



Chemical Dosing and Disinfection

est. 1947

DUFF^{CO.}

When you need it now... or don't know how

PLUMBING & HEATING • PUMPS • WATER CONDITIONING
MULTIFAMILY HOUSING SUPPLIES



CATALOG

610-275-4453

duffcompany.com

GRUNDFOS E-PUMPS

–FOR A RANGE OF APPLICATIONS

The E in E-pump is synonymous with electronic control and energy savings. Using E-pumps in your systems, combined with the correct sizing and right control strategy, can achieve significant energy savings up to 60%. These savings are due to the pump performing based on demand. Grundfos is the first pump manufacturer in the world to offer a pump solution with built-in variable frequency drives.

BENEFITS INCLUDE:

- Energy and money savings due to on-demand performance
- Integrated pumps, motors, and Variable Frequency Drives (VFD) are all made by one supplier and are configured and interfaced for you
- Grundfos GO technology – control the pumps from your smart device
- “Plug and pump” technology for easy installation
- Reduced planning, purchasing, installation, commissioning, and wiring costs

A COMPREHENSIVE RANGE OF STANDARD E-PUMP SOLUTIONS

Grundfos offers a wide range of standard E-pumps for almost any conceivable type of application. Whether the system is intended for heating, air-conditioning, water supply, pressure boosting, or processing systems in an industrial plant, an E-pump will improve the cost effectiveness of your operation.

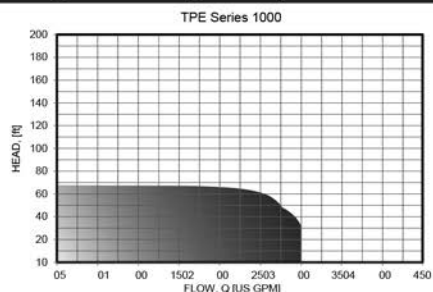
CUSTOMIZED E-PUMP SOLUTIONS

E-pumps are much more than just a standard range. Customized solutions where functions are changed or added are also available. MLE motors from 15-30 hp offer advanced functions such as motor bearings monitoring, which displays an automatic warning when it's time for relubrication or bearing replacement. If you want to monitor bearing temperature, the motor can alert you of overheating.

The E-pumps are also flexible in accessibility options; either through the Grundfos GO technology via Apple or Android mobile devices, PC-based programming tools, or on the pump control panel itself.



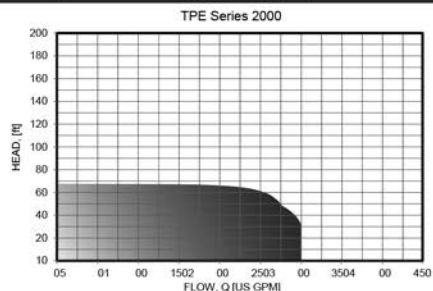
TPE Series 1000 – Single-Stage Centrifugal Pumps



DATA
 Flow, Q: max 300 gpm
 Head, H: max 67 ft.
 Liquid Temp.: +13°F to +284°F
 Working Press.: max 165 psi

APPLICATIONS
 These pumps are suitable for liquid transfer in:
 > District heating plants
 > Cooling and air conditioning systems
 > Industrial plants

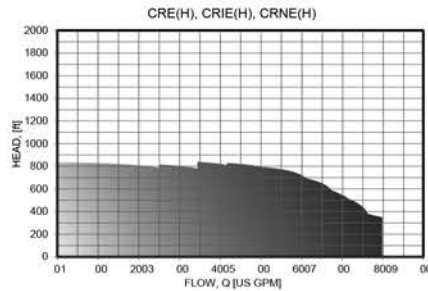
TPE Series 2000 – Single-Stage Centrifugal Pumps (Differential Pressure Sensor Included)



DATA
 Flow, Q: max 300 gpm
 Head, H: max 67 ft.
 Liquid Temp.: +13°F to +284°F
 Working Press.: max 165 psi

APPLICATIONS
 These pumps are suitable for circulation of water in:
 > Heating systems
 > Domestic hot water systems
 > Cooling and air conditioning systems

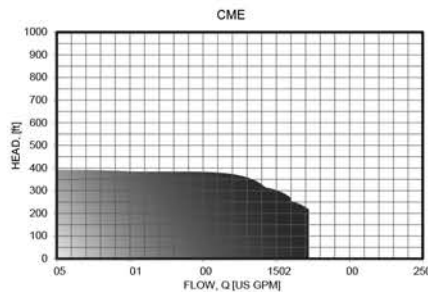
CRE(H), CRIE(H), CRNE(H) – Multi-Stage Centrifugal Pumps



DATA
 Flow, Q: max 790 gpm
 Head, H: max 865 ft.
 Liquid Temp.: -22°F to +248°F
 Working Press.: max 435 psi

APPLICATIONS
 These pumps are suitable for liquid transfer in:
 > Washing systems
 > Cooling systems
 > Water supply systems
 > Water treatment systems
 > Fire fighting systems
 > Boiler feed systems
 > Industrial plants

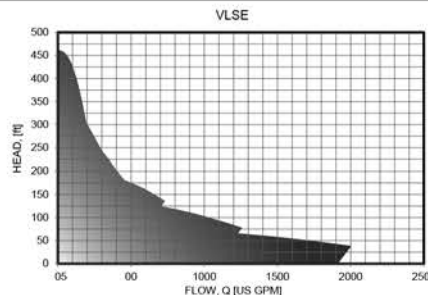
CME – Compact, Multi-Stage Centrifugal Pumps



DATA
 Flow, Q: max 158 gpm
 Head, H: max 392 ft.
 Liquid Temp.: -4°F to +248°F
 Working Press.: max 232 psi

APPLICATIONS
 These pumps are suitable for liquid transfer in:
 > Cooling systems
 > Industrial washing systems
 > Aquafarms
 > Fertilizer systems
 > Dosing systems
 > Industrial plants

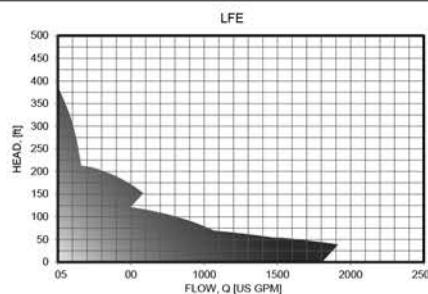
VLSE- In-line Split Coupled with Integrated VFD



DATA
 Flow, Q: max 1,900 gpm
 Head, H: max 405 ft.
 Liquid Temp.: 10°F to 275°F
 Working Press.: 175 psi *

APPLICATIONS
 These pumps are suitable for liquid transfer in:
 > Chilled water
 > Condenser water
 > Pressure boosting
 > District Heating/Cooling
 > Air Conditioning

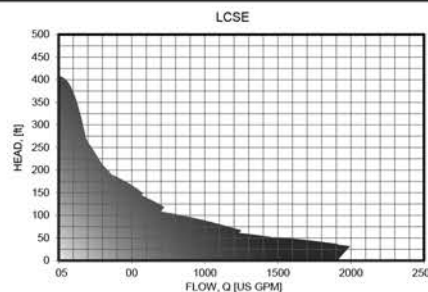
LFE- End Suction Frame Mounted with Interated VFD



DATA
 Flow, Q: max 1,900 gpm
 Head, H: max 380 ft.
 Liquid Temp.: 10°F to 275°F
 Working Press.: 175 psi *

APPLICATIONS
 These pumps are suitable for liquid transfer in:
 > Chilled water
 > Condenser water
 > Air Conditioning
 > District Heating/Cooling
 > Hot water

LCSE- End Suction Split Coupled with Integrated VFD



DATA
 Flow, Q: max 1,900 gpm
 Head, H: max 380 ft.
 Liquid Temp.: 10°F to 275°F
 Working Press.: 175 psi *

APPLICATIONS
 These pumps are suitable for liquid transfer in:
 > Chilled water
 > Condenser water
 > Pressure boosting
 > District Heating/Cooling
 > Air Conditioning

* 250 psi rating also available

GRUNDFOSS

A LOOK INSIDE THE MLE MOTOR

UNSURPASSED DURABILITY AND STRENGTH

All E-pumps are built with an MLE motor. Motor electronics are housed in an aluminum casing that provides superb protection against mechanical impact.



All connections between the PCB (Printed Circuit Board) and housing are extremely robust to prevent damage from vibration. Interconnections between the various PCBs are designed by means of lead frames and connectors instead of cables to obtain increased motor stability and durability.

The terminal box with integrated variable frequency drive was developed to resist harsh environmental conditions, such as those found in industrial and some commercial applications.

One of the measures taken to ensure superior durability is cooling the integrated variable frequency drive by the motor fan rather than the small fans inside the terminal box. This significantly prolongs motor life, extends service intervals, and expands suitable application ranges.

BENEFITS OF AN MLE MOTOR

- > Special pump-related functionalities, which are matched to specific pump types
- > Low acoustic noise from motor due to high switching frequency (9 to 18 kHz)
- > Automatic motor efficiency optimization
- > Nominal output by highest pulse frequency as a standard option
- > Motor temperature rise class B (even with integrated variable frequency drive)
- > Integrated variable frequency drive cooling by motor fan

THE VIRTUES OF A BUILT-IN DRIVE

A variable-speed solution with a separate integrated variable frequency drive placed in the control cabinet is common in many industrial applications today.

However, E-pumps take systems integration one step further by offering an integrated solution with a decentralized variable-speed drive placed in close proximity to the motor.



Key benefits to having an E-pump with MLE motor compared to a separate integrated variable frequency drive solution include:

- > Total systems integration – one unit
- > As easy to install as a standard fixed-speed pump
- > Reduced cabling costs – no need for a screened cable between integrated variable frequency drive and motor
- > Optimum interface between motor and drive
- > Space-saving installation – no need for control cabinets/rooms or space on a wall
- > Reduced logistics costs – one product, one supplier

GRUNDFOS

ACCESSORIES

SENSORS

Grundfos Direct Sensor program offers a number of Transmitters to be used in connection with E-pumps. These can be delivered with 4-20mA or 0-10 V

- Pressure Transmitter up to 362 psi
- Differential Pressure Transmitter up to 232 psi
- Flow Sensor up to 1060 gpm

Another feature is the pressure and differential pressure transmitter that can be delivered with integrated temperature functions, thus giving the benefit of 2:1 solution flow sensor.

OTHER ACCESSORIES

- Dry-running protection sensor LiqTec™
- Control MPC – a multi-pump control system for parallel-connected E-pumps
- Potentiometer box for external setpoint setting
- Inlet pressure switch

BUS COMMUNICATION/GATEWAYS

The 15-30 hp E-pumps are equipped with a standard RS485 GENIbus interface. E-pumps can also be delivered with:

- LonWorks
- Modbus
- BACnet
- Profibus
- GSM

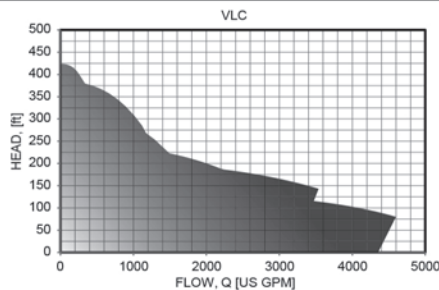
As an accessory, we deliver gateways to convert from GENIbus to other bus standards.

