PULSAFEEDER®

Electronic Metering Pump

PULSAtron®

Pulsafeeder Expertise

Technology is the key to delivering responsible products to the markets that we serve. Leading the way in the development of metering technologies, Pulsafeeder continues to set the standard for accuracy, reliability and safety.

Innovation is another hallmark of Pulsafeeder. Helping customers find a new approach to an old problem is what we do best.

PULSAtron Series Pumps

For over 20 years, the PULSAtron product line has evolved into philosophy of design that continues to set the standards for the entire industry. Our engineers have developed a guided check valve system with a proven 'seat and ball' design that ensures reliable and accurate metering year after year.

Our fin cooled Solenoid enclosure dissipates heat ensuring that the pressure handling capability of the pump can be maintained. The thermally protected Solenoid protects the pump from seizing up in extreme heat conditions with an automatic reset feature allowing the pump to resume operation upon cool-down. All PULSAtrons are tested and rated under hot conditions guaranteeing that the flow and pressure ratings meet the specifications.

Product Specifications

- Flows to 600 gpd (94.6 lph) on specific series
- Pressures to 300 psi (21 Bar) on specific models
- Accuracy +/- 2% at max capacity on E Plus, HV and MP Series. +/- 3% at max capacity on A Plus, C, C Plus, and E Series.

Materials of Construction

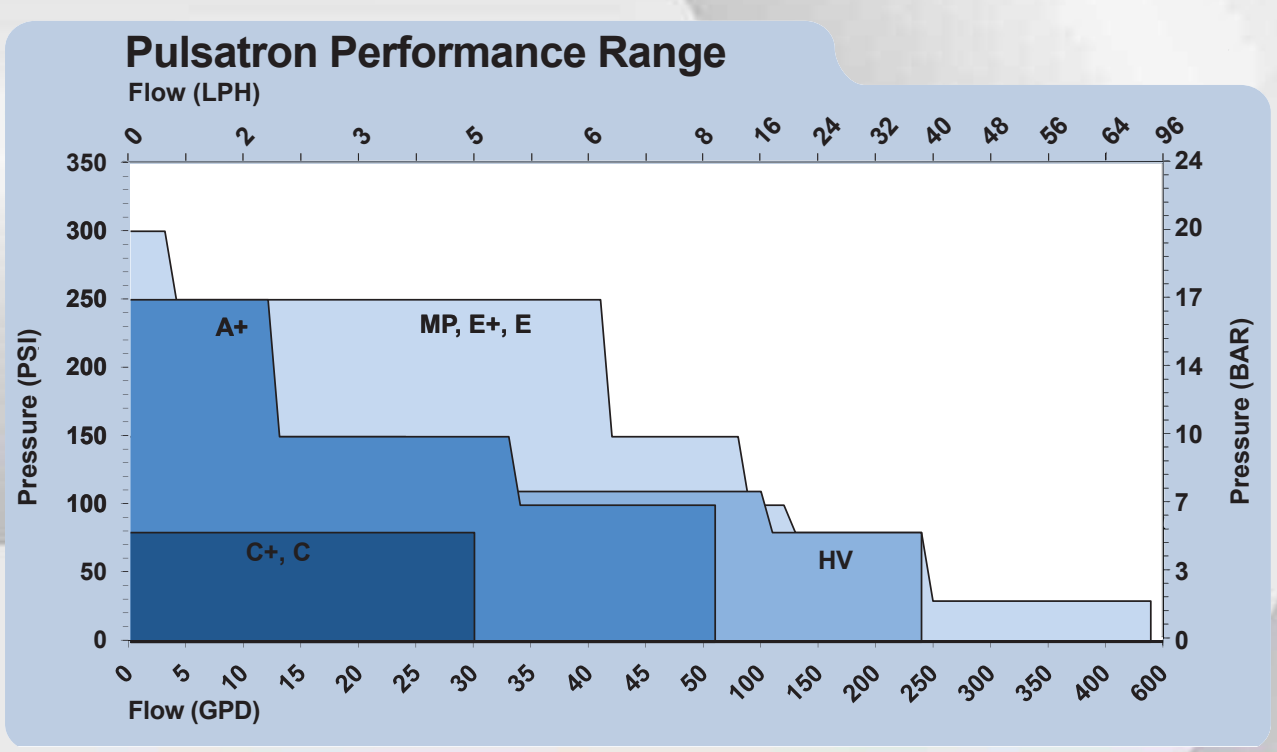
- Housing - PBT
- Head materials - GFPPL, PVC, PVDF, 316SS
- Seats materials - CSPE, TFE, Viton
- Ball materials - Alloy C, Ceramic, TFE, 316SS
- Diaphragm - PTFE faced CSPE

Typical Applications

- Water Treatment
- Water Conditioning
- Ware Wash
- Car Wash

CSPE is generic formulation of Hypalon, a registered trademark of E.I. DuPont Company. Viton is a registered trademark of E.I. DuPont Company.

Pulsatron Performance Range



Model Specific QR Code

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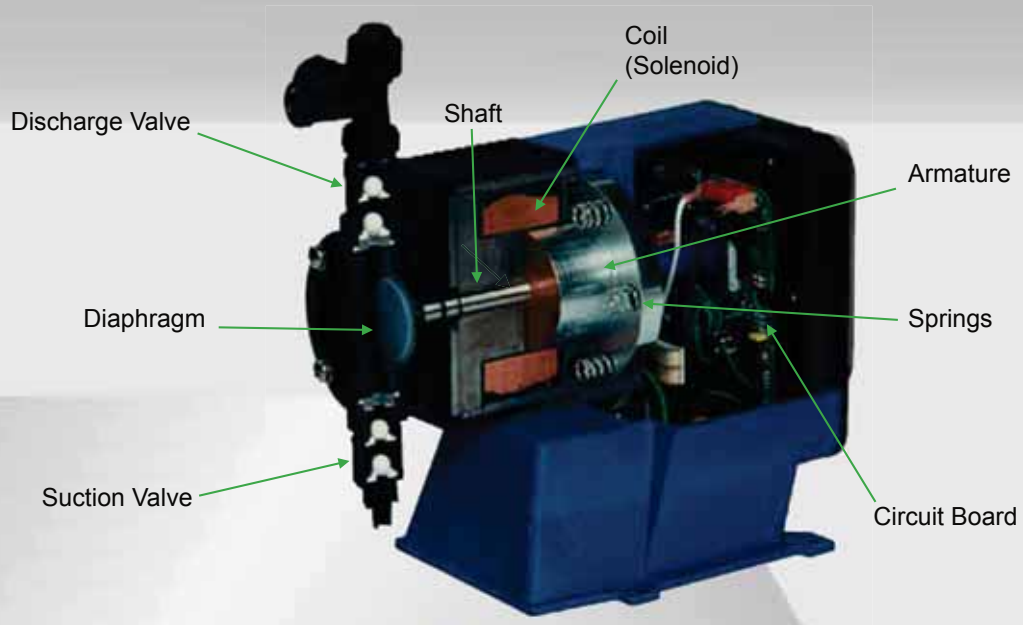
- Identify - Model Number, Serial number, KOPkit (Repair Kit)
- View - Quickly find product information such as parts list, IOM, tech sheet and more
- Contact - Call or email Tech Support immediately to assist you
- Email - Send this information to yourself or someone else, to save or even view later

Diaphragm Metering Pump Technology

The PULSAtron family are solenoid powered diaphragm metering pumps. The key element which differentiates these pumps from other types is the TFE lined elastomer diaphragm. This diaphragm is sealed against the reagent head forming a seal-less, leak free pumping chamber. The solenoid driver is connected to the diaphragm to create the pumping motion. As the diaphragm moves away from the face of the reagent head, it creates a vacuum which closes the discharge check valve and opens the suction check valve, drawing the pumped fluid into the pumping chamber. As the solenoid forces the diaphragm toward the face of the reagent head, the suction check valve closes and the discharge check valve opens allowing the liquid to flow out the discharge valve.



PULSAtron Configurations

The Pulsatron is available in several different series.
Shown here are the Pulsatron MP Series, E Plus Series, HV Series, A Plus, and C Series.

Features & Benefits

MP Series

- Automatic control, fully scalable 4-20mADC, 20-4mADC or external pacing
- Manual control allows for a combined 1000:1 turndown
- Flow verification option is available on select sizes
- 16 character LCD display and indicator lights
- Relay and stop outputs
- Simple prompts in plain language and programmable in four languages

E Plus Series

- 100:1 turn down ratio
- Optional 4-20mA with stop function
- Optional external pacing with stop function
- Auto-Off-Manual selection switch with indicator lights
- Built in circuit protection with easy access panel mounted fuse
- Clear hinged cover over controls for water resistance

HV Series

- Automatic control, available with 4-20mADC direct or external pacing, with stop function
- Manual control by on-line adjustable stroke rate & stroke length
- Viscosities to 20,000 CPS
- Auto-Off-Manual switch
- Highly reliable timing circuit

A Plus, C Plus, E Series

- 100:1 turn down ratio; 1000:1 on some models
- Water resistant for outdoor installation
- Manual control by on-line adjustable stroke length and stroke rate
- Optional external pacing with Auto/Manual switch on A Plus
- Internally dampened to reduce noise
- Optional: External pace, external stop or both

C Series

- 10:1 turn down ratio
- Optional automatic control by external pacing with prime switch
- Manual control by on-line adjustable stroke length
- Liquid low level option available to prevent loss of prime
- Internally dampened to reduce noise

Features & Benefits

Premium Construction

- Few moving parts
- Optional wet-end materials
- High Viscosity handling
- Long life diaphragm
- Leak free design

Bleed Valve Assembly Standard

- Safe & easy priming
- Durable and leak free

Guided Ball Check Valve System

- Dual ball check with TFE seats
- Reduce back flow
- Outstanding priming characteristics

Highly Reliable Electronics

- Timing circuit
- Rated hot for continuous duty
- Thermal overload

Automatic Degassing Technology

The unique degas valve system is designed to allow air to be vented from the pump head while minimizing the return fluid volume. This allows the pump to be totally self-priming which eliminates the need for a bleed valve. The degassing head also prevents the pump from losing its prime due to gas build up, especially in applications where the pump is run intermittently with long off times between runs.

Proportional Process Control

The PULSAtron series metering pumps offer a wide variety of process control inputs.

- 4-20mA inputs for metering control with Water meters and PLC's.
- Dry contact pulse inputs for use with PLC's and dry contact water meters.
- External remote stop input that can be used with a level wand for low chemical level control.

Controls, Options and Systems

Automatic Control

- External/remote pacing, with stop available on E Plus, HV, MP Series
- External pace with auto/manual selection available on A Plus and C Series
- Flow Verification available on MP pumps 100 psi or less

Integrated Tank System

Available on all PULSAtron models

- 15 gallon tank
- Bulk head assembly
- Flow indicator
- Float assembly
- Pump mounting plate

Pre-Engineered System and Panel Mounted Systems

Available on all PULSAtron models

- Pre-Configured system
- Easy to install and operate
- Mounting flexibility
- Quick delivery
- Designed for harsh environments

Valve Options

Five Function & Five Function De-Gas Valve

- De-Gas - Bypass gasses and fluid with Five Function De-Gas Valve
- Back pressure
- Anti-Siphon
- Air bleed
- Discharge drain
- Pressure Relief with Five Function Valve

Valves

Optional Valves available

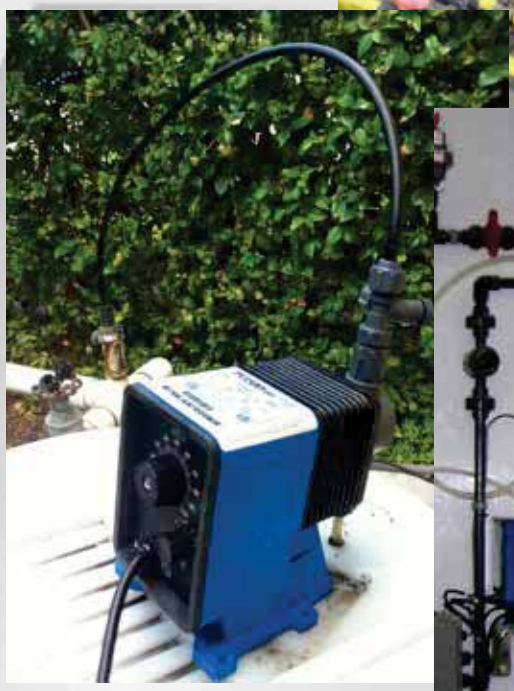
- Double ball standard with TFE seats
- Spring loaded
- NPT connections
- Metric connections
- Ceramic, Stainless and TFE balls
- CSPE, Viton, and TFE seats

Typical Installation

Typical Installation Includes:

- Tank
- Calibration Column
- Pulsation Dampeners
- Pressure Relief Valve
- Pressure Gauge

All Available through Pulsafeeder!



Parts & Accessories

PULSAFEEDER pulsatron.com GENUINE PARTS

KOPkits
When you need a part, you've got it. A KOPkit can help you cut downtime and put you back in business fast.

Calibration Kit
Calibration columns are used on the supply side of the pump to permit flow calibration.

Pump Shelf
Designed to safely and securely mount your metering pumps on a wall or level surface and contain any potential spills.

Pulsation Dampeners improve pump system efficiency by removing pulsating flows from positive displacement pumps.

Corporation Stop
Pulsafeeder's high quality brass corporation stop and nozzle assembly disperses chemical into the center of a line for even mixing.

Pressure Relief Valves prevent an over pressurization situation from ever damaging your pumps or pipes. Over pressurization can occur when a valve is closed or a blockage occurs. They are always recommended equipment for any pump or skid system.

Solution Tanks
Available in sizes from 15 to 500 gallon.

Solenoid Valves are used to permit and shut off fluid flow.

Contact your local Pulsafeeder Distributor or Pulsafeeder Technical Services at 800-333-6677

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www.pulsatron.com

An ISO 9001 Certified Company

EMP001 B15

IDEX FLUID & METERING

PULSAFEEDER®

Diaphragm & Peristaltic Metering Pump

CHEM-TECH

Pulsafeeder Expertise

Since 1936, Pulsafeeder, Incorporated has been the recognized leader in fluids handling, electronic pump controllers and systems technology. We have always understood that leadership is comprised of many facets, all in balance: long-lasting, high performance products, comprehensive application solutions, innovative engineering designs, knowledgeable and attentive service, continuous improvements in R & D and manufacturing processes. Pulsafeeder works hard to maintain this balance - always with the goal to provide the best products and support for our customers.

XP Series Only

Intertek 9700150

Intertek 9700150

Tested and Certified by WQA against NSF/ANSI 61-Section 8. and CSA B483.1

CHEM-TECH Series Pumps

In the water conditioning market the CHEM-TECH product line has addressed the needs of professionals for over 50 years through products that are:

Reliable: Products, people and services that are dependable trustworthy and available when needed.
Easy-to-Use: Simple, intuitive products to operate and maintain, with as few parts as possible.
Affordable: True value, including initial purchase, operating costs and maintenance leading up to total cost of ownership benefit.
Long-lasting: Robust, durable components, products and systems designed and manufactured to withstand the conditions of service.

Product Specifications

- Flows to 120 gpd (19 lph) on specific series
- Pressures to 150 psi (10 Bar) on specific models

Materials of Construction

- Housing - PBT / XP Series - ABS
- Head materials - GFPPL, PVC, PPS, 303SS, 304SS
- Seats materials - CSPE, TFE, Viton, 304SS
- Ball materials - Ceramic, TFE, 316SS
- Diaphragm - PTFE faced CSPE
- XP Series Tubing - Norprene or Fluran

Typical Applications

- Car Wash
- Water Conditioning
- Water Treatment
- Ware Wash

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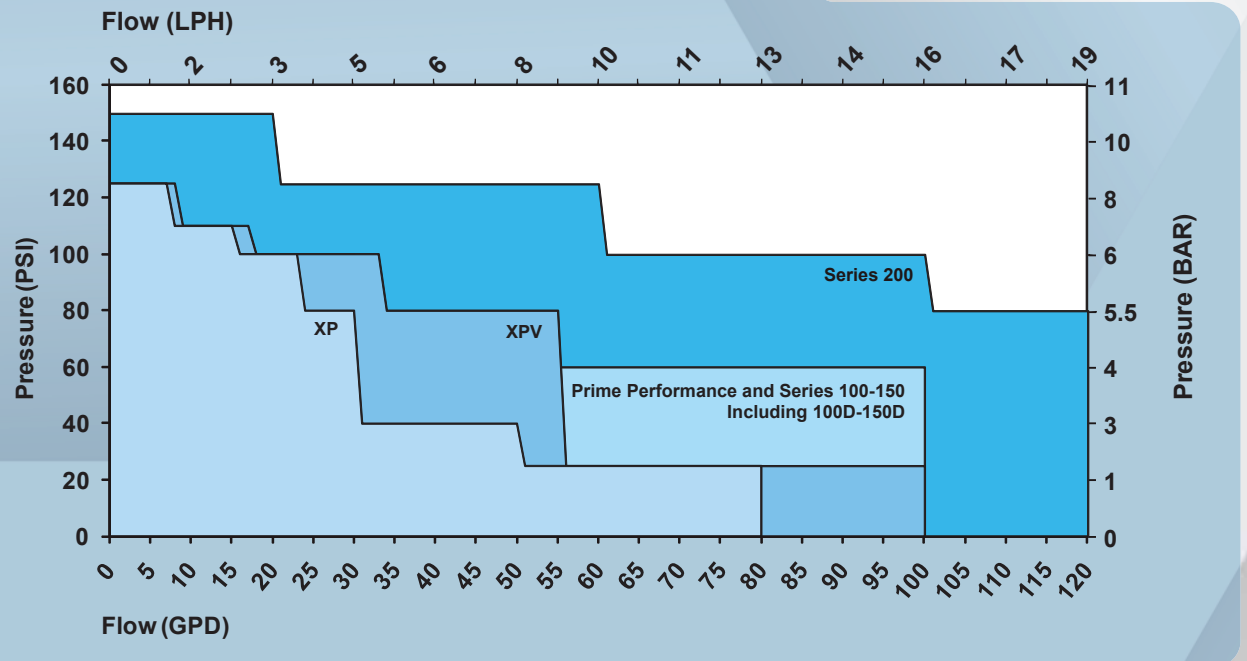
CHEM-TECH Performance Range



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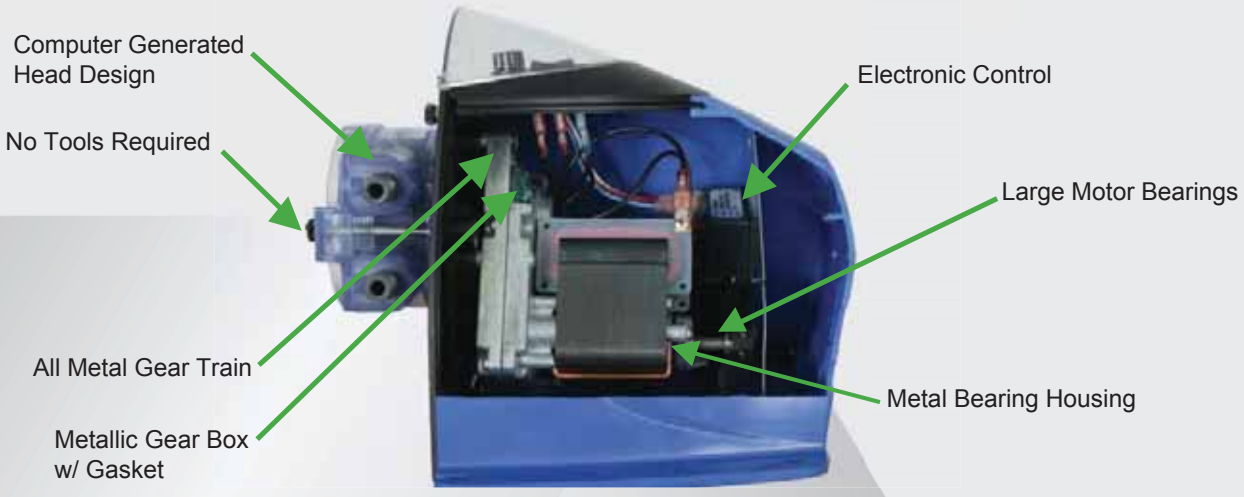
Diaphragm and Peristaltic Technology

The CHEM-TECH family is comprised of either mechanical diaphragm metering pumps and peristaltic metering pumps.

Diaphragm Pumps- The key element which differentiates these pumps from other types is the elastomer diaphragm. This diaphragm is sealed against the reagent head forming a seal-less, leak free pumping chamber. The motor is connected to the diaphragm to create the pumping motion. As the diaphragm moves away from the face of the reagent head, it creates a vacuum which closes the discharge check valve and opens the suction check valve, drawing the pumped fluid into the pumping chamber. As the motor forces the diaphragm toward the face of the reagent head, the suction check valve closes and the discharge check valve opens allowing the liquid to flow out the discharge valve.

Peristaltic Pumps- The head on a peristaltic pump consists of a piece of tubing and a roller assembly that moves chemical around the circular head. The engineered composite, three piece roller assembly reduces friction, while allowing a greater load capacity and longer tube life. No tools are required to remove the tubing; Stainless Steel wing bolts allow for quick and easy tube replacement when needed.



CHEM-TECH Metering Pump Configurations

The CHEM-TECH is available in several different series.
Shown here are the Series XP, Series XPV, Series 100, Prime Performance, and Series 200.

Features & Benefits

XP Series

- Feed rates from 4 to 80 gpd (0.60 to 12.6 lph), pressures up to 125 psi (8.6 bar)
- Inherently degassing
- Self priming
- Fixed, Adjustable, Pulse Input, Dry Contact, Flow Switch Activated and 7 Day/8 Event Electronic Timer models
- Sealed gear train
- Chemical resistant materials

XPV Series

- Feed rates from 8 to 100 gpd (1.3 to 15.8 lph), pressures up to 125 psi (8.6 bar)
- Variable speed
- Fully scalable 4-20mA input
- Hall effect input
- Contacting head water meter input
- Cycle timer / Daily timer

Prime Performance Series

- Feed rates from 15 to 100 gpd (2.34 to 15.76 lph), pressures up to 100 psi (7 bar)
- Quad check valve system
- Chemically resistant materials
- Degassing pump head
- Stroke length control
- Self priming
- Sealed gear train

100 / 150 Series

- Feed rates from 3 to 100 gpd (0.47 to 15.76 lph), pressures up to 100 psi (7 bar)
- Duplex head models available
- Quad check valve system
- Chemically resistant materials
- Stroke length control
- Self priming
- Sealed gear train

200 Series

- Feed rates from 10 to 120 gpd (1.5 to 18.9 lph), pressures up to 150 psi (10.3 bar)
- Stroke length control
- Strong fibercore casing and corrosion-resistant rubber and plastic solution handling components
- Oil immersed gear train and heavy duty, fan cooled motor with thermal overload protection

Features & Benefits

Diaphragm Pumps

Premium Standard Wet-End Component Materials

- Few moving parts
- Chemical resistant materials

Bleed Valve Assembly

Standard on Series 100-200

- Safe & easy priming
- Durable and leak free

Visible Check Balls

- Easy viewing to ensure proper operation

Motor Driven Diaphragm

- Cool running
- Long lasting

Automatic Degassing Technology

Prime Performance Series

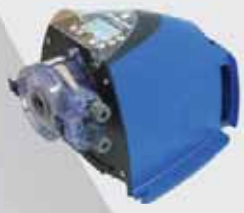
- Degas valve system

Peristaltic Pumps

Automatic Degassing Technology

XP and XPV Series

- Mixed fluid capable
- Inherently degassing
- Self priming



External Control Capable

XPV Series

- Fully scalable 4-20mA input
- Hall effect input

XP and XPV Series

- Contacting head water meter input

Controls, Options and Systems

Automatic Control

On CHEM-TECH XPV Series

- Variable speed
- Fully scalable 4-20mA input
- Hall effect input
- Flow totalization
- Contacting head water meter input
- Cycle timer or daily timer

Integrated Tank System

Available on CHEM-TECH models except Series 200

- 15 gallon tank
- Bulk head assembly
- Flow indicator
- Float assembly
- Pump mounting plate

Pre-Engineered Feed System

- Ease of selecting the right water meter and pump combination
- Mounted on panel
- Easy set up and installation
- Complete package ready to go

Valve Options

Five Function De-Gas Valve

- De-Gas - Bypass gasses and fluid
- Back Pressure
- Anti-Siphon
- Air Bleed
- Discharge Drain

Five Function Valve

- Pressure Relief
- Back Pressure
- Anti-Siphon
- Air Bleed
- Discharge Drain

Typical Applications

- Sodium Hypoclorite (Disinfection)
- Acid & Caustic (pH Adjustment)
- Corrosion Inhibitor
- Fertilizers
- Soap & Detergent

Parts & Accessories

PULSAFEEDER pulsafeeder.com GENUINE PARTS

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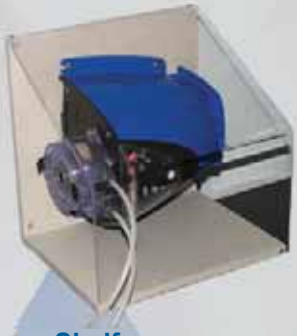

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An ISO 9001 Certified Company

IDEX FLUID & METERING

CHEMICAL RESISTANCE GUIDE

INDUSTRIAL CHEMICALS

The following pages are offered as a general guide and indication of the suitability of various elastomers and plastics in use today with a wide range of industrial chemicals. The ratings are based, for the most part, on published literature of various polymer suppliers and rubber manufacturers but, in some cases, they are considered the opinion of experienced compounders. We cannot guarantee their accuracy nor assume responsibility for use thereof. Several factors must always be considered in using a rubber or plastic part in service. The most important as we see them are:

1. ***The Temperature of Service:*** Higher temperatures increase the effect of chemicals on polymers. The increase varies with the polymer and the chemical. A compound quite stable at room temperature might fail miserably at elevated temperature.

2. ***Conditions of Service:*** A compound that swells badly might still function well as a static seal yet fail in any dynamic application.

3. ***The Grade of Polymer:*** Many types of polymers are available in different grades that vary greatly in chemical resistance.

4. ***The Compound Itself:*** Compounds designed with certain outstanding properties may be poorer in performance with a chemical than one designed especially for fluid resistance.

5. ***Caution:*** It is not recommended that PULSAtron®, OMNI, CHEM-TECH or Mec-O-Matic pumps be used to handle f**lammable liquids**

In light of the above factors, it is always best to test.

PULSAFEEDER®

A Unit of IDEX Corporation

27101 Airport Road
Punta Gorda, Florida 33982
Phone: 941-575-3800
Fax: 941-575-4085

A - Excellent
B - Good
C - Good to 80° F
D - Moderate effect
Use under limited conditions
E - Not Recommended
F - Autocatalytic
X - Unknown

CHEMICAL RESISTANCE GUIDE

INDUSTRIAL CHEMICALS

CHEMICAL	PVC	PVDF	GFPPL	Polyethylene	SAN	PTFE	316SS	Norprene	Ceramic	CSPE	Viton
ACETIC ACID, 5%	B	A	A	A	A	A	A	A	A	A	E
ACETIC ACID, 80%	E	A	C	B	E	A	A	B	A	E	E
ACETIC ACID, GLACIAL	E	A	C	B	E	A	A	B	A	E	E
ACETIC ANHYDRIDE	E	E	A	X	E	A	D	A	A	A	E
ALUMINUM CHLORIDE	A	A	A	A	A	A	D	A	A	A	A
ALUMINUM FLOURIDE	A	A	A	X	A	A	C	A	X	A	A
ALUMINUM SULFATE	A	A	A	A	A	A	D	A	A	A	A
AMMONIA, 10%	A	A	A	B	A	A	A	A	A	A	A
AMMONIUM CHLORIDE	A	A	A	A	A	A	D	A	A	A	A
AMMONIUM NITRATE	A	A	A	X	A	A	A	A	A	A	A
AMMONIUM PERSULFATE	A	A	A	X	A	A	C	A	A	A	A
AMMONIUM PHOSPHATE	A	A	A	X	A	A	A	A	A	A	A
AMMONIUM SULFATE	A	A	A	A	A	A	B	A	A	B	B
AMYL ALCOHOL	B	A	X	X	E	A	A	E	A	B	B
ANILINE	E	A	C	D	E	A	A	E	A	B	A
AGUA REGIA	E	A	X	D	E	A	E	E	A	B	A
ARSENIC ACID	A	A	A	X	A	A	X	A	A	X	A
BARIUM CHLORIDE	A	A	A	X	A	A	C	A	A	B	B
BARIUM SULFATE	A	A	A	X	A	A	B	A	A	A	A
BEER	A	A	A	B	A	A	A	A	A	A	A
BENZALDEHYDE	E	A	C	X	E	A	A	E	A	E	E
BENZOIC ACID	A	A	A	A	C	A	B	B	A	E	A
BORAX (SODIUM BORATE)	A	A	A	D	X	A	A	A	A	B	B
BORIC ACID	A	A	A	A	A	A	A	A	A	B	B
BROMINE WATER	C	A	E	X	X	A	E	E	A	E	A
BUTYRIC ACID	D	A	A	X	D	A	B	B	A	E	D
CALCIUM BISULFITE	A	A	A	A	X	A	B	A	A	A	A
CALCIUM CHLORIDE	A	A	A	A	A	A	C	A	A	A	A
CALCIUM HYPOCHLORITE	A	A	C	A	A	A	D	A	A	A	D
CALCIUM SULFATE	A	A	A	X	A	A	B	A	A	A	A
CARBON TETRACHLORIDE	C	A	C	E	X	A	B	E	A	E	A
CARBONIC ACID	A	A	A	X	A	A	B	A	A	B	B
CHLOROACETIC ACID	A	A	D	X	E	A	E	B	A	A	A
CHLOROFORM	E	A	E	X	E	A	A	E	A	E	D
CHLOROSULFONIC ACID	C	E	E	E	E	A	D	E	A	X	E
CHROMIC ACID, 10%	A	A	A	A	A	A	B	A	A	A	A
CHROMIC ACID, 30%	A	A	A	A	A	A	B	D	A	A	A
CHROMIC ACID, 50%	E	A	A	B	D	A	C	D	A	A	A
CITRIC ACID	A	A	A	A	A	A	B	A	A	A	A
COPPER CHLORIDE	A	A	A	B	A	A	B	A	A	B	B
COPPER CYANIDE	A	A	A	X	A	A	A	A	A	X	B
COPPER NITRATE	A	A	A	X	A	A	A	A	A	B	B
COPPER SULFATE	A	A	A	A	A	A	B	D	A	B	B
CRESYLIC ACID	B	A	X	X	X	A	A	B	A	X	A
ETHYL CHLORIDE	E	A	E	X	E	A	A	C	A	D	A
ETHYLENE GLYCOL	A	A	A	X	A	A	B	A	A	B	B
FATTY ACIDS	A	A	A	E	D	A	A	C	A	X	B
FERRIC CHLORIDE	A	A	A	A	A	A	E	A	A	B	B

Material Code - PVC = Polyvinyl Chloride, SAN = Styrene-Acrylonitrile, GFPPL = Glass-filled Polypropylene, PFTE = Polytetrafluorethylene, PVDF = Polyvinylidene Flouride
CSPE = Generic formulation of Hypalon, a registered trademark of E.I. DuPont Company.

A - Excellent
B - Good
C - Good to 80° F
D - Moderate effect
Use under limited conditions
E - Not Recommended
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INDUSTRIAL CHEMICALS

CHEMICAL	PVC	PVDF	GFPPL	Polyethylene	SAN	PTFE	316SS	Norprene	Ceramic	CSPE	Viton
FERRIC NITRATE	A	A	A	E	A	A	B	A	A	B	B
FERRIC SULFATE	A	A	A	E	A	A	A	A	A	B	B
FERROUS CHLORIDE	A	A	A	A	A	A	E	A	A	B	B
FERROUS SULFATE	A	A	A	B	A	A	D	A	A	B	B
FLUOBORIC ACID	A	A	A	E	B	A	B	E	E	B	X
FLUOSILICIC ACID	A	A	A	A	B	A	B	A	E	X	B
FORMALDEHYDE, 40%	B	A	A	B	A	A	A	E	A	B	E
FORMIC ACID	C	A	A	B	E	A	B	B	A	B	E
FREON 12 (WET)	C	B	A	X	X	A	E	A	A	E	A
FURFURAL	E	B	E	X	X	A	B	E	A	X	E
GLYCERINE (GLYCEROL)	A	A	A	X	A	A	A	A	A	B	B
HYDROBROMIC ACID, 20%	A	A	A	B	X	A	E	E	C	A	A
HYDROCHLORIC ACID, 0-25%	A	A	A	B	A	A	E	A	A	B	A
HYDROCHLORIC ACID, 25-37%	A	A	A	B	B	A	E	B	A	D	A
HYDROFLUORIC ACID, 10%	C	A	A	A	B	A	C	E	E	A	A
HYDROFLUORIC ACID, 30%	C	A	B	D	E	A	C	E	E	A	A
HYDROFLUORIC ACID, 60%	D	A	B	E	E	A	C	E	E	D	A
HYDROFLUOSILICIC ACID, 20%	A	A	A	A	D	A	B	B	E	X	B
HYDROGEN PEROXIDE, 30%	A	A	A	B	B	A	B	A	X	A	A
HYDROGEN PEROXIDE, 50%	B	A	X	B	X	A	B	A	X	A	A
HYDROGEN PEROXIDE, 90%	E	A	X	D	E	A	B	B	X	D	A
HYDROGEN SULFIDE, AQ. SOL.	C	A	A	X	B	A	B	A	X	B	B
KETONES	E	A	E	X	E	A	A	E	A	E	E
LACTIC ACID	B	A	A	A	E	A	B	A	A	B	B
LEAD ACETATE	A	A	A	X	A	A	A	A	A	E	A
LUBRICATING OIL	C	B	C	D	A	A	A	E	A	D	A
MAGNESIUM CHLORIDE	A	A	A	A	A	A	B	A	A	A	A
MAGNESIUM NITRATE	A	A	A	X	A	A	A	A	A	A	A
MAGNESIUM SULFATE	A	A	A	A	A	A	A	A	A	A	A
MALEIC ACID	A	A	A	X	E	A	B	E	A	A	A
METHYLENE CHLORIDE	E	B	E	X	E	A	A	X	A	E	D
NAPHTHALENE	E	A	C	X	E	A	A	E	A	E	D
NICKEL CHLORIDE	A	A	A	A	A	A	B	A	A	B	B
NICKEL SULFATE	A	A	A	A	A	A	B	A	A	B	B
NITRIC ACID, 10%	A	A	A	A	C	A	C	A	A	A	A
NITRIC ACID, 20%	A	A	A	B	E	A	B	A	A	A	A
NITRIC ACID, 50%	A	A	C	C	E	A	C	E	A	D	A
NITRIC ACID, ANHYDROUS	E	B	E	E	E	A	B	E	A	E	B
NITROBENZENE	E	B	C	X	E	A	B	E	A	E	A
OILS AND FATS	A	A	A	X	X	A	A	X	A	X	A
OLEIC ACID	A	A	C	E	E	A	B	C	A	D	D
OLEUM, 25%	E	E	X	E	E	A	X	A	A	E	A
OXALIC ACID	A	A	A	B	D	A	C	B	A	A	A
PHENOL	C	A	B	C	A	A	B	A	A	E	A
PHOSPHORIC ACID, 0-50%	A	A	A	A	B	A	B	A	A	A	B
PHOSPHORIC ACID, 50-100%	B	A	B	B	D	A	B	A	A	A	B
POTASSIUM BICARBONATE	A	A	A	B	A	A	B	A	A	B	B
POTASSIUM BROMIDE	A	A	A	B	A	A	B	A	A	B	B

Material Code - PVC = Polyvinyl Chloride, SAN = Styrene-Acrylonitrile, GFPPL = Glass-filled Polypropylene, PFTE = Polytetrafluorethylene,PVDF = Polyvinylidene Flouride
CSPE = Generic formulation of Hypalon, a registered trademark of E.I. DuPont Company.

A - Excellent
B - Good
C - Good to 80° F
D - Moderate effect
Use under limited conditions
E - Not Recommended
F - Autocatalytic
X - Unknown

CHEMICAL RESISTANCE GUIDE

INDUSTRIAL CHEMICALS

CHEMICAL	PVC	PVDF	GFPPL	Polyethylene	SAN	PTFE	316SS	Norprene	Ceramic	CSPE	Viton
POTASSIUM CARBONATE	A	A	A	B	A	A	B	A	A	B	B
POTASSIUM CHLORATE	A	A	A	B	A	A	A	A	A	B	B
POTASSIUM CHLORIDE	A	A	A	A	A	A	D	A	A	B	B
POTASSIUM CYANIDE	A	A	A	X	A	A	A	A	A	B	B
POTASSIUM DICHROMATE	A	A	A	B	A	A	A	A	A	B	B
POTASSIUM HYDROXIDE	A	A	A	A	E	A	B	A	E	B	B
POTASSIUM NITRATE	A	A	A	A	A	A	B	A	A	B	B
POTASSIUM PERMANGANATE	A	A	A	A	A	A	B	A	A	B	B
POTASSIUM SULFATE	A	A	A	A	A	A	B	A	A	B	B
SOAPS	A	A	A	C	A	A	A	B	A	B	B
SODIUM ACETATE	A	A	A	A	A	A	B	A	A	A	E
SODIUM BICARBONATE	A	A	A	A	A	A	B	A	A	B	B
SODIUM BISULFATE	A	A	A	A	A	A	A	A	A	B	B
SODIUM BISULFITE	A	A	A	A	A	A	B	A	A	B	B
SODIUM CARBONATE	A	A	A	A	A	A	B	A	A	B	B
SODIUM CHLORATE	A	A	A	A	A	A	B	A	A	B	B
SODIUM CHLORIDE	A	A	A	A	A	A	B	A	A	B	B
SODIUM CYANIDE	A	A	A	X	A	A	A	A	A	B	B
SODIUM HYDROXIDE, 20%	A	A	A	A	B	A	A	A	B	B	E
SODIUM HYDROXIDE, 50%	A	A	A	B	B	A	A	A	B	B	E
SODIUM HYPOCHLORITE	A	A	C	A	A	A	D	A	A	A	A
SODIUM NITRATE	A	A	A	A	A	A	A	A	A	B	B
SODIUM SILICATE	A	A	A	A	A	A	B	A	A	A	A
SODIUM SULFATE	A	A	A	A	A	A	A	A	A	B	B
SODIUM SULFIDE	A	A	A	A	A	A	B	A	A	B	B
STANNIC CHLORIDE	A	A	A	A	A	A	E	A	A	D	B
STEARIC ACID	A	A	C	E	E	A	A	B	A	D	A
STODDARDS SOLVENT	E	X	X	X	X	A	A	B	X	X	A
SULFURIC ACID, 0-10%	A	A	A	A	E	A	E	A	A	D	A
SULFURIC ACID, 10-75%	A	A	A	C	E	A	E	A	A	D	A
SULFURIC ACID, 75-95%	C	A	C	C	E	A	E	D	A	D	A
SULFURIC ACID, 95-100%	D	A	C	C	E	A	B	E	A	D	A
TANNIC ACID	A	A	A	B	X	A	B	B	A	B	B
TANNING LIQUORS	A	A	A	A	X	A	A	A	A	X	A
TARTARIC ACID	A	A	A	X	E	A	B	A	A	B	B
TRICHLOROETHYLENE	E	A	C	E	X	A	B	E	A	E	A
TRICRESYL PHOSPHATE	E	A	X	X	X	A	A	A	A	E	A
UREA	A	A	A	X	X	A	B	A	A	A	E
VINEGAR	A	A	A	A	A	A	A	A	A	B	B
WHITE LIQUOR (ACID)	A	A	X	X	E	A	A	A	A	X	A
ZINC CHLORIDE	A	A	A	A	A	A	B	A	A	B	B
ZINC SULFATE	A	A	A	A	A	A	A	A	A	A	A

Material Code - PVC = Polyvinyl Chloride, SAN = Styrene-Acrylonitrile, GFPPL = Glass-filled Polypropylene, PFTE = Polytetrafluorethylene, PVDF = Polyvinylidene Flouride
CSPE = Generic formulation of Hypalon, a registered trademark of E.I. DuPont Company.

PULSAFEEDER®
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27101 Airport Road, Punta Gorda, FL 33982
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941-575-4086

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This guide is designed to provide a simple, easy reference for ordering liquid end components used in many standard configurations. To use this chart, simply use positions 7, 8, 9, 10, 11, 12, and 13 form the model number on your pump. Match these digits to the chart below and follow the line across to determine the part numbers of the liquid end components that you need.

	1	2	3	4	5	6		7	8	9	10		11	12	13
EXAMPLE	L	P	E	4	S	A	-	P	H	C	1	-	X	X	X

Liquid End Code

Positions 7 -13	Suction Valve Assembly	Discharge Valve Assembly	Bleed Valve Assembly	Foot Valve/Strainer Assembly	Injector Back Pressure Valve Assembly	Suction Tubing (by foot)	Discharge Tubing (by foot)
PTC1-XXX	L3101TC1-FPP	L3201TC1-FPP	L3300T01-FPP	J40211	J61098	00007	00010
PHC1-XXX	L3101HC1-FPP	L3201HC1-FPP	L3300H01-FPP	J40116	J41766	00007	00010
PVC1-XXX	L3101VC1-FPP	L3201VC1-FPP	L3300V01-FPP	J60524	41715	00007	00010
KTC1-XXX	L3101TC1-PVD	L3201TC1-PVD	L3300T01-PVD	J60716	J61020	00010	00010
KHC1-XXX	L3101HC1-PVD	L3201HC1-PVD	L3300H01-PVD	J60717	J61110	00010	00010
KVC1-XXX	L3101VC1-PVD	L3201VC1-PVD	L3300V01-PVD	J60718	J61088	00010	00010
VTC1-XXX	L3101TC1-PVC	L3201TC1-PVC	L3300T01-PVC	J60716	J41996	00007	00010
VHC1-XXX	L3101HC1-PVC	L3201HC1-PVC	L3300H01-PVC	J60717	41693	00007	00010
VVC1-XXX	L3101VC1-PVC	L3201VC1-PVC	L3300V01-PVC	J60718	J61237	00007	00010
PTC3-XXX	L3101TC3-FPP	L3201TC3-FPP	L3300T03-FPP	J40212	J41872	J00023	00008
PHC3-XXX	L3101HC3-FPP	L3201HC3-FPP	L3300H03-FPP	J40117	J41767	J00023	00008
PVC3-XXX	L3101VC3-FPP	L3201VC3-FPP	L3300V03-FPP	J60509	41716	J00023	00008
KTC3-XXX	L3101TC3-PVD	L3201TC3-PVD	L3300T03-PVD	J60728	J61021	00008	00008
KHC3-XXX	L3101HC3-PVD	L3201HC3-PVD	L3300H03-PVD	J60729	J61201	00008	00008
KVC3-XXX	L3101VC3-PVD	L3201VC3-PVD	L3300V03-PVD	J60730	J61086	00008	00008
VTC3-XXX	L3101TC3-PVC	L3201TC3-PVC	L3300T03-PVC	J60728	J41873	J00023	00008
WTC3-XXX	L3101TC3-PVC	L3201TC3-PVC	L3300T03-PVC	J60728	J41873	J00023	00008
VHC3-XXX	L3101HC3-PVC	L3201HC3-PVC	L3300H03-PVC	J60729	J41694	J00023	00008
WHC3-XXX	L3101HC3-PVC	L3201HC3-PVC	L3300H03-PVC	J60729	J41694	J00023	00008
VVC3-XXX	L3101VC3-PVC	L3201VC3-PVC	L3300V03-PVC	J60730	J41714	J00023	00008
WVC3-XXX	L3101VC3-PVC	L3201VC3-PVC	L3300V03-PVC	J60730	J41714	J00023	00008
PTCJ-XXX	L3101TCJ-FPP	L3201TCJ-FPP	L3300T01-FPP	J40211	J61098	00007	00010
KTCJ-XXX	L3101TCJ-PVD	L3201TCJ-PVD	L3300T01-PVD	J60716	J61020	00010	00010
VTCJ-XXX	L3101TCJ-PVC	L3201TCJ-PVC	L3300T01-PVC	J60716	J41996	00007	00010

NOTE: This guide provides a quick reference and does not cover all configurations or options.

Aftermarket

- KOPkits
- Gauges
- Dampeners
- Pressure Relief Valves
- Tanks
- Pre-Engineered Systems
- Process Controllers (PULSAblue, MicroVision)

PULSAtron®

Quick Reference Guide

PULSAtron®

Parts & Accessories

PULSAFEEDER
pulsafeeder.com GENUINE PARTS

KOPkits
When you need a part, you've got it. A KOPkit can help you cut downtime and put you back in business fast.

Pump Shelf
Designed to safely and securely mount your metering pumps on a wall or level surface and contain any potential spills.

SERVICE
For unsurpassed service, always contact your authorized Pulsafeeder dealer

Calibration Kit
Calibration columns are used on the supply side of the pump to permit flow calibration.

Solution Tanks
Available in sizes from 15 to 200 gallon.

Corporation Stop
Pulsafeeder's high quality brass corporation stop and nozzle assembly disperses chemical into the center of a line for even mixing.

PULSAFEEDER
27101 Airport Road
Punta Gorda, FL 33982
Phone: +1(941) 575-3800
Fax: +1(941) 575-4085

www.pulsatron.com

An ISO 9001 Certified Company

EMP044 I16

IDEX

PULSAFEEDER®

Metering Pumps and Control Systems

Product

Effective 01/01/16

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IMPORTANT INFORMATION

WHEN PLACING AN ORDER

1. Fax, mail or telephone orders directly to the Customer Service Department:

   Pulsafeeder Incorporated—A Unit of IDEX Corporation
   Standard Product Operations Main Office & Manufacturing Facility
   27101 Airport Road, Punta Gorda, Florida, USA 33982-2462 E-Mail: pulsaspo.cs@idexcorp.com
   Telephone: 800-333-6677 or 941-575-3800 Fax: 800-456-4085 or 941-575-4085
   www.pulsatron.com

2. Please have the following information available when placing an order:

Account Name	Special Tags or Marks (if needed)
Billing Zip Code	Item(s) Being Ordered
Purchase Order Number	Quantity of Each Item
Ship To Address	Pricing
Payment Terms	Shipping Information

3. Orders are entered upon receipt. Our ability to change in house orders is limited. Please be certain your orders are complete when placed. Any order cancellation or change request is subject to a cancelation fee.

4. Orders are assigned standard lead times based on the size of the order and product mix.
   Orders requiring expedited shipping (sooner than the standard lead times) are subject to a expedite charge.
   Unless the order clearly requests expedited shipping, the order will be treated as a routine order. When expedited shipping is requested a designated carrier must be selected. Orders that need to ship the same day must be received by 2:00 PM EST. Same day and next working day shipping is generally available for larger orders but not guaranteed, please verify with customer service. Pulsafeeder shall have no liability if it is unable to provide expedited shipping of an order.

5. Repairs and returns are coordinated through our Customer Service Department. All orders returned must have factory authorization and are subject to a 25% restocking charge for standard product

6. Other Locations:

PULSAFEEDER-Europe
Via Kennedy, 12-20090
Segrate—Milano– Italy
Tel: +0039 377 706 6300

Latin America (Office Only)
Mario Pani 400, Piso 1, Oficina 111
Col. Lomas de Santa Fe, Cuajimalpa de Morelos
C.P 05300, México, D.F.
Tel: 52-55-4738-4124

Far East (Office Only)
Room 3502-3504, Zhao Feng Plaza
No. 1027 Changning Rd
Shanghai 200050, China
Tel: 86-2163906367
Fax: 86-2163863338

IDEX India Private Ltd.
S14, First Floor
Solitaire Corporate Park,
167, Guru Hargovindji Marg, Chakala
Andheri (East)
Mumbai 400 093, India
Tel: 91-22-66435500
Fax: 91-22-66780055

- Prices are subject to change without notice and are effective when order is accepted and acknowledged at point of shipment.
- When ordering, specify your P.O. number, model number, quantity, price, shipping and/or billing address and order date.
- Standard terms are NET 30 days from date of invoice for approved domestic accounts on open account and NET 60 days from date of invoice for approved international accounts.
- WE ACCEPT VISA AND MASTERCARD.
- PAYMENT BY CREDIT CARD WILL NOT RECEIVE AN ADDITIONAL DISCOUNT.
- All prices are FCA, Shippers Dock, Punta Gorda, FL.
- Custom product sales are final.
- Charges for export documentation may apply an very by requirements.
- Expedite fees may apply. Orders requiring expedited shipping (sooner than the standard lead times) are subject to an expedite charge
- Fees for changes to or cancellation of orders may apply.
- Minimum factory order of $30.
- Possession of price schedule does not guarantee right to purchase direct from factory.

We reserve the right to update the information contained in this catalog without notice.

PULSAtron®

Feature Selection Guide

Pulsafeeder offers one of the most flexible electronic metering pumps in the world. The product can be configured to meet a large variety of applications and needs. The next few pages will guide you in structuring a complete and correct model number.

The first step in selecting the right model for your application is to select the correct Series. Each Series offers a variety of features that distinguish it from other Series. Within each Series are selections of models that offer different flow/pressure envelopes to choose from.

The following descriptions will help you understand the different features and then the chart at the bottom of the page will let you select the appropriate models that have the features you need.

4-20mA	Control the pump stroke frequence based on a current input signal from an external device. At 4mA input, the pump will not stroke. At 20mA input, the pump will stroke 100%
20-4mA	Same as 4-20 except that at 20mA input, the pump will not stroke and at 4mA input, the pump strokes at 100%.
External Pace / Water Meter	Allows the pump stroke to be controlled by an external dry contact closure, such as is provided by a Water Meter. For each closure, the pump will stroke one time. Some models provide the ability to multiply or divide the pulses.
Stop Function	A dry contact input that will stop the pump on closure and allow the pump to operate when open.
Touch Pad	Electronic 'touch pad' control with internationally recognized symbols.
Digital Display	Pump parameters are displayed on an LCD or LED type display.
Signal Relay	Provides a 24V DC signal output from the pump based on user specified conditions.
Power Relay	Provides AC power output from the pump based on user specified conditions.
Alarm Display	Flashing display or LED indicator that will display an alarm condition on the front panel of the pump.
Timed Sequences	Ability to pre-program operation for repetitive metering.
Programmable Timer	Timer that can be programmed with up to 8 on/off cycles per day during a 7-day week.
Hall Effect	Hall Effect Water Meter input.
Bleed Relay	Separate relay used to control a solenoid that will "Bleed" a cooling tower as part of a control system.
Timer Control	User defined timer functions that control when the pump will operate. Used in Cooling Tower control systems.
Flow Control	Optional Flow Switch turns pump on when flow is active.

Series	Flow Capacity		Pressure		Turn Down Ratio	4-20 mA	20-4 mA	External Pace And Stop Function	External Pace Or Stop Function	Touch Pad	Digital Display	Signal/Power Relay	Alarm Signals	Timed Sequences	Programmable Timer
	GPH	LPH	PSIG	BAR											
MP	0.13 to 21	0.50 to 79.5	20 to 300	1.3 to 21	1000:1	S	S	S		S	S	S	S	S	
E Plus	0.13 to 25	0.50 to 94.6	30 to 300	2.0 to 21	100:1	O		O							
HV	0.50 to 10	1.9 to 37.9	80 to 100	5.6 to 17	100:1	O									
E	0.21 to 1.85	0.80 to 7.0	100 to 250	7 to 17	100:1										
E-DC	0.25 to 1.85	0.90 to 7.0	100 to 150	7 to 10	100:1										
A Plus	0.25 to 2	0.90 to 7.6	50 to 250	3.3 to 17	100:1			O	O						
T7	0.50 to 2	1.9 to 7.6	100	7	10:1										S
C Plus	0.25 to 1.25	0.90 to 4.7	80	5.6	100:1				O						
C	0.25 to 1.25	0.90 to 4.7	80	5.6	10:1				O						

PULSAtron®

Model Selection Guide

Once you have selected the appropriate Series, you must configure the model so that it is built with the features you desire. The Configuration Guide associated with each Series will present the most popular selections. Select one code from each category to build up a complete model string.
To help you better understand the model string, in the following pages, we will explain what each of the digits represent and provide you some additional charts to help you select options not found in the Configuration Guides.

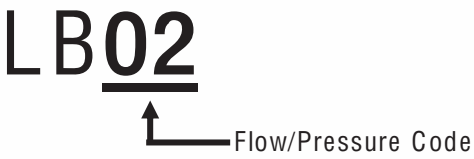
Model Selection:

The first four digits represent the Series and Flow/Pressure Selection.

The first digit will always start with the letter 'L'.

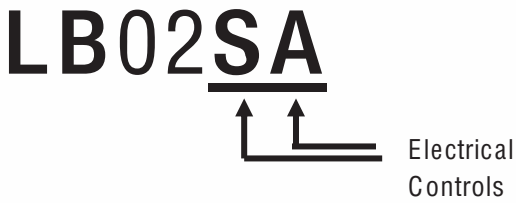
All PULSAtron models begin with this letter. The second letter designates the Series (e.g. Series MP, Series E+, Series A+, etc.). Each series has a different set of features that are available in terms of control and flow/pressure capacity. The next two digits represent the flow/pressure capacity of the pump.

Series Code Designator	
Series MP	M
Series E Plus	P
Series HV	V
Series E	E
Series E-DC	S
Series A Plus	B
Series C Plus	D
Series C & T7	C



Digits 3 & 4 represent the Flow/Pressure Code.

This code represents the specific flow/pressure rating for the model and can be found in the specification for each Series.



Digits 5 & 6 represent the Controls and Electrical selections.

These selections are explained for each model in the Configuration Guide.

PULSAtron®

Selection Guide cont'd.

Selecting the Wet-End Code & Connection Type:

Digits 7-10 in the string represent the wet-end code. It is the group of four digits set apart by the dash lines.

LB02SA-**PTC1**

These four digits represent your wet-end code and connection type.

The four digits in the wet-end code represent the Head Material, Seats & O-Rings, Ball Material and Connection type. Using the above example, the code breads down as follows:

P - Head Material, including fittings. In this example, the P represents GFPPL.
T - Seat & O-Ring Material. In this example, the T represents TFE.
C - Types of Balls used in the valves. In this example, the C represents Ceramic.
1 - Connection type. In this example, the 1 represents tubing connections for 3/8" OD tubing.

In the configuration Guide, we have listed the most popular Wet-End codes. If you don't find the materials or connection selection to meet your needs, refer to the following selection guides to configure the proper Wet-End Code.

Selecting the Wet-End Code:

The wet-end code represents the materials of construction that will be in contact with the chemical you are pumping. It is critical that the materials selected are compatible. If you do not find the wet-end code to meet your application in the configuration guides, you can use the Wet-End Code Selection Guide to determine the correct Head Material, Seats & O-Rings and Balls. If you do not know what materials are compatible with the chemicals you are pumping, refer to the chemical compatibility chart below. We have identified the proper wet-end code for the chemicals in the list. If your chemical is not found in the list, please contact your chemical supplier or visit www.pulsatron.com for a complete listing.

PULSAtron Wet-End Code Selection Guide

Head & Fittings

A	=	316 Stainless Steel (All models except H8)
K	=	PVDF (Kynar) (Consult factory for J7, H8 models)
P	=	GFPPL (Polypropylene)
V	=	PVC (Poly Vinyl Chloride) (for models rated < 150 psi excluding J7, K7, H7, H8)
W	=	PVC (for models > 150 psi and J7, K7, H7, H8)

Seats

H	=	CSPE
T	=	TFE (not available with TFE ball over 150 psi)
V	=	Viton (150 psi max.)

Balls

C	=	Ceramic
H	=	Alloy C (Hastelloy)
S	=	316 Stainless Steel
T	=	TFE (not available with TFE seat over 150 psi)

CSPE is generic formulation of Hypalon, a registered trademark of E.I. DuPont Co.
Viton is a registered trademark of E.I. DuPont Company.

