



asycold CO.,
LTD.

Comparison between
Eutectic plates with remote unit
and
Conventional blown air type with
electric stand-by

based on a pick-up box



Pick-up box for Isuzu Spark

What is the principle ?

Eutectics:

- At night the truck is plugged into an electric outlet
- Energy is stored in cold plates (eutectics) inside the truck at -33°C
- During operation, cold is returned to the box by the plates slowly thawing
- At the end of the round, temperature inside the box is still compatible with frozen transportation

Blown air type:

- The truck's engine drives a compressor
- Fans blow cold air into the box
- If fans shut down, no cold
- Optional electric stand-by unit

Purchasing and Operating Costs

Eutectics:

- Lower investment
- Electricity only, limited consumption (no fans)
- Almost no maintenance cost

Blown air type:

- Increased fuel consumption, or high electric cost (fan motors)
- Maintenance and repair cost (moving parts)
- 2 systems to maintain (engine drive + electric)



Eutectic Plates for pick-up box

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Ease of Operation

Eutectics:

- Up to 4 side doors
- Possible compartments
- Full operation with engine shut down and no power plug
- Curtains optional
- No driver involvement during operations
- Implies return to base

Blown air:

- 1 or 2 side doors
- Access more difficult
- Need either running engine or power plug
- Curtains necessary
- Driver must monitor unit operation
- Totally autonomous vehicle

Typical day-route operation

Eutectics:

- Up to 50 drops on a route without problem
- European choice for ice-cream delivery and delivery of Internet retail sales
- Nothing to do during loading / unloading
- Plug upon return to base
- Stay plugged at night and can load just before leaving

Blown type:

- Limited number of drops before unit shut down for defrosting
- Engine / unit operating when driving.
- Shut the engine / unit during unloading
- Start again when doors close.
- Shut down during the night.
- Pull down in the early morning before loading



Quick coupling system

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Quality of Cold

Eutectics:

- - 33 ° C
- Dry cold, no air intake
- Stable temperature
- No air flow, uniform cold
- Walls stay cold all week

Blown air type:

- -18 to -25 ° C
- Risk of repeated defrosting cycles due to frequent door openings
- Important variations of temperature, risk of temporary passage above safe temperature
- Must ensure air flow reaches all parts
- Must pull down every day before loading

Wear and Maintenance

Eutectics:

- Plate defrosting once a week
- In case of remote unit, Condensor Unit stays protected at site: no dust, no vibrations
- Maintenance possible during truck operation
- Easy body swap
- No need to modify the truck engine

Blown air type:

- Maintenance every week
- Possible issues due to compressor in the engine compartment
- Condensor exposed to weather, projections, vibrations, accidents
- Whole truck stopped during unit repairs
- Complex swap process

Environment

Eutectics:

- Totally **silent** during operations
- Electricity only
- Closed circuit, no refrigerant leakage
- Longer life cycle

Blown air type:

- Noise of fan motors, plus truck engine
- Increased fuel consumption
- More risk of leakage with piping and hoses in engine compartment