



NELUMBOX



Unibator
enabling innovation.



Goethe University
Business Incubator
Frankfurt am Main



Gefördert durch:



Bundesministerium
für Wirtschaft
und Energie

aufgrund eines Beschlusses
des Deutschen Bundestages



Zusammen.
Zukunft.
Gestalten.



TECHNISCHE
UNIVERSITÄT
DARMSTADT





Our Question:

**How can temperature sensitive drugs
be transported safely?**



Cold chain logistics is facing

... major **problems**



560.000.000 Euro of **damage**
due to temperature excursions



high logistics **cost** and rising
complexity of logistic routes



packaging **waste** and disposal

... and major **trends**:



rise of **temperature sensitive
drugs**



rising regulations due to the GDP, GSP
and FDA



direct-to-patient delivery



Why won't these...

...**problems** be solved



Packaging and logistic **errors**, missing warning functions, no cooling control intervention



Elaborated **pre-conditioning** and complex logistic procedures



Mainly **single-use** box and logging solutions

... and **trends** be matched?



No tracking or insufficient tracking via external logger



Qualification only through "**risk profiles**"



No appropriate and **save** storing solution at the patients home



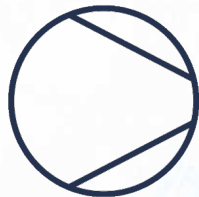
Question:

**Why is there no active solution
on the market yet?**



Two **technological** reasons

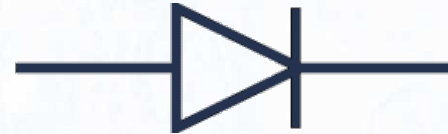
1. *Compressor cooling*



→ Not position independent

→ High installation space

2. *Thermoelectric cooling*

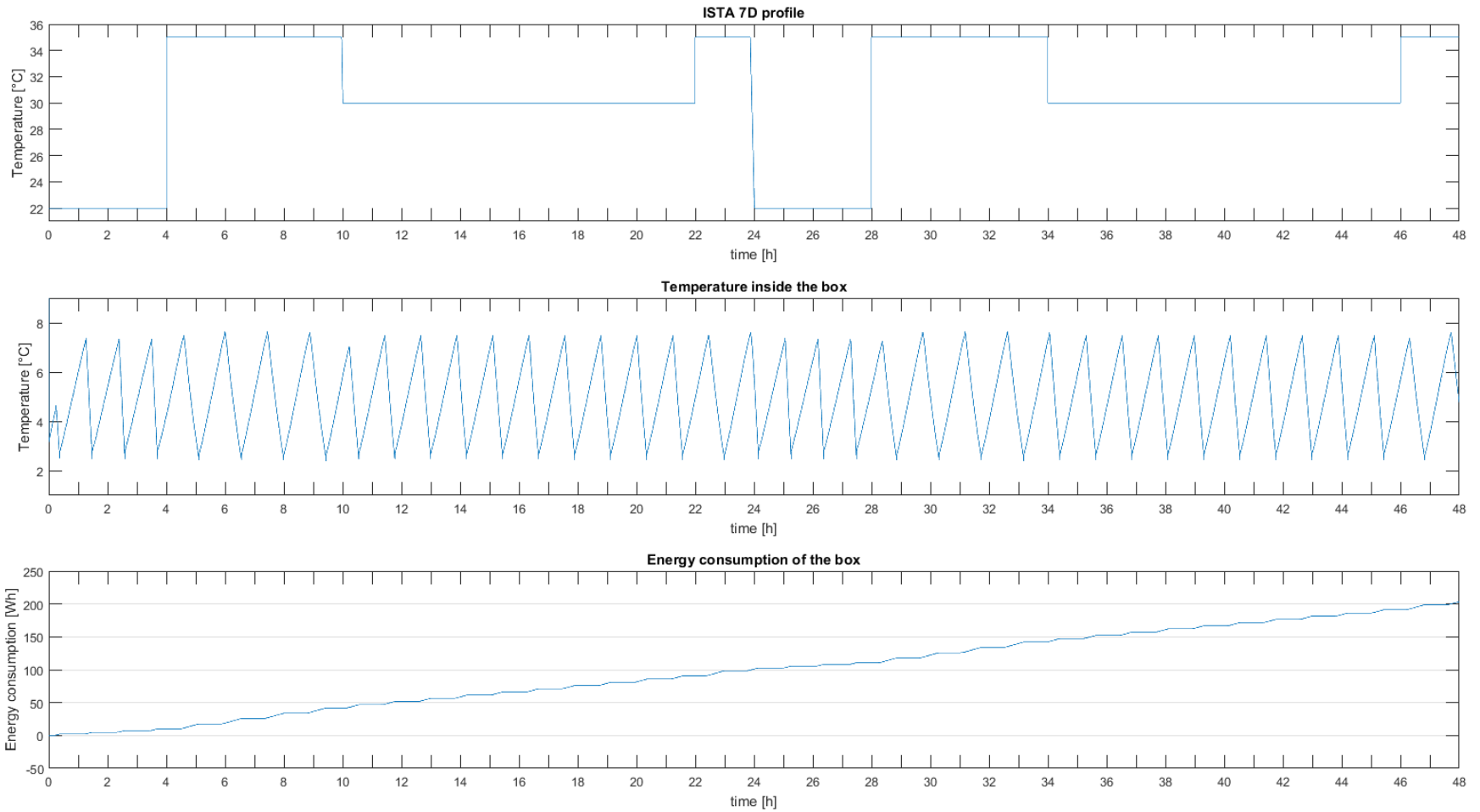


→ Energy-inefficient

→ Very low, yet unacceptable runtime and weight



Smart-Insulation-Technology:





no **ice-packs**

- ✓ 20% **weight reduction**
- ✓ no **pre-conditioning**
- ✓ no **cold storage**
- ✓ no **packaging error**

All-In-One System Solution



no **data loggers**

- ✓ no **measuring errors**
- ✓ **process optimization**
- ✓ **cost reduction**
- ✓ high **flexibility**
- ✓ no **packaging waste**
- ✓ high **robustness**
- ✓ cost reduction
- ✓ **CO2 impact**



reusable



The **perfect transport solution** for ...

- pharmaceuticals (clinical trial / pharma retail)
- „direct-to-services“
- samples for research & development
- blood & doping tests
- corneas to hospitals for transplants
- cytostatics
- tissue for research & development
- surgical sealant
- bloodbanks & plasma collection
- specimen

... and thus **our customers:**

- pharma logistics providers
- clinical research organizations (CRO)
- sponsors
- on-board-couriers
- clinical supply managers (CSM)
- pharma contract manufacturers
- laboratories
- clinics
- bloodbanks
- aid workers



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Introducing active cooling to last-mile
pharma logistics:
Nelumbbox pro – **Simple. Smart. Secure.**



Kontakt

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