

# GARNET SERIES



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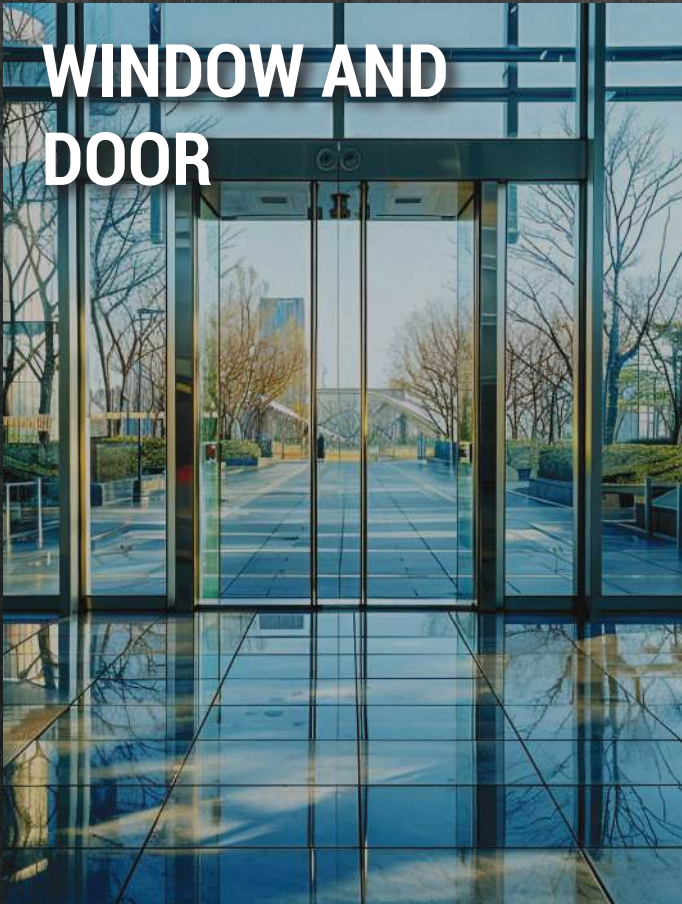
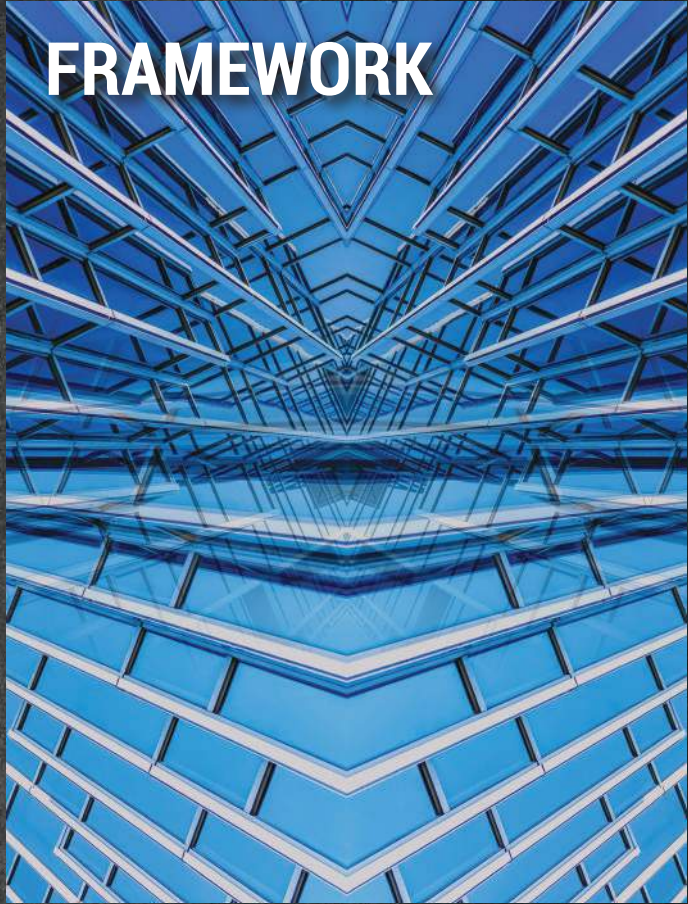


# GARNET 5X



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# MARKET REFERENCES



# INDUSTRIAL AUTOMATION



# MARINE INDUSTRY



# DEFENSE INDUSTRY



# AVIATION AND SPACE

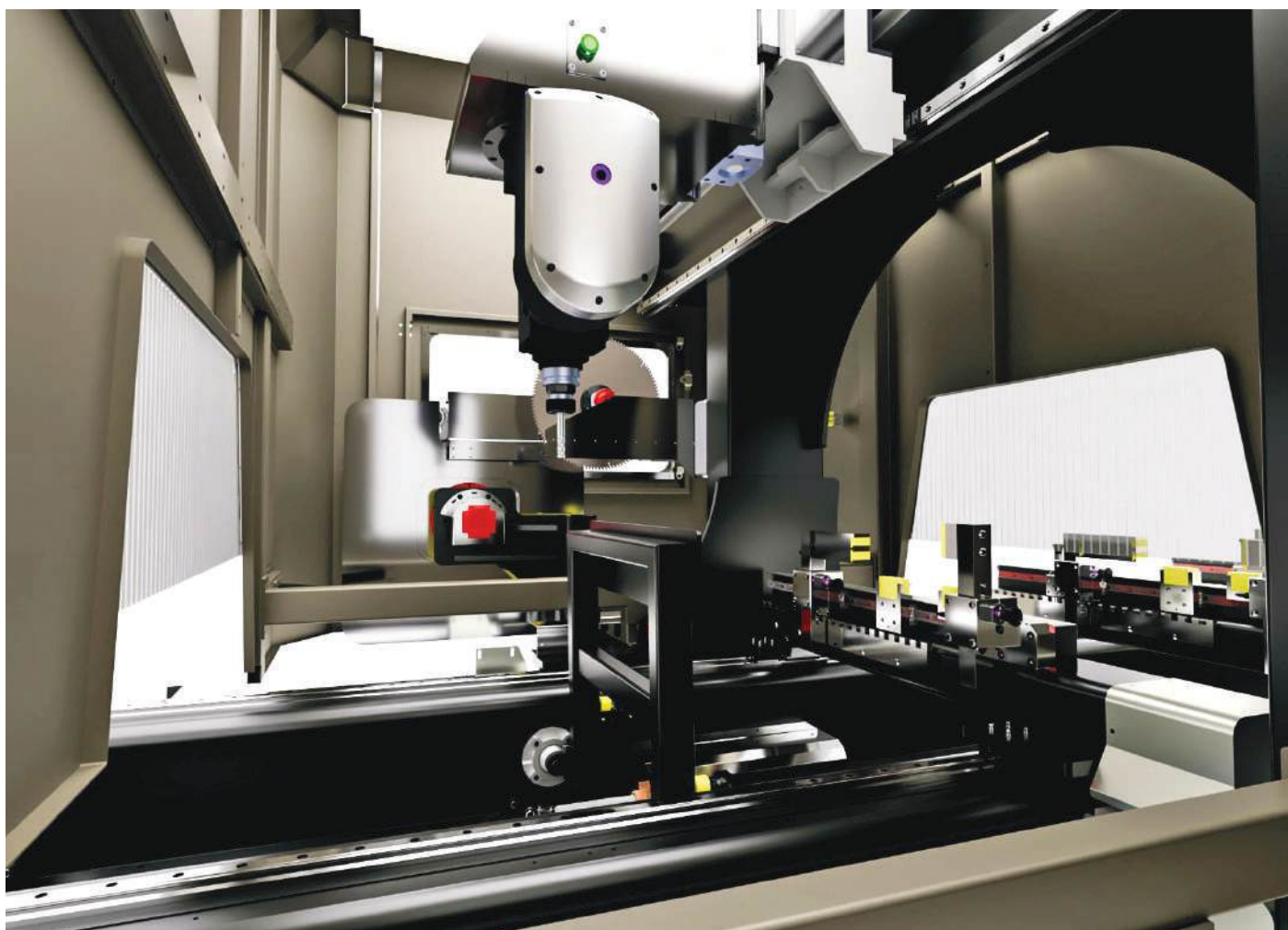


# GARNET SERIES

Garnet series machines are CNC-controlled machines capable of performing a variety of operations such as milling, drilling, marking, flow drilling, notching and tapping on profiles. They excel in delivering superior machining quality by performing custom operations beyond standard requirements on different profiles. Available in 3, 3+1, 4, and 5-axis models, Garnet series machines are designed to achieve high-speed axis movements and maximum efficiency in the shortest time thanks to their high-precision linear bearings, ball

screws, powerful spindles, and servo motors. Safety is a priority with workpiece-holding clamps and protective enclosure systems during these operations.

The compact Garnet Mini machine, equipped with 3 high-frequency spindle motors on the C-table and an optional 45° water slot motor, completes operations on three surfaces of profiles in a very short time and without error thanks to its high axial speeds.





The GARNET XS, with its Double- Linear guide bridge systems, high-power spindle motor, and large-capacity clamps, performs operations flawlessly and without vibration. The standard aggregate included with the machine increases the machine's axis count to 3+1, allowing for processing on both the front and back surfaces of profiles. Additionally, its  $\varnothing 150$  saw enables notching operations on the end sections of profiles.

The 4-axis GARNET XS4 and GARNET 8000 machine, in addition to the features of the GARNET XS, offers flexible machining on various profiles thanks to its spindle motor that can operate at any angle between  $-90^\circ$  and  $+90^\circ$ .

As the flagship of the Garnet series, the 5-axis GARNET 5X machine, in addition to all the features of other Garnet series machines, offers flexible, fast, and flawless cutting and machining on various industrial and circular profiles thanks to its 11 kW spindle motor and axial movement capability of  $0^\circ / 180^\circ$  on the A-axis and  $0^\circ / 360^\circ$  on the C-axis. It achieves this with a 20+1 tool magazine and a  $\varnothing 400$  saw, while servo-controlled, automatically positionable clamps significantly reduce the user's workload, maximizing production efficiency.

# GARNET SERIES ENGINES

Automation by  
**FANUC**

## GARNET Mini

Equipped with 3 x 3kW, 18000 rpm spindle motors, the machine easily and precisely performs challenging operations on profiles.



