



Warm Punching of Floor Tiles

Vinyl Floor Tile Manufacturing

Q

Question

How is the quality of embossed floor tile controlled using thermal profiles and images?



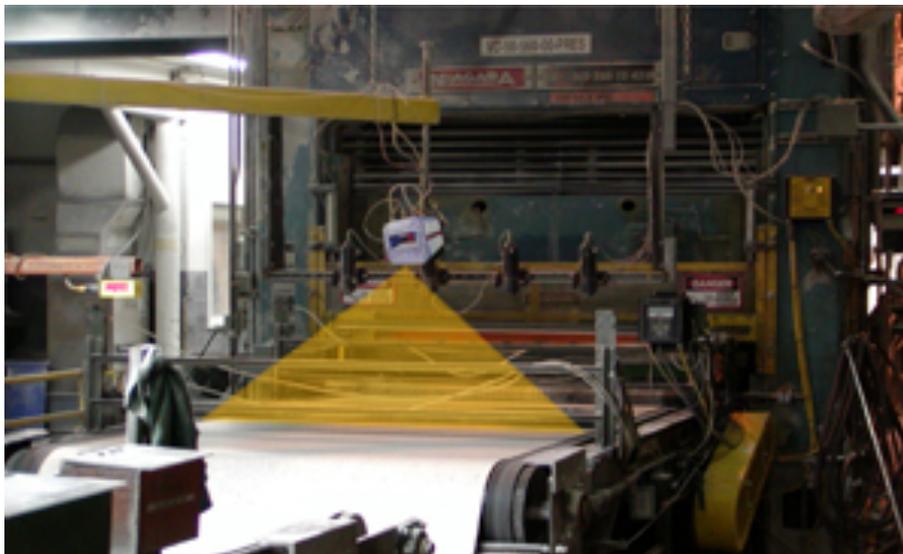
A

Answer

Situation Analysis

Every vinyl floor tile manufacturer has a similar process for punching material that cuts the tile into the size and shape desired. Before being punched, the sheet has to be heated uniformly across the entire web. Because the punched parts cool to the desired size, it is absolutely necessary for the temperature to be uniform across the entire web or the tiles will cool and shrink into different sizes. If hot spots or cold spots are detected, then the operator can quickly solve the problem and prevent scrap from being made.

- Measurement Temperature Range: 40-200°C (104-392°F)
- Process Speed: 30-48m/min (98-157ft/min)
- Distance to Measurement Target: 75-100cm (30-40inches)



A

Answer

Solution and Improvements

The system to use is the Ircan Scan IR II model S251 linescanner. Hot and cold spots across the sheet can easily be detected and identified by setting up as many as 10 spots across the sheet. Within the spot, an alarm can be set for both hot and cold spots. The software not only provides alarms, but also archives and save the image of the defective part. The software can also provide a linear output to control heater zones in the oven for to improve temperature control and prevent any hot or cold spots from occurring.

The Scan IR II has remote focusing and automatic edge detection to be able to follow the strip anywhere on the line. It provides as many as 5000 samples on each scan, so even the smallest hot or cold spot can be detected. The software provides 2D images, line profiles and the ability to set up menus for quick process change due to variations in tile thickness and type.

Spot instruments can miss small hot and cold spots and do not have the capability of providing temperature profiles or images.

Ircon Product

ScanIR II
Model S251- 08F07-1-0-2 or
Model S251-04C07-1-0-2

Accessories

- S2APOHD Air purge
- S2BHAHD AIR BLOWER
- S2AHHD AIR HOSE

Benefits

- Improved Quality
- Automatic Temperature Control
- Reduced Scrap
- Reduced Fuel for Heating
- Faster Process Changes