

**WIS**

Wells Industrial Solutions

**AS pumps solution**

**AODD PUMPS**



## AIR OPERATED DOUBLE DIAPHRAGM PUMPS

Flow-rate from 4 lt/min to 1.050 lt/min.  
Special version Available.



### Wfly

Air operated double diaphragm pumps  
Flow-rate from 4 lt/min to 1.050 lt/min.



### Wfly FOOD

Air operated double diaphragms pumps  
Flow-rate from 20 lt/min to 1.050 lt/min.



## SPECIAL PUMPS

Wfly Atex, Accurate Wfly, Flap Wfly, Steel Wfly,  
Drum Wfly, Twin Wfly, Submersible Wfly and Power  
Wfly.



## DAMPER

Pneumatic, automatic pulsation dampeners.  
Applicable to all size of pumps. Available also in ATEX  
and FOOD version.



## WL

Pure Air operated double diaphragm pumps  
Flow-rate from 55 lt/min to 110 lt/min



## PIEZO

Air operated sampling pumps  
Flow-rate 8 lt/min



## ACCESSORIES

Accessories Air operated  
double diaphragm pumps



# AIR OPERATED DOUBLE DIAPHRAGM PUMPS

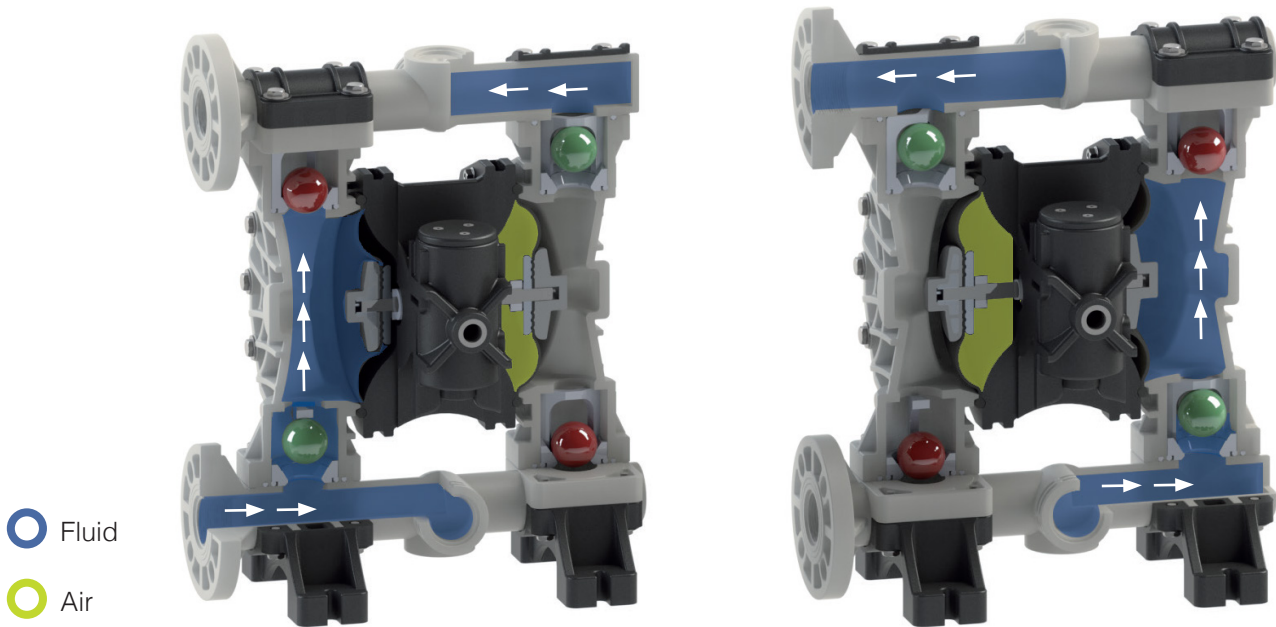
## MATERIALS OF CONSTRUCTION:

PP, PVDF+CF, ALUMINIUM, SS AISI 316, POMc

Flow-rate from 4 lt/min to 1.050 lt/min

# PUMP OPERATION

Wis



## Suction Cycle

1

Compressed air fills right inner chamber, causing the opposing diaphragm to create suction, lifting the lower valve ball, pulling in fluid at inlet. Simultaneously, the right chamber is in "Discharge" cycle.

