



## **APPLICATION FOR MACHINERY DIRECTIVE**

**On Behalf of**

**Shenzhen Southern Machinery Sales and Service Co.,Ltd**

**Radial insertion machine**

**S3000**

**Prepared for :** Shenzhen Southern Machinery Sales and Service Co.,Ltd  
Room 1806, Block 3, Jinyun COFCO, Qianjin 2nd Road ,Baoan District, Shenzhen City, China

**Prepared By :** Shenzhen HTT Technology Co., Ltd.  
7F,A Building,Smart valley Science and Technology Innovation Park,Xixiang,Baoan District,Shenzhen,Guangdong,China

**Date of Test:** Apr.22,2019 ~ Apr.26,2019

**Date of Report:** Apr.26,2019

**Report Number:** HTT190405311LR

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**Test Report****EN 60204-1****Safety of Machinery- Electrical Equipment of Machines****Part 1: General Requirements**

Report reference No ..... HTT190405311LR

Tested by (+ signature) ..... Darek Wang

Approved by (+ signature) ..... Kevin Yang

Date of issue ..... Apr.26,2019

Testing Laboratory Name ..... Shenzhen HTT Technology Co., Ltd.

Address ..... 7F,A Building,Smart valley Science and technology innovation  
Park,Xixiang,Baoan District,Shenzhen,Guangdong,ChinaTesting location ..... CBTL ☐ CCATL ☐ SMT ☐ TMP ☐

Address ..... Same as above.

Applicant's Name ..... Shenzhen Southern Machinery Sales and Service Co.,Ltd

Address ..... Room 1806, Block 3, Jinyun COFCO, Qianjin 2nd Road ,  
Baoan District, Shenzhen City, China

Standard ..... EN60204-1:2006+A1:2009+AC:2010

Test procedure ..... Compliance with EN 60204-1:2006+A1:2009+AC:2010

Procedure deviation ..... N/A.

Non-standard test method ..... N/A.

Test item description ..... Radial insertion machine

Manufacturer ..... Shenzhen Southern Machinery Sales and Service Co.,Ltd

Address ..... Room 1806, Block 3, Jinyun COFCO, Qianjin 2nd Road,  
Baoan District, Shenzhen City, China

Trademark .....

Model and/or type  
reference..... S3000Rating(s) ..... Input: 220-230V~, 50/60Hz, 10A  
Power: 1.6KW

**Test item particulars :**

Equipment mobility ..... Fixed equipment  
 Operating condition..... Continuous  
 Tested for IT power systems ..... N/A  
 IT testing, phase-phase voltage (V) ..... N/A  
 Class of equipment ..... Class I  
 Protection against ingress of water ..... IPX0

**Test case verdicts:**

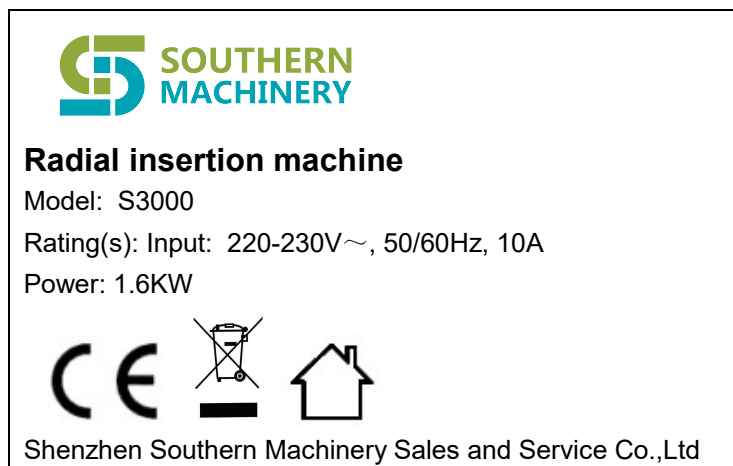
Test case does not apply to the test object ..... N(/A.)  
 Test item does meet the requirement..... P(ass)  
 Test item does not meet the requirement..... F(ail)

**Testing:**

Date(s) of performance of test : Apr.22,2019 ~ Apr.26,2019

**Model List**

Model List	--
Test Model	S3000
Other Model	S3010, S3020, S3040, S3060, S3010A, S3020A, S3040A, S3060A, S3010, S3020B, S3040B, S3060B
1.All tests are carried out on S3000 2.All models have same diagram circuit, PCB layout, except different model names and components relevant to different power.	

