

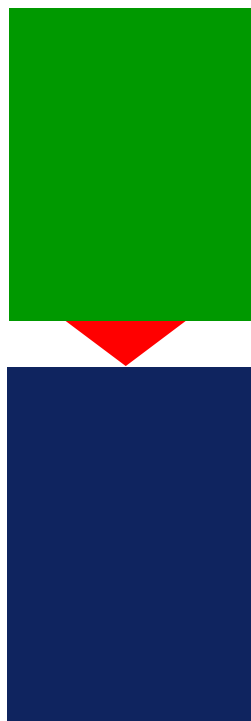
超声波焊接结构设计

恒波超声波设备 0755-28993510

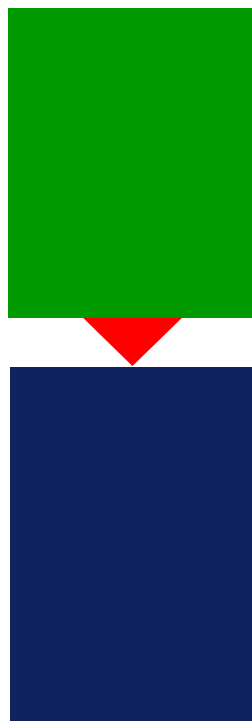
<http://www.chaoshengbohanjieji.com>

焊接筋的角度

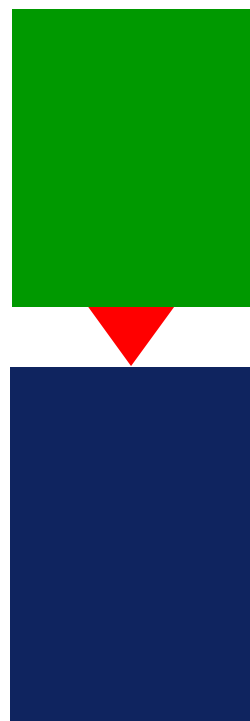
120°



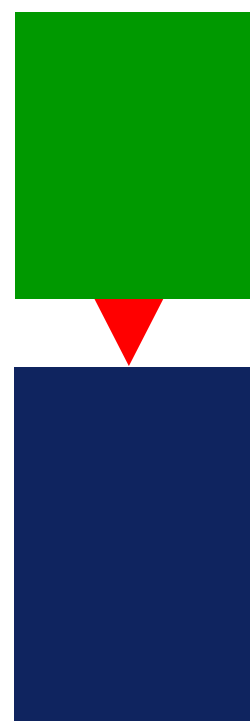
90°



60°



45°



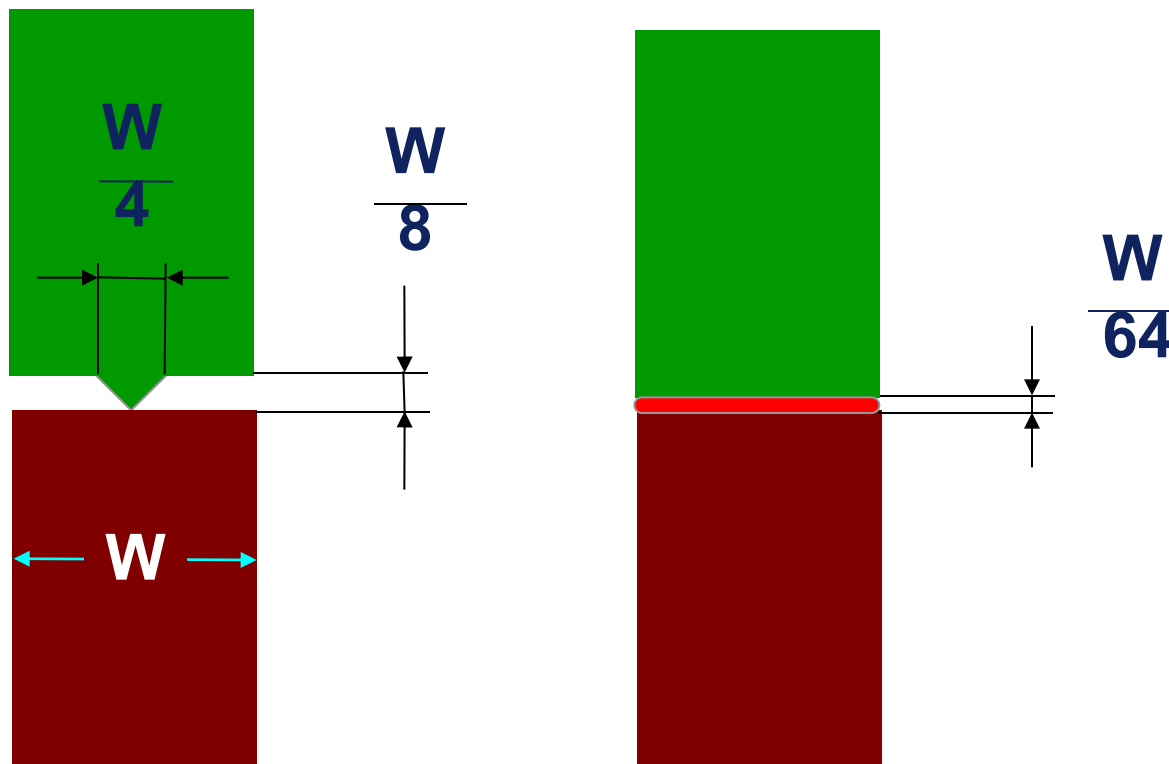
恒波超声波设备 0755-28993510

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超声焊接结构

- 基本型

Basic Energy Director



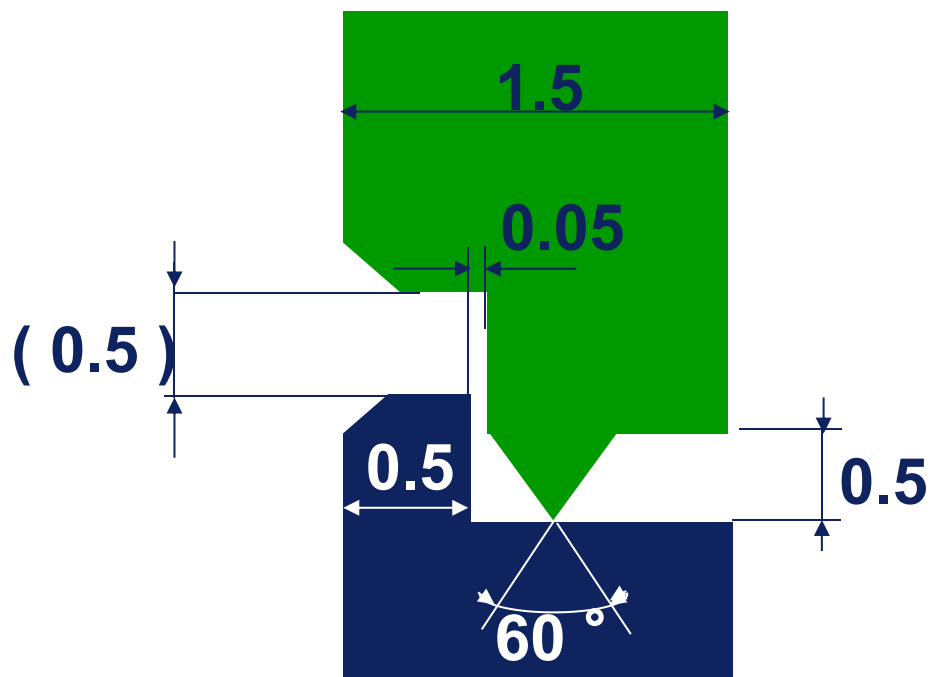
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超声焊接结构

- 阶梯型

Step Joint



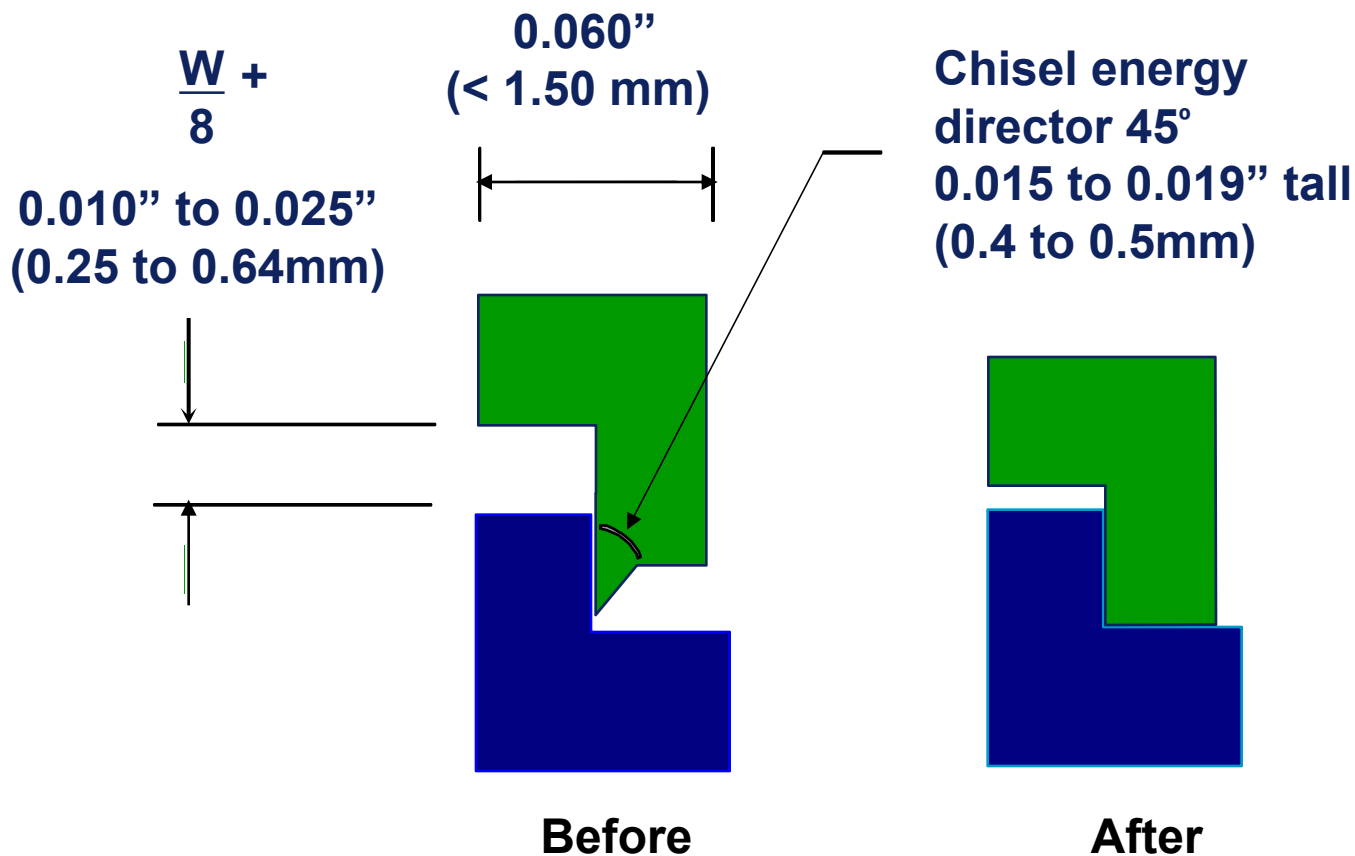
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超声焊接结构

