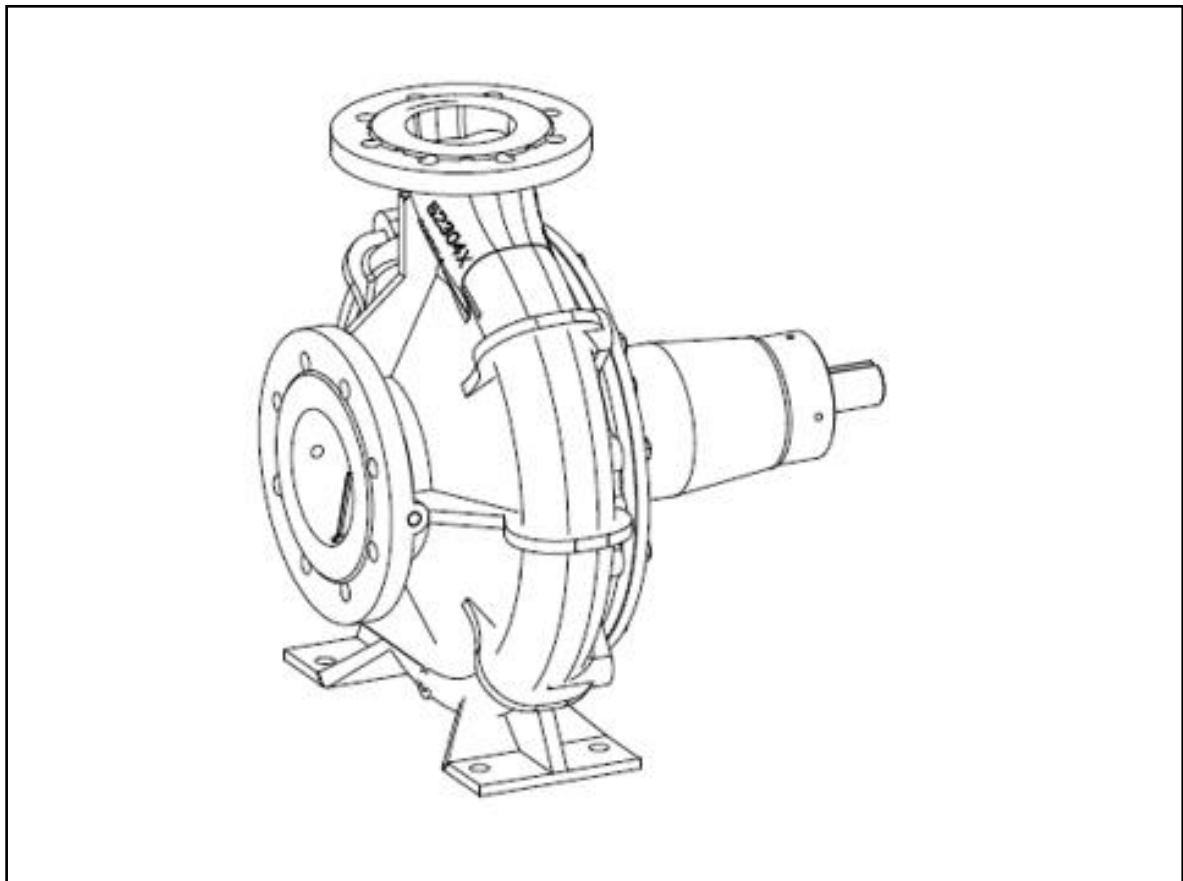


## DESMI centrifugal pump

### NSLH



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Manual: T1527	Language: English	Revision: 11/19
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Special pump No.....

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## 1. PRODUCT DESCRIPTION

These operation and maintenance instructions apply to the DESMI NSLH pump series. The pumps are available in sizes ranging from 65 to 300 mm on the discharge flange. The suction flange is bigger than the discharge flange.

The DESMI NSLH is a single-stage centrifugal pump with stainless steel shaft, mechanical shaft seal, and closed impeller.

The pump is suitable for the pumping of clean and polluted liquids with temperatures between 0 and 80°C. With special shaft seal up to 140°C. Max. number of revolutions: 3600 RPM.

For pumping liquids with temperatures above 100°C DESMI recommends using nothing but ductile iron (for instance GGG40) for pump casing and rear cover. Max. working pressure and number of revolutions are listed in section 13. OPERATING DATA.

The back and the front of the impeller are equipped with sealing rings and relief holes to reduce the load on the bearings. The pump inlet and outlet are tangential i.e. the line through inlet and outlet is offset in relation to the centre line of the shaft.

The pump has horizontal inlet on the centre line and vertical outlet at the top.

### 1.1 DELIVERY

- Check on delivery that the shipment is complete and undamaged.
- Defects and damages, if any, to be reported to the carrier and the supplier immediately in order that a claim can be advanced.

## 2. TECHNICAL DATA

The pumps are manufactured in various material combinations which are specified in the type number on the name plate. See below.

### 2.1 EXPLANATION OF THE TYPE NUMBER

All the NSLH pumps are provided with a name plate. The type number indicated on the name plate is structured as follows:

NSLHXXX-YYY/MR-Z

XXX: Pressure branch diameter.

YYY: Standard impeller diameter.

M: The material combination of the pump.

R: The assembly combination of the pump.

Z: Other variants

## M options:

- A: Casing and shaft seal cover : Cast iron + cast iron alloy. Impeller and sealing rings: NiAlBz
- B: Casing and shaft seal cover: Cast iron + cast iron alloys. Impeller and sealing rings: Stainless.
- C: All cast iron
- D: Casing and shaft seal cover: Bronze or NiAlBz. Impeller and sealing rings: NiAlBz or stainless steel
- E: Casing and shaft seal cover: NiAlBz and bronze alloy. Impeller and sealing rings: NiAlBz

The pumps can be delivered in other material combinations according to agreement with the supplier.

