



Technical Construction File

File No : XJ2018082401MDLVDEMC

According to

**2006/42/EC Machinery Directive
2014/35/EC Low Voltage Directive
2014/30/EU Electromagnetic Compatibility Directive**

related to the

**PAPER STRAW MAKING MACHINE
MODEL : GDZGJ-5, GDZGJ-20, PSM-1plus, PSM, UNL-XG50**

presented by

**WENZHOU GAODA MACHINERY CO., LTD
HAIYU IND.ZONE,WENGYANG DISTRICT,YUEQING,ZHEJIANG,325606**

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1. General description

This equipment is used to produce paper straw machine equipment, paper straw can be used to suck water, beverages, milk tea, coffee and other liquids. It can also be used as decorating materials on cakes, PARTY, balloons and other articles. It can also be used for making DIY toys.

Basically, this kind of machine belongs to general machine and with low risk when using it. All possible risks have been analysis in the risk assessment report and been prevent by suitable ways.

The main risk of this kind of machine could be:

- The risk of access to the moving parts.
- The risk of access to the power transmission elements.

In order to prevent the main risks mentioned above, the protection guarding system are provided, and all the detail safety provision are constructed in accordance with the requirement of EN ISO 12100:2010, EN 60204-1:2006+A1:2009+ AC:2010, EN 61000-3-2: 2014, EN 61000-3-3:2013, EN 61000-6-2:2005+AC:2005, EN 61000-6-4:2007+A1:2011.

In order to ensure the conformity for CE marking for these machines, some main European and/or International standards have been used to made assessment of conformity, they are :

- EN ISO 12100:2010 for checking of mechanical structures and carrying out risk assessment;
- EN 60204-1:2006+A1:2009+AC:2010 for checking of electrical equipment;
- EN 61000-3-2:2014, EN 61000-3-3:2013, EN 61000-6-2:2005+AC:2005, EN 61000-6-4:2007+A1:2011 for checking of Electromagnetic Compatibility;

The test reports for these applicable standards in detail have been included in the relevant sub-clauses of this technical construction file.

2. Variations of the series products

Regarding the whole family of the series, they can be divided into various different groups according to their main features.

All models are with the same machine structure but with some small differences as described as the following:

1. The weight is different.
2. The power and dimension are different.

To present the conformity of this series machine with Machinery Directive, we discuss the conformity systematically with the relative Directive and standards for NDCS101012 as a basic evaluation in clause.

3. List of applicable regulations and standards

Regulations

- Y Machinery Directive: 2006/42/EC
- Y Low Voltage Directive 2014/35/EU
- Y Electromagnetic Compatibility Directive 2014/30/EU

Standards

- Y EN ISO 12100: 2010
- Safety of machinery — General principles for design — Risk assessment and risk reduction.
- Y EN 60204-1: 2006+A1:2009+AC:2010

Safety of machinery - Electrical equipment of machines Part 1: General requirements.

Y EN 61000-6-2:2005+AC:2005

Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments

Y EN 61000-6-4:2007+A1:2011

Electromagnetic compatibility (EMC) — Part 6-4: Generic standards — Emission standard for industrial environments

Y EN 61000-3-2:2014

Electromagnetic compatibility (EMC) - Part 3-2: Limits; Limits for harmonic current emissions (equipment input current up to and including 16 A per phase)

Y EN 61000-3-3:2013

Electromagnetic compatibility (EMC) - Part 3: Limits - Section 3: Limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current 16 A;

4. Quality control system

In order to ensure the conformity of the series production, the WENZHOU GAODA MACHINERY CO., LTD. has taken the related procedures mentioned below :

- (1) Apply for the consultant form the qualified body in China.
The HUARUIDE has applied for the consultant from Technical Inspection Certification.
The complete technical construction file (TCF) have been established before applying for the CE marking certificate.
- (2) Carry out the inspection for parts and components according to the TCF
Before the assemblies of the series production, the QC engineers of HUARUIDE has to check and inspect the technical specifications and intended functions of parts and components to ensure the correct use of them according to the contents of TCF and principle described in the related technical information.
- (3) Carry out the inspection & testing for the products before packing
Before packing the products, the QC engineers of HUARUIDE have to do the necessary inspection and testing to ensure the conformity of related requirements. In particular, they should do the testing and inspection of electrical characteristics and outer feature.
- (4) Carry out the inspection for the package.
After finishing the necessary inspection and testing for the products, an inspection for the packing has to be done to ensure the necessary elements being included in this packing before shipment.
- (5) Provision for the change of design
Any change of the products described in this TCF must be checked in detail and written down again in the TCF by the designer of HUARUIDE if the change may effects the related electrical or mechanical characteristics.
- (6) Provision for the Quality Assurance
For the provisions of internal control measures to ensure the conformity of series production of the machines, HUARUIDE has built an internal quality control system in accordance with the international standard of ISO-9001.

5. Declaration of conformity

EC Declaration of conformity

Council Directive 2006/42/EC, 2014/35/EU, 2014/30/EU on
MD, LVD, EMC

WENZHOU GAODA MACHINERY CO., LTD
Haiyu Ind.Zone,Wengyang District,Yueqing,Zhejiang,325606.

Certify that the product described is in conformity with the Directives

PAPER STRAW MAKING MACHINE

Models No: GDZGJ-5, GDZGJ-20, PSM-1plus, PSM, UNL-XG50

The product has been assessed by the application of the following standards:

EN ISO 12100:2010, EN 60204-1:2006+A1:2009+AC:2010,
EN 61000-3-2: 2014, EN 61000-3-3:2013, EN 61000-6-2:2005+AC:2005,
EN 61000-6-4:2007+A1:2011.

Company stamp and Signature of authorized personnel

6. Essential health and safety requirements checklist

Clause	Requirement-Test	Verdict and Result-Remark
1	Essential health and safety requirements	-
1.1	General remarks	-
1.1.1	Definitions	-
1.1.2	Principles of safety integration	-
a)	Machinery must be designed and constructed so that it is fitted for its function, and can be operated, adjusted and maintained without putting persons at risk when these operations are carried out under the conditions foreseen but also taking into account any reasonably foreseeable misuse thereof.	Pass. These requirements have been complied with.
	The aim of measures taken must be to eliminate any risk throughout the foreseeable lifetime of the machinery including the phases of transport, assembly, dismantling, disabling and scrapping.	Pass. These requirements have been complied with.
b)	In selecting the most appropriate methods, the manufacturer or his authorized representative must apply the following principles, in the order given:	-
	- eliminate or reduce risks as far as possible (inherently safe machinery design and construction),	Pass. Effective means have been carried out for this purpose.
	- take the necessary protective measures in relation to risks that cannot be eliminated	Pass. It meets the requirements after checking.
	- inform users of the residual risks due to any shortcomings of the protective measures adopted, indicate whether any particular training is required and specify any need to provide personal protective equipment.	Pass. It meets the requirements after checking.
c)	When designing and constructing machinery and when drafting the instructions, the manufacturer or his authorized representative must envisage not only the intended use of the machinery but also any reasonably foreseeable misuse thereof	Pass. It meets the requirements after checking.
	The machinery must be designed and constructed in such a way as to prevent abnormal use if such use would engender a risk. Where appropriate, the instructions must draw the user's attention to ways – which experience has shown might occur – in which the machinery should not be used.	Pass. These requirements have been complied with, and the related information also has been provided within the instruction manual.
d)	Machinery must be designed and constructed to take account of the constraints to which the operator is subject as a result of the necessary or foreseeable use of personal protective equipment.	Pass. These requirements have been taken into account during the design of this machine.
e)	Machinery must be supplied with all the special equipment and accessories essential to enable it to be adjusted, maintained and used safely.	Pass. These requirements have been complied with.
1.1.3	Materials and products	-
	The materials used to construct machinery or	Pass.

Clause	Requirement-Test	Verdict and Result-Remark
	products used or created during its use must not endanger persons' safety or health. In particular, where fluids are used, machinery must be designed and constructed to prevent risks due to filling, use, recovery or draining	They cannot endanger exposed person's safety or health.
1.1.4	Lighting	-
	Machinery must be supplied with integral lighting suitable for the operations concerned where the absence thereof is likely to cause a risk despite ambient lighting of normal intensity	Not applicable.
	Machinery must be designed and constructed so that there is no area of shadow likely to cause nuisance, that there is no irritating dazzle and that there are no dangerous stroboscopic effects on moving parts due to the lighting	Pass. It meets the requirements after checking.
	Internal parts requiring frequent inspection and adjustment, and maintenance areas must be provided with appropriate lighting.	Not applicable.
1.1.5	Design of machinery to facilitate its handling	-
	Machinery or each component part thereof must:	-
	- be capable of being handled and transported safely	Pass. It meets the requirements after checking.
	- be packaged or designed so that it can be stored safely and without damage	Pass. It meets the requirements after checking.
	During the transportation of the machinery and/or its component parts, there must be no possibility of sudden movements or of hazards due to instability as long as the machinery and/or its component parts are handled in accordance with the instructions	-
	- either be fitted with attachments for lifting gear, or	Not applicable.
	be designed so that it can be fitted with such attachments, or	Not applicable.
	be shaped in such a way that standard lifting gear can easily be attached	Not applicable.
	Where machinery or one of its component parts is to be moved by hand, it must:	-
	- either be easily movable, or	Pass.
	- be equipped for picking up and moving safely.	Pass.
	Special arrangements must be made for the handling of tools and/or machinery parts which, even if lightweight, could be hazardous.	Pass.
1.1.6	Ergonomics	-
	Under the intended conditions of use, the discomfort, fatigue and physical and psychological stress faced by the operator must be reduced to the minimum possible, taking into account ergonomic principles such as:	-

Clause	Requirement-Test	Verdict and Result-Remark
	allowing for the variability of the operator's physical dimensions, strength and stamina	Pass
	providing enough space for movements of the parts of the operator's body,	Pass
	avoiding a machine-determined work rate,	Pass
	avoiding monitoring that requires lengthy concentration,	Pass
	adapting the man/machinery interface to the foreseeable characteristics of the operators.	Pass
1.1.7	Operating positions	
	The operating position must be designed and constructed in such a way as to avoid any risk due to exhaust gases and/or lack of oxygen.	Pass The designed and constructed is complied with
	If the machinery is intended to be used in a hazardous environment presenting risks to the health and safety of the operator or if the machinery itself gives rise to a hazardous environment, adequate means must be provided to ensure that the operator has good working conditions and is protected against any foreseeable hazards.	Not applicable the machinery is not intended to be used in a hazardous environment
	Where appropriate, the operating position must be fitted with an adequate cabin designed, constructed and/or equipped to fulfil the above requirements	Pass
	The exit must allow rapid evacuation. Moreover, when applicable, an emergency exit must be provided in a direction which is different from the usual exit.	Pass
1.1.8	Seating	
	Where appropriate and where the working conditions so permit, work stations constituting an integral part of the machinery must be designed for the installation of seats	Not applicable
	If the operator is intended to sit during operation and the operating position is an integral part of the machinery, the seat must be provided with the machinery.	Not applicable
	The operator's seat must enable him to maintain a stable position. Furthermore, the seat and its distance from the control devices must be capable of being adapted to the operator.	Not applicable
	If the machinery is subject to vibrations, the seat must be designed and constructed in such a way as to reduce the vibrations transmitted to the operator to the lowest level that is reasonably possible. The seat mountings must withstand all stresses to which they can be subjected. Where there is no floor beneath the feet of the operator, footrests covered with a slip-resistant material must be provided.	Not applicable

Clause	Requirement-Test	Verdict and Result-Remark
1.2	Controls	-
1.2.1	Safety and reliability of control systems	-
	in such a way as to prevent hazardous situations from arising. Above all, they must be designed and constructed in such a way that:	Pass. The control system for this machine is safe and reliable.
	they can withstand the intended operating stresses and external influences	Pass.
	- a fault in the hardware or the software of the control system does not lead to hazardous situations,	Pass.
	errors in the control system logic do not lead to hazardous situations,	Pass
	reasonably foreseeable human error during operation does not lead to hazardous situations.	Pass
	the machinery must not start unexpectedly,	Pass
	the parameters of the machinery must not change in an uncontrolled way, where such change may lead to hazardous situations	Pass
	the machinery must not be prevented from stopping if the stop command has already been given,	Pass
	no moving part of the machinery or piece held by the machinery must fall or be ejected,	Pass
	automatic or manual stopping of the moving parts, whatever they may be, must be unimpeded,	Pass
	the protective devices must remain fully effective or give a stop command	Pass
	the safety-related parts of the control system must apply in a coherent way to the whole of an assembly of machinery and/or partly completed machinery	Pass
	For cable-less control, an automatic stop must be activated when correct control signals are not received, including loss of communication.	Not applicable It is not a cable-less control
1.2.2	Control devices	-
	Control devices must be:	-
	- clearly visible and identifiable, using pictograms where appropriate,	Pass. These requirements have been complied with.
	-positioned in such a way as to be safely operated without hesitation or loss of time and without ambiguity,	Pass. Appropriate positions have been taken into account during design.
	- designed in such a way that the movement of the control device is consistent with its effect,	Pass.
	-located outside the danger zones, except where necessary for certain control devices such as an emergency stop or a teach pendant,	Pass. All control devices have been located outside the danger zones.
	-positioned in such a way that their operation cannot cause additional risk,	Pass. All operation of control devices

Clause	Requirement-Test	Verdict and Result-Remark
		can't cause additional risk.
	- designed or protected in such a way that the desired effect, where a hazard is involved, can only be achieved by a deliberate action,	Pass. This requirement has been complied with.
	-made in such a way as to withstand foreseeable forces; particular attention must be paid to emergency stop devices liable to be subjected to considerable forces.	Pass. This requirement has been complied with.
	Where a control device is designed and constructed to perform several different actions, namely where there is no one-to one correspondence, the action to be performed must be clearly displayed and subject to confirmation, where necessary.	Not applicable
	Control devices must be so arranged that their layout, travel and resistance to operation are compatible with the action to be performed, taking account of ergonomic principles.	Pass
	Machinery must be fitted with indicators as required for safe operation. The operator must be able to read them from the control position.	Not applicable
	From each control position, the operator must be able to ensure that no-one is in the danger zones, or the control system must be designed and constructed in such a way that starting is prevented while someone is in the danger zone.	Not applicable
	If neither of these possibilities is applicable, before the machinery starts, an acoustic and/or visual warning signal must be given. The exposed persons must have time to leave the danger zone or prevent the machinery starting up.	Pass.
	If necessary, means must be provided to ensure that the machinery can be controlled only from control positions located in one or more predetermined zones or locations.	Not applicable
	Where there is more than one control position, the control system must be designed in such a way that the use of one of them precludes the use of the others, except for stop controls and emergency stops.	Not applicable.
	When machinery has two or more operating positions, each position must be provided with all the required control devices without the operators hindering or putting each other into a hazardous situation.	Not applicable
1.2.3	Starting	-
	It must be possible to start machinery only by voluntary actuation of a control provided for the purpose	Pass.
	The same requirement applies:	-
	- when restarting the machinery after stoppage,	Pass.

Clause	Requirement-Test	Verdict and Result-Remark
	whatever the cause	
	- when effecting a significant change in the operating conditions	Pass.
	However, the restarting of the machinery or a change in operating conditions may be effected by voluntary actuation of a device other than the control device provided for the purpose, on condition that this does not lead to a hazardous situation.	-
	For machinery functioning in automatic mode, the starting of the machinery, restarting after a stoppage, or a change in operating conditions may be possible without intervention, provided this does not lead to a hazardous situation.	Pass.
	Where machinery has several starting control devices and the operators can therefore put each other in danger, additional devices	Not applicable
	must be fitted to rule out such risks. If safety requires that starting and/or stopping must be performed in a specific sequence, there must be devices which ensure that these operations are performed in the correct order.	Pass.
1.2.4	Stopping device	-
	Normal stopping	-
	Each machine must be fitted with a control whereby the machine can be brought safety to a complete stop	Pass. A normal stop control has been provided.
	Each workstation must be fitted with a control device to stop some or all of the functions of the machinery, depending on the existing hazards, so that the machinery is rendered safe.	Pass. A normal stop control has been provided.
	The machinery's stop control must have priority over the start controls.	Pass. It has priority over the start control.
	Once the machinery or its hazardous functions have stopped, the energy supply to the actuators concerned must be cut off.	Pass.
	Operational stop	
	Where, for operational reasons, a stop control that does not cut off the energy supply to the actuators is required, the stop condition must be monitored and maintained.	Not applicable
	Emergency stop	-
	Machinery must be fitted with one or more emergency stop devices to enable actual or impending danger to be averted.	Pass.
	The following exceptions apply:	-
	- machinery in which an emergency stop device would not lessen the risk, either because it would not reduce the stopping time or because it would	Not applicable

Clause	Requirement-Test	Verdict and Result-Remark
	not enable the special measures required to deal with the risk to be taken,	
	portable hand-held and/or handguided machinery.	
	The device must:	-
	- have clearly identifiable, clearly visible and quickly accessible control devices,	Not applicable
	- stop the hazardous process as quickly as possible, without creating additional risks,	Not applicable
	- where necessary, trigger or permit the triggering of certain safeguard movements.	Not applicable
	Once active operation of the emergency stop device has ceased following a stop command, that command must be sustained by engagement of the emergency stop device until that engagement is specifically overridden; it must not be possible to engage the device without triggering a stop command; it must be possible to disengage the device only by an appropriate operation, and disengaging the device must not restart the machinery but only permit restarting.	Not applicable
	The emergency stop function must be available and operational at all times, regardless of the operating mode.	Not applicable
	Emergency stop devices must be a back-up to other safeguarding measures and not a substitute for them.	Not applicable
1.2.4.4	Assembly of machinery	
	In the case of machinery or parts of machinery designed to work together, the machinery must be designed and constructed in such a way that the stop controls, including the emergency stop devices, can stop not only the machinery itself but also all related equipment, fits continued operation may be dangerous.	Pass
1.2.5	Selection of control or operating modes	-
	The control or operating mode selected must override all other control or operating modes, with the exception of the emergency stop.	Not applicable
	If machinery has been designed and constructed to allow its use in several control or operating modes requiring different protective measures and/or work procedures,	Not applicable. No this kind of mode selection has been found.
	it must be fitted with a mode selector which can be locked in each position. Each position of the selector must be clearly identifiable and must correspond to a single operating or control mode.	Not applicable
	The selector may be replaced by another selection method which restricts the use of certain functions of the machinery or certain categories of operator	Not applicable. No this kind of mode selection has been found.
	If, for certain operations, the machinery must be	Not applicable.

Clause	Requirement-Test	Verdict and Result-Remark
	able to operate with its protection devices neutralized, the control or operating mode selector must simultaneously	No this kind of mode selection has been found.
	- disable all other control or operating modes,	Not applicable.
	- permit operation of hazardous functions only by control devices requiring sustained action,	Not applicable.
	- permit the operation of hazardous functions only in reduced risk conditions	Not applicable.
	- permit the operation of hazardous functions only in reduced risk conditions while preventing hazards from linked sequences,	Not applicable.
	prevent any operation of hazardous functions by voluntary or involuntary action on the machine's sensors.	Not applicable. No this kind of mode selection has been found.
	If these four conditions cannot be fulfilled simultaneously, the control or operating mode selector must activate other protective measures designed and constructed to ensure a safe intervention zone.	Not applicable
	In addition, the operator must be able to control operation of the parts he is working on from the adjustment point.	Not applicable
1.2.6	Failure of the power supply	-
	The interruption, re-establishment after an interruption or fluctuation in whatever manner of the power supply to the machinery must not lead to a dangerous situation	Pass. No any dangerous situation has been found.
	Particular attention must be given to the following points:	-
	- the machinery must not start unexpectedly	Pass.
	- the parameters of the machinery must not change in an uncontrolled way when such change can lead to hazardous situations,	Pass.
	- the machinery must not be prevented from stopping if the command has already been given,	Pass.
	no moving part of the machinery or piece held by the machinery must fall or be ejected,	Pass
	- automatic or manual stopping of the moving parts whatever they may be must be unimpeded	Pass.
	- the protective devices must remain fully effective or give a stop command.	Pass.
1.3.1.	Risk of loss of stability	-
	Machinery and its components and fittings must be stable enough to avoid overturning, falling or uncontrolled movements during transportation, assembly, dismantling ,and any other action involving the machinery.	Pass
	If the shape of the machinery itself or its intended installation doesn't offer sufficient stability,	Pass

Clause	Requirement-Test	Verdict and Result-Remark
	appropriate means of anchorage must be incorporated and indicated in the instructions	
1.3.2	Risk of break-up during operation	-
	The various parts of machinery and their linkages must be able to withstand the stress to which they are subject when used when as foreseen by the manufacturer	Pass. All parts of the machine can withstand related stress when they are used.
	The durability of the materials used must be adequate for the nature of the working environment foreseen by the manufacturer or his authorized representative , in particular as regards the phenomena of fatigue, ageing, corrosion and abrasion	Pass. All materials used for this machine are appropriate for their intended use.
	The instructions must indicate the type and frequency of inspections and maintenance required for safety reasons. They must, where appropriate, indicate the parts subject to wear and the criteria for replacement.	Pass. The related information have been provided within the instruction manual.
	Where a risk of rupture or disintegration remains despite the measures taken, the parts concerned must be mounted, positioned and/or guarded in such a way that any fragments will be contained, preventing hazardous situations.	Pass.
	Both rigid and flexible pipes carrying fluids, particularly those under high pressure, must be able to withstand the foreseen internal and external stresses and must be firmly attached and/or protected to ensure that no risk is posed by a rupture.	Pass. All these requirements have been complied with.
	Where the material to be processed is fed to the tool automatically, the following conditions must be fulfilled to avoid risks to the persons exposed :	-
	- when the work piece comes into contact with the tool the later must have attained its normal working conditions	Not applicable.
	- when the tool starts and/or stops the feed movement and the tool movement must be coordinated	Not applicable.
1.3.3	Risked due to falling or ejected objects	-
	Precautions must be taken to prevent risks from falling or ejected object	Pass
1.3.4	Risks due to surfaces, edges or angles	-
	In so far as their purpose allows, accessible parts of the machinery must have no sharp edges, no sharp angles, and no rough surfaces likely to cause injury	Pass. This requirement has been complied with.
1.3.5	Risks related to combined machinery	-
	Where the machinery is intended to carry out several different operations with the manual removal of the piece between each operation, it	Not applicable. This machinery does not carry out with the manual removal of the

Clause	Requirement-Test	Verdict and Result-Remark
	must be designed and constructed in such a way as to enable each element to be used separately without the other element constituting a danger or risk for the exposed person	piece.
	For this purpose, it must be possible to start and stop separately and elements that are not protected	Not applicable.
1.3.6	Risks related to variations in operating conditions	-
	When the machine is designed to perform operations under different conditions of use, it must be designed and constructed in such a way that selection and adjustment of these conditions can be carried out safely and reliably	Pass
1.3.7	Prevention of risks related to moving parts	-
	The moving parts of machinery must be designed, built and laid out to avoid hazards or, where hazards persist, fixed with guards or protective devices in such a way as to prevent all risk of contact which could lead to accidents	Pass. This kind of contacts have been prevented by appropriate guards.
	All necessary steps must be taken to prevent accidental blockage of moving parts involved in the work. In cases where, despite the precautions taken, a blockage is likely to occur, the necessary specific protective devices and tools must, when appropriate, be provided to enable the equipment to be safely unblocked.	Pass. All necessary steps have been taken.
	The instructions and, where possible, a sign on the machinery shall identify these specific protective devices and how they are to be used.	Not applicable. No this kind of need.
1.3.8	Choice of protection against risk related to moving parts	-
	Guards or protection devices used to protect against the risks related to moving parts must be selected on the basis of the type of risk	Pass. It is in accordance with the risk assessment.
	The following guidelines must be used to help make the choice	-
	A. Moving transmission parts Guards designed to protect exposed persons against the risks associated with moving transmission parts must be :	-
	- either fixed, complying with requirements 1.4.1 and 1.4.2.1 or	See the related clauses.
	- interlocking movable guards as referred to in section 1.4.2.2.	See the related clauses.
1.3.8.2	Moving parts involved in the process	
	Guards or protective devices designed to protect persons against the hazards generated by moving parts involved in the process must be:	-
	- either fixed guards as referred to in section 1.4.2.1, or	See the related clauses.

Clause	Requirement-Test	Verdict and Result-Remark
	- interlocking movable guards as referred to in section 1.4.2.2, or	See the related clauses.
	protective devices as referred to in section 1.4.3, or	
	a combination of the above.	
	However, when certain moving parts directly involved in the process can't be completely or partially inaccessible during operation owing to operations requiring near-by operator intervention, where technically possible such parts must be fitted with :	-
	-fixed guards or interlocking movable guards preventing access to those sections of the parts that are not used in the work,	Pass
	- adjustable guards as referred to in section 1.4.2.3 restricting access to those sections of the moving parts where access is necessary.	See the related clauses.
1.3.9	Risks of uncontrolled movements	
	When a part of the machinery has been stopped, any drift away from the stopping position, for whatever reason other than action on the control devices, must be prevented or must be such that it does not present a hazard	Not applicable
1.4	Required characteristics of guards and protection devices	-
1.4.1	General requirement	-
	Guards and protection devices must:	-
	- be of robust construction	Pass.
	- be securely held in place,	Pass.
	- not be easy to bypass or render non-operational	Pass.
	- be located at an adequate distance from the danger zone	Pass.
	- cause minimum obstruction to the view in the production process	Pass.
	- In addition, guards must, where possible, protect against the ejection or falling of materials or objects and against emissions generated by the machinery.	Pass.
1.4.2	Special requirements for guards	-
1.4.2.1	Fixed guards	-
	Fixed guards must be fixed by systems that can be opened or removed only with tools.	Pass. They all be securely held in place.
	They must be fixed by system that can be opened only with tools	Pass. They all can be opened only with tools.
	Their fixing systems must remain attached to the guards or to the machinery when the guards are removed.	Pass

Clause	Requirement-Test	Verdict and Result-Remark
	Where possible, guards must be unable to remain in place without their fixings	Not applicable.
1.4.4.2	Interlocking movable guards must:	-
	as far as possible remain attached to the machinery when open,	-
	be designed and constructed in such a way that they can be adjusted only by means of an intentional action. [See 3rd hyphen of old 1.4.2.2 B]	Not applicable
	Interlocking movable guards must be associated with an interlocking device that	-
	prevents the start of hazardous machinery functions until they are closed, and	-
	gives a stop command whenever they are no longer closed.	-
	Where it is possible for an operator to reach the danger zone before the risk due to the hazardous machinery functions has ceased, movable guards must be associated with a guard locking device in addition to an interlocking device that	-
	prevents the start of hazardous machinery functions until the guard is closed and locked, and	Not applicable
	keeps the guard closed and locked until the risk of injury from the hazardous machinery functions has ceased.	Not applicable
	Interlocking movable guards must be designed in such a way that the absence or failure of one of their components prevents starting or stops the hazardous machinery functions	Not applicable
1.4.2.3	Adjustable guards restricting access	-
	Adjustable guards restricting access to those areas of the moving parts strictly necessary for the work must:	-
	- be adjustable manually or automatically according to the type of work involved	Not applicable
	- be readily adjustable without the use of tools	Not applicable
	- reduce as far as possible the risk of ejection	Not applicable
1.4.3	Special requirements for protection devices	-
	Protection devices must be designed and incorporated into the control system so that:	-
	- moving parts can't start up while they are within the operator's reach	Not applicable
	- the exposed person can't reach moving parts once they have started up	Not applicable
	- they can be adjusted only by means of an intentional action, such as the use of a tool, etc.	Not applicable
	-the absence or failure of one of their components prevents starting or stops the moving parts	Not applicable
1.5	Protection against other hazards	-
	Electricity supply	-

Clause	Requirement-Test	Verdict and Result-Remark
	Where machinery has an electricity supply it must be designed, constructed and equipped so that all hazards of an electrical nature are or can be prevented	Pass
	The safety objectives set out in Directive 73/23/EEC shall apply to machinery. However, the obligations concerning conformity assessment and the placing on the market and/or putting into service of machinery with regard to electrical hazards are governed solely by this Directive.	Pass
1.5.2	Static electricity	-
	Machinery must be so designed and constructed as to prevent or limit the build-up of potentially dangerous electrostatic charges and/or be fitted with a discharging system	Pass .
1.5.3	Energy supply other than electricity	-
	Where machinery is powered by an energy other than electricity, it must be so designed, constructed and equipped as to avoid all potential hazards associated with these types of energy	Pass. No any additional hazard has been found for energy supply.
1.5.4	Error of fitting	-
	Errors likely to be made when fitting or refitting certain parts which could be a source of risk must be made impossible by the design and construction of such parts or, failing this, by information given on the parts themselves and/or their housings. The same information must be given on moving parts and/or their housings where the direction of movement needs to be known in order to avoid a risk.	Pass.
	Where necessary, the instructions must give further information on these risks.	Pass.
	Where a faulty connection can be the source of risk, incorrect connections must be made impossible by design or, failing this, by information given on the elements to be connected and, where appropriate, on the means of connection	Pass. All related information have been provided within the instruction manual.
1.5.5	Extreme temperatures	-
	Step must be taken to eliminate any risk of injury caused by contact with or proximity to machinery parts or materials at high or very low temperatures	Pass. Sufficient safety protection for extreme temperatures has been provided.
	The necessary steps must also be taken to avoid or protect against the risk of hot or very cold material being ejected.	Pass
1.5.6	Fire	-
	Machinery must be designed and constructed to avoid all risk of fire or overheating posed by the machinery itself or by gases, liquids, dusts, vapors or the other substances produced or used by the	Pass. The design and construction of this machine are in conformity with these requirements.