- 阶梯型

Chisel Edge



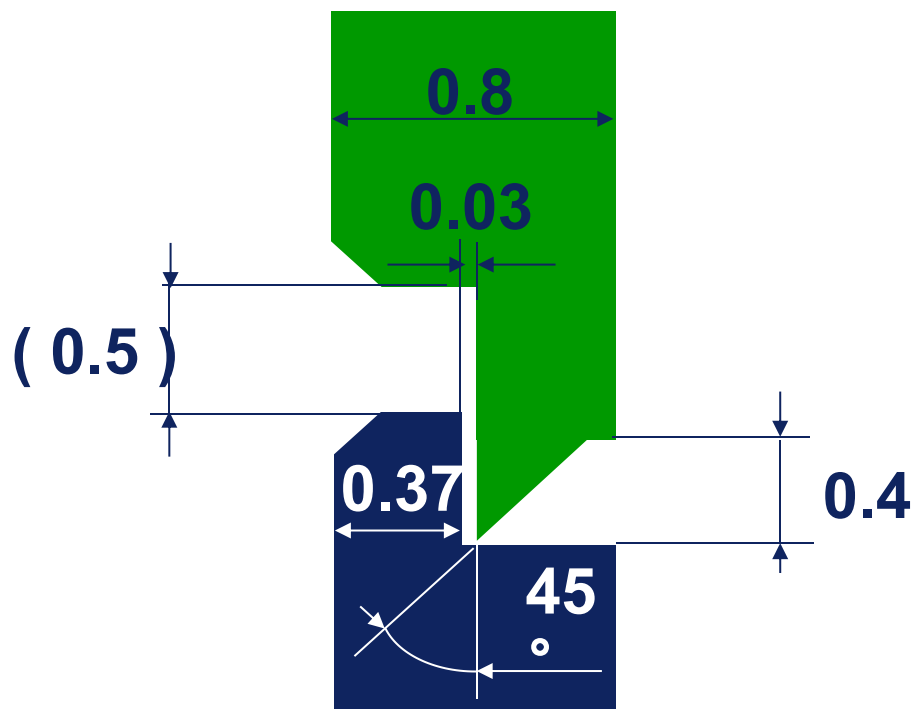
恒波超声波设备 0755-28993510

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超声焊接结构

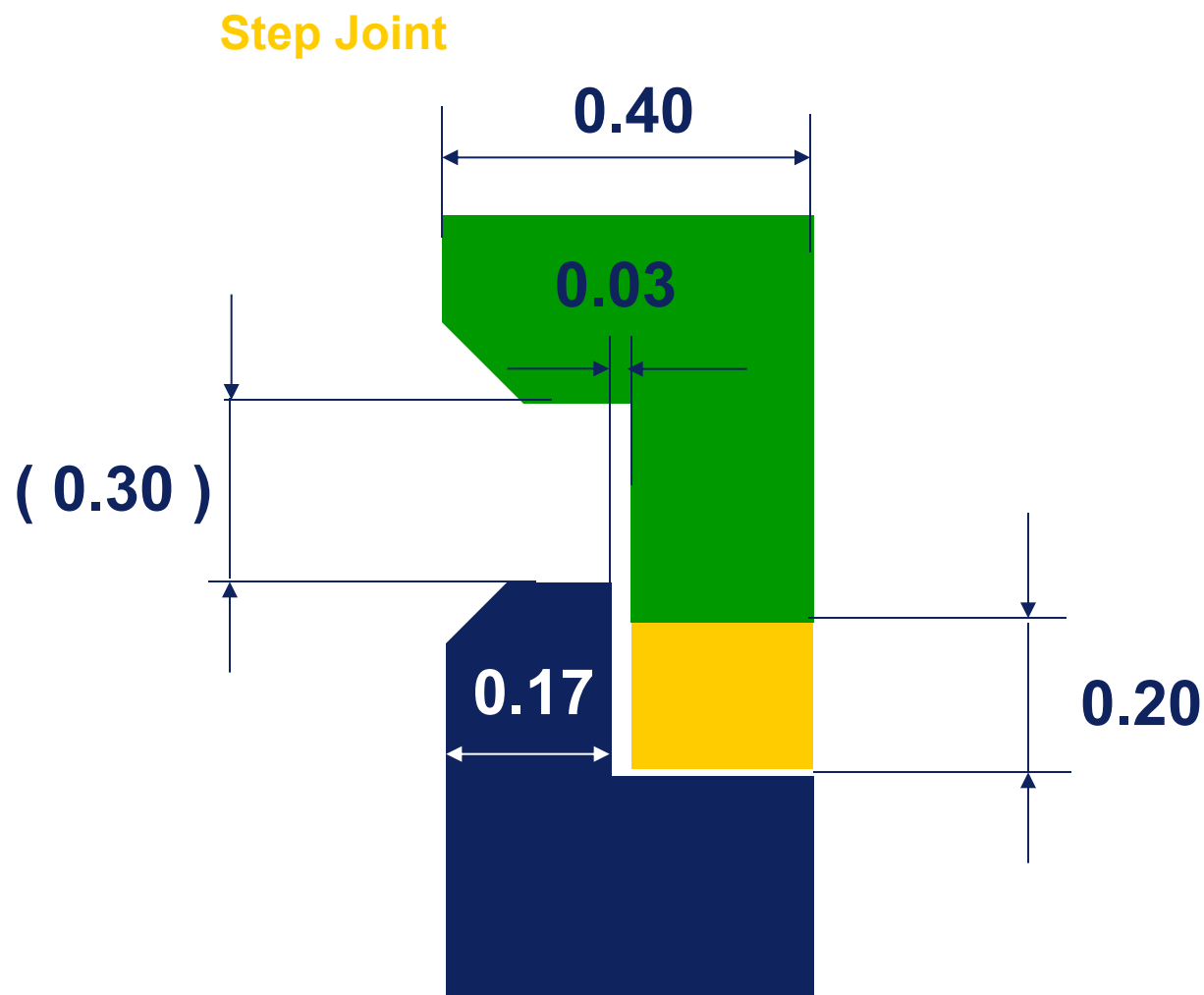
- 阶梯型

Step Joint



超声焊接结构

- 阶梯型

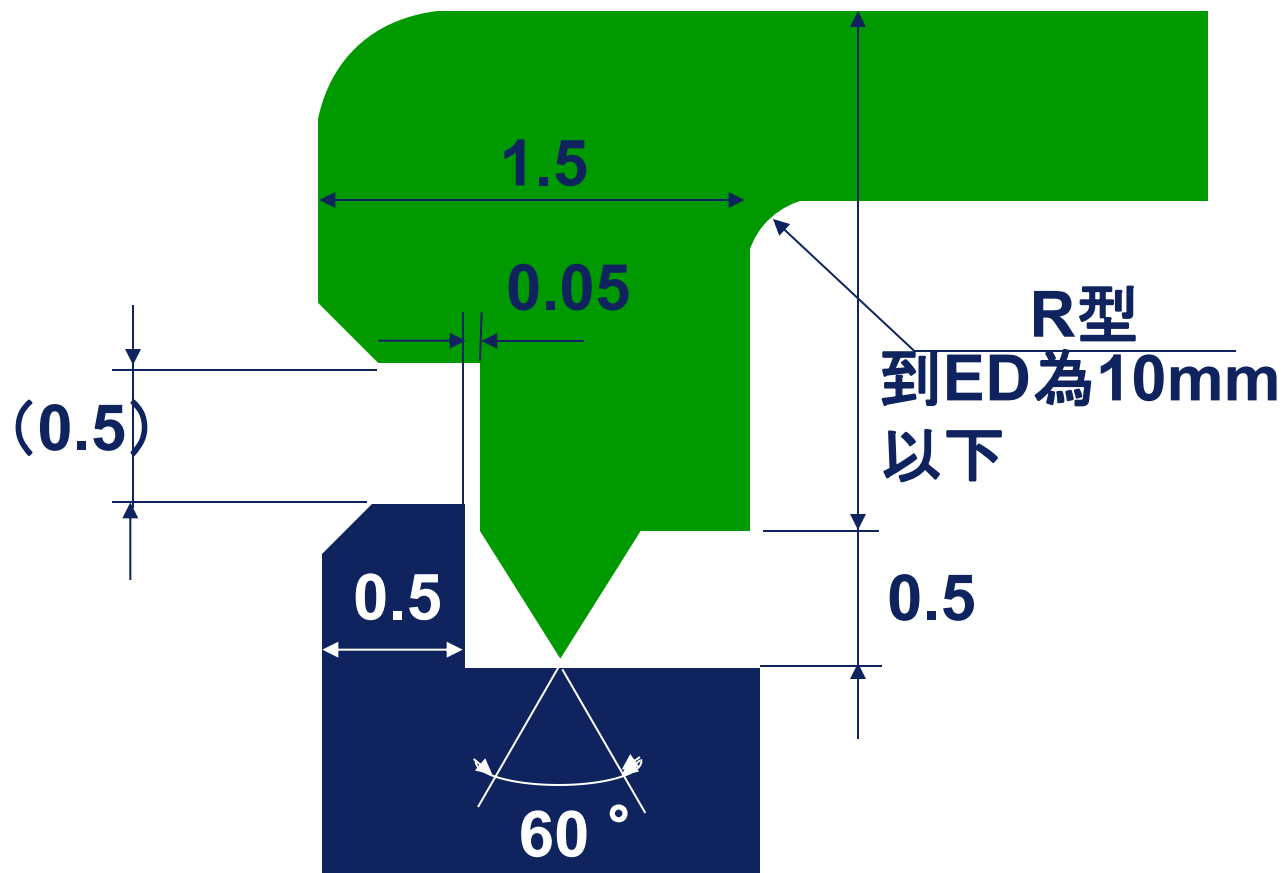


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Join Design①

肉厚達 1.5 mm 程度時

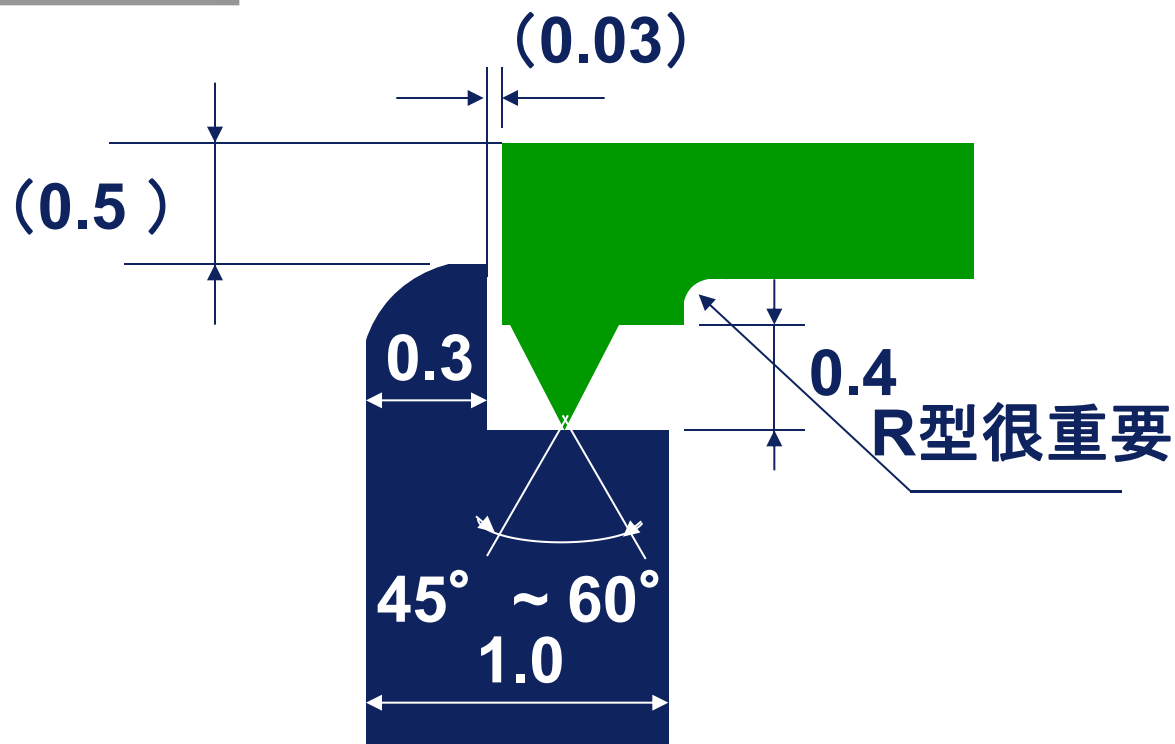


