



# **The Interroll Drum Motor and Food Processing: A Perfect Match**

**Smart, Hygienic Solutions  
for the Food Industry**



**INSPIRED BY  
EFFICIENCY**

**[interroll.com](http://interroll.com)**

# **Food Production is Full of Delicate Issues.**

## **We Offer Mouth-Watering Solutions.**

When it comes to productivity, increasing throughput and reducing downtime are crucial. As one of the world's leading solution providers for logistics within the food industry, Interroll offers dedicated core technologies and products for storage and material handling in the open food processing sector.

The new hygienic and easy-to-install Drum Motors offer peak performance, zero maintenance and long term reduction in operating costs. From jointly identifying your requirements through to helping you select the right product for your application, Interroll is there to help you grow your business.

You can count on us for unmatched quality and service, so make the most out of our expertise from the planning stage of your projects. Our diversified range of Drum Motors and accessories is designed to tackle even the most challenging applications.



## **C o n t e n t s**

<b>Topics</b>	<b>Features</b>	
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# Helping You Maximize Your Productivity

## **Ease of Installation and Use**

Just fit the Drum Motor into the conveyor frame, connect the power and it is up and running! Unlike traditional gear motors which are complicated and time consuming to install, the single component construction of the Interroll Drum Motor makes installation easy. This results in great time savings!

## **Low Running Costs and Zero Maintenance**

Maintenance free operation means reduced operational costs. The Interroll Drum Motor allows you to continue production with fewer and less time consuming breakdowns, eliminating the regular replacements of parts in a conventional drive.

Flawless build quality verified by our testing process ensures excellent product performance and durability: this means lower repair costs and shorter down times in case of breakdowns.

What's more, the power loss of the new sensor-less, all-in-one synchronous Interroll Drum Motors has been significantly reduced. The consequence: the motors stay cool and thus have a longer life cycle.



### **Unmatched Accuracy**

Fast and timely accurate movements help maximize throughput, thus increasing overall productivity. The new Interroll sensor-less synchronous Drum Motor accelerates from zero to 100 percent in milliseconds. When fitted with a servo drive and feedback system, accelerations of up to  $151 \text{ m/s}^2$  can be achieved depending on the motor type and load. This is three times as fast as a conventional gear motor!



Interroll's Drum Motors perfectly manage the stop-and-go operation and precise positioning while working reliably and silently.

# Committed to the Highest Hygiene Standards



Risks related to hygiene are becoming increasingly important in the food processing sector.

During the last few years, this industry witnessed the outbreak of several contagious diseases. Many of them can be severe and resulted in a number of deaths.

As a result, food manufacturers all over the world now have to comply with a number of strict regulations in terms of hygiene in their material handling processes.

As one of the world's leading players in the internal logistics industry with proven experience in this area, Interroll has created the most hygienic conveyor drive currently available on the market.

Unlike conventional gear motors, the Synchronous Drum Motor can be hygienically cleaned and disinfected regularly using high pressure water, steam and chemicals. This helps you achieve the highest possible hygiene standards.



### **EHEDG Design**

Interroll's own R&D department has designed the Synchronous Drum Motor according to EHEDG guidelines using only first class materials approved by FDA and EC regulation 1935/2004. Furthermore, with its standard IP 66 and IP69k sealing systems the Interroll Synchronous Drum Motor is the ideal solution for wet and high pressure wash-down applications.

The Interroll Drum Motor features optimum cleanability which provides for the lowest possible levels of Salmonella, Listeria, E-Coli and other harmful microorganisms in the production environment.



### **Guaranteed Lifetime of Materials**

The Chemical Resistance of the materials used for Interroll Drum Motor has been validated in real environmental tests. Cleaning specialist Ecolab\* has certified a 5 years minimum lifetime of materials, when exposed to typical cleaning and sanitation procedures using the Topax range of products.



### **Achieving Excellence: FoodTec's Gold Medal**

The DLG (German Agricultural Society, the EFFoST (European Federation of Food Science and Technology) and leading trade journal publishers awarded Interroll's Synchronous Drum Motor a Gold Medal due to its ultra-hygienic, environmentally friendly and energy saving features aimed at the food industry.



\*Ecolab and the Ecolab logo are registered trademarks of Ecolab Inc. and its affiliated companies.

# **Energy Efficiency Means Lower Costs, Higher Profits**

## **Reduced Cleaning Times**

The Drum Motor can be cleaned and disinfected to an optimal level in less than half the time it takes to clean a typical gear motor or conventional exposed drive. This not only guarantees important savings in time and energy but also reduces the usage of cleaning agents and water. So, your clean-up operations will be faster, more cost effective and will result in a lower impact on your energy bill.