## GARNET XS

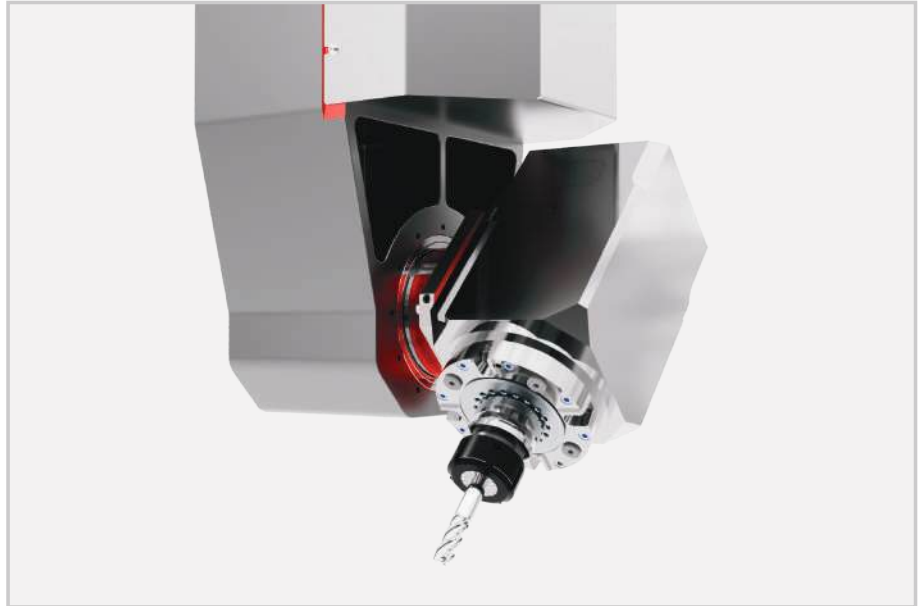
Focused on providing customers with easy solutions, the GARNET XS combines power and precision through its 5.5 kW, 24,000 rpm automatic tool changer spindle motor, increasing its processing capacity.





## GARNET XS4

Equipped with a 5.6 kW, 20,000 rpm automatic tool changer spindle motor, the machine combines power, precision, and flexibility to increase processing versatility.



## GARNET 8000

Equipped with an 8 kW, 24,000 rpm automatic tool changer spindle motor, the machine combines power, precision, flexibility, and efficiency, allowing users to push the boundaries of processing capabilities.



## GARNET 5X

Equipped with a standard 11 kW, 24,000 rpm automatic tool changer spindle motor, the machine maximizes processing capacity by combining power, precision, flexibility, and efficiency.

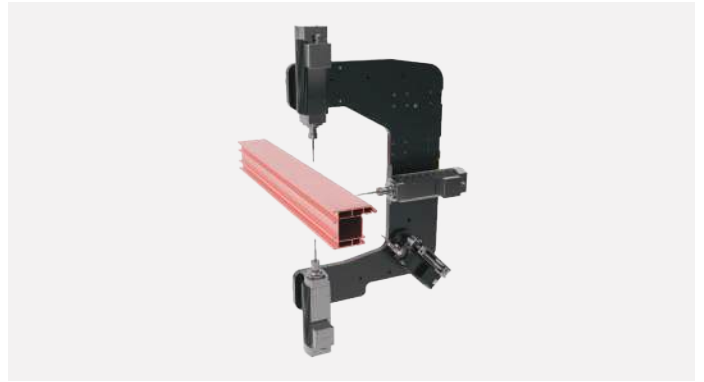
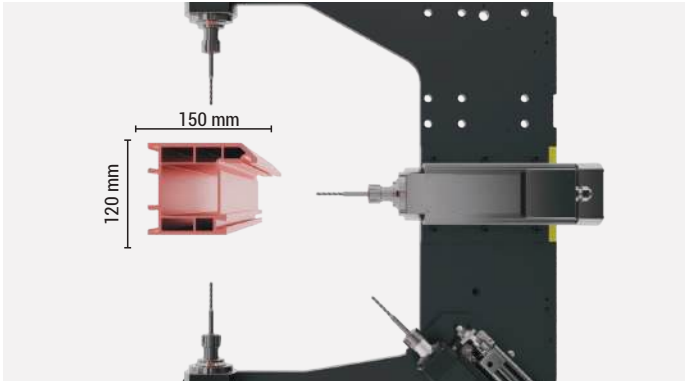


# GARNET SERIES

## ENGINE ANGLES

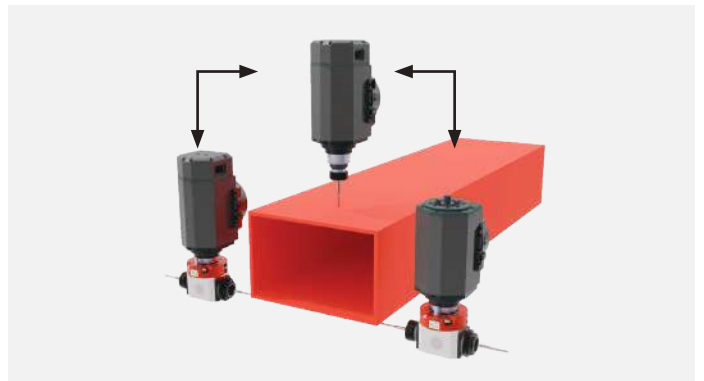
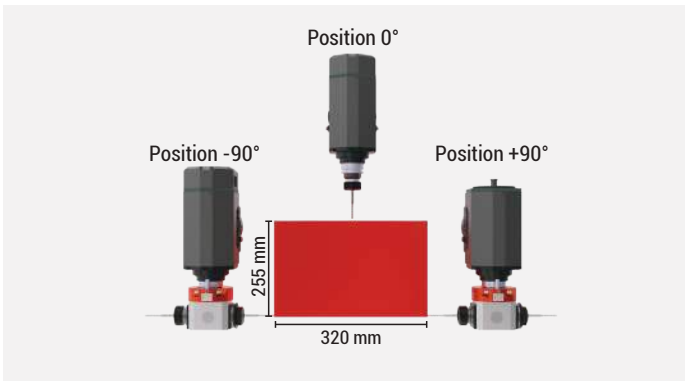
### GARNET Mini

Equipped with 3 spindle motors, the GARNET Mini machine can process profiles on 3 surfaces without the need for rotation. Additionally, an optional water slot motor provides a solution for various needs.



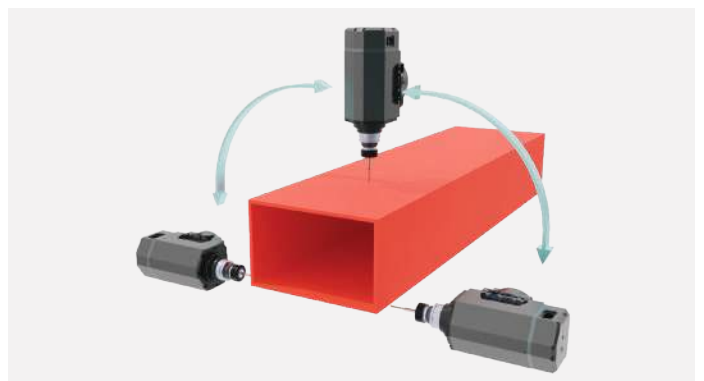
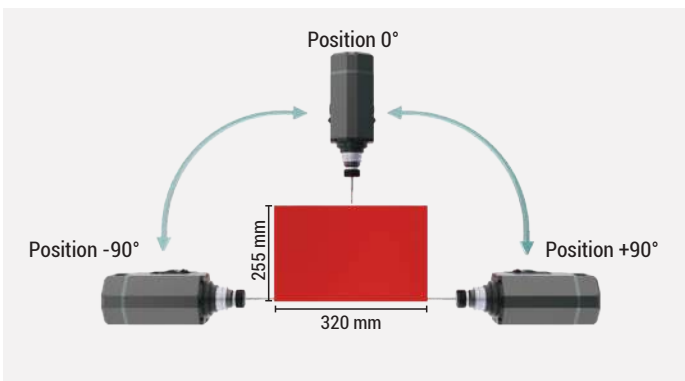
### GARNET XS

Providing users with a wide range of solutions, it can process profiles of various sizes with its spindle motor capable of fixed angle machining at  $-90^\circ$ ,  $0^\circ$ , and  $+90^\circ$ .



### GARNET XS4

Providing users with a wide range of solutions, it can process profiles of various sizes with its spindle motor capable of machining at any angle between  $-90^\circ$  and  $+90^\circ$ .



## GARNET 8000

Providing users with a wide range of solutions, it can process aluminum and PVC profiles of various sizes with its spindle capable of machining at any angle between  $-90^\circ$  and  $+90^\circ$ .

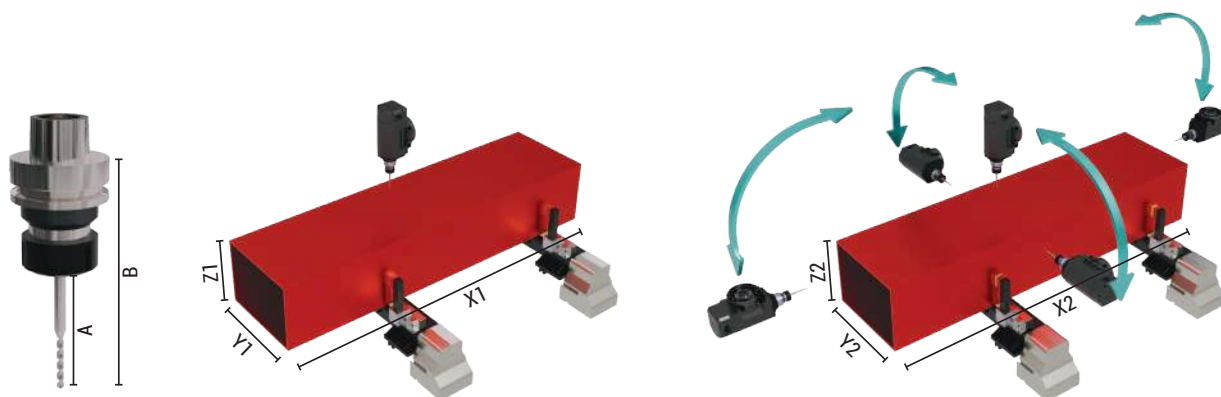


## GARNET 5X

With a spindle capable of processing at any angle between  $0^\circ$  and  $180^\circ$  on the A axis and  $0^\circ$  and  $360^\circ$  on the C axis, the machine can process aluminum and PVC profiles of various sizes, offering users a wide range of solutions.



