



# TECHNICAL DATA SHEET

## SK3SSP

Manual device for ultrasonic cutting and welding applications

### ► DESCRIPTION

SK3SSP is a manual ultrasonic portable system that is used for cutting of dry fibers, prepreg material and honeycomb up to 35 mm as well as for welding of prepregs and thermoplastic composites. Our model allows welding and assembly operations on composite and thermoplastic materials (PEEK, PA, PEI) and pre-positioning of thermosetting composites.

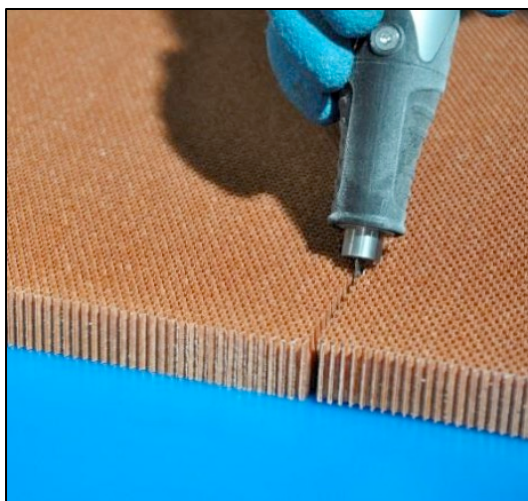
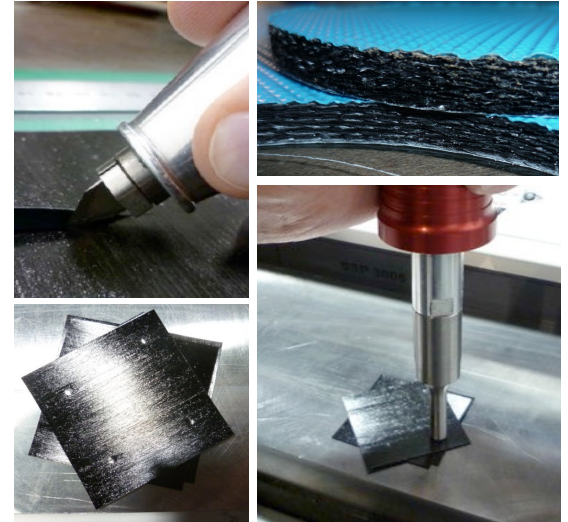
System SK3SSP is available with Ultrasonic (US) generator with frequency of your choice in 20, 30 or 40kHz.

► Cutting applications are ONLY available with the 20kHz generator.

► Welding applications are available with the 20, 30, 40kHz generators.

The choice of generator depends on material to weld.

For example choosing 20kHz SK3SSP allows using the cutting device and welding device with the same generator.



