

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

Can be shipped via UPS



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

Single pump model number CFS-1AA-AAAAAA
Shown with Chem-Pro pump sold separately

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

- Flex-Pro[®] 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.

Flow Verification Sensor - Provides an electronic pulse to the pump to verify chemical movement through the system (minimum flow capability one ounce per minute).

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. See page 6 for metering pump data.

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 tube connections are secured to the barbed connectors with stainless steel clamps.

Tubing clamps

300 series SS band, 400 series SS screw

Unions (U)

PVC body, schedule 80, Viton seals (optional EPDM)

Ball valves (V)

Vented type ball, True unions, PVC body, PTFE shaft bearings and seats, Viton seals (optional EPDM)

Pressure Relief Valve (PRV)

PVC body, PTFE primary diaphragm seal. Non-wetted components: Viton 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, 1/8" F/NPT outlet safety vent.

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, Viton 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, Viton diaphragm seal, temperature compensated oil filled.

Check Valve (CV)

PVC body, Viton 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, viton seals (optional EPDM).

Y Strainer (S)

PVC body, Viton seals (optional EPDM).

Flow Verification Sensor (FVS)

PVDF body, PVC socket weld connections, viton seals (optional EPDM). Available working flow ranges (ounces per minute):

1.0 to 10
3.5 to 35
7.0 to 70
10 to 100
17 to 170
24 to 240

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

150 psig (10.3 bar)

Operating Temperature

14°F to 115°F (-10°C to 46°C)

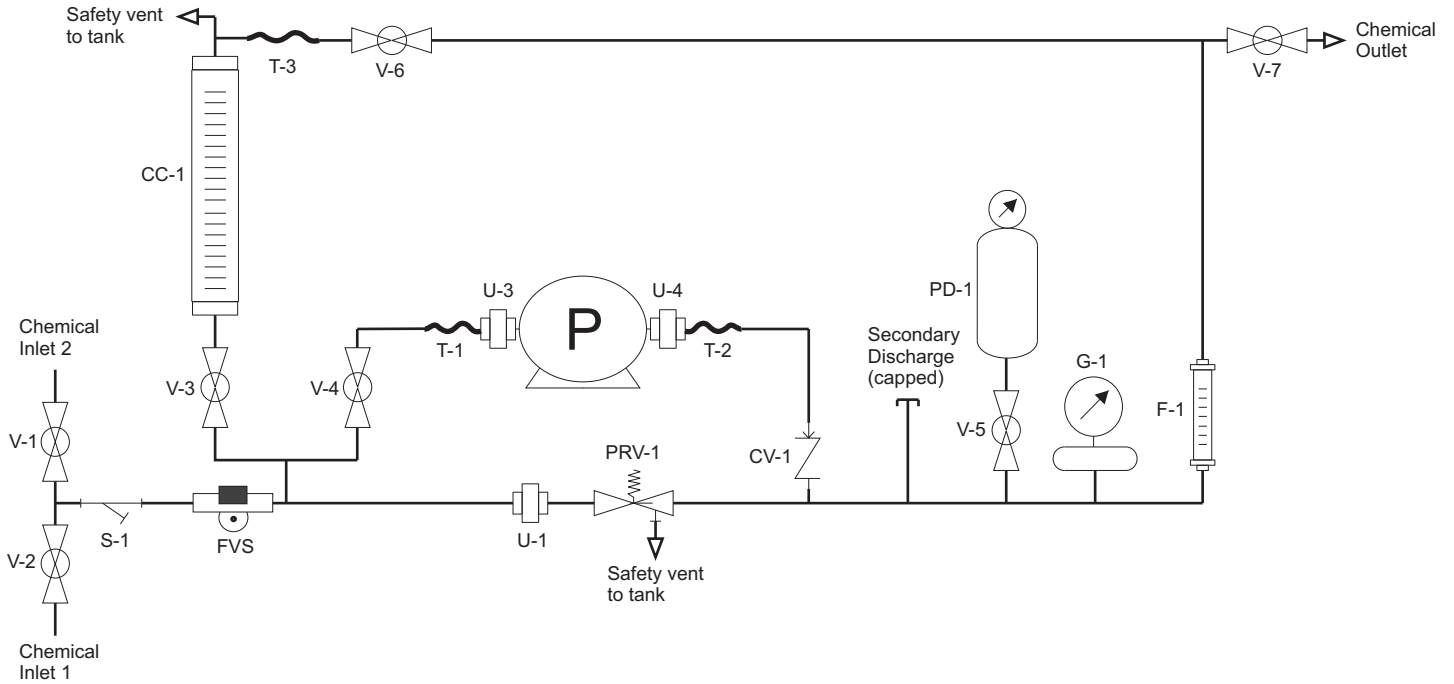
Approximate Shipping Weight (pump ships separately)

