

High Pressure Multistage Pumps



Applications

WK, WL Pumps are used for water works, irrigation, sprinkler installations, boiler feed applications, condensate extraction, fire fighting as well as for generation of high pressure water used in hydraulic press, descaling plants, etc.

Operating Data

Pump size	: DN 40 to 150 mm
Capacities	: Q up to 630 m ³ /hr. (175 lps)
Total heads	: H up to 780 m
Speeds	: n up to 4500 rpm

Pressure & Temperature Limits

• Cast Iron	: P up to 40 bar
	: t up to 230°C
• Chrome Steel & Carbon Steel	: P up to 63 bar
	: t up to 230°C

Design

Horizontal radially split, multistage ring section pump with radial impellers. The stages are sealed by O-rings and clamped together by tie rods.

Pump supports are integrally cast on suction/discharge casings, either at the bottom or at the shaft center line level.

Standard nozzle orientation -

For bottom support : Suction horizontal to right
(when seen from suction side)
Discharge vertically up.

However, these nozzles can be horizontal to right / horizontal to left / vertical up.

For center support both these nozzles are always vertically up.

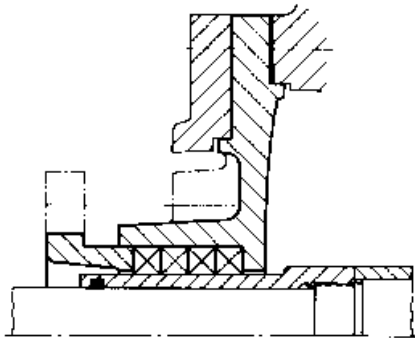
Materials

Part description	Materials
Suction casing	C.I., WCB, CA6NM
Discharge casing	
Stage casing	
St. box housing	
Diffuser	C.I., CA6NM, LG2
Impeller	
Shaft	45C8, Type 410, Type 410 Cr.pl.
Wearing ring	C.I., NiCi, Bz15, Cr. Hard 400
Impeller ring	1.4024.19
Shaft prot. sleeve	C.I., Type 410, Type 316, CT1, NiCi
Balancing disc*	C.I., A182 Gr. F6a
Counter bal. disc*	C.I., A 182 Gr. F6a
Bearing housing	C.I.
Tie rods	45C8, EN24V

* Applicable only for WL Pumps

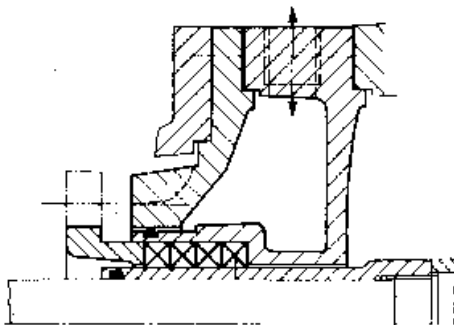
1. Standard flanges as per various DIN ratings. Flange rating as per ANSI also possible.
2. Radial load absorbed by roller bearing on suction side and deep groove ball bearing on discharge side for WK pumps. In case of WL pumps roller bearings are provided on both ends. Bearings are lubricated by means of oil stored in the sump of bearing housings and are with guaranteed bearing life of 25000 operating hours.
3. About 85% hydraulic thrust is balanced by means of balancing holes provided on impeller's pressure shroud, in case of WK pumps. In case of WL pumps, the hydraulic thrust is 100% balanced by means of balancing device comprising of balancing disc and counter balancing disc.
4. Throttling gaps provided with renewable wearing rings, at each stage, which reduces the hydraulic losses due to back flow and improves the efficiency, as well as reduces the hydraulic axial thrust.

A1



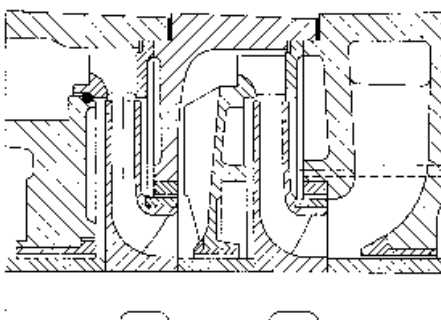
Normal design (N) $\leq + 105^{\circ}\text{C}$

A3



Hot water design (HWD) $\geq 106^{\circ}\text{C}$

C



Execution with double wearing ring and stage bushes for WL

5. Stuffing box packing :

A1. Standard feature is uncooled soft packing.

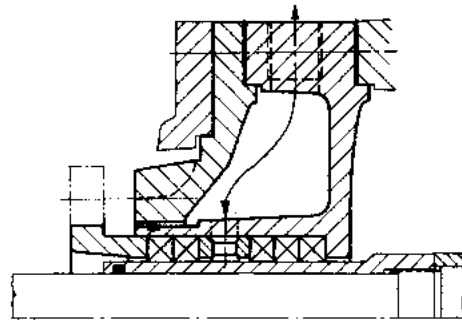
A2. For suction from a vacuum tank, deep stuffing box can be provided with sealing connection.

