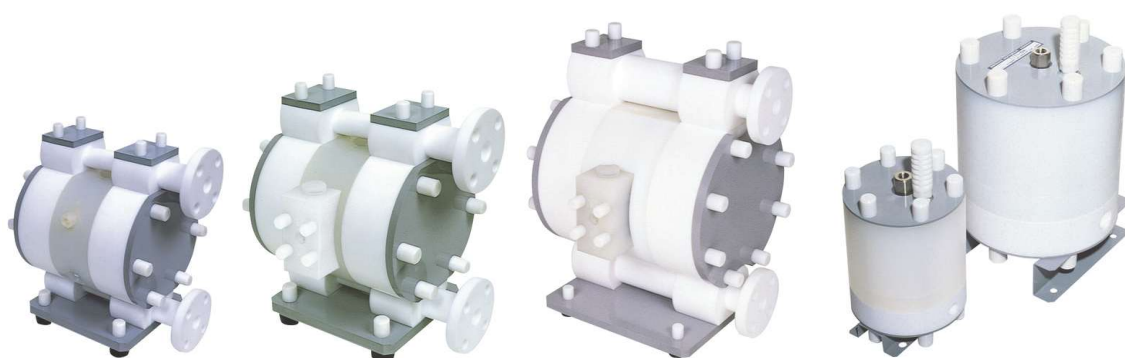




Air-Operated  
Double-Diaphragm  
**High Purity**  
**PTFE Pumps**

**CATALOG**





# ABOUT **YAMADA**

Yamada Corporation has been a leading producer of industrial equipment since 1905, and for pneumatic pumps for over 80 years. As a leader in pneumatic pumping technology, Yamada is known in many industries worldwide for its innovative products, superior quality and unmatched reliability. Yamada has an impressive history of delivering new products and solving customer problems which confirm Yamada's position as the industry leader.

Yamada's reputation for manufacturing top quality products, allied with continuing efforts in research and development have created a strong foundation for market leadership. As an ISO 9001 certified corporation, stringent quality procedures are followed throughout the manufacturing process, including liquid testing of every pump prior to shipping.

Yamada Corporation has its primary headquarters in Tokyo, Japan, with manufacturing based in Sagami-hara City. Assembly facilities are located in Chicago, Illinois, USA and Hengelo, The Netherlands; an office in Thailand; and Shanghai is covering the emerging markets of China. These offices are support centers for over 400 Yamada distributors worldwide.

Yamada Europe B.V., a wholly owned subsidiary of Yamada Corporation, was established in 1986 to provide sales and service and support for Europe, the Middle East and Africa, through a highly trained network of distributors.

Our professional staff provides:

- Customer service - Product training
- Research & development
- Parts and service for all Yamada pumps
- Application engineering
- Industry knowledge

With a wide customer network, Yamada is in position to service the global market needs worldwide. Contact Yamada Europe for the closest distributor location.

We build our pumps with quality and innovation. This is the cornerstone of the Yamada design and manufacturing process.



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# HIGH-PURITY SERIES



YAMADA' s High Purity Series was designed to be installed any high purity or corrosive environment. Yamada offers various models each with its own specific characteristics offering different levels of purity and corrosion resistance. Each model is designed to give different levels of operation performance and back up redundancy.

## Quality, Performance, Reliability

### Important features you'll find in Yamada F-Series PTFE pumps:

#### Truly Non - Lubricated

The patented air valve on all Yamada F-Series pumps never requires lubrication or pre-packing. Plus, it is easily accessible without disassembling the pump.

#### Wetted Parts

To ensure maximum corrosion resistance, purity levels and low particle generation, Yamada pumps feature diaphragms, liquid chambers and manifolds that are machined from 100% virgin PTFE. Polypropylene and High Density Polyethylene are used in the air motor section (non-wetted) to ensure resistance in a corrosive environment.

#### Extended Performance

All Yamada F-Series diaphragms are manufactured from 100% virgin PTFE. As a result, these diaphragms will last up to twice as long as those found in many competitive pumps. In addition, incorporating minimal shaft travel reduces pump pulsation.

#### Clean Room Manufactured

Yamada F-Series pumps are manufactured, DI water tested, nitrogen purged, and double bagged under clean room conditions according to stringent quality control standards and procedures.

#### Most Complete Line Available

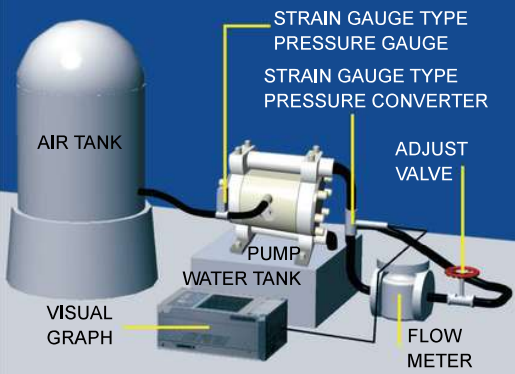
Yamada offers wide sizes range of PTFE pumps for your applications with adjustable flow rates up to a maximum of 95 Literper minute. Yamada is proud to offer the largest line of field-proven, high purity air-operated double diaphragm pumps.

#### End- User Maintenance

Yamada F-Series pumps are easily end-user maintainable and are backed with readily available service and parts worldwide.

