DESMI self-priming centrifugal pump

MODULAR S-N

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1. PRODUCT DESCRIPTION

These operation and maintenance instructions apply to the DESMI MODULAR S-N pump series. The pumps are available in sizes ranging from 25 to 100 mm on the pressure flange. The suction flange is bigger than the pressure flange.

DESMI S is a single-stage self-priming centrifugal pump with stainless steel shaft and mechanical shaft seal. The smallest pumps, S32-25-110N and S50-32-135N, have open impeller, whereas all other sizes have 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.

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

The back of the impeller is equipped with relief blades to reduce the load on the bearings.

Relief holes in the impeller ensure circulation of liquid for the shaft seal and prevent overheating of the shaft seal during normal operation.

The pump is particularly suitable for the pumping of water in connection with f.inst. cooling of diesel engines, as bilge pumps, ballast pumps, pumps for irrigation, washing plants, air conditioning, cooling systems, and sanitary systems, etc. Furthermore, in the majority of cases where the transport of liquid is required within industry.

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 appear from the type number on the name plate. See below.

2.1 NAME PLATE

Manufacturer: DESMI
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Fax +45 98 17 54 99
e-mail: desmi@desmi.com
http://www.desmi.com

TYPE: Pump type number
CODE NO.: Pump item No.
PUMP NO.: Pump No.
IMP.: Impeller diameter
WEEK/YEAR: Production week and year
2.2 EXPLANATION OF THE TYPE NUMBER

All the S-N pumps are provided with a name plate. The type number indicated on the name plate is built up as follows:

SXXX-YYY-ZZZN-MR

XXX, YYY, ZZZ : Pump size where

XXX = Suction branch diameter, YYY= Pressure branch diameter,
ZZZ = Standard impeller diameter.

M : The material combination of the pump.
R : The assembly combination of the pump.

M may be the following:

C : All cast iron.
D : Casing: RG5, Impeller: AlBz.
E : Casing and shaft seal cover: NiAlBz and bronze alloy. Impeller and sealing rings: NiAlBz.
U : Nonmagnetic

The pumps can be delivered in other material combinations which are agreed with the supplier.

R may be the following:

01 : With electromagnetic clutch.
02 : Monobloc, flange-mounted with electric motor.
03 : With hydraulic motor.
04 : V-belt pulley and disengaging clutch.
07 : On base plate with petrol or diesel engine, or with electric motor.
08 : Mounted on trolley with petrol or diesel engine or with electric motor.
09 : With bare shaft end.
10 : Special-tailored according to task.

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

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

2.3 TECHNICAL DESCRIPTION

The noise level of the pump 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 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:

<table>
<thead>
<tr>
<th>Pump</th>
<th>Fv</th>
<th>Fh</th>
<th>F</th>
<th>Mt</th>
</tr>
</thead>
<tbody>
<tr>
<td>S32-25-110N</td>
<td>1250</td>
<td>950</td>
<td>1550</td>
<td>200</td>
</tr>
<tr>
<td>S50-32-135N</td>
<td>1250</td>
<td>950</td>
<td>1550</td>
<td>200</td>
</tr>
<tr>
<td>S70-50-175N</td>
<td>1350</td>
<td>1000</td>
<td>1700</td>
<td>200</td>
</tr>
<tr>
<td>S70-50-220N</td>
<td>1350</td>
<td>1000</td>
<td>1700</td>
<td>200</td>
</tr>
<tr>
<td>S70-50-275N</td>
<td>1350</td>
<td>1000</td>
<td>1700</td>
<td>250</td>
</tr>
<tr>
<td>S80-70-175N</td>
<td>1450</td>
<td>1050</td>
<td>1800</td>
<td>270</td>
</tr>
<tr>
<td>S80-70-220N</td>
<td>1450</td>
<td>1050</td>
<td>1800</td>
<td>270</td>
</tr>
<tr>
<td>S80-70-275N</td>
<td>1450</td>
<td>1050</td>
<td>1800</td>
<td>270</td>
</tr>
<tr>
<td>S100-80-175N</td>
<td>1800</td>
<td>1250</td>
<td>2200</td>
<td>470</td>
</tr>
<tr>
<td>S100-80-220N</td>
<td>1800</td>
<td>1250</td>
<td>2200</td>
<td>470</td>
</tr>
<tr>
<td>S100-80-275N</td>
<td>1800</td>
<td>1250</td>
<td>2200</td>
<td>470</td>
</tr>
<tr>
<td>S125-80-220N</td>
<td>3200</td>
<td>1900</td>
<td>3750</td>
<td>950</td>
</tr>
<tr>
<td>S125-80-275N</td>
<td>3300</td>
<td>2000</td>
<td>3850</td>
<td>1020</td>
</tr>
<tr>
<td>S125-100-220N</td>
<td>3300</td>
<td>2000</td>
<td>3850</td>
<td>1020</td>
</tr>
</tbody>
</table>

