



上海骄成机电设备有限公司  
SBT Engineering Systems Co., Ltd.

上海骄成机电设备有限公司  
SBT Engineering Systems Co., Ltd.

Add: Lane 48, 4916 South Hongmei Road, Minghang District, Shanghai 200241, P.R.C  
Tel: +86-21-34668758 34668756 Fax: +86-21-34668757  
Web: www.sh-jiaocheng.com  
Email: info@jiaocheng-sh.com

ULTRASONIC PRODUCTION

Innovation



Quality



Service



# Company Introduction

**SBT Engineering Systems Corporation**, a cooperator of LOMA UK and Shanghai Jiaotong University, located in Shanghai Wujing science and technology park which is very close to Shanghai jiaotong University.

We have strong technical background and rich resources, most of us graduated from Shanghai Jiaotong University and get master degree or above.

In 2000 we started ultrasonic cutting system project, through the cooperation with Shanghai Jiaotong University and the state vibration lab, experienced countless failure and success, finally in the end of 2006 we succeeded in manufacturing the whole ultrasonic cutting system.

Our system is designed to be suitable for real working conditions and be the first independent research result in ultrasonic cutting field. It can replace the imported expensive equipment perfectly, and successfully fills up the ultrasonic technology gap between domestic and abroad.

Our ultrasonic cutting systems immediately get a warm feedback from market when customers started to use our system. And through our marketing efforts, our products occupancy of tire cutting share is about 80% or above in china now. After we succeed in ultrasonic tire cutting field, we take advantage of this success to sell our other kinds of ultrasonic products like plastic welding, metal welding and metal cutting. All the products earn very good market feedback because of our good quality, reasonable price and our company philosophy - customer first and think from our customers' view.

Customers can feel our good service, and give us the right way to improve our equipments. From the improvements, customers can make better profit and we have better idea. It's the cooperation we want to build up to make the win-win situation.

Although the customers are satisfied with our products now, but we never give up forward steps. We keep researching into new products which is suitable for the market and get many technology funds as the level like Shanghai innovation fund. It's a great recognition from Chinese government.

**WE PROMISE:**

Continue to supply every customer the most suitable, the most practical, the optimal cost-effective products.

Provide our customers with the best and the fastest service.

To create value for customers and develop with the customer together, achieve a win-win situation.

**We always welcome you and our philosophy: innovation, quality, service!**



Shanghai Jiaotong University



Mechanical Engineering Academy

## Ultrasonic project

- ◆ Our earliest predecessor is **acoustic application team**, established in 1994 in the Mechanical Engineering Academy, Shanghai Jiao Tong University, focused on developing ultrasonic project.
- ◆ In 2000, our acoustic application team participated in the international acoustics conference, knew the demand of ultrasonic cutting technology from tire industry. In order to fill up this technology empty, we began research and development for ultrasonic equipment.
- ◆ 2001 to 2006, our project team applied a total of 4.1236 million RMB project funds, purchased a total of 21.7723 million RMB for testing and manufacturing equipments. We also created a dedicated lab and technology scholarships.
- ◆ In 2007, after a long period of experiment, the "ultrasonic cutting system" has been formally proved to be "successful R & D projects." We set up a high-tech industrial company, It is located in Shanghai Wujing science and technology park of china, Named SBT Engineering systems.

## Company history

Time	Name	Event
2000~2002	Acoustic application team	Projects and research
2002~2003	Acoustic application team	Ultrasonics theory
2003~2004	Acoustic application team	Real part test
2004~2006	Acoustic application team	Batch test and improve
2007. 2	SBT Engineering Co., Ltd.	Business cooperation
2007~now	SBT Engineering Co., Ltd.	Marketing





## ● Technical background of our company staff

- ◆ Most of us graduated from SJTU and most researchers have a master degree or above.
- ◆ Many consultant professors used to work in ultrasonic field.
- ◆ Cooperates with material institute of SJTU, make the special material we need and get the FEA technology.
- ◆ Every one of our company works in the state key lab (SKL) for 1 year at least.

## ● Development and design capabilities

- ◆ In the lab, we test every raw material and finished product to ensure the quality of each raw material and parameters meet the design requirements.
- ◆ We designed a dedicated database and combined with "FEA", At last, greatly improve the quality of each product.

## ● Hardware advantage



# Contents

## Contents

### ULTRASONIC CUTTING SYSTEM

ULTRASONIC CUTTING APPLICATION .....	06
ULTRASONIC CUTTING THEORY .....	07
<i>40K ULTRASONIC CUTTING SYSTEM</i> .....	<i>08-09</i>
<i>20K ULTRASONIC CUTTING SYSTEM</i> .....	<i>10-11</i>
40K ULTRASONIC CUTTING SYSTEM OPTIONS (421SERIES) .....	12
20K ULTRASONIC CUTTING SYSTEM OPTIONS (221SERIES) .....	13
40K ULTRASONIC CUTTERS (421SERIES).....	14-21
20K ULTRASONIC CUTTERS (221SERIES).....	22-23

### ULTRASONIC WELDING

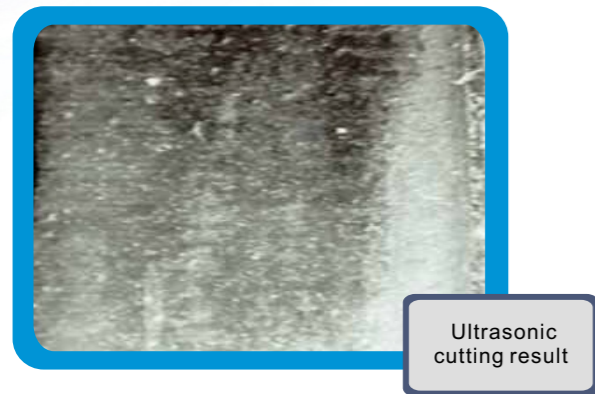
THEORY OF ULTRASONIC WELDING .....	24
ADVANTAGE OF ULTRASONIC WELDING .....	25
ULTRASONIC METAL WELDING .....	26-28
ULTRASONIC PLASTIC WELDING .....	29-31



# ○ Ultrasonic cutting technology +

## Advantages of ultrasonic cutting technology

- Suitable for cutting high-breaking-tenacited material.
- The temperature when cutting is too low to cause any physical and chemical reactions.
- You don't need to set any special attachment for ultrasonic cutting system.
- Green process, low power cost, no pollution, hard to accrete bacilli and product scrap.



