

**LOWER TOTAL COST
OF OWNERSHIP**

**REDUCED MAINTENANCE COSTS
LOWER ENERGY USAGE**

Chemical and Petrochemical Industry

Our priority is to help chemical and petrochemical organisations run safe, efficient and cost-effective pumping processes.

WANNER™ provides solutions that protect operators and the environment whilst lowering energy consumption, servicing and maintenance costs – lowering the total cost of ownership for a more sustainable future.



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ABOUT WANNER

Chemical & Petrochemical

For over 50 years, WANNER™ has been designing, manufacturing and supplying Hydra-Cell® seal-less and packing-free, transfer, injection and metering, dosing and flow chemistry pumps.

During this time, WANNER engineers have built-up an extensive knowledge of chemical applications by getting involved with customers' processes and understanding their needs and goals; this knowledge and experience is used to help us develop new pump technology and to help new customers meet their specific challenges.



Sustainability - Working together to help make a difference for the future

The Wanner group of companies has customers, partners and suppliers all around the world, and it's our mission to make a difference and help our customers to run far more environmentally-sound and safe pumping processes as part of their overall operations.



SUSTAINABILITY
WORKING TOGETHER

Safety is Our Priority

The cost of operator safety is priceless. With 100% containment, no leakage or spillages of hazardous liquids; eliminating VOCs emissions and ground contamination, you can guarantee to protect your operators and the environment with the seal-less design of our Hydra-Cell seal-less and packing-free pumps.

Pumps for ATEX / Hazardous Areas

WANNER has a seal-less pump range that is independently assessed and certified by major approval bodies to ATEX (Directive 2014/34/EU and the UK equivalent regulation No. 1107). We can supply certified pumps to the latest legislation ensuring safety of operation for your operators and your plant. We have European and UK registration, and mark for CE UKCA and to ATEX UKEXs.

Reduce Energy Usage up to 50%

Achieve high efficiencies from pump shaft to hydraulic power; this combined with the wide range of flow rate controllability ensures optimum energy usage.



REAL VALUE

Maximise Your Investment

As a privately held company, WANNER globally invests a significant percentage of revenue on developing the technology inside the Hydra-Cell pump range for continuous improvement of the designs to improve the performance, security and peace of mind for our customers.

Creative ideas lead to innovative patentable technology, meeting tomorrow's challenges and creating added value to help keep your production processes going for a more sustainable future - safely, reliably and efficiently, and lowering the total cost of ownership.

Reduce Maintenance Costs.
Reduce Energy Consumption.
Maximise Productivity.

In applications such as:

- Flow Chemistry
- High Pressure Liquid Chromatography (HPLC)
- Accurate dosing of corrosive, abrasive & shear sensitive liquids and with various viscosities
- Spray drying super saturated, and aqueous emulsions
- Reverse Osmosis & Ultra Filtration, main process and processing of waste liquid streams
- Safe containment of hazardous process

The high efficiency, seal-less pump design reduces maintenance and service costs; the 90% efficient pumping action reduces energy consumption and helps maximise productivity.



Process Pumps

Injection, Transfer
and Dosing Pumps

Extremely Low Pulse.
Dosing Accuracy.
Easy Control.

The Hydra-Cell dosing range of pumps has extremely low pulse flow, in most cases eliminating need for pulsation dampeners. Also eliminating leaks on the discharge pipe work due to pipe strain; a true positive displacement pump capable of handling high inlet and discharge pressures while also maintaining an accurate steady-state flow.

100% Contained - Zero Leakage

Hydra-Cell seal-less and packing-free chemical process pumps give you total peace of mind that hazardous liquids will be 100% contained, eliminating VOCs emissions and ground contamination – guaranteeing to protect your operators and the environment.

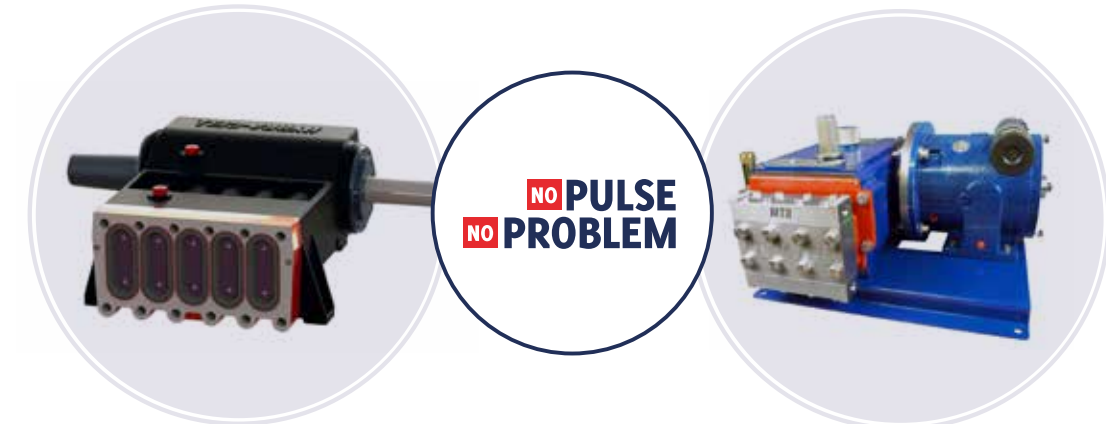
Security of Process with Patented ADPC (Advanced Diaphragm Position Control)

Technology unique to WANNER and the Hydra-Cell product range which protects the diaphragms from abnormal and transient process conditions. This technology enables the Hydra-Cell pump to operate with a wide range of suction pressures, including dry lift capability.

Low-Shear Pumping Action

Hydra-Cell pumps have a very low-shear pumping action that ensures that shear sensitive liquids reach their target areas with their vital properties intact. Emulsions, algae suspensions, paints and pigments and latex solutions are all pumped consistently and reliably.

With no flow loss due to pump internal back flow, flow rate remains constant - even under variation of discharge pressure.



Dosing/Metering Pumps

WANNER HYDRA-CELL

Seal-less Process Pumps Chemical & Petrochemical Applications

www.hydra-cell.co.uk/ChemicalandPetrochemical



FLOW CHEMISTRY / CONTINUOUS FLOW / PLUG FLOW CHEMISTRY

Extremely low pulse, constant flow rate and reliable handling of solvents, corrosives and slurry-laden liquids



PRESSURE INJECTION AND MIXING

Wide, controllable and accurate flow range for low and high pressure injection and impingement mixing



SPRAY DRYING

100% containment.
Reliable handling of liquids with undissolved solids, viscous and abrasive liquids



REVERSE OSMOSIS / ULTRA FILTRATION

Concentrating organic chemicals and reducing waste streams



METERING AND DOSING

Virtually pulse-less flow, enabling removal of pulsation dampeners and reducing pipe strain, meeting and exceeding the performance requirements of API 675

METERING & DOSING PUMPS



**NO PULSE
PROBLEM**

PROCESS PUMPS



**NO SEALS
NO PACKING
NO PROBLEM**

HIGH & LOW PRESSURE LIQUID CHROMATOGRAPHY

Very accurate control of flow rate, no pulsation dampeners required



FILTRATION

High pressure charging of filter presses



LIQUID TRANSFER

High efficiency, zero leakage and low energy consumption



CIP CLEANING

High pressure for high energy impinging spray cleaning, even with hot recycled liquids



EMISSIONS CONTROL

Efficient and reliable handling of non-lubricating liquids with dissolved and undissolved solids



◀ Non-Lubricating

Viscous Abrasive ▶

Propane/
Butane

Freon

Ammonia

Polymers

Fuels/
Additives

D.I Water

Glycols

Chlorine

Acids/
Caustics

Glues/
Adhesives

Inks/
Paints

Resins

Slurries

STATE-OF-THE-ART Manufacturing Facility

Founded in 1973, WANNER Engineering designs, manufactures and assembles the complete range of Hydra-Cell pumps in our 140,000 sq. ft. state-of-the-art facility located in Minneapolis Minnesota, USA; producing over 25,000 pumps each year, with an installed base of well over 0.5 million pumps, worldwide.

Multi-location Manufacturing and Skid Build

As well as the main high-volume manufacturing plant in the USA, our purpose-built facility in the UK enables us to build customised pumps, pump skids and testing to customers' specific specifications.

Ongoing Investment

WANNER has an ongoing multi-million dollar investment commitment into the latest manufacturing machinery and processes to ensure the quality of our process pump solutions are reliable, safe and energy efficient, along with ongoing development in bespoke testing and certifications to meet demands of the chemical industry - for today and into the future.

Renowned Reliability

Metal cutting and machining quality is a key part to achieving the renowned reliability and quality of the Hydra-Cell pump. It is the belief of owner and CEO Bill Wanner that these processes are kept in-house with heavy investment in machining centres and personnel.

Sophisticated and automated quality control measurement equipment is used by the machinists for first article inspection and ongoing statistical process control (SPC). The engineering test laboratory provides the capability for the range of test required, including: hot and cold liquids, high pressure testing and accurate metering. Final assembly of the pumps is carried out by dedicated teams - every pump is tested before it leaves the factory.



