

CUP-VS4

HEAVY DUTY, VERTICAL SUMP PUMPS, API 610 / ISO 13709





SPX - An introduction

SPX is a Fortune 500 multi-industry manufacturing leader, headquartered in Charlotte, North Carolina. SPX manufactures and markets products, components, services and technologies that are integral to meeting today's challenges and tomorrow's needs. We are a place where innovation is fostered, and the real needs of business are understood. We transform ideas into powerful solutions to help our customers meet their goals, overcome business challenges and thrive in a complex, always changing marketplace.

SPX's Flow Technology segment designs, manufactures and markets engineering solutions and products used to process, blend, meter and transport fluids. We also offer equipment for air and gas filtration and dehydration. Our leading brands have global operations which service the food + beverage, power + energy, and industrial processes.



CLYDEUNION PUMPS, AN SPX BRAND - GENERATIONS OF EXPERIENCE

Whilst the name is relatively new, the ClydeUnion Pumps brand is known worldwide for supplying reliable and robust engineered pumping solutions stemming from over 140 years of industry expertise. Our experience spans across several complex industries including oil and gas, nuclear and conventional power generation, desalination and other key markets relevant to our product portfolio.

› ClydeUnion Pumps



Weir Pumps - Clyde Pumps - Mather & Platt -
Drysdale - WH Allen - Girdlestone -
Allen Gwynnes - Harland



Union Pump - David Brown Pumps
DB Guinard Pumps - American Pump - Pumpline



› ClydeUnion Pumps



High technology pumps for the most demanding services

ClydeUnion Pumps, an SPX Brand, specialises in the design and manufacture of API 610 centrifugal pumps and pumping packages. At ClydeUnion Pumps you will find a commitment to quality throughout the company. Our Quality Management System is fully approved to ISO 9001:2008 and independently verified to comply with the latest quality standards. ClydeUnion Pumps has a worldwide reputation for providing optimised reliability in the most severe duty applications.

REFINERIES

Today's complex refinery processes demand specialised pumping solutions. Extremes of temperature, high pressure and the ability to handle volatile fluids, calls for highly engineered pumps that can perform reliably in such arduous conditions.

ClydeUnion Pumps has many years of worldwide experience in supplying process pumps to the refinery industry and is committed to providing its customers with solutions for the most complex of pumping requirements.

PETROCHEMICALS

ClydeUnion Pumps has worldwide experience of engineered pumping systems for petrochemical applications. The process and transferring of petrochemicals demands a high level of pumping reliability. ClydeUnion Pumps has a reputation for supplying reliable pumps which can be found working throughout the world in the most aggressive applications.



OIL + GAS PRODUCTION

High efficiency and reliability are major benefits of ClydeUnion Pumps equipment - both of which are vital considerations in the oil and gas industry. Pumps have been supplied to satisfy a wide range of pumping services including oily water separation, flare knock-out drum, sour water drum and amine sump pumps.

INDUSTRIAL

The ClydeUnion Pumps CUP-VS4 can be utilised in many other sump emptying applications across a wide variety of industrial applications, including slop transfer, drain drum and wastewater transfer.

CUP-VS4 - Heavy duty, long shaft, vertical sump pump

The ClydeUnion Pumps CUP-VS4 is a vertical suspended, single-casing volute, line-shaft driven sump pump. All units comply with API 610.

There are hundreds of ClydeUnion Pumps CUP-VS4 pumps operating worldwide, on a variety of sump applications, manufactured in a variety of alloys. The units have been designed to suit customer requirements with lengths available up to 6m sump depth.

ADVANTAGES OF WET SUMP INSTALLATION

- The ability to pump fluids with high vapour pressure
- Extraction from depths that would be impossible with conventional pumps
- A permanently submerged and fully primed pump end
- Sealing problems minimised and as a primary pump a seal is not required
- Space saving

EASE OF MAINTENANCE

The simple construction of the CUP-VS4 pump offers ease of maintenance and reliability. Options are available for non-spacer and spacer couplings dependant on sealing option.

