BUREAU OF INDIAN STANDARDS
DRAFT FOR COMMENTS ONLY

Draft Indian Standard

Safety of Machinery – Electrical Equipment of Machines – Part 32: Requirements for Hoisting Machines

(*First Revision*)

(ICS 29.020, 53.020.01)

Safety Of Machinery- Electrotechnical Aspects Sectional Committee, ETD 44 | Last Date – 20-07-2024

NATIONAL FOREWORD

This draft Indian Standard (First Revision) which is identical with IEC 60204-32: 2023 'Safety of machinery – Electrical equipment of machines – Part 32: Requirements for hoisting machines' issued by the International Electrotechnical Commission (IEC) will be adopted by the Bureau of Indian Standards on the recommendation of the Safety of Machinery- Electrotechnical Aspects Sectional Committee and approval of the Electrotechnical Division Council.

This standard was originally published in 2017. The first revision of this standard has been undertaken to align it with the latest version of IEC 60204-32 : 2008.

The text of the IEC Standard has been approved as suitable for publication as an Indian Standard without deviations. Certain conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

a) Wherever the words 'International Standard' appears referring to this standard, they should be read as 'Indian Standard'.

b) Comma (,) has been used as a decimal marker, while in Indian Standards the current practice is to use a point (.) as the decimal marker.

In this adopted standard, reference appears to International Standards for which Indian Standards also exists. The corresponding Indian Standards, which are to be substituted, are listed below along with their degree of equivalence for the editions indicated:

International Standard	*Corresponding Indian Standard*	*Degree of Equivalence*
IEC 60034-1:2017, Rotating electrical machines – Part 1: Rating and performance	IS 15999 (Part 1) : 2021 - Rotating Electrical Machines Part 1 Rating and Performance (*Second Revision*)	Identical

IEC 60034-5, Rotating electrical machines – Part 5: Degrees of protection provided by the integral design of rotating electrical machines (IP code) – Classification	IS/IEC 60034-5 : 2000 - Rotating electrical machines: Part 5 degrees of protection provided by the integral design of rotating electrical machines (IP Code) - Classification (*Second Revision*)	Identical
IEC 60034-11, Rotating electrical machines – Part 11: Thermal protection	IS 14122 : 1994 Built - In thermal protection for electric motors rated up to 660 V AC - Specification	Modified/Technically Equivalent
IEC 60068-2-27:2008, Environmental testing – Part 2-27: Tests – Test Ea and guidance: Shock	IS 9000 (Part 7/Sec 1) : 2018 - Basic environmental testing procedures for electronic and electrical items: Part 7 impact test: Sec 1 shock (Test Ea) (*Second Revision*)	Identical
IEC 60068-2-31:2008, Environmental testing – Part 2-31: Tests – Test Ec: Rough handling shocks, primarily for equipment-type specimens	IS 9000 (Part 7/Sec 3) : 2019 - Environmental testing: Part 7 tests :: Sec 3 test Ec: rough handling shocks, primarily for equipment - Types specimens (*First Revision*)	Identical
IEC 60072-2, Dimensions and output series for rotating electrical machines – Part 2: Frame numbers 355 to 1000 and flange numbers 1180 to 2360	IS 8223 : 1999 - Dimensions and output series for rotating electrical machines (First Revision)	Identical
IEC 60073:2002, Basic and safety principles for man-machine interface, marking and identification – Coding principles for indicators and actuators	IS/IEC 60073 : 2002 - Basic and safety principles for man-machine interface marking and identification - Coding principles for indicators and actuators	Identical
IEC 60309-1, Plugs, fixed or portable socket-outlets and appliance inlets for industrial purposes – Part 1: General requirements	IS/IEC 60309-1 : 2021 - Plugs fixed or portable socket-outlets and appliance inlets for industrial purposes Part 1: General requirements (*Second Revision*)	Identical
IEC 60445:2021, Basic and safety principles for man-machine interface, marking and identification – Identification of equipment terminals, conductor terminations and conductors	IS 11353 : 2023 - Basic and Safety Principles for Man-Machine Interface Marking and Identification - Identification of Equipment Terminals Conductor Terminations and Conductors (*First Revision*)	Identical
IEC 60447:2004, Basic and safety principles for man-machine interface, marking and identification – Actuating principles	IS 7118 : 2023 - Basic and Safety Principles for Man-Machine Interface Marking and Identification - Actuating Principles (*First Revision*)	Identical
IEC 60529, Degrees of protection provided by enclosures (IP Code)	IS/IEC 60529 : 2001 - Degrees of protection provided by enclosures (IP	Identical

