



# Hydra-Cell<sup>®</sup>

Seal-less Pump Technology

High Reliability Pumps for  
Mining, Tunnelling and Quarrying



# Hydra-Cell® Mining, Tunnelling and Quarrying Pumps –

Hydra-Cell® pumps are used in a wide variety of applications, both below and above ground:



**Explosive Injection**  
Charging liquid explosives into blast holes



## **Drill Head Cooling**

Cooling the picks on coal cutters and tunnelling machines while reducing dust generation



## **Borehole Stabilisation**

Injection of bore hole stabilising materials such as bentonite



## **Dewatering**

Continuous removal of contaminated, particle laden ground water



# High reliability, seal-less and energy efficient design



## **Dust Suppression**

Pumping water or latex emulsions for airless spray



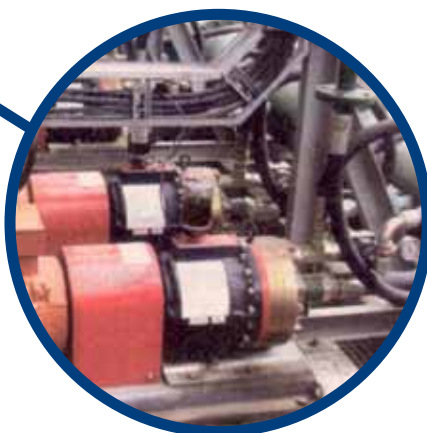
## **Conveyor Cleaning**

Continuous duty 24/7 in high pressure jet cleaning



## **Grout Injection**

Pumping abrasive slurries



## **Seal Flushing**

Protecting large slurry pumps from seal damage



## **Hazardous Chemical Pumping**

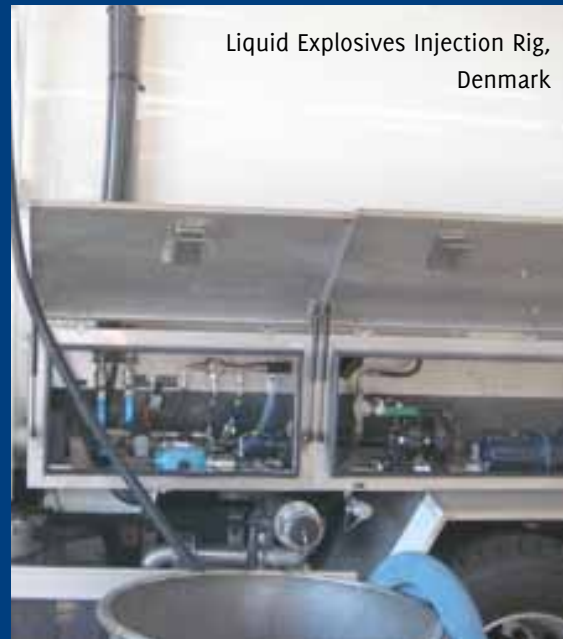
e.g. metering cyanide solution in gold extraction



# Hydra-Cell®

## Compact seal-less pumps for long life and high reliability

With over 35 years service in extraction industries, Hydra-Cell® pumps have proven performance and unmatched durability in difficult applications that destroy lesser pumps.



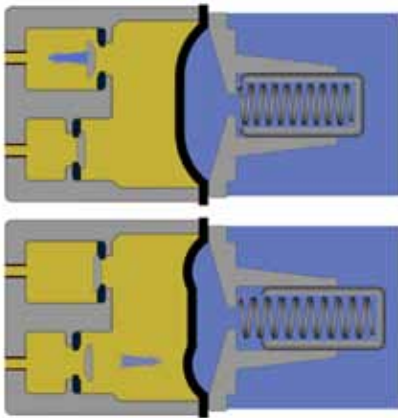
| Typical Chemicals and Liquids Pumped                                                                                      | Challenges in Pumping                                                                                                                                                                                                                                                   | The Hydra-Cell® Advantage                                                                                                                                                                           |
|---------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Aggressive Chemicals...</b><br>cyanide solutions, sulphur dioxide, acid mine drainage, acid rock drainage and leachate | <ul style="list-style-type: none"> <li>Corrosive... can contain solubilised impurities that form acidic solutions</li> <li>Containment of potentially harmful liquids and vapours</li> </ul>                                                                            | <ul style="list-style-type: none"> <li>Corrosion resistant liquid head materials available</li> <li>Seal-less pumping chamber. No dynamic seals to leak. Pumped liquid is 100% contained</li> </ul> |
| <b>Drill Head Cooling...</b><br>water and drilling fluids                                                                 | <ul style="list-style-type: none"> <li>Non-lubricating and aggressive</li> </ul>                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>No dynamic seals that need to be lubricated by the pumped liquid</li> </ul>                                                                                  |
|                                                                                                                           | <ul style="list-style-type: none"> <li>Abrasive... water contains particles that can destroy dynamic seals in other pumps</li> </ul>                                                                                                                                    | <ul style="list-style-type: none"> <li>No dynamic seals to wear</li> <li>Pumps abrasives successfully</li> </ul>                                                                                    |
| <b>Dust Suppression Chemical Binders...</b><br>polymer blends including latex, acrylic, vinyl, resins and process water   | <ul style="list-style-type: none"> <li>May shear thin easily, breaking down the chemistry</li> <li>May flocculate if exposed to excessive temperatures</li> <li>Premature failure of dynamic seals on other pump types in high pressure misting applications</li> </ul> | <ul style="list-style-type: none"> <li>Low shear pumping action</li> <li>Minimal heat transfer from the pump to the process liquid</li> <li>No dynamic seals to wear</li> </ul>                     |
| <b>Grey Water...</b><br>cleaning processes, mine dewatering and gland seal flushing                                       | <ul style="list-style-type: none"> <li>Non-lubricating and aggressive</li> </ul>                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>No dynamic seals that need to be lubricated by the pumped liquid</li> </ul>                                                                                  |
|                                                                                                                           | <ul style="list-style-type: none"> <li>Abrasive... water contains particles that can destroy dynamic seals in other pumps</li> </ul>                                                                                                                                    | <ul style="list-style-type: none"> <li>No dynamic seals to wear</li> <li>Pumps abrasives successfully</li> </ul>                                                                                    |
|                                                                                                                           | <ul style="list-style-type: none"> <li>Dry running operation causes other pump types to fail instantly / prematurely</li> </ul>                                                                                                                                         | <ul style="list-style-type: none"> <li>Can run dry indefinitely</li> </ul>                                                                                                                          |
| <b>Grouting Slurries...</b><br>bentonite, cements                                                                         | <ul style="list-style-type: none"> <li>Abrasive slurries cause wear to dynamic seals</li> </ul>                                                                                                                                                                         | <ul style="list-style-type: none"> <li>Seal-less design pumps abrasives and slurries successfully</li> </ul>                                                                                        |

# Hydra-Cell® advantages

## High reliability... low maintenance

Having **No Dynamic Seals** means high reliability.

- Run dry indefinitely
- No seals to wear
- No seals to leak any potentially harmful gases such as H<sub>2</sub>S
- No tight tolerances that could be susceptible to corrosion or damaged by solid particles
- Pumps liquids with viscosities from 0.01 to 6000 cSt
- Pumps non-lubricating liquids reliably
- Pumps liquids with up to 500µm dia. particulate matter
- No 'drop-off' in performance due to seal wear



## Unique horizontal check valves

- Efficient pumping of liquids with solids such as grouting slurries and sour/recycled water containing particulate matter.