**Witness
testing**

for project specific
requirements

\$Multi-million

manufacturing
expansion
investment

**Every pump
is tested**

under maximum
pressure and flow
conditions before it
leaves the factory

Multi-station
machining centres with
24 hour
lights-out
manufacturing

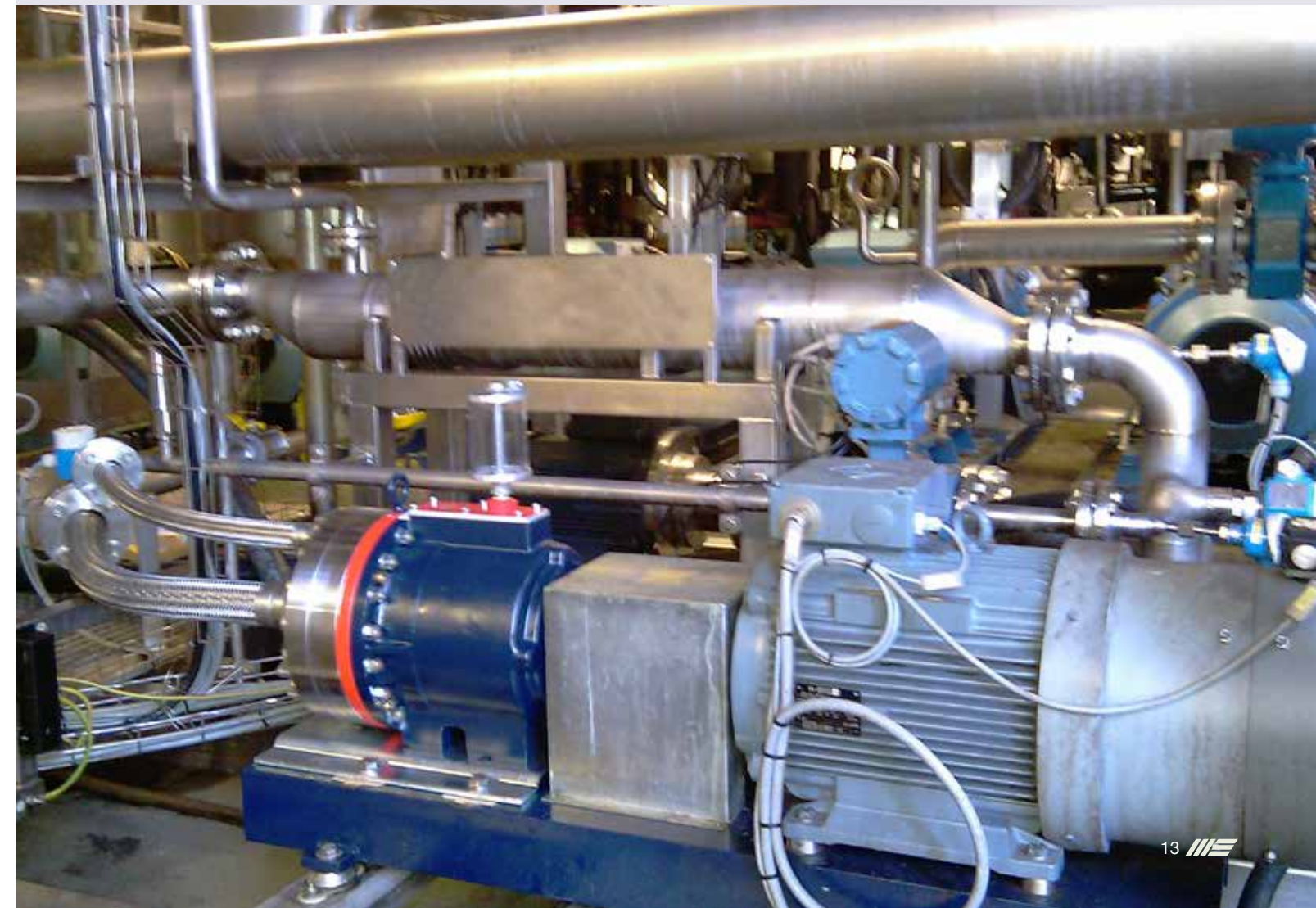
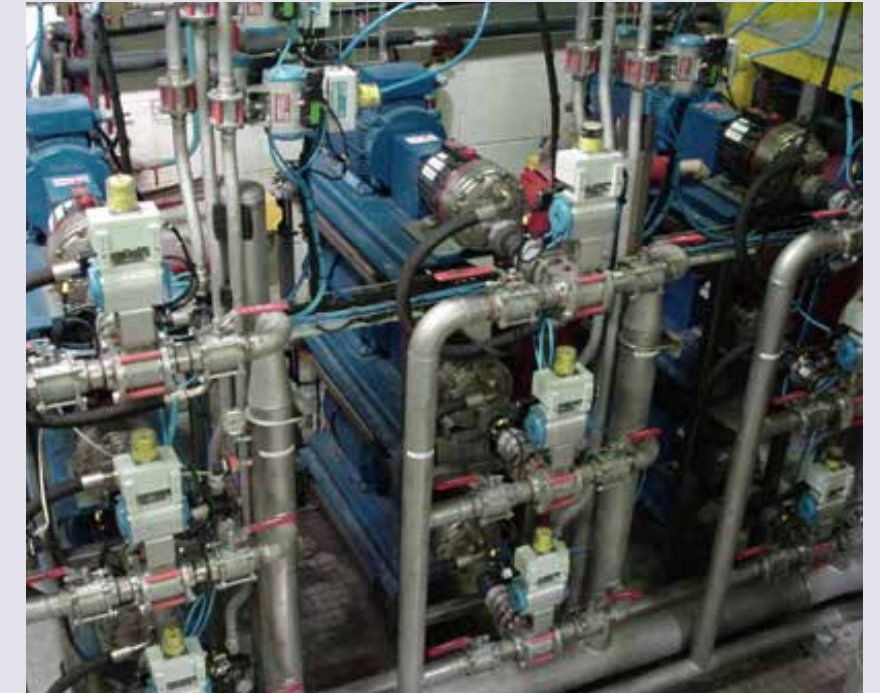
GLOBAL PARTNERS

Supporting You, Locally

WANNER's team of engineers and business managers have over 100 years of combined industrial technical experience with backgrounds in hydraulics, mechanical and electrical systems.

Combined with a network of local partners in many countries, with long histories supporting customers' chemical and petrochemical processing requirements, gives customers access to a large knowledge base. The WANNER team, along with our partners, have a real passion to help customers meet their process challenges. Combining the Hydra-Cell pump's unique advantages with application knowledge and a passion to improve processes is how we best support our customers.

100 years
of combined industrial
technical experience



LIQUIDS WE HANDLE

Accurately and Reliably Handling your Process Liquids

Driven by environmental issues, the different types of liquids that process engineers are being asked to design pumping processes for are changing. These liquids more than ever are presenting challenges due to their properties of low lubricity, low viscosity, sensitive to shear and some potentially hazardous, toxic or potentially explosive. The requirement for increasing processing pressures, very accurate flow rate control and repeatability driven by Flow Chemistry processes are also presenting major challenges for many pumping technologies.

With WANNER's unique, patented technology combined with the seal-less, packing-free design and proven ability, Hydra-Cell pumps safely, accurately and reliably handle many difficult liquids.

Dynamic seals and packing account for approximately 80% of pump servicing and unplanned maintenance, especially when handling non-lubricating, abrasive, corrosive liquids and liquids with micron-sized particles. Eliminating dynamic seals and packing significantly reduces the cost of ownership.

Safely and reliably pumping an accurate and controllable flow for your continuous, flow chemistry processes - whilst reducing costs with Hydra-Cell.

- Safe handling of difficult and hazardous liquids
- Protect the environment and your operators
- No liquid degradation

◀ Non-Lubricating

Viscous Abrasive ▶

Propane/
Butane

Freon

Ammonia

Polymers

Fuels/
Additives

D.I Water

Glycols

Chlorine

Acids/
Caustics

Glues/
Adhesives

Inks/
Paints

Resins

Slurries

LIQUIDS WE HANDLE

Accurately and Reliably Handling your Process Liquids

HIGH VISCOSITY LIQUIDS

HYDRA-CELL CAN RELIABLY HANDLE LIQUIDS UP TO 20,000 CP

With the correct pump selection and system design, the Hydra-Cell pump has the capability to pump viscous liquids (i.e. Filled polyols, Glues, Resins, and thick Slurries) up to 20,000 cP.

When pumping high viscosity liquids, the spring-loaded disk design of the Hydra-Cell check valves overcomes the “floating” issues associated with vertical ball-and-seat valves.

Many high viscosity materials are shear sensitive. Hydra-Cell’s horizontal check valves have proven to have a low shear pumping action to preserve the structure of shear sensitive high viscosity liquids.

The unique patented ADPC (Advanced Diaphragm Position Control) protects the diaphragm and enables the Hydra-Cell pump to prime from dry even with high viscous liquids which can cause issues with other traditional hydraulically balanced diaphragm pumps.



Injection of proprietary monomers and inhibitors

SECURITY OF PROCESS - DRY RUNNING, INDEFINITELY WITH NO DAMAGE

Hydra-Cell pumps do not need the process liquid to lubricate the pumping action.

- With no dynamic seals, no exotic seal material is needed and therefore eliminates the need for seal flushing - resulting in great cost savings.
- No special sensors or control systems are needed to protect the pump, this simplifies the system design and further saves on costs.
- Progressing cavity pumps must not run dry as the heat generated by the rotor and stator can cause complete failure.
- Such abnormal conditions could also destroy plunger pumps.

LIQUIDS WE HANDLE

Accurately and Reliably Handling your Process Liquids

LOW VISCOSITY LIQUIDS

RELIABLE AND CONSISTENT PUMPING

Many solvents are very low viscosity, non lubricating and can cause challenges for pump technologies with packing and dynamic seals. Hydra-Cell's pump design handles these types of liquids reliably, accurately and consistently.

Heating a liquid, or subjecting a liquid to shear, will typically reduce its viscosity, can create wear of components and a reduction in discharge flow for gear, lobe, screw and progressing cavity pumps. The Hydra-Cell's pumping action eliminates this affect.

REDUCE ENERGY COSTS

Significant energy savings can be made when comparing the high efficiency pumping action of the Hydra-Cell pump with Multistage Centrifugal pumps in pressure applications and single stage chemical process centrifugal pumps in low volume chemical transfer applications.

SAFETY FOR YOUR OPERATORS

Processes using solvents often result in explosive zone classification. Wanner's pumps are interdependently certified by notified trade bodies.



Methanol injection pump

A PREDICTABLE FLOW RATE FOR A CONSISTENT PROCESS

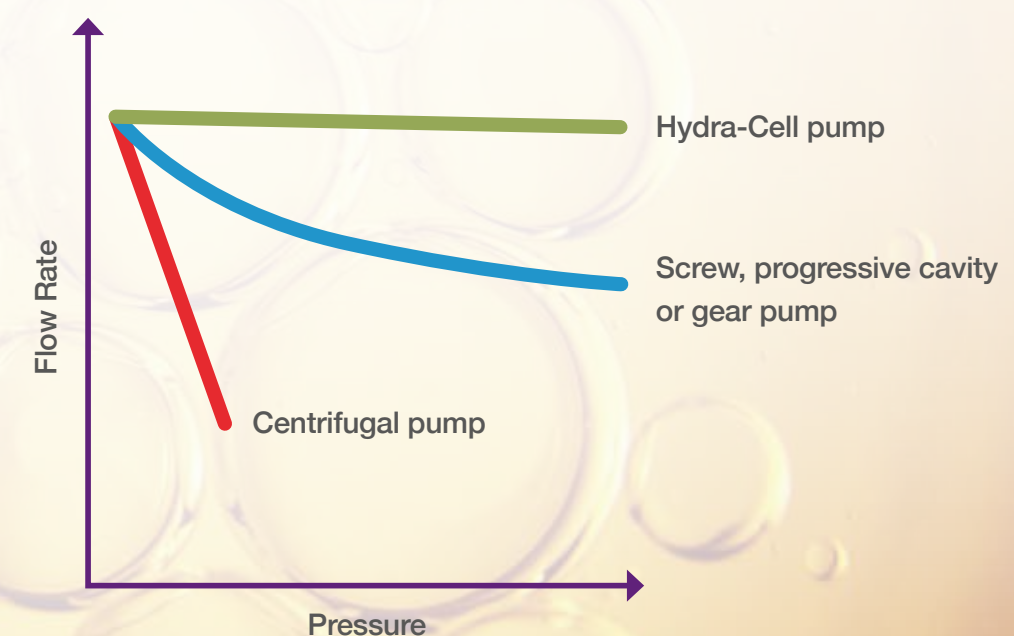
Hydra-Cell's true positive displacement action combined with multiple diaphragms, means that flow rate remains constant and predictable independent of discharge pressure; this is achieved over a wide range of flow rates - critical for Flow Chemistry processes. Small changes in discharge pressure effect the flow rate of a peristaltic pump for example.

Having no internal leak paths, Hydra-Cell pumps maintain flow rate accuracy and repeatability regardless of discharge pressure. Progressing cavity, gear and screw pumps can suffer from internal back flow, reducing discharge flow rate. This challenge increasing as internal parts wear.

DRY RUNNING, INDEFINITELY WITH NO DAMAGE

Hydra-Cell pumps do not need the process liquid to lubricate the pumping action.

- No special sensors and controls to protect the pump from dry running - simplifying system design and saving system cost
- No exotic seal material needed - saving product costs
- No expensive seal flushing required



LIQUIDS WE HANDLE

Accurately and Reliably Handling your Process Liquids

LIQUIDS WITH SUSPENDED SOLIDS, SLURRIES AND ABRASIVES

NO FINE FILTRATION

Suspended solids in a liquid can present many challenges in pumping, especially with sub 10 micron particles which can effect dynamic seals in rotating parts and increase packing wear. Fine filtration is often introduced to the system design to protect pumps with dynamic seals and packing but can be very difficult to filter out all the particle media.

The Hydra-Cell pump technology is such that fine filtration to protect the pump can be eliminated.

SECURITY OF PROCESS - DRY RUNNING, INDEFINITELY WITH NO DAMAGE

Hydra-Cell pumps do not need the process liquid to lubricate the pumping action. With no dynamic seals, no exotic seal material is needed and therefore eliminates the need for seal flushing - resulting in great cost savings.

