



*Let's work together!*



**PET FOOD PROCESSING**



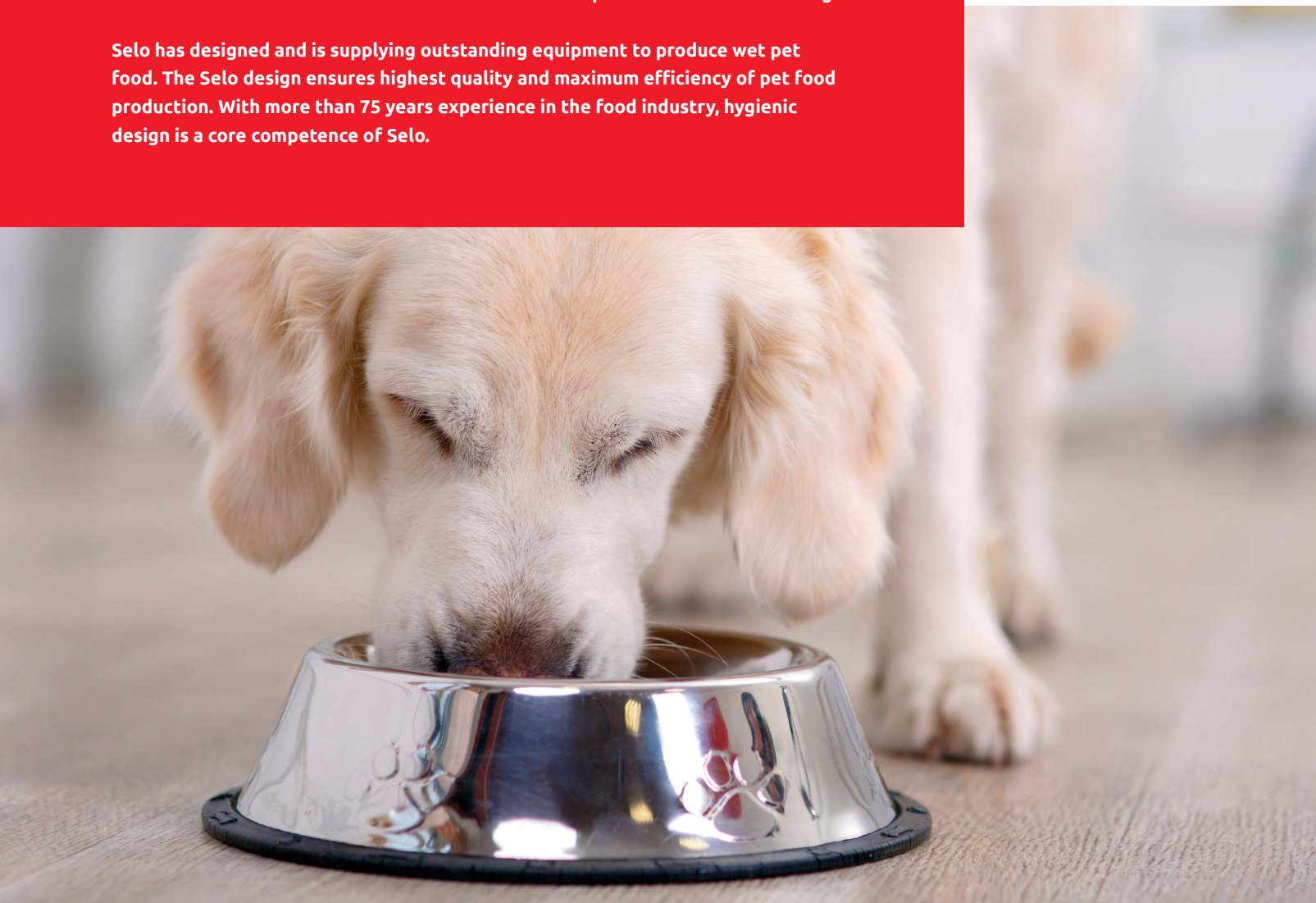


# WET PET FOOD PROCESSING

The global pet food market is a fast growing market and is expected to show a continuous growth in the years to come.

Wet Pet Food is specifically playing an important role in the growth of the pet food market. The demand for 'real' meat in various shapes and colors is increasing.

Selo has designed and is supplying outstanding equipment to produce wet pet food. The Selo design ensures highest quality and maximum efficiency of pet food production. With more than 75 years experience in the food industry, hygienic design is a core competence of Selo.



Selo has over 75 years of experience in the meat processing and pet food preparation. In the 1980s, Selo developed the first steamtunnel for the production of wet animal food, or wet pet food. This innovation set ground for major changes in the animal food industry. Naturally, Selo was continuously focused on the further development and innovations of the steamtunnel which is currently the benchmark system for the production of wet pet food. The Selo

steamtunnels are being used for the production of well-known (global) brands as well as by medium to small-sized (start-up) companies for which we also provide engineering support. During the last 30 years Selo has become the world leader in turn-key solutions of wet pet food systems based on steamtunnel technology. The Selo process lines are state-of-the-art in regards of hygienic, efficient, saves on production costs while ensuring high quality standards.

These 75 years history and experience lays the perfect base to the continues drive for innovations. Even the smallest improvements can add up major benefits. Selo continuously strives to innovate and improve its designs to suit your current as well as your future needs.

Selo is always focused to improve our customers production efficiency, consistent production quality and the overall sustainability of your production.

## THE PROCESS

**A good quality product starts with the right recipe and preparation of the ingredients. A good meat emulsion is an essential part of the production process.**

This meat emulsion is transported from the emulsifier(part of the primary meat process) to the Selo hopper. The hopper has a buffer function, which guarantees a constant flow to the extruder. From the hopper the meat emulsion is pumped to the extruder or spreader. On the way, by means of in-line dosing the required

Depending on the packaging format, a chunk cooling / dry phase can be installed after cutting. This ensures that the free flow filling via the multihead-weigher, for example, will be smoother and more efficient.

In order not to disturb the continues process in case of short stops in the packaging process, Selo has designed a buffer system that can buffer the produced chunks until the packaging process is restarted. This guarantees the efficiency and quality of the production process and minimizes waste.



color and/or other liquid ingredients can be added. Optionally, a metal detection system can be installed. The extruder forms the meat emulsion into regular (or if required irregular) shapes of ropes which are placed on the conveyor belt of the steamtunnel. A variety of rope dimensions and shapes can be produced using different form lists. Once the ropes are placed on the continues belt, they go through the steamtunnel to be cooked. The settings of the entire line, such as speed and temperature, are completely recipe-controlled, to guarantee the highest possible product quality and production efficiency.

The cooked ropes now enter the next step in the process; the cooling phase. The ropes are cooled and partially dried by means of cooling fans. This ensures a clean cut during the cutting process. The length of the chunks will give the end product its final shape.

Selo can provide the complete supply systems to transport the chunks to the packaging installation, including the buffer systems.

In the gravy system, powders are mixed and heated in water. To mix / dissolve the powders 'lump-free' in the water, Selo has designed a special agitator. The produced gravy / jelly is stored in a buffer tank, after which it can be pumped directly to the filling and packaging lines.

A Selo inline mixing system can pre-mix chunks & gravy following a pre-set ratio allowing for an accurate one shot fill process.

Selo pet food lines can be connected to any packaging machine, for example; pouch, cans or trays. The sterilization process follows after packaging. Selo can also offer advice on this subject.

### Sterilizing

The long shelf life of the final product is achieved during the sterilization of the packed product.

