

Hydra-Cell®

Seal-less Pumps



Wanner Engineering Product Line

Hydra-Cell® Seal-less Pumps

www.Hydra-Cell.com



Original F/M/D/H & G Series pumps
See Pages 6 - 11



T100 Series high-horsepower triplex pumps
See Pages 14 - 16



Q155 Series high-horsepower quintuplex pumps
See pages 14 - 15 & 17

Hydra-Cell® METERING SOLUTIONS™

www.Hydra-Cell.com/metering



P Series "pulse-less" metering pumps
See Page 18



MT8 "pulse-less" triplex metering pump
See Page 19



S Series solenoid metering pumps
See Page 19

STAN-COR

www.StancorPump.com

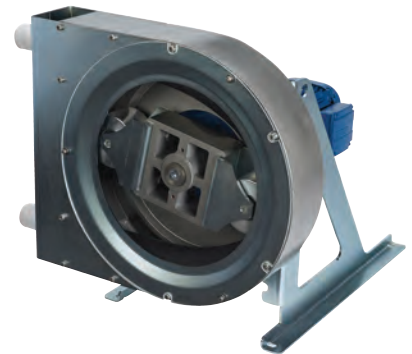
Stan-Cor Series ANSI
centrifugal pumps



VECTOR

www.VectorPump.com

Vector 2000, 3000 &
4000 Series peristaltic
pumps



For more information, request catalogs for Stan-Cor and Vector pumps.

Due to the Wanner Engineering Continuous Improvement Program, specifications and other data in this catalog are subject to change.

Hydra-Cell® Provides Versatile, Reliable Performance



Seal-less Design Advantages

- Positive displacement pump with hydraulically balanced, unstressed diaphragms
- Seal-less design can handle abrasive particulates (up to 800 microns in size depending on model) and solids in suspension
- Wide range of flow capacities and pressure ratings to meet a variety of applications in many industries
- Heavy-duty construction for long service life in harsh conditions
- Flexible installation with a variety of mounting configurations
- Repeatable, accurate output with smooth, virtually pulse-free flow
- High efficiency, low power consumption
- Minimal maintenance, no mechanical seals, cups, or packing to leak, wear, or replace
- Can run dry without damage to the pump

Fluid Handling Capability

From thin liquids to highly viscous resins and slurries, Hydra-Cell pumps can handle the full spectrum of process fluids while maintaining high-efficiency operation. This includes non-lubricating fluids as well as fluids with abrasives that can damage or destroy other types of pumps.

Primary Pumping Applications

- Adding
- Blending
- Cleaning
- Cooling
- Coating
- Dosing
- Filling
- Filtering
- Injecting
- Metering
- Mixing
- Spraying
- Transferring

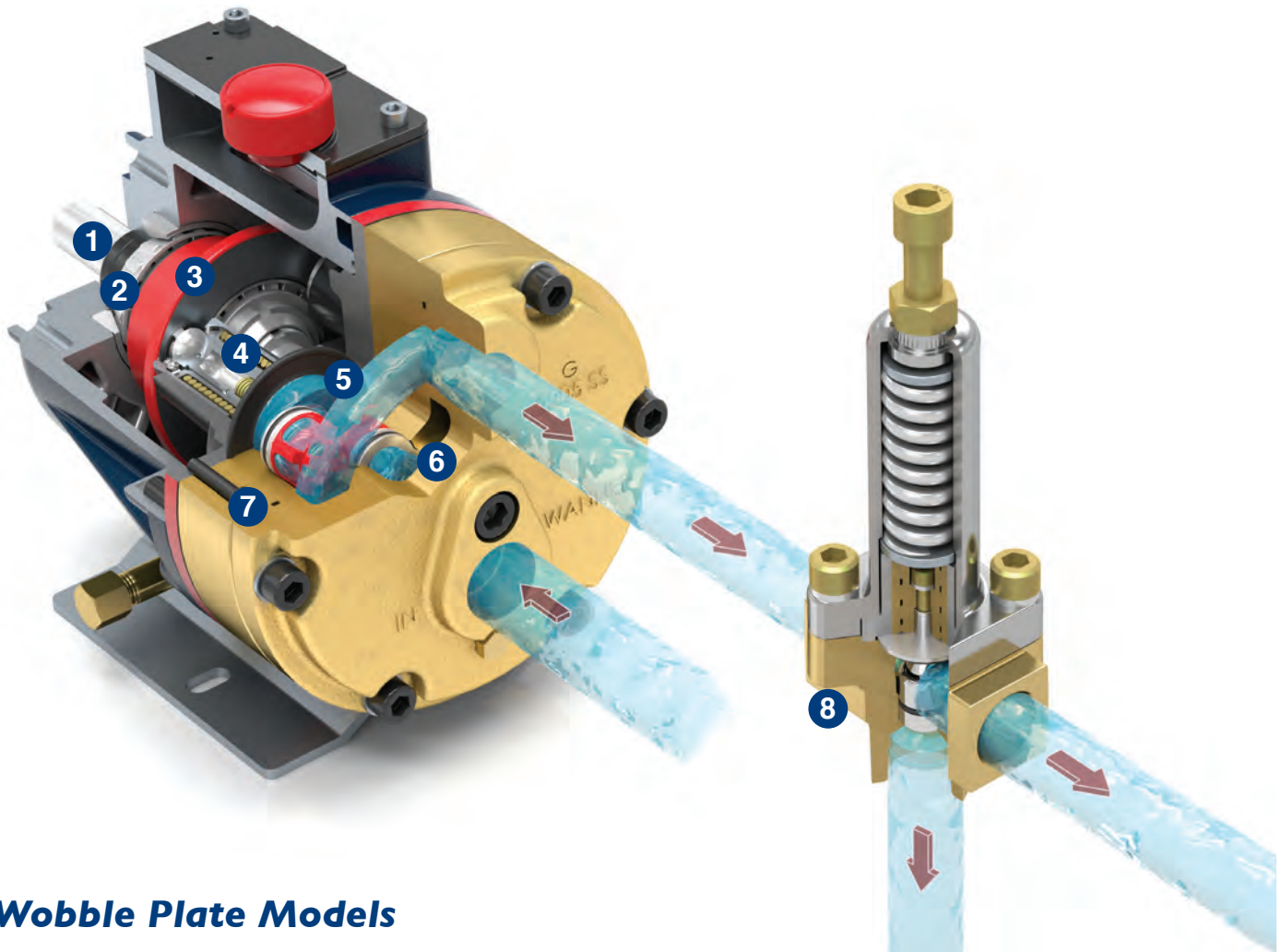
Materials of Construction Selection

- Metallic pump heads in several materials to handle higher pressures and to accommodate SAE or ANSI flanges (where available).
- Non-metallic pump heads to process corrosive or aggressive fluids at lower pressures.
- Diaphragms and corresponding o-rings in various elastomeric materials.
- Valve assemblies in a wide range of metallic and non-metallic materials to suit specific process applications. Includes valve seats, valves, valve springs, and valve spring retainers.



Propane/ Butane Freon Ammonia Polymers Fuels/ Additives D.I. Water Glycols Chlorine Acids/ Caustics Glues/ Adhesives Inks/ Paints Resins Slurries

Hydra-Cell® Principles of Operation

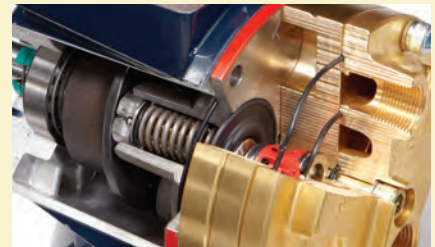


Wobble Plate Models

- 1 Drive Shaft:** via electric motor, hydraulic motor, belt and pulley, etc.
- 2 Tapered Roller Bearings:** rigid support, immersed in lubricating oil bath
- 3 Fixed Angle Cam/Wobble Plate:** translates rotary motion into linear to the hydraulic cells
- 4 Hydraulic Cells (patented):** displace diaphragms via pressurized oil
- 5 Diaphragms:** hydraulic balanced, no stress during flexing
- 6 Inlet Valve Assembly:** simple design, allows liquid into pump chamber
- 7 Discharge Valve Assembly:** allows liquid to flow into pressure discharge line
- 8 C62 Pressure Regulating Valve:** controls output pressure and prevents pump overload