Clause	Requirement-Test	Verdict and Result-Remark
	machinery	
1.5.7	Explosion	-
	Machinery must be designed and constructed to avoid any risk of explosion posed by the machinery itself or by gases, liquids, dusts, vapors or other substances produced or used by the machinery	Pass. The design and construction of this machine are in conformity with these requirements.
	Machinery must comply, as far as the risk of explosion due to its use in a potentially explosive atmosphere is concerned, with the provisions of the specific Community Directives.	
1.5.8	Noise	-
	Machinery must be designed and constructed in such a way that risks resulting from the emission of airborne noise are reduced to the lowest level, taking account of technical progress and the availability of means of reducing noise, in particular at source.	Pass. The design and construction of this machine are in conformity with this requirements.
	The level of noise emission may be assessed with reference to comparative emission data for similar machinery.	Pass
1.5.9	Vibration	-
	Machinery must be so designed and constructed that risks resulting from the vibrations produced by the machinery are reduced to the lowest level, taking account of technical progress and the availability of means of reducing vibration, in particular at source	Pass
	The level of vibration emission may be assessed with reference to comparative emission data for similar machinery.	Pass
1.5.10	Radiation	-
	Undesirable radiation emissions from the machinery must be eliminated or be reduced to levels that do not have adverse effects on persons	Not applicable
	Any functional ionising radiation emissions must be limited to the lowest level which is sufficient for the proper functioning of the machinery during setting, operation and cleaning. Where a risk exists, the necessary protective measures must be taken.	Not applicable
	Any functional non-ionising radiation emissions during setting, operation and cleaning must be limited to levels that do not have adverse effects on persons.	Not applicable
1.5.11	External radiation	-
	Machinery must be so designed and constructed that external radiation doesn't interfere with its operation	Not applicable
1.5.12	Laser equipment	-
	Where laser equipment is used, the following	Not applicable

Clause	Requirement-Test	Verdict and Result-Remark
	provisions should be taken into account;	
	- laser equipment on machinery must be designed and constructed so as to prevent any accidental radiation	Not applicable.
	- laser equipment on machinery must be protected so that effective radiation, radiation produced by reflection or diffusion and secondary radiation don't damage health	Not applicable.
	-optical equipment for the observation or adjustment of laser equipment on machinery must be such that no health risk is created by the laser rays	Not applicable.
1.5.13	Emissions of hazardous materials and substances	-
	Machinery must be designed and constructed in such a way that risks of inhalation, ingestion, contact with the skin, eyes and mucous membranes and penetration through the skin of hazardous materials and substances which it produces can be avoided.	Not applicable.
	Where a hazard can not be eliminated, the machinery must be so equipped that hazardous materials and substances can be contained, evacuated, precipitated by water spraying, filtered or treated by another equally effective method.	Not applicable
	Where the process is not totally enclosed during normal operation of the machinery, the devices for containment and/or evacuation must be situated in such a way as to have the maximum effect.	Not applicable.
1.5.14	Risk of being trapped in a machine	-
	Machinery must be so designed, constructed or fitted with a means of preventing a exposed person from being enclosed within it or, if that is impossible, with a means of summoning held	Not applicable
1.5.15	Risk of slipping, tripping or falling	-
	Parts of the machinery where persons are liable to move about or stand must be designed and constructed to prevent persons slipping, tripping or falling on or off these parts	Not applicable
	Where appropriate, these parts must be fitted with handholds that are fixed relative to the user and that enable them to maintain their stability.	Not applicable
1.5.16	Lightning	
	Machinery in need of protection against the effects of lightning while being used must be fitted with a system for conducting the resultant electrical charge to earth.	Not applicable
1.6	Maintenance	-
1.6.1	Machinery maintenance	-
	Adjustment, lubrication And maintenance points	Pass.

Clause	Requirement-Test	Verdict and Result-Remark
	must be located outside danger zones	
	It must be possible to carry out adjustment, Maintenance, repair, cleaning and servicing Operations while machinery is at a stand still	Pass.
	If one or more of the above conditions can not be satisfied for technical reasons, measures must be taken to ensure that these operations can be carried out safely (see section 1.2.5).	Not applicable. No this kind of situation.
	In the case of automated machinery and, where necessary, other machinery, a connecting device for mounting diagnostic fault-finding equipment must be provided.	Not applicable
	Automated machinery components which have to be changed frequently	Pass.
	must be capable of being removed and replaced easily and safely. Access to the components must enable these tasks to be carried out with the necessary technical means in accordance with a specified operating method	Pass. All operation methods have been specified by the manufacturer.
1.6.2	Access to operating position and servicing points	-
	Machinery must be designed and constructed in such a way as to allow access in safety to all areas where intervention is necessary during operation, adjustment and maintenance of the machinery.	Pass. Appropriate guards and safety control devices have been used.
1.6.3	Isolation of energy sources	-
	All machinery must be fitted with means to isolate it from all energy sources	Pass. The power switch has been used.
	Such isolators must be clearly identified	Pass. It has been identified clearly.
	They must be capable of being locked if reconnection could endanger exposed persons	Pass
	In the case of machinery supplied with electricity through a plug capable of being plugged into a circuit, separation of the plug is sufficient	Not applicable
	The isolator must be capable of being locked also where an operator is unable, from any of the points to which he has access, to check that the energy is still cut off	Pass.
	In the case of machinery capable of being plugged into an electricity supply, removal of the plug is sufficient, provided that the operator can check from any of the points to which he has access that the plug remains removed.	Pass.
	After the energy is cut off, it must be possible to dissipate normally any energy remaining or stored in the circuits of the machinery without risk to persons.	Not applicable. No this kind of situation.
	As an exception to the requirement laid down in the previous paragraphs, certain circuits may remain connected to their energy sources in order, for	Not applicable

Clause	Requirement-Test	Verdict and Result-Remark
	example, to hold parts, to protect information, to light interiors, etc. In this case, special steps must be taken to ensure operator safety.	
1.6.4	Operator intervention	-
	Machinery must be so designed, constructed and equipped that the need for operator intervention is limited	Pass.
	If operator intervention can't be avoided, it must be possible to carry it out easily and in safety	Not applicable
1.6.5	Cleaning of internal parts	-
	The machinery must be designed and constructed in such a way that it is possible to clean internal parts which have contained dangerous substances or preparations without entering them; any necessary unblocking must also be possible from the outside. If it is impossible to avoid entering the machinery, it must be designed and constructed in such a way as to allow cleaning to take place safely.	Pass. The design of this machine is allowed to carried out this work.
1.7	Indicators	-
	Information and warnings on the machinery should preferably be provided in the form of readily understandable symbols or pictograms. Any written or verbal information and warnings must be expressed in an official Community language or languages, which may be determined in accordance with the Treaty by the Member State in which the machinery is placed on the market and/or put into service and may be accompanied, on request, by versions in any other official Community language or languages understood by the operators. [Compare with 1.7.2 of the old directive]	Not applicable
1.7.1	Information and information devices	
	The information needed to control machinery must be provided in a form that is unambiguous and easily understood. It must not be excessive to the extent of overloading the operator.	Pass.
	Visual display units or any other interactive means of communication between the operator and the machine must be easily understood and easy to use.	Pass.
1.7.2	Warning devices	-
	Where risks remain despite the inherent safe design measures, safeguarding and complementary protective measures adopted, the necessary warnings, including warning devices, must be provided	Pass
1.7.3	Marking of machinery	-
	All machinery must be marked visibly, legibly and indelibly with the following minimum particulars:	-


Clause	Requirement-Test	Verdict and Result-Remark
	- the business name and full address of the manufacturer and, where applicable, his authorized representative,	Pass.
	- designation of the machinery,	Pass.
	- the CE Marking (see Annex III),	Pass.
	- designation of series or type,	Pass.
	serial number, if any,	Pass
	the year of construction, that is the year in which the manufacturing process is completed.	Pass
	It is prohibited to pre-date or post-date the machinery when affixing the CE marking.	Pass
	Furthermore, machinery designed and Constructed for use in a potentially explosive atmosphere must be marked accordingly.	Pass
	Machinery must also bear full information relevant to its type and essential for safe use. Such information is subject to the requirements set out in section 1.7.1.	Pass.
	Where a machine part must be handled during use with lifting equipment, its mass must be indicated legible, indelibly and unambiguously	Not applicable
	The interchangeable equipment referred to in Article 1 (2) , third subparagraph, must bear the same information	Pass.
1.7.4	Instruction	-
	All machinery must be accompanied by instructions in the official Community language or languages of the Member State in which it is placed on the market and/or put into service.	Pass
	- The instructions accompanying the machinery must be either 'Original instructions' or a 'Translation of the original instructions', in which case the translation must be accompanied by the original instructions.	Pass.
	-By way of exception, the maintenance instructions intended for use by specialized personnel mandated by the manufacturer or his authorized representative may be supplied in only one Community language which the specialized personnel understand.[Compare with old 1.7.4 b]	Pass.
	- The instructions must be drafted in accordance with the principles set out below.	Pass.
1.7.4.1	General principles for the drafting of instructions	
	- (a) The instructions must be drafted in one or more official Community languages. The words 'Original instructions' must appear on the language version(s) verified by the manufacturer or his authorized representative.	Pass.

Clause	Requirement-Test	Verdict and Result-Remark
	- (b) Where no 'Original instructions' exist in the official language(s) of the country where the machinery is to be used, a translation into that/those language(s) must be provided by the manufacturer or his authorized representative or by the person bringing the machinery into the language area in question. The translations must bear the words 'Translation of the original instructions'.	Pass.
	- (b) Where no 'Original instructions' exist in the official language(s) of the country where the machinery is to be used, a translation into that/those language(s) must be provided by the manufacturer or his authorized representative or by the person bringing the machinery into the language area in question. The translations must bear the words 'Translation of the original instructions'.	Not applicable
	(c) The contents of the instructions must cover not only the intended use of the machinery but also take into account any reasonably foreseeable misuse thereof.	Pass
	(d) In the case of machinery intended for use by non-professional operators, the wording and layout of the instructions for use must take into account the level of general education and acumen that can reasonably be expected from such operators.	Pass
1.7.4.2	Contents of the instructions	
	Each instruction manual must contain, where applicable, at least the following information:	
	(a) the business name and full address of the manufacturer and of his authorized representative;	Pass
	(b) the designation of the machinery as marked on the machinery itself, except for the serial number (see section 1.7.3);	Pass
	(c) the EC declaration of conformity, or a document setting out the contents of the EC declaration of conformity, showing the particulars of the machinery, not necessarily including the serial number and the signature;	Pass
	(d) a general description of the machinery;	Pass
	(e) the drawings, diagrams, descriptions and explanations necessary for the use, maintenance and repair of the machinery and for checking its correct functioning;	Pass
	(f) a description of the workstation(s) likely to be occupied by operators;	Pass
	(g) a description of the intended use of the machinery;	Pass

Clause	Requirement-Test	Verdict and Result-Remark
	(h) warnings concerning ways in which the machinery must not be used that experience has shown might occur;	Pass
	(i) assembly, installation and connection instructions, including drawings, diagrams and the means of attachment and the designation of the chassis or installation on which the machinery is to be mounted;	Pass
	(j) instructions relating to installation and assembly for reducing noise or vibration;	Pass
	(k) instructions for the putting into service and use of the machinery and, if necessary, instruct	Pass
	(l) information about the residual risks that remain despite the inherent safe design measures, safeguarding and complementary protective measures adopted;	Pass
	(m) instructions on the protective measures to be taken by the user, including, where appropriate, the personal protective equipment to be provided	Pass
	(n) the essential characteristics of tools which may be fitted to the machinery;	Pass
	o) the conditions in which the machinery meets the requirement of stability during use, transportation, assembly, dismantling when out of service, testing or foreseeable breakdowns;	Pass
	(p) instructions with a view to ensuring that transport, handling and storage operations can be made safely, giving the mass of the machinery and of its various parts where these are regularly to be transported separately; [Compare with the 10th hyphen of old 1.7.4. (a)]	Pass
	(q) the operating method to be followed in the event of accident or breakdown; if a blockage is likely to occur, the operating method to be followed so as to enable the equipment to be safely unblocked;	Pass
	(r) the description of the adjustment and maintenance operations that should be carried out by the user and the preventive maintenance measures that should be observed;	Pass
	(s) instructions designed to enable adjustment and maintenance to be carried out safely, including the protective measures that should be taken during these operations;	Pass
	(t) the specifications of the spare parts to be used, when these affect the health and safety of operators;	Pass
	(u) the following information on airborne noise emissions:	
	the A-weighted emission sound pressure level at	Pass

Clause	Requirement-Test	Verdict and Result-Remark
	workstations, where this exceeds 70 dB(A); where this level does not exceed 70 dB(A), this fact must be indicated,	The emission sound pressure level at workstations does not exceed 70 dB(A)
	the peak C-weighted instantaneous sound pressure value at workstations, where this exceeds 63 Pa (130 dB in relation to 20 µPa),	Pass
	the A-weighted sound power level emitted by the machinery, where the A-weighted emission sound pressure level at workstations exceeds 80 dB(A).	the A-weighted sound power level emitted does not exceed 80 dB(A).
	These values must be either those actually measured for the machinery in question or those established on the basis of measurements taken for technically comparable machinery which is representative of the machinery to be produced.	Pass
	In the case of very large machinery, instead of the A-weighted sound power level, the A-weighted emission sound pressure levels at specified positions around the machinery may be indicated.	Pass
	Where the harmonised standards are not applied, sound levels must be measured using the most appropriate method for the machinery. Whenever sound emission values are indicated the uncertainties surrounding these values must be specified.	Pass
	The operating conditions of the machinery during measurement and the measuring methods used must be described.	Pass
	Where the workstation(s) are undefined or cannot be defined, A-weighted sound pressure levels must be measured at a distance of 1 metre from the surface of the machinery and at a height of 1,6 metre from the floor or access platform. The position and value of the maximum sound pressure must be indicated.	Not applicable the workstation is defined
	Where specific Community Directives lay down other requirements for the measurement of sound pressure levels or sound power levels, those Directives must be applied and the corresponding provisions of this section shall not apply;	Not applicable
	where machinery is likely to emit nonionising radiation which may cause harm to persons, in particular persons with active or non-active implantable medical devices, information concerning the radiation emitted for the operator and exposed persons.	Not applicable
1.7.4.3	Sales literature	
	Sales literature describing the machinery must not contradict the instructions as regards health and safety aspects. Sales literature describing the performance characteristics of machinery must	Pass

Clause	Requirement-Test	Verdict and Result-Remark
	contain the same information on emissions as is contained in the instructions.	
2	Supplementary essential health And safety requirements for certain categories of machinery	Not applicable
2.1.	Foodstuffs machinery and machinery for cosmetics or pharmaceutical products	Not applicable
2.2	Portable hand-held and/or Hand-guided machinery	Not applicable
2.3	Machinery for working Wood and material with similar Physical characteristics	Not applicable
3	Essential health and safety requirement to offset the particular hazards due to the mobility machinery	Not applicable
4	Essential health and safety requirement to offset the particular hazards due to a lifting operation	Not applicable
5	Essential health and safety requirement for machinery intended for underground work	Not applicable
6	Essential health and safety requirement to offset the particular hazards due to the lifting or moving of persons	Not applicable

Confirmed By: 

Date: 2018-08-24

7. Test report and Risk assessment

See the following pages:

TEST REPORT

EN ISO 12100:2010

Safety of machinery — General principles for design — Risk assessment and risk reduction.

Report

Report reference No. : TR2018082401-1MD

Tested by(+ signature).....: *Downey Xue*

Reviewed by(+ signature).....: *Guo Yijiang*

Date of issue : 2018-08-24

Number of pages (Report) : 47

Manufacturer

Name:Wenzhou Gaoda Machinery Co., Ltd

Address:Haiyu Ind.Zone,Wengyang District,Yueqing,Zhejiang,325606

Test specification

Standard : EN ISO12100:2010

Test procedure : CE-MD

Procedure deviation : N.A.

Non-standard test method : N.A.

General description

This equipment is used to produce paper straw machine equipment, paper straw can be used to suck water, beverages, milk tea, coffee and other liquids. It can also be used as decorating materials on cakes, PARTY, balloons and other articles. It can also be used for making DIY toys.

Brief description of the tested sample(s):

Ambient temperature: 27°C humidity: 50% Complete test was conducted on GDZGJ-5.

GDZGJ-5, GDZGJ-20, PSM-1plus, PSM, UNL-XG50 is series products. They belong to the same circuit type except the difference in power capacity, weight and the dimension.

Conclusion

After test this machine met these requirements of EN ISO12100:2010 standard.

1. Risk assessment

This risk assessment report is based on the methods in the EN ISO 12100:2010 and EN ISO 14121-2 standards, and the 4 factors S-A-G-W have been used for evaluating the level of risks.

S : Severity of possible harm

- S1 : Slight (normally reversible)
- S2 : Serious (normally irreversible)
- S3 : Cause a few men die
- S4 : Calamity or cause many men die

A : Frequency any duration of exposure

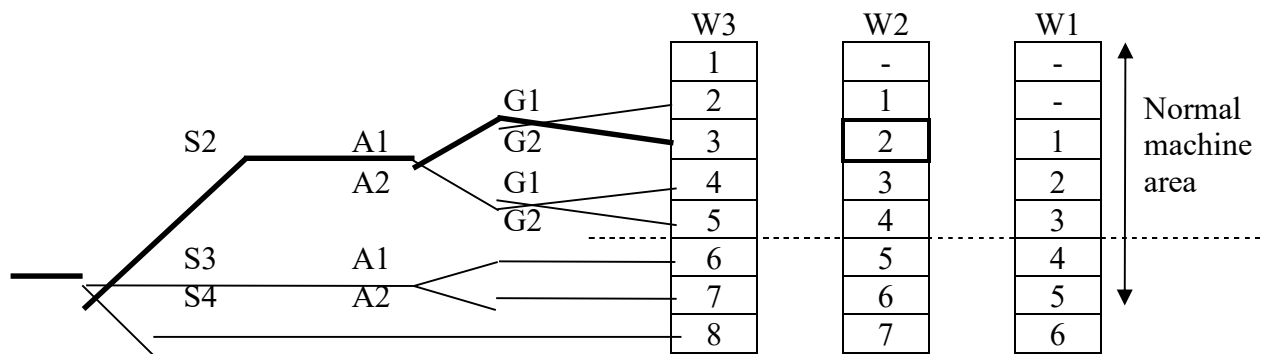
- A1 : Seldom to very often
- A2 : Frequent to continuous

G : Possibilities of avoidance

- G1 : Possible
- G2 : Impossible

W : Probability of occurrence of harm

- W1 : Low
- W2 : Medium
- W3 : High



Solutions for the level of hazards

- 1 : Protected by warning sign
- 2 : Protected by guard and warning sign
- 3 : Consider the other design, choose the best one, add both guard and warning sign
- 4 : Consider another two design, choose the best one, add both guard and warning sign
- 5 : Consider another three design, choose the best one, add both guard and warning sign

NO.	Hazards source	S	A	G	W	Level
Mechanical hazards						
1.0-1	Mechanical hazards due to machine parts or work pieces					
1.0-2	Mechanical hazards due to accumulation of energy inside the machinery					
1.1	Crushing					
1.2	Shearing					
1.3	Cutting or severing	2	1	1	2	1
1.4	Entanglement	2	1	1	2	1
1.5	Drawing-in or trapping					
1.6	Impact					

1.7	Stabbing or puncture					
1.8	Friction or abrasion					
1.9	High pressure fluid injection or ejection					
Electrical hazards						
2.1	Contact with live parts	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	-
2.2	Contact with parts which have become live under faulty conditions	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	-
2.3	Approach to live part under high voltage					
2.4	Electrostatic phenomena					
2.5	Thermal radiation or other phenomena such as projection of molten particles and chemical effects form short-circuits, overloads etc.					
Thermal hazards						
3.1	Burns, scalds and other injuries by a possible contact of persons with objects or materials with an extreme high or low temperature, by flames or explosions and also by the radiation of heat sources	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	-
3.2	Damage to health by hot or cold working environment					
Hazards generated by noise						
4.1	Hearing loss (deafness), other physiological disorders					
4.2	Interference with speech communication, acoustic signals, etc.					
Hazards generated by vibration						
5.1	Use of hand-help machines resulting in a variety of neurological and vascular disorder					
5.2	Whole body vibration, particular when combined with poor postures					
Hazards generated by radiation						
6.1	Low frequency, radio frequency radiation, microwaves					
6.2	Infrared, visible and ultraviolet light					
6.3	X and gamma rays					
6.4	Alpha, beta rays, electron or ion beams, neutrons					
6.5	Lasers					
Hazards generated by materials and substances processed or used by the machinery						
7.1	Hazards from contact with or inhalation of harmful fluids, gases, mists, fumes and dusts					
7.2	Fire and explosion hazard					
7.3	Biological and micro-biological (viral or bacterial) hazards					
Hazards generated by neglecting ergonomic principles in machine design						
8.1	Unhealthy postures or excessive effort					
8.2	Inadequate consideration of hand-arm or foot-leg anatomy					
8.3	Neglected use of personal protection equipment					
8.4	Inadequate local lighting					
8.5	Mental overload or underload, stress					
8.6	Human error, human behavior	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	-
8.7	Inadequate design, location or identification of manual controls					
8.8	Inadequate design, location or identification of manual controls					
Combination of hazards						

9	Combination of hazards					
Unexpected start-up, unexpected overrun/over-speed						
10.1	Failure/disorder of the control system	<i>I</i>	<i>I</i>	<i>I</i>	<i>I</i>	-
10.2	Restoration of energy on supply after an interruption					
10.3	External influences on electrical equipment	<i>I</i>	<i>I</i>	<i>I</i>	<i>I</i>	-
10.4	Other external influences (gravity, wind, etc.)					
10.5	Errors in the software					
10.6	Error made by the operator (due to mismatch of machinery with human characteristics and abilities, see 8.6)					
Impossibility of stopping the machine in the best possible conditions						
11	Impossibility of stopping the machine in the best possible conditions					
Variations in the rotational speed of tools						
12	Variations in the rotational speed of tools					
Failure of the power supply						
13	Failure of the power supply					
Failure of the control circuit						
14	Failure of the control circuit	<i>I</i>	<i>I</i>	<i>I</i>	<i>I</i>	-
Errors of fitting						
15	Errors of fitting	<i>I</i>	<i>I</i>	<i>I</i>	<i>I</i>	-
Break-up during operation						
16	Break-up during operation					
Falling or ejected objects or fluids						
17	Falling or ejected objects or fluids					
Loss of stability / overturning of machinery						
18	Loss of stability / overturning of machinery					
Slip, trip and fall of persons (related to machinery)						
19	Slip, trip and fall of persons(related to machinery)					
Additional hazards, hazardous situations and hazardous events due to mobility						
20	Relating to the traveling function					
20.1	Movement when starting the engine					
20.2	Movement without a driver at the driving position					
20.3	Movement without all parts in a safe position					
20.4	Excessive speed of pedestrian controlled machinery					
20.5	Excessive oscillations when moving					
20.6	Insufficient ability of machinery to be slowed down, stopped and immobilised					
Linked to the work position (including driving station) on the machine						
21.1	Fall of persons during access to (or at/from) the work position					
21.2	Exhaust gases/lack of oxygen at the work position					
21.3	Fire (flammability of the cab, lack of extinguishing means)					
21.4	Mechanical hazards at the work position : contact with the wheels ; rollover ; fall of objects, penetration by objects ; break-up of parts rotation at high speed ; contact of persons with machine parts or tools (pedestrian controlled machines)					

21.5	Insufficient visibility form the work positions					
21.6	Inadequate lighting					
21.7	Inadequate seating					
21.8	Noise at the work position					
21.9	Vibration at the work position					
21.10	Insufficient means for evacuation/emergency exit					
Due to the control system						
22.1	Inadequate location of manual controls					
22.2	Inadequate design of manual controls and their mode of operation					
Form handling the machine (lack of stability)						
23	Form handling the machine (lack of stability)					
Due to the power source and to the transmission of power						
24.1	Hazards form the engine and the batteries					
24.2	Hazards form the transmission of power between machines					
24.3	Hazards form coupling and towing					
Form/to third persons						
25.1	Unauthorized start-up/use	1	1	1	2	-
25.2	Drift of a part away from its stopping position					
25.3	Lack or inadequacy of visual or acoustic warning means					
Insufficient instructions for the driver/operator						
26	Insufficient instructions for the driver/operator	1	1	1	1	-
Additional hazards, hazardous situations and hazardous events due to lifting						
27	Mechanical hazards and hazardous events					
27.1	Form load falls, collisions, machine tipping caused by :					
27.1.1	Lack of stability					
27.1.2	Uncontrolled loading-overloading-overturning moments exceeded					
27.1.3	Uncontrolled amplitude of movements					
27.1.4	Unexpected/unintended movement of loads					
27.1.5	Inadequate holding devices/accessories					
27.1.6	Collision of more then one machine					
27.2	Form access of persons to load support					
27.3	Form derailment					
27.4	Form insufficient mechanical strength of parts					
27.5	Form inadequate selection of chains, ropes, lifting and accessories and their inadequate integration into the machine					
27.6	Form inadequate selection of chains, ropes, lifting and accessories and their inadequate integration into the machine					
27.7	Form lowering of the load under the control of friction brake					
27.8	Form abnormal conditions of assembly/testing/use/maintenance					
27.9	Form the effect of load on persons (impact by load or counterweight)					
Electrical hazards						
28.1	Form lightning					
Hazards generated by neglecting ergonomic principles						
29.1	Insufficient visibility from the driving position					

Additional hazards, hazardous and situations and hazardous events due to underground work						
30	Mechanical hazards and hazardous events due to:					
30.1	Lack of stability of powered roof supports					
30.2	Failing accelerator or brake control of machinery running on rails					
30.3	Failing or lack of dead man's control of machinery running on rails					
31	Restricted movement of persons					
32	Fire and explosion					
33	Emission of dust, gases etc.					
Additional hazards, hazardous situations and hazardous events due to the lifting or moving of persons						
34	Mechanical hazards and hazardous events due to:					
34.1	Inadequate mechanical strength-inadequate working coefficients					
34.2	Failing of loading control					
34.3	Failing of controls in person carrier (function, priority)					
34.4	Over speed of person carrier					
35	Falling of person from person carrier					
36	Falling or overturning of person carrier					
37	Human error, human behavior					

NO.	Hazards source	S	A	G	W	Level
1.2	Shearing	2	1	1	2	1
1.3	Cutting or severing	2	1	1	2	1
Where	<i>moving parts</i>					
When	<i>Worker access to the moving parts during operation</i>					
Improvement result						
Method		S	A	G	W	Level
1. Affixing suitable warning signs. 2. Only operation by training/authorized persons. 3. Operation of the machine shall conform to the instructions of the instruction manual. 4. Check and inspection according to the specified durations of the instruction manual. 5. All moving parts shall be enclosed within the permanent compressor casing or compressor unit cover,		1	1	1	1	-

NO.	Hazards source	S	A	G	W	Level
2.1	Contact with live parts	1	1	1	1	-
Where	<i>Whole power and control systems</i>					
When	<i>The machine is power on</i>					
Improvement result						
Method		S	A	G	W	Level

1. Only operation by training/authorized persons.	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	-
2. Operation of the machine shall conform to the instructions of the instruction manual.					
3. Check and inspection according to the specified durations of the instruction manual.					
4. Using safety components in accordance with those relevant international standards.					
5. Use of warning label.					

NO.	Hazards source	S	A	G	W	Level
2.2	Contact with parts which have become live under faulty conditions	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	-

Where *Whole power and control systems*

When *The machine is power on*

Improvement result

Method	S	A	G	W	Level
1. Only operation by training/authorized persons.	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	-
2. Operation of the machine shall conform to the instructions of the instruction manual.					
3. Check and inspection according to the specified durations of the instruction manual.					
4. Using safety components in accordance with those relevant international standards.					
5. Use of warning label.					

NO.	Hazards source	S	A	G	W	Level
3.1	<i>Burns, scalds and other injuries by a possible contact of persons with objects or materials with an extreme high or low temperature, by flames or explosions and also by the radiation of heat sources</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	-

Where *Thermal conversion part*

When *Contact the thermal conversion part when working.*

Improvement result

Method	S	A	G	W	Level
1. Only operation by training/authorized persons.	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	-
2. Operation of the machine shall conform to the instructions of the instruction manual.					
3. Use of warning label.					