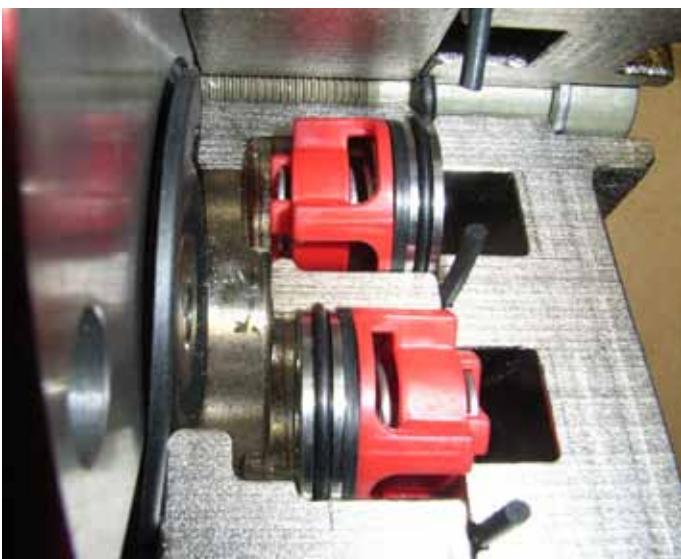
## Compact design

For metering and dosing applications Hydra-Cell®'s compact design gives real advantages.

1. Space saving
2. Easier servicing
3. Lower initial purchase cost

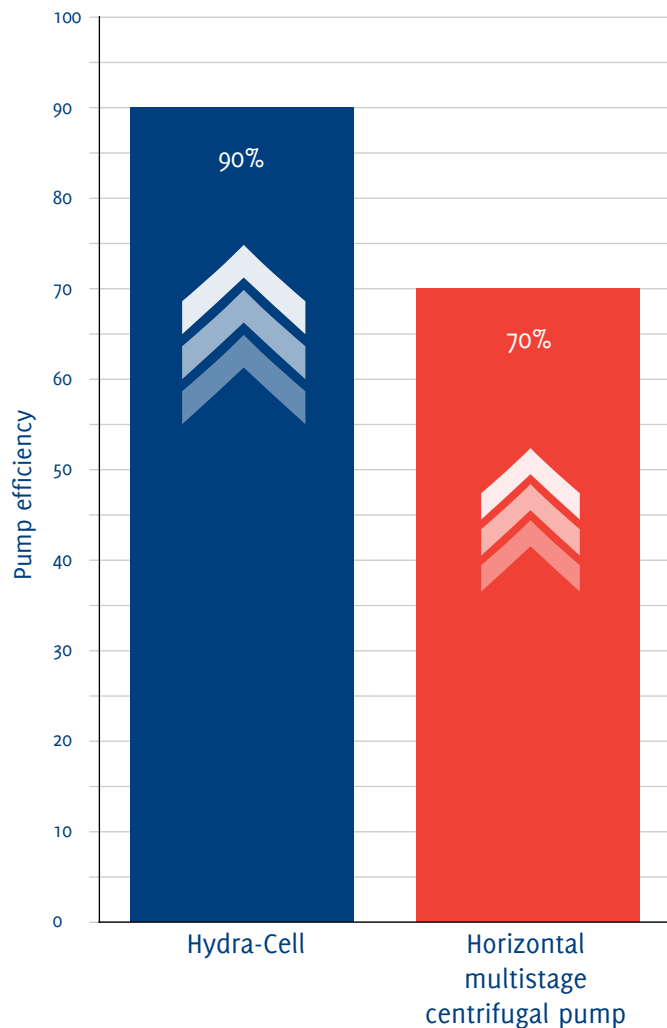
## Simple robust design

- Designed and built for long service life
- Simple maintenance with no special tool requirements
- No critical tolerances to be aware of during maintenance
- On-site repair possible, no costly requirement for removal and transportation to workshops.



## Energy saving

- Very economical to run compared with centrifugal pumps
- Smaller, more compact motors required



## Explosion Proof

- All Hydra-Cell® G-series pumps can be supplied with ATEX approval for use in potentially explosive environments.

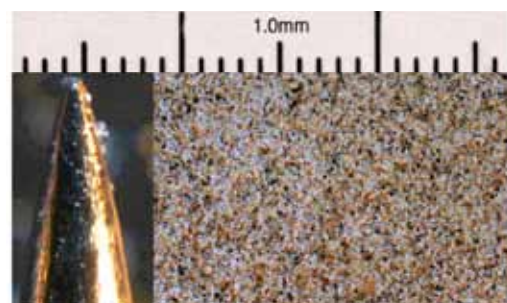
## Low shear pumping action

- Due to the gentle pumping action, shear sensitive liquids, especially polymers, can be pumped without breaking down the long chain structures within the liquids.

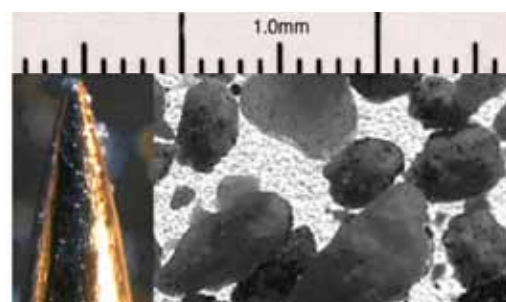


## Minimal filtration

- No mechanical seals or tight tolerances that need protection by fine filtration. Hydra-Cell® pumps can handle particles up to 1mm, depending on model. Also liquids with non-dissolved solids up to 40%, depending on particle distribution.
- Unaffected by lapses in filtration reducing costly pump repairs
- Reduced filter maintenance & management, only requiring strainers of 200 to 400 microns.
- Often it is the sub 20 microns particles which cause seal & packing maintenance for pumps with dynamic seals.



25 Micron particles

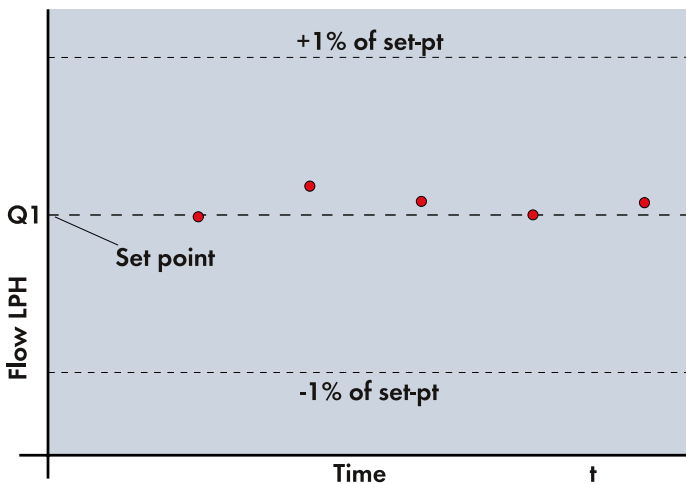


500 Micron particles

# Ultimate Controllability for Metering and Dosing

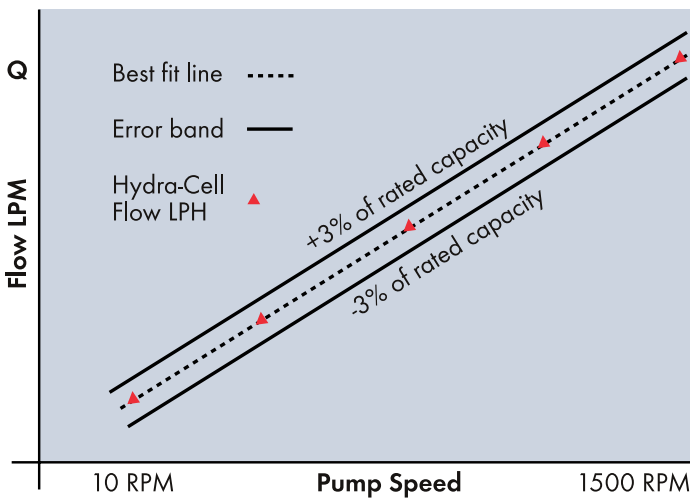
Metering and dosing performance better than API675.

