

THIN CUTTING FRAME SAW

薄木框鋸機

www.megamac-tw.com



MEGA MAC

台灣兆豐木工機械有限公司
TAIWAN MEGA MAC Woodworking Machinery Co., Ltd.

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台灣兆豐木工機械有限公司
TAIWAN MEGA MAC Woodworking Machinery Co., Ltd.

MAC-150 / MAC-200

Heavy Duty Thin Cutting Frame Saw

重型薄木框鋸機



MAC-150

- Cutting width 鋸切寬度 : 160 mm
- Height range of cut 鋸切高度 : 200/250/320 mm

MAC-200

- Cutting width 鋸切寬度 : 210 mm
- Height range of cut 鋸切高度 : 200/250/320 mm

- This machine allows for cutting dry wood in 8~12% moisturized content.
- Suitable for cutting moisturized wood more than 20% moisturized content.
- Saw path loss 1.1~1.2~1.4~1.6mm for reducing wood material loss while increasing profit.
- Maximum feed speed up to 2.0M per minute!
- Saw frame speed up to 480 times per minute!

- The machine is equipped with a 10.4" Japanese Mitsubishi colorful touch sensing screen.
- Adopt Japanese Mitsubishi 5KW servo motor feeding and electrical sensor positioning. Increasing cutting accuracy and reduce the saw kerfs loss.
- The machine equipped with two sets of digital controller, set up cutting height rapidly, reduce the adjustment time on machine.
- Suitable for double and multiple slicing at a time.
- The material of machine body is iron casting..
- Suitable for production of composite parquet, venetian blind, air tight window, pencil, door and furniture, instrument guitar, etc.

- 適合鋸切乾木材濕度8~12%。
- 適合鋸切濕木材濕度20%以上。
- 鋸片鋸路損耗 1.1~1.2~1.4~1.6mm。
- 最快送料速度可達每分鐘2.0M。
- 每分鐘鋸框作動次數高達480次!
- 搭載10.4吋日本三菱人機觸控介面。
- 搭載日本三菱5KW伺服馬達進料與感應器定位，提高鋸切精準率，降低鋸片損耗。
- 採用數值控制器自動昇降壓料輪，快速設定鋸切高度，縮短人工調機時間。
- 適合一次雙片及多片鋸切。
- 機身材質為鑄鐵製造。
- 應用於複合式地板、百葉窗、窗簾、氣窗、鉛筆、門、傢俱、吉他樂器...等。



Personnified Design

- Door opening design permits the operator to replace sawblade quickly. With the innovative design, it makes the operator easy to access all parts of the machine.
- Machine adjustment, sawblade replacement and maintenance times are dramatically shortened while extending the service life of the machine.

人性化設計

- 開門設計使操作人員可快速更換鋸條且接觸到設備上所有部件。
- 設備調整、鋸條更換和維修時間都大大縮短，延長了機械使用壽命。

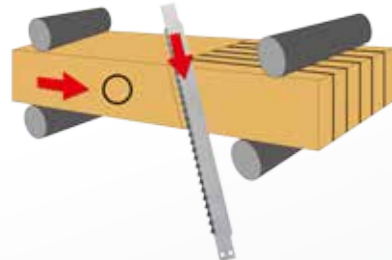
Feeding By Mitsubishi Servo Motor And Servo Driver

- The wood feed and saw frame vertical oscillation in combination with 5° of the saw frame movement make the saw frame movement effortless and oscillation smooth. In addition, wood chips are evacuated with ease, leading to longer blade life.
- In order to optimize cutting effect, wood feeds only when the saw blade moves downward. Wood feed stops when the saw blade moves upward. Another feature is a blower is equipped to cool the saw blade that may prevent the saw blade from heat growth to lower the possibility of saw blade damage.
- The servo motor drive provides high positioning accuracy when the saw frame moves up/down.