No special sensors or control systems are needed to protect the pump, this simplifies the system design and further saves on costs.

Rotary positive displacement pumps such as progressing cavity, screw and gear pumps rely on maintaining a process liquid hydrodynamic film between components with the process liquid, so they need to be protected from dry running adding to installation and maintenance costs.

RELIABLE HANDLING OF LIQUIDS THAT CRYSTALLISE

With no dynamic seals in the pumped liquid, high reliability is achieved even when pumping chemicals which crystallise or have suspended micron solids. Eliminating the need for additional and sophisticated seal arrangements or auxiliary seal flushing systems.

Hydra-Cell's unique, spring-loaded check valves allow particles to flow through and clear valve sealing surfaces, giving more reliable performance when pumping liquids with solid suspensions.

Traditional ball valves with vertical liquid flow in other technologies allow the build-up of solids, preventing the check ball from seating resulting in maintenance.

REDUCE ENERGY CONSUMPTION

Pumping liquids with suspended solids can cause various amounts of abrasive wear inside a process pump.

Hydra-Cell pump's true positive displacement pumping action and minimal internal losses achieve high efficiencies, maintaining these high efficiencies over an extended period of time even with suspended solids present.

Rotary positive displacement pumps such as Progressing Cavity, Screw, Lobe and Gear pumps have internal losses which accelerate when abrasive micron solids are present; reducing the flow rate and pumping efficiency achieved.

LONG LIFE AND REDUCED MAINTENANCE COSTS

Suspended solids can also result in increased maintenance for traditional dosing pumps with vertical orientated ball valves with solids build up on the valve seat.

Hydra-Cell's hydraulically balanced diaphragms operate under no stress even when suspended solids are present, leading to a long life. With other technologies, such as peristaltic pump, tubes operate under compressive stress leading to the requirement for regular routine replacement in normal operation.

HANDLING METAL PARTICLES FROM CORRODED PIPE LINES

Magnetic driven pumps can have a real challenge in process plants where there is even a small level of metal debris from corroded pipelines. These metal particles can adhere to magnets and interfere with the correct operation of the pump, causing maintenance.



Titanium dioxide metering

LIQUIDS WE HANDLE

Accurately and Reliably Handling your Process Liquids

SHEAR SENSITIVE LIQUIDS

LOW SHEAR PUMPING ACTION - EVEN AT HIGH PRESSURE

Extensive customer testing at major chemical companies on shear sensitive liquids, such as polymers, algae solutions, from 50 to 3,500 cP, have proved that the Hydra-Cell's pumping action achieves low shear, especially in high pressure applications.

All pump technologies that have moving parts in contact with a stationary part in the process liquid result in a point of high

differential liquid velocity and high shear in the process liquid. Even if this point of high shear doesn't act on the whole volume of liquid, it does act on some part of the liquid pumped potentially causing degradation.

With no dynamic seals in the pumped liquid, optimised valve design and lower liquid flow path velocities Hydra-Cell pumps have proven to help users with their low shear pumping challenges.

MINIMAL ENERGY USAGE WITH PREDICTABLE FLOW RATES AND ACCURATE DOSING

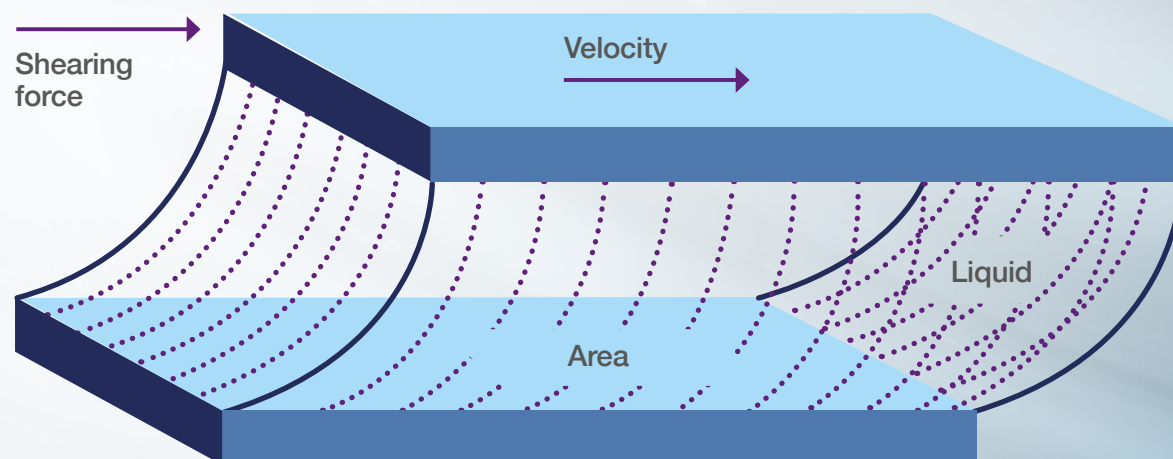
Many viscous liquids are non-Newtonian and can shear thin as they are pumped. This effect results in internal losses in other technologies, such as a Lobe pump, making discharge flow rate unpredictable and reduces overall pumping efficiency, especially as the discharge pressure increases.

The Hydra-Cell pump's pumping action not only has a low shear effect on the pumped liquid but with negligible effect on internal losses, overall efficiency remains high with very predictable flow rate.

100% CONTAINED. NO LEAKAGE. NO LIQUID WASTE. NO LIQUID DEGRADATION.

Pumps with dynamic seals and packing can be very susceptible to the leakage of process liquids which shear thin. Often customers face the challenge of ensuring zero leakage as the liquid viscosity reduces so much.

The Hydra-Cell pump's seal-less and packing-free design eliminates this issue as, no matter how low the process liquid velocity reduces to, it is always 100% contained.



Polymer dosing for water treatment

LIQUIDS WE HANDLE

Accurately and Reliably Handling your Process Liquids

HOT LIQUIDS

RELIABLY HANDLING HOT LIQUIDS UP TO 120°C*

The effect of process liquids with hotter temperatures can be quite dramatic, increasing installation & maintenance costs of pumps with dynamic seals and packing. Increasing temperature accelerates chemical reaction times. Even water at 90°C becomes corrosive presenting a pumping challenge.

Increasing the temperature of a process liquid reduces its lubricity. The Hydra-Cell pump is not effected by this.

With no dynamic seals or packing, Wanner's Hydra-Cell pumps can handle many liquids over a wide range of temperatures and pressures.

SAVING ENERGY WITH WIDE ADJUSTABLE FLOW RATE RANGE

Industrial processes such as steam generation require a process pump to pump hot liquid but the demand can range from 100% to 5%.

The rpm of the Hydra-Cell pump can be varied from max to 0, achieving a very wide adjustable and controllable flow rate. The Hydra-Cell pump achieves this as it does not need the process liquid to lubricate the pumping action. Multistage centrifugal pumps can be limited in their adjustable flow rate range requiring excess flow to be circulated wasting energy.

Hydra-Cell pumps safely and reliably pumping recycled tri-ethylene glycol (TEG) at 120°C . With the previously installed plunger pump, a significant amount of the hot TEG was leaking, causing operator safety and environmental issues - as well as wasted TEG.

Hydra-Cell pumps' simple system design achieve the wide range of operation. The demand changes from minute to minute so the flexibility and accurate control of the hot water feed pumps is critical.



Hot Tri-ethylene Glycol process



Steam generation process

(*NOTE - For some installations, an oil cooler maybe needed for some duties over 90°C).

LIQUIDS WE HANDLE

Accurately and Reliably Handling your Process Liquids

NON-LUBRICATING LIQUIDS

VERSATILITY AND EASE OF HANDLING

Non-lubricating liquids can be of various viscosities. Liquids with very low viscosities such as NGLs, solvents and high viscosities such as resins, glues and filled polyols, and they all have one thing in common - they do not lubricate dynamic seals and packing. The consequences are accelerated seal and packing degradation and heat generation which may also affect the process liquid.

This rate of degradation of dynamic seals and packing is accelerated as the process liquid temperature increases and process pressures increase.

Hydra-Cell seal-less pumping technology eliminates all these problems. With proven performance Hydra-Cell pumps have replaced many other pump technologies reducing the cost of ownership and improving customers' processes, creating real value.

ACCURATE AND CONSTANT DOSING FLOW RATE

Hydra-Cell pumps true positive displacement pumping action with hydraulically balanced diaphragms and a patented hydraulic management system means that flow rate is constant and controllable, even with variations in discharge pressure which affect other pump technologies.

RUN DRY INDEFINITELY

With no requirement of the process liquid to lubricate the pumping action the Hydra-Cell pump can run without process liquid. Any mistakes by operators do not result in costly repair!

REDUCE ENERGY CONSUMPTION AND COSTS

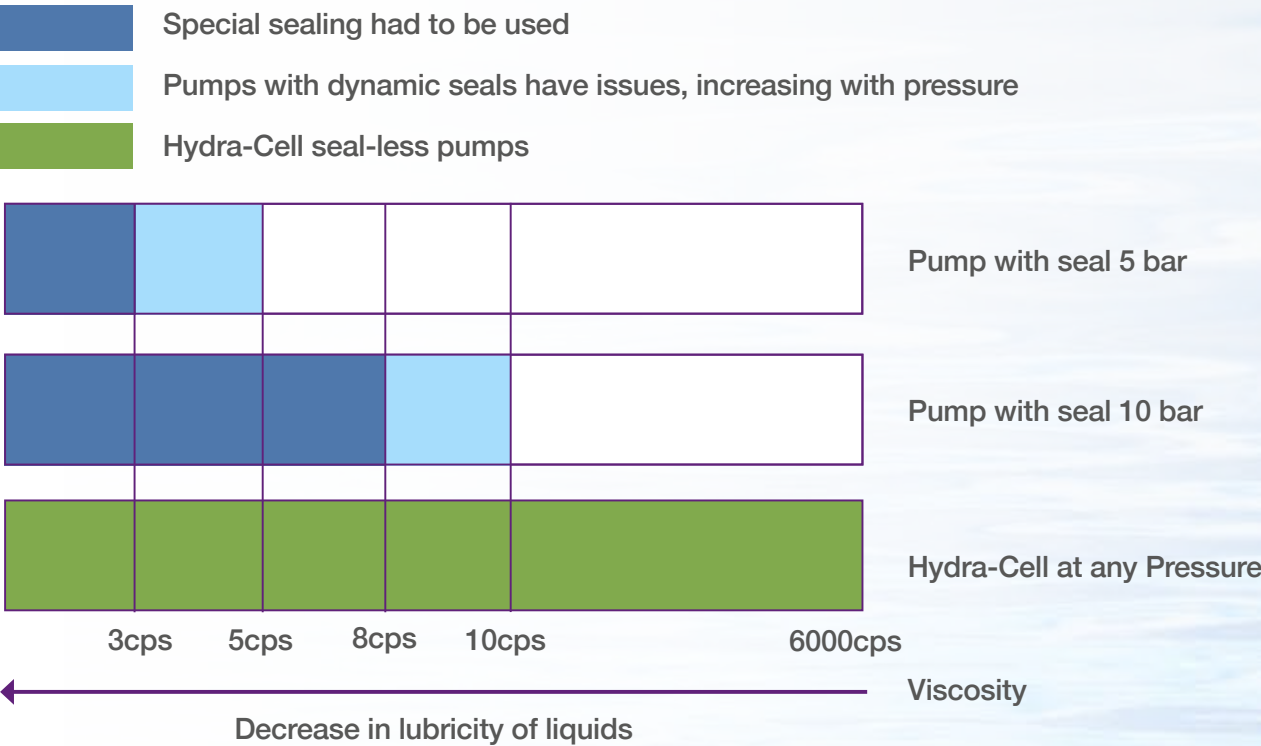
Hydra-Cell pumps' true positive displacement pumping action and minimal internal losses achieve high efficiencies as measured from pump shaft to hydraulic output power.

