

MICROPUMP®

A Unit of IDEX Corporation

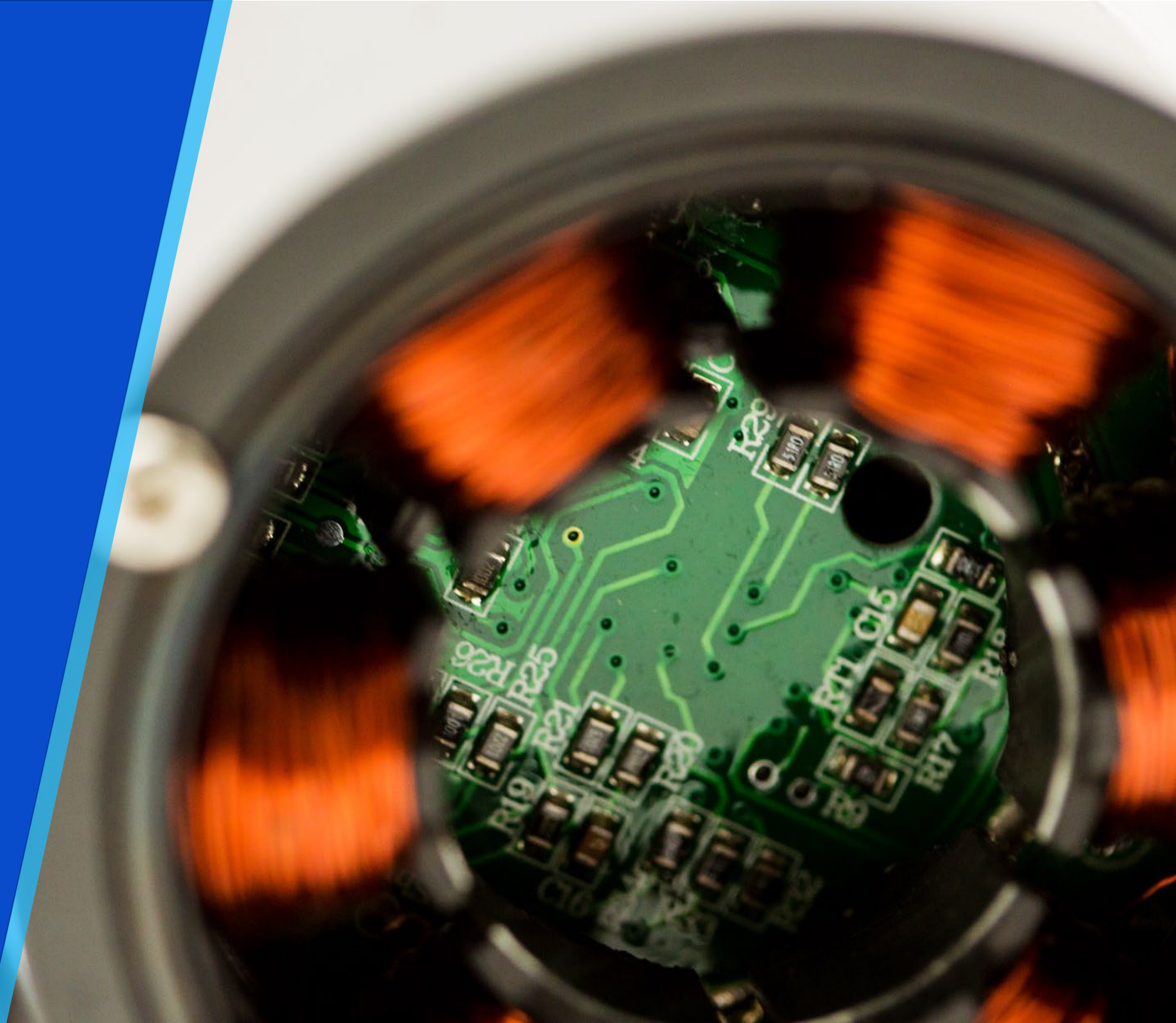
Innovative Pumping Solutions

David Grimes

Staff Engineer

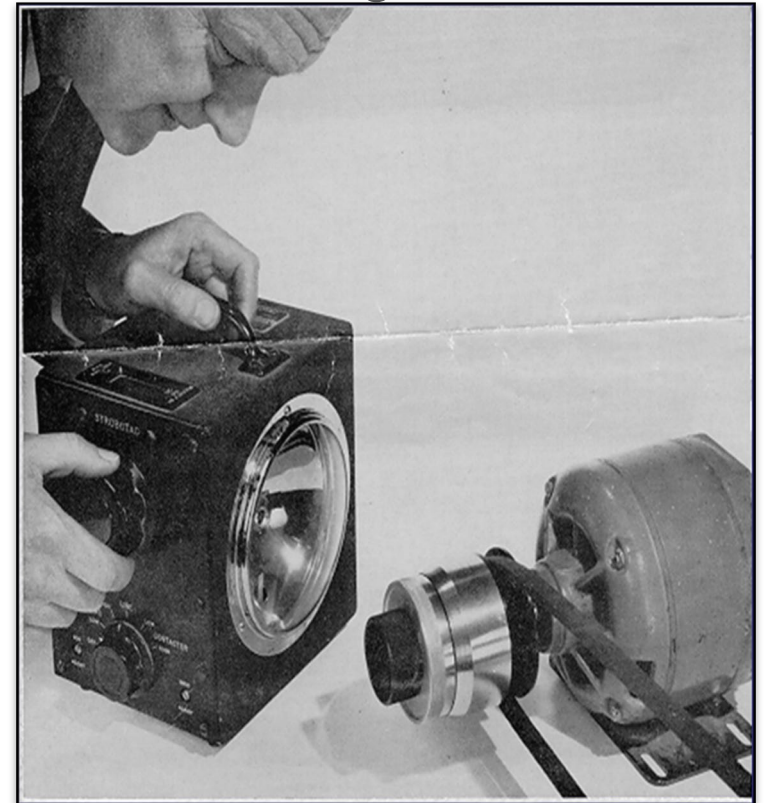
15 March 2022

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History

- Started in a garage in 1960 by Tom Martin, a NASA engineer
- The originator and market leader of magnetic drive gear pumps
- Original markets included aircraft
- Acquired by IDEX in 1995