NO.	Hazards source	S	A	G	W	Level
8.6	Human error, human behavior	<i>2</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>

Where *Whole machine*

When *Operation, adjustment or maintenance of the machine*

Improvement result

Method	S	A	G	W	Level
1. Only authorized person can use the machine.	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	-
2. Training before using this machine.					
3. Make reference to the instruction manual before using this machine.					

NO.	Hazards source	S	A	G	W	Level
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10.1	Failure/disorder of the control system	<i>I</i>	<i>I</i>	<i>I</i>	<i>I</i>	-
Where	<i>Control circuit/control components</i>					
When	<i>During operation of the machine</i>					
Improvement result						
Method		S	A	G	W	Level
1. Only authorized person can use the machine.		<i>I</i>	<i>I</i>	<i>I</i>	<i>I</i>	-
2. Make reference to the instruction manual before using this machine.						
3. Check before operation.						
4. Periodic maintenance.						
NO.	Hazards source	S	A	G	W	Level
10.3	External influences on electrical equipment	<i>I</i>	<i>I</i>	<i>I</i>	<i>I</i>	-
Where	<i>All electrical equipments equipped on the machine</i>					
When	<i>Working of the electrical equipments</i>					
Improvement result						
Method		S	A	G	W	Level
1. Connection of protective earthing indeed.		<i>I</i>	<i>I</i>	<i>I</i>	<i>I</i>	-
2. Excellent electrical shielded housing.						

NO.	Hazards source	S	A	G	W	Level
14	Failure of the control circuit	<i>I</i>	<i>I</i>	<i>I</i>	<i>I</i>	-
Where	<i>Control circuit/control components</i>					
When	<i>During operation of the machine</i>					
Improvement result						
Method		S	A	G	W	Level
1. Checking before operation.		<i>I</i>	<i>I</i>	<i>I</i>	<i>I</i>	-
2. Make reference to the instruction manual before operate this machine.						
3. Daily/periodic inspection and maintenance.						
NO.	Hazards source	S	A	G	W	Level
15	Errors of fitting	<i>I</i>	<i>I</i>	<i>I</i>	<i>I</i>	-
Where	<i>Electric control parts</i>					
When	<i>Change the electric power.</i>					
Improvement result						
Method		S	A	G	W	Level
1. Checking before operation.		<i>I</i>	<i>I</i>	<i>I</i>	<i>I</i>	-
2. Make reference to the instruction manual before operate this machine.						

NO.	Hazards source	S	A	G	W	Level
25.1	Unauthorized start-up/use	<i>I</i>	<i>I</i>	<i>I</i>	<i>I</i>	-
Where	<i>Control system</i>					
When	<i>Operation, adjustment or maintenance of the machine</i>					
Improvement result						
Method		S	A	G	W	Level
1. Always starting the machine by training/authorized persons.		<i>I</i>	<i>I</i>	<i>I</i>	<i>I</i>	-
2. During adjustment or maintenance, put a warning nameplate near the working area.						
3. Lock the power switch of the machine.						

NO.	Hazards source	S	A	G	W	Level
26	Insufficient instructions for the driver/operator	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	-
Where	<i>Whole machine</i>					
When	<i>Installation, assembly/disassembly, operation, adjustment or maintenance of the machine</i>					
Improvement result						
Method		S	A	G	W	Level
1. <i>Edit the instruction manual in conformity with those requirement of Machinery Directive and EN ISO 12100: 2010 standard.</i>		<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	-
2. <i>Each machine accompanied with a complete instruction manual.</i>						

2. EN ISO 12100:2010 part 6-7

Clause	Requirement-Test	Verdict and Result-Remark
EN ISO 12100:2010 General principles for design — Risk assessment and risk reduction		Pass
6	Risk reduction	-
6.1	General	-
	The objective of risk reduction can be achieved by the elimination of hazards, or by separately or simultaneously reducing each of the two elements that determine the associated risk: _ severity of harm from the hazard under consideration; _ probability of occurrence of that harm. All protective measures intended for reaching this objective shall be applied in the following sequence, referred to as the three-step method (see also Figures 1 and 2).	Pass. This requirement is complied with.
6.2	Inherently safe design measures	
6.2.1	General	-
	Inherently safe design measures are the first and most important step in the risk reduction process because protective measures inherent to the characteristics of the machine are likely to remain effective, whereas experience has shown that even well-designed safeguarding may fail or be violated and information for use may not be followed.	Pass. Appropriate machine design has been performed by the manufacturer.
	Inherently safe design measures are achieved by avoiding hazards or reducing risks by a suitable choice of design features of the machine itself and/or interaction between the exposed persons and the machine. NOTE See 6.3 for safeguarding and complementary	Pass. Appropriate machine design has been performed by the manufacturer.

Clause	Requirement-Test	Verdict and Result-Remark
	measures that can be used to achieve the risk reduction objectives in the case where inherently safe design measures are not sufficient (see 6.1 for the three-step method).	
6.2.2	Consideration of geometrical factors and physical aspects	-
6.2.2.1	Geometrical factors	-
	Such factors include the following.	-
	a) The form of machinery is designed to maximize direct visibility of the working areas and hazard zones from the control position — reducing blind spots, for example — and choosing and locating means of indirect vision where necessary (mirrors, etc.) so as to take into account the characteristics of human vision, particularly when safe operation requires permanent direct control by the operator, for example: <ul style="list-style-type: none"> _ the travelling and working area of mobile machines; _ the zone of movement of lifted loads or of the carrier of machinery for lifting persons; _ the area of contact of the tool of a hand-held or hand-guided machine with the material being worked. The design of the machine shall be such that, from the main control position, the operator is able to ensure that there are no exposed persons in the danger zones.	Pass. Appropriate machine design has been performed by the manufacturer.
	b) The form and the relative location of the mechanical components parts: for instance, crushing and shearing hazards are avoided by increasing the minimum gap between the moving parts, such that the part of the body under consideration can enter the gap safely, or by reducing the gap so that no part of the body can enter it (see ISO 13854 and ISO 13857).	Pass. Appropriate machine design has been performed by the manufacturer.
	c) Avoiding sharp edges and corners, protruding parts: in so far as their purpose allows, accessible parts of the machinery shall have no sharp edges, no sharp angles, no rough surfaces, no protruding parts likely to cause injury, and no openings which can “trap” parts of the body or clothing. In particular, sheet metal edges shall be deburred, flanged or trimmed, and open ends of tubes which can cause a “trap” shall be capped.	Pass. Appropriate machine design has been performed by the manufacturer.
	d) The form of the machine is designed so as to achieve a suitable working position and provide accessible manual controls (actuators).	Pass. Appropriate machine design has been performed by the manufacturer.
6.2.2.2	Physical aspects	-
	Such aspects include the following:	-
	a) limiting the actuating force to a sufficiently low value so that the actuated part does not generate a mechanical	Pass. The actuating force has been limited to be a

Clause	Requirement-Test	Verdict and Result-Remark
	hazard;	sufficiently low value so that the actuated part does not generate a mechanical hazard.
	b)limiting the mass and/or velocity of the movable elements, and hence their kinetic energy;	Pass. The mass and/or velocity of the movable elements, and hence their kinetic energy have been limited.
	c) limiting the emissions by acting on the characteristics of the source using measures for reducing 1) noise emission at source (see ISO/TR 11688-1), 2) the emission of vibration at source, such as redistribution or addition of mass and changes of process parameters [for example, frequency and/or amplitude of movements (for hand-held and hand-guided machinery, see CR 1030-1)], 3) the emission of hazardous substances, including the use of less hazardous substances or dust-reducing processes (granules instead of powders, milling instead of grinding), and 4) radiation emissions, including, for example, avoiding the use of hazardous radiation sources, limiting the power of radiation to the lowest level sufficient for the proper functioning of the machine, designing the source so that the beam is concentrated on the target, increasing the distance between the source and the operator or providing for remote operation of the machinery [measures for reducing emission of non-ionizing radiation are given in 6.3.4.5 (see also EN 12198-1 and EN 12198-3)].	Pass. The emissions by acting on the characteristics of the source have been limited.
6.2.3	Taking into account the general technical knowledge regarding machine design	-
	This general technical knowledge can be derived from technical specifications for design (e.g. standards, design codes, calculation rules).These should be used to cover :	-
	a) mechanical stresses such as	-
	- stress limitation by implementation of correct calculation, construction and fastening methods as regards, e.g. bolted assemblies, welded assemblies	Pass. The appropriate technical knowledge of mechanical has been taken into account.
	- stress limitation by overload prevention, (e.g. “fusible” plugs, pressure-limiting valve, breakage points, torque-limiting devices);	Pass. The appropriate technical knowledge of mechanical has been taken into account.
	- avoiding fatigue in elements under variable stresses (notably cyclic stresses);	Pass. The appropriate technical knowledge of mechanical has been taken into account.

Clause	Requirement-Test	Verdict and Result-Remark
	- static and dynamic balancing of rotating elements;	Pass. The appropriate technical knowledge of mechanical has been taken into account.
	b) materials and their properties such as	-
	- resistance to corrosion, ageing, abrasion and wear;	Pass. The materials have been treated by appropriate methods.
	- hardness, ductility, brittleness;	Pass. The materials have been treated by appropriate methods.
	- homogeneity;	Pass. The materials have been treated by appropriate methods.
	- toxicity;	Pass. The materials have been treated by appropriate methods.
	- flammability.	Pass. The materials have been treated by appropriate methods.
	- flammability.	Pass. The materials have been treated by appropriate methods.
	c) emission values for :	-
	- noise;	Pass. No noise will result in hazard in this machine.
	- vibration;	Pass. No vibration will result in hazard in this machine.
	- hazardous substances;	Pass. No hazardous substances will result in hazard in this machine.
	- radiation.	Pass. No radiation will result in hazard in this machine.
	When the reliability of particular components or assemblies is critical for safety (e.g. ropes, chains, lifting accessories for lifting loads or persons), stress values shall be multiplied by appropriate working coefficients.	Pass. Appropriate working coefficients have been taken into account during design and calculation.
6.2.4	Choice of an appropriate technology	-
	One or more hazards can be eliminated or risks reduced by the choice of the technology to be used in certain applications, e.g. :	-
	a) on machines intended for use in explosive atmospheres: - fully pneumatic or hydraulic control system and machine actuators; - “intrinsically safe” electrical equipment (see IEC	Not applicable.

Clause	Requirement-Test	Verdict and Result-Remark
	60079-11)	
	b) for particular products to be processed such as a solvent: equipment assuring that the temperature will remain far below the flash point.	Not applicable.
	c) alternative equipment to avoid high noise level, e.g.: - electrical instead of pneumatic equipment - in certain conditions, water cutting instead of mechanical equipment.	Pass. The appropriate technology has been chosen.
6.2.5	Applying the principle of the positive mechanical action	-
	Positive mechanical action is achieved when a moving mechanical component inevitably moves another component along with it, either by direct contact or via rigid elements. An example of this is positive opening operation of switching devices in an electrical circuit (see IEC 60947-5-1 and ISO 14119).	Pass. The principle of the positive mechanical action of a component on another component has been applied.
6.2.6	Provisions for stability	-
	Machines shall be designed to have sufficient stability to allow them to be used safely in their specified conditions of use.	Pass. These machines have been designed to have sufficient stability to allow them to be used safely in their specified conditions of use.
	Factors to be taken into account include	-
	- geometry of the base;	Pass. The factor has been taken into account during design.
	- weight distribution, including loading;	Pass. The factor has been taken into account during design.
	- dynamic forces due to movements of parts of the machine, of the machine itself, or of elements held by the machine which may result in an overturning moment;	Pass. The factor has been taken into account during design.
	- vibration	Pass. The factor has been taken into account during design.
	- oscillations of the centre of gravity;	Not applicable
	- characteristics of the supporting surface in case of traveling or installation on different sites (e.g. ground conditions, slope);	Pass. The factor has been taken into account during design.
	- external forces (e.g. wind pressure, manual forces)	Pass. The factor has been taken into account during design.
	Stability shall be considered in all phases of the life of the machine, including handling, traveling, installation, use, de-commissioning and dismantling.	Pass. The factor has been taken into account during design.
	Other protective measures for stability relevant to safeguarding are given in 6.3.2.6	Pass. Please see the related clause.
6.2.7	Provision for maintainability	-

Clause	Requirement-Test	Verdict and Result-Remark
	When designing a machine, the following maintainability factors shall be taken into account:	-
	- accessibility, taking into account the environment and the human body measurements, including the dimensions of the working clothes and tools used;	Pass. These factors have been taken into account during design.
	- ease of handling, taking into account human capabilities;	Pass. The factor has been taken into account during design.
	- limitation of the number of special tools and equipment;	Pass. The factor has been taken into account during design.
6.2.8	Observing ergonomic principles	-
	Ergonomic principles shall be taken into account in designing machinery to reduce mental or physical stress and strain of the operator.	Pass. Appropriate ergonomic principles have been taken into account in designing machinery to reduce mental or physical stress and strain of the operator.
	These principles shall be considered when allocating functions to operator and machine (degree of automation) in the basic design.	Pass. These principles have been taken into account during allocating functions to operator and machine.
	Account shall be taken of body sizes likely to be found in the intended user population, strengths and postures, movement amplitudes, frequency of cyclic actions (see ISO 10075 and ISO 10075-2)	Pass. All these factors have been taken into account during design.
	All elements of the “operator-machine” interface such as controls, signaling or data display elements, shall be designed to be easily understood so that clear and unambiguous interaction between the operator and the machine is possible.(see EN 614-1, ISO 6385, EN 13861 and IEC 61310-1)	Pass. All arrangement and design of manual controls have been checked in compliance with.
	Designer’s attention is especially drawn to following ergonomic aspects of machine design	-
	a) Avoiding stressful postures and movements during use of the machine (e.g. by providing facilities to adjust the machine to suit the various operators).	Pass. Stressful postures and movements during use of the machine have been avoided.
	b) Designing machines, and more especially hand-held and mobile machines to enable them to be operated easily taking into account human effort, actuation of controls and hand, arm and leg anatomy.	Pass. This machine has been adjusted to the human strength and convenient movement.
	c) Limit as far as possible noise, vibration and thermal effects such as extreme temperatures.	Pass. This machine has been designed with low noise, vibration.
	d) Avoid linking the operator's working rhythm to an	Pass. This situation has been avoided.

Clause	Requirement-Test	Verdict and Result-Remark
	automatic succession of cycles.	
	e) Providing local lighting on or in the machine for the illumination of the working area and of adjusting, setting-up, and frequent maintenance zones when the design features of the machine and /or its guards render the ambient lighting inadequate. Flicker, dazzling, shadows and stroboscopic effects shall be avoided if they can cause a risk. If the position of the lighting source has to be adjusted, its location shall be such that it does not cause any risk to persons making the adjustment.	Pass. All these factors have been taken into account during design.
	f) Select, locate and identify manual controls (actuators) so that	-
	- they are clearly visible and identifiable and appropriately marked where necessary (see6.4.4)	Pass. All design and arrangement of the control logic have been checked in compliance with this requirement.
	- they can be safely operated without hesitation or loss of time and without ambiguity (e.g. a standard layout of controls reduces the possibility of error when an operator changes from a machine to another one of similar type having the same pattern of operation)	Pass. All design and arrangement of the control logic have been checked in compliance with this requirement.
	- their location(for push-buttons) and their movement (for levers and handwheels) are consistent with their effect (see IEC 61310-3)	Pass. All the function has been checked in compliance with this requirement.
	- their operation cannot cause additional risk	Pass.
	Where a control is designed and constructed to perform several different actions, namely where there is no one-to-one correspondence (e.g. keyboards), the action to be performed shall be clearly displayed and subject to confirmation where necessary.	Not applicable.
	Controls shall be so arranged that their layout, travel and resistance to operation are compatible with the action to be performed, taking account of ergonomic principles.	Pass. All the arrangement of the control logic have been checked in compliance with this requirement.
	Constraints due to the necessary or foreseeable use of personal protective equipment(such as footwear, gloves)shall be taken into account.	Not applicable.
	g) Select, design and locate indicators, dials and visual display units so that	-
	- they fit within the parameters and characteristics of human perception	Pass.

Clause	Requirement-Test	Verdict and Result-Remark
	- information displayed can be detected, identified and interpreted conveniently, i.e. long lasting, distinct, unambiguous and understandable with respect to the operator's requirements and the intended use;	Pass. All the information displayed comply with this requirement.
	- the operator is able to perceive them form the control position	Pass.
6.2.9	Preventing electrical hazard	-
	For the design of the electrical equipment of machines IEC 60204-1 gives general provisions, especially in clause 6 for protection against electric shock.	Pass. Please also make reference to EN 60204-1 test report.
	For requirements related to specific machines, see corresponding IEC standards (e.g. series of IEC 61029, IEC 60745, IEC 60335).	Not applicable.
6.2.10	Preventing and hydraulic hazards	-
	Pneumatic and hydraulic equipment of machinery shall be designed so that :	-
	- the maximum rated pressure cannot be exceeded in the circuits (e.g. by means of pressure limiting devices)	Pass. This requirement is complied with.
	- no hazard results from pressure surges or rises, pressure losses or drops or losses of vacuum;	Pass. This requirement is complied with.
	- no hazardous fluid jet or sudden hazardous movement of the hose (whiplash)results from leakage or component failures;	Pass. This requirement is complied with.
	- air receivers, air reservoirs or similar vessels (e.g. in gas loaded accumulators) comply with the design rules for these elements;	Pass. This requirement is complied with.
	- air elements of the equipment, and especially pipes and hoses, be protected against harmful external effects;	Pass. This requirement is complied with.
	- as far as possible, reservoirs and similar vessels (e.g. in gas loaded accumulators)are automatically depressurized when isolating the machine from its power supply (see 6.3.5.4) and, if it is not possible, means are provided for their isolation, local depressurizing and pressure indication (see also ISO 14118:2000, clause 5)	Pass. This requirement is complied with.
	- all elements which remain under pressure after isolation of the machine from its power supply be provided with clearly identified exhaust devices, and a warning label drawing attention to the necessity of depressurizing those elements before any setting or maintenance activity on the machine. See also ISO 4413 and ISO4414	Pass. This requirement is complied with.

Clause	Requirement-Test	Verdict and Result-Remark
6.2.11	Applying inherently safe design measures to control system	-
6.2.11.1	General	-
	The design measures of the control system shall be chosen so that their safety-related performance provides a sufficient amount of risk reduction (see ISO 13849-1 or IEC 62061)	Pass. Inherently safe design measures to control system have applied.
	The correct design of machine control systems can avoid unforeseen and potentially hazardous machine behaviour.	Pass. Inherently safe design measures to control system have applied.
	Typical causes of hazardous machine behavior are :	-
	- an unsuitable design or modification (accidental or deliberate) of the control system logic;	Pass. No this kind of hazard in this machine
	- a temporary or permanent defect or a failure of one or several components of the control system;	Pass.
	- a variation or a failure in the power supply of the control system;	Pass. No this kind of hazard in this machine
	- inappropriate selection, design and location of the control devices;	Pass. No this kind of hazard in this machine
	Typical examples of hazardous machine behaviour are :	-
	- unintended/unexpected start-up(see ISO 14118)	Pass. No this kind of hazard in this machine
	- uncontrolled speed change;	Pass. No this kind of hazard in this machine
	- failure to stop moving parts;	Pass. No this kind of hazard in this machine
	- dropping or ejection of a mobile part of the machine or of a workpiece clamped by the machine;	Pass. No this kind of hazard in this machine
	- machine action resulting from inhibition (defeating or failure) of protective devices	Pass. No this kind of hazard in this machine
	In order to prevent hazardous machine behaviour and to achieve safety functions, the design of control systems shall comply with the principles and methods presented in this subclause 6.2.11 and in 6.2.12.	Pass. the design of control systems comply with the related principles and methods
	These principles and methods shall be applied singly or in combination as appropriate to the circumstances (see ISO 13849-1 and IEC 60204-1 and IEC 62061).	Pass. Please see the related clause.
	Control systems shall be designed to enable the operator to interact with the machine safely and easily; this requires one or several of the following solutions;	-
	- systematic analysis of start and stop conditions;	Pass. Systematic analysis have been applied.
	- provision for specific operating modes (e.g. start-up	Pass. Enough provisions have been

Clause	Requirement-Test	Verdict and Result-Remark
	after normal stop, restart after cycle interruption or after emergency stop, removal of the workpieces contained in the machine, operation of a part of the machine in case of a failure of a machine element)	provided.
	- clear display of the faults;	Pass.
	- measures to prevent accidental generation of unexpected start commands (e.g. shrouded start device) likely to cause dangerous machine behaviour (see ISO 14118:2000, figure 1)	Pass. Main switch with lock and related devices are provided.
	- maintained stop commands(e.g. interlock) to prevent restarting that could result in dangerous machine behaviour (see ISO 14118:2000, figure 1)	Pass. This requirement is complied with.
	An assembly of machines may be divided into several zones for emergency stopping, for stopping as a result of protective devices and/or for isolation and energy dissipation.	Not applicable
	The different zones shall be clearly defined and it shall be obvious which parts of the machine belong to which zone.	Not applicable
	Likewise it shall be obvious which control devices (e.g. emergency stop devices, supply disconnecting devices)and/or protective devices belong to which zone.	Not applicable
	The interfaces between zones shall be designed such that no function in one zone creates hazards in another zone which has been stopped for an intervention.	Not applicable
	Control systems shall be designed to limit the movements of parts of the machinery, the machine itself, or workpieces and/or loads held by the machinery, to the safe design parameters(e.g. range, speed, acceleration, deceleration, load capacity). Allowance shall be made for dynamic effects (e.g. the swinging of loads).	Pass. This requirement is complied with.
	For example:	-
	- the traveling speed of mobile pedestrian controlled machinery other than remote-controlled shall be compatible with walking speed.	Not applicable
	- the range, speed, acceleration and deceleration of movements of the person-carrier and carrying vehicle for lifting persons shall be limited to non-hazardous values, taking into account the total reaction time of the operator and the machine.	Pass. This requirement is complied with.
	- the range of movements of parts of machinery for	Not applicable

Clause	Requirement-Test	Verdict and Result-Remark
	lifting loads shall be kept within specified limits.	
	When machinery is designed to use synchronously different elements which can also be used independently the control system shall be designed to prevent risks due to lack of synchronization.	Not applicable
6.2.11.2	Starting of internal power source/switching on an external power supply	-
	The starting of an internal power source or switching-on of an external power supply shall not result in a hazardous situation. For example: _ starting the internal combustion engine shall not lead to movement of a mobile machine; _ connection to mains electricity supply shall not result in the starting of working parts of a machine. See IEC 60204-1:2005, 7.5 (see also Annexes A and B).	Pass. Please also make reference to EN 60204-1 test report.
6.2.11.3	Starting/stopping of a mechanism	-
	The primary action for starting or accelerating the movement of a mechanism should be performed by application or increase of voltage or fluid pressure, or, if binary logic elements are considered, by passage from state 0 to state 1 (if state 1 represents the highest energy state)	Pass. This requirement has been taken into account during design.
	The primary action for stopping or slowing down should be performed by removal or reduction of voltage or fluid pressure, or, if binary logic elements are considered, by passage from state 1 to state 0 (if state 1 represents the highest energy state).	Pass. The type of stopping of this machine belongs to state 1 and state 0.
	When, in order for the operator to maintain permanent control of deceleration, this principle is not observed (e.g. a hydraulic braking device of a self-propelled mobile machine), the machine shall be equipped with a means of slowing and stopping in case of failure of the main braking system	Pass. No such situation exist.
6.2.11.4	Restart after power interruption	-
	If it may generate a hazard, the spontaneous restart of a machine when it is re-energized after power interruption shall be prevented (e.g. by use of a self-maintained relay, contactor or valve).	Pass. The spontaneous restart of a machine when it is re-energized after power interruption has been prevented by contactor.
6.2.11.5	Interruption of power supply	-
	Machinery shall be designed to prevent hazardous situations resulting from interruption or excessive fluctuation of the power supply. At least the following requirements shall be met:	Pass. The hazardous situations resulting from interruption or excessive fluctuation of the power supply has been prevented.
	- the stopping function of the machinery shall remain;	Pass.

Clause	Requirement-Test	Verdict and Result-Remark
	- all devices whose permanent operation is required for safety shall operation an effective way to maintain safety (e.g. locking, clamping devices, cooling or heating devices, power-assisted steering of self-propelled mobile machinery);	Pass.
	- parts of machinery or workpieces and/or loads held by machinery which are liable to move as a result of potential energy shall be retained for the time necessary to allow them to be safely lowered.	Pass. No such situation exists.
6.2.11.6	Use of automatic monitoring	-
	Automatic monitoring is intended to ensure that a safety function(s) implemented by a protective measure do(es) not fail to be performed if the ability of a component or an element to perform its function is diminished, or if the process conditions are changed in such a way that hazards are generated.	Pass. Appropriate automatic monitoring has been used.
	Automatic monitoring either detects a fault immediately or carries out periodic checks so that a fault is detected before the next demand upon the safety function.	Pass. Appropriate automatic monitoring has been used.
	In either case, the protective measure can be initiated immediately or delayed until a specific event occurs (e.g. the beginning of the machine cycle.) The protective measures may be , e.g.:	Pass. Appropriate automatic monitoring has been used.
	- the stopping of the hazardous process;	Pass. The stop is provided.
	- preventing the re-start of this process after the first stop following the failure;	Pass. Reset before restart is necessary.
	- the triggering of an alarm	Pass. An alarm is provided.
6.2.11.7	Safety functions implemented by programmable electronic control systems	-
6.2.11.7.1	General	-
	A control system including programmable electronic equipment (e.g. programmable controllers) can be used to implement safety functions t machinery.	Not applicable
	Where a programmable electronic control system is used it is necessary to consider its performance requirements in relation to the requirements for the safety functions.	Not applicable
	The design of the programmable electronic control system shall be such that the probability of random hardware failures and the likelihood of systematic failures that can adversely affect the performance of the safety-related control function(s) are sufficiently low.	Not applicable
	Where a programmable electronic control system	Not applicable.

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	performs a monitoring function, the system behaviour on detection of a fault shall be considered (see also IEC 61508 series for further guidance)	
	The programmable electronic control system should be installed and validated to ensure that the specified performance (e.g. safety integrity level (SIL) in IEC 61508 series) for each safety function has been achieved.	Not applicable.
	Validation comprises testing an analysis (e.g. static, dynamic or failure analysis) to show that all parts interact correctly to perform the safety function and that unintended functions do not occur.	Not applicable.
6.2.11.7.2	Hardware aspects	-
	The hardware (including e.g. sensors, actuators, logic solvers) shall be selected (and/or designed) and installed to meet both the functional and performance requirements of the safety function(s) to be performed, in particular, by means of :	Pass. The hardware has been selected and installed to meet both the functional and performance requirements of the safety functions to be performed.
	- architectural constraints (e.g. the configuration of the system, its ability to tolerate faults, its behaviour on detection of a fault);	Pass. Appropriate devices are provided.
	- selecting (and/or designing) equipment and devices with an appropriate probability of dangerous random hardware failure;	Pass. Appropriate devices are provided.
	-Incorporating measures and techniques within the hardware to avoid systematic failures and control systematic faults.	Pass. Appropriate devices are provided.
6.2.11.7.3	Software aspects	-
	The software (including internal operating software (or system software) and application software) shall be designed so as to satisfy the performance specification for the safety functions (see also IEC 61508-3)	Not applicable.
	Application software	-
	Application software should not be re-programmable by the user.	Not applicable.
	This may be achieved by use of embedded software in a non re-programmable memory (e.g. micro-controller, application specific integrated circuit (ASIC)	Not applicable
	When the application requires reprogramming by the user, the access o the software dealing with safety functions should be restricted e.g. by : - locks; - passwords for the authorized persons	Not applicable
6.2.11.8	Principles relating to manual control	-
	a) Manual control devices shall be designed and located	Pass. Manual control devices

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	according to the relevant ergonomic principles given in 6.2.8	have been designed and located according to the relevant ergonomic principles given in 4.8.7.
	b) A stop control device shall be placed near each start control device. Where the start/stop function is performed by means of a hold-to-run control, a separate stop control device shall be provided when a risk can result from the hold-to-run control device failing to deliver a stop command when released.	Pass. A stop control device has been placed near each start control device.
	c) Manual controls shall be located out of reach of the danger zones (see IEC 61310-3), except for certain controls where, of necessity, they are located within a danger zone, such as emergency stop or teach pendant.	Pass. Manual controls have been located out of reach of the danger zones.
	d) Whenever possible, control devices and control positions shall be located so that the operator is able to observe the working area or hazard zone.	Pass. The control devices and control positions have been located so that the operator is able to observe the working area or hazard zone.
	The driver of a ride-on mobile machine shall be able to actuate all control devices required to operate the machine from the driving position, except for functions which can be controlled more safely from other positions.	Not applicable.
	On machinery intended for lifting persons, controls for lifting and lowering and, if appropriate, for moving the carrier, shall generally be located in the carrier. If safe operation requires controls to be situated outside the carrier, the operator in the carrier shall be provided with the means of preventing hazardous movements.	Not applicable.
	e) if it is possible to start the same hazardous element by means of several controls, the control circuit shall be so arranged that only one control is effective at a given time. This applies especially to machines which can be manually controlled by means among others of a portable control unit (teach pendant, for instance), with which the operator may enter danger zones.	Not applicable.
	f) Control actuators shall be designed or guarded so that their effect, where a risk is involved, cannot occur without intentional operation (see ISO 9355-1 and ISO 447)	Pass. Control actuators have been designed or guarded so that their effect, where a risk is involved, cannot occur without intentional operation.
	g) For machine functions whose safe operation depends on permanent, direct control by the operator, measures shall be taken to ensure the presence of the operator at the control position , e.g. by the design and location of control devices.	Pass. This requirement is complied with.
	h) For cableless control an automatic stop shall be	Not applicable.

