

## FLEX-PRO A2

Feed Rates to 17.2 GPH (65.1 LPH)  
Pressures to 125 PSI  
4-20mA, Pulse Input and Manual Speed Control  
100:1 Turndown ratio  
Tube Failure Detection System  
Variable Speed DC Motor  
NEMA 4X (IP 66) Washdown Duty  
2 Year Warranty



**NEMA 4X** **CE**



Patents: 4,496,295 7,001,153 and other patents pending

### Applications:

- Chemical Metering
- Wastewater Treatment
- Chlorination
- Chloramination
- Fluoridation
- Polymer Injection
- Pulp & Paper Slurries
- Printing Inks
- Oil Based Fluids
- Gaseous Fluids
- Shear Sensitive Fluids
- Caustics
- Chemical Slurries
- Food and Beverage

### Features:

- Peristaltic pump design does not have valves that can clog requiring maintenance.
- Self priming - even against maximum line pressure. By-pass valves are not required. Cannot vapor lock or lose prime.
- Output rates to: 17.2 GPH (65.1 LPH) and pressures to 125 PSI (8.6 Bar).
- Variable speed DC motor.
- Specially engineered tubing for long life and high pressures. Meets FDA 21 CFR requirements for food contact applications.
- Patented Tube Failure Detection (TFD) system. Senses tube failure by detecting chemical in the pump head. No false triggering.
- 100:1 turndown ratio.
- SCADA Inputs include: 4-20mA and pulse inputs for remote external speed control and either powered 6-24 VDC or non-powered dry contact closure for remote start/stop.
- Operator friendly digital touch pad.
- Backlit LCD displays motor speed, input signal values, service and alarm status.
- Outputs include: one 250V/3A relay to monitor TFD (Tube Failure System) and FVS (Flow Verification System). A 4-20mA analog output signal scaled to the motor speed is optional.
- Two molded squeeze rollers and two alignment rollers for optimum squeeze, unparallelled accuracy, and tube life.
- Heavy duty rotor - single piece plastic rotor means no flexing and increased accuracy with no metal springs or hinges to corrode.
- Inject at maximum pressure in either direction (clockwise and counter clockwise).
- Compatible with Blue-White's output Flow Verification Sensor (FVS) system. Sensor is sold separately.

### Engineering Specifications:

**Maximum working pressure (excluding pump tubes):**

125 psig (8.6 bar)

Note: see individual pump tube assembly maximum pressure ratings.

**Maximum Fluid temperature (excluding pump tubes):**

3/8" OD x 1/4" ID tubing connections: 130° F (54° C)

M/NPT connections: 185° F (85° C)

Note: see individual pump tube assembly maximum temperature ratings.

**Maximum fluid viscosity:**

12,000 Centipoise

**Maximum suction lift:**

30 ft. of water at sea level (14.7 atm psi)

**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:**

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 Options:**

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

**Motor speed adjustment range 100:1:**

1.0% - 100% motor speed (1.3 to 130 RPM)

**Motor speed adjustment resolution:**

0.1% increments

**Display**

Backlit LCD, UV resistant.

**Keypad**

Eight button positive action tactile switch keypad.

**Enclosure:**

NEMA 4X (IP66), Polyester powder coated aluminum.

Maximum Overall Dimensions:

7-1/2" W x 10-1/4" H x 14" D (19 W x 26 H x 35.6 D cm)

**Product weight:**

28.4lb. (12.9 Kg)

**Approximate shipping wt:**

35 lb. (15.9 Kg)

### Materials of Construction:

**Wetted components:****Pump Tube Assembly (Model Specific - 2 provided):**

Tubing: . . . . . Flex-A-Prene® or Flex-A-Chem® or Flex-A-Thane®

Adapter fittings: .PVDF

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

Body &amp; insert: . . . . . PVDF

Check Ball: . . . . . Ceramic

Spring: . . . . . Hastelloy C-276

Ball Seat O-ring: . . . . . TFE/P (optional EPDM)

Static Seal O-ring: . . . . . TFE/P (optional EPDM)

**Ancillary Items provided****With "S" tubing type connections only:**

Suction Tubing: . . . . . 3/8" OD x 1/4" ID x 10' Clear PVC

Discharge Tubing: . . . . . 3/8" OD x 1/4" ID x 10' Polyethylene (LLDPE)

