LIZEN

Bi-Metal Band Saw Blades · Factory Supply for Export Buyers

TECHNICAL PRODUCT GUIDE



M42 / M51 BI-METAL BAND SAW BLADES

M42 / M51 Bi-Metal Band Saw Blade Guide

PRECISION · STRENGTH · DURABILITY

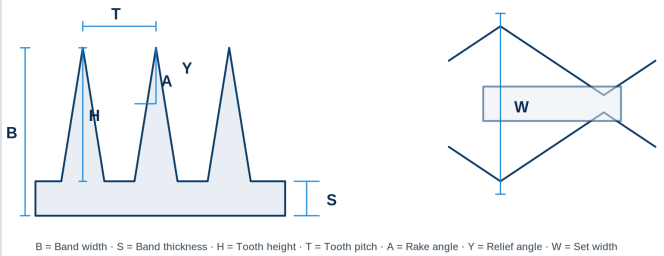
A practical English technical booklet for distributors, importers and metal-cutting workshops. Selection steps, Standard / Profile / Double tooth forms, size × TPI matrices aligned to live product data, tooth selection guidance and troubleshooting.

sales@lizensaw.com · WhatsApp **+86 131 7575 3620**

https://lizensaw.com

Technical reference for distributors and metal-cutting workshops.

Bandsaw blade terminology



B = Band width · S = Band thickness · H = Tooth height · T = Tooth pitch · A = Rake angle · Y = Relief angle · W = Set width

B = Band width · **S** = Band thickness · **H** = Tooth height · **T** = Tooth pitch · **A** = Rake angle · **Y** = Relief angle · **W** = Set width. Labels match the diagram.

Inside the guide

01 / Choose the blade

Application, machine, dimensions, grade and pitch.

02 / M42 & M51 specifications

Detailed width × thickness × TPI availability.

03 / Put it to work

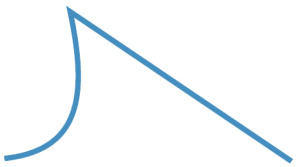
Pitch selection, blade break-in, chips and troubleshooting.

Bi-metal construction. High-speed steel tooth tips are combined with a fatigue-resistant backing strip. Confirm required dimensions and tooth form with RFQ.

Standard & profile tooth forms

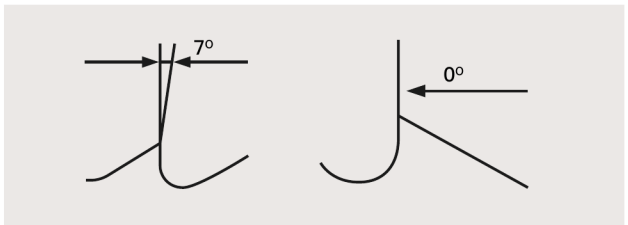
LIZEN uses one naming system across this booklet and the website: **Standard tooth**, **Profile tooth** and **Double tooth**. Exact form is confirmed per RFQ.

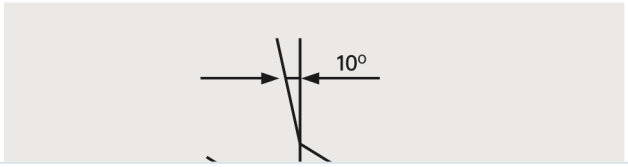
Standard tooth



Standard tooth — general-purpose metal sawing. Straight tooth face; rake angles 0°, 7° and 10°.

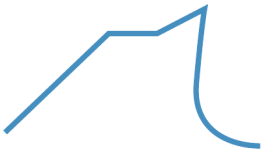
straight (0° , 7°& 10° rake angle).





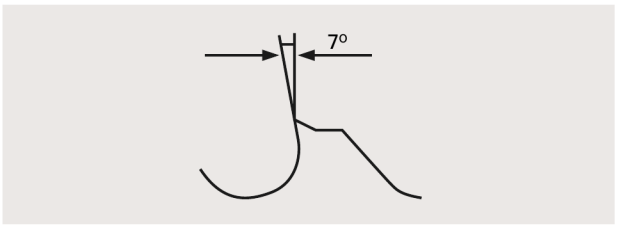
Standard tooth. Straight tooth face for general metal sawing; rake angles include 0°, 7° and 10°.

