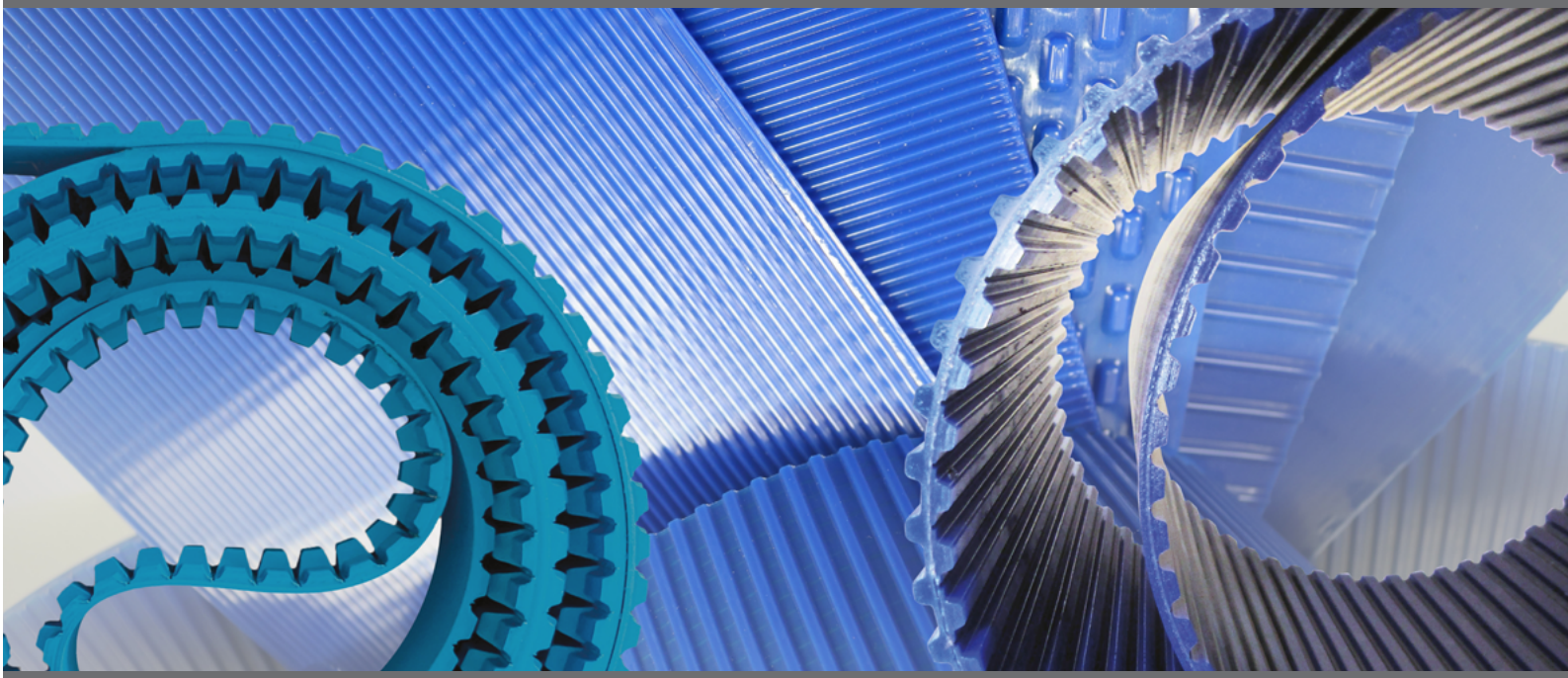
MEGADYNE



# BELTING SOLUTIONS FOR FOOD

EN

FAMILY PRODUCT GUIDE

# INDEX

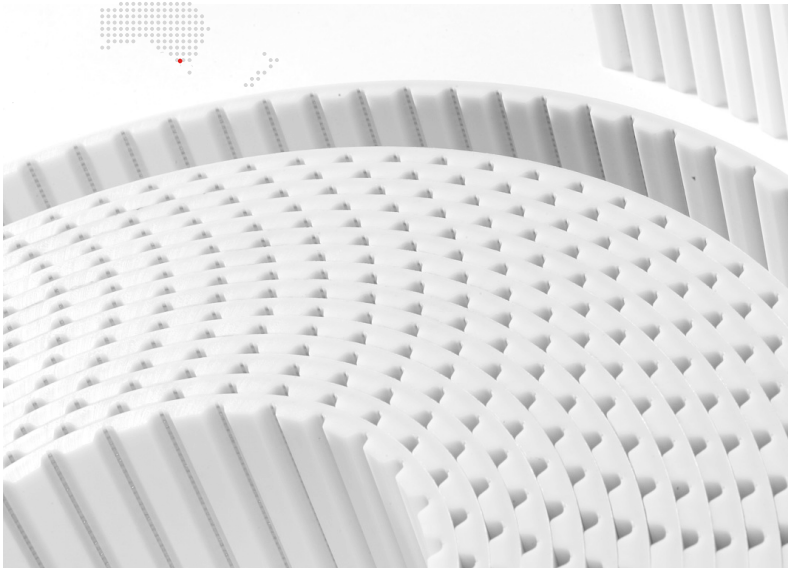
# WELCOME TO MEGADYNE

Founded in 1957 and based in Mathi (Italy), Megadyne is a global product brand of rubber and polyurethane drive belts and associated components used in power transmission, product handling and linear positioning applications.

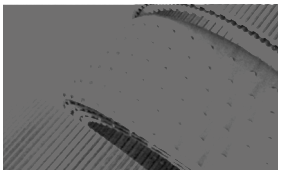
**8** FACTORIES IN EUROPE, ASIA AND AMERICA

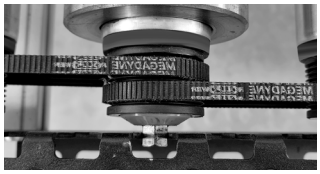
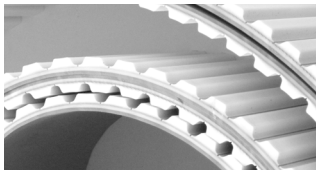
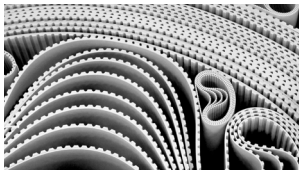
**+170** COMMERCIAL LOCATIONS

Our extensive product portfolio is available globally in over 40 countries and 170 locations to support our OEM and SEM clients' businesses in their sustainability efforts.



After decades of growth, Megadyne continues to excel with a diverse portfolio of comprehensive power transmission and product handling solutions for all industry segments.



**Entrepreneurship**
We empower our teams to think like entrepreneurs, making intelligent and informed decisions.

**People Focus**
We care for our highly skilled employees, who cooperate in a diverse and inclusive environment as One AMMEGA Team. Our employees work collaboratively to foster productivity and continuous progress.

**Customer Centricity**
We are committed to the success of our customers, value their feedback, and craft solutions that fit their needs. Our goal is to build sustainable relationships.

**Responsibility**
We are part of a larger business community that we can help improve by working responsibly, by maintaining and increasing transparency, and by acting ethically and with integrity as good corporate citizens at all times.

**Agility**
The industry is driven by speed, our always-fast responsiveness and fast decision-making are a must in all our business areas.

BELTING SOLUTIONS FOR FOOD

# ABOUT FOOD SAFETY

## ENSURING FOOD SAFETY WITH FOOD-GRADE POWER TRANSMISSION BELTS

Food safety is paramount in the food industry, and every component of the production process must adhere to strict hygiene standards to prevent contamination and ensure consumer well-being. Food-grade power transmission belts play a crucial role in maintaining food safety throughout the production and processing stages. Here's how:

### MATERIAL COMPOSITION

Food-grade timing belts are manufactured using materials that comply with FDA (Food and Drug Administration) and EU regulations for direct contact with food. These materials are non-toxic, non-absorbent, and resistant to chemicals and microbial growth, ensuring that they do not contaminate the food products they come into contact with.

### HYGIENIC DESIGN

Food-grade timing belts feature smooth surfaces and no gaps or crevices to prevent the accumulation of debris, moisture and bacteria. Their seamless construction and easy-to-clean properties facilitate thorough sanitation, reducing the risk of cross-contamination and microbial growth in food processing environments. Our wide range of MEGALINEAR Food Contact belts meet the requirements of NSF standards.

### RESISTANCE TO CHEMICALS AND CLEANING AGENTS

Food-grade power transmission belts are engineered to withstand exposure to cleaning agents, disinfectants and sanitisers commonly used in food production facilities. Their resistance to chemicals ensures that they maintain their integrity and hygiene even after repeated cleaning cycles, thereby minimising the risk of contamination.

### COMPLIANCE WITH REGULATORY STANDARDS

Food-grade power transmission belts undergo rigorous testing and certification to ensure compliance with industry standards and regulations, such as FDA CFR Title 21 and EU Regulation (EC) 1935/2004. Manufacturers provide documentation attesting to the belts' suitability for use in food processing applications, giving producers confidence in their safety and reliability. While NSF (National Sanitation Foundation) certification is not specifically tailored for timing belts, it does provide standards for materials and equipment used in food processing environments. Our MEGALINEAR FC belts meet the relevant NSF/ANSI standards applicable to food equipment and materials.

### TRACEABILITY AND DOCUMENTATION

As a manufacturer of food-grade power transmission belts we maintain comprehensive traceability records, including material certifications, production batch information and compliance documentation. This traceability ensures transparency and accountability throughout the supply chain, enabling quick identification and resolution of any safety concerns.

**By choosing Megadyne Food Contact belts that prioritise hygiene, compliance and traceability, food producers can uphold the highest standards of food safety and protect the integrity of their products and brands.**

# FIELD OF APPLICATIONS

## AN INTRODUCTION TO FOOD-GRADE POWER TRANSMISSION BELTS AND THEIR APPLICATIONS

In the today's dynamic world of food production and processing, food safety, precision, productivity and reliability are essential factors. Food-grade power transmission belts play a crucial role in ensuring seamless operations across various applications within the food industry. Whether they're conveying delicate pastries, powering high-speed meat processing, sorting vegetables or operating on food or beverage packaging lines, these belts, often tailored, offer durability, hygiene and efficiency.
Below is an overview of food industry subsegments and selected applications where food-grade power transmission belts excel.

### BAKERY INDUSTRY AND CONFECTIONERY

In bakeries, where the delicate handling of dough and baked goods is essential, food-grade power transmission belts are the main drives in mixers and kneaders, providing gentle yet robust conveying solutions; they also power applications involved in dividing the dough or positioning ultrasonic cutters for cakes or other delicious artisan products. They ensure consistent product movement without compromising quality, particularly in high-volume production lines.

### MEAT, POULTRY AND FISH PROCESSING

Hygiene is non-negotiable in meat and poultry processing. Food-grade power transmission belts designed with materials resistant to oils, fats, and cleaning agents maintain the highest sanitary standards while reliably driving conveyors involved in cutting, deboning or transporting meat cuts and poultry products through various stages of processing. They are key to accuracy and productivity in slicing, chopping and weighing applications, as well as in sausage production.

### DAIRY PRODUCTION

From milk processing to cheese manufacturing, precision and sanitation are critical in dairy production. Food-grade power transmission belts offer smooth, contamination-free conveying of dairy products, ensuring product integrity while adhering to stringent hygiene regulations. Along with PT belt drives for pumps, agitators, curd cutting and steering, our newest food-contact timing belts help to ensure the gentle handling and proper maturation, slicing, portioning and packaging of cheese.

### BEVERAGE MANUFACTURING

In beverage production facilities, where speed and accuracy are paramount, food-grade power transmission belts facilitate the seamless transfer of bottles, cans, and packaging materials along the production line. Their durability and resistance to moisture make them ideal for the demanding conditions of beverage processing.

### FROZEN FOOD PROCESSING

Maintaining the integrity of frozen food products requires specialised handling solutions that can withstand low temperatures and harsh environments. Food-grade power transmission belts designed for temperatures below 0°C applications provide reliable performance, ensuring smooth handling of frozen foods from production to packaging and storage.

