



BEDFORD PUMPS LTD.

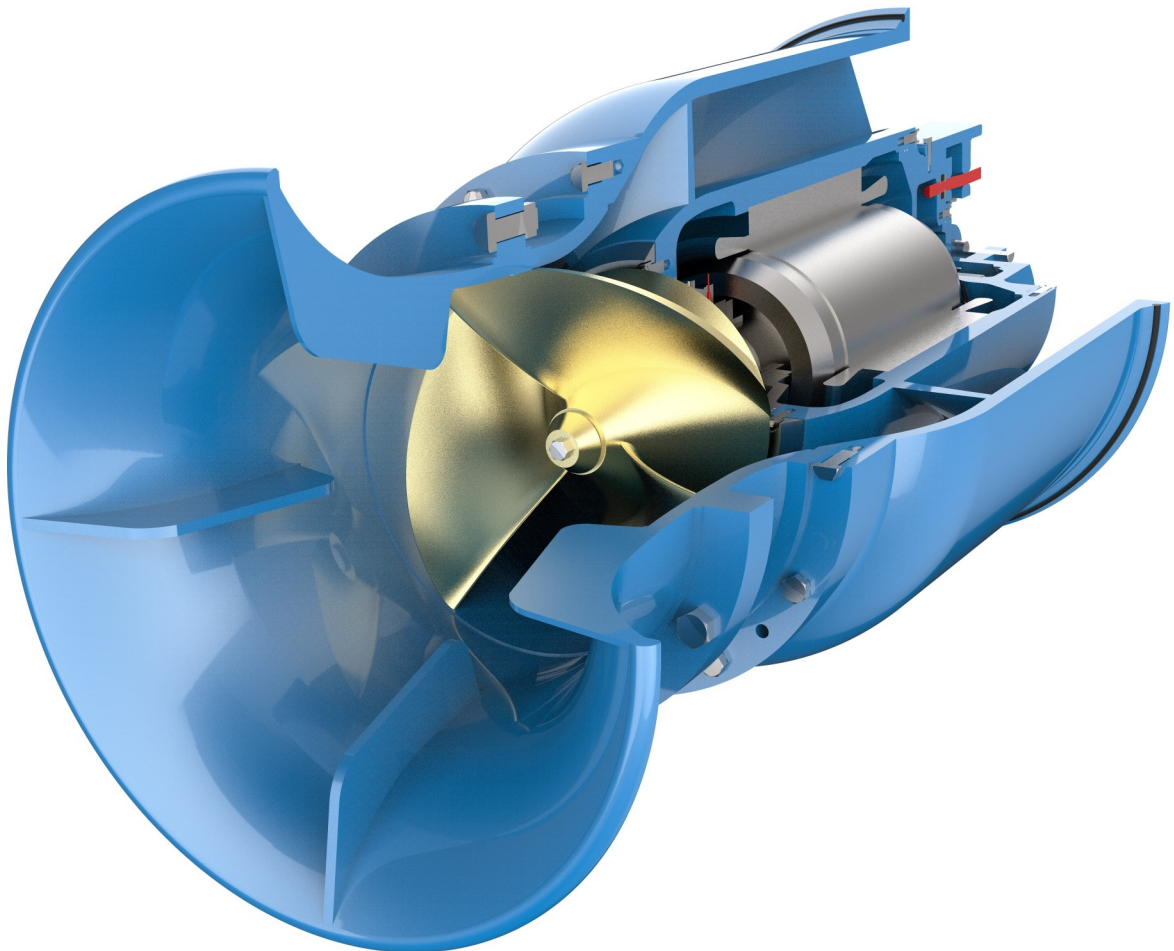
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Submersible & Dry Well Immersible Pumps



Bedford Pumps range of submersible and dry well immersible, axial, mixed flow bowl and fish friendly pumps are an efficient alternative to conventional shaft driven units.

SUBMERSIBLE AXIAL & MIXED FLOW BOWL PUMPS

Bedford Pumps Ltd

Bedford Pumps Ltd is a knowledge based business, built on a 140 year legacy of design and manufacture of high capacity water and waste water pumps. Our initiative designs are both efficient and robust and we have an unrivalled ability to engineer bespoke solutions to match the most demanding of customer needs.