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Join Design②

肉厚 1.0 mm 程度時

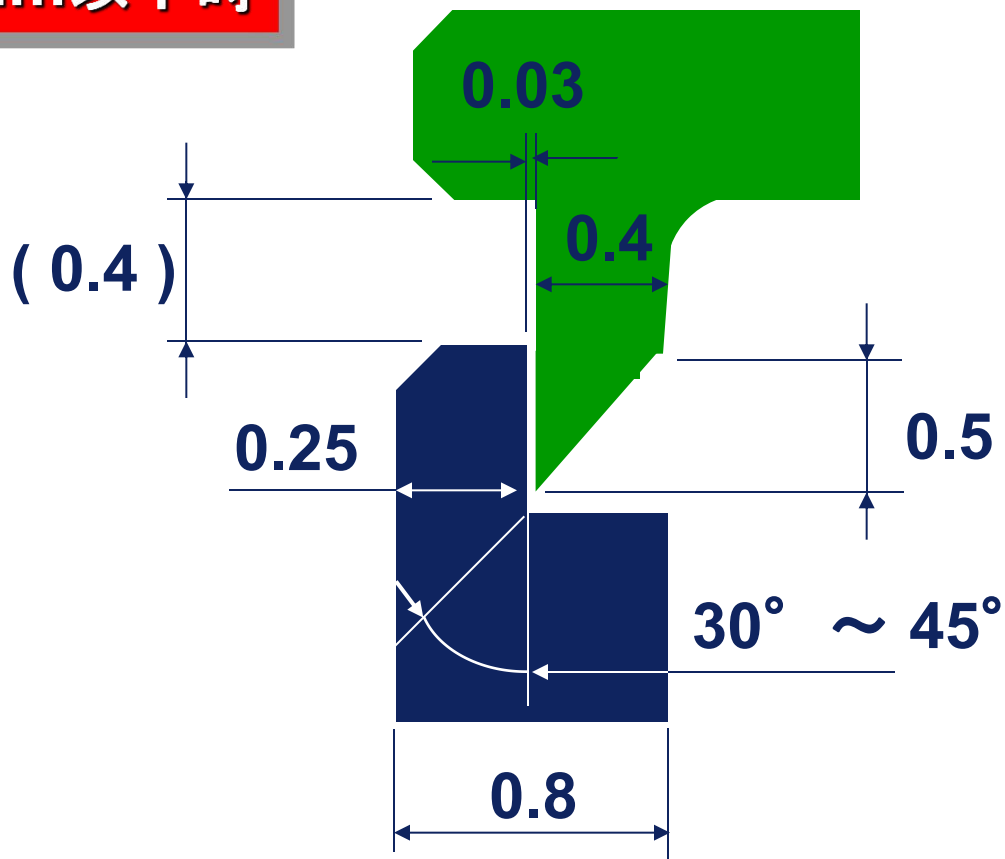


恒波超声波设备 0755-28993510

<http://www.chaoshengbohanjieji.com>

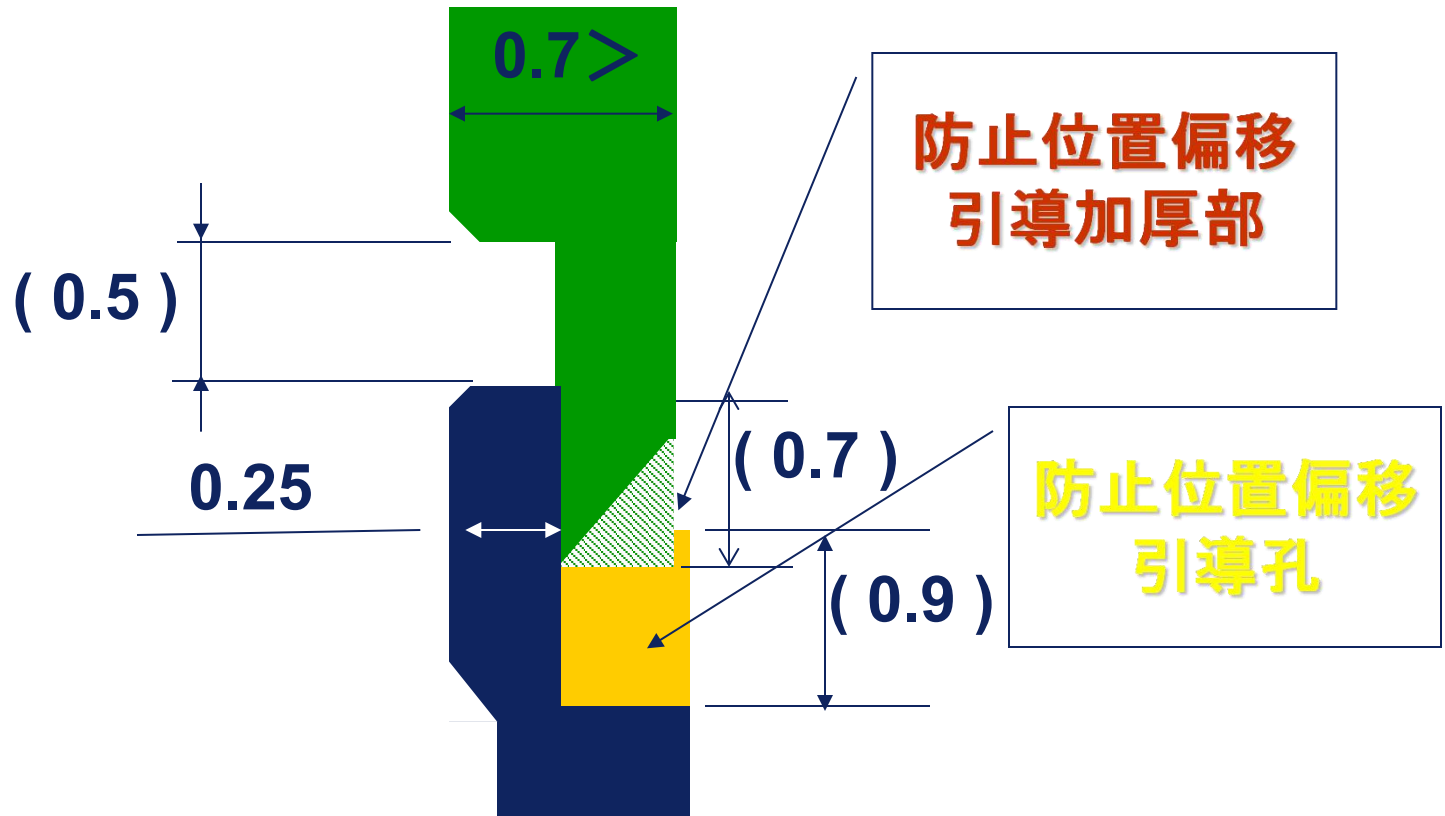
Join Design③

肉厚約 0.8 mm以下時



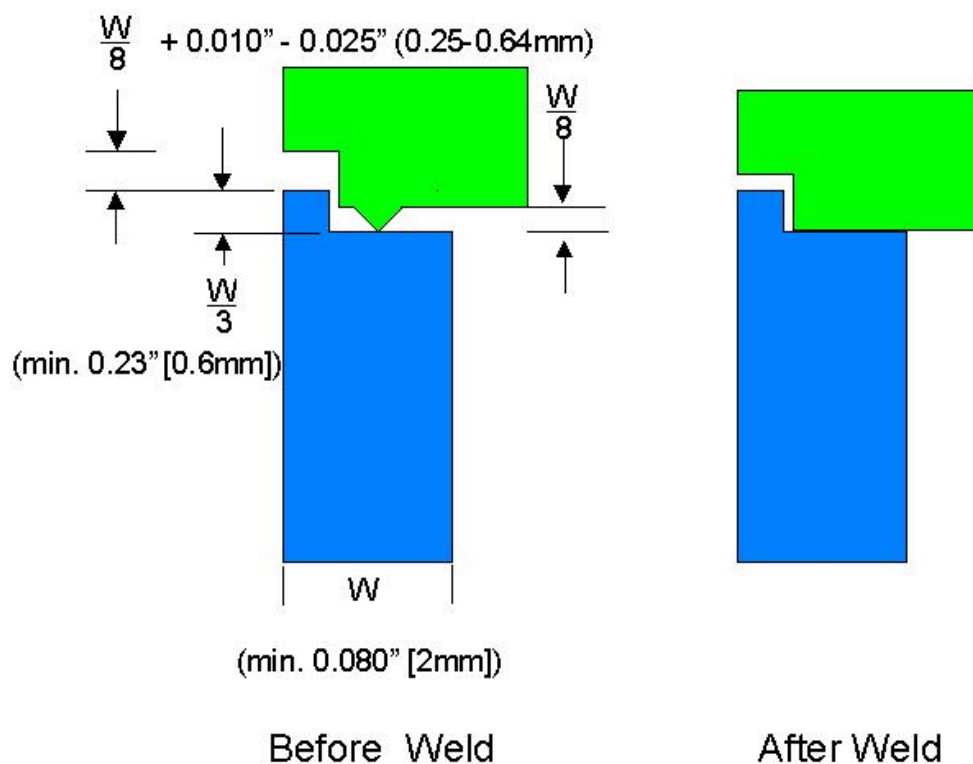
Join Design④ 防止位置偏移(斷差)

肉厚 0.7 mm以下時



阶梯型设计及用处

- 防止溢料
- 改善外观



阶梯型设计例子