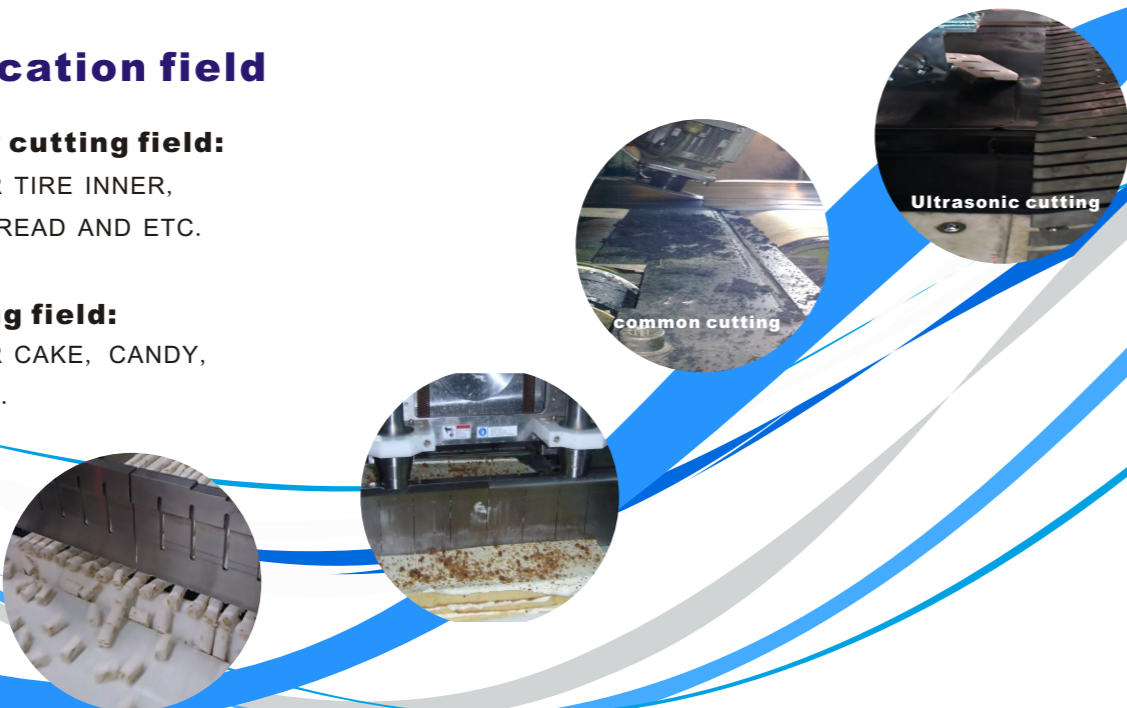
## Main application field

### Tire rubber cutting field:

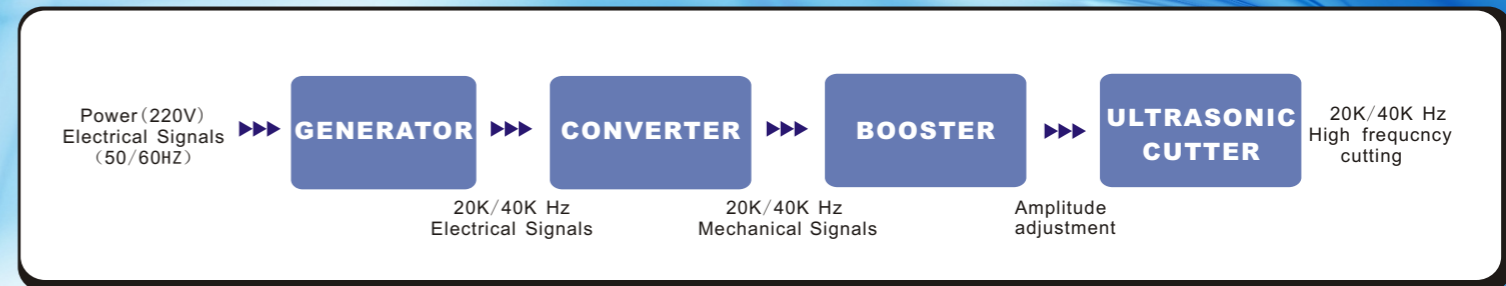
SUITABLE FOR TIRE INNER, SIDE WALL, TREAD AND ETC.

### Food cutting field:

SUITABLE FOR CAKE, CANDY, GUM AND ETC.



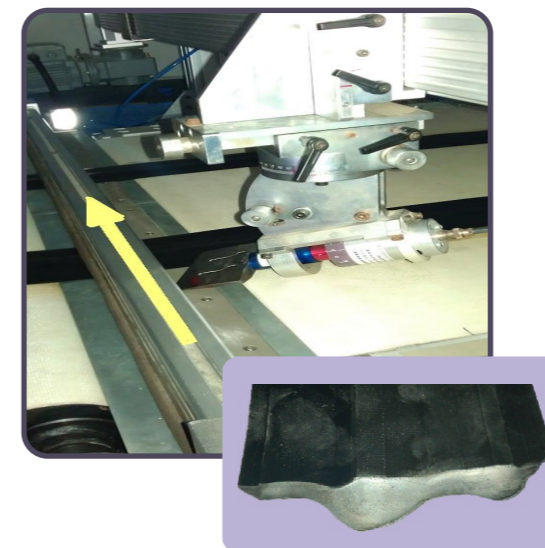
## Ultrasonic cutting theory



## Ultrasonic cutting methods

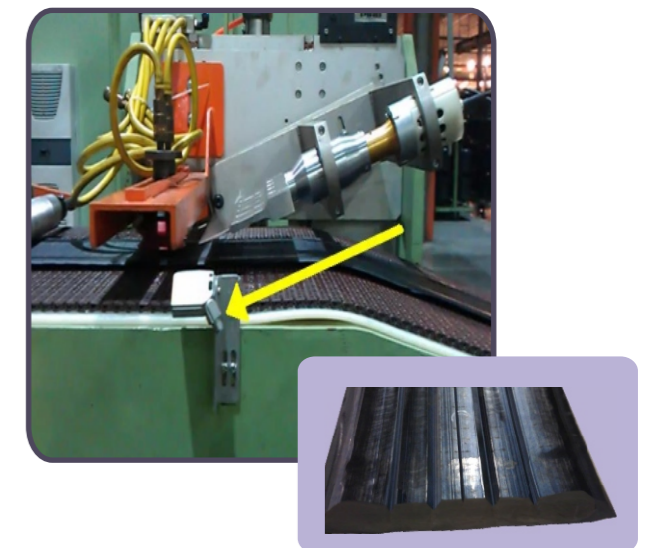
### Side cutting:

Mounting the ultrasonic cutter by some angle, to cut the rubber from one side to the other side.



### Straight cutting:

Mounting the ultrasonic cutter by some angle, to cut the rubber from top to the bottom directly.



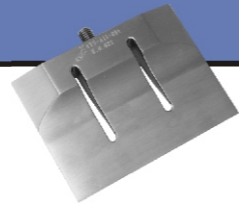
## Difference between Side Cutting and Straight Cutting

	Side Cutting	Straight Cutting
<b>Speed</b>	Depends on the rubber width	Depends on the rubber thickness
<b>Power consume</b>	Low power X long time	High power X short time
<b>Specification</b>	all 40K Systems & some 20K Systems	all 20K Systems
<b>Automatization</b>	Feed by motor	Feed by servo or pneumatic



# 40K CUTTING SYSTEM

Page 14-21



40K ULTRASONIC CUTTER		
CUT MATERIAL WITH VIBRATION		
EDP	TYPE	STUD
421SERIES	40K SYSTEM	M8x1.25

Page 12



40K BOOSTER			
REDUCE OR AMPLIFY THE ULTRASONIC ENERGY			
EDP	TYPE	STUD	DIAMETER
421SERIES	40K SYSTEM	M8x1.25	49MM



40K GENERATOR			
PRODUCE ULTRASONIC POWER			
EDP	TYPE	POWER	SIZE(LXWXH)
421606001	40K SYSTEM	600W	435x220x90 MM



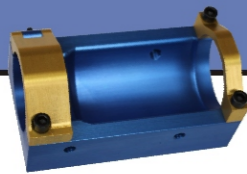
40K CONVERTER			
OUTPUT ULTRASONIC VIBRATION			
EDP	TYPE	THREAD	DIAMETER
421348001	40K SYSTEM	M8x1.25	50.8MM



40K GROUNDING CABLE		
GENERATOR GROUNDING		
EDP	TYPE	LENGTH
421408001	40K SYSTEM	3M



40K ULTRASONIC CABLE		
OUTPUT ULTRASONIC POWER		
EDP	TYPE	LENGTH
421407001	40K SYSTEM	6M



40K FIXTURE		
MOUNT THE ULTRASONIC STACK		
EDP	TYPE	DIAMETER
421330001	40K SYSTEM	50.8-49MM



40K I/O CABLE		
INPUT / OUTPUT CONTROL SIGNAL		
EDP	TYPE	LENGTH
421406001	40K SYSTEM	6M



40K POWER CABLE		
POWER GENERATOR 220V		
EDP	TYPE	LENGTH
421405001	40K SYSTEM	3M



40K WRENCH		
SCREW THE ULTRASONIC STACK		
EDP	TYPE	DIAMETER
421342330	40K SYSTEM	25-32MM

# 40K CUTTING SYSTEM

# 20K CUTTING SYSTEM

Page 22-23



20K ULTRASONIC CUTTER		
CUT MATERIAL WITH VIBRATION		
EDP	TYPE	STUD
221SERIES	20K SYSTEM	3/8 OR 1/2

Page 13



20K BOOSTER			
REDUCE OR AMPLIFY THE ULTRASONIC ENERGY			
EDP	TYPE	STUD	DIAMETER
221SERIES	20K SYSTEM	1/2-20UNIF	82.5MM



20K GENERATOR		
PRODUCE ULTRASONIC POWER		
EDP	TYPE	POWER
221SERIES	20K SYSTEM	1200-2400W



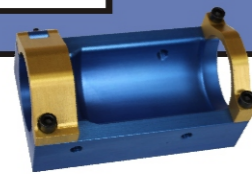
20K CONVERTER			
OUTPUT ULTRASONIC VIBRATION			
EDP	TYPE	THREAD	DIAMETER
221348001	20K SYSTEM	1/2-20UNIF	75.6MM