# FIELD OF APPLICATIONS

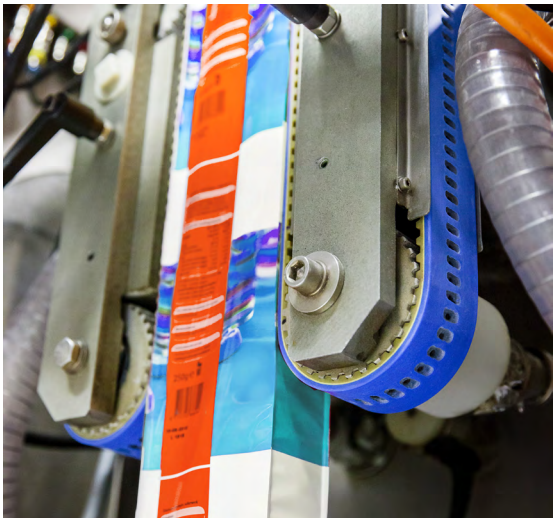
Bakery

Meat, poultry and fish

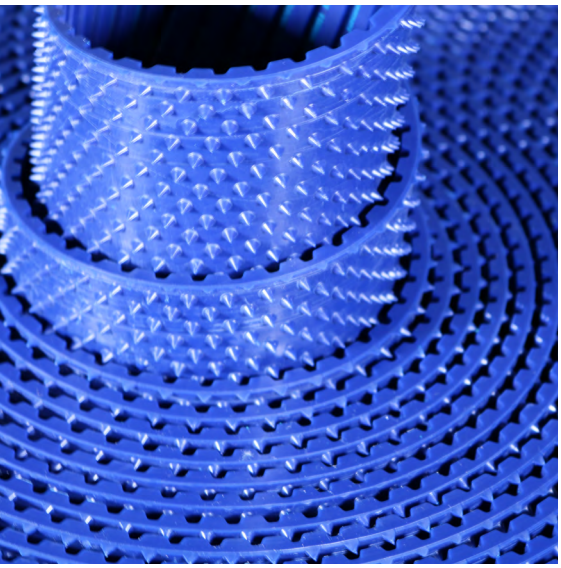
Dairy

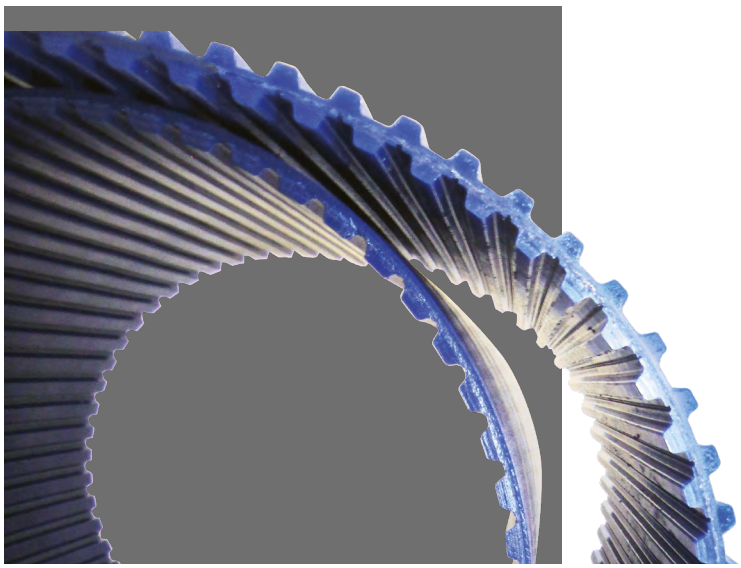
Beverage, capping machine

Frozen food



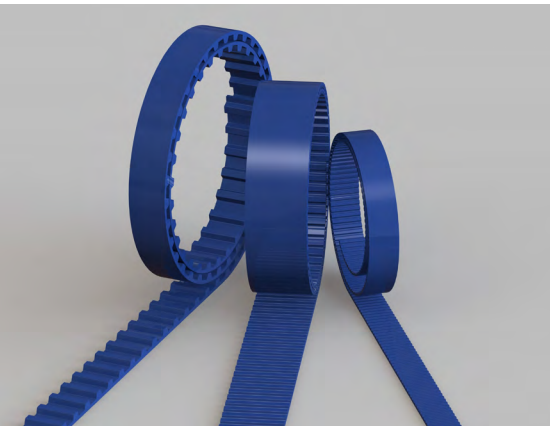
Food packaging





# PRODUCT RANGE

MEGALINEAR FC-S
MEGALINEAR FC
MEGAPOWER FC
MEGAFLEX FCM
MEGAWELD
MEGADYNE MEGASQUEEZE™
WHY CHOOSE THE XMD OPTION?



# MEGALINEAR FC-S

## THE NEW HYGIENE STANDARD FOR THE PHARMA, FOOD PROCESSING AND PACKAGING INDUSTRIES

The pharmaceutical, food processing and packaging industries are facing stricter and stricter requirements for hygiene and cleanliness. This means that companies need to find quick and effective solutions that meet or surpass these standards.

**Here's our response to this demand: MEGALINEAR FC-S, a food processing and medical timing belt compliant with worldwide food and safety standards.**

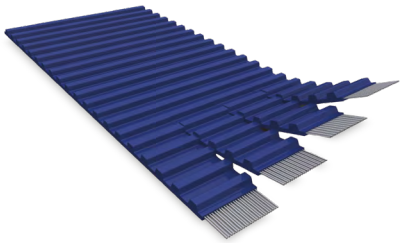
MEGALINEAR FC-S joins the family of MEGALINEAR FC, MEGAPOWER FC and MEGAFLEX FCM to complement the Megadyne product portfolio for food processing, packaging, pharmaceutical and medical, and washdown power transmission applications where dimensional stability, accurate movement, a superior level of food safety, and food contact certifications are required.

### TECHNICAL DATA

**Standard compound:** Dark blue food-grade thermoplastic polyurethane 92 ShA
**Standard cords:** alternating "S" and "Z" twist steel encapsulated cords
**Standard roll length:** 50 m, 100 m
**Working temperature:** -25 / +70°C
**Range: T5, T10, T20, AT5, AT10 AT20**

### FEATURES AND BENEFITS

- The belt is a perfect choice for synchronous conveyors and any kind of power transmission application
- MEGALINEAR FC-S supports all food processes from packaging to cutting and slicing
- Due to its unique design, MEGALINEAR FC-S excels in movement accuracy, hygiene, food safety and ease of cleanability



### ROLLS WITH SLITTING LINES AVAILABLE

| PROFILE | T5 | T10 | T20 |
|---|---|---|---|
| Slitting lines | 6x16 \| 4x25 \| 3x32 | 6x16 \| 4x25 \| 3x32 \| 2x50 | 4x25 \| 3x32 \| 2x50 |

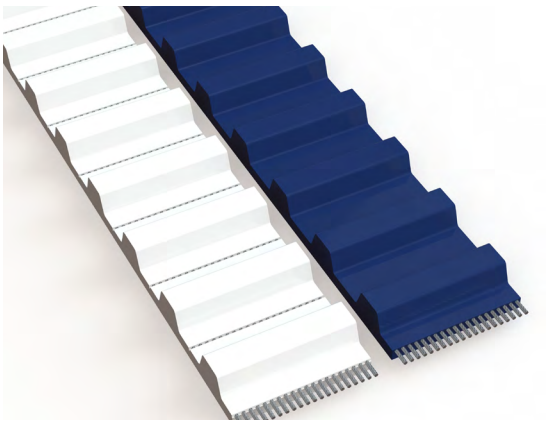
| PROFILE | AT5 | AT10 | AT20 |
|---|---|---|---|
| Slitting lines | 6x16 \| 4x25 \| 3x32 | 4x25 \| 3x32 \| 2x50 \| 75 | 4x25 \| 2x50 \| 50+75 |

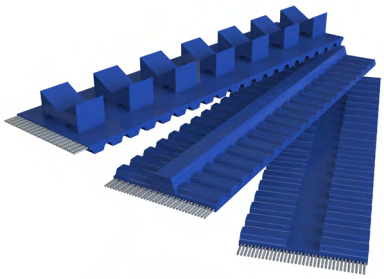
### FIELD OF APPLICATIONS

FOOD
MEDICAL INDUSTRY
PACKAGING

### CERTIFICATIONS

Belts are produced with materials in compliance:
• FDA 21 CFR 177.2600 /177.1680 (USA);
• Regulation (EC) n° 1935/2004 (art. 3, art.11, par.5, art.15, art.17) and (EU) n° 10/2011.
Belts are produced according to Regulation (EU) No. 2023/2006 GMP (Good Manufacturing Practice).





## REWORKING OPTIONS:

- Teeth side grinding
- Backside grinding
- Welded guides
- Cleats

# MEGALINEAR FC-S

## FEATURES AND BENEFITS - UNLEASHING THE POTENTIAL OF ENCAPSULATED CORDS

### BELT BODY

**1 Dark blue TPU compound**

- Food grade, high hygiene standard
- Dark blue colour suitable for visual food inspection systems.
- Resistance to hydrolysis, oils and greases, and a hardness rating of 92 ShA
- Working temperature:-25 / +70°C

**2 Sealed edges**

- Ease of cleanability
- Imperviousness to liquids
- No gaps to harbour bacteria

**3 Fully encapsulated cords**

- Lack of of gaps eliminate risk of contamination for improved
- Suitable for washdown applications
- Unaffected by humidity
- Protection against corrosion
- Endless welding for any pitch length

### CORD

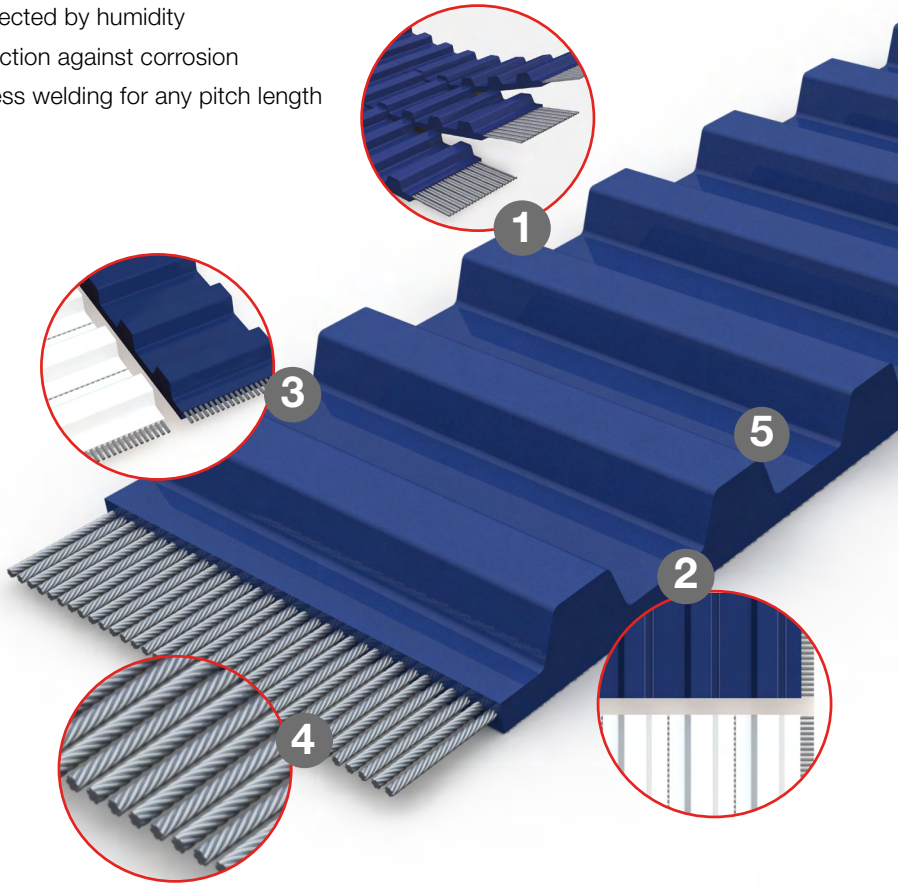
**4 Steel cords**

- Steel tension members provide strength, stiffness, length tolerance, and pre-tension consistency.

