File No.9/28/2019-HE & MT Government of India Ministry of Heavy Industries

New Delhi , 28th September 2022

### **Office Memorandum**

Subject : Circulation of draft Machinery and Electrical Equipment Safety (Omnibus Technical Regulation) Order, 2022 for comments

The undersigned is directed to place the draft Machinery and Electrical Equipment Safety (Omnibus Technical Regulation) Order, 2022 (copy attached) on the website of the Ministry of Heavy Industries (<u>https://heavyindustries.gov.in/</u>) for comments. The above document is also being notified on the WTO website for comments of WTO members.

The comments may please be sent through email on <u>sanjiv.gupta75@nic.in</u> within the 60 days from the date of notification on WTO website.

(Sanjiv Kumar Gupta) Under Secretary to the Govt. of India

To,

All concerned

[To be published in the Gazette of India, Extraordinary, Part II, Section-3, Sub-section (ii)]

# Government of India Ministry of Heavy Industries

## Order

New Delhi, the, September, 2022

**S.O.(E).**— In exercise of the powers conferred by section 16 read with section 17 of the Bureau of Indian Standards Act, 2016 (11 of 2016), the Central Government is of the opinion that it is necessary and expedient so to do, in the public interest and in consultation with the Bureau of Indian Standards, hereby makes the following Order, namely:—

**1.** Short title, commencement and application.— (1) This Order may be called as the Machinery and Electrical Equipment Safety (Omnibus Technical Regulation) Order, 2022.

(2) It shall come into force after one year from the date of its publication in the Official Gazette.

(3) This Order shall apply to machines and electrical equipment and their assemblies, sub-assemblies and components listed in the first Schedule annexed to this Order.

(4) Nothing in this Order shall apply to any machinery or electrical equipment and their assemblies, sub-assemblies or components covered under any other order made under section 16 of the Bureau of Indian Standards Act, 2016.

2. Definitions.—(1) In this Order, unless the context otherwise requires,—

(a) "Act" means the Bureau of Indian Standards Act, 2016 (11 of 2016);

(b) "Conformity Assessment Regulations" means the Bureau of Indian Standards (Conformity Assessment) Regulations, 2018;

(c) "machinery", "residual risk", "risk" and "risk assessment" shall have the same meanings as assigned to them in IS 16819:2018/ISO 12100:2010, respectively;

(d) "safety" shall have the same meaning assigned to it in ISO/TS 37151:2015(en);

(e) "Schedule" means a Schedule annexed to this Order.

(2) Words and expressions used herein but not defined in the Order shall have the meanings respectively assigned to them in the Act, rules or regulations made thereunder.

3. Conformity to standards and essential requirements.— (1) Each machine, or as the case may be, electrical equipment specified in the first Schedule shall conform to the corresponding Indian Standards, as applicable, as given below:-

- (a) Type A standards as given below: IS 16819:2018/ISO 12100:2010 (Safety of Machinery General Principles for Design- Risk Assessment and Risk Reduction) and IS 16504 (Part-1):2019/IEC 60204-1:2016 (Safety of Machinery- Electrical Equipment of Machines Part 1 General Requirements); and
- (b) Type B Standards –as per the second schedule;
- (c) Type C Standards as per the third Schedule:

Provided that if a Type C standard deviates from one or more technical provisions dealt with by Type A or Type B standard, Type C standard takes precedence.

(2) Each machine, or as the case may be, electrical equipment, specified in the first Schedule shall conform to the labeling and marking requirements as provided in the Scheme X of the Conformity Assessment Regulations and also to be complied with the safety instructions or symbols, if any required to be labeled or marked on the machinery or electrical equipment, as the case may be.

(3) Requirement of technical file shall be complied with as provided in the Scheme X of the Conformity Assessment Regulations.

**4.** Compulsory certification.—Each machine or electrical equipment, as the case may be, specified in the first Schedule shall bear the standard mark under a license from the Bureau; or issued with a certificate of conformity in case of machine, or as the case may be, electrical equipment, is not desired to be manufactured on a continuous basis as provided in the Scheme X of the Conformity Assessment Regulations.

**5.** Certification and enforcement authority.— The Bureau shall be the certifying and enforcement authority in respect of the machines, or as the case may be, electrical equipment.

**6.** Market surveillance.—The market surveillance in respect of any machine or electrical equipment, as the case may be, under these rules, shall be governed by such guidelines as may be issued time to time.