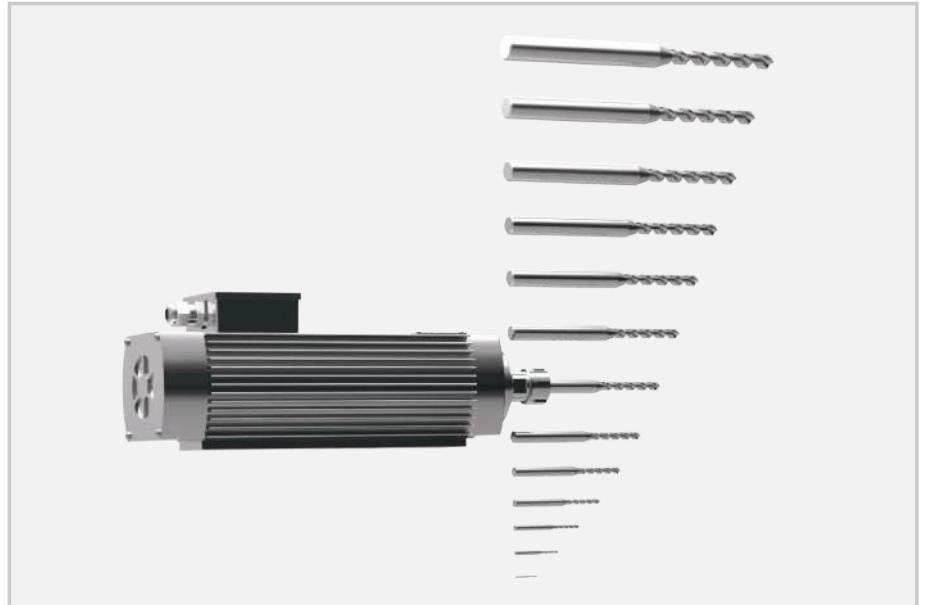
	A	B	X1	Y1	Z1	X2	Y2	Z2
GARNET 5X	50	120	8000	580	370	8000	515	370
GARNET8000	50	95	8000	580	450	8000	515	450
GARNET XS 4(3mt)	50	110	3000	320	255	3000	320	255
GARNET XS 4(4mt)	50	110	4000	320	255	4000	320	255
GARNET XS	50	95	3000	320	255	3000	320	255
GARNET MINI	80	118	350	150	120			



# GARNET SERIES TOOLS

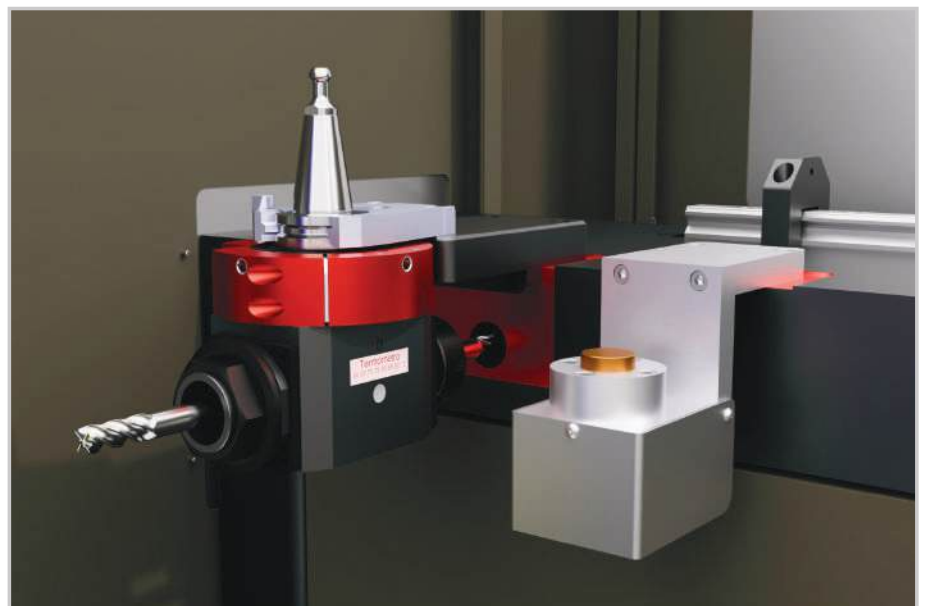
## GARNET Mini

With the ability to hold tool holding collets up to ER 20, the GARNET Mini machine provides flexibility for machining profiles with cutting tools up to  $\varnothing 13$ , making it suitable for a variety of applications.



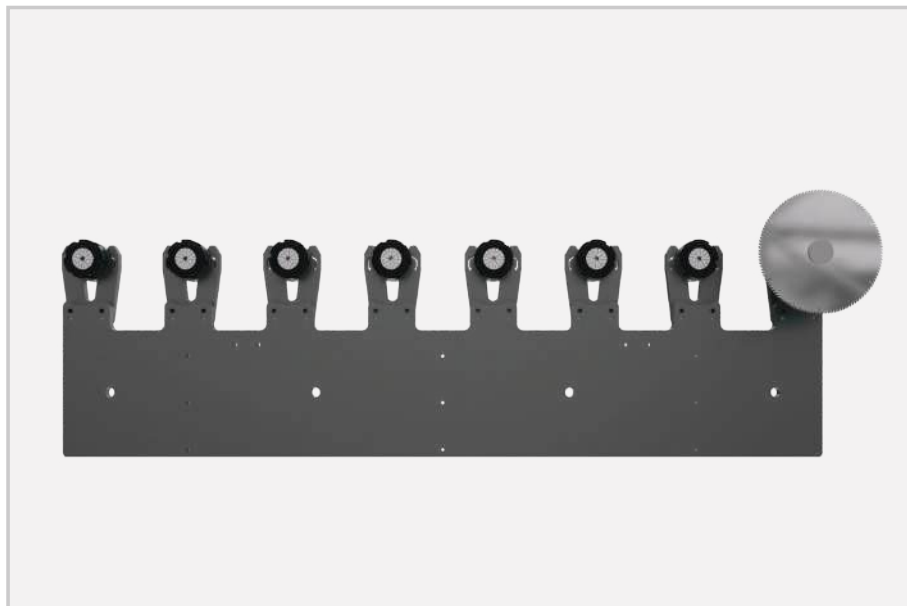
## GARNET XS

The GARNET XS machine, featuring an 8+1 tool magazine, offers flexible processing capabilities for profiles using ISO 30 tool holders. The +1 aggregate tool allows for efficient two-sided machining without the need to rotate the profile.



## GARNET XS4

Equipped with an 8-tool magazine and compatible with HSK F50 tool holders, the GARNET XS4 machine can perform a wide range of operations on various profiles using different cutting tools. Additionally, it can perform miter cutting operations on profile ends using a  $\varnothing 150$  saw blade.



## GARNET 8000

Equipped with ISO 30 tool holders and a 20-tool magazine, the GARNET 8000 can perform notching operations with a  $\varnothing 180$  saw blade and offers flexible and high-speed processing of not only standard profiles but also industrial profiles, significantly increasing production capacity.



## GARNET 5X

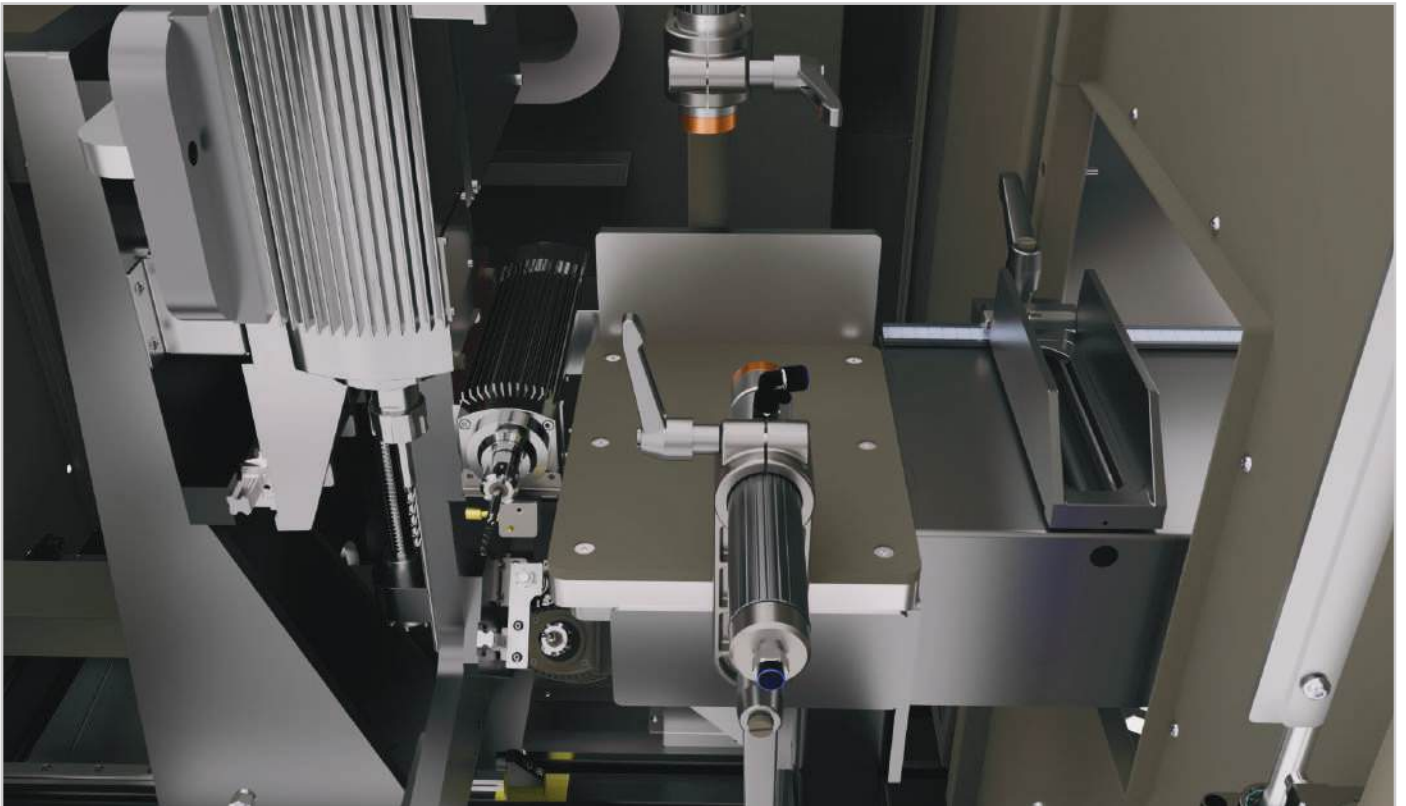
Equipped with HSK F63 tool holders and a 20+1 tool magazine, the GARNET 5X machine can perform notching operations using a  $\varnothing 180$  saw blade. The +1 tool position, equipped with a  $\varnothing 400$  saw blade, enables cutting operations and non-standard cuts on both standard and industrial profiles.



# GARNET SERIES CLAMPS

## GARNET Mini

With two horizontal and two vertical pneumatic clamps, it provides a strong grip on profiles, ensuring high-quality machining results.