Micropump Edge

People & Processes

People

- Experience in OEM equipment from a broad market base

Processes

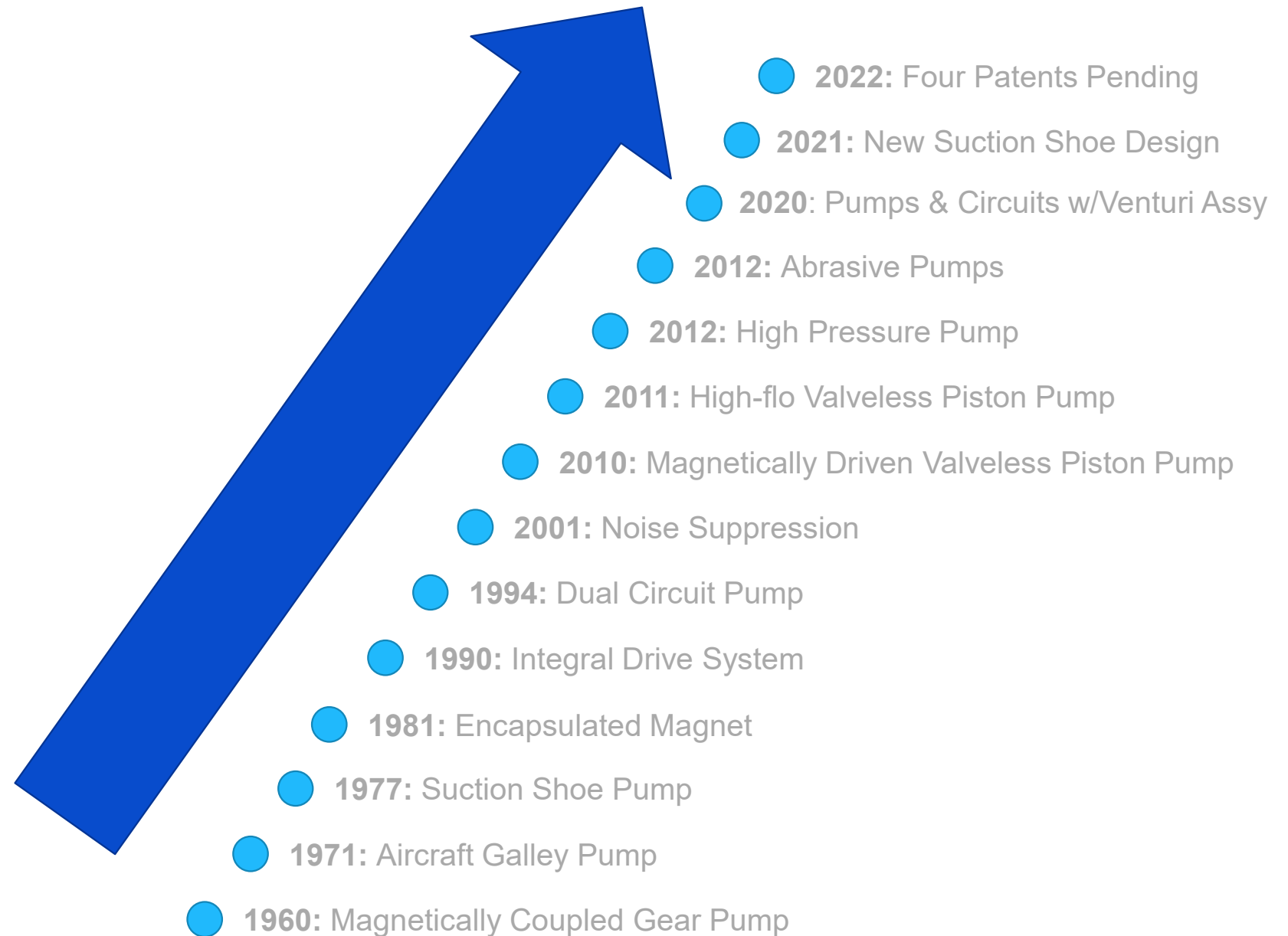
- Innovative Solutions through Concurrent Engineering
- Extensive Continuous Testing
- Design Optimization

Technology

- Hydraulic Efficiency (flow vs. pressure)
- Power Efficiency (“wire to water”)
- Corrosion Resistance
- Abrasion Resistance
- No Dynamic Seals
- Pulse-less, Continuous Flow
- Reversible
- Dispense Accuracy
- Fast Response

60+ Years of
Engineering
Expertise

MICROPUMP®



Product Innovation & Technology Breadth

Current Pumps

- External Gear Cavity Style
- External Gear Suction Shoe
- Centrifugal

Historical Pumps (No longer produced)

