

CHEMIGATION SYSTEMS INTERNATIONAL

Almost Everything You Need To Know About CSI Injector Pumps



A family of injection systems based on the proven pumped venturi principle

Cost effective, trouble-free injectors for agriculture and turf

- Inject one liquid or several simultaneously
- Electric or gasoline power
- Constant rate or proportional injection
- Permanent installation or portable...even trailer-

CSI injectors...

...for fertigation & chemigation

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...for agriculture & turf

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...for landscape & horticulture

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...for drip & pivot irrigation

■
...for hard hose travelers

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...for underground systems

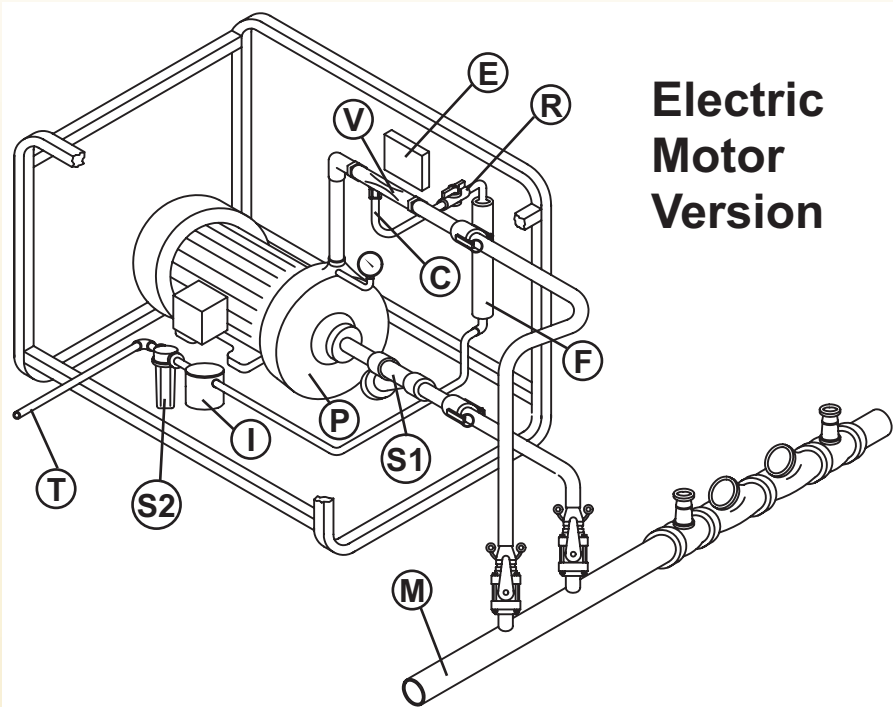
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...and even for wheel lines & solid set irrigation systems

CSI:

YOUR INJECTOR SUPPLIER.



How They Work



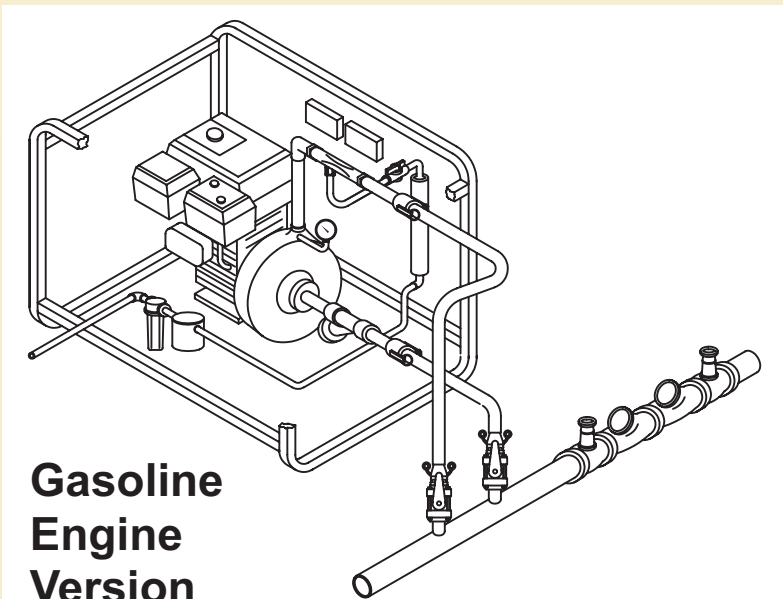
Electric Motor Version

- The centrifugal pump (P) draws water from the main irrigation pipeline (M) and through the on-board venturi (V). **CSI injectors ARE NOT "bypass" type injectors, so you don't need a pressure drop in the main pipeline.**
- The venturi generates vacuum which draws liquid fertilizer or chemical smoothly and continuously into the flowing stream of water. **Not a pulsing flow like a piston or diaphragm pump - less chance of vapor lock and no damage to the injector if the feed tank runs dry during operation.**
- Concentrated chemicals are never under pressure, so CSI injectors are safer than piston or diaphragm pumps. **The injection line is under vacuum, so chemical leaks are less likely.**

Electric motor versions: Most CSI injectors are sold with high service factor TEFC motors in single phase or three phase versions.

- CSI offers both electric and gasoline drives.

Gasoline power versions: CSI also offers models with reliable Honda engines for locations where electric power is not available. Interlocks are provided to satisfy US federal and state EPA regulations.



