



**DICKOW
PUMPEN**



INLINE PUMPS
Type NCV / NCVL

General

The DICKOW-Inline-Pumps, series NCV / NCVL, have been developed for the chemical, petro-chemical and related industries.

Since the pumps are installed inline, only a minimum of space is required and therefore, these pumps are suitable for package units. No time-consuming alignment of couplings is required. Ball bearing failures through inadequate alignment are excluded.

With a wide selection of materials and shaft sealing systems, the NCV-pumps are suitable for handling nearly all kinds of liquids used in the above mentioned industries.

For example: acids, lyes, hydrocarbons, hot water up to 234°C (455°F), hot oil up to 350°C (660°F), cooling fluids, solvents etc.

Construction

The DICKOW-Inline-pumps are single stage, single-flow volute casing pumps in vertical construction with inline flange arrangement. The drive motor is connected with the pump casing by a motor support lantern.

Two different designs are available.

• Type NCV

The pump shaft is connected with the motor shaft by a clamping device and secured by a key.

• Type NCVL

The pump shaft is beared by the bearing bracket of a standard horizontal pump. Power is transmitted from motor shaft to pump shaft by a spacer coupling. After removal of the spacer, the bearing bracket including shaft seal and impeller can be removed without demounting the motor.

Drive motors

All standard flange mounted motors can be applied without any modification. No special shaft designs are required.

Pump shaft, bearings

The connections "shaft nut - impeller hub" and "impeller hub - shaft sleeve" are sealed by confined gaskets, preventing contact of pumped liquid with the pump shaft.

The NCV-type has the pump shaft rigidly clamped to the motor shaft and therefore, guided in the motor bearings.

The NCVL-type has the pump shaft carried in grease lubricated ball/roller bearings which are held by the bearing bracket. Regreasing device is available.

Impeller

To minimize thrust load, the impeller is fitted with wear rings and balancing holes in the hub. The impeller is keyed to the pump shaft and secured by shaft nuts with Heli-Coil insert. Impellers are properly statically balanced according to DIN ISO 1940 T1 with a grade of G 6.3. This grants smooth vibration free running.

Intermediate casing

The intermediate casing separates the pumped liquid from the atmosphere by the sealing system and by confined casing gasket.

Materials

Materials for standard design are stated below. Special materials on request.

