



AUTOMATED ULTRASONIC COMPOSITE CUTTING

a SONIMAT solution



Ultrasonic cutting and surfacing equipments for honeycomb (nomex, aluminum) and composite materials

We offer a complete range of ultrasonic cutting and surfacing end-effectors that can be embedded on CNC machines, cutting tables or robot cells.

The ultrasonic process allows a perfect and accurate cutting operation. High-frequency vibration of the sonotrode prevents any adherence and thereby reduces the needs for maintenance operations. **Its allows cauterization in order to avoide fibers peeling/delaminating.**

HOW DOES IT WORK?

Our generator sends an ultrasonic signal to the end-effector which converts it into a mechanical vibration up to 40 000Hz. However, the ultrasonic vibration is not transmitted to the machine spindle. Each effector is equipped with automated cooling of the ultrasonic components and is connected to the generator using a coaxial cable.

CNC MACHINE & ROBOT CELL

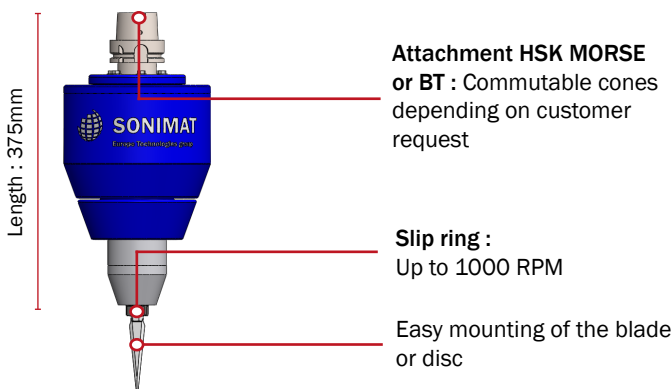
SONIBLADE L - Cutting & surface machining end-effector

Features :

- Ultrasonic generator : 20 KHz

Materials :

Honeycomb : NOMEX, Kevlar, Aluminium



+ Manual connection or automated connection in option - to fit customers' requirements



Application on CNC machine : NOMEX honeycomb cutting (thickness 70mm) with 125mm blade.



Application on robot cell. NOMEX honeycomb surface machining (thickness 30mm) with Ø63mm disc.

SONIBLADE M - Cutting end-effector

Features :

- Ultrasonic generator : 20 KHz
- Cutting speed limited to the mechanical properties of the machine
- Possibility to integrate the automated connection
- Possibility to integrate mechanical clamping for robot
- Length : 348mm

Materials :

Dry fibers, prepregs, elastomer

XY CUTTING TABLES

SONIBLADE T - Cutting end-effector

Features :

- Ultrasonic generator : 30 KHz
- Cutting speed limited to the mechanical properties of the machine (until 50/70 m/mn)
- Slip Ring : In order to turn more than 360°
- Length : 350mm

Materials :

Dry fibers, prepregs, honeycomb/core materials, elastomer

ATL/AFP MACHINES & ROBOT CELL

SONIBLADE S - Cutting end-effector

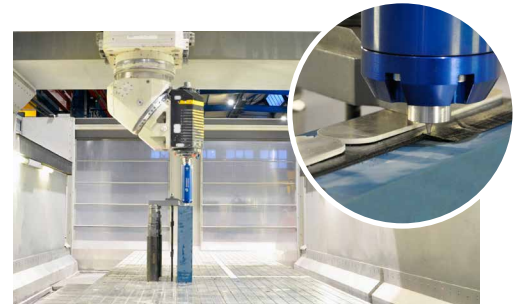
Features :

- Ultrasonic generator: 40 KHz
- Maximum cutting thickness : 2mm
- Easy integration on the machine: reduced end- effector size

Materials :

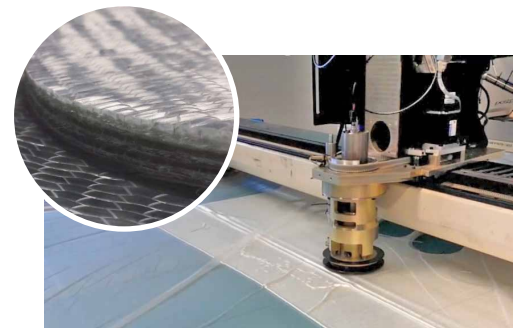
Dry fibers, prepregs

BLADES & DISCS



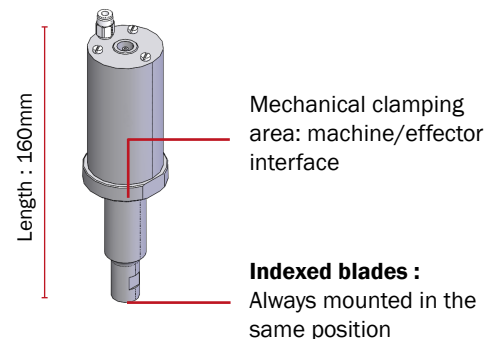
Application on CNC machine :

Cutting of preformed carbon prepreg 4mm thickness.



Application on XY cutting table :

Cutting of glass fiber, 7 layers (approx. 15mm), 25m/min.



	Range of blades : screwed in indexed position (length in mm)												Range of rotative discs (ø in mm)			
	4	8	10	15	25	30	35	40	50	78	80	125	15	18.3	50	63
SONIBLADE L						X		X	X	X	X	X	X	X	X	X
SONIBLADE M	X	X	X	X	X		X									
SONIBLADE T	X	X	X	X												
SONIBLADE S	X	X	X	X												