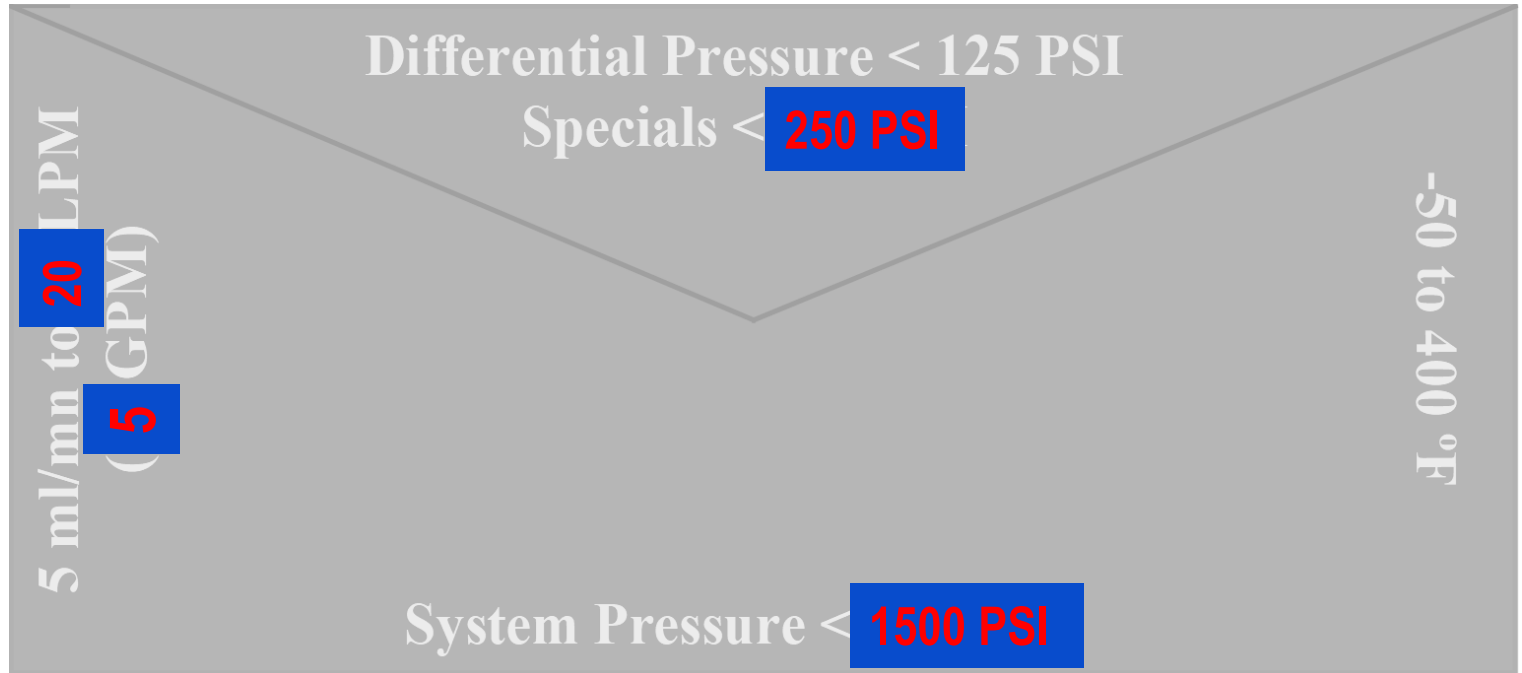
- Micro-Annular
- Valve-less Piston
- Axial Piston
- Peristaltic
- Vane
- Micro-Cavity

