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Technical Construction File

File No：HJTON-171208M

According to

2006/42/EC Machinery Directive

Reference To Annex IV Category 10

related to the

Injection Molding Machine

Model: HJF1000, HJF780，HJF650, HJF530, HJF400, HJF360,

HJF280, HJF240, HJF180, HJF140, HJF118, HJF80,

HJF200, HJF580, HJF1200, HJF1400, HJF1600, HJF2000

presented by

NINGBO AIHUA TESTING & TECHNOLOGY CO., LTD.

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General information

Applicant	NINGBO HAIJIANG MACHINERY MANUFACTURING CO.,LTD. Tongyi Industrial Zone, Dongwu Town, Yinzhou, Ningbo, Zhejiang, China
Manufacturer	NINGBO HAIJIANG MACHINERY MANUFACTURING CO.,LTD. Tongyi Industrial Zone, Dongwu Town, Yinzhou, Ningbo, Zhejiang, China
Trademark	
Product	Plastic Injection Molding Machine
Model No.	HJF1000, HJF780，HJF650, HJF530, HJF400, HJF360, HJF280, HJF240, HJF180, HJF140, HJF118, HJF80, HJF200, HJF580, HJF1200, HJF1400, HJF1600, HJF2000
Rated Voltage	AC380V
Rated Frequency	50 Hz
Motor Power	55kW
Heat Power	110.7 kW
Clamping Force	20000KN
Shot Size	12900cm³
Screw Diameter	150mm
Screw Stroke	1600mm
Ejector Tonnage	490kN
Space between tie bars	1650x1500
Screw Speed(max)	70 rpm
Specifications	See the Specification tables listed in Annex A.2
Equipment Mobility	Stationary
Duty Cycle	Continuous
File No.	HJTON-171208M

Quality control system

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

（1）Apply for the consultant form the qualified body in ECM.

The NINGBO HAIJIANG MACHINERY MANUFACTURING CO.,LTD. has applied for the certification in ECM

（2）Carry out the inspection for parts and components according to the TCF Before the assemblies of the series production, the QC engineers of NINGBO HAIJIANG MACHINERY MANUFACTURING CO.,LTD. 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 NINGBO HAIJIANG MACHINERY MANUFACTURING CO.,LTD have to do the necessary inspection and testing to ensure the conformity of related requirements, in particularly, the testing and inspection of electrical characteristics and outer feature.

Carry out the inspection for the packing 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.

（4）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 NINGBO HAIJIANG MACHINERY MANUFACTURING CO.,LTD if the change may effects the related electrical or mechanical characteristics.

（5）Provision for the Quality Assurance

For the provisions of internal control measures to ensure the conformity of series production of the machines, NINGBO HAIJIANG MACHINERY MANUFACTURING CO.,LTD. has built an internal quality control system in accordance with the international standard .

Clause	Requirement – test EN ISO 12100:2010	Result	Verdict
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 so constructed that it is fitted for its function, and can be adjusted and maintained without putting person at risk when these operations are carried out under the conditions foreseen by the manufacturer.	These specified requirements have been complied with.	Pass
	The aim of measures taken must be to eliminate any risk of accident throughout the foreseeable lifetime of the machinery, including the phases of assembly and dismantling, even where risks of accident arise from foreseeable abnormal situations.	Appropriate measures have been taken to eliminate or reduce those existed risks.	Pass
b)	In selecting the most appropriate methods, the manufacturer must apply the following principles, in the order given;	-	-
	-Eliminate or reduce risks as far as possible;	The measures have been taken to eliminate or reduce risks as far as possible.	Pass
	- Take the necessary protection measure in relation to risks that can't be eliminated;	Appropriate guards and warning signs are used.	Pass
	- Inform users of the residual risks due to any shortcomings of the protection measures adopted, indicate whether any particular training is required and specify any need to provide personal protection equipment.	The related safety information for the users to operate the machine has been included in the instruction manual.	Pass
c)	When designing and constructing machinery, and when drafting the instructions, the manufacturer must envisage not only the normal use of the machinery but also uses which could reasonably be expected.	All safety principles have been taken into account as far as possible during the design of these machines.	Pass
	The machinery must be designed to prevent abnormal use if such use would engender a risk. In other cases the instructions must draw the user's attention to ways which experience has shown	These requirements have been complied with, and the related information also has been provided within the instruction manual.	Pass

Clause	Requirement – test EN ISO 12100:2010	Result	Verdict
	might occur - in which the machinery should not be used.		
d)	Under the intended conditions of use, the discomfort, fatigue and psychological stress faced by the operator must be reduced to the minimum possible taking ergonomic principles into account.	These requirements have been taken into account during the design of this machine.	Pass
e)	When designing and constructing machinery, the manufacturer must taken account of the constraints to which the operator is subject as a result of the necessary or foreseeable use of personal protection equipment.	Not applicable.	N/A
f)	Machinery must be supplied with all the essential special equipment and accessories to enable it to be adjusted, maintained and used without risk.	These related accessories have been supplied.	Pass
1.1.3	Materials and products	-	-
	The materials used to construct machinery or products used and created during its use must not endanger exposed persons' safety or health	Materials and products cannot endanger exposed person's safety or health.	Pass
	In particular, where fluids are used, machinery must be designed and constructed for use without risks due to filling, use, recovery or draining.	It has been complied with.	Pass
1.1.4	Lighting	-	-
	The manufacturer must supply integral lighting suitable for the operations concerned where its lack is likely to cause a risk despite ambient lighting of normal intensity.	No integral lighting has been used.	N/A
	The manufacturer must ensure 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 due to the lighting provided by the manufacturer.	No integral lighting has been used.	N/A
	Internal parts requiring frequent inspection, and adjustment and maintenance areas, must be provided with appropriate lighting.	No integral lighting has been used.	N/A
1.1.5	Design of machinery to facilitate its	-	-

Clause	Requirement – test EN ISO 12100:2010	Result	Verdict
	handling		
	Machinery or each component part thereof must:	-	-
	- Be capable of being handle safely	All of them are capable of being Handled safely.	Pass
	- be packaged or designed so that it can be stored safely and without damage	This clause has been met.	Pass
	Where the weight, size or shape of machinery or its various component parts prevents them from being moved by hand, the machinery or each components part must:	-	-
	- Either be fitted with attachments for lifting gear, or	Not applicable.	N/A
	- Be designed so that it can be fitted with such attachments, or	Not applicable.	N/A
	- Be shaped in such a way that standard lifting gear can easily be attached	It has been complied with.	Pass
	Where machinery or one of its component parts is to be moved by hand, it must:	-	-
	- Either be easily movable, or	Not applicable.	N/A
	- Be equipped for picking up and moving in complete safety	Not applicable.	N/A
	Special arrangement must be made for the handling of tools and/or machinery parts, even if lightweight, which could be dangerous.	No this kind of situation.	N/A
1.2	Controls	-	-
1.2.1	Safety and reliability of control systems	-	-
	Control systems must be designed and constructed so that they are safe and reliable, in a way that will prevent a dangerous situation arising.	All related safe and reliable technologies have been used adequately for these machines.	Pass
	Above all they must be designed and constructed:	-	-
	- They can withstand the rigors of normal use and external factors	The whole control system can Withstand the rigors of normal use and external factors.	Pass
	- Errors in logic don’t lead to dangerous situations	Errors in logic don’t lead to dangerous situations.	Pass
1.2.2	Control devices	-	-
	Control devices must be:	-	-

Clause	Requirement – test EN ISO 12100:2010	Result	Verdict
	- Clearly visible and identifiable and appropriately marked where necessary	It has been complied with.	Pass
	- Positioned for safe operation without hesitation or loss of time, and without ambiguity	Suitable position for each control device has been taken.	Pass
	- Designed so that the movement of the control is consistent with its effect	The movement of the control is consistent with its effect.	Pass
	- Located outside the danger zones, except for certain controls where necessary, such as emergency stop, console for training of robots	They are located outside the danger zones.	Pass
	- Positioned so that their operation can't cause additional risk	Suitable position for each control device has been taken.	Pass
	- Designed or protected so that the desired effect, where a risk is involved, can't occur without an intentional operation.	This requirement has been complied with.	Pass
	- Made so as to withstand foreseeable strain, particular attention must be paid to emergency stop devices liable to be subjected to considerable strain	All of them can withstand foreseeable strain.	Pass
	Where a control 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.	No this situation.	N/A
	Controls 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	All control devices have been arranged adequately and taking account of ergonomic principles.	Pass
	Constraints due to the necessary foreseeable use of personal protection equipment must be taken into account	This kind of situation doesn't exist.	Pass
	Machinery must be fitted with indicators as required for safe operation	These machines are fitted with indicators for safe operation.	Pass
	The operator must be able to read them from the control position	They can be read from the control position.	Pass
	From the main control position the operator must be able to ensure that there are no exposed persons in the danger zones	This requirement has been complied with.	Pass

Clause	Requirement – test EN ISO 12100:2010	Result	Verdict
	If this is impossible, the control system must be designed and constructed so that an acoustic and/or visual warning signal is given whenever the machinery is about to start	This requirement has been complied with.	Pass
	The exposed person must have the time and the means to take rapid action to prevent the machinery starting up	Emergency stop switch can be used to prevent the machine starting up.	Pass
1.2.3	Starting	-	-
	It must be possible to start machinery only by voluntary actuation of a control provided for the purpose	These machines shall be started only by voluntary actuation of a control.	Pass
	The same requirement applies:	-	-
	- When restarting the machinery after stoppage, whatever the cause	The same requirement is applied.	Pass
	- When effecting a significant change in the operating conditions	The same requirement is applied.	Pass
	Unless such restarting or change in operating conditions is without risk to exposed persons	-	-
	This essential requirement doesn't apply to the restarting of the machinery or to the change in operating conditions resulting from the normal sequence of an automatic cycle	Not applicable.	N/A
	Where machinery has several starting controls and the operators can therefore put each other in danger, additional devices must be fitted to rule out such risks	Not applicable.	N/A
	It must be possible for automated plant functioning in automatic mode to be restarted easily after a stoppage once the safety conditions have been fulfilled	Not applicable.	N/A
1.2.4	Stopping device	-	-
	Normal stopping	-	-
	Each machine must be fitted with a control whereby the machine can be brought safely to a complete stop	The normal stopping devices have been used for these machines.	Pass
	Each workstation must be fitted with a control to stop some or all of the moving parts of the machinery, depending on the	Workstation has fitted with a normal stopping device.	Pass

Clause	Requirement – test EN ISO 12100:2010	Result	Verdict
	type of hazard, so that the machinery is rendered safe		
	The machinery's stop control must have priority over the start controls	They have priority over the start controls.	Pass
	Once the machinery or its dangerous parts have stopped, the energy supply to the actuators concerned must be cut off	The energy supply has been cut off after the machine is stopped.	Pass
	Emergency stop	-	-
	Each machinery must be fitted with one or more emergency stop devices to enable actual or impending danger to be averted	The machine has been fitted with emergency stops.	Pass
	The following exceptions apply:	-	-
	- Machines 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 enable the special measures required to deal with the risk to be taken	Not applicable.	N/A
	- Hand-held portable machines and hand-guided machines	Not applicable.	N/A
	The emergency stop device must:	-	-
	- Have clearly identifiable, clearly visible and quickly accessible controls	It has been complied with.	Pass
	- Stop the dangerous process as quickly as possible, without creating additional hazards	It has been complied with.	Pass
	- Where necessary, trigger or permit the triggering of certain safeguard movements	No this kind of application	N/A
	Once active operation of the emergency stop control has ceased following a stop command, that command must be sustained by engagement of the emergency stop device until that engagement is specifically overridden	Not applicable.	N/A
	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	It has been complied with.	Pass
	Complex installations	-	-
	In the case of machinery or parts of machinery designed to work together,	Not applicable.	N/A

Clause	Requirement – test EN ISO 12100:2010	Result	Verdict
	must so design and construct the machinery that the stop controls, including the emergency stop, can stop not only the machinery itself but also all equipment upstream and/or downstream if its continued operation can be dangerous		
1.2.5	Mode selection	-	-
	The control mode selected must override all other control systems with the exception of the emergency stop	The control mode of selection can override all other control systems with the exception of the emergency stop.	Pass
	If machinery has been designed and built to allow for its use in several control or operating modes presenting different safety levels, it must be fitted with a mode selector which can be locked in each position	It has been complied with.	Pass
	Each position of the selector must correspond to a single operating or control mode	Each of them is corresponding to a single operating or control mode.	Pass
	The selector may be replaced by another selection method which restricts the use of certain functions of the machinery to certain categories of operator	No this kind of application.	N/A
	If, for certain operations, the machinery must be able to operate with its protection devices neutralized, the mode selector must simultaneously:	No this kind of application.	N/A
	- Disable the automatic control mode	Not applicable.	N/A
	- Permit movements only by controls requiring sustained action	Not applicable.	N/A
	- Permit the operation of dangerous moving parts only in enhanced safety conditions while preventing hazards from linked sequences	Not applicable.	N/A
	- Prevent any movement liable to pose a danger by acting voluntarily or involuntarily on the machine's internal sensors	Not applicable.	N/A
	In addition, the operator must be able to control operation of the parts he is working on at the adjustment point.	Not applicable.	N/A
1.2.6	Failure of the power supply	-	-
	The interruption, re-establishment after an	No risk is generated from these	Pass

Clause	Requirement – test EN ISO 12100:2010	Result	Verdict
	interruption or fluctuation in whatever manner of the power supply to the machinery must not lead to a dangerous situation	accidental situations.	
	In particular:	-	-
	- The machinery must not start unexpectedly	It doesn't start unexpectedly.	Pass
	- The machinery must not be prevented from stopping if the command has already been given	This requirement has been complied with.	Pass
	- No moving part of the machinery or piece held by the machinery must fall or be ejected	No part will fall or be ejected.	Pass
	- Automatic or manual stopping of the moving parts whatever they must be unimpeded	This requirement has been complied with.	Pass
	- The protection devices must remain fully effective	All protection devices can remain effective fully.	Pass
1.2.7	Failure of the control circuit	-	-
	A fault in the control circuit, or failure of or damage to the control circuit must not lead to dangerous situations	The failure of the control circuit will not lead to dangerous situations.	Pass
	In particular:	-	-
	- The machinery must not start unexpectedly	It doesn't start unexpectedly.	Pass
	- The machinery must not be prevented from stopping if the command has already been given	This requirement has been complied with.	Pass
	- No moving part of the machinery or piece held by the machinery must fall or be ejected	No part will fall or be ejected.	Pass
	- Automatic or manual stopping of the moving parts whatever they may be must be unimpeded	This requirement has been complied with.	Pass
	- The protection device must remain fully effective	All of protection devices can remain effective fully.	Pass
1.2.8	Software	-	-
	Interactive software between the operator and the command or control system of a machine must be user-friendly	This requirement has been complied with.	Pass
1.3	Protection against mechanical hazards	-	-
1.3.1	Stability	-	-