This combined with the wide range of flow rate controllability ensures optimum energy usage – greatly reducing energy costs.

WIDE ADJUSTABLE FLOW RATE RANGE

The speed of the Hydra-Cell pump can be varied from max to 0, achieving a very wide adjustable flow rate. The Hydra-Cell pump achieves this as it does not need the process liquid to lubricate the pumping action. Rotary positive displacement and centrifugal pumps can be limited in their adjustable rpm range unless expensive external lubrication is used.

The graphic below shows the versatility and ease in which a standard Hydra-Cell pump can pump non lubricating process liquids.



LIQUIDS WE HANDLE

Accurately and Reliably Handling your Process Liquids

CORROSIVE LIQUIDS

100% CONTAINMENT

Safe pumping of corrosive liquids is very important in a process, ensuring no leakage and keeping the area around the pump safe is critical.

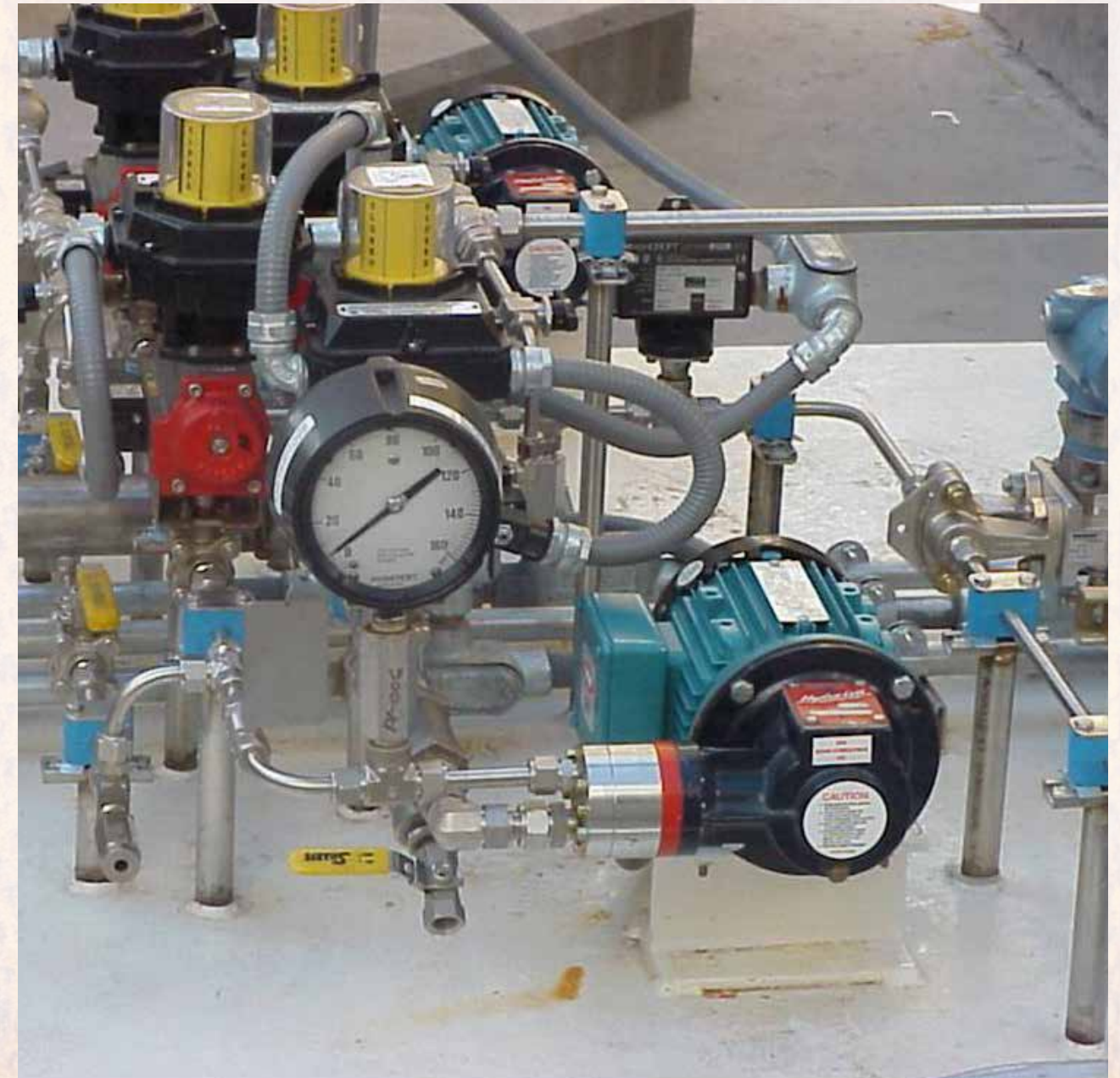
The standard Hydra-Cell pump design keeps the process liquid 100% contained as there are no dynamic seals or packing.

Pumps with dynamic seals often need expensive and complicated seal arrangements and/or seal flushing, increasing the cost of acquisition and installation.

EASY REPURPOSING

With a wide range of materials of construction, including Hastelloy, PTFE, PVDF and FFKM & FKM elastomers, coupled with the seal-less design makes Hydra-Cell pump a reliable option for handling corrosive liquids. Many Hydra-Cell pumps are in service pumping Sulphuric, Hydrochloric, Nitric acids, Deionised water and other corrosive liquids with proven reliable service.

The easy interchangeability of liquid end parts makes repurposing of the Hydra-Cell pump simple.



Ammonia injection for NOx emissions control

LOWER Life Cycle Costs

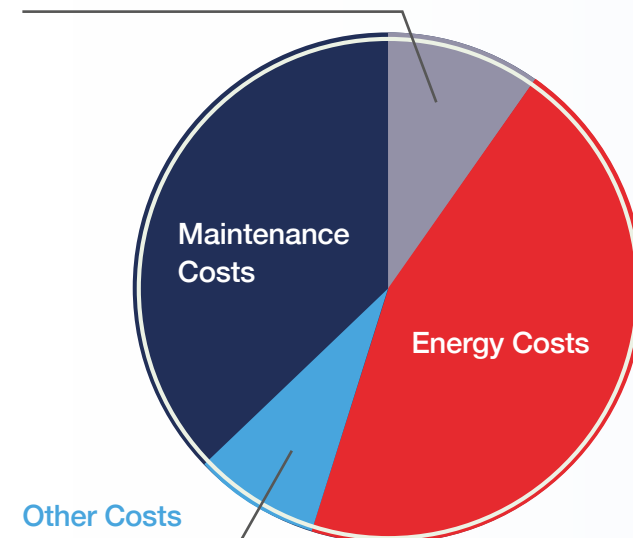
How much is your process pump costing - financially and environmentally?

Never before have pump users been faced with such financial and environmental challenges in specifying process pumps.

Driven by investors focussing on companies' commitment to sustainability, it is now more important than ever that pump engineers evaluate a pumping system on more than just the initial acquisition cost. Most major pump manufacturers and key industry bodies are producing analysis of the total life cycle costs of pumps to show both the financial and environmental costs.

Typical Life Cycle Costs for Medium-Sized Industrial Pumps - All Technologies

Initial Costs



Pumping systems account for nearly 20% of the world's electrical energy demand ranging from 25-50% of the energy usage in certain industrial plant operations.

The energy and materials used by a system depend on the design of the pump, the design of the installation, and the way the system is operated. These factors are interdependent.

What's more, they must be carefully matched to each other, and remain so throughout their working lives to ensure the lowest energy and maintenance costs, equipment life, and other benefits. The initial purchase price is a small part of the life cycle cost for high usage pumps.

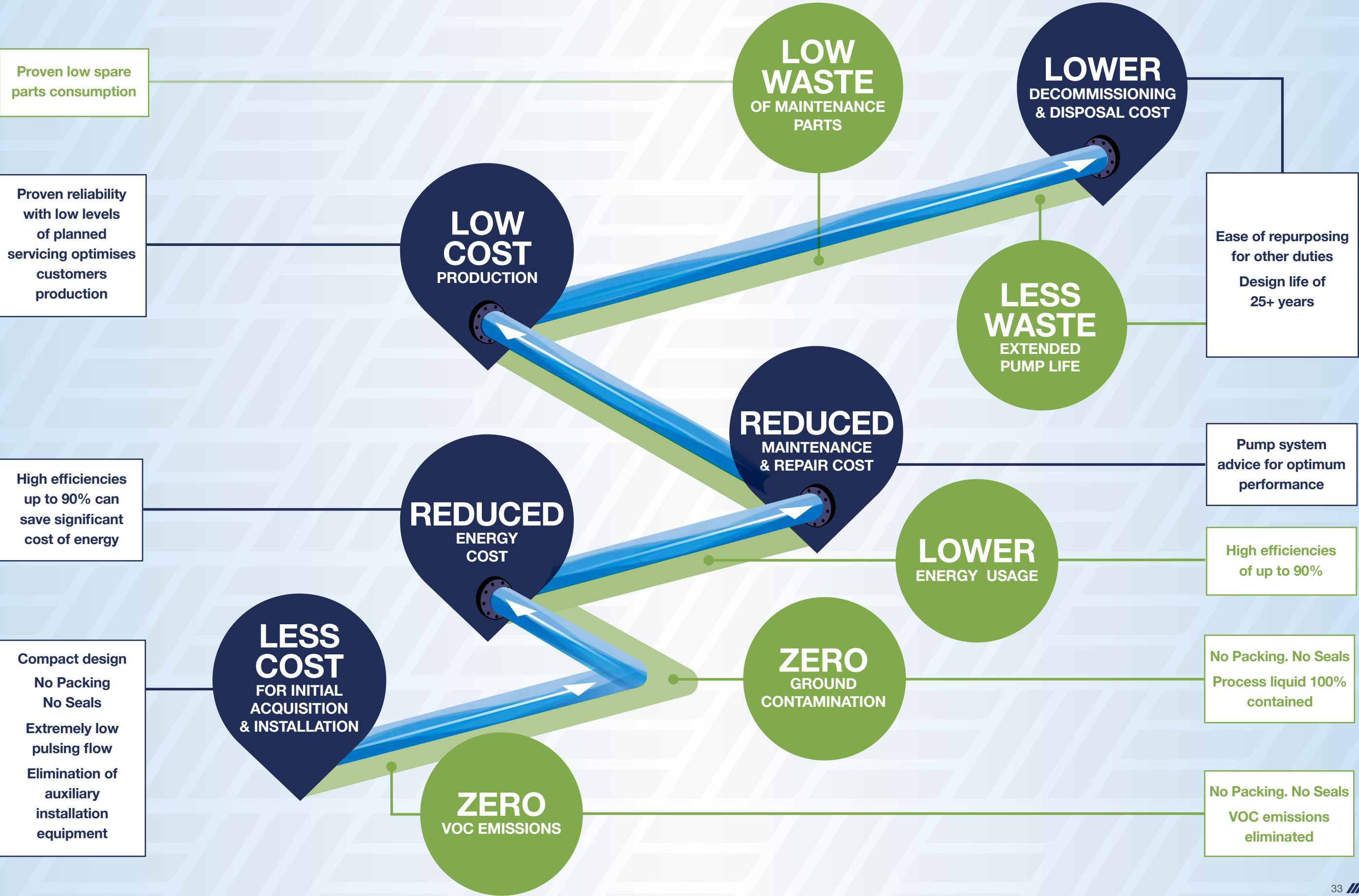
From a paper PUMP LIFE CYCLE COSTS: A GUIDE TO LCC ANALYSIS FOR PUMPING SYSTEMS
by Hydraulic Institute – Euro Pump - Office of Industrial Technologies Energy Efficiency and Renewable Energy
U.S. Department of Energy are interdependent.