Chemical Compatibility Chart

Chemical	Liquid End Code
ACETIC ACID, 5 - 10%	PHC
ALUMINUM SULFATE	VHC
AMMONIA, 10%	PHC
BROMINE	KTC
CALCIUM HYPOCHLORITE	VVC
CITRIC ACID, 10 - 20%	PHC
DEAE - Steamline Treatment	ATS
ETHYLENE GLYCOL	PTC
FERRIC CHLORIDE	VTC
FERRIC SULFATE	PTC
FLUOSILICIC ACID	PTT
HYDROCHLORIC ACID, 0 - 37%	PTC
HYDROCHLORIC ACID, 37 - 100%	KTT
HYDROFLUOSILICIC ACID, 20%	PTT
HYDROGEN PEROXIDE, 0 - 30%	VVC
LACTIC ACID	PTC
NITRIC ACID, 0 - 20%	PVC
PHOSPHORIC ACID, 0 - 100%	KTC
POTASSIUM CHLORIDE	PTC
POTASSIUM PERMANGANATE	PTC
SODIUM BI-CARBONATE	PTC
SODIUM BI-SULFATE	PTC
SODIUM BI-SULFITE	PTC
SODIUM CARBONATE	PTC
SODIUM HYDROXIDE, 0 - 50%	PHC
SODIUM HYPOCHLORITE	VVC
SODIUM NITRATE	PTC
SODIUM SILICATE	PHC
SODIUM SULFATE	PHC
SODIUM SULFIDE	PHC
SULFURIC ACID, 0 - 10%	PTC
SULFURIC ACID, 10 - 75%	PTC
SULFURIC ACID, 95 - 100%	KTC

This is an abbreviated version using most common chemicals. Refer to the Chemical Resistance Guide (EMP-030) for a more detailed listing.

Selecting the Connection Code:

Selecting the proper connection code is probably the most difficult part of choosing a PULSAtron pump. Because of the flexibility built into this product line to meet a large variety of applications, the connection codes are determined by alot more factors than just the size of the tubing. Connection code is probably the wrong name for this selection because you are selecting more than just the tubing size. This code also determines the type of valves used in the pump. The valve type is determined by factors such as flow rate of the pump, ball type selected and viscosity of the fluid you will be pumping.

Flow Rate:

The pump you select is rated to pump a certain number of gallons per hour (GPH). When selecting the connection code, please note the GPH limitations and select a connection that fits within the parameters of the pump model that you selected.

Ball Type:

If the material selected for the balls used in the check valves is TFE, you will probably need to use a spring-loaded connection. This is due to the fact that the weight of the balls will not allow them to seat properly without the spring. See the connection chart for a list of spring loaded connection types.

Viscosity:

Viscosity of the fluid you are pumping impacts the connection. The higher viscosity fluids (>3000 cps) require larger connection types and spring-loaded valves. Medium viscosity fluids (1000 to 3000 cps) can be pumped without the spring-loaded valves but you must use SS balls with these connections in order for the balls to seat properly in the valve.

Degassing Head:

The degassing head assembly is the solution to pumping gas producing chemicals such as hydrogen peroxide or high strength sodium hypochlorite. The unique de-gas valve system is designed to allow air to be vented from the pump head while minimizing the return fluid volume. It also prevents the pump from losing its prime due to gas build up. The degassing head will be available on all PULSAtron pumps with volumes <44GPD & pressures <150PSI. This feature is only available with the wet-end codes VVC9, VHC9, and VTC9.

Connection Codes

Code	Connect Type	Suction	Discharge	Spring	GPH Flow Limitations-125 SPM	GPH Flow Limitations-250 SPM	Viscosity	Other Factors
2	Piping	.25" FNPT	.25" FNPT		0 - 1.88	0-3.76	1000 up to 3000 cps w/ SS balls	No Bleed Valve
4	Piping	.25" FNPT	.25" FNPT		1.63 - 10	3.26-20	1000 up to 3000 cps w/ SS balls	No Bleed Valve
6	Piping	.25" FNPT	.25" FNPT	Yes	Up to 10	NA	less than 10,000 cps	No Bleed Valve
8	Piping	.50" FNPT	.50" FNPT	Yes	Up to 25	NA	less than 10,000 cps	No Bleed Valve
C	Piping	.50" FNPT	.50" FNPT		25	50	1000 up to 3000 cps w/ SS balls	No Bleed Valve
G	Piping	.25" FNPT	.25" FNPT	Yes	0 - 1.88	0-3.76	1000 up to 3000 cps w/ SS balls	No Bleed Valve
I	Piping	.50" MNPT	.50" MNPT	Yes	Up to 10	NA	less than 10,000 cps	No Bleed Valve
L	Piping	.50" MNPT	.50" MNPT		0 - 1.88	0-3.76	1000 up to 3000 cps w/ SS balls	No Bleed Valve
X	Piping	.50" MNPT	.50" MNPT		1.63 - 10	3.26-20	1000 up to 3000 cps w/ SS balls	No Bleed Valve
1	Tubing	.25" x .38"	.25" x .38"		0 - 1.88	0-3.76	1000 up to 3000 cps w/ SS balls	
3	Tubing	.38" x .50"	.38" x .50"		1.63 - 10	3.26-20	1000 up to 3000 cps w/ SS balls	
5	Tubing	.50" x .75"	.38" x .50"	Yes	Up to 10	NA	less than 10,000 cps	
7	Tubing	.50" x .75"	.50" FNPT	Yes	Up to 25	NA	less than 10,000 cps	No Bleed Valve
9	Tubing	.25" x .38"	.25" x .38"	Yes	0 - 1.88	0-3.76	1000 up to 3000 cps w/ SS balls	Degas Head/No Bleed Valve
A	Tubing	.38" x .50"	.38" x .50"		0 - 1.88	0-3.76	1000 up to 3000 cps w/ SS balls	
B	Tubing	.50" x .75"	.50" x .75"		25	50	1000 up to 3000 cps w/ SS balls	No Bleed Valve
D	Tubing	.25" x .38"	.25" x .38"	Yes	0 - 1.88	0-3.76	1000 up to 3000 cps w/ SS balls	
E	Tubing	.38" x .50"	.38" x .50"	Yes	0 - 1.88	0-3.76	1000 up to 3000 cps w/ SS balls	
F	Tubing	.38" x .50"	.38" x .50"	Yes	1.63 - 10	3.26-20	1000 up to 3000 cps w/ SS balls	Not Available In PVDF
H	Tubing	.25" x .38"	.25" x .38"		1.63 - 10	3.26-20	1000 up to 3000 cps w/ SS balls	
J	Tubing	.25" x .38"	.25" x .38"		0 - 1.04	0-2.08	1000 up to 3000 cps w/ SS balls	
K	Tubing	.50" x .75"	.50" x .75"	Yes	1.88 - 25 (<50 psi)	NA	less than 10,000 cps	No Bleed Valve
Metric Connections					LPH Flow Limitations	LPH Flow Limitations		
M	Piping	G 1/2 A	G 1/2 A		6.15 - 37.85	12.3-75.7	1000 up to 3000 cps w/ SS balls	
R	Piping	G 1/2 A	G 1/2 A		0 - 7.10	0-14.2	1000 up to 3000 cps w/ SS balls	
P	Tubing	4 x 6 mm	4 x 6 mm		0 - 3.94	0-7.88	1000 up to 3000 cps w/ SS balls	
S	Tubing	6 x 8 mm	6 x 8 mm		> 18.93	> 37.86	1000 up to 3000 cps w/ SS balls	
T	Tubing	6 x 8 mm	6 x 8 mm		0 - 7.10	0-14.2	1000 up to 3000 cps w/ SS balls	Degas Head/No Bleed Valve
U	Tubing	6 x 8 mm	6 x 8 mm		0 - 7.10	0-14.2	1000 up to 3000 cps w/ SS balls	
V	Tubing	12 x 19 mm	12 x 19 mm		> 29.96	>59.92	1000 up to 3000 cps w/ SS balls	No Bleed Valve
W	Tubing	8 x 12 mm	8 x 12 mm		3.94 - 37.85	7.88-75.7	1000 up to 3000 cps w/ SS balls	
Y	Tubing	9 x 12 mm	9 x 12 mm		0 - 7.10	0-14.2	1000 up to 3000 cps w/ SS balls	

Pumps ranging from 0.25 gph (0.9 lph) to 0.90 gph (3.4 lph) with the stainless steel ball option ("S" in the 9th digit of the model number) must select a connection code with a spring.

- **Pumps less than or equal to .25 gph (0.9 lph) require a connection code with a spring and must use a ceramic ball in place of stainless steel.**
- **Stainless steel head assemblies are only available in piping connections.**

PULSAtron®

Selection Guide cont'd.

Suffix Code:

LB02SA-PTC1-**XXX** ← Suffix Code

The last three digits of the model string are referred to as the Suffix Code. It is through the suffix code that the pump can be customized with optional features or customer specific features, e.g. private labeling. If your company has specific features that will be ordered on every pump, contact customer service with a description of what you want customized. We will then assign a unique suffix code that can be used as the last three digits in the model string when you place an order.

Standard Suffix Code Descriptions:

On the following pages are additional features that can be added to your PULSAtron pump through the use of the Suffix Code. Anytime you order a pump with one of these codes, it will be configured with that option.

CZ ____XXX = CE Approval

This suffix code tells us that you require CE Approval on the pump you are ordering. This suffix code is seven to nine digits and can be used in conjunction with other suffix codes by replacing the XXX after the CZ _ _ _ _with another suffix code. For instance, if you require CE Approval and a Five Function Valve, the suffix code would be CZEURO500.

130 = PVDF Tubing

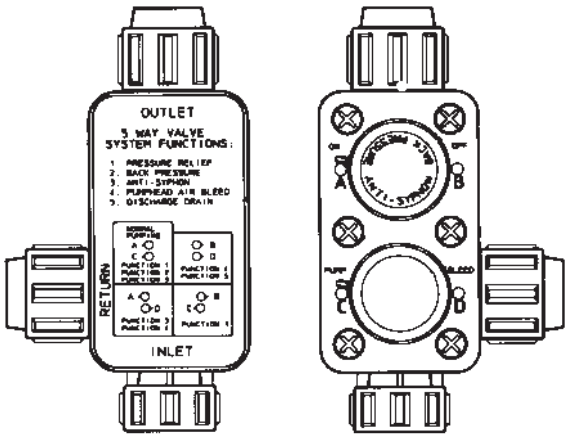
This suffix code will replace the standard pump tubing with PVDF Tubing.

500 = Five Function Valve

The five function valve is easily installed, no tools required. The valve operates with all PULSAtron models up to 240 GPD. The five function valve is packed with features that increase safety, enhance performance and generally improves the convenience of operation.

FEATURES

- Pressure Relief – Allows for relief of excessive pressure in discharge line to protect connections and tubing.
- Back Pressure – Maintains output reproducibility and allows metering into atmospheric discharge.
- Anti-Siphon – Prevents siphoning through the pump when point of injection is lower than the pump or into the suction line of another pump. Rated at total vacuum.
- Air Bleed – Used during priming to manually remove air from the pump head.
- Discharge Drain – Depressurize pump discharge line without loosening tubing or fittings. Protects the operator from chemical exposure.



REAR VIEW FRONT VIEW

SPECIFICATIONS

Material Of Construction:

Valve Body	Polyvinylidene Flouride (PVDF)
Diaphragm	TFE faced CSPE
O-Rings	TFE
Hardware	18-8 Stainless Steel (Recessed)
Maximum Operating Pressure:	250 PSI/17 BAR
Maximum Flow:	10 GPH (37.85 LPH)
Maximum Viscosity:	1000 CPS
Pressure Relief Settings: (nominal cracking pressure)	275 PSI (17 BAR) - red 175 PSI (12 BAR) - green 125 PSI (8.6 BAR) - blue 50 PSI (2.8 BAR) - black (PVC only)

Note: Pressure relief will occur at no more than 50% above maximum rating of pump.

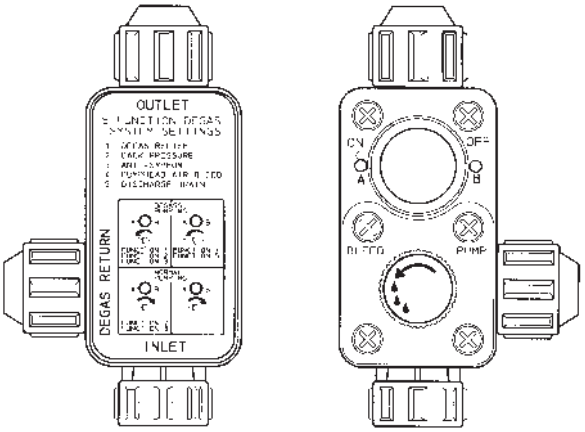
OPERATION

The functions are selected by setting two dual position selector knobs. The label on the back panel of the valve identifies each function with selector knob positions.

The five function valve is compatible with most PULSAtron pumps. Connected to the existing discharge valve the five function valve is capable of handling a large output flow as well as viscous liquids. A return port located on the side body provides flow of chemical back to the solution tank when in the air bleed or drain discharge mode.

520 = DG/5FV Five Function Valve with De-Gas

With the DG/5FV you don't have to give up the accuracy and control of a solenoid metering pump in order to pump gaseous solutions. Available in a variety of materials and popular sizes, the DG/5FV is ready to tackle most applications. Not only does the DG/5FV provide degassing, it is packed with features that increase safety, enhance performance and generally improves the convenience of operation.



REAR VIEW FRONT VIEW

FEATURES

- De-Gas – Bypass gasses and fluid during normal pump operation. Allows for the constant removal of gases that would otherwise "air bind" the pump.
- Back Pressure – Maintains output reproducibility and allows metering into atmospheric discharge.
- Anti-Siphon – Prevents siphoning through the pump when point of injection is lower than the pump or into the suction line of another pump. Rated at total vacuum.
- Air Bleed – Used during priming to manually remove air from the pump head.
- Discharge Drain – Depressurize pump discharge line without loosening tubing or fittings. Protects the operator from chemical exposure.

SPECIFICATIONS

Material Of Construction:

Valve Body Polyvinylidene Flouride (PVDF)
Diaphragm TFE faced CSPE
O-Rings Viton or CSPE
Hardware 18-8 Stainless Steel (Recessed)

Maximum Flow: 10 GPH (37.85 LPH)
Minimum Flow: 3 GPD (.47LPH)
Maximum Viscosity: 1000 CPS
MAX Pressure Ratings: Up to 250 psi (17 BAR)
Note: Degas/bypass volume is adjustable, typically 1-10% of pump output.
Connections: ¼" (0.635 cm) Male NPT
½" (1.27 cm) OD tubing
3/8" (0.95 cm) OD tubing
All ports (input, output & bypass) on the selected valve will be the same.

OPERATION

The functions are selected by setting two dual position selector knobs. The label on the back panel of the DG/5FV identifies each function with selector knob positions.

The DG/5FV is compatible with most PULSAtron pumps. Connected to the existing discharge valve the GG/5FV is capable of handling a large output flow as well as viscous liquids. A return port located on the side body provides flow of chemical back to the solution tank when in the degas, air bleed or drain discharge mode.

ITS = Integrated Tank System

The ITS System is a completely integrated tank system constructed of high density UV resistant polyethylene (PE) with a 15 gallon capacity. This tank system is translucent with 5 gallon increments and the tank's low level indicator allows visual monitoring of chemicals without opening the tank. The tight fitting child-proof lid keeps the chemical free of contaminants and protects the surrounding area from chemical fumes.

The ITS System also allows for easy access to the liquid end and control panel of the mounted pump.

A system consists of a chemical tank with lid and bulkhead fittings; a liquid level indicator float assembly; and feeder mounting hardware.

ITS Tank not available on LM, LP, If you require a different type or size tank, please refer to our accessory price book.

PULSAtron®

Electronic Metering Pumps

Series MP

Key Features

- Automatic Control, Fully scalable 4-20mA current signal that can also be calibrated to precisely match the current signal reading of the sending device.
- Manual Control allows for a combined 1000:1 turndown resulting in accurate metering for critical applications.
- Flow Verification option is available on select sizes.
- Relay Output for computer interface or AC power allows for external control.
- Six-button Touch Pad Control with internationally recognized symbols for simplified programming.
- Simple Prompts in plain language allow for easy-to-understand instructions for programming. Available in three languages.
- Alarm Signals for signal loss, full count, circuit failure, pulse overflow and pulse rate high. Liquid low level indicator capability is standard.
- Timed Sequences can be set for selected intervals and rate for repetitive metering.
- Pulse Signals can be multiplied or divided by 1 to 999 allowing for pumps to handle peak requirements.
- LCD, 3 line backlit multi-lingual display allows for easy reading and user-friendly programming.
- Calibrated Flow Rate display with total volume pumped last day, month and since last reset.

Pressure and Flow Rate Capacity

MODEL		LMK2	LMB2	LMA2	LMD3	LMB3	LMA3	LMK3	LMF4	LMD4	LMB4	LMH4	LMG4	LME4	LMK5	LMH5	LMH6	LMK7	LMH7	LMH8
Capacity	GPH	0.13	0.21	0.25	0.50	0.50	0.50	0.60	0.85	0.90	1.00	1.70	1.75	1.85	2.50	3.15	5.00	8.00	10.00	21.00
nominal	GPD	3	5	6	12	12	12	14	20	22	24	41	42	44	60	76	120	192	240	504
(max.)	LPH	0.5	0.8	0.9	1.9	1.9	1.9	2.3	3.2	3.4	3.8	6.4	6.6	7.0	9.5	11.9	18.9	30.3	37.9	79.5
Pressure	PSIG	300	250	150	250	150	100	100	250	150	100	250	150	100	150	150	100	50	35	20
(max.)	BAR	21	17	10	17	10	7	7	17	10	7	17	10	7	10	10	7	3.3	2.4	1.3
Connections	Tubing	1/4" ID X 3/8" OD 3/8" ID X 1/2" OD													3/8" ID X 1/2" OD 1/2" ID X 3/4" OD (LPH8 ONLY) FLOW VERIFICATION (See Note)					
	Piping	1/4" FNPT													1/4" FNPT 1/2" FNPT					

Note: Flow Verification: Available on K3, B4 and E4 with connection code 1; H6, K7 and H7 with connection code H; 1/4" ID x 3/8" OD only.

Engineering Data

Reproducibility: +/- 2% at maximum capacity

Viscosity Max CPS:
For viscosity up to 3000 CPS, select connection size 3, 4, B or C with 316SS ball material. Flow rate will determine connection/ball size. Greater than 3000 CPS require spring loaded ball checks. See Selection Guide for proper connection.

Controls: 6-Station Membrane Switch

Status Display: 16-Position LCD Dot Matrix Backilght

LED Indicator Lights, Panel Mount:
Power On - Green
Pulsing - Green Flashing
Stop - Red

Stroke Frequency Max SPM: 125

External Stroke Frequency Control (Automatic):
4-20 mADC, 20-4 mADC External Pacing

Output Relay (Signal Level Option): 24 VDC, 10 mA

Output Relay (Power Option): 250 VAC, 50/60 HZ, 0.5A

Stroke Frequency Turn-Down Ratio: 100:1

Stroke Length Turn-Down Ratio: 10:1

Engineering Data

Power Input: 115 VAC/50-60 HZ/1 ph
230 VAC/50-60 HZ/1 ph

Average Current Draw:
@ 115 VAC; Amps: 1.0 Amps
@ 230 VAC; Amps: 0.5 Amps

Peak Input Power: 300 Watts

Average Input Power @ Max SPM: 130 Watts

PULSAtron Series MP Selection Guide

LM_ _ _ _ - _ _ _ - _ _ _

MODELS:	**K2**	= 0.13 gph / 3 gpd (0.5 lph) max pres.: 300 PSI (21 BAR)
	B2	= 0.21 gph / 5 gpd (0.8 lph) max pres.: 250 PSI (17 BAR)
	D3	= 0.50 gph / 12 gpd (1.9 lph) max pres.: 250 PSI (17 BAR)
	F4	= 0.85 gph / 20 gpd (3.2 lph) max pres.: 250 PSI (17 BAR)
	H4	= 1.70 gph / 41 gpd (6.4 lph) max pres.: 250 PSI (17 BAR)
	A2	= 0.25 gph / 6 gpd (0.9 lph) max pres.: 150 PSI (10 BAR)
	B3	= 0.50 gph / 12 gpd (1.9 lph) max pres.: 150 PSI (10 BAR)
	D4	= 0.90 gph / 22 gpd (3.4 lph) max pres.: 150 PSI (10 BAR)
	G4	= 1.75 gph / 42 gpd (6.6 lph) max pres.: 150 PSI (10 BAR)
	K5	= 2.50 gph / 60 gpd (9.5 lph) max pres.: 150 PSI (10 BAR)
	H5	= 3.15 gph / 76 gpd (11.9 lph) max pres.: 150 PSI (10 BAR)
	A3	= 0.50 gph / 12 gpd (1.9 lph) max pres.: 100 PSI (7 BAR)
	K3	= 0.60 gph / 14 gpd (2.3 lph) max pres.: 100 PSI (7 BAR)
	B4	= 1.00 gph / 24 gpd (3.8 lph) max pres.: 100 PSI (7 BAR)
	E4	= 1.85 gph / 44 gpd (7.0 lph) max pres.: 100 PSI (7 BAR)
	G5	= 4.00 gph / 96 gpd (15.1 lph) max pres.: 100 PSI (7 BAR)
	H6	= 5.00 gph / 120 gpd (18.9 lph) max pres.: 100 PSI (7 BAR)
	K7	= 8.00 gph / 192 gpd (30.3 lph) max pres.: 50 PSI (3.3 BAR)
	H7	= 10.0 gph / 240 gpd (37.9 lph) max pres.: 35 PSI (2.4 BAR)
	H8	= 21.0 gph / 504 gpd (79.5 lph) max pres.: 20 PSI (1.3 BAR)

CONTROLS:	**T**	= Signal Level Output Relay
	K	= Power Level Output Relay

ELECTRICAL:	**A**	= 115 Volt / 50-60Hz
	1	= 115 Volt / 50-60Hz (without agency approvals)
	B	= 230 Volt / 50-60Hz / 1ph with 6' (1.8m) 3-wire US Plug
	2	= 230 Volt / 50-60Hz (without agency approvals)

LIQUID END MATERIALS: Pump Head & Fittings/Seats & O-rings/Balls	**PTC**	= GFPPL / TFE / Ceramic
	KTC	= PVDF / TFE / Ceramic (not available on H8)
	VHC	= PVC / CSPE / Ceramic (not available on H7, H8, K7)
	VTC	= PVC / TFE / Ceramic (models <= 150 psi excluding H7, H8, K7)
	WTC	= PVC / TFE / Ceramic (models > 150 psi and H7, H8, K7)
	VVC	= PVC / Viton / Ceramic (not available on H8)
	ATS	= 316 S.S. / TFE / 316 S.S. (must use FNPT piping connection) (not available on H8)

See page 6 for additional liquid end materials.

CONNECTION SIZES:	**1**	= Tubing .25" I.D. x .38" O.D. / .25" Ball, 0 - 1.88 GPH
	3	= Tubing .38" I.D. x .50" O.D. / .38" Ball, 1.63 - 10 GPH
	9	= Degas Head: .25" I.D. x .38" O.D. / 0-1.83 GPH
	J	= Tubing, .25" I.D. x .38" O.D. / .19 Ball; 0 - 1.04 GPH
	METRIC:	
	M	= G 1/2 A Threads, .38" Ball, 6.15 - 37.85 LPH
	R	= G 1/2 A Threads, .25" Ball, 0 - 7.10 LPH
	Y	= 9 x 12mm, .25" Ball, 0 - 7.10 LPH

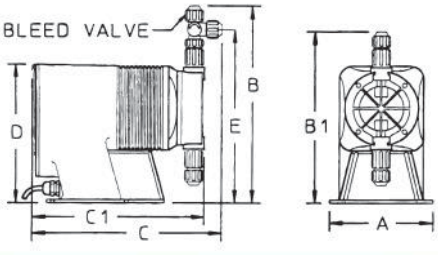
Please Refer to page 7 for additional connection sizes. All pumps with tubing connections come with the following items (except for LMH8, LPH8, HV Series pumps): 4' Suction, 4' Return, 8' dischage tubing, footvalve/strainer assy., injection valve and bleed valve.

SUFFIX CODES:	**XXX**	= No Additional Options
	130	= PVDF Tubing
	500	= Five Function Valve
	520	= Five Function Degas Valve
	FVE	= Flow Verification / EPDM (not available on pumps greater than 100 psi or H8 pump)
	FVV	= Flow Verification / Viton (not available on pumps greater than 100 psi or H8 pump)
	ITS	= 15 gal. ITS Tank System (ITS Tank not available on LM, LP, LT, and LE: H4, H5, H6, H7, H8, J7, K7 models)
	CZ_XXX	= CE Approval (CZXXX=Europe; CZUKXXX=UK; CZSUIXXX=Switzerland/Liechtenstein)

See pages 8 & 9 for additional information and specs.

A completed model number should look like 'LMB3TA-PTC1-XXX'

Dimensions



Series MP Dimensions (inches)																	
Model No.	A	B	B1	C	C1	D	E	Shpg Wt	Model No.	A	B	B1	C	C1	D	E	Shpg Wt
LMA2	5.4	10.3	-	10.8	-	7.5	8.9	13	LMH4	6.2	10.9	-	11.2	-	8.2	9.5	21
LMA3	5.4	10.6	-	10.7	-	7.5	9.2	13	LMH5	6.2	11.3	-	11.2	-	8.2	9.9	21
LMB2	5.4	10.3	-	10.8	-	7.5	8.9	13	LMH6	6.2	11.3	-	11.2	-	8.2	9.9	21
LMB3	5.4	10.6	-	10.7	-	7.5	9.2	13	LMH7	6.1	11.7	-	11.2	-	8.2	10.3	21
LMB4	5.4	10.6	-	10.7	-	7.5	9.2	13	LMH8*	6.1	-	10.9	-	10.6	8.2	-	25
LMD3	5.4	10.6	-	11.2	-	7.5	9.2	15	LMK2	5.4	10.3	-	10.8	-	7.5	8.9	13
LMD4	5.4	10.6	-	11.2	-	7.5	9.2	15	LMK3	5.4	10.6	-	10.7	-	7.5	9.2	13
LME4	5.4	10.6	-	11.2	-	7.5	9.2	15	LMK5	5.4	10.9	-	11.7	-	7.5	9.5	18
LMF4	5.4	10.6	-	11.7	-	7.5	9.2	18	LMK7	6.1	11.7	-	11.2	-	8.2	10.3	21
LMG4	5.4	10.6	-	11.7	-	7.5	9.2	18									

NOTE: Inches X 2.54 = cm / * the LMH8 is designed without a bleed valve available

PULSAtron®

Electronic Metering Pumps

Series E PLUS

Key Features

- **Automatic Control,** available with 4-20 mADC direct or external pacing, with stop function.
- **Manual Control** by on-line adjustable stroke rate and stroke length.
- **Auto-Off-Manual** switch.
- **Highly Reliable** timing circuit.
- **Circuit Protection** against voltage and current upsets.
- **Panel Mounted Fuse.**
- **Solenoid Protection** by thermal overload with auto reset.
- **Water Resistant,** for outdoor and indoor applications.
- **Indicator Lights,** panel mounted.
- **Guided Ball Check Valve Systems,** to reduce back flow and enhance outstanding priming characteristics.
- **Safe & Easy Priming** with durable leak-free **bleed valve assembly** (standard).

Pressure and Flow Rate Capacity

MODEL		LPK2	LPB2	LPA2	LPD3	LPB3	LPA3	LPK3	LPF4	LPD4	LPB4	LPH4	LPG4	LPE4	LPK5	LPH5	LPG5	LPH6	LPK7	LPH7	LPJ7	LPH8
Capacity nominal (max.)	GPH	0.13	0.21	0.25	0.5	0.50	0.50	0.60	0.85	0.90	1.00	1.70	1.75	1.85	2.50	3.15	4	5.00	8.00	10.00	10.00	25.00
	GPD	3	5	6	12	12	12	14	20	22	24	41	42	44	60	76	96	120	192	240	240	600
	LPH	0.5	0.8	0.9	1.9	1.9	1.9	2.3	3.2	3.4	3.8	6.4	6.6	7	9.5	11.9	15.1	18.9	30.3	37.9	37.9	94.6
Pressure (max.)	PSIG	300	250	150	250	150	100	100	250	150	100	250	150	100	150	150	100	100	50	35	80	30
	BAR	21	17	10	17	10	7	7	17	10	7	17	10	7	10	10	7	7	3.3	2.4	5.5	2
Connections	Tubing	1/4" ID X 3/8" OD 3/8" ID X 1/2" OD													3/8" ID X 1/2" OD 1/2" ID X 3/4" OD (LPH8 ONLY)							
	Piping	1/4" FNPT													1/4" FNPT 1/2" FNPT							

Engineering Data

Reproducibility: +/- 2% at maximum capacity

Viscosity Max CPS :

For viscosity up to 3000 CPS, select connection size 3, 4, B or C with 316SS ball material. Flow rate will determine connection/ball size. Greater than 3000 CPS require spring loaded ball checks. See Selection Guide for proper connection.

Stroke Frequency Max SPM: 125

Stroke Frequency Turn-Down Ratio: 10:1

Stroke Length Turn-Down Ratio: 10:1

Power Input: 115 VAC/50-60 HZ/1 ph
230 VAC/50-60 HZ/1 ph

Average Current Draw:

@ 115 VAC; Amps: 1.0 Amps

@ 230 VAC; Amps: 0.5 Amps

Peak Input Power: 300 Watts

Average Input Power @ Max SPM: 130 Watts

PULSAtron Series E Plus Selection Guide

LP_ _ _ _ - _ _ _ - _ _ _

MODELS:	**K2**	= 0.13 gph / 3 gpd (0.5 lph) max pres.: 300 PSI (21 BAR)
	B2	= 0.21 gph / 5 gpd (0.8 lph) max pres.: 250 PSI (17 BAR)
	D3	= 0.50 gph / 12 gpd (1.9 lph) max pres.: 250 PSI (17 BAR)
	F4	= 0.85 gph / 20 gpd (3.2 lph) max pres.: 250 PSI (17 BAR)
	H4	= 1.70 gph / 41 gpd (6.4 lph) max pres.: 250 PSI (17 BAR)
	A2	= 0.25 gph / 6 gpd (0.9 lph) max pres.: 150 PSI (10 BAR)
	B3	= 0.50 gph / 12 gpd (1.9 lph) max pres.: 150 PSI (10 BAR)
	D4	= 0.90 gph / 22 gpd (3.4 lph) max pres.: 150 PSI (10 BAR)
	G4	= 1.75 gph / 42 gpd (6.6 lph) max pres.: 150 PSI (10 BAR)
	K5	= 2.50 gph / 60 gpd (9.5 lph) max pres.: 150 PSI (10 BAR)
	H5	= 3.15 gph / 76 gpd (11.9 lph) max pres.: 150 PSI (10 BAR)
	A3	= 0.50 gph / 12 gpd (1.9 lph) max pres.: 100 PSI (7 BAR)
	K3	= 0.60 gph / 14 gpd (2.3 lph) max pres.: 100 PSI (7 BAR)
	B4	= 1.00 gph / 24 gpd (3.8 lph) max pres.: 100 PSI (7 BAR)
	E4	= 1.85 gph / 44 gpd (7.0 lph) max pres.: 100 PSI (7 BAR)
	G5	= 4.00 gph / 96 gpd (15.1 lph) max pres.: 100 PSI (7 BAR)
	H6	= 5.00 gph / 120 gpd (18.9 lph) max pres.: 100 PSI (7 BAR)
	K7	= 8.00 gph / 192 gpd (30.3 lph) max pres.: 50 PSI (3.3 BAR)
	H7	= 10.0 gph / 240 gpd (37.9 lph) max pres.: 35 PSI (2.4 BAR)
	J7	= 10.0 gph / 240 gpd (37.9 lph) max pres.: 80 PSI (5.5 BAR)
	H8	= 25.0 gph / 600 gpd (94.6 lph) max pres.: 30 PSI (2 BAR)

CONTROLS:	**S**	= Manual On/Off
	M	= 4-20mADC Direct, w/ Stop
	E	= External/Remote Pacing, w/ Stop

ELECTRICAL:	**A**	= 115 Volt / 50-60Hz
	1	= 115 Volt / 50-60Hz (without agency approvals)
	B	= 230 Volt / 50-60Hz / 1ph with 6' (1.8m) 3-wire US Plug
	2	= 230 Volt / 50-60Hz (without agency approvals)

LIQUID END MATERIALS: Pump Head & Fittings/Seats & O-rings/Balls	**PTC**	= GFPPL / TFE / Ceramic
	PTT	= GFPPL / TFE / TFE
	KTC	= PVDF / TFE / Ceramic (not available on H8)
	VHC	= PVC / CSPE / Ceramic (not available on H7, H8, J7, K7)
	VTC	= PVC / TFE / Ceramic (models <= 150 psi excluding H7, H8, J7, K7)
	WTC	= PVC / TFE / Ceramic (models > 150 psi and H7, H8, J7, K7)
	ATS	= 316 S.S. / TFE / 316 S.S. (must use FNPT piping connection) (not available on H8)

See page 6 for additional liquid end materials.

CONNECTION SIZES:	**1**	= Tubing .25" I.D. x .38" O.D. / .25" Ball, 0 - 1.88 GPH
	3	= Tubing .38" I.D. x .50" O.D. / .38" Ball, 1.63 - 10 GPH
	4	= Piping .25" FNPT / .38" Ball, 1.63 - 10 GPH
	B	= Tubing .50" I.D. x .75" O.D. / .50" Ball, 25 GPH only
	METRIC:	
	M	= G 1/2 A Threads, .38" Ball, 6.15 - 37.85 LPH
	R	= G 1/2 A Threads, .25" Ball, 0 - 7.10 LPH
	Y	= 9 x 12mm, .25" Ball, 0 - 7.10 LPH

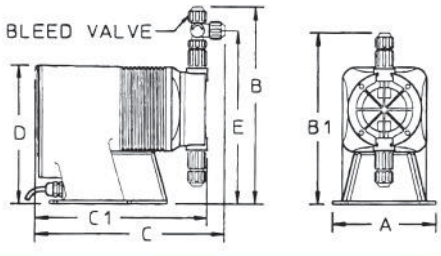
Please Refer to page 7 for additional connection sizes. All pumps with tubing connections come with the following items (except for LMH8, LPH8, HV Series pumps): 4' Suction, 4' Return, 8' dischage tubing, footvalve/strainer assy., injection valve and bleed valve.

SUFFIX CODES:	**XXX**	= No Additional Options
	130	= PVDF Tubing
	500	= Five Function Valve
	520	= Five Function Degas Valve
	ITS	= 15 gal. ITS Tank System (ITS Tank not available on LM, LP, LT, and LE: H4, H5, H6, H7, H8, J7, K7 models)
	CZ_XXX	= CE Approval (CZXXX=Europe; CZUKXXX=UK; CZSUIXXX=Switzerland/Liechtenstein)

See pages 8 & 9 for additional information and specs.

A completed model number should look like 'LPB3SA-PTC1-XXX'

Dimensions



Series E Plus Dimensions (inches)

Model No.	A	B	B1	C	C1	D	E	Shpg Wt	Model No.	A	B	B1	C	C1	D	E	Shpg Wt
LPA2	5.4	10.3	-	10.8	-	7.5	8.9	13	LPH4	6.2	10.9	-	11.2	-	8.2	9.5	21
LPA3	5.4	10.6	-	10.7	-	7.5	9.2	13	LPH5	6.2	11.3	-	11.2	-	8.2	9.9	21
LPB2	5.4	10.3	-	10.8	-	7.5	8.9	13	LPG5	6.2	11.3	-	11.2	-	8.2	9.9	21
LPB3	5.4	10.6	-	10.7	-	7.5	9.2	13	LPH6	6.2	11.3	-	11.9	-	8.2	9.9	21
LPB4	5.4	10.6	-	10.7	-	7.5	9.2	13	LPH7	6.1	11.7	-	11.9	-	8.2	10.3	21
LPD3	5.4	10.6	-	11.2	-	7.5	9.2	15	LPH8*	6.1	-	10.9	-	11.3	8.2	-	26
LPD4	5.4	10.6	-	11.2	-	7.5	9.2	15	LPK2	5.4	10.3	-	10.8	-	7.5	8.9	13
LPE4	5.4	10.6	-	11.2	-	7.5	9.2	15	LPK3	5.4	10.6	-	10.7	-	7.5	9.2	13
LPF4	5.4	10.6	-	11.7	-	7.5	9.2	18	LPK5	5.4	10.9	-	11.7	-	7.5	9.5	18
LPG4	5.4	10.6	-	11.7	-	7.5	9.2	18	LPK7	6.1	11.7	-	11.2	-	8.2	10.3	21
									LPJ7	6.1	10.0	-	10.7	-	-	-	21

NOTE: Inches X 2.54 = cm /* the LPH8 is designed without a bleed valve available

PULSAtron®

Electronic Metering Pumps

Series HV

Key Features

- **Automatic Control,** available with 4-20 mADC direct or external pacing, with stop function.
- **Manual Control** by on-line adjustable stroke rate and stroke length.
- **Agency approved** for demanding **OUTDOOR** and indoor applications.
- **Auto-Off-Manual** switch.
- **Highly Reliable** timing circuit.
- **Circuit Protection** against voltage and current upsets.
- **Panel Mounted Fuse.**
- **Solenoid Protection** by thermal overload with auto reset.
- **Water Resistant,** for outdoor and indoor applications.
- **Indicator Lights,** panel mounted.
- **Guided Ball Check Valve Systems,** to reduce back flow and enhance outstanding priming characteristics.
- **Viscosities to 20,000 CPS**.

Pressure and Flow Rate Capacity

MODEL		LVB3	LVF4	LVG4	LVG5	LVH7
Capacity nominal (max.)	GPH	0.50	1.00	2.00	4.00	10.00
	GPD	12	24	48	96	240
	LPH	1.9	3.8	7.6	15.1	37.9
Pressure (max.)	PSIG	150	150	110	110	80
	BAR	10	10	7	7	5.6
Connections	Tubing	(S) .50" I.D. X .75" O.D. .38" I.D. X .50" OD (LVB3 & F4 only) (S & D) .50" I.D. X .75" O.D. (LVG4,G5 & H7 only)				

Engineering Data

Reproducibility:	+/- 2% at maximum capacity
Viscosity Max CPS:	20,000 CPS
Stroke Frequency Max SPM:	125
Stroke Frequency Turn-Down Ratio:	10:1
Stroke Length Turn-Down Ratio:	10:1
Power Input:	115 VAC/50-60 HZ/1 ph 230 VAC/50-60 HZ/1 ph
Average Current Draw:	
@ 115 VAC; Amps:	1.0 Amps
@ 230 VAC; Amps:	0.5 Amps @ 230 VAC
Peak Input Power:	300 Watts
Average Input Power @ Max SPM:	130 Watts

PULSAtron Series HV Selection Guide

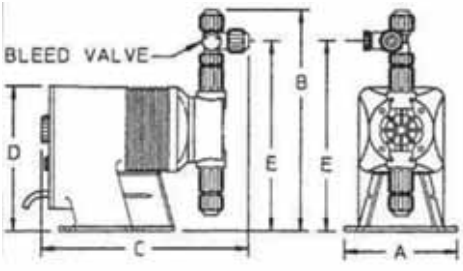
LV _ _ _ _ - _ _ _ - _ _ _

MODELS:	**B3**	= 0.50 gph / 12 gpd (1.9 lph) max pres.: 150 PSI (10 BAR)
	F4	= 1.00 gph / 24 gpd (3.8 lph) max pres.: 150 PSI (10 BAR)
	G4	= 2.00 gph / 48 gpd (7.6 lph) max pres.: 110 PSI (7 BAR)
	G5	= 4.00 gph / 96 gpd (15.1 lph) max pres.: 110 PSI (7 BAR)
	H7	= 10.0 gph / 240 gpd (37.9 lph) max pres.: 80 PSI (5.6 BAR)
CONTROLS:	**S**	= Manual On/Off
	M	= 4-20mADC Direct, w/ Stop
	E	= External/Remote Pacing, w/ Stop
ELECTRICAL:	**A**	= 115 Volt / 50-60Hz
	1	= 115 Volt / 50-60Hz (without agency approvals)
	B	= 230 Volt / 50-60Hz / 1ph with 6' (1.8m) 3-wire US Plug
	2	= 230 Volt / 50-60Hz (without agency approvals)
LIQUID END MATERIALS: Pump Head & Fittings/Seats & O-rings/Balls	**PTT**	= GFPPL / TFE / TFE - LVB3 & F4 only
	PTS	= GFPPL / TFE / 316 SS - LVG4, G5 & H7 only
	WTS	= PVC / TFE / 316 SS - LVH7 only
	VTT	= PVC / TFE / TFE - LVB3 & F4 only
	VTS	= PVC / TFE / 316 SS - LVG5 & G4
		No other liquid end materials available.
CONNECTION SIZES:	**5**	= Tubing (S) .50" I.D. x .75" O.D. / .38" I.D. x .50" O.D. - LVB3 & F4 only
	K	= Tubing .50" I.D. x .75" O.D. - LVG4, G5 & H7 only
No other connection sizes available. Pumps come with 4' suction tubing and 8' discharge tubing. No bleed valve available.		
SUFFIX CODES	**XXX**	= No Additional Options

See pages 8 & 9 for additional information and specs.

A completed model number should look like 'LVB3SA-VTT5-XXX'

Dimensions



Series HV Dimensions (inches)					
Model No.	**A**	**B**	**C**	**D**	**Shipping Weight**
LVB3	5.4	9.3	9.5	7.5	13
LVF4	5.4	10.8	10.8	7.5	18
LVG4	5.4	9.5	10.6	7.5	18
LVG5	5.4	10.8	10.8	7.5	18
LVH7	6.1	11.5	11	8.2	25

NOTE: Inches X 2.54 = cm

PULSAtron®

Electronic Metering Pumps

Series E

Key Features

- **Manual Control** by on-line adjustable stroke rate and stroke length.
- **Agency approved** for demanding **OUTDOOR** and indoor applications.
- **Highly Reliable** timing circuit.
- **Water Resistant** excellent for **OUTDOOR** and indoor applications.
- **Internally Dampened To Reduce Noise,** very acceptable for household installations.
- **Guided Ball Check Valve Systems,** to reduce back flow and enhance outstanding priming characteristics.
- **Premium Standard Wetted Component Materials.**
- **Few Moving Parts** and **Wall Mountable.**
- **Safe & Easy Priming** with durable leak-free **bleed valve assembly** (standard).

Pressure and Flow Rate Capacity

MODEL		LE12	LE02	LE33	LE13	LE03	LE34	LE14	LE44
Capacity nominal (max.)	GPH	0.21	0.25	0.50	0.50	0.50	0.90	1.00	1.85
	GPD	5	6	12	12	12	22	24	44
	LPH	0.8	0.9	1.9	1.9	1.9	3.4	3.8	7
Pressure (max.)	PSIG	250	150	250	150	100	150	100	100
	BAR	17	10	17	10	7	10	7	7
Connections	Tubing	1/4" ID X 3/8" OD 3/8" ID X 1/2" OD							
	Piping	1/4" FNPT							

Engineering Data

Reproducibility:	+/- 3% at maximum capacity
Viscosity Max CPS:	For viscosity up to 3000 CPS, select connection size 3, 4, B or C with 316SS ball material. Flow rate will determine connection/ball size. Greater than 3000 CPS require spring loaded ball checks. See Selection Guide for proper connection.
Stroke Frequency Max SPM:	125
Stroke Frequency Turn-Down Ratio:	10:1
Stroke Length Turn-Down Ratio:	10:1
Power Input:	115 VAC/50-60 HZ/1 ph 230 VAC/50-60 HZ/1 ph
Average Current Draw:	
@ 115VAC; Amps:	1.0 Amps
@ 230 VAC; Amps:	0.5 Amps
Peak Input Power:	300 Watts
Average Input Power @ Max SPM:	130 Watts

PULSAtron Series E Selection Guide

LE_ _ | S | _ - _ _ _ | _ - _ _ _

MODELS:	**12**	= 0.21 gph 5 gpd (0.8 lph) max pres.: 250 PSI (17 BAR)
	33	= 0.50 gph / 12 gpd (1.9 lph) max pres.: 250 PSI (17 BAR)
	02	= 0.25 gph / 6 gpd (0.9 lph) max pres.: 150 PSI (10 BAR)
	13	= 0.50 gph / 12 gpd (1.9 lph) max pres.: 150 PSI (10 BAR)
	34	= 0.90 gph / 22 gpd (3.4 lph) max pres.: 150 PSI (10 BAR)
	03	= 0.50 gph / 12 gpd (1.9 lph) max pres.: 100 PSI (7 BAR)
	14	= 1.00 gph / 24 gpd (3.8 lph) max pres.: 100 PSI (7 BAR)
	44	= 1.85 gph / 44 gpd (7.0 lph) max pres.: 100 PSI (7 BAR)
CONTROLS:	**S**	= No Options Available
ELECTRICAL:	**A**	= 115 Volt / 50-60Hz
	1	= 115 Volt / 50-60Hz (without agency approvals)
	B	= 230 Volt / 50-60Hz / 1ph with 6' (1.8m) 3-wire US Plug
	2	= 230 Volt / 50-60Hz (without agency approvals)
LIQUID END MATERIALS: Pump Head & Fittings/Seats & O-rings/Balls	**PHC**	= GFPPL / CSPE / Ceramic
	PTC	= GFPPL / TFE / Ceramic
	KTC	= PVDF / TFE / Ceramic (not available on J7 or H8)
	VHC	= PVC / CSPE / Ceramic (not available on H7, H8, J7, K7)
	VTC	= PVC / TFE / Ceramic (models <= 150 psi excluding H7, H8, J7, K7)
	WTC	= PVC / TFE / Ceramic (models > 150 psi and H7, H8, J7, K7)
	ATS	= 316 S.S. / TFE / 316 S.S. (must use FNPT piping connection) (not available on J7 or H8)

See page 6 for additional liquid end materials.

CONNECTION SIZES:	**1**	= Tubing .25" I.D. x .38" O.D. / .25" Ball, 0 - 1.88 GPH
	3	= Tubing .38" I.D. x .50" O.D. / .38" Ball, 1.63 - 10 GPH
	METRIC:	
	M	= G 1/2 A Threads, .38" Ball, 6.15 - 37.85 LPH
	P	= 4 x 6mm, .25" Ball, 0 - 3.94 LPH

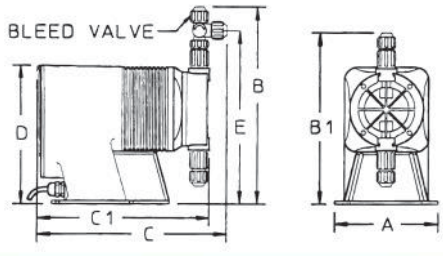
Please Refer to page 7 for additional connection sizes. All pumps with tubing connections come with the following items (except for LMH8, LPH8, HV SAeries pumps): 4' Suction, 4' Return, 8' dischage tubing, footvalve/strainer assy., injection valve and bleed valve.

SUFFIX CODES:	**XXX**	= No Additional Options
	130	= PVDF Tubing
	500	= Five Function Valve
	520	= Five Function Degas Valve
	ITS	= 15 gal. ITS Tank System (ITS Tank not available on LM, LP, LT, and LE: H4, H5, H6, H7, H8, J7, K7 models)
	CZ_XXX	= CE Approval (CZXXX=Europe; CZUKXXX=UK; CZSUIXXX=Switzerland/Liechtenstein)

See pages 8 & 9 for additional information and specs.

A completed model number should look like 'LE33SA-PTC1-XXX'

Dimensions



Series E Dimensions (inches)								
Model No.	A	B	B1	C	C1	D	E	Shpg Wt
LE02	5	9.6	-	9.5	-	6.4	8.2	7
LE03	5	9.8	-	9.5	-	6.4	8.4	7
LE12	5	9.6	-	9.5	-	6.4	8.2	7
LE13	5	9.8	-	9.5	-	6.4	8.4	7
LE14	5	9.8	-	9.5	-	6.4	8.4	7
LE33	5.4	10.6	-	11.2	-	7.5	9.2	12
LE34	5.4	10.6	-	11.2	-	7.5	9.2	12
LE44	5.4	10.6	-	11.2	-	7.5	9.2	12

NOTE: Inches X 2.54 = cm

PULSAtron®

Electronic Metering Pumps

Series E-DC

Key Features

- ***Powered by 12 Volt DC.***.
- ***Manual Control*** by on-line adjustable stroke rate and stroke length.
- ***Agency approved*** for demanding ***OUTDOOR*** and indoor applications.
- ***Highly Reliable*** timing circuit.
- ***Water Resistant*** excellent for ***OUTDOOR*** and indoor applications.
- ***Internally Dampened To Reduce Noise,*** very acceptable for household installations.
- ***Guided Ball Check Valve Systems,*** to reduce back flow and enhance outstanding priming characteristics.
- ***Premium Standard Wetted Component Materials.***
- ***Few Moving Parts*** and ***Wall Mountable.***
- ***Safe & Easy Priming*** with durable leak-free **bleed valve assembly** (standard).

Pressure and Flow Rate Capacity

MODEL		LS02	LS13	LS14	LS44
Capacity nominal (max.)	GPH	0.25	0.50	1.00	1.85
	GPD	6	12	24	44
	LPH	0.9	1.9	3.8	7.0
Pressure (max.)	PSIG	150	150	100	100
	BAR	10	10	7	7
Connections	Tubing	1/4" ID X 3/8" OD 3/8" ID X 1/2" OD			
	Piping	1/4" FNPT			

Engineering Data

Reproducibility:	+/- 3% at maximum capacity
Viscosity Max CPS:	
LS02, 13:	300 CPS
LS14, 44:	1000 CPS
Stroke Frequency Max SPM:	125
Stroke Frequency Turn-Down Ratio:	10:1
Stroke Length Turn-Down Ratio:	10:1
Power Input:	12.6 VDC Nominal Range 11.8-14.0 VDC
Average Current Draw:	
LS02, 13, 14 Amps:	4.0 Amps
LS44 Amps:	8.0 Amps
Peak Input Power:	
LS02, 13, 14 Power:	138.6 Watts
LS44 Power:	189 Watts
Average Input Power @ Max SPM:	
LS02, 13, 14 Power:	50.4 Watts
LS44 Power:	100.8 Watts

PULSAtron Series E-DC Selection Guide

LS_ _ | S | 4 - _ _ _ | _ - _ _ _

MODELS:	**02**	= 0.25 gph / 6 gpd (0.9 lph) max pres.: 150 PSI (10 BAR)
	13	= 0.50 gph / 12 gpd (1.9 lph) max pres.: 150 PSI (10 BAR)
	14	= 1.00 gph / 24 gpd (3.8 lph) max pres.: 100 PSI (7 BAR)
	44	= 1.85 gph / 44 gpd (7.0 lph) max pres.: 100 PSI (7 BAR)
CONTROLS:	**S**	= No Options Available
ELECTRICAL:	**4**	= 12V DC
LIQUID END MATERIALS: Pump Head & Fittings/Seats & O-rings/Balls	**PHC**	= GFPPL / CSPE / Ceramic
	PTC	= GFPPL / TFE / Ceramic
	PVC	= GFPPL / Viton / Ceramic
	VTC	= PVC / TFE / Ceramic

See page 6 for additional liquid end materials.

CONNECTION SIZES:	**1**	= Tubing .25" I.D. x .38" O.D. / .25" Ball, 0 - 1.88 GPH
	J	= Tubing .25" I.D. x .38" O.D./ 19" Ball, 0 - 1.04 GPH
	METRIC:	
	M	= G 1/2 A Threads, .38" Ball, 6.15 - 37.85 LPH
	R	G 1/2 A Threads, .25" Ball, 0 - 7.10 LPH

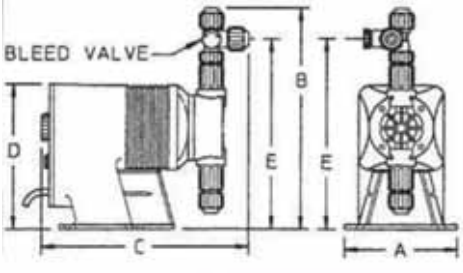
Please Refer to page 7 for additional connection sizes. All pumps with tubing connections come with the following items (except for LMH8, LPH8, HV Series pumps): 4' Suction, 4' Return, 8' dischage tubing, footvalve/strainer assy., injection valve and bleed valve.

SUFFIX CODES:	**XXX**	= No Additional Options
	130	= PVDF Tubing
	500	= Five Function Valve
	520	= Five Function Degas Valve
	ITS	= 15 gal. ITS Tank System
	CZ_XXX	= CE Approval (CZXXX=Europe; CZUKXXX=UK; CZSUIXXX=Switzerland/Liechtenstein)

See pages 8 & 9 for additional information and specs.

A completed model number should look like 'LS02S4-PTC1-XXX'

Dimensions



Series E-DC Dimensions (inches)						
Model No.	**A**	**B**	**C**	**D**	**E**	**Shipping Weight**
LS02	5.0	9.6	9.6	6.5	8.2	10
LS13	5.0	9.9	9.5	6.5	8.5	10
LS14	5.0	9.9	9.5	6.5	8.5	10
LS44	5.0	10.6	11.4	7.5	9.2	15

NOTE: Inches X 2.54 = cm

PULSAtron® *Electronic Metering Pumps*

Series A PLUS

Key Features

- ***Manual Control*** by on-line adjustable stroke rate and stroke length.
- ***Agency approved*** for demanding ***OUTDOOR*** and indoor applications.
- ***Highly Reliable*** timing circuit.
- ***Water Resistant*** excellent for ***OUTDOOR*** and indoor applications.
- ***Internally Dampened To Reduce Noise,*** very acceptable for household installations.
- ***Guided Ball Check Valve Systems,*** to reduce back flow and enhance outstanding priming characteristics.
- ***Premium Standard Wetted Component Materials.***
- ***Few Moving Parts*** and ***Wall Mountable.***
- ***Safe & Easy Priming*** with durable leak-free **bleed valve assembly** (standard).
- ***Optional Control:***

  External pace with auto/manual selection.

  External stop function

  1000:1 turndown control (S2, S3 & S4 sizes only)

Pressure and Flow Rate Capacity

MODEL			LBC2	LB02	LBC3	LB03	LB04	LB64	LBC4	LBS2	LBS3	LBS4
Capacity nominal (max.)		GPH	0.25	0.25	0.42	0.50	1.00	1.25	2.00	0.50	1.38	2.42
		GPD	6	6	10	12	24	30	48	12	33	58
		LPH	0.9	0.9	1.6	1.9	3.8	4.7	7.6	1.9	5.2	9.14
Pressure[1] (max.)	GFPP, PVDF, 316SS or PVC (W code) w/TFE Seats)	PSIG (Bar)	250 (17)	150 (10)	250 (17)	150 (10)	100 (7)	100 (7)	50 (3.3)	250 (17)	150 (10)	100 (7)
	PVC (V code) Viton or CSPE Seats / Degas Liquid End		150 (10)							150 (10)		
Connections		Tubing	1/4" ID X 3/8" OD						3/8" ID X 1/2" OD	1/4" ID X 3/8" OD		
		Piping	1/4" FNPT									
Strokes/Minute		SPM	125							250		

Note 1: Pumps with rated pressure above 150 PSI will be de-rated to 150 PSI Max. when selecting certain valve options, see Price Book for details.