**7.** Penalty for contravention. —Any person who contravenes the provisions of this Order shall be punishable under the relevant provisions of the Act.

**8.** Date of effect of amendment or revision in Indian Standards.—When any amendment or revision is made by the Bureau to any of the Indian Standards specified in the Schedules, such amendment or revision shall be applicable to this Order with effect from such date as may be notified by the Bureau in this behalf.

# [See rules 1(3), 3(1), 3(2), 4 and 8]

List of Machinery and Electrical Equipment covered under this Order:

S No	Description of Machinery and Electrical Equipment	HS Code
	1	2
1	All types of Pumps for handling liquids, liquid elevators and ( <b>or</b> )their assemblies /sub-assemblies /components	841340, 841350, 841360, 841370, 841381, 841382 841391 and <b>841392</b> .
2	All types of compressors and( <b>or</b> )their assemblies /sub-assemblies /components.	841430, 841440, 84148011, 84148090, 84149011,84149019, <b>84149040</b> and 84149090.
3	All types of machinery for treatment of material by a process involving a change of temperature and( <b>or</b> )their assemblies /sub-assemblies /components	841932, 841939,841940, 841950, 841960,841981, 841989 and 84199090.
4	All types of centrifuges, filtering or purifying machinery for liquid and gas and( <b>or</b> )their assemblies /sub-assemblies /components	842111, 842112, 842119, 84212110, 84212190, 842122, 842129, 842131, 842139, 842191 and 842199.
5	All types of machinery for filling, closing, sealing, labelling bottles, packing or wrapping and( <b>or</b> )their assemblies /sub-assemblies /components	842220, 842230, 842240 and 842290.
6	All types of cranes and ( <b>or</b> ) their assemblies /sub-assemblies/components	842611, 842612,842619, 842620, 842630,842641, 842649, 842691 and 84269990,
7	All types of machinery for construction, earthmoving, Mining and ( <b>or</b> )their assemblies /sub-assemblies /components	8429, 843010, 843020, 843031, 843039, 843041, 843049, 843050, 843141, 843142, 843143 and 843149.
8	Lithographic plates	84425020
9	All types of weaving machines (looms) and ( <b>or</b> )their assemblies/ sub-assemblies / components.	8446, 844811, 844819, 844842 and 844849,
10	All types of machinery for making embroidery and( <b>or</b> )their assemblies /sub-assemblies /components.	84479020 and 844859.
11	All types of metal cutting machines tools covered under the heading 8456 to 8461 and( <b>or</b> )their assemblies /sub-assemblies/components.	8456, 8457, 8458, 8459, 8460, 8461 and846693

12	All types of machine tools for working stone, ceramics, concrete, asbestos cement or like mineral glass and ( <b>or</b> )their assemblies /sub-assemblies /components.	8464 and <b>84669100</b>
13	All types of machinery for working rubber and plastics and( <b>or</b> ) their assemblies /sub-assemblies /components	8477
14	All types of Machines including the machines for public works & building and the machinery & mechanical appliances having individual functions, not specified Or included elsewhere in Chapter 84 and( <b>or</b> )their assemblies /sub-assemblies /components	84791000, 84798999 and 84799090
15	All types of gears and gearing, toothed wheels, chain sprocket, transmission elements ball or roller screws, gear boxes and speed changers, including torque converters And ( <b>or</b> )their assemblies /sub-assemblies /components.	84834000 and 84839000
16	All types of Rotary electrical machines such as Generator, etc. and ( <b>or</b> ) their assemblies /sub-assemblies /components.	8501 and 8503
17	All types of Diesel Generator and ( <b>or</b> )their assemblies /sub-assemblies /components.	8502 and 8503
18	All types of Transformers and ( <b>or</b> )their assemblies /sub-assemblies /components.	850421, 850422,850423, 850431, 850432,850433, 850434 and 850490.
19	All types of Power Semiconductor Converter and (or)their assemblies /sub-assemblies /components.	850440
20	All types of switch gear and control gear equipment operating at voltages not exceeding 1000 volts <sup>*(vi)</sup> and ( <b>or</b> )their assemblies /sub-assemblies /components.	8536, 8537 and 8538
21	All types of switch gear and control gear equipment operating at voltages exceeding 1000 volts and (or) their assemblies /sub-assemblies /components.	<b>8535</b> , 8537 and 8538

# The Second Schedule [See rule 3(1) (b)]

# **TYPE B** (Generic Safety Standards – dealing with one safety aspect or more than one type of safeguard that can be used across a wide range of machinery)