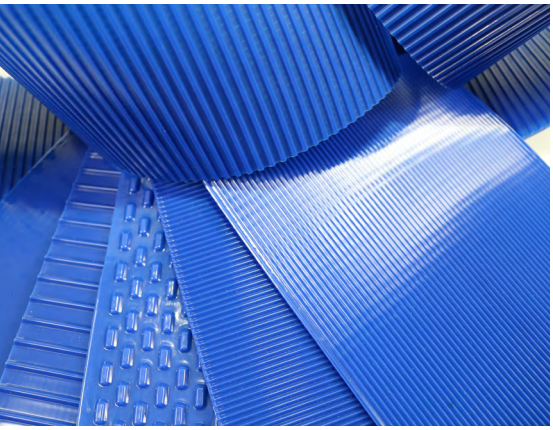
### PITCHES & LENGTH

**5 T5, T10, T20, AT5, AT10, AT20**

- Standard delivery length: 50 m, 100 m
- Available in open-ended, spliced and welded
- Belt width availability depending on pitches: 16 - 25 - 32 - 50 - 75 - 100




*Scan here to contact our experts*



# MEGALINEAR FC

## MEGALINEAR FC (FOOD CONTACT) IS A TIMING BELT RANGE SPECIFICALLY DESIGNED FOR THE FOOD PROCESSING INDUSTRY.

Manufactured with T5/T10 pitch and no gaps between the teeth, these belts are available in various backing profiles, and suitable for all types of conveying and processing applications. These advanced FDA-approved synchronous belts offer excellent resistance to chemicals and corrosion, making them ideal for both wet and dry food contact. They are widely used in numerous food processing and packaging applications. The homogeneous belt design ensures a significantly extended service life and maintains a high level of hygienic integrity. They are also available in a X-ray and metal-detectable (XMD, see page 18)

### TECHNICAL DATA

**Standard compound:** Dark blue (RAL 5002) Polyurethane thermoplastic 85 ShA; special detectable dark blue polyurethane compound for XMD option (RAL 5009)
**Standard cords:** alternating “S” and “Z” twist tensile cords out of Kevlar®.
**Standard roll length:** 50 m
**Working temperature:** -25 / +70°C
**Range:** T5, T10

### FEATURES AND BENEFITS

- Manufactured with materials approved for food contact
- High hygiene level, thanks to sealed edges and surface (no coiling noses)
- Zero risk of fraying or detaching of back profile
- No risk of slippage, even in a greasy and humid environment
- High resistance to chemical agents and detergents
- Can be used with even the smallest bending diameter, with small drive pulleys
- Available with different surface profile options for almost any transport of goods
- Available with XMD compound to increase consumer safety (see page 18)

| T5 / T10 | | | | | | |
|---|---|---|---|---|---|---|
| **STANDARD WIDTH (mm)** | **25** | **32** | **50** | **75** | **100** | **150** |
| Width tolerance (mm) +/- | 0.25 | 0.25 | 0.5 | 0.5 | 0.75 | 0.75 |

Integrated guide solutions are available on request; please ask for more details.

### CERTIFICATIONS

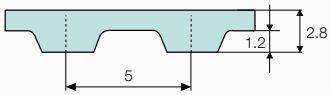
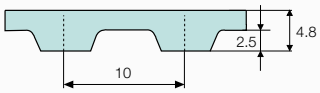
Belts produced with raw materials in compliance with:
- FDA 21 CFR 177.2600 /177.1680 (USA)
- USDA - NSF/ANSI/3-A 14159-3 – 2010 Hygienic Design (Meat and Poultry Processing)
- Regulation (EC) 1935/2004 (art. 3, art.11, par.5, art.15, art.17) EU and (EU) 10/2011

Belts produced according to Regulation (EU) 2023/2006 GMP (Good Manufacturing Practice).

*Read more:*

# MEGALINEAR FC

## RANGE

| | T5 | | | T10 | | |
|---|---|---|---|---|---|---|
| |  | | |  | | |
| **STANDARD SURFACES** | **TOTAL THICKNESS** | **PROFILE HEIGHT** | **ROLL LENGTH** | **TOTAL THICKNESS** | **PROFILE HEIGHT** | **ROLL LENGTH** |
| **SMOOTH (SMT)** | 2.8 +/- 0.3 mm | 0 mm | 50 m | 4.8 +/- 0.3 mm | 0 mm | 50 m |
| **LONGITUDINAL RIBBED (LTR)** | 4.0 +/- 0.3 mm | 1.25 mm | 50 m | 6.05 +/- 0.3 mm | 1.25 mm | 50 m |
| **TRANSVERSAL RIBBED (TVR)** | 4.0 +/- 0.3 mm | 1.25 mm | 50 m | 6.05 +/- 0.3 mm | 1.25 mm | 50 m |
| **NOPPEN OVAL (NPO)** | 5.2 +/- 0.3 mm | 2.1 mm | 50 m | 7.7 +/- 0.3 mm | 2.1 mm | 50 m |
| **ROOF (ROF)** | n.a. | n.a. | n.a. | 6.2 +/- 0.3 mm | 1.7 mm | 50 m |
| **SPIKE SMALL (SPS)** | 4.1 +/- 0.3 mm | 1.3 mm | 50 m | 6.1 +/- 0.3 mm | 1.3 mm | 50 m |
| **SPIKE LARGE (SPL)** | 4.5 +/- 0.3 mm | 1.7 mm | 50 m | 6.5 +/- 0.3 mm | 1.7 mm | 50 m |
| **TRUNCATED PYRAMID 5 (TCP05)** | 4.0 +/- 0.3 mm | 1.5 mm | 50 m | 6.3 +/- 0.3 mm | 1.5 mm | 50 m |
| **TRUNCATED PYRAMID 10 (TCP10)** | 4.0 +/- 0.3 mm | 1.5 mm | 50 m | 6.3 +/- 0.3 mm | 1.5 mm | 50 m |
| **TRUNCATED CONE (TCC)** | 5.6 +/- 0.3 mm | 2.6 mm | 50 m | 7.4 +/- 0.3 mm | 2.6 mm | 50 m |
| **LAMELLA (LAM)** | n.a. | n.a. | n.a. | 15 +/- 0.3 mm | 10 mm | 50 m |

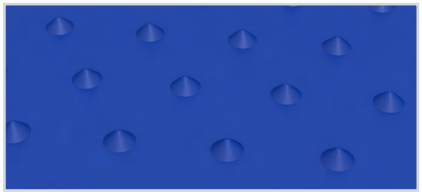
**SMT**

**LTR**

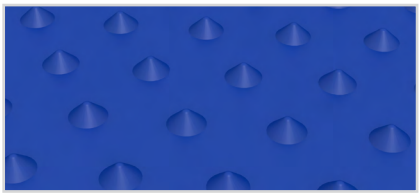
**TVR**

**NPO**

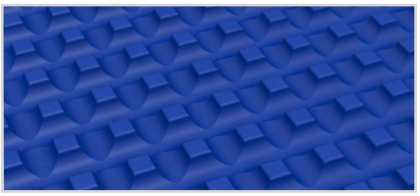
**ROF**



**SPS**



**SPL**



**TCP05**

**TCP10**

**TCC**

**LAM**

Customized profiles available on request.

BELTING SOLUTIONS FOR FOOD

# MEGAPOWER FC

## MEGAPOWER FC (FOOD CONTACT) BELTS ARE TAILORED FOR POWER TRANSMISSION AND SYNCHRONOUS CONVEYING IN THE FOOD PROCESSING AND PACKAGING INDUSTRY.

The polyurethane composition is advantageous in oily environments and withstands rigorous wash-down procedures. With stainless steel cords and a food contact-compliant blue polyurethane, MEGAPOWER FC excels in both wet and dry applications, offering excellent chemical and corrosion resistance in humid conditions. These belts are designed to effortlessly manage high acceleration and frequent stop/start synchronous food handling drives.

### TECHNICAL DATA

**Standard compound:** Termoset PU 81 ShA dark blue RAL 5002
**Standard cords:** Z Twisted stainless Steel AISI 304
**Working temperature:** -25 / +70°C
Thermal working range tolerance (°C): +/- 5
**Range:** H, L; T5, T10 (also double sided DD); AT5, AT10

### FEATURES AND BENEFITS

- Manufactured with materials approved for food contact
- Resistant to most cleaning chemicals and to humid, wet environments
- Compatible with high acceleration, synchronising and multi stop/start applications
- Designed for wash-down conditions

### CERTIFICATIONS

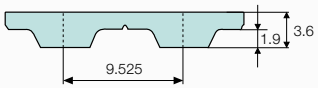
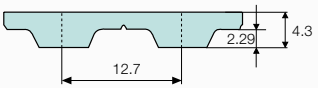
Belts produced with raw materials in compliance with:

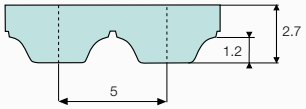
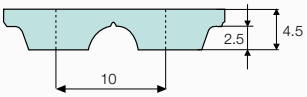
- Regulation (EU) No. 1935/32004, (EU)10/2011 and subsequent updates according to (EU) 174/2015

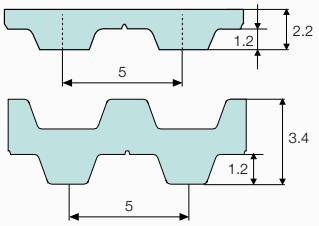
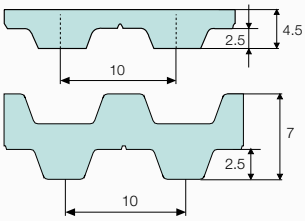
*Read more:*

BELTING SOLUTIONS FOR FOOD

## RANGE

| | L | | | H | | | | |
|---|---|---|---|---|---|---|---|---|
| |  | | |  | | | | |
| **STD. BELT WIDTH (mm) (inch)** | **12.7 (0.5")** | **19.1 (0.75")** | **25.4 (1.0")** | **19.1 (0.75")** | **25.4 (1.0")** | **38.1 (1.5")** | **50.8 (2.0")** | **76.2 (3.0")** |
| **PULLEY WIDTH B2* (mm)** | 19 | 25.4 | 29.7 | 25.4 | 29.7 | 46 | 59 | 85 |
| **BELT WEIGHT (gr/cm)** | 0.437 | 0.661 | 0.878 | 0.745 | 1.059 | 1.594 | 2.121 | 3.194 |
| Standard belt width tolerance: **+/- 0.80 mm** | | | | | | | | |
| Standard sleeve width tolerance**: +/- 10 mm** | | | | | | | | |
| Standard thickness tolerance: **+/- 0.30 mm** | | | | | | | | |

| | AT5 | | | | | | | AT10 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| |  | | | | | | |  | | | | | | | |
| **STD. BELT WIDTH (mm)** | **6** | **8** | **10** | **12** | **16** | **20** | **25** | **10** | **12** | **16** | **20** | **25** | **32** | **50** | **75** |
| **PULLEY WIDTH B2* (mm)** | 12 | 13 | 15 | 17 | 21 | 25 | 30 | 15 | 17 | 21 | 25 | 30 | 37 | 56 | 80 |
| **BELT WEIGHT (gr/cm)** | 0.185 | 0.253 | 0.316 | 0.378 | 0.508 | 0.640 | 0.800 | 0.578 | 0.707 | 0.952 | 1.184 | 1.469 | 1.905 | 3,005 | 4,344 |
| | Standard belt width tolerance: **+/- 0.50 mm** | | | | | | | Standard belt width tolerance: **+/- 0.50 mm** | | | | | | | |
| | Standard sleeve width tolerance: **+/- 10 mm** | | | | | | | Standard sleeve width tolerance: **+/- 10 mm** | | | | | | | |
| | Standard thickness tolerance: **+/- 0.15 mm** | | | | | | | Standard thickness tolerance: **+/- 0.30 mm** | | | | | | | |

| | T5 -T5 DD | | | | | | | T10 - T10 DD | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| |  | | | | | | |  | | | | | | | |
| **STD. BELT WIDTH (mm)** | **6** | **8** | **10** | **12** | **16** | **20** | **25** | **10** | **12** | **16** | **20** | **25** | **32** | **50** | **75** |
| **PULLEY WIDTH B2* (mm)** | 12 | 13 | 15 | 17 | 21 | 25 | 30 | 15 | 17 | 21 | 25 | 30 | 37 | 56 | 80 |
| **BELT WEIGHT (gr/cm)** | 0.116 | 0.152 | 0.194 | 0.237 | 0.249 | 0.390 | 0.497 | 0.494 | 0.504 | 0.683 | 0.861 | 1.082 | 1.386 | 2.174 | 3.276 |
| | Standard belt width tolerance: **+/- 0.50 mm** | | | | | | | Standard belt width tolerance: **+/- 0.50 mm** | | | | | | | |
| | Standard sleeve width tolerance: **+/- 10 mm** | | | | | | | Standard sleeve width tolerance: **+/- 10 mm** | | | | | | | |
| | Standard thickness tolerance: **+/- 0.15 mm** | | | | | | | Standard thickness tolerance: **+/- 0.30 mm** | | | | | | | |

