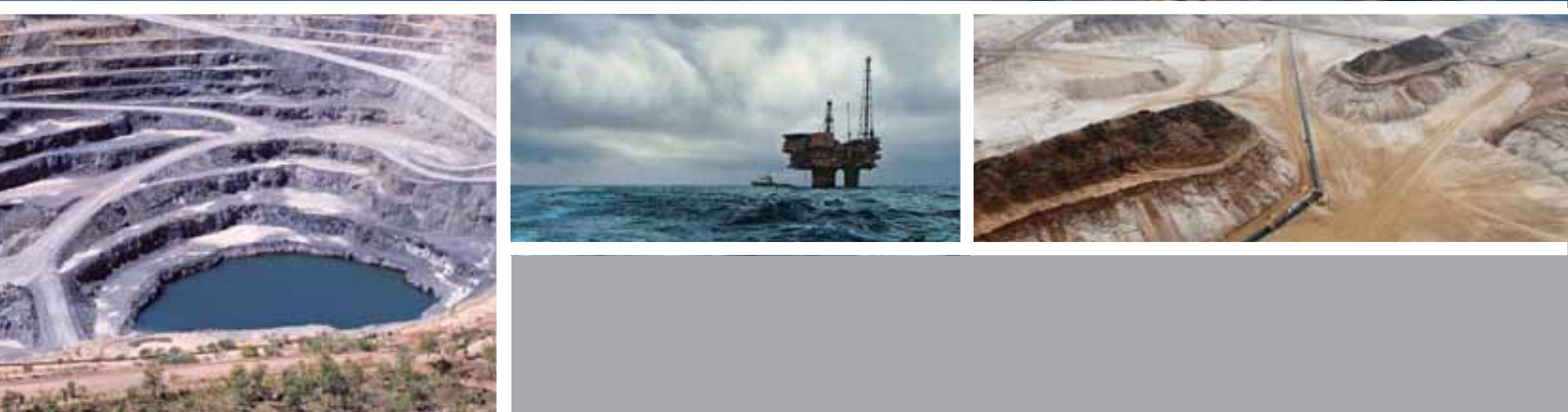


CUP-VSM

VERTICAL SUBMERSIBLE MOTOR PUMP SET





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. Our company has a worldwide reputation in delivering market leading products and services to meet the technical and commercial challenges of our customers operating in the most severe duty applications.

OIL + GAS EXPLORATION + PRODUCTION

At ClydeUnion Pumps we have built a reputation for providing engineered pumping solutions for some of the most arduous applications in the most hostile environmental conditions imaginable. Our pumps are supplied to satisfy a wide range of pumping services including; seawater lift, fire water & cooling water.

MINING + INDUSTRIAL

The CUP-VSM can be utilised in a number of applications across a wide range of industrial sectors, from the harsh environment of the mining industry to the supply of fresh, clean drinking water. These applications include; potable water supply, water distribution, seawater intake and de-watering.



COMMITMENT TO QUALITY

We are committed to quality throughout our organisation. 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 been awarded the ISO 14000:2004 series of international standards.

CUP-VSM - Vertical submersible motor pumpset

The ClydeUnion Pumps range of CUP-VSM pumpsets are of either single or multi-stage centrifugal pump design integrated with a submersible water filled motor. This advanced design boasts high efficiency, an excellent track record of reliability and occupies minimal surface installation area.

PROVEN PRODUCT INTEGRITY

The ClydeUnion Pumps CUP-VSM encompasses proven design history, evolving from our legacy Weir Pumps Ulectriglide submersible motor as well as a vast range of hydraulic selections, Weir Pumps UBWM and SBWM, DB Guinard Pumps VX and VLX and the David Brown DB50. All have an enviable history of sound engineering, with hundreds of units in operation worldwide; both onshore and offshore.

RESEARCH + DEVELOPMENT

ClydeUnion Pumps efforts are focused on continuously improving and developing our technology, to ensure we deliver the most reliable, efficient, and low life-cycle cost products. Beyond our CUP-VSM range we are continually looking at developing higher power and voltage submersible machines in line with the needs of our customers.

APPLICATIONS

ClydeUnion Pumps has extensive experience in providing complex and bespoke submersible pumpsets to cover a range of applications which include;

- Seawater lift
- Firewater pumps
- Borehole extraction
- Cooling water supply
- Crude oil transfer + loading
- Raw water intake
- De-watering + irrigation

OPERATING PARAMETERS:

- Capacities** - up to 6,500 m³/hr / 28,620 USgpm
- Delivery heads** - up to 300 m / 984 ft
- Speeds** - up to 3,600 rpm
- Powers** - up to 2,500 kW / 3,350 HP
- Voltages** - up to 11 kV

NOTE: Please enquire for any duties above these parameters



CUP-VSM - Features

- 1

COMPREHENSIVE RANGE COVERAGE
 - Allows pump selection at or close to optimum performance
 - Special first stage impeller available for improved Nss
- 2

PUMP BOWLS
 - Incorporate diffuser guide passages to deliver the fluid smoothly from stage to stage
- 3

ENHANCED COOLING SYSTEM
 - Achieves higher power ratings per frame size than comparable motors on the market
- 4

REVERSE ROTATION CAPABILITY
 - Negates need for submerged NRV above pump bowls
 - Protects against damage caused by falling water column when pump stops
- 5

COUPLING
 - Keyed sleeve type for reliable power transmissions
 - Mechanically connected to shaft ensuring max rigidity
- 6

MECHANICAL SEAL
 - High reliability cartridge design
 - Fitted to outer diameter of coupling for ease of access
- 7

BEARINGS (MOTOR)
 - Water lubricated carbon loaded PTFE thrust and journal bearings
- 8

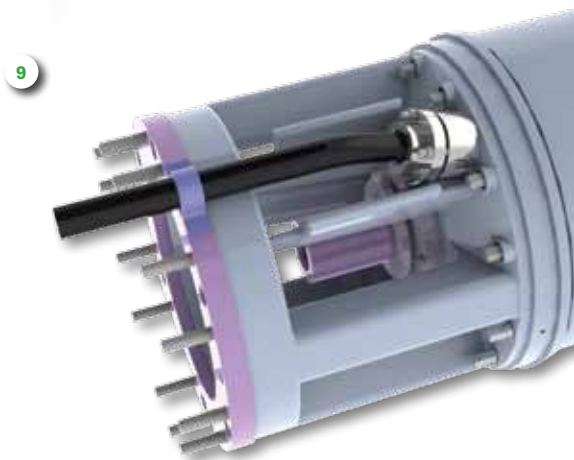
MATERIALS
 - Both pump and motor assemblies are available in cast iron, nickle aluminium bronze, and duplex stainless steel configurations, to suit either fresh water or seawater environments
- 9

MOTOR POWER CABLE
 - Cable connection inside motor and lead to surface without external wetted joints, prevents seawater ingress and cable failure



- 10

INVERTED ARRANGEMENT
 - An inverted submersible pumpset arrangement with the pump suction situated below the motor is available
 - Having the suction at the lowest point of the pumpset greatly reduces the insertion depth required. This design is well suited to the FPSO market
 - All features of the standard submersible pumpset are also present on the inverted arrangement

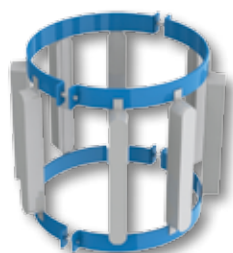




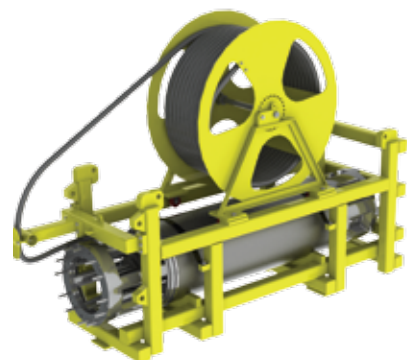
Headgear



Pump + motor centralisers



Sacrificial anodes



Transport cradle

Packaging + optional features

The CUP-VSM is offered as a complete package solution, including rising main columns, headgear with leakage detection system, centralisers, and corrosion protection devices.

HEADGEAR

- All motor services terminate at the headgear ensuring all connections are situated at the surface to aid installation
- Discharge branch is ready to connect directly to on-site pipework
- Headgear is tailor made for each project to accommodate specific customer requirements

HEADER TANK

- Recommended for seawater applications as an alternative to the diaphragm
- Ensures positive internal pressure, preventing seawater ingress that could cause internal corrosion damage eliminating unnecessary maintenance
- Acts as an online monitoring device and provides indication of the condition of the mechanical seal

SACRIFICIAL ANODES

- Act as a barrier against corrosion, protecting pump set and surrounding caisson
- Can be fitted to pump, motor and rising mains

PUMP + MOTOR CENTRALISERS

- Used to locate the pump motor assembly concentric with the caisson
- Protects cables and auxiliary hoses from being damaged against the caisson

MARINE GROWTH INHIBITOR

- Hypochlorite dosing ring emits chemicals that prevent build up of marine growth

TRANSPORTATION + ERECTION CRADLE

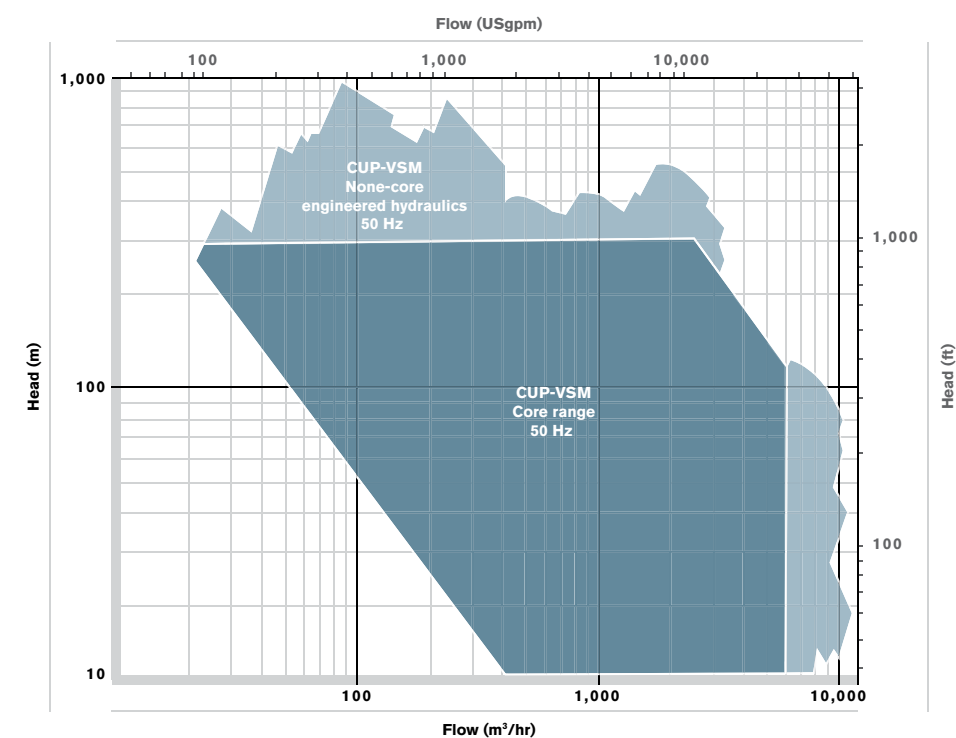
- Ensures ease of handling of the submersible motor and its power cable during transportation and installation
- Various options available depending on customer requirements



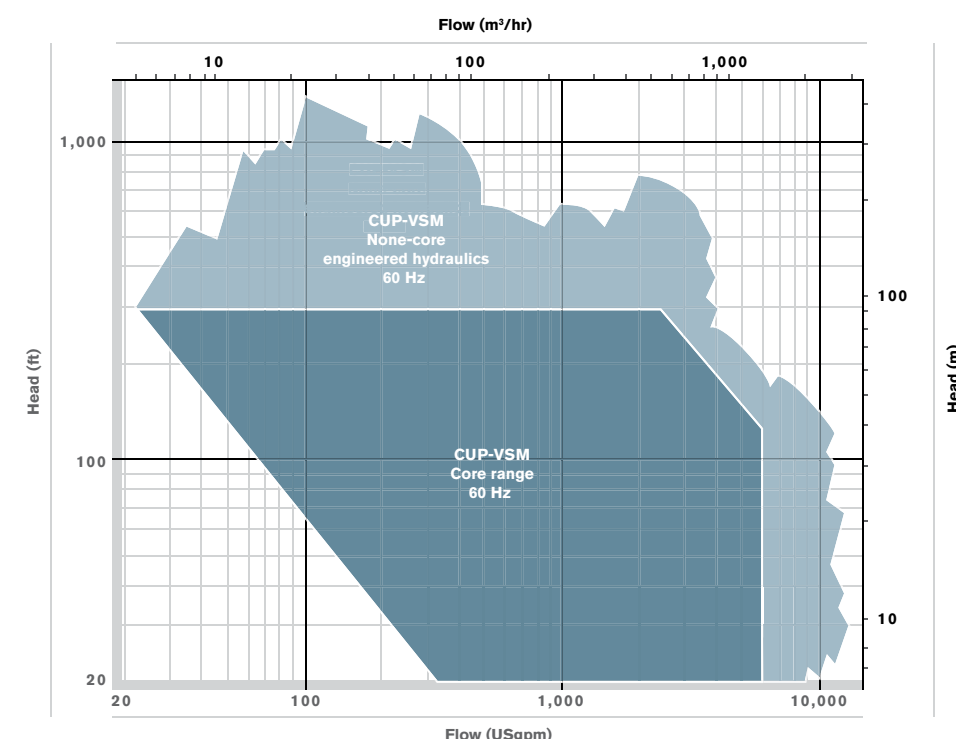
Full pump set package

Standard hydraulic range - coverage charts

50HZ RANGE COVERAGE CHART



60HZ RANGE COVERAGE CHART



These charts cover the CUP-VSM 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.

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



CUP-VSM

VERTICAL SUBMERSIBLE MOTOR
PUMP SET



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CUP-03-VSM-UK

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