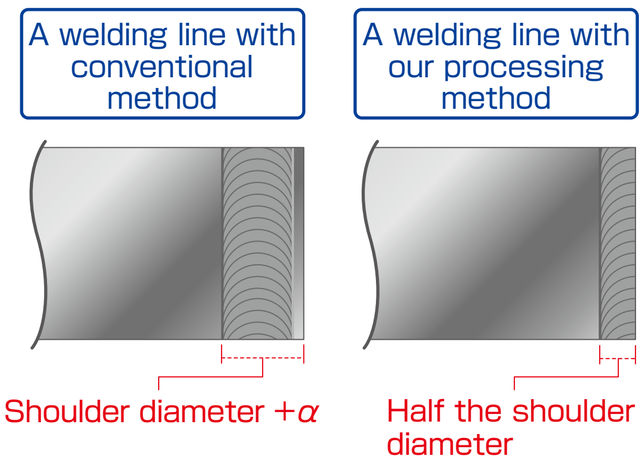
Introducing a new processing method using Friction Stir Welding (FSW) PAT.

Friction Stir Welding (FSW) is an effective joining technique for materials that are difficult to join with fusion welding, such as aluminum and copper. However, the welded product has a welding line as wide as the shoulder diameter of the tool. For applications such as a cooling plate welded on its outer circumference, the overall size of the cooling plate becomes large due to welding lines on the edges.
ISEL offers a new manufacturing method combining FSW with a cutting process. This technique reduces the width of the welding line along the workpiece edge to half the shoulder diameter, thus the method can reduce the size of welded products. This method simplifies the manufacturing of multiple workpieces by welding the workpieces at a time.

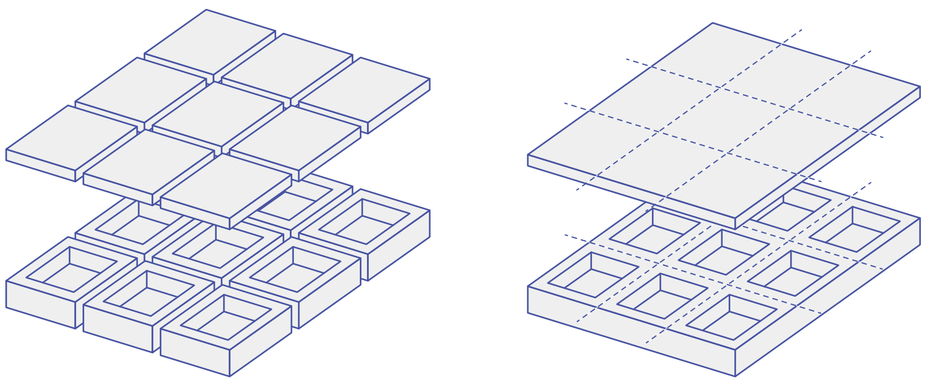


Applications | Compact heat exchanger fabrication・Cooling plate fabrication・Sensor encapsulation・Housing assembling etc.

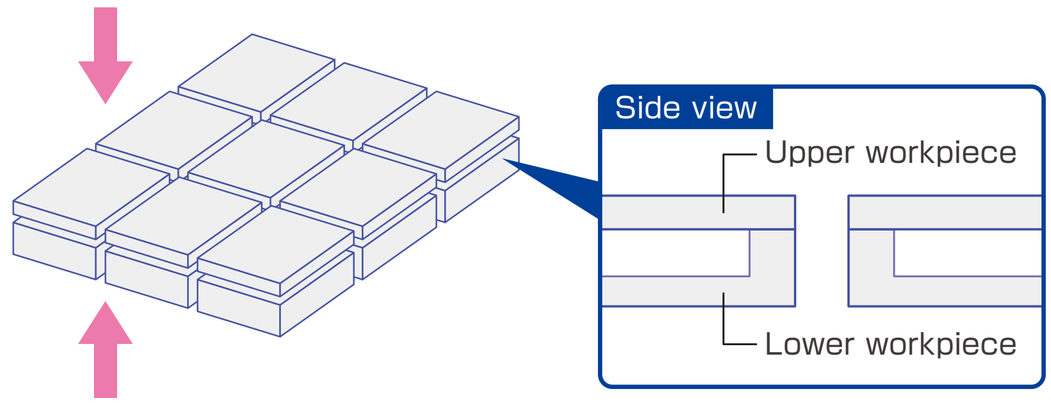
Procedure

1. Prepare workpieces to be joined.

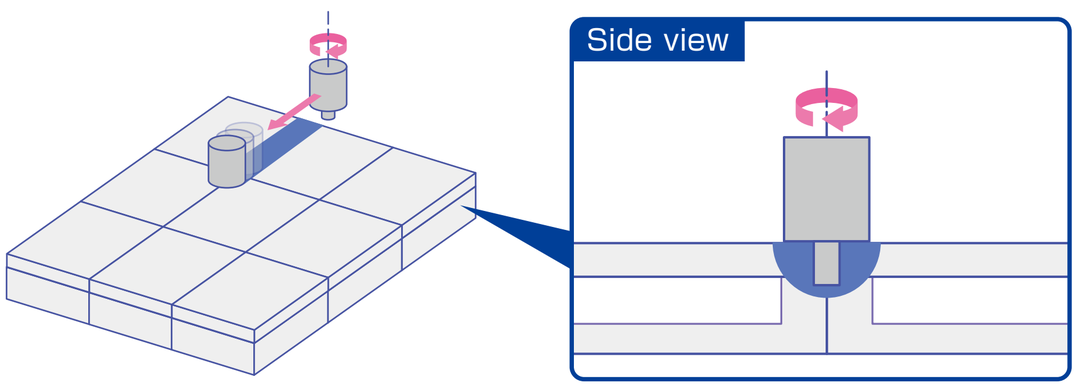
The upper or lower workpieces may be split or integrated.