SI. No.	IS Number	Title
-	1	2
1.	IS/IEC 61508 (Part 1): 2010	Functional Safety of Electrical-Electronic-Programmable Electronic Safety-related Systems Part 1- General Requirements
2.	IS/IEC 60529: 2001	Degree of Protection Provided by Enclosures (IP Code)
3.	IS 16806 ( Part 1) : 2018/ ISO 29042-1 : 2008	Safety of machinery - Evaluation of the emission of airborne hazardous substances - Part 1: Selection of test methods
4.	IS 16806 ( Part 2) : 2018/ ISO 29042-2 : 2009	Safety of Machinery Evaluation of the Emission of Airborne Hazardous Substances Part 2 Tracer Gas Method for the Measurement of the Emission Rate of a Given Pollutant
5.	IS 16806 ( Part 3) : 2018/ ISO 29042-3 : 2009	Safety of machinery - Evaluation of the emission of airborne hazardous substances - Part 3: Test bench method for the measurement of the emission rate of a given pollutant
6.	IS 16806 ( Part 4) : 2018/ ISO 29042-4 : 2009	Safety of machinery - Evaluation of the emission of airborne hazardous substances Part 4: Tracer method for the measurement of the capture efficiency of an exhaust system
7.	IS 16806 ( Part 5) : 2018/ ISO 29042-5 : 2010	Safety of machinery - Evaluation of the emission of airborne hazardous substances - Part 5: Test bench method for the measurement of the separation efficiency by mass of air cleaning systems with unducted outlet
8.	IS 16806 ( Part 6) : 2018/ ISO 29042-6 : 2010	Safety of machinery - Evaluation of the emission of airborne hazardous substances - Part 6: Test bench method for the measurement of the separation efficiency by mass of air cleaning systems with ducted outlet
9.	IS 16806 ( Part 7) : 2018/ ISO 29042-7 : 2010	Safety of machinery - Evaluation of the emission of airborne hazardous substances - Part 7: Test bench method for the measurement of the pollutant concentration parameter
10.	IS 16806 ( Part 8) : 2018/ ISO 29042-8 : 2011	Safety of machinery - Evaluation of the emission of airborne hazardous substances - Part 8: Room method for the measurement of the pollutant concentration parameter
11.	IS 16806 ( Part 9) : 2018/ ISO 29042-9 : 2011	Safety of machinery - Evaluation of the emission of airborne hazardous substances - Part 9: Decontamination index
12	IS 10481:2020/ ISO 4413:2010	Hydraulic Fluid Power- General Rules and Safety Requirements for Systems and their Components

13.	IS 12725:2020/ ISO 4414:2010	Pneumatic Fluid Power- General Rules and Safety Requirements for Systems and their Components
14.	IS/ISO 3457 : 2003	Earth Moving Machinery - Guards - Definitions and Requirements
15.	IS 16501 : 2017/ IEC 62061 : 2005	Safety of Machinery-Functional Safety of Safety-Related Electrical Electronic and Programmable Electronic Control Systems
16.	IS 16502 (Part 2): 2017/ IEC 61496-2: 2013	Safety of Machinery - Electro-Sensitive Protective Equipment Part 2 Particular Requirements for Equipment Using Active Opto-Electronic Protective Devices AOPDs
17.	IS 16503 (Part 3) : 2017/ IEC 61310-3 : 2007	Safety of Machinery- Indication Marking and Actuation Part 3 Requirements for the Location and Operation of Actuators
18.	IS 16504 (Part 32) : 2017/ IEC 60204-32 : 2008	Safety of Machinery-Electrical Equipment of Machines Part 32 Requirements for Hoisting Machines
19.	IS 16503 (Part 1) : 2017/ IEC 61310-1 : 2007	Safety of Machinery- Indication Marking and Actuation Part 1 Requirements for Visual Acoustic and Tactile Signals
20.	IS 16594 (Part 1): 2017/	Safety of Machinery - Electro-Sensitive Protective
	IEC 61496-1 : 2012	Equipment Part 1 General Requirements and Tests
21.	IS 16936 : 2018/	Safety of Machinery Guidelines for the Use of
	IEC TR 62513 : 2008	Communication Systems in Safety Related Applications
22.	IS 16503 (Part 2) : 2017/ IEC 61310-2 : 2007	Safety of Machinery - Indication Marking and Actuation Part 2 Requirements for Marking
23.	IS 16807 : 2018/ ISO 19353 : 2015	Safety of Machinery Fire Prevention and Fire Protection
24.	IS 16808 : 2018/	Safety of Machinery Hygiene Requirements for the
21.	ISO 14159 : 2002	Design of Machinery
25.	IS 16809 (Part 1) : 2018/ ISO	Safety of Machinery Permanent Means of Access to
	14122-1 : 2016	Machinery Part 1 Choice of Fixed Means and General Requirements of Access
26.	IS 16809 (Part 2): 2018/	Safety of Machinery Permanent Means of Access to
	ISO 14122-2 : 2016	Machinery Part 2 Working Platforms and Walkways
27.	IS 16809 (Part 3): 2018/	Safety of Machinery Permanent Means of Access to
	ISO 14122-3 : 2016	Machinery Part 3 Stairs Stepladders and Guard-Rails
28.	IS 16809 (Part 4): 2018/	Safety of Machinery Permanent Means of Access to
	ISO 14122-4 : 2016	Machinery Part 4 Fixed Ladders
29.	IS 16810 (Part 1) : 2018/	Safety of Machinery Safety Related Parts of Control
- 20	ISO 13849-1 : 2015	Systems Part 1 General Principles for Design
30.	IS 16810 (Part 2) : 2018/	Safety of Machinery Safety Related Parts of Control
31.	ISO 13849-2 : 2012 IS 16811 : 2018/	Systems Part 2 Validation Safety of Machinery Guards General Requirements for the
51.	14210 : 2015	Design and Construction of Fixed and Movable Guards
32.	IS 16812 : 2018/	Safety of Machinery Interlocking Devices Associated
52.	ISO 14119 : 2013	with Guards Principles for Design and Selection
33.	IS 16813 : 2019/	Safety of Machinery Prevention of Unexpected Start-Up
	1	<u> </u>

