

CHEM-FEED[®] CFS

Single pump and dual pump systems

Strong, lightweight
polyester powder coated
welded aluminum structure

Efficient, small footprint design

Flow indicator

Drip containment tray

Stainless Steel mounting pads

Field replaceable components

Can be shipped via UPS



Single pump model number CFS-1AA-XAAA
Shown with Flex-Pro pump sold separately



Dual pump model number CFS-2AA-XAAA
Shown with Flex-Pro pump sold separately

Complete the system by ordering any of the following ProSeries[®] metering pumps:

- Flex-Pro[®] A2, A3 or A4 series Peristaltic Metering Pump with Integral Controller
- Chem-Pro[®] C2 or C3 series Diaphragm Metering Pump with Integral Controller

Applications:

- Chemical metering
- Chlorination
- Fluoridation
- Potassium Permanganate
- Alum
- Sodium Bisulfite / Bisulfate
- Hydrochloric Acid
- Polymers
- Caustics
- Flocculants

Chem-Feed Skid System Features:

Chem-Feed Engineered Skid Systems were designed and engineered using solid modeling tools for superior piping installation and easy component maintenance. Custom engineered universal mounting blocks and pre-machined mounting slots provide for easy component servicing and replacement. Lightweight for wall or floor mounting. Each factory built and tested system includes the following standard components:

Pressure Relief Valve - Protects the system from over-pressurization, 5-100 psi setting range, 150 psi maximum system pressure.

Check Valve - Protects the user from back-flow during pump maintenance.

Flow Indicator - Provides a visual indication of chemical movement through the system.

The following optional components are available for specification (see the ordering matrix):

Inlet Y Strainer - Recommended for Diaphragm Pump systems.

Calibration Cylinder - Confirm pump output under system conditions. Specify cylinder volumes from 1.6 GPH to 32 GPH.

Pulsation Dampener - Protect the system components from pulsation. Recommended for diaphragm pump systems.

Pressure Gauge with Guard - Isolate and protect the system pressure gauge. Specify pressure ranges from 0-30 psi, 0-100psi, or 0-200 psi.

Chem-Sensor S6A - Provides 4-20mA and pulse output data to SCADA and to the pump to verify chemical movement through the system - see S6A data sheet for more details.

Specifications:**Skid**

Chemically resistant polyester powder coated 6061 T6 aluminum. Welded joint construction.

Pump (sold separately)

Flex-Pro model A3 or A4 peristaltic pumps or Chem-Pro model C2 or C3 diaphragm pump.

Piping

PVC Schedule 80 (optional CPVC).

Tubing (T)

Reinforced braided PVC, 200 Psi max, meets NSF std. 51. The pump inlet and outlet flexible tubing connections are terminated to half unions and secured to the barbed fitting with stainless steel clamps. The calibration cylinder fill

Tubing clamps

300 series SS band, 400 series SS screw

Unions (U)

PVC body, schedule 80, FKM seals

Ball valves (V)

Vented type ball, True unions, PVC body, PTFE shaft bearings and seats, FKM seals

Pressure Relief Valve (PRV)

PVC body, PTFE primary diaphragm seal. Non-wetted components: FKM secondary seal, zinc plated steel spring, stainless steel external hardware, HDPE pressure adjusting screw and locknut. Infinite adjustment from 5-100 psi. Maximum inlet pressure 150 psi.

Calibration Cylinder (CC)

PVC body, PVC end caps, 1/4" ID tubing outlet vent.
Available volumes: 1.6 GPH (100ml), 4 GPH (250ml), 8 GPH (500ml), 16 GPH (1000ml), 32 GPH (2000ml).

Pulsation Dampener (PD)

CPVC body, 10 cubic inch volume, FKM bladder (optional EPDM bladder)

Gauge w/guard (G)

Gauge: liquid filled stainless steel with blowout plug, bottom mount, 1/4" NPT threads. Available pressure ranges: 0-30 psi, 0-100, psi, 0-200 psi.
Guard: PVC body, FKM diaphragm seal, temperature compensated oil filled.

Check Valve (CV)

PVC body, FKM diaphragm (optional EPDM). Cracking pressure: 1.0-1.5 psi. Maximum working pressure: inlet = 150 psi, back = 100 psi.

Flow Indicator (F)

Machined cast acrylic, PVC connections, ceramic ball, polypropylene ball stop, PVC half unions, FKM seals (optional EPDM).