# MEGAFLEX FCM

## MEGAFLEX BELTS ARE MADE FROM THERMOPLASTIC POLYURETHANE, OFFERING EXCEPTIONAL WEAR AND ABRASION RESISTANCE.

Upon request and with a minimum order quantity, MEGAFLEX FCM belts can be produced in a sky blue color (RAL 5012) and are certified for direct contact with both dry and wet food.

### FEATURES AND BENEFITS

- Manufactured with Food Contact-approved materials
- Constant dimensions and length
- Suitable for good's conveying (linear speeds up to 20 m/s).
- High resistance to Oils, Greases, Hydrolysis and Ozone
- Customizable with cleats welded on the backside and made by the same food-approved thermoplastic polyurethane as the body
- Available with XMD compound to increase consumer safety (see page 18)

### CERTIFICATIONS

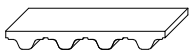
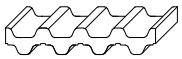
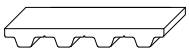
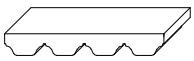
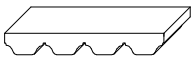
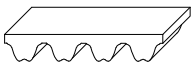
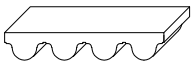
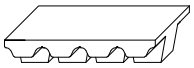
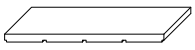
Belts produced with raw materials, in compliance with:

- FDA 21 CFR 177.2600 / 177.1680 (USA)
- Regulation (EC) n° 1935/2004 (art. 3, art.11, par.5, art.15, art.17) and (EU) n° 10/2011

Belts produced according to the Regulation (EU) n° 2023/2006 GMP (Good Manufacturing Practice).

### TECHNICAL DATA

**Standard compound:** Sky blue (RAL 5012) Polyurethane thermoplastic 92 ShA; special detectable dark blue polyurethane compound for XMD option
**Standard cords:** High strength helicoidal stainless steel
**Working temperature:** -25 / +70°C
**Range:** All Megaflex standard range

| STANDARD | DOUBLE SIDED | |
|---|---|---|
|  |  | XL • L • H • XH |
|  |  | T5 • TT5 • T10 • T20 |
|  |  | AT5 • AT10 • AT20 |
|  | | AT15 |
|  |  | RPP5 • RPP8 • RPP14 |
|  | | MTD8 |
|  | | ATG10 |
|  | | P2 |

For standard widths and weights, please refer to the Megaflex technical manual. For additional techical features (tooth resistance, traction resistance, flexion resistance and pulley diameters), please contact Megadyne.

*Read more:*

BELTING SOLUTIONS FOR FOOD

# MEGAWELD FDA

## MEGAWELD THERMOPLASTIC POLYURETHANE, TRAPEZOIDAL AND ROUND BELTS ARE MANUFACTURED USING A UNIQUE EXTRUSION PROCESS.

They are suitable for a wide range of applications and industries.
Megadyne uses only virgin polymers to guarantee the best quality and the best possible performance in the food industry.

### TECHNICAL DATA

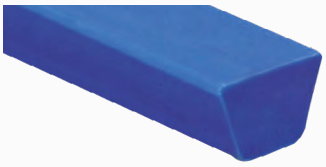
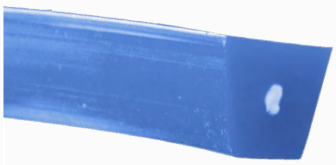
**Standard compound:** Virgin polymers 85 ShA reinforced FDA o EU.
Metal-detectable material on request with m.o.q.

**Cord in reinforced product:** Aramide or polyester on request.

### FEATURES AND BENEFITS

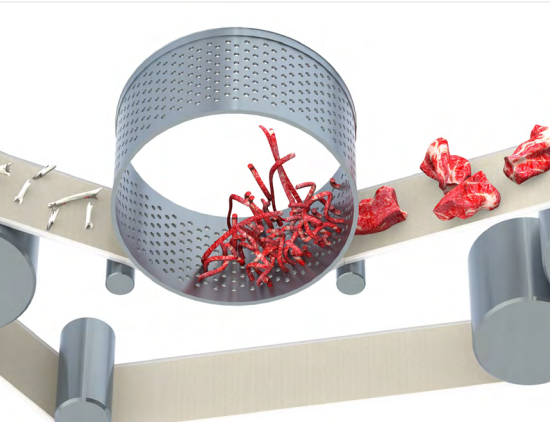
- High flexibility
- High resistance to pollution, oil, and grease
- Good abrasion resistance
- Good welding characteristics
- Smooth running

### RANGE

| | PT 85 FDA (BLUE) | | | | PT 85 RK FDA (BLUE) | | |
|---|---|---|---|---|---|---|---|
| |  | | | |  | | |
| **CODE** | **PT 85 FDA Z** | **PT 85 FDA A** | **PT 85 FDA B** | **PT 85 FDA C** | **PT 85 RK FDA A** | **PT 85 RK FDA B** | **PT 85 RK FDA C** |
| **CROSS SECTION (BXH mm)** | 10x6 | 13x8 | 17x11 | 22x14 | 13x8 | 17x11 | 22x14 |
| **TRACTION FORCE (N)** | 60 | 120 | 220 | 360 | 17x11 | 250 | 1,594 |
| **CORRESPONDING ELONGATION (%)**** | 8 | 8 | 8 | 8 | 0,5 | 1 | 1,5 |
| **MINIMUM PULLEY DIAMETER** | 55 | 70 | 110 | 130 | 80 | 125 | 200 |

*Read more:*

BELTING SOLUTIONS FOR FOOD



# MEGADYNE MEGASQUEEZE™

## PREMIUM SOFT SEPARATOR BELT FOR PROTEIN & FRUIT PROCESSING. FOR RED MEAT, PORK, POULTRY, FISH AND FRUIT PROCESSING APPLICATIONS, THIS BELT DELIVERS HIGH YIELD, EFFICIENCY AND RELIABILITY.

## FOOD SAFETY – WITHOUT COMPROMISE.

Megadyne combines decades of expertise in food-grade belting with in-depth knowledge of protein and fruit processing to deliver innovative solutions for deboning and soft separation applications.

MegaSqueeze™ is the next-generation soft separator belt engineered to deliver maximum performance and hygiene when separating:

- Red meat, pork, and poultry from bones
- Fish meat from bones and skin
- Fruit pulp from pits and peels

Developed using advanced materials and precision manufacturing, MegaSqueeze™ provides:

- Maximum yield and consistent product quality
- Lowest belt elongation even under high drum pressure
- Superior wear and cut resistance
- Exceptional durability and reliability
- Full compliance with EC and FDA food-safety standards

**KEY FEATURES**

- Longer service life than any alternative belt
- Lowest elongation under high drum pressure
- High yield and consistent performance
- Outstanding flexibility
- Tear- and shock-resistant design
- Non-cracking, durable covers
- High abrasion and wear resistance
- Excellent oil and grease resistance
- Easy-to-clean surface
- 100% Food Grade – EC & FDA compliant

**BENEFITS**

- Greater durability and reliability
- Enhanced processing efficiency
- Increased flexibility and uptime
- Reduced maintenance and downtime
- Significant cost savings over belt lifetime

# MEGADYNE MEGASQUEEZE™

## MEGASQUEEZE™ EMBODIES MEGADYNE'S COMMITMENT TO INNOVATION, COMBINING:

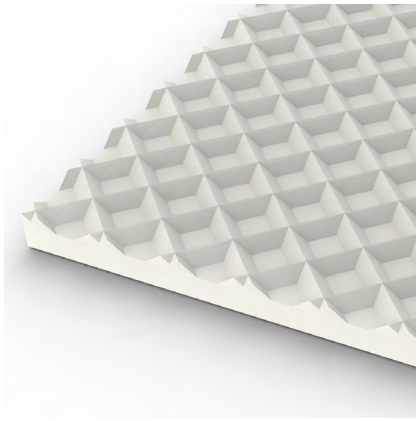
Cutting-edge materials, precision engineering and industry expertise ...to deliver the premium soft separator belt trusted by OEMs and food processing companies worldwide.

### MEGASQUEEZE™ SEPARATOR BELTS RANGE

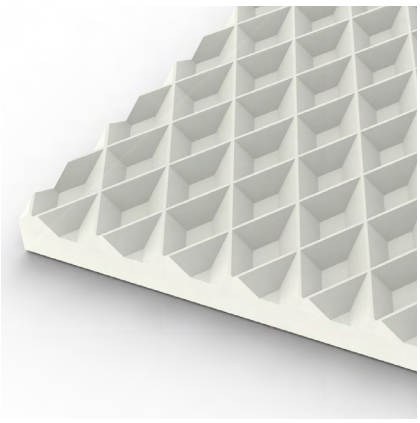
| BELT TYPE | MEGASQUEEZE MS85/13.4 | MEGASQUEEZE MS93/13.4 |
|---|---|---|
| **COMPOUND** | TPU 85 ShA | TPU 93 ShA |
| **BELT COLOR** | Transparent | Transparent |
| **STANDARD EMBOSSING** | Rhombus Profile | Rhombus Profile |
| **STANDARD BELT THICKNESS* (mm)** | 13.4 | 13.4 |
| **TOLERANCE ON LENGTH (%)** | +/-1 | +/-1 |
| **TOLERANCE ON WIDTH mm** | -0/+2 | -0/+2 |
| **GRIP** | ●●●● | ●●● |
| **WEAR RESISTANCE** | ●●●●● | ●●●●●● |
| **YIELD** | ●●●● | ●●●●● |
| **FOOD GRADE** | EC, FDA | EC, FDA |
| **INDICATION APPLICATION** | Medium | Hard |
| **REPLACES** | PU | PU Hard |

*Other available belt thickness are from 13.0 to 16.0 mm.

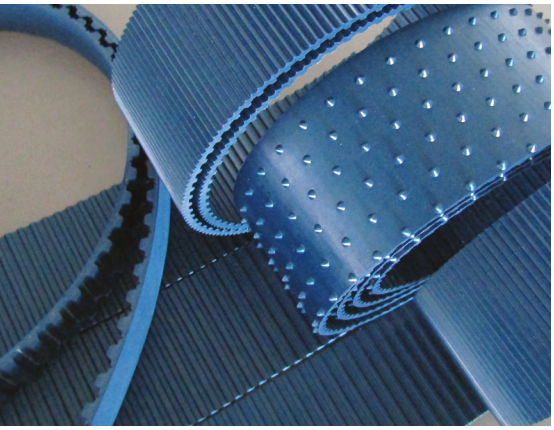
The topside comes standard with a Rhombus profile for optimum grip and cleanability.
Other profiles (e.g. Fine Square) are available on request.