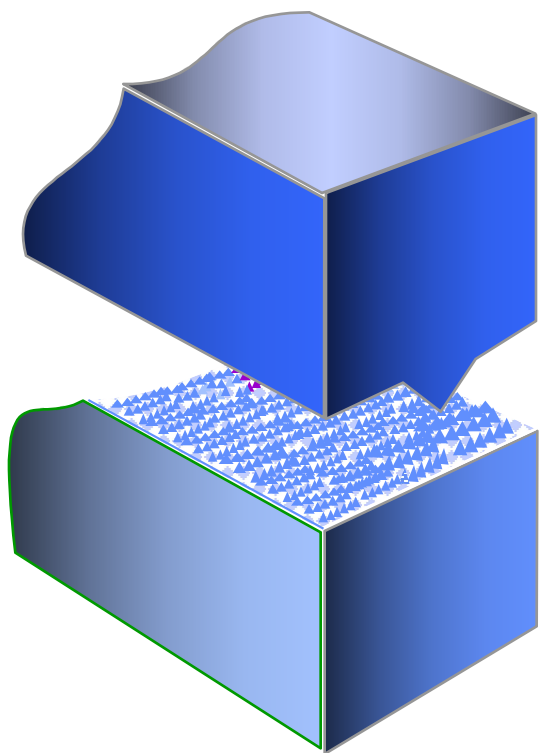
恒波超声波设备 0755-28993510
<http://www.chaoshengbohanjieji.com>

榫槽型设计例子



恒波超声波设备 0755-28993510
<http://www.chaoshengbohanjieji.com>

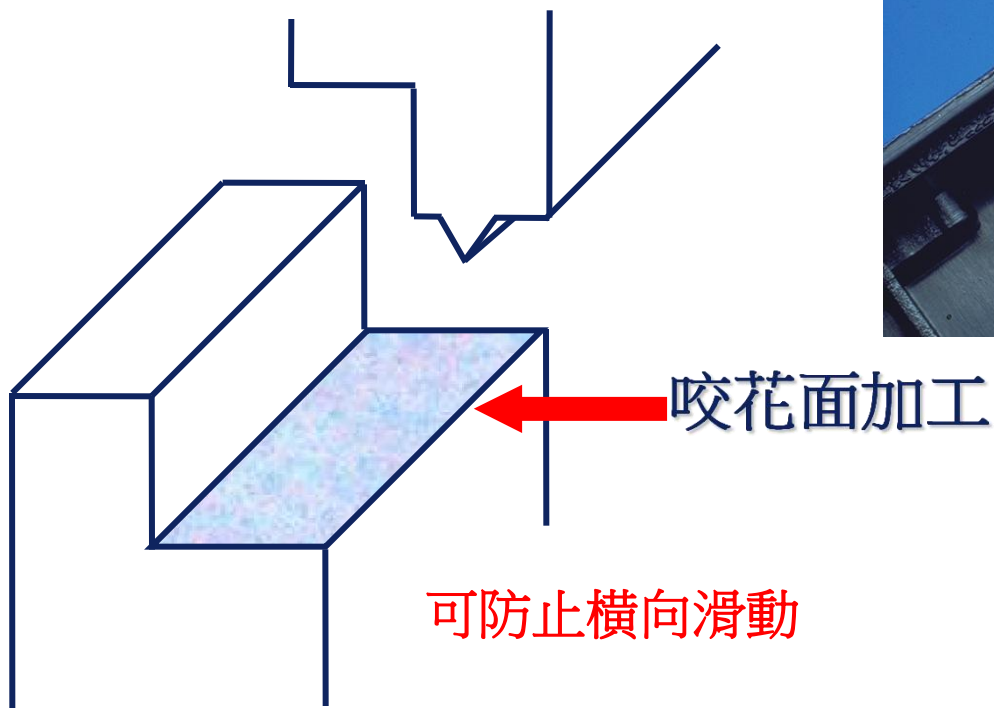
超声线及火花纹设计



Branson/Mold-Tech Texture Designation	Pattern Depth	Energy Director Height
Branson300	0.003''	0.005''-0.011''
Branson450	0.0045''	0.012''-0.017''
Branson600	0.006''	0.018'' and up