Hydra-Cell technology can help to reduce maintenance and energy costs

The combination of WANNER's Hydra-Cell pump technology coupled with WANNER's technical support assisting customers has helped achieve the lowest total cost of ownership and meet their environmental and sustainability goals.

HYDRA-CELL PUMPS

Lowering Costs through the Life of Your Process Pump



HYDRA-CELL PUMPS

Creating Value

FLOW CHEMISTRY / CONTINUOUS FLOW / PLUG FLOW CHEMISTRY PUMPS



PROVEN RELIABILITY

Dosing of slurries to continuous flow reactors

A leading specialty chemicals manufacturer has a Hydra-Cell process pump installed to dose slurries and various chemicals with solid concentration ranging from (10- 30%) at a flow rate of 4ml/min to 500ml/min. The Hydra-Cell pump is running trouble-free and with only the recommended servicing.

- Extremely low pulse flow
- Reliably handles solvents, corrosives and slurry-laden liquids
- Consistent flow rate
- Wide adjustable flow range

Why Choose
Hydra-Cell?

RELIABLY HANDLING SLURRIES & LIQUIDS WITH SUSPENDED SOLIDS

The Hydra-Cell pump design with the combination of the seal-free and packing-free design, with no rotating dynamic seals, and with spring-loaded disc valves result in a consistent and reliable process when pumping slurries, abrasive and liquids with suspended solids from 0.1 to 800 microns.



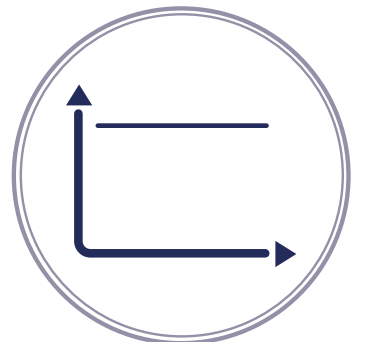
QUALITY OF PROCESS

The virtually pulse-less flow from Hydra-Cell's multiple diaphragm single pump head gives a more even distribution of injected chemicals assisting in a consistent chemical reaction.



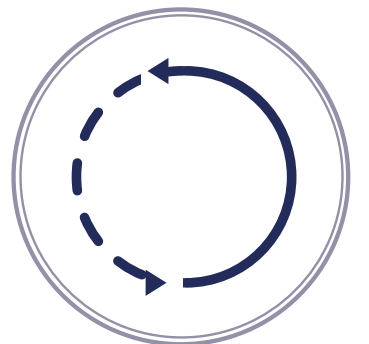
A PREDICTABLE FLOW RATE FOR A CONSISTENT PROCESS

Hydra-Cell's flow rate remains constant and predictable independent of discharge pressure, from low to high pressures. Small changes in discharge pressure effect the flow rate of a peristaltic pump for example. Wide adjustable flow range for complete adaptability from small batches to large scale production.



REPURPOSE FOR AN EXTENDED LIFE

With a wide range of materials of construction for all the wetted process liquid parts, which are easily interchangeable, make pump re-purposing for other duties simple: main process pump; CIP cleaning and booster pump.



HYDRA-CELL PUMPS

Creating Value

METERING & DOSING PUMPS



PROVEN RELIABILITY

Dosing accuracy

The end user customer, a multinational oil and gas company, uses two distillation processing towers to separate Polypropylene and Propane. As the distillation points of Polypropylene and Propane are close together, the temperature in each tower is critical and needs to be maintained very accurately. If too much liquid is dosed the temperature drops, if too little the temperature increases. Therefore, the mixture needs to be dosed very accurately into the two towers.

The Hydra-Cell pump successfully delivers a virtually pulse-less flow without the need for pulsation dampeners, with accurate flow rate control over a number of different flow rate requirements.

- Extremely low pulse
- No more leaking pipes
- No leaking hazardous chemicals
- Dosing accuracy - exceeds API 675
- Save on maintenance and environmental costs

Why Choose
Hydra-Cell?

EXTREMELY LOW PULSE, DOSING ACCURACY AND EASY CONTROL

With multiple diaphragms in a single pump head this delivers an extremely low pulse discharge flow in a compact design, eliminating the need for pulsation dampeners in many applications. This reduces installation costs and waste of expensive chemicals during servicing, maintenance or batch processing change over.

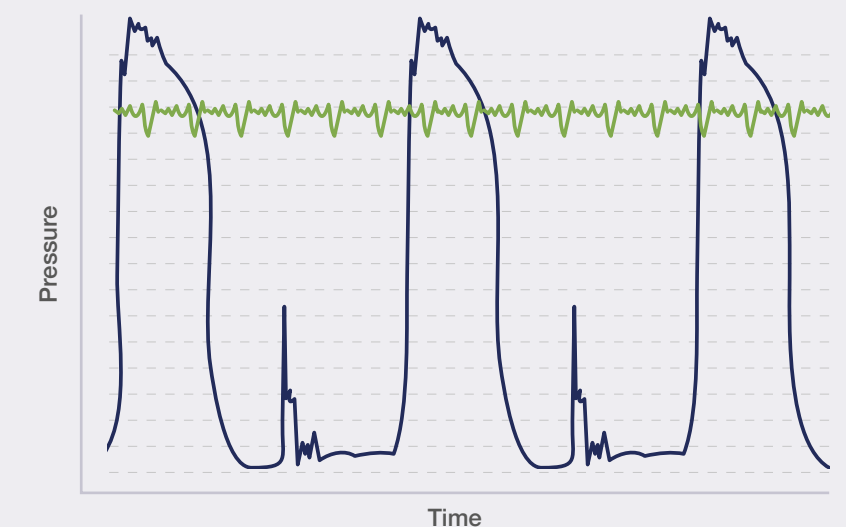
Hydra-Cell metering pumps have a smoother flow than peristaltic pumps, which pulse on discharge and often require expensive pulsation dampeners.



Pulsation graph comparison operating without pulsation dampeners

Flow rate 689 lph / Pressure 6.9 bar

- Hydra-Cell pumps
- Leading brand metering pump



HYDRA-CELL PUMPS

Creating Value

METERING & DOSING PUMPS

QUALITY OF PROCESS

The virtually pulse-less flow from Hydra-Cell's multiple diaphragm single pump head gives a more even distribution of injected chemicals assisting in a complete chemical reaction.

DIAPHRAGM PROTECTION FROM ABNORMAL AND TRANSIENT PROCESS CONDITIONS

Hydra-Cell pumps ADPC (Advanced Diaphragm Position Control) enables operation over a wide range of suction pressures from - 0.5 barg to +34 barg. Hydraulic power end design enables discharge pressure operation over a wide range of pressures without changes to the plunger or liquid end size; whereas traditional metering pumps generally need different plunger and liquid end sizes.

Watch the Hydra-Cell metering pump restricted inlet demonstration video
hydra-cell.co.uk/ADPC/API675



LONG LIFE AND RE-PURPOSE

Hydra-Cell's diaphragms are available in a wide range of long-life elastomeric materials unlike the solid PTFE diaphragms of traditional metering pumps, which can need regular and frequent replacement. Coupled with a wide range of interchangeable liquid end choices repurposing for extend usable life becomes simple.

GREATER ACCURACY AND REPEATABILITY

Hydra-Cell employs Variable Frequency Drive (VFD) electronic flow control for greater accuracy and repeatability, eliminating lost motion, reducing the chance of operator error, and removing a potential leak path and improving reliability. With the ability to run from 0 to max RPM a wide adjustable flow rate is achievable.

Meeting the same flow and pressure requirements as traditional piston diaphragm metering pumps saving space and reducing skid sizes with:

- Smaller footprint
- Lighter weight

Why Choose Hydra-Cell?

HYDRA-CELL PUMPS

Creating Value

ULTRA HIGH PRESSURE RO PUMPS



PROVEN RELIABILITY

RO leachate treatment

Two Hydra-Cell T100H pumps, running in parallel, pump leachate through an initial ultra-filtration pre-treatment stage to remove suspended solids and microorganisms. The leachate is then pumped at high-pressure by a Hydra-Cell T100K through a three stage reverse osmosis process that finally makes the effluent suitable for discharge into the environment or for use in irrigation, truck washing or dust control of the landfill's crushed rock roads.

Why Choose Hydra-Cell?

- Significantly reduce maintenance costs
- Elimination of leakage - environmentally friendly
- Reduce energy consumption

REDUCE MAINTENANCE COSTS

80% of pump maintenance and service costs are due to dynamic seals and this increases if the pumped liquid is non-lubricating, corrosive or contains particles.

The Hydra-Cell pump's seal-less (no dynamic seals) and packing-free design significantly reduces service and maintenance costs.

RELIABLE HANDLING OF LIQUIDS WITH SOLIDS

Hydra-Cell's unique, spring-loaded check valves allow particles to flush through giving more reliable performance when pumping liquids with solid suspensions, and even micron sized particles which create maintenance for pumps with dynamic seals and packing. Liquids with suspended granular solids in the range 30% can be pumped reliably (up to 45% with special considerations to system design.)

SAVE ON ENERGY COSTS WITH LOWER ENERGY USAGE

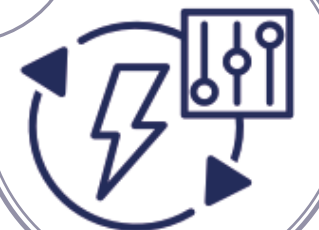
Hydra-Cell pumps' true positive displacement pumping action and minimal internal losses achieve high efficiencies as measured from pump shaft to hydraulic output power. This combined with the wide range of flow rate controllability ensures optimum energy usage – greatly reducing energy costs.

**NO SEALS
NO PACKING
NO PROBLEM**

**UNIQUE
CHECK VALVE
DESIGN**



**HIGH
EFFICIENCIES
OF OVER 90%**



HYDRA-CELL PUMPS

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REVERSE OSMOSIS / ULTRA FILTRATION PUMPS



PROVEN RELIABILITY

Reverse osmosis for cosmetics manufacturer

A cosmetic manufacturer is enjoying high-level controllability and energy efficient benefits after the installation of a Hydra-Cell RO pump in its manufacturing plant.

An important constituent of the product is algae - which has to be separated from the original solution by means of reverse osmosis.

The seal-less design of the pump allows the liquid containing the algae particles to be pumped reliably, while the low shearing pumping action of the design ensures that the structure of the essential ingredient is not destroyed.

Why Choose Hydra-Cell?

- Low shear pumping action
- Flexibility for a wider range of duties
- Accurate flow range control over a very wide range

SAVE COSTS – NO NEED FOR FINE FILTRATION

Seal-less design is tolerant of small solids, resistant to chemical and corrosive attack and there is no need to filtration.

**NO SEALS
NO PACKING
NO PROBLEM**

Watch the Hydra-Cell pump restricted inlet demonstration video

Hydra-Cell's unique ADPC (Advanced Diaphragm Position Control) technology protects the diaphragms if the inlet to the pump is blocked or accidentally closed.

hydra-cell.co.uk/ADPC



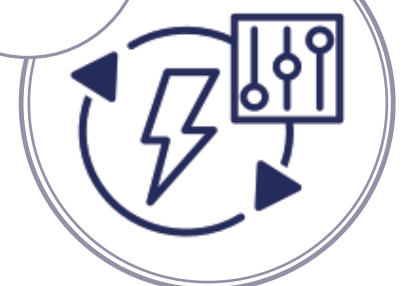
SAVE COSTS - REDUCE ENERGY CONSUMPTION

Energy costs are reduced by the high efficiency and low horsepower requirement of the Hydra-Cell pump, a serious problem with many pumps on continuous duty.