An investment with a quick return that will yield your profits.

## **Optimal Efficiency Rate**

Interroll's Synchronous Drum Motors require less energy to run and generate less heat and noise than a traditional gear motor. This results in significant savings from direct energy consumption and reduced need for A/C.

Mechanically, with 80% total efficiency, the Interroll Drum Motor technology is extremely energy efficient: it transfers the power of the electric motor directly linear to the conveyor system, meaning that the mechanical power



loss in comparison to gear motors with secondary transmission is dramatically reduced. Thanks to the extremely high energy yield and low power loss, the new motors are considered to be the most energy efficient conveyor drive system available in the material handling world to date.

### **Sustainability**

One of the challenges of the food industry is to increase profitability whilst reducing carbon emissions, water consumption and waste water. Interroll Drum Motors are proven to reduce the energy consumption in conveyors by up to 30% compared to conventional driving techniques.

The Synchronous Drum Motor – through its IP66 and IP69k certified design – withstands all known cleaning and disinfection methods including vapor steaming and high pressure water wash-down



# A Study on Energy Savings

Interroll performed a thorough study at their testing laboratory in Baal, Germany, on the efficiency of Gear Motors versus Asynchronous Drum Motors and the new Synchronous Drum Motor. The results are outstanding in terms of efficiency and energy consumption and speak for themselves.

## Types of Motors Tested

	Gear Motor	Asynch. Drum Motor	Synch. Drum Motor
Type	<b>Worm gear motor</b>	<b>Interroll 113i</b>	<b>Interroll SN062D-113</b>
Rated Power (kW)	0.37	0.3	0.298
Poles/rpm	4/1380	4/1376	8/3000
f (Hz)	50	50	200
Voltage (VAC)	400	400	250
Ampere (A)	1.15	0.91	0.78
Cos phi	0.76	0.79	0.97
Gear Ratio	28.76	28.17	60
Output rpm	48	49	50
Output torque (Nm)	59	55	51
Active power absorbed (kW)	0.61	0.50	0.33
System efficiency (%)	49	57	80

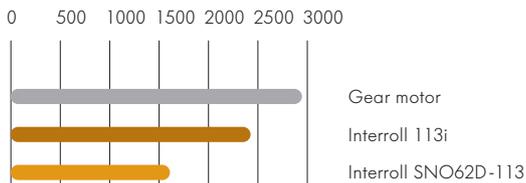


### Test Results

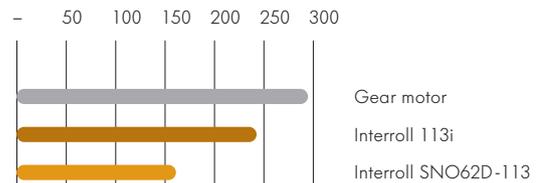
- Running Time: 16 hours/day,  
300 working days/year  $\approx$  4800 hours/year
- Average Cost of Electricity: 0.1 €/kWh

Test	Energy Consumption/ year (kWh)	Electricity Consumption/ year (Euro)
Gear motor	2906	290.64 €
Interroll 113i	2391	239.07 €
Interroll SN062D-113	1573	157.25 €
<b>Savings w/ Interroll 113i</b>	<b>516</b>	<b>51.58 €</b>
<b>Savings w/ Interroll SN062D</b>	<b>1334</b>	<b>133.39 €</b>

Energy consumption/year (kWh)



Cost of electricity consumption/year (€)



Ultimately, as we can see from the charts, choosing Interroll can help you save up to 133 €/year per every single Drum Motor at your facility. And this only in direct energy cost. If you consider indirect costs like a/c, improved efficiency and lower down time, it all adds up to some real savings.

# Interroll and the Food Industry: Success, Nothing Less

Antoine Aveline  
Industrialization Engineer  
at Meralliance, France's  
Nr. 1 in salmon delicacies

## **Beyond Precision**

"Alongside the aspects of compact design and efficient cleaning, we were faced with entirely new challenges such as 90-degree transfers and sequential handling. We had to make sure that we would be able to control each conveyor movement with high precision, and that's where Interroll's Synchronous Drum Motors come into their own."

Frank Lund  
Purchasing Manager  
at Danish Crown,  
one of Europe's major  
pork exporters

## **Outstanding Energy Savings**

"The Technical University of Aalborg conducted an in-depth analysis of the performance of the Interroll Drum Motor at our facility and the results were more than convincing: up to 47% lower energy consumption. Thus, Danish Crown saves approx. € 212,000 p.a. in primary energy costs as well as € 70,000 in secondary energy costs (air conditioning)."