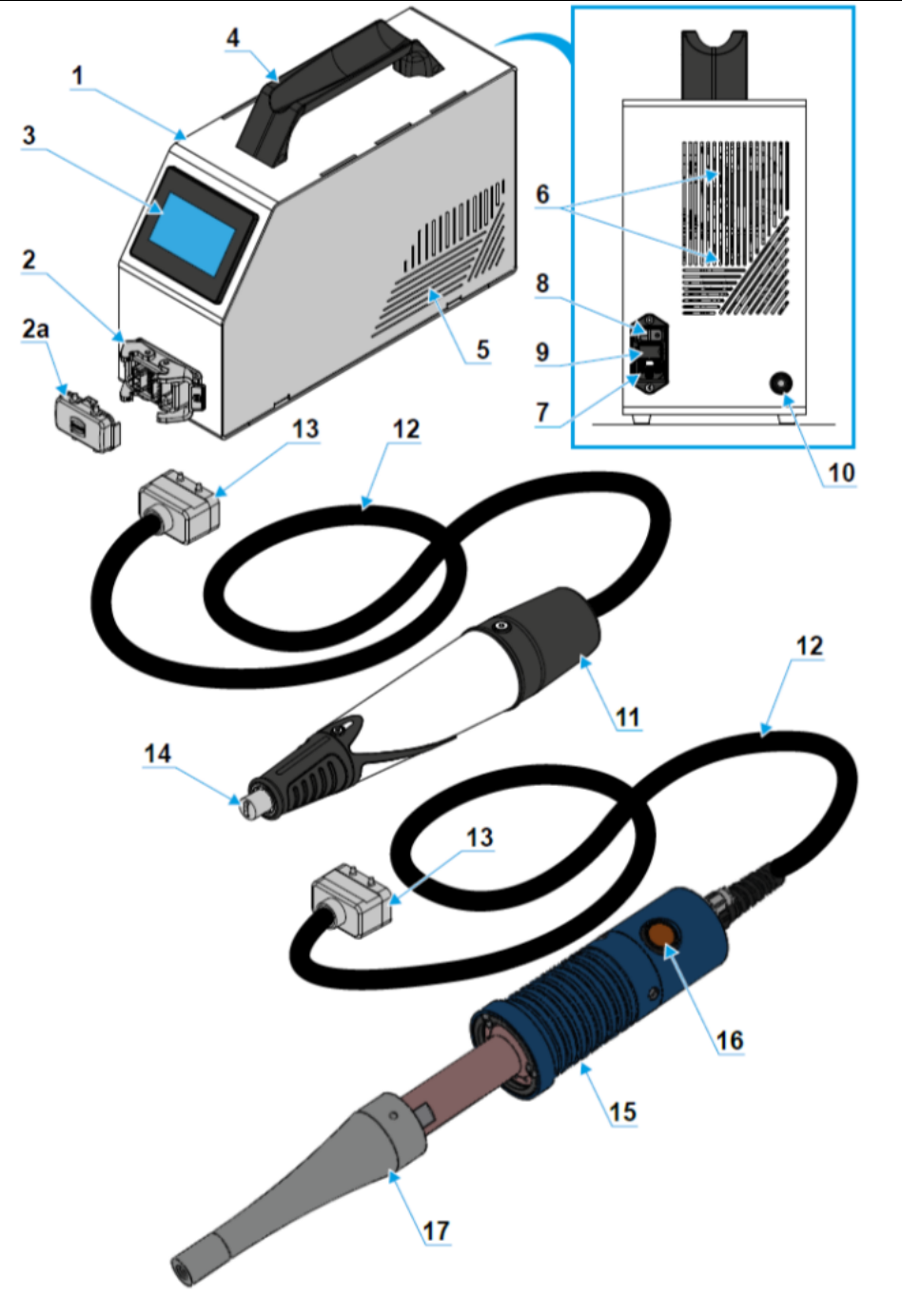
Reducing cutting effort

- No grip on tool
- Embeddable solutions
- Easy handling and set-up



Improving cutting quality

- No thermal degradation
- No fraying
- No dust

Scheme	N°	Item
	1	Generator
	2	Harting connector
	2a	Harting connector cap
	3	Touchscreen
	4	Carrying handle
	5	Side ventilation grille
	6	Rear ventilation grilles
	7	Power outlet
	8	On/off switch
	9	Fuse
	10	Pneumatic connection (Ø 6)
	11	Cutting handle
	12	Power cord
	13	Harting connector
	14	Sonotrode
	15	Ergonomic welding handle
	16	Button
17	Sonotrode	