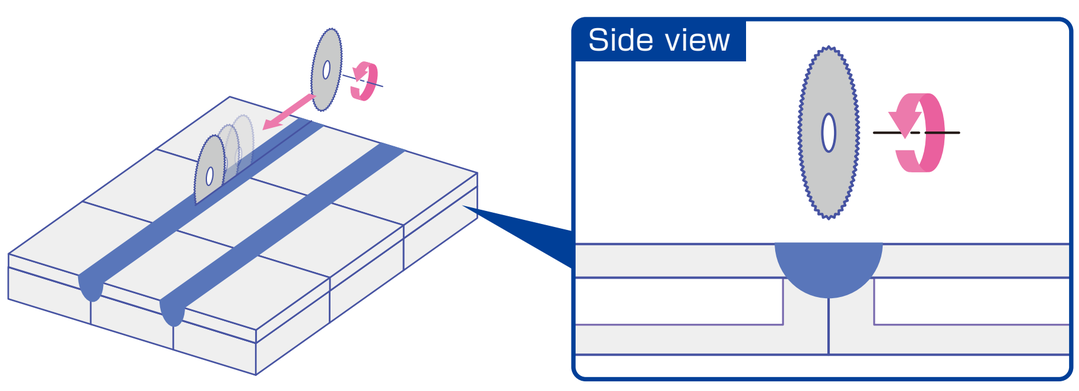
2. Stack the upper and lower workpieces.



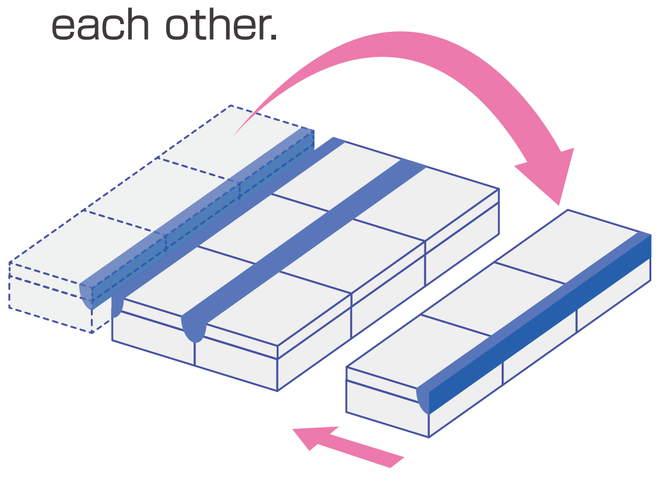
3. Place the stacked workpieces at the butt position against each other, and join the workpieces by FSW.



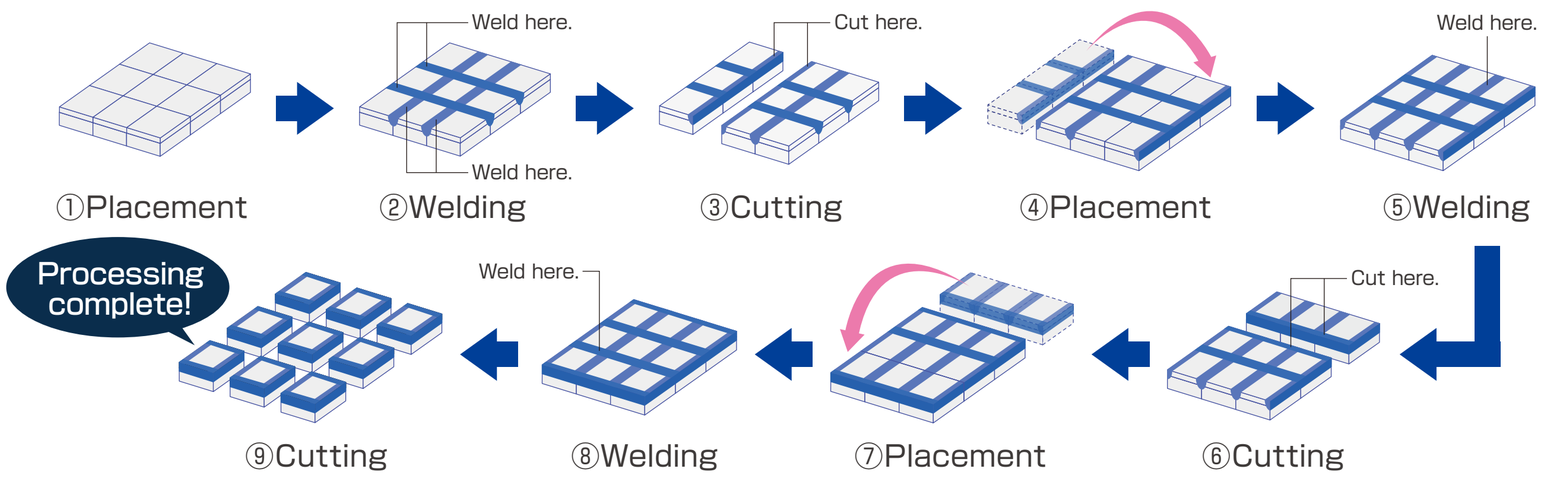
4. Cut along the center of the welding line.



5. Place the unjoined parts at the butt position against each other.



6. Repeat steps 3 to 5 until the processing is complete.



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