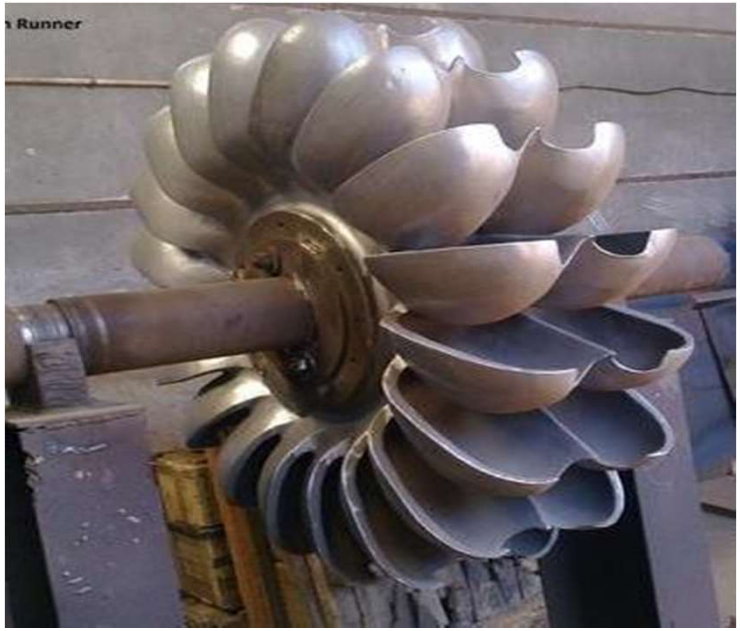
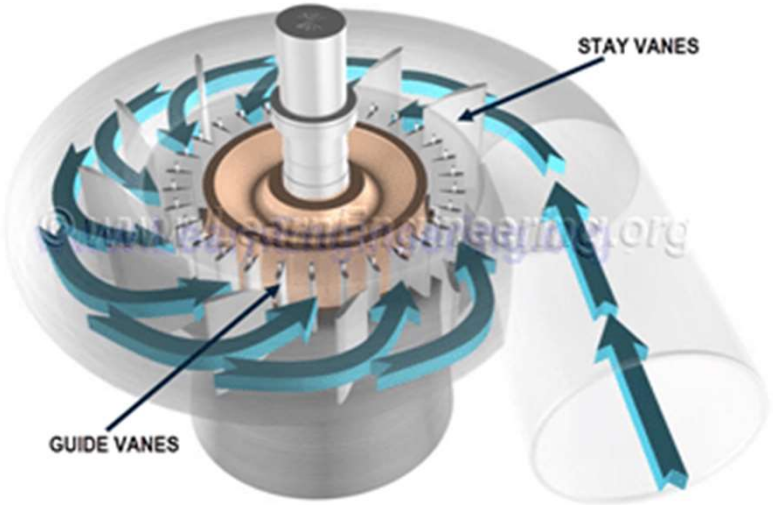
