



**DICKOW
PUMPEN**



Inline-Pumps

Type

NCV/NCVL

General

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 190°C (374°F), hot oil up to 350°C (660°F), cooling fluids, solvents etc.

Construction

The DICKOW-Inline-pumps are single stage volute casing pumps, vertical arrangement with inline flange connections.

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

- **Type NCVLR**

Design acc. to API 610, pump type OH3, available on request.

Drive motors

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

NEMA motor designs are available on request.

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 pump shaft is friction lock fixed to the motor shaft and therefore supported by the motor bearings.

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

Impeller

To minimize thrust loads, the impeller has wear rings and balancing holes in the hub.

The impeller is keyed to the pump shaft and secured by a shaft nut with Heli-Coil insert. Impellers are properly statically and dynamically balanced according to DIN ISO 1940 T1 Grade 6.3.

Intermediate casing

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

Materials

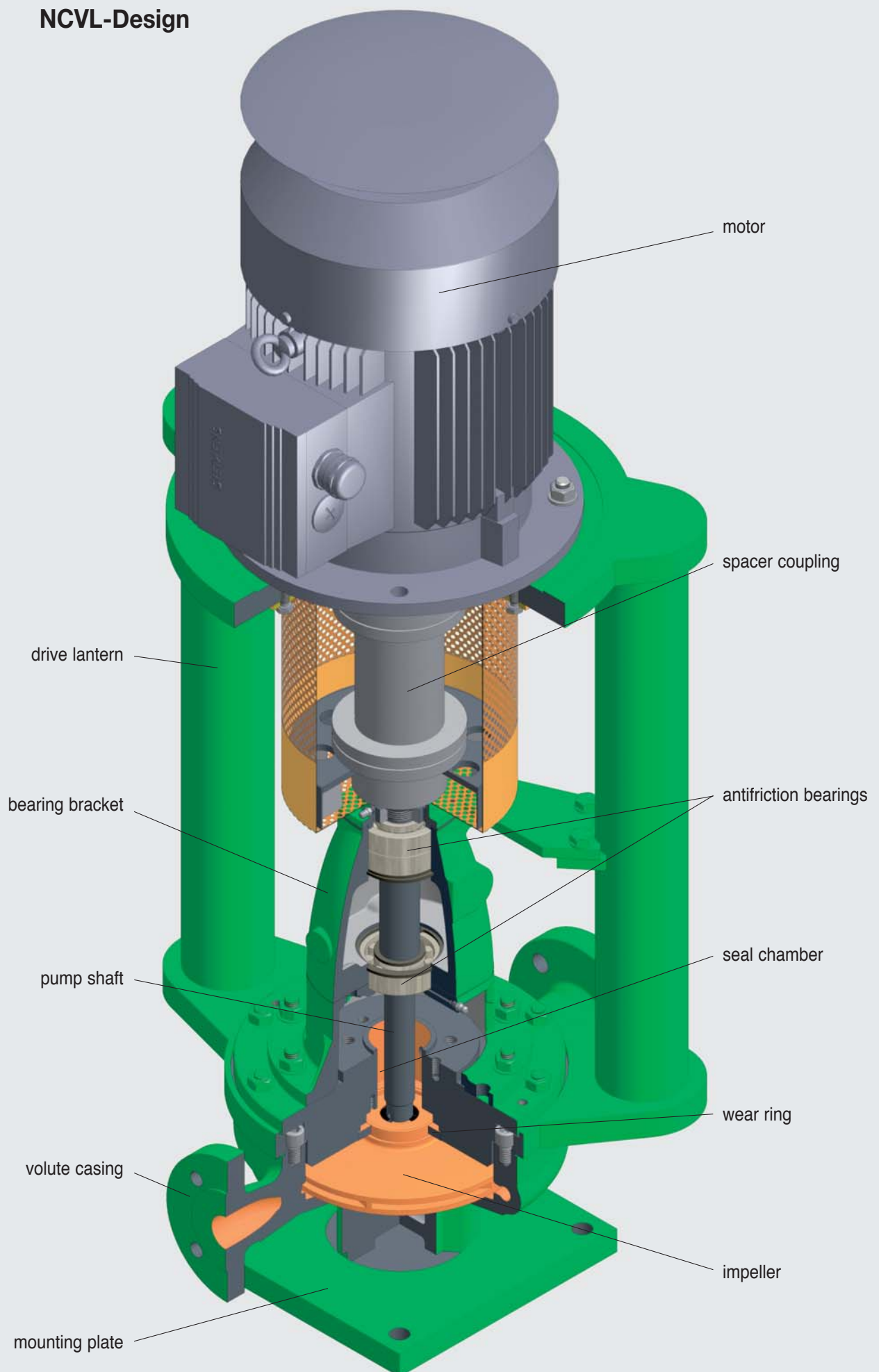
Materials for standard design are stated below. Special materials available on request.