20K GROUNDING CABLE		
GENERATOR GROUNDING		
EDP	TYPE	LENGTH
221408001	20K SYSTEM	3M



20K ULTRASONIC CABLE		
OUTPUT ULTRASONIC POWER		
EDP	TYPE	LENGTH
221407001	20K SYSTEM	6M



20K FIXTURE		
MOUNT THE ULTRASONIC STACK		
EDP	TYPE	DIAMETER
221330001	20K SYSTEM	75.6-82.5MM



20K I/O CABLE		
INPUT / OUTPUT CONTROL SIGNAL		
EDP	TYPE	LENGTH
221406001	20K SYSTEM	6M



20K POWER CABLE		
POWER GENERATOR 220V		
EDP	TYPE	LENGTH
221405001	20K SYSTEM	3M



20K WRENCH		
SCREW THE ULTRASONIC STACK		
EDP	TYPE	DIAMETER
221342330	20K SYSTEM	45-65MM

# 20K CUTTING SYSTEM



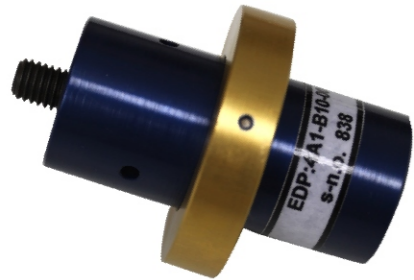


**40K GENERATOR**  
421SERIES

PRODUCT PARAMETER

◆ PRODUCE ULTRASONIC POWER

EDP	TYPE	POWER	SIZE(LXWXH)
421606001	40K SYSTEM	600W	435x220x90 MM



**40K A BOOSTER**  
421SERIES

PRODUCT PARAMETER

◆ REDUCE OR AMPLIFY THE ULTRASONIC ENERGY

EDP	TYPE	DIAMETER	THREAD	RATIO
421210001	40K SYSTEM	49MM	M8x1.25	1.0
421215001	40K SYSTEM	49MM	M8x1.25	1.5
421220001	40K SYSTEM	49MM	M8x1.25	2.0
421225001	40K SYSTEM	49MM	M8x1.25	2.5



**40K T BOOSTER**  
421SERIES

PRODUCT PARAMETER

◆ REDUCE OR AMPLIFY THE ULTRASONIC ENERGY

EDP	TYPE	DIAMETER	THREAD	RATIO
421210021	40K SYSTEM	49MM	M8x1.25	1.0
421215022	40K SYSTEM	49MM	M8x1.25	1.5
421220023	40K SYSTEM	49MM	M8x1.25	2.0
421225024	40K SYSTEM	49MM	M8x1.25	2.5



**20K A BOOSTER**  
221SERIES

PRODUCT PARAMETER

◆ PRODUCE ULTRASONIC POWER

EDP	TYPE	POWER	SIZE (L x W x H)
221612001	20K SYSTEM	1200W	435x220x90MM
221618001	20K SYSTEM	1800W	435x220x130MM
221624001	20K SYSTEM	2400W	435x220x130MM



**20K A BOOSTER**  
221SERIES

PRODUCT PARAMETER

◆ REDUCE OR AMPLIFY THE ULTRASONIC ENERGY

EDP	TYPE	DIAMETER	THREAD	RATIO
221210001	20K SYSTEM	82.5MM	3/8-24UNIF	1.0
221215001	20K SYSTEM	82.5MM	3/8-24UNIF	1.5
221220001	20K SYSTEM	82.5MM	3/8-24UNIF	2.0
221225001	20K SYSTEM	82.5MM	3/8-24UNIF	2.5
221210002	20K SYSTEM	82.5MM	1/2-20UNIF	1.0
221215002	20K SYSTEM	82.5MM	1/2-20UNIF	1.5
221220002	20K SYSTEM	82.5MM	1/2-20UNIF	2.0
221225002	20K SYSTEM	82.5MM	1/2-20UNIF	2.5



**20K T BOOSTER**  
221SERIES

PRODUCT PARAMETER

◆ REDUCE OR AMPLIFY THE ULTRASONIC ENERGY

EDP	TYPE	DIAMETER	THREAD	RATIO
221210021	20K SYSTEM	82.5MM	3/8-24UNIF	1.0
221215021	20K SYSTEM	82.5MM	3/8-24UNIF	1.5
221220021	20K SYSTEM	82.5MM	3/8-24UNIF	2.0
221225021	20K SYSTEM	82.5MM	3/8-24UNIF	2.5
221210022	20K SYSTEM	82.5MM	1/2-20UNIF	1.0
221215022	20K SYSTEM	82.5MM	1/2-20UNIF	1.5
221220022	20K SYSTEM	82.5MM	1/2-20UNIF	2.0
221225022	20K SYSTEM	82.5MM	1/2-20UNIF	2.5



EDP : 421203001  
421SERIES

PRODUCT PARAMETER

BLADE DIAMETER	COATING	TYPE	STUD	MAX BOOSTER	FREE POWER
19mm	NON	40K SYS	M8x1.25	1.0	<10%

MATERIAL	THICKNESS RANGE		ANGLE RANGE		CUTTING SPEED	CUTTING MODE
SIDEWALL	0	3	18	45	10-30mm/s	SIDE CUTTING
INNER	0	2	18	45	10-40mm/s	SIDE CUTTING



EDP : : 421203002  
421SERIES

PRODUCT PARAMETER

BLADE DIAMETER	COATING	TYPE	STUD	MAX BOOSTER	FREE POWER
19mm	GOLDEN	40K SYS	M8x1.25	1.0	<10%

MATERIAL	THICKNESS RANGE		ANGLE RANGE		CUTTING SPEED	CUTTING MODE
SIDEWALL	0	3	18	45	10-30mm/s	SIDE CUTTING
INNER	0	2	18	45	10-40mm/s	SIDE CUTTING

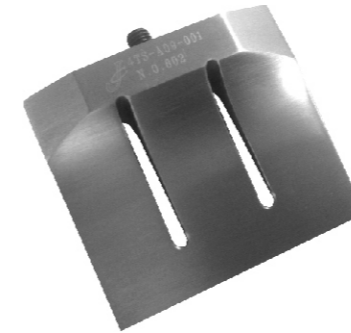


EDP : : 421203003  
421SERIES

PRODUCT PARAMETER

BLADE DIAMETER	COATING	TYPE	STUD	MAX BOOSTER	FREE POWER
19mm	BLACK	40K SYS	M8x1.25	1.0	<10%

MATERIAL	THICKNESS RANGE		ANGLE RANGE		CUTTING SPEED	CUTTING MODE
SIDEWALL	0	3	18	45	10-30mm/s	SIDE CUTTING
INNER	0	2	18	45	10-40mm/s	SIDE CUTTING



EDP : 421109001  
421SERIES

PRODUCT PARAMETER

BLADE WIDTH	COATING	TYPE	STUD	MAX BOOSTER	FREE POWER
82.5mm	NON	40K SYS	M8x1.25	1.0	<10%

MATERIAL	THICKNESS RANGE		ANGLE RANGE		CUTTING SPEED	CUTTING MODE
SIDEWALL	0	6	20	45	10-30mm/s	SIDE CUTTING
TREAD	0	20	22	45	10-60mm/s	SIDE CUTTING
INNER	0	4	20	45	10-40mm/s	SIDE CUTTING