A3. For higher pumping temperatures stuffing box cooling facility is provided (HW) with cooling cover. As per choice, reputed mechanical seal can be provided with proper flushing and cooling facilities.

B. In case of higher differential pressure, in WK pumps, a pair of angular contact ball bearings, can be provided on discharge side with a special heavy duty bearing housing.

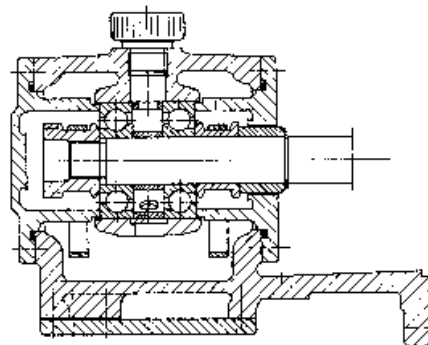
C. For material with galling tendency of stationary and rotating components, a special execution with renewable impeller rings and stage bushes for diffusers can be provided for better serviceability.

A2



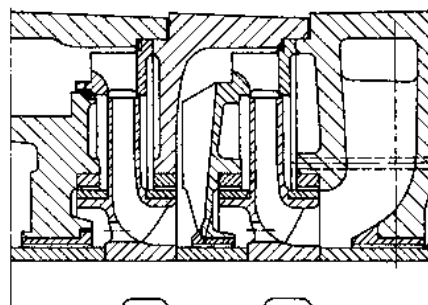
DSB-M (VSM) $< + 106^{\circ}\text{C}$

B



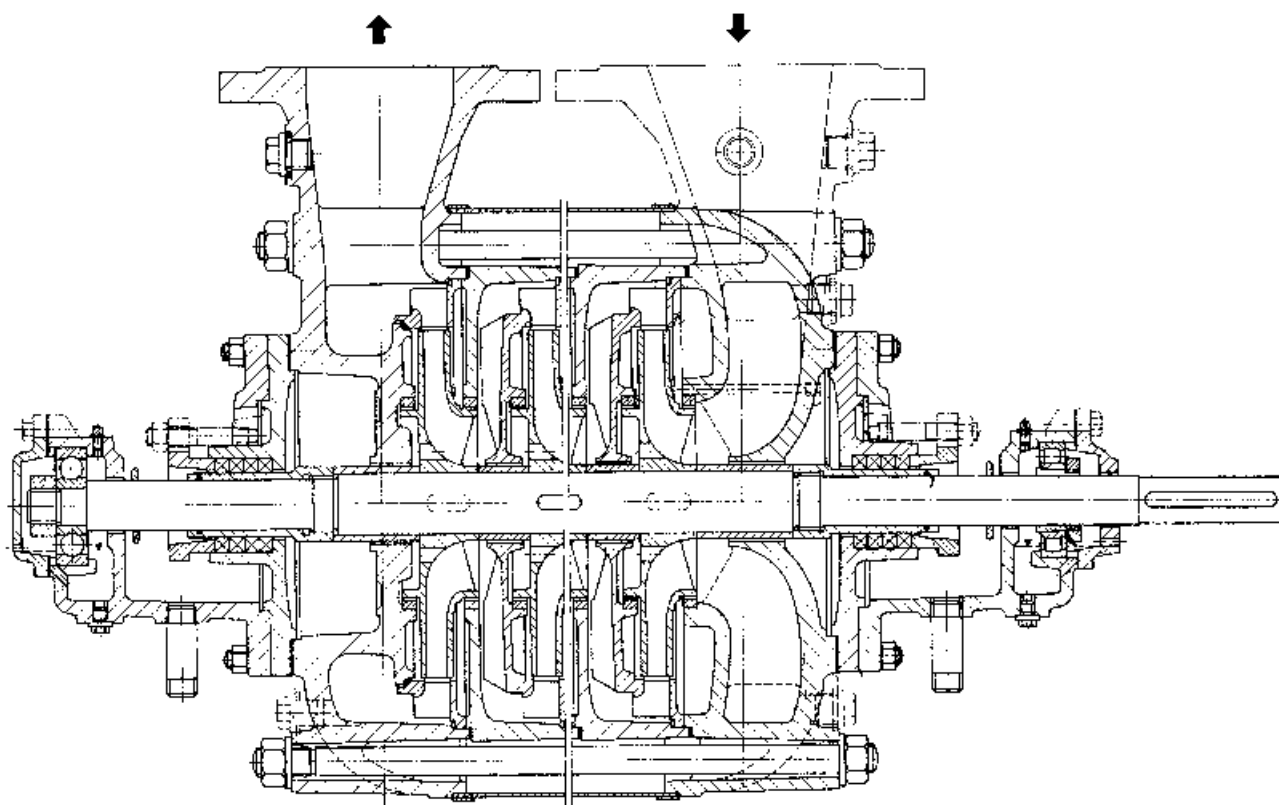
Execution with heavy duty bearing housing

