

**Manufacturer**  
**ACME Metal Works GmbH**  
Industrial Park 123  
52066 Aachen  
DE  
[quality@acme-metal.example.com](mailto:quality@acme-metal.example.com)

**Customer**

**Precision Aerospace Inc.**

Aviation Boulevard 789  
Mountain View 94043  
US  
[materials@precision-aero.example.com](mailto:materials@precision-aero.example.com)

## Digital Material Passport

---

<i>ID</i>	DMP-METAL-003	<i>Version</i>	1.0.0
<i>Issue Date</i>	2025-05-15	<i>Certificate Type</i>	EN 10204 3.1

## Business Transaction

---

<b>Order</b>		<b>Delivery</b>	
<i>Order ID</i>	PO-34567	<i>Delivery ID</i>	DN-89012
<i>Position</i>	3	<i>Position</i>	1
<i>Date</i>	2025-04-25	<i>Date</i>	2025-05-14
<i>Quantity</i>	500 kg	<i>Quantity</i>	500 kg

## Product Information

---

<i>Product Name</i>	Aluminum Alloy 7075-T6
<i>Batch ID</i>	H-43210-01
<i>Surface Condition</i>	Rolled
<i>Production Date</i>	2025-05-12
<i>Country of Origin</i>	DE

## Product Norms

<i>Designation</i>	AMS 4045 (2023)
--------------------	-----------------

## Material Designations

<i>System</i>	AA UNS
<i>Designation</i>	7075-T6 A97075

## Product Shape

<i>Form</i>	Plate
<i>Length</i>	2000 mm
<i>Width</i>	1000 mm
<i>Thickness</i>	10 mm

## Chemical Analysis

---

<i>Heat Number</i>	H-43210
<i>Melting Process</i>	VAR
<i>Casting Date</i>	2025-05-10
<i>Casting Method</i>	Vacuum Casting
<i>Sample Location</i>	Ladle

## Elements

Symbol	Al	Zn	Mg	Cu	Cr	F1
Unit	%	%	%	%	%	
Min	-	5.1	2.1	1.2	0.18	0.18
Max	-	6.1	2.9	2.0	0.28	0.28
Actual	89.7	5.6	2.4	1.5	0.22	0.22

## Formula Definitions

$$F1 = C + Mn/6 + (Cr + Mo + V)/5 + (Ni + Cu)/15: 0.22$$

## Mechanical Properties

Property	Symbol	Actual	Minimum	Maximum	Method	Status
<b>Tensile Strength</b> 3 specimens tested					ASTM E8	✓
<b>Individual Values</b>			# 1	# 2	# 3	
Value [MPa]			570	572	574	
<b>Statistics</b>		<b>Mean</b>		<b>Min/Max</b>	<b>Std Dev</b>	
ASTM E8 statistical analysis		572.0		570 / 574	2.0 ( Sample )	
<b>0.2% Yield Strength</b> 3 specimens tested					ASTM E8	✓
<b>Individual Values</b>			# 1	# 2	# 3	
Value [MPa]			503	505	507	
<b>Statistics</b>		<b>Mean</b>		<b>Min/Max</b>	<b>Std Dev</b>	
ASTM E8 statistical analysis		505.0		503 / 507	2.0 ( Sample )	

<b>Elongation</b> 3 specimens tested					ASTM E8	✓
---	--	--	--	--	---------	---

<b>Individual Values</b>			# 1	# 2	# 3	
Value [%]			10.8	11.2	11.0	
<b>Statistics</b>		<b>Mean</b>		<b>Min/Max</b>	<b>Std Dev</b>	
		11.0		10.8 / 11.2		

## Physical Properties

Property	Symbol	Actual	Target/Min	Maximum	Method	Status
<b>Density</b>	$\rho$	2.81g/cm <sup>3</sup>	2.81g/cm <sup>3</sup>	-	ASTM B311	✓
<b>Coefficient of Thermal Expansion</b>	$\alpha$	23.410 <sup>-6</sup> /K	23.510 <sup>-6</sup> /K	-	ASTM E228	✓
<b>Thermal Conductivity</b>	$\lambda$	130W/(m·K)	120W/(m·K)	-	ASTM E1461	✓
<b>Specific Heat Capacity</b>	$c_p$	862J/(kg·K)	860J/(kg·K)	-	ASTM E1269	✓
<b>Electrical Resistivity</b>	$\rho_e$	0.0538μΩ·m	-	0.055μΩ·m	ASTM B193	✓
<b>Poisson's Ratio</b>	$\nu$	0.33	0.33	-	ASTM E132	✓
<b>Melting Range</b>	$T_m$	477 - 635°C	475 - 635°C	-	ASTM E1142	✓
<b>Relative Magnetic Permeability</b>	$\mu_r$	1.00002	-	1.0001	ASTM A342	✓
<b>Surface Roughness</b>	$R_a$	0.8μm	-	1.6μm	ISO 4287	✓
<b>Emissivity</b>	$\epsilon$	0.09	-	0.11	ASTM E408	✓
<b>Surface Tension</b>	$\gamma$	0.875N/m	0.87N/m	-	ASTM D971	✓
<b>Diffusion Coefficient</b>	$D$	2.3E-9m <sup>2</sup> /s	2.2E-9m <sup>2</sup> /s	-	ASTM E1559	✓

## Validation

We hereby certify that the material described above has been manufactured and tested in accordance with AMS 4045 and the specified test methods. All results are within the specified limits.

**Validated By**

<i>Name</i>	<i>Title</i>	<i>Department</i>	<i>Date</i>
Elsa Müller	Materials Engineer	Quality Assurance	2025-05-15

Data schema maintained by [Material Identity](#).

<https://schemas.materialidentity.org/metals-schemas/v0.1.1/schema.json>