



1. Exhibit Wet Pet Food

One flexible depositing system for mostly all kinds of application



Chunky



Chunky + jelly



Pasty



Pasty + chunky

One flexible depositing system for mostly all kinds of package



Thermoformed packages



Trays



Cans and Jars



Cups and beakers

2. Variety of packages

Handtmann DS 560 8 lane depositing into tins

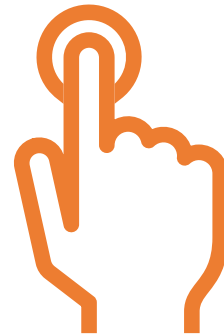
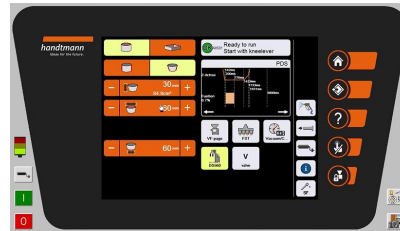


3. Types of packages and applications

Perfect package control thanks to servo driven vertical movement of the depositing valves



**Not optimal
filled
package**



**Improved
settings on
the HMI**



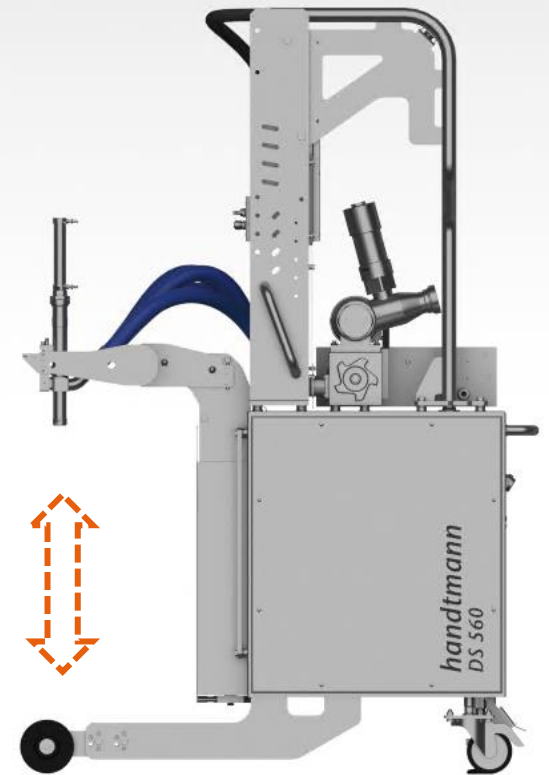
**Perfect
filled
package**

4. Line argumentation / easy setting and automatic machine adjusting



1.
Setting packaging
dimensions and
portion weight

2.
Automated vertical
traversing (height
and speed)



4. Line argumentation

a) Line control

Central control, evaluation and display with MULTIVAC Line Control

b) Handling

Central program switching

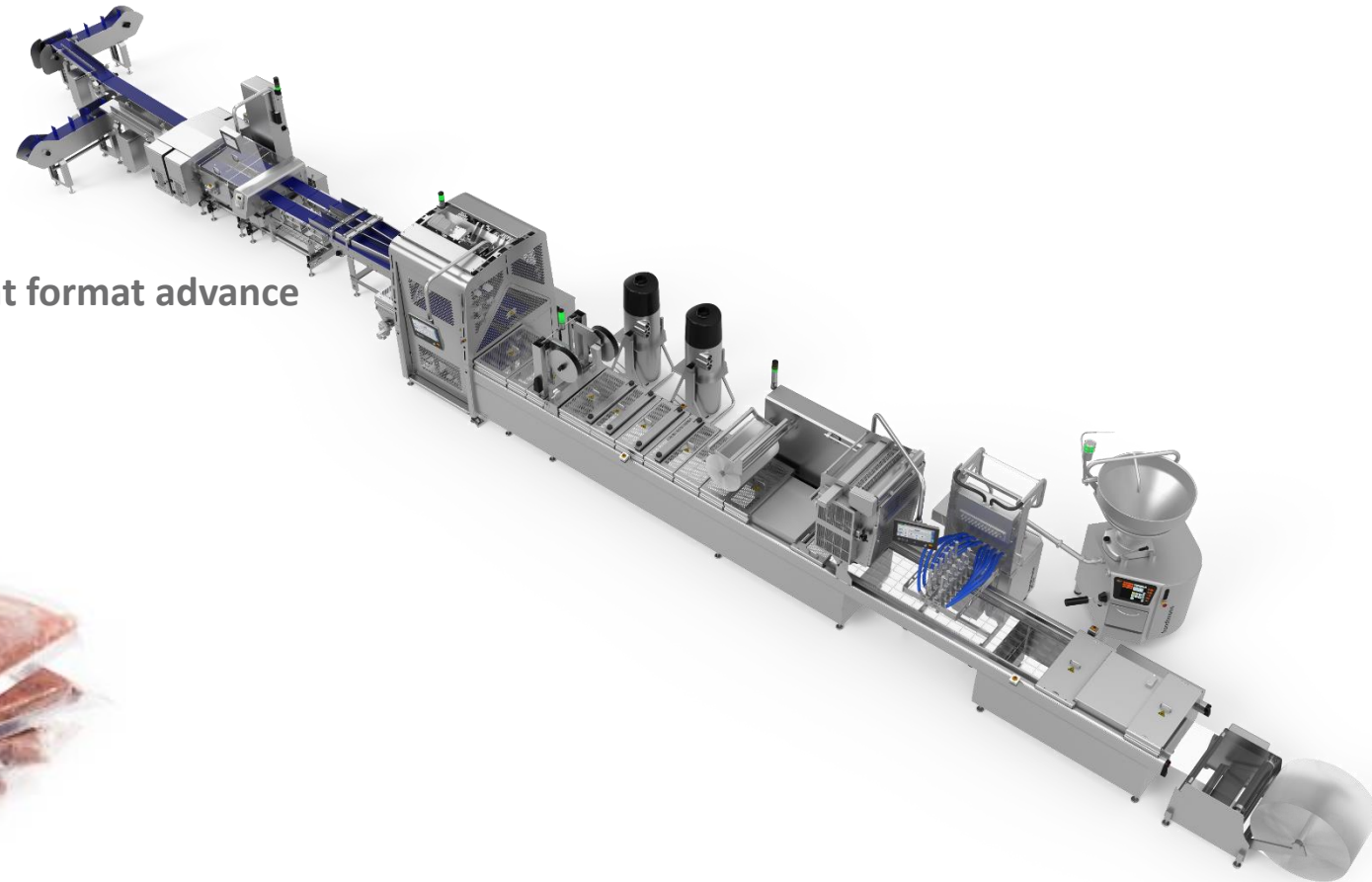
Overview of operating status and line stops

c) Efficiency

Optimized coordinated signal exchange, early depositing at format advance

d) Line concept

Matched safety, Line CE approval, defined interfaces



5. Specific arguments

a) Large possibility of long-term accurate portion weights

 Small portion packs only in a range of gram or big portions packs in a range of kg

b) Large possibility of processing and filling temperatures

 Hot filling up to 90 °C or extreme cold filling down to – 5 °C

c) Large possibility of product consistencies

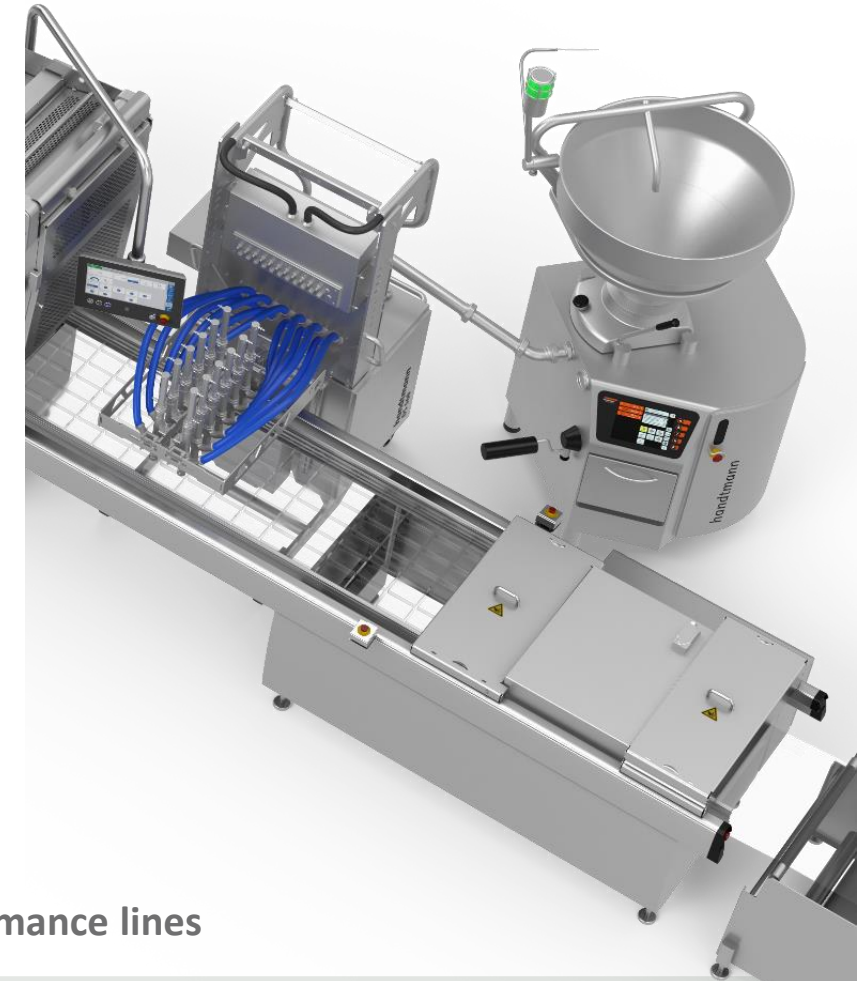
 Chunky products, liquid products, pasty products or liquid + chunky/pasty products

d) Large possibility of packing formats

 Up to 12 valves lengthwise the conveyor or transverse in different rows and tracks

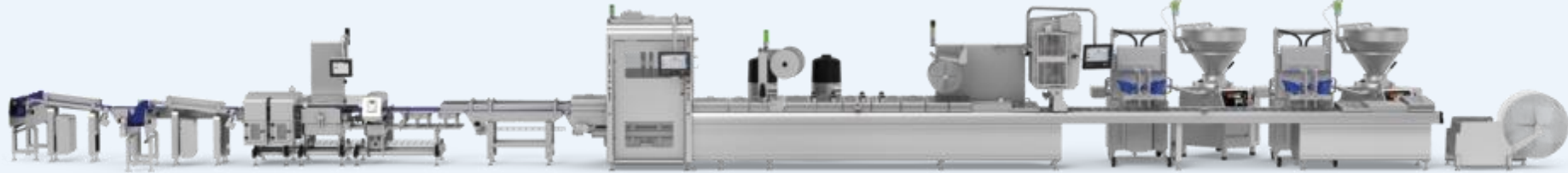
e) Large possibility of capacity and line performance

 Modular and scalable depositing and packaging solutions from medium to high performance lines





For small batches...



...up to maximum output

Food



Meat and sausage



Pet food



Poultry



Alternative Proteins



Cheese



Fruit & Vegetables



Pastries



Ready Meals



Fish and seafood



Snacks



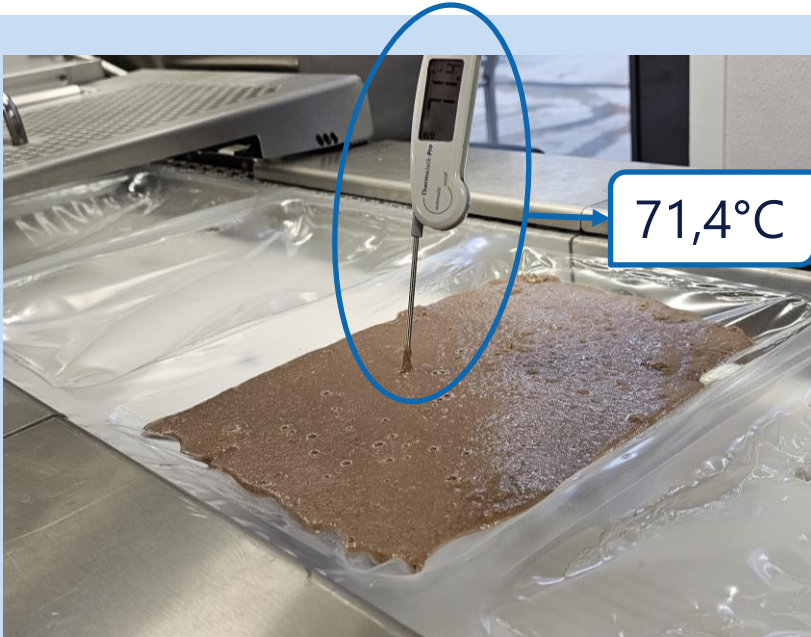


Pet Food on thermoformers

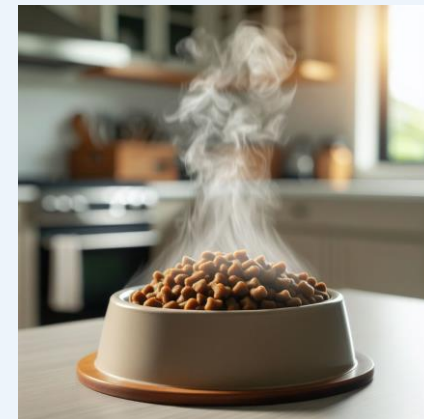




Thermoforming combines shelf-lives and product presentation

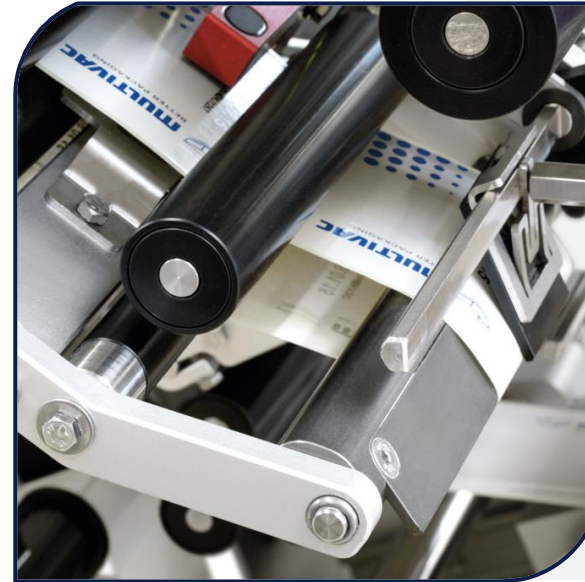


- Product presentation possibilities
- Good shelf-lives due to different packaging options
- Packaging of hot-filled products