For the sterilization process products are loaded on trays or in containers and loaded into the retort, a special pressure vessel, where the product is brought up to the required temperature and pressure for a certain time. During the sterilization process, bacteria as well as bacterial spores are eliminated to avoid microbiological growth in the final product.

### Handling & Final Packaging

After sterilization, in the final packaging stage, the finished products are packed in boxes for in shop presentation and transportation. This process can be done manually, semi-automated or can even be fully automated.

Selo does not only supply wet pet food process systems, but can also advise on the complete plant equipment from primary meat preparation to the sterilization and product handling.

Of course the Selo lines can be connected to any type of filling and packaging system. Selo can also supply all interconnecting transport systems between the processing and filling & packaging lines.



**CONTACT YOUR SELO  
SPECIALIST FOR MORE  
SPECIFIC INFORMATION**

+31 (0)541 582 000



info@selo.eu



# WET PET FOOD PROCESSING FROM START TO FINISH

The Selo team can support you in the design of your optimal production process. In addition to supplying our Selo process equipment, Selo also offer the following activities:

- Turnkey solutions from cooking & chunk forming to the packaging systems
- Total plant pre-engineering
  - Capacity calculations
  - Equipment specification & selection for all process equipment
  - Utility requirements
  - Plant lay-out including utility lay-out
  - Recipe development
  - Investment budgets
  - Feasibility study & cost price calculations
- Product and process optimisation
- Spare parts, aftersales and remote support
- Process, production and maintenance training for your site engineers and operators

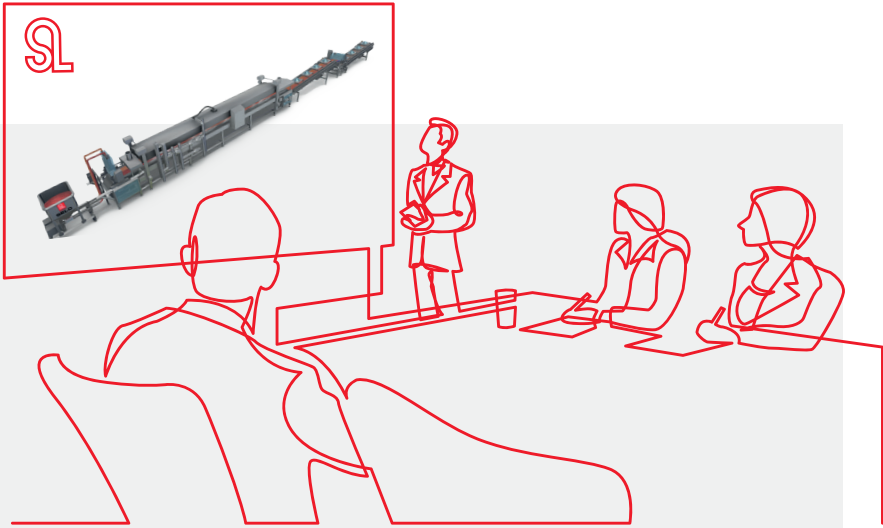
WET PET FOOD PROCESSING FROM START TO FINISHED PRODUCT		
Primary meat processing		✓
Cooking & Chunk forming	✓	
Gravy preparation	✓	
Packaging		✓
Sterilizing		✓
Handling & Final packaging		✓



**YOUR SELO SPECIALIST  
CAN PROVIDE FURTHER  
INFORMATION ON EVERY  
STEP OF THE OVERALL  
PROCESS**

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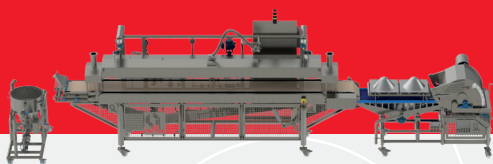


# SELO SERIES

## OCELOT SERIES

Small, fast and no frills. The Ocelot series is the smallest of the Selo series. The ocelot is a very compact all-in-one line which includes all the necessary features.

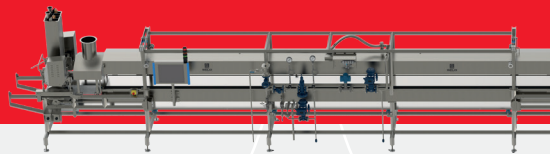
Equipped with a spreader system and a Teflon belt the Selo ocelot series ensures a no frill, smooth consistent and efficient production process with a capacity up to 300 kg of meat chunks per hour.



## CHEETAH SERIES

Dynamic and majestic, The Selo Cheetah series are designed for high flexibility in processing options in a medium capacity range. The line is based on a 400mm wide belt system.

Both Teflon and stainless steel belts as well as spreader and extrusion systems are available in the Cheetah range. A color injection is optional for this multi-talent with production capacities up to 750 kg of meat chunks per hour.

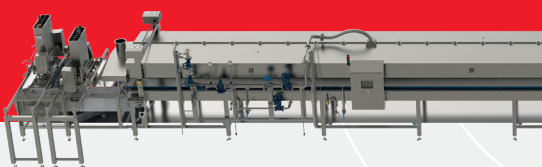


## SERVAL SERIES

Named after an elegant, powerful and strong creature the Selo Serval series will serve your needs.

This series is designed for medium to high capacities and can include full options with multiple extruders or spreaders which will enable you to produce up to 4 different colors and multiple shapes of chunks at one time. A long lasting durable continuous stainless steel belt is the standard while on selected steamtunnels Teflon belts are optionally available.

The production capacity of the Serval series is up to 2.500 kg of meat chunks per hour.

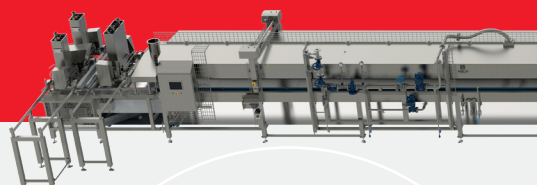


## AMUR SERIES

The most powerful and largest beast of our the Selo series is the Amur which is not to be tamed in smaller spaces.

The Selo Amur series is designed and built for heavy duty and high capacity production of wet pet food, whilst keeping all the flexibility and possibilities to produce short batch runs. Just like the Serval series all options are available on these magnificent lines.

Chunk processing capacities up to 5.000 kg of meat chunks per hour are no issue for the Amur series.



# THE SELO PROCESS



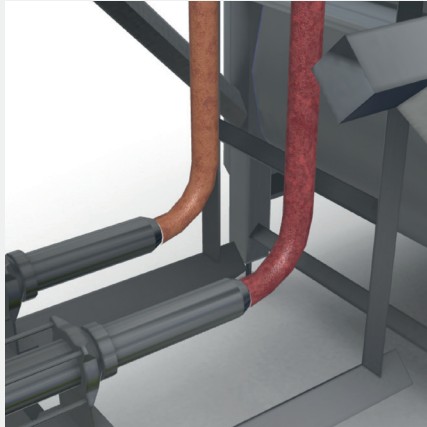
## STARTING THE CONTINUOUS COOKING PROCESS

To guarantee a continuous supply of meat-emulsion to the extruder of the steamtunnel, a product-buffer is used. The buffer consists of a single tank, with one or two mono pumps, connected to supply the extruder with emulsion. The meat emulsion is produced in batches, from the hopper the continues process of meat cooking, cooling and cutting as well as fulling and packaging starts.

The emulsion hopper is equipped with level sensors connected to the automation of the Selo line and the meat preparation line. This ensures that there is always a correct level of meat emulsion in the hopper and prevents possible overflow or dry running of the system.