提高強度方式： 超声线及火花纹

熔接強度提高



ED 高度

咬花面深度

0.13~0.29

75 μm

0.30~0.44

115 μm

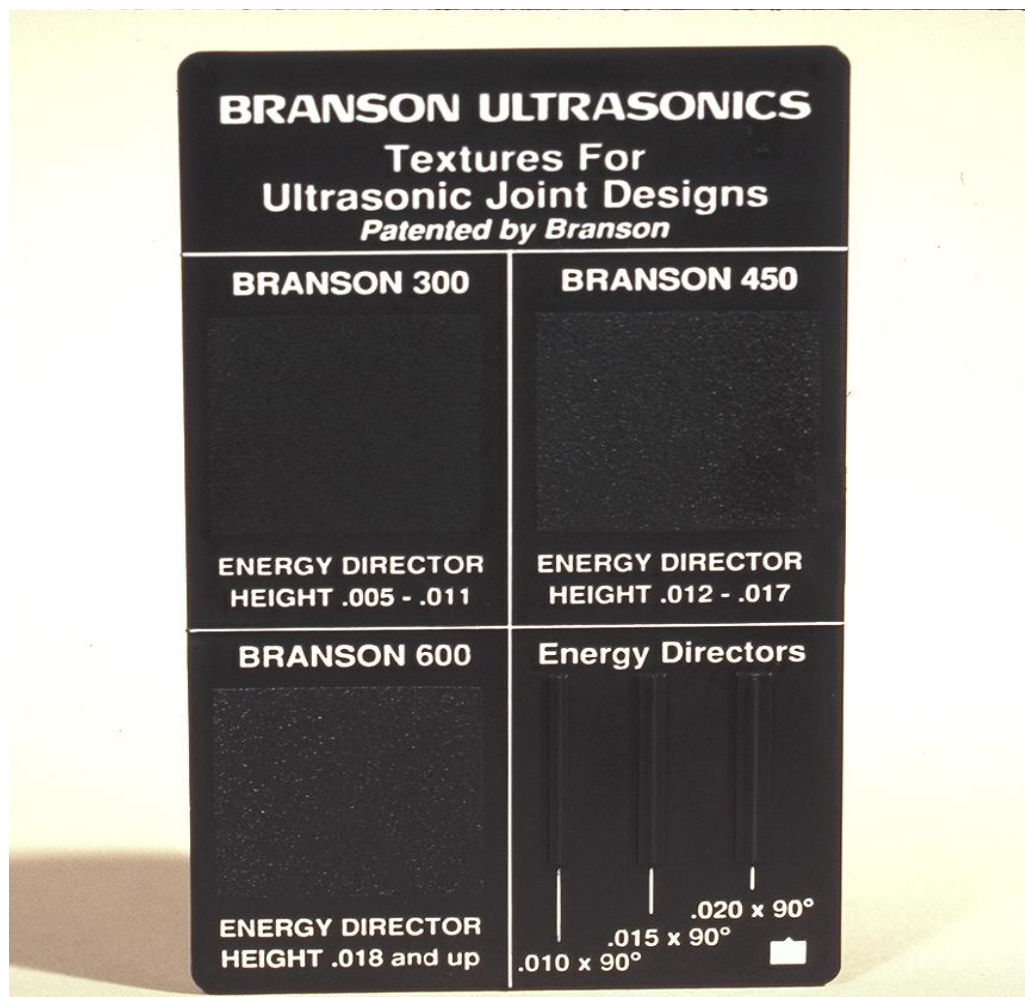
0.45 以上

150 μm

恒波超声波设备 0755-28993510

<http://www.chaoshengbohanjieji.com>

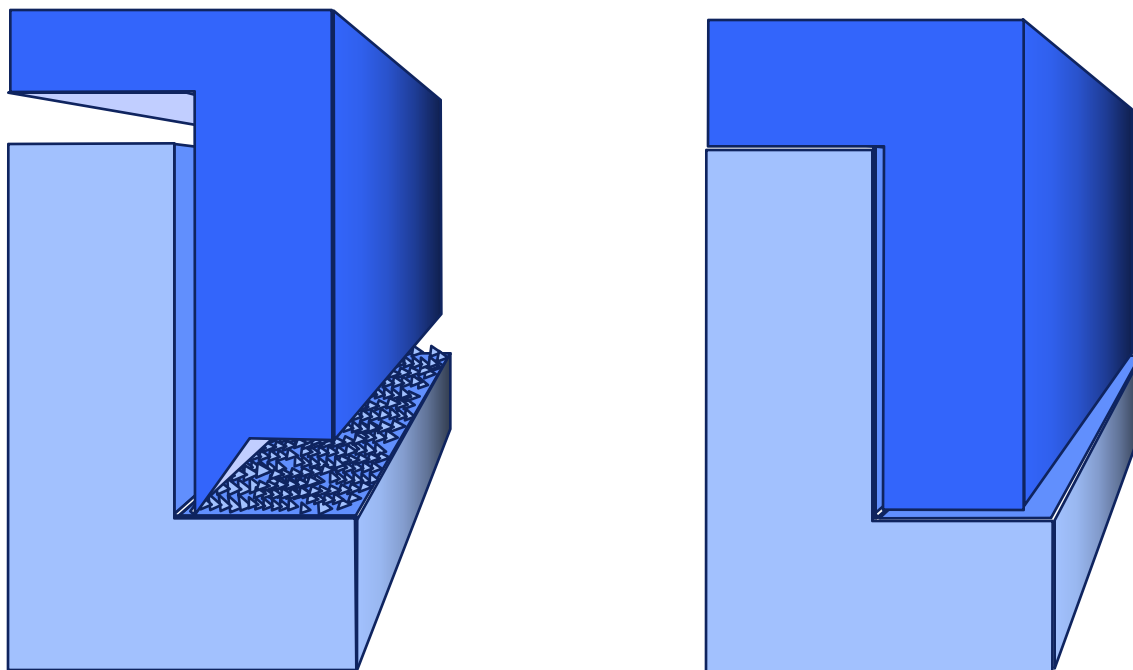
超声线及火花纹样板



恒波超声波设备 0755-28993510

<http://www.chaoshengbohanjieji.com>

刀边型加上火花纹



超声熔化效果



无火花纹

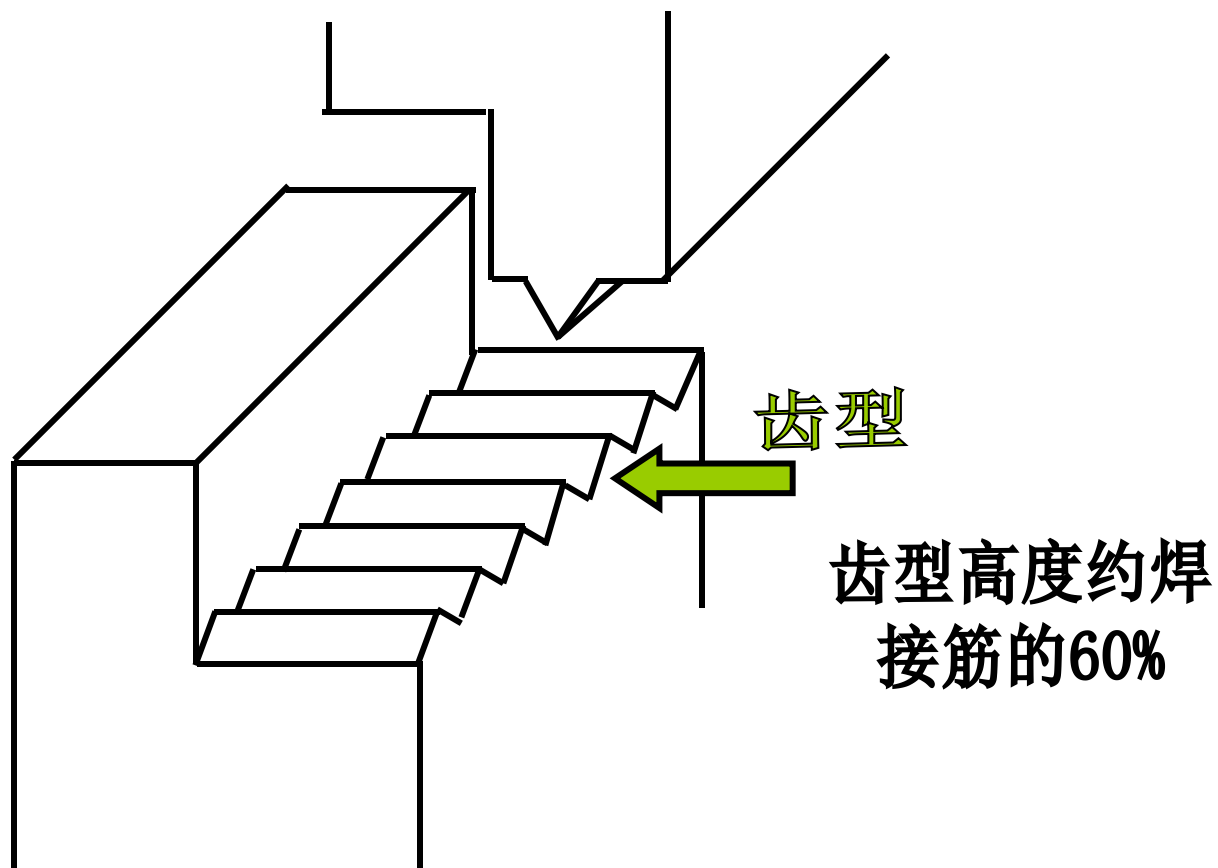
有火花纹

恒波超声波设备 0755-28993510
<http://www.chaoshengbohanjieji.com>

超声焊接结构

- 阶梯型

Continuous Criss-Cross
