

## FLEX-PRO A2

- Feed Rates to 14.9 GPH (56.2 LPH)
- Pressures to 125 PSI
- 100:1 Turndown Ratio
- Tube Failure Detection
- Variable Speed DC Motor
- 4-20mA, Pulse Input, and Manual Speed Control
- NEMA 4X (IP 66) Washdown
- 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: 14.9 GPH (56.2 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 CNC precision machined squeeze rollers and two alignment rollers for optimum squeeze, unparalleled 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:** . . . . . Norprene® or Norprene Chemical® or Tygothane®

**Adapter fittings:** .PVDF

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

**Body & insert:** . . . . . PVDF

**Check Ball:** . . . . . Ceramic

**Spring:** . . . . . Hastelloy C-276

**Ball Seat O-ring:** . . . . . FKM (optional EPDM)

**Static Seal O-ring:** . . . . . FKM (optional EPDM)

**Duckbill anti-scale valve:** Santoprene®

**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:** . . . . . Polypropylene

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

**Body:** . . . . . PVDF

**Check Ball:** . . . . . Ceramic

**Ball Seat O-ring:** . . . . . FKM (optional EPDM)

**With "C" Tri-clamp connections only:**

none

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

413 Aluminum (Polyester powder coated)

**Pump Head:**

Valox® (PBT) thermoplastic

**Pump Head Cover:**

Clear Acrylic - Annealed for added strength and chemical resistance.

Permanently lubricated sealed motor shaft support ball bearing.

Brass shaft support bearing retainer.

**Cover Screws:**

Stainless Steel

**Roller Assembly:**

**Rotor:**.....Valox® (PBT)

**Rollers:** .....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>Norprene® 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
.06 - 5.5	.21 - 20.6	3 - 344	130	125 (8.6)	185 (85)	A2V24-*NF	A2V25-*NF	A2V26-*NF
.14 - 13.8	.52 - 52.2	9 - 870	130	125 (8.6)	185 (85)	A2V24-*NH	A2V25-*NH	A2V26-*NH
<b>Norprene® Chemical 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
.15 - 14.9	.56 - 56.2	9 - 937	130	50 (3.4)	130 (54)	A2V24-*TH	A2V25-*TH	A2V26-*TH
<b>Tygothane® 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
<p>* Inlet/outlet connection type                      S = 3/8" OD x 1/4" ID tubing compressions type connections                      M = 1/2" male NPT                      C = 3/4" tri-clamp connections</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>								

**Chemical Resistance of Tubing:**

**Norprene® Tubing**

Meets FDA criteria for food | Excellent chemical resistance

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

Meets FDA criteria for food | Superb chemical resistance

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

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

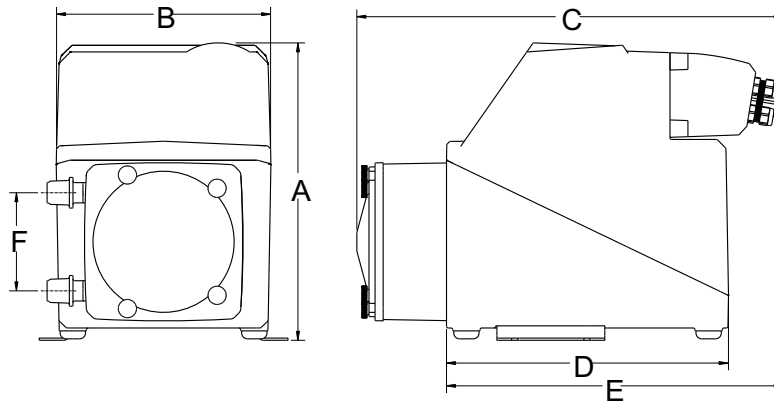
Cyclohexane Diesel Fuel Fatty acids Gasoline Heptane Hexane	Kerosene Lard Mineral spirits Soap solutions Turpentine	Oils: ASTM reference No. 1,2,3 Castor Coconut Fuel	Oils: Linseed Lubricating Mineral
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Norprene® is a registered trademark of Saint-Gobain.  
Tygothane® is a registered trademark of Saint-Gobain.  
Note: Data shown at 72 degrees F.

# 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/VII plug (EU)
<b>8</b>	240V / 50HZ, power cord AS 3112 plug (Australia/New Zealand)
<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
<b>M</b>	1/2" Male NPT Fitting, Natural PVDF
<b>C</b>	3/4" Tri-clamp connections, Natural PVDF
<b>Pump Tube Material, Pump Tube Size, operating flow range</b>	
<b>ND</b>	Norprene® .078 ID, 0.02 to 1.8 GPH
<b>NF</b>	Norprene® .156 ID, 0.06 to 6.2 GPH
<b>NH</b>	Norprene® .250 ID, 0.15 to 15.0 GPH
<b>TH</b>	Norprene® Chemical .250 ID, 0.16 to 16.0 GPH
<b>GE</b>	Tygothane® .125 ID, 0.04 to 4.5 GPH
<b>GG</b>	Tygothane® .187 ID, 0.09 to 9.3 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>C1</b>	Communications Interface - Profibus DPV1 - (requires "V" series control)
<b>C2</b>	Communications Interface - Modbus RTU - (requires "V" series control)
<b>C3</b>	Communications Interface - Modbus TCP - (requires "V" series control)
<b>C4</b>	Communications Interface - Industrial EtherNet/IP - (requires "V" series control)
<b>C5</b>	Communications Interface - Profinet RT I/O - (requires "V" series control)
<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>C5</b>
<b>Sample Model Number</b>	

## Features list:

Feature
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
Output: Analog 4-20mA scaled to motor speed (optional)
Input: One, dry contact closure 6-24 Vdc powered loop for remote start / stop
Input: Remote speed control via 4-20mA, 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

### Available Operating Modes:

Manual (local): speed adjustment
Remote input: 4-20mA
Remote input: high speed frequency (pulse) input
Remote input: pulse triggered batch dispensing

\* Requires Micro-Flo Sensor sold separately