



Hydroelectric Power Plant Formulas

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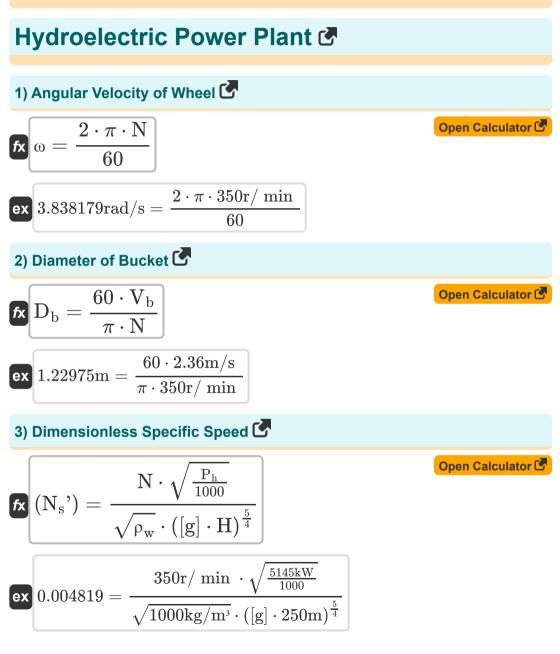
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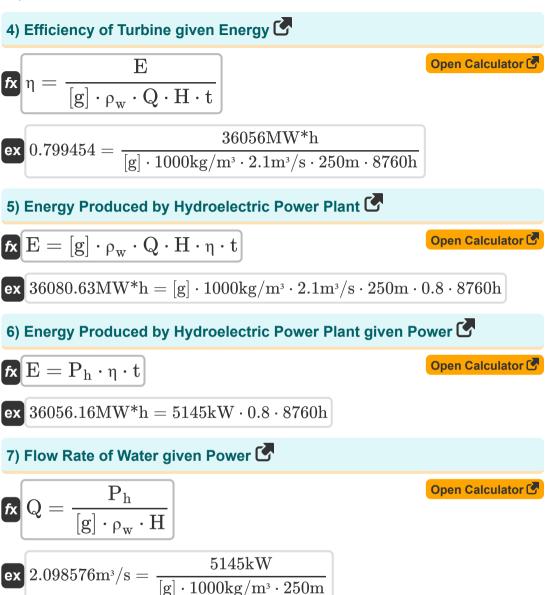


