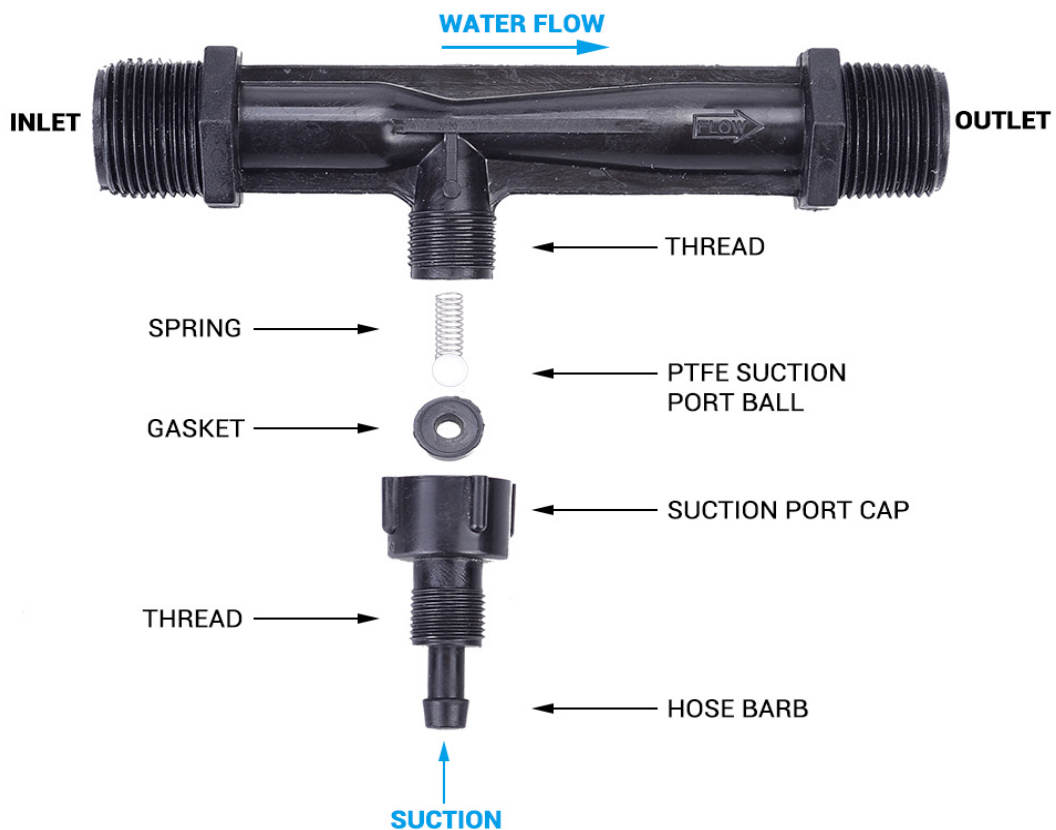


# Venturi catalogue

## Brief introduction

Ambohr is the world's leading manufacturer of high-performance Venturi differential pressure injectors with internal mixing vanes that transfer or mix liquid or gas additives into solution. When a sufficient pressure difference exists between the inlet and outlet sides of the injector, a vacuum is created inside the injector body, which initiates suction of a liquid or gas through the suction port. AMBOHR Injectors operate over a wide range of pressures and require only a minimal pressure differential between the inlet and outlet sides to initiate a vacuum at the suction port.



Injector(gas-liquid mixing chamber), also known as water ejector, it is formed by the nozzle, the suction chamber, the divergent tube of three parts, is developed by using the theory of inject pressure kind of multipurpose aeration mode, the unique mixture chamber design, strong water mixed with air injection, make a stir well, completely, more exquisite, the bubble dissolved oxygen with high efficiency, the traditional aeration equipment generally below 10%, oxygen conversion using oxygen jet aeration equipment in the form of conversion rate can reach more than 25%.