## R options:

- 02: Monobloc, with bearing in the pump
- 03: Mounted with hydraulic motor
- 07: Mounted on base plate with electric motor
- 09: Pump with bare shaft end
- 12: Monobloc, without bearing in the pump
- 13: Spacer, light bearing housing
- 14: Spacer, heavy bearing housing
- 15: Spacer, heavy bearing housing and heavy motor bracket (special motor bracket)

## Z options:

- i: PN16 flanges
- j: PN25 flanges
- k: Special flange
- l: Other shaft seal
- m: BS flanges
- n: ANSI flanges
- o: Shockproof design
- p: Other design
- q: JIS flanges
- r: With inducer

Any use of the pump is to be evaluated on the basis of the materials used in the pump. In case of doubt, please contact DESMI.

Pumps in material combinations A and C are primarily used for fresh water.  
Pumps in material combination D and E are primarily used for seawater.

If the pumps are designed for special purposes the following is to be indicated:

Pump No. :  
Pump type :  
Application :  
Comment :

## 2.2 TECHNICAL DESCRIPTION

The noise level indicated is the airborne noise including the motor. The noise depends on the motor type supplied, as the noise from the pump can be calculated as the noise level of the motor + 2dB(A). The noise level is for pumps with electric motors.

The capacity of the pump appears from the name plate on the pump. If the pump has been delivered without motor, the pump capacity is to be indicated on the plate when mounting the motor.

The permissible loads on the flanges appear from the following table. The values apply to standard pumps in bronze (Rg5) and cast iron (GG20). As to pumps in SG iron (GGG40) or NiAlBz the values are to be increased by a factor 1.5.

Pump size	Fy N	Fz N	Fx N	∑F	My Nm	Mz Nm	Mx Nm	∑Mt
65-215 65-265	650	840	750	1340	510	310	380	700
80-215 80-265 80-330	800	950	850	1500	550	350	400	750
100-215 100-265 100-330 100-415	1000	1250	1150	2000	650	400	500	900
125-215 125-265 125-330 125-415	1250	1600	1430	2500	830	520	650	1160
150-265 150-330 150-415	1500	1900	1700	2950	1000	650	800	1400
200-265 200-330 200-415 200-525	2000	2520	2260	3920	1330	860	1060	1860
250-330 250-415 250-525	2500	3150	2820	4900	1770	1140	1400	2470
300-415 300-525	3000	3750	3350	5860	2750	1900	2200	4000

Table 1 Permissible loads

In connection with the permissible loads on the flanges the following is to be observed:

$$\left( \frac{\sum F_{calc}}{\sum F} \right)^2 + \left( \frac{\sum M_{calc}}{\sum M_t} \right)^2 < 2$$

where index "calc" is the values calculated by the user.

At the same time none of the forces or moments may exceed the indicated figure multiplied by 1.4.

## 3. INSTALLATION

### 3.1 MOUNTING/FASTENING

The pump should be mounted and fastened on a solid base plate with a flat and horizontal surface to avoid distortion.

The max. permissible loads on the flanges stated in Table 1 on page 5 must be observed.

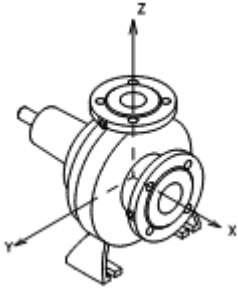


Figure 1 Load on flanges

The following should be observed:

- Avoid distortion of the base plate.
- Avoid distortion in the piping system.
- Check that pump and motor are aligned correctly.



When connecting the pump and a prime mover the power transmission is to be equipped with a guard in accordance with the EC safety requirements (see section 14. EU DECLARATION OF CONFORMITY).

At installations pumping hot or very cold liquids, the operator must be aware that it is dangerous to touch the pump surface, and, consequently, he must take the necessary safety measures.

### 3.2 WIRING



Wiring to be carried out by authorized skilled workmen according to the rules and regulations in force.

## 4. TRANSPORT/STORAGE

Pump size	Material code A / code D	Pump size	Material code A / code D
NSLH65-215/-09	60 / 71.5 kg	NSLH150-330/-09	200 / 208 kg
NSLH65-265/-09	67 / 78 kg	NSLH150-415/-09	235 / 263 kg
NSLH80-330/-09	117 / 126 kg	NSLH150-265/-09	131 / 150 kg
NSLH80-215/-09	70 / 76 kg	NSLH200-330/-09	236 / 250 kg
NSLH80-265/-09	78 / 90 kg	NSLH200-415/-09	260 / 303 kg
NSLH100-330/-09	125 / 131 kg	NSLH200-525/-09	433 / 470 kg
NSLH100-415/-09	223 / 237 kg	NSLH200-265/-09	167 / 181 kg
NSLH100-215/-09	89 / 100 kg	NSLH250-330/-09	283 / 330 kg
NSLH100-265/-09	106 / 114 kg	NSLH250-415/-09	326 / 372 kg
NSLH125-330/-09	136 / 154 kg	NSLH250-525/-09	477 / 540 kg
NSLH125-415/-09	228 / 243 kg	NSLH300-415/-09	394 / 455 kg
NSLH125-215/-09	118 / 130 kg	NSLH300-525/-09	605 / 683 kg
NSLH125-265/-09	126 / 142 kg		

Table 2 pump weight

The weights of the pumps in code E are decreased by factor 0.9 compared to pumps in D code.

The pump must be stored in a dry area.

