



BBIFMAC EEGAI

Pump types

– Burdekin April 2015



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Pumps are machines



- They convert energy into fluid movement and pressure
- Pumping is essentially the addition of energy to a fluid
- Pumps are energy conversion units
- Taking motion from a driving source like electrical or diesel motor even a windmill and converting it to fluid power
- Convert a power input into a hydraulic power output

Rotodynamic Pumps



- Continuous flow pump - centrifugal
- Unidirectional rotation of a shaft mounted impellor, propeller or rotor
- Consists of impeller and casing, with seals on driving shaft through casing
- Three main types – radial, mixed or axial impellers

Centrifugal Pumps



- One of the most common you will encounter pumping water & sewerage
- Closed or open impellers
- Absolute velocity vectors of fluid particle
- Single sided suction – liquid enters impeller from one side only
- Larger units can be double suction entry – double sided impeller

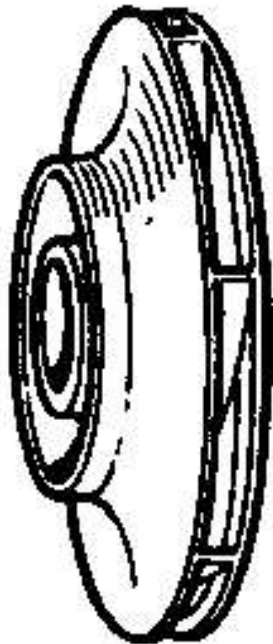
Centrifugal pump



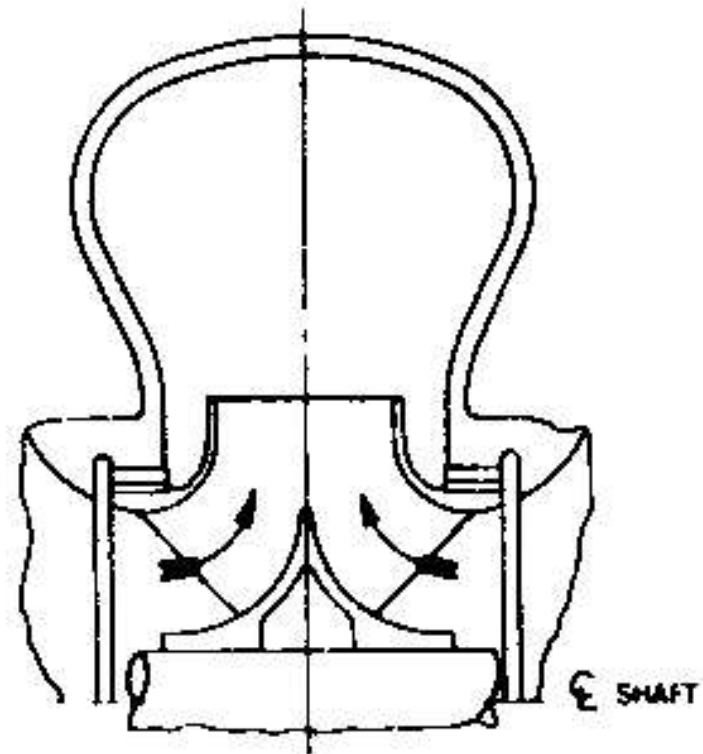
- Water enters axially through impeller eye and departs radially
- Centrifugal forces act upon fluid to impart velocity
- Spiral shaped casing or volute converts velocity head into pressure
- Must be “primed” to function – that is casing filled with water
- Can handle some solids – limited size

