

## Thermal Barrier Machinery: mechanical surface conditioning



The Lancer™ creates a mechanical lock that 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.

**Azon**  
643 W. Crosstown Parkway  
Kalamazoo, MI 49008-1910  
USA  
Tel: 269 385 5942  
Fax: 269 373 9295

**Azon UK Ltd.**  
Unit J, St. David's Industrial Estate  
Pengam, Blackwood  
NP12 3SW  
UK  
Tel: + 44 (0) 1443 878010

**Azon Korea Inc.**  
E1-Space  
19 Samseong 122 St.  
Gangnam, Seoul 135-090  
Korea  
Tel: + 82 (0) 2 544 5906  
Fax: + 82 (0) 2 544 5908

**Azon Polyurethane (Shanghai) Co., Ltd.**  
Room 2804-2807, 28th Floor  
Hua Yuan World Square  
1958 North Zhongshan Road  
Shanghai 200063  
PR China  
Tel: + 86 (0) 21 6212 2213  
Fax: + 86 (0) 21 6211 0004

# Lancer™

## Function

The Azon Lancer™ is a mechanical device that works inline with pour and debridge processing machinery to prepare and condition the thermal barrier pocket in aluminum extrusions prior to the polyurethane polymer filling step. The Lancer provides a unique method of punching the profile material to produce inward curving lanced indentations along the lugs in the pour cavity in such a way as to produce a structural mechanical lock. The Lancer also enhances the shear strength of the resulting polymer and aluminum composite.

Approved Lancer™ Applicators are required to adhere to strict quality control procedures and testing to qualify for the Azon 10-year warranty against failure of the thermal barrier polymer due to dry shrinkage and fracturing.

Azon provides professional assistance with extrusion profile design and engineering under the auspices of the AZO/Tec® technical department.

## Operations

Extrusions move through the Lancer via a rolling table conveyer, which feeds the extrusions through the machine inlet to make contact with the powered lancing wheel mechanism and carrier. The rotating lancing wheel propels the extrusions to exit immediately through the outlet port to be carried a short distance for the next operation to the Azon Fillameter™ inlet for polyurethane polymer filling.

The lancing wheel and carrier system will accommodate many common, open-top thermal barrier extrusion profiles. The lancing wheel device is easily removed for maintenance, repair and for replacing the removable cutting teeth. The carrier system is completely self-contained with its own air-cooled hydraulic system.



The lancing wheel travels along the lugs to produce lanced indentations that bend down into an extrusion cavity

## Extrusion drive

Extrusions are intended to be driven through the Lancer at the same rate of speed as the Fillameter. The Lancer is available with two options for drive speed control:

- The manual flow control can set the drive speed. A visual adjustment will get both machines to run at the same time.
- The electronic drive speed control will automatically adjust the Lancer drive speed to match the Fillameter.

Hold-up wheels are located on the inlet and outlet sides of the machine to provide alignment of the extrusion in the carrier system. Two sets of hold-down wheels keep and carry the extrusion in the proper position for lancing the lugs along the thermal barrier pocket surface. Hold-up and hold-down wheels move vertically and laterally to accommodate any shape of open-top extrusion. The extrusion feed is available in both left or right operation.

## Processing capability

The Lancer has a throughput capacity of 9.1-54.9 meters per minute (30-180 feet per min). The electric motor that drives the hydraulic pumps is a 5-hp motor that turns at a rate of 1,750 rpm. When the motor is operated at 50 Hz, the power and rpm will be reduced by a factor of 5/6 or 0.833.

## Construction

The Lancer is constructed from heavy gauge steel plate and tubing and is welded to form a rigid, heavy-duty framework. The frame is equipped with lifting tubes to facilitate easy transport with a forklift. The machinery is mounted onto a rail system that moves from a storage position to a position inline with the Azon Fillameter, as shown in photo on the front cover. Dimensions are—height 152.4 cm, width 76.2 cm, depth 190.5 cm (height 60-inch, width 30-inch, depth 75-inch).

## Electrical requirements

200/208/230/380/460/600 VAC, 40/20 amp, 3-phase, 50/60 Hz service. All electrical components are mounted inside NEMA 12 enclosures.



Mechanical lock  
(lanced method)