



# AquaCulture

Land-based Fish Farming

AquaCulture

**DESMI**  
Make life flow





# Feeding tomorrow's opportunities

We help you produce aquaculture products efficiently, reliably, and with minimal impact on our climate and environment. This brochure introduces you to our full range of solutions – from pumps and supporting systems to UV disinfection, remote monitoring, and after-sales service.

Over the last decade, DESMI has pioneered the development and innovation of critical flow processes for aquaculture applications. We give you the tailor-made solutions you need to take advantage of market opportunities, contribute to food security, and support economic development. Read on to find what you need and contact us to learn more.





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# Pumps for AquaCulture

DESMI has developed new pumps for the aquaculture market, where the focus is to provide high efficiency rates for high flows at low water lift.

The new pumps are suitable for aquaculture water applications (seawater, freshwater, brackish, water with cleaning agents, etc.) and for meeting the aquaculture industry requirements for:

- Design to run 24 / 7 / 365
- Very long intervals between maintenance
- High efficiency > 80% at high-flow & low-pressure conditions
- Flexibility - can be installed horizontally or vertically to adapt to any pipe system
- Slow speed (using 6 or 8 pole motors) - very limited noise transmitted to fish tanks
- Easy installation and maintenance
- Self-priming ability with a separate built-on priming pump

Horizontal End-Suction Centrifugal Pump	
Nominal diameter	DN 250 to 600
Flow rate	500 to 6400 m <sup>3</sup> /h (2201 to 28.178 US GPM)
Head	2 mLC - 20 mLC
Pressure	5 bar (PN5) (72 psi)
Temperature	0 to 100 °C (212 °F)
Motor	Standard and Ex motors
Motor size	From 7.5 kW to 250 kW
VFD	Fully compatible
Pump media	Freshwater, water with additives, seawater
Materials	Cast Iron (GG20) (with or without Ceramic Coating for seawater), Stainless Steel (AISI316 & 1.4410), NiAlBz
RAS Application	Main Pump Intake Water Pumps