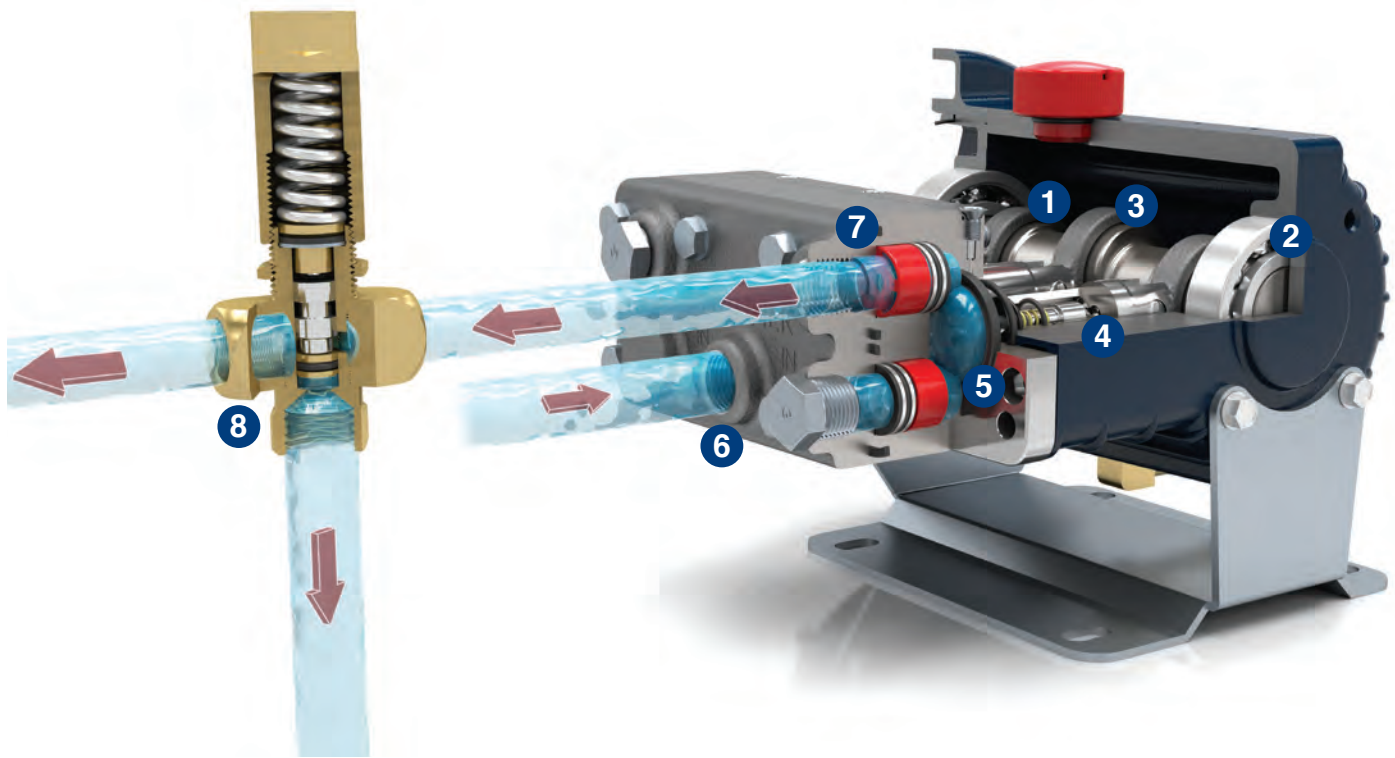
Patented Kel-Cell® Diaphragm Protection

Kel-Cell Diaphragm Position Control (DPC) technology protects Hydra-Cell pumps by safeguarding the diaphragms against abnormal or adverse conditions (e.g. blocked pipe or filter, inadequate liquid supply or discharge pressure).



The Kel-Cell positioning system stabilizes the diaphragms and virtually eliminates the possibility of incidental diaphragm failure. Kel-Cell is available with Hydra-Cell models M03/D03/G03/G13, D10/G10, D12/G12, H25/G25, D35/G35, and D66/G66 as well as Hydra-Cell Metering Solutions models P400 and P600.

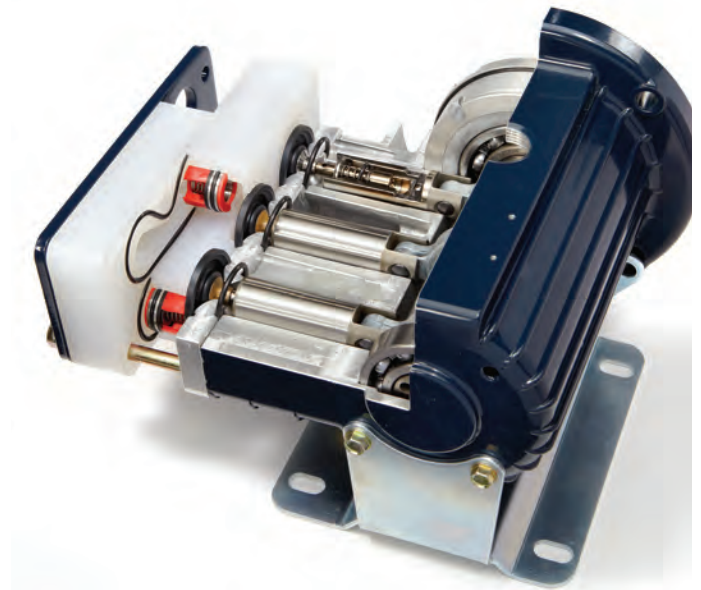
Hydra-Cell® Principles of Operation



Crank-shaft Models

- 1 Drive Shaft:** via electric motor, hydraulic motor, belt and pulley, etc.
- 2 Precision Ball Bearings:** rigid support, immersed in lubricating oil bath
- 3 Connecting Rods:** hardened, precision ground, and polished
- 4 Hydraulic Cells (patented):** displace diaphragms via pressurized oil
- 5 Diaphragms:** hydraulically balanced, no stress during flexing
- 6 Inlet Valve Assembly:** simple design, allows liquid into pump chamber
- 7 Discharge Valve Assembly:** allows liquid to flow into discharge pressure line
- 8 C46 Pressure Regulating Valve (In-line):** controls output pressure and prevents pump overload

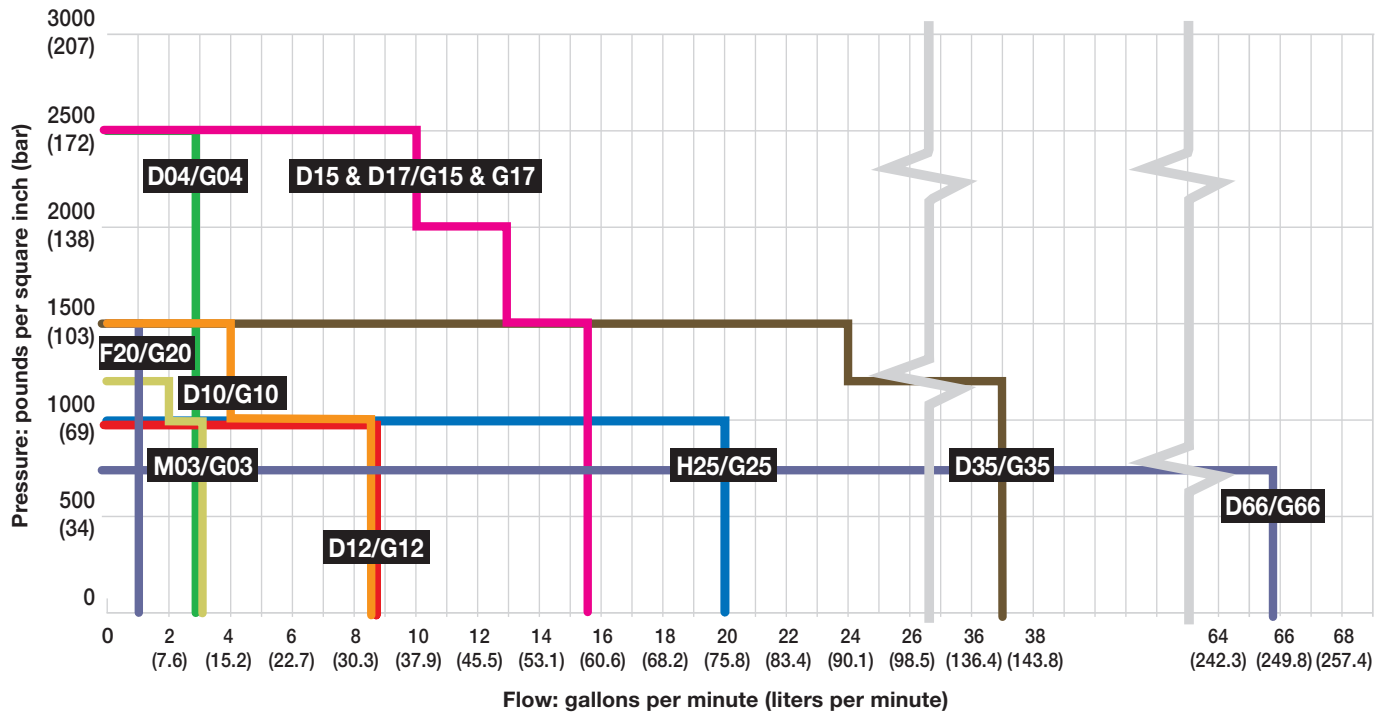
Available Models



Hydra-Cell Seal-less Pumps crank-shaft models are featured on the smaller pumps, including the F20/G20, M03/D03/G03/G13, and D04/G04 Series.