Before shipment the pump is to be fastened securely on pallets or the like.  
The pump must be lifted as shown below:

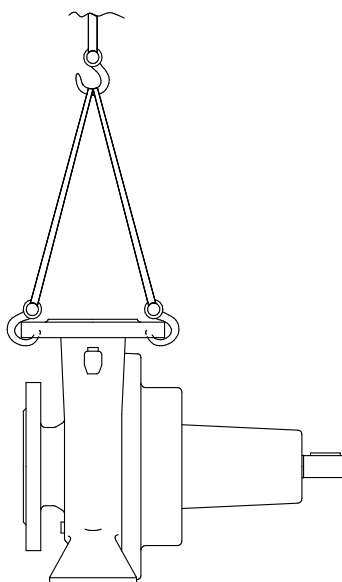


Figure 2 Lifting the pump



The lifting straps must not bear against sharp edges and corners

## 5. DISMANTLING

### 5.1 ACCESS TO IMPELLER AND SHAFT SEAL

Remove Hex screws (22), which hold the shaft seal cover to the pump casing, and pull the bearing housing to remove the complete bearing housing with impeller, bearings, and shaft.

### 5.2 DISMANTLING SHAFT SEAL

Remove the Set screw (6) (Nut in  $\varnothing 215$  or  $\varnothing 265$ ). Pull off the impeller. Remove the Hex screws (19), which hold the bearing housing to the shaft seal cover, pull shaft seal cover and bearing housing apart, by which shaft seal and water deflector are pulled off the shaft.

### 5.3 DISMANTLING SEAT

Press out the seat from behind the shaft seal cover.

### 5.4 DISMANTLING SHAFT WITH BEARINGS

Before dismantling the shaft with bearings, remove the sunk key (16). The shaft can now be pulled out of the bearing housing allowing inspection of the bearings.

### 5.5 INSPECTION

When the pump has been dismantled, check the following parts for wear and damage:

- Sealing ring/impeller: Max. clearance 0.4-0.5 mm measured in radius.
- Shaft seal/shaft seal cover: Check the seat for flatness and cracks.  
Check the rubber parts for elasticity.
- Bearings: Replace in case of wear and noise.

## 6. ASSEMBLING

### 6.1 FITTING SEALING RING IN PUMP CASING

When fitted, the sealing ring is to bear against the shoulder of the pump casing.

### 6.2 FITTING SHAFT WITH BEARINGS

Lead shaft with bearings into the bearing housing. Fit sunk key (16).



## 6.3 FITTING WATER DEFLECTOR

Assemble the bearing housing and the shaft seal cover. Lead the water deflector over the shaft until it touches the shaft seal cover and then further 1-1.5 mm into the shaft seal cover.

## 6.4 FITTING SHAFT SEAL

Before fitting the seat, clean the recess in the shaft seal cover. When fitting the seat, remove the protective coating without scratching the lapped surface. Dip the outer rubber ring of the seat into olive oil (or another neutral oil) or soapy water. Now press the seat into place with the fingers and check that all parts are correctly imbedded.

If it is necessary to use tools for assembling, then protect the sliding surface of the seat to prevent it from being scratched or cut.

Lubricate the inner diameter of the slide ring rubber bellows with olive oil or soapy water and push it over the shaft. The use of a fitting bush as shown on the assembly drawing is recommended to avoid that the rubber bellows is cut. Push the slide ring over the shaft with the hand. If the rubber bellows is tight, use a fitting tool and take care that the slide ring is not damaged.

If the carbon ring is not fixed, it is important to check that it is fitted correctly, i.e. the chamfered/lapped side is to face the seat. The carbon ring can be held by a little grease.

When using oil on the shaft, the bellows will settle and seat in about 15 minutes, and until then tightness should not be expected. After start, check by viewing the leak hole that there are no leaks.

## 6.5 FITTING IMPELLER

Fit the sunk key in the shaft and lead the impeller towards the shoulder of the shaft. Take care that the ring at the end of the shaft seal spring locates in the recess of the impeller. Secure the impeller with a washer and a set screw.

## 6.6 FITTING BEARING HOUSING AND SHAFT SEAL COVER

Place the gasket between pump casing and shaft seal cover on the shaft seal cover where it can be held with a little grease. Fit and fasten bearing housing with shaft seal cover. Check that the drain passage for the shaft seal faces downwards.

## 6.7 SHAFT

When the pump has been assembled, check that the shaft rotates freely.

## 7. FROST PROTECTION

Pumps which are not in operation during frost periods are to be drained to avoid frost damage. Remove the plug at the bottom to empty the pump. Alternatively, it is possible to use anti-freeze liquids in normal constructions.

## 8. DISMANTLING



Before dismantling the pump make sure that it has stopped. Empty the pump of liquid before it is dismantled from the piping system. If the pump has been pumping dangerous liquids be sure that you take the appropriate safety precautions before dismantling it.

If the pump has been pumping hot liquids, take great care that it is drained before it is removed from the piping system.

## 9. START-UP



A centrifugal pump will not function until it has been filled with liquid between the foot valve and somewhat above the impeller of the pump.

The liquid also serves as coolant for the shaft seal. In order to protect the shaft seal the pump must not run dry.

### ATTENTION!

For safety reasons the pump is only allowed to operate against closed discharge valve for a short time (max. 5 minutes and at a max. temperature of 80°C for standard pumps). Otherwise there is a risk of damage to the pump and, at worst, of a steam explosion. If the pump is not monitored, the installation of a safety device is recommended.

Check in the electric motor manual if the bearings in the actual motor shall be lubricated with grease before first start-up.

On pumps not running the shaft shall be rotated at least 2-3 times monthly to avoid standstill damage to shaft seal and bearings. If the pump is filled with liquid it can alternatively be started up shortly.

