is no longer needed.



Valve ball

Magnet lifter

Manifold



### ■ Working principle

Valve ball, either made of AISI 420 or PTFE with steel core, is lifted by magnet lifter attached onto the manifolds.

