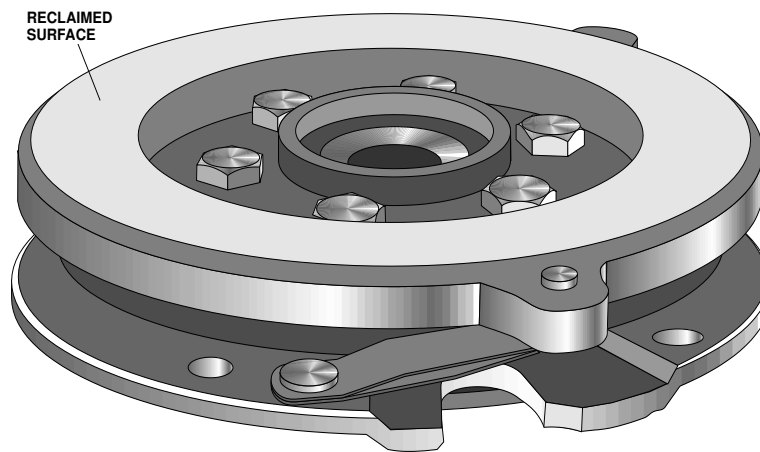


The Reclamation Of Clutch Pressure Plate Faces

Application Data Sheet AU-DR-001



Introduction

Clutch pressure plate casting faces have been reclaimed by the arcspray process for well over 10 years, on a fully commercial basis, by clutch re-manufacturing specialists. In use, the clutch pressure plate will wear and form heat cracking on its operative face taking it below acceptable tolerance. By using the Metallisation arcspray process the deposit poses a higher degree of bond strength than most other thermally sprayed deposits. The use of compressed air and electricity means more economic coatings.

It is possible to rebuild the pressure plate face back to its original size giving savings of up to 50% of their replacement cost.

The reclamation of clutch pressure plates for cars, tractors and commercial vehicles are all possible by using the Metallisation process.

Equipment

Metallisation Arcspray 528E, 340 or 140 Pistol

Materials

Metallisation 45E 0.8% High Carbon Steel

Produces extremely wear resistant coatings with very low stress levels

Hardness 38Rc

Cleaning

- (A) Steam clean if equipment available
- (B) Degrease by solvent vapour process if equipment available

Preliminary Inspection

Check for cracks or faults taking plates below the manufacturer's recommended tolerances

Preparation

Preliminary Machining

Rough grind or turn to remove surface imperfections, heat cracking, etc.

Pre-machine plates to a depth of .50mm to 2.00mm. Depth of machining is dependant on surface quality of plate.

Blasting

Thoroughly blast surface to be sprayed with clean chilled iron grit grade G24.

A surface profile of between 75µm-100µm should be achieved. See Technical Bulletin N° 5.2.2 for information on gritblasting. It is important that the surface to be sprayed should not come into contact with hands, oil, grease or any other contaminants, which may cause bond failure after spraying. Delay between blasting and spraying should not exceed 20 minutes.

Bonding And Simultaneous Spraying Of 45e

- (A) The arcspray equipment should be set up in accordance with the Metallisation Manual for the spraying of 45E (0.80% Carbon Steel).
- (B) The area to be sprayed should be cleaned with a vacuum cleaner or a clean, dry air blast to remove any loose particles of dust or grit.
- (C) The first 75µm-100µm should be applied at a close range (typically 100mm) and lower air pressure to achieve a higher bond strength.
- (D) The coating should be applied evenly and as close as possible to 90° from the rotating surface of the component.

Spraying Parameters For Bond Spraying

(i)	Material	45E, 0.8% C High Carbon Steel
(ii)	Range	100mm
(iii)	Nozzle Air Pressure	3.7 Bar (55 psi)
(iv)	Volts Before Spraying	38V
(v)	Volts During Spraying	34V
(vi)	Current	200A

Main Deposit

- (A) Apply 45E final deposit to specified required thickness plus a grinding allowance of 375µm-500 µm above required finished size.
- (B) The pressure plate should be rotated to give a minimum surface speed of 20m/min (60ft/min) throughout the spraying process.
- (C) The ARC pistol should be evenly traversed over the component ensuring total coverage and even thickness.

Spraying Parameters For Main Deposit

(i)	Range	150mm
(ii)	Nozzle Air Pressure	4.3 - 4.6 Bar (65-70 psi)
(iii)	Volts Before Spraying	38V
(iv)	Volts During Spraying	35V
(v)	Current	250A-300A

Note: Parameters may differ in accordance with type and length of power cables and hoses being used.

Finish Grind

Grinding Wheel Type N° 46 Blue V Grade

Finish grind with light cuts using feed and speeds in accordance with grinding machine manufacturer's instructions.

Thin Coatings

For coatings of less than 250µm it is advisable to use Metallisation 79E Ichrome One Step Arc Wire. Ichrome has been specially formulated to provide excellent adhesion to ferrous substrates and is ideal where very thin coatings or feather edges are required.

🔗 Reference Technical Bulletin:

- No. 2.1.4 Metallisation Wire 45E High Carbon Steel
- No. 2.1.9 Metallisation Wire 79E Ichrome (one step wire)
- No. 5.2.2 Surface Preparation by grit blasting

See Also:

- AU-DR-002 The Reclamation of Clutch Diaphragm Springs
- AU-DR-003 The Reclamation of Pressed Steel Clutch Levers by Flamespraying
- AU-DR-004 The Reclamation of Pressed Steel Clutch Levers by Arcspraying Diagram Pressure Plate