## Material

**PVDF** mainly refers to the partial fluorine ethylene homopolymer or partial fluorine ethylene and other small amount of fluoride copolymer of vinyl monomers, that combines the characteristics of fluorine resin and general resin, in addition to have good resistance to chemical corrosion resistance, high temperature resistance, oxidation resistance, weather resistance, radiation resistance, also a piezoelectric, dielectric properties, thermoelectric performance



**PP** material is polypropylene, polypropylene for non-toxic, odorless, tasteless milk white high-crystalline polymer, density is only 0.9-0.91g/cm<sup>3</sup> is one of the lightest plastics. It is particularly stable for water, in the water absorption rate of only 0.01%, Good formability, but because of shrinkage (1% ~ 2.5%), Thick-walled products are easy to dent. Common products: basin, bucket, furniture, film, woven bag, bottle cap, car bumper and so on

## Agricultural Applications

### **Precise chemical applications for irrigation systems-the low cost solution.**

Injecting chemicals into a pressurized irrigation system (chemigation) is the most common application for Ambohr Injectors in agriculture. Ambohr pioneered this simple-to-use and easy to install solution more than 30 years ago. Using high-efficiency patented and trademarked Ambohr Venturi injectors, Ambohr's chemigation technology delivers a uniform distribution of chemicals and fertilizers within the irrigation water. Ambohr Injectors offer the advantages of an easy to maintain non-mechanical system. With no moving parts, and often no supplemental pump system, Ambohr is the cost-effective choice. Because Ambohr Injectors are designed for vacuum transfer of irrigation chemicals, they provide safe chemigation.

- **Easy to install**
- **Years of proven performance**
- **Uniform chemical injection**
- **Low cost solution to other injection methods**
- **Injection stops when water flow stops**
- **Available in polypropylene (PP) or polyvinylidene fluoride (PVDF)**
- **High efficiency, low energy consumption, low noise**



## Sewage aeration Applications

### **improve the oxygen conversion unit power -the effeptive solution**

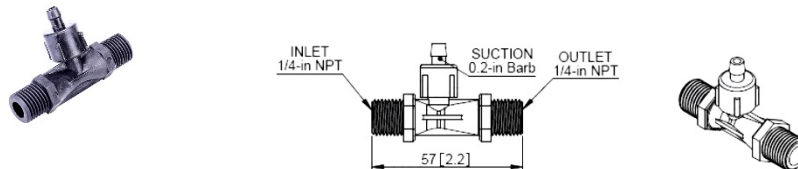
It can be efficient aeration was carried out on the water, both the amount of dissolved oxygen (do) required to improve the sewage treatment, and to remove the part of the BOD, the return sludge, the lower level after treatment facilities of load: used for biological contact oxidation pool, replaced the traditional biochemical aeration method, without complex blower piping system and aerator, aeration equipment

- **Easy to install**
- **Years of proven performance**
- **Uniform chemical injection**
- **Low cost solution to other injection methods**
- **Injection stops when water flow stops**
- **Available in polypropylene (PP) or polyvinylidene fluoride (PVDF)**
- **High efficiency, low energy consumption, low noise**



