

Tapflo Metal Air Operated Double Diaphragm Pumps



The Tapflo Metal Series of Air Operated Double Diaphragm Pumps are cast from Aluminium, Cast Iron, Stainless Steel AISI 316 & PTFE Coated Aluminium and are suitable for handling any kind of liquid whether it is viscous, chemically aggressive or containing abrasive solids.

Thanks to Tapflo's innovative, simple & ingenious design these pumps are compact, robust & reliable. Furthermore, they are quick & easy to maintain, keeping your service costs and process down time to an absolute minimum.

When used in conjunction with Tapflo's patented control and monitoring equipment, preventive and routine maintenance is also easily integrated into any process, whilst also enabling accurate and precise control of the pump's performance. Optimising your system to the best of its ability!

Aluminium & Cast Iron Pumps

Ideally suited for the transfer of pH-neutral fluids, both thin, thick, solid laden or abrasive. The aluminium and cast iron pumps are found in most fields; work shop and paint industries, purifying plants etc., to mention only a few. They are also widely used for the transfer and batching of hydrocarbons such as diesels and varying oils such as lube oils, hydraulic oils & gear oils.

Stainless Steel AISI 316 Pumps

Cast via the "lost wax" method, ensuring greater accuracy and finish quality, the stainless steel pumps combine great mechanical strength with good chemical resistance. Stainless Steel AISI 316 is resistant to aggressive liquids like nitric acid and sodium hydroxide. The centre unit, which is not in contact with liquid,

is made from corrosive resistant polypropylene (PP) as standard (other materials are available upon request such as carbon impregnated PP, Aluminium & Stainless Steel AISI 316).

ATEX Rated Pumps

All of our metal pumps are available in ATEX rated versions and are supplied with an earthing connection and conductive centre sections and Diaphragms (PTFE or EPDM).

Certificates & Approvals:



EN 10204

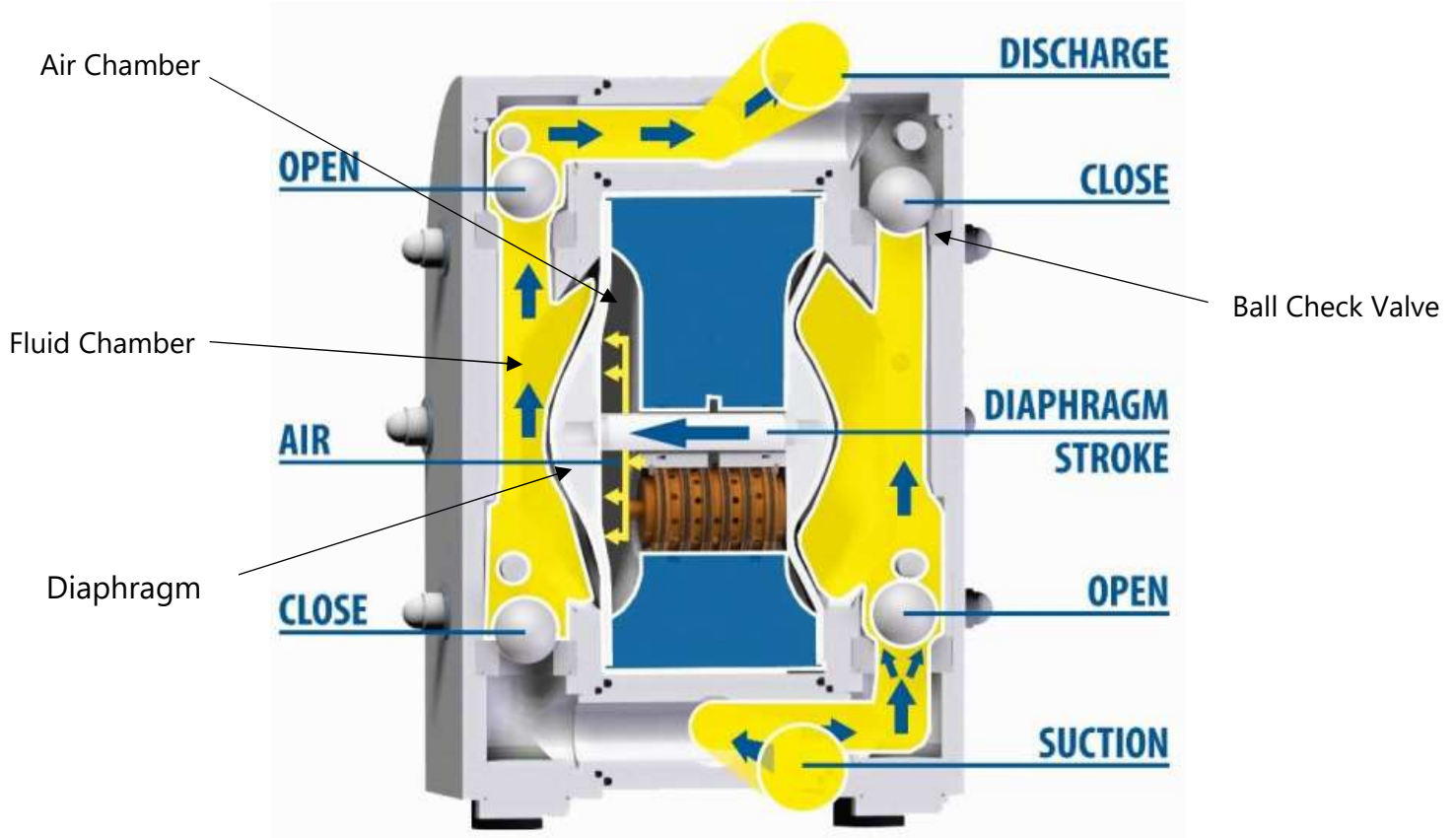


Typical Applications:

The Tapflo Air Operated Diaphragm Pumps are ideally suited to a plethora of applications in numerous industries, such as:

Workshops:	Oil, fat, solvents, water, cooling fluid, lubricants
Print & Paint:	Glue, additives, varnish, ink, paint, latex, acid, resins, pigments
Mining & Construction:	Adhesives, sump, dewatering, coal sludge, pastes
Ceramics Industry:	Abrasives, glaze, water, enamels, clay
Chemical:	Acids, alkalis, alcohol, solvents, latex, emulsions

Operating Principle:



An Air Operated Diaphragm Pump is principally made up of 2 Liquid Chambers, 2 Air Chambers and 2 Diaphragms. The Liquid and Air Chambers are separated by a Flexible Diaphragm.

Compressed Air is supplied to the air valve which distributes the air from the Centre Block, where 2 ports direct the flow of air to the right and left side Air Chambers.

The same air pressure from the air supply is directly applied to the back side of one of the Diaphragms, forcing it forward and therefore the medium out of the Fluid Chamber, lifting the Ball Check Valve and out of the Discharge Port (2), with equal pressure to that which is supplied.

The Diaphragms are connected by a shaft which is screwed into the centre of each. As one of them is forced forward the other is pulled towards the Centre Block, causing a vacuum effect on the suction side. The medium is subsequently drawn through the Suction Port (1) and into Fluid Chamber.

The Air Valve automatically transfers the air pressure to the opposing side at the end of each stroke, reversing the action. Hence the term 1:1 reciprocating pump.

The Ball Check Valves alternately Open & Close in unison with the reciprocating action of the diaphragms. Enabling filling of the Fluid Chambers and preventing back flow through the pump. A variety of Balls can be supplied to provide both chemical resistance and different weights to suit the viscosity of the medium.

General Benefits to Air Operated Diaphragm Pumps:

- Run Dry without damage – No need for dry run protection devices
- Infinitely variable flow control – achievable by adjusting the air flow to the pump via a blocking needle valve
- Air Operated – Inherently safe and simple to install, no special training required.
- Self-priming up to 9 m, when wetted
- Solids Handling & resistant to abrasion
- Can handle both thin and viscous fluids
- Can operate against a closed valve without damage – the pump will simply stall
- Available in a wide variety of materials to suit almost any fluid
- Sealless – no mechanical seal, which is the weakest point on any type of pump
- Decent volumetric efficiency – enables them to be used in batching and metering applications
- Relatively low initial cost
- Simple maintenance and low cost of ownership
- Wide range of installation possibilities
- Discharge Pressures up to 8 bar as standard, 16 bar when being used with a booster

Tapflo Design Features & Benefits:

The pump has been innovatively designed with up to 70% fewer parts than other Air Operated Diaphragm Pumps on the market. Fewer components means a pump which is compact as well as easy & quick to maintain. The result is lower service costs and process down time.

Durable Valve Seats

The Valve Seat in any Diaphragm Pump is under constant stress from the movement of the valve ball. To obtain the best wear resistance the integrated seat in Tapflo Air Operated Diaphragm Pumps is made from Stainless Steel AISI 316 and is held in place via grub screws or easy replacement of valve balls. No special tools are required, only an Allen Key and some masking tape!



Flexible to almost any Installation

The connections may be rotated 180°. Simply turn the connections to fit your piping system. Threaded BSP or NPT plastic connections are standard, flanged to DIN / ANSI standards are also available as well as CAM Lock with Isolation Valves and Quick Release.

Low Air Consumption

The Air Distribution System is designed with shortest possible air distribution ways. This eliminates "dead spaces" and keeps air losses to a minimum, resulting in high efficiency and low air consumption.

The Air Valve is design for non-lubricated air and is available in Brass, Stainless Steel, PET or EPDM to suit different environments and applications.

