

# Food blade guide

Technical brochure

# Swedish quality & innovation

Munkfors' blades are cutting-edge technology. We lead the development of bandsaw blades and band knives in the food industry to sharpen the production performance of our customers. Commitment to the latest manufacturing technology, often developed in-house, gives us the edge to stay ahead of the competition.

Our unique manufacturing technology guarantees products of high quality and long life. More than 70 years of successful manufacturing of high-performance blades have laid the foundation for our extensive product range. It has also provided us with the comprehensive know-how essential to continuous innovation.

Our mission to improve our customers profitability is complemented by a network of distributors that provides first-rate service and excellent product support.

The following brochure will give you an overview of what we have to offer including our most common dimensions and executions. If you are looking for a different blade, please do not hesitate contacting us. We can customize most blades according to your special preferences.



## Our food blades

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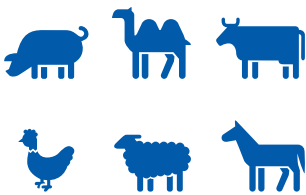
# Sawing

The design, functionality, durability and sharpness of our bandsaw blades provide several major benefits, including:

- Sharper blades
- Cleaner cutting
- Uniform cutting geometry
- Longer blade lifetime
- Minimum downtime
- Minimal yield loss



# Sawing - Fresh meat



With our extensive range of blades for cutting fresh meat such as poultry, pork, beef and lamb, we can assure that you will find the blade you need for any type of meat including thick bones.



## Munkfors 4 TPI

Our blade with 4 teeth per inch is especially well-suited for cutting through bones in general. The standard choice for the cutting of pork, beef and lamb.



## Munkfors 6 TPI

Our blade with 6 teeth per inch is especially well-suited for fresh meat with small bones, such as poultry.



## Munkfors HM

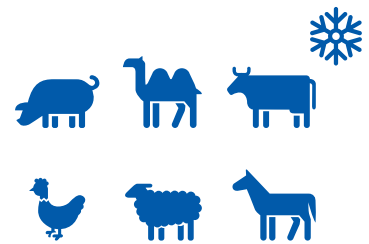
This blade, which has a straight bevel on each side of the blade can be used for several kinds of products.

Available dimensions (mm)	4 TPI	6 TPI	10 TPI	HM	Available dimensions (inch)
12.2 x 0.45				●	1/2 x .018
12.5 x 0.40	●				1/2 x .016
12.5 x 0.50	●	●			1/2 x .020
12.5 x 0.60	●	●	●		1/2 x .024
15.5 x 0.45	●	●			5/8 x .018
16 x 0.40	●	●			5/8 x .016
16 x 0.50	●	●		●	5/8 x .020
16 x 0.56	●	●			5/8 x .022
16 x 0.60	●	●			5/8 x .024
18 x 0.60	●				3/4 x .024
19 x 0.56	●				3/4 x .022
20 x 0.50	●	●			3/4 x .020
20 x 0.60	●				3/4 x .024
25 x 0.50	●				1 x .020





# Sawing - Frozen meat



Munkfors provides great sawblades for the cutting of frozen meat. The majority of the provided blades intended for this food category are 3TPI, which gives an all-round blade suited for all types of frozen meat.



## Munkfors 3 TPI

Our universal blade with 3 teeth per inch is available in a large number of dimensions to suit your needs. This blade can be used for the cutting of frozen pork, beef and lamb meat.



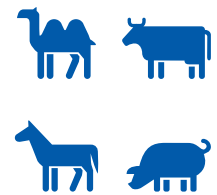
Available dimensions (mm)	3 TPI	SPS 10	Available dimensions (inch)
12.5 x 0.50	●		1/2 x .020
12.5 x 0.60	●		1/2 x .024
16 x 0.50	●	●	5/8 x .020
16 x 0.56	●		5/8 x .022
16 x 0.60	●	●	5/8 x .024
16 x 0.63	●		5/8 x .025
19 x 0.56	●	●	3/4 x .022
20 x 0.50	●		3/4 x .020
20 x 0.60	●		3/4 x .024
25 x 0.50	●		1 x .020
25 x 0.60	●		1 x .024
25 x 0.80	●		1 x .031

## Munkfors SPS 10

Our Munkfors SPS 10, which stands for Munkfors Surprise with a tooth pitch of 10 mm, is mainly used for the splitting of carcasses, but some customers also see an advantage in using the blade for frozen meat. The blade has a small tooth between the big teeth, which works as a cleaning tooth by preventing the accumulation of debris in the cutting area, and in general reduces noise-levels.