High Flow - Low Pressure Pumps  
for AquaCulture



1.85m service technician

Up to 1,6 m



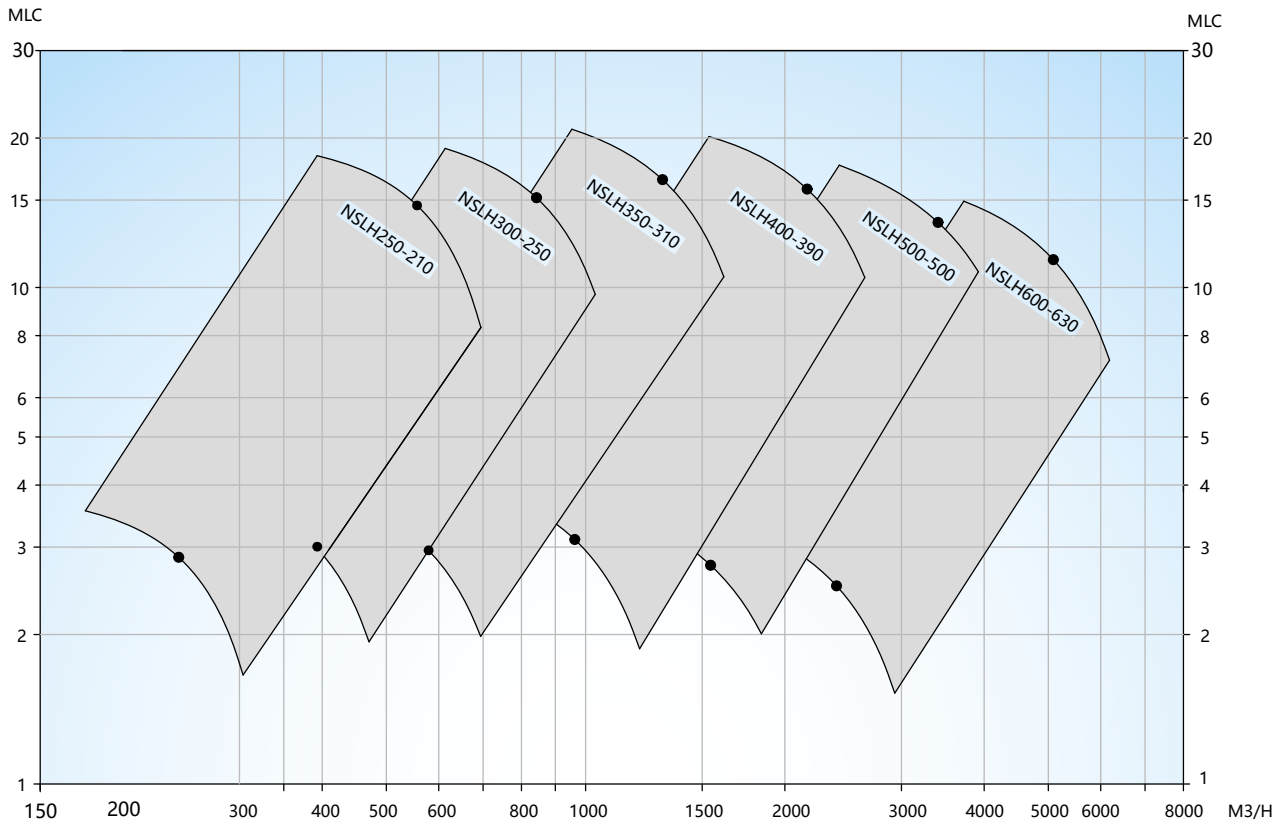
Standard Horizontal Installation



Vertical Installation



Horizontal Reverse Installation  
(Where the media is pumped downwards)



• MAX EFFICIENCY POINT\*

\*shown for min. and max. speed for each pump size

High Flow - Low Pressure

# DESMI Pumps on Well Boats

The growing world population is increasing the demand for fish, which is influencing the rapid development of land-based aquaculture systems and on board aquaculture vessels.

For well boats our high-flow - low-pressure centrifugal pumps are very suited as they require very little space in the vertical installation.

For a complete range of engine room pumps for ships, please visit [www.desmi.com](http://www.desmi.com).

Vertical End-suction Pump - High Flow - Low Pressure	
Nominal diameter	DN 250 to 600
Flow rate	500 to 6400 m <sup>3</sup> /h (2201 to 28.178 US GPM)
Head	2 mLC - 20 mLC
Pressure	5 bar (PN5) (72.5 psi)
Temperature	0 to 100 °C (212 °F)
Motor	Standard and Ex motors
Mortor size	From 7.5 kW to 200 kW
VFD	Fully compatible
Materials	Cast Iron (GG20) (with or without Ceramic Coating for seawater), Stainless Steel (AISI316 & 1.4410), NiAlBz