- Steady state accuracy better than  $\pm 1\%$



This is a measure of how well a set flow rate can be maintained.

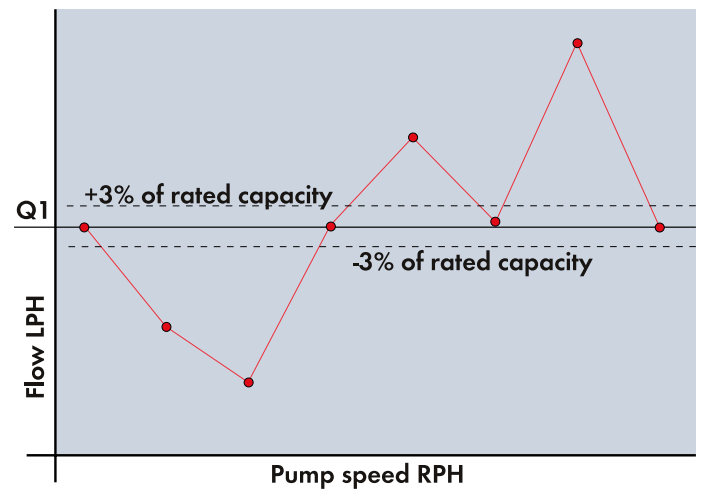
- Linearity (Pump shaft speed/flow rate relationship) better than  $\pm 3\%$



This is a measure of how accurate the flow rate can be set by changing and setting pump speed.



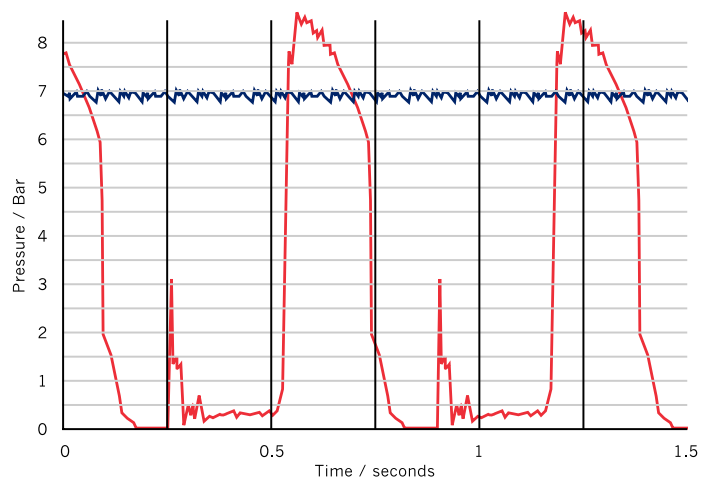
- Repeatability better than  $\pm 3\%$



This is a measure of how accurate the flow rate can be controlled when varying the pump shaft rpm away from a set point and returning to that set point.

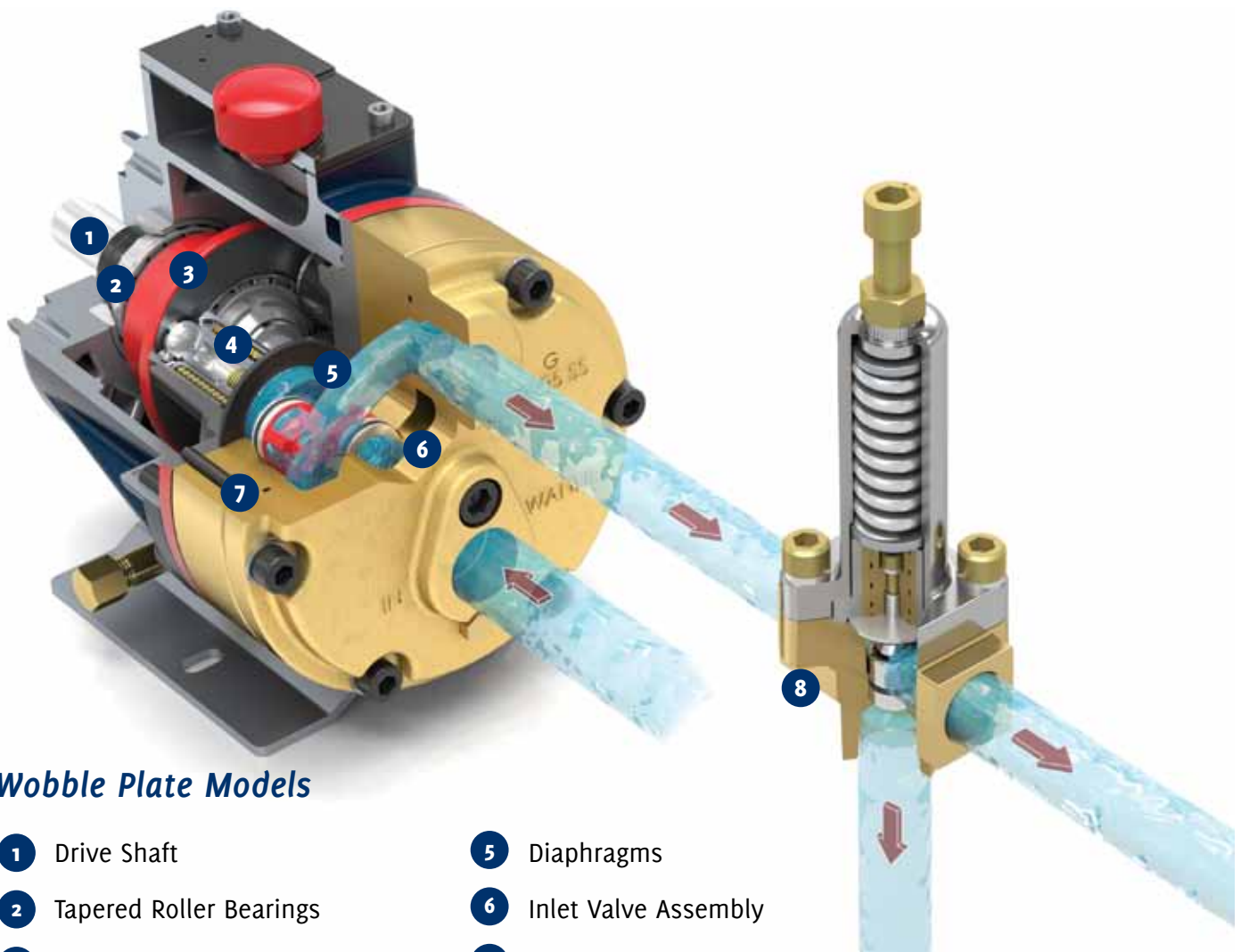
## Virtually pulse-less flow for accurate metering

- Pulsation dampeners may not be required for most Hydra-Cell® pumps, thus reducing the risk of pipe strain
- More accurate control of flow rate and efficient use of chemicals.
- Significantly less inlet acceleration head issues than traditional single diaphragm metering pumps, especially with viscous liquids.