# PERFORMANCE TESTING AND PUMP SELECTION

## Testing Instruments and Procedures



### Condition

Supplied air pressure: 0.2MPa, 0.3MPa, 0.4MPa, 0.5MPa  
Liquid: DI water (1mPa/s, S.G.1.0)  
Temperature: Ambient  
Suction condition: Flat suction (0m head)\  
Measuring method: Flow meter

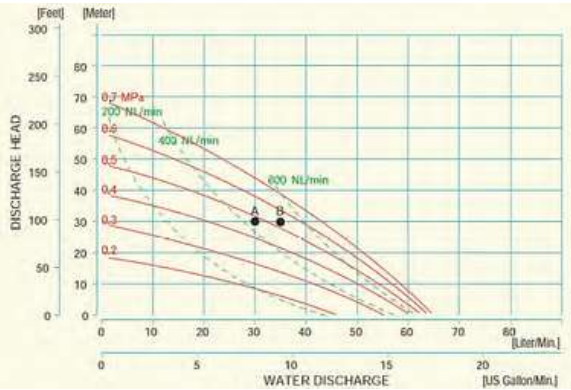
## Precautions when selecting a pump

\*For safety and to prolong the life of the diaphragm and other consumable parts Yamada recommends selecting a pump with an output of at least 50% or higher than actually required.

\*Performance curve data on this brochure is measured using the above system and conditions pumping fresh water (1mPa/s, S.G.1.0) with flat suction. A pumps performance will vary under different conditions. Some factors include fluid viscosity, specific gravity, slurry concentration, suction lift, suction head and friction loss due to pipes and fittings.

## How to read a performance curve

### DP-20F

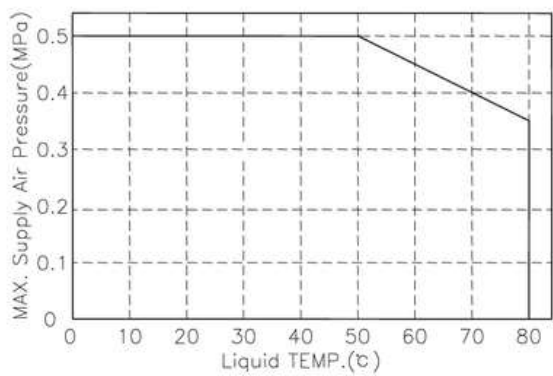


### Conditions

<b>A</b> Supply air: 0.5MPa liquid: DI water (1mPa/s, S.G.1.0) Flow Rate: 30L/min Discharge Head: 30m	<b>B</b> Supply air: 0.5MPa liquid: DI water (1mPa/s, S.G.1.0) Flow Rate: 30L/min Discharge Head: 30m
--	--

1. Determine which curve corresponds to the desired air pressure
2. Determine the desired discharge volume and the required total discharge head.
3. According to the graph, DP-20F would be suitable for condition A. However, for the condition B, DP-20F is not enough. Thus in condition B, larger pump than DP-20F would be suitable

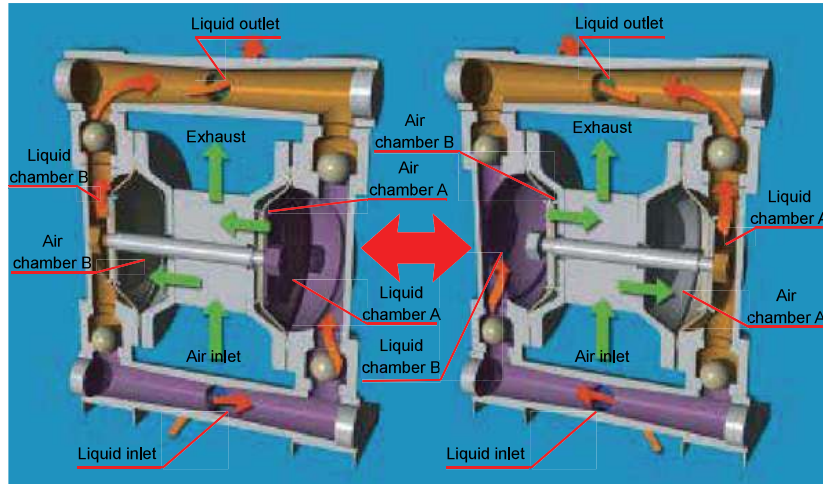
## Liquid temperature - Pressure Correlation Chart



# OPERATION PRINCIPLE

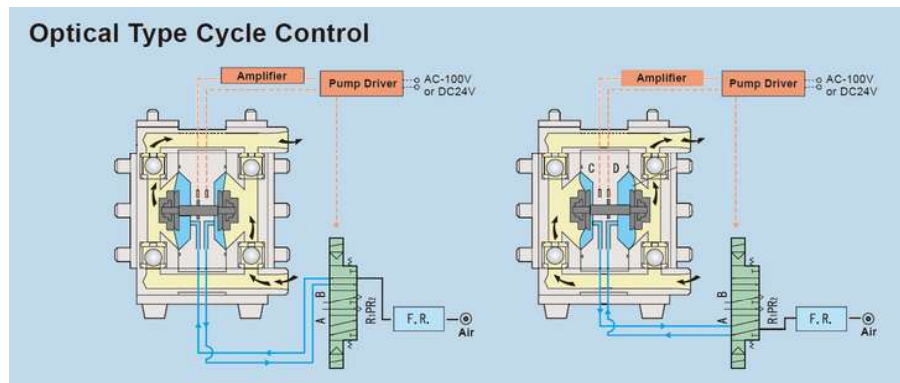
## C-spool Switch

Compressed Air enters Air Chamber A (shown above), moving the center rod to the right, forcing liquid out of Liquid Chamber A. At the same time due to a pressure decrease in Liquid Chamber B, liquid is drawn in. When the center rod is fully to the right the pneumatic logic system switches the supply of air from Air Chamber A to Air Chamber B. the center rod moves to the left, forcing the liquid out from liquid chamber B