#### ► CUTTING APPLICATION



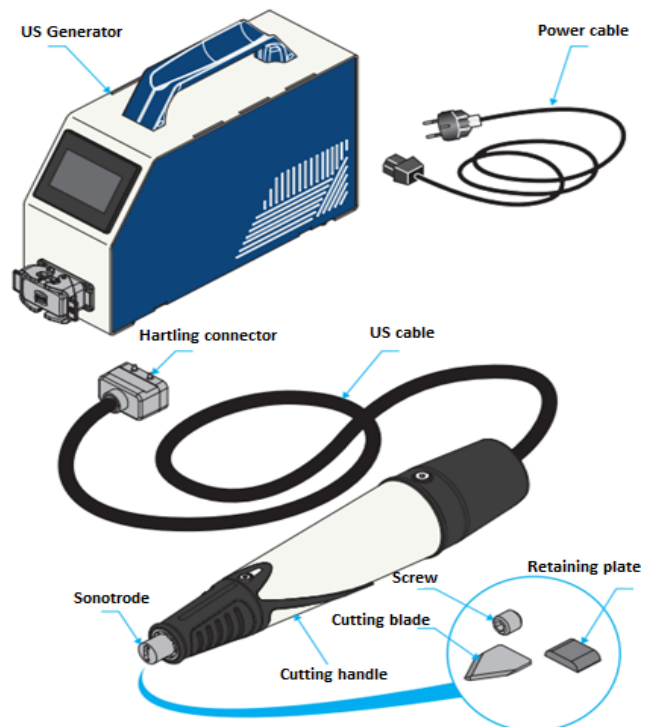
Blade: single layer blade



Blade: 8mm blade  
Material thickness: 3 layers

#### Content of set for cutting applications:

- Ultrasonic generator 20 kHz
- Cutting effector including
  - Small cutting handle with US cable of 3 m or 5m or 10m / or large cutting handle of 3m
  - Harting connector
- 1,5 m power cable
- User manual



Blades need to be ordered separately.

See bellow table “COMMUTABLE CARBIDE BLADES FOR CUTTING”



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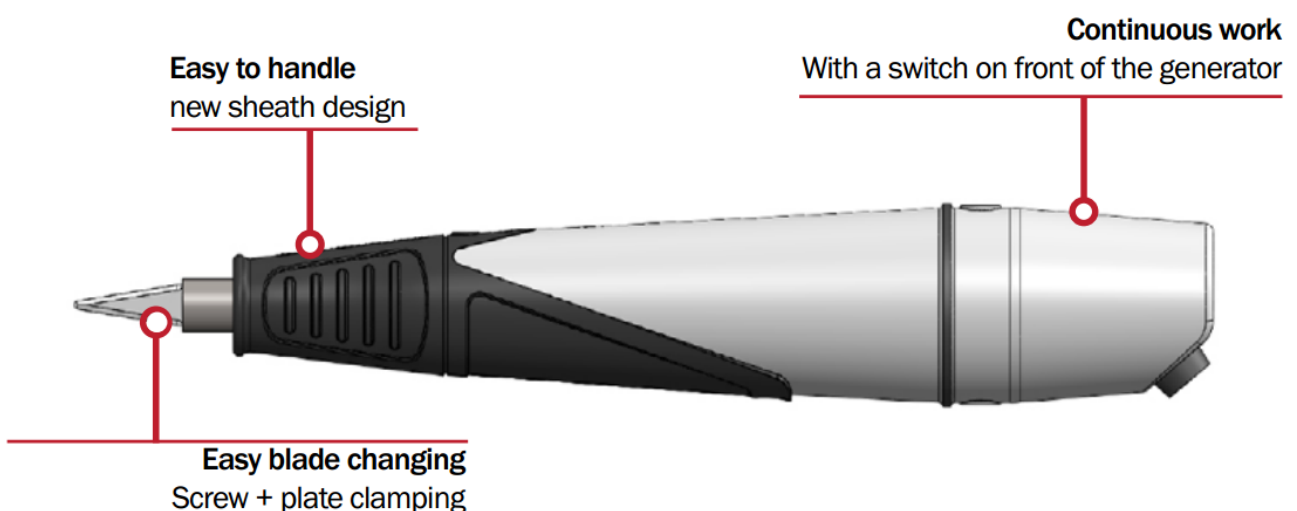
Manual device for ultrasonic cutting and welding applications

### Optional or spare items:

- 5 m ultrasonic wire
- 10 m ultrasonic wire
- Hexagone tips for screw driver
- Dynamometric screw driver
- Set of 30 clamping plates
- Set of 30 clamping screws
- Set of 10 carbide blades for cutting (6 types)

### ADVANTAGES

- No fraying
- Cutting effort reduced
- Increased blade life-time
- Cauterization (Composites TP)
- Easy to handle: designed aluminium sheath
- Continuous work: with a switch on front of the generator
- Easy blade changing: screw+plate clamping
- Commutable carbide blades