In special applications, it may require more frequent shaft rotation or start-up in order to avoid seizing of the impeller and/or the shaft seal.

In pressurized systems the shaft seal often leaks a bit during standstill – in most cases the leakage stops shortly after the pump is started up.

It is not recommended to lead liquid (either one way or the other) through a passively rotating pump, as this may damage the shaft seal.

For the sake of the shaft seal lifetime, it is recommended to run at least 300 rpm and use max. 1 minute on acceleration from 0 to 300 rpm and max. 1 minute on deceleration from 300 to 0 rpm.

### 9.1 START-UP

Before starting the pump check that:

- the shaft rotates freely without jarring sounds.
- the pump casing and the suction line are filled with liquid.

Start the pump for a moment to check the direction of rotation. If the direction is correct (i.e. in the direction of the arrow) the pump may be started.

## 10. SYSTEM BALANCING

It is often difficult to calculate a manometric delivery head in advance. It is, however, decisively important to the quantity of liquid delivered.

A considerably smaller delivery head than expected will increase the quantity of liquid delivered, causing increased power consumption and perhaps cavitation in pump and piping. In the pump the impeller may show signs of heavy erosion caused by cavitation (corrosion) which may at times render an impeller unfit for use in a very short time. Not unusually do similar erosions occur in pipe bends and valves elsewhere in the piping system.

Therefore, after start-up, it is necessary to check either the quantity of liquid delivered or the power consumption of the pump e.g. by measuring the current intensity of the connected motor. Together with a reading of the differential pressure the quantity of water delivered can be determined against the characteristics of the pump.

Should the pump not function as intended, please proceed according to the fault-finding list below. Bear in mind, though, that the pump was carefully checked and tested at the factory and that the majority of faults stem from the piping system.

Fault	Cause	Remedy
The pump has no or too low capacity	Wrong direction of rotation	Change direction of rotation to clockwise when viewed from shaft end (the direction of the arrow)
	Piping system choked	Clean or replace
	The pump is choked	Clean the pump
	Suction line leaks	Find the leakage and repair the fault. The non-return valve is not submerged
	The pump takes in air	
	Suction lift too high	Check data sheet Q/H curve and NPSH or contact DESMI
Pump and piping system wrongly dimensioned	Check data sheet Q/H curve and NPSH or contact DESMI	
The pump uses too much power	Counter-pressure too low	Insert orifice plate or check valve/contact DESMI
	The liquid is heavier than water	Contact DESMI
	Foreign body in pump	Dismantle the pump, remove the cause
	Electric motor is running on 2 phases	Check fuses, cable connection, and the cable
The pump makes noise	Cavitation in pump	Suction lift too high/ Suction line wrongly dimensioned/ Liquid temperature too high

Table 3 Fault-finding list

## 11. INSPECTION AND MAINTENANCE

Inspect the shaft seal for leaks at regular intervals.

Before inspection of a pump without guard check that the pump cannot be started unintentionally. The system must be without pressure.

The repairman must be familiar with the type of liquid which has been pumped as well as the safety measures he must take when handling the liquid.

### 11.1 DRAINING THE PUMP

When the piping system has been drained, note that there is still liquid in the pump. Remove the liquid by dismantling the pipe plug (3) at the bottom of the pump.

### 11.2 BEARINGS

The bearings are lubricated for life and require no attention but are to be replaced in case of noise or bearing wear.

## 12. REPAIRS

### 12.1 ORDERING SPARE PARTS

When ordering spare parts please always state pump type, serial No. (appears on the name plate of the pump), position No. on the assembly drawing and designation on the spare parts list.

## 13. OPERATING DATA

The following working pressures (pressure in piping incl. the pressure increase caused by the pump) and number of revolutions are allowed in standard pumps:

Pump size	Max. working pressure [bar] Bronze/ Cast iron	Max. working pressure [bar] SG-iron	Max. RPM Light/heavy bearing housing	Pump size	Max. working pressure [bar] Bronze/ Cast iron	Max. working pressure [bar] SG-iron	Max. RPM Light/heavy bearing housing
<b>65-215</b>	16	25	1800 / 3600	<b>150-330</b>	7 / 13	25	1800 / 1800
<b>65-265</b>	14.5	25	1800 / 3600	<b>150-415</b>	9/13	25	1800 / 1800
<b>80-330</b>	15/15	25	3600 / 3600	<b>150-265</b>	10	25	1800 / 1800
<b>80-215</b>	13	25	1800 / 3600	<b>200-330</b>	7 / 13	25	1800 / 1800
<b>80-265</b>	14.5	25	1800 / 3600	<b>200-415</b>	9/13	25	1800 / 1800
<b>100-330</b>	8 / 14	25	3000 / 3000	<b>200-265</b>	10/12.5	25	1800 / 1800
<b>100-415</b>	10/12.5	25	1800 / 1800	<b>200-525</b>	14	25	1800 / 1800
<b>100-215</b>	12.5	25	1800 / 3600	<b>250-330</b>	7 / 12	25	1800 / 1800
<b>100-265</b>	14.5	25	1800 / 3600	<b>250-415</b>	9 / 12	25	1800 / 1800
<b>125-330</b>	7 / 12	25	3000 / 3000	<b>250-525</b>	14	25	1800 / 1800
<b>125-415</b>	9/13	25	1800 / 1800	<b>300-415</b>	9 / 12	25	1800 / 1800
<b>125-215</b>	8	25	1800 / 1800	<b>300-525</b>	14	25	1800 / 1800
<b>125-265</b>	7	25	1800 / 1800				

Table 4 Operating data

Notice: Some pump combinations allow higher speeds than stated in the table – see actual pump name plate.

