

# Ultrasonic High Tech Equipment For Textile Industry

## OVERVIEW

ROOP ULTRASONIX LTD (RTUL) is a joint venture with a well known Ultrasonic Machine Manufacture. RTUL is a leader in design, development, manufacturing and marketing of a wide range of Ultrasonic machine. It has the most modern manufacturing facilities at Gandhinagar in Gujarat and at Mumbai, with well equipped application laboratory, tool room and machine shop, sophisticated testing and designing center and high-tech measuring instruments.

Ultrasonic energy has found extensive use in textiles and their downstream processing. Many of these uses are based on the ability to use ultrasonic energy to induce heat and pressure by vibratory action. ROOP ULTRASONIX LIMITED offers online ultrasonic cutting and sealing systems for cut and seal application in one operation for textile, woven sacks/plastics. Apart from standard model we also offer tailor made horns, sealing wheels, cutting wheels and fixtures as per customer's application and machine setup.

## Applications

### Typical Textile Application

**Acrylic-** Filters,awnings,blankets,garment etc  
**Nylon-** Carpets, hook and loop material,seat belts etc.  
**Polyster-**Conveyor belts,filters,garments,laminates etc.  
**Polyethylene-**Laminates,resealable bags etc  
**Polypropylene-** Bags,carpet backing, snack food packaging,disposable garments etc.  
**PVC-** Films,shrink packaging, tarpaulins etc.  
**Urethane-**Rainwear, coated materials etc.



### Applications in particular

#### On Loom

The ultrasonic cutter can be integrated on circular looms for online continuous sealing or cutting and sealing of circular/tubular fabrics into flat fabric, with uniform, clean and stable selvage. This is essential for Woven Sack,Geo Textiles,Tarpaulin, Ground Covering.



#### Packaging

Ultrasound technology is applicable in fully automated lines for:-

Flat Pouches (welding step by step).  
 Horizontal flow pack (continuous Welding)  
 Aluminum polythene (welding step by step)  
 Moulded injection tubes.



#### Industrial Textiles

Within industrial fabrics arena where small width fabric is required with non-fraying and stable edge. Ultrasonic slitting is the optimal technique of fabric cutting. Ultrasonic slitting process prevents unraveling of woven or knitted material by sealing the slit edge.

**Other Industries-** Ultrasonic Cutting is also useful for cutting synthetic textile fabrics like Satin, Velcro, etc.



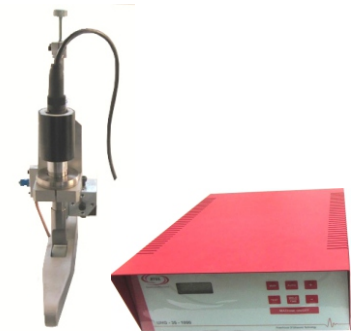
# RANGE OF PRODUCTS

## 1. ULTRASONIC TEXTILE CUTTING AND SEALING SYSTEM FOR CIRCULAR LOOM

Ultrasonic cutting and sealing process is mostly used in the field of textiles on circular loom. The principal advantage of the ultrasonic seal and cut method is that the edge of the textile material, while being cut simultaneously, is sealed by the dissipation of ultrasonic energy, thereby preventing the presence of a frayed edge or the unraveling of threads, no discoloration of fabric and very strong, smooth, clean and long lasting edges without over thickness with low energy consumption. The model is mainly used for cutting of woven sacks, HDPE or PP circular woven fabric, etc.

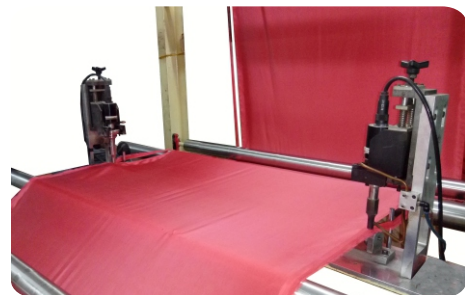


SPECIFICATIONS	TCS 500L/ 1000L/ 1500L
Ultrasonic Generator	SG-40-36-500W/ SG-40-36-1000W/ SG -22-1500W
Ultrasonic Converter	36 Khz/ SE 40/33
Horn	Titanium
Working GSM (gsm)	20-140/150-240/240-300
Surgical Blade	No. 23
Booster with ring	Yes (Titanium)
Sealing & Welding area	25 mm x 5 mm (max)



## 2. ULTRASONIC SPRING LOADED ATTACHMENT FOR TEXTILE CUTTING AND SEALING FOR OFF LOOM

Ultrasonic cutting is mostly used in cutting of Synthetic (Polyester, Nylon) fabric cutting, saree cutting, BOPP film sealing. The technology has tremendous advantages over other cutting methods such as cutting without pressure prevents any deformation of the material, high quality of the cut is achieved, no smudging or breaking of individual layers, reduced processing time and no heat input into the product i.e the tool remains cold.