### Advantages

- Communication possible with both meat preparation system as well as the overall process line
- Hygienic design in SS316 material for easy cleaning and maintenance



## COLOR DOSING

The color will be injected and mixed inline when the emulsion is pumped from hopper to the extruder. This results in multi-colored ropes of meat emulsion. The system has proven to create very efficient in-line coloring, without disturbing the extrusion process. The number of colors depends on the number of monopumps, extruders and size of the line.

### Adding liquid ingredients / colors

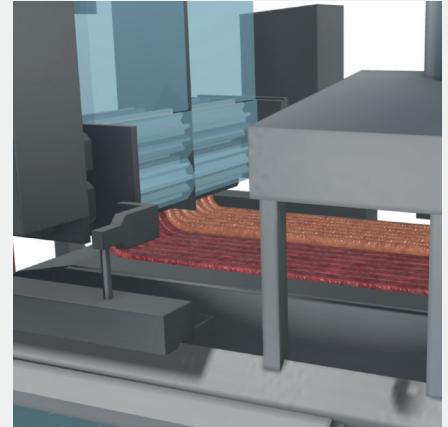
Both liquid ingredients as well as colors can be added to the emulsion. The emulsion hopper can be extended with an injection system in one or two monopumps.

### Advantages

- In line unit
- Flow meter controlled
- Dynamic mixing of color
- Flexibility in your production process

## DETECTING METAL PARTS

As an extra guarantee for the quality and safety of the product and process, metal detection can be installed. This ensures that no metal parts are entering the further process. This system can be in addition to other metal detection checks. It will increase the product safety & quality control. It will also protect and reduce the consumption of for example cutting knives.

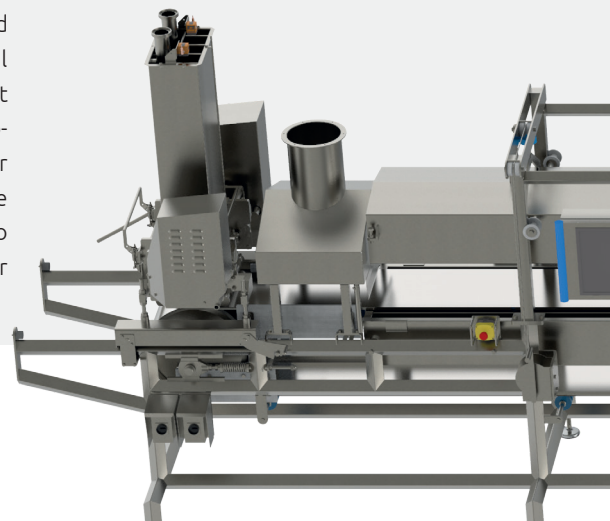


## FORMING THE ROPES

Ropes of meat emulsion are formed by the extruder or a spreader which is placing the formed ropes onto the continues cooking belt. The emulsion is transferred into the extruder or through the spreader by the monopump system of the Selo hopper. The Selo system ensures the consistency in rope forming.

The shape and size of the ropes are created by the form plate openings through which the emulsion is pressed / pumped. The form plates can be easily exchanged in case different sizes of products are to be produced. This ensures a minimal down time in case of product change overs.

Several Selo lines offer the possibility to install multiple extruder / spreader systems. This will allow you to process multiple colors and shapes of chunks at the same time.

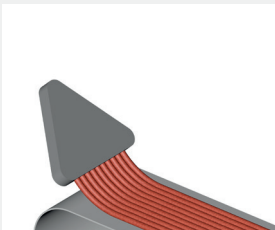


Regular / irregular shapes

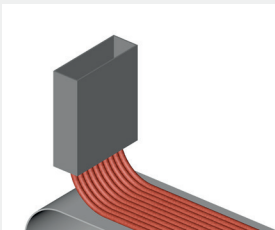
Selo lines can, optionally, be upgraded to produce both regular and irregular shapes. Irregular shapes processing by steamtunnel technology creates a product with high palatability. With a natural look, high palatability whilst ensuring all advantages of the Selo technology including flexibility and a favorable cost price compared to other technologies. Selo offers a hybrid system which allows you to produce both regular and irregular shapes.

Advantages

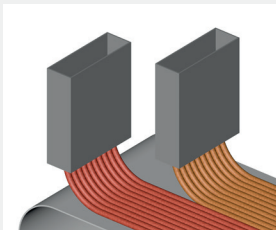
- Fast and easy change of form lists
- Consistent forming of emulsion ropes
- Multiple form list patrons are available and can be customized for your specific requirements