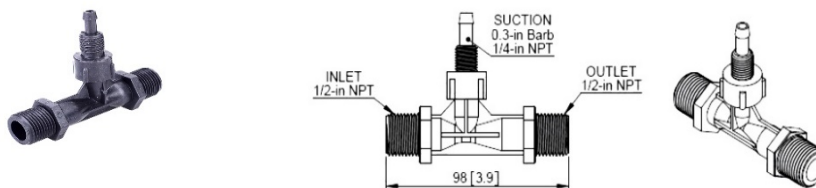
## product presentation

### 1. AVS0104D/AVD0104D



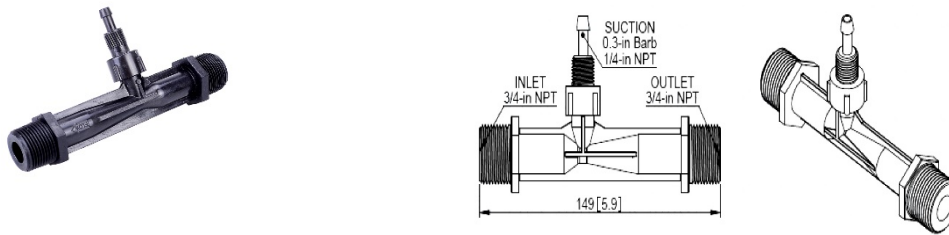
Inlet & Outlet (Nominal Pipe Size) Male NPT	1/4-in
Suction Port Barb (Inner Diameter)	0.2-in Barb"
Suction Port Thread (Nominal Pipe Size)	N/A
Length	57mm (2.2")
Supply Water	Temp.0-60°C
PH Value	5-11
Power of the water pump (Reference)	
Water yield	250L/h (4.2L/min 0.07L/s)
Material	PVDF body, Teflon ball, Kel-F seat
Weight:	0.03lb (0.015kg)

### 2. AVS0204D/AVD0204D



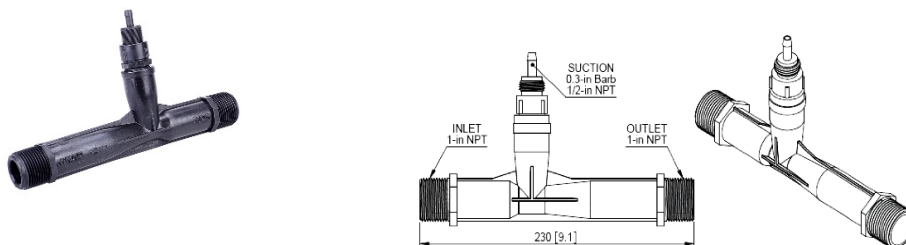
Inlet & Outlet (Nominal Pipe Size) Male NPT	1/2-in
Suction Port Barb (Inner Diameter)	0.3-in Barb"
Suction Port Thread (Nominal Pipe Size)	1/4-in NPT
Length	98mm (3.9")
Supply Water	Temp.0-60°C
PH Value	5-11
Power of the water pump (Reference)	0.35kW
Water yield	1000L/h (16.7L/min 0.28L/s)
Material	PVDF body, Teflon ball, Kel-F seat
Weight:	0.08lb (0.035kg)

### 3. AVS0304D/AVD0304D AVS0304D/AVD0304D



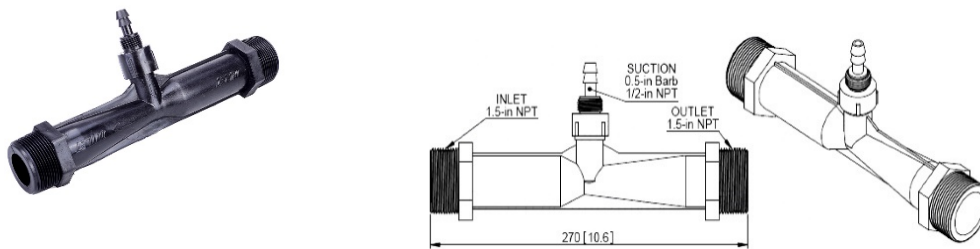
Inlet & Outlet (Nominal Pipe Size) Male NPT	3/4-in
Suction Port Barb (Inner Diameter)	0.3-in Barb"
Suction Port Thread (Nominal Pipe Size)	1/4-in NPT
Length	149mm (5.9")
Supply Water	Temp.0-60°C
PH Value	5-11
Power of the water pump (Reference)	0.55kW
Water yield	3000L/h (50.1L/min 0.84L/s)
Material	PVDF body, Teflon ball, Kel-F seat
Weight:	0.14lb (0.063kg)