Drives

- Patented integral drives
- Fully integrated drive modules

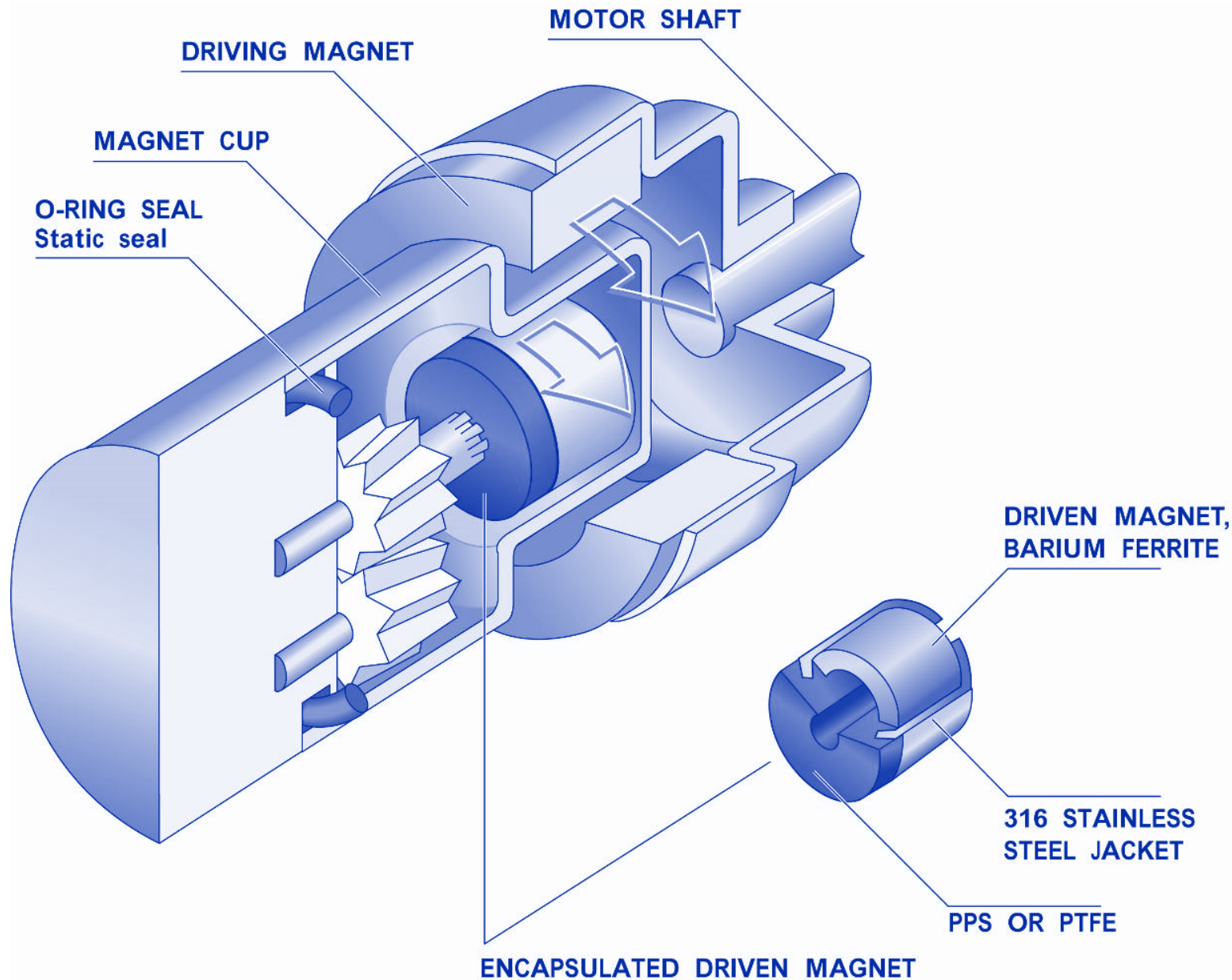


Performance Envelope



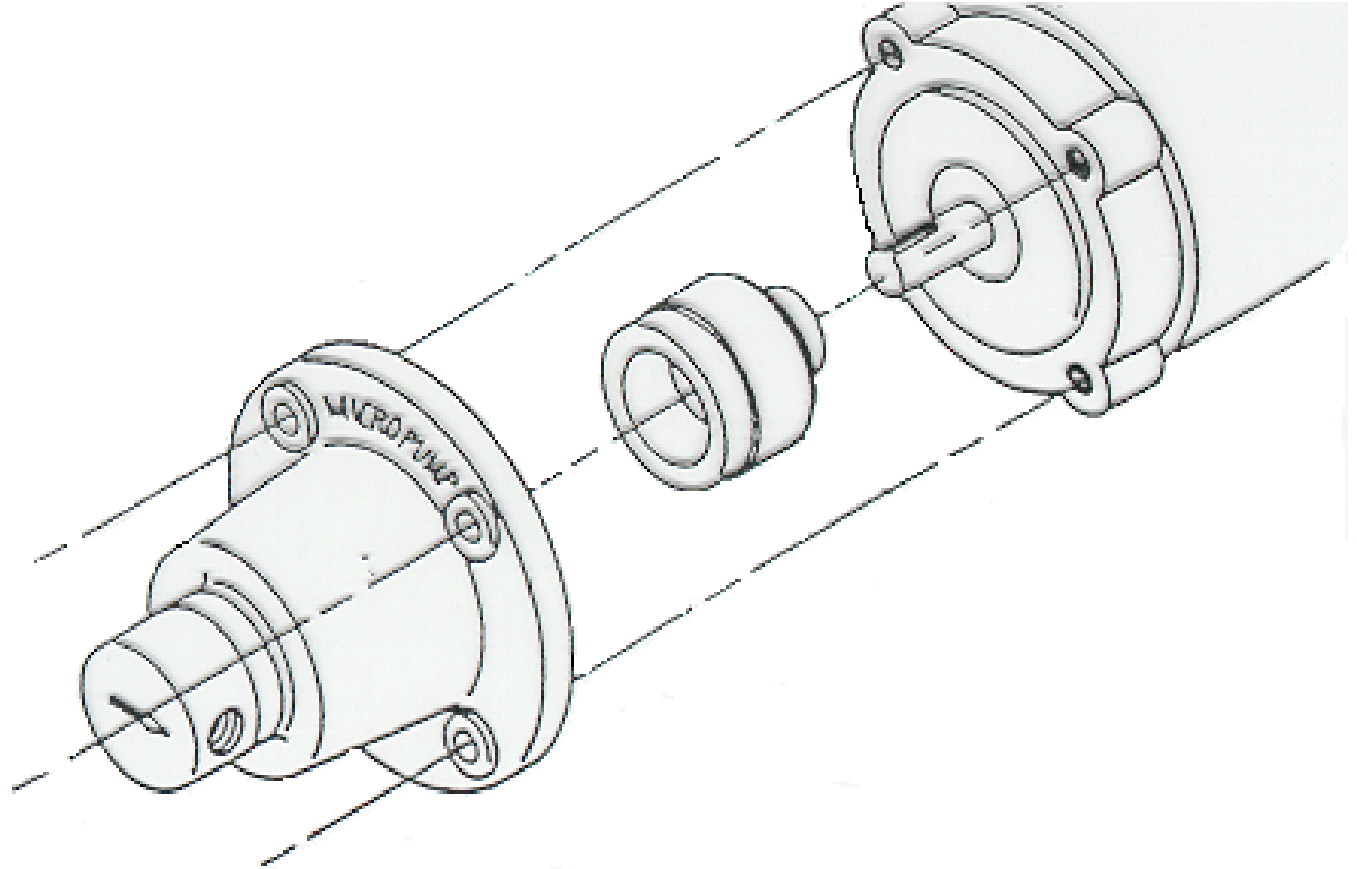
Magnetic Drive Pump

MICROPUMP®



Magnetically Driven Pump

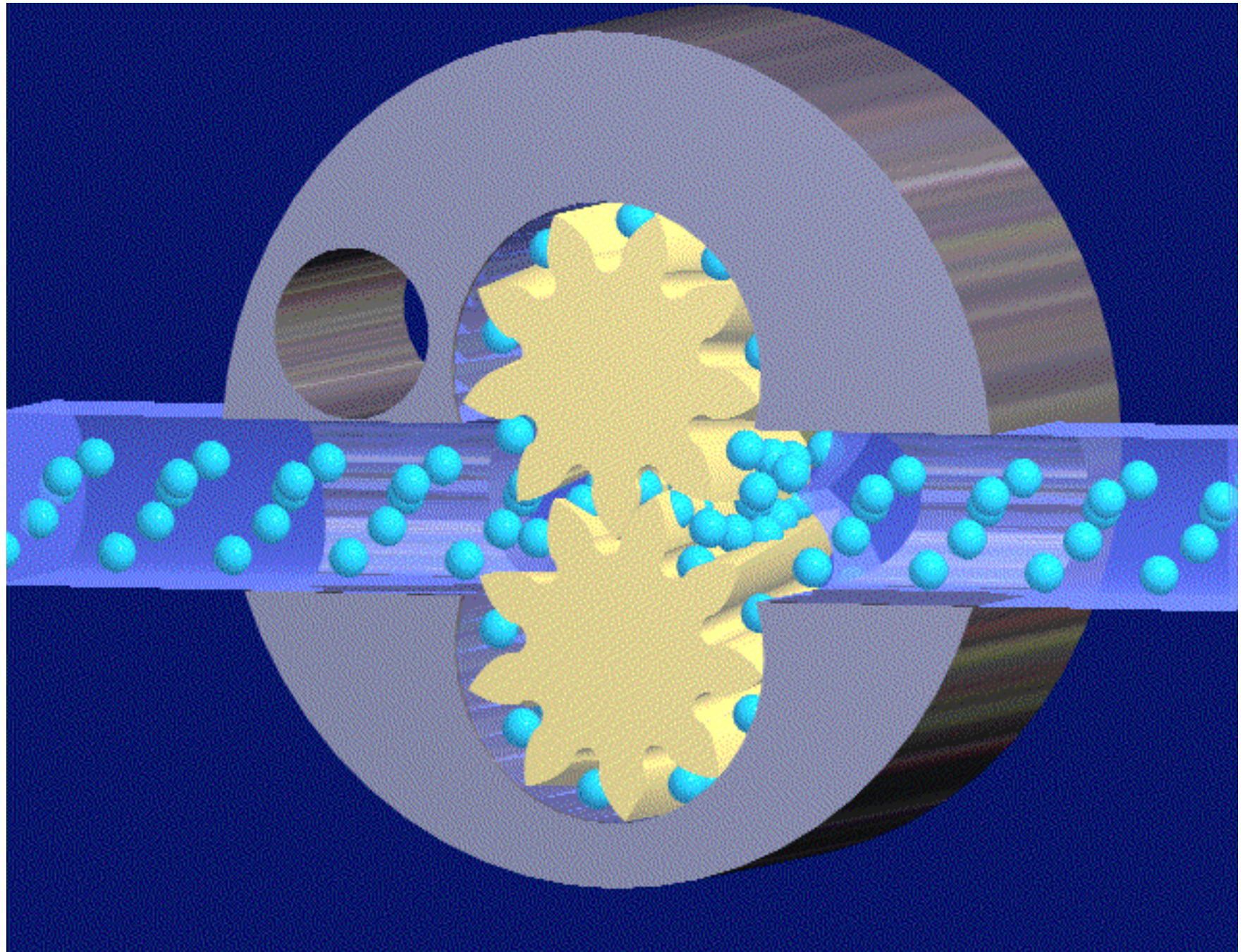
Magnetic
Drive



Magnetic Drive

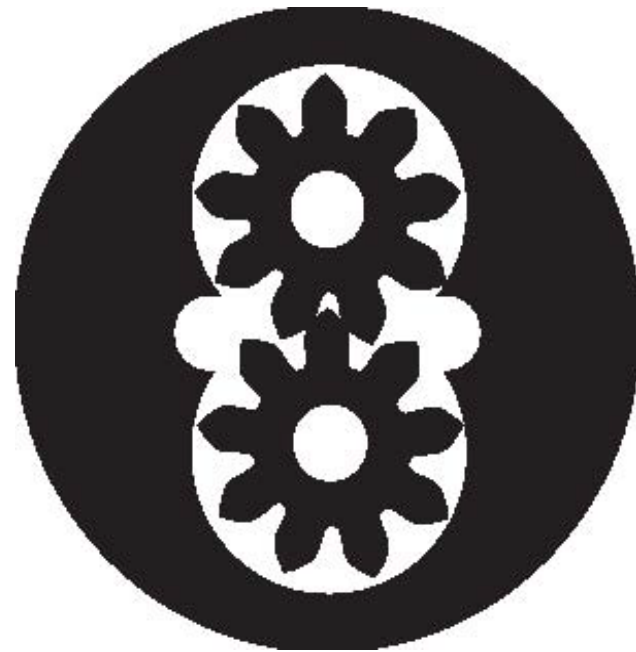
- The magnetic attraction between the Driving and Driven magnets has a torque limit.
- Magnet Decouple occurs when this torque limit is exceeded.
- The Decouple point is determined by magnet strength, but is influenced by temperature, fluid viscosity and system conditions.
- Magnet Decouple will result in total non-performance of the pump whilst the motor appears to be operating normally.
- Once the two magnets Decouple they will not re-couple until the driving magnet is brought to a complete stop. The two magnets will then automatically align and re-couple.

