



AEROSPACE MATERIAL SPECIFICATION

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Superseding AMS03-28PT3

Physical Vapor Deposition of Metals:
Physical Vapor Deposition of Titanium Nitride for Surface Protection

RATIONALE

AMS03-28PT3A stabilizes this document because this document contains mature technology that is not expected to change and thus no further revisions are anticipated.

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AMS2444 Coating, Titanium Nitride, Physical Vapor Deposition

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FOREWORD

REVISION NOTE

This Defence Standard was raised to Issue 4 to update its content and incorporate the latest MoD/DStan policy in place at the time.

HISTORICAL RECORD

This standard supersedes the following:

Def Stan 03-28 (Part 3) Issue 1 dated 8 February 1991

Def Stan 03-28 (Part 3) Issue 2 dated 19 December 1997

Def Stan 03-28 (Part 3) Issue 3 dated 4 February 2005

INTRODUCTION

Titanium nitride deposited by physical vapor deposition techniques is applied to improve surface properties, in particular wear resistance, surface hardness and to reduce the tendency for galling. The coating is resistant to corrosion under ambient conditions and to oxidation below 450 °C. It is particularly suitable for the protection of items which need to be handled and is compatible with many energetic materials. Surfaces containing oxide, rust, black oxide scale, grinding burns or other machining marks, cracks or burrs are not suitable for coating. Processing conditions used for the coating of tempered steels must be carefully controlled so that their metallurgical properties and structure are not impaired by substrate heating. The presence of a thin titanium metal underlayer improves the adhesion and corrosion resistance of titanium nitride coatings. However, this underlayer may be omitted if its inclusion compromises the performance of the substrate/titanium nitride system as a whole.

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