Single Pump System: 60 lb. (27.2 Kg)

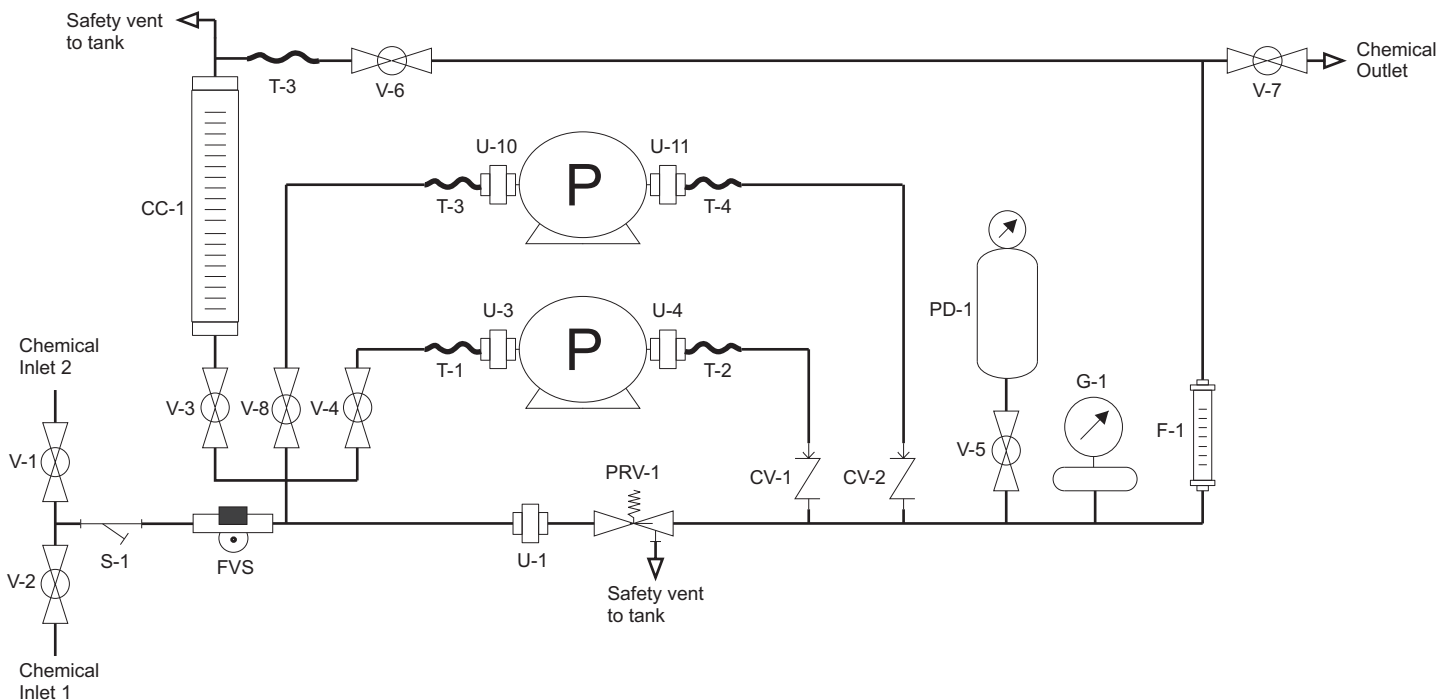
Dual Pump System: 70 lb. (31.8 Kg)