The CIU family with the following possibilities:

- CIU 100:** For communication via LON
- CIU 150:** For communication via Profibus DP
- CIU 200:** For communication via Modbus RTU
- CIU 250:** For wireless communication via GSM, GPRS or SMS
- CIU 300:** For communication via BACnet MS/TP



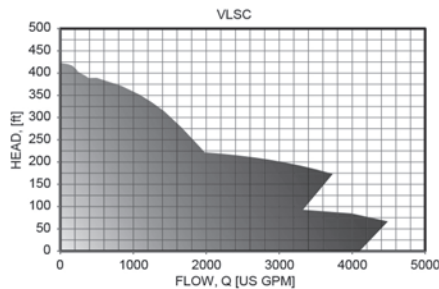
VLC- In-line with CUE drive



DATA
 Flow, Q: max 4,100 gpm
 Head, H: max 420 ft.
 Liquid Temp.: 10°F to 275°F
 Working Press.: 175 psi *

APPLICATIONS
 These pumps are suitable for liquid transfer in:
 ➤ District heating plants
 ➤ Cooling and air conditioning systems
 ➤ Industrial plants

VLSC- In-line Split Coupled with CUE drive



DATA
 Flow, Q: max 4,100 gpm
 Head, H: max 420 ft.
 Liquid Temp.: 10°F to 275°F
 Working Press.: 175 psi *

APPLICATIONS
 These pumps are suitable for circulation of water in:
 ➤ Heating systems
 ➤ Domestic hot water systems
 ➤ Cooling and air conditioning systems

* 250 psi rating also available

CHEMICAL DOSING & DISINFECTION

INTRODUCING GRUNDFOS SMART DIGITAL DOSING PUMPS



ACCURACY

- Dosing rates from 0.0001666 – 192 gallons per day.
- 1000:1 turndown ratio!
- +/- 1% repeatable accuracy.

FLEXIBILITY

- Super simple calibration and start-up: just plug-&-play!
- Unique, user-friendly interface.
- Viscosities up to 2900 cps.
- Voltage from 100 to 240 v, 50/60 Hz, with no in-field modifications.
- Mounting plate adjusts for side or bottom attachment.
- Plain text alarms.

DURABILITY & RELIABILITY

- Up to 19 feet of lift on suction side of pump.
- Non-gassing.
- Low maintenance, with extensive warranty!
- 100% double PTFE diaphragms.
- Grundfos quality and performance at competitive prices.

For a demonstration of the Grundfos SMART Digital Dosing Pumps, call or email your DUFF representative. info@duffco.com 610-275-4453 visit us online at duffco.com



Grundfos SMART Digital Dosing -- DDA, DDC, DDE Pumps

SMART Digital dosing pumps are the next generation of variable speed micro-processor controlled metering pumps.

- 1:3000 or 1:1000 turndown ratio
- PVC, PVDF, Polypropylene & 316 SS materials
- Modular construction with removable wall mounting bracket, and side or front control positions
- Stepper motor driven with universal power supply (1x100-240VAC, 50/60 Hz)
- Reliable dosing of fluids that off-gas (sodium hypochlorite, etc.)
- NSF approved



Feed rate setting range: (+/-1% repeatable accuracy through entire adjustable range)	
MODEL	DESCRIPTION
DDA 7.5-16	0.0006 to 2 GPH @ 232 PSI
DDA 12-10	0.0031 to 3.1 GPH @ 150 PSI
DDA 17-7	0.0045 to 4.5 GPH @ 100 PSI
DDA 30-4	0.008 to 8 GPH @ 60 PSI
DDC 6-10	0.0015 to 1.5 GPH @ 150 PSI
DDC 9-7	0.0024 to 2.4 GPH @ 100 PSI
DDC 15-4	0.004 to 4.0 GPH @ 60 PSI
DDE 6-10	0.0015 to 1.5 GPH @ 150 PSI
DDE 15-4	0.004 to 4 GPH @ 60 PSI

See next page for our most popular Grundfos dosing pumps

Grundfos DDA The DDA model is the pump for complex and demanding applications where the focus is on maximum process reliability. In addition to an extended capacity range and a turn-down ratio of up to 1:3000, it boasts patented sensor technology to measure and verify flow, in addition to pressure monitoring. The AutoFlowAdapt feature

on the FCM version can will correct the actual feed rate to match the pump's set point. The package for industrial applications is rounded off by additional operating modes such as a week dosing timer and new functions such as auto deaeration.

- Scalable control input signals (up to 1:3000 turndown ration) to meet the widest flow rates in one model.
- Slow mode to improve the max viscosity up to 2500 CPS
- Profibus ready (field retrofitable)
- Three variants allow for different degrees of monitoring & control

UP TO 8GPH!



DDA AR	Automatic or manual control with a relay outputs
DDA FC	AR + Flow Control for flow verification
DDA FCM	FC + measurement to verify and measure flow. Pump will auto-adapt so actual feed rate matches target feed rate.

***We also sell Grundfos Mechanical and Hydraulic Dosing Pumps**



CHEMICAL DOSING & DISINFECTION



Grundfos DDC

- * Same DDA intuitive click-wheel operation and a graphic LCD display, with four color "traffic light" concept, in more than 25 languages.
- * Slow mode to improve the max viscosity up to 2500 CPS
- * Direct feed rate setting in GPH or l/hr
- * Simple calibration mode

UP TO 4GPH!



DDC A	Automatic or manual control
DDC AR	A + relay output

SMART Digital Dosing Liquid bleach, sodium, hypochlorite, remains the number one disinfectant. The issues associated with feeding it remain a frequent frustration: loss of prime or gas bubbles. But the Grundfos SMART Digital dosing pumps offer a standard solution for reliable, accurate liquid bleach feed:

- **Stepper Motor** Designed to precisely ensure liquid and bubbles are evacuated
- **Auto-Degassing** feature which automatically detects gas bubbles and adjusts flow to degas bubbles
- **Auto-Deaeration** In standby mode, the pump works to remove trapped bubbles during the downtime
- **Improved Design** Improved valves and dosing head design to handle trapped gasses

Grundfos DDE

- Low cost option for stepper motor driven metering pump.
- 1:1000 turndown for smooth, continuous dosing and minimized pulsation
- Logarithmic scale on control knob that adjusts the feedrate from 0.1-100 %.

Our customers use these pumps in various processes, including:

- Disinfection
- pH regulation
- CIP
- Dosing of chemicals and biocides
- Precipitation and flocculation
- Filtration
- Reverse osmosis

UP TO 4GPH!



Our most popular Grundfos dosing pump in the water treatment / heat transfer market



DUFF TIP:
 Consult with our dosing experts about chemical compatibilities for all your applications.

CHEMICAL DOSING & DISINFECTION

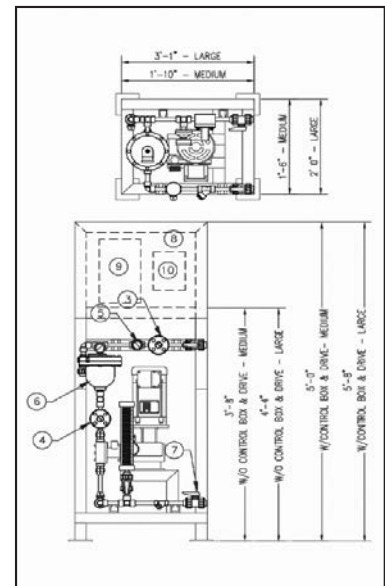
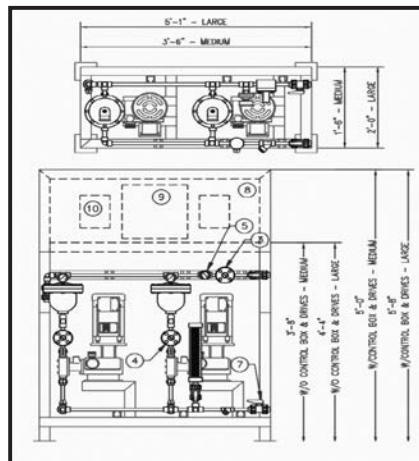
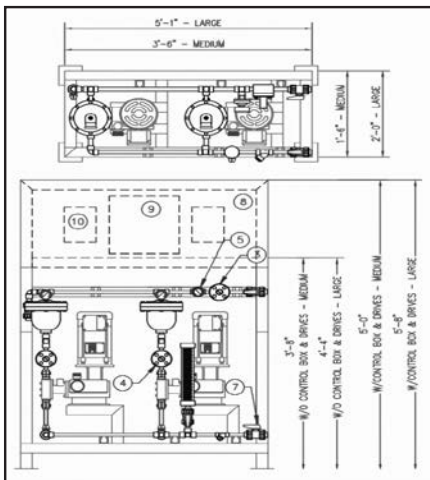
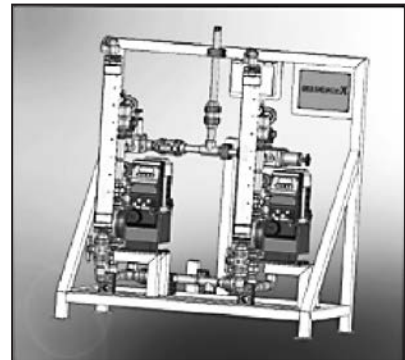
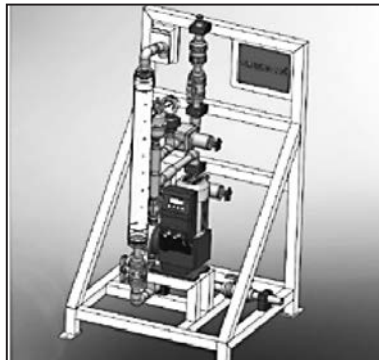
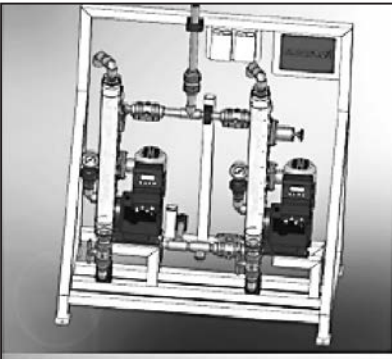
DUFF ENGINEERED DOSING SYSTEMS



You may not know it, but Duff specifies and designs custom dosing systems, tailored for many different applications. We work with engineers and system operators in the planning and layout phases to help calculate operating and maintenance costs. Using our products and our knowledge, we can ensure the the complete sequence of chemical processes in water technology: disinfection, flocculation, pH correction and water conditioning.

