

Material Data sheet

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**Pure Aluminum EN AW-1200  
Aluminium Alloy EN AW-8079****1. Application examples**

Due to its low specific weight and good formability, aluminum can be used for a wide range of applications. With the alloy EN-AW 8079, a higher tensile strength is achieved through the addition of iron and silicon. This alloy is therefore used for aluminum foils up to about 0.05 mm thick.

Aluminum is also used for heat exchangers because of its relatively good thermal conductivity (although alloys 3003 or 6063 should be used for brazed heat exchangers).

Due to its high electrical conductivity, aluminum can also be used in the electrical industry.

Further application examples:

Reflectors in lamps, construction (roofs made of aluminum sheets), packaging (e.g. beverage cans).

These aluminum materials are not approved for springs.

**2. Material codes****2.1 Alloy EN-AW 1200**

German Norm: 3.0205  
EN: EN-AW 1200 Al 99,0%  
AFNOR: 1200  
UNS: A 1200

**2.2 Alloy EN-AW 8079**

German Norm: without a German Werkstoffnummer  
EN: EN-AW 8079  
AFNOR: 8079  
UNS: A 8079

**3. Alloy Composition \*****3.1 Alloy EN-AW 1200**

Si + Fe: max. 1,0%  
Cu: <0,05%  
Mn: <0,05%  
Zn: <0,1%  
Ti: <0,05%  
Al: balance  
Others: <0,15%

### 3.2 Alloy EN-AW 8079 \*

Si: 0,05-0,3%  
Fe: 0,7-1,3%  
Cu: <0,05%  
Mn: -  
Zn: <0,1%  
Ti: -  
Al: balance  
Others: <0,15%

\* the exact composition of each batch can be documented by a material certificate 2.2 or 3.1 according to DIN EN 10 204.

### 4. Delivery condition

Condition: cold rolled, not hardenable  
Surface: bright, roughness Ra maximal 0,3 µm (depending on the roughness of the working roll)  
Ultimate tensile strength: >150 N/mm<sup>2</sup>

Further mechanical data: see chapter 7 and 8.

### 5. Sizes

thicknesses: 0,025 – 0,20 mm  
raw material width: 150,0mm  
standard width: 150,0mm  
edges: cut  
Lengths: individual lengths from 5 to 10 000mm or as coil

The following sizes are available from stock (without obligation):

<b>thickness</b>	<b>Tensile strength</b>	<b>Alloy</b>	<b>Annotation</b>
0,025	>180 N/mm <sup>2</sup>	EN-AW 8079	no mechanical values available
0,05	>150 N/mm <sup>2</sup>	EN-AW 1200	
0,07	>150 N/mm <sup>2</sup>	EN-AW 1200	
0,10		EN-AW 1200	
0,15	>150 N/mm <sup>2</sup>	EN-AW 1200	
0,20	>150 N/mm <sup>2</sup>	EN-AW 1200	

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### 6. Tolerances

thickness tolerance: +/- 10% der thickness  
width tolerance: normal  
straightness: normal  
flatness: wave height max. 1,0 mm

### 7. Further mechanical data

Yield strength Rp0,2 : depending on the ultimate tensile strength  
Elongation A80: depending on the ultimate tensile strength

Aluminium should not be used for springs.

The highest application temperature is around 250 °Celsius. Please note that Young's modulus values drop as temperature increases.

## 8. Physical properties

Density:	2,71 g/cm <sup>3</sup>
Thermal conductivity:	210-230 W/(m °C) depending on the temperature
Heat capacity:	897 J/(kg °C) medium value at 50 – 100 °C
Thermal expansion:	23,6 x 10 <sup>-6</sup> (between 20 - 300 °C)
Electrical conductivity:	37,7 x 10 <sup>-6</sup> A/(V x m)
IACS:	59%
Modus of elasticity:	69 000 MPa at 20 °C
Magnetism:	paramagnetic

## 9. Blanking

We recommend a punch-to-die clearance of 4-10 % of the strip thickness. The corner radius should be at least 0.25 mm and the punching die should be at least twice the strip thickness.

## 10. Laser cutting

This alloy can be laser cut by solid state lasers. Due to the high thermal conductivity of aluminium the laser cutting is difficult.

## 11. Photo etching

This alloy is very easy to etch.

## 12. Bending

Soft-annealed aluminum foils can be folded and bent without restrictions. In the temper rolled condition, however, the following minimum bending radius should be taken into account (please see DIN EN 485-2, Table 4):

Up to a thickness of 0,20 mm:

1,0 x strip thickness for bending at right angle (90°) to the rolling direction  
ca. 2,0 x strip thickness for bending parallel to the rolling direction (this information is missing in the DIN EN 485-2)

## 13. Flat grinding

Aluminium is not magnetic and can not be hold by magnetic clamping devices of flat grinding machines.

## 14. Welding

Aluminum is very easy to weld with MIG or TIG.

## 15. Corrosion resistance

A permanent aluminum oxide layer passivates the metal against environmental influences. However, in very acidic and very alkaline environments, this oxide layer is quickly dissolved.

Aluminum is also resistant to seawater. When in contact with mild steel, rust stains can affect the visual appearance of aluminum. Galvanic isolation is also advisable for copper and copper alloys.

A contact with stainless steels is generally not problematic.

**Important Annotation**

The specifications which are given in this technical information sheet about the condition and application of the alloys are only for reference and are no confirmation about certain performances and characteristics.

The information correspond to our own experiences and experiences of our suppliers.

We can not guarantee for the results during processing and utilisation.

