



**MACHINE CATEGORY SPECIFIC GUIDELINES FOR
GRANT OF BIS CERTIFICATION AS PER “THE MACHINERY AND
ELECTRICAL EQUIPMENT SAFETY (OMNIBUS TECHNICAL REGULATIONS)
ORDER , 2024” UNDER SCHEME-X OF BUREAU OF INDIAN STANDARDS
(CONFORMITY ASSESSMENT) REGULATIONS, 2018**

GUIDELINES FOR ALL TYPES OF WEAVING MACHINES (LOOMS)

These Machine category specific Guidelines shall be used as reference document by all Regional/Branch Offices & licensees to ensure coherence of practice and transparency in operation of certification under Scheme-X of Bureau of Indian Standards (Conformity Assessment) Regulations, 2018 for various products notified under “The Machinery and Electrical Equipment Safety (Omnibus Technical Regulations) Order , 2024”. The document may also be used by prospective applicants desirous of obtaining BIS certification licence/certificate.

Section of the Guidelines	Aspects dealt with
A.	Introduction
B.	Machine Category specific requirements to be submitted in Technical File of the Machines [This section stipulates the additional Machine category specific requirements to be submitted in Technical File of the Machines, other than those specified in the General Guidelines for grant of licence]
C.	Series/Grouping guidelines for Grant of licence/Change in Scope of licence
D.	Labelling and Marking requirements
E.	Scope of Licence
F.	Scope of Certificate of Conformity (CoC)

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CENTRAL MARKS DEPARTMENT-III

Our ref: CMD-III/OTR/ All types of Weaving Machines (Looms)

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Subject: Machine Category Specific Guidelines for grant of BIS Certification as per “The Machinery and Electrical Equipment Safety (Omnibus Technical Regulations) Order , 2024” under Scheme-X of Bureau of Indian Standards (Conformity Assessment) Regulations, 2018 – Guidelines for “All types of Weaving Machines (Looms)”

This document stipulates the Machine category Specific Guidelines for Grant of Licence (GoL)/change in Scope of Licence (CSoL)/Grant of Certificate of Conformity, and are to be read in conjunction with BIS Act 2016 and Rules, Regulations framed thereunder. These guidelines are also to be read in conjunction with the general guidelines for grant of BIS Certification issued vide CMD-I/ 2:17:1 (OTR) dated 11 July 2025, as modified/revised from time to time. Any situation, in general, not covered in these guidelines is to be dealt with as per the provisions of BIS Act, Rules and Regulations by the Regional Offices (ROs) and Branch Offices (BOs).

SECTION A: Introduction

1. These Machine category Specific Guidelines shall be used for the purpose of grant of licence/change in scope of licence for “All types of Weaving Machines (Looms)” specified at Sl. No. 8 of the Third Schedule of the “The Machinery and Electrical Equipment Safety (Omnibus Technical Regulations) Order , 2024” and subsequent amendments made from time to time.
2. For the purpose of obtaining the licence/change in scope of licence from the Bureau, the manufacturer shall apply to Bureau of Indian Standards after ascertaining the scope of licence along with technical file including compliance report(s) as per the procedure defined by the Bureau of Indian Standards under the Conformity Assessment Scheme as specified in “The Machinery and Electrical Equipment Safety (Omnibus Technical Regulations) Order , 2024” and subsequent amendments made from time to time ensuring the required number of sample(s) in respect of a product series/ range or group, as stipulated further in these Guidelines.
3. For the purpose of obtaining Certificate of Conformity (CoC) from the Bureau, for a machine which is not intended to be manufactured on a continuous basis, the Manufacturer shall apply to Bureau of Indian Standards (BIS) after ascertaining the scope of CoC along with technical file including compliance report(s), as per the procedure defined by BIS under the Conformity Assessment Scheme as specified in “The Machinery and Electrical Equipment Safety (Omnibus Technical Regulations) Order, 2024” as amended from time to time. One CoC will be granted for Machines of the same Type (Shuttle weaving machine, Rapier weaving machine, Gripper weaving machine, Face-to-face weaving machine, Water-jet weaving machine, Needle Type Narrow Fabric weaving machine, Jacquard Machine etc.) only. The scope of CoC shall be limited only to the Batch Number/Serial Numbers of the Machine and the same shall be clearly specified in the scope of CoC granted.