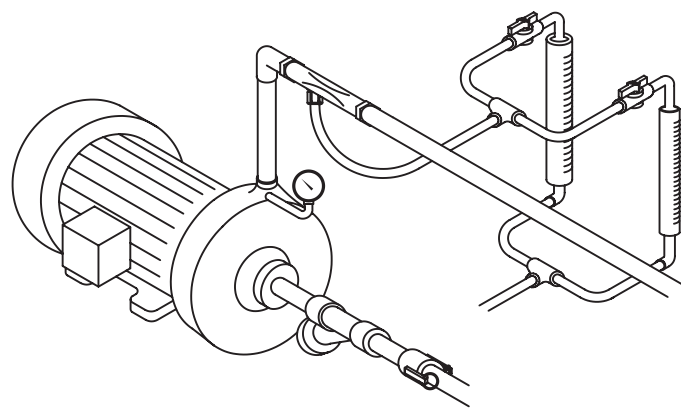
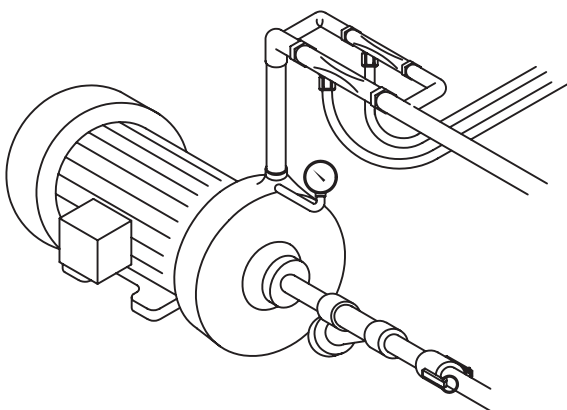
Gasoline Engine Version

- The venturi is downstream of the centrifugal pump so the pump avoids the corrosive effects of injected chemicals. **CSI injectors handle corrosive chemicals without requiring expensive alloy pumps.**
- The flow meter (F) and regulating valve (R) let the operator see and adjust the injection rate directly while the injector is running. **Not an indirect indication like piston pump stroke length.**
- A strainer (S1) at the centrifugal pump inlet protects the water circuit. A strainer (S2) at the chemical inlet (T) protects the injection line.
- Safety devices - A check valve (C) and an automatic interlock valve (I) prevent unwanted injection and backflow of water into the chemical supply tank. **CSI injectors meet US federal and state EPA requirements.**
- Controls - CSI's optional control panels (E) offer flexible answers to your automation needs. **Whether you need to integrate the injector into an overall irrigation automation system or if you just need a few on-board timing functions, chances are we have a suitable control package.**

Other Features



- A smooth spinning centrifugal pump is the only part that moves during injection.
No gear mechanisms or exposed crank arms, no pistons, diaphragms, or lube points. Few moving parts means CSI injectors are trouble-free, long-lasting, easy to use, easy to maintain.
- CSI offers some of the highest injection rates in the industry.
A full range of fertilizer and chemical feed rates:
 - 0 to 400 gph
 - 0 to 160 gph
 - 0 to 60 gph
 - 0 to 15 gph
- Foolproof calibration - injection rate is set with a metering valve and a direct visual flow meter.
- Multi-stage dilution of concentrated fertilizers and chemicals achieves excellent dispersion in the main pipeline.
The first stage of dilution is at the venturi. The second stage is at the return to the main pipeline.
- CSI injectors are cost effective.
Very high injection capacity per dollar of cost with low operating and repair costs.
- CSI injectors are built from high quality components
Heavy-duty stainless steel frame, corrosion resistant materials at key points. Optional materials available for even greater corrosion resistance. First-class pumps, motors, control devices, wiring techniques and enclosures.
- Excellent product documentation.
We strive for excellence in written instructions, parts lists and general information.
- CSI injectors are manufactured in the USA.
American irrigation technology is known and respected all over the world. CSI injectors comply with tough US environmental regulations.
- Chemigation Systems International is one of the best-known names in the injector business.
Owner-managed by pros who understand your chemigation and fertigation needs.
- CSI will work with you to design special injector systems.
If you need custom systems using venturi injector technology, you should talk to CSI. Our fluid flow experts can provide innovative equipment for your projects.



- Inject several liquids with just one injector system.
- Very high rate and very low rate from the same injector.

CSI's multi-venturi models let you inject several materials at the same time or in sequence...and still the simplicity and maintenance advantages of a single centrifugal pump and motor!

The low-cost X option lets you fertigate at a high rate or chemigate at a low rate....Two functions with one injector!

Two venturis are pictured here, but three, four, or even more parallel venturis are possible.

Two of CSI's many useful options



■ PIPELINE pH CONTROL SYSTEMS

Precision pH control using reliable, trouble-free pumped venturi injection under computer control. Built onto a length of pipeline for simple installation.



■ PROPORTIONAL INJECTION PUMPS

Precision application of fertilizer and other chemicals often requires the injection flow rate to be proportional irrigation water flow. ChemIndustrial has a full range of proportional injectors to meet this requirement.

How to order a CSI injector pump

■ Before ordering you should know:

- Do you need a system for fertigation? Chemigation? Both?
- How many liquids do you want to inject simultaneously?
- What injection rate(s) do you need?
- Is electricity available? 3-phase? What voltage?
- Do you need a feed tank or mix tank? What size?
- What is your irrigation pipeline pressure?
- Are there any special conditions in your system?

CSI's price sheet explains your options.

Call us if you need help!

CSI strives for continuous product improvement. We reserve the right to change the specifications and/or appearance of our products without notice.

