

Element Sheffield (Magna Way) – List of Uncertainty Budgets for Accredited Methods

This document is supplemental to [Element’s Statement of Conformity Policy](#). The tables below contain indicative uncertainty values for the test types included in Element Sheffield (Magna Way) schedule of accreditation (where quantitative results are reported). Budgets are quoted as % of the measured result.

Uncertainty budgets for the specific tests completed at any time may differ from the values reported in this document due to changes in calibration, qualified staff and other contributing factors. These changes will normally be minimal and will have a negligible impact on the uncertainty budget. For this reason, the values shown below should be seen as indicative rather than precise. Budgets made for specific tests can be provided upon request if these are required to understand the actual risk when the statement of conformity is made.

Chemistry Tests

Type of Test	Parameter	Uncertainty
Chemistry (all methods)	Elemental concentration	Dependant on base alloy, analyte and concentration range. Contact laboratory for details.

Corrosion Tests

Type of Test	Parameter	Uncertainty
Intergranular Corrosion (G28)	Corrosion rate	0.01%
	Mass loss	0.0016%
Intergranular Corrosion (Huey)	Corrosion rate	0.5%
	Mass loss	0.002%
Pitting Corrosion	Corrosion rate	0.01%
	Dimension of pits	0.01%
	Mass loss	0.0016%

Mechanical Tests

Type of Test	Parameter	Uncertainty
Impact Testing – Charpy	Impact energy	Dependant on test results. Contact laboratory for information
Impact Testing – Izod	Impact energy	Dependant on test results. Contact laboratory for information
Creep	% TPS or % Creep	0.5%
Creep / Stress rupture	UTS	1.8%
	Reduction of area	0.2%
	Elongation	0.7%
Room Temperature Tensile	0.2% Proof	0.6%
	UTS	0.5%
	Reduction of area	0.2%
	Elongation	0.7%
Elevated Temperature Tensile	0.2% Proof	1.9%
	UTS	1.8%
	R of A	0.2%
	Elongation	0.7%
Hardness – Brinell	Material hardness (HB)	Dependant on hardness result. Contact laboratory for details
Hardness – Rockwell	Material hardness (HRB)	
	Material hardness (HRC)	
Hardness – Vickers	Material hardness (HV)	
Hardness - MicroVickers	Material hardness (mHV)	
Bend test	*	0.004mm *

* : bend test result quoted as pass / fail, based on the presence of cracks. Some standards prescribe a minimum crack length, the quoted uncertainty represents the uncertainty of the length measurement.

Scaffolding Tests

Slip Test	Load	2.13%
Failure Load	Load	0.82%
Pull Apart	Load	0.82%
Indentation	Load	0.82%
Cruciform Bending Moment	Torque	0.57%
Rotational Stiffness	Torque	0.57%
Bending Moment	Displacement	0.52%

Metallurgical Tests

Type of Test	Parameter	Uncertainty
Case / decarb depth (visual)	Distance	1.19%
Case/ decarb depth (mHV)	Distance	Dependant on material hardness. Contact laboratory for details

Dimensional Assessment

Type of Test	Parameter	Uncertainty
Tubes – External Diameter	Length	0.027%
Tubes – Wall Thickness	Length	0.027%