## Discharge Cycle

2

Compressed air fills left inner chamber, causing upper valve ball to open and discharge fluid. Simultaneously, the right chamber is in "Suction" cycle.

## INSTALLATION



### Pump installed below head (positive suction)

when it is necessary to empty completely the container



### Self priming pump installed above head (negative suction)

pump initially works with dry column without problem



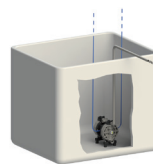
### Pump installed above drum or tank

with special featuring pump



### Pump installed on hopper for high viscosity liquid

hopper's height helps the pump to treat the fluid. Air pressure has to be high, Suction tube has to be bigger than pump's size



### Submerged pump

it is necessary to check the chemical compatibility



### Suspended

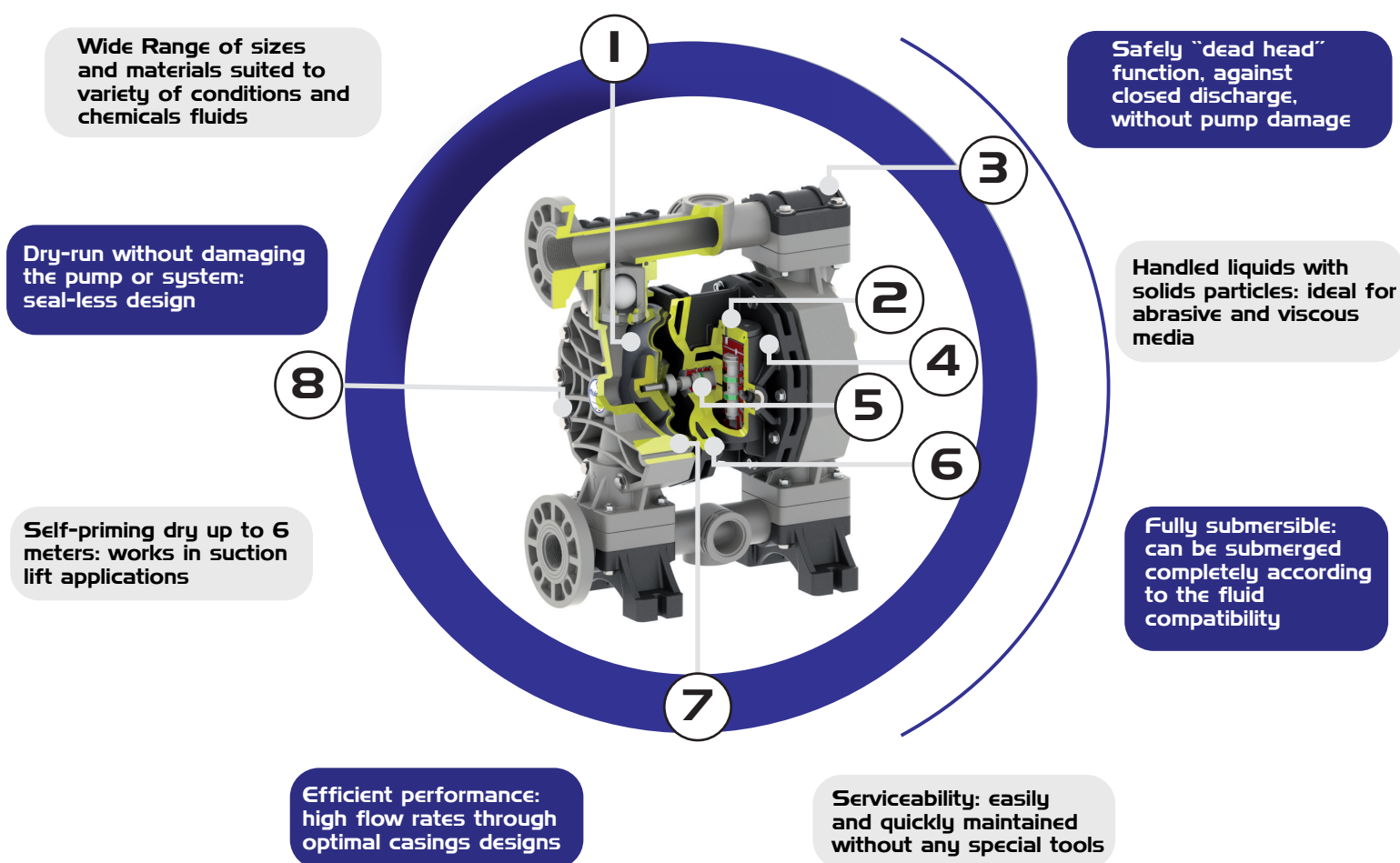
special version with fixing feet also in the upper part, for ceiling fixing



