

## CHEM-PRO C2 & C3

- Feed Rates to 40 GPH / 153 LPH
- System Pressures to 175 PSI / 12 bar
- Diaphragm Failure Detection
- PVDF/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, double ball check valves without metal springs.
- 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 Features Include :**
  - Patent pending Dia-Flex™ PVDF single-layer Diaphragm
  - 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

### 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  
**Valve Cartridges:** .....PVDF  
**Valve Balls:** .....Ceramic  
**Valve Ball Seats:** .....TFE/P Tetrafluoroethylene/propylene  
**Static Seals:** .....TFE/P (optional EP)  
**Diaphragm:** .....PVDF, Flex-A-Prene<sup>®</sup>

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

**Body & insert:** .....PVDF  
**Check Ball:** .....Ceramic  
**Spring:** .....Hastelloy C-276  
**O-ring seals:** .....TFE/P (optional EP)

##### Foot Valve / Strainer:

**Body & Adapter:** .....PVDF  
**Check Ball:** .....Ceramic  
**Spring:** .....Hastelloy C-276  
**O-ring seals:** .....TFE/P (optional EP)  
**Filter screen:** .....PVDF

**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

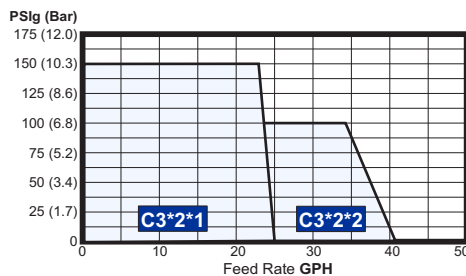
**DFD System Sensor pins:**  
Hastelloy C-276

**Power Cord:**  
3 conductor, SJTW-A Water-resistant

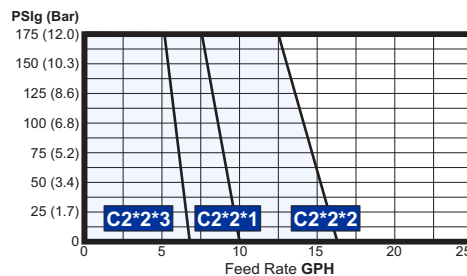
**Mounting Brackets and Hardware:**  
316 Series Stainless Steel

### Output Curves:

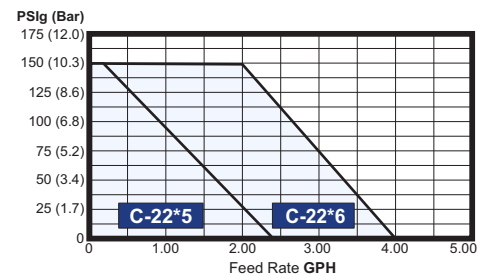
C3 Series Models



C2 Series Models



C2 Series Micro-Feed



**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		Optional
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		•