### 4. AVS0404D/AVD0404D



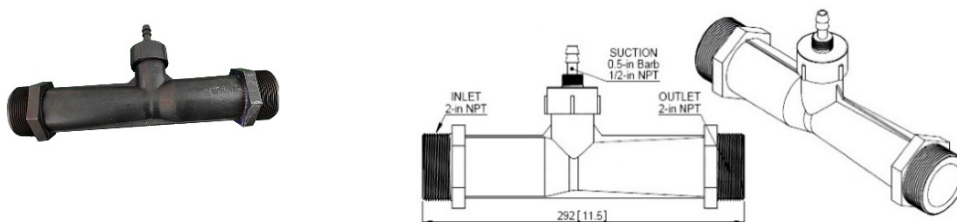
Inlet & Outlet (Nominal Pipe Size) Male NPT	1-in
Suction Port Barb (Inner Diameter)	0.3-in Barb"
Suction Port Thread (Nominal Pipe Size)	1/2-in NPT
Length	230mm (9.1")
Supply Water	Temp.0-60°C
PH Value	5-11
Power of the water pump (Reference)	0.75kW
Water yield	10000L/h(166.7L/min, 2.8L/s)
Material	PVDF body, Teflon ball, Kel-F seat
Weight:	0.4lb (0.19kg)

## 5. AVS0604D/AVD0604D



Inlet & Outlet (Nominal Pipe Size) Male NPT	1.5-in
Suction Port Barb (Inner Diameter)	0.5-in Barb"
Suction Port Thread (Nominal Pipe Size)	1/2-in NPT
Length	270mm (10.6")
Supply Water	Temp.0-60°C
PH Value	5-11
Power of the water pump (Reference)	1.5kW
Water yield	25000L/h(416.67L/min , 6.94L/s)
Material	PVDF body, Teflon ball, Kel-F seat
Weight:	0.7lb (0.315kg)

## 6. AVS0804D/AVD0804D

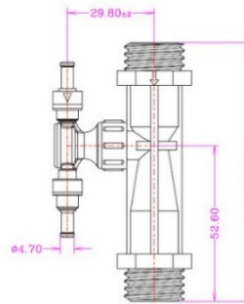


Inlet & Outlet (Nominal Pipe Size) Male NPT	2-in
Suction Port Barb (Inner Diameter)	0.5-in Barb"
Suction Port Thread (Nominal Pipe Size)	1/2-in NPT
Length	292mm (11.5")
Supply Water	Temp.0-60°C
PH Value	5-11
Power of the water pump (Reference)	2.2kW
Water yield	50000L/h(833.33L/min 13.9L/s)
Material	PVDF body, Teflon ball, Kel-F seat
Weight:	lb ( kg)

## 7. AVS1604D/AVD0604D

Inlet & Outlet (Nominal Pipe Size) Male NPT	4-in
Suction Port Barb (Inner Diameter)	0.5-in Barb"
Suction Port Thread (Nominal Pipe Size)	1/2-in NPT
Length	600mm (23.62")
Supply Water	Temp.0-60°C
PH Value	5-11
Power of the water pump (Reference)	11kW
Water yield	100000L/h(1666.67L/min , 27.8L/s)
Material	PVDF body, Teflon ball, Kel-F seat
Weight:	lb ( kg)

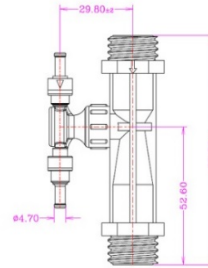
## 8.AVB0204DS



Inlet & Outlet (Nominal Pipe Size) Male NPT	1/2-in
Suction Port Barb (Inner Diameter)	0.16-in Barb"
Suction Port Thread (Nominal Pipe Size)	N/A
Overflow outlet	0.16-in Barb
Length	87.5mm (3.44")
Supply Water	Temp.0-60°C
PH Value	5-11
Power of the water pump (Reference)	11kW
Water yield	96L/h 1.6L/min 0.027L/s
Material	PVDF body, Teflon ball, Kel-F seat
Weight:	0.066lb (0.03kg)