Hydra-Cell® pumps —————  
Leading brand metering pump ————

# Hydra-Cell® Principles of Operation - Wobble Plate



## Wobble Plate Models

- |                                |                                 |
|--------------------------------|---------------------------------|
| 1 Drive Shaft                  | 5 Diaphragms                    |
| 2 Tapered Roller Bearings      | 6 Inlet Valve Assembly          |
| 3 Fixed-angle Cam/Wobble Plate | 7 Discharge Valve Assembly      |
| 4 Hydraulic Cells (Patented)   | 8 C62 Pressure Regulating Valve |

## Reliable, Efficient Pumping Action

The drive shaft (1) is rigidly held in the pump housing by a large tapered roller bearing (2) at the rear of the shaft and a smaller bearing at the front of the shaft. Set between another pair of large bearings is a fixed-angle cam or Wobble Plate (3).

As the drive shaft turns, the swash plate moves, oscillating forward and back (converting axial motion into linear motion). The complete pumping mechanism is submerged in a lubricating oil bath.

The hydraulic cell (4) is moved sequentially by the Wobble plate and filled with oil on their rearward stroke. A ball check valve in the bottom of the piston ensures that the cell remains full of oil on its forward stroke.

The oil held in the Hydra-Cell balances the back side of the diaphragms (5) and causes the diaphragms to flex forward and back as the Wobble plate moves. This provides the pumping action.

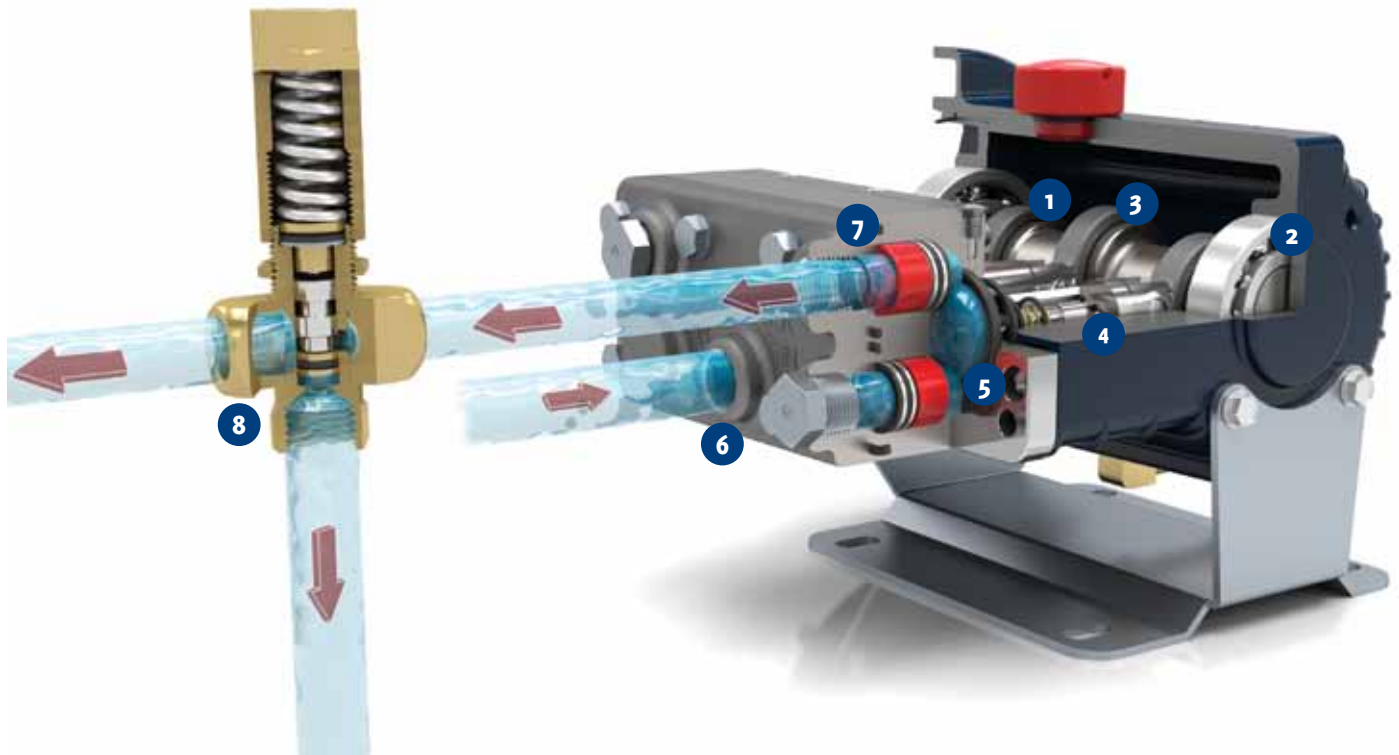
To provide long trouble-free diaphragm life, Hydra-Cell hydraulically balances the diaphragm over the complete

pressure range of the pump. The diaphragm faces only a 0.21 bar pressure differential regardless of the pressure at which liquid is being delivered - up to 172 bar on standard Hydra-Cell models and Hydra-Cell metering pumps.

Hydra-Cell Wobble plate pumps can have up to five diaphragms, and each diaphragm has its own pumping chamber that contains an inlet and discharge self-aligning spring loaded check valve assembly (6). As the diaphragms move back, liquid enters the pump through a common inlet and passes through one of the inlet check valves. On the forward stroke, the diaphragm forces the liquid out the discharge check valve (7) and through the manifold common outlet. Equally spaced from one another, the diaphragms operate sequentially to provide consistent, low-pulse flow.

A Hydra-Cell C62 pressure regulating valve (8) is typically installed on the discharge side of the pump to regulate the pressure of downstream process or equipment.

# Hydra-Cell® Principles of Operation - Crankshaft



## Crank-shaft Models

- |                              |                                           |
|------------------------------|-------------------------------------------|
| 1 Drive Shaft                | 5 Diaphragms                              |
| 2 Precision Ball Bearings    | 6 Inlet Valve Assembly                    |
| 3 Connecting Rods            | 7 Discharge Valve Assembly                |
| 4 Hydraulic Cells (Patented) | 8 C46 Pressure Regulating Valve (In-line) |

## Reliable, Efficient Pumping Action

The drive shaft (1) is supported in position by two precision ball bearings (2) positioned at either end of the shaft. Located between these bearings are either one or three cam shaft lobes with connecting rods (3) that are hardened, precision ground, and polished. Maintaining a high level of quality on the cam lobes and connecting rod surfaces ensures proper lubrication and reduced operating temperatures in the hydraulic end of the pump.

As the drive shaft turns, each cam actuates the attached connecting rod that is pinned into position at the end of each hydraulic piston. This action moves the piston forward and backward, converting the axial motion into linear pumping motion. The complete pumping mechanism is submerged in a lubricating oil bath.

Each piston contains a patented hydraulic cell (4) that is moved sequentially by the crank-shaft. The innovative and proprietary Hydra-Cell maintains the precise balance of oil behind the diaphragm (5) regardless of the operating conditions of the pump. The oil in Hydra-Cell is pressurized on the forward stroke of the piston causing the diaphragm to flex,

which drives the pumping action. The oil held in the Hydra-Cell balances the diaphragm against the liquid being pumped, maintaining no more than a 0.21 bar differential regardless of the pressure at which the liquid is being delivered - up to 172 bar on standard Hydra-Cell models and Hydra-Cell metering pumps.