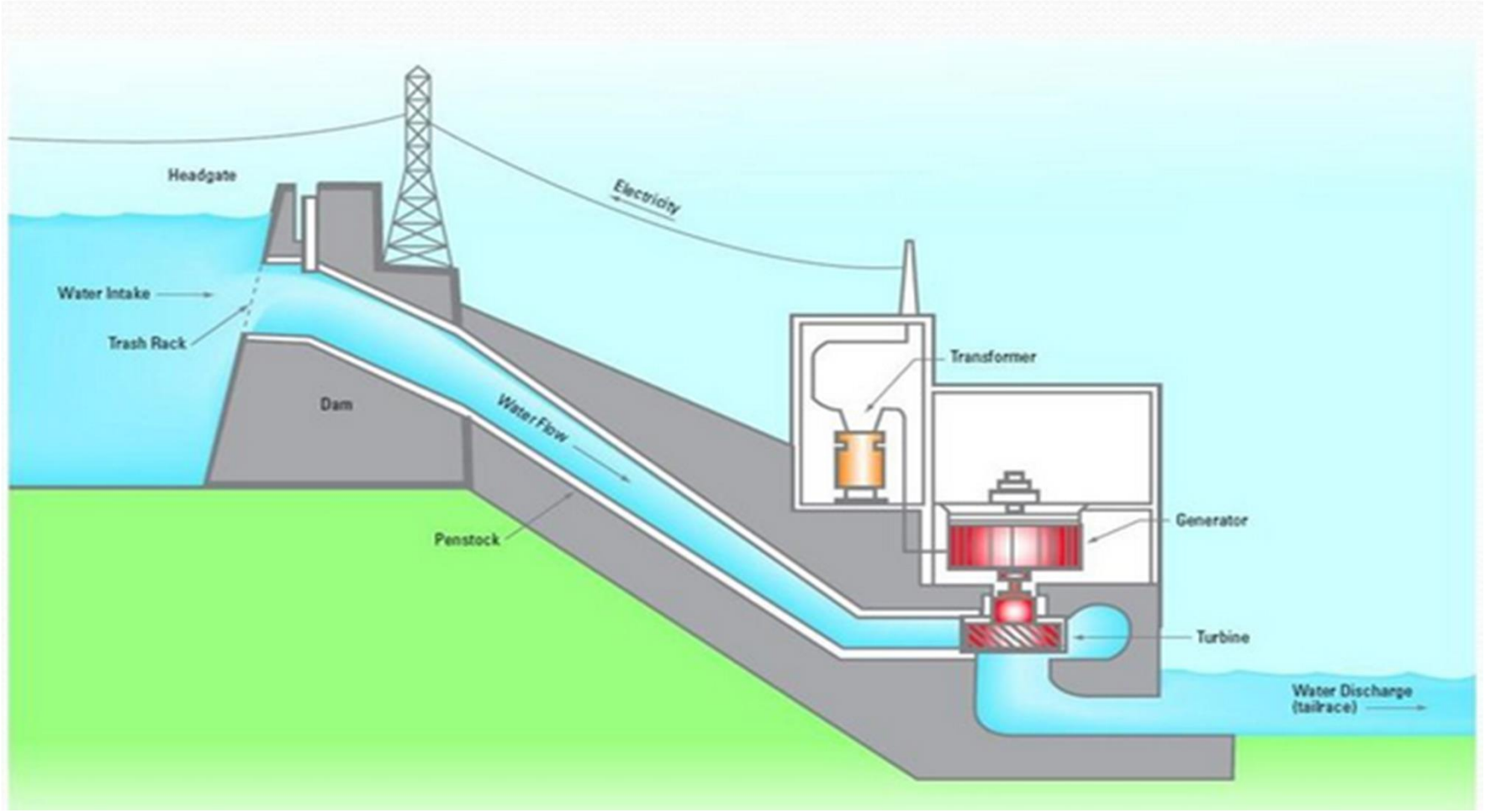
Turbine