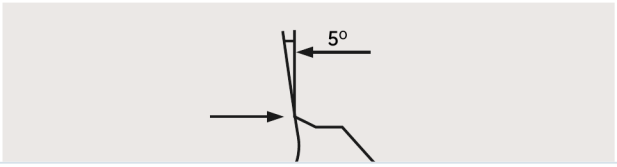
Profile Tooth



Reinforced back reduces the risk of broken teeth. It is designed for steel construction and industrial profile cuts. It has good strength with powerful cutting ability, which increase productivity.

This tooth is only available in 3/4 and 4/6TPI at this stage with 7°&5° degree.





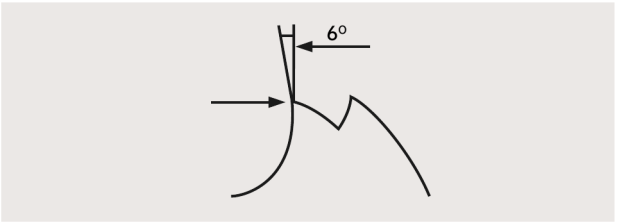
Profile tooth. Reinforced back for steel construction and profile cuts; typically 3/4 and 4/6 TPI with 7° and 5° rake angles.

Double tooth

Reinforced double-tooth design for steel-bar cutting, with a distinctive tooth profile (about 6° rake) for powerful cutting. Exact form confirmed per RFQ.

Double Tooth

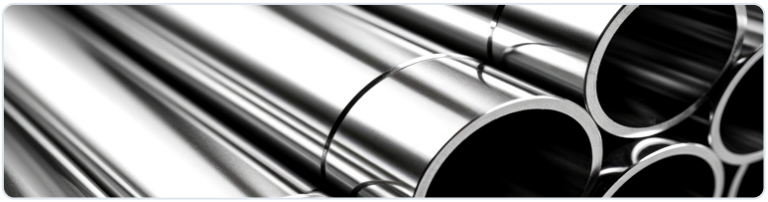




Designed for cutting steel bar. It has unique tooth angle and strength with powerful cutting performance in cutting reinforcing steel bars.

Built for metalwork

Match grade, pitch and tooth style to the real workpiece before ordering.





Your material chooses the blade. Tell LIZEN the workpiece grade, hardness, outside dimensions, wall thickness, bundle condition and machine. M42 covers general metal cutting; M51 is the starting option for harder, heat-resistant and more abrasive applications.

How to select a bi-metal bandsaw blade

Bi-metal blades combine HSS tooth tips with a highly resistant steel backing to deliver durable blades and high cutting rates.

1 Analyze the sawing application

Machine Confirm blade dimensions: length × width × thickness.

Material Grade · hardness (if heat-treated) · shape · size · single piece or stacked/bundled.

Needs Production or utility cutting? Fast cutting or tool life? Is surface finish important?

2 Determine which product to use

Use the M42 / M51 application notes and size × TPI matrices in this booklet. For further assistance, contact LIZEN support.

3 Determine the proper TPI

Go to the product page for available pitches. If choosing between two pitches, the finer of the two will generally give better performance. When compromise is necessary, choose the correct TPI first.

4 Order LIZEN bi-metal bandsaw blades

Specify product grade, length × width × thickness, and TPI for better performance and longer blade life.

Ordering example format

Item	Example
Product	LIZEN M42 (or M51)
Length × width × thickness	3505 mm × 27 mm × 0.90 mm 11′ × 1″ × 0.035″
TPI	3/4

Imperial equivalents shown for buyer convenience; metric dimensions are the production reference.