Radial Impeller – Centrifugal

Single

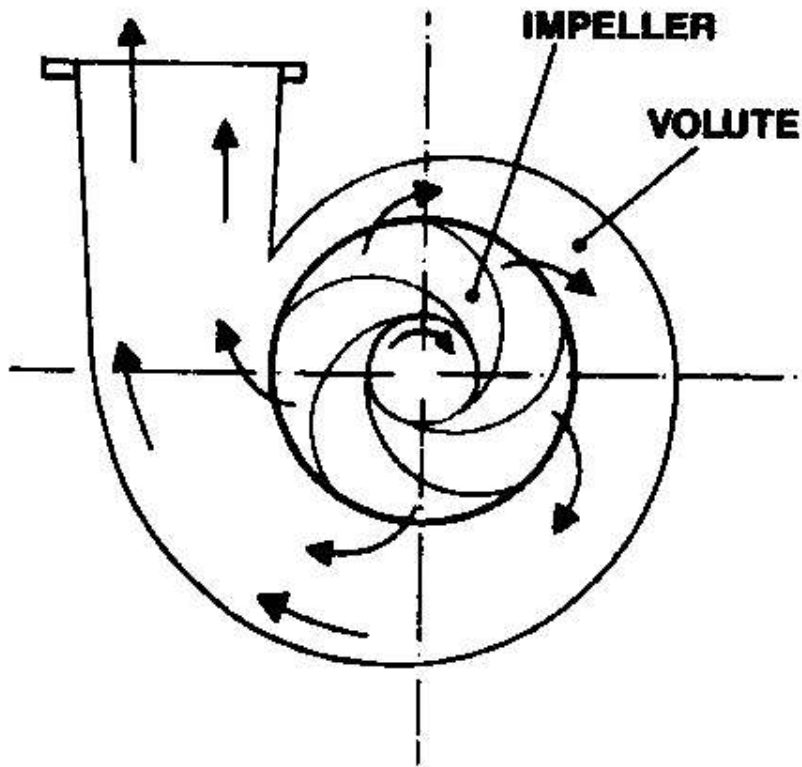


Double

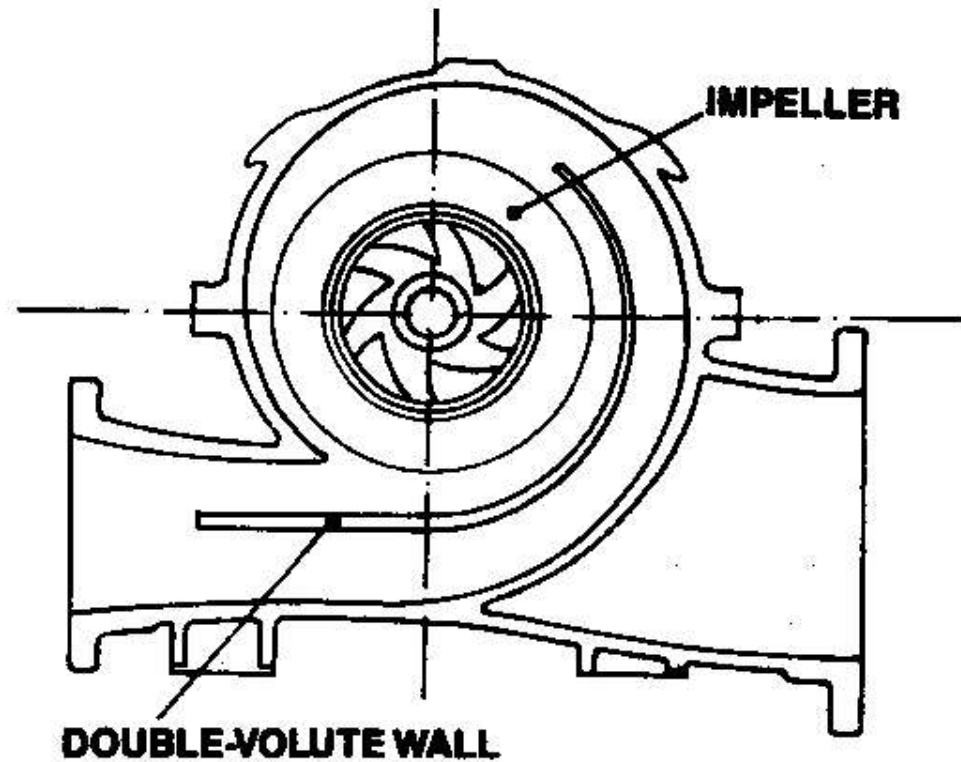




