

Fertigation Systems



FERTIGATION

*Key to higher
yields,
healthier crops*

FERTIGATION - In the late 1970's, a new concept materialized to serve the international farming community: fertigation. A natural step forward in agricultural technique, fertigation (from the words fertilizer and irrigation) is an effective method of applying chemical and fertilizers to crops via the existing irrigation system.

The need for fertigation derives from the fact that traditional methods of fertilization are only partially effective and leave a lot to be desired. At the time the fertilizer is distributed, it may be too strong for the delicate roots of the young saplings, causing then irreparable damage. Or on the other hand, it may be too weak, and thus useless. Most important, however, is the fact that spread or sprayed fertilizer remains near the surface, hardly reaching the root tips and root hairs - the points of greatest absorption.

In the process of fertigation, fertilizer is applied directly with the irrigation water. Therefore, wherever the water goes, the fertilizer goes with it. Fertilizer is applied only where needed, and in the proper quantities.

The obvious advantages of fertigation, therefore, are the saving of labor and machinery, and the efficient use of the costly chemicals and fertilizers to be applied. In fertigation, the extra activities involved in the separate application of fertilizer are no longer necessary; neither is the purchase of maintenance of dedicated equipment for fertilizer distribution. In addition, such machinery often compresses the soil and may cause crop damage. In conclusion, one might say that fertigation is the most effective and least expensive way of providing nutrients to growing field-crops.

FERTILIZER AND CHEMICAL INJECTOR UNITS

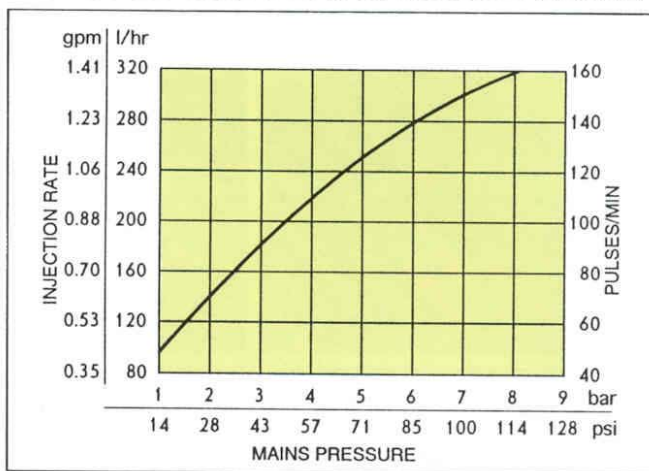
The Fertilizer and Chemical Injector needs no external power supply. Its linear hydraulic motor is powered by the hydraulic pressure of the irrigation system.

The unit is resistant to nearly all known chemicals presently used in agriculture and horticulture.

TECHNICAL SPECIFICATIONS

Injection rate	Up to 320 litres/hr (1.4gpm) according to the pressure in the mains (See performance curve)
Minimum pressure	0.5 bar = 7 psi
Maximum pressure	8 bar = 115 psi
Water consumption	3 times the quantity of chemical injected. The installation of flow regulators will increase water consumption.
Gross weight	5kg - 11lb (packed)
Materials	Chemical-resistant engineering plastics; stainless steel; Viton seals for parts in contact with chemicals.

INJECTOR UNIT PERFORMANCE CURVE



FITTINGS AND ACCESSORIES

The unit is supplied with all the necessary pipes, fittings and accessories for immediate operation. The user must supply two 3/4" hand valves and a length of 25mm O/D (3/4" I/D) pipe to be used for conveying exhaust water to the disposal site.

CONTROLS

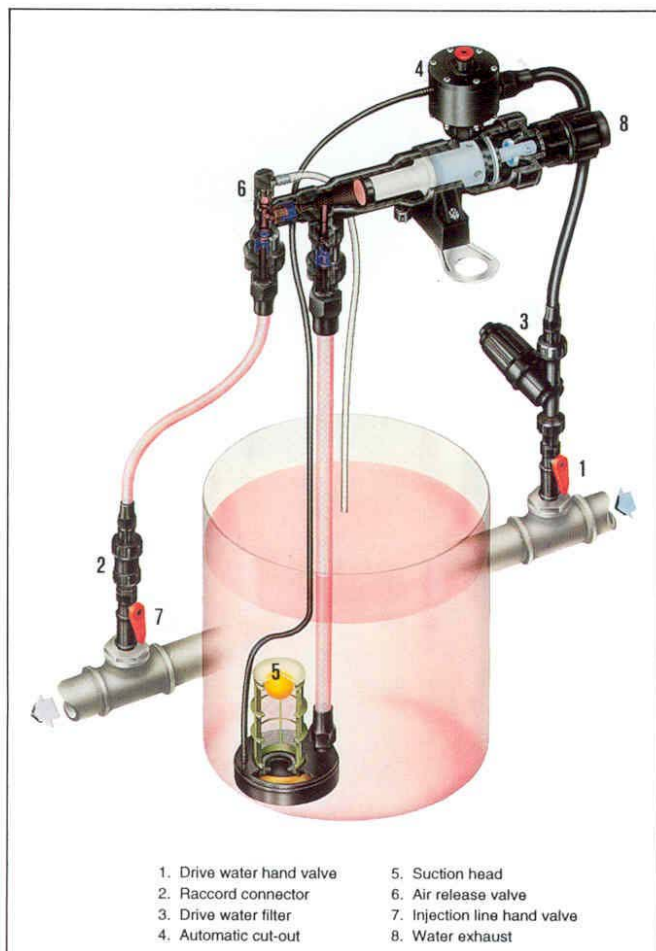
INJECTION RATE. Since the maximum injection rate of the pump is proportional to the pressure in the main line, the required injection rate is easily adjusted by throttling the injection line, using the 3/4" hand valve fitted to the water mains. Since each pulse injects 1/30 litres of chemicals, the litres of fertilizer injected per hour = twice the number of pulses per minute. For regulating injection rate see Flow Regulator section.