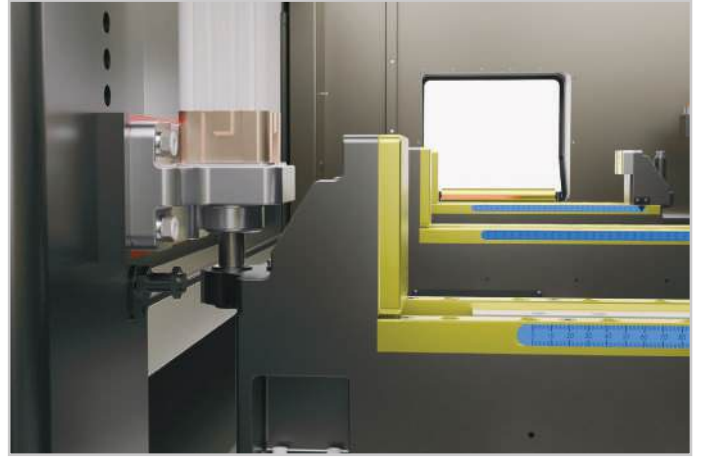
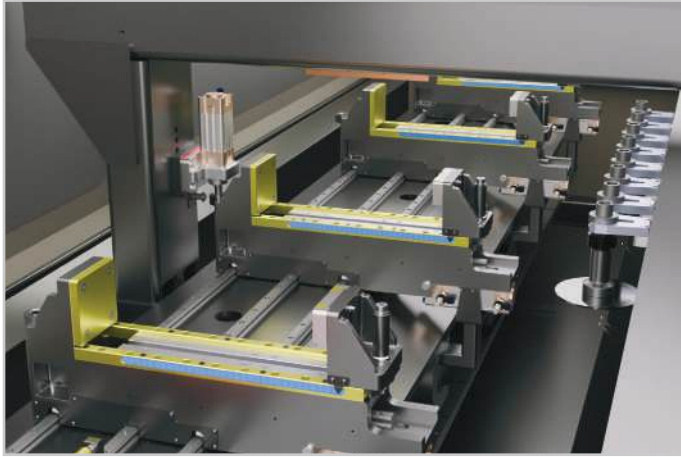
## GARNET XS

The rigid clamps, which can be positioned along the X-axis, fully automate the workpiece clamping process for GARNET XS users.



## GARNET XS4

The rigid clamps, which can be positioned along the X-axis, fully automate the workpiece clamping process for GARNET XS4 users.



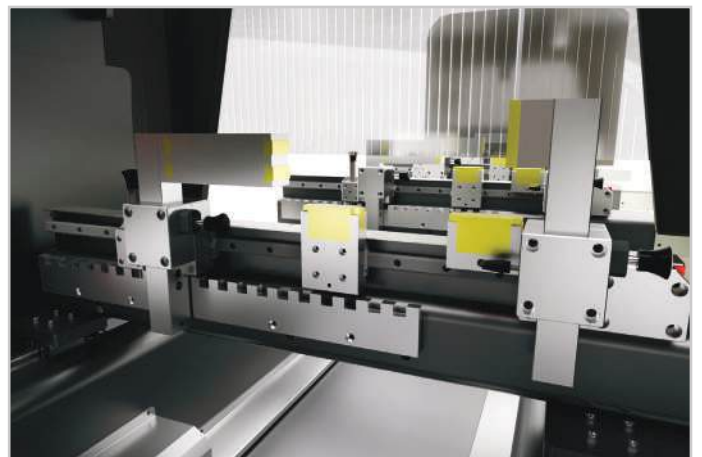
## GARNET 8000

The rigid clamps, which can be positioned along the X-axis, fully automate the workpiece clamping process for GARNET 8000 users.

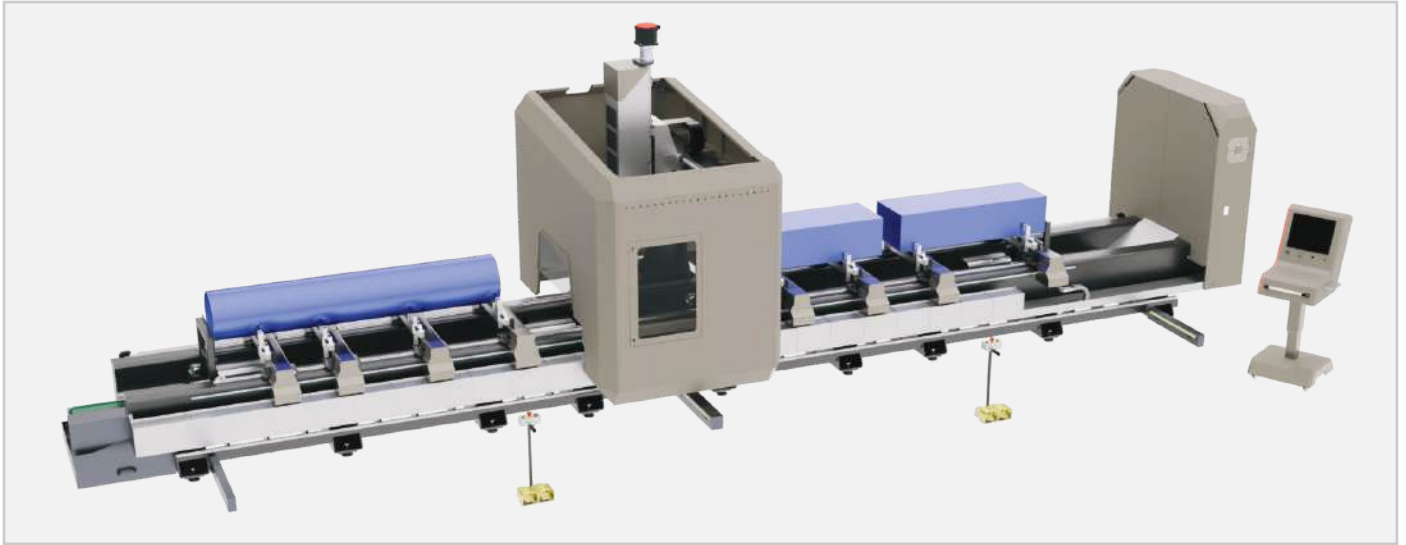


## GARNET 5X

Rigid clamps, with independent servo-controlled positioning, offer high-precision machining and fully automate the clamping process.

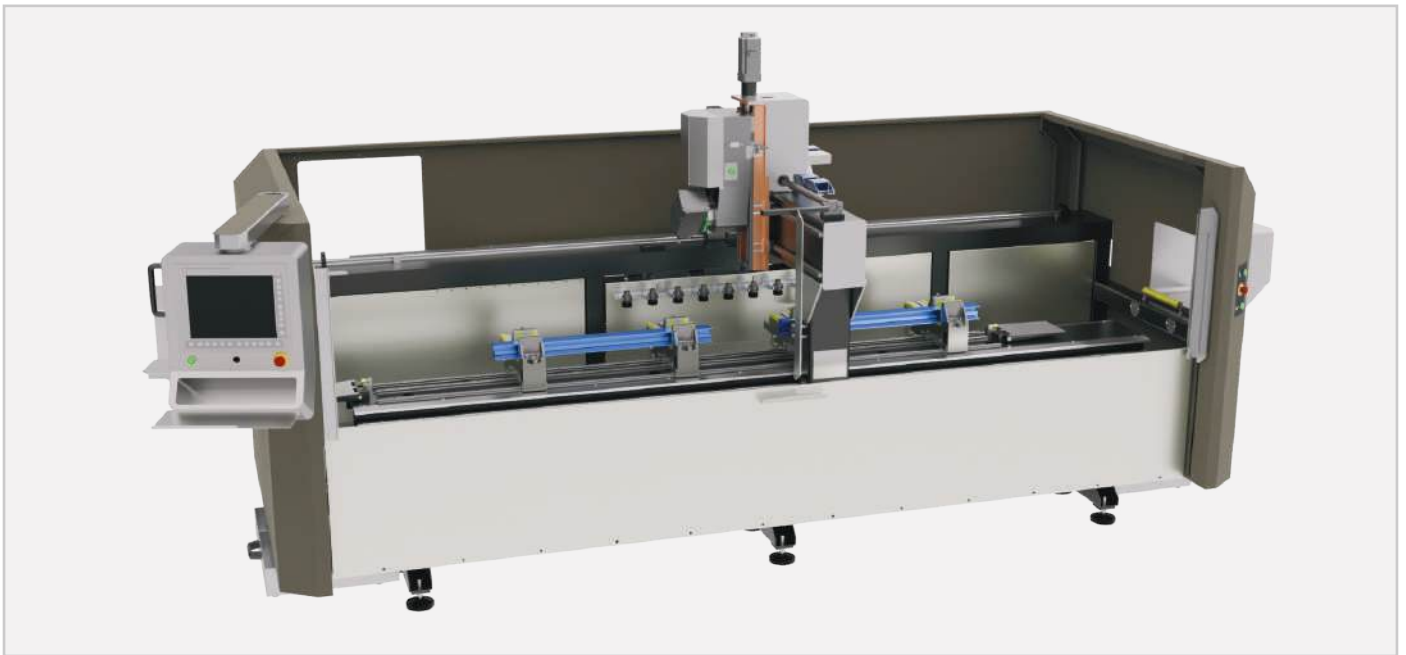


# DOUBLE STATION WORKOUT



## GARNET 5X / 8000

GARNET 5X and GARNET 8000, the most comprehensive members of the GARNET family, offer dual-station cycle capabilities. This feature enables simultaneous or sequential processing of different or identical profiles, significantly enhancing productivity and flexibility.



## GARNET XS4 / XS

The other powerful members of the GARNET family, GARNET XS4 and GARNET XS, can process different or identical profiles in a single operation.



# SCREEN

## GARNET Mini

GARNET Mini offers efficient operation with its user-friendly 10" touchscreen, USB file transfer capabilities, and compatibility with CAM software.



## GARNET XS4 / XS

Experience efficient workflow with the GARNET XS4 and GARNET XS. These powerful GARNET family members feature a 15" industrial touchscreen, USB file transfer, CAM/CAD software compatibility, and remote network connectivity.



## GARNET 5X / 8000

Experience efficient workflow with the GARNET 5X and GARNET 8000. These comprehensive GARNET family members feature a 15" industrial touchscreen, USB file transfer, CAM/CAD software compatibility, and remote network connectivity.



