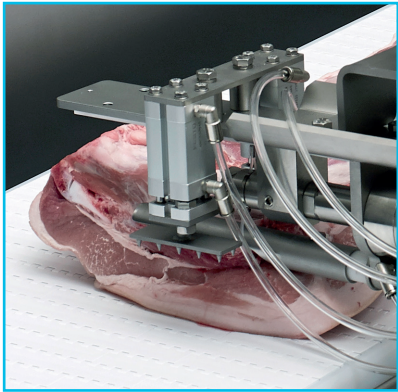
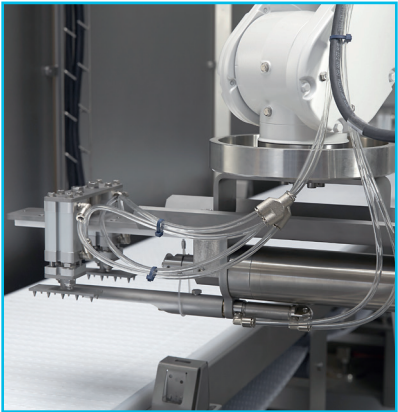




Technical data

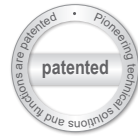
Capacity	600 bellies/hour by 2 robots 400 bellies/hour by 1 robot Each line can be equipped with up to 3 robots and is configurable according to customer requirements
Products	Pork bellies from porks with a slaughtered weight between 70 - 120 kg The ribs must be intact
Version	The line can process both left and right side pork bellies
Length	14,000 mm
Width	3,200 mm
Height	3,000 mm
Inlet height	1,150 +/- 50 mm - adjustable
Outlet height	1,150 +/- 50 mm - adjustable
Product temperature	Min. 3°C - max. 7°C
Noise level	< 80 dB
Electric control	Stainless steel cabinet Siemens PLC control Fanuc robot control Frontmateg operator panel
Voltage	3x400V, 50 Hz
Power	IN 60 Amp
Prefuse	50A

Technical data may be subject to changes. The equipment is CE approved and designed in accordance with the EU regulations to meet the strictest demand on health and safety.



DANISH MEAT
RESEARCH INSTITUTE

Pork single rib pull line
Type SRPL-100



In-line single rib pulling

Automatic pulling of single ribs

One of the most straining tasks within the pork deboning industry lies in separating the single ribs from the pork belly. The manual pulling of rib bones, often performed at high speed, can cause injury to the shoulder and neck on the operator. In cooperation with the DMRI, we have developed an automatic solution. A high speed solution for the fully automatic pulling of single ribs with robots. This complete unit can be integrated in existing deboning lines. The automatic line is modular built and can be customized according to specific requirements.

Further down the automatic conveyor the robot uses a special Frontmateg tool with nylon string, to pull out the ribs. The ribs will be loosened from the belly meat but left laying on the belly. After the robot the belly is transported further on through another security zone, to a manual working area, where operators will make a visual quality control as well as remove the loosened ribs. The number of operators can be adapted to necessary capacity. With the automatic solution and 2 robots a capacity of 600 bellies per hour can be reached.

Function

Pork bellies are fed either directly from a cutting line, or from X-mass trees to the line. Each pork belly is placed on a conveyor by an operator, who prepares the product by removing the pleura and places the product with the rind-side down and with the cut-side against a guiding plate on the belt conveyor. Both left and right-side bellies can be handled on the same line. The belly is automatically transported into an X-ray through a security zone. The X-ray and the measuring unit sends information of the ribs position on each individual belly, to the PLC and thereafter to the robot control. Max. 12 ribs per belly.

Why the pork single rib pull line!

- Improved ergonomic
- Better working environment
- Labour savings
- High and consistent capacity
- High operation time
- Easy maintenance
- Low investment pay back time

