

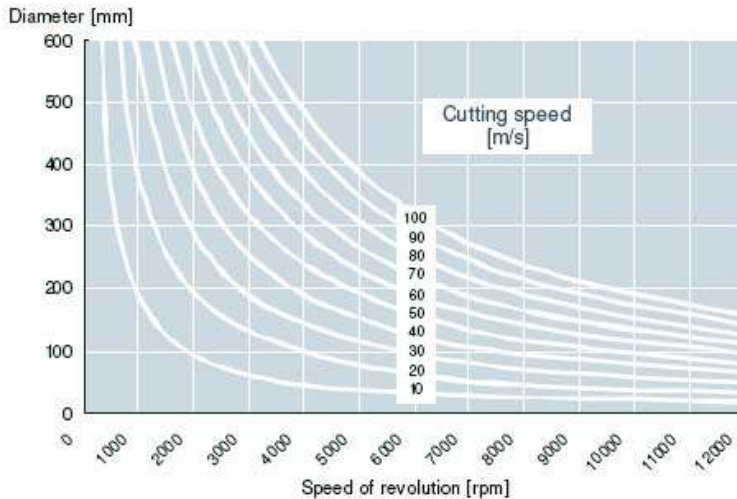
SPEEDS & FEEDS

CUTTING SPEED



Generally you should choose a blade with the smallest diameter possible (to maximize the stability) and the smallest kerf possible. At the same time the diameter must be adapted to the machine's speed of revolution to receive the most suitable cutting speed (if the speed of the machine is non-adjustable).

Carbide tipped saw blades require relatively high cutting speeds. The recommended speed for working in wood-based materials is about 70 m/sec.



$$\text{Cutting speed} = \frac{\text{Diameter} \cdot \text{RPM} \cdot \pi}{60 \cdot 1000}$$

$$[\text{M/sec}] = \frac{[\text{mm}] \cdot [\text{rpm}] \cdot \pi}{60 \cdot 1000}$$

Material	Cutting speed [m/sec]
Wood: cross-cutting	50-80
ripping dry	60-100
ripping green	60-100
saw mill	60-100
Veneered and laminated board	60-80
Fibre board	70-80
Plaster- and chipboard, plywood	50-80
Veneers, cardboard rolls (tubes)	50-80
Hard plastic	50-75
Plexiglas, PVC, bakelite	50-85
Plastic laminates	50-75
Soft plastics	15-50
Aluminium	60-80
Copper	50-70
Brass	50-70
Light concrete	40-60
Steel (not hardened - mild)	5-30

FEED PER TOOTH



To optimize the saw blade's service life and cutting performance the usage of a correct feed per tooth is required. Too low feed speed cause rapid wear of the cutting edge. Too fast feed speed on the other hand could cause teeth to break (as a result of lacking chip pocket volume).

The table shows the recommended feed per tooth for different materials.

You can calculate the feed per tooth using the formula below.

$$\text{Feed per tooth} = \frac{\text{Feed speed} \cdot 1000}{\text{Speed of revolution} \cdot \text{no. of teeth}}$$

$$[\text{mm}] = \frac{[\text{m/min}] \cdot 1000}{[\text{rpm}] \cdot z}$$

Material	Feed per tooth [mm]
Wood: cross-cutting	0,10-0,35
ripping dry	0,10-0,20
ripping green	0,20-0,80
saw mill	0,70-1,50
saw mill*	0,80-2,50
Veneered and laminated board	0,05-0,12
Fibre board	0,08-0,25
Plaster- and chipboard, plywood	0,08-0,25
Veneers, cardboard rolls (tubes)	0,08-0,25
Hard plastic	0,05-0,12
Plexiglas, PVC, bakelite	0,05-0,12
Plastic laminates	0,03-0,06
Soft plastics	0,05-0,08
Aluminium	0,02-0,05
Copper	0,03-0,08
Brass	0,03-0,08
Steel (not hardened - mild)	0,01-0,03

GULLET FEED INDEX

If the feed per tooth is very high the gullet volume needs to be calculated. A small gullet volume leads to an increased risk of cracks. We have developed a Microsoft Excel program for calculating the gullet volume along with other saw data. Contact Swedex technical sales people or one of Swedex resellers for assistance.