Picture 2: Small cutting blade handle ( $\varnothing$  x L): 50 x 255 mm





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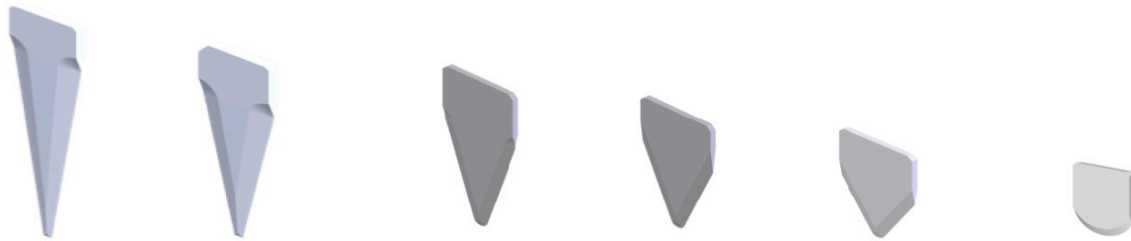
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### ► HANDLE

The handle is connected to the generator via coaxial wire. It supports the converter which basically converts the electrical signal into mechanical ultrasonic vibrations. The knob allows a discontinuous work mode. Horns are screwed at the endpoint of the handle.

You can chose between large and small handle, due to the blades you intent to use.



Blade  
35mm

Blade  
25mm

Blade  
15mm

Blade  
10mm


Blade  
8mm

Blade  
4mm

-----  
Large blade handle

-----  
Small blade handle

### ► COMMUTABLE CARBIDE BLADES FOR CUTTING






Reference	Name	Visual	Applications
SK3SSP-B4C	Monoply blade 4 mm blade		<ul style="list-style-type: none"> <li>▪ Single-ply cutting</li> <li>▪ Small thicknesses (<math>\leq 2\text{mm}</math>)</li> <li>▪ Highly deformable fabrics</li> </ul>



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SK3SSP-B8C	8 mm blade		<ul style="list-style-type: none"> <li>▪ Multipurpose, for thicknesses of <math>\leq 7</math>mm</li> <li>▪ Matches with most of cutting applications</li> <li>▪ Prepregs or semi-polymerised composites</li> </ul>
SK3SSP-B10C	10 mm blade		<ul style="list-style-type: none"> <li>▪ Dry fibers composite</li> <li>▪ Matches with most of cutting applications</li> <li>▪ Prepregs or semi-polymerised composites</li> </ul>
SK3SSP-B15C	15 mm blade		<ul style="list-style-type: none"> <li>▪ Dry fibers composite</li> <li>▪ Matches with most of cutting applications</li> <li>▪ Prepregs or semi-polymerised composites</li> </ul>
SK3SSP-B25C	25 mm blade		<ul style="list-style-type: none"> <li>▪ Large height</li> <li>▪ Restricted access</li> <li>▪ Angle cutting</li> <li>▪ Prepregs, semi-polymerised and dry fibers composite</li> <li>▪ Monolithic or sandwich structures</li> <li>▪ Foam, honeycombs</li> </ul>
SK3SSP-B35C	35 mm blade		<ul style="list-style-type: none"> <li>▪ Large height</li> <li>▪ Restricted access</li> <li>▪ Angle cutting</li> <li>▪ Prepregs, semi-polymerised and dry fibers composite</li> <li>▪ Monolithic or sandwich structures</li> <li>▪ Foam, honeycombs</li> </ul>

Minimum order quantity for each reference of blade is 10 pce



#### ► WELDING APPLICATION

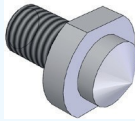
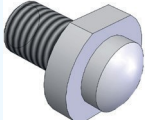
Our equipment allowing welding up to 25 folds is perfect for pre-positioning the folds before manipulation.