Contact

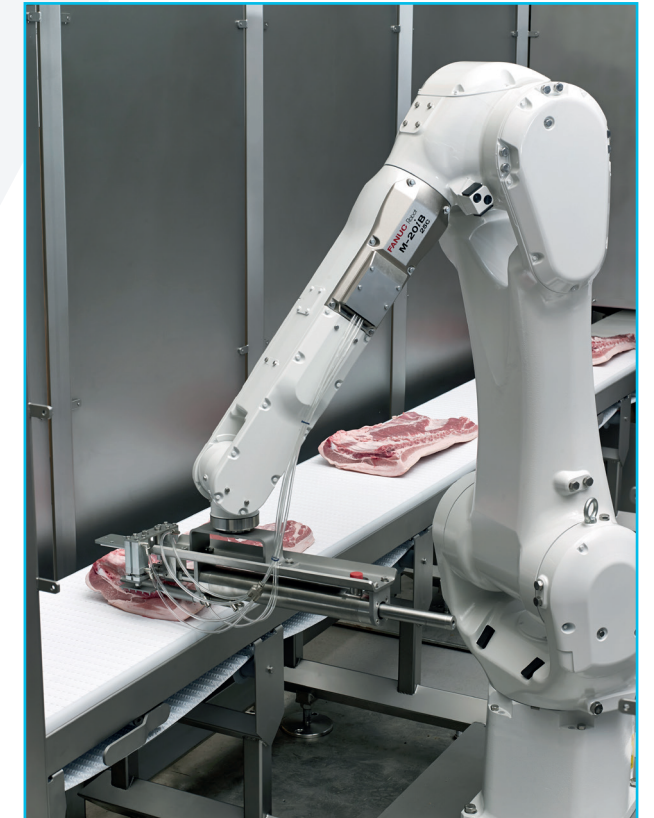
CN: shanghai@frontmateg.com Phone: +86 215 859 4850	DK: tandslet@frontmateg.com Phone: +45 744 076 44	NL: rijssen@frontmateg.com Phone: +31 886 294 000	UK: birmingham@frontmateg.com Phone: +44 121 313 3564	frontmateg.com
DE: beckum@frontmateg.com Phone: +49 252 185 070	ES: barcelona@frontmateg.com Phone: +34 932 643 800	RU: moscow@frontmateg.com Phone: +7 495 424 9559	US: kansascity@frontmateg.com Phone: +1 816 891 2440	

State of the art robot solution

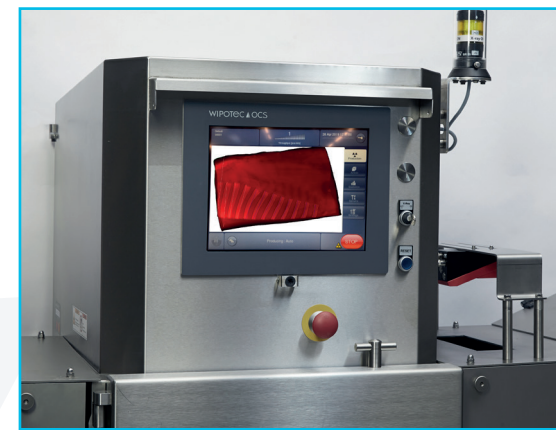
For the automatic pulling of single ribs, we use a new generation of FANUC M20iB robots. The FANUC robot combines a lightweight hollow upper arm and wrist with advanced servo technology and is designed to achieve faster cycles and increased throughput on a range of applications. The robot is delivered fully encapsulated to IP67 standard, and therefore it is ideally suited for the meat industry.

Safety first

The X-ray is completely shielded to protect the operators, both in front of the scanning as well as after the pulling of the ribs by the robots.