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	performed when correct control signals are not received, including loss of communication (see IEC 60204-1)	
6.2.11.9	Control mode for setting, teaching, process changeover, fault-finding, cleaning or maintenance	-
	Where, for setting, teaching, process changeover, fault-finding, cleaning or maintenance of machinery, a guard has to be displaced or removed and/or a protective device has to be disabled, and where it is necessary for the purpose of these operations for the machinery or part of the machinery to be put in operation, safety of the operator shall be achieved using a specific control mode which simultaneously:	Not applicable.
	- disables all other control modes;	Not applicable.
	- permits operation of the hazardous elements only by continuous actuation of an enabling device, a hold-to-run control device or a two-hand control device;	Not applicable.
	- permits operation of the hazardous elements only in reduced risk conditions (e.g. reduced speed, reduced power/force, step-by-step operation, e.g. with a limited movement control device)	Not applicable.
	prevents any operation of hazardous functions by voluntary or involuntary action on the machine's sensors.	Not applicable.
	This control mode shall be associated with one or more of following measures:	Not applicable.
	- restriction of access to the danger zone as far as possible.	Not applicable.
	- emergency stop control within immediate reach of the operator;	Not applicable.
	- portable control unit (teach pendant) and/or local controls allowing sight of the controlled elements.(see IEC 60204-1:1997, 9.2.4)	Not applicable.
6.2.11.10	Selection of control and operating modes	-
	If machinery has been designed and built to allow for its use in several control or operating modes requiring different protective measures and/or work procedures (e.g. to allow for adjustment , setting, maintenance, inspection), it shall be fitted with a mode selector which can be locked in each position.	Pass. This requirement is complied with.
	Each position of the selector shall be clearly identifiable and shall exclusively allow one control or operating mode.	Pass. This requirement is complied with.
	The selector may be replaced by another selection means which restricts the use of certain functions of the machinery to certain categories of operators (e.g. access codes for certain numerically controlled functions).	Pass. This requirement is complied with.
6.2.11.11	Applying measures achieve electromagnetic compatibility (EMC)	-

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	For guidance on electromagnetic compatibility, see IEC 60204-1, and IEC 61000-6 series.	Not applicable.
6.2.11.12	Provision of diagnostic systems to aid fault-finding	-
	Diagnostic systems to aid fault finding should be included in the control system so that there is no need to disable any protective measures.	Pass. Diagnostic systems are provided.
6.2.12	Minimizing the probability of failure of safety functions	-
6.2.12.1	General	
	Safety of machinery is not only dependent on the reliability of the control systems but also on the reliability of all parts of the machine. The continued operation of the safety functions is essential for the safe use of the machine. This can be achieved by :	Pass.
6.2.12.2	Use of reliable components	-
	“Reliable components” means components which are capable of withstanding all disturbances and stresses associated with the usage of the equipment in the conditions of intended use (including the environmental conditions), for the period of time or the number of operations fixed for the use, with a low probability of failures generating a hazardous malfunctioning of the machine. Components shall be selected taking into account all factors mentioned above (see also 6.2.13)	Pass. Reliable components have been used.
6.2.12.3	Use of “oriented failure mode” components	-
	“Oriented failure mode” components or systems are those in which the predominant failure mode is known in advance and which can be used so that such a failure leads to a non-hazardous alteration of the machine function.	Not applicable.
	The use of such components should always be considered, particularly in cases where redundancy is (see 6.2.12.4) not employed.	Not applicable.
6.2.12.4	Duplication (or redundancy) of components or subsystems	-
	In the design of safety-related parts of the machine, duplication (or redundancy) of components may be used so that, if one component fails, another component (or other components) continue(s) to perform its (their) function, thereby ensuring that the safety function remains available.	Not applicable.
	In order to allow the proper action to be initiated, component failure shall be preferably detected by automatic monitoring (see 6.2.11.6) or in some circumstances by regular inspection,	Not applicable.
	provided that the inspection interval is shorter than the expected lifetime of the components.	Not applicable.
	Diversity of design and/or technology can be used to avoid common cause failures (e.g. from electromagnetic	Not applicable.

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	disturbance) or common mode failures.	
6.2.13	Limiting exposure to hazards through reliability of equipment	-
	Increased reliability of all component parts of machinery reduces the frequency of incidents requiring rectification, thereby reducing exposure to hazards.	Pass. This requirement is complied with.
	This applies to power systems (operative part) as well as to control systems, to safety functions as well as to other functions of machinery.	Pass. This requirement is complied with.
	Safety-critical components (as e.g. certain sensors) with a known reliability shall be used.	Pass. Safety-critical components are used in this machine.
	The elements of guards and of protective services shall be particularly reliable, as their failure can expose persons to hazards, and also as poor reliability would encourage attempts to defeat them.	Pass. This requirement is complied with.
6.2.14	Limiting exposure to hazards through mechanization or automation of loading(feeding) /unloading (removal) operations	-
	Mechanization and automation of machine loading/unloading operations and more generally of handling operations (of workpieces, materials, substances) limit the risk generated by these operations by reducing the exposure of persons to hazards at the operating points.	Pass. This requirement is complied with.
	Automation can be achieved e.g. by robots, handling devices, transfer mechanisms, air blast equipment.	Pass. This requirement has been complied with by design.
	Mechanization can be achieved, e.g. by feeding slides, push rods, hand-operated indexing tables.	Pass. This requirement has been complied with by design.
	While automatic feeding and removal devices have much to offer in preventing accidents to machine operators, they can create danger when any faults are being rectified.	Pass. Appropriate provisions have been provided.
	Care shall be taken to ensure that the use of these devices does not introduce further hazards (e.g. trapping, crushing) between the devices and parts of the machine or workpieces/materials being processed.	Pass. These devices will not introduce further hazards
	Suitable safeguards (see 6.3) shall be provided if this cannot be ensured.	Pass. Please see the related clause.
	Automatic feeding and removal devices with their own control systems and the control systems of the associated machine shall be interconnected after thoroughly studying how all safety functions are performed in all control and operation modes of the whole equipment.	Pass. This requirement has been complied with by design.
6.2.15	Limiting exposure to hazards through location of the setting and maintenance points outside of danger zones.	Pass.
	The need for access to danger zones shall be minimized by locating maintenance, lubrication and setting points	Pass.

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	outside these zones.	
6.3	Safeguarding and complementary protective measures	-
6.3.1	General	-
	Guards and protective devices shall be used to protect persons whenever inherently safe design does not reasonably make it possible either to remove hazards or to sufficiently reduce risks. Complementary protective measures involving additional equipment (e.g. emergency stop equipment)may have to be implemented.	Pass. Appropriate guards and protective devices have been used to protect persons whenever inherently safe design does not reasonably make it possible either to remove hazards or to sufficiently reduce risks.
	The different kinds of guards and protective devices are defined in 3.27 and 3.28.	Pass. Please see the related clause.
	Certain safeguards may be used to avoid exposure to more than one hazard (e.g. a fixed guard preventing access to a zone where a mechanical hazard is present being used to reduce noise level and collect toxic emissions)	Pass. Such safeguards exist.
6.3.2	Selection and implementation of guards and protective devices	-
6.3.2.1	General	-
	This subclause gives guidelines for the selection and the implementation of guards and protective devices the primary purpose of which is to protect persons against hazard generated by moving parts, according to the nature of those parts (see figure 4) and to the need for access to the danger zone(s).	Pass. Please see the related clause.
	The exact choice of a safeguard for a particular machine shall be made on the basis of the risk assessment for that machine.	Pass.
	In selecting an appropriate safeguard for a particular type of machinery or hazard zone, it shall be borne in mind that a fixed guard is simple and shall be used where access of an operator to the danger zone is not required during normal operation (operation without any malfunction) of the machinery.	Pass.
	As the need for frequency of access increase this inevitably leads to the fixed guard not being replaced.	Pass. This requirement is complied with.
	This requires the use of an alternative protective measure (movable interlocking guard, sensitive protective equipment.)	Pass. Sensitive protective equipments is used.
	A combination of safeguards may sometimes be required. For example , where, in conjunction with a fixed guard, a mechanical loading (feeding) device is used to feed a workpiece into a machine, thereby removing the need for access to the primary hazard zone, a trip device may be required to protect against the secondary drawing-in or shearing hazard between	Not applicable.

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	the mechanical loading (feeding) device, when reachable, and the fixed guard.	
	Consideration shall be given to the enclosure of control positions or intervention zones to provide combined protection against several hazards which may include:	Pass. This requirement has been taken in to consideration.
	- hazards from falling or ejected objects (e.g. falling object protection structure)	Pass. No such hazards exist in this machine.
	- emission hazards (e.g. protection against noise, vibration, radiation , harmful substances)	Pass. No such hazards exist in this machine.
	- hazards due to the environment (e.g. protection against heat, cold, foul weather)	Pass. No such hazards exist in this machine.
	- hazards due to tipping over or rolling over of machinery (e.g. roll-over or tip-over protection structure)	Pass. No such hazards exist in this machine.
	The design of such enclosed work stations (e.g. cabs and cabins) shall take into account ergonomic principles concerning visibility, lighting, atmospheric conditions, access, posture.	Pass. Ergonomic principles have been taken into account during design.
6.3.2.2	Where access to the hazard zone is not required during normal operation	-
	Where access to the hazard zone is not required during normal operation of the machinery, safeguard should be selected from the following:	-
	a) fixed guard (see also ISO 14120)	Pass. Fixed guards are provided.
	b) interlocking guard with or without guard locking (see also 6.3.3.2.3, ISO 14119, ISO 14120);	Pass.
	c) self-closing guard (see ISO 14120:2002, 3.3.2)	Not applicable.
	d) sensitive protective equipment, e.g. electro-sensitive protective equipment (see IEC 61496) or pressure sensitive mat (see ISO 13856)	Not applicable.
6.3.2.3	Where access to the hazard zone is required during normal operation	-
	Where access to the hazard zone is required during normal operation of the machinery , safeguards should be selected from the following:	-
	a) interlocking guard with or without guard locking (see also ISO 14119, ISO 14120 and 6.3.3.2.3 of this standard);	Not applicable.
	b) sensitive protective equipment, e.g electro-sensitive protective equipment (see IEC 61496)	Not applicable.
	c) adjustable guard;	Not applicable.
	d) self-closing guard (see ISO 14120:2002, 3.3.2)	Not applicable.
	e) two-hand control device (see ISO 13851)	Not applicable.
	f) interlocking guard with a start function (control guard) (see 6.3.3.2.5 of this standard)	Pass.
6.3.2.4	Where access to the hazard zone is required for machine setting, teaching, process changeover, fault finding,	-

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	cleaning or maintenance.	
	As far as possible, machines shall be designed so that the safeguards provided for the protection of the production operator may ensure also the protection of personnel in charge of setting, teaching, process changeover, fault finding, cleaning or maintenance without hindering them in performing their task.	Not applicable.
	Such tasks shall be identified and considered in the risk assessment as parts of the use of the machine (see 5.2)	Not applicable.
6.3.2.5	Selection and implementation of sensitive protective equipment	-
6.3.2.5.1	Selection	-
	Due to the great diversity of the technologies on which their detection function is based, all types of sensitive protective equipment are far from being equally suitable for safety applications.	Not applicable.
	The following provisions are intended to provide the designer with criteria for selecting , for each application , the most suitable device(s).	Not applicable.
	Types of sensitive protective equipment include, e.g.:	-
	- light curtains;	Not applicable.
	- scanning devices as, e.g. laser scanners;	Not applicable.
	- pressure sensitive mats;	Not applicable.
	- trip bars, trip wires.	Not applicable.
	Sensitive protective equipment can be used:	-
	- for tripping purposes;	Not applicable.
	- for presence sensing;	Not applicable.
	- for both tripping and presence sensing	Not applicable.
	- to re-initiate machine operation, a practice which is subject to stringent conditions.	Not applicable.
	The following characteristics of the machinery, among others, can preclude the sole use of sensitive protective equipment:	-
	- tendency for the machinery to eject materials or component parts;	Not applicable.
	- necessity to guard against emissions (noise, radiation, dust, etc.)	Not applicable.
	- erratic or excessive machine stopping time;	Not applicable.
	- inability of a machine to stop part-way through a cycle.	Not applicable.
6.3.2.5.2	Implementation	-
	consideration should be given to :	-
	a) - size, characteristics and positioning of the detection zone (see ISO 13855, which deals with the positioning of some types of sensitive protective equipment)	Not applicable.

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	b) - reaction of the device to fault conditions (see IEC 61496 for electro-sensitive protective equipment)	
	c)- possibility of circumvention	Not applicable.
	d)- detection capability and its variation over the course of time (e.g. as a result of its susceptibility to different environmental conditions such as the presence of reflecting surfaces, other artificial light sources, sunlight or impurities in the air.	Not applicable.
	sensitive protective equipment shall be integrated in the operative part and associated with the control system of the machine so that:	Not applicable.
	- a command is given as soon as a person or part of a person is detected;	Not applicable.
	- the withdrawal of the person or part of a person detected does not, by itself, restart the hazardous machine function (s); therefore, the command given by the sensitive protective equipment shall be maintained by the control system until a new command is given;	Not applicable.
	- restarting the hazardous machine function(s) results from the voluntary actuation , by the operator, of a control device placed outside the hazard zone, where this zone can be observed by the operator;	Not applicable.
	- the machine cannot operate during interruption of the detection function of the sensitive protective equipment, except during muting phases,;	Not applicable.
	- the position and the shape of detection field prevents, possibly together with fixed guards, a person or part of a person from entering the hazard zone, or being present in it, without being detected.	Not applicable.
6.3.2.5.3	Additional requirements for sensitive protective equipment when used for cycle initiation.	-
	In this exceptional application, starting of the machine cycle is initiated by the withdrawal of a person or of the detected part of a person from the sensing field of the sensitive protective equipment, without any additional start command, hence deviating from the general requirement given in the second point of the dashed list in 6.3.2.5.2, above. After switching on the power supply, or when the machine has been stopped by the tripping function of the sensitive protective equipment, the machine cycle shall be initiated only by voluntary actuation of a start control.	Not applicable.
	Cycle initiation by sensitive protective equipment shall be subject to the following conditions:	
	a) only active optoelectronic protective devices (AOPDs) complying with IEC 61496 series shall be used;	Not applicable.
	b) the requirements for an AOPD used as a tripping and presence-sensing device (see IEC 61496) are satisfied	Not applicable.

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	— in particular, location, minimum distance (see ISO 13855), detection capability, reliability and monitoring of control and braking systems;	
	c) the cycle time of the machine is short and the facility to re-initiate the machine upon clearing of the sensing field is limited to a period commensurate with a single normal cycle;	Not applicable.
	d) entering the sensing field of the AOPD(s) or opening interlocking guards is the only way to enter the hazard zone;	Not applicable.
	e) if there is more than one AOPD safeguarding the machine, only one of the AOPD (s) is capable of cycle re-initiation;	Not applicable.
	f) with regard to the higher risk resulting from automatic cycle initiation, the AOPD and the associated control system comply with a higher safety-related performance than under normal conditions.	Not applicable.
6.3.2.6	Protective measures for stability	-
	If stability cannot be achieved by inherently safe design measures such as weight distribution (see 4.6), it will be necessary to maintain it by protective measures such as the use of :	-
	- anchorage bolts;	Not applicable.
	- locking devices;	Pass
	- movement limiters or mechanical stops;	Pass
	- acceleration or deceleration limiters;	Not applicable.
	- load limiters;	Pass.
	- alarms warning of the approach to stability or tipping limits;	Not applicable.
6.3.2.7	Other protective devices	-
	When a machine requires continuous control by the operator(e.g. mobile machines, cranes) and an error of the operator can generate a hazardous situation, this machine shall be equipped with the necessary devices to enable the operation to remain within specified limits , in particular:	Not applicable.
	- when the operator has insufficient visibility of the hazard zone;	Not applicable.
	- when the operator lacks knowledge of the actual value of a safety –related parameter (e.g. .a distance, a speed, the mass of a load, the angle of a slope)	Not applicable.
	- when hazards may result from operations other than those controlled by the operator;	Not applicable.
	The necessary devices include:	-
	- devices for limiting parameters of movement (distance, angle, velocity , acceleration)	Not applicable.
	- overloading and moment limiting devices:	Not applicable.

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	- devices to prevent collisions or interference with other machines;	Not applicable.
	-device for preventing hazards to pedestrian operators of mobile machinery or other pedestrians;	Not applicable.
	- torque limiting devices, breakage points to prevent excessive stress of components and assemblies;	Not applicable.
	- devices for limiting pressure, temperature;	Not applicable.
	- devices for monitoring emissions;	Not applicable.
	- devices prevent operation in the absence of the operator at the control position;	Not applicable.
	- device to prevent lifting operations unless stabilizers are in place;	Not applicable.
	- devices to limit inclination of the machine on a slope;	Not applicable.
	- devices to ensure that components are in a safe position before traveling;	Not applicable.
	Automatic protective measures triggered by such devices which take operation of the machinery out of the control of the operator (e.g. automatic stop of hazardous movement) should be preceded or accompanied by a warning signal to enable the operator to take appropriate action (see 6.4.3)	Not applicable.
6.3.3	Requirements for the design of guards and protective devices	-
6.3.3.1	General requirements	-
	Guards and protective devices shall be designed to be suitable for the intended use, taking into account mechanical and other hazards involved. Guards and protective devices shall be compatible with the working environment of the machine and designed so that they cannot be easily defeated. They shall provide the minimum possible interference with activities during operation and other phases of machine life, in order to reduce any incentive to defeat them.	Pass. Guards and protective devices have been appropriately designed.
	Guards and protective devices shall :	-
	- be of robust construction.	Pass. This requirement has been taken into account during design.
	- not give rise to any additional hazard;	Pass. This requirement has been taken into account during design.
	- not be easy to by-pass or render non-operational;	Pass. This requirement has been taken into account during design.
	- be located at an adequate distance from the danger zone (see ISO 13857 and ISO 13855).	Pass. This requirement has been taken into account during design.
	- cause minimum obstruction to the view of the production process;	Pass. This requirement has been taken into account during

Clause	Requirement-Test	Verdict and Result-Remark
		design.
	- enable essential work to be carried out on installation and/or replacement of tools and also for maintenance by allowing access only to the area where the work has to be done, if possible without the guard or protective device having to be moved;	Pass. This requirement has been taken into account during design.
	For openings in the guards see ISO 13857	Pass. This requirement has been taken into account during design.
6.3.3.2	Requirements for fixed guards	-
6.3.3.2.1	Functions of guards	-
	The functions that guards can achieve are:	-
	- prevention of access to the space enclosed by guard and/or - containment/capture of materials, workpieces, chips, liquids which may be ejected or dropped by the machine and reduction of emissions(noise, radiation, hazardous substances such as dust, fumes, gases) which may be generated by the machine.	Pass These functions are achieved by fixed guards .
	Additionally, they may need to have particular properties relating to electricity, temperature, fire, explosion, vibration, visibility(see ISO 14120) and operator position ergonomics(e.g. usability, operator's movements, posture, repetitive movements).	Pass These functions are achieved by fixed guards.
6.3.3.2.2	Requirements for fixed guards	-
	Fixed guards shall be securely held in place:	-
	- either permanently (e.g. by welding) - or by means of fasteners (screws, nuts) making removal/opening impossible without using tools; they should not remain closed without their fasteners (see ISO 14120)	Pass All the fixed guards are securely held in place by appropriate fasteners.
6.3.3.2.3	Requirements for movable guards	-
	a) movable guards which provide protection against hazards generated by moving transmission parts shall :	-
	- as far as possible remain fixed to the machinery or other structure (generally by means of hinges or guides) when open;	Not applicable.
	- be interlocking guards (with guard locking when necessary) (see ISO 14119)	Not applicable.
	b) movable guards against hazards generated by non-transmission moving parts shall be designed and associated with the machine control system so that:	-
	- moving parts cannot start up while they are within the operator's reach and the operator cannot reach moving parts once they have started up ; this can be achieved by interlocking guards, with guard locking when necessary.	Not applicable.

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	- they can be adjusted only by an intentional action , such as the use of a tool or a key;	Not applicable.
	- the absence or failure of one of their components prevents starting of the moving parts or stops them; this can be achieved by automatic monitoring (see 4.11.6)	Not applicable.
6.3.3.2.4	Requirements for adjustable guards	-
	Adjustable guards may only be used where the hazard zone cannot for operational reasons be completely enclosed;	Not applicable.
	They shall :	-
	- be designed so that the adjustment remains fixed during a given operation;	Not applicable.
	- be readily adjustable without the use of tools;	Not applicable.
6.3.3.2.5	Requirements for interlocking guards with a start function (control guards)	-
	An interlocking guard with a start function may be used provided that	-
	- all requirements for interlocking guards are satisfied (see ISO 14119)	Not applicable.
	- the cycle time of the machine is short	Not applicable.
	- the maximum opening time of the guard is present to a low value (e.g. equal to the cycle time). When this time is exceeded, the hazardous function(s) cannot be initiated by the closing of the interlocking guard with a start function and resetting is necessary before restarting the machine.	Not applicable.
	- the dimensions or shape of the machine do not allow a person, or part of a person, to stay in the hazard zone or between the hazard zone and the guard while the guard is closed (see ISO 14120)	Not applicable.
	- all other guards whether fixed (removable type) or movable are interlocking guards;	Not applicable.
	- the interlocking device associated with the interlocking guard with a start function is designed in such a way – e.g. by duplication of position detectors and use of automatic monitoring (see 4.11.6)- that its failure cannot lead to an unintended/unexpected start-up;	Not applicable.
	- the guard is securely held open (e.g. by a spring or counterweight)such that it cannot initiate a start while falling by its own weight;	Not applicable.
6.3.3.2.6	Hazards from guards	-
	Care shall be taken to prevent hazards which might be generated by :	-
	- the guard construction (e.g. sharp edges or corners, material);	Pass. No such hazards exist in this machine.
	- the movements of the guards (shearing or crushing	Pass.

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	zones generated by power-operated guards and by heavy guards which are liable to fall)	No such hazards exist in this machine.
6.3.3.3	Technical characteristics of protective devices	-
	Protective devices shall be selected or designed and connected to the control system so as to ensure correct implementation of their safety function (s) is ensured.	Pass. This requirement has been taken into account during design.
	Protective devices shall be selected on the basis of their having met the appropriate product standard (for example, IEC 61496 for active optoelectronic protective devices) or shall be designed according to one or several of the principles formulated in ISO 13849-1 or IEC 62061.	Pass. This requirement has been taken into account during design.
	Protective devices shall be installed and connected to the control system so that they cannot be easily defeated.	Pass. This requirement has been taken into account during design.
6.3.3.4	Provisions for alternative types of safeguards.	-
	Provisions should be made to facilitate the fitting of alternative types of safeguards on machinery where it is known that this fitting will be necessary because the work to be done on it will vary.	Not applicable.
6.3.4	Safeguarding for reducing emissions	-
6.3.4.1	General	-
	If the measures for the reduction of emissions at source mentioned in 6.2.2.2 are not adequate, the machine shall be provided with additional protective measures (see 6.3.4.2 to 6.3.4.5).	Pass. No such hazard exists.
6.3.4.2	Noise	-
	Additional protective measures include, for example: - enclosures (see ISO 15667) - screens fitted to the machine; - silencers (see ISO 14163)	Pass. No such hazard exists.
6.3.4.3	Vibration	-
	Additional protective measures include, for example, damping devices for vibration isolation between the source and the exposed person such as resilient mounting or suspended seats.	Pass. No such hazard exists.
	For measures for vibration isolation of stationary industrial machinery see EN 1299	Pass. No such hazard exists.
6.3.4.4	Hazardous substances	-
	Additional protective measures include, for example: - encapsulation of the machine (enclosure with negative pressure);	- Not applicable.
	- local exhaust ventilation with filtration.	Not applicable.
	- wetting with liquids;	Not applicable.
	- special ventilation in the area of the machine (air curtains , cabins for operators)	Not applicable.
6.3.4.5	Radiation	-

Clause	Requirement-Test	Verdict and Result-Remark
	Additional protective measures include, for example:	-
	- use of filtering and absorption;	Not applicable.
	- use of attenuating screens or guards	Not applicable.
6.3.5	Complementary protective measures	-
6.3.5.1	General	-
	Protective measures which are neither inherently safe design measures, nor safeguarding (implementation of guards and/or protective devices), nor information for use may have to be implemented as required by the intended use and the reasonably foreseeable misuse of the machine. Such measures include, but are not limited to , the ones dealt with in 6.3.5.2 to 6.3.5.6	Pass.
6.3.5.2	Components and elements to achieve the emergency stop function	-
	If following a risk assessment, a machine needs to be fitted with components and elements to achieve an emergency stop function to enable actual or impending emergency situations to be averted, the following requirements apply:	-
	- the actuators shall be clearly identifiable, clearly visible and readily accessible	Pass. The actuators can be clearly identifiable, clearly visible and readily accessible
	- the hazardous process shall be stopped as quickly as possible without creating additional hazards . If this is not possible or the risk cannot be reduced, it should be questioned whether implementation of an emergency stop function is the best solution;	Pass. The hazardous process can be stopped as quickly as possible without creating additional hazards
	- the emergency stop control shall trigger or permit the triggering of certain safeguard movements where necessary.	Pass No this situation exists.
	Once active operation of the emergency stop device has ceased following an emergency stop command, the effect of this command shall be sustained until it is reset.	Pass. Reset is necessary before re-start.
	This reset shall be possible only at that location where the emergency stop command has been initiated. The reset of the device shall not restart the machinery , but only permit restarting.	Pass. This requirement is complied with by appropriate design of the emergency stop.
	More details for the design and selection of electrical components and elements to achieve the emergency stop function are provided in IEC 60204 series.	Pass. Please see the related clauses.
6.3.5.3	Measures for the escape and rescue of trapped persons	-
	Measures for the escape and rescue of trapped persons may consist e.g. of :	-
	- escape routes and shelters in installations generating operator-trapping hazards'	Not applicable.
	- arrangements for moving some elements by hand, after an emergency stop	Not applicable.

Clause	Requirement-Test	Verdict and Result-Remark
	- arrangements for reversing the movement of some elements	Not applicable.
	- anchorage points for descender devices;	Not applicable.
	- means of communication to enable trapped operators to call for help	Not applicable.
6.3.5.4	Measures for isolation and energy dissipation	-
	Especially with regard to their maintenance and repair , machines shall be equipped with the technical means to achieve the isolation from power supply(ies) and dissipation of stored energy as a result of following actions:	-
	a) isolating (disconnecting, separating) the machine (or defined parts of the machine) from all power supplies;	Pass. A main switch with lock is provided.
	b) locking (or otherwise securing) all the isolating units in the isolating position;	Pass. Please see the report for IEC 60204
	c) dissipating or , if this is not possible or practicable, restraining (containing) any stored energy which may give rise to a hazard;	Pass. Please see the report for IEC 60204
	d) verifying, by means of a safe working procedure, that the actions taken according to a), b) and c) above have produced the desired effect.	Pass. Please see the report for IEC 60204
	See ISO 14118:2000, clause 5 and IEC 60204-1:2005, 5.5 and 5.6	
6.3.5.5	Provisions for easy and safe handling of machines and their heavy component parts	-
	Machines and their component parts which cannot be moved or transported by hand shall be provided or capable of being provided with suitable attachment devices for transport by means of lifting gear.	Pass. Appropriate attachments are provided.
	These attachments may be, among others,	-
	- standardized lifting appliances with slings, hooks, eyebolts, or tapped holes for appliance fixing;	Pass. Such devices are used.
	- appliances for automatic grabbing with a lifting hook when attachment is not possible from the ground.	Not applicable.
	- guiding grooves for machines to be transported by a fork truck;	Pass. Such devices are used.
	- lifting gear and appliances integrated into the machine.	Not applicable.
	Parts of machinery which can be removed manually in operation shall be provided with means for their safe removal and replacement; See also 6.4.4c) (item 3).	Pass
6.3.5.6	Measures for safe access to machinery	-
	Machinery shall be so designed as to enable operation and all routine tasks relating to setting and/or maintenance, to be carried out, as far as possible, by a person remaining at ground level.	Pass. These requirements have been taken into account during design.
	Where this is not possible, machines shall have built-in platforms, stairs or other facilities to provide safe access for those tasks, but care should be taken to ensure that	Not applicable.