Clause	Requirement – test EN ISO 12100:2010	Result	Verdict
	Machinery, components and fittings thereof must be so designed and constructed that they are stable enough, under the foreseen operating conditions for use without risk of overturning, falling or unexpected movement	The stability of machines, components and fittings has been taken into consideration.	Pass
	If the shape of the machinery itself or its intended installation doesn't offer sufficient stability, appropriate means of anchorage must be incorporated and indicated in the instructions	Not applicable.	N/A
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 as foreseen by the manufacturer	All parts used can withstand sufficient stress for working.	Pass
	The durability of the materials used must be adequate for the nature of the workplace foreseen by the manufacturer, in particular as regards the phenomena of fatigue, aging, corrosion and abrasion	All materials used have adequate durability.	Pass
	The manufacturer must indicate in the instructions the type and frequency of inspection and maintenance required for safety reasons, where appropriate, indicate the parts subject to wear and the criteria for replacement	This information in relation to inspection and maintenance etc. are indicated in the instruction manual.	Pass
	Where a risk of rupture or disintegration remains despite the measures taken the moving parts must be mounted and positioned in such a way that in case of rupture their fragments will be contained	No this kind of situation.	N/A
	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 against all manner of external stresses and strains; precaution must be taken to ensure that no risk is posed by a rupture	This requirement has been complied with.	Pass
	Where the material to be processed is fed to the tool automatically, the following conditions must be fulfilled to avoid risks	-	-

Clause	Requirement – test EN ISO 12100:2010	Result	Verdict
	to the persons exposed:		
	- When the work piece comes into contact with the tool the later must have attained its normal working conditions	This requirement has been complied with.	Pass
	- When the tool starts and/or stops the feed movement and the tool movement must be coordinated	This requirement has been complied with.	Pass
1.3.3	Risks due to falling or ejected objects	-	-
	Precautions must be taken to prevent risks from falling or ejected objects	This requirement has been complied with.	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	This requirement has been complied with.	Pass
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 must be designed and constructed in such a way as to enable each element to be used separately without the other elements constituting a danger or risk for the exposed person	No risk is generated from that situation for the exposed person.	Pass
	For this purpose, it must be possible to start and stop separately and elements that are not protected	No this situation.	N/A
1.3.6	Risks relating to variations in the rotational speed of tools	-	-
	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	This requirement has been complied with.	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	The moving parts is working without hazards persist.	Pass

Clause	Requirement – test EN ISO 12100:2010	Result	Verdict
	All necessary steps must be taken to prevent accidental blockage of moving parts involved in the work	This requirement has been complied with.	Pass
	In cases where, despite the precautions taken, a blockage is likely to occur, specific protection devices or tools, the instruction handbook and possibly a sign on the machinery should be provided by the manufacturer to enable the equipment to be safely unblocked	No this kind of risk situation.	N/A
1.3.8	Choice of protection against risks 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	Guards or protection devices have been used appropriately.	Pass
	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	The appropriate protection devices are used.	Pass
	- Movable, complying with requirements 1.4.1 and 1.4.2.2.A	The appropriate protection devices are used.	Pass
	B. Moving parts directly involved in the process guards or protection devices designed to protect exposed persons against the risks associated with moving parts contributing to the work must be:	-	-
	- Wherever possible fixed guards complying with requirements 1.4.1 and 1.4.2.1	The appropriate protection devices are used.	Pass
	- Otherwise, movable guards complying with requirements 1.4.1 and 1.4.2.2.B or protection devices such as sensing devices, remote-hold protection devices, or protection devices intended automatically to prevent all or part of the operator's body from encroaching to the danger zone in accordance with requirements 1.4.1 and 1.4.3	The appropriate protection devices are used.	Pass

Clause	Requirement – test EN ISO 12100:2010	Result	Verdict
	However, when certain moving parts directly involved in the process can't be made 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, complying with requirements 1.4.1 and 1.4.2.1 preventing access to those sections of the parts that are not used in the work	The appropriate protection devices are used.	Pass
	- Adjustable guards, complying with requirements 1.4.1 and 1.4.2.3 restricting access to those sections of the moving parts that are strictly for the work	Not applicable.	N/A
1.4	Required characteristics of guards and protection devices	-	-
1.4.1	General requirement	-	-
	Guards and protection devices must:	-	-
	- Be of robust construction	They are of robust construction.	Pass
	- Not give rise to any additional risk	No additional risk is generated.	Pass
	- Not be easy to bypass or render non-operational	They cannot be easy to bypass or render non-operational.	Pass
	- Be located at an adequate distance from the danger zone	Appropriate safety distances according to EN 294 has been complied with.	Pass
	- Cause minimum obstruction to the view of the production process	This requirement has been complied with.	Pass
	- Enable essential work to be carried out on installation and/or replacement of tools and also for maintenance by restricting access only to the area where the work has to be done, if possible without the guard or protection device having to be dismantled	These requirements have been taken into account during the design of the protection devices.	Pass
1.4.2	Special requirements for guards	-	-
1.4.2.1	Fixed guards	-	-
	Fixed guard must be securely held in place	This requirement has been complied with.	Pass
	They must be fixed by system that can be opened only with tools	This requirement has been complied with.	Pass
	Where possible, guards must be unable to	This requirement has been complied	Pass

Clause	Requirement – test EN ISO 12100:2010	Result	Verdict
	remain in place without their fixings	with.	
1.4.2.2	Movable guards	-	-
	A. Type A movable guards must:	-	-
	- As far as possible remain fixed to the machinery when open	Not applicable.	N/A
	- Be associated with a locking device to prevent moving parts starting up as long as these parts can be accessed and to give a stop command whenever they are no longer closed	This requirement has been complied with.	Pass
	B. Type B movable guards 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	This requirement has been complied with.	Pass
	- The exposed person can't reach moving parts once they have started up	Not applicable.	N/A
	- They can be adjusted only by means of an intentional action, such as the use of a tool, etc.	Not applicable.	N/A
	- The absence or failure of one of their components prevents starting or stops the moving parts	Not applicable.	N/A
	- Protection against any risk of ejection is provided by means of an appropriate barrier	Not applicable.	N/A
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.	N/A
	- Be readily adjustable without the use of tools	Not applicable.	N/A
	- Reduce as far as possible the risk of ejection	Not applicable.	N/A
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	This requirement has been	Pass

Clause	Requirement – test EN ISO 12100:2010	Result	Verdict
	are within the operator's reach	complied.	
	- The exposed person can't reach moving parts once they have started up	This requirement has been complied.	Pass
	- They can be adjusted only by means of an intentional action, such as the use of a tool, etc.	This requirement has been complied.	Pass
	- The absence or failure of one of their components prevents starting or stops the moving parts	This requirement has been complied.	Pass
1.5	Protection against other hazards	-	-
1.5.1	Electricity supply	-	-
	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	Appropriate protections have been taken.	Pass
	The specific rules in force relating to electrical equipment designed for use within certain voltage limits must apply to machinery which is subject to those limits	This requirement has been complied.	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	Adequate safety design for this requirement has been taken.	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	Not applicable.	N/A
1.5.4	Errors 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 of such parts or, failing this, by information on moving parts and/or their housings where the direction of movement must be known to avoid a risk	Fitting should be taken by technicians.	Pass
	Any further information that may be necessary must be given in the instructions	Adequate instructions are given in the instruction manual.	Pass

Clause	Requirement – test EN ISO 12100:2010	Result	Verdict
	Where a faulty connection can be the source of risk, incorrect fluid connections, including electrical conductors, must be made impossible by the design or, failing this, by information given on the pipes, cables, etc. and/or connectors blocks	The relative safety technologies have been taken and sufficient information has been given.	Pass
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	Adequate safety mark for this requirement has been taken.	Pass
	The risk of hot or very cold materials being ejected should be assessed where this risk exists, the necessary steps must be taken to prevent it or, if this is not technically possible, to render it non-dangerous	Adequate safety design for hot materials ejection has been taken.	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 machinery	This kind of situation doesn't exist.	N/A
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	No explosion risk is generated.	N/A
	To that end the manufacturer must take steps to:	-	-
	- Avoid a dangerous concentration of products	Not applicable.	N/A
	- Prevent combustion of the potentially explosive atmosphere	Not applicable.	N/A
	- Minimize any explosion which may occur so that it doesn't endanger the surroundings	Not applicable.	N/A
	The same precautions must be taken if the manufacturer foresees the use of the machinery in potentially explosive atmosphere	Not applicable.	N/A
	Electrical equipment forming part of the	Not applicable.	N/A

Clause	Requirement – test EN ISO 12100:2010	Result	Verdict
	machinery must conform, as far as the risk from explosion is concerned, to the provision of the specific Directive in force		
1.5.8	Noise	-	-
	Machinery must be so designed and constructed that risks resulting from the emission of airborne noise are reduced to the lowest level taking accounting of technical progress and the availability of means of reducing noise, in particular at source	Appropriate measure has been taken.	Pass
1.5.9	Vibration	-	-
	Machinery must be so designed and constructed that risks resulting from 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	Appropriate design and construction have been taken.	Pass
1.5.10	Radiation	-	-
	Machinery must be so designed and constructed that any emission of radiation is limited to the extent necessary for its operation and that the effects on exposed persons are non-existent or reduced to non-dangerous proportions	No harmful emission of radiation has been found.	N/A
1.5.11	External radiation	-	-
	Machinery must be so designed and constructed that external radiation doesn't interfere with its operation	Appropriate EMC protection measure has been taken.	Pass
1.5.12	Laser equipment	-	-
	Where laser equipment is used, the following provisions should be taken into account;	No laser equipment is used.	N/A
	- Laser equipment on machinery must be designed and constructed so as to prevent any accidental radiation	No laser equipment is used.	N/A
	- Laser equipment on machinery must be protected so that effective radiation, radiation produced by reflection or diffusion and secondary radiation don't damage health	No laser equipment is used.	N/A
	- Optical equipment for the observation or	No laser equipment is used.	N/A

Clause	Requirement – test EN ISO 12100:2010	Result	Verdict
	adjustment of laser equipment on machinery must be such that no health risk is created by the laser rays		
1.5.13	Emission of dust, gases, etc.	-	-
	Machinery must be so designed, constructed and/or equipped that risks due to gases, liquids, dust, vapors and other waste materials which it produces can be avoided	It has been complied with.	Pass
	Where a hazard exists, the machinery must be so equipped that the said substances can be contained and/or evacuated	No this kind of hazard exists.	N/A
	Where machinery is not enclosed during normal operation, the devices for containment and/or evacuation must be situated as close as possible to the source emission	Not applicable.	N/A
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	This kind of situation doesn't exist.	N/A
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	No slipping, tripping or falling risk has been found.	N/A
1.6	Maintenance	-	-
1.6.1	Machinery maintenance	-	-
	Adjustment, lubrication and maintenance points must be located outside danger zones	One adjustment points with movable guard should be operated by a specified people, and must be stopped before open the door. Appropriate means have been given in the instruction manual.	N/A
	It must be possible to carry out adjustment, maintenance, repair, cleaning and servicing operations while machinery is at a standstill	These jobs can be carried out while the machine is at a standstill.	Pass
	If one or more of the above conditions	Not applicable.	N/A

Clause	Requirement – test EN ISO 12100:2010	Result	Verdict
	can't be satisfied for technical reasons, these operations must be possible without risk		
	In the case of automated machinery and, where necessary, other machinery, the manufacturer must take provision for a connecting device for mounting diagnostic fault-finding equipment	This kind of situation doesn't exist.	N/A
	Automated machine components which have to be changed frequently, in particular for a change in manufacture or where they are liable to wear or likely to deteriorate following an accident, must be capable of being removed and replaced easily and in safety	The relative components can be removed and replaced easily and in safety.	Pass
	Access to the components must enable these tasks to be carried out with the necessary technical means in accordance with an operating method specified by the manufacturer	Appropriate means have been given in the instruction manual.	Pass
1.6.2	Access to operating position and servicing points	-	-
	The manufacturer must provide means of access to allow access in safety to all areas used for production, adjustment and maintenance operations	Appropriate protection measures have been taken so that all areas can be accessed safely.	Pass
1.6.3	Isolation of energy sources	-	-
	All machinery must be fitted with means to isolate it from all energy sources	Suitable insulating devices are used.	Pass
	Such isolators must be clearly identified	They are identified clearly.	Pass
	They must be capable of being locked if reconnection could endanger exposed persons	Not applicable.	N/A
	In the case of machinery supplied with electricity through a plug capable of being plugged into a circuit, separation of the plug is sufficient	The clause has been met.	Pass
	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	Not applicable.	N/A
	After the energy is cut off, it must be	This requirement has been complied	Pass

Clause	Requirement – test EN ISO 12100:2010	Result	Verdict
	possible to dissipate normally any energy remaining or stored in the circuits of the machinery without risk to exposed persons	with.	
	As an exception to the above requirements, certain circuits may remain connected to their energy source in order, for example, to hold parts, protect information, light interiors, etc. In this case, special steps must be taken to ensure operator safety	This kind of situation doesn't exist.	N/A
1.6.4	Operator intervention	-	-
	Machinery must be so designed, constructed and equipped that the need for operator intervention is limited	The operator intervention has been limited.	Pass
	If operator intervention can't be avoided, it must be possible to carry it out easily and in safety	No this kind of situation.	N/A
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	The clause has been met.	Pass
	If it is absolutely impossible to avoid entering the machinery, the manufacturer must take steps during its construction to allow cleaning to take place with the minimum of danger	The clause has been met.	Pass
1.7	Indicators	-	-
1.7.1	Information devices	-	-
	The information needed to control machinery must be unambiguous and easily understood	Be unambiguous and easily understood.	Pass
	It must not be excessive to the extent of overloading the operator	No this situation is found.	Pass
	Where the health and safety of exposed persons may be endangered by a fault in the operation of unsupervised machinery, the machinery must be equipped to give an appropriate acoustic or light signal as a warning	Not applicable.	N/A

