AquFlow

The Gold Standard in Metering Pump Technology

AquFlow – Chemical Metering Pumps

Hydraulic Diaphragm & Solenoid

History – AquFlow (Formerly Hydroflo)

- Founded in 1972 in Pennsylvania
- Quickly earned the reputation for high quality and durable design
- Added different sizes and material to offer a complete range
- Acquired by Penn Process Technology in 1995
- Acquired by Nikkiso in 2000 who was seeking an entry in the US market
- Nikkiso promoted their own line Milflo using channels and facilities
- Precision Flow Technologies Inc. bought the pump line in 2007
- Moved Manufacturing to Irvine, California and Re-Launched as **AquFlow**

Hydroflo is now AquFlow

What's Changed ?

- New State of the Art manufacturing facility in Irvine, California
- Invested in additional inventory for quick deliveries for parts & pumps
- Added in-house machining, welding and fabrication equipment to offer customized pumps & systems
- Put together a customer centric team with decades of combined industry experience

What's the Same ?

- Retained the same proven durable design that gives consistent accurate performance for decades in the field
- Retained key members of the original engineering team
- Same US based suppliers who have been key to Hydroflo's success
- Commitment to build on reputation gained over 40 years

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Lean Manufacturing Re-Defined

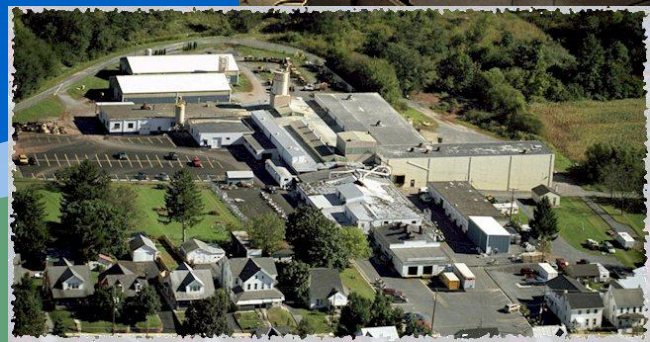
- All Casting, Forging and Molding operations with strategic partners using AquFlow's tools, molds and fixtures

- Production Machining operations at low cost centers within USA using AquFlow's design and fixtures.

- Some key parts are kept always in-stock by the vendors to be quickly machined to various configurations.

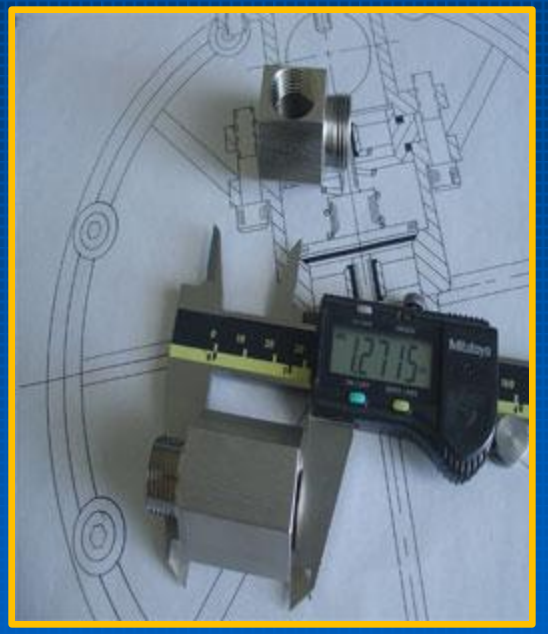
- This unique set-up is facilitated mainly due to our modular (Leggo Block) design for all our pumps, S1000 – S4000.

- This small foot print not only reduces the overhead but it also reduces the lead times.

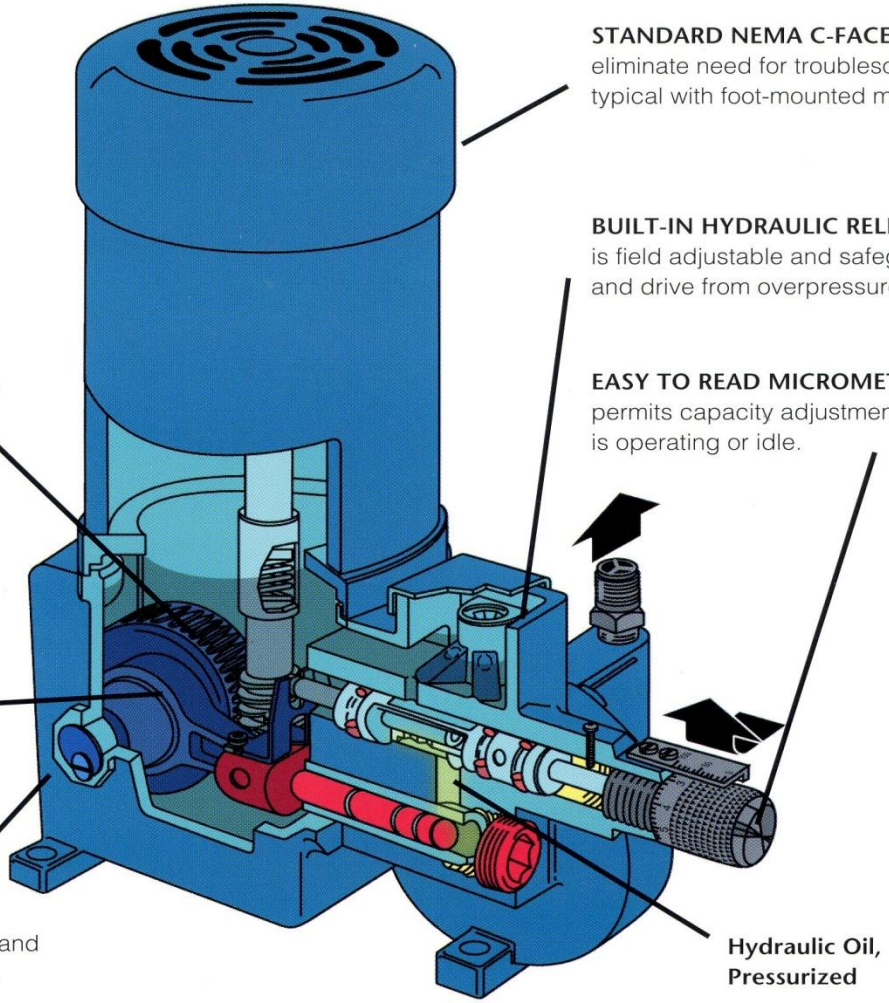


AquFlow Quality – A Way of life

- Quality starts with the design and rigorous testing of each component
- Every part that is received in the inventory is inspected and recorded
- Traceability maintained from the largest casting to the smallest O-ring
- Empowered employees to shut down process at the slightest hint
- No Compromise attitude when it comes to quality
- All major vendors are domestic, hence better handle on their quality
- Vendors are partners in this quality process
- Constant effort to improve manufacturing and testing processes
- Pumps tested for performance and hydraulic pressure held > 30 min.
- Complete records maintained for every unit sold since 1972
- The result is the durability of pumps that last for decades



AquFlow Technology Advantage



STANDARD NEMA C-FACE MOTORS
eliminate need for troublesome alignment typical with foot-mounted motors.

