BM FASTCUT

ULTRA-THIN MULTIWIRE

STONE CUTTING MACHINE

MICRO WIRE

- Ø 0.35 – 0.6 mm wire
- 5 – 30 mm slabs
- 100 – 150 mm/h



Precision cutting. Industrial performance.

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PRODUCT OVERVIEW

High-precision multiwire processing of marble and natural stone

Designed for high-precision multiwire processing of marble and natural stone materials, the **BM Ultra Thin Multiwire** (Micro Wire) integrates a heavy-duty rigid structure, roller-based wire guidance and advanced feedback-assisted wire tension control. Engineered for **ultra-thin diamond multiwires (0.35 – 0.6 mm)**, the machine maximizes material yield, significantly cuts kerf loss and delivers exceptional surface quality across high-capacity industrial operations.



BLOCK LIFTING FEED

Precision block-lifting elevator system raises heavy stone blocks smoothly into the cutting area for optimal stability. Lifting stroke 0 – 2400 mm.

SERVO TENSION FEEDBACK

Real-time dynamic wire-tension feedback automatically adjusts feed speed based on cutting load to optimize performance and reduce wire-break risk.

WIRE-BREAK PROTECTION

Integrated instant wire-break protection device prevents wire damage and halts operation automatically.

AUTOMATIC LUBRICATION

Automated multi-point central lubrication system ensures low-maintenance, continuous heavy-duty operation.

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WHY ULTRA-THIN MULTIWIRE?

The technology explained and compared with the conventional gang saw

WHAT IS ULTRA-THIN MULTIWIRE CUTTING?

Multiwire cutting runs an endless **diamond-impregnated wire** around grooved rollers, forming many parallel cutting loops that slice a whole block into slabs in one pass. With wire diameters of just **0.35 – 0.6 mm**, the kerf is a fraction of that left by steel gang-saw blades, so far more of every block becomes sellable slab.

The machine carries **8 rollers (Ø 320 mm, upgradable to Ø 350 mm)** and **30 km of wire**, running at **0 – 20 m/s** with **0 – 250 N** controlled tension. Servo feedback tracks cutting load in real time, and water cooling (1000 L/min) replaces abrasive slurry.



ADVANTAGES OVER A CONVENTIONAL GANG SAW

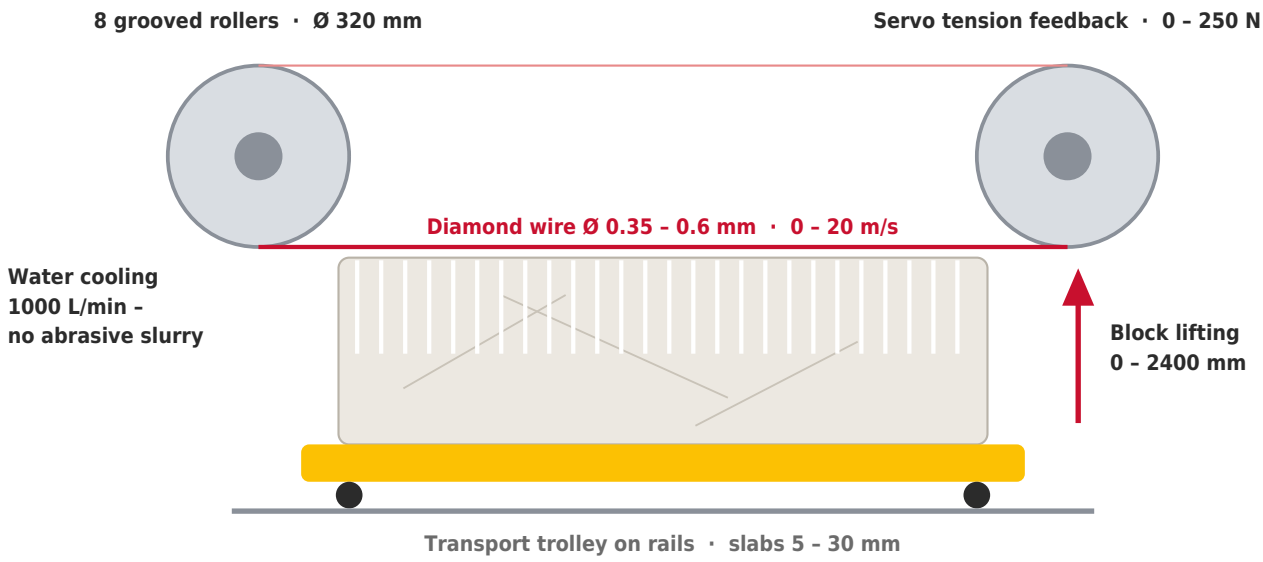
Criteria	Conventional gang saw	BM Ultra Thin Multiwire
Cutting tool	Reciprocating steel blades with abrasive slurry	**Continuous diamond wire, Ø 0.35 – 0.6 mm, water-cooled**
Kerf loss (stone lost per cut)	4.5 mm	**0.55 – 0.65 mm – more than 85% less**
Slab thickness	Thin slabs are hard to hold in tolerance	**5 – 30 mm, thin slabs cut with precision**
Cutting speed	Slow – typically tens of mm/h in marble	**Medium-soft marble: 100 – 150 mm/h cutting depth**
Power consumption	Baseline	**Approx. 30% lower**
Consumables	Abrasive slurry and steel blades	**Diamond wire and cooling water – no abrasive slurry**
Surface quality	Blade wander and thickness variation	**Tension-controlled cut: flat, uniform slabs**
Waste & housekeeping	Heavy abrasive sludge to handle and dispose of	**Cleaner process with far lower sludge volume**
Process protection	Limited electronic monitoring	**Servo tension feedback, wire-break protection, auto lubrication**