Clause	Requirement-Test	Verdict and Result-Remark
	such platforms or stairs do not give access to danger zones of machinery.	
	The walking areas shall be made from materials which remain as slip resistant as practicable under working conditions and, depending on the height from the ground, suitable guard-rails (see ISO 14122-3) shall be provided.	Not applicable.
	In large automated installations, particular attention shall be given to safe means of access such as walkways, conveyor bridges or crossover points.	Not applicable.
	Means of access to parts of machinery located at a height shall be provided with collective means of protection against falls (e.g. guard-rails for stairways, stepladders and platforms and/or safety cages for ladders)	Not applicable.
	As necessary , anchorage points for personal protective equipment against falls from a height shall also be provided (e.g. in carriers of machinery for lifting persons or with elevating control sations)	Not applicable.
	Openings shall whenever possible open towards a safe position. They shall be designed to prevent hazards due to unintended opening.	Not applicable.
	The necessary aids for access shall be provided (e.g. steps, handholds). Control devices shall be designed and located to prevent their being used as aids for access.	Not applicable.
	When machinery for lifting goods and/or persons includes landings at fixed levels, these shall be equipped with interlocking guards preventing falls when the platform is not present at the level.	Not applicable.
	Movement of the lifting platform shall be prevented while the guards are open.	Not applicable.
	For detailed provisions see ISO 14122.	Not applicable.
6.4	Information for use	
6.4.1	General requirements	-
	Drafting information for use is an integral part of the design of a machine (see figure 2).	Pass. Please see the related clause.
	Information of use consists of communication links, such as texts, words, signs, signals, symbols or diagrams, used separately or in combination to convey information to the user. It is directed to professional and/or non-professional users.	Pass. All the information is stated in the appropriate place.
6.4.1.2	Information shall be provided to the user about the intended use of the machine, taking into account, notably, all its operating modes.	-
	The information shall contain all directions required to ensure safe and correct use of the machine. With this in view, it shall inform and warn the user about residual risk.	Pass. All the information is stated in the appropriate place.

Clause	Requirement-Test	Verdict and Result-Remark
	The information shall indicate, as appropriate,	-
	- the need for training,	Pass. All the information is stated in the appropriate place.
	- the need for personal protective equipment,	Pass. All the information is stated in the instruction manual.
	- the possible need for additional guards or protective devices (see Figure 2, Footnote d).	Pass. All the information is stated in the appropriate place.
	It shall not exclude uses of the machine that can reasonably be expected from its designation and description and shall also warn about the risk which would result from using the machine in other ways than the ones described in the information, especially considering its reasonably foreseeable misuse.	Pass. All the information is stated in the appropriate place.
6.4.1.3	Information for use shall cover, separately or in combination, transport, assembly and installation, commissioning, use of the machine (setting, teaching/programming or process changeover, operation, cleaning, fault-finding and maintenance) and, if necessary, dismantling, disabling and scrapping.	Pass. All the information is stated in the appropriate place.
6.4.2	Location and nature of the information for use	-
	Depending on the risk , the time when the information is needed by the user and the machine design , it shall be decided whether the information – or parts thereof – are to be given:	Pass. All the information is stated in the appropriate place.
	- in /on the machine itself (see 6.3 and 6.4.4)	Pass. Adequate information is stated in the machine itself.
	- in accompanying documents (in particular instruction handbook , see 6.4.5)	Pass. Adequate information is stated in the accompanying documents
	- on the packaging	Pass. Adequate information is stated on the packaging
	- by other means such as signals and warnings outside the machine.	Pass. Adequate information is stated
	Standardized phrases shall be considered where important messages such as warnings need to be given (see also IEC 62079)	Pass. This requirement is considered.
6.4.3	Signals and warning devices	-
	Visual signals (e.g. flashing lights) and audible signals (e.g. sirens) may be used to warn of an impending hazardous event such as machine start-up or overspeed.	Pass. Signals and warning devices are provided.
	Such signals may also be used to warn the operator before the triggering of automatic protective measures (see last paragraph of 5.2.70	Pass. Please the related clause.
	It is essential that these signals:	-
	- be emitted before the occurrence of the hazardous event;	Pass. This requirement is taken into account during design and selection of the warning

Clause	Requirement-Test	Verdict and Result-Remark
		devices.
	- be unambiguous;	Pass. This requirement is taken into account during design and selection of the warning devices.
	- be clearly perceived and differentiated from all other signals used;	Pass. This requirement is taken into account during design and selection of the warning devices.
	- be clearly recognized by the operator and other persons.	Pass. This requirement is taken into account during design and selection of the warning devices.
	The warning devices shall be designed and located such that checking is easy.	Pass. This requirement is taken into account during design and location of the warning devices.
	The information for use shall prescribe regular checking of warning devices.	Pass. All the related information is stated in the manual.
	The attention of designers is drawn to the risks from “sensorial saturation” which results from too many visual and/or acoustic signals, which may also lead to defeating the warning devices.	-
6.4.4	Markings, signs (pictograms), written warnings	-
	Machinery shall bear all markings which are necessary:	-
	a) for its unambiguous identification, at least :	-
	- name and address of the manufacturer;	Pass. Adequate information is provided.
	- designation of series or type;	Pass. Adequate information is provided.
	- serial number, if any.	Pass. Adequate information is provided.
	b) in order to indicate its compliance with mandatory requirements;	-
	- marking;	Pass. Adequate marking is provided.
	- written indications (e.g. for machines intended for use in potentially explosive atmosphere)	Pass. Adequate information is provided.
	c) for its safe use, e.g. :	-
	- maximum speed of rotating parts;	Pass. Adequate information is provided.
	- maximum diameter of tools;	Pass. Adequate information is provided.
	- mass (expressed in kilograms) of the machine itself and/or of removable parts’	Pass. Adequate information is provided.
	- maximum working load;	Pass. Adequate information is provided.
	- necessity of wearing personal protective equipment;	Pass. Adequate information

Clause	Requirement-Test	Verdict and Result-Remark
		is provided.
	- guard adjustment data;	Not applicable.
	- frequency of inspection.	Pass. Adequate information is provided.
	Information printed directly on the machine should be permanent and remain legible throughout the expected life of the machine.	Pass. This requirement is complied with.
	Signs or written warnings only saying “danger” shall not be used.	Pass. This requirement is complied with.
	Markings, signs and written warnings shall be readily understandable and unambiguous, especially as regards the part of the function(s) of the machine which they are related to.	Pass. This requirement is complied with.
	Readily understandable signs (pictograms) should be used in preference to written warnings.	Pass. This requirement is complied with.
	Signs and pictograms should only be used if they are understood in the culture in which the machinery is to be used.	Pass. This requirement is complied with.
	Markings shall comply with recognized standards (see ISO 2972, ISO 7000, particularly for pictograms, symbols, colours) See IEC 60204 series as regards marking of electrical equipment.	Pass. All the markings are standard.
6.4.5	Accompanying documents (in particular, instruction handbook)	-
6.4.5.1	Contents	-
	The instruction handbook or other written instructions (e.g. on the packaging) shall contain among others:	-
	a) information relating to transport, handling and storage of the machine e.g. :	Pass All the related information is stated in the instruction handbook
	- storage conditions for the machine;	Pass. All the related information is stated in the instruction handbook
	- dimensions, mass value(s), position of the centre (s) of gravity;	Pass. All the related information is stated in the instruction handbook
	- indications for handling (e.g. drawings indicating application points for lifting equipment)	Pass. All the related information is stated in the instruction handbook
	b) information relating to installation and commissioning of the machine, e.g.	-
	- fixing/anchoring and vibration dampening requirements;	Pass. All the related information is stated in the instruction handbook
	- assembly and mounting conditions;	Pass. All the related information is stated in the instruction handbook

Clause	Requirement-Test	Verdict and Result-Remark
	- space needed for use and maintenance;	Pass. All the related information is stated in the instruction handbook
	- permissible environmental conditions (e.g. temperature, moisture, vibration, electromagnetic radiation);	Pass. All the related information is stated in the instruction handbook
	- instructions for connecting the machine to power supply (particularly about protection against electrical overloading);	Pass. All the related information is stated in the instruction handbook
	- advice about waste removal /disposal;	Pass. All the related information is stated in the instruction handbook
	- if necessary, recommendations about protective measures which have to be taken by the user; e.g. additional safeguards (see ISO 12100-1:2003, figure 1, note 4), safety distances, safety signs and signals.	Pass. All the related information is stated in the instruction handbook
	c) information relating to the machine itself, e.g. :	-
	- detailed description of the machine, its fittings, its guards and/or protective devices;	Pass. All the related information is stated in the instruction handbook
	- comprehensive range of applications for which the machine is intended, including prohibited usages, if any , taking into account variations of the original machine if appropriate.	Pass. All the related information is stated in the instruction handbook
	- diagrams (especially schematic representation of safety functions);	Pass. All the related information is stated in the instruction handbook
	- data about noise and vibration generated by the machine, about radiation , gases, vapours, dust emitted by it, with reference to the measuring methods used.	Pass. All the related information is stated in the instruction handbook
	- technical documentation about electrical equipment (see IEC 60204 series)	Pass. All the related information is stated in the instruction handbook
	- documents attesting that the machine complies with mandatory requirements;	Pass. All the related information is stated in the instruction handbook
	d) information relating to the use of the machine, e.g. about:	-
	- intended use;	Pass. All the related information is stated in the instruction handbook
	- description of manual controls (actuators);	Pass. All the related information is stated in the instruction handbook
	- setting and adjustment;	Pass. All the related information is stated in the instruction handbook
	- modes and means for stopping (especially emergency	Pass. All the related

Clause	Requirement-Test	Verdict and Result-Remark
	stop)	information is stated in the instruction handbook
	- risks which could not be eliminated by the protective measures taken by the designer;	Pass. All the related information is stated in the instruction handbook
	- particular risks which may be generated by certain applications, by the use of certain fittings, and about specific safeguards which are necessary for such applications.	Pass. All the related information is stated in the instruction handbook
	- reasonably foreseeable misuse and prohibited usages;	Pass. All the related information is stated in the instruction handbook
	- fault identification and location , repair, and re-starting after an intervention;	Pass. All the related information is stated in the instruction handbook
	- personal protective equipment which need to be used and training required.	Pass. All the related information is stated in the instruction handbook
	e) information for maintenance e.g.	-
	- nature and frequency of inspections for safety functions;	Pass. All the related information is stated in the instruction handbook
	- instructions relating to maintenance operations which require a definite technical knowledge or particular skills and hence should be carried out exclusively by skilled persons (e.g. maintenance staff, specialists)	Pass. All the related information is stated in the instruction handbook
	- instructions relating to maintenance actions (e.g. replacement of parts) which do not require specific skills and hence may be carried out by users (e.g. operators)	Pass. All the related information is stated in the instruction handbook
	- drawings and diagrams enabling maintenance personnel to carry out their task rationally (especially fault-finding tasks)	Pass. All the related information is stated in the instruction handbook
	f) information relating to de-commissioning , dismantling and disposal;	Pass. All the related information is stated in the instruction handbook
	g) information for emergency situations , e.g. :	Pass. All the related information is stated in the instruction handbook
	- type of fire-fighting equipment to be used.	Pass. All the related information is stated in the instruction handbook
	- warning about possible emission or leakage of harmful substance(s), and if possible, indication of means to fight their effects.	Pass. All the related information is stated in the instruction handbook
	h) maintenance instructions provided for skilled persons (second dash in e))and maintenance instructions provided for unskilled persons (third dash in e)), that	Pass. All the related information is stated in the instruction

Clause	Requirement-Test	Verdict and Result-Remark
	should appear clearly separated from each other.	handbook
6.4.5.2	Production of the instruction handbook	-
	a) type and size of print shall ensure the best possible legibility. Safety warnings and/or cautions should be emphasized b the use of colours, symbols and/or large print.	Pass. All the related information is stated in the instruction handbook
	b) information for use shall be given in the language(s) of the country in which the machine will be used for the first time and in the original version. If more than one language are to be used, each language should be readily distinguished from the other(s), and efforts should be made to keep the translated text and the relevant illustration together.	Pass. All the related information is stated in the instruction handbook
	c) whenever helpful to the understanding, text should be supplemented with written details enabling , for instance, manual controls (actuators) to be located and identified; they should not be separated from the accompanying text and should follow sequential operations.	Pass. All the related information is stated in the instruction handbook
	d) consideration should be given to presenting information in tabular form where this will aid understanding. Tables should be adjacent to the relevant text.	Pass. All the related information is stated in the instruction handbook
	e) the use of colours should be considered, particularly in relation to components requiring quick identification.	Pass. All the related information is stated in the instruction handbook
	f) when information for use is lengthy, a table of contents and/or an index should be given.	Pass. All the related information is stated in the instruction handbook
	g) safety-relevant instructions which involve immediate action should be provided in a form readily available to the operator.	Pass. All the related information is stated in the instruction handbook
6.4.5.3	Drafting and editing information for use	-
	a) relationship to model : the information shall clearly relate to the specific model of machine and, if necessary, other appropriate identification (for example, by serial number).	Pass. All the related information is stated in the instruction handbook
	b) communicate principles : when information for use is being prepared, the communication process “see-think-use” should be followed in order to achieve the maximum effect and should follow sequential operations. The questions “how ?” and “why ?” should be anticipated and the answers provided.	Pass. All the related information is stated in the instruction handbook
	c) information for use shall be as simple and as brief as possible, and should be expressed in consistent terms and units with a clear explanation of unusual technical terms.	Pass. All the related information is stated in the instruction handbook

Clause	Requirement-Test	Verdict and Result-Remark
	d) when it is foreseen that a machine will be put to non-professional use, the instructions should be written in a form that is readily understood by the non-professional users. If personal protective equipment is required for the safe use of the machine, clear advice should be given, e.g. on the packaging as well as on the machine, so that this information is prominently displayed at the point of sale.	Pass. All the related information is stated in the instruction handbook
	e) durability and availability of the documents : documents giving instructions for use should be produced in durable form (i.e. they should be able to survive frequent handling by the user). It may be useful to mark them “keep for future reference”. Where information for use is kept in electronic form (e.g. CD, DVD, tape) information on safety-related issues that need immediate action shall always be backed up with a hand copy that is readily available.	Pass. All the related information is stated in the instruction handbook
7	Documentation of risk assessment and risk reduction	
	The documentation shall demonstrate the procedure that has been followed and the results that have been achieved. This includes, when relevant, documentation of	
	a) the machinery for which the risk assessment has been made (for example, specifications, limits, intended use);	Pass. See the risk assessment report in detail.
	b) any relevant assumptions that have been made (loads, strengths, safety factors, etc.);	Pass. See the risk assessment report in detail.
	c) the hazards and hazardous situations identified and the hazardous events considered in the risk assessment;	Pass. See the risk assessment report in detail.
	d) the information on which risk assessment was based (see 5.2):	Pass. See the risk assessment report in detail.
	1) the data used and the sources (accident histories, experience gained from risk reduction applied to similar machinery, etc.);	Pass. See the risk assessment report in detail.
	2) the uncertainty associated with the data used and its impact on the risk assessment;	Pass. See the risk assessment report in detail.
	e) the risk reduction objectives to be achieved by protective measures;	Pass. See the risk assessment report in detail.
	f) the protective measures implemented to eliminate identified hazards or to reduce risk;	Pass. See the risk assessment report in detail.
	g) residual risks associated with the machinery;	Pass. See the risk assessment report in detail.
	h) the result of the risk assessment (see Figure 1);	Pass. See the risk assessment report in detail.
	i) any forms completed during the risk assessment.	Pass. See the risk assessment report in detail.
	Standards or other specifications used to select protective measures referred to in f) above should be referenced.	Pass. The requirements have been taken into account during design.

3. Airborne noise Test result

1. Background

Reading value : 53.3dB(A)

2. Sound pressure level (machine on “Stand by” and normal load condition)

Position	1	2	3	4	5
Reading (dB (A))	55.2	55.6	56.7	54.4	56.7

3. Sound pressure level (machine on full load condition)

Position	1	2	3	4	5
Reading (dB (A))	61.2	61.5	61.8	60.9	61.8

4. Sound power level (where the measuring value of sound pressure level exceeds 85 dB(A))

Position	1	2	3	4	5
Readings (dB (A))	-	-	-	-	-
Position	6	7	8	9	L _w
Readings (dB (A))	-	-	-	-	-

The following is the calculation formula of L_w (Sound power level):

$$L_w = L_{pf} + 10 \times \log (S/S_0)$$

y	L _{pf} is the A-weighted or frequency bank surface sound pressure level	
y	S is the area of the measurement surface in square meters	20 m ²
y	S ₀ is 1 m ²	

Attachment : TESTING PHOTOS



P1 machine

Notice

- 1 · This test report shall be invalidation without the cachet of the testing laboratory.
- 2 · This copied report shall be invalidation without sealed the cachet of the testing laboratory.
- 3 · This report shall be invalidation without tester signature, reviewer signature.
- 4 · This altered report shall be invalidation.
- 5 · Client shall put forward demurrer within 15days after received report.
The testing laboratory shall refuse disposal if exceeded the time limit.
- 6 · The test results presented in this report relate only to the object tested.

TEST REPORT

EN 60204-1:2006+A1:2009+AC:2010

Safety of machinery —Electrical equipment of machines —Part 1: General requirements

Report

Report reference No. : TR2018082401-2LVD

Tested by(+ signature).....: *Downey Xue*

Reviewed by(+ signature).....: *Gao Jiyang*

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Manufacturer

Name:Wenzhou Gaoda Machinery Co., Ltd

Address:Haiyu Ind.Zone, Wengyang District, Yueqing, Zhejiang, 325606

Test specification

Standard : EN 60204-1:2006+A1:2009+AC:2010

Test procedure : CE-LVD

Procedure deviation : N.A.

Non-standard test method : N.A.

General description

This equipment is used to produce paper straw machine equipment, paper straw can be used to suck water, beverages, milk tea, coffee and other liquids. It can also be used as decorating materials on cakes, PARTY, balloons and other articles. It can also be used for making DIY toys.

Brief description of the tested sample(s):



Ambient temperature: 27°C humidity: 50% Complete test was conducted on GDZGJ-5.

GDZGJ-5, GDZGJ-20, PSM-1plus, PSM, UNL-XG50 is series products. They belong to the same circuit type except the difference in power capacity, weight and the dimension.


Conclusion

After test this machine met these requirements of EN 60204-1:2006+A1:2009+AC:2010 standard.

Clause	Requirement-Test	Verdict and Result-Remark
EN 60204-1:2006+A1:2009+AC:2010	Safety of machinery - Electrical equipment of machines Part 1: General requirements.	- Pass
1	Scope	-
	This part of EN 60204 applies to the application of electrical and electronic equipment and systems to machines not portable by hand while working. Including a group of machines working higher level system aspects	Pass. This machine is within this scope.
	This part is applicable to the electrical equipment or parts of the electrical equipment that operate with nominal supply voltages not exceeding 1000V for alternating current and not exceeding 1500V for direct current, and with nominal frequencies not exceeding 200Hz	Pass. The nominal supply voltage for these machines is AC 380V, and the nominal frequency is 50Hz.
2	Normative references	-
3	Definitions	-
4	General requirements	-
4.1	The risks associated with the hazards relevant to the electrical equipment shall be assess as part of the overall requirements for risk assessment of the machine	Pass. See the risk assessment report in detail.
4.2	Selection of equipment	-
	Electrical components and devices shall be suitable for their intended use and shall conform to relevant IEC standards where such exist	Pass. All the Electrical components are suitable for their intended use and conform to relevant IEC standards where such exist.
4.3	Electrical supply	-
	The electrical equipment shall be designed to operate correctly with the relevant conditions of supply	Pass. They can be operated correctly with the relevant conditions of supply.
4.4	Physical environment and operating conditions	-
	Shall be suitable for use as specified: - Electromagnetic compatibility - Ambient air temperature - Humidity - Altitude - Contaminants - Ionizing and non-ionizing radiation - Vibration, shock and bump	Pass. This machine is suitable for use as specified in this clause.
4.5	Transportation and storage	-
	-2.5 °C to + 55 °C And short periods not exceeding 24 h at up to + 70 °C	Pass. This requirement is complied with.
4.6	Provisions for handling	-
	Heavy and bulky equipment shall be moved by cranes or similar equipment	Pass. Appropriate equipments are provided.
4.7	Installation and operation	-
	According to supplier's instructions	Pass. All the related information is

Clause	Requirement-Test	Verdict and Result-Remark
		stated in the instruction manual.
5	Incoming supply conductors terminations and devices for disconnecting and switching off	-
5.1	Incoming supply conductor terminations	-
	Single or multiple power supply	Pass. Single power supply.
	The supply conductors are terminated at the supply disconnection device if not, the separate terminals shall be provided	Pass. Terminated at the supply disconnection device.
	If a neutral conductor is used, it shall be indicated clearly in the technical documentation	Pass. The neutral has been used.
	Labelled N shall be provided for the neutral conductor	Pass. Labelled N
	No connection between the protective bonding circuit and the neutral conductor	Pass.
	All terminals for the incoming supply connection shall be identified clearly	Pass. All of them have been identified clearly.
5.2	Terminal for connection to the external protective earthing system	-
	Shall be in the vicinity of the associated phase conductor terminals	Pass.
	Cross-sectional area of the external protective copper conductor according to table 1	Pass. The cross-sectional area of the external protective copper conductor is selected according to table 1.
	Marking of the external protective conductor with the letters "PE"	Pass. 'PE' is marked.
	Other protective terminals shall be marked with the symbol 	Pass.  has been marked.
	All protective terminals shall be coloured by use of the bicolor combination Green-And-Yellow	Pass.
5.3	Supply disconnecting (isolating) device	-
5.3.1	General	-
	Shall disconnect (isolate) the electrical equipment of the machine from supply when required	Pass. Disconnect the electrical equipment of the machine from supply.
	If two or more supply disconnecting devices are provided, protective interlocks shall be used	Not applicable.
5.3.2	Type	-
	a) Switch-disconnector according to en60947-3 b) A disconnector with auxiliary contact c) Circuit breaker according to EN 60947-2 d) Plug/ socket combination for a machine with a rated current not exceeding 16 A and a total power rating not exceeding 3 kW	Pass. c).
5.3.3	Requirements	-

Clause	Requirement-Test	Verdict and Result-Remark
	Have one OFF and one ON position only	Pass.
	Marked clearly with “I” and “O”	Pass.
	Have a reset(tripped) position between “O” and “I”	Pass.
	Have an external operating handle	Pass.
	The handle should be Black or Grey	Pass.
	Could be locked in the OFF position	Pass.
	Disconnect all live conductors of its power supply circuit	Pass.
	Sufficient breaking capacity	Pass.
5.3.4	Operating handle	-
	Shall be easily accessible and located:0.6 m~1.9 m	Pass. Above 0.6m.
5.3.5	Excepted circuits	-
	Have their own disconnecting device (Recommended)	Not applicable. No excepted circuit has been found.
	If no disconnecting device, the relevant safety requirements shall be complied with	Not applicable. No excepted circuit has been found.
5.4	Devices for switching off for prevention of unexpected start-up	-
	Unexpected start-up shall be prevented (Devices described in 5.3.2 may fulfil this function)	Not applicable. No need.
5.5	Devices shall be provided for disconnecting (isolating) electrical equipment to enable work to be carried out without a risk from electric shock or burn	Pass. Appropriate devices are provided.
5.6	Protection against unauthorized, inadvertent and/or mistaken connection	-
	The devices described in 5.4 and 5.5 shall be equipped with such function	Not applicable. No need.
6	Protection against electric shock	-
6.1	General	See the relevant clauses.
6.2	Protection against direct contact	-
6.2.1	General	-
	Either 6.2.2 or 6.2.3 and, where applicable, 6.2.4 shall be applied	See the relevant clauses.
	When the equipment is located in places open to all persons, measures of either 6.2.3 or 6.2.2 with a min. degree of protection against direct contact corresponding to IP4X or IPXXD shall be applied	Not applicable. This machine shall be located in the factory, and be operated by the authorized persons.
6.2.2	Protection by enclosures	-
	Min protection degree for live parts: IP2X or IPXXB	Pass. IP2X.
	Min. protection degree for top surface:IP4X or IPXXD	Pass. IP4X.
	Opening an enclosure shall only be possible under one of the following conditions:	-
a)	The use of a key or tool is necessary by skilled or instructed persons	Pass.
	Min. protection degree for live parts on the inside of doors:IP1X or IPXXA	Pass. IP2X.
	Min. protection degree for live parts inside the	Pass.


Clause	Requirement-Test	Verdict and Result-Remark
	unclosure:IP2X or IPXXB	IP2X.
b)	The disconnection of live parts inside the enclosure before the enclosure may be opened (Use of the supply disconnecting device)	Pass. Main switch with interlocking is provided.
	Min. protection degree for all parts are still have live after switching off the disconnecting device:IP2X or IPXXB	Not applicable.
	Such parts shall be marked with a warning sign: 	Pass
c)	Opening without the use of a key or a tool and without disconnection of live parts shall be possible only when the min. protection degree is IP2X or IPXXB	Not applicable. No this kind of situation.
6.2.3	Protection by insulation of live parts	-
	Live parts shall be covered by insulation which can only be removed by destruction	Pass.
	Such insulation shall withstand the mechanical, chemical, electrical and thermal stresses under normal service conditions	Pass.
6.2.4	Protection against residual voltages	-
	After disconnecting, any exposed conductive part having a residual voltage that shall be discharged to 60V or less within 5 seconds	Pass. This requirement is complied with.
	If mentioned above is not possible, a warning notice drawing shall be provided	Not applicable.
	If the withdrawal of plugs or similar devices would make the exposure of the conductors (e.g. pins),the discharge time shall not exceed 1 second such conductor shall have the protection degree at least IP2X or IPXXB	Not applicable. No this kind of situation has been found.
6.2.5	Protection by barriers	-
	For protection by barriers, see 412.2 of IEC 60364-4-41	Not applicable.
6.2.6	Protection by placing out of reach or protection by obstacles	-
	For protection by placing out of reach see 412.4 of IEC 60364-4-41	Not applicable.
	For protection by obstacles see 412.3 of IEC 60364-4-41	Not applicable.
	For collector wire systems or collector bar systems with a degree of protection less than IP2X see 13.8.1	Not applicable.
6.3	Protection against indirect contact	-
6.3.1	General	-
	For each circuit or part, at least one of the measures in accordance with 6.3.2 to 6.3.3 shall be applied	See the following descriptions.
6.3.2	Measure to prevent the occurrence of a hazardous touch voltage	-
6.3.2.1	General	-
6.3.2.2	Protection by use of class II equipment or by equivalent insulation	-
	Application of class II equipment or equivalent insulation	Pass. Appropriate insulations have been provided.

Clause	Requirement-Test	Verdict and Result-Remark
6.3.2.3	Protection by electrical separation	-
	Application of electrical separation	Pass.
6.3.2.4	Supply system design	-
	Application of a supply system designed with its neutral point either insulated from or having a high impedance to earth	Not applicable.
6.3.3	Protection by automatic disconnection of supply	-
	Use of the automatic disconnection of supply	Not applicable.
6.4	Protection by the use of PELV	-
6.4.1	General requirements	-
	PELV (protective extra-low voltage) circuits shall satisfy all of the conditions specified in this clause	Not applicable. No PELV circuit has been used.
6.4.2	Sources for PELV	-
	The sources for PELV shall be one of the conditions specified in this clause	Not applicable. No PELV circuit has been used.
7	Protection of equipment	-
7.1	General	-
7.2	Over current protection	-
7.2.1	General	-
7.2.2	Supply conductors	-
	The supplier is not responsible for providing the over current device for the supply conductors	Pass.
	Installation diagram with data necessary for selection of the over current protective device	Pass. Related information is stated in the installation diagram.
7.2.3	Power circuits	-
	All conductors shall be protected against over current (except earthed neutral conductor)	Pass. Appropriate devices against over current are provided.
	Cross-section area of neutral conductor	Pass.
	For neutral conductors smaller than phase conductors then IEC 364-4-473 shall apply	Not applicable.
	In IT-systems, it is recommended that the neutral conductor is not used	Not applicable.
7.2.4	Control circuits	-
	Conductors of control circuits connected to the supply voltage and of circuits feeding control circuit transformers shall be protected against over current in accordance with 7.2.3	Pass. Appropriate devices against over current are provided.
7.2.5	Socket outlets and their associated conductors	-
	Over current protection devices shall be provided in the unearthed live conductors	Pass. Appropriate devices against over current are provided
7.2.6	Lighting circuits	-
	All unearthed conductors of circuits supplying lighting shall be protected against the effects of short circuits by the provision of over current devices separate from those protecting other circuits	Not applicable.