The max. working pressure for NiAlBz and stainless steel pumps is 1.5 times max. working pressure for bronze (RG5).

The above-mentioned max. working pressure is a design value – delivered pumps are pressure tested according to actual application requirements and actual flange standards.

The above-mentioned max. working pressure is **NOT** valid for pumps approved by a classification society. Pumps approved by classification societies have been pressure tested according to the requirements of these societies, i.e. a test pressure of 1.5 x the permissible working pressure. The test pressure is stated in the test certificate and stamped into the discharge flange of the pump.

## 14. EU DECLARATION OF CONFORMITY

DESMI Pumping Technology A/S, hereby declare that our pumps of the NSLH type are manufactured in conformity with the following essential safety and health requirements in the COUNCIL DIRECTIVE 2006/42/EC on machines, Annex 1.

The following harmonized standards have been used:

EN/ISO 13857:2008	Safety of machinery. Safety distances to prevent danger zones being reached by the upper limbs
EN 809:1998 + A1:2009	Pumps and pump units for liquids – Common safety requirements
EN12162:2001+A1:2009	Liquid pumps – Safety requirements – Procedure for hydrostatic testing
EN 60204-1:2006/A1:2009	Safety of machinery – Electrical equipment of machines (item 4, General requirements)
Ecodesign Directive (2009/125/EC).	Water pumps: Commission Regulation No 547/2012. Applies only to water pumps marked with the minimum efficiency index MEI. See pump nameplate.

Pumps delivered by us connected with prime movers are CE-marked and comply with the above requirements.

Pumps delivered by us without prime movers (as partly completed machinery) must only be used when the prime mover and the connection between prime mover and pump comply with the above requirements.

Nørresundby, March 05 2019



Henrik Mørkholt Sørensen  
Managing Director

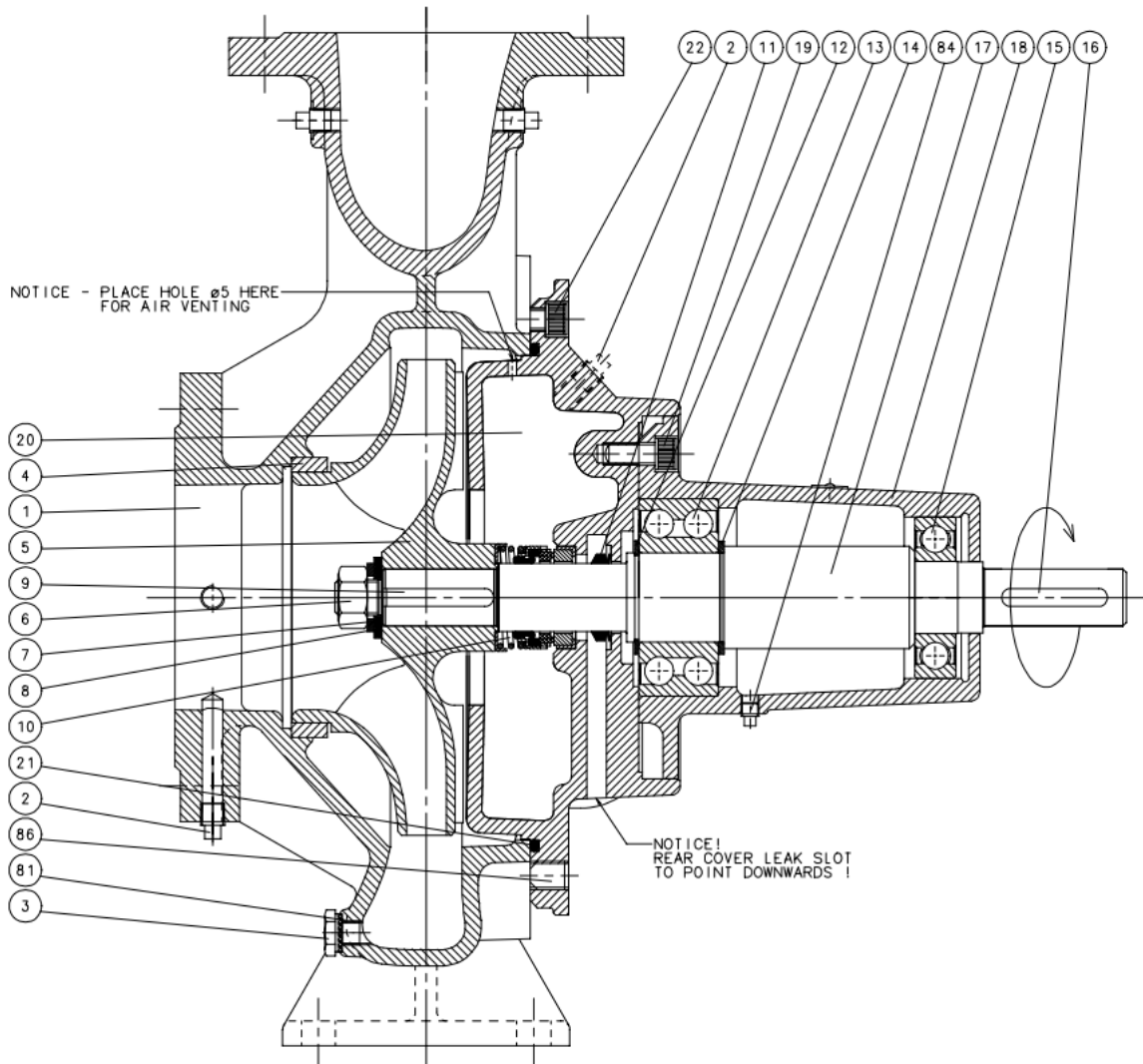
DESMI Pumping Technology A/S  
Tagholm 1  
9400 Nørresundby

## 15. INFORMATION RELEVANT FOR DISASSEMBLY OR DISPOSAL AT END-OF-LIFE

No damage materials are used in DESMI pumps – please refer to DESMI Green Passport (can be sent on request – contact a DESMI sales office) – i.e. common recycling companies can handle the disposal at end-of-life. Alternatively the pump and motor can be returned to DESMI at end-of-life for safe recycling.