Y Strainer (S)

PVC body, FKM seals (optional EPDM).

S6A Chemical Flowmeter (FVS)

PVDF & PEEK body, PVC socket weld connections, FKM seals (optional EPDM). Available working flow ranges:

10-5,000 ml/min (0.158 - 79.2 GPH)
100-10,000 ml/min (1.58 - 158.0 GPH)

Universal mounting blocks

PVC

Pump extended mounting brackets

316 Stainless Steel

Skid mounting foot / wall pads

316 Stainless Steel

Mounting hardware

18-8 Stainless Steel

Drip Tray

Polypropylene, 16" x 21" x 3" - 4 gallons total containment

Maximum working pressure

125 psig (8.6 bar)

Operating Temperature

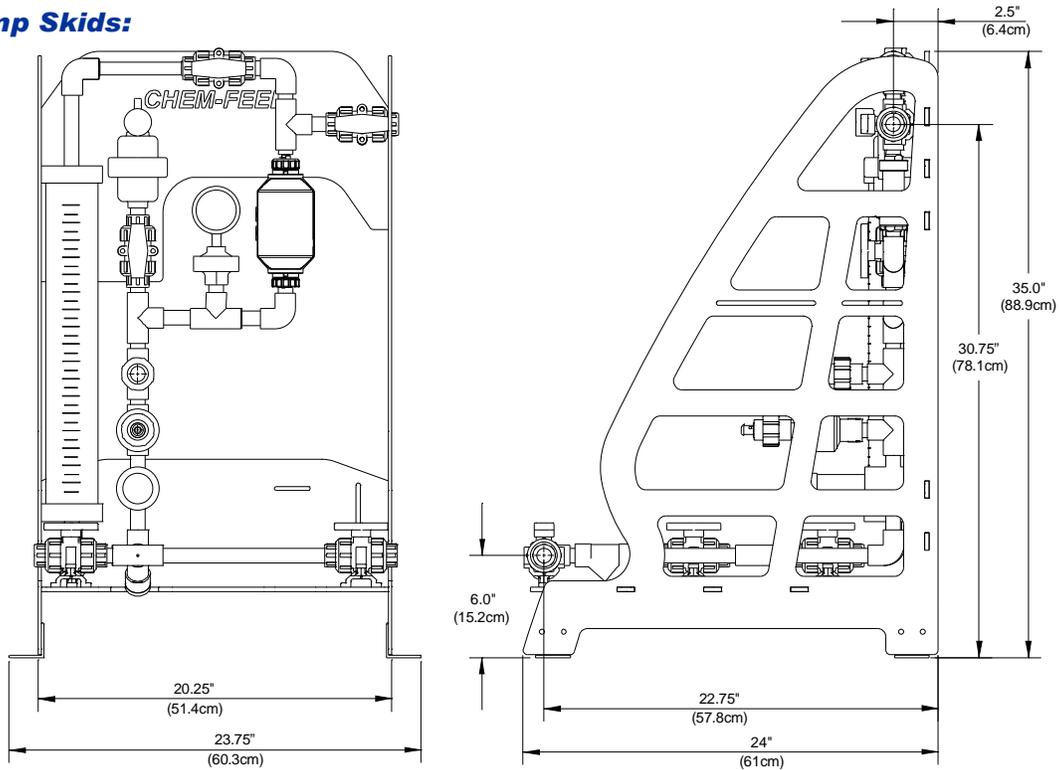
14°F to 115°F (-10°C to 46°C)

Approximate Shipping Weight (pump ships separately)