PUMP CONFIGURATION

With a wide variety of materials, pump and motor combinations along with an extensive range of column lengths, the CUP-VS4 is already established as the first choice for many customers.

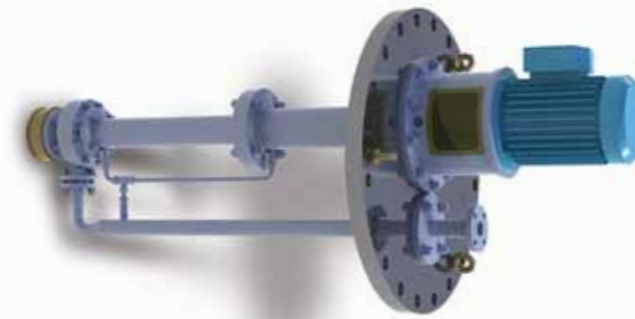
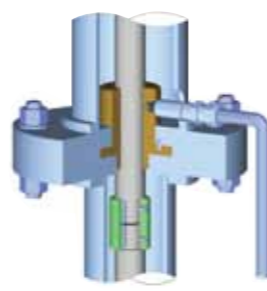
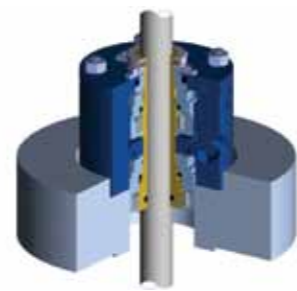
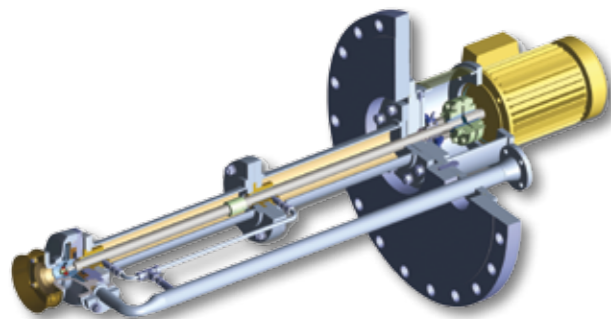
This, combined with an unsurpassed international service network, clearly reflects our commitment to be the "Best in Class" for your pump supply.

PUMP DESIGN SPECIFICATION

The CUP-VS4 pump comes in two design specifications. We offer pumps in accordance with the latest edition of API 610 and an industrial standard range, both of which offer ease of maintenance and reliability.

GIRDLESTONE COMPANY HISTORY

- 1889** Girdlestone & Co. was founded in England by W.O Girdlestone
- 1928** Girdlestone Pumps was established
- 1955** Girdlestons ongoing reputation for pumps capable of operating at an extremely low NPSH opened up whole new industrial process markets
- 1985** The first 900 Series pumps were launched
- 1991** Within six years the 900 Series had grown in sales to allowing Girdlestone to be able to claim market leading status in the chemical and API 610 markets
- 1992** Girdlestone acquired by Warman, confirming the Company's position as a truly international supplier of industrial process, chemical and API 610 pumps
- 1999** Girdlestone acquired by the Weir Group Plc.
- 2007** Clyde Pumps acquires Weir Pumps business in Glasgow
- 2008** Clyde Pumps changes its name to CLYDEUNION Pumps after several more acquisitions and successful joint ventures
- 2011** CLYDEUNION Pumps acquired by US Fortune 500 company SPX - ClydeUnion Pumps, an SPX Brand is formed



CUP-VS4 - Features

1 FLANGE / PLATE

- ANSI Class 150 or rectangular plate options
- ANSI B16.5 or ANSI B16.47
- Two earthing points
- Carbon or 316L stainless steel options
- Other material options available

2 SUCTION STRAINER

- 316L stainless steel as standard. Other material options available

3 CASING

- Replaceable suction cover design, integral wear rings as standard and conventional wear ring option available
- Bellmouth suction flange construction

