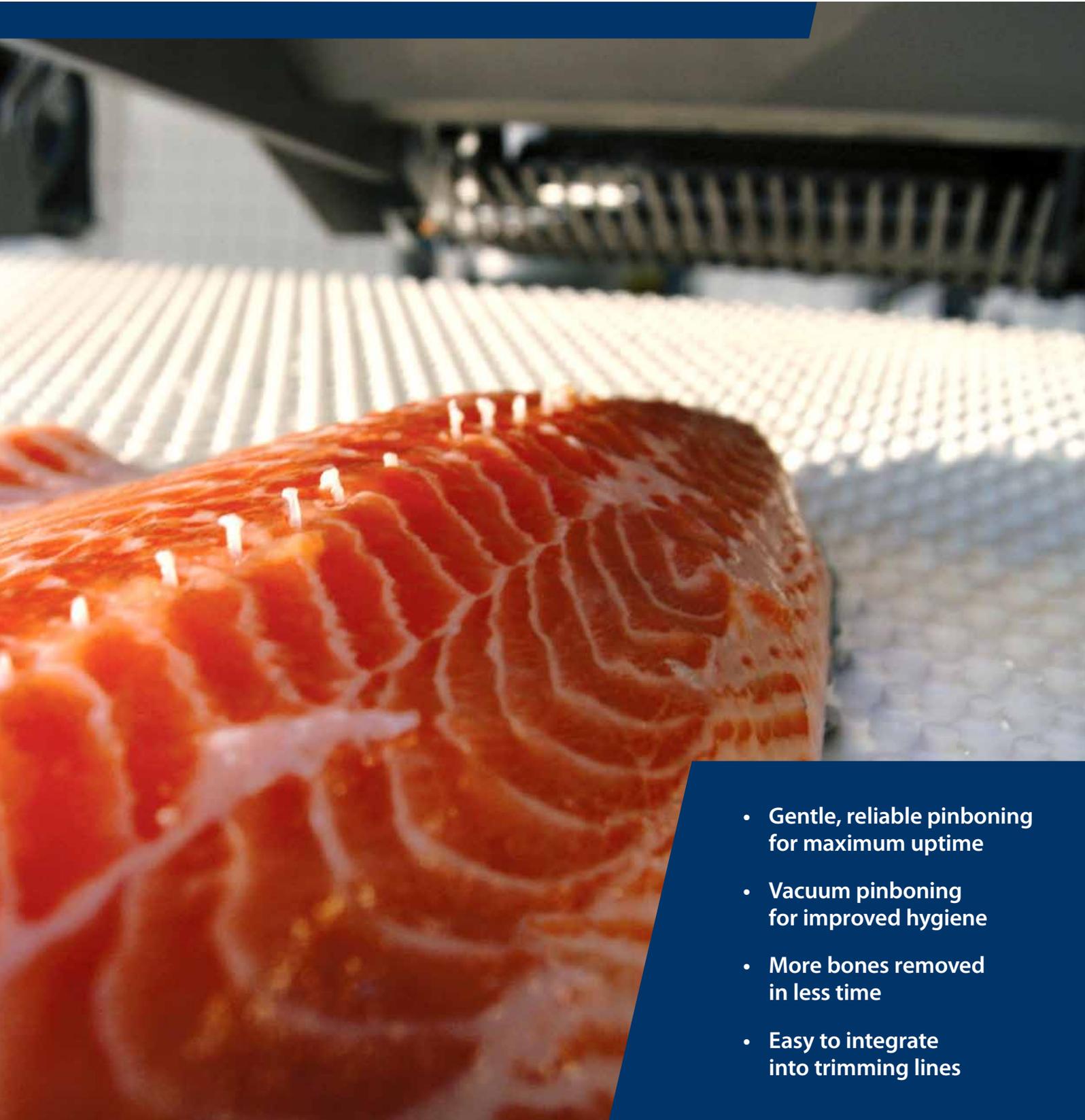


# Salmon Pinboning

Efficient pinbone removal



- Gentle, reliable pinboning for maximum uptime
- Vacuum pinboning for improved hygiene
- More bones removed in less time
- Easy to integrate into trimming lines

# Pinbone removers for salmon fillets

Marel provides a wide range of pinbone removers for salmon, extending from simple standalone machines to advanced units that integrate easily into new or existing production lines.

