DICKOW PUMPEN

Multistage Centrifugal Pumps

Types HZ / HZA

GENERAL

HZ/HZA-Pumps are applicated in the industrial water supply, in pressure increasing plants, for handling condensates, for boiler feeding, firefighting and for various other applications.

The type HZA of end suction design has been developed for operating conditions with low NPSH-values. The wear resistant SiC-sleeve bearing on the suction side reduces the maintenance costs because there is no second mechanical seal required.

The performance range is subdivided to achieve best efficiencies for all service conditions.

With a wide selection of materials and the possibility of applying several shaft sealing systems, HZ/HZA-pumps are suitable for handling almost all kinds of liquids which are free of abrasive solids and of suitable viscosity.

Operating temperature up to 180°C, operating pressures up to 40 bar.

Hazardous Area

Together with the required Ex-drive motors, the HZ/HZA-pumps can be applied in hazardous area Group II, Category 2. The pumps meet the basic safety and health requirements of Explosion-proof Directive 94/9 EC and Machinery Directive 98/37 EC and are suitable for plants with increased safety requirement.

CONSTRUCTION

HZ/HZA-pumps are multistage centrifugal pumps of radial split casing design.

Suction and discharge casing

Suction- and discharge casings are provided with sturdy casted feet for mounting on baseplates or base frames. To obtain low NPSH-values, the suction casings of the HZ-pumps are designed volute shape.

HZA-pumps have end suction design to obtain lowest possible NPSH-values.

Wear rings

Suction and discharge casing as well as the intermediate casing are fitted with interchangeable wear rings as standard. Additional impeller wear rings are available on request.

Intermediate casings / Diffusers

The impellers are centered inside of the diffusers. The diffusers are of multiflow channel design converting part of the generated speed in the impeller into pressure. The guide vanes on the back side of the diffusers lead the pumped liquid to the impeller eye of the following stage.

Impellers / NPSH-values

The closed impellers are hydraulically balanced by wear rings and balance holes in the impeller hubs. The ball bearings are only carrying the residual thrust loads. Further balancing devices are not required.

When handling volatile liquids such as condensate, hydrocarbons or liquified petroleum gases, partial vaporizing of the pumped fluid and break down of the performance by cavitation should be avoided in any case.

The possibility of cavitation is reduced by applying pumps with low NPSH-required values. Lowest NPSH-values are achieved with HZA-pumps using impeller with enlarged eye in the first stage and the end suction design of the casing. The HZ-pumps with vertical inlet have slightly higher NPSH-values. Reference is made to our pump performance curve.