Piping and Instrumentation Diagrams:

Single Pump Skids:



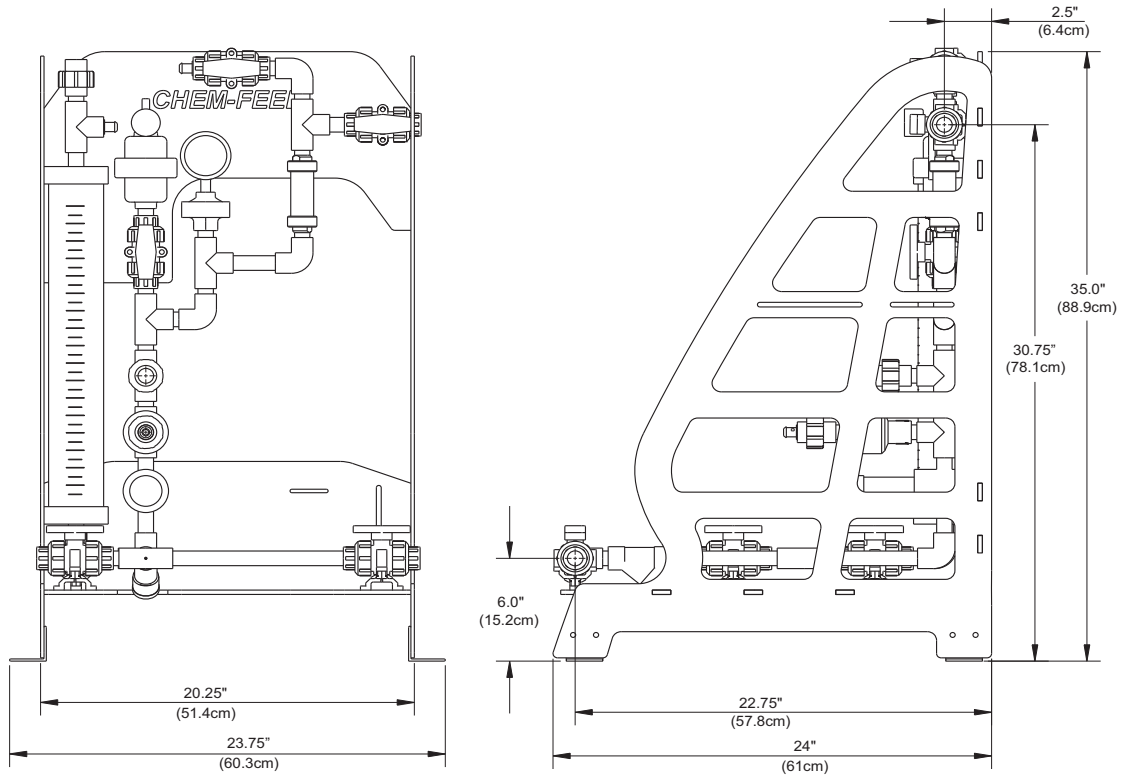
Dual Pump Skids:



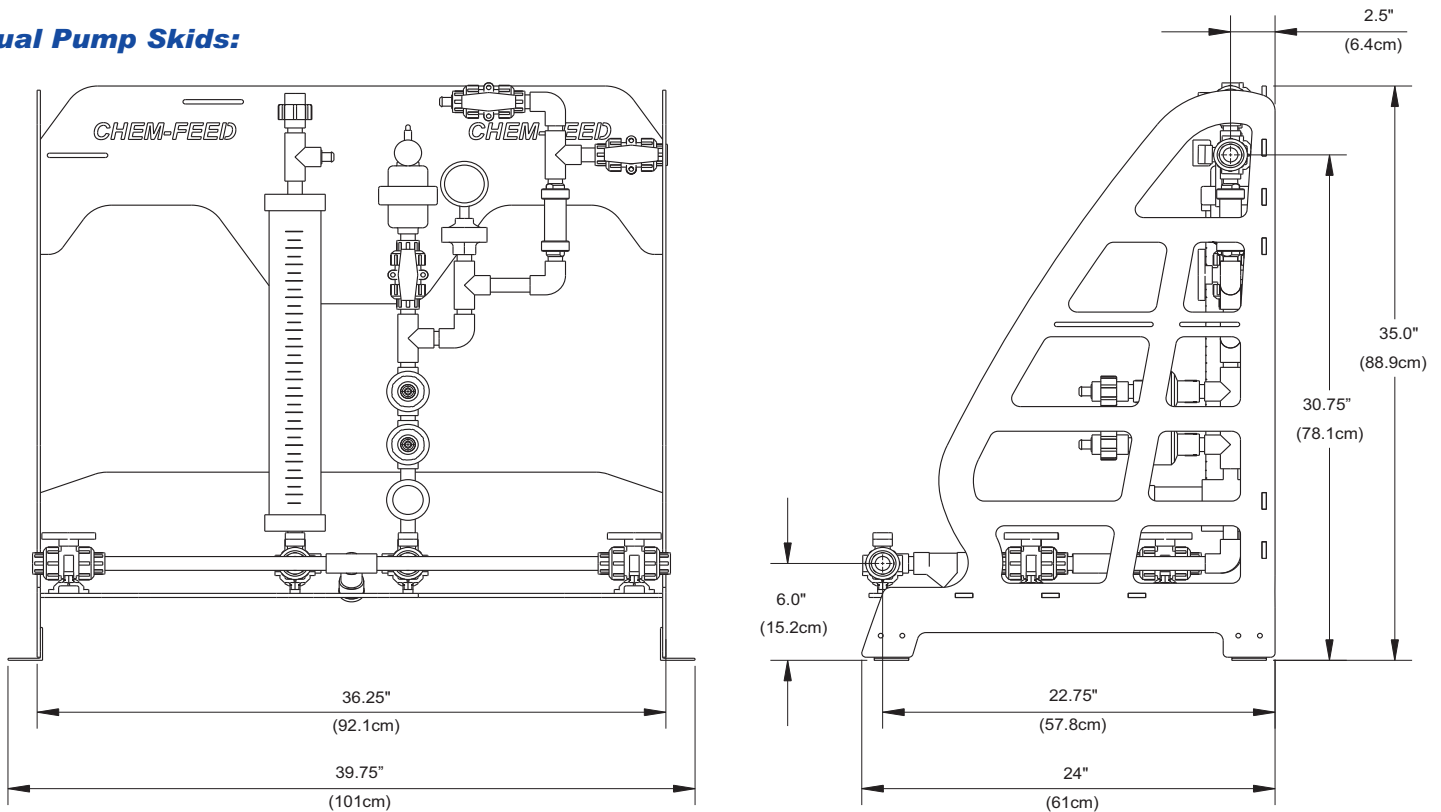
Engineering and Technical Data

Dimensions:

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/Viton | NO | NO | YES | NO | NO | YES | CFS-1AA-XXAXXA |
| One | PVC/EPDM | NO | NO | YES | NO | NO | YES | CFS-1BA-XXAXXB |
| Two | PVC/Viton | NO | NO | YES | NO | NO | YES | CFS-2AA-XXAXXA |
| Two | PVC/EPDM | NO | NO | YES | NO | NO | YES | CFS-2BA-XXAXXB |

