



Hydra-Cell®

Seal-less Pump Technology

**High Reliability Pumps for
Mining, Tunnelling and Quarrying**



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.



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



Drill Head Cooling

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



Liquid Explosives

Charging liquid explosives into blast holes



Dust Suppression

Pumping water or latex emulsions for airless spray



Conveyor Cleaning

Continuous duty 24/7 in high pressure jet cleaning



Gas extraction

Powering a venturi jet pump to lift drill hole water and release gas to the surface.



Seal Flushing

Protecting large slurry pumps from seal damage



Hazardous Chemical Pumping

e.g. metering cyanide solution in gold extraction



Borehole Stabilisation

Injection of bore hole stabilising materials such as bentonite



Hydra-Cell®

advantages

Designed for continuous use, Hydra-Cell® Seal-less Pumps are robust, reliable, efficient and can be used in a wide variety of liquid spray, injection and transfer applications. Compact size, minimal maintenance requirements and the ability to run dry indefinitely all lead to low total cost of ownership.



Dust control on rotary drilling machine, Sweden

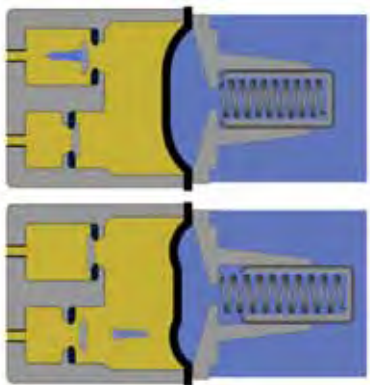
Typical Chemicals and Liquids Pumped	Challenges in Pumping	The Hydra-Cell® Advantage
Aggressive Chemicals... cyanide solutions, sulphur dioxide, acid mine drainage, acid rock drainage and leachate	- Corrosive... can contain solubilised impurities that form acidic solutions - Containment of potentially harmful liquids and vapours	- Corrosion resistant liquid head materials available - Seal-less pumping chamber. No dynamic seals to leak. Pumped liquid is 100% contained
Drill Head Cooling... water and drilling fluids	Non-lubricating and aggressive	No dynamic seals that need to be lubricated by the pumped liquid
	Abrasive... water contains particles that can destroy dynamic seals in other pumps	- No dynamic seals to wear - Pumps abrasives successfully
Dust Suppression Chemical Binders... polymer blends including latex, acrylic, vinyl, resins and process water	- May shear thin easily, breaking down the chemistry - May flocculate if exposed to excessive temperatures - Premature failure of dynamic seals on other pump types in high pressure misting applications	- Low shear pumping action - Minimal heat transfer from the pump to the process liquid - No dynamic seals to wear
Gland Seal Flushing... water	Non-lubricating and aggressive	No dynamic seals that need to be lubricated by the pumped liquid
	Abrasive... water contains particles that can destroy dynamic seals in other pumps	- No dynamic seals to wear - Pumps abrasives successfully
	Dry running operation causes other pump types to fail instantly / prematurely	Can run dry indefinitely
Grouting Slurries... bentonite, cements	Abrasive slurries cause wear to dynamic seals	Seal-less design pumps abrasives and slurries successfully

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 H₂S
- 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



Compact design

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

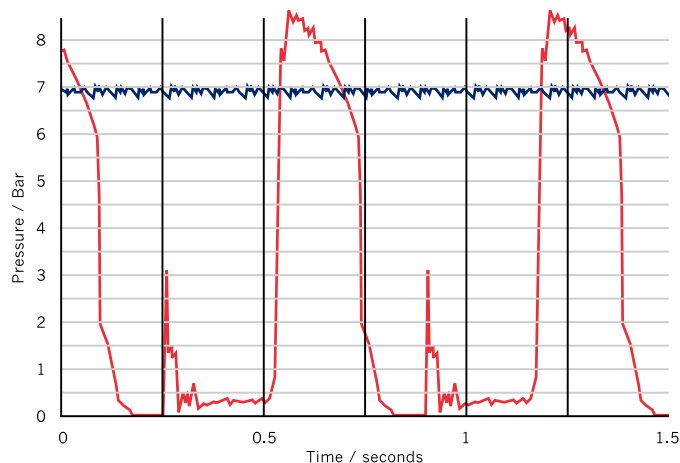
1. Space saving
2. Easier servicing
3. Lower initial purchase cost

High efficiencies

- A true positive-displacement pump, Hydra-Cell® is one of the most efficient metering and dosing pumps available.

Virtually pulse-less flow

- Multiple diaphragm pumping head gives a virtually pulseless flow that maintains the continuous positive pressure necessary for effective seal flushing.
- Low pulsation enables more accurate control of flow rate and more efficient use of chemicals in metering applications.



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



Energy saving

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

Compared with multi-stage centrifugal pumping water at 20 bar:

Flow (m ³ /hr)	Energy used (kw)		Energy saving	Potential annual euro saving
	Centrifugal	Hydra-Cell		
0.6	1.54	0.5	67%	€945
1.5	2.0	1.44	28%	€470

Compared with multi-stage centrifugal pumping water at 40 bar:

Flow (m ³ /hr)	Energy used (kw)		Energy saving	Potential annual euro saving
	Centrifugal	Hydra-Cell		
4.2	9.34	6.1	35%	€2,830
7.6	15.4	11.0	28%	€3,840



Minimal filtration

- No mechanical seals or tight tolerances that need protection by fine filtration. Hydra-Cell® pumps can handle particles up to 500 µm, 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 and management

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.