Gang-saw speed and sludge descriptions are typical industry characteristics; actual figures vary with machine, material and settings.

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HOW IT WORKS

From block loading to ultra-thin slabs in one continuous process



1 LOAD

The stone block is placed on the transport trolley and moved into the machine.

2 LIFT

The block-lifting elevator raises the block into the cutting area for optimal stability.

3 CUT

Ultra-thin diamond wire slices the block into 5 – 30 mm slabs while servo feedback adjusts feed to the cutting load.

4 PROTECT

Wire-break protection and automatic lubrication keep heavy-duty operation continuous and low-maintenance.

Typical performance: cutting depth 100 – 150 mm/h in medium-soft marble; hard marble supported with specialized tension calibration; start/stop in 8 s.

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KEY BENEFITS

What ultra-thin multiwire cutting means for your production

1 HIGHER BLOCK RECOVERY

A kerf of only 0.55 – 0.65 mm instead of 4.5 mm turns far more of every block into sellable slabs – 20% to 25% extra output.

2 FASTER PRODUCTION

Cutting depth of 100 – 150 mm/h in medium-soft marble, with hard marble supported through specialized tension calibration.

3 THIN, LIGHT SLABS

Slab thickness from 5 to 30 mm reduces material per m², handling weight and freight cost, and opens thin-cladding applications.

4 SUPERIOR SURFACE QUALITY

Servo-controlled tension and rigid roller guidance deliver flat, uniform slabs and reduce calibration and polishing effort.

5 LOWER RUNNING COSTS

Diamond wire and water replace abrasive slurry, and power consumption is approx. 30% lower – simpler housekeeping, less sludge.

6 SAFE, LOW-MAINTENANCE

Wire-break protection, automatic multi-point lubrication and 8 s start/stop support continuous heavy-duty operation.

BY THE NUMBERS

0.6 mm
kerf with ultra-thin wire, vs 4.5 mm for a gang saw

+20–25%
extra slabs from the same block

–30%
power consumption

6–10 mo.
typical payback period (ROI)

IDEAL FOR

Marble and natural stone producers seeking thin-slab production, maximum block recovery, high output and consistent surface quality in large-scale industrial operations.

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THE 4.5 mm PROBLEM

Why every millimetre of kerf matters – prepared for premium stone processors

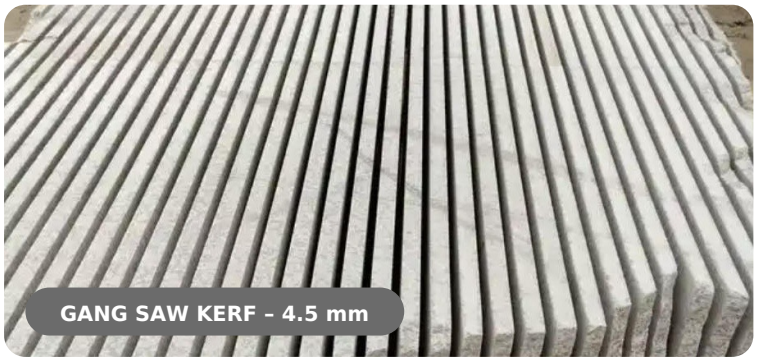
THE HIDDEN COST OF KERF LOSS

Every time a traditional gang saw cuts through an imported marble block (such as Turkish marble imported at **$450 – $500 FOB**), a large amount of valuable stone is turned into useless waste slurry.