Suction Strainer: . . . . . PVDF

**With "B" tubing and "M" M/NPT connections only:****Suction Strainer:**

Body: . . . . . PVDF

Check Ball: . . . . . Ceramic

Ball Seat O-ring: . . . . . TFE/P (optional EPDM)

**For "C" Tri-clamp and "Q" Quick Disconnect connections\* only:**

(Available for ND, NEE, NGG, and G2G only)

Suction Strainer: . . . . . PVDF

\*Quick Disconnect Valves sold separately

**Non-Wetted components:****Enclosure:**

413 Aluminum (Polyester powder coated)

**Pump Head:**

Valox® (PBT) thermoplastic

**Pump Head Cover:**

Polycarbonate for added strength and chemical resistance.

Permanently lubricated sealed motor shaft support ball bearing.

**Cover Screws:**

Stainless Steel

**Roller Assembly:**

Rotor: . . . . . Valox® (PBT)

Rollers: . . . . . PVDF/Nylon

Roller Bearings: . . . . . SS Ball Bearings

**Motor Shaft:**

Chrome plated steel

**TFD System Sensor pins:**

Hastelloy C-276

**Power Cord:**

3 conductor, SJTW-A Water-resistant

**Tube Installation Tool:**

GF Nylon

**Mounting Brackets and Hardware:**

316 Stainless Steel

### Output Specifications:

Feed Rate			Max Speed	Max Pressure	Max Temperature	A2 Model Numbers		
<b>Flex-A-Prene® A2 Tube Pumps</b>								
Meets FDA criteria for food   Excellent chemical resistance   CIP   SIP								
GPH	LPH	ML/Min	RPM	PSI (bar)	F (C)	115V AC	230V AC	220V AC
.02 - 1.7	.07 - 6.5	1 - 108	130	125 (8.6)	185 (85)	A2V24-*ND	A2V25-*ND	A2V26-*ND
<b>Flex-A-Prene® A2 Tube Pumps</b>								
Meets FDA criteria for food   Excellent chemical resistance   CIP   SIP								
GPH	LPH	ML/Min	RPM	PSI (bar)	F (C)	115V AC	230V AC	220V AC
.044 - 4.44	.168 - 16.8	2.80 - 280	130	110 (7.6)	185 (85)	A2V24-*NEE	A2V25-*NEE	A2V26-*NEE
.172 - 17.2	.651 - 65.1	10.85 - 1085	130	110 (7.6)	185 (85)	A2V24-*NGG	A2V25-*NGG	A2V26-*NGG
<b>Flex-A-Chem® A2 Tube Pumps</b>								
Meets FDA criteria for food   Superb chemical resistance								
GPH	LPH	ML/Min	RPM	PSI (bar)	F (C)	115V AC	230V AC	220V AC
.14 - 14.3	.54 - 54	9.0 - 900	130	50 (3.4)	130 (54)	A2V24-*TH	A2V25-*TH	A2V26-*TH
<b>Flex-A-Thane® A2 Tube Pumps</b>								
Meets FDA criteria for food   Resistant to oils, greases and fuels								
GPH	LPH	ML/Min	RPM	PSI (bar)	F (C)	115V AC	230V AC	220V AC
.04 - 4.0	.15 - 15.2	3 - 253	130	65 (4.5)	130 (54)	A2V24-*GE	A2V25-*GE	A2V26-*GE
.09 - 9.3	.35 - 35.2	6 - 587	130	65 (4.5)	130 (54)	A2V24-*GG	A2V25-*GG	A2V26-*GG
.15 - 14.98	.567 - 56.7	9.45 - 945	130	65 (4.5)	130 (54)	A2V24-*G2G	A2V25-*G2G	A2V26-*G2G
<p>* Inlet/outlet connection type                      S = 3/8" OD x 1/4" ID tubing compressions type connections                      M = 1/2" male NPT                      B = 1/2" Hose barb, Natural PVDF (Kynar), (ND, NEE, NGG, and G2G only)                      C = 1/2" - 3/4" tri-clamp connections (ND, NEE, NGG, and G2G only)                      Q = Quick Disconnect (ND, NEE, NGG, and G2G only) (Valves sold separately)                      MB = 1/2" male BSPT</p> <ul style="list-style-type: none"> <li>The Flex-Pro Pump's motor speed is linear over the entire 1% to 100% adjustment range.</li> <li>Output versus pressure is nearly linear in all models. Larger tubes exhibit greater losses.</li> <li>For optimum tube life, specify the pump to operate at the lowest possible RPM and pressure.</li> </ul>								

NOTE: Replace "V" in model number for "F" when ordering manual output control. Feed output not affected. See page 5 for model number matrix.