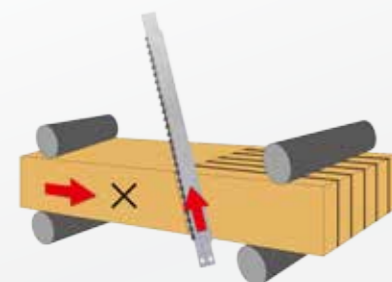
三菱伺服馬達與驅動器進料

- 木方傳送和鋸框上下擺動，鋸框運動傾斜幅度5°，讓鋸框輕車、擺動更加順暢讓木屑更易排出以延長鋸片使用壽命。
- 為使鋸切效果更臻完美，鋸片向下鋸時進料，鋸片往上時則停止進料。經由鼓風機冷卻鋸片以防發熱而降低鋸片損壞機率。
- 伺服馬達定位鋸框上下運動之精準度

wood feeds when the sawblades moves downward
鋸片向下鋸時進料



wood feed stops when the sawblades moves upward
鋸片往上停止進料



Servo motor
伺服馬達



10.4" Mitsubishi HMI Screen

- Easy learning to run machine for friendly operator
- To monitor servo motor operation.
- Warning browser will pop up enables the operator to trouble shooting fast.

10.4吋三菱人機介面

- 簡單易學，快速上手操作介面。
- 監測伺服馬達運作。
- 具備異常檢測警示及引導人員加速故障排除功能。



Anti-tearing Device

- The standard equipment of polyacetal assures tearing-free when sawblade leaves wood bottom.

防撕裂裝置

- 鋸片鋸開塑膠鋼使木方底部於鋸片離開時避免木材撕裂。



Automatic Lubricator

- The automatic lubricator provides lubrication to slideway, ensuring saw frame smooth motions at all times.
- In case of lack of oil, the machine stops automatically.

自動潤滑器

- 自動潤滑器隨時提供滑道潤油，確保鋸框動作順暢。
- 缺油時，機器會自動停機。



Centralized Pressure Regulations

- Each pressure roller is equipped with an independent pressure regulator for individual air pressure adjustment.
- All pressure regulation valves are centralized for convenient adjustment and maintenance.

集中式壓力調整

- 每一支壓料輪採用個別調整壓力。
- 所有壓力調整閥集中配置使維護保養更方便。



Temperature display

- 4 sets of slideway with temperature sensors to monitor the degree on the slideway all the time.

溫度顯示器

- 4組鋸框滑道設有感溫器，隨時監控滑道溫度。

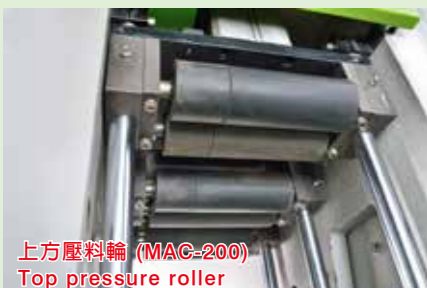


Symmetrical Structure of Saw Frame

- The saw frame is a symmetrical construction to ensure uniform pressure on each sawblade. This not only improves cutting accuracy, but extends service life of sawblade.

對稱的鋸框結構

- 對稱的鋸框結構保證了鋸條壓力平均，從而改善了鋸切精度，提高了鋸條的使用壽命。



上方壓料輪 (MAC-200)
Top pressure roller

PRIORITY AUTOMATIC FEEDING (MAC-200)

Priority automatic feeding will save human enforce material, input material by top pressure roller and bottom transfer roller for stable cutting on materials to guarantee precise lamella outcome.



下方傳動輪 (MAC-200)
Bottom transfer roller

優先自動入料 (MAC-200)

自動入料不費人工進料，入料處上下六支傳動輪穩固木料鋸切，使木材更加穩定精準。



Front and Back Digital controller

Pressure roller elevation is controlled by a digital controller for automatic positioning.

前後2組數值控制器

壓料輪昇降採用數值控制器快速設定鋸切尺寸。



Digital controller
數值控制器



Side Guide Fence (INFEED)

When the guide fence is positioned at side, the machine can feed one workpiece for cutting.

Feeding by two air cylinders press the workpiece along the side guide fence.

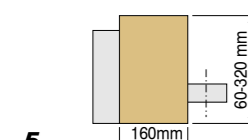
Wood width	160-210 mm
Wood height	60-320 mm

側面導板(入料)

當導板置於側邊時，本機可執行單工件鋸切。

2支氣壓缸壓住木料沿著側面導板進料。

木料寬度	160-210 mm
木料高度	60-320 mm



Center Guide Fence

When the guide fence is positioned in between two workpieces, the machine can feed two workpieces for cutting simultaneously.

Two workpieces are feeding by the left cylinder and the right cylinder to press along the center guide fence.