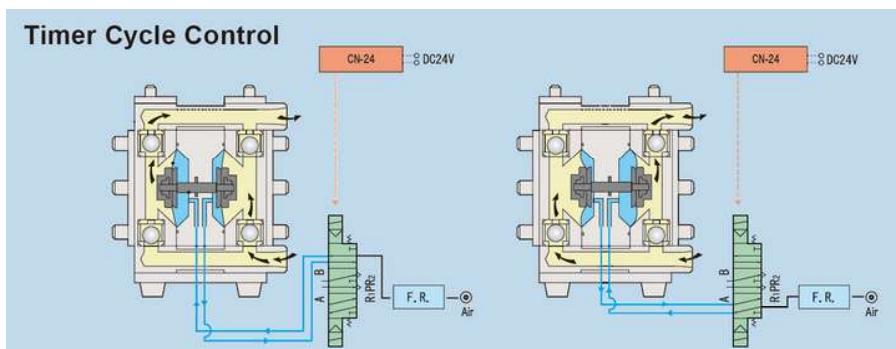
## Optical Type Cycle Control

This sensor allows the pump to be used in high purity, corrosive or explosive applications and can guarantee start stop operation performance. It allows the pump to be externally controlled and will greatly increasing all aspects of the pumps performance. It will ensure accurate flow rates even during very slow pump cycling.



## Timer Cycle Control

This unit is used to control the pumps cycle speed and can also detect diaphragm ruptures or failures of the cycle sensor etc. This control system will greatly improve all aspects of the pumps operating performance and control.



# HIGH-PURITY - PNEUMATIC C-SPOOL CONTROLLED

## DP-F SERIES



Purchaser shall not directly or indirectly, export, re-export transship or otherwise transfer this product in violation of any applicable export control laws and regulations promulgated and administered by the governments of the countries asserting jurisdiction over the parties or transaction.



### Specifications

Model			DP-5F	DP-10F		DP-20F		DP-25F	DP-38F
Model No.			853656	853620	853622	853621	853623	853601	853606
Port Size	Liquid	Intake	Rc 1/4"	Rc 3/8"	JIS Flange 10K10A	Rc 3/4	JIS Flange 10K20A	JIS Flange 10K25A	
		Discharge							
	Air	Supply	Rc 1/4"					Rc 3/8	Rc 1/2
		Exhaust	Rc 3/8" (DP-5F is with built-in silencer)					Rc 3/4	
Material		Casing	PTFE, PFA						
		Diaphragm	PTFE						
		Air Body	PPS	PP				HDPE	
Air Supply Pressure * <sup>1</sup>			0.2 - 0.5 MPa					0.2 - 0.7 MPa	
Maximum Discharge Pressure			0.5 MPa					0.7 MPa	
Discharge Volume Per Cycle * <sup>2</sup>			13mL	65mL		150mL		300mL	700mL
Maximum Flow Rate			11L/min	27L/min		54L/min		64L/min	95L/min
Maximum Air Consumption (ANR)			170L/min	250L/min		350L/min		900L/min	1500L/min
Maximum Size Solid			-	1mm		2mm		3mm	
Maximum Viscosity			0.5Pa・s	1Pa・s		2Pa・s		2.5Pa・s	
Temp Range		Ambient	0 - 70℃						
		Liquid	0 - 80℃						
Noise Level * <sup>3</sup>			71 dB	82dB		85dB		88dB	90dB
Net Weight			3.4 kg	6.7 kg	7.2 kg	14.6 kg	15.5 kg	32 kg	52 kg

\*1 Quality of the supply air shall satisfy quality grade 2.3.2 (maximum particle size: 1µm, maximum dew point pressure: -20°C, maximum oil concentration: 0.1mg/m³) of ISO 28392-1 : 2000 "Compressed air for the general use"

\*2 Discharge volume per cycle is highly dependent on application

\*3 The measuring method is based on ISO 1996 and ISO 3744

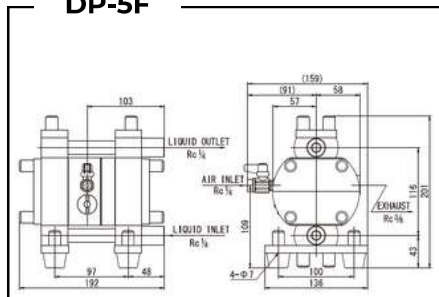
### Flaretek

\*Flaretek connections are available upon request for select sizes. Please contact us for more information.



