



PNEUMATIC INJECTION PUMP



ABOUT AIR TITAN

EVOL AIR TITAN PNEUMATIC INJECTION PUMP

The EVOL Air Titan Series Pneumatic Injection Pump is a plunger type metering pump driven by compressed air, suitable for a wide range and variety of chemical injections. Our pneumatic injection pumps offer flows from 0.27 Litre/hour to 336 Litre/hour and discharge pressure up to 13100 psi.



WHY CHOOSE EVOL AIR TITAN

The **EVOL AIR TITAN Series pneumatic pumps** are engineered for:

PRECISION

- Flow turndown ratio as precise as 100:1, far exceeding the API-675 requirement.
- The compact design is significantly smaller than the corresponding electrically operated pump.

EFFICIENCY

- The large surface difference between the air/gas piston and the plunger enabling our pumps to produce 10,000 PSI with only 100 psi of air/gas supply pressure.
- The compact design allows our pump to be installed directly in the piping with minimum support, which means fast installation upon work.
- Only limited number of parts need maintenance due to its simplicity.

DURABILITY

- All pumps are tested prior to shipment.
- Inspection Test Procedure will be carried out prior to the shipment.
- We warrant both performance and manufacturing defects.
- Build with high corrosion resistance material.

SUSTAINABLE

- Unlike electrics, pneumatics provides a singularity safe design.
- Built by environmental friendly and recyclable product.

FEATURES & SPECIFICATIONS

PNEUMATIC INJECTION PUMP'S FEATURES

PUMP MODEL: EVATC150 / 250 / 350 & EVATCR450 / 550



Stroke Adjuster

Positive locking device to hold the stroke length, compact and its adjustment is simplified with an internally threaded design which ensures ready accessibility and easy to operate.

Pneumatic Piston & Plunger Assembly

To prevent any possible contact, the clearance between return spring and plunger has been made optimal.

Air Supply Port

Return Spring

Pneumatic Drive Cylinder

Ensure concentric movement of the plunger through the seal, the pneumatic piston and fluid plunger assembly is guided at both ends on the composite bearings.

Threaded Port

In case of any seal leakage, threaded port will function as an indication, collection or containment.

Lubrication Chamber

Synthetic grease will be inserted to the seal/lubrication chamber, which is filled once over the life of the seals.

Bleeder

A bleeder will be installed with a barbed fitting so that the fluid bled from the fluid chamber can be collected.

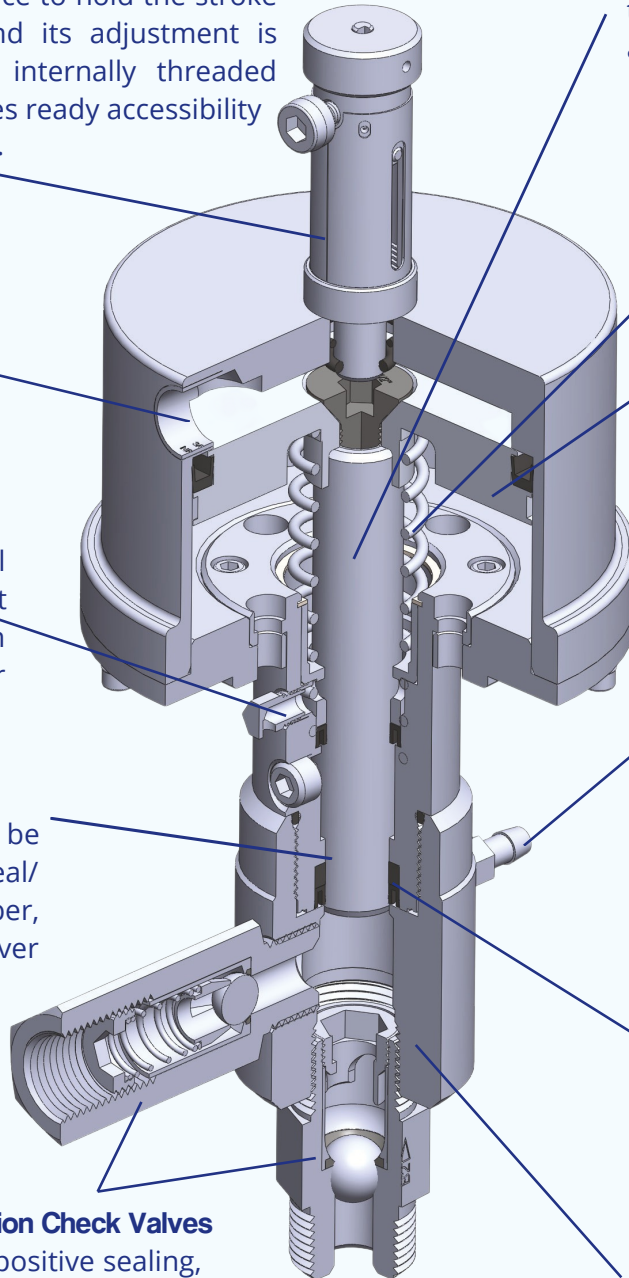
Double Sealing

A double sealing arrangement is used so that secondary seal contamination is eliminated.

Discharge & Suction Check Valves

For long life and positive sealing, both discharge and suction check valves have tough TFE composite seats.

Fluid Chamber



FEATURES & SPECIFICATIONS

PNEUMATIC INJECTION PUMP'S FEATURES

PUMP MODEL: EVATCR650 / 750



Stroke Adjuster

A positive locking device to hold the stroke length, compact, and its adjustment is simplified with an internal threaded design that enables easy accessibility and operation.

Air Supply Port

Pneumatic Piston & Plunger Assembly

To prevent any possible contact, the clearance between return spring and plunger has been made optimal.

