IEC TS 60034-34

Edition 1.0 2020-11

TECHNICAL SPECIFICATION

colour inside

Rotating electrical machines –
Part 34: AC adjustable speed rolling mill motors

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 29.160.01

ISBN 978-2-8322-9046-0

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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Technical Specifications are subject to review within three years of publication to decide whether they can be transformed into International Standards.

IEC TS 60034-34, which is a Technical Specification, has been prepared by IEC technical committee 2: Rotating machinery.

The text of this Technical Specification is based on the following documents:

Draft TS	Report on voting
2/1995/DTS	2/2017/RVDTS

Full information on the voting for the approval of this Technical Specification can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 60034 series, published under the general title *Rotating electrical machines*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

Rolling mill DC motors have 100 years of successful history. These metal rolling mill motors have been manufactured based on specific U.S.A. National Electric Manufacturers Association (NEMA) standards.

However, the control technology development, owing to progress in semiconductor device technology and micro-processor application technology, has made it practical to use AC adjustable speed rolling mill motors, both induction and synchronous motor types.

On the other hand, structures and characteristics of AC motors are far different from those for DC motors. Therefore, for application of AC adjustable speed rolling mill motors the purchaser and equipment supplier need a common understanding. This document incorporates various technical aspects of experience with DC mill motors and AC motor application experiences.

It introduces the field weakening control concept and overload operation as applied to AC adjustable speed rolling mill motors, and uses this information to specify factory test voltages to be used.

Various types of overload capacity conditions and overloads are defined. The possible effect on motor insulation life due to operating the motor beyond its design capability is discussed.

Requirements for confirmation of motor under specified variable speed operational conditions are introduced.

Rolling loads are defined for several application conditions. These supplement the duty classifications in IEC 60034-1 with specific cases.

ROTATING ELECTRICAL MACHINES –

Part 34: AC adjustable speed rolling mill motors

1 Scope

This part of IEC 60034 is applicable to AC adjustable speed rolling mill motors and identifies specific requirements for AC adjustable speed rolling mill motors, where those performance characteristics are different from those for conventional AC motors.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60034-1:2017, *Rotating electrical machines – Part 1: Rating and performance*

IEC 60034-2 (all parts), *Rotating electrical machines*

IEC 60034-7:1992, *Rotating electrical machines – Part 7: Classification of types of constructions and mounting arrangements (IM Code)*
IEC 60034-7:1992/AMD1:2000

IEC 60417, *Graphical symbols for use on equipment – 12-month subscription to regularly updated online database comprising all graphical symbols published in IEC 60417*

IEC 61800-4:2002, *Adjustable speed electrical power drive systems – Part 4: General requirements – Rating specifications for a.c. power drive systems above 1 000 V a.c. and not exceeding 35 kV*