ProSeries® FLEX-PRO® Peristaltic Metering Pump

by Blue-White Ind.

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

Exclusive: TFD system Tube Failure Detection

Patent No. 7,001,153

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/VII (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		
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
.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
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

* Inlet/outlet connection type
S = 3/8” OD x 1/4” ID tubing compressions type connections
M = ½” male NPT
C-= 3/4” tri-clamp connections

- The Flex-Pro Pump’s motor speed is linear over the entire 1% 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.

Chemical Resistance of Tubing:

Norprene® 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

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

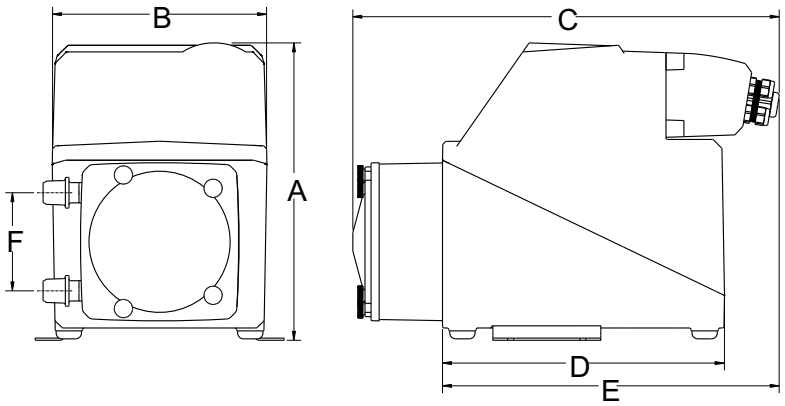
Tygothane® Tubing

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			

Norprene® is a registered trademark of Saint-Gobain.
Tygothane® is a registered trademark of Saint-Gobain.
Note: Data shown at 72 degrees F.

Dimensions:



Dim	A2 Series	
	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
M	½” Male NPT Fitting, Natural PVDF
C	3/4” Tri-clamp connections, Natural PVDF
Pump Tube Material, Pump Tube Size, operating flow range	
ND	Norprene® .078 ID, 0.02 to 1.8 GPH
NF	Norprene® .156 ID, 0.06 to 6.2 GPH
NH	Norprene® .250 ID, 0.15 to 15.0 GPH
TH	Norprene® Chemical .250 ID, 0.16 to 16.0 GPH
GE	Tygothane® .125 ID, 0.04 to 4.5 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 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

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