4 IMPELLER

- Precision cast impellers, keyed drive with lock nut and washer fixing
- Axial adjustment via lock nut above mounting plate. Balance holes for hydraulic balance as per API 610
- Integral wear ring design and conventional wear ring option available

5 SHAFTS

- Duplex stainless steel. Other options available
- Robust keyed and pinned couplings

6 COLUMNS

- Fully welded with flange and spigoted joints
- 316L stainless steel as standard. Other material options available

7 LINE BEARINGS

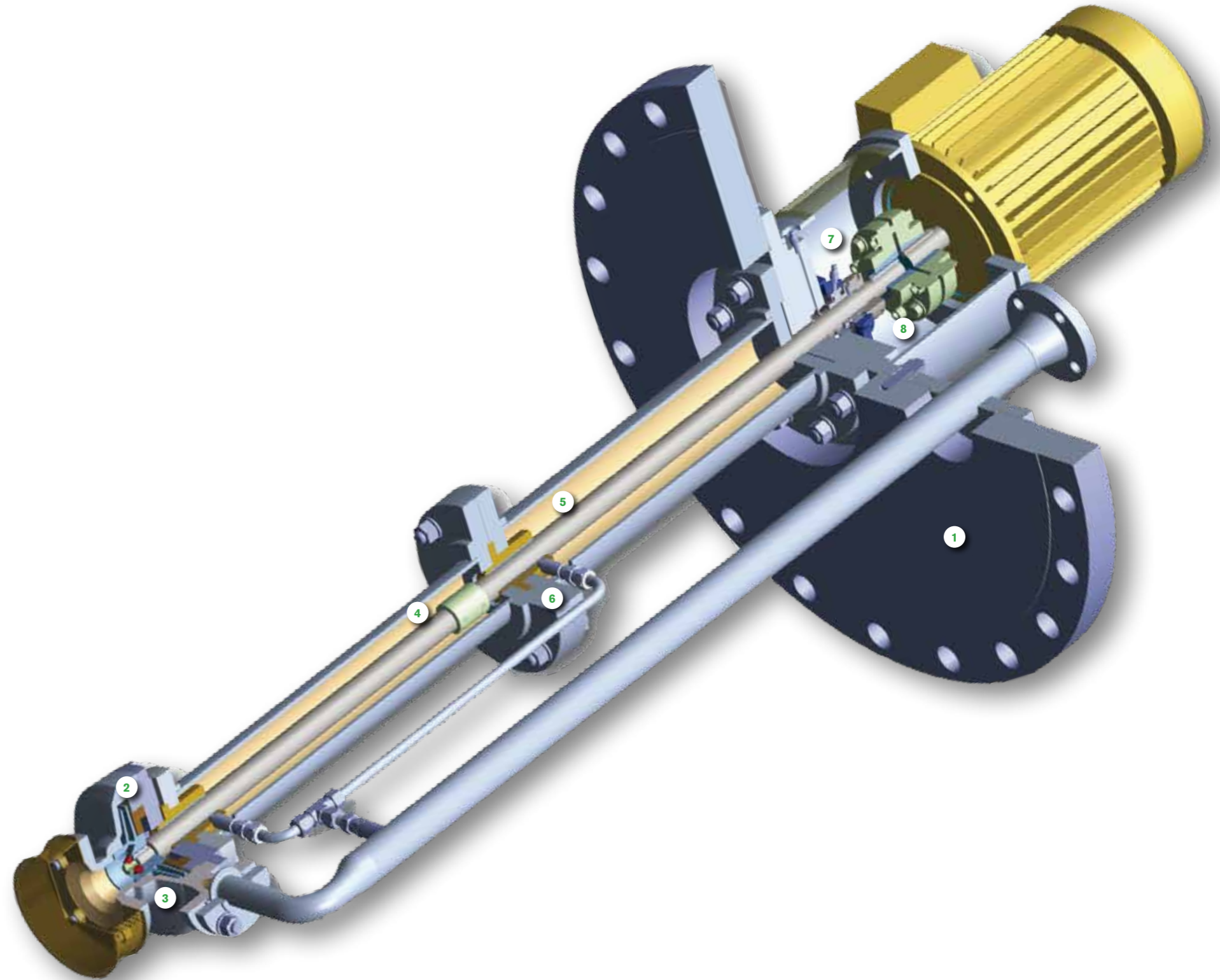
- Grooved carbon / PTFE bearings. Pumped fluid or external flush options
- Individually flushed bearings
- Maximum distance between bearings as per API 610