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

\[
\frac{2}{3} F_{z_{\text{out}}} + F_{z_{\text{in}}} \leq F_v
\]

\[
\sqrt{F_{x_{\text{in}}}^2 + F_{y_{\text{in}}}^2} + \sqrt{F_{x_{\text{out}}}^2 + F_{y_{\text{out}}}^2} \leq F_h
\]

\[
\sqrt{M_{x_{\text{in}}}^2 + M_{y_{\text{in}}}^2 + M_{z_{\text{in}}}^2} + \sqrt{M_{x_{\text{out}}}^2 + M_{y_{\text{out}}}^2 + M_{z_{\text{out}}}^2} \leq M_t
\]

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

where index "in" is suction branch, "out" is pressure branch, and "calc" are the values calculated by the user.
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 paragraph 2.2 are to be observed.

When mounting a V-belt pulley on the pump a bore H7 is recommended. To facilitate the mounting the hub in the V-belt pulley may be heated to abt. 100 °C after which the V-belt pulley is easily lead over the shaft towards the shoulder. Alternatively, the V-belt pulley may be mounted with a TAPER LOCK bush.

When dimensioning the V-belt pulley it is important to follow the rules of the DESMI nomograms for the pump size in question - contact DESMI.

Be careful when fitting the suction line to the pump so that it is absolutely tight, as even small leakages may impede the priming. When pumping polluted liquids a strainer is necessary. The strainer must be equipped with a sieve, the passage area of which is to be 3 x the area of the suction pipe. The mesh size is to be 1-3 mm smaller than the impeller gap of the pump in question.

If the pump is to be driven by a motor via a flexible coupling, motor and pump are to be placed on a common base plate. 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.

Below please find 2 proposals for alignment. The deviations mentioned cover a complete revolution of the coupling. The distance between the coupling halves is to be between 2 and 4 mm.
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.

When connecting the pump and a prime mover the power transmission is to be equipped with a guard in accordance with the provisions of the COUNCIL DIRECTIVE of June 14, 1989, on the safety of machines.

3.2 WIRING

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

4. TRANSPORT/ STORAGE

The weights of the pumps (in A09 combination) are stated in the following table, and the pumps are to be lifted as shown.

<table>
<thead>
<tr>
<th>Pump</th>
<th>Weight kg</th>
<th>Pump</th>
<th>Weight kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>S32-25-110N</td>
<td>21.5</td>
<td>S80-70-275N</td>
<td>86.0</td>
</tr>
<tr>
<td>S50-32-135N</td>
<td>22.0</td>
<td>S100-80-175N</td>
<td>79.0</td>
</tr>
<tr>
<td>S70-50-175N</td>
<td>42.0</td>
<td>S100-80-220N</td>
<td>92.5</td>
</tr>
<tr>
<td>S70-50-220N</td>
<td>58.0</td>
<td>S100-80-275N</td>
<td>107.0</td>
</tr>
<tr>
<td>S70-50-275N</td>
<td>72.0</td>
<td>S125-80-220N</td>
<td>116.0</td>
</tr>
<tr>
<td>S80-70-175N</td>
<td>53.0</td>
<td>S125-80-275N</td>
<td>122.0</td>
</tr>
<tr>
<td>S80-70-220N</td>
<td>59.0</td>
<td>S125-100-220N</td>
<td>138.0</td>
</tr>
</tbody>
</table>

The pump is to be stored in a dry area. Before shipment the pump is to be fastened securely on pallets or the like.

5. DISMANTLING

5.1 ACCESS TO IMPELLER AND SHAFT SEAL

Remove Allen 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.

Only S32-25-110N and S50-32-135N:
Remove Allen screw (22) which holds the bearing housing to the pump casing and pull the bearing housing with impeller and guide vane piece out of the pump casing.
Then remove Allen screw (29) (only S32-25-110N), and guide vane piece and guide ring can be dismantled from the bearing housing.

5.2 DISMANTLING SHAFT SEAL
Remove nut (6). Pull off the impeller. Remove Allen 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.

Only S32-25-110N and S50-32-135N:
Unscrew impeller. Dismantle the oil seal ring (31) by puncturing the front to permit the oil seal ring to be pulled out with a hook. The oil seal ring cannot be used again. Dismantle the ring lock (30), and the shaft with bearings can be pulled out of the bearing housing. At the same time, the shaft seal and the water deflector are pulled off the shaft.

5.3 DISMANTLING SEAT
Press out the seat from behind the shaft seal cover (the bearing housing in S32-25-110N and S50-32-135N).

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.
  (There is no sealing ring in S32-25-110N and S50-32-135N)
- 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.
- Non-return flap: Check for cracks and hardness

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). (Fit ring lock (30) and a new oil seal ring (31) in S32-25-110N or S50-32-135N).

