

CUP-0H2

HEAVY DUTY, RADIALY SPLIT, OVERHUNG PUMPS, API 610 / ISO 13709





SPX - An introduction

Based in Charlotte, North Carolina, SPX Corporation (NYSE: SPW) is a global multi-industry manufacturing leader with approximately \$5 billion in annual revenue, operations in more than 35 countries and over 14,000 employees. The company's highly-specialized, engineered products and technologies are concentrated in Flow Technology and energy infrastructure. Many of SPX's innovative solutions are playing a role in helping to meet rising global demand for electricity and processed foods and beverages, particularly in emerging markets. The company's products include food processing systems for the food and beverage industry, critical Flow components for oil and gas processing, power transformers for utility companies, and cooling systems for power plants. For more information, please visit www.spx.com.



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



Cost-effective, proven reliability in demanding applications

ClydeUnion Pumps, an SPX Brand, is synonymous with quality and reliability. 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 optimized reliability in the most severe duty applications.

The latest CUP-OH2 pumps are designed to the most recent edition of API 610 and based upon decades of experience in supply to Oil & Gas, Chemical, Petrochemical, Power Generation and Desalination applications. SPX has used its expert engineering capability and process knowledge to enhance this range of pumps for high performance and reliable operation at competitive prices.

- Without compromise on quality, the CUP-OH2 has been re-engineered to ensure it is a highly competitive solution
- Thousands in operation worldwide across diverse applications
- One of the most robust pumps of its type in the industry; exceeding requirements of API 610 including shaft deflection below that required for the standard
- Simple construction designed for easy maintenance with back pull-out assembly
- Decades of proven engineering excellence with heritage from Union Pump, David Brown, Guinard Pumps and Clyde Pumps brands



- Complete solutions: Proven capability in providing even the most complex of bespoke pumpsets including electric motors, gearboxes, steam turbines, diesel engines, control panels and instrumentation
- As standard, the CUP-OH2 pump casings are designed for double the nozzle loads defined in API 610 Table 4



CUP-OH2 API610 Pumps: Key Features

All of the pumps in the CUP-OH2 range comply with API 610 and are designed for exceptional performance and long life in the most demanding of process conditions.

- Centerline mounting meets stringent API noise and vibration limits
- Exceptionally high rigidity baseplate designs
- Long bearing life: minimum 25,000 hour (L10)
- Oil flinger disks used as standard, reducing issues associated with over-lubrication
- Bearing isolators throughout to reduce risks
- Machined brass cages
- Bearing frame cooling fins provide optimum heat dissipation

There are thousands of ClydeUnion CUP-OH2 pumps operating worldwide on services as diverse as:

- Heat transfer fluids and other products at 426°C (800°F) service temperatures
- Light hydrocarbon refinery services with specific gravities of 0.45 and less

Wide variety of fluids pumped as standard. Custom built models are also available for extreme applications including S9 construction for use with HF acid.

Other Typical Applications

- Refinery processes
- Petrochemical process and transfer
- Offshore applications
 - Refinery processes
 - Petrochemical process and transfer
 - Offshore applications
- Produced water treatment
- Flare knock-out drum
- Sour water
- Amine sump



CUP-OH2 - Features

1 CASING

- Centreline mounted casings, API 610 nozzle loads

2 SUCTION NOZZLE

- Flow straightening vane reduces inlet swirl to ensure uniform flow into the impeller eye
- Top suction nozzles available on selected sizes

3 WEAR RINGS

- Renewable case and impeller wear rings
- Rings are secured by tack welds as standard

4 CASING TO COVER

- Metal to metal fit with controlled compression gasket
- Series 300 stainless steel flexible graphite gasket used as standard

5 CASING DRAIN

- Casing can be fully drained, socket weld flange drains as standard

6 IMPELLER

- Designed to provide low suction specific speeds
- Streamlined impeller locknut used for improved suction performance
- Balance holes are optimised to ensure long bearing and seal life