MULTIVAC Marking & Inspection



Labeling

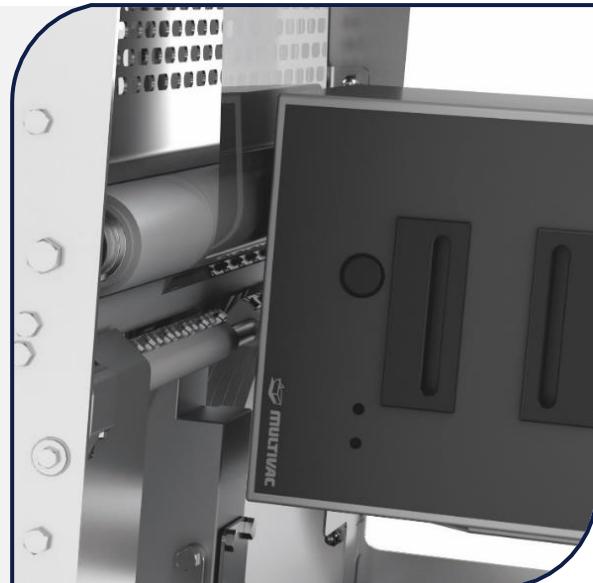
Integrated in the packaging machine

Stand-alone labeling for end-of-line

Printing

Directly on the film

On the label before application

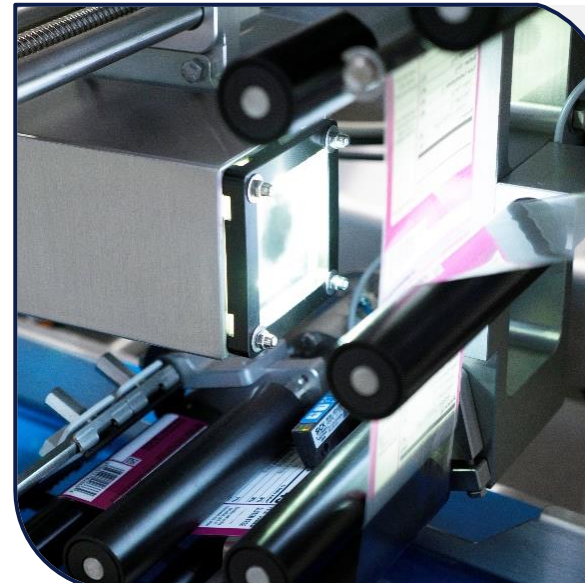


Inspection

Check weighing

Contamination inspection
e.g. metal detection

Optical inspection for print &
label verification



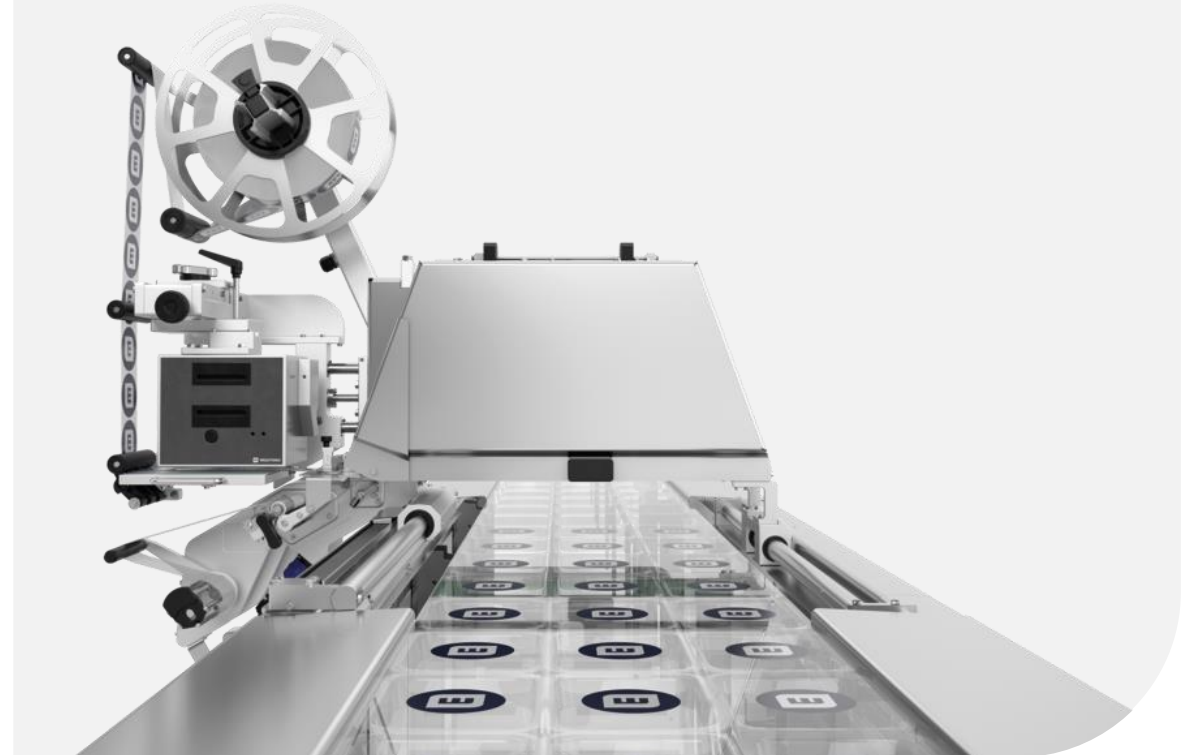


Printing

Printing directly on the film



Printing on the label before application





Labeling

Integrated in the packaging machine

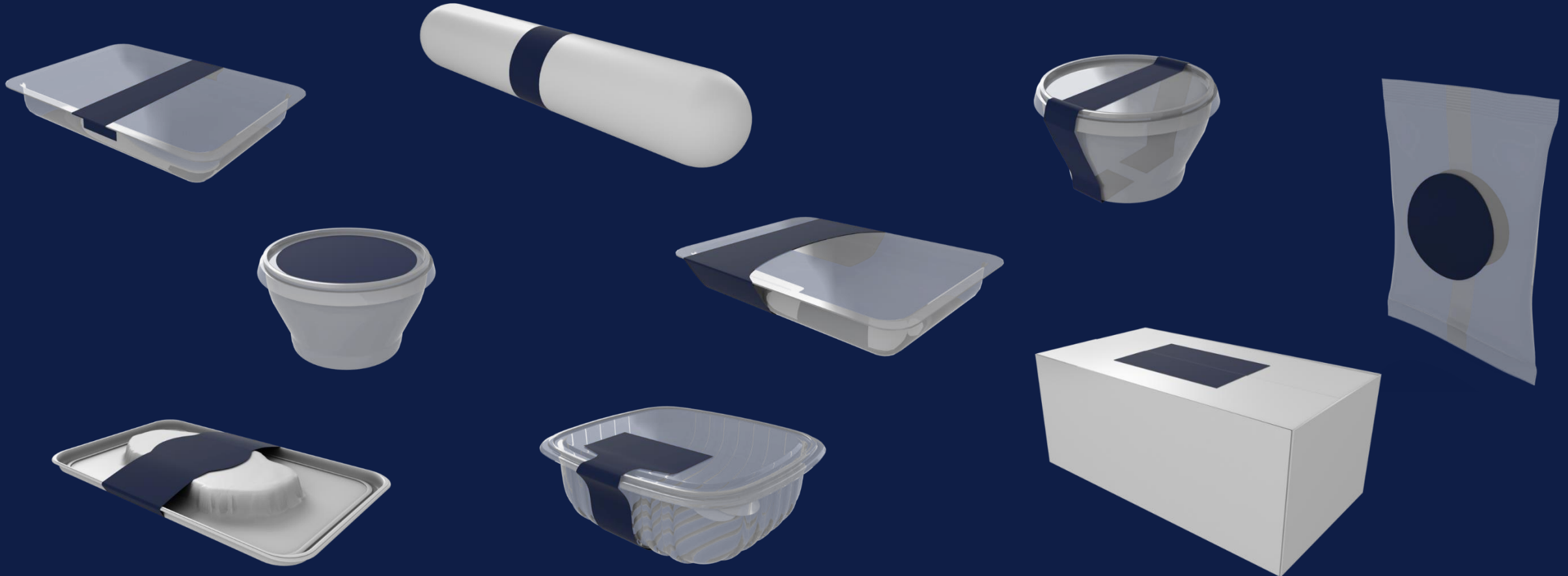


Stand-alone labeling for end-of-line





Labeling





Inspection

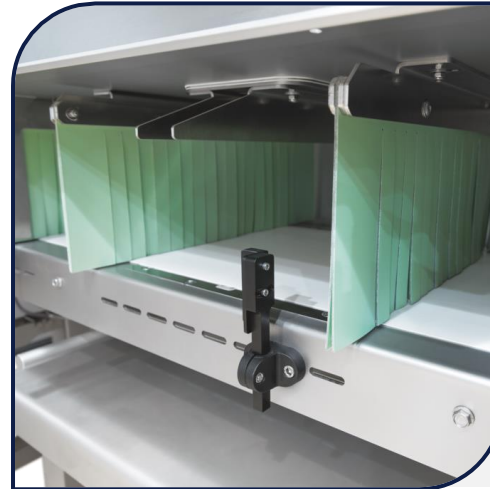
Check weighing

Fixed weighing
Process weighing



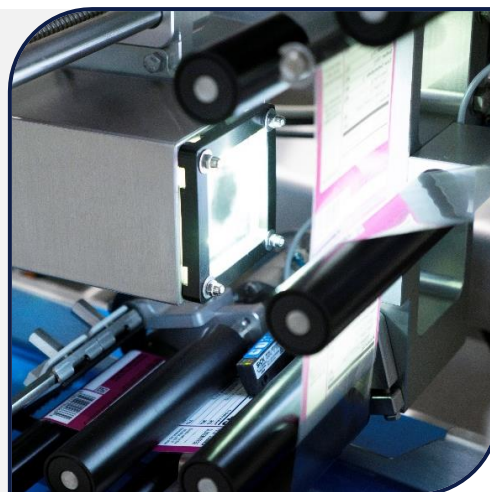
Contamination check

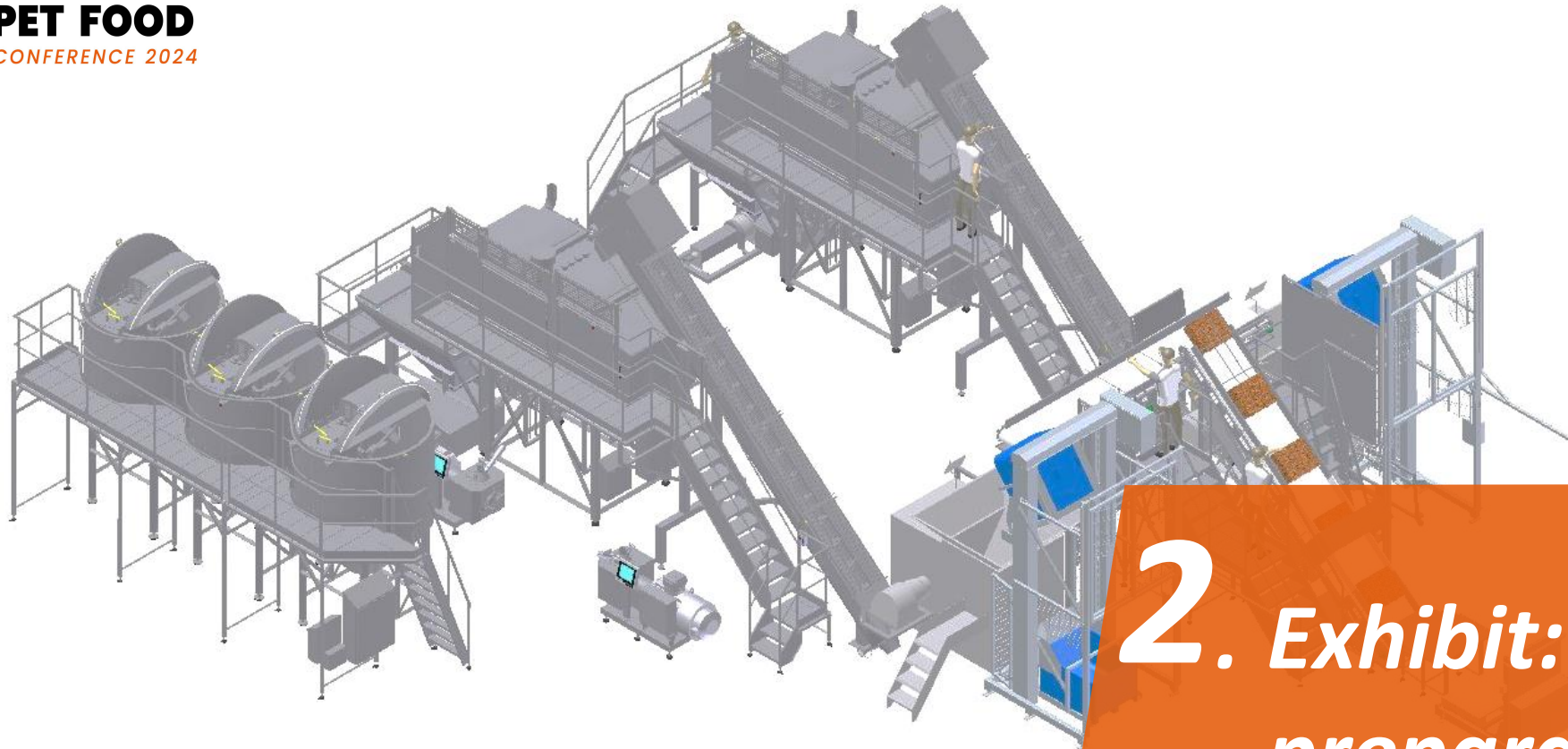
Metal detection
X-Ray



Optical inspection

Label verification
Print verification





2. Exhibit: Product preparation of Chunks & Co.



1. Portfolio - Preparation

1. Preparation - SHORT INTRODUCTION

a) With the Inotec brand, Handtmann offers a complete portfolio for grinding down frozen and fresh animal-based raw material, blending and mixing it with manifold ingredients - and finally emulsifying the product.



Grinding



Blending & Mixing



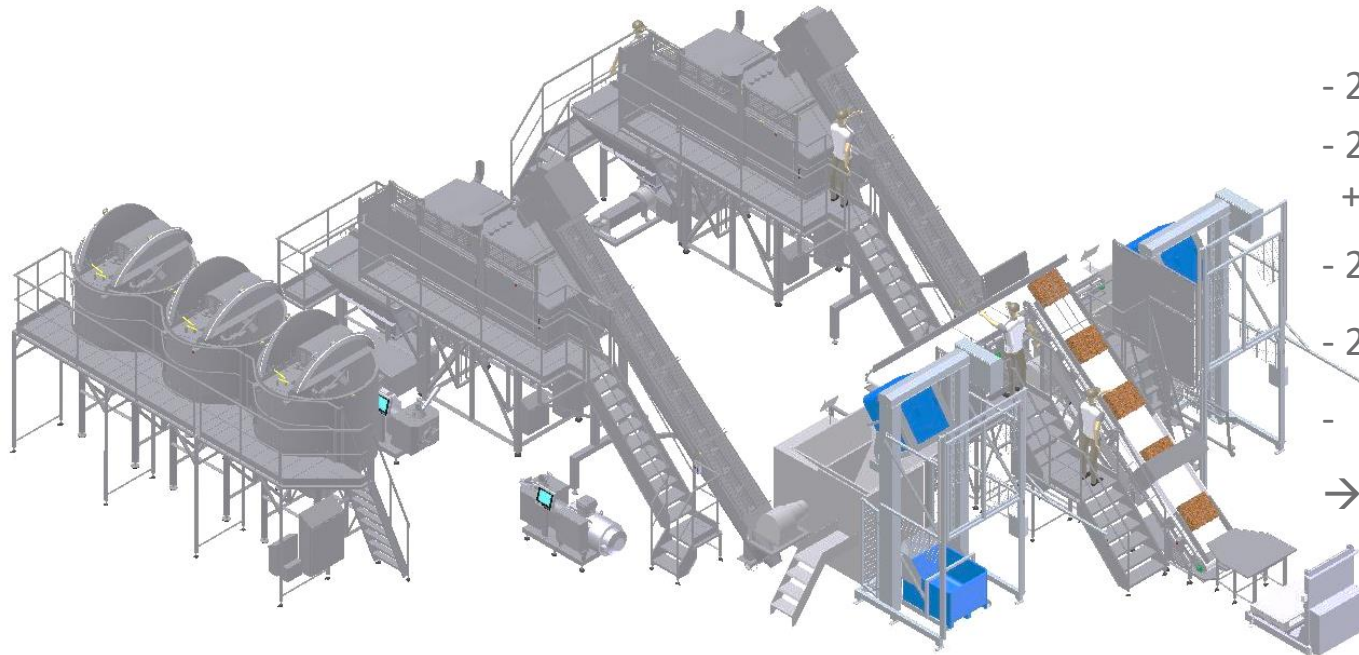
Emulsifying



Batch processing

1. Preparation - SHORT INTRODUCTION

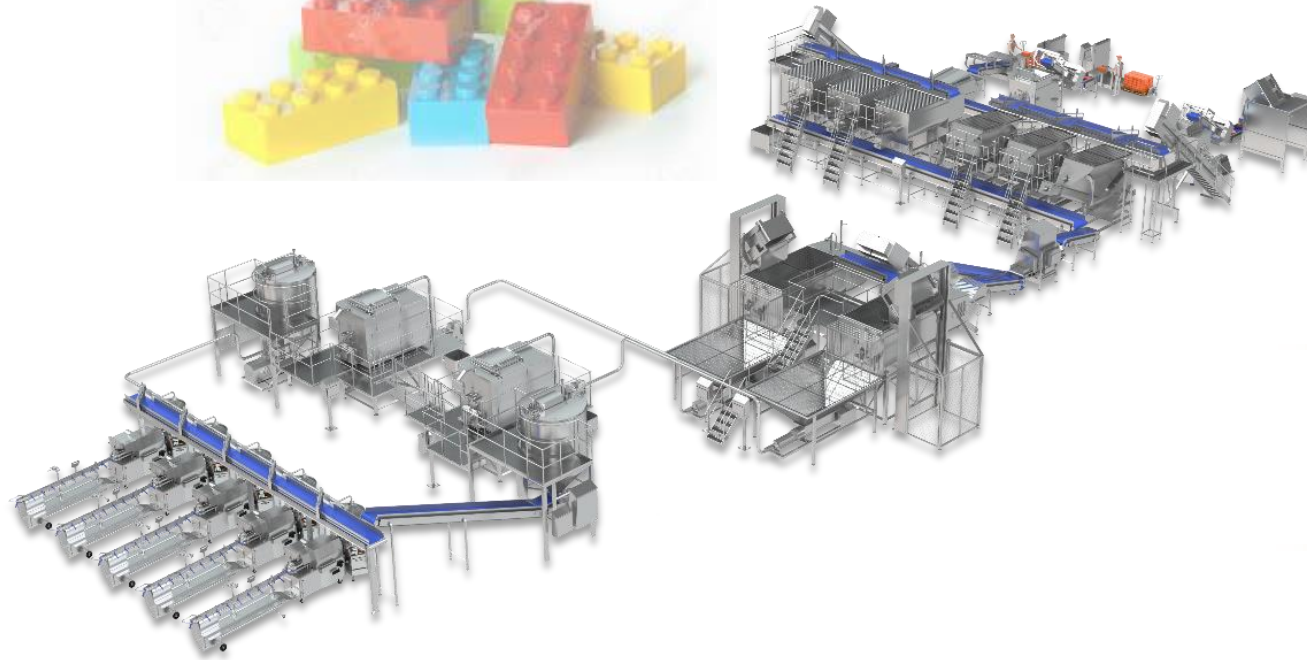
b) The project based, highly sophisticated combination of our processing machines enables our customers to maximize production effectiveness and efficiency. Our lines are far more than the sum of its components!