Energy Director

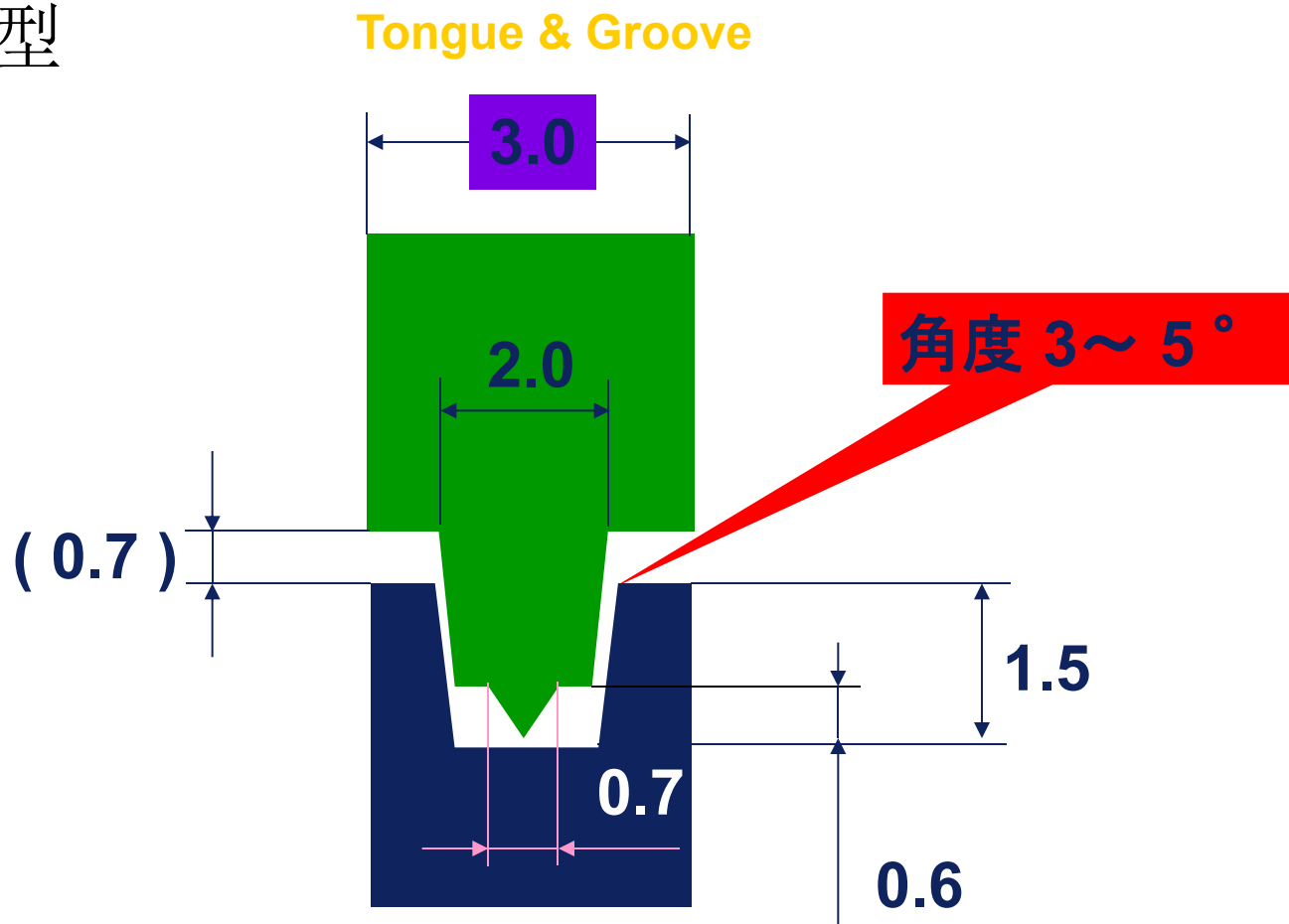


恒波超声波设备 0755-28993510

<http://www.chaoshengbohanjieji.com>

超声焊接结构

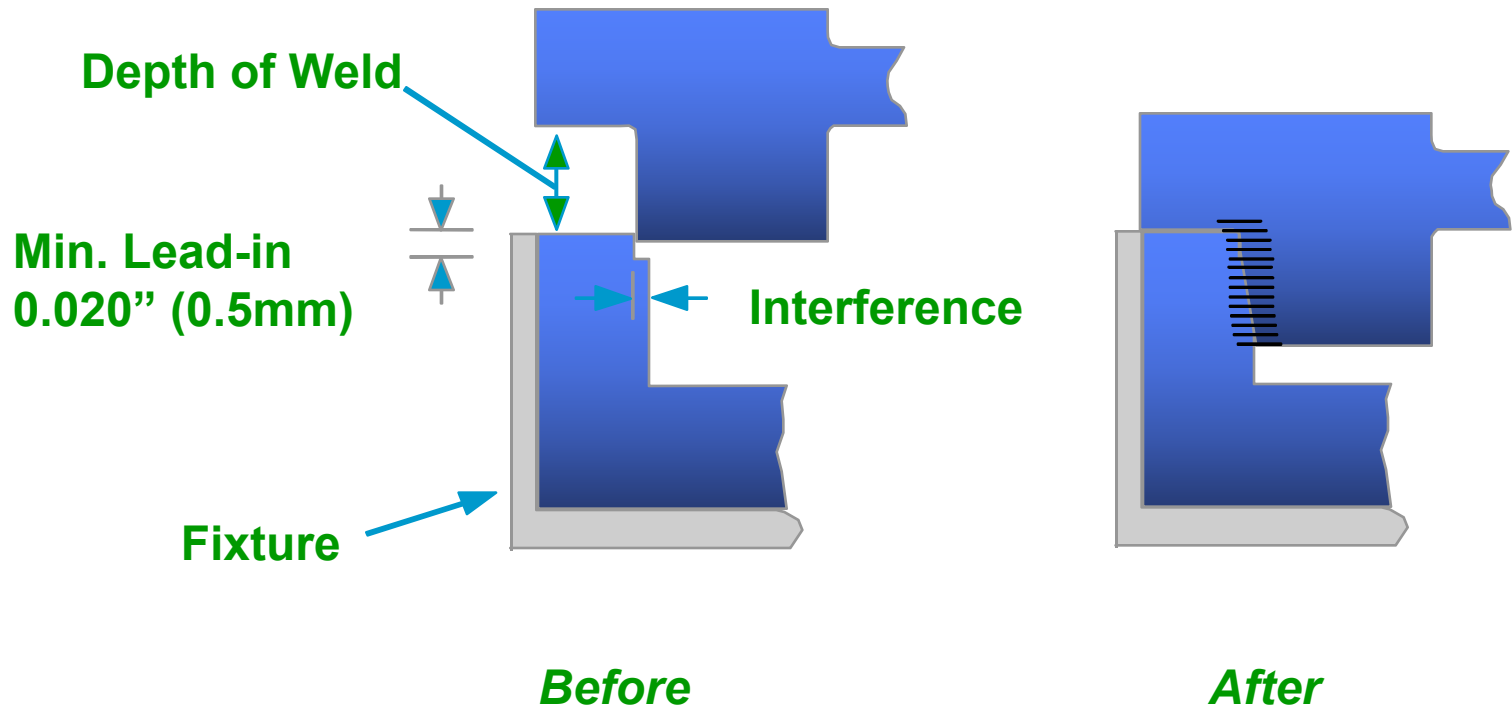
- 榫槽型



超声线设计的限制

- 某些塑胶材料不能有效焊接
 - 特别是“半晶性”塑胶材料焊接
- 解决方法
 - 剪切型

剪切连接 (Shear Joint) 设计

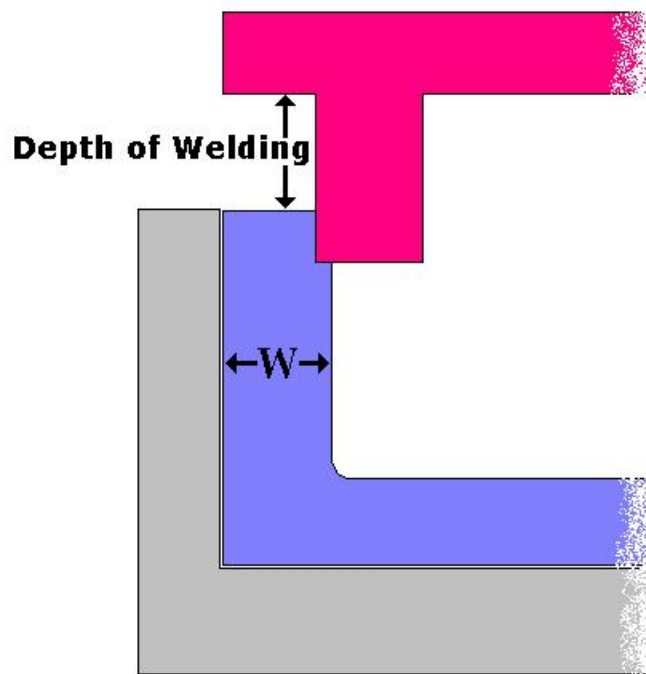


恒波超声波设备 0755-28993510

<http://www.chaoshengbohanjieji.com>

剪切连接的焊接深度

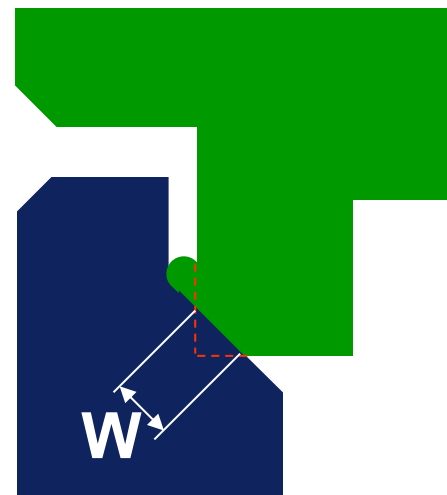
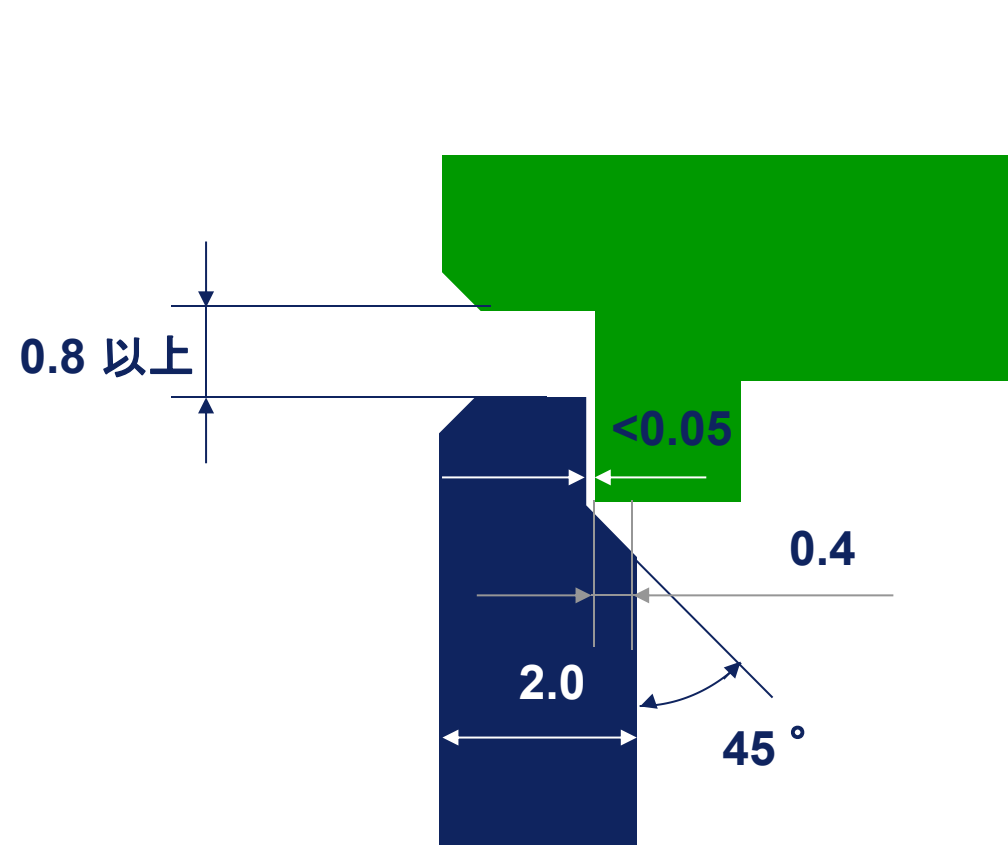
- 一般 $1.25w$
- 最少 $0.5w$
- 最多 $1.75w$



