

MATERIAL DATASHEET

ROLLED SHEETS EN AW 1050A [Al99,5]

The aluminum alloy EN AW-1050A belongs to the 1000 series and consists of almost pure aluminum (at least 99.5 %). It is known for its excellent corrosion resistance, high electrical and thermal conductivity and good formability. The alloy has a low strength, but is ideal for applications where flexibility and a smooth surface quality are crucial. EN AW-1050A is easy to anodize and process, which further increases its versatility.

Typical applications of EN AW-1050A are:

- Electrical engineering: production of busbars, cables and transformers, as the alloy offers excellent electrical conductivity
- Construction industry: roofing, cladding and decorative elements that require a combination of lightness and corrosion resistance
- Heat exchanger: Sheets and plates for heat exchangers and coolers due to the high thermal conductivity
- Food industry: packaging materials, containers and films, as the material is safe for contact with foodstuffs

Chemical composition (according to EN 573-3:2013 in %)

| | | | | | | | | | | |
|------|------|------|------|------|----|------|------|----|----|-----------|
| Si | Fe | Cu | Mn | Mg | Cr | Zn | Ti | Pb | Sn | Sonstige |
| 0,25 | 0,40 | 0,05 | 0,05 | 0,05 | 0 | 0,07 | 0,05 | 0 | 0 | max. 0,15 |

Mechanical properties (according to EN 485-2:2016, minimum values)

| Temper | Thickness [mm] | R _{p0,2} [MPa] | R _m [MPa] | A [%] | A ₅₀ [%] | Biegeradius [t] | |
|----------|----------------|-------------------------|----------------------|-------|---------------------|-----------------|-----|
| | | | | | | 180° | 90° |
| 0 / H111 | 0,2 - 0,5 | 20 | 65 - 95 | - | 20 | 0 | 0 |
| | 0,5 - 1,5 | 20 | 65 - 95 | - | 22 | 0 | 0 |
| | 1,5 - 3,0 | 20 | 65 - 95 | - | 26 | 0 | 0 |
| | 3,0 - 6,0 | 20 | 65 - 95 | - | 29 | 0,5 | 0,5 |
| | 6,0 - 12,5 | 20 | 65 - 95 | - | 35 | 1,0 | 1,0 |
| H14 | 0,2 - 0,5 | 85 | 105 - 145 | - | 2 | 1,0 | 0 |
| | 0,5 - 1,5 | 85 | 105 - 145 | - | 2 | 1,0 | 0,5 |
| | 1,5 - 3,0 | 85 | 105 - 145 | - | 4 | 1,0 | 1,0 |
| | 3,0 - 6,0 | 85 | 105 - 145 | - | 5 | - | 1,5 |
| | 6,0 - 12,5 | 85 | 105 - 145 | - | 6 | - | 2,5 |
| H24 | 0,2 - 0,5 | 75 | 105 - 145 | - | 3 | 1,0 | 0 |
| | 0,5 - 1,5 | 75 | 105 - 145 | - | 4 | 1,0 | 0,5 |
| | 1,5 - 3,0 | 75 | 105 - 145 | - | 5 | 1,0 | 1,0 |
| | 3,0 - 6,0 | 75 | 105 - 145 | - | 8 | 1,5 | 1,5 |
| | 6,0 - 12,5 | 75 | 105 - 145 | - | 8 | - | 2,5 |

Temper descriptions

| | |
|-----------------|---|
| 0 / H111 | Annealed and slightly strain-hardened during subsequent operations such as stretching or leveling |
| H14 | Strain-hardened - 1/2 hard |
| H24 | Strain-hardened and partially annealed - 1/2 hard |

Reference values for physical properties

| Density [g/cm ³] | Elastic modulus [GPa] | Thermal conductivity [W/m ² K] | Thermal expansion [K * 10 ⁶] 20°C – 100°C | Specific heat [J / KG * K] | Electrical conductivity [m/Ω*mm ²] | Shear modulus [GPa] |
|---------------------------------|-----------------------------|---|---|-------------------------------|--|---------------------------|
| 2,70 | 69 | 210 - 220 | 23,5 | 900 | 34 - 36 | 25,9 |

Other data (empirical values)

Mechanical processing

| | |
|-------------------|-------|
| Milling / Turning | 4 - 5 |
| Eroding | 1 |

Forming

| | |
|------------------|---|
| Bending | 1 |
| Upsetting | 1 |
| Pressure forming | 1 |

Welding

| | |
|--------------------|---|
| Gas | 2 |
| WIG | 2 |
| MIG | 2 |
| Resistance welding | 2 |

Solder

| | |
|----------------------|---|
| Brazing with flux | 1 |
| Brazing without flux | 1 |
| Soft with flux | 1 |

Surface treatment

| | |
|----------------------|------------|
| Technical anodizing | 1 |
| Decorative anodizing | 1 (Nur EQ) |
| Powder coating | 1 |
| Wet painting | 1 |

Corrosion resistance

| | |
|----------------|---|
| Normal climate | 2 |
| Sea climate | 3 |

1 - Very good | 2 - Good | 3 - Moderate | 4 - Poor | 5 - Unsuitable

Approvals

| EUROCODE acc. DIN EN 1999-1-1 | Food industry acc. DIN EN 602 | REACH | ROHS |
|----------------------------------|----------------------------------|-------|------|
| X | ✓ | ✓ | ✓ |

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