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

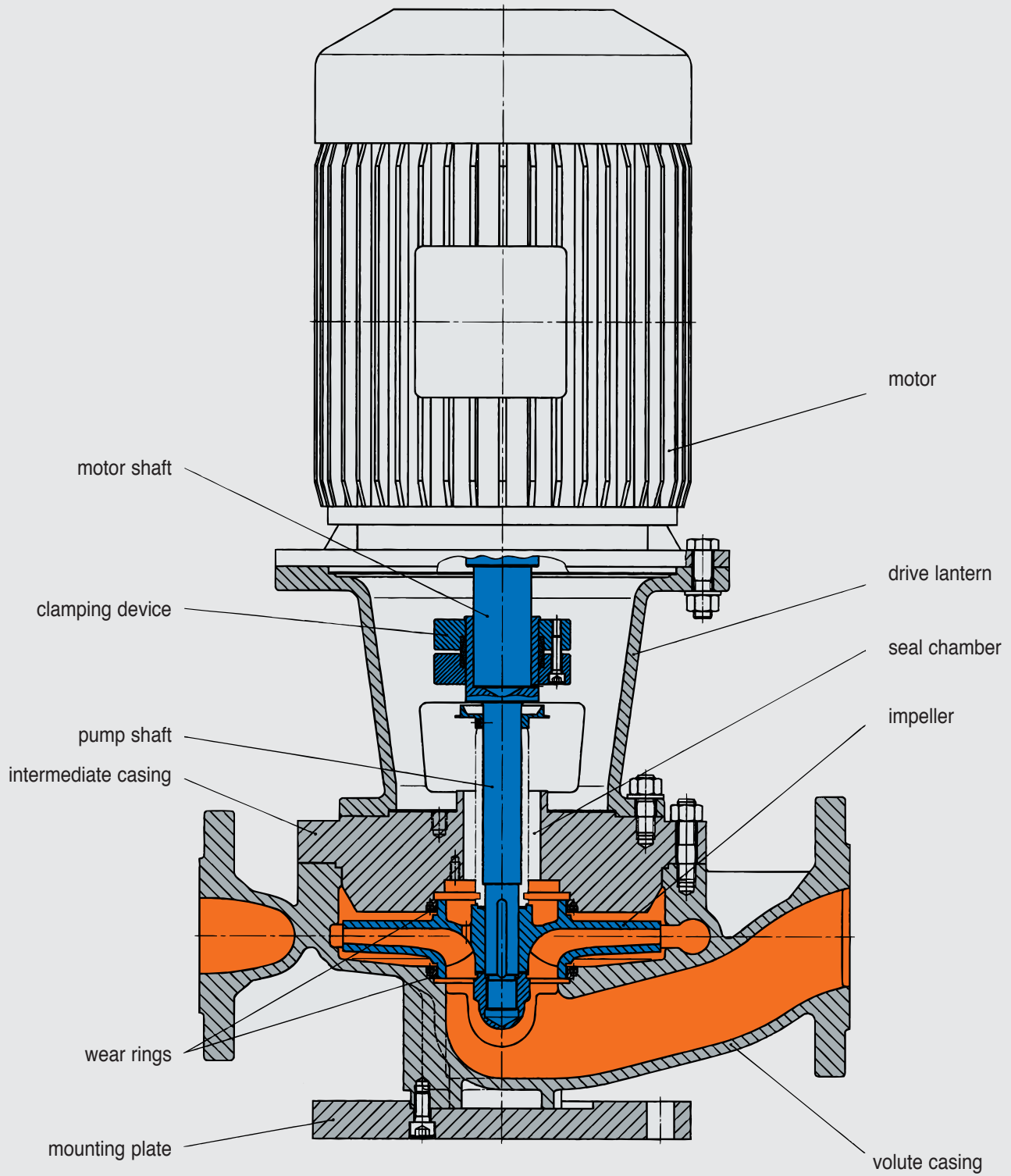
*) 1.4571 if DICKOW-Metal bellows mechanical seals are applied