Hydra-Cell® Flow Capacities and Pressure Ratings

F/M/D/H Series and G Series Seal-less Pumps



The graph above displays the maximum flow capacity at a given pressure for each model series. The table below lists the maximum flow capacity and maximum pressure capability of each model series.

Please Note: Some models do not achieve maximum flow at maximum pressure. Refer to the individual model Performance graphs on subsequent pages for precise flow and pressure capabilities by specific pump configuration.

Note: G Series Hydra-Cell Seal-less Pumps are the metric versions of the pumps.

Model	Maximum Capacity gpm (l/min)	Maximum Discharge Pressure psi (bar)		Maximum Operating Temperature F (C) ²		Maximum Inlet Pressure psi (bar)
		Non-metallic ¹	Metallic	Non-metallic	Metallic	
F20/G20	1.0 (3.8)	350 (24)	1500 (103)	140° (60°)	250° (121°)	250 (17)
M03/G03	3.1 (11.7)	350 (24)	1200 (83)	140° (60°)	250° (121°)	250 (17)
D04/G04	2.9 (11.2)	N/A	2500 (172)	N/A	250° (121°)	500 (34)
D10/G10	8.8 (33.4)	350 (24)	1500 (103)	140° (60°)	250° (121°)	250 (17)
D12/G12	8.8 (33.4)	N/A	1000 (69)	N/A	250° (121°)	250 (17)
D15 & D17/ G15 & G17	15.5 (58.7)	N/A	2500 (172)	N/A	250° (121°)	500 (34)
H25/G25	20.0 (75.9)	350 (24)	1000 (69)	140° (60°)	250° (121°)	250 (17)
D35/G35	36.5 (138)	N/A	1500 (103)	N/A	250° (121°)	500 (34)
D66/G66	65.7 (248.7)	250 (17)	700 (48)	140° (60°)	250° (121°)	250 (17)

¹ 350 psi (24 bar) maximum with PVDF liquid end; 250 psi (17 bar) maximum with Polypropylene liquid end.

² Consult factory for correct component selection for temperatures from 160°F (71°C) to 250°F (121°C).

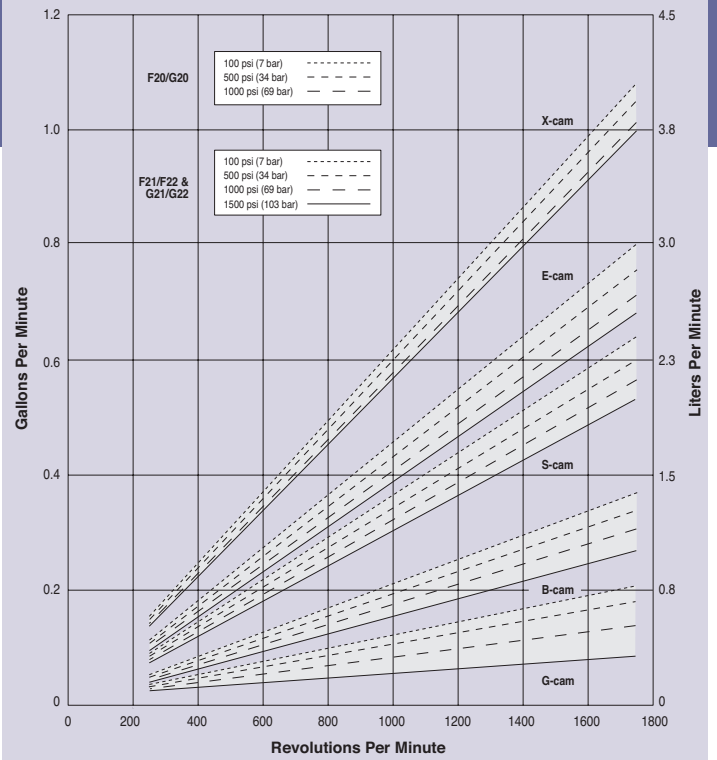
F20/G20 Series

Maximum Flow Rate: 1.0 gpm (3.8 l/min)
 Maximum Pressure: 1500 psi (103 bar) for Metallic Pump Heads
 350 psi (24 bar) for Non-metallic Pump Heads



F20/G20 close-coupled for 56C frame or IEC 80 footed motors shown. F21/G21 models are shaft driven. F22 models are flexible-coupled to 56C, 143TC and 145TC frame motors; G22 models to IEC 80 - 90 B5 frame motors. Pump head materials include (metallic) Brass, 316L Stainless Steel and Hastelloy C and (non-metallic) Polypropylene and PVDF.

Maximum Flow at Designated Pressure



S, B & G cam options based on 10 psi (0.7 bar) inlet pressure.

M03/G03 Series

Maximum Flow Rate: 3.1 gpm (11.7 l/min)
 Maximum Pressure: 1200 psi (83 bar) for Metallic Pump Heads
 350 psi (24 bar) for Non-metallic Pump Heads

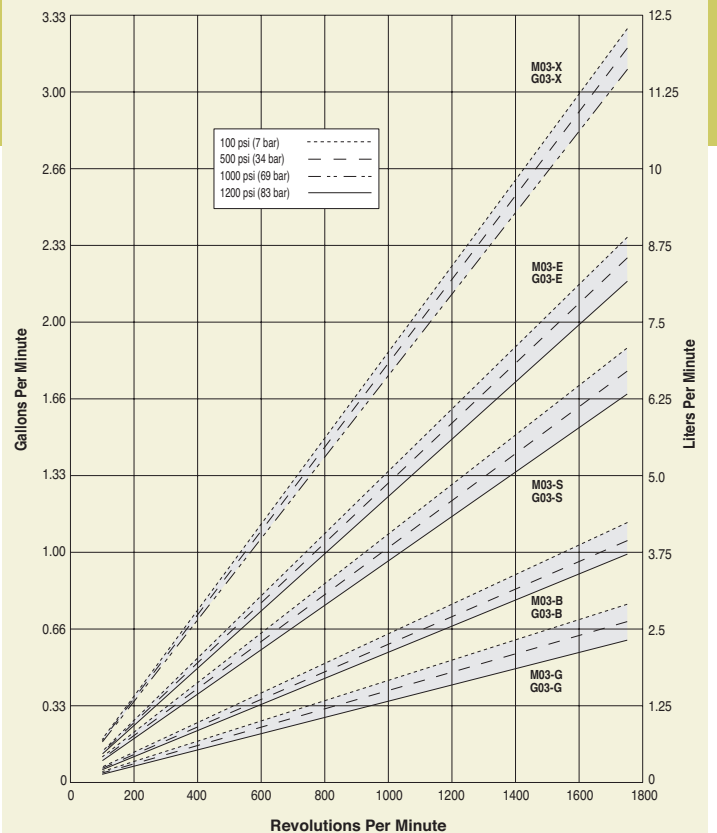


M03/G13 close-coupled with Polypropylene pump head. Also available in (metallic) Brass, 316L Stainless Steel, Hastelloy CW12MW and (non-metallic) PVDF pump heads.



D03/G03 shaft-driven with 316L Stainless Steel pump head.

Maximum Flow at Designated Pressure



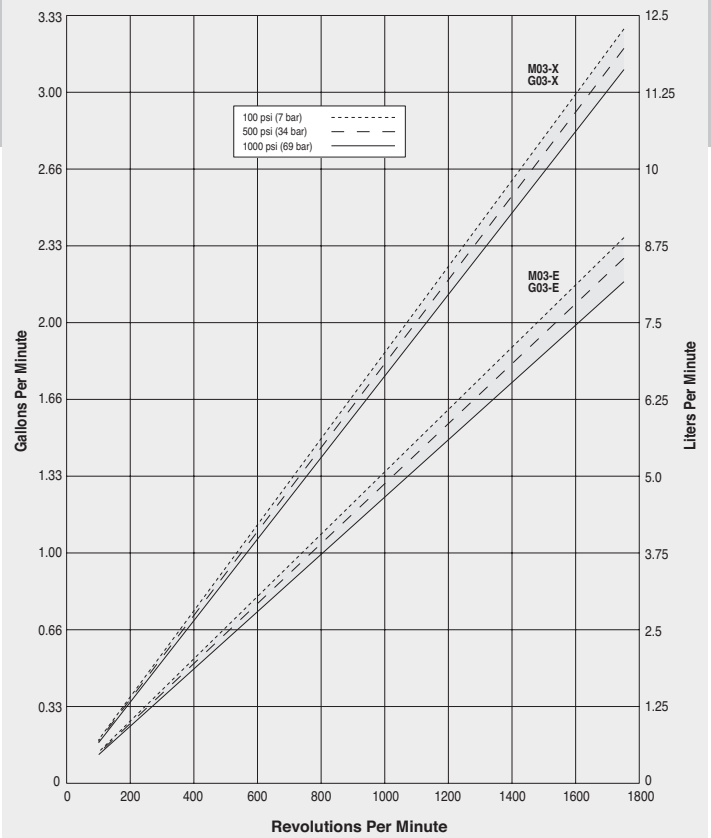
M03/G03 Mono-Block Series

Maximum Flow Rate: 3.1 gpm (11.7 l/min)
 Maximum Pressure: 1000 psi (69 bar) for Metallic Pump Heads



Mono-Block (M03/G13) close-coupled 316L Stainless Steel pump head. Also available in Brass.