# Sawing - Carcass splitting



Munkfors fulfills all the needs for carcass splitting of pork, beef and other kinds of meat with its full range of sawblades.



## Munkfors 3 TPI

Our universal blade with 3 teeth per inch is suitable for splitting all kinds of larger carcasses. In special cases, when an extra sturdy blade might be needed, we can also provide the 3 TPI blade for carcass splitting in our MFB material that is tougher than our standard strip steel material.

Available dimensions (mm)	3 TPI	SPS 10	3 TPI (MFB)	Available dimensions (inch)
16 x 0.50	●	●		5/8 x .020
16 x 0.56	●			5/8 x .022
16 x 0.60	●	●		5/8 x .024
19 x 0.56	●	●	●	3/4 x .022



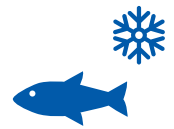
## Munkfors SPS 10

Our Munkfors SPS 10, which stands for Munkfors Surprise has a tooth pitch of 10 mm, that is well-liked for the splitting of carcasses. The blade has a small tooth between the big teeth, which works as a cleaning tooth by preventing the accumulation of debris in the cutting area and in general reduces noise-levels.





# Sawing - Frozen fish



Munkfors has sawblades well-suited for the global fish industry processing large fish such as tuna and salmon in frozen condition as well as for the production of fish blocks and fish patties etc. Some of these blades are also available in corrosion resistant materials upon request.



## Munkfors 3 TPI

This blade is the standard choice when cutting frozen fish blocks, patties and frozen fish of all kinds. The blade has 3 teeth per inch (3 TPI).



## Munkfors 2 TPI

This blade is advantageous to use when the fish is extra deep frozen and when you process large fish blocks and large fish such as tuna, marlin and swordfish. The blade has 2 teeth per inch (2 TPI).

Available dimensions (mm)	2 TPI	3 TPI	SPS 10	Available dimensions (inch)
16 x 0.36		●		5/8 x .014
16 x 0.40		●		5/8 x .016
* 16 x 0.50		●	●	5/8 x .020
* 16 x 0.56		●		5/8 x .022
16 x 0.60			●	5/8 x .024
* 20 x 0.50		●		3/4 x .020
25 x 0.60		●		1 x .024
35 x 0.80	●			1 3/8 x .031

\* available as corrosion resistant



## Munkfors SPS10

Our Munkfors SPS 10, which stands for Munkfors Surprise with a tooth pitch of 10 mm. The blade has a small tooth between the big teeth, which works as a cleaning tooth by preventing the accumulation of debris in the cutting area and in general reduces noise-levels.



# Slicing

When using Munkfors' slicing blades you will benefit from:

- A unique sharpness
- Long lifetime of the blade due to its edge retention
- Tight dimensional tolerances
- Uniform slice thickness
- Smooth surfaces
- Minimal yield loss





# Slicing - Bread and buns



Our range of slicing blades for bread and buns include both traditional blades and our patented BW blades. Our blades ensure a uniform slice thickness and a minimum amount of bread crumbs. We deliver standard lengths as well as customized alternatives. All with tight tolerances, +/-0.15 mm within a set and +/-5mm on ordered length.



## Munkfors HM

This concave blade, with a tooth pitch of approximately ¼" and a straight bevel on each side, is recommended for soft crusts and soft crumbs.

Available dimensions (mm)	BW3	BW4	Concave	Concave MX	HM	Available dimensions (inch)
10 x 0.45			●			3/8 x .018
12.2 x 0.45	●	●	●	●	●	1/2 x .018
12.5 x 0.40	●	●				1/2 x .016
12.5 x 0.50			●			1/2 x .020
16 x 0.50			●		●	5/8 x .020



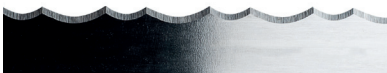
## Munkfors Sharp Concave

This scallop blade with a tooth pitch of ½" is recommended for soft crusts and crumbs.



## Munkfors BW3 (patented)

This patented blade, which has 3 teeth per inch (3 TPI), is recommended for soft crusts and crumbs. These blades have a running direction, which is well marked on the blades.



## Munkfors Sharp Concave MX

This scallop blade with a varied tooth pitch of ½" and ¼" is recommended for soft and high-fibre bread with dense crumbs.