TOTAL QUANTITY INJECTED

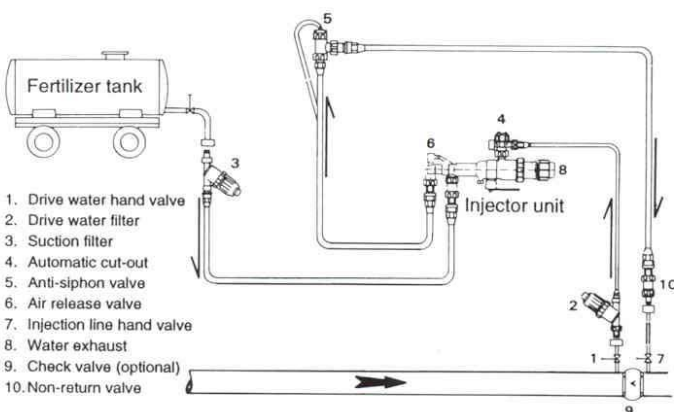
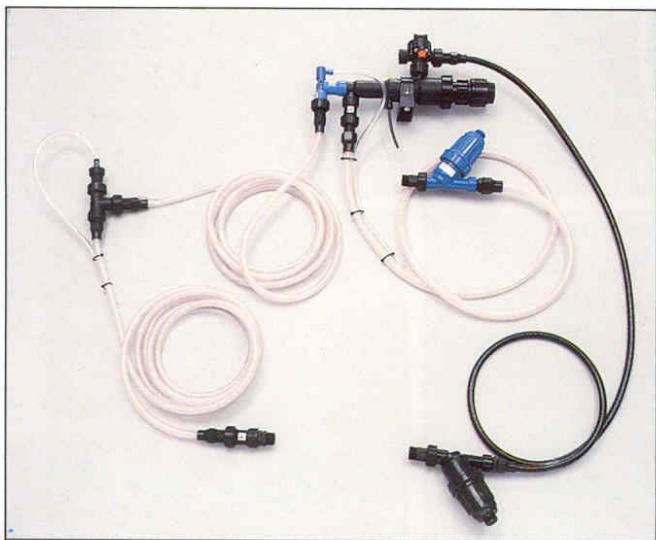
This is controlled in one of four ways:

- The suction-type Unit is supplied with an automatic cut-out which operates when the fertilizer level drops below the base of suction head. Therefore, if the container is filled with the required total amount of chemical, the unit will automatically stop functioning when all the liquid has been injected.
- When this is not practical (e.g., when pumping from a large tank), a water metering valve may be inserted in the drive water line following the 3/4" hand control valve. This should be set to a quantity exactly 3 times the required amount of chemical to be injected. The use of Flow Regulators obviates this possibility.
- By manually operating the cut-out.
- By using a hydraulic cut-out instead of an automatic cut-out unit. The hydraulic cut-out is operated by hydraulic pressure which can be triggered electronically, volumetrically or on a time basis.

SUCTION TYPE INJECTOR (4-01)



GRAVITY FEED TYPE INJECTOR (4-02)



DUPLEX INJECTOR (4-03)

The duplex injector unit is made up from two Amiad injectors on one carrier. The Amiad duplex has been developed for the injection of larger quantities of fertilizer or chemicals into the water system.

Although the duplex is made from two injectors, it has one water-drive line, one chemical-feed line and one injection outlet. Same accessories and parts as the Amiad standard injector.

Technical Specifications

As the standard Amiad Injector except:

Injection Rate: Up to 640 litres/hr (2.8 USgpm), according to mains pressure.

Minimum Pressure: 1 bar = 14 psi

Maximum Pressure: 8 bar = 115 psi

Gross Weight: 7 kg = 15 lb



FLOW REGULATORS

Available as optional extras - a wide range of extremely accurate chemical resistant flow regulators. The regulator assembly contains an interchangeable colour-coded flow regulator and is easily inserted between the two parts of the plastic union coupler in the chemical injection line.

Flow rate			Capsule	
litre/hr	USgph	Imp.gph	Cat. no.	Colour
10	2.6	2.2	18-4011-0110	red
20	5.3	4.4	18-4011-0120	yellow
40	10.6	8.8	18-4011-0140	green
60	15.9	13.2	18-4011-0160	blue
80	21.1	17.6	18-4011-0180	brown

The complete regulator assembly (Cat.No. 18-4011-1100) includes a blue chemical resistant filter to prevent clogging of the flow regulator.

3/4" CHEMICAL-RESISTANT HYDRAULIC VALVE (Normally-Closed)

The 3/4" valve has a wide variety of applications for the control of chemicals, liquid fertilizer and water flow.

Its plastic components and viton seal guarantee corrosion-free operation with all chemical liquids and with water. The pilot system is completely separated from the valve itself thereby allowing the flow of expensive liquids to be controlled by pressurized water.

The normally closed feature ensures that if the pilot water source is removed by malfunction of the control system or by pilot tube damage the Valve will close automatically. The valve can be installed with 1 inlet and 1 or 2 outlets or with 2 inlets and 1 outlet



**A COMPREHENSIVE MANUAL
IS SUPPLIED WITH EVERY UNIT.**