Maximum Flow at Designated Pressure



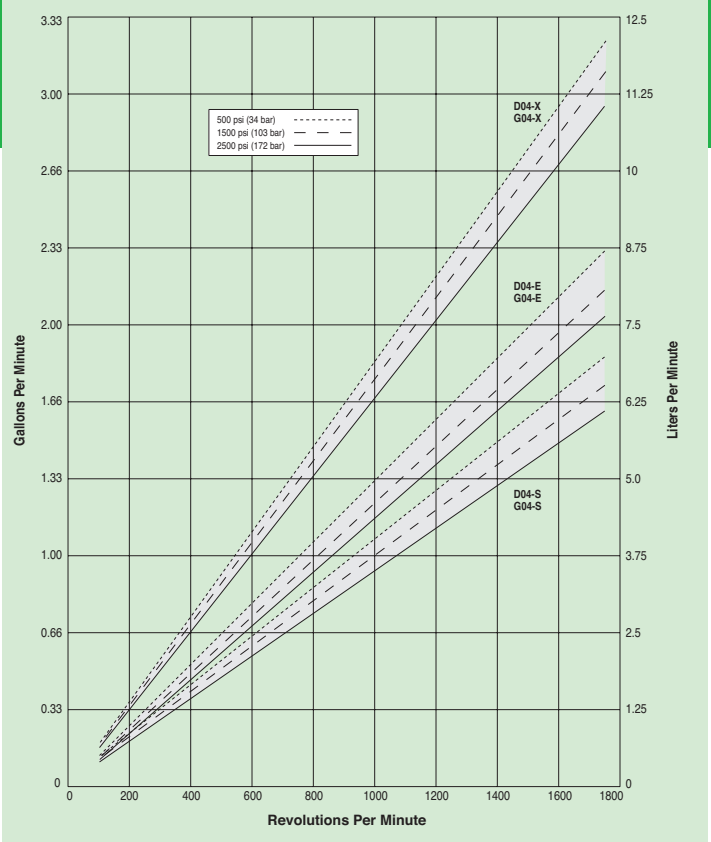
D04/G04 Series

Maximum Flow Rate: 2.9 gpm (11.2 l/min)
 Maximum Pressure: 2500 psi (172 bar) for Metallic Pump Heads



D04/G04 shaft-driven with 316L Stainless Steel pump head. Also available in Brass and 304 Stainless Steel pump heads.

Maximum Flow at Designated Pressure



D10/G10 Series

Maximum Flow Rate: 8.8 gpm (33.4 l/min)
 Maximum Pressure: 1500 psi (103 bar) for Metallic Pump Heads
 350 psi (24 bar) for Non-metallic Pump Heads

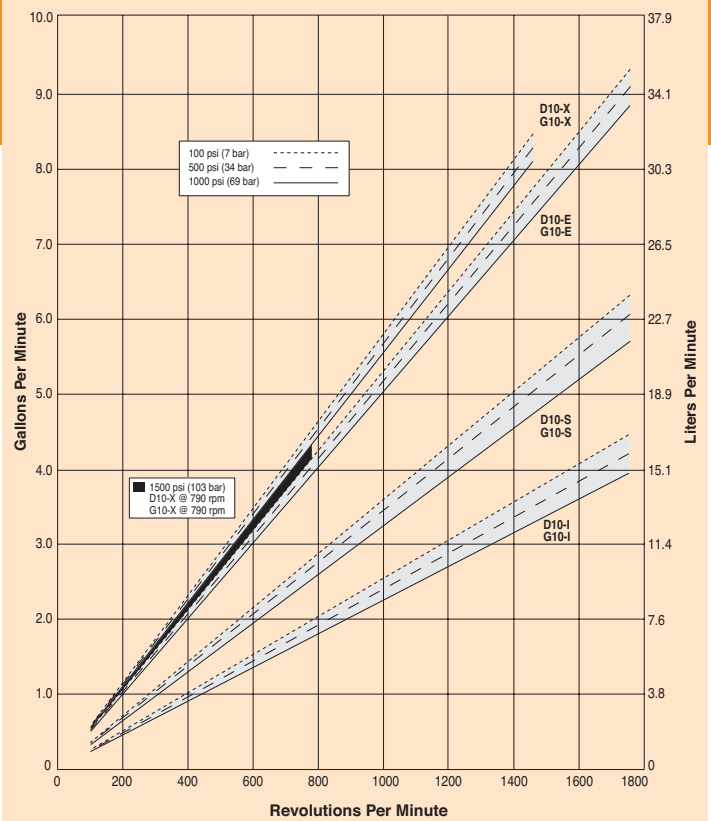


D10/G10 with Cast Iron pump head. Also available in (metallic) Brass, Duplex Alloy 2205, 316L Stainless Steel, Hastelloy CW12MW and (non-metallic) Polypropylene and PVDF pump heads.

D10/G10 with 316L Stainless Steel pump head and ANSI flanges.



Maximum Flow at Designated Pressure



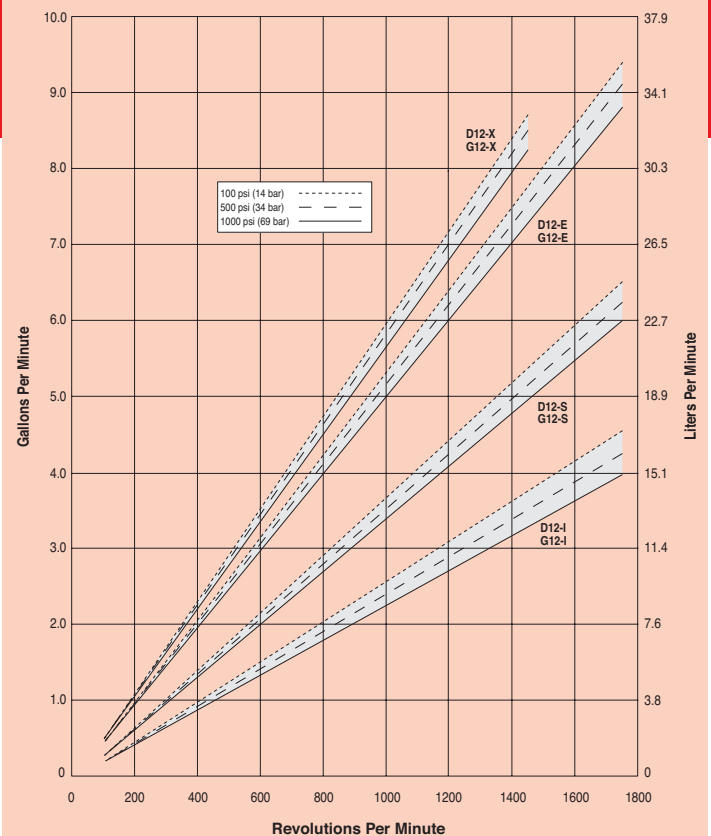
D12/G12 Series

Maximum Flow Rate: 8.8 gpm (33.4 l/min)
 Maximum Pressure: 1000 psi (69 bar) for Metallic Pump Heads



D12/G12 equipped with Model C62 Pressure Regulating Valve and Valve/Tube Accessory. Available in Brass, Cast Iron, and 316L Stainless Steel pump heads.