**Label**



<p><b>General remarks:</b></p> <p>Clause number between brackets refer to clauses in EN60204-1</p> <p>"(see remark #)" refers to a remark appended to the report.</p> <p>"(see appended table)" refers to a table appended to the report.</p> <p>Throughout this report a comma is used as the decimal separator.</p> <p>The test results presented in this report relate only to the object tested.</p> <p>This report shall not be reproduced without the written approval of the testing laboratory.</p> <p>When determining the test conclusion, the Measurement Uncertainty of test has been considered.</p> <p>Unless otherwise specified, test are made under normal conditions at an ambient temperature within the range of 15°C to 35°C, RH45% to 75% and an air pressure of 860mbar of 1060mbar.</p>	<p>Attachment with:</p> <ol style="list-style-type: none"><li>1) Equipment list</li><li>2) Photo documentation</li></ol>
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4	General requirements		P
4.1	General		P
4.2	Selection of equipment		P
4.2.1	General	Electrical components and devices, which are certified to IEC and/or national standards, are applied correctly within their ratings. Components not covered by IEC standards are tested under the conditions present in the equipment.	P
4.2.2	Electrical equipment in compliance with the EN 60439 series		P
4.3	Electrical supply		P
4.3.1	General		P
4.3.2	AC supplies	See below	P
	Voltage	220-230V~	P
	Frequency	50/60Hz	P
	Harmonics		N
	Voltage unbalance		P
	Voltage interruption		P
	Voltage dips		P
4.3.3	DC supplies		N
	From batteries:Voltage		N
	From batteries:Voltage interruption		N
	From converting equipment:Voltage	0,9 to 1,1 of nominal voltage	N
	From converting equipment:Voltage interruption	Not exceeding 20 ms with more than 1 s between successive interruptions.	N
	From converting equipment:Ripple (peak-to-peak)	Not exceeding 0,15 of nominal voltage	N
4.3.4	Special supply systems		N
4.4	Physical environment and operating conditions		P
4.4.1	General		P
4.4.2	Electromagnetic compatibility(EMC)		P
4.4.3	Ambient air temperature	5~40°C	P
4.4.4	Humidity	30°C 95%RH	P
4.4.5	Altitude	Below 1000 metres	P
4.4.6	Contaminants	(See 11.3)	P



4.4.7	Ionizing and non-ionizing radiation	No ionizing and non-ionizing radiation.	P
4.4.8	Vibration, shock, and bump		P
4.5	Transportation and storage		P
4.6	Provisions for handling		P
4.7	Installation		P

5	Incoming supply conductor terminations and devices for disconnecting and switching off		P
5.1	Incoming supply conductor terminations		P
5.2	Terminal for connection to the external protective earthing system		P
5.3	Supply disconnecting (isolating) device		P
5.3.1	General		P
5.3.2	Type		P
	a) switch-disconnector		P
	b) disconnector		P
	c) a circuit-breaker		N
	d) any other switching device		P
	e) a plug/socket combination for a flexible cable supply		P
5.3.3	Requirements		P
	- isolate the electrical equipment from the supply and have one OFF (isolated) and one ON position marked with "O" and "I"		P
	- have a visible contact gap or a position indicator which cannot indicate OFF (isolated) until all contacts are actually open and the requirements for the isolation function have been satisfied		P
	- have an external operating means (for example handle)		P
	- be provided with a means permitting it to be locked in the OFF (isolated) position (for example by padlocks)		P
	Disconnect all live conductors of its power supply circuit		P
	- have a breaking capacity sufficient to interrupt the current of the largest motor when stalled together with the sum of the normal running currents of all other motors and/or load.		P



	- have the switching capability, or be interlocked with a switching device that has a breaking capacity, sufficient to interrupt the current of the largest motor when stalled together with the sum of the normal running currents of all other motors and/or loads.	Disconnecting device is circuit breaker	N
	- a) to f) of 13.4.5	See 13.4.5	N
5.3.4	Operating means		P
5.3.5	Excepted circuits		P
	The following circuits need not be disconnected by the supply disconnecting device: - lighting circuits - plug and socket outlets - undervoltage protection circuits - circuits supply equipment that should normally remain energized for correct operation - control circuits fro interlocking		P
	Where such a circuit is not disconnected by the supply disconnecting device: - a permanent warning label in accordance with 16.1 is affixed in proximity to each excepted circuit, or - the excepted circuit is separated from other circuits, or - the conductors are identified by colour taking into account the recommendation of 13.2.4		N
5.4	Devices for switching off for prevention of unexpected start-up		P
5.5	Devices for disconnecting electrical equipment		P
5.6	Protection against unauthorized, inadvertent and/or mistaken connection		P