## 16. ASSEMBLY DRAWING for pumps with $\varnothing 215$ or $\varnothing 265$ impeller

Regarding pumps with  $\varnothing 330/\varnothing 415/\varnothing 525$  impeller - see next pages.



## 17. SPARE PARTS LIST for pumps with $\varnothing 215$ or $\varnothing 265$ impeller

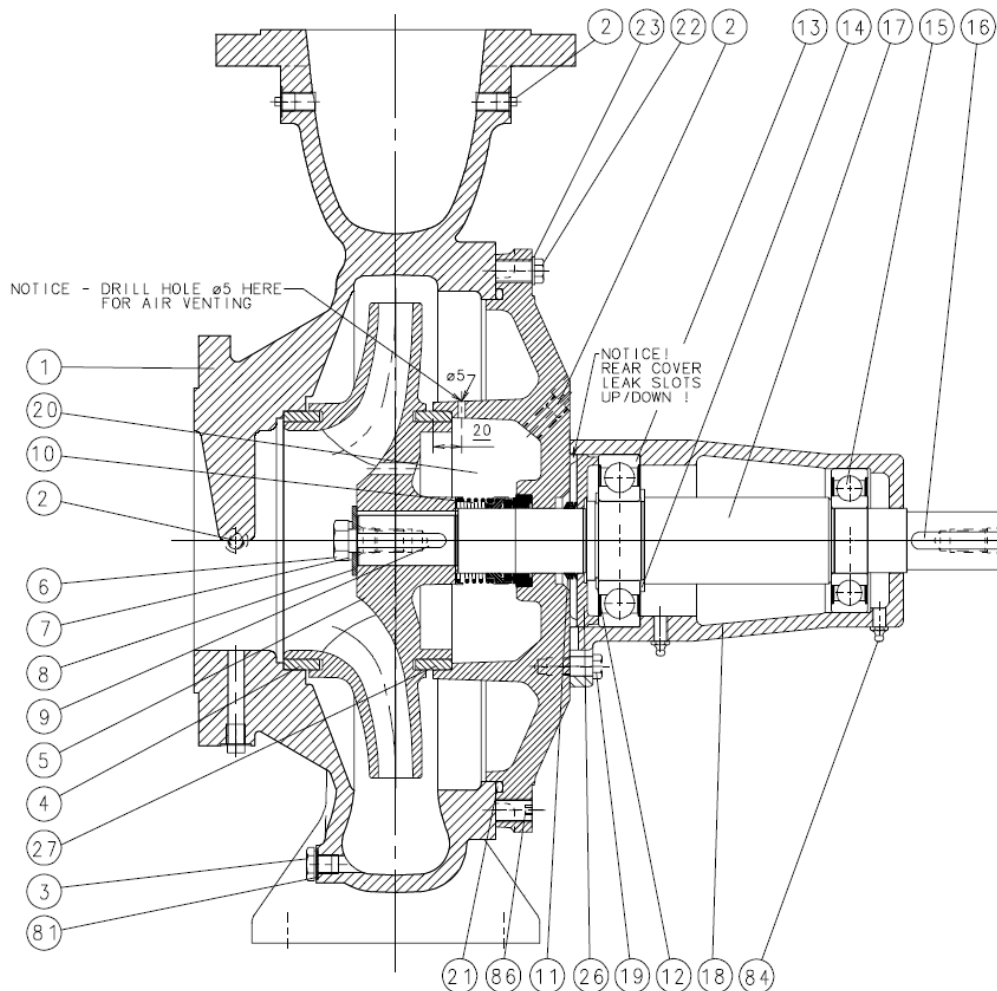
Pos.	Part	Pos.	Part
1	Pump casing	14	Support disc
2	Pipe plug	15	Ball bearing
3	Pipe plug	16	Sunk key
4	Sealing ring	17	Shaft
5	Impeller	18	Bearing housing
6	Nut	19	Allen screw
7	Spring collar	20	Shaft seal cover
8	Washer	21	O-ring
9	Sunk key	22	H Allen screw
10	Mechanical shaft seal	81	Sealing washer
11	Water deflector	84	Grease nipple/Lubricator nipple
12	Ring lock	86	Point screw
13	Ball bearing		

Table 5 Spare parts list for pump with  $\varnothing 215$  or  $\varnothing 265$  impeller



## 18. ASSEMBLY DRAWING for Ø330/Ø415/Ø525 /-09 light bearing

See heavy bearing on the next page.

