

Embossable Film

Avery Dennison Embossable Film is optimized for flat bed embossing processes. Rotary emboss processes can be used but does not provide the emboss definition quality of flat bed. Embossable Film should be used against a PET liner to allow higher emboss pressures to be used when processing. Paper liners can still be used but run the risk of bursting at higher pressures. For successful embossing, a combination of sufficient dwell time, heat and pressure is required to optimize the emboss effect. No specific die configuration is required – paper dies work well.

Tooling set-up

Set up of the die is critical to achieve good levels of emboss and definition. Embossing equipment may vary, however during die set up there will almost always be a male and female tooling die with the female die backed up with either a soft or hard backing material. The backing material is critical to the outcome of the emboss quality, fine text, large solid areas, intricate designs etc. This all needs to be taken into consideration when choosing the backing material which is positioned underneath the female tooling die. Tooling - male and female: one die is normally an epoxy resin or plastic based material and the corresponding die is generally metallic, normally either brass, copper or magnesium alloy; typically, brass is better for heat transfer and is more common. Backing material can be made of many different materials; typically, hard and soft rubbers are used but PET and other plastics etc. can also be used. In some cases, different pieces of backing material can be placed under certain image areas in order to increase the pressure in specific areas of the design to enhance the finished emboss result.

Machine set-up

All of the following are general guidelines; optimization of the emboss parameters will need to be carried out to achieve the correct emboss depth & definition and will probably be design dependent to a certain degree.

- Flatbed heat embossing temperatures: 140°F - 248°F (with foil 212°F - 284°F)
- Flatbed speed 40 – 80 m/min (typically 40/50 m/min)
- Flatbed dwell time is measured in Milliseconds (typically 0.8 msec)
- Pressure should always be measured in SPS (strokes per second), typically 8.5 SPS ~ 30,000 SPH (strokes per hour). This is critical as there is a 500 kg solid block that delivers the SPS; the longer the SPS the potential of a deeper emboss.
- Backing Plate- Hard/Medium/Soft (different results on different material)

Further adjustment and optimisation will be required when using a foil as part of the emboss process.