SECTION B. Machine specific requirements to be submitted in Technical File of the Machines:

a) General

1. Compliance to the Indian standards and Essential requirements to be submitted in the Technical file of the Machine:

- i. As per the provisions of “The Machinery and Electrical Equipment Safety (Omnibus Technical Regulations) Order , 2024 (OTR)”, Each machine, or as the case may be, electrical equipment specified in the first Schedule shall conform to the corresponding Indian Standards, as applicable, from those given below:-
 - a) Type A standard, namely: IS 16819:2018/ISO 12100:2010 (Safety of Machinery General Principles for Design- Risk Assessment and Risk Reduction and,
 - b) Type B Standards –as per the second schedule of the Order; and
 - c) Type C Standards – as per the third Schedule of the Order:Provided that if a Type C standard deviates from one or more technical provisions dealt with by Type A or Type B standard(s), Type C standard shall take precedence.
- ii. For each model of the machine, Applicant manufacturer shall identify the applicable Indian standard and essential requirements, and submit the same in the technical file of the machine along with the application for grant of BIS Certification.
- iii. For machines, of which Type C Standard are already mapped in the Third Schedule of the OTR, compliance shall necessarily include that Standard/Essential requirement.
- iv. For Machines, against which no Type C Standard has been mapped as of now, compliance shall necessarily include Type A Standard and Type B Standards (as identified by the manufacturer and as applicable to the machine). In such cases, Manufacturer may (her)himself identify any one or more or Part of Type C Indian Standards available, which (s)he thinks is/are applicable to the particular machine from the point of view of its safety. Manufacturer may submit the compliance to these standards also. In such a case, compliance may be checked by BIS against these identified Standard(s) or requirements, as applicable.
- v. Indian standards and Essential requirements, as applicable, to which the Machine conform shall be specified in the Scope of licence or CoC.

2. Submission of technical file:

- i) Technical file shall be submitted for each type of Machine (*Shuttle weaving machine, Rapier weaving machine, Gripper weaving machine, Face-to-face weaving machine, Water-jet weaving machine, Needle Type Narrow Fabric weaving machine, Jacquard Machine etc.*) **and for each model** of the Machine, separately.
- ii) However, for any Machine type, **in case the manufacturer feels that there are number of models covered in a series, (s)he may submit a combined technical file based on the lead model mentioning details of all models covered in the series with technical justification substantiating that the models are covered in the same series [See Para (b) (2) of Section C of these Guidelines].** Technical file of lead model of each of the family of models shall be submitted. In the technical file of the lead model,

model names/numbers, which are covered in the family shall be specified. *(Please see Section C of these Guidelines regarding family of models)*

b) Suggestive checklists for evaluation of conformity to applicable Indian Standards and Risk Assessment Sheet and their verification, for various types of Machines/Equipment:

1. **For Machines, of which Type C Standard are already mapped in the Third Schedule of the OTR:** In order to help manufacturers in preparing the technical files for different types of machines, suggestive checklists for evaluation of conformity to applicable Indian Standards have been prepared by BIS based on the information contained in the respective Type C Standards. These checklists do not contain the exhaustive list and are for the purpose of guidance only. Any other hazard/risks not listed in these checklists, which may be identified by the manufacturer shall also be listed and adequate safety measures shall be taken and indicated in the above check-list by the manufacturer while submitting the technical file of the Machine.