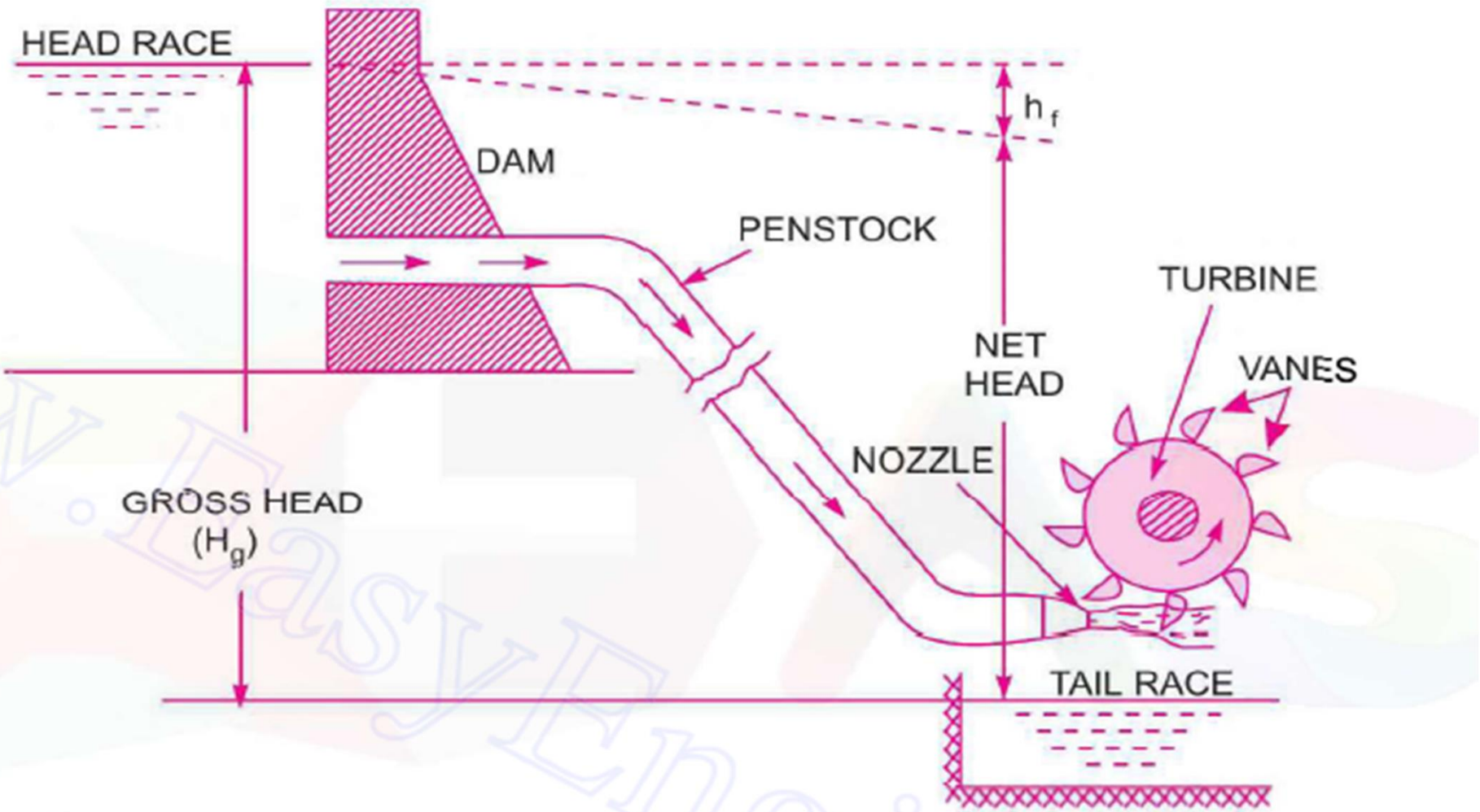




Layout of hydroelectric power plant



$$H = H_g - h_f$$


HEAD RACE
h_f
DAM
PENSTOCK
TURBINE
NET
HEAD
VANES
NOZZLE
GROSS HEAD
(H_g)
TAIL RACE

Dam → constructed across revers,

1) Reservair → Natural → mountains. Natural spring.

Artificial.

↓ Dam.

Appriaciable gradient or slap required.

Penstock → Pipes of large diameter carry water under pressure

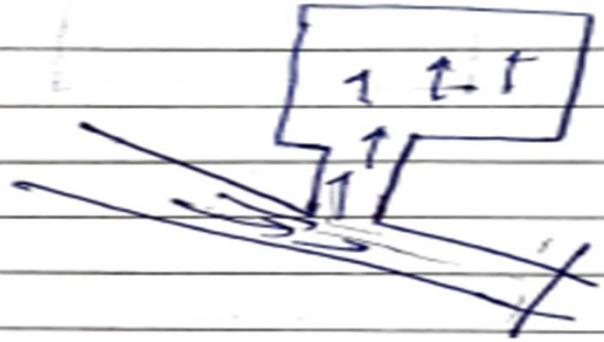
made of Steel.

reinforced concreat

made of Steel
reinforced concreat

Control
Valve → contro the discharge of water or

Surge tanks.
→ Surge drum.
Surge Pool.



Neutralized the sudden changes of Pressure in Flow.
if we closed the Penstock sudden. than → Flowing water Hite the gate. with Very Large ~~Force~~ Force.

if we required more water. For running the Turbine.

Water hammer. Effect
hydraulic Shock.

(3) Turbine → having different types of vanes.

Gross head (Hg) → difference b/w head race & tail race.

Hg = Head race − Tail race.

Energy available at turbine inlet.

Nozzel inlet. → when ideal flow condition is consider. (No loss)