Clause	Requirement – test EN ISO 12100:2010	Result	Verdict
1.7.2	Warning devices	-	-
	Where machinery is equipped with warning devices, these must be unambiguous and easily perceived	This requirement has been complied with.	Pass
	The operator must have facilities to check the operation of such warning devices at all times	This requirement has been complied with.	Pass
	The requirements of the specific directives concerning colors and safety signals must be complied with	This requirement has been complied with.	Pass
1.7.3	Warning of residual risks	-	-
	Where risks remain despite all the measures adopted or in the case of potential risks which are not evident, the manufacturer must provide warnings	Appropriate warning has been taken.	Pass
	Such warnings should preferably use readily understandable pictograms and/or be drawn up in one of the languages of the country in which the machinery is to be used, accompanied, on request, by the languages understood by the operators	They can be understood readily.	Pass
1.7.4	Marking	-	-
	All machinery must be marked legibly and indelibly with the following minimum particular:	-	-
	- Name and address of the manufacturer	It has been marked.	Pass
	- CE mark, which includes the year of construction	It has been marked.	Pass
	- Designation of series or type	It has been marked.	Pass
	- Serial number, if any	It has been marked.	Pass
	Furthermore, where the manufacturer constructs machinery intended for use in a potentially explosive atmosphere, this must be indicated on the machinery	Not applicable.	N/A
	Machinery must also bear full information relevant to its type and essential to its safe use	This information has been provided.	Pass
	Where a machine part must be handled during use with lifting equipment, its mass must be indicated legibly, indelibly and unambiguously	This information has been provided.	Pass
	The interchangeable equipment referred to	No this situation.	N/A

Clause	Requirement – test EN ISO 12100:2010	Result	Verdict
	in article 1 (2), third subparagraph, must bear the same information		
1.7.5	Instructions	-	-
	a) All machinery must be accompanied by instructions including at least the following:	-	-
	- A repeat of the information with which the machinery is marked, except the serial number, together with any appropriate additional information to facilitate maintenance	It has been included in the instructions.	Pass
	- Foreseen use of the machinery within the meaning of 1.1.2 (c)	It has been included in the instructions.	Pass
	- Workstation(s) likely to be occupied by operators	It has been included in the instructions.	Pass
	- Instructions for safe	It has been included in the instructions.	Pass
	- Putting into service	It has been included in the instructions.	Pass
	- Use	It has been included in the instructions.	Pass
	- Handling, giving the mass of the machinery and its various parts where they are regularly to be transported separately	It has been included in the instructions.	Pass
	- Installation	It has been included in the instructions.	Pass
	- Assembling, dismantling	It has been included in the instructions.	Pass
	- Adjustment	It has been included in the instructions.	Pass
	- Maintenance (servicing and repair)	It has been included in the instructions.	Pass
	- Where necessary, training instructions	Not applicable.	N/A
	- Where necessary, the essential characteristics of tools which may be fitted to the machinery	Not applicable.	N/A
	Where necessary, the instructions should draw attention to ways in which the machinery should not be used	It has been included in the instructions.	Pass
	b) The instructions must be drawn up in one of the community languages by the manufacturer or his authorized	In English.	Pass

Clause	Requirement – test EN ISO 12100:2010	Result	Verdict
	representative established in the community		
	On being put into service, all machinery must be accompanied by a translation of the instructions in the language or languages of the country in which the machinery is to be used and by the instructions in the original language	It has been complied with.	Pass
	This translation must be done either by the manufacturer or his authorized representative established in the Community or by the person introducing the machinery into the language area in question	It has been complied with.	Pass
	By way of derogation from this requirement, the maintenance instructions for use by the specialized personnel employed by the manufacturer or his authorized representative established in the community may be drawn up in only one of the community languages understood by that personnel	It has been complied with.	Pass
	c) The instructions must contain the drawing and diagrams necessary for putting into service, maintenance, inspection, checking of correct operation and, where appropriate, repair of the machinery and all useful instructions in particular with regard to safety	It has been complied with.	Pass
	d) Any literature describing the machinery must not contradict the instructions as regards safety aspects	It has been complied with.	Pass
	The technical documentation describing the machinery must give information regarding the airborne noise emission referred to in (f) and, in the case of hand-held and/or hand-guided machinery, information regarding vibrations as referred to in 2.2	It has been complied with.	Pass
	e) Where necessary, the instructions must give the requirements relating to installation and assembly for reducing noise or vibration	Not applicable.	N/A

Clause	Requirement – test EN ISO 12100:2010	Result	Verdict
	f) The instructions must give the following information concerning airborne noise emission by the machinery, either the actual value or a value established on the basis of measurements made on identical machinery:	-	-
	- Equivalent continuous A-weighted pressure level at workstations, where this exceeds 70 dB (A); where this level doesn't exceed 70 dB (A), this fact must be indicated	See the instruction manual in detail	Pass
	- Peak C-weighted instantaneous sound pressure value at workstations, where this exceeds 63 Pa (130 dB in relation to 20 MPa)	Not applicable.	N/A
	- Sound power level emitted by the machinery where the equivalent continuous A-weight sound pressure level at workstations exceeds 85 dB (A)	Not applicable.	N/A
	In the case of very large machinery, instead of the sound power level, the equivalent continuous sound pressure levels at specified positions around the machinery may be indicated	Not applicable.	N/A
	Where the harmonized standards are not applied, sound levels must be measured using the most appropriate method for the machinery	The harmonized standards are applied.	Pass
	The manufacturer must indicate the operating conditions of the machinery during measurement and what methods have been used for the measurement	See the instruction manual in detail.	Pass
	Where the workstation(s) are undefined or can't be defined, sound pressure levels must be measured at a distance of 1 meter from the surface of the machinery and at a height of 1.60 meters from the floor or access platform	The workstation(s) are defined.	Pass
	The position and value of the maximum sound pressure must be indicated	See the instruction manual in details.	Pass
	g) If the manufacturer foresees that the machinery will be used in a potentially explosive atmosphere, the instructions	The machine will not be used in a potentially explosive atmosphere.	N/A

Clause	Requirement – test EN ISO 12100:2010	Result	Verdict
	must give all the necessary information		
	h) In the case of machinery which may also be intended for use by non-professional operators, the wording and layout of the instructions for use, whilst respecting the other essential requirements mentioned above, must take into account the level of general education and acumen that can reasonably be expected from such operators	It has been complied with.	Pass
2	Essential health and safety requirements for certain categories of machinery	-	-
3	Essential health and safety requirements to offset the particular hazards due to the mobility machinery	-	-
4	Essential health and safety requirements to offset the particular hazards due to a lifting operation	-	-
5	Essential health and safety requirements for machinery intended for underground work	-	-
6	Essential health and safety requirements to offset the particular hazards due to the lifting or moving of persons	-	-

Risk Assessment Report	
Applicant	NINGBO HAIJIANG MACHINERY MANUFACTURING CO.,LTD. Tongyi Industrial Zone, Dongwu Town, Yinzhou, Ningbo, Zhejiang, China
Manufacturer	NINGBO HAIJIANG MACHINERY MANUFACTURING CO.,LTD. Tongyi Industrial Zone, Dongwu Town, Yinzhou, Ningbo, Zhejiang, China
Trademark	
Product Name	Injection Molding Machine
Model No.	HJF2000
Rated Voltage	380 V
Motor Power	55 kW
Heat Power	110.7 kW
Verifying specification	
-standard(s):	EN ISO 12100:2010
-verification method:	Visual Inspection and/or testing and/or Measurement and/or Calculation and/or Engineer assessment
Possible verdicts	
-does not apply to the EUV:	N/A(Not Applicable)
-does meet the requirement:	P(Pass)
-does not meet the requirement:	F(Fail)
Date and Place of Verifying	Jul. 20 in Manufactory
Verification body	QA Service-Product Certification
Result Of Verification	Compliance with the requirements of EN ISO 12100:2010
-Content:	11 pages
General remarks: 1.The results only respond to the sample, and are invalided as separately used.	

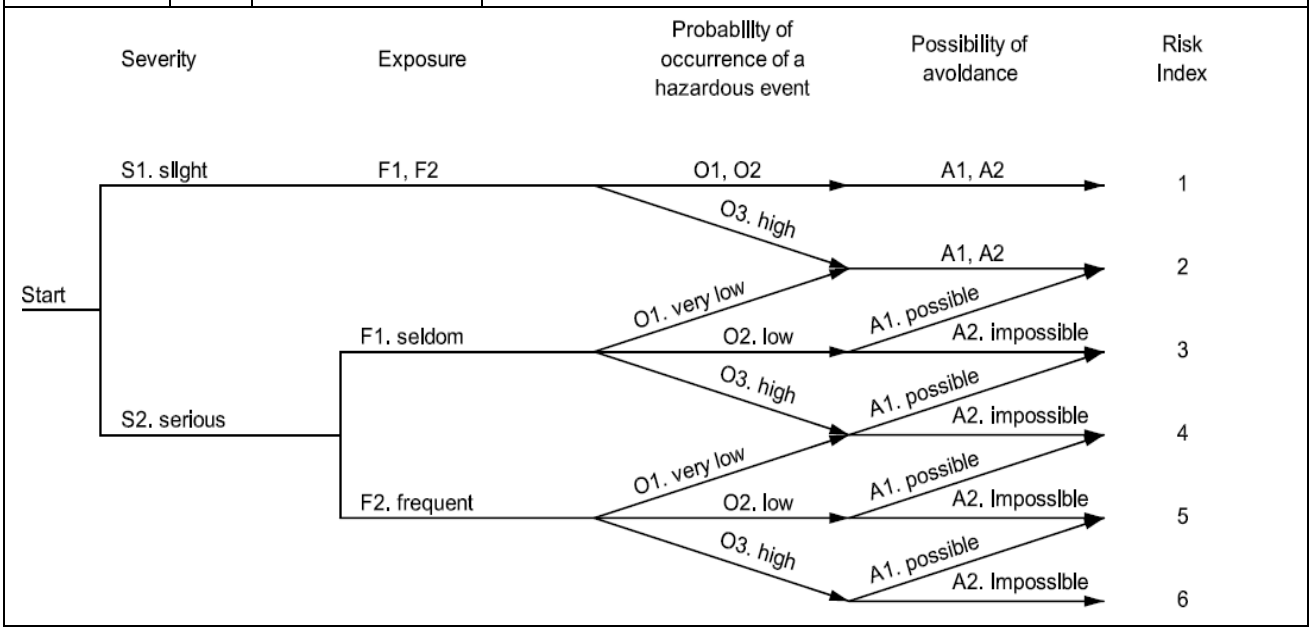
I. General information

Description of product:	Plastic Injection Molding Machine	
Assessed model no.:	HJF2000	
Rating(s):	380V 3PH 50 Hz	
Use limits:	Temperature: 0℃~40℃, Relative Humidity: <75% Not used in potential explosive	
Space limits:	L 4200mm W 2400mm *H 3000mm	
Time limits:	10 years	
Assessment type		Pre-risk assessment
		Intermediate risk assessment
	√	Follow-up risk assessment
Results:	Please see the following pages in detail	
Conclusions:	All identification, inspection and evaluation have been carried out in accordance with EN ISO 12100:2010 The assessed results are that the mechanical structures, electrical system, and hydraulic/pneumatic etc. of these machines are in compliance with the relevant safety requirements based on the sampled machine, and the technical documents provided by the manufacturer are also in conformity with necessary requirements.	

II Method of risk assessment:

This risk assessment report is based on the methods in EN ISO12100, and uses the 4 factors S-F-O-A for risk level identification and evaluation. The description of the method is as followings:

Factor	Category		Criteria
Severity of harm	**S1**	Slight injury	Normally reversible; or requires only first-aid
	S2	Serious injury	Normally irreversible; or fatality; or requires more than first-aid
Exposure	**F1**	Infrequent exposure	Frequency: < 2 times / work shift or duration: < 15 min/ work shift
	F2	Infrequent exposure	Frequency: > 2 times / work shift or duration: > 15 min/ work shift
	O1	Rarely	Mature technology, proven and recognized in safety application
	O2	Sometime	Technical failure observed in the two last years
	O3	Regularly	Technical failure regularly observed (every six months or less)
Avoidance	**A1**	Possible	Possible
	A2	Impossible	Impossible



Solutions for the level of hazards

a risk index of 1 or 2 corresponds to the lowest priority of action (priority 3)

a risk index of 3 or 4 corresponds to a medium priority of action (priority 2)

and a risk index of 5 or 6 corresponds to the highest priority of action (priority 1)

Possible means of reducing risk which has been identified and evaluated are considered and the risk is then estimated for the final design using the same risk graph in the same manner as for the initial design.

Ref. No.	Hazard	Accident scenario	Danger zone	Person
1.0	Mechanical hazards	--	--	--
1.1	**Crushing** 	1. When access the moving clamping mechanism area. 2. When access the moving plate in mould area	the moving clamping mechanism area/ moving plate in mould area	Operator maintainer
1.2	**Shearing** 	**N/A**		
1.3	**Cutting/severing** 	**N/A**		
1.4	**Entanglement** 	**N/A**		
1.5	**Drawing-in / trapping** 	**N/A**		
1.6	**Impact** 	**N/A**		
1.7	**Stabbing / puncture** 	**N/A**		

Ref. No.	Hazard	Accident scenario	Danger zone	Person
1.8	 Friction/	N/A	-	-
1.9	 Slipping /tripping /falling	N/A	-	-
1.10	 Being run over/	N/A	-	-
1.11	 Suffocation	N/A	-	-
1.12	 High pressure fluid	When pipe broken	Hydraulic system	Operator maintainer
1.13	Ejection of parts  (material or work piece)	When access the injection nozzle.	Injection nozzle area.	Operator maintainer
1.14	Loss of stability (of machinery and machine parts).	N/A	-	-
2.0	Electrical hazards	--		
2.1	 Shock/ burn-direct/	Direct contact and/or Indirect contact with the live parts in failure of insulation during operation.	Whole machine	Operator maintainer

Ref. No.	Hazard	Accident scenario	Danger zone	Person
2.2	Electrostatic phenomenon	N/A	-	-
2.3	Electromagnetic phenomenon-effects  on medical implants 	N/A	-	-
2.4	Falling, being thrown	N/A	-	-
2.5	Fire	Fire due to burn of wire or component cause by overload or inappropriate designation.	Whole machine	Operator maintainer
2.6	Projection of molten particle	N/A	-	-
2.7	Thermal radiation	N/A	-	-
3.0	Thermal hazards	N/A	-	-
3.1	Burn 	N/A		
3.2	Dehydration	N/A	-	-
3.3	Discomfort	N/A	-	-
3.4	Frostbite 			
3.5	Injury by the heat radiation	N/A	-	-
3.6	Scald 	Touch the high temperature area	High temperature area.	Operator maintainer