- i. **Checklist for Weaving Machines** based on IS 17361 (Part 1): 2020/ISO 11111 (Part 6): 2005 is given at ***Annexure-1***

Final verification of conformity with the safety requirements and/or protective measures shall be carried out when the machine is in fully commissioned condition, in accordance with IS 17361-1/ ISO 11111-1, Clause 7 and Annex-C. The protective measures taken by the manufacturer shall be submitted to BIS. These measures may also be verified by BIS during factory visit.

2. **For Machines, against which no Type C Standard has been mapped as of now in the OTR:** In order to help manufacturers in preparing the technical file for different types of machines, suggestive checklists for evaluation of conformity to applicable Indian Standards and Risk Assessment Sheet have been prepared by BIS for compliance to Type A and Type B Standards. These checklists do not contain the exhaustive list and are for the purpose of guidance only. Any other hazards/Risks not listed in these checklists, which may be identified by the manufacturer shall also be listed and adequate safety measures shall be taken and indicated in the above check-list by the manufacturer while submitting the technical file of the Machine.

- i. **Checklist for Machines** based on IS 16819/ISO 12100 is given at ***Annexure-2***
 - ii. **Checklist for Machines** based on IS 16504-1/IEC 60204-1 is given at ***Annexure-3***.

c) Compliance of the Safety related Parts of Control System (SRP/CS) for various Machines as specified in respective Type C Indian standard to be submitted in the Technical file of the Machine:

1. **For Machines, of which Type C Standard are already mapped in the Third Schedule of the OTR:**

- i. **For Weaving Machines:** Safety-related parts of control systems implementing the safety functions shall meet the requirements for the performance level and category of ISO 13849-1, as listed in Table 3, 5, Clause 5.4.2.3, Clause 6.5,

Clause 6.12, clause 6.18, as applicable for respective machine or its components of IS 17361-1/ISO 11111-1.

2. Machines of which there is no Type C Standard specified in the OTR, Safety-related components implementing the safety functions shall meet the requirements for the performance level and category as required as per Risk assessment done.

SECTION C. Series/Grouping Guidelines for Grant of licence/Change in Scope of licence:

a) General:

1. Manufacturer shall declare all the models of each type of the weaving machine (*Shuttle weaving machine, Rapier weaving machine, Gripper weaving machine, Face-to-face weaving machine, Water-jet weaving machine, Needle Type Narrow Fabric weaving machine, Jacquard Machine etc.*) intended to be covered in the Licence.
2. For CoC, Manufacturer shall declare Type of Machine intended to be covered in the scope of CoC. Further, Date/Month of manufacturing, Model name/number and Lot No./Batch Number along with Serial Nos. of the Machine, shall also be declared for unique identification of Machines covered in the scope of CoC.
3. **Manufacturer shall ensure that each model of the Machine conforms to the Indian standard or Essential requirements, as applicable.** However, for the purpose of demonstration of the compliance to applicable Indian Standards or the essential requirements, manufacturer may submit the Risk assessment and compliance reports of the representative model (Lead model) only as described below at sub-para (b):

b) Family of models and Lead model in a family:

1. The manufacturer shall declare all the models (by name/ number/ code, as uniquely defined by the manufacturer) of the machine of each type (viz. Shuttle weaving machine, Rapier weaving machine, Gripper weaving machine, Face-to-face weaving machine, Water-jet weaving machine, Needle Type Narrow Fabric weaving machine, Jacquard Machine etc.)
2. The manufacturer shall identify and declare **Family of models** and the **lead model** in each family of models. **Lead model** represents a family of models declared by manufacturer. **While declaring a family of models, similarity of risks including Type of Hazards which are associated with the members of the family of machines shall be considered. Model posing highest risk and hence employing the maximum safety features shall be declared as the lead model of the family.**
3. For the purpose of demonstration of the compliance to applicable Indian Standards or the essential requirements, manufacturer shall submit compliance of the lead model. Technical file containing Risk assessment and compliance of this lead model shall be submitted along with application.
4. Based on the justification submitted by the manufacturer regarding various models covered in same family/series, and subsequent desk-assessment and factory assessment, BIS may agree/modify/not agree to such groupings.