Pneumatic Seal

The sealing arrangement most suitable for pump with a double acting relay, to prevent air flowing into the lubrication chamber.

Fluid seal

This sealing arrangement is used to prevent fluid from entering the fluid chamber.

Discharge Check Valve

A spring-loaded ball check valve with TFE composite seal, ensuring long life sealing and smooth operation.

Pneumatic Drive Cylinder

Ensure concentric movement of the plunger through the seal, the pneumatic piston and fluid plunger assembly is guided at both ends on the composite bearings.

Lubricator

Lubrication Chamber

Silicone oil will be filled once over the life of the seals.

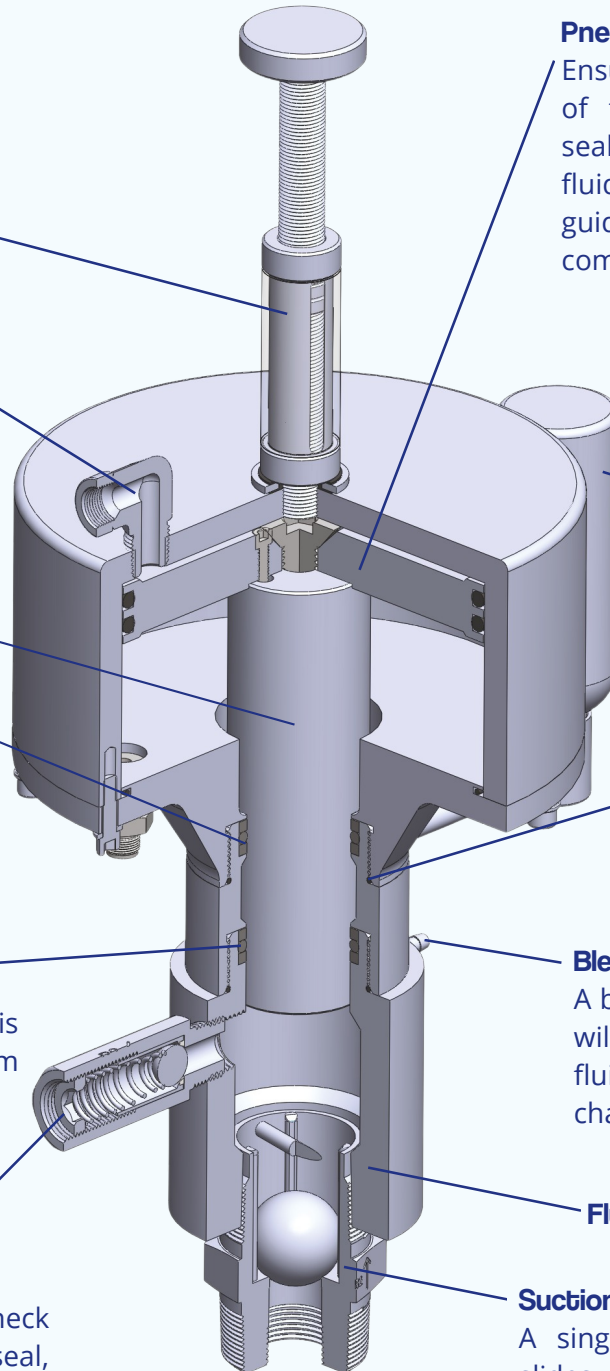
Bleeder

A bleeder with a barbed fitting will be inserted to collect the fluid bled from the fluid chamber.

Fluid Chamber

Suction Check Valve

A single ball check valve freely slides up and down to fit the seat, which is machined with a conically shaped chamber to prevent reverse flow.