Single & Double Volute

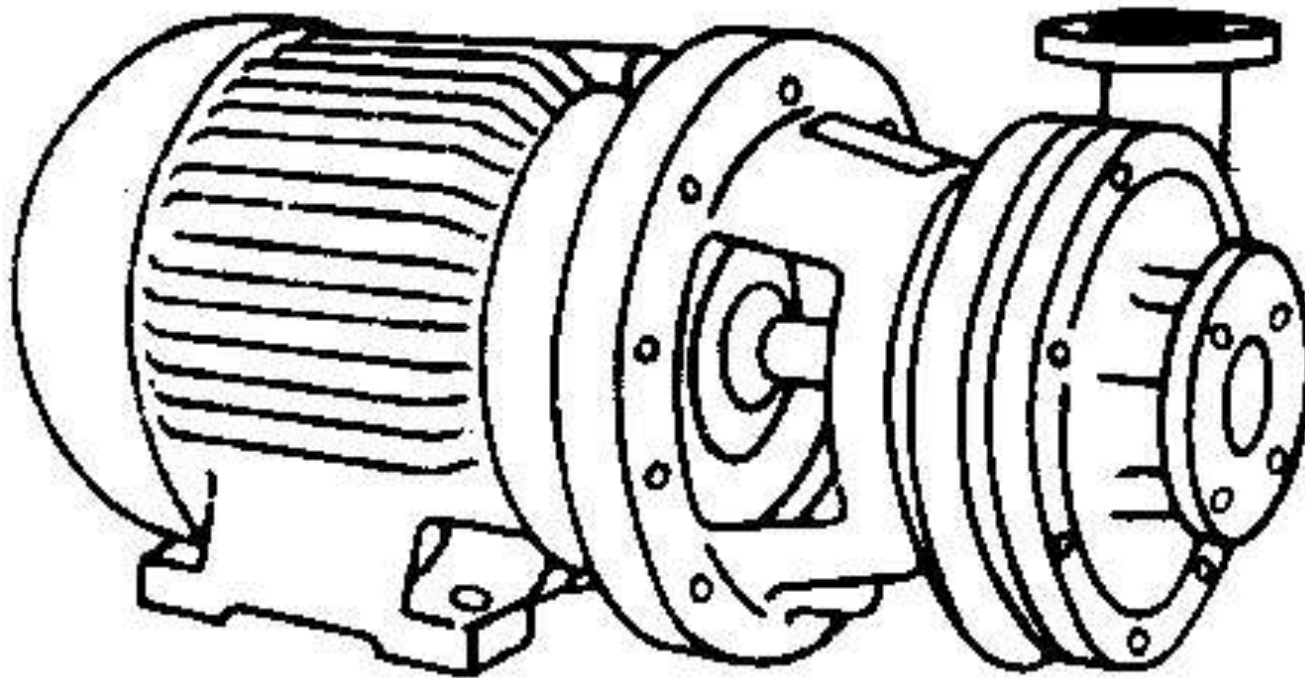


SINGLE VOLUTE CASING

