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

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CONTENTS

FOREWORD 6
INTRODUCTION 8
1 Scope 9
2 Normative references 9
3 Terms and definitions 9
3.1 Terms and definitions 9
3.2 Terms and definitions for adjustable speed control and rolling operation 13
3.3 Terms and definitions for adjustable speed drive system 14
3.4 Terms and definitions for monitoring and protection sequence 15
3.5 Terms and definitions for motor installation and site trial operation 15
3.6 Terms and definitions for test 16
4 Terminal voltage determination 17
5 Duty type and temperature class 19
5.1 General 19
5.2 Selection of rolling operation pattern 19
5.3 Evaluation of winding temperature deviation during one rolling cycle 20
5.4 Duty type S1 or S9 selection 20
5.5 Class B rise or Class F rise selection 21
5.6 Overload current duration time limit based on winding temperature deviation in one rolling cycle for RMS current of 100 % 21
6 Continuous overload capability 22
6.1 General 22
6.2 Relative thermal life index of TL value estimation by simplified method 23
6.3 Relative thermal life estimation by precise method 24
6.4 Relative thermal life index of TL value determination by precise method 25
7 Mechanical requirements 25
7.1 General 25
7.2 Mechanical strength for shaft and other transmission parts considering torsional vibration 25
7.3 Vibration transmitted through the motor base 25
7.4 Tangential forces applied to rotor and stator 25
7.5 Thrust load 25
7.5.1 General 25
7.5.2 Frequently applied thrust load 25
7.5.3 Occasionally applied maximum thrust load 26
7.5.4 Emergency maximum thrust load 26
7.6 Radial load for bearings 26
7.7 Overspeed 26
7.8 Stator coil end fixation 26
7.9 Stator shift construction for maintenance inspection 26
7.10 Mounting code application 26
8 Withstand voltage capability 26
8.1 Rotor bars or damper bars and short-circuit rings 26
8.2 General 27
8.3 Withstand voltage test 27
8.4 Withstand voltage capability 27

8.4.1 General 27
8.4.2 Ground insulation 27
8.4.3 Turn-to-turn insulation 29
9 Factory tests and recommended site operation tests 29
9.1 General 29
9.1.1 General scope for the tests 29
9.1.2 Requirements of the site operation test where vector control is applied 29
9.2 Factory test 30
9.3 Preparation before trial operation at site 30
9.3.1 General 30
9.3.2 Calibration of feedback signals for the converter 31
9.3.3 Insulation resistance tests for motor 31
9.3.4 Insulation resistance tests for bearings 31
9.3.5 Performance test for bearing lubrication oil supply unit 31
9.3.6 Confirmation of lubrication oil surface level for bearings 31
9.3.7 Performance test for cooling systems 31
9.3.8 Confirmation of alarm issue levels for motor protection 31
9.3.9 Synchronous motor pole position confirmation test 32
9.4 Site uncoupled trial operation 32
9.4.1 General 32
9.4.2 Rotational speed build-up test 32
9.4.3 Bearing temperature rise test 32
9.5 Site no-load characteristic test 32
9.5.1 Induction motor no-load characteristics test 32
9.5.2 Synchronous motor no-load characteristics test 33
9.5.3 No-load characteristics test record 33
9.6 Site acceleration and deceleration test 33
10 Grounding 34
10.1 General 34
10.2 Protection against bearing currents 34
10.3 Protective earthing (PE) 34
10.4 Functional earthing (FE) 34
11 Rating plate 35
Annex A (normative) Short-time overload capability 36
A.1 General 36
A.2 Frequently applied Art-1 short-time overload capability specification 36
A.3 Frequently applied Art-2 short-time overload capability specification 39
Annex B (normative) Rolling operation pattern designation 42
B.1 General 42
B.2 Rolling operation pattern for hot reversing rolling 42
B.3 Rolling operation pattern for hot continuous rolling of sheet strip 43
B.4 Rolling operation pattern for continuous caster directly connected hot continuous rolling mills 44
B.5 Rolling operation pattern for hot continuous rolling for wire and rod mills 45
B.6 Rolling operation pattern for cold reversing rolling mills 46
B.7 Rolling operation pattern for cold continuous rolling 47
B.8 Operation pattern for coilers and reels 48
Annex C (informative) Determination of winding temperature deviation in one rolling cycle 50

