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**Integration requirements for digital manufacturing workshops
for civil aviation forgings**

民用航空锻件数字化生产车间集成要求

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Foreword

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1 Scope

China's national integration requirements for digital manufacturing workshops producing civil aviation forgings. Aviation forgings - the discs, shafts, frames and landing gear components that carry the primary loads - are the parts on which airworthiness most directly depends, and their manufacture is governed by traceability as much as by metallurgy: every forging must be traceable to its billet, its heat treatment, its inspection and the parameters of each operation, for the life of the aircraft. Digitalising that workshop means the record is generated by the machines rather than transcribed, which removes the largest source of error and makes the data usable for process control. The integration requirements address what that demands: that the equipment, the process control, the inspection and the quality system exchange data in a defined way, so that the digital record is complete rather than a set of disconnected systems each holding part of it.

This document defines the terms and definitions of the digital production workshop for civil aviation forgings, and specifies abbreviations, workshop system architecture, basic data Digitalization requirements, communication network requirements, data management requirements, system integration interface requirements, and main functions of the manufacturing operation system: This document applies to the planning, construction, acceptance and operation of digital production workshops for civil aviation forgings:

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document: For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document:

GB/T 8541 Forging Terminology

GB/T 22239-2019 Information security technology - Basic requirements for cybersecurity level protection

GB/T 37393 General technical requirements for digital workshops

GB/T 38854-2020 Smart factory production process control data transmission protocol

3 Terms and definitions

The terms and definitions defined in GB/T 8541 and GB/T 37393 and the following apply to this document: 3:

1 Titanium alloy, steel, aluminum alloy, high-temperature alloy and other forgings used in civil aircraft: 3:

2 Based on the technology and equipment for producing civil aviation forgings, using information technology, automation, measurement and control technology, etc.; An implementation unit that plans, manages, diagnoses and optimizes the production operation process among different units: [Source: GB/T 37393-2019, 3:3, modified] 3:

3 Production equipment production equipment The equipment in the field resource layer of the digital production workshop (3:2) of civil aviation forgings (3:1) can be used through its own functions and with other auxiliary equipment: Equipment that works together to execute specific production processes in the workshop:

4 Abbreviations

The following abbreviations apply to this document: BOM: Bill of Materials