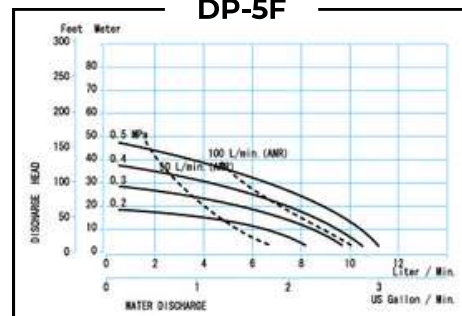
## Dimensions

**DP-5F**

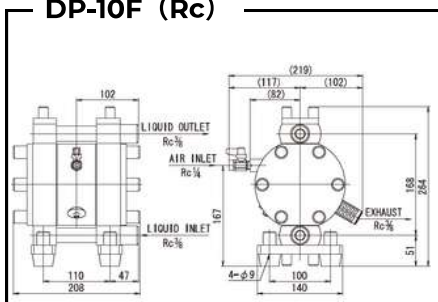


## Performance Curve

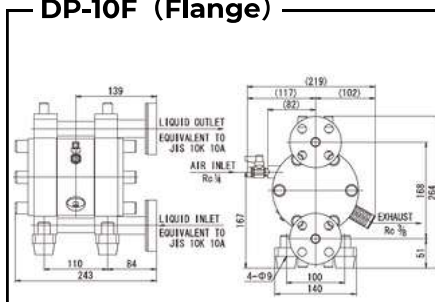
**DP-5F**



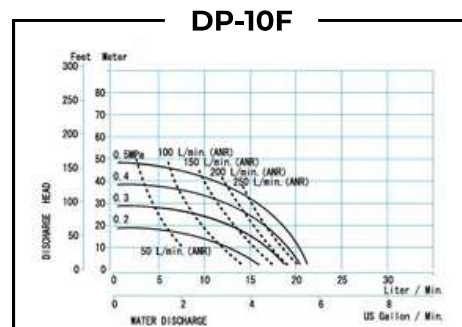
**DP-10F (Rc)**



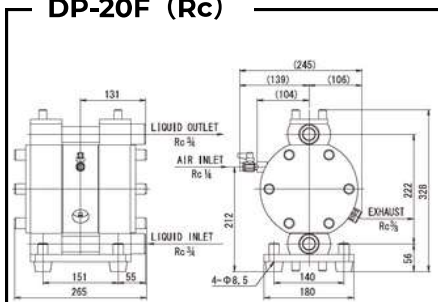
**DP-10F (Flange)**



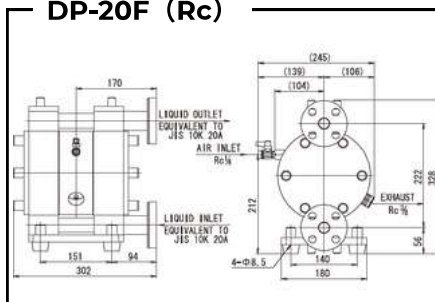
**DP-10F**



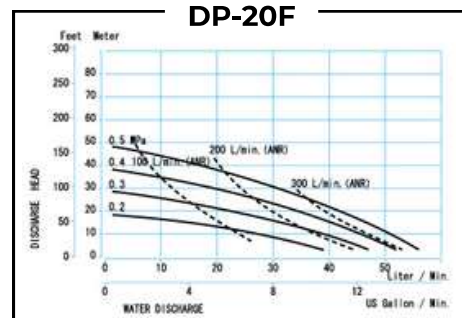
**DP-20F (Rc)**



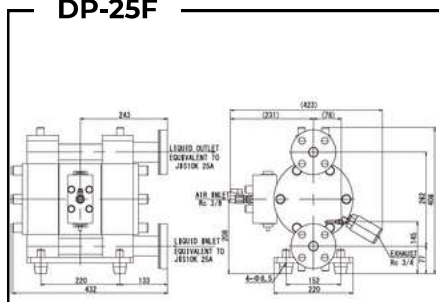
**DP-20F (Rc)**



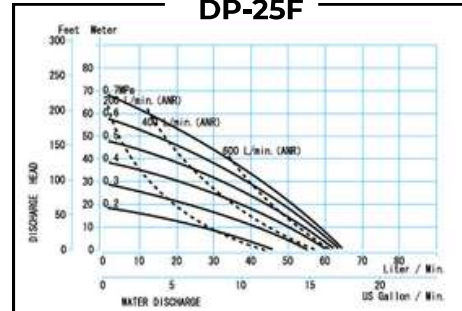
**DP-20F**



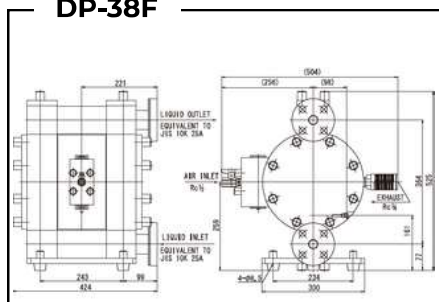
**DP-25F**



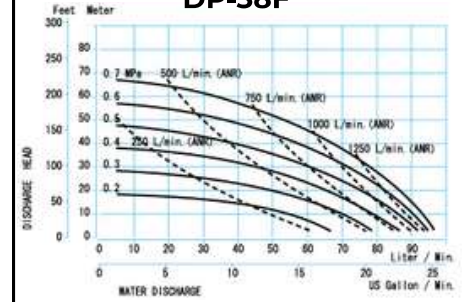
**DP-25F**



**DP-38F**



**DP-38F**



The performance curve was measured using the method and conditions shown on page 5. Also when the pumps performance was measured, a suction pipe wasn't connected to the inlet port. If a 1.5-meter long pipe, with a diameter the same as the inlet port were to be used, the flow rate may be reduced up to 50%.