6	Protection against electric shock		P
6.1	General	Operator only has access to PELV circuits and enclosure outer surface.	P
6.2	Protection against direct contact:	See 6.2.2, 6.2.3 and 6.2.4	P
6.2.1	General		P
6.2.2	Protection by enclosures		P
6.2.3	Protection by insulation of live parts	Live parts are covered with insulation	P
6.2.4	Protection against residual voltages	See appended table 18.5	P
6.2.5	Protection by barriers		N
6.2.6	Protection by placing out of reach or protection by obstacles		N



6.3	Protection against indirect contact		P
6.3.1	General		P
6.3.2	Prevention of the occurrence of a touch voltage	The protection comply with the relevant requirements	P
6.3.2.1	General		P
6.3.2.2	Protection by provision of class II equipment or by equivalent insulation	Reinforced insulation	N
6.3.2.3	Protection by electrical separation		P
6.3.3	Protection by automatic disconnection of supply		P
6.4	Protection by the use of PELV		N
6.4.1	General requirements	Not exceed 25V ac or 60V dc in PELV circuit under normal operation.	N
6.4.2	Sources for PELV	An electronic power supply conforming to appropriate standards	N

7	Protection of equipment		P
7.1	General		P
	- overcurrent arising from a short circuit		P
	- overload and/or loss of cooling of motors		P
	- abnormal temperature		P
	- loss of or reduction in the supply voltage		P
	- overspeed of machines/ machine elements		P
	- earth fault/residual current		P
	- incorrect phase sequence		P
	- overvoltage due to lightning and switching surges		N
7.2	Overcurrent protection		P
7.2.1	General		P
7.2.2	Supply conductors		P
7.2.3	Power circuits		P
7.2.4	Control circuits		P
7.2.5	Socket outlets and their associated conductors		N
7.2.6	Lighting circuits		P
7.2.7	Transformers		N
7.2.8	Location of overcurrent protective devices		P
7.2.9	Overcurrent protective devices	Residual current circuit breaker used in power circuits	P





7.2.10	Rating and setting of overcurrent protective devices	Overcurrent protective devices are appropriate	P
7.3	Protection of motors against overheating		P
7.3.1	General		P
7.3.2	Overload protection		P
7.3.3	Over-temperature protection		P
7.3.4	Current limiting protection		P
7.4	Abnormal temperature protection		P
7.5	Protection against supply interruption or voltage reduction and subsequent restoration		P
7.6	Motor overspeed protection		P
7.7	Earth fault/residual current protection		P
7.8	Phase sequence protection		P
7.9	Protection against overvoltages due to lightning and to switching surges		N

8	Equipotential bonding		P
8.1	General		P
8.2	Protective bonding circuit		P
8.2.1	General		P
8.2.2	Protective		P
8.2.3	Continuity of the protective bonding circuit	See 18.2.2, Test 1	P
8.2.4	Exclusion of switching devices from the protective bonding circuit	No switching or over current devices in incorporated in protective bonding circuit	P
8.2.5	Parts that need not be connected to the protective bonding circuit		P
8.2.6	Protective conductor connecting points		P
8.2.7	Mobile machines		N
8.2.8	Additional protective bonding requirements for electrical requirement having earth leakage currents higher than 10mA a.c.or d.c		P
8.3	Functional bonding		P
8.4	Measures to limit the effects of high leakage current		N