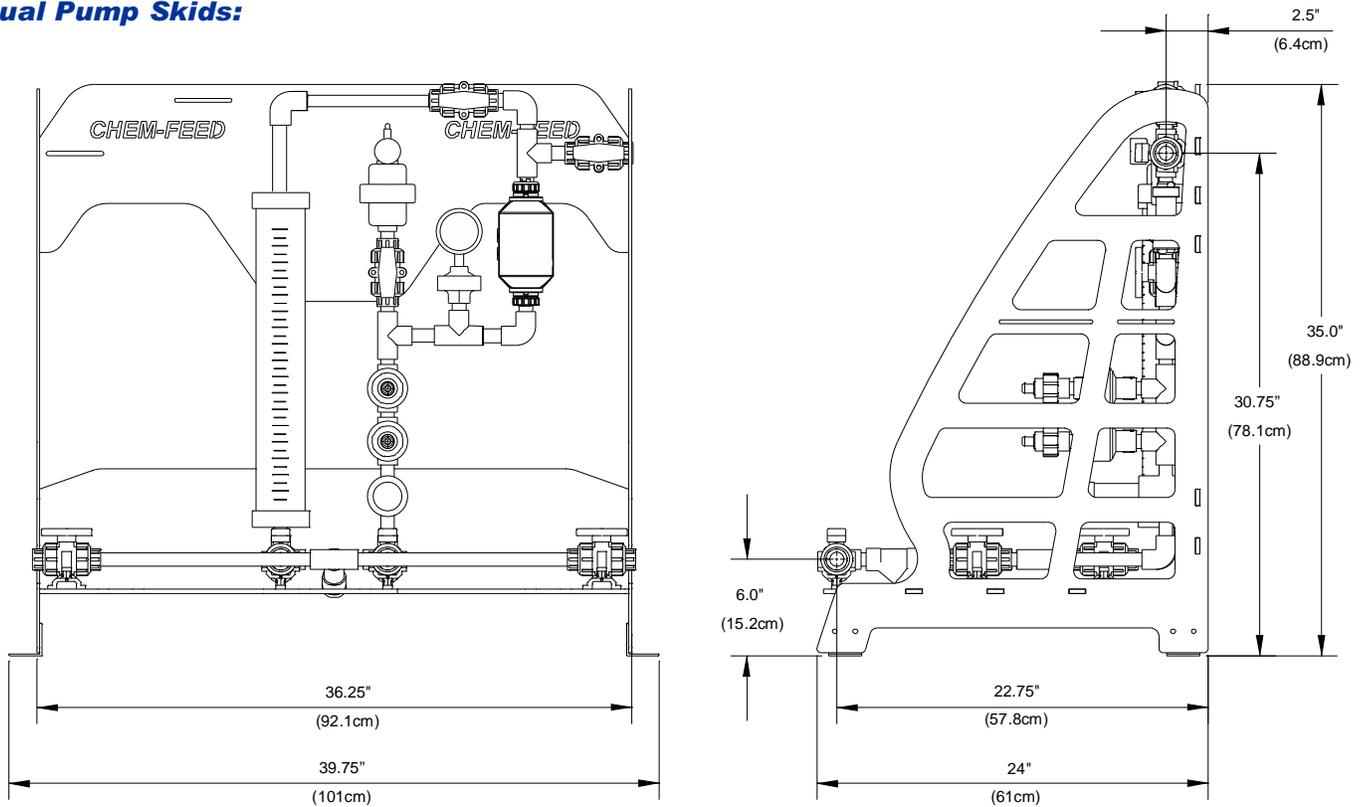
Single Pump System: 60 lb. (27.2 Kg)
Dual Pump System: 70 lb. (31.8 Kg)

Dimensions:

Single Pump Skids:

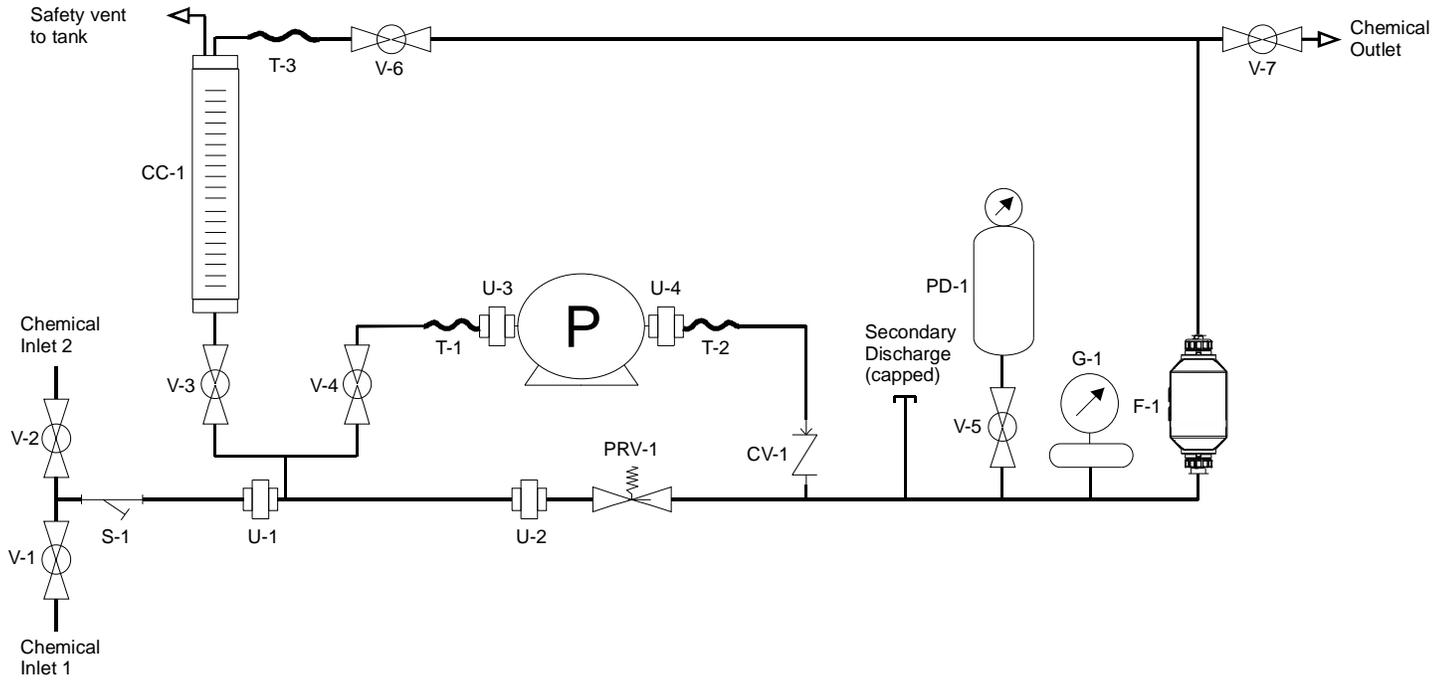


Dual Pump Skids:

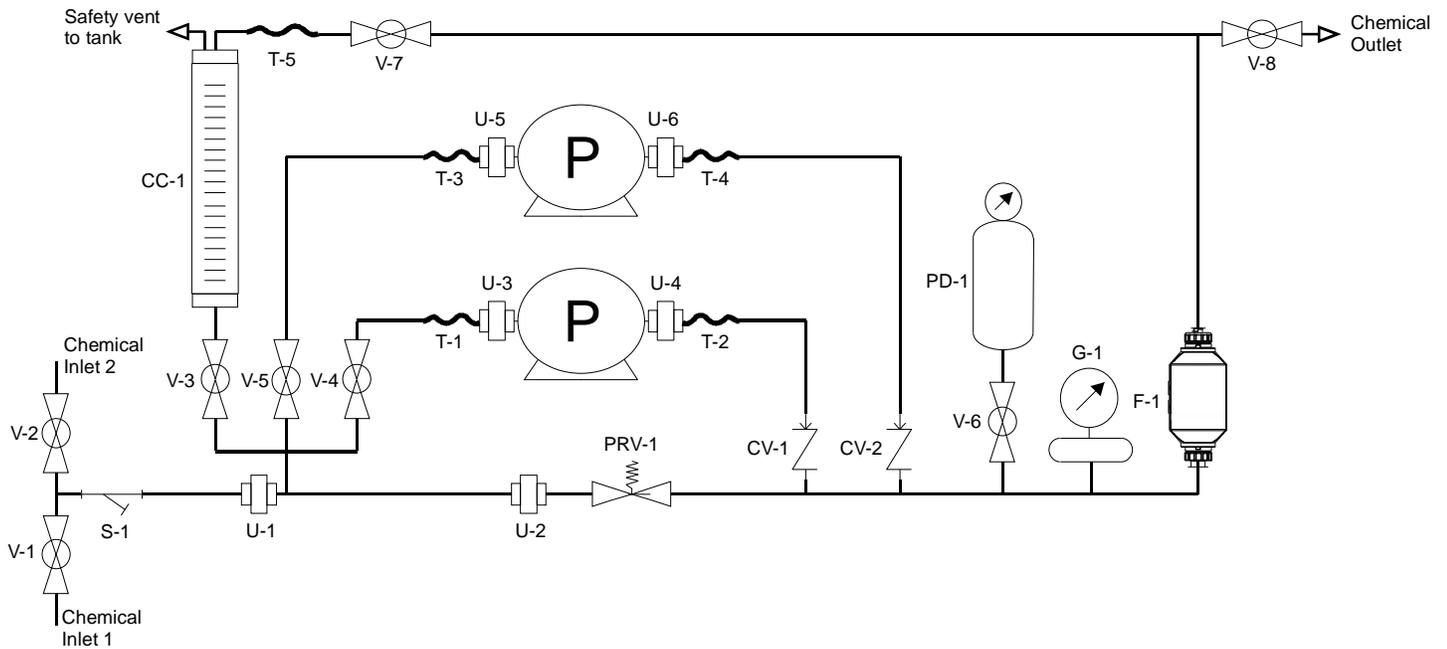


Piping and Instrumentation Diagrams:

Single Pump Skids:



Dual Pump Skids:



Suggested Model Variations (see model number matrix below for additional variations):

Suggested Models for Flex-Pro Peristaltic Pump Applications

Number of Pumps	Piping & Seals	Inlet Strainer	Calibration Cylinder	Pressure Relief Valve	Pulsation Dampener	Pressure Gauge w/Guard	Check Valve	Chem-Feed Skid Model Number
One	PVC/FKM	NO	NO	YES	NO	NO	YES	CFS-1AA-XXXX
One	PVC/EPDM	NO	NO	YES	NO	NO	YES	CFS-1BA-XXXX
Two	PVC/FKM	NO	NO	YES	NO	NO	YES	CFS-2AA-XXXX
Two	PVC/EPDM	NO	NO	YES	NO	NO	YES	CFS-2BA-XXXX

Suggested Models for Chem-Pro Diaphragm Pump Applications

Number of Pumps	Piping & Seals	Inlet Strainer	Calibration Cylinder	Pressure Relief Valve	Pulsation Dampener	Pressure Gauge w/Guard	Check Valve	Chem-Feed Skid Model Number
One	PVC/FKM	YES	32 GPH	YES	YES	200 PSI	YES	CFS-1AA-XAAA
One	PVC/EPDM	YES	32 GPH	YES	YES	200 PSI	YES	CFS-1BA-XAAA
Two	PVC/FKM	YES	32 GPH	YES	YES	200 PSI	YES	CFS-2AA-XAAA
Two	PVC/EPDM	YES	32 GPH	YES	YES	200 PSI	YES	CFS-2BA-XAAA

Model Number Matrix:

Chem-Feed Engineered Skid System Matrix																			
System type																			
CFS-1	Single pump system - single chemical / single outlet																		
CFS-2	Dual pump system - single chemical / single outlet																		
Piping / Valves / Unions / Seal Materials																			
A	PVC piping, FKM seals, 3/4" OD PVC braided tubing connections																		
B	PVC piping, EPDM seals, 3/4" OD PVC braided tubing connections																		
C	PVC piping, FKM seals, 3/8" OD Polyethylene tubing connections																		
D	PVC piping, EPDM seals, 3/8" OD Polyethylene tubing connections																		
E	CPVC piping, FKM seals, 3/4" OD PVC braided tubing connections																		
F	CPVC piping, EPDM seals, 3/4" OD PVC braided tubing connections																		
G	CPVC piping, FKM seal, 3/8" OD Polyethylene tubing connections																		
H	CPVC piping, EPDM seals, 3/8" OD Polyethylene tubing connections																		
X	Skid Frame only without piping																		
Structure Assembly Materials																			
A	Chemical resistant powder coated aluminum stand with 316SS mounting pads																		
Chemical Feed Flowmeter																			
E	Model S6A12 Chemical Feed Flowmeter with meter mount display, 10-5,000 ml/min (0.158 - 79.2 GPH)																		
F	Model S6A22 Chemical Feed Flowmeter with meter mount display, 100-10,000 ml/min (1.58 - 158.0 GPH)																		
5	Model S6A11 Chemical Feed Flowmeter with remote display, 10-5,000 ml/min (0.158 - 79.2 GPH)																		
6	Model S6A21 Chemical Feed Flowmeter with remote display, 100-10,000 ml/min (1.58 - 158.0 GPH)																		
X	None																		
Calibration Cylinder																			
	<table border="1"> <thead> <tr> <th>Calibration Cylinder</th> <th>PVC</th> <th>Glass</th> </tr> </thead> <tbody> <tr> <td>1.6 GPH (100 ml)</td> <td>E</td> <td>S</td> </tr> <tr> <td>4 GPH (250 ml)</td> <td>D</td> <td>R</td> </tr> <tr> <td>8 GPH (500 ml)</td> <td>C</td> <td>Q</td> </tr> <tr> <td>16 GPH (1000 ml)</td> <td>B</td> <td>P</td> </tr> <tr> <td>32 GPH (2000 ml)</td> <td>A</td> <td></td> </tr> </tbody> </table>	Calibration Cylinder	PVC	Glass	1.6 GPH (100 ml)	E	S	4 GPH (250 ml)	D	R	8 GPH (500 ml)	C	Q	16 GPH (1000 ml)	B	P	32 GPH (2000 ml)	A	
Calibration Cylinder	PVC	Glass																	
1.6 GPH (100 ml)	E	S																	
4 GPH (250 ml)	D	R																	
8 GPH (500 ml)	C	Q																	
16 GPH (1000 ml)	B	P																	
32 GPH (2000 ml)	A																		
X	None																		
Pulsation Dampener																			
A	10 cubic inch, CPVC body, PTFE diaphragm																		
X	None																		
Pressure Gauge w/Guard																			
A	200 PSI gauge, PTFE diaphragm																		
B	100 PSI gauge, PTFE diaphragm																		
C	30 PSI gauge, PTFE diaphragm																		
X	None																		
Miscellaneous Options - (leave blank if not specified)																			
A	Isolation ball shut-off valves at check valves																		
R	Outlet plumbing and calibration column position switched (Only available on the dual skid)																		
1	Install a specific pump model on the skid and perform pressure and fluid testing																		
2	Install two specific pump models on the skid and perform pressure and fluid testing																		