Fine Square Profile



Rhombus Standard Profile



# WHY CHOOSE THE XMD OPTION?

XMD METAL DETECTABLE & X-RAY

## THE MEGADYNE REVOLUTION IN FOOD-GRADE BELTS

**FOOD SAFETY, FIRST AND FOREMOST**

The most frequent request from the Food industry is that the highest possible Food Safety and hygiene standards be maintained at every stage of the production process, from primary production lines all the way through to packaging.

One of the greatest nightmares that food companies have is that their food products will be contaminated by **foreign bodies**. Fragments from broken belt elements represent a major contamination risk and that's why Megadyne developed the XMD belts, to meet this food safety market requirement!

Detectable belts are efficient tools for decreasing the risk of contamination from belt fragments; they allow detector systems to **FILTER OUT** any foreign bodies resulting from broken belt parts and make contamination **VISIBLE** before any product leaves for the consumer market.

Megadyne XMD Detectable Food Contact timing belts are the latest breakthrough trend sweeping the entire food belting market:
**GET ON BOARD!**

**USE DETECTABLE TEST CARDS TO:**

- Prove that detection is taking place
- Recognise the minimum detectable belt and cleat fragment size

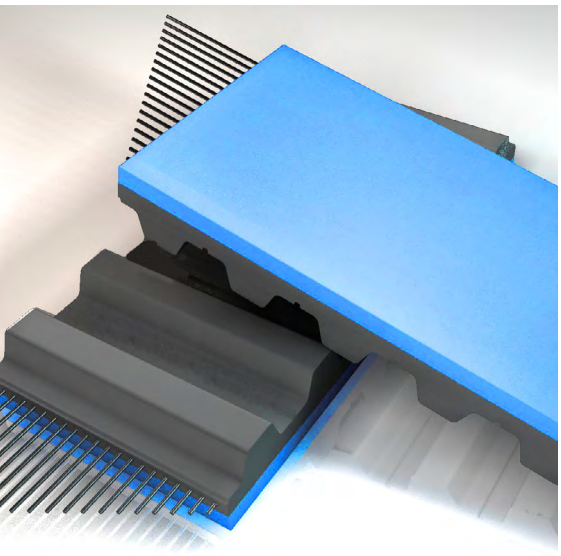
Belt and cleat fragments from all MEGALINEAR XMD and MEGAFLEX XMD belts can be spotted by metal and X-ray detectors, thanks to a special compound used in the manufacture of these timing belts and their accessories.
Therefore, any Food Contact timing belts (open-ended, endless joined, and truly endless) constructed with this compound are detectable.
This Food Safety feature is in addition to other special hygienic design features that include sealed edges and the use of blue as a contrast colour.

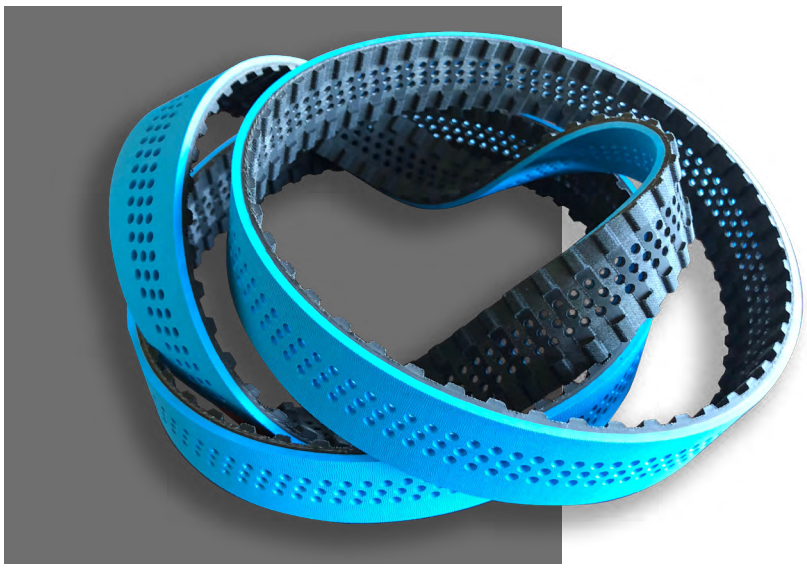

**SEE HOW THESE BELTS CAN HELP YOUR COMPANY IMPROVE FOOD SAFETY STANDARDS!**

*Watch the video:*

**NOTE**

- *Efficiency levels for detection cannot be guaranteed by Megadyne or by any OEM*
- *XMD FC test cards are the only tools that can prove the real-time functionality of detection systems and establish minimum detectable size.*
- *A number of variables involved in the detection of foreign bodies by X-ray systems means that test cards may be less efficient*





# COVERS

# COVERS

## MEGADYNE IS A GLOBAL LEADER IN THE DESIGN AND MANUFACTURING OF SPECIALTY AND ENGINEERED BELTS WITH COVERS

Why is this the case? It starts with our understanding of polymers. From rubber to silicone, to urethane, to impregnated fabrics, internal knowledge at Megadyne as well as that obtained from our other Ammega sister companies is matched only by our broad process offering.
At Megadyne, we mould rubber, spin cast urethane and Hytrel®, apply silicone and neoprene coating, spray urethane foam, and laminate materials made of urethane, PVC, rubber, fleece, artificial leather, silicone and Kevlar®.
With our vertically integrated business model, our multiple manufacturing processes and our state-of-the-art modification equipment, Megadyne is well positioned to offer you high-quality, consistently produced products. No other manufacturer of Engineered Specialty belts provides more solutions.

### PRODUCT AVAILABILITY

Available in EMEA & APAC

Available in the AMERICAS

### COVER COLOUR KEY

- PU Cream
- Gray
- Transparent
- White
- Tan
- Blue FDA
- Dark Gray
- Royal Blue
- Black
- Blue NBR MD
- Red

### RESISTANCE QUALITY LEVELS

In relation to Water, Abrasion and Oil Resistances of the cover material.

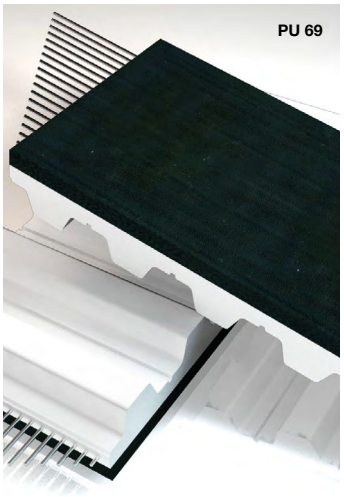
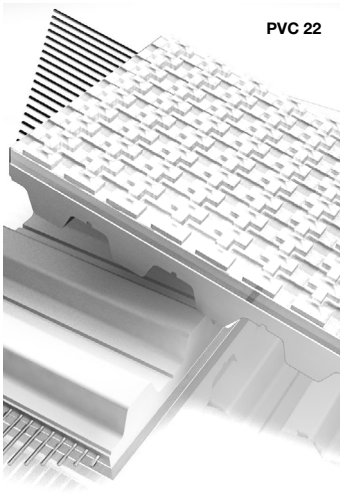
| | |
|---|---|
| Poor | ●○○○ |
| Fair | ●●○○ |
| Good | ●●●○ |
| Very Good | ●●●● |

### IMPORTANT COVER INFORMATION

**The following information provides an explanation for the asterisk or asterisks found on the following pages of the Cover section.**
***Coefficient of Friction (CoF): Determined by the static value against a steel guide; however, consideration must be given to the specific environmental conditions (contamination and/or wear resistance) and aging on the cover**
****Oil Resistance: Dependant upon the exact chemical nature and viscosity of the oil**
*****Ground Covers can yield a tighter tolerance of +/-0.3mm if required**
******Minimum Pulley Diameter (Pd) = desired cover thickness x given multiplier: i.e. 2mm cover thickness x 30 (given) = 60mm min. Pd. If the minimum diameter of base belt is larger than the calculated cover minimum Pd, use the larger of the two values.**
*******Minimum Pulley Diameter (Pd) = Total Belt Thickness (TK)x5**

*Read more:*

# COVERS

| | BLACK MILLABLE URETHANE | PVC-FOIL WHITE | SUPERGRIP WHITE |
|---|---|---|---|
| |  PU 69 |  PVC 20 |  PVC 22 |
| **COLOURS** | ● | ○ | ○ |
| **RAW MATERIAL** | MILLABLE URETHANE | PVC | PVC |
| **HARDNESS (ShA)** | 80 | 65 | 60 |
| **COVER AND BELT COHESION METHOD** | MOLDING | LAMINATION | LAMINATION |
| **STANDARD COVER THICKNESS RANGE (mm)** | 2.4 to 14 | 2 | 3 |
| **TOLERANCE COVER THICKNESS (mm)** | +/- 0.3 | +/- 0.5 | +/- 0.3 |
| **WORKING TEMPERATURE (°C)** | -20 /+80 | -20 /+100 | -10 /+100 |
| **COEFFICIENT OF FRICTION* (CoF)** | 0.55 | 0.80 | 0.80 |
| **MIN. PULLEY DIAMETER** | x 40 | 60 mm | 60 mm |
| **WATER RESISTANCE** | ●●●● | ●●●○ | ●●●○ |
| **ABRASION RESISTANCE** | ●●●● | ●●●○ | ●●○○ |
| **OIL RESISTANCE**** | ●●●○ | ●●●● | ●●●● |
| **FEATURES/BENEFITS** | Very good abrasion and and tear resistance. Formulated with ingredients considered FDA safe. | Good adhesion characteristics due to good CoF and smooth surface. Resistant to acids and oils. Formulated with ingredients considered FDA safe. Seamless weldable on ML and MFX. | Characteristics same as Supergrip petrol but less flexible. For the conveyance of food. Resistant against acids and bases. |
| **FOOD CONTACT APPROVED** | YES | YES | YES |
| **FDA APPROVED** | YES | YES | YES |
| **EU REGULATIONS** | | YES | YES |
| **SOURCE LOCATION** | USA | ITALY, USA | ITALY, USA |

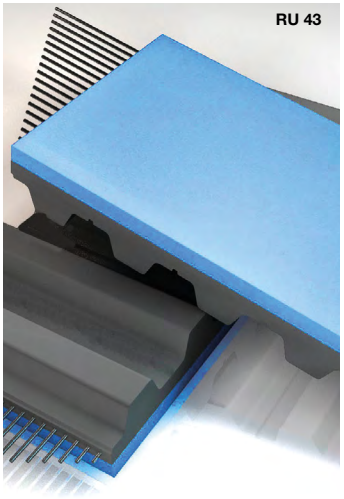
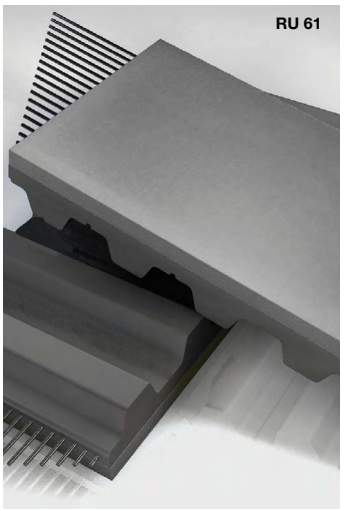
# COVERS

| | PVC-SAWTOOTH | PVC-NAPPED | PVC FISHBONE |
|---|---|---|---|
| |   |   |   |
| **COLOURS** | ● | ● | ● |
| **RAW MATERIAL** | PVC | PVC | PVC |
| **HARDNESS (ShA)** | 60 +/-4 | 65 | 65 |
| **COVER AND BELT COHESION METHOD** | LAMINATION | LAMINATION | LAMINATION |
| **STANDARD COVER THICKNESS RANGE (mm)** | 2.5 | 1.5 | 3 |
| **TOLERANCE COVER THICKNESS (mm)** | +/- 0.5 | +/- 0.5 | +/- 0.5 |
| **WORKING TEMPERATURE (°C)** | -15 /+70 | -15 /+60 | -15 /+90 |
| **COEFFICIENT OF FRICTION* (CoF)** | 0.70 | 0.80 | 0.60 |
| **MIN. PULLEY DIAMETER** | 60 mm | 60 mm | x 30 |
| **WATER RESISTANCE** | ●●●○ | ●●●○ | ●●●○ |
| **ABRASION RESISTANCE** | ●●○○ | ●●○○ | ●●●○ |
| **OIL RESISTANCE**** | ●●●● | ●●●● | ●●●● |
| **FEATURES/BENEFITS** | FDA clear pattern for improved adhesion under wet conditions. Line contact, resistant against acids and bases. | Thin cover offers good CoF, even in wet conditions. Resistant to acids and oils. Formulated with FDA materials. | Improved CoF in wet conditions. Narrow belts may only have a single diagonal-cut profile. Resistant to acids and oils. Formulated with FDA materials. |
| **FOOD CONTACT APPROVED** | YES | YES | YES |
| **FDA APPROVED** | YES | YES | YES |
| **EU REGULATIONS** | YES | YES | YES |
| **SOURCE LOCATION** | ITALY, USA | ITALY, USA | ITALY |