5. Coverage of varieties of Machines in the scope of Machines shall be determined accordingly by BIS.
6. During operation of the licence if any new model is intended to be covered within the existing scope of licence and which are considered to be in the same family of models already covered, application for inclusion of all such new models (Change in scope of licence) in scope of licence along with necessary fee and technical file shall be submitted by licensee to BIS. Based on the assessment made, new models may be included in the scope of licence after review of technical file and/or factory visit. Provision of family of models and submission of technical file of the lead model, as above, may be applicable for such inclusions.

SECTION D. Labelling and Marking requirements:

- a) Each machine or equipment, shall conform to the labelling and marking requirements as specified in the Scheme X of the BIS (Conformity Assessment) Regulations, 2018 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.
- b) Each machine or equipment, shall also conform to the labelling and marking requirements including information for use, as specified in the respective Indian Standards i.e. IS 17361-1/ ISO 11111-1 and IS 17361-6/ ISO 11111-6 for Weaving Machine. **Machines for which there is no Type C Standard specified in the OTR, labelling and Marking requirements shall conform to IS 16819/ISO 12100 and other applicable Type B Standards.**
- c) **Information to be given as above shall be given at least in English language.**
- d) The BIS Standard Mark, as given in the Schedule of the licence, shall be marked on each machine, provided always that the product thus marked conforms to the corresponding Indian standard or Essential requirements, as applicable.

SECTION E. SCOPE OF LICENCE:

Licence is granted to use Standard Mark with following scope:

Product	Scope of licence	Standard Mark
Weaving Machines (Looms)	Please see Annexure attached	IS 16819:2018/ISO 12100:2010  CM/L- XXXXXXXXXXXX

Annexure to the Scope of licence Number.....

Type of Machine/Equipment <i>(Shuttle weaving machine, Rapier weaving machine, Gripper weaving machine, Face-to-face weaving machine, Water-jet weaving machine, Needle Type Narrow Fabric weaving machine, Jacquard Machine etc.)</i>	Models covered		Conforming to Indian Standard(s) or Essential requirements
	Model number/name as uniquely identified, of the lead model in the family	Model number/name as uniquely identified, of the machines covered in the family	

Illustrative example 1 of Annexure to scope of licence (applicable for scope covering Shuttle weaving machine, Rapier weaving machine):

Type of Machine/Equipment	Models covered		Conforming to Indian Standard(s) or Essential requirements
	Model number/name as uniquely identified, of the lead model in the family	Model number/name as uniquely identified, of the machines covered in the family	
<i>(Shuttle weaving machine, Rapier weaving machine, Gripper weaving machine, Face-to-face weaving machine, Water-jet weaving machine, Needle Type Narrow Fabric weaving machine, Jacquard Machine etc.)</i>			
Shuttle Weaving Machine	LM-SWM-1	SWM-1-1	IS 16819: 2018/ISO 12100: 2010 IS 17361-6: 2020/ ISO 11111-6: 2005
		SWM-1-2	
		SWM-1-3	
Shuttle Weaving Machine	LM-SWM-2	SWM-2-1	IS 16819: 2018/ISO 12100: 2010 IS 17361-6: 2020/ ISO 11111-6: 2005
		SWM-2-2	
		SWM-2-2	
Rapier Weaving Machine	LM-RWM-1	RWM-1-1	IS 16819: 2018/ISO 12100: 2010 IS 17361-6: 2020/ ISO 11111-6: 2005
		RWM-1-2	
		RWM-1-3	

SECTION F. SCOPE OF CERTIFICATE OF CONFORMITY (CoC):

Certificate of Conformity is granted with following scope:

Product	Scope of licence
Weaving Machines (Looms)	Please see Annexure attached

Annexure to the scope of Certificate of Conformity number

Type of Machine/Equipment (Either Shuttle weaving machine, Rapier weaving machine, Gripper weaving machine, Face-to-face weaving machine, Water-jet weaving machine, Needle Type Narrow Fabric weaving machine, Jacquard Machine etc.)	Models covered		Conforming to Indian Standard(s) or Essential requirements	Lot No./ Batch no. with serial numbers of the Machine (from...to...)	Total number of Machine/Equipment	Date/month of manufacturing of the Machine
	Model number/name as uniquely identified, of the lead model in the family	Model number/name as uniquely identified, of the machines covered in the family				

Illustrative example 1 for CoC:

Type of Machine/Equipment (Either Shuttle weaving machine, Rapier weaving machine, Gripper weaving machine, Face-to-face weaving machine, Water-jet weaving machine, Needle Type Narrow Fabric weaving machine, Jacquard Machine etc)	Models covered		Conforming to Indian Standard(s) or Essential requirements	Lot No./ Batch no. with serial numbers of the Machine (from...to...)	Total number of Machine/Equipment	Date/month of manufacturing of the Machine
	Model number/name as uniquely identified, of the lead model in the family	Model number/name as uniquely identified, of the machines covered in the family				
Shuttle Weaving Machine	LM-SWM-1	SWM-1-1	IS 16819: 2018/ISO 12100: 2010 IS 17361-6: 2020/ ISO 11111-6: 2005	Batch no.- SWM 01 Serial No. 001 to 200	200	January 2025 to March 2025
Shuttle Weaving Machine	LM-SWM-1	SWM-1-2	IS 16819: 2018/ISO 12100: 2010 IS 17361-6: 2020/ ISO 11111-6: 2005	Batch no.- SWM 02 Serial No. 201 to 300	100	January 2025 to March 2025

Illustrative example 2 for CoC:

Type of Machine/Equipment (Either Shuttle weaving machine, Rapier weaving machine, Gripper weaving machine, Face-to-face weaving machine, Water-jet weaving machine, Needle Type Narrow Fabric weaving machine, Jacquard Machine etc.)	Models covered		Conforming to Indian Standard(s) or Essential requirements	Lot No./ Batch no. with serial numbers of the Machine (from...to...)	Total number of Machine/Equipment	Date/month of manufacturing of the Machine
	Model number/name as uniquely identified, of the lead model in the family	Model number/name as uniquely identified, of the machines covered in the family				
Gripper Weaving Machine	LM-GWM-1	GWM-1-1	IS 16819: 2018/ISO 12100: 2010 IS 17361-6: 2020/ ISO 11111-6: 2005	Batch no.- GWM 01 Serial No. 001 to 200	200	January 2025 to March 2025
Gripper Weaving Machine	LM-GWM-1	GWM-1-2	IS 16819: 2018/ISO 12100: 2010 IS 17361-6: 2020/ ISO 11111-6: 2005	Batch no.- GWM 02 Serial No. 201 to 300	100	January 2025 to March 2025

Annexure- 1

Suggestive Check list for evaluation of conformity to Type C Standard - IS 17361 (Part 6): 2020/ISO 11111-6: 2005 for Weaving Machines (Looms) (For guidance)