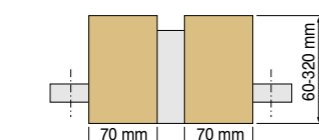
Wood width	2x70, 2x100 mm
Wood height	60-320 mm

中央導板

當導板置於兩工件之間，本機可同時鋸切兩工件。

左右兩側2支氣壓缸壓住木料沿著中央導板進料。

木料寬度	2x70, 2x100 mm
木料高度	60-320 mm



Multiple Feed System (MAC-150)

The multiple feed system is easy to install, which enables multiple wood to be cut simultaneously.

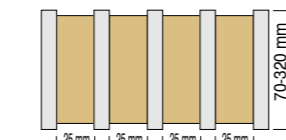
Feed system configuration:
Upon customer's requirement

Path numbers	4 paths (Wood height under 320 mm)
Wood height	70~320 mm

多排式送料系統 (MAC-150專用)

易於安排的多排式送料系統可同時加工多塊木料。

系統設置	依客戶要求
通道數量	4 個通道 (木料高不超過320 mm)
木料高度	70~320 mm



Multiple Feed System (MAC-200)

The multiple feed system is easy to install, which enables multiple wood to be cut simultaneously.

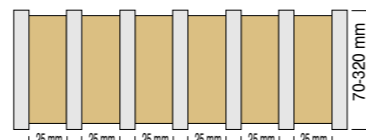
Feed system configuration:
Upon customer's requirement

Path numbers	6 paths (Wood height under 320 mm)
Wood height	70~320 mm

多排式送料系統 (MAC-200專用)

易於安排的多排式送料系統可同時加工多塊木料。

系統設置	依客戶要求
通道數量	6 個通道 (木料高不超過320 mm)
木料高度	70~320 mm



Model		MAC-150	MAC-200
Wood height	木材高度	200 / 250 / 320 mm	200/ 250 / 320/400 mm
Saw motor	鋸切馬力	20 / 25 / 30 HP	25 / 30 / 40 HP
Blower	鼓風機	3 HP	3 HP
Feeding servo motor (Mitsubishi)	進料伺服馬達(日本三菱)	5 kW	5 kW
Feed speed (servo motor)	送料速度(伺服馬達)	0.1~2.0 M/min	0.1~2.0 M/min
Number of stroke	鋸框轉動次數	480 rpm	480 rpm
Cutting height (Digital controller)	鋸切高度(數值控制器)	70~200 / 250 / 320 mm	70~200 / 250 / 320/400 mm
Cutting width	鋸切寬度	160 mm	210 mm
Saw blade length	鋸片長度	500 / 550 / 620 mm	500 / 550 / 620 mm
Saw kerf	鋸路	1.1~1.2~1.4 mm/min	1.1~1.2~1.4 mm/min
Stroke of saw frame	鋸框行程	210 mm	210 mm
Min. block length	木方最小長度	300 mm	300 mm
Block height difference	木方高度公差	±0.5 mm	±0.5 mm
Min. veneer thickness	木方最小厚度	2.0 mm	2.0 mm
Cutting accuracy	鋸切精度	±0.10 mm (150mm below) ±0.15 mm (More than 150mm)	±0.15 mm (200mm below) ±0.20 mm (More than 200mm)
Sawblade regrinding time	鋸片再研磨時間	硬木 Hard wood: 4~8hr, 軟木 Soft wood: 8~10hr	
Sawblade grinding times	鋸片研磨次數	15~25 times	15~25 times
Suction tubes	吸塵口	5 x 100 mm	5 x 100 mm
Number of saw blades	鋸條數量	30 pcs	36 pcs
Center guide fence	中央導板	2 paths	2 paths
Multiple feed system	多排式送料系統	4 paths	6 paths
Touch-sensing screen (Japan Mitsubishi)	觸控式人機介面(日本三菱)	10.4 inch	10.4 inch
Machine dimensions (L×W×H)	機械尺寸	3400×1300×1950 mm	3400×1400×1950 mm
Packing dimensions (L×W×H)	裝箱尺寸	3600×1500×2150 mm	3600×1600×2150 mm
Net weight / Gross weight	淨重 / 毛重	4200 kg / 4500 kg	4600 kg / 4800 kg

• Specifications, dimensions, and design characteristics are subject change without prior notice.
• 本公司對產品規格、設計均不斷研究改進，上述規格若有變更，恕不另行通知。

MAC-15

Thin Cutting Frame Saw

薄木框鋸機



- Cutting width 鋸切寬度 : 160 mm
- Height range of cut 鋸切高度 : 60~200/250 mm

- Saw frame speed up to 480 times per minute !
- Maximum feed speed up to 1.5 M per minute !
- Saw path loss 1.1~1.2~1.4 mm for reducing wood material loss while increasing profit.
- Suitable for multiple slicing at a time.
- Suitable for production of composite parquet, venetian blind, air-tight window, pencil, door and guitar, etc.