9	Control circuits and control functions		P
9.1	Control circuits		P
9.1.1	Control circuit supply		P



9.1.2	Control circuit voltages	The value of the control voltage is consistent with the correct operation of the control circuit the voltage is not exceed 277V	P
9.1.3	Protection	Over current protection provided	P
9.2	Control functions		P
9.2.1	Start functions		P
9.2.2	Stop functions	Stop category 0	P
9.2.3	Operating modes		P
9.2.4	Suspension of safety functions and/or protective measures		P
9.2.5	Operation		P
9.2.5.1	General		P
9.2.5.2	Start		P
9.2.5.3	Stop		P
9.2.5.4	Emergency operation (emergency stop, emergency switching off)		P
9.2.5.4.1	General		P
9.2.5.4.2	Emergency stop		P
9.2.5.4.3	Emergency switching off		P
9.2.5.5	Monitoring of command actions		P
9.2.6	Other control functions		N
9.2.6.1	Hold-to-run controls		N
9.2.6.2	Two-hand control		N
9.2.6.3	Enabling control		N
9.2.6.4	Combined start and stop controls		N
9.2.7	Cableless control		P
9.2.7.1	General		P
9.2.7.2	Control limitation		P
9.2.7.3	Stop		P
9.2.7.4	Use of more than one operator control station		P
9.3	Protective interlocks		P
9.3.1	Reclosing or resetting of an interlocking safeguard		P
9.3.2	Exceeding operating limits		P
9.3.3	Operation of auxiliary functions		P
9.3.4	Interlocks between different operations and for contrary motions		P



9.3.5	Reverse current braking		P
9.4	Control functions in the event of failure		P
9.4.1	General requirements		P
9.4.2	Measures to minimize risk in the event of failure		P
9.4.2.1	Use of proven circuit techniques and components		P
9.4.2.2	Provisions of partial or complete redundancy		P
9.4.2.3	Provision of diversity		N
9.4.2.4	Provision for functional tests		N
9.4.3	Protection against maloperation due to earth faults, voltage interruptions and loss of circuit continuity		N
9.4.3.2	Voltage interruptions		N
9.4.3.3	Loss of circuit continuity		N

10	Operator interface and machine-mounted control devices		P
10.1	General		P
10.1.1	General device requirements		P
10.1.2	Location and mounting		P
10.1.3	Protection	IPX0	P
10.1.4	Position sensors		P
10.1.5	Portable and pendant control stations		N
10.2	Push-buttons		P
10.2.1	Colors		P
10.2.2	Markings		P
10.3	Indicator lights and displays		P
10.3.1	General		P
10.3.2	Colours		P
10.3.3	Flashing lights and displays		P
10.4	Illuminated push-buttons		P
10.5	Rotary control devices		P
10.6	Start devices		P
10.7	Emergency stop devices		P
10.7.1	Location of emergency stop devices		P
10.7.2	Types of emergency stop device		P
10.7.3	Colour of actuators		P
10.7.4	Local operation of the supply disconnecting device to effect emergency stop		N
10.8	Emergency switching off devices		P



10.8.1	Location of emergency switching off devices		N
10.8.2	Types of emergency switching off device		N
10.8.3	Colour of actuators		N
10.8.4	Local operation of the supply disconnecting device to effect emergency switching off		N
10.9	Enabling control device		N

11	Controlgear: location, mounting, and enclosures		P
11.1	General requirements		P
11.2	Location and mounting		P
11.2.1	Accessibility and maintenance		P
11.2.2	Physical separation or grouping		P
11.2.3	Heating effects		N
11.3	Degrees of protection	At least IPX0	P
11.4	Enclosures, doors and openings		P
11.5	Access to controlgear		P

12	Conductors and cables		P
12.1	General requirements		P
12.2	Conductors		N
12.3	Insulation	The type of insulation is PVC	P
12.4	Current-carrying capacity in normal service		P
12.5	Conductor and cable voltage drop	<5%	P
12.6	Flexible cables		P
12.6.1	General		P
12.6.2	Mechanical rating		P
12.6.3	Current-carrying capacity of cables wound on drums		P
12.7	Conductor wires, conductor bars and slip-ring assemblies		P
12.7.1	Protection against direct contact		P
12.7.2	Protective conductor circuit		P
12.7.3	Protective conductor current collectors		N
12.7.4	Removable current collectors with a disconnecter function		N
12.7.5	Clearances in air		P
12.7.6	Creepage distances		P
12.7.7	Conductor system sectioning		N
12.7.8	Construction and installation of conductor wise , conductor bar systems and slip-ring assemblies		N