### Pump installed on a mobile unit

with a trolley or cart when pump must be often moved

# TECHNICAL FEATURES



1	2	3	4	5	6	7	8
Long-lasting diaphragm construction ensures a consistent performance and a longer operating life.	Efficient air distribution design: low air consumption. Un-balanced pilot spool, precisely controls positioning of the main power spool to eliminate stalling and increase efficiency.	All bolted design for an effective sealing to extended leak-proof service.	Solid polypropylene air chambers and plastic air valve for maximum chemical resistance in highly corrosive environments.	Acetalic shuttle ensures long valve life, auto-lubricated material.	Pneumatic exchanger is easily externally accessible for a quick inspection. Special Air system: lube-free, non-stall, non-freeze.	Special pinch clamping, design to minimize wear and increase life of the diaphragm, and provides a uniform seal to avoid leak.	Special exhaust chamber with double silencer to expand diffusion passages, reduce the icing and assure low noise level.

**QUALITY** 100% wet tested after final assembly: deadheading, priming and sealing

**SAFE** ATEX certifications in all versions: Conductive plastic pumps available

**FLEXIBILITY** Multiple porting options available along with interface options




















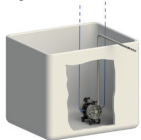








# P0120

# P-

# HT

# T

MODEL	SIZE	CASING	DIAPHRAGM	BALL
<b>P</b> Wfly 	<b>4</b> 4 lt/min 1/4" BSPP	<b>P</b> <b>POLYPROPYLENE</b> Wide chemical compatibility. General purpose. Reinforced with glass-fiber. 	 <b>H</b> <b>HYTREL</b> Good low temperature properties. Good abrasion resistance.	<b>N</b> <b>NBR</b> Good for petroleum-based fluids, water, oils, hydrocarbons and MILD chemicals. 
<b>PF</b> Wfly FOOD 	<b>8</b> 7 lt/min 1/4" BSPP	<b>PC</b> <b>CONDUCTIVE POLYPROPYLENE</b> Wide chemical compatibility. General purpose. Groundable. 	 <b>W</b> <b>SANTOPRENE HIGH RESISTANCE</b> Solutions and dilute acids.	<b>D</b> <b>EPDM</b> OK with caustic solutions, dilute acids, ketones and alcohols. Good abrasion resistance. 
<b>AP</b> ACCURATE Wfly 	<b>20</b> 20 lt/min 3/8" BSPP	<b>KC</b> <b>CONDUCTIVE PVDF</b> Strong chemical resistance to acids. High temperature resistance. Groundable. 	 <b>NBR</b> <b>NBR</b> Good for petroleum-based fluids, water, oils, hydrocarbons and MILD chemicals.	<b>T</b> <b>PTFE</b> Widest chemical compatibility, extreme corrosion resistance, non-adhesive, high heat resistance. 
<b>TP</b> TWIN Wfly 	<b>35</b> 35 lt/min 1/2" BSPP	<b>O</b> <b>ACETAL</b> Wide range of solvent and hydrocarbons resistance. Good level of abrasion resistance. (Just 4, 8 and 10 size). 	 <b>D</b> <b>EPDM</b> OK with caustic solutions, dilute acids, ketones and alcohols. Good abrasion resistance.	<b>S</b> <b>SS</b> High level of corrosion and abrasion resistance. Good for viscous fluids. 
<b>PP</b> POWDER Wfly 	<b>60</b> 65 lt/min 1/2" BSPP	<b>OC</b> <b>CONDUCTIVE ACETAL</b> Wide range of solvent and hydrocarbons. Good level of abrasion resistance. Groundable. (Just 4, 8 and 10 size). 	 <b>HT</b> <b>HYTREL + PTFE</b> Widest chemical compatibility, extreme corrosion resistance, non-adhesive, high heat resistance	
<b>PS</b> SUBMERSIBLE Wfly 	<b>90</b> 100 lt/min 3/4" BSPP	<b>A</b> <b>ALUMINUM</b> Wide range of solvent and hydrocarbons. Good level of abrasion resistance. 	 <b>MT</b> <b>SANTOPRENE + PTFE</b> Widest chemical compatibility, extreme corrosion resistance, non-adhesive, high heat resistance	
<b>DP</b> DRUM Wfly 	<b>120</b> 120 lt/min 1" BSPP	<b>S</b> <b>SS – AISI 316 Electropolished</b> High level of corrosion and abrasion resistance. 		
<b>FP</b> FLAP Wfly 	<b>170</b> 170 lt/min 1" BSPP/DN25			
	<b>252</b> 250 lt/min 1" 1/4 BSPP			
	<b>400</b> 380 lt/min 1" 1/2 BSPP DN40			
	<b>700</b> 700 lt/min 2" BSPP DN50			
	<b>1000</b> 1050 lt/min 3" BSPP DN80			

