

ProSeries® FLEX-PRO® Peristaltic Metering Pump

by Blue-White Ind.

FLEX-PRO A3 & A4

PRE-RELEASE DATA SUBJECT TO REVISION
SCHEDULED PRODUCT RELEASE DATE January 2010

Feed Rates to 171 GPH
Pressures to 125 PSI
1000:1 Turndown ratio
Tube Failure Detection
Brushless DC Motor
NEMA 4X (IP 66) Washdown
2 Year Warranty



Model A4

Model A3

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: 171 GPH (648 LPH) and pressures to 125 PSI (8.6 Bar).
- Output volume is not effected by changes in back pressure.
- No maintenance brushless variable speed motor.
- Specially engineered tubing for long life at high pressures.
- Patented Tube Failure Detection (TFD) system. Senses tube failure by detecting chemical in the pump head. No false triggering.
- 1000:1 turndown ratio.
- SCADA Inputs include: 4-20mA, 0-10Vdc, and Pulse inputs for remote external speed control and 0-30 VDC / contact closure remote start/stop.
- Operator friendly digital touch pad with menu driven software.
- VGA Graphic multi-color backlit LCD displays remote/local control status, motor speed, output rate, input signal values, service and alarm status.
- Outputs include: Scalable 4-20mA or pulse, one 250V/10A relay and three 115V/1A contact closures assignable to monitor up to 17 different pump functions including TFD, FVS, remote/local control setting, motor on, fault, current operating mode, and others.
- 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 (no metal springs or hinges to corrode).
- Inject at maximum PSI in either direction (clockwise and counter clockwise).
- Patent pending feature to extended tube life.
- Compatible with Blue-White's output Flow Verification Sensor (FVS) system.

Engineering Specifications:

Maximum working pressure:

125 psig (8.6 bar)

Maximum Fluid temperature:

130° F (54° C)

Operating Temperature

14°F to 115°F (-10°C to 46°C)

Storage Temperature

-40°F to 158°F (-40°C to 70°C)

Operating Voltage (Model Specific):

A3 MODELS:	A4 MODELS:
115VAC/60Hz, 1ph (2 Amp)	115VAC/60Hz, 1ph (3.1 Amp)
230VAC/60Hz, 1ph (1.1 Amp)	230VAC/60Hz, 1ph (1.6 Amp)
220VAC/50Hz, 1ph (1.1Amp)	220VAC/50Hz, 1ph (1.6 Amp)
240VAC/50Hz, 1ph (1.1Amp)	240VAC/50Hz, 1ph (1.6 Amp)

Power Cord Plug Type (Model Specific):

115V60Hz = NEMA 5/15 (USA)
230V60Hz = NEMA 6/15 (USA)
220V50Hz = CEE 7/VII (EU)
240V50Hz = AS 3112 (Australia/New Zealand)

Accuracy:

+/- 0.5% of flow
Repeatability +/- 0.5%

Duty cycle:**Output adjustment range 1000:1:**

0.1-100% motor speed in 0.1% increments

Maximum viscosity:

20,000 Centipoise

Maximum suction lift:

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

Display

VGA backlit LCD, UV resistant.

Display Languages

English, Spanish, French or German selectable.

Keypad

Ten button positive action tactile switch keypad.

Security

Programmable 4-digit password.

Enclosure:

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

Maximum Overall Dimensions:

A3 models: 8-1/8"W x 10-3/4"H x 15-1/4"D (20.6W x 27.3H x 38.9D cm)
A4 models: 12-1/8"W x 14-1/4"H x 18-5/8"D (30.8W x 36.1H x 47.3D cm)

Approximate shipping wt:

A3 models: 33 lb. (15.0 Kg)
A4 models: 56 lb. (25.4 Kg)

Materials of Construction:

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

Tube: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:Viton[®] (optional EP)
Static Seal O-ring:Viton[®] (optional EP)
Duckbill anti-scale valve: ..Santoprene[®]

Ancillary Items provided for tubing type connections only:**Suction Tubing:**

3/8" OD x 1/4" ID x 10 feet Clear PVC

Discharge Tubing:

3/8" OD x 1/4" ID x 10 feet Natural Polyethylene (LLDPE)

Suction Strainer:

Polypropylene

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:

The Flex-Pro Peristaltic Pump's output is linear over the entire 0.01 to 100% adjustment range. The output is not affected by changes in the piping system pressure. For optimum tube life, specify the pump so that it operates at the lowest possible RPM.