A. Common requirements of all Weaving Machines (except Jacquard Machine) as per Cl. 5.2.1 of IS 17361-6/ ISO 11111-6					
Referred clause of IS 17361-6/ ISO 11111-6	Referred clause of IS 17361-1/ ISO 11111-1, if applicable	Specified requirements	Whether requirement is applicable to the Machine or not applicable	Conformity (Yes/No)	Technical documentation submitted as evidence of conformity (Design document/Risk assessment/ Safety function diagrams/safety validation reports/Test report/supplier test certificate etc.)
5.2.1, Table 1		General safety requirements			
	5.4.2.1 and 5.4.2.2	General safety requirements for electrical equipment			
	5.4.2.3	Specific safety requirements for control systems and devices			
	5.4.2.4	Specific safety requirements for starting and stopping			
	5.4.4	Static electricity			
	5.4.5	Fluid power systems and components			
	5.4.6.1	Hot surfaces and flames			
	5.4.7, 7, 8.2	Noise			
	5.4.10	Emission of dust and fly			
	5.4.11	Fire			
	5.4.13	Ergonomics			
	5.5	Devices for special operation			
	5.8	Fitting of parts			
	6	Significant hazards and corresponding safety requirements and/or measures for certain machine elements and their combinations			
	6.2	Drive and transmission enclosures			
	6.5	Rollers			
	6.6	Rotating shafts			
	6.7.2	Handwheels			
	6.12	Cutting device			
	6.18	Batchers			
	6.21	Automatic machines and equipment			
	6.21.2	Automatic guards			
	6.21.3	Mobile machines and handling devices which could leave their defined path			
B. Additional specific requirements of Shuttle Weaving Machines as per Cl. 5.2.2 of IS 17361-6/ ISO 11111-6					
5.2.2		Additional specific requirements of Shuttle Weaving Machines			
C. Additional specific requirements of Rapier Weaving Machines as per Cl. 5.2.3 of IS 17361-6/ ISO 11111-6					
5.2.3		Additional specific requirements of Shuttle Weaving Machines			
D. Additional specific requirements of Pile Wire Weaving Machines as per Cl. 5.2.4 of IS 17361-6/ ISO 11111-6					
5.2.4		Additional specific requirements of Pile Wire Weaving Machines			
E. Additional specific requirements of Gripper Weaving Machines as per Cl. 5.2.5 of IS 17361-6/ ISO 11111-6					
5.2.5		Additional specific requirements of Gripper Weaving Machines			
F. Additional specific requirements of Face-to-face Weaving Machines as per Cl. 5.2.6 of IS 17361-6/ ISO 11111-6					
5.2.6		Additional specific requirements of face-to-face Weaving Machines			
G. Additional specific requirements of Water jet Weaving Machines as per Cl. 5.2.7 of IS 17361-6/ ISO 11111-6					
5.2.7		Additional specific requirements of Water-jet Weaving Machines			
H. Additional specific requirements of Needle type narrow fabric Weaving Machines as per Cl. 5.2.8 of IS 17361-6/ ISO 11111-6					
5.2.8		Additional specific requirements of Needle type narrow fabric Weaving Machines			
I. General safety requirements of Jacquard Machines as per Cl. 5.2.9 of IS 17361-6/ ISO 11111-6					
	5.4.2.1 and 5.4.2.2	General safety requirements for electrical equipment			
	5.4.2.3	Specific safety requirements for control systems and devices			

5.2.9, Table 3	5.4.2.4	Specific safety requirements for starting and stopping	
	5.4.4	Static electricity	
	5.4.7, 7, 8.2	Noise	
	5.4.13	Ergonomics	
	5.5	Devices for special operation	
	5.6	Elevated servicing positions	
	5.8	Fitting of parts	
	6	Significant hazards and corresponding safety requirements and/or measures for certain machine elements and their combinations	
	6.2	Drive and transmission enclosures	
	6.6	Rotating shafts	
	6.13	Walk platforms and walkways	
	6.22	Complex installations	
J. Additional specific requirements of Jacquard Machines as per Cl. 5.2.9 of IS 17361-6/ ISO 11111-6			
5.2.9		Additional specific requirements of Jacquard Machines	
Note 1: This is not an exhaustive list, any other requirements not listed above from IS 17361-1 or IS 17361-1, which may be identified by the manufacturer shall also be listed and adequate safety measures shall be taken and indicated in the above check-list by the manufacturer while submitting the technical file of the Machine, Note 2: For risk reduction of textile machinery, the geometrical factors and physical aspects given in Table 1 of IS 17361-1 and in accordance with ISO 12100:2010, 6.2.2, shall apply, as specified in Cl. 5.3.2 of IS 17361-1/ ISO 11111-1. Further, Guards and safety devices used to reduce risks from textile machines shall conform to the requirements of the standards given in Tables 2 and 3 of IS 17361-1/ISO 11111-1 as specified in Cl. 5.3.3 of IS 17361-1/ ISO 11111-1.			