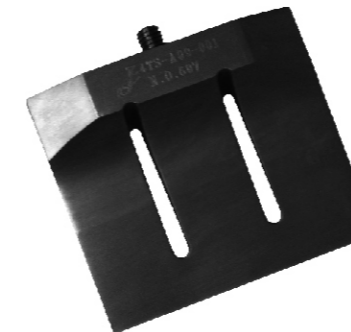


EDP : 421109002  
421SERIES

PRODUCT PARAMETER

BLADE WIDTH	COATING	TYPE	STUD	MAX BOOSTER	FREE POWER
82.5mm	GOLDEN	40K SYS	M8x1.25	1.0	<10%

MATERIAL	THICKNESS RANGE		ANGLE RANGE		CUTTING SPEED	CUTTING MODE
SIDEWALL	0	6	20	45	10-30mm/s	SIDE CUTTING
TREAD	0	20	22	45	10-60mm/s	SIDE CUTTING
INNER	0	4	20	45	10-40mm/s	SIDE CUTTING



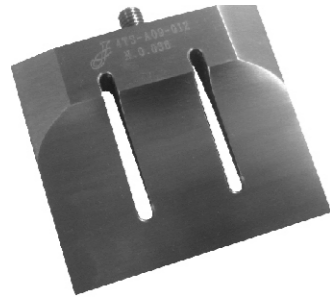
EDP : 421109003  
421SERIES

PRODUCT PARAMETER

BLADE WIDTH	COATING	TYPE	STUD	MAX BOOSTER	FREE POWER
82.5mm	BLACK	40K SYS	M8x1.25	1.0	<10%

MATERIAL	THICKNESS RANGE		ANGLE RANGE		CUTTING SPEED	CUTTING MODE
SIDEWALL	0	6	20	45	10-30mm/s	SIDE CUTTING
TREAD	0	20	22	45	10-60mm/s	SIDE CUTTING
INNER	0	4	20	45	10-40mm/s	SIDE CUTTING



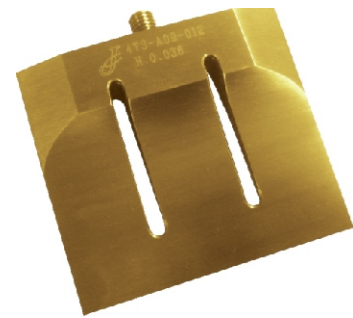


EDP: 421109004  
421SERIES

PRODUCT PARAMETER

BLADE WIDTH	COATING	TYPE	STUD	MAX BOOSTER	FREE POWER
82.5mm	NON	40K SYS	M8x1.25	1.0	<10%

MATERIAL	THICKNESS RANGE		ANGLE RANGE		CUTTING SPEED	CUTTING MODE
SIDEWALL	0	6	18	45	10-30mm/s	SIDE CUTTING
TREAD	0	20	22	45	10-60mm/s	SIDE CUTTING
INNER	0	4	18	45	10-40mm/s	SIDE CUTTING

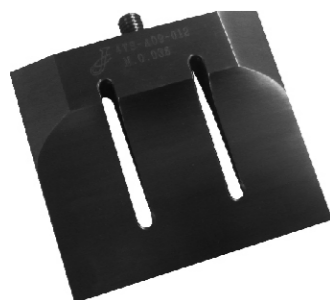


EDP: 421109005  
421SERIES

PRODUCT PARAMETER

BLADE WIDTH	COATING	TYPE	STUD	MAX BOOSTER	FREE POWER
82.5mm	GOLDEN	40K SYS	M8x1.25	1.0	<10%

MATERIAL	THICKNESS RANGE		ANGLE RANGE		CUTTING SPEED	CUTTING MODE
SIDEWALL	0	6	18	45	10-30mm/s	SIDE CUTTING
TREAD	0	20	22	45	10-60mm/s	SIDE CUTTING
INNER	0	4	18	45	10-40mm/s	SIDE CUTTING



EDP: 421109006  
421SERIES

PRODUCT PARAMETER

BLADE WIDTH	COATING	TYPE	STUD	MAX BOOSTER	FREE POWER
82.5mm	BLACK	40K SYS	M8x1.25	1.0	<10%

MATERIAL	THICKNESS RANGE		ANGLE RANGE		CUTTING SPEED	CUTTING MODE
SIDEWALL	0	6	18	45	10-30mm/s	SIDE CUTTING
TREAD	0	20	22	45	10-60mm/s	SIDE CUTTING
INNER	0	4	18	45	10-40mm/s	SIDE CUTTING



EDP: 421110001  
421SERIES

PRODUCT PARAMETER

BLADE WIDTH	COATING	TYPE	STUD	MAX BOOSTER	FREE POWER
99.5mm	NON	40K SYS	M8x1.25	1.0	<10%

MATERIAL	THICKNESS RANGE		ANGLE RANGE		CUTTING SPEED	CUTTING MODE
SIDEWALL	0	7	18	45	10-30mm/s	SIDE CUTTING
TREAD	0	20	22	45	10-60mm/s	SIDE CUTTING
INNER	0	7	18	45	10-40mm/s	SIDE CUTTING

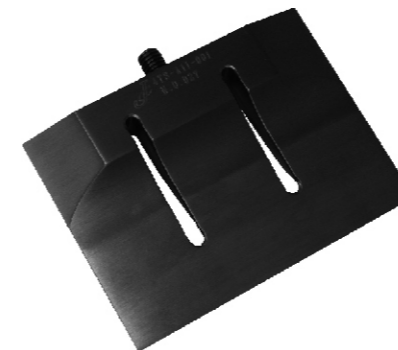


EDP: 421110002  
421SERIES

PRODUCT PARAMETER

BLADE WIDTH	COATING	TYPE	STUD	MAX BOOSTER	FREE POWER
99.5mm	GOLDEN	40K SYS	M8x1.25	1.0	<10%

MATERIAL	THICKNESS RANGE		ANGLE RANGE		CUTTING SPEED	CUTTING MODE
SIDEWALL	0	7	18	45	10-30mm/s	SIDE CUTTING
TREAD	0	20	22	45	10-60mm/s	SIDE CUTTING
INNER	0	7	18	45	10-40mm/s	SIDE CUTTING

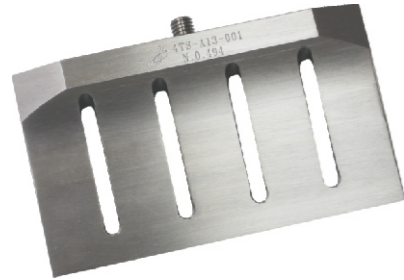


EDP: 421110003  
421SERIES

PRODUCT PARAMETER

BLADE WIDTH	COATING	TYPE	STUD	MAX BOOSTER	FREE POWER
99.5mm	BLACK	40K SYS	M8x1.25	1.0	<10%

MATERIAL	THICKNESS RANGE		ANGLE RANGE		CUTTING SPEED	CUTTING MODE
SIDEWALL	0	7	18	45	10-30mm/s	SIDE CUTTING
TREAD	0	20	22	45	10-60mm/s	SIDE CUTTING
INNER	0	7	18	45	10-40mm/s	SIDE CUTTING



EDP: 421113001  
421SERIES

PRODUCT PARAMETER

BLADE WIDTH	COATING	TYPE	STUD	MAX BOOSTER	FREE POWER
120.5mm	NON	40K SYS	M8x1.25	1.0	<10%

MATERIAL	THICKNESS RANGE		ANGLE RANGE		CUTTING SPEED	CUTTING MODE
SIDEWALL	4	7	18	45	10-30mm/s	SIDE CUTTING
TREAD	0	20	22	45	10-60mm/s	SIDE CUTTING
INNER	3	8	18	45	10-40mm/s	SIDE CUTTING

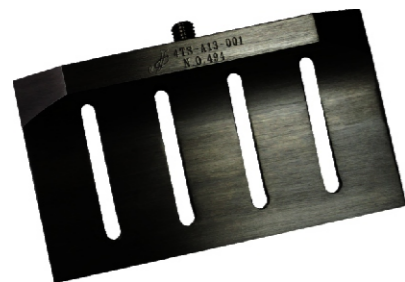


EDP: 421113002  
421SERIES

PRODUCT PARAMETER

BLADE WIDTH	COATING	TYPE	STUD	MAX BOOSTER	FREE POWER
120.5mm	GOLDEN	40K SYS	M8x1.25	1.0	<10%

MATERIAL	THICKNESS RANGE		ANGLE RANGE		CUTTING SPEED	CUTTING MODE
SIDEWALL	4	7	18	45	10-30mm/s	SIDE CUTTING
TREAD	0	20	22	45	10-60mm/s	SIDE CUTTING
INNER	3	8	18	45	10-40mm/s	SIDE CUTTING