恒波超声波设备 0755-28993510

<http://www.chaoshengbohanjieji.com>

Share Join①



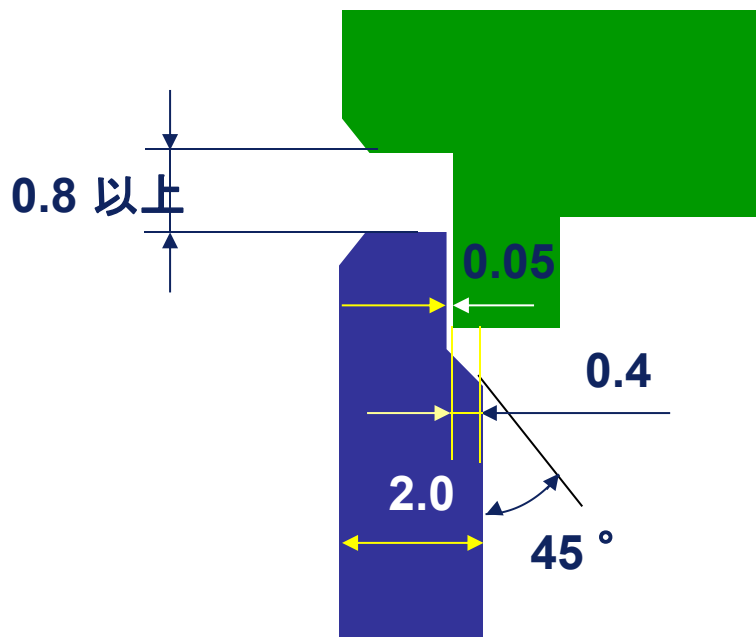
恒波超声波设备 0755-28993510

<http://www.chaoshengbohanjieji.com>

超声焊接结构

- 剪切型

Shear Joint

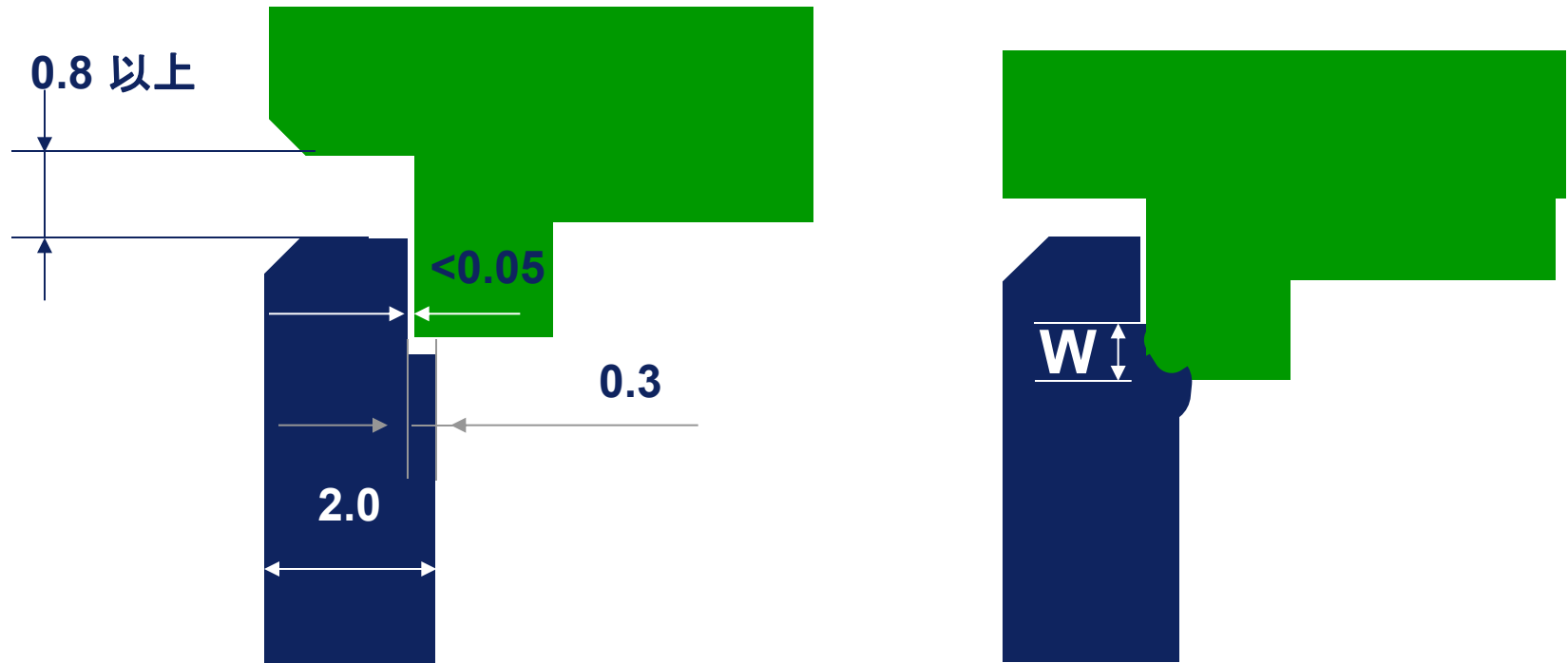


Maximum Part Dimension	Interference per Side (Range)	Part Dimension Tolerance
Less than 0.75" (18mm)	0.008" to 0.012" (0.2 to 0.3mm)	± 0.001 " (± 0.025 mm)
0.75" to 1.50" (18-35mm)	0.012" to 0.016" (0.3 to 0.4mm)	± 0.002 " (± 0.050 mm)
Greater than 1.50" (35mm)	0.016" to 0.020" (0.4 to 0.5mm)	± 0.003 " (± 0.075 mm)