7 SEAL CHAMBER

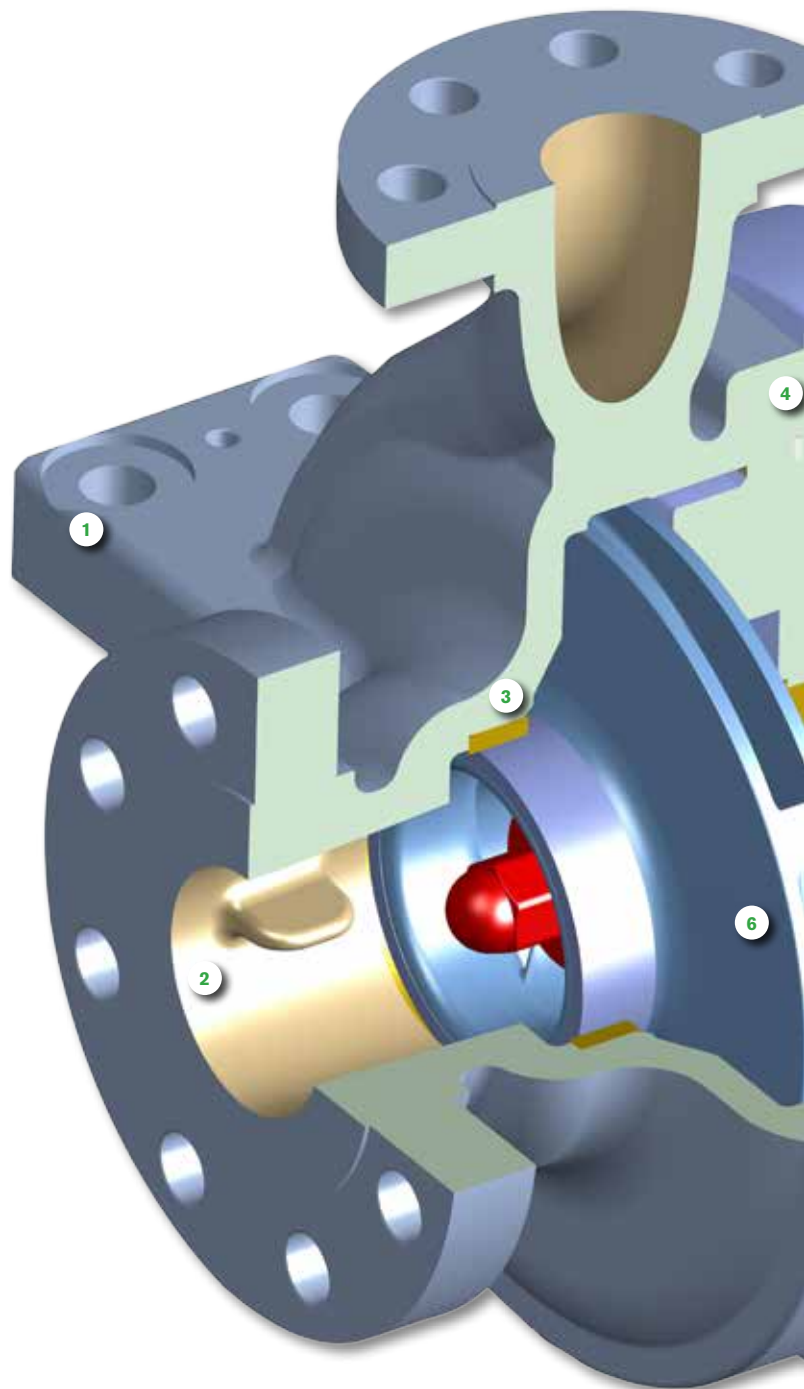
- API 610 and API 682 compliant
- Space for dual seals, easy access for maintenance

