



CONTINUOUS DIRECT STEAM INJECTION HEATING

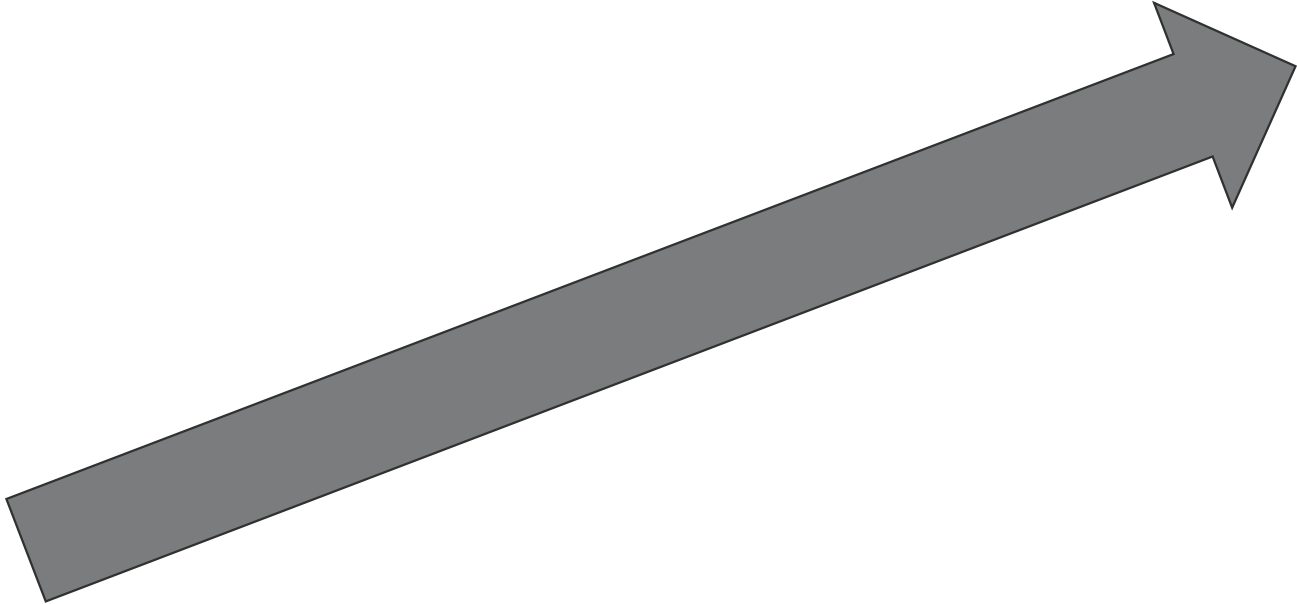
A NEW EFFICIENT PROCESS TO PRODUCE HIGH QUALITY PETFOOD