# COVERS

| | LINAPLUS FG | WHITE NITRILE | TAN NEOPRENE 55 |
|---|---|---|---|
| |  RU 29 |  RU 49 |  RU 53 |
| **COLOURS** | ● | ● | ● |
| **RAW MATERIAL** | NATURAL RUBBER | CARBOXILATED NITRILE | NEOPRENE |
| **HARDNESS (ShA)** | 38 | 40 | 55 |
| **COVER AND BELT COHESION METHOD** | LAMINATION | VULCANIZATION | VULCANIZATION |
| **STANDARD COVER THICKNESS RANGE (mm)** | 1 to 3 | 2.4 to 14 | 2.4 to 14 |
| **TOLERANCE COVER THICKNESS (mm)** | +/- 1(***) | +/- 0.3 | +/- 0.3 |
| **WORKING TEMPERATURE (°C)** | -40 /+70 | -20 /+120 | -20 /+120 |
| **COEFFICIENT OF FRICTION* (CoF)** | 0.75 | 0.70 | 1.60 |
| **MIN. PULLEY DIAMETER** | x 25 | x 25 | x 30 |
| **WATER RESISTANCE** | ●●●○ | ●●●○ | ●●●○ |
| **ABRASION RESISTANCE** | ●●○○ | ●●●○ | ●●●○ |
| **OIL RESISTANCE**** | ●○○○ | ●●●● | ●●●○ |
| **FEATURES/BENEFITS** | High CoF white non-marking natural rubber material. Formulated with FDA materials. | Cover offering the benefit high-friction and good wear resistance. Very good oil resistance by moderate temperature up to +120°C offers a wide range of applications. | Cover offers high CoF and good wear resistance. |
| **FOOD CONTACT APPROVED** | YES | YES | YES |
| **FDA APPROVED** | YES | YES | YES |
| **EU REGULATIONS** | YES | YES | |
| **SOURCE LOCATION** | ITALY, USA | USA | USA |

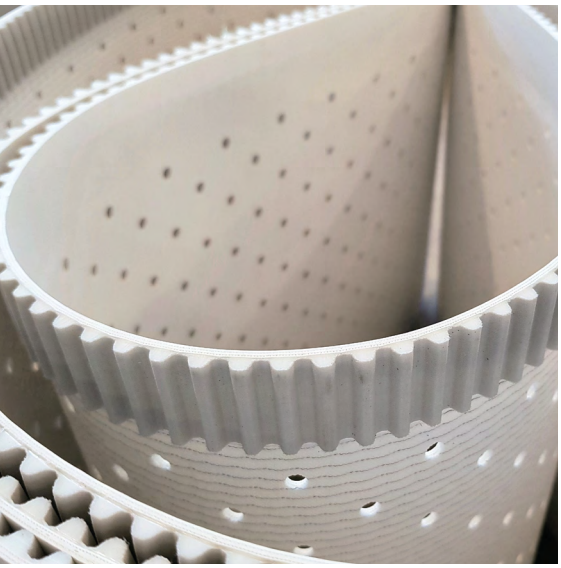
# COVERS

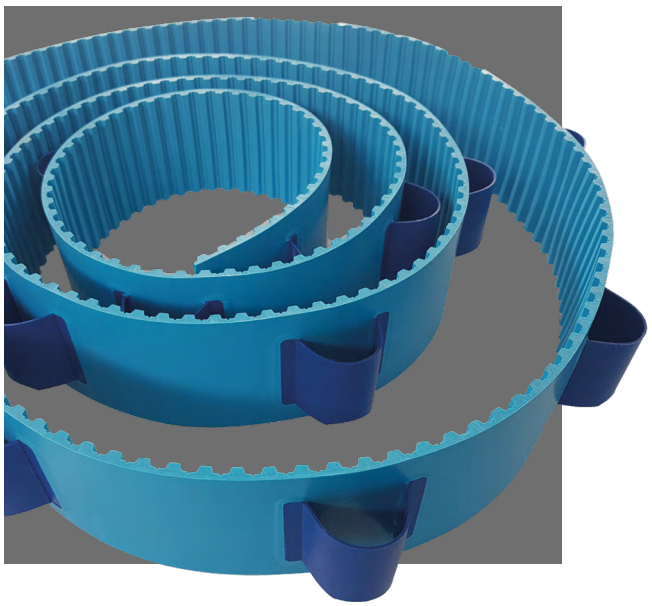
| | BLUE FDA NEOPRENE 65 | 65 DURO GRAY NEOPRENE R24 | LOW DURO WHITE NEOPRENE R92 |
|---|---|---|---|
| |   |   |   |
| **COLOURS** | | | |
| **RAW MATERIAL** | POLYCHLOROPRENE | POLYCHLOROPRENE | POLYCHLOROPRENE |
| **HARDNESS (ShA)** | 63-73 | 60-70 | 35-45 |
| **COVER AND BELT COHESION METHOD** | ONE SHOT CURING | ONE SHOT CURING | ONE SHOT CURING |
| **STANDARD COVER THICKNESS RANGE (mm)** | 1.6 to 12 | 1.0 to 13 | 1.0 to 10 |
| **TOLERANCE COVER THICKNESS (mm)** | +/- 0.3 | +/- 0.3 | +/- 0.3 |
| **WORKING TEMPERATURE (°C)** | -35 /+105 | -25 /+80 | -20 /+90 |
| **COEFFICIENT OF FRICTION* (CoF)** | 0.80 | 0.65 | 0.65 |
| **MIN. PULLEY DIAMETER** | Ø min. +TKx5(****) | Ø min. +TKx5(****) | Ø min. +TKx5(****) |
| **WATER RESISTANCE** | ●●●○ | ●●●○ | ●●●○ |
| **ABRASION RESISTANCE** | ●●●● | ●●●○ | ●●●○ |
| **OIL RESISTANCE**** | ●●●○ | ●●●○ | ●●●○ |
| **FEATURES/BENEFITS** | Cover offers good resistance to weather and ozone environments. Self extinguishing. Good resistance to acid solutions. Formulated with FDA materials. Only available on rubber base belts. | Cover offering medium ShA, non-marking compound. Formulated with FDA materials. Only available on rubber base belts. | Cover offers low ShA non-marking compound, offers high CoF and good wear resistance. Formulated with FDA materials. Only available on rubber base belts. |
| **FOOD CONTACT APPROVED** | YES | YES | YES |
| **FDA APPROVED** | YES | YES | YES |
| **EU REGULATIONS** | | | |
| **SOURCE LOCATION** | SPAIN | SPAIN | SPAIN |

# COVERS

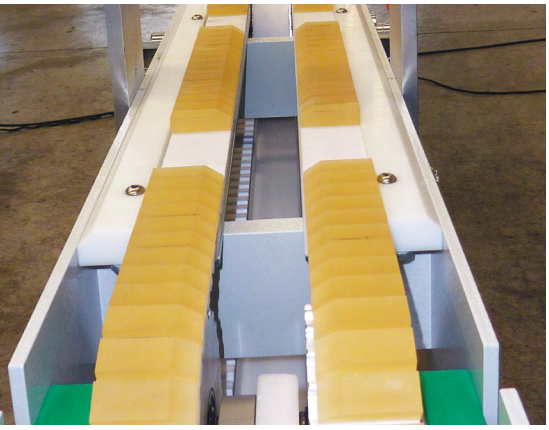
| | LEV-HT-4 (LEVAPREN®) | SILICONE |
|---|---|---|
| |  RU 82 |  OTH 57 |
| **COLOURS** | | |
| **RAW MATERIAL** | EVA | SILICONE |
| **HARDNESS (ShA)** | 69-77 | 25 to 70 |
| **COVER AND BELT COHESION METHOD** | ONE SHOT CURING | – |
| **STANDARD COVER THICKNESS RANGE (mm)** | 1.0 - 10.0 | 1 to 10 |
| **TOLERANCE COVER THICKNESS (mm)** | +/- 0.3 | +/- 0.3 |
| **WORKING TEMPERATURE (°C)** | -20 /+150 | -40 /+230[A] |
| **COEFFICIENT OF FRICTION* (CoF)** | 0.62 | Values upon request |
| **MIN. PULLEY DIAMETER** | Ø min. +TKx5(****) | x 20 |
| **WATER RESISTANCE** | ●●●○ | ●●●○ |
| **ABRASION RESISTANCE** | ●●●○ | ●○○○ |
| **OIL RESISTANCE**** | ●●●● | ●●●○ |
| **FEATURES/BENEFITS** | Cover works with higher temperature applications than HNBR and offers even better oil resistance. | Cover offers high-temperature resistance, excellent grip and ease of product release, making clean-up of materials like adhesives easy. Formulated with FDA materials. |
| **FOOD CONTACT APPROVED** | YES | YES |
| **FDA APPROVED** | | YES* |
| **EU REGULATIONS** | | YES |
| **SOURCE LOCATION** | SPAIN | ITALY, USA |

[A]Temperature resistance depends on silicone type.
* FDA approval depends on silicone type.





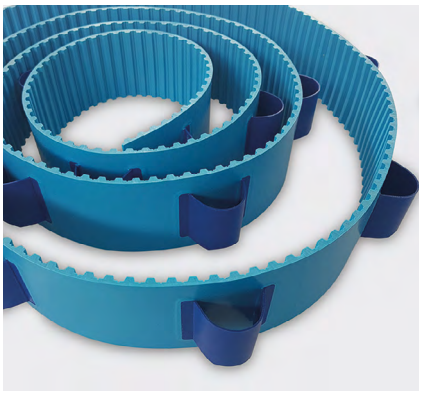
# FABRICATIONS AND SPECIAL BELTS



# FABRICATIONS AND SPECIAL BELTS

## FOOD CONTACT BELTS CAN BE MODIFIED WITH HOLES, SLOTS, GROOVES, PERFORATIONS AND VACUUM COUNTERSINKS.

MEGALINEAR and MEGAFLEX timing belts can also be customised with profiles. These profiles can be welded, cast out of a mould, or ground from excess thickness on the backside of the belt. Cleats are particularly useful for applications requiring product separation, sortation, actuation or pushing. For the food and pharmaceutical industries, cleats are made from Food Contact blue, or transparent polyurethane with a hardness of 85 ShA.
In addition to these cleats, there is the False Teeth system, designed to offer an easy mechanical attachment option for placing cleats and other profiles. False teeth are compatible with MEGALINEAR open-ended, MEGAFLEX truly endless thermoplastic and MEGAPOWER urethane timing belts. Made from stainless steel, which is suitable for food and pharmaceutical industries, these attachments allow for repositioning or replacing broken cleats without the need to replace the entire belt, saving both time and money.



