

New 2013 Version!

## CHEM-PRO C2 & C3

- Feed Rates to 42 GPH / 159 LPH
- System Pressures to 175 PSI / 12 bar
- Diaphragm Failure Detection
- PVDF/PTFE/Ceramic Head Components
- Full Stroke Every Time Avoids Vapor Lock
- Quiet variable Speed Motor
- NEMA 4X (IP 66) Washdown
- 2 Year Warranty



NEMA 4X CE



### Applications:

- Chemical Metering
- Wastewater Treatment
- Municipal Water Treatment
- Boiler Treatment
- Cooling Tower Treatment
- Acid Injection
- Plating Chemical Injection
- Fluoridation
- Paper / Pulp Chemical Feed
- Fertilizer Injection

### Features:

- Operator friendly digital controls with backlit LCD display and DFD alarm display.
- Signal inputs include: 4-20mA, pulse inputs, and Remote start/stop
- Signal outputs include: Relay (3 amp), open collector, 4-20mA (optional)
- Large PVDF, Ceramic, TFE/P double ball check valves without metal springs.
- PTFE coated Hypalon diaphragm.
- Priming and degassing valve built into the pump head.
- Backlit LCD displays motor speed, input signal values, service and alarm status.
- Includes Diaphragm Failure Detection (DFD) system.
- Compatible with Blue-White's Flow Verification Sensor (FVS) system.
- Alarm relay monitors the DFD system and the FVS system.
- SCADA ready 5-30V DC open collector output loop closes while motor is energized.
- NEMA 4X (IP66) wash-down, chemically resistant powder coated enclosure.
- **New for 2013:**
  - Increased feed rate resolution, from 1% to 0.1%
  - Remote Start/Stop standard on all models
  - 4-20mA output available
  - Upgradeable firmware
  - Large single piece junction box – 40% larger
  - Terminal block connectors inside junction box
  - Larger, more intuitive control-pad
  - Protective LCD snap-on cover
  - Profibus, Profinet, Ethernet, Etc., available

### Specifications:

**Maximum working pressure:**  
175 psig (12 bar) (model specific)

**Maximum Fluid temperature:**  
130° F (54° C)

**Operating Temperature:**  
14°F to 115°F (-10°C to 46°C)

**Storage Temperature:**  
-40°F to 158°F (-40°C to 70°C)

**Operating Voltage (Model Specific):**  
115VAC/60Hz, 1ph (1.5 Amp Maximum)  
230VAC/60Hz, 1ph (0.7 Amp Maximum)  
220VAC/50Hz, 1ph (1.0 Amp Maximum)  
240VAC/50Hz, 1ph (1.0 Amp Maximum)

**Power Cord Plug Type (Model Specific):**  
115V60Hz = NEMA 5/15 (USA)  
230V60Hz = NEMA 6/15 (USA)  
220V50Hz = CEE 7/II (EU)  
240V50Hz = AS 3112 (Australia/New Zealand)

**Accuracy:**  
+/- 2% of full scale  
Repeatability +/- 0.5%

**Duty cycle:**  
Continuous

**Output adjustment range:**  
1-100% in 0.1% increments

**Maximum viscosity:**  
1,000 Centipoise

**Maximum suction lift:**  
15 ft. Water, 0 psig (4.5 m, 0 bar)

**Display:**  
Backlit LCD, UV resistant.

**Keypad:**  
Positive action tactile switch keypad.

**Enclosure:**  
NEMA 4X (IP66), Powder coated aluminum.

**Approximate shipping wt:**  
C2 models: 24 lb. (10.9 Kg)  
C3 models: 29 lb. (13.1 Kg)

### Materials of Construction:

#### Wetted components:

##### Pump Head Assembly:

**Pump Head:** .....PVDF  
**Adapter Connections:** .....PVDF  
**Prime/Degassing Valve:** .....PVDF  
**Valve Cartridges:** .....PVDF  
**Valve Balls:** .....Ceramic  
**Valve Ball Seats:** .....TFE/P Tetrafluorethylene/propylene  
**Static Seals:** .....Viton<sup>®</sup> (optional EP)  
**Diaphragm:** .....PTFE<sup>®</sup> coated Hypalon<sup>®</sup>

##### Injection / Back-flow Check valve:

**Body & insert:** .....PVDF  
**Check Ball:** .....Ceramic  
**Spring:** .....Hastelloy C-276  
**O-ring seals:** .....Viton<sup>®</sup> (optional EP)

