

# Modular S

## Self-priming Centrifugal Pump

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 a pump series that meets the future demands for economical and reliable pumps.

The individual design, compact with a clear-cut cylindrical form, together with the practical advantages such as easy assembling and MODULAR construction of all components ensure a long a trouble-free operation.

The success of the DESMI pumps is among other things due to the priming principle which is thoroughly described on the opposite page.

This principle means that the 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.

Capacity range: 1-350 m <sup>3</sup> /h - 5-1500 US gpm at 50 cycles 2-400 m <sup>3</sup> /h - 10-1760 US gpm at 60 cycles
Pressure range: 1-100 mLC- 3-330 ft at 50 Hz 2-150 mLC - 6-490 ft at 60 Hz
Temperature range: With standard mech. shaft seal max. 80°C - 176°F, with special mech. shaft seal max. 120°C - 248°F.



### Various combinations of assembling

The pumps of the MODULAR S series can be supplied as free shaft end, mounted on the base plate with petrol or diesel engine, hydraulic or electric motor or in a close-coupled design with electric motor. They can also be fitted with a manual friction clutch and V-belt pulley and with step-up bevel gear ratio 1:2.

MODULAR S/02 self-priming centrifugal pumps in close-coupled design

This version of the well-known MODULAR S pumps meets the requirements for compact and reliable pumps and does not need special alignment. The pumps are connected to the electric motor via a rigid coupling and can be mounted with any standard electric motor. The MODULAR S pumps are constructed of standard components and this principle has been further emphasized in the monobloc version. For optimum flexibility the pump is designed in such a way that only the coupling and the motor flange have to be changed in order to fit the selected electric motor. The monobloc version is equipped with a separate bearing housing with only one bearing, and the rigid coupling is mounted on the short shaft.

### Applications for MODULAR S and S/02

#### Marine pumps:

- Bilge pump
- Ballast pump
- Fire pump
- Cooling-water pump
- Wash-deck pump
- General service pump
- Etc.

#### Industrial pumps:

- Ground water pumps
- Fire pumps
- Wash-down pumps
- Cooling-water pumps
- Circulation pumps
- Fuel pumps
- Filling of tanks and wagons

Also suitable for "Contractors" and "Agricultural" use.

Material specification	A	C	D
Pump casing	Cast iron GG 20	Cast iron GG 20	Bronze
Impeller and wear ring	NiAlu-bronze	Cast iron GG 20	NiAlu-bronze
Shaft	Acid-proof stainless steel AISI 329	Acid-proof stainless steel AISI 329	Acid-proof stainless steel AISI 329
Bearing housing	Cast iron GG 20	Cast iron GG 20	Cast iron GG 20
Suction piece	Cast iron GG 20	Cast iron GG 20	Bronze
Non-return flap	Nitrile rubber	Nitrile rubber	Nitrile rubber
Shaft seal cover	Cast iron GG 20	Cast iron GG 20	Bronze
Mechanical shaft seal	Carbon/ceramics	Carbon/ceramics	Carbon/ceramics

## Priming principle

The priming is based on the diffuser principle, which means that the priming ability is independent of valves and other mechanical elements as it is the flow of liquid that carries the air. In addition the diffuser principle has the effect that the MODULAR S can pump slightly polluted as well as air-mixed liquids.

Before first starting the pump, the casing must be filled with liquid. When the pump has been started, the liquid begins to circulate in the pump casing and the impeller channels.

Thus, an air-mixed liquid is produced in the outer third of the impeller A and a vacuum is created in the suction piece of the impeller and the suction chamber B.

This vacuum makes the non-return flap C open, and air is drawn from the suction pipe into the suction chamber.

The air-mixed liquid is led through the canal D to the upper part of the pump casing E, where the flow velocity is low and the air separates from the liquid.

The air escapes through the pressure pipe and the air-separated liquid returns to the periphery of the impeller through channel F.



### MODULAR S - a theme in MODULAR construction

Irrespective of size and capacity the whole MODULAR S series is constructed of 5 standard components:

1. Pump casing
2. Impeller
3. Bearing housing
4. Suction cover
5. Shaft seal cover

The standardisation of these 5 components aids a minimum stockholding as some of the components are common to the different pump sizes. Furthermore, this standardisation means low production costs from which you will benefit in the form of competitive prices. The pump casing is designed with a double, twisted flute which ensures efficient priming.

The impeller, which is closed, is manufactured with single curved blades and relief blades on the back. This leads to a balancing of the hydraulic longitudinal forces, and therefore the pump accepts high rotational speeds.

Suction and pressure branches are designed as flange connections according to EN 1092 PN10/16 (-DIN 2501 PN10/16). A few of the small sizes have been designed with pipe thread branches.

The pump is fitted with mechanical shaft seal which has excellent wear qualities.

The direction of the flow is indicated by the arrows. To allow free passage of the air through the pressure pipe, ensure that valves, if any, are not closed during the priming.

The liquid circulation continues until the air has been removed from the suction pipe and the pump will then function as a normal centrifugal pump.

If for some reason, air penetrates into the suction pipe and the pump stops pumping, the priming process starts again as described above, and continues until normal pumping has been resumed.



### Featured option - DESMI Modular S Super-primer

S70-50-175/A11 for quick priming

DESMI Modular S Super-primer is the right solution when quick priming is required.

The priming ability of the pump is up to 12,000 litres of air per hour, depending on suction lift.

This very fast priming is achieved by a combination of the diffuser principle and the liquid ring principle where a star wheel from the liquid ring pump is mounted on the same shaft as the impeller.

Up to ten times upgrade of priming ability.



*Note - Super Primer design is only available for S70-50-175 and S80-70-175*