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

NCVL-Design

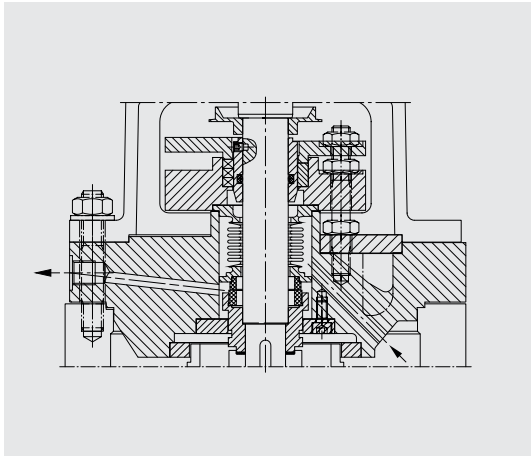


NCV-Design

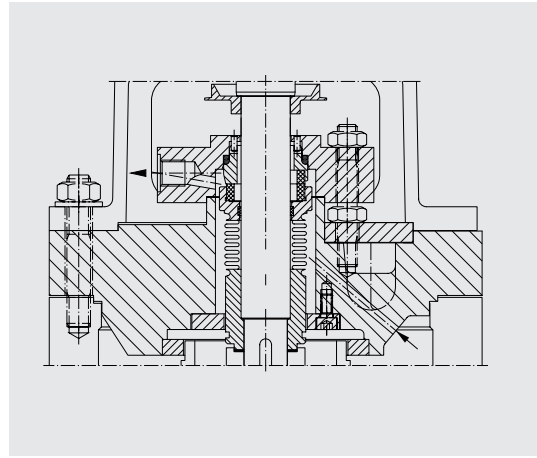


Mechanical seals

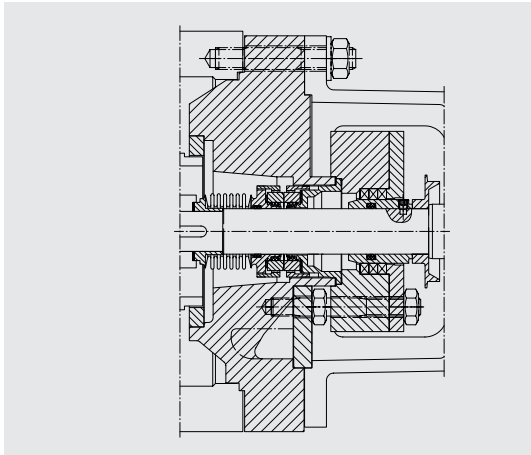
The seal chambers of the NCV/NCVL-pumps are designed to accommodate all common mechanical seals.



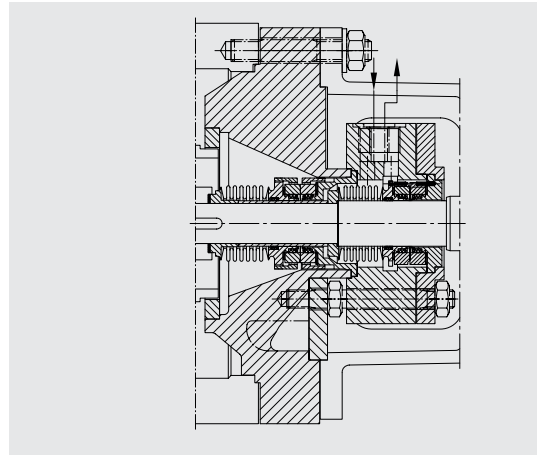
Single bellows mechanical seal with auxiliary stuffing box or throttle bushing, system DICKOW N6isq/t, to handle clean fluids (e.g. fuels).