SPECIFICATIONS	TCX 500/ 1000/ 1000
Ultrasonic Generator	SG-40-36-500W / SG-40-36-1000W / SG -22-1000W
Ultrasonic Converter	36KHz/SE 40/33, 36KHz/SE 40/33, 20KHz/SE-50/50-4
Horn	Steel or Titanium
Working GSM (gsm)	50 / 50-80 / 80-140
M S/ Steel Roller	Yes
Booster with ring	Yes (Titanium)
Spring loaded attachment	Yes
Weld area (Dia. in mm)	5 mm/ 5 mm/ 5 to 10 mm (max)



# RANGE OF PRODUCTS

## 3. ULTRASONIC STITCHING MACHINE (SERIES A)

The Ultrasonic Sealing System is designed with AC induction motor, roller, electronic control & working table and is being developed for sealing of Fabrics, Plastic Films, Laminated paper, Non-Woven Fabrics, Filters, etc. It is a versatile Machine being offered in range of frequency and Power. Machine configuration and the location of the horn and anvils enable flexibility and tight turns in sealing. This also provides an unobstructed view of the fabric in the processing area. Typical applications for the systems include protective garments, disposable hospital gowns, shoe covers, face masks, infants' nursery garments, filters, bags, curtains, sails, and web splicing. Sealed edges and seams with no stitch holes prevent penetration of chemicals, liquids, bloodborne pathogens, or particulates, thus providing a benefit over conventional stitching methods.

SPECIFICATIONS	USM 1000 L/ 1000 H
Ultrasonic Generator	SG-40-36-1000W/ SG -22-1000W
Ultrasonic Converter	36KHz/SE 40/33 , 20KHz/SE 50/44
Horn	Titanium
Working GSM (gsm)	50-140/ Upto 300
M S Roller anvil for stitching	Yes, 60 mm Dia
Booster with ring	Yes (Titanium)
Foot Switch	10 Amp/ 250 V
Bottom Legs	M12 x 80 mm length
Weld area (Width in mm)	30 mm x 10 mm (max)



## 4. ULTRASONIC STITCHING MACHINE (SERIES B)

Compared to traditional ultrasonic stitching machine, rotary ultrasonic stitching machine applies a disk-like sonotrode to work together with roller for stitching, system transmits ultrasonic energy at edge surface of sonotrode instead of at the terminal surface. The rotary titanium sonotrode and roller rotate at the same direction, generating ultrasonic oscillation at radial direction. The system can perform two manufacturing processes in one flow i.e (Cut & Seal), there is no wearing due to steel sonotrode and prevents the material from fraying. Major applications include filter bags, health care articles, medical mattresses and pillows, needle felts, operations sheets, foils, bullet proof vests, blinds and awnings, pleated filter, shower curtains, spacer fabrics, seat covers, MBR-modules, outdoor garment, medical garment & drapes, sport garments, vehicle interior and insulation item, protective car covers, sunshades and many more.

SPECIFICATIONS	USM ROTARY 1000 X
Ultrasonic Generator	UHG-35-1000W
Ultrasonic Converter	35 KHz/SE 3512
Horn	Titanium
Working GSM (gsm)	Upto 200
Rotary motor for sealing head	Yes
PLC + HMI (for system controls)	Siemens made
Foot Paddle	2 Nos
Bottom Legs	M12 x 80 mm length
Weld area (Dia in mm)	6mm (max)
Proportional valve	Festo made





## CUSTOMIZED PROJECTS



Automated Carpet Cutting and Sealing Machine



Geo-Drain Sealing Machine



Tyre Slitting Machine

## ADVANTAGES

- ★ Prevents fraying.
- ★ It eliminates the emission of toxic fumes.
- ★ Eliminates the heating of machine.
- ★ Reduced Production time.
- ★ Reduction in Energy Consumption.
- ★ Removal of Selvage.
- ★ Cutting and Welding at the same time of textile and technical textile.

**NOTE:** Technical specifications are subject to change without prior notice, due to continuous upgradation.

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