C.1 General 50
C.2 Simplified method for estimation of the winding temperature deviation between maximum and mean values in one rolling cycle 50
C.3 Precise method for estimation of the winding temperature deviation between maximum and mean in one rolling cycle 52
Annex D (informative) Evaluation of reduced insulation life 57
Annex E (informative) Control system configuration for the assumed adjustable speed rolling mill induction motors 59
E.1 Induction motor model and controller configuration 59
E.2 Significance of acceleration and deceleration tests 62
Annex F (informative) Control system configuration for the assumed adjustable speed rolling mill synchronous motors 63
F.1 Control device configuration and synchronous machine model 63
F.2 Significance of acceleration and deceleration tests 66
F.3 Magnetic pole position confirmation test 67
Annex G (informative) Mounting code application for the rolling mill motor special cases 68
G.1 General 68
G.2 IM code application for the twin-drive rolling mill configuration 68
G.2.1 General 68
G.2.2 IM code application for common base configuration 68
G.3 IM code application for sub-base insertion under the motor base for lifting-up motor shaft centre 69
G.4 Coupling supply for cylindrical shaft extension 70
Bibliography 71

Figure 1 – Example of induction motor terminal voltage versus speed 18
Figure 2 – Example of synchronous motor terminal voltage versus speed 18
Figure 3 – Selection of motor temperature rise based on the temperature deviation in one rolling cycle and shock load conditions 21
Figure 4 – Example of overload current duration time limit based on winding temperature deviation between maximum and mean, in one rolling cycle RMS current of 100 % 22
Figure 5 – Example of discrete constant loads with 115 % continuous overload 24
Figure 6 – 2-level inverter configuration, waveform and switching surge voltage 28
Figure 7 – 3-level inverter configuration, waveform and switching surge voltage 28
Figure 8 – Example of protective earthing and functional earthing 35
Figure A.1 – Art-1 short-time overload capability of Type-A motors 37
Figure A.2 – Art-1 short-time overload capability of Type-B motors 38
Figure A.3 – Art-2 short-time overload capability of Type-A motors 40
Figure A.4 – Art-2 short-time overload capability of Type-B motors 41
Figure B.1 – Typical rolling operation pattern for hot reversing rolling 43
Figure B.2 – Typical rolling operation for hot continuous rolling of sheet strip 44
Figure B.3 – Typical rolling operation pattern for continuous caster connected hot continuous rolling for sheet strip 45
Figure B.4 – Typical rolling operation pattern for hot continuous rolling for wire and rod mills 46
Figure B.5 – Typical rolling operation pattern for cold reversing rolling mills 47

Figure B.6 – Typical rolling operation pattern for cold continuous rolling 48
Figure B.7 – Typical rolling operation pattern for coilers and reels 49
Figure C.1 – Winding temperature rise as a step response for the first order delay system with the winding thermal equivalent time constant of *T* 50
Figure C.2 – Numerical calculation result for the condition in Table C.1 52
Figure C.3 – Equivalent rectangular current waveform introduction 52
Figure C.4 – Torque, speed, and current deviation in one rolling cycle for hot strip mill finishing motor 54
Figure C.5 – An example of winding temperature deviation estimation in one rolling cycle by the precise method 55
Figure D.1 – Example of stator coil insulation surface crack caused by repetitive mechanical stress 58
Figure E.1 – Example configuration of induction motor (IM) control system 60
Figure F.1 – Principle of armature reaction compensation 64
Figure F.2 – Example configuration of synchronous motor (SM) control system 65
Figure F.3 – Armature current and field current waveform example for the adjustable speed rolling mill synchronous motor for reversing rotational direction mill 66
Figure G.1 – IM code application for bottom forward twin drive configuration with common motor bases 69
Figure G.2 – IM code application for sub-base insertion under the motor base for increasing motor shaft centre 70

Table 1 – Thermal life shortening due to the super-temperature in one rolling cycle 20
Table A.1 – Art-1 short-time overload capability of Type-A motors 38
Table A.2 – Art-1 short-time overload capability of Type-B motors 39
Table A.3 – Art-2 short-time overload capability of Type-A motors 40
Table A.4 – Art-2 short-time overload capability of Type-B motors 41
Table C.1 – Calculation example for repetitive 225 % overload current with RMS = 1,0 51
Table C.2 – An example of winding temperature deviation estimation in one rolling cycle by the precise method 56

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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ROTATING ELECTRICAL MACHINES –

Part 34: AC adjustable speed rolling mill motors

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- the subject is still under technical development or where, for any other reason, there is the future but no immediate possibility of an agreement on an International Standard.

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.

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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*