Engineering Data

Reproducibility:	+/- 3% at maximum capacity
Viscosity Max CPS:	1000 CPS
Stroke Frequency Max SPM:	125 / 250 by Model
Stroke Frequency Turn-Down Ratio:	10:1 /100:1 by Model
Stroke Length Turn-Down Ratio:	10:1
Power Input:	115 VAC/50-60 HZ/1 ph 230 VAC/50-60 HZ/1 ph
Average Current Draw:	
@ 115 VAC; Amps:	0.6 Amps
@ 230 VAC; Amps:	0.3 Amps
Peak Input Power:	130 Watts
Average Input Power @ Max SPM:	50 Watts

Pulsatron Series A Plus Selection Guide

LB _ _ _ _ - _ _ _ - _ _ _

Models

Product Code	Flow Rate			Pressure Rating[1]		Stroke Rate	Standard Valve	Max. Viscosity
	GPD	GPH	LPH	PSI	BAR	(SPM)	Size	(cps)
S2	12	0.50	1.9	250	17	250	J (TFE Only)	1,000
S3	33	1.38	5.2	150	10			
S4	58	2.42	9.1	100	7		1	
C2	6	0.25	0.9	250	17	125	J (TFE only)	
C3	10	0.42	1.6					
02	6	0.25	0.9	150	10			
03	12	0.50	1.9					
04	24	1.00	3.8	100	7			
64	30	1.25	4.7				1	
C4	48	2.00	7.6	50	3.3		3	

Controls

S	Manual Control	100:1 Turndown	10:1 Stroke Length 10:1 Frequency
E	External Pace w/ Auto/Manual Switch		
P	Stop Function Option		
Q	External Pace w/ Stop (125 SPM only)		
X	Manual Control (S2, S3 & S4 sizes only)	1000:1 Turndown	10:1 Stroke Length 100:1 Frequency

Electrical

A	115 VAC, 60Hz
B	230 VAC, 50-60Hz, 1 Ph, 6' (2m) cord with 3 prong US plug
1	115 VAC, 60Hz less Agency Approvals
2	230 VAC, 50-60Hz, 1 Ph, 6' (2m) cord, no plug, less Agency

Liquid End Configuration - Head & Valves / Seats & O-Rings / Check Balls

PHC	GFPPL / CSPE / Ceramic (150 PSI Max)[1]
PTC	GFPPL / TFE / Ceramic
VTC	PVC / TFE / Ceramic (150 PSI Max)[1]
WTC	PVC / TFE / Ceramic (models > 150 PSI Max); For use on S2, C2, C3
KTC	PVDF / TFE / Ceramic
VVC	PVC / Viton / Ceramic (Not available with J Valve) (150 PSI Max)[1]
VHC	PVC / CSPE / Ceramic (Not available with J Valve) (150 PSI Max)[1]
Other	See Page 6 for additional materials of construction

Connection Sizes

J	Tubing .25" I.D. x .38" O.D. Standard for pumps from 0 - 33 GPD
1	Tubing .25" I.D. x .38" O.D. Standard for pumps from 20 - 45 GPD
3	Tubing .38" I.D. x .50" O.D. Standard for pumps from 45 - 240 GPD
9	Degas Head: Vent Tubing .25" I.D. x .38" O.D. (0-150 PSI pumps only)
Metric	
R	G 1/2 A Threads, .25" Ball, 0-7.1 LPH
Y	Tubing 9 x 12mm, .25" Ball, 0-7.1 LPH
Other	See Page 7 for additional connection options

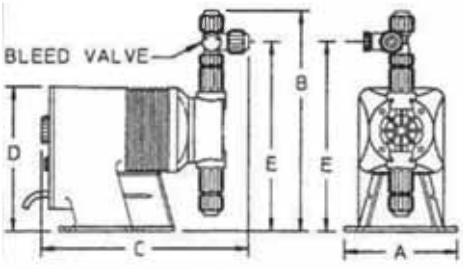
Options

XXX	StandardPump - No Options
130	PVDF Tubing
500	Five Function Valve
520	Five Function Degassing Valve
ITS	15 gal. ITS Tank System
CZ_XXX	CE Approval (CZXXX=Europe; CZUKXXX=UK; CZSUIXXX=Switzerland/Liechtenstein)

A completed model number should look like 'LB03SA-PTCJ-XXX'

Note 1:Pumps with rated pressure above 150 PSI will be de-rated to 150 PSI Max. when selecting these valve options.

Dimensions



Series A PLUS Dimensions (inches)						
Model No.	A	B	C	D	E	Shipping Weight
LB02 / S2	5.0	9.6	9.5	6.5	8.2	10
LBC2	5.0	9.9	9.5	6.5	8.5	10
LBC3	5.0	9.9	9.5	6.5	8.5	10
LB03 / S3	5.0	9.9	9.5	6.5	8.5	10
LB04 /S4	5.0	9.9	9.5	6.5	8.5	10
LB64	5.0	9.9	9.5	6.5	8.5	10
LBC4	5.0	9.9	9.5	6.5	8.5	10

NOTE: Inches X 2.54 = cm

PULSAtron® Electronic Metering Pumps with Integrated Controller

Series T7

Feed Control with 7 Day Timer

The Series T7 was designed to feed chemical products on a timed schedule. Typical applications include the feed of biocides in open-air cooling towers. The feed cycle is initiated and controlled by the programmable timer. The Series T7 provides everything you need in one unique, compact package to create a simple and cost effective metering system for timed applications.

Principal of Operation

The Series T7 is controlled by a 7-day programmable timer. The timer is programmable in 1-minute increments with up to 8 on/off cycles per day. Each timed event can be set to run any day of the week on a 7-day cycle.

Other control features include a standby mode, continuous 'ON' mode and the ability to adjust the stroke length from 0 – 100%.

Features

- Isolated from Earth Ground
- Mode Select Knob, Stroke Length
- 12, 22, 30 & 44 GPD @ 100 psi – 7 bar
- Stroke length adjust 0-100%. Turn down ratio 10:1

Pressure and Flow Rate Capacity

MODEL		LC13BA	LC14BA	LC64BA	LC44BA
Capacity	GPH	0.50	1.00	1.25	2.00
nominal	GPD	12	24	30	48
(max.)	LPH	1.9	3.8	4.7	7.6
Pressure	PSIG	100	100	100	50
(max.)	BAR	7	7	7	3.3

Engineering Data

Reproducibility:	+/- 3% at maximum capacity
Stroke Length Turn-Down Ratio:	10:1
Power Input:	115 VAC/50-60 HZ/1 ph
	230 VAC/50-60 HZ/1 ph
Average Current Draw:	
@ 115 VAC; Amps:	0.6 Amps
@ 230 VAC; Amps:	0.3 Amps @ 230 VAC

7-Day Timer

Solid-state 7-day electronic timer for easy adjustment of metering schedules and feed rates. Manual control allows for easy priming and start-up. The timer is programmable in 1 minute increments, with up to 8 events per day.

PULSAtron Series T7 Selection Guide

LC_ _ | B | _ - _ _ _ | _ - _ _ _

MODELS:	**13**	= 0.50 gph / 12 gpd (1.9 lph) max pres.: 100 PSI (7 BAR)
	14	= 1.00 gph / 24 gpd (3.8 lph) max pres.: 100 PSI (7 BAR)
	64	= 1.25 gph / 30 gpd (4.7 lph) max pres.: 100 PSI (7 BAR)
	44	= 2.00 gph / 48 gpd (7.6 lph) max pres.: 50 PSI (3.3 BAR)
CONTROLS:	**B**	= No Options Available
ELECTRICAL:	**A**	= 115 Volt / 50-60Hz
	1	= 115 Volt / 50-60Hz (without agency approvals)
	B	= 230 Volt / 50-60Hz / 1ph with 6' (1.8m) 3-wire US Plug
	2	= 230 Volt / 50-60Hz (without agency approvals)
LIQUID END MATERIALS: Pump Head & Fittings/Seats & O-rings/Balls	**PHC**	= GFPPL / CSPE / Ceramic
	PTC	= GFPPL / TFE / Ceramic
	KTC	= PVDF / TFE / Ceramic
	VHC	= PVC / CSPE / Ceramic
	VTC	= PVC / TFE / Ceramic

See page 6 for additional liquid end materials.

CONNECTION SIZES:	**1**	= Tubing .25" I.D. x .38" O.D. / .25" Ball, 0 - 1.88 GPH
	9	= Degas Head: .25" I.D. x .38" O.D. / 0-1.83 GPH
	J	= Tubing, .25" I.D. x .38" O.D. / .19 Ball; 0 - 1.04 GPH
	METRIC:	
	Y	= 9 x 12mm, .25"" Ball, 0 - 7.10 LPH
	T	= 6 x 8mm, Degassing (Note: has 8 mm suction), 0 - 7.10 LPH

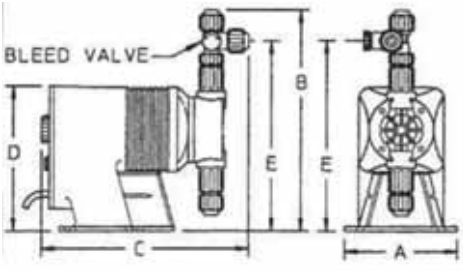
Please Refer to page 7 for additional connection sizes. All pumps with tubing connections come with the following items (except for LMH8, LPH8, HV Series pumps): 4' Suction, 4' Return, 8' dischage tubing, footvalve/strainer assy., injection valve and bleed valve.

SUFFIX CODES:	**XXX**	= No Additional Options
	130	= PVDF Tubing
	500	= Five Function Valve
	520	= Five Function Degas Valve
	ITS	= 15 gal. ITS Tank System

See pages 8 & 9 for additional information and specs.

A completed model number should look like 'LC13BA-PTC1-XXX'

Dimensions



Series T7 Dimensions (inches						
Model No.	**A**	**B**	**C**	**D**	**E**	**Shipping Weight**
LC13BA	5.0	9.6	9.5	6.5	8.2	10
LC14BA	5.0	9.9	9.5	6.5	8.5	10
LC64BA	5.0	9.9	9.5	6.5	8.5	10
LC44BA	5.4	10.6	11.3	7.4	9.2	11.8

NOTE: Inches X 2.54 = cm

PULSAtron®

Electronic Metering Pumps

Series C PLUS

Key Features

- ***Manual Control*** by on-line adjustable stroke rate and stroke length.
- ***Agency approved*** for demanding ***OUTDOOR*** and indoor applications.
- ***Highly Reliable*** timing circuit.
- ***Water Resistant*** excellent for ***OUTDOOR*** and indoor applications.
- ***Internally Dampened To Reduce Noise,*** very acceptable for household installations.
- ***Guided Ball Check Valve Systems,*** to reduce back flow and enhance outstanding priming characteristics.
- ***Premium Standard Wetted Component Materials.***
- ***Few Moving Parts*** and ***Wall Mountable.***
- ***Safe & Easy Priming*** with durable leak-free **bleed valve assembly** (standard).
- ***Optional Control:*** External pace with auto/manual selection.

Pressure and Flow Rate Capacity

MODEL		LD02	LD03	LD04	LD54
Capacity	GPH	0.25	0.50	1.00	1.25
nominal	GPD	6	12	24	30
(max.)	LPH	0.9	1.9	3.8	4.7
Pressure	PSIG	80	80	80	80
(max.)	BAR	5.6	5.6	5.6	5.6
Connections	Tubing	1/4" ID X 3/8" OD 3/8" ID X 1/2" OD			
	Piping	1/4" FNPT			

Engineering Data

Reproducibility:	+/- 3% at maximum capacity
Viscosity Max CPS:	1000 CPS
Stroke Frequency Max SPM:	125
Stroke Frequency Turn-Down Ratio:	10:1
Stroke Length Turn-Down Ratio:	10:1
Power Input:	115 VAC/50-60 HZ/1 ph 230 VAC/50-60 HZ/1 ph
Average Current Draw:	
@ 115 VAC; Amps:	0.6 Amps
@ 230 VAC; Amps:	0.3 Amps @ 230 VAC
Peak Input Power:	130 Watts
Average Input Power @ Max SPM:1	50 Watts

PULSAtron Series C Plus Selection Guide

LD_ _ _ _ - _ _ _ - _ _ _

MODELS:	**02**	= 0.25 gph / 6 gpd (0.9 lph) max pres.: 80 PSI (5.6 BAR)
	03	= 0.50 gph / 12 gpd (1.9 lph) max pres.: 80 PSI (5.6 BAR)
	04	= 1.00 gph / 24 gpd (3.8 lph) max pres.: 80 PSI (5.6 BAR)
	54	= 1.25 gph / 30 gpd (4.7 lph) max pres.: 80 PSI (5.6 BAR)
CONTROLS:	**S**	= Manual
	E	= External Pacing w/ Auto/Manual Switch
	G	= External Pacing w/ Prime Button
	P	= Stop Function Option
ELECTRICAL:	**A**	= 115 Volt / 50-60Hz
	1	= 115 Volt / 50-60Hz (without agency approvals)
	B	= 230 Volt / 50-60Hz / 1ph with 6' (1.8m) 3-wire US Plug
	2	= 230 Volt / 50-60Hz (without agency approvals)
LIQUID END MATERIALS: Pump Head & Fittings/Seats & O-rings/Balls	**PHC**	= GFPPL / CSPE / Ceramic
	PTC	= GFPPL / TFE / Ceramic
	KTC	= PVDF / TFE / Ceramic
	VHC	= PVC / CSPE / Ceramic
	VTC	= PVC / TFE / Ceramic

See page 6 for additional liquid end materials.

CONNECTION SIZES:	**1**	= Tubing .25" I.D. x .38" O.D. / .25" Ball, 0 - 1.88 GPH
	A	= Tubing .38" I.D. x .50" O.D. / .25" Ball, 0 - 1.88 GPH
	J	= Tubing, .25" I.D. x .38" O.D./ .19 Ball; 0 - 1.04 GPH
	METRIC:	
	R	= G 1/2 A Threads, .25" Ball, 0 - 7.10 LPH
	Y	= 9 x 12mm, .25" Ball, 0 - 7.10 LPH

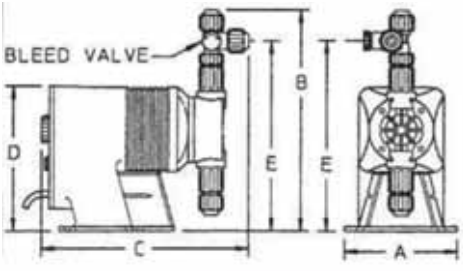
Please Refer to page 7 for additional connection sizes. **All pumps with tubing connections come with the following items (except for LMH8, LPH8, HV Series pumps): 4' Suction, 4' Return, 8' dischage tubing, footvalve/strainer assy., injection valve and bleed valve.**

SUFFIX CODES:	**XXX**	= No Additional Options
	130	= PVDF Tubing
	500	= Five Function Valve
	520	= Five Function Degas Valve
	ITS	= 15 gal. ITS Tank System
	CZ_XXX	= CE Approval (CZXXX=Europe; CZUKXXX=UK; CZSUIXXX=Switzerland/Liechtenstein)

See pages 8 & 9 for additional information and specs.

A completed model number should look like 'LD03SA-PTC1-XXX'

Dimensions



Series C PLUS Dimensions (inches)						
Model No.	**A**	**B**	**C**	**D**	**E**	**Shipping Weight**
LD02	5.0	9.6	9.5	6.5	8.2	10
LD03	5.0	9.9	9.5	6.5	8.5	10
LD04	5.0	9.9	9.5	6.5	8.5	10
LD54	5.0	9.9	9.5	6.5	8.5	10

NOTE: Inches X 2.54 = cm

PULSAtron®

Electronic Metering Pumps

Series C

Key Features

- ***Automatic Control*** by external pacing with prime switch (optional).
- ***Manual Control*** by on-line adjustable stroke length (fixed stroke rate).
- ***Liquid Low Level Option*** available to prevent loss of prime.
- ***Agency approved*** for demanding ***OUTDOOR*** and indoor applications.
- ***Highly Reliable*** timing circuit.
- ***Water Resistant*** excellent for ***OUTDOOR*** and indoor applications.
- ***Internally Dampened To Reduce Noise,*** very acceptable for household installations.
- ***Guided Ball Check Valve Systems,*** to reduce back flow and enhance outstanding priming characteristics.
- ***Premium Standard Wetted Component Materials.***
- ***Few Moving Parts*** and ***Wall Mountable.***
- ***Safe & Easy Priming*** with durable leak-free **bleed valve assembly** (standard).

Degas Head Option

Pressure and Flow Rate Capacity

MODEL		LC02	LC03	LC04	LC54
Capacity nominal (max.)	GPH	0.25	0.50	1.00	1.25
	GPD	6	12	24	30
	LPH	0.9	1.9	3.8	4.7
Pressure (max.)	PSIG	80	80	80	80
	BAR	5.6	5.6	5.6	5.6
Connections	Tubing	1/4" ID X 3/8" OD 3/8" ID X 1/2" OD			
	Piping	1/4" FNPT			

Engineering Data

Reproducibility:	+/- 3% at maximum capacity
Viscosity Max CPS:	1000 CPS
Stroke Frequency Max SPM:	125
Stroke Length Turn-Down Ratio:	10:1
Power Input:	115 VAC/50-60 HZ/1 ph 230 VAC/50-60 HZ/1 ph
Average Current Draw:	
@ 115 VAC; Amps:	0.6 Amps
@ 230 VAC; Amps:	0.3 Amps @ 230 VAC
Peak Input Power:	130 Watts
Average Input Power @ Max SPM:	50 Watts

PULSAtron Series C Selection Guide

LC_ _ _ _ - _ _ _ - _ _ _

MODELS:	**02**	= 0.25 gph / 6 gpd (0.9 lph) max pres.: 80 PSI (5.6 BAR)
	03	= 0.50 gph / 12 gpd (1.9 lph) max pres.: 80 PSI (5.6 BAR)
	04	= 1.00 gph / 24 gpd (3.8 lph) max pres.: 80 PSI (5.6 BAR)
	54	= 1.25 gph / 30 gpd (4.7 lph) max pres.: 80 PSI (5.6 BAR)
CONTROLS:	**S**	= Manual
	E	= External Pacing w/ Auto/Manual Switch
	G	= External Pacing w/ Prime Button
	P	= Stop Function Option
ELECTRICAL:	**A**	= 115 Volt / 50-60Hz
	1	= 115 Volt / 50-60Hz (without agency approvals)
	B	= 230 Volt / 50-60Hz / 1ph with 6' (1.8m) 3-wire US Plug
	2	= 230 Volt / 50-60Hz (without agency approvals)
LIQUID END MATERIALS: Pump Head & Fittings/Seats & O-rings/Balls	**PHC**	= GFPPL / CSPE / Ceramic
	PTC	= GFPPL / TFE / Ceramic
	VHC	= PVC / CSPE / Ceramic
	VTC	= PVC / TFE / Ceramic
	VVC	= PVC / Viton / Ceramic

See page 6 for additional liquid end materials.

CONNECTION SIZES:	**1**	= Tubing .25" I.D. x .38" O.D. / .25" Ball, 0 - 1.88 GPH
	A	= Tubing .38" I.D. x .50" O.D. / .25" Ball, 0 - 1.88 GPH
	J	= Tubing, .25" I.D. x .38" O.D./ .19 Ball; 0 - 1.04 GPH
	METRIC:	
	P	= 4 x 6mm, .25" Ball, 0 - 3.94 LPH
	U	= 6 x 8mm, .25" Ball, 0 - 7.10 LPH

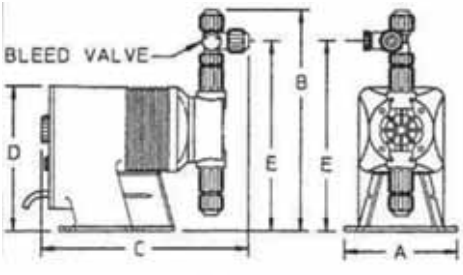
Please Refer to page 7 for additional connection sizes. All pumps with tubing connections come with the following items (except for LMH8, LPH8, HV series pumps): 4' Suction, 4' Return, 8' dischage tubing, footvalve/strainer assy., injection valve and bleed valve.

SUFFIX CODES:	**XXX**	= No Additional Options
	130	= PVDF Tubing
	500	= Five Function Valve
	520	= Five Function Degas Valve
	ITS	= 15 gal. ITS Tank System
	CZ_XXX	= CE Approval (CZXXX=Europe; CZUKXXX=UK; CZSUIXXX=Switzerland/Liechtenstein)

See pages 8 & 9 for additional information and specs.

A completed model number should look like 'LC03SA-PTC1-XXX'

Dimensions



Series C Dimensions (inches)						
Model No.	**A**	**B**	**C**	**D**	**E**	**Shipping Weight**
LC02	5.0	9.6	9.5	6.5	8.2	10
LC03	5.0	9.9	9.5	6.5	8.5	10
LC04	5.0	9.9	9.5	6.5	8.5	10
LC54	5.0	9.9	9.5	6.5	8.5	10

NOTE: Inches X 2.54 = cm

PULSAtron® *KOPkits*

Selecting a KOPkit:

All KOPkit model strings begin with the letter K. The remainder of the string can be determined by knowing your pump model.

When you select your KOPkit, you will need to build the model number based on the pump model string that you purchased. The two pieces of information you need are the head size and the wet-end code, which is part of the model string of the pump.

The pump head size is the fourth digit in the pump model number.

LB0**2**SA-PTC1-XXX

The 2 represents your pump head size.

Digits 7-20 in the pump model string represent the wet-end code. It is the group of four digits set apart by the dash lines.

LB02SA-**PTC1**-XXX

These four digits represent your wet-end code.

In the following selection guide, you will break down your wet-end code into the four parts to get your total price for the KOPkit. The four digits in the wet-end code represent the Head Material, Seats & O-Rings, Ball Material and Connection Type. Using the above example, the code breaks down as follows:

P - Head Material, including fittings. In this example, the P represents GFPPL.
T - Seat & O-Ring Material. In this example, the T represents Teflon.
C - Types of Balls used in the valves. In this example, the C represents Ceramic.
1 - Connection type. In this example, the 1 represents tubing connections for 3/8" OD tubing.

The completed KOPkit number for the above example is:

K2PTC1

Note: If you do not find your connection size in the following selection guide, please consult the factory for accurate pricing. Our philosophy with the PULSAtron product line is to make it as flexible as our customers need it to be.

PULSAtron KOPkit Selection Guide

K_ _ _ _ _

HEAD SIZE The digits 2-8 following the K represents the pump head size. This is represented by the fourth digit in the pump model string.	**2** = **3** = **4** = **5** = **6** = **7** = **8** = (Applies to WTCB only-for other options Consult factory)
HEAD MATERIALS	**A** = 316 Stainless Steel **K** = PVDF (Kynar) **P** = GFPPL (Polypropylene) **V** = PVC (Poly Vinyl Chloride) (models <= 150 psi excluding H7, H8, K7) **W** = PVC (models > 150 psi and H7, H8, K7)
SEATS/O-RINGS	**H** = CSPE **V** = Viton **T** = TFE
BALLS	**T** = TFE **C** = Ceramic **S** = 316 Stainless Steel **H** = Alloy C (Hastelloy)

CONNECTION TYPE

	Type	Suction	Discharge	Spring	
1 =	Tubing	.25" x .38"	.25" x .38"		
2 =	Piping	.25" FNPT	.25" FNPT		
3 =	Tubing	.38" x .50"	.38" x .50"		
4 =	Piping	.25" FNPT	.25" FNPT		
5 =	Tubing	.50" x .75"	.38" x .50"	Yes	
6 =	Piping	.25" FNPT	.25" FNPT	Yes	
7 =	Tubing	.50" x .75"	.50" FNPT	Yes	
8 =	Piping	.50" FNPT	.50" FNPT	Yes	
9 =	Tubing	25" x .38"	.25" x .38"	Yes	Degas
A =	Tubing	.38" x .50"	.38" x .50"		
B =	Tubing	.50" x .75"	.50" x .75"		
C =	Piping	.50" FNPT	.50" FNPT		
D =	Tubing	.25" x .38"	.25" x .38"	Yes	
E =	Tubing	.38" x .50"	.38" x .50"	Yes	
F =	Tubing	.38" x .50"	.38" x .50"	Yes	
G =	Piping	.25" FNPT	.25" FNPT	Yes	
I =	Piping	.50" MNPT	.50" MNPT	Yes	
J =	Tubing	25" x .38"	.25" x .38"		
K =	Tubing	.50" x .75"	.50" x .75"	Yes	
L =	Piping	.50" MNPT	.50" MNPT		
M =	Piping	G 1/2 A	G 1/2 A		
P =	Tubing	4 x 6 mm	4 x 6 mm		
R =	Piping	G 1/2 A	G 1/2 A		
S =	Tubing	6 x 8 mm	6 x 8 mm		
T =	Tubing	6 x 8 mm	6 x 8 mm		Degas
U =	Tubing	6 x 8 mm	6 x 8 mm		
V =	Tubing	12 x 19 mm	12 x 19 mm		
W =	Tubing	8 x 12 mm	8 x 12 mm		
Y =	Tubing	9 x 12 mm	9 x 12 mm		
X =	Piping	.50" MNPT	.50" MNPT		

PULSAtron®

Suction/Discharge Valves

Suction/Discharge Valve Selection Guide

L3___ _ _ _ - ___

VALVE TYPE:	**101**	= Suction Valve
	201	= Discharge Valve
SEATS:	**H**	= CSPE
	V	= Viton
	T	= TFE
BALLS:	**T**	= TFE
	C	= Ceramic
	S	= 316 Stainless Steel
	H	= Alloy C (Hastelloy)
CONNECTION TYPE:	**1**	= Double Balls when TFE seats selected
	2	= Double Balls when TFE seats selected
	3	= Double Balls when TFE seats selected
	4	= Double Balls when TFE seats selected
	5*	= Available for Discharge Only (L3201)
	6	=
	7*	= Available for Suction Only (L3101)
	8	=
	A	=
	B*	=
	C	=
	D	= Spring Loaded with SS Balls
	E	= Spring Loaded with SS Balls
	F	= Spring Loaded with SS Balls
	G	= Spring Loaded with SS Balls
	I	=
	J	=
	K*	=
	L	=
	M	=
	P	=
	R	=
	S	=
	U	=
	V*	=
	W	=
	Y	=
	X	=
MATERIALS OF CONSTRUCTION:	**FPP**	= Glass Filled Polypropylene
	PVC	= Poly Vinyl Chloride
	PVD	= Kynar(not available w/ "B" connection type)
	316	= 316 Stainless Steel

* Available with Ceramic Balls and PVC Body Only - Consult factory for pricing on other options

LIQUID END COMPONENTS

Item No.	Part Number	Description	
1	L0200200-316	HEAD, PUMP	.750
1	L0200900-FPP	HEAD, PUMP HSA #2 HEAD J	.750
1	L0200900-PVC	HEAD, PUMP HSA #2 HEAD J	.750
1	L0200300-FPP	HEAD, PUMP	1.000
1	L0202500-HPV	HEAD, PUMP	1.000
1	L0200300-PVD	HEAD, PUMP	1.000
1	L0200300-PVC	HEAD, PUMP	1.000
1	L0201000-FPP	HEAD, PUMP HSA #3 HEAD J	1.000
1	L0201000-PVC	HEAD, PUMP HSA #3 HEAD J	1.000
1	L0200400-FPP	HEAD, PUMP	1.250
1	L0200400-PVC	HEAD, PUMP	1.250
1	L0200400-PVD	HEAD, PUMP	1.250
1	L0200500-SST	HEAD, PUMP	1.625
1	L0200500-FPP	HEAD, PUMP	1.625
1	L0200500-PVC	HEAD, PUMP	1.625
1	L0200500-PVD	HEAD, PUMP	1.625
1	L0200600-SST	HEAD, PUMP	2.000
1	L0200600-FPP	HEAD, PUMP	2.000
1	L0200600-PVC	HEAD, PUMP	2.000
1	L0200600-PVD	HEAD, PUMP	2.000
1	L0200700-316	HEAD, PUMP	2.500
1	L0200700-FPP	HEAD, PUMP	2.500
1	L0200700-HPV	HEAD, PUMP	2.500
1	L0200700-PVD	HEAD, PUMP	2.500
1	L0200800-PPL	HEAD, PUMP	3.625
1	L0200800-HPV	HEAD, PUMP	3.625
2	L0300900-THY	DIAPHRAGM	.750
2	L0301000-THY	DIAPHRAGM	1.000
2	L0301100-THY	DIAPHRAGM	1.250
2	L0301200-THY	DIAPHRAGM	1.625
2	L0301300-THY	DIAPHRAGM	2.000
2	L0301400-THY	DIAPHRAGM	2.500
2	L0301600-THY	DIAPHRAGM	3.625
18	L1501300-HYP	SUC/DIS VLV O-RING, CSPE	
18	L1501300-TFE	SUC/DIS VLV O-RING, TFE	
18	L1501300-VTN	SUC/DIS VLV O-RING, VTN	
24	L1103400-PVC	COUPLING NUT 5/16" OD	
24	L1100300-FPP	COUPLING NUT 3/8" OD	
24	L1100300-PVC	COUPLING NUT 3/8" OD	
24	L1100300-PVD	COUPLING NUT 3/8" OD	
24	L1100400-FPP	COUPLING NUT 1/2" OD	
24	L1100400-PVC	COUPLING NUT 1/2" OD	
24	L1100400-PVD	COUPLING NUT 1/2" OD	
25	L9906700-000	WEIGHT, CERAMIC TUBE	
36	L1501200-TFE	BLEED VLV O-RING, TFE	
60	L1500700-NTR	SECONDARY SEAL, O-RING 2-109	

DRIVE END COMPONENTS

Item No.	Part Number	Description	
3	L2100200-FPP	DEFLECTION PLATE	.750
3	L2100300-FPP	DEFLECTION PLATE	1.000
3	L2100400-FPP	DEFLECTION PLATE	1.250
3	L2100500-FPP	DEFLECTION PLATE	1.625
3	L2100600-FPP	DEFLECTION PLATE	2.000
3	L2100700-FPP	DEFLECTION PLATE	2.500
4	L0400200-FPP	ADAPTER, .750	HSG #2
4	L0400300-FPP	ADAPTER, 1.000	HSG #2
4	L0400400-FPP	ADAPTER, 1.250	HSG #2
4	L0400500-FPP	ADAPTER, 1.625	HSG #2
4	L0400600-FPP	ADAPTER, 1.250	HSG #3
4	L0400700-FPP	ADAPTER, 1.625	HSG #3
4	L0400800-FPP	ADAPTER, 2.000	HSG #3
4	L0400900-FPP	ADAPTER, 2.500	HSG #3
4	L0401100-FPP	ADAPTER, .750	HSG #1
4	L0401200-FPP	ADAPTER, 1.000	HSG #1
4	L0401300-FPP	ADAPTER, 1.250	HSG #1
4	L0401400-PPL	ADAPTER, 3.625	HSG #3
5	L9901200-BRS	SHIM, DIAPHRAGM	
6	L1500400-NTR	EPM/ADAPTER O-RING	
6	L1500600-NTR	EPM/ADAPTER O-RING (ALL H PUMPS)	
7	L9801700-188	#10-32 X 2.62 PAN HEAD, PHILLIPS	LP_2-4
7	L9801800-188	.25-20 X 2.62 PAN HEAD, PHILLIPS	LP_5-7
7	L9803400-188	.25-20 X 2.00 PAN HEAD	LP_8
7	L9803300-188	#10-32 X 2.00 PAN HEAD	316SS
8	L9801300-188	#10 REG FLAT WASHER	LP_2-4
8	L9801400-188	.25 REG FLAT WASHER	LP_5-8

DRIVE END COMPONENTS

Item No.	Part Number	Description	
50	L0100100-115	EPM A, B, K2, 3	115V
50	L0100300-115	EPM F, G, K5	115V
51	L0500100-080	HOUSING #3	.080 STRK
51	L0501100-040	HOUSING #2	.040 STRK
51	L0501100-080	HOUSING #2	.080 STRK
51	L0500300-040	HOUSING #1	.040 STRK
51	L0500300-080	HOUSING #1	.080 STRK
52	L0700101-125	CNTRL BD, A-B-D-E SIZE SLD	115V
52	L0700102-125	CNTRL BD, A-B-D-E SIZE SLD	230V
52	L0700201-125	CNTRL BD, EXT/STOP; A, B, D, E	115V
52	L0700202-125	CNTRL BD, EXT/STOP; A, B, D, E	230V
52	L0700401-125	CNTRL BD, 4-20MA/STOP; A, B, D, E	115V
52	L0700402-125	CNTRL BD, 4-20MA/STOP; A, B, D, E	230V
52	L0700501-150	CNTRL BD, F-G SIZE SLD	115V
52	L0700502-150	CNTRL BD, F-G SIZE SLD	230V
52	L0700501-200	CNTRL BD, H-K SIZE SLD	115V
52	L0700502-200	CNTRL BD, H-K SIZE SLD	230V
52	L0709401-220	CNTRL BD, LEH8	115V
52	L0709402-220	CNTRL BD, LEH8	230V
52	L0709101-220	CNTRL BD, LVH7, LP/LVH8	115V
52	L0709102-220	CNTRL BD, LVH7, LP/LVH8	230V
52	L0700801-150	CNTRL BD, EXT/STOP; F, G	115V
52	L0700802-150	CNTRL BD, EXT/STOP; F, G	230V
52	L0700801-200	CNTRL BD EXT/STOP H SIZE SLD	115V
52	L0700802-200	CNTRL BD EXT/STOP H SIZE SLD	230V
52	L0709301-220	CNTRL BD EXT/STOP LVH7, LP/LVH8	115V
52	L0709302-220	CNTRL BD EXT/STOP LVH7, LP/LVH8	230V
52	L0700901-150	CNTRL BD, 4-20 MA/STOP; F, G	115V
52	L0700902-150	CNTRL BD, 4-20 MA/STOP; F, G	230V
52	L0700901-200	CNTRL BD, 4-20 MA/STOP; H	115V
52	L0700902-200	CNTRL BD, 4-20MA/STOP; H	230V
52	L0709201-220	CNTRL BD, 4-20MA/STP, LVH7, LP/LVH8	
52	L0709202-220	CNTRL BD, 4-20MA/STP, LVH7, LP/LVH8	
52	L0701900-150	CNTRL BD, E - DC	
52	L9906500-000	CNTRL BD, 0, 5 SIZE SING FUNC	115V
52	L9906600-000	CNTRL BD, 0, 5 SIZE SING FUNC	230V
52	L9906201-000	CNTRL BD, C+, A+	115V
52	L9906202-000	CNTRL BD, C+, A+	230V
52	L0702801-190	CNTRL BD, LM H, K7 Signal Relay	115V
52	L0705006-120	CNTRL BD, EXT, C+, A+	230V
52	L0705110-120	CNTRL BD, EXT, C (LC54)	230V
53	L0601600-000	CNTRL PNL (ALL H & K7 PUMPS)	
54	L1600400-000	DUST COVER, CONT PNL	HSG #3
54	L1600500-000	DUST COVER, CONT PNL	HSG #2
55	L2000100-040	SHAFT, ADJ FEMALE .040	HSG #2,3
55	L2000100-080	SHAFT, ADJ FEMALE .080	HSG #2,3
55	L2000200-040	SHAFT, ADJ FEMALE .040	HSG #1
55	L2000200-080	SHAFT, ADJ FEMALE .080	HSG #1
56	L2000300-PBT	SHAFT, ADJ MALE	HSG #2,3
56	L2000400-PBT	SHAFT, ADJ MALE	HSG #1
59	L1500100-EPB	O-RING, HSG #1/CONT PNL	
59	L1500300-NTR	O-RING, HSG #2/CONT PNL	
59	L1500500-NTR	O-RING, HSG #3/CONT PNL	
61	L9900600-000	CONNECTOR, LIQUID TIGHT	
61	L9900700-000	CONNECTOR, STRAIN RELIEF	
62	L9700300-000	CORD, POWER, SERIES C, E	125V
62	L9700400-000	CORD, POWER, SERIES C, E	230V
62	L9701200-000	CORD,POWER, SERIES E PLUS	125V
62	L9701300-000	CORD,POWER, SERIES E PLUS	230V
63	L9700700-250	CIRCUIT BREAKER, SERIES MP	
63	L9707300-000	FUSE 2 AMP, SERIES E, E PLUS	
63	L9706900-000	BOARD MNTD FUSE, SERIES A+, C+, C, E	
64	L9800200-188	CNTRL PNL SCREW	
65	L1500800-NTR	GROMMET, STROKE LENGTH	
66	L1900800-000	KNOB, STROKE RATE/SWITCH	
71	L1900100-FPP	KNOB, STROKE LENGTH	
71	L1900300-FPP	KNOB, STROKE LENGTH	
72	L9800200-188	KNOB MOUNTING SCREW	
76	L1500900-NTR	GROMMET STROKE LENGTH	
81	L5000801-115	CNTRL PANEL ASSY; A-B-D-E SIZE SLDS,	115V
81	L5000901-115	CNTRL PANEL ASSY, EXT/STOP; A-B-D-E	115V
81	L5000901-230	CNTRL PANEL ASSY, EXT/STOP; A-B-D-E	230V
81	L5001001-115	CNTRL PANEL ASSY, 4-20MA/STOP; A-B-D-	115V
81	L5001001-230	CNTRL PANEL ASSY, 4-20MA/STOP; A-B-D-	230V
81	L5001301-115	CNTRL PANEL ASSY, H SIZE SLD	115V
81	L5028500-115	CNTRL PANEL ASSY, LEH8	115V

DRIVE END COMPONENTS

Item No.	Part Number	Description	
81	**L5028201-115**	CNTRL PANEL ASSY, LVH7, LP/LVH8 115V	
81	**L5001401-115**	CNTRL PANEL ASSY, EXT/STOP; H SIZE	115V
81	**L5001401-230**	CNTRL PANEL ASSY, EXT/STOP; H SIZE	230V
81	**L5028301-115**	CNTRL PANEL ASSY, EXT/STOP; LVH7,	115V
81	**L5028300-230**	CNTRL PANEL ASSY, EXT/STOP; LVH7,	230V
81	**L5001501-115**	CNTRL PANEL ASSY, 4-20MA/STOP; H	115V
81	**L5001501-230**	CNTRL PANEL ASSY, 4-20MA/STOP; H	230V
81	**L5028401-115**	CNTRL PANEL ASSY, 4-20MA/STOP;	115V
81	**L5028401-230**	CNTRL PANEL ASSY, 4-20MA/STOP;	230V
81	**L5000100-115**	CNTRL PANEL ASSY, SERIES E; 0-	115V
81	**L5000100-230**	CNTRL PANEL ASSY, SERIES E; 0-	230V
81	**L5000200-115**	CNTRL PANEL ASSY, 3-4 SIZE SLDS	115V
81	**L5000200-230**	CNTRL PANEL ASSY, 3-4 ZISE SLDS	230V
81	**L5002900-115**	CNTRL PANEL ASSY SIN-FUNC; 0-SIZE	115V
81	**L5003000-115**	CNTRL PANEL ASSY SIN-FUNC; 5-SIZE	
81	**L5011000-115**	CNTRL PANEL ASSY EXT PACE; SIZE	
81	**L5013000-115**	CNTRL PANEL ASSY EXT PACE; SIZE	
81	**L5003016-115**	CNTRL PANEL ASSY, 4-20MA/STOP;	115V
81	**L5003701-115**	CNTRL PANEL ASSY, STD; K SIZE SLD	115V
81	**L5003801-115**	CNTRL PANEL ASSY, EXT/STOP; K SIZE	115V
81	**L5003801-230**	CNTRL PANEL ASSY, EXT/STOP; K SIZE	230V
81	**L5003903-115**	CNTRL PANEL ASSY, 4-20MA/STOP; K7	115V
81	**L5003903-230**	CNTRL PANEL ASSY, 4-20MA/STOP; K7	230V
81	**L5004100-115**	CNTRL PANEL ASSY, SIN-FUNC; SIZE	115V
81	**L5010800-230**	CNTRL PANEL ASSY EXT PACE; SIZE	230V
81	**L5010900-230**	CNTRL PANEL ASSY EXT PACE; SIZE	230V
81	**L5005200-115**	CNTRL PANEL ASSY; SIZE 02, 03, 04,	115V
81	**L5005300-230**	CNTRL PANEL ASSY; SIZE 02, 03, 04,	230V
81	**L5004800-115**	CNTRL PANEL ASSY; SIZE 54, 64	115V
81	**L5007501-115**	CNTRL PNL ASSY LMK2; SIGNAL RELAY	115V
81	**L5007301-115**	CNTRL PNL ASSY LM A,B,C,D,E,K3;	115V
81	**L5007301-230**	CNTRL PNL ASSY LM A,B,C,D,E,K3;	230V
81	**L5007401-115**	CNTRL PNL ASSY LM A,B,C,D,E,K3;	115V
81	**L5007401-230**	CNTRL PNL ASSY LM A,B,C,D,E,K3;	230V
81	**L5007701-115**	CNTRL PNL ASSY LMK5; SIGNAL RELAY	115V
81	**L5007101-115**	CNTRL PNL ASSY LM F, G; SIGNAL	115V
81	**L5007701-230**	CNTRL PNL ASSY LMK5; SIGNAL RELAY	230V
81	**L5007101-230**	CNTRL PNL ASSY LM F, G; SIGNAL	230V
81	**L5007801-115**	CNTRL PNL ASSY LMK5; POWER RELAY	115V
81	**L5007201-115**	CNTRL PNL ASSY LM F, G; POWER	115V
81	**L5007901-115**	CNTRL PNL ASSY LMK7; SIGNAL RELAY	115V
81	**L5006901-115**	CNTRL PNL ASSY LM H; SIGNAL RELAY	115V
81	**L5007901-230**	CNTRL PNL ASSY LMK7; SIGNAL RELAY	230V
81	**L5006901-230**	CNTRL PNL ASSY LM H; SIGNAL RELAY	230V
81	**L5007001-115**	CNTRL PNL ASSY H; POWER RELAY	115V
88	**L9804000-000**	GROUND LUG NUT	
89	**L9800500-STL**	GROUND LUG BOLT	
92	**L9700800-000**	BREAKER COVER	
	L9700200-000	CORD, SIGNAL, 10 FT	
	L9700201-000	CORD, SIGNAL, 20 FT	
	L9700800-000	PROTECTIVE BOOT, CKT BRKER	

BLEED VALVE ASSEMBLIES

Item No.	Part Number	Description	
11	**L3300H01-FPP**	FPP/CSPE	3/8"
11	**L3300H01-PVC**	PVC/CSPE	3/8"
11	**L3300H03-FPP**	FPP/CSPE	1/2"
11	**L3300H03-PVC**	PVC/CSPE	1/2"
11	**L3300T01-FPP**	FPP/TFE	3/8"
11	**L3300T01-PVC**	PVC/TFE	3/8"
11	**L3300T01-PVD**	PVD/TFE	3/8"
11	**L3300T03-FPP**	FPP/TFE	1/2"
11	**L3300T03-PVC**	PVC/TFE	1/2"
11	**L3300T03-PVD**	PVD/TFE	1/2"
11	**L3300V01-FPP**	FPP/VTN	3/8"
11	**L3300V01-PVC**	PVC/VTN	3/8"
11	**L3300V01-PVD**	PVD/VTN	3/8"
11	**L3300V03-FPP**	FPP/VTN	1/2"
11	**L3300V03-PVC**	PVC/VTN	1/2"
11	**L3300V03-PVD**	PVD/VTN	1/2"

FOOT VALVE / STRAINER ASSEMBLIES

Item No.	Part Number	Description	
12	**J40117**	FPP/CSPE/C	3/8" X 1/2"
12	**J40123**	FPP/CSPE/TFE	3/8" X 1/2"
12	**J60509**	FPP/VTN/C	3/8" X 1/2"
12	**J40141**	FPP/VTN/316	3/8" X 1/2"
12	**J40125**	FPP/VTN/TFE	3/8" X 1/2"
12	**J40212**	FPP/FTF/C	3/8" X 1/2"
12	**J40175**	FPP/FTF/316	3/8" X 1/2"
12	**J40171**	FPP/FTF/TFE	3/8" X 1/2"
12	**J60728**	PVD/FTF/C	3/8" X 1/2"
12	**J60729**	PVD/CSPE/C	3/8" X 1/2"
12	**J60730**	PVD/VTN/C	3/8" X 1/2"
12	**J40116**	FPP/CSPE/C	1/4" X 3/8"
12	**J40156**	FPP/CSPE/316	1/4" X 3/8"
12	**J40122**	FPP/CSPE/TFE	1/4" X 3/8"
12	**J60524**	FPP/VTN/C	1/4" X 3/8"
12	**J40158**	FPP/VTN/316	1/4" X 3/8"
12	**J40124**	FPP/VTN/TFE	1/4" X 3/8"
12	**J40211**	FPP/FTF/C	1/4" X 3/8"
12	**J40170**	FPP/FTF/316	1/4" X 3/8"
12	**J40169**	FPP/FTF/TFE	1/4" X 3/8"
12	**J60716**	PVD/FTF/C	1/4" X 3/8"
12	**J60717**	PVD/CSPE/C	1/4" X 3/8"
12	**J60718**	PVD/VTN/C	1/4" X 3/8"
12	**J40095**	316	.25 NPT
12	**J40195**	FPP/CSPE/C	.25 NPT
12	**J40187**	FPP/VTN/C	.25 NPT
12	**J40179**	FPP/FTF/C	.25 NPT
12	**J60503**	FPP	.50 NPT
12	**J60561**	FPP	1/2 X 3/4"
12	**J60564**	FPP/FTF/C	3/16 X 5/16"
12	**J60712**	PVD/FTF/C	3/16 X 5/16"
12	J60564	FPP/TFE/C	
12	J60712	PVD/TFE/C	

STAINLESS STEEL VALVE REPAIR KITS

Part Number	Description
L9904200-316	VALVE REPAIR KIT - ATS2
L9904600-316	VALVE REPAIR KIT - ATS4
L9904900-316	VALVE REPAIR KIT - ATSG

TUBING

Part Number	Description	Per Foot
00007	SUCT, 3/8 OD, CLEAR PVC	FT
00008	DISCH, 1/2 OD, WHITE PE	FT
00009	DISCH, 1/2 OD, BLACK PE	FT
00010	DISCH, 3/8 OD, WHITE PE	FT
00011	DISCH, 3/8 OD, BLACK PE	FT
J00012	DISCH, 1/2 OD, HI PRES, WHITE	FT
00013	DISCH, 1/2 OD, HI PRES, BLACK	FT
J00022	DISCH, 3/8 OD, HI PRES, WHITE	FT
J00023	SUCT, 1/2 OD, CLEAR PVC	FT
J00024	DISCH, 3/8 OD, HI PRES, BLACK	FT
J00032	SUCT/DISCH, 3/4 OD, CLEAR PVC	FT
L9902900-000	PVDF TUBING, 3/8 OD	FT
L9903000-000	PVDF TUBING, 1/2 OD	FT
L9904300-PEB	SUCT, 5/16 OD, PE BLACK	FT
L9904300-PEW	SUCT, 5/16 OD, PE WHITE	FT
L9904300-PVC	SUCT, 5/16 OD, CLEAR PVC	FT
L9904300-PVD	SUCT, 5/16 OD, PVDF WHITE	FT
L9904500-PEW	DISCH, 1/2 X 5/8, PE WHITE	FT
L9913200-BRD	PVC CLEAR BRAIDED, 3/4 OD	FT

INJECTION BACK PRESS VALVE ASSEMBLIES

Item No.	Part Number	Description	
13	**J41767**	FPP/CSPE/C	3/8" X 1/2"
13	**J41863**	FPP/CSPE/316	3/8" X 1/2"
13	**J41773**	FPP/CSPE/TFE	3/8" X 1/2"
13	**41716**	FPP/VTN/C	3/8" X 1/2"
13	**J41882**	FPP/VTN/316	3/8" X 1/2"
13	**J41775**	FPP/VTN/TFE	3/8" X 1/2"
13	**J41872**	FPP/FTF/C	3/8" X 1/2"
13	**J41879**	FPP/FTF/316	3/8" X 1/2"
13	**J41875**	FPP/FTF/TFE	3/8" X 1/2"
13	**J41694**	PVC/CSPE/C	3/8" X 1/2"
13	**41698**	PVC/CSPE/C 6"	3/8" X 1/2"
13	**41702**	PP/VTN/C 6"	3/8" X 1/2"
13	**J41865**	PVC/CSPE/316	3/8" X 1/2"
13	**J41759**	PVC/CSPE/TFE	3/8" X 1/2"
13	**J41714**	PVC/VTN/C	3/8" X 1/2"
13	**J41761**	PVC/VTN/TFE	3/8" X 1/2"
13	**J41873**	PVC/FTF/C	3/8" X 1/2"
13	**J41881**	PVC/FTF/316	3/8" X 1/2"
13	**J41877**	PVC/FTF/TFE	3/8" X 1/2"
13	**J61073**	PVD/FTF/TFE	3/8" X 1/2"
13	**J61021**	PVD/FTF/C	3/8" X 1/2"
13	**J41766**	FPP/CSPE/C	1/4" X 3/8"
13	**J41862**	FPP/CSPE/316	1/4" X 3/8"
13	**J41772**	FPP/CSPE/TFE	1/4" X 3/8"
13	**41715**	FPP/VTN/C	1/4" X 3/8"
13	**41701**	FPP/VTN/C 6"	1/4" X 3/8"
13	**J41866**	FPP/VTN/316	1/4" X 3/8"
13	**J41774**	FPP/VTN/TFE	1/4" X 3/8"
13	**J61098**	FPP/FTF/C	1/4" X 3/8"
13	**J41878**	FPP/FTF/316	1/4" X 3/8"
13	**J41874**	FPP/FTF/TFE	1/4" X 3/8"
13	**41693**	PVC/CSPE/C	1/4" X 3/8"
13	**41705**	PVC/CSPE/C 6"	1/4" X 3/8"
13	**J41758**	PVC/CSPE/TFE	1/4" X 3/8"
13	**J61237**	PVC/VTN/C	1/4" X 3/8"
13	**J41867**	PVC/VTN/316	1/4" X 3/8"
13	**41760**	PVC/VTN/TFE	1/4" X 3/8"
13	**J41996**	PVC/FTF/C	1/4" X 3/8"
13	**J41880**	PVC/FTF/316	1/4" X 3/8"
13	**J41876**	PVC/FTF/TFE	1/4" X 3/8"
13	**J61020**	PVD/FTF/C	1/4" X 3/8"
13	**J61026**	PVD/FTF/TFE	1/4" X 3/8"
13	**J41911**	FPP/CSPE/C	.25 NPT
13	**J41901**	FPP/VTN/C	.25 NPT
13	**J41944**	FPP/FTF/C	.25 NPT
13	**J41904**	PVC/CSPE/C	.25 NPT
13	**J41858**	PVC/VTN/C	.25 NPT
13	**J41908**	PVC/FTF/C	.25 NPT
13	**J61015**	PVD/FTF/C	.25 NPT
13	**J61025**	316/FTF/316	.25 NPT
13	**J41969**	PVC/CSPE/C	1/2 X 3/4"
13	**J61149-10P**	FPP/FTF/C	1/2 X 3/4"
13	**J61157-10P**	PVC/FTF/C	.50 NPT
13	**J61156-10P**	PVC/TFE/S	.50 NPT

OTHER

Part Number	Description
26858	BULKHEAD FITTING - PP 1/2"
26859	BULKHEAD FITTING - PVC 1/2"
26860	BULKHEAD FITTING - PVC 3/8"
26867	BULKHEAD FITTING - PP 3/8"
L9905000-PVC	J CONVERSION KIT (PVC/TFE/C)
L9905100-PVC	J CONVERSION KIT (PVC/TFE/C)
L9906901-000	CONV. KIT (.75" VVC9) DEGAS HEA
L9907001-000	CONV. KIT (1.00" VVC9) DEGAS HE
L9907101-000	CONV. KIT (1.25" VVC9) DEGAS HE

BLACK LINE

Mechanical Diaphragm Pumps

Series MD

Key Features

- Liquid End Materials – GFPPL, 316SS & PVDF.
- Rugged double-sided PTFE faced, long life diaphragm.
- Oil Lubricated Ball Bearings in die-cast aluminum housing.
- Manual micrometer style stroke adjustment; 10:1 turndown, up to 100:1 with VFD Vector drive.
- Standard NEMA 56C or IEC71 motor frames available.

Optional Features

- Variable Frequency Drive for Automatic Control.
  - ♦ Fully Scalable 4-20mA, 0-10VDC signals.
  - ♦ NEMA 4X Enclosure.
- ATEX Group II, Category 3 – Zone 2/22 for non-flammable liquids with proper motor selection.