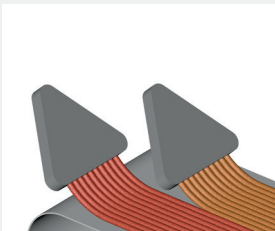
1 Spreader, 1 color



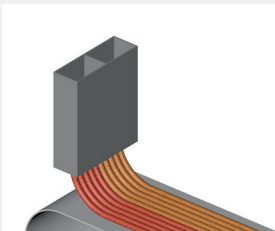
1 Extruders, 1 color



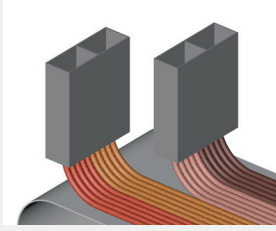
2 Extruders, 2 colors



2 Spreaders, 2 colors



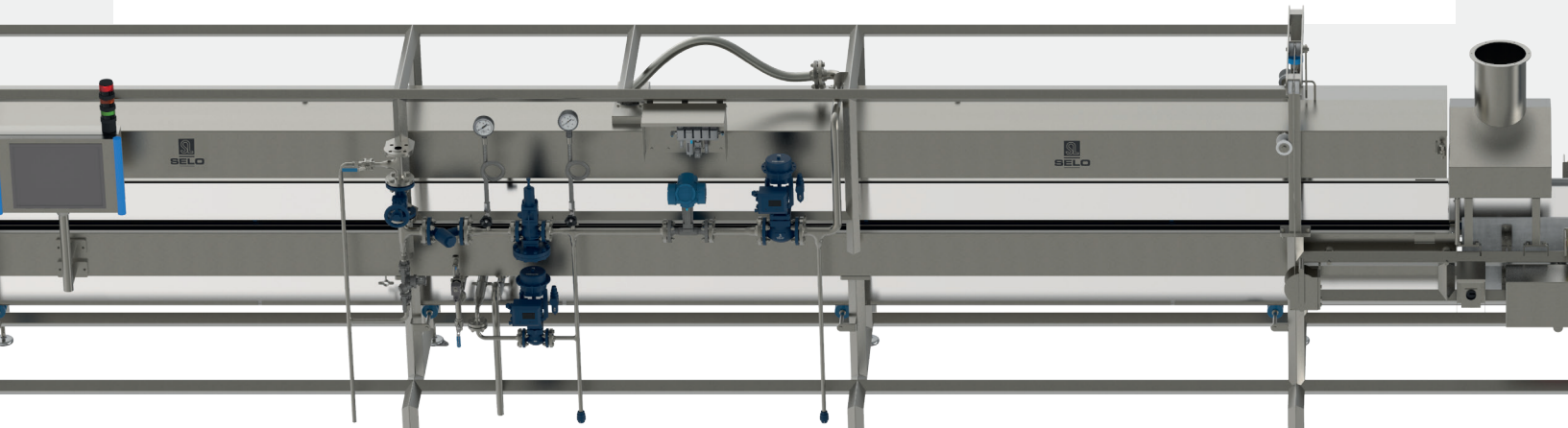
1 Extruder, 2 colors



2 Extruders, 4 colors

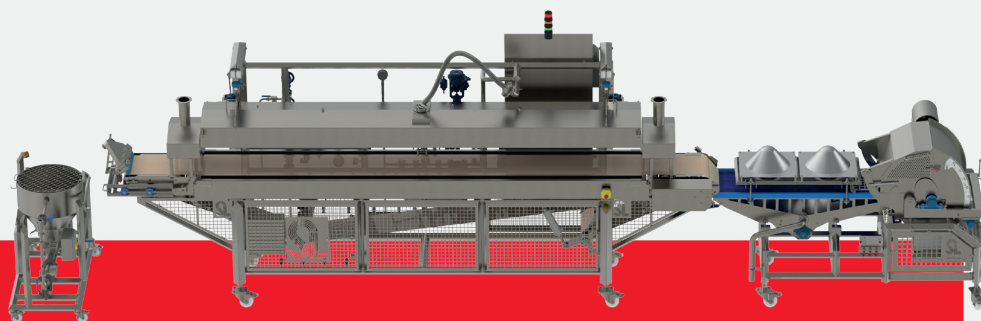
		OCELOT	CHEETAH	CHEETAH XL	SERVAL	SERVAL L	SERVAL XL	AMUR	AMUR XL
Range Chunk Capacity (kg/hr)		250	400-600	600-750	1000-1500	1500-2000	2000-2500	3000-3500	4000-5000
Type of steam tunnel belt		Teflon	SS316 / Teflon	SS316 / Teflon	SS316 / Teflon	SS316	SS316	SS316	SS316
Metal detection		O	O	O	O	O	O	O	O
Coloring option		N/A	O	O	O	O	O	O	O
Nr. of extruders / chunk shapes (optionally)		1	1	1	1 (2)	1 (2)	1 (2)	2 (3)	2 (3)
Cutter	Single shaft	S	S	S	S	S	S	S	S
	Double shaft	N/A	N/A	N/A	O	O	O	O	O

O=Optional, S=Standard



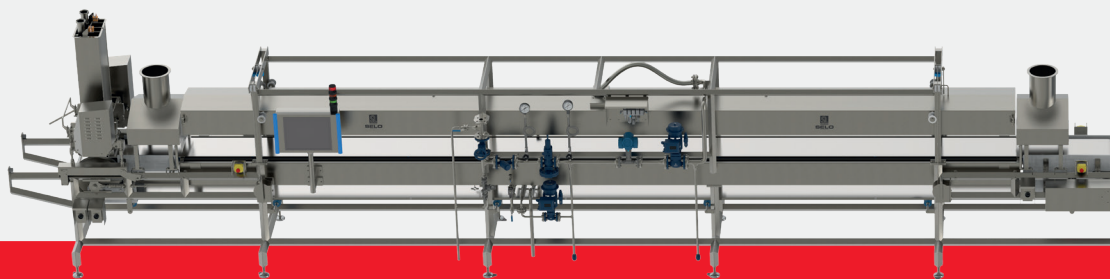


## OCELOT SERIES



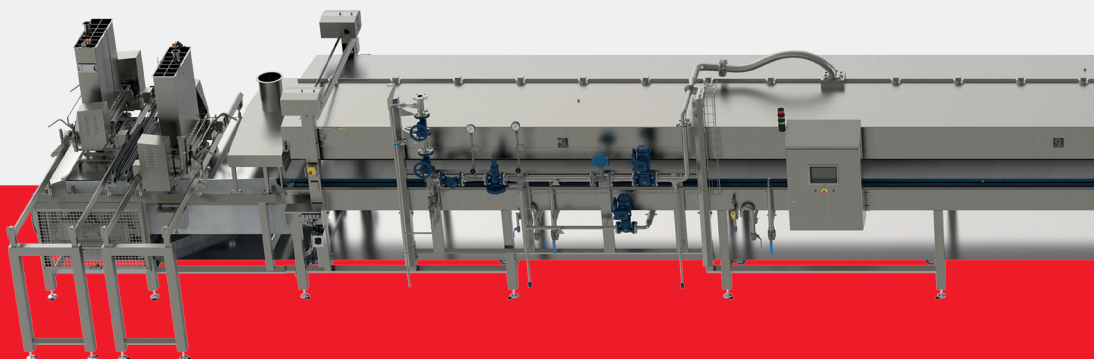
*Hopper – Spreader – Steamtunnel – Cooling & Cutting Unit*

## CHEETAH SERIES



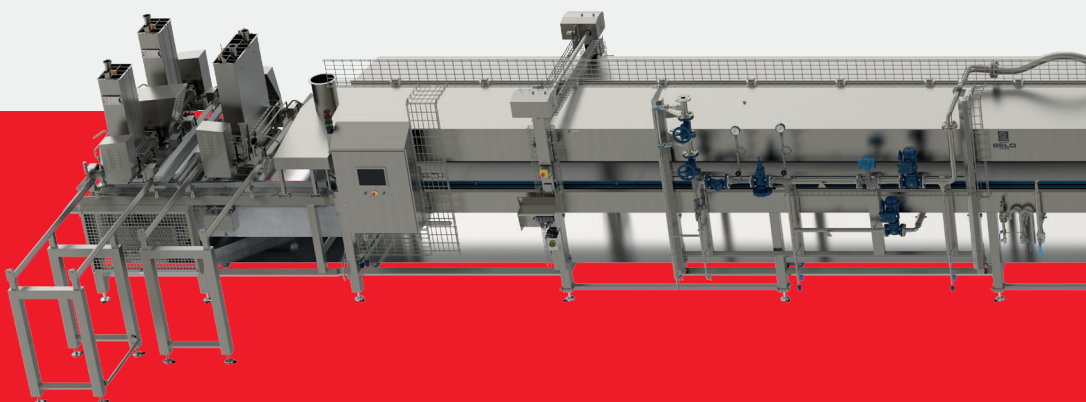
*Set up as illustrated: Extruder – Steamtunnel – Rope Cooling Belt – Cutter – Chunk Cooling Belt*

## SERVAL SERIES



*Set up as illustrated: Double Extruder – Steamtunnel – Rope Cooling Belt – Cutter*