» www.natec-network.com

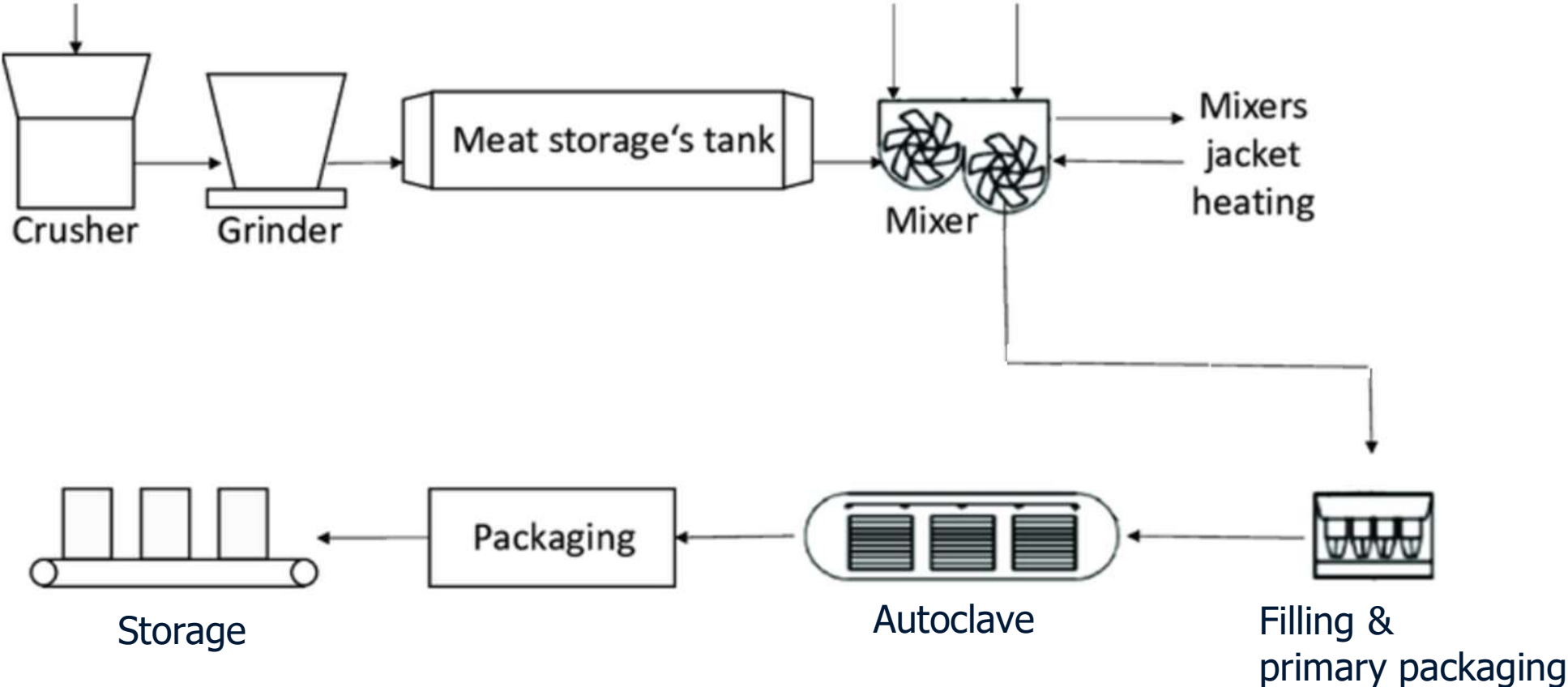
WORLD UPSIDE DOWN



THE PETFOOD STORY AT NATEC



TRADITIONAL PROCESS PATÉ



TRADITIONAL PROCESS PATÉ



Autoclave facts:

- *Safe product*
- *Long shelf life*
- *Proven technology > 100 years*
- *Annual validation required*
- *Large floor space requirements*
- *Batch systems very common – high handling effort*
- *Less than 55% heat efficiency*
- *Uneven heat distribution within package*