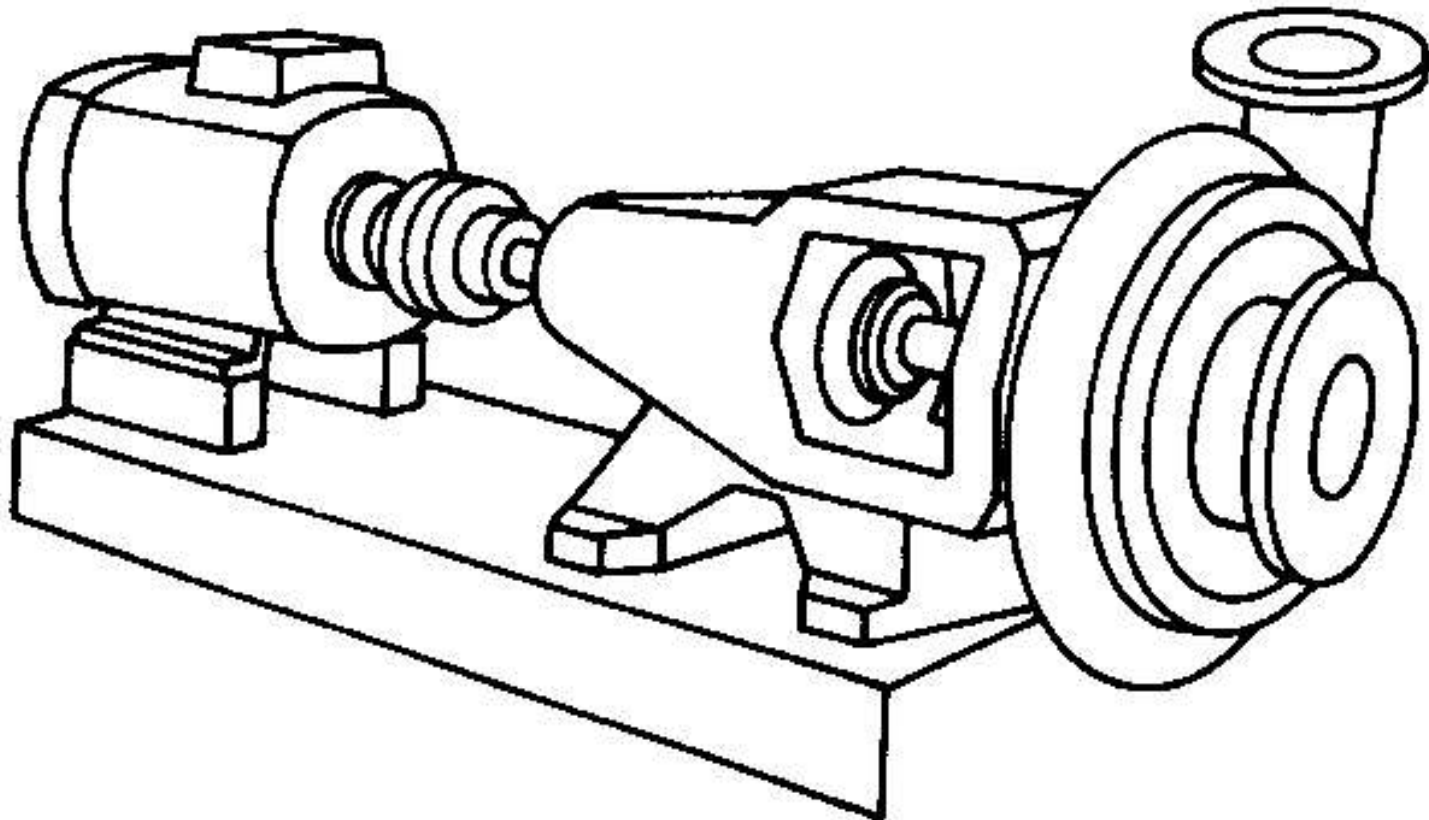


DOUBLE VOLUTE CASING

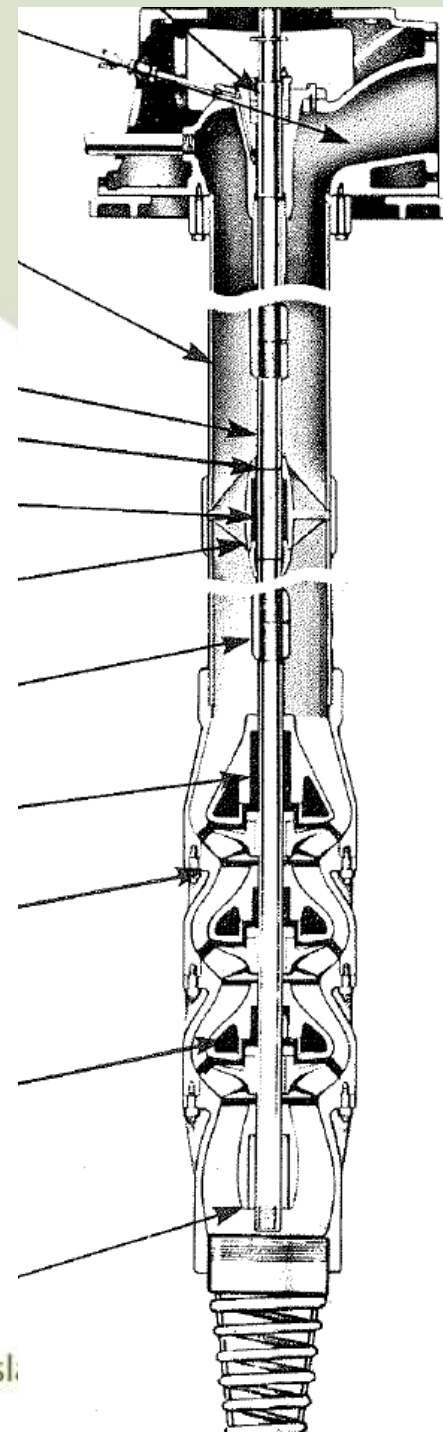