8 BEARING ASSEMBLY

- Self contained bearing unit
- Grease lubrication, option for oil
- Temperature and vibration monitoring available

9 SEALING OPTIONS

- Twin lip seals, grease packed as standard
- Single mechanical seal cartridge with dry running optional
- Dual mechanical seal complete with support systems available



Optional arrangements + features

DUAL CARTRIDGE SEALS

- For high integrity, zero emission sealing, the CUP-VS4 is available with dual seals in dry or wet configuration

CP SEAL SYSTEM

- CP System technology offers a proven history in improving seal life, particularly under varying suction pressures
- The unique CP System design provides an excellent mechanical sealing environment in the most demanding process conditions

ROBUST BEARING HOUSING DESIGN

- Designed for minimum 25,000 hour L10 life
- Self contained bearing unit
- Grease lubricated as standard, oil available as an option

SEALING OPTIONS

- The CUP-VS4 has a distinct advantage over a VS1 style pump. VS1 pumps discharge through a central column, generating high pressure in the gland area. By contrast, the CUP-VS4 does not pressurise this area and is therefore able to utilise reliable low cost seal arrangements

TWIN LIP SEALS

- Very reliable, cost efficient method of shaft sealing for CUP-VS4 on unpressurised, general sump applications

SINGLE CARTRIDGE SEALS

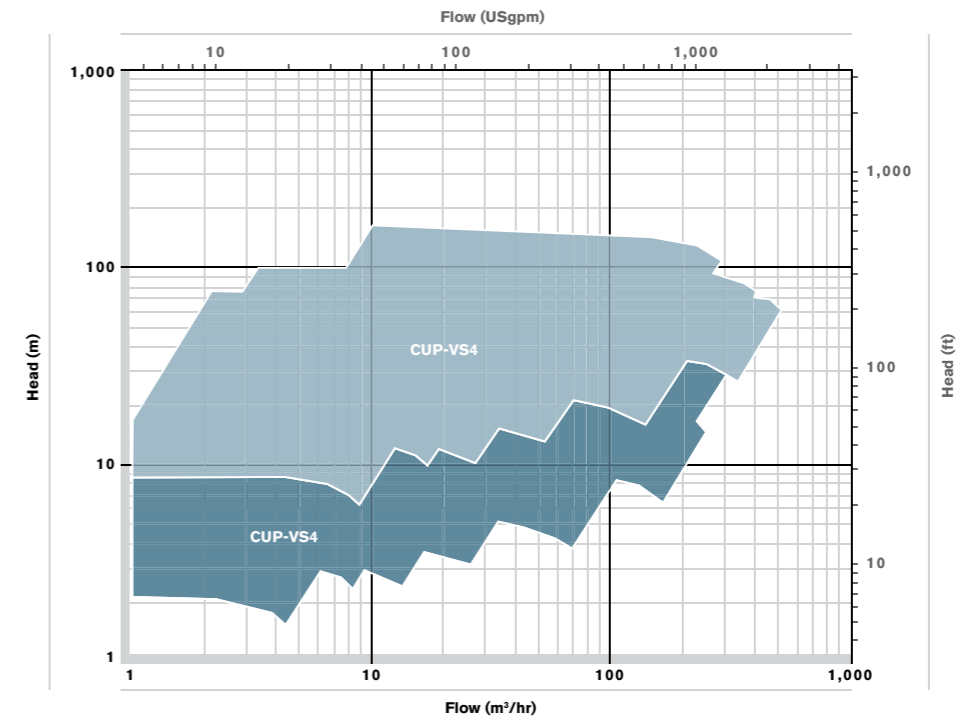
- Both contact and non-contact technology can be employed depending on duty conditions