Clause	Requirement-Test	Verdict and Result-Remark
7.2.7	Transformers	-
	Transformers shall be protected against Over current in accordance with IEC 60076-5 and IEC 60743 as appropriate	Pass. All transformers have been protected against over current.
	The type and setting of the overcurrent protective device should be in accordance with the recommendations of the transformer supplier	Pass.
7.2.8	Location of over current protective device	-
	Over current protective device shall be located at the point where the conductors to be protected are connected to their supply	Pass. Over current protective device are installed correctly.
7.2.9	Over current protective devices	-
	Sufficient breaking capacity	Pass.
	Where fuses are used, a type readily available in the country of use shall be selected, or arrangement shall be made with the use for the supply of spare parts	Pass. Spare parts are readily available.
7.2.10	Rating and setting of over current protective devices	-
	The rated current of fuses or the setting current of other over current protective devices shall be selected as low as possible but adequate for the anticipated over currents	Pass. The rated current of fuses are correctly selected.
	The rated current or setting of an over current protective device is determined by the current carrying capacity of the conductors to be protected by that device in accordance with 13.4	Pass. Please see the related clause.
7.3	Overload protection of motors	-
	Overload protection of motors shall be provided for each motor rated at more than 0.5kW	Not applicable
	In applications where an automatic interruption of the motor operation is unacceptable, the overload detection shall give a warning signal to which the operator can respond	Not applicable.
	Detection of overload shall be provided in each live conductor excepted for the neutral conductor	Not applicable
	For motors having single-phase or d.c. power supplies. Detection in only one unearthed live conductor is permitted	Not applicable.
	Automatic restarting of any motor after the operation of overload protection shall be prevented	Not applicable
7.4	Abnormal temperature protection	-
	Use of abnormal temperature protection	Not applicable. No need.
7.5	Protection against supply interruption or voltage reduction and subsequent restoration	-
	Where a voltage drop or a supply interruption can cause a hazardous condition, damage to the machine, or to the work in progress, under voltage protection shall be provided	Not applicable. No this kind of hazard has been found.
	The operation of the under voltage device shall not impair the operation of any stopping control of the machine	Not applicable. No under voltage device is used.

Clause	Requirement-Test	Verdict and Result-Remark
	Upon restoration of the voltage or upon switching on the incoming supply, automatic or unexpected restarting of the machine shall be prevented	Pass. Automatic of unexpected restarting of the machine can be prevented.
	Where only a part of the machine or of the group of machines working together in a coordinated manner is affected by the voltage reduction or supply interruption, the under voltage protection shall initiate appropriate control responses to ensure co-ordination	Not applicable.
7.6	Motor over speed protection	-
	Use of the motor over speed protection	Pass. Over speed of the motor is protected.
7.7	Earth fault/residual current protection	-
	Use of earth fault/residual current protection for automatic disconnection	Not applicable.
7.8	Phase sequence protection	-
	Where an incorrect sequence of the supply voltage can cause a hazardous condition or damage to the machine, protection shall be provided	Not applicable. No such hazards exist.
7.9	Protection against over voltage due to lighting and to switching surges	-
	Protection devices can be provided to protect against the effects of over voltages due to lighting or to switching surges	Not applicable.
8	Equipotential bonding	-
8.1	General	-
8.2	Protective bonding circuit	-
8.2.1	General	-
	On mobile machines with on-board power supplies, it shall be connected to a protective bonding terminal to provide protection against electric shock	Not applicable. Not a mobile machine with on-board power supply.
	When a mobile machine is also capable of being connected to an external incoming supply, the protective bonding terminal shall be the connection point for the external protective conductor	Not applicable.
	All parts of the protective bonding circuit shall be so designed that they are capable of withstanding the highest thermal and mechanical stresses	Pass. This requirement has been complied with.
	Any structural part of the electrical equipment or of the machine may be used as part of protective bonding circuit	Pass. They have been used as part of protective bonding circuit.
	If an IT distribution system is used, the machine structure shall be used as part of the protective bonding circuit in conjunction with an earth fault supervision system	Not applicable.
	The structural bonding is not required where all the equipment provided is in accordance with 6.3.2.2	Pass.
8.2.2	Protective conductors	-
	Protective conductors shall be identified according to	Pass.

Clause	Requirement-Test	Verdict and Result-Remark
	14.2.2	See clause 14.2.2 in detail.
	Copper conductors should be used	Pass.
	Where a conductors material other than copper is used, its electrical resistance per unit length shall not exceed that of the allowable copper conductor and such conductors shall not be less than 16 mm ² in cross-sectional area	Not applicable. Only copper conductors are used.
	The cross-sectional area of protective conductors shall be determined according to the requirements of: -543 of IEC 60364-5-54; or -7.4.3.1.7 of IEC 60439-1, as appropriate	Pass. They have been used according to these requirements.
8.2.3	Continuity of the protective bonding circuit	-
	All exposed conductive parts shall be connected to the protective bonding circuit	Pass. All the parts have been connected.
	Where a part is removed for any reason, the protective bonding circuit for the remaining parts shall not be interrupted	Pass. This requirement is taken into account during design.
	Connection and bonding points shall be so designed that their current-carrying capacity is not impaired by mechanical, chemical, or electrochemical influence	Pass. This requirement is taken into account during design.
	Metal ducts of flexible or rigid construction and metallic cable sheathes shall not be used as protective bonding conductors	Pass. No this kind of construction has been used as protective bonding conductor.
	Nevertheless such metal ducts and the metal sheathing of all connecting cables shall be connected to the protective bonding circuit	Not applicable. No metal duct or metal sheathing has been used.
	Where the electrical equipment is mounted on lids, doors, or cover plates, continuity of the protective bonding circuit shall be ensured and it is recommended that a protective conductor is used	Pass.
	Otherwise fastenings, hinges or sliding contacts designed to have a low resistance shall be used	Pass. All the devices are protected appropriately.
	The continuity of the protective conductor in cables that are exposed to damage shall be ensured by appropriated measures	Pass. Appropriate protection has been provided.
	For requirements for the continuity of the protective conductor using collector wires, collector bars and slip-ring assemblies (see 13.8.2)	Not applicable, No this kind of device is used.
8.2.4	Exclusion of switching devices from the protective bonding circuit	-
	Shall not incorporate a switching device, an over current protective device nor a means for current detection for such devices	Pass.
	The only means permitted for interruption shall be carried out by instructed or skilled persons by using a tool	Pass.
8.2.5	Parts that need not to be connected to the protective bonding circuit	-

Clause	Requirement-Test	Verdict and Result-Remark
	Screws, rivets, and nameplates and to parts inside an enclosure, are not necessary to connect to the protective bonding circuit	Pass.
8.2.6	Interruption of the protective bonding circuits	-
	The protective bonding circuit shall be interrupted only after the live conductors have been interrupted, and shall be re-established before any live conductor is reconnected	Pass. This requirement is taken into account during design.
	Metallic housings of plug/socket combinations shall be connected to the protective bonding circuit except where used for PELV	Pass. All the related devices are connected to the protective bonding circuit.
8.2.7	Protective conductor connecting points	-
	All protective conductors shall be terminated in accordance with 14.1.1	Pass. Please see the related clause.
	Shall have no other function and shall not be used to attach or connect appliances or parts	Pass.
	Use of earthing symbol 	Pass. Earthing symbol is used.
	By the bicolor combination GREEN-AND-YELLOW	Pass. The color is correct.
8.3	Bonding for operational purposes	-
	Use of bonding for operational purpose	See the following descriptions.
8.3.1	General	-
8.3.2	Bonding to the protective circuit	-
	One method for protection against unintended operation as a result of insulation failure is achieved by connection one side of a control circuit fed by a transformer to the protective bonding circuit	Pass. The measure described in this clause has been used.
8.3.3	Bonding to a common reference potential	-
	Use of bonding to a common reference potential	Pass.
9	Control circuits and control functions	-
9.1	Control circuits	-
9.1.1	Control circuit supply	-
	Transformers shall be used for supplying the control circuits	Pass. The transformers have been used.
	Transformers are not mandatory for machines with a single motor starter and a maximum of two control devices	Not applicable.
9.1.2	Control circuit voltages	-
	The nominal voltage shall not exceed 277 V when supplied from a transformer	Pass. The nominal voltage for control circuit is 220V.
9.1.3	Protection	-
	Over current protection shall be provided according to 7.2.4 and 7.2.10	Pass. The over current protection has been provided.
9.1.4	Connection of control devices	-
	Appropriate connection for control devices	Pass. Appropriate connection have been provided.
9.2	Control functions	-
9.2.1	Start functions	-

Clause	Requirement-Test	Verdict and Result-Remark
	Start functions shall operate by energizing the relevant circuit	Pass. This requirement is taken into account during design.
9.2.2	Stop functions	-
	Each machine shall be equipped with appropriate stop functions	Pass. Appropriate stops are provided.
9.2.3	Operating modes	-
	When hazardous conditions can arise from mode selection, such selection shall be prevented by suitable means	Not applicable.
	Mode selection by itself shall not initiate machine operation (A separate action by the operator shall be required)	Not applicable. No automatic mode selection.
	Safeguarding shall remain effective for all operating modes	Not applicable.
	Indication of the selected operating mode shall be provided	Not applicable.
9.2.4	Suspensions of safeguarding	-
	Where it is necessary to suspend safeguarding, a secure provision shall be provided to prevent automatic operation	Pass. Provisions for preventing automatic operation are provided.
9.2.5	Operation	-
9.2.5.1	General	-
	The necessary interlocks (see 9.3) shall be provided for safe operation	Pass. Please see the related clause.
	Measures shall be taken to prevent movement of the machine in an unintended manner after any stopping of the machine	Pass. No unintended operation can be occurred after any stopping of the machine.
9.2.5.2	Start	-
	The start of an operation shall be possible only when all the safeguards are in place and functional (except described in 9.2.4)	Pass. Appropriate interlocks are provided.
	Hold-to-run control shall be used for the others machines, as appropriate	Not applicable.
	Suitable interlocks shall be provided to secure correct sequential starting	Pass. Suitable interlocks are provided.
	The use of more than one control station to initiate a start	Not applicable. Only one control station is used.
9.2.5.3	Stop	-
	Category 0, category 1 and/or category 2 stops shall be provided where indicated by the risk assessment and the functional requirements of the machines	Pass. Category 0 and category 1 stops are provided.
	Stop functions shall override related start functions	Pass. Stop functions have priorities over start functions.
9.2.5.4	Emergency operations (emergency stop, emergency switching off)	-
9.2.5.4.1	General	-
9.2.5.4.2	Emergency stop	-
	Shall function either as a category 0 stop or as a category	Not applicable.

Clause	Requirement-Test	Verdict and Result-Remark
	1 stop	
	The choice of the emergency stop shall be determined by the risk assessment of the machine	Not applicable.
	Where a category 0 stop is used for emergency stop function, it shall have only hard-wired electromechanical components	Not applicable. No category 0 stop is used for emergency stop function.
	The operation of emergency stop shall not depend on electronic logic or on the transmission of commands over a communications network or link	Not applicable.
	Where a category 1 stop is used for the emergency stop function, final removal of power to the machine actuators shall be ensured and carried out by means of electromechanical components	Not applicable.
9.2.5.4.3	Emergency switching off	-
	Use of emergency switching off	Not applicable.
9.2.5.5	Monitoring of command actions	-
	Movement or action of a machine or part of a machine that can result in a hazardous condition shall be monitored	Pass. They have been monitored by the controller during the working of the machine.
9.2.5.6	Hold-to-run controls	-
	Hold-to run controls shall require continuous actuation of the control devices to achieve operation	Not applicable. No hold-to-run control has been used.
9.2.5.7	Two-hand control	-
	Three types of two-hand control are available, the selection of which is determined by the assessment	Not applicable. No two-hand control has been used.
9.2.5.8	Enabling device	-
	It shall be designed to allow motion when actuated in one position only (In any other position motion shall be stopped)	Pass. These machines have been designed to allow motion when actuated in one position only.
9.2.6	Combined start and stop controls	-
	Push-buttons and similar devices that, when operated, alternately initiate and stop motion shall only be used for functions which cannot result in a hazardous condition	Not applicable. No this kind of device has been used.
9.2.7	Cableless control	-
9.2.7.1	General	-
	Means shall be provided to readily remove or disconnect the power supply of the operator control station	Not applicable. No cableless control is used.
	Means shall be provided, as necessary, to prevent unauthorized use of the operator control station	Not applicable. No cableless control is used.
	Each operator control station shall carry an unambiguous indication of which machine is intended to be controlled by that operator control station	Not applicable. No cableless control is used.
9.2.7.2	Control limitation	-
	Measures shall be taken to prevent the machine from responding to signals other than those from the intended	Not applicable. No cableless control is used.

Clause	Requirement-Test	Verdict and Result-Remark
	operator control station	
	Where necessary, means shall be provided so that the machine can only be controlled from operator control station in one or more predetermined zones or locations	Not applicable. No cableless control is used.
9.2.7.3	Stop	-
	Operator control stations shall include a separate and clearly identifiable means to initiate the stop function of the machine or of all the motions that can cause a hazardous condition	Not applicable. No cableless control is used.
	The actuating means to initiate this stop function shall not be marked or labeled as an emergency stop device	Not applicable. No cableless control is used.
	A machine which is equipped with cableless control shall have a means of automatically initiating the stopping of the machine and of preventing a potentially hazardous operation	Not applicable No cableless control is used.
9.2.7.4	Series data communication	-
	In a machine where the control of safety-related functions relies on series data transfer, correct communications shall be ensured by using an error detection method that is able to cope with up to three error bits in any command sequence	Not applicable No cableless control is used.
9.2.7.5	Use of more than one operator control station	-
	Where a machine has more than one operator control station, measures shall be taken to ensure that only one control station can be enabled at a given time	Not applicable No cableless control is used.
	An indication of which operator control station is in control of the machine shall be provided at suitable locations as determined by the risk assessment of the machine	Not applicable No cableless control is used.
9.2.7.6	Battery-powered operator control stations	-
	A variation in the battery voltage shall not cause a hazardous condition	Not applicable No cableless control is used.
	If one or more potentially hazardous motions are controlled using a battery-powered operator control station, a clear warning shall be given to the operator when a variation in battery voltage exceeds specified limits	Not applicable No cableless control is used.
	Under those circumstances, the operator control station shall remain functional long enough to put the machine into a non-hazardous condition	Not applicable No cableless control is used.
9.3	Protective interlocks	-
9.3.1	Reclosing or resetting of an interlocking safeguard	-
	The reclosing or resetting of an interlocking safeguard shall not initiate machine motion or operation	Pass No safeguard can initiate machine motion or operation
9.3.2	Over travel limits	-
	Use of a position sensor or limit switch	Not applicable.
9.3.3	Operation of auxiliary functions	-

Clause	Requirement-Test	Verdict and Result-Remark
	The correct operation of auxiliary functions shall be checked by appropriate devices	Not applicable.
	Use of appropriate interlocking	Not applicable.
9.3.4	Interlocks between different operations and for contrary motions	-
	Interlocking shall be provided against incorrect operation	Pass. Appropriate interlocking has been provided.
9.3.5	Reverse current braking	-
	Use of reverse current braking	Not applicable.
9.4	Control functions in the event of failure	-
9.4.1	General requirements	-
	Provision of control functions in case of failure according to the level of risk assessment	Pass. According to the risk assessment.
9.4.2	Measures to minimize risk in the event of failure	-
9.4.2.1	Use of proven circuit techniques and components	-
	Use of proven circuit techniques and components	Pass. Appropriate components have been used.
9.4.2.2	Provisions for redundancy	-
	Provisions for redundancy	Not applicable. Appropriate provisions have been taken.
9.4.2.3	Use of diversity	-
	Use of diversity	Not applicable. Appropriate provisions have been taken.
9.4.2.4	Functional tests	-
	Carried out automatically by the control system or manually by inspection	Pass. By inspection manually.
9.4.3	Protection against maloperation due to earth faults, voltage interruptions and loss of circuit continuity	-
9.4.3.1	Earth faults	-
	Bonding to the protective bonding circuit may be provided according to 8.2 and the devices may be connected as described in 9.1.4	Pass. Make reference to the relevant clauses.
9.4.3.2	Voltage interruptions	-
	Where a memory device is used, proper functioning in the event of power failure shall be ensured to prevent any loss of memory that can result in a hazardous condition	Pass. Any loss of memory can't result in a hazardous condition.
9.4.3.3	Loss of circuit continuity	-
	Where the loss of continuity of safety-related control circuits depending upon sliding contacts can result in hazardous condition, appropriate measures shall be taken	Not applicable. No this kind of situation.
10	Operator interface and machine-mounted control devices	-
10.1	General	-
10.1.1	General device requirements	-
	As far as is practicable, those devices shall be selected, mounted, and identified or coded according to IEC 60073 and IEC 60447	Pass. These requirements appropriate for this machine have been complied with.
10.1.2	Location and mounting	-
	Appropriate location mounting for machine-mounted and	Pass

Clause	Requirement-Test	Verdict and Result-Remark
	hand-operated control devices	
10.1.3	Protection	-
	Operator and machine mounted control devices shall withstand the stress of expected use	Pass. They can withstand the stress of expected use.
	The operator interface control devices shall have a min. degree of protection: IPXXD	Pass. IP2XD.
10.1.4	Position sensors	-
	Position sensors shall not be damaged in the event of over travel	Not applicable.
	Position sensors used in circuits with safety-related functions either shall have positive opening operation or shall provide similar reliability	Not applicable.
10.1.5	Portable and pendant control stations	-
	Portable and pendant control stations and their control devices shall be so selected and arranged as to minimize the possibility of inadvertent machine operations caused by shocks and vibrations	Not applicable.
10.2	Push-buttons	-
10.2.1	Colors	-
	Push-button actuators shall be color -coded according to table 2	Pass. Their colors are according to table 2.
10.2.2	Markings	-
1.2.3	Use of adequate markings for push-buttons	Pass. Adequate markings are used.
10.3	Indicator lights and displays	-
10.3.1	Modes of use	-
	Indication and /or confirmation	Pass
10.3.2	Colors	-
	Color-coded according to table 3 (Unless otherwise agree between the supplier and the user)	Pass. Their colors are according to table 3.
10.3.3	Flashing lights	-
	Use of flashing lights	Not applicable.
10.4	Illuminated push-buttons	-
	Color-coded according to table 2 and 3	Pass. Their colors are according to table 3.
10.5	Rotary control devices	-
	Devices having a rotational member shall be mounted to prevent rotation of the stationary member (Friction alone shall not be sufficient)	Pass. Appropriate measure has been provided to prevent rotation of the stationary member.
10.6	Start devices	-
	Shall be constructed and mounted to minimise inadvertent operation	Pass. Flat type start push -buttons are used to prevent inadvertent operation.
10.7	Devices for emergency stop	-
10.7.1	Location	-

Clause	Requirement-Test	Verdict and Result-Remark
	Devices for emergency stop shall be readily accessible	Not applicable.
	Emergency stop devices shall be located at each operator control station and at other locations where the initiation of an emergency stop can be required	Not applicable.
10.7.2	Types	-
	Use of type - a push-button operated switch - a pull-cord operated switch - a pedal-operated switch without a mechanical guard	Not applicable.
	Shall be of the self-latching type and shall have positive opening operation	Not applicable.
10.7.3	Restoration of normal function after emergency stop	-
	It shall not be possible to restore an emergency stop circuit until all emergency stop devices have been manually reset	Not applicable.
10.8.5	Local operation of the supply disconnecting device to effect emergency switching off	-
	Where the supply disconnecting device is to be locally operated for emergency switching off, it shall be readily accessible and should meet the colour requirements of 10.8.4	Not applicable.
10.9	Displays	Pass.
11	Electronic equipment	-
11.1	General	-
11.2	Basic requirements	-
11.2.1	Inputs and outputs	-
	Status indication of all digital inputs and outputs should be provided	Pass. This function has been provided.
11.2.2	Equipotential bonding	-
	Electrically bonded together according to the supplier's specifications	Pass. According to the supplier's specifications.
11.3	Programmable equipment	-
11.3.1	Programmable controllers	-
	Programmable controllers shall conform to relevant IEC standards	Not applicable.
11.3.2	Memory retention and protection	-
	Means shall be provided to prevent memory alteration by unauthorized persons and the requirements detailed in 9.4.3.2 shall apply	Pass. The modification of the controller is only possible by authorized persons and the requirements in 9.4.3.2 has been applied.
11.3.3	Software verification	-
	Shall have means for verifying	Not applicable
11.3.4	Use in safety-related functions	-
	Programming electronic equipment shall not be used for category 0 emergency stop functions.	Pass. This requirement has been complied with.
12	Control gear: location, mounting, and enclosures	-
12.1	General requirements	-

Clause	Requirement-Test	Verdict and Result-Remark
12.2	Location and mounting	-
12.2.1	Accessibility and maintenance	-
	All control gears can be identified without moving or the wiring	Pass. All of them can be identified without moving or the wiring.
	Replacement without dismantling other equipment or parts of the machine	Pass. They can be replaced without dismantling other equipment or parts of the machine.
	Terminals not associated with control gear shall also comply with the requirements mentioned above	Pass. Those relative requirements have been complied with.
	Facilitate operation and maintenance from the front	Pass.
	Use of special tools (if necessary)	Pass. Key for enclosure door.
	If access is required for regular maintenance or adjustment, the devices shall be located between 0.4 m and 2.0 m above the severing level	Pass. This requirement has been complied with.
	It is recommended that terminals be at least 0.2m above the servicing level and so placed that connectors and cables can be easily connected to them	Pass. Above 0.2m and can be connected easily.
	Except those for operating, indicating, measuring and cooling, no devices shall be mounted on doors, and normally removable access covers, of enclosures	Pass. No this kind of mounting.
	If control devices are connected through plug-in arrangements, their association shall be made clear by type (shape), marking or designation, singly or in combination.	Not applicable. No control device is connected through plug-in arrangement.
	Plug in devices shall be provided with non-interchangeable features	Not applicable. No Plug-in device is used.
	Use of plug/socket combinations shall be unobstructed access	Not applicable. No plug/socket combinations.
12.2.2	Physical separation or grouping	-
	Non-electrical parts and devices not directly associated with the electrical equipment shall not be located within enclosures containing control gear	Pass. No this kind of parts or devices are located within enclosures containing control gear.
	Devices such as solenoid valves should be separated from the other electrical equipment	Pass. All solenoid valves have been separated from the other electrical equipment.
	Control devices mounted in the same location and connected to the supply voltage, or to both supply and control voltages, shall be grouped separately from those connected only to the control voltages	Pass. Appropriate separation has been taken.
	Terminals shall be separated into groups for : power circuits; associated control circuits other control circuits, fed from external sources	Pass. They have been separated appropriately.
	The clearances and creep distances specified for the devices shall be maintained	Pass. Appropriately clearances and creep distances have been


Clause	Requirement-Test	Verdict and Result-Remark
		provided.
12.2.3	Heating effects	-
	Heat generating components shall be located so that the temperature of each component in the vicinity remains within the permitted limit	No applicable. No heating element.
12.3	Degrees of protection	-
	Enclosures of control gear: at least IP 22	Pass. IP23.
12.4	Enclosures, doors and openings	-
	Enclosure shall be constructed using materials capable of withstanding the mechanical, electrical and thermal stresses	Pass. The material (metal plate with painting) used for enclosure can withstand the mechanical, electrical and thermal stresses.
	Fasteners used to secure doors and covers should be of the captive type	Pass. Captive type.
	Windows provided for viewing internally mounted indicating devices shall be of a material suitable to withstand mechanical stress and chemical attack	Not applicable. No this kind of window.
	It is recommended that enclosures doors shall have: Not wider than 0.9 m Vertical hinges Lift-off type Angle of opening at least 95 °	Pass. These requirements have been taken.
	If enclosures which readily allow a person fully to enter, the relevant requirements specified in this clause shall be comply	Not applicable. No this kind of situation.
	The joints or gaskets of doors, lids, covers and enclosures shall withstand the chemical effects of the aggressive liquids, vapours, or gases used on the machine	Pass. They can withstand the chemical effects of the aggressive liquids, vapours, or gases used on the machine.
	The means used to maintain the degree of protection of an enclosure on doors, lids and covers that require opening or removal for operation or maintenance shall be secured	Pass. They can be secured firmly.
	The degree of protection for all openings in the enclosures shall be secured	Pass. The degree of protection can be secured.
	Openings for cable shall be easily re-opened on site	Pass. They can be re-opened easily.
	There shall be no opening between enclosures containing electrical equipment and compartments containing coolant, lubricating or hydraulic fluids, or those into which oil, other liquids, or dust can penetrate	Pass. No this kind of opening has been found.
	The requirement mentioned above does not apply to electrical devices specially designed to operate in oil nor to electrical equipment in which coolants are used	Not applicable.
	Where there are holes in an enclosure for mounting purpose, the degree of protection for the enclosure shall	Pass. Appropriate protection degree

Clause	Requirement-Test	Verdict and Result-Remark
	be secured	can be secured.
	Equipment that, can attain a surface temperature sufficient to cause a risk of fire or harmful effect to an enclosure material, the relevant requirements shall be complied	Not applicable. No this kind of equipment.
12.5	Access to control gear	-
	The min. dimensions of gangways in front of and between control gear shall be according to 481.2.4 of IEC 60364-4-481	Not applicable. No this kind of gangway has been found.
	Doors in gangways and for access to electrical operating areas shall: be at least 0.7 m wide and 2.0 m high; open outward; have a menace to allow opening from the inside without the use of a key or tool	Not applicable. No this kind of gangway has been found.
13	Conductors and cables	-
13.1	General requirements	-
	Conductors and cables shall be selected so as to be suitable for the operating conditions and external influences	Pass. All of conductors and cables used on these machines are suitable for the operating conditions and external influences.
13.2	Conductors	-
	Conductors shall be of copper	Pass. Copper.
	Conductors of any other material shall have a nominal cross-sectional area such that, carrying the same current, the max. temperature shall not exceed the value given in table 4	Not applicable. Only copper conductors are used.
	If aluminium is used, the cross-sectional area shall be at least 16mm ²	Not applicable. Only copper conductors are used.
	All conductors that are subject to frequent movement shall have flexible stranding of class 5 or class 6 (see table C.4)	Pass.
13.3	Insulation	-
	Dielectric strength test for insulation conductors and cables: - 2000 V a.c. for a duration of 5 min (for operating voltage higher than 50 V a.c. or 120 V d.c.) - 500 V a.c. for duration of 5 min. (for separate PELV circuit)	Pass. This test has been carried out for the cables, and there is no breakdown is occurred.
	The mechanical strength and thickness of the insulation shall not be damaged in operation of during laying, especially for cables pulled into ducts	Pass. Appropriate insulation with sufficient mechanical strength and thickness is provided.
13.4	Current-carrying capacity in normal service	-
	Max. allowable temperature of conductors shall not exceed the values given in table 4	Pass. According to table 4.
13.5	Conductor and cable voltage drop	-

Clause	Requirement-Test	Verdict and Result-Remark
	The voltage drop for conductors and cables shall not exceed 5% of the nominal voltage	Pass. Not exceed 5%.
13.6	Minimum cross-section area	-
	To ensure adequate mechanical strength, the cross-sectional area of conductors should be less than as shown in table 6	- Pass. According to table 6.
13.7	Flexible cables	-
13.7.1	General	-
	Flexible cables shall have class 5 or class 6 conductors	Not applicable. No flexible cable has been used.
	Cables that are subjected to severe duties shall be of adequate construction	Not applicable.
13.7.2	Mechanical rating	-
	The tensile stress for copper conductors shall not exceed 15 N/mm ² of the copper cross-sectional area	Pass. Not exceed 15 N/mm ²
	If the demands of the application exceed the tensile stress, it of 15 N/mm ² , cables with special construction features should be used and the allowed max. tensile stress strength should be agree with the cable manufacturer	Not applicable. No this kind of situation.
13.7.3	Current-carry capacity of cables wound on drums	-
	Cables to be wound on drums shall be selected with conductors having a cross-sectional area such that, when fully wound on the drum and carrying the normal service load, the max. Allowable conductor temperature is not exceeded	Not applicable. No cable is wound on drums.
	For cables of circular cross-sectional area installed on drums, the max. current-carrying capacity in free air should be derated according to table 7	Not applicable. No cable is wound on drums.
13.8	Collector wires, collector bars and slip-ring assemblies	-
13.8.1	Protection against direct contact	-
	Collector wires, collector bars and slip-ring assemblies shall be installed or enclosed by the application of one of the following protective measures: -by partial insulation of live parts -by enclosures or barriers of at least IP2X	Not applicable. No collector wires, collector bars or slip-ring assemblies has been used on these machines.
	Min. protector degree of horizontal top surface of barriers or enclosures that are readily accessible: IP4X	Not applicable.
	If the required degree of protection is not achieved, protection by placing live parts out of reach in combination with emergency switching off according to 9.2.5.4.3 shall be applied	Not applicable.
	Collector wires and collector bars shall be so placed and/or protected as to: prevent contact prevent damage from a swinging load	Not applicable.
13.8.2	Protective conductor circuit	-
	Where collector wires, collector bars and slip-ring assemblies are installed as part of the protective bonding	Not applicable.