A3 Models:

Norprene® A3 Tube Pumps
Meets FDA criteria for food | Superior chemical resistance

Feed Rate			Max Speed RPM	Max Pressure PSI (bar)	A3F Model Numbers			A3V Model Numbers		
GPH	LPH	ML/Min			115V AC	230V AC	220V AC	115V AC	230V AC	220V AC
.001 - 1.00	.003 - 3.9	.063 - 63.1	62	125 (8.6)	A3F14-*ND	A3F15-*ND	A3F16-*ND	A3V14-*ND	A3V15-*ND	A3V16-*ND
.009 - 9.00	.034 - 34.1	.568 - 568	62	125 (8.6)	A3F14-*NH	A3F15-*NH	A3F16-*NH	A3V14-*NH	A3V15-*NH	A3V16-*NH
.017 - 17.4	.066 - 66.0	1.098 - 1098	125	125 (8.6)	A3F24-*NH	A3F25-*NH	A3F26-*NH	A3V24-*NH	A3V25-*NH	A3V26-*NH
.033 - 33.3	.126 - 126	2.100 - 2100	125	125 (8.6)	A3F24-*NK	A3F25-*NK	A3F26-*NK	A3V24-*NK	A3V25-*NK	A3V26-*NK

Norprene® Chemical A3 Tube Pumps
Meets FDA criteria for food | Superior chemical resistance

Feed Rate			Max Speed RPM	Max Pressure PSI (bar)	A3F Model Numbers			A3V Model Numbers		
GPH	LPH	ML/Min			115V AC	230V AC	220V AC	115V AC	230V AC	220V AC
.007 - 7.30	.027 - 27.5	.460 - 460	62	50 (3.4)	A3F14-*TH	A3F15-*TH	A3F16-*TH	A3V14-*TH	A3V15-*TH	A3V16-*TH
.014 - 14.5	.055 - 55.1	.920 - 920	125	50 (3.4)	A3F24-*TH	A3F25-*TH	A3F26-*TH	A3V24-*TH	A3V25-*TH	A3V26-*TH

Tygothane® A3 Tube Pumps
Meets FDA criteria for food | Resistant to oils, greases and fuels

Feed Rate			Max Speed RPM	Max Pressure PSI (bar)	A3F Model Numbers			A3V Model Numbers		
GPH	LPH	ML/Min			115V AC	230V AC	220V AC	115V AC	230V AC	220V AC
.002 - 2.40	.09 - 9.0	.151 - 151	62	65 (4.5)	A3F14-*GE	A3F15-*GE	A3F16-*GE	A3V14-*GE	A3V15-*GE	A3V16-*GE
.004 - 4.60	.17 - 17.4	.290 - 290	125	65 (4.5)	A3F24-*GE	A3F25-*GE	A3F26-*GE	A3V24-*GE	A3V25-*GE	A3V26-*GE
.010 - 10.1	.38 - 38.4	.637 - 637	125	65 (4.5)	A3F24-*GG	A3F25-*GG	A3F26-*GG	A3V24-*GG	A3V25-*GG	A3V26-*GG
.024 - 24.9	.94 - 94.2	1.571 - 1571	125	65 (4.5)	A3F24-*GH	A3F25-*GH	A3F26-*GH	A3V24-*GH	A3V25-*GH	A3V26-*GH

A3 Models:

Norprene® A4 Tube Pumps
Meets FDA criteria for food | Superior chemical resistance

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Feed Rate			Max Speed RPM	Max Pressure PSI (bar)	A4F Model Numbers			A4V Model Numbers		
GPH	LPH	ML/Min			115V AC	230V AC	220V AC	115V AC	230V AC	220V AC
.039 - 39.3	.148 - 148.8	2.4 - 2480	125	125 (8.6)	A4F24-*NJ	A4F25-*NJ	A4F26-*NJ	A4V24-*NJ	A4V25-*NJ	A4V26-*NJ
.053 - 53.9	.204 - 204.0	3.4 - 3400	125	125 (8.6)	A4F24-*NK	A4F25-*NK	A4F26-*NP	A4V24-*NK	A4V25-*NK	A4V26-*NK
.085 - 85.6	.324 - 324.0	5.4 - 5400	62	50 (3.4)	A4F14-*NP	A4F15-*NP	A4F16-*NK	A4V14-*NP	A4V15-*NP	A4V16-*NP
.102 - 102.7	.388 - 388.8	6.4 - 6480	125	40 (2.8)	A4F24-*NL	A4F25-*NL	A4F26-*NL	A4V24-*NL	A4V25-*NL	A4V26-*NL
.171 - 171.2	.648 - 648.0	10.8 - 10800	125	30 (2.0)	A4F24-*NP	A4F25-*NP	A4F26-*NK	A4V24-*NP	A4V25-*NP	A4V26-*NP

FLEX-PRO[®] Peristaltic Metering Pump

Engineering and Technical Data

Chemical Resistance of Tubing:

Norprene[®] Tubing

Meets FDA criteria for food | Excellent chemical resistance

Alcohol general Alum. 5% in water Ammonium chloride Ammonium hydroxide 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%	Hydrogen peroxide Hypochlorous acid Iodine Lactic acid Magnesium chloride Magnesium sulfate Phosphoric acid Plating solutions Potassium hydroxide	Potassium permanganate Propylene glycol Sodium hydroxide 40% 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 | Superior 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.