BUILT-IN HYDRAULIC RELIEF VALVE
is field adjustable and safeguards pump and drive from overpressure.

EASY TO READ MICROMETER KNOB
permits capacity adjustment while pump is operating or idle.

HEAVY DUTY GEARS
and critical drive parts operate in an oil bath, extending pump life.

Hydraulic Oil, Atmospheric Pressure

TOTALLY ENCLOSED DESIGN
protects moving parts from wear and corrosion in hostile environments.

Hydraulic Oil, Pressurized

AquFlow Standards

- NEMA Electrical components
- UL / CSA / CE motors available
- API - 675 compliance for Oil & Gas
- Hydraulic Institute Standards applied
- CE self certification available
- Traceability of all parts up to poured metal for castings available upon request
- Comply with OSHA safety standards
- Comply with EPA emission standards

AquFlow – The New Facility

- >2.5 times larger Facility at over 10,000 sq. ft.
- Prime location – middle of business district
- Close to Air port and transportation hubs
- State of the Art Facility & Equipment
- Room to Grow

AquFlow

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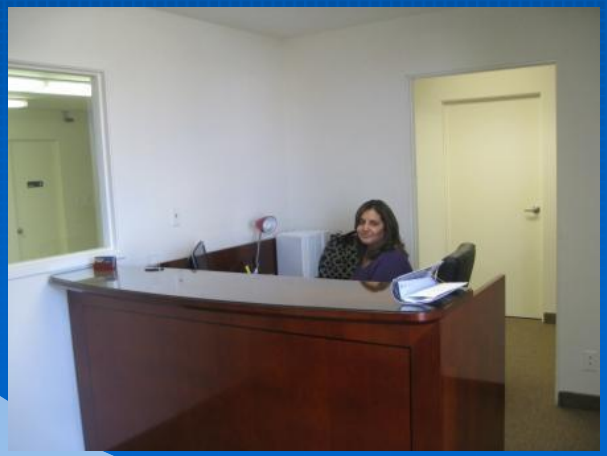
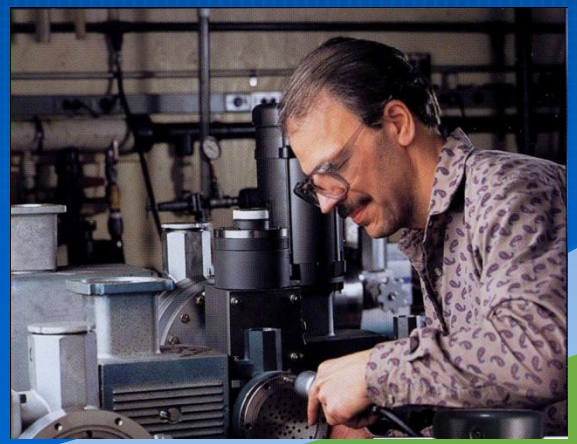
Key People at AquFlow





AquFlow – Product Line

Hydraulic Diaphragm Pumps:

- Advanced design of hydraulically balanced diaphragm metering pumps
- Flow Rates from 0-3500 Gallons Per Hour and pressure up to 5,000 psi
- Corrosion resistant materials including 316 Stainless Steel, Alloy 20, Hastelloy C, PVC, PVDF, PTFE etc.

Solenoid Pumps:

- New line of Solenoid diaphragm metering pumps
- Solenoid range available in Polypropylene, PVC, PVDF, 316 SS and PTFE
- Flow rate up to 20 GPH and pressure up to 300 psi

Accessories & Complete Pump Systems

AquFlow – Hydraulic Pump Line

Series 1000	Series 2000	Series 3000	Series 4000
0 – 123 GPH (465 LPH)	0 – 224 GPH (850 LPH)	0 – 964 GPH (3,650 LPH)	0 – 3,500 GPH (13,250 LPH)
0 – 4,000 PSI (275 Bars)	0 – 1,800 PSI (125 Bars)	0 – 675 PSI (125 Bars)	0 – 3,500 PSI (125 Bars)
Liquid End Materials:	Liquid End Materials:	Liquid End Materials:	Liquid End Materials:
316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
PVC	PVC	PVC	PVC
Alloy 20	Alloy 20	Alloy 20	Alloy 20
PVDF	PVDF	PVDF	PVDF
Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C
Controls:	Controls:	Controls:	Controls:
Electronic Capacity Adj.	Electronic Capacity Adj.	Electronic Capacity Adj.	Electronic Capacity Adj.
Pneumatic Capacity Adj.	Pneumatic Capacity Adj.	Pneumatic Capacity Adj.	Pneumatic Capacity Adj.
Options:	Options:	Options:	Options:
Simplex or Duplex	Simplex or Duplex	Simplex or Duplex	Simplex or Duplex
Degassing Valve	Degassing Valve	Degassing Valve	Degassing Valve
Tubular Diapgragm	Tubular Diapgragm	Tubular Diapgragm	Tubular Diapgragm
Leak Detection	Leak Detection	Leak Detection	Leak Detection
Low NPSH liquid ends	Low NPSH liquid ends		

Series 1000 – Features & Range

Features:

- Flow Capacity 0 – 124 GPH
- Pressure up to 4000 PSI
- Metering Accuracy +/- 1%
- 10:1 turndown via Stroke Length
- Viscosities up to 100,000 cps
- Internal Hydraulic Relief Valve
- Modular Design with Multiple Options
- Tubular Diaphragm for abrasives
- Duplex for twice the flow
- 115 / 230 / 460 V AC, 1 Ph / 3 Ph
- 12 / 24 / 90 / 180 V DC
- TEFC, TENV, Explosion Proof

Controls:

- Manual (standard)
- Electronic (ECCA option)
- Pneumatic

Materials of Construction:

- Liquid End Options include 316 St. Steel, Alloy 20, Hastelloy C, PVC, PVDF etc.
- Diaphragm in PTFE