	Code)	
IEC 60664-1, Insulation coordination for equipment within low-voltage supply systems – Part 1: Principles, requirements and tests	IS 15382 (Part 1) : 2022 - Insulation Coordination for Equipment Within Low-Voltage Systems Part 1 Principles Requirements and Tests	Identical
IEC 60947-1, Low-voltage switchgear and controlgear – Part 1: General rules	IS/IEC 60947-1 : 2020 - Low-voltage switchgear and controlgear part 1 general rules	Identical
IEC 60947-2:2016, Low-voltage switchgear and controlgear – Part 2: Circuit-breakers	IS/IEC 60947-2 : 2016 - Low - Voltage switchgear and controlgear: Part 2 circuit - Breakers (*First Revision*)	Identical
IEC 60947-3, Low-voltage switchgear and controlgear – Part 3: Switches, disconnectors, switch-disconnectors, and fuse-combination units	IS/IEC 60947-3 : 2012 - Low - Voltage switchgear and controlgear: Part 3 switches, disconnectors, switch disconnectors and fuse - Combination units (*First Revision*)	Identical
IEC 60947-4-1:2018, Low-voltage switchgear and controlgear – Part 4-1: Contactors and motor-starters – Electromechanical contactors and motor-starters	IS/IEC 60947-4-1 : 2012 - Low - Voltage switchgear and controlgear: Part 4 contactors and motor - Starters: Sec 1 electromechanical contactors and motor - Starters (*First Revision*)	Identical
IEC 60947-5-1:2016, Low-voltage switchgear and controlgear – Part 5-1: Control circuit devices and switching elements – Electromechanical control circuit devices	IS/IEC 60947-5-1 : 2009 - Low - Voltage switchgear and controlgear: Part 5 control circuit devices and switching elements: Sec 1 electromechanical control circuit devices (*First Revision*)	Identical
IEC 60947-5-5, Low-voltage switchgear and controlgear – Part 5-5: Control circuit devices and switching elements – Electrical emergency stop device with mechanical latching function	IS/IEC 60947-5-5 : 2016 - Low - Voltage switchgear and controlgear: Part 5 control circuit devices and switching elements: Sec 5 electrical emergency stop devices with mechanical latching function	Identical
IEC 60947-6-2, Low-voltage switchgear and controlgear – Part 6-2: Multiple function equipment – Control and protective switching devices (or equipment) (CPS)	IS/IEC 60947-6-2) : 2020 - Low-voltage switchgear and controlgear Part 6-2: Multiple function equipment Control and protective switching devices or equipment (CPS)	Identical
IEC 61140, Protection against electric shock – Common aspects for installations and equipment	IS 9409 : 2023 - Protection Against Electric Shock - Common Aspects for Installation and Equipment (*First Revision*)	Identical

IEC 61204-7, Low-voltage switch mode power supplies – Part 7: Safety requirements	IS/IEC 61204-7 : 2016 - Low-Voltage Power Supplies, d.c. Output Part 7 Safety Requirements	Identical
IEC 61310 (all parts), Safety of machinery – Indication, marking and actuation	IS 16503 (Part 1 to 3) : 2017	Identical
IEC 61439-1, Low-voltage switchgear and controlgear assemblies – Part 1: General rules	IS/IEC 61439-1 : 2020 - Low-voltage switchgear and controlgear assemblies Part 1: General rules (*First Revision*)	Identical
IEC 61557-3, Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC – Equipment for testing, measuring or monitoring of protective measures – Part 3: Loop impedance	IS/IEC 61557-3 : 2019 - Electrical Safety in Low Voltage Distribution Systems up to 1 000 V a.c. and 1 500 V d.c. ï¿½ Equipment for Testing, Measuring or Monitoring of Protective Measures Part 3 Loop Impedance	Identical
IEC 61558-1, Safety of transformers, reactors, power supply units and combinations thereof – Part 1: General requirements and tests	IS/IEC 61558-1 : 1997 - Safety of power transformers, power supply units and similar: Part 1 general requirements and tests	Identical
IEC 61558-2-6, Safety of transformers, reactors, power supply units and combinations thereof – Part 2-6: Particular requirements and tests for safety isolating transformers and power supply units incorporating safety isolating transformers for general applications	IS/IEC 61558-2-6 : 1997 - Safety of power transformers, power supply units and similar: Part 2 particular requirement: Sec 6 safety isolating transformers for general use	Identical
IEC 61800-3, Adjustable speed electrical power drive systems – Part 3: EMC requirements and specific test methods for PDS and machine tools	IS/IEC 61800-3 : 2017 - Adjustable Speed Electrical Power Drive Systems Part 3 EMC Requirements and Specific Test Methods	Identical
IEC 62061, Safety of machinery – Functional safety of safety-related control systems	IS 16501 : 2023 - Safety of Machinery - Functional Safety of Safety-Related Control Systems (*First Revision*)	Identical
IEC 62745:2017, Safety of machinery – Requirements for cableless control systems of machinery	IS 15298 (Part 2) : 2016 - Personal protective equipment: Part 2 safety footwear (*Second Revision*)	Identical
ISO 7010, Graphical symbols – Safety colours and safety signs – Registered safety signs, available at https://www.iso.org/obp	IS 16451 : 2023 - Graphical Symbols Safety Colours and Safety Signs Registered Safety Signs	Identical
ISO 12100:2010, Safety of machinery – General principles for	IS 16819 : 2018 - Safety of machinery - General principles for design - Risk	Identical

