

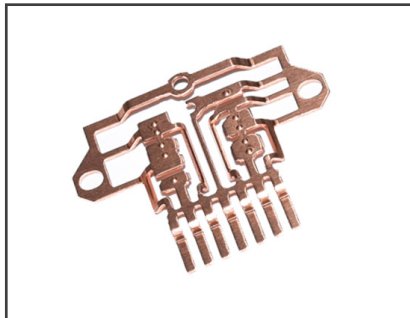
What is the best manufacturing production method for my application?

Quality is all up to the tool used. There are a lot of aspects, which should be considered due to the right decision of production:

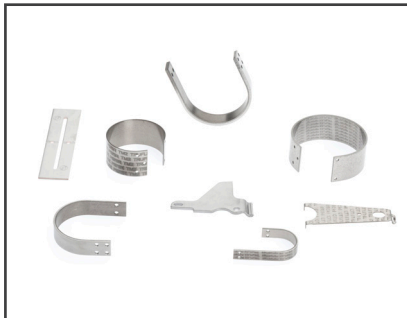
- › Material hardness, material thickness
- › Tolerances, accuracy and precision
- › Microstructural change, burrs
- › Production rate, complexity of design
- › Tool costs, number of pieces

Wickeder Group offers you different technologies for metal work. We advise you about the best process for your application.

