Venturi Injectors

Netafim™ offers its self-operated chemical injector system, field-proven under all environmental conditions, with over 40 years of technological know-how and experience.



Model 3/4 (3⁄4" × 0.9)



Model 2"(2" x 12)



Higher efficiency

No moving parts

Cost Effective

Benefits & Features

- **Higher efficiency**
  Easy installation, operation and maintenance
- **No moving parts**
  Operated by existing water pressure
- **Cost Effective**
  Electricity-free system
- **Broad coverage**
  Across various sized plots
- **High resistance**
  to chemicals used in agriculture
- **Integral non-return valve**
  assures safe operation

Suitable for injection up to 1200 l/h
Adaptable to all irrigation systems
Regulated chemical injection

Principle of operation

The Injector operates on the principle of vacuum suction created by an advanced Venturi complex. This implements the latest know-how in hydraulic technology and allows the injectors to operate at small pressure differentials.
A vacuum is created as the water flows through a converging passage that gradually widens (see diagram).
Injection is activated at the chemical inlet, when there is a pressure differential between the water entering the injectors and the water and chemical leaving to the irrigation system.
This pressure differential can be between 15-75% according to the required injection rate.

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⟶ SPECIFICATIONS REQUIRED FOR ORDERING CHEMICAL INJECTORS

- Minimum and maximum flow rate
- Permitted or required head loss.
- Pressure at entry point of irrigation.
- Flow rate of chemical to be injected into the system.

GENERAL DATA		MODEL NETAFIM 2" (2" X 12)	MODEL 3/4 (3/4" "X 0.9)
MATERIALS	BODY	PP WITH FIBERGLASS FILL	POLYPROPYLENE (PP)
	INTERNAL COMPONENTS	PP WITH FIBERGLASS FILL	POLYPROPYLENE (PP);HDPE; PVC
	GASKET	DUPONT VITON A	VITON A; EPDM
	SPRING	HASTELLOY C276	STAINLESS STEEL (SS316)
CONNECTIONS	DIAMETER	2"	3/4"
	THREAD TYPE	BSP	BSP
DIMENSIONS (MM)	WIDTH	220	252
	LENGTH	520	292

⟶ ACID RESISTANCE

- % is by weight at 21°C (70°F)
- The acid resistance table indicates the resistance of injector components, and is not a recommendation to use the acid mentioned.

MODEL	HNO_3	H_3PO_4	H_2SO_4	HCL	H_2O_2				
	NITRIC	PHOSPHORIC	SULFURIC	HYDROCHLORIC	HYDROGEN PEROXIDE	CHLORINE (AS HYPOCHLORIDE)	ACETIC ACID	CITRIC ACID	FORMIC ACID
2"	<10%	<85%	<90%	<30%	<30%	<10%	<20%	<90%	<5%
3/4"	<10%	<85%	<80%	NR	<30%	NR	<20%	<90%	<5%

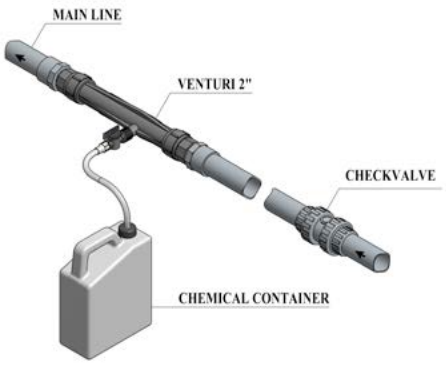
⟶ INSTALLATION

Warning

Make sure that adequate filtration is installed upstream from to the injector, to protect the Venturi's nozzle from clogging.

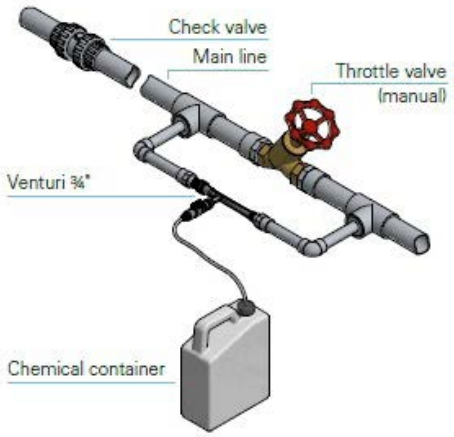
2" Venturi inline

Installation of injector in line to the mains.
This method is used in cases where the flow rate in the system is low and within the flow rate capabilities of the injector or if pressure reduction is not a problem.



Venturi + manual valve

Installation of injector as a bypass to a throttle manual valve.
This method is using a manual valve to create the pressure drop needed for the Venturi operation.
Care should be taken to ensure that the output pressure is sufficient to operate the irrigation system.