\* 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
.02 - 2.3	.09 - 9.0	150 (10)	1/2" Male NPT	C2F245XVA	C2F255XVA	C2F265XVA	C2V245XVA	C2V255XVA	C2V265XVA
.02 - 2.3	.09 - 9.0	150 (10)	1/2" Female /NPT	C2F245XVB	C2F255XVB	C2F265XVB	C2V245XVB	C2V255XVB	C2V265XVB
.02 - 2.3	.09 - 9.0	150 (10)	3/4"OD x 1/2"ID Tube	C2F245XVC	C2F255XVC	C2F265XVC	C2V245XVC	C2V255XVC	C2V265XVC
.02 - 2.3	.09 - 9.0	150 (10)	3/8"OD x 1/4"ID Tube	C2F245XVD	C2F255XVD	C2F265XVD	C2V245XVD	C2V255XVD	C2V265XVD
.04 - 4.0	.15 - 15.0	150 (10)	1/2" Male NPT	C2F246XVA	C2F256XVA	C2F266XVA	C2V246XVA	C2V256XVA	C2V266XVA
.04 - 4.0	.15 - 15.0	150 (10)	1/2" Female NPT	C2F246XVB	C2F256XVB	C2F266XVB	C2V246XVB	C2V256XVB	C2V266XVB
.04 - 4.0	.15 - 15.0	150 (10)	3/4"OD x 1/2"ID Tube	C2F246XVC	C2F256XVC	C2F266XVC	C2V246XVC	C2V256XVC	C2V266XVC
.04 - 4.0	.15 - 15.0	150 (10)	3/8"OD x 1/4"ID Tube	C2F246XVD	C2F256XVD	C2F266XVD	C2V246XVD	C2V256XVD	C2V266XVD
.067 - 6.7	.254 - 25.4	175 (12)	1/2" Male NPT	C2F243XVA	C2F253XVA	C2F263XVA	C2V243XVA	C2V253XVA	C2V263XVA
.067 - 6.7	.254 - 25.4	175 (12)	1/2" Female /NPT	C2F243XVB	C2F253XVB	C2F263XVB	C2V243XVB	C2V253XVB	C2V263XVB
.067 - 6.7	.254 - 25.4	175 (12)	3/4"OD x 1/2"ID Tube	C2F243XVC	C2F253XVC	C2F263XVC	C2V243XVC	C2V253XVC	C2V263XVC
.067 - 6.7	.254 - 25.4	175 (12)	3/8"OD x 1/4"ID Tube	C2F243XVD	C2F253XVD	C2F263XVD	C2V243XVD	C2V253XVD	C2V263XVD
.10 - 10	.38 - 38	175 (12)	1/2" Male NPT	C2F241XVA	C2F251XVA	C2F261XVA	C2V241XVA	C2V251XVA	C2V261XVA
.10 - 10	.38 - 38	175 (12)	1/2" Female /NPT	C2F241XVB	C2F251XVB	C2F261XVB	C2V241XVB	C2V251XVB	C2V261XVB
.10 - 10	.38 - 38	175 (12)	3/4"OD x 1/2"ID Tube	C2F241XVC	C2F251XVC	C2F261XVC	C2V241XVC	C2V251XVC	C2V261XVC
.10 - 10	.38 - 38	175 (12)	3/8"OD x 1/4"ID Tube	C2F241XVD	C2F251XVD	C2F261XVD	C2V241XVD	C2V251XVD	C2V261XVD
.165 - 16.5	.625 - 62.5	175 (12)	1/2" Male NPT	C2F242XVA	C2F252XVA	C2F262XVA	C2V242XVA	C2V252XVA	C2V262XVA
.165 - 16.5	.625 - 62.5	175 (12)	1/2" Female /NPT	C2F242XVB	C2F252XVB	C2F262XVB	C2V242XVB	C2V252XVB	C2V262XVB
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.165 - 16.5	.625 - 62.5	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**

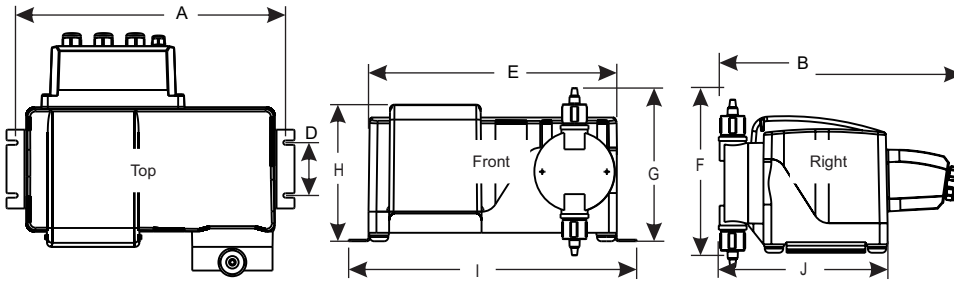
Larger overall size | Lower Pressure Capability | Superior chemical resistance