Close Coupled Centrifugal Pump



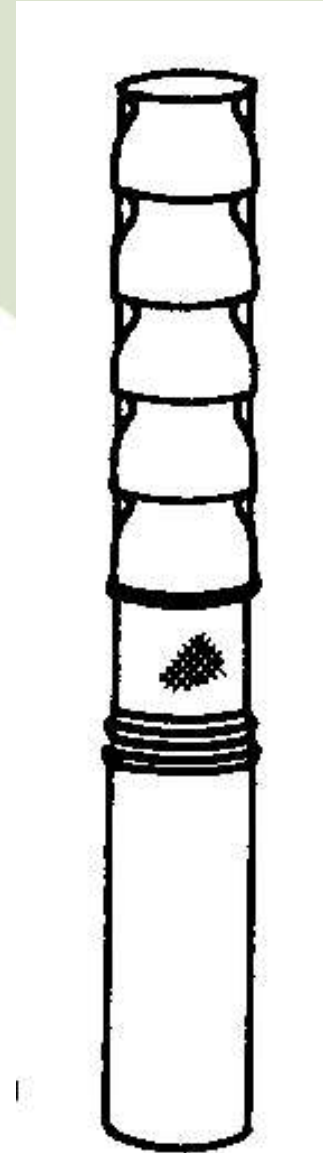
Long Coupled Centrifugal Pump