Punched & bent parts



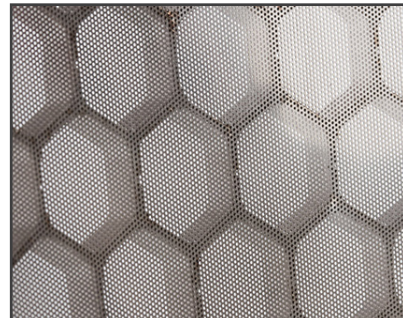
Punched & formed parts



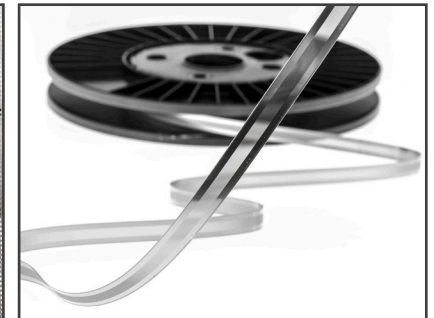
Welded & brazed assemblies



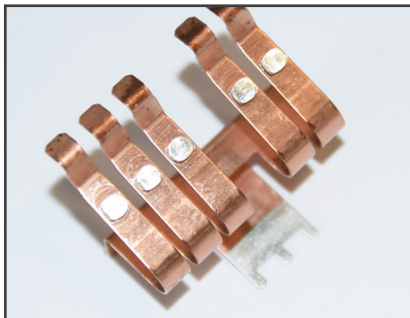
Water jet cut centrifuges



Inline photo chemical etching



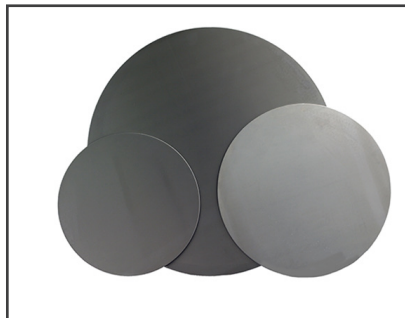
Punched, bent, welded parts



Formed helical & spiral coils



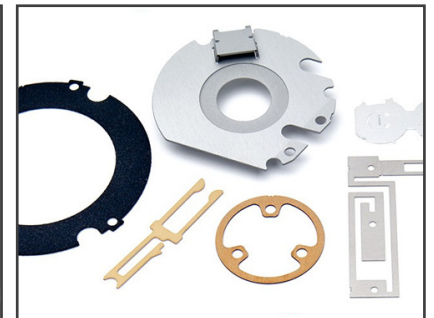
Stamped cookware discs



Water jet cut screens



Sheet photo chemical etching



| Technology | Punching EMS | Punching, Bending, Welding MPUmetall | Water Jet Cutting Inflotek | Reel-to-Reel / Inline Etching micrometal | Sheet / Step Etching HPetch |
|----------------------------|--|--|---|--|--|
| Materials | <ul style="list-style-type: none"> › Pure metals › Bimetals › Clad metals | <ul style="list-style-type: none"> › Pure metals › Bimetals › Clad metals | <ul style="list-style-type: none"> › Pure metals › Bimetals › Clad metals | <ul style="list-style-type: none"> › Stainless Steel › Nickel and Cobalt › Copper & Copper Alloys › Amorphe / nanochrySTALLINE Materials › Clad metals | <ul style="list-style-type: none"> › Stainless Steel & Steel › Nickel › Aluminum › Copper & Copper Alloys › Clad metals |
| Burrs & Thermal effects | <ul style="list-style-type: none"> › Partial burrings › No thermal effects | <ul style="list-style-type: none"> › Partial burrings › Welding: thermal effects | <ul style="list-style-type: none"> › Minimum burrings › No thermal effects | <ul style="list-style-type: none"> › No burrings › No thermal effects | <ul style="list-style-type: none"> › No burrings › No thermal effects |
| Material thickness & width | <ul style="list-style-type: none"> › Thickness: 0.1 - 3.2 mm › Width: max. 600 mm | <ul style="list-style-type: none"> › Thickness: 0.08 - 2.00 mm › Width: 6 - 70 mm (Bihler) 6 - 170 mm (Bruderer) | <ul style="list-style-type: none"> › Thickness: 0.01 - 30 mm › Width: max. 3000 mm | <ul style="list-style-type: none"> › Thickness: 0.025 mm › Width: Etched strips 4 mm Etched structure max. 280 mm | <ul style="list-style-type: none"> › Thickness: 0.015 - 4 mm › Width: 610 - 1800 mm |
| Tolerances / Accuracy | <ul style="list-style-type: none"> › max. 10 % of material thickness | <ul style="list-style-type: none"> › Thickness tolerance: +/- 0.01 mm › Width tolerance: +/- 0.1 mm | <ul style="list-style-type: none"> › min. 0.12 mm cutting line | <ul style="list-style-type: none"> › 0.025 mm: +/- 0.005 mm › 0.050 mm: +/- 0.007 mm › 0.100 mm: +/- 0.010 mm › 0.150 mm: +/- 0.012 mm › 0.300 mm: +/- 0.035 mm › 0.400 mm: +/- 0.045 mm | <ul style="list-style-type: none"> › 0.01 mm › max. +/- 10 % of material thickness |
| Tooling costs | <ul style="list-style-type: none"> › 10.000 - 250.000 USD | <ul style="list-style-type: none"> › Depends on article design | <ul style="list-style-type: none"> › No tooling costs › Design & installation costs 750 € | <ul style="list-style-type: none"> › 5. 000 EUR per tool (280 x 760 mm²) | <ul style="list-style-type: none"> › 150 - 300 € depending on complexity |
| Delivery time sample | <ul style="list-style-type: none"> › Tool samples 4 - 8 weeks › Production tool 8 - 16 weeks | <ul style="list-style-type: none"> › 2 - 6 weeks | <ul style="list-style-type: none"> › Minimum 4 weeks, depends on required process steps like polishing, rolling, welding, etc. | <ul style="list-style-type: none"> › Approximately 4-6 weeks, depends on the raw material availability | <ul style="list-style-type: none"> › Approximately one week |
| Advantages | <ul style="list-style-type: none"> › Low costs per piece | <ul style="list-style-type: none"> › Excellent expertise in tooling › Minimized metal parts | <ul style="list-style-type: none"> › Finest slits › Finest tolerances, even with large material thicknesses | <ul style="list-style-type: none"> › Unique precision › Efficient production of very high volumes | <ul style="list-style-type: none"> › Freedom in design › Burr and stress-free › Level etch › Low tooling cost › Short delivery time › Thin metallic materials › Nickel PTFE coating |