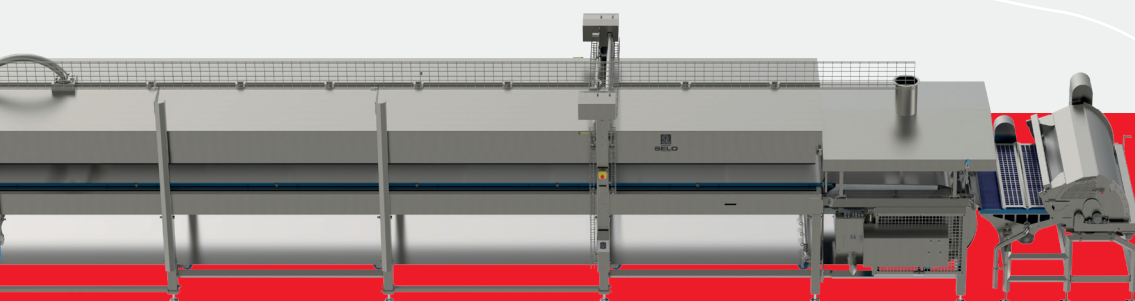
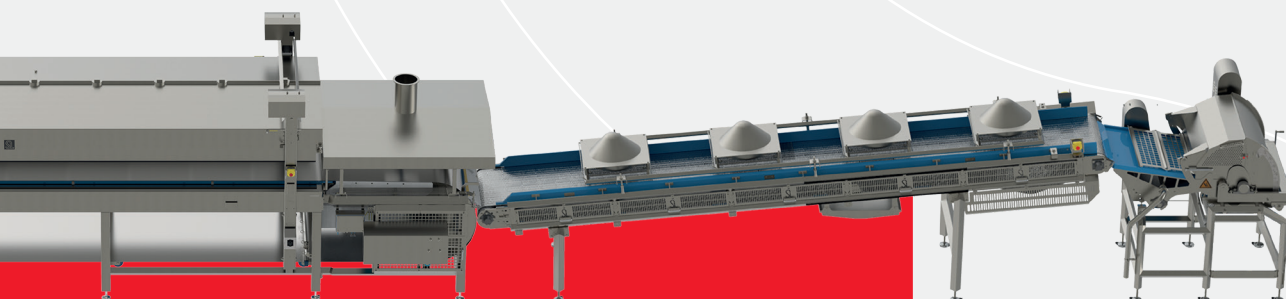
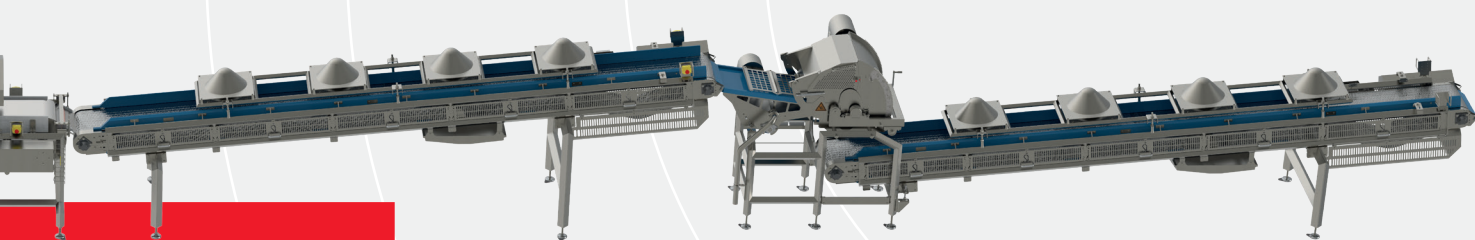
## AMUR SERIES



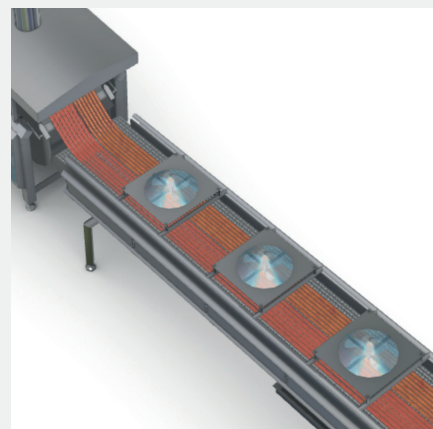
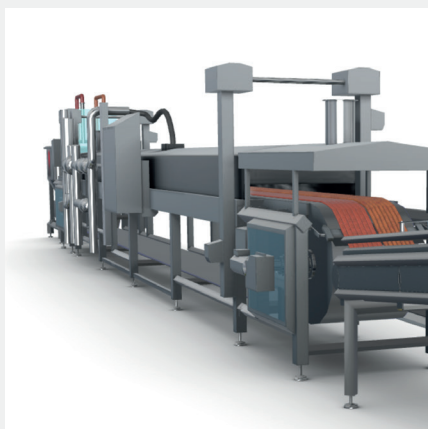
*Set up as illustrated: Triple Extruder – Steamtunnel – Cutter*

# SELO SERIES

WET PET FOOD LINES



## THE SELO PROCESS



### COOKING THE FORMED ROPES

The Selo steamtunnel is cooking the formed ropes (meat emulsion) by using steam. The speed of the belt as well as the steam supply & temperature settings can be adjusted to reach the desired and most optimal cooking results. The tunnel is considered to be the heart of the process line. The complete line is recipe controlled which ensures the highest processing efficiency. Heat is transferred to the product in two ways. Steam injected in the top hood condenses on the product surface and heats the emulsion. The steam injected below the processing belt condenses on the belt and heats the emulsion from the bottom. Exact cooking times and temperature settings are product specific.

As well as all other Selo equipment the Selo steamtunnel is designed for the ease of use, meeting highest hygienic standards in combination with excellent efficiency performance.

Selo has a range of steamtunnels meeting your specific production capacity requirements.

The most recent Selo innovation is our patented **DISPA®** system, which will reduce the steam consumption, thus allowing you to reduce your carbon dioxide footprint, increase your production capacity or a combination of the two.

#### Advantages

- Efficiency due to recipe control, state-of-the-art insulation of hood and steam flow design
- Ease of cleaning & Maintenance
- Stainless Steel belt ensuring long life time cycle, reducing down times. Teflon belts are available on selected series
- Scrapers are installed for continuous automatic cleaning of the belt during production
- High production capacity, but also suitable for smaller production batches with minimal change-over time

### COOLING THE ROPES

After the cooking process, the ropes of cooked meat emulsion can be cut into chunks. To ensure the best cutting results, the cooked meat emulsion ropes can be cooled. The goal is to cool down the ropes to the right temperature to be cut, but to prevent to cool down too much as this will have a negative effect on the overall process line efficiency.

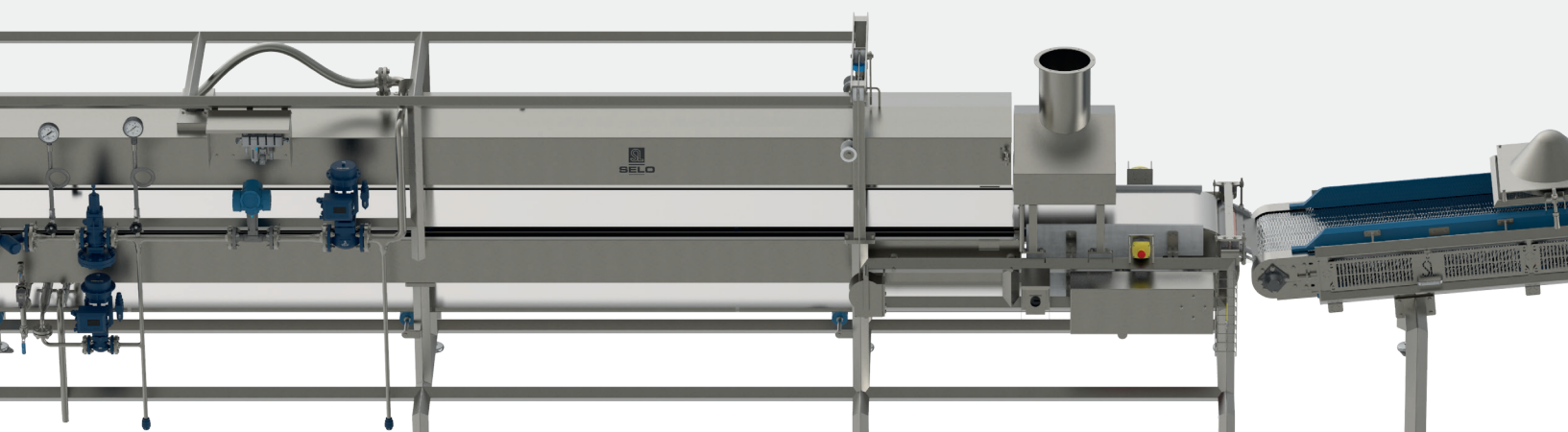
There are two methods of cooling the ropes. The first method is wet cooling. With wet cooling, water is sprayed to cool the ropes. This method is often used in case of canned products.

