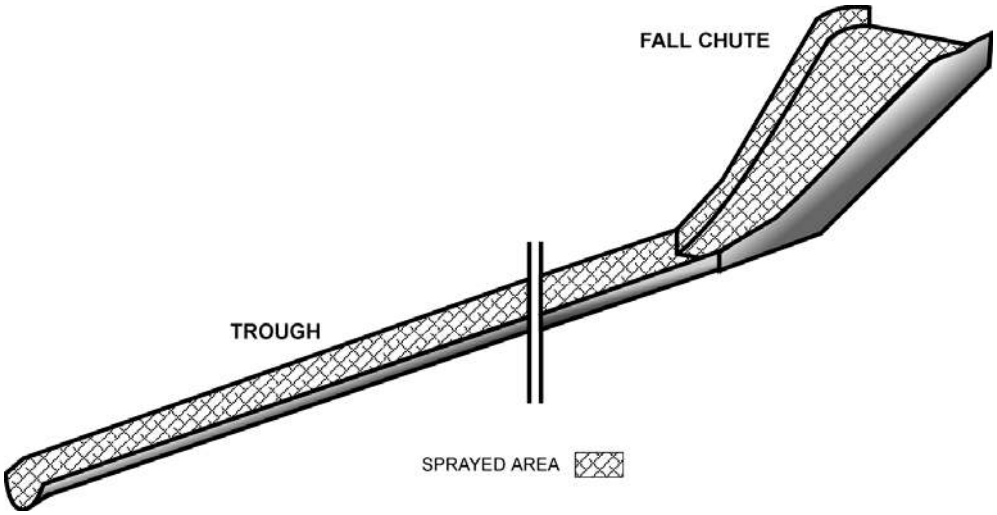
Metallisation
Thermal spray equipment and consumables

SPINNING MACHINE TROUGH CERAMIC COATING

Application Data Sheet HE-TP-001



INTRODUCTION

For many years with in the Ductile Iron pipe industry problems of short life expectancy of the troughs and fall chutes has been experienced on the Centrifugal Casting Machines (Spinning Machine), typically one trough per week.

This has contributed to high yearly costs due to downtime, trough replacement and repairs.

Metallisation has developed a coating system that has been proven within the industry to extend the life of the trough and fall chutes by a minimum factor of 13. This has reduced the maintenance costs, downtime, trough replacements and trough repair time from 48 Hours to 5 hours.

The four tier coating system is applied with the MK74 Powder Pistol for the first three coats and Mk73 Flamespray Pistol for the final flash coat of aluminium (the aluminium coating can be applied using the MK74 Powder pistol if required).

The Mk74 Powder pistol can either be hand held or machine mounted. With the delivery of the powder through a small gravity fed hopper mounted on the pistol or a separate powder feeder (2007MF-PF).

EQUIPMENT

Metallisation MK74 Powder Flamespray Pistol

Metallisation MK73 Wire Flamespray Pistol

MATERIALS

Bond Coat:	**99627**	Self bonding, high bond strength, low shrink Powder.
Second Coat:	**99910**	Cermet Powder, combined ceramic and metal coating. For high temperature protection.
Third Coat:	**99205**	Ceramic Powder, Grey Alumina used as a thermal barrier.
Fourth Coat:	**01E**	Aluminium Wire, To allow the blacking to adhere.

Preparation

The trough or fall chute should be clean and free from any grease or oil.

Degreasing - Any approved industrial solvent may be used to completely remove grease or oil from the surface.

If the trough or the fall chute are badly pitted, a weld repair will be required to build up the surface prior to spraying, this will require grinding back to blend in the surface.

It is normal to gritblast the components surface prior to applying the coating system; this is to produce the ideal receptive surface.

Blasting- where grit-blasting facilities are available, it is recommended that they be used. The standard of surface cleanliness required is as Swedish Standard SA3. Bearing surfaces not being treated should be masked before blasting.

Note: It is advisable to repair trough or fall chutes before they fail, as this reduces the requirement of weld repairs and grinding. You must remove the sprayed coating before re-spraying.

Application

Spraying should begin as soon as possible after preparation and before any visible sign of deterioration occurs.

(A) The Flamespray Equipment should be set up in accordance with the Metallisation Manual for the spraying each of the Flamespray Materials.

(B) The Area to be sprayed should be cleaned with a vacuum cleaner or clean air blast to remove any loose particles of grit.

(C) The Flamespray Pistol should be set so that the spray stream is at 90° to the surface being coated and traversed at an even speed giving a uniform coating.

(D) Apply each of the coatings to the required thickness

Spraying Parameters

Material	Nozzle	DISC No	Spray Distance	Air Cap	Pressures			Before Lighting		Coating Thickness
					Air	Gas	Oxy	Gas	Oxy	
99627	M	5	175–225mm (7″ – 9″)	STD	10/20	12	30	5.0	6.5	50 – 75 µm (0.002″- 0.003″)
99910	C	4	75-100mm (3″ – 4″)	Spreader	40	13	24	4.0	6.0	75 – 125 µm (0.003″- 0.005″)
99205	C	4	75mm (3″)	Spreader	40	13	24	4.0	6.0	125 –250 µm (0.005″- 0.010″)
01E	Refer to Manual for parameters for given wire diameter									Flash Coat

There should be the minimum of interruption from commencement of preparation to completion of spraying. At all times, the prepared surface should be protected from dust, dirt, moisture etc.

Finishing

No finishing required, component to be used in the As-Sprayed condition.

- REFERENCE TECHNICAL BULLETIN N°S :-

2.9.3.9 Metallisation 99627/16 Nickel Aluminium Moly Powder

2.9.9.2 Metallisation 99910/20 Cermet Powder

2.9.12.1A Metallisation 99205/32 Grey Alumina Powder

2.2.1 Metallisation Wire 01E Aluminium