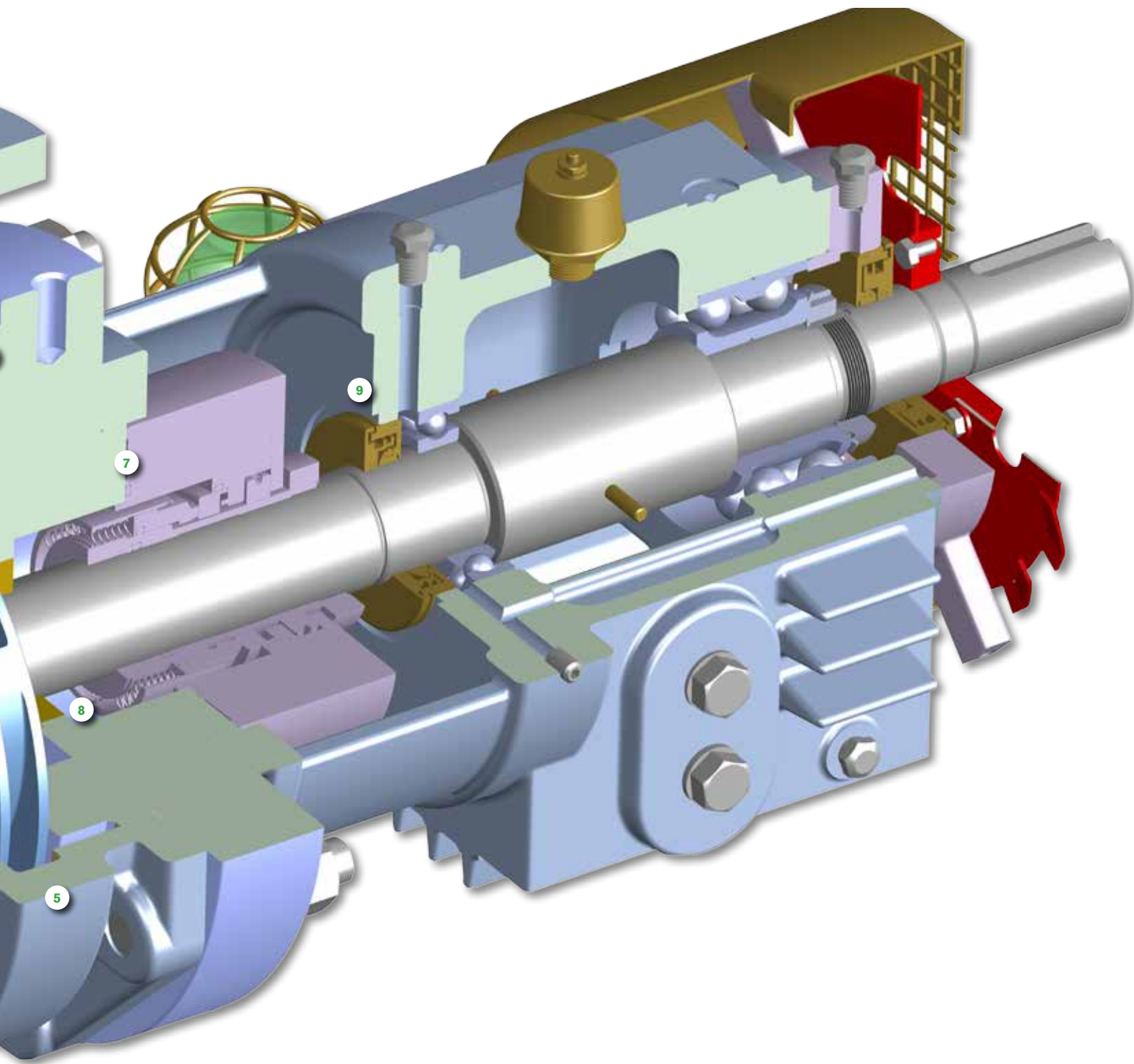
8 THROAT BUSHING

- Close clearance design helps provide optimum seal chamber environment
- Pressured in from high pressure side

9 RADIAL BEARINGS

- Single row, deep groove bearings
- Machined brass cages as standard





Wide range of options available

Metallurgy options:

- Specialized coatings for use with abrasive fluids to extend service life
- Non-metallic wear parts
- Specialized metallurgy such as Monel, Hastelloy B&C, Alloy 20, and Super Duplex for aggressive services
- API material options from S5 to D2 – NACE
- Low temperature materials

Bearing housing sealing & cooling options:

- Magnetic isolators for superior bearing protection, with or without expansion chambers
- High thrust configurations available
- Fan or water cooling available

Bearing house lubrication:

- Provision for purge or pure oil mist
- Optional oil ring lubrication available

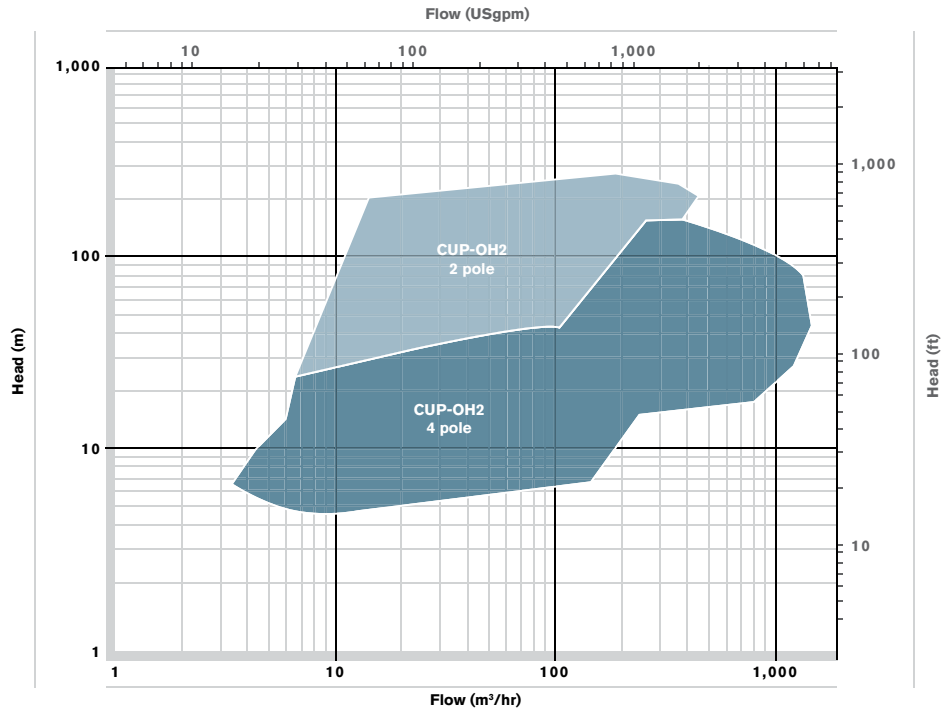
Advanced sealing with unique CP System (equivalent to API Plan 53C)