- 每分鐘鋸框作動次數高達 480次！
- 送料速度最高可達每分鐘 1.5 M！
- 鋸路損耗1.1~1.2~1.4 mm，充份降低木料損失，提升生產利潤！
- 適合一次多片切片。
- 適合複合式地板、百葉窗、門、窗簾、氣窗、鉛筆、吉他…等多功能用途。



Saw Frame Slideways With Copper Piece

- The dovetailed slideways are fitted with copper piece, and precision scraped to upgrade motion smoothness and ensure outstanding wear-resistance.

鋸框滑道附銅片

- 鳩尾槽滑道加附銅片，經鏟花處理，提升動作之順暢性，耐磨耗性優異。並提供溫度控制，當滑板過熱時，機器會自動停機。



PLC Control

- Entire machine motions are controlled by a high performance PLC for easy learning and operation.

操作簡易的控制器

- 本機整體動作採用高性能PLC控制，提升操作之方便性，簡易學習與操作。



Feed Speed Regulator

- It provides variable feed speed adjustment ranging 0.2~1.5M/min.

送料速度調整

- 提供送料速度調整0.2~1.5M/min。



Anti-tearing Device

- The standard equipment of iron-plate assures tearing-free when sawblade leaves wood bottom.

防撕裂裝置

- 配備鐵片以確保木方底部在鋸片離開時不被撕裂。



Automatic Lubricator

- The automatic lubricator provides lubrication to slideway, ensuring saw frame smooth motions at all times.
- In case of lack of oil, the machine stops automatically.

自動潤滑器

- 此自動潤滑器，隨時提供滑道的潤滑，確保鋸框動作順暢。
- 缺油時，機器會自動停機。



Centralized Pressure Regulations

- Each pressure roller is equipped with an independent pressure regulator for individual air pressure adjustment.
- All pressure regulation valves are centralized for convenient adjustment and maintenance.

集中式壓力調整

- 每一支壓料輪採用個別調整壓力。
- 所有壓力調整閥，集中配置調壓及維護保養更方便。

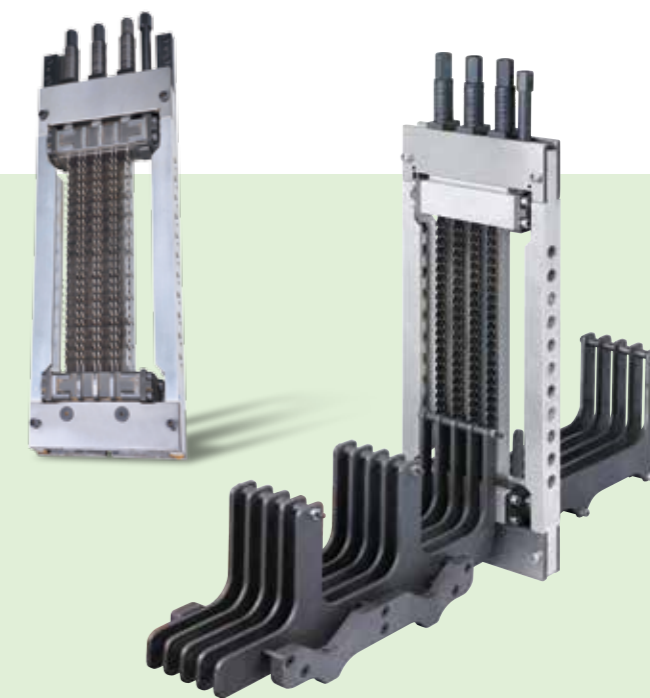


Temperature display

- 4 sets of slideway with temperature sensors to monitor the degree on the slideway all the time.