Custom-designed systems are tailored to your specific needs and applications:

- Dimensions and connection locations
- Choice of material for skid fabrication
- Accessories included within the system envelope
- Filters
- Containment systems
- Electrical controls
- Portability features
- Wall or floor mount
- Tanks and mixers
- Optional measurement and control instruments



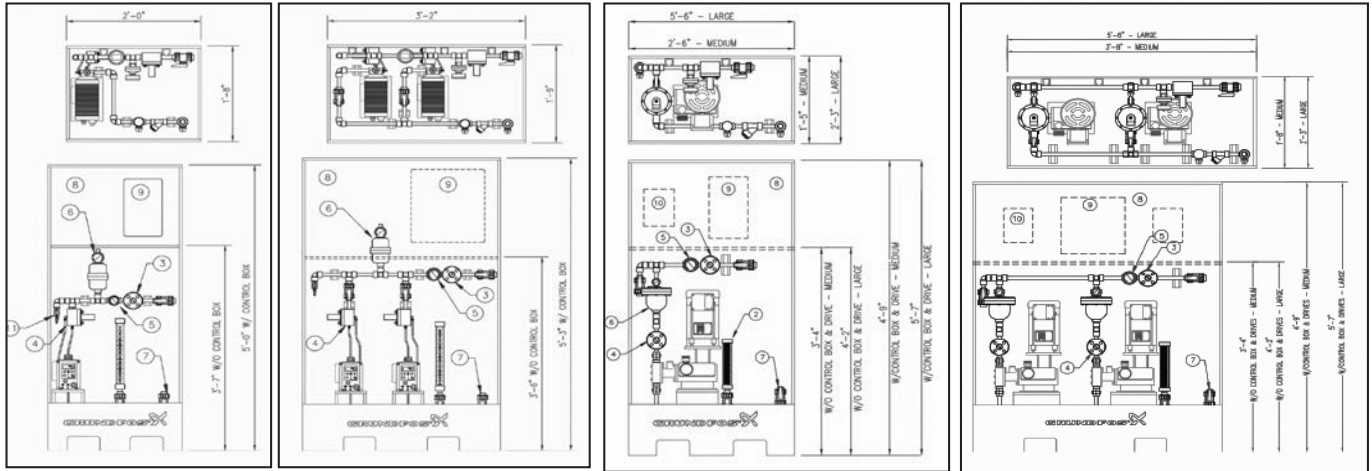
DUFF DIFFERS

CHEMICAL DOSING & DISINFECTION

SKIDDED DOSING UNITS



Duff dosing skid systems can be designed for dosing liquid chemicals taken from separate storage tanks or containers. The systems can be designed for being mounted on the wall or as free standing units on the floor. They are able to fulfill a variety of dosing tasks and can be customized in countless ways. Thanks to the use of high-quality materials, dosing skid systems can be applied universally for most dosing liquids – the material selection can be adapted with the configuration. Standard dosing skid systems are available with one, two or three dosing pumps, but options for specialization are endless.



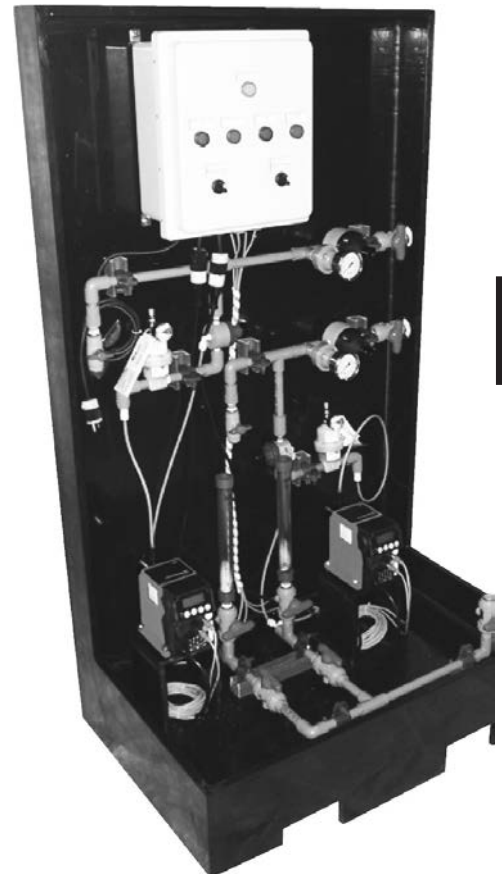
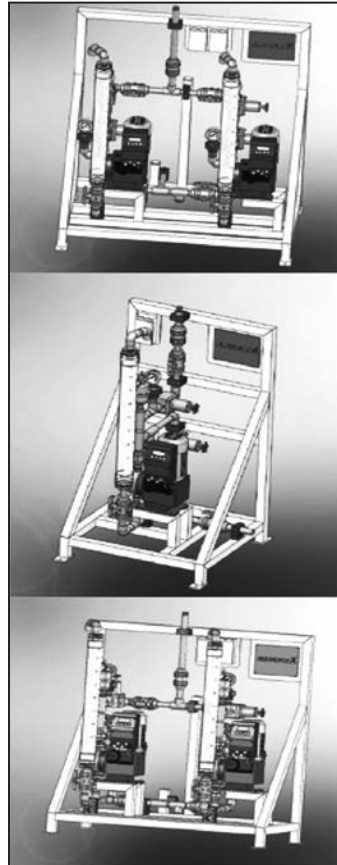
Small One-Pump System

Small Two-Pump System

Medium & Large One-Pump Systems

Medium & Large Two-Pump Systems

- ① Metering Pumps
 - ② Calibration Cylinder
 - ③ Back Pressure Valve
 - ④ Pressure Relief Valve
 - ⑤ Pressure Gauge
 - ⑥ Pulsation Dampener
 - ⑦ Ball Valve
 - ⑧ Skid
 - ⑨ FRP Enclosure
 - ⑩ Optional Controller
- Piping and Hardware



DUFF PRODUCT HIGHLIGHT

MEMBRANE FILTRATION

PRODUCT HIGHLIGHT

Duff is your perfect partner when it comes to supplying components for membrane filtration or pretreatment. Our expertise in water treatment, combined with our vast product selection and continuing thirst for knowledge, allow us to be your one-stop-shop for commercial and industrial RO components.



[A] CR/CRE Vertical Multistage Pumps

A versatile, modular and reliable standard for membrane boosting, including options for an integrated drive.

[B] BM/BMS Booster Modules

Compact boosting solutions for membrane systems including high flow and high pressure applications, and pressure exchange.

[C] CUE Variable Frequency Drive

Wide selection of frequency drives designed specifically for Grundfos pumps for easy set-up and energy optimization.

[D] Flow Sensors

[E] SMART Digital Chemical Feed Pumps

[F] Application Solutions Duff provides the tools and programs you need to communicate with your pump and system, including the Grundfos GO Remote.

[G] CONEX DIA Analyzer and Controller

Measure and control water disinfectants for membrane pre- and post-treatment.

[H] Dosing Tank System

Let Duff build a compact, fully-supply solution for CIP chemical storage and feed.



GRUNDFOS®

**FOR MORE ON
GRUNDFOS
DOSING,
SEE PAGE XXX**



PROBLEMS SOLUTIONS

CHEMICAL DOSING & DISINFECTION

Chlorine Dioxide - Grundfos OxiperM Pro

Chlorine Dioxide is a perfect treatment for:

- Drinking water
- Cooling tower water
- Industrial process water
- Food and beverage industry water
- CIP applications

It causes no change of smell or taste, and disinfects 2-3 times better than chlorine. Moreover, it has an excellent efficiency even at higher pH ranges. Best of all, it prevents and destroys biofilms, in which E. coli and Legionella may be present.



- Plate mounted systems with process sensitive elements (reactor, dilution water line) on the rear side
- Self deaerating chemical dosing pumps (up to 220 g/h of ClO₂)
- Chemical suction lines with automatic filling level control
- Clear text display with additional light process diagram
- Active error confirmation display
- Remote control interface (Profibus, Ethernet)
- Systems for continuous and batch process

Advantages of Chlorine Dioxide

Microbiological advantages

- Microbiocide effect 2-3 times higher than with chlorine
- No change of smell and taste
- Oxidation of manganese and organic iron compounds

Ecological advantages

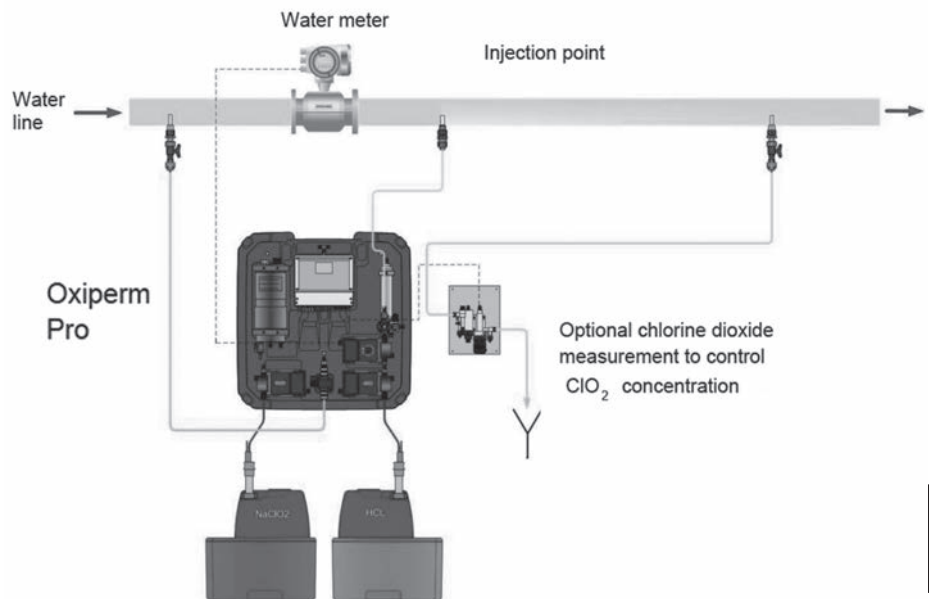
- No formation of THM
- No formation of chlorophenols
- No reaction with ammonia compounds to chloramines

Advantages in application

- Excellent efficiency even at higher pH ranges
- Long term stability in water applications
- Prevention and destruction of biofilms

Variants of OxiperM Pro

- ClO₂-capacities 5, 10, 30 or 60 g/h with DDA/DMX/DDI or without ClO₂-dosing pump
- 115 and 230 V



CHEMICAL DOSING AND DISINFECTION

GRUNFOS DID: DOSING INSTRUMENTATION DIGITAL

Grundfos and s::can have teamed up to create a fully digital, plug & measure station that will set the the bar in the industry. This new controller/analyzer, powered by s::can, is easy to set up and use, yet provides unparalleled functionality and accuracy. The system utilizes a probe system that is pre-calibrated and capable of analyzing CL/CIO2, pH, and temperature--all with

