

## CHEM-PRO<sup>®</sup> MC-2 & MC-3

- 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
- 3 Year Warranty



Sold and serviced exclusively by highly skilled, factory authorized technicians.



NEMA 4X

### Applications:

- Chemical Metering
- Wastewater Treatment
- Municipal Water Treatment
- Boiler Treatment
- Cooling Tower Treatment
- Acid Injection
- Fluoridation

### 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
- Large PVDF, Ceramic, double ball check valves without metal springs.
- Backlit LCD displays output volume, 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.
- Patent pending Dia-Flex<sup>™</sup> PVDF single-layer Diaphragm
- Field up-gradeable firmware
- Terminal block connectors inside junction box
- UV protective LCD snap-on cover

**Engineering Specifications:**

**Maximum working pressure:**

175 psig (12 bar) (model specific)

**Maximum Fluid temperature:**

130° F (54° C)

**Maximum Fluid viscosity:**

1,000 Centipoise

**Maximum suction lift:**

15 ft. Water, 0 psig (4.5 m, 0 bar)

**Ambient Operating Temperature:**

14°F to 115°F (-10°C to 46°C)

**Ambient 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)

**Motor:**

Brushed DC, 1/8 H.P.

**Duty cycle:**

Continuous

**Output adjustment range:**

0.5-100% in 0.1% increments

**Display:**

Backlit LCD, UV resistant.

**Keypad:**

Positive action tactile switch keypad.

**Enclosure:**

NEMA 4X (IP66), Powder coated aluminum.

**Approximate shipping wt:**

MC-2 models: 24 lb. (10.9 Kg)

MC-3 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 Tetrafluorethylene/propylene

Static Seals: .....TFE/P (optional EP)