1.85m service technician

Up to 3 m



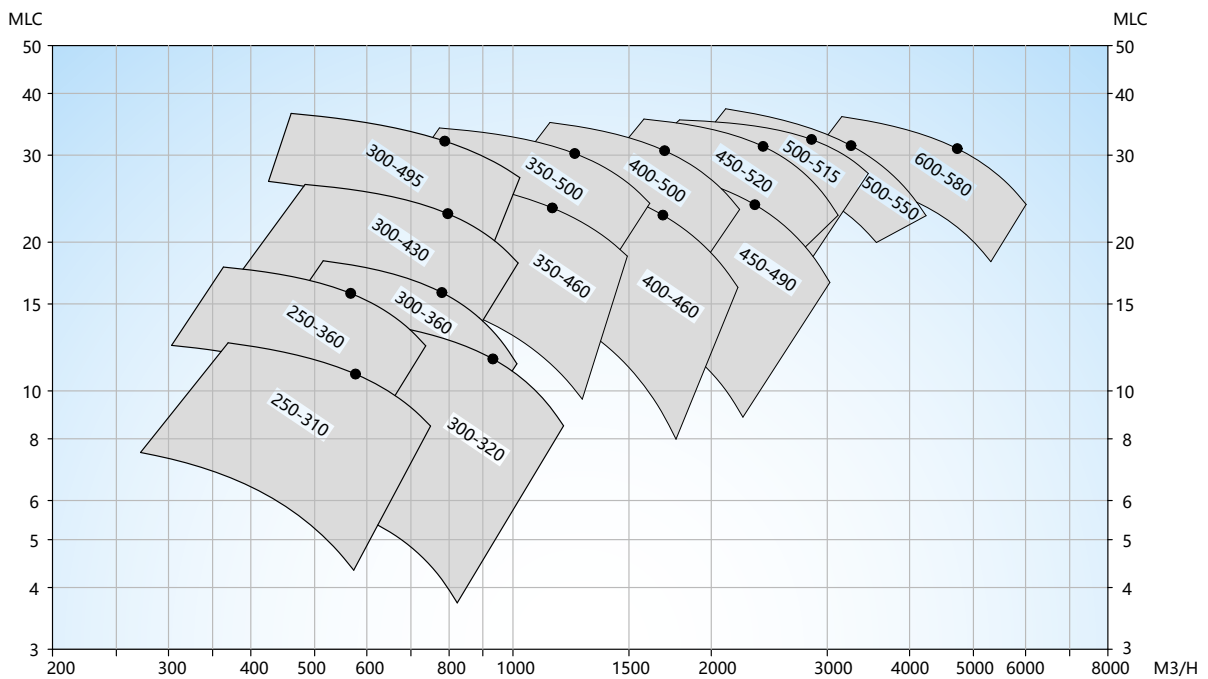


The DSL pumps are high efficiency pumps in a cost-effective design.

**Pump Concept:**

- Single-stage, double-suction, vertical in-line centrifugal pumps
- The inlet is placed in line with the outlet
- Advanced double-suction impeller
- High efficiency
- Very Low NPSH values
- Self-priming ability with a separate built-on priming pump

DSL Horizontal In-line Double Suction Centrifugal Pump	
Nominal diameter (DN)	150 to 600
Flow rate - 50 Hz	Up to 6200 m <sup>3</sup> /h (27300 US gpm)
Flow rate - 60 Hz	Up to 7400 m <sup>3</sup> /h (32580 US gpm)
Head	Up to 140 m (459 ft.)
Pressure	Up to 25 bar (363 psi)
Temperature	Up to 140°C (284°F)
Motor	Standard and EX motors
VFD	Fully compatible
Pump media	Freshwater, water with additives, seawater, and oils up to 500 cSt.
RAS Application	Main Pump Intake Water Pumps
Materials	Cast Iron (GG20) (with or without Ceramic Coating for seawater), Stainless Steel (AISI316 & 1.4410), NiAlBz



• MAX EFFICIENCY POINT\*

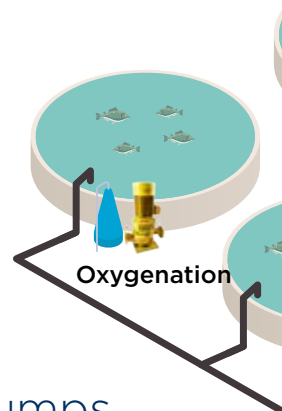
\*shown for nominal speed (50 Hz) for each pump size

# DESMI Pumps

## in Recirculating Aquaculture System (RAS)

### Primary Pumps

Application	Main Pumps	Oxygen Control	Intake Water Pumps	Flushing/ Sluicing Pumps	Cooling / Heating Pumps
 DESMI High Flow/ Low Pressure Pump	✓		✓		
 DESMI DSL Double Impeller Pump	✓		✓		
 DESMI NSL/NSLH Pump		✓	✓		✓
 DESMI ESL/ELSH		✓	✓		✓
 DESMI DP Pump				✓	