PETFOOD MARKET REQUIREMENTS



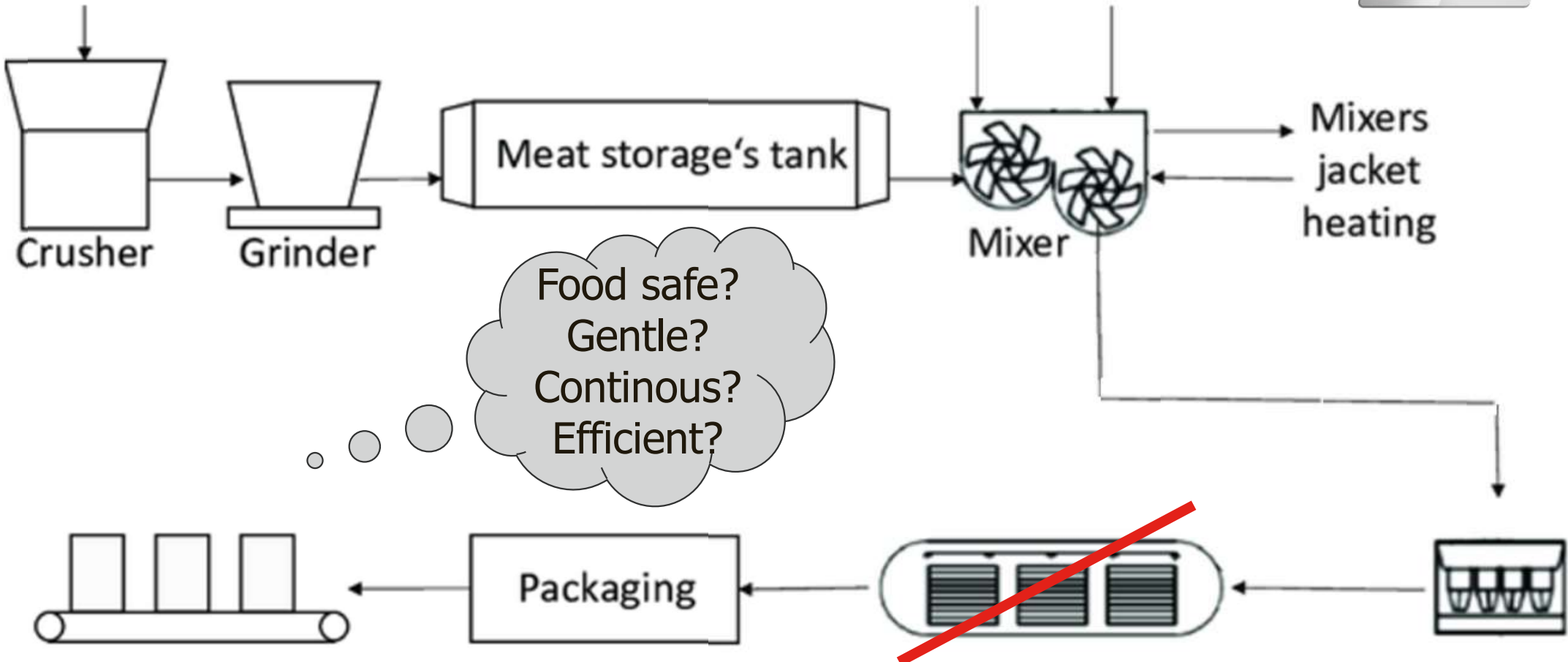
- *Shelf life = < 2 years in Europe*
- *Nutrition: Meeting FEDIAF guidelines*
- *Competitive formulation*
- *Competitive packaging*
- *„The bowl is empty and the fur is shiny“*