	ISO 14118 : 2017	
34.	IS 16814 : 2018/	Safety of Machinery Safety Distances to Prevent Hazard
	ISO 13857 : 2008	Zones Being Reached by Upper and Lower Limbs
35.	IS 16815 : 2019/ ISO 13855 :	Safety of Machinery Positioning of Safeguards with
	2010	Respect to the Approach Speeds of Parts of the Human Body
36.	IS 16816 : 2019/	Safety of Machinery Minimum Gaps to Avoid Crushing
	ISO 13854 : 2017	of Parts of the Human Body
37.	IS 16817 : 2018/	Safety of Machinery Two-Hand Control Devices
	ISO 13851 : 2002	Functional Aspects and Design Principles
38.	IS 16818 : 2018/	Safety of Machinery Emergency Stop Function Principles
	ISO 13850 : 2015	for Design
39.	IS 16912 : 2018/	Safety of Machinery Lubricants with Incidental Product Contact
	ISO 21469 : 2006	Hygiene Requirements
40.	IS 16834 (Part 1) : 2018/	Safety of machinery - Reduction of risks to health resulting from
	ISO 14123-1 : 2015	hazardous substances emitted by machinery - Part 1: Principles and
		specifications for machinery manufacturers
41.	IS 16834 (Part 2) : 2018/	Safety of machinery - Reduction of risks to health resulting from
	ISO 14123-2 : 2015	hazardous substances emitted by machinery - Part 2:
		Methodology leading to verification procedures
42.	IS 16835 (Part 1) : 2018/	Safety of machinery - Pressure-sensitive protective
	ISO 13856-1 : 2013	devices - Part 1: General principles for design and testing of pressure-
		sensitive mats and pressure-sensitive floors
43.	IS 16835 (Part 2) : 2018/	Safety of machinery - Pressure-sensitive protective
	ISO 13856-2 : 2013	devices - Part 2: General principles for design and testing of pressure-
		sensitive edges and pressure-sensitive bars
44.	IS 16835 (Part 3) : 2018/	Safety of machinery - Pressure-sensitive protective devices - Part 3:
	ISO 13856-3 : 2013	General principles for design and testing of pressure-sensitive
		bumpers, plates, wires and similar devices.
45.	IS 16569: 2018/	Ergonomics- System of Auditory and Visual Danger and
	ISO 11429	Information Signals
46.	IS 16563 (Part 2) : 2017/	Ergonomic Requirements for the Design of Displays and
	ISO 9355-2	Control Actuators Part 2 Displays
47.	IS 16563 (Part 3) 2017 /	Ergonomic Requirements for the Design of Displays and
	ISO 9355-3	Control Actuators Part 3 Control Actuators
48.	IS 16572 : 2017/	Safety of Machinery - Anthropometric Requirements for
	ISO 14738 : 2002	the Design of Workstations at Machinery
49.	IS 16562 (Part 1): 2017/	Ergonomics - Computer Manikins and Body Templates
	ISO 15536-1 : 2005	Part 1 General Requirements
50.	IS 16569:2018/ ISO 11429:	Ergonomics - System of auditory and visual danger and information
	1996	signals

