

CUP-CEP

CONDENSATE EXTRACTION, MULTI-STAGE, BOWL TYPE, DIFFUSER PUMPS





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 -
Drysedale - WH Allen - Girdlestone -
Allen Gwynnes - Harland



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



High technology pumps for the most demanding services

ClydeUnion Pumps, an SPX Brand, is one of the world's leading pump companies - a center of excellence in pump technology, hydraulic design and engineering service solutions for all process requirements.

CONVENTIONAL POWER PLANTS

The ClydeUnion Pumps CUP-CEP Condensate Extraction Pump is a world class product designed for sub and supercritical applications, meeting the demands of modern power plants, regardless of fuel type or pressure requirements.

The CUP-CEP is a vertically suspended bowl pump range designed specifically for the requirements of the power generation industry. The pumps can be configured with either above or below floor suction to suit the specific design considerations of the plant. Additionally, the full range of pumps can be provided with either a single or double suction inlet stage to closely match NPSH, thereby optimizing the solution provided. Designed for both 50 and 60 Hz markets, these pumps are suitable for a range of 4 and 6 pole duties and pressures.

COMMITMENT TO QUALITY

We are committed 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 is an environmentally responsible firm. In recognition of efforts considering the environment and surroundings, ClydeUnion Pumps Glasgow facility has achieved the standards required to obtain ISO 14000 certification series of international standards.

RESEARCH + DEVELOPMENT

Bringing together the heritage products of the ClydeUnion Pumps brand has resulted in a consolidated and improved product. This provides benefits such as improved efficiency and suction performance, leading to reduced operating costs and reduced construction costs.

CUP-CEP - Condensate extraction, multi-stage, bowl type, diffuser pumps

The CUP-CEP (Condensate Extraction Pump) is a multi-stage bowl type diffuser pump for applications such as condensate extraction and heater drains. A world leading product with features such as a cartridge design mechanical seal, simplified vent pipe design, spider bearing housing for superior alignment and standard bowl wear ring fitment to optimize efficiency. The CUP-CEP range boasts cartridge design mechanical seal, simplified vent pipe design, spider bearing housing for superior alignment, and standard bowl wear ring fitment to optimize efficiency. Features such as these ensure this world leading product offers reliable operation and low through life cost of ownership.

PROVEN PRODUCT INTEGRITY

The CUP-CEP range encompasses optimal hydraulic designs from heritage product ranges. The design integrity of our products is demonstrated with condensate extraction pumps installed in over 75 sites in more than 30 countries around the world.

DRIVE COUPLING / THRUST BEARING

The main drive coupling is used to join the motor shaft to the pump shaft and is located within the headpiece. If the thrust bearing is incorporated within the motor, then this will be a rigid coupling ensuring that all thrust loadings are transmitted to the motor thrust bearing. If the thrust bearing is within the headpiece, then a flexible

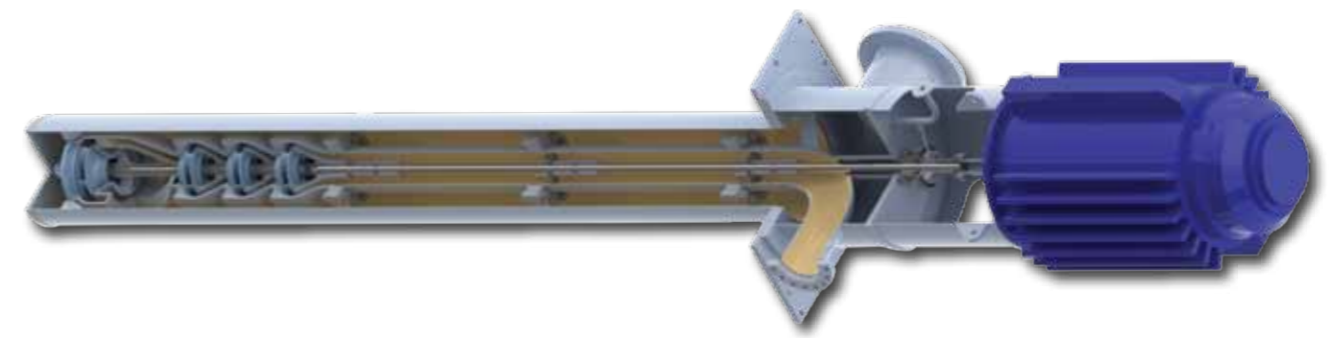
element coupling is used. In all cases, the coupling incorporates a spacer piece of ample length allowing removal of the mechanical seal without the need to remove the motor.