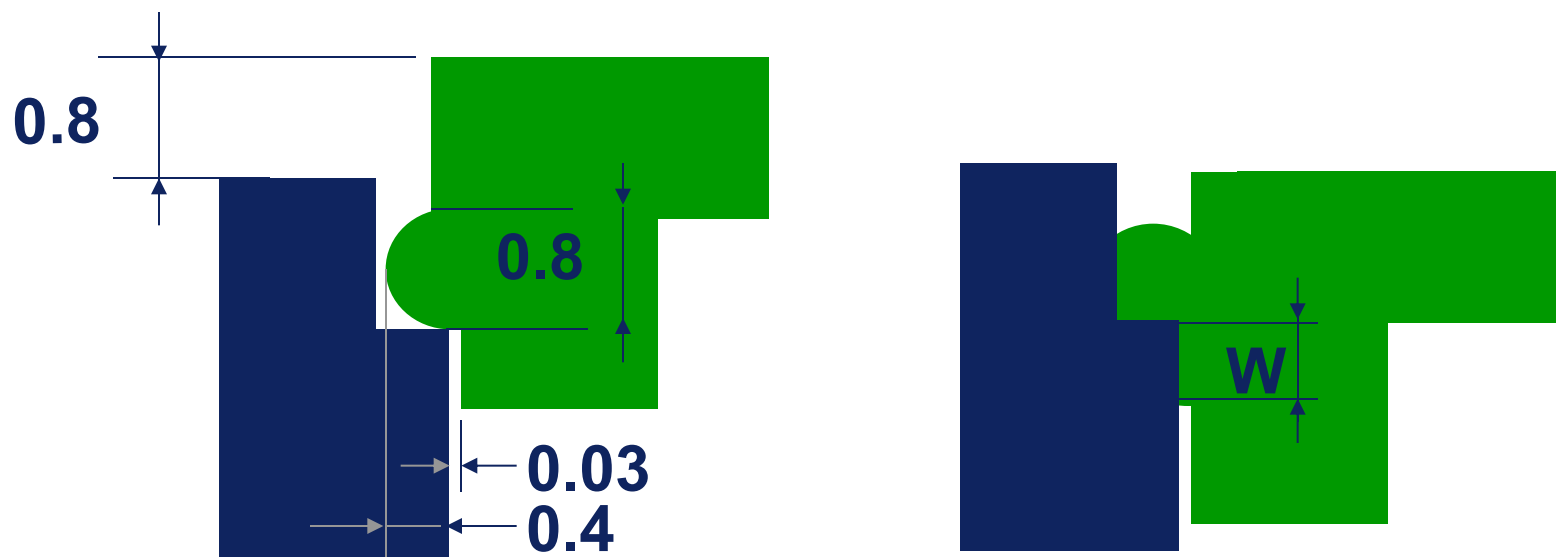
恒波超声波设备 0755-28993510

<http://www.chaoshengbohanjieji.com>

Share Join②



Shear Joint

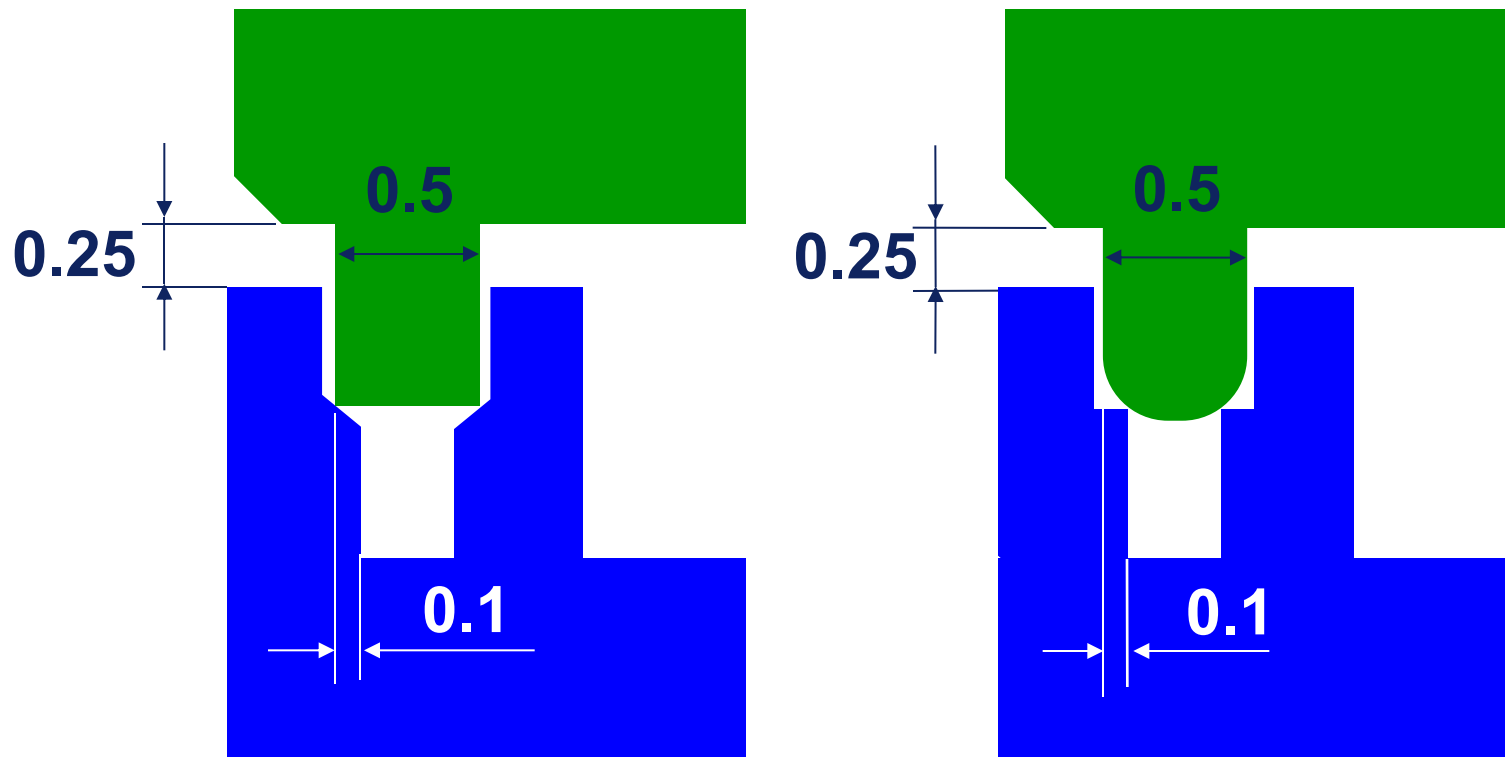


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超声焊接结构

- 剪切型

Shear Joint



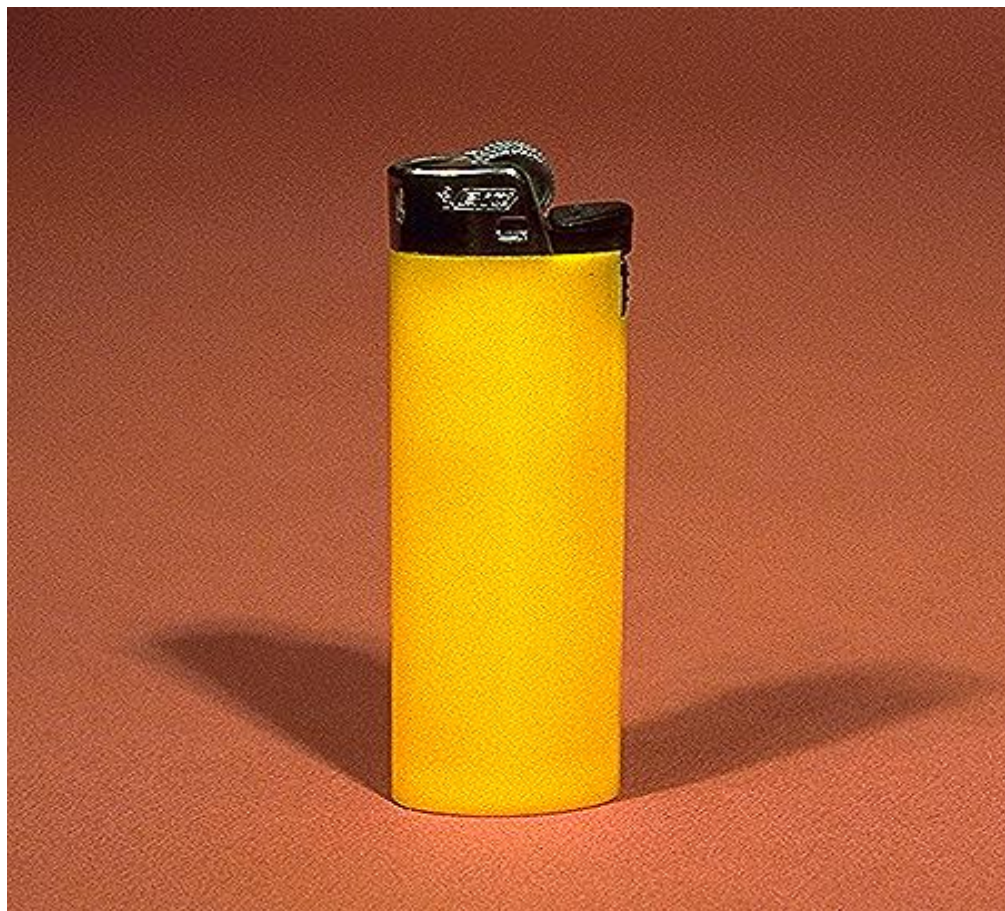
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Shear Joint Interference

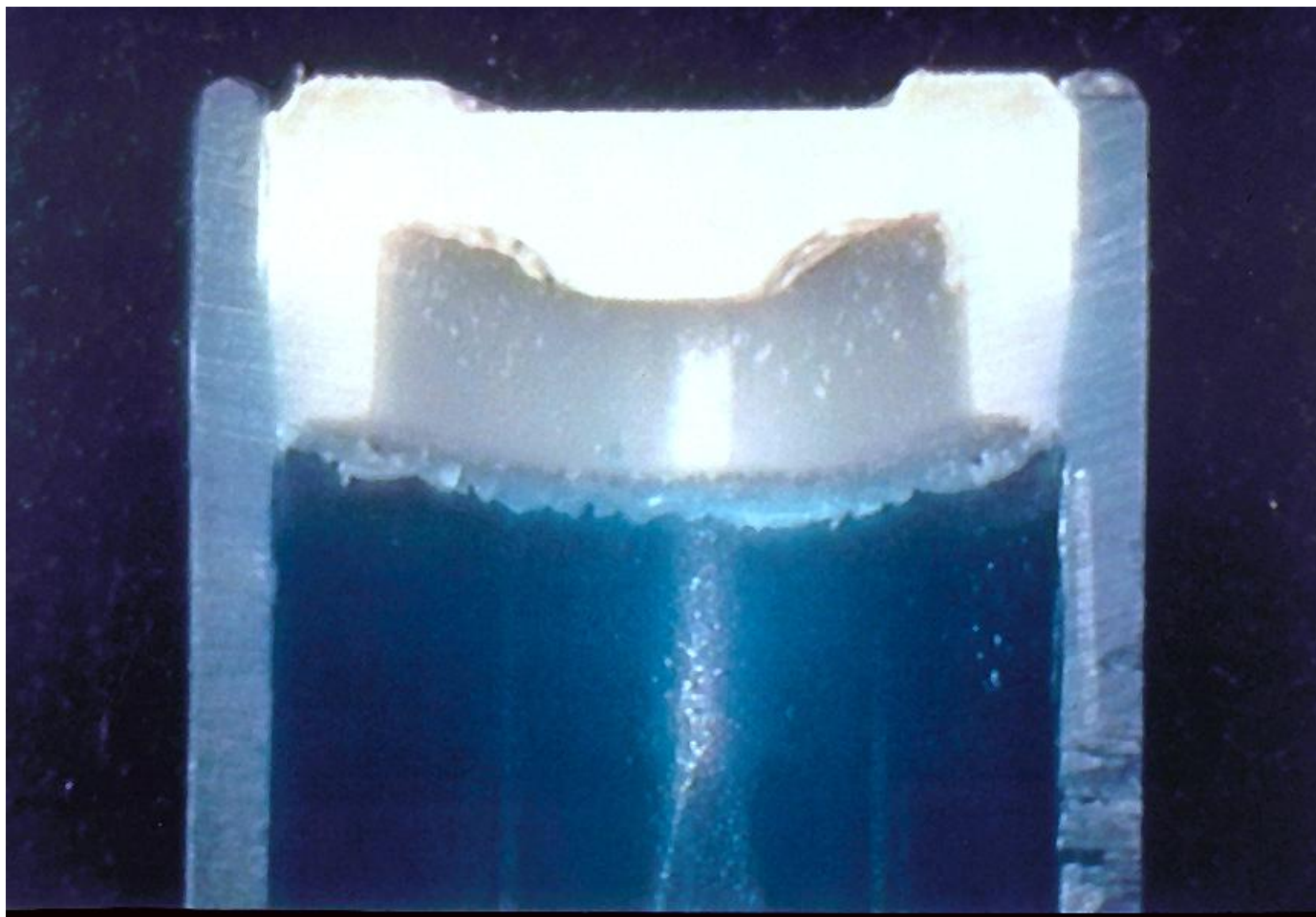
Maximum Part Dimension	Interference per Side (Range)	Part Dimension Tolerance
Less than 0.75" (18mm)	0.008" to 0.012" (0.2 to 0.3mm)	$\pm 0.001"$ ($\pm 0.025\text{mm}$)
0.75" to 1.50" (18-35mm)	0.012" to 0.016" (0.3 to 0.4mm)	$\pm 0.002"$ ($\pm 0.050\text{mm}$)
Greater than 1.50" (35mm)	0.016" to 0.020" (0.4 to 0.5mm)	$\pm 0.003"$ ($\pm 0.075\text{mm}$)

剪切设计例子



恒波超声波设备 0755-28993510
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剪切设计例子



恒波超声波设备 0755-28993510

<http://www.chaoshengbohanjieji.com>

剪切设计的长处

- 焊接强度高, 防水效果佳
- 减少“假焊”现象出现
- 适合大多数塑料材料

剪切设计的限制

- 要求高精度度的塑件
- 需要较强的支持
- 焊接面多为正多边形或圆形