##### Foot Valve / Strainer:

**Body & Adapter:** .....PVDF  
**Check Ball:** .....Ceramic  
**Spring:** .....Hastelloy C-276  
**O-ring seals:** .....Viton<sup>®</sup> (optional EP)  
**Filter screen:** .....Polypropylene

**Suction Tubing:** .....Clear PVC

##### Discharge Tubing

**3/4" x 1/2" Tube connections:** .....Not supplied  
**1/4" x 3/8" Tube connections:** .....Natural Polyethylene (LLDPE)

#### Non-Wetted components:

##### Enclosure:

413 Aluminum (Polyester powder coated)

##### Pump Head Cover:

413 Aluminum (Polyester powder coated)

##### Cover Screws:

300 Series Stainless Steel

##### DFD System Sensor pins:

Hastelloy C-276

##### Power Cord:

3 conductor, SJTW-A Water-resistant

##### Tube Installation Tool:

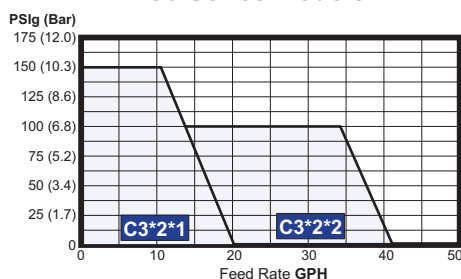
GF Nylon

##### Mounting Brackets and Hardware:

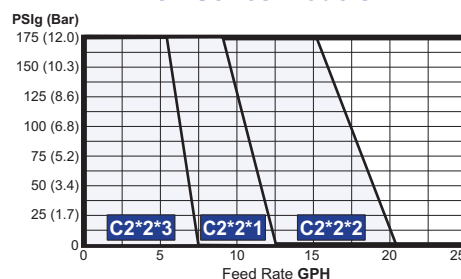
316 Series Stainless Steel

### Output Curves:

**C3 Series Models**



**C2 Series Models**



**Control Options Comparison:**

Feature	F controls	V controls
DFD (Diaphragm Failure Detection) System Alarm	•	•
FVS (Flow Verification System) Alarm *	•	•
Input: Remote Start/Stop (contact closure)	•	•
Output: One 3 Amp 125VAC (24VDC) Alarm Relay	•	•
Output: Motor Run/Stop Open Collector Loop		•
Output: 4-20mA		<i>Optional</i>
Local (manual) 100:1 variable Speed Drive Output Control	•	•
Auto Prime	•	•
Additional Control Inputs: 4-20mA, 0-10VDC, Pulse		•
<b>Operating Modes:</b>		
Manual Adjust Only (100:1 speed adjustment)	•	•
4-20 mA Input Signal		•
High Speed Frequency Input		•
Pulse Triggered Batch Dispensing		•
Serial and ethernet communications: Profibus, Profinet, Ethernet, etc.		•

\* Requires Micro-Flo Sensor sold separately

**Model Numbers and Output Specifications:**

**C2 Series Diaphragm Pump | Maximum Strokes per minute 166**

Smaller overall size | Higher Pressure Capability | Superior chemical resistance

Feed Rate Range at 0 PSIG		Max Pressure	Outlet Connection	C2F Model Numbers			C2V Model Numbers		
GPH	LPH	PSIG (bar)	Size / Type	115V60 AC	230V60 AC	220V50 AC	115V60 AC	230V60 AC	220V50 AC
.07 - 7.1	.27 - 27.0	175 (12)	½" Male NPT	C2F243XVA	C2F253XVA	C2F263XVA	C2V243XVA	C2V253XVA	C2V263XVA
.07 - 7.1	.27 - 27.0	175 (12)	½"Female /NPT	C2F243XVB	C2F253XVB	C2F263XVB	C2V243XVB	C2V253XVB	C2V263XVB
.07 - 7.1	.27 - 27.0	175 (12)	3/4"OD x 1/2"ID TUBE	C2F243XVC	C2F253XVC	C2F263XVC	C2V243XVC	C2V253XVC	C2V263XVC
.07 - 7.1	.27 - 27.0	175 (12)	3/8"OD x 1/4"ID TUBE	C2F243XVD	C2F253XVD	C2F263XVD	C2V243XVD	C2V253XVD	C2V263XVD
.13 - 12.7	.48 - 48.0	175 (12)	½" Male NPT	C2F241XVA	C2F251XVA	C2F261XVA	C2V241XVA	C2V251XVA	C2V261XVA
.13 - 12.7	.48 - 48.0	175 (12)	½" Female NPT	C2F241XVB	C2F251XVB	C2F261XVB	C2V241XVB	C2V251XVB	C2V261XVB
.13 - 12.7	.48 - 48.0	175 (12)	3/4"OD x 1/2"ID TUBE	C2F241XVC	C2F251XVC	C2F261XVC	C2V241XVC	C2V251XVC	C2V261XVC
.13 - 12.7	.48 - 48.0	175 (12)	3/8"OD x 1/4"ID TUBE	C2F241XVD	C2F251XVD	C2F261XVD	C2V241XVD	C2V251XVD	C2V261XVD
.20 - 20.3	.77 - 76.8	175 (12)	½" Male NPT	C2F242XVA	C2F252XVA	C2F262XVA	C2V242XVA	C2V252XVA	C2V262XVA
.20 - 20.3	.77 - 76.8	175 (12)	½"Female /NPT	C2F242XVB	C2F252XVB	C2F262XVB	C2V242XVB	C2V252XVB	C2V262XVB
.20 - 20.3	.77 - 76.8	175 (12)	3/4"OD x 1/2"ID TUBE	C2F242XVC	C2F252XVC	C2F262XVC	C2V242XVC	C2V252XVC	C2V262XVC
.20 - 20.3	.77 - 76.8	175 (12)	3/8"OD x 1/4"ID TUBE	C2F242XVD	C2F252XVD	C2F262XVD	C2V242XVD	C2V252XVD	C2V262XVD