External Gear Pumps

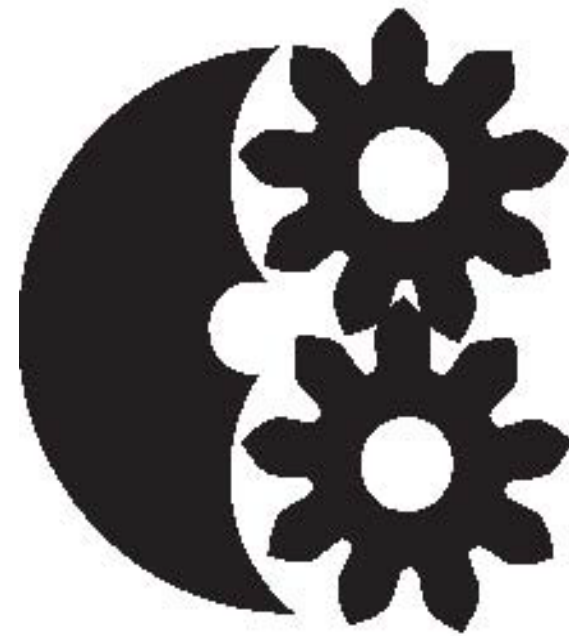


External Gear Pump

Cavity Style

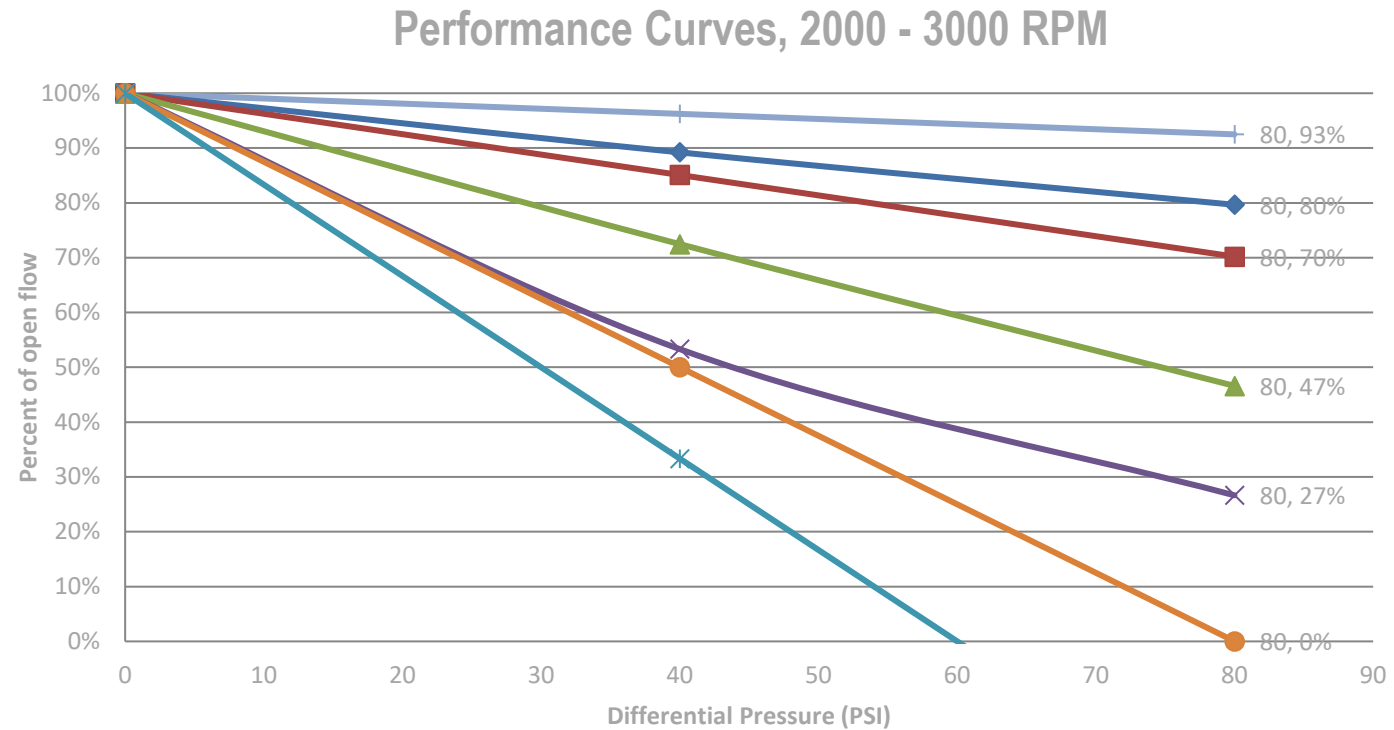


Suction Shoe



The suction shoe design is a patented design and is exclusive to Micropump products.

Differentiation - Technology



One or more of:

If CTC Needs are:

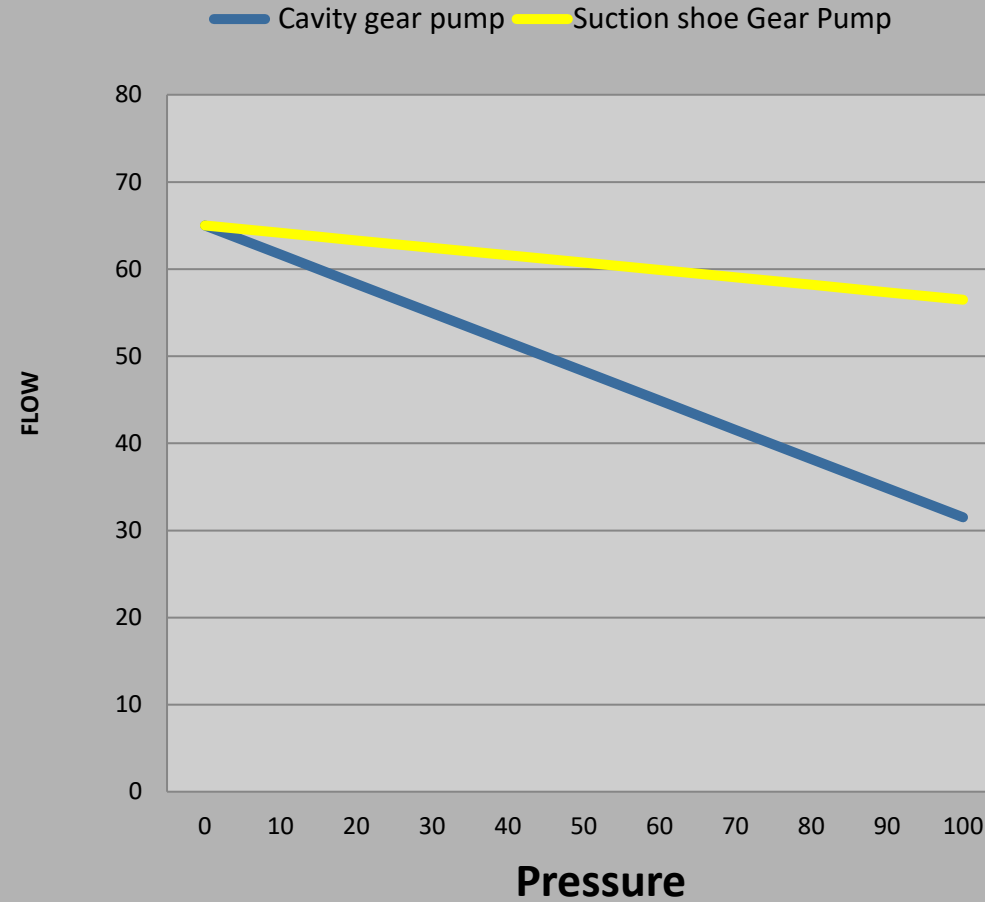
Hydraulic Efficiency, η +

- ◆ Power efficiency
- ◆ Corrosion resistance
- ◆ Abrasion Resistance
- ◆ Leak free
- ◆ Pulseless, continuous flow
- ◆ Dispense accuracy

= Sustainable Advantage

Micropump Edge = High Hydraulic Efficiency

Gear Pump Repeatability

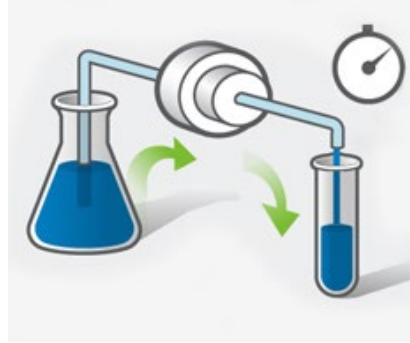


The suction shoe effect

Basic Pump Applications



Continuous



Metering: Delivery at a controlled, adjustable flow rate
Application: Adhesive dispensing, SCR



