Thermal Barrier Machinery: mechanical surface conditioning

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Azo-Brader™

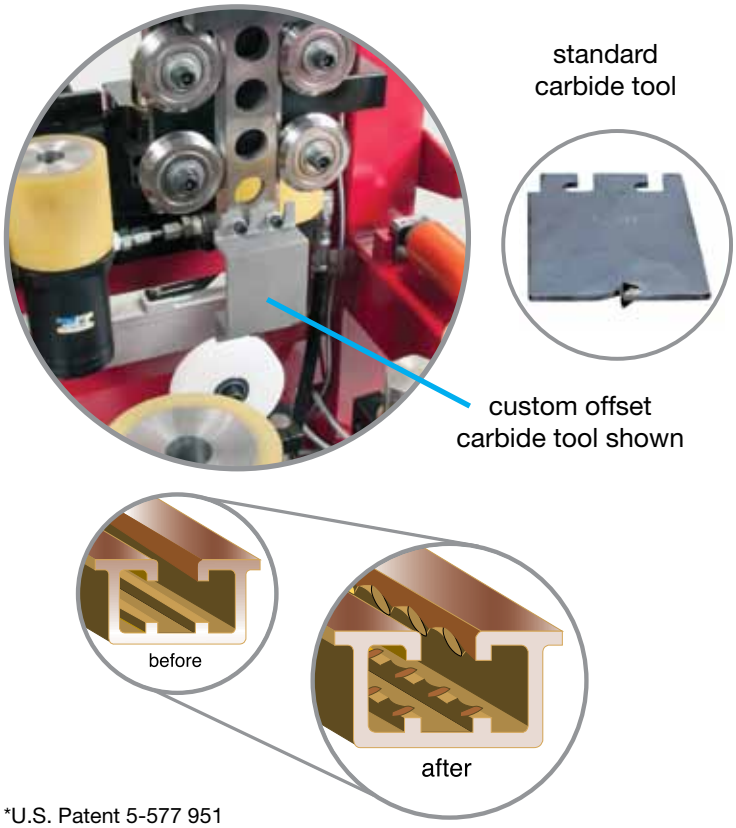
Function

The Azon Azo-Brader™ is a *patented mechanical device that effectively improves the adhesive properties between the polyurethane polymer and the surface finish of the thermal barrier pocket, as used in an aluminum window, door or curtain wall profile. It also enhances the shear strength in the composite. The Azo-Brader accomplishes this by a unique method of abrading portions of the thermal barrier pocket in such a way as to produce a mechanical lock.

The Azo-Brader utilizes a carbide tool insert that reciprocates vertically to create raised projections on the thermal barrier pocket. The action of the tool is such that the aluminum is actually displaced under high velocity. The action is generated by an adjustable, eccentric cam drive head that is driven in turn by a hydraulic motor.

The tooling for the Azo-Brader consists of a carbide tool, which can be designed to fit most new or existing profiles, including those without direct access due to the cavity design. Roller and ball bearings support the high-speed moving members of the machine. The carbide tooling is designed for fast and easy setup between shapes with minimal effort.

The **AZO**/Tec® technical services department can assist with design and analysis of dies intended for use in a mechnical lock framing system.



The Azo-Brader is mounted in a hydraulically driven conveyance which feeds the extrusions into the mechanism. It is easily removed for maintenance and repair.

The Azo-Brader mechanism utilizes a series of hydraulically powered drive wheels designed to be universally adjustable with a 350 mm x 250 mm (13.75-inch high x 9.75-inch wide) capacity. The carrier will accommodate most thermal barrier extrusion shapes. The carrier system is completely self-contained with its own air-cooled hydraulic system.

Extrusion drive

Extrusions are driven through the Azo-Brader by four hydraulic motors. These motors turn 101.6 mm (4-inch) diameter polyurethane drive wheels. Hold-up wheels are located on the inlet and outlet sides of the machine to provide alignment of the extrusion. Two sets of hold-down wheels are provided to hold the extrusion in the proper position for abrading the thermal barrier pocket surface. Hold-up and hold-down wheels move vertically and laterally to accommodate any shape extrusion. The extrusion feed is only left to right.

Hydraulic power

Hydraulic power is supplied to the drive motors and abrader head by a 3.75 kW (5 hp) 12.1 L/min (3.2 gal/min) power unit. The power unit is pre-wired for three phase 230/460 VAC, 50/60 Hz electrical power. The reservoir tank holds 25.1 L (6.63 gal).

Processing capability

The work opening is adjustable through manual hand crank slides on the front of the machine. The maximum opening width is 350 mm (13.75-inch). The drive wheels may be elevated 51 mm (2 in) for total versatility. Extrusion feed rates from 9.1-36.5 m/min (30-120 ft/min) are achieved through infinitely variable adjustments of flow control valves.

Construction

The Azo-Brader is constructed from heavy gauge steel plate and tubing, welded to form a rigid, heavy-duty framework. The frame is equipped with lifting tubes to facilitate easy transport with a forklift.

Electrical requirements

208/230/380/460/600 VAC, 40/20 amp, 3-phase, 50/60 Hz service. All electrical components are mounted inside NEMA 12 enclosures.

*U.S. Patent 5-577 951

The Azo-Brader™ process, when combined with Azon E-Quality Audit™ procedures and Azon structural thermal barrier chemicals, carries a 10-year performance warranty.

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