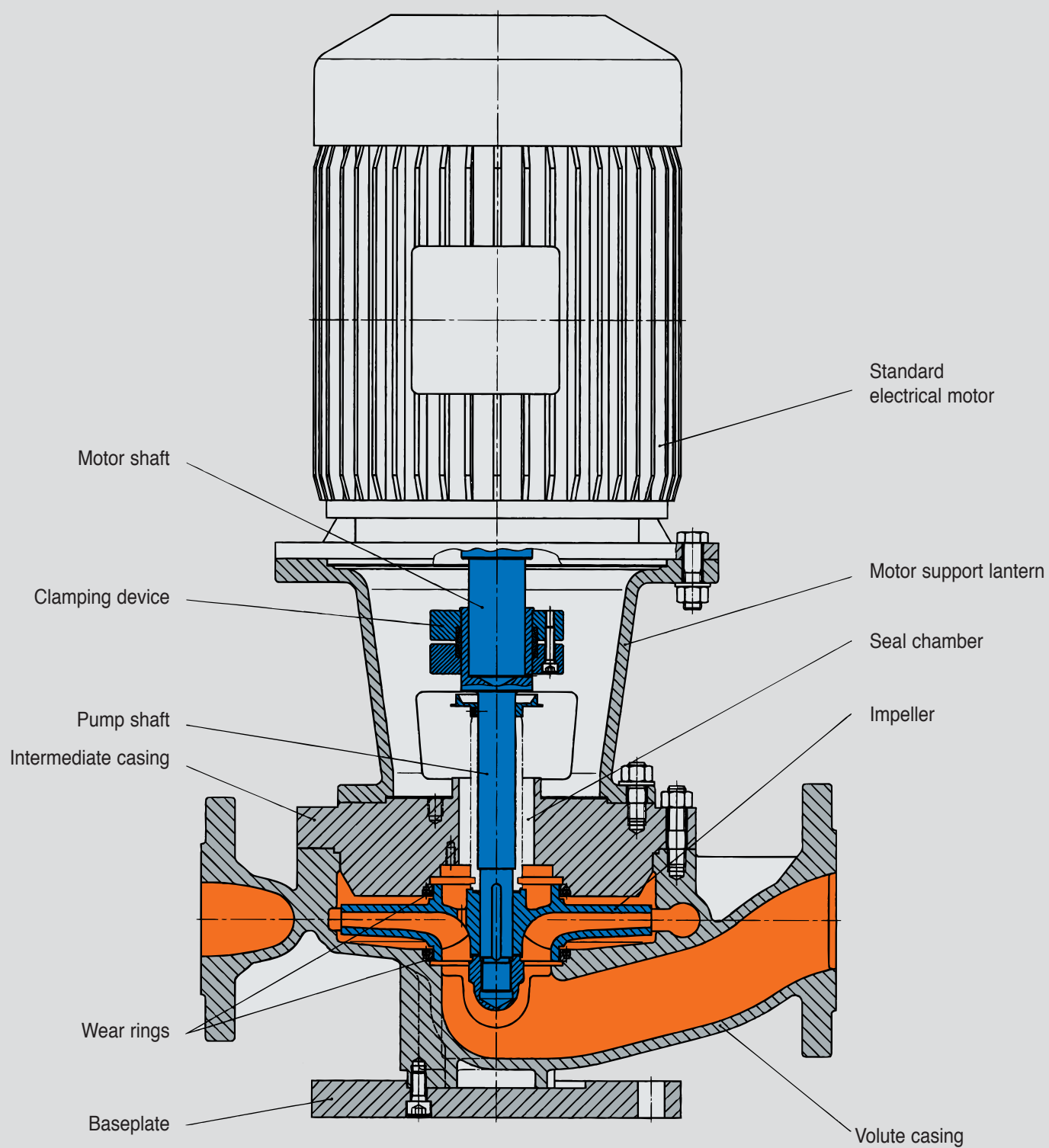
| Pump type | NCV(L) s | NCV(L) hu | NCV(L) h |
|-----------------------|----------|-----------|-----------|
| Volute casing | GGG40.3 | GS-C25 | 1.4408 |
| Impeller | GG25 | GG25 | 1.4408 |
| Intermediate casing | St37 | St37 | 1.4571 |
| Pump shaft | 1.4021 | 1.4021 | 1.4021 *) |
| Motor support lantern | GG25/St | GG25/St | GG25/St |
| Shaft sleeve | 1.4571 | 1.4571 | 1.4571 |