# FANUC INTERFACE

## GARNET Mini

**Key Hole**

TOP BACK BOTTOM ID ◀ 2002 ▶ 2000

Description  
Profile Type  
Profile Name

Y 35.000 mm Depth 2.000 mm Spindle Speed 10000 RPM  
Z 60.000 mm Diameter 25.000 mm Step 0.000 mm  
Length 35.000 mm  
Width 10.000 mm CCW   
Angle 0.00 0 90 180 270

**Main Page** 14:23:18 31/08/23

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Operation List Tool Settings Work Page  
Statistics

Home Settings Manual 0101 Input Output Alarm Page

**Work Page** 09:21:59 04/11/24

Op	ID	Surface	X	Y	Z	
0	0		0.000	0.000	0.000	X 0.000 mm
0	0		0.000	0.000	0.000	Y 0.000 mm
0	0		0.000	0.000	0.000	Z 0.000 mm

Idle Vel % 0 Operation Count 0  
Cut % 0 Spindle Speed 0

Step Loaded file name

Park Hold Reset Laser Clamp

**Manual** 14:30:45 31/08/23

% 10 25 50 100 Step Mode 0.100

X 243.500  
Y 17.000  
Z -60.000

X Y Z (with NEG/POS buttons)

**Settings** 14:33:04 31/08/23

Cooling On Time 0.1 sn  
Cooling Off Time 1.5 sn

Clock 14 : 33 : 4  
Date 31 / 8 / 2023

Brightness

English

**Tool Settings** 14:24:49 31/08/23

TOP BACK BOTTOM ◀ 1 ▶ Active Group 1

Diameter 6.000 mm  
Holder Length 44.000 mm (A)  
Length 35.000 mm (B)  
Feed Inwards 400.000 mm/min  
Cut Feed 600.000 mm/min

Description TESST

TOOL LENGTH = A + B

# GARNET XS4 / XS

Clamp #	Position	Status
1	170.130	OPTION
2	398.300	OPTION
3	1261.000	OPTION
4	2873.000	OPTION
5	OPTION	OPTION
6	OPTION	OPTION
7	OPTION	OPTION
8	OPTION	OPTION
9	OPTION	OPTION
10	OPTION	OPTION

Tool	T1	T2	T3	T4	T5	T6	T7	T8
Length	97.600	155.000	112.670	95.607	0.000	0.000	0.000	0.000
Diameter	6.000	150.000	6.000	10.000	0.000	0.000	0.000	0.000

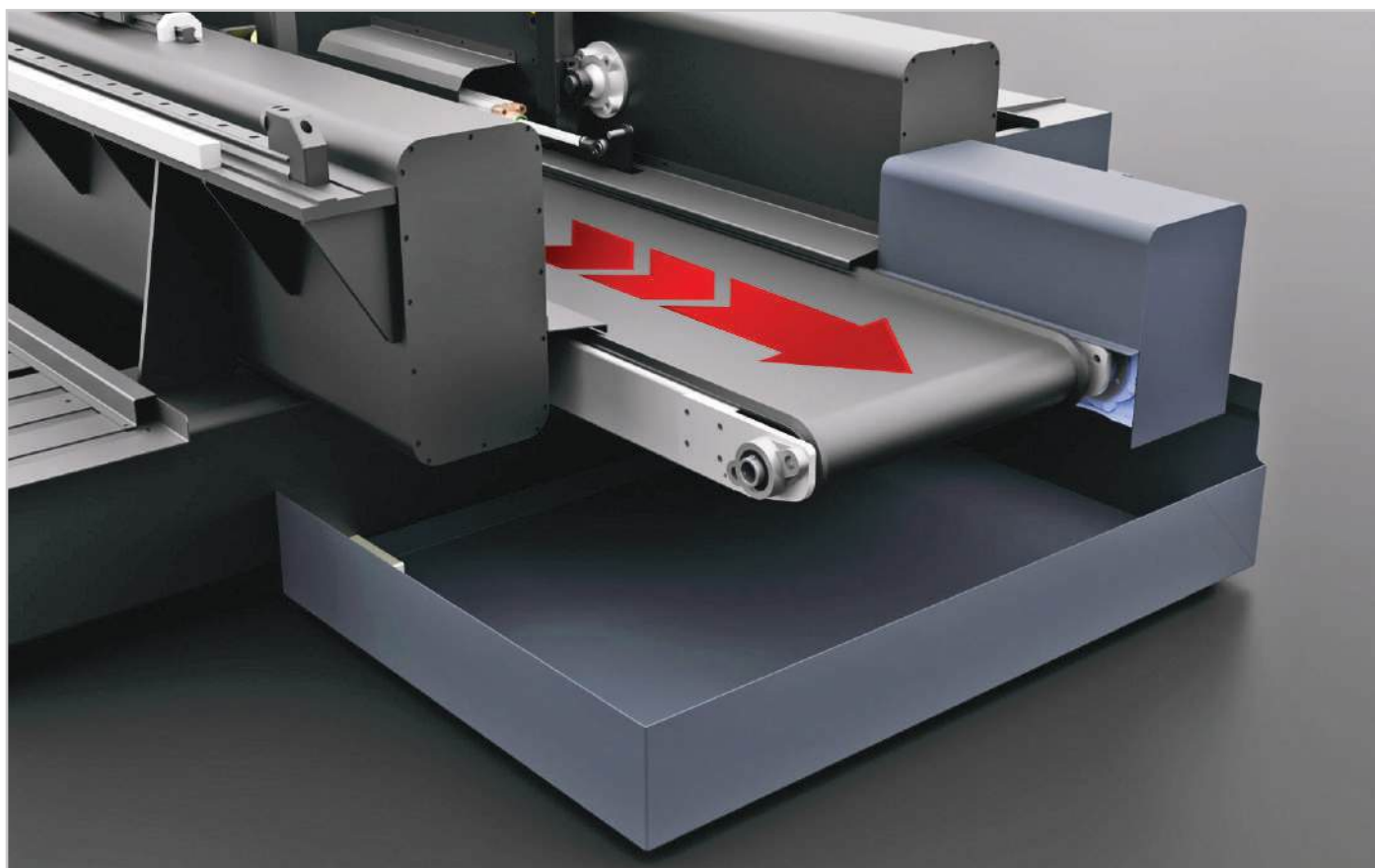
# GARNET 5X / 8000

Clamp #	Position	Status
1	230.000	OPTION
2	891.000	OPTION
3	1762.000	OPTION
4	3068.000	OPTION
5	3944.000	OPTION
6	4780.000	OPTION
7	5974.000	OPTION
8	6362.000	OPTION
9	OPTION	OPTION
10	OPTION	OPTION

Tool	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10
Length	107.000	125.000	116.400	125.000	124.400	113.400	0.000	0.000	0.000	0.000
Diameter	6.000	6.000	10.000	10.000	6.000	3.000	0.000	0.000	0.000	0.000

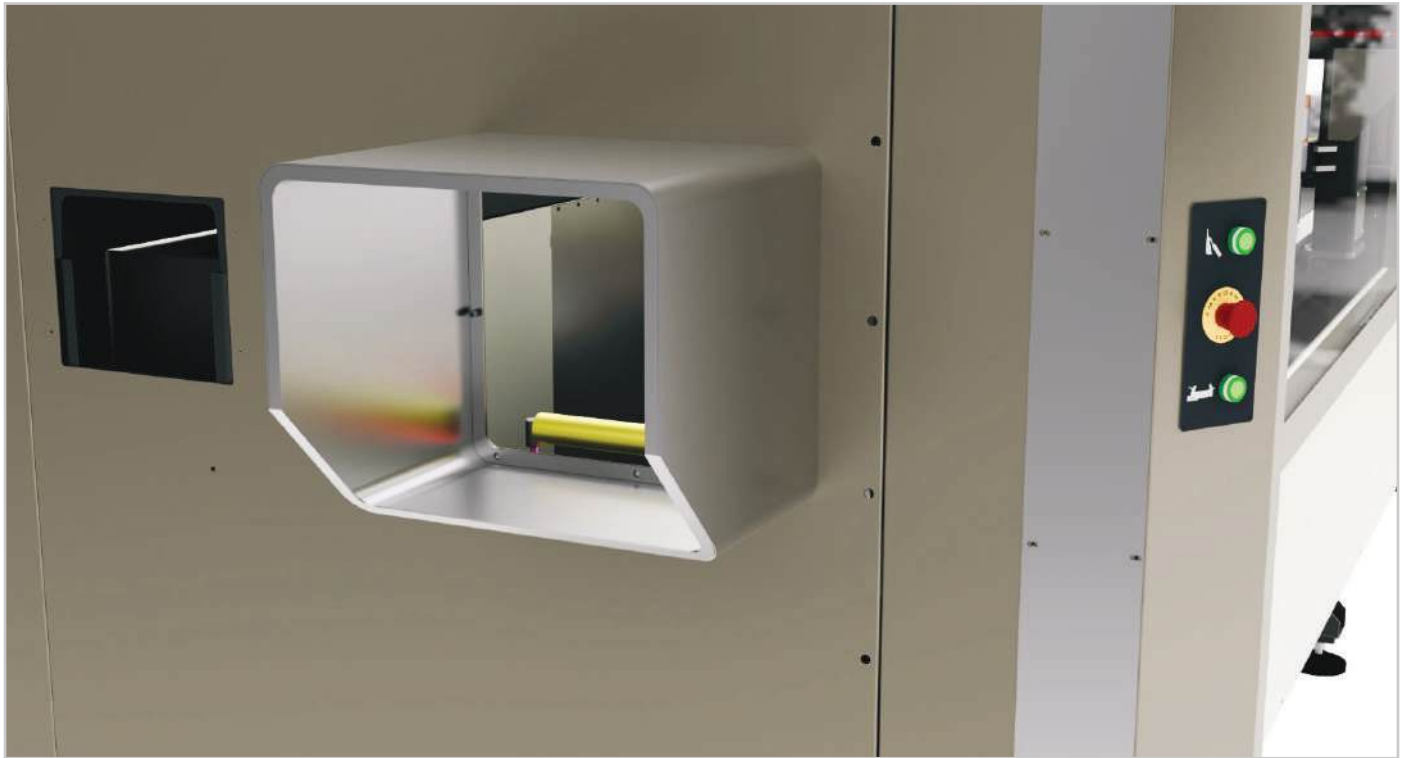
# SAWDUST CONVEYOR

Our GARNET 5X machine, one of the most powerful members of the GARNET family, comes standard with a sawdust conveyor that automatically removes sawdust and wastage from the machining area during operation, creating a clean and safe working environment.



# SIDE TUNNELS

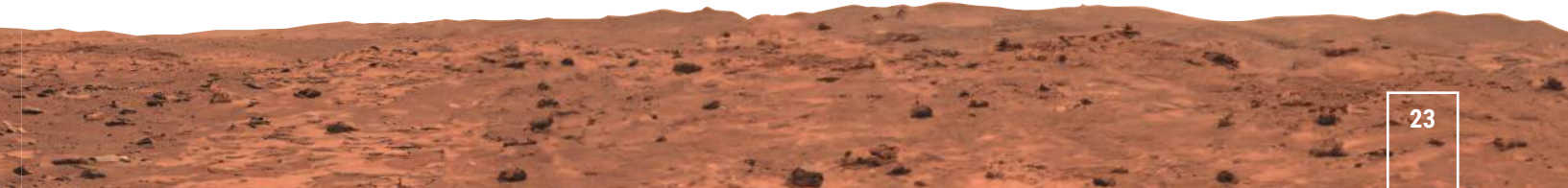
Our GARNET XS4 and GARNET XS machines allow you to process longer profiles thanks to their side tunnels on both sides.