溫度顯示器

- 4組鋸框滑道設有感溫器，隨時監控滑道溫度。



Symmetrical Structure of Saw Frame

The saw frame is a symmetrical construction to ensure uniform pressure on each sawblade. This not only improves cutting accuracy, but extends service life of sawblade.

對稱的鋸框結構

對稱的鋸框結構保證了鋸條壓力平均，從而改善了鋸切精度，提高了鋸條的使用壽命。



Side Guide Fence (INFEED)

When the guide fence is positioned at side, the machine can feed one workpiece for cutting.

Feeding by two air cylinders press the workpiece along the side guide fence.

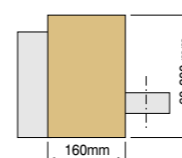
Wood width	160 mm
Wood height	60~200/250 mm

側面導板(入料)

當導板置於側邊時，本機可執行單工件鋸切。

2支氣壓缸壓住木料沿著側面導板進料。

木料寬度	160 mm
木料高度	60~200/250 mm



Center Guide Fence

When the guide fence is positioned in between two workpieces, the machine can feed two workpieces for cutting simultaneously.

Two workpieces are feeding by the left cylinder and the right cylinder to press along the center guide fence.

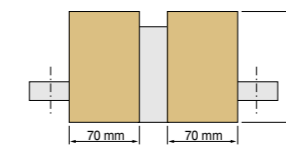
Wood width	2 x 70 mm
Wood height	60~200/250 mm

中央導板

當導板置於兩工件之間，本機可同時鋸切兩工件。

左右兩側2支氣壓缸壓住木料沿著中央導板進料。

木料寬度	2 x 70 mm
木料高度	60~200/250 mm



Multiple Feed System

The multiple feed system is easy to install, which enables multiple wood to be cut simultaneously.

Feed system configuration:
Upon customer's requirement

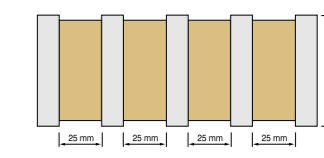
Path numbers	2~4 paths (Wood height under 250mm)
Wood height	70~200/250 mm

多排式送料系統

易於安排的多排式送料系統可同時加工多塊木料。

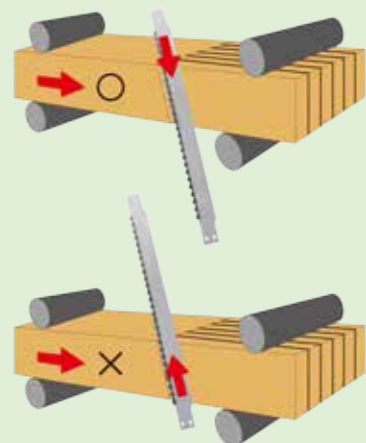
系統設置 依客戶要求

通道數量	2~4個通道 (木料高不超過250mm)
木料高度	70~200/250 mm



Reduced saw path loss for saving wood material and increasing profit.

鋸路小，可節省木料，提高生產利潤！

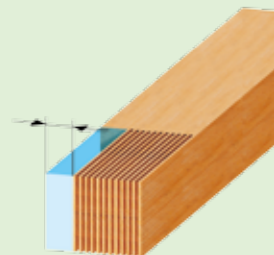


Oscillation Gap Between Sawblade and Wood

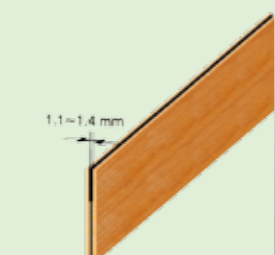
- The wood feed and saw frame vertical oscillation in combination with 5° of the saw frame movement make the saw frame movement effortless and oscillation smooth. In addition, wood chips are evacuated with ease, leading to longer blade life.
- In order to optimize cutting effect, wood feeds only when the saw blade moves downward. Wood feed stops when the saw blade moves upward. Another feature is a blower is equipped to cool the saw blade that may prevent the saw blade from heat growth to lower the possibility of saw blade damage.