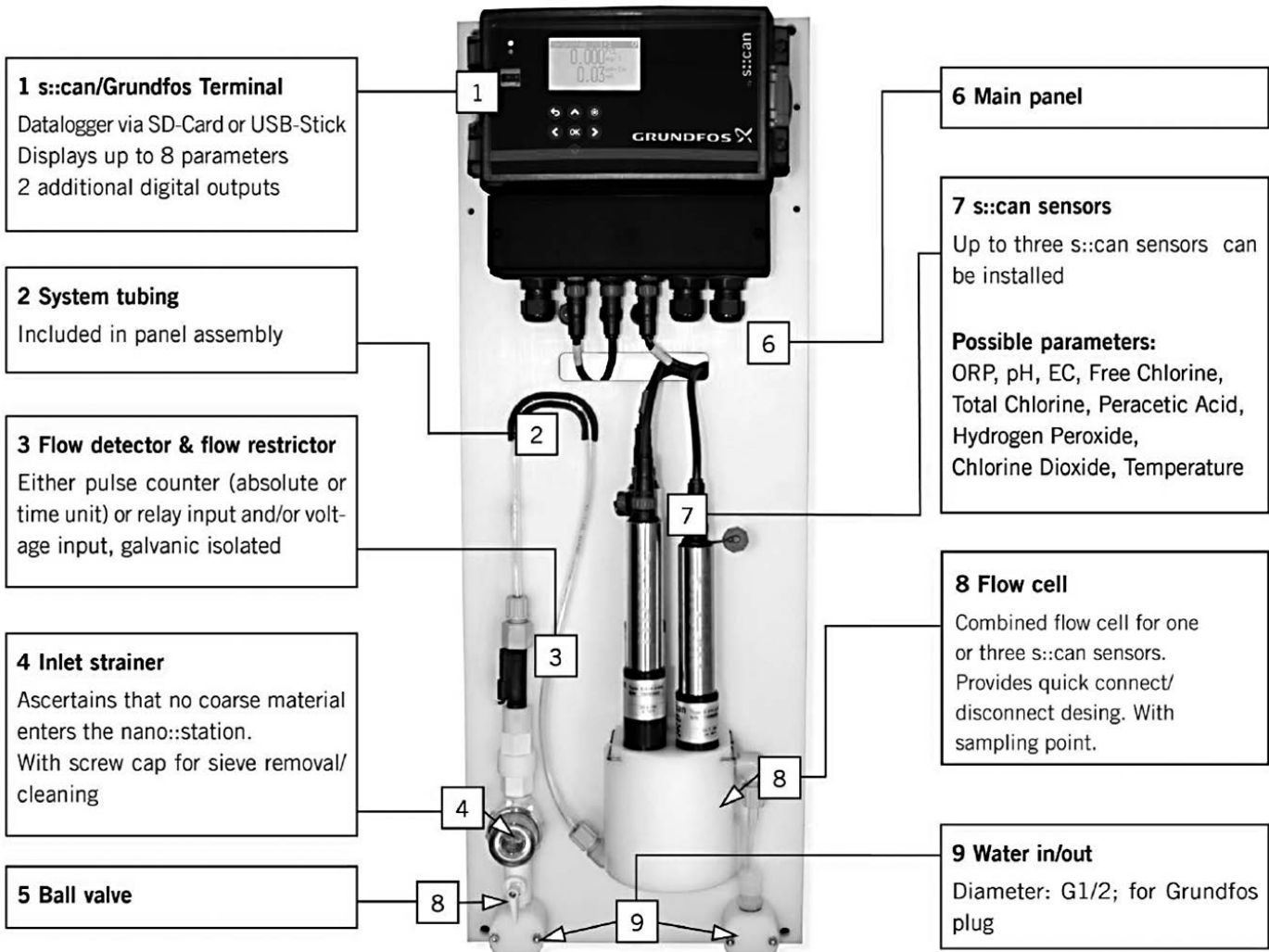
a single probe. Moreover, the probes' unique self-cleaning design allows their use in a range of water conditions. The DID can analyze and control both a pH pump and an oxidizer (e.g., Cl or CIO2) pump to precise set points while data storage is accomplished with an internal data logger. Access via USB or export to a remote control system is standard.

Features:

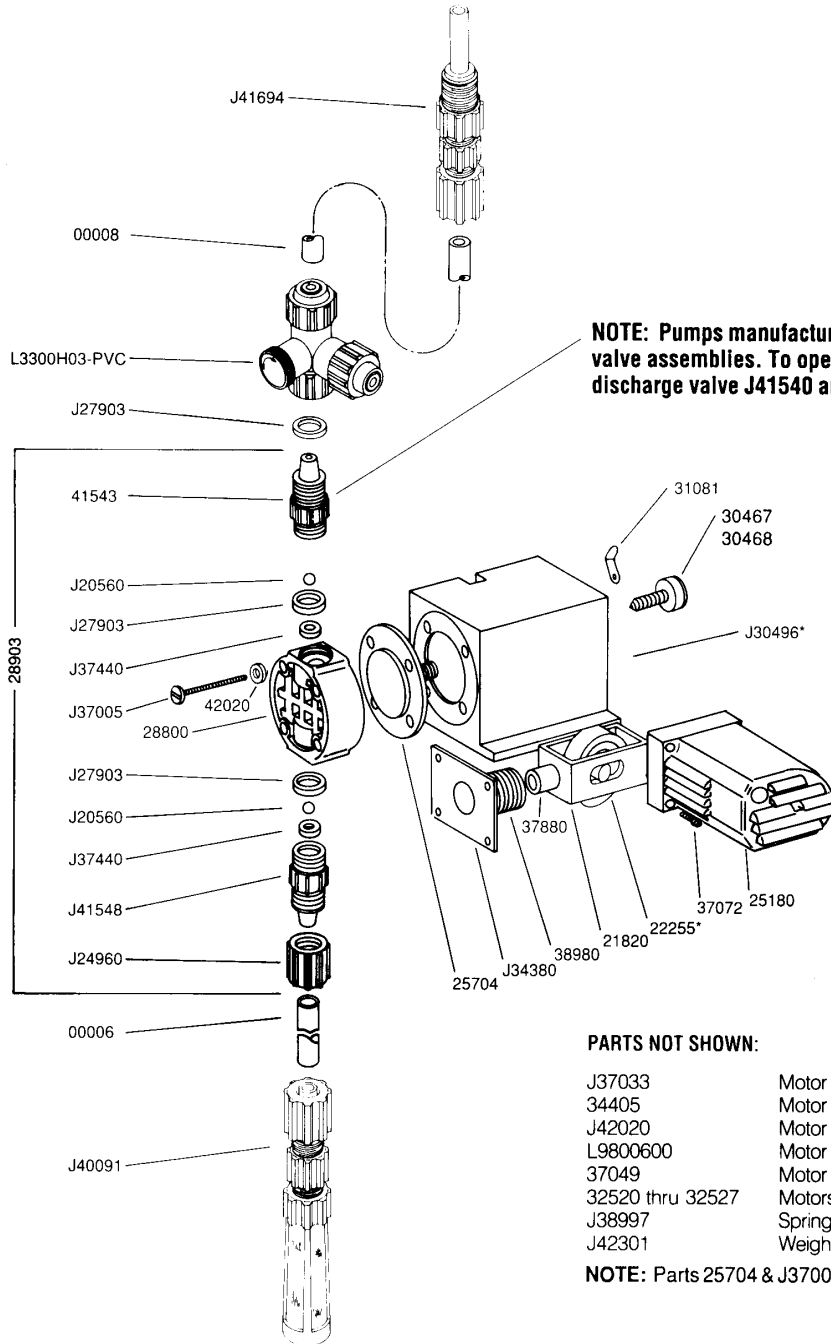
- Fully digital system
- Intuitive operation
- 3 independent PID controllers
- MODBUS Slave (over RS485)
- GENIBUS Master/Slave (over RS485)
- Process Identification Algorithm
- Data logging functionality with internal storage up to 500 MB (no need of PC)
- Multilingual user interface

Panel Completely Assembled with:

- Flow cell for 1 or 3 sensors
 - Tubes and fittings
 - Strainer, flow detector, flow restrictor
- Intelligent Sensors
- Individual sensors measuring all ranges and applications
 - Up to 3 sensors
 - Up to 4 Parameters