Model Number[1]	Flow (GPH)	Press. (psig)	Speed (SPM)	Plunger Diameter	Connection (NPT)
CA4T 3829-0X013	0.55	4,000	29	3/8"	1/4" MNPT
CA4T 3858-0X013	1.10		58		
CA4T 3897-0X013	1.85		97		
CA4T 3812-0X013	2.25		117		
CA4T 3814-0X013	2.70		140		
CA4T 3817-0X013	3.30		170		
CJ4T 5629-0X014	1.25	1,100	29	9/16"	3/8" MNPT
CJ4T 5658-0X014	2.50		58		
CJ4T 5697-0X014	4.20		97		
CJ4T 5612-0X014	5.10		117		
CJ4T 5614-0X014	6.10		140		
CJ4T 5617-0X014	7.40		170		
CJ4T 7529-0X014	2.25	1,100	29	3/4"	3/8" MNPT
CJ4T 7558-0X014	4.50		58		
CJ4T 7597-0X014	7.50		97		
CJ4T 7512-0X014	9.05		117		
CJ4T 7514-0X014	10.85		140		
CJ4T 7517-0X014	13.15		170		
CJ4T 8729-0X014	3.05	700	29	7/8"	3/8" MNPT
CJ4T 8758-0X014	6.10		58		
CJ4T 8797-0X014	10.20		97		
CJ4T 8712-0X014	12.30		117		
CJ4T 8714-0X014	14.75		140		
CJ4T 8717-0X014	17.90		170		
CJ4T 11329-0X014	5.33	425	29	1-1/8"	3/8" MNPT
CJ4T 11358-0X014	10.60		58		
CJ4T 11397-0X014	17.80		97		
CJ4T 11312-0X014	21.50		117		
CJ4T 11314-0X014	25.70		140		
CJ4T 11317-0X014	31.30		170		
CJ4T 16229-0X018	10.50	200	29	1-5/8"	1/2" FNPT
CJ4T 16258-0X018	21.00		58		
CJ4T 16297-0X018	35.25		97		
CJ4T 16212-0X018	42.50		117		
CJ4T 16214-0X018	50.90		140		
CJ4T 16217-0X018	61.80		170		

Series 2000 – Features & Range

Features:

- Flow Capacity 0 – 224 GPH
- Pressure up to 1,800 PSI
- Metering Accuracy +/- 1%
- 10:1 turndown via Stroke Length
- Viscosities up to 100,000 cps
- Internal Hydraulic Relief Valve
- Modular Design with Multiple Options
- Tubular Diaphragm for abrasives
- Duplex for twice the flow
- 115 / 230 / 460 V AC, 1 Ph / 3 Ph
- 12 / 24 / 90 / 180 V DC
- TEFC, TENV, Explosion Proof

Controls:

- Manual (standard)
- Electronic (ECCA option)
- Pneumatic

Materials of Construction:

- Liquid End Options include 316 St. Steel, Alloy 20, Hastelloy C, PVC, PVDF etc.
- Diaphragm in PTFE

Model Number[1]	Flow (GPH)	Pressure (psig)	Speed (SPM)	Plunger Diameter	Connection (NPT)
CD3T 0529-XX014	2.95	1,800	29	5/8"	3/8"
CD3T 0558-XX014	5.90		58		
CD3T 0597-XX014	9.90		97		
CD3T 0512-XX014	11.90		117		
CD3T 0514-XX014	14.30		140		
CD3T 0519-XX014	19.50		191		
CD3T 0629-XX014	4.25	1,000	29	3/4"	3/8"
CD3T 0658-XX014	8.55		58		
CD3T 0697-XX014	14.30		97		
CD3T 0612-XX014	17.20		117		
CD3T 0614-XX014	20.60		140		
CD3T 0619-XX015	28.10		191		
CD3T 0829-XX014	7.60	360	29	1"	3/8"
CD3T 0858-XX014	15.20		58		
CD3T 0897-XX014	25.40		97		
CD3T 0812-XX015	30.60		117		
CD3T 0814-XX015	36.70		140		
CD3T 0819-XX015	50.00		191		
CD3T 1029-XX014	11.80	210	29	1-1/4"	3/8"
CD3T 1058-XX014	23.70		58		
CD3T 1097-XX018	39.70		97		1/2"
CD3T 1012-XX018	47.90		117		
CD3T 1014-XX018	57.30		140		
CD3T 1019-XX018	78.20		191		
CD3T 1229-XX014	17.10	195	29	1-1/2"	3/8"
CD3T 1258-XX015	34.20		58		
CD3T 1297-XX018	57.20		97		1/2"
CD3T 1212-XX018	69.00		117		
CD3T 1214-XX018	82.50		140		
CD3T 1219-XX018	112.00		191		

Series 3000 – Features & Range

Features:

- Flow Capacity 0 – 964 GPH
- Pressure up to 700 PSI
- Metering Accuracy +/- 1%
- 10:1 turndown via Stroke Length
- Viscosities up to 100,000 cps
- Internal Hydraulic Relief Valve
- Modular Design with Multiple Options
- Tubular Diaphragm for abrasives
- Duplex for twice the flow
- 115 / 230 / 460 V AC, 1 Ph / 3 Ph
- 12 / 24 / 90 / 180 V DC
- TEFC, TENV, Explosion Proof

Controls:

- Manual (standard)
- Electronic (ECCA option)
- Pneumatic

Materials of Construction:

- Liquid End Options include 316 St. Steel, Alloy 20, Hastelloy C, PVC, PVDF etc.
- Diaphragm in PTFE

Model Number[4]	Flow GPH	Press. psig	Speed SPM	Plunger Diam.	Conn. NPT
CNIT 0829-0X018	15.9	675	29	1"	1/2"
CNIT 0858-0X018	31.9		58		
CNIT 0888-0X018	48.4		88		
CNIT 0812-0X018	64.4		117		
CNIT 0814-0X018	77.1		140		
CNIT 1029-0X018	25.0	405	29	1-1/4"	1/2"
CNIT 1058-0X018	50.0		58		
CNIT 1088-0X018	75.7		88		
CNIT 1012-0X018	100		117		
CNIT 1014-0X018	120		140		
CNIT 1229-0X018	35.9	285	29	1-1/2"	1/2"
CNIT 1258-0X018	71.8		58		
CNIT 1288-0X018	109		88		
CNIT 1212-0X018	145		117		
CNIT 1214-0X01A	173		140		1-1/2"
CNIT 1429-0X018	48.9	180	29	1-3/4"	1/2'
CNIT 1458-0X018	97.8		58		
CNIT 1488-0X018	148		88		
CNIT 1412-0X01A	197		117		1-1/2"
CNIT 1414-0X01A	236		140		
CNIT 1629-0X018	63.9	130	29	2"	1/2"
CNIT 1658-0X018	128		58		
CNIT 1688-0X01A	194		88		1-1/2"
CNIT 1612-0X01B	258		117		
CNIT 1614-0X01B	308		140		
CNIT 1829-0X018	80.0	95	29	2-1/4"	1/2"
CNIT 1858-0X018	161		58		
CNIT 1888-0X01A	245		88		1-1/2"
CNIT 1812-0X01B	326		117		
CNIT 1814-0X01C	390		140		
CNIT 2029-0X018	100	75	29	2-1/2"	1/2"
CNIT 2058-0X01A	200		58		1-1/2"
CNIT 2088-0X01B	300		88		
CNIT 2012-0X01C	400		117		
CNIT 2014-0X01C	482		140		