The key objective with pinbone removal is to take out as many bones as possible without damaging the structure of the meat, while achieving maximum possible yield. Based on many years of research and experience, and taking into careful consideration the specific needs of our customers, Marel has developed pinbone removers that perform with exceptional efficiency and reliability.

Working in close collaboration with our customers means we understand the practical challenges of pinboning and can improve the efficiency of existing equipment or legacy installations.

## Design and craftsmanship count

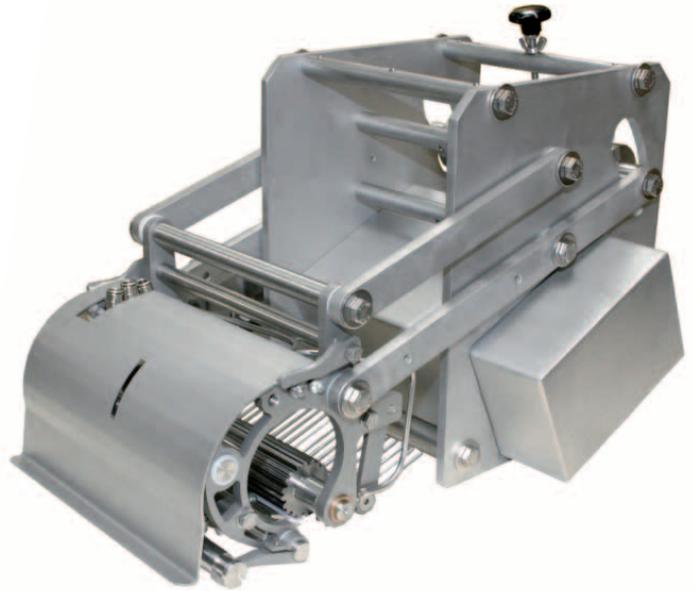
Our pinbone removers are designed and built to be robust, reliable, and strong, ensuring a long service life. They are easy to operate, highly versatile, and integration into any type of processing line is very straightforward.

Marel is one of the pioneers of pinbone removal, constantly ensuring that its pinboners comply with modern pinboning principles. We have sold more than 500 units worldwide since launching our first pinbone removers in 1998.

## Principles for pinbone removing

Our pinbone removers treat salmon fillets very gently. The fillets are moved to the pinbone head on a PVC conveyor belt; head first and skin side down. The fillet is gently held in place on the conveyor while the pinbones are removed, ensuring minimum waste.

Marel pinbone removers are specifically designed to adjust to the structure, size, and shape of each individual fillet, to produce end products of particularly high quality.





## Comprehensive product range

We offer you a selection of standard pinboners or vacuum pinboners for fresh salmon fillets. Both types minimize production time and labor costs, and ensure maximum yield.

The range spans from a single-lane model up to a 6-lane edition, to match whatever throughput is needed. All standard models can be supplied with optional drip trays for water and bones, and trolleys for collecting the waste.



## Designed for hygiene

The sturdy design of our pinbone removers features stainless steel, with smooth, easy-to-clean surfaces. All materials are FDA-approved and meet the industry's strict hygiene demands.

Cleaning is made easy by an open design and a quick-release system on all conveyors.

Marel vacuum pinbone removers provide an extremely high standard of hygiene during processing. The vacuum system ensures that the fillets are always clean, and that there is a minimum of waste on the conveyor and in the production area.

## Easy operation with quick adjustment

The default programs for salmon and trout ensure efficient pinboning that fits the species, but settings are easily changed using the touchscreen display.

The speed of the conveyor and pinbone head can be adjusted to achieve the best pinboning results, and various programs can be stored for varying fish qualities to minimize down time. The pressure on the pinbone heads can also be adjusted quickly using a weight bar.

## Water-saving feature

On all standard models, sensors activate the water pipes at the pinbone heads to ensure that water is only added when fillets are approaching. This reduces the consumption of water during the process.



Settings are easy to change



Quick pressure adjustment



Water-saving system

# Traditional pinboning

## Gentle and reliable

Marel's conventional pinbone removers are renowned for their proven reliability in removing bones and leaving the fish intact. This results in improved yield and high quality fillets, with the best pinboning quality often achieved at a speed of 4-5 m/min.