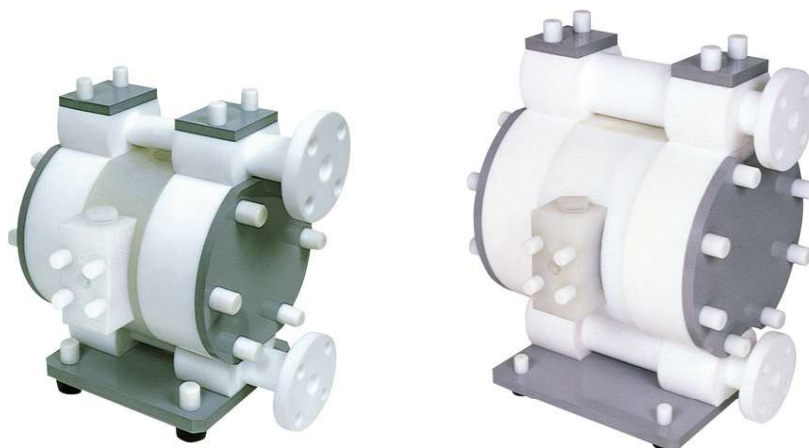


# ULTRA HIGH-PURITY SERIES - PNEUMATIC C-SPOOL CONTROLLED

## DP-F/P SERIES



Purchaser shall not directly or indirectly, export, re-export transship or otherwise transfer this product in violation of any applicable export control laws and regulations promulgated and administered by the governments of the countries asserting jurisdiction over the parties or transaction.



### Specifications

Model			DP-20F/P	DP-25F/P	DP-38F/P
Model No.			854804	854805	1500EL
Port Size	Liquid	Intake	JIS Flange 10K20A	JIS Flange 10K25A	JIS Flange 10K25A
		Discharge			
	Air	Supply	Rc 1/4"	Rc 3/8"	Rc 1/2"
		Exhaust	Rc 3/8"	Rc 3/4"	
Material		Casing	PTFE		
		Diaphragm	PTFE (Center disk inserted)		
		Air Body	HDPE		
Air Supply Pressure *1			0.2 - 0.5 MPa		
Maximum Discharge Pressure			0.5 MPa		
Discharge Volume Per Cycle *2			160mL	300mL	700mL
Maximum Flow Rate			30L/min	60L/min	70L/min
Maximum Air Consumption (ANR)			400L/min	600L/min	1000L/min
Maximum Size Solid			2mm	3mm	
Maximum Viscosity			2Pa•s	2.5 Pa•s	
Temp Range		Ambient	0 - 70℃		
		Liquid	0 - 80℃		
Noise Level *3			85dB	88 dB	90 dB
Net Weight			14.8kg	32 kg	52 kg

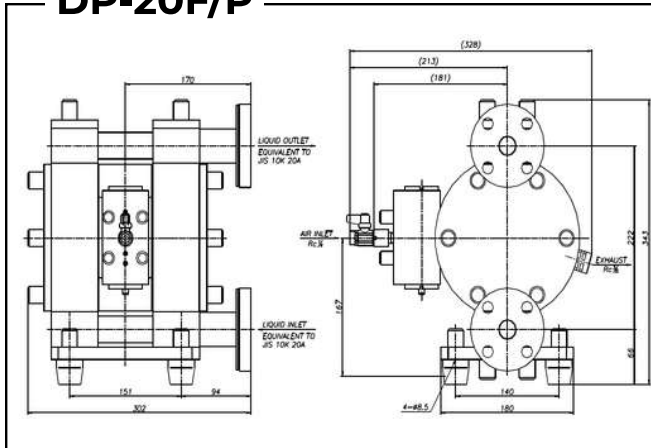
\*1 Quality of the supply air shall satisfy quality grade 2.3.2 (maximum particle size: 1µm, maximum dew point pressure: -20°C, maximum oil concentration: 0.1mg/m³) of ISO 28392-1 : 2000 "Compressed air for the general use"