13	Wiring practices		P
13.1	Connections and routing		P
13.1.1	General requirements	Connections are secured against accidental loosening	P
13.1.2	Conductor and cable runs		P
13.1.3	Conductors of different circuits		P
13.1.4	Connection between pick-up and pick-up converter of an inductive power supply system		P
13.2	Identification of conductors		P
13.2.1	General requirements		P
13.2.2	Identification of the protective conductor		P
13.2.3	Identification of the neutral conductor		P
13.2.4	Identification by colour		P
13.3	Wiring inside enclosures		P
13.4	Wiring outside enclosures		P
13.4.1	General requirements		P
13.4.2	External ducts		P
13.4.3	Connection to moving elements of the machine		P
13.4.4	Interconnection of devices on the machine		P
13.4.5	Plug/socket combinations		P
13.4.6	Dismantling for shipment		P
13.4.7	Additional conductors		P
13.5	Ducts, connection boxes and other boxes		P
13.5.1	General requirements		P
13.5.2	Percentage fill of ducts		N
13.5.3	Rigid metal conduit and fittings		N
13.5.4	Flexible metal conduit and fittings		N
13.5.5	Flexible non-metallic conduit and fittings		N
13.5.6	Cable trunking systems		N
13.5.7	Machine compartments and cable trunking systems		N
13.5.8	Connection boxes and other boxes		P
13.5.9	Motor connection boxes		P

14	Electric motors and associated equipment		P
14.1	General requirements		P
14.2	Motor enclosures		P
14.3	Motor dimensions		P



14.4	Motor mounting and compartments		P
14.5	Criteria for motor selection		P
14.6	Protective devices for mechanical brakes		P
15	Accessories and lighting		P
15.1	Accessories		P
15.2	Local lighting of the machine and equipment		P
15.2.1	General		P
15.2.2	Supply	<250V	P
15.2.3	Protection		P
15.2.4	Fittings		P
16	Marking, warning signs and reference designations		P
16.1	General		P
16.2	Warning signs		P
16.2.1	Electric shock hazard		P
16.2.2	Hot surfaces hazard		P
16.3	Functional identification		P
16.4	Marking of equipment		P
16.5	Reference designations		P
17	Technical documentation		P
17.1	General		P
17.2	Information to be provided		P
17.3	Requirements applicable to all documentation		P
17.4	Installation documents		P
17.5	Overview diagrams and function diagrams		P
17.6	Circuit diagrams		P
17.7	Operating manual		P
17.8	Maintenance manual		P
17.9	Parts list		P
18	Verification		P
18.1	General		P
18.2	Verification of conditions for protection by automatic disconnection of supply		P
18.2.1	General		P
18.2.2	Test methods in TN-systems		P



	Test1 – Verification of the continuity of the protective bonding circuit		P
	Test1 – Fault loop impedance verification and suitability of the associated overcurrent protective device		P
18.2.3	Application of the test methods for TN-systems		N
18.3	Insulation resistance tests	See appended table 18.3	P
18.4	Voltage tests	See appended table 18.4	P
18.5	Protection against residual voltages	See appended table 18.5	P
18.6	Functional tests		P
18.7	Retesting		P

Annex A	Protection against indirect contact in TN-systems		P
A.1	General		P
A.2	Conditions for protection by automatic disconnection of the supply by overcurrent protective devices		P
A.3	Condition for protection by reducing the touch voltage below 50 V		N
A.4	Verification of conditions for protection by automatic disconnection of the supply		N
A.4.1	General		N
A.4.2	Measurement of the fault loop impedance		N
A.4.3	Consideration of the difference between the measured value of resistance of the conductors and actual value under fault conditions		N

Annex B	Enquiry form for the electrical equipment of machines		P
Name of manufacture/supplier	Shenzhen Southern Machinery Sales and Service Co.,Ltd		
Name of end user	/		
Tender/order number	/	Date	/
Type of machine	S3000	Serial number	/
1. Special conditions(see Clause 1)	/		
a) Is the machine to be used in the open air?	Yes/No	No	If yes, specification
b) Will the machine use, process or produce explosive or flammable atmospheres?	Yes/No	No	If yes, specification
c) Is the machine for use in potentially explosive or flammable atmospheres?	Yes/No	No	If yes, specification
d) Can the machine present special hazards when producing or consuming certain materials?	Yes/No	No	If yes, specification
e) Is the machine for use in mines?	Yes/No	No	No



