



MILL TEST CERTIFICATE
Ultra High Power (UHP) Graphite Electrodes

Certificate No.: MTC-ATB-UHP-2026-0912 **Date of Issue:** 12 September 2026
Batch / Lot No.: ATB-GE-UHP-2408-017 **Product Standard:** IEC 60239 / Manufacturer Spec.

1. Product Identification

Item	Specification
Product	UHP Graphite Electrode
Grade	Ultra High Power (UHP)
Nominal Diameter	600 mm
Nominal Length	2,400 mm / 2,700 mm
Nipple	Included, same grade, 3 TPI conical, matching thread
Quantity covered	48 pcs (approx. 52.8 MT)
Supplier	ATB Hamburg, Schiffbecker Weg 14, 22111 Hamburg, Germany

2. Technical Specification & Test Results

Tests performed according to IEC 60239 / internal manufacturer standards. Measured values are batch averages.

Property	Unit	Requirement	Measured Value	Result
Electrical Resistivity	uOhm.m	<= 5.5	5.18	PASS
Bulk Density	g/cm3	>= 1.72	1.745	PASS
Bending Strength	MPa	>= 12.0	13.6	PASS
Ash Content	%	<= 0.2	0.12	PASS
Young's Modulus	GPa	-	9.8	-
CTE (Thermal Expansion)	x10 ⁻⁶ /K	-	1.35	-
Nipple Flexural Strength	MPa	>= 12.0	14.1	PASS
Nipple Thread Accuracy	-	Matching 3 TPI	Within tolerance	PASS

3. Dimensional Inspection (Sample from Batch)

Parameter	Nominal	Measured (avg.)	Tolerance	Result
Diameter (body)	600 mm	599.8 mm	+/- 1.5 mm	PASS
Length	2,400 / 2,700 mm	Within range	+/- 10 mm	PASS
Straightness	-	<= 1.5 mm/m	<= 2.0 mm/m	PASS
Nipple engagement	3 TPI conical	Full engagement	Standard	PASS

4. Declaration of Conformity

We hereby certify that the UHP Graphite Electrodes covered by this Mill Test Certificate have been manufactured and tested in accordance with the applicable technical specifications and meet or exceed all stated requirements. The product is free from defects in material and workmanship under normal use conditions. Quality is verifiable by this mill test certificate.

This certificate is issued in good faith and forms part of the quality documentation for the product.

Yours faithfully,

Quality Assurance / Authorized Signatory

ATB Hamburg
Schiffbecker Weg 14, 22111 Hamburg
Tel: +49 40 94858464 · Fax: +49 40 822 45 36
Mobile: +49 1520 1520285 · Email: info@atb-hamburg.com · www.atb-hamburg.com
Hamburger Volksbank

This document is issued on the official ATB Hamburg letterhead. All measured values are batch averages.
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ATB Hamburg
www.atb-hamburg.com

Schiffbecker Weg 14, 22111 Hamburg
info@atb-hamburg.com