SIMPLICITY AND FLEXIBILITY

The Hydra-Cell design offers a wide range of construction materials to easily change to another duty; with easy servicing, no specialist tools required and different flange connections available.

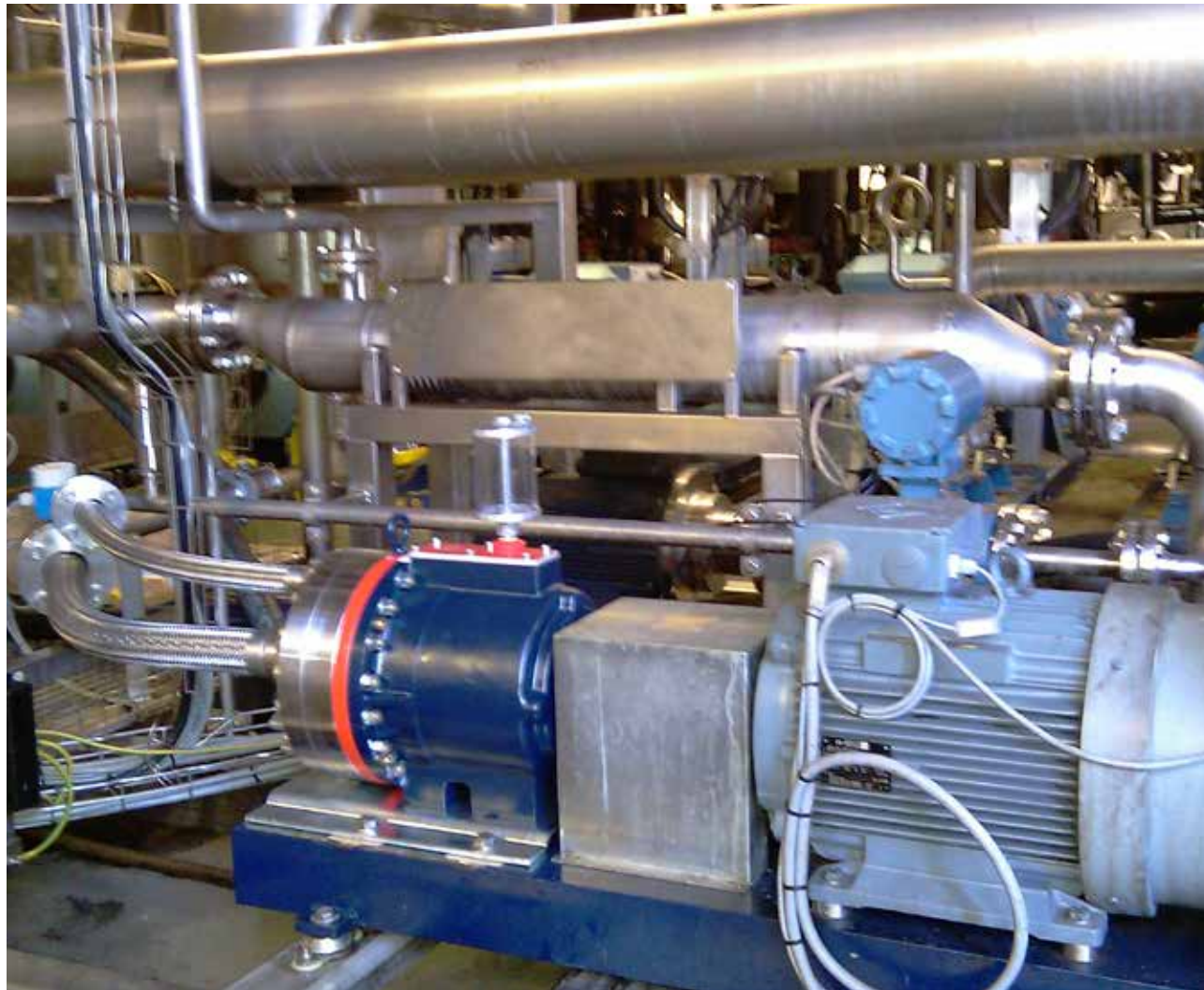
**HIGH
EFFICIENCIES
OF OVER 90%**



HYDRA-CELL PUMPS

Creating Value

FILTRATION PUMPS



PROVEN RELIABILITY

Nanofiltration for artificial sweetener production

A Hydra-Cell pump was supplied to an international OEM and subsequently incorporated into a nanofiltration rig pumping a proprietary, non-lubricating solvent containing solids for a major food additive specialist. With the pump's extremely low pulse-free flow, this protects the filter membrane against damage.

- Reliably pumping liquids with suspended solids
- Extremely low pulse flow
- Application flexibility
- Small footprint

Why Choose
Hydra-Cell?

SAVE COSTS – NO NEED FOR FINE FILTRATION

Often it is the sub 20 microns particles which cause seal and packing maintenance for pumps with dynamic seals. Fine filters blind quickly if not maintained causing the pump to cavitate.

Hydra-Cell's seal-less, packing-free design means that it can handle liquids with particles reliably, from 0 to 1mm.

**NO SEALS
NO PACKING
NO PROBLEM**

EXTREMELY LOW PULSE

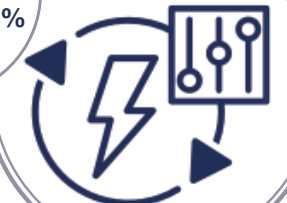
With multiple diaphragms in a single pump head this delivers an extremely low pulse discharge flow in a compact design.

**NO PULSE
NO PROBLEM**

SAVE COSTS - REDUCE ENERGY CONSUMPTION

Energy costs are reduced by the high efficiency and low horsepower requirement of the Hydra-Cell pump, a serious problem with many pumps on continuous duty.

**HIGH
EFFICIENCIES
OF OVER 90%**



SIMPLICITY AND FLEXIBILITY

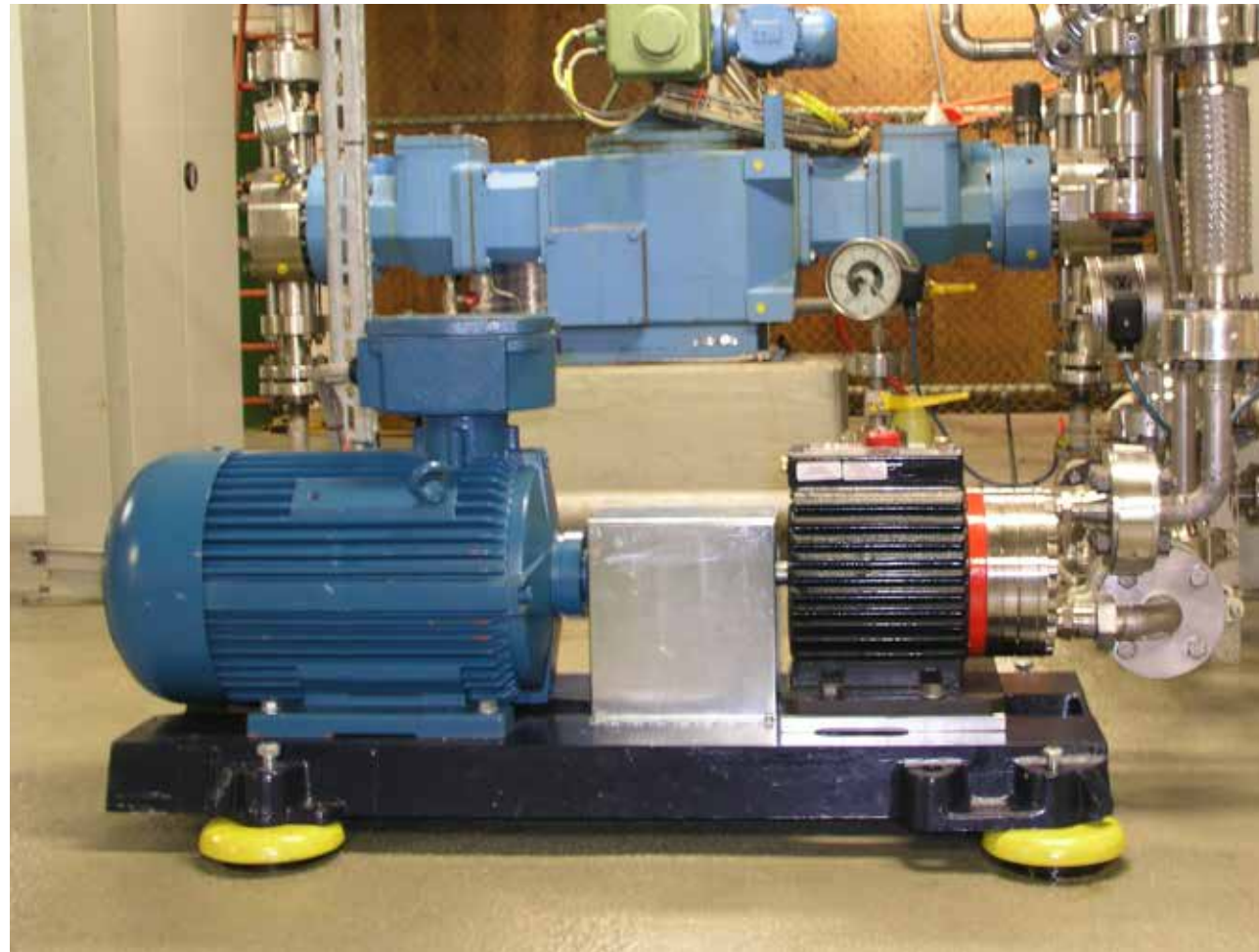
The Hydra-Cell design offers a wide range of construction materials to easily change to another duty; with easy servicing, no specialist tools required and different flange connections available.



HYDRA-CELL PUMPS

Creating Value

SPRAY DRYING PUMPS



PROVEN RELIABILITY

Spray drying aqueous emulsions

Replacing a traditional high-pressure triplex metering pump, which was costing €10,000/year to maintain, a Hydra-Cell G15 pump has now been installed on this aqueous emulsions spray drying application for more than 2 years. After a 3-month trial, the pump showed no sign of wear. Over the next 2 years service, no repairs were needed and only routine annual precautionary replacement of some parts have been made.

Why Choose Hydra-Cell?

- 100% containment. NO LEAKAGE
- Reliably handling liquids with undissolved solids, viscous and abrasive liquids
- Compact size

REDUCE MAINTENANCE COSTS

80% of pump maintenance and service costs are due to dynamic seals and this increases if the pumped liquid is non-lubricating, corrosive or contains fine particles.

The Hydra-Cell pump's seal-less (no dynamic seals) and packing-free design significantly reduces service and maintenance costs.

RELIABLE HANDLING OF DIFFICULT LIQUIDS

Hydra-Cell's unique, spring-loaded check valves allow particles to flush through giving more reliable performance when pumping liquids with solid suspensions. Liquids with suspended granular solids in the range 30% can be pumped reliably (up to 45% with special considerations to system design.)

NO SEALS
NO PACKING
NO PROBLEM

UNIQUE
CHECK VALVE
DESIGN



HYDRA-CELL PUMPS

Creating Value

LIQUID CHROMATOGRAPHY PUMPS

PROVEN RELIABILITY



Extremely low pulse flow – high pressure liquid chromatography (HPLC)

Pump specification and performance are critical factors in this process for an OEM, who manufactures HPLC skids for pharmaceutical companies.

Essential features include high-pressure pumping capability, resistance against corrosion and ability to produce precise flow with no pulsation.



Extremely low pulse flow – low pressure liquid chromatography (LPLC)

This customer manufactures systems for liquid separation using column chromatography techniques.

