



THE
AIR NOZZLE
PEOPLE

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Case Study

HOT GLUE NOT STICKING SOLUTION



Getting glue to rapidly stick is sometimes a problem in fast production lines. The glue needs to be kept relatively warm when applied to avoid it becoming too viscous. In many fast production lines it will have very little time to set. Cooling the glue to aid setting is, therefore, a priority. Sometimes, however, when production runs change additional and unanticipated cooling will be required to avoid poor glue adhesion.

► PROBLEM:

A large manufacturer of toothpaste was experiencing problems on their packing line. On some products glue being applied to stick the outer cardboard casing was not adhering properly. This was causing rhomboid cartons which created issues further down the product line.

Cooling the glue to help it stick faster was thought to be inadequate so another method of cooling was called for.

► SITUATION:

The packaging line was moving very fast with some 400 cartons per minute. The area distance between the glue application point was only 20 cm. So the opportunity for cooling was limited as the dwell time in any cooling system was well under one second.

The current cooling system consisted of water cooled metal plates situated between the glue application point and the folding point that moved the card boards together. This provided only limited cooling given the short dwell time.

A further problem was the fact that any cooling system would need to be retro fitted into the existing machine so space was limited.





WHY CHOOSE ANP FOR YOUR MANUFACTURING INDUSTRY NOZZLE NEEDS?

- The ability to solve unique and complex process challenges
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Solution

The Vortex Tube spot cooler proved to be the ideal solution. The small size of the tube and the fact that it requires no external power source meant that it could be easily retro fitted in the existing machine with minimal disruption.

The cooler could be directed to exactly where it was needed and achieve very cold air flows as low as minus 40 degrees C, but in this case only minus 10 degrees was required to achieve the desired results.

A further benefit of the vortex tube was that it could be turned off and on instantly via a solenoid valve, producing instant cooling with no time lag or build up time.

Finally, the low cost of the Vortex Tube cooler meant that the budget worries were mitigated.

CHALLENGES

- ▶ Space was very limited
- ▶ Speed - rapid cooling was required
- ▶ Cost - budget constraints meant the solution could not be costly

The resulting cooling system was very easy to retrofit in to the production line, unlike other chiller systems which were considered. When connected to a solenoid valve the system was fully automated. The adjustable nature of the vortex tube meant, after some calibration work, the air consumption could be minimised and adjusted easily for different product runs.

Vortex tube spot coolers are suitable for many applications including

- ▶ DRY TOOL COOLING
- ▶ PANEL / CABINET COOLING
- ▶ SPOT COOLING
- ▶ EXTRUSION COOLING

ADVANTAGES OF THE VORTEX TUBE SPOT COOLER

- Low capital expenditure
- Maintenance free
- Incredibly reliable
- Easy to retro fit
- Uses dry compressed air