

CombiPro – The reliable Pro!

CombiPro is a series of horizontal centerline supported centrifugal pumps. The design of CombiPro is based on the American Petroleum Institute standard “Centrifugal Pumps For General Refinery Services”, also known as API 610. Satisfying this standard, the CombiPro meets the high level performance requested by refineries and petrochemical industries.

The CombiPro is part of the CombiSystem, a modular concept of single stage end-top centrifugal pump families, all sharing the same basic hydraulic design with a high degree of interchangeability between parts and sub-assemblies.

The seal chamber is designed to fit all types of seals, especially API 682 cartridge seals. The multifunctional pump cover and the integrated design of pump, baseplate and accessories enable the use of standard constructions for all API 610 seal plans.

Each CombiPro pump is mounted on a sturdy welded steel baseplate with reinforced pedestals and bracket support, conforming to API 610. This reliable rigid construction extends the duty life of bearings and seal and enables trouble-free operation under severe process conditions.



CombiPro



Typical characteristics

- Designed according to the latest requirements of API 610
- Suitable for all common API 682 cartridge seal makes
- Fully integrated design of pump, motor, baseplate and accessories
- All pumps come with specially designed rigid baseplates in accordance with API 610
- Computer aided design of geometry of all hydraulic parts
- Outstanding hydraulic performance, verified by actual test results
- Most suitable center-line mounted, end-suction pump for chemicals and hydrocarbon duties

Features and *benefits*

Flanges

- according to ANSI B16.5, 300lbs RF
- several face finishes possible

Pump casing

- centerline supported
- end suction type
- available with integrated cooling or heating chamber

Three impeller types

- closed impeller
- semi-open impeller
- half open
- clearances according to API 610
- *suitable for liquids with solids*
- *easy to clean when pumping sticky liquids*
- *fully interchangeable*

Impeller cap nut

- positively locked with stainless steel set screw
- *in accordance with API 610*

Wear rings

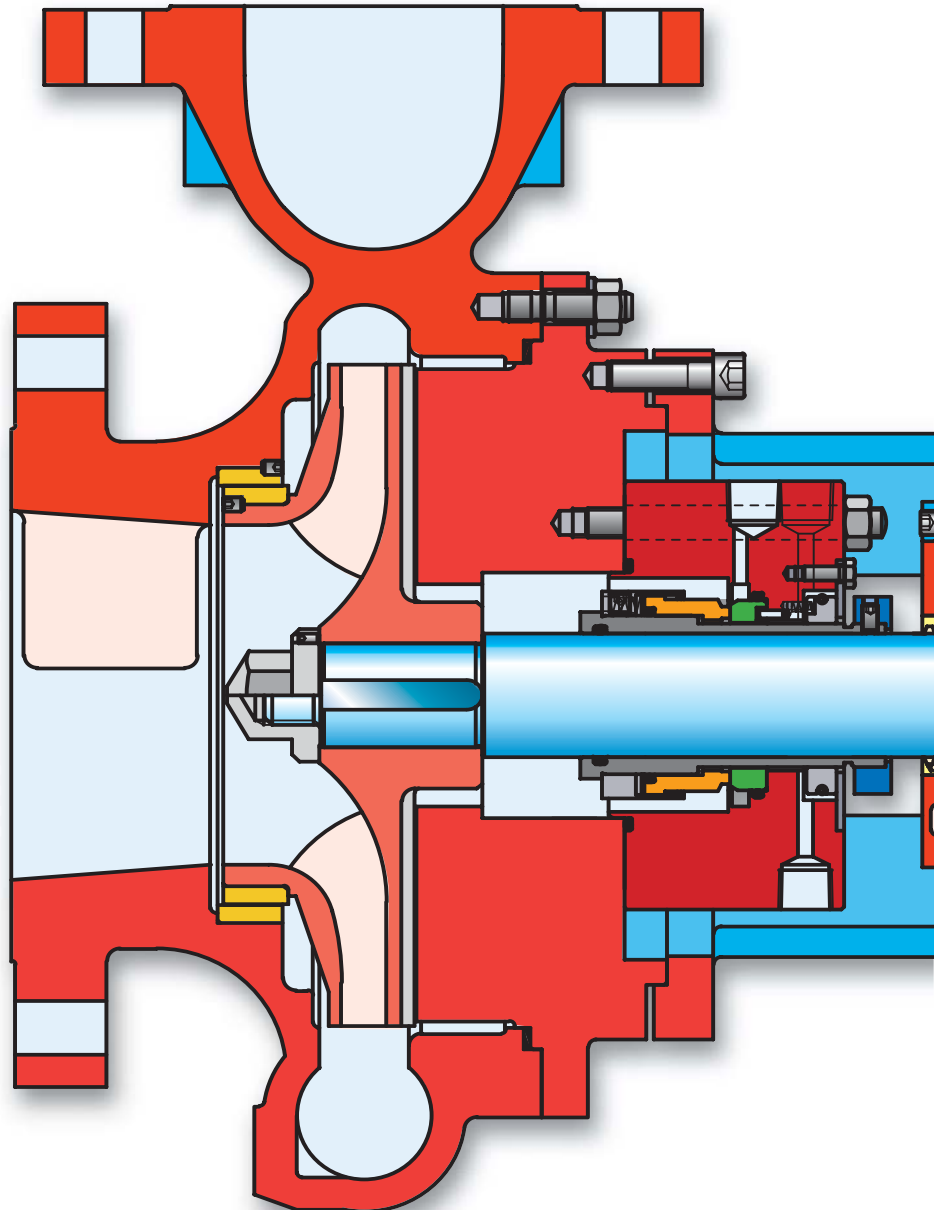
- one in pump casing, one on impeller
- secured against co-rotation by means of stainless steel set screws
- *replaceable*
- *extending pump life*

Hydraulic performance

- implementation of the latest hydraulic research results
- *improved NPSH*
- *excellent over-all hydraulic performance*

Shaft sealing

- standardised seal chamber design to fit all recognised API 682 seal configurations
- *all of them available as full cartridge seal*



Pressure parts

- designed with a corrosion allowance of at least 3 mm
- *guaranteeing an adequate duty life for every application*

Impellers

The CombiPro is provided with 3 different types of impellers:

Closed impeller

Provided with back vanes to ensure a good circulation of flushing liquid and to minimise the risk of pollution of the shaft sealing environment. Renewable wear ring at suction side. Clearances between impeller and pump casing in accordance with API.

Semi-open impeller

Fully interchangeable with closed impeller of the same size. The larger passage between the vanes permits the transport of liquids containing solid particles. The open back plate and partially open front plate strongly reduce possible blockages of the impeller.

Half-open impeller

Consisting of a shaped front wear plate mounted in the pump casing and a front plate-less impeller running against the wear plate with narrow clearance. Easy to clean if the pumped liquid sticks to the internal of the impeller.



Shaft sealing

- Standardised design to fit all recognised API 682 seal configurations:
 - single seal construction
 - dual seal construction (unpressurised and pressurised)
- In all common API conform constructions:
 - pusher type
 - with bellows
 - with bellows, high temperature (>200°C)
- All of them available as full cartridge seals in a large variety of materials, including optional heated seal chambers

Lubrication

- A constant level oiler with cage protected sight glass ensures optimal lubrication conditions.
- Bullseye sight glass with oil level indication allows permanent visual control of oil level and condition.
- Breather with micro-filter equalizes pressure differences inside the bearing bracket, but prevents water from entering into the bearing bracket.
- Provisions are made to mount an optional cooling chamber to the bearing bracket to maintain the optimum service temperature of the lubricating oil.





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