- 2 x 300mm fresh/frozen grinders
 - 2 x Inotec IMP3000 paddle mixers (incl. direct steam nozzles + steam-heated double-jackets for tempering frozen meat)
 - 2 x Inotec hopper pumps IFP076 with 3500l hoppers
 - 2 x Inotec inline emulsifiers I225CDI-132
 - 3 x Inotec 5.500l round silos IS5000
- Production capacity 2 x 5 tons per hour!

1. Preparation - SHORT INTRODUCTION

c) HCS: Handtmann step-by-step solution development



Conception of individual processing lines

According to your requirements



Turnkey line solutions

With a maximum of process reliability and safety



Automation

For maximum output at good value



From a single source

Reduction of intersections – increasing your productivity

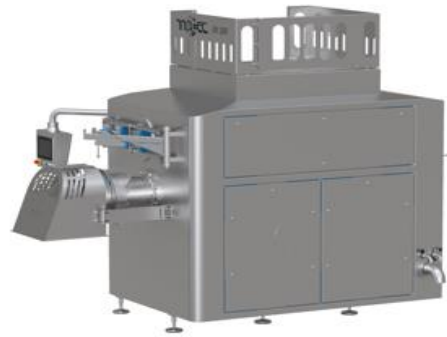




2. *Crushing and grinding*

2. Crushing and grinding

a) Animal based ingredients are ground in the first step of Pet Food preparation – frozen blocks are crushed and ground



Crushing & Grinding



IW 250: 2,5 - 6 to/h



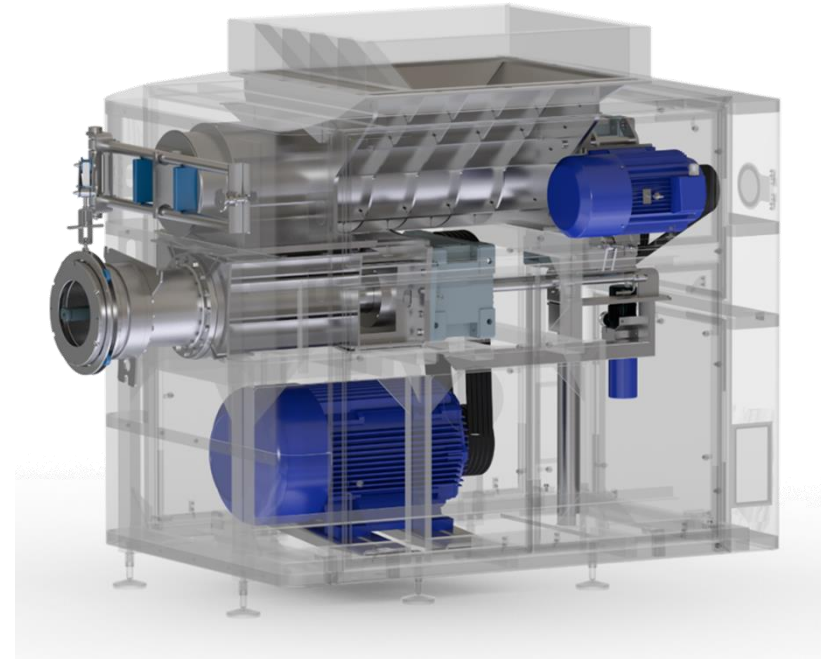
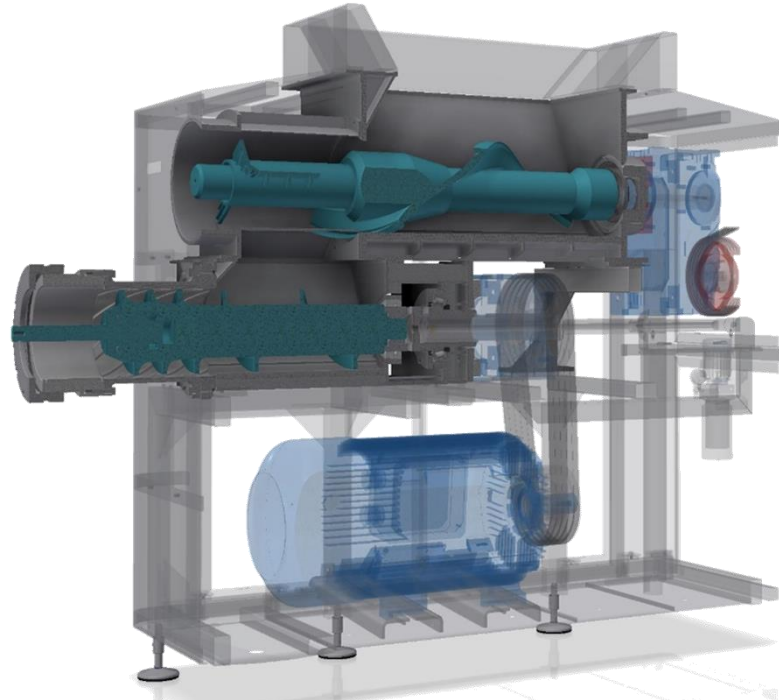
IW 300: 8 to/h



IW 400: 9 to/h

2. Crushing and grinding

b) The industrial IW grinder series with 250, 300 and 400 mm cutting diameter is processing frozen and fresh material



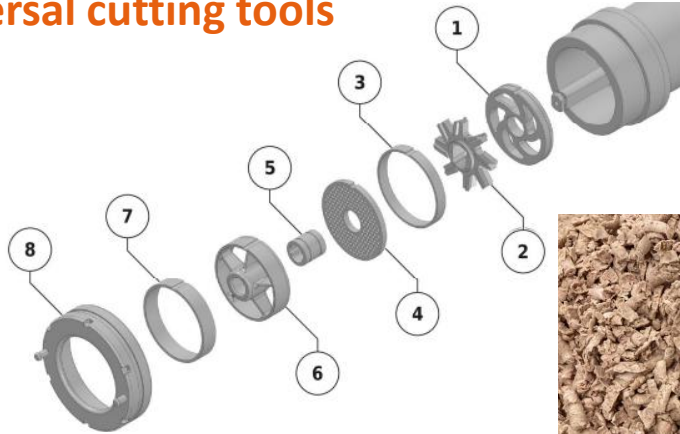
Frozen blocks are grabbed and cut down to pieces which are fed into the grinder unit like fresh ingredients

Highly functional and sturdy machine construction combined with strong, long-living drives.



2. Crushing and grinding

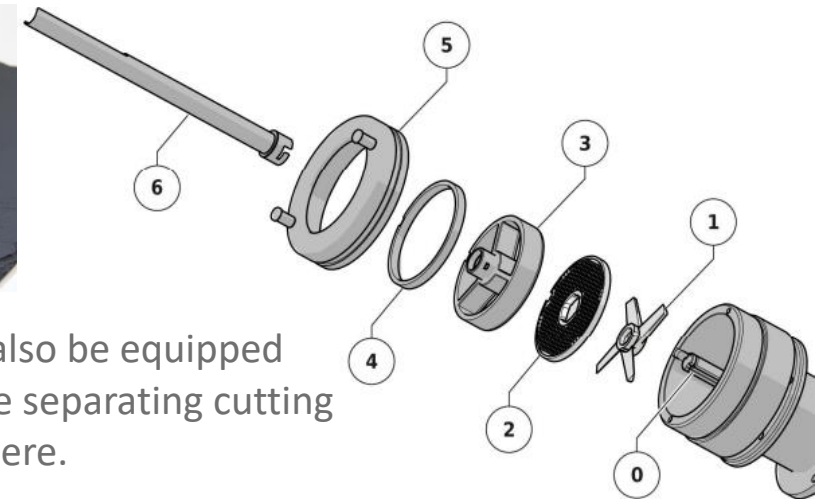
c) Universal cutting tools



- 1) Pre-cut disk
- 2) Double knife
- 3) Outer spacer of the blade
- 4) Disk with holes
(Diameter of holes depending on the type of product to be ground)
- 5) Bush inside the cross
- 6) Cross
- 7) Front spacer cross
- 8) Closing ring nut for opening



The IW 250, 300 and 400 comes with a 3-part cutting set consisting of a pre-cutter, double-knife and a cutting plate for defining the particle-size of the raw material coming out of the grinder.



The IW 250 could also be equipped with a hard particle separating cutting set like displayed here.



- 0) Knife holder shaft (Nerve discharge)
- 1) Single knife
- 2) Disk with holes
(Diameter of holes depending on the type of product to be ground)
- 3) Cross
- 4) Front spacer cross
- 5) Closing ring nut for opening
- 6) Nerve discharge pipe



3. Blending, mixing, tempering

3. Blending, mixing, tempering

a) All ingredients are merged in our mixers which are not only blended and homogenized, but also tempered (if necessary). The binding compounds in the product are activated.



Blending & Mixing



*IKVM 500 –
Tilting mixer*



*IM – Conventional
mixers*

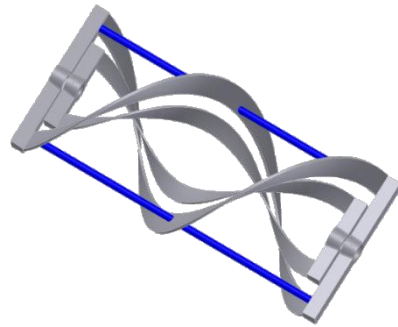
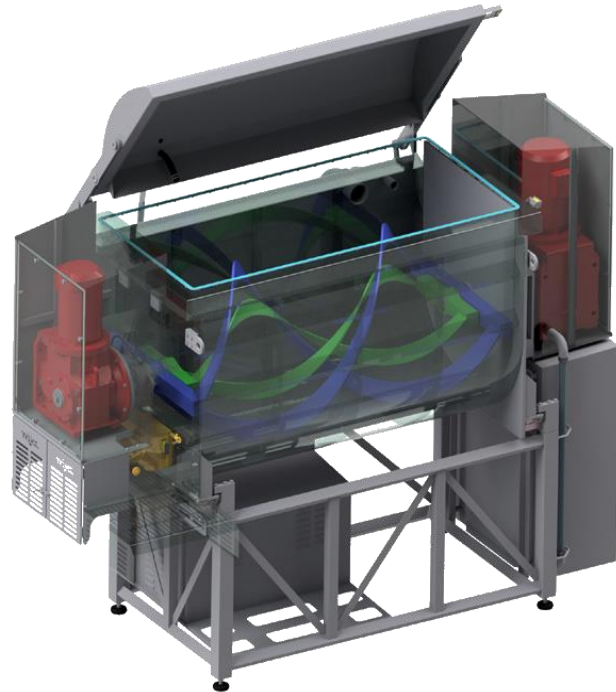


IVM – Variomixers

3. Blending, mixing, tempering

b) Mixer types

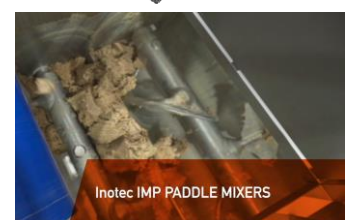
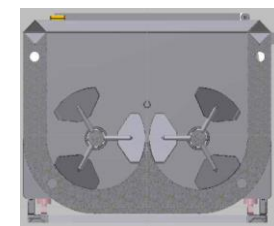
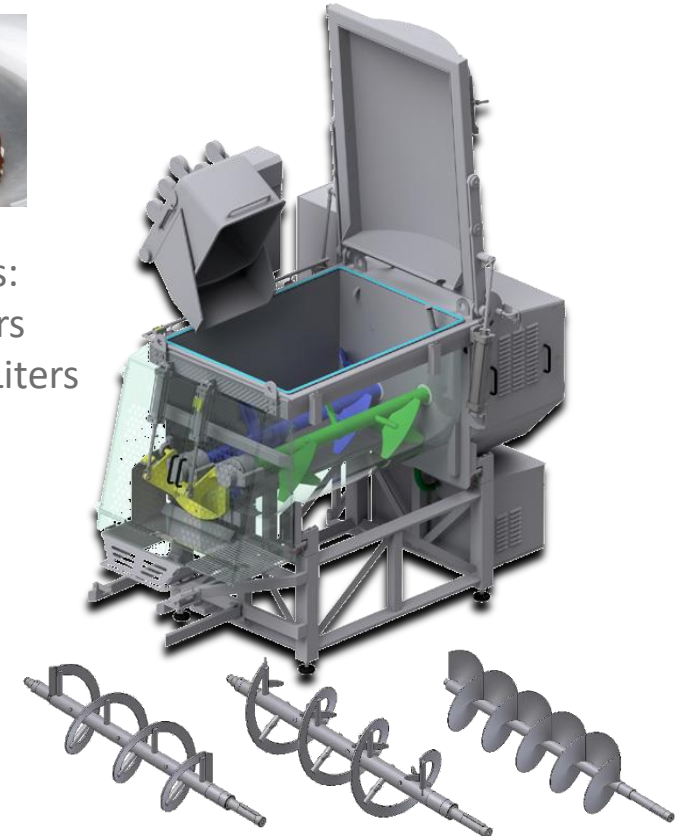
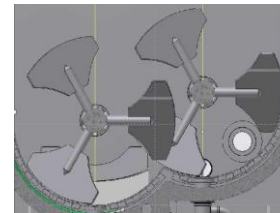
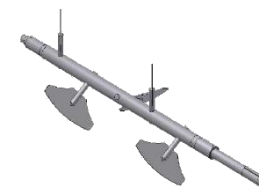
Variomix series 500 – 2.500 Liters