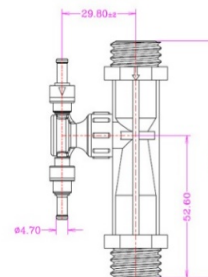


## 9.AVB0204DM



Inlet & Outlet (Nominal Pipe Size) Male NPT	1/2-in
Suction Port Barb (Inner Diameter)	0.16-in Barb"
Suction Port Thread (Nominal Pipe Size)	N/A
Overflow outlet	0.16-in Barb
Length	87.5mm (3.44")
Supply Water	Temp.0-60°C
PH Value	5-11
Power of the water pump (Reference)	11kW
Water yield	180L/h 3L/min 0.05L/s
Material	PVDF body, Teflon ball, Kel-F seat
Weight:	0.066lb (0.03kg)

## 10.AVB0204DL



Inlet & Outlet (Nominal Pipe Size) Male NPT	1/2-in
Suction Port Barb (Inner Diameter)	0.16-in Barb"
Suction Port Thread (Nominal Pipe Size)	N/A
Overflow outlet	0.16-in Barb
Length	87.5mm (3.44")
Supply Water	Temp.0-60°C
PH Value	5-11
Power of the water pump (Reference)	11kW
Water yield	240L/h 4L/min 0.067L/s
Material	PVDF body, Teflon ball, Kel-F seat
Weight:	0.066lb (0.03kg)

## Typical Installations for Irrigation Systems

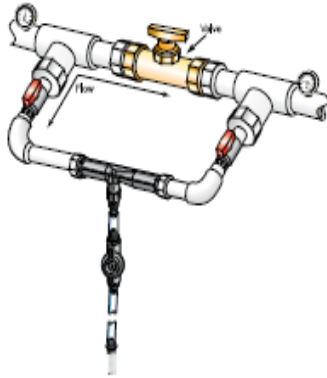


Diagram 1  
Bypass Assembly "A"

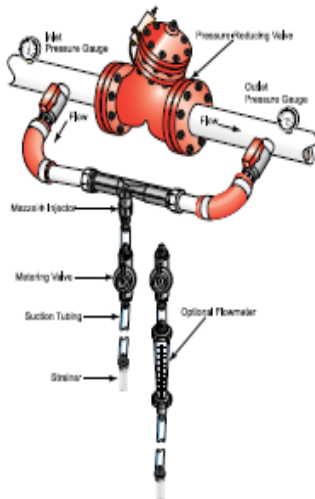


Diagram 2  
With Pressure-Reducing Valve

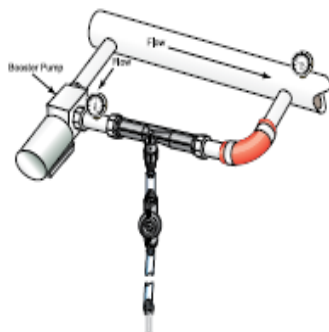


Diagram 3  
Bypass with Booster Pump

Injectors require differential pressure to create suction. The injector's outlet pressure (backpressure) must be sufficiently lower than the inlet pressure. For most models, significant suction occurs with 25-30% pressure differential.

**Ambohr** Injectors can be installed with the main body in a horizontal position or vertically with the outlet up. The injector suction port can be oriented in any position.

To insure consistent suction, the outlet side of the injector should be flooded or have some restriction downstream (backpressure).

Always use full flow isolation valves and non-restrictive fittings when connecting to the injector. These valves and fittings should be at least the same size as the inlet/outlet connections of the injector. Isolation valves are optional, but recommended.

Do not over-tighten the injector when attaching piping and fittings. The use of an appropriate thread sealant is recommended.

Install pressure gauges near the inlet and outlet of the injector to monitor operating conditions.

### Diagrams 1 and 2

The injector is installed around a point of restriction, such as a regulator valve or a gate/ball valve. These create a differential pressure across the injector, thereby allowing the injector to produce a vacuum and draw in material.

### Diagram 3

When mainline pressure cannot be reduced, a small booster pump can be used to create a sufficient differential to operate the injector.