Quality Assurance

Bedford Pumps operate a quality system approved to ISO 9001:2015 for the design, development and manufacture of Rotodynamic Pumps and the design, development, procurement, installation and commissioning of pumping systems for the water and sewerage industries. This is in addition to the company's project management of pumping systems projects for the water and sewerage industries.

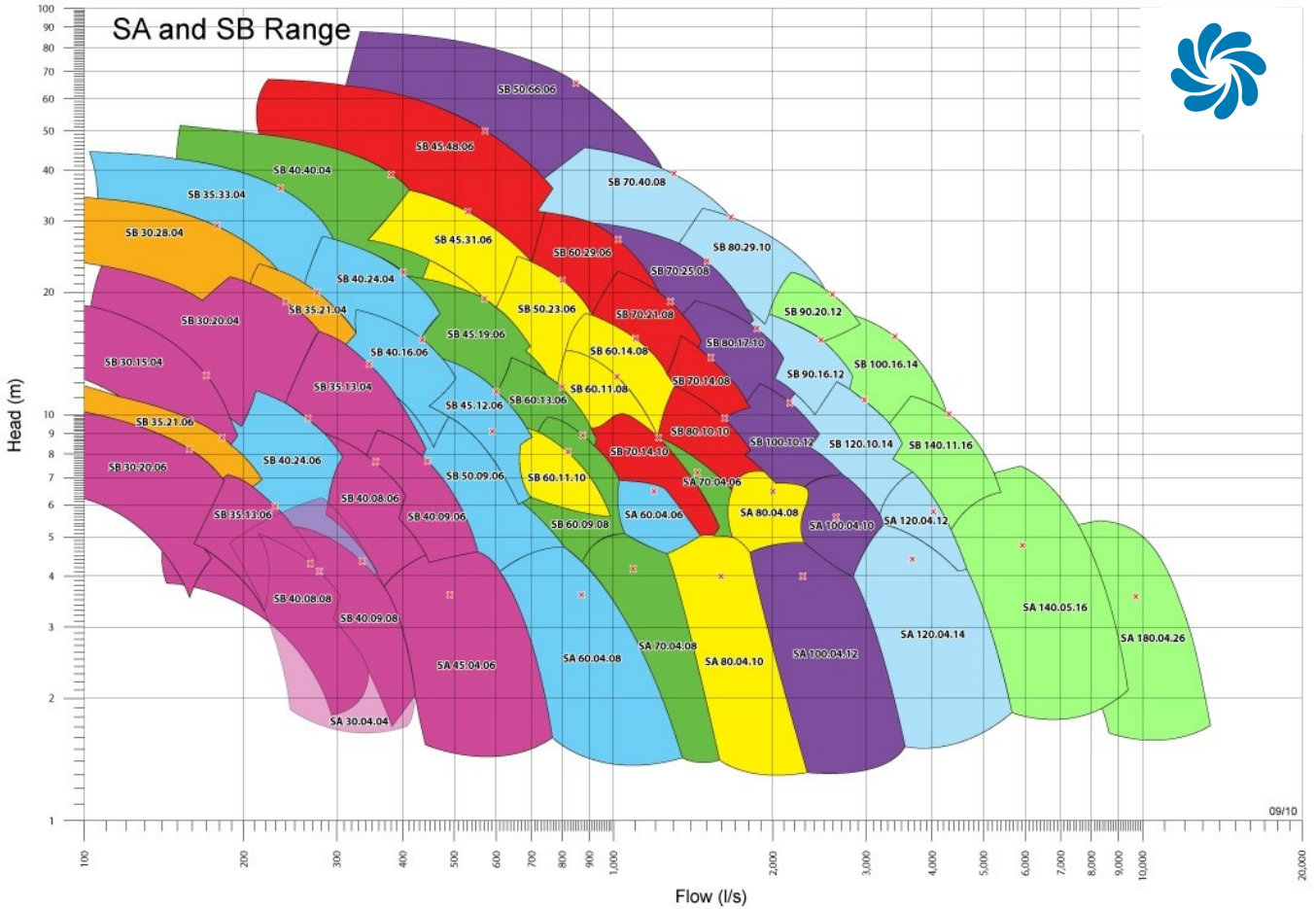


