



INTERNATIONAL  
**Syalons**

## **Syalon Ceramic Inserts for Direct Brass Extrusion**

### **User Guide**



**International Syalons (Newcastle) Limited**  
Stephenson Street, Willington Quay  
Wallsend, Tyne & Wear NE28 6TT

Tel: +44(0)191 2951010  
Fax: +44(0)191 2633847  
Email: [enquiries@syalons.com](mailto:enquiries@syalons.com)

[www.syalons.com](http://www.syalons.com)



INTERNATIONAL  
**Syalons**

**ADVANCED SILICON NITRIDE &  
SIALON CERAMICS**

## Syalon Inserts for Direct Brass Extrusion

**Syalon 101** is an advanced ceramic which has found extensive use as extrusion inserts for the direct extrusion of round brass wire.

### Benefits of Syalon 101

- High room temperature tensile strength. Typically >400 MPa.
- Outstanding thermal shock resistance. Typically >800°C  $\Delta T$ .
- High room temperature compressive strength. Typically >3500 MPa.
- Fully dense with excellent hardness.
- Prolonged service life makes Syalon cost effective.
- Excellent surface finish.
- Higher extrusion speeds with thin wires.

### Recommended User Procedures

#### 1. Support Syalon insert in die under compression

The Syalon inserts must be held in the die case under compression. Ceramics are stronger in compression and this will avoid propagation of cracks due to thermal stresses.

#### 2. Shrink fitting

In order to place the Syalon insert in compression they should be held in the die case by shrink fitting. It is recommended to use 0.1% per 100°C of operating temperature. For example, for an insert of 25.0mm diameter operating at 400°C, the case needs to be 24.9mm i.e.  $0.025 \times 4 = 0.1$ mm.

#### 3. Die rotation

It is recommended to keep approximately 5 die cases with inserts in rotation. For example, 1 in the press, 1-2 in a preheating furnace (at approximately 400°C) and 1-3 in cleaning and/or regrinding.

It is recommended to rotate the die case in the press for a fresh one from the preheating furnace after approximately 5 shots. This prevents the die case overheating.

#### 4. Insert cleaning

After every shot clean the die insert ID with a wooden stick and re-lubricate.



**International Syalons (Newcastle) Limited**  
Stephenson Street, Willington Quay  
Wallsend, Tyne & Wear NE28 6TT

Tel: +44(0)191 2951010  
Fax: +44(0)191 2633847  
Email: [enquiries@syalons.com](mailto:enquiries@syalons.com)

[www.syalons.com](http://www.syalons.com)