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
.262 - 26.2	.99 - 99	150 (10.3)	1/2" Male NPT	C3F241XVA	C3F251XVA	C3F261XVA	C3V241XVA	C3V251XVA	C3V261XVA
.262 - 26.2	.99 - 99	150 (10.3)	1/2" Female /NPT	C3F241XVB	C3F251XVB	C3F261XVB	C3V241XVB	C3V251XVB	C3V261XVB
.262 - 26.2	.99 - 99	150 (10.3)	3/4"OD x 1/2"ID Tube	C3F241XVC	C3F251XVC	C3F261XVC	C3V241XVC	C3V251XVC	C3V261XVC
.406 - 40.6	1.54 - 154	100 (6.8)	1/2" Male NPT	C3F242XVA	C3F252XVA	C3F262XVA	C3V242XVA	C3V252XVA	C3V262XVA
.406 - 40.6	1.54 - 154	100 (6.8)	1/2" Female NPT	C3F242XVB	C3F252XVB	C3F262XVB	C3V242XVB	C3V252XVB	C3V262XVB
.406 - 40.6	1.54 - 154	100 (6.8)	3/4"OD x 1/2"ID Tube	C3F242XVC	C3F252XVC	C3F262XVC	C3V242XVC	C3V252XVC	C3V262XVC

# 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	14.1"	35.8	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	13.1"	33.2	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	15"	38	I	15"	38
J	8"	20.3	J	8"	20.3

### Model Number Matrix:

Chem-Pro Model Number																									
<b>C2</b>	Smaller overall size, lower output, higher pressure capability																								
<b>C3</b>	Larger overall size, higher output, lower pressure capability																								
<b>Series</b>																									
<b>F</b>	Single manual output control mode (manual control)																								
<b>V</b>	Multiple automatic input output control and alarm modes (remote control)																								
<b>Maximum Strokes Per Minute</b>																									
<b>2</b>	C2 Series = 166 RPM, C3 Series = 130 RPM (maximum strokes per minute)																								
<b>Input Voltage</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 NEMA 7/III plug (EU)																								
<b>8</b>	240V / 50HZ, power cord AS 3112 plug (Australia / New Zealand)																								
<b>9</b>	230V / 50HZ, power cord BS 1363 plug (UK)																								
<b>CAM Stroke Length and Diaphragm Size</b>																									
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<b>Electrical Options</b>																									
<b>X</b>	Standard equip. (standard pwr cord based on "input voltage" & junction box based on "output control" selection)																								
<b>A</b>	4-20mA output signal, requires "V" series control																								
<b>Elastomer Material (o-rings)</b>																									
<b>V</b>	TFE/P																								
<b>E</b>	EP (Ethylene Propylene)																								
<b>Fitting Connection Types</b>																									
<b>A</b>	1/2" Hose Barb Inlet, 1/2" Male NPT Outlet, with 1/2" Male NPT Injection Fitting																								
<b>B</b>	1/2" Hose Barb Inlet, 1/2" Female NPT Outlet, with 1/2" Male NPT Injection Fitting																								
<b>C</b>	1/2" Hose Barb Inlet and Outlet, with 1/2" ID Hose Barb Injection Fitting																								
<b>D</b>	3/8" OD Tube Compression Inlet, Outlet, and Injection Fitting ( <b>C2 pump only</b> )																								
<b>E</b>	1/2" Male NPT Inlet and Outlet, with 1/2" Male NPT Injection Fitting																								
<b>F</b>	1/2" Female NPT Inlet and Outlet, with 1/2" Male NPT Injection Fitting																								
<b>Miscellaneous Options (leave blank for standard model)</b>																									
<b>A</b>	Hastelloy C check valve balls, standard injection fittings																								
<b>B</b>	Single 1/2" ceramic ball & Hastelloy C spring P/head check valve for viscous fluids																								
<b>S</b>	Flex-a-Prene <sup>®</sup> Diaphragms (Caustic Soda resistant diaphragms)																								
<b>H</b>	PTFE balls (double ball check valve, injection fitting) low viscosity/density fluids only																								
<b>J</b>	Flex-a-Prene <sup>®</sup> Diaphragms (Caustic Soda resistant diaphragms)																								
<b>C2</b>	<b>V</b>	<b>2</b>	<b>4</b>	<b>1</b>	<b>X</b>	<b>V</b>	<b>D</b>	<b>A</b>	<b>Sample Model Number</b>																