



Chemical Injection

Systems and Equipment for Oil and Natural Gas



PROVEN QUALITY. LEADING TECHNOLOGY.

Chemical Injection Product Scope

- Solar Powered Chemical Injection Systems
- Electric Chemical Injection Pumps
- Hazardous Location Pumps
- Variable Speed Pumps
- Pump Controllers
- Remote Communication
- Pneumatic Chemical Injection Pumps
- Electric Low Pressure Metering Pump



Chemical Injection Products

“Be Green, Go Blue, Buy Graco”

Graco chemical injection products are exactly what experienced oil and gas industry professionals want and need to meet the ongoing challenges of transferring chemicals in harsh and often remote geographies. Three words can describe it all: reliability, durability, and affordability.

RELIABLE

- Chemical injection packages are rigorously field-tested to ensure optimum performance
- Solar pumping systems can provide reliable chemical injection for up to 4 days without sun
- Electronic injection rate controllers ensure precise injection rates – optimizing your process
- Control and monitor your chemical injection system with your mobile device for peace of mind

DURABLE

- Pump components are designed for years of operation between service intervals
- Ideal for remote installations in extreme temperatures
- One year warranty

AFFORDABLE

- Chemical injection equipment is available in a variety of configurations to provide premium performance at any price point
- Spend less time fixing and more time running with our durable components
- Save money by reducing chemical waste when you use our adaptive injection rate controls
- Lower energy costs by using off-the-grid solar powered systems vs. pneumatic or grid powered pumps



Build Your Solar Chemical Injector System

Build Your System in 4 Easy Steps!

1 Pump Size

Select based on your pressure and flow requirements:

- Pressures: 0-10,000 psi (689 bar, 68.9 MPa)
- Flow*: 0-40 gpd (151.4 lpd)

**Flows above 40 gpd require multiple solar panels and batteries.
Contact Graco for more information.*

2 Injection Rate Controller

Select based on your control requirements:

- Harrier™ EZ: Basic time based control
- Harrier: Time and cycle based control with auxiliary switch for DC power
- Harrier+: Adaptive flow assurance with remote, cellular connectivity for monitoring and control (Class 1, Division 2 certified for Hazardous Location)

3 Power System

Select based on your pump demands and location

Solar panel:

- 50W
- 100W
- 160W (also available for Class 1, Division 2 applications)

Battery type:

- Lead acid, 96 Ah
- Premium AGM, 105 Ah (recommended for extreme temperatures)

4 Chemical Compatibility

Select your seal type depending on your chemical handling requirements:

- HNBR
- FKM
- FKM ETP
- TFEP
- FFKM



Wolverine® Series DC Solar Systems

Graco chemical injection systems run off solar energy so there's no gas exhaust released in to the atmosphere. System configurations come with the necessary hardware to get you up and running in no time.

1 Basic – Great for simple installations

- Harrier EZ Injection Rate Controller – time based control
- Wolverine Simplex Electric Pump, 1/11 hp
 - Max flow = 20 gpd (75 lpd)
 - Max pressure = 3,500 psi (241 bar, 24.1 MPa)
- Solar panels up to 100W
- Lead acid battery, 96 Ah
- Can be installed by one technician in less than 30 minutes



2 Advanced – Great for extreme environments

- Harrier Injection Rate Controller – cycle based control to improve the injection accuracy
- Wolverine Simplex or Duplex Electric Pump, 1/11 or 1/5 hp
 - Max flow = 40 gpd (150 lpd)
 - Max pressure = 10,000 psi (689 bar, 68.9 MPa)
- Solar panels up to 100W
- Premium AGM battery, 105 Ah
- Operating temperatures from -40°F to 135°F (-40°C to 57°C)



3 Premium – Great for critical applications

- Harrier+ Injection Rate Controller – adaptive flow control technology for injection accuracy and assurance
- Control and monitor your system from your mobile device
- Wolverine Simplex or Duplex Electric Pump, 1/11 or 1/5 hp
 - Max flow = 40 gpd (150 lpd)
 - Max pressure = 10,000 psi (689 bar, 68.9 MPa)
- Solar panels up to 160W
- Premium AGM battery, 105 Ah
- Operating temperatures from -40°F to 135°F (-40°C to 57°C)



G-Chem™ DC and AC Operated Pumps and Systems

The G-Chem series pumps are ideal for chemical injection applications. Built from the same quality standards as current Graco chemical injection pumps, the G-Chem pump has the lowest out-of-pocket cost of Graco electric chemical injection pumps, is easy to operate and far exceed the performance of similar pumps of its class. The DC operated pumps are also offered in solar system packages that come with a 100 watt solar panel and the new Harrier® EZ controller as the standard product offering.