Ball bearing

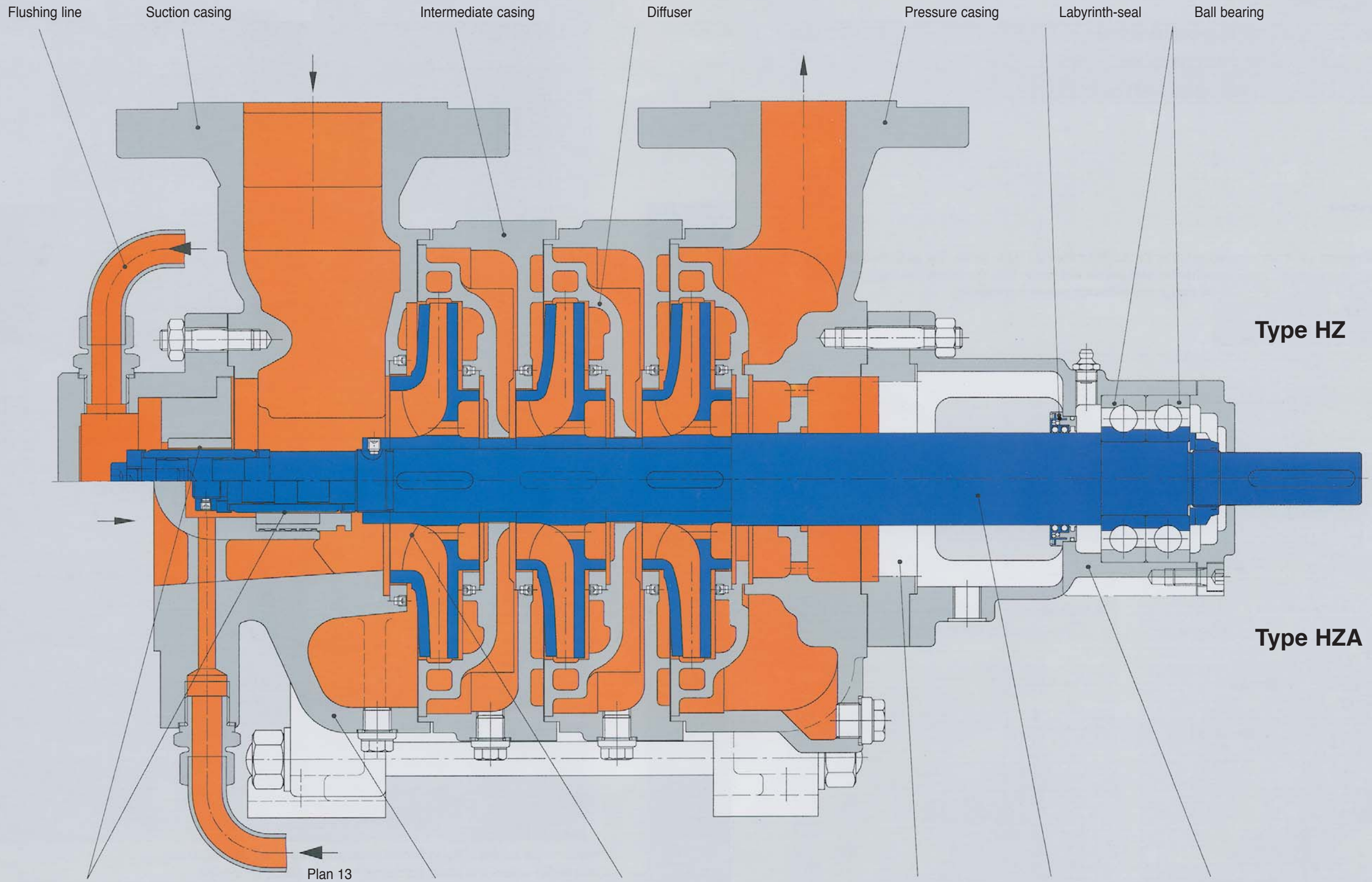
The pump shaft ist fixed axially in a generously dimensioned double row angular ball bearing. The ball bearing is placed directly on the pump shaft and secured by a shaft nut.The bearing can be regreased through grease nipples, available in the bearing brakket.

Sleeve bearing

On suction side, the pump shaft is carried by the sleeve bearing unit. The stationary sleeve bearing and the rotating shaft sleeve are made of wear resistant and corrosion proof SiC material. With additional carbon coating, the sleeve bearing can also tolerate dry running conditions. The shaft sleeve is fitted to the pump shaft by metallic tolerance rings to avoid thermal stresses.

The bearing unit is located in the pumped liquid. To guarantee a stable fluid film in the gap between rotating shaft sleeve and stationary sleeve bearing, the bearing unit is pressurized from discharge side (plan 13).

Sectional drawing

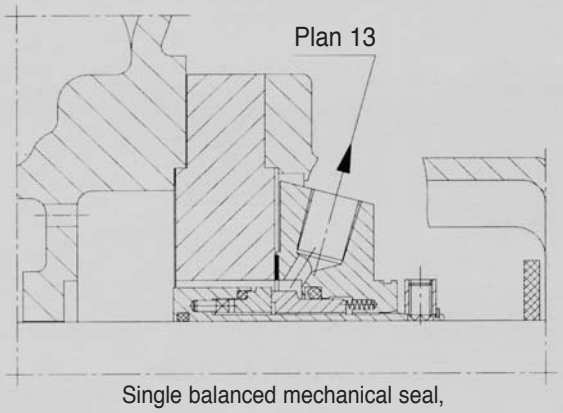


Standard materials:

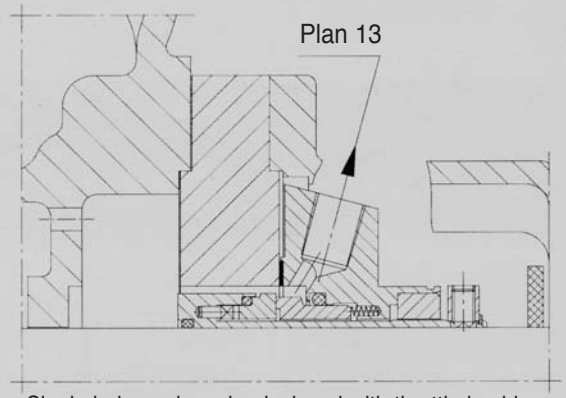
Suction- and pressure casing	GGG40.3, GS-C25, 1.4408 (18.10 CrNi)
Intermediate casing	GGG40.3, GS-C25, 1.4408 (18.10 CrNi)
Impellers, diffusers	GG25, 1.4408 (18.10 CrNi)
Wear rings	St, 1.4571 (18.10 CrNi)
Pump shaft	1.4021 (13Cr), 1.4571 (18.10 CrNi)

Shaft sealing systems

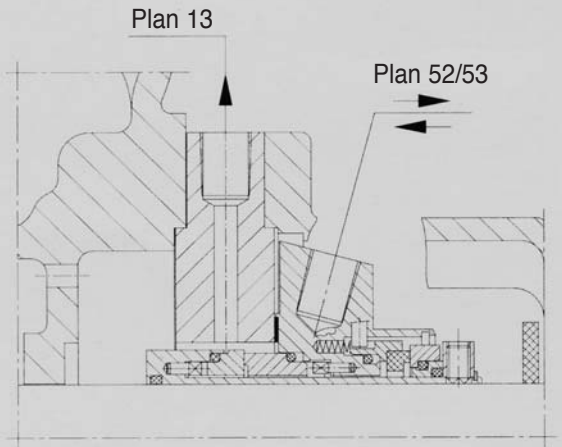
The following mechanical seals are recommended by DICKOW for the HZ / HZA- series. The seal chamber of the pumps is designed to accept all common mechanical seal brands and types. With the sleeve bearing provided on suction side, no second shaft sealing – typical design for multistage pumps – is required.



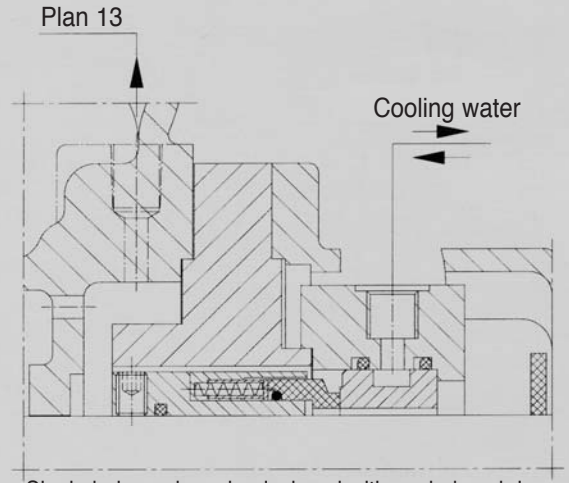
Single balanced mechanical seal,
Cartridge design



