No. 008 | How to use Yamawa's cutting speed recommendations for taps | How to use

【Question】

How can I calculate the revolutions per minute (RPM) of a tap if I know the recommended cutting speed?
-Spiral fluted tap M12 X 1.75
-I'm using the recommended cutting speed of 7m/min or 23 SFM.

【Answer】

You can calculate revolutions per minute (RPM) from the recommended MPM by using a simple formula.

<Calculate "n" when "Vc" is given>

$$n = \frac{1000 \cdot Vc}{\pi \cdot Dc} \left(min^{-1} \right)$$

Vc : Tapping speed (m/min.)
Dc : Outside diameter of the tap (mm)
π : 3.14
n : Revolutions per minute (RPM)

To calculate the Revolutions Per Minute (RPM) of the M12 X 1.75 spiral fluted tap above with a speed recommendation of 7 meters per minute use the following:

(1000 X 7m/min) ÷ (3.14 X 12mm) = 7000 ÷37.68 =185.77 RPM

The ideal revolutions per minute (RPM) for the machinery with a M12 tap at 7 meters per minute is 186 RPM.

<Calculate "Vc" when "n" is given>

$$Vc = \frac{\pi \cdot Dc \cdot n}{1000} (m/min)$$

Vc : Tapping speed (m/min.)
Dc : Outside diameter of the tap (mm)
π : 3.14
n : Revolutions Per minute (RPM)

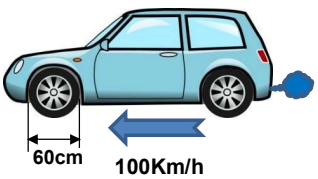
How to calculate tapping speed Vc (m/min) using the same information shown above:

The tapping speed of a M12 X 1.75 spiral flute tap at 186 RPM's is:

(3.14 X 12 mm X 186 RPM) ÷(1000) = 7.008 MPM (Meters Per Minute).

You will need the following information to calculate the conversion of cutting speed MPM to RPM.

You will need the same information to convert RPM to MPM.
Dc (Outside diameter of the tap): Shown in mm.
Vc (tapping speed) : In Meters Per Minute (MPM).
1m = 1000 mm.
m/min: Meter Per Minutes.



Take this challenge to see what you've learned

Use the following to calculate the RPM of an automobile tire;

Diameter of car tire: 60 cm

Driving speed: 100 km/h

Dc = 60 cm = 600 mm

Vc = 100km = 100,000m

Remember this?

$$Vc = \frac{\pi \cdot Dc \cdot n}{1000} (m/min)$$

$$\frac{\text{Time 1 hour = 60 minutes}}{\text{1,000 X 100,000m}} \div 60 \text{ minutes} = 884 \text{ RPM}$$
$$\text{3.14 X 600 mm}$$