design – Risk assessment and risk reduction	assessment and risk reduction	
ISO 13849-1, Safety of machinery – Safety-related parts of control systems – Part 1: General principles for design	IS 16810 (Part 1) : 2018 - Safety of machinery - Safety related parts of control systems: Part 1 general principles for design	Identical
ISO 13849-2, Safety of machinery – Safety-related parts of control systems – Part 2: Validation	IS 16810 (Part 2) : 2018 - Safety of machinery - Safety related parts of control systems: Part 2 validation	Identical
ISO 13850:2015, Safety of machinery – Emergency stop function – Principles for design	IS 16818 : 2018 - Safety of machinery - Emergency stop function - Principles for design	Identical
ISO 13857, Safety of machinery – Safety distances to prevent hazard zones being reached by upper and lower limbs	IS 16814 : 2021 - Safety of Machinery Safety Distances to Prevent Hazard Zones Being Reached by Upper and Lower Limbs	Identical

The technical committee has reviewed the provision of the following International Standard referred in this adopted standard and has decided that it is acceptable for use in conjunction with this standard:

International Standard	*Title*
IEC 60072-1	Rotating electrical machines – Dimensions and output series – Part 1: Frame numbers 56 to 400 and flange numbers 55 to 1080
IEC 60072-3	Dimensions and output series for rotating electrical machines – Part 3: Small built-in motors – Flange numbers BF10 to BF50
IEC 60364-1:2005	Low-voltage electrical installations – Part 1: Fundamental principles, assessment of general characteristics, definitions
IEC 60364-4-41:2005	Low-voltage electrical installations – Part 4-41: Protection for safety – Protection against electric shock IEC 60364-4-41:2005/AMD1:2017
IEC 60364-4-43:2008	Low-voltage electrical installations – Part 4-43: Protection for safety – Protection against overcurrent
IEC 60364-5-52:2009	Low-voltage electrical installations – Part 5-52: Selection and erection of electrical equipment – Wiring systems
IEC 60364-5-53:2019	Low-voltage electrical installations – Part 5-53: Selection and erection of electrical equipment – Devices for protection for safety, isolation, switching, control and monitoring
IEC 60364-5-54:2011	Low-voltage electrical installations –Part 5-54: Selection and erection of electrical equipment – Earthing arrangements and protective conductors
IEC 60364-6:2016	Low-voltage electrical installations – Part 6: Verification
IEC 60417	Graphical symbols for use on equipment
IEC 60755:2017	General safety requirements for residual current operated protective devices
IEC 61557-9:2014	Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC – Equipment for testing, measuring or monitoring of protective measures – Part 9: Equipment for insulation fault detection in IT systems
IEC 61558-2-2	Safety of power transformers, power supplies, reactors and combinations thereof – Part 2-2: Particular requirements and tests for control transformers

	and power supply units incorporating control transformers
IEC 61558-2-16	Safety of transformers, reactors, power supply units and combinations thereof – Part 2-16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units for general applications
IEC 61800-5-1	Adjustable speed electrical power drive systems – Part 5-1: Safety requirements – Electrical, thermal and energy
IEC 61800-5-2	Adjustable speed electrical power drive systems. – Part 5-2: Safety requirements – Functional
IEC 61984	Connectors – Safety requirements and tests
IEC 62023	Structuring of technical information and documentation

Only English language text has been retained while adopting it in this Indian Standard, and as such the page numbers given here are not the same as in the International Standard.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated expressing the result of a test, shall be rounded off in accordance with IS 2: 2022 'Rules for rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

NOTE: The technical content of the document is not available on website. For details, please refer the corresponding IEC 60204-32: 2023 or kindly contact:

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