Maximum Flow at Designated Pressure



DI5/DI7 & GI5/GI7 Series

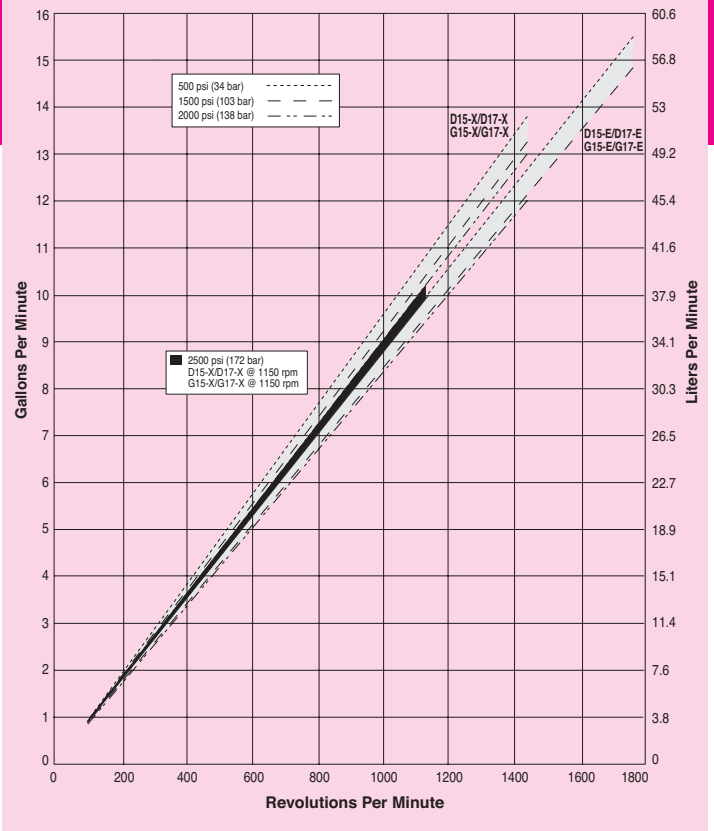
Maximum Flow Rate: 15.5 gpm (58.7 l/min)
 Maximum Pressure: 2500 psi (172 bar) for Metallic Pump Heads



DI5/GI5 for horizontal installations shown with 316L Stainless Steel pump head.

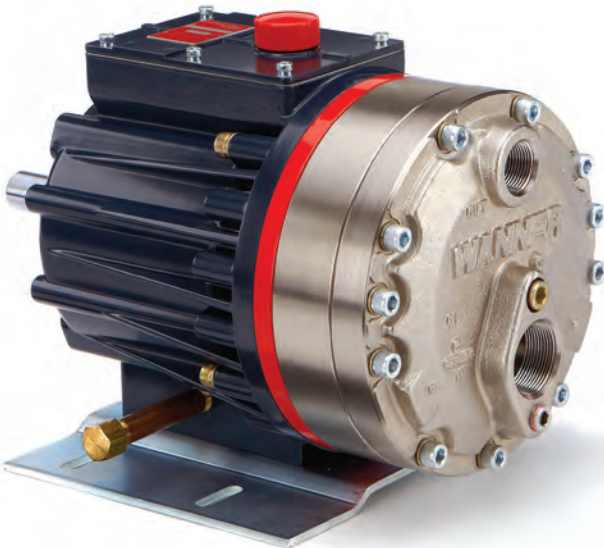
DI7/GI5 for vertical mounting (including motor adapter, base plate and oil reservoir) shown with Brass pump head.

Maximum Flow at Designated Pressure



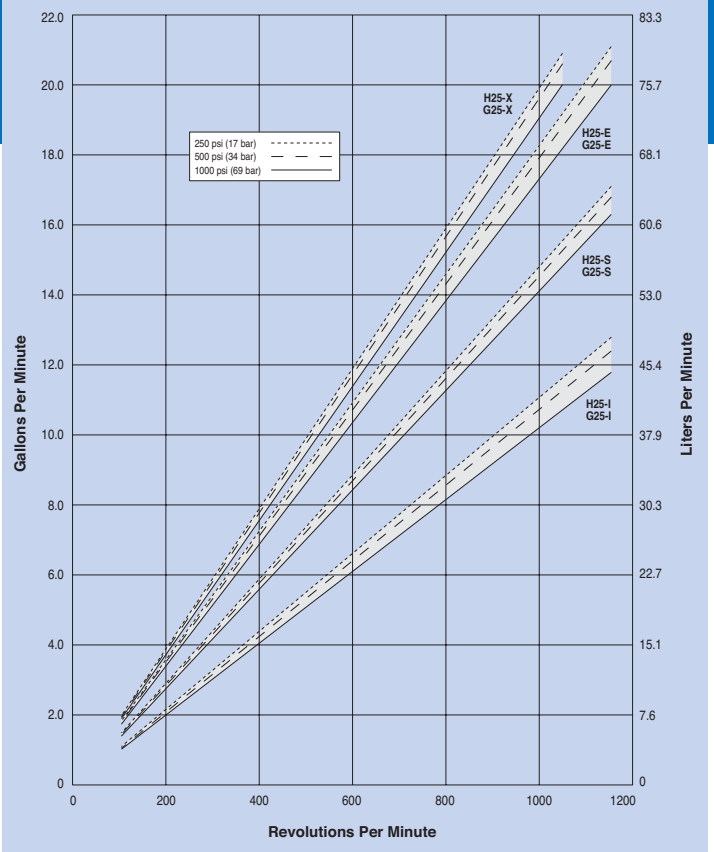
H25/G25 Series

Maximum Flow Rate: 20.0 gpm (75.9 l/min)
 Maximum Pressure: 1000 psi (69 bar) for Metallic Pump Heads
 350 psi (24 bar) for Non-metallic Pump Heads



H25/G25 with Cast Iron pump head. Also available in (metallic) Brass, Duplex Alloy 2205, 316L Stainless Steel (with ANSI flanges), 316L Stainless Steel, Hastelloy CW12MW and (non-metallic) Polypropylene and PVDF pump heads.

Maximum Flow at Designated Pressure



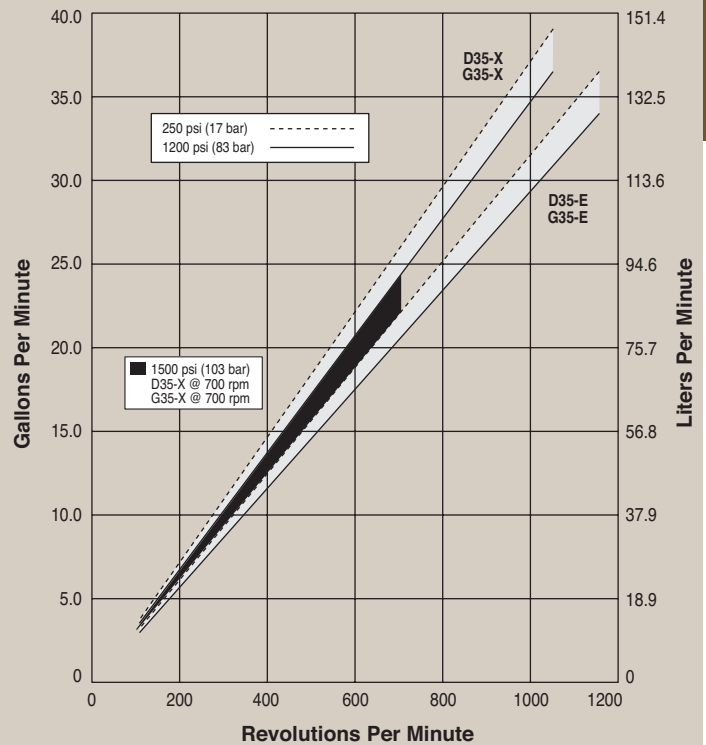
D35/G35 Series

Maximum Flow Rate: 36.5 gpm (138 l/min)
 Maximum Pressure: 1500 psi (103 bar) for Metallic Pump Heads



D35/G35 with 316L Stainless Steel pump head. Also available in Brass, Cast Iron, Duplex Alloy 2205, 316L Stainless Steel (with ANSI flanges or SAE ports) and Hastelloy CW12MW pump heads.