### **Return on Investment**

Miguel H. Alonso  
Grupo hrg,  
one of Europe's leading  
suppliers of seafood  
processing systems

"Without taking into consideration the time and money saved on installation and maintenance, the 4-fold durability alone produces savings of 68.75%. Investing in a Drum Motor is more profitable than a conventional motor even though the initial cost is higher.

The Interroll Drum Motors were, therefore, a natural choice. They play an important role in enabling us to provide complete solutions that are truly hygienic, reliable and cost effective."

Danish Crown, Horsens/Denmark



Meralliance / Armoric,  
Quimper / France



# Interroll Products for the Food Industry\*

Profiled lagging for low noise and precise driving of several kinds of modular belts



Stainless steel sprockets for precise driving of non-profiled modular belts



\*For more information and technical details on the Interroll Drum Motors please visit our website [interroll.com](http://interroll.com)



Frictional lagging with  
radial groove for  
driving guided  
flat belts



Crowned shell  
for driving flat belts



Supported Belt Systems:

- PVC and PU flat belts
- Modular plastic belts
- Thermoplastic belts
- Steel wire mesh belts
- Usage also without belt



# Interroll Products for the Food Industry

The Interroll Drum Motor is a cutting-edge product for the initial segment of the food production chain, also known as "open food processing" area.

Once food has been processed, it also needs to be packed in containers and boxes, stored at the right temperature and distributed to retail locations worldwide. Also here, Interroll can offer outstanding solutions to help you achieve optimal throughput times, space and energy savings and accurate tracking.

## Conveying

With an experienced eye for the big picture, we offer you the kind of products that are versatile and essential building blocks in the portfolio of any successful planner or developer.

Conveyor Rollers, 24 V RollerDrives and Controls: our product portfolio represents a proven quality standard for efficient material flow across all continents.

Interroll solutions convey, accumulate, insert, remove and combine goods. Driven by power or gravity, with or without accumulation pressure.

Our easy to install drive solutions are ideal for new equipment or to refurbish existing conveyors. Excellent products that will pay for themselves and that you can rely on.



Conveyor Rollers,  
24 V RollerDrives and  
Controls



Cora, Palos de la Frontera/Spain



### **Linking and Distributing**

Food products must be delivered on time to the correct destination. This requires a performance-based logistics system with economical material flow solutions.

Interroll's innovative conveyor modules and subsystems include:

- Crossbelt Sorters
- Belt Curves, Merges and Diverters
- Intelliveyor Conveyor Modules with zero-pressure accumulation
- Roller Conveyors and Belt Conveyors

Precisely pre-assembled at the factory and rapidly delivered, the conveyor modules and subsystems can be easily integrated into the larger complete system – plug and play. The conveyor modules and subsystems provide users with key assurances: excellent availability, ease of use, outstanding efficiency even at low throughput volumes.

# Interroll Products for the Food Industry

## **Storage and Picking**

Efficient and user-friendly: the dynamic storage solution that operates without energy. It is designed for fast-moving goods (e. g. groceries) that have to be picked and quickly conveyed to consumers, just in time. The principle is as simple as it is ingenious. It is known as FIFO, First in – First out, and guarantees that what has been stored first is also picked first. Or LIFO, Last in – First out, when what has been stored last is picked first. It means making maximum use of minimal space. The picking times can scarcely be beaten. The return on investment for the operator is less than two years.



The Interroll flow storage system at Eurospin, a large supermarket in Italy: 120 gravity lanes arranged over four levels – total capacity for 9,840 half Euro pallets or 4,920 Euro pallets with an impressive lane depth of 51 meters and 41 pallet places per lane.



If you are operating a warehouse with conventional pallet racking and a fast throughput of stock, Interroll Pallet Flow storage provides you with the right solution to achieve increased efficiencies, such as:

- Space saving - maximises available storage area by reducing the number of aisles
- Faster throughput of stock with minimum handling
- Accurate stock rotation using FIFO
- Shorter travel times increase order picking performance and improve productivity
- Separate loading and order picking aisles increases safety

We also supply lanes for chilled (0/5°C) and deep freeze (-28°C) environments (storage a frozen food, or fresh products). Interroll's cold-storage modules are tested to withstand harsh temperatures and still provide smooth and even pallet movement.

# Contact us to discuss your Internal Logistics needs



The Interroll Drum Motor is the best answer for food processing professionals all over the world looking for an outstanding solution for their material handling requirements. This unique product is fully compliant with all major hygiene requirements and regulations like EHEDG, FDA, and EC 1935/2004. Thanks to its outstanding 80% total efficiency along with superior reliability and accuracy, it is designed to help you increase your productivity by reducing costs and maximizing throughput at the same time. Whether you are a system integrator, an OEM or an end user, let us become your partner and we will help you grow your business.

For more information please visit [interroll.com](http://interroll.com)

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