## The Third Schedule

### [See rule 3(1) (C)]

**TYPE C** (Machine Safety Standards – dealing with detailed safety requirements for a particular machine or group of machines)

S No	Description of Machinery and Electrical Equipment	HS Code	Indian Standard/Specific Clause of Indian Standard	Title of Indian Standard
	1	2	3	4
1	All types of Pumps for handling liquids, liquid elevators	841340, 841350, 841360, 841370, 841381, 841382 and 841391.	-	-
2	All types of compressors	841430, 841440, 84148011, 84148090, 84149011, 84149019	Clause 16 of IS 17093:2019	Technical supply conditions for reciprocating air compressors for general purpose and industrial applications
		and 84149090.	Clause 6.6 of IS 12258:1987	Technical supply condition for air screw compressors (Oil Flooded) for general purpose and industrial applications
3	All types of machinery for Treatment of material by a process involving a Change of temperature	841932, 841939, 841940, 841950, 841960, 841981, 841989 and 84199090.	-	-
4	All types of centrifuges, filtering or purifying machinery for liquid and gas	842111, 842112, 842119, 84212110, 84212190, 842122, 842129, 842131, 842139, 842191 and 842199.	-	-

5	All types of machinery for filling, closing, sealing, labelling bottles, packing or wrapping	842220, 842230, 842240 and 842290.	-	-
		842611, 842612, 842619, 842620,	Clause 66.1, 66.1.1, 66.1.2, 66.1.3, 66.2, 66.3, 66.5 of IS 3177:2020	Electric Overhead Travelling Crane and Gantry Crane for all Applications — Code of Practice
6	All types of cranes	842630, 842641, 842649, 842691 and	Clause 8.1, 8.2, 8.3 & 45 of IS 4573:2020	Power Driven Mobile Cranes — Specification
		84269990,	IS/ISO 15442:2012	Cranes - Safety requirements for loader cranes
		8429, 843010, 843020, 843031,	IS 17055 (Part 7): 2020	Earth-Moving Machinery — Safety Part 7 Requirements for Scrapers
7	All types of machinery for	843039, 843041, 843049,	IS 17055 (Part 8): 2020	Earth-Moving Machinery — Safety Part 8 Requirements For Graders
	construction, earthmoving, mining	843050, 843141, 843142, 843143 and 843149.	IS 17055 (Part 12): 2020	Earth-Moving Machinery — Safety Part 12 Requirements for Cable Excavators
8	Lithographic plates	84425020	-	-
9	All types of weaving machines (looms)	8446, 844811, 844819, 844842 and 844849,	2020 / ISO 11111	Textile Machinery — Safety Requirements Part 6 Fabric Manufacturing Machinery
10	All types of machinery for making embroidery.	84479020 and 844859.		Textile Machinery — Safety Requirements Part 1 Common Requirements
	All types of metal cutting machines Tools covered under the heading	8456, 8457, 8458, 8459, 8460, 8461 and 846693		Machine Tools Safety — Presses Part 1 General Safety Requirements
	8456 to 8461			Machine Tools — Safety —
11				Electro-Discharge Machines
			IS 17258: 2019 ISO 23125 : 2015	Machine Tools — Safety — Turning Machines
				Machine Tools — Safety —
			IS 17254:2019 ISO 16093 · 2017	Sawing Machines for Cold Metal

			IS 17253 (Part 1): 2019 ISO 16090-1 : 2017	Machine Tools Safety — Machining Centres, Milling Machines, Transfer Machines Part 1 Safety Requirements
12	All types of machine tools for working stone, ceramics, concrete, asbestos cement or like mineral glass	8464	-	-
13	All types of machinery for working rubber and plastics	8477	IS/ISO 20430: 2020	Plastics and Rubber Machines -Injection Moulding Machines -Safety Requirements
14	All types of machines including the machines for public works & Building and the machinery & mechanical appliances having individual functions, not specified or included elsewhere in Chapter 84	84791000, 84798999 and 84799090	-	-
15	All types of gears and gearing, toothed wheels, chain sprocket, transmission elements ball or roller screws, gear boxes and speed changers, including torque converters	84834000 and 84839000	-	-
16	All types of Rotary electrical machines such as Generator, etc.	8501 and 8503	Clause 10 & 11 of Section 2, Clause 21 of Section 3, Clause 29 of Section 4, Clause 37 of Section 5 of IS 5422:1996 / IEC 60034-3	Turbine type generators - Specification