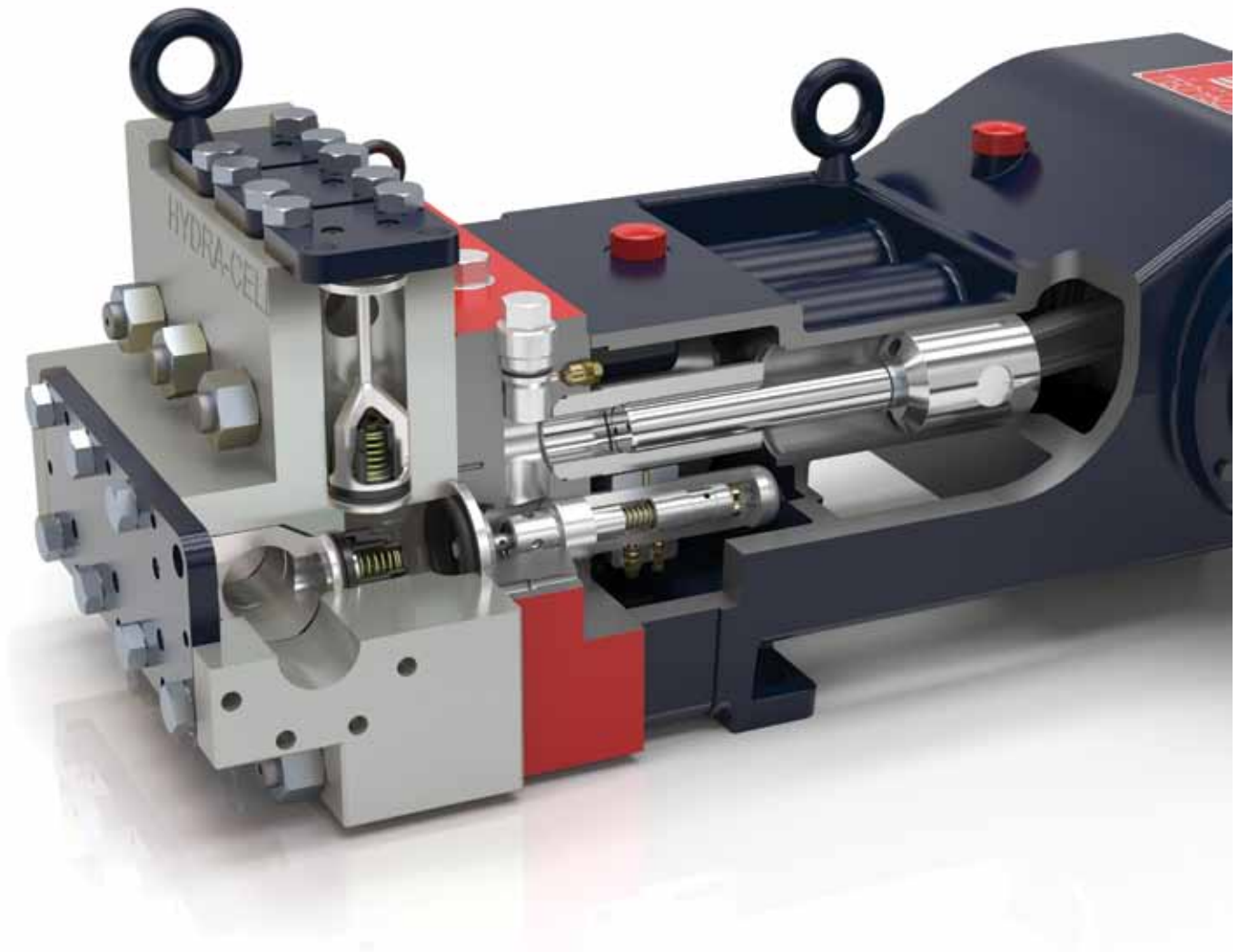
Hydra-Cell crank-shaft pumps can have up to three diaphragms, and each diaphragm has its own pumping chamber that contains an inlet and discharge self-aligning spring loaded check valve assembly (6). As the diaphragms move back, liquid enters the pump through a common inlet and passes through one of the inlet check valves. On the forward stroke, the diaphragm forces the liquid out of the discharge check valve (7) and through the manifold common outlet. Equally spaced from one another, the diaphragms operate sequentially to provide consistent, low-pulse flow.

A Hydra-Cell C46 pressure regulating valve (8) is typically installed on the discharge side of the pump to regulate the pressure of downstream process or equipment.

# Hydra-Cell® Principles of Operation - T Series

*API 674 option available*

## Exclusive Seal-less Diaphragm Design



- Seal-less design separates the power end from the process liquid 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 suction 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
- Hydra-Cell T-Series pumps can be configured to meet API 674 standards – consult factory for details

*Hydra-Cell T80 Series pumps received a “Spotlight on New Technology” award from the Offshore Technology Conference.*



# Hydra-Cell® Control Options

## Electronic Control

- ATEX Dust Zone 21 (Ex tb III C T125c Db)
- IP55 Standard
- Flow adjustment scale via hand-wheel



## Control Freak

- Multiple Variable Frequency Drive (VFD) options
- Enables programming for flow rate or totalisation
- Option available to control multiple pumps with one Hydra-Cell “Control Freak”



## Mechanical Adjustment

- ATEX Zone 1
- Linear fine adjustment scale on hand-wheel
- High reliability due to frictionless design



# Hydra-Cell®

## Materials of Construction

As part of our “Mass Customisation” philosophy, every Hydra-Cell pump is built with manifolds, elastomeric materials,

and valve assemblies using construction materials specified by the customer. Hydra-Cell distributors and factory representatives are readily available to assist customers in selecting the materials best suited to the process application. (The range of material choices depends on each pump model – for example, models designed to operate at higher pressures are available with metallic pump heads only.)

### Manifolds

Manifolds for Hydra-Cell pumps are available in a variety of materials to suit your process application. They are easy to replace and interchangeable to accommodate different liquids processed by the same pump. Special manifolds with a 2:1 dosing ratio are also available. (Consult factory.)

### Non-metallic Pump Heads

Non-metallic pump heads are often used when a corrosive or aggressive liquid is being processed at lower pressures.

- Polypropylene
- PVDF

### Metallic Pump Heads

Metallic pump heads can handle higher operating pressures. Hastelloy CW12MW or Stainless Steel is also selected for corrosion resistance and other properties.

- Brass
- Bronze
- Cast Iron (Nickel-plated)
- Duplex Alloy 2205
- Super Duplex Alloy 2507
- Hastelloy CW12MW
- 304 Stainless Steel
- 316L Stainless Steel



### Diaphragms and O-rings

Diaphragms and corresponding o-rings are available in several elastomeric materials.

- Aflas (used with PTFE O-ring)
- Butyl
- Buna-N
- EPDM (requires EPDM-compatible oil)
- FFKM
- FKM
- Neoprene
- PTFE



## Valve Springs

- Elgiloy (Exceeds SST grade 316L)
- Hastelloy CW12MW
- 17-7 PH Stainless Steel
- 316L Stainless Steel

## Valve Spring Retainers

- Celcon
- Hastelloy CW12MW
- Nylon (Zytel)
- Polypropylene
- PVDF
- 17-7 PH Stainless Steel

## Valve Materials

Hydra-Cell valve assemblies (seats, valves, springs, and retainers) are available in a variety of materials to suit your process application.