Annexure- 2

Risk Analysis						Risk mitigation					Reference documents for compliance	Risk evaluation		
Hazard identification			Risk Estimation (Using any Tool such as Risk Matrix (or) Risk Graph (or) Numerical Scoring (or) Combination of Tools as per IS/ISO/TR/ 14121-2)											
Type of Hazard	Element / Source of hazard (Please refer to Annex B of IS 16819/ ISO 12100)		Harm	Severity	Probability of occurrence of harm	Risk level/Index/Score	Relevant subclause of IS 16819/ ISO 12100	Relevant subclause of identified type-C Standard IS XXXX, if identified (Optional)	Measures taken to eliminate (or) reduce risk			Risk level/Index/ Score after Risk Mitigation measures taken	Technical Documentation / Compliance report	Has the risk been adequately reduced (Y/N)
	Origin ^a	Potential consequences ^b							Safety by Design	Safety through additional measures (eg. guard, interlocks, CBs etc)	Safety through any other measures (including warning signs, Information for Use, etc)			

[illegible]

[illegible]

[illegible]

8	Ergonomic Hazards:	☐ access; ☐ design or location of indicators and visual displays units; ☐ design, location or identification of control devices; ☐ effort; ☐ flicker, dazzling, shadow, stroboscopic effect; ☐ local lighting; ☐ mental overload/underload; ☐ posture; ☐ repetitive activity; ☐ visibility.	☐ discomfort; ☐ fatigue; ☐ musculoskeletal disorder; ☐ stress; ☐ any other (for example, mechanical, electrical) as a consequence of a human error.													
9	Hazards associated with the environment in which the machine is used:	☐ dust and fog; ☐ electromagnetic disturbance; ☐ lightning; ☐ moisture; ☐ pollution; ☐ snow; ☐ temperature; ☐ water; ☐ wind; ☐ lack of oxygen.	☐ burn; ☐ slight disease; ☐ slipping, falling; ☐ suffocation; ☐ any other as a consequence of the effect caused by the sources of the hazards on the machine or parts of the machine.													
10	Combination of Hazards:	☐ for example, repetitive activity + effort + high environmental temperature	☐ for example, dehydration, loss of awareness, heat stroke													

Note: This is not an exhaustive list, any other hazards not listed above, which may be identified by the manufacturer shall also be listed and adequate safety measures shall be taken and indicated in the above check-list by the manufacturer while submitting the technical file of the Machine.

a. Origin: A single origin of a hazard can have several potential consequences.

b. Potential consequences: For each type of hazard or group of hazards, some potential consequences can be related to several origins of hazard

Annexure- 3

Suggestive Check list for evaluation of conformity to Type B Standard - IS 16504-1/IEC 60204-1 for General requirements (For guidance)