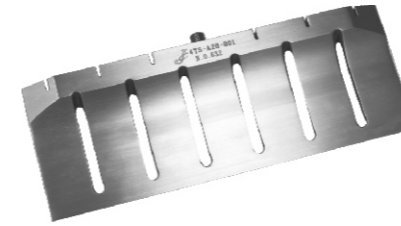


EDP: 421113003  
421SERIES

PRODUCT PARAMETER

BLADE WIDTH	COATING	TYPE	STUD	MAX BOOSTER	FREE POWER
120.5mm	BLACK	40K SYS	M8x1.25	1.0	<10%

MATERIAL	THICKNESS RANGE		ANGLE RANGE		CUTTING SPEED	CUTTING MODE
SIDEWALL	4	7	18	45	10-30mm/s	SIDE CUTTING
TREAD	0	20	22	45	10-60mm/s	SIDE CUTTING
INNER	3	8	18	45	10-40mm/s	SIDE CUTTING

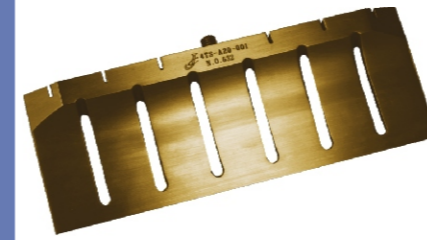


EDP: 421120001  
421SERIES

PRODUCT PARAMETER

BLADE WIDTH	COATING	TYPE	STUD	MAX BOOSTER	FREE POWER
190.5mm	NON	40K SYS	M8x1.25	1.0	<10%

MATERIAL	THICKNESS RANGE		ANGLE RANGE		CUTTING SPEED	CUTTING MODE
SIDEWALL	6	10	20	45	10-30mm/s	SIDE CUTTING
TREAD	0	20	22	45	10-50mm/s	SIDE CUTTING
INNER	5	10	20	45	10-40mm/s	SIDE CUTTING

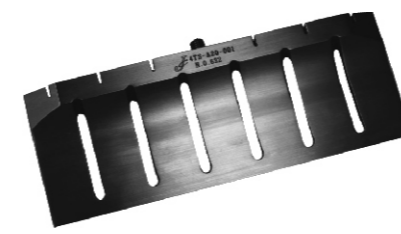


EDP: 421120002  
421SERIES

PRODUCT PARAMETER

BLADE WIDTH	COATING	TYPE	STUD	MAX BOOSTER	FREE POWER
190.5mm	GOLDEN	40K SYS	M8x1.25	1.0	<10%

MATERIAL	THICKNESS RANGE		ANGLE RANGE		CUTTING SPEED	CUTTING MODE
SIDEWALL	6	10	20	45	10-30mm/s	SIDE CUTTING
TREAD	0	20	22	45	10-50mm/s	SIDE CUTTING
INNER	5	10	20	45	10-40mm/s	SIDE CUTTING



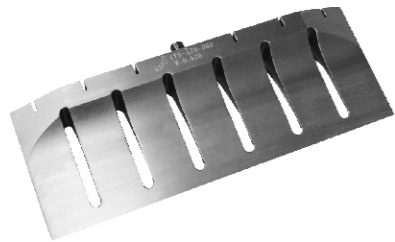
EDP: 421120003  
421SERIES

PRODUCT PARAMETER

BLADE WIDTH	COATING	TYPE	STUD	MAX BOOSTER	FREE POWER
190.5mm	BLACK	40K SYS	M8x1.25	1.0	<10%

MATERIAL	THICKNESS RANGE		ANGLE RANGE		CUTTING SPEED	CUTTING MODE
SIDEWALL	6	10	20	45	10-30mm/s	SIDE CUTTING
TREAD	0	20	22	45	10-50mm/s	SIDE CUTTING
INNER	5	10	20	45	10-40mm/s	SIDE CUTTING



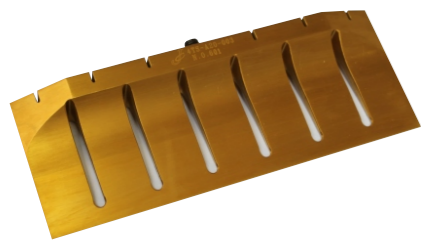


EDP: 421120004  
421SERIES

PRODUCT PARAMETER

BLADE WIDTH	COATING	TYPE	STUD	MAX BOOSTER	FREE POWER
190.5mm	NON	40K SYS	M8x1.25	1.0	<10%

MATERIAL	THICKNESS RANGE		ANGLE RANGE		CUTTING SPEED	CUTTING MODE
SIDEWALL	7	10	20	45	10-30mm/s	SIDE CUTTING
TREAD	0	20	22	45	10-40mm/s	SIDE CUTTING
INNER	6	10	20	45	10-30mm/s	SIDE CUTTING

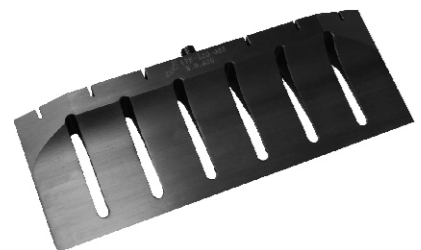


EDP: 421120005  
421SERIES

PRODUCT PARAMETER

BLADE WIDTH	COATING	TYPE	STUD	MAX BOOSTER	FREE POWER
190.5mm	GOLDEN	40K SYS	M8x1.25	1.0	<10%

MATERIAL	THICKNESS RANGE		ANGLE RANGE		CUTTING SPEED	CUTTING MODE
SIDEWALL	7	10	20	45	10-30mm/s	SIDE CUTTING
TREAD	0	20	22	45	10-40mm/s	SIDE CUTTING
INNER	6	10	20	45	10-30mm/s	SIDE CUTTING

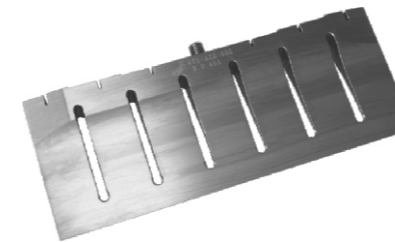


EDP: 421120006  
421SERIES

PRODUCT PARAMETER

BLADE WIDTH	COATING	TYPE	STUD	MAX BOOSTER	FREE POWER
190.5mm	BLACK	40K SYS	M8x1.25	1.0	<10%

MATERIAL	THICKNESS RANGE		ANGLE RANGE		CUTTING SPEED	CUTTING MODE
SIDEWALL	7	10	20	45	10-30mm/s	SIDE CUTTING
TREAD	0	20	22	45	10-40mm/s	SIDE CUTTING
INNER	6	10	20	45	10-30mm/s	SIDE CUTTING

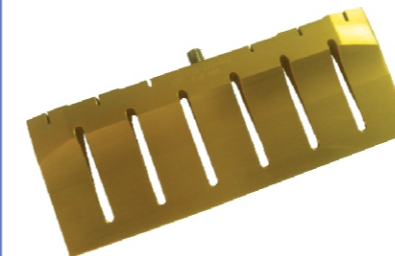


EDP: 421120007  
421SERIES

PRODUCT PARAMETER

BLADE WIDTH	COATING	TYPE	STUD	MAX BOOSTER	FREE POWER
190.5mm	NON	40K SYS	M8x1.25	1.0	<10%

MATERIAL	THICKNESS RANGE		ANGLE RANGE		CUTTING SPEED	CUTTING MODE
SIDEWALL	7	10	18	45	10-30mm/s	SIDE CUTTING
TREAD	0	20	22	45	10-40mm/s	SIDE CUTTING
INNER	6	10	18	45	10-30mm/s	SIDE CUTTING