Diaphragm: .....PVDF, Flex-A-Prene®

**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

**Non-Wetted components:**

**Enclosure:**

413 Aluminum (Polyester powder coated)

**Pump Head Cover:**

316 Stainless Steel

**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:**

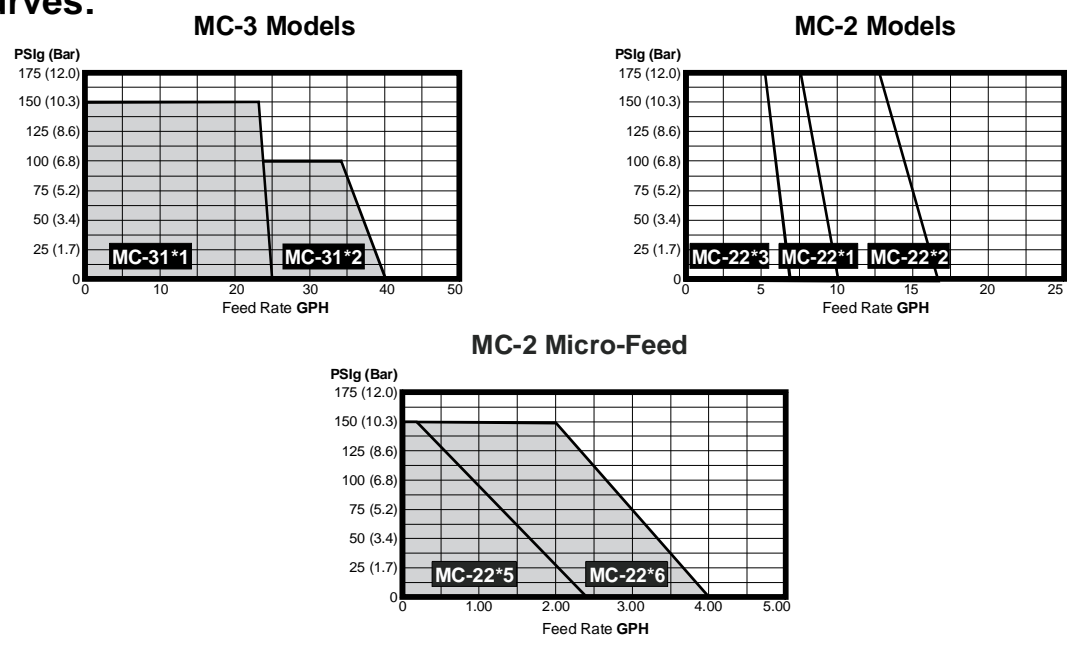
316 Series Stainless Steel

**Output Specifications:**

<b>MC-2 Diaphragm Metering Pump</b>							
166 Strokes per minute							
Feed Rate Range at 0 PSig			Max Pressure	Connection Type	MC-2 Model Numbers		
GPH	LPH	ML/MIN	PSig (bar)	Size / Type	115V60 AC	230V60 AC	220V50 AC
.01 - 2.3	.05 - 9.0	0.8 - 150	150 (10)	1/2" Male NPT	MC-2245XV3	MC-2255XV3	MC-2265XV3
.01 - 2.3	.05 - 9.0	0.8 - 150	150 (10)	1/2" Female /NPT	MC-2245XV4	MC-2255XV4	MC-2265XV4
.01 - 2.3	.05 - 9.0	0.8 - 150	150 (10)	3/4"OD x 1/2"ID TUBE	MC-2245XV1	MC-2255XV1	MC-2265XV1
.01 - 2.3	.05 - 9.0	0.8 - 150	150 (10)	3/8"OD x 1/4"ID TUBE	MC-2245XV2	MC-2255XV2	MC-2265XV2
.02 - 4.0	.08 - 15.0	1.3 - 250	150 (10)	1/2" Male NPT	MC-2246XV3	MC-2256XV3	MC-2266XV3
.02 - 4.0	.08 - 15.0	1.3 - 250	150 (10)	1/2" Female NPT	MC-2246XV4	MC-2256XV4	MC-2266XV4
.02 - 4.0	.08 - 15.0	1.3 - 250	150 (10)	3/4"OD x 1/2"ID TUBE	MC-2246XV1	MC-2256XV1	MC-2266XV1
.02 - 4.0	.08 - 15.0	1.3 - 250	150 (10)	3/8"OD x 1/4"ID TUBE	MC-2246XV2	MC-2256XV2	MC-2266XV2
.03 - 6.7	.13 - 25.4	2.1 - 423	175 (12)	1/2" Male NPT	MC-2243XV3	MC-2253XV3	MC-2263XV3
.03 - 6.7	.13 - 25.4	2.1 - 423	175 (12)	1/2" Female /NPT	MC-2243XV4	MC-2253XV4	MC-2263XV4
.03 - 6.7	.13 - 25.4	2.1 - 423	175 (12)	3/4"OD x 1/2"ID TUBE	MC-2243XV1	MC-2253XV1	MC-2263XV1
.03 - 6.7	.13 - 25.4	2.1 - 423	175 (12)	3/8"OD x 1/4"ID TUBE	MC-2243XV2	MC-2253XV2	MC-2263XV2
.05 - 10	.19 - 38	3.2 - 631	175 (12)	1/2" Male NPT	MC-2241XV3	MC-2251XV3	MC-2261XV3
.05 - 10	.19 - 38	3.2 - 631	175 (12)	1/2" Female /NPT	MC-2241XV4	MC-2251XV4	MC-2261XV4
.05 - 10	.19 - 38	3.2 - 631	175 (12)	3/4"OD x 1/2"ID TUBE	MC-2241XV1	MC-2251XV1	MC-2261XV1
.05 - 10	.19 - 38	3.2 - 631	175 (12)	3/8"OD x 1/4"ID TUBE	MC-2241XV2	MC-2251XV2	MC-2261XV2
.08 - 16.5	.31 - 62.5	8.25 - 1041	175 (12)	1/2" Male NPT	MC-2242XV3	MC-2252XV3	MC-2262XV3
.08 - 16.5	.31 - 62.5	8.25 - 1041	175 (12)	1/2" Female /NPT	MC-2242XV4	MC-2252XV4	MC-2262XV4
.08 - 16.5	.31 - 62.5	8.25 - 1041	175 (12)	3/4"OD x 1/2"ID TUBE	MC-2242XV1	MC-2252XV1	MC-2262XV1
.08 - 16.5	.31 - 62.5	8.25 - 1041	175 (12)	3/8"OD x 1/4"ID TUBE	MC-2242XV2	MC-2252XV2	MC-2262XV2