# SPECIAL PROFILES



# SPECIAL PROFILES



# MILLING CAPABILITY



Circular Cutout



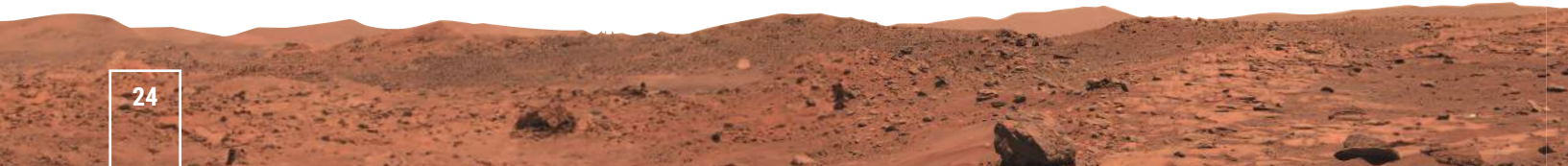
Latches Hole



Rectangular Cutout

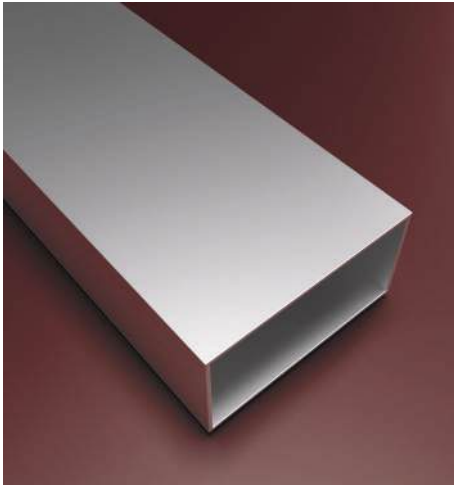


Opening Slot





# CUTTING CAPABILITY



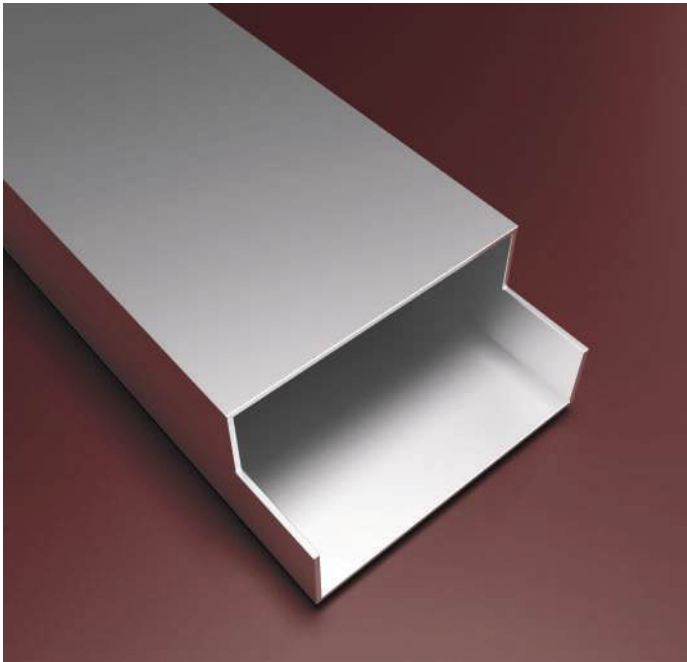
Vertical 90 Cutting



Compound Angle Cutting



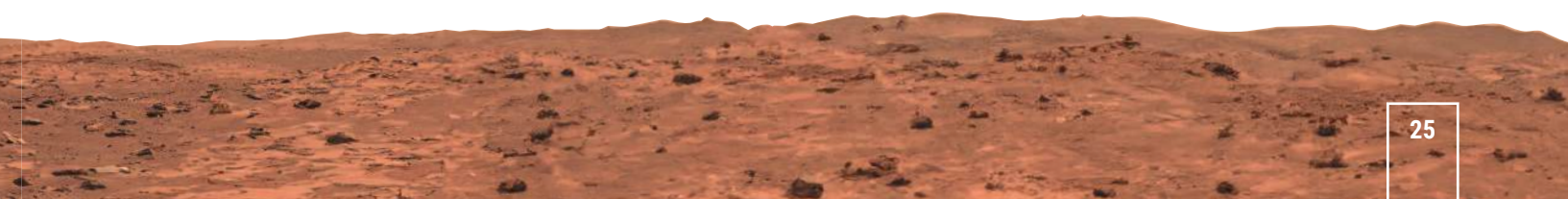
Vertical 45 Cutting



Vertical 90 Cutting



Horizontal 45 Cutting



# MILLING CAPABILITY



Triple Grip Slot



Latches Hole

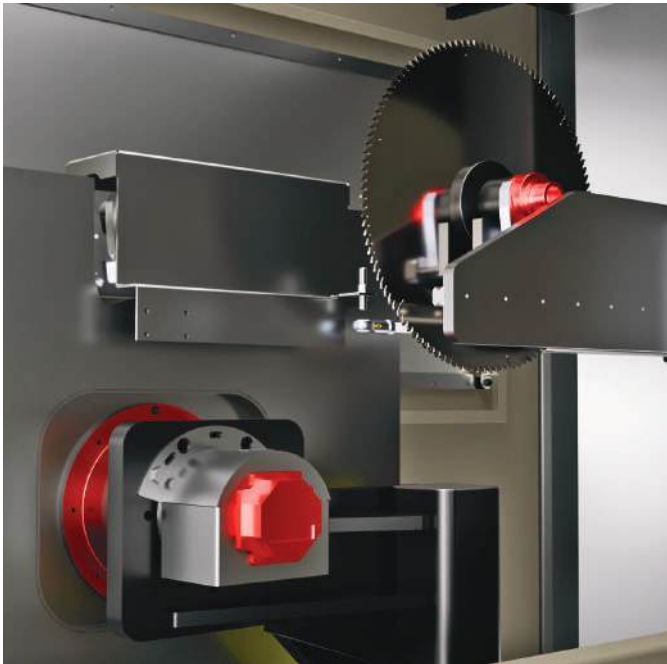


Drain Slot

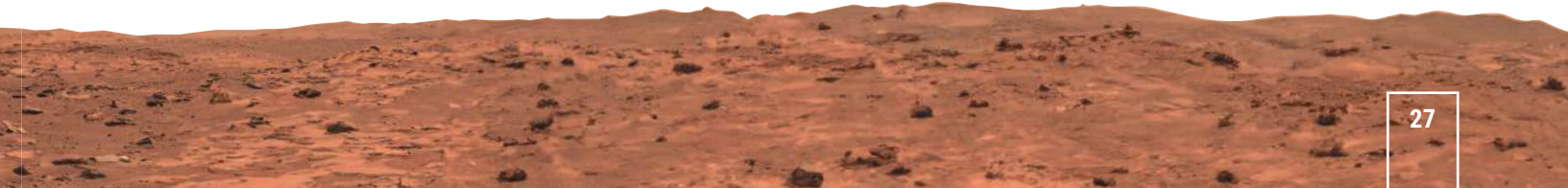
# CUTTING CAPABILITY



Vertical 90 Cutting

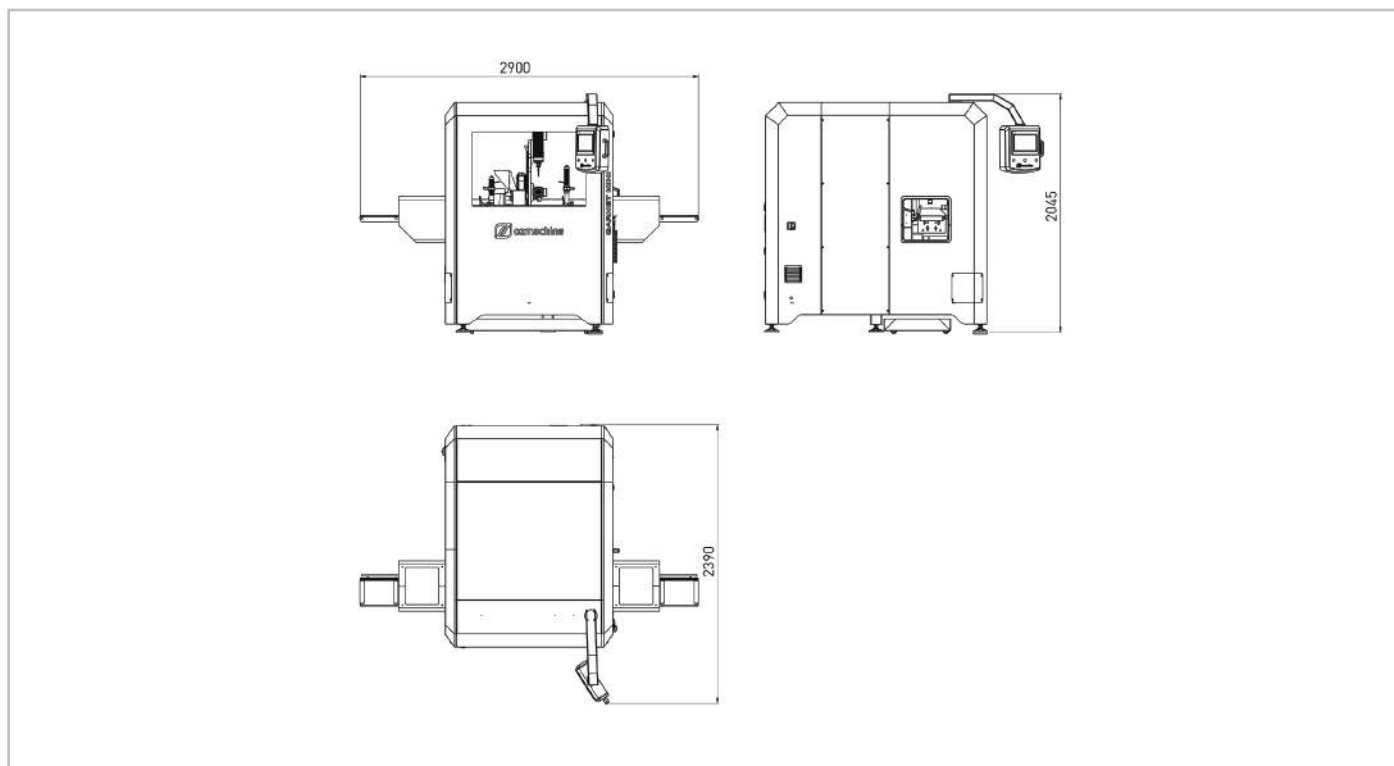


Horizontal 45 Cutting

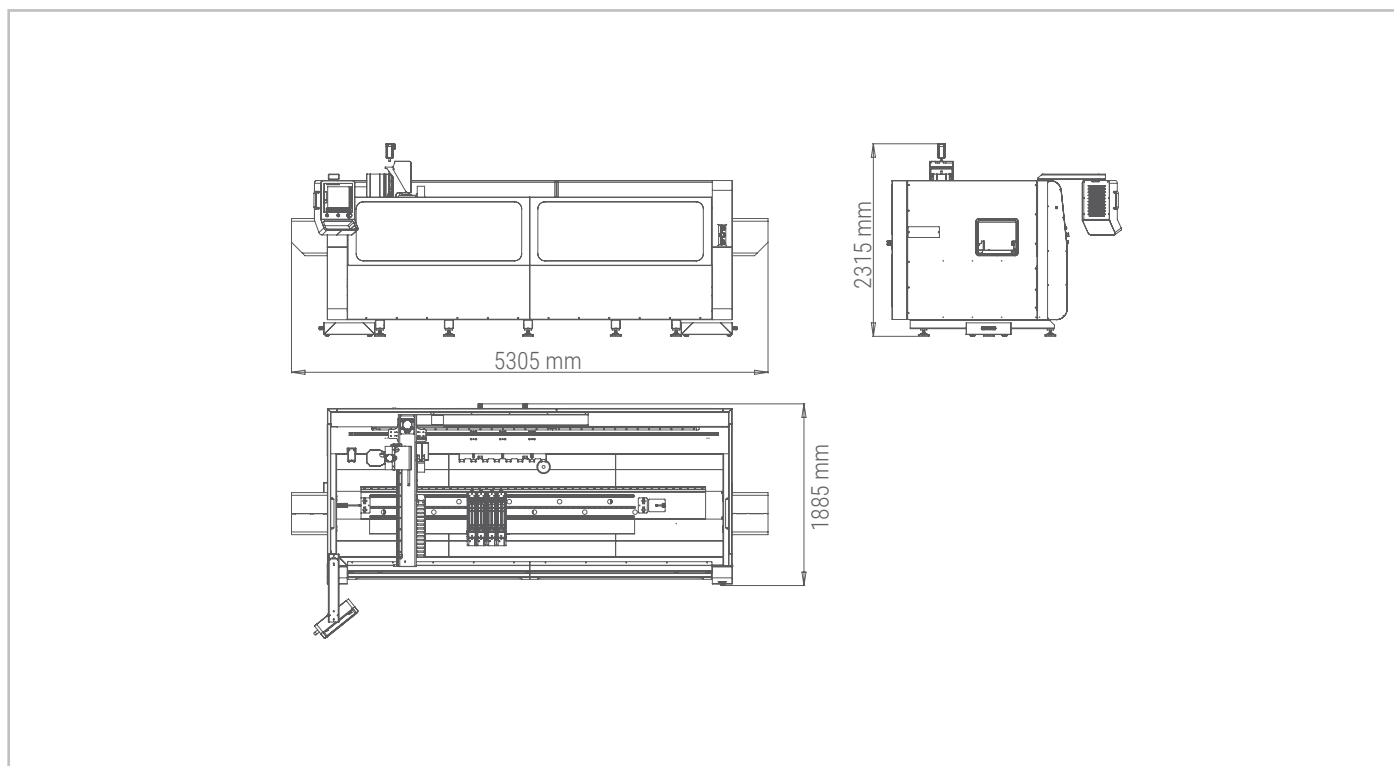


# LAYOUT

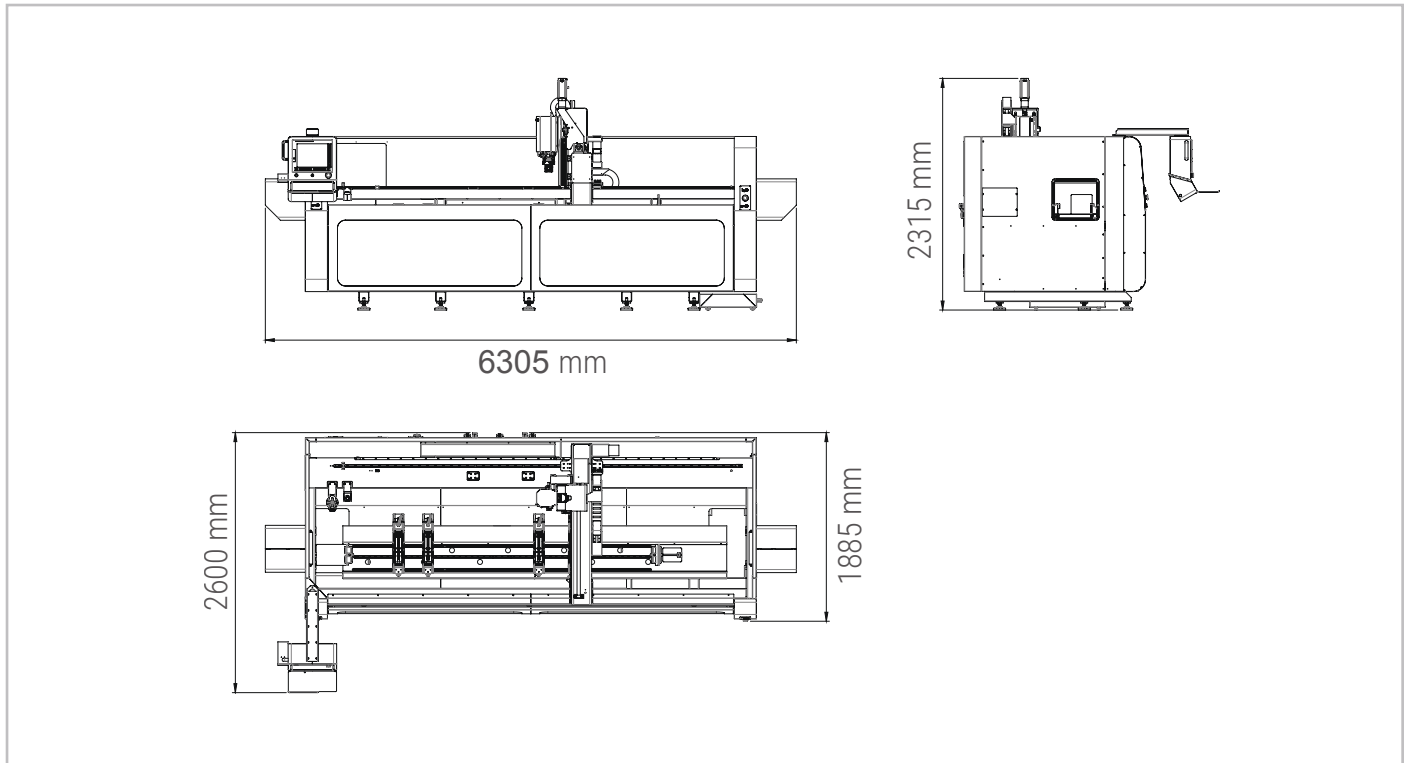
## GARNET Mini



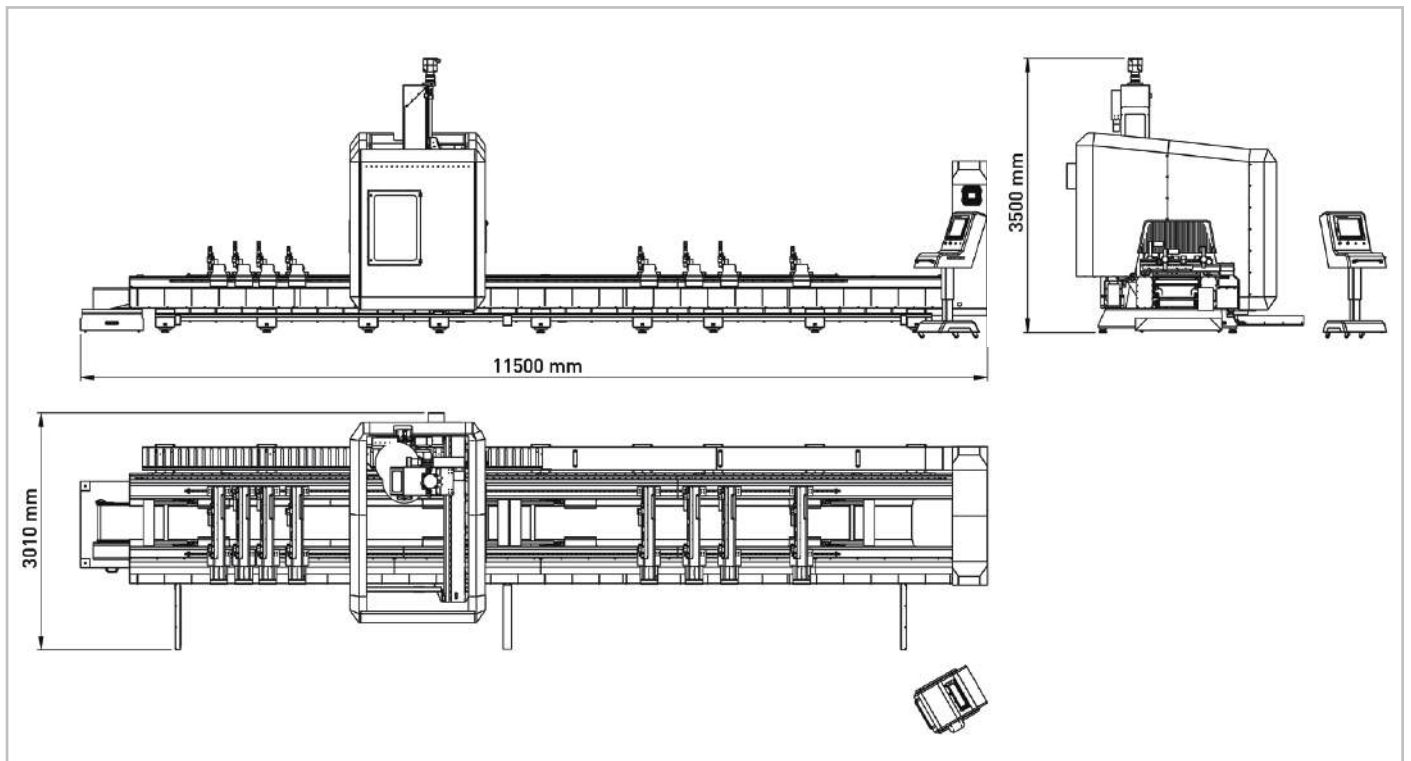
## GARNET XS



## GARNET XS4



## GARNET 8000 / 5X

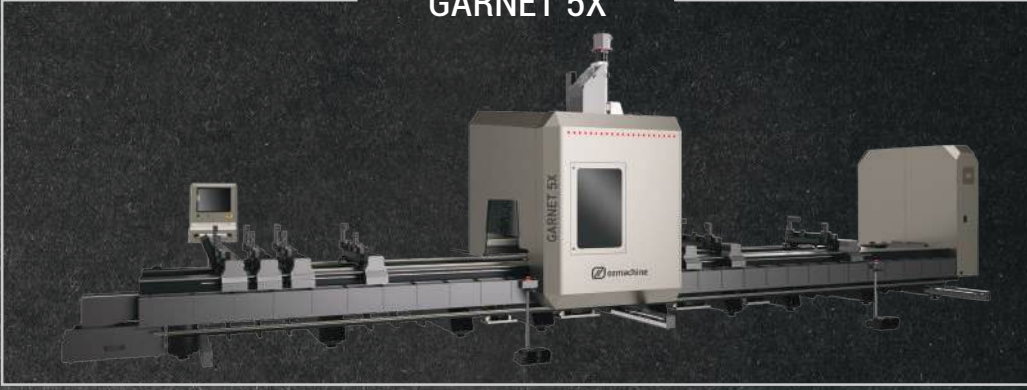


# GARNET SERIES

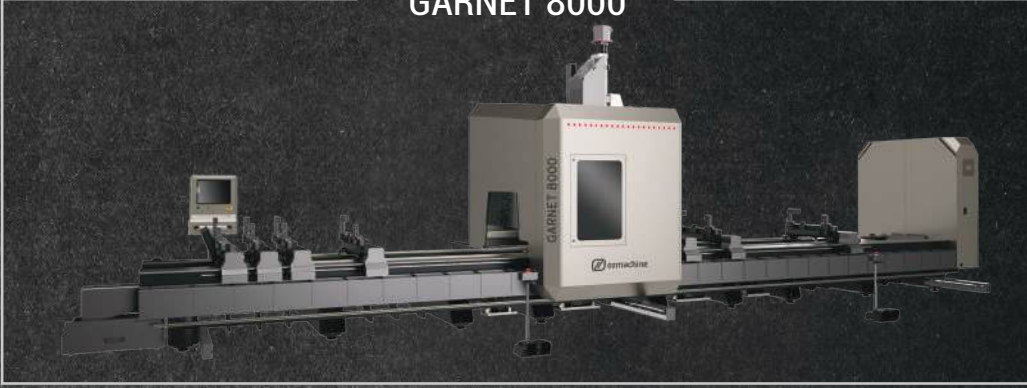
Category Features		GARNET 8000	GARNET 5X
	Machine Function	Milling, water drainage channel cutting, drilling, marking, chamfering operations are performed on aluminum, PVC, and light alloy steel profiles (5 mm). Additionally, custom operations beyond standard procedures are carried out on different profiles	Milling, water drainage channel cutting, drilling, marking, chamfering operations are performed on aluminum, PVC, and light alloy steel profiles (5 mm). Additionally, custom operations beyond standard procedures are carried out on different profiles
AXES and Machining DISTANCES	Single Pass Machining Length X-Axis	8000 mm	8000 mm
	Max. Profile Machining Length (With Right-Left Support)		
	Axis (Quantity)	4	5
	Y-Axis Machining Distance	580 mm	580 mm
	Z Axis Machining Distance	290 mm	330 mm
	A Axis Machining Distance	-90°   +90° (All Angles Between)	-90°   +90° (All Angles Between)
	C Axis Machining Distance		0° / 360°
	Processing Angles with Angular Head		
	Processing Surfaces		
AXIS POSITIONING SPEEDS	X AXES POSITIONING SPEEDS	84 m/min.	84 m/min.
	Y AXES POSITIONING SPEEDS	75 m/min.	75 m/min.
	Z AXES POSITIONING SPEEDS	40 m/min.	40 m/min.
	A AXES POSITIONING SPEEDS	100° /sec.	100° /sec.
	C AXES POSITIONING SPEEDS		100° /sec.
SPINDLE	Maximum Power	11 kW	11 kW
	Maximum RPM	20000 rpm	24000 rpm
	Tool Holder	HSK F63	HSK F63
	Cooling Type	Liquid Cooling	Liquid Cooling
Tool Magazine	Automatic Umbrella-Type Tool Magazine		Standard