IKVM 500:
tilting Variomix
500 Liters

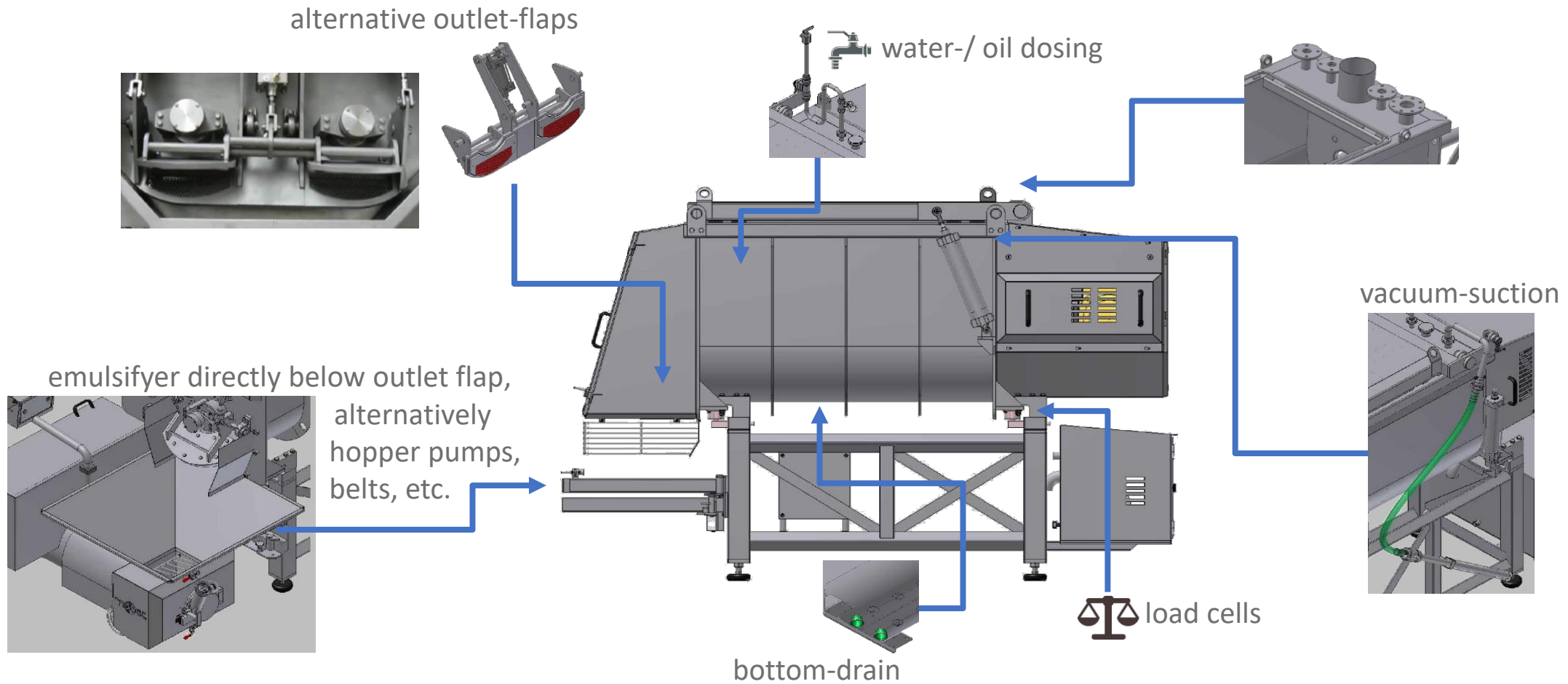


IM, IMP, IMS series:
conventional mixers
from 500 – 6.000 Liters



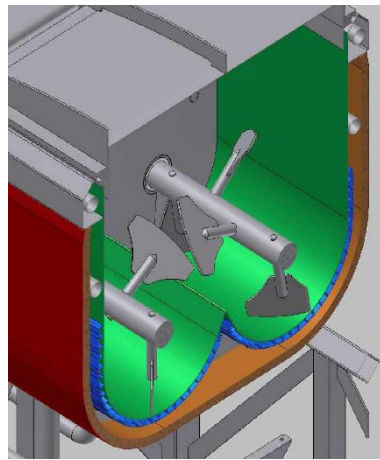
3. Blending, mixing, tempering

c) Mixer options 1

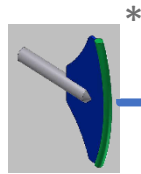


3. Blending, mixing, tempering

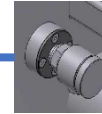
c) Mixer options 2



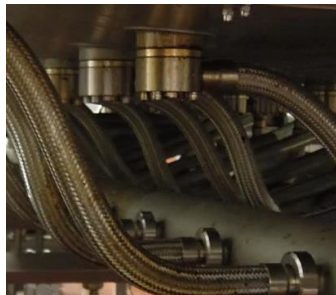
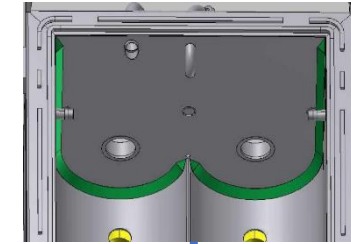
double jacket
for tempering



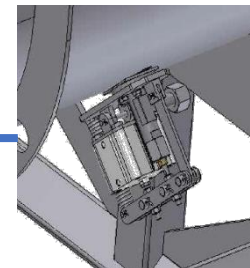
PT-100 Elements



corner- and radius smoothing*



direct-steam nozzles



cryogenic cooling
by direct injection





4. Emulsifying

4. Emulsifying

a) A typical final step of a product preparation would be emulsifying the homogenized mixture to a fine emulsion in our I140, I175 or I225 series



Hopper Emulsifiers



Inline Emulsifiers



Emulsifiers with agitator



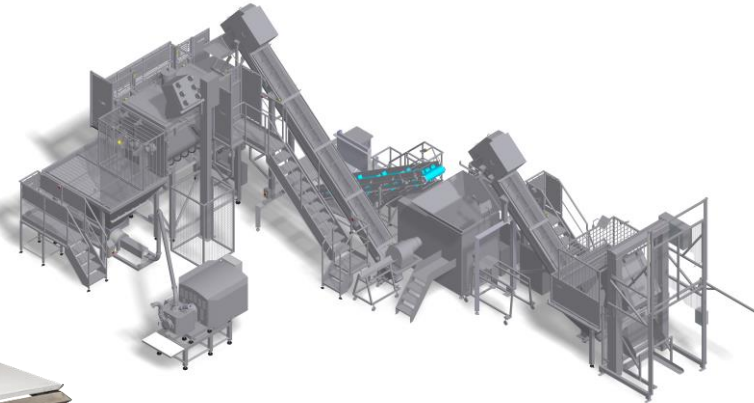
Vacuum Emulsifiers

4. Emulsifying

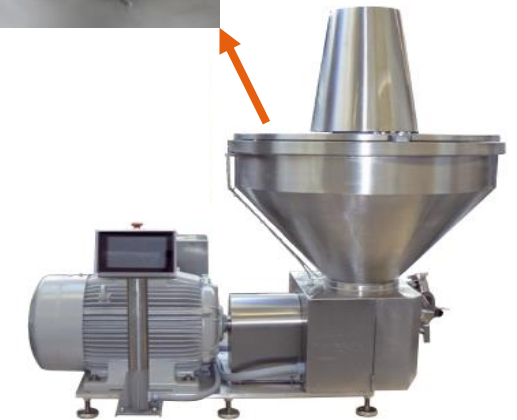
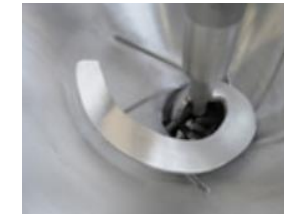
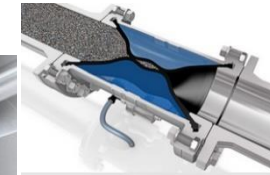
b) Pet Food machines



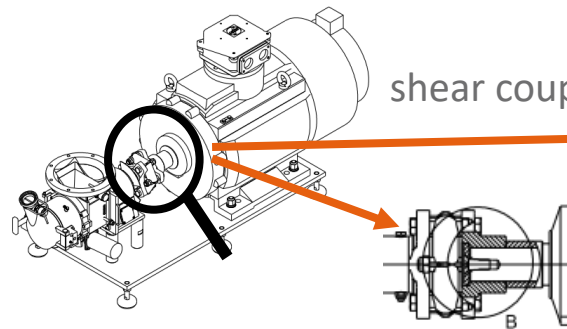
integrated frequency changer:
 → reduction of load peaks
 → therefore reduction of power costs
 → technological advantages



squeeze valve



shear coupling



Inline Emulsifiers:

- I175-I-110-K + I175-I-132-K
- I225-I-160-K + I225-I-200-K

Emulsifiers with round hopper and agitator:

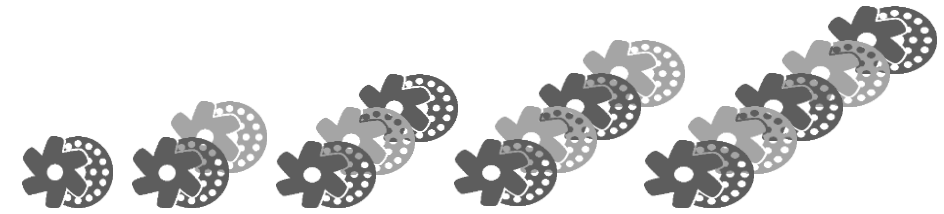
- I175-RW-90-300 up to I175-RW-132-K-500
- I225-RW-132-K-500 + I225-RW-200-K-500

4. Emulsifying

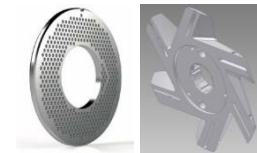
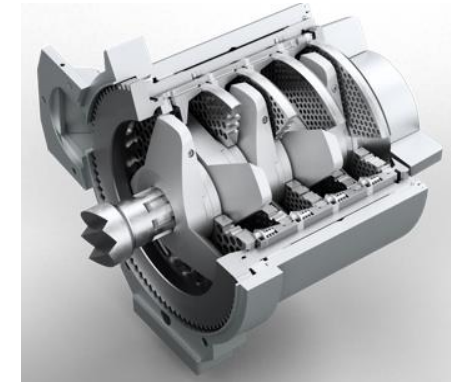
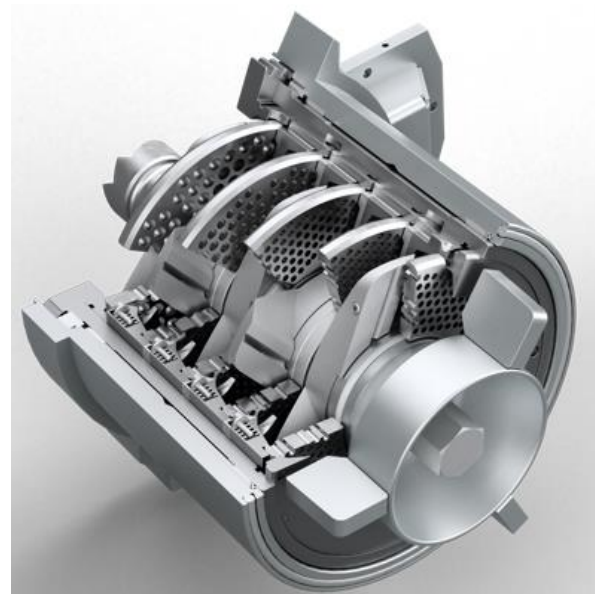
c) Cutting technology:



Inotec SpeedSpin:
rotor-stator-system



Inotec cutting system with 1-5 stages
knife-hole plate combinations

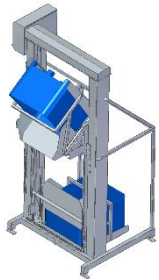




5. Loading, Conveying

5. Loading, Conveying

a) The efficient material transport in a processing line is as important as the process itself



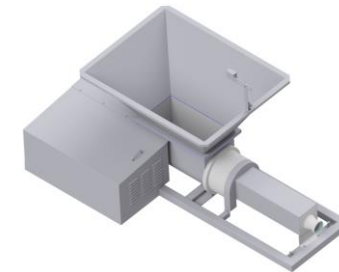
Lifting



Belt conveying



Screw conveying



Pumping

5. Loading, Conveying

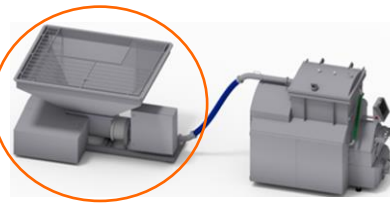
b) Also dosing and storing is an important part of fully automated processing lines



Mixing + dosing



Dosing



Buffering



Storing

5. Loading, Conveying

c) Impressions:





6. *Batch processing*

6. Batch processing

a) Several processes, e.g. the production of gravy, slurries and other (semi-)liquid products could be done by Inotec process-automates



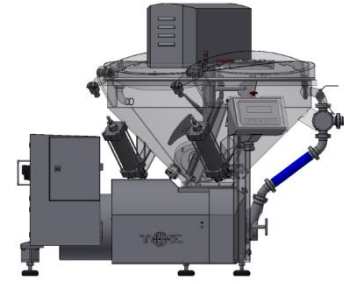
BC-175-600 + IS600



BC-140-300/600

6. Batch processing

b) Images





handtmann
Ideen for the future.

 **MULTIVAC**

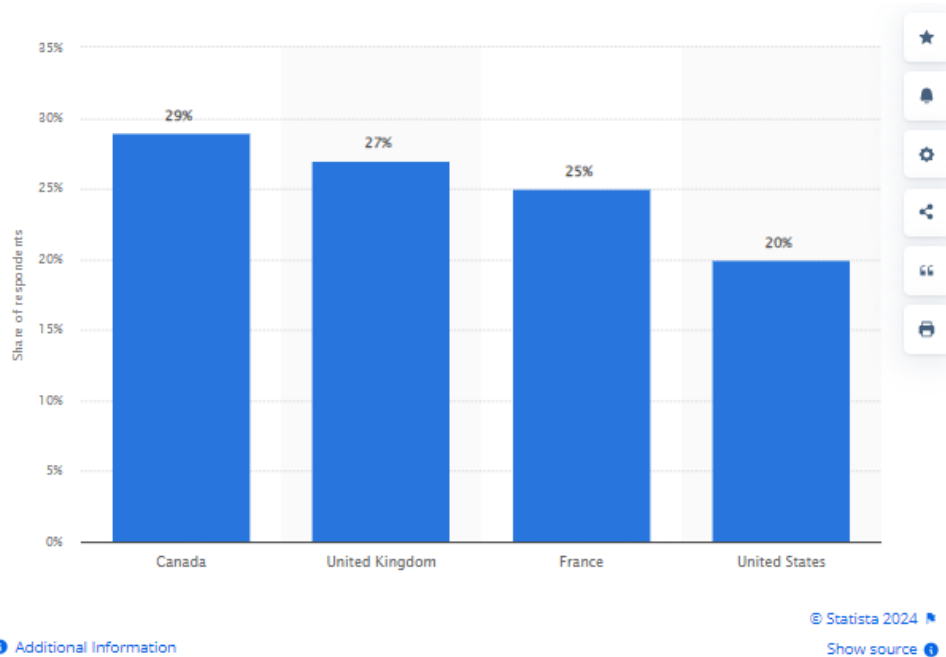
3. Exhibit: Raw Pet Food



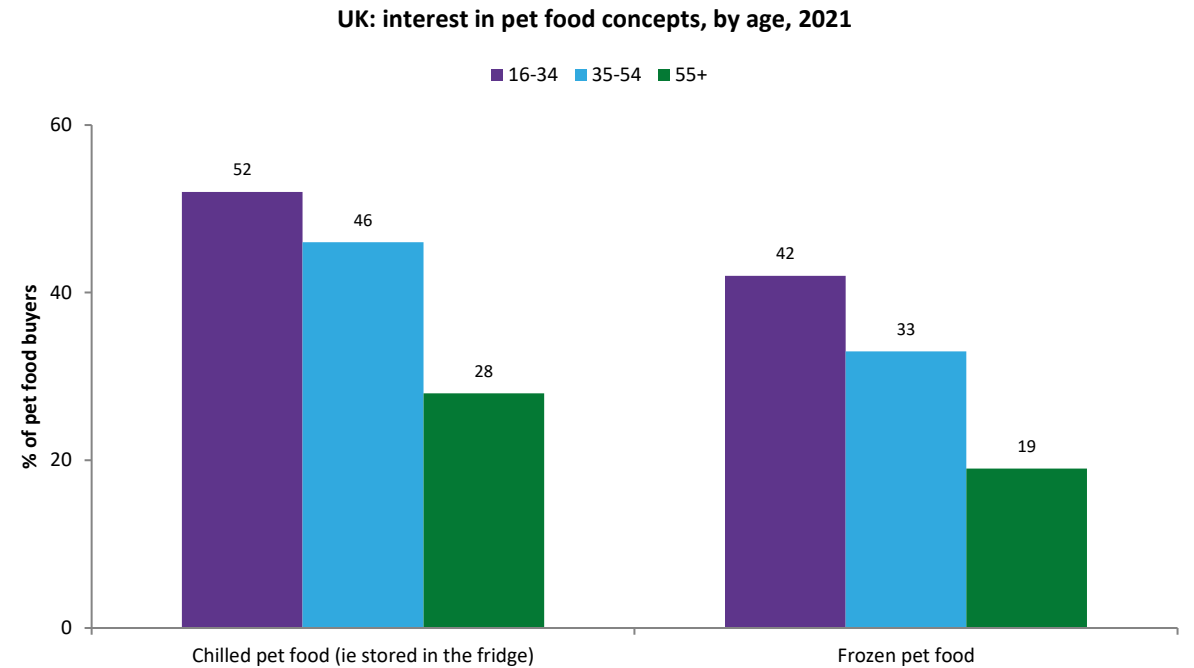
Raw pet food – a growing niche

BARF / Fresh Petfood / Raw petfood

Share of respondents who fed their pets BARF or raw pet food in 2023, by country



Youngsters are keen on chilled and frozen options



Base: UK: 1,038 internet users aged 16+ who buy food for their pets
Source: [Kantar Profiles/Mintel, May 2021](#)

The raw pet food value chain

From raw materials to packaging

handtmann
Ideas for the future.