Ref. No.	Hazard	Accident scenario	Danger zone	Person
4.0	Noise	--		
4.1	 Discomfort-tinnitus, tiredness	N/A	-	-
4.2	Loss of awareness, balance, hearing	N/A	-	-
4.3	Indirect injury-interference with speech	N/A	-	-
5.0	Vibration	--		
5.1	Discomfort	N/A	-	-
5.2	Low-back morbidity	N/A	-	-
5.3	Neurological disorder	N/A	-	-
5.4	Osteo-articular disorder	N/A	-	-
5.4	Trauma of the spine	N/A	-	-
5.6	Vascular disorder	N/A	-	-
6.0	Radiation	--		
6.1	Low/high frequency,radio frequency  radiation, microwaves	N/A	-	-
6.2	Infrared, visible and ultraviolet light 	N/A	-	-

Ref. No.	Hazard	Accident scenario	Danger zone	Person
6.3	 X and gamma	N/A	-	-
6.4	Alpha, beta rays, electron or ion beams, neutrons	N/A	-	-
6.5	 Lasers	N/A	-	-
7.0	Material/ substance	--		
7.1	Hazards resulting from contact with or inhalation of harmful fluids, gases, mists,fumes and dusts 	N/A	-	-
7.2	Biological and microbiological (viral or bacterial)	N/A	-	-
7.3	Explosion/fire-combustible and Flammable 	N/A		
7.4	Poisoning corrosive material, aerosol, toxic gas/ fluid/ fume/ mist, oxidizer	N/A		
7.5	Sensitization- fiber	N/A		

Ref. No.	Hazard	Accident scenario	Danger zone	Person
8.0	Ergonomic	--		
8.1	Discomfort-Unhealthy posture or excessive efforts	N/A	-	-
8.2	Visibility-inadequate local lighting	N/A	-	-
8.3	Mental overload or underload, stress etc.	N/A	-	-
8.4	Inadequate design, location or identification of manual controls	N/A	-	-
8.5	Inadequate design or location ovisual display units	N/A	-	-
8.6	Repetitive activity, posture	N/A	-	-
8.7	Flicker, dazzing, shadow, stroboscopic	N/A	-	-
9.0	Associated with environment	--		
9.1	Lack of oxygen	N/A	-	-
9.2	Slipping, falling	N/A	-	-
9.3	Disease	N/A		
9.4	Any other as a consequence of the effect caused by the sources of hazards of the machine or parts	N/A		
10.0	Combination	N/A		

Ref. No.	Hazard	Accident scenario	Danger zone	Person
11.0	**Other hazards**			
11.1	**Failure/disorder of control system (unexpected start-up, unexpected overrun)**	**N/A**		
11.2	**Restoration of energy supply after an interruption.**	**N/A**	**-**	**-**
11.3	**External influence on electrical equipment**	**N/A**	**-**	**-**
11.4	**Other external influences (gravity, wind, etc.)**	**N/A**	**-**	**-**
11.5	**Errors in the software**	**N/A**	**-**	**-**
11.6	**Errors made by the operator (due to mismatch of machine)**	**N/A**	**-**	**-**
11.7	**Breaking down**	**N/A**	**-**	**-**
11.8	**Liquid shock**	**N/A**	**-**	**-**
11.9	**Pressure relief device**	**N/A**	**-**	**-**

Risk assessment & risk reduction												
Ref. No.	Risk estimation (Initial risk)					Risk reduction / protective measures	Risk estimation (Risk reduction)					OK / NG
	S	F	O	A	Index		S	F	O	A	Index	
1.1	2	1	2	2	3	1.Warning signs relating to crushing hazard are provided on related area; 2. Interlocking guard are provided on related area;	2	1	1	1	2	OK
1.12	2	1	2	1	2	1. Chains for anti whiplash were provided.	1	1	1	1	1	OK
1.13	2	1	2	2	3	1.Warning signs relating to injection hazard are provided on related area; 2. Interlocking guard are provided on related area;	2	1	1	1	2	OK
2.1	2	2	2	2	5	1. Approved components are used. 2. Contact test in accordance with EN60204-1 are carried out so that it can't touch the live parts. 3. Electric tests in accordance with EN60204-1are carried out. 4. Safety precautions are provided in user manual.	2	1	1	1	2	OK
2.5	2	1	1	2	2	1. Approved components are used. 2. Electric tests in accordance with EN60204-1 are carried out. 3. Safety precautions are provided in user manual.	2	1	1	1	2	OK
3.6	2	1	1	2	4	1. Warning signs relating to scald hazard are provided on the related area. 2. The surface of the guard is less than 70℃.	2	1	1	1	2	OK

Clause	Requirement – test EN 201:2009	Result	Verdict
0	Introduction	-	-
1	Scope	-	-
2	Normative references	-	-
3	Terms and definitions	-	-
4	List of significant hazards	-	-
5	Safety requirements and/or measures	-	-
	Safety distances shall be in accordance with EN 294:1992, table 1. These distances shall be taken from the reference planes. Emergency stop equipment shall be in accordance with EN 418. Stop category 0 or stop category 1 may be selected unless otherwise specified	EN 294 and EN 418 have been considered.	Pass
	The following specific protection devices are used on injection moulding machines:	-	-
	a) Protection device type I	-	-
	Movable interlocking guard (see EN 292-1:1991, 3.22.2 and 3.22.4) with one position switch (see EN 1088:1995, 6.2) acting on the main shut-off device of the power circuit (e.g. valve, contactor) via the control circuit. When the guard is closed the position switch:	Movable interlocking guard accordance with (see EN 292-1:1991, 3.22.2 and 3.22.4) with one position switch (see EN 1088:1995, 6.2)	Pass
	- shall not be operated;	It is compliance with requirement	Pass
	- shall have closed contacts or function in an equivalent mode;	It is compliance with requirement	Pass
	- shall authorize the control signal initiating the dangerous movement.	It is compliance with requirement	Pass
	When the guard is opened, the position switch shall be positively and directly operated by the guard and shall positively interrupt the control signal initiating the dangerous movement.	It is compliance with requirement	Pass

Clause	Requirement – test EN 201:2009	Result	Verdict
	In general safety shall be maintained in the case of a single fault. For example if relays, controlled by the position switch, are used for the purpose of contact multiplying, monitoring of these relays is necessary. This monitoring may be realized by the use of a programmable electronic system. The single fault safety requirement does not apply to the position switch or main shutoff device since it is assumed that these are well tried components.	It is compliance with requirement	Pass
	b) Protection device type II	-	-
	Movable interlocking guard with two position switches both acting on the main shutoff device of the power circuit via the control circuit.	It has been considered.	Pass
	The first position switch shall act in accordance with protection device type I	It has been accordance with protection device type I	Pass
	When the guard is closed, the second position switch:	-	-
	- shall be operated by the guard;	It has been considered.	Pass
	- shall have closed contacts or function in an equivalent mode;	It is compliance with requirement	Pass
	- shall authorize the control signal initiating the dangerous movement.	The machine can meet this kind of demand.	Pass
	When the guard is opened the second position switch shall no longer be operated and shall interrupt the control signal initiating the dangerous movement.	When the guard is opened the second position switch, the machine is stopped.	Pass

Clause	Requirement – test EN 201:2009	Result	Verdict
	The correct functioning of the two position switches shall be monitored at least once during each movement cycle of the guard, so that a fault in one of the two position switches shall be automatically recognized and commencement of any further dangerous movement shall be prevented.	It has been taken into account during design.	Pass
	c) Protection device type III	-	-
	Movable interlocking guard with two interlocking devices independent of one another. One device shall act via the control circuit in accordance with protection device type II. The other interlocking device shall act directly or indirectly on the power circuit using a position detector (see EN 1088:1995, 5.1 and 5.2).	The main guards has been equipped with a protection device type III	Pass
	When the guard is closed the position detector:	-	-
	- shall not be operated;	It is compliance with requirement	Pass
	- shall have closed contacts or function in an equivalent mode;	It has been considered.	Pass
	- shall enable the power circuit.	It has been considered.	Pass
	When the guard is opened the position detector shall be positively and directly operated by the guard and shall interrupt the power circuit via the second shutoff device.	When the guard is opened the second position switch, the machine is stopped.	Pass

Clause	Requirement – test EN 201:2009	Result	Verdict
	The correct functioning of the two interlocking devices shall be monitored at least once during each movement cycle of the guard, so that a fault in one of the two interlocking devices shall be automatically recognized and commencement of any further dangerous movement shall be prevented. Additional requirements are given in annex A.	It has been considered during design	Pass
	In addition to the protection devices described above, fixed guards in accordance with EN 292-1:1991, 3.22.1 and safety devices in accordance with EN 292-1:1991, 3.23 may be used.	fixed guards in accordance with EN 292-1:1991, 3.22.1 and safety devices in accordance with EN 292-1:1991, 3.23 has been used	Pass
	Guards shall be designed in accordance with prEN 953:1992. They shall preferably be mounted on or close to the machine.	Guards has been designed in accordance with prEN 953:1992	Pass
	The requirements for movable guards also apply to access doors in fences.	It has been considered.	Pass
	NOTE According to EN 953:1992, access doors in fences are regarded as movable guards in fixed guards.	According to EN 953:1992	Pass
	From the selection of guards or safety devices see the following subclauses, where minimum requirements are specified.	It is compliance with requirement	Pass
5.1	General	-	-
5.1.1	Mechanical hazards	-	-
5.1.1.1	Crushing and/or shearing and/or impact hazards	-	-

Clause	Requirement – test EN 201:2009	Result	Verdict
	If the movement of power operated guards can cause injury (see prEN 953:1992, 5.2.4.2) then trip devices (see EN 292-1:1991, 3.23.5) shall be fitted which will immediately either arrest or reverse the closing movement of the power operated guard. Reversing the movement shall not create further hazards.	It has been considered.	Pass
	To prevent whiplash, flexible hoses with pressures higher than 5 MPa and their connections shall be designed to prevent tearing from the fittings and unintentional detachment from connection points	It has been considered.	Pass
	Tearing can be prevented by the use of tear proof fittings e.g. firm fit connection between hose and fitting. Alternatively dangerous whiplash of flexible hoses can be prevented by fixed enclosing guards (see prEN 953:1992, 3.2.1) and/or additional attachment of the hoses e.g. by a chain.	It has been considered.	Pass
	To prevent unintentional detachment from connection points, cutting ring type connectors shall not be used. Appropriate connections are for example flanged joints, flared unions or conical nipple connections.See also 7.1.6.	It has been considered.	Pass
5.1.1.2	Hazards due to release of fluids under pressure	-	-
	To prevent the uncontrolled release of fluids under pressure hydraulic and pneumatic equipment shall be designed in accordance with EN 292:1991/A1: 1995, 3.8, prEN 982:1992 and prEN 983:1992.	The designed in accordance with EN 292:1991/A1:1995, 3.8, prEN 982:1992 and prEN 983:1992..	Pass

Clause	Requirement – test EN 201:2009	Result	Verdict
	To prevent release of pressurized fluids from hose assemblies, the requirements listed in 5.1.1.1 for flexible hoses and their connections shall be met.	It is compliance with requirement	Pass
5.1.2	Electrical hazards	-	-
	Electrical equipment shall be in accordance with EN 60204-1:1992.	Electrical equipment shall be in accordance with EN 60204-1:2006.	Pass
5.1.3	Thermal hazards	-	-
	To prevent burns through unintentional contact with heat conditioning hoses and fittings, fixed guards or insulation shall be provided at accessible parts outside of the guarded area where the maximum operating temperature can exceed the limit values determined in accordance with EN ISO13732-1:2006, which Supersedes EN 563:1994. In addition warning signs shall be fitted (see 7.2).	In accordance with EN ISO13732-1:2006(see hot surface temperature test report), and warning signs has been fitted.	Pass
	To prevent injury from escaping fluids, uncovered heat conditioning hoses and fittings shall be covered by guards able to contain these fluids.	It is compliance with requirement	Pass
5.1.4	Hazards generated by noise	-	-
	The machine shall be designed in accordance with EN 292:1991/A1:1995, annex A, 1.5.8.	It has been considered.	Pass
	For the hydraulic system, noise reduction shall be achieved by selecting low noise components and/or by partial or complete insulation using the state of the art. Noise reduction for the pneumatic system shall be achieved by the application of vent silencers according to the state of the art.	It has been considered.	Pass
5.1.5	Hazards generated by gases, fumes and dust	-	-

Clause	Requirement – test EN 201:2009	Result	Verdict
	The machine shall be so designed that an exhaust system can be fitted or positioned, for the extraction of harmful substances. This standard does not cover the requirements for the design of an exhaust system (see clause 1). See also 7.1.3.	Not applicable	N/A
5.1.6	Slip, trip and fall hazards	-	-
	Designated access positions on the machine shall be permanently marked.	Not applicable	N/A
	Marked positions shall be:	-	-
	- safe against slipping and tripping;	Not applicable	N/A
	- safe against falling (for heights 1 000mm above floor level);	Not applicable	N/A
	- provided with safe means of access.	Not applicable	N/A
5.2	Additional safety requirements and/or measures in specific machine areas	-	-
5.2.1	Mould area	-	-
5.2.1.1	Mechanical hazards	-	-
5.2.1.1.1	Hazards due to the closing movement of the platen	-	-
	Access to the mould area shall be prevented by protection devices type III for the platen closing movement complemented by fixed guards where necessary.	safety guards has been compliance with the requirements.	Pass
	A movable guard may not require interlocking if it is mechanically connected to a protection device type III, provided reliable connecting elements are used.	Interlocking has been used.	Pass

Clause	Requirement – test EN 201:2009	Result	Verdict
	For machines with platen movements in one horizontal axis, access via the top side shall be prevented by protection devices type II. A movable top guard is not required where safety distances from designated access positions are achieved by design or by fixed guards.	It has been taken into account during design.	Pass
	The movable guards shall preferably be designed so that it is not possible for persons to stay between the guards and the mould area. This requirement is met e.g. if the dimensions in Figure 8 (< 150 mm) are achieved. Where it is possible for persons to stay between the guards and the mould area or to gain whole body access into the mould area (see 5.3.2, a, b, c, d) the requirements of 5.3.1 and/or 5.3.2 shall be met.	It is compliance with requirement	Pass
5.2.1.1.2	Sides of the machine where a cycle cannot be initiated	-	-
	Alternatively to protection devices type III, an interlocking guard with two position switches may be used at sides where a cycle cannot be initiated provided that whole body access to the mould area, or between the mould area and the guard, is not possible.	It is compliance with requirement	Pass
	When the guard is opened the two position switches shall:	-	-
	switch off the main drive for the closing movement of the platen; and	It is compliance with requirement	Pass
	shut off the energy accumulator for the closing movement of the platen.	It is compliance with requirement	Pass
	To fulfil these requirements, only hardwired circuits using electro-mechanical components shall be used.	It is compliance with requirement	Pass