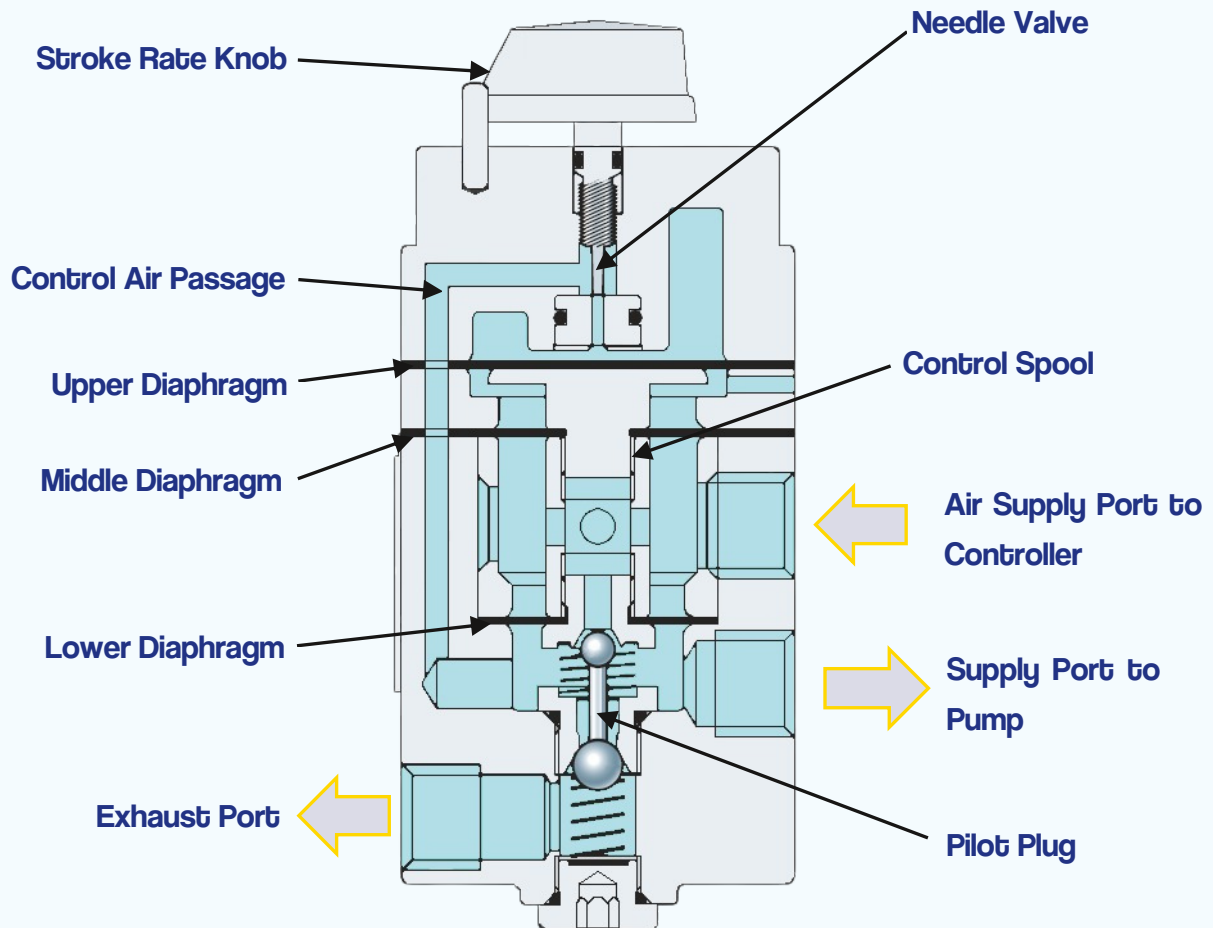
FEATURES & SPECIFICATIONS



PNEUMATIC CONTROLLER

ATPC10 Controller is a pneumatic timer used to operate all EVOL Air Titan series pneumatic pump. The controller has upper and lower chambers, which are separated by flexible diaphragms rather than sliding seals. A capillary tube controlled by a needle valve is used to transfer air/gas supply into the pump, from the lower to the upper chamber.

A pilot plug closes a vent and opens the air supply port to the pump when the spool is in the highest position. When the spool is in its lowest position, the pilot valve prevents the air supply from entering the pump, thus opening the exhaust port. The spool will then return to its highest position to repeat the process.



Cross Sectional View of Controller (ATPC10)

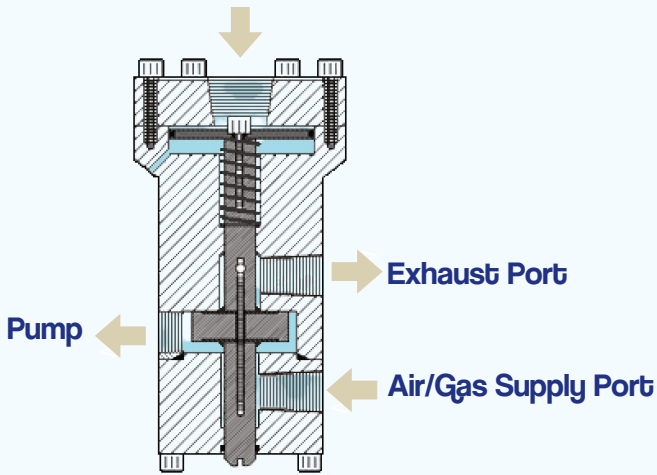
FEATURES & SPECIFICATIONS



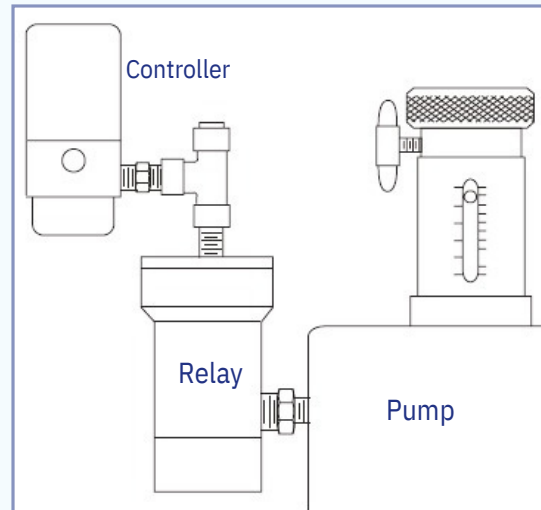
PNEUMATIC RELAY

Pneumatic relay (pilot-operated valve) is required to give the higher air/gas flow rates required for pneumatic pumps with cylinders larger than 3 inches in diameter. The pulses generated by the controller will actuate the pneumatic relay. Single acting relay is paired with pumps with return springs, while the double acting relay is paired with the pumps required to return the piston-plunger assembly using air pressure.