Maximum Flow at Designated Pressure



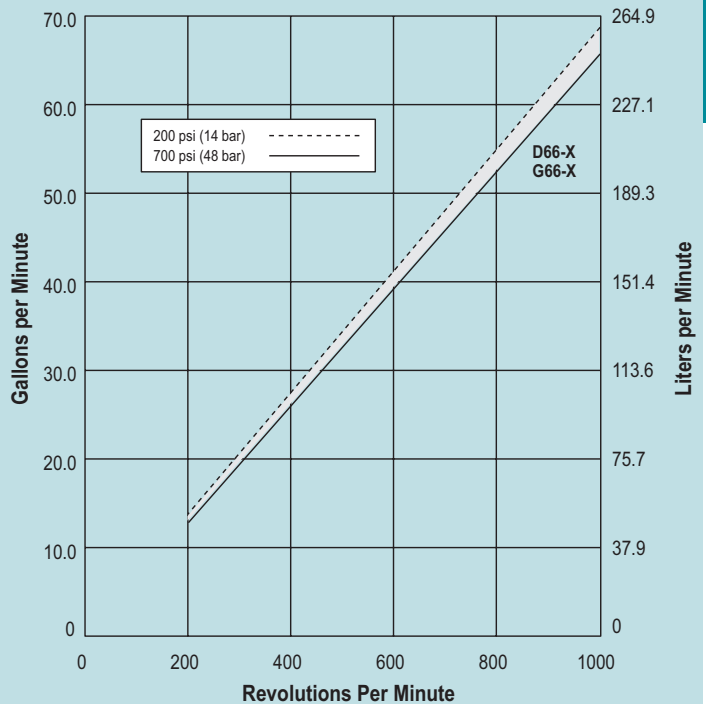
D66/G66 Series

Maximum Flow Rate: 65.7 gpm (248.7 l/min)
 Maximum Pressure: 700 psi (48 bar) for Metallic Pump Heads
 250 psi (17 bar) for Non-metallic Pump Heads



D66/G66 with Ductile Iron pump head. Also available in (metallic) Brass and 316L Stainless Steel and (non-metallic) Polypropylene pump heads.

Maximum Flow at Designated Pressure



C Series Pressure Regulating Valves

Designed for use with any positive displacement pump, Hydra-Cell C Series pressure regulating valves bypass system fluid to prevent excess system pressure. They can also be used as pressure relief valves.

Performance Advantages

- Accurate and repeatable
- Adjustable
- Immediate response
- Smooth, chatter-free bypass
- No external springs or moving parts
- Flow-through design with minimal pressure surge
- Heavy-duty construction
- Easy to service in place



C60 Series valves feature a seal-less diaphragm with a tapered plunger, making the valves ideal for high-pressure requirements and handling dirty fluids.



Tapered design of the C20 Series valves plunger.

C20 Series

For use with Hydra-Cell models D10/G10, D12/G12, H25/G25, and D35/G35.

C22 valve with Brass body (also available in 316L Stainless Steel and Hastelloy CW12MW).



C46 Series

For use with Hydra-Cell models F20/G20, F21/G21, F22/G22, M03/D03/G03/G13, and M03/G03 Mono-Block.



C46 In-line with Brass body.



C46 Off-line with Stainless Steel body (also available in Brass).

C60 Series

For use with Hydra-Cell models D04/G04, D10/G10, D12/G12, D15/D17 & G15/G17, H25/G25, and D35/G35.

C62 Seal-less valve with 316L Stainless Steel body (also available in Brass and Hastelloy C).



Hydra-Cell® Pumps Accessories and Options



C80 Series Air Bleed Valves



Pulsation Dampeners



HDD Series (horizontal direct drive) with Orange Coupling Guard, Motor, and Base



HFD Series (horizontal direct drive) with Flanged Adapter, Motor, and Base



HBD Series (horizontal belt drive) with Belt Pulley Guard, Motor, and Base



Controllers



Control Freak™ Touch-screen Metering Controller



Hydra-Oil Lubricants, Motor Adapters, Oil Reservoir Sight Bottles, Tool Kits, and Couplings



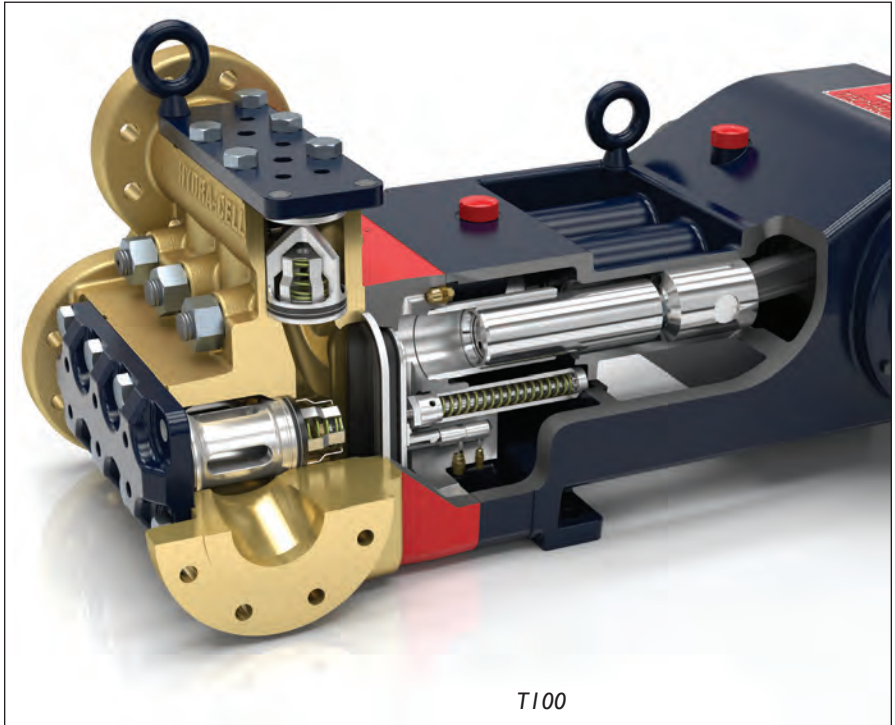
Replacement Parts Kits

Hydra-Cell® T & Q Series Design Advantages

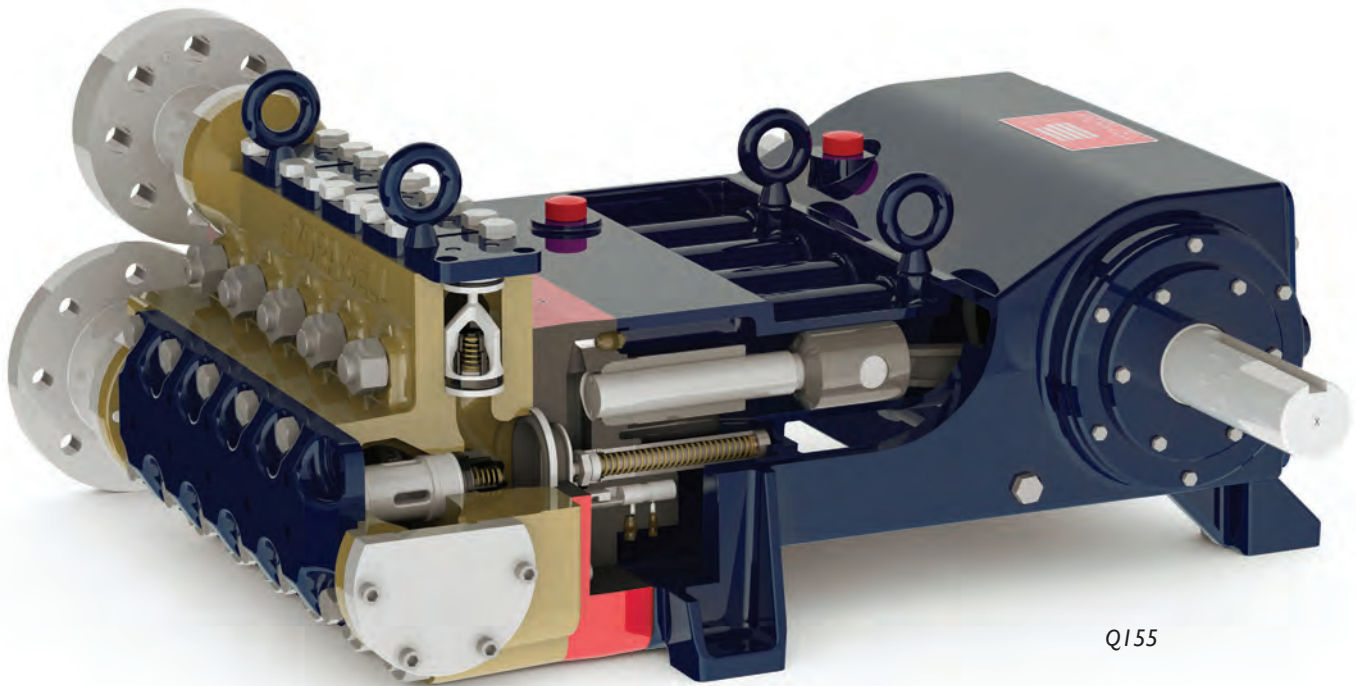
**Available
to Meet
API 674!**

Exclusive Seal-less Diaphragm Design

- Seal-less design separates the power end from the process fluid end, eliminating leaks, hazards, and the expense associated with seals and packing
- Low NPSH requirements allow for operation with a vacuum condition on the suction - positive inlet pressure is not necessary
- Can operate with a closed or blocked suction line and run dry indefinitely without damage, eliminating downtime and repair costs
- Unique diaphragm design handles more abrasives with less wear than gear, screw or plunger pumps
- Hydraulically balanced diaphragms to handle high pressures with low stress
- Provides low-pulse, linear flow due to its multiple diaphragm design
- Lower energy costs than centrifugal pumps and other pump technologies
- Rugged construction for long life with minimal maintenance
- Compact design and double-ended shaft provides a variety of installation options



