

- Glandless design
- Wide range of materials
- Lengths up to 10 metres (30 feet)
- Sturdy process construction
- Special designs to order
- Multi-stage units available

Design limits

Capacities to 3300 m³/h
Heads to 185 m
Temperatures to 200°C

The range charts indicate our standard capabilities. For duties beyond these limits please contact our Engineering Department.

Applications

- Chemical service
- Dyestuffs
- Bleach processes
- Metal pickling and finishing
- Pharmaceuticals
- Effluent and pollution treatment
- Fertilizer production
- Oil refineries
- Petroleum off-site refining services

Materials of construction available

- Cast iron
- S.G. iron
- 2% Silicon iron
- Carbon steel
- Bronze
- 18/8 SS
- 18/8/3 SS
- 18/10/3 SS
- Ferralium 40V
- Monel
- 29/20 Alloy
- 55% Nickel alloy
- Hastelloy 'B' and 'C'
- C.P. titanium
- Titanium/palladium alloy
- Pure nickel
- Zirconium
- Tantalum

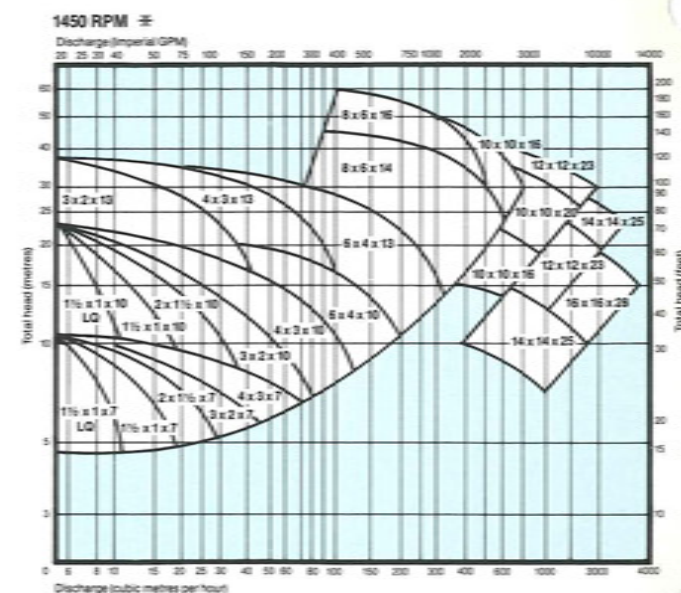
Installation and Service

One of the contributory factors to the world-wide success of Appleton & Howard is the exceptionally high standard of service that is part of every installation.

What does this service cover? Just about anything you can think of to do with our products. This means installation, commissioning, trouble shooting on site, reconditioning and repairs, spares, technical advice, testing facilities and many others. It can vary from advice on the telephone by a field service engineer to organising shipment of pumps back to our Works for reconditioning and testing under load conditions.

Every Appleton & Howard pump is designed to work with the minimum of maintenance. Occasionally however things do go wrong, but no matter how remote the locality, modern communications will bring a field service engineer within hours.

Standard range selection charts

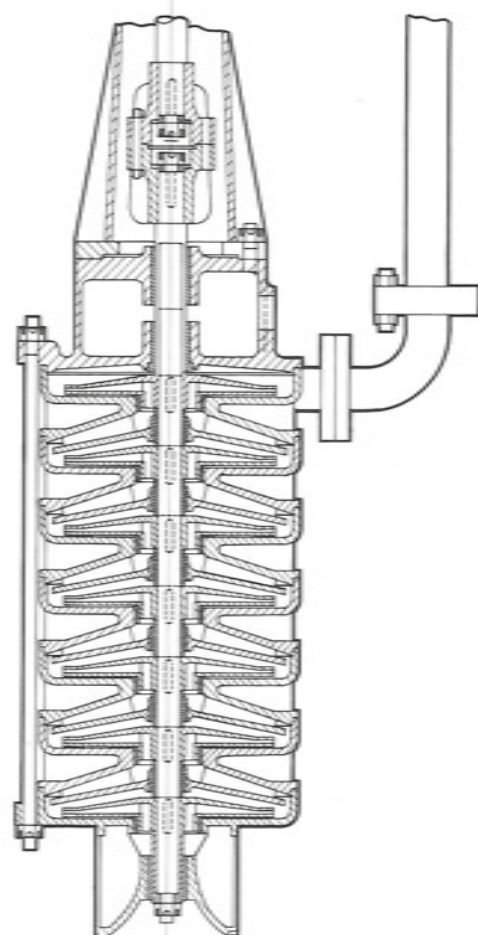


Appleton and Howard 'S' – Range of pumps

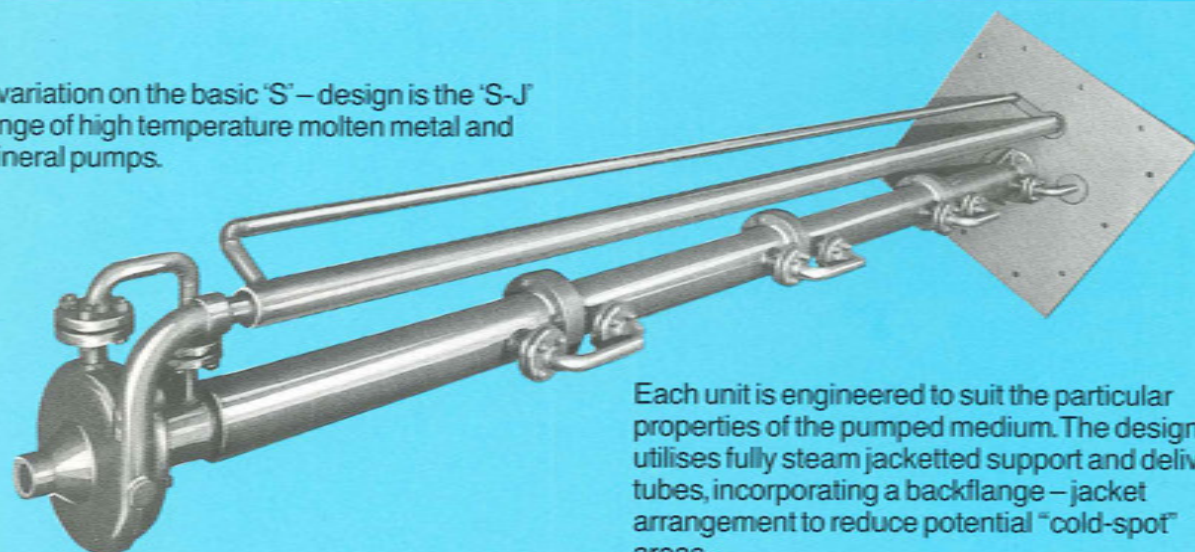
The Appleton and Howard 'S' – Range of pumps are engineered specifically for chemical and process applications, to produce a pump combining high performance with reliability and low maintenance costs. The single and multi-stage pumps are designed for transfer of liquids from open or closed sumps and vessels, utilising a separate delivery pipe, so eliminating the problems associated with sealing the pump shaft at the point of liquid contact. Although a glandless design is standard, a vapour seal in the form of ring packing or mechanical seal can be utilised in accordance with specific application requirements.



Seven stage vertical 'S' pump supplied for installation on a North Sea Oil Platform.



A variation on the basic 'S' – design is the 'S-J' range of high temperature molten metal and mineral pumps.



Each unit is engineered to suit the particular properties of the pumped medium. The design utilises fully steam jacketted support and delivery tubes, incorporating a backflange – jacket arrangement to reduce potential "cold-spot" areas.

1 MAIN BEARING AND HOUSING

A combined thrust/radial ball race is usual, but for higher powers two separate bearings are provided. The bearings are mounted in an adjustable cartridge for correct axial positioning of the impeller. Grease lubrication is standard, although special oil systems can be offered for particular applications.

2 SUPPORT PLATE

The support plate is designed to suit individual applications. Generally circular designs to 'large flange' dimensions or rectangular plates are used.

It is usually constructed from plate, but fabricated box sections are available for larger sizes.

The standard support plate material is Mild Steel, although various claddings or coatings can be utilised. Alternatively corrosion resistant steel or alloys can be utilised.

3 SHAFT AND SLEEVES

The shaft and span of the support bearings are designed so that the first critical speed is always greatly in excess of the operational speed. Split shafts, joined by muff-type couplings using jig drilled driving pins with retaining caps, are standard on all pumps, although one-piece shafts are available for specific requirements.

All shaft sleeves are positively located with a pin or key drive and are fully removable for maintenance needs.

4 BEARING BUSHES

The bearing bushes are fitted at intervals along the shaft, their position dependant upon shaft diameter, speed, material and pump length.

The bearing bushes are manufactured in a wide variety of materials to cover every application, and each is spiral grooved for effective lubrication either by product which may be via a cyclone separator; external flush; or via a shaft driven grease lubricator.

5 SUPPORT COLUMN

The thickness of the main support column is determined by the torque loading, pump length, and potential corrosion, and is sized for maximum rigidity in every application. Each support tube has balance holes strategically placed to prevent any pressure surge in the column.

6 IMPELLER

The impeller is designed for efficient hydraulic action with minimum NPSH requirement. Generally open impellers are used, but conventional shrouded and mixed flow designs are available. All impellers are fully balanced and are available in cast and fabricated designs or can be milled from billets.

7 PUMP CASING AND BACKPLATE

These are designed for heavy duty service, with generous corrosion allowances. Delivery outlet bends can be supplied as an integral part of the casing, or as a separate component for ease of removal.

Large units have double volute casing to eliminate radial loads.

The backplate contains a lubricated bearing bush – see item 4 – that absorbs the radial loads imposed during use.

8 TAILPIPE AND STRAINER

Tailpipes may be fitted to units where application conditions permit, these effectively increase the operational length of the pump.

Heavy duty, corrosion resistant strainers can be fitted either to a tailpipe or direct to the casing, for applications where the ingress of suspended solids, or debris etc., would be harmful to efficient operation. The