### Valve Seats

- Ceramic
- Hastelloy CW12MW
- Nitronic 50
- Tungsten Carbide
- 17-4 PH Stainless Steel
- 316L Stainless Steel

### Valves

- Ceramic
- Hastelloy CW12MW
- Nitronic 50
- Tungsten Carbide
- 17-4 PH Stainless Steel



## Registered trademarks of materials:

|                   |                                           |
|-------------------|-------------------------------------------|
| Aflas®            | Asahi Glass Co., Ltd.                     |
| Buna®-N (Nitrile) | E.I. Du Pont de Nemours and Company, Inc. |
| Celcon®           | Celanese Company                          |
| Elgiloy®          | Elgiloy Limited Partnership               |
| Hastelloy® CW12MW | Haynes International, Inc.                |
| Kynar® (PVDF)     | Arkema, Inc.                              |
| Mesamoll®         | Lanxess Deutschland GmbH                  |
| Neoprene®         | E.I. Du Pont de Nemours and Company, Inc. |
| Nitronic® 50      | AK Steel Corporation                      |
| Teflon® (PTFE)    | E.I. Du Pont de Nemours and Company, Inc. |
| Viton® (FKM)      | DuPont Performance Elastomers, LLC        |
| Zytel® (Nylon)    | E.I. Du Pont de Nemours and Company, Inc. |

# Hydra-Cell® S Series Solenoid 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           |
| 200 ml/min               | N/A              | SP/ST/SA-200           |
| <b>With Relief Valve</b> |                  |                        |
| 30 ml/min                | SM03R            | SP/ST/SA-03R           |
| 60 ml/min                | SM06R            | SP/ST/SA-06R           |
| 100 ml/min               | SM10R            | SP/ST/SA-10R           |



SM030CAS manual control with stroke speed dial.



SP060HVS digital with pulse-in control.



ST03RPES digital with pulse-in control and timer.



SA03RPES digital with pulse-in and analog-in.

## “Eco-friendly” Mode Reduces Power Consumption up to 55%

Unlike conventional pumps that are always turned on for a specific time period regardless of the discharge pressure, S Series “Eco-friendly” pumps with pulse control automatically cut the power-on time in accordance with the discharge pressure.

The “Eco-friendly” mode of SP/ST/SA models always monitors operation conditions and automatically shortens the power-on time during low-pressure operation in order to reduce power consumption and operating costs.

## Safety Features to Handle Abnormal Pressure

**Safe Mode** - liquid transfer force is controlled during no-discharge operation to prevent abnormal pressure buildup. (Not available for SP/ST/SA-200 models or for boiler and high-pressure applications.)

**Integral Relief Valve** - releases abnormal pressure automatically if the pressure exceeds the set value. (Not available for high-viscosity and high-pressure applications.)

**Abnormal Pressure Sensor** - alarm sounds if abnormal pressure builds up due to clogged pipes or if the discharge valve is closed. (Available with SP/ST/SA models only.)

# S Series Components and Accessories to Enhance System Performance

## Double-ball Check Valve

Controls valve opening and closing speeds to help ensure metering accuracy and reduce the possibility of water hammer.

## Anti-siphon Check Valve

Prevents clogging at the injection point and also aids in priming.



## Flow Checker

Resistant to acids and alkalis to allow the injection operation of the pump to be verified at low cost.



## Foot Valve

Designed to prevent backflow into chemical injection systems.



## Degassing Joint

Separates absorbed air bubbles from the liquid to prevent air bubbles from entering the pump head.



## Integral Relief Valve

Safety valve that automatically releases excess pressure that builds up inside the discharge side pipes. This can occur due to clogging of the pipes or if the discharge valve is closed.



## Solution Tanks

For large-capacity chemical injection. Special features include a float switch that sounds an alarm when it is time to refill the tank, and a drain valve that drains excess moisture from the system.



30L (7.9 gal)

50L (13.2 gal)

120L (31.7 gal)

## Spare Parts Kits

Spare parts kits to help extend service life.



SM Series Spare Parts Kit

SP/SA/ST Series Spare Parts Kit

## Hydra-Cell G Series Seal-less Pumps



## Hydra-Cell T Series Seal-less Pumps



## Hydra-Cell Q Series Seal-less Pumps

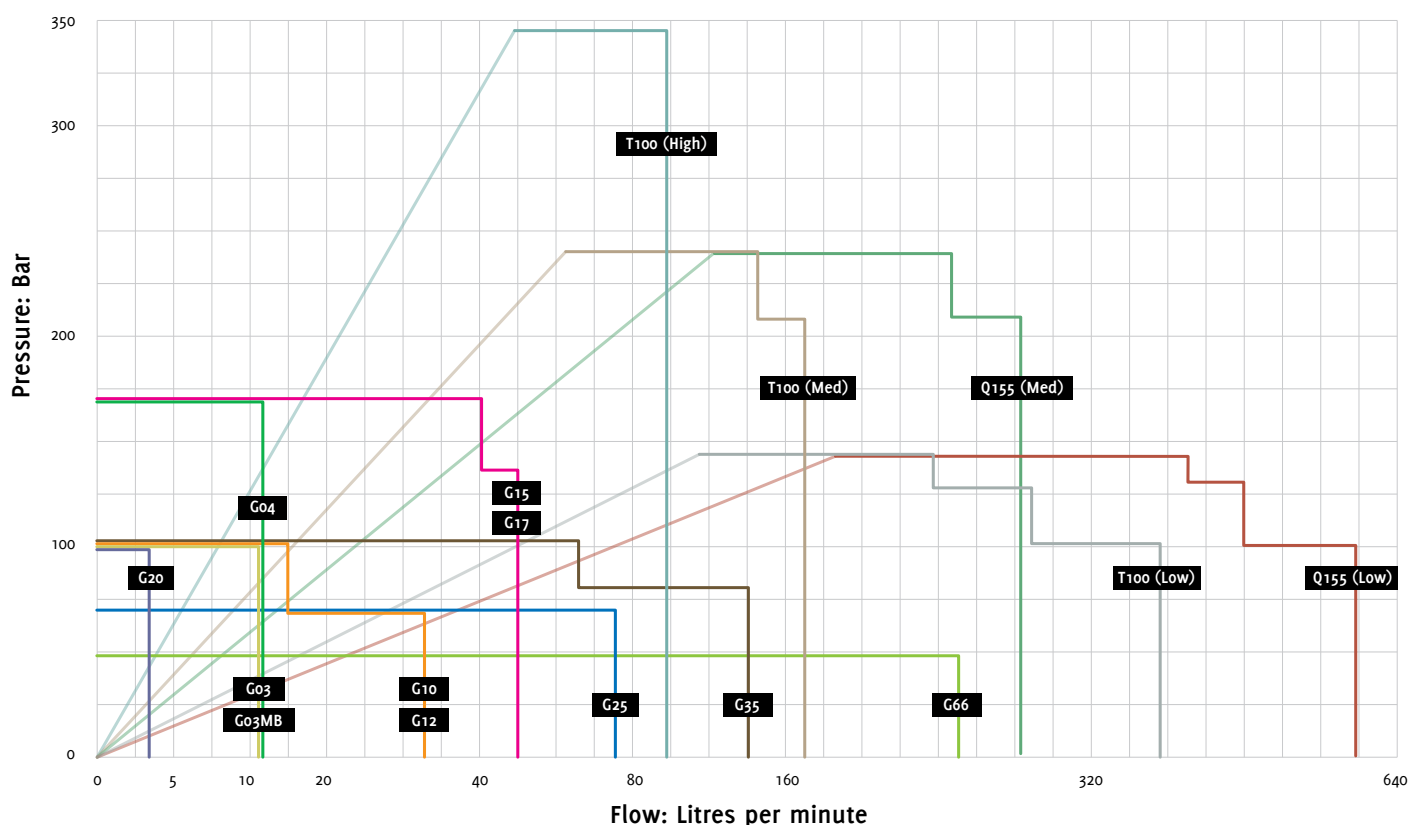


## Hydra-Cell P Series Seal-less Metering Pumps



# Hydra-Cell® Industrial & Process Pumps

## Flow Capacities and Pressure Ratings



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 specifications in this section for precise flow and pressure capabilities by specific pump configuration.