Our standard pinbone remover is available in 1, 2, 3, 4 and 6-lane versions depending on throughput requirements and the capacity of other processing equipment. The single-lane model is normally installed as a manually fed standalone machine, making it ideal for small-volume production setups.

For large-scale production, the 2 to 6-lane model is available either as an integrated system as part of a trimming line, or as a unit built into a filleting line.

All our pinbone removers are safe and easy to operate, and are designed for easy cleaning.



Traditional pinbone head



Product no.	MS 2612.00	MS 2612.25	MS 2612.30	MS 2612.40	MS 2612.60
<b>Lanes / Heads</b>	1 / 1	2 / 2	3 / 3	4 / 4	6 / 6
<b>Capacity</b> fillets/minute *	18	36	54	72	108
<b>Electricity</b>	1x230V + N + PE	3x400V + N + PE 3x220 + PE	3x400V + N + PE 1x230V + N + PE	3x400V + N + PE 3x220V + PE	3x400V + N + PE 3x220V + PE
<b>Power consumption</b>	0.3 kW	0.4 kW	0.7 kW	0.8 kW	1.4 kW
<b>Water consumption</b>	6 l/min	12 l/min	18 l/min	24 l/min	36 l/min
<b>Compressed air</b>	N/A	N/A	N/A	N/A	N/A
<b>Weight</b> kg	100	150	200	300	400
<b>Dimensions</b> mm (W x L)	710 x 1650	1000 x 1650	1430 x 2240	1700 x 1650	2560 x 2240



# Vacuum pinboning

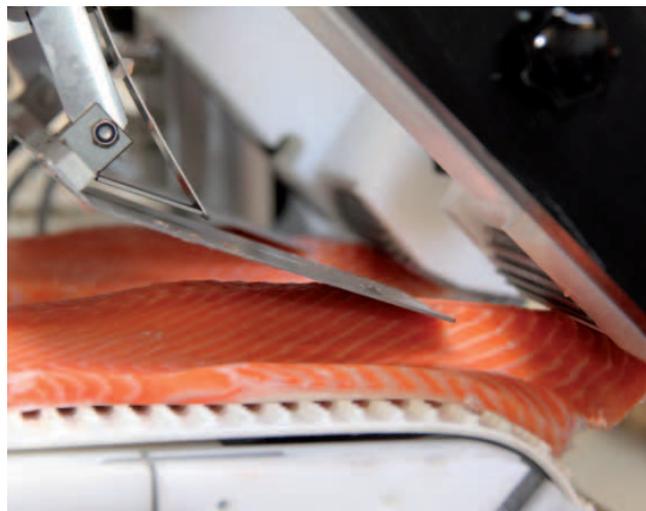
## Clean and efficient

Our vacuum pinbone removers are the most versatile on the market, and are available in both 2 and 4-lane configurations. An extra set of heads, designed for removing most of the difficult bones in the neck of the fillet, is optional.

The vacuum system is extremely efficient at removing bones and surplus water from the surface of the fillets, ensuring exceptionally high levels of hygiene. The vacuum system is built as a standalone unit and includes the vacuum pump, cyclone, rotating lock, and rotary sieve. The cyclone is equipped with CIP (clean-in-place) cleaning capabilities, and continuously drains water and bones to the rotary sieve.

The pinbone heads and processing speed are adjusted electronically via servo motors, and software for the different fillet sizes and quality is selected using the touchscreen.

Marel vacuum pinboners are easily integrated into any type of production line. They minimize production time and labor costs, and ensure maximum yield.