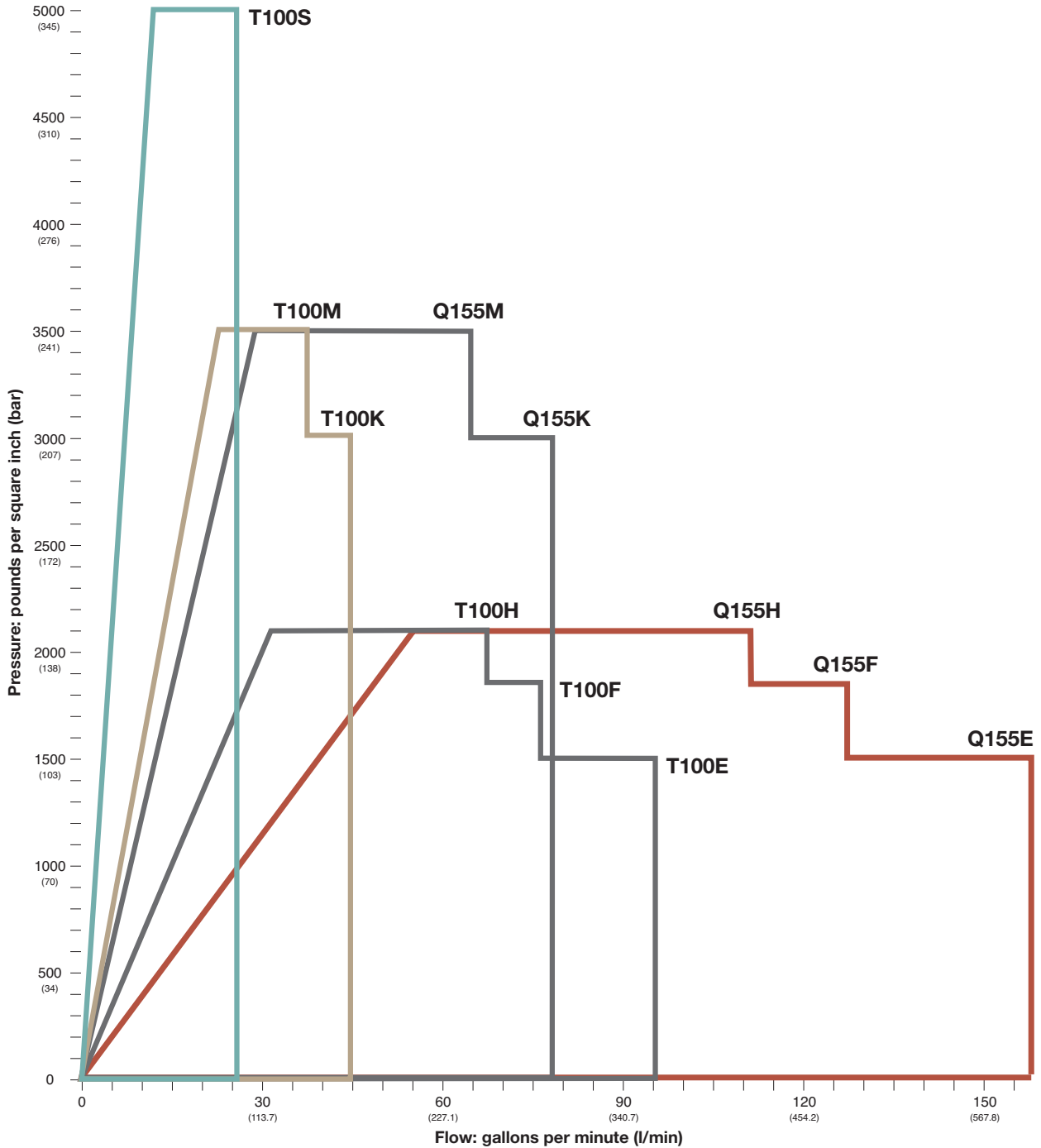
T100



Q155

Hydra-Cell® Flow Capacities and Pressure Ratings

T100 Series Triplex Pumps & Q155 Series Quintuplex Pumps



Model	Maximum Capacity			Maximum Discharge Pressure psi (bar)	Model	Maximum Capacity			Maximum Discharge Pressure psi (bar)
	gpm	l/min	BPD			gpm	l/min	BPD	
T100E	96.0	366.1	3292	1500 (103)	Q155E	157	595	5383	1500 (103)
T100F	76.5	289.6	2623	1850 (128)	Q155F	127	490	4354	1850 (128)
T100H	68.0	257.8	2332	2100 (145)	Q155H	111	421	3806	2100 (145)
T100K	45.0	170.4	1543	3000 (207)	Q155K	78	295	2674	3000 (207)
T100M	38.0	143.8	1302	3500 (241)	Q155M	65	246	2228	3500 (241)
T100S	26.0	98.4	891	5000 (345)					

Maximum Inlet Pressure for all models: 500 psi (34 bar).

Maximum Operating Temperature for all models: 180°F (82°C). Consult factory for correct component specification for temperatures above 180°F (82°C) or below 40°F (4°C)

T100 Series High-horsepower Triplex Pumps

Available
to Meet
API 674!

Low Pressure Model

Model T100E

Maximum Flow Rate: 96.0 gpm (366.1 l/min) 3292 BPD
Maximum Pressure: 1500 psi (103 bar) for Metallic Pump Heads

Model T100F

Maximum Flow Rate: 76.5 gpm (289.6 l/min) 2623 BPD
Maximum Pressure: 1850 psi (128 bar) for Metallic Pump Heads

Model T100H

Maximum Flow Rate: 68.0 gpm (257.8 l/min) 2332 BPD
Maximum Pressure: 2100 psi (145 bar) for Metallic Pump Heads

*Low-pressure model with Nickel Aluminum Bronze (NAB) pump head.
Also available in Duplex Alloy 2205, 316L Stainless Steel, and Hastelloy CX2M.*



Medium Pressure Models

Model T100K

Maximum Flow Rate: 45.0 gpm (170.4 l/min) 1543 BPD
Maximum Pressure: 3000 psi (207 bar) for Metallic Pump Heads

Model T100M

Maximum Flow Rate: 38.0 gpm (143.8 l/min) 1302 BPD
Maximum Pressure: 3500 psi (241 bar) for Metallic Pump Heads

*Medium-pressure model with Nickel Aluminum Bronze (NAB) pump head.
Also available in Duplex Alloy 2205, 316L Stainless Steel, and Hastelloy CX2M.*

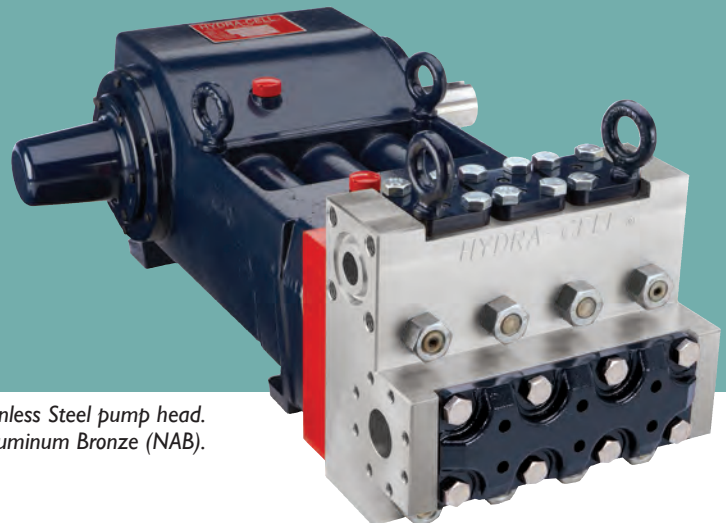


High Pressure Model

Model T100S

Maximum Flow Rate: 26.0 gpm (98.4 l/min) 891 BPD
Maximum Pressure: 5000 psi (345 bar) for Metallic Pump Heads

*High-pressure model with Stainless Steel pump head.
Also available in Nickel Aluminum Bronze (NAB).*



Q155 Series High-horsepower Quintuplex Pumps

Available to Meet API 674!

