

FLEX-PRO A2

Feed Rates to 17.2 GPH (65.1 LPH)
 Pressures to 125 PSI
 4-20mA, Pulse Input and Manual Speed Control
 Optional Modbus, Profibus, Industrial Ethernet
 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 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)**For "C" Tri-clamp and "Q" Quick Disconnect connections* only:**

(Available for ND, NEE, and NGG only)

Suction Strainer: Polypropylene

*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:**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		
Norprene® A2 Tube Pumps								
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
Flex-A-Prene® A2 Tube Pumps								
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
.045 - 4.5	.170 - 16.9	2.8 - 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
Norprene® Chemical A2 Tube Pumps								
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
Tygothane® A2 Tube Pumps								
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 B = 1/2" Hose barb, Natural PVDF (Kynar), (ND, NEE, and NGG only) C = 1/2" - 3/4" tri-clamp connections (ND, NEE, and NGG only) Q = Quick Disconnect (ND, NEE, and NGG only) (Valves sold separately)</p> <ul style="list-style-type: none"> • The Flex-Pro Pump's motor speed is linear over the entire 0.5% to 100% adjustment range. • Output versus pressure is nearly linear in all models. Larger tubes exhibit greater losses. • For optimum tube life, specify the pump to operate at the lowest possible RPM and pressure. 								

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		1/2" Hose Barb		1/2" M/NPT	
					
Part #	O-ring	Part #	O-ring	Part #	O-ring
KIT-QSV	FKM	KIT-QBV	FKM	KIT-QMV	FKM
KIT-QSE	EP	KIT-QBE	EP	KIT-QME	EP

Chemical Resistance of Tubing:

Flex-A-Prene® and 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

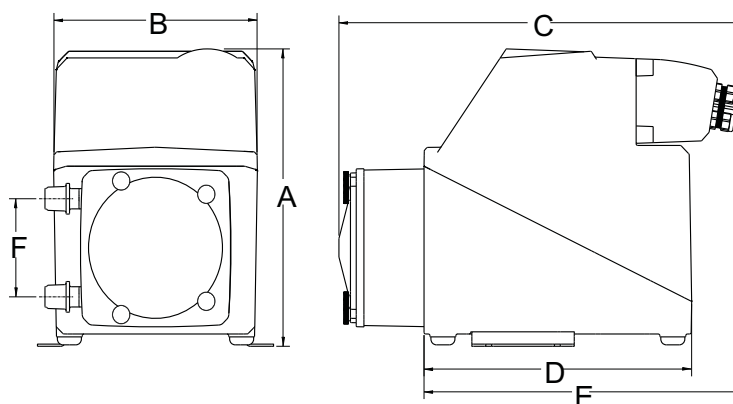
Cyclohexane Diesel Fuel Fatty acids Gasoline Heptane Hexane	Kerosene Lard Mineral spirits Soap solutions Turpentine Polymer	Oils: ASTM reference No.1,2,3 Castor Coconut Fuel	Oils: Linseed Lubricating Mineral
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Norprene® is a registered trademark of Saint-Gobain.
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										
A2	Flex-Pro Peristaltic Metering Pump									
Series Control Options										
F	Single manual output control (manual/local control only)									
V	Multiple automatic input output control and alarm modes (remote control)									
Maximum Motor Speed										
2	130 RPM (maximum rotor rotation speed)									
Power Cord (operating voltage requirement 96VAC to 264VAC)										
4	115V / 60Hz, power cord NEMA 5/15 plug (US)									
5	230V / 60Hz, power cord NEMA 6/15 plug (US)									
6	220V / 50HZ, power cord CEE 7/VII plug (EU)									
8	240V / 50HZ, power cord AS 3112 plug (Australia/New Zealand)									
X	No Power Cord									
Inlet/Outlet Connection Size, Connection Type, Connection Material										
S	3/8" OD x 1/4" ID Tube Compression Fitting, Natural PVDF (Kynar)									
M	1/2" Male NPT Fitting, Natural PVDF (Kynar)									
B	1/2" Hose Barb, Natural PVDF (Kynar), available for ND, NEE, and NGG only									
C	1/2" - 3/4" Tri-clamp connections, Natural PVDF (Kynar), available for ND, NEE, and NGG only									
Q	Quick Disconnect, Natural PVDF (Kynar), available for NDD, NEE, and NGG only (valves sold separately)									
Pump Tube Material, Pump Tube Size, operating flow range										
ND	Norprene® .075 ID, 0.02 to 1.7 GPH	TH	Norprene® Chemical .250 ID, 0.15 to 14.9 GPH							
NEE	Flex-A-Prene® .093 ID, 0.045 to 4.5 GPH	GE	Tygothane® .125 ID, 0.04 to 4.0 GPH							
NGG	Flex-A-Prene® .187 ID, 0.172 to 17.2 GPH	GG	Tygothane® .187 ID, 0.09 to 9.3 GPH							
Options (leave this blank for standard model with left facing pump head inlet/outlet)										
1	TI40-6V Threadless injection check valve, replaces A-014NK-6A threaded check valve									
2	C340A Foot valve, replaces standard C-342 inlet strainer (no check valve)									
3	4-20 mA analog output (requires "V" series control)									
R	Right facing pump head, input / output (Left facing fluid input / output is standard)									
D	Down facing pump head, input / output (Left facing fluid input / output is standard)									
C1	Communications Interface - Profibus DPV1 - (requires "V" series control)									
C2	Communications Interface - Modbus RTU - (requires "V" series control)									
C3	Communications Interface - Modbus TCP - (requires "V" series control)									
C4	Communications Interface - Industrial EtherNet/IP - (requires "V" series control)									
C5	Communications Interface - Profinet RT I/O - (requires "V" series control)									
A2	V	2	4	-	S	NH	-	R	C5	Sample Model Number

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, 6 amp alarm relay		✓	✓
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			✓
Optional: remote communications, Profibus DPV1, Modbus RTU, Modbus-TCP, EtherNet/IP, and Profinet RT I/O.			✓
Display: Motor speed, Input signal values, Tube Failure Detection (TFD) system and Flow Verification System (FVS) alarm status		✓	✓

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			✓

Optional Communications Commands List (Requires Model V)

Control Commands	Available Pump Status Data
Start/Stop	Motor run/stop status
Set motor speed (0.5 to 100.0%)	Priming status
60 second prime at maximum speed	Pump head Cover on/off status
Lock and unlock any touch pad button	Status of each local touch pad button
Clear/reset general alarm	Motor direction
Reset pump tube timer	Current operating mode selection
Set operating mode	TFD (Tube Failure Detection) system status
	FVS (Flow Verification System) status
	General alarm status
	Alarm output relay status
	Current pump operating speed
	Current pump tube timer accumulated hours
	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