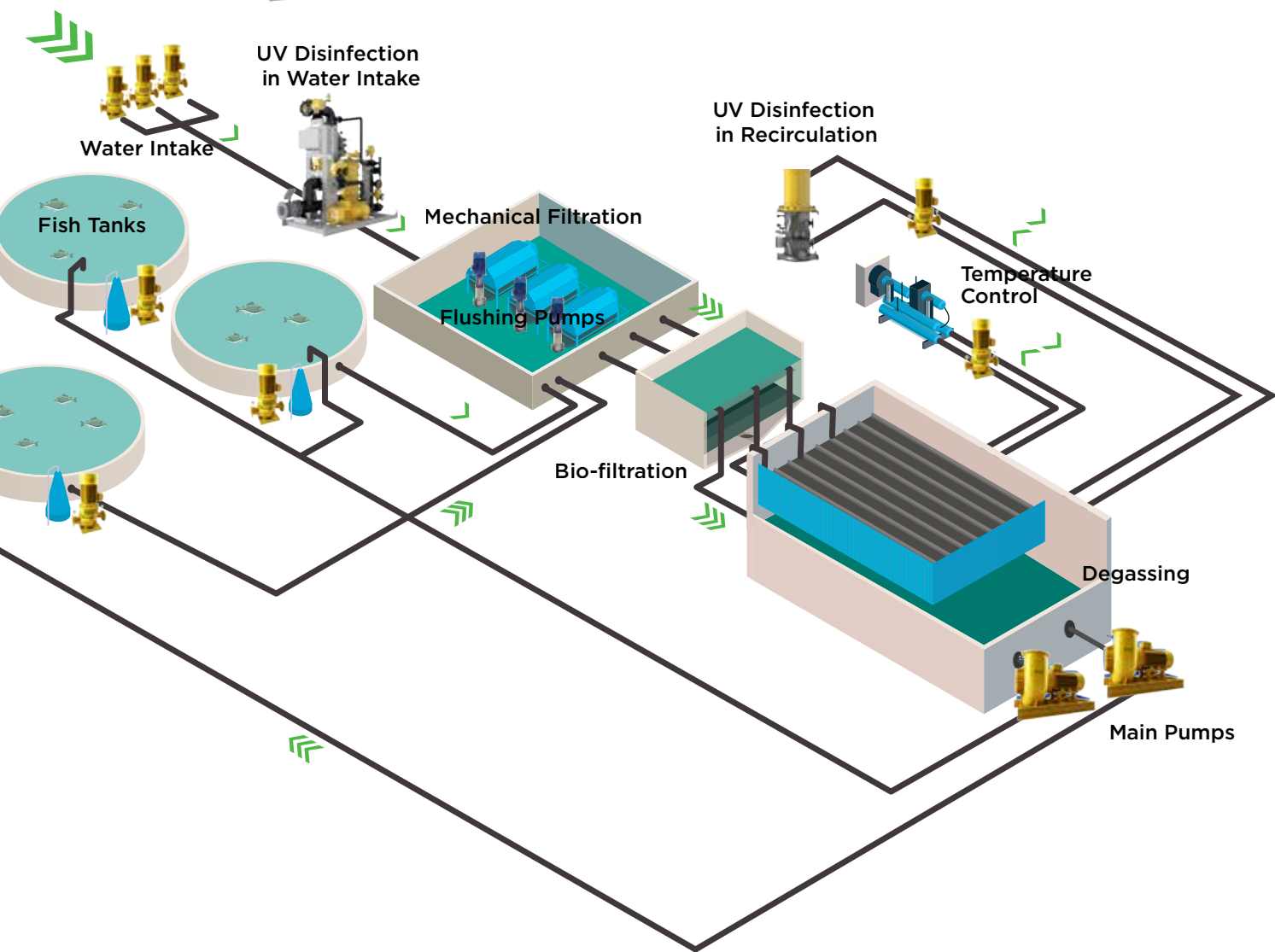
### Auxiliary Pumps

Application	Waste Water Handling	Diverse
 DESMI Waste Water	✓	✓
 DESMI Selfpriming	✓	✓





**Main Pumps**  
 DESMI High Flow  
 - Low Pressure Pumps



The above is a sample drawing of a typical RAS. The DESMI pumps can be used in various applications and processes.

# The Safe Way to Disinfect Water for Aquaculture

DESMI UV is a high performing UV disinfection system. It offers simple installation with high quality and compliant performance anywhere in the world. Even in extremely dirty and challenging water conditions. It is approved for operation in waters regulated by the International Maritime Organization (IMO) and by the United States Coast Guard (USCG).

DESMI UV has no salinity or temperature limitations. Model selection ensures flow ranges down to 35 m<sup>3</sup>/h and up to 3500 m<sup>3</sup>/h with a single unit. The different UV models are optimized for both high and record-breaking low UV transmission values!

- Simple installation, operation, and maintenance
- Acts as a firewall for viruses in intake water
- Can be delivered skid mounted for super easy installation
- Can be bundled with Auto-filter and Auto-Cleaning
- No chemicals, only UV light
- Automatic dose control ensuring optimal safety
- Specialized plant engineering team available
- +10 years of marine experience
- More than 1000 systems in operation around the world
- From 35 m<sup>3</sup>/h up to 3500 m<sup>3</sup>/h on a single unit