\*2 Discharge volume per cycle is highly dependent on application

\*3 The measuring method is based on ISO 1996 and ISO 3744

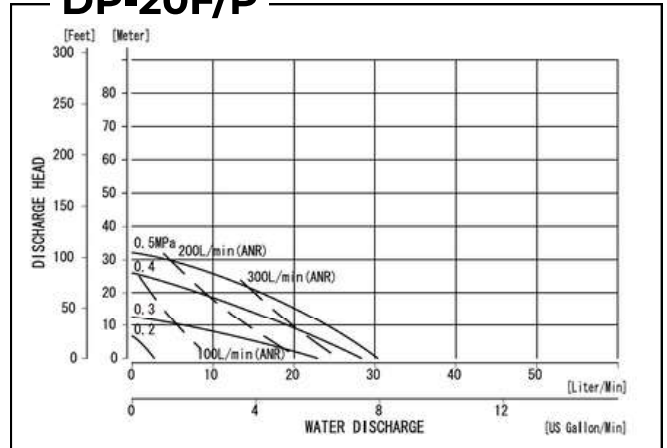
## Dimensions

### DP-20F/P

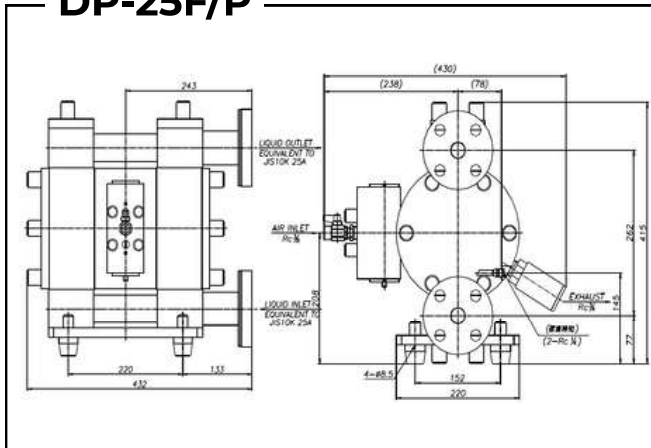


## Performance Curve

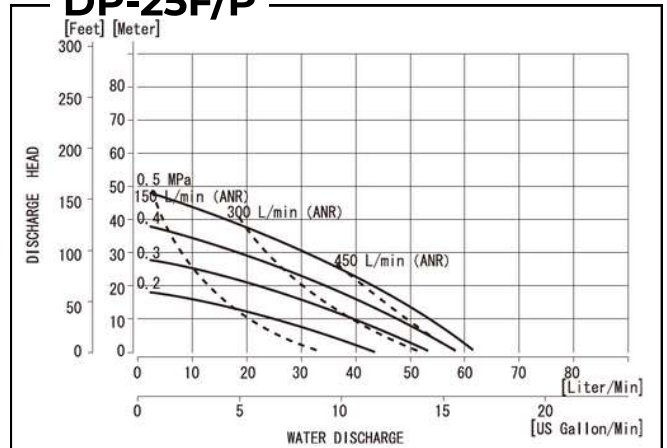
### DP-20F/P



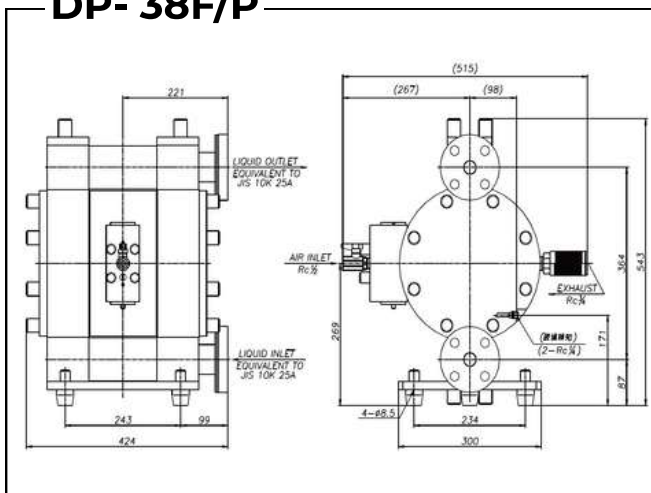
### DP-25F/P



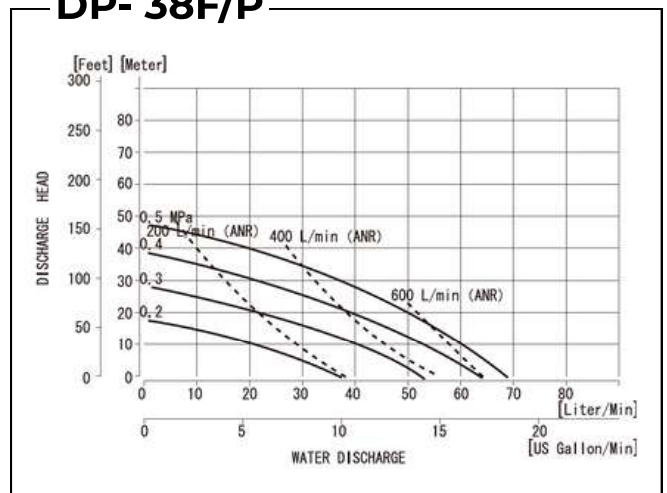
### DP-25F/P



### DP- 38F/P



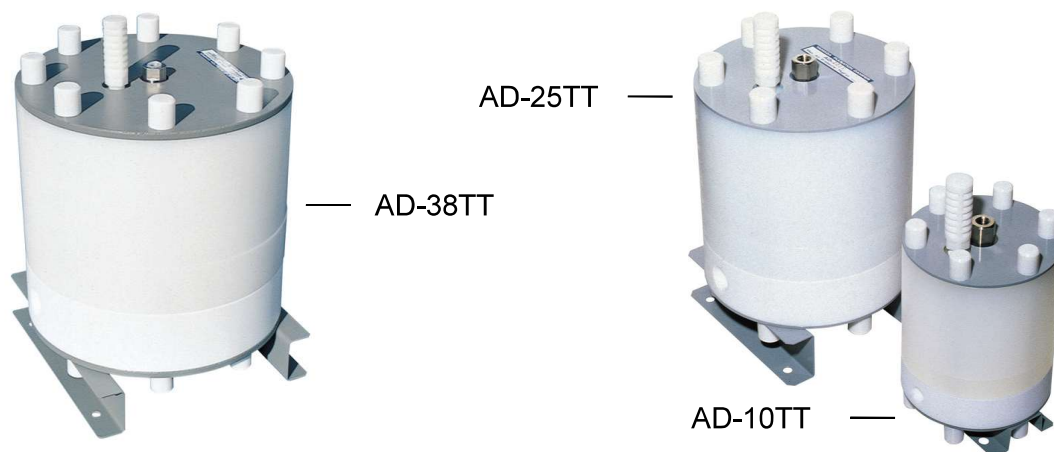
### DP- 38F/P



The performance curve was measured using the method and conditions shown on page 5. Also when the pumps performance was measured, a suction pipe wasn't connected to the inlet port. If a 1.5-meter long pipe, with a diameter the same as the inlet port were to be used, the flow rate may be reduced up to 50%.

# PULSATION DAMPENER AD-TT SERIES

This active type pneumatic dampener with wetted parts made from 100% PTFE will reduce the pulsation of the liquid caused when using an F Series Diaphragm Pump. By reducing pulsation all ancillary equipment such as filters, spray units, piping etc will be protected from damage as well as enabling a steady fluid flow rate in the process system.