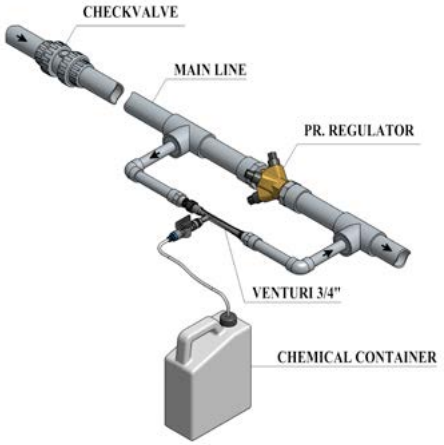


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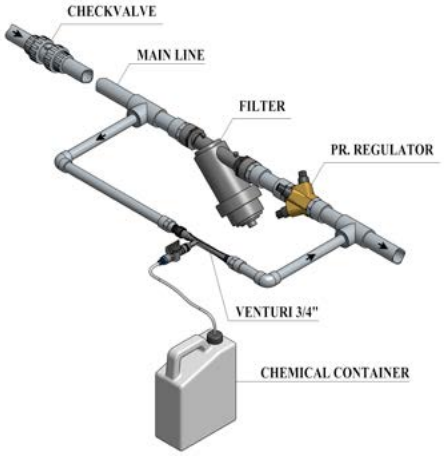
Venturi + PRV

Installation of injector as a bypass to pressure regulator.
This method is based upon a sufficient pressure drop by the regulator without additional valves.



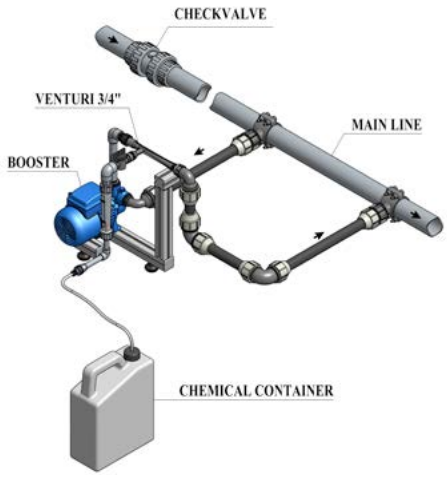
Venturi + PRV + filter

Installation of injector as a bypass to a filter and pressure regulator.
This method is used when the pressure regulator breaks less than the minimum required pressure differential and additional desired pressure drop is provided by a filter. This installation utilizes the combined pressure drop of the filter and pressure regulator to operate the injector and is particularly suitable for drip irrigation system.



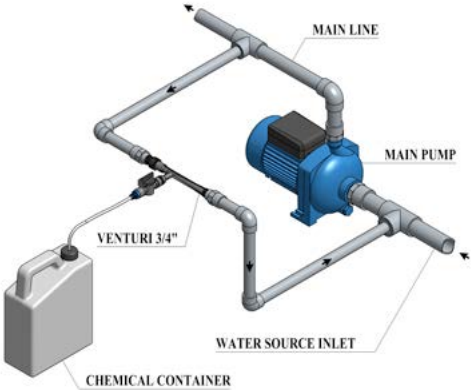
Venturi + booster

Installation of injector with booster pump.
This method is used when there is inadequate or undesirable pressure drop in the mains to activate the injector. The booster pump creates additional pressure to activate the injector and prevent head loss to the system. There should be a check valve before the bypass.

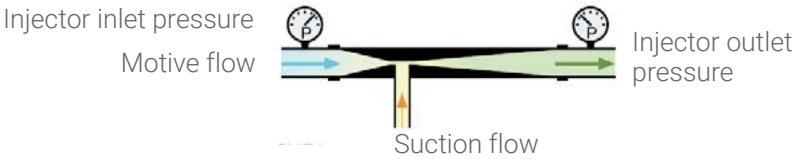


Venturi around the main pump

Installation of injector as a bypass to an existing water pump.
This method utilizes existing pressure differentials and saves additional energy.



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→ INJECTOR PERFORMANCE DATA

		Model 3/4" x 0.9 Max. operating pressure: 5 bar		Model 2" x 12 Max. operating pressure: 10 bar	
OPERATING PRESSURE		PERFORMANCES		PERFORMANCES	
INJECTOR INLET [M]	INJECTOR OUTLET [M]	MOTIVE FLOW [L/H]	SUCTION FLOW [L/H]	MOTIVE FLOW [M_3/H]	SUCTION FLOW [L/H]
14	3	522	215	6.7	1170
	7		121		905
	8		78		735
	10		-		282
21	3	636	190	7.9	1180
	7		190		1066
	10		138		1060
	14		54		590
28	3	726	176	9	1180
	7		176		1073
	10		176		1081
	14		162		1075
	17		66		864
	21		-		105
35	7	817	167	9.7	1106
	10		167		1105
	14		167		1091
	17		167		1089
	21		96		999
	24		19		643
42	7	885	162	10.8	1071
	14		162		1102
	17		162		1099
	21		158		1101
	24		99		962
	28		44		728
49	7	953	158	11.5	1121
	14		158		1123
	21		157		1124
	24		157		1115
	28		127		1124
	31		61		1075
	35		9		706
	38		-		213

1. Test on 2” injector was carried out with 20 mm pick up hose.
2. Test on 3/4” injector was carried out with 8 mm pick up hose.
3. The Performance data table applies if:
   a. The metering valve is fully opened.
   b. The suction liquid level is the same as the injector’s suction inlet.
4. Data accuracy: ±10%
5. The total flow of the venturi is the combined motive and suction flow, therefore the field water meter should be placed after downstream of the injector

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