VFD VECTOR
(Optional)

CE

Pressure and Flow Rate Capacity

MODEL		MD1A	MD1B	MD1C	MD1D	MD1E	MD2F	MD2G	MD2H	MD3G
Capacity nominal (max.)	GPH	7	14	22	29	35	59	79	98	132
	LPH	26	53	82	111	133	225	298	371	501
Pressure (max.)	PSIG	150	150	150	150	150	90	90	75	75
	BAR	10	10	10	10	10	6	6	5	5
Connections:	FNPT	1/2"					3/4"	1"		
	BSPT-F									
Strokes/Minute	SPM	84	60	84	116	138	84	118	138	118

Engineering Data

Reproducibility: +/- 2% at maximum capacity

Viscosity Max CPS: up to 1000 CPS

Stroke Frequency Max SPM: 60 to 138 Strokes Per Minute max.
(Depending on model selection)

Stroke Length Turn-Down Ratio: 10:1

Power Input: 115 VAC/60 Hz/1 ph
230 VAC/50-60 Hz/1 ph or 3 ph

Max Ambient Temperature: 104^0 F (40^0 C)

Max Fluid Temperature: 104^0 F (40^0 C)

Oil Capacity: 15.2 oz (0.4 L)

Blackline Series MD Selection Guide

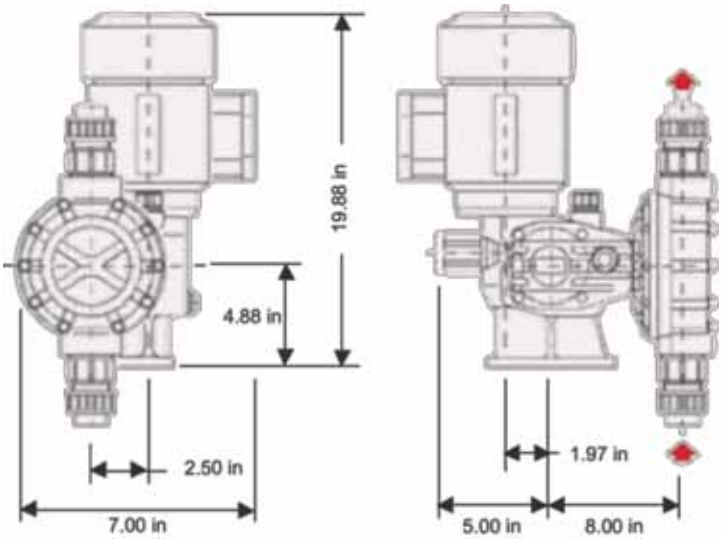
MD_ _ | _ _ _ | _ | _ | _ - XXX

MODELS:	**1A**	= 7 gph (26 lph) max pres.: 150 PSI (10 BAR)
	1B	= 14 gph (53 lph) max pres.: 150 PSI (10 BAR)
	1C	= 22 gph (82 lph) max pres.: 150 PSI (10 BAR)
	1D	= 29 gph / (111 lph) max pres.: 150 PSI (10 BAR)
	1E	= 35 gph / (133 lph) max pres.: 150 PSI (10 BAR)
	2F	= 59 gph / (225 lph) max pres.: 90 PSI (6 BAR)
	2G	= 79 gph / (298 lph) max pres.: 90 PSI (6 BAR)
	2H	= 98 gph / (371lph) max pres.: 75 PSI (5 BAR)
	3G	= 132 gph / (501 lph) max pres.: 75 PSI (5 BAR)
LIQUID END Size 1A-E	**KTP**	= PVDF Head / PTFE Valve Seat / Pyrex Valve Check Ball
	PPP	= Glass Filled Polypropylene Head / PVC Valve Seat / Pyrex Valve Check Ball
	AAS	= 316SS Head / 316SS Valve Seat / 316SS Valve Check Ball
	KMM**	= PVDF Head / Incoloy 825 Valve Seat / Hastelloy C-276 Valve Check Ball
Size 2F-H	**KTP**	= PVDF Head / PTFE Valve Seat / Pyrex Valve Check Ball
	PPP	= Glass Filled Polypropylene Head / PVC Valve Seat / Pyrex Valve Check Ball
	AAS	= 316SS Head / 316SS Valve Seat / 316SS Valve Check Ball
	KMM**	= PVDF Head / Incoloy 825 Valve Seat / Hastelloy C-276 Valve Check Ball
Size 3G	**KTP**	= PVDF Head / PTFE Valve Seat / Pyrex Valve Check Ball
	PPP	= Glass Filled Polypropylene Head / PVC Valve Seat / Pyrex Valve Check Ball
	AAS	= 316SS Head / 316SS Valve Seat / 316SS Valve Check Ball
	KMM**	= PVDF Head / Incoloy 825 Valve Seat / Hastelloy C-276 Valve Check Ball
VALVE CONNECTION:	**N**	= NPT Connection
	B	= BSPT Connection
MOTOR SELECTION:	**1**	= TEFC - NEMA 56C, 1P, 115/230V, 60Hz, 1/2 Hp
	2	= TEFC - NEMA 56C, 3P, 230/460V, 50/60Hz, 1/2 Hp (VFD 10:1)
	3	= Ex.Proof - NEMA 56C, 1P, 115/230V, 60Hz, 1/2 Hp
	4	= Ex. Proof - NEMA 56C, 3P, 230/460V, 60Hz, 1/2 Hp
	6	= TEFC - IEC 71, 3P, 220/380/460V, 50/60Hz, .37kW (VFD 10:1, Required for CE Approved VFD)
	8	= Ex. Proof - IEC 71, 3P, 220/380/460V, 50/60Hz, .37kW
	X	= No Motor - NEMA 56C Frame Ready
	Y	= No Motor - IEC 71 Frame Ready
VFD OPTIONS	**A**	= No VFD
	C	= VFD, 115/230V, NEMA 4X, IP65 Enclosure, 1 Phase, Motor 2 & 6 Only
OPTIONS	**XXX**	= No Options

A completed model number should look like 'MD1BKTPN1A-XXX'

** For use with high concentration of Sulfuric acid and poly-alum-chloride.

Dimensions



Series MD Dimensions (inches)			
Model	**Box Dimensions**	**Weight Plastic (lbs)**	**Weight Stainless Steel (lbs)**
MD1A (NO MOTOR)	19 x 19 x 10	21.5	26.0
MD1B (NO MOTOR)	20 x 19 x 10	21.5	26.0
MD1C (NO MOTOR)	21 x 19 x 10	21.5	26.0
MD1D (NO MOTOR)	22 x 19 x 10	21.5	26.0
MD1E (NO MOTOR)	23 x 19 x 10	21.5	26.0
MD2F (NO MOTOR)	24 x 19 x 10	26.0	37.0
MD2G (NO MOTOR)	25 x 19 x 10	26.0	37.0
MD2H (NO MOTOR)	26 x 19 x 10	26.0	37.0
MD3G (NO MOTOR)	27 x 19 x 10	29.0	46.0
MD1A W/VFD & MOTOR	27 x 17.4 x 18.75	67.0	71.5
MD1B W/VFD & MOTOR	28 x 17.4 x 18.75	67.0	71.5
MD1C W/VFD & MOTOR	29 x 17.4 x 18.75	67.0	71.5
MD1D W/VFD & MOTOR	30 x 17.4 x 18.75	67.0	71.5
MD1E W/VFD & MOTOR	31 x 17.4 x 18.75	67.0	71.5
MD2F W/VFD & MOTOR	32 x 17.4 x 18.75	71.5	82.5
MD2G W/VFD & MOTOR	33 x 17.4 x 18.75	72.5	83.5
MD2H W/VFD & MOTOR	34 x 17.4 x 18.75	73.5	84.5
MD3G W/VFD & MOTOR	35 x 17.4 x 18.75	74.5	91.5

BLACK LINE

Mechanical Diaphragm Pumps

Common Pump Accessories

Component	Size	Material	Part No.
Drip Cover, Motor	56C	Steel, Baldor	NP999119
Pressure Relief Valves	1/2"	PVC/TFE	NA100001-PVC
	1/2"	PVDF/TFE	NA100001-PVD
	1/2"	SS/TFE	NA100001-316
	1"	PVC/TFE	NA100002-PVC
	1"	PVDF/TFE	NA100002-PVD
	1"	SS/TFE	NA100002-316
	1.5"	PVC/TFE	NA100003-PVC
	1.5"	PVDF/TFE	NA100003-PVD
Back Pressure Valves	1/2"	PVC/TFE	NA200001-PVC
	1/2"	PVDF/TFE	NA200001-PVD
	1/2"	SS/TFE	NA200001-316
	1"	PVC/TFE	NA200002-PVC
	1"	PVDF/TFE	NA200002-PVD
	1"	SS/TFE	NA200002-316
	1.5"	PVC/TFE	NA200003-PVC
	1.5"	PVDF/TFE	NA200003-PVD
Gauge Isolator w/ 200PSI Gauge	1/4"	PVC/TFE	NA500001-PVC
	1/4"	PVDF/TFE	NA500001-PVD
	1/4"	316SS/TFE	NA500001-316
Calibration Column	1/2"	PVC 100mL	NA300001-PVC
	1/2"	PVC 200mL	NA300002-PVC
	3/4"	PVC 500mL	NA300003-PVC
	3/4"	PVC 1000mL	NA300004-PVC
	1"	PVC 2000mL	NA300005-PVC
	1"	PVC 4000mL	NA300006-PVC
	2"	PVC 10,000mL	NA300007-PVC
	2"	PVC 20,000mL	NA300008-PVC
	1/2"	Glass/PVD 100mL	NA300009-PVD
	1/2"	Glass/PVD 200mL	NA300010-PVD
	3/4"	Glass/PVD 500mL	NA300011-PVD
	3/4"	Glass/PVD 1000mL	NA300012-PVD
	1"	Glass/PVD 2000mL	NA300013-PVD
	1"	Glass/PVD 4000mL	NA300014-PVD
	1/2"	Glass/SS 100mL	NA300015-316
	1/2"	Glass/SS 200mL	NA300016-316
	3/4"	Glass/SS 500mL	NA300017-316
	3/4"	Glass/SS 1000mL	NA300018-316
	1"	Glass/SS 2000mL	NA300019-316
	1"	Glass/SS 4000mL	NA300020-316
Y Strainer	1/2"	PVC	40085
	1/2"	CPVC	NA400001-CPVC
	1/2"	PVD	NA400001-PVD
	1"	PVC	NA400002-PVC
	1"	CPVC	NA400002-CPVC
	1"	PVD	NA400002-PVD

BLACKLINE KOPkit

Pump Size	Wetted Material	KOPkit Number
Size 1A - 1E	PVDF	K1AE-KTP
	PP	K1AE-PPP
	Stainless	K1AE-AAS
	PVDF/Alloy C	K1AE-KMM
Size 2F	PVDF	K2F-KTP
	PP	K2F-PPP
	Stainless	K2F-AAS
	PVDF/Alloy C	K2F-KMM
Size 2H	PVDF	K2GH-KTP
	PP	K2GH-PPP
	Stainless	K2GH-AAS
	PVDF/Alloy C	K2GH-KMM
Size 3G	PVDF	K3G-KTP
	PP	K3G-PPP
	Stainless	K3G- AAS
	PVDF/Alloy C	K3G-KMM

150 PSI Pulsation Dampeners - Chargeable

Volume	Body	Bladder	Connection	Part Number
10 cubic inches	POLY	EPDM	3/8" FNPT	NA601038-FPPE
		CSPE	3/8" FNPT	NA601038-FPPC
		TFE	3/8" FNPT	NA601038-FPPT
		Viton	3/8" FNPT	NA601038-FPPV
		CSPE	1/2" FNPT	NA601050-FPPC
		TFE	1/2" FNPT	NA601050-FPPT
		Viton	1/2" FNPT	NA601050-FPPV
	PVC	CSPE	1/2" FNPT	NA601050-PVCC
		TFE	1/2" FNPT	NA601050-PVCT
		Viton	1/2" FNPT	NA601050-PVCV
	PVDF	EPDM	3/8" FNPT	NA601038-PVDE
		CSPE	3/8" FNPT	NA601038-PVDC
		TFE	3/8" FNPT	NA601038-PVDT
		Viton	3/8" FNPT	NA601038-PVDV
	316 SS	EPDM	3/8" FNPT	NA601038-316E
		CSPE	3/8" FNPT	NA601038-316C
		TFE	3/8" FNPT	NA601038-316T
		Viton	3/8" FNPT	NA601038-316V
85 cubic inches	POLY	EPDM	3/4" FNPT	NA608575-FPPE
		CSPE	3/4" FNPT	NA608575-FPPC
		TFE	3/4" FNPT	NA608575-FPPT
		Viton	3/4" FNPT	NA608575-FPPV
	PVDF	EPDM	3/4" FNPT	NA608575-PVDE
		CSPE	3/4" FNPT	NA608575-PVDC
		TFE	3/4" FNPT	NA608575-PVDT
		Viton	3/4" FNPT	NA608575-PVDV
	316 SS	EPDM	3/4" FNPT	NA608575-316E
		CSPE	3/4" FNPT	NA608575-316C
		TFE	3/4" FNPT	NA608575-316T
		Viton	3/4" FNPT	NA608575-316V
370 cubic inches	POLY	EPDM	2" FNPT	NA637020-FPPE
		CSPE	2" FNPT	NA637020-FPPC
		TFE	2" FNPT	NA637020-FPPT
		Viton	2" FNPT	NA637020-FPPV
	PVDF	EPDM	2" FNPT	NA637020-PVDE
		CSPE	2" FNPT	NA637020-PVDC
		TFE	2" FNPT	NA637020-PVDT
		Viton	2" FNPT	NA637020-PVDV
	316 SS	EPDM	2" FNPT	NA637020-316E
		CSPE	2" FNPT	NA637020-316C
		TFE	2" FNPT	NA637020-316T
		Viton	2" FNPT	NA637020-316V
36 cubic inches	POLY	EPDM	3/4" FNPT	NA603675-FPPE
		CSPE	3/4" FNPT	NA603675-FPPC
		TFE	3/4" FNPT	NA603675-FPPT
		Viton	3/4" FNPT	NA603675-FPPV
	PVDF	EPDM	3/4" FNPT	NA603675-PVDE
		CSPE	3/4" FNPT	NA603675-PVDC
		TFE	3/4" FNPT	NA603675-PVDT
		Viton	3/4" FNPT	NA603675-PVDV
	316 SS	EPDM	3/4" FNPT	NA603675-316E
		CSPE	3/4" FNPT	NA603675-316C
		TFE	3/4" FNPT	NA603675-316T
		Viton	3/4" FNPT	NA603675-316V
175 cubic inches	POLY	EPDM	2" FNPT	NA617520-FPPE
		CSPE	2" FNPT	NA617520-FPPC
		TFE	2" FNPT	NA617520-FPPT
		Viton	2" FNPT	NA617520-FPPV
	PVDF	EPDM	2" FNPT	NA617520-PVDE
		CSPE	2" FNPT	NA617520-PVDC
		TFE	2" FNPT	NA617520-PVDT
		Viton	2" FNPT	NA617520-PVDV
	316 SS	EPDM	2" FNPT	NA617520-316E
		CSPE	2" FNPT	NA617520-316C
		TFE	2" FNPT	NA617520-316T
		Viton	2" FNPT	NA617520-316V

Specification 150 PSI Maximum Pressure

CHEM-TECH Peristaltic Pumps

Series XP

The Chem-Tech XP Series with peristaltic technology delivers worry-free dosing in a modern design. Each and every component of the XP Series is designed and manufactured for optimum riability and durability for ***REAL*** Performance.

The electronic timing circuit in the adjustable 'A' Models provides ***reliable*** pump control, without relying on mechanical adjustment components that wear out over time.
The intuitive interface and controls provide ***easy*** operation and the peristaltic design is virtually maintenance-free.

Tailor-made for the water conditioning market, the XP Series offer ***affordable*** solutions in both initial cost and operation. A rugged gear train and computer-aided peristaltic design ensure ***long-lasting*** performance.

Tested and Certified by WQA against NSF/ANSI 61-Section 8. and CSA B483.1

Chem-Tech XP Series Selection Guide

XP_ _ _ _ _ _ _ _

	Pump Size	Flow	Pressure Rating - PSI (Bar)				Tube Size	Speed (RPM)
			Single Head Options			Duplex		
			'H' Tube	'L' Tube	'F' Tube	'L' Tube		
MODELS:	XP004	4 GPD (0.6 LPH)	125 (8.6)	80 (5.5)	60 (4.1)	80 (5.5)	2	30
	XP007	7 GPD (1.1 LPH)						50
	XP009	9 GPD (1.4 LPH)	110 (7.6)	70 (4.8)	50 (3.4)	70 (4.8)	3	30
	XP015	15 GPD (2.4 LPH)						50
	XP014	14 GPD (2.3 LPH)	100 (5.9)	50 (3.4)	40 (2.8)	50 (3.4)	4	30
	XP023	23 GPD (3.6 LPH)						50
	XP030	30 GPD (4.7 LPH)	80 (5.5)	40 (2.8)		40 (2.8)	6	30
	XP050	50 GPD (7.9 LPH)						50
	XP048	48 GPD (7.5 LPH)		25 (1.7)		25 (1.7)	8	30
	XP080	80 GPD (12.6 LPH)						50

ELECTRICAL:	L	115V, 60Hz
	H	230V, 50/60Hz
	R	230V, 50Hzwith Grounded Right Angle European Plug
	Note: 50Hz pumps will produce 5/6 of the rated flow	

DRIVE:	F	Fixed Rate, On / Off Only
	A	Adjustable 20:1 Turndown, On / Off with Current Interrupter Timer
	G	Duplex Head - Fixed Rate, On / Off Only, 'L' Tube
	B	Duplex Head - Adjustable, On / Off with Current Interrupter Timer, 'L' Tube
	1	Pulse Input, .1 to 1 Second Timer
	2	Pulse Input, .2 to 10 Second Timer
	3	Pulse Input, 1 to 60 Second Timer
	4	Dry Contact Input - Fixed Rate Pump
	5	Dry Contact Input - Adjustable Pump
	6	Flow Switch Activated with 3/4" NPT Flow Switch - Fixed Rate Pump
	7	Flow Switch Activated with 3/4" NPT Flow Switch - Adjustable Rate Pump
	8	7 Day - 8 Event Electronic Timer - Fixed Rate Pump

TUBING:	L	Low Pressure Norprene with 1/4" Tube Fittings
	H	High Pressure Norprene with 1/4" Tube Fittings
	3	Low Pressure Norprene with 3/8" Tube Fittings
	4	High Pressure Norprene with 3/8" Tube Fittings
	F	Fluran, Acid resistant tubing with 1/4" Tube Fittings (Doesnot include strainer & injector accessories)
	G	Fluran, Acid resistant tubing with 3/8" Tube Fittings (Doesnot include strainer & injector accessories)

SYSTEM:	X	Pump Only
	1	15 Gallon Tank System
	3	35 Gallon Tank System
	T	15 Gallon ITS System

A completed model should look like "XP030LFLX"

CHEM-TECH Peristaltic Pumps

Series XPV

The Chem-Tech XPV Series pump combines the best in variable speed peristaltic pump technology with state of the art control electronics, providing you with unparalleled performance, control and value. The XPV represents the leading edge of microprocessor performance management, giving you many choices of input signal types, and onboard timer programs to customize this pump to any application. Of course, this pump is as rugged and reliable as it's fixed speed siblings, the XPF and the XPA.

Key Features

- Variable Speed
- Fully Scalable 4-20mA Input
- Hall Effect Input
- Contacting Head Water Meter
- Flow Totalization
- Cycle Timer
- Daily Timer
- LCD Display

Tested and Certified by WQA against NSF/ANSI 61-Section 8. and CSA B483.1

Chem-Tech Series XPV uses Chem-Tech Large Pump Discount Structure

Chem-Tech XPV Series Selection Guide

XP_ _ _ _ _ _ _ _

	Pump Size	Flow	Pressure Rating - PSI (Bar)				Tube Size	Speed (RPM)
			Single Head Options			Duplex		
			'H' Tube	'L' Tube	'F' Tube	'L' Tube		
MODELS:	XP008	8 GPD (1.3 LPH)	125 (8.6)	80 (5.5)	60 (4.1)	80 (5.5)	2	65 Max.
	XP017	17 GPD (2.7 LPH)	110 (7.6)	70 (4.8)	50 (3.4)[1]	70 (4.8)	3	
	XP033	33 GPD (5.2 LPH)	100 (5.9)	50 (3.4)	40 (2.8)[2]	50 (3.4)	4	
	XP055	55 GPD (8.7 LPH)	80 (5.5)	40 (2.8)		40 (2.8)	6	60 Max.
	XP100	100 GPD (15.8 LPH)		25 (1.7)		25 (1.7)	8	

ELECTRICAL:	L	115V, 60Hz
	H	230V, 60/50Hz
	R	230V, 60/50Hz with Grounded Right Angle European Plug
DRIVE:	V	Variable Input Control with I/O Cable
	G	Duplex Head - Low Pressure Norprene with 1/4" Tube Fitting
TUBING:	L	Low Pressure Norprene with 1/4" Tube Fittings
	H	High Pressure Norprene with 1/4" Tube Fittings
	3	Low Pressure Norprene with 3/8" Tube Fittings
	4	High Pressure Norprene with 3/8" Tube Fittings
	F	Fluran, Acid resistant tubing with 1/4" Tube Fittings (Doesnot include strainer & injector accessories)
	G	Fluran, Acid resistant tubing with 3/8" Tube Fittings (Doesnot include strainer & injector accessories)
SYSTEM:	X	Pump Only
	1	15 Gallon Tank System
	3	35 Gallon Tank System
	T	15 Gallon ITS System

A completed model should look like "XP033LVLX"

[1] Max flow rate is 15 GPD (2.4 LPH) with Fluran tube.
[2] Max flow rate is 28 GPD (4.4 LPH) with Fluran tube.

XP & XPV Series Parts Schedule

Part Number	Description
KOPkits - Low Pressure	
NCKA2LPAP1	KOPkit XP - 004 / 007 / 008
NCKA3LPAP1	KOPkit XP - 009 / 015 / 017
NCKA4LPAP1	KOPkit XP - 023 / 033 / 014
NCKA6LPAP1	KOPkit XP - 030 / 050 / 055
NCKA8LPAP1	KOPkit XP - 048 / 080 / 100
KOPkits - High Pressure	
NCKA2HPAP1	KOPkit XP - 004 / 007 / 008
NCKA3HPAP1	KOPkit XP - 009 / 015 / 017
NCKA4HPAP1	KOPkit XP - 023 / 033 / 014
NCKA6HPAP1	KOPkit XP - 030 / 055
NCKA24PAP1	KOPkit XP - 004 / 008 - 3/8"
NCKA34PAP1	KOPkit XP - 009 / 015 / 017- 3/8"
NCKA44PAP1	KOPkit XP - 033 / 014 - 3/8"
KOPkits - Duplex Low Pressure	
NCKD2LPAP1	KOPkit XP - 004 / 008
NCKD3LPAP1	KOPkit XP - 009 / 017
NCKD4LPAP1	KOPkit XP - 033 / 014
NCKD6LPAP1	KOPkit XP - 030 / 055
NCKD8LPAP1	KOPkit XP - 048 / 100

TUBE KITS

Low Pressure 1/4" Tube Fittings	
NC90XX2LPA-XXXXX	Kit, Tube Assy - 004 / 007 / 008
NC90XX3LPA-XXXXX	Kit, Tube Assy - 009 / 015 / 017
NC90XX4LPA-XXXXX	Kit, Tube Assy - 023 / 033 / 014
NC90XX6LPA-XXXXX	Kit, Tube Assy - 030 / 050 / 055
NC90XX8LPA-XXXXX	Kit, Tube Assy - 048 / 080 / 100
High Pressure 1/4" Tube Fittings	
NC90XX2HPA-XXXXX	Kit, Tube Assy - 004 / 007 / 008
NC90XX3HPA-XXXXX	Kit, Tube Assy - 009 / 015 / 017
NC90XX4HPA-XXXXX	Kit, Tube Assy - 023 / 033 / 014
NC90XX6HPA-XXXXX	Kit, Tube Assy - 030 / 055
Low Pressure 3/8" Tube Fittings	
NC90XX23PA-XXXXX	Kit, Tube Assy - 004 / 007 / 008
NC90XX33PA-XXXXX	Kit, Tube Assy - 009 / 015 / 017
NC90XX43PA-XXXXX	Kit, Tube Assy - 023 / 033 / 014
NC90XX63PA-XXXXX	Kit, Tube Assy - 030 / 050 / 055
NC90XX83PA-XXXXX	Kit, Tube Assy - 048 / 080 / 100
High Pressure 3/8" Tube Fittings	
NC90XX24PA-XXXXX	Kit, Tube Assy - 004 / 007 / 008
NC90XX34PA-XXXXX	Kit, Tube Assy - 009 / 015 / 017
NC90XX44PA-XXXXX	Kit, Tube Assy - 023 / 033 / 014
NC90XX64PA-XXXXX	Kit, Tube Assy - 030 / 055
Fluran 1/4" Tubing Fittings	
NC90XX2FPA-XXXXX	Kit, Tube Assy - 004 / 007 / 008
NC90XX3FPA-XXXXX	Kit, Tube Assy - 009 / 015 / 017
NC90XX4FPA-XXXXX	Kit, Tube Assy - 023 / 033 / 014
Fluran 3/8" Tubing Fittings	
NC90XX2GPA-XXXXX	Kit, Tube Assy - 004 / 007 / 008
NC90XX3GPA-XXXXX	Kit, Tube Assy - 009 / 015 / 017
NC90XX4GPA-XXXXX	Kit, Tube Assy - 023 / 033 / 014

Part Number	Description
Parts	
J63051	Access. Kit, PVC/VTN, .25N
J30257	Grease Kit
J60609	Strainer Assembly w/o Valve
J63002	Control Panel Cover (Clear)
J63004	Rain Hood
J63007	Switch, On-Off
J63013	Timer Assy
J63016	Gear Motor, 30RPM / 120V / 50-60Hz
J63017	Gear Motor, 30RPM / 240V / 50-60Hz
J63018	Gear Motor, 50RPM / 120V / 50-60Hz
J63019	Gear Motor, 50RPM / 240V / 50-60Hz
J63023	Housing Assy, 100% Fixed Rate
L1900500-000	Thumb Screw #6 (Control Pnl Cover)
NC110002-PVC	Coupling Nut, .25 NPT
NC110016-000	Sleeve, .25 OD Tube
NC170004-000	Label, Earth Ground
NC190000-000	Knob, #10 Thumb Screw (Head Mtg)
U8800712	Injection Valve Assembly
NC82XX3LP1-XXXXX	Roller Assembly For Size 2-6 Tubes
NC82XX8LP1-XXXXX	Roller Assembly For Size 8 Tube

TANK / WALL MOUNT KITS

J63047	15 Gal Tank Bracket
J63048	ITS Tank Adaptor Plate

XPV Series Parts

J63006	Drive Motor, Variable Speed
J63115	Fuse Kit, Variable Speed

CHEM-TECH Mechanical Diaphragm Pumps

Prime Performance

The Chem-Tech Prime Performance Series pumps have a specially designed degassing valve system for applications using off-gasing chemicals like sodium hypochlorite. Built upon motorized-diaphragm technology, the Prime Performance Series delivers dependable performance, extended longevity and consistent metering over long periods of time in a compact form.

A top-mounted, one-way vent valve assembly evacuates gas bubbles from the pump head, providing for reliable operation.

Standard Agency Listings		
Model	ETL	ETLsan
All 60Hz	X	X
All 50Hz		
Contact factory for alternate listings		

Contact factory for applicable agency approvals.

PRIME PERFORMANCE Selection Guide

X_ _ _ - _ _ - _ _A _ - _ _ _

MODELS:	**015**	= 15 gpd (2.34 lph) max pres.: 100 PSI (7 BAR)
	024	= 24 gpd (3.78 lph) max pres.: 100 PSI (7 BAR)
	030	= 30 gpd (4.72 lph) max pres.: 100 PSI (7 BAR)
	068	= 68 gpd (10.72 lph) max pres.: 60 PSI (4 BAR)
	100	= 100 gpd (15.76 lph) max pres.: 60 PSI (4 BAR)
ELECTRICAL:	**XA**	= 115V, 60 Hz
	XB	= 230V, 50 Hz
	XC	= 230V, 60 Hz
LIQUID END MATERIALS: Head, Fittings/ Diaph., Seats/ Balls	**BAA**	= PVC / CSPE / Ceramic
	BBA	= PVC / Viton / Ceramic
CONNECTION SIZES:	**6**	= Tubing .38" PE BLK Suction / .38" PE BLK Discharge / .38" PE BLK Return
	8	= Tubing .38" PVC Suction / .38" PE Discharge / .38" PVC Return
	7	= Tubing .50" PE BLK Suction / .50" PE BLK Discharge / .50" PE BLK Return
	9	= Tubing .44" PVC Suction / .50" PE Discharge / .44" PVC Return
SUFFIX CODES:	**XXX**	= Standard
	001	= Current Interrupter
	15T	= 15 gal tank w/ bulkhead for vent,level wand,safety cap & fasteners
	35T	= 35 gal tank w/ bulkhead for vent and fasteners

A complete model should look like "X024-XA-BBA9XXX"

Pumps come with foot valve/strainer/weight, 4' of suction tubing, 4' of return tubing, 8' of discharge tubing, and injection/back pressure valve assembly.

CHEM-TECH KOPkits

PRIME PERFORMANCE KOPkit Selection Guide

KX100 - _ _A _

PRODUCT DESIGNATOR:	**KX100**	= Chem-Tech Kopkit
LIQUID END MATERIALS: Head, Diaph., Seats & Balls	**BAA**	= PVC / CSPE / Ceramic
	BBA	= PVC / Viton / Ceramic
CONNECTION :	**6**	= Tubing .38" Suction / Discharge / Return
	8	= Tubing .38" Suction / Discharge / Return
	7	= Tubing .50" Suction / Discharge / Return
	9	= Tubing .44" Suction & Return / .50" Discharge

CHEM-TECH Mechanical Diaphragm Pumps

Series 100, 150, 200

Series 100 Models - The preferred metering pump for water conditioning professionals around the world. Perfect for applications where economical, consistent performance is required. Capable of a wide range of flows, from less than 3 USgpd up to 30 USgpd and pressures up to 100 psig.

Series 150 Models - Built upon the same solid platform as the 100 Models, these units are capable of higher flowrates. With a range offering up to 100 USgpd, the Series 150 can meet the demands of larger applications. Maximum pressure is 60 psig.

Series 200 Models – The pump popular for their rugged design for continuous duty operation offers feed rates from 10 to 120 gpd and pressures up to 150 psi.

Note: Standard Features do not add to the pump price.

Standard Agency Listings		
Model	ETL	ETLsan
All 60Hz	X	X
100-150 50Hz		
200 50Hz		
Contact factory for alternate listings		

Contact factory for applicable agency approvals.

Chem-Tech Series 100, 150, 200 Selection Guide

____ - __ - ___ _ ___

MODELS:	**Series 100**	
	X003	= 3 gpd (0.47 lph) max pres.: 100 PSI (7 BAR)
	X007	= 7 gpd (1.00 lph) max pres.: 100 PSI (7 BAR)
	X015	= 15 gpd (2.34 lph) max pres.: 100 PSI (7 BAR)
	X024	= 24 gpd (3.78 lph) max pres.: 100 PSI (7 BAR)
	X030	= 30 gpd (4.72 lph) max pres.: 100 PSI (7 BAR)
	Series 150	
	X068	= 68 gpd (10.72 lph) max pres.: 60 PSI (4 BAR)
	X100	= 100 gpd (15.76 lph) max pres.: 60 PSI (4 BAR)
	Series 200	
	X210	= 10 gpd (1.5 lph) max pres.: 150 PSI (10 BAR)
	X215	= 15 gpd (2.34 lph) max pres.: 150 PSI (10 BAR)
	X220	= 20 gpd (3.15 lph) max pres.: 150 PSI (10 BAR)
	X230	= 30 gpd (4.72 lph) max pres.: 125 PSI (9 BAR)
	X240	= 40 gpd (6.31 lph) max pres.: 125 PSI (9 BAR)
	X260	= 60 gpd (9.46 lph) max pres.: 125 PSI (9 BAR)
	X280	= 80 gpd (12.6 lph) max pres.: 100 PSI (7 BAR)
	2100	= 100 gpd (15.76 lph) max pres.: 100 PSI (7 BAR)
	2120	= 120 gpd (18.91 lph) max pres.: 80 PSI (6 BAR)
ELECTRICAL:	**XA**	= 115V, 60 Hz
	XB	= 230V, 50 Hz (not available in 2120)
	XC	= 230V, 60 Hz
	XD	= 115V, 50/60 Hz, T.E.F.C. (X200's only)
	XL	= 230V, 50/60 Hz, T.E.F.C. (X200's only)
LIQUID END MATERIALS: Pump Head & Fittings/Seats & O-rings/Balls	**AAA**	= Clear PVC / CSPE / Ceramic
	AAB	= Clear PVC / CSPE / TFE
	ABA	= Clear PVC / Viton / Ceramic
	ABB	= Clear PVC / Viton / TFE
	ACA	= Clear PVC / TFE/Viton / Ceramic
	AHA	= Clear PVC / TFE/CSPE / Ceramic
	BAA	= PVC / CSPE / Ceramic
	BAB	= PVC / CSPE / TFE
	BBA	= PVC / Viton / Ceramic
	BBB	= PVC / Viton / TFE
	BHA	= PVC / TFE/CSPE / Ceramic
	DAA	= PP / CSPE / Ceramic
	DAB	= PP / CSPE / TFE
	DBA	= PP / Viton / Ceramic
	DBB	= PP / Viton / TFE
	GFA	= Clear PVC / TFE / Ceramic (dbl)
	GFB	= Clear PVC / TFE / TFE (dbl)
	EFC	= 316SS / TFE / 316SS (dbl)
CONNECTION SIZES:	**A**	= Tubing .44" PVC Suction / .50" PE Discharge
	C	= Tubing .38" PVC Suction / .38" PE Discharge
	F	= Tubing .44" PVC Suction / .50" PE BLK Discharge
	S	= Tubing .38" PVC Suction / .38" PE BLK Discharge
	X w/ 316	= .25" FNPT Suction / .25" FNPT Discharge
SUFFIX CODES:	**XXX**	= Standard
	001	= Current Interrupter
	500*	= Five Function Valve
	520*	= Five Function Degas Valve
	ITS	= 15 gal ITS Tank System

*** Not available in SS. Adder price is per head.**

A completed model number should look like "X015-XA-BAAAXXX"

CHEM-TECH *KOPkits*

Chem-Tech KOPkit Selection Guide

KX100 - _ _ _ _

PRODUCT DESIGNATOR:	**KX100**	= Chem-Tech Kopkit
LIQUID END MATERIALS: Head, Diaph., Seats & Balls	**AAA**	= Clear PVC / CSPE / Ceramic
	AAB	= Clear PVC / CSPE / TFE
	ABA	= Clear PVC / Viton / Ceramic
	ABB	= Clear PVC / Viton / TFE
	ACA	= Clear PVC / TFE/Viton / Ceramic
	AHA	= Clear PVC / TFE/CSPE / Ceramic
	BAA	= PVC / CSPE / Ceramic
	BAB	= PVC / CSPE / TFE
	BBA	= PVC / Viton / Ceramic
	BBB	= PVC / Viton / TFE
	BHA	= PVC / TFE/CSPE / Ceramic
	DAA	= PP / CSPE / Ceramic
	DAB	= PP / CSPE / TFE
	DBA	= PP / Viton / Ceramic
	DBB	= PP / Viton / TFE
	GFA	= Clear PVC / TFE / Ceramic (dbl)
	GFB	= Clear PVC / TFE / TFE (dbl)
	EFC	= 316SS / TFE / 316SS (dbl)
CONNECTION :	**A**	= Tubing .44" PVC Suction / .50" PE Discharge
	C	= Tubing .38" PVC Suction / .38" PE Discharge
	F	= Tubing .44" PVC Suction / .50" PE BLK Discharge
	S	= Tubing .38" PVC Suction / .38" PE BLK Discharge
	X w/ 316	= .25" FNPT Suction / .25" FNPT Discharge

Series 100, 150, 100D, 150D And 200 Parts Schedule

Part Number	Description
00006	Suction Tubing - per foot 7/16" OD
00007	Suction Tubing - per foot 3/8"
00008	Discharge Tubing - per foot 1/2" OD
00009	Discharge Tubing - per foot 1/2" Black
00010	Discharge Tubing - per foot 3/8"
00011	Discharge Tubing - per foot 3/8" Black
20038	1/2" NPT Connection - PVC - fits Suction side of Pump Head and Back Ck. Vlv. Assy. (per connection)
20039	1/2" NPT Connection - PVC - fits Discharge side of Pump Head and Strainer Assy. (per connection)
J20560	Ball Check (ceramic)
21829	Drive Bracket Assy. S100
21971	Diaphragm Shaft Bushing
22255	Cam Bearing Assy. S100 - 3, 7, 15, 30 GPD
22256	Cam Bearing Assy. S100 - 24 GPD
22257	Cam Bearing Assy. S150 - 68, 100 GPD
J24269	Oil (quart)
24450	Current Interrupter - S100 - 115V
24453	Current Interrupter/Plug Receptacle S200 - 115V
24454	Current Interrupter/Plug Receptacle/Bottom Plate (Std) 115V
24820	Cord Assy. - 115V, 60 Hz
24821	Cord - 230V, 50 or 60 Hz
J24960	Coupling Nut, PVC 1/2" (Standard)
24961	Coupling Nut, PP 1/2"
24963	Coupling Nut, PVC 3/8"
25180	Motor Cover
25704	Diaphragm, CSPE
25706	Diaphragm, Viton
25707	Diaphragm, PTFE Coated
J26780	Injection Fitting, PVC 3/8"
26781	Injection Fitting, PVC 1/2"
26858	Bulkhead Fitting (PP-1/2")
26867	Bulkhead Fitting (PP-3/8")
J26907	Bulkhead Fitting (PVC-1/2")
J26910	Bulkhead Fitting without strainer (PVC-3/8")
J26905	Bulkhead Fitting for ITS (PVC-1/4")
J27903	Gasket, TFE
27911	Gasket
28215	Gear Housing Assembly #260
28217	Gear Housing Assembly #2-100
28218	Gear Housing Assembly #2-120
28521	Grommet
28800	Head, Clear PVC
28803	Head, Polypropylene
28899	Head Assy, (PP-VT-C-1/2" S/D)
28902	Head Assy, (PVC-VT-C-3/8" S/D)
29230	Motor Housing
29313	Main Housing 10, 15, 20, 30, 40, 60, 100 GPD
29314	Main Housing 120 GPD only
30460	Output Adjustment Knob
30467	Output Adj Knob Asm S150
J30496	Housing - S100 - 3, 7, 15, 30 GPD
J30498	Housing - S150, 68, 100 GPD
J30503	Motor - 115V, 60 Hz, S200
J30504	Motor - 230V, 50 Hz, S200
J30505	Motor - 230V, 60 Hz, S200
J30507	Kit, Bleed, Valve, PVC/HPY/ 3/8
J30509	Kit, Bleed, Valve, PVC/VTN/ 3/8
J30510	Kit, Bleed, Valve, PVC/TFE/ 3/8
J30511	Kit, Bleed, Valve, FPP/CSPE/ 3/8
J30513	Kit, Bleed, Valve, FPP/VTN/ 3/8

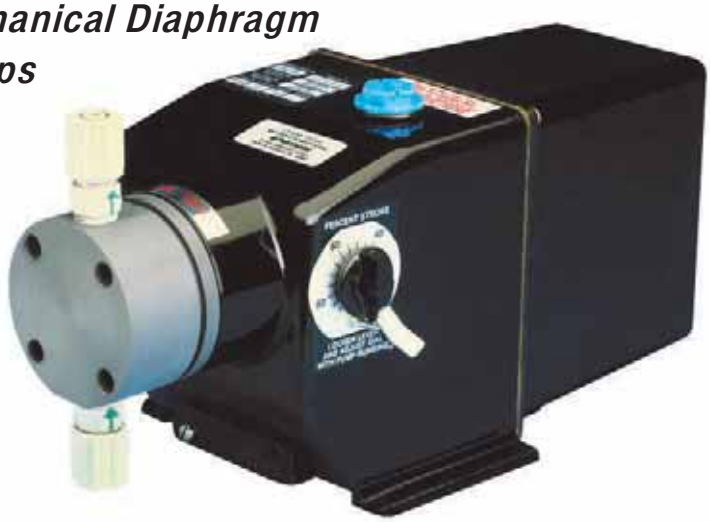
Series 100, 150, 100D, 150D And 200 Parts Schedule

Part No.	Description
J30514	Kit, Bleed, Valve, FPP/TFE/ 3/8
J30515	Kit, Bleed, Valve, PVC/HPY/ 1/2
J30517	Kit, Bleed, Valve, PVC/VTN/ 1/2
J30518	Kit, Bleed, Valve, PVC/TFE/ 1/2
J30519	Kit, Bleed, Valve, FPP/CSPE/ 1/2
L3300V03-FPP	Kit, Bleed, Valve, FPP/VTN/ 1/2
J30522	Kit, Bleed, Valve, FPP/TFE/ 1/2
31081	Locking Lever - S100, 215, 230, 260
31082	Locking Lever 20, 40, GPD S200
31083	Locking Lever - S150, 280, 2-100, 2-120
32520	Motor - 7 SPM, 115V, 60 Hz, 003
32521	Motor - 13 SPM, 115V, 60 Hz, 007
32522	Motor - 25 SPM, 115V, 60 Hz, 015
32523	Motor - 51 SPM, 115V, 60 Hz, 024/030/068
32524	Motor - 7 SPM, 230V, 60 Hz, 003
32527	Motor - 51 SPM, 230V, 60 Hz, 024/030/068
32528	Motor - 7 SPM, 230V, 50 Hz, 003
32530	Motor - 25 SPM, 230V, 50 Hz, 015
32531	Motor - 51 SPM, 230V, 50 Hz, 024/030/068
32532	Motor - 70 SPM, 115V, 60 Hz, 100
32533	Motor - 70 SPM, 230V, 50 Hz, 100
32535	Motor - 70 SPM, 230V, 60 Hz, 100
J34379	Backing Plate
34405	Plate, Motor Cover
34423	Back Plate
34532	Oil Filler Plug w/Cap
37080	Output Adjust Screw 10, 20, 40 GPD
37081	Output Adjust Screw 15, 30, 60 GPD
37083	Output Adjust Screw 80, 100, 120 GPD
37300	Oil Seal
J37440	Valve Seat, CSPE
J37442	Valve Seat, Viton
37886	Diaphragm Shaft
38080	Locking Sleeve
38980	Diaphragm Return Spring
38981	Coupling Spring
38984	Valve Spring - top - light
J38985	Valve Spring
J60717	Foot Valve & Strainer Assy (PVD-CSPE-C-3/8")
J60729	Foot Valve & Strainer Assy (PVD-CSPE-C-1/2")
J60718	Foot Valve & Strainer Assy (PVD-VT-C-3/8")
J60730	Foot Valve & Strainer Assy (PVD-VT-C-1/2")
J41540	Valve Housing Discharge, PVC 1/2"
41543	Valve Housing Discharge, PVC 3/8"
41544	Valve Housing Discharge, PP 3/8"
J41548	Valve Housing Suction, PVC 1/2"
J41834	Valve Housing Suction, PP 1/2"
41551	Valve Housing Suction, PVC 3/8"
J41835	Valve Housing Suction, PP 3/8"
28218	Gear Housing Assembly #2-120
28521	Grommet
28800	Head, Clear PVC
28803	Head, Polypropylene
28899	Head Assy, (PP-VT-C-1/2" S/D)
28902	Head Assy, (PVC-VT-C-3/8" S/D)
29230	Motor Housing
29313	Main Housing 10, 15, 20, 30, 40, 60, 100 GPD
29314	Main Housing 120 GPD only
30460	Output Adjustment Knob
30467	Output Adj Knob Asm S150
J30496	Housing - S100 - 3, 7, 15, 30 GPD
J30498	Housing - S150, 68, 100 GPD
J30503	Motor - 115V, 60 Hz, S200
J30504	Motor - 230V, 50 Hz, S200
J30505	Motor - 230V, 60 Hz, S200
J30507	Kit, Bleed, Valve, PVC/HPY/ 3/8
J30509	Kit, Bleed, Valve, PVC/VTN/ 3/8
J30510	Kit, Bleed, Valve, PVC/TFE/ 3/8
J30511	Kit, Bleed, Valve, FPP/CSPE/ 3/8
J30513	Kit, Bleed, Valve, FPP/VTN/ 3/8
41588	Anti-Siphon Valve (PVC-VT-1/2")
41624	Anti-Siphon Valve (PVC-CSPE-1/2") (Standard)
41657	Back Check Valve Assy (PVC-CSPE-C-3/8")
J41658	Back Check Valve Assy (PVC-CSPE-C-1/2")
41659	Back Check Valve Assy (PP-VT-C-1/2")
41661	Back Check Valve Assy (PVC-VT-C-1/2")
J41667	Double Ball Ck Vlv Cart Assy (PVC-1/2") Suct
41668	Double Ball Ck Vlv Cart Assy (PVC-3/8") Disch
J41669	Double Ball Ck Vlv Cart Assy (PVC-1/2") Disch
J41694	Back Check Valve Assy (PVC-CSPE-C-1/2")
41695	Back Check Valve Assy (PVC-VT-C-3/8")
41696	Back Check Valve Assy (PP-VT-C-3/8")
41705	6" Ck Vlv Inj Assy (PVC-CSPE-C-3/8")
41707	6" Ck Vlve Inj Assy (PVC-VT-C-3/8")
41708	6" Ck Vlv Inj Assy (PVC-VT-C-1/2")
41710	6" Ck Vlv Inj Assy (PP-VT-C-1/2")
41720	Anti-Siphon Valve (PVC-CSPE-1/2" NPT)
41795	Back Check Valve Assy (PVC-CSPE-C-1/2" x 1/2" NPT)
J42020	Head Bolt Washer SS .20 x .38
J42030	Fiber Washer
42031	Washer, Fiber
J60030	Head Assy (SAN-CSPE-C-3/8" D)
J61222	Kit, 5 Function Valve incl L380DT03-PVC for Series 100/200
J61539	Kit, 5 Function Valve incl L380DT02-PVC for Series 100/200
J61503	Kit, S200 Back Plate Screws (5 - J37017, 5 - J42030)
J61504	Kit, S200 Motor Cover Hdwe (2 - J37002, 2 - J42030)
J61508	Kit, S200 Main Housing Screw (2 - 37021, 2 - J42083, 2 - 42031)
J61509	Kit, S200 Shaft Coupling Motor (1 - 24966, 1 - 37060)
J61510	Kit, S200 Shaft Coupling Gear (1 - 24967, 1 - 37061)
J61511	Kit, Screw Motor Cover (2 - J37073)

Mechanical Diaphragm Pumps

Series 250

The Series 250 is a mechanically activated, heavy duty diaphragm feed pump that provide excellent efficiency under strenuous conditions. The Series 250 combines the power and repeatability of piston pumps with the chemical resistance of diaphragm pumps for high pressure applications.



Chem-Tech Series 250 Selection Guide

X25_ - __ - ___ Q XXX

MODELS:	3	= 76.8 gpd (12.11 lph) max pres.: 225 PSI (15.52 BAR)
	4	= 108 gpd (17.03 lph) max pres.: 160 PSI (11.03 BAR)
ELECTRICAL:	XD	= 115V, 50/60 Hz, T.E.F.C.
	XL	= 230V, 50/60 Hz, T.E.F.C.
LIQUID END MATERIALS:	GFA	= PVC / TFE (dbl) / Ceramic
CONNECTION SIZES:	Q	= 44" PVC Suction / .50" PP Discharge
SUFFIX CODES:	XXX	= Standard

A complete model should look like "X253-XD-GFAQXXX"

IMPORTANT NOTES:

1. KOPkits are not available for this model.
2. Shipping weight is 21 lbs.

STANDARD ACCESSORIES:

Models with tubing connections come with a footvalve/strainer/weight, 4' of suction tubing, 8' of discharge tubing, and an injection valve.

Series 250 Parts Schedule

Part No.	Description
00006	Suction Tubing (per foot) 7/16" OD
J00012	Polypropylene Tubing, 1/2" OD - Discharge (per ft)
00013	Polypropylene Tubing, 1/2" OD-Discharge (per ft) - Black
J20560	Ball Check, Ceramic
23705	Collar - Model 253
23706	Collar - Model 254
J24269	Oil (quart)
24820	Cord Assembly, 115V, 60Hz
24821	Cord, 230V, 50-60 Hz
J24960	Coupling Nut - PVC 1/2"
25681	Diaphragm Assembly - Model 253
25682	Diaphragm Assembly - Model 254
J27903	Gasket, TFE
J28815	Pump Head, PVC - Model 253
28816	Pump Head, PVC - Model 254
J28919	Head Assembly, PVC - Model 253 - 1/2"
28920	Head Assembly, PVC - Model 254 - 1/2"

Part No.	Description
29230	Motor Cover / 253 - 254
29313	Pump Housing
30460	Output Adjustment Knob
32545	Motor, 115/230V, 50/60 Hz, TEFC
34532	Oil Filler Plug with Cap
37084	Adjustment Screw
37886	Diaphragm Shaft
J41658	Back Check Valve Assy (PVC-CSPE-C-1/2")
J41667	Double Ball Check Valve Cart Assy (PVC 1/2") Suc.
41668	Double Ball Check Valve Cart Assy (PVC 3/8") Disch
J41669	Double Ball Check Valve Cart Assy (PVC 1/2") Disch
J42020	Bolt Washer (4 required) SS
J60729	Foot Valve & Strainer Assy (PVD-CSPE-C-1/2")
J61516	Kit, Head Mounting Bolts (4 - J37005, 4 - J42020)
J61518	Kit, Gasket TFE (4 - J27930)

MEC-O-MATIC *Peristaltic Pumps*

Dolphin Series

- Exclusive quick-release, twist-off, clear polycarbonate, acid-resistant head to withstand the harshest environment.
- Self-lubricating chemical resistant roller assembly.
- Durable, long lasting tubing with no tube adjustment.
- Rugged and dependable – Heavy-duty shaded pole gearmotor with lifetime lubrication.
- Flexibility in feed rates - from .13 gallons to 97 gallons per day ... to meet the demands of the pool and spa Industry, and elsewhere.
- Agency approvals.

Tested and Certified by WQA against NSF/ANSI 61-Section 8. and CSA B483.1

Contact factory for applicable agency approvals.

Mec-O-Matic DOLPHIN Series Selection Guide

UD__ - __ - ___ U XXX

MODELS:	10	= 13.0 gpd (2.05 lph) max pres.: 25 PSI (1.72 BAR)
	50	= 60.0 gpd (9.46 lph) max pres.: 25 PSI (1.72 BAR)
	75	= 97.0 gpd (15.30lph) max pres.: 25 PSI (1.72 BAR)
ELECTRICAL:	XA	= 115V, 60 Hz
	XL	= Standard 230V, 50/60 Hz, used w/ Model 10 only
	XB	= Standard 230V, 50 Hz, used w/ Models 50 & 75 only
	XC	= Standard 230V, 60 Hz, used w/ Models 50 & 75 only
LIQUID END MATERIALS:	LSA	= Norprene Tubing
	LBA	= Viton Tubing
CONNECTION SIZES:	U	= Tubing .25" I.D. X .44" O.D.
SUFFIX CODES:	XXX	= Standard

A completed model should look like "UD75-XA-LBAUXXX"

Junction Box option is available on 230V models at no additional charge. Contact the factory for model numbers.

Shipping weight for Dolphin Pumps is 7 lbs.

MEC-O-MATIC *KOPkits*

Mec-O-Matic DOLPHIN KOPkit Selection Guide

KUDXX - ____

PRODUCT DESIGNATOR:	KUDXX	= Dolphin Kopkit
LIQUID END MATERIALS:	LSAU	= Norprene Tubing CRM
	LLAU	= Norprene Tubing BLK
	LBAU	= Viton Tubing

DOLPHIN Series Parts Schedule

Part No.	Description
J60552	Strainer Assembly w/o valve
24820	Power Cord 120V
24821	Power Cord 240V
U0817635	Knob
U0817923	Switch, Rocker
U0817942	Screw 10 - 32 X .688", Motor Mount
U0819142	Box, Front
U0819143	Box, Back
U0818180	Potentiometer Assembly
U0818564	Fan D10 (CW)
U0818565	Fan D50, D75 (CCW)
U0812955	Screw 8 - 32 X 1/4", Fan
L9900700-000	Strain Relief

Part No.	Description
U0818616	Gearmotor Assembly, 120V, 10 RPM - D10
U0818617	Gearmotor Assembly, 240V, 10 RPM - D10
U0818618	Gearmotor Assembly, 120V, 50 RPM - D50
U0818619	Gearmotor Assembly, 240V, 50 RPM - D50
U0818620	Gearmotor Assembly, 120V, 75 RPM - D75
U0818621	Gearmotor Assembly, 240V, 75 RPM - D75
U8800431	Tubing cut 1/4" X 15 ft. PE
U8800637	Tubing Replacement Kit (7/16"Norprene Crm)
U8800651	Pump Head Assembly
U8800712	Injection Fitting
U8800740	Kit, Timer 120V (1 - U0818183, 1 - U0020522)
U8800741	Kit, Timer 240V (1 - U0818182, 1 - U0020522)
U8800742	Kit, Pump Head Bearings (2 - U0817121)
U8800743	Kit, Collars (2 - U0817123)
U8800758	Kit, Pump Head Tubing (Viton)

MEC-O-MATIC *Peristaltic Pumps*

VSP Series

- Versatile - The VSP is engineered to dispense low volumes of chemicals at exacting amounts.
- Reliable – Heavy-duty gearmotor... fieldtested, proven peristaltic head... durable chemical-resistant housing.
- Low Maintenance – Self-lubricating roller assembly... NO tube adjustment required... exclusive quick-release, twist-off head.
- Guaranteed – Full one year warranty on dispenser.

Mec-O-Matic VSP Series Selection Guide

UVSP_ _ | _ _ | _ _ _ | U | XXX

MODELS:	**12**	= 12.0 gpd (1.89 lph) max pres.: 25 PSI (1.72 BAR)
	20	= 20.0 gpd (3.15 lph) max pres.: 25 PSI (1.72 BAR)
ELECTRICAL:	**XP**	= 24VAC
	XR	= 120V 50/60 Hz
LIQUID END MATERIALS:	**LLA**	= Norprene Tubing
	LBA	= Viton Tubing
CONNECTION SIZES:	**U**	= Tubing .19" I.D. X .38" O.D. used w/ UVSP12 only
	U	= Tubing .25" I.D. X .44" O.D. used w/ UVSP20 only
SUFFIX CODES:	**XXX**	= Standard

A completed model should look like "UVSP12XRLLAUXXX"

Shipping weight for all VSP pumps is 6 lbs.

VSP Series Parts Schedule

Part Number	Description
J60552	Strainer w/o Valve
U0817122	Collar VSP - 12
U0817123	Collar VSP - 20
U0817742	Hose Clamps
U0817923	Switch
24820	Power Cord 120 V
U0819142	Front Housing
U0819143	Rear Assembly
L9710200-000	Lead Assembly
U0818083	Hole Plug
U0818305	Printed Circuit Board 24V
U0818306	Printed Circuit Board 120V
U0818320	Power Cord 24V
U0818463	Fuse 24V, 1/2 Amp
U0818464	Fuse 120V, 1/8 Amp
U0818667	Gearmotor Kit
U7013397	Tube Kit VSP - 20
U8800431	15" X 1/4" Poly Tubing
U8800651	Pump Head Kit
U8800700	Tube Kit VSP - 12
U8800712	IPF Auto Clean Injection Fitting
U8800739	Kit, Motor Mount (2 - U0818666, 2 - 32946, 2 - U0811297)
U8800742	Kit, Pump Head Bearings (2 - U0817121)
L9900700-000	Strain Relief

MEC-O-MATIC *Peristaltic Pumps*

Series 2400T Grease Trap Dispenser

- Capable of Dispensing Low Volumes
- Programmable
- Simple Installation
- Prime Push Button for Quick Start-Up
- Quick Release Twist Off Head
- Built-In Timer
- No Tube Adjustment Needed
- Self Lubricating Roller Assembly

Contact factory for applicable agency approvals.

Mec-O-Matic 2400T Series Selection Guide

UT24 ___ - __ __ ___

MODELS:	UT24	= 2.5 gpd (0.39 lph) max pres.: 25 PSI (1.72 BAR) used w/ 2400T & 2400T PLUS
	UT24	= 3.0 Oz / 1 Min max pres.: 25 PSI (1.72 BAR) used w/ 2400T-DC only
ELECTRICAL:	-XA	= 115V, 60 Hz used w/ 2400T only
	PXA	= 115V, 60 Hz used w/ 2400T PLUS only
	-AD	= 12V DC used w/ 2400T-DC only
LIQUID END MATERIALS:	LT	= Silicone Tubing
	LB	= Viton Tubing
	LL	= Norprene Tubing used w/ 2400T-DC only
CONNECTION SIZES:	AU	= Tubing .125" I.D. X .31" O.D.
	XU	= Tubing .25" I.D. X .44" O.D. used w/ 2400T-DC only
SUFFIX CODES:	XXX	= Standard

A completed model should look like "UT24-XA-LBAUXXX"

1. 2400T comes standard with 24 hour mechanical timer. 2400T plus and DC utilizes a 7 day, 8 event programmable timer
2. 2400T DC Pump requires 8 "D" cell batteries (not included).
3. Shipping weight is 7.5 lbs.

2400T & T PLUS Series Parts Schedule

Part No.	Description
J60552	Strainer Assembly w/o Valve
U0817131	Tubing Assy 5/16" X 9" Silicone
U0817742	Hose Clamp
U0817888	Pump Head Screw
U0817942	Screw 10 - 30 X .688", Motor Mount
U0817952	Timer (2400T)
U0818018	Indicator Light
U0819145	Pump Housing (front-2400T Plus)
U0819144	Pump Housing (front-2400T)

Part No.	Description
U0819143	Pump Housing (rear)
U0818564	Fan
U0818602	Gearmotor Assembly
U0818740	Timer (2400T Plus)
U8800431	15' X 1/4" PE Tubing
U8800712	Injection Fitting
U8800753	Pump Head Assembly Kit (No Tubing)
U0812955	Hex Screw 8 - 32 X 1/4"
L9900700-000	Strain Relief

2400T DC Series Parts Schedule

Part No.	Description
U0812955	Screw 6 - 32 X .25" PHP
U0817888	Shoulder Screw
U0818026	Spacer SST (Motor)
U0818666	Screw 8 - 32 X 1.25 FHP
U0818881	12V DC Motor
U0818895	1/4" X 20' Tubing PE

Part No.	Description
U0818902	Battery Holder Assembly
U0819037	12V DC Timer LO AMP
U8800490	Injection Fitting
U8800637	7/16" Tubing Kit (Peristaltic)
U8800651	Pump Head Assembly Kit (No Tubing)
U8800700	3/8" Tubing Kit
U8800742	Kit, Pump Head Bearings (2 - U0817121)

Policies and Procedures

1. Manufacturer's Equipment Warranty

a. Pulsafeeder warrants all pumps and controllers of its manufacture to be free of defects in material or workmanship. Liability under this policy extends for 24 months from the date of shipment. The manufacturer's liability is limited to repair or replacement of any failed equipment or part which is proven defective in material or workmanship upon manufacturer's examination. This warranty does not include removal or installation costs and in no event shall the manufacturer's liability exceed the selling price of such equipment or part.

b. The manufacturer disclaims all liability for damage to its products through improper installation, maintenance, use or attempts to operate such products beyond their functional capacity, intentionally or otherwise, or any other unauthorized repair. The manufacturer is not responsible for consequential or other damages, injuries or expense incurred through the use of its products.

c. The above warranty is in lieu of any other warranty, whether expressed or implied. The manufacturer makes no warranty of fitness or merchantability. No agent of ours is authorized to provide any warranty other than the above.

2. Pulsafeeder's Parts and Accessory Warranty

a. Pulsafeeder, Inc. warrants parts and accessories provided to be free of defects in material or workmanship. Unless otherwise noted below, liability under this policy extends for 90 days from date of shipment from the factory when sold as service parts. (Replaceable elastomeric parts (PTFE) are expendable and are not covered by any warranty either expressed or implied.)

b. This policy is extended to a full 12 months from the date of installation or 18 months from shipment from the factory whichever comes first on the following accessories;

Digital Glycol Feeders	Pre-Engineered Systems	Corrosion Coupon Racks
Analog Timers	Water Meters	Flow Controllers

c. MicroTrac and MicroVision toroidal probes are warranted for 24 months from date of shipment from the factory when purchased in conjunction with the controller.

All other electrodes/probes and sensors are considered maintenance items and such are warranted for six (6) months from the date of shipment when purchased in conjunction with the controller.

Any electrodes/probes other than toroidal and sensors purchased as spare parts are warranted for 90 days from date of shipment.

d. The manufacturer's liability is limited to repair or replacement of any failed equipment or part which is proven defective in material or workmanship upon manufacturer's examination. This warranty does not include removal or installation costs and in no event shall the manufacturer's liability exceed the selling price of such equipment or part.

e. The manufacturer disclaims all liability for damages to its products through improper installation, maintenance, use or attempts to operate such products beyond their functional capacity, intentionally or otherwise, or any unauthorized repair. The manufacturer is not responsible for consequential or other damages, injuries or expense incurred through the use of its products.

f. The above warranty is in lieu of any other warranty, whether expressed or implied. The manufacturer makes no warranty of fitness or merchantability. No agent of ours is authorized to provide any warranty other than the above.