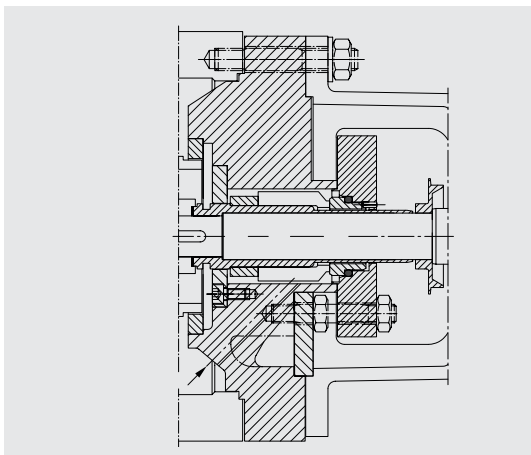
Single bellows mechanical seal, system DICKOW N11is, to handle slightly polluted fluids with solids.



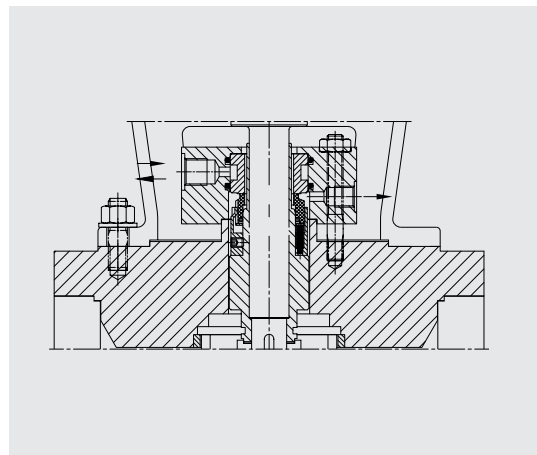
Single bellows mechanical seal with auxiliary stuffing box or throttle bushing, system DICKOW N10q/t, to handle thermal oil (with vapour pressure <math><1\text{ bar}</math>).



Double bellows mechanical seal with Plan 52, system DICKOW N9, to handle thermal oil >math>300^{\circ}\text{C}</math>.