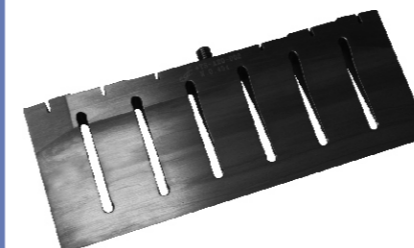


EDP: 421120008  
421SERIES

PRODUCT PARAMETER

BLADE WIDTH	COATING	TYPE	STUD	MAX BOOSTER	FREE POWER
190.5mm	GOLDEN	40K SYS	M8x1.25	1.0	<10%

MATERIAL	THICKNESS RANGE		ANGLE RANGE		CUTTING SPEED	CUTTING MODE
SIDEWALL	7	10	18	45	10-30mm/s	SIDE CUTTING
TREAD	0	20	22	45	10-40mm/s	SIDE CUTTING
INNER	6	10	18	45	10-30mm/s	SIDE CUTTING



EDP: 421120009  
421SERIES

PRODUCT PARAMETER

BLADE WIDTH	COATING	TYPE	STUD	MAX BOOSTER	FREE POWER
99.5mm	BLACK	40K SYS	M8x1.25	1.0	<10%

MATERIAL	THICKNESS RANGE		ANGLE RANGE		CUTTING SPEED	CUTTING MODE
SIDEWALL	7	10	18	45	10-30mm/s	SIDE CUTTING
TREAD	0	20	22	45	10-40mm/s	SIDE CUTTING
INNER	6	10	18	45	10-30mm/s	SIDE CUTTING



ULTRASONIC CUTTER  
221SERIES

PRODUCT PARAMETER

	BLADE WIDTH	COATING	TYPE	STUD	MAX BOOSTER	FREE POWER
EDP: 221118001	171.25mm	NON	20K SYS	3/8-24UNIF	1.5	<10%
EDP: 221118002	171.25mm	NON	20K SYS	1/2-20UNIF	1.5	<10%

MATERIAL	THICKNESS RANGE		ANGLE RANGE		CUTTING SPEED	CUTTING MODE
SIDEWALL	5	20	18	45	10-50mm/s	SIDE CUTTING
TREAD	5	22	18	45	10-60mm/s	SIDE CUTTING
INNER	5	20	18	45	10-50mm/s	SIDE CUTTING
ALL	8	22	22	45	5-20mm/s	STRAIGHT CUTTING

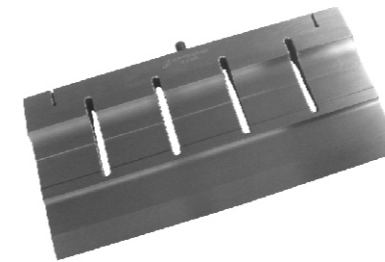


ULTRASONIC CUTTER  
221SERIES

PRODUCT PARAMETER

	BLADE WIDTH	COATING	TYPE	STUD	MAX BOOSTER	FREE POWER
EDP: 221121001	203mm	NON	20K SYS	3/8-20UNIF	1.5	<10%
EDP: 221121002	203mm	NON	20K SYS	1/2-20UNIF	1.5	<10%

MATERIAL	THICKNESS RANGE		ANGLE RANGE		CUTTING SPEED	CUTTING MODE
SIDEWALL	5	20	18	45	10-50mm/s	SIDE CUTTING
TREAD	5	22	18	45	10-60mm/s	SIDE CUTTING
INNER	5	20	18	45	10-50mm/s	SIDE CUTTING
ALL	8	22	22	45	5-20mm/s	STRAIGHT CUTTING

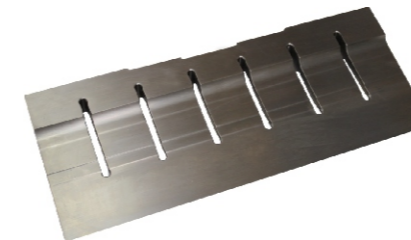


ULTRASONIC CUTTER  
221SERIES

PRODUCT PARAMETER

	BLADE WIDTH	COATING	TYPE	STUD	MAX BOOSTER	FREE POWER
EDP: 221131001	300.00mm	NON	20K SYS	3/8-24UNIF	1.5	<10%
EDP: 221131002	300.00mm	NON	20K SYS	1/2-24UNIF	1.5	<10%

MATERIAL	THICKNESS RANGE		ANGLE RANGE		CUTTING SPEED	CUTTING MODE
ALL	8	22	22	45	15-20mm/s	STRAIGHT CUTTING



ULTRASONIC CUTTER  
221SERIES

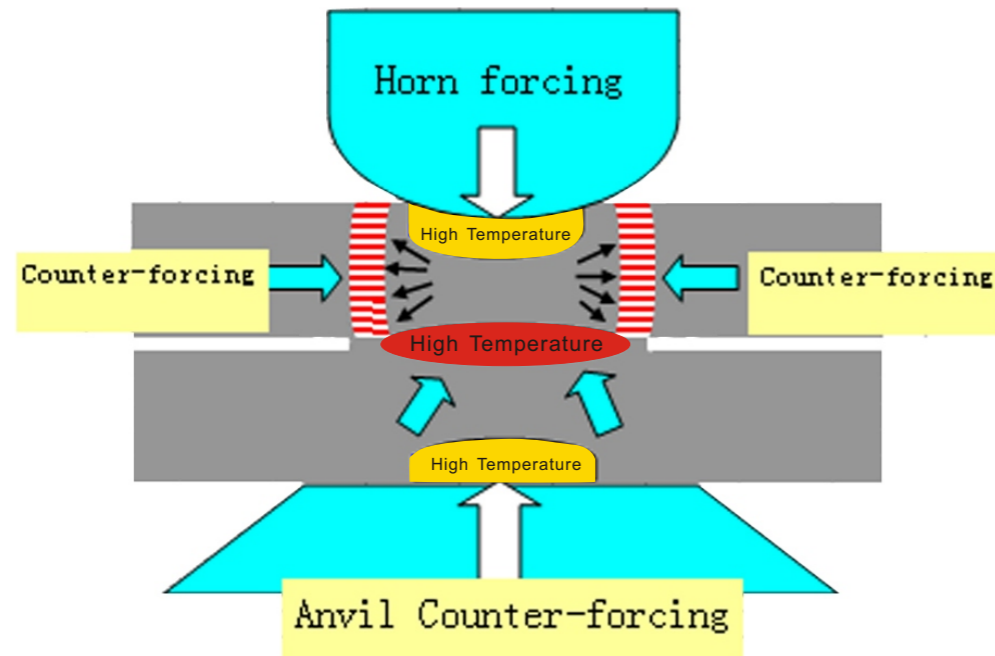
PRODUCT PARAMETER

	BLADE WIDTH	COATING	TYPE	STUD	MAX BOOSTER	FREE POWER
EDP: 221136001	355.50mm	NON	20K SYS 6 SLOTS	3/8-24UNIF	1.5	<10%
EDP: 221136002	355.50mm	NON	20K SYS 6 SLOTS	1/2-24UNIF	1.5	<10%
EDP: 221136003	355.50mm	NON	20K SYS 4 SLOTS	3/8-24UNIF	1.5	<10%
EDP: 221136004	355.50mm	NON	20K SYS 4 SLOTS	1/2-24UNIF	1.5	<10%