3. Process for All Returned Goods (Warranty Items)

a. Please contact our Technical Service Department to request a RMA (Return Material Authorization) number prior to returning any goods. The following information will be required:

Billing and ship-to address
Model number and serial number
Contact name and phone number
Reason for return
Purchase order (where applicable)

A packing slip will be provided to the shipper and MUST accompany the product being returned. Packages received without our proper packing list will be refused by the receiver.

b. All material must be returned freight prepaid.

c. All material must be properly packaged to prevent damage in shipment.

d. All products used in a chemical application MUST accompany an MSDS

e. All products MUST be wiped and flushed clean of any and all chemicals, solvents or buffers and be warranted to be safe for handling. You will be requested to acknowledge the condition of the product being returned on our packing list. Any product received that is deemed to be unsafe for handling or without this acknowledgement will be refused by our receiver.

f. All warranty repairs will follow the 2 year warranty policy and will refer to the original purchase date.

4. Non-Warranty Return Procedure (Charge Repair)

a. If you are experiencing a concern with your Pulsafeeder product, first consult the distributor, dealer or Regional Sales Manager or the operation and maintenance manual for assistance. If service of your non-warranty unit is necessary, you must request a return material authorization. A RMA form will be issued and must be used as the packing list attached to the outside of the box. Please send the unit freight prepaid with the RMA number visibly displayed on the outside of the carton. All products MUST be wiped and flushed clean of any and all chemicals, solvents or buffers and be warranted to be safe for handling. You will be requested to acknowledge the condition of the product being returned on our packing list. Any product received that is deemed to be unsafe for handling or without this acknowledgement will be refused by our receiver.

b. All products used in a chemical application MUST accompany an MSDS

c.. The charges listed in the following table will apply.

Product	Repair Cost
Pumps and Pump Accessories – within 5 years of sale date	Current List Price x .50 x Part Discount Multiplier
Controllers and Controller Accessories within 5 years of sale date	Current List Price x .50 x Part Discount Multiplier
Any item older than 5 years from date of sale	With purchase order, $50 bench fee to evaluate. The $50 bench fee may be applied towards repair cost of unit or towards a new controller

All Charge Repairs have a 90 day warranty from date of repair.

Policies and Procedures continued

5. Credit for Return of New, Unused Equipment

a. No equipment will be accepted beyond six months after date of shipment from factory for credit.
b. Only new, unused and undamaged standard equipment will be accepted for return to stock.
c. All credits are based on evaluation and acceptance of material as new and unused by Pulsafeeder. You will be requested to acknowledge the condition of the product being returned on our packing list. Any product received that is deemed to be unsafe for handling or without this acknowledgement will be refused by our receiver.
d. A restocking fee of 25% will apply to returned goods. When a PO is provided for a replacement item at the time of the return request the restocking fee will be 15%. Note: any product mounted on a panel or skid will be charged a 50% re-stocking fee.
e. A request for a Returned Material Authorization (RMA) number must be made prior to returning product to Pulsafeeder.
f. All equipment shall be returned with the RMA Packing List form attached to the outside of the box.
g. If any chemical, solvent or buffer has been introduced into the product it must be wiped and flushed clean of any and all substances prior to returning to Pulsafeeder.
h. All material shall be returned freight prepaid.
i. Private label products or Engineered Panel Mount Systems are not returnable.

6. Pricing Errors

a. Pulsafeeder does their very best to avoid errors in billing. You will receive a confirmation of your order within 24 hours of order entry. If upon review the customer feels there is a discrepancy, they should contact Pulsafeeder Customer Service as soon as possible to resolve.
b. Should an invoice be received that the customer believes to have incorrect pricing, they should notify Pulsafeeder Customer Service to investigate.

7. Missing Items

a. If a product is received by the customer with an item missing the customer must notify Pulsafeeder Customer Service within 7 days of receipt of the product by the end user. A replacement item will be sent at no charge as quickly as possible.
b. If a shipment is received by the customer with a line item missing they must notify Pulsafeeder Customer Service within 7 days of receipt of the product by the end user. If the customer had been billed for that item, a credit will be issued against the original Sales Order and a new Sales Order will be created for the replacement product.

8. Damaged Items

a. Should the customer receive an order that was damaged in transit, the customer must notify the carrier directly to initiate a claim on the day of delivery.
b. Should the customer receive a product with damaged components due to improper packaging they should notify Pulsafeeder Customer Service within 7 days of receipt of product by end user. A replacement item will be sent at no charge as quickly as possible.

9. Technical Support Services Available

a. Pulsafeeder'sSales Support teamavailable*all yourand support. The principle mission of this group is to sell and support our customer base in a timely and effective manner. This includes the ability to provide in-field service training, assistance in start -upof our products and perform field repair of goods when required.*
b. Scope
Pulsafeeder, Inc. factory Field Service Technicians are available throughout the World for field services on all Pulsafeeder products. Services include:
   i. Maintenance Training Seminars, including Classroom slide presentations and or Hands-on Training. The seminar will take approximately four to five hours, and if time permits minor repair and or adjustments may be made to the customer's pumps, controllers or accessories.
   ii. Pre-start up inspections and start up testing/calibration of pumps, controllers and accessories.
   iii. Field repairs of pumps controllers and accessories
   iv. Diagnosing and recommending solutions to systems problems.

Fee Schedule Field Repairs and Start-Ups	Service Rate (1)
Normal 8 hour day	$125.00 / hour
Overtime (in excess of 8 hrs each day)	$175.00 / hour
Sundays, National Holiday	$225.00 / hour
Travel time to job site and return	$115.00 / hour
Travel expenses (air fare, hotel, car and meals)	Chargeable to customer at cost.
Minimum charge	4 hour labor, plus travel time and expenses
End User Training Seminars	
Normal work day	$1000.00 / day plus expenses (air fare, car rental, hotel and meals at cost)
Sundays, National Holiday	$1800.00 / day plus expenses (air fare, car rental, hotel and meals at cost)

(1) *All rates listed in this section are actual hourly and daily rates, not reference rates*

TERMS & CONDITIONS

1 . AGREEMENT. The contract of sale resulting from Seller's documentation together with these terms and conditions ("Contract") constitutes the entire agreement between the parties hereto, except as modified in writing signed by both the Seller and Purchaser. The Seller is Pulsafeeder, Inc. and the Purchaser is identified in the Contract. Any terms in a purchase order, irrespective of their materiality, which are either different from or additional to Seller's conditions of sale, are objected to and are excluded unless the Seller expressly agrees in writing to such terms. Execution of such forms by Seller to accommodate Purchaser's procurement or accounting procedures or to evidence agreed up on change orders shall not be construed as assent to Purchaser's terms. Acceptance of the goods shipped shall constitute assent to Seller's conditions of sale. This Contract shall be binding up on Purchaser and Seller, and on their successors and assigns.

2 . PROPOSAL OR QUOTATION. A proposal shall not become binding up on Seller until it has been executed and returned by Purchaser. An oral quotation shall not be considered an offer: only a written confirmation thereof incorporating Seller's terms and conditions shall constitute an offer. All quotations are valid for 30 days unless stated different on the written quotation.

3. ORDER PLACEMENT. All orders shall be subject to acknowledgement by Pulsafeeders and shall be subject to Pulsafeeder's terms and conditions in effect on the date the order is accepted. No modifications to the terms and conditions referred to or contained in any request for proposal, order, or other document from a customer shall apply unless negotiated and approved via written documentation with Pulsafeeder SPO. Any order cancellation or change request is subject to a cancelation / change fee.

The minimum order amount is US$ 30.00 based on Pulsafeeders list prices in effect at the time the order is received.

All orders must be submitted with correct pricing and shipping information. Orders submitted without correct pricing and shipping information may be rejected or delayed.

4 . CREDIT. Credit terms of payment must have the approval of Seller's Credit Department and must be specified in writing on Seller's invoice or in the Contract. If Purchaser's credit is found by Seller to be unsatisfactory . Seller may rescind or terminate this contract. If at any time during the term of this contract purchaser's financial responsibility becomes impaired or unsatisfactory to Seller, Seller reserves the right to stop shipment on notification to Purchaser, project owner and surety with a demand for payment in advance or at time of delivery for future deliveries or to require other security satisfactory to Seller and in the absence thereof, to cancel the unfilled portion of the Contract. Seller will notify Purchaser promptly of its decision to stop shipments and give an advance notice to the extent this is possible. In the absence of credit terms, sales are for cash.

5. PAYMENT. Specific terms of payment for this order shall be set forth on the reverse side of this Contract or identified and appended hereto. Purchaser agrees to make payment at Seller's location specified in this Contract in lawful money of the United States. Purchaser further agrees to make all payments when due to Seller in accordance with the agreed terms of payment in this Contract without reference to Purchaser's agreement with or payments by the owner and with no right of retention.

6 . INTEREST AND COSTS. Purchaser agrees to pay interest at 1.5% per month (to the extent permitted by law) on all delinquent balances if and when assessed by Seller, and any attorney's fees or court costs arising out of and made necessary in collection of its obligation to Seller created by this Contract.

7 . TAXES. Any federal, state or local tax assessment, fee, duty or charge hereafter imposed on or measured by the products purchased hereunder shall be for Purchaser's account unless Purchaser furnishes Seller an acceptable exemption certificate from such tax, fee, duty or charge prior to shipment.

8 . FORCE MAJEURE. Seller shall make delivery in accordance with the terms of this Contract or within a reasonable time in the absence of any commitment, but Seller shall not be liable for delays or defaults in delivery caused by floods, fires, storms, or other acts of God, by war or act of public enemy (or civil disturbance), strikes, lock outs, shortages of labor or raw materials and supplies (including fuel) or production facilities, transportation service or equipment shortages or failures, action of any governmental authority or other conditions beyond Seller's reasonable control.

9 . CANCELLATION. If Purchaser desires to cancel or change any portion of this Contract, the purchaser must make such request in writing to Seller. Seller may, in its sole discretion, accept or reject any such request. If accepted, the Purchaser nonetheless must take delivery and make payment to Seller for all material manufactured and in process of manufacture at time of notice, and all special materials ordered at time of notice and for which Seller must take delivery , unless otherwise agreed by Seller in writing. All such materials must be removed from Seller's premises within 30 days after payment and payment will due at time of notice. Seller also reserves the right to make a cancellation charge in the event of cancellation by the Purchaser of an order placed in Seller's shipping schedule and acknowledged by Seller. **Any order cancellation is subject to a cancelation fee.**

10 . INSPECTION AND TESTING . Seller's standard specifications and tests apply to all orders. All charges for inspections or tests not regularly furnished are for Purchaser's account and subject to prior negotiation. All inspections shall be conducted at Seller's plant, and failure of Purchaser to avail himself of inspection privileges shall be deemed a waiver of such privileges.

11 . PRICES. Prices are subject to change without notice. Orders based on published prices and accepted for scheduled shipment will be invoiced at Seller's applicable price in effect on the scheduled date of shipment, unless otherwise specifically noted on the order acknowledgment. All prices will be in accordance with applicable government regulations. Orders specifying palletizing or special packaging will involve special charges.

12 . DELAYS. All orders are accepted subject to Seller's ability to make delivery at the time and in the quantities specified, and Seller shall not be liable for damages for failure to make partial or complete shipment or for any delay in making shipments. Purchaser shall be liable for any added expenses incurred by Seller because of Purchaser's delay in furnishing requested information to Seller, delay resulting from order changes by Purchaser, or delay in unloading shipments at delivery point.

13 . SHIPMENT. Seller will select method of shipment and routing when transportation charges are for account of Seller. When shipping instructions are specified by the Purchaser, all costs will be for the account of the Purchaser. The foregoing includes, but is not limited to, carriers charges for notification prior to delivery, demurrage, delay in unloading, diversion, or reconsignment. All shipments are Free Carrier (FCA) or EX Works(EXW) (Incoterms 2010) shippers dock Punta Gorda FL.

On all customer arranged freight (will advise) the customer has 48 hours after Pulsafeeder has advised them that the shipment is complete and ready for shipment to arrange pickup. If the shipment has not left Pulsafeeder within the 48 hour period the customer will be charged 1% of the shipment invoice value for each 24 hour period that the shipment remains at the Pulsafeeder facility. Pulsafeeder may also place the shipment in a public storage at the customer's expense and without liability to Pulsafeeder.

Any expedited order will be subject to a expedite fee.

Unless the order clearly requests expedited shipping, the order will be treated as a routine order. When expedited shipping is requested a designated carrier must be selected. Orders that need to ship the same day must be received by 2:00 PM EST. Same day and next working day shipping is generally available for larger orders but not guaranteed, please verify with customer service. Pulsafeeder shall have no liability if it is unable to provide expedited shipping of an order.

14 . TITLE. Title to products transfers up on shipment from the Pulsafeeder facility according to FCA Shippers Dock or EXW Punta Gorda FL (Incoterms 2010). Purchaser is then responsible for proper protection of product, placement, compliance with all regulations and ordinances, and will indemnify Seller against all claims for personal injuries or property damage arising from the storage, use or handling of such products.

15 . IN TRANSIT CLAIMS. Claims for damage or shortage in transit must be made against the carrier by the owner of the shipment according to the FCA or EXW terms of the Contract. Purchaser has the responsibility to inspect shipments before or during unloading to identify any such damage or shortage and see that appropriate notation is made on the delivery tickets or an inspection report furnished by the local agent of the carrier in order to support a claim.

16 . CLAIMS. Notice of Claims against Seller hereunder for any reason, must be made to Seller in writing promptly after discovery and within any applicable warranty period. Failure to give such notice to Seller shall constitute a waiver by Purchaser of any right later to assert such a claim.

17 . RETURNS. Returned goods shall be accepted for credit only if in salable condition and only with evidence of Seller's prior written consent. Seller will assess charges for freight both ways and any costs necessary to restore such goods to the regular plant inventory . The amount of credit given will depend further up on the degree of salability of products accepted in opinion of Seller.

18 . PATENTS. Seller agrees to defend, and to protect Purchaser against loss or damage arising out of any legal action for patent infringement in connection with the manufacture of its products sold to Purchaser, provided Seller is notified promptly of any such action with complete information and is given an opportunity to defend.

19 . WARRANTY : LIMITATION OF LIABILITY. Seller warrants title to each individual product sold under this Contract and further warrants for a period of twenty four (24) months from ship date, but only to the extent and limit of the purchase price paid for such individual product, that such product conforms to the specifications set forth in the Contract and is free from defects in material and workmanship under normal service and use for which it was designed. Seller's sole obligation and Purchaser's exclusive remedy under this warranty shall be limited to one of the following, as selected by Seller: delivering to Purchaser a replacement for any product or part thereof determined by Seller to be defective, repairing such product or part, or refunding the purchase price (or an equitable portion thereof) paid for such product or part by Purchaser. SELLER MAKES NO WARRANTY OF FITNESS OR MERCHANTABILITY, AND NO OTHER WARRANTY, WHETHER EXPRESS OR ARISING BY OPERATION OF LAW, COURSE OF DEALING, USAGE OF TRADE OR OTHERWISE IMPLIED SHALL EXIST IN CONNECTION WITH SELLER'S PRODUCTS OR ANY SALE OR USE THERE OF. Purchaser must notify Seller promptly and within the warranty period of any claim under this warranty. Seller's warranty extends only to the first purchaser of a product from Seller or Seller's authorized distributor. All goods not manufactured by Seller are warranted only to the extent of the warranties of the original manufacturer. Seller disclaims any liability arising from tort, including strict liability , and Seller further disclaims any liability (whether arising under this or any other provision of this Contract or otherwise) for any costs (including costs of removal or replacement), liabilities, lost profits, loss of good will or any other general, special, incidental or consequential damages incurred by Purchaser in connection with this Contract or any product purchased there under.

20 . LAW . This order shall be governed by and shall be construed by the law of the State of New York .

21 . GOVERNMENTAL REGULATIONS. Seller warrants that no code, law, regulation or ordinance of the United States, a state or any other governmental authority or agency or any applicable Executive Order has been violated in the manufacture or sale of the items covered by this Agreement and warrants that the equipment, supplies, and/or articles covered thereby conform with all such requirements.

22 . NUCLEAR FINANCIAL PROTECTION. Purchaser agrees to procure and maintain, as available to it, nuclear energy liability insurance, in a form of policy approved by the Nuclear Regulatory Commission, and protection, as available, against liability for nuclear incidents not covered by such insurance through an indemnity agreement, as provided in Section 170 of the Atomic Energy Act of 1954, as amended, or any succeeding comparable statutory provision, and the regulations there under. Such financial protection shall be effective prior to the time any equipment purchased from us is used or installed at or in connection with any nuclear facility and shall cover us an insured party . To the extent that such financial protection is not suitable to Purchaser. Purchaser agrees to use its best efforts to cause such financial protection to be obtained by eligible parties. We will cooperate with Purchaser and representatives of the nuclear energy insurance syndicates in complying with all underwriting requirements and with those insurance recommendations which may be mutually agreed up on. Notwithstanding any representations or warranties made by us elsewhere in these conditions of sale, we shall not be responsible for any bodily injury or property damage liability or any other public liability for any nuclear incidents, whether or not in respect of or arising in connection with use or installation of our equipment at any nuclear facility or in connection with any such facility . Purchaser hereby assumes any liability which might otherwise be imposed up on us and agrees to indemnify us and hold harmless from any such liability and costs or expenses in connection therewith.

PULSAFEEDER
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www.pulsatron.com

An ISO 9001 Certified Company

IDEX FLUID & METERING

PULSAFEEDER®

Cooling Tower Controllers

MicroTrac MicroVision

Pulsafeeder Expertise

Technology is the key to delivering responsible products to the markets that we serve. Leading the way in the development of metering technologies, Pulsafeeder continues to set the standard for accuracy, reliability and safety.
Innovation is another hallmark of Pulsafeeder. Helping customers find a new approach to an old problem is what we do best.

Intertek 9700150

NEMA 4X

Model Specific QR Code

Pulsafeeder assists everyone in the field with information for ***THAT SPECIFIC PRODUCT***, quickly and easily. No dedicated app needed. Simply use your QR Reader on your smart phone or tablet and scan the QR Code located on the Pulsafeeder product label, either Pump or Controller.

- Identify - Model Number, Serial number, KOPkit (Repair Kit)
- View - Quickly find product information such as parts list, IOM, tech sheet and more
- Contact - Call or email Tech Support immediately to assist you
- Email - Send this information to yourself or someone else, to save or even view later

Cooling Tower Controller Technology

Pulsafeeder's line of Cooling Tower Controllers are designed for simplicity and reliability. Offering affordable, high performance MicroVision and MicroTrac Controllers are specifiable and intuitive. Pulsafeeder Cooling Tower Controllers provide you the control of your cooling tower system, with the ability to accurately control the level of dissolved solids, conductivity, makeup, corrosion inhibitor, biocide chemicals, feed inhibitor and much more. With multiple control options available in Pulsafeeder Cooling Tower Controllers we are sure to have a unit to fit your Cooling Tower needs.

Toroidal Sensor Technology

Featuring innovative toroidal sensor technology, the MicroVision and MicroTrac Cooling Tower controllers provide an economical control platform that is not susceptible to sensor fouling and never requires calibration! The toroidal conductivity sensor is factory calibrated for the life of the probe eliminating routine calibrations which saves you valuable service time and money. By design, Pulsafeeder's toroidal conductivity sensor features no exposed electrodes this eliminates cleaning of the sensor, downtime, and erroneous conductivity readings. When installed according to the manufacturer's instructions, the need for routine sensor removal and cleaning is virtually eliminated.

Standard Sensor Specifications

- Maximum Temperature: 122^{0}F / 50^{0}C
- Temperature Compensation Range : 32^{0}F - 122^{0}F / 0^{0}C - 50^{0}C
- Maximum Pressure: 125 PSI (8.6 BAR)
- Sensor Type: Toroidal
- Cable Length, Standard: 15' / 4.5 m
- Cable Length, Maximum: 750' / 228.6 m
- Materials of Construction: Virgin Polypropylene

Features & Benefits

Simple Programming
- Soft keys touch pad programming
- Intuitive menus make program adjustments easy & understandable

Easy Installation and Easy to Use
- Pre-wired and conduit connection options make easy installation
- Large graphical display
- LED function indicators
- Touch pad program keys provide clear and precise system information

Toroidal Probe
- No calibration required
- Reduced potential for fouling
- Factory calibrated

Heavy Duty Enclosure
- NEMA 4X rated
- Easy Installation

MicroTrac Features & Benefits

Timers
- Water meter pulse timer
- Percent timer
- % Post bleed timer
- Limit timer

Selectable Set Point
- Rising
- Falling
- Open or closed loop control

MicroVision Features & Benefits

Selectable Timers
- Limit
- Percent
- % Post bleed with limit
- Water meter
- Dual biocide timers

Digital Inputs
- Flow switch
- 3 Drum level
- Dry contact water meter
- Hall effect

Outputs
- 4-20 mA isolated analog
- Dry contact alarm
- Bleed (Solenoid valve or motorized ball valve)

MicroTrac Cooling Tower Controller

The MicroTrac is a microprocessor based feed and bleed, toroidal conductivity controller designed to control conductivity and feed inhibitor in cooling tower systems. Featuring innovative toroidal sensor technology, the MicroTrac provides an economical control platform that is not susceptible to sensor fouling and never requires calibration!

The MicroTrac measures the conductivity of the cooling tower recirculating water via a toroidal conductivity sensor. The controller activates two independent relay outputs based on bleed and a selectable feed mode of operation. The MicroTrac conductivity controller has a 0 - 9,999 µS/cm range, making it ideal for other applications as well, such as rinse, industrial process, wastewater, etc.

Controller Specifications

- Enclosure: NEMA 4X / IP65
- Dimensions: 6.44 x 3.2 in (163 x 82 mm)
- Power Supply: 90 VAC / 50/60Hz / 5A; 250 VAC / 50/60Hz / 5A
- Control Output: Line Voltage @240VA per Relay (2 Amps @ 120VAC)
- Display: LCD
- Set Point Range: 0 – 9,999 µS/cm
- Set Point Differential (Hystersis): Fixed 5% below the set point

Flow Switch Specifications

- Max. Temp: 122°F (50°C)
- Max. Pressure: 125 PSI (8.6 BAR)
- Activate Flow Rate: Approximately 1 GPM / 3.78 LPM
- Materials of Construction: PVC and Glass filled Polypropylene

Typical Applications

- Comfort Cooling Process
- Industrial Cooling
- Rinse
- Industrial Process
- Wastewater

MicroVision Cooling Tower Controller

The MicroVision is a microprocessor-based torodial conductivity controller with selectable timer and dual biocide control. Designed specifically for cooling tower applications, MicroVision comes standard with the features and functions you need for accurate monitoring and control of cooling tower water. The MicroVision is a full function controller in a compact package that won't break your budget!

Controller Specifications

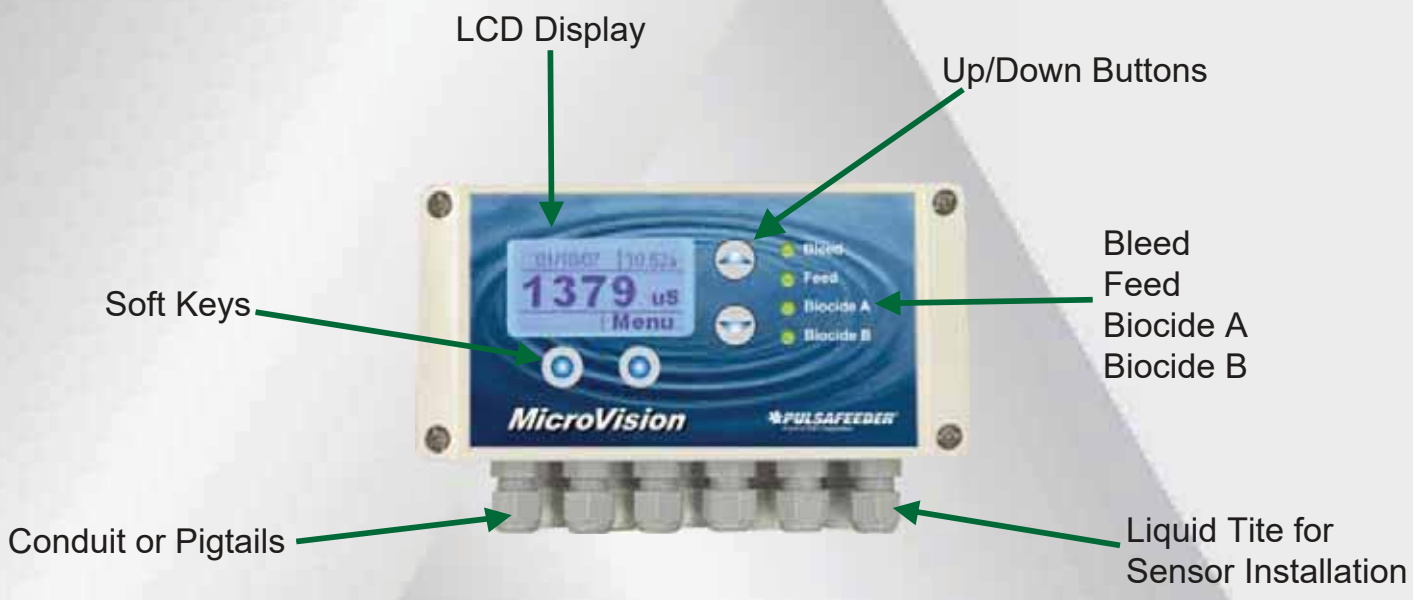
- Enclosure: NEMA 4X / IP65
- Dimensions: 6.44 x 3.2 in (163 x 82 mm)
- Power Supply: 90 VAC / 50/60Hz / 5A; 250 VAC / 50/60Hz / 5A
- Control Output: 5 Amps max
- Display: LCD
- Set Point Range: 0 – 9,999 µS/cm
- Languages: English, Spanish, Portuguese

Flow Switch Specifications

- Max. Temp: 122°F (50°C)
- Max. Pressure: 125 PSI (8.6 BAR)
- Activate Flow Rate: Approximately 1 GPM / 3.78 LPM
- Materials of Construction: PVC and Glass filled Polypropylene

Typical Applications

- Comfort Cooling Process
- Industrial Cooling
- Rinse
- Industrial Process
- Wastewater



System Options

Flow Assembly

Optional

- 125 psi max
- Available with or without panel

Standard Panel and Flow Assembly

Optional

- Flow Assembly per mounted on poly panel
- Quick, simple installation

Panel Mounted with Pumps

Optional

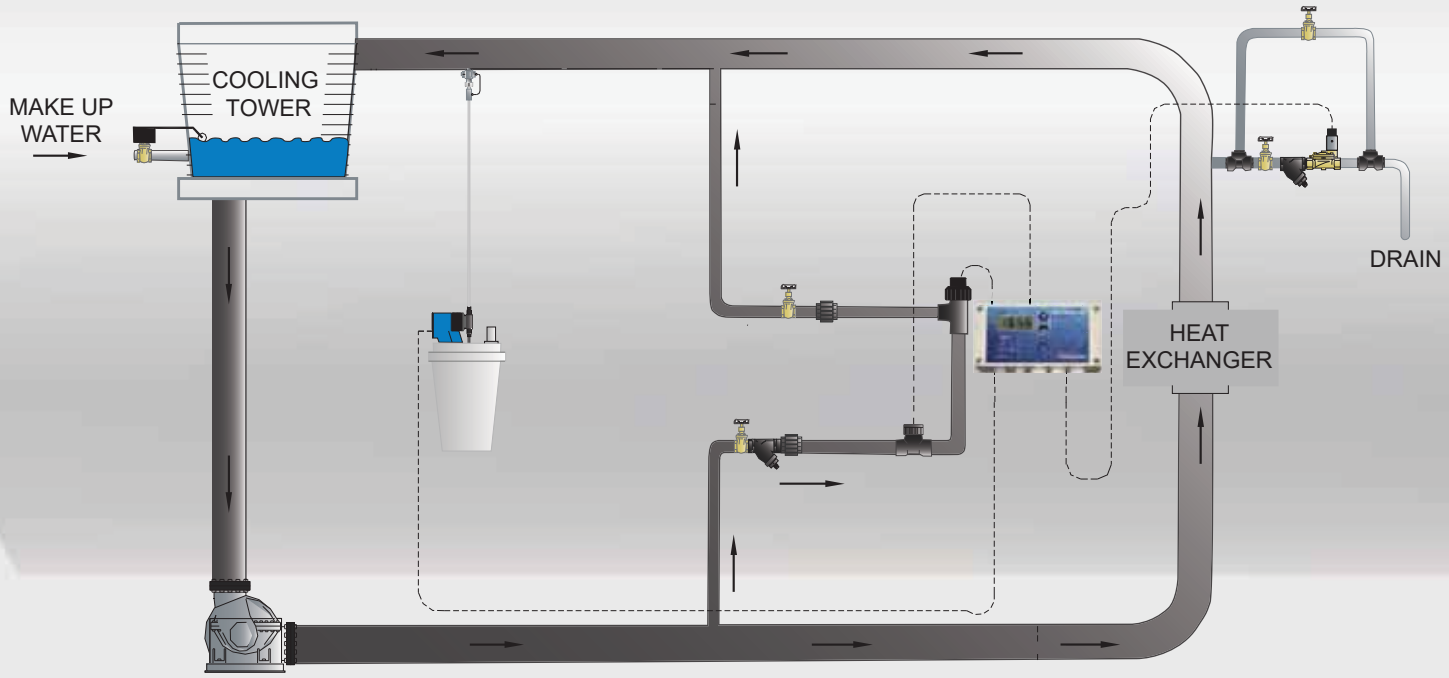
- **MicroTrac, Panel & Flow Assembly** includes 1 pump mount, in/out ball valves, strainer, inj. tee & rails
- **MicroVision, Panel & Flow Assembly** includes from 1 to 3 pump mount(s), strainer, sensor tee, inj. tee(s) & rails

MicroTrac Typical Installation

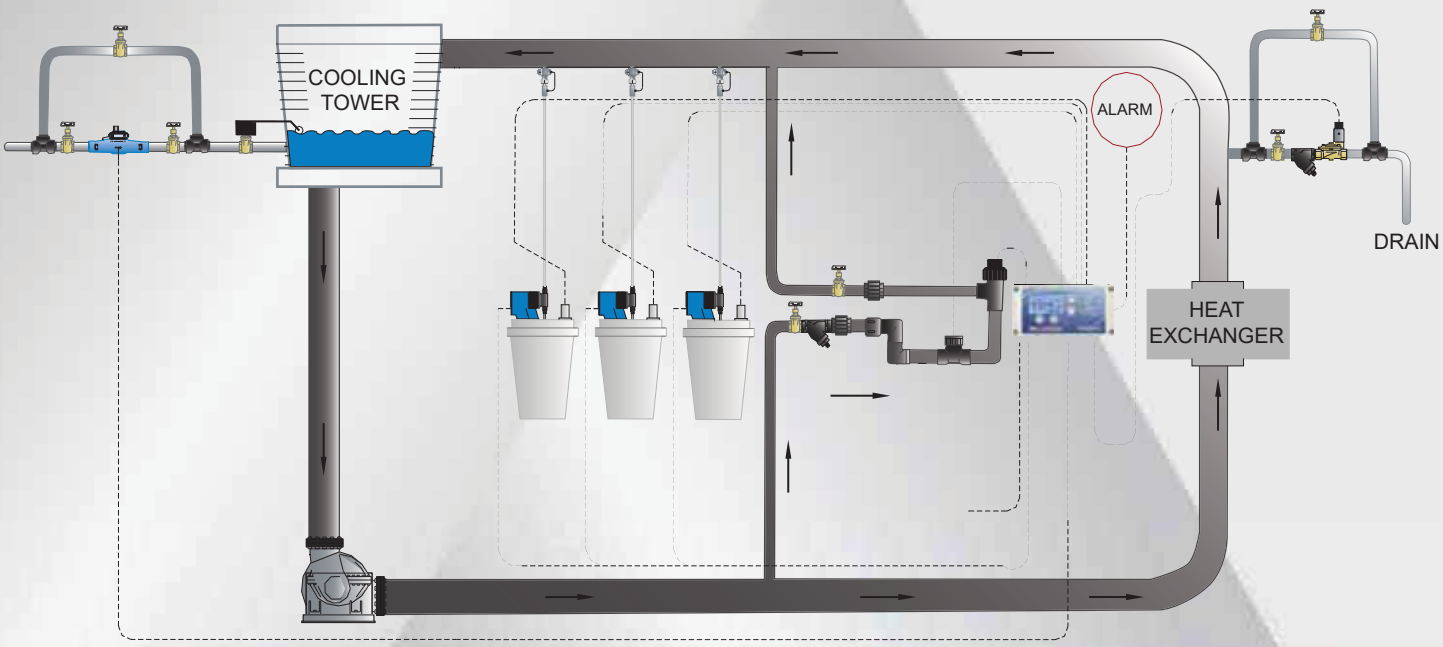
Typical Installation Includes:

- Solenoid Valve
- Water Meter
- Isolation Valves
- Metering Pumps

All Available from Pulsafeeder!



MicroVision Typical Installation



Parts & Accessories

PULSAFEEDER pulsatron.com GENUINE PARTS

PULSAtron Series Electronic Metering Pumps

The PULSAtron Series A Plus and E Plus electronic metering pumps can be used with the MicroVision and MicroTrac Series controller for timer based chemical metering.

CHEM-TECH Series Peristaltic Metering Pumps

The CHEM-TECH Series XP and XPV peristaltic metering pumps can be used with the MicroVision and MicroTrac Series controller for timer based chemical metering.

Coupon Racks

Designed to provide reliable, convenient side stream monitoring using ASTM standard coupons. These rugged systems can be configured for up to six monitoring stations.

Solenoid Valves - Cooling Tower Applications

Solenoid Valves for use in your cooling tower application.

Contacting Head Water Meters Multi-Jet Meters

3/4 in. to 2 in., are designed for use in conjunction with a pulse timer to proportionally control pumps, valves etc. The Multi-Jet chamber of the water meter assures accuracy over a wide range of flows with low head loss.

Contact your local Pulsafeeder Distributor or Pulsafeeder Technical Services at 800-333-6677

PULSAFEEDER
27101 Airport Road
Punta Gorda, FL 33982
Phone: ++1(941) 575-3800
Fax: ++1(941) 575-4085

PULSAFEEDER®

Process Control Instrumentation

Product

Effective 01/01/16

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IMPORTANT INFORMATION

WHEN PLACING AN ORDER

1. Fax, mail or telephone orders directly to the Customer Service Department:
   Pulsafeeder Incorporated—A Unit of IDEX Corporation
   Standard Product Operations Main Office & Manufacturing Facility
   27101 Airport Road, Punta Gorda, Florida, USA 33982-2462 E-Mail: pulsaspo.cs@idexcorp.com
   Telephone: 800-333-6677 or 941-575-3800 Fax: 800-456-4085 or 941-575-4085
   www.pulsatron.com

2. Please have the following information available when placing an order:

Account Name	Special Tags or Marks (if needed)
Billing Zip Code	Item(s) Being Ordered
Purchase Order Number	Quantity of Each Item
Ship To Address	Pricing
Payment Terms	Shipping Information

3. Orders are entered upon receipt. Our ability to change in house orders is limited. Please be certain your orders are complete when placed. Any order cancellation or change request is subject to a cancelation fee.

4. Orders are assigned standard lead times based on the size of the order and product mix.
   Orders requiring expedited shipping (sooner than the standard lead times) are subject to a expedite charge.
   Unless the order clearly requests expedited shipping, the order will be treated as a routine order. When expedited shipping is requested a designated carrier must be selected. Orders that need to ship the same day must be received by 2:00 PM EST. Same day and next working day shipping is generally available for larger orders but not guaranteed, please verify with customer service. Pulsafeeder shall have no liability if it is unable to provide expedited shipping of an order.

5. Repairs and returns are coordinated through our Customer Service Department. All orders returned must have factory authorization and are subject to a 25% restocking charge for standard product

6. Other Locations:

PULSAFEEDER-Europe
Via Kennedy, 12-20090
Segrate—Milano– Italy
Tel: +0039 377 706 6300

Latin America (Office Only)
Mario Pani 400, Piso 1, Oficina 111
Col. Lomas de Santa Fe, Cuajimalpa de Morelos
C.P 05300, México, D.F.
Tel: 52-55-4738-4124

Far East (Office Only)
Room 3502-3504, Zhao Feng Plaza
No. 1027 Changning Rd
Shanghai 200050, China
Tel: 86-2163906367
Fax: 86-2163863338

IDEX India Private Ltd.
S14, First Floor
Solitaire Corporate Park,
167, Guru Hargovindji Marg, Chakala
Andheri (East)
Mumbai 400 093, India
Tel: 91-22-66435500
Fax: 91-22-66780055

- Prices are subject to change without notice and are effective when order is accepted and acknowledged at point of shipment.
- When ordering, specify your P.O. number, model number, quantity, price, shipping and/or billing address and order date.
- Standard terms are NET 30 days from date of invoice for approved domestic accounts on open account and NET 60 days from date of invoice for approved international accounts.
- WE ACCEPT VISA AND MASTERCARD.
- PAYMENT BY CREDIT CARD WILL NOT RECEIVE AN ADDITIONAL DISCOUNT.
- All prices are FCA, Shippers Dock, Punta Gorda, FL.
- Custom product sales are final.
- Charges for export documentation may apply an very by requirements.
- Expedite fees may apply. Orders requiring expedited shipping (sooner than the standard lead times) are subject to an expedite charge
- Fees for changes to or cancellation of orders may apply.
- Minimum factory order of $30.
- Possession of price schedule does not guarantee right to purchase direct from factory.

We reserve the right to update the information contained in this catalog without notice.

MicroVision EX Cooling Tower Controllers

MicroVision EX is a microprocessor-based conductivity, pH and ORP controller, with the features and functions you need for accurate monitoring and control of cooling tower water that won't break your budget!

Features

- Toroidal conductivity sensor.
- One-point calibration.
- Large easy to read color display.
- Lockable front cover.
- Multiple level security codes.
- Up to 10 digital inputs.
- Optional 4-20 mA analog outputs.
- Dry contact alarm output.
- Battery backup.
- USB data logging is standard:
  - Up to 2 years of data logging.
  - Upload/Download program settings.
  - Upgrades to the Operating System.
- Optional PULSAlink cloud based communications.

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9700150

Model Number	Control Parameters	Programmable Timers	Flow Switch	Panel Mount	Pump Mounts	Digital Inputs	PULSAlink Capable	PULSAlink kit Part No.	USB
MVECXXXPX-XXX-XXX	Conductivity control	3	No	No	0	5	No	N/A	Yes
MVECXXXPF-XXX-XXX	Conductivity control	3	Yes	No	0	5	No	N/A	Yes
MVECXXXPA-XXX-XXX	Conductivity control	3	Yes	Yes	0	5	No	N/A	Yes
MVECXXXPA-EXX-XXX	Conductivity control	3	Yes	Yes	0	5	Yes	Included	Yes
MVECXXXPA-ETX-XXX	Conductivity control, Little Dipper PTSA	2	Yes	Yes	0	5	Yes	Included	Yes
MVECXXXPA-EPX-XXX	Conductivity control, Pyxis PTSA	2	Yes	Yes	0	5	Yes	Included	Yes
MVECXXXPD-XXX-XXX	Conductivity control	3	Yes	Yes	1 to 3	5	No	N/A	Yes
MVEC5XXPF-XXX-XXX	Conductivity control	4	Yes	No	0	5	No	N/A	Yes
MVEC5XXPA-XXX-XXX	Conductivity control	4	Yes	Yes	0	5	No	N/A	Yes
MVEC5XXPA-EXX-XXX	Conductivity control	4	Yes	Yes	0	5	Yes	Included	Yes
MVEC5XXPA-ETX-XXX	Conductivity control, Little Dipper PTSA	3	Yes	Yes	0	5	Yes	Included	Yes
MVEC5XXPA-EPX-XXX	Conductivity control, Pyxis PTSA	3	Yes	Yes	0	5	Yes	Included	Yes
MVECPXXPF-XXX-XXX	Conductivity and pH	6	Yes	No	0	10	Yes	ACT-PULSALINK	Yes
MVECPXXPA-XXX-XXX	Conductivity and pH	6	Yes	Yes	0	10	Yes	ACT-PULSALINK	Yes
MVECPXXPA-EXX-XXX	Conductivity and pH	6	Yes	Yes	0	10	Yes	Included	Yes
MVECPXXPA-ETX-XXX	Conductivity and pH, Little Dipper PTSA	5	Yes	Yes	0	10	Yes	Included	Yes
MVECPXXPA-EPX-XXX	Conductivity and pH, Pyxis PTSA	5	Yes	Yes	0	10	Yes	Included	Yes
MVECPXXPD-XXX-XXX	Conductivity and pH	6	Yes	Yes	1 to 3	10	Yes	ACT-PULSALINK	Yes
MVECOXXPF-XXX-XXX	Conductivity and ORP	6	Yes	No	0	10	Yes	ACT-PULSALINK	Yes
MVECOXXPA-XXX-XXX	Conductivity and ORP	6	Yes	Yes	0	10	Yes	ACT-PULSALINK	Yes
MVECOXXPA-EXX-XXX	Conductivity and ORP	6	Yes	Yes	0	10	Yes	Included	Yes
MVECOXXPA-ETX-XXX	Conductivity and ORP, Little Dipper PTSA	5	Yes	Yes	0	10	Yes	Included	Yes
MVECOXXPA-EPX-XXX	Conductivity and ORP, Pyxis PTSA	5	Yes	Yes	0	10	Yes	Included	Yes
MVECOXXPD-XXX-XXX	Conductivity and ORP	6	Yes	Yes	1 to 3	10	Yes	ACT-PULSALINK	Yes
MVECPOXPF-XXX-XXX	Cond.,pH and ORP	5	Yes	No	0	10	Yes	ACT-PULSALINK	Yes
MVECPOXPA-XXX-XXX	Cond.,pH and ORP	5	Yes	Yes	0	10	Yes	ACT-PULSALINK	Yes
MVECPOXPA-EXX-XXX	Cond.,pH and ORP	5	Yes	Yes	0	10	Yes	Included	Yes
MVECPOXPA-ETX-XXX	Cond.,pH and ORP, Little Dipper PTSA	4	Yes	Yes	0	10	Yes	Included	Yes
MVECPOXPA-EPX-XXX	Cond.,pH and ORP, Pyxis PTSA	4	Yes	Yes	0	10	Yes	Included	Yes
MVECPOXPD-XXX-XXX	Cond.,pH and ORP	5	Yes	Yes	1 to 3	10	Yes	ACT-PULSALINK	Yes

Note: For CE approved, non-prewired models, or 230 VAC, change the end of the code from "-XXX to "-CZXXX

Programmable Timer Modes:

- Pulse
- Percent
- Percent Post Bleed
- Limit
- 28 Day –Biocide
- Alarm Relay

Digital Input Assignments

- #1 Flow Switch
- #2 to 4 Drum Levels
- #5 Water Meter – Hall Effect or Dry Contact
- #6 & 7 Water Meter – Dry Contact
- #8, 9 & 10 Water Meter–Hall Effect or Dry Conta

MicroVision EX Parts

Part Number	Description
12-600-00	Acc kit, Fuse, relay name lables, IOM
16-170-07	Probe Tee
16-170-08	Flow Assembly, Cond, Flow
04-080-01	Little dipper sensor kit, sensor and tee

Part Number	Description
04-000-21-1	Toroidal probe
04-060-00	pH probe
04-060-01	ORP probe
04-080-02	Pyxis sensor kit, Sensor and tee

MicroVision EX Accessories and Expansions

Part Number	Description
CK750	Check Valve Kit
PC025	Cable, Cond, Flow - Extension Kit; 25 ft
PC050	Cable, Cond, Flow - Extension Kit; 50 ft

Part Number	Description
PC075	Cable, Cond, Flow - Extension Kit; 75 ft
PC100	Cable, Cond, Flow - Extension Kit; 100 ft
UGK-MILIN	4-20mA input Upgrade kit (1)
UGK-MILOUT	4-20mA output Upgrade kit (1)

ACT-PULSALINK	PULSAlink cloud communications connection kit (required for remote communications)

MicroVision Cooling Tower Controllers

MicroVision Series

The MicroVision controller series features is innovative Toroidal sensor technology. Toroidal sensors are not susceptible to fouling and eliminate the need for routine cleaning and calibration.

The MicroVision is designed specifically for cooling tower applications. The MicroVision is a microprocessor-based conductivity controller with selectable timer and dual biocide control.

The MicroVision controller comes standard with selectable timer, Dry contact/Hall Effect water meter input, dual biocide with pre-bleed, lockout, inhibitor interface, and four programmable start times per biocide, 4-20mA output, dry contact alarm output and 3 drum level inputs.

The base unit comes with the controller, toroidal sensor with signal cable, and a power cord. Pre-wired pigtails on the relays, and a pre-wired flow switch are available to make installation quick and easy. A 15' signal cable is standard, up to 100' optional, on models without a flow switch, and a 3' cable is standard on models with a flow switch.

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MicroVision Selection Guide

MVS _ _ _ - _____

PRODUCT DESIGNATOR Position 1, 2 & 3	MVS	= MicroVision Toroidal Conductivity Cooling Tower Controller
VOLTAGE Position 4	1	= 115 volt
	2	= 230 volt
POWER WIRING Position 5	X	= Liquid Tight connections (required for CE input power cord options below)
	P	= Prewired power cord and relays (115 VAC Only)
PANELS Position 6	X	= No Panel and No Flow assembly
	F	= Flow assembly, No Panel
	A	= Standard Panel & Flow Assembly
	B	= Panel & Flow Assy, 1 Pump Mount, strainer, sensor tee, inj tee & rails
	C	= Panel & Flow Assy, 2 Pump Mount, strainer, sensor tee, 2 inj tees & rails
	D	= Panel & Flow Assy, 3 Pump Mount, strainer, sensor tee, 3 inj tees & rails
SUFFIX CODE Position 7, 8 & 9	XXX	= Suffix Code
	750	= 3/4" Back Flow Check Valve
	PC025	= 25 Feet (7.6m) of Probe and Flow Switch wiring
	PC050	= 50 Feet (15.2m) of Probe and Flow Switch wiring
	PC075	= 75 Feet (22.8m) of Probe and Flow Switch wiring
	PC100	= 100 Feet (30.4m) of Probe and Flow Switch wiring
	CZ_XXX	= CE Approval w/input power cord and plug (CZXXX=European plug ; CZUKXXX=UK plug; CZSUIXXX=Swiss plug)

MicroVision Parts

Part No.	Description
16-100-33	Probe Tee
16-830-66	Standard Flow Assembly

MicroVision Accessories and Expansions

Part Number	Description
CK750	Check Valve Kit
PC025	Cable, Cond, Flow - Extension Kit; 25 ft
PC050	Cable, Cond, Flow - Extension Kit; 50 ft
PC075	Cable, Cond, Flow - Extension Kit; 75 ft
PC100	Cable, Cond, Flow - Extension Kit; 100 ft

MicroTrac Cooling Tower Controllers

MICROtrac Series

The MICROtrac controller series features is innovative Toroidal sensor technology. Toroidal sensors are not susceptible to fouling and eliminate the need for routine cleaning and calibration.

The MICROtrac measures the conductivity of the cooling tower recirculating water via a toroidal conductivity sensor. The controller activates two independent relay outputs based on bleed and a selectable feed mode of operation.

The MICROtrac controller comes standard with selectable rising or falling setpoint for open or closed loop control, water meter pulse input, percent timer, % post bleed timer and limit timer.

The base unit comes with the controller, toroidal sensor with signal cable, and a power cord. Optional features such as a sensor mounting tee, pre-wired pigtails on the relays, and a pre-wired flow switch are available to make installation quick and easy. A 15' signal cable is standard, up to 100' optional, on models without a flows witch, and a 3' cable is standard on models with a flow switch.

Intertek 9700150 NEMA 4X

MicroTrac Selection Guide

MTC _ _ _ _ - _____

PRODUCT DESIGNATOR Position 1, 2 & 3	MTC	= MicroTrac Toroidal Conductivity Cooling Tower Controller
VOLTAGE Position 4	1	= 115 volt
	2	= 230volt
RELAY & POWER WIRING Position 5	X	= Prewired power cord & Liquid-Tight relay connections
	L	= Liquid-Tight connections only
	P	= Prewired power cord and relays (115 VAC only)
SENSOR TEE Position 6	X	= Standard (no tee)
	T	= Sensor Tee with 3/4" inlet/outlet connections
FLOW SWITCH Position 7	X	= Standard (no flow switch)
	F	= Flow Switch with 3' cable
	L	= Standard Flow Assembly (no panel)
	A	= Standard Panel & Flow Assembly
	B	= Deluxe Panel & Flow Assy, 1 Pump Mount, in/out ball valves, strainer, inj tee & rails
SUFFIX CODE Position 7, 8 & 9	XXX	= Suffix Code
	750	= 3/4" Back Flow Check Valve
	PC025	= 25 Feet (7.6m) of Probe and Flow Switch wiring
	PC050	= 50 Feet (15.2m) of Probe and Flow Switch wiring
	PC075	= 75 Feet (22.8m) of Probe and Flow Switch wiring
	PC100	= 100 Feet (30.4m) of Probe and Flow Switch wiring
	CZ_XXX	= CE Approval w/input power cord and plug (CZXXX=European plug ; CZUKXXX=UK plug; CZSUIXXX=Swiss plug)

MicroTrac Parts

Part No.	Description
04-000-21-1	Toroidal sensor
16-100-01	Flow switch
16-100-33	Sensor Tee

MicroVision Boiler

Boiler Controllers

MicroVision Boiler Series

The **MicroVision Boiler Controller** delivers comprehensive boiler water control with 'plug & play' simplicity, at outstanding value. This latest addition to the MicroVision family of controllers is configured specifically for boiler water control, and utilizes intuitive software which provides simple set-up, while providing state of the art maintenance of the water in your boiler. Features of this device include a reliable temperature compensated conductivity probe, 5 output relays with selectable timers, scalable 4-20mA output to report conductivity, hall-effect and pulse water meter inputs and digital drum levels or a flow switch.

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NEMA 4X

MicroVision Boiler Selection Guide

MVBX _ _ _ _ ___ - XXX

PRODUCT DESIGNATOR Position 1 thru 4	**MVBX**	= MicroVision Boiler Controller
REVIEW AND POWER WIRING Position 5	**P**	= Prewired with pigtails (115 VAC only)
	C	= Conduit connections (115V or 230V)
ENCLOSURE OPTIONS Position 6	**H**	= Heavy Duty Enclosure
SYSTEM OPTIONS ASSEMBLED Position 7	**X**	= None
	A	= 1/2" Solenoid valve, one 1" orifice union w/4 plates (Timed Sample) 100 PSI Max.
	B	= 1/2" Motorized ball valve one 1/2" flow throttling valve (Timed Sample) 250 PSI Max.
	C	= 1/2" Motorized ball valve one 1" orifice union w/4 plates (Timed Sample) 250 PSI Max.
	D	= 3/4" Motorized ball vlv, one 3/4" throtting vlv, one 1/2" throttling vlv (Continuous Sample) 250 PSI Max.
	E	= 3/4" Motorized ball valve, two 1" orifice union w/4 plates (Continuous Sample) 250 PSI Max.
	F	= High Pressure Flow Assembly (250 PSI) for cooling tower appliications
SENSOR OPTIONS Position 8	**X**	= No Sensor Provided
	S	= Contact Electrode, 250 PSI Max (210 PSI for steam) 392° F Max
CABLE LENGTH Position 9 thru 11	**000**	= No Cable Supplied
	010	= 10 Feet of sensor cable
	025	= 25 Feet of sensor cable
	050	= 50 Feet of sensor cable
	075	= 75 Feet of sensor cable
	100	= 100 Feet of sensor cable
	150	= 150 Feet of sensor cable
SUFFIX CODES Position 12 thru 18	**XXX**	= Standard Unit
	CZ_XXX	= CE Approval (CZXXX=Europe; CZUKXXX=UK; CZSUIXXX=Switzerland/Liechtenstein)

MicroVision Boiler Parts

Part No.	Description
CCBS-MVB	MicroVision Boiler Sensor - No Cross

MicroVision Timer

Programmable Timers

MicroVision Timer

The MicroVision -Timer is a microprocessor-based selectable timer controlller. Designed specifically for timer based control applications, MicroVision Timer comes with the features and functions you need for accurate timer based control.

The MicroVision Timer comes standard with the five programmable digital inputs that can be programmed as Drum Level inputs, water meter inputs or a Hall effect input and five programmable timers for 28 day, pulse, percent, cycle and system alarm.

The base unit comes with the controller and a power cord. Optional features such as a pre-wired flow switch are available to make installation quick and easy. A 15' signal cable is standard, up to 100' optional, on models without a flow switch, and a 3' cable is standard on models with a flow switch.

Intertek 9700150

NEMA 4X

MicroVision Timer Selection Guide

MVT _ _ _ - ___

PRODUCT DESIGNATOR Position 1, 2 & 3	**MVT**	= MicroVision Timer Controller
VOLTAGE Position 4	**1**	= 115 volt
	2	= 230 volt (no prewired power cord or relays available)
POWER WIRING Position 5	**X**	= Liquid Tite connections only (required for 230VAC)
	P	= Prewired w/Power Cord and Pigtails for 115 VAC
PANELS Position 6	**X**	= No Panel and No Flow assembly
	F	= Flow assembly, No Panel
	A	= Standard Panel & Flow Assembly
	B	= Panel & Flow Assy, 1 Pump Mount, strainer, inj tee & rails
	C	= Panel & Flow Assy, 2 Pump Mount, strainer, 2 inj tees & rails
	D	= Panel & Flow Assy, 3 Pump Mount, strainer, 3 inj tees & rails
SUFFIX CODE Position 7 thru 13	**XXX**	= Suffix Code
	CZ_XXX	= CE Approval (CZXXX=Europe; CZUKXXX=UK; CZSUIXXX=Switzerland/Liechtenstein)

A completed model should look like "MVT1PB-XXX

Flow Controller

The versatile Flow Controller may be used to establish flow/no- flow control of metering pumps in various applications. Each unit comes prewired with an eight-foot, three-wire power cord for easy installation. A test switch is also provided for manual circuit tests.

Pump Part Discount Applies on Flow Controllers

Flow Controllers	
Model No.	**Description**
FC2000	Flow Controller - Standard flow controller has 3/4 PVC threaded connections with 3/4" PVC slip adaptors to use if needed. 1 GPM minimum flow required for activation
FC2000C	Flow Controller - Standard flow controller w/ 1 PVC slip connectors; 1 GPM min. flow required for activation.
	Available options for FC2000 & FC2000C:
	Receptacle functions (Standard--both on with flow)
1	Both on with no flow
2	One on with flow, other on no flow
3	One on with flow, other service
4	One on with no flow, other service

Replacement Flow Assemblies	
Part No.	**Description**
16-977-79	3/4 (FC2000)
16-977-71	1 (FC2000C)

Bowl Strainer - Cooling Tower Applications

The polypropylene bowl strainers ensure the controller's sensors are protected from debris in the sample stream piping. Rated 100 psi at 70^0F.