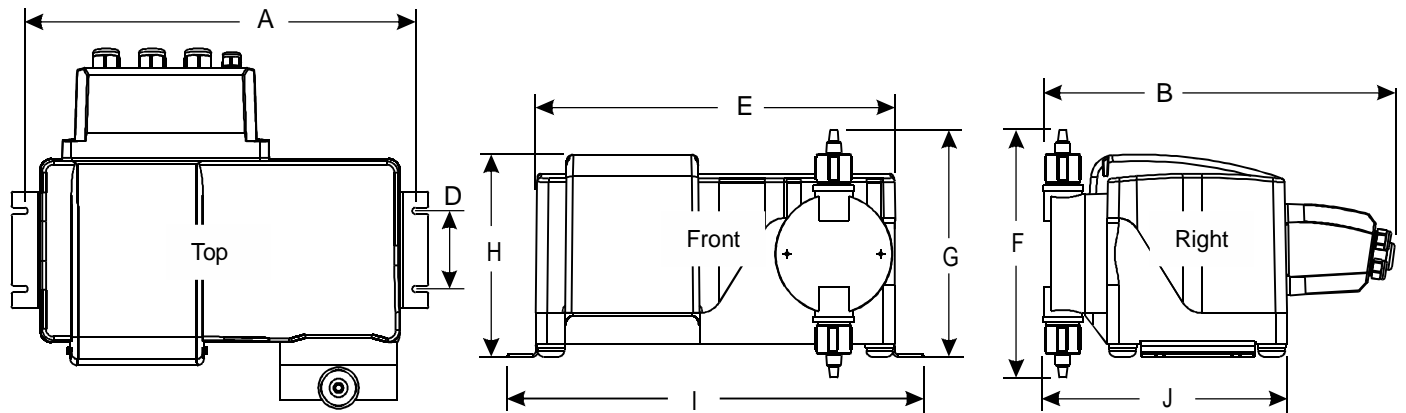
<b>MC-3 Diaphragm Metering Pump</b>							
130 Strokes per minute							
Feed Rate Range at 0 PSig			Max Pressure	Connection Type	MC-3 Model Numbers		
GPH	LPH	ML/MIN	PSig (bar)	Size / Type	115V60 AC	230V60 AC	220V50 AC
.13 - 26.2	.5 - 99	8.3 - 1650	150 (10.3)	1/2" Male NPT	MC-3141XV3	MC-3151XV3	MC-3161XV3
.13 - 26.2	.5 - 99	8.3 - 1650	150 (10.3)	1/2" Female /NPT	MC-3141XV4	MC-3151XV4	MC-3161XV4
.13 - 26.2	.5 - 99	8.3 - 1650	150 (10.3)	3/4"OD x 1/2"ID TUBE	MC-3141XV1	MC-3151XV1	MC-3161XV1
.20 - 40.6	.77 - 154	12.8 - 2560	100 (6.8)	1/2" Male NPT	MC-3142XV3	MC-3152XV3	MC-3162XV3
.20 - 40.6	.77 - 154	12.8 - 2560	100 (6.8)	1/2" Female NPT	MC-3142XV4	MC-3152XV4	MC-3162XV4
.20 - 40.6	.77 - 154	12.8 - 2560	100 (6.8)	3/4"OD x 1/2"ID TUBE	MC-3142XV1	MC-3152XV1	MC-3162XV1

**Output Curves:**



**Engineering and Technical Data**

**Dimensions:**



**Note:**  
Extended mounting bracket adds 4.5" (11.43cm) to overall height (dimension G and H).

MC-2 Dimensions			MC-3 Dimensions		
Dim	Inches	cm	Dim	Inches	cm
A	14.1"	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	13.1"	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	15"	34.6	I	15"	38
J	8"	20.3	J	8"	20.3