			Clause 11, 21, 22, 23 of IS 13364 (Part 1): 1992 / IEC 60034-1	Ac generators driven by reciprocating internal combustion engines - Specification: Part 1 alternators rated up to 20 kVa
			Clause 11, 21, 22, 23 of IS 13364 (Part 2):1992 / IEC 60034-2	Ac generators driven by reciprocating internal combustion engines - Specification: Part 2 alternators rated above 20 kVa and up to 1250 kVa
			Clause 8, 9 & 10 of IS/ISO 8528 (Part 2): 2005	Reciprocating internal combustion engine driven alternating current generating sets: Part 2 engines
			Clause 6 & 10 of IS/ISO 8528 (Part 3): 2005	Reciprocating internal combustion engine driven alternating current generating sets: Part 3 alternating current generators for generating sets
	All types of Diesel		Clause 4, 5.5, 7.3.5, 7.3.7 & 7.4 of IS/ISO 8528 (Part 4): 2005	Reciprocating internal combustion engine driven alternating current generating sets: Part 4 control gear and switchgear
17	Generator	8502 and 8503	Clause 15.4, 15.5, 15.8 & 15.10 of IS/ISO 8528 (Part 5): 2005	Reciprocating internal combustion engine driven alternating current generating sets: Part 5 generating sets
			Clause 6.4 of IS/ISO 8528 (Part 8): 2016	Reciprocatinginternalcombustionenginedrivenalternating current generating sets:Part 8 requirements and tests forlow - Powergenerating sets
			Clause 9.1 of IS/ISO 8528 (Part 12): 1997	Reciprocatinginternalcombustionenginedrivenalternating current generating sets:Part 12 emergency powersupply to safety services
18	All types of Transformer	850421, 850422, 850423, 850431, 850432, 850433, 850434 and 850490.	IS/IEC 61558-2-4 : 2009	Safety of Transformers, Reactors, Power Supply Units and Similar Product for Supply Voltages up to 1 100 V Part 2- 4: Particular Requirements and Tests for Isolating Transformers and Power Supply Units Incorporating Isolating Transformers

			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
			IS/IEC 61558-2-7 : 2007	Safety of power transformers, power supplies reactors and similar products: Part 2 - 7 particular requirements and tests for transformers and power supplies for toys
			Clause 5.6 & Cl 10 of IS 2026 (Part 1): 2011	Power transformers: Part 1 general
			Clause 7.5, 7.6, 8.5, 8.6, 8.7, 9.5, 9.6, 9.7, 9.8, 10.5, 10.6, 10.7, 11.5, 11.6, 12.5 & 12.6 of IS 2026 (Part 6): 2017/60076- 6: 2007	Power transformers: Part 6 reactors
			Clause 6.3 to 6.12, 7.5 to 7.8, 7.10 & 7.12 of IS 2026 (Part 16): 2018/ 60076- 16:2011	Power transformers: Part 16 transformers for wind turbine applications
			Clause 5, 10 & 11 of IS 11171: 1985 Clause 10 of	Specification for dry - Type power transformers
			IS 13956: 1994	
19	All types of Power Semiconductor Converter and their assemblies /subassemblies /components /parts	850440	Clause 7 of IS 16539-1-1:2017/ IEC 60146-1-1: 2001	Testing transformers - Specification
20	All types of switch gear and control gear equipment operating at voltages not exceeding 1000 volts and their assemblies /subassemblies /components /parts		Clause 8 of IS/IEC 61439 (Part 3): 2012	Low - Voltage switchgear and control gear assemblies: Part 3 distribution boards intended to be operated by ordinary persons (DBO)

21	All types of switch gear and control gear equipment operating at voltages exceeding 1000 volts and their assemblies /sub-assemblies /components /parts	<b>8535</b> , 8537 and 8538
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<sup>[1]</sup>Additions to this Schedule shall be made from time to time by the Ministry of Heavy Industries.

[F.No. 9/28/2019-HE&MT]

Name & Designation.