PRODUCT PREPARATION



Grinding



Mixing



(Emulsifying)



RAW MATERIALS

RAW PET FOOD MANUFACTURING

(PACKAGING) & FREEZING



PRODUCT PORTIONING



Forming



Dosing



Clipping



Handtmann Inotec – Grinding

From fresh to frozen meat (even frozen blocks)



Handtmann Inotec – Mixing

Product preparation of raw pet food



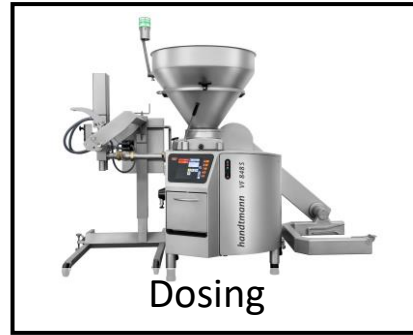
Modular systems for raw pet food

Overview for clipping, tying, dosing and forming solutions

Filling and portioning



Flexible combination with different devices



Dosing



Clipping



Forming

To produce various products and shapes



Raw pet food in different containers



Dog sausage, clipped



Raw pet food portions, frozen, different shapes

Pet food manufacturing – One for all vane cell feed system

Vacuum filling machines are the head of each portioning line: Controlling and pumping unit using vane-cell feeding technology



handtmann
Ideas for the future.



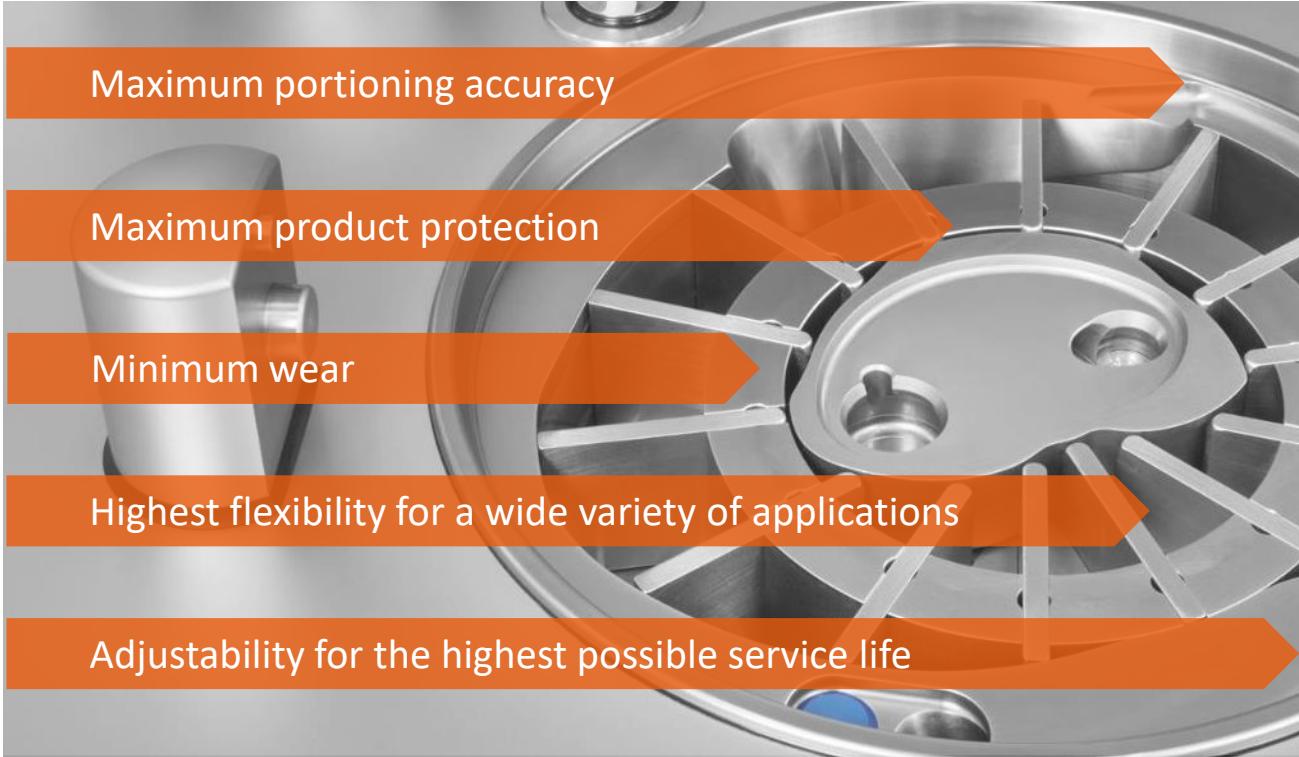
Small scale version: up to 2 t/h



Large scale version: up to 15 t/h

Pet food manufacturing - Vacuum filling machines

Vane cell feed system – THE CORE COMPONENT



Modular systems for raw pet food

Overview for dosing, clipping and forming solutions

Filling and portioning



Flexible combination with different devices



Dosing



Clipping

To produce various products and shapes



Forming



Raw pet food in different containers



Dog sausage, clipped



Raw pet food portions, frozen, different shapes

Raw pet food in combination with thermoforming packaging machines

2-lane solutions for different product consistencies



Raw pet food in combination with thermoforming packaging machines

Fully automatic multi-lane solutions

handtmann
Ideas for the future.



Multivac R245 & Handtmann VF838-S9 + HDM-8YZ dosing station

Wet pet food – Raw products into thermoforming machines

Joint projects of Multivac and Handtmann



Big Dog, Australia



Lico, Germany



Big Country Raw, Canada

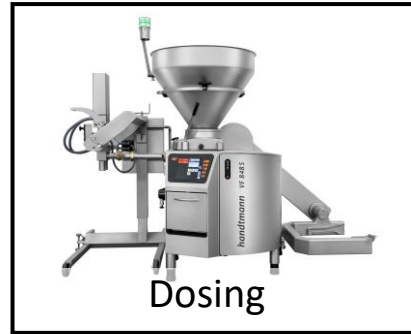
Modular systems for raw pet food

Overview for clipping, tying, dosing and forming solutions

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Flexible combination with different devices



Dosing



Clipping



Forming



Raw pet food in different containers



Dog sausage, clipped



Raw pet food portions, frozen, different shapes

Raw pet food sausages

Portioning directly in casings



Modular systems for raw pet food

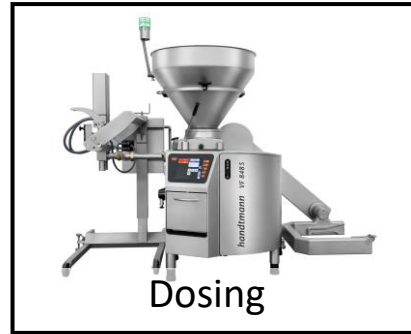
Overview for clipping, tying, dosing and forming solutions

handtmann
Ideas for the future.

Filling and portioning



Flexible combination with different devices



Dosing



Clipping

To produce various products and shapes



Forming



Raw pet food in different containers



Dog sausage, clipped



Raw pet food portions, frozen, different shapes

One lane cold-extrusion: Forming solutions

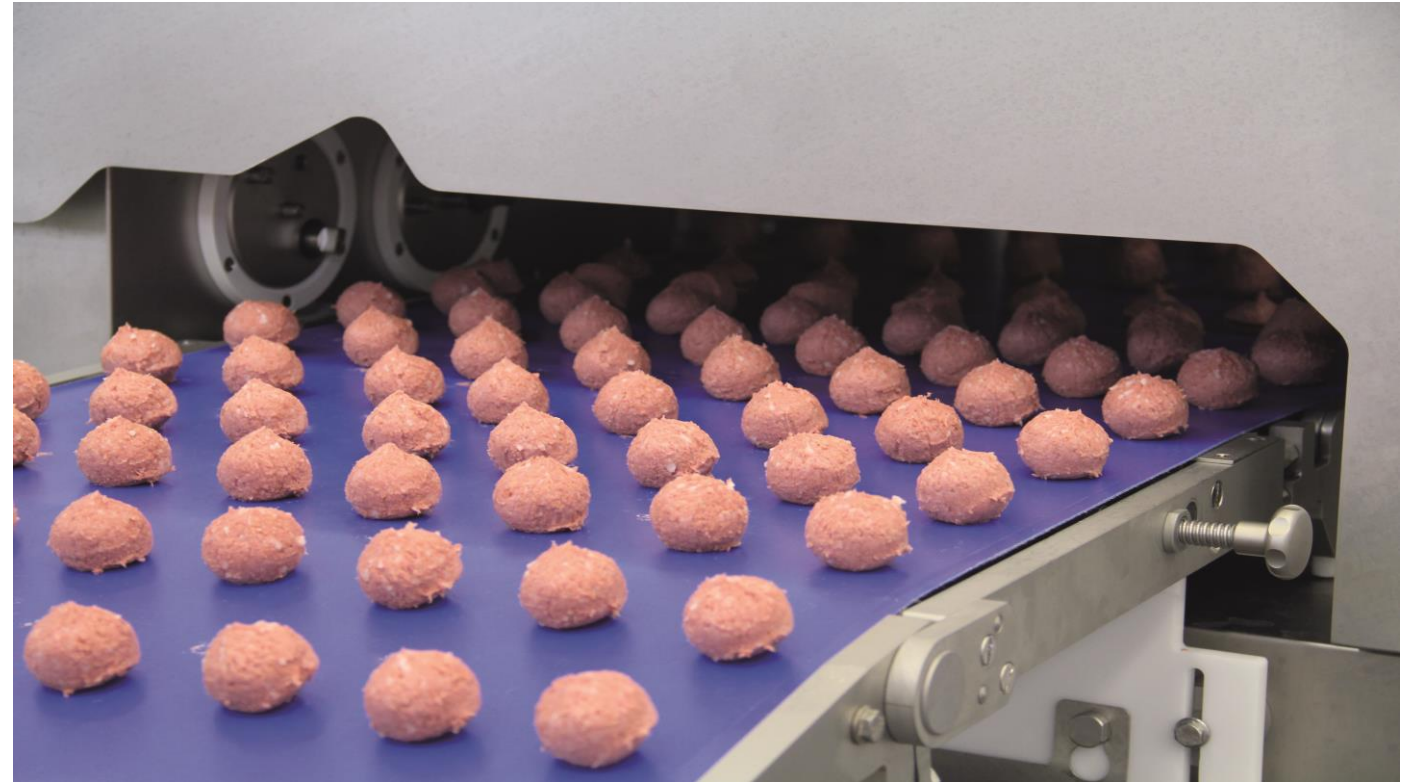
handtmann
Ideas for the future.



Multi-lane cold-extrusion: Forming solutions

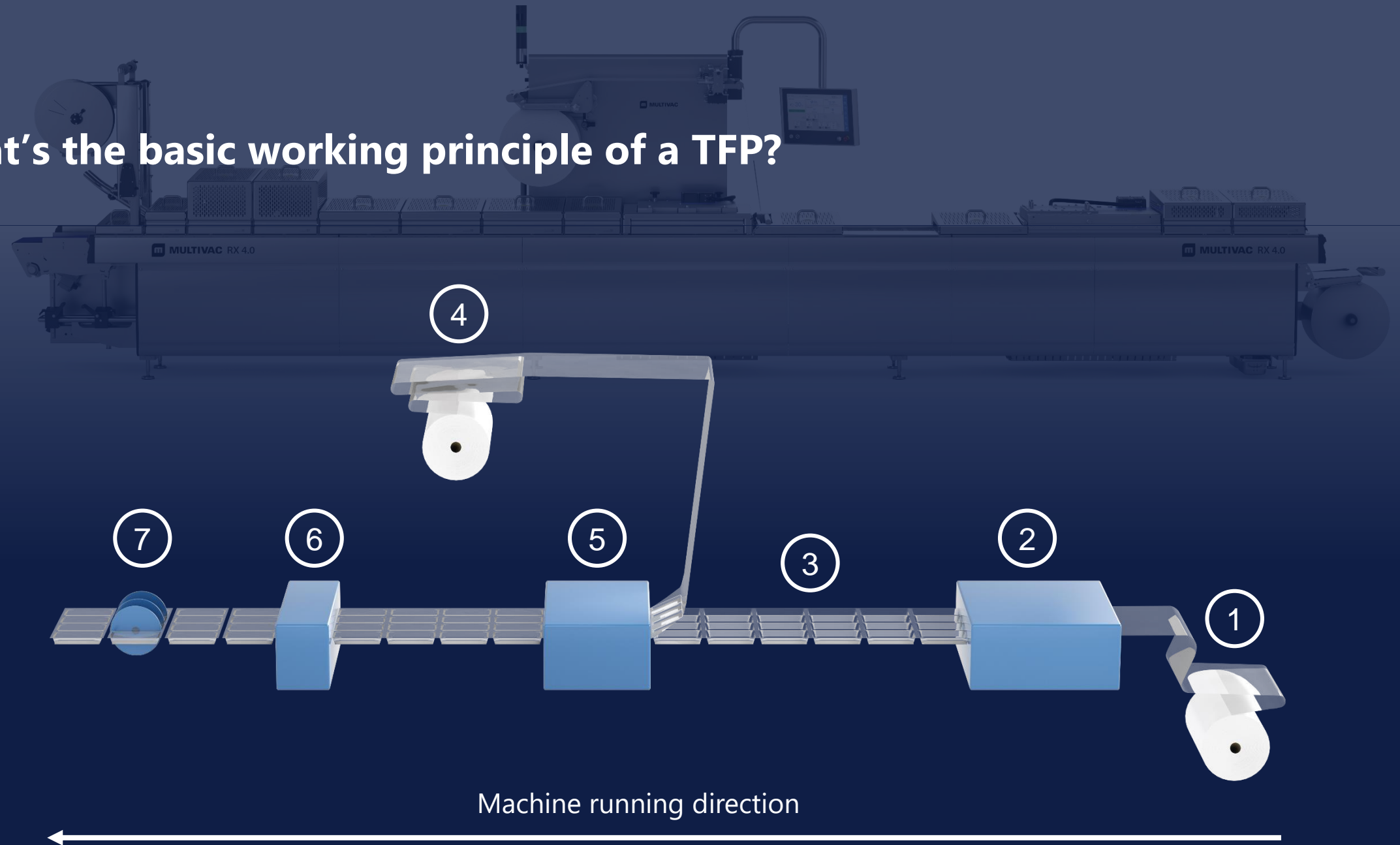
Forming of balls, discs, patties and other shapes

handtmann
Ideas for the future.