P

V

1

-

AB

## BALL SEAT

## GASKET

## CONNECTIONS

ATEX ZONE  
CERTIFICATION

## PORTS

**P**  
**POLYPROPYLENE**

Wide chemical compatibility.  
General purpose.

**K**  
**PVDF**

Strong chemical resistance to acids.  
High temperature resistance.

**S**  
**SS**

High level of corrosion and abrasion resistance.

**Z**  
**PE**

With high molecular weight: High level of abrasion resistance.  
(Just D and N balls).

**O**  
**ACETAL**

Wide range of solvent and hydrocarbons resistance. Good level of abrasion resistance.

**V**  
**VITON**

High heat resistance.  
Good resistance to aggressive chemicals and hydrocarbons.

**N**  
**NBR**

Good for petroleum-based fluids, water, oils, hydrocarbons and MILD chemicals.

**D**  
**EPDM**

Good with caustic solutions, dilute acids, ketones and alcohols.  
Good abrasion resistance.

**T**  
**PTFE**

Widest chemical compatibility, extreme corrosion resistance, non-adhesive, high heat resistance.

**1**

BSP THREADED

**A**

BSP THREADED WITH REINFORCED RING

**2**

FLANGED

**3**

TRI-CLAMP  
(Wfly FOOD)

**5**

NPT THREADED

**E**

NPT THREADED WITH REINFORCED RING

**6**

DIN 11851/3  
(Wfly FOOD )



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ATEX ZONE 2  
From P4 to P120 models

Ex II 3/3 G Ex h IIC T4 Gc

Ex II 3 D Ex h IIIB T135°C Dc X

From P170 to P1000 models

Ex II 3/3 G Ex h IIB T4 Gc

Ex II 3 D Ex h IIIB T135°C Dc X

**X**

ATEX ZONE 1  
From P4 to P120 models

Ex II 2/2 G Ex h IIC T4 Gb

Ex II 2 D Ex h IIIB T135°C Db X

From P170 to P1000 models

Ex II 2/2 G Ex h IIB T4 Gb

Ex II 2 D Ex h IIIB T135°C Db X

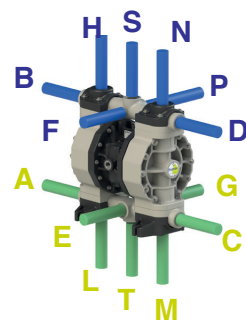


TABLE CODE

## SPECIAL FEATURES

**SP** STAINSTEEL Wfly CENTRAL BLOCK IN SS

**SCP** STROKE COUNTER Wfly WITH EXTERNAL PNEUMATIC SIGNAL

**PCR** Wfly WITH SHORTER STROKES

**PCL** Wfly WITH LONGER STROKES

# PUMP SELECTION

Wis

To select the right **WIS** pump for your application, the following factors should be considered to achieve economy of operation, long pump life, and minimal maintenance costs:

- The nature of the medium to be pumped, its viscosity, and the solids content
- Pumping capacity in relation to the desired output
- Suction and pressure conditions

Considering these parameters, an optimal pump size is selected when the intersection of the intended installation “pressure vs. flow rate” is near the middle section of the curves.