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/Viton | YES | 32 GPH | YES | YES | 200 PSI | YES | CFS-1AA-AAAAAA |
| One | PVC/Viton | YES | 32 GPH | YES | NO | 200 PSI | YES | CFS-1AA-AAAXAA |
| One | PVC/EPDM | YES | 32 GPH | YES | YES | 200 PSI | YES | CFS-1BA-BAABAB |
| One | PVC/EPDM | YES | 32 GPH | YES | NO | 200 PSI | YES | CFS-1BA-BAAXAB |
| Two | PVC/Viton | YES | 32 GPH | YES | YES | 200 PSI | YES | CFS-2AA-AAAAAA |
| Two | PVC/Viton | YES | 32 GPH | YES | NO | 200 PSI | YES | CFS-2AA-AAAXAA |
| Two | PVC/EPDM | YES | 32 GPH | YES | YES | 200 PSI | YES | CFS-2BA-BAABAB |
| Two | PVC/EPDM | YES | 32 GPH | YES | NO | 200 PSI | YES | CFS-2BA-BAAXAB |

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, PVC ball valves, PVC unions, Viton seals | | | | | | | | |
| B | PVC piping, PVC ball valves, PVC unions, EP seals | | | | | | | | |
| Structure Assembly Materials | | | | | | | | | |
| A | Chemical resistant powder coated aluminum stand with 316SS mounting pads | | | | | | | | |
| Inlet Strainer and Flow Verification Sensors | | | | | | | | | |
| A | PVC body Inlet Strainer with Viton seals (without flow verification sensor) | | | | | | | | |
| B | PVC body Inlet Strainer with EP seals (without flow verification sensor) | | | | | | | | |
| C | PVC body Inlet Strainer and 30-300 ml/min Flow Verification sensor with Viton seals | | | | | | | | |
| D | PVC body Inlet Strainer and 100-1000 ml/min Flow Verification sensor with Viton seals | | | | | | | | |
| E | PVC body Inlet Strainer and 200-2000 ml/min Flow Verification sensor with Viton seals | | | | | | | | |
| F | PVC body Inlet Strainer and 300-3000 ml/min Flow Verification sensor with Viton seals | | | | | | | | |
| G | PVC body Inlet Strainer and 500-5000 ml/min Flow Verification sensor with Viton seals | | | | | | | | |
| H | PVC body Inlet Strainer and 700-7000 ml/min Flow Verification sensor with Viton seals | | | | | | | | |
| J | PVC body Inlet Strainer and 30-300 ml/min Flow Verification sensor with Viton seals | | | | | | | | |
| K | PVC body Inlet Strainer and 100-1000 ml/min Flow Verification sensor with EP seals | | | | | | | | |
| L | PVC body Inlet Strainer and 200-2000 ml/min Flow Verification sensor with EP seals | | | | | | | | |
| M | PVC body Inlet Strainer and 300-3000 ml/min Flow Verification sensor with EP seals | | | | | | | | |
| N | PVC body Inlet Strainer and 500-5000 ml/min Flow Verification sensor with EP seals | | | | | | | | |
| P | PVC body Inlet Strainer and 700-7000 ml/min Flow Verification sensor with EP seals | | | | | | | | |
| X | None | | | | | | | | |
| Calibration Cylinder | | | | | | | | | |
| A | 32 GPH (2000 ml) | | | | | | | | |
| B | 16 GPH (1000 ml) | | | | | | | | |
| C | 8 GPH (500 ml) | | | | | | | | |
| D | 4 GPH (250 ml) | | | | | | | | |
| E | 1.6 GPH (100 ml) | | | | | | | | |
| X | None | | | | | | | | |
| Pressure Relief Valve | | | | | | | | | |