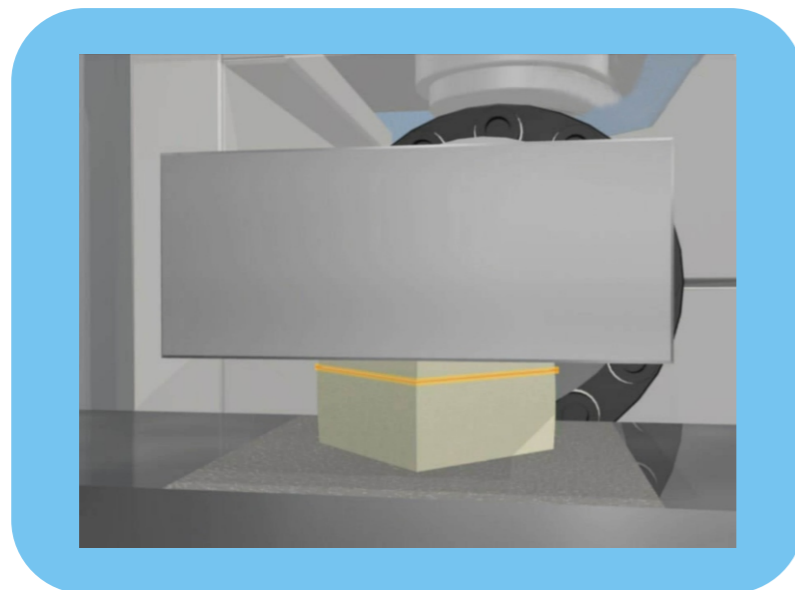
MATERIAL	THICKNESS RANGE		ANGLE RANGE		CUTTING SPEED	CUTTING MODE
ALL	8	22	22	45	5-20mm/s	STRAIGHT CUTTING



## Theory of ultrasonic welding



Ultrasonic welds are produced by the introduction of high frequency mechanical vibration between two components. One component is held stationary while the other is "scrubbed" against it at 20,000 or 40,000 cycles per second. When pressure is applied between the two components, the surface films and oxides are dispersed and precisely controlled friction weld is achieved. As the molecules are mixed between similar or dissimilar metals at the weld interface a true metallurgical bond is produced



## ULTRASONIC WELDING

### Advantage of ultrasonic welding

**Reliability:** Ultrasonic welding can be monitored through time, energy and power assuring excellent process control.

**Cost Savings:** Elimination of consumables such as solder, flux, crimp connectors and braze materials make ultrasonic welding the most cost effective and environmentally safe process available for welding.

**Tool Life:** Multi-lobe ultrasonic tools are precision machined from high quality tool steel, providing long life, ease of setup, and weld accuracy.

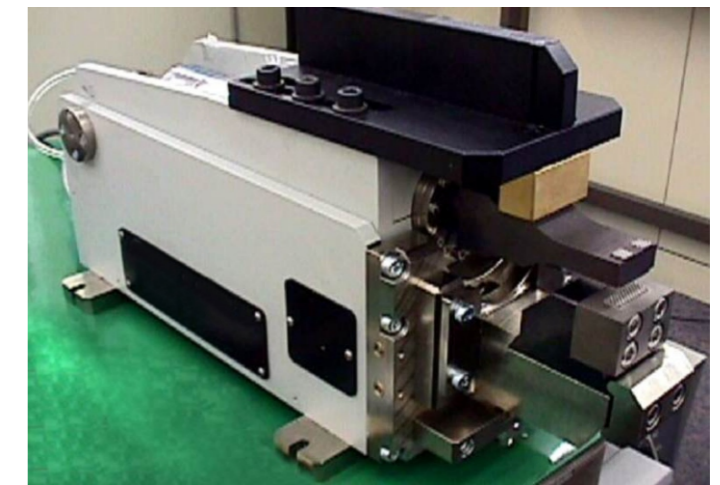
**Speed:** Typical weld cycles are under 0.5 seconds.

**Low operation cost:** ultrasonic require less than 1/10 of the energy of resistance welding.

**Automation potential:** Efficient size, minimal maintenance and orientation flexibility make SBT ultrasonic equipment the best choice for automatic assembly.

**Low operating temperature:** Since ultrasonic does not generate appreciable heat it will not anneal metal parts or require cooling water.

**Insulation dispersal:** In most cases, the high frequency scrubbing action of the ultrasonic process eliminates the need to strip insulation from magnet wire or to preclean parts.



#### METAL WELDING

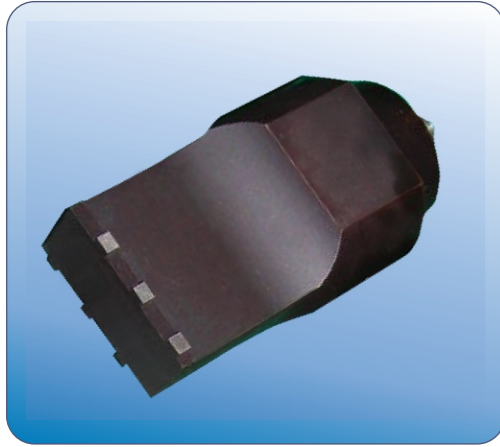
SERIES	SJ/ST
POWER	600W-1200W
MODE	TIME/ENERGY/DISTANCE

#### PLASTIC WELDING

SERIES	DPC/EZ/EZX
POWER	1000W-2000W
MODE	TIME/ENERGY/DISTANCE



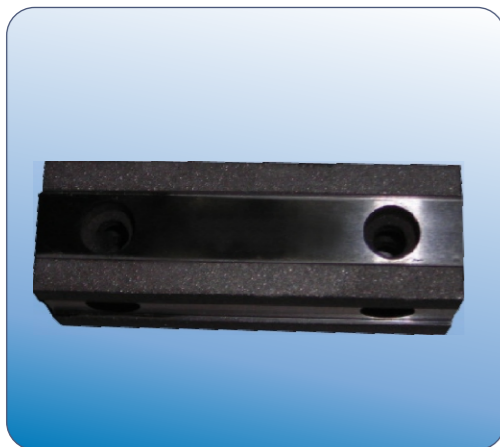
#### ULTRASONIC STACK



◆ Specifications	
Type	40K
Max amplitude	20μm
Stud type	M8
2nd resonance	Null
Uniformity	90%
Max stress	100MPA
Gain	1.9
Max booster	1
Free Power	<10%
Wave type	Half wave
Material	High speed steel
Apply area	Metal welding



◆ Specifications	
Type	20K
Max amplitude	50μm
Stud type	1/2
2nd resonance	Null
Uniformity	92%
Max stress	120MPA
Gain	2.5
Max booster	1
Free Power	<10%
Wave type	Half wave
Material	High speed steel
Apply area	Metal welding



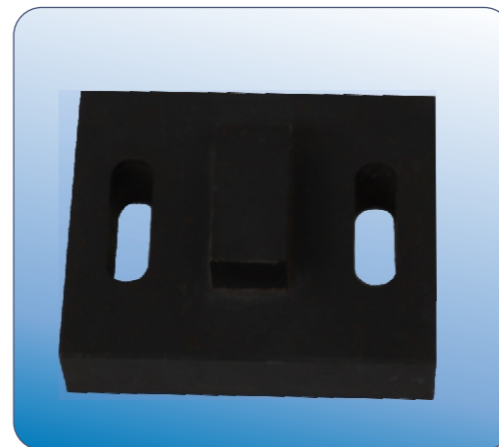
◆ Specifications	
Type	40K
Material	High speed steel
Apply area	Thin sheet metal



◆ Specifications	
Type	40K
Max amplitude	15μm
Stud type	M8
2nd resonance	Null
Uniformity	98%
Max stress	90MPA
Gain	2
Max booster	1
Free Power	<10%
Wave type	Full wave
Material	High speed steel
Apply area	Li-ion battery welding



◆ Specifications	
Type	20K
Max amplitude	40μm
Stud type	1/2
2nd resonance	Null
Uniformity	98%
Max stress	120MPA
Gain	2
Max booster	1
Free Power	<10%
Wave type	Half wave
Material	High speed steel
Apply area	Li-ion battery welding