Clause	Requirement – test EN 201:2009	Result	Verdict
	When the guard is returned to its closed position manual resetting of the controls shall be necessary at the side of the machine where a cycle can be initiated.	It is compliance with requirement	Pass
5.2.1.1.3	Hazards due to the other movements listed in 4.2.1.1	-	-
	The movable guards as specified in 5.2.1.1.1or 5.2.1.1.2 shall also protect against these other movements. For these movements the guards shall act as protection devices type II.	These movments the guards has been act as protection devices type II .	Pass
	When a guard is opened it shall:	-	-
	-interrupt the cycle; plasticizing may continue if escape of the plasticized material is prevented and the nozzle contact force cannot lead to a hazardous situation;	It is compliance with requirement	Pass
	-arrest and prevent forward movement of the screw or plunger;	Not applicable	N/A
	- arrest and prevent forward movement of the injection unit;	Not applicable	N/A
	- arrest and prevent dangerous movements of cores and ejectors; and their drive mechanisms.	Not applicable	N/A
	The machine may be equipped with a lockable switch to allow manual operation of cores and ejectors when the guards for the mould area are open, using a hold to run control device	Not applicable	N/A
	or a two hand control device (see EN 292-1:1991, 3.23.4), in accordance with prEN 574:1995, type IIIB, or a limited movement control device.	Not applicable	N/A
5.2.1.1.4	Use of control guards	-	-

Clause	Requirement – test EN 201:2009	Result	Verdict
	As an alternative to movable interlocking guards, control guards in accordance with EN 292-1:1991, 3.22.6 may be used providing:	control guards in accordance with EN 292-1:1991, 3.22.	Pass
	the requirements of EN 292-2:1991/A1:1995, 4.2.2.5 are met; and	the requirements of EN 292-2:1991/A1:1995 has been met	Pass
	the requirements of 5.2.1.1.1 and 5.2.1.1.3 are met; and	the requirements of EN 292-2:1991/A1:1995 has been met	
	the position of the manual controls for the power operated guards affords a clear view of the mould area and meets the distances given in EN 294:1992, Table 2 in relation to that area; and	the distances apply to EN 294:1992	Pass
	the distances el, e2 between tiebars (see Figure 8) or the corresponding distancesel, e2 for a tiebarless machine (see Figure 9) do not exceed 630 mm; and	It is compliance with requirement	Pass
	it is not possible to gain whole body access between the mould area and the guard (see 5.2.1.1.1, last paragraph); and	See the safety operation manual in detail	Pass
	closing of power operated guards is manually initiated.	See the safety operation manual in detail	Pass
5.2.1.2	Thermal hazards	-	-
	Warning notices shall be displayed drawing attention to the hazards caused by hot moulds and/or heating elements.	Warning notices has been used.	Pass
	Fixed and movable guards shall be designed to contain any ejected plasticized material.	Fixed guards have been used.	Pass
	When the mould area guards are open forward movement of the screw or injection plunger shall be prevented (see 5.2.1.1.3).	Not applicable	N/A

Clause	Requirement – test EN 201:2009	Result	Verdict
	In addition machine manufacturers shall advise on the need for personal protective equipment.	Not applicable	N/A
5.2.2	Clamping mechanism area	-	-
	To prevent access to dangerous movements in the clamping mechanism area protection devices type II shall be provided.	It is compliance with requirement	Pass
	When the movable guards are opened the two position switches shall:	-	-
	- interrupt the cycle;	It has been considered.	Pass
	- interrupt all movements of the platen.	It is compliance with requirement	Pass
	Where access is required only for machine repair or maintenance, fixed guards are permitted.	It is compliance with requirement	Pass
	An opening movement of the platen when the guards for the mould area are open shall only be possible if access to crushing and/or shearing points behind the mobile platen is prevented.	It is compliance with requirement	Pass
	Access to the area of dangerous movements of the core and ejector drive mechanisms is already prevented by the above described guards for the clamping mechanism area. For these movements, the guards, if movable, shall act as protection devices type I.	It is compliance with requirement	Pass
	Alternatively, additional fixed guards may be used.	additional fixed guards has been used	Pass
5.2.3	Area of movement of core and ejector drive mechanisms outside the mould area and outside the clamping mechanism area	-	-
	Access to this area shall be prevented by:	-	-
	- protection devices type I; or	Not applicable	N/A
	- fixed guards.	fixed guards has been prebented	Pass

Clause	Requirement – test EN 201:2009	Result	Verdict
5.2.4	Nozzle area	-	-
5.2.4.1	Mechanical hazards	-	-
	A protection device type I shall be provided.	A protection device type I has been provided	Pass
	When the guard is opened the following shall be interrupted in all positions of the injection unit excluding maintenance positions:	-	-
	- the forward movement of the injection unit, including nozzle;	It has been considered during design	Pass
	- the movements of parts of power operated nozzle shut off and their drives.	It has been considered during design	Pass
	In the case of horizontal injection units, an opening in the guard underneath the nozzle is permissible.	It has been considered during design	Pass
5.2.4.2	Hazards due to ejection of parts	-	-
5.2.4.3	Thermal hazards	-	-
	Warning notices shall be displayed drawing attention to the hazards associated with the hot nozzle.	Warning notices has been used.	Pass
	Hazards generated by hot plasticized material egressing from the nozzle shall be prevented by the guard described in 5.2.4.1. Additionally, this guard shall, when it is opened, act as a protection device type I to stop the forward movement of the screw or injection plunger.	It has been considered during design	Pass
	The design of the guards shall take into consideration the hazards of splashing from hot plasticized material and the extreme positions of the nozzle excluding maintenance positions.	It has been considered during design	Pass

Clause	Requirement – test EN 201:2009	Result	Verdict
	In all positions of the injection unit for maintenance (outside the guard for the nozzle area), purging of plasticized material shall only be possible by means of manual control according to EN 292-2:1991/A1: 1995, 3.7.8 and 3.7.10 and, when processing plastics, at reduced speed.	It has been considered during design	Pass
5.2.5	Plasticizing and/or injection unit area	-	-
5.2.5.1	Mechanical hazards	-	-
	In order to prevent unintentional gravity descent, injection units positioned above the mould area shall be provided with a restraint device e.g. for a vertical hydraulically operated movement with a restraint valve, fitted preferably directly on the cylinder, or as close as possible to the cylinder using flanged (flared or welded) pipework or flared unions only.	It has been considered during design	Pass
	The feed opening shall be designed so that access to the crushing and/or shearing points is prevented (for safety distances see EN 294:1992, Table 4).	It is compliance with requirement	Pass
5.2.5.2	Thermal hazards	-	-
	The requirements according to 5.2.4.3 shall be met.	-	-
	Heat insulation of the plasticizing and/or injection cylinders shall be provided. The insulation shall be designed so that for a cylinder temperature of 240 °C, the temperature of the outer surface of the insulation does not exceed the limit values according to EN ISO 13732-1:2006.	The temperature of the outer surface of the insulation does not exceed the limit values according to EN ISO 13732-1:2006.	Pass

Clause	Requirement – test EN 201:2009	Result	Verdict
	Hazards due to the plasticized material egressing from the vent opening shall be prevented by a guard able to contain this plasticized material.	It has been considered during design	Pass
5.2.5.3	Mechanical and/or thermal hazards	-	-
	The temperature of the plasticizing and/or injection cylinders shall be automatically monitored to ensure that the maximum permissible limit value is not exceeded. This limit shall be set by the manufacturer (see 7.1.1). The energy supply to all heating elements shall be automatically interrupted:	It has been considered during design	Pass
	- if the maximum permissible limit value is exceeded; or	It is compliance with requirement	Pass
	- in case of a fault in the temperature control.	It is compliance with requirement	Pass
	The requirements given in 5.2.5.3 do not apply to injection moulding machines designed exclusively for processing rubber.	Not applicable	N/A
5.2.6	Discharge area	-	-
	The discharge aperture shall be designed or safeguards shall be provided to prevent access to any dangerous movement through this aperture, even when conveyors are installed. Preferably the dimensions in Figure 10 should be met if necessary by using fixed guards.	It has been considered during design	Pass
	Alternatively the following protective devices may be used:	-	-
	- protection devices type I; and/or	It has been considered during design	Pass

Clause	Requirement – test EN 201:2009	Result	Verdict
	- electro-sensitive protective equipment in accordance with prEN 50100-1:1994, type 2. This protective equipment shall not be used to control the machine.	Not applicable	N/A
5.3	Additional safety requirements and/or measures associated with specific design	-	-
5.3.1	Machines where whole body access is possible between the movable guard for the mould area and the mould area itself	-	-
	For these machines, safety devices additional to those specified in 5.2.1.1.1 shall be provided to detect the presence of persons between the movable guard for the mould area and the mould area itself, e.g. electrosensitive protective equipment according to prEN 50100-1:1994, type 2 or pressure sensing mats or floors according to prEN 1760-1:1994, category 2.	Not applicable	N/A
	These additional safety devices shall become effective when the machine is switched on and, when persons are standing in this area, shall:	Not applicable	N/A
	- interrupt the control circuit for the platen closing movement, and, in the case of a power operated guard, interrupt the control circuit for the guard closing movement; and	Not applicable	N/A
	- prevent injection into the mould area; and	Not applicable	N/A
	- prevent initiation of a further cycle.	Not applicable	N/A
	As an alternative to presence detection a single acknowledgement system (see annex C) or a mechanical latch in accordance with the conditions stipulated in 5.3.2 may be used.	Not applicable	N/A

Clause	Requirement – test EN 201:2009	Result	Verdict
	At least one emergency stop conforming to category 0 according to EN 418 shall be provided between the movable guard for the mould area and the mould area itself.	Not applicable	N/A
5.3.2	Machines where whole body access is possible to the mould area	-	-
	For the following machines, safety devices additional to those specified in 5.2.1.1.1 and, where relevant, to those specified in 5.3.1 shall be provided:	Not applicable	N/A
	a) machines with horizontal clamping unit and tiebars (see Figure 8) where	Not applicable	N/A
	- there is a standing plane in the mould area; and - e1 or e2 > 1 200 mm.	Not applicable	N/A
	b) machines with horizontal clamping unit without tiebars (see Figure 9), where:	Not applicable	N/A
	a < 850 mm and e1> 400 mm and e2 > 400 mm or - e1 > 1 200 mm; - e2 > 1 200 mm.	Not applicable	N/A
	c) machines with vertical clamping unit and tiebars where:	Not applicable	N/A
	- e1 or e2 > 1 200 mm	Not applicable	N/A
	- maximum opening between the platens > 1 200 mm.	Not applicable	N/A
	d) machines with vertical clamping unit without tiebars where:	Not applicable	N/A
	- one of the platen dimensions > 1 200 mm; and	Not applicable	N/A
	- maximum opening between the platens > 1 200 mm.	Not applicable	N/A
	These additional safety devices shall be:	-	-

Clause	Requirement – test EN 201:2009	Result	Verdict
	a) devices such as mechanical latches which prevent the unintentional closing of movable guards. These devices shall become effective with each opening movement of the guard. It shall be necessary to separately reset these safety devices before another cycle can be initiated. The position from which the safety devices are reset shall afford a clear view of the mould area, if necessary with the use of aids to vision.	Not applicable	N/A
	The correct functioning of these devices shall be monitored by position switches at least once during each movement cycle of the guard, so that a fault in these devices or their position switches will be automatically recognized and commencement of all further platen closing movements shall be prevented.	Not applicable	N/A
	For all power operated guards fitted with such additional safety devices, the closing movement of the guard shall be operated by a hold to run control device which is positioned to give a clear view of the mould area.	Not applicable	N/A
	b)additionally, at least one emergency stop conforming to Category 0 according to EN 418, readily accessible from inside the mould area, at all sides of the machine where protection devices type III are fitted;	Not applicable	N/A

Clause	Requirement – test EN 201:2009	Result	Verdict
	- for machines with horizontal clamping unit, devices which detect the presence of persons in the mould area, e.g. electro-sensitive protective equipment according to prEN 50100-1:1994, type 2, or pressure sensing mats or floors according toprEN 1760-1:1994, category 2. These devices shall operate in accordance with the conditions stipulated in 5.3.1;	Not applicable	N/A
	- for machines with vertical clamping unit, a single acknowledgement system (see annex C) as an alternative to presence sensing devices as described in 5.3.1.	Not applicable	N/A
5.3.3	Machines with downstroking platen	-	-
	Hydraulic or pneumatic downstroking injection moulding machines shall be equipped with two restraint devices, which may for example be hydraulic valves to prevent unintentional gravity descent of the platen. Such valves shall be fitted preferably directly on the cylinder, or as close as possible to the cylinder using flanged (flared or welded) pipework or flared unions only.	Not applicable	N/A

Clause	Requirement – test EN 201:2009	Result	Verdict
	Where the platen is greater than 800 mm in one of its dimensions and the opening stroke can exceed 500 mm at least one of the restraint devices shall be mechanical. Such mechanical restraint devices shall automatically become effective over the complete stroke of the platen when the movable guards of the mould area are opened or when other safety devices for the mould area are actuated. Where it is not possible to open the movable guard of the mould area until the platen has reached its maximum opening stroke, mechanical restraint devices which only become effective in that position are permitted.	Not applicable	N/A
	In the event of a failure of one of the restraint devices the other device shall arrest the gravity descent of the platen. The restraint devices shall be automatically monitored so that in the case of a failure of one of these devices:	Not applicable	N/A
	- this failure is automatically recognized; and	Not applicable	N/A
	- the initiation of any further downward movement of the platen is prevented.	Not applicable	N/A
5.3.4	Carousel machines	-	-
	Access to dangerous movements of the carousel shall be prevented by fixed guards and/or protection devices type II.	Not applicable	N/A
	However where protection devices type II allow access to the mould area then the requirements specified in 5.2.1.1 and where applicable 5.3.1 and 5.3.2 shall also apply.	Not applicable	N/A
5.3.5	Shuttle/turntable machines	-	-