Series 4000 – Features & Range

Features:

- Flow Capacity 0 – 3,500GPH
- Pressure up to 3,500 PSI
- Metering Accuracy +/- 1%
- 10:1 turndown via Stroke Length
- Viscosities up to 100,000 cps
- Internal Hydraulic Relief Valve
- Modular Design with Multiple Options
- Tubular Diaphragm for abrasives
- Duplex for twice the flow
- 115 / 230 / 460 V AC, 1 Ph / 3 Ph
- 12 / 24 / 90 / 180 V DC
- TEFC, TENV, Explosion Proof

Controls:

- Manual (standard)
- Electronic (ECCA option)
- Pneumatic

Materials of Construction:

- Liquid End Options include 316 St. Steel, Alloy 20, Hastelloy C, PVC, PVDF etc.
- Diaphragm in PTFE

Model Number[4]	Flow	Press.	Speed	Plunger	Conn.
	GPH	psig	SPM	Diam.	NPT
GNIT 0744-BC01A	22.0	3,500	44	7/8"	1"M
GNIT 0770-BC01A	36.0		70		
GNIT 0788-BC01A	45.0		88		
GNIT 0714-BC01A	72.0		140		
GNIT 0944-BC01A	38.0	2,000	44	1-1/8"	1"M
GNIT 0970-BC01A	61.0		70		
GNIT 0988-BC01A	77.0		88		
GNIT 0914-BC01A	123		140		
GNIT 1344-BC01F	79.0	1,000	44	1-9/16"	2-1/2"
GNIT 1370-BC01F	126.0		70		
GNIT 1388-BC01F	158		88		
GNIT 1314-BC01F	253		140		
GNIT 2044-BC01F	210.0	370	44	2-1/2"	2-1/2"
GNIT 2070-BC01F	335.0		70		
GNIT 2088-BC01F	421		88		
GNIT 2014-BC01F	671		140		
GNIT 2444-BC01H	300.0	265	44	3"	4"
GNIT 2470-BC01H	480		70		
GNIT 2488-BC01H	610		88		
GNIT 2414-BC01H	970		140		
GNIT 3244-BC01H	550.0	160	44	4"	4"
GNIT 3270-BC01H	880		70		
GNIT 3288-BC01H	1110		88		
GNIT 3214-BC01H	1765		140		

AquFlow Pump Specs / Dims

- Pump Data Sheet – Generic. May be specific on request.
- Dimensional Drawings in .pdf or in .dwg or Autocad
- Test Record upon request
- Another API-675 compliant test sheet available when requested with the original order.
- Material Certs upon request
- PMI test certification

AquFlow Pump Data Sheet

AquFlow Pump Model Number: CD3T1219-04018

AquFlow Pump Serial Number: XXXXXXX

Pump Type: Hydraulically actuated and balanced diaphragm metering pump.
Simplex / ~~Duplex / Tubular~~

Pump Specifications:
Maximum Flow Capacity: 112 GPH (Gallons Per Hour) Maximum Pressure: 150 PSI (Pounds per Square Inch)
Performance including flow capacity and pressure may change due to factors such as the viscosity, temperature etc. Consult Factory.
Accuracy and Control: Accuracy is ±1% of full scale over the range of 10% to 100% of maximum flow capacity.

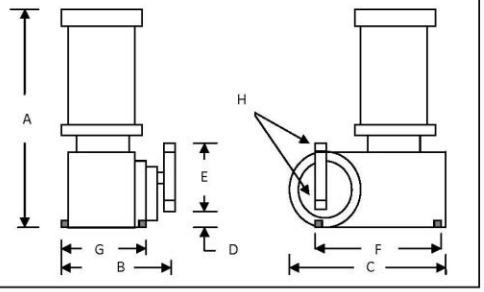
Motor Specifications:
Voltage: 230/460 AC / DC Hertz: 60 Horse Power: 3/4 RPM: 1725 NEMA Frame: 56C
Phase: 3 Protection: Explosion Proof Max Amps: _____

Pump Materials of Construction:
Diaphragm Head: 316 SS Diaphragm: PTFE Check Valve Body: 316 SS Check Valve Ball: 316 SS
Contour Plate: 316 SS Check Valve O-Rings: Viton O-Ring, Tee (Series 2000,3000 & 4000): Viton
O-Ring Valve Seat / Cap (Series 3000 & 4000): _____
Pump Control: Manual / ~~Electric / Pneumatic~~ Leak Detection System: None

Other Special Configuration Notes: _____

Dimensions (Approximate)

Overall Height A: 21"
Overall Width B: 12"
Overall Length C: 18"
Suction Height from floor D: _____
Discharge Height from Suction E: _____
Mounting Bolts distance F: _____
Mounting Bolts distance G: _____
Suction & Discharge Connections H: 1/2" NPT
Weight: 85 Lbs.



Pump Spare Parts / Kits:

Part/Kit#	*Qty/unit*	*Description*	*Part/Kit#*	*Qty/unit*	*Description*
		Diaphragm			Plunger set (≥2000 Series inc. bearing)
		Diaphragm Head			Gear set including bearings
		Check Valve Assembly Suction			Pressure Chamber (≥2000 Series)
		Check Valve Assembly Discharge			
		Contour Plate			
		O-Ring set			
		Capacity Adjuster / Micrometer set			

Safety Warning: Please read the specifications carefully before selection of a pump. Do not start installing or repairing the pump without thoroughly reading instructions. Pressure devices (pumps) and electrical motors can cause injury if handled incorrectly!
Contact us for all pump related questions and any sales & support issues. **Phone: (949)-757-1753 E-mail: sales@aquflow.com**

AquFlow Options – Duplex = 2 x Flow

- Duplex Version uses two liquid ends to double the flow capacity
- The two heads can be controlled independently to get better capacity control
- The Horse Power of the motor increases but does not double.
- Hence it is more efficient with lower energy consumption
- Can use two different materials for the two liquid ends
- Ideal for mixing two different liquids

AquFlow Options – Tubular Diaphragm

- Clear liquid path for slurries
- Clog resistant design
- Flow through design for sanitary applications
- Available in corrosion resistant material

AquFlow Options – Leak Detection

• Two types of leak detection – Conductivity & Vacuum

• In Conductivity type a probe is mounted in the intermediate chamber between the two diaphragms filled with non-conductive fluid. When the conductive fluid is introduced in the chamber due to diaphragm leak the probe triggers the relay which can be wired to sound and alarm and / or shut off the pump.