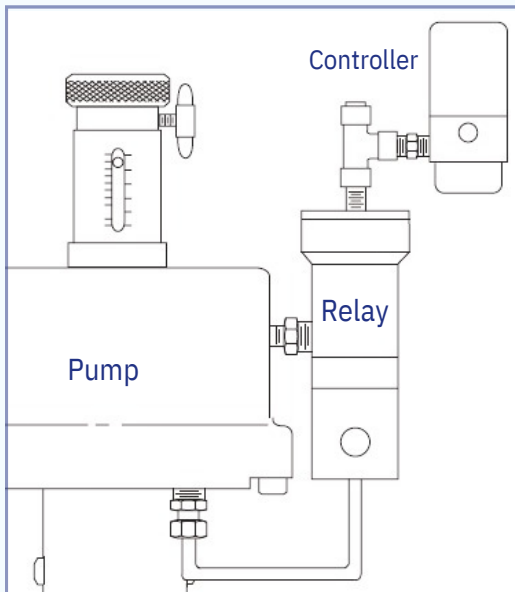
Pilot Pulse from Controller



Single Acting Relay (ATPR10)

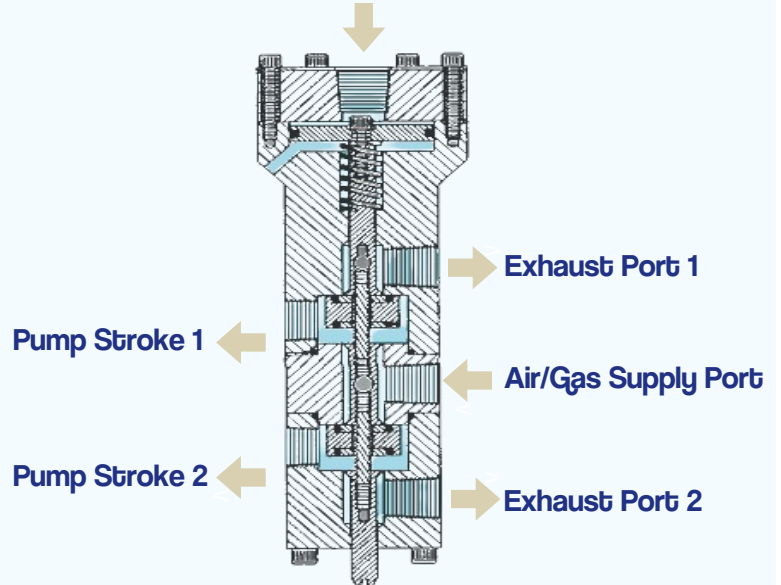


Cross Sectional View and Installation



Double Acting Relay (ATPR20)

Pilot Pulse from Controller



Cross Sectional View and Installation



DISCHARGE STROKE:

As the controller air or gas enters the pneumatic drive cylinder, the piston-plunger assembly moves down into the fluid chamber while compressing the return spring. The risen pressure causes the suction valve to close, and opens the discharge check valve. An accurate amount of fluid corresponding with the stroke of the plunger is discharged.

SUCTION STROKE:

When air is released from the pneumatic drive cylinder, the return spring drives the piston-plunger assembly to return to its original position. The retraction of the piston causes the pressure to drop in the fluid chamber and allows the spring loaded discharge check valve to close and suction check valve to open. Thus, the fluid chamber is filled and ready for discharge.



MODELS OVERVIEW

Controller Information

SPECIFICATIONS	UNIT	MODEL
		ATPC10
Supply Pressure	bar	2.4 - 9.6
	psi	35 - 100
Stroke per minute	SPM	45
Body Material		SS316
Elastomer		Neoprene
Spool Style		Diaphragm

Relay Information

SPECIFICATIONS	UNIT	MODEL	
		ATPR10	ATPR20
Supply Pressure	bar	2.4 - 10.3	3.4 - 10.3
	psi	35 - 150	50 - 150
Body Material		SS316	SS316
Pump Model Pairing		EVATCR450 EVATCR550	EVATCR650 EVATCR750

Recommended Operating Condition

Suction

EVOL Air Titan pneumatic injection pumps are designed for flood suction only.

Recommended suction inlet pressure:

0.3 meters (minimum) to 3 meters (maximum)

Suction lift condition is **NOT** recommended.

Accuracy

± 0.5%

Viscosity

Maximum 960 centipoise

Flow Turndown Ratio

100 : 1

Temperature

-30°F to 180°F (-34°C to 82°C)

Air Supply

Regulators must be installed for controller and relay as fluctuating pressure will affect the performance and accuracy.

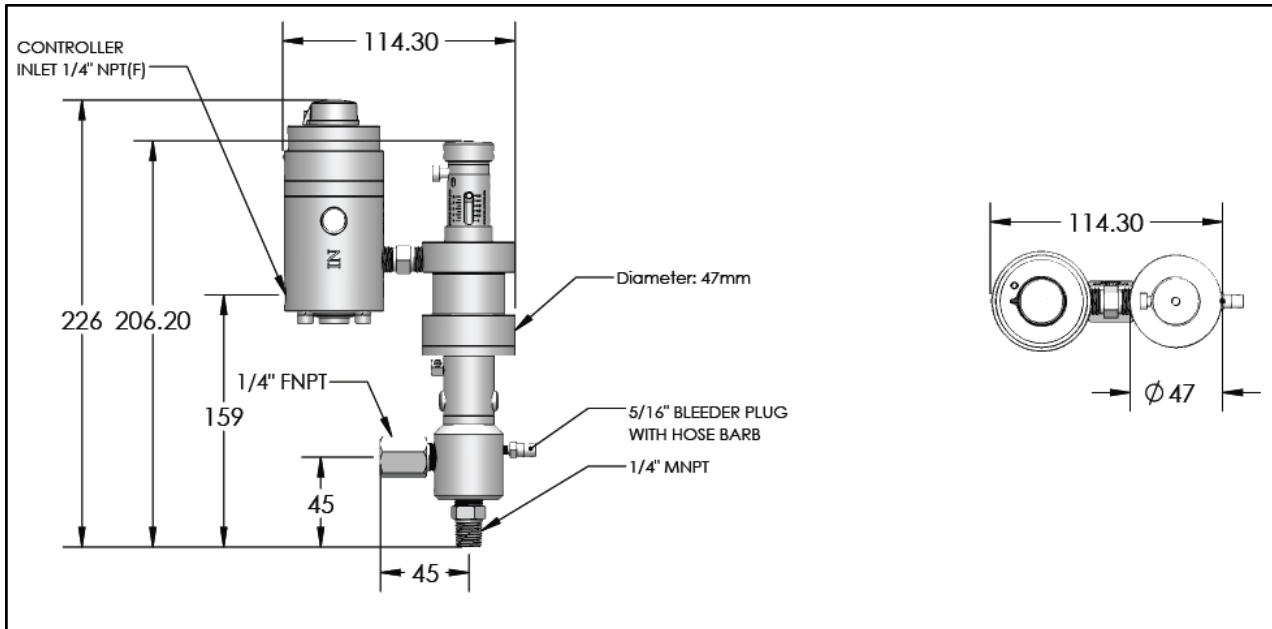
Air must be free from particles and dry air is recommended for trouble free operation.