SPX's patented CP system provides a supply of cooled barrier fluid to a dual pressurized seal. It has been proven to improve seal life, particularly under varying suction pressures, and assures robust mechanical sealing even in the most demanding process conditions. All CUP-OH2 pumps can be used with the CP System if required.

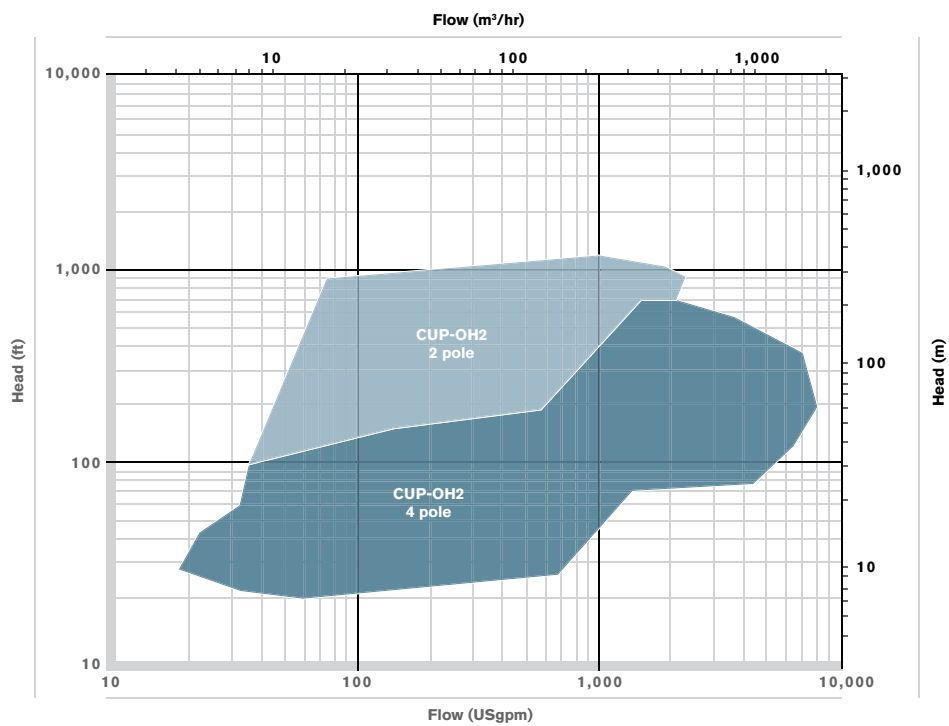


Standard hydraulic range - coverage charts

50HZ RANGE COVERAGE CHART



60HZ RANGE COVERAGE CHART



These charts cover the CUP-OH2 standard pump range. Other engineering designs exist for extreme applications



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.

Parts & maintenance:

Any brand, any material, anytime. Heritage products, upgrades & improvements

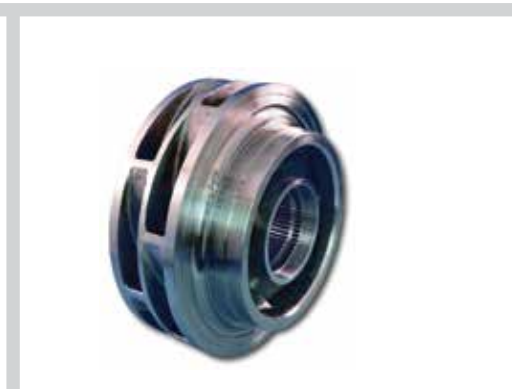
GENUINE HIGH QUALITY

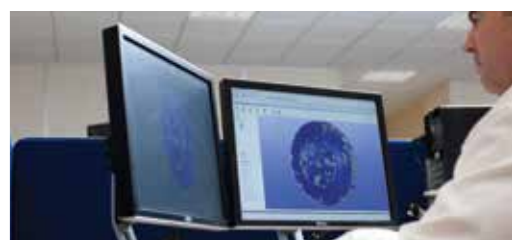
Original or upgraded specification spare parts, coupled with full engineering design capability, enables longevity of reliable operation. Highly skilled and experienced service engineers ensure accuracy in build and optimised performance. The worldwide presence of ClydeUnion Pumps offers local service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





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