SHAFTS

The shafts are of robust proportions and are divided into individual shaft lengths, depending on pump depth and to suit assembly and disassembly. The shafts are connected by solid lineshaft couplings which are located just above a shaft journal bearing. Renewable shaft sleeves are fitted at the shaft bearings. The shaft end within the headpiece is connected to the main drive coupling. A parallel keyed shaft end is provided as standard.

OPERATING PARAMETERS:

- **Capacities** - up to 13,200 USgpm / 3,000 m³/hr
- **Head** - up to 1,480 ft / 450 m
- **Speeds** - up to 1,800 rpm
- **Temperatures** - up to 185°F / 85°C



CUP-CEP - Features

- 1 DRIVE COUPLING/THRUST BEARING***
 - *Thrust bearing not shown
 - Thrust bearing can be located in pump or motor
 - Flexible coupling when thrust bearing is in the pump and rigid coupling when thrust bearing positioned in the motor
 - Depending on thrust loads, either anti-friction or hydrodynamic bearings can be used
- 2 SUCTION NOZZLE**
 - Above or below floor suction options
 - Located in headpiece or canister
- 3 CANISTER + SEAL VENTING**
 - Common seal and canister vent connection
 - Simplified pipe arrangement
- 4 LINESHAFT COUPLING**
 - Flangeless coupling secured over the shaft ends and located via keys over the shaft
- 5 STANDARD WEAR RING FITMENT TO PUMP END**
 - Optimum efficiency can be maintained by replacing bowl wear ring if required
- 6 HYDRAULIC DESIGN**
 - Flexible impeller and bowl combinations for optimized range coverage and efficient hydraulic performance
- 7 OPTIMIZED SUCTION PERFORMANCE**
 - Available as single entry or double entry depending on NPSH
- 8 MECHANICAL SEAL**
 - Cartridge style, no seal setting
 - Radial bearing located immediately below mechanical seal to enhance seal life
 - Packed gland option available
- 9 RIGID HEADPIECE DESIGN**
 - Ample space for maintenance
 - Motor stool will be integral
- 10 FLANGED COLUMN PIPES**
 - Better alignment and overall concentricity
 - Easier dismantling at overhaul
- 11 SPIDER BEARING HOUSING**
 - Spigoted location - superior alignment
 - Best possible bearing support
 - Increased reliability



- 12 SLEEVED IMPELLER RETENTION**
 - Impellers are retained by sleeves and positively secured by a locking nut mechanism
 - Impellers can be removed more easily at overhaul
- 13 CENTRALIZING WEBS**
 - Standard across full range
 - Guides pump into the central position providing ease of assembly

Optional arrangements + features



MECHANICAL SEAL

- Cartridge style, therefore no seal setting
- In operation, the pump discharge pressure acts on the seal faces
- During standby, the discharge pressure from the header pressurizes the seal faces to prevent air entrainment
- Radial bearing located immediately below the mechanical seal to enhance seal life
- Packed gland option available

THRUST BEARING

- Thrust bearing can be located in pump or motor
- Depending on thrust loads either;
 - Grease lubricated anti-friction
 - Oil lubricated self-contained
 - Hydrodynamic bearings