Note:
All skid systems ship with the following in/out union connections:

- 1/2" PVC female NPT
- 1/2" PVC slip glue

CFS-1 A A - E A X B - A **Sample Chem-Feed Engineered Skid System Part Number**

ProSeries® Pumps:

ProSeries Pump Features (see the specific technical data sheets for additional pump features)	Flex-Pro Peristaltic	Chem-Pro Diaphragm
Valveless peristaltic technology self primes against maximum back pressure. Cannot Vapor lock. Linear output.	•	
Diaphragm technology for system pressures to 175 PSI. PVDF/Ceramic/TFEP head resists most chemicals.		•
SCADA Input: Remote speed control via 4-20mA, 0-10VDC, high speed digital pulse, contact closure pulse	•	•
SCADA Input: One, contact closure (remote start / stop)	•	
Remote/Local control lockout settings	•	
SCADA Output: One, high switching current alarm relay	•	•
SCADA Output: Three, dry contact or maximum 30VDC/115VAC 1 amp contact closures	•	
SCADA Output: Programmable 4-20mA signal or high speed pulse, proportional to pump output	•	•
TFD (Tube Failure Detection) or DFD (Tube Failure Detection) System Alarm	•	•
FVS (Flow Verification System) Alarm *	•	•
NEMA 4X (IP66) wash-down rating	•	•
Variable speed motor	•	•
Variable speed brush-less DC motor	•	

Chem-Pro® Diaphragm Pump Models:

See additional pump models and more information at www.blue-white.com

Feed Rate Operating Range			Maximum Pressure	Maximum Speed	Pumphead Materials	Chem-Pro Model Numbers	
GPH	LPH	ML/Min	PSI (bar)	Strokes per Minute		115V AC	230V AC
.07 - 7.1	.31 - 31	5.20 - 520	175 (12.0)	166	PVDF/PTFE/Ceramic/TFEP	C2V243XVA	C2V253XVA
.13 - 12.7	.45 - 45	7.50 - 750	175 (12.0)	166	PVDF/PTFE/Ceramic/TFEP	C2V241XVA	C2V251XVA
.20 - 20.3	.78 - 78	13.0 - 1300	175 (12.0)	166	PVDF/PTFE/Ceramic/TFEP	C2V242XVA	C2V252XVA
.42 - 42.0	1.53 - 153	25.50 - 2550	100 (6.8)	130	PVDF/PTFE/Ceramic/TFEP	C3V242XVA	C3V252XVA

Flex-Pro® Peristaltic Pump Models:

See additional pump models and more information at www.blue-white.com

Feed Rate Operating Range			Pump Tube Material	Maximum Pressure	Maximum Speed	Flex-Pro Model Numbers	
GPH	LPH	ML/Min		PSI (bar)	RPM	115V AC	230V AC
.001 - 2.10	.003 - 7.80	.05 - 132	Flex-A-Prene®	125 (8.6)	125	A3V24-MND	A3V25-MND
.007 - 17.4	.026 - 66.0	.4 - 1097	Flex-A-Prene®	125 (8.6)	125	A3V24-MNH	A3V25-MNH
.013 - 33.3	.050 - 126	.8 - 2100	Flex-A-Prene®	125 (8.6)	125	A3V24-MNK	A3V25-MNK
.02 - 50.7	.08 - 192	1.3 - 3200	Flex-A-Prene®	80 (5.5)	125	A4V24-MNK	A4V25-MNK
.04 - 100.0	.15 - 378	2.5 - 6300	Flex-A-Prene®	50 (3.4)	125	A4V24-MNL	A4V25-MNL
.06 - 158.5	.24 - 600	4.0 - 10000	Flex-A-Prene®	30 (2.1)	125	A4V24-MNP	A4V25-MNP
.006 - 15.06	.023 - 57.0	.38 - 950	Flex-A-Chem®	50 (3.4)	125	A3V24-MTH	A3V25-MTH
.014 - 35.1	.053 - 133.2	.8 - 2220	Flex-A-Chem®	50 (3.4)	125	A3V24-MTK	A3V25-MTK
.02 - 42.8	.06 - 162	1.1 - 2700	Flex-A-Chem®	30 (2.1)	125	A4V24-MTK	A4V25-MTK
.002 - 4.60	.007 - 17.4	.1 - 290	Flex-A-Thane®	65 (4.5)	125	A3V24-MGE	A3V25-MGE
.004 - 10.1	.015 - 38.4	.3 - 637	Flex-A-Thane®	65 (4.5)	125	A3V24-MGG	A3V25-MGG
.011 - 28.5	.043 - 108	.7 - 1800	Flex-A-Thane®	65 (4.5)	125	A3V24-MGK	A3V25-MGK
.022 - 55.5	.084 - 210	1.4 - 3500	Flex-A-Thane®	65 (4.5)	125	A4V24-MGK	A4V25-MGK
.04 - 100.0	.15 - 378	2.5 - 6300	Flex-A-Thane®	65 (4.5)	125	A4V24-MGKK	A4V25-MGKK

Tubing chemical resistance data

Flex-A-Prene® Tubing Meets FDA criteria for food Excellent chemical resistance				
Alcohol general	Calcium hypochlorite 20%	Formic acid	Lactic acid	Sodium hydroxide 50%
Aluminum sulfate	Ethylene glycol	Glucose	Magnesium chloride	Sodium Bisulfite
Ammonium chloride	Ferric chloride	Hydrochloric acid 33%	Magnesium sulfate	Sodium Hypochlorite 12.5%
Ammonium hydroxide	Ferric nitrate	Hydrocyanic acid	Phosphoric acid	Sodium sulfide
Benzyl alcohol	Ferric sulfate	Hydrogen peroxide	Plating solutions	Sulfuric acid up to 50%
Bleach	Ferrous chloride - 43% in water	Hypochlorous acid	Potassium hydroxide	Tannic acid
Brine solutions	Ferrous sulfate	Iodine	Propylene glycol	

Flex-A-Chem® Tubing - Ultra smooth plasticizer-free bore (inner liner) Meets FDA criteria for food Superior chemical resistance				
Ferrous Chloride (up to 40%)	Hydrofluoric Acid (up to 48%)	Potassium Hypochlorite (up to 70%)	Bases	Alcohols
Fluoboric Acid (up to 48%)	Nitric Acid (up to 71%)	Sodium Phosphate (up to 30%)	Salts	Isobutyl Alcohol
Fluosilicic Acid (up to 25%)	Phosphoric Acid (up to 85%)	Sulfuric Acid (up to 98%)	Ketones	

Flex-A-Thane® Tubing Meets FDA criteria for food Resistant to oils, greases and fuels				
Cyclohexane	Heptane	Mineral spirits	ASTM reference No.1,2,3	Oils:
Diesel Fuel	Hexane	Soap solutions	Castor	Linseed
Fatty acids	Kerosene	Turpentine	Coconut	Lubricating
Gasoline	Lard	Oils:	Fuel	Mineral

Note: Data shown at 72 degrees F.