*) 1.4571 if DICKOW-Metal bellows mechanical seals are applied

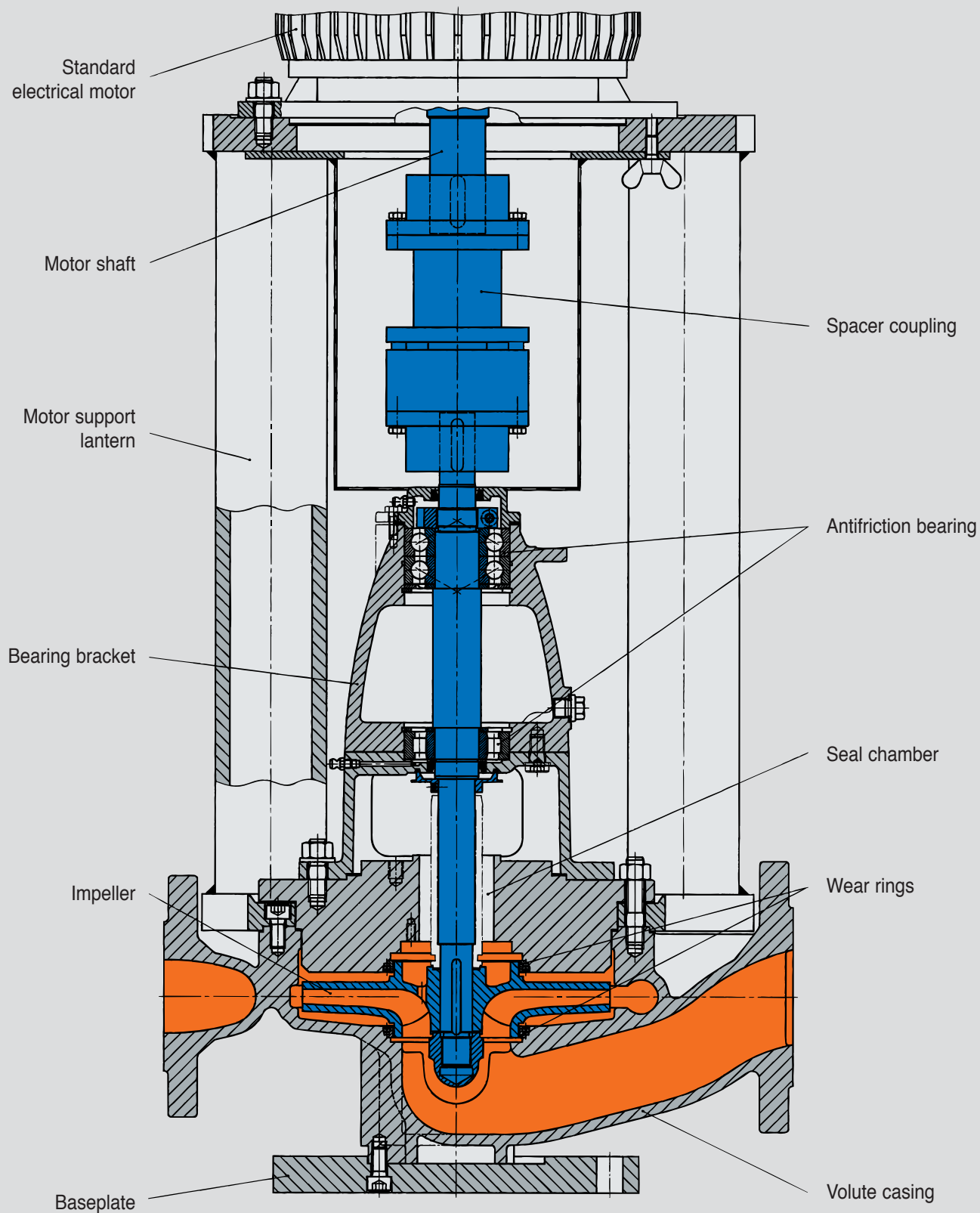
| | | | | |
|--------------|---------|--------------|-----------------------------|--------------|
| Ductile iron | GGG40.3 | → A 395 | 1.4408 (G-X5 CrNiMo 18.10) | → A 296 CF8M |
| Cast iron | GG25 | → A 48 No 30 | 1.4571 (X10 CrNiMoTi 18.10) | → AISI 316L |
| Cast steel | GS-C25 | → A 216-WCB | 1.4057 (X22 CrNi 17) | → A 431 |
| Carbon steel | St37 | → A 53 Gr.A. | 1.4021 (X20 Cr 13) | → AISI 420 |