## Notice



- The efflux device must be installed horizontally or vertically upward. If it is really necessary to install vertically downward, the outlet pressure should be at least 0.35 ~ 0.7KG/CM
- If the outlet of the jet device is directly transported to the outside atmosphere, in order to optimize the suction capacity of the jet device, the outlet of the jet device should be connected with a pipeline with a diameter of no less than DN300
- The nominal diameter of the flow valve and pipe connected with the jet device shall not be less than the nominal diameter of the jet device
- The inlet and outlet of the jet device need a certain pressure difference to work normally (usually the pressure difference is not less than 25 ~ 30%). When the pressure difference is not enough, the installation position of the jet device should be reconsidered. It is suggested to install a pressure gauge at the inlet and outlet of the jet device to measure pressure difference
- When the flanges of the jet device are connected, attention must be paid to the stress-free connection, the inlet and outlet of the jet device and the air suction inlet must be fixed, and the suction throat of the jet device cannot be subjected to large stress, so as to ensure the normal operation of the jet device
- When the jet is loaded into the water in the pool, the pipe connected with it, such as carbon steel, should take insulation measures to prevent the occurrence of electrochemical corrosion of carbon steel pipe, and the suction pipe above the water surface must be fixed
- When installing, pay attention to the foreign body does not fall into the suction tube, so as not to cause blockage
- When the efflux device is installed outside the pool, such as self-priming type, it is recommended that the efflux device be installed above the water surface of the pool to prevent sewage from flowing out when the pump suddenly stops running; The air delivery pipe of the air blower pressure type should also be higher than the water surface. It is recommended to install a side pass branch pipe and a self-priming bypass valve between the air inlet valve and the suction port of the jet blower
- Adopt self-priming type installation, it is recommended that the suction port is in a downward or horizontal position

- The support shall be arranged according to the specific situation of piping arrangement and the corresponding piping installation standard
- Ensure the working amount of water and the oxygenation performance of the jet device. The inlet and outlet valves of the water pump and the pipelines connected with the jet aeration system are all installed with gate valves instead of butterfly valves
- In the pipeline construction welding, be sure to ensure that the welding penetration, no welding nodules, welding/slag fall into the nozzle throat and pipeline, so as to avoid the jet device can not work normally
- If the suction port is connected to oxygen, ozone or other special process media piping, it must comply with the relevant piping installation specifications

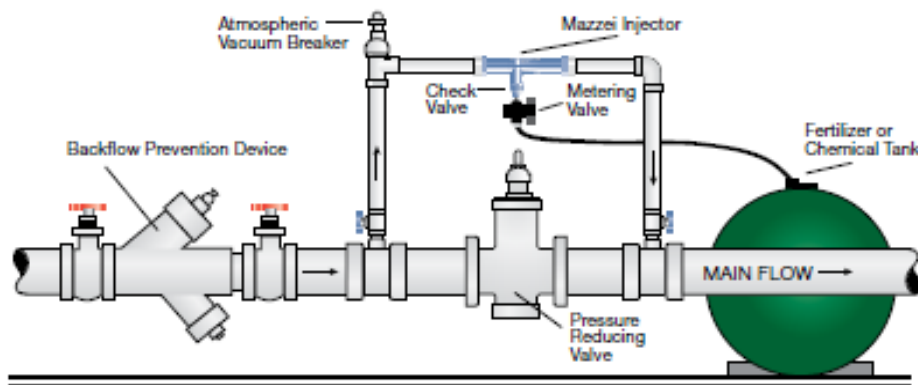
## Use of Anti-Siphon and Backflow Prevention Equipment with AMBOHR Injectors

Recently, the Environmental Protection Agency and other Federal and State regulatory bodies have voiced concerns (and in some states have already adopted regulations) regarding backflow prevention and anti-siphoning in conjunction with the injection of fertilizers or other chemicals into irrigation systems. Generally, these regulations are designed to safeguard individual household or community water supplies and underground aquifers from contamination. This is accomplished by eliminating the possibility of backflow into a well or siphoning into a water system once the irrigation water is shut off.