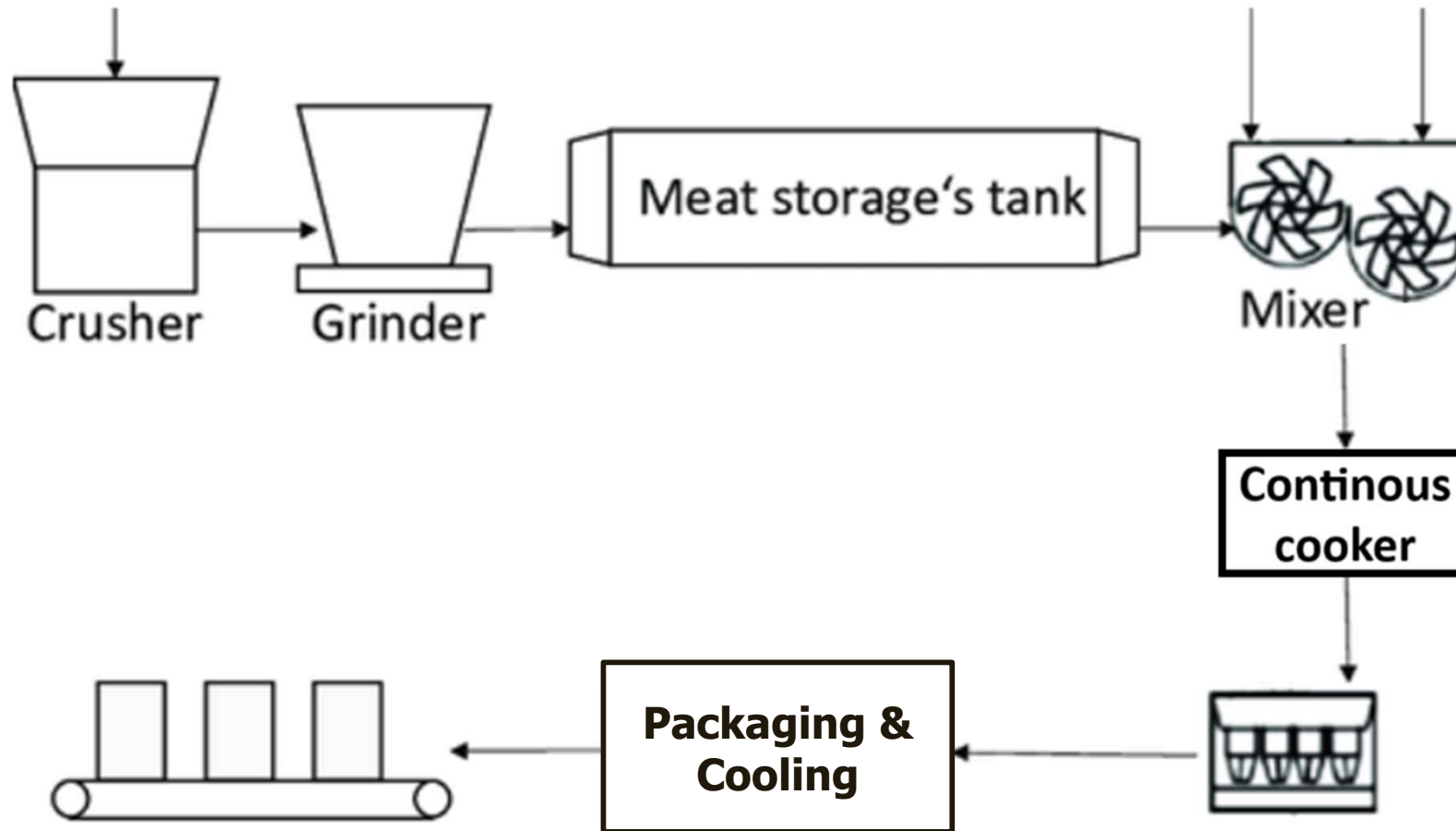
WHAT IF WE WOULD DESIGN A NEW PROCESS?