Bowl Strainers	
Part Number	**Description**
12-069-62	3/4" Bowl Strainer (50 MESH)
12-069-64	3/4" Bowl Strainer (80 MESH)
12-069-66	3/4" Bowl Strainer (100 MESH)

Conductivity Testers

Hand Held Conductivity Testers	
Model No.	**Description**
HJ6BC	0-100, 0-1000, 0-10,000 µS/cm
HJ7B	0-50, 0-500, 0-5,000 µS/cm

Calibration Solutions

Calibration Solutions	
Part No.	**Description**
Conductivity Solutions (500 ml bottles)	
20-016-26	2000 conductivity (6 pack)
20-016-28	5000 conductivity (6 pack)
20-016-00	500 conductivity (1 bottle)
20-016-02	2000 conductivity (1 bottle)
20-016-04	5000 conductivity (1 bottle)
pH Kit Solutions	
20-016-36	pH 4 buffer solution - 4 oz
20-016-37	pH 4 buffer solution - 32 oz
20-016-38	pH 7 buffer solution - 4 oz
20-016-39	pH 7 buffer solution - 32 oz
20-016-40	pH 10 buffer solution - 4 oz
20-016-41	pH 10 buffer solution - 32 oz
ORP Kit Solutions	
20-016-42	ORP 100 mV buffer solution - 4 oz
20-016-43	ORP 100 mV buffer solution - 32 oz
20-016-44	ORP 465 mV buffer solution - 4 oz
20-016-45	ORP 465 mV buffer solution - 32 oz
Calibration Kit / Tee	
12-043-58	Calibration Kit / Tee

Digital Glycol Feeders

Pulsafeeder's Digital Glycol Feeder provides a consistent operating pressure in closed loop systems. This allows a controlled percentage of glycol solution to be fed from the 55 gallon tank. The Digital Glycol Feeder is available in two models; the DGF1 for single loop and the DGF2 for dual loop systems. The control unit utilizes an 8-bit microcontroller for precise feed system control. The NEMA4X enclosure can be wired conduit or prewire for easy startup. The preplumbed assembly includes a pressure gauge, pressure switch, and pressure relief valve to prevent excessive pressure build up. A low liquid level switch with optional audible alarm prevents the gear pump from operating when the solution is low.

Controller Discount Applies on Digital Glycol Feeder

DIGITAL GLYCOL FEEDER Selection Guide

DGF_ _ _ _ _ _ _ _ _

CLOSED LOOPS Position 4	**1** = Single Loop **2** = Dual Loop
CONDUIT / PREWIRE Position 5	**A** = Conduit **B** = Prewire
AUDIBLE ALARM Position 6	**A** = without Audible Alarm **B** = with Audible Alarm
ALARM OUTPUT OPTION Position 7	**X** = None **A** = Dry Contact, Single **B** = Dry Contact, Dual **C** = AC Output, Single **D** = AC Output, Dual **E** = Dry Contact, Single & AC Output, Single
PRESSURE SWITCH OPTION Position 8	**A** = Standard pressure switch, 30 to 50 psi (adjustable to 80 psi) **B** = Low pressure switch, 5 to 10 psi (adjustable to 35 psi) **C** = One standard and one low pressure switch (DGF2 only)
PUMP AND VOLTAGE RATING Position 9	**A** = 115VAC no pump **C** = 115VAC 60Hz 1.50GPM @ 100psi **E** = 115VAC 60Hz 3.75GPM @ 100 psi
AGENCY APPROVAL Position 10	**X** = None
PANEL ASSEMBLY Position 11	**B** = Assembled (must ship via freight)

Accessories

Digital Glycol Feeder for Closed Loop Systems

Part No.	Description
Replacement Pumps	
18-600-35	115V 60Hz 1.50GPM @ 100PSI
18-600-42	115V 60Hz 3.75GPM @ 100PSI
Replacement Wand	
16-171-81-9	Wand, level, adjustable up to 34
Cables	
16-171-81-3	Cable, extension, 10' with connectors
Replacement Fuse	
05-052-18	Fuse, 16A, 250V, 5X20MM
Pressure Switches	
12-140-00	Standard pressure switch 30 - 50psi (adjustable to 80 psi)
12-140-01	Low pressure switch to 5 - 10psi (adjustable to 35 psi)
Pressure Gauge	
12-130-01	Standard pressure gauge 0-100psi, liquid filled
12-130-03	Low pressure gauge 0-30psi, liquid filled

Corrosion Coupon Racks

Our Corrosion Coupon Racks are hydrostatically tested for maximum system performance exceeding industry standards. These simple and reliable coupon test stations are typically installed on the side stream of re-circulating systems to allow for controlled testing of coupon samples. Samples are periodically removed and examined by a laboratory in order to calculate corrosion rates and other effects such as pitting and deposition.

Corrosion Coupon Racks

Model Number	Stations	Mount	Piping	Description
CCR2	2 Station	.50" HPDE	3/4" PVC	3/4" PVC inlet ball valve
CCR20DF5	2 Station	.25 " HDPE	3/4" black iron	Flow control valve 5 GPM (3/4" only)
CCR20DX7X8CF5	2 Station	.25 " HDPE	3/4" black iron	3/4" brass gate valve 250 psi; Y strainer for 3/4" PVC; Flow control valve 5 GPM (3/4" only)
CCR20DXSX7	2 Station	.25 " HDPE	3/4" black iron w/ SS Holder rod	3/4" brass gate valve 250 psi
CCR20X1X4X7	2 Station	.25 " HDPE	3/4" PVC	Quick release coupon holders (PVC only); PVC outlet ball valve 3/4" hot/cold water flow meter, Max. 100 psi (7 bar) @ 130ºF (54ºC).
CCR20X1X7F5	2 Station	.25 " HDPE	3/4" PVC	Quick release coupon holders (PVC only); PVC outlet ball valve Flow control valve 5 GPM (3/4" only)
CCR2D	2 Station	.50" HPDE	3/4" black iron	
CCR2X1X4X8A	2 Station	.25 " HDPE	3/4" PVC	Quick release coupon holders (PVC only); Y Strainer for 3/4" PVC 3/4" hot/cold water flow meter, Max. 100 psi (7 bar) @ 130ºF (54ºC).
CCR40DXSX7	4 Station	.25 " HDPE	3/4" black iron w/ SS Holder rod	3/4" brass gate valve 250 psi
CCR40X1X4X7	4 Station	.25 " HDPE	3/4" PVC	Quick release coupon holders (PVC only); PVC outlet ball valve 3/4" hot/cold water flow meter, Max. 100 psi (7 bar) @ 130ºF (54ºC).
CCR40X1X7F5	4 Station	.25 " HDPE	3/4" PVC	Quick release coupon holders (PVC only); Flow control valve 5 GPM (3/4" only) PVC outlet ball valve
CCR4DX7X8C	4 Station	.50 " HDPE	3/4" black iron	3/4" brass gate valve 250 psi; Y Strainer for 3/4" black iron

Coupon Rack Accessories

Coupon Rack Replacement Parts

Part Number	Description
16-756-51-1	Quick Release coupon holder with hardware
16-756-50	PVC and CPVC holder with hardware
16-756-42	Steel on black iron holder with hardware
33-022-16	3/4" hot/cold water flow meter

Coupons for Corrosion Coupon Racks & Deposit Monitors

Part Number	Description
03-220-10	Mild Steel
03-220-00	Copper
03-220-60	303 Stainless Steel
03-220-70	304 Stainless Steel
03-220-20	316 Stainless Steel
03-220-50	Nickel
03-221-30	Brass
03-221-40	Bronze
03-221-50	Aluminum

Water Meters - Contacting Head Water Meters

Multi-Jet Meters:

3/4 in. to 2 in., are designed for use in conjunction with a pulse timer to proportionally control pumps, valves etc. Typical applications include water treatment in cooling tower and boiler systems, water chlorination, car washes and other industrial processes which require proportional control. The Multi-Jet chamber of the water meter assures accuracy over a wide range of flows with low head loss. To prevent wear and maintain accuracy the load is equally distributed on the impeller.

Turbine Meters:

3 inch to 6 inch operate continuously with exceptional accuracy. Each meter incorporates a highly efficient horizontal turbine that essentially floats on the water. The turbine is attached to a Tungsten steel shaft riding in Jewel bearings. The rotation of the turbine is transmitted through a magnetic drive to a sealed odometer register.

Lead Free
Contacting Water Meter

Contacting
Water Meter

Lead Free Brass Contacting Water Meters - Cold Water

	Code	Rating	Reference	MTR _	_ _	-G
Select Water Meter Size	1 =	.625" x .75"	.25 - 20 GPM			
	3 =	1" NPT	.75 - 50 GPM			
	4 =	1.5" NPT	1.5 - 100 GPM			
	5 =	2" NPT	2 - 160 GPM			

Code	Rating	Gallons Per Contact (GPC)			
		3/4" x 5/8"	1"	1.5"	2"
00 =	Less Reed	X	X	X	
01 =	0.1 GPC	X	X		
02 =	0.25 GPC	X	X	X	
03 =	0.5 GPC	X			
04 =	1 GPC	X	X	X	X
07 =	10 GPC	X	X	X	X

Lead Free

3/4" - 2" Meters have male Epoxy Coated NPT Brass Bodies with unions, rated for 150 PSI max, 105^{O} F max.

Brass Contacting Water Meters - Cold Water

	Code	Rating	Reference	MTR _	_ _	-A
Select Water Meter Size	2 =	.75" NPT	.5 - 30 GPM			
	3 =	1" NPT	.75 - 50 GPM			
	4 =	1.5" NPT	1.5 - 100 GPM			
	5 =	2" NPT	2 - 160 GPM			

Code	Rating	Gallons Per Contact (GPC)			
		3/4"	1"	1.5"	2"
00 =	Less Reed	X	X		X
01 =	0.1 GPC	X			
03 =	0.5 GPC	X			
04 =	1 GPC	X	X	X	
06 =	5 GPC				X
07 =	10 GPC	X			

Standard Brass

3/4" - 2" Meters have male Epoxy Coated NPT Brass Bodies with unions, rated for 150 PSI max, 105^{O} F max.

Turbine Contacting Water Meters - Cold Water

	Code	Rating	Reference	MTR _	_ _
Select Water Meter Size	6 =	3" Flanged	440 GPM		
	7 =	4" Flanged	660 GPM		
	8 =	6" Flanged	1650 GPM		

Code	Ratings	Gallons Per Contact (GPC)		
		3"	4"	6"
10 =	100 GPC	X	X	X
13 =	1,000 GPC	X	X	X

3", 4" & 6" Meters have Epoxy Coated Ductile Iron Flanged Bodies, rated for 200 PSI max, 105^{O} F max.

Water Meters get a pump accessory discount

Solenoid Valves - Cooling Tower Applications

Standard Solenoid Valve

High Temp Solenoid Valve

Standard Solenoid Valves	
Part Number	**Description**
12-072-62	2 Way N/C 1/4" Stainless Steel Body with tefon Seat. 150 psi MOPD at 160^{O} F. 120/60, 110/50 volt - ASCO vlv
12-072-53	2 Way N/C 1/2" NPT Brass Body. 0 psi min - 150 psi MOPD at 180^{O} F. 120/60, 110/50 volt - ASCO vlv
12-072-54	2 Way N/C 3/4" NPT Brass Body. 0 psi min - 150 psi MOPD at 180^{O} F. 120/60, 110/50 volt - ASCO vlv
12-072-55	2 Way N/C 1" NPT Brass Body. 0 psi min - 150 psi MOPD at 180^{O} F. 120/60 volt - ASCO vlv
12-072-56	2 Way N/C 1" NPT Brass Body. 5 psi min - 150 psi MOPD at 180^{O} F. 120/60, 110/50 volt - ASCO vlv
12-072-57	2 Way N/C 1 1/2" NPT Brass Body. 0 psi min - 150 psi MOPD at 180^{O} F. 120/60 volt - ASCO vlv
12-072-58	2 Way N/C 1 1/2" NPT Brass Body. 5 psi min - 150 psi MOPD at 180^{O} F. 120/60 volt - ASCO vlv
12-072-59	2 Way N/C 2" NPT Brass Body. 5 psi min - 150 psi MOPD at 180^{O} F. 120/60 volt - ASCO vlv
High Temp Solenoid Valves	
12-072-60	2 Way N/C 1/2" NPT Brass Body. 1 psi min - 125 psi MOPD at 353^{O} F. 120/60 volt - ASCO vlv
12-072-61	2 Way N/C 3/4" NPT Brass Body. 2 psi min - 125 psi MOPD at 353^{O} F. 120/60, 110/50 volt - ASCO vlv
12-048-00	2 Way N/C 1/2" Brass Body, PTFE. 0 psi differential, 100 psi @ 356^{O}F. 115 VAC.
12-056-00	2 Way N/C 3/4" Brass Body, PTFE. 0 psi differential, 100 psi @ 356^{O}F. 115 VAC.

Motorized Ball Valves

EC Series Motorized Valve

EC Series - Motorized Valves	
Part Number	**Description**
	Motorized Valves for Cooling Tower Applications **Low differential pressure applications. Brass bodies. Spring return.**
12-045-00	1/2" NPT (25 psi maximum)
12-054-10	3/4" NPT (25 psi maximum)
12-057-00	1" NPT (15 psi maximum)

Motorized Ball Valves & Valve Packages - Boiler Applications

Materials of construction: Solenoid Valves are bronze body with stainless steel pilot and valves; Motorized Ball Valves are carbon steel body with 316 stainless steel ball and stem; Throttling Valves are carbon steel body and valve; and Orifice Unions are carbon steel union with stainless steel plates.

Throttling Valve

Valve Packages	
Timed Sample Systems	
Part Number	Description
16-896-00	**Up to 100 psi** Package includes 1/2" solenoid valve (12-048-00) and 1" orifice union with 4 orifice plates (12-012-00 and 12-013-50).
16-896-04	**Up to 300 psi** Package includes 1/2" motorized ball valve with heavy duty 90 degree actuator (16-892-00) and 1/2" flow throttling valve (12-046-01).
16-896-08	**Up to 450 psi** Package includes 1/2" motorized ball valve with 360 degree actuator (16-892-02) and 1" orifice union with 4 orifice plates (12-012-00 and 12-013-50).

Valve Packages	
Continuous Sample Systems	
16-896-02	**Up to 100 psi** Package includes 3/4" solenoid valve (12-056-00) and two 1" orifice unions with 4 orifice plates each (12-012-00 and 12-013-50).
16-896-06	**Up to 300 psi** Package includes 3/4 motorized ball valve with 90 degree actuator (16-892-01), 3/4 flow throttling valve (12-055-01), and 1/2" flow throttling valve (12-046-01).
16-896-10	**Up to 425 psi** Package includes 3/4" motorized ball valve with 360 degree actuator (16-892-04) and two 1" orifice unions with 4 orifice plates each (12-012-00 and 12-013-50).
Available option:	
-2	230 VAC service

Note: Materials of construction: Solenoid Valves are bronze body with stainless steel pilot and valves; Motorized Ball Valves are carbon steel body with 316 stainless steel ball and stem; Throttling Valves are carbon steel body and valve; and Orfice Unions are carbon steel union with stainless steel plates.

Motorized Ball Valve

Motorized Ball Valves	
Part Number	Description
16-892-00	1/2" motorized ball valve (10-75 Worcester Actuator)
16-892-01	3/4" motorized ball valve (10-75 Worcester Actuator)
16-892-02	1/2" motorized ball valve (10-36 Worcester Actuator)
16-892-04	3/4" motorized ball valve (10-36 Worcester Actuator)
Available option:	
-2	230 VAC service
Part Number	Description
12-040-00	Worcester 10-75 actuator only
12-040-10	Worcester 10-36 actuator only

Motorized Ball Valve Parts	
Part Number	Description
12-043-00	Worcester 1/2" steam rated ball valve only
12-051-00	Worcester 3/4" steam rated ball valve only
12-049-00	Mounting kit for 12-051-00 & 12-040-00

Flow Control Valves - Boiler Applications

Flow control valves maintain sufficient back pressure in boiler blowdown lines in order to prevent flashing and to ensure adequate blowdown rates. The orifice union includes four plates, 1/16″ , 1/8″, ¼″ and a 5/16″. Flow control valves include an indexed position indictor.

Flow Control Valves

Orifice Union

Orifice Plates

Flow Control Valves	
Part Number	Description
12-075-01	3/8" valve (300 psi maximum)
12-046-01	1/2" valve (300 psi maximum)
12-055-01	3/4" valve (300 psi maximum)

Orifice Unions & Orifice Plates	
Part Number	Description
12-012-00-1	1" orifice union with set of (4) orifice plates
12-013-50	Set of four orifice plates

Sample Cooler

Pulsafeeder's Sample Cooler part number 12-066-00 is a safe method of withdrawing water from boilers, steam lines or tanks containing chemicals and for cooling the withdrawn liquid for subsequent chemical analysis.

Sample Coolers	
Part Number	**Description**
12-066-00	Sample Cooler

Bleed-Off Piping Assembly - Cooling Tower Applications

The pre-plumbed bleed-off assemblies make installation of a cooling tower bleed valve easy. The assemblies include a solenoid valve, Y strainer and a brass shutoff valve.

Bleed-off Piping Assembly	
Part Number	**Description**
	Includes SVC solenoid valve, steel Y-strainer, and brass shutoff valve.
16-900-18	3/4"
16-900-12	1"

Sample Steam Parts

Sample Stream Parts	
Part Number	**Description**
12-069-00	3/4" Clear PVC Y-strainer
12-070-00	Replacement mesh for 12-069-00
12-072-00	3/4" PVC ball valve
16-810-00	2 stage injection manifold
16-810-03	3 stage injection manifold
16-810-08	5 stage injection manifold
04-300-08	Sample valve assembly

PULSAtrol®

ACT / ABC Parts

ACT / ABC Parts (101/102 only)

Part Number	Description
08-986-05	Power supply board assembly, ETL/CE

ACT Parts (101/102 only)

Part Number	Description
08-986-06	Limit timer board assembly

ABC Mother Board Panel Assemblies, Complete

Part Number	Description
15-920-28	Panel assembly ABC102

ACT Flow Assemblies, Complete

Part Number	Description
16-596-20	Flow assembly, with flow switch conductivity (no sensor)

ACT Flow Assembly Components

Part Number	Description
03-093-00	Male adaptor, 3/4"
03-096-62-E	Elbow tee, 3/4"
04-300-08	Sample valve assembly
03-096-56-E	Tee, sensor
03-096-52-E	Tee, flow, clear
03-005-05	O-ring, 1 1/2" ID, 1 3/4" OD, 1/16" Thk (tee)
03-005-04-2	O-ring, 15/16" ID, 1 1/8" OD, 3/32" Thk (sensor/ sensor holder)
06-008-00-E	Coupling Nut
03-096-71-E	Pipe Nipple, 3/4" x 3.00 long
04-300-90-1	Flow Switch
04-300-91	"CE" flow switch

ACT Replacement Sensor

Part Number	Description
04-600-02	Conductivity; Stainless Steel with 10' cable

ABC Replacement Sensors

Part Number	Description
04-750-14-1	Conductivity (ABC50) only In-Line type Max. Press. 250 psi, Max Temp. 400ºF
04-750-13-1	Conductivity (ABC101/102) only In-Line type Max. Press. 250 psi, Max Temp. 400ºF w/Temp. Comp.

PULSAtrol®

Parts

Daughter Cards

Part Number	Description	Applicable Series
08-985-05	Conductivity card	100
08-985-50	Isolated pH card	100
08-600-06	Dual conductivity card	All Series except 100
08-600-16	Single conductivity card	All Series except 100
08-600-08	Dual pH/ORP card	All Series except 100
08-600-18	Single pH card	All Series except 100
08-600-12	Dual 4-20mA output card	All Series except 100
08-600-13	Single 4-20mA output card	200/300/9200
08-600-48	Serial line comm. card w/o 14.4K baud modem	9300/9500/9601
08-600-59	Serial line comm. card w/ 14.4K baud modem	9300/9500/9602

Mother Boards

Part Number	Description	Applicable Series
08-985-00-E	Mother board, 100 Series	100
08-600-14-2	Mother board with 2 line display	200/9200
08-600-50	Mother board for 2 line display	200/9200
08-600-15-2	Mother board with 8 line display	300/9300/9500/9600
08-600-52	Mother board for 8 line display	300/9300/9500/9601

Power Supply / Relay Boards

Part Number	Description	Applicable Series
12-042-76	Power supply/relay board w/ K option	100
08-600-04-1	Relay board w/o dry contact option	200
08-600-04-2	Relay board w/o dry contact option	200/9200
12-042-78	Relay board w/o dry contact option	300
08-600-03-3	Relay board w/o dry contact option	All Series except 100
08-600-65-3	Relay board w/o dry contact option	400/9300/9500/9600

Kits, Power Supply / Relay Boards

Part Number	Description	Applicable Series
12-042-71	Kit, Power supply/relay board complete	100
12-042-77	Kit, Relay board complete	200/9200
12-042-72	Kit, power supply board w/ cables to relay board	200/300/9200
12-042-78	Kit, Relay board complete	300
12-042-83	Kit, Relay board complete	9300/9500/9600

Relays

Part Number	Description	Applicable Series
10-001-08-E	Relay, AC/IO, module, plug-in/screw mounting	200/300/9200
10-001-12	Relay, SPDT, 10A, 12VDC coil, mech., plug-in	All Series except 100

PULSAtrol® *Parts*

Complete Flow Assemblies

Standard Flow Assemblies

Part Number	Description
16-596-00	Flow assembly, with flow switch (no sensor)
16-596-02	Flow assembly, with flow switch for pH or ORP (no sensor)
16-596-08	Flow assembly, with flow switch for pH/ORP/Cond (no sensors)
16-596-12	Flow assembly, with flow switch for pH/Cond or ORP/Cond (no sensors)
16-596-22	Flow assembly, with flow switch for conductivity (no sensor)

"CE" Flow Assemblies (R1)

Part Number	Description
16-596-03	Flow assembly, with flow switch for pH or ORP (no sensors)
16-596-05	Flow assembly, with flow switch for pH/ORP (no sensors)
16-596-13	Flow assembly, with flow switch for pH/Cond or ORP/Cond (no sensors)
16-596-23-1	Flow assembly, with flow switch for conductivity (no sensor)

Series MC9000 Replacement Sensors

Part Number	Note:	Application
04-600-92-1	MC9000 Stainless steel electrodes, 12" cable terminated w/DIN plug.	Conductivity
04-600-92-2	MC9000 Stainless steel electrodes, 120" cable terminated w/DIN plug.	Conductivity or Make-up
04-600-93-1	MC9000 CE approved, Stainless steel electrodes, 12" cable terminated w/Liquid Tight.	Conductivity
04-600-93-2	MC9000 CE approved, Stainless steel electrodes, 120" cable terminated w/Liquid Tight.	Conductivity or Make-up
04-000-00	MC9000 Epoxy body, dual junction, 42mm extension w/3 ft. cable.	pH
04-000-01	MC9000 Epoxy body, dual junction, 42mm extension w/10 ft. cable.	pH
04-000-10	MC9000 Epoxy body, platinum band, single junction, 42mm extension w/3 ft. cable.	ORP
04-000-11	MC9000 Epoxy body, platinum band, single junction, 42mm extension w/10 ft. cable.	ORP
04-300-92	Flow switch, 3/4" with 18" cable terminated with DIN plug.	Flow
04-300-94	Flow switch, 3/4" with 120" cable terminated with DIN plug.	Flow
04-300-93	Flow switch, CE approved, 3/4" with 18" cable terminated w/Liquid Tight.	Flow

Series MB9000 Replacement Sensors

Part Number	Note:	Application
04-750-18	MB9000 Series replacement sensor. S. S. electrodes.	Conductivity
04-048-00	MB9000 Series replacement sensor. S. S. body, 10' cable.	pH
04-400-50	MB9000 Series replacement sensor. Kynar body, 3' cable.	pH, Self Cleaning

MC9500 & MB9600 Accessories

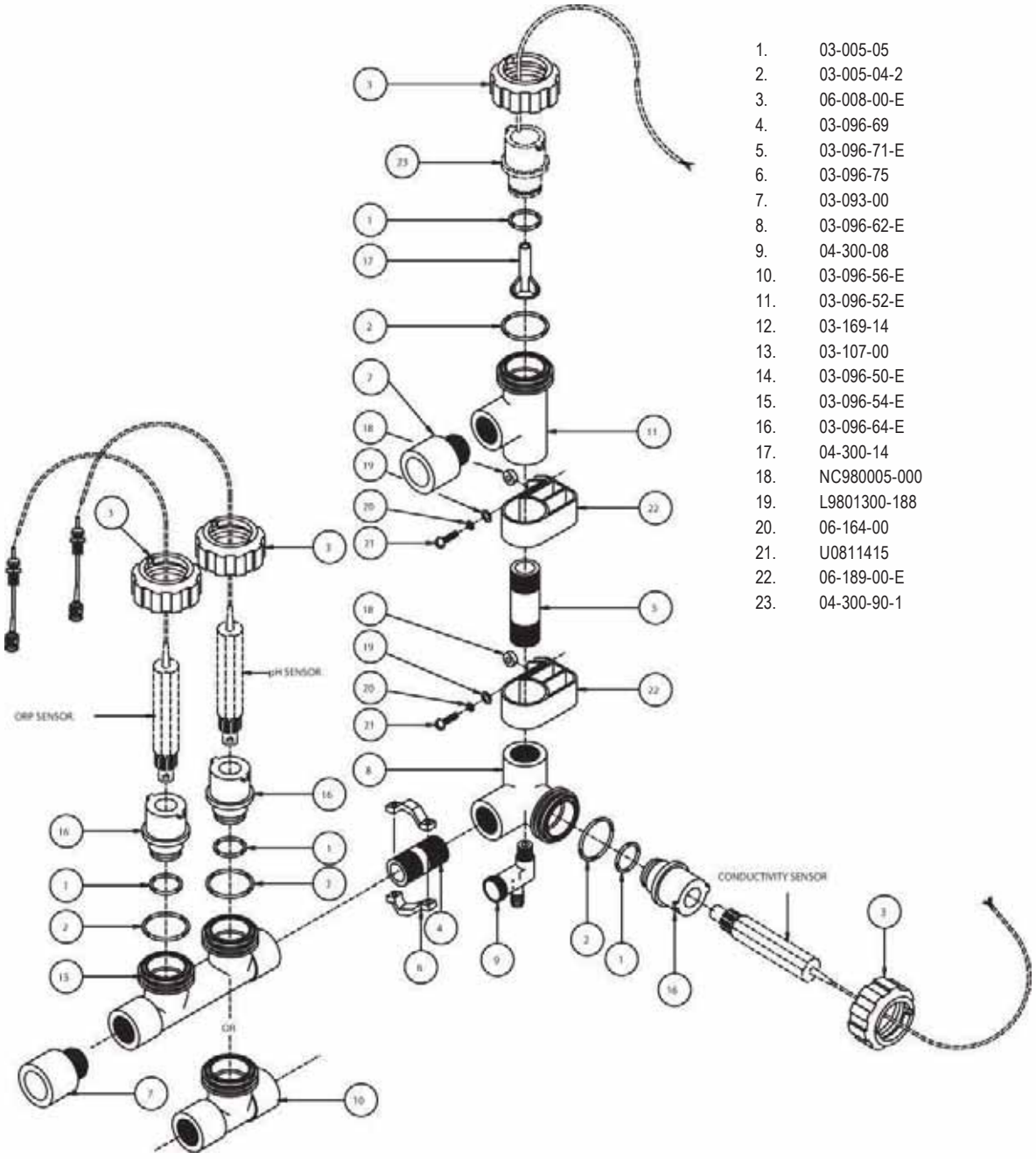
Single Point Level Wands

Part Number	Description
16-171-81-2	Adjustable to 26" with 3 ft. cable
16-171-81-1	Adjustable to 42" with 3 ft. cable
16-171-81-4	Adjustable to 60" with 3 ft. cable

Kits, Fuse / Spare Parts

Part Number	Description	Applicable Series
12-450-01	Kit, fuses (1A, 125V and 5A, 125V) and jumpers	100
12-450-04	Kit, fuses (5A 250V slo-blo) and jumpers	100
12-042-62	Kit, fuse, 5A, 125V, rectangular (pkg. of 5)	200/300/9200
12-042-62-1	Kit, fuse, 5A, 250V, round (pkg. of 5)	200/300/9200
12-450-00	Kit, fuses (1A, 250V and 5A, 250V) and jumpers	200/300/9200
12-042-62-2	Kit, fuse, 5A, 250V, slo-blo, round (pkg. of 5)	All Series except 100
12-450-03	Kit, fuses (1A & 5A, 250V, slo-blo) and jumpers	All Series except 100

Flow Assembly Parts Diagram

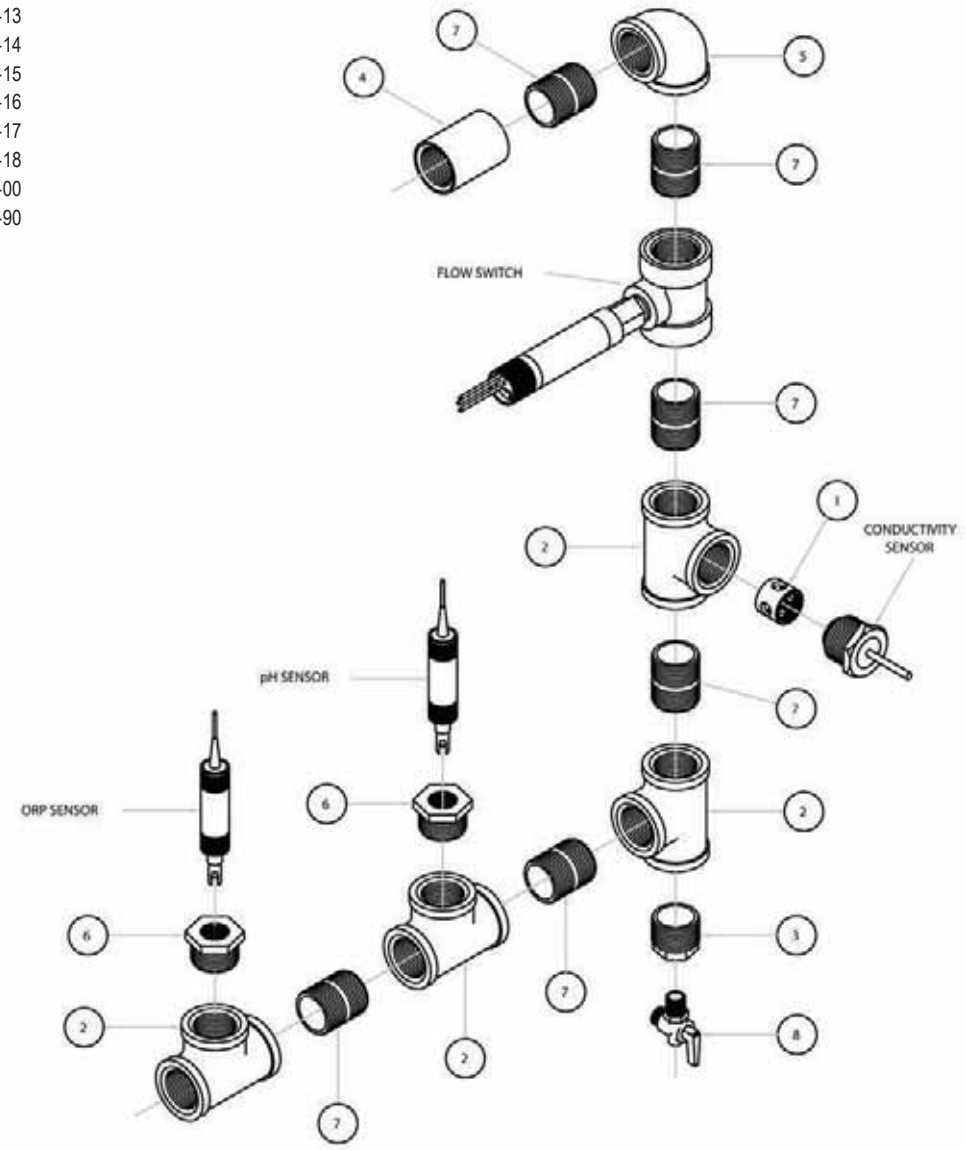


1. 03-005-05
2. 03-005-04-2
3. 06-008-00-E
4. 03-096-69
5. 03-096-71-E
6. 03-096-75
7. 03-093-00
8. 03-096-62-E
9. 04-300-08
10. 03-096-56-E
11. 03-096-52-E
12. 03-169-14
13. 03-107-00
14. 03-096-50-E
15. 03-096-54-E
16. 03-096-64-E
17. 04-300-14
18. NC980005-000
19. L9801300-188
20. 06-164-00
21. U0811415
22. 06-189-00-E
23. 04-300-90-1

Drawing #1

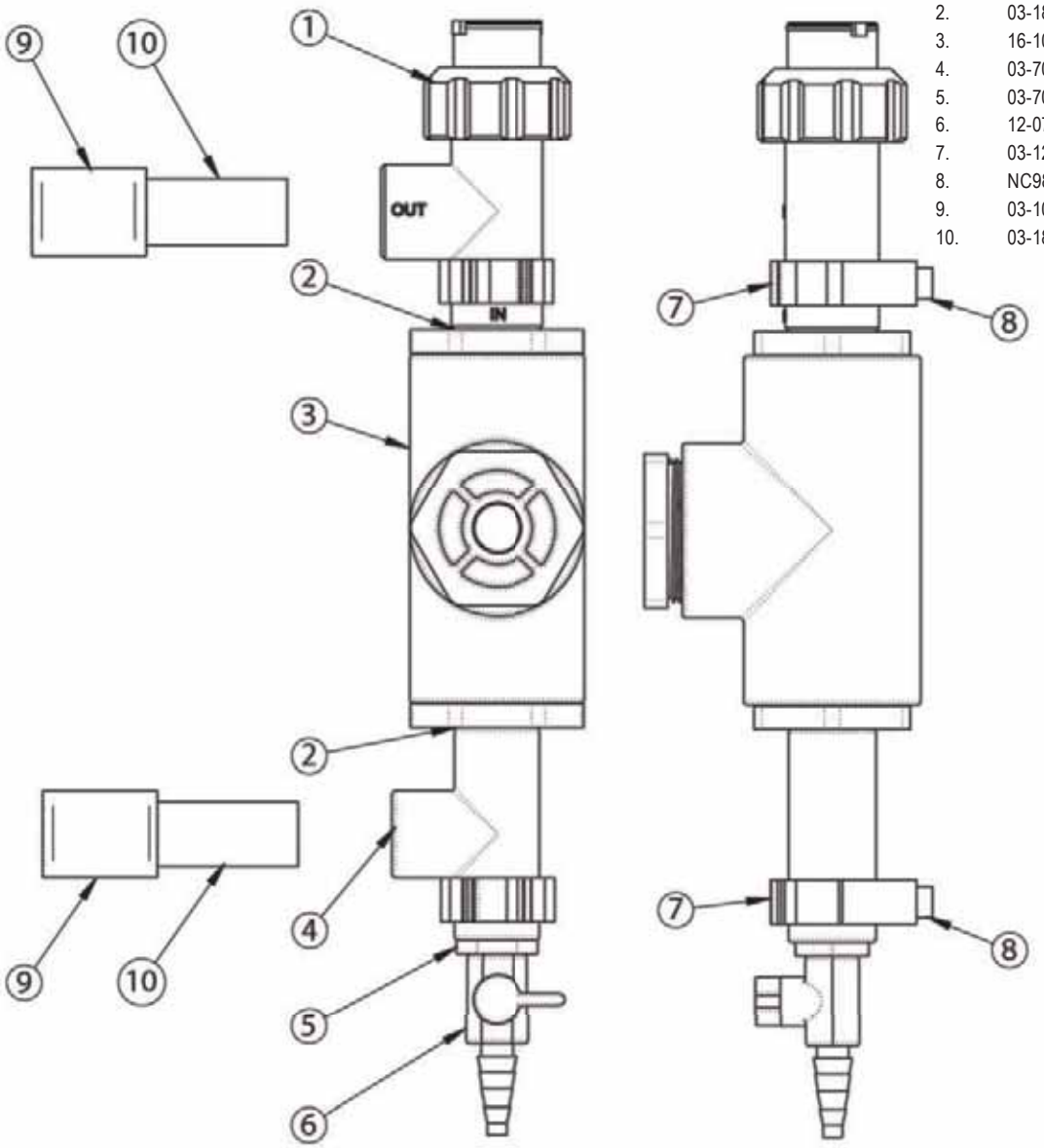
Hi-Pressure Flow Assembly Parts Diagram

1. 03-068-00
2. 03-135-13
3. 03-135-14
4. 03-135-15
5. 03-135-16
6. 03-135-17
7. 03-135-18
8. 03-176-00
9. 12-600-90



Drawing #2

MicroVision Flow Assembly Parts Diagram



1.	04-350-96
2.	03-180-33
3.	16-100-33
4.	03-701-21
5.	03-701-27
6.	12-072-04
7.	03-126-08
8.	NC980005-000
9.	03-104-00
10.	03-188-02

Policies and Procedures

1. Manufacturer's Equipment Warranty

a. Pulsafeeder warrants all pumps and controllers of its manufacture to be free of defects in material or workmanship. Liability under this policy extends for 24 months from the date of shipment. The manufacturer's liability is limited to repair or replacement of any failed equipment or part which is proven defective in material or workmanship upon manufacturer's examination. This warranty does not include removal or installation costs and in no event shall the manufacturer's liability exceed the selling price of such equipment or part.

b. The manufacturer disclaims all liability for damage to its products through improper installation, maintenance, use or attempts to operate such products beyond their functional capacity, intentionally or otherwise, or any other unauthorized repair. The manufacturer is not responsible for consequential or other damages, injuries or expense incurred through the use of its products.

c. The above warranty is in lieu of any other warranty, whether expressed or implied. The manufacturer makes no warranty of fitness or merchantability. No agent of ours is authorized to provide any warranty other than the above.

2. Pulsafeeder's Parts and Accessory Warranty

a. Pulsafeeder, Inc. warrants parts and accessories provided to be free of defects in material or workmanship. Unless otherwise noted below, liability under this policy extends for 90 days from date of shipment from the factory when sold as service parts. (Replaceable elastomeric parts (PTFE) are expendable and are not covered by any warranty either expressed or implied.)

b. This policy is extended to a full 12 months from the date of installation or 18 months from shipment from the factory whichever comes first on the following accessories;

Digital Glycol Feeders	Pre-Engineered Systems	Corrosion Coupon Racks
Analog Timers	Water Meters	Flow Controllers

c. MicroTrac and MicroVision toroidal probes are warranted for 24 months from date of shipment from the factory when purchased in conjunction with the controller.

All other electrodes/probes and sensors are considered maintenance items and such are warranted for six (6) months from the date of shipment when purchased in conjunction with the controller.

Any electrodes/probes other than toroidal and sensors purchased as spare parts are warranted for 90 days from date of shipment.

d. The manufacturer's liability is limited to repair or replacement of any failed equipment or part which is proven defective in material or workmanship upon manufacturer's examination. This warranty does not include removal or installation costs and in no event shall the manufacturer's liability exceed the selling price of such equipment or part.

e. The manufacturer disclaims all liability for damages to its products through improper installation, maintenance, use or attempts to operate such products beyond their functional capacity, intentionally or otherwise, or any unauthorized repair. The manufacturer is not responsible for consequential or other damages, injuries or expense incurred through the use of its products.

f. The above warranty is in lieu of any other warranty, whether expressed or implied. The manufacturer makes no warranty of fitness or merchantability. No agent of ours is authorized to provide any warranty other than the above.

3. Process for All Returned Goods (Warranty Items)

a. Please contact our Technical Service Department to request a RMA (Return Material Authorization) number prior to returning any goods. The following information will be required:

Billing and ship-to address
Model number and serial number
Contact name and phone number
Reason for return
Purchase order (where applicable)

A packing slip will be provided to the shipper and MUST accompany the product being returned. Packages received without our proper packing list will be refused by the receiver.

b. All material must be returned freight prepaid.

c. All material must be properly packaged to prevent damage in shipment.

d. All products used in a chemical application MUST accompany an MSDS

e. All products MUST be wiped and flushed clean of any and all chemicals, solvents or buffers and be warranted to be safe for handling. You will be requested to acknowledge the condition of the product being returned on our packing list. Any product received that is deemed to be unsafe for handling or without this acknowledgement will be refused by our receiver.

f. All warranty repairs will follow the 2 year warranty policy and will refer to the original purchase date.

4. Non-Warranty Return Procedure (Charge Repair)

a. If you are experiencing a concern with your Pulsafeeder product, first consult the distributor, dealer or Regional Sales Manager or the operation and maintenance manual for assistance. If service of your non-warranty unit is necessary, you must request a return material authorization. A RMA form will be issued and must be used as the packing list attached to the outside of the box. Please send the unit freight prepaid with the RMA number visibly displayed on the outside of the carton. All products MUST be wiped and flushed clean of any and all chemicals, solvents or buffers and be warranted to be safe for handling. You will be requested to acknowledge the condition of the product being returned on our packing list. Any product received that is deemed to be unsafe for handling or without this acknowledgement will be refused by our receiver.

b. All products used in a chemical application MUST accompany an MSDS

c.. The charges listed in the following table will apply.

Product	Repair Cost
Pumps and Pump Accessories – within 5 years of sale date	Current List Price x .50 x Part Discount Multiplier
Controllers and Controller Accessories within 5 years of sale date	Current List Price x .50 x Part Discount Multiplier
Any item older than 5 years from date of sale	With purchase order, $50 bench fee to evaluate. The $50 bench fee may be applied towards repair cost of unit or towards a new controller

All Charge Repairs have a 90 day warranty from date of repair.

Policies and Procedures continued

5. Credit for Return of New, Unused Equipment

a. No equipment will be accepted beyond six months after date of shipment from factory for credit.

b. Only new, unused and undamaged standard equipment will be accepted for return to stock.

c. All credits are based on evaluation and acceptance of material as new and unused by Pulsafeeder. You will be requested to acknowledge the condition of the product being returned on our packing list. Any product received that is deemed to be unsafe for handling or without this acknowledgement will be refused by our receiver.

d. A restocking fee of 25% will apply to returned goods. When a PO is provided for a replacement item at the time of the return request the restocking fee will be 15%. Note: any product mounted on a panel or skid will be charged a 50% re-stocking fee.

e. A request for a Returned Material Authorization (RMA) number must be made prior to returning product to Pulsafeeder.

f. All equipment shall be returned with the RMA Packing List form attached to the outside of the box.

g. If any chemical, solvent or buffer has been introduced into the product it must be wiped and flushed clean of any and all substances prior to returning to Pulsafeeder.

h. All material shall be returned freight prepaid.

i. Private label products or Engineered Panel Mount Systems are not returnable.

6. Pricing Errors

a. Pulsafeeder does their very best to avoid errors in billing. You will receive a confirmation of your order within 24 hours of order entry. If upon review the customer feels there is a discrepancy, they should contact Pulsafeeder Customer Service as soon as possible to resolve.

b. Should an invoice be received that the customer believes to have incorrect pricing, they should notify Pulsafeeder Customer Service to investigate.

7. Missing Items

a. If a product is received by the customer with an item missing the customer must notify Pulsafeeder Customer Service within 7 days of receipt of the product by the end user. A replacement item will be sent at no charge as quickly as possible.

b. If a shipment is received by the customer with a line item missing they must notify Pulsafeeder Customer Service within 7 days of receipt of the product by the end user. If the customer had been billed for that item, a credit will be issued against the original Sales Order and a new Sales Order will be created for the replacement product.

8. Damaged Items

a. Should the customer receive an order that was damaged in transit, the customer must notify the carrier directly to initiate a claim on the day of delivery.

b. Should the customer receive a product with damaged components due to improper packaging they should notify Pulsafeeder Customer Service within 7 days of receipt of product by end user. A replacement item will be sent at no charge as quickly as possible.

9. Technical Support Services Available

a. Pulsafeeder'sSales Support teamavailable*all yourand support. The principle mission of this group is to sell and support our customer base in a timely and effective manner. This includes the ability to provide in-field service training, assistance in start -up of our products and perform field repair of goods when required.*

b. Scope

Pulsafeeder, Inc. factory Field Service Technicians are available throughout the World for field services on all Pulsafeeder products. Services include:

i. Maintenance Training Seminars, including Classroom slide presentations and or Hands-on Training. The seminar will take approximately four to five hours, and if time permits minor repair and or adjustments may be made to the customer's pumps, controllers or accessories.

ii. Pre-start up inspections and start up testing/calibration of pumps, controllers and accessories.

iii. Field repairs of pumps controllers and accessories

iv. Diagnosing and recommending solutions to systems problems.

Fee Schedule	Service Rate (1)
Normal 8 hour day	$125.00 / hour
Overtime (in excess of 8 hrs each day)	$175.00 / hour
Sundays, National Holiday	$225.00 / hour
Travel time to job site and return	$115.00 / hour
Travel expenses (air fare, hotel, car and meals)	Chargeable to customer at cost.
Minimum charge	4 hour labor, plus travel time and expenses
End User Training Seminars	
Normal work day	$1000.00 / day plus expenses (air fare, car rental, hotel and meals at cost)
Sundays, National Holiday	$1800.00 / day plus expenses (air fare, car rental, hotel and meals at cost)

(1) *All rates listed in this section are actual hourly and daily rates, not reference rates*

TERMS & CONDITIONS

1 . AGREEMENT. The contract of sale resulting from Seller's documentation together with these terms and conditions ("Contract") constitutes the entire agreement between the parties hereto, except as modified in writing signed by both the Seller and Purchaser. The Seller is Pulsafeeder, Inc. and the Purchaser is identified in the Contract. Any terms in a purchase order, irrespective of their materiality, which are either different from or additional to Seller's conditions of sale, are objected to and are excluded unless the Seller expressly agrees in writing to such terms. Execution of such forms by Seller to accommodate Purchaser's procurement or accounting procedures or to evidence agreed up on change orders shall not be construed as assent to Purchaser's terms. Acceptance of the goods shipped shall constitute assent to Seller's conditions of sale. This Contract shall be binding up on Purchaser and Seller, and on their successors and assigns.

2 . PROPOSAL OR QUOTATION. A proposal shall not become binding up on Seller until it has been executed and returned by Purchaser. An oral quotation shall not be considered an offer: only a written confirmation thereof incorporating Seller's terms and conditions shall constitute an offer. All quotations are valid for 30 days unless stated different on the written quotation.

3. ORDER PLACEMENT. All orders shall be subject to acknowledgement by Pulsafeeders and shall be subject to Pulsafeeder's terms and conditions in effect on the date the order is accepted. No modifications to the terms and conditions referred to or contained in any request for proposal, order, or other document from a customer shall apply unless negotiated and approved via written documentation with Pulsafeeder SPO. Any order cancellation or change request is subject to a cancelation / change fee.

The minimum order amount is US$ 30.00 based on Pulsafeeders list prices in effect at the time the order is received.

All orders must be submitted with correct pricing and shipping information. Orders submitted without correct pricing and shipping information may be rejected or delayed.

4 . CREDIT. Credit terms of payment must have the approval of Seller's Credit Department and must be specified in writing on Seller's invoice or in the Contract. If Purchaser's credit is found by Seller to be unsatisfactory . Seller may rescind or terminate this contract. If at any time during the term of this contract purchaser's financial responsibility becomes impaired or unsatisfactory to Seller, Seller reserves the right to stop shipment on notification to Purchaser, project owner and surety with a demand for payment in advance or at time of delivery for future deliveries or to require other security satisfactory to Seller and in the absence thereof, to cancel the unfilled portion of the Contract. Seller will notify Purchaser promptly of its decision to stop shipments and give an advance notice to the extent this is possible. In the absence of credit terms, sales are for cash.

5. PAYMENT. Specific terms of payment for this order shall be set forth on the reverse side of this Contract or identified and appended hereto. Purchaser agrees to make payment at Seller's location specified in this Contract in lawful money of the United States. Purchaser further agrees to make all payments when due to Seller in accordance with the agreed terms of payment in this Contract without reference to Purchaser's agreement with or payments by the owner and with no right of retention.

6 . INTEREST AND COSTS. Purchaser agrees to pay interest at 1.5% per month (to the extent permitted by law) on all delinquent balances if and when assessed by Seller, and any attorney's fees or court costs arising out of and made necessary in collection of its obligation to Seller created by this Contract.

7 . TAXES. Any federal, state or local tax assessment, fee, duty or charge hereafter imposed on or measured by the products purchased hereunder shall be for Purchaser's account unless Purchaser furnishes Seller an acceptable exemption certificate from such tax, fee, duty or charge prior to shipment.

8 . FORCE MAJEURE. Seller shall make delivery in accordance with the terms of this Contract or within a reasonable time in the absence of any commitment, but Seller shall not be liable for delays or defaults in delivery caused by floods, fires, storms, or other acts of God, by war or act of public enemy (or civil disturbance), strikes, lock outs, shortages of labor or raw materials and supplies (including fuel) or production facilities, transportation service or equipment shortages or failures, action of any governmental authority or other conditions beyond Seller's reasonable control.

9 . CANCELLATION. If Purchaser desires to cancel or change any portion of this Contract, the purchaser must make such request in writing to Seller. Seller may, in its sole discretion, accept or reject any such request. If accepted, the Purchaser nonetheless must take delivery and make payment to Seller for all material manufactured and in process of manufacture at time of notice, and all special materials ordered at time of notice and for which Seller must take delivery , unless otherwise agreed by Seller in writing. All such materials must be removed from Seller's premises within 30 days after payment and payment will due at time of notice. Seller also reserves the right to make a cancellation charge in the event of cancellation by the Purchaser of an order placed in Seller's shipping schedule and acknowledged by Seller. **Any order cancellation is subject to a cancelation fee.**

10 . INSPECTION AND TESTING . Seller's standard specifications and tests apply to all orders. All charges for inspections or tests not regularly furnished are for Purchaser's account and subject to prior negotiation. All inspections shall be conducted at Seller's plant, and failure of Purchaser to avail himself of inspection privileges shall be deemed a waiver of such privileges.

11 . PRICES. Prices are subject to change without notice. Orders based on published prices and accepted for scheduled shipment will be invoiced at Seller's applicable price in effect on the scheduled date of shipment, unless otherwise specifically noted on the order acknowledgment. All prices will be in accordance with applicable government regulations. Orders specifying palletizing or special packaging will involve special charges.

12 . DELAYS. All orders are accepted subject to Seller's ability to make delivery at the time and in the quantities specified, and Seller shall not be liable for damages for failure to make partial or complete shipment or for any delay in making shipments. Purchaser shall be liable for any added expenses incurred by Seller because of Purchaser's delay in furnishing requested information to Seller, delay resulting from order changes by Purchaser, or delay in unloading shipments at delivery point.

13 . SHIPMENT. Seller will select method of shipment and routing when transportation charges are for account of Seller. When shipping instructions are specified by the Purchaser, all costs will be for the account of the Purchaser. The foregoing includes, but is not limited to, carriers charges for notification prior to delivery, demurrage, delay in unloading, diversion, or reconsignment. All shipments are Free Carrier (FCA) or EX Works(EXW) (Incoterms 2010) shippers dock Punta Gorda FL.

On all customer arranged freight (will advise) the customer has 48 hours after Pulsafeeder has advised them that the shipment is complete and ready for shipment to arrange pickup. If the shipment has not left Pulsafeeder within the 48 hour period the customer will be charged 1% of the shipment invoice value for each 24 hour period that the shipment remains at the Pulsafeeder facility. Pulsafeeder may also place the shipment in a public storage at the customer's expense and without liability to Pulsafeeder.

Any expedited order will be subject to a expedite fee.

Unless the order clearly requests expedited shipping, the order will be treated as a routine order. When expedited shipping is requested a designated carrier must be selected. Orders that need to ship the same day must be received by 2:00 PM EST. Same day and next working day shipping is generally available for larger orders but not guaranteed, please verify with customer service. Pulsafeeder shall have no liability if it is unable to provide expedited shipping of an order.

14 . TITLE. Title to products transfers up on shipment from the Pulsafeeder facility according to FCA Shippers Dock or EXW Punta Gorda FL (Incoterms 2010). Purchaser is then responsible for proper protection of product, placement, compliance with all regulations and ordinances, and will indemnify Seller against all claims for personal injuries or property damage arising from the storage, use or handling of such products.

15 . IN TRANSIT CLAIMS. Claims for damage or shortage in transit must be made against the carrier by the owner of the shipment according to the FCA or EXW terms of the Contract. Purchaser has the responsibility to inspect shipments before or during unloading to identify any such damage or shortage and see that appropriate notation is made on the delivery tickets or an inspection report furnished by the local agent of the carrier in order to support a claim.

16 . CLAIMS. Notice of Claims against Seller hereunder for any reason, must be made to Seller in writing promptly after discovery and within any applicable warranty period. Failure to give such notice to Seller shall constitute a waiver by Purchaser of any right later to assert such a claim.

17 . RETURNS. Returned goods shall be accepted for credit only if in salable condition and only with evidence of Seller's prior written consent. Seller will assess charges for freight both ways and any costs necessary to restore such goods to the regular plant inventory . The amount of credit given will depend further up on the degree of salability of products accepted in opinion of Seller.

18 . PATENTS. Seller agrees to defend, and to protect Purchaser against loss or damage arising out of any legal action for patent infringement in connection with the manufacture of its products sold to Purchaser, provided Seller is notified promptly of any such action with complete information and is given an opportunity to defend.

19 . WARRANTY : LIMITATION OF LIABILITY. Seller warrants title to each individual product sold under this Contract and further warrants for a period of twenty four (24) months from ship date, but only to the extent and limit of the purchase price paid for such individual product, that such product conforms to the specifications set forth in the Contract and is free from defects in material and workmanship under normal service and use for which it was designed. Seller's sole obligation and Purchaser's exclusive remedy under this warranty shall be limited to one of the following, as selected by Seller: delivering to Purchaser a replacement for any product or part thereof determined by Seller to be defective, repairing such product or part, or refunding the purchase price (or an equitable portion thereof) paid for such product or part by Purchaser. SELLER MAKES NO WARRANTY OF FITNESS OR MERCHANTABILITY, AND NO OTHER WARRANTY, WHETHER EXPRESS OR ARISING BY OPERATION OF LAW, COURSE OF DEALING, USAGE OF TRADE OR OTHERWISE IMPLIED SHALL EXIST IN CONNECTION WITH SELLER'S PRODUCTS OR ANY SALE OR USE THERE OF. Purchaser must notify Seller promptly and within the warranty period of any claim under this warranty. Seller's warranty extends only to the first purchaser of a product from Seller or Seller's authorized distributor. All goods not manufactured by Seller are warranted only to the extent of the warranties of the original manufacturer. Seller disclaims any liability arising from tort, including strict liability , and Seller further disclaims any liability (whether arising under this or any other provision of this Contract or otherwise) for any costs (including costs of removal or replacement), liabilities, lost profits, loss of good will or any other general, special, incidental or consequential damages incurred by Purchaser in connection with this Contract or any product purchased there under.

20 . LAW . This order shall be governed by and shall be construed by the law of the State of New York .

21 . GOVERNMENTAL REGULATIONS. Seller warrants that no code, law, regulation or ordinance of the United States, a state or any other governmental authority or agency or any applicable Executive Order has been violated in the manufacture or sale of the items covered by this Agreement and warrants that the equipment, supplies, and/or articles covered thereby conform with all such requirements.

22 . NUCLEAR FINANCIAL PROTECTION. Purchaser agrees to procure and maintain, as available to it, nuclear energy liability insurance, in a form of policy approved by the Nuclear Regulatory Commission, and protection, as available, against liability for nuclear incidents not covered by such insurance through an indemnity agreement, as provided in Section 170 of the Atomic Energy Act of 1954, as amended, or any succeeding comparable statutory provision, and the regulations there under. Such financial protection shall be effective prior to the time any equipment purchased from us is used or installed at or in connection with any nuclear facility and shall cover us an insured party . To the extent that such financial protection is not suitable to Purchaser. Purchaser agrees to use its best efforts to cause such financial protection to be obtained by eligible parties. We will cooperate with Purchaser and representatives of the nuclear energy insurance syndicates in complying with all underwriting requirements and with those insurance recommendations which may be mutually agreed up on. Notwithstanding any representations or warranties made by us elsewhere in these conditions of sale, we shall not be responsible for any bodily injury or property damage liability or any other public liability for any nuclear incidents, whether or not in respect of or arising in connection with use or installation of our equipment at any nuclear facility or in connection with any such facility . Purchaser hereby assumes any liability which might otherwise be imposed up on us and agrees to indemnify us and hold harmless from any such liability and costs or expenses in connection therewith.

PULSAFEEDER
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www.pulsatron.com

An ISO 9001 Certified Company

IDEX FLUID & METERING

PULSAFEEDER®

Polymer Makedown Systems

PULSAblend

Pulsafeeder Expertise

Technology is the key to delivering responsible products to the markets that we serve. Leading the way in the development of metering technologies, Pulsafeeder continues to set the standard for accuracy, reliability and safety.

Innovation is another hallmark of Pulsafeeder. Helping customers find a new approach to an old problem is what we do best.

Model Specific QR Code

From the Company that truly cares about your technical service needs. Pulsafeeder assists everyone in the field with information for ***THAT SPECIFIC PRODUCT***, quickly and easily. No dedicated app needed. Simply use your QR Reader on your smart phone or tablet and scan the QR Code located on the Pulsafeeder product label, either Pump or Controller.