Unique horizontal check valves

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



Pump selection



Hydra-Cell® G-Series - High Performance, Positive Displacement Diaphragm Pumps

Hydra-Cell® G-Series heavy duty pumps are designed for transfer, pressure injection, and dosing and have proven performance and reliability pumping aggressive, corrosive, abrasive, non-lubricating, hot liquids in many arduous applications.

Hydra-Cell®'s seal-less design enables produced water and sour water to be handled reliably and safely, 100% containing any H₂S gas.

VOC emissions are also eliminated by the seal-less pumping chamber.



Hydra-Cell® T-Series High volume, high pressure process pumps

Hydra-Cell® T-Series pumps have flow rates to 170 l/min (45 gpm) and high pressure up to 207 bar (3000 psi) making them the 'workhorses' in high volume chemical processing.

With lowers energy use and costs compared to multistage centrifugal and many other pump technologies, Hydra-Cell® T-Series pumps are an indispensable choice for economical and environmentally sound operation.



Materials

A variety of liquid head materials and diaphragm materials are available to suit the pumped liquid and varying performance conditions.

Liquid Head Materials	Diaphragm Materials	Pump Housing Materials
Hastelloy CW12MW Duplex Alloy 2205 316L Stainless Steel Brass Cast Iron Polypropylene Kynar	EPDM FKM PTFE Neoprene Buna Aflas	Cast Aluminium Ductile Iron for G10, G25 and G35

Pipe connections

SAE flange connections



Flanged connections

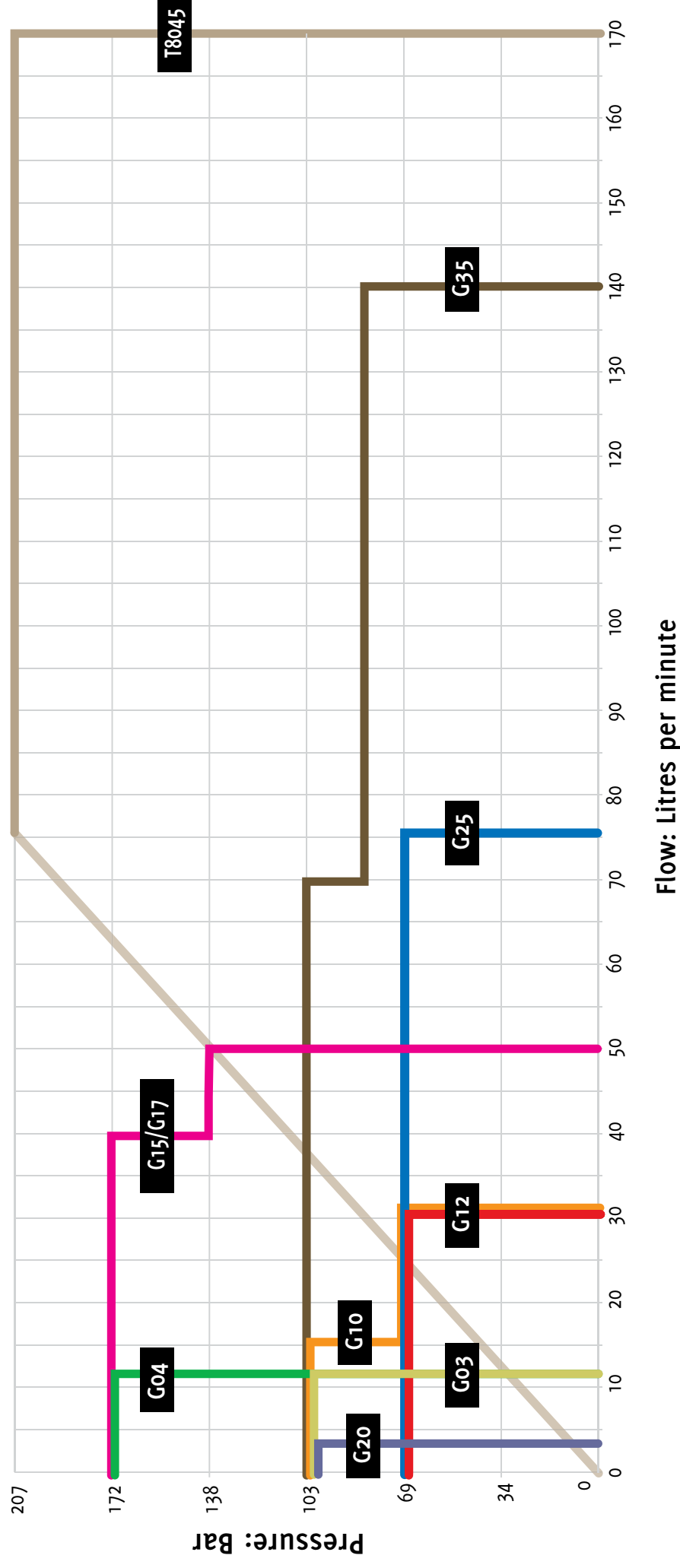


Simple threaded connections NPT or BSPT



Pump flow and pressure rates

G Series and T8o Series Seal-less Pumps





Hydra-Cell®
Partners in over 70 Countries

Dynapumps®
DYNAMIC PUMP SOLUTIONS

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