### Quick-Disconnect Valve Kits (Sold Separately)

For use with the Quick-Disconnect Flex-A-Prene Tube Assembly

#### 3/8" OD, 1/4" Tubing



Part #	O-ring
KIT-QSV	FKM
KIT-QSE	EP

#### 1/2" Hose Barb



Part #	O-ring
KIT-QBV	FKM
KIT-QBE	EP

#### 1/2" M/NPT



Part #	O-ring
KIT-QMV	FKM
KIT-QME	EP

### Chemical Resistance of Tubing:

#### Flex-A-Prene® Tubing

Meets FDA criteria for food | Excellent chemical resistance

Alcohol general	Ethylene glycol	Hydrochloric acid 33%	Potassium hydroxide
Aluminum Sulfate (Alum)	Ferric chloride	Hydrocyanic acid	Potassium permanganate
Ammonium chloride	Ferric nitrate	Hydrogen peroxide	Propylene glycol
Ammonium hydroxide	Ferric sulfate	Hypochlorous acid	Sodium hydroxide 50%
Ammonium Sulfate (LAS)	Ferrous chloride - 43% in water	Iodine	Sodium Bisulfite
Benzyl alcohol	Ferrous sulfate	Magnesium chloride	Sodium Hypochlorite 12.5%
Bleach	Fluosilicic Acid (up to 25%)	Magnesium sulfate	Sodium sulfide
Brine solutions	Formic acid	Phosphoric acid	Sulfuric acid up to 50%
Calcium hypochlorite 20%	Glucose	Plating solutions	Tannic acid

#### Flex-A-Chem® Tubing - Ultra smooth plasticizer-free bore (inner liner)

Meets FDA criteria for food | Superb chemical resistance

Ferrous Chloride (up to 40%)	Phosphoric Acid (up to 85%)	Bases	Applications: Ink and solvent production Battery acid filling Specialty chemical production / processing Sensitive fluid transfer
Fluoboric Acid (up to 48%)	Potassium Hypochlorite (up to 70%)	Salts	
Fluosilicic Acid (up to 25%)	Sodium Phosphate (up to 30%)	Ketones	
Hydrofluoric Acid (up to 48%)	Sulfuric Acid (up to 98%)	Alcohols	
Nitric Acid (up to 71%)		Isobutyl Alcohol	

#### Flex-A-Thane® Tubing

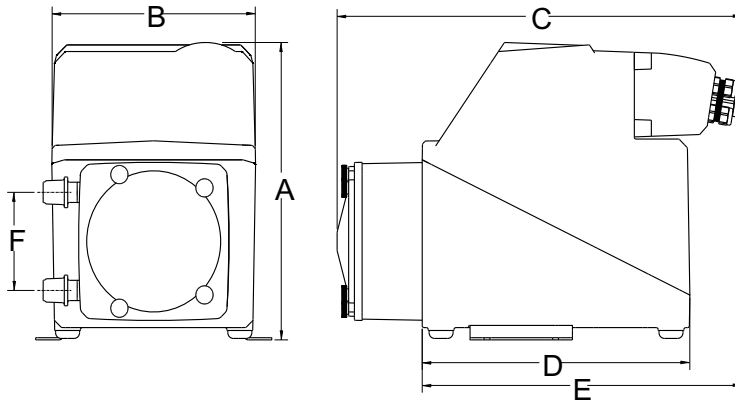
Meets FDA criteria for food | Resistant to oils, greases and fuels

Cyclohexane	Kerosene	Oils:	Oils:
Diesel Fuel	Lard	ASTM reference No.1,2,3	Linseed
Fatty acids	Mineral spirits	Castor	Lubricating
Gasoline	Soap solutions	Coconut	Mineral
Heptane	Turpentine	Fuel	
Hexane	Polymer		