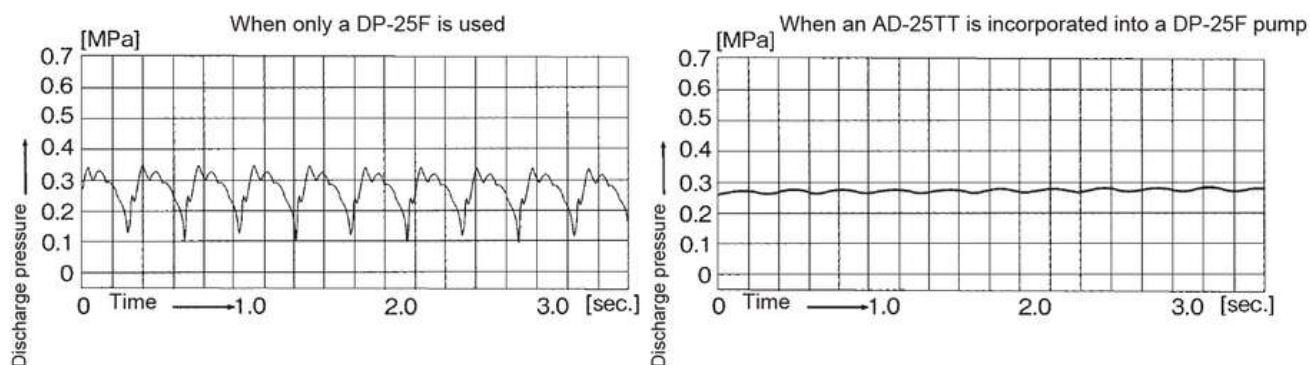


## Specifications

Model	AD-10TT	AD-25TT	AD-38TT
Model No.	851918	851919	853441
Port dimensions			
Liquid inlet & outlet	Rc 3/8"	Rc 3/4"	Rc 1"
Air inlet	Rc 1/4"	Rc 1/4"	Rc 1/4"
Exhaust (with muffler)	Rc 1/8"	Rc 1/8"	Rc 1/8"
Air supply pressure range	0.2~0.5 MPa	0.2~0.7 MPa	0.2~0.7 MPa
Max discharge pressure	0.5 MPa	0.7 MPa	0.7 MPa
Max air consumption*	20 L/min(ANR)	20 L/min(ANR)	20 L/min(ANR)
Max slurry diameter	1 mm	3 mm	3 mm
Ambient temperature range	0~70 °C	0~70 °C	0~70 °C
Liquid temperature range**	0~80 °C	0~80 °C	0~80 °C
Weight	4.5 kg	12.5 kg	30.0kg

\*These figures may vary depending on many factors including, the liquid used, the ambient and fluid temperature, the supplied air pressure, and the inlet and outlet conditions.

## Comparison with a DP-25F pump

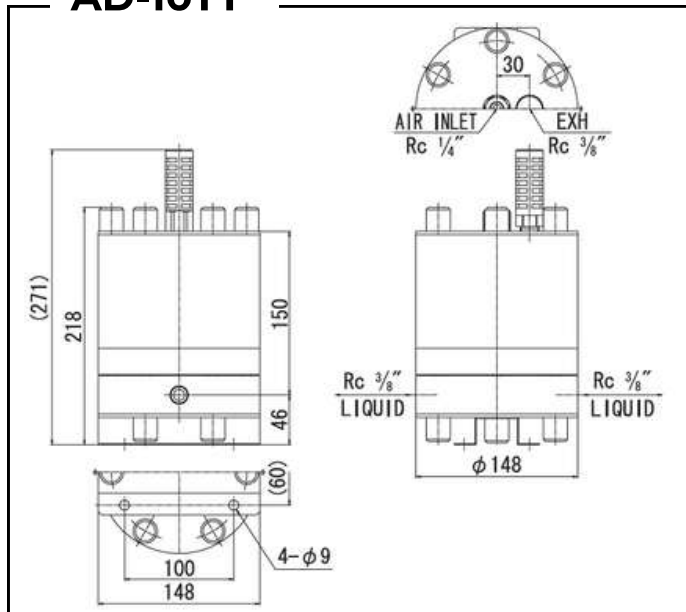


Due to Japanese and other international trade laws, products contained within this catalogue may require licensing prior to export or re-export. We request that when dealing with yamada products that you take the utmost care in ensuring that all required export procedures are carried out correctly.