- Allows the maintaining of thermoplastic composites stacking before handling
- Prepreg fabrics: powder, films, co-mingles, consolidated plates, ribbons
- Matrixes: PA, PPS, PEI, PEEK, PEKK etc.
- Welding cycle management
- Transferred energy management
- Welding time management
- Range tuning
- Titanium horn
- Commutable nozzles

#### Content of set for welding applications:

- US generator for 20 kHz or 30 kHz or 40 kHz
- Welding effector including
  - Converter
  - Sonotrode
  - Welding handle with US cable 3m or 5m
  - Harting connector
- 1,5 m power cable
- User manual

#### ► COMMUTABLE WELDING NOZZLES

Reference	Name	Shape	Applications
SK3SSP-WNF1	Welding nozzle conical F1 Conical		Prepregs fabrics and Thermoplastics
SK3SSP-WNF2	Welding nozzle curve F2 Radial		

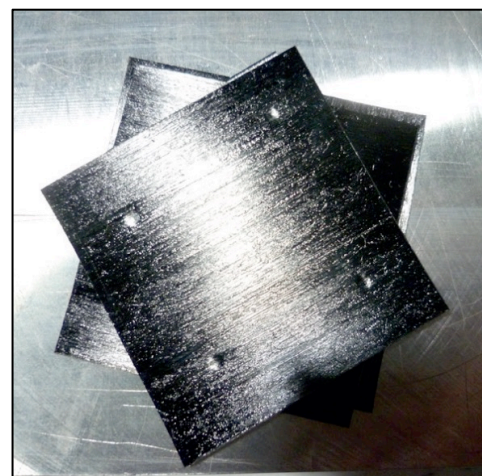
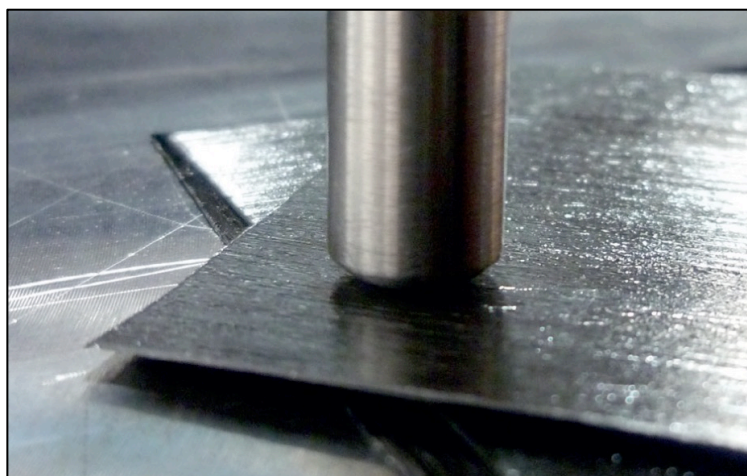


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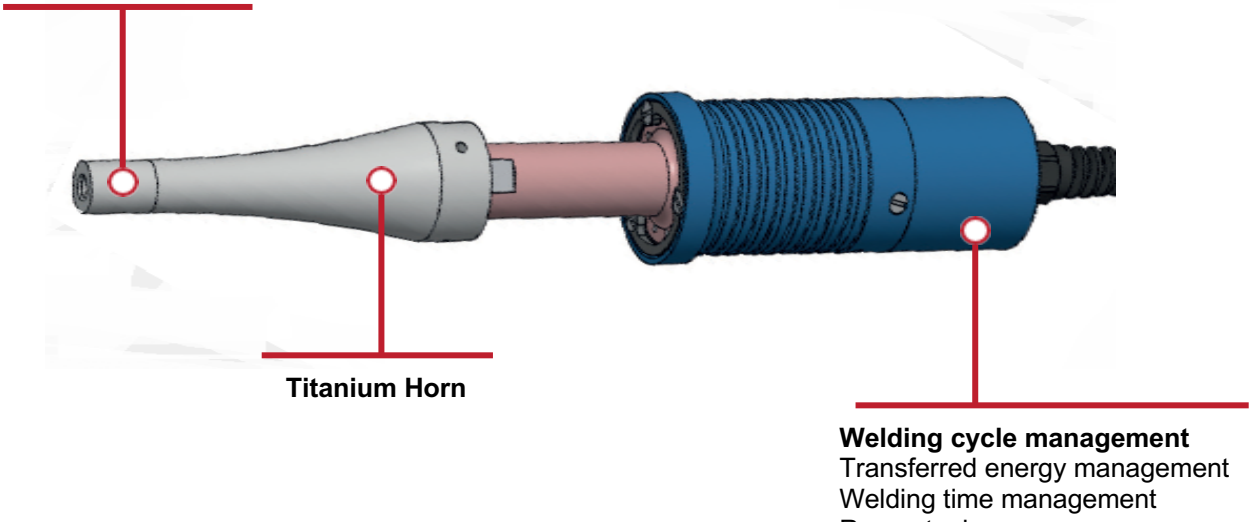
SK3SSP-WNA1	Nozzle with steps (A1)		Thermoplastics
SK3SSP-WNA2	Nozzle with steps (A2)		
SK3SSP-WNE	Staking nozzle		
SK3SSP-WNB	Welding nozzle B Flat		
SK3SSP-WNB1	Welding nozzle B1 Diamond dots 0,5 mm		
SK3SSP-WNB2	Welding nozzle B2 Diamond dots 1,0 mm		