**Veterinærinstituttet**  
Norwegian Veterinary Institute

\*NVI Pending - Expected Q2 2023



*UV system skid mounted with filter and cleaning*

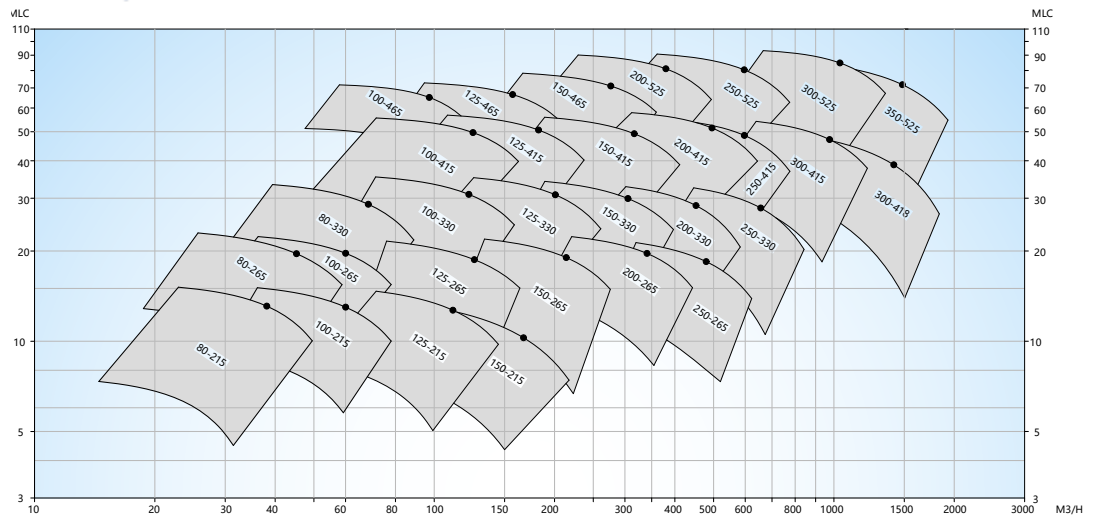


*UV system standalone - Auxiliary options available*

DESMI NSL centrifugal pumps are suitable for many different applications in a recirculation aquaculture system, e.g. oxygen cone, level control, water exchange, and temperature control. High efficiency rates ensure low operating costs.

- Designed to run 24 / 7 / 365
- Very long intervals between maintenance
- High efficiency
- Easy installation and maintenance
- Spacer-coupling options for easy maintenance
- Robust shaft design
- High efficiency impeller with low NPSH values
- Self-priming ability with a separate built-on priming pump

NSL / NSLH/V Vertical and Horizontal In-line Centrifugal Pump	
Nominal diameter (DN)	65 to 400
Flow rate	Up to 1800 m <sup>3</sup> /h (7900 US gpm)
Head	Up to 220 m (720 ft)
Pressure	Up to 25 bar (363 psi)
Temperature	Up to 150°C (302°F)
Motor	Standard and EX motors
VFD	Fully compatible
Pump media	Freshwater, water with additives, seawater, and oils up to 500 cSt.
RAS Applications	Oxygen Control Intake Water Pumps Cooling / Heating Pumps
Materials	Cast Iron (GG20) (with or without Ceramic Coating for seawater), Stainless Steel (AISI316 & 1.4410), NiAlBz



• MAX EFFICIENCY POINT\*

\*shown for nominal speed (50 Hz) for each pump size

### DESMI ESL Pumps

The ESL centrifugal pumps are DESMI's small size range. They are designed for various aquaculture applications and meet the requirements for:

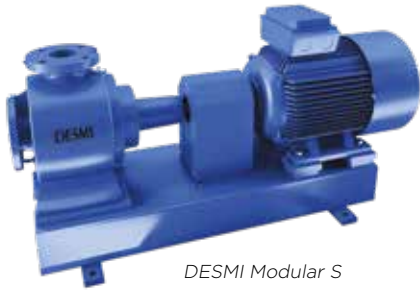
- Low maintenance costs
- High efficiency
- Low NPSH
- High configuration flexibility
- Installation and serviceability
- Self-priming ability with a separate built-on priming pump



ESL/ESLH In-line and End-suction Single-stage Centrifugal Pump	
Nominal diameter (DN)	25 to 100
Flow rate - 50Hz	Up to 225 m <sup>3</sup> /h (990 US gpm)
Flow rate - 60 Hz	Up to 250 m <sup>3</sup> /h (1100 US gpm)
Head	Up to 65 m (213 ft)
Pressure	Up to 30 bar (435 psi)
Temperature	Up to 140°C (284°F)
Motor	Standard and EX motors
VFD	Fully compatible
Pump media	Freshwater, water with additives, seawater, and oils up to 500 cSt.
RAS Applications	Oxygen Control Intake Water Pumps Cooling / Heating Pumps
Materials	Cast Iron (GG20) (with or without Ceramic Coating for seawater), Stainless Steel (AISI316 & 1.4410), NiAlBz



## DESMI Self-Priming Centrifugal Pumps



DESMI Modular S



DESMI SA

The series of DESMI MODULAR S pumps represents one of the most distinctive developments in self-priming pumps. Based on many years of experience in the production of self-priming pumps, we supply pump series that meets the future demands for economical and reliable pumps.