	Automatic Sequential Tool Magazine	Standard	
	Maximum Loadable Tool Count	20	20+1
	Maximum Saw Blade Diameter Loadable to the Tool Magazine	180 mm	180 mm
	Automatic Tool Length Measurement System	Standard	Standard
TAPPING CAPACITY	TAPPING CAPACITY	M8 - With a Compensated Tapping Head	M8 - With a Compensated Tapping Head
Profile Positioning	X Number of Profile Referencing on the Axis	4	4
	Pneumatically Operated Right and Left Reference Support		
Control Unit	Industrial PC - Touchscreen	15"	15"
	Automation System	FANUC	FANUC
	Remote Network Connection, Data Transfer via Ethernet and USB	Standard	Standard
	Barcode Reader	Standard	Standard
	Camquix CAM Program	Standard	Standard
	CadXtract CAD-CAM üretim programı	Optional	Optional
Electricity	Maximum Power	18,3 kW	17 kW
	Voltage	400V 3P,N,PE AC	400V 3P,N,PE AC
	Frequency	50-60 Hz	50-60 Hz
AIR	Pressure	6-8 Bar	6-8 Bar
OPERATIONAL AREA	Processable steel profile thickness	5 mm	5 mm
	Clamps, standard pcs	8	8
	Clamps, maximum pcs	10	10
	Automatic clamp positioning with the X-axis	standard	-
	Servo-controlled automatic clamp positioning system	optional	standard
	Automatic lubrication in processing area	standard	standard
	Cabinet providing protection in processing zone	standard	standard
	Safety barrier (sensor)	standard	standard
	Automatic lubrication system	optional	optional
	Automatic sawdust discharge unit (8 m)	optional	standard
FESTO pneumatic system	optional	optional	

GARNET XS		GARNET XS4		GARNET MINI	
Milling, water drainage channel cutting, drilling, marking, chamfering operations are performed on aluminum and PVC profiles. Additionally, custom operations beyond standard procedures are carried out on different profiles.		Milling, water drainage channel cutting, drilling, marking, chamfering operations are performed on aluminum and PVC profiles. Additionally, custom operations beyond standard procedures are carried out on different profiles.		The Copy Milling Featured Compact Machining Center (3 axes) is designed for performing operations on three surfaces of aluminum and PVC profiles. It is equipped with parametrically programmed templates for tasks such as creating lock slots, handle locations, hinges, espagnolette slots, channel cutting, etc. The machine is specifically designed for copy milling operations on aluminum and PVC profiles.	
3000mm	3000 mm	2750 (Max) / 660 (Min)	X axes (Longitudinal/Length) - mm		
6000mm	6000 mm	175 (max)	Y axes (Horizontal/Width) - mm		
3	4	350	X axes maximum movement (longitudinal) - mm		