SHAFT COUPLING + LINE BEARING DESIGN

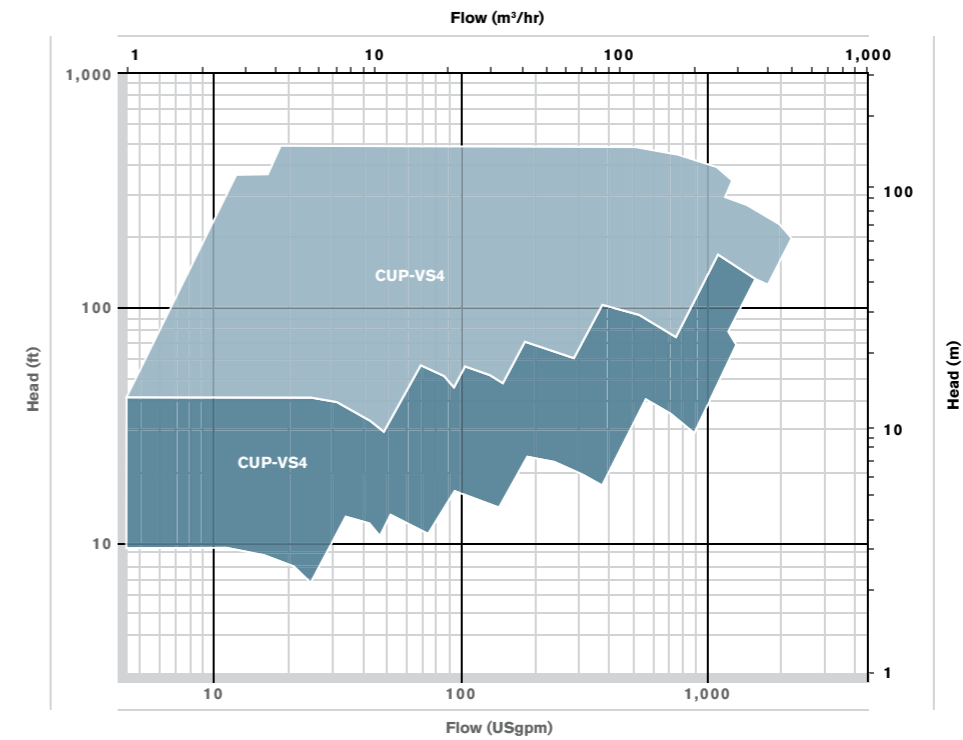
- Grooved carbon/PTFE bearings
- Pumped fluid or external flush options
- Individually flushed bearing
- Maximum distance between bearings as per API 610
- Robust keyed and pinned couplings