19 x Hydra-Cell pumps are installed within LPLC systems for a major pharmaceuticals company for separating various solvent acids and aqueous solutions for commercial scale production.

- Very accurate control of flow rate
- Elimination of pulsation dampeners

Why Choose Hydra-Cell?

SAVE ON INSTALLATION COSTS

With multiple diaphragms in a single pump head this delivers an extremely low pulse discharge flow in a compact design eliminating the need for pulsation dampeners in many applications. Acceleration head losses on the suction side of the Hydra-Cell pump are greatly reduced due to the multiple diaphragm pumping elements that have short stroke lengths.



VERY ACCURATE CONTROL

A true positive displacement pump capable of handling high inlet and discharge pressures while also maintaining an accurate steady-state flow.



HYDRA-CELL PUMPS

Creating Value

MAIN PROCESS PUMPS

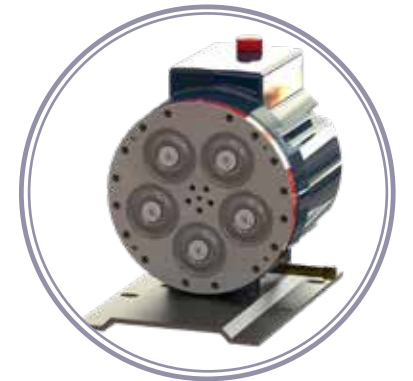


Why Choose Hydra-Cell?

- Extremely low pulse flow for a continuous flowing process stream, pressure injection and dosing
- Accurate control of flow rate over a wide adjustable range

EXTREMELY LOW PULSE, ACCURATE AND COMPACT

With multiple diaphragms in a single pump head this delivers an extremely low pulse discharge flow in a compact design eliminating the need for pulsation dampeners in many applications. Acceleration head losses on the suction side of the Hydra-Cell pump are greatly reduced due to the multiple diaphragm pumping elements that have short stroke lengths.



SAVE ON ACQUISITION COST & PLANT SPACE

Hydra-Cell pumps are more compact with a smaller footprint and are generally a fraction of the size of competitor pumps. This reflects in lower costs, especially where exotic alloys are required for wetted parts in order to pump aggressive chemicals.



PROVEN RELIABILITY

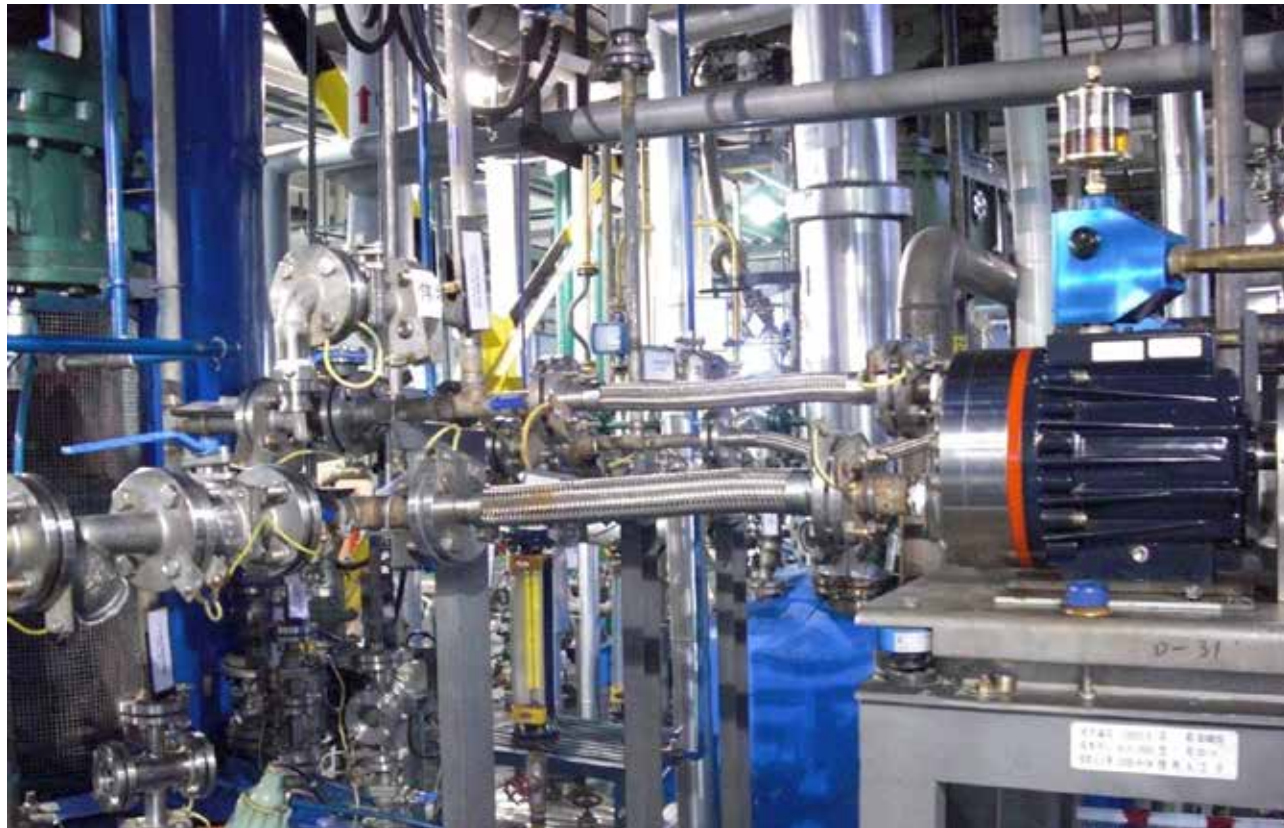
High grade phosphoric acid manufacture

Hydra-Cell process pumps handle hot corrosive liquids for a major manufacturing plant that produces phosphoric acid; the high grade material is used widely in many different food processes, as well as within the production of phosphate salts, in electrochemical polishing, detergent manufacture, ceramics, plastics and even in fire retardants.

HYDRA-CELL PUMPS

Creating Value

LIQUID TRANSFER PUMPS



PROVEN RELIABILITY

Lower power consumption and a lower total cost of ownership

A leading paint manufacturer installed a system for a variety of process liquids to be transferred that varied in viscosity from 0.4 mPa to 1000 mPa. Some liquids contained solid particles, and accurate chemical proportions were critical to the process.

Compared to the previously installed triplex metering pump and a single headed diaphragm pump, Hydra-Cell successfully handled the abrasive solids, had a lower power consumption, lowering the total cost of ownership. And with its extremely low pulse-free flow delivering precision metering exceeding API 675, the Hydra-Cell pump needed no pulsation dampeners.

- Low energy consumption
- No seal flushing
- 100% containment
- Low shear
- Handling viscous slurries

Why Choose
Hydra-Cell?

SAVE COSTS - LOW ENERGY CONSUMPTION

Hydra-Cell pumps' true positive displacement pumping action and minimal internal losses achieve high efficiencies, as measured from pump shaft to hydraulic output power – lowering energy usage.

SAVE COSTS – ELIMINATE SEAL FLUSHING

Hydra-Cell seal-less pumps have no dynamic seals, packing or cups in contact with the pumped liquid and therefore require no seal flushing saving on overall maintenance costs.

SAVE ON MAINTENANCE COSTS - RELIABLY HANDLING VISCOUS SLURRIES

The seal-less design allows Hydra-Cell pumps to handle liquids of all types including viscous slurries.

PROTECTING YOUR PROCESS - LOW SHEAR

Hydra-Cell's unique valve design and low shear pumping action minimises shear to optimise the process consistency. With no dynamic seals, its seal-less design ensures 100% containment, with no leakage there is no waste and keeps it free from oxygen to stop degradation.

NO SEALS
NO PACKING
NO PROBLEM



HYDRA-CELL PUMPS

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PROVEN RELIABILITY



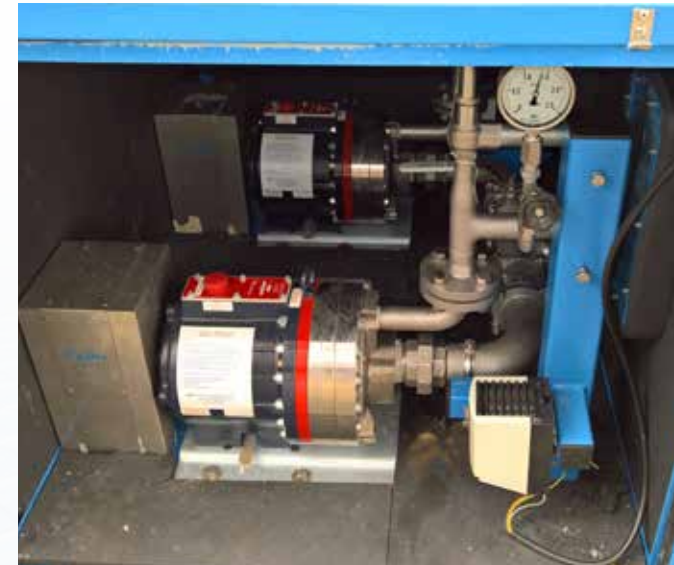
CIP CLEANING

Some of the liquids handled in these pipeline systems at a major UK refinery have high H₂S content, they also contain particles. The pipes are cleaned with hot water at 80-85°C to minimise the corrosion of the pipework. To pump these liquids reliably at pressure, the refinery chose Hydra-Cell pumps rather than plunger pumps.



STEAM GENERATION

Hydra-Cell pumps are used for feeding water at 90°C for steam generation at a UK hospital. The pumps are incorporated as original equipment by the system manufacturer, an innovator and international market leader in steam and boiler technology. An established and long-term user of Hydra-Cell pumps in its systems.



EMISSIONS CONTROL

Reliably handling the abrasive, corrosive and non-lubricating nature of urea and demineralised water in a fertiliser and chemical production facility. By installing Hydra-Cell acquisition, installation and maintenance have been greatly reduced.