- Identify - Model Number, Serial number, KOPkit (Repair Kit)
- View - Quickly find product information such as parts list, IOM, tech sheet and more
- Contact - Call or email Tech Support immediately to assist you
- Email - Send this information to yourself or someone else, to save or even view later

PULSAblend Polymer Makedown System Technology

The Pulsafeeder PULSAblend Polymer Makedown Systems feature a patent pending Static Blending System which provides excellent dilution without harming the polymer chains. Different polymers require different levels of agitation. PULSAblend does not have a motor driven mixer and is as effective (or even more effective) than other makedown systems.

These rugged fabricated assemblies offer turn-key simplicity and industrial-grade durability. The UV stabilized, high grade HDPE frame is lightweight, corrosion resistant and offers structural rigidity. Each system is factory assembled and hydrostatically tested prior to shipment.

Features & Benefits

Patent Pending Static Blending System

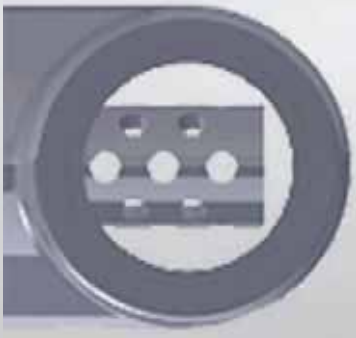
3 Step Static Blending Systems Means

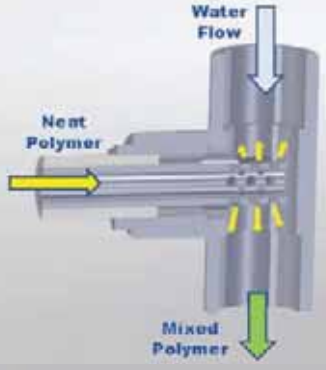
- Complete makedown of any liquid polymer
- No motor driven mixing chamber means:
  - No over-processing to fracture fragile polymer chains
  - Full length chains maximize the polymer's efficacy
  - More robust system with fewer maintenance items
  - Less Polymer, Less Energy, Less Maintenance
- Lower Cost to Purchase, Operate & Maintain = Value!

Step 1

Multi-Port Neat Polymer Dispersion Injector

- Neat Polymer is injected directly into the water flow path
- Multi-orifice 360^{O} nozzle injects polymer into water flow for excellent dispersion
- Compact Injection Nozzle minimizes area to hold partially mixed polymer
- Complete cleaning of nozzle during flush mode; ready for the next cycle





Step 2

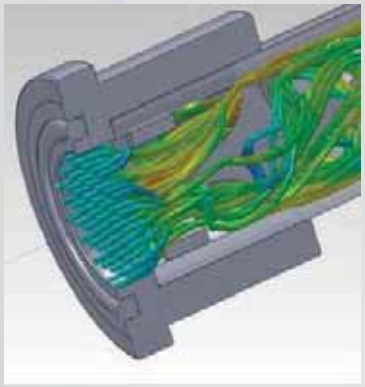
Controlled Acceleration Orifice

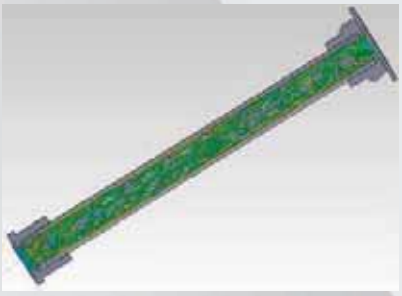
- Computer modeled for optimum solution velocity
- Maximizes energy addition and inversion of emulsion polymers
- 3 sizes to match desired flow rates:
  - 0-5 GPM
  - 5-10 GPM
  - >10 GPM

Step 3

Disruptive Flow Static Mixing Chamber

- Multi-Vane mixer provides final agitation for complete make-down
- Does not over-process or break the polymer chains like active mixers
- Union ends are staggered to prevent reverse installation
- Clear body provides visual verification of makedown & flush
- Complete cleaning during Flush Cycle





Features & Benefits

Open Access System

Common Pipe Runs

- 1/2” Schedule 80 PVC
- Fixture built for exact dimensions end-to-end for easy replacement

Unions In Key Locations

- Easy disassembly for cleaning or replacement

HPDE Frame

- Welded UV stabilized 1/2” material
- Strong and lightweight

Small Footprint

- Same footprint on all systems: 16” by 21”

Proprietary Mixing

Interchangeable Static Mixer

- Can change to any of the 3 mixer flow elements to maximize the polymer inversion

Consistent Control

Adjustable Flow Meter

- Exact control of incoming water flow

Neat Polymer Inlet Strainer

- Eliminates chunks and fish-eyes in polymer

Back Pressure Valve

- Keeps neat polymer pump at exact flow rate

Auto-Fill Calibration Column

- Never touch the polymer to calibrate

System Configuration Options

Manual Control

A single three position control switch provides for automated polymer makedown in “Run” mode and allows the operator to select “Flush” mode to run only clean water along with the “Off” position. A “Prime” button activates only the neat polymer pump.

Dry Contact Control

The Dry Contact remote control option allows for “Run/Stop” function with automatic flush cycle from a simple contact closure.

Automatic Control

Controls include main power “on/Off” and “HOA” switches for the neat polymer feed pump and the inlet water solenoid valve. Optional controls for mixer “HOA” and mixer timing included with the mixer option. Day tank “Batch” level control has optional ultrasonic or conductivity rod level sensors.

Performance Protection - Optional Equipment

Inlet Pressure Regulator

- Used where inlet water pressure varies greatly; i.e. 30-80 PSI
- Regulator can be set to lowest pressure (30 PSI) and the flow into the system will not increase as pressure increases

Inlet Water Flow Switch

- Turns off the pump and closes alarm relay at 0.5 GPM
- Standard on Automatic Control system

FSW Suffix

- Optional on Manual and Dry Contact systems
- Turns off pump below 1.0 GPM; no alarm

PULSAtron Series Pumps

For over 20 years, the PULSAtron product line has evolved into philosophy of design that continues to set the standards for the entire industry. Our engineers have developed a guided check valve system with a proven 'seat and ball' design that ensures reliable and accurate metering year after year.

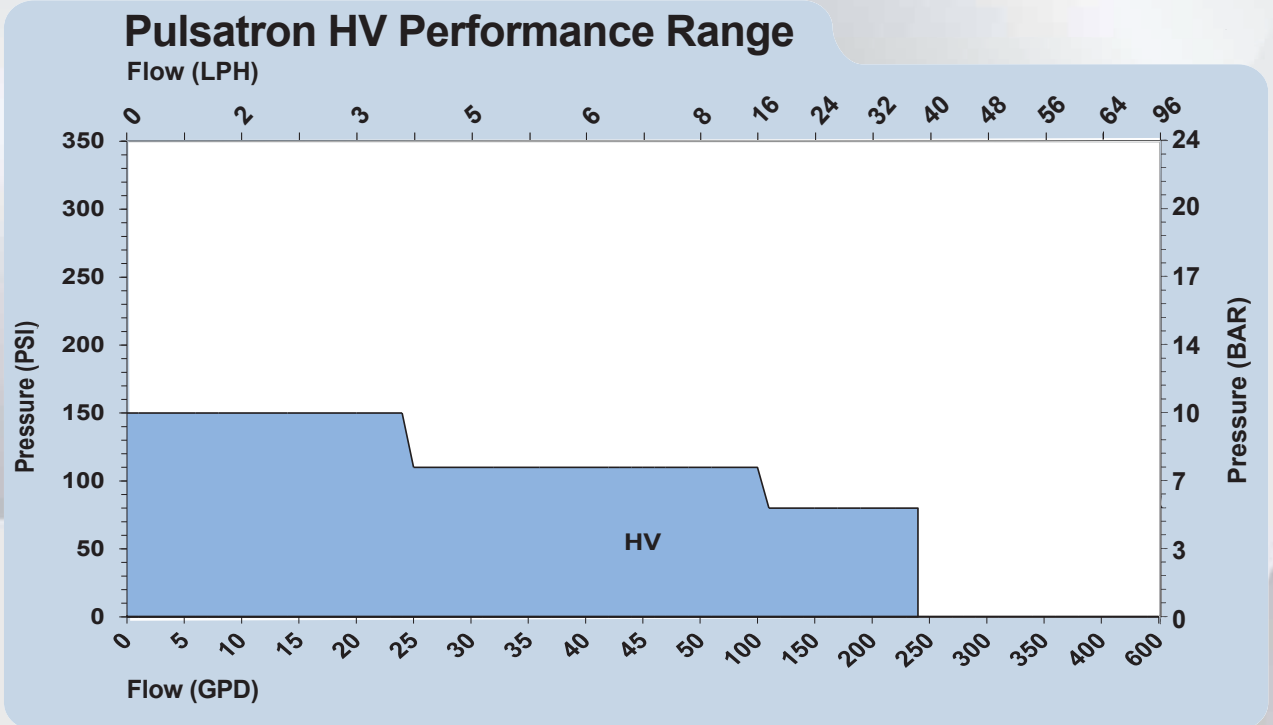
Our fin cooled Solenoid enclosure dissipates heat ensuring that the pressure handling capability of the pump can be maintained. The thermally protected Solenoid protects the pump from seizing up in extreme heat conditions with an automatic reset feature allowing the pump to resume operation upon cool-down. All PULSAtrons are tested and rated under hot conditions guaranteeing that the flow and pressure ratings meet the specifications.

Neat Polymer Injection Pumps

- Five sizes from 0.5 to 10 GPH
- 20,000 CPS
- PVC pump heads with GFPPL valves
- SIlicone Free option available for paint system application
- Visible flow connected to system with clear, braided PVC hose
- Low flow cutoff option: 'External Stop' pump used with FSW suffix code

Diaphragm Metering Pump Technology

The PULSAtron family are solenoid powered diaphragm metering pumps. The key element which differentiates these pumps from other types is the TFE lined elastomer diaphragm. This diaphragm is sealed against the reagent head forming a seal-less, leak free pumping chamber. The solenoid driver is connected to the diaphragm to create the pumping motion. As the diaphragm moves away from the face of the reagent head, it creates a vacuum which closes the discharge check valve and opens the suction check valve, drawing the pumped fluid into the pumping chamber. As the solenoid forces the diaphragm toward the face of the reagent head, the suction check valve closes and the discharge check valve opens allowing the liquid to flow out the discharge valve.



Day Tanks, Level Control & Mixers

Day Tank

Required on Automatic Systems, optional for Manual & Dry Contact

- Conical Bottom w/ Stand available in 6 sizes:
  - 15 Gallon
  - 30 Gallon
  - 40 Gallon
  - 60 Gallon
  - 85 Gallon
  - 110 Gallon

Level Control

Required on Automatic Systems, N/A on Manual & Dry Contact

- Conductivity Rod is Standard; lengths are sized to tank option
- Ultrasonic is Optional: Seen as less reliable in the industry

Tank Mixer

Optional on Automatic Systems, N/A on Manual & Dry Contact

- 75 RPM is standard, VFD drive is optional
- Choice of Propeller or Paddlewheel blades

Parts & Accessories

PULSAFEEDER pulsafeeder.com GENUINE PARTS

KOPkits
When you need a part, you've got it. A KOPkit can help you cut downtime and put you back in business fast.

Calibration Kit
Calibration columns are used on the supply side of the pump to permit flow calibration.

Pump Shelf
Designed to safely and securely mount your metering pumps on a wall or level surface and contain any potential spills.

Pulsation Dampeners improve pump system efficiency by removing pulsating flows from positive displacement pumps.

Corporation Stop
Pulsafeeder's high quality brass corporation stop and nozzle assembly disperses chemical into the center of a line for even mixing.

Pressure Relief Valves prevent an over pressurization situation from ever damaging your pumps or pipes. Over pressurization can occur when a valve is closed or a blockage occurs. They are always recommended equipment for any pump or skid system.

Solution Tanks
Available in sizes from 15 to 500 gallon.

Solenoid Valves are used to permit and shut off fluid flow.

Contact your local Pulsafeeder Distributor or Pulsafeeder Technical Services at 800-333-6677

PULSAFEEDER
27101 Airport Road
Punta Gorda, FL 33982
Phone: ++1(941) 575-3800
Fax: ++1(941) 575-4085

www.pulsatron.com

An ISO 9001 Certified Company

PMSB001 H14

IDEX FLUID & METERING

PULSAFEEDER®

Systems & Accessories

Product

Effective 01/01/16

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Discount Structure Table	
1	Pump Accessory Discount
2	Controller Accessory Discount
3	PES Discount
4	Controller Discount
5	Pulstron Pump Discount
6	Chem-Tech Pump Discount

Discount structure is noted on the bottom right of each table for that product.

IMPORTANT INFORMATION

WHEN PLACING AN ORDER

1. Fax, mail or telephone orders directly to the Customer Service Department:
   Pulsafeeder Incorporated—A Unit of IDEX Corporation
   Standard Product Operations Main Office & Manufacturing Facility
   27101 Airport Road, Punta Gorda, Florida, USA 33982-2462 E-Mail: pulsaspo.cs@idexcorp.com
   Telephone: 800-333-6677 or 941-575-3800 Fax: 800-456-4085 or 941-575-4085
   www.pulsatron.com

2. Please have the following information available when placing an order:

Account Name	Special Tags or Marks (if needed)
Billing Zip Code	Item(s) Being Ordered
Purchase Order Number	Quantity of Each Item
Ship To Address	Pricing
Payment Terms	Shipping Information

3. Orders are entered upon receipt. Our ability to change in house orders is limited. Please be certain your orders are complete when placed. Any order cancellation or change request is subject to a cancelation fee.

4. Orders are assigned standard lead times based on the size of the order and product mix.
   Orders requiring expedited shipping (sooner than the standard lead times) are subject to a expedite charge.
   Unless the order clearly requests expedited shipping, the order will be treated as a routine order. When expedited shipping is requested a designated carrier must be selected. Orders that need to ship the same day must be received by 2:00 PM EST. Same day and next working day shipping is generally available for larger orders but not guaranteed, please verify with customer service. Pulsafeeder shall have no liability if it is unable to provide expedited shipping of an order.

5. Repairs and returns are coordinated through our Customer Service Department. All orders returned must have factory authorization and are subject to a 25% restocking charge for standard product

6. Other Locations:

PULSAFEEDER-Europe
Via Kennedy, 12-20090
Segrate—Milano– Italy
Tel: +0039 377 706 6300

Latin America (Office Only)
Mario Pani 400, Piso 1, Oficina 111
Col. Lomas de Santa Fe, Cuajimalpa de Morelos
C.P 05300, México, D.F.
Tel: 52-55-4738-4124

Far East (Office Only)
Room 3502-3504, Zhao Feng Plaza
No. 1027 Changning Rd
Shanghai 200050, China
Tel: 86-2163906367
Fax: 86-2163863338

IDEX India Private Ltd.
S14, First Floor
Solitaire Corporate Park,
167, Guru Hargovindji Marg, Chakala
Andheri (East)
Mumbai 400 093, India
Tel: 91-22-66435500
Fax: 91-22-66780055

- Prices are subject to change without notice and are effective when order is accepted and acknowledged at point of shipment.
- When ordering, specify your P.O. number, model number, quantity, price, shipping and/or billing address and order date.
- Standard terms are NET 30 days from date of invoice for approved domestic accounts on open account and NET 60 days from date of invoice for approved international accounts.
- WE ACCEPT VISA AND MASTERCARD.
- PAYMENT BY CREDIT CARD WILL NOT RECEIVE AN ADDITIONAL DISCOUNT.
- All prices are FCA, Shippers Dock, Punta Gorda, FL.
- Custom product sales are final.
- Charges for export documentation may apply an very by requirements.
- Expedite fees may apply. Orders requiring expedited shipping (sooner than the standard lead times) are subject to an expedite charge
- Fees for changes to or cancellation of orders may apply.
- Minimum factory order of $30.
- Possession of price schedule does not guarantee right to purchase direct from factory.

We reserve the right to update the information contained in this catalog without notice.

Systems

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PULSAblend

Polymer Makedown Systems

for Electronic Metering Pumps

Turn-Key Packages for Water Clarification Applications

The Pulsafeeder PULSAblend Polymer Makedown Systems feature a Proprietary Static Blending System which provides excellent dilution without harming the polymer chains. These rugged fabricated assemblies offer turn-key simplicity and industrial-grade durability.

The UV-stabilized, high-grade HDPE frame is lightweight, corrosion resistant and offers structural rigidity.

Each system is factory assembled and hydrostatically tested prior to shipment.

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Polymer Makedown System Manual Control

PESM _ _ _ S _ _ _ _ - XXX

SKID TYPE:	M	Polymer Makedown System
CONTROL OPTIONS:	A	Automatic PLC Control, 115V
	B	Automatic PLC Control, 230V
	C	Manual Control, 115V
	D	Manual Control, 230V
	E	Dry Contact Control, 115V
	F	Dry Contact Control, 230V
NEAT POLYMER INJECTION PUMP:	A	0.50 GPH - LVB3 - 150 PSI Max
	B	1.00 GPH - LVF4 - 150 PSI Max
	C	2.00 GPH - LVG4 - 110 PSI Max
	D	4.00 GPH - LVG5 - 110 PSI Max
	E	10.0 GPH - LVH7 - 80 PSI Max
	N	Non-standard: See order for details
ELASTOMER:	V	Viton O-rings and Seals
PRIMARY MAKEDOWN:	S	Static Mixer, Proprietary Design
INCOMING WATER FLOW RATE & REGULATOR:	A	0 - 5 GPM Less Pressure Regulator
	B	5 - 10 GPM Less Pressure Regulator
	C	10+ GPM Less Pressure Regulator
	D	0 - 5 GPM with Pressure Regulator
	E	5 - 10 GPM with Pressure Regulator
	F	10+ GPM with Pressure Regulator
TANK CAPACITY - MAKEDOWN POLYMER:	D	Direct Feed, No Tank
	1	15 Gallon, Conical Bottom with Stand
	3	30 Gallon, Conical Bottom with Stand
	4	40 Gallon, Conical Bottom with Stand
	6	60 Gallon, Conical Bottom with Stand
	8	85 Gallon, Conical Bottom with Stand
	9	110 Gallon, Conical Bottom with Stand
TANK MIXER: (Requires purchase of a Tank Above)	N	No Mixer
	F	Propeller Mixer, 75 RPM Fixed Speed Motor
	G	Paddlewheel Mixer, 75 RPM Fixed Speed Motor
	P	Propeller Mixer, VFD Motor (45-135 RPM)
	W	Paddlewheel Mixer, VFD Motor (45-135 RPM)
LEVEL CONTROL:	N	None - Manual Control System
	C	Conductivity Level Control Sized to Tank Option
	U	Ultrasonic Level Control Sized to Tank Option
OPTIONS:	XXX	No Options
	FSW	Incoming Water Low Flow Cutoff Switch (<1 GPM Will Disable Neat Polymer Pump)

A completed model should look like "PESMCBESDDNN-XXX"

PULSAblend

Polymer Makedown Injection Guide

Water Flow Rate (GPM)	Neat Polymer Injection Pump Flow Rate (GPH) to Reach Percent Makedown																			
	0.2%	0.4%	0.6%	0.8%	1.0%	1.2%	1.4%	1.6%	1.8%	2.0%	2.2%	2.4%	2.6%	2.8%	3.0%	3.2%	3.4%	3.6%	3.8%	4.0%
0.2	0.02	0.05	0.07	0.10	0.12	0.14	0.17	0.19	0.22	0.24	0.26	0.29	0.31	0.34	0.36	0.38	0.41	0.43	0.46	0.48
0.4	0.05	0.10	0.14	0.19	0.24	0.29	0.34	0.38	0.43	0.48	0.53	0.58	0.62	0.67	0.72	0.77	0.82	0.86	0.91	0.96
0.6	0.07	0.14	0.22	0.29	0.36	0.43	0.50	0.58	0.65	0.72	0.79	0.86	0.94	1.01	1.08	1.15	1.22	1.30	1.37	1.44
0.8	0.10	0.19	0.29	0.38	0.48	0.58	0.67	0.77	0.86	0.96	1.06	1.15	1.25	1.34	1.44	1.54	1.63	1.73	1.82	1.92
1.0	0.12	0.24	0.36	0.48	0.60	0.72	0.84	0.96	1.08	1.20	1.32	1.44	1.56	1.68	1.80	1.92	2.04	2.16	2.28	2.40
1.2	0.14	0.29	0.43	0.58	0.72	0.86	1.01	1.15	1.30	1.44	1.58	1.73	1.87	2.02	2.16	2.30	2.45	2.59	2.74	2.88
1.4	0.17	0.34	0.50	0.67	0.84	1.01	1.18	1.34	1.51	1.68	1.85	2.02	2.18	2.35	2.52	2.69	2.86	3.02	3.19	3.36
1.6	0.19	0.38	0.58	0.77	0.96	1.15	1.34	1.54	1.73	1.92	2.11	2.30	2.50	2.69	2.88	3.07	3.26	3.46	3.65	3.84
1.8	0.22	0.43	0.65	0.86	1.08	1.30	1.51	1.73	1.94	2.16	2.38	2.59	2.81	3.02	3.24	3.46	3.67	3.89	4.10	4.32
2.0	0.24	0.48	0.72	0.96	1.20	1.44	1.68	1.92	2.16	2.40	2.64	2.88	3.12	3.36	3.60	3.84	4.08	4.32	4.56	4.80
2.2	0.26	0.53	0.79	1.06	1.32	1.58	1.85	2.11	2.38	2.64	2.90	3.17	3.43	3.70	3.96	4.22	4.49	4.75	5.02	5.28
2.4	0.29	0.58	0.86	1.15	1.44	1.73	2.02	2.30	2.59	2.88	3.17	3.46	3.74	4.03	4.32	4.61	4.90	5.18	5.47	5.76
2.6	0.31	0.62	0.94	1.25	1.56	1.87	2.18	2.50	2.81	3.12	3.43	3.74	4.06	4.37	4.68	4.99	5.30	5.62	5.93	6.24
2.8	0.34	0.67	1.01	1.34	1.68	2.02	2.35	2.69	3.02	3.36	3.70	4.03	4.37	4.70	5.04	5.38	5.71	6.05	6.38	6.72
3.0	0.36	0.72	1.08	1.44	1.80	2.16	2.52	2.88	3.24	3.60	3.96	4.32	4.68	5.04	5.40	5.76	6.12	6.48	6.84	7.20
3.2	0.38	0.77	1.15	1.54	1.92	2.30	2.69	3.07	3.46	3.84	4.22	4.61	4.99	5.38	5.76	6.14	6.53	6.91	7.30	7.68
3.4	0.41	0.82	1.22	1.63	2.04	2.45	2.86	3.26	3.67	4.08	4.49	4.90	5.30	5.71	6.12	6.53	6.94	7.34	7.75	8.16
3.6	0.43	0.86	1.30	1.73	2.16	2.59	3.02	3.46	3.89	4.32	4.75	5.18	5.62	6.05	6.48	6.91	7.34	7.78	8.21	8.64
3.8	0.46	0.91	1.37	1.82	2.28	2.74	3.19	3.65	4.10	4.56	5.02	5.47	5.93	6.38	6.84	7.30	7.75	8.21	8.66	9.12
4.0	0.48	0.96	1.44	1.92	2.40	2.88	3.36	3.84	4.32	4.80	5.28	5.76	6.24	6.72	7.20	7.68	8.16	8.64	9.12	9.60
4.2	0.50	1.01	1.51	2.02	2.52	3.02	3.53	4.03	4.54	5.04	5.54	6.05	6.55	7.06	7.56	8.06	8.57	9.07	9.58	10.08
4.4	0.53	1.06	1.58	2.11	2.64	3.17	3.70	4.22	4.75	5.28	5.81	6.34	6.86	7.39	7.92	8.45	8.98	9.50	10.03	10.56
4.6	0.55	1.10	1.66	2.21	2.76	3.31	3.86	4.42	4.97	5.52	6.07	6.62	7.18	7.73	8.28	8.83	9.38	9.94	10.49	11.04
4.8	0.58	1.15	1.73	2.30	2.88	3.46	4.03	4.61	5.18	5.76	6.34	6.91	7.49	8.06	8.64	9.22	9.79	10.37	10.94	11.52
5.0	0.60	1.20	1.80	2.40	3.00	3.60	4.20	4.80	5.40	6.00	6.60	7.20	7.80	8.40	9.00	9.60	10.20	10.80	11.40	12.00
5.2	0.62	1.25	1.87	2.50	3.12	3.74	4.37	4.99	5.62	6.24	6.86	7.49	8.11	8.74	9.36	9.98	10.61	11.23	11.86	12.48
5.4	0.65	1.30	1.94	2.59	3.24	3.89	4.54	5.18	5.83	6.48	7.13	7.78	8.42	9.07	9.72	10.37	11.02	11.66	12.31	12.96
5.6	0.67	1.34	2.02	2.69	3.36	4.03	4.70	5.38	6.05	6.72	7.39	8.06	8.74	9.41	10.08	10.75	11.42	12.10	12.77	13.44
5.8	0.70	1.39	2.09	2.78	3.48	4.18	4.87	5.57	6.26	6.96	7.66	8.35	9.05	9.74	10.44	11.14	11.83	12.53	13.22	13.92
6.0	0.72	1.44	2.16	2.88	3.60	4.32	5.04	5.76	6.48	7.20	7.92	8.64	9.36	10.08	10.80	11.52	12.24	12.96	13.68	14.40
6.2	0.74	1.49	2.23	2.98	3.72	4.46	5.21	5.95	6.70	7.44	8.18	8.93	9.67	10.42	11.16	11.90	12.65	13.39	14.14	14.88
6.4	0.77	1.54	2.30	3.07	3.84	4.61	5.38	6.14	6.91	7.68	8.45	9.22	9.98	10.75	11.52	12.29	13.06	13.82	14.59	15.36
6.6	0.79	1.58	2.38	3.17	3.96	4.75	5.54	6.34	7.13	7.92	8.71	9.50	10.30	11.09	11.88	12.67	13.46	14.26	15.05	15.84
6.8	0.82	1.63	2.45	3.26	4.08	4.90	5.71	6.53	7.34	8.16	8.98	9.79	10.61	11.42	12.24	13.06	13.87	14.69	15.50	16.32
7.0	0.84	1.68	2.52	3.36	4.20	5.04	5.88	6.72	7.56	8.40	9.24	10.08	10.92	11.76	12.60	13.44	14.28	15.12	15.96	16.80
7.2	0.86	1.73	2.59	3.46	4.32	5.18	6.05	6.91	7.78	8.64	9.50	10.37	11.23	12.10	12.96	13.82	14.69	15.55	16.42	17.28
7.4	0.89	1.78	2.66	3.55	4.44	5.33	6.22	7.10	7.99	8.88	9.77	10.66	11.54	12.43	13.32	14.21	15.10	15.98	16.87	17.76
7.6	0.91	1.82	2.74	3.65	4.56	5.47	6.38	7.30	8.21	9.12	10.03	10.94	11.86	12.77	13.68	14.59	15.50	16.42	17.33	18.24
7.8	0.94	1.87	2.81	3.74	4.68	5.62	6.55	7.49	8.42	9.36	10.30	11.23	12.17	13.10	14.04	14.98	15.91	16.85	17.78	18.72
8.0	0.96	1.92	2.88	3.84	4.80	5.76	6.72	7.68	8.64	9.60	10.56	11.52	12.48	13.44	14.40	15.36	16.32	17.28	18.24	19.20
8.2	0.98	1.97	2.95	3.94	4.92	5.90	6.89	7.87	8.86	9.84	10.82	11.81	12.79	13.78	14.76	15.74	16.73	17.71	18.70	19.68
8.4	1.01	2.02	3.02	4.03	5.04	6.05	7.06	8.06	9.07	10.08	11.09	12.10	13.10	14.11	15.12	16.13	17.14	18.14	19.15	20.16
8.6	1.03	2.06	3.10	4.13	5.16	6.19	7.22	8.26	9.29	10.32	11.35	12.38	13.42	14.45	15.48	16.51	17.54	18.58	19.61	20.64
8.8	1.06	2.11	3.17	4.22	5.28	6.34	7.39	8.45	9.50	10.56	11.62	12.67	13.73	14.78	15.84	16.90	17.95	19.01	20.06	21.12
9.0	1.08	2.16	3.24	4.32	5.40	6.48	7.56	8.64	9.72	10.80	11.88	12.96	14.04	15.12	16.20	17.28	18.36	19.44	20.52	21.60
9.2	1.10	2.21	3.31	4.42	5.52	6.62	7.73	8.83	9.94	11.04	12.14	13.25	14.35	15.46	16.56	17.66	18.77	19.87	20.98	22.08
9.4	1.13	2.26	3.38	4.51	5.64	6.77	7.90	9.02	10.15	11.28	12.41	13.54	14.66	15.79	16.92	18.05	19.18	20.30	21.43	22.56
9.6	1.15	2.30	3.46	4.61	5.76	6.91	8.06	9.22	10.37	11.52	12.67	13.82	14.98	16.13	17.28	18.43	19.58	20.74	21.89	23.04
9.8	1.176	2.352	3.528	4.704	5.88	7.056	8.232	9.408	10.584	11.76	12.936	14.112	15.288	16.464	17.64	18.816	19.992	21.168	22.344	23.52
10.0	1.2	2.4	3.6	4.8	6	7.2	8.4	9.6	10.8	12	13.2	14.4	15.6	16.8	18	19.2	20.4	21.6	22.8	24

Guide	LVB3	LVF4	LVG4	LVG5	LVH7	Not Covered by HV Pumps

Systems Pre-Engineered Solutions

for Electronic Metering Pumps

Turn-Key Packages for Metering Applications

Pulsafeeder's Pre-Engineered Systems are designed to provide complete chemical feed solutions for all electronic metering applications. From stand alone simplex pH control applications to full-featured, redundant sodium hypochlorite disinfection metering, these rugged fabricated assemblies offer turn-key simplicity and industrial-grade durability.

The UV-stabilized, high-grade HDPE frame offers maximum chemical compatibility and structural rigidity.

Each system is factory assembled and hydrostatically tested prior to shipment.

Pre-Engineered Systems for PulsaTron metering pumps include a compact, rugged High Density Polyethylene frame providing structure for a single or dual metering pumps and inlet and discharge piping assemblies with full 1" drip rim perimeter. The piping assemblies utilize Schedule 80 piping, isolation ball valves and unions throughout. The inlet piping assembly includes a clear

Y-strainer and calibration column for easy maintenance and measurement. The discharge piping assemblies incorporate pulsation dampeners, pressure gauge with isolator and discrete back pressure and pressure-relief valves.

Key Features

Pre-Configured System: Rigid, unitized frame with pre-plumbed piping assemblies; schedule 80 PVC standard, other materials are available.

Easy to Install and Operate: Turn-key system with single or multiple input and discharge connections; conduit box electrical connections are optional.

Mounting flexibility: The rigid 1/2" frame incorporates both mounting holes for floor and wall mounting configurations. Three pump skids come with raised base and fork lift pockets.

Quick Delivery: Standard, full feature systems available within 2 weeks of order!

Designed for harsh environments: Rigid, 1/2" high-density (HDPE) polyethylene fabricated frame is strong, UV-stabilized and chemically inert.

System Configurations

1S	2S & 3S	2L	3C
			

System Part Number	No. of Pumps	Maximum Pressure	Nominal Thickness	Containment Lip	Nominal Pipe Size	Inlet Valve	Y-Strainer	Calibration Column *	Pulsation Dampener	Pressure Gauge	Back Pressure Valve	Pressure Relief Valve	Interconnected Piping	Discharge Valve	3 Way Pump Select Valve	Height	Width	Depth	Approx. Wt (no Pumps & Plastic Pipe)	Approx. Wt (no Pumps & SS Pipe)
PES1S	1	150 psi	1/2"	√	1/2"	1	1	1	1	1	1	1		1		36"	20"	16"	32 lbs	38 lbs
PES2S	2	150 psi	1/2"	√	1/2"	2	2	2	2	2	2	2		2		36"	36"	16"	62 lbs	70 lbs
PES3S	3	150 psi	1/2"	√	1/2"	3	3	3	3	3	3	3		3		42"	46	21.5"	100 lbs.	112 lbs
PES2C	2	150 psi	1/2"	√	1/2"	1	1	2	2	2	2	2	√	1		36"	36"	16"	62 lbs	70 lbs
PES3C	3	150 psi	1/2"	√	1/2"	1	1	3	3	3	3	3	√	1		42"	46	21.5"	100 lbs.	112 lbs.
PES2L	2	150 psi	1/2"	√	1/2"	1	1	1	1	1	1	1	√	2		36"	36"	16"	65 lbs	72 lbs

* **Note:** Calibration column size is 200mL on standard systems and 1000mL on HF systems.

Applications

Municipal Water: Disinfection systems with Sodium Hypochlorite, pH Adjustment, Fluoride addition.

Municipal Wastewater: Fume Scrubbers, General Odor Control, pH adjustment, Residual Disinfectant Management

Food & Beverage: Clean-In-Place, Clean-Off-Line, Sterilizer Water Treatment

Institutional: Cooling Tower Water Treatment, Boiler Water Treatment, Closed Loop Systems

Single Pump, Standard System

Model Number	Nominal Elastomer for Components	Description
PES1S-VCF	Viton	Conduit Box for Power & Signal; PVC - Auto Fill Calibration Column
PES1S-VHFCF	Viton	High Flow, Required for H7, J7, K7 & H8 Pumps; Conduit Box for Power & Signal; PVC - Auto Fill Calibration Column
PES1S-ECF	EPDM	Conduit Box for Power & Signal; PVC - Auto Fill Calibration Column
PES1S-EHFCF	EPDM	High Flow, Required for H7, J7, K7 & H8 Pumps; Conduit Box for Power & Signal; PVC - Auto Fill Calibration Column
PES1S-VKCF	Viton	Conduit Box for Power & Signal; Kynar - Auto Fill Calibration Column
PES1S-VHFKCF	Viton	High Flow, Required for H7, J7, K7 & H8 Pumps; Conduit Box for Power & Signal; Kynar - Auto Fill Calibration Column
PES1S-EKCF	EPDM	Conduit Box for Power & Signal; Kynar - Auto Fill Calibration Column
PES1S-EHFKCF	EPDM	High Flow, Required for H7, J7, K7 & H8 Pumps; Conduit Box for Power & Signal; Kynar - Auto Fill Calibration Column

Dual Pump, Redundant Piping, Not Connected

Model Number	Nominal Elastomer for Components	Description
PES2S-VCF	Viton	Conduit Box for Power & Signal; PVC - Auto Fill Calibration Column
PES2S-VHFCF	Viton	High Flow, Required for H7, J7, K7 & H8 Pumps; Conduit Box for Power & Signal; PVC - Auto Fill Calibration Column
PES2S-ECF	EPDM	Conduit Box for Power & Signal; PVC - Auto Fill Calibration Column
PES2S-EHFCF	EPDM	High Flow, Required for H7, J7, K7 & H8 Pumps; Conduit Box for Power & Signal; PVC - Auto Fill Calibration Column
PES2S-VKCF	Viton	Conduit Box for Power & Signal; Kynar - Auto Fill Calibration Column
PES2S-VHFKCF	Viton	High Flow, Required for H7, J7, K7 & H8 Pumps; Conduit Box for Power & Signal; Kynar - Auto Fill Calibration Column
PES2S-EKCF	EPDM	Conduit Box for Power & Signal; Kynar - Auto Fill Calibration Column
PES2S-EHFKCF	EPDM	High Flow, Required for H7, J7, K7 & H8 Pumps; Conduit Box for Power & Signal; PVC - Auto Fill Calibration Column

Dual Pump, Redundant Piping, Connected, Common S & D

Model Number	Nominal Elastomer for Components	Description
PES2C-VCF	Viton	Conduit Box for Power & Signal; PVC - Auto Fill Calibration Column
PES2C-VHFCF	Viton	High Flow, Required for H7, J7, K7 & H8 Pumps; Conduit Box for Power & Signal; PVC - Auto Fill Calibration Column
PES2C-ECF	EPDM	Conduit Box for Power & Signal; Kynar - Auto Fill Calibration Column
PES2C-EHFCF	EPDM	High Flow, Required for H7, J7, K7 & H8 Pumps; Conduit Box for Power & Signal; Kynar - Auto Fill Calibration Column
PES2C-VKCF	Viton	Conduit Box for Power & Signal; Kynar - Auto Fill Calibration Column
PES2C-VHFKCF	Viton	High Flow, Required for H7, J7, K7 & H8 Pumps; Conduit Box for Power & Signal; Kynar - Auto Fill Calibration Column
PES2C-EKCF	EPDM	Conduit Box for Power & Signal; PVC - Auto Fill Calibration Column
PES2C-EHFKCF	EPDM	High Flow, Required for H7, J7, K7 & H8 Pumps; Conduit Box for Power & Signal; PVC - Auto Fill Calibration Column

Dual Pump, Lead/Backup, Single Pipe System

Model Number	Nominal Elastomer for Components	Description
PES2L-VHFCF	Viton	High Flow, Required for H7, J7, K7 & H8 Pumps; Conduit Box for Power & Signal; PVC - Auto Fill Calibration Column
PES2L-ECF	EPDM	Conduit Box for Power & Signal; PVC - Auto Fill Calibration Column
PES2L-EHFCF	EPDM	High Flow, Required for H7, J7, K7 & H8 Pumps; Conduit Box for Power & Signal; PVC - Auto Fill Calibration Column
PES2L-VKCF	Viton	Conduit Box for Power & Signal; Kynar - Auto Fill Calibration Column
PES2L-VHFKCF	Viton	High Flow, Required for H7, J7, K7 & H8 Pumps; Conduit Box for Power & Signal; Kynar - Auto Fill Calibration Column
PES2L-EKCF	EPDM	Conduit Box for Power & Signal; PVC - Auto Fill Calibration Column
PES2L-EHFKCF	EPDM	High Flow, Required for H7, J7, K7 & H8 Pumps; Conduit Box for Power & Signal; PVC - Auto Fill Calibration Column

Three Pump, Redundant Piping, Not Connected

Model Number	Nominal Elastomer for Components	Description
PES3S-VHFCF	Viton	High Flow, Required for H7, J7, K7 & H8 Pumps; Conduit Box for Power & Signal; PVC - Auto Fill Calibration Column
PES3S-ECF	EPDM	Conduit Box for Power & Signal; PVC - Auto Fill Calibration Column
PES3S-EHFCF	EPDM	High Flow, Required for H7, J7, K7 & H8 Pumps; Conduit Box for Power & Signal; Kynar - Auto Fill Calibration Column
PES3S-VKCF	Viton	Conduit Box for Power & Signal; Kynar - Auto Fill Calibration Column
PES3S-VHFKCF	Viton	High Flow, Required for H7, J7, K7 & H8 Pumps; Conduit Box for Power & Signal; Kynar - Auto Fill Calibration Column
PES3S-EKCF	EPDM	Conduit Box for Power & Signal; PVC - Auto Fill Calibration Column
PES3S-EHFKCF	EPDM	High Flow, Required for H7, J7, K7 & H8 Pumps; Conduit Box for Power & Signal; PVC - Auto Fill Calibration Column

Three Pump, Redundant Piping, Connected, Common S & D

Model Number	Nominal Elastomer for Components	Description
PES3C-VCF	Viton	Conduit Box for Power & Signal; PVC - Auto Fill Calibration Column
PES3C-VHFCF	Viton	High Flow, Required for H7, J7, K7 & H8 Pumps; Conduit Box for Power & Signal; PVC - Auto Fill Calibration Column
PES3C-ECF	EPDM	Conduit Box for Power & Signal; PVC - Auto Fill Calibration Column
PES3C-EHFCF	EPDM	High Flow, Required for H7, J7, K7 & H8 Pumps; Conduit Box for Power & Signal; Kynar - Auto Fill Calibration Column
PES3C-VKCF	Viton	Conduit Box for Power & Signal; Kynar - Auto Fill Calibration Column
PES3C-VHFKCF	Viton	High Flow, Required for H7, J7, K7 & H8 Pumps; Conduit Box for Power & Signal; Kynar - Auto Fill Calibration Column
PES3C-EKCF	EPDM	Conduit Box for Power & Signal; PVC - Auto Fill Calibration Column
PES3C-EHFKCF	EPDM	High Flow, Required for H7, J7, K7 & H8 Pumps; Conduit Box for Power & Signal; PVC - Auto Fill Calibration Column

Pre-Engineered Systems for BLACKLINE Pumps

Pulsafeeder's Pre-Engineered Systems are designed to provide complete chemical feed solutions for a wide range of metering applications. From stand alone pH control applications to full-featured, sodium hypochlorite disinfection metering. These rugged fabricated assemblies offer installation simplicity and industrial-grade durability.

The UV-stabilized, high-grade HDPE frame offers maximum chemical compatibility and structural rigidity.

Each system is factory assembled and hydrostatically tested prior to shipment.

Pre-Engineered Systems for BLACKLINE metering pumps include single or dual metering pump configurations with inlet and discharge piping assemblies available in both 1/2" and 1" sizes. The piping assemblies utilize Schedule 80 PVC or UHP PVDF piping. Every system includes ball valves and unions throughout, suction side Y-strainers and calibration columns. The discharge piping assemblies incorporate pulsation dampeners, pressure gauge with isolators, and discrete back pressure and pressure-relief valves.

Key Features

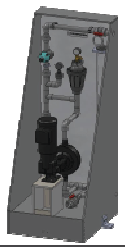
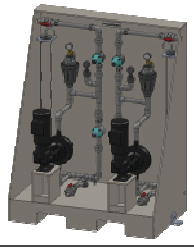
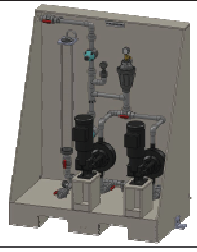
Pre-Configured System: Rigid frame with pre-plumbed piping assemblies; schedule 80 PVC or UHP PVDF piping.

Easy to Install and Operate: All of the most common metering pump accessories are included.

Mounting flexibility: The rigid 1/2" frame incorporates mounting holes and brackets for anchoring to the floor.

Quick Delivery: Systems available within 2 weeks of order!

System Configurations

1S	2S	2L
		

Applications

Municipal Water: Disinfection systems with Sodium Hypochlorite, pH Adjustment, Fluoride addition.

Municipal Wastewater: Fume Scrubbers, General Odor Control, pH adjustment, Residual Disinfectant Management

Food & Beverage: Clean-In-Place, Clean-Off-Line, Sterilizer Water Treatment

Institutional: Cooling Tower Water Treatment, Boiler Water Treatment, Closed Loop Systems

System Part Number	Nominal Pipe Size	Pump Mounts	Maximum Pressure	Containment Lip	Inlet Valve	Y-Strainer	Calibration Column *	Pulsation Dampener	Pressure Gauge	Back Pressure Valve	Pressure Relief Valve	Interconnected Piping	Discharge Valve	3 Way Pump Select Valve	Height inch	Width inch	Depth inch	Approx. Wt (no Pumps)
PES1S	1/2"	1	150 psi	√	1	1	1	1	1	1	1		1		47	21	24	79
PES2S	1/2"	2	150 psi	√	2	2	2	2	2	2	2		2		47	42	24	128
PES2L	1/2"	2	150 psi	√	1	1	1	1	1	1	1	√	2	√	47	42	24	111
PES1S	1"	1	150 psi	√	1	1	1	1	1	1	1		1		63	25	29	127
PES2S	1"	2	150 psi	√	2	2	2	2	2	2	2		2		63	49	29	210
PES2L	1"	2	150 psi	√	1	1	1	1	1	1	1	√	2	√	63	49	29	179

* **Note:** Calibration column size is 1000mL on standard systems and 4000mL on HF systems.

Single Pump, Standard System For BLACKLINE Pump			
Model Number	**Nominal Elastomer for Components**	**Piping**	**Description**
PES1S-VBLA	Viton	PVC ½"	Flow up to 35 gph
PES1S-VKBLA	Viton	PVDF ½"	Flow up to 35 gph
PES1S-EBLA	EPDM	PVC ½"	Flow up to 35 gph
PES1S-VBLHF	Viton	PVC 1"	High Flow, up to 132 gph
PES1S-VKBLHF	Viton	PVDF 1"	High Flow, up to 132 gph
PES1S-EBLHF	EPDM	PVC 1"	High Flow up to 132 gph
Dual Pump, Redundant Piping, Not Connected For BLACKLINE Pumps			
Model Number	**Nominal Elastomer for Components**	**Description**	**Description**
PES2S-VBLA	Viton	PVC ½"	Flow up to 35 gph
PES2S-VKBLA	Viton	PVDF ½"	Flow up to 35 gph
PES2S-EBLA	EPDM	PVC ½"	Flow up to 35 gph
PES2S-VBLHF	Viton	PVC 1"	High Flow, up to 132 gph
PES2S-VKBLHF	Viton	PVDF 1"	High Flow up to 132 gph
PES2S-EBLHF	EPDM	PVC 1"	High Flow up to 132 gph
Dual Pump, Lead/Backup, Single Pipe System For BLACKLINE Pumps			
Model Number	**Nominal Elastomer for Components**	**Description**	**Description**
PES2L-VBLA	Viton	PVC ½"	Flow up to 35 gph
PES2L-VKBLA	Viton	PVDF ½"	Flow up to 35 gph
PES2L-EBLA	EPDM	PVC ½"	Flow up to 35 gph
PES2L-VBLHF	Viton	PVC 1"	High Flow, up to 132 gph
PES2L-VKBLHF	Viton	PVDF 1"	High Flow, up to 132 gph
PES2L-EBLHF	EPDM	PVC 1"	High Flow up to 132 gph

Digital Glycol Feeders

Pulsafeeder's Digital Glycol Feeder provides a consistent operating pressure in closed loop systems. This allows a controlled percentage of glycol solution to be fed from the 55 gallon tank. The Digital Glycol Feeder is available in two models; the DGF1 for single loop and the DGF2 for dual loop systems. The control unit utilizes an 8-bit microcontroller for precise feed system control. The NEMA4X enclosure can be wired conduit or prewire for easy startup. The pre-plumbed assembly includes a pressure gauge, pressure switch, and pressure relief valve to prevent excessive pressure build up. A low liquid level switch with optional audible alarm prevents the gear pump from operating when the solution is low.

Each Digital Glycol Feeder is fully piped and wired with the following components:

Suction Assembly includes:

Schedule 80 PVC tubing and fittings

PVC ball valve

Clear poly bowl strainer

Discharge Assembly Includes:

Schedule 80 PVC pipe and fittings

PVC ball valve

PVC check valve

Pressure gauge

Brass relief valve with return to tank tubing

DIGITAL GLYCOL FEEDER Selection Guide

DGF_ _ _ _ _ _ _ _ _

CLOSED LOOPS Position 4	**1** = Single Loop **2** = Dual Loop
CONDUIT / PREWIRE Position 5	**A** = Conduit **B** = Prewire
AUDIBLE ALARM Position 6	**A** = without Audible Alarm **B** = with Audible Alarm
ALARM OUTPUT OPTION Position 7	**X** = None **A** = Dry Contact, Single **B** = Dry Contact, Dual **C** = AC Output, Single **D** = AC Output, Dual **E** = Dry Contact, Single & AC Output, Single
PRESSURE SWITCH OPTION Position 8	**A** = Standard pressure switch, 30 to 50 psi (adjustable to 80 psi) **B** = Low pressure switch, 5 to 10 psi (adjustable to 35 psi) **C** = One standard and one low pressure switch (DGF2 only)
PUMP AND VOLTAGE RATING Position 9	**A** = 115VAC no pump **C** = 115VAC 60Hz 1.50GPM @ 100psi **E** = 115VAC 60Hz 3.75GPM @ 100 psi
AGENCY APPROVAL Position 10	**X** = None
PANEL ASSEMBLY Position 11	**B** = Assembled (must ship via freight)

Pump Accessories

Table of Contents

Pulsation Dampeners

Pulsafeeder's Pulsation Dampeners improve pump system efficiency by removing pulsating flows from positive displacement pumps, insuring a smooth and continuous fluid flow and metering accuracy, eliminating pipe vibration and protecting gaskets and seals. The result is a longer lasting safer system.

150 PSI Pulsation Dampeners - Chargeable

Volume	Body	Bladder	Connection	Part Number
10 cubic inches	POLY	EPDM	3/8" FNPT	**NA601038-FPPE**
		CSPE	3/8" FNPT	**NA601038-FPPC**
		TFE	3/8" FNPT	**NA601038-FPPT**
		Viton	3/8" FNPT	**NA601038-FPPV**
		CSPE	1/2" FNPT	**NA601050-FPPC**
		TFE	1/2" FNPT	**NA601050-FPPT**
		Viton	1/2" FNPT	**NA601050-FPPV**
	PVC	CSPE	1/2" FNPT	**NA601050-PVCC**
		TFE	1/2" FNPT	**NA601050-PVCT**
		Viton	1/2" FNPT	**NA601050-PVCV**
	PVDF	EPDM	3/8" FNPT	**NA601038-PVDE**
		CSPE	3/8" FNPT	**NA601038-PVDC**
		TFE	3/8" FNPT	**NA601038-PVDT**
		Viton	3/8" FNPT	**NA601038-PVDV**
	316 SS	EPDM	3/8" FNPT	**NA601038-316E**
		CSPE	3/8" FNPT	**NA601038-316C**
		TFE	3/8" FNPT	**NA601038-316T**
		Viton	3/8" FNPT	**NA601038-316V**
85 cubic inches	POLY	EPDM	3/4" FNPT	**NA608575-FPPE**
		CSPE	3/4" FNPT	**NA608575-FPPC**
		TFE	3/4" FNPT	**NA608575-FPPT**
		Viton	3/4" FNPT	**NA608575-FPPV**
	PVDF	EPDM	3/4" FNPT	**NA608575-PVDE**
		CSPE	3/4" FNPT	**NA608575-PVDC**
		TFE	3/4" FNPT	**NA608575-PVDT**
		Viton	3/4" FNPT	**NA608575-PVDV**
	316 SS	EPDM	3/4" FNPT	**NA608575-316E**
		CSPE	3/4" FNPT	**NA608575-316C**
		TFE	3/4" FNPT	**NA608575-316T**
		Viton	3/4" FNPT	**NA608575-316V**

150 PSI Pulsation Dampeners - Chargeable

Volume	Body	Bladder	Connection	Part Number
370 cubic inches	POLY	EPDM	2" FNPT	**NA637020-FPPE**
		CSPE	2" FNPT	**NA637020-FPPC**
		TFE	2" FNPT	**NA637020-FPPT**
		Viton	2" FNPT	**NA637020-FPPV**
	PVDF	EPDM	2" FNPT	**NA637020-PVDE**
		CSPE	2" FNPT	**NA637020-PVDC**
		TFE	2" FNPT	**NA637020-PVDT**
		Viton	2" FNPT	**NA637020-PVDV**
	316 SS	EPDM	2" FNPT	**NA637020-316E**
		CSPE	2" FNPT	**NA637020-316C**
		TFE	2" FNPT	**NA637020-316T**
		Viton	2" FNPT	**NA637020-316V**
36 cubic inches	POLY	EPDM	3/4" FNPT	**NA603675-FPPE**
		CSPE	3/4" FNPT	**NA603675-FPPC**
		TFE	3/4" FNPT	**NA603675-FPPT**
		Viton	3/4" FNPT	**NA603675-FPPV**
	PVDF	EPDM	3/4" FNPT	**NA603675-PVDE**
		CSPE	3/4" FNPT	**NA603675-PVDC**
		TFE	3/4" FNPT	**NA603675-PVDT**
		Viton	3/4" FNPT	**NA603675-PVDV**
	316 SS	EPDM	3/4" FNPT	**NA603675-316E**
		CSPE	3/4" FNPT	**NA603675-316C**
		TFE	3/4" FNPT	**NA603675-316T**
		Viton	3/4" FNPT	**NA603675-316V**
175 cubic inches	POLY	EPDM	2" FNPT	**NA617520-FPPE**
		CSPE	2" FNPT	**NA617520-FPPC**
		TFE	2" FNPT	**NA617520-FPPT**
		Viton	2" FNPT	**NA617520-FPPV**
	PVDF	EPDM	2" FNPT	**NA617520-PVDE**
		CSPE	2" FNPT	**NA617520-PVDC**
		TFE	2" FNPT	**NA617520-PVDT**
		Viton	2" FNPT	**NA617520-PVDV**
	316 SS	EPDM	2" FNPT	**NA617520-316E**
		CSPE	2" FNPT	**NA617520-316C**
		TFE	2" FNPT	**NA617520-316T**
		Viton	2" FNPT	**NA617520-316V**

Specifications: 150 PSI Maximum Pressure

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Water Meters - Contacting Head Water Meters

Multi-Jet Meters:

3/4 in. to 2 in., are designed for use in conjunction with a pulse timer to proportionally control pumps, valves etc. Typical applications include water treatment in cooling tower and boiler systems, water chlorination, car washes and other industrial processes which require proportional control. The Multi-Jet chamber of the water meter assures accuracy over a wide range of flows with low head loss. To prevent wear and maintain accuracy the load is equally distributed on the impeller.

Turbine Meters:

3 inch to 6 inch operate continuously with exceptional accuracy. Each meter incorporates a highly efficient horizontal turbine that essentially floats on the water. The turbine is attached to a Tungsten steel shaft riding in Jewel bearings. The rotation of the turbine is transmitted through a magnetic drive to a sealed odometer register.

Lead Free
Contacting Water Meter

Contacting
Water Meter

Lead Free Brass Contacting Water Meters - Cold Water

	Code	Rating	Reference	MTR _	_ _	-G
Select Water Meter Size	1 =	.625" x .75"	.25 - 20 GPM			
	3 =	1" NPT	.75 - 50 GPM			
	4 =	1.5" NPT	1.5 - 100 GPM			
	5 =	2" NPT	2 - 160 GPM			

Code	Rating	Gallons Per Contact (GPC)			
		3/4" x 5/8"	1"	1.5"	2"
00 =	Less Reed	X	X	X	
01 =	0.1 GPC	X	X		
02 =	0.25 GPC	X	X	X	
03 =	0.5 GPC	X			
04 =	1 GPC	X	X	X	X
07 =	10 GPC	X	X	X	X

Lead Free

3/4" - 2" Meters have male Epoxy Coated NPT Brass Bodies with unions, rated for 150 PSI max, 105^{O} F max.

Brass Contacting Water Meters - Cold Water

	Code	Rating	Reference	MTR _	_ _	-A
Select Water Meter Size	2 =	.75" NPT	.5 - 30 GPM			
	3 =	1" NPT	.75 - 50 GPM			
	4 =	1.5" NPT	1.5 - 100 GPM			
	5 =	2" NPT	2 - 160 GPM			

Code	Rating	Gallons Per Contact (GPC)			
		3/4"	1"	1.5"	2"
00 =	Less Reed	X	X		X
01 =	0.1 GPC	X			
03 =	0.5 GPC	X			
04 =	1 GPC	X	X	X	
06 =	5 GPC				X
07 =	10 GPC	X			

Standard Brass

3/4" - 2" Meters have male Epoxy Coated NPT Brass Bodies with unions, rated for 150 PSI max, 105^{O} F max.

Turbine Contacting Water Meters - Cold Water

	Code	Rating	Reference	MTR _	_ _
Select Water Meter Size	6 =	3" Flanged	440 GPM		
	7 =	4" Flanged	660 GPM		
	8 =	6" Flanged	1650 GPM		

Code	Ratings	Gallons Per Contact (GPC)		
		3"	4"	6"
10 =	100 GPC	X	X	X
13 =	1,000 GPC	X	X	X

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3", 4" & 6" Meters have Epoxy Coated Ductile Iron Flanged Bodies, rated for 200 PSI max, 105^{O} F max.

Mixers

Mounts

Bracket Mount: two rugged steel brackets with four stainless steel bolts for mounting on a flat surface.

Thread Mount: provides a 2" threaded nipple for direct mounting on the bung of a supply drum or other threaded connector.

Flange Mount: a steel flange with four stainless steel bolts for mounting the mixer directly over the shaft hole.

Horsepower and Motor Types

Open: 1/3 and 1/2 horsepower motors are 1725 rpm, 115 volt, 60 cycle, split phase, sleeve bearing. 1 horsepower motors are 1725 rpm, 115/230 volt, 60 cycle, capacitor start, sleeve bearing.

Totally Enclosed: 1/20 horsepower motors are 1500 rpm, 115 volt, 60 cycle, ball bearing, shaded pole, totally enclosed air open.