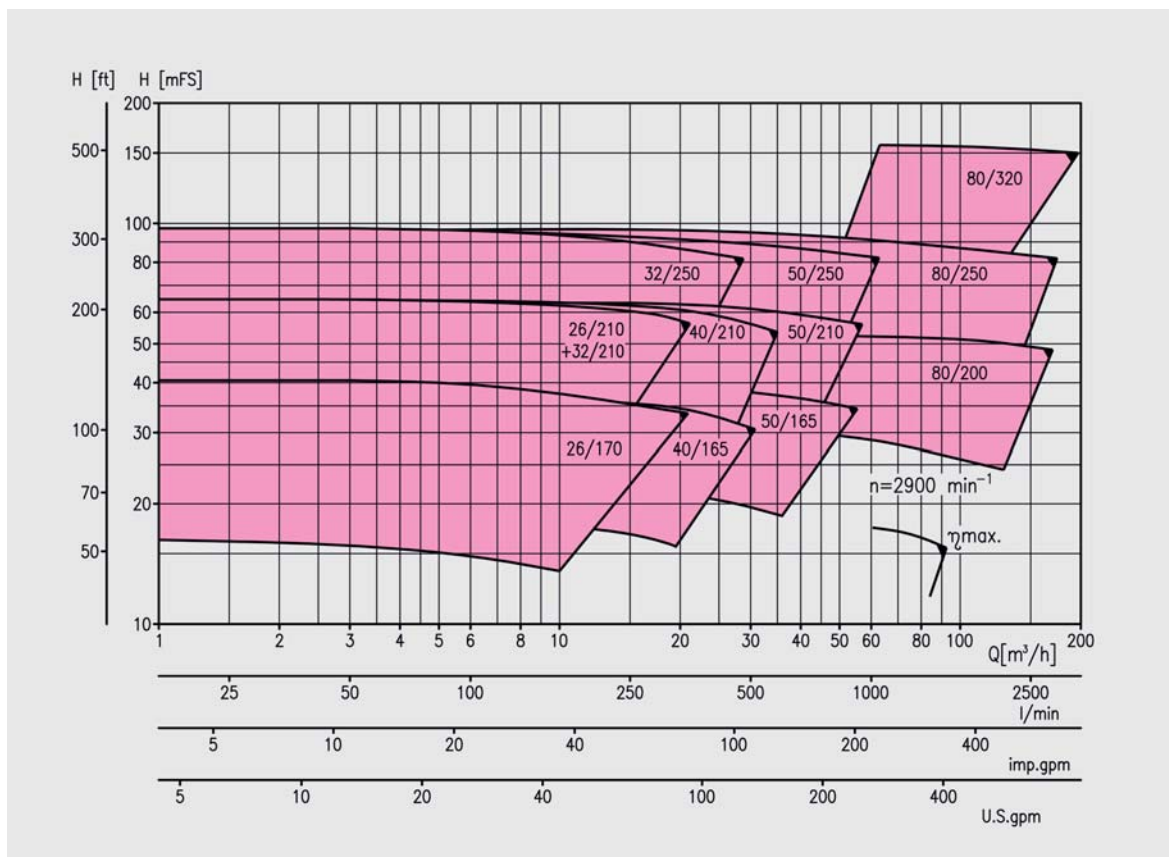
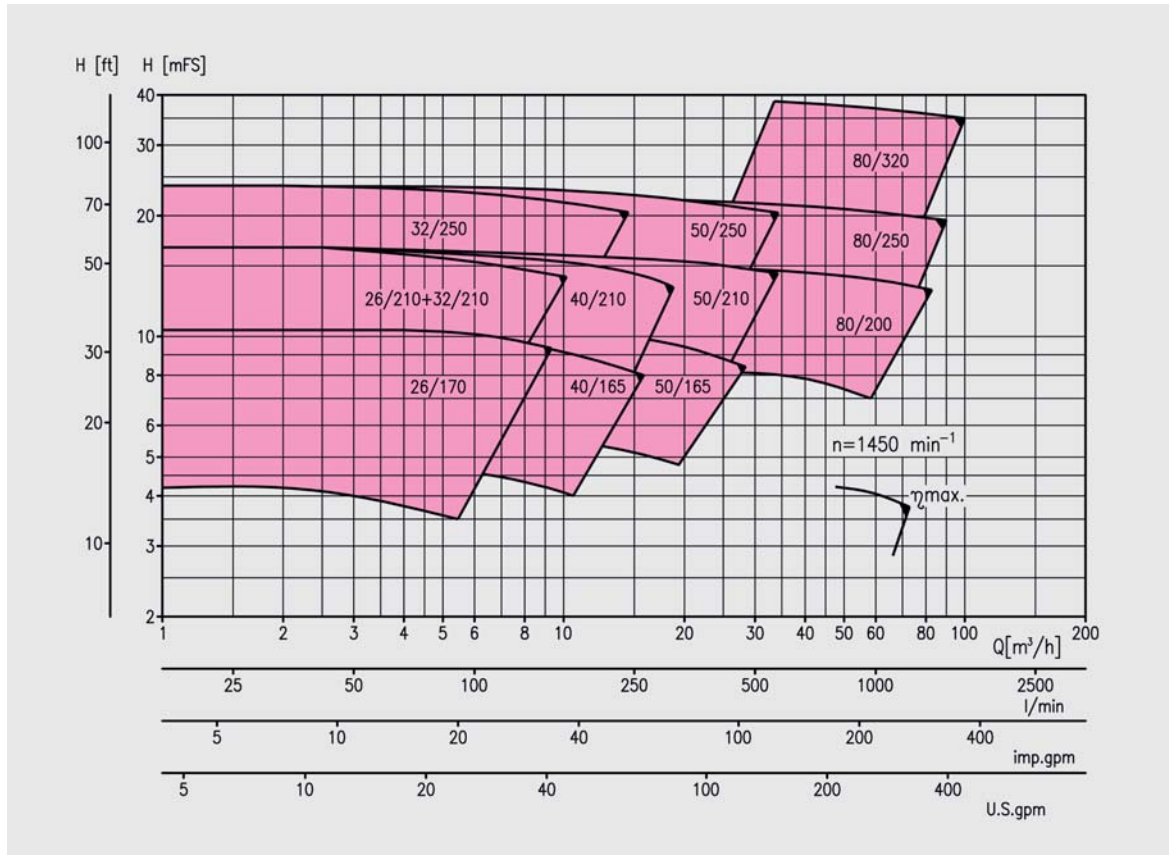


Single mechanical seal acc. to DIN EN 12756 with internal circulation, design Gei.



Single mechanical seal with water cooled seal ring, design Re, to handle hot water up to 190°C .

Performance range



Performance curves for the different pump sizes are available on request.