鋸片與木材上下擺動的間隙

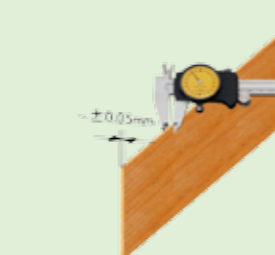
- 木方傳送和鋸框上下擺動，鋸框運動傾斜幅度5°，讓鋸框輕車、擺動更加順暢讓木屑更易排出以延長鋸片使用壽命。
- 為使鋸切效果更臻完美，鋸片向下鋸時進料，鋸片往上時則停止進料。經由鼓風機冷卻鋸片以防發熱而降低鋸片損壞機率。



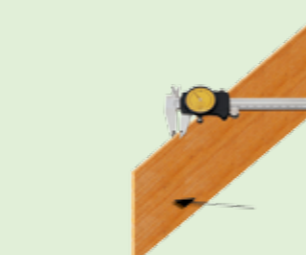
Outstanding machining capacity reduces material loss to a minimum.
卓越加工能力，木料損失降到最低程度。



Kerf 1.1~1.4 mm
鋸路 1.1~1.4 mm



Accuracy +/-0.05mm is suitable for wood height under 120mm.
鋸切精度 +/-0.05mm 適用木材高度120MM 以下。



Smooth surface for gluing.
鋸切面精緻，適合膠合。

MAC-10

Band Blade Grinder (Optional)

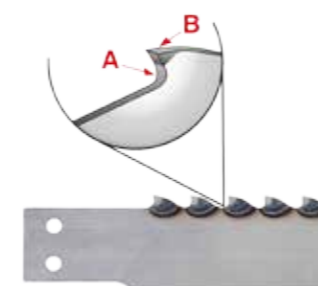
精密磨鋸機 (選購配備)



- Suitable for grinding Satellite and TCT saw blades.
- Suitable for using diamond grinding wheel.
- With working light.
- Forced cooling system for fully eliminating blade heat generation.
- Grinding amount 0.05 mm each time provides high accuracy and long service life.
- Blade service life up to 15~30 times of grinding.
- Front and back angles are ground at a time.
- Employ an inverter for adjusting saw blade speed.
- 專用於框鋸機之司太利、鎢鋼鋸片材質研磨。
- 此磨鋸機選用鑽石砂輪。
- 附照明燈。
- 強力冷卻裝置，使刀片完全不發熱。
- 每次研磨只有0.05mm，精度良好、壽命長。
- 鋸條使用壽命可研磨15~30次。
- 前後角研磨一次完成。
- 採用變頻器調整研磨鋸條之速度。

Model: MAC-15		木材高度 200 mm	木材高度 250 mm
Applicable blade length	適用鋸片長度	500 mm	550 mm
Motor	鋸片馬力	11.5 kW (15HP)	15 kW (20HP)
Blower	鼓風機	2 HP	2 HP
Feed speed (servo motor)	送料速度	0.3~1.5 M/min	0.2~0.8 M/min
Number of stroke	鋸框轉動次數	480 times/min	480 times/min
Cutting height	鋸切高度	60~200 mm	60~250 mm
Cutting width	鋸切寬度	160 mm	160 mm
Cutting kerf	鋸路損耗	1.1~1.25~1.4 mm/min.	1.1~1.25~1.4 mm/min.
Stroke of saw frame	鋸框行程	210 mm	210 mm
Block length	木方長度	At least 300 mm	At least 300 mm
Block height difference	木方高度公差	±0.5 mm	±0.5 mm
Lamella thickness	木方最小薄片厚度	2.0 mm	2.0 mm
Cutting accuracy(under 120mm)	鋸切精度(120mm以下)	±0.1mm	±0.1 mm
Cutting accuracy(More than 120mm)	鋸切精度(120mm以上)	± 0.2 mm	± 0.2 mm
Compressed air	壓縮空氣機	at least 6 bar, 87psi	at least 6 bar, 87psi
Suction performance per port	每個接口的吸塵功率	30 m/min, 1300 meter/hr	30 m/min, 1300 meter/hr
Dust suction ports	吸塵口	5×100 mm	5×100 mm
Sawblade grinding times	鋸片研磨次數	15~25 times	15~25 times
Sawblade regrinding time	鋸片再研磨時間	Hard wood 硬木: 4~8hr, Soft wood 軟木: 8~10hr	
Number of saw blades	鋸條數量	25 pcs	25 pcs
Machine dimensions (L×W×H)	機械尺寸	3400×1300×2300 mm	3400×1300×2300 mm
Net weight / Gross weight	淨重 / 毛重	2600 kg / 3000 kg	2800 kg / 3200 kg