RFQ checklist — send these details

- ✔ Material grade and hardness (if known)
- ✔ Workpiece shape and size (Ø / wall / bundle)
- ✔ Machine model or required blade length
- ✔ Preferred width × thickness
- ✔ Current TPI (if replacing an existing blade)
- ✔ Coil stock or welded loops
- ✔ Quantity and destination country
- ✔ Private-label / neutral carton needs

Coil stock and welded loops are quoted individually. Send your required quantity and destination country with your RFQ.

M42 Bi-metal bandsaw blades

General-purpose bi-metal blades with **M42 high-speed steel** tooth tips. Suitable for a wide range of steel types with good wear resistance and cutting performance.

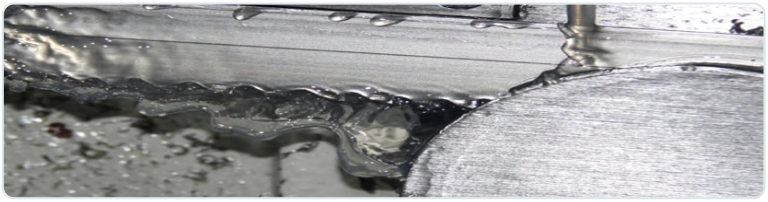
Advantages

- Suitable for a wide range of steel types
- High wear resistance
- Strong cutting performance and long life
- Practical choice for everyday metal sawing

Typical applications

Cast iron · Tubes & profiles · Steel ~45 HRC · Mild steel · Stainless steel · Carbon steel · Alloys

Typical applications are reference guidance. Final grade choice depends on hardness, workpiece size and machine setup.





Selected configurations — width × thickness × TPI

Aligned to the live LIZEN M42 product page. Cells marked ● are typical variable-pitch options for that width. Tooth forms: **Standard**, **Profile** or **Double** — exact form confirmed per RFQ.

mm (W×T)	inches	0.75/1.25	1/1.5	1.4/2	2/3	3/4	4/6	5/8	6/10	8/12	10/14	14/18
13×0.65 / 0.90	1/2×0.025 / 0.035								●	●	●	●
19 / 20×0.90	3/4×0.035					●	●	●	●	●	●	
27×0.90	1×0.035				●	●	●	●	●	●	●	
34×1.10	1-1/4×0.042				●	●	●	●	●			
41×1.30	1-1/2×0.050			●	●	●	●	●				
54×1.30 / 1.60	2×0.050 / 0.063	●		●	●	●						
67 / 80×1.60	2-5/8 / 3×0.063	●	●	●	●							

Selected configurations — confirm grade, width, thickness, tooth form and TPI with RFQ. Cutting performance is not promised without application data and a controlled sample test. If your required size or pitch is not shown, send it for review.

M51 Bi-metal bandsaw blades

Higher-performance bi-metal blades with **M51 high-speed steel** tooth tips for harder materials and demanding cuts, including stainless and alloy steels.

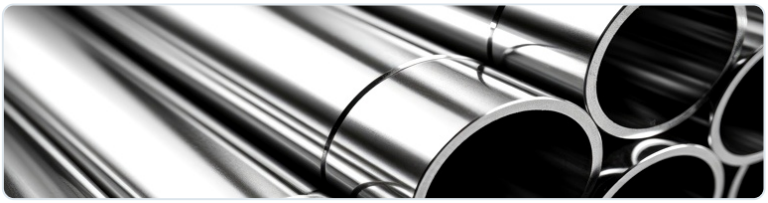
Advantages

- Suitable for hard steel cutting
- Strong option for stainless steel and alloy steel
- Higher cutting rate with reliable life
- High wear resistance and cutting performance

Typical applications

Alloy / HS steels · Tool & die steel · Stainless steel · Nickel alloys · Titanium · Large solids · Heavy-wall tube · Steel > 50 HRC

Typical applications follow the live M51 product page: harder or larger jobs that need more cobalt and wear resistance than M42.