Ultrasonic prepositioning of TP carbon peek layer

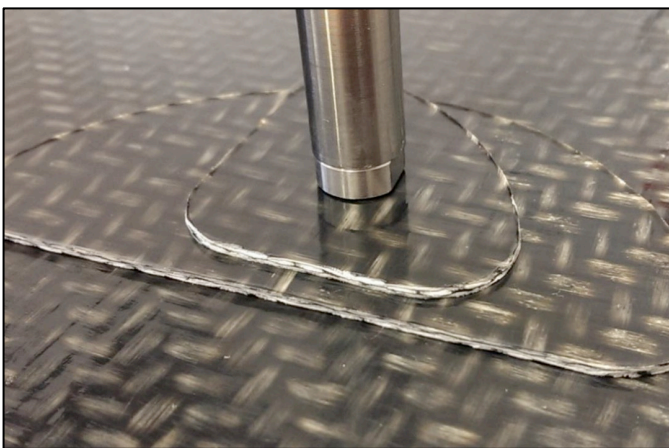


Commutable nozzles

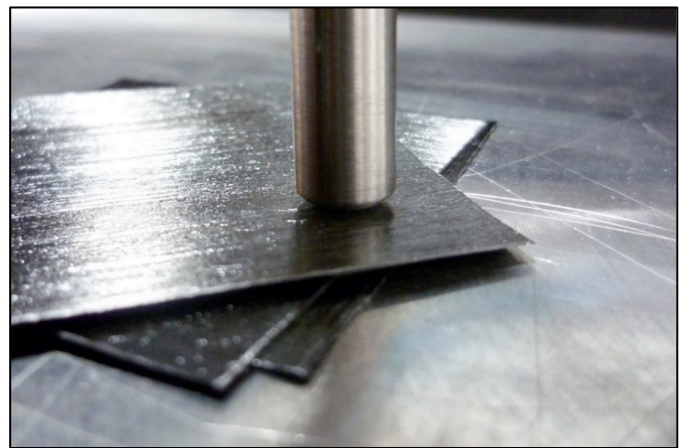


**Welding cycle management**  
 Transferred energy management  
 Welding time management

Picture 3: Welding handle



Welding of consolidated layer in PA glass wire



Ultrasonic prepositioning of TP carbon PEEK layer



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### ► GENERATOR

Parameter	Value
Electrical power	230 V $\pm$ 10% single-phase earthed 50/60 Hz
Rated power	600 W
Generator type	GT SSP (digital)
Rated frequency	20 kHz (Cutting) 20, 30 or 40KHz (Welding) Depends on material type and thickness
Average number of operating hours per day	8 hours
Average number of operating days per year	300 days
Overall generator dimensions (W x L x H)	150 x 487 x 324 mm

### ► NOTE

Please contact us to get further information, as well as to make an equipment design according to your technical specification.  
Standard warranty period: 12 months.