• In Vacuum type leak detection system the two special Teflon diaphragms are held together under vacuum and separated by a metallic intermediate ring. It includes vacuum tubing, vacuum gauge and Vacuum switch. When the diaphragm fails the vacuum switch triggers a signal which can sound alarm or shut down the pump. This is also a good option for non-conductive liquids.

Options – ECCA - Electronic Control

- ECCA – Electronic Capacity Control Actuator
- Automatic and Remote Control of the pump stroke length using a 4-20mA signal
- Accepts the instrument signal directly at the pump eliminating the need for external control box.
- Manual Over ride available
- Nema 4X standard enclosure
- Nema 7 optional
- ECCA can be supplied only on one side for Duplex 1000 and 2000 Series pumps due to space limits.
- ECCA can be on both sides for a Duplex 3000 and Duplex 4000 Series pumps

Options – Pneumatic Stroke Actuator

- This is used in places where electric or electronic signal is not used.
- The stroke of the pump is adjusted by the instrument air signal instead of electric one
- The pump stroke can be adjusted remotely
- The air signal range is usually 3-15 psi or 3-27 psi and is factory set

Options – Variable Frequency Drive

- AC and DC Speed Controllers
- Manual or 4-20mA remote signal
- Tachometer Feedback optional
- Due to the loss of torque below 50% speed for the motor a higher HP motor is suggested.
- Shunt wound motors preferred
- Electronic Overload Protection
- Diagnostic LEDs
- Up to 200% Starting Torque (AC)

AquFlow Options - Other

- Double Ball Check Valves
- Tungsten Carbide Check Valve Balls
- Double Diaphragm pump heads
- High Suction – Lift Diaphragm Pump Head
- Remote Diaphragm Pump Head
- Explosion Proof Motors
- AC, DC, 1 Phase, 3 Phase
- With or Without Motor
- Air or Hydraulic Drive Motor
- Flange Liquid Connections

AquFlow Pump Model Code

AquFlow (formerly Hydroflo)Hydraulic Metering Pump Model Code

AAA	B	CC or CCC	DD	–	EE	FF	G

AAA : AquFlow pump series identifier

Series 1000 - CJ4 (standard), CA4, CJ3, etc.
Series 2000 - CD3 (Standard), CR3, CQ3, CL3 etc.
Series 3000 - CNI (Standard), KBI, HFI, CMI etc.
Series 4000 - GNI (Standard), GMI etc.

B : Main pumping element

T = Single PTFE disc diaphragm
W = Double PTFE disc diaphragm
A = Single Hypalon Tube
B = Single Viton Tube

CC or CCC : Plunger Diameter

Series 1000:
38 = 3/8"
58 = 9/16"
75 = 3/4"
87 = 7/8"
113 = 1-1/8"
162 = 1-5/8"

Series 2000:
05 = 5/8"
06 = 3/4"
08 = 1"
10 = 1-1/4"
12 = 1-1/2"

Series 3000:
08 = 1"
10 = 1-1/4"
12 = 1-1/2"
14 = 1-3/4"
16 = 2"
18 = 2-1/4"
20 = 2-1/2"

Series 4000:
07 = 7/8"
09 = 1-1/8"
13 = 1-9/16"
20 = 2-1/2"
24 = 3"
32 = 4"

DD: Strokes Per Minute

29 = 29 SPM
44 = 44 SPM
58 = 58 SPM
88 = 88 SPM
97 = 97 SPM
12 = 117 SPM
14 = 140 SPM
17 = 170 SPM
19 = 190 SPM

EE: Liquid End Material (Diaphragm Head, Valves)

04 = 316 Stainless Steel
05 = Alloy 20
06 = Hastelloy C
08 = PVC
0A = Kynar (PVDF)