Clause	Requirement-Test	Verdict and Result-Remark
	circuit, they shall not carry current in normal operation	
	The continuity of the protective conductor circuit using sliding contacts shall be ensured by taking appropriate measures	Not applicable.
13.8.3	Protective conductor current collectors	-
	Not interchangeable with the other current collectors	Not applicable.
	Not interchangeable with the other current collectors	Not applicable.
	Such current collectors shall be of the sliding contact type	Not applicable.
13.8.4	Removable current collectors with a disconnect function	-
	Shall be so designed that the protective conductor circuit is interrupted only after the live conductors have been disconnected, and the continuity of the protective conductor circuit is re-established before any live conductor is reconnected	Not applicable.
13.8.5	Clearance in air	-
	Shall be suitable for operation in pollution degree 3 conditions	Not applicable.
13.8.6	Creepage distances	-
	Shall be suitable for operation in pollution degree 3 conditions	Not applicable.
13.8.7	Conductor system sectioning	-
	If collector wires or collector bars can be divided into isolated sections, suitable design measures shall be employed to prevent the energization of adjacent sections by the current collectors themselves	Not applicable.
13.8.8	Construction and installation of collector wire, collector bar systems and slip-ring assemblies	Not applicable.
	Used for power circuits shall be grouped separately from those used for control circuit	Not applicable.
	Shall be capable of withstanding, without damage, the mechanical forces and thermal effects of short-circuit currents	Not applicable.
	Removable covers shall not be opened by one person without the aid of a tool	Not applicable.
	If collector bars are installed in a common metal enclosure, the individual sections of the enclosure shall be bonded together and earthed at several points depending upon their length	Not applicable.
	Metal covers of collector bar laid underground or underflow shall also be bonded together and earthed	Not applicable.
	Underground and underflow collector bar ducts shall have drainage facilities	Not applicable.
14	Wiring practices	-
14.1	Connections and routing	-
14.1.1	General requirements	-
	All connections shall be secured against accidental loosening	Pass. All connections can be secured against accidental loosening.

Clause	Requirement-Test	Verdict and Result-Remark
	The means of connection shall be suitable for the cross-sectional areas and neutral of the conductors being terminated	Pass. The means of connection is suitable.
	The connection of two or more conductors to one terminal is permitted (only when the terminal is designed for that purpose)	Pass. No terminal has been connected with three or more conductors.
	One protective bonding circuit conductor shall be connected to one terminal connecting point	Pass. One conductor connected to one terminal.
	Soldered connections shall only be permitted if terminals are suitable for soldering	Not applicable. No soldered connection has been taken.
	Terminals on terminal blocks shall be plainly identified to correspond with markings on the diagrams	Pass. All of them have been marked corresponding to markings on the diagrams.
	The installation of flexible conduits and cables shall be such that liquids shall drain away from the fittings	Pass. Liquids can drain away from the fittings.
	Means of retaining conductor strands shall be provided (Solder shall not be used for that purpose)	Pass. By appropriate terminals.
	Shielded conductors shall be so terminated s to prevent fraying of strands and to permit easy disconnection	Pass. Appropriate termination is taken.
	Identification tags shall be legible, permanent, and appropriate for the physical environment	Pass. They are legible, permanent, and appropriate for the physical environment.
	Terminal blocks shall be so mounted and wired, that the internal and external wiring does not cross over the terminals	Pass. No conductor cross over the terminals.
14.1.2	Conductor and cable runs	-
	Shall be urn from terminal to terminal without splices or joints	Pass. All of them are run from terminal to terminal without splices or joints.
	If it is necessary to connect and disconnect cables assemblies, a sufficient extra length shall be provided	Pass.
	The terminations of cables shall be adequately supported to prevent mechanical stresses at the terminations of the conductors	Pass. Adequate support measure has been taken.
14.1.3	Conductors of different circuits	-
	Suitable arrangement for conductors of different circuits	Pass, Suitable arrangement is provided.
14.2	Identification of conductors	-
14.2.1	General requirements	-
	Conductors shall be identifiable at each termination according to the technical documentation (see clause 18)	Pass. Make reference to clause 18.
	Use of color-coding for identification of conductors	Pass. Color-coding for identification is used.
	Color GREEN or YELLOW should not be used	Pass. No GREEN or YELLOW conductor is used.
14.2.2	Identification of the protective conductor	-
	Shall be really distinguishable by shape, location, marking or color	Pass By marking and color.

Clause	Requirement-Test	Verdict and Result-Remark
	When identification is by color alone, the bicolor combination GREEN-AND YELLOW shall be used	Pass. By GREEN-AND-YELLOW.
	For the bicolor combination GREEN-AND YELLOW : one of the color covers at least 30% and not more than 70% of the surface of the conductor, the other color covering the remainder of the surface	Pass.
	Use of graphical symbol 	Pass. The earthing symbol has been used.
14.2.3	Identification of the neutral conductor	-
	The color shall be Light Blue	Pass. The color is Light Blue
	Requirements for bare conductors used as neutral conductors	Pass.
14.2.4	Identification of other conductors	-
	Identification of other conductors shall be by color, number, alphanumeric, or a combination of color and numbers or alphanumeric	Pass. By a combination of color and numbers or alphanumeric.
14.3	Wiring inside enclosures	-
	Panel conductors shall be supported where necessary to keep them in place	Pass. Appropriate supports is provided.
	Non-Metallic ducts shall be permitted only when they are made with a flame-retardant insulating material	Pass. Some non-metallic ducts are used with a flame-retardant insulating material.
	Connections to devices mounted on doors or to other movable parts shall be made using flexible conductors according to 13.2	Pass. Connections according to 13.2.
	The conductors shall be anchored to the fixed part and to the movable part independently of the electrical connection	Pass. Adequate anchored measures have been taken.
	Conductors and cables that do not run in ducts shall be adequately supported	Pass. All of them have been supported adequately.
	Terminal blocks or plug-socket combinations shall be used for control wiring that extends beyond the enclosure	Pass. This application has been taken.
14.4	Wiring outside enclosures	-
14.4.1	General requirements	-
	The protection degree shall be ensured when cables or ducts are introduced into the enclosure	Pass. The protection degree can be secured.
14.4.2	External ducts	-
	Shall be enclosed in suitable ducts as described in 14.5 except for suitably protected cables	Not applicable.
	Fittings used with ducts or multiconductor cable shall be suitable for the physical environment	Not applicable.
	Flexible conduit or flexible multiconductor cable shall be used where it is necessary to employ flexible connections to pendant push-button stations	Not applicable.
	The weight of the pendant stations shall be supported by means other than the flexible conduit or the flexible multiconductor cable	Not applicable.


Clause	Requirement-Test	Verdict and Result-Remark
	Flexible conduit or flexible multiconductor cable shall be used for connections involving small or infrequent movements	Not applicable.
14.4.3	Connection to moving elements of the machine	-
	Connection to frequently moving parts shall be made using conductors according to 13.2	Not applicable. No device is connected to moving elements of the machine.
	Flexible cable and flexible conduit shall be so installed as to avoid excess flexing and straining, particularly at the fittings	Not applicable.
	Cables subject to movement shall be supported in such a way that there is no mechanical strain on the connection points nor any sharp flexing	Not applicable.
	If the requirement mentioned above is achieved by using of a loop, it shall have sufficient length to provide for a bending radius of the cable of at least 10 times the diameter of the cable	Not applicable.
	Flexible cables of machines shall be protected to minimize the possibility of external damage	Not applicable.
	The cable sheath shall be resistant to the normal wear that can be expected from movement and to the effects of atmospheric contaminants	Not applicable.
	If cables subject to movement are close to moving parts, it shall have a space of at least 25 mm between the moving parts and the cables	Not applicable.
	Where the distance mentioned above is not practicable, fixed barriers shall be provided between the cables and the moving parts	Not applicable.
	The cable handling system shall be so designed that the lateral cable angles do not exceed 5 °, avoiding torsion in the cable	Not applicable.
	Measures shall be taken to ensure that at least two turns of flexible cables always remain on a drum	Not applicable.
	Min. permitted bending radii for the forced guiding of flexible cables shall not be less than the values given in table 8	Not applicable.
	The strength section between section between two bends in an S-shaped length or a bend into another plane shall be at least 20 times the diameter of the cable	Not applicable.
	Where flexible conduit is adjacent to moving parts, the construction and supporting means shall prevent damage to the flexible conduit under all conditions of operation	Not applicable.
	Flexible metallic conduit shall not be used for rapid or frequent movements	Not applicable.
14.4.4	Interconnection of devices on the machine	-
	The connections shall be conveniently placed, adequately protected, and shown on the relevant diagrams	Pass. Through terminals.
	Such terminals shall be conveniently placed, adequately protected, and shown on the relevant diagrams	Pass. These requirements have been complied with.

Clause	Requirement-Test	Verdict and Result-Remark
14.4.5	Plug/socket combinations	-
	Shall be of adequate size and shall have sufficient contact pressure and a wiping action to ensure electrical continuity	Not applicable. No plug/socket combinations is used.
	Clearances between contacts shall be adequate for the voltages used and shall be maintained during insertion and removal of the connectors	Not applicable. No plug/socket combinations is used.
	Prevent unintentional contact with live parts at any time	Not applicable. No plug/socket combinations is used.
	Protective bonding circuit connection shall be made before any live connections are made, and shall not be disconnected until all live connections in the plug are disconnected	Not applicable. No plug/socket combinations is used.
	Rated at more than 16 A or that remain connected during normal service shall be of a remaining type to prevent unintended disconnection	Not applicable. No plug/socket combinations is used.
	Rated at 63 A or above shall be of an interlocked type with a switch, so that connection and disconnection is possible only when the switch is in the OFF position	Not applicable. No plug/socket combinations is used.
	If more than one plug-socket combination is used in the same electrical equipment, they shall be clearly identifiable	Not applicable. No plug/socket combinations is used.
	It is recommended that mechanical coding be used to prevent incorrect insertion	Not applicable. No plug/socket combinations is used.
	According to IEC 60309-1 or of a type used for domestic application shall not be used for control circuits	Not applicable. No plug/socket combinations is used.
14.4.6	Dismantling for shipment	-
	Terminals shall be suitably enclosed and plug/socket combinations shall be protected from the physical environment during transportation and storage	Pass. All of them are enclosed suitably.
14.4.7	Additional conductors	-
	Spare conductors shall be connected to spare terminals or isolated to prevent contact with live parts	Pass. All spare conductors are connected to spare terminals or isolated to prevent contact with live parts.
14.5	Ducts, connection boxes and other boxes	-
14.5.1	General requirements	-
	Min. protection degree for ducts: IP 33	Pass. IP 33.
	Appropriate protection for conductors insulation	Pass. Suitable protection is taken.
	Drain holes of 6 mm diameter are permitted	Pass.
	Ducts and cables trays shall be rigidly supported and positioned at a sufficient distance from moving parts	Pass. Suitable support and sufficient distance have been taken.
	In areas where human passage is required, the ducts and cable trays shall be mounted at least 2 m above the	Not applicable. No this kind of area.

Clause	Requirement-Test	Verdict and Result-Remark
	working surface	
	Ducts shall be provided only for mechanical protection	Pass. Adequate mechanical protection is provided.
	Cable trays that are partially covered should not be considered to be ducts or cable trunking system, and the cables used shall be suitable for installation on cable trays	Not applicable. No cable tray is used.
14.5.2	Percentage fill of ducts	-
	The dimensions and arrangement of the ducts be such as to facilitate the insertion of the conductors and cables	Pass. This requirement has been complied with.
14.5.3	Rigid metal conduit and fittings	-
	Shall be of galvanized steel or of a corrosion-resistant material	Not applicable. No rigid metal conduit is used.
	Conduits shall be securely held in place and supported at each end	Not applicable. No rigid metal conduit is used.
	Fitting shall be threaded	Not applicable. No rigid metal conduit is used.
	Where threadless fittings are used, the conduit shall be securely fastened to the equipment	Not applicable. No rigid metal conduit is used.
	The conduit shall not be damaged and the internal diameter of the conduit shall not be effectively reduced when it is bent	Not applicable. No rigid metal conduit is used.
14.5.4	Flexible metal conduit and fittings	-
	Flexible metal tubing and suitable for the expected physical environment	Not applicable. No rigid metal conduit is used.
14.5.5	Flexible non-metal conduit and fittings	-
	Shall be resistant to kinking and suitable for the expected physical environment	Not applicable. No flexible non-metal conduit is used.
14.5.6	Cable trunking systems	-
	Shall be rigidly supported and clear of all moving or contaminating portions of the machine	Not applicable. No cable trunking system is used.
	Covers shall be shaped to overlap the sides; gasket shall be permitted	Not applicable. No cable trunking system is used.
	Covers shall be attached to cable trunking systems by hinges or chain and held closed by means of captive screws or other suitable fasteners	Not applicable. No cable trunking system is used.
	On horizontal cable trunking systems, the cover shall not be on the bottom	Not applicable. No cable trunking system is used.
	Where the cable trunking system is furnished in sections, the joints between sections shall fit tightly but need not be gasketed	Not applicable. No cable trunking system is used.
	The only openings permitted shall be those required for wiring or for drainage	Not applicable. No cable trunking system is used.
	Cable trunking systems shall not have opened but unused knockouts	Not applicable. No cable trunking system is used.
14.5.7	Machines compartments and cable trunking systems	-
	Are isolated from coolant or oil reservoirs and are entirely enclosed	Not applicable. No this kind of situation.
	Conductors run in enclosed compartment and cable	Not applicable.

Clause	Requirement-Test	Verdict and Result-Remark
	trunking systems shall be so secured and arranged that they are not subject to damage	No this kind of situation.
14.5.8	Connection boxes and other boxes	-
	Shall be readily accessible for maintenance	Pass. They are readily accessible for maintenance.
	Shall provide protection against the ingress of solid bodies and liquids	Pass. Adequate protection is provided.
	Shall not have opened but unused knockouts nor any other opening and shall be so constructed as to exclude materials such as dust, flying, oil, and coolant	Pass. These requirements have been complied with.
14.5.9	Motor connection boxes	-
	Shall enclose only connections to the motor and motor-mounted devices	Pass. They enclose only connections to the motor and motor-mounted devices.
15	Electric motors and associated equipment	-
15.1	General requirements	-
	Electric motor should conform to the requirements of IEC 60034-1	Pass. The electric motor is in conformity with the requirements of IEC 60034-1.
	Motor control equipment shall be located and mounted according to clause 12	Pass. According to clause 12.
15.2	Motor enclosures	-
	Protection degree shall be at least IP 23	Pass. IP44 and IP54
15.3	Motor dimensions	-
	As far as is practicable, the dimensions of the motors shall comply with IEC 60072-1 and IEC 60072-2	Pass. It is in compliance with IEC 60072-1 and IEC 60072-2.
15.4	Motor mounting and compartments	-
	Each motor and its associated couplings, belts and pulleys, or chains, shall be so mounted that they are adequately protected and are easily for inspection	Pass. They have adequate protection and are easily for inspection.
	Shall be such that all motor hold-down means can be removed and all terminal boxes are accessible	Pass. This requirement has been complied with.
	The proper cooling shall be ensured and the temperature rise remains within the limits of the insulation class	Pass. This requirement has been complied with.
	Motor compartment should be clean and dry, and shall be ventilated directly to the exterior of the machine	Not applicable. No motor compartment is found.
	The vents shall be such that ingress of swarf, dust, or water spray is at an acceptable level	Pass. Adequate vents are provided.
	There shall be no opening between the motor compartment and any other compartment that does not meet the motor compartment requirements	Pass. No this kind of opening.
	If a conduit or pipe is run into the motor compartment from another compartment not meet the motor compartment requirements, any clearance around the conduit or pipe shall be sealed	Not applicable. No this kind of situation.
15.5	Criteria for motor selection	-

Clause	Requirement-Test	Verdict and Result-Remark
	Shall be selected according to the anticipated service and physical environment conditions	Pass. They are selected according to the anticipated service and physical environment conditions.
15.6	Protective devices for mechanical brakes	-
	Operation of the overload and over current protective devices for mechanical brake actuators shall initiate the simultaneous de-energization (release) of the associated machine actuators	Not applicable. No this kind of device.
16	Accessories and lightning	-
16.1	Accessories	-
	Socket-outlets for accessory equipment shall comply:	-
	Should conform to IEC 60309-1 (if this is not possible, they should be clearly marked with the voltage and current ratings)	Pass. Marked with the voltage and current ratings.
	The continuity of the protective bonding circuit to the socket-outlet shall be ensured	Pass. It can be ensured.
	All unearthed conductors: Over current or overload protection according to 7.2 and 7.3 separately from the protection of other circuits	Pass. Over current protection is provided.
	If the power supply to the socket outlet is not disconnected by the supply disconnecting device, the clause 5.3.5 shall apply	Pass. Please see the related clause.
16.2	Local lighting of the machine and equipment	-
16.2.1	General	-
	Connections to the protective bonding circuit according to 8.2.2	Not applicable.
	The ON-OFF switch shall not be incorporated in the lamp holder or in the flexible connecting cords	Not applicable.
	Stroboscopic effects from lights shall be avoided	Not applicable.
16.2.2	Supply	-
	The nominal voltage of the local lighting circuit shall not exceed 250 V	Not applicable.
	Lighting circuits shall be supplied from one of the sources specified in this clause	Not applicable.
16.2.3	Protection	-
	Local lighting shall be protected according to 7.2.6	Pass. Please see the related clause.
16.2.4	Fittings	-
	Adjustable lighting fittings shall be suitable for the physical environment	Pass.
	The lamp holders shall be: According to the relevant IEC publication; Constructed with an insulating material protection the lamp cap so as to prevent unintended contact	Pass. This requirement has been taken into account during design.
	Reflectors shall be supported by a bracket and not by the lamp holder	Pass. Reflectors are supported by a bracket.
17	Marking, warning signs and reference designations	-

Clause	Requirement-Test	Verdict and Result-Remark
17.1	General	-
	The electrical equipment shall be marked with the supplier's name, trade mark, or other identifying symbol and, when required, with a certification mark	Pass. These information have been marked.
	Shall be of sufficient durability to withstand the physical environment involved	Pass. They can withstand the physical environment involved.
17.2	Warning signs	-
	Enclosures shall be marked with the warning sign 	Pass. This warning sign has been used.
	The warning sign shall be plainly visible on the enclosure door or cover	Pass. It is plainly visible on the enclosure door.
17.3	Functional identification	-
	Control devices, visual indicators and displays, used in man-machine interface shall be clearly and durably marked with regard to their functions either on or adjacent to the item	Pass. Appropriate markings have been provided for these devices.
	Preference should be given to the use of standard symbols give in IEC 60417 and ISO 7000	Pass. These relevant requirements appropriate for this machine have been used.
17.4	Marking of control equipment	-
	Control equipment shall be legibly and durably marked in a way that is plainly visible after the equipment is installed	Pass. They have been marked legibly and durably.
	A nameplate giving the relevant information specified in this clause shall be attached to the enclosure	Pass. A nameplate is used.
	The full-load current shown on the nameplate shall be sufficient	Pass.
17.5	Reference designations	-
	All enclosures, assemblies, control devices, and components shall be plainly identified with the same reference designations as shown in the technical documentation	Pass. These information have been provided within the instruction manual.
	Where size or location preclude the use of an individual reference designation, group reference designation shall be used	Pass. Make reference to the instruction manual.
18	Technical documentation	-
18.1	General	-
	The information necessary for installation, operation, and maintenance of the electrical equipment of a machine shall be supplied in the form of drawings, diagrams, charts, tables and instructions	Pass. All the information have been provided by many forms.
	The information shall be in an agreed language	Pass. In English.
	The supplier shall be ensure that the technical documentation in this clause is provided with each machine	Pass. The instruction manual is equipped with each machine.
18.2	Information to be provided	-
	The information provided with the electrical equipment shall include the requirements specified in this clause	Pass. Please see the related clause.

Clause	Requirement-Test	Verdict and Result-Remark
18.3	Requirements applicable to all documentation	-
	Relevant requirements according to 18.4 to 18.10 shall be complied	Pass. Please see the related clause.
18.4	Basic information	-
	Min. requirements for the technical documentation shall be contained	Pass.
18.5	Installation diagram	-
	Use and requirements for installation diagram	Pass. Installation diagrams are provided.
18.6	Block (system) diagrams and function diagrams	-
	Use and requirements for system (block) diagram	Pass. System diagrams are provided.
18.7	Circuit diagrams	-
	Use and requirements for circuit diagrams	Pass. Circuit diagrams are provided.
18.8	Operating manual	-
	Use and requirements for operating manual	Pass. Operating manual is provided.
18.9	Maintenance manual	-
	Use and requirements for maintenance manual	Pass. Maintenance manual is provided.
18.10	Parts list	-
	Use and requirements for parts list	Pass. Parts list is provided.
19	Testing and verification	-
19.1	General	-
	When these tests are performed, it is recommended that they follow the sequence listed	Pass. All tests have been carried out according to the following sequence.
	When the electrical equipment is modified, the requirements stated in 19.7 shall apply	Pass.
19.2	Continuity of the protective bonding circuit	-
	Test conditions: a current of at least 10 A at 50 Hz or 60 Hz	Pass. 10A, 50Hz
	The measured voltage shall not exceed the values given in table 9	Pass. See the test report in detail.
19.3	Insulation resistance tests	-
	Test conditions : 500 V d.c.	Pass.
	The measured values shall not less than 1 M Ω	Pass.441M Ω See the test report in detail.
19.4	Voltage tests	-
	Test conditions : at least 1 second - test voltage is twice the rated supply voltage of the equipment or 1000 V, whichever is greater frequency of 50/60 Hz supplied from a transformer with a min. rating of 500 VA Shall not breakdown	Pass. See the test report in detail.
19.5	Protection against residual voltages	-

Clause	Requirement-Test	Verdict and Result-Remark
	Tests shall be preformed to ensure complacence with 6.2.4	Not applicable.
19.6	Functional test	-
	The functions of electrical equipment shall be tested (particularly those related to safety and safeguarding)	Pass. All functions equipped with this machine have been tested.
19.7	Retesting	-
	Where a portion of the machine and its associated equipment is changed or modified, that portion shall ere verified and retested, as is appropriate	Pass

Table 1	Earthing continuity	
Test Point	Diameter of Conductor (mm ²)	Test Result-Voltage Drop (V)
Control transformer	1.25	0.128
Control panel	1.25	0.047
Motor	1.25	0.133

Table 2	Insulation resistance
Test Point	Test Result (MΩ)
Control transformer	452
Control panel	441
Motor	433

Table 3	Withstand voltage
Test Point	Test Result (MΩ)
Control transformer	Pass
Control panel	Pass
Motor	Pass

Attachment : TESTING PHOTOS



P1 machine

Notice

- 1 · This test report shall be invalidation without the cachet of the testing laboratory.
- 2 · This copied report shall be invalidation without sealed the cachet of the testing laboratory.
- 3 · This report shall be invalidation without tester signature, reviewer signature.
- 4 · This altered report shall be invalidation.
- 5 · Client shall put forward demurrer within 15days after received report.
The testing laboratory shall refuse disposal if exceeded the time limit.
- 6 · The test results presented in this report relate only to the object tested.

TEST REPORT

Report

Report reference No. : TR2018082401-3EMC

Tested by(+ signature).....: *Downey Xue*

Reviewed by(+ signature).....: *Erno Gjiang*

Testing date : 2018-08-24

Number of pages (Report): 23

Manufacturer

Name: Wenzhou Gaoda Machinery Co., Ltd

Address: Haiyu Ind.Zone, Wengyang District, Yueqing, Zhejiang, 325606

Test specification

Standard: EN 61000-3-2:2014, EN 61000-3-3:2013,
EN 61000-6-2:2005+AC:2005, EN 61000-6-4:2007+A1:2011

Test procedure : CE-EMC

Procedure deviation :N.A.

Non-standard test method :N.A.

General description

This equipment is used to produce paper straw machine equipment, paper straw can be used to suck water, beverages, milk tea, coffee and other liquids. It can also be used as decorating materials on cakes, PARTY, balloons and other articles. It can also be used for making DIY toys.

Brief description of the tested sample(s):

Ambient temperature: 27°C humidity: 50% Complete test was conducted on GDZGJ-5.

GDZGJ-5, GDZGJ-20, PSM-1plus, PSM, UNL-XG50 is series products. They belong to the same circuit type except the difference in power capacity, weight and the dimension.

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TEST REPORT DECLARATION

Applicant: Wenzhou Gaoda Machinery Co., Ltd
Haiyu Ind.Zone,Wengyang District,Yueqing,Zhejiang,325606

Manufacturer: Wenzhou Gaoda Machinery Co., Ltd
Haiyu Ind.Zone,Wengyang District,Yueqing,Zhejiang,325606

EUT Description: PAPER STRAW MAKING MACHINE

Test Model : GDZGJ-5

Test Standards:

EN 61000-3-2:2014, EN 61000-3-3:2013,EN 61000-6-2:2005+AC:2005, EN 61000-6-4:2007+A1:2011


The EUT described above is tested by WENZHOU GAODA MACHINERY CO., LTD.

EMC Laboratory to determine the maximum emissions from the EUT and ensure the EUT to be compliance with the immunity requirements of the EUT. EMC Laboratory is assumed full responsibility for the accuracy of the test results. Also, this report shows that the EUT technically complies with the

2014/30/EU directive and its amendment requirements.

The test report is valid for above tested sample only and shall not be reproduced in part without written approval of the laboratory.

Prepared by :



Assistant

Reviewer :



Supervisor

Approved & Authorized Signer :



Christina / Manager

1. TEST RESULTS SUMMARY

Table 1 Test Results
Summary

Test Items	Test Results
Power Line Conducted Emission Test	PASS
Disturbance Power Test	PASS
Electrostatic Discharge Test	PASS
RF Field Strength Susceptibility Test	PASS
Electrical Fast Transient/Burst Test	PASS
Surge Test	PASS
Injected Currents Susceptibility Test	PASS
Voltage Dips And Interruptions Test	PASS

2. GENERAL INFORMATION

2.1. Report information

2.1.1. This report is not a certificate of quality; it only applies to the sample of the specific product/equipment given at the time of its testing. The results are not used to indicate or imply that they are application to the similar items. In addition, such results must not be used to indicate or imply that GAODA approves, recommends or endorses the manufacture, supplier or use of such product/equipment, or that GAODA in any way guarantees the later performance of the product/equipment.

2.1.2. The sample/s mentioned in this report is/are supplied by Applicant, GAODA therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture or any information supplied.

2.1.3. Additional copies of the report are available to the Applicant at an additional fee. No third party can obtain a copy of this report through GAODA, unless the applicant has authorized GAODA in writing to do so.

2.2. Measurement Uncertainty

Available upon request.

3. PRODUCT DESCRIPTION

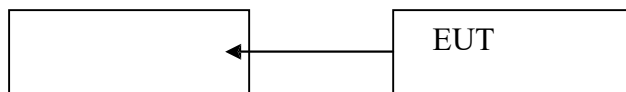
3.1. EUT Description

Description : PAPER STRAW MAKING MACHINE

Manufacture : Wenzhou Gaoda Machinery Co., Ltd.

Model Number: GDZGJ-5

3.2. Block Diagram of EUT Configuration



3.3. Operating Condition of EUT

Test model: GDZGJ-5

3.4. Test Conditions

Temperature: 23-28°C

Relative Humidity: 50-68 %

3.5. Modifications

No modification was made.

3.6. Abbreviations

AC Alternating Current
AMN Artificial Mains Network
DC Direct Current
EM ElectroMagnetic
EMC ElectroMagnetic Compatibility
EUT Equipment Under Test
IF Intermediate Frequency
RF Radio Frequency rms root mean square
EMI Electromagnetic Interference
EMS Electromagnetic Susceptibility

3.7. Performance Criterion

Criterion A: The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer when the equipment is used as intended.

Criterion B: After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the equipment is used as intended.

Criterion C: Loss of function is allowed, provided the function is self-able, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions.