Multi-stage Line-shaft Turbine pump



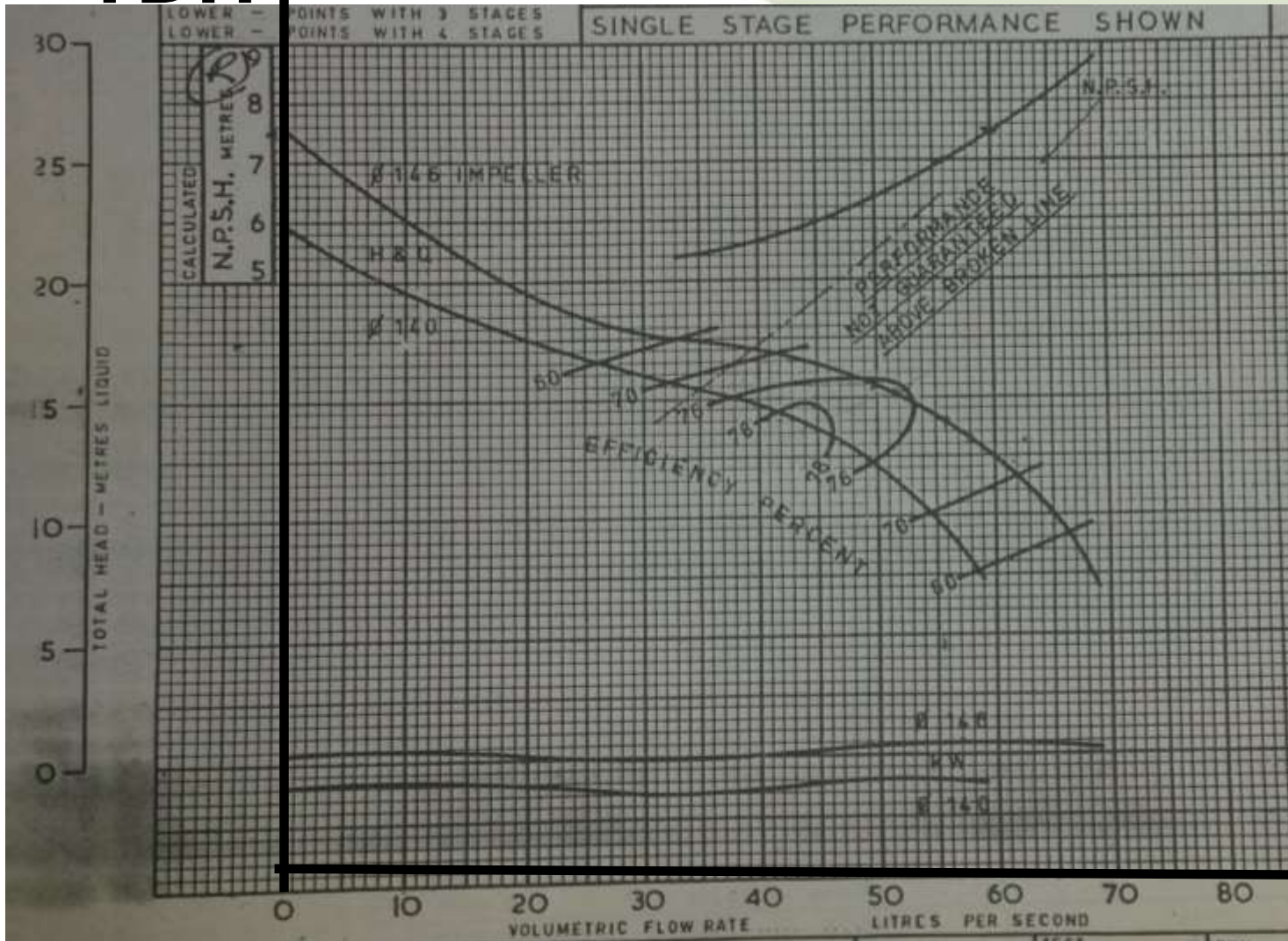
Electric Multistage Submersible Pump (Turbine)