Low Pressure Models

Model Q155E

Maximum Flow Rate: 157 gpm (595 l/min) 5383 BPD
Maximum Pressure: 1500 psi (103 bar) for Metallic Pump Heads

Model Q155F

Maximum Flow Rate: 127 gpm (490 l/min) 4354 BPD
Maximum Pressure: 1850 psi (128 bar) for Metallic Pump Heads

Model Q155H

Maximum Flow Rate: 111 gpm (421 l/min) 3806 BPD
Maximum Pressure: 2100 psi (145 bar) for Metallic Pump Heads



Low-pressure model with 316L Stainless Steel pump head. Also available in Nickel Aluminum Bronze (NAB), Duplex Alloy 2205, and Hastelloy CX2M.

Medium Pressure Models

Model Q155K

Maximum Flow Rate: 78 gpm (295 l/min) 2674 BPD
Maximum Pressure: 3000 psi (207 bar) for Metallic Pump Heads

Model Q155M

Maximum Flow Rate: 65 gpm (246 l/min) 2228 BPD
Maximum Pressure: 3500 psi (241 bar) for Metallic Pump Heads



Medium-pressure model with Nickel Aluminum Bronze (NAB) pump head. Also available in Duplex Alloy 2205, 316L Stainless Steel, and Hastelloy CX2M.

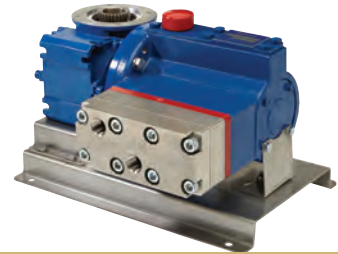
Hydra-Cell® P Series Metering Pumps



P100



P200



P300



P400

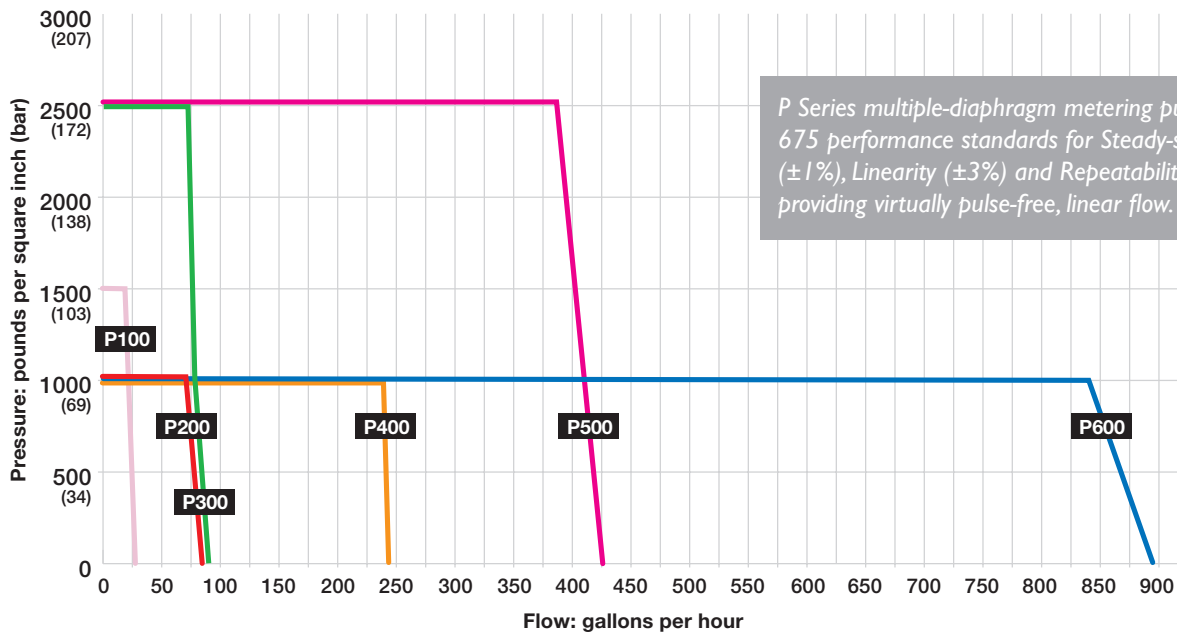


P500



P600

P Series Flow Capacities and Pressure Ratings



Model ¹	Maximum Capacity gph (lph) ²	Maximum Discharge Pressure psi (bar)		Maximum Operating Temperature F (C) ⁴		Maximum Inlet Pressure psi (bar)
		Non-metallic ³	Metallic	Non-metallic	Metallic	
P100	27.0 (85.0)	350 (24)	1500 (103)	140° (60°)	250° (121°)	250 (17)
P200	81.0 (255.4)	350 (24)	1000 (69)	140° (60°)	250° (121°)	250 (17)
P300	81.4 (256.8)	N/A	2500 (172)	N/A	250° (121°)	500 (34)
P400	242.8 (765.9)	350 (24)	1000 (69)	140° (60°)	250° (121°)	250 (17)
P500	425.9 (1343.5)	N/A	2500 (172)	N/A	250° (121°)	500 (34)
P600	890.3 (2808.0)	350 (24)	1000 (69)	140° (60°)	250° (121°)	250 (17)

¹ Ratings are for X-cam design.

² Flow capacities are based on pump speeds of 3600 rpm for gallons per hour (gph) and 3000 rpm for liters per hour (lph).

³ 350 psi (24 bar) maximum with PVDF liquid end; 250 psi (17 bar) maximum with Polypropylene liquid end.

⁴ Consult factory for correct component selection for temperatures from 160°F (71°C) to 250°F (121°C).

Hydra-Cell® MT8 Low-flow Triplex Metering Pump

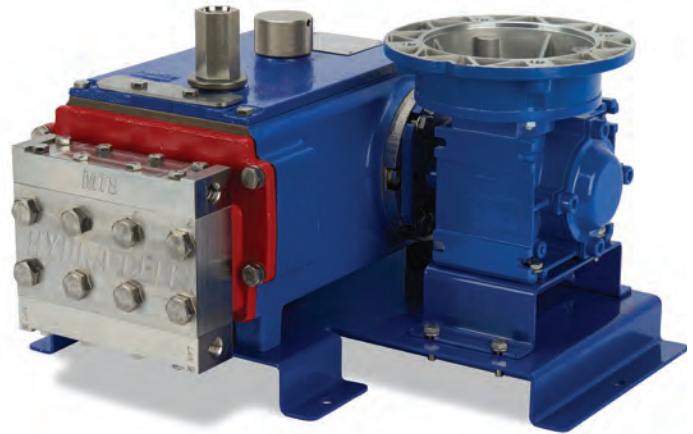
This groundbreaking triplex metering pump is the latest addition to the Hydra-Cell Metering Solutions product line. Ideal for low-flow requirements, at high pressures, it features a triplex-diaphragm design to provide linear, virtually pulse-free flow without the need for expensive pulsation dampeners.

The MT8 exceeds API 675 performance standards for Steady-State Accuracy ($\pm 1\%$), Linearity ($\pm 3\%$) and Repeatability ($\pm 3\%$).

Hydraulically-balanced and actuated, the pump features an integral relief valve for added safety and cartridge check valves for ease of maintenance.

The MT8 is currently available with 316 SST liquid end and check valves plus PTFE diaphragms.

Minimum Flow Rate: 0.06 gph (0.227 lph)
 Maximum Flow Rate: 8.00 gph (30.28 lph)
 Maximum Pressure: 3500 psi (241 bar) for Metallic Pump Heads



With its multiple-diaphragm design, the MT8 provides virtually pulse-free flow.

Hydra-Cell® S Series Metering Pumps

The S Series pumps provide an economical choice for chemical injection in metering applications.

Solenoid driven, the S pumps feature a wide discharge-volume range, extensive choice of liquid end materials, various control functions, and a wide voltage range.

Materials of construction choices and versatile design options result in pumps perfected for specific applications including general chemicals, high-pressure boiler, high-viscosity fluids, outgassing and more.

Flow Rate	SM Series Models	SP/ST/SA Series Models
30 ml/min*	SM030	SP/ST/SA-030
60 ml/min	SM060	SP/ST/SA-060
100 ml/min	SM100	SP/ST/SA-100
220 ml/min	N/A	SP/ST/SA-200
With Relief Valve		
30 ml/min*	SM03R	SP/ST/SA-03R
60 ml/min	SM06R	SP/ST/SA-06R
100 ml/min	SM10R	SP/ST/SA-10R

*High-pressure models have maximum flow rates of either 25 or 28 ml/min. Consult S Series catalog for more information.



SM030CAS manual control with stroke speed dial. Model shown features Acrylic pump head with automatic air release joint for outgassing fluids.



SP060HVS digital with pulse-input control. Model shown features PVC pump head for high-viscosity fluids.



ST03RPES digital with pulse-input control and timer. ST models offer control options by interval, day, and week.



SA03RPES digital with pulse-input and analog-input. Model shown features an integral relief valve to release abnormal pressure automatically.

Hydra-Cell®

Seal-less Pumps

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