



TECHNICAL DATA SHEET

PRODUCT: A94043 ALUMINUM ALLOY

4043 Aluminum is one of the oldest and most widely used aluminum welding and brazing alloys. This material can be classed as a general-purpose type filler alloy. Its principal alloying element is silicon. The silicon additions result in improved fluidity (wetting action) to make the alloy a preferred choice by welders. The alloy is less sensitive to weld cracking and produces brighter, almost smut-free welds. The alloy is non-heat treatable. This alloy has a lower melting range than the base metals for which it is commonly used and relieves contraction during weldment cooling. Some more benefits are low hot cracking sensitivity in most applications, excellent corrosion resistance, and low shrinkage rate/reduced distortion.

PRODUCT BASIC INFORMATION:

| | |
|--------------------------------|--|
| Alloy: | 4043 |
| Form: | Foils, Coils, Rolls, Strip, Checkered Plate, Flats, Circle, Blank, Ring (Flange) etc. |
| Temper: | -- H34, H24, T4, F, T5, H14, H22, H36, H18, H19, T851 T451, H26, T3, T351, H32, H112, H16, O, T7, H321, T651, T6, H111, H12, H38, |
| Dimension: | Thickness: 0.2-300 mm Width: Length: |
| Surface Finish: | polished, Bright, hair line, sand blast, brush, checkered, etching, embossed, etc. |
| Standard Specification: | UNS A92017 - DIN EN ISO 18273: S Al 4043A(AISi5(A) - DIN 1732: 3.2245 - AWS A5.10: ER 4043 |
| Application: | General Use |

CHEMICAL COMPOSITION:

| Element | | Percentage (%) |
|-----------------|------|----------------|
| Aluminum | (Al) | Balance |
| Silicon | (Si) | 4.6 – 6.0 |
| Iron | (Fe) | 0.80 max |
| Copper | (Cu) | 0.30 max |
| Manganese | (Mn) | 0.05 max |
| Magnesium | (Mg) | 0.05 max |
| Chromium | (Cr) | -- |
| Zinc | (Zn) | 0.10 max |
| Titanium | (Ti) | 0.20 max |
| Remainder Each | | 0.05 max |
| Remainder Total | | 0.15 max |

MECHANICAL PROPERTIES:

| Properties | Metric | Imperial |
|------------------|---------|-----------|
| Tensile strength | 145 MPa | 21000 psi |
| Yield strength | 70 MPa | 10200 psi |
| Elongation | 22% | 22% |
| Elastic modulus | 69 GPa | 10007 ksi |
| Shear strength | -- | -- |

PHYSICAL DATA :

| | | |
|------------------------------------|------------------------|---------------------|
| Density (20°C): | 2.69 | kg/m ³ |
| Melting Point: | 573 – 632 °C | |
| Thermal Expansion (20°C ~100°C): | 22.1* 10 ⁻⁶ | /K |
| Modulus of Elasticity: | -- | MPa |
| Thermal conductivity (Temper O): | 163 | W/mK |
| Electrical Resistivity (Temper O): | 0.00000416 ohm-cm | Typical at 68°F |
| Electrical conductivity | 24 - 32 | m/Ω mm ² |
| Conductivity (Temper O): | -- | %IACS |
| Magnetic performance: | No | |
| Color: | Silver | |
| Odour: | No | |

TOLERANCE ON FORMS AND DIMENSIONS:

| Thickness Tolerance: | Thickness | Width | | | |
|----------------------|-------------|----------|--------------|--------------|--------------|
| | | ≤1250mm | >1250~1600mm | >1600~2000mm | >2000~2500mm |
| | ≥ 6~8mm | ± 0.35mm | ± 0.40mm | ± 0.40mm | ± 0.50mm |
| | > 8~10mm | ± 0.45mm | ± 0.50mm | ± 0.50mm | ± 0.55mm |
| | > 10~15mm | ± 0.50mm | ± 0.60mm | ± 0.65mm | ± 0.65mm |
| | > 15~20mm | ± 0.60mm | ± 0.70mm | ± 0.75mm | ± 0.80mm |
| | > 20~30mm | ± 0.65mm | ± 0.75mm | ± 0.85mm | ± 0.90mm |
| | > 30~40mm | ± 0.75mm | ± 0.85mm | ± 1.00mm | ± 1.10mm |
| | > 40~50mm | ± 0.90mm | ± 1.00mm | ± 1.10mm | ± 1.20mm |
| | > 50~60mm | ± 1.10mm | ± 1.20mm | ± 1.40mm | ± 1.50mm |
| | > 60~80mm | ± 1.40mm | ± 1.50mm | ± 1.70mm | ± 1.90mm |
| | > 80~100mm | ± 1.70mm | ± 1.80mm | ± 1.90mm | ± 2.10mm |
| | > 100~150mm | ± 2.10mm | ± 2.20mm | ± 2.50mm | ± 2.60mm |