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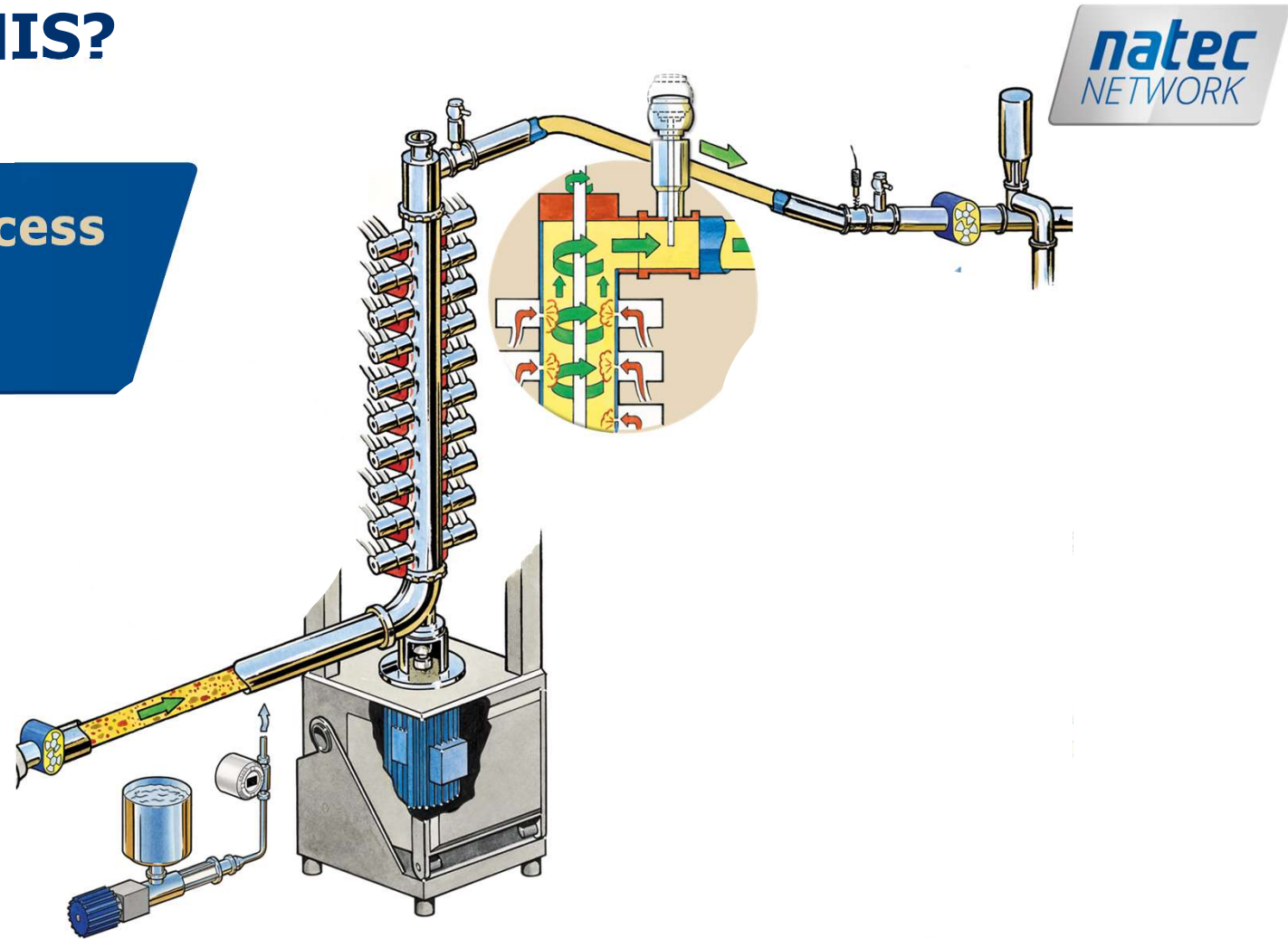