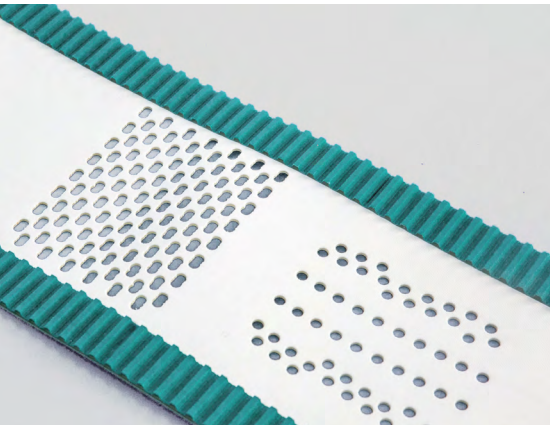
### SPIRAFLEX

Spiraflex is the unique Hybrid Vacuum solution. It combines synchronisation and an open mesh design, ideal for drainage or vacuum applications. In the food industry, Spiraflex can replace traditional metal wire mesh conveyor belts. For instance, when conveying fresh pasta or dough, Spiraflex allows steam to eliminate residual flour. In the case of licorice transport, it withstands the steam used to achieve a glossy finish on the product's surface.

| TYPE | SPIRAFLEX |
|---|---|
| |  |
| CONVEYOR BELT | Polyspiral |
| CONVEYOR BELT FABRIC | Polyester with reinforced edges |
| MAX BELT WIDTH (mm) | 2000 |
| ADVANTAGES | Excellent suction properties - Customization - Low weight<br>Resistant to high temperatures - Not adhesive - Not antistatic<br>Truly endless - Sealed edges |
| WORKING TEMPERATURE | -30 / +90°C |

**FOR MORE DETAILED INFORMATION ON OUR SPECIALTY AND ENGINEERED BELTS, PLEASE REFER TO OUR SPECIALTY AND ENGINEERED BELTS GUIDE.**

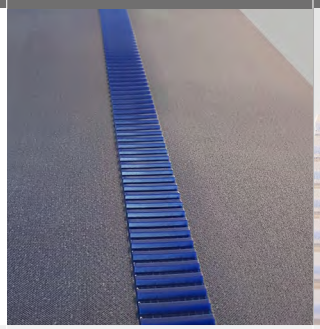
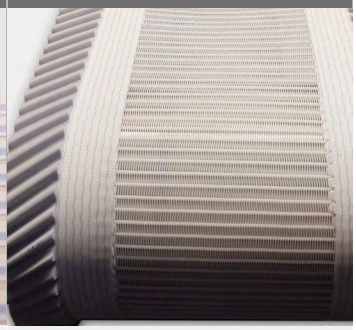
*Scan the QR code*



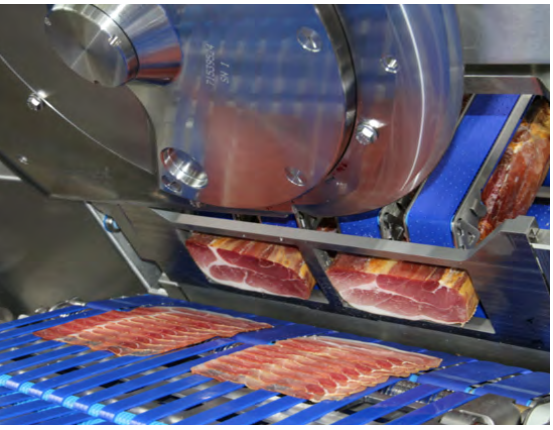
# HYBRID BELTS

## FOR SPECIFIC FOOD APPLICATIONS, MEGADYNE OFFERS ENGINEERED HYBRID BELTS.

These belts combine synchronisation and conveying into a single design. Starting with a conveyor belt, we add extruded timing belts for precise positioning and accurate tracking.

| TYPE | HYBRID | HYBRID PLUS | HYBRID VACUUM |
|---|---|---|---|
| |  |  |  |
| **CONVEYOR BELT** | PUCON, SILCON, FABCON, ELASTOFLEX | PUCON, SILCON, FABCON, ELASTOFLEX | Polyester open mesh with PUCON |
| **CONVEYOR BELT FABRIC** | Rigid, Light Rigid and Flexible Polyester | Rigid, Light Rigid and Flexible Polyester | Rigid polyester |
| **MEGALINEAR BELT TYPE AND PITCH** | T5 BLUE FC, T10 BLUE FC | T5 BLUE FC, T10 BLUE FC | T5 BLUE FC, T10 BLUE FC |
| **MEGALINEAR CORD TYPES** | Kevlar®, No cord | Kevlar®, No cord | Kevlar®, No cord |
| **MEGALINEAR DUROMETER/ COLOUR** | 92A ● ● ● ● ● | 92A ● ● ● ● ● | 92A ● ● |
| **MEGALINEAR NFT** | Yes | Yes | Yes |
| **# OF MEGALINEAR BELTS** | One-centered, belt bottom | Two or more as per customer design | Two, belt edges |
| **MAX BELT WIDTH (mm)** | 1000 | 2000 | 2000 |
| **ADVANTAGES** | Driven speeds up to 500 m/min.<br>Precision positioning<br>Energy savings | | Driven speeds up to 500 m/min.<br>Precision positioning<br>Energy savings<br>Enables compact conveyor designs<br>Open mesh allows vacuum or drainage |

# SUCCESS STORIES



**Industry:** Food
**Application:** Red meat automated slicing machines
**Products:** MEGAPOWER FC, MEGALINEAR FC with profiles.

# CASE STUDY - RED MEAT

## RED MEAT AUTOMATED SLICING MACHINES

### SITUATION/APPLICATION

Red meat automated slicing machines are engineered for the efficient and precise slicing of various red meats, including beef, pork and lamb, into consistently uniform pieces. Equipped with high-speed blades and advanced control systems, these machines offer adjustable slice thickness and reliable output. Key features include automated belt-driven conveyance, precise meat positioning, and integration with hygiene-centric designs for easy cleaning. These slicers are widely adopted in industrial meat processing facilities to boost productivity, lower labour costs, and uphold stringent food safety standards.
These machines typically deliver between 100 and 1,500 slices per minute, contingent on the model, meat type, and slice thickness required. High-performance models, particularly those utilised in large-scale processing plants, operate at the upper end of this range, providing exceptional efficiency and precision for high-volume meat production. Additionally, these slicers utilise XMD food-grade belts and are designed to ensure rapid compliance with food safety requirements, meeting the stringent demands of our customers.

### THE PROBLEM

One of the leading OEMS in the meat processing industry, renowned for their innovative meat processing solutions, has relied on Megadyne products and supply chain for several years. However, the increasing demands for food safety, productivity and optimal yield have necessitated improvements in their belt systems.
The belts occasionally experienced surface delamination, particularly at the truncated tops, due to aggressive cleaning and sanitation processes combined with frequent flexing and 90° twisting. Additionally, the open flights between the teeth of the timing belts did not meet the high standards of food safety, as they can harbour bacteria. The gaps in the assembly of metal inserts with spikes were also problematic. These issues resulted in higher attention and costs for cleaning and sanitation, causing significant inconvenience for end-users.
A reliable solution required a new belt design for both pairs of belts, investment in the production process, and the development of customised tools.

### THE SOLUTION

To meet the increased demands for speed, dynamic forces and reduced cleaning times, we engineered advanced power transmission systems using robust, truly endless MEGAPOWER food-grade timing belts. These belts, typically in small pitches, are reinforced with stainless steel tensile members and paired with stainless-steel pulleys, creating a fully corrosion-resistant system compliant with FDA and EU food safety regulations. This innovation ensures the reliability and durability of power transmission components, even under high dynamic loads, shocks, and exposure to aggressive cleaning agents.
Simultaneously, we developed a conveyor solution aimed at synchronising blade operations with the loading conveyor, feeding into a robotic packaging station. The smooth surface of MEGALINEAR Food Contact timing belts, with embedded aramid cords in a monolithic body, proved ideal for conveying slices of fresh, cooked or dry meat. The use of small T5 pitch belts enhanced positioning accuracy and supported compact drive designs.

# CASE STUDY - RED MEAT

## RED MEAT AUTOMATED SLICING MACHINES

The infeed process for meat slicing underwent extensive development, laboratory testing and field trials. Some customers requested a universal solution capable of handling hard, dry meats like sausages or ham, as well as fresh, tender meats and even cheese. We proposed several options featuring profiled top surfaces on our MEGALINEAR Food Contact timing belts. Belts with transversal ribs delivered the best overall performance, while profiles with small and large spikes, as well as truncated cones, were tailored for more delicate meat and cheese slicing. Field testing revealed that end-users prioritised productivity and cleaning efficiency. Despite the various top profiles, our belts are easy to clean and resistant to most cleaning chemicals and moisture, designed to perform even in salty and wet environments.
For ham slicer applications, we introduced open-ended food-grade belts for rapid turning and handling of meat and machine parts. Instead of aramid cords, we opted for durable steel cords fully sealed within the belt body, utilising AT10 belt profiles. The larger AT10 tooth profile provides high positioning accuracy and resistance to tooth jumps, making it ideal for lifting and manipulation tasks. These drives operate with two belts in tandem, offering low noise and maintenance-free performance. All belts mentioned are manufactured from food-contact-approved materials and certified according to European regulations (EU 1935/2004, EU 10/2011, and EU 174/2015).

### THE RESULT

As is common in business, continuous change and development are inevitable. While slicers have nearly reached optimal slicing speeds, the design requests we now receive are increasingly focused on tailored solutions for specific slicing needs. This often involves the use of double-sided food-grade belts and wide hybrid belts that combine the best features of polyurethane fabric and timing belts to be utilised for conveying, weighing stations or vacuum-supported positioning. Additionally, in collaboration with a significant number of OEMs, we introduced X-ray and metal-detectable (XMD) options to our existing food-grade belts, particularly in operations where blades or other elements could potentially damage the belt. Thanks to advancements in new PU materials, we can now offer a full range of food-grade belts with XMD capabilities, ensuring a swift response to the food safety requirements of our customers.

**Industry:** Food
**Application:** Production of collagen casings
**Products:** Engineered belts high temp resistant ML in T20 and AT10 pitches.

# CASE STUDY - SAUSAGE

## HIGH TEMPERATURE-RESISTANT BELTS IN THE PRODUCTION OF CASINGS

### SITUATION/APPLICATION

Collagen casings are a vital component in the sausage-making industry, offering numerous advantages that make them the preferred choice for many meat processors. They provide uniform thickness and diameter, resulting in consistent sausage size and shape—an essential factor for automated production lines and adherence to specific product standards. Unlike some natural casings, collagen casings are fully edible, eliminating the need for removal before consumption. Made from natural collagen protein, they are safe for consumption and meet food safety regulations. Collagen casings are also easier to handle, generally less expensive, and offer a longer shelf life compared to natural casings.
Typically derived from bovine hides, collagen is processed into a paste and then extruded into tubular shapes to form the casings. The drying process is critical to ensuring the quality, durability, and suitability of the final product for sausage production. Collagen casings are dried in a controlled environment where temperature, humidity and air circulation are meticulously managed to prevent defects and ensure even drying. The drying temperature is adjusted based on the specific product, process and producer expertise. The process is gradual to avoid cracks or weak spots, which could compromise the casing's strength and elasticity.
This is achieved by gently handling the casings using a timing belt manipulator and maintaining high humidity levels initially to prevent rapid moisture loss that could lead to brittleness. As drying progresses, humidity is gradually reduced to ensure proper drying without compromising the casings' integrity.
Precise control of the drying conditions is essential for producing high-quality collagen casings suitable for a wide range of sausage types, including both fresh and cooked varieties. Properly dried casings ensure ease of handling during production, consistent product quality, and an extended shelf life.

