The Benefit of Joint Heaters for Airport Asphalt Surface Construction

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Introduction

• Joints in asphalt construction
  • Hot, Warm, Cold
  • Reduced density
  • Often the first defects
• Joint heater to reheat the first lane
• Quantify the benefit in poor conditions

Runways are usually 45m or 60m wide
Pavers usually operate 3.75m or 4.5m wide
Typically 8 to 12 joints across a runway
Night work usually resurfaces 80-150m long sections
Typically 15-60 joints between shifts
Joints are the weak link in the surface
  – Lower density
  – Prone to opening (cracking)
Joints in asphalt

Two pavers in good conditions

LOT 1

LOT 2

LOT 3
Joints in asphalt

One paver in cool/windy conditions

LOT 1

LOT 2

LOT 3
Joints in asphalt

Cold

Warm

Hot
Enter the joint heater

- Gas fueled
- Infrared radiators
- 4-8 heating units
- Paver mounted
- Alignment/offset adjusted
- Not ‘blue flame torches’
Challenging conditions

![Diagrams showing temperature and wind speed under different conditions.](image-url)
Joint heater efficiency

![Joint heater temperature comparison](image)

- **Before reheating**
- **After reheating**
Effect on Mat Air Voids

- 4.8% without heater
- 5.0% with heater

Higher voids without the heater
Due to weather
Effect on Joint Air Voids

6.0% without heater
5.4% with heater
Lower voids with heater
Despite the weather
With less rolling
Effect of the heater
Effect on Joint Appearance

Without heater

With heater
Conclusions

• Joints are critical to airports
• Joint heater reheats efficiently
• Significantly reduced joint voids
• Improved visual joint conditions
• Allows paving in poor conditions
• Remove all ‘warm’ joints
• Must be raised when stationary
Thanks for your attention