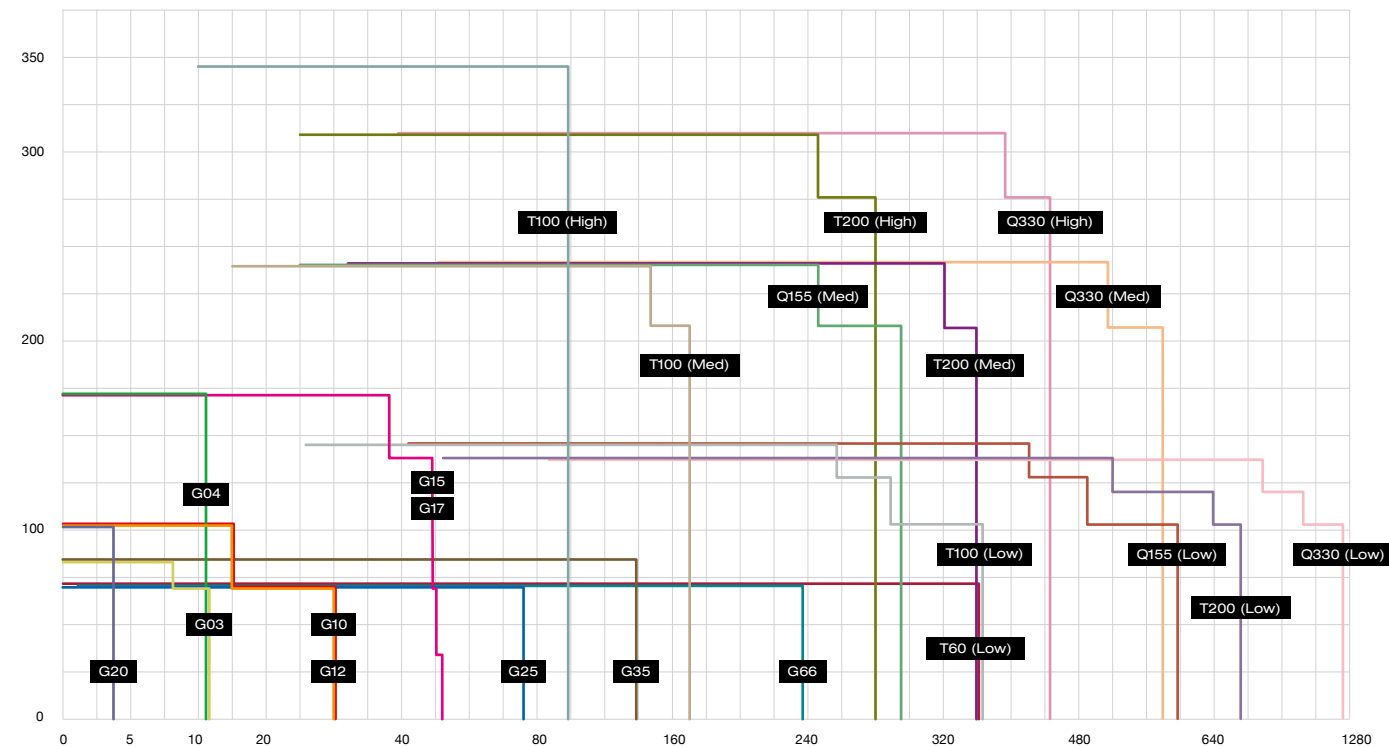


PRESSURE INJECTION & MIXING

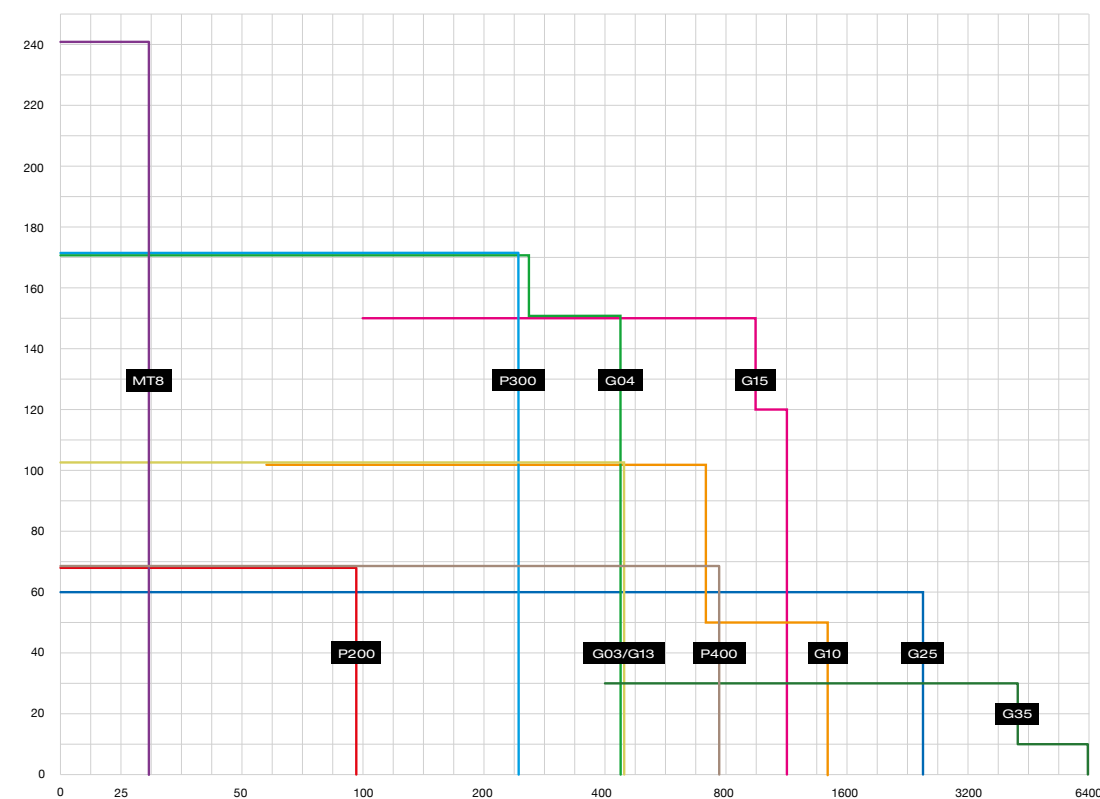
A leading manufacturer of industrial chemicals and pesticides uses methanol as a solvent for this particular manufacturing process; the hazardous methanol is injected at high pressure to complete the required reaction. Hydra-Cell replaced the previously installed plunger pump ensuring zero leakage, and control of the flow rate irrespective of the discharge pressure.

PUMP SELECTION

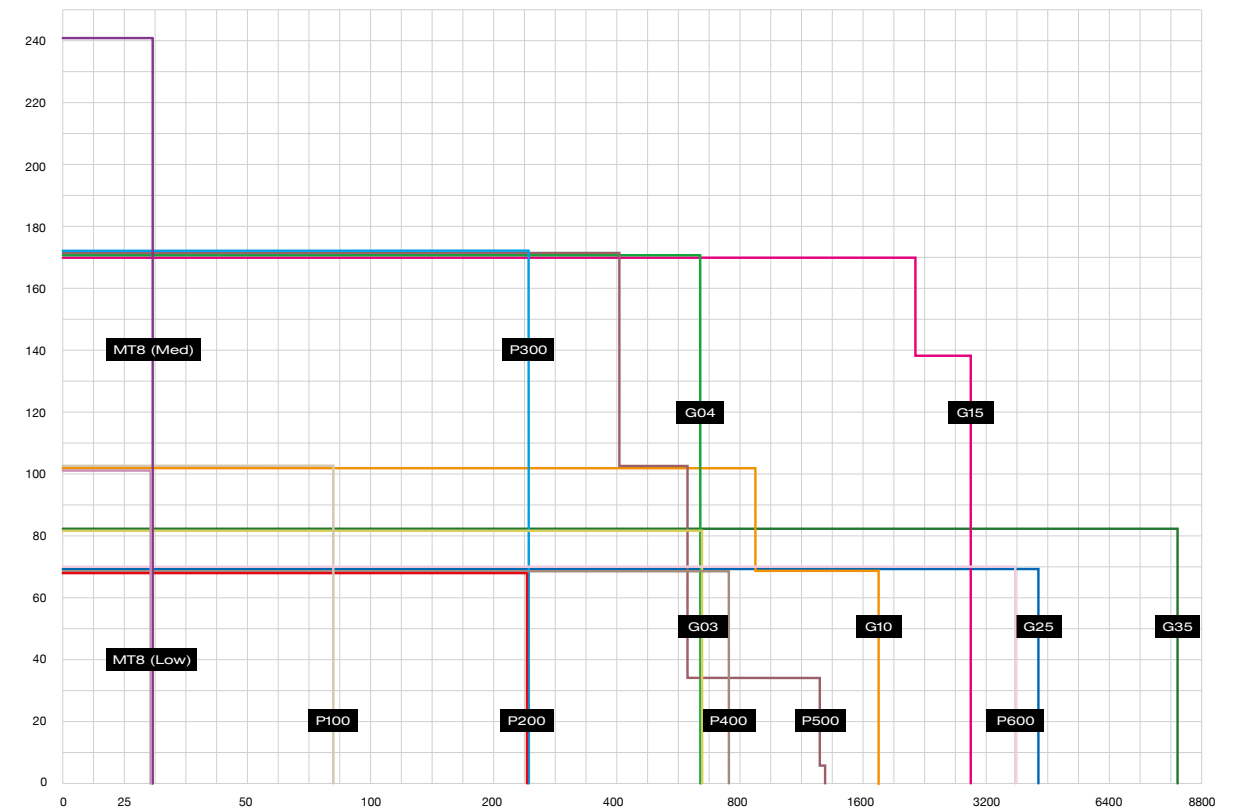
INDUSTRIAL PROCESS PUMPS



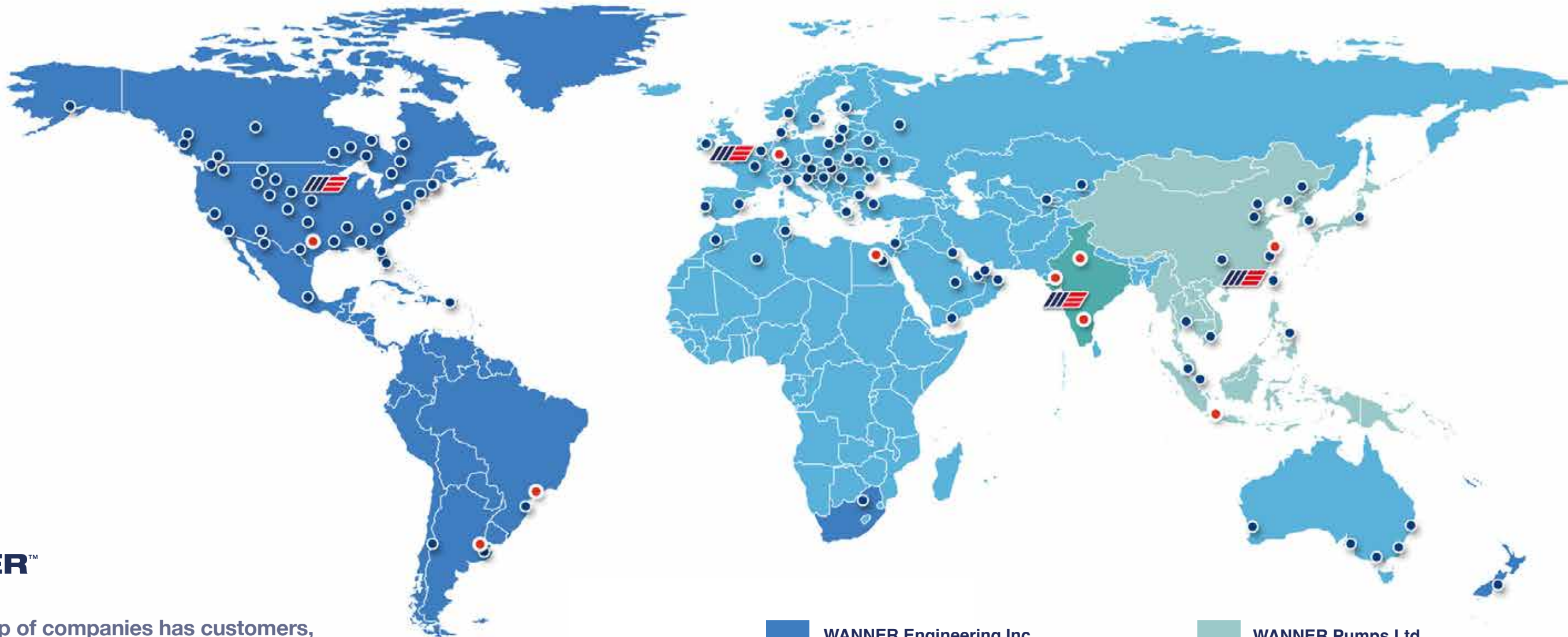
METERING & DOSING PUMPS ATEX / HAZARDOUS AREAS



METERING & DOSING PUMPS NON-ATEX / SAFE AREAS



GLOBAL SUPPORT



The WANNER group of companies has customers, partners and suppliers all around the world, and it's our priority to help our customers run far more cost-effective, environmentally sound and safe pumping processes as part of their overall operations.

Our global network of Hydra-Cell® champions and our WANNER technical engineers can easily set-up video conference calls or face-to-face meetings. We have all had to change the way we work, but we still have real humans answering the phone ready to help with your process challenge.

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