The individual design, compact with a clearcut cylindrical form, together with the practical advantages such as easy assembling and MODULAR construction of all components ensures a long and positive operation.

This priming principle means that MODULAR S can pump a mixture of air and liquid and thus evacuate air from the suction pipe. Thus, priming can be avoided, and a foot valve is not necessary.

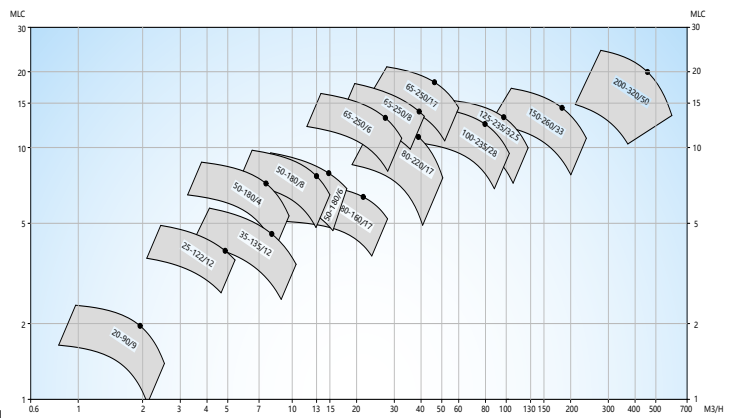
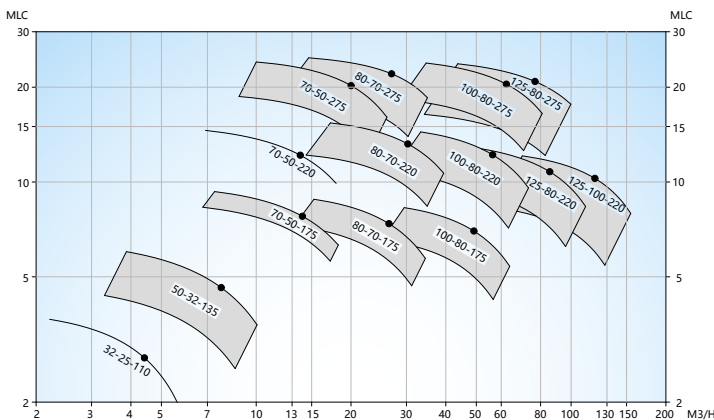
Self-priming Centrifugal Pump , Modular S	
Nominal diameter (DN)	32 to 125
Flow rate	Up to 400 m <sup>3</sup> /h (1760 US gpm)
Head	Up to 150 m (490 ft)
Temperature	Up to 120° C (248° F)
Motor	Standard and EX motors
VFD	Fully compatible
Pump media	Freshwater, water with additives, seawater, and oils up to 500 cSt.
RAS Applications	Scrtetting Pumps Miscellaneous
Materials	Cast Iron (GG20) (with or without Ceramic Coating for seawater), Stainless Steel (AISI316 & 1.4410), NiAlBz

The DESMI SA pump is used for contaminated liquids as well as liquids containing air or gas from sumps, gullies, and many other applications where suction lift is required.

The pump can handle clean and polluted liquids that are non-corrosive to cast iron and bronze, plus oils, petrol, diesel, and a number of chemicals.

- Excellent self-priming ability
- Ideal for handling contaminated liquids
- Easy maintenance with replaceable wear plate
- Open impeller design for handling of particles

Horizontal Self-priming Centrifugal Pump , SA	
Nominal diameter (DN)	20 to 200
Flow rate	Up to 650 m <sup>3</sup> /h (2900 US gpm)
Head	Up to 110 m (360 ft)
Temperature	Up to 120° C (248° F)
Motor	Standard and EX motors
VFD	Fully compatible
Pump media	Freshwater, water with additives, seawater, and oils up to 500 cSt.
RAS Applications	Scrtetting Pumps Miscellaneous
Materials	Cast Iron (GG20) (with or without Ceramic Coating for seawater), Stainless Steel (AISI316 & 1.4410), NiAlBz



• MAX EFFICIENCY POINT\*

\*shown for nominal speed (50 Hz) for each pump size

## DESMI Multi-stage Pumps

The DESMI DPV - Multi-stage pumps provide the high pressure required for, e.g., back washing mechanical filters.