List of 23 Hydroelectric Power Plant Formulas





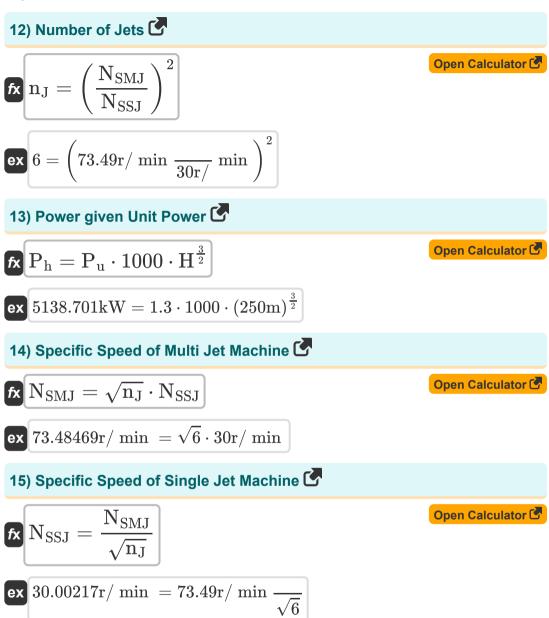






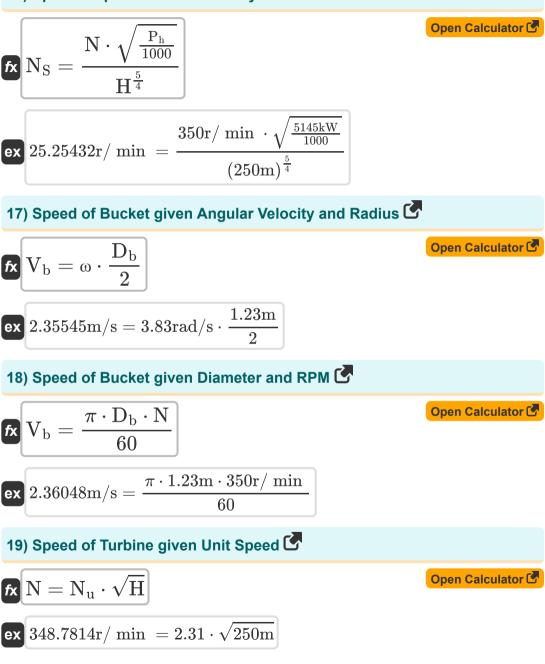
ex
$$15 = \frac{1.23 \text{m}}{0.082 \text{m}}$$



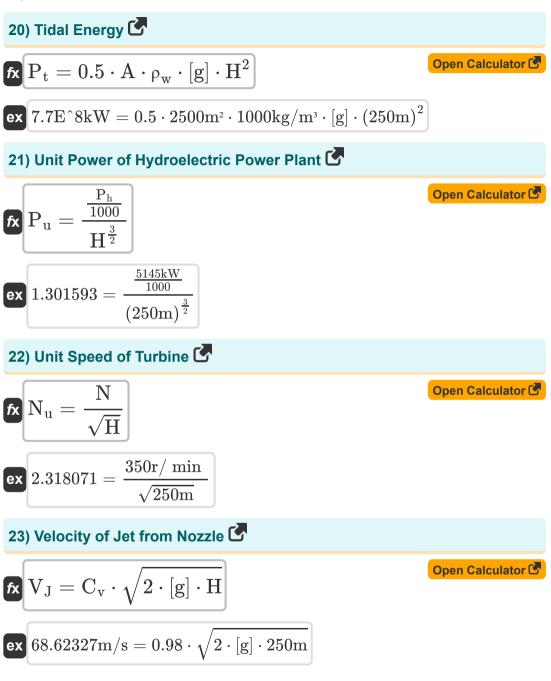




16) Specific Speed of Turbine of Hydroelectric Power Plant 🕑









Variables Used

- A Area of Base (Square Meter)
- C_v Coefficient of Velocity
- D_b Bucket Circle Diameter (Meter)
- D_n Nozzle Diameter (Meter)
- E Energy (Megawatt-Hour)
- **H** Fall Height (*Meter*)
- J Jet Ratio
- N Working Speed (Revolution per Minute)
- **n**J Number of Jets
- N_S Specific Speed (Revolution per Minute)
- Ns' Dimensionless Specific Speed
- N_{SMJ} Specific Speed of Multi Jet Machine (Revolution per Minute)
- N_{SSJ} Specific Speed of Single Jet Machine (*Revolution per Minute*)
- N_u Unit Speed
- Ph Hydroelectric Power (Kilowatt)
- **P**_t Tidal Power (Kilowatt)
- **P**_u Unit Power
- **Q** Flow Rate (Cubic Meter per Second)
- t Operating Time per Year (Hour)
- V_b Bucket Velocity (Meter per Second)
- V_J Velocity of Jet (Meter per Second)
- η Turbine Efficiency



- **p**_w Water Density (Kilogram per Cubic Meter)
- **W** Angular Velocity (Radian per Second)



Constants, Functions, Measurements used

- Constant: pi, 3.14159265358979323846264338327950288 Archimedes' constant
- Constant: [g], 9.80665 Meter/Second² Gravitational acceleration on Earth
- Function: **sqrt**, sqrt(Number) Square root function
- Measurement: Length in Meter (m) Length Unit Conversion
- Measurement: Time in Hour (h) Time Unit Conversion
- Measurement: Area in Square Meter (m²) Area Unit Conversion
- Measurement: Speed in Meter per Second (m/s) Speed Unit Conversion
- Measurement: Energy in Megawatt-Hour (MW*h) Energy Unit Conversion
- Measurement: Power in Kilowatt (kW) Power Unit Conversion
- Measurement: Volumetric Flow Rate in Cubic Meter per Second (m³/s) Volumetric Flow Rate Unit Conversion
- Measurement: Angular Velocity in Radian per Second (rad/s), Revolution per Minute (r/min) Angular Velocity Unit Conversion
- Measurement: Density in Kilogram per Cubic Meter (kg/m³) Density Unit Conversion





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