WHAT ABOUT THIS?



WHAT ABOUT THIS?

Core of a new process

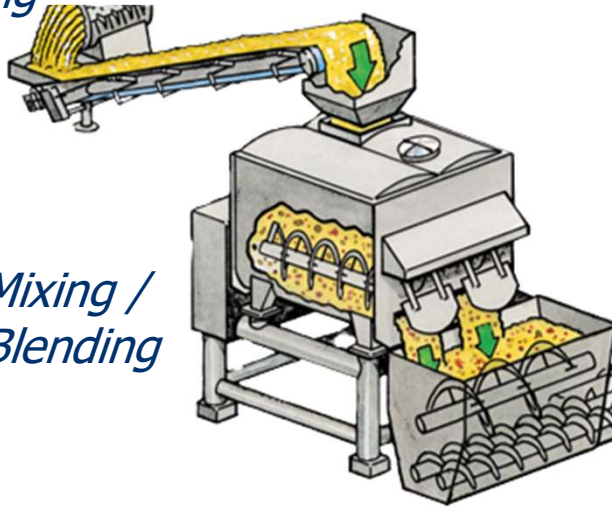


defined holding pipe for relevant F-value.
(e.g. F15 to F25)



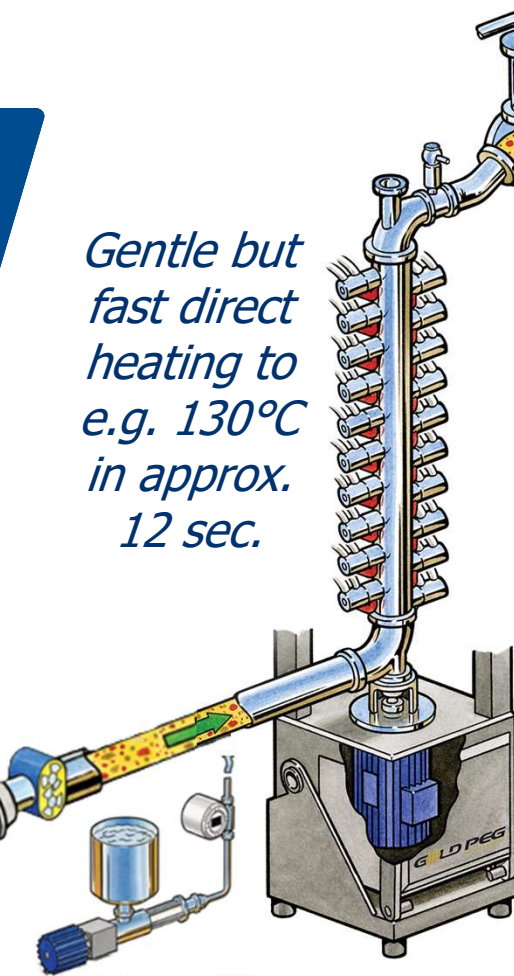
PROCESS OVERVIEW PET FOOD

grinding

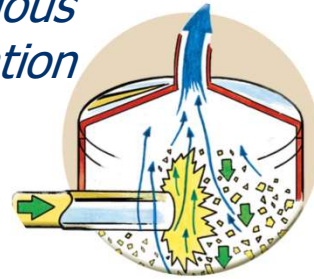


Mixing /
Blending

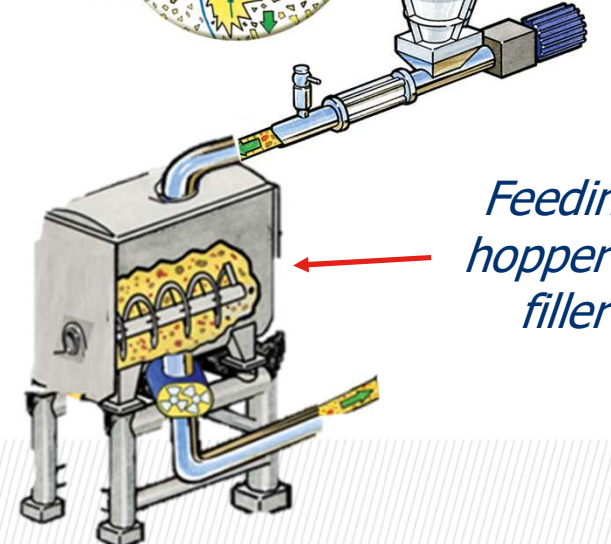
Gentle but
fast direct
heating to
e.g. 130°C
in approx.
12 sec.



Continuous
de-aeration



Feeding
hopper to
filler



ALL PACKAGING POSSIBLE



Pre – requisite:

- Heat stable for hot fill (85-90°C)
- Recontamination avoided
 - Via laminar flow cage with HEPA C filter
 - Pre-treatment of packaging material



CHUBS

- » Very common in Australia
- » Typically shelf life refrigerated with 3 months
- » 2 Natec Systems installed