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 (the bearing housing in S32-25-110N or S50-32-135N).
6.4 FITTING SHAFT SEAL

Before fitting the seat, clean the recess in the shaft seal cover (bearing housing in S32-25-110N and S50-32-135N). When fitting the seat, remove the protective coating, if any, without scratching the lapped surface. Dip the outer rubber ring of the seat into 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 soapy water and push it over the shaft. The use of a fitting bush as shown on the below 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.

![Fitting bush](image)

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 nut.

Only S32-25-110N and S50-32-135N:
Apply Loctite 243 or similar to the thread on the shaft. Screw 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. Tighten the impeller with 60 Nm torque.

6.6 FITTING GUIDE RING AND GUIDE VANE PIECE (ONLY S32-25-110N)

Place the guide ring (35) in the recess of the bearing housing. Fit and fasten the guide vane piece on the guide ring. Note that the flat part of the inlet neck of the guide vane piece is to face upwards, i.e. opposite of the drain passage for the shaft seal in the bearing housing. If the shaft cannot rotate freely, dismantle the guide vane piece again, and place a shim (34) between bearing housing and guide ring.

6.7 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. Lead bearing housing with shaft seal cover into place and fasten. Note that the drain hole for the shaft seal faces downwards.
S32-25-110N:
Place the gasket (21) between pump casing and bearing housing on the bearing housing. Check that the non-return flap is placed correctly in the pump casing. Lead the bearing housing into place and fasten. Note that the drain passage for the shaft seal faces downwards.

S50-32-135N:
Place the gasket (21) between pump casing and bearing housing on the bearing housing. Lead the bearing housing into place and fasten. Note that the drain passage for the shaft seal faces downwards. If the shaft cannot rotate freely, dismantle the bearing housing again, and place an extra gasket (21) between bearing housing and pump casing.

6.8 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 in the inlet cover 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 you are to be aware of this and take the necessary safety measures. If the pump has been pumping hot liquids, take great care that it is drained before it is removed from the piping system. If the pump has been pumping cold or very hot liquids, be aware that touching the pump surface is dangerous. Therefore, the necessary precautionary measures must be taken.

9. START-UP
A self-priming centrifugal pump will not function until the pump casing has been filled with liquid.

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

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. To protect the pump against unintentional operation it is equipped with a relief valve which opens at a preset pressure. Be careful: When the valve opens, the escaping liquid will be hot. The relief valve must in no circumstances be removed or re-adjusted! As regards maintenance of the relief valve - see paragraph 11.

9.1 STARTING
Before starting the pump check that
- the shaft rotates freely without jarring sounds.
- the pump casing is 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 electric 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. 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.

<table>
<thead>
<tr>
<th>FAULT</th>
<th>CAUSE</th>
<th>REMEDY</th>
</tr>
</thead>
<tbody>
<tr>
<td>The pump does not Prime</td>
<td>1. The pump is not filled with liquid</td>
<td>Fill pump casing with liquid</td>
</tr>
<tr>
<td></td>
<td>2. Leaking non-return valve in pump</td>
<td>Remove foreign body in valve/Remove any coating on mating faces</td>
</tr>
<tr>
<td></td>
<td>3. Wrong direction of rotation</td>
<td>Change direction of rotation</td>
</tr>
<tr>
<td></td>
<td>4. Air is drawn in because of too little liquid or leaking suction line</td>
<td>Lower suction pipe/</td>
</tr>
<tr>
<td></td>
<td>5. Liquid lock in outlet line</td>
<td>Tighten suction line</td>
</tr>
<tr>
<td></td>
<td>6. Temperature of liquid too high</td>
<td>Change the pressure line so that the air can pass out freely</td>
</tr>
<tr>
<td></td>
<td>7. Air cannot escape on pressure side</td>
<td>Replace liquid in pump casing/Wrong dimensioning/Contact DESMI</td>
</tr>
<tr>
<td>The pump has no or too low capacity</td>
<td>1. Wrong direction of rotation</td>
<td>Change direction of rotation to clockwise when viewed from shaft end (the direction of the arrow)</td>
</tr>
<tr>
<td></td>
<td>2. Piping system choked</td>
<td>Clean or replace</td>
</tr>
<tr>
<td></td>
<td>3. The pump is choked</td>
<td>Clean the pump</td>
</tr>
<tr>
<td></td>
<td>4. Suction line leaks</td>
<td>Find the leakage/repair the fault, non-return valve not submerged</td>
</tr>
<tr>
<td></td>
<td>Pump takes air</td>
<td>Check data sheet Q/H curve and NPSH or contact DESMI</td>
</tr>
<tr>
<td></td>
<td>5. Suction lift too high</td>
<td>As 5</td>
</tr>
<tr>
<td></td>
<td>6. Pump and piping system wrongly dimensioned</td>
<td></td>
</tr>
<tr>
<td>FAULT</td>
<td>CAUSE</td>
<td>REMEDY</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>--------------------------------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>The pump uses too much power</td>
<td>1. Counter-pressure too low</td>
<td>Insert orifice plate or check valve/Contact DESMI</td>
</tr>
<tr>
<td></td>
<td>2. The liquid is heavier than water</td>
<td>Contact DESMI</td>
</tr>
<tr>
<td></td>
<td>3. Foreign body in pump</td>
<td>Dismantle the pump, remove the cause</td>
</tr>
<tr>
<td></td>
<td>4. Electric motor is running on 2 phases</td>
<td>Check fuses, cable connection, and cable</td>
</tr>
<tr>
<td>The pump makes noise</td>
<td>1. Cavitation in pump</td>
<td>Suction lift too high/</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Suction line wrongly dimensioned/Liquid</td>
</tr>
<tr>
<td></td>
<td></td>
<td>temperature too high</td>
</tr>
</tbody>
</table>