**C3 Series Diaphragm Pump | Maximum Strokes per minute 130**

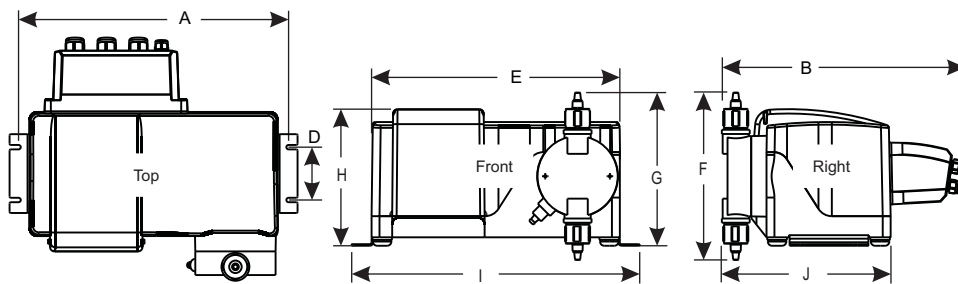
Larger overall size | Lower Pressure Capability | Superior chemical resistance

Feed Rate Range at 0 PSIG		Max Pressure	Outlet Connection	C3F Model Numbers			C3V Model Numbers		
GPH	LPH	PSIG (bar)	Size / Type	115V60 AC	230V60 AC	220V50 AC	115V60 AC	230V60 AC	220V50 AC
.19 - 19.7	.74 - 74.6	150 (10.3)	½" Male NPT	C3F241XVA	C3F251XVA	C3F261XVA	C3V241XVA	C3V251XVA	C3V261XVA
.19 - 19.7	.74 - 74.6	150 (10.3)	½"Female /NPT	C3F241XVB	C3F251XVB	C3F261XVB	C3V241XVB	C3V251XVB	C3V261XVB
.19 - 19.7	.74 - 74.6	150 (10.3)	3/4"OD x 1/2"ID TUBE	C3F241XVC	C3F251XVC	C3F261XVC	C3V241XVC	C3V251XVC	C3V261XVC
.19 - 19.7	.74 - 74.6	150 (10.3)	3/8"OD x 1/4"ID TUBE	C3F241XVD	C3F251XVD	C3F261XVD	C3V241XVD	C3V251XVD	C3V261XVD
.42 - 42.0	1.59 - 159	100 (6.8)	½" Male NPT	C3F242XVA	C3F252XVA	C3F262XVA	C3V242XVA	C3V252XVA	C3V262XVA
.42 - 42.0	1.59 - 159	100 (6.8)	½" Female NPT	C3F242XVB	C3F252XVB	C3F262XVB	C3V242XVB	C3V252XVB	C3V262XVB
.42 - 42.0	1.59 - 159	100 (6.8)	3/4"OD x 1/2"ID TUBE	C3F242XVC	C3F252XVC	C3F262XVC	C3V242XVC	C3V252XVC	C3V262XVC
.42 - 42.0	1.59 - 159	100 (6.8)	3/8"OD x 1/4"ID TUBE	C3F242XVD	C3F252XVD	C3F262XVD	C3V242XVD	C3V252XVD	C3V262XVD