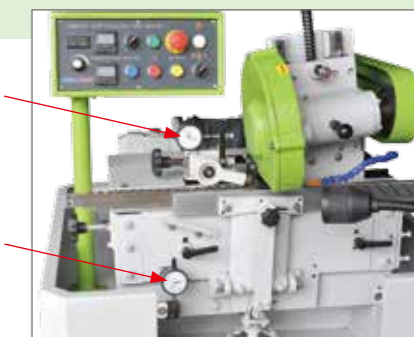
- Specifications, dimensions, and design characteristics are subject change without prior notice.
- 本公司對產品規格、設計均不斷研究改進，上述規格若有變更，恕不另行通知。



- Front angle (A) grinding amount each time: 0.03~0.05 mm
- Back angle (B) grinding amount each time: 0.02~0.04 mm
- 前角(A)每次研磨: 0.03~0.05 mm
- 後角(B)每次研磨: 0.02~0.04 mm

The dial gauge indicates the front angle
前角百分表

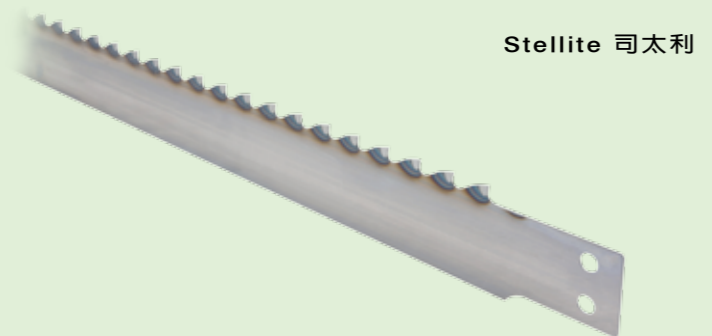
The dial gauge indicates the back angle
前角百分表



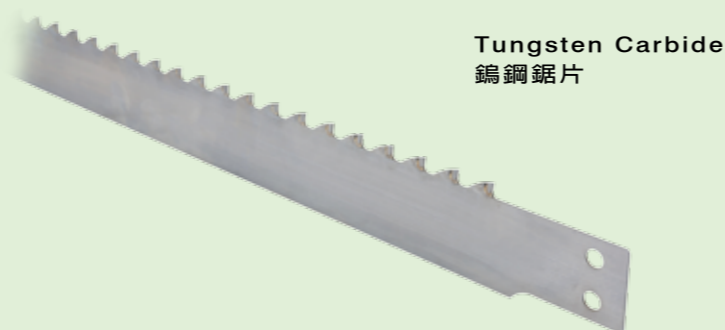
Model		MAC-10
Grinding amount each time (front/back angle)	鋸片每次磨刀量(前角/後角)	0.03~0.05 mm / 0.02~0.04 mm
Adjustment degree of front angle	鋸片前角可調角度	4~8 degrees
Applicable blade length	適用鋸片長度	420~620 mm
Applicable sawblade width/thickness/teeth number	適用鋸片寬度/厚度/齒數	40 mm / 0.6~2.0 mm / 13~20 pitch
Grinding wheel speed	砂輪迴轉數	2400 rpm (50HZ)
Grinding wheel motor	砂輪馬達	1 HP
Gear motor (inverter)	齒輪馬達(變頻器)	1/4 HP
Coolant pump	冷卻泵浦	1/8 HP
Grinding wheel sizes	砂輪尺寸(外徑×孔徑×厚度)	ø250 x ø19 x 12 mm
Machine dimensions (L×W×H)	機械尺寸	1200 x 900 x 900 mm
Packing dimensions (L×W×H)	裝箱尺寸	1300 x 1000 x 1000 mm
Net weight / Gross weight	淨重 / 毛重	640 Kg / 820 Kg

Stellite/ Tungsten Carbide Alloy Sawblades (Optional)

