The new generation Ultrasonic Impact Treatment (UIT) equipment is based on Piezoelectric Ceramic Transducer (PCT) technology, first developed by Sunbow Technology for use around the world in 1995. It's the new direction of UIT technology and has already received international recognition.

Advantages

- HIGHER EFFICIENCY
  Transfermation rate of piezoelectric ceramic transducer is nearly 50% higher than that of megnetostriction transducer (MT) .
- DIGITAL CONTROL
  Closed-loop control with DSP chip ensures stabilization of the generator unit.
- NO WATER COOLING REQUIRED
  The (PCT) transducer generates less heat than (MT) type transducers. Therefore only integral fan cooling of the (UIT) tool is required.
- DUTY CYCLE
  Over 16 hours of continuous operation if required.
- APPLICABILITY
  Suitable for all metallic materials such as high strength steel of 1400 MPa, titanium alloys, aluminium alloys, etc.




Beneficial Effects of Ultrasonic Impact Treatment

- Elimination of tensile stress. Formation of a white layer up to 10 micrometers in depth with exceptional corrosion resistance, abrasion resistance, and lubricity.
- Plastic deformation of the material surface. Elimination of tensile stress and the introduction of favorable compression stress up to 12 millimeters in depth.
- Alteration of the surface finish, resulting in a smoother surface and eliminating defects.
- Improvement in endurance and corrosion resistance. Up to 250% and 400% respectively.
- Improving the fatigue strength of steel welded joints 60%-180%, life expectancy 10-130 times.
- Improving the fatigue strength of aluminum, titanium and non-ferrous metal welded joint 26%-42%, life expectancy 5-40 times.
- Reduction of maintenance costs in metal structures subject to corrosion/fatigue failure.
- Opportunities to decrease manufacturing and operation costs through utilisation of increased strength alloys, previously limited by the materials welding properties.








Equipment Listing

Order No.	1-010-0010	1-010-0011	1-010-0012	1-010-0013	1-010-0014
Type	HJ-I	HJ-II-LE	HJ-II-SE	HJ-III	HJ-III-XE
Specification					
Control mode	Simulating control			Digital control	
Transducer	Piezoelectric ceramic				
Output power	400W			600W	
Exciting current	0-3A			0-4A	
Work frequency	20. 0± 0. 5kHz	19. 5± 1. 0kHz		17. 5±2. 0kHz	
Max amplitude	35μm	40μm	50μm		
Travel speed	4-15mm/s	6-18mm/s	6-20mm/s	6-25mm/s	
Duty cycle	85%	90%		95%	
Control of constant current output	Silicon control	IGBT chopper control		DSP slug control	
Size&weight					
Box size	660mm×440mm×365mm				
Generator unit	355mm×205mm×255mm			390mm×235mm×282mm	
Size of UIT tool	Φ83mm×475mm		Φ83mm×325mm		
Total weight	32kg		30kg		
Weight of generator unit	10. 5kg			10. 6kg	
Weight of UIT tool	3. 1kg		2. 3kg		
Assembly					
Digital generator unit	–	–	–	s	s
Simulating generator unit	s	s	s	–	–
LCD	–	–	–	s	s
Nixie readout	s	s	s	–	–
BCSC UIT tool	–	–	s	s	s
BCLY UIT tool	–	–	–	–	Δ
DS UIT tool	–	–	–	–	Δ
XTT UIT tool	–	–	–	–	s
PT UIT tool	s	s	–	–	–
Φ3 guide head	–	–	s	s	s
Φ4 guide head	s	s	s	s	s
Φ5 guide head	–	–	s	s	s
Φ6 guide head	–	–	s	s	s
Φ3 floating pins	–	–	s	s	s
Φ4 floating pins	s	s	s	s	s
Φ5 floating pins	–	–	s	s	s
Φ6 floating pins	–	–	s	s	s
Protective headphones,ear plugs	s	s	s	s	s
Amplitude Horn Protection Block	s	s	s	s	s
Description					
	Suitable for low strength alloy materials. Non-Continuous operation.	Suitable for all metallic materials including titanium alloys. Non-Continuous operation.		Suitable for all metallic materials including titanium alloys. Up to 16 hours continuous operation.	

s_standard configuration –_no configuration Δ_matching, Power supply is 220vac, 50/60Hz.

UIT tool

1-020-0010

PT

- Aluminum alloy shell, black finish process
- Integral special alloy amplitude horn
- UIT Tool length 460mm, weight 3.1kg.
- Trigger Switch
- Driven by HJ-I or HJ-II type generator unit.

1-020-0011

NEW

BCLY

- Aluminium alloy casing with stainless steel electroplated finish.
- Integral titanium alloy amplitude horn for greater acoustic performance
- UIT tool length 215mm, and weight 1.5kg .
- Compressed air cooling to ensure extended operation essential for automated operation.
- External ergonomically designed handles.
- New quick release fastening head
- Driven by HJ-III type generator unit

1-020-0012

NEW

BCSC

- Aluminium alloy casing with stainless steel electroplated finish.
- Integral titanium alloy amplitude horn for greater acoustic performance
- UIT tool length 345mm, and weight 2.3kg.
- High power fan cooling
- New quick release fastening head
- Driven by HJ-III type generator unit

1-020-0013

DS

- Aluminium alloy casing with chemical black finish.
- Integral titanium alloy amplitude horn for greater acoustic performance
- UIT tool length 215mm, and weight 1.7kg.
- High power fan cooling
- New quick release fastening head
- Driven by HJ-III type generator unit

1-020-0014

NEW

XTT

- Designed for confined space operations
- Aluminium alloy casing with chemical black finish.
- Integral titanium alloy amplitude horn for greater acoustic performance
- UIT tool length 460mm, and weight 3. 1kg, hands armed operations
- High power fan cooling
- Trigger Switch
- Driven by HJ-III type of generator unit

Equipment list

Order No.	Unit	Description
1-030-0010	per piece	Φ3 floating alloy pin
1-030-0011	per piece	Φ4 floating alloy pin
1-030-0012	per piece	Φ5 floating alloy pin
1-030-0013	per piece	Φ6 floating alloy pin
1-040-0010	per piece	Φ3 guide head
1-040-0011	per piece	Φ4 guide head
1-040-0012	per piece	Φ5 guide head
1-040-0013	per piece	Φ6 guide head
1-030-0014	per piece	Amplitude Horn Protection Block
1-060-0010	per piece	Aluminum alloy storage box
1-060-0011	per piece	Protective headphones,ear plugs
1-060-0012	20 meters	Control cable

NEW

1-020-0016

HJ-II generator unit

1-020-0017

HJ-III generator unit

Generator units

Order	Type	Description
1-020-0015	HJ-I	First-generation ultrasonic generator, SCR constant current regulator, digital tube display, 400W
1-020-0016	HJ-II	Second-generation ultrasonic generator, IGBT chopper constant current regulator, digital tube display, 400W
1-020-0017	HJ-III	Third-generation ultrasonic generator, all-digital circuit control, DSP chip for the control of the core,600W

1-030-0014

Amplitude Horn Protection Block for BCSC UIT tool

1-030-0020

Amplitude Horn Protection Block for XTT UIT tool

1-030-0010

Φ3 floating pins

1-030-0011

Φ4 floating pins

1-030-0012

Φ5 floating pins

1-030-0013

Φ6 floating pins

1-060-0012

Control cable

1-060-0010

Aluminum alloy storage box

1-040-0010

Φ3 guide head

1-040-0011

Φ4 guide head

1-040-0012

Φ5 guide head

1-040-0013

Φ6 guide head