Extra heads remove bones in the neck part



Separating bones from the water



Product no.	MS 2616.22	MS 2616.24	MS 2616.44	MS 2616.48
<b>Lanes / Heads</b>	2 / 2	2 / 4	4 / 4	4 / 8
<b>Capacity</b> fillets/minute *	36	36	72	72
<b>Electricity</b>	3x400V + N + PE 3x220 + PE	3x400V + N + PE 3x220 + PE	3x400V + N + PE 1x230V + N + PE	3x400V + N + PE 3x220V + PE
<b>Power consumption</b>	4.5 kW	5.15 kW	9.2 kW	10.5 kW
<b>Water consumption</b>	5 l/min	10 l/min	10 l/min	20 l/min
<b>Compressed air</b>	10 l/min min. 8 bar pressure	10 l/min min. 8 bar pressure	20 l/min min. 8 bar pressure	20 l/min min. 8 bar pressure
<b>Weight</b> kg	315	335	510	550
<b>Dimensions</b> mm (W x L)	1240 x 1670	1240 x 1670	2400 x 1880	2400 x 1880



# Additional equipment

## Fillet divider

A fillet divider can be installed prior to the pinboning section in a setup with 2 x 2-lane pinboners or a 1 x 4-lane pinboner. The fillet divider automatically divides the fillets from two lanes into four lanes. Special arms, controlled by a sensor and an air cylinder, guide the fillets into the infeed of the pinbone remover.

The fillet divider reduces the speed at which the pinboner has to operate, resulting in even better pinboning results. More bones are removed and the fish is handled more slowly and more gently, helping to ensure better quality and higher yield.

## Benefits

- Higher throughput & yield
- More bones removed
- Less handling
- Reduced labor costs

## Pinbone check

After pinboning, we recommend having a pinbone check station with 2-4 operators checking the fillets and manually removing any remaining bones to ensure bone-free products. The pinbone check can be integrated into the fillet collector.

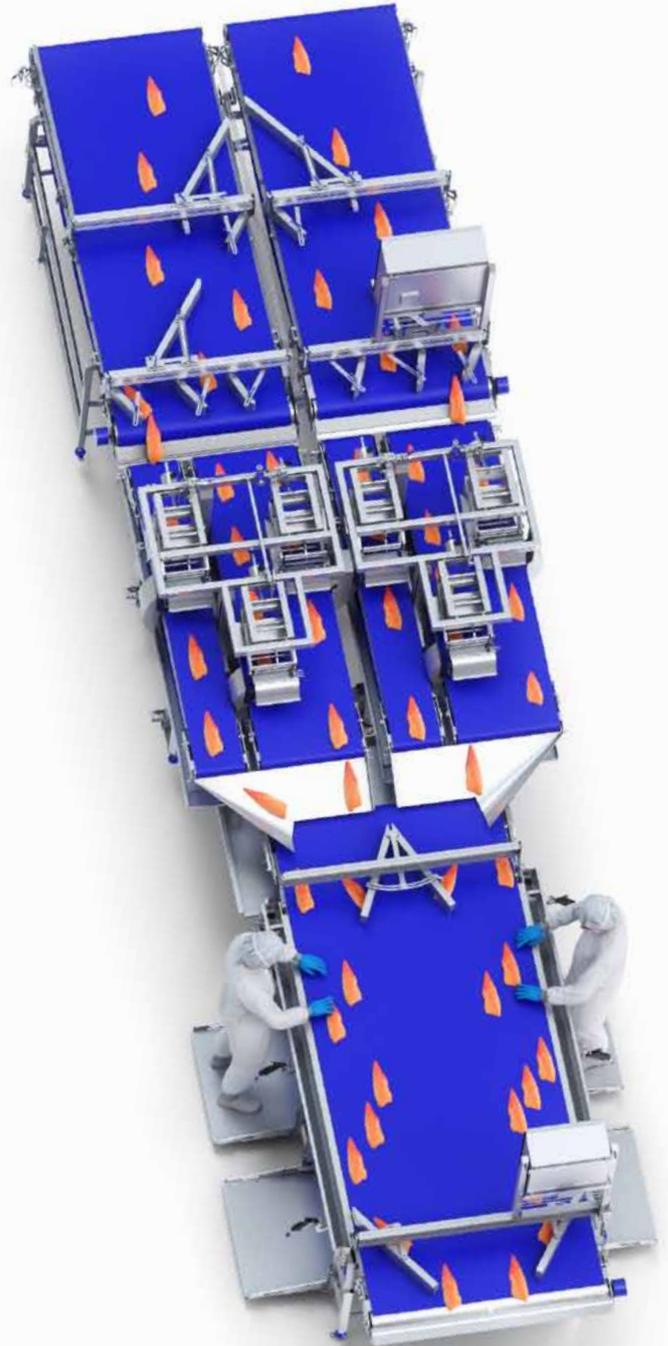
## Fillet collector

After pinboning, the fillets need to converge into two lanes again to minimize the row distance before further handling. Our fillet collector can be inserted after the pinbone section, and uses two arms to push the fillets into two straight lines. This is an easy and effective way to optimize the flow in the processing line.