Standard hydraulic range - coverage charts

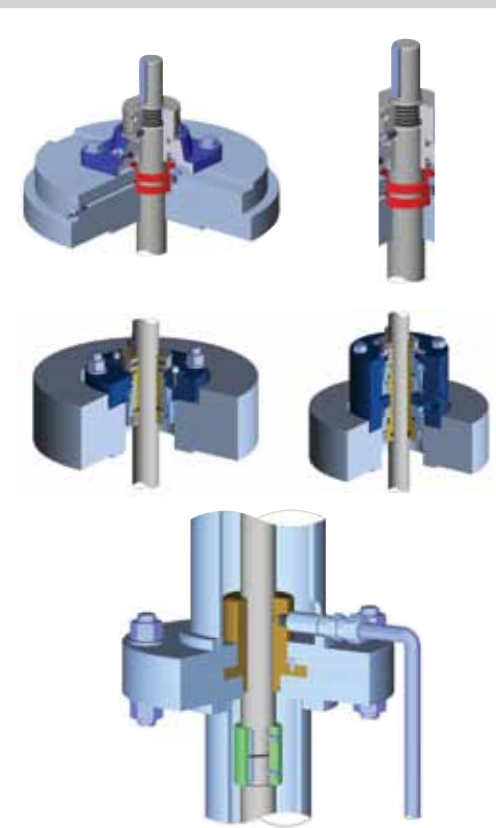
50HZ RANGE COVERAGE CHART



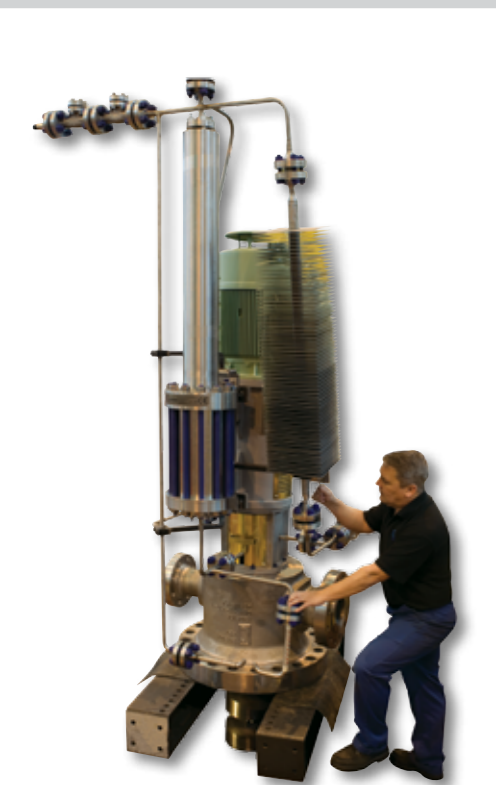
60HZ RANGE COVERAGE CHART



These charts cover the CUP-VS4 standard pump range. Other engineering designs exist for extreme applications



Above: Robust bearing housing design/twin lip seals /single cartridge seals/dual cartridge seals/ shaft coupling + line bearing design
Below: CP seal system





Global aftermarket capability best in service + response

Our customer focused aftermarket organisation is positioned to provide comprehensive care for our varied and diverse product lines. Heritage and obsolete products benefit from the same level of attention and expertise ensuring that reliability and availability is maximised irrespective of a pump's length of service.

GENUINE HIGH QUALITY

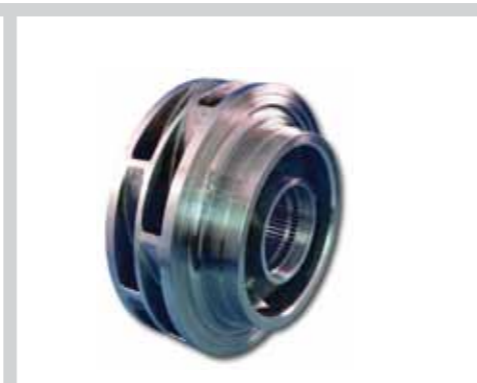
Original or upgraded specification spare parts, coupled with full engineering design capability, enables longevity of reliable operation. Highly skilled and experienced service engineers ensure accuracy in build and optimised performance. The worldwide presence of ClydeUnion Pumps offers local service facilities in over 40 countries.

SERVICE SOLUTIONS

ClydeUnion Pumps is committed to supporting our installed base wherever it may be. Depending on your location we will provide either direct service support or support via our local authorised service partners. Whichever option is provided, you can be assured of the best attention from fully qualified and experienced engineers.

- Upgrades + re-rates
- Service + overhaul
- Installation + commissioning
- Technical support
- Inventory management
- 3rd party equipment

Parts + maintenance:
Any brand, any material, anytime. Heritage products, upgrades + improvements



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API 610 / ISO 13709



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