C

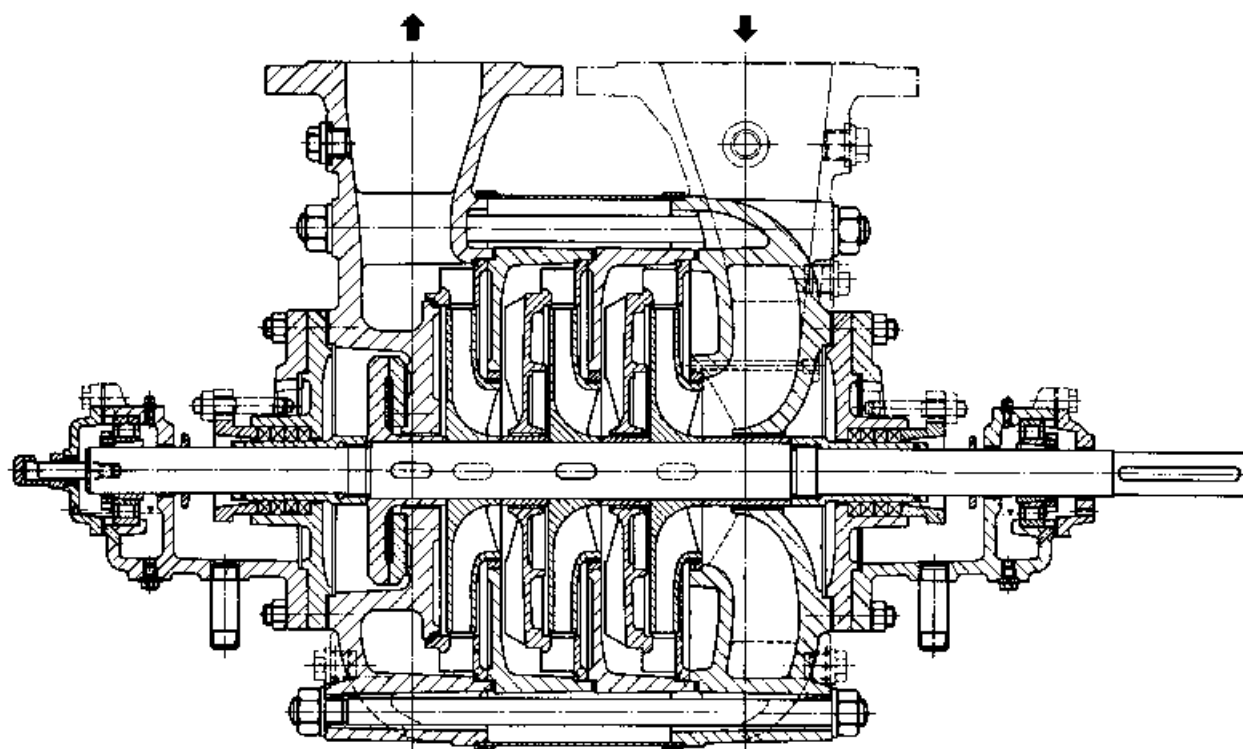


Execution with double wearing ring and stage bushes for WK

WK

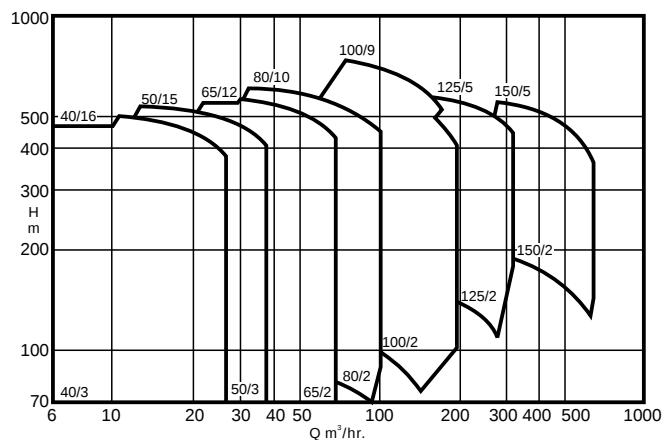


WL

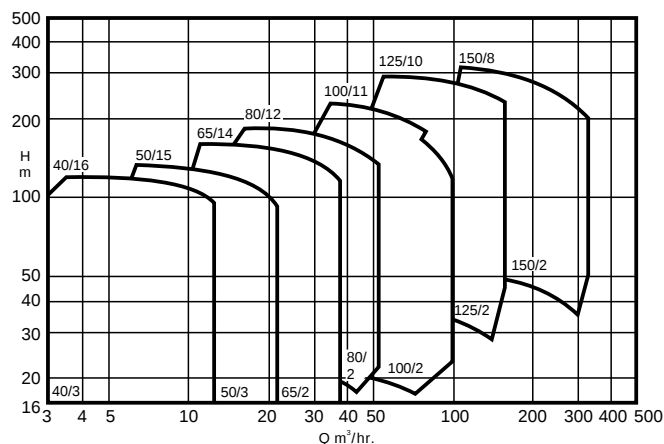


Family curves

2900 rpm



1450 rpm



Manufactured in technical collaboration with KSB Aktiengesellschaft., Germany by :

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