

# Magma Metamic Sheaths

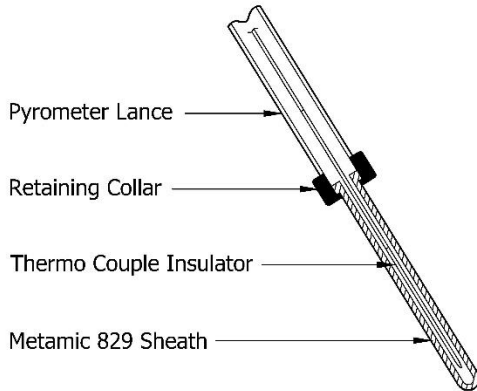


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Metamic 829 is a Molybdenum/Alumina composite material specifically designed for pyrometer protection sheaths used in vacuum melting furnaces.

Metamic 829 can be used in temperatures up to 1900°C and since no inner sheath is required it gives rapid temperature response with dip-immersion.

Metamic 829 is recommended for use in the primary production of Super Alloys and Special Steels under vacuum and is widely used in the vacuum investment casting industry in the UK, Europe, U.S.A. and Japan.

## Chemical Analysis %

Al <sub>2</sub> O <sub>3</sub>	19.4
Mo	77.7
ZrO <sub>2</sub>	2.8

## Physical Properties

Max. Service Temperature °C	1900
Bulk Density Kg/m <sup>3</sup>	7450
Apparent Porosity %	3.0
Modulus of Rupture MN/m <sup>2</sup>	276

The above data is typical and does not imply or constitute a specification

## Hints & Tips for successful usage:

Metamics are only to be used in a VACUUM furnace, NOT in any air-melt application

When the molten metal is near to the target temperature, introduce the Metamic into the furnace through the interlock and hold over the molten metal for 10-20 seconds to allow some heat to be absorbed and reduce any potential for Thermal Shock

The Metamic should only be immersed in the molten metal with the Power turned OFF.

The reaction time is short and the temperature will be quickly displayed

Leaving the Metamic in the molten metal for extended periods will reduce the life of the sheath due to extended immersion time.

Leaving the Metamic in the molten metal when the power is turned on will significantly reduce the life of the sheath, not only due to extended immersion time but also due to the stirring influence of the induction furnace causing erosion of the surface.

If extensive or continuous immersion is necessary (powder atomisation or continuous casting) the use of an impervious Pure Alumina inner sheath may be necessary. This will reduce the diffusion of Mo to the hot junction.



## REGISTERED OFFICE:

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## Standard Part Sizes and Tolerances

Pattern	LENGTH mm $\pm 3\text{mm}$ (unless otherwise stated)	OUTSIDE DIAMETER mm $\pm 10\%$ (unless otherwise stated)	BORE mm $\pm 10\%$ (unless otherwise stated)
S302 & S302F	95.3	6.4	4
S363F	114.3	9.5	6.4
S483 & S483F	154.4	9.5	6.4
S502F	158.8	7.9	4.8
S503F	158.8	9.5	6.4
S642A	203.2	7.9	4.8
S1505F	300	10.0	7.0
S1506F	114.3	10.0	7.0
S1529F	254	7.5	5
S1537F	254	9.5	6.4
S1552F	300	10	7 +0.64 / - 0.25
S1554F	183 +0 / -3	9.9	4.8
S1562F	203 +2	7.9	4.8
S1567F	114.3 +1.5	10 +0.3 / -0.5	6.4
S1570F	149.4 +6 / -0	10	7
S1577F	300	9 – 10.8	6.7 – 7.8

## Notes

### Partcode nomenclature:

F: Denotes the part is flanged. Overall length includes the flange.

A: Denotes the part has a thicker wall than standard.

R: Denotes that the part is re-sintered or fired twice. Most Metamics will be sold as re-sintered

e.g. S503FR: this is the pattern S503 which is flanged and re-sintered. S503F is only fired once.

## Sizes

The above table shows standard sizes available and in regular production.

Other sizes can be supplied as required, to a maximum length of 300mm



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