Clause	Requirement – test EN 201:2009	Result	Verdict
	Access to dangerous movements of the table shall be prevented by one or more of the following:	Not applicable	N/A
	fixed guards;	Not applicable	N/A
	protection devices type II;	Not applicable	N/A
	electro-sensitive protective equipment in accordance with prEN 50100-1:1994, type 2;	Not applicable	N/A
	two hand control devices in accordance with prEN 574:1995, type IIIB.	Not applicable	N/A
	Where protection devices type II are used which also allow access to the mould area then the requirements specified in 5.2.1.1 shall also apply.	Not applicable	N/A
	Where vertical movement of the shuttle table is possible gravity descent of the shuttle table shall be prevented e.g. by a hydraulic restraint as described in 5.3.3.	Not applicable	N/A
5.3.6	Multistation machines with mobile injection unit	-	-
	Access to dangerous movement of the injection unit as it moves between the clamping units shall be prevented by fixed guards and/or protection devices type II.	Not applicable	N/A
	However where the protection devices type II allow access to the mould area, then the requirements specified in 5.2.1.1 and where applicable 5.3.1 and 5.3.2 shall also apply.	Not applicable	N/A
5.3.7	Machines with one or more electrical axes	-	-
5.3.7.1	Emergency stop	-	-

Clause	Requirement – test EN 201:2009	Result	Verdict
	The emergency stop shall function as a category 1 stop of EN 60204-1:1997, 9.2.2. Emergency stop devices shall be in accordance with EN 60204-1:1997, 10.7.	Emergency stop devices has been in accordance with EN 60204-1:1997, 10.7.	Pass
5.3.7.2	Electrical axis for the horizontal movement of the platen	-	-
5.3.7.2.1	Safe standstill when a guard for the mould area is open	-	-
	When one of the interlocking guards with guard locking for the mould area specified in 5.3.7.2.2.1 is open, safe standstill shall be achieved by interrupting the energy supply to the movement of the platen by two channels according to G.1, G.2 or G.3 or according to category 4 of EN 954-1:1996.	These guards according to category 4 of EN 954-1:1996.	Pass
	The interruption by both channels shall be independent from the programmable controller. The following shall be used:	It is compliance with requirement	Pass
	-contactor(s) in the power supply to the electrical motor or the motor control unit; and/or	It is compliance with requirement	Pass
	- safety related input(s) to the motor control unit.	It is compliance with requirement	Pass
	Automatic monitoring of the safety related components is required so that in case of a fault in one of those components, it is not possible to initiate the next movement. Automatic monitoring shall be carried out at least once during each movement cycle of the movable guard.	It is compliance with requirement	Pass
5.3.7.2.2	Prevention of access to hazardous areas created by the movement of the platen	-	-
5.3.7.2.2.1	Mould area	-	-

Clause	Requirement – test EN 201:2009	Result	Verdict
	Access to the area between the platens shall be prevented by interlocking guards with guard locking.	By means of adopting the safety protection	Pass
	Guard locking shall remain effective until standstill has been detected	The design has taken into the machine	Pass
	For the guard locking device well tried components according to category 1 of EN 954-1:1996 shall be used. The components shall be designed to withstand a minimum force of 1 000 N, applied e.g. when trying to open one of the guards when the guard locking is still effective.	For the guard locking device well tried components according to category 1 of EN 954-1:1996	Pass
	Detection of standstill shall be safe against single fault. This shall be done by:	-	-
	monitoring two independent standstill signals; or	It has been considered.	Pass
	standstill detection according to category 3 of EN 954-1:1996; or	standstill detection according to category 3 of EN 954-1:1996	Pass
	- permanent monitoring of the change of position of the platen by means of a motor encoder.	Not applicable	N/A
5.3.7.2.2.2	Clamping mechanism area	-	-
	Where access to the platen and its drive mechanism is prevented by movable guards (see 5.2.2), these shall be interlocking guards according to G.6 or G.7 or according to category 3 of EN 954-1:1996..	It is compliance with requirement	Pass
	In the case of dangerous run-down, i.e. t (access time) < T (overall system stopping performance as defined in EN 999:1998, 3.2), the guards for the clamping mechanism area shall be interlocking guards with guard locking	It is compliance with requirement	Pass

Clause	Requirement – test EN 201:2009	Result	Verdict
	Guard locking shall remain effective until standstill has been detected. Detection of standstill shall be safe against single fault, as specified in 5.3.7.2.2.1, 4th paragraph.In the case of an interlocking guard without guard locking for the clamping mechanism area the access time (t) shall be calculated as follows:	It is compliance with requirement	Pass
	When calculating or measuring the overall system stopping performance for the movement of the platen and its drive mechanism, the worst case shall be taken into account related to speed, mass, temperature. See 7.1.9.	It is compliance with requirement	Pass
5.3.7.3	Electrical as for the movement of the plasticizing and/or injection unit	-	-
	For this movement, the interlocking of the guard for the nozzle area shall be according to G.4 or G.5 or according to category 1 of EN 954-1:1996 and the interlocking of the guards for the mould area shall be according to G.6 or G.7 or according to category 3 of EN 954-1:1996.	These has been according to G.4 or G.5 or according to category 1 of EN 954-1:1996	Pass
	In the case of dangerous run-down, i.e. t (access time) < T (overall system stopping performance as defined in EN 999:1998, 3.2), the guard for the nozzle area shall be an interlocking guard with guard locking.	The detection of standstill has been according to category B of EN 954-1:1996.	Pass
	Guard locking shall remain effective until standstill has been detected. The detection of standstill shall be according to category B of EN 954-1:1996.	It is compliance with requirement	Pass

Clause	Requirement – test EN 201:2009	Result	Verdict
	In the case of an interlocking guard without guard locking for the nozzle area the access time shall be calculated as specified in 5.3.7.2.2.2.	It is compliance with requirement	Pass
	When calculating or measuring the overall system stopping performance for the movement of the plasticizing and/or injection unit, the worst case shall be taken into account related to speed, mass, temperature. See 7.1.9	It is compliance with requirement	Pass
5.3.7.4	Electrical as for the rotation of the plasticizing screw	-	-
	For this movement, the interlocking of the guard for the nozzle area shall be according to G.4 or G.5 or according to category 1 of EN 954-1:1996 and the interlocking of the guard for the mould area shall be according to G.6 or G.7 or according to category 3 of EN 954-1:1996.	These has been according to G.6 or G.7 or according to category 3 of EN 954-1:1996.	Pass
	Guard locking is not required because the run-down is not dangerous.	It has been considered.	Pass
	If the machine is designed for processing rubber only, a motor control unit according to category B of EN 954-1:1996 without a contactor is sufficient.	These has been according to category B of EN 954-1:1996 without a contactor is sufficient.	Pass
5.3.7.5	Electrical as for the linear movement of the injection screw or plunger	-	-
	For this movement, the interlocking of the guard for the nozzle area shall be according to G.4 or G.5 or according to category 1 of EN 954-1:1996 and the interlocking of the guard for the mould area shall be according to G.6 or G.7 or according to category 3 of EN 954-1:1996.	These has been according to G.6 or G.7 or according to category 3 of EN 954-1:1996.	Pass

Clause	Requirement – test EN 201:2009	Result	Verdict
	Guard locking is not required because the run-down is not dangerous.	It has been considered.	Pass
5.3.7.6	Electrical as for the movement of cores and ejectors	-	-
	For the movement of cores and ejectors and/or their drive mechanisms, the interlocking of the guards outside the mould area shall be according to G.4 or G.5 or according to category 1 of EN 954-1:1996 and the interlocking of the guards for the mould area shall be according to G.6 or G.7 or according to category 3 of EN 954-1:1996.	These has been according to G.6 or G.7 or according to category 3 of EN 954-1:1996.	Pass
	In the case of dangerous run-down, i.e. t (access time) < T (overall system stopping performance as defined in EN 999:1998, 3.2), the guards shall be interlocking guards with guard locking.	The guards has been interlocking guards with guard locking	Pass
	Guard locking shall remain effective until standstill has been detected. The detection of standstill shall be according to category B of EN 954-1:1996.	The detection of standstill has been according to category B of EN 954-1:1996.	Pass
	In the case of interlocking guards without guard locking, the access time shall be calculated as specified in 5.3.7.2.2.2.	The design has taken into the machine	Pass
	When calculating or measuring the overall system stopping performance for the movement of cores and ejectors, the worst case shall be taken into account related to speed, mass, temperature. See 7.1.9.	The design has taken into the machine	Pass
5.3.7.7	Requirements for the automatic monitoring circuit	-	-
5.3.7.7.1	Requirements for the automatic monitoring circuit where Annex G is applied	It is compliance with requirement	Pass

Clause	Requirement – test EN 201:2009	Result	Verdict
	The following shall be automatically monitored at least once during each movement cycle of the movable guard:	It is compliance with requirement	Pass
	change of state of the position detectors of the guard (not applicable to Figure G.4 and Figure G.5 if S1 is a well tried component);	It is compliance with requirement	Pass
	position of the contactors or the information given by the motor control unit;	It is compliance with requirement	Pass
	position of the guard locking device, if applicable;	It is compliance with requirement	Pass
	information given by the standstill detection, if applicable. Iz	It is compliance with requirement	Pass
	If a single fault occurs, the automatic monitoring shall prevent the initiation of any further movement.	The design has taken into the machine	Pass
	The monitoring circuit shall not produce a direct control signal for the shutoff devices e.g. contactors, motor control unit.	The design has taken into the machine	Pass
	Monitoring may be performed via the programmable controller. In that case the monitoring programme shall be in permanent memory protected against electrical interference and the monitoring system shall be equipped with a start-up test.	It is compliance with requirement	Pass
	In addition, for position detectors, contactors and/or motor control unit to control the same safety function:	-	-
	each one of those components shall be connected to its own input module; or	Not applicable	N/A

Clause	Requirement – test EN 201:2009	Result	Verdict
	if a common input module is used, either the inverse signals from each one of those components shall be input as well, or any fault in the input circuits shall be automatically recognised; or	It is compliance with requirement	Pass
	if an input unit (input card) consists of several input modules, the signals from each one of those components to be monitored for antivalence shall be separated by at least the input module bit distance (e.g. 4 bits, 8 bits or 16 bits). In addition, signals from each one of those components which are not antivalent and are connected to the same input module shall not occupy adjacent bits.	The design has taken into the machine	Pass
	The enable signal for the control circuit of the machine shall be produced by the monitoring circuit.	The design has taken into the machine	Pass
5.3.7.7.2	Requirement for the automatic monitoring circuit where Annex G is not applied	-	-
	Where Annex G is not applied, the monitoring system shall be designed so that the required category of EN 954-1:1996 is achieved.	Not applicable	N/A
5.3.7.8	Movements caused by gravity	-	-
	Movements caused by gravity shall be prevented by spring-loaded parking brakes. See also 7.1.10.	Not applicable	N/A
5.3.7.9	Electrical or electromagnetic disturbances	-	-
	The motor control units shall be installed and used in accordance with the specifications of the motor control units manufacturers.	It is compliance with requirement	Pass

Clause	Requirement – test EN 201:2009	Result	Verdict
5.4	Additional safety requirements and/or measures when using ancillary equipment	-	-
5.4.1	Power operated mould changing equipment	-	-
	Access to the mould change area shall be prevented by protection devices type I for the movements of the mould changing equipment, in conjunction with fixed guards where necessary.	Not applicable	N/A
	Where it is possible to gain whole body access into the mould change area, additional devices,e.g. electro-sensitive protective equipment according to prEN 50100-1:1994, type 2, or pressure sensing mats or floors according to prEN 1760-1:1994, category 2 shall be fitted. These additional devices when actuated shall interrupt the control circuit for movements of the mould changing equipment.	Not applicable	N/A
	Movements of the mould and/or mould transfer device may be initiated manually without the existence of guards or with guards open or with additional safety devices being ineffective using a selector switch lockable in all positions and by actuation of:	Not applicable	N/A
	- a hold to run control device, provided the maximum speed cannot exceed 75 mm/s; or	Not applicable	N/A
	- a limited movement control device.	Not applicable	N/A
	The manual control device shall be positioned to give a clear view of the danger area.	Not applicable	N/A
5.4.2	Power operated mould clamping devices	-	-
5.4.2.1	Mechanical hazards	-	-

Clause	Requirement – test EN 201:2009	Result	Verdict
	The movable guard as specified in 5.2.1.1.1 or 5.2.1.1.2 shall also provide protection against the movements of the power operated mould clamping device. For these movements, the guard shall act as a protection device type II.	Not applicable	N/A
	Falling of the mould or its parts shall be prevented e.g. by additional mechanical restraint devices or by self retaining clamping elements.	Not applicable	N/A
	In the case of magnetic clamping the correct location of the mould halves shall be automatically monitored so that in the event of either mould half being or becoming dislocated, further movement of the platen shall be prevented.	Not applicable	N/A
5.4.2.2	Hazards caused by magnetic fields	-	-
5.4.3	Other ancillary equipment	-	-
	The connection of ancillary equipment shall not reduce the level of safety specified in this standard for injection moulding machines. This means:	Not applicable	N/A
	- the connection of ancillary equipment which results in the modification of the guarding of the machine shall not allow unprotected access to danger areas of the machine.	Not applicable	N/A
	-if opening a movable guard of the ancillary equipment gives access to a danger area of the machine, this movable guard shall perform to the same standard as a guard which is required for that danger area of the machine. In the case of whole body access as defined in 4.3.1 and/or 4.3.2 additional safety devices as specified in 5.3.1 and/or 5.3.2 shall be provided;	Not applicable	N/A

Clause	Requirement – test EN 201:2009	Result	Verdict
	- ancillary equipment the presence of which prevents access to a danger area of the machine and which can be removed without the use of a tool shall be interlocked with the machine control circuit in the same way as the movable guard for the danger area concerned;	Not applicable	N/A
	-if opening a movable guard of the machine gives access to a danger area of ancillary equipment this guard shall also meet the requirements specified in the standard applicable to that ancillary equipment;	Not applicable	N/A
	-stopping devices including emergency stopping devices shall function as described in EN 292-2:1991/A1:1995, annex A, 1.2.4, "Complex installations".	Not applicable	N/A
	If the machine is intended to be used together with ancillary equipment it shall be so designed that the machine can only be operated if the ancillary equipment is connected in accordance with the above listed requirements.	Not applicable	N/A
6	Verification of the safety requirements and/or measures	-	-
	Verification of the safety requirements and/or measures shall be undertaken as shown in Table 1 below The noise measurement (see 5.1.4) shall be carried out in accordance with annex D.	It is compliance with requirement	Pass
	Functional testing includes the verification of the function and efficiency of the guards and safety devices on the basis of:	-	-
	- descriptions given in the information for use;	It is compliance with requirement	Pass

