ACME METALS

Manufacturer

ACME Metal Works GmbH

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Customer

Precision Aerospace Inc.

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Digital Material Passport

ID	DMP-METAL-003	*Version*	1.0.0
Issue Date	2025-05-15	*Certificate Type*	EN 10204 3.1

Business Transaction

Order		**Delivery**	
Order ID	PO-34567	*Delivery ID*	DN-89012
Position	3	*Position*	1
Date	2025-04-25	*Date*	2025-05-14
Quantity	500 kg	*Quantity*	500 kg

Product Information

Product Name	Aluminum Alloy 7075-T6
Batch ID	H-43210-01
Heat Treatment	Solution treated and artificially aged (T6)
Surface Condition	Rolled
Production Date	2025-05-12
Country of Origin	DE

Product Norms

Designation	AMS 4045 (2023)

Material Designations

System	AA UNS
Designation	7075-T6 A97075

Product Shape

Form	Plate
Length	2000 mm
Width	1000 mm
Thickness	10 mm

Chemical Analysis

Heat Number	H-43210
Melting Process	VAR
Casting Date	2025-05-10
Casting Method	VacuumCasting
Sample Location	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*
Tensile Strength					ASTM E8	✓

Individual Values	#1	#2	#3
Value [MPa]	570	572	574

Statistics	**Mean**	**Min/Max**	**Std Dev**
ASTM E8 statistical analysis	572.0	570 / 574	2.0 (Sample)

0.2% Yield Strength					ASTM E8	✓

Individual Values	#1	#2	#3
Value [MPa]	503	505	507

Statistics	**Mean**	**Min/Max**	**Std Dev**
ASTM E8 statistical analysis	505.0	503 / 507	2.0 (Sample)

Elongation					ASTM E8	✓

Individual Values	#1	#2	#3
Value [%]	10.8	11.2	11.0

Statistics	**Mean**	**Min/Max**	**Std Dev**
	11.0	10.8 / 11.2	

Physical Properties

Property	*Symbol*	*Actual*	*Target/Min*	*Maximum*	*Method*	*Status*
Density	ρ	2.81 g/cm³	2.81	-	ASTM B311	✓
Coefficient of Thermal - Expansion	α	23.4 10^{-6}/K	23.5	-	ASTM E228	✓
Thermal Conductivity	λ	130 W/(m·K)	120	-	ASTM E1461	✓
Specific Heat Capacity	cp	862 J/(kg·K)	860	-	ASTM E1269	✓
Electrical Resistivity	ρ_e	0.0538 µΩ·m	-	0.055	ASTM B193	✓
Poisson's Ratio	ν	0.33	0.33	-	ASTM E132	✓
Melting Range	Tm	477 - 635 °C	475 - 635	-	ASTM E1142	✓
Relative Magnetic - Permeability	µr	1.00002	-	1.0001	ASTM A342	✓
Surface Roughness	Ra	0.8 µm	-	1.6	ISO 4287	✓
Emissivity	ε	0.09	-	0.11	ASTM E408	✓
Surface Tension	γ	0.875 N/m	0.87	-	ASTM D971	✓
Diffusion Coefficient	D	2.3E-9 m²/s	2.2E-9	-	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

Name	*Title*	*Department*	*Date*
Elsa Müller	Materials Engineer	Quality Assurance	2025-05-15

Data schema maintained by Material Identity. https://schemas.materialidentity.org/metals-schemas/v0.1.0/schema.json