### THE PROBLEM

The production of collagen casings is typically conducted on a large scale, with continuous 24/7 operations throughout the year being optimal due to the consistently growing market demand over many years. Any production downtime or quality issues can result in significant costs, making it imperative for producers to employ highly reliable solutions with long-term durability. In the drying process, timing belts are often used, which can be joined to form endless belts extending hundred meters in length. These belts, despite handling relatively lightweight products, are subjected to considerable stress due to their substantial weight and the high temperature and humidity conditions within the drying environment. These factors—flexing, humidity, and temperature—pose challenges to ensuring uninterrupted operation, leading customers to require solutions that guarantee 100% reliability with only preventive maintenance.

# CASE STUDY - SAUSAGE

## HIGH TEMPERATURE-RESISTANT BELTS IN THE PRODUCTION OF CASINGS

### THE SOLUTION

Our technical support team has made significant strides in extending the lifespan of belts, including enhancing the durability of the welding joint. By introducing a high-temperature-resistant material, we effectively addressed the degradation issues associated with common polyurethane, enabling the belts to operate continuously at temperatures up to 100°C without compromising strength or other key parameters.
To further reduce wear and friction between the belts and metal supports, tensioners and pulleys, we applied suitable polyamide fabrics to both the top surface and the teeth of the belts. The fabric performed exceptionally well, with no issues of fraying or delamination, and a substantial reduction in friction was achieved.
While the goal was nearly reached, the flexing and high temperatures posed a challenge for the reinforcement of the welding joint. Rising to the challenge, our technicians developed an innovative solution by creating an extended joint, welded on long welding plates. Our lab tests confirmed a significant >15% improvement in weld strength, leading the customer to adopt these customised belts with confidence.

### THE RESULT

The savings from avoiding production downtime, cutting maintenance and slashing material costs in some drying cells have topped €100k—making the slight increase in cost for our tailored belts seem like pocket change. Trouble-free operation and the satisfaction of a job well done? Absolutely priceless, for both us and our customers.
The development of these custom belts didn't just solve a problem—it gave us a wealth of know-how that we're excited to roll out across the board, not just for this specific application but for the food industry and beyond.

**Industry:** Food, vegetable.
**Application:** Tofu production line.
**Products:** MEGARIB, Linea Gold, MEGAPOWER FC , MEGALINEAR.

# CASE STUDY - TOFU

## TOFU PRODUCTION LINE

### SITUATION/APPLICATION

Tofu is made from soybeans through a process that involves several steps. The first step is to soak dried soybeans in water for 4-6 hours while heating to 32°C to rehydrate them, followed by the grinding of soybeans. Soybean hulls can also be removed before grinding. Soft, rotating rubber rollers are used to remove the hulls. This is done to improve the colour and reduce the beany flavour of the tofu. In addition to this, soybeans can be pretreated with sodium bicarbonate which decreases beany flavour and increases smoothness of the final tofu. Ground slurry is separated into solid pulp (okara) and soy milk. The soy milk is cooked at 100°C to 110°C for 3-10 minutes. Due to cooking, denaturation of the protein occurs, thereby eliminating the beany flavour. The curd of soymilk is separated from whey by the addition of salt coagulants such as calcium and magnesium chlorides and sulphates. In some cases, citric acid or gluons delta-lactone can be added as acid coagulants. The resulting bean curd turns into white blocks of varying softness. The curdled mixture is then transferred to moulds where it is pressed to remove excess water. The firmness of the tofu depends on how much it is pressed. More pressing leads to firmer tofu, while less pressing results in softer, silken tofu.
Once pressed, the tofu is cut into blocks and is ready for consumption or packaging. It can be eaten fresh or stored in water to maintain its texture.
Tofu's journey begins in ancient China, where soybeans were first cultivated and transformed into what became a culinary staple. Even today, China remains one of the largest producers of tofu, with massive production facilities located in its northeastern regions. But this soybean-based product didn't stay confined to one place (it spread throughout East Asia and beyond).
As tofu grew in popularity, it crossed borders - both geographic and agricultural. In India, tofu evolved from being purely soy-based to incorporating other legumes, like chickpeas. Chickpea tofu, for instance, fits into the country's diverse culinary traditions while providing a protein-rich, plant-based option. Chickpeas fulfil a similar role in Middle Eastern countries.
With rising global awareness of health and sustainability, tofu's popularity is surging across continents. No longer confined to Asia, tofu production facilities sprang up in places like the United States, Europe, and South America. These regions adapted tofu to meet local tastes and demands, while producers of tofu-making machinery rose worldwide to meet the growing demand for this versatile, nutritious food. Tofu's transformation from an ancient Chinese staple to a global dietary phenomenon highlights not just its adaptability but also the growing global movement toward healthy, plant-based eating. Today, tofu is produced and consumed on every continent, its versatility making it a beloved ingredient in kitchens all around the world.

# CASE STUDY - TOFU

## TOFU PRODUCTION LINE

### THE PROBLEM

Belts are essential in automating the tofu production process, particularly when aiming to optimise productivity, reliability and cost-effectiveness in industrial setups. One of our OEM partners, with extensive experience in vegetable processing equipment, has undertaken a redesign of tofu production lines with the goal of increasing efficiency through automation. Our collaboration has focused on upgrading the power transmission drives and conveyor systems, which were outdated and needed enhancement to meet modern standards.
These tofu production lines must be made from stainless steel and food-grade materials to ensure resistance to high humidity, acids and elevated temperatures. To enhance both product quality and operational efficiency, the removal of soybean hulls before grinding is a key step in the tofu production process. The OEM customer decided to add this step in the process, and this led to our involvement in supporting the design of the dehulling unit, which was central to achieving these goals. Utilising soft, rotating rubber rollers, the hulls are separated, which not only improves the colour but also reduces the beany flavour of the final product. In addition to boosting productivity, ensuring high product quality was paramount.
The washing unit required a redesign to become fully automated, with a larger throughput. This upgrade necessitated new belt drive designs that would be not only reliable but also cost-competitive. Similar improvements were needed in the grinding machines, where enhanced food safety standards demanded belts resistant to high humidity and regular cleaning protocols.
Additionally, the automated transport of tofu curd through the process to packaging presented another challenge. During production, soy milk is cooked at 100°C-110°C and coagulated into curds, which are then pressed into slabs. These slabs are transported to cutting stations, where the tofu is cut and prepared for packaging. In the pressing stage, where tofu undergoes a one or two press to achieve the desired texture, conveyor belts must precisely position the moulds, endure the stop-start duty cycle, and resist high temperatures and acids.
Older systems that used joined MEGALINEAR T10 belts with cleats frequently suffered from damage, while steel cord belts were prone to rust. Similarly, lower-grade stainless steel chains in the semi-automated cutting unit caused maintenance issues due to rust, particularly in the sections handling knives and bars. This led to frequent downtime and higher maintenance costs, driving the need for a more robust design solution across the entire tofu production line.

### THE SOLUTION

To meet the increased demands for speed, dynamic forces, and reduced cleaning times, we engineered advanced power transmission systems using robust, truly endless MEGAPOWER food-grade timing belts. These belts, typically in small pitches, are reinforced with stainless steel tensile members and paired with stainless-steel pulleys, creating a fully corrosion-resistant system compliant with FDA and EU food safety regulations. This innovation ensures the reliability and durability of power transmission components, even under high dynamic loads, shocks and exposure to aggressive cleaning agents.
Simultaneously, we developed a conveyor solution aimed at synchronising blade operations with the loading conveyor, feeding into a robotic packaging station. The smooth surface of MEGALINEAR Food Contact timing belts, with embedded aramid cords in a monolithic body, proved ideal for conveying blocks of tofu. The use of small T5 pitch belts enhanced positioning accuracy and supported compact drive designs.

**Industry:** Fish industry, secondary fish processing
**Application:** Fish filleting machine designed for high-level performance in processing pre- and post-rigor salmon and trout from 1.5 kg to 10 kg.
**Products:** MEGALINEAR Food Contact ATG10 TCC and MEGALINEAR Food Contact T10 with implanted tailored metal cleats with sharp spikes.

# CASE STUDY - FISH

## FISH FILLETING MACHINE

### SITUATION/APPLICATION

Fish automatically enter the filleting machine from the deheader or feeder. After initial measuring of the fish, it is cut by two sets of circular knives and two band knives, delivering optimum yield on every fillet. The back and belly are cut according to trimming programme selected, minimising the need for manual trimming and unnecessary waste. The system processes up to 25 fish per minute, depending on the length of the fish.
In the machine are two pairs of timing belts working together. The first pair of ML FC ATG10 belts with truncated cone profiles on top carries the fish to the trimming knives, turning fillets by 90 degrees and then delivering them to the second pair of belts, the ML FC T10 with metal cleats with spikes. This pair of belts handles the fish through the rest of the trimming programme and then delivers the fillets to the conveyor.

### THE PROBLEM

One of the leading OEMs in the fish processing industry, renowned for their innovative fish processing solutions, has relied on Megadyne products and supply chain for several years. However, the increasing demands for food safety, productivity, and optimal yield have necessitated improvements in their belt systems.
The belts occasionally experienced surface delamination, particularly at the truncated tops, due to aggressive cleaning and sanitation processes combined with frequent flexing and 90° twisting. Additionally, the open flights between the teeth of the timing belts did not meet the high standards of food safety, as they can harbour bacteria. The gaps in the assembly of metal inserts with spikes were also problematic. These issues resulted in higher attention and costs for cleaning and sanitation, causing significant inconvenience for end-users.
A reliable solution required a new belt design for both pairs of belts, investment in the production process, and the development of customised tools.

### THE SOLUTION

In collaboration with Megadyne, the OEM's R&D teams developed an innovative solution featuring implanted stainless steel cleats with spikes. These cleats are completely sealed and firmly integrated with the belt body, ensuring reliability and performance that's been proven by numerous end-users worldwide.
The initial belts, which featured a top layer with a truncated cone profile on a food-grade material belt but had open flights, have been upgraded. The new design is a one-piece belt with closed flights and an extruded truncated cone profile, fully sealed and certified to the highest food safety standards. This belt is resistant to aggressive cleaning and sanitation processes and boasts improved flex fatigue resistance due to the optimal number and positioning of fully sealed aramid cord tension members. Additionally, the simplicity and reliability of this solution are enhanced by the guiding V-profile on the bottom of the belt, extruded as one sealed piece along with the base body and truncated top profile.

### THE OUTCOME

Investing in tailored production tools and innovative belt designs has strengthened the partnership between Megadyne and OEMs, enhancing business performance for both parties. The OEM now benefits from a competitive edge, offering reliable, durable, and highly efficient machines that are easier and more cost-effective to clean. End users enjoy trouble-free machines with lower total costs of ownership. Megadyne's customer-centric approach has led to the agile development of the market's first AT10 food contact belt, featuring eleven extruded top-profile options. This showcases Megadyne's high-quality R&D capabilities and their ability to deliver unique technical solutions.

# NOTES

# NOTES

# NOTES

The data and information contained in the present catalogue are current at the date of the catalogue's printing. Ammega Italia S.p.A. reserves the right to modify the specifications, performances and other information relating to the belts described in the present catalogue, at any time at its own discretion, without any prior notice. For updates, please refer to our website www.megadynegroup.com. Technical specifications, performances and other information provided in the present catalogue are indicative and are not binding on Ammega Italia S.p.A. unless such specifications, performances or other information are expressly agreed in the agreement with the customer.

We also recommend that you carefully read the following documents on our web site www.megadynegroup.com:

- Ammega Italia S.p.A. General Conditions of Sale (comprising the warranty)
- Theoretical Belt Life
- Drive Components: Storage, Installation, Maintenance and Troubleshooting Handbook
- Belts standard use condition and temperature.



Ammega Italia S.p.A.
ITALY - MATHI

# Discover Your Local Contacts

The local partner of choice
for sustainable power transmission belting solutions
around the globe.

**General contact information:**
**Megadyne**
Via Trieste, 16
Via S. Lucia 114 - 10075 Mathi (Torino)
Italy

megadynegroup.com

Scan the QR code and find your local contact

WE MAKE YOUR BUSINESS MOVE



12.2025