MODELS OVERVIEW



EVATC150

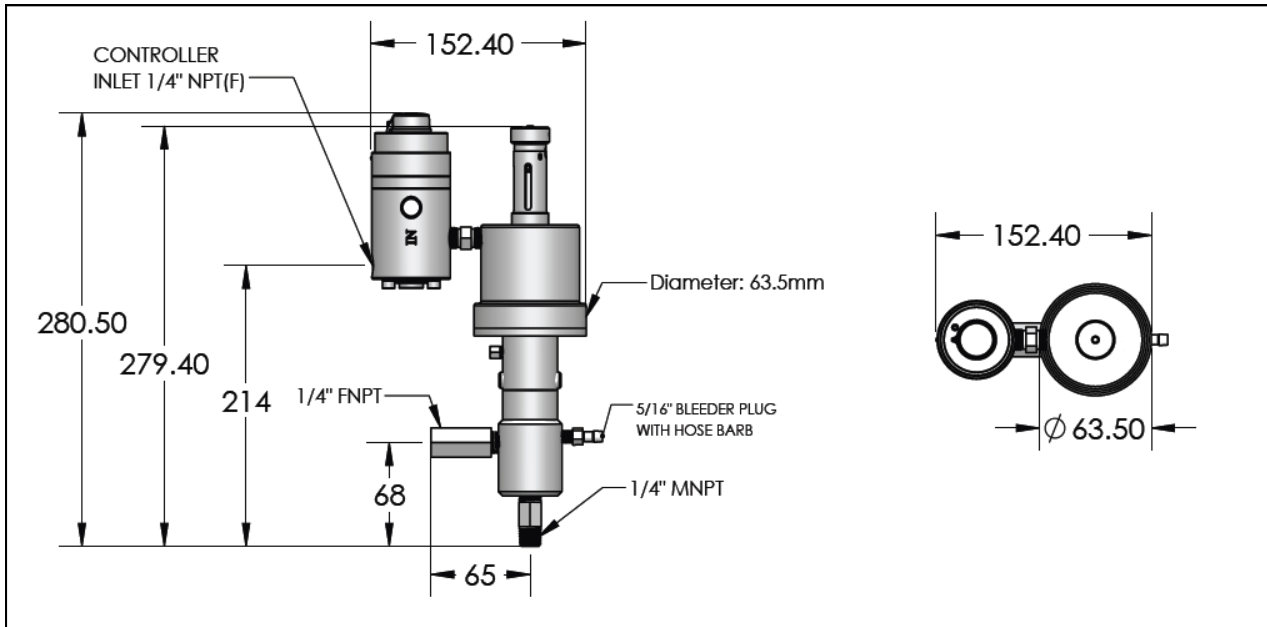


SPECIFICATIONS	UNIT	
Maximum Discharge Volume	L/h	0.27
Volume per Stroke	ml	0.1
Maximum Discharge Pressure	barg	596.4
	psig	8650
Plunger Diameter	mm	3.175
Piston Diameter	mm	31.75
Stroke Length	Inch	0.5
Stroke per minute	SPM	45
Maximum Air Consumption @ 6.9 bar (100 psig)	m ³ / day	5
Maximum Air Consumption @ 10.3 bar (150 psig)	m ³ / day	-
Shipping Weight (Approx.)	kg	3.2

