Important Circular Sewer Section Running Partially Full Formulas PDF



Formulas Examples with Units

List of 11

Important Circular Sewer Section Running Partially Full Formulas

Evaluate Formula (

Evaluate Formula (

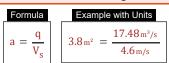
Evaluate Formula (

Evaluate Formula C

Evaluate Formula C

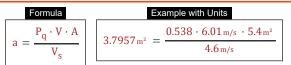
Evaluate Formula

1) Area of Cross-Section while Running Partially Full given Discharge Formula



2) Area of Cross-section while Running Partially Full given Proportionate Area Formula





4) Discharge when Pipe Running Partially Full Formula C



5) Discharge when Pipe Running Partially Full using Proportionate Discharge Formula

6) Hydraulic Mean Depth while Running Partially Full given Proportionate Hydraulic Mean Depth Formula



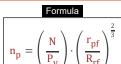


$$r_{pf} = \left(\frac{P_{v} \cdot n_{p} \cdot \left(R_{rf}\right)^{\frac{2}{3}}}{N}\right)^{\frac{3}{2}}$$

Formula Example with Units
$$r_{pf} = \left(\frac{P_{v} \cdot n_{p} \cdot \left(R_{rf}\right)^{\frac{2}{3}}}{N}\right)^{\frac{3}{2}} = \left(\frac{0.765 \cdot 0.9 \cdot \left(5.2\,\text{m}\right)^{\frac{2}{3}}}{0.74}\right)^{\frac{3}{2}}$$



8) Roughness Coefficient while Running Partially Full using Proportionate Velocity Formula 🕝

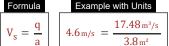


$$n_{p} = \left(\frac{N}{P_{v}}\right) \cdot \left(\frac{r_{pf}}{R_{rf}}\right)^{\frac{2}{3}} \qquad \text{Example with Units}$$

$$0.6998 = \left(\frac{0.74}{0.765}\right) \cdot \left(\frac{3.2\,\text{m}}{5.2\,\text{m}}\right)^{\frac{2}{3}}$$

9) Velocity while Running Partially Full given Discharge Formula C





Evaluate Formula (

Evaluate Formula

10) Velocity while Running Partially Full given Proportionate Discharge Formula 🕝





Evaluate Formula (

11) Velocity while Running Partially Full given Proportionate Velocity Formula 🕝

Formula
$$V_{S} = V \cdot P_{V}$$

Formula Example with Units
$$V_{s} = V \cdot P_{v}$$

$$4.5976 \, \text{m/s} = 6.01 \, \text{m/s} \cdot 0.765$$

Evaluate Formula C

Variables used in list of Circular Sewer Section Running Partially Full Formulas above

- a Area of Partially Full Sewers (Square Meter)
- A Area of Running Full Sewers (Square Meter)
- N Roughness Coefficient for Running Full
- n_p Roughness Coefficient Partially Full
- P_a Proportionate Area
- P_{hmd} Proportionate Hydraulic Mean Depth
- P_q Proportionate Discharge
- P_v Proportionate Velocity
- q Discharge when Pipe is Running Partially Full (Cubic Meter per Second)
- Q Discharge when Pipe is Running Full (Cubic Meter per Second)
- r_{nf} Hydraulic Mean Depth for Partially Full (Meter)
- R_{rf} Hydraulic Mean Depth while Running Full (Meter)
- **V** Velocity While Running Full (Meter per Second)
- V_s Velocity in a Partially Running Sewer (Meter per Second)

Constants, Functions, Measurements used in list of Circular Sewer Section Running Partially Full Formulas above

- Measurement: Length in Meter (m)
 Length Unit Conversion
- Measurement: Area in Square Meter (m²)

 Area Unit Conversion
- Measurement: Speed in Meter per Second (m/s)
 Speed Unit Conversion
- Measurement: Volumetric Flow Rate in Cubic Meter per Second (m³/s)
 Volumetric Flow Rate Unit Conversion

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