CHEM-TECH / PULSAFEEDER SERIES 100 PARTS



A Unit of IDEX Corporation

27101 AIRPORT ROAD, PUNTA GORDA, FL 33982

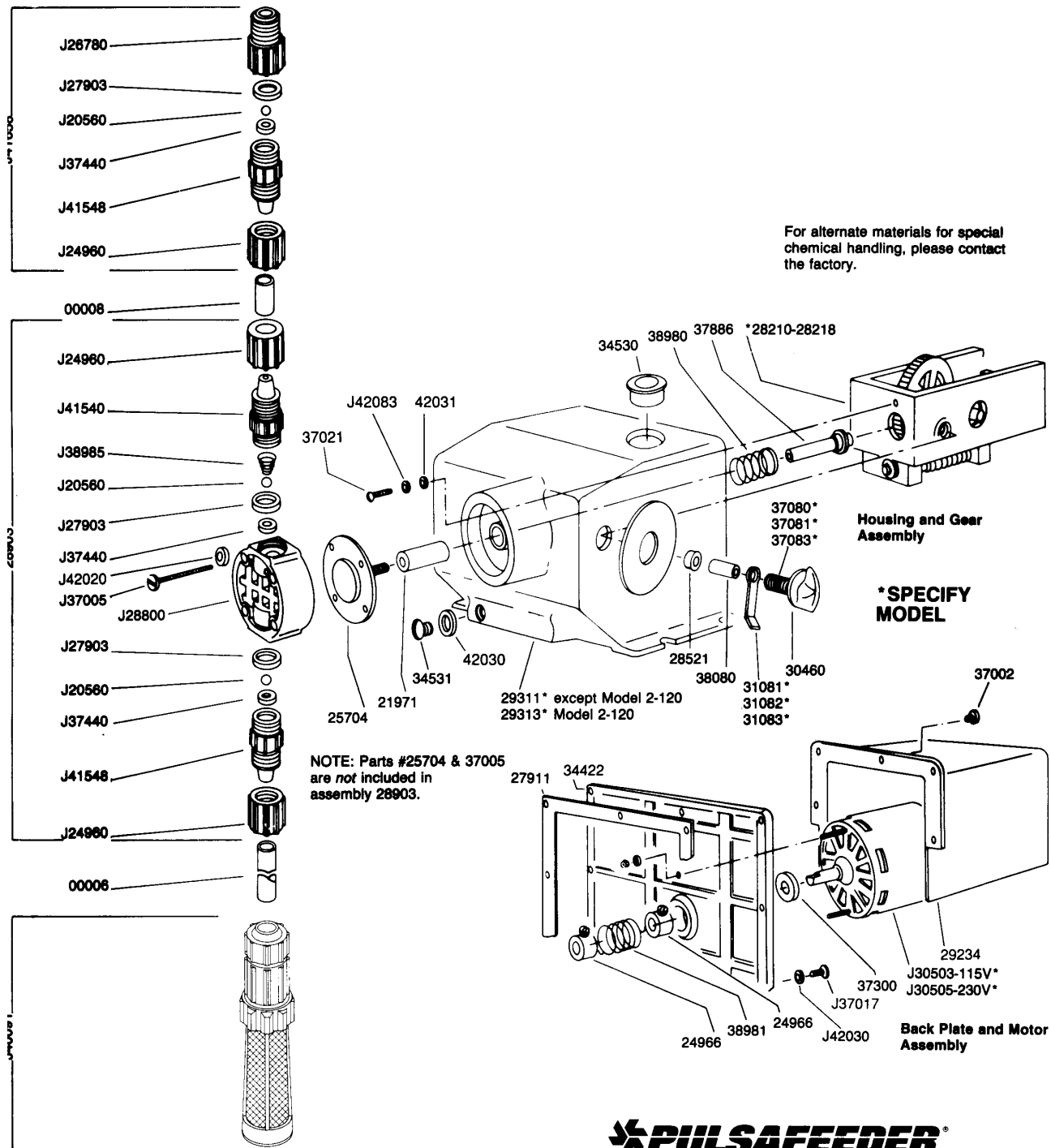
CHEMTECH/PULSAFEEDER SERIES 100 PARTS

NEW PART #	OLD PART #	DESCRIPTION	FIG. NO.	PRICE
00006	277P	Suction tubing per foot		
00008	279P	discharge tubing per foot		
**J20560	278P	Ball check, ceramic	32304	
21820	607P	Bracket		
22255	613P	Cam bearing assy., 003, 007, 015, 030		
22256	613P	Cam bearing assy., 024		
22257	613P	Cam bearing assy., 068, 100		
J24960		Coupling Nut	32299	
25180	625P	Motor cover		
**25704	228P	Diaphragm, Hypalon	32298	
J26780	245P	Injection fitting	32302	
J27903	237P	Gasket, teflon	33358	
**28800	242P	Head, Acrylic	32300	
**J28801	296P	Head, PVC		
**28903	A51P	Head Assembly, acrylic	32309	
30460	608P	Output adjustment knob		
30467		Knob assy., includes 30460 and 37089, 068 & 100		
30468		Know assy., includes 30460 and 37088, all models 068 & 100		
*J30496	603P	Field replacement housing assembly, S100, all except model 024		
*J30497	603P	Field replacement housing assembly, model 024		
*J30498	603P	Field replacement housing assembly, S150, all		
L3300H03-PVC		Bleed valve		
J34380	610P	Backing plate		
J34520	283PP	Foot valve plug		
J37005	621P	Head mounting bolts S.S. 10x24 (4 required)		
37032	620P	Screw, 10-24 x 1/2"		
37088	652P	Output adjustment screw, 068, 100		
37089	652P	Output adjustment screw, all models except 068 & 100		
**J37440	638P	Valve seat, hypalon	33357	
37880	626P	Diaphragm shaft		
38980	252P	Diaphragm return spring		
J38985	285P	Valve spring	32307	
J40080	281P	Strainer, Polypropylene		
**J40017	A50P	Foot valve and strainer assembly	32308	
**41543	244P	Valve housing, discharge 3/8"	74349	
**J41548	247P	Valve housing, suction		
J41694	A52P	Back check valve assembly	73199	
42020		Washer		

*Field replacement housing assembly includes housing with needle bearing (20580) and backing plant (J34380)

**Available in various materials - specify material when ordering.

CHEM-TECH / PULSAFEEDER SERIES 200 PARTS



PULSAFEEDER
A Unit of IDEX Corporation

CHEM-TECH / PULSAFEEDER SERIES 200 PARTS

NEW PART #	OLD PART #	DESCRIPTION	FIG. NO.	PRICE
J20560	278P	Ball Check, Ceramic	32304	
21971	683P	Diaphragm shaft bushing		
J24960	240P	Coupling nut	32299	
24966	680P	Shaft coupling (2 required)		
25704	228P	Diaphragm, hypalon	32298	
J26780	245P	Injection fitting	32302	
J27903	237P	Gasket, teflon	33358	
27911	225P	Gasket	48961	
28800	242P	Head Acrylic	32300	
28903	A51P	Head assembly	32309	
30460	266P	Output adjustment knob		
J30503	273P	Motor 115v	47083	
J30505	273P	Motor 230/260		
34422	235P	Back plate		
37300	692P	Oil seal	47082	
J37440	638P	Valve seat, hypalon	33357	
37886	216P	Diaphragm shaft		
38080	640P	Locking sleeve		
38980	252P	Diaphragm, return spring		
38981	682P	Coupling spring		
J38985	285P	Valve spring	32307	
J40117	A50P	Foot valve & strainer assembly	32308	
J41540	244P	Valve housing, discharge	32301	
J41548	247P	Valve housing, suction		
J41658	A52P	Back check valve assembly		

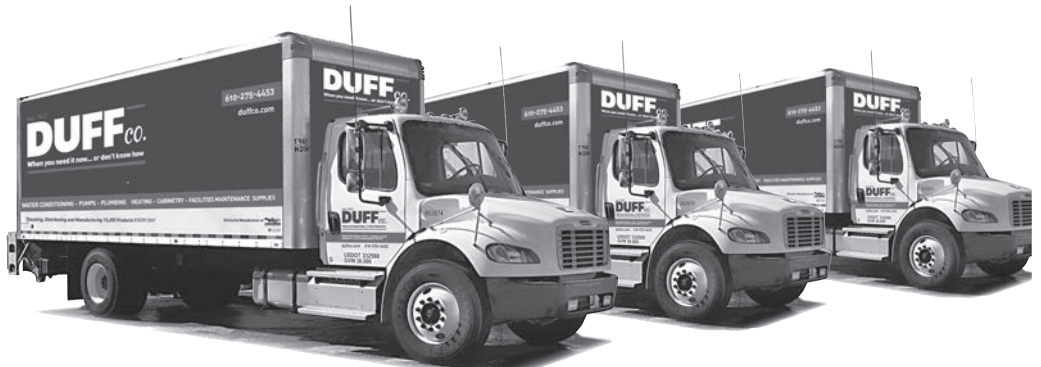
est. 1947

DUFF CO.

When you need it now... or don't know how



DUFF DELIVERS



CHEM-TECH SERIES XP PERISTALTIC METERING PUMPS



The Chem-Tech Series XP with peristaltic technology delivers worry-free dosing in a modern design. Each and every component of the Series XP is designed and manufactured for optimum reliability 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 Series XP offer affordable solutions in both initial cost and operation.

A rugged gear train and computer-aided peristaltic design ensure long-lasting performance.

Features

- Fixed Models. Simple and straight forward fixed rate pumps for applications where economy and ease-of-use are required.
- Adjustable Models. Electronic timer module provides a 20:1 turndown control for enhanced flexibility.
- Pulse Input Models. Internal timer accepts pulses from a contacting head water meter. Adjustable to run the pumps from .1 to 1 sec., .2 to 10 sec., or from 1.0 to 60 sec. per pulse.
- Flow Switch Activated Models. Activated when flow rate through the included 3/4" NPT flow switch reaches 1 GPM and deactivated when flow rate is less than 1 GPM.
- Dry Contact Input Models. Activates pump upon closure of a dry contact switch, and deactivates when opened. Pump equipped with a 6' lead for connection to the customer supplied switch.
- Timer Models. 7 Day – 8 Event Electronic Timer.
- Duplex Head Models. Two pump heads to deliver twice the flow, or the rated flow of two different chemicals simultaneously.
- Tubing Materials. Standard Norprene tube material in Low Pressure ratings - extended tube life, High Pressure ratings - meet demanding system requirements. Fluran tubing - greater chemical resistance: contact Technical Service for compatibility.



CONTROLS Fixed Rate Model

- Simple and straight-forward fixed rate pumps.



Adjustable Model Three Input Models

- 20:1 Turndown Control
- Pulse Input
- Flow Switch Activated
- Dry Contact Input



Timer Model

- 7 Day – 8 Event Electronic Time

Operating Benefits

- Mixed fluid capable. Inherently degassing.
- Extended tube life.
- Rugged, sealed gear train.
- Easy tube change-out.
- Self priming.
- Chemical resistant materials.
- Simple installation.



Specifications and Model Selection

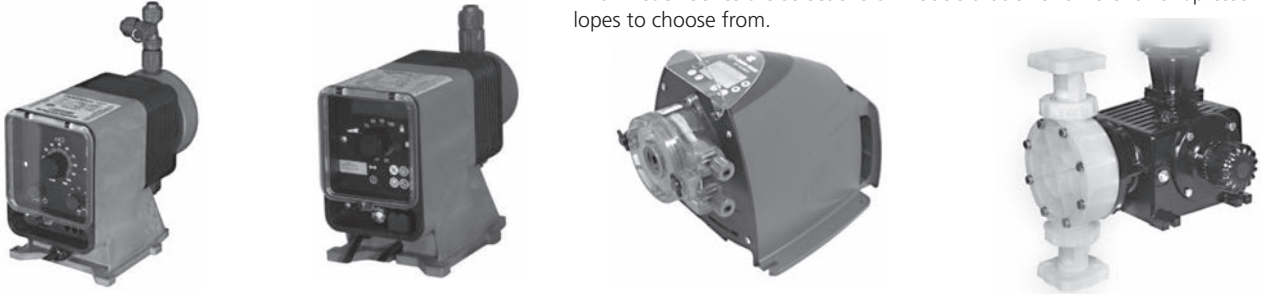
MODELS:	Flow	Pressure Rating - PSI (Bar)				Tube Size	Speed (RPM)
		Single Head Options			Duplex 'L' Tube		
		'H' Tube	'L' Tube	'F' Tube			
XP004	4 GPD (0.6 LPH)	125 (8.6)	80 (5.5)	60 (4.1)	80 (5.5)	2	30
XP007	7 GPD (1.1 LPH)				50		
XP009	9 GPD (1.4 LPH)	110 (7.6)	70 (4.8)	50 (3.4)	70 (4.8)	3	30
XP015	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		

PULSAFEEDER ELECTRONIC METERING PUMPS



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 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.



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						

BLACKLINE SERIES MD MECHANICAL DIAPHRAGM PUMPS

The BLACKLINE Series MD is a motor driven, spring return mechanical diaphragm metering pump for precise metering control. The Series MD includes features include oil lubricated ball bearings in die-cast aluminum housing, long life reinforced PTFE diaphragm, micrometer style stroke length adjuster and

many liquid end material options to suit any application. Nine distinct models are available, having pressure capabilities to 132 GPH (500 LPH) and pressures to 150 PSI (10 BAR), with a turndown ratio of 10:1. Metering performance is reproducible to within ± 2% of maximum capacity.

Standard Features

- Liquid End Materials – GFPPPL, 316 SS & 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.
- 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.

Operating Benefits

- Reliable metering performance.
- Highly efficient operation.
- High viscosity capability.
- Up to 1000 CPS
- Leak-free, seal-less, liquid end



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	83	110	132	223	299	371	500
Pressure (max.)	PSIG	150	150	150	150	150	90	90	75	75
	BAR	10	10	10	10	10	6	6	5	5
Strokes/Minute	SPM	84	60	84	116	138	84	118	138	118
Viscosity	CPS	1000			500		1000		500	
Connections:	FNPT	1/2"					3/4"		1"	
	BSPT-F	1/2"					3/4"		1"	

For additional information call: 610-275-4453 or Fax: 610-279-6299
Please call for current prices.