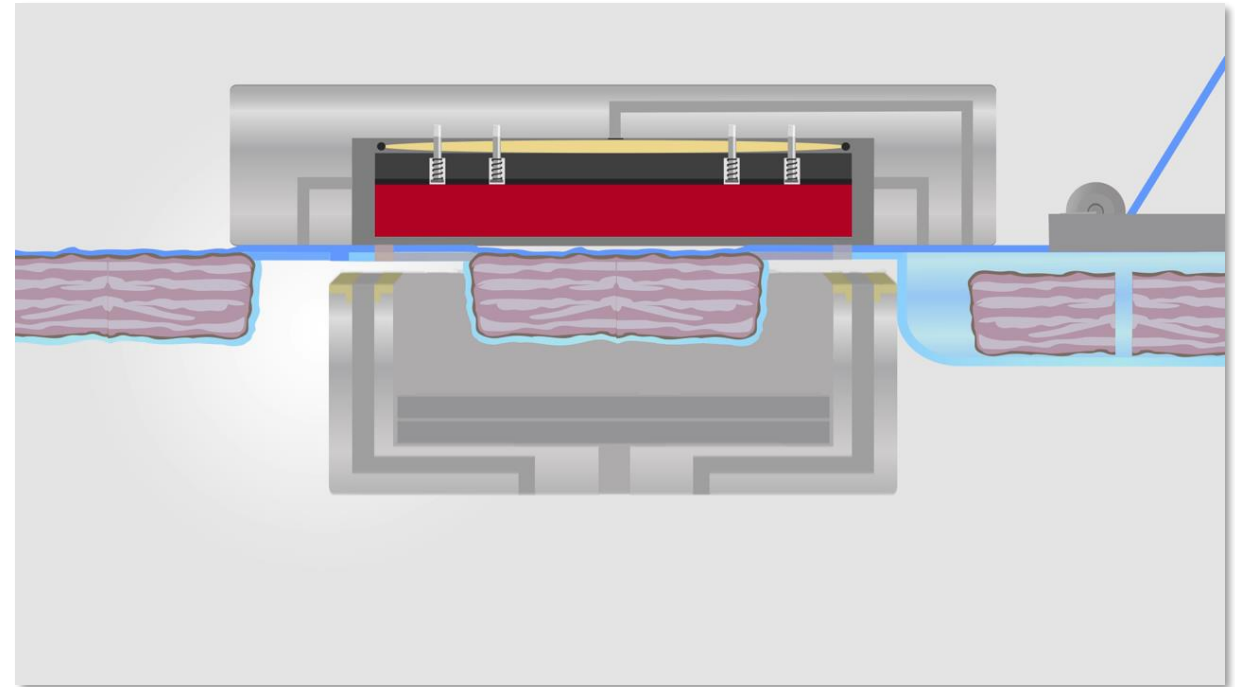
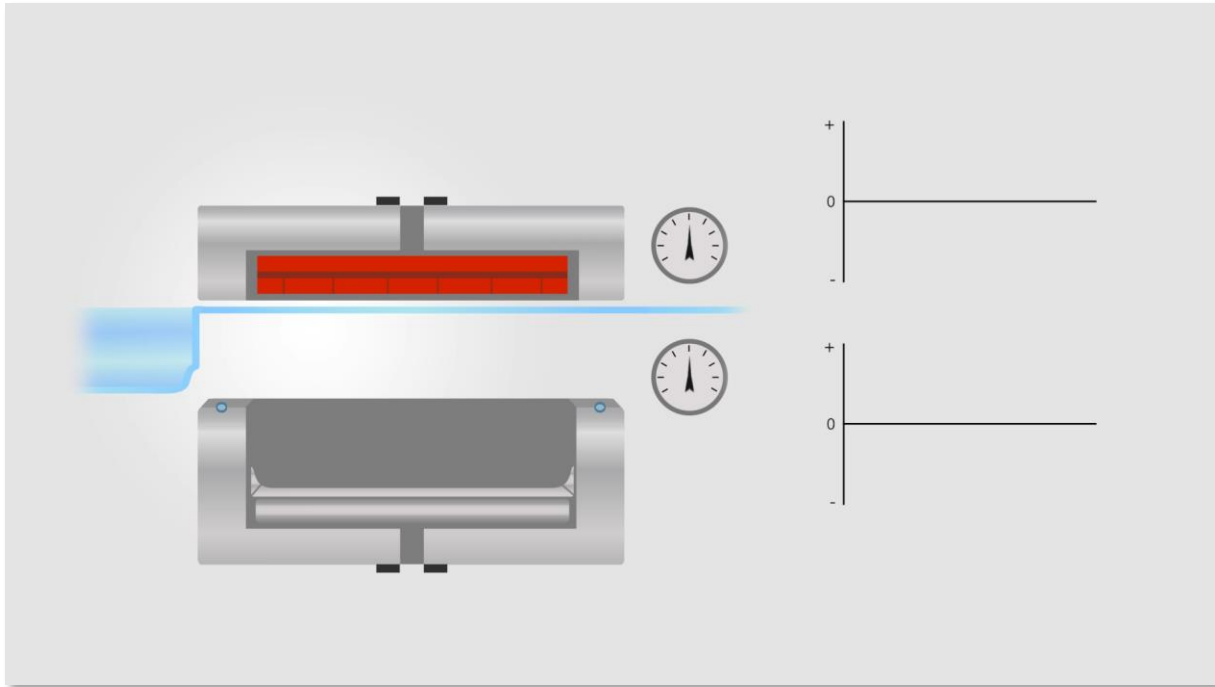
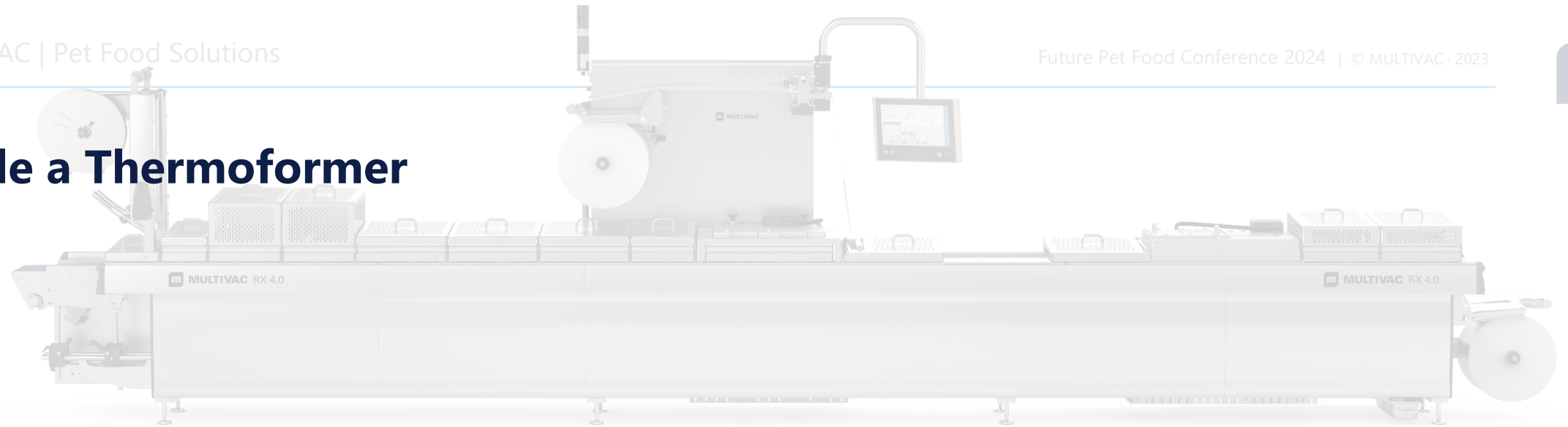
- From 6 to 8 lanes
- Up to 250 cutting cycles per minute
- Deposit directly onto trays (conveyor width 600 mm)

What's the basic working principle of a TFP?





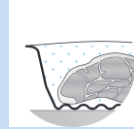
Inside a Thermoformer





TFPs are able to produce plenty different kinds of packages

Standard packs



- Rigid film
- Flexible film
- Aluminium
- Paper

Skin packs



- FormShrink®
- MultiFresh™
- Isopak

Special packs

- Zip strip package option
- PrePack
- LipForm
- Stand-up pack
- Portion pack
- Book pack



Standard packs

Rigid film



Flexible film



Aluminium

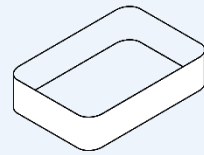


Paper

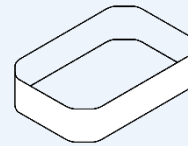


We also offer a great variety of different pack shapes and options to improve the package presentation

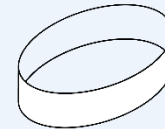
Package Shapes



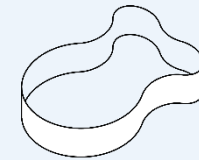
Rectangular



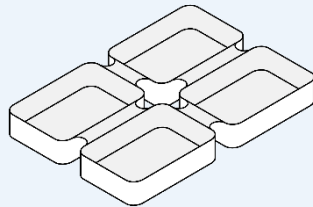
Multi-sided



Round, Oval

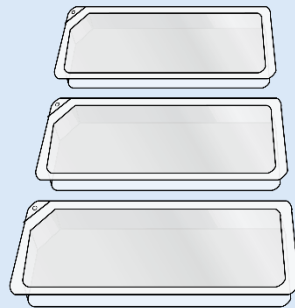


Freely selectable shape

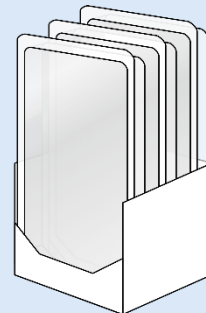


Multiple pack

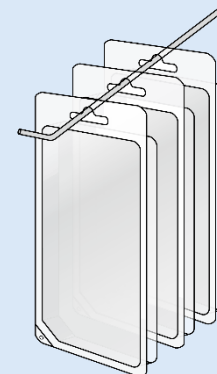
Package Presentation



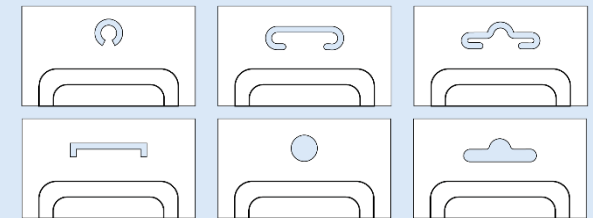
Horizontal



Stand-up



Hanging



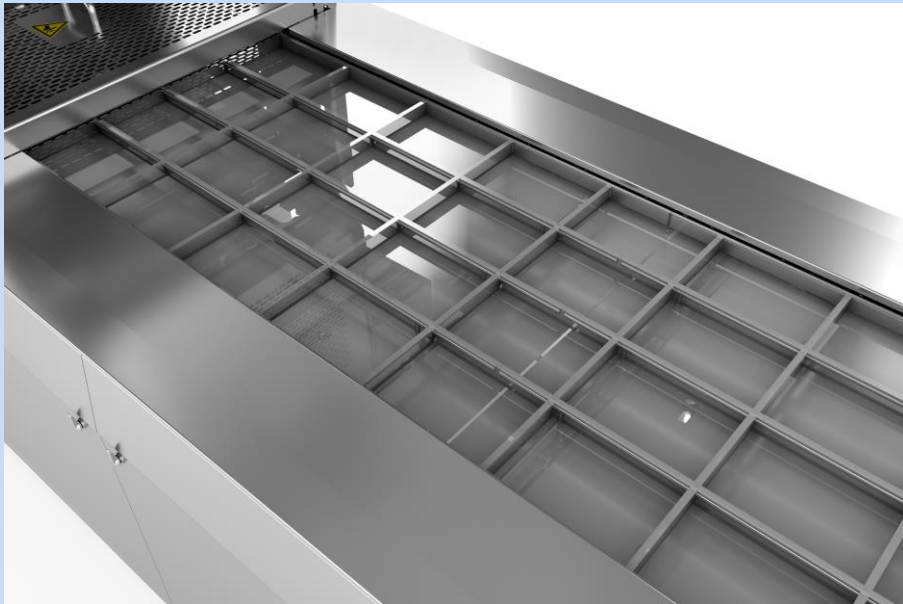
Hanger slots and hanger holes as required



Thermoforming delivers several benefits in terms of packaging

Easy to automate

- Defined loading area and position
- All downstream options



Sustainability approach



- Low and recyclable material usage
- Space usage for storage of rolls





Pet Food on thermoformers





4. Exhibit: Snacks and treats

Main application of Handtmann

Wet pet food



Snacks and treats



Handtmann Forming Technology

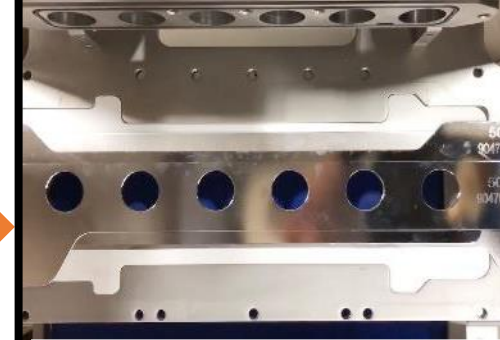
Molding / Free Forming / Drum Forming



Flexible combination with different devices



Molding with dies/pipes



3D Free Forming



Drum Forming

To produce various products and shapes



Cubes



Hearts



Jerky / Stripes



Sticks



Dental cookies



„Burger“ Patties



Balls



Coins & Nuggets



Filet stripes



Perforated sticks

Multi-lane cold-extrusion with dies or pipes

Formsystem 510



Selection of pipes and dies



Sticks

Dental cookies

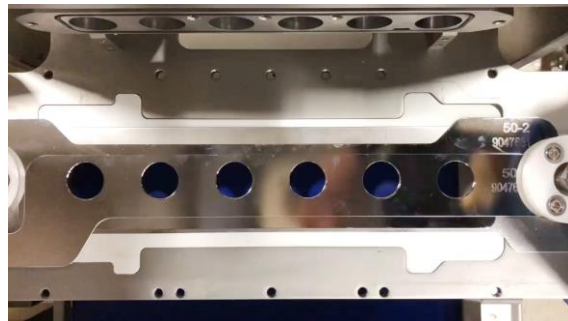
Cubes

Chunks / Pellets

- From 8 up to 24 lanes
- Up to 250 cutting cycles per minute
- Deposit directly onto trays (conveyor width 600 mm)

Multi-lane cold-extrusion: 3D Free Forming

Formsystem 520 / 521



Balls



Cooked and Air Dried Patties



Perforated sticks



Cones

- From 6 to 8 lanes
- Up to 250 cutting cycles per minute
- Deposit directly onto trays (conveyor width 600 mm)

Multi-lane cold-extrusion: Drum Forming

Timed air pressure to release products what reduces operational costs due to less air usage



Coins & Nuggets



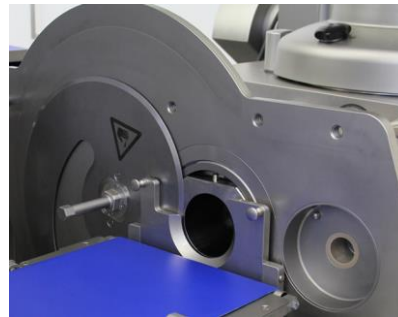
Filet stripes



Single-lane cold-extrusion: 3D Free Forming



Formsystems



Perforated sticks



Balls



„Burger“ Patties



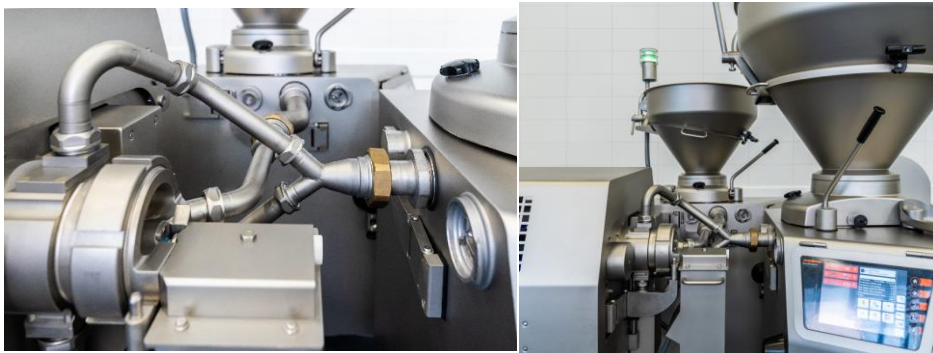
Cones

Single - or Multi-lane Co-extrusion and forming system

Multi-lane FS 510



Single-lane FS 525



- From 1 lane up to 24 lanes
- Up to 150 cycles per minute
- Deposit directly onto trays (conveyor width 600 mm)

Pet food stick production



Pet food Snack Sticks production

Product preparation → Portioning → Forming and cutting → Drying → Packaging

Inotec

VF 800

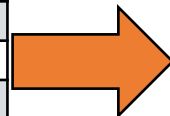
FS 510

Fessmann

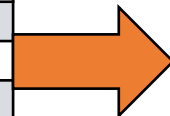
Multivac



Ingredients	Amount in %
Chicken MDM	50
Chicken necks	14
Salmon	10
Glycerin	5,5
Cellulosefiber	2
Petfood Premix	16
Apple fibers	2
Salt	0,5



Drying Process	Time	Temperature
Drying	60 min	40 °C
Drying	60 min	50 °C
Drying	60 min	60 °C
Drying	60 min	70 °C
Drying	90 min	80 °C
Drying	10 min	90 °C
Cooling	20 min	45 °C
Cooling	20 min	25 °C



Parameters	Raw	Finished
Temperature	- 5 °C	Room temp.
Weight	28 g	18,2 g
Length	140 mm	130 mm
Moisture content	51 %	27,5 %
aw-value		0,81
Crude protein	-	27,9 %
Crude fat	-	19,3 %
Crude fibre	-	6,2 %