The second method is air cooling. Ambient air is blown over the ropes by means of cooling fans, which cools and partially dries the ropes of meat emulsion.

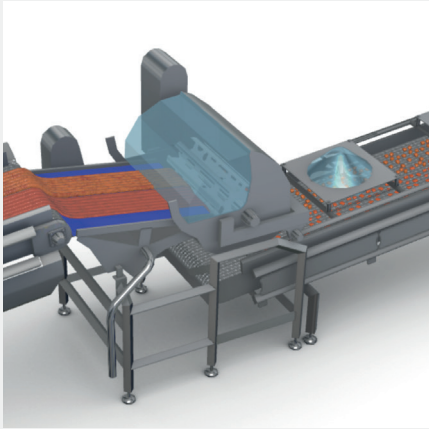
Selo cooling systems are designed for efficient cooling and easy cleaning.

#### Advantages

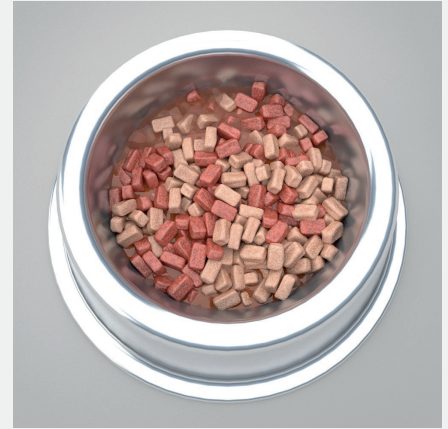
- Recipe controls, high efficiency
- Easy cleaning
- Smooth transfer of ropes
- Adjustable fan speed







*Regular shape, 1 color*



*Regular shape, 2 colors*

## CUTTING THE ROPES INTO CHUNKS

The cutter unit is designed to cut the incoming ropes into chunks. The cutter speed is frequency controlled allowing to cut the chunks into pre-determined lengths or, in case desired, into variable lengths. The cutting unit can also be adjusted at a variable angle. This means that the chunks can be cut at this angle creating a more natural look.

Selo offers two cutter versions, a single shaft and a dual shaft. The dual shaft cutter is available in the Selo Serval and Amur series. The dual shaft cutter is executed with two independent shaft drives.

The shaft speed of each drive can be set independently by frequency control, which can result in two sizes of chunks lengths. The cutter is designed according the highest safety standards. The unit is easily accessible for cleaning and exchange of the hardened knife blades. Optionally a cleaning system can be installed.



*Regular shape, 2 cutting lengths and 2 colors*



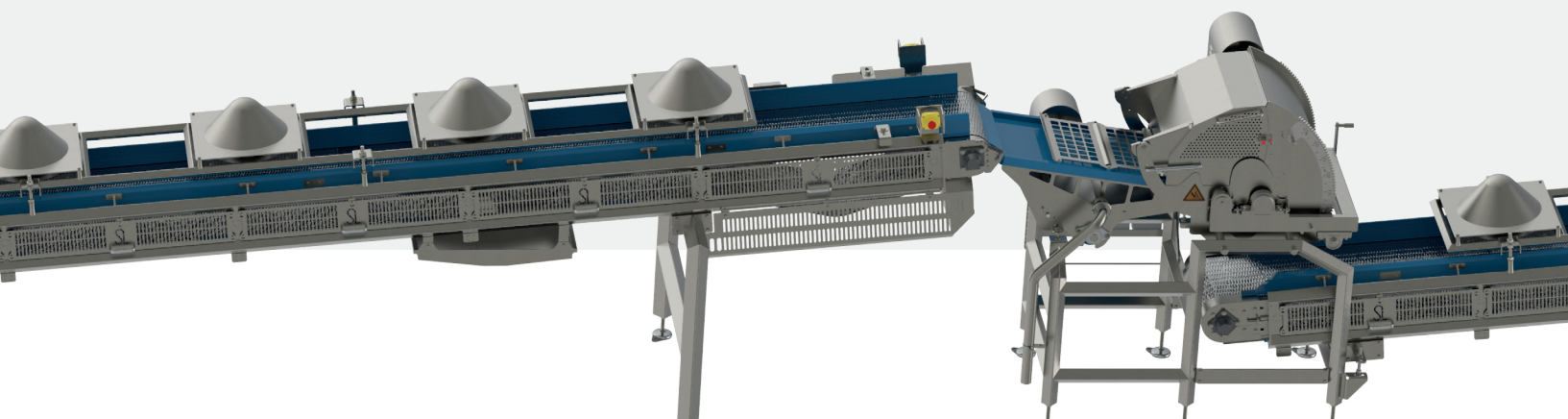
*Irregular shape, 2 colors*

### Advantages

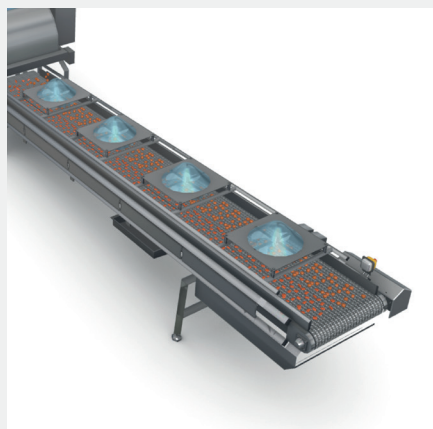
- Minimal fines and waste
- Smooth and efficient transfer
- Flexible cutting length
- Adjustable cutting angle



*Irregular shape, 2 colors with vegetables*



## THE SELO PROCESS

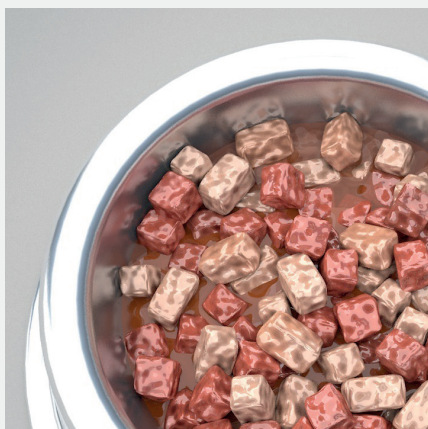


### COOLING THE CHUNKS

For the best results during filling and packaging, especially in case of pouch filling (two shot fill), chunk cooling as a secondary cooling step is advised. The chunk cooling process is designed to prevent the chunks from clumping together in the further process of filling and packaging. This is achieved by blowing ambient air over and around the chunks and so to cool, but even more important, to dry the skin of the chunks.

#### Advantages

- Recipe controls, high efficiency
- Easy cleaning
- Adjustable fan speed



### PREPARING THE GRAVY/JELLY

Understanding the importance of gravy, being a substantial portion of the final product, Selo has designed a gravy preparation system for the most exquisite result of mixing dry ingredients and water. The process is following a pre-set recipe and temperature settings. Selo has designed a special agitator to achieve lump-free mixing. The gravy system includes a gravy preparation tank in combination with a buffer tank. The system can be connected to a multiple number of, and all types of filling and packaging units. The gravy / jelly is pumped directly to these units.