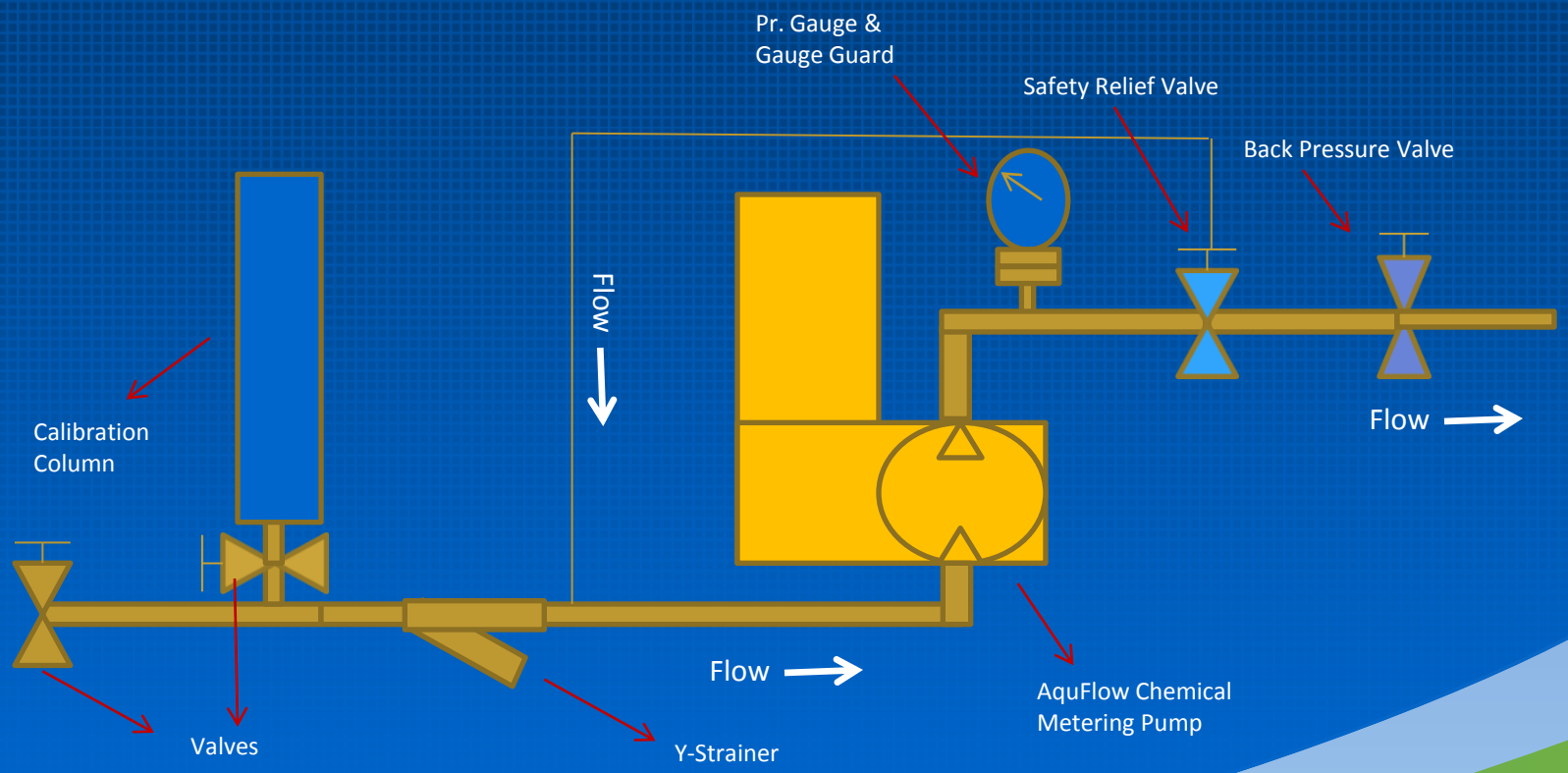
FF: Configuration Code

01 = Simplex Manual Adjustment
02 = Duplex Manual Adjustment
03 = Simplex Pneumatic Adjustment
04 = Duplex Pneumatic Adjustment
05 = Simplex Electronic (4-20mA) Adjustment
06 = Duplex Electronic (4-20mA) Adjustment

G: Valve Ball Size

4 = 3/8"	9 = 1"	E = 2-1/4"
5 = 1/2"	A = 1-1/4"	F = 2-1/2"
6 = 5/8"	B = 1-1/2"	G = 3"
7 = 3/4"	C = 1-3/4"	H = 4"
8 = 7/8"	D = 2"	

Typical AquFlow Pump Installation



Markets - Applications

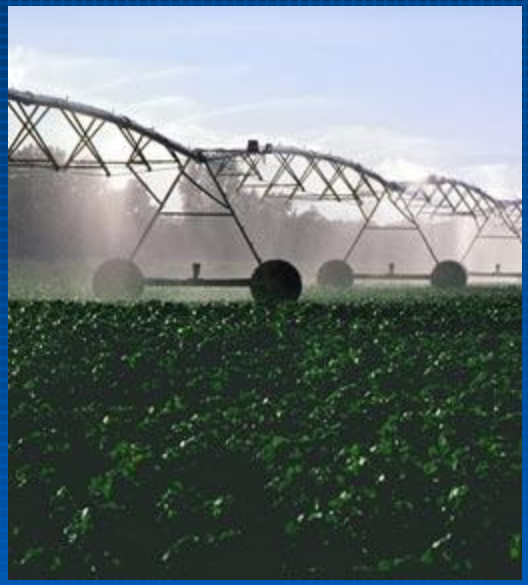
Water and Wastewater Treatment

-Disinfectants like Sodium / Calcium Hypochlorite
-pH balancing by injecting Sulfuric acid
-Coagulants like Alum
-Softeners like lime slurries
-Potassium permanganate for Mn and Iron removal
-Injecting Polymers
-Odor control chemicals
-Copper Sulfate for algae control
-Caustic soda for metal and cyanide removal
-Ferric Chloride for coagulation

Markets - Applications

Agriculture:

-Fertigation (Adding Fertilizer to Irrigation water lines)
-Chemigation (pesticides and weed control chemicals)
-Acid pumping for pH balance
-Chlorine addition
-Fumigation



Markets - Applications

Oil and Gas:

-Injecting Corrosion Inhibitors
-Pumping caustic to adjust pH of sour gas or crude oil
-Sludge inhibitors for fuel oils
-Additives for bacteria control of water in well flooding
-Sampling jet fuels, gasoline etc. for analysis
-Desalting of crude by chemicals
-Pumping metal deactivators
-Antiknock additives
-Metering acid for polymerization
-Lubricants for gas lines
-Color additives for gasolene

Markets - Applications

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Markets - Applications

Food Processing

-Food and Dairy
- -Mixing Ingredients
- -Coatings and flavorings for cereals
- -Oil additions to peanuts
- -Adding Preservatives
- -Flavouring oils to flour, cake and pie mixes
- -Metering Vitamins to milk and other foods

-Pet Food and Cattle Feed
- -Metering ingredients , vitamins
- -Pumping hormones to feed
- -Metering additives, flavors and colors to syrups

-Breweries and Distilleries
- -Water conditioning
- -pH balance
- -Diamtomaceous earth (filtering)
- -Aging chemicals
- -Froth inhibitors
- -Sulfurin Acid

Boiler water conditioning

Markets - Applications

Other Markets

-Paints and Dyes
-Fireproofing
-Mining
-Pulp and Paper
-Boiler Feed
-Car Wash
-Warewash

Why AquFlow?

Legacy of Proven Excellence in Design

-Founded on the principle of design improvement
-Longevity lasting decades
-User Loyalty once they see the superiority
-Record of every pump built since 1970s

Customer Centric Organization

-Small customer focused company
-Ability to truly build a pump around customer application
-Expediting orders with no extra cost to the customer
-Quick decision making without the corporate bureaucracy
-Corporate commitment with additional resources

Quality Processes

-Proven processes have been reinforced and improved
-Empowered workers to put quality first
-Thorough testing and record keeping for traceability

Pump Types By Design & Construction

Pump Design Types

Centrifugal

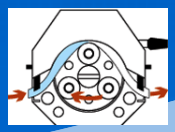
Sealed Centrifugal
Seal-less – Mag Drive
Regenerative Turbine
Canned Motor

Positive Displacement

Rotary

Gear
Flex Impeller
Screw
Vane
Peristaltic
Circumferential – Piston
Progressive Cavity



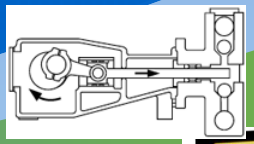


Reciprocating

Piston
Plunger
Diaphragm

Plunger + Diaphragm combination

Metering/ Dosing



Pump Application Categories

There are 3 Major Categories that Pumps Applications Fall under

1. Liquid Transfer: This is the most common type where the basic criteria is to move a certain volume of liquid from point A to point B as quickly as possible

2. Liquid Recirculation: Here the volume of the liquid stays constant and it is moved in a loop. Common for cooling applications.