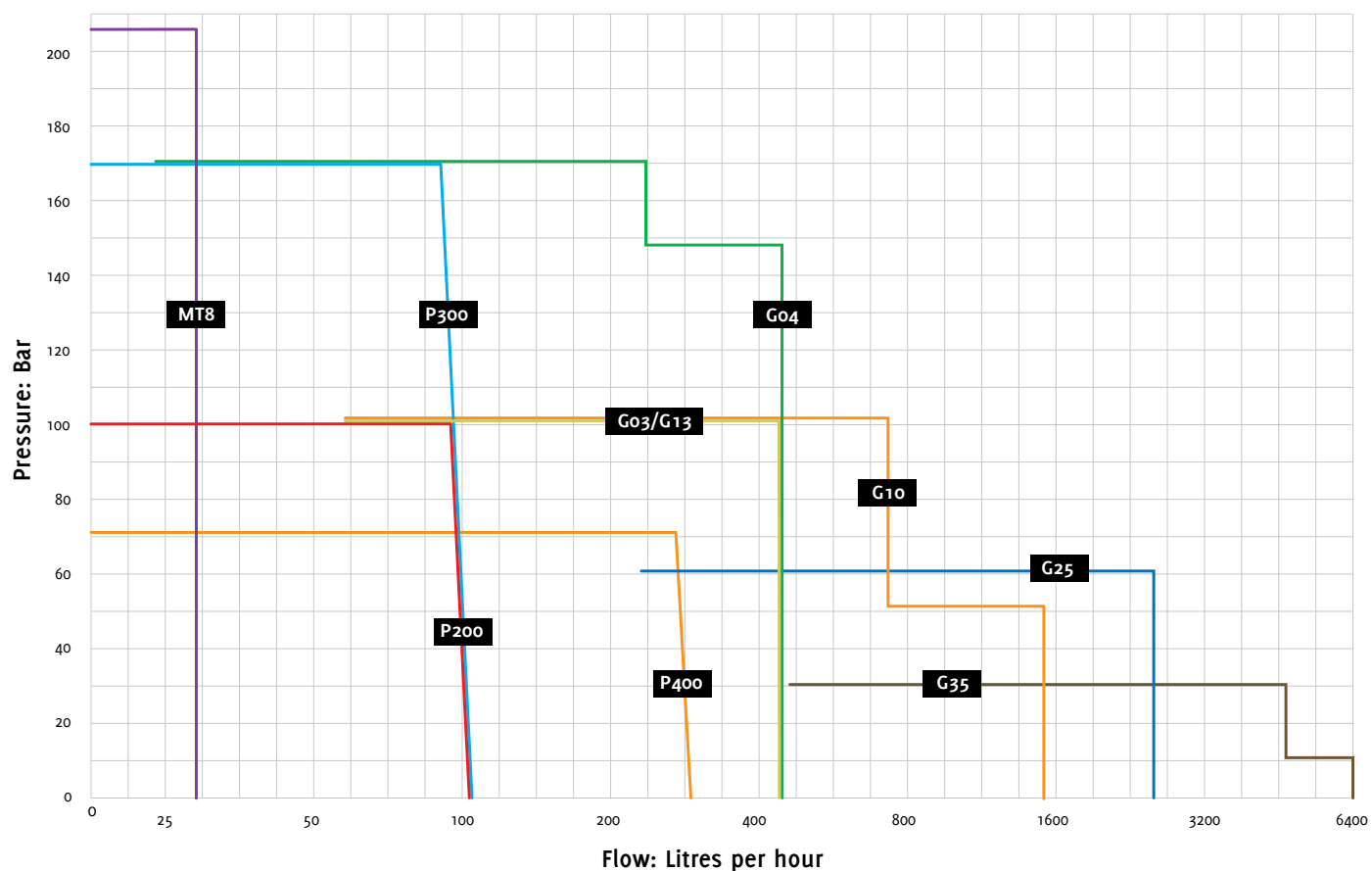
| Model  | Maximum Capacity<br>l/min | Maximum Discharge Pressure bar |          | Maximum Operating Temperature °C <sup>2</sup> |          | Maximum Inlet Pressure bar |
|--------|---------------------------|--------------------------------|----------|-----------------------------------------------|----------|----------------------------|
|        |                           | Non-Metallic <sup>1</sup>      | Metallic | Non-Metallic                                  | Metallic |                            |
| G20    | 3.8                       | 24                             | 103      | 60°                                           | 121°     | 17                         |
| G03    | 11.7                      | 24                             | 103      | 60°                                           | 121°     | 17                         |
| G04    | 11.2                      | N/A                            | 200      | N/A                                           | 121°     | 34                         |
| G10    | 33.4                      | 24                             | 103      | 60°                                           | 121°     | 17                         |
| G12    | 33.4                      | N/A                            | 103      | N/A                                           | 121°     | 17                         |
| G15/17 | 58.7                      | N/A                            | 172      | N/A                                           | 121°     | 34                         |
| G25    | 75.9                      | 24                             | 69       | 60°                                           | 121°     | 17                         |
| G35    | 138                       | N/A                            | 103      | N/A                                           | 121°     | 34                         |
| G66    | 248                       | 17                             | 48       | 49°                                           | 121°     | 17                         |
| T100S  | 98                        | N/A                            | 345      | N/A                                           | 82°      | 34                         |
| T100M  | 144                       | N/A                            | 241      | N/A                                           | 82°      | 34                         |
| T100K  | 170                       | N/A                            | 207      | N/A                                           | 82°      | 34                         |
| T100H  | 259                       | N/A                            | 145      | N/A                                           | 82°      | 34                         |
| T100F  | 290                       | N/A                            | 128      | N/A                                           | 82°      | 34                         |
| T100E  | 366                       | N/A                            | 103      | N/A                                           | 82°      | 34                         |
| Q155E  | 595                       | N/A                            | 103      | N/A                                           | 82°      | 34                         |
| Q155F  | 490                       | N/A                            | 127      | N/A                                           | 82°      | 34                         |
| Q155H  | 421                       | N/A                            | 144      | N/A                                           | 82°      | 34                         |
| Q155K  | 295                       | N/A                            | 207      | N/A                                           | 82°      | 34                         |
| Q155M  | 253                       | N/A                            | 241      | N/A                                           | 82°      | 34                         |

<sup>1</sup> 24 bar maximum with PVDF (Kynar®) liquid end; 17 bar maximum with Polypropylene liquid end.