MODELS OVERVIEW



EVATC250

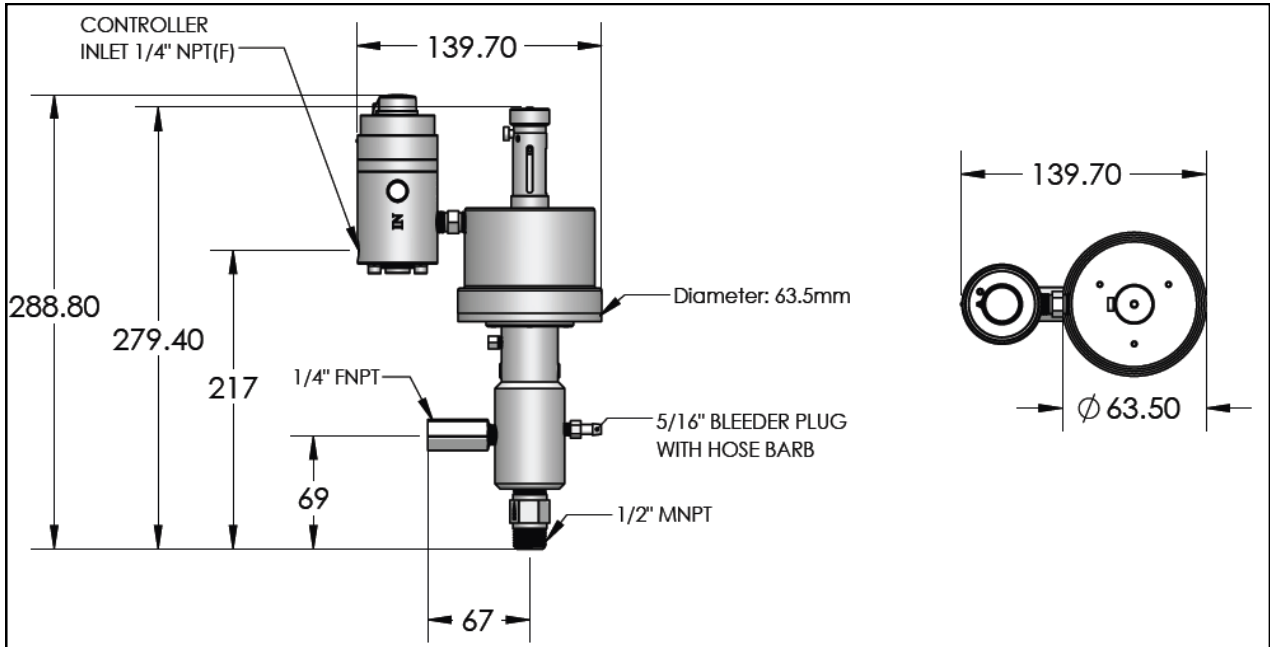


SPECIFICATIONS	UNIT	
Maximum Discharge Volume	L/h	2.16
Volume per Stroke	ml	0.8
Maximum Discharge Pressure	barg	903.2
	psig	13100
Plunger Diameter	mm	6.35
Piston Diameter	mm	57.1
Stroke Length	Inch	1
Stroke per minute	SPM	45
Maximum Air Consumption @ 6.9 bar (100 psig)	m ³ / day	59
Maximum Air Consumption @ 10.3 bar (150 psig)	m ³ / day	-
Shipping Weight (Approx.)	kg	4.1

MODELS OVERVIEW



EVATC350

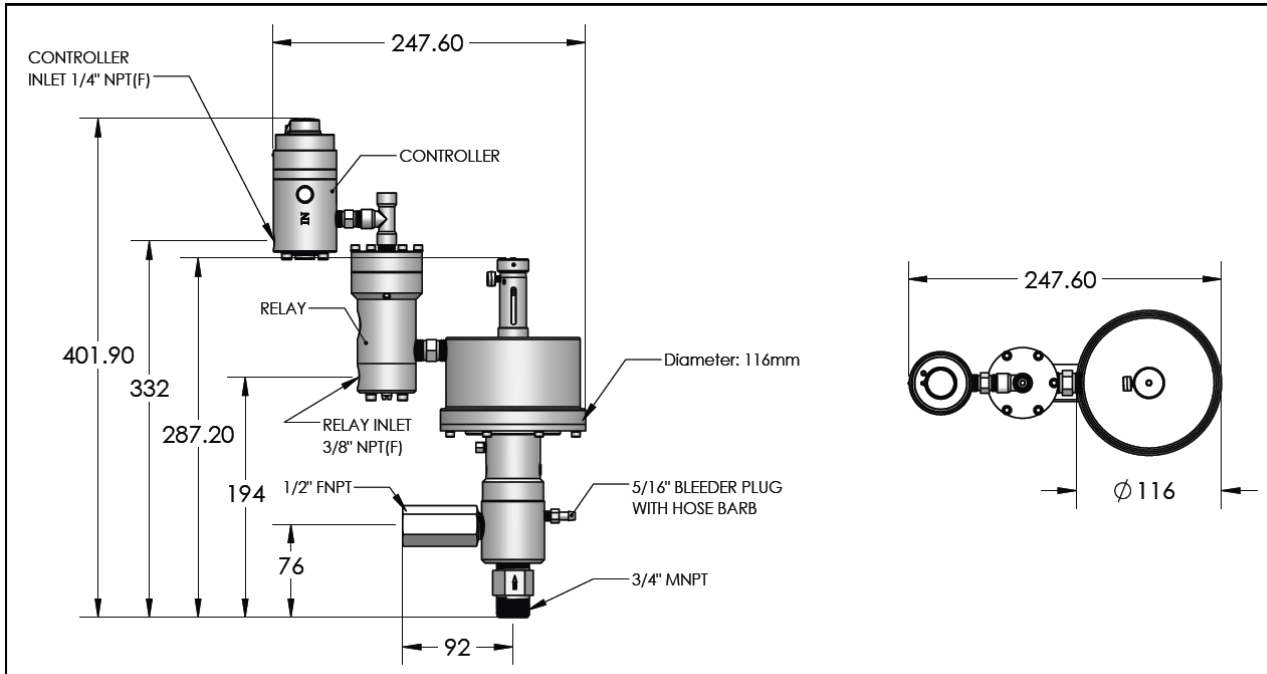


SPECIFICATIONS	UNIT	
Maximum Discharge Volume	L/h	8.55
Volume per Stroke	ml	3.2
Maximum Discharge Pressure	barg	224.1
	psig	3250
Plunger Diameter	mm	12.700
Piston Diameter	mm	76.20
Stroke Length	Inch	1
Stroke per minute	SPM	45
Maximum Air Consumption @ 6.9 bar (100 psig)	m ³ / day	59
Maximum Air Consumption @ 10.3 bar (150 psig)	m ³ / day	-
Shipping Weight (Approx.)	kg	4.5