Pouch

- » Growing market share
- » Convenient
- » Limited in pack size



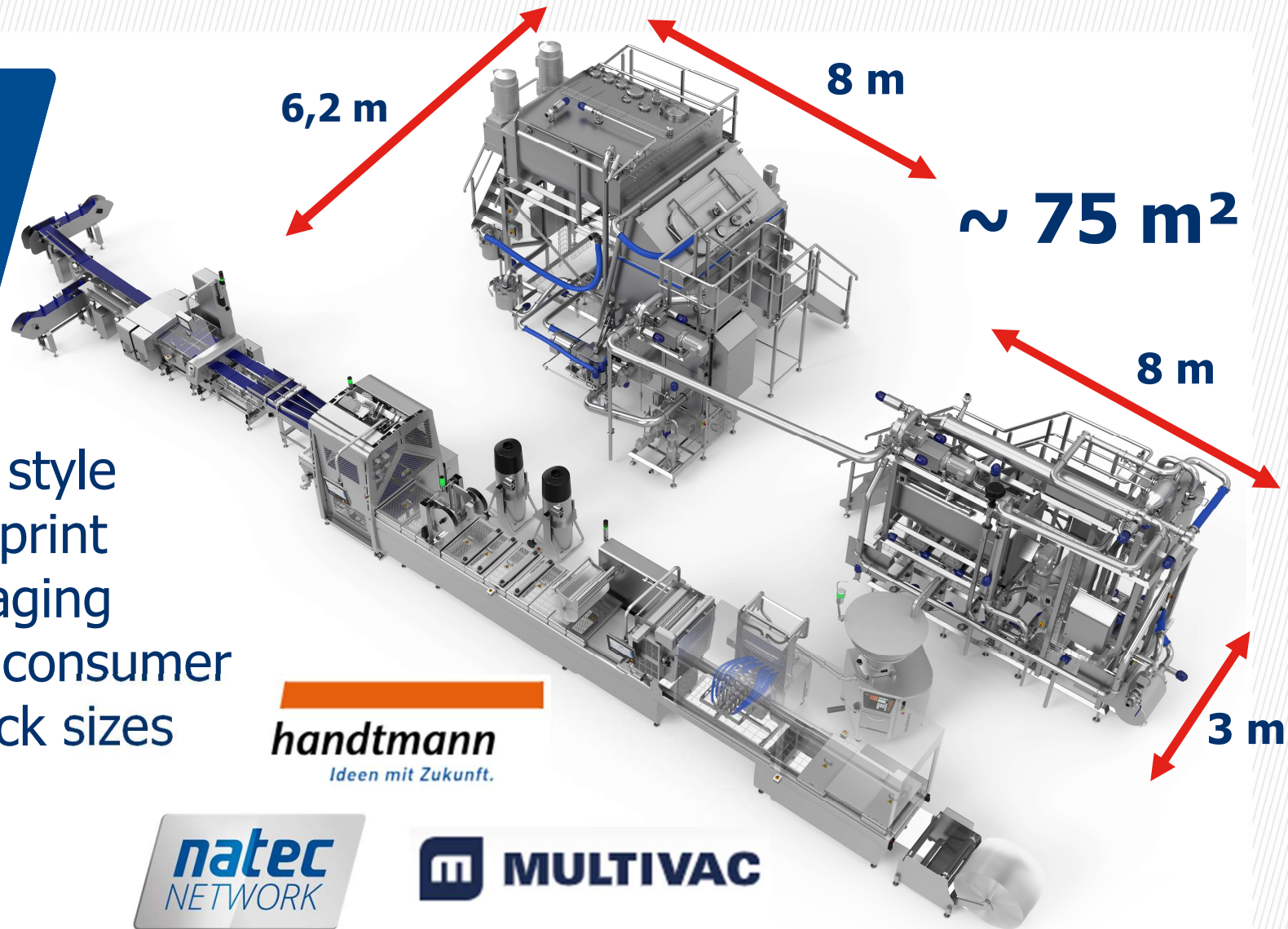
CAN

- » Classic
- » High market share in Europe
- » 100% recyclable
- » High CO2 foot print



Thermoformed Pack

- » New packaging style
- » Good CO2 foot print
- » Economic packaging
- » Easy to use for consumer
- » Big range of pack sizes



PROCESS AND PRODUCT R&D



Key questions

- » Formulation
- » Acceptance / Preference
- » Shelf Life



FORMULATION TEST WITH



3rd party lab tests confirmed conformity to FEDIAF

ACCEPTANCE / PREFERENCE

- Preference test planned
- Performed by RPP – Cöster
- Please leave contact to receive result and see sample at Multivac booth



SHELF LIFE

Laboratory tests:



- Performed by
- Target: Fully preserved can - „Vollkonserve“

CASE STUDY: ENERGY SAVING



Equipment: 10 t/h RotaTherm cooking line for 10 t/h

Vs.