11. INSPECTION AND MAINTENANCE

Inspect the shaft seal for leaks at regular intervals (leak through the hole in the lower part of the shaft seal cover)

Activate the relief valve at regular intervals in order to check the function. If the valve is choked, replace or clean it, if possible.

- Before inspection of a pump without guard check that the pump cannot be started unintentionally.
- The system is to be without pressure and drained of liquid.
- The repairman must be familiar with the type of liquid which has been pumped as well as the safety measures he is to 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 (75) in the inlet cover of the pump.

11.2 BEARINGS

The pump is equipped with ball bearings with a nominal life of 25,000 working hours when direct coupled to electric motor, whereas the nominal life with overhanging V-belt drive is about 10,000 working hours. 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 and pump No. (appears on the name plate of the pump). See also spare parts drawing with item Nos.
13. OPERATING DATA

The following working pressures are allowed:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PRESSURE</td>
<td>45</td>
<td>45</td>
<td>65</td>
<td>100</td>
<td>150</td>
</tr>
<tr>
<td>E mWC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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(10.2 mWC = 1 bar)

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.

The powers stated in the table below are the highest possible absorbed by the pump, whereas the min./max. values for flow and pressure indicate DESMI's recommended operating range for the pump with the biggest impeller.

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14. EC DECLARATION OF CONFORMITY

DESMI PUMPING TECHNOLOGY A/S, hereby declare that our pumps of the type Modular S-N 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:

<table>
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<td>EN 60204-1:2006/A1:2009</td>
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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 DRAWINGS
Assembly drawings of S32-25-110N and S50-32-135N are shown on the next pages.

17. SPARE PARTS LISTS
Spare parts lists for S32-25-110N and S50-32-135N are shown on the next pages.

1. Pump casing
2. Pipe plug
3. Pipe plug
4. Sealing ring
5. Impeller
6. Nut
7. Spring collar
8. Washer
9. Sunk key
10. Mechanical shaft seal
11. Water deflector
12. Ring lock
13. Ball bearing
14. Support disc
15. Ball bearing
16. Sunk key
17. Shaft
18. Bearing housing
19. Allen screw
20. Shaft seal cover
21. Gasket
22. Allen screw
23. Suction piece
24. Allen screw
25. Non-return flap
26. Contact ring
27. Gasket
28. Gasket
29. O-ring
30. Drain plug
31. Relief valve
ASSEMBLY DRAWING S32-25-110N

Assembly drawing of S50-32-135N is shown on the next page.

SPARE PARTS LIST S32-25-110N

Spare parts list for S50-32-135N is shown on the next page.

1 Pump casing
3 Pipe plug
5 Impeller
10 Mech. shaft seal
11 Water deflector
14 Support disc
15 Ball bearing
16 Sunk key
17 Shaft
18 Bearing housing
21 Gasket
22 Allen screw
23 Suction piece
24 Allen screw
25 Non-return flap
26 Guide vane piece
27 Contact ring
28 Sealing washer
29 Allen screw
30 Ring lock
31 Oil seal ring
32 Reducing bush
33 Gasket
34 Shim
35 Guide ring
75 Drain plug
76 Relief valve
SPARE PARTS LIST S50-32-135N

1 Pump casing
3 Pipe plug
5 Impeller
10 Mech. shaft seal
11 Water deflector
14 Support disc
15 Ball bearing
16 Sunk key
17 Shaft
18 Bearing housing
21 Gasket
22 Allen screw
23 Suction piece
24 Allen screw
25 Non-return flap
26 Contact ring
27 Bearing washer
29 O-ring
30 Ring lock
31 Oil seal ring
75 Drain plug
76 Relief valve
18. DIMENSIONAL SKETCH

See also table on the next page

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