STENNER PUMPS

STENNER PUMPS

Stenner Classic Series Chemical Injection Pumps

- * Self-priming against maximum working pressure, foot valve not required
- * Can run dry and does not clog from dirt and debris
- * Can pump off-gassing solutions without losing prime

The Classic Series Single Head Adjustable Pump is an ideal choice for treating problem water. The pump can inject water treatment solutions for pH control or to oxidize iron, hydrogen sulfide or manganese for

removal by filtration. Disinfection, pH control or adjustment, corrosion and scale control and oxidation are common water treatment applications

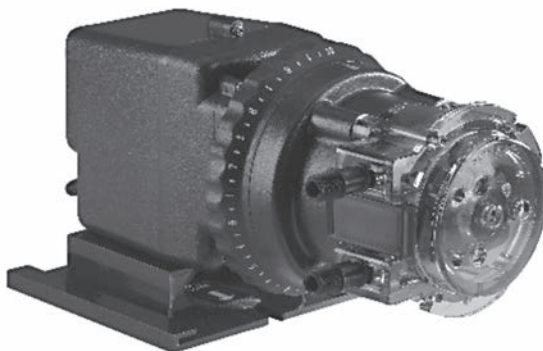
SINGLE HEAD AJUSTABLE OUTPUT PUMP

Output

0.2 to 50.0 GPD up to 25 psi
0.2 to 40.0 GPD up to 100 psi

How the Single Head Adjustable Chemical Injection Pump Works

The output is determined by three factors; the rpm of the motor gears, the setting on the feed rate control and the pump tube size. The feed rate control has an external dial ring that is labeled L to 10 offering an adjustable output range from 5% to 100% in 2.5% increments.



Single Head Adjustable Output 26-100 psi (1.8-6.9 bar)

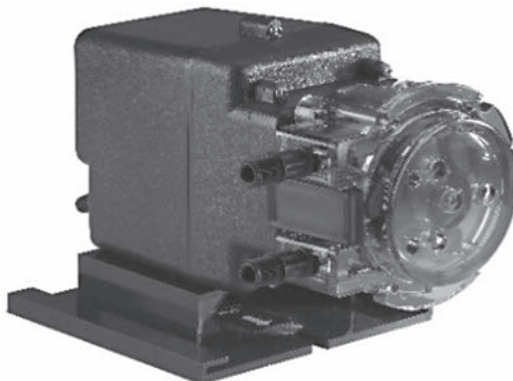
	Model	Item Number Prefix	Pump Tube Number	Gallons per Day	Liters per Day	Gallons per Hour	Liters per Hour	Ounces per Minute	Milliliters per Minute	Liters per Day	Liters per Hour	Milliliters per Minute		
45 SERIES	45MHP2	45MJH1	#1	0.2 to 3.0	0.8 to 11.4	0.01 to 0.13	0.03 to 0.48	0.02 to 0.27	0.56 to 7.92	0.6 to 9.1	0.02 to 0.38	0.31 to 6.32		
	45MHP10	45MJH2	#2	0.5 to 10.0	1.9 to 37.9	0.02 to 0.42	0.08 to 1.58	0.04 to 0.89	1.32 to 26.32	1.5 to 30.3	0.06 to 1.26	1.04 to 21.04		
	45MHP22	45MJH7	#7	1.1 to 22.0	4.2 to 83.3	0.05 to 0.92	0.18 to 3.47	0.10 to 1.96	2.92 to 57.85	3.3 to 66.6	0.14 to 2.78	2.29 to 46.25		
85 SERIES	85MHP5	85MJH1	#1	0.3 to 5.0	1.1 to 18.9	0.01 to 0.21	0.05 to 0.79	0.03 to 0.44	0.76 to 13.13	0.9 to 15.1	0.04 to 0.63	0.52 to 10.49		
	85MHP17	85MJH2	#2	0.8 to 17.0	3.0 to 64.4	0.03 to 0.71	0.13 to 2.68	0.07 to 1.51	2.08 to 44.65	2.4 to 51.5	0.10 to 2.15	1.67 to 35.76		
	85MHP40	85MJH7	#7	2.0 to 40.0	7.6 to 151.4	0.08 to 1.67	0.32 to 6.31	0.18 to 3.55	5.27 to 105.14	6.1 to 121.1	0.25 to 5.05	4.24 to 84.10		
									Approximate Output @ 60Hz			Approximate Output @ 50Hz		

SINGLE HEAD FIXED OUTPUT PUMP

3.0 to 85.0 GPD up to 25 psi
3.0 to 40.0 GPD up to 100 psi

How the Single Head Fixed Chemical Injection Pump Works

The output is not adjustable and is determined by the rpm of the motor gears and the size of the pump tube. The motor's output shaft rotates at a fixed rpm which drives the roller assembly within the pump head.



Single Head Adjustable Output 26-100 psi (1.8-6.9 bar)

	Model	Item Number Prefix	Pump Tube Number	Gallons per Day	Liters per Day	Gallons per Hour	Liters per Hour	Ounces per Minute	Milliliters per Minute	Liters per Day	Liters per Hour	Milliliters per Minute		
45 SERIES	45MHP2	45MJH1	#1	0.2 to 3.0	0.8 to 11.4	0.01 to 0.13	0.03 to 0.48	0.02 to 0.27	0.56 to 7.92	0.6 to 9.1	0.02 to 0.38	0.31 to 6.32		
	45MHP10	45MJH2	#2	0.5 to 10.0	1.9 to 37.9	0.02 to 0.42	0.08 to 1.58	0.04 to 0.89	1.32 to 26.32	1.5 to 30.3	0.06 to 1.26	1.04 to 21.04		
	45MHP22	45MJH7	#7	1.1 to 22.0	4.2 to 83.3	0.05 to 0.92	0.18 to 3.47	0.10 to 1.96	2.92 to 57.85	3.3 to 66.6	0.14 to 2.78	2.29 to 46.25		
85 SERIES	85MHP5	85MJH1	#1	0.3 to 5.0	1.1 to 18.9	0.01 to 0.21	0.05 to 0.79	0.03 to 0.44	0.76 to 13.13	0.9 to 15.1	0.04 to 0.63	0.52 to 10.49		
	85MHP17	85MJH2	#2	0.8 to 17.0	3.0 to 64.4	0.03 to 0.71	0.13 to 2.68	0.07 to 1.51	2.08 to 44.65	2.4 to 51.5	0.10 to 2.15	1.67 to 35.76		
	85MHP40	85MJH7	#7	2.0 to 40.0	7.6 to 151.4	0.08 to 1.67	0.32 to 6.31	0.18 to 3.55	5.27 to 105.14	6.1 to 121.1	0.25 to 5.05	4.24 to 84.10		
									Approximate Output @ 60Hz			Approximate Output @ 50Hz		



Stenner Classic series pumps also available in low-pressure output (0-25 psi)

STENNER PUMPS

The Econ FP is a flow activated pump specifically designed to interface with a dry contact water meter, dry contact flow switch, or a 12-24 VAC/VDC signal from any control equipment that responds to flow. The pump features an enclosed housing, is wall mountable and carries cULus for indoor and outdoor use. Mounting the pump vertically is required for wet environments or outdoor use. Optional mounting accessories are also available.

STENNER PUMPS

STENNER ECON FP SERIES

3.0 to 85.0 GPD up to 25 psi
 3.0 to 40.0 GPD up to 100 psi

How the Single Head Fixed Chemical Injection Pump Works

The output is not adjustable and is determined by the rpm of the motor gears and the size of the pump tube. The motor's output shaft rotates at a fixed rpm which drives the roller assembly within the pump head.

Fig. No.	Type
330563	Complete E Series Pump E20PHH
	EC500 Flow Switch 3/4" for PVC pipe
330564	EC501 Flow Switch 1" for PVC pipe
	EC50C Flow Switch 3/4" for copper tube
	EC51C Flow Switch 1" for copper tube
316893	STENNER EC30F-2 F-TUBE 2-PAK EC30F-2 (Econ)



0-80 psi (0-5.5 bar)						
Item No.	Pump	Roller	Gallons per Day	Gallons per Hour	Ounces per Hour	Ounces per Minute
Prefix	Tube #	Assembly				
Approximate Maximum Output @ 50/60Hz - 10:1 Turndown						
E20PHF	F	White	4.5	0.19	24	0.4
E20PHG	G	Black	16	0.67	85.3	1.42
E20PHH	H	Black	30	1.25	160	2.67

Unique Stenner Features

- Almost effortless tube replacement with patented quick release pump head.
- Solid one piece tube construction.
- Attach the pump to a wall or use the optional mounting accessories.

Pump Tube Pressure Rating: 0-25 psi: #1, 2, 3, 4, 5

STENNER REPLACEMENT PARTS

CHECK VALVES & INJECTION PARTS



The injection check valve is included with pumps rated up to 100 psi, and those up to 25 psi.

The check valve and injection fittings are sold as a complete part or the individual parts can be purchased separately.

- The injection fitting is designed to fit 1/4" or 3/8" NPT.
- The 3/8" suction and discharge tubing does not affect the output.

PUMP TUBES



The pump tube is the workhorse of the pump and requires scheduled replacement according to the needs of each individual application.

Pump Tube Pressure Rating: 0-25 psi: #1, 2, 3, 4, 5

See DUFF's complete listing of Stenner repair parts on the following pages...



FEED RATE CONTROL COMPLETE



The Feed Rate Control complete component can snap on or off the motor without any tools. The cover has key holes that fit into the rivets located on the motor's gear case.

MOTOR COMPLETE



The Classic Motor is a complete component that can snap on to the feed rate control (for adjustable pump) or pump head (for fixed output pump) without any tools.

STENNER MOTOR PARTS

STENNER PUMPS

Perfect for the hands-on professional service technician, the Classic motor parts can be purchased individually as needed or as service kits.



Refer to the chart below to match the part with the pump series.

Part Number	UM	Description	Works With	
MP90000	EA	Rain Roof	All Classic Pumps	
MP90001	EA	Pump Cover	Adjustable 45 & 85	
MP90002	KIT	Pump Cover & Rain Roof	Adjustable 45 & 85	
MP6B010	EA	Power Cord 120V	All Classic Pumps	
MP6B020	EA	Power Cord 220V		
MP6C000	EA	Switch Boot		
MP6D000	EA	On-Off Switch Plate		
PM6E000	EA	Toggle Switch		
PM6A0BL	EA	Motor Cover with 120V Cord		
PM6A0OL	EA	Motor Cover with 220V Cord		
PM6F000	EA	Motor Fan		
MP70000	EA	Motor Base		
MP80000	EA	Mounting Bracket		
PMBRPL2	EA	Rotor Assembly with Bearings, Brackets, Tolerance Rings & Fan		
MP6J115	EA	Coil 60Hz 120V		
MP6J226	EA	Coil 60Hz 220V		
PM6K0BL	EA	Gear Case with Posts		
PM6M000	EA	Gear Posts		
MP6N040	EA	Phenolic Gear with Spacer 26 RPM		Adjustable 45 & 100/ Fixed 45 & 100
MP6N080	EA	Phenolic Gear with Spacer 44 RPM		Adjustable 85 & 170/ Fixed 85 & 170
MP6O040	EA	Metal Reduction Gear 26 RPM		Adjustable 45 & 100/ Fixed 45 & 100
MP6O080	EA	Metal Reduction Gear 44 RPM		Adjustable 85 & 170/ Fixed 85 & 170
MP6Q00D	EA	Motor Shaft with Gear		Adjustable 45, 85, 100 & 170
ME6Q0LD	EA	Motor Shaft with Gear	Fixed 45 & 85	
DM6Q0LD	EA	Motor Shaft with Gear	Fixed 100 & 170	
PM6R0BL	EA	Gear Case Cover	All Classic Pumps	
MP6T000	EA	Pressure Spring	Adjustable 45, 85, 100 & 170	
UCCPS0B MCCPS0B	10-PK 24-PK	Cover Screw B	All Pumps	