4. TEST EQUIPMENT USED

4.1. For Conducted Emission Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESHS30	828985/018	Jun.30, 18	1 Year
2.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100006	Jun.30, 18	1 Year
3.	L.I.S.N.	Rohde & Schwarz	ESH2-Z5	834549/005	Jun.30, 18	1 Year
4.	Conical	Emtek	N/A	N/A	N/A	N/A
5.	Voltage Probe	Schwarzbeck	TK9416	N/A	Jun.30, 18	1 Year
6.	Coaxial Switch	Anritsu	MP59B	6100214550	Jun.30, 18	1 Year

4.2. For Disturbance Power Test

Item	Equipment	Manufacturer	Model	Serial No.	Last Cal.	Cal.
1.	Test Receiver	Rohde & Schwarz	ESHS30	828985/018	Jun.30, 18	1 Year
2.	Power Clamp	Rohde & Schwarz	MDS21	833711/025	Jun.30, 18	1 Year
3.	Coaxial Switch	Anritsu	MP59B	6100214550	Jun.30, 18	1 Year

4.3. For Electrostatic Discharge Immunity Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	ESD Tester	HAEFELY	PSD 1600	H911'292	Jun. 30, 16	1 Year

4.4. For RF Strength Susceptibility Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Signal Generator	HP	8648A	3633A02081	Jun.30, 18	1 Year
2.	Amplifier	A&R	500A100	17034	NCR	NCR
3.	Amplifier	A&R	100W/1000M1	17028	NCR	NCR
4.	Isotropic Field	A&R	FM2000	16829	NCR	NCR
5.	Isotropic Field Probe	A&R	FLW220100	16755	Jun.30, 18	1 Year
6.	Biconic Antenna	EMCO	3108	9507-2534	NCR	NCR
7.	Log-periodic Antenna	A&R	AT1080	16813	NCR	NCR
8.	PC	N/A	486DX2	N/A	N/A	N/A

4.5. For Electrical Fast Transient/Burst Immunity Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Burst Tester	HAEFELY	PEFT 4010	080981-16	Jun.30, 18	1 Year

4.6. For Surge Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.
1.	Surge Tester	HAEFELY	PSURGE4.1	080107-04	Jun.30, 18	1 Year

4.7. For Injected Currents Susceptibility Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.
1.	Simulator	EMTEST	CWS 500C	0900-13	Jun.30, 18	1 Year
2.	CDN	EMTEST	CDN-M2	510010010010	Jun.30, 18	1 Year
3.	VDN	EMTEST	CDN-M3	0900-11	Jun.30, 18	1 Year
4.	Injection Clamp	EMTEST	F-2031-23MM	368	Jun.30, 18	1 Year
5.	Attenuator	EMTEST	ATT6	0010222a	Jun.30, 18	1 Year

4.8. For Magnetic Field Immunity Test

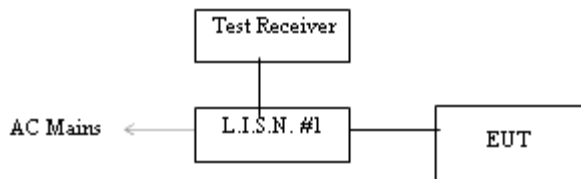
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.
1.	Magnetic Field Tester	HEAFELY	MAG100.1	083858-10	Jun.30, 18	1 Year

4.9. For Voltage Dips and Interruptions Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.
2.	Dips Tester	HEAFELY	PLINE 1610	083732-18	Jun.30, 18	1 Year

5. POWER LINE CONDUCTED EMISSION TEST

5.1. Block Diagram of Test Setup



5.2. Test Standard

EN 61000-3-2:2014

5.3. Power Line Conducted Emission Limit

Frequency MH	Limits	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	79	73
5.00 ~ 30.00	66	60

Notes: 1. *Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

5.4. EUT Configuration on Test

The following equipments are installed on conducted emission test to meet EN 61000-6-4 requirement and operating in a manner, which tends to maximize its emission characteristics in a normal application.

EUT Information

Model Number	:	GDZGJ-5
Serial Number	:	
Manufacturer	:	WENZHOU GAODA MACHINERY CO., LTD.

5.5. Operating Condition of EUT

5.5.1. Setup the EUT and simulators as shown in Section 5.1.

5.5.2. Turn on the power of all equipments.

5.5.3. Let the EUT work in test modes (EUT WORKING) and test it.

5.6. Test Procedure

The EUT is put on the ground and connected to the AC mains through a Artificial Mains Network (AMN). This provided 50ohm-coupling impedance for the tested equipments. Both sides of AC line are checked to find out the maximum conducted emission levels according to the EN 61000-6-4 regulations during conducted emission test.

The bandwidth of the test receiver (R&S Test Receiver ESHS30) is set at 10KHz.

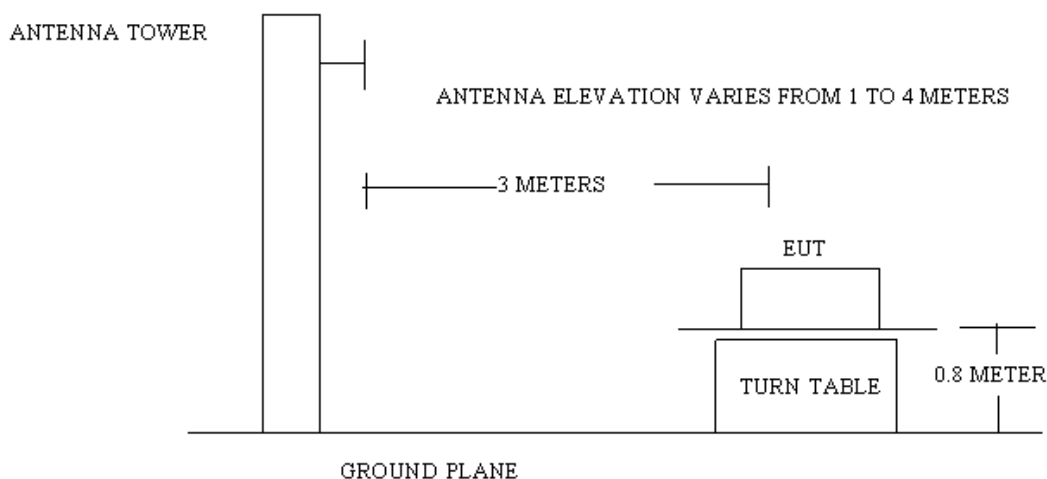
The frequency range from 150 KHz to 30 MHz is investigated.

5.7. Test Result

PASS.

6. RADIATED EMISSION TEST

6.1. Open Site Setup Diagram



6.2. Disturbance Power Limit

All emanations from devices or system including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:

6.2. Test Standard

EN 61000-3-3:2013

6.3. Radiated Emission Limit

All emanations from a Class A computing devices or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMITS (dB ∞ V/m)
30 ~ 230	3	50
230 ~ 1000	3	57

Note:(1) The tighter limit shall apply at the edge between two frequency bands.

(2) Distance refers to the distance in meters between the measuring instruments antenna and the closed point of any part of the EUT.

6.4. EUT Configuration on Test

The EN 61000-3-3:2013 Class A regulations test method must be used to find the maximum emission during radiated emission test.

6.5. Operating Condition of EUT

6.5.1. Setup the EUT as shown on Section 5.1.

6.5.2. Turn on the power of all equipments.

6.5.3. Let the EUT work in test mode and measure it.

6.6. Test Procedure

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can move up and down between 1 to 4 meters to find out the maximum emission level. Broadband antenna (calibrated by dipole antenna) are used as a receiving antenna.

Both horizontal and vertical polarization of the antenna are set on test.

The bandwidth setting on the test receiver (R&S TEST RECEIVER ESCS20) is 130 KHz.

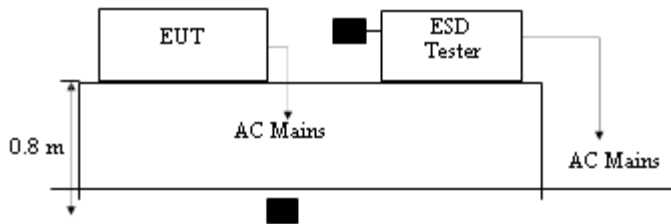
The EUT is tested in Anechoic Chamber.

6.7. Test Results

PASS.

7. ELECTROSTATIC DISCHARGE TEST

7.1. Block Diagram of ESD Test Setup



7.2. Test Standard

EN 61000-6-2:2005+AC:2005

Severity Level 3 for Air Discharge at 8KV

Severity Level 2 for Contact Discharge at 4KV

7.3. Severity Levels and Performance Criterion

9.3.1. Severity level

Level	Test Voltage Contact Discharge (KV)	Test Voltage Air Discharge (KV)
1.	2	2
2.	4	4
3.	6	8
4.	8	15
X	Special	Special

7.3.2. Performance criterion: B

7.4. EUT Configuration on Test

The configuration of EUT are listed in Section 3.2.

7.5. Operating Condition of EUT

7.5.1. Setup the EUT as shown in Section 7.1..

7.5.2. Turn on the power of all equipments.

7.5.3. Let the EUT work in test mode (full load) and test it.

7.6. Test Procedure

7.6.1. Air Discharge:

This test is done on a non-conductive surfaces. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the EUT. After each discharge, the discharge electrode shall be removed from the EUT. The generator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air

discharge completed.

7.6.2.Contact Discharge:

All the procedure shall be same as Section 9.6.1. except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

7.6.3.Indirect discharge for horizontal coupling plane

At least 20 single discharges shall be applied to the horizontal coupling plane, at points on each side of the EUT. The discharge electrode positions vertically at a distance of 0.1m from the EUT and with the discharge electrode touching the coupling plane.

7.6.4.Indirect discharge for vertical coupling plane

At least 20 single discharge shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

7.7. Test Results

PASS.

Please refer to the following

Electrostatic Discharge Test Results

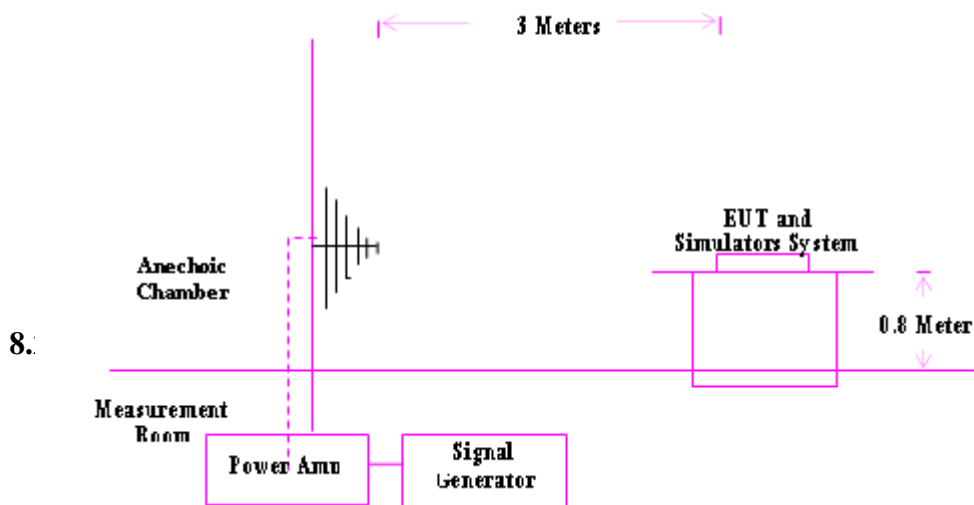
Date : AUG 24,2018

<i>Manufacture</i>	WENZHOU GAODA MACHINERY CO., LTD.	<i>Test Date:</i>	AUG 24,2018
<i>EUT</i>	PAPER STRAW MAKING MACHINE	<i>Temperature:</i>	27 °C
<i>M/N</i>	GDZGJ-5	<i>Humidity:</i>	50%
<i>Test Engineer</i>	DOWNEY	<i>Test Mode:</i>	Full load
<i>Air Discharge:</i> ±18V For each point positive 10 times and negative 10 times discharge.			
<i>Contact Discharge:</i> ±20V			
Location	Kid A-Air Discharge C-Contact Discharge	Result	
<i>Slots</i>	10 points	A PASS	

<i>Screw</i>	<i>20 points</i>	<i>C</i>	<i>PASS</i>
<i>Metal Parts</i>	<i>16 points</i>	<i>C</i>	<i>PASS</i>
<i>HCP</i>	<i>8 points</i>	<i>C</i>	<i>PASS</i>
<i>VCP</i>	<i>8 points</i>	<i>C</i>	<i>PASS</i>

8. RF FIELD STRENGTH SUSCEPTIBILITY TEST

8.1. R/S Test Setup



8.3. Severity Levels and Performance Criterion

8.3.1. Severity level

Level	Field Strength V/m
1.	1
2.	3
3.	10
X	Special

8.3.2. Performance criterion : A

8.4. EUT Configuration on Test

The configuration of EUT are listed in Section 3.2..

8.5. Operating Condition of EUT

Setup the EUT as shown in Section 8.1.. The operating condition of EUT are listed in section 3.3.

8.6. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above the

ground. The EUT is set 3 meters away from the transmitting antenna which is mounted on an antenna tower. Both horizontal and vertical polarization of the antenna are set on test. Each of the four sides of EUT must be faced this transmitting antenna and measured individually.

In order to judge the EUT performance, a CCD camera is used to monitor the EUT. All the scanning conditions are as follows :

Condition of Test		Remarks
1.	Fielded Strength	3 V/m (Severity Level 2)
2.	Radiated Signal	Modulated
3.	Scanning Frequency	80 - 2000 MHz
4.	Sweeping time of radiated	0.0015 decade/s
5.	Dwell Time	1 Sec.

8.7. Test Results

PASS.

Please refer to the following:

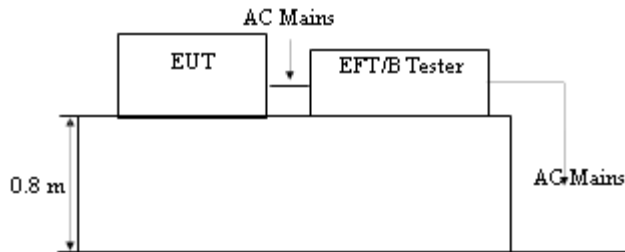
RF Field Strength Susceptibility Test Results.

Date : AUG 24,2018

<i>Manufacture</i> : WENZHOU GAODA MACHINERY CO., LTD.		<i>Test Date</i> AUG 24,2018
<i>EUT</i> : _____		<i>Temperature</i> 27°C
<i>M/N</i> : PAPER STRAW MAKING MACHINE		<i>Humidity</i> 50%
GDZGJ-5		<i>Test Mode:</i> Full load
<i>Test Engineer</i> : DOWNEY		<i>Frequency</i> _____
		<i>Range :</i> /
<i>Modulation:</i> ; AM ... Pulse ...none 1 KHz 80%		
<i>Criterion : A</i>		
<i>Frequency Rang :</i> 80-2000		
<i>Steps</i>	<i>1%</i>	<i>1%</i>
	<i>Horizontal</i>	<i>Vertical</i>
<i>Front</i>	<i>Pass</i>	<i>Pass</i>
<i>Right</i>	<i>Pass</i>	<i>Pass</i>
<i>Rear</i>	<i>Pass</i>	<i>Pass</i>
<i>Left</i>	<i>Pass</i>	<i>Pass</i>

9. ELECTRICAL FAST TRANSIENT/BURST TEST

9.1. EFT Test Setup



9.2. Test Standard

EN61000-6-2:2005
Severity Level 2 at 1KV

9.3. Severity Levels and Performance Criterion

11.3.1. Severity level

Level	Open Circuit Output Test Voltage $\pm 10\%$	
	On Power Supply Lines	On I/O (Input/Output) Signal
1.	0.5KV	0.25 KV
2.	1KV	0.5KV
3.	2KV	1V
4.	4KV	2K
X	Special	Special

11.3.2. Performance criterion : B

11.4. EUT Configuration on Test

The configuration of EUT is listed in Section 3.2.

9.5. Operating Condition of EUT

Setup the EUT as shown in Section 9.1.. The operating condition of EUT are listed in section 3.3.

9.6. Test Procedure

The EUT is put on the table which is 0.8 meter high above the ground. This reference ground plane shall project beyond the EUT by at least 0.1m on all sides and the minimum distance between the EUT and all other conductive structure, except the ground plane beneath the EUT, shall be more than 0.5m.

9.6.1. For input and output DC power ports:

The EUT is connected to the power mains by using a coupling device which couples the EFT interference signal to DC power lines. Both polarities of the test voltage should be applied during compliance test and the

duration of the test is 2 mins.

9.6.2.For signal lines and control

lines ports: It's necessary to test.

9.6.3.For AC output line ports: It's unnecessary to test.

9.7. Test Results

PASS.

Please refer to the following

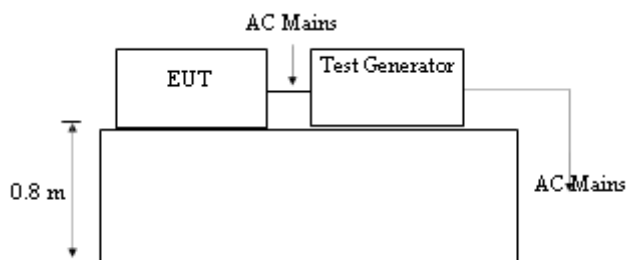
Electrical Fast Transient/Burst Test Results

Date :AUG 24,2018

<i>Manufacture</i> : WENZHOU GAODA MACHINERY CO., LTD.					<i>Test Date</i> : AUG 24,2018				
<i>EUT</i> : PAPER STRAW MAKING MACHINE					<i>Temperature</i> : 27°C				
<i>M/N</i> : GDZGJ-5					<i>Humidity</i> : 50%				
<i>Test Engineer</i> : DOWNEY					<i>Test Mode</i> : Full load				
<i>Inject Line</i>	<i>Voltage V</i>	<i>Inject Time(s)</i>	<i>Inject Method</i>	<i>Results</i>	<i>Inject Line</i>	<i>Voltage K</i>	<i>Inject Time(s)</i>	<i>Inject Method</i>	<i>Results</i>
L	± 1	13 0	Direct	PASS					
N	± 1	13 0	Direct	PASS					
L N	± 1	13 0	Direct	PASS					

10. SURGE TEST

10.1. Surge Test Setup



10.2. Test Standard

EN61000-6-2:2005

Severity Level 2 for Line to Neutral at 1.0KV

10.3. Severity Levels and Performance Criterion

13.3.1. Severity level

Severity Level	Open-Circuit Test Voltage KV
1	0.5
2	1.0
3	2.0
4	4.0
*	Special

Performance criterion : **B****10.4. EUT Configuration on Test**

The configuration of EUT are listed in Section 3.2..

10.5. Operating Condition of EUT

10.5.1. Setup the EUT as shown in Section 10.1..

10.5.2. Turn on the power of all equipments.

10.5.3. Let the EUT work in test mode (Full load) and test it.

10.6. Test Procedure

- 1) Set up the EUT and test generator as shown on Section 10.1
- 2) For line to line coupling mode, provide a 0.5KV 1.2/50us voltage surge (at open-circuit condition) and 8/20us current surge to EUT selected points.
- 3) At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted during test.
- 4) Different phase angles are done individually.
- 5) Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

10.7. Test Results**PASS.**

Please refer to the following

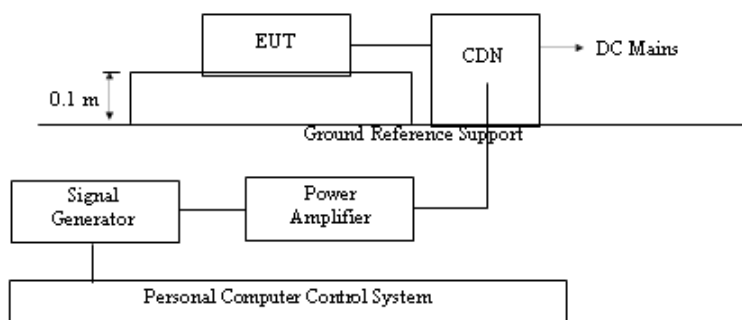
Surge Immunity Test Results

Date :AUG 24,2018

<i>Manufacture</i> : WENZHOU GAODA MACHINERY CO., LTD.				<i>Test Date</i> : AUG 24,2018	
<i>EUT</i> : PAPER STRAW MAKING MACHINE				<i>Temperature</i> : 27°C	
<i>M/N</i> : GDZGJ-5				<i>Humidity</i> : 50%	
<i>Test Engineer</i> : DOWNEY				<i>Test Mode</i> : Full load	
<i>Location</i>	<i>Polarity</i>	<i>Phase Angle</i>	<i>No of Pulse</i>	<i>Pulse Voltage (V)</i>	<i>Result</i>
L-N	+	0	5	1	PASS
	+	3	5	1	PASS
	+	6	5	1	PASS
	+	9	5	1	PASS
	-	0	5	1	PASS
	-	3	5	1	PASS
	-	6	5	1	PASS
	-	9	5	1	PASS

11. INJECTED CURRENTS SUSCEPTIBILITY TEST

11.1. Block Diagram of Test DC Mains Setup



11.2. Test Standard

EN61000-6-2:2005

Severity Level 2 at 3 V (rms), 0.15MHz ~ 80MHz

11.3. Severity Levels and Performance Criterion

13.3.1. Severity level

Level	Field Strength V/m
1.	1
2.	3
3.	10
X	Special

11.3.2. Performance criterion: A

11.4. EUT Configuration on Test

The configuration of EUT are listed in Section 3.2.

11.5. Operating Condition of EUT

Setup the EUT as shown in Section 11.1.. The operating condition of EUT are listed in section 3.3.

11.6. Test Procedure

- 1) Set up the EUT, CDN and test generators as shown on Section 11.1.
- 2) Let the EUT work in test mode and test it.
- 3) The EUT are placed on an insulating support 0.8m high above a ground reference plane.
 CDN (coupling and decoupling device) is placed on the ground plane about 0.3m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).
- 4) The disturbance signal described below is injected to EUT through CDN.
- 5) The EUT operates within its operational mode(s) under intended climatic conditions after power on.
- 6) The frequency range is swept from 150KHz to 80MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1KHz sine wave.
- 7) The rate of sweep shall not exceed 1.5×10^{-3} decades/s. Where the frequency is swept incrementally, the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.
- 8) Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

11.7. Test Results**PASS.**

Please refer to the following

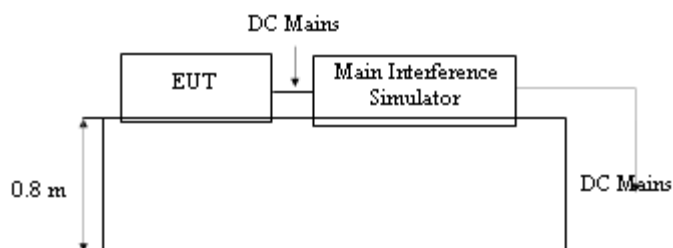
Injected Currents Susceptibility Test Results

Date : AUG 24,2018

<i>Manufacture:</i> WENZHOU GAODA MACHINERY CO., LTD.		<i>Test Date</i> : AUG 24,2018		
<i>EUT:</i> _____		<i>Temperature</i> : 27°C		
<i>M/N:</i> PAPER STRAW MAKING MACHINE		<i>Humidity</i> : 50%		
<i>Test Engineer</i> GDZGJ-5		<i>Test Mode</i> : Full load		
DOWNEY				
<i>Frequency Range (MHz)</i>	<i>Injected Position</i>	<i>Strength</i>	<i>Criterion</i>	<i>Result</i>
0.15 ~ 20	DC Line	3V(rms), Unmodulated	A	PASS
20 ~ 80	DC Line	3V(rms), Unmodulated	A	PASS

13. VOLTAGE DIPS AND INTERRUPTIONS TEST

13.1. Voltage Dips and Interruptions Test Setup



13.2. Test Standard

EN61000-6-2:2005

13.3. Severity Levels and Performance Criterion

13.3.1. Severity level

Test Level %U _T	Voltage dip and short Interruptions %U _T	Duration (in period)
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0	100	250p
40	60	5p
70	30	0.5p

14.3.2.Performance criterion : C & B

13.4. EUT Configuration on Test

The configuration of EUT are listed in Section 3.2.

13.5. Operating Condition of EUT

14.5.1.Setup the EUT as shown in Section 13.1..

14.5.2.Turn on the power of all equipments.

14.5.3.Let the EUT work in test mode (SPEAKERS Playing) and test it.

13.6. Test Procedure

- 1) Set up the EUT and test generator as shown on Section 13.1.
- 2) The interruptions is introduced at selected phase angles with specified duration.
- 3) Record any degradation of performance.

13.7. Test Result

PASS.

Please refer to the following .

Voltage Dips And Interruptions Test Results

Date :AUG 24,2018

<i>Manufacture</i> : WENZHOU GAODA MACHINERY CO., LTD.			<i>Test Date</i> : AUG 24,2018		
<i>EUT</i> : PAPER STRAW MAKING MACHINE			<i>Temperature</i> : 27 °C		
<i>M/N</i> : GDZGJ-5			<i>Humidity</i> : 50%		
<i>Test Engineer</i> : DOWNEY			<i>Test Mode</i> :Full load		
<i>Test Level</i> %	<i>Voltage Dips & Short Interruptions</i>	<i>Duration (in period)</i>	<i>Phase Angle</i>	<i>Criterion</i>	<i>Result</i>
0	100	250P	0 ° ~360 °	C	PASS
40	60	5P	0 ° ~360 °	C	PASS
70	30	0.5P	0 ° ~360 °	B	PASS

APPENDIX-EUT PHOTOS



P1 machine

Notice

- 1 · This test report shall be invalidation without the cachet of the testing laboratory.
- 2 · This copied report shall be invalidation without sealed the cachet of the testing laboratory.
- 3 · This report shall be invalidation without tester signature and approver signature.
- 4 · This altered report shall be invalidation.
- 5 · Client shall put forward demurrer within 15days after received report.
The testing laboratory shall refuse disposal if exceeded the time limit.
- 6 · The test results presented in this report relate only to the object tested.

Annex: Technical Information

A.1 Photos



P1 machine



P2 machine

A.2 Drawings and Manual

多刀纸吸管机说明书

一、 简介

1.1 用途描述、适用范围说明

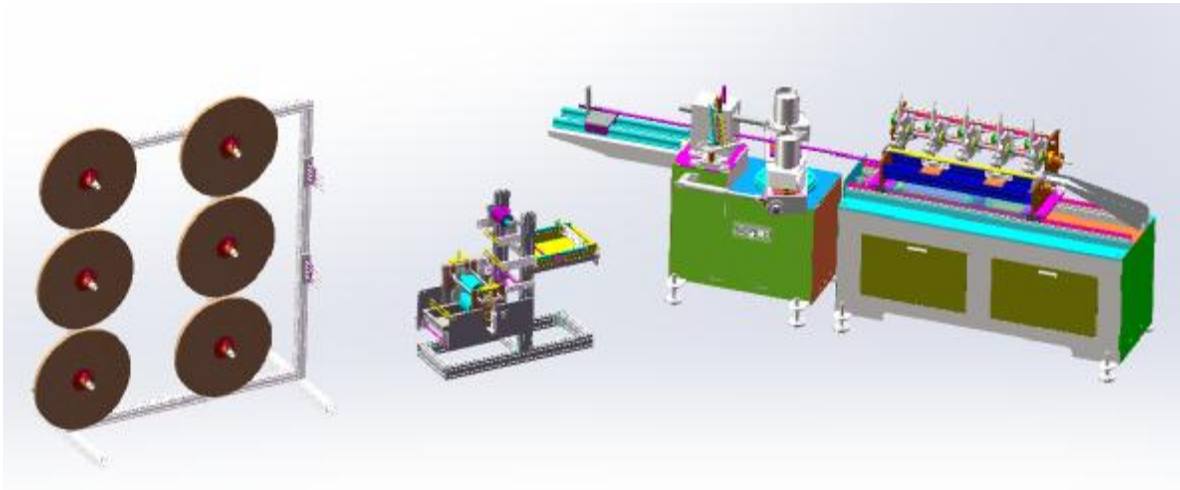
多刀纸吸管机是用于生产纸吸管的机器设备，所生产的纸吸管可以用于吸食水、饮料、奶茶、咖啡等液体。也可以作为装饰材料放在蛋糕、PARTY、气球等物品上。还可以拼接用于 DIY 玩具制作。

1.2 开发多刀纸吸管的理念

由多刀纸吸管机器制造出的纸吸管低碳环保、规格多样、外观由彩色印刷机印刷出来绚丽多彩、花样繁多，随着人民生活水平的提高和对生活品质的追求也越来越高，纸吸管慢慢走进我们的生活。

二、 主要结构与功能

2.1 主要结构



2.2 功能

2.2.1 采用微电脑设定的线切割长度，更准确的触摸屏方便进行数据调整；

2.2.2 采用人机界面操作，操作更方便；

2.2.3 螺旋卷管，采用悬挂式的操作面板，专用的操作系统，可皮带松紧装置；

2.2.4 多刀在线切管，可以直接在线切成品纸管。

2.2.5 圆刀主动切割，切口更平稳，性能更稳定。

三、 主要技术参数

技术参数		控制系统	
纸张层数	2-5 层	电机	上海德东
卷管内径	4.3-12mm	人机界面	施耐德（触摸屏）
卷管厚度	0.3-1mm	变频器	4KW 施耐德
卷管速度	0-55 米/分钟	执行元件	施耐德
机头	2 机头单皮带	信号元件	沪工
定轴方式	法兰	气动元件	亚德克

切割系统	数控多刀	电气元件	施耐德
切割长度	120—1050mm	轴承	哈尔滨
同步跟踪切割	伺服电机同步跟踪切割	伺服电机	1kw 施耐德
上胶方式	双面（可定制单面）	移动丝杆	ABBA 台湾
定长	编码器	移动滑块	ABBA 台湾
操作人员	1 人	主要配置	
速度控制	变频调速	纸架	3 层
电源	380V/三相/50Hz	胶架	3 层喷淋式
尺寸		芯棒	2 套（尺寸客户提供）
主机尺寸	5600*1600*1750mm	皮带	2 条
		皮带调节	手动
占地面积	长 8000mm* 6000mm *高 1800mm	胶纸架角度调节	手动调节
重量	1200kgs	纸带润滑油供给	自动供给
传动系统			
主电机	3KW	附赠配件	
主机转速	1400r/min	工具箱	1 套
轮毂转速	48r/min	刀片	10 把
轮毂输出强度	1000N.m	附赠配件	

四、 操作使用说明

4.1 由调试人员直接上门一对一指导安装，教授调试技巧。

五、 日常维护保养说明

5.1 开机前、使用中和停机后对机器设备定期进行清洁，补充润滑油

5.2 安排固定人员管理设备，其他人员不得随意操作。

六、 注意事项

6.1 禁止戴手套和围巾操作

6.2 圆刀切口处禁止靠近，碰触。