Selected configurations — width × thickness × TPI

Aligned to the live LIZEN M51 product page. Standard widths 27–80 mm; variable pitch typically **0.75/1.25 to 4/6 TPI** (availability depends on width). Finer pitches such as 5/8–10/14 are not shown for M51 unless confirmed at RFQ. Tooth form confirmed per RFQ.

mm (W×T)	inches	0.75/1.25	1/1.5	1.4/2	2/3	3/4	4/6
27×0.90	1×0.035				●	●	●
34×1.10	1-1/4×0.042			●	●	●	●
41×1.30	1-1/2×0.050			●	●	●	●
54×1.60	2×0.063	●	●	●	●	●	●
67×1.60	2-5/8×0.063	●	●	●	●	●	●
80×1.60	3×0.063	●	●	●	●	●	●

M51 has no separate published width×TPI matrix on the live product page beyond “typically 0.75/1.25 to 4/6”. Cells above are guide starting points within that range — confirm with RFQ.

M42 vs M51 — quick buyer view. Start with **M42** for carbon / mild / structural steels and general shop cutting around typical hardness. Move to **M51** for harder steels (especially above ~50 HRC), stainless, tool steel and higher wear applications. TPI is still chosen by workpiece size first (see next page).

Tooth selection chart

Use these guide values as a starting point for blade selection. When unsure between two pitches, choose the finer pitch. Confirm with RFQ and actual cutting tests.

Round solid bar — by diameter

Diameter (mm)	Starting TPI
≈ 5 – 10	10/14
≈ 10 – 18	8/12
≈ 18 – 25	6/10
≈ 25 – 40	5/8
≈ 40 – 70	4/6
≈ 70 – 120	3/4
≈ 120 – 280	2/3
≈ 280 – 450	1.4/2
≈ 450 – 850	1/1.5
≈ 850 – 1200	0.75/1.25

Square / rectangle solid follows a similar width-based progression.

Structurals — by wall thickness

Wall thickness (mm)	Starting TPI
≈ 1 – 2.5	10/14
≈ 2.5 – 4	8/12
≈ 4 – 6	6/10
≈ 6 – 9	5/8
≈ 9 – 18	4/6
≈ 18 – 35	3/4
≈ 35 – 50	2/3

Blade break-in — extremely important

The extremely sharp tooth tip and edges of new blades must be broken in before applying full feed pressure. Analogy: writing with a freshly sharpened wooden pencil.

- Maintain proper blade speed for the material.
- Reduce feed pressure or feed rate by **50%** for the first **300–500 cm²** of material cut.
- Gradually increase feed to full pressure/rate after break-in.

Pipes / tubes — selected D × S guide (TPI)

D = outer diameter (mm) · S = wall thickness (mm). All pitches use slash variable-pitch notation (e.g. 10/14). Blank cells are outside the practical chart area. Confirm with RFQ.

S \ D	20	40	60	80	100	150	200	300	400	500	700
2	10/14	10/14	10/14	10/14	10/14	10/14	10/14	8/12	8/12	6/10	5/8
4	10/14	10/14	10/14	10/14	8/12	8/12	8/12	5/8	5/8	4/6	4/6
6	10/14	10/14	10/14	8/12	8/12	8/12	5/8	5/8	4/6	4/6	3/4
10		8/12	6/10	6/10	6/10	5/8	4/6	4/6	4/6	3/4	3/4
15		8/12	6/10	5/8	5/8	4/6	4/6	3/4	3/4	3/4	2/3
20			6/10	5/8	4/6	4/6	3/4	3/4	3/4	2/3	2/3
30				4/6	4/6	3/4	3/4	3/4	2/3	2/3	2/3
50						3/4	3/4	3/4	3/4	2/3	2/3
100								2/3	2/3	1.4/2	1.4/2

Band speed & telltale chips

Band speed is the rate at which the blade cuts across the face of the material. A faster band speed achieves a higher, more desirable shear plane angle and more efficient cutting. Usually stated as FPM (feet per minute) or MPM (meters per minute).