- High efficiency
- Unique hydraulic design: high pressure per impeller with high efficiency
- Hydraulic efficiency for DPV 2, 4, 6, 10, 15, 25, 40, 60, 85, 125 from 54 to 80%, respectively.
- Standard motor with high performance IE3

DP Multi-stage	
2-pole range	2, 4, 6, 10, 15, 25, 40, 60, 85, 125
4-pole range	15, 25, 40, 60, 85, 125
Capacity range (m <sup>3</sup> /h)/(gpm)	0.5-193/2-849
Pressure range (m)/(ft)	5/16 to 400/1312
Temperature range medium	-20 - +140° C / -4 - 284° F
Pump media	Freshwater, water with additives, and seawater.
RAS Applications	Flushing/Sluicing Pumps
Materials	Hydraulic: Stainless Steel (AISI304 & AISI304); Base Plate Cast Iron (GG20)



DESMI DPV Pumps

## DESMI Submerged Waste Water Pumps

Submersible waste water pumps from DESMI convey domestic, public, and industrial waste water, sewage (containing High TSS Concentrations), and sludge (which may contain high levels of solid and fibrous matter), as well as domestic waste water of any

kind. Thanks to the use of a broad range of materials (stainless steel in different grades, bronze, viton, etc.), DESMI submersible pumps are suitable for recirculating aquaculture systems (RAS).

DESMI Waste Water Pumps	
Nominal Diameter	DN80 - DN150
Flow Rate	3 - 500 m <sup>3</sup> /h
Head	4- 70 mLC
Temperature	Up to 120° C (248° F)
Motor	Integrated 3-phase 400V 2,4 and 6 Pole motor (IP68)
Motor size	1,5 - 37 kW
Impeller types	Closed Single Channel impeller; Closed Multi Channel impeller; Open Vortex Impeller
VFD	Fully compatible
Materials	Cast Iron (GG25) & Stainless Steel (316)
RAS Applications	Waste Water Handling Miscellaneous

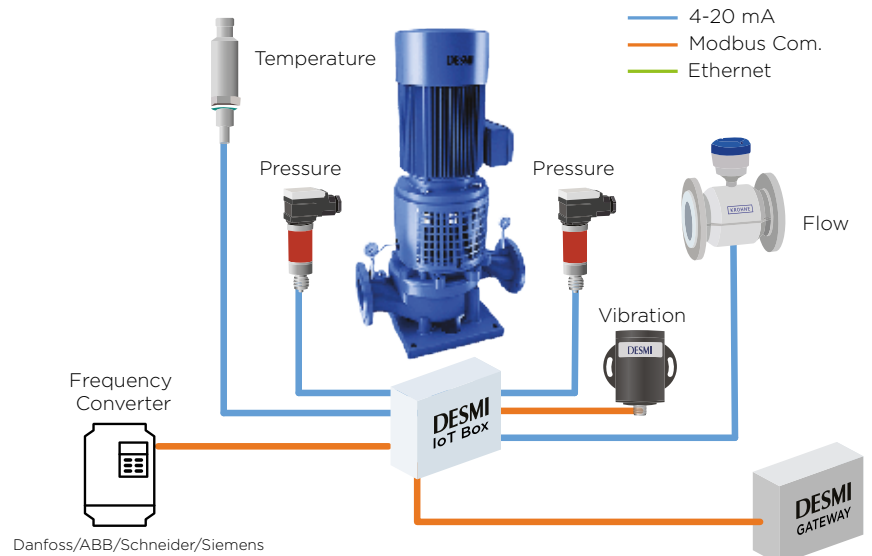


DESMI Submerged Waste Water Pumps

# Monitoring Pump Data

## Monitoring of All Relevant Pump Data

- Pump Pressure at inlet and discharge
- Vibration level and accelerations
- Media Temperature Motor Winding Temp
- Pump Efficiency
- Pump Flow (By actual flow gauge)
- Pump Flow<sup>VIRT</sup> (Virtual, calculated on basis of Pump Curve 95% accuracy )
- Motor Power
- Motor speed
- Etc.