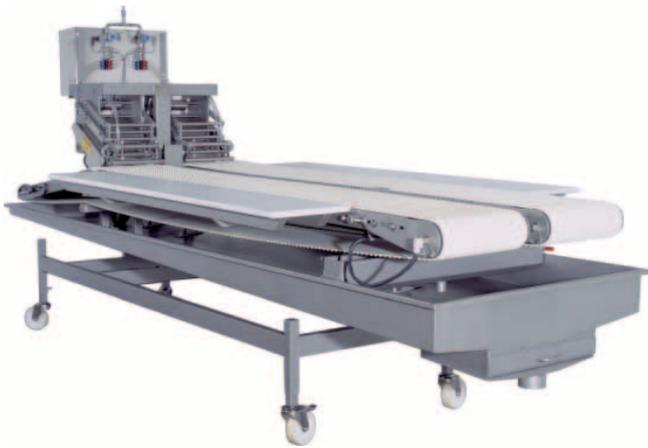
Fillet dividers, a pinbone check station, and fillet collectors are normally installed together as an integral part of new salmon processing lines. They can also be installed into existing lines.

## Benefits

- Optimized flow
- Less handling
- Reduced labor costs



# Individually customized models



Dual-lane model with extended outlet and working tables for Pinbone Check

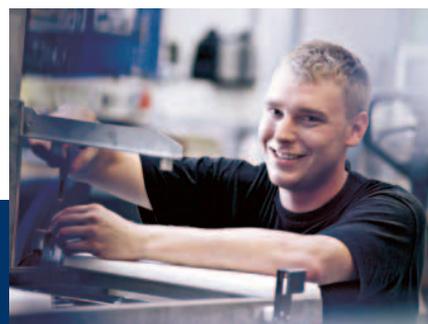


Pinbone section integrated into a trimming line

Marel also supplies customized pinbone removers with special features – such as extra length, drip trays, wheels, platforms, etc. designed to meet specific customer needs.

In addition, we can integrate pinbone removers into an existing trimming line. This suits production facilities with limited space available, and cuts down the number of operators needed on the processing line.

For customized pinbone removal systems, Marel experts provide the advice and guidance needed to identify the best solution for each installation. We have many years of experience in this specialist field and have delivered customized pinbone removal systems for customers worldwide.



## Service & Support

Any purchase of a Marel pinbone remover includes the offer of installation, to make sure you can quickly and smoothly get your production line up and running. Our skilled service engineers will also provide your operators with thorough training in operating, cleaning, and maintaining the equipment.

Our service department is always available to provide any troubleshooting and assistance you may need. This includes sending a service engineer to deal with any technical issues related to your Marel pinbone removal setup.

A Marel service agreement also gives you easy access to regular service support. Our service engineer will visit you to check the equipment thoroughly and make sure it is properly set up and fine-tuned for efficient, reliable production, changing any parts if necessary.

Whenever you need any wearing parts, spares, or replacement parts, we dispatch these straight to you by courier service, to help ensure maximum uptime.



## Salmon processing system

Marel's expertise and experience in designing and manufacturing advanced processing systems is unmatched in the industry. Virtually a one-stop shop for salmon processors, we offer everything from single standalone units to custom-designed turnkey systems, including a wide range of key products for wet processing and value-adding slicing. Our consultants work side-by-side with our customers to identify the best possible way to meet their needs, providing advice and support throughout the entire process. First and foremost, our goal is to increase the productivity of our customers.



Marel is the leading global provider of advanced equipment and systems for the fish, meat, and poultry industries.

With offices and subsidiaries in over 30 countries on six continents and a vast global network of agents and distributors, Marel's expertise in local markets and requirements helps it deliver the best processing innovation for its customers.

Our dedicated R&D teams ensure that we provide the latest technology for all stages of the processing value chain; ranging from single scales to integrated production lines and turnkey systems.