Clause of IEC 60204-1	Specified requirements	Whether requirement is applicable to the Machine or not applicable	Conformity (Yes/No)	Technical documentation submitted as evidence of conformity (Design document/Risk assessment/ Safety function diagrams/safety validation reports/Test report/supplier test certificate etc.)
4	General Requirements			
4.1	Whether information as per Annexure B of IEC 60204-1 : 2016 is provided by the manufacturer?			
4.2	Selection of equipment			
4.2.1	Components and devices			
4.2.2	Switchgear: Compliance to IEC 61439			
4.3	Electrical supply: Whether equipment designed as per prescribed Electrical supply conditions?			
4.3.2	AC Supply			
4.3.3	DC Supply			
4.3.4	Whether can be categorized as special supply system?			
4.4	Physical Environment and Operating Conditions			
5	Incoming supply conductor terminations and devices for disconnecting and switching off			
5.1	Incoming supply conductor terminations			
	Identification of terminals for incoming supply connection			
5.2	Terminal for connection of the external protective conductor			
5.3	Whether supply disconnecting (isolating) device provided?			
	Whether provided for each incoming supply?			
	Whether provided for each on-board power supply?			
5.3.2	Type of supply disconnecting device			
5.3.3	Requirements			
5.3.4	Operating means of the supply disconnecting device			
5.3.5	Excepted circuits			
5.4	Devices for removal of power for prevention of unexpected start-up			
5.5	Devices for isolating electrical equipment			
5.6	Protection against unauthorized, inadvertent and/or mistaken connection			
6	Protection against electric shock			
6.2.2	Whether protection by enclosure?			
6.2.3	Whether protection by insulation?			
6.2.4	Whether protection against residual voltage required?			
6.2.5	Protection by barrier			
6.2.6	Protection by placing out of reach or protection by obstacles			
6.3	Fault protection			
6.3.2	Whether by prevention of occurrence of touch voltage?			
6.3.3	Whether protection by automatic disconnection of supply?			

6.4	Protection by the use of PELV			
7	Protection of equipment			
7.2	Overcurrent protection			
7.3	Protection of motors against overheating			
7.4	Protection against abnormal temperature			
7.5	Protection against the effects of supply interruption or voltage reduction and subsequent restoration			
7.6	Motor overspeed protection			
7.7	Additional earth fault/residual current protection			
7.8	Phase sequence protection			
7.9	Protection against overvoltages due to lightning and to switching surges			
7.10	Short-circuit current rating			
8	Equipotential bonding			
8.2	Protective Bonding Circuit			
8.3	Measures to restrict the effects of high leakage current			
8.4	Functional bonding			
9	Control circuits and control functions			
9.1	Control circuits			
9.1.2	Control circuit voltages			
9.1.3	Protection			
9.2	Control functions			
9.2.2	Categories of stop functions			
9.2.3	Operations			
9.2.3.4	Emergency operations (emergency stop, emergency switching off			
9.2.4	Cableless control system (CCS)			
9.3	Protective interlocks			
9.4	Control functions in the event of failure			
10	Operator interface and machine-mounted control devices			
10.1.2	Location and mounting			
10.1.3	Protection			
10.1.4	Position sensors			
10.1.5	Portable and pendant control stations			
10.2	Actuators			
10.3	Indicator lights and displays			
10.4	Illuminated push-buttons			
10.5	Rotary control devices			
10.6	Start devices			
10.7	Emergency stop devices			
10.8	Emergency switching off devices			
10.9	Enabling control device			
11	Controlgear: location, mounting, and enclosures			
11.2	Location and mounting			
11.3	Degrees of protection			
11.4	Enclosures, doors and openings			

11.5	Access to electrical equipment			
12	Conductors and cables			
12.2	Conductors			
12.3	Insulation			
12.4	Current-carrying capacity in normal service			
12.5	Conductor and cable voltage drop			
12.6	Flexible cable			
12.7	Conductor wires, conductor bars and slip-ring assemblies			
13	Wiring practices			
13.1	Connections and routing			
13.2	Identification of conductors			
13.3	Wiring inside enclosures			
13.4	Wiring outside enclosures			
13.5	Ducts, connection boxes and other boxes			
14	Electric motors and associated equipment			
15	Socket-outlets and lighting			
15.1	Socket-outlets for accessories			
15.2	Local lighting of the machine and of the equipment			
16	Marking, warning signs and reference designations			
17	Technical documentation			
18	Verification			
Annex - B	Enquiry form for the electrical equipment of machines			
Annex - C	Examples of machines covered by this part of IEC 60204			
Annex - F	Guide for the use of this part of IEC 60204			
	Note: This is not an exhaustive list, any other requirements not listed above from IEC 60204-1 or any other Type B Standard, which may be identified by the manufacturer shall also be listed and adequate safety measures shall be taken and indicated in the above check-list by the manufacturer while submitting the technical file of the Machine			