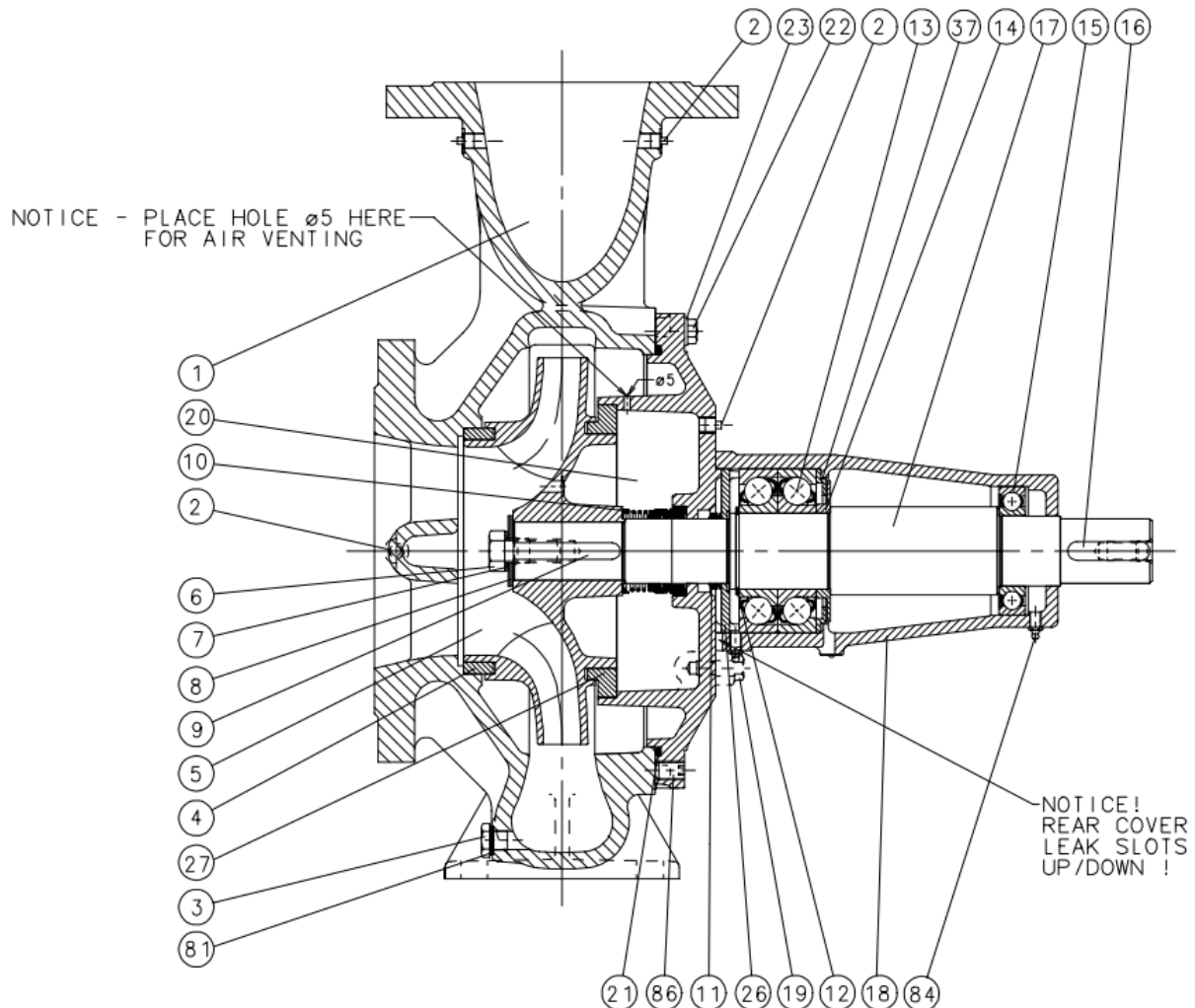


## 19. SPARE PARTS LIST for ø 330/Ø415/Ø525 /-09 light bearing

Pos.	Part	Pos.	Part
1	Pump casing	16	Sunk key
2	Pipe plug	17	Shaft
3	Pipe plug	18	Bearing housing
4	Sealing ring	19	Hex screw
5	Impeller	20	Shaft seal cover
6	Set screw	21	O-ring
7	Spring collar	22	Hex screw
8	Washer	23	Washer
9	Sunk key	26	Cover u. bearing
10	Mechanical shaft seal	27	Pipe plug
11	Water deflector	80	Sealing washer
12	Ring lock	81	Sealing washer
13	Ball bearing	82	Sealing washer
14	Support disc	84	Grease nipple/Lubricator nipple
15	Ball bearing	86	Point screw