MODELS OVERVIEW



EVATCR450

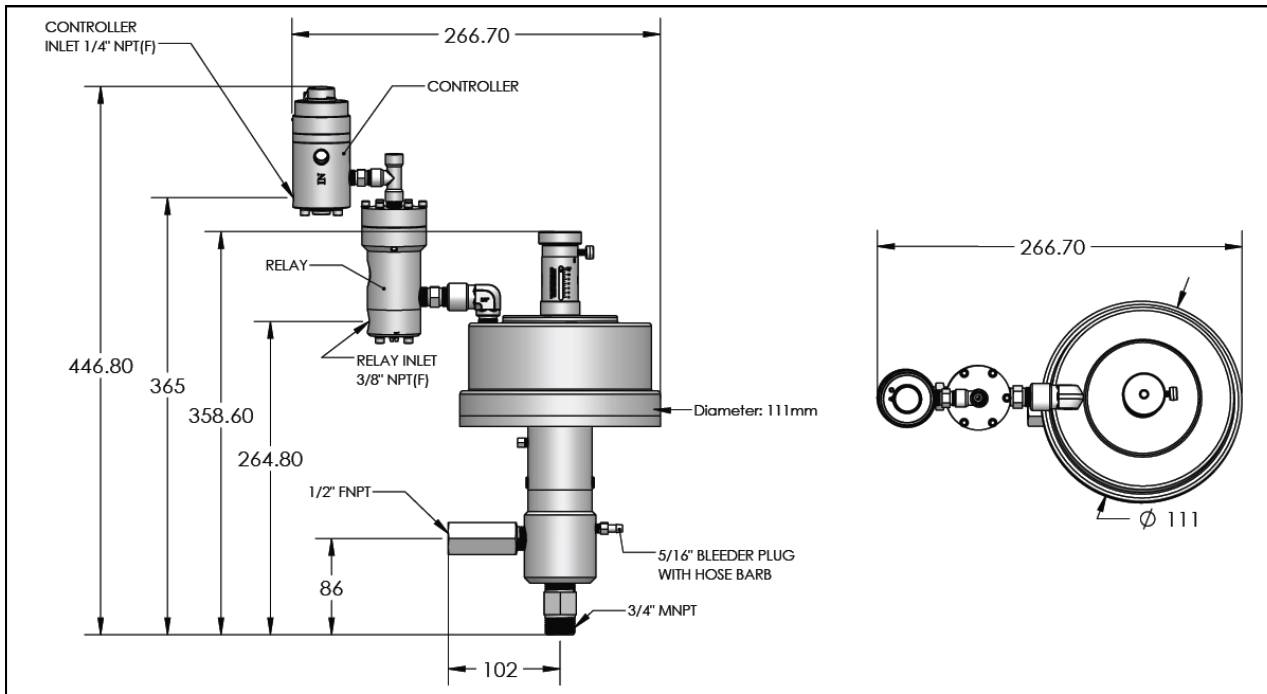


SPECIFICATIONS	UNIT	
Maximum Discharge Volume	L/h	18.9
Volume per Stroke	ml	7
Maximum Discharge Pressure	barg	178.3
	psig	2600
Plunger Diameter	mm	19.050
Piston Diameter	mm	101.60
Stroke Length	Inch	1
Stroke per minute	SPM	45
Maximum Air Consumption @ 6.9 bar (100 psig)	m ³ / day	104
Maximum Air Consumption @ 10.3 bar (150 psig)	m ³ / day	150
Shipping Weight (Approx.)	kg	7.5