PUMP TUBES



Fig. No.	Type	
78671	STENNER UCCP201 #1 TUBE (2PAK)	UCCP201
78672	STENNER UCCP202 #2 TUBE (2PAK)	UCCP202
92858	STENNER UCCP205 #5 TUBE (2PAK)	UCCP205
152467	STENNER MCCP201 #1 TUBE (5PAK)	MCCP201
142096	STENNER MCCP202 #2 TUBE (5PAK)	MCCP202
162921	STENNER MCCP207 #7 TUBE (5PAK)	MCCP207
124861	STENNER UCCP207 #7 TUBE (2PAK)	UCCP207
316893	STENNER EC30F-2 F-TUBE 2-PAK	EC30F-2 (Econ)

STENNER MOTOR PARTS CHECK VALVES



Fig. No.	Type	
78673	STEN INJ CKVL 1/4odX1/4or1/2IP	UCDBINJ
99660	STENNER INJ CK VLV 1/4" (pk5)	MCDBINJ
226023	STENNER INJ CK VLV 3/8" (pk5)	MCINJ38
78674	STENNER CK VLV DUCKBILL ONLY	UC-CVDB0
156228	STENNER MCCVDB0 DUCKBILL (5pk)	MC-CVDB0

INJECTION PARTS



Fig. No.	Type	
86743	STENNER PVC INJ FTG W/FERRULE	UCAK300
198067	STENNER UCINJ38 INJECTOR	UCINJ38
78656	STENNER UCAK100 NUT1/4" (10PAK)	UCAK100 (ea)
78657	STENNER UCAK200 FERRULE (10PAK)	UCAK200
200701	STENNER MCAK200 1/4" FERRULE	MCAK200

PCM (PUMP CONTROL MODULE)

The PCM is a time adjustable controller that powers a fixed output pump. A pulsing dry contact water meter sends a signal to the PCM which actuates the pump to deliver the desired dose based on water volume.

Fig. No.	Type	
172393	STENNER PCM1 PUMP CONTROLLER	0.1 - 1.0 second
171975	STENNER PUMP CTRL MODULE PCM5	0.5 0 5.0 seconds

FEED RATE CONTROL PARTS

Feed Rate Control Parts		
Fig. No.	Type	
78665	STENNER VARIABLE CAM (2)	UCFC5HO
78663	STENNER INDEX PIN ASSY W/LFTR	UCFC5AY
327205	STENNER FC5LASY INDEX SPIDER	FC5LASY
165739	STENNER FC5L002 INDEX PIN	FC5L002
161825	STENNER FC5F000 ROLLER CLUTCH	FC5F000
85148	STENNER INDEX SPIDER FC5K00D	FC5K00D
139483	STENNER FEED RATE HSG FC5D00S	FV5D00S
152769	STENNER FC5040D FD RATE CTRL	FC5040D
95020	STENNER INDEX PLATE (5pk)	MCFC5ID
78664	STENNER INDEX PLATE	UCFC5ID
78660	STENNER MAINSHAFT SERIE 45/85	UCFC5AD
233581	STENNER MCFC5AD (2PK) MAIN SHFT	MCF-C5AD

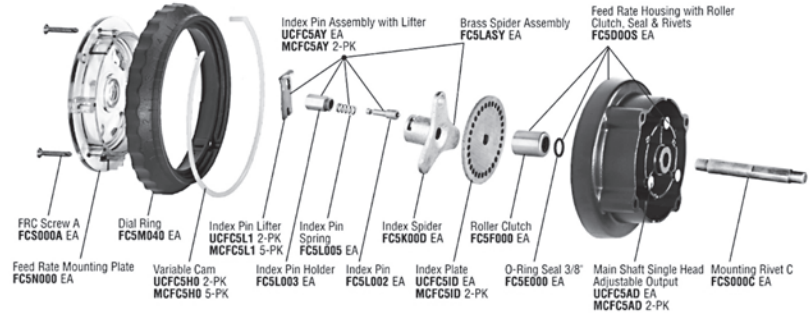


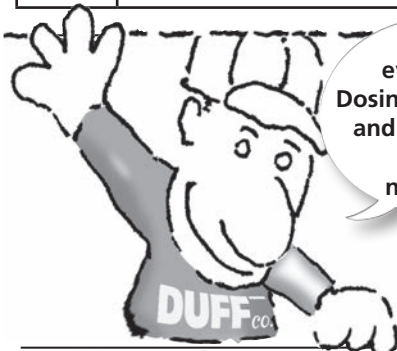
Fig. No.	Type	
78669	STENNER ROLLER ASSY UC3ASYD	UC3ASYD
117500	STENNER ROLLER ASSY MC3ASYD (4)	MC3ASYD
316892	STENNER EC350 WHT ROLLER ASSY	EC350

ROLLER ASSEMBLY



Fig. No.	Type	
275477	STENNER QP251-1 HEAD W/#1 TUBE	QP251-1 (includes Santoprene® tube) - works with Classic / SVP
260855	STENNER QP252-1 HEAD W/#2 TUBE	QP252-1 (includes #5 Santoprene® tube) - works with Classic / SVP / M128 (M05 only)

HEAD



There's even more Dosing Pump Parts and Accessories on the next page

Size	Flow Rate gpm	Pulses per Gallon			
3/4"	0.25 to 22	1	2	4	10
1"	0.75 to 50	1	2	4	10
1-1/2"	2.0 to 100	1	2	4	n/a

Temperature-rated 35-122°F; 15-100 psi; avail. 24VDC or VAC
Cable length 6 ft.; nylon & engineered thermoplastic

PLASTIC WATER METERS



STENNER PUMPS

PULSATRON ELECTRONIC METERING PUMPS

KEY FEATURES

Series E Plus

4-20 mA DC direct and stop inputs or external pacing and stop inputs are available.
 Auto-Off-Manual switch
 Highly reliable timing circuit
 EMI resistant
 Thermally protected solenoid with auto-reset
 Panel mounted circuit breaker
 Indicator lights
 Bleed valve assembly

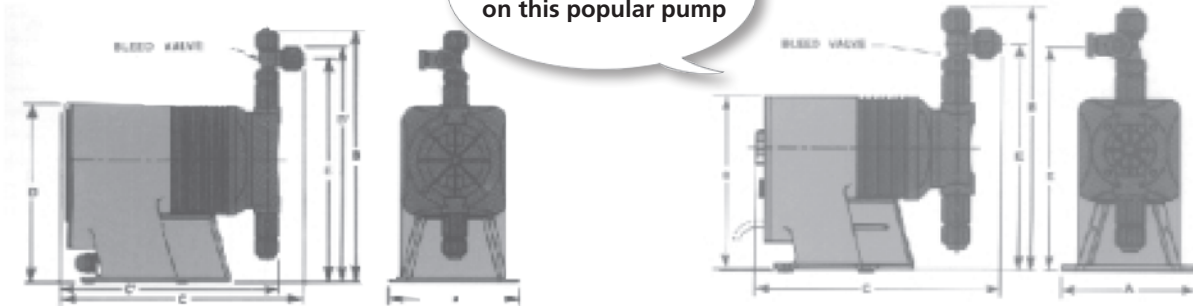
Series E, E-DC A Plus and C Plus

Manual function controls for stroke rate and stroke length
 Highly reliable timing circuit
 EMI resistant
 Thermally protected solenoid with auto-reset
 Bleed valve assembly

Series C

Our lowest cost alternative
 Manual function control for stroke length
 Highly reliable timing circuit
 EMI resistant
 Thermally protected solenoid with auto-reset
 Bleed valve assembly

See page XXX for more details on this popular pump



SERIES E PLUS DIMENSIONS (inches)										
Fig. No.	Mdl. No.	A	B	B1	C	C1	D	E	Ship Wt.	Price
67392	LPA2	5.4	10.3	-	10.8	-	7.5	9.0	13	
	LPA3	5.4	10.6	-	10.7	-	7.5	9.2	13	
	LPB2	5.4	10.3	-	10.8	-	7.5	9.0	13	
	LPB3	5.4	10.6	-	10.7	-	7.5	9.2	13	
	LPB4	5.4	10.6	-	10.7	-	7.5	9.2	13	
	LPD3	5.4	10.6	-	11.2	-	7.5	9.2	15	
	LPD4	5.4	10.6	-	11.2	-	7.5	9.2	15	
66541	LPE4	5.4	10.6	-	11.2	-	7.5	9.2	15	
	LPF4	5.4	10.6	-	11.7	-	7.5	9.2	18	
	LPG4	5.4	10.6	-	11.7	-	7.5	9.2	18	
	LPG5	5.4	11.0	-	11.7	-	7.5	9.6	18	
	LPH4	6.2	11.0	-	11.2	-	8.2	9.6	21	
	LPH5	6.2	11.3	-	11.2	-	8.2	10.0	21	
	LPH6	6.2	11.3	-	11.2	-	8.2	10.0	21	
	LPH7	6.1	11.7	-	11.2	-	8.2	10.3	21	
	LPH8*	6.1	-	10.9	-	10.6	8.2	-	25	
	LPK7	6.1	11.7	-	11.2	-	8.2	10.3	21	

Note: Inches x 2.54 = cm

*The LPH8 is designed without a bleed valve available.

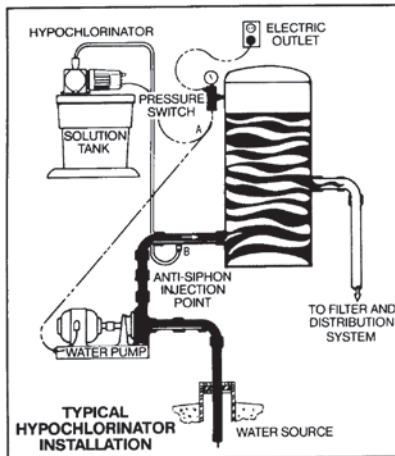
SERIES E DIMENSIONS (inches)									
FIG. NO.	MDL NO.	A	B	C	D	E	SHIP WT.	PRICE	
66543	LEO2	5.0	9.6	9.6	6.5	8.2	10		
	LEO3	5.0	9.9	9.5	6.5	8.5	10		
	LE12	5.0	9.6	9.6	6.5	8.2	10		
	LE13	5.0	9.9	9.5	6.5	8.5	10		
	LE14	5.0	9.9	9.5	6.5	8.5	10		
	LE33	5.4	10.6	11.4	7.5	9.2	15		
	LE34L	5.4	10.6	11.4	7.5	9.2	15		
	E44	5.4	10.6	11.4	7.5	9.2	15		

Note: Inches x 2.54 = cm

SERIES A PLUS DIMENSIONS (inches)									
FIG. NO.	MDL NO.	A	B	C	D	E	SHIP WT.	PRICE	
	LB02	5.0	9.6	9.5	6.5	8.2	10		
	LB03	5.0	9.9	9.5	6.5	8.5	10		
	LB04	5.0	9.9	9.5	6.5	8.5	10		
	LB64	5.0	9.9	9.5	6.5	8.5	10		

SERIES C PLUS DIMENSIONS (inches)									
FIG. NO.	MDL NO.	A	B	C	D	E	SHIP WT.	PRICE	
69201	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		

SERIES C DIMENSIONS (inches)									
FIG. NO.	MDL NO.	A	B	C	D	E	SHIP WT.	PRICE	
	LC02	5.0	9.6	9.5	6.5	8.2	10		
	LC03	5.0	9.9	9.5	6.5	8.5	10		
	LCO4	5.0	9.9	9.5	6.5	8.5	10		
	L54	5.0	9.9	9.5	6.5	8.5	10		



TYPICAL HYPOCHLORINATOR INSTALLATION
 A: The hypochlorinator may be wired in at any point between the pressure switch and the water pump.
 B: Injection point located on the pressure side of the water pump prevents potential damage to pump by concentrated chlorine or precipitants.