| A | PVC body, PTFE diaphragm | | | | | | | | |
| B | PVDF body, PTFE diaphragm | | | | | | | | |
| C | PTFE body, PTFE diaphragm | | | | | | | | |
| Pulsation Dampener | | | | | | | | | |
| A | 10 cubic inch, CPVC body, PTFE diaphragm, Viton seals | | | | | | | | |
| B | 10 cubic inch, CPVC body, PTFE diaphragm, EPDM seals | | | | | | | | |
| X | None | | | | | | | | |
| Pressure Gauge w/Guard | | | | | | | | | |
| A | 200 PSI gauge, PVC guard, PTFE diaphragm | | | | | | | | |
| B | 100 PSI gauge, PVC guard, PTFE diaphragm | | | | | | | | |
| C | 30 PSI gauge, PVC guard, PTFE diaphragm | | | | | | | | |
| X | None | | | | | | | | |
| Check Valve | | | | | | | | | |
| A | PVC valve body, Viton diaphragm seal | | | | | | | | |
| B | PVC valve body, EPDM diaphragm seal | | | | | | | | |
| CFS-1 | A | A | - | A | X | 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 | .27 - 27.0 | 4.5 - 450 | 175 (12.0) | 166 | PVDF/Teflon/Ceramic/TFEP | C2V243XVA | C2V253XVA |
| .13 - 12.7 | .48 - 48.0 | 8.0 - 800 | 175 (12.0) | 166 | PVDF/Teflon/Ceramic/TFEP | C2V241XVA | C2V251XVA |
| .20 - 20.3 | .77 - 76.8 | 12.8 - 1280 | 175 (12.0) | 166 | PVDF/Teflon/Ceramic/TFEP | C2V242XVA | C2V252XVA |
| .42 - 42.0 | 1.59 - 159 | 26.5 - 2650 | 100 (6.8) | 130 | PVDF/Teflon/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 | Norprene | 125 (8.6) | 125 | A3V24-MND | A3V25-MND |
| .007 - 17.4 | .026 - 66.0 | .4 - 1097 | Norprene | 125 (8.6) | 125 | A3V24-MNH | A3V25-MNH |
| .013 - 33.3 | .050 - 126 | .8 - 2100 | Norprene | 125 (8.6) | 125 | A3V24-MNK | A3V25-MNK |
| .02 - 50.7 | .08 - 192 | 1.3 - 3200 | Norprene | 80 (5.5) | 125 | A4V24-MNK | A4V25-MNK |
| .04 - 100.0 | .15 - 378 | 2.5 - 6300 | Norprene | 50 (3.4) | 125 | A4V24-MNL | A4V25-MNL |
| .06 - 158.5 | .24 - 600 | 4.0 - 10000 | Norprene | 30 (2.1) | 125 | A4V24-MNP | A4V25-MNP |
| .06 - 14.5 | .022 - 55.1 | .4 - 920 | Norprene Chemical | 50 (3.4) | 125 | A3V24-MTH | A3V25-MTH |
| .01 - 28.5 | .043 - 108.0 | .7 - 1800 | Norprene Chemical | 50 (3.4) | 125 | A3V24-MTK | A3V25-MTK |
| .02 - 42.8 | .06 - 162 | 1.1 - 2700 | Norprene Chemical | 30 (2.1) | 125 | A4V24-MTK | A4V25-MTK |
| .002 - 4.60 | .007 - 17.4 | .1 - 290 | Tygothane | 65 (4.5) | 125 | A3V24-MGE | A3V25-MGE |
| .004 - 10.1 | .015 - 38.4 | .3 - 637 | Tygothane | 65 (4.5) | 125 | A3V24-MGG | A3V25-MGG |
| .011 - 28.5 | .043 - 108 | .7 - 1800 | Tygothane | 65 (4.5) | 125 | A3V24-MGK | A3V25-MGK |
| .022 - 55.5 | .084 - 210 | 1.4 - 3500 | Tygothane | 65 (4.5) | 125 | A4V24-MGK | A4V25-MGK |
| .04 - 100.0 | .15 - 378 | 2.5 - 6300 | Tygothane | 65 (4.5) | 125 | A4V24-MGKK | A4V25-MGKK |

Chem-Pro Tubing chemical resistance data

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

| Norprene® Chemical 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 | |

| Tygothane® 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 |

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