Ease of serviceability

- Easy access to the pump plunger and packings
- Plunger packings can be replaced in 10 minutes or less
- Three defined stroke adjustment positions

Harrier EZ timer

- Preset built-in low voltage disconnect
- Voltage reading and display
- Prime mode
- Built-in On/Off switch

Robust and simple design

- Adjustable fluid packing lasts longer than non-adjustable seals
- G-Chem pumps are offered with Chromex™ coated plungers
- SST fluid section/wetted parts
- Proprietary poppet style check valve prevents valve from sticking
- Same high quality drive train used on other Graco chemical injection pumps



Ordering Information

G-Chem™ DC and AC Series Pumps			
Seals / Plunger Size	1/4"	3/8"	1/2"
G-Chem Pump, 12 VDC, 1/6 hp, Simplex			
FKM	A23101	A23102	A23103
HNBR	A23107	A23108	A23109
G-Chem Pump, 12 VDC, 1/6 hp, Duplex			
FKM	A23151	A23152	A23153
HNBR	A23157	A23158	A23159
G-Chem Pump, 115 VAC, 1/6 hp, Simplex			
FKM	A23501	A23502	A23503
HNBR	A23507	A23508	A23509
G-Chem Pump, 115 VAC, 1/6 hp, Duplex			
FKM	A23551	A23552	A23553
HNBR	A23557	A23558	A23559

G-Chem™ Solar Systems			
Seals / Plunger Size	1/4"	3/8"	1/2"
G-Chem System, Simplex, 12 VDC, Harrier EZ, 100W Panel, Plastic Box			
FKM	B17501	B17502	B17503
HNBR	B17504	B17505	B17506
G-Chem System, Duplex, 12 VDC, Harrier EZ, 100W Panel, Plastic Box			
FKM	B17551	B17552	B17553
HNBR	B17554	B17555	B17556
G-Chem System, Simplex, 12 VDC, Harrier EZ, 100W Panel, Metal Box			
FKM	B17601	B17602	B17603
HNBR	B17604	B17605	B17606
G-Chem System, Duplex, 12 VDC, Harrier EZ, 100W Panel, Metal Box			
FKM	B17651	B17652	B17653
HNBR	B17654	B17655	B17656



Harrier EZ comes standard with G-Chem Solar System

Wolverine® DC and AC Series Pumps

Features and Benefits

Wolverine chemical injection pumps reduce emissions to the atmosphere and have a greater level of control when used with our injection rate controllers. The Wolverine Hazardous Location pumps are designed to operate in applications requiring Class 1, Division 1, rated product. These injection pumps are designed for years of operation before simple repairs. Each pump features an adjustable fluid packing that lasts up to 25 times longer than non-adjustable seals.

Operating Environment

The Wolverine is designed to operate in environments from -40°F to 175°F (-40°C to 79°C). They have 316 SST wetted parts, plus they're sealed against water and dust.

*Hazardous Location pumps operate at a different temperature range.

Pump Capabilities

Flow rates up to 430 gpd (1,628 lpd) and a pressure rating up to 10,000 psi (686 bar, 68.9 MPa).

Save Time

Easily replace pump seals in less than 5 minutes, on location.

Accurate Control

Precision stroke adjustment between 1/2 in to 1 in (12.7 mm to 25.4 mm) ensures accurate injection rates.

Chemical Compatibility

HNBR, FKM, FKM ETP, TFEP and FFKM plunger packings and check valve seals can handle some of the most aggressive chemicals.

Save Power

Low friction drivetrain to optimize electrical efficiency, reducing the load on your power system.