Single balanced mechanical seal with throttle bushing,
Cartridge design

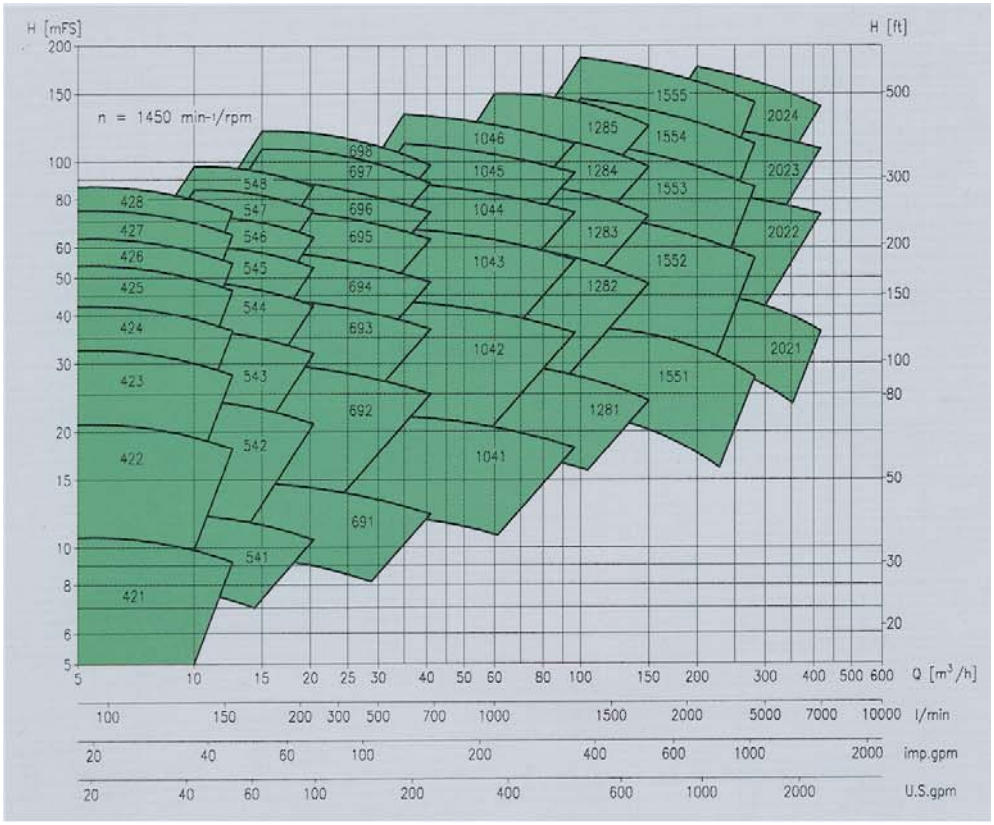


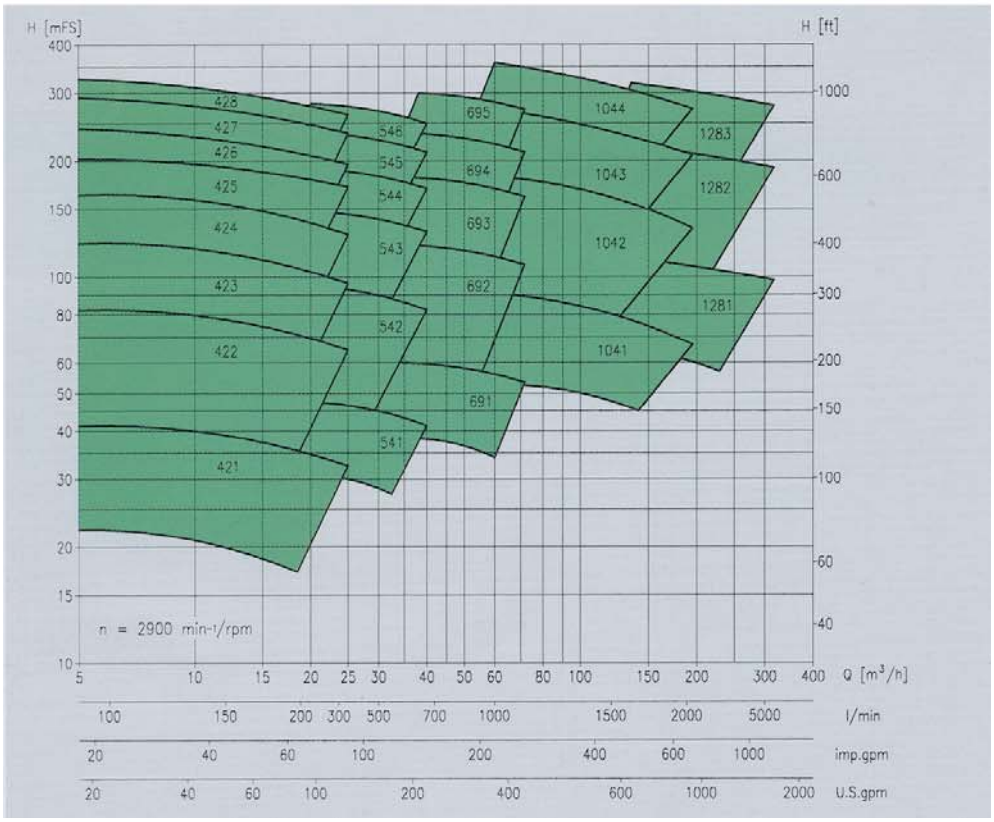
Double mechanical seal,
Cartridge design



Single balanced mechanical seal with cooled seal ring,
Cartridge design

Performance range HZ / HZA





Performance curves of the individual pump sizes, also for 1750 / 3500 rpm, with NPSH-values and power consumption, are available on request.

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