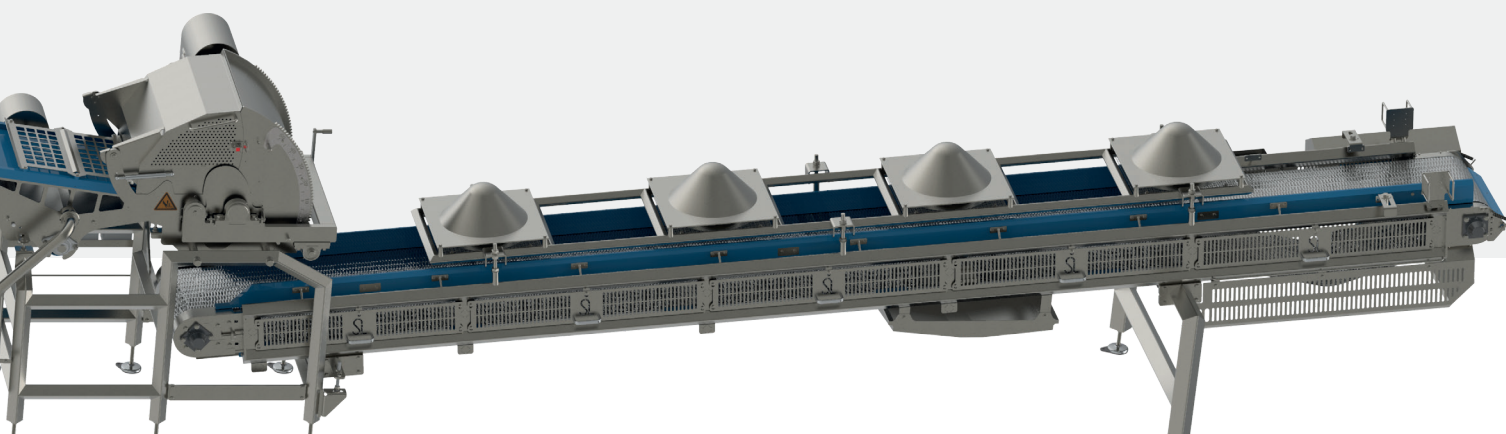
Gravy or jelly is produced in batches. The process is flexible and allows for multiple recipes. The preparation of the gravy can be an integral part of the steam tunnel line control and automation system or as a standalone unit.

**“SELO POSSESSES  
EXTENSIVE KNOW-  
HOW IN THE FIELD  
OF WET PET FOOD  
PRODUCTION  
PROCESSES”**

Selo offers different sizes of gravy preparation systems to meet your required production capacities.

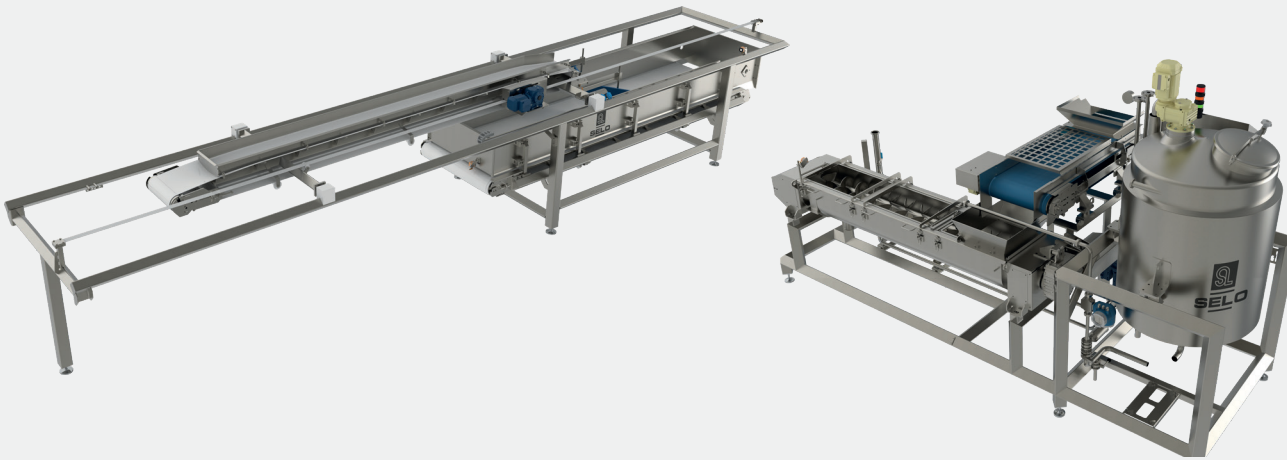
#### Advantages

- Fast and accurate heating system
- Lump-free mixing
- Integrated buffer system
- Connection to multiple filling stations possible





## DOWNSTREAM TO THE FILLING LINE



### BUFFERING THE CHUNKS

Selo offers a range of buffer systems to suits your specific needs

In normal operation the chunks will proceed to the filling and packaging units. In case equipment downstream is stopped, the buffer starts buffering. As soon as the downstream equipment starts again, the buffer will empty itself automatically according the first in first out principal(FIFO). The advantage of this is that the rest of the processes can run empty, resulting in minimal waste production.

### INTERCONNECTING TRANSFER BELTS

Selo can supply all interconnecting transfer belts connecting the process line to the

filling unit. This system will be designed to your specific needs and plant lay-out. In case of two shot filling system, the chunks will be transferred directly to the filling station. In case of a one shot fill system, chunks will be transferred to an inline mixing unit. The filling can be done in trays, cans or pouches.

### INLINE MIXING OF CHUNKS AND GRAVY

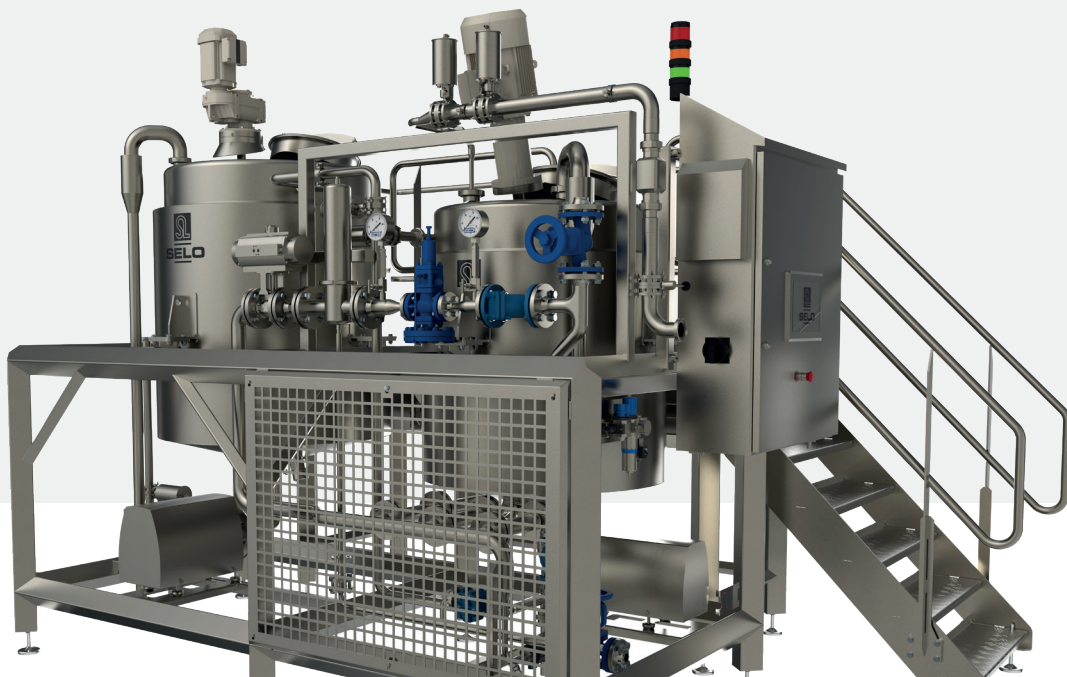
In case of a one shot fill system the chunks & gravy can be mixed in a horizontal inline mixing unit before filling. A flow meter ensures the correct quantity of gravy, while the chunks are being weighed on a weighing belt before gently entering the inline mixing unit. This will ensure that the correct ratio of chunk is gravy is pumped to the fill-

ing and packaging systems. The Selo system is well know because of the accuracy and gentle handling, ensuring your highest quality standards. Optionally additional heating of the gravy can be installed.

