

THE FLAMESPRAY RECLAMATION OF BALL BEARING SEATS ON RUBBER COATED PRINT ROLLERS

Application Data Sheet PP-DR-004

INTRODUCTION

The printing, paper and packaging industries use a wide range of rubber coated steel rollers for applying ink adhesive or the transportation of paper.

During use, the bearings at each end of the rubber coated rollers will become impregnated with ink, adhesive or other types of debris causing them to seize, inducing the roller shaft to rotate in the inner race destroying its fit and allowing the roller to become unstable or overheat.

By using the Metallisation Flamespray Process, it is possible to apply a thin coating of molybdenum (Mo) onto the bearing seat bringing it back up to size at a small percentage of the replacement cost and enabling the rubber coating to remain intact.

EQUIPMENT

Metallisation Mark 61 Flamespray System

MATERIALS

Metallisation 99E Molybdenum (Mo)

Exhibits excellent adhesion to ferrous substrates. The spraying of molybdenum using the Metallisation Flamespray Equipment gives the unique ability to produce a range of coatings between 250 and 800 HV.

METHOD

Cleaning

- (A) Remove bearings from roller ends
- (B) Degrease by solvent vapour process if equipment available
- (C) Inspect for cracking and longitudinal distortion

Pre-Machining

- (A) Rough turn or grind diameter being sprayed to a depth of 0.25mm (0.010") giving a parallel work surface

Note: On this type of application, 99E Molybdenum will only require a minimum thickness coating as it has excellent adhesion to ferrous substrates when applied by the Flamespray Process and the ability to be ground to a feather edge.

Cleaning

- (A) Degrease by solvent vapour process if available

Preparation

- (A) Mask all machined surfaces adjacent to area requiring treatment with heavy duty masking tape
- (B) Thoroughly inspect for contamination prior to blasting
- (C) Thoroughly blast with clean no. 30-36 grade aluminium oxide grit
- (D) Ensure that area to be treated is thoroughly blasted.

Application of Sprayed Coating

Masking

- (A) Apply Sprayshield masking fluid, using a small paint brush to all areas adjacent to the area being sprayed (small amounts of masking fluid on areas to be sprayed can be removed with emery cloth)
- (B) Check thoroughly area to be sprayed for contamination
- (C) **IMPORTANT:** Area to be sprayed should not come into contact with chains, rope slings, hands or any other form of contamination. Delays between blasting and spraying should not exceed 20 minutes.

Spraying

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

The roller should be mounted in a lathe chuck and rotated at a surface speed of not less than 18 metres/minute (60ft per minute).

Note: If rubber cover is in good condition and to be left intact during the spraying operation, it is essential that roller temperature is kept as low as possible during spraying and should not exceed 85°C.

Bonding

A deposit of Metallisation Molybdenum (99E) Wire is applied to a deposit thickness of 75µm-100µm (0.003"-0.004") at a range of 75mm (3"). The spraystream should be at 90° to the surface being coated and traversed by hand to give an even coating.

Main Deposit

Continue to spray the main deposit of 99E using the same parameters as the bond coat but increase spray range to 100mm-150mm (4"- 6")

Complete the spraying of the main deposit traversing the spray head to give a uniform coating over the bearing seat.

Using pre-set callipers, check final deposit thickness including grinding allowance.

i.e. Finish ground dimension plus 0.375mm-0.5mm (0.015"-0.020")

Spraying Parameters Metallisation Mark 61

Molybdenum Wire (99E)

Acetylene Pressure	1.03 bar	15 psi
Oxygen Pressure	1.9 bar	30 psi
Air Pressure	4.5 bar	65 psi

Flowmeter Point Settings

Gas	Oxygen
5.5	2.25

Demasking

- (A) Remove all masking tape.
- (B) Remove all overspray taking care to prevent coating damage
- (C) Remove all traces of Sprayshield with solvent

Finishing

- (A) Grinding wheel type n° 46 grit blue V grade
- (B) Wet grind to final diameter taking light cuts using feed and speed in accordance with grinding machine manufacturer's instructions

Inspection

- (A) Check dimensions
- (B) Check for cracks, defects in sprayed coating, i.e. large pores or protrusions and loose particles.

Finish Cleaning

- (A) Clean to remove any traces of grinding abrasive and loose particles
- (B) Wash with petroleum spirit/paraffin
- (C) Dry the surfaces with clean, disposable cloths or paper towel
- (D) Final inspection prior to refitting bearings

✦ REFERENCE TECHNICAL BULLETIN N°S :-

2.2.4 Metallisation 99E Molybdenum