



Maximum Velocity of the Follower Formulas

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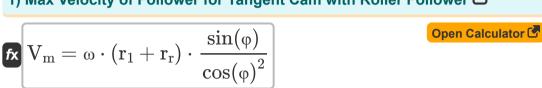




List of 11 Maximum Velocity of the Follower Formulas

Maximum Velocity of the Follower

1) Max Velocity of Follower for Tangent Cam with Roller Follower



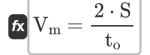
$$\boxed{ 80.09146 \text{m/s} = 27 \text{rad/s} \cdot (3 \text{m} + 31 \text{m}) \cdot \frac{\sin(0.0867 \text{rad})}{\cos(0.0867 \text{rad})^2} }$$

- 2) Maximum Velocity of Follower during Outstroke at Uniform Acceleration
- $\left[\mathbf{K} \middle[\mathbf{V}_{\mathrm{m}} = rac{2 \cdot \mathbf{S} \cdot \mathbf{\omega}}{\mathbf{ heta}_{\mathrm{o}}}
 ight]$
- $oxed{ex}80 \mathrm{m/s} = rac{2 \cdot 20 \mathrm{m} \cdot 27 \mathrm{rad/s}}{13.50 \mathrm{rad}}$



Open Calculator

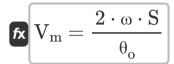
3) Maximum Velocity of Follower during Outstroke at Uniform Acceleration given Time of Out Stroke



Open Calculator 🚰

$$= 80 \mathrm{m/s} = \frac{2 \cdot 20 \mathrm{m}}{0.50 \mathrm{s}}$$

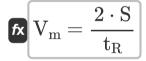
4) Maximum Velocity of Follower during Outstroke for Cycloidal Motion



Open Calculator

$$oxed{ex} 80 \mathrm{m/s} = rac{2 \cdot 27 \mathrm{rad/s} \cdot 20 \mathrm{m}}{13.50 \mathrm{rad}}$$

5) Maximum Velocity of Follower during Return Stroke at Uniform Acceleration given Time of Stroke



Open Calculator 🚰

$$\boxed{80 \text{m/s} = \frac{2 \cdot 20 \text{m}}{0.5 \text{s}}}$$



6) Maximum Velocity of Follower during Return Stroke for Cycloidal Motion

 $V_{
m m} = rac{2 \cdot \omega \cdot S}{ heta_{
m R}}$

Open Calculator

7) Maximum Velocity of Follower during Return Stroke for Uniform Acceleration

 $ag{fx} V_{
m m} = rac{2 \cdot {
m S} \cdot {
m \omega}}{ heta_{
m R}}$

Open Calculator 🗗

 $extbf{ex} 80 ext{m/s} = rac{2 \cdot 20 ext{m} \cdot 27 ext{rad/s}}{13.5 ext{rad}}$

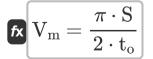
8) Maximum Velocity of Follower for Circular Arc Cam Contacting with Circular Flank

 $ag{K} V_{
m m} = \omega \cdot ({
m R} - {
m r}_1) \cdot \sin(2lpha)$

Open Calculator 🗗

 $\texttt{ex} \left[80.08657 \text{m/s} = 27 \text{rad/s} \cdot (5.97 \text{m} - 3 \text{m}) \cdot \sin(1.52 \text{rad})\right]$

9) Maximum Velocity of Follower on Outstroke given Time Stroke



Open Calculator

$$\mathbf{ex} = \frac{\pi \cdot 20 \text{m}}{2 \cdot 0.50 \text{s}}$$







10) Maximum Velocity of Follower on Outstroke when Follower Moves with SHM

 $\left| \mathbf{V}_{\mathrm{m}} = rac{\pi \cdot \mathbf{S} \cdot \mathbf{\omega}}{2 \cdot \mathbf{ heta}_{\mathrm{o}}}
ight|$

Open Calculator

 $oxed{ex} 62.83185 ext{m/s} = rac{\pi \cdot 20 ext{m} \cdot 27 ext{rad/s}}{2 \cdot 13.50 ext{rad}}$

11) Maximum Velocity of Follower on Return Stroke when Follower Moves with SHM

 $\left| \mathbf{V}_{\mathrm{m}} = rac{\pi \cdot \mathbf{S} \cdot \mathbf{\omega}}{2 \cdot \mathbf{ heta}_{\mathrm{R}}}
ight|$

Open Calculator



Variables Used

- 2α Total Angle of Action of Cam (Radian)
- R Radius of Circular Flank (Meter)
- r₁ Radius of The Base Circle (Meter)
- r_r Radius of Roller (Meter)
- **S** Stroke of Follower (Meter)
- to Time Required For The Outstroke (Second)
- t_R Time Required For The Return Stroke (Second)
- V_m Maximum Velocity of Follower (Meter per Second)
- θ_Ω Angular Displacement of Cam During Out Stroke (Radian)
- θ_R Angular Displacement of Cam During Return Stroke (Radian)
- • Angle Turned By The Cam For Contact of Roller (Radian)
- ω Angular Velocity of Cam (Radian per Second)





Constants, Functions, Measurements used

- Constant: pi, 3.14159265358979323846264338327950288
 Archimedes' constant
- Function: cos, cos(Angle)
 Cosine of an angle is the ratio of the side adjacent to the angle to the hypotenuse of the triangle.
- Function: sin, sin(Angle)

 Sine is a trigonometric function that describes the ratio of the length of the opposite side of a right triangle to the length of the hypotenuse.
- Measurement: Length in Meter (m)
 Length Unit Conversion
- Measurement: Time in Second (s)

 Time Unit Conversion
- Measurement: Speed in Meter per Second (m/s)
 Speed Unit Conversion
- Measurement: Angle in Radian (rad)
 Angle Unit Conversion
- Measurement: Angular Velocity in Radian per Second (rad/s)
 Angular Velocity Unit Conversion





Check other formula lists

- Acceleration of the Follower Formulas
- Maximum Velocity of the Follower Formulas
- Cam and Follower Formulas

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