# CHEM-PRO<sup>®</sup> Diaphragm Metering Pump

## Engineering and Technical Data

### Dimensions:



**Note:**  
Optional Extended Bracket adds 4.5" (11.43cm) to overall height (dimension G and H). See page 3 for details.

C2 Dimensions			C3 Dimensions		
Dim	Inches	cm	Dim	Inches	cm
A	12.8"	32.5	A	14.1"	35.8
B	11.5"	29.2	B	12"	30.5
D	2.5"	6.4	D	2.5"	6.4
E	11.8"	29.9	E	13.1"	33.2
F	7.9"	20.1	F	9"	22.9
G	7.3"	18.4	G	7.8"	19.8
H	6.5"	16.4	H	6.5"	16.4
I	13.6"	34.6	I	15"	38
J	8"	20.3	J	8"	20.3

### Model Number Matrix:

Chem-Pro Model Number																					
<b>C</b>	Chem-Pro Diaphragm Metering Pump																				
<b>Series</b>																					
<b>2</b>	Smaller overall size, higher pressure capability																				
<b>3</b>	Larger overall size, lower pressure capability																				
<b>Control Features</b>																					
<b>F</b>	Manual (local) control mode only																				
<b>V</b>	Multiple input control and alarm modes (Local and remote control)																				
<b>Maximum Strokes per Minute</b>																					
<b>2</b>	C2 series = 166, C3 series = 130																				
<b>Input Voltage / Power Cord</b>																					
<b>4</b>	115V / 60Hz, power cord NEMA 5/15 plug (US)																				
<b>5</b>	230V / 60Hz, power cord NEMA 6/15 plug (US)																				
<b>6</b>	220V / 50HZ, power cord CEE 7/VII plug (EU)																				
<b>8</b>	240V / 50HZ, power cord AS 3112 plug (Australia/New Zealand)																				
<b>Stroke Length / Diaphragm size</b>																					
	<table border="1"> <thead> <tr> <th colspan="2">C2 Series pumps</th> <th colspan="2">C3 Series pumps</th> </tr> </thead> <tbody> <tr> <td><b>1</b></td> <td>.060" stroke / small diaphragm</td> <td><b>1</b></td> <td>.060" stroke / large diaphragm</td> </tr> <tr> <td><b>2</b></td> <td>.060" stroke / large diaphragm</td> <td><b>2</b></td> <td>.100" stroke / large diaphragm</td> </tr> <tr> <td><b>3</b></td> <td>.040" stroke / small diaphragm</td> <td></td> <td></td> </tr> <tr> <td><b>4</b></td> <td>.100" stroke / large diaphragm</td> <td></td> <td></td> </tr> </tbody> </table>	C2 Series pumps		C3 Series pumps		<b>1</b>	.060" stroke / small diaphragm	<b>1</b>	.060" stroke / large diaphragm	<b>2</b>	.060" stroke / large diaphragm	<b>2</b>	.100" stroke / large diaphragm	<b>3</b>	.040" stroke / small diaphragm			<b>4</b>	.100" stroke / large diaphragm		
C2 Series pumps		C3 Series pumps																			
<b>1</b>	.060" stroke / small diaphragm	<b>1</b>	.060" stroke / large diaphragm																		
<b>2</b>	.060" stroke / large diaphragm	<b>2</b>	.100" stroke / large diaphragm																		
<b>3</b>	.040" stroke / small diaphragm																				
<b>4</b>	.100" stroke / large diaphragm																				
<b>Electrical Options</b>																					
<b>X</b>	Standard Equipment includes a power cord and field wiring box)																				
<b>Elastomer Material (o-rings)</b>																					
<b>V</b>	Viton																				
<b>E</b>	EP																				
<b>Pump Head Outlet Fitting and Injection Fitting / Check Valve Connections</b>																					
<b>A</b>	1/2" Male NPT pump head, with 1/2" M/NPT injection fitting																				
<b>B</b>	1/2" Female NPT pump head, with 1/2" M/NPT injection fitting																				
<b>C</b>	1/2" ID x 3/4" OD tubing pump head, with 1/2" ID x 3/4" OD tubing injection fitting																				
<b>D</b>	1/4" ID x 3/8" OD Tubing pump head, with 1/4" ID x 3/8" OD tubing injection fitting																				
<b>C</b>	<b>2</b>	<b>V</b>	<b>2</b>	<b>4</b>	<b>2</b>	<b>X</b>	<b>V</b>	<b>D</b>	<b>Sample Model Number</b>												