

UCAR® ALX™ Pin-less Electrode System

The Next Generation
of Graphite Electrodes



GRAFTECH HELPS CUSTOMERS OPERATE MORE EFFICIENTLY

- Reduce operating costs
- Increase productivity
- Maintain an uninterrupted production flow

ALX™ PIN-LESS ELECTRODES BENEFIT CUSTOMERS

- Reduced stub losses and breakages
- Lower consumption and improved electrode cost per ton⁽¹⁾
- Capacity for higher amps/power than pin-socket design



ALX™ PIN-LESS ELECTRODE TYPICAL PROPERTIES⁽²⁾

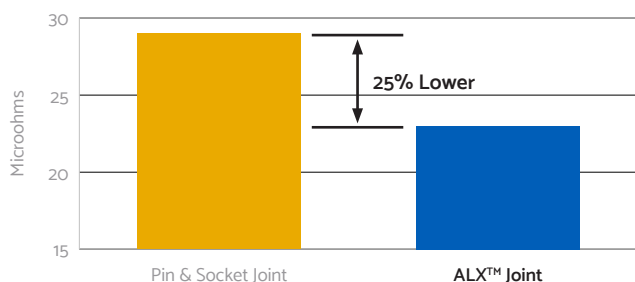
Material Property	Testing Method ⁽³⁾	Diameter 600mm (24")	Diameter 700-750mm (28-30")
Bulk Density (g/cm ³)	Full Piece	1.66 - 1.76	1.67 - 1.75
Specific Resistance (μOhm.m)	Full Piece	4.3 - 5.4	4.1 - 5.1
Flexural Strength (MPa)	4 Point Bending	8.0 - 12.0	8.5 - 12.5
Coefficient of Thermal Expansion (mm/mm/°K 10 ⁻⁶)	PATE RT to 100°C ⁽⁴⁾	0.1 - 0.6	0.1 - 0.5



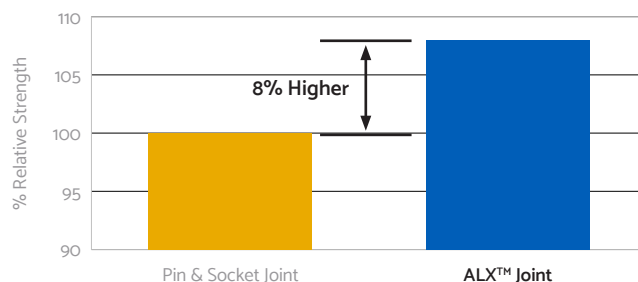
Proven to Reduce Losses
and Increase Productivity

AUTO-LOK™ TECHNOLOGY PROVIDES A DISASSEMBLY/ASSEMBLY RATIO GREATER THAN 10

Joint Electrical Resistivity⁽⁵⁾

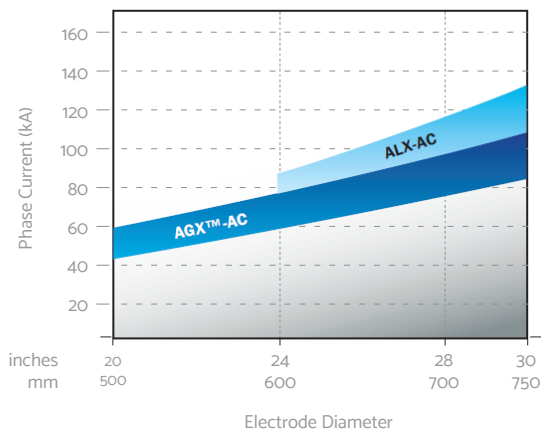


Joint Strength⁽⁵⁾

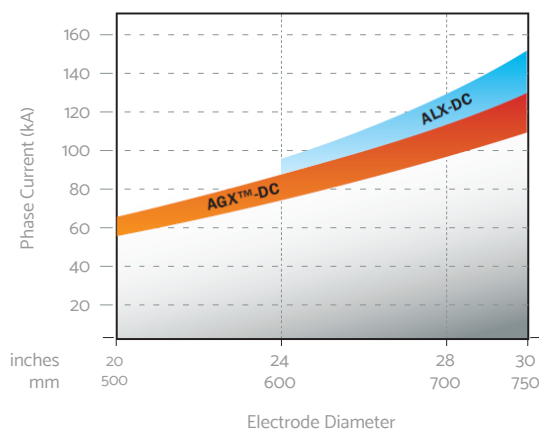


CURRENT CARRYING CAPACITIES

AC EAF Applications



DC EAF Applications



- (1) Reduced stub losses and breakages, as well as lower consumption, improve cost of electrode per ton of steel.
- (2) Displayed property values are typical ranges per GrafTech testing methods and constitute neither a guarantee or specification for individual electrode properties, nor any form of warranty, express or implied.
- (3) GrafTech testing methods have been specifically developed for graphite electrode characterization. Properties are measured in the axial direction.
- (4) PATE is a GrafTech invention for accurately measuring the coefficient of thermal expansion.
- (5) For 600mm AGX™ electrodes.

ALX™ pin-less electrodes meet diameter tolerances by IEC 60239, JIS 7201 or NEMA CG1 as required by customers worldwide and are available in nominal lengths 2700, 3000 and 3400mm. Ash Content: ALX™ pin-less graphite electrodes typically have less than 0.2% impurities and do not contain elements harmful to steelmaking.

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