340mm	340 mm	300	Y axes maximum movement (Horizontal) - mm		
255mm	255 mm	340	Z axes maximum movement (Vertical) - mm		
	-90°   +90° (All Angles Between)	350 (max.)	X axes maximum movement (Longitudinal) - mm		
		150 (max.)	Y axes maximum movement (Horizontal) - mm		
		120 (max.)	Z axes maximum movement (Vertical) - mm		
	'-90°   +90°	3	Engine (qty.)		
	-90°   0°   +90° ( Front, Top, and Back Surface)	3	Engine Power (Kw)		
		18.000	Engine rotation speed (rpm)		
90 m/min.	90 m/min.	ER20	Milling Tool Holder (Pens)		
60 m/min.	60 m/min.	300	Frequency (Hz)		
20 m/min.	20 m/min.	1-13 mm	Milling Diameter (According to ER 20) - mm		
	166° /sec.	Ø6	The standard milling cutter diameter on the machine (mm)		
		80	Length of Milling (With Mill Tip and Pens Mouth)- mm		
5,5kW	5,6kW	Air (Fan)	Cooling Type		
24000 rpm	20000 rpm	10 " - Touchscreen	Screen/Panel		
ISO 30	HSK F50	PLC	Control System		
Electric Fan	Liquid	OMRON	Automation/Software		
		Yes	File transfer via USB		
		Optional	Compatibility with CAM software		
Standard	Standard	3	Servo Engine (qty)		
8+1	8	0,75 Kw	Servo Engine Power (Kw)		
150 mm	150 mm	50	Servo Engine Frequency (Hz)		
Standard	Standard	30 m/min	X Axis Rapid Maximum Speed		
		30 m/min	Y Axis Rapid Maximum Speed		
M8 - With a Compensated Tapping Head	M8 - With a Compensated Tapping Head	30 m/min	Z Axis Rapid Maximum Speed		
		3 + 1 : 4	Processing Surface (qty.)		
		3: (Top + Bottom + Rear) : Automatically 1: (Front) : Manually Rotating	Processing Area Protective Cabin (Pneumatically Operated Enclosure)		
		Yes	Clamp(Pneumatic) - qty.		
Standard	Standard	2 (Vertical) / 2 (Horizontal)	Conveyor (Right and Left)		
		Yes	Profile Support System (Right and Left)		
15"	15"	Yes	Laser Marking		
FANUC	FANUC	Yes	Automatic Lubrication in the Processing Area (Spray Cooling System)		
Standard	Standard	Yes	Maximum Power (Kw)		
Standard	Standard	12	Voltage (v)		
Standard	Standard	400	Frequency (Hz)		
Optional	Optional	50-60	Pressure (Bar)		
		6 - 8	Air Consumption( L/dk )		
8,46 kW	8 kW	40	Weight (kg) - Net		
400V 3P,N,PE AC	400V 3P,N,PE AC	800	Dimensions (Length x Width x Height) - mm		
50-60 Hz	50-60 Hz	2897 (with Conveyor) x 2327 x 2044	Side Tunnels		
		Yes (Right and Left)	Protection Cabin		
6-8 Bar	6-8 Bar	Yes			
4	4				
6	6				
standard	standard				
standard	standard				
standard	standard				
optional	optional				
standard	standard				

GARNET 5X



GARNET 8000



GARNET XS4



GARNET XS



GARNET Mini



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