3. Liquid Spraying / Injection: The liquid is forced through a fine orifice or nozzle to atomize it or inject it in a higher pressure container.

4. Liquid Metering or Dosing: This is a more demanding application where the pump has to dispense liquid at a constant volume consistently with very little variance over time < 1%

Not Every Pump Can be a Metering Pump

Metering Pumps have an accuracy and repeatability of +/- 1% for the liquid volume it puts out in a given time. This is maintained by designing the pumping element and pumping path to have the least amount of slip, flexibility, deflection, compressibility etc. all of which contribute towards the change in volume. API 675 demands that accuracy.

Centrifugal Pumps – No Brainer these pumps are not positive displacement and have variability well above 15-20%

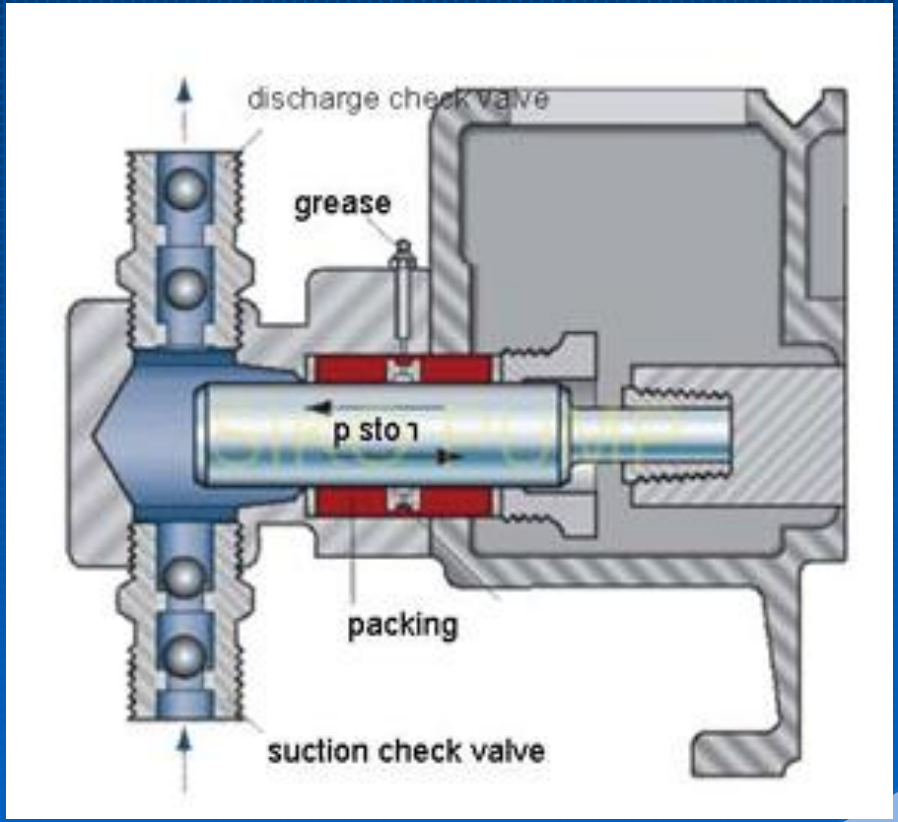
Gear Pumps – These are Positive displacement pumps but they have to have some slip between the gears and between the gears and housings. Flow Variability is generally above 4-5%. Their efficiency drops with life as wear happens and adds to clearance.

Peristaltic Pumps – By design the tube will have to be flexible so it can be squeezed between the rollers. Besides being capable of only low pressures these pumps can be very expensive as they require frequent changing of tube which wears often. Variance > 5%

AODD Pumps – The diaphragm in these pumps flexes resulting in variance in flow greater than 8-10%

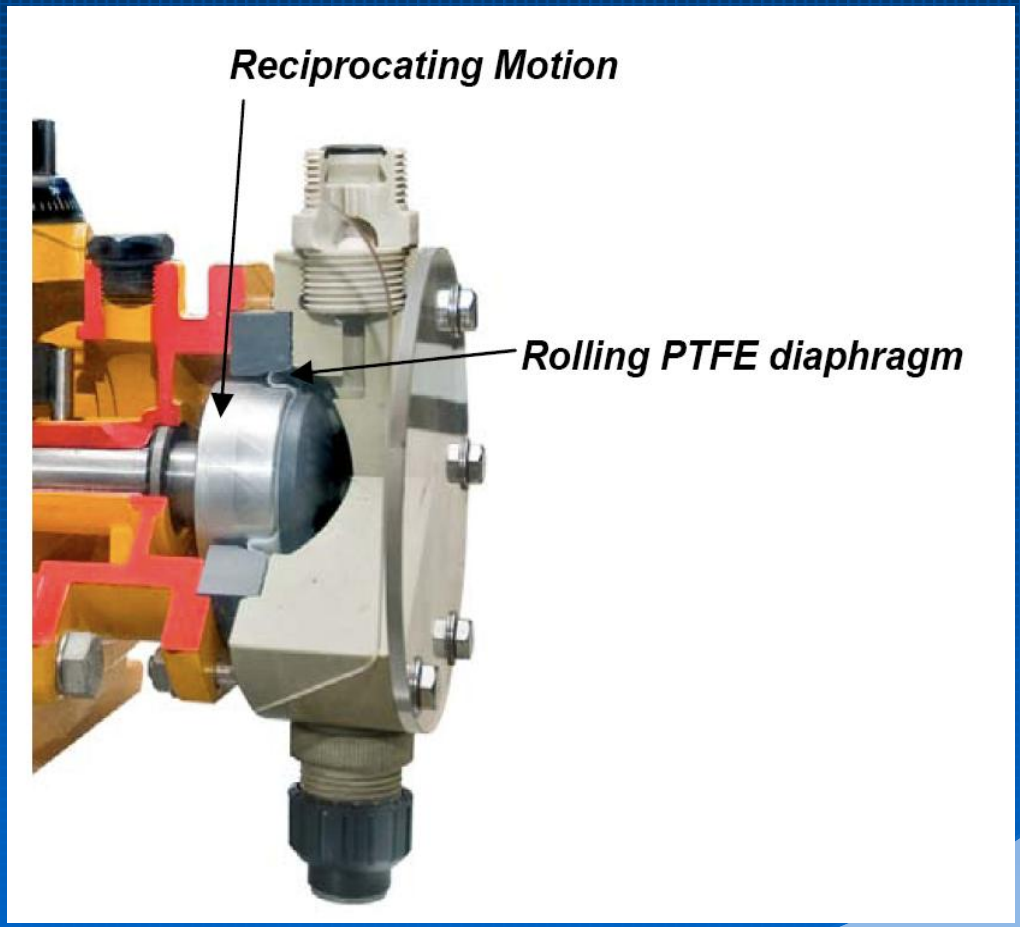
Metering Pump Technologies – Piston / Plunger