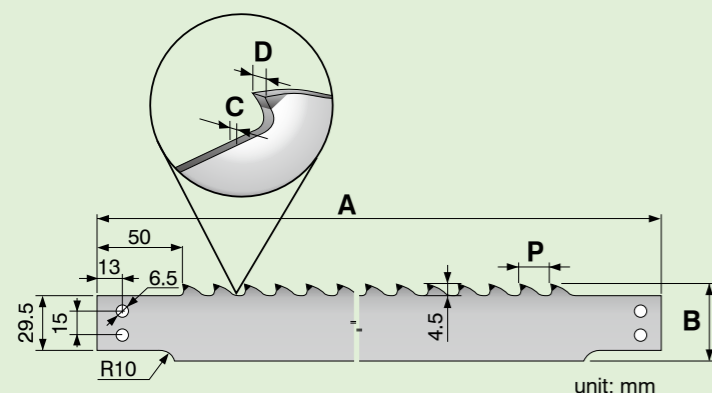
司太利 / 鎢鋼硬合金鋸片 (選購配備)



Stellite 司太利



Tungsten Carbide
鎢鋼鋸片



Sawblade Sizes 鋸片尺寸 (unit:mm)

Cutting height	鋸切高度	115 / 200 / 250 / 320
Length of sawblade (A)	鋸條長度	420 / 500 / 550 / 620
Width of sawblade (B)	鋸條寬度	40 / 45
Thickness of blade body (C)	鋸身厚度	0.5 / 0.7 / 0.8 / 0.9 / 1.0
Kerf (D)	鋸路	0.9 / 1.1 / 1.25 / 1.4 / 1.6
Tooth pitch (P)	齒距	13 / 15 / 17 / 18 / 20

The satellite saw blade is suitable for cutting various soft and hard wood, moisturized wood, North America wood, wood with knot, etc.

司太利鋸片適用各種軟硬木材、濕材、北美木材、目眼木材

Tungsten carbide alloy saw blade is suitable for cutting teak, bamboo, moisturized wood and South America wood.

鎢鋼硬合金鋸片適用柚木、重竹、濕材、南美木材

MAC-5

Band Blade Stretching Machine (Optional)

鋸帶伸展機 (選購配備)



After the sawblade has been used for a long period, its strength may decrease gradually. However, this problem can be solved by using a band sawblade stretching machine to roll on the back side of the sawblade so as to increase sawblade's flexibility.



隨著鋸片使用次數增加鋸片張力會逐次遞減。然而藉由鋸帶伸展機滾動鋸片背部以增強鋸片張度。

Model	MAC-5	
Machine dimensions (L×W×H)	機械尺寸	800×350×1000 mm
Weight	重量	100 kgs
Horsepower	馬力	1/2 HP



Set up jig (Optional)

Easily measure the parallel of saw blades in the saw frame after adjustment.

鋸框校正座 (選購配備)

方便測量鋸條於鋸框內平行。

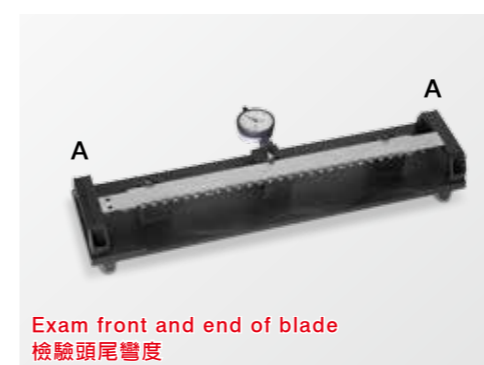


Frame saw automatic feeding device (Optional)

- Working length: 400~2500mm
- Working height: 400mm (layer 2~3pieces/time)
- Feeding quantity: 2~6pieces
- Multiple wood material preparation before the machine, boost the feeding efficiently.
- Moving variety of length working piece by slidway, saving labor cost.
- PATENT NO. M534674

自動進料裝置 (選購配備)

- 加工長度: 400~2500mm。
- 加工高度: 400mm(單次可疊2~3片)。
- 入料數量: 2~6片。
- 多片木材預備於機器前端, 提升載入木料效率, 線性滑軌移動不等長木材, 節省人工成本。
- 專利號碼: M534674



Exam front and end of blade
檢驗頭尾彎度

Band blade survey (Optional)

The sawblade flexibility between front and end could be checked by Band blade survey, following table shows the reference values:

鋸條彎度檢測儀 (選購配備)

使用鋸條彎度檢測儀測量頭尾彎度, 下列為參考數據:

Length of sawblade	鋸片長度	420 mm	500 mm	550 mm	620 mm
Flexibility between front and end (A)	頭尾彎度	0.4~0.6 mm	0.6~0.8 mm	0.7~0.9 mm	0.8~1.0 mm

Watching video in YouTube

精彩影片觀賞