Clause	Requirement – test EN 201:2009	Result	Verdict
	-safety related plans and circuit diagrams;	see the drawing in detail	Pass
	- the requirements given in clause 5 of this standard and in the other quoted standards.	It is compliance with requirement	Pass
	Functional testing of protection devices type II , III and according to Annex G shall also include the simulation of faults which are likely to occur.	It has been considered.	Pass
7	Information for use	-	-
7.1	Instruction handbook	-	-
	Each injection moulding machine shall be accompanied by a handbook giving general instructions for use (see EN 292-2:1991/A1:1995, 5.5 and EN 292-2:1991/A1:1995, annex A, 1.7.4). In addition the instruction handbook shall contain the following:	See the instruction manual in detail	Pass
7.1.1	Plasticizing and/or injection unit	-	-
	The manufacturer shall give information for selecting and for assembly/ disassembly of the injection nozzle.	It is compliance with requirement	Pass
	The manufacturer shall state that only nozzles, plasticizing and/or injection cylinders and their fastening bolts as specified by the manufacturer shall be used.	It is compliance with requirement	Pass
	The manufacturer shall state that due to insufficient pre-drying or degradation of certain plastic materials, unintentional ejection from the nozzle may occur and that in this case appropriate personal protective equipment shall be worn.	It is compliance with requirement	Pass
	The manufacturer shall declare the maximum permissible limit value of the temperature of the plasticizing and/or injection cylinders.	It is compliance with requirement	Pass

Clause	Requirement – test EN 201:2009	Result	Verdict
7.1.2	Noise emission	-	-
	The instruction handbook shall indicate the conditions of installation during the noise measurements according to annex D and give the following information concerning airborne noise emission by the machinery, either the actual value or a value established on the basis of measurements made on identical machinery:	-	-
	- equivalent continuous A-weighted sound pressure level at workstations, where this exceeds 70 dB(A); where this level does not exceed 70 dB(A), this fact shall be indicated;	It is compliance with requirement	Pass
	- peak C-weighted instantaneous sound pressure value at workstations, where this exceeds 63 Pa (130 dB in relation to 20 μPa);	It is compliance with requirement	Pass
	-sound power level emitted by the machinery where the equivalent continuous A-weighted sound pressure level at workstations exceeds 85 dB(A).	It is compliance with requirement	Pass
	In addition, for machines designed for rubber processing, information on the duration of the test cycle used (see annex D) shall be given.	Not applicable	N/A
7.1.3	Exhaust system	-	-
	The manufacturer shall indicate that some materials likely to be processed can emit harmful gases, vapours or dusts and that exhaust system may be needed. The manufacturer shall indicate that in that case an exhaust system shall be positioned or fitted under the responsibility of the user. The manufacturer shall give information concerning the fitting or positioning of the exhaust system.	See the instruction manual in detail	Pass

Clause	Requirement – test EN 201:2009	Result	Verdict
7.1.4	Ancillary equipment	-	-
	It shall be stated that the manufacturer is only responsible for the interaction of the machine with ancillary equipment where the manufacturer has designed the interface system.	Not applicable	N/A
	The manufacturer shall state that if ancillary equipment is removed, the original guards or safety devices shall be replaced.	Not applicable	N/A
7.1.5	Lockable switch referred to in 5.2.1.1.3	-	-
	The manufacturer shall state that the operator may only be allowed to use this switch provided the design of the mould, cores and ejectors, or their drive mechanisms prevents access to shearing or crushing areas.	See the instruction manual in detail	Pass
7.1.6	Flexible hose assemblies	-	-
	The manufacturer shall give information on regular inspections of flexible hose assemblies and their replacement.	It is compliance with requirement	Pass
7.1.7	Access positions	-	-
	The manufacturer shall indicate that all positions which are not marked according to 5.1.6 are not to be used as access positions.	Not applicable	N/A
7.1.8	Magnetic mould clamping	-	-
	The manufacturer shall give information on the safe use of the magnetic mould clamping device. This shall include instruction on the preparation and upkeep of the mould and platen contact surfaces.	Not applicable	N/A
	It shall be indicated that equipment such as heart pacemakers and hearing aids can be affected in the proximity of the magnetic field.	Not applicable	N/A

Clause	Requirement – test EN 201:2009	Result	Verdict
7.1.9	Stopping performance	-	-
	The manufacturer shall specify the maximum stopping distance or time of the parts driven by electrical axes for which there is an interlocking guard without guard locking.	See the instruction manual in detail	Pass
7.1.10	Parking brakes (see 5.3.7.8)	-	-
	The manufacturer shall specify the frequency and procedure for testing the parking brake system.The manufacturer shall specify the maximum additional mass that can be added to the parts liable to move by gravity.	See the instruction manual in detail	Pass
	The manufacturer shall also specify the replacement belts to be used.	See the instruction manual in detail	Pass
7.2	Marking	-	-
	The minimum markings shall include:	-	-
	- name and address of the manufacturer and supplier; - CE mark; - designation of series or type; - serial number if any, or machine number; - year of construction; - size indication according to annex E; - access positions; - warning notices about hot parts: heat conditioning hoses and fittings, moulds, heating elements and nozzles	The markings has been included	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
1	Scope	-	-
2	Normative	-	-
3	Terms	-	-
4	General	-	-
4.1	General	-	-
	This part of IEC 60204 is intended to apply to electrical equipment used with a wide variety of machines and with a group of machines working together in a co-ordinated manner.	electrical equipment used in machines	Pass
	The risks associated with the hazards relevant to the electrical equipment shall be assessed as part of the overall requirements for risk assessment of the machine. This will determine the adequate risk reduction, and the necessary protective measures for persons who can be exposed to those hazards, while still maintaining an acceptable level of performance of the machine and its equipment.	See EN 1050 test report	Pass
4.2	Selection	-	-
4.2.1	General	-	-
	Electrical components and devices shall:	-	-
	be suitable for their intended use; and	-	-
	- conform to relevant IEC standards where such exist; and	conform to relevant IEC standards	Pass
	- be applied in accordance with the supplier's instructions.	- be applied in accordance with the supplier's instructions.	Pass
4.2.2	The electrical equipment of the machine shall satisfy the safety requirements identified by the risk assessment of the machine. Depending upon the machine, its intended use and its electrical equipment, the designer may select parts of the electrical equipment of the machine that are in compliance with relevant parts of the IEC 60439 series (see also Annex F).	compliance with relevant parts of the IEC 60439 series	Pass
4.3	Electrical	-	-
4.3.1	General	-	-
	The electrical equipment shall be designed to operate correctly with the conditions of	-	-

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	the supply:		
	– as specified in 4.3.2 or 4.3.3, or	See 4.3.2 or 4.3.3 for details	Pass
	– as otherwise specified by the user (see Annex B), or	Not applicable.	N/A
	– as specified by the supplier in the case of a special Requirement – test EN 60204-1:2006/A1:2009source of supply such as an on-board generator.	Not applicable.	N/A
4.3.2	AC supplies Voltage	-	-
	Steady state voltage: 0,9 to 1,1 of nominal voltage.	0,9 to 1,1 of nominal voltage.	Pass
	0,99 to 1,01 of nominal frequency continuously; 0,98 to 1,02 short time.	0,99 to 1,01 of nominal frequency continuously; 0,98 to 1,02 short time.	Pass
	Harmonic distortion not exceeding 10 % of the total r.m.s. voltage between live conductors for the sum of the 2nd through to the 5th harmonic. An additional 2 % of the total r.m.s. voltage between live conductors for the sum of the 6th through to the 30th harmonic is permissible.	It met the requirements	Pass
	Neither the voltage of the negative sequence component nor the voltage of the zero sequence component in three-phase supplies exceeding 2 % of the positive sequence component.	It met the requirements	Pass
	Supply interrupted or at zero voltage for not more than 3 ms at any random time in the supply cycle with more than 1 s between successive interruptions.	It met the requirements	Pass
	Supply interrupted or at zero voltage for not more than 3 ms at any random time in the supply cycle with more than 1 s between successive interruptions.	It met the requirements	Pass
	Voltage dips not exceeding 20 % of the peak voltage of the supply for more than one cycle with more than 1 s between successive dips.	It met the requirements	Pass
4.3.3	DC supplies	-	-
4.3.4	Special supply systems	-	-
	For special supply systems such as on-board generators, the limits given in 4.3.2 and 4.3.3 may be exceeded provided that the equipment is designed to operate	Not applicable	N/A