- Simplest Design
- Metal Piston in contact with Process liquid
- Contamination with grease
- Packaging corrosion, wear and replacement
- Low Flow High Pressure



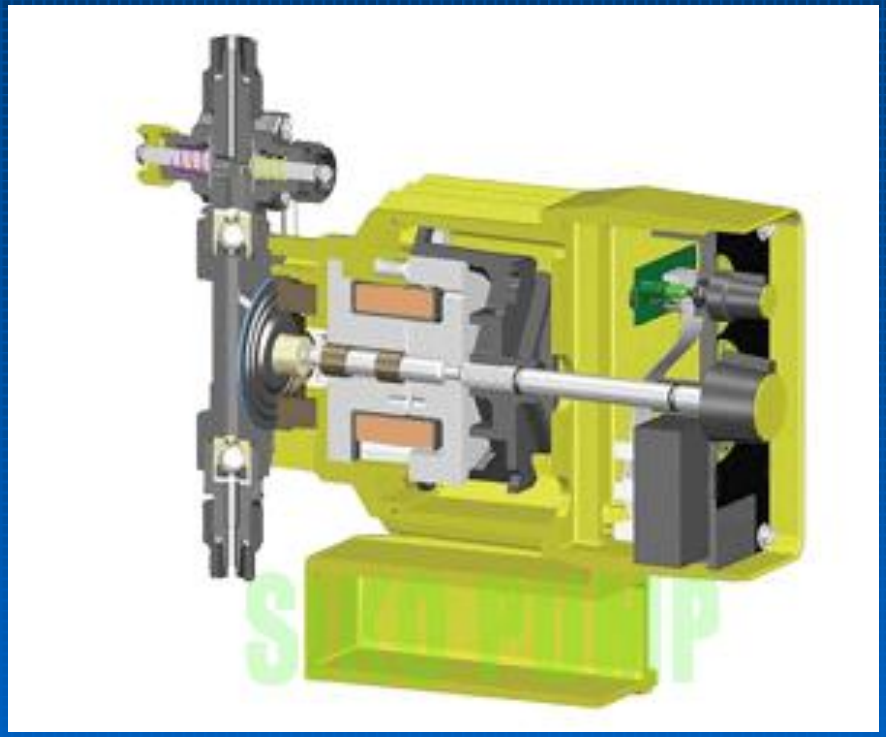
Pump Tech – Mechanical Diaphragm

- Diaphragm attached directly to piston
- Rolling diaphragm or stretching diaphragm
- Causes stress on the diaphragm
- Limited diaphragm life
- Not good for high pressure
- Difficult to maintain with numerous parts in the assembly
- Less Durable and less expensive than Hydraulic diaphragm type.



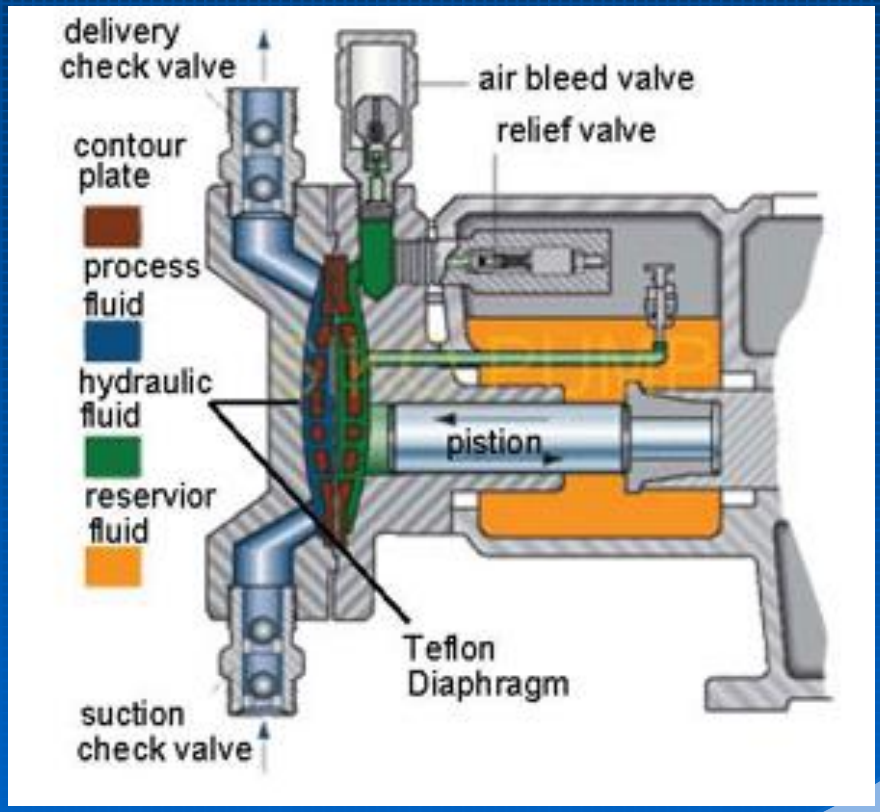
Pump Tech – Solenoid Diaphragm

- Diaphragm attached directly to piston
- Reciprocating motion due to solenoid
- Rolling diaphragm or stretching diaphragm
- Causes stress on the diaphragm
- Limited diaphragm life
- Not good for high pressure
- Less Durable and less expensive than Hydraulic diaphragm type.
- Low flow and low pressure applications



Pump Tech – Hydraulic Diaphragm

- Evolved Design to eliminate, reduce weakness
- Diaphragm has equal pressure on both sides always, called “Hydraulic Balanced Diaphragm”
- Contour plates on each side controls motion
- More accurate and consistent
- Very long Mean Time Between Failure - > Years
- Virtually Maintenance Free
- Added safety feature – Internal Relief Valve
- More expensive to buy and less expensive to own



AquFlow

The Gold Standard in Metering Pump Technology

For more information Call 1-949-757-1753,
Email – sales@aquflow.com
or visit www.aquflow.com

Thank You!