**Chem-Pro Municipal Version Model Number Matrix**

Chem-Pro Model Number																									
<b>MC</b>	Chem-Pro Diaphragm Metering Pump																								
<b>Series</b>																									
<b>2</b>	Smaller overall size, lower output, higher pressure capability																								
<b>3</b>	Larger overall size, higher output, lower pressure capability																								
<b>Maximum Strokes per Minute</b>																									
<b>1</b>	130 (MC-3 only)																								
<b>2</b>	166 (MC-2) / 130 (Micro-Feed)																								
<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>9</b>	230V / 50HZ, power cord BS 1363 plug (UK)																								
<b>Stroke Length / Diaphragm size</b>																									
<table border="1"> <thead> <tr> <th colspan="2">MC-2 Series pumps</th> <th colspan="2">MC-3 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>5</b></td> <td>.040" stroke / Micro-Feed</td> <td></td> <td></td> </tr> <tr> <td><b>6</b></td> <td>.060" stroke / Micro-Feed</td> <td></td> <td></td> </tr> </tbody> </table>		MC-2 Series pumps		MC-3 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>5</b>	.040" stroke / Micro-Feed			<b>6</b>	.060" stroke / Micro-Feed		
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<b>Electrical Options</b>																									
<b>X</b>	Standard Equipment - includes power cord and field wiring box																								
<b>Elastomer Material (o-rings)</b>																									
<b>V</b>	TFE/P																								
<b>E</b>	EP (Ethylene Propylene)																								
<b>Pump Head Fitting and Injection Fitting / Check Valve Connections</b>																									
<b>1</b>	½" ID x ¾" OD tubing pump head																								
<b>2</b>	1/4" ID x 3/8" OD Tubing pump head																								
<b>3</b>	½" Male NPT inlet and outlet, with ½" M/NPT injection fitting																								
<b>4</b>	½" Female NPT inlet and outlet, with ½" M/NPT injection fitting																								
<b>Miscellaneous options (leave blank if not used)</b>																									
<b>A</b>	Hastelloy C check valve balls, standard injection fittings																								
<b>B</b>	Single ½" ceramic ball & Hastelloy C spring P/head check valve for viscous fluids																								
<b>H</b>	PTFE balls (double ball check valve, injection fitting) low viscosity/density fluids only																								
<b>J</b>	PTFE balls (Single ball w/Hastelloy spring check valve, injection fitting)																								
<b>S</b>	Flex-a-Prene® Diaphragms (Caustic Soda resistant diaphragms)																								
<b>MC</b>	<b>-</b>	<b>2</b>	<b>2</b>	<b>4</b>	<b>2</b>	<b>X</b>	<b>V</b>	<b>3</b>	<b>-</b>	<b>J</b>	<b>Sample Model Number</b>														

**Features list:**

<b>Features:</b>
DFD (Diaphragm Failure Detection) System Alarm
FVS (Flow Verification System) Alarm *
Output: One, 3 amp alarm relay
Output: Analog 4-20mA
Input: One, dry contact closure or 6-24 Vdc powered loop for remote start / stop
Input: Remote speed control via 4-20mA, high speed digital pulse, contact closure pulse
Display: Output volume, Motor speed, Input signal values, alarm status

<b>Available Operating Modes:</b>
Manual (local): speed adjustment
Remote input: 4-20mA
Remote input: high speed frequency (pulse) input
Remote input: pulse triggered batch dispensing

<b>Optional Communications Commands List</b>	
<b>Control Commands</b>	<b>Available Pump Status Data</b>
Start/Stop	Motor run/stop status
Set motor speed (0.5 to 100.0%)	Priming status
60 second prime at maximum speed	Status of each local touch pad button
Lock and unlock any touch pad button	Current operating mode selection
Clear/reset general alarm	DFD (Diaphragm Failure Detection) system status
Set operating mode	FVS (Flow Verification System) status
	General alarm status
	Alarm output relay status
	Current pump operating speed
	Current analog input signal value in mA
	Current frequency input signal value in Hz
	Current analog output signal value in mA
	Pump model and software version

\* Requires Micro-Flo Sensor sold separately

Factory Authorized Representative:



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Sudbury MA 01776



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