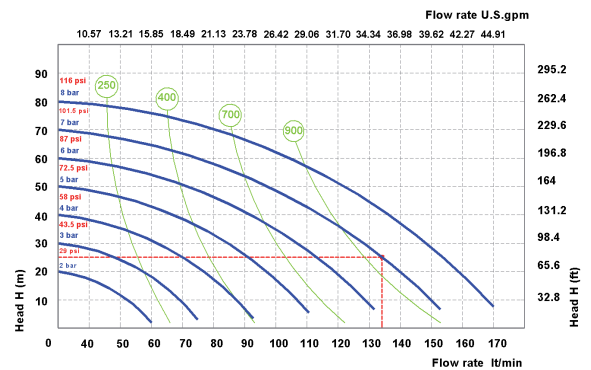
## USING PERFORMANCE CURVES

To determine compressed air requirements and proper size for a **WIS** AODD pump, two elements of information are required: **1**

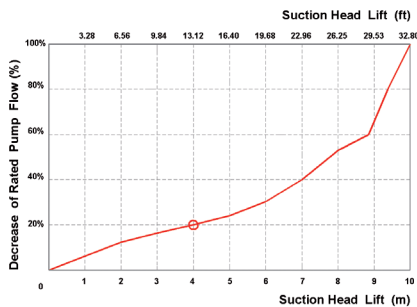
Required Flow Rate

**2** Total Delivery Head

As an example, consider a P170 pump performance curve, pumping about 135 l/min at 25m. Point A on the performance curve is where the desired Flow Rate and Total Delivery Head points intersect. This point determines compressed air requirements for the particular pump. At performance point A, the pump will require approximately 7 bar air inlet pressure. To arrive at this figure, follow the solid blue curve to the left to read the air pressure rating in BAR. By looking at the nearest green curve, it is determined the pump will require approximately 900 nl/min (Normal Liter per minute) of air consumption

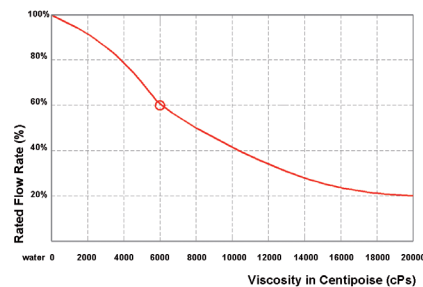


## SPECIFIED SUCTION LIFT



With a suction lift of 4 m, pump rate decreases by approximately 20%. Valid for pumps 3/4" and larger; data varies with pump configuration.

## VISCOUS LIQUIDS PERFORMANCE DATA



During the conveyance of a fluid with a viscosity of 6000cPs, the pump rate decreases to 60% of its rated value (100% = water). Valid for 3/4" pumps & larger.

PUMP TYPE	AODD	CENTRIFUGAL	LOBE	GEAR	SCREW	PERISTALTIC	PISTON
Variable Flow & Head Control	✓	✓	✓	✓	!	✓	✓
Deadhead Safely	✓	✓	!	!	!	!	!
Dry-Running	✓	✗	✗	✗	✗	✓	✗
Dry Self-Priming	✓	✗	✗	✓	✗	✓	!
No Mechanical Alignment	✓	✗	✗	✗	✗	✗	✗
No Electrical Installation	✓	✗	✗	✗	✗	✗	✗
Portability	✓	✓	!	!	!	✓	!
Submersible	✓	!	✗	✗	✗	✗	!
Sealless	✓	!	!	!	!	✓	!
Cavitation Tolerance	✓	✗	!	!	✓	✓	!
Low Shear & Degradation	✓	✗	✓	✓	!	✓	!

✓ = Suitable ! = Limitations ✗ = Not Recommended