Prewired: 6', 3 wire 18 gauge SJ cord and plug installed at factory

Vinyl Coated: Special vinyl corrosion resistant coating for stainless steel impeller and shaft required for sodium hypochlorite.

Optional Features

Suction Tube Shield Assembly: 1" PVC tube. Prevents pump suction tubing from entangling with mixer blade.

Part Number

28655 = 29" - 55 gal. (See page 19 for table)

28656 = 20" - 35 gal. (See page 19 for table)

Mixers

Mount	Motor Type	Model Number	Description	HP	Shaft Length
Bracket Mount	Totally Enclosed Air Open	**42747**	115V ONLY	1/20	28"
		42844	115V / Prewired	1/3	36"
		J42872	230V/60Hz / Prewired	1/3	36"
		J64080	230V/50Hz / Vinyl Coated	1/2	36"
		42779	115V/230V/60Hz / Vinyl Coated	1/2	44"
		42733	115V	1	48"
Flange Mount	Totally* Enclosed Air Open	**J64013**	115V / Prewired	1/20	24"
		J64027	115V / Vinyl Coated & Prewired	1/20	24"
		42748	115V	1/20	28"
		42753	115V / Prewired	1/20	28"
		42827	230V/50Hz / Prewired	1/20	28"
		42821	115V / Vinyl Coated & Prewired	1/20	28"
		J64017	230V/50Hz / Vinyl Coated & Prewired	1/20	28"
		J42887	230V/60Hz / Vinyl Coated & Prewired	1/20	28"
Thread Mount	Open	**42729**	115V / Prewired	1/3	36"
	Totally Enclosed Air Open	**42739**	115V	1/20	28"

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All Mixers are equipped with 316SS impeller
WHEN MIXING SODIUM HYPOCHLORITE, ORDER VINYL SHAFT COATING.
No Mixer on 15 gallon Tank. Mixer shafts will be cut to length on request.
For explosion proof motor consult factory.
*** Use only Tank Model 40365 or J40366 with 1/20 hp Mixers.**

Material Specifications	Description	
Shaft Materials	316 Stainless Steel	
Standard Shaft O.D. and Length	1/20 horsepower	5/16" x 28"
	1/4 horsepower	1/2" x 34"
	1/3 horsepower	1/2" x 36"
	1/2 horsepower	1/2" x 44"
	1 horsepower	5/8" x 48"
Shaft Motor/Coupling Mounts	Brass with Stainless Steel set screws. All mounts are steel with corrosion resistant paint. All bolts are 18/8 Stainless Steel.	
Impellers	Impeller sizes vary with each horsepower motor to provide maximum mixing action with each model. 316 Stainless Steel recommended for non abrasive solutions that accept 316 Stainless Steel.	

Solution Tanks

Tank Systems are a rugged line of tanks designed to fit most solution handling needs. All tanks are constructed of polyethylene (PE) and come in a variety of sizes.

Light Duty Linear Tanks

Our Light Duty Linear Tanks come in sizes from 15 to 75 gallons. The 15 gallon tanks are translucent with 5 gallon increments and feature child resistant black caps. 30 gallon tanks are HDPE Cream and 40 gallon tanks are HDPE White. The 75 gallon tanks are HDPE Black and feature a integral molded top with a 4 inch diameter opening.

Heavy Duty Tapered Tanks

Tapered HDPE tanks feature rigid covers which allow the top mounting of Chem-Tech 100, 200 and most PULSAtron pump models. 1/20 HP Flange Mount Mixers may also be mounted on the cover. Tanks available in 35 and 50 gallon capacities are translucent with 5 gallon graduations. (Not suitable for use with 1/3 HP Flange Mount Mixers.)

Industrial Duty Tank Systems

Tanks and covers are constructed of translucent PE with tank stands constructed of heavy gauge steel with a black corrosion resistant finish. The space conserving base for pump mounting under tank prevents loss of prime by maintaining a flooded suction. Industrial Duty Tank Systems come completely piped with PVC bulkhead, ball valve, Y strainer and suction tubing. Tank features graduated increments in both U.S. gallons and liters.

	Size Gallons	Wall	Tank Model	Stand Options		
				Series 100	Series C, C+, A+ & E*	Series E+ & E (LE33, LE34 & LE44)
Light Duty	15	0.078"	40375	39320	J39373	J39378
	30	0.094"	J40360	39322	J39374	J39379
	40	0.094"	J40361			
	75	0.125"	J40362	39324	J39377	J39382
Heavy Duty	35	0.125"	40365	39323	J39375	J39380
	50	0.125"	J40366	39321	J39376	J39379

1

* Note: All Series E pumps except (LE33, LE34 & LE44)

	Size Gallons	Height Tank Only	Dia at Base	Dia at Top	Wall Thk.	Material	Lid / CoverType	Pump Mounting Options	Part Number
Heavy Wall	30	21.75"	21"	24.5"	0.25"	PE Translucent	Rigid PE Cover	Cover Mount	42400
	55	33.75"	21"	24.5"	0.25"				42401
Industrial	30	32"	18"	21"	0.25"	PE Translucent	FRP w/ White Gelcoat	Base Mount	42402
	55	32"	24"	27"	0.25"				42396
	100	37"	30"	33"	0.31"				42397
	150	54"	30"	33"	0.31"				42398
	200	56"	34"	37"	0.31"				42399

1

Double Wall Containment Tanks

Dual Containment Tank Systems are designed for chemical feed and water treatment applications. All prices include standard access openings and threaded connections making these tanks ready to place in service as equipped. All of our tanks meet or exceed the EPA's requirements for secondary containment under 40-CFR 264.175. Standard Openings– 8" (16" on 300 gal.-up) Twist Lid, 2" & 1" female NPT top connections (plugged).

Double Wall Containment Tank							
Item Type	Size Gallons	Height	Diameter	Material	Lid / Cover Type	Pump Mounting Options	Part Number
Dual Wall w/ Fill Top & Pump Mount Pad	15	25.25"	19.5"	Blue PE	4" Fill Cap	None	42403
	20	23"	23.25"		8" Fill Cap	Top Mount	42404
	40	40.5"	23.25"				42405
	62	38.25"	25"				42406
	120	47"	32"				42407
	220	47"	48"				42408
	300	60"	48"		16" Fill Cap		42409
	500	61"	60"				42410

1

Integrated Tank Systems

The ITS System is a completely integrated tank system constructed of high density UV resistant polyethylene (PE) with a 15 gallon capacity. This tank system is translucent with 5 gallon increments and the tank's low level indicator allows visual monitoring of chemicals without opening the tank. The tight fitting child proof lid keeps the chemical free of contaminants and protects the surrounding area from chemical fumes.

The ITS System also allows for easy access to the liquid end and control panel of the mounted pump.

A system consists of a chemical tank with lid and bulkhead fittings, a liquid level indicator, float assembly and feeder mounting hardware.

ITS Tank Systems

Size Gallons	Pump Type	Pump Series	Housing	Tube Conn. Size	System Part No.
15	Chem-Tech	XP	N/A	1/4"	**J63063**
		Series 100		3/8"	**J40489**
				1/2"	**J40490**
	PULSAtron	"1" or "J" conn.	Series A+, C, C+, E (except below)	3/8"	**J40492**
		"A" conn.		1/2"	**J40493**
		"1" or "J" conn.	E (LE33-44) and E+	3/8"	**J40495**
		#3 conn.		1/2"	**J40496**

1

Tank, Stand & Feed Pump Tank Systems

The TSF System is a complete compact feed system with from 7.5 up to 15 gallon capacity. The chemical storage tank and metering pump both mount on a common, fitted base for a precise, secure installation. The 15 gallon tank has a low level indicator that allows visual monitoring of supply without opening the tank.

TSF Selection Table

Size Gallons	Pump Type	Pump Series	Tube Conn. Size	System Part No.
15	Chem-Tech	Series 100	1/2"	**J40442**
			3/8"	**J40443**
	PULSAtron	"A" conn.	1/2"	**J40444**
		#1 conn.	3/8"	**J40445**
		"J" conn.	5/16"	**J40482**

1

PVC Tank Accessories

PVC Tank Accessories

Tube Size	Component	Part Number
1/2"	Y - Strainer	**40085**
	Shut-Off Valve	**41558**
	Bulkhead Assembly	**26861**

1

Spill Containment - Pallet & Accessories

Safely store your Chemical Drums on our 1, 2 or 4 Drum Spill Containment Pallets. These rugged polyethylene pallets are available with or without covers and exceed the EPA's requirements for secondary containment in 40-CFR 264.175.

Spill Containment

Part Number	Description
42420	1 Drum Containment Pallet, 12" x 40" x 40", PE
42421	1 Drum Spill Containment Unit with Hardtop, 66" x 36" x 36"
42422	2 Drum Containment Pallet, 8.75" x 40" x 65.5"
42423	2 Drum Spill Containment Unit with Hardtop, 74" x 41.25" x 67.25"
42424	4 Drum Containment Pallet, 11.75" x 53" x 53"
42426	Loading ramp for 1 and 4 drum spill pallets w/o cover
42427	Caster dolly for 1 drum unit with cover

1

Pump Containment Shelf

The Pump Containment Shelf is designed to safely and securely mount your metering pumps on a wall or level surface and contain any potential spills caused by pump or tubing leaks. The Pump Containment Shelf has a 1/4" FPT drain connection on the base that can be connected to a drum or other container to automatically catch any potential leaks that may occur. The pump base is elevated and removable for the easy installation and servicing or your pumps. The cover protects your equipment from the elements and tampering by unauthorized personnel. The view window allows visual inspection of the enclosures interior while the lid is secured. Designed for up to 2 standard Pulsatron or Chem-Tech metering pumps.

1 or 2 Pump Containment Shelf - PE		
Part Number	Description	
42411	Pump Containment Shelf with Cover - 22"H x 19"W x 19"D	1

Static Inline Mixer

The inline static mixer uses ordinary line pressure to create turbulence which provides good chemical mixing in the process line.

PVC construction

Accommodates flow rates from 3 to 25 GPM

1'' NPT inlet and outlet

1/2'' diameter chemical port inlet

140 psi

Weight: 1 lb.

10.0" long, 2.8" OD

Static Inline Mixer		
Part Number	Description	
STM100-PVC	Static Inline Mixer	1

Bulkhead Fitting Assemblies

Installation of a metering pump in a flooded suction installation requires the installation of a bulkhead fitting through the side wall of the tank in order to connect the suction and bleed valve to the return tubing. The 3/8" bulkhead is typically used for the bleed valve return line which is why it is supplied without a strainer.

Bulkhead Fitting Assemblies				
Tube Size	Strainer	Part Number (Kit Only)	Part Number (Assembled in Tank)**	
5/16"	Yes	J26906		
3/8"		26860	26860AT	
	No	J26885	J26885AT	
1/2"	Yes	26859	26859AT	1

** Fitting will be pre-assembled when ordered with this part number and a 15 - 75 gallon tank.

Flow Meter

Easy to install, easy to maintain flow meters. Calibrated in GPM/LPM with easy to read numbering. Available 1" to 4" pipe size. Durable acrylic construction at economical prices. Rated at 120 PSI max.

Vsual Flow Meters					
Part Number	Description	GPM	LPM	Accuracy	
U8800424	1" Flowmeter	5-35 GPM	20-130 LPM	5-10%	
U8800438	1'1/4" Flowmeter	10-60 GPM	40-220 LPM	5-10%	
U8800439	1-1/2" Flowmeter	20-80 GPM	80-300 LPM	5-10%	
U8800440	2" Flowmeter	30-140 GPM	120-550 LPM	5-10%	
U8800441	2-1/2" Flowmeter	40-200 GPM	160-750 LPM	5-10%	
U8800442	3" Flowmeter	80-350 GPM	300-1300 LPM	5-10%	
U8800443	4" Flowmeter	150-600 GPM	600-2200 LPM	5-10%	1

Liquid Level Wands

The Level Wand is designed to be inserted into a chemical container with a 2" bung hole. The wand can then be adjusted to the proper level and secured in place. A low voltage cable connects the control box to the level wand. When a low level condition occurs the monitor deactivates the metering pump control relay and at the same time activates the alarm output relay.

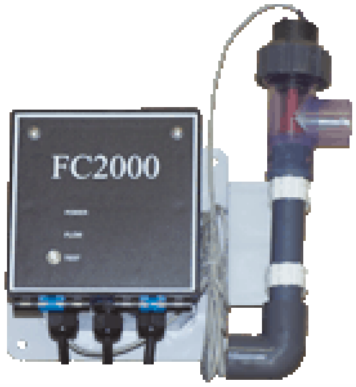
Liquid Level Wands	
Part Number	**Description**
16-171-81-4	Level Wand - Level adjustable up to 60". Switch contacts 28 VDC 50 mA. Order 16-171-81-3 when using PULSAtron Pumps with the Stop Function Feature.
16-171-81-1	Level Wand - Level adjustable up to 42". Switch contacts 28 VDC 50 mA. Order 16-171-81-3 when using PULSAtron Pumps with the Stop Function Feature.
16-171-81-2	Level Wand - Level adjustable up to 26". Switch contacts 28 VDC 50 mA. Order 16-171-81-3 when using PULSAtron Pumps with the Stop Function Feature.
16-171-81-3	10' cable w/ connector for 16-171-81-1, 16-171-81-2 & 16-171-81-4 to use w/ PULSAtron Pumps with the Stop Function Feature

1

NOTE: When utilizing a Pump Model w/ external/stop feature, order 16-171-81-4, 16-171-81-1 or 16-171-81-2 in addition to 16-171-81-3.

Flow Controller

The versatile Flow Controller may be used to establish flow/no- flow control of metering pumps in various applications. Each unit comes prewired with an eight-foot, three-wire power cord for easy installation. A test switch is also provided for manual circuit tests.



Flow Controllers	
Model No.	**Description**
FC2000	Flow Controller - Standard flow controller has 3/4 PVC threaded connections with 3/4" PVC slip adaptors to use if needed. 1 GPM minimum flow required for activation
FC2000C	Flow Controller - Standard flow controller w/ 1 PVC slip connectors; 1 GPM min. flow required for activation.
	Available options for FC2000 & FC2000C:
	Receptacle functions (Standard--both on with flow)
1	Both on with no flow
2	One on with flow, other on no flow
3	One on with flow, other service
4	One on with no flow, other service

1

Adjustable Back Pressure & Pressure Relief Valves

Back Pressure valves provide positive back pressure for systems with less than the minimum required pressure difference between the discharge and suction side of the metering pump to assure best metering performance. Select to match the pumps' discharge connection size. In installations where the injection point is lower than the level of chemical in the supply tank the potential for gravity feeding of chemical is a possible concern. Back Pressure valves prevent this from occurring and can be easily added to most chemical feed pumps.

Back Pressure & Pressure Relief Valves - 150 PSI			
Component	**Size NPT**	**Material**	**Part Number**
Pressure Relief Valves	1/2"	PVC/TFE	**NA100001-PVC**
	1/2"	PVDF/TFE	**NA100001-PVD**
	1/2"	SS/TFE	**NA100001-316**
	1"	PVC/TFE	**NA100002-PVC**
	1"	PVDF/TFE	**NA100002-PVD**
	1"	SS/TFE	**NA100002-316**
	1.5"	PVC/TFE	**NA100003-PVC**
	1.5"	PVDF/TFE	**NA100003-PVD**
Back Pressure Valves	1/2"	PVC/TFE	**NA200001-PVC**
	1/2"	PVDF/TFE	**NA200001-PVD**
	1/2"	SS/TFE	**NA200001-316**
	1"	PVC/TFE	**NA200002-PVC**
	1"	PVDF/TFE	**NA200002-PVD**
	1"	SS/TFE	**NA200002-316**
	1.5"	PVC/TFE	**NA200003-PVC**
	1.5"	PVDF/TFE	**NA200003-PVD**

1

PULSAtron 1” Flow Meters

Pulsafeeder’s PULSAtron 1” Flow Meter without the controller shown on pg can be used as a standalone Hall effect meter for use with XPV Series and MicroVision Series products as well as any product that has a Hall effect input. The meter is available with a controller that has a 4-20mA output.

PULSAtron 1" Flow Meter	
Part Number	**Description**
04-610-10	1" Flow Meter 28" Cord
04-610-11	1" Flow Meter 15" Cord

PULSAtron 1" Flow Meter with Controller	
Part Number	**Description**
04-610-12	1" Flow Meter with Controller 28" Cord
04-610-13	1" Flow Meter with Controller 15' Cord

1

Flow Indicator

The Pulsafeeder flow indicator meets the revised NSF standard requirement for a visual signal to determine that a pump is delivering a solution. The indicator is easily attached to the supply line or discharge line and a ball visually indicates that the solution is being delivered by its position in the indicator. The flow indicator is reliable, easily observed and virtually nonsusceptible to functional failures.

Flow Indicators	
Part Number	**Description**
U7012309	Flow Indicator 1/4" x 3/8" Acrylic Body (100 PSI max)
U7012383	Flow Indicator 1/8" x 1/4" Acrylic Body (100 PSI max)

1

Tube Shield

The Suction tubing shield protects the metering pumps suction line from tank mounted mixer impellers and also insures the tubing remain vertical in the tank.

Tube Shield	
Model Number	**Description**
28655 29" - 55 gal. **28656** 20" - 35 gal.	Suction Tube Shield Assembly. 1" PVC tube. Prevents pump suction tubing from entangling with mixer blade.

1

Strainer Assembly

Strainer Assembly	
Part Number	**Description**
J60576	Strainer Assembly FPP/TFE/C 1/2"OD
J60716	Strainer Assembly PVD/TFE/C 3/8"OD
J60728	Strainer Assembly PVD/TFE/C 1/2"OD

1

Calibration Columns & Kits

Calibration columns are used on the supply side of the pump to permit flow calibration. Never subject the column to vacuum or pressure. The calibration kits includes compression fittings for connecting them to pumps with tubing connections, and isolation valves. To determine the minimum column capacity (mL); Multiply the pumps' rated flow rate, GPH x draw down time,

sec. x 0.00028 x 3785.

Calibration Kits

Size	Column	Unassembled Part Number	Assembled Part Number
3/8" OD	100 mL	L9908500-000	
1/2" OD		L9908501-000	
3/8" OD	200 mL	L9908502-000	L9908502-001
1/2" OD		L9908503-000	L9908503-001

Calibration Columns

Size	Column	Part Number
1/2"	PVC 100mL	NA300001-PVC
1/2"	PVC 200mL	NA300002-PVC
3/4"	PVC 500mL	NA300003-PVC
3/4"	PVC 1000mL	NA300004-PVC
1"	PVC 2000mL	NA300005-PVC
1"	PVC 4000mL	NA300006-PVC
2"	PVC 10,000mL	NA300007-PVC
2"	PVC 20,000mL	NA300008-PVC
1/2"	Glass/PVD 100mL	NA300009-PVD
1/2"	Glass/PVD 200mL	NA300010-PVD
3/4"	Glass/PVD 500mL	NA300011-PVD
3/4"	Glass/PVD 1000mL	NA300012-PVD
1"	Glass/PVD 2000mL	NA300013-PVD
1"	Glass/PVD 4000mL	NA300014-PVD

1

Five Function Valve

This easily installed valve allows simple, one-handed operation. Upgrades Chem-Tech Series 100 and Series 200 metering pumps, plus all pulsatron models up to 240 GPD

Relieves Pressure — Aids Priming — Drains Discharge Line

Controls Back Pressure — Prevents Siphoning

Five Function Valve Selection Guide

L380 _ _ __ - ___

Five Function Valve	L380	= Five Function Valve
Max Pressure Rating	B	= 50 PSI
	D	= 100 PSI
	F	= 150 PSI
	K	= 250 PSI
O-Ring Material	T	= TFE
Connection Size	01	= 3/8" (0.95 cm) OD Tubing Connection
	02	= 1/4" (0.635 cm) Male MNPT Connection
	03	= 1/2" (1.27 cm) OD Tubing Connection
	0P	= 4 x 6 mm
	0N	= 4 x 10 mm
	0S	= 6 x 10 mm
	0Y	= 6 x 12 mm
	0Q	= 10 x 14 mm
Body Materials	PVD	= Polyvinylidene Flouride (PVDF or Kynar)

1

Five Function Degas Valve

With the Five function De-Gas valve you don't have to give up the accuracy and control of a solenoid metering pump in order to pump gaseous solutions.

Degassing — Aids Priming — Drains Discharge Line

Controls Back Pressure — Prevents Siphoning

Five Function/Degas Valve Selection Guide

L385 _ _ __ - ___

Five Function Valve	L385	= Five Function Degas Valve
Max Pressure Rating	K	= 250 PSI
O-Ring Material	V	= Viton
	H	= CSPE
Connection Size	01	= 3/8" (0.95 cm) OD Tubing Connection
	02	= 1/4" (0.635 cm) Male MNPT Connection
	03	= 1/2" (1.27 cm) OD Tubing Connection
	0P	= 4 x 6 mm
	0N	= 4 x 10 mm
	0S	= 6 x 10 mm
	0Y	= 6 x 12 mm
	0Q	= 10 x 14 mm
Body Materials	PVD	= Polyvinylidene Flouride (PVDF or Kynar)

1

6" Injectors

When injecting into a water line, its desirable to have the tip of the injection valve close to the center of flow to ensure adequate chemical dispersion. Pulsafeeder 6" injectors can be trimmed to accommodate various pipe sizes. Another alternative is to use a Pulsafeeder corporation stop assembly see page **22.**

6" Injectors		
Size	Material	Part Number
3/8" OD	PVC-CSPE-C w/ Ball Check Assy	41705
1/2" OD		41698
3/8" OD	PVC-Viton-C w/ Ball Check Assy	41699
1/2" OD		41700
3/8" OD	FPP-Viton-C w/ Ball Check Assy	41701
1/2" OD		41702

1

In-line Anti-siphon Valve

In installations where the injection point is lower that the level of chemical in the supply tank the potential for gravity feeding of chemical is a possible concern. The inline anti-siphon valves prevent this from occurring and can be easily added to most chemical feed pumps.

In-Line Anti-Siphon Valve	
Part Number	Description
U8800406	In-Line Anti-Siphon Valve 3/8" OD PVC
U8800489	In-Line Anti-Siphon Valve 1/4" OD PVC

1

Tubing - 100 Foot Rolls

Periodic replacement of a metering pumps suction tubing is recommended to ensure optimum system performance. Easily stock extra tubing with these convenient 100 foot rolls. Clear PVC tubing is used on the suction side and is rated up to 50 PSI, PE tubing can be used on the discharge and return lines and is rated up to 150 PSI. Other tubing materials are also available, consult the factory for more information.

Tubing - 100 Ft. Rolls		
Tube Size	Description	Part Number
3/8" OD	Clear PVC Suction	J41444
1/2" OD		J41445
3/8" OD	Translucent PE Discharge	J41447
1/2" OD		J41448
1/4" OD	Black PE - Disc.	J41452
	White PE - Disc.	U0811307

1

Wall Mounting Bracket

The rugged, Pulsafeeder wall mounting brackets provide for easy, secure installation of the metering pump in a variety of environments. Pulsafeeder has two types of materials for wall mount brackets available to suit your needs. Brackets are available in either plastic or steel. These wall mount brackets will provide a stable mounting surface for your pump with mounting hardware included, making installation simple.

Side Mount Bracket: For pumps that need to be side mounted the plastic wall mount bracket will hold a pump up to 22 pounds and Pulsafeeder's 12 gauge stainless steel wall mount bracket can hold a pump up to 50 pounds.

Forward Mount Bracket: For pumps requiring forward mount position Pulsafeeder's 14 gauge steel with black epoxy coat finish will support Pulsatron pumps with the #1 or #2 size housings.*

Pulsations with a #3 size housing are the Series MP, E+, E series models (H4, H5, H6, H7, H8, K7, J7).

Wall Mounting Bracket Assemblies		
Mount	Material - Max Pump Wt.	Part Number
Side	Plastic, 22 lbs	L9908200-000
	12 Ga. SS, 50 lbs	L9902700-000
Forward	*14 Ga. Stl, 50 lbs	L9911600-STL

1

*14 Guage steel w/ black epoxy coat finish. Cannot be used w/Series MP, E+, E series models (H4, H5, H6, H7, H8, K7, H7)

Corporation Stop

Pulsafeeder's high quality brass corporation stop and nozzle assembly disperses chemical into the center of a line for even mixing. The Corporation Stop also permits removal of the nozzle assembly and the corporation stop closed without shutting down the line that's being treated. Available in PVC or CPVC nozzles with a 7.75" nozzle insertion depth with a rated pressure of 150 psi maximum.

Corporation Stops		
Thread	**Desc**	**Reduced Lead Compliant Part No.**
3/4" AWWA	w/ PVC Nozzle Assy	**J61462-LF**
3/4" NPT		**J61135-LF**
1" AWWA		**J61136-LF**
1" NPT		**J61191-LF**
3/4" AWWA	w/ CPVC Nozzle Assy	**J61462-C-LF**
3/4" NPT		**J61135-C-LF**
1" AWWA		**J61136-C-LF**
1" NPT		**J61191-C-LF**

1

Controller Accessories

Table of Contents

Corrosion Coupon Racks

Our Corrosion Coupon Racks are hydrostatically tested for maximum system performance exceeding industry standards. These simple and reliable coupon test stations are typically installed on the side stream of re-circulating systems to allow for controlled testing of coupon samples. Samples are periodically removed and examined by a laboratory in order to calculate corrosion rates and other effects such as pitting and deposition.

Corrosion Coupon Racks

Model Number	Stations	Mount	Piping	Description
CCR2	2 Station	.50" HPDE	3/4" PVC	3/4" PVC inlet ball valve
CCR20DF5	2 Station	.25 " HDPE	3/4" black iron	Flow control valve 5 GPM (3/4" only)
CCR20DX7X8CF5	2 Station	.25 " HDPE	3/4" black iron	3/4" brass gate valve 250 psi; Y strainer for 3/4" PVC; Flow control valve 5 GPM (3/4" only)
CCR20DXSX7	2 Station	.25 " HDPE	3/4" black iron w/ SS Holder rod	3/4" brass gate valve 250 psi
CCR20X1X4X7	2 Station	.25 " HDPE	3/4" PVC	Quick release coupon holders (PVC only); PVC outlet ball valve 3/4" hot/cold water flow meter, Max. 100 psi (7 bar) @ 130ºF (54ºC).
CCR20X1X7F5	2 Station	.25 " HDPE	3/4" PVC	Quick release coupon holders (PVC only); PVC outlet ball valve Flow control valve 5 GPM (3/4" only)
CCR2D	2 Station	.50" HPDE	3/4" black iron	
CCR2X1X4X8A	2 Station	.25 " HDPE	3/4" PVC	Quick release coupon holders (PVC only); Y Strainer for 3/4" PVC 3/4" hot/cold water flow meter, Max. 100 psi (7 bar) @ 130ºF (54ºC).
CCR40DXSX7	4 Station	.25 " HDPE	3/4" black iron w/ SS Holder rod	3/4" brass gate valve 250 psi
CCR40X1X4X7	4 Station	.25 " HDPE	3/4" PVC	Quick release coupon holders (PVC only); PVC outlet ball valve 3/4" hot/cold water flow meter, Max. 100 psi (7 bar) @ 130ºF (54ºC).
CCR40X1X7F5	4 Station	.25 " HDPE	3/4" PVC	Quick release coupon holders (PVC only); Flow control valve 5 GPM (3/4" only) PVC outlet ball valve
CCR4DX7X8C	4 Station	.50 " HDPE	3/4" black iron	3/4" brass gate valve 250 psi; Y Strainer for 3/4" black iron

2

Coupon Rack Accessories

Coupon Rack Replacement Parts

Part Number	Description
16-756-51-1	Quick Release coupon holder with hardware
16-756-50	PVC and CPVC holder with hardware
16-756-42	Steel on black iron holder with hardware
33-022-16	3/4" hot/cold water flow meter

2

Coupons for Corrosion Coupon Racks & Deposit Monitors

Part Number	Description
03-220-10	Mild Steel
03-220-00	Copper
03-220-60	303 Stainless Steel
03-220-70	304 Stainless Steel
03-220-20	316 Stainless Steel
03-220-50	Nickel
03-221-30	Brass
03-221-40	Bronze
03-221-50	Aluminum

2

Hand Held Testers

The HJ series hand held testers provide reliable and accurate conductivity measurements. The easy to read dial and LED indicator make taking readings quick and simple. The HJ series also feature a low battery indicator, selectable ranges, and easy calibration. The package includes calibration solution and a 9 V battery.

Hand Held Conductivity Testers	
Model No.	**Description**
HJ6BC	0-100, 0-1000, 0-10,000 µS/cm
HJ7B	0-50, 0-500, 0-5,000 µS/cm

2

Bowl Strainer - Cooling Tower Applications

The polypropylene bowl strainers ensure the controller's sensors are protected from debris in the sample stream piping. Rated 100 psi at 70°F.

Bowl Strainers	
Part Number	**Description**
12-069-62	3/4" Bowl Strainer (50 MESH)
12-069-64	3/4" Bowl Strainer (80 MESH)
12-069-66	3/4" Bowl Strainer (100 MESH)

2

Calibration Solutions

Standard solutions are available for conductivity, pH and ORP instrumentation calibration.

Calibration Solutions	
Part No.	**Description**
Conductivity Solutions (500 ml bottles)	
20-016-26	2000 conductivity (6 pack)
20-016-28	5000 conductivity (6 pack)
20-016-00	500 conductivity (1 bottle)
20-016-02	2000 conductivity (1 bottle)
20-016-04	5000 conductivity (1 bottle)
pH Kit Solutions	
20-016-36	pH 4 buffer solution - 4 oz
20-016-37	pH 4 buffer solution - 32 oz
20-016-38	pH 7 buffer solution - 4 oz
20-016-39	pH 7 buffer solution - 32 oz
20-016-40	pH 10 buffer solution - 4 oz
20-016-41	pH 10 buffer solution - 32 oz
ORP Kit Solutions	
20-016-42	ORP 100 mV buffer solution - 4 oz
20-016-43	ORP 100 mV buffer solution - 32 oz
20-016-44	ORP 465 mV buffer solution - 4 oz
20-016-45	ORP 465 mV buffer solution - 32 oz
Calibration Kit / Tee	
12-043-58	Calibration Kit / Tee

2

Solenoid Valves - Cooling Tower Applications

Standard Solenoid Valve

High Temp Solenoid Valve

Standard Solenoid Valves	
Part Number	**Description**
12-072-62	2 Way N/C 1/4" Stainless Steel Body with tefon Seat. 150 psi MOPD at 160° F. 120/60, 110/50 volt - ASCO vlv
12-072-53	2 Way N/C 1/2" NPT Brass Body. 0 psi min - 150 psi MOPD at 180° F. 120/60, 110/50 volt - ASCO vlv
12-072-54	2 Way N/C 3/4" NPT Brass Body. 0 psi min - 150 psi MOPD at 180° F. 120/60, 110/50 volt - ASCO vlv
12-072-55	2 Way N/C 1" NPT Brass Body. 0 psi min - 150 psi MOPD at 180° F. 120/60 volt - ASCO vlv
12-072-56	2 Way N/C 1" NPT Brass Body. 5 psi min - 150 psi MOPD at 180° F. 120/60, 110/50 volt - ASCO vlv
12-072-57	2 Way N/C 1 1/2" NPT Brass Body. 0 psi min - 150 psi MOPD at 180° F. 120/60 volt - ASCO vlv
12-072-58	2 Way N/C 1 1/2" NPT Brass Body. 5 psi min - 150 psi MOPD at 180° F. 120/60 volt - ASCO vlv
12-072-59	2 Way N/C 2" NPT Brass Body. 5 psi min - 150 psi MOPD at 180° F. 120/60 volt - ASCO vlv
High Temp Solenoid Valves	
12-072-60	2 Way N/C 1/2" NPT Brass Body. 1 psi min - 125 psi MOPD at 353° F. 120/60 volt - ASCO vlv
12-072-61	2 Way N/C 3/4" NPT Brass Body. 2 psi min - 125 psi MOPD at 353° F. 120/60, 110/50 volt - ASCO vlv
12-048-00	2 Way N/C 1/2" Brass Body, PTFE. 0 psi differential, 100 psi @ 356°F. 115 VAC.
12-056-00	2 Way N/C 3/4" Brass Body, PTFE. 0 psi differential, 100 psi @ 356°F. 115 VAC.

2

2

Motorized Ball Valves

EC Series Motorized Valve

EC Series - Motorized Valves	
Part Number	**Description**
	Motorized Valves for Cooling Tower Applications Low differential pressure applications. Brass bodies. Spring return.
12-045-00	1/2" NPT (25 psi maximum)
12-054-10	3/4" NPT (25 psi maximum)
12-057-00	1" NPT (15 psi maximum)

2

Motorized Ball Valves & Valve Packages - Boiler Applications

Materials of construction: Solenoid Valves are bronze body with stainless steel pilot and valves; Motorized Ball Valves are carbon steel body with 316 stainless steel ball and stem; Throttling Valves are carbon steel body and valve; and Orifice Unions are carbon steel union with stainless steel plates.

Throttling Valve

Valve Packages	
Timed Sample Systems	
Part Number	Description
16-896-00	**Up to 100 psi** Package includes 1/2" solenoid valve (12-048-00) and 1" orifice union with 4 orifice plates (12-012-00 and 12-013-50).
16-896-04	**Up to 300 psi** Package includes 1/2" motorized ball valve with heavy duty 90 degree actuator (16-892-00) and 1/2" flow throttling valve (12-046-01).
16-896-08	**Up to 450 psi** Package includes 1/2" motorized ball valve with 360 degree actuator (16-892-02) and 1" orifice union with 4 orifice plates (12-012-00 and 12-013-50).
Valve Packages	
Continuous Sample Systems	
16-896-02	**Up to 100 psi** Package includes 3/4" solenoid valve (12-056-00) and two 1" orifice unions with 4 orifice plates each (12-012-00 and 12-013-50).
16-896-06	**Up to 300 psi** Package includes 3/4 motorized ball valve with 90 degree actuator (16-892-01), 3/4 flow throttling valve (12-055-01), and 1/2" flow throttling valve (12-046-01).
16-896-10	**Up to 425 psi** Package includes 3/4" motorized ball valve with 360 degree actuator (16-892-04) and two 1" orifice unions with 4 orifice plates each (12-012-00 and 12-013-50).
Available option:	
-2	230 VAC service

2

Note: Materials of construction: Solenoid Valves are bronze body with stainless steel pilot and valves; Motorized Ball Valves are carbon steel body with 316 stainless steel ball and stem; Throttling Valves are carbon steel body and valve; and Orfice Unions are carbon steel union with stainless steel plates.

Motorized Ball Valve

Motorized Ball Valves	
Part Number	Description
16-892-00	1/2" motorized ball valve (10-75 Worcester Actuator)
16-892-01	3/4" motorized ball valve (10-75 Worcester Actuator)
16-892-02	1/2" motorized ball valve (10-36 Worcester Actuator)
16-892-04	3/4" motorized ball valve (10-36 Worcester Actuator)
Available option:	
-2	230 VAC service
Part Number	Description
12-040-00	Worcester 10-75 actuator only
12-040-10	Worcester 10-36 actuator only

2

Motorized Ball Valve Parts	
Part Number	Description
12-043-00	Worcester 1/2" steam rated ball valve only
12-051-00	Worcester 3/4" steam rated ball valve only
12-049-00	Mounting kit for 12-051-00 & 12-040-00

2

Flow Control Valves - Boiler Applications

Flow control valves maintain sufficient back pressure in boiler blowdown lines in order to prevent flashing and to ensure adequate blowdown rates. The orifice union includes four plates, 1/16", 1/8", ¼" and a 5/16". Flow control valves include an indexed position indictor.

Flow Control Valves

Orifice Union

Orifice Plates

Flow Control Valves	
Part Number	Description
12-075-01	3/8" valve (300 psi maximum)
12-046-01	1/2" valve (300 psi maximum)
12-055-01	3/4" valve (300 psi maximum)

2

Orifice Unions & Orifice Plates	
Part Number	Description
12-012-00-1	1" orifice union with set of (4) orifice plates
12-013-50	Set of four orifice plates

2

Sample Cooler

Pulsafeeder's Sample Cooler part number 12-066-00 is a safe method of withdrawing water from boilers, steam lines or tanks containing chemicals and for cooling the withdrawn liquid for subsequent chemical analysis.

Sample Coolers	
Part Number	Description
12-066-00	Sample Cooler

2

Bleed-Off Piping Assembly - Cooling Tower Applications

The pre-plumbed bleed-off assemblies make installation of a cooling tower bleed valve easy. The assemblies include a solenoid valve, Y strainer and a brass shutoff valve.

Bleed-off Piping Assembly	
Part Number	Description
	Includes SVC solenoid valve, steel Y-strainer, and brass shutoff valve.
16-900-18	3/4"
16-900-12	1"

2

NOTES

Policies and Procedures

1. Manufacturer's Equipment Warranty

a. Pulsafeeder warrants all pumps and controllers of its manufacture to be free of defects in material or workmanship. Liability under this policy extends for 24 months from the date of shipment. The manufacturer's liability is limited to repair or replacement of any failed equipment or part which is proven defective in material or workmanship upon manufacturer's examination. This warranty does not include removal or installation costs and in no event shall the manufacturer's liability exceed the selling price of such equipment or part.

b. The manufacturer disclaims all liability for damage to its products through improper installation, maintenance, use or attempts to operate such products beyond their functional capacity, intentionally or otherwise, or any other unauthorized repair. The manufacturer is not responsible for consequential or other damages, injuries or expense incurred through the use of its products.

c. The above warranty is in lieu of any other warranty, whether expressed or implied. The manufacturer makes no warranty of fitness or merchantability. No agent of ours is authorized to provide any warranty other than the above.

2. Pulsafeeder's Parts and Accessory Warranty

a. Pulsafeeder, Inc. warrants parts and accessories provided to be free of defects in material or workmanship. Unless otherwise noted below, liability under this policy extends for 90 days from date of shipment from the factory when sold as service parts. (Replaceable elastomeric parts (PTFE) are expendable and are not covered by any warranty either expressed or implied.)

b. This policy is extended to a full 12 months from the date of installation or 18 months from shipment from the factory whichever comes first on the following accessories;

Digital Glycol Feeders	Pre-Engineered Systems	Corrosion Coupon Racks
Analog Timers	Water Meters	Flow Controllers

c. MicroTrac and MicroVision toroidal probes are warranted for 24 months from date of shipment from the factory when purchased in conjunction with the controller.

All other electrodes/probes and sensors are considered maintenance items and such are warranted for six (6) months from the date of shipment when purchased in conjunction with the controller.

Any electrodes/probes other than toroidal and sensors purchased as spare parts are warranted for 90 days from date of shipment.

d. The manufacturer's liability is limited to repair or replacement of any failed equipment or part which is proven defective in material or workmanship upon manufacturer's examination. This warranty does not include removal or installation costs and in no event shall the manufacturer's liability exceed the selling price of such equipment or part.

e. The manufacturer disclaims all liability for damages to its products through improper installation, maintenance, use or attempts to operate such products beyond their functional capacity, intentionally or otherwise, or any unauthorized repair. The manufacturer is not responsible for consequential or other damages, injuries or expense incurred through the use of its products.

f. The above warranty is in lieu of any other warranty, whether expressed or implied. The manufacturer makes no warranty of fitness or merchantability. No agent of ours is authorized to provide any warranty other than the above.

3. Process for All Returned Goods (Warranty Items)

a. Please contact our Technical Service Department to request a RMA (Return Material Authorization) number prior to returning any goods. The following information will be required:

Billing and ship-to address
Model number and serial number
Contact name and phone number
Reason for return
Purchase order (where applicable)

A packing slip will be provided to the shipper and MUST accompany the product being returned. Packages received without our proper packing list will be refused by the receiver.

b. All material must be returned freight prepaid.

c. All material must be properly packaged to prevent damage in shipment.

d. All products used in a chemical application MUST accompany an MSDS

e. All products MUST be wiped and flushed clean of any and all chemicals, solvents or buffers and be warranted to be safe for handling. You will be requested to acknowledge the condition of the product being returned on our packing list. Any product received that is deemed to be unsafe for handling or without this acknowledgement will be refused by our receiver.

f. All warranty repairs will follow the 2 year warranty policy and will refer to the original purchase date.

4. Non-Warranty Return Procedure (Charge Repair)

a. If you are experiencing a concern with your Pulsafeeder product, first consult the distributor, dealer or Regional Sales Manager or the operation and maintenance manual for assistance. If service of your non-warranty unit is necessary, you must request a return material authorization. A RMA form will be issued and must be used as the packing list attached to the outside of the box. Please send the unit freight prepaid with the RMA number visibly displayed on the outside of the carton. All products MUST be wiped and flushed clean of any and all chemicals, solvents or buffers and be warranted to be safe for handling. You will be requested to acknowledge the condition of the product being returned on our packing list. Any product received that is deemed to be unsafe for handling or without this acknowledgement will be refused by our receiver.

b. All products used in a chemical application MUST accompany an MSDS

c.. The charges listed in the following table will apply.

Product	Repair Cost
Pumps and Pump Accessories – within 5 years of sale date	Current List Price x .50 x Part Discount Multiplier
Controllers and Controller Accessories within 5 years of sale date	Current List Price x .50 x Part Discount Multiplier
Any item older than 5 years from date of sale	With purchase order, $50 bench fee to evaluate. The $50 bench fee may be applied towards repair cost of unit or towards a new controller

All Charge Repairs have a 90 day warranty from date of repair.

Policies and Procedures continued

5. Credit for Return of New, Unused Equipment

a. No equipment will be accepted beyond six months after date of shipment from factory for credit.

b. Only new, unused and undamaged standard equipment will be accepted for return to stock.

c. All credits are based on evaluation and acceptance of material as new and unused by Pulsafeeder. You will be requested to acknowledge the condition of the product being returned on our packing list. Any product received that is deemed to be unsafe for handling or without this acknowledgement will be refused by our receiver.

d. A restocking fee of 25% will apply to returned goods. When a PO is provided for a replacement item at the time of the return request the restocking fee will be 15%. Note: any product mounted on a panel or skid will be charged a 50% re-stocking fee.

e. A request for a Returned Material Authorization (RMA) number must be made prior to returning product to Pulsafeeder.

f. All equipment shall be returned with the RMA Packing List form attached to the outside of the box.

g. If any chemical, solvent or buffer has been introduced into the product it must be wiped and flushed clean of any and all substances prior to returning to Pulsafeeder.

h. All material shall be returned freight prepaid.

i. Private label products or Engineered Panel Mount Systems are not returnable.

6. Pricing Errors

a. Pulsafeeder does their very best to avoid errors in billing. You will receive a confirmation of your order within 24 hours of order entry. If upon review the customer feels there is a discrepancy, they should contact Pulsafeeder Customer Service as soon as possible to resolve.

b. Should an invoice be received that the customer believes to have incorrect pricing, they should notify Pulsafeeder Customer Service to investigate.

7. Missing Items

a. If a product is received by the customer with an item missing the customer must notify Pulsafeeder Customer Service within 7 days of receipt of the product by the end user. A replacement item will be sent at no charge as quickly as possible.

b. If a shipment is received by the customer with a line item missing they must notify Pulsafeeder Customer Service within 7 days of receipt of the product by the end user. If the customer had been billed for that item, a credit will be issued against the original Sales Order and a new Sales Order will be created for the replacement product.

8. Damaged Items

a. Should the customer receive an order that was damaged in transit, the customer must notify the carrier directly to initiate a claim on the day of delivery.

b. Should the customer receive a product with damaged components due to improper packaging they should notify Pulsafeeder Customer Service within 7 days of receipt of product by end user. A replacement item will be sent at no charge as quickly as possible.

9. Technical Support Services Available

a. Pulsafeeder'sSales Support teamavailable*all yourand support. The principle mission of this group is to sell and support our customer base in a timely and effective manner. This includes the ability to provide in-field service training, assistance in start -up of our products and perform field repair of goods when required.*

b. Scope

Pulsafeeder, Inc. factory Field Service Technicians are available throughout the World for field services on all Pulsafeeder products. Services include:

i. Maintenance Training Seminars, including Classroom slide presentations and or Hands-on Training. The seminar will take approximately four to five hours, and if time permits minor repair and or adjustments may be made to the customer's pumps, controllers or accessories.

ii. Pre-start up inspections and start up testing/calibration of pumps, controllers and accessories.

iii. Field repairs of pumps controllers and accessories

iv. Diagnosing and recommending solutions to systems problems.

Fee Schedule	Service Rate (1)
Normal 8 hour day	$125.00 / hour
Overtime (in excess of 8 hrs each day)	$175.00 / hour
Sundays, National Holiday	$225.00 / hour
Travel time to job site and return	$115.00 / hour
Travel expenses (air fare, hotel, car and meals)	Chargeable to customer at cost.
Minimum charge	4 hour labor, plus travel time and expenses
End User Training Seminars	
Normal work day	$1000.00 / day plus expenses (air fare, car rental, hotel and meals at cost)
Sundays, National Holiday	$1800.00 / day plus expenses (air fare, car rental, hotel and meals at cost)

(1) *All rates listed in this section are actual hourly and daily rates, not reference rates*

TERMS & CONDITIONS

1 . AGREEMENT. The contract of sale resulting from Seller's documentation together with these terms and conditions ("Contract") constitutes the entire agreement between the parties hereto, except as modified in writing signed by both the Seller and Purchaser. The Seller is Pulsafeeder, Inc. and the Purchaser is identified in the Contract. Any terms in a purchase order, irrespective of their materiality, which are either different from or additional to Seller's conditions of sale, are objected to and are excluded unless the Seller expressly agrees in writing to such terms. Execution of such forms by Seller to accommodate Purchaser's procurement or accounting procedures or to evidence agreed up on change orders shall not be construed as assent to Purchaser's terms. Acceptance of the goods shipped shall constitute assent to Seller's conditions of sale. This Contract shall be binding up on Purchaser and Seller, and on their successors and assigns.

2 . PROPOSAL OR QUOTATION. A proposal shall not become binding up on Seller until it has been executed and returned by Purchaser. An oral quotation shall not be considered an offer: only a written confirmation thereof incorporating Seller's terms and conditions shall constitute an offer. All quotations are valid for 30 days unless stated different on the written quotation.

3. ORDER PLACEMENT. All orders shall be subject to acknowledgement by Pulsafeeders and shall be subject to Pulsafeeder's terms and conditions in effect on the date the order is accepted. No modifications to the terms and conditions referred to or contained in any request for proposal, order, or other document from a customer shall apply unless negotiated and approved via written documentation with Pulsafeeder SPO. Any order cancellation or change request is subject to a cancelation / change fee.

The minimum order amount is US$ 30.00 based on Pulsafeeders list prices in effect at the time the order is received.

All orders must be submitted with correct pricing and shipping information. Orders submitted without correct pricing and shipping information may be rejected or delayed.

4 . CREDIT. Credit terms of payment must have the approval of Seller's Credit Department and must be specified in writing on Seller's invoice or in the Contract. If Purchaser's credit is found by Seller to be unsatisfactory . Seller may rescind or terminate this contract. If at any time during the term of this contract purchaser's financial responsibility becomes impaired or unsatisfactory to Seller, Seller reserves the right to stop shipment on notification to Purchaser, project owner and surety with a demand for payment in advance or at time of delivery for future deliveries or to require other security satisfactory to Seller and in the absence thereof, to cancel the unfilled portion of the Contract. Seller will notify Purchaser promptly of its decision to stop shipments and give an advance notice to the extent this is possible. In the absence of credit terms, sales are for cash.

5. PAYMENT. Specific terms of payment for this order shall be set forth on the reverse side of this Contract or identified and appended hereto. Purchaser agrees to make payment at Seller's location specified in this Contract in lawful money of the United States. Purchaser further agrees to make all payments when due to Seller in accordance with the agreed terms of payment in this Contract without reference to Purchaser's agreement with or payments by the owner and with no right of retention.

6 . INTEREST AND COSTS. Purchaser agrees to pay interest at 1.5% per month (to the extent permitted by law) on all delinquent balances if and when assessed by Seller, and any attorney's fees or court costs arising out of and made necessary in collection of its obligation to Seller created by this Contract.

7 . TAXES. Any federal, state or local tax assessment, fee, duty or charge hereafter imposed on or measured by the products purchased hereunder shall be for Purchaser's account unless Purchaser furnishes Seller an acceptable exemption certificate from such tax, fee, duty or charge prior to shipment.

8 . FORCE MAJEURE. Seller shall make delivery in accordance with the terms of this Contract or within a reasonable time in the absence of any commitment, but Seller shall not be liable for delays or defaults in delivery caused by floods, fires, storms, or other acts of God, by war or act of public enemy (or civil disturbance), strikes, lock outs, shortages of labor or raw materials and supplies (including fuel) or production facilities, transportation service or equipment shortages or failures, action of any governmental authority or other conditions beyond Seller's reasonable control.

9 . CANCELLATION. If Purchaser desires to cancel or change any portion of this Contract, the purchaser must make such request in writing to Seller. Seller may, in its sole discretion, accept or reject any such request. If accepted, the Purchaser nonetheless must take delivery and make payment to Seller for all material manufactured and in process of manufacture at time of notice, and all special materials ordered at time of notice and for which Seller must take delivery , unless otherwise agreed by Seller in writing. All such materials must be removed from Seller's premises within 30 days after payment and payment will due at time of notice. Seller also reserves the right to make a cancellation charge in the event of cancellation by the Purchaser of an order placed in Seller's shipping schedule and acknowledged by Seller. **Any order cancellation is subject to a cancelation fee.**

10 . INSPECTION AND TESTING . Seller's standard specifications and tests apply to all orders. All charges for inspections or tests not regularly furnished are for Purchaser's account and subject to prior negotiation. All inspections shall be conducted at Seller's plant, and failure of Purchaser to avail himself of inspection privileges shall be deemed a waiver of such privileges.

11 . PRICES. Prices are subject to change without notice. Orders based on published prices and accepted for scheduled shipment will be invoiced at Seller's applicable price in effect on the scheduled date of shipment, unless otherwise specifically noted on the order acknowledgment. All prices will be in accordance with applicable government regulations. Orders specifying palletizing or special packaging will involve special charges.

12 . DELAYS. All orders are accepted subject to Seller's ability to make delivery at the time and in the quantities specified, and Seller shall not be liable for damages for failure to make partial or complete shipment or for any delay in making shipments. Purchaser shall be liable for any added expenses incurred by Seller because of Purchaser's delay in furnishing requested information to Seller, delay resulting from order changes by Purchaser, or delay in unloading shipments at delivery point.

13 . SHIPMENT. Seller will select method of shipment and routing when transportation charges are for account of Seller. When shipping instructions are specified by the Purchaser, all costs will be for the account of the Purchaser. The foregoing includes, but is not limited to, carriers charges for notification prior to delivery, demurrage, delay in unloading, diversion, or reconsignment. All shipments are Free Carrier (FCA) or EX Works(EXW) (Incoterms 2010) shippers dock Punta Gorda FL.

On all customer arranged freight (will advise) the customer has 48 hours after Pulsafeeder has advised them that the shipment is complete and ready for shipment to arrange pickup. If the shipment has not left Pulsafeeder within the 48 hour period the customer will be charged 1% of the shipment invoice value for each 24 hour period that the shipment remains at the Pulsafeeder facility. Pulsafeeder may also place the shipment in a public storage at the customer's expense and without liability to Pulsafeeder.

Any expedited order will be subject to a expedite fee.

Unless the order clearly requests expedited shipping, the order will be treated as a routine order. When expedited shipping is requested a designated carrier must be selected. Orders that need to ship the same day must be received by 2:00 PM EST. Same day and next working day shipping is generally available for larger orders but not guaranteed, please verify with customer service. Pulsafeeder shall have no liability if it is unable to provide expedited shipping of an order.

14 . TITLE. Title to products transfers up on shipment from the Pulsafeeder facility according to FCA Shippers Dock or EXW Punta Gorda FL (Incoterms 2010). Purchaser is then responsible for proper protection of product, placement, compliance with all regulations and ordinances, and will indemnify Seller against all claims for personal injuries or property damage arising from the storage, use or handling of such products.

15 . IN TRANSIT CLAIMS. Claims for damage or shortage in transit must be made against the carrier by the owner of the shipment according to the FCA or EXW terms of the Contract. Purchaser has the responsibility to inspect shipments before or during unloading to identify any such damage or shortage and see that appropriate notation is made on the delivery tickets or an inspection report furnished by the local agent of the carrier in order to support a claim.

16 . CLAIMS. Notice of Claims against Seller hereunder for any reason, must be made to Seller in writing promptly after discovery and within any applicable warranty period. Failure to give such notice to Seller shall constitute a waiver by Purchaser of any right later to assert such a claim.

17 . RETURNS. Returned goods shall be accepted for credit only if in salable condition and only with evidence of Seller's prior written consent. Seller will assess charges for freight both ways and any costs necessary to restore such goods to the regular plant inventory . The amount of credit given will depend further up on the degree of salability of products accepted in opinion of Seller.

18 . PATENTS. Seller agrees to defend, and to protect Purchaser against loss or damage arising out of any legal action for patent infringement in connection with the manufacture of its products sold to Purchaser, provided Seller is notified promptly of any such action with complete information and is given an opportunity to defend.

19 . WARRANTY : LIMITATION OF LIABILITY. Seller warrants title to each individual product sold under this Contract and further warrants for a period of twenty four (24) months from ship date, but only to the extent and limit of the purchase price paid for such individual product, that such product conforms to the specifications set forth in the Contract and is free from defects in material and workmanship under normal service and use for which it was designed. Seller's sole obligation and Purchaser's exclusive remedy under this warranty shall be limited to one of the following, as selected by Seller: delivering to Purchaser a replacement for any product or part thereof determined by Seller to be defective, repairing such product or part, or refunding the purchase price (or an equitable portion thereof) paid for such product or part by Purchaser. SELLER MAKES NO WARRANTY OF FITNESS OR MERCHANTABILITY, AND NO OTHER WARRANTY, WHETHER EXPRESS OR ARISING BY OPERATION OF LAW, COURSE OF DEALING, USAGE OF TRADE OR OTHERWISE IMPLIED SHALL EXIST IN CONNECTION WITH SELLER'S PRODUCTS OR ANY SALE OR USE THERE OF. Purchaser must notify Seller promptly and within the warranty period of any claim under this warranty. Seller's warranty extends only to the first purchaser of a product from Seller or Seller's authorized distributor. All goods not manufactured by Seller are warranted only to the extent of the warranties of the original manufacturer. Seller disclaims any liability arising from tort, including strict liability , and Seller further disclaims any liability (whether arising under this or any other provision of this Contract or otherwise) for any costs (including costs of removal or replacement), liabilities, lost profits, loss of good will or any other general, special, incidental or consequential damages incurred by Purchaser in connection with this Contract or any product purchased there under.

20 . LAW . This order shall be governed by and shall be construed by the law of the State of New York .

21 . GOVERNMENTAL REGULATIONS. Seller warrants that no code, law, regulation or ordinance of the United States, a state or any other governmental authority or agency or any applicable Executive Order has been violated in the manufacture or sale of the items covered by this Agreement and warrants that the equipment, supplies, and/or articles covered thereby conform with all such requirements.

22 . NUCLEAR FINANCIAL PROTECTION. Purchaser agrees to procure and maintain, as available to it, nuclear energy liability insurance, in a form of policy approved by the Nuclear Regulatory Commission, and protection, as available, against liability for nuclear incidents not covered by such insurance through an indemnity agreement, as provided in Section 170 of the Atomic Energy Act of 1954, as amended, or any succeeding comparable statutory provision, and the regulations there under. Such financial protection shall be effective prior to the time any equipment purchased from us is used or installed at or in connection with any nuclear facility and shall cover us an insured party . To the extent that such financial protection is not suitable to Purchaser. Purchaser agrees to use its best efforts to cause such financial protection to be obtained by eligible parties. We will cooperate with Purchaser and representatives of the nuclear energy insurance syndicates in complying with all underwriting requirements and with those insurance recommendations which may be mutually agreed up on. Notwithstanding any representations or warranties made by us elsewhere in these conditions of sale, we shall not be responsible for any bodily injury or property damage liability or any other public liability for any nuclear incidents, whether or not in respect of or arising in connection with use or installation of our equipment at any nuclear facility or in connection with any such facility . Purchaser hereby assumes any liability which might otherwise be imposed up on us and agrees to indemnify us and hold harmless from any such liability and costs or expenses in connection therewith.

NOTES

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PLA001 L15

IDEX FLUID & METERING