Traditional gang-saw blades create a **4.5 mm cutting kerf**: for every single slab you cut, 4.5 mm of premium stone vanishes into dust.

With BM FASTCUT ultra-thin multiwire cutting, the cutting gap shrinks to just **0.55 – 0.65 mm**, recovering lost material and expanding your profit margin.

VISUAL COMPARISON: CUTTING GAP (KERF LOSS)





VISUAL COMPARISON: TOOL SIZE & SLAB YIELD





SLABS PER 1 m OF BLOCK

20 mm slabs

Gang saw (4.5 mm kerf)
1000 ÷ (20 + 4.5)

40 slabs

BM multiwire (0.6 mm kerf)
1000 ÷ (20 + 0.6)

48 slabs

≈ +20% more slabs per block

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FINANCIAL IMPACT

Turning waste into wealth – 1 ton of imported Turkish marble (FOB $450 – $500) processed into 20 mm slabs

Cost & yield metrics	Traditional gang saw (4.5 mm)	BM Ultra Thin Multiwire (0.60 mm)
Landed block cost	~ $580 / ton	~ $580 / ton
Slab thickness	20 mm	20 mm
Total space used per slab	24.5 mm (20 mm + 4.5 mm)	20.6 mm (20 mm + 0.6 mm)
Slab output per ton	~ 14.5 square meters	**~ 17.5 square meters**
Yield increase	Base level	**+ 20% to 25% EXTRA SLABS**
Raw material cost / m²	~ $40.00 / m²	**~ $33.10 / m² ($6.90 SAVED)**

+20% to 25%

extra slabs from every ton of imported marble

$6.90 / m²

raw material cost saved per square meter

TECHNICAL RELIABILITY & SAFETY

Engineered for maximum structural reliability and long-term stability, with continuous protection of your blocks and your wire.

RIGID STRUCTURE & TENSION CONTROL

A heavy-duty rigid machine structure with roller-based wire guidance and servo tension feedback (0 – 250 N) keeps the cut stable and the wire under constant, controlled tension.

SAFETY FIRST

Advanced automatic wire-breakage protection system. Sensors trigger an immediate emergency stop within milliseconds if abnormal tension is detected, fully protecting your blocks from damage.

LOW MAINTENANCE

Automatic multi-point central lubrication and fast 8 s start/stop support continuous heavy-duty operation with minimal routine maintenance.

FAST PAYBACK PERIOD

Thanks to the large boost in slab production and a 30% reduction in power consumption, stone factories typically achieve a full return on investment (ROI) within 6 to 10 months.

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TECHNICAL SPECIFICATIONS

BM Ultra Thin Multiwire – Micro Wire

SPECIFICATION	TECHNICAL DETAILS
Model	BM Ultra Thin Multiwire – Micro Wire
Diamond wire diameter	Ultra-thin 0.35 – 0.6 mm (diamond wire for marble)
Slab cutting thickness	5 – 30 mm
Processing efficiency	Medium-soft marble: cutting depth 100 – 150 mm/h
Hard marble cutting	Supported (with specialized tension calibration)
Processing size (L × W × H)	3400 × 2000 × 2200 mm
Feeding method	Block lifting – stroke 0 – 2400 mm
Wire speed	0 – 20 m/s
Cutting tension	0 – 250 N
Wire storage length	30 km
Rollers	8 pcs | Ø 320 mm (upgradable to Ø 350 mm) | length 2075 mm
Roller material / adjustment	Aluminium + polyurethane | range 0 – 2300 mm
Main motor power	60 kW × 4 (total installed power approx. 310 kW)
Cooling water flow	1000 L/min
Safety & protection	Servo wire-tension feedback device and wire-break protection device included
Lubrication	Automatic lubrication system
Control & automation	PLC + touchscreen: Inovance / INVT | Servo system: Inovance / INVT
Electrical components	Core and main electrical components: ZTAI
Start / stop time	8 s
Overall dimensions	Approx. 9000 × 5600 × 5500 mm
Transport trolleys	1

Note: Precision ultra-thin wire cutting maximizes recovery rate while maintaining high dimensional tolerance. Confirm final configuration, layout customization, tolerances and local power-grid requirements with BM FASTCUT engineering prior to ordering.

OPTIONAL SIEMENS AUTOMATION

Siemens PLC + HMI control package available as an alternative to the standard Inovance / INVT configuration. Servo and drive selection, electrical components and integration scope are to be confirmed for each project.