

FERTIGATION

Important prerequisites for an efficient and rational use of fertigation are the knowledge of the nutritional needs (minerals and water) of the crop, the fertility of the soil and the characteristics of the irrigation water, linked with a rational management of the irrigation technique.

The main needs fertigation can satisfy are:

- Plant health treatments
- Maintenance of irrigation networks and systems
- Modification of water acidity
- Soil disinfection
- Post-harvest treatments
- Improvement of the preservation and disinfection properties of cut flowers

Maffei Injectors

OPERATION

Inlet: When the flow under pressure enters the injector, it is conveyed towards the injection chamber, sharply increasing its speed. The increase in speed causes a drop in pressure which allows the aspiration of another liquid or gas through a specific hole and its mixing with the driving current

Outlet: When the driving current is directed towards the injector outlet, its speed decreases, causing an increase in pressure (but at a lower value than that entering the injector).

ELEMENTS TO BE ANALYSED FOR FERTIGATION

<i>Element</i>	<i>Result</i>
Calcium mg/l
Magnesium mg/l
Nitrates mg/l
Sodium (SARa) mg/l
Chlorine mg/l
Chlorides mg/l
Sulphates mg/l
Boron mg/l
Zinc mg/l

KYNAR PROPERTIES (PVDF)

More resistant than any other plastic

It has high values of durability, pressure and resistance to temperatures and chemicals

Extremely resistant to most agricultural chemicals, such as:

- 90% sulphuric acid resistant up to 100°C (PP, PE and acetylene are not recommended)
- 65% nitric acid, resistant up to 60°C (PP and PE resist up to 6% from 20° to 40°C)
- Chloride (PP is not resistant)
- Xylene resists up to 40°C (PP, PE, PVC do not resist)

ASSEMBLY DIAGRAM



FERTIGATION

DATA NECESSARY FOR THE USE OF THE INJECTORS

To determine which injector model is appropriate, the following information is required:

- Total water flow rate of the system (1) l/min
- Injection flow rate of the desired chemical fertiliser (2) l/min
- Pressure differential available in the system "d" calculated as follows:
 - maximum operating pressure in the system, at the injector inlet (a) bar
 - minimum operating pressure of the system, at the injector outlet (b) bar
 - difference between the values "a" and "b" (c) bar
- Differential pressure percentage "d" = (c / a) x 100%
- If "d" is greater than or equal to 20%, the By-Pass installation method can be used (see diagram 1)
- If "d" is lower than - 20%, the injector must be installed in series with an auxiliary pump (see diagrams 2 and 3)

Example:

- 1 = 100 l/min
- 2 = 0.8 l/min
- a = 3.5 bar
- b = 2.1 bar
- c = 1.4 bar
- A "d" = 40% is obtained

This means that we can use the By-Pass installation, without the aid of a thrust pump.

INJECTOR CHOICE

Following the example above, the suitable model is chosen as follows:

In the Performance table on page 8182 identify in the "Pressure" column at the value "a" = 3.5 bar

Move to the right until the value "b" = 2.1 bar is identified

Move again to the right, along the line, until you reach the "Suction capacity" column, continue moving to the right until the value closest to the desired suction capacity is identified (in the example 0.8 l/min). The code of the model to be used is written at the top of this column, in this case AIC484.

The AIC484 model will be able to suck 0.8 l/min only provided that a flow rate of 14.27 l/min is guaranteed in the By-pass as indicated in the column "Injector flow rate". If this flow rate does not actually exist in the injector, the suction capacity will vary from the data shown.



INSTALLATION DIAGRAM

Diagram 1

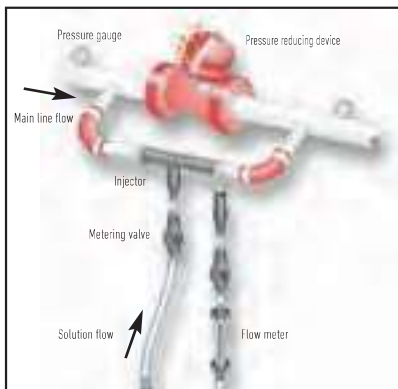


Diagram 2

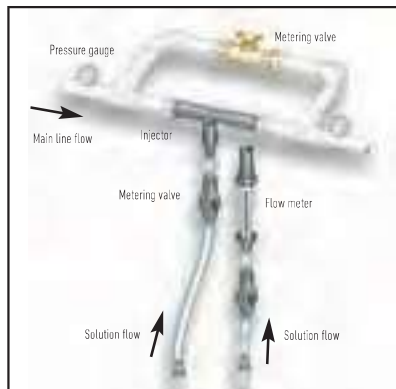


Diagram 3