RIGID HEADPIECE DESIGN

- Incorporates suction and discharge nozzles, seal and thrust bearing (suction nozzle in canister and thrust bearing in motor also available)
- Integral motor mounting flange
- A natural frequency analysis is provided as standard giving a rigid, vibration free structure

IMPELLER OPTIONS

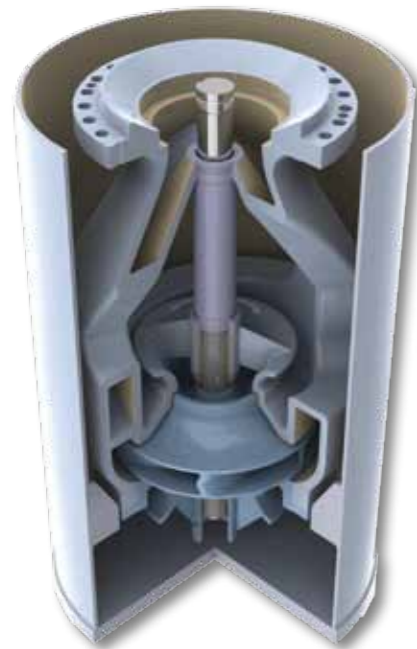
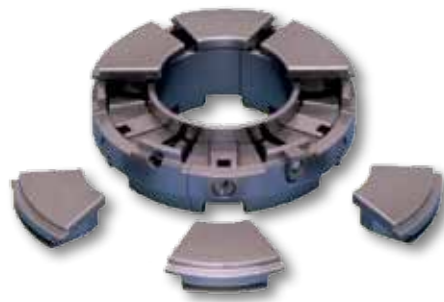
- Low NPSHR single entry and double entry first stage available
- Reliable performance and maximized impeller life
- Proven and optimized inlet design criteria to reduce potential cavitation in operation

SPIDER BEARING HOUSING

- The column pipe flange incorporates the spider bearing assembly
- The lineshaft bearings are located within the spider bearing assembly and are product lubricated
- Spider bearing is of cast construction to ensure rigidity
- Lineshaft bearings can be provided in various materials including cutless rubber and carbon

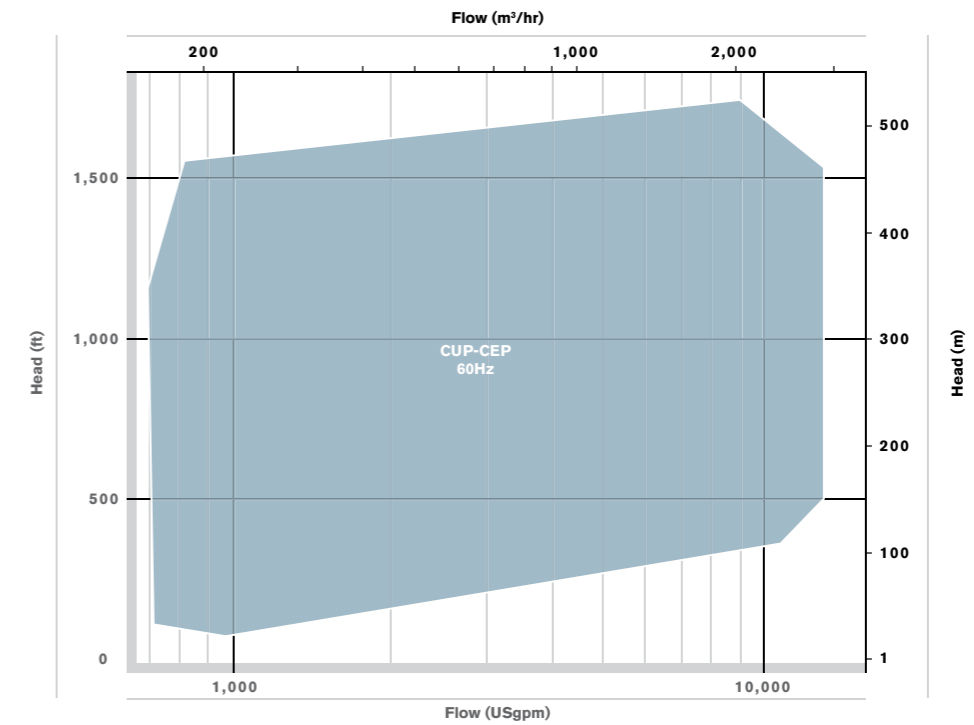
SLEEVED IMPELLER RETENTION

- Impeller is positively secured by sleeved retention and locking nut mechanism
- Impellers can be removed more easily at overhaul

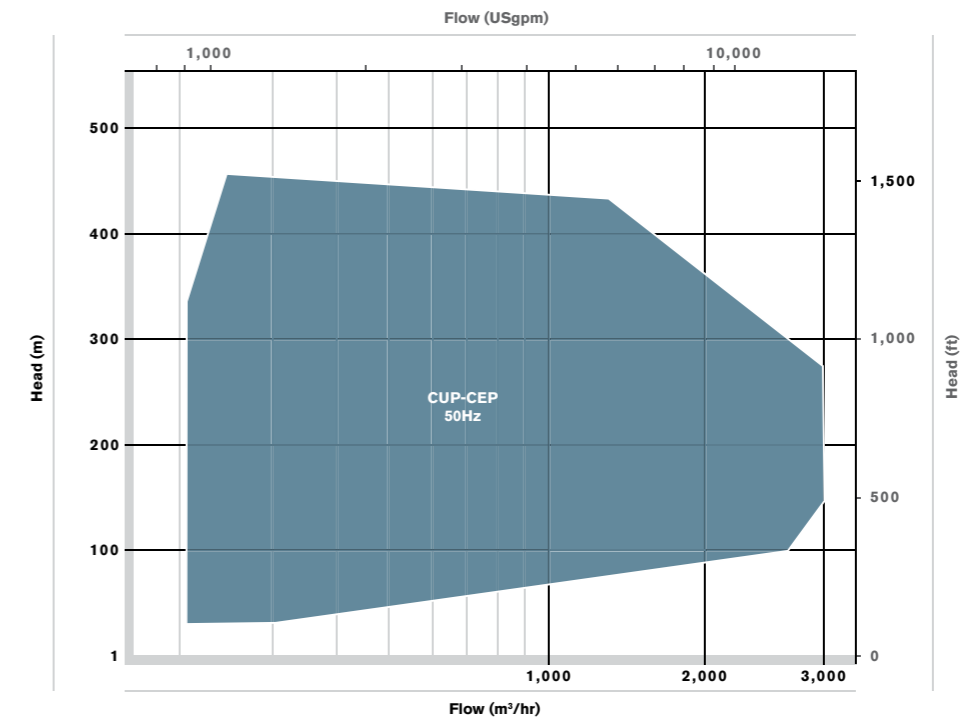


Standard hydraulic range - coverage charts

60HZ RANGE COVERAGE CHART



50HZ RANGE COVERAGE CHART



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



Global aftermarket capability best in service + response

Our customer focused aftermarket organization 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 maximized irrespective of a pump's length of service.

GENUINE HIGH QUALITY

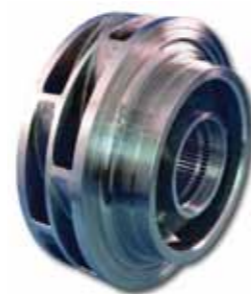
Original or upgraded specification spare parts, coupled with full engineering design capability, enables longevity of reliable operation. Highly skilled and experienced service engineers ensure accuracy in build and optimized performance. The worldwide presence of ClydeUnion Pumps offers local service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





CUP-CEP

CONDENSATE EXTRACTION,
MULTI-STAGE, BOWL TYPE, DIFFUSER
PUMPS

Global locations

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CLYDEUNION PUMPS, AN SPX BRAND

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