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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
Surface Condition	Rolled
Production Date	2025-05-12
Country of Origin	DE

Product Norms

Designation	AMS 4045 (2023)
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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	✓
3 specimens tested						

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	✓
3 specimens tested		

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	✓
3 specimens tested		

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	2.81g/cm³	2.81g/cm³	-	ASTM B311	✓
Coefficient of Thermal - Expansion	α	23.410 ⁻⁶ /K	23.510 ⁻⁶ /K	-	ASTM E228	✓
Thermal Conductivity	λ	130W/(m·K)	120W/(m·K)	-	ASTM E1461	✓
Specific Heat Capacity	cp	862J/(kg·K)	860J/(kg·K)	-	ASTM E1269	✓
Electrical Resistivity	ρe	0.0538μΩ·m	-	0.055μΩ·m	ASTM B193	✓
Poisson's Ratio	ν	0.33	0.33	-	ASTM E132	✓
Melting Range	Tm	477 - 635°C	475 - 635°C	-	ASTM E1142	✓
Relative Magnetic - Permeability	μr	1.00002	-	1.0001	ASTM A342	✓
Surface Roughness	Ra	0.8μm	-	1.6μm	ISO 4287	✓
Emissivity	ε	0.09	-	0.11	ASTM E408	✓
Surface Tension	γ	0.875N/m	0.87N/m	-	ASTM D971	✓
Diffusion Coefficient	D	2.3E-9m²/s	2.2E-9m²/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/v0.1.0/schema.json>