Submersible Pumps

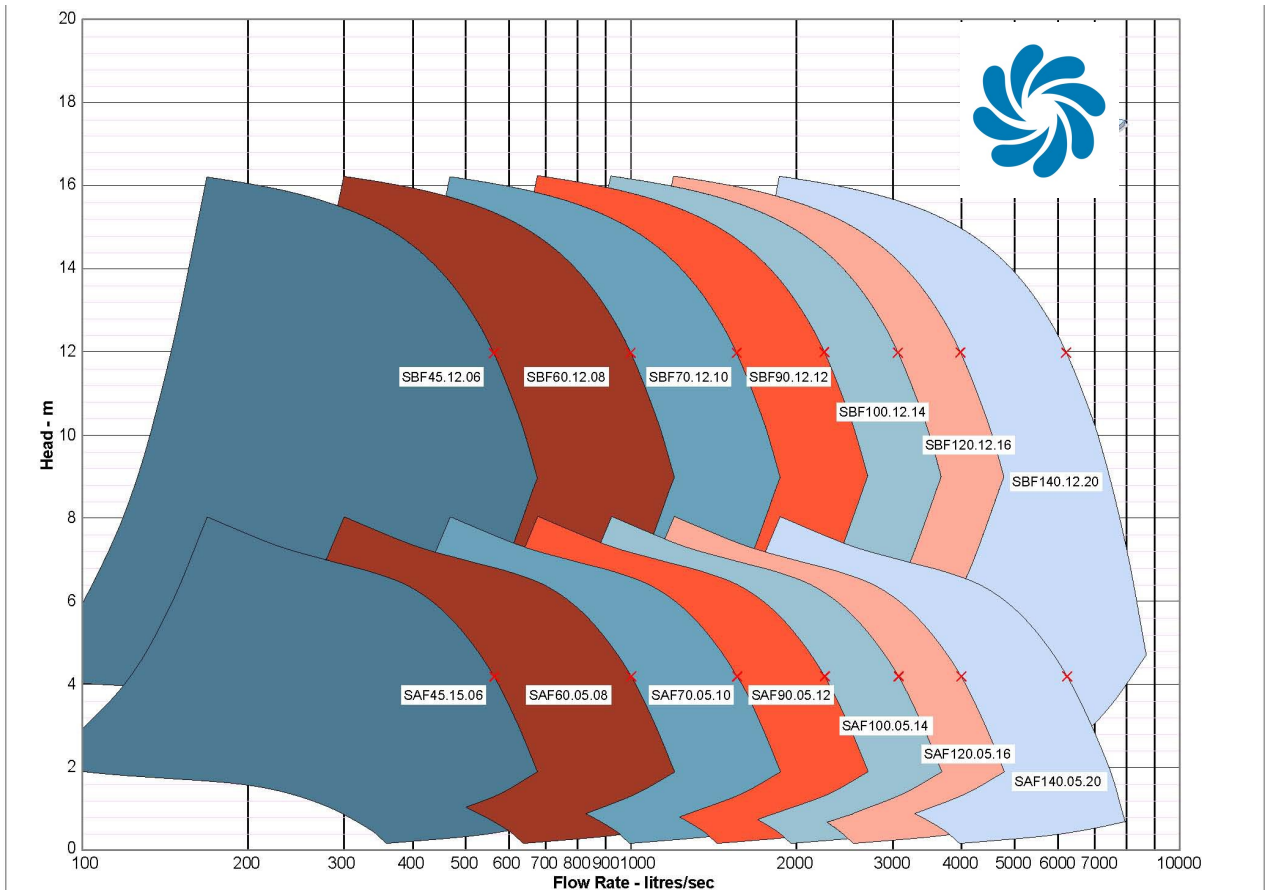
A versatile range of low, medium or high voltage submersible/immersible axial and mixed flow pumpsets designed for both wet well and dry well installation offering the benefits of low noise levels, space saving footprint and high efficiency. In addition this pumps can be total immersed when installed in a dry well or traditional pump room.



Pre-Engineered Hydraulics Range (head per stage)



SAF and SBF Range



Standard Materials of Construction

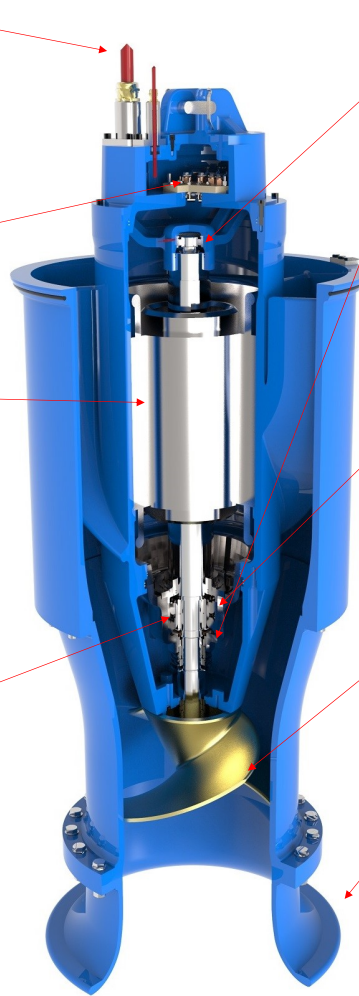
Cable
Heavy duty trailing flexible rubber cable to BS 7919. Optional symmetrical cable for variable speed applications or WRAS approved cable for potable water applications. Other cable types available on request.

Terminal Box
High integrity IP68 profiled design. Easy access to terminal plate without removing cables. Designed to EN50019 (EExe) where applicable.

Motor
Conventional dry wound, squirrel cage, high efficiency, induction motor designed to BS4999, BS EN 60034 where applicable with Class F insulation. The motor is contained within an IP68 motor casing. Suitable for Star Delta, D.O.L., Auto-Transformer or Inverter starting. Motor enclosures designed to EN 50018 (EExd) available where applicable. Electrical supply 380-440V, 3.3 kV or 6.6 kV 50Hz or 60Hz.

Instrumentation
Each pump is supplied with a Bedford Pumps Condition Monitor as standard. This "free issue" instrument records and displays:-

- Barrier oil condition which enables the health of the primary seal to be analysed
 - Secondary seal failure detection (trip)
- Thrust and journal bearing temperature indication (alarm and trip)
- Motor winding temperature (alarm and trip)



Bearings
Grease lubricated, angular contact thrust and deep ball groove journal bearings packed for life. Typical design life 50,000 hours. Insulated bearings provided on inverter driven motors

Pump Casing
Solid Cast Iron construction BS EN 1561/EN-GJL-250. Alternatives available on request.

Mechanical Seals
Two high quality, independently mounted, mechanical seals in an oil-filled enclosure to prevent water ingress into the motor. The barrier oil can be supplied to WRAS approval for potable water and environmentally sensitive installations.

Impeller
High efficiency open bladed design of solid cast construction. Statically & dynamically balanced prior to assembly. Standard material Aluminium Bronze BS EN 1982 CC333G

Bellmouth
Low loss, high efficiency bellmouth entry with optimised velocity profile. Generally Cast Iron to BS EN 1561 / EN-GJL-250 with alternatives available on request.

Pumps are available in a range of alternative materials for sea and brackish water applications including: Ni-Resist, Aluminium Bronze, Austenitic and Duplex Stainless Steel.

Key Features

- Low noise
- Space saving footprint
- High efficiency
- Back pull-out design
- Robust cast construction
- Choice of seal arrangements
- Minimum number of impeller blades
- Adjustable wear parts
- Choice of materials
- Low running costs
- Suitable for aggressive environments
- Optimisation
- Low blockage frequency
- Non-intrusive maintenance
- Suitable for all applications

Typical Applications

A range of effective and economic pumps for:

- Irrigation
- Flood Defence
- Water Abstraction & Supply
- Sewage Effluent Treatment & Disposal
- Return Activated Sludge
- Cooling Water
- Surface & Storm Water
- Docks - Dewatering & Impounding
- Fish Farms
- Land Drainage

Fish Friendly Pumps

Bedford Pumps produce a Fish Friendly variant of their submersible axial and bowl pumps, the “SAF” range.

Bedford Pumps SAF range of pumps were developed following EU legislation which was brought into effect in 2007 to tackle the rapid decline in global populations of the European eel. In order to breed, eels must return to their migration grounds in the Sargasso Sea. Obstructions which impede their journey, such as pumping stations, may be a contributing factor to their fall in numbers.

Bedford Pumps range of SAF pump have been stringently tested by independent consultants VisAdvies BV, and awarded an “Excellent” rating for their ability to pass fish and eels without mortality.

Bedford Pumps’ SAF range of Fish Friendly pumps cover from 400 to 7,000 litres per second at 2m to 6m head and are ideally suited for Land Drainage, Flood Defence and Fish Farm applications. Larger capacity pumps can also be designed to meet specific requirements.



In addition to protecting the fish, the design demonstrates a significant improvement in hydraulic efficiency resulting in an 8% reduction in power absorbed to satisfy objectives of both eel and fish protection and carbon reduction.

Pump Construction

Bowl Assemblies

The bowl assemblies incorporate a range of integral diffuser options, providing high hydraulic efficiency and or solids passing capabilities.

Impellers

A comprehensive range of radial, mixed or axial flow impeller options are available to ensure the optimum performance and highest operating efficiencies can be offered over a wide range of heads and flows.

Fully shrouded and semi-open impeller options are available to suit the application in a wide range of material options, from cast irons to bronzes and high alloy stainless steels.

Suction Bellmouth and Draft Tube Options

Ensuring the correct inlet conditions is a critical factor for high capacity pumps, hence we offer a range of low loss bellmouth or flange connections for inline operation.

Bearings

Angular contact thrust bearings and deep groove ball journal bearings are offered as standard. Optional insulated bearings are also available if required.

Shaft Seals

Two high quality independently mounted seals in an oil-filled enclosure prevent water ingress to the motor. WRAS approved oil is used in potable water applications.

TYPICAL SUBMERSIBLE ARRANGEMENTS

Figure 1
Wet Well
Foot Mounted

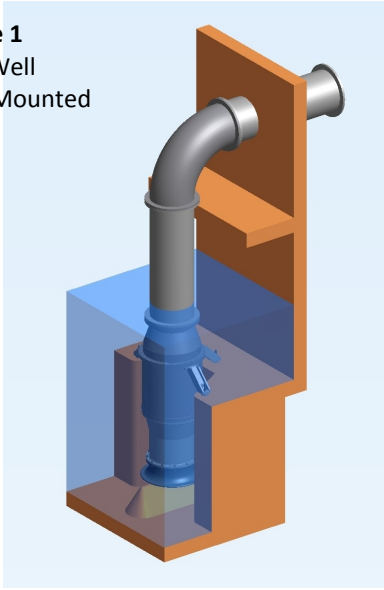


Figure 2
Wet Well
Suspended

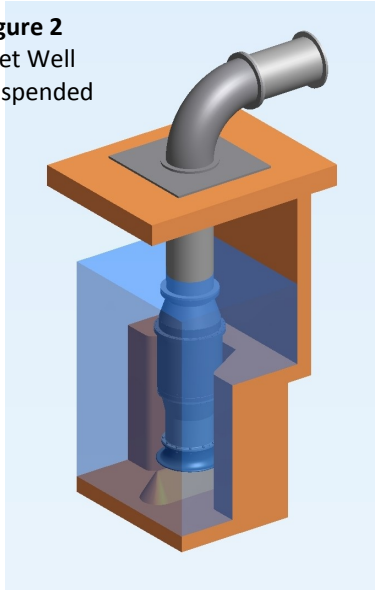


Figure 3
Wet Well Canister
Above Floor Discharge

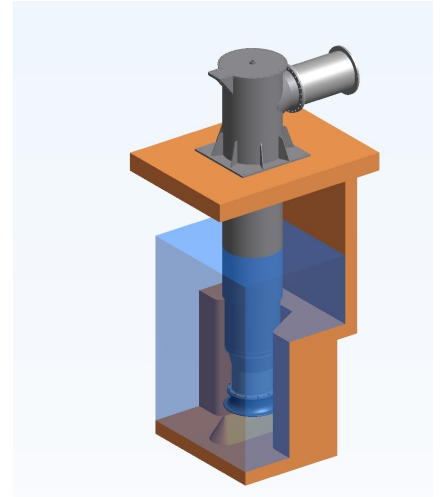


Figure 4
Wet Well Inclined

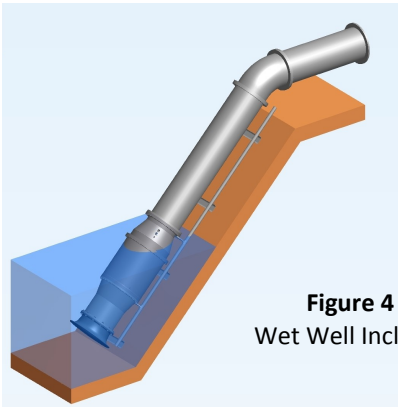


Figure 5
Wet Well Canister
Below Floor Discharge

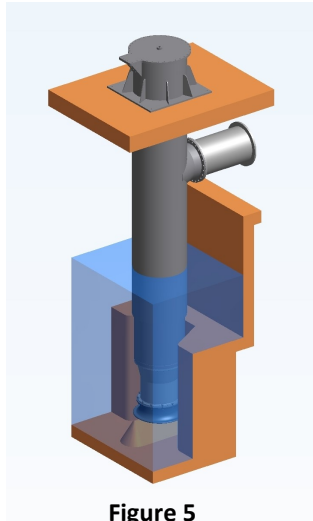


Figure 6
Wet Well Canister
Cascade Discharge

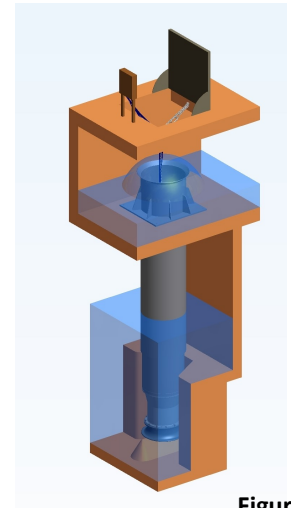


Figure 7
Dry Well Vertical

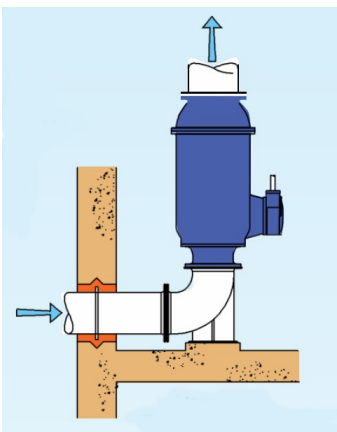


Figure 8
Dry Well Horizontal

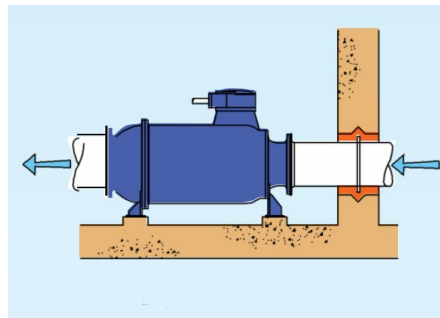
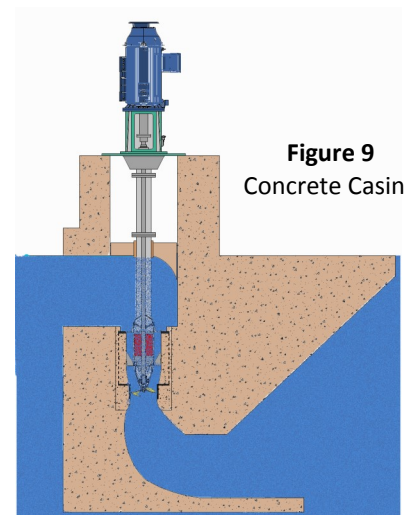


Figure 9
Concrete Casing





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