Equipment: 6 x 1600 steam-air autoclave (5 cages with 52 layers each) handling 10 t/h

Product: 2,2 t pouches (à 100g)

Setting: Temperature rise from 30-130°C

Stream: 682 kg to heat autoclave

Energy: 47 m³ of natural gas required to generate steam

Cost: 20,71 €/batch with 0,44 €/m³ natural gas



Assuming 10 t/h production for 24 h/day and 220 days/year

Annual production: 52.000 t/a

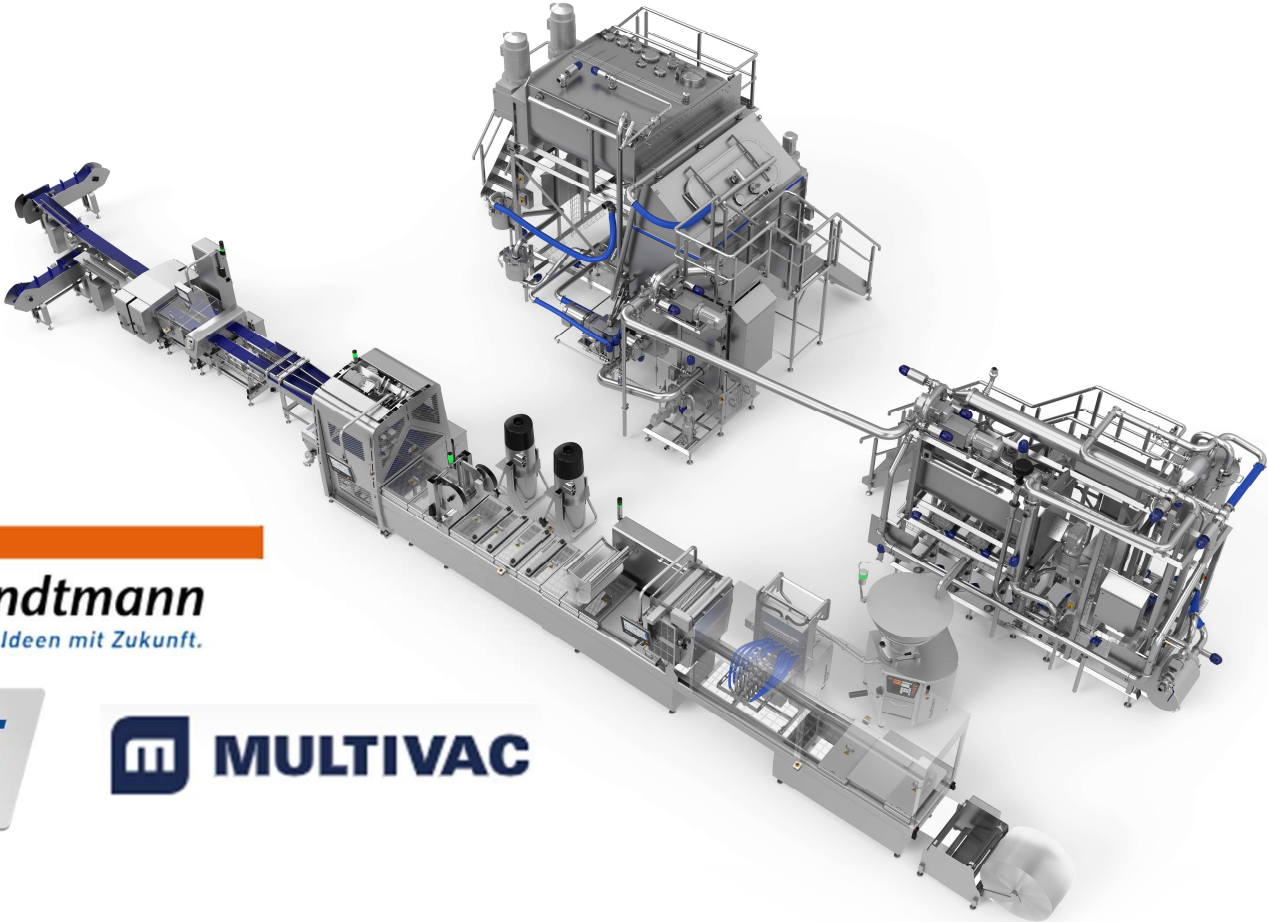
Batches per year: 24.176 batches/a

Energy cost: ~ 500.000 €

Potential saving with RotaTherm (=100% of steam heats product):

Energy cost autoclave x Efficiency autoclave 55% – 1 = 225.000 €/a

TEST RUN



handtmann
Ideen mit Zukunft.





OUTLOOK INTO FUTURE



INNOVATION FOR YOUR FUTURE



THANK YOU