SECTIONAL DRAWINGS

Type NCV with shaft clamping device

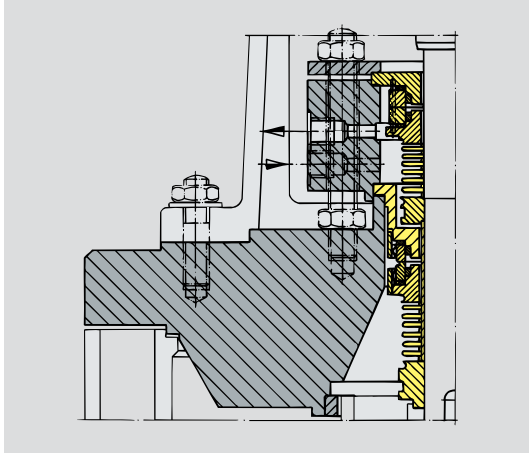


Type NCVL, with bearing bracket and spacer coupling

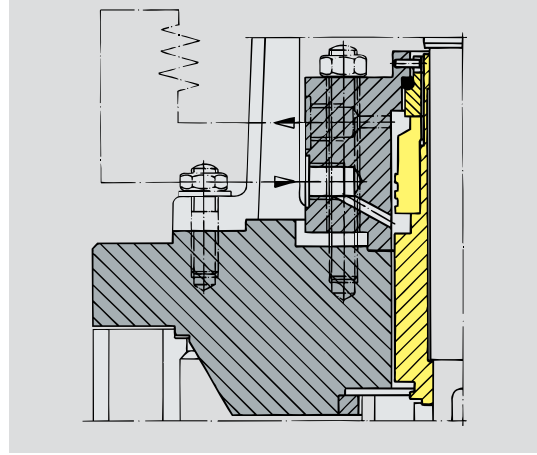


Shaft sealing systems

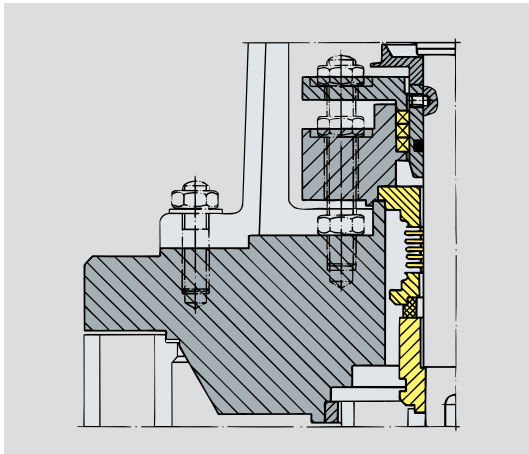
The seal chambers of the NCV/NCVL-pumps are designed to hold all common mechanical seals:



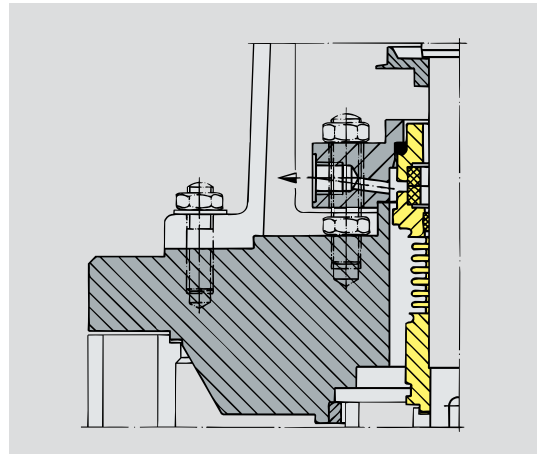
Metal bellows seal, Tandem-arrangement,
System DICKOW N9,
Thermal oil design, max. 350°C (660°F)



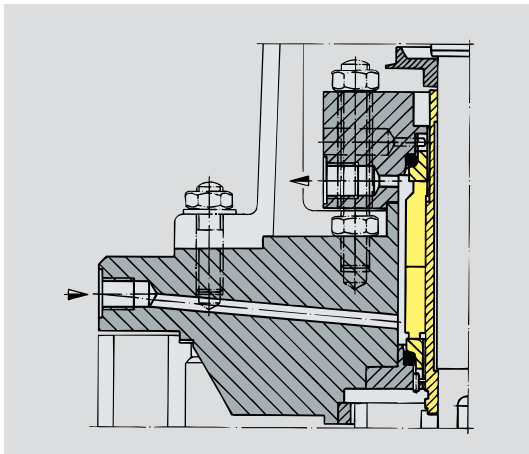
Balanced mechanical seal with pump ring,
acc. to DIN 24960,
Hot water design, with aircooled heat exchanger