CHEM-TECH SERIES 100

General Specifications	
Pump Head Materials	Clear PVC, PVC, PP, 316 SS
Fitting Material Available	GFPPL, PVC, PVDF
Bleed Valve	Same as fitting and check valve selected (except 316SS)
Seat O-Rings Available	PTFE, CSPE, Viton
Balls Available	Ceramic, PTFE, 316 SS
Diaphragms	CSPE, Viton, PTFE-faced CSPE-backed
Tubing Available	Clear PVC, White PE, Black PE
Power Input	115 VAC - 60 HZ, 230 VAC - 50 HZ, 230 VAC - 60 HZ
Product Options	Duplex Head Current Interrupter Five Function Valve Five Function Degas Valve 15 Gallon ITS Tank
Accessories	Dampeners Gauges KOP Kits Pre-Engineered Feed Systems Process Controllers Tanks

The Chem-Tech Series 100 is the standard by which all other dosing pumps are judged. Chem-Tech Series 100/150 pumps with motorized-diaphragm technology deliver dependable performance and extended longevity. The Series 100/150 provide quiet, consistent metering over long periods of time in a compact form.

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 gpd (0.47 lph) up to 30 gpd (4.72 lph) and pressures up to 100 psi (7 bar).

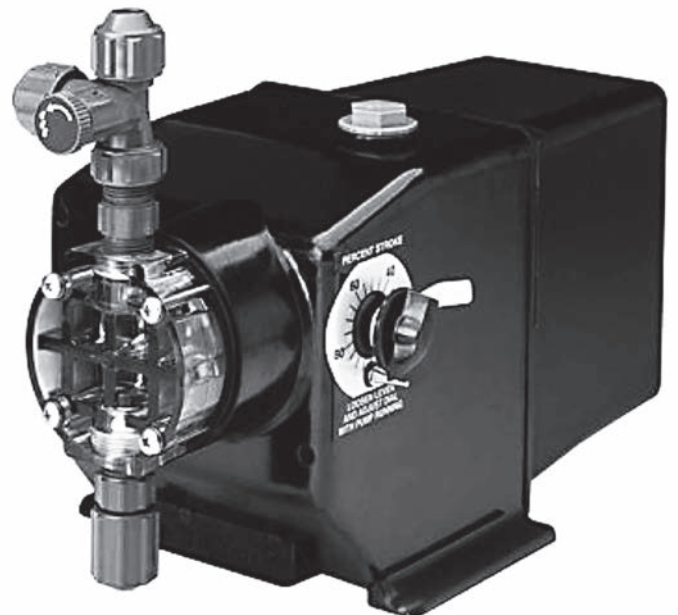


Most Popular Chem-Tech 100 Pumps	
Fig. No.	Type
25231	Chem-Tech 100 100/030 120 volt
25232	Chem-Tech 100 100/030 230 volt
45468	Chem-Tech KOP Kit 100/200 Repair Kit

CHEM-TECH SERIES 200

General Specifications	
Pump Head Materials	Series 200: Clear PVC, PVC, PP, 316 SS
Fitting Material Available	Series 200: GFPPL, PVC, PVDF
Bleed Valve	Same as fitting and check valve selected (except 316SS)
Seat O-Rings Available	Series 200: PTFE, CSPE, Viton
Balls Available	Series 200: Ceramic, PTFE, 316 SS
Diaphragms	Series 200: PTFE-faced CSPE-backed, Series 250: PTFE Coated
Ball Checks Available	Series 250: Ceramic, PTFE, 316 SS
Gaskets	Series 250: PTFE
Tubing Available	Series 200: Clear PVC, White PE, Black PE
Suction Tubing	Series 250: Suction - Flexible PVC, .44 NPT Connections
Discharge Tubing	Series 250: Polyethylene, .50 NPT Connection
Power Input	115 VAC - 60 HZ - 0.8A, 230 VAC - 50/60 HZ 0.4A
Pump Head Materials Available 2	Series 250: PVC, 316 SS
Fittings Material Available 2	Series 250: PVC, 316 SS
Accessories	Dampeners Gauges KOP Kits Pre-Engineered Feed Systems Process Controllers

The Chem-Tech Series 200 is a mechanically activated, heavy duty diaphragm feed pump that provides excellent efficiency under strenuous conditions. The Series 200 pumps are popular for their rugged design for continuous duty operation. The Series 200 offers feed rates from 10 to 120 gpd (1.5 to 18.9 lph) and operating pressures up to 150 psi (10.3 bar).



PULSATRON SERIES C ELECTRONIC METERING PUMPS

The Pulsatron Series C offers manual online stroke length adjustment with fixed stroke rate. Optional control features include external pace a choice between momentary on/off switch for priming the pump or a toggle on/off switch for manual override of all control functions.

Four distinct models are available, having pressure capabilities of 80 PSIG (5.6 BAR), and flow capacities up to 30 GPD (4.7 lph), with a turndown ratio of 10:1. Metering performance is reproducible to within $\pm 3\%$ of maximum capacity.

Features

- Manual Control by on-line adjustable stroke length (fixed stroke rate).
- Liquid Low Level Option available to prevent loss of prime.
- Highly Reliable timing circuit.
- Circuit Protection against voltage and current upsets.
- Solenoid Protection by thermal overload with auto-reset.
- Water Resistant, for outdoor and indoor applications.
- Internally Dampened To Reduce Noise.
- Guided Ball Check Valve Systems, to reduce back flow and enhance outstanding priming characteristics.
- Few Moving Parts and Wall Mountable.
- Safe & Easy Priming with durable leak-free bleed valve assembly (standard).
- Automatic Control by external pacing with prime switch (optional).

Operating Benefits

- Reliable metering performance.
- Rated "hot" for continuous duty.
- High viscosity capability.
- Leak-free, sealless, liquid end.



Specifications and Model Selection

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			

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When you need it now... or don't know how
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email info@duffco.com

Be sure to include

product numbers

descriptions

quantities

Don't forget to include your name!

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201 EAST LAFAYETTE STREET, P.O. BOX 618, NORRISTOWN, PA 19401

PHONE: 610-275-4453 FAX: 610-279-6299



SOLD TO:

SHIP TO:

YOUR NAME: _____ PURCHASE ORDER NO. _____

TODAY'S DATE: _____ REQUIRED DATE: _____

QTY	FIG. NO.	DESCRIPTION	PRICE/EA	TOTAL



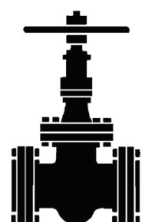
Products for Quality Water

TERMS: NET - 10TH OF MONTH FOLLOWING PURCHASE
 WE WILL PREPAY AND ADD FREIGHT FOR ALL ORDERS SHIPPED UPS OR COMMON CARRIER

All accounts are to be paid in full to Duff Supply Company monthly by the tenth (10th) day of the month following invoice date, a 1% service charge and a 1% interest charge will be made on any balance open at the end of the month following invoice, and in the event that legal action or lien be undertaken, or the service of a collection agency are used to collect this account, the customer shall pay all expenses incurred by Duff Supply Company, such as, but not limited to, costs and collection, legal and lien fees.

QTY	FIG. NO.	DESCRIPTION	PRICE/EA	TOTAL

*Thank You
for your business!*



Contact name _____ Contact Date _____

	<h2 style="margin: 0;">DUFF COMPANY</h2> <p style="margin: 0;">201 East Lafayette Street Norrstown, PA 19401</p> <p style="margin: 0;">Phone: 610-275-4453 Fax: 610-279-6761</p>	
---	--	---

Legal Name _____

Name in which business is conducted _____

Billing Address _____

City _____ State _____ Zip _____

Purchasing Phone _____ A/P Phone _____ Fax _____



Principal's Name _____

Principal's Address _____

City _____ State _____ Zip _____

Phone (Office) _____ (Cell) _____ E-mail address _____

Website address (If applicable) _____

Primary Contact _____ Title _____



SHIPPING ADDRESS - IF DIFFERENT

Shipping Address _____ Phone _____

City _____ State _____ Zip _____

Tax Exempt Number _____ Provide a copy of Certificate. We CAN NOT set up a Tax Exempt Account without certification.



TYPE OF BUSINESS

Plumbing _____ Pumps _____ Heating _____ Municipality _____ Hotel or Apts. _____ Well Drilling _____
 Hospital _____ Factory (OEM) _____ Factory (Mtn) _____ Office Building _____ Shopping Center _____
 Golf Course _____ Water Treatment _____ Environmental _____ Other (Please name) _____

Have you been contacted by one of our salesman? _____ Name _____

If YES, please explain _____

Name of person authorized to pick up _____

D&B Rating _____ Check one: Corporation _____ Partnership _____ Individual Proprietor _____

If division of another company, name parent company and relationship _____

DUFF COMPANY

201 East Lafayette Street, Norristown, PA 19401

TRADE REFERENCES

Name _____ Type of business _____

Address _____

City _____ State _____ Zip _____

Phone _____ Fax _____



Name _____ Type of business _____

Address _____

City _____ State _____ Zip _____

Phone _____ Fax _____



Name _____ Type of business _____

Address _____

City _____ State _____ Zip _____

Phone _____ Fax _____



Bank reference _____

Branch Address _____

City _____ State _____ Zip _____

Branch officer who handles account _____

In consideration of your opening the above account and/or extended credit, the undersigned hereby agrees that all information supplied in this application is correct, that all accounts are to be paid in full to Duff Company monthly by the tenth day of the month following the invoice date, that a 1% service charge and a 1% interest charge will be made on any balance open at the end of the month following invoice date, and that in the event that legal action or lien be taken, or the service of a collection agency are used to collect this account, the undersigned shall pay all expenses incurred by the Duff company, such as, but not limited to, collection fees, costs and legal fees.

Applicant (Name of Account) _____

By _____ Title _____

The undersigned _____ and _____
for good and valuable consideration, hereby jointly, severally and personally unconditionally guarantee, warrant and promise the full and prompt (within terms) payments of all bills and other obligations (as set forth above) of the applicant in connection with any credit extended to the applicant by Duff Company.*

Principal _____ Witness _____ Principal's Spouse _____ Witness _____

Principal _____ Witness _____ Principal's Spouse _____ Witness _____

We routinely fax invoices to our customers. Please provide a fax number where we can send invoices _____

PLEASE FAX FORM TO 610-275-6761

*As appropriate, we may also require the guarantee of a principal and, in some cases, the principal's spouse.

For Duff Company Use Only

Credit Limit: _____	Contact: _____	Certificate Recd: _____
Tax Jurisdiction: _____	General Manager _____	Type: _____
Salesman: _____	Class: _____	Controller: _____
	Date Approved: _____	