# FLEX-PRO® Peristaltic Metering Pump

## Engineering and Technical Data

### Dimensions:



A2 Series		
Dim	Inches	cm
A	10-1/4"	26
B	7-1/2"	19
C	14"	35.6
D	9-1/2"	24.1
E	11"	27.9
F	3-3/8"	8.6

### Model Number Matrix:

Flex-Pro Model Number									
<b>A2</b>	Flex-Pro Peristaltic Metering Pump								
<b>Series Control Options</b>									
<b>F</b>	Single manual output control (manual/local control only)								
<b>V</b>	Multiple automatic input output control and alarm modes (remote control)								
<b>Maximum Motor Speed</b>									
<b>2</b>	130 RPM (maximum rotor rotation speed)								
<b>Power Cord (operating voltage requirement 96VAC to 264VAC)</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/VI 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>X</b>	No Power Cord								
<b>Inlet/Outlet Connection Size, Connection Type, Connection Material</b>									
<b>S</b>	3/8" OD x 1/4" ID Tube Compression Fitting, Natural PVDF (Kynar)								
<b>M</b>	1/2" Male NPT Fitting, Natural PVDF (Kynar)								
<b>B</b>	1/2" Hose Barb, Natural PVDF (Kynar), available for ND, NEE, NGG, and G2G only								
<b>C</b>	1/2" - 3/4" Tri-clamp connections, Natural PVDF (Kynar), available for ND, NEE, NGG, and G2G only								
<b>Q</b>	Quick Disconnect, Natural PVDF (Kynar), available for NDD, NEE, NGG, and G2G only (valves sold separately)								
<b>MB</b>	1/2" Male BSPT Fitting, Natural PVDF (Kynar)								
<b>Pump Tube Material, Pump Tube Size, operating flow range</b>									
<b>ND</b>	Flex-A-Prene® .075 ID, 0.02 to 1.7 GPH	<b>TH</b>	Flex-A-Chem® .250 ID, 0.15 to 14.9 GPH						
<b>NEE</b>	Flex-A-Prene® .093 ID, 0.044 to 4.44 GPH	<b>GE</b>	Flex-A-Thane® .125 ID, 0.04 to 4.0 GPH						
<b>NGG</b>	Flex-A-Prene® .187 ID, 0.172 to 17.2 GPH	<b>GG</b>	Flex-A-Thane® .187 ID, 0.09 to 9.3 GPH						
<b>G2G</b>	Flex-A-Thane® .187 ID, 0.15 to 14.98 GPH								
<b>Options (leave this blank for standard model with left facing pump head inlet/outlet)</b>									
<b>1</b>	TI40-6V Threadless injection check valve, replaces A-014NK-6A threaded check valve								
<b>2</b>	C340A Foot valve, replaces standard C-342 inlet strainer (no check valve)								
<b>3</b>	4-20 mA analog output (requires "V" series control)								
<b>R</b>	Right facing pump head, input / output (Left facing fluid input / output is standard)								
<b>D</b>	Down facing pump head, input / output (Left facing fluid input / output is standard)								
<b>A2</b>	<b>V</b>	<b>2</b>	<b>4</b>	<b>-</b>	<b>S</b>	<b>NH</b>	<b>-</b>	<b>R</b>	<b>Sample Model Number</b>

## Features

	Available in Model:	F	V
TFD (Tube Failure Detection) System Alarm		✓	✓
FVS (Flow Verification System) Alarm*		✓	✓
Motor reverse (rotor reversible)		✓	✓
Three position pump head rotation		✓	✓
Output: One, 3 amp alarm relay, 1 amp motor run status		✓	✓
Output: Analog 4-20mA (optional)			✓
Input: One, dry contact closure 6-24 Vdc powered loop for remote start / stop		✓	✓
Input: Remote speed control via 4-20mA, 0-10VDC, high speed digital pulse, contact closure pulse			✓
Display: Motor speed, Input signal values, Tube Failure Detection (TFD) system and Flow Verification System (FVS) alarm status		✓	✓

\* Requires Micro-Flo Sensor sold separately

## Available Operating Modes

	Available in Model:	F	V
Manual (local): speed adjustment		✓	✓
Remote input: 4-20mA			✓
Remote input: high speed frequency (pulse) input			✓
Remote input: pulse triggered batch dispensing			✓