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	correctly with those conditions.		
4.4	Physical environment and operating conditions	-	-
4.4.1	General	-	-
	The electrical equipment shall be suitable for the physical environment and operating conditions of its intended use.	It met the requirements	Pass
	The requirements of 4.4.2 to 4.4.8 cover the physical environment and operating conditions of the majority of machines covered by this part of IEC 60204. When special conditions apply or the limits specified are exceeded, an agreement between user and supplier (see 4.1) can be necessary.	See the follow clauch for details	Pass
4.4.2	Electromagnetic compatibility (EMC)	-	-
	The equipment shall not generate electromagnetic disturbances above levels that are appropriate for its intended operating environment. In addition, the equipment shall have a level of immunity to electromagnetic disturbances so that it can function in its intended environment.	It met the requirements	Pass
	Measures to limit the generation of electromagnetic disturbances, i.e. conducted and radiated emissions include: - power supply filtering; - cable shielding; - enclosures designed to minimize RF radiation; - RF suppression techniques.	Take the requirements to limit the generatation.	Pass
	Measures to enhance the immunity of the equipment against conducted and radiated RF disturbance include: - design of functional bonding system taking into account the following; - connection of sensitive electrical circuits to the chassis. Such terminations should be marked or labelled with the symbol IEC 60417-5020 (DB:2002-10): - connection of the chassis to earth (PE) using a conductor with low RF impedance	The supplier has taken the requirement to limit the generation.	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	and as short as practicable; - separation of sensitive circuits from disturbance sources; - enclosures designed to minimize RF transmission;		
	EMC wiring practices:	-	-
	- using twisted conductors to reduce the effect of differential mode disturbances,	The supplier has taken the requirement to limit the generation.	Pass
	- keeping sufficient distance between conductors emitting disturbances and conductors of sensitive circuits,	Enough distance between the conductor emitting disturbances and conductors of sensitive circuits,	Pass
	- using cable orientation as close to 90° as possible when cables cross,	90°	Pass
	- running the conductors as close as possible to the ground plane,	as possible to the ground plane,	Pass
	- conductors as close as possible to the ground plane,	as possible to the ground plane,	Pass
	- using electrostatic screens and/or electromagnetic shields with a low RF impedance termination.	using electrostatic screens	Pass
4.4.3	Ambient air temperature		Pass
	The minimum requirement for all electrical equipment is correct operation between air temperatures of +5 °C and +40 °C.	It met the requirement	Pass
5	Incoming supply conductor terminations and devices for disconnecting and switching of	-	-
5.1	Incoming supply conductor terminations	-	-
	the electrical equipment of a machine is connected to a single incoming supply. Where another supply is necessary for certain parts of the equipment (for example, electronic equipment that operates at a different voltage), that supply should be derived, as far as is practicable, from devices (for example, transformers, converters) forming part of the electrical equipment of the machine. For large complex machinery comprising a number of widely-spaced machines working together in a co-ordinated manner, there can be a need for more than one incoming supply depending upon	a single incoming supply	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	the site supply arrangements (see 5.3.1).		
	Unless a plug is provided with the machine for the connection to the supply (see 5.3.2 e), it is recommended that the supply conductors are terminated at the supply disconnecting device.	The supply conductors are terminated at the supply disconnecting device.	Pass
	Where a neutral conductor is used it shall be clearly indicated in the technical documentation of the machine, such as in the installation diagram and in the circuit diagram, and a separate insulated terminal, labelled N in accordance with 16.1, shall be provided for the neutral conductor (see also Annex B).	a neutral conductor is clearly indicated in the technical documentation of the machine and a separate insulated terminal, labelled N in accordance.	Pass
	There shall be no connection between the neutral conductor and the protective bonding circuit inside the electrical equipment nor shall a combined PEN terminal be provided.	no connection between the neutral conductor and the protective bonding circuit inside the electrical equipment	Pass
	Exception: a connection may be made between the neutral terminal and the PE terminal at the point of the connection of the power supply to the machine for TN-C systems.	Not applicable	N/A
	All terminals for the incoming supply connection shall be clearly identified in accordance with IEC 60445 and 16.1. For the identification of the external protective conductor terminal, see 5.2.	clearly identified	Pass
5.2	Terminal for connection to the external protective earthing system	-	-
	For each incoming supply, a terminal shall be provided in the vicinity of the associated phase conductor terminals for connection of the machine to the external protective earthing system or to the external protective conductor, depending upon the supply distribution system.	It met the requirements	Pass
	For each incoming supply, a terminal shall be provided in the vicinity of the associated phase conductor terminals for connection of the machine to the external protective earthing system or to the	Terminals is provided in the vicinity of the associated phase conductor terminals for the PE conducter	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	external protective conductor, depending upon the supply distribution system.		
	Where an external protective conductor of a material other than copper is used, the terminal size shall be selected accordingly (see also 8.2.2).	copper	N/A
	At each incoming supply point, the terminal for connection of the external protective earthing system or the external protective conductor shall be marked or labelled with the letters PE (see IEC 60445).	labelled with the letters PE.	Pass
5.3	Supply disconnecting (isolating) device	-	-
5.3.1	General	-	-
	A supply disconnecting device shall be provided:	-	-
	– for each incoming source of supply to a machine(s);	be provided:	Pass
	– for each on-board power supply.	Not applicable	N/A
	The supply disconnecting device shall disconnect (isolate) the electrical equipment of the machine from the supply when required (for example for work on the machine, including the electrical equipment).	It met the requirement	Pass
	When two or more supply disconnecting devices are provided, protective interlocks for their correct operation shall also be provided in order to prevent a hazardous situation, including damage to the machine or to the work in progress.	Not applicable	N/A
5.3.2	Type	-	-
	The supply disconnecting device shall be one of the following types:	-	-
	a) switch-disconnector, with or without fuses, in accordance with IEC 60947-3, utilization category AC-23B or DC-23B;	A switch-disconnector	Pass
	b) disconnector, with or without fuses, in accordance with IEC 60947-3, that has an auxiliary contact that in all cases causes switching devices to break the load circuit before the opening of the main contacts of the disconnector;	It met the requirements	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	c) a circuit-breaker suitable for isolation in accordance with IEC 60947-2;	Not applicable	N/A
	d) any other switching device in accordance with an IEC product standard for that device and which meets the isolation requirements of IEC 60947-1 as well as a utilization category defined in the product standard as appropriate for on- load switching of motors or other inductive loads;	Not applicable	N/A
	e) a plug/socket combination for a flexible cable supply.	It met the requirements	Pass
5.3.3	Requirements	-	-
	When the supply disconnecting device is one of the types specified in 5.3.2 a) to d) it shall fulfil all of the following requirements:	-	-
	- isolate the electrical equipment from the supply and have one OFF (isolated) and one ON position marked with "O" and "I" (symbols IEC 60417-5008 (DB:2002-10) and IEC 60417-5007 (DB:2002-10), see 10.2.2);	Marked O and I	Pass
	- have a visible contact gap or a position indicator which cannot indicate OFF (isolated) until all contacts are actually open and the requirements for the isolating function have been satisfied;	have a visible contact gap	Pass
	- have an external operating means (for example handle), (exception: power-operated switchgear need not be operable from outside the enclosure where there are other means to open it). Where the external operating means is not intended for emergency operations, it is recommended that it be coloured BLACK or GREY (see 10.7.4 and 10.8.4);	have an external operating means	Pass
	- be provided with a means permitting it to be locked in the OFF (isolated) position (for example by padlocks). When so locked, remote as well as local closing shall be prevented;	a means permitting it to be locked in the OFF (isolated) position	Pass
	- disconnect all live conductors of its	It met the requirements	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	power supply circuit. However, for TN supply systems, the neutral conductor may or may not be disconnected except in countries where disconnection of the neutral conductor (when used) is compulsory;		
	- have a breaking capacity sufficient to interrupt the current of the largest motor when stalled together with the sum of the normal running currents of all other motors and/or loads. The calculated breaking capacity may be reduced by the use of a proven diversity factor.	Have a breaking capacity suffcient to interrupt current of the largest motor	Pass
	When the supply disconnecting device is a plug/socket combination, it shall fulfil the following requirements:	-	-
	have the switching capability, or be interlocked with a switching device that has a breaking capacity, sufficient to interrupt the current of the largest motor when stalled together with the sum of the normal running currents of all other motors and/or loads. The calculated breaking capacity may be reduced by the use of a proven diversity factor. When the interlocked switching device is electrically operated (for example a contactor) it shall have an appropriate utilisation category.	Not applicable	N/A
	– a) to f) of 13.4.5.	See 13.4.5	Pass
	Where the supply disconnecting device is a plug/socket combination, a switching device with an appropriate utilisation category shall be provided for switching the machine on and off. This can be achieved by the use of the interlocked switching device described above.	Not applicable	N/A
5.3.4	Operating means	-	-
	The operating means (for example, a handle) of the supply disconnecting device shall be easily accessible and located between 0,6 m and 1,9 m above the servicing level. An upper limit of 1,7 m is recommended.	It met the requirements	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
5.3.5	Excepted circuits	-	-
	The following circuits need not be disconnected by the supply disconnecting device:	-	-
	– lighting circuits for lighting needed during maintenance or repair;	Not applicable	N/A
	– plug and socket outlets for the exclusive connection of repair or maintenance tools and equipment (for example hand drills, test equipment);	Not applicable	N/A
	– undervoltage protection circuits that are only provided for automatic tripping in the event of supply failure;	Not applicable	N/A
	– circuits supplying equipment that should normally remain energized for correct operation (for example temperature controlled measuring devices, product (work in progress) heaters, program storage devices);	Not applicable	N/A
	– control circuits for interlocking.	Not applicable	N/A
	Where such a circuit is not disconnected by the supply disconnecting device:	-	-
	- permanent warning label(s) in accordance with 16.1 shall be appropriately placed in proximity to the supply disconnecting device;	It met the requirements	Pass
	- the excepted circuit is separated from other circuits, or	It met the requirements	Pass
	- the conductors are identified by colour taking into account the recommendation of 13.2.4.	It met the requirements	Pass
5.4	Devices for switching off for prevention of unexpected start-up	-	-
	Devices for switching off for the prevention of unexpected start-up shall be provided (for example where, during maintenance, a start-up of the machine or part of the machine can create a hazard).	It met the requirements	Pass
	Such devices shall be appropriate and convenient for the intended use, shall be suitably placed, and readily identifiable as to their function and purpose (for example by a durable marking in accordance with	It met the requirements	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	16.1 where necessary).		
	Means shall be provided to prevent inadvertent and/or mistaken closure of these devices either at the controller or from other locations (see also 5.6).	It met the requirements	Pass
	The following devices that fulfil the isolation function may be provided for this purpose: - devices described in 5.3.2, - disconnectors, withdrawable fuse links and withdrawable links only if located in an enclosed electrical operating area (see 3.19). - disconnectors, withdrawable fuse links and withdrawable links only if located in an enclosed electrical operating area (see 3.19).	It met the requirements	Pass
	Devices that do not fulfil the isolation function (for example a contactor switched off by a control circuit) may only be provided where intended to be used for situations that include:	-	-
	- inspections;	It met the requirements	Pass
	- adjustments;	It met the requirements	Pass
	- work on the electrical equipment where: there is no hazard arising from electric shock (see Clause 6) and burn; - the switching off means remains effective throughout the work; - the work is of a minor nature (for example replacement of plug-in devices without disturbing existing wiring).	It met the requirements	Pass
5.5	Devices for disconnecting electrical equipment	-	-
	Devices shall be provided for disconnecting (isolating) electrical equipment to enable work to be carried out when it is de-energised and isolated. Such devices shall be:	It met the requirements	Pass
	appropriate and convenient for the intended use;	-	-
	- suitably placed;	It met the requirements	Pass
	- readily identifiable as to which part(s)	It met the requirements	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	or circuit(s) of the equipment is served (for example by durable marking in accordance with 16.1 where necessary).		
	Means shall be provided to prevent inadvertent and/or mistaken closure of these devices either at the controller or from other locations (see also 5.6).	It met the requirements	Pass
	The supply disconnecting device (see 5.3) may, in some cases, fulfil that function. However, where it is necessary to work on individual parts of the electrical equipment of a machine, or on one of a number of machines fed by a common conductor bar, conductor wire or inductive power supply system, a disconnecting device shall be provided for each part, or for each machine, requiring separate isolation.	Not applicable	N/A
	In addition to the supply disconnecting device, the following devices that fulfil the isolation function may be provided for this purpose:	-	-
	- devices described in 5.3.2;	It met the requirements	Pass
	- disconnectors, withdrawable fuse links and withdrawable links only if located in an electrical operating area (see 3.15) and relevant information is provided with the electrical equipment (see 17.2 b)9) and b)12)).	It met the requirements	Pass
5.6	Protection against unauthorized, inadvertent and/or mistaken connection	-	-
	The devices described in 5.4 and 5.5 that are located outside an enclosed electrical operating area shall be equipped with means to secure them in the OFF position (disconnected state), (for example by provisions for padlocking, trapped key interlocking). When so secured, remote as well as local reconnection shall be prevented.	Not applicable	N/A

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	Where a non-lockable disconnecting device (for example withdrawable fuse-links, withdrawable links) other means of protection against reconnection (for example warning labels in accordance with 16.1) may be provided.	It met the requirements	Pass
	However, when a plug/socket combination according to 5.3.2 e) is so positioned that it can be kept under the immediate supervision of the person carrying out the work, means for securing in the disconnected state need not be provided.	Not applicable	N/A
6	Protection against electric shock	-	-
6.1	General	-	-
	The electrical equipment shall provide protection of persons against electric shock from:	-	-
	- direct contact (see 6.2 and 6.4);	It met the requirements	Pass
	- indirect contact (see 6.3 and 6.4).	It met the requirements	Pass
	The measures for this protection given in 6.2, 6.3, and, for PELV, in 6.4, are a recommended selection from IEC 60364-4-41. Where those recommended measures are not practicable, for example due to the physical or operational conditions, other measures from IEC 60364-4-41 may be used.	It is compliance with IEC 60364-4-41.	Pass
6.2	Protection against direct contact	-	-
6.2.1	General	-	-
	For each circuit or part of the electrical equipment, the measures of either 6.2.2 or 6.2.3 and, where applicable, 6.2.4 shall be applied.	Please see the following statements.	Pass
	When the equipment is located in places open to all persons, which can include children, measures of either 6.2.2 with a minimum degree of protection against direct contact corresponding to IP4X or IPXXD (see IEC 60529), or 6.2.3 shall be applied.	It has been complied with.	Pass
6.2.2	Protection by enclosures	-	-
	Live parts shall be located inside enclosures that conform to the relevant	It has been complied with.	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	requirements of Clauses 4, 11, and 14 and that provide protection against direct contact of at least IP2X or IPXXB (see IEC 60529).		
	Where the top surfaces of the enclosure are readily accessible, the minimum degree of protection against direct contact provided by the top surfaces shall be IP4X or IPXXD.	IP54 for the top surface.	Pass
	Opening an enclosure (i.e. opening doors, lids, covers, and the like) shall be possible only under one of the following conditions:	-	-
	a) The use of a key or tool is necessary for access. For enclosed electrical operating areas, see IEC 60364-4-41, or IEC 60439-1 as appropriate.	Tool and key have been used for the skilled person.	Pass
	All live parts, that are likely to be touched when resetting or adjusting devices intended for such operations while the equipment is still connected, shall be protected against direct contact to at least IP2X or IPXXB. Other live parts on the inside of doors shall be protected against direct contact to at least IP1X or IPXXA.	IP 2X has been used for the skilled person.	Pass
	b) The disconnection of live parts inside the enclosure before the enclosure can be opened. This may be accomplished by interlocking the door with a disconnecting device (for example, the supply disconnecting device) so that the door can only be opened when the disconnecting device is open and so that the disconnecting device can only be closed when the door is closed.	By the use of hand-operated power disconnection device the requirement of this clause could be ensured.	Pass
	it is possible at all times while the interlock is defeated to open the disconnecting device and lock the disconnecting device in the OFF (isolated) position or otherwise prevent unauthorised closure of the disconnecting device;	-	-
	– upon closing the door, the interlock is automatically restored;	It met the requirements	Pass
	all live parts, that are likely to be touched	No this situation.	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	when resetting or adjusting devices intended for such operations while the equipment is still connected, are protected against direct contact to at least IP2X or IPXXB and other live parts on the inside of doors are protected against direct contact to at least IP1X or IPXXA;		
	relevant information is provided with the electrical equipment (see 17.2 b)9) and b)12)).	see17.2 b)9) and b)12)	Pass
	all parts that are still live after switching off the disconnecting device(s) (see 5.3.5) shall be protected against direct contact to at least IP2X or IPXXB (see IEC 60529).	IP 2X has been used for the protection of cable inlet connection	Pass
	Such parts shall be marked with a warning sign in accordance with 16.2.1 (see also 13.2.4 for identification of conductors by colour).	⚠ Has been marked on the connection of cable inlet.	Pass
6.2.3	Protection by insulation of live parts	-	-
	Live parts shall be covered by insulation which can only be removed by destruction	Live part has been covered appropriately.	Pass
	Such insulation shall withstand the mechanical, chemical, electrical and thermal stresses under normal service conditions	Insulation could withstand the mechanical stress 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	In any situation, the voltage could even drop to 0V within one second.	Pass
	If mentioned above is not possible, a warning notice drawing shall be provided	No this situation.	N/A
	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	No this situation.	N/A
6.2.5	Protection by barriers	-	-
	For protection by barriers, see 412.2 of IEC 60364-4-41	No this situation.	N/A
6.2.6	Protection by placing out of reach or protection by obstacles	-	-

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	For protection by placing out of reach see 412.4 of IEC 60364-4-41	No this situation.	N/A
	For protection by obstacles see 412.3 of IEC 60364-4-41	No this situation.	N/A
	For collector wire systems or collector bar systems with a degree of protection less than IP2X see 13.8.1	No this situation.	N/A
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	One of measure in accordance with 6.3.2 is applied.	Pass
6.3.2	Prevention of the occurrence of a touch voltage	-	-
6.3.2.1	General	-	-
	Measures to prevent the occurrence of a touch voltage include the following:	-	-
	- provision of class II equipment or by equivalent insulation;	By equivalent insulation.	Pass
	- electrical separation.	No this situation.	N/A
6.3.2.2	Protection by provision of class II equipment or by equivalent insulation	-	-
	This protection is provided by one or more of the following:	-	-
	- class II electrical devices or apparatus (double insulation, equivalent insulation in accordance with IEC 61140);	By equivalent insulation.	Pass
	- switchgear and controlgear assemblies having total with IEC 60439-1;	No this situation.	N/A
	- supplementary or reinforced insulation in accordance with 413.2 of IEC 60364-4-41.	No this situation.	N/A
6.3.2.3	Protection by electrical separation	-	-
	Electrical separation of an individual circuit is intended to prevent a touch voltage through contact with exposed conductive parts that can be energized by a fault in the basic insulation of the live parts of that circuit.	Appropriate electrical separation has been used for this machine.	Pass
6.3.3	Protection by automatic disconnection of supply	-	-
	This measure consists of the interruption	Automatic disconnection.	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	of one or more of the line conductors by the automatic operation of a protective device in case of a fault. This interruption shall occur within a sufficiently short time to limit the duration of a touch voltage to a time within which the touch voltage is not hazardous. Interruption times are given in Annex A.		
	This measure necessitates co-ordination between:	-	-
	- the type of supply and earthing system;	Co-ordination.	Pass
	- the impedance values of the different elements of the protective bonding system;	Co-ordination.	Pass
	- the characteristics of the protective devices that detect insulation fault(s).	Co-ordination.	Pass
	Automatic disconnection of the supply of any circuit affected by an insulation fault is intended to prevent a hazardous situation resulting from a touch voltage.	No this situation.	N/A
	This protective measure comprises both:	-	-
	protective bonding of exposed conductive parts (see 8.2.3),	It has been complied with.	Pass
	- and either:	-	-
	a) overcurrent protective devices for the automatic disconnection of the supply on detection of an insulation fault in TN systems, or	It has been complied with.	Pass
	b) residual current protective devices to initiate the automatic disconnection of the supply on detection of an insulation fault from a live part to exposed conductive parts or to earth in TT systems, or	It has been complied with.	Pass
	insulation monitoring or residual current protective devices to initiate automatic disconnection of IT systems.	It has been complied with.	Pass
	Where automatic disconnection is provided in accordance with a), and disconnection within the time specified in Clause A.1 cannot be assured,	Meet the requirements of Clause A.3	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	supplementary bonding shall be provided as necessary to meet the requirements of Clause A.3.		
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	It is in compliance with this requirenment.	Pass
6.4.2	Sources for PELV	-	-
	The sources for PELV shall be one of the conditions specified in this clause	It is in compliance with this requirement.	Pass
7	Protection of equipment	-	-
7.1	General	-	-
7.2	Overcurrent protection	-	-
7.2.1