Materials Data:

Data	Pump Size					
	25	70	120	220	420	820
Pump Housing & Wetted Parts	Aluminium, Cast Iron or AISI 316L			Aluminium or AISI 316L		
Centre block, Alu & Cast Iron Pumps	Aluminium (Std.) or Cast Iron			Aluminium		
Centre block, AISI 316 Pumps	PP (Std.) or Conductive PP			N/A		
Diaphragms	NBR, PTFE, PTFE 1705B or EPDM					
Valve Balls	NBR, PTFE, AISI 316L****, EPDM, polyurethane or ceramic****					
Air Valve	Brass / NBR (Std.) or AISI 316L / FKM or PET / NBR (Std on TX820)					
O-Rings	EPDM, NBR or FKM					
Gaskets	Klingerseal/NBR (standard), Klingerseal/EPDM, Klingerseal/FKM					
Housing Screws	Steel on Aluminium & Cast Iron Pumps, AISI 316 on Stainless Steel Pumps					
Diaphragm Shaft	Stainless Steel AISI 316					
Drum Handle (TD Pumps)	SS AISI 316			N/A		

Materials

**** = Not available on TX820

Performance Range:

The Tapflo Metal Air Operated Double Diaphragm Pumps have a wide range of capacities to suit almost any application, from metering and dosing to general transfer. The max capacity range varies from 26 – 820 l/min with discharges pressures up to 8 bar as standard & solids passage up to 15 mm.

Data	Pump Size					
	25	70	120	220	420	820
Max Capacity, l/min (*)	26	78	158	330	570	820
Volume / Stroke, ml (**)	70	87.5	420	933	2300	5125
Max Discharge Pressure, Bar	8	8	8	8	8	8
Max Air Pressure, Bar	8	8	8	8	8	8
Max Dry Suction Lift, m (***)	1.5	3	4	4	4	5
Max Wet Suction Lift, m	8	8	9	9	9	9
Max Permissible ø of Solids, mm	3	4	6	10	15	15
Max Fluid Temp w/ EPDM / NBR Diaphragm, °C	80					
Max Fluid Temp w/ PTFE Diaphragm, °C	110					
Min Fluid Temp, °C	-20					
Weight of Pump in Aluminium, Kg	2	5	8.65	18.1	36.8	101.5
Weight of Pump in Cast Iron, Kg	4.1	9.9	17.6	33.4	71.4	N/A
Weight of Pump in AISI 316, Kg	N/A	6.8	15.5	35.9	66.1	137

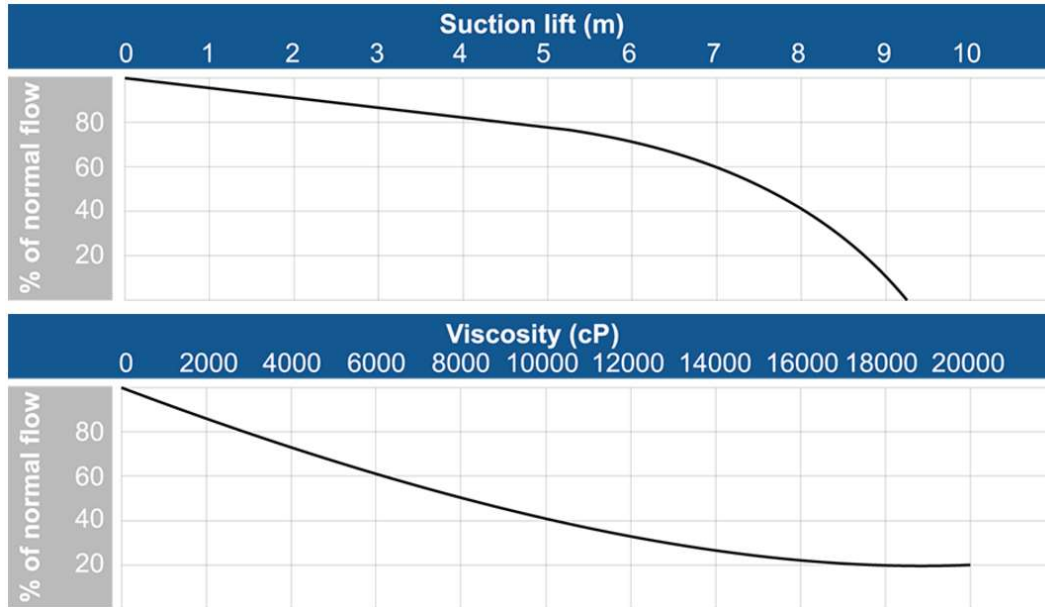
* = Recommended flow is half of the max flow, i.e. recommended flow for a T120 is 60 l/min

** = The value is based on pumps with EPDM diaphragms. Pumps with PTFE diaphragms produce approx. 15% less volume

*** = This is max value with stainless steel valve balls, other valve ball materials may reduce the suction.

Changes in Capacity due to Suction Lift & Viscosity:

An AODDs capacity will vary according to changes in both viscosity and suction lift, below are charts displaying the % drops in flow according to the changes in both. These variations need to be taken into account when selecting a suitable pump.



All performance charts are based on test done with water, therefore, if an application demanded a 4 m suction lift on a fluid that was approx. 3000 cPs, then potentially a larger pump which could produce 40% more capacity would be required.