Table 6 Spare parts list for ø330/Ø415/Ø525 /-09 light bearing

## 20. ASSEMBLY DRAWING for Ø 330/Ø415/Ø525 /-09 heavy bearing

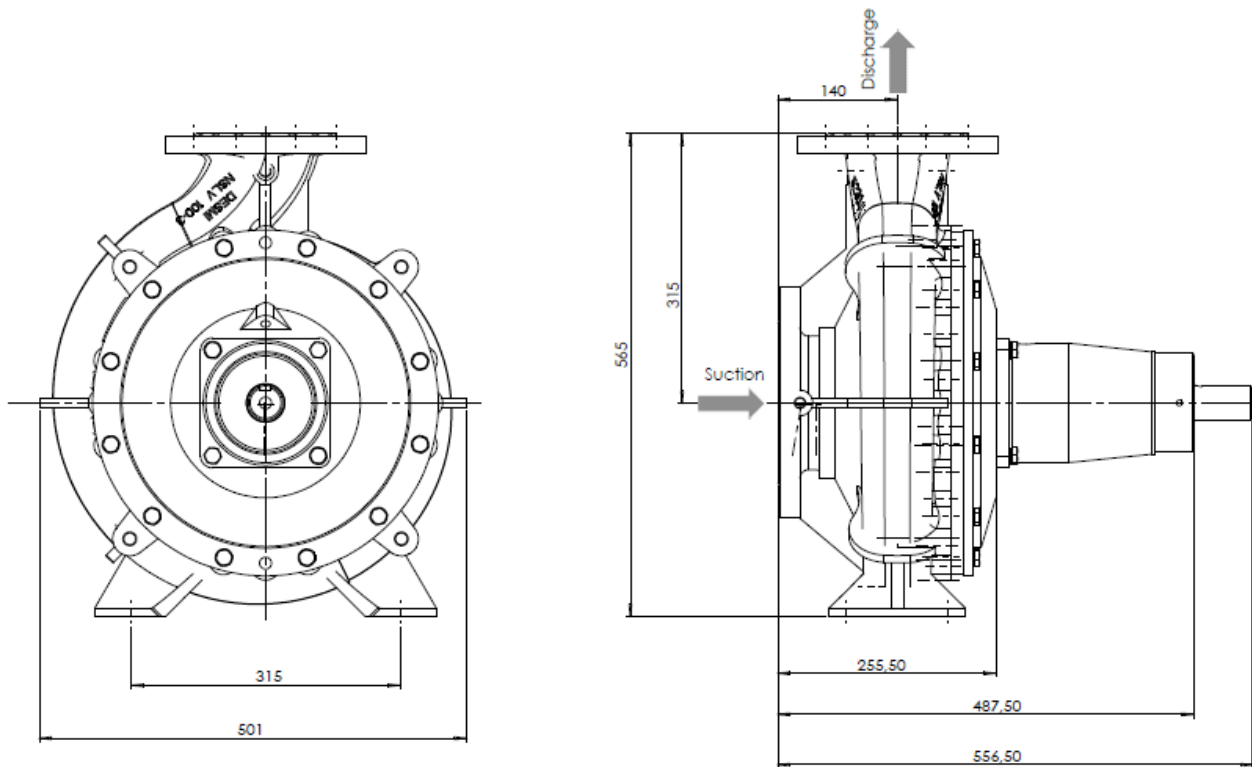


## 21. SPARE PARTS LIST for Ø330/Ø415/Ø525 /-09 heavy bearing

Pos.	Part	Pos.	Part
1	Pump casing	16	Sunk key
2	Pipe plug	17	Shaft
3	Pipe plug	18	Bearing housing
4	Sealing ring	19	Hex screw
5	Impeller	20	Shaft seal cover
6	Set screw	21	O-ring
7	Spring collar	22	Hex screw
8	Washer	23	Washer
9	Sunk key	26	Cover u. bearing
10	Mechanical shaft seal	27	Sealing ring
11	Water deflector	37	Grease regulator
12	Ring lock	81	Sealing washer
13	Ball bearing	84	Grease nipple/Lubricator nipple
14	Support disc	86	Point screw
15	Ball bearing		

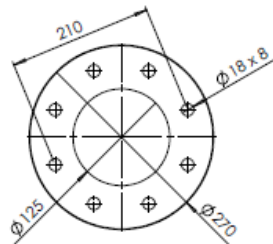
Table 7 Spare parts list for Ø330/Ø415/Ø525 /-09 heavy bearing

## 22. DIMENSIONAL SKETCH, NSLH100-330



### Flanges dimensions:

**Suction flange DN125 - PN16**



**Discharge flange DN100 - PN16**

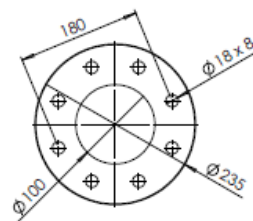


Figure 3 Dimensional sketch NSLH100-330

Please contact DESMI regarding dimensions for other pump sizes.

## 23. SUBSIDIARY AND SERVICE IN DENMARK

Subsidiary companies – DESMI Pumping Technology A/S				
Company Name	Address	Country	Telephone	Fax
<b>DESMI Pumping Technology (Suzhou) Co.,Ltd.</b>	No. 740 Fengting Avenue Weiting Sub District 215122 SIP Suzhou, P. R. China	China	+86 512 6274 0400	+86 512 6274 0418
<b>DESMI Danmark A/S DESMI Contracting A/S DESMI Ocean Guard A/S</b>	Tagholm 1 9400 Nørresundby	Denmark	+45 9632 8111	+45 9817 5499
<b>DESMI GmbH</b>	An der Reitbahn 15 D-21218 Seevetal	Germany	+49 407 519847	+49 407 522040
<b>DESMI B.V</b>	Texasdreef 7 3565 CL Utrecht	Netherlands	+31 302610024	+31 302623314
<b>DESMI Norge AS</b>	Skibåsen 33 h 4636 Kristiansand	Norway	+47 3812 2180	+47 3804 5938
<b>DESMI Ltd.</b>	"Norman House", Rosevale Business Park Parkhouse Industrial Estate (West) Newcastle Staffordshire ST5 7UB	United Kingdom	+44 1782 566900	+44 1782 563666
<b>DESMI Singapore Pte.Ltd.</b>	No. 8 Kaki Bukit Road 2, Ruby Warehouse Complex Unit no: # 02-13 417841	Singapore	+65 6748 2481	+65 6747 6172
<b>DESMI Inc.</b>	<b>HQ, Manufacturing and sales</b> 1119 Cavalier Blvd. Chesapeake, VA 23323	USA	(757) 857 7041	(757) 857 6989
<b>DESMI Korea</b>	503-8, DangSa Ri, Kijang-eup, Kijang-gun Busan	Korea	+82 51 723 8801 +82 70 7723 8804	+82 51 723 8803
<b>DESMI SARL</b>	21G rue Jacques Cartier F-78960 Voisins-le-Bretonneux RCS Versailles en cours	France	+33 (0) 1 30 43 97 10	+33 (0)130 43 97 11
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<b>DESMI Africa</b>	Plot No.1848 Yacht Club Road Msasani Peninsular Dar es Salaam	Tanzania	+255 757597827	
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<b>Odense</b>	Hestehaven 61 DK-5260 Odense S	+45 70236363	+45 6595 7565