### PACKAGING MACHINES

Selo processing lines can be connected to any kind of filling and packaging machines. For example trays, pouches, cans or cups. It is, of course, possible to connect to multiple filling or packaging systems.

To offer a complete line, in collaboration with our sister company Omori Europe, Selo offers pre-made pouch filling and packing machines. Your Selo specialist will be happy to provide you with more details.





# SELO TRAINING, SERVICE & AFTERMARKET

## TRAINING

To safeguard a smooth start-up of your new process line, Selo provides operator and maintenance instructions as well as a training for your staff during installation and commissioning. In addition to this training, Selo offers more in-depth training for your operators, technicians and maintenance team. Selo's specialized and well experienced trainers can school your team in the total process of producing wet petfood (from primary meat processing until finished product) allowing your staff to recognize any deviations in production, finding and solving root causes, thus optimizing your process and securing optimal product quality.

**"COMPETENCE AND KNOWLEDGE OF THE COMPLETE PRODUCTION PROCESS IS ESSENTIAL TO REACH YOUR ULTIMATE QUALITY AND EFFICIENCY GOALS"**

## SERVICE

Periodical inspections and maintenance ensure on time replacement of wear and tear parts and keeps your line in optimal condition protecting maximum up-times and minimum down-times. The Selo service team exists of experts, which is on constant standby to support you on site as well as by remote support for inspections and maintenance.

With years of experience Selo can advise you in spare parts management, upgrades, line settings and the overall maintenance of your processing line.

**"IN SELO PHILOSOPHY WE SPEAK ABOUT UP-TIMES INSTEAD OF DOWN-TIMES"**

## SPARE PARTS

The Selo installations are designed and built with components in accordance to the highest quality requirements to ensure an optimal lifespan of your installation. Selo offers multiple spare parts kits, with the most necessary wear and tear parts, to keep your installation up and running. In addition to the recommended spare parts for stock keeping, the Selo service team is set up in such way that Selo ensures a fast delivery of any possible spare parts.



## TRAINING

+31 (0)541 582 000

training@selo.eu

## SERVICE

+31 (0)541 582 002

service@selo.eu

## SPARE PARTS

+31 (0)541 582 032

spareparts@selo.eu

# HOW SELO CONTRIBUTES TO A BETTER WORLD

## INNOVATIONS

Innovation starts with the ability to constantly see, develop and put new ideas and solutions into practice. Continuous improvement is in the core of Selo's DNA. Selo is the original inventor and supplier for continuous wet pet food processing, by implementing the steamtunnel technology. Even after four decades, this technology still prevails over others. Through the years many improvements, developments and innovations have been successfully introduced by Selo. The most recent Selo innovation is our patented **DISPA®** system, which will allow you to reduce your carbon dioxide footprint, saving energy costs, increasing your production capacity or a combination hereof.

Further recent developments include the processing of irregular shapes. Selo offers a hybrid system which allows you to produce both regular and irregular shapes. This creates chunks with a natural look, high palatability whilst ensuring all advantages of the Selo technology including flexibility and a favorable cost price compared to other technologies.

## PARTNERSHIP

Selo's credo 'Let's work together' is reflecting our mission to be a true partner in the wet pet food industry. Working together with the most respected customers as well as any supplier in the wet pet food processing industry.

Selo's philosophy is to provide our customers with the best possible solutions. We independently work together with multiple leading companies in all steps of processing wet pet food, including primary meat preparation, packaging and sterilization. By doing so, Selo can provide the optimal solution for you, as well as to ensure a smooth connection between all process steps, including automation and communication within the process line.

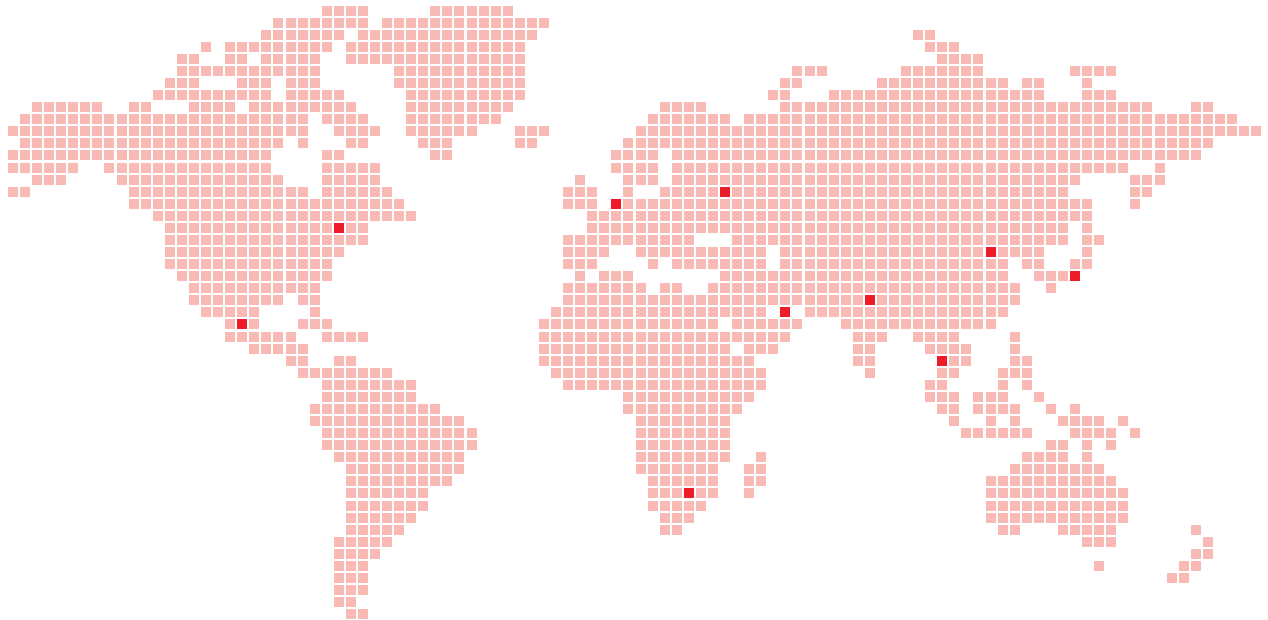
## CONTRIBUTING FOR A BETTER WORLD

Within Selo we care about the world's precious nature, being a responsible world leading company in pet food processing, we feel obliged and see it as our duty to protect our global environment. All our wet pet food processing series are named after endangered cat species. Selo contributes to World Wide Fund for nature in order to ensure that the world's most iconic species, including the Ocelot, Cheetah, Serval and Amur tiger are preserved and recovering in their natural habitat. For every pet food line that we install, Selo contributes by adopting one of these endangered species in your name including an adoption gift set package.





SELO INTERNATIONAL



📍 Asveldweg 11  
7556 BR Hengelo  
The Netherlands

+31 (0)541 582 000

✉ info@selo.eu

🌐 www.selo.com



*Let's work together!*