Future Pet Food Conference | MULTIVAC

Station 4: Snacks & Treats



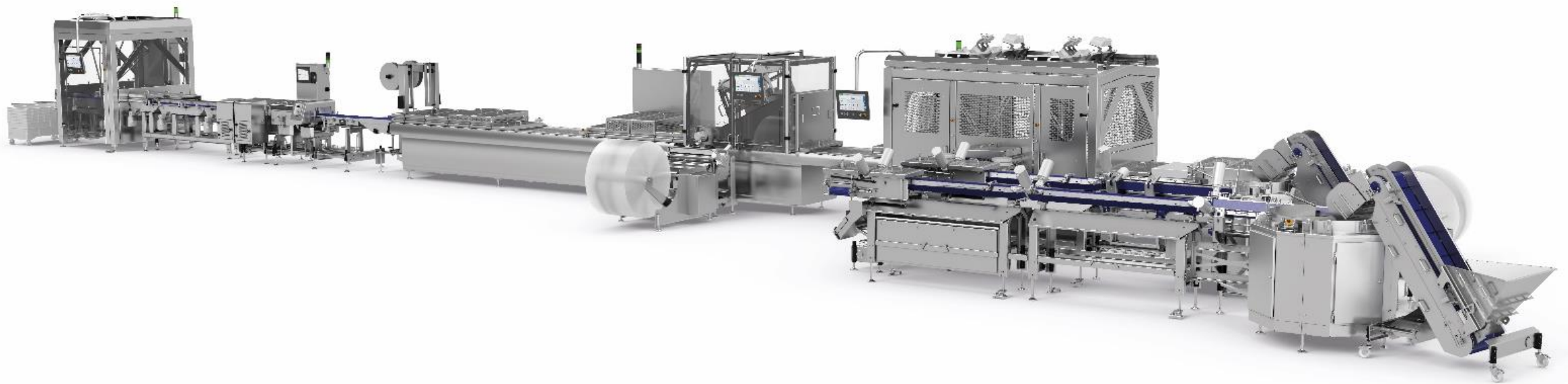


Cat & Dog Sticks | manual line solution





Cat & Dog Sticks | full automatic line solution





Cat & Dog Sticks Line in Production





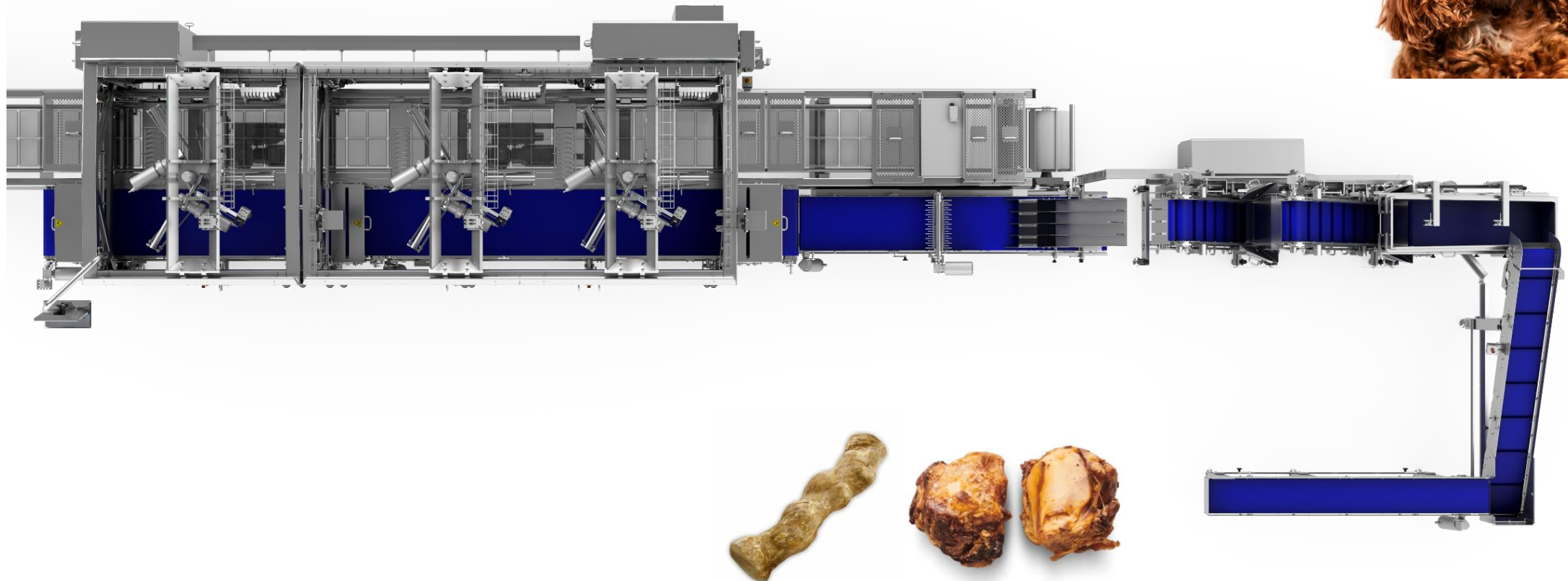
Is this the only solution ??

We can adapt to customer requirements and offer different solutions thanks to our wide portfolio!





Cat & Dog Treats | automatic line solution





5. *Exhibit: Inspiration Center*



**FUTURE
PET FOOD**
CONFERENCE 2024



handtmann
Ideen mit Zukunft.

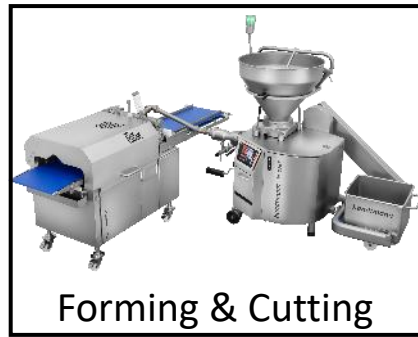


Modular systems for various snacks and treats

Filling and portioning



Flexible combination with different devices



Forming & Cutting



Sausage linking



Coextruding alginate

To produce various products and shapes



Cubes



Hearts



Jerky / Stripes



Sticks



Bones



Filet Stripes



Mini Sausages in Collagen



Dried Snack „Salami“



Infinite Loops



Snack Pillows



Coated Snacks



Energy Gels



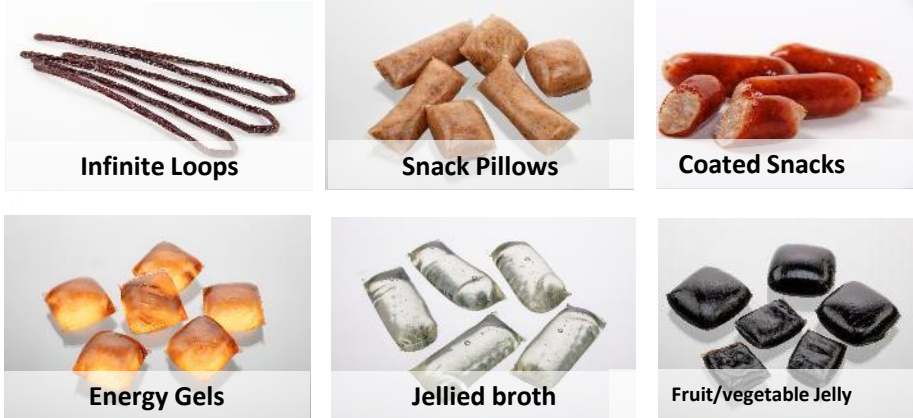
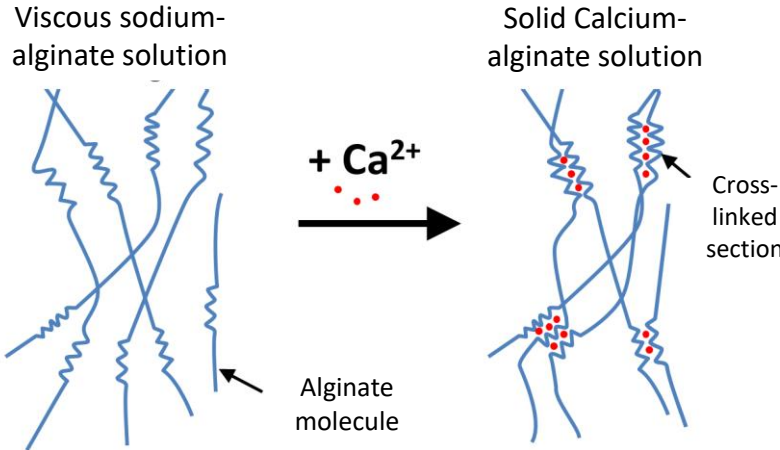
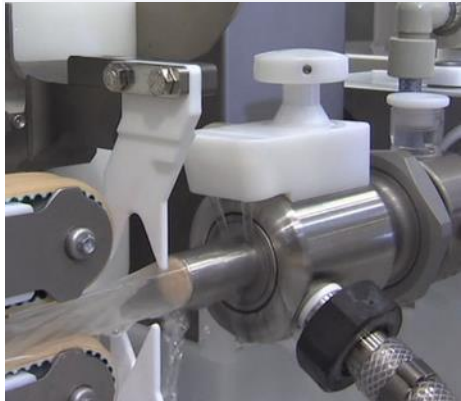
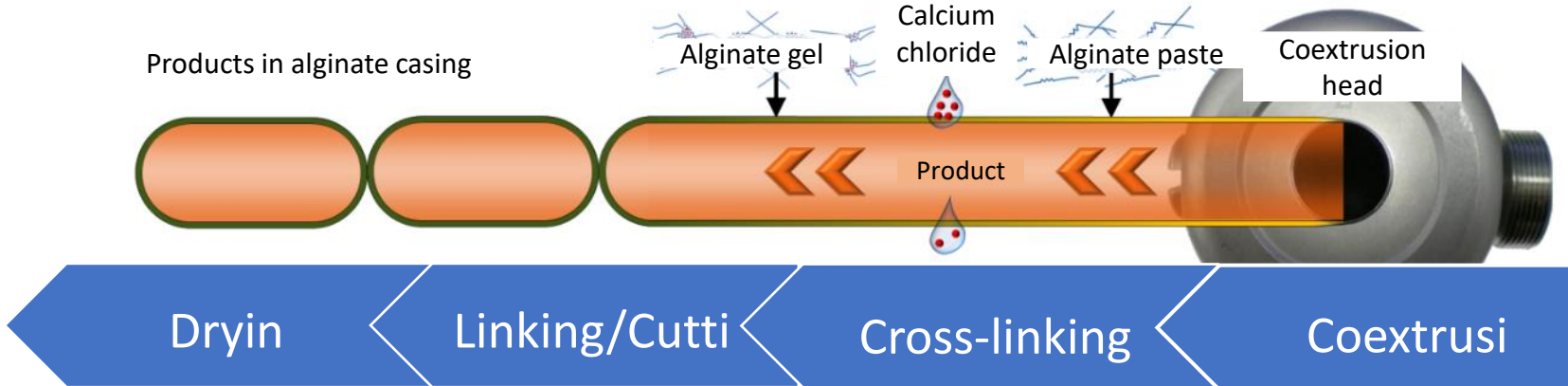
Jellied broth



Fruit/vegetable Jelly

Co-extrusion of different snack shapes with edible alginate layer

Innovation potential for the pet food industry



Co-extrusion: formation of alginate gel

BULK PRODUCT



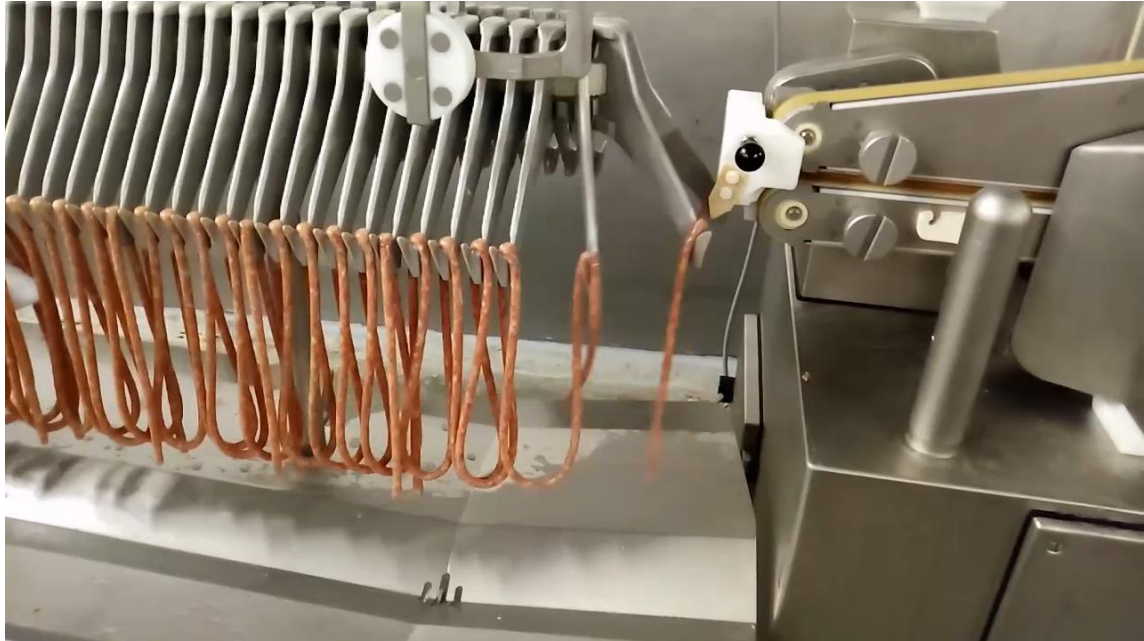
ALGINATE PASTE/CASING



Formation of alginate gel after moisturizing with <30 % calcium chloride solution
Due to its good water-binding capacity, sodium alginate is used in the food industry as a thickening and gelling agent. Sodium alginate solutions are highly viscous and can be cross-linked to form solid gels by adding calcium ions or other divalent ions.

Co-extrusion: snack sausages and loops with edible alginate layer

Continuous extrusion process with cutting or hanging option



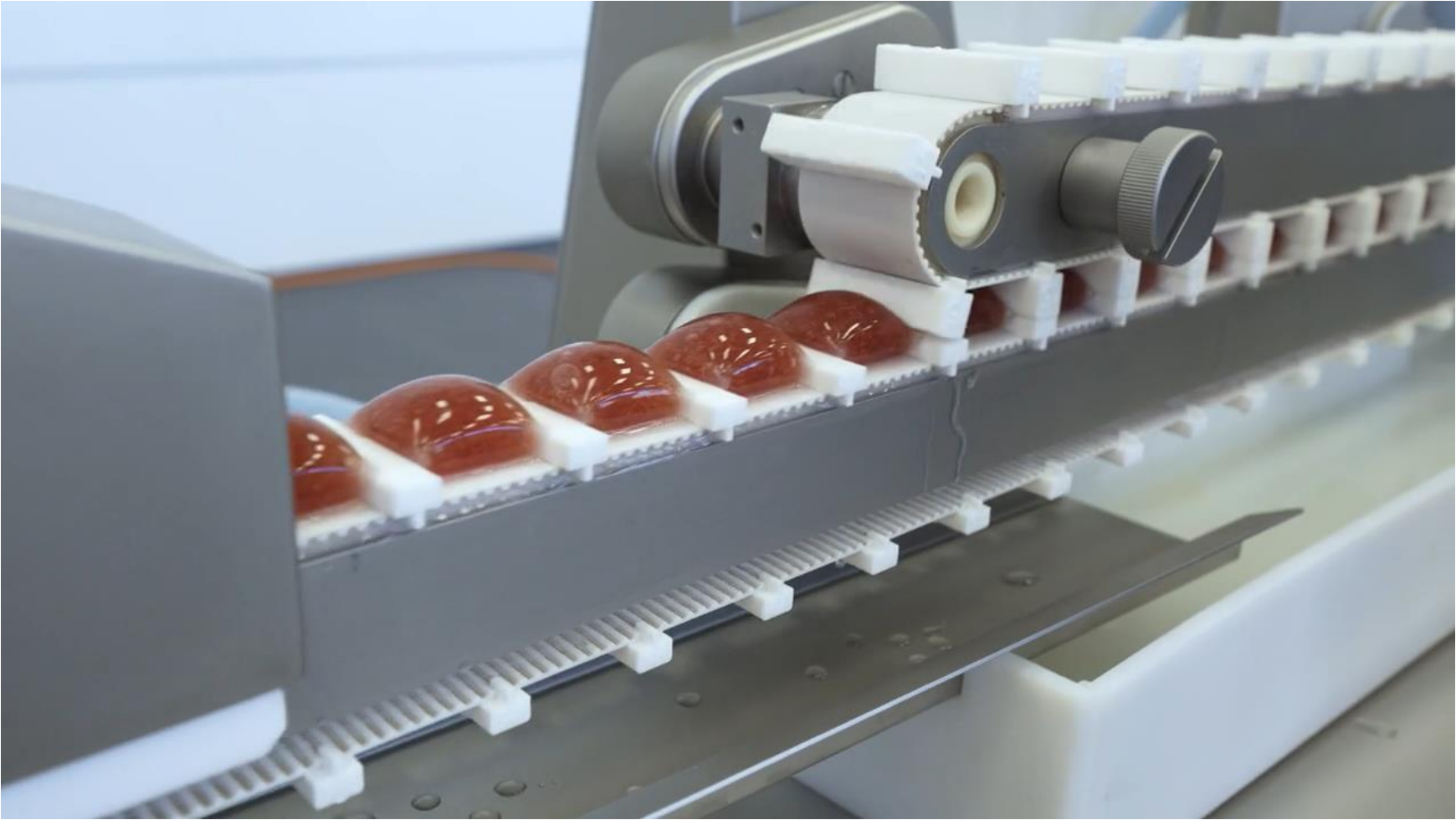
Mini sausage treats in alginate casing



Infinite Loops / Pet Food „leashes“

Co-extrusion: New concept for pillow/sachet shapes

Fillings or coatings are also possible



handtmann

Ideas for the future.