2. Electrical supplies and related conditions(see4.3)				
a) Anticipated voltage fluctuations (if more than $\pm 10\%$ )	+3 %			
b)Anticipated frequency fluctuations (if more than $\pm 2\%$ )	Continuous	+1%	Short time	
C)Indicate possible future changes in electrical equipment that will require an increase in the electrical supply requirements				
d)Specify voltage interruptions in supply if longer than specified in Clause 4 where electrical equipment has to maintain operation under such conditions				
3. Physical environment and operating conditions (see 4.4)				
a)Electromagnetic environment (see 4.4.2)	Residential commercial or light industrial environment		Industrial environment	
Special conditions or requirements				
b)Ambient temperature range	5-40℃			
c)Humidity range	30℃ 95%RH			
d)Altitude	$\leq 1000\text{m}$			
e)Special environmental conditions (for example corrosive atmosphere, dust, wet environments)				
f)Radiation				
g)Vibration, shock				
h)Special installation and operation requirements (for example flame-retardant cables and conductors)				
i)Transportation and storage (for example, temperatures outside the range specified in subclause 4.5)				
4. Incoming electrical supplied				
Specify for each source of supply:				
a) Nominal voltage (V)	a.c	$\sqrt{\quad}$	d.c	
220-230V~	If a.c., number of phases	1	Frequency	50Hz
Prospective short-circuit current at the point of supply to the machine (KA r .m. s.) (see also item 2)				





b) Type of power supply earthing (see IEC 60364-1)	TN (system with one point directly earthed, with a protective conductor (PE) directly connected to that point); specify if the earthed point is the neutral point (centre of the star) or another point)	√	TT (system with one point directly earthed but the protective conductor (PE) of the machine not connected to that earth point of the system)	
	IT (system that is not directly earthed)			
c) Is the electrical equipment to be connected to a neutral (N) supply conductor? (see 5.1)	Yes	√	No	
d) Supply disconnecting device				
Is disconnection of the neutral (N) conductor required?	Yes	√	No	
Is a removable link for disconnecting the neutral (N)	Yes	√	No	
Type of supply disconnecting device to be provided				
5. Protection against electric shock (see Clause 6)				
a) For which of the following classes of persons is access to the interior of enclosures required during normal operation of the equipment?	Electrically skilled persons		Electrically skilled persons	
b) Are locks with removable keys to be provided for securing the doors or covers? (see 6.2.2)	Yes		No	√
6. Protection of equipment (see Clause 7)				
a) Will the user or the supplier provide the overcurrent protection of the supply conductors? (see 7.2.2)				
Type and rating of overcurrent protective devices				
b) Largest (KW) three-phase a.c. motor that may be started direct-on-line				
c) May the number of motor overload detection devices be reduced? (see 7.3)				
7. Operation				
For cableless control systems, specify the time delay before automatic machine shutdown is initiated in the absence of a valid signal.				
8. Operator interface and machine-mounted control devices (see Clause 10)				
Special colour preferences (for example to align with existing machinery):	Start	√	Stop	√



Type				
11.Accessories and lighting (see Clause 15)				
a) Is a particular type of socket-outlet required?	Yes		No	√
If yes, which type?				
b) Are the socket-outlets for maintenance to be provided with additional protection by the use of Residual Current protective Devices (RCD)?	Yes		No	√
c)Where the machine is equipped with local lighting:	Highest permissible voltage (v)		If lighting circuit voltage is not obtained directly from the power supply, state preferred voltage	
12.Marking, warnings and reference designations (see Clause 16)				
a)Functional identification (see 16.3)				
Specifications:				
b)Inscriptions/special markings	On electrical equipment?		In which language?	
c)Mark of certification	Yes	√	No	
If yes, which one?	CE			
13. Technical documentation (see Clause17)				
a) Technical documentation (see 17.1)	On what media?		In which language?	
b)Size, location and purpose of ducts, open cable trays or cable supports to provided by the user (see17.5)				
c)Indicate if special limitations on the size or weight affect the transport of a particular machine or controlgear assemblies to the installation site:	Maximum dimensions		Maximum weight	
d) In the case of specially built machines, is a certificate of operating tests with the loaded machine to be supplied?	Yes	√	No	
e) In the case of other machines, is a certificate of operating type tests on a loaded prototype machine to be supplied?	Yes	√	No	

Annex C	Examples of machines covered by this part of IEC 60204	P
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Annex D	Current-carrying capacity and overcurrent protection of conductors and cables in the electrical equipment of machines	P
D.1	General operating conditions	P
D.1.1	Ambient air temperature	P



