

MAZZEI® AIRJECTION®

Mazzei AirJection Irrigation

A Proven Method of Increasing Crop Production in Subsurface Drip Applications

- Available in seven models 1/2", two models 3/4" (serie Rainbow), one 2" and one 3"
- 10% + increase in yields as compared to conventional drip*
- 50% increase in root mass - healthy and more vital plant
- Less stress on plant as the plant is able to absorb water, air and soil nutrients simultaneously during the irrigation cycle
- May hasten maturity in the plant allowing harvest to come earlier
- Ease of operation
- Added benefits for organic growers

* Increase in yields based on results obtained from commercial farming and study performed by CIT at CSU Fresno

Why AirJection

Aside from soil, two basic ingredients necessary to root systems in farming are air and water.

Mazzei AirJection Irrigation improves aerobic activity in the soil and increases root respiration. Inadequate soil aeration reduces the rate of water and mineral absorption by the roots. Saturated soils will trap metabolites, ethylene and carbon dioxide in the root zone, concentrations of which can seriously affect the rate of growth and size of the plant. Oxygen is also necessary for the survival of beneficial soil micro-organisms that aid in improving soil physical properties and processes such as nitrification and ammonification. Clay soils by nature are depleted of oxygen more rapidly than soils high in sand content. Mazzei AirJection Irrigation provides needed oxygen directly to the root zone during irrigation. The Mazzei AirJection Irrigation unit is calibrated to deliver the proper air to water ratio. Mazzei AirJection Irrigation is designed to work in sub-surface drip irrigation (SSDI) applications. To ensure uniform distribution of the air, the unit is typically installed at the drip tape or dripper line sub main and will function as a pressure reducer.



Mazzei Airjection

Selection & calibration guidelines for 2" and 3" models

Inlet pressure Kg/cm ²	2" Model MAI-2081 (337 to 697 lpm)			Inlet pressure Kg/cm ²	3" Model MAI-3090 (795 to 1416 lpm)		
	Bypass valve position (Turns open)	Water Flow (lpm)	Orifice Plate #		Bypass valve position (Turns open)	Water Flow (lpm)	Orifice Plate #
2,11	0	337	107	2,11	0	795	151
	2	401	125		2	886	151
	4	439	125		4	958	172
	6	466	125		6	1033	182
2,81	0	386	107	2,81	0	931	151
	2	469	107		2	1015	151
	4	530	125		4	1147	172
	6	568	125		6	1189	182
3,52	0	432	107	3,52	0	996	151
	2	511	107		2	1094	172
	4	598	125		4	1230	182
	6	647	125		6	1314	182
4,22	0	458	107	4,22	0	1086	151
	2	575	107		2	1181	172
	4	670	125		4	1340	182
	6	697	125		6	1412	182
					8	1416	182

Bypass Valve at 0 turns is completely CLOSED
Bypass Valve at 6 or 8 turns is completely OPENED

The Orifice Plate should be installed with the numbers facing up.
The smooth side should be down on the gasket.
Care should be taken to ensure the Orifice Plate is centered on the gasket.

Airjection Rainbow installation (1/2" and 3/4")



MAZZEI® AIRJECTION®

Rainbow Series

Advantages

- 10-39% increase in production as indicated by the tests done with bell peppers at a commercial farming operation.
- 50% larger root mass, and a healthier root zone due to an increase in soil microbial activity
- Improve plant canopy size and reduce damage by the sun.
- Tests performed with an infrared thermometer indicate lower levels of stress on air injected plants as compared to plants irrigated with conventional drip. Results show less yield loss due to stress.
- Beneficial to clay soils where oxygen is easily depleted.
- Added benefits for growers of organic produce. Reduces the need for additional soil amendments and organic fertilizers.
- Plant stress is minimized; Plants may produce earlier.
- Reduce effects of soil crusting. Reduce tilling due to the immediate injection of air under the surface of the field.
- Micro-bubbles produced by the Mazzei Airjection Irrigation unit have a cleaning effect on the inner walls of the drip tape and tubing keeping particulates in suspension and reducing the chance of plugging.
- Injector constructed of rugged PVDF thermo-plastic carries 5 year warranty
- Single valve operation makes it easy to operate. Injector acts as a pressure regulating valve.
- Substantial returns with minimal capital and operating costs.
- Less stress on plant as the plant is able to absorb water, air and soil nutrients
- simultaneously during the irrigation cycle.
- Any crop utilizing SSDI should benefit from the Mazzei Airjection Irrigation system.



Codes

AMAI2081A	Model 2081 2" M BSP in Kynar for air injection
AMAI3090	Model 3090 3" M BSP in Kynar for air injection

Rainbow Series performance table

Flow rate inside injector

bar	Water flow (l/min)		
	● MAI-A3	● MAI-A5	● MAI-A7
1,38	3,41	5,55	7,07
1,72	3,79	6,31	8,20
2,07	4,16	6,81	8,96
2,41	4,54	7,44	9,59
2,75	4,92	7,95	10,35
3,10	5,30	8,58	10,98
3,45	5,55	8,96	11,61
4,13	6,06	9,71	12,49
4,82	6,43	10,47	13,75
5,51	6,94	11,23	14,64

Flow rate inside injector

bar	Water flow (l/min)		
	● MAI-A10	● MAI-A12	● MAI-A14
1,38	9,97	11,36	13,88
1,72	11,10	12,49	15,27
2,07	12,11	13,50	16,91
2,41	13,25	14,89	18,17
2,75	14,13	15,90	19,05
3,10	15,14	16,91	20,69
3,45	15,64	17,92	21,83
4,13	17,28	19,56	24,22
4,82	18,55	20,94	25,86
5,51	19,56	22,33	27,63

Flow rate inside injector

bar	Water flow (l/min)		
	● MAI-A10	● MAI-A12	● MAI-A14
1,38	16,40	21,32	27,63
1,72	18,29	23,85	29,65
2,07	19,81	26,00	31,92
2,41	21,45	27,76	35,07
2,75	23,09	29,52	37,09
3,10	24,35	31,16	40,00
3,45	25,36	33,43	41,38
4,13	27,88	36,08	45,42
4,82	29,78	39,24	48,83
5,51	32,17	41,76	52,11

With the above inlet flow rates and pressure we obtain an outlet pressure of 0,7 bar

The models A-3 to A-16 have 1/2" NPT threaded connections
The models A-20 to A-24 have 3/4" NPT threaded connections