Co-extrusion: New concept for pillow/sachet shapes

Target applications:

“Conventional” snacks

- New pillow/sachet shapes
- Solidified alginate casing
- Pet food snacks with or without coatings and fillings in a triple coextrusion possible

Durable product innovations with long shelf life

- low $a_w < 0.8$
- Solidified alginate casing
- Uncooled storage
- e.g. Jellied broths, collagen snacks, energy gels, functional pods, etc...

PRODUCT INNOVATION



For long shelf life at room temperature, drying processes are necessary to stabilize the alginate hydrogel!

Modular systems for wet pet food

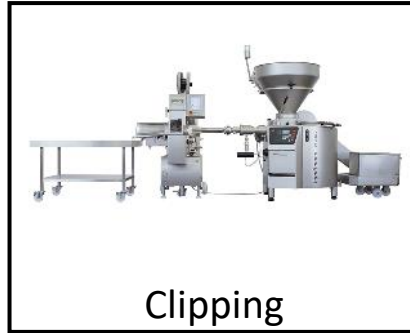
Overview for clipping, tying, dosing and forming solutions

handtmann
Ideas for the future.

Filling and portioning



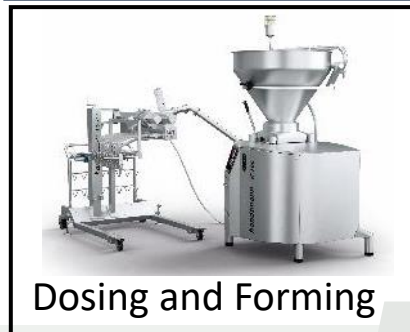
Flexible combination with different devices



Clipping



Tying



Dosing and Forming

To produce various products and shapes



Dog sausage, clipped (BARF)



Dog sausage, clipped (PATÉ and All-Meat)



Dog sausage, tied (PATÉ)



Dog sausage, tied (BARF)



Dog sausage, tied (All-Meat)



Chunks in gravy



PATÉ



All-Meat



BARF/Raw Food



BARF portions frozen



Wet pet food

Wet pet food – Tied sausages

New concept: tied sausages for dogs, no metal clip involved

handtmann
Ideas for the future.



handtmann
Ideas for the future.



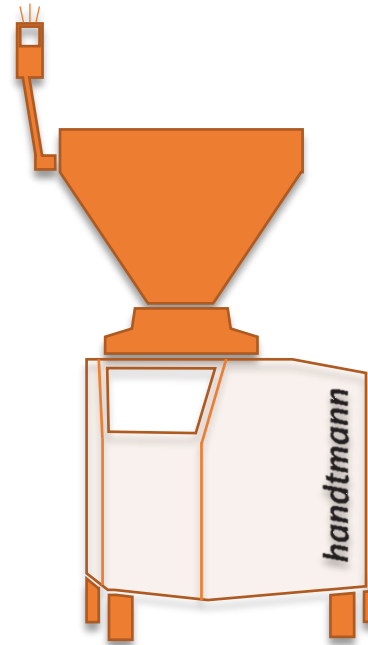
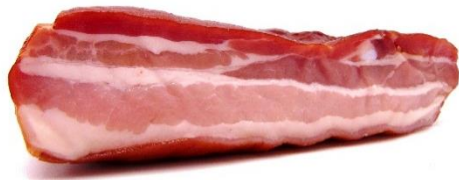
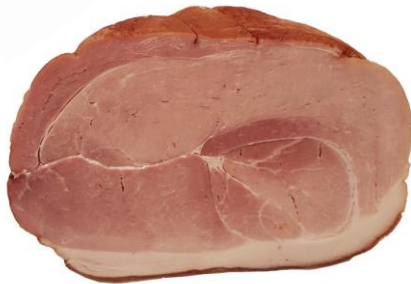
Handtmann FME 570

***The Solution for
Marbled/ Layered Products***



PLANT-BASED SOLUTIONS WITH FAT LAYER AND/OR MARBLING

ANIMAL ORIGINAL



RECONSTITUTED ALTERNATIVE



FLEXIBLE COEXTRUSION SYSTEM

- 2 Vacuum Fillers
- Forming and Marbling Unit FME 570
- > 1 t/h output possible
- Defined fine & coarse fat layering and marbling

PRODUCTION PROCESS

handtmann
Ideas for the future.

handtmann
Ideas for the future.



handtmann
Ideas for the future.

handtmann
Ideas for the future.

MULTIVAC

MULTIVAC

Preparation of meat
(substitute) batter

Coextrusion of meat
alternatives

Cutting of blocks/
Clipping

Freezing/ smoking/
heating
(optional)

Slicing to individual
portions

Packaging

Preparation of fat
(substitute) batter



PRODUCTION PROCESS

handtmann
Ideas for the future.

handtmann
Ideas for the future.



handtmann
Ideas for the future.

handtmann
Ideas for the future.

MULTIVAC

MULTIVAC

Preparation of meat
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Slicing to individual
portions

Packaging

Preparation of fat
(substitute) batter



GMS 400



TVI



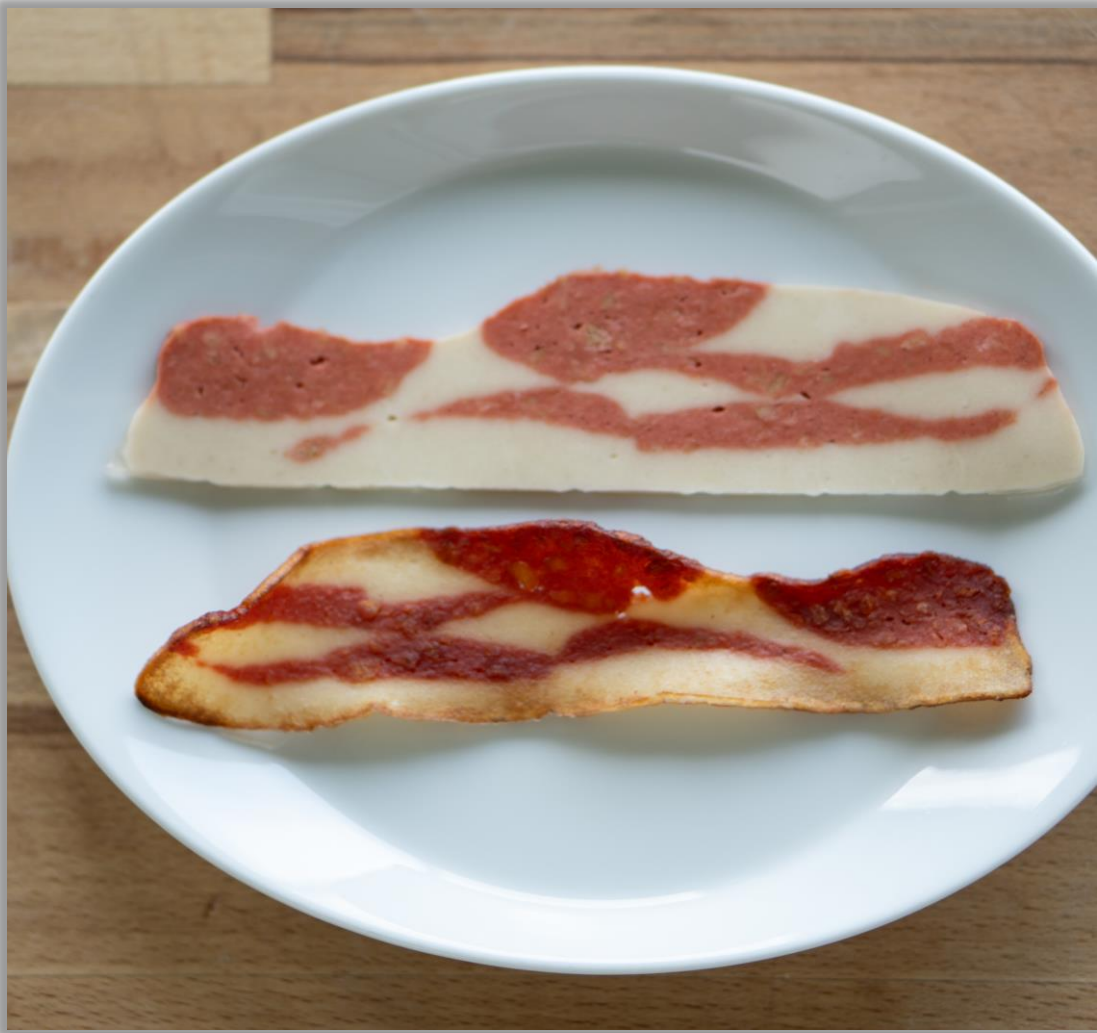
PLANT- BASED MARBLED& LAYERED STEAK

realised together with Planteneers



PLANT- BASED MARBLED& LAYERED BACON

realised together with Planteneers



Station 6



handtmann
Ideen mit Zukunft.



Customized Solutions & Digitization

Handtmann Customized Solutions



MY **IDEA.**

-
-
-
-
-
-



MY **SOLUTION.**

3 Locations, 2 Brands, 1 Business

- ▶ Biberach, Germany
- ▶ Amersfoort, The Netherlands
- ▶ Reutlingen, Germany

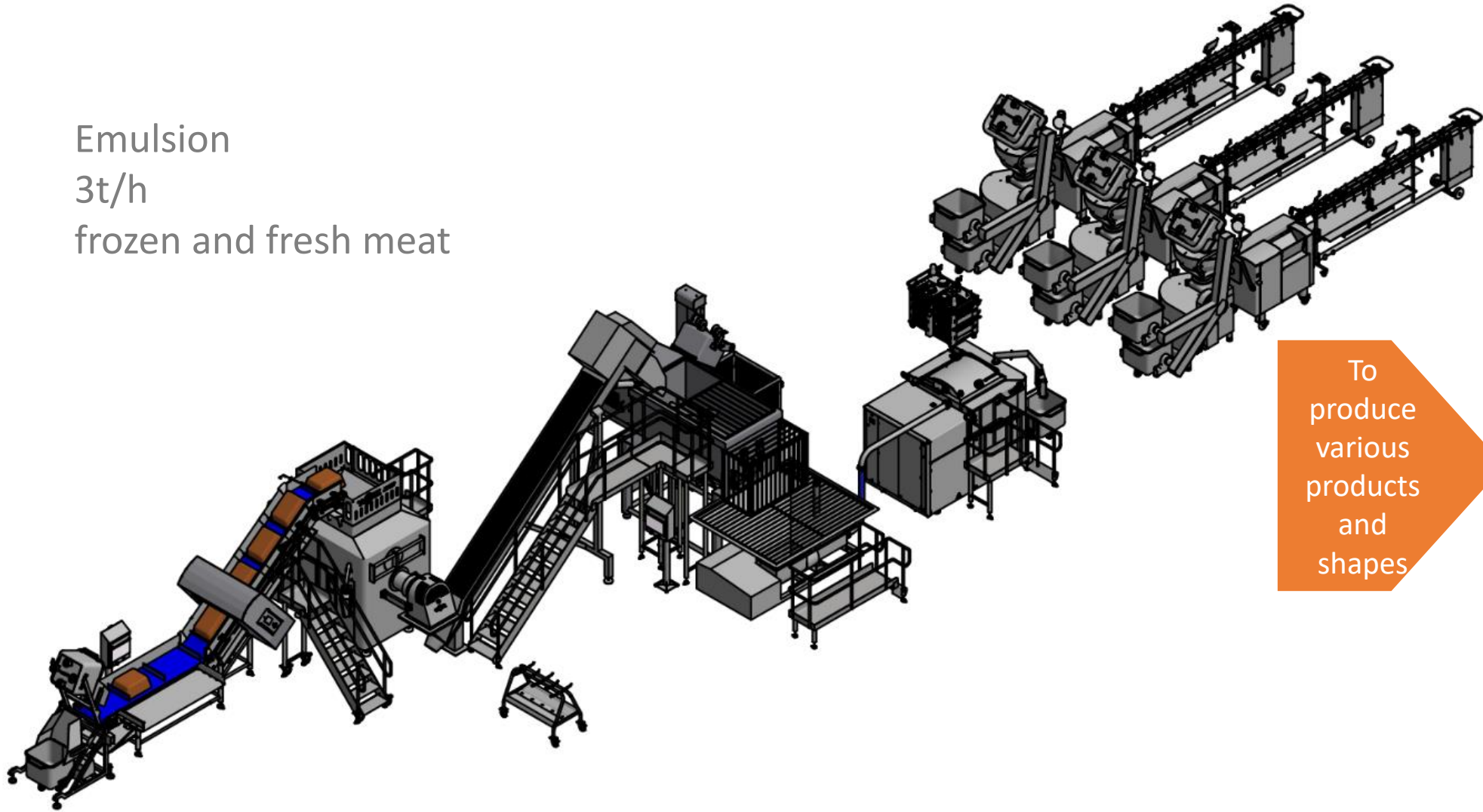
**YOUR FLEXIBLE MARKET APPROACH
TAILOR MADE**

Preparation & Filling/Portioning

handtmann
Ideas for the future.



Emulsion
3t/h
frozen and fresh meat



To produce various products and shapes



Dosing



Clipping



Forming

Preperation, Filling, Packaging & more

handtmann
Ideas for the future.



MULTIVAC



FESSMANN

Leading in Smoking Technologies

handtmann

Ideas for the future.



Handtmann Group



FOOD TECHNOLOGIES SINCE 1867



Handtmann Digital Solutions

Cloud solution



HANDTMANN MASCHINEN COCKPIT



HDI

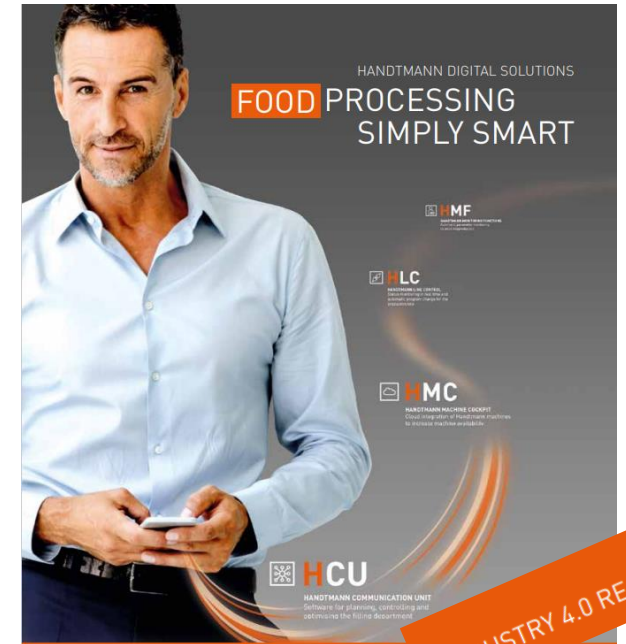
HANDTMANN DATA INTERFACE



ERP/MES-System

HANDTMANN COMMUNICATION UNIT

Network solution



INDUSTRY 4.0 READY

Machine integrated solutions



HMF

HANDTMANN MONITORING FUNCTION



MSA

MACHINE SETUP ASSISTANT



HPV

HANDTMANN PRODUCT VISUALIZATION



HFM

HANDTMANN FUNKTIONS-MODUL



HLC

HANDTMANN LINE CONTROL



IFC

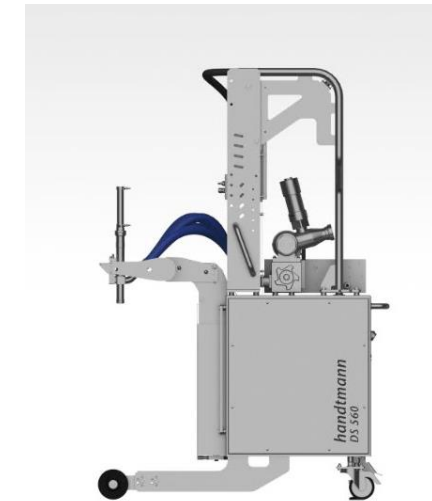
INTELLIGENT FILLER CLIPPER INTERFACE

Smart interface solutions

Impressions & Examples



- Production Line Pet Food
- Dosing Station BARF Thermoformer



Let's get connected



handtmann
Ideen mit Zukunft.



Dirk Patzelt

Handtmann Customized Solutions

Albert Handtmann Maschinenfabrik GmbH & Co. KG

Dirk.Patzelt@handtmann.de



Do you know how much **potential** remains **unused** every day in your processing and packaging process?



MULTIVAC

Do you know your **unused potential**?



Quality-

Performance-

Availability-

Potentials



Quick Live Demo



Simon Stark (MULTIVAC)
12014632 Manuel Baumann

Meine Maschinen Smart Services Service Modernisierung

Nachrichten 5

Remote Screensharing
Behalten Sie Ihr HMI im Auge - egal wo Sie sind.

[zum Service](#)