## Munkfors BW4 (patented)

This blade, which has 4 teeth per inch (4 TPI), is recommended for hard crusts and dense crumbs. These blades have a running direction, which is well marked on the blades.

# Slicing - Bacon



With an impressive slicing range, Munkfors can assure you perfect bacon slices every time. Perfected bevels, high initial sharpness and a long edge retention, gives you a long-lasting blade with low friction and no sticking-issues.

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## Munkfors Bacon Slicer Smooth (2+1)

A smooth blade for bacon slicing, with two bevels on one side and one on the other. Customized angles are available.



## Munkfors Bacon Slicer Toothed (2+1)

A micro-toothed slicing blade perfected for bacon slicing, with two bevels on one side and one on the other. Variable angles are available. As an option we can also offer our optimized version for extra sharpness and longer lifetime.

Available dimensions (mm)	Smooth	Toothed	Available dimensions (inch)
12.5 x 0.50	●	●	1/2 x .020
16 x 0.50	●	●	5/8 x .020





# Slicing - Pizza toppings



Munkfors can offer top-notch blades for slicing in automated pizza lines. The blades are suitable for slicing of salami, bacon, ham, sausage, vegetables and cheese. Optimized bevels, high initial sharpness and a long edge retention give a long-lasting blade with low friction and no sticking-issues.

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## Munkfors Slicer Smooth (2+1)

A smooth slicing blade for slicing, with two bevels on one side and one on the other. Customized angles are available.

Available dimensions (mm)	Smooth	Toothed	Available dimensions (inch)
12.5 x 0.50	●	●	1/2 x .020
16 x 0.50	●	●	5/8 x .020

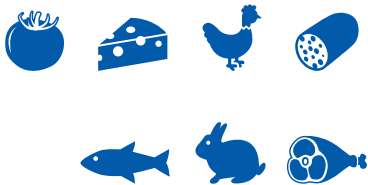


## Munkfors Slicer Toothed (2+1)

A micro-toothed slicing blade optimized for slicing, with two bevels on one side and one on the other. Customized angles are available.



# Slicing and skinning of food



Munkfors has a full program of blades suitable for slicing, filleting and skinning of food such as vegetables, ham, cheese, salami, fruits, fresh fish, poultry and rabbits. We can offer a large variety of profiles, bevels, angles and in some cases corrosion resistant materials, to satisfy your needs.

Available dimensions (mm)	Band Knife	Smooth	Toothed	Concave	HM	Convex	Available dimensions (inch)
10 x 0.45	●			●		●	3/8 x .018
10 x 0.50	●						3/8 x .020
12.2 x 0.45				●	●		1/2 x .018
12.5 x 0.50	●	●	●	●		●	1/2 x .020
16 x 0.50	●	●	●	●	●	●	5/8 x .020
16 x 0.56				●			5/8 x .022
20 x 0.50	●			●		●	3/4 x .020
25 x 0.50	●			●		●	1 x .020
30 x 0.50	●						1.18 x .020
30 x 0.60	●						1.18 x .024
40 x 0.80						●	1.57 x .031
50 x 0.80	●						2 x .031

Other dimensions upon request



## Munkfors HM

This blade, which has a straight bevel on each side of the blade can be used for several kinds of applications.



## Munkfors Slicer Toothed (2+1)

A micro-toothed slicing blade with two bevels on one side and one on the other. Customized angles available.



## Munkfors Sharp Concave

Our wavy concave blade is suitable for a large variety of applications such as fish, sausage, vegetables and cheese.



## Munkfors Slicer Smooth (2+1)

A smooth slicing blade for slicing with two bevels on one side and one on the other. Customized angles available.



## Munkfors Convex

The convex blade is very well suited for chicken and other poultry.