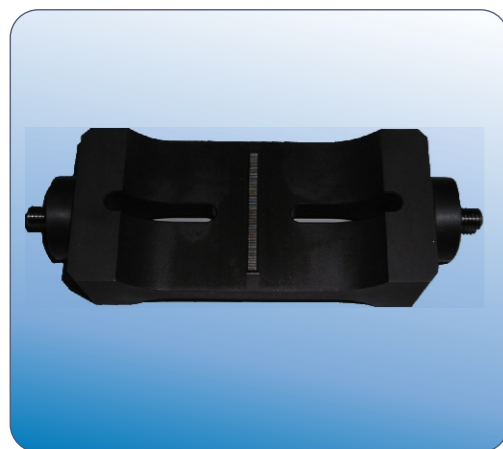


◆ Specifications	
Type	40K
Material	High speed steel
Apply area	Thin sheet metal

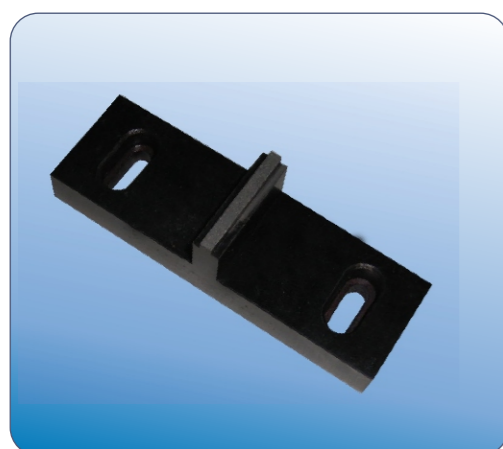




◆ Specifications	
Type	40K
Max amplitude	15μm
Stud type	M8
2nd resonace	Null
Uniformity	99%
Max stress	90MPA
Gain	1.9
Max booster	1
Free Power	<10%
Wave type	Half wave
Material	High speed steel
Apply area	Li-ion battery welding



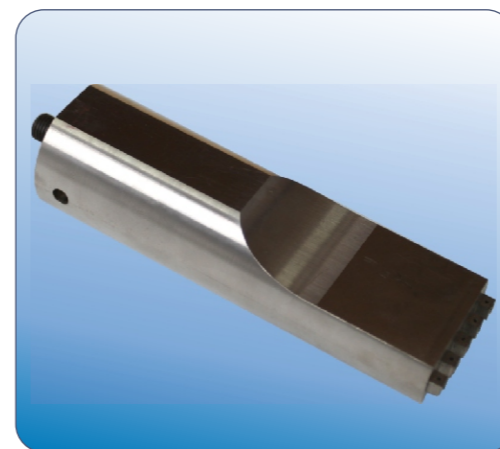
◆ Specifications	
Type	40K
Max amplitude	18μm
Stud type	M8
2nd resonace	Null
Uniformity	96%
Max stress	90MPA
Gain	2
Max booster	1
Free Power	<10%
Wave type	Full wave
Material	High speed steel
Apply area	Li-ion battery welding



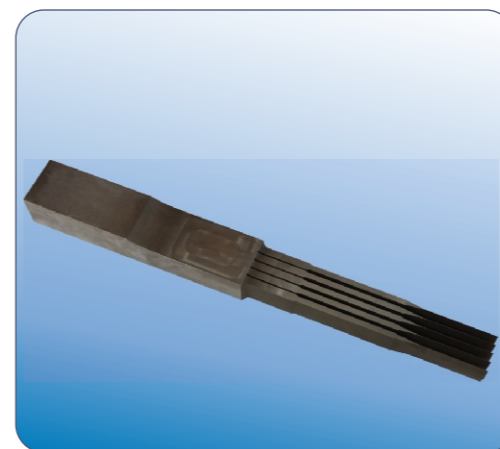
◆ Specifications	
Type	40K
Material	Highn speed steel
Apply area	Thin sheet metal



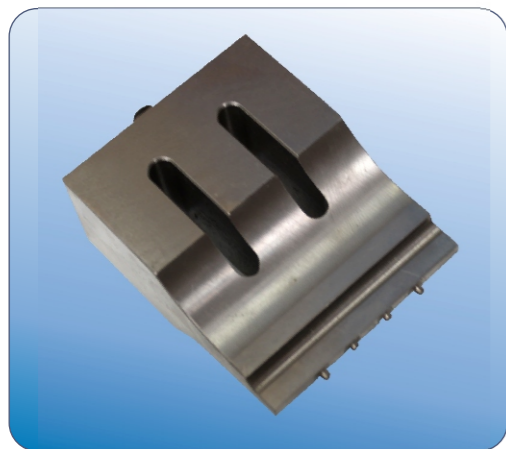
◆ Specifications	
Type	40K
Max amplitude	40μm
Stud type	M8
2nd resonace	Null
Uniformity	90%
Max stress	140MPA
Gain	2.5
Max booster	1.5
Free Power	<10%
Wave type	Full wave
Material	Titanium
Apply area	Plastic welding



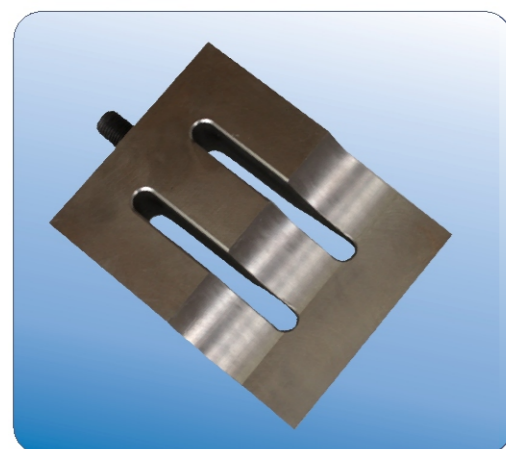
◆ Specifications	
Type	20K
Max amplitude	60μm
Stud type	3/8
2nd resonace	Null
Uniformity	90%
Max stress	130MPA
Gain	2
Max booster	2
Free Power	<10%
Wave type	Half wave
Material	Titanium
Apply area	Plastic welding



◆ Specifications	
Type	20K
Max amplitude	70μm
Stud type	3/8
2nd resonace	Null
Uniformity	90%
Max stress	140MPA
Gain	3.5
Max booster	1
Free Power	<10%
Wave type	Full wave
Material	Titanium
Apply area	Food cutting



◆ Specifications	
Type	40K
Max amplitude	32μm
Stud type	M8
2nd resonace	Null
Uniformity	86%
Max stress	110MPA
Gain	2
Max booster	2
Free Power	<10%
Wave type	Half wave
Material	Titanium
Apply area	Plastic welding



◆ Specifications	
Type	20K
Max amplitude	100μm
Stud type	1/2
2nd resonace	Null
Uniformity	90%
Max stress	150MPA
Gain	3
Max booster	2
Free Power	<10%
Wave type	Half wave
Material	Titanium
Apply area	Plastic welding



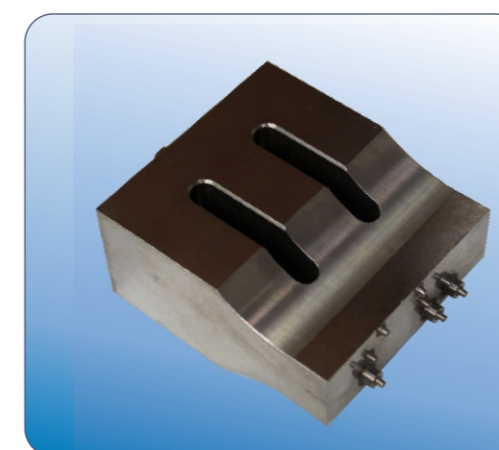
◆ Specifications	
Type	40K
Max amplitude	60μm
Stud type	M8
2nd resonace	Null
Uniformity	86%
Max stress	110MPA
Gain	3.6
Max booster	2
Free Power	<10%
Wave type	Half wave
Material	Titanium
Apply area	Plastic welding



◆ Specifications	
Type	40K
Max amplitude	40μm
Stud type	M8
2nd resonace	Null
Uniformity	90%
Max stress	160MPA
Gain	4
Max booster	2
Free Power	<10%
Wave type	Half wave
Material	Titanium
Apply area	Plastic welding



◆ Specifications	
Type	40K
Max amplitude	40μm
Stud type	M8
2nd resonace	Null
Uniformity	86%
Max stress	90MPA
Gain	1
Max booster	2
Free Power	<10%
Wave type	Half wave
Material	Titanium
Apply area	Plastic welding



◆ Specifications	
Type	40K
Max amplitude	40μm
Stud type	M8
2nd resonace	Null
Uniformity	98%
Max stress	90MPA
Gain	2
Max booster	1
Free Power	<10%
Wave type	Half wave
Material	Titanium
Apply area	Plastic welding