Interchangeability of spare parts

To have the advantages of a fine subdivided performance range with many pump types without disadvantage of a large spare part stock, the NCL-types are designed in a unit-composed system. Therefore you need for all sizes of pumps only four bearing sizes, four mechanical

seal sizes, four shafts a.s.o. Further, many parts in different pump types are similar and interchangeable with another.

The possibilities of interchangeability are shown in the following table.

Size of bearing housing		1/25					11/32										III/42								IV/53									
Part No.	Pump size	32/165	40/165	50/165	32/210	40/210	50/210	65/165	80/165	65/200	80/200	100/200	32/250	40/250	50/250	65/250	80/250	40/320	50/320	100/250	125/250	150/250	80/350 R0/350	100/320	125/320	80/400	100/400	125/400	200/260	150/320	200/320	150/400	200/400	150/500
	Volute casing																	-																
	Impeller						1											_	_											4	_			
	Wear ring							•					4	4		•				4	•		4	_	•		4	•			4	•	1	• 4
	Cap screw	11316																					1	╙										
	Intermediate casing				•	•	•	\mathbf{Z}		•	•	•	A	lack	A,	\triangle		<u> </u>	X.	4	4	•			•		A			4	4	•	•	
	Complete bearing unit with shaft and lantern																																	
	Shaft sleeve																																	
	Complete shaft sealing unit with accessories																				l													
	Gaskets	1	Z	Z	•	•	•	1	7	•	•	•						X	X	4	4		•	•		•	•	•	1	X	X	•	•	•

Allowable casing pressure

Type NCLs: up to $205^{\circ}\text{C}/400^{\circ}\text{F} - 22 \text{ bar}/320 \text{ psi}$; up to $350^{\circ}\text{C}/660^{\circ}\text{F} - 18 \text{ bar}/260 \text{ psi}$ Type NCLhu: up to $230^{\circ}\text{C}/445^{\circ}\text{F} - 31 \text{ bar}/450 \text{ psi}$; up to $350^{\circ}\text{C}/660^{\circ}\text{F} - 20 \text{ bar}/290 \text{ psi}$ Type NCLh: up to $300^{\circ}\text{C}/570^{\circ}\text{F} - 25 \text{ bar}/365 \text{ psi}$; up to $350^{\circ}\text{C}/660^{\circ}\text{F} - 20 \text{ bar}/290 \text{ psi}$

Materials

The following specified materials are standard design. Further materials are available on request.

Pump type	NCLs, API clas	s I-1	NCLhu, API cla	ss S-1	NCLh, API class A-7				
Ext. casing parts	Ductile iron	GGG-40.3	Cast steel	GS-C 25	Stainless steel	1.4408			
Impeller	Cast iron	GG-25	Cast iron	GG-25	Stainless steel	1.4408			
Intermediate casing	Ductile iron	GGG-40.3	Cast steel	GS-C 25	Stainless steel	1.4408			
Shaft	Carbon steel	1.4021	Carbon steel	1.4021	Carbon steel	1.4021			
Shaft sleeve	Stainless steel	1.4571	Stainless steel	1.4571	Stainless steel	1.4571			
Cap screw	Carbon steel	St 60	Carbon steel	St 60	Stainless steel	1.4571			
Bearing housing	Cast iron	GG-25	Cast iron	GG-25	Cast iron	GG-25			
Lantern	Cast iron	GG-25	Cast iron	GG-25	Cast iron	GG-25			

Shaft sealing

Stuffing box

Stuffing boxes are fitted with split cages and split stuffing box ring for an easy replacement of pakking rings. Internal circulation or external flushing is possible.

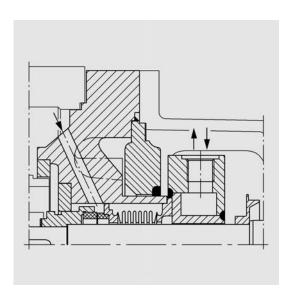
Mechanical seals can be installed in the stuffing box chamber on site, no re-machining of parts required.

Mechanical seal

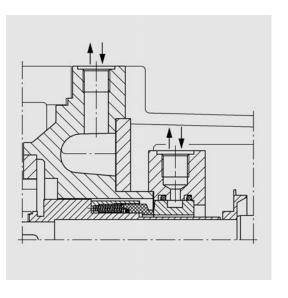
Pumps can also be fitted with all kind of mechanical seals such as single, tandem or double seals.

Heating or cooling of the seal is possible. Single seals can be equipped with throttle bushings, quench connections or auxiliary stuffing box. Seal glands are fitted with confined non-asbestos gaskets to prevent blow outs.

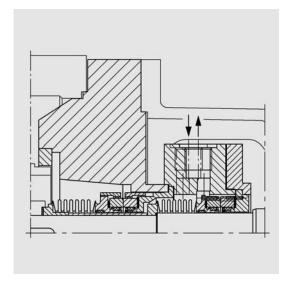
Mechanical seals for special service conditions



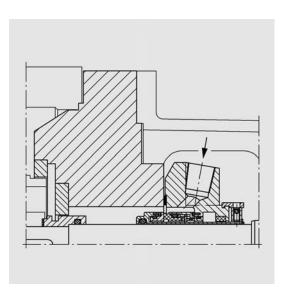
Single mechanical seal with heating jacket, system DICKOW N6b, bellow type, to handle DMT, Sulphur etc.



Single mechanical seal with water cooled seal ring, Burgmann H75G15, to handle hot water up to 190°C/374°F.



Tandem mechanical seal with Plan 52, system DICKOW N9, bellow type, to handle heat transfer oil up to 350°C/660°F.



Single mechanical seal, cartridge type, for quick and easy maintenance.