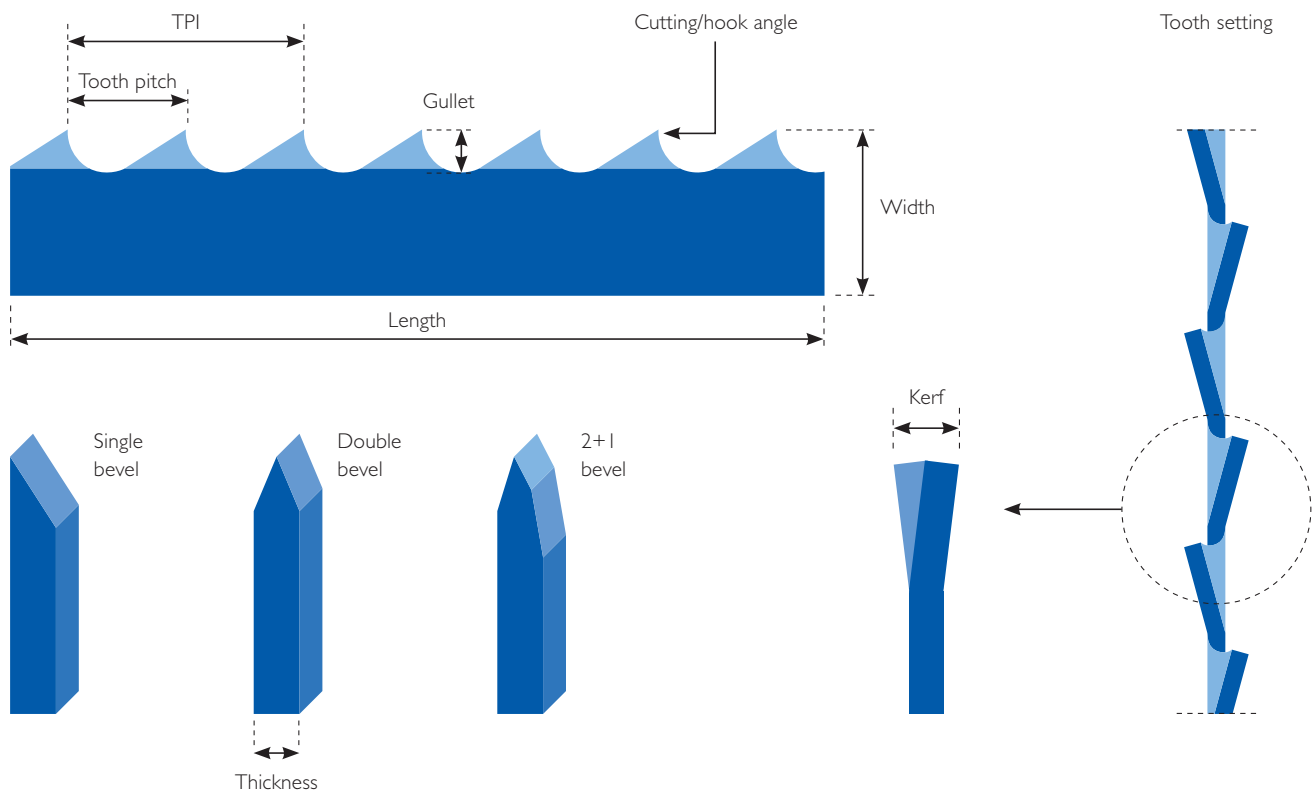


## Munkfors Band Knife Smooth

This single or double-beveled band knife is a versatile knife that can be used for several kinds of applications.



# Blade terminology



## Width

The width of a blade is the distance between the tip of the cutting edge (tooth tip) and the back of the blade.

## Thickness

The blade stability increases proportionally with the blade thickness. As a rule of thumb, the machine wheel diameter should be 1000 times larger than the blade thickness.

## Length

The length of the welded blade, which is dictated by the band saw machine. Depending on the machine type, the tolerance varies from +/- 0.15 mm to approx. +/- 8 mm.

## TPI

TPI = Teeth per inch. The actual number of teeth within every inch (25.4mm) of the blade. Several teeth per inch are required for finer surfaces and thinner sections while fewer teeth per inch are required for faster cutting and thicker sections.

## Tooth pitch

The distance from one tooth tip to the next. A finer tooth pitch is required for finer surfaces and thinner sections and a coarser pitch is required for faster cutting and thicker sections.

## Gullet

The gullet depth, or tooth height, is the distance from the tooth tip to the bottom of the gullet.

## Tooth configuration

The tooth configuration is the shape of a tooth and is dictated by the application and the desired result.

## Cutting angles

The angle of the tooth face from a line perpendicular to the back of the blade. The ideal cutting angle depends on the hardness of the material that is to be cut. The harder the material, the lower the cutting angle. More aggressive hook angle are used for softer materials or powerful band saw machines. Standard hook angles are 1°, 3° and 6°.

## Tooth setting

The tooth setting indicates the extent of free-cutting. The teeth are bent sideways, right to left, in a symmetrical pattern. The smaller the setting, the less yield loss, but if the setting is too small frictional heat and overload might occur.