Wolverine Chemical Injection Pumps



Wolverine Hazardous Location Pumps

Configurations

Fluid Plunger Sizes

- 1/8 in (3.18 mm)
- 3/16 in (4.76 mm)
- 1/4 in (6.35 mm)
- 3/8 in (9.5 mm)
- 1/2 in (12.7 mm)
- 5/8 in (15.9 mm)
- 3/4 in (19.1 mm)

Input Power Types

- 12 VDC
- 115 VAC Single Phase
- 115/230 VAC Single Phase
- 230 VAC Single Phase
- 230/460 VAC 3-Phase

Frequency

- Fixed Speed
- Variable Speed

Electric Motor Sizes

- 1/11 hp (VDC)
- 1/5 hp (VDC)
- 1/4 hp (VDC)
- 1/5 hp (VAC)

Drivetrain

- Simplex
- Duplex



Wolverine Variable Speed Pump

Harrier® Electronic Injection Rate Controllers

Features and Benefits

Closely control and monitor chemical use and collect critical operating information for reducing costs and improving processes. Its easy, efficient and productive – saving you time and money.

Accurate Control

Simple user interface for setup and control. Enter your desired injection rate and let Graco do the rest!

Office or Remote Access

The Harrier+ controller includes remote connectivity, allowing you to monitor, control and calibrate your system away from your injection site via cellular or ModBus.

Notifications

Easily monitors your system for control, troubleshooting, maintenance needs and alerts.

Minimize Waste

Patent pending adaptive flow control technology maintains a consistent injection rate, regardless of system variables, reducing waste and costs.

System Control

Multiple inputs for system controls allow you to only run when it's necessary.

Choose the model that fits your needs:

Harrier EZ and Harrier

- Used for DC pumps
- Control injection rates via timer or cycle count
- ETL listed for electrical safety: UL 508 and CSA 22.2 No. 14
- On/Off time setting intervals from 0-999 seconds
- Built-in low voltage disconnect functionality
- Battery voltage display
- Prime mode for pump priming during setup

Harrier AC

- Used with AC operated pumps
- Pump-mount and wall-mount option
- Control injection rates via timer or cycle count
- Auxiliary input port
- ETL listed for electrical safety to UL 508 and CSA 22.2 No. 14
- NEMA 4X enclosure

Harrier+

- Used for AC and DC pumps
- Control injection rates via timer, cycle count or flow control
- Easy to read display that operates at temperatures as low as -40°F (-40°C)
- CDMA and GSM cellular connectivity
- Class 1, Division 2 certified for Hazardous Location*



Harrier EZ Controller



AC operated Harrier mounted on a Wolverine pump



DC operated Harrier+

*Please see certification for approval details.

Python[®] Pneumatically Operated Pumps

Features and Benefits

Python pumps are ideal for applications that require a pump to operate in an explosion proof environment and can run off regulated natural gas or compressed air. These pumps have the lowest out of pocket cost, are easy to operate and use half the air consumption of other pumps in the market. Plus, the Python's extreme duty plungers, seals and timing valve are designed for years of operation before replacement.

Operating Environment

The Python is designed to operate in environments from -40°F to 175°F (-40°C to 79°C), made entirely from 316 SST parts and are sealed against water and dust.

Accurate Control

Ultra precision stroke adjustment between 1/4 to 1 inch (6.4 to 25.4 mm) ensures accurate injection rates.

Environmental

Reduced fugitive methane emissions.

Chemical Compatibility

HNBR, FKM, FKM ETP, and FFKM plunger packings and check valve seals can handle some of the most aggressive chemicals.

Consistent Operation

Pump cycle rate remains constant regardless of system back pressure.

Configurations

Fluid Plunger Sizes

- 1/8 in (3.18 mm)
- 3/16 in (4.76 mm)
- 1/4 in (6.35 mm)
- 3/8 in (9.5 mm)
- 1/2 in (12.7 mm)
- 5/8 in (15.9 mm)
- 3/4 in (19.1 mm)

Air Motor Size

- 1-1/4 in (31.8 mm)
- 1-3/4 in (44.5 mm)
- 2 in (50.8 mm)

Input Power

- Compressed air or natural gas
- Max 200 psig (13.8 bar, 1.38 MPa)

Pump Capabilities

- Max flow rate: 165 gpd (625 lpd)
- Max pressure: 12,000 psi (827 bar, 82.7 MPa)
- Max cycle rate: 60 cycles/min

Standards



Python® XL Pneumatically Operated Pumps

Features and Benefits

Python XL pumps are ideal for wells with low gas pressure. Capable of operating up to 12,000 psi, the pumps are easy to operate and include an air motor with the same proven technology that Graco offers in other product lines. Plus the Python XL's extreme duty plungers (Chromex and Ceramic coated), seals and air valves are designed for years of operation before replacement.