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

# Hydra-Cell® Metering & Dosing Pumps – ATEX / Explosive Areas

## Flow Capacities and Pressure Ratings



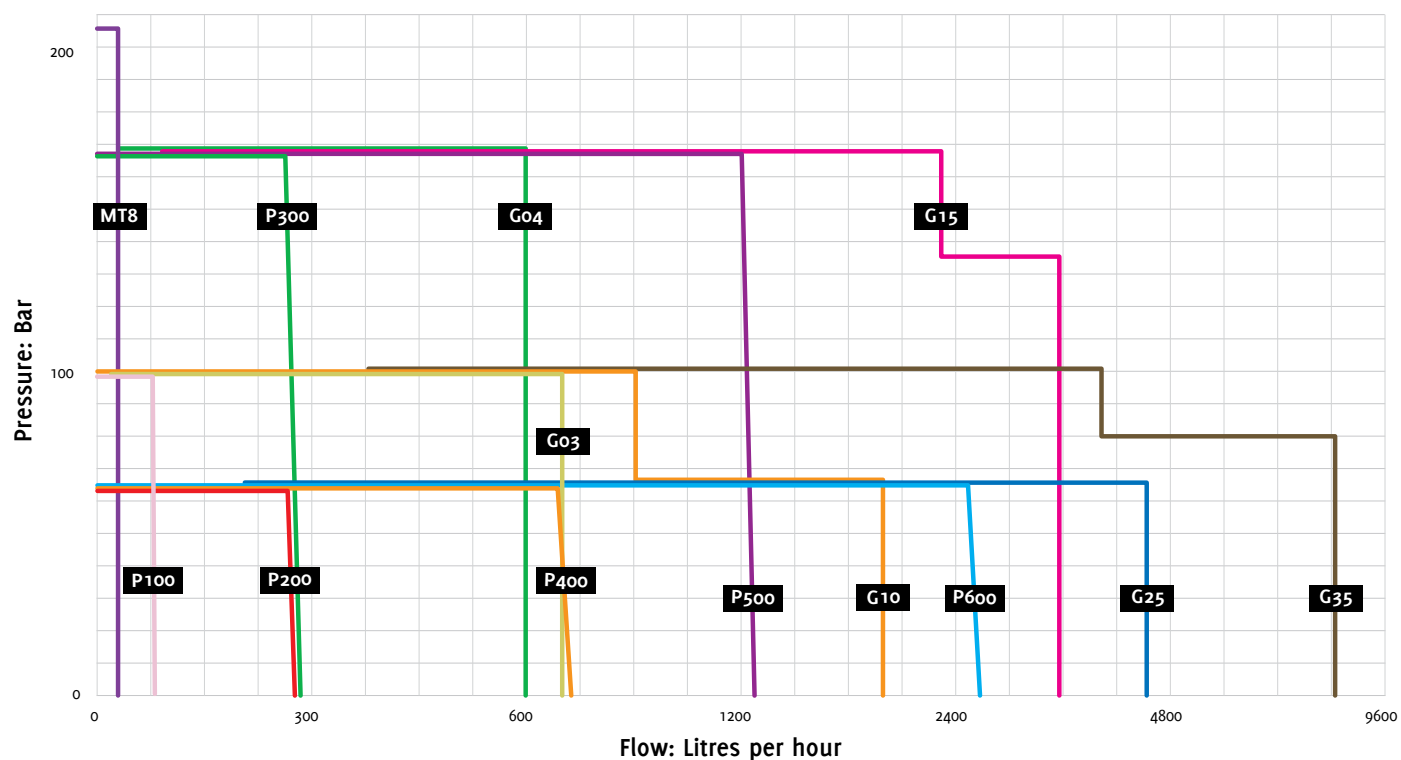
| Model     | Maximum Capacity l/hr | Maximum Discharge Pressure bar |          | Maximum Operating Temperature °C <sup>2</sup> |          | Maximum Inlet Pressure bar |
|-----------|-----------------------|--------------------------------|----------|-----------------------------------------------|----------|----------------------------|
|           |                       | Non-Metallic <sup>1</sup>      | Metallic | Non-Metallic                                  | Metallic |                            |
| MT8       | 30                    | N/A                            | 241      | N/A                                           | 121°     | 17                         |
| P200      | 102                   | 24                             | 103      | 60°                                           | 121°     | 17                         |
| P300      | 95                    | N/A                            | 172      | N/A                                           | 121°     | 34                         |
| P400      | 305                   | 24                             | 69       | 60°                                           | 121°     | 17                         |
| G13 - M2H | 462                   | 24                             | 103      | 60°                                           | 121°     | 17                         |
| G13 - M2M | 462                   | 24                             | 60       | 60°                                           | 121°     | 17                         |
| G13 - M4L | 230                   | 24                             | 20       | 60°                                           | 121°     | 17                         |
| G13 - M2L | 462                   | 24                             | 20       | 60°                                           | 121°     | 17                         |
| G04 - M4H | 226                   | N/A                            | 172      | N/A                                           | 121°     | 34                         |
| G04 - M2M | 452                   | N/A                            | 150      | N/A                                           | 121°     | 34                         |
| G10 - M4H | 732                   | 24                             | 103      | 60°                                           | 121°     | 17                         |
| G10 - M2M | 1470                  | 24                             | 50       | 60°                                           | 121°     | 17                         |
| G10 - M4L | 732                   | 20                             | 20       | 60°                                           | 121°     | 17                         |
| G10 - M2L | 1470                  | 20                             | 20       | 60°                                           | 121°     | 17                         |
| G25 - M4L | 2600                  | 20                             | 20       | 60°                                           | 121°     | 17                         |
| G25 - M4M | 2600                  | 24                             | 60       | 60°                                           | 121°     | 17                         |
| G35 - M2L | 6360                  | N/A                            | 10       | N/A                                           | 121°     | 10                         |
| G35 - M4L | 4800                  | N/A                            | 30       | N/A                                           | 121°     | 17                         |

<sup>1</sup> 24 bar maximum with PVDF (Kynar®) liquid end; 17 bar maximum with Polypropylene liquid end.

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

# Hydra-Cell® Metering & Dosing Pumps – Electronic Control

## Flow Capacities and Pressure Ratings



| Model | Maximum Capacity l/hr | Maximum Discharge Pressure bar |          | Maximum Operating Temperature °C² |          | Maximum Inlet Pressure bar |
|-------|-----------------------|--------------------------------|----------|-----------------------------------|----------|----------------------------|
|       |                       | Non-Metallic¹                  | Metallic | Non-Metallic                      | Metallic |                            |
| MT8   | 30                    | N/A                            | 241      | N/A                               | 121°     | 17                         |
| P100  | 85                    | 24                             | 103      | 60°                               | 121°     | 17                         |
| P200  | 255                   | 24                             | 103      | 60°                               | 121°     | 17                         |
| P300  | 257                   | N/A                            | 172      | N/A                               | 121°     | 34                         |
| P400  | 766                   | 24                             | 69       | 60°                               | 121°     | 17                         |
| P500  | 1244                  | N/A                            | 172      | N/A                               | 121°     | 34                         |
| P600  | 2808                  | 24                             | 69       | 60°                               | 121°     | 17                         |
| G03   | 660                   | 24                             | 103      | 60°                               | 121°     | 17                         |
| G04   | 660                   | N/A                            | 172      | N/A                               | 121°     | 34                         |
| G10   | 1800                  | 24                             | 69       | 60°                               | 121°     | 17                         |
| G10   | 900                   | 24                             | 103      | 60°                               | 121°     | 17                         |
| G15   | 2940                  | N/A                            | 138      | N/A                               | 121°     | 34                         |
| G15   | 2280                  | N/A                            | 172      | N/A                               | 121°     | 34                         |
| G25   | 4560                  | 24                             | 69       | 60°                               | 121°     | 17                         |
| G35   | 8280                  | N/A                            | 83       | N/A                               | 121°     | 34                         |
| G35   | 3960                  | N/A                            | 103      | N/A                               | 121°     | 17                         |

1 24 bar maximum with PVDF (Kynar®) liquid end; 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).

# Notes

This image shows a blank sheet of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.









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