Circulating: Pumping through a closed circuit
Application: Continuous Ink Jet

Discrete



Dosing: Delivery of a specific quantity
Application: Paint



Delivery/ Transfer: Movement from point A-B, where flow rate is less important
Application: Chemical Delivery / Transfer

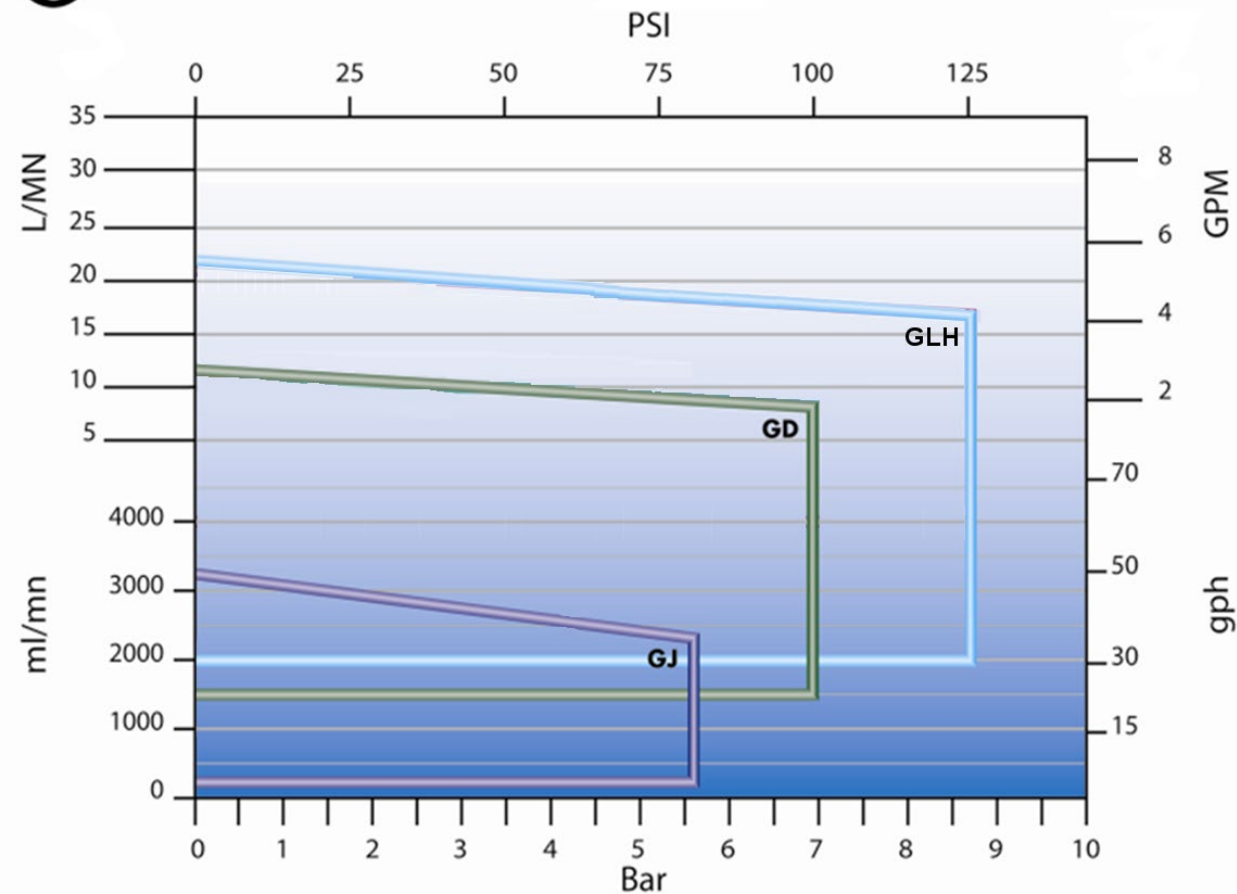
Cavity Design



GJ Series (120) GD Series (2200) GLH Series (5000)