The following illustrations depict methods of installing Mazzei Injectors in conjunction with anti-siphon and backflow prevention equipment.

### Example #1

This first example depicts a Mazzei Injector installed around a point of restriction such as a regulator valve, which creates a differential pressure in the main flow line, thereby allowing the injector to produce a vacuum for chemical induction into the system.



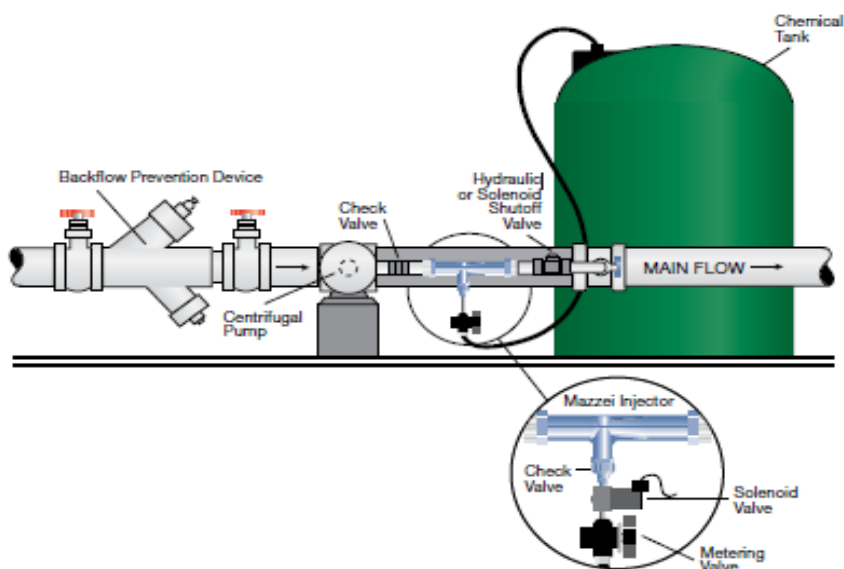
### NOTE

- The injector is installed above the level of the fertilizer or chemical tank
- A simple atmospheric vacuum breaker is placed on the injector bypass line, also above the level of the chemical tank. (This assures a positive anti-siphon system during main flow shutdown.)
- A Reduced Pressure Principle backflow prevention device is installed on the main flow line upstream from the injection equipment to prevent any possible backflow from that point. (Most areas in the U.S. require some type of backflow prevention on all irrigation systems whether they include injection equipment or not.)

## Example #2

This example depicts a Mazzei Injector installed in conjunction with a straight centrifugal pump, which boosts a portion of the main flow through the injector, thereby creating a differential pressure, allowing the injector to produce a vacuum for chemical induction downstream from the pump.

When employing this method, the auxiliary centrifugal pump must be interlocked electrically with the main supply pump so it can be operational only while the main supply pump is running. Since it may not always be practical to install the injector above the level of the chemical tank, this illustration shows methods of isolating the injection system from the main flow line (during shutdown) when the injector is installed below the tank level.



## NOTE

- A one-way check valve is installed on the injector bypass line prior to the inlet of the injector
- A normally closed hydraulic shut-off valve is installed on the injector bypass downstream from the outlet of the injector. (This valve will automatically close during shutdown of the main flow line.) A normally- closed solenoid valve (electrically interlocked with the pump) can also be used at this point.
- As in [example #1](#), a Reduced Pressure Principle backflow prevention device should always be installed in the main flow line upstream from any injection equipment.
- **Inset:** Another method of isolating the chemical from the main flow line, during shutdown, is the use of a small, normally-closed solenoid valve on the chemical suction line between the injector and the chemical tank. This valve must also be electrically interlocked with the pump. A positive shut-off of the chemical line will then occur during a power or breaker failure or at any time the pump is stopped.

appendix