Robot for single rib pulling



Visual detection of the ribs in the X-ray unit

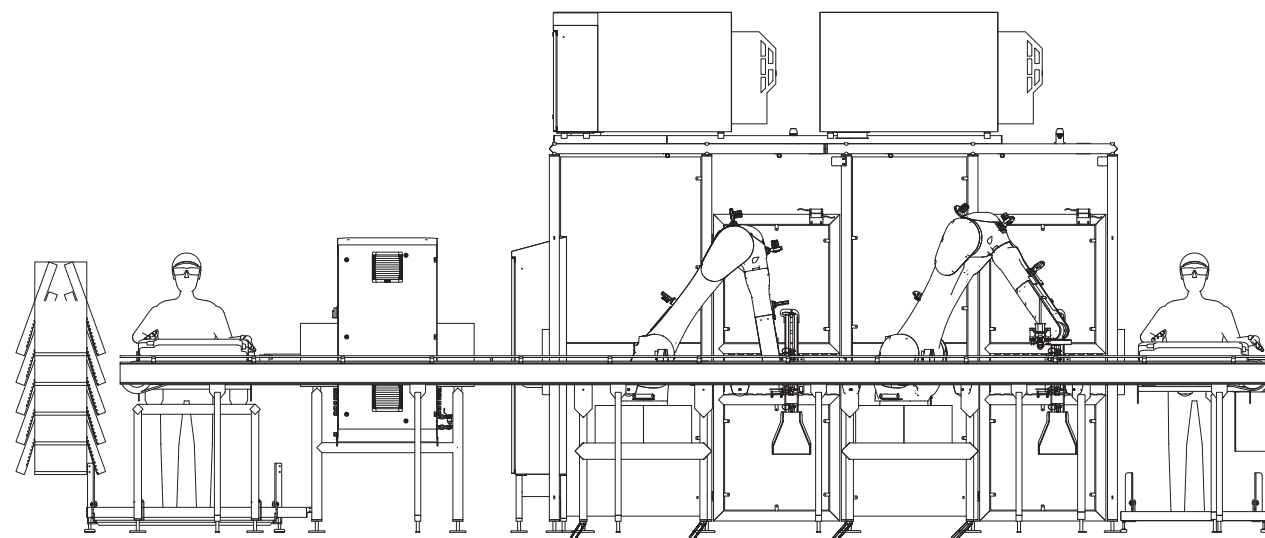
Easy maintenance and low-noise

A magazine with a number of strings for the robot is filled before production start. If a string is broken, the robot will release the broken part in the magazine and automatically replace it with a new one.

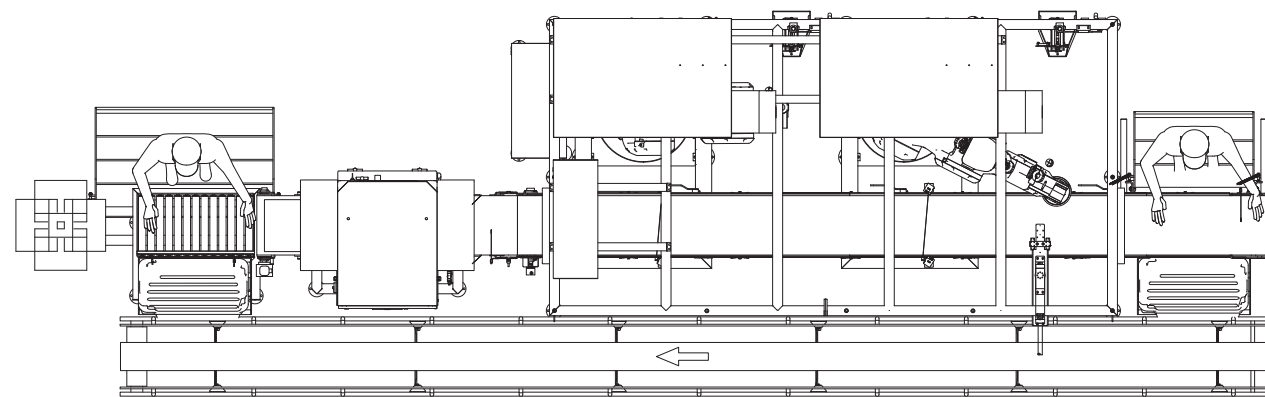
The equipment uses servo mechanism for the pulling of the ribs, and therefore it will not generate unnecessary noise. All conveyors can be delivered with a belt lifting system for easy cleaning and maintenance purposes.



Hygienic design with belt lift for easy cleaning and maintenance



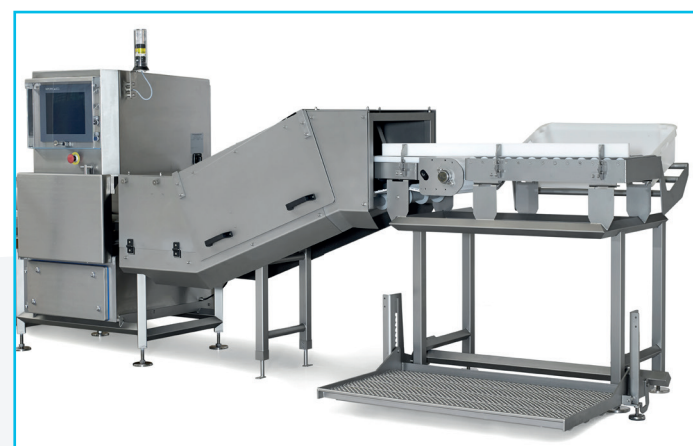
Complete automatic pulling line for single ribs with two robots - front view



Complete automatic pulling line for single ribs with two robots - top view

Ergonomic working stations

Each working station is provided with a height adjustable platform to give the best ergonomic working condition for each operator. Knife holders can also be placed in an ergonomic correct position for the operator, either on an empty tray conveyor in front of the operator, or on the side of the cutting belt.



High protection of operators