Tubing Output Specifications:

Model A3 - Available Pump Tubes and Output Ranges

Pump Tube		Max Pressure	Output Range for Models with 62 RPM Maximum Motor Speed			Max Pressure	Output Range for Models with 125 RPM Maximum Motor Speed		
Material	Code	PSI	GPH	LPH	ML/Min	PSI	GPH	LPH	ML/Min
Norprene	ND	125	.001 - 1.00	.003 - 3.9	.063 - 63.1	125	.002 - 2.10	.007 - 7.8	.133 - 133
Norprene	NF	125	.004 - 4.00	.015 - 15.0	.252 - 252	125	.007 - 7.90	.030 - 30.0	.498 - 498
Norprene	NH	125	.009 - 9.00	.034 - 34.1	.568 - 568	125	.017 - 17.4	.066 - 66.0	1.098 - 1098
Norprene	NJ	125	.012 - 12.7	.048 - 48.0	.801 - 801	125	.025 - 25.3	.096 - 96.0	1.596 - 1596
Norprene	NK	125	.016 - 16.6	.063 - 63.0	1.047 - 1047	125	.033 - 33.3	.126 - 126	2.100 - 2100
Norprene Chemical	TH	50	.007 - 7.30	.027 - 27.5	.460 - 460	50	.014 - 14.5	.055 - 55.1	.920 - 920
Tygothane	GE	65	.002 - 2.40	.009 - 9.0	.151 - 151	65	.004 - 4.60	.017 - 17.4	.290 - 290
Tygothane	GG	65	.005 - 5.00	.018 - 18.9	.315 - 315	65	.010 - 10.1	.038 - 38.4	.637 - 637
Tygothane	GH	65	.012 - 12.0	.045 - 45.6	.757 - 757	65	.024 - 24.9	.094 - 94.2	1.571 - 1571

Model A4 - Available Pump Tubes and Output Ranges

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Pump Tube		Max Pressure	Output Range for Models with 62 RPM Maximum Motor Speed			Max Pressure	Output Range for Models with 125 RPM Maximum Motor Speed		
Material	Code	PSI	GPH	LPH	ML/Min	PSI	GPH	LPH	ML/Min
Norprene	NH	125	.012 - 12.4	.046 - 46.8	.78 - 780	125	.024 - 24.7	.093 - 93.6	1.5 - 1560
Norprene	NJ	125	.019 - 19.7	.074 - 74.4	1.2 - 1240	125	.039 - 39.3	.148 - 148.8	2.4 - 2480
Norprene	NK	125	.026 - 26.9	.102 - 102.0	1.7 - 1700	125	.053 - 53.9	.204 - 204.0	3.4 - 3400
Norprene	NL	75	.053 - 53.3	.201 - 201.6	3.7 - 3360	40	.102 - 102.7	.388 - 388.8	6.4 - 6480
Norprene	NP	50	.085 - 85.6	.324 - 324.0	5.4 - 5400	30	.171 - 171.2	.648 - 648.0	10.8 - 10800

Series Comparison:

Feature	F Controls	V Controls
TFD (Tube Failure Detection) System Alarm	•	•
FVS (Flow Verification System) Alarm *	•	•
Motor reverse (rotor reversible)	•	•
Three position pump head rotation	•	•
Tube life timer	•	•
Output: One, 10 amp alarm relay	•	•
Output: Three, dry contact or maximum 30VDC/115VAC 1 amp contact closures	•	•
Output: Programmable 4-20mA signal or high speed pulse, proportional to pump output	•	•
Input: One, contact closure (remote start / stop)	•	•
Input: Remote speed control via 4-20mA, 0-10VDC, high speed digital pulse, contact closure pulse	•	•
Remote/Local control settings	•	•
Password protection	•	•
Display: Motor speed and TFD system alarm status	•	•
Display: Output in ml/min, oz/min, L/hr, Gal/hr, Gal/day, RPM, and input signal values	•	•
Automated PPM chemical dosing system	•	•
Available Operating Modes:		
Manual (local): speed adjustment	•	•
Remote input: 4-20mA	•	•
Remote input: 0-10 VDC	•	•
Remote input: high speed frequency (pulse) input	•	•
Remote input: pulse triggered batch dispensing	•	•
Remote input: proportional PPM (parts per million) dosing with high speed frequency (pulse) input	•	•
Manual (local): batch dispensing	•	•
Manual (local): repeating cycle timer	•	•
Manual (local): fixed speed PPM (parts per million) dosing	•	•

* Requires Micro-Flo Sensor sold separately

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