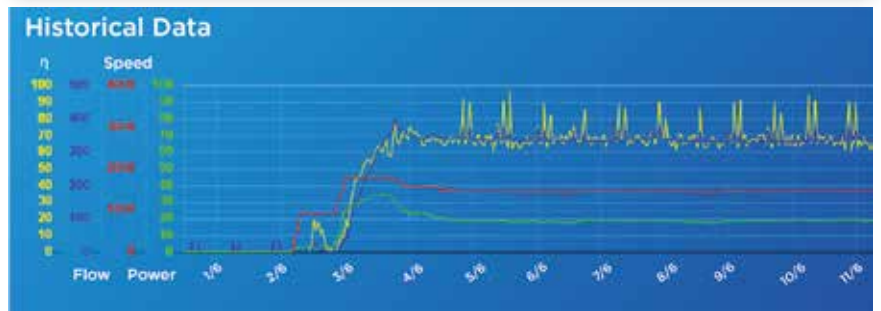
## Cloud Solution and Data Accesibility in Customer Scada System

All data can be transmitted to the DESMI cloud by LAN, WIFI, LoRaWAN, 4G/5G or whatever is available on the site.

The data, which is relevant in the daily operation, can be directed into the SCADA/ Management System and can be used to monitor the efficiency and the “health” of the pumps along with other required parameters.

### Online data

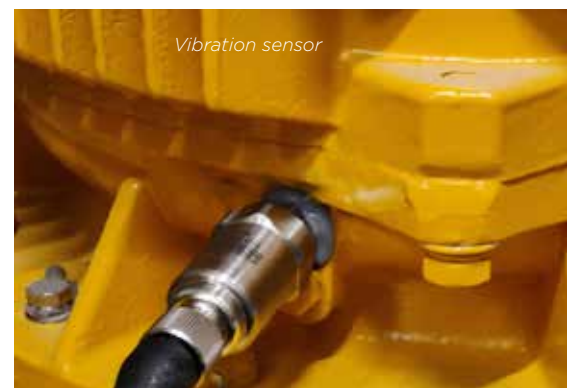
Power	Pump Speed	Suction Pressure	Discharge Pressure	Flow (Calculated)	η min Daily	η	η Max. Daily
14,51kW	1340rpm	0,00 bar	0,93bar	291,2m³/t	35,8%	82,2%	85,3%



## Online Support & Commissioning Support

DESMI can provide online support where skilled pump specialists can log-on to the cloud and assist commissioning, fault finding, and supporting our customers 24/7/365.

Obviously, DESMI service technicians can also support on the site.





# DESMI DeServe

## Worldwide Service 24/7/365

Call us anytime and let us know what you need: Our global after-sales and service department DESMI DeServe offers parts and services that keep your aquaculture operation running.

Our spare part kits cover several pumps and contain the parts you need for overhauls, for example shaft seals, bearings, and O-rings. You can also order individual spare parts as needed, and for some parts or products, we ship within 48 hours.

Our highly experienced and factory trained service teams provide a long list of onsite services, from installation and commissioning to service, repair, upgrades, and maintenance, plus training and technical support – whatever it takes to optimize your critical flow processes.



Overhaul  
Videos



# DESMI Automation

DESMI Automation offers a wide range of automation solutions developed for the industrial segment.

Our product portfolio includes solutions from simple motor starters to advanced PLC based solutions.

DESMI Automation is constantly developing new product solutions, and currently, the following products are offered as standard products:

- Motor starters ranging from 0.75 kW to 90 kW
- Frequency converter (various brands) solutions with built-in optional web server facility, 0.75 kW to 1MW (in various voltage ranges)
- Tank level control solutions
- Pump heating control solutions



# We exist to keep your business flowing

DESMI works closely with aquaculture engineers, designers, and owners to keep critical production processes flowing reliably and efficiently on fish farms on land and at sea, anywhere on the planet. Our pumps, UV treatment systems, IoT offerings, and after-sales service are trusted worldwide for dependability and the lowest total cost of ownership.

At DESMI, our focus has never been on discovering what we can do – it's about pushing the boundaries of what we can do for you, no matter which type of facility and what species you work with. We help you ensure optimal production environments that keep fish stocks healthy and safe and keep your business profitable.

Founded in Denmark in 1834, we have provided the expertise, solutions, and aftermarket support our customers need for nearly two centuries. We help you operate more efficiently and reliably, enabling your ambitions for performance, food safety, and growth whilst helping you reduce your climate impact.

Together, we can make a difference, whatever the future holds. Because we, like you, are here to make life flow.

For more information, visit [desmi.com](https://desmi.com)

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## DESMI A/S

Tagholm 1  
DK-9400 Nørresundby  
Tel.: +45 96 32 81 11