

Department of Mechanical Engineering
Thermodynamic and Heat Technic Division
Spec. Laboratory - Pump Lab. Report

Lab. Date:

Number:

Lab. Instructor:

Name & Surname:

Group/Sub-group: /

Place of Lab: E2 Block – Pump(Wilo) Lab.

Course Topic: Pumps

Subject: Determination of pump characteristic curves

Devices and Materials:

- Centrifugal Pump
- Powermeter
- Flowmeter

Required:

For the given pump:

1. Calculate the pump efficiencies
2. Determine characteristic curve of the pump depending on the manometric discharge head, flow rate and efficiency
3. Determine characteristic curves of the pump related to series and parallel connection status

Experimental Study:

Measurements are made for a pump by adjusting the valves on the experimental apparatus. The measured data are written on Table 2. To determine efficiencies, Eq. 1 is used. Then, related curves are properly drawn on Figure 1.

$$P = \frac{\rho g Q H_m}{\eta} \quad (W) \quad (1)$$

Where,

ρ is density and its unit is kg/m³.

g is gravitational acceleration and its unit is m/s².

Q is volumetric flow rate and its unit is m³/s.

H_m is head discharge and its unit is mWc.

Table 1. Measurement Data

Number of measurements	Q (m ³ /h)	ΔP (bar)	P (W)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Table 2. Calculation Data

Number of measurements	Q (m ³ /s)	H _m (mWc)	η
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

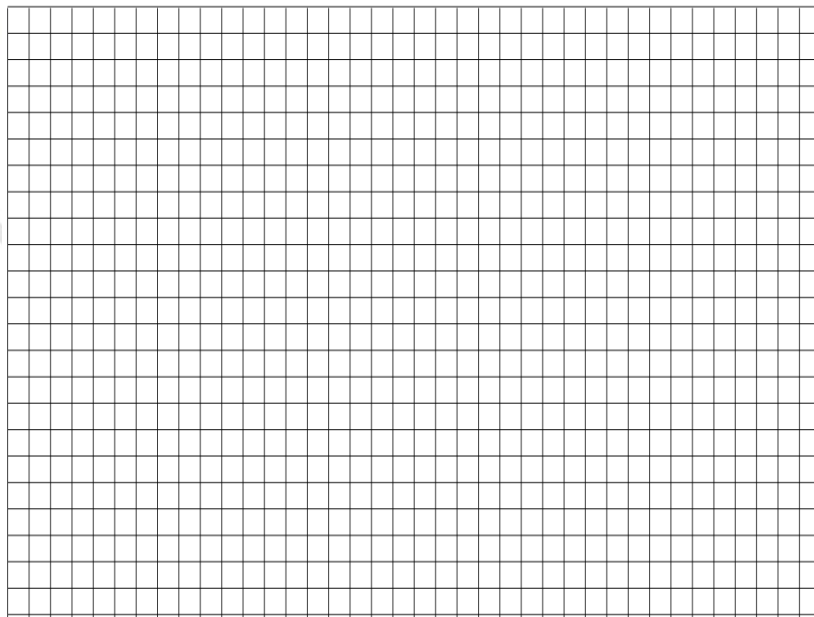


Figure 1. . Efficiency and Volumetric Flow Rate Graph

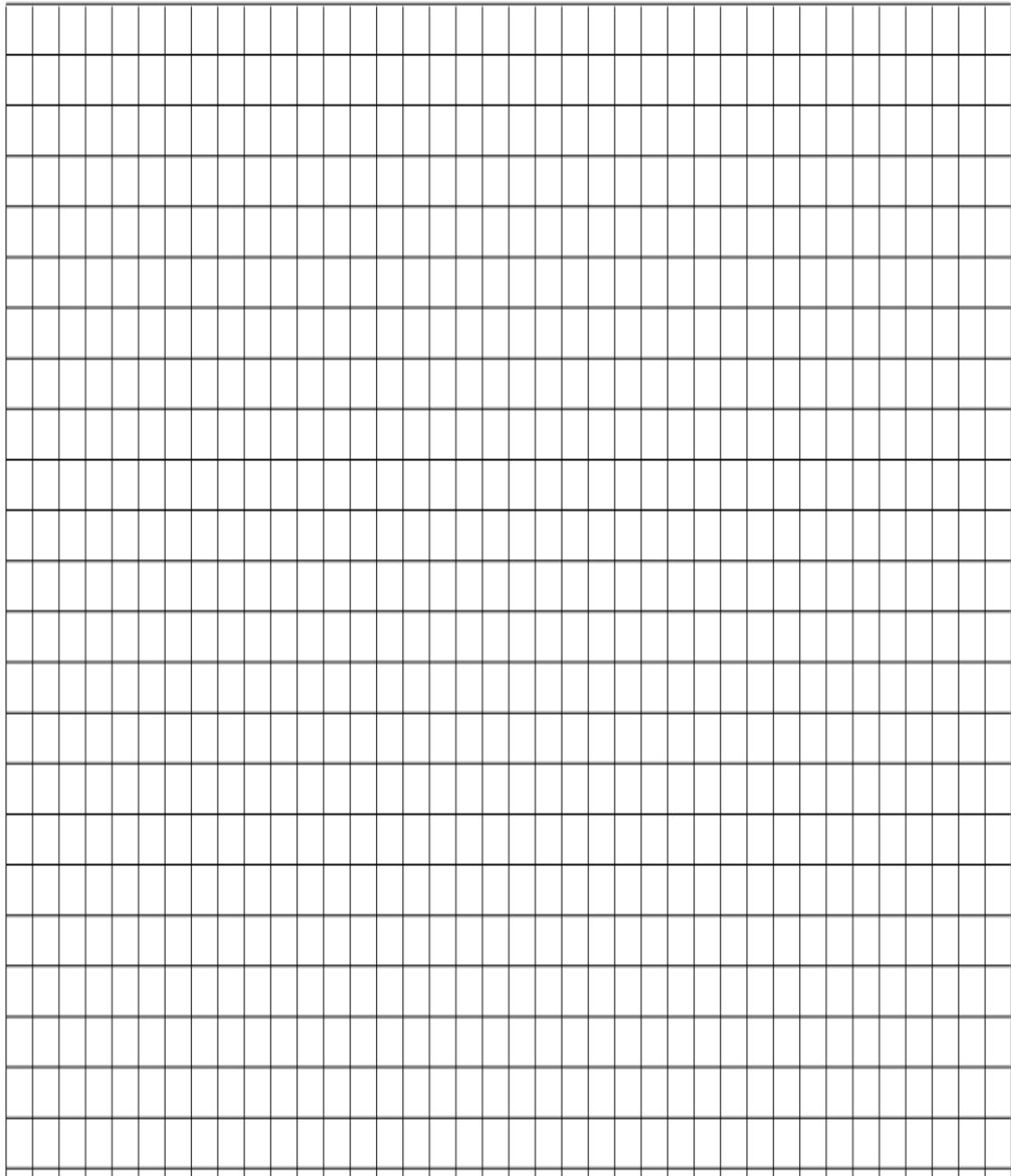


Figure 2. Manometric Discharge Head and Flow Rate Graph

Conclusion:

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