D.1.2	Methods of installation		P
D.1.3	Grouping		P
D.2	Co-ordination between conductors and protective devices providing overload protection		P
D.3	Overcurrent protection of conductors		P

Annex E	Explanation of emergency operation functions	P
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Annex F	Guide for the use of this part of IEC 60204	P
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Annex G	Comparison of typical conductor cross-sectional areas	P
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<b>18.3</b>	<b>TABLE: Insulation resistance tests</b>		<b>P</b>
Location		Measured (MΩ)	Limited insulation resistance
Between the power circuit conductors and the protective bonding circuit		> 100	2MΩ
Live part to enclosure Metal		> 100	2MΩ
Supplementary information:			

<b>18.4</b>	<b>TABLE: Voltage tests</b>		<b>P</b>
Location		Test voltage (Vac/dc)	Breakdown (Yes/No)
Between the power circuit conductors and the protective bonding circuit		1000	No
Supplementary information:			

<b>18.5</b>	<b>TABLE: Protection against residual voltage</b>			<b>N</b>
Measurement Locations	V <sub>o</sub> (V pk)	V <sub>tc</sub> (V pk)	Result	
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### **Appendix 1 Equipment list**



Code	Name	Model/Type	S/N	Calibrated date	Next Calibration Date	Manufacture
HTT-001	Digital Multimeter	34401A	MY47043456	2019.02.20	2020.02.19	agilent
HTT-004	Push/pull gauge	NK-500	2Q10060932	2019.02.20	2020.02.19	/
HTT-005	Electronic weight	DSI-861	198692	2019.02.20	2020.02.19	shangdeli
HTT-006	Insulation resistance tester	CS2676CX	1107032-009	2019.02.20	2020.02.19	changshen
HTT-007	Earthing resistance tester	YD2668-4B	4B-2307	2019.02.20	2020.02.19	Yangzi
HTT-008	HI-pot/Insulation tester	CS2672C	1108006-002	2019.02.20	2020.02.19	changshen
HTT-010	AC Voltage Regulator	TDGC2J	/	2019.02.20	2020.02.19	SAKO
HTT-013	AC power source	HPA-3110	3513	2019.02.20	2020.02.19	Henqiang
HTT-014	Temperature/Humidity chamber	SDJ-80L	SDJ-80J	2019.02.20	2020.02.19	Shenzhen hongjian
HTT-015	Electric oven	HK45AS	F11011008	2019.02.20	2020.02.19	Guangzhou KENTON
HTT-019	DC electronic load	IT8512	0020025066700 01002	2019.02.20	2020.02.19	ITECH
HTT-022	Leakage current tester	228	10-866030	2019.02.20	2020.02.19	simpson
HTT-023	Oscilloscope	TDS1012C-SC	C013300	2019.02.20	2020.02.19	tektronix
HTT-024	Tape measure	DK-2041	/	2019.02.20	2020.02.19	Proskit
HTT-025	Stop watch	TA-228	/	2019.02.20	2020.02.19	KTJ
HTT-026	Data acquisition/switch unit	34970A	MY44057668	2019.02.20	2020.02.19	Agilent
HTT-027	Temperature/humidity meter	VC230	/	2019.02.20	2020.02.19	ViCTOR
HTT-028	Torque drive	3RTD	435850B	2019.02.20	2020.02.19	TOHNICHI
HTT-030	Impact hammer	ZLT-CJ1	C011207	2019.02.20	2020.02.19	Guangzhou zhilitong
HTT-031	Inclined plane	ZLT-WD1	W011201	2019.02.20	2020.02.19	Guangzhou zhilitong
HTT-033	Test finger	ZLT-I02	I021203	2019.02.20	2020.02.19	Guangzhou zhilitong
HTT-034	Test pin	ZLT-I09	I091201	2019.02.20	2020.02.19	Guangzhou zhilitong
HTT-038	Test apparatus of the mains plug	ZLT-LJ2	LJ011202	2019.02.20	2020.02.19	Guangzhou zhilitong
HTT-039	Ball pressure apparatus	ZLT-QY1	Q011202	2019.02.20	2020.02.19	Guangzhou zhilitong
HTT-042	Caliper rule	CD-6 " CSX	500-196-20	2019.02.20	2020.02.19	MITUTOYO



## Photos



**\*\*\*End of test report\*\*\***