| Width Tolerance: | Thickness | Width | | |
|------------------|------------|----------|---------------|---------------|
| | | ≤ 1000mm | > 1000~2000mm | > 2000~2500mm |
| | ≥ 6~12mm | + 6mm | + 7mm | + 8mm |
| | > 12~50mm | + 6mm | + 7mm | + 9mm |
| | > 50~150mm | + 8mm | + 8mm | + 9mm |

| Length Tolerance: | Thickness | Length | | | |
|-------------------|-----------|----------|---------------|---------------|--------|
| | | ≤ 2000mm | > 2000~3000mm | > 3000~4000mm | > 4000 |
| | ≥ 6~150mm | + 7mm | + 8mm | + 9mm | + 10mm |

| Flatness Tolerance: | Thickness | Total Deviation % | | |
|---------------------|------------|-------------------|----------|-------------------|
| | | On Length | On Width | Partial Deviation |
| | ≥ 6~50mm | ≤ 0.2% | ≤ 0.4% | ≤ 0.3% |
| | > 50~150mm | ≤ 0.2% | ≤ 0.2% | By agreement |

| Lateral Curvature Tolerance: | Width | Lateral Curvature Tolerance for Specified Length | | | |
|------------------------------|--------------|--|---------------|---------------|----------------------------|
| | | ≤ 2000mm | > 2000~3000mm | > 3000~5000mm | > 5000mm |
| | ≤1250mm | ≤ 4mm | ≤ 7mm | ≤ 10mm | ≤ 0.2% of Specified Length |
| | >1250~1500mm | ≤ 3mm | ≤ 6mm | ≤ 8mm | |
| | >1500~2000mm | ≤ 3mm | ≤ 6mm | ≤ 7mm | |
| | >2000mm | - | ≤ 5mm | ≤ 6mm | |

| Squareness Tolerance: | Length | Squareness Tolerance for Specified Width | | | |
|-----------------------|--------------|--|--------------|--------------|----------|
| | | ≤ 1000mm | >1000~1500mm | >1500~2000mm | > 2000mm |
| | ≤2000mm | ≤ 6mm | ≤ 7mm | ≤ 8mm | - |
| | >2000~3000mm | ≤ 7mm | ≤ 7mm | ≤ 9mm | ≤ 10mm |
| | >3000~3500mm | ≤ 7mm | ≤ 8mm | ≤ 10mm | ≤ 10mm |
| | >3500~5000mm | ≤ 8mm | ≤ 10mm | ≤ 10mm | ≤ 12mm |
| | >5000mm | ≤ 12mm | ≤ 12mm | ≤ 15mm | ≤ 15mm |

OTHER PROPERTIES:

Principal Design Features --

Machinability --

Forming --

Weldability Low sensitivity to weld cracking - enhances the fluidity and is therefore favored by welding workers - bright and almost smut free welding - **not recommended for anodizing**
Shielding gas (EN ISO 14175): Ar (I1) - Ar/He mixture (I3)

| | |
|-----------------------|----|
| Heat Treatment | -- |
| Hot Working | -- |
| Cold Working | -- |
| Annealing | -- |
| Aging | -- |
| Hardening | -- |

APPLICATIONS

| | |
|-----------------------------|----|
| Typical Applications | -- |
|-----------------------------|----|

PACKAGING, HANDING & STORAGE:

| | |
|------------------|---|
| Package: | Packed in waterproof Kraft, fastened by steel straps on wood pallets, suitable for handling, loading and unloading from the trunks or containers, suitable for export ocean forwarding. |
| Handling: | Prevent the goods hurting the people who are moving, loading, unloading, especially pay attention to the rolling and dropping for the coils. |
| Storage: | Stored in indoor area on plain floor, free away from moisture, water, snow, animal oils and dye wastes, avoid storing with acid or basic chemical goods. |