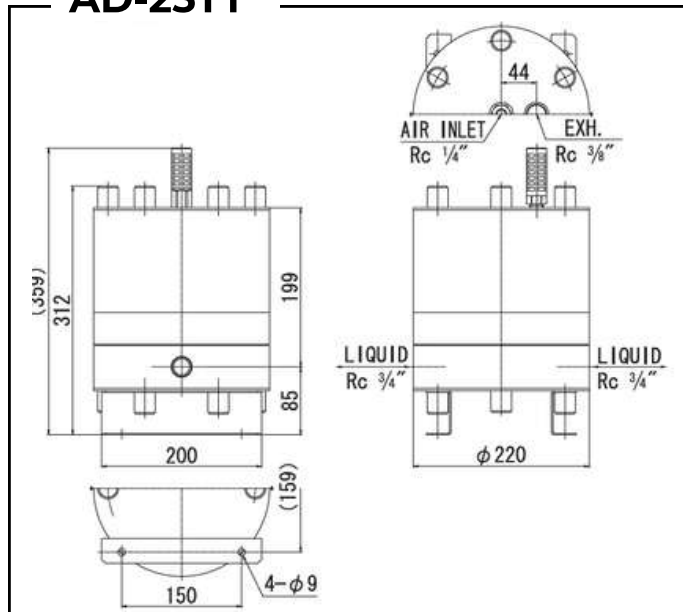


## Dimensions

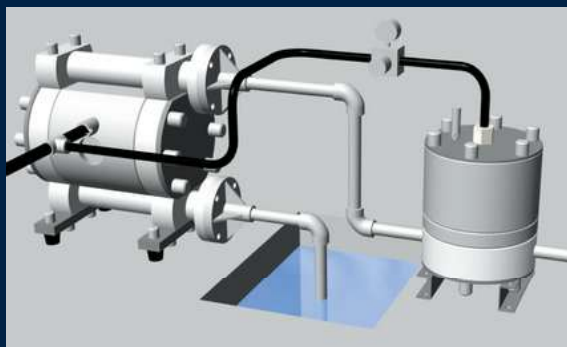
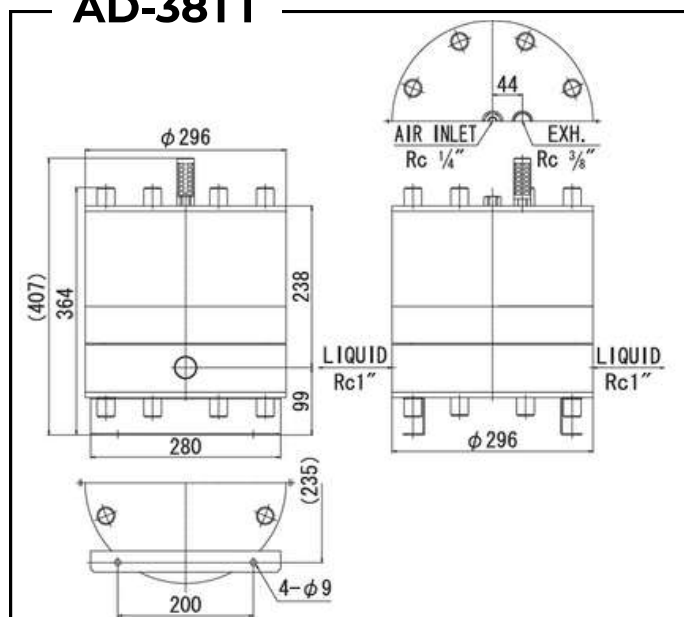
### AD-10TT



### AD-25TT



### AD-38TT



Dampener Installation Diagram

#### Cautions for Dampener Installation

1. The dampener should be installed no more than 1 meter from the pumps discharge port.  
The pump effects will be reduced if installed further than this.
2. With the installation of an air regulator on the air inlet port the dampener will work more effectively.
3. The dampener's consumption of air depends on the pulse conditions.
4. The dampener requires the same pre-maintenance as the F series diaphragm pump series.
5. The dampener doesn't work without backpressure. At least 0.1 MPa of back pressure is required.

# CONTACT US



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[www.yamada-europe.com](http://www.yamada-europe.com)







Your Local Distributor/Sales & Service Centre:



**CAUTION WHEN  
SELECTING A PUMP**

Yamada offers a large range of Air Operated Pumps to cater for many different kinds of materials and conditions. When selecting the most appropriate pump for a particular selection and installation please consult your local Yamada Pump Distributor or Yamada Europe.



**CAUTION**

The products presented in this catalogue may be classified as a n export-controlled item under Foreign Exchange and Foreign Trade Act of Japan, hence an export license must be required to export the products. In addition, whenever the products are to be re-exported from any country to the third country, an export license must be required under the laws and regulations of the re-exporting country.

**Yamada** Europe B.V.