## Kerf

The blade clearance trough the cut, which is equivalent with the sum of the total setting and the blade thickness.

## Hardening

In most cases the tooth tips of the bandsaw blades and the edge of the slicing blades are hardened to perfection. This gives the blade a harder edge while the back of the blade remains tough and flexible.

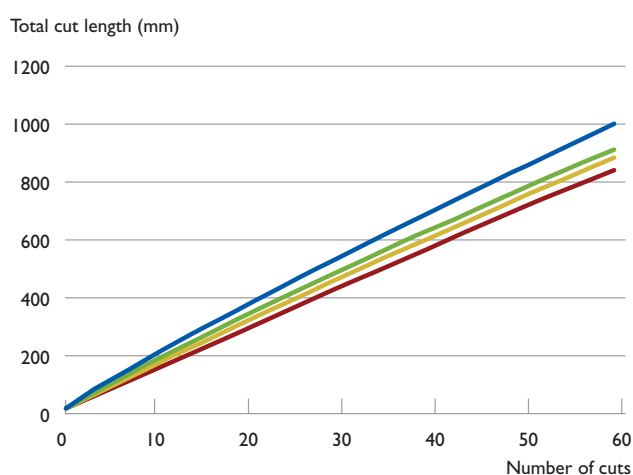
## Bevels

On smooth/plain blades without teeth, bevels are used to create the cutting edge. On a single beveled blade there is only a bevel on one side. On a 2+1 beveled blade there are two bevels on one side and one on the other.

# Reasons to choose Munkfors

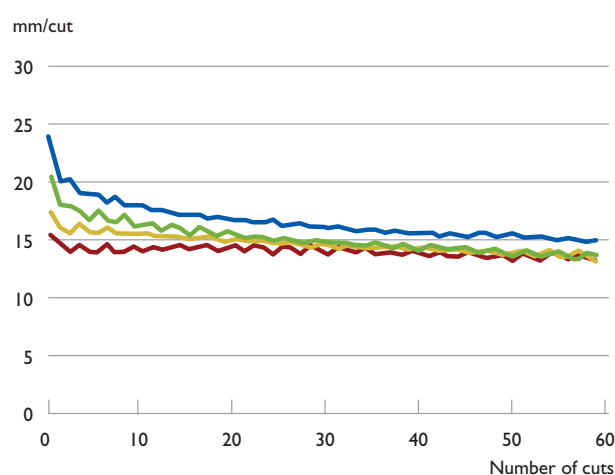
If you go for the Munkfors' brand your blades will have the perfect cutting and slicing abilities. Our optimized material treatment ensures a longer blade lifetime, which will lead to minimum downtime, less maintenance, a maximized yield, a clean and uniform final result.

## Edge life (durability)



Mixed concave slicing blades used in the test.

## Initial sharpness and retention



— Munkfors — Competitor A Europe — Competitor B Europe — Competitor USA

## Leaner production

Munkfors has been working with the LEAN production method for several years, ensuring the highest quality and an optimized production flow. Quality permeates all the operations at ISO 9001 approved Munkfors.

Upon arrival, the strip steel is quality proved and measured. The material is thereafter ground and hardened before it is welded. Munkfors can also offer a laser marking service. All our blades are individually identified for complete traceability throughout the production process.

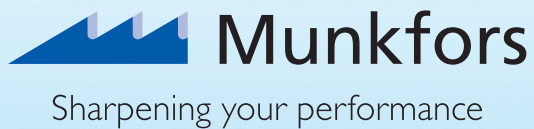
## Environmental responsibility

Munkfors is ISO 14001 certified and takes an environmental responsibility by working towards a zero-waste philosophy. We are using fully recyclable and environmentally friendly raw materials, emulsions, oils etc. in our production.

All blades are approved to be in contact with food-stuffs in accordance with European Union directives and regulations and its corresponding counterparts such as the FDA (USA), BfR (Germany) and Warenwet (Holland).

## Agenda 2030

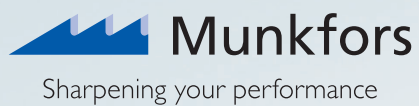
Munkfors supports the Sustainable Development Goals of the United Nation. A Universal call to action to end poverty, protect the planet, and ensure that all people enjoy peace and prosperity.



- Sharper blades
- Cleaner cutting
- Uniform cutting geometry
- Longer blade lifetime
- Minimum downtime
- Minimal yield loss







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