

Pumping station

MPA 525





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APPLICATION

In case of floods, groundwater efflux and similar situations requiring rapid mounting and commissioning of the pump at a place where there is no possibility to connect to electrical network.

DEVICE DESCRIPTION

Pumping plant MPA 525 is a mobile pumping engine-generator, fully assembled and ready for use. Due to its relatively small dimensions and weight of only 1900 kg the device is convenient for manipulation at flooded terrains.

The pump is centrifugal with horizontal inlet line. Discharge line of the pump is placed vertically with a possibility to turn it by 360°.

Rotor of the pump is semi-axial with open front plate. At the rear plate of the rotor there are blades serving to decrease axial load. In the inlet line there are direction blades serving to improve the water stream. Transfer of the engine power and revolutions to the pump is carried out via reducer.

All of the said characteristics make this plant rather efficient in fighting against floods at all terrains and in all conditions.

Reducer and bearings of the pumping plant are lubricated with oil. The pumping station is equipped with non-return butterfly gate (rubber/ metal sealing) and with own deaerating system. The pump base is fixed to the engine casing and the inlet line.

The pumping plant is one integrated system mounted on the base, and it can be transported by trailer or other means of transportation, and there is a possibility to mount it on a pontoon. The device dimensions are adjusted for transportation in a truck trailer with mounted winch.



BASIC CHARACTERISTICS OF DRIVE ENGINE

- DEUTZ F5L914
- 5 cylinders, air cooling
- Direct injection, Diesel engine
- Power: 66 KW, Din 6271 according to "B", at revolutions $n=2300 \text{ min}^{-1}$

BASIC CHARACTERISTICS OF THE PUMPING PLANT

Capacity	525 l/s (1890 m ³ /h)
Lifting height	10 m
Number of revolutions	1185 min ⁻¹
Pump power	61.5 kW
Fluid	Water
Permitted quantity of impurities in water	max 5000 g/m ³
Mounted height *	4.5 m
Total weight of the pumping plant with full fuel tank	1900 kg
Inlet ? discharge line	DN 500
* pump mounted height – difference in height between its middle axis and the level of inlet fluid	

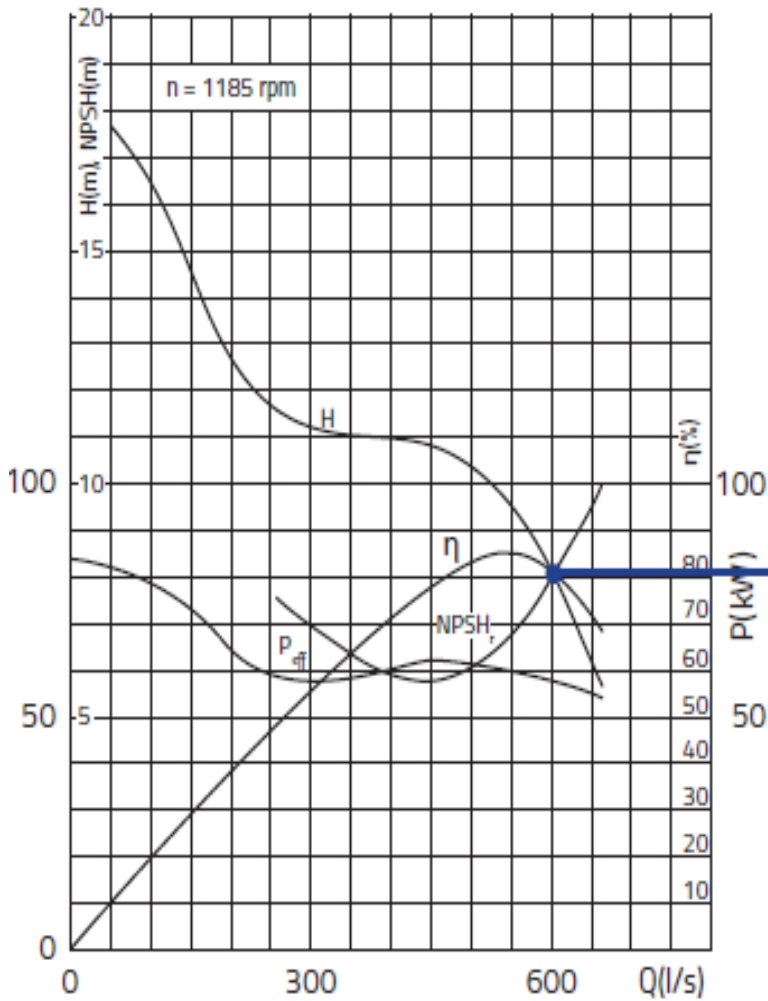
PUMPING STATION MAIN PARTS MATERIALS

Inlet line, worm wheels, engine casing	casting – aluminium
Suction funnel insert	casting – stainless steel
Rotor	grey iron
Gears	alloy steel
Shaft, shaft journal, nut	stainless steel
Base, check butterfly gate	welded structure
Shaft coupling	elastic
Fuel tank	stainless steel
Deaerating system	welded structure
Compensator	per order – option
Inlet pipe	per order – option
Discharge pipe	per order – option
Rubber sleeve DN 500	per order – option

DESCRIPTION OF DEUTZ DIESEL ENGINE

Type	DEUTZ F5L914
Cooling system	Air cooling with integrated axial air blower
Containers	Grey iron
Cylinder head	Single piece aluminium cylinder heads
Valves arrangement/function	Top valves, two pieces for each cylinder in the engine head, are made so that one of them is inlet and the other one is outlet, and they are mobile via camshaft.
Piston	There are three rings on the piston – two compression rings and one oil ring for lubrication
Piston cooling	Oil spraying through nozzle
Piston rod	Forged steel
Crankshaft	Nodular cast iron with integrated counterweights
Camshaft	Steel, axle assembled in bi-metal bearing on the outlet side
Lubrication system	Oil flow is carried out by circulation pump for lubrication system and pre-heating system (if installed in the pump engine-generator)
Lubrication oil cooler	Integrated aluminium cooler
Oil cooler thermostat	Oil flow through cooler is controlled by thermostat which is connected to the engine pre-heating system
Lubrication oil filter	Replaceable paper micro-filter for full oil flow
Fuel injection pump	High-pressure pump for fuel injection with mechanical centrifugal regulation
Fuel injection	Nozzle with five jets
Fuel filter	Replaceable insert – filter
Engine starter	12V; 3.0 kW (standard) Mechanical starter (option)
Alternator	Three phase alternator, 14V; 55A (standard)

PUMP CHARACTERISTICS DIAGRAM

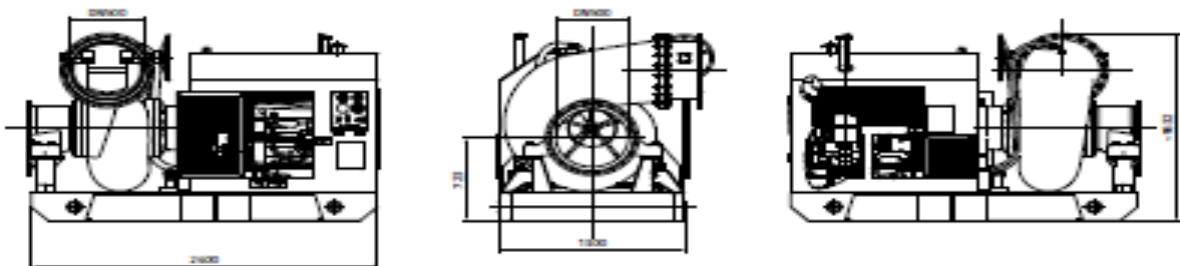


H- pump lifting height
 η - pump efficiency level

NPSH- Difference in pressure between the pressure in the inlet line and the lowest measured pressure in the pump. It determines the pressure drop at the pump inlet. Pump pressure is the lowest at the inlet and therefore it increases at the outlet.

Pump operating point.
 At the utilization of ~80% the pump lifts ~600 l/s at the height of ~8 m. At the utilization of 100%, the pump lifts 525 l/s at the height of 10 m.

PUMPING PLANT DIMENSIONS



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