Ease of Serviceability

- Modular air valve design
- Removable pilot valve
- Pump lowers are interchangeable with other Python XL models
- Plunger packings can be replaced in 10 minutes or less

Highest technology air motor on the market

- Low air/gas consumption for increased efficiency
- Muffler provides low operation noise levels
- Proven Graco air motor technology

Robust and Simple Design

- 316 SST fluid section/wetted parts
- Three stroke adjustment positions
- HNBR, FKM, FKM ETP, and FFKM plunger packings and check valve seals
- Available in a bracket or stand mount

Environmentally friendly

- 97% recoverable exhaust gas
- Reduced fugitive methane emissions

Configurations

Fluid Plunger Sizes

- 1/8 in (3.18 mm)
- 3/16 in (4.76 mm)
- 1/4 in (6.35 mm)
- 3/8 in (9.5 mm)
- 1/2 in (12.7 mm)
- 5/8 in (15.9 mm)
- 3/4 in (19.1 mm)

Air Motor Size

- 3-1/2 in (88.9 mm)

Input Power

- Compressed air or natural gas
- Min 15 psig (1.03 bar, 1.03 MPa)

Pump Capabilities

- Max flow rate: 392 gpd (1484 lpd)
- Max pressure: 12,000 psi (827 bar, 82.7 MPa)
- Max cycle rate: 100 cycles/min

Standards



Air Motor 3.5"



Stand Mounted Python XL



Bracket Mounted Python XL

Mongoose™ Electronic Low Pressure Chemical Metering Pump

Features and Benefits

Our Mongoose series metering pump is suitable for dispensing chemicals for a variety of diverse markets such as oil and natural gas, mining, agriculture, landscaping and lawn maintenance, waste water, and car wash. These pumps can also be used in chemical dosing maintenance applications including cooling towers, boilers, and plating, as well as a multitude of other uses.

Graco check valves

- Proprietary design (SST Head)
- Poppet style eliminates valve from sticking
- Same style valve used on other Graco chemical pumps

Overload protection

- Self resetting thermal overload prevents over heating
- Over current protection
- Easily replaceable fuse for overcurrent
- No longer a throwaway pump

Prime/air bleed port

- No need to remove fluid section to prime pump
- Quick and easy priming

Other features

- Manual stroke adjustment
- Splash cover over controls
- NEMA 4x style enclosure
- UL and CSA certified



Configuration Number Matrix

Check the identification plate (ID) for the 11-digit Configuration Number of your pump. Use the following matrix to define the components of your pump. *NOTE: Not all combinations are possible.*

Sample Configuration Number: **LCI-1A15-SPD-0**

LCI	1A	15	S	P	D	0
Low Pressure Chemical Injection	Voltage	Pump Performance	Pump Material	Diaphragm Material	Check Valve Seal Material	Options
Voltage	Pump Performance	Pump Material	Diaphragm Material	Check Valve Seal Material	Options	
12 12 VOC	10 10 gpd (37.8 lpd) 140 psi (9.6 bar)	S 316 SST	P PTFE Coated	D FFKM	0 None	
1A 120 VAC	15 15 gpd (56.7 lpd) 150 psi (10.3 bar)	K PVDF		A FKM		
2A 240 VAC	17 17 gpd (64.3 lpd) 250 psi (17.2 bar)					
	30 30 gpd (113.5 lpd) 110 psi (7.5 bar)					
	45 45 gpd (170.3 lpd) 75 psi (5.2 bar)					



ABOUT GRACO

PROVEN QUALITY. LEADING TECHNOLOGY.

Founded in 1926, Graco is a world leader in fluid handling systems and components. Graco products move, measure, control, dispense and apply a wide range of fluids and viscous materials used in vehicle lubrication, commercial and industrial settings.

The company's success is based on its unwavering commitment to technical excellence, world-class manufacturing and unparalleled customer service. Working closely with qualified distributors, Graco offers systems, products and technology that set the quality standard in a wide range of fluid handling solutions. Graco provides equipment for spray finishing, protective coating, paint circulation, lubrication, and dispensing sealants and adhesives, along with power application equipment for the contractor industry. Graco's ongoing investment in fluid management and control will continue to provide innovative solutions to a diverse global market.

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SALES/ DISTRIBUTION/ SERVICE

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