CAVITY DESIGN



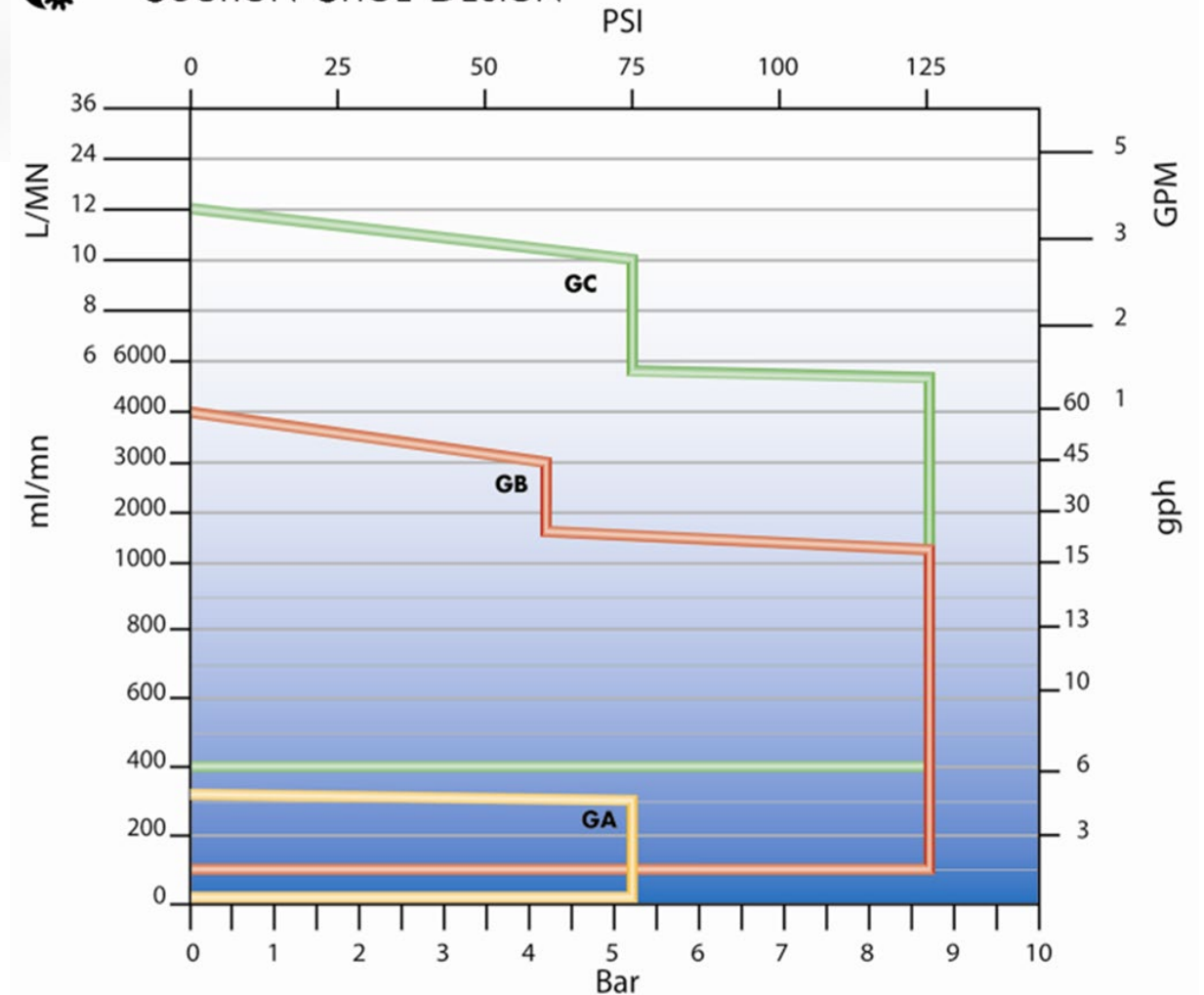
Suction Shoe Design



GA Series (180) GB Series (200) GC Series (220)



SUCTION SHOE DESIGN



Drives



DB 380.A DRIVE



DB 380.B DRIVE



DC 331A.C DRIVE



DP 415A.A DRIVE



DN 519.A DRIVES



DJ 605.A DRIVE

Electromagnetic Drives

EagleDrive is the newest generation of integrated electromagnetic drive.



High Power

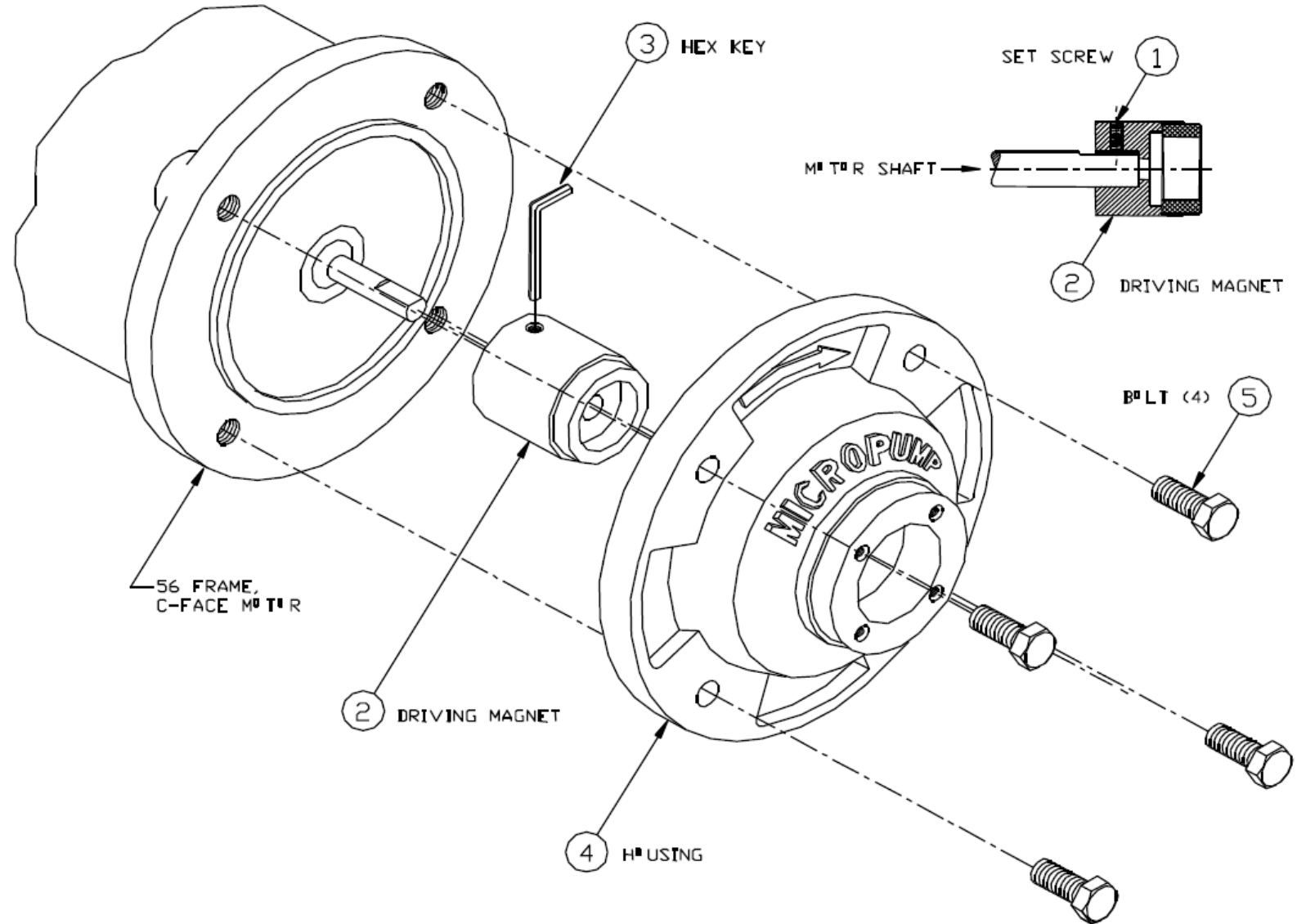
■ EagleDrive EL



Lower Power

■ EagleDrive MS

Adapter Kits



Obsolete Products

Obsolete Products:

- GK Series (114)
- GM Series (5500)
- GN Series (10K)
- PF Series

Contact

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Application questions, technical support

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