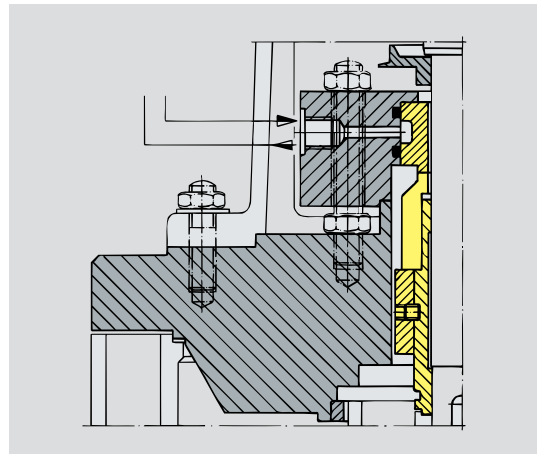
Metal bellows seal,
System DICKOW N6,
with auxiliary stuffing box



Metal bellows mechanical seal,
System DICKOW N10,
rotating bellows

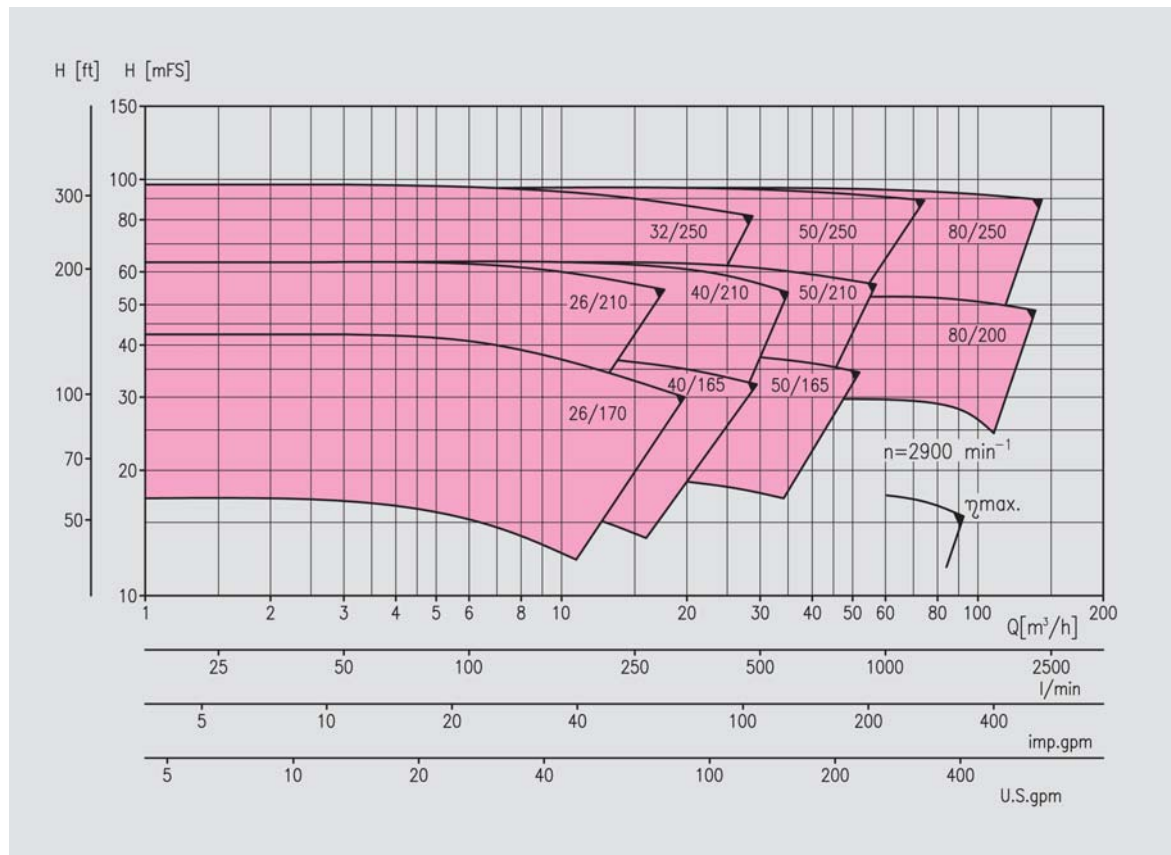
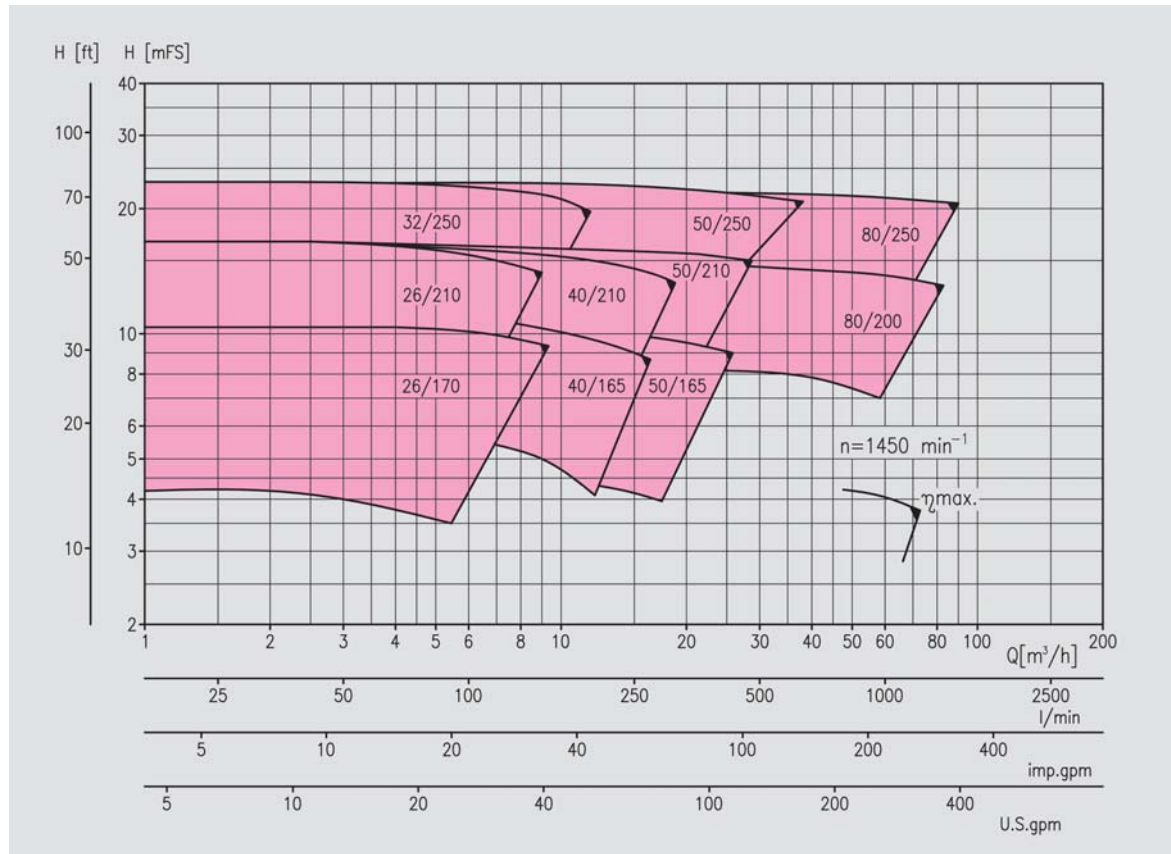


Tandem metal bellows seal,
acc. to DIN 24960,
with barrier fluid



Balanced hot water mechanical seal,
acc. to DIN 24960,
with cooled seat

Performance range



Performance curves for the different pump sizes are available on request and are supplied with our technical offers in general.

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