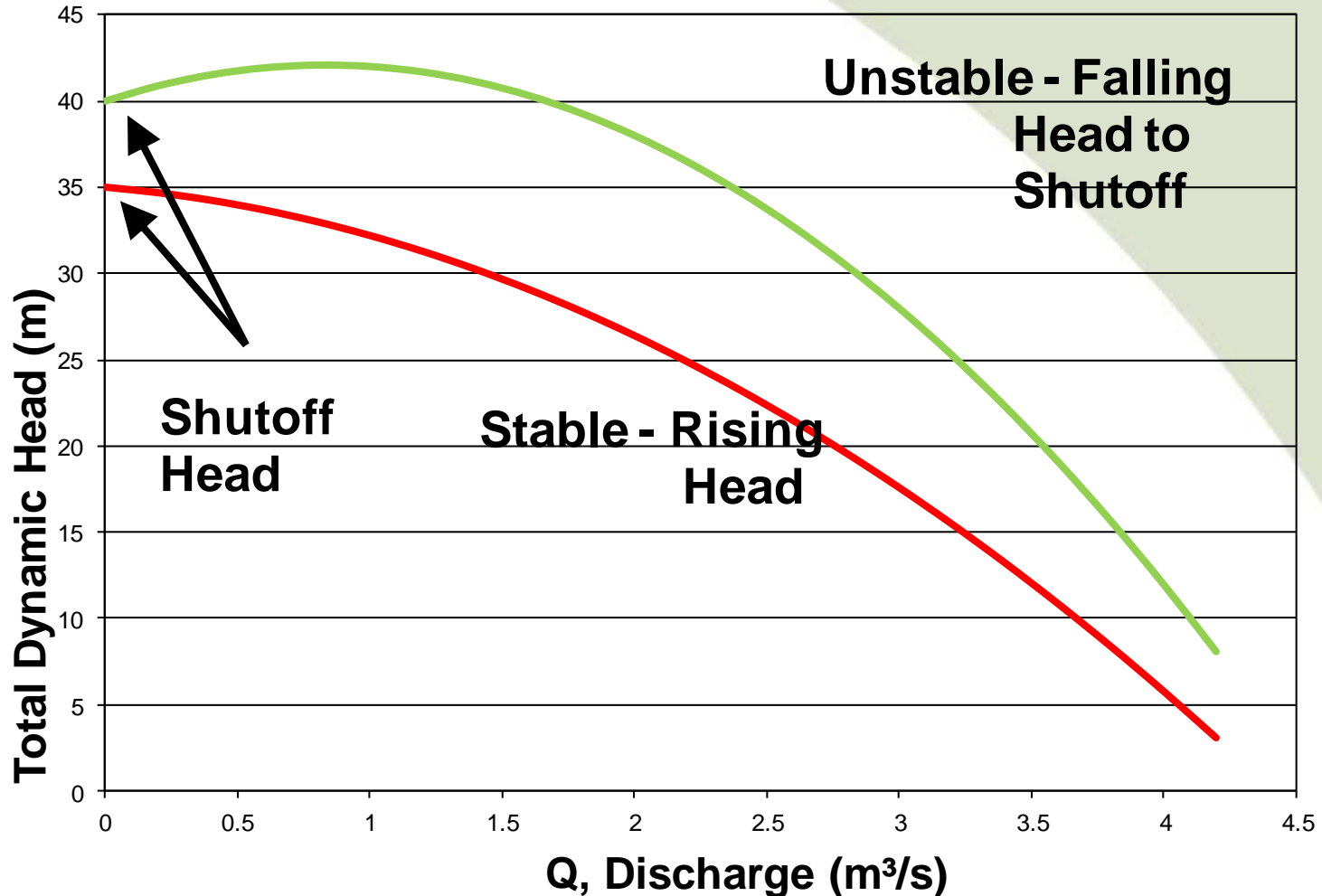
Giles & Gaskin 180HC / 7HC



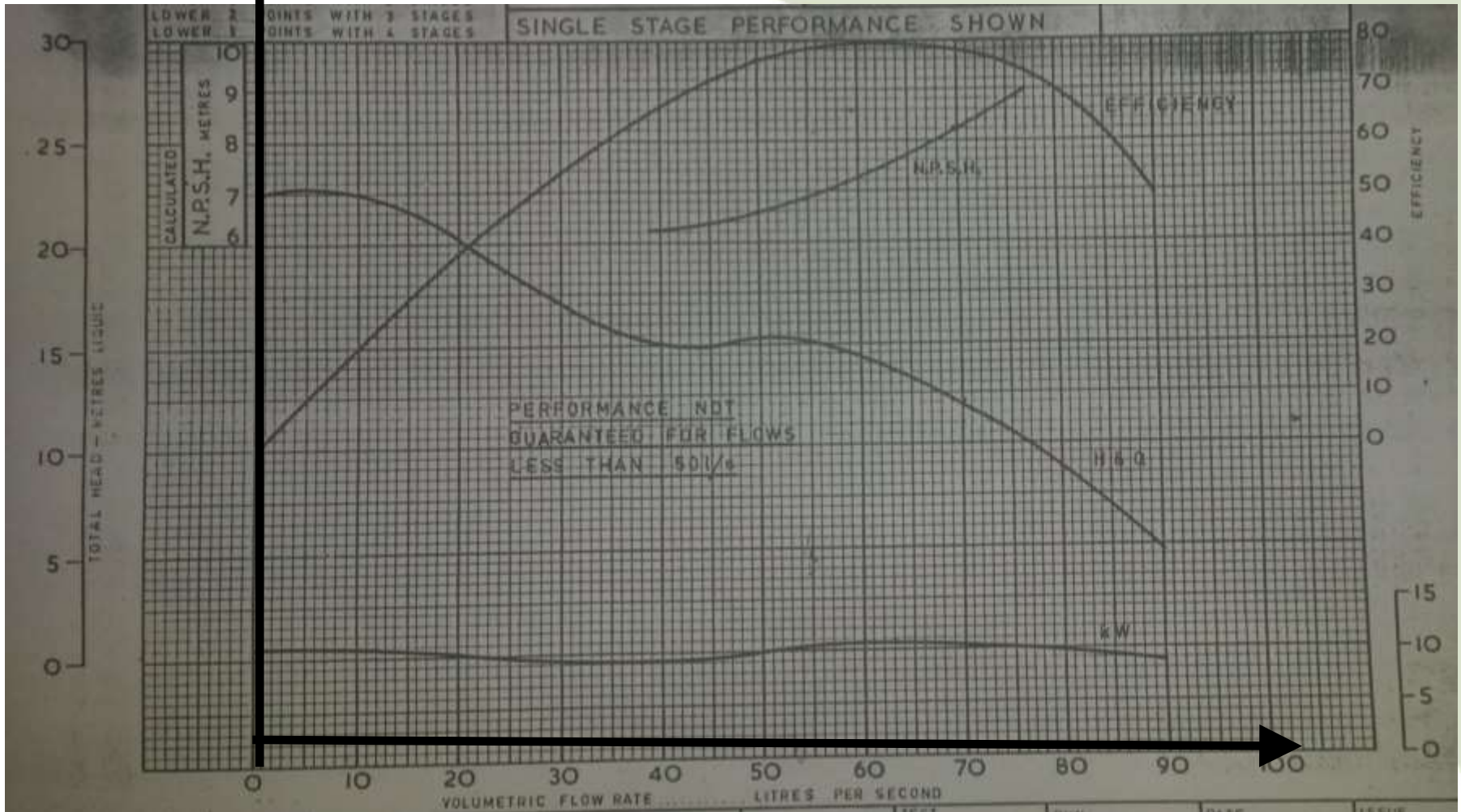
TDH↑



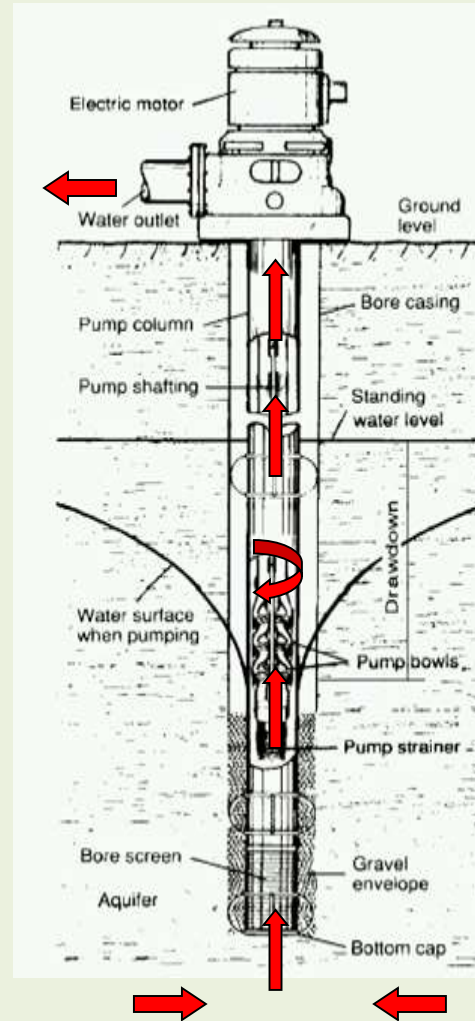
Stable / Unstable Pump Curve



TDH 190HC / 7HHC Curve



Types of Pumps



Daley's Water Service Pty Ltd
Specialising in
Water & Energy Efficiency

Submersible





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