MODELS OVERVIEW



EVATCR550

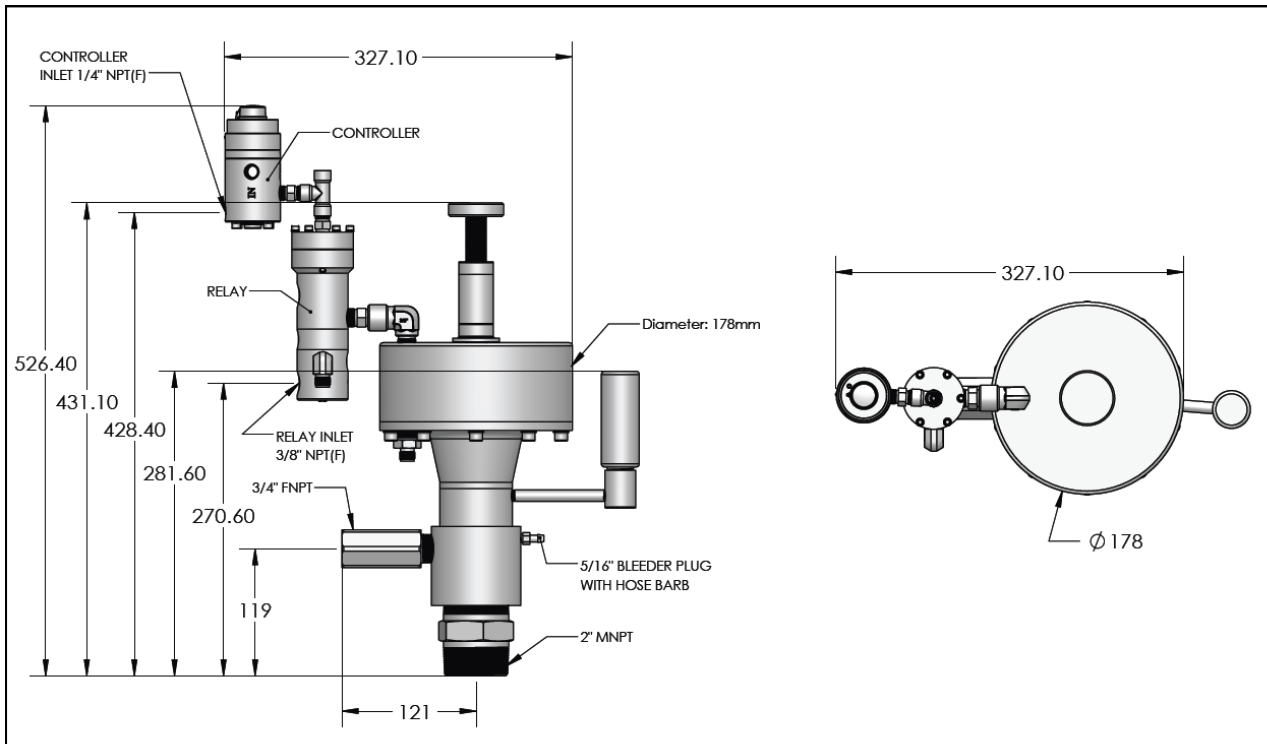


SPECIFICATIONS	UNIT	
Maximum Discharge Volume	L/h	34.37
Volume per Stroke	ml	12.7
Maximum Discharge Pressure	barg	104.8
	psig	1520
Plunger Diameter	mm	25.4
Piston Diameter	mm	152.4
Stroke Length	Inch	1
Stroke per minute	SPM	45
Maximum Air Consumption @ 6.9 bar (100 psig)	m ³ / day	104
Maximum Air Consumption @ 10.3 bar (150 psig)	m ³ / day	150
Shipping Weight (Approx.)	kg	13.2

MODELS OVERVIEW



EVATCR650

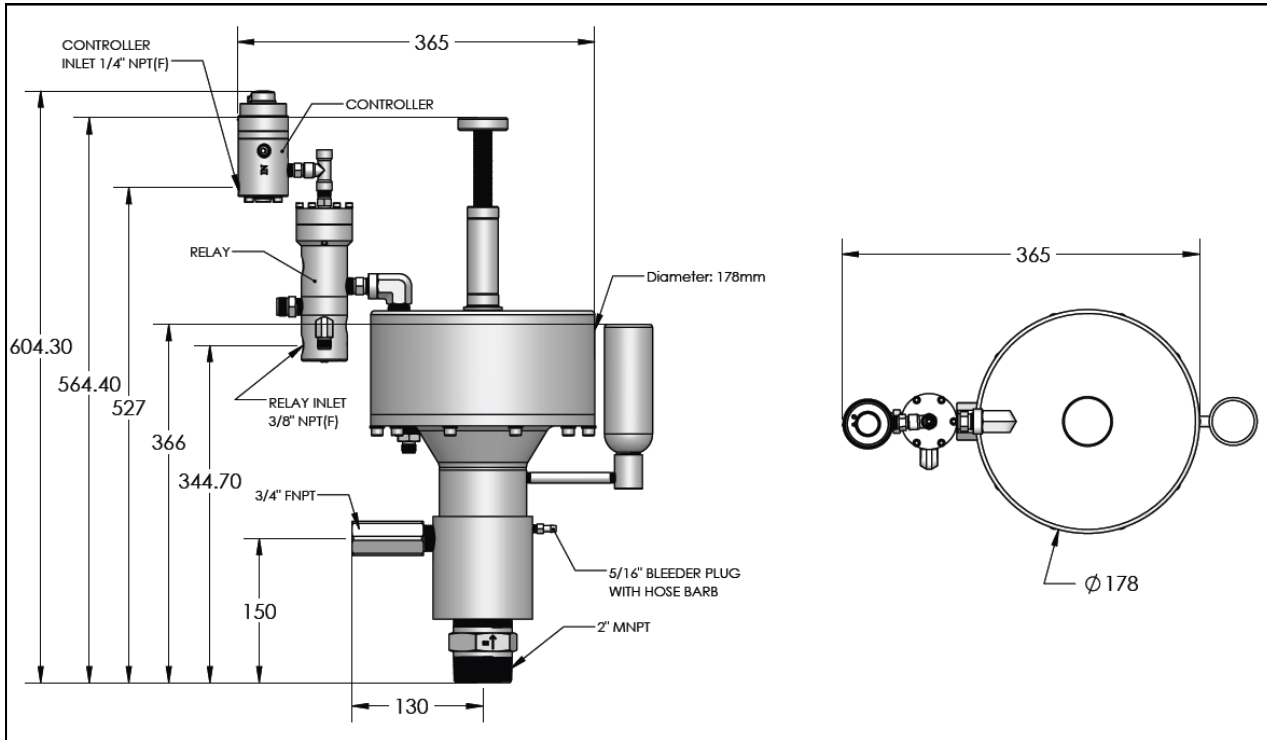


SPECIFICATIONS	UNIT	
Maximum Discharge Volume	L/h	86.4
Volume per Stroke	ml	36
Maximum Discharge Pressure	barg	134
	psig	1950
Plunger Diameter	mm	38.100
Piston Diameter	mm	152.40
Stroke Length	Inch	1.5
Stroke per minute	SPM	40
Maximum Air Consumption @ 6.9 bar (100 psig)	m ³ / day	230
Maximum Air Consumption @ 10.3 bar (150 psig)	m ³ / day	736
Shipping Weight (Approx.)	kg	17.7

MODELS OVERVIEW



EVATCR750



SPECIFICATIONS	UNIT	
Maximum Discharge Volume	L/h	340.65
Volume per Stroke	ml	160
Maximum Discharge Pressure	barg	58
	psig	900
Plunger Diameter	mm	57.15
Piston Diameter	mm	203.3
Stroke Length	Inch	2.25
Stroke per minute	SPM	35
Maximum Air Consumption @ 6.9 bar (100 psig)	m ³ / day	906
Maximum Air Consumption @ 10.3 bar (150 psig)	m ³ / day	1302
Shipping Weight (Approx.)	kg	38.2



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Products are subject to change without prior notice.
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