How do you know if you are using the right band speed? Chips are the best indicator of correct feed force. Monitor chip formation and adjust accordingly.



Troubleshooting (selected)

Blade effect	Probable cause	Solution
Blade breakage (straight break → fatigue)	Incorrect blade; incorrect tension; excessive feed; incorrect cutting fluid; pressure blocks too tight; blade rubbing wheel flange; guide arms too far apart; side guides too tight	Check tooth selection; adjust tension (operator's manual); reduce feed; check coolant; adjust guides / wheel alignment; move guide arms closer
Premature tooth wear	Blade mounted backwards; improper break-in; hard material / heavy scale; improper cutting fluid or mix; speed or feed too high	Install correctly; follow break-in; check hardness/surface; increase feed if glazed; follow coolant mix; check cutting recommendations
Rough / unspecified cut	Guide arms too far apart; worn blade; over/under feeding; improper tooth pitch; fluid not applied; guides worn/loose	Move guides closer; replace blade; check cutting recommendations; use proper TPI; adjust coolant nozzles; tighten/replace guides
Cutting deviation	Over feeding; low band tension; tooth set damaged; guide arms loose or too wide	Check cutting recommendations; refer to manual; check hardness / replace blade; adjust guides and arms
Chips packed in teeth	Worn/missing chip brush; poor cutting fluid; wrong coolant rate; excessive feed/speed; incorrect pitch	Replace/adjust chip brush; check coolant flow & type/ratio; reduce speed or feed; use proper tooth selection
Tooth breaking away	Guides not adjusted; incorrect feed/speed; incorrect blade; material moved in vise	Align/adjust guides; refer to cutting recommendations; use proper blade & pitch; inspect/adjust vise
Wear on one side of teeth	Material impurities; worn wheel flange / band rising; guide rubbing on set; chipped teeth embedding in material	Replace material; align/replace wheel; adjust/align guide; replace blade and apply correct break-in
Multiple teeth broken	Improper break-in; speed too slow; feed too high; tooth jammed; poor fluid; hard scale; wrong pitch; loose bundles; starting on a corner	Follow break-in; refer to recommendations; reduce feed; adjust coolant; check hardness; proper TPI; tighten vise/ nesting clamps; start cut slowly
Wavy cut	Dull/damaged blade; incorrect feed/speed; blade not supported; low tension; incorrect pitch; guide arms too far apart	Install new blade; refer to cutting recommendations; tighten guide arms; refer to manual; proper tooth selection; move arms closer
Blade twisted	Blade binding; guides misaligned; side guides too tight; work loose; feed too heavy; high tension; worn wheels; arms too far apart	Adjust feed; align guides; adjust vise; reduce feed; refer to manual; machine/replace wheels; move arms closer

Request a quotation

Send one current size — blade length, width, thickness, TPI, cutting material and machine model if known. We will reply with the matching M42/M51 route, sample option and production timing.

1. Send one size

Length · width · thickness · TPI · material · machine.

2. Confirm the match

Agree grade, tooth selection, finished length, quantity and packaging.

3. Sample then repeat

Run one controlled sample test, then keep the approved specification record.

LIZEN — Foshan Yihang Machinery Equipment Co., Ltd.

Factory-direct M42 / M51 bi-metal band saw blades for distributors, importers and OEM buyers.

Email
sales@lizensaw.com

Website
https://lizensaw.com

WhatsApp
+86 131 7575 3620

Address
Shunlian Machinery City, Chencun, Shunde, Foshan, Guangdong, China

A better match before you buy. Every inquiry is reviewed against workpiece shape, material grade, machine and blade dimensions before quotation. Send your current blade or cutting conditions and LIZEN will recommend a suitable grade and tooth pitch.

Quick reference

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Tooth forms (Standard / Profile / Double)	Pages 2–3
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M51 size × TPI matrix	Page 6
Tooth selection & break-in	Page 7
Chips & troubleshooting	Page 8

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