

### Waste liquid pumping station



#### **Brief introduction of the fuel delivery system-waste liquid pump station:**

The waste liquid pump station produced by us mainly includes: oil pump, return valve, oil filter, oil pressure gauge, oil pipe and joint, fuel oil solenoid valve, nozzle, safety valve, back-pressure valve etc. In the system, oil pump is the most important parts, including gear pump, screw pump, vane pump, and centrifugal pump and so on. The main imported brand includes SUNTEC, DANFOSS, RIELLO, NOP etc.

#### **How to choose oil pump?**

Select the oil pump on the base of the process flow and system requirements, please consider from five aspects: liquid properties, liquid throughput, device pressure, pipeline layout and operating conditions.

1. Liquid properties: includes physical properties and chemical properties. Physical properties include temperature, density, viscosity, solid particle diameter and gas content etc., which affects the system pressure and requires dynamic calculation; Chemical properties mainly refer to the chemical corrosion and toxicity of the liquid medium, which is important for the selection of pump materials and shaft seal type.
2. The flow rate is directly related to the production capacity and conveying capacity of the whole device. Cycloid gear pump selection should be base both on the maximum flow and the normal flow. If no maximum flow, usually take 1.1 times the normal flow as the maximum flow. The leakage of pipeline system can be ignored, but must consider the influence of process change on flow.
3. The pressure of the device is another important performance data of the gear pump. Generally, the type of cycloid gear pump should be selected by amplifying the pressure of 5%-10%. This includes: suction tank pressure, drain tank pressure, the pressure drop in the piping system (pressure loss).
4. The layout condition of the oil pump pipeline refers to the height, distance and trend of liquid delivery, as to calculate the system pressure and check the power. If necessary by pipe system data, should also draw device characteristics curve. When design and arrange pipelines, pay attention to the following matters:
  - A. Large pipe diameter: low liquid flow speed and low resistance loss, but cost is high; small pipe diameter: resistance loss and pump pressure will be greatly increased, which will increase the equipped power, cost and operating fee. Therefore, it should be considered comprehensively for both technology and economy.
  - B. The discharge side of the pump must be equipped with valves and non-return valves. The valve is used to adjust the working conditions, and the non-return valve can prevent the oil pump from reversing when the liquid flows back.
  - C. Use straight pipe to reduce accessories and shorten pipe length. When elbow is necessary, the bending radius should be 3-5 times the diameter of the pipe, the angle is better to greater than 90 °C.
  - D. The discharge pipe and its joints shall consider the maximum pressure they can withstand.
5. Operating conditions refer to the operating temperature of the liquid, suction side pressure, discharge side container pressure, altitude, environmental temperature, operation is intermittent or continuous, gear pump position is fixed or movable.