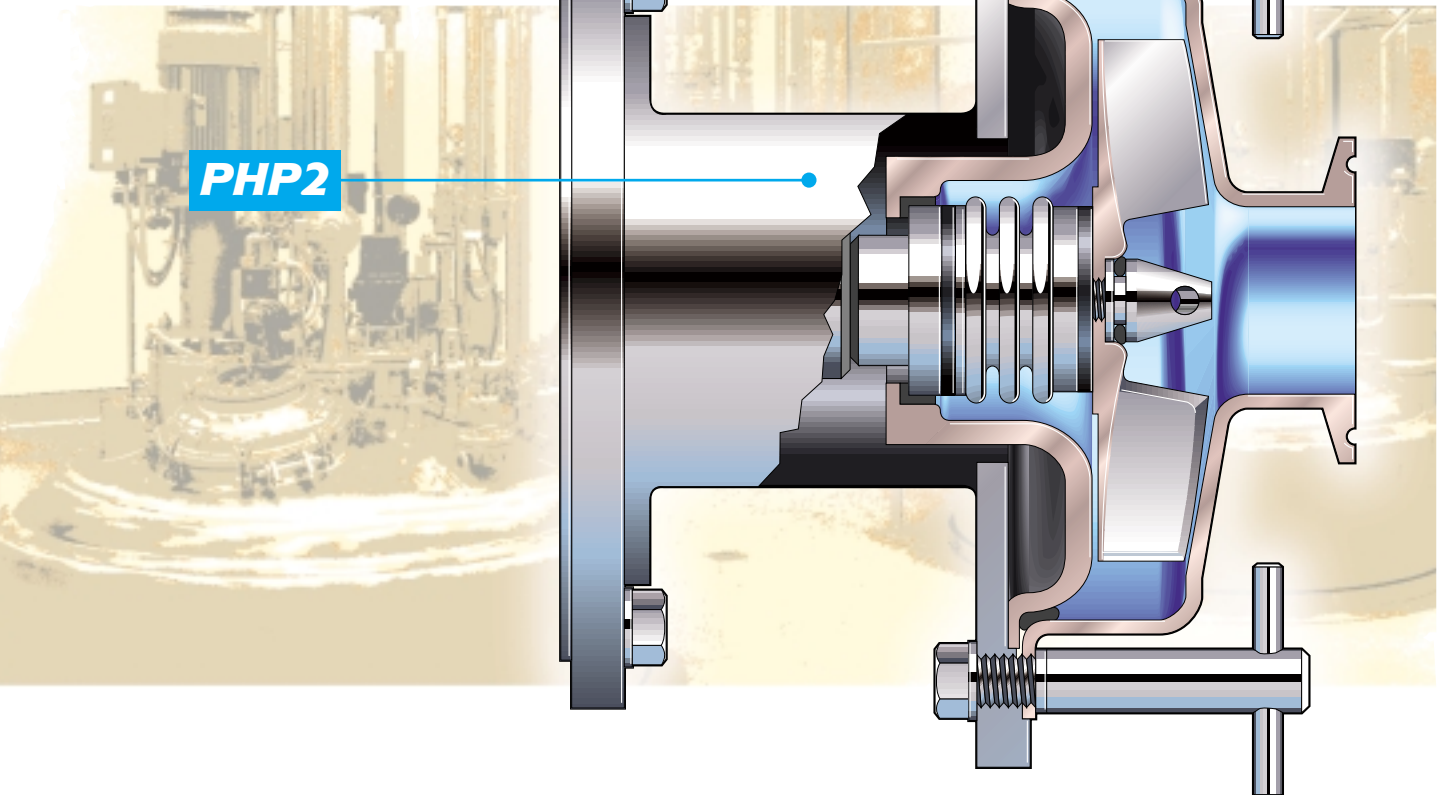


# Stainless steel centrifugal pumps

TYPE FP2  
SERIES PHP2

FOR THE PHARMACEUTICAL INDUSTRIES



The PHP2 series of pumps has been developed especially for pharmaceutical industry. Based on the FP2 series (for the food industry), the construction has been adapted to meet the even higher hygienic demands in pharmaceutical applications, including WFI.

The standard PHP2 pump includes:

- Pump (incl. mechanical seal) designed according to 3A and meeting the EHEDG specifications, all materials have FDA approval
- All parts in contact with the medium are 316L, hand-polished and then electrolytically polished to a surface finish Ra less than 0.4  $\mu\text{m}$
- Tri Clamp fittings (other types available on request)
- Certification available on performance, materials and surface finish

# Standard for the PHP2

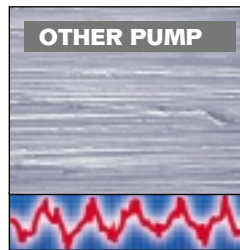
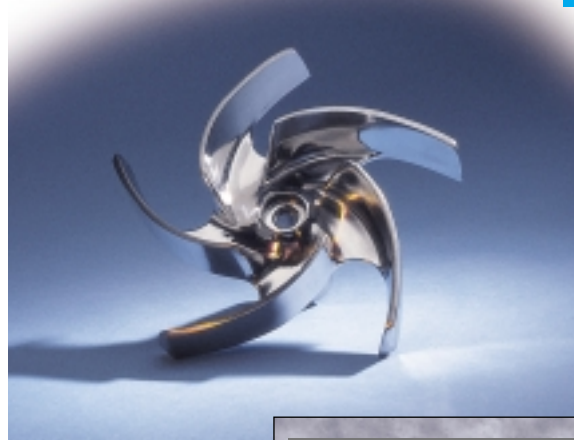
PHP2

## ELECTROLYTIC POLISHING: A SUPERIOR FINISH

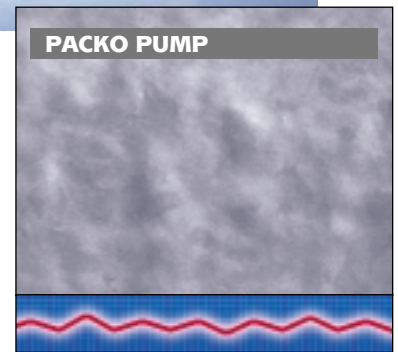
The most common stainless steel alloys contain iron, 18 % chrome and 8-10 % nickel. The elements chrome and nickel ensure the formation of the chrome oxide skin and the corrosion resistance of the stainless steel. With electro-polishing the components to be treated are hung as anodes in the electrolytic bath. A combination of an electric current and the bath chemicals cause any iron and impurities to break away into the solution. As a result of this the percentage of chrome and nickel on the upper surface increases. The stainless steel then attains a much thicker (by a factor of 10) and denser chrome oxide skin.

The benefits of an electro-polished surface are considerable:

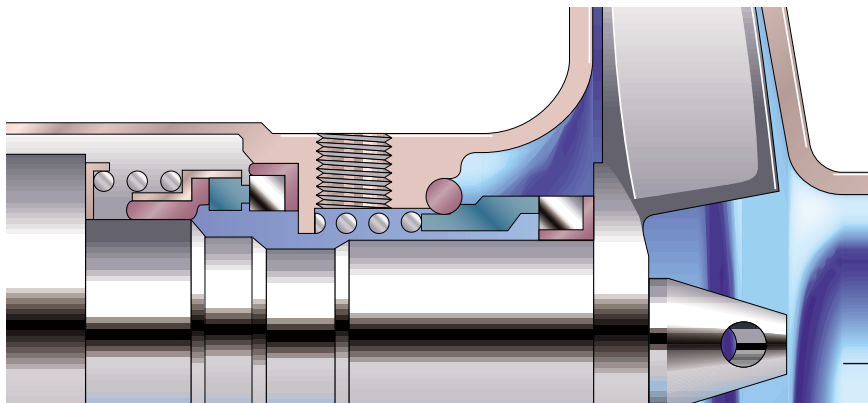
- Greatly increased corrosion resistance (particularly important where pitting corrosion may occur).
- Full recovery of austenite structure.
- Increased resistance to substances sticking or baking onto the surface.
- Ease of cleaning greatly improved.
- Highly hygienic surface.
- Shiner and smoother surface.
- Elimination of welding discoloration-shine restored.
- Low current resistance and good thermal properties.
- Halving of the three dimensional surface.
- Totally passive and refined surface.



Linished 400 grit



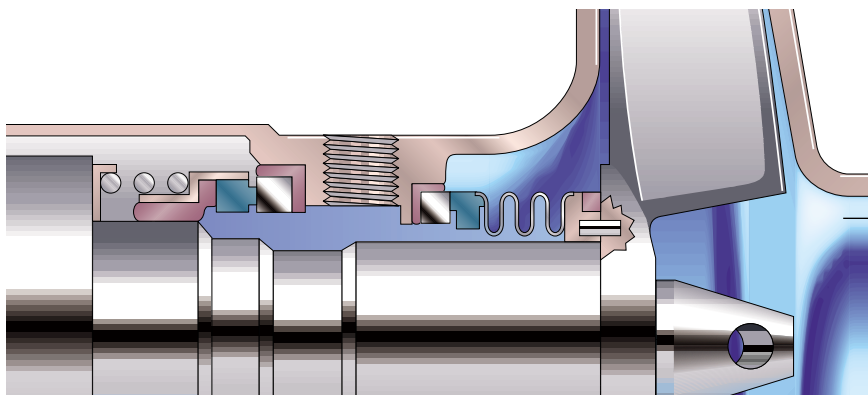
Electrolytically polished



## SEALS

The most critical area in a pharmaceutical pump is the seal area. Packo supply a range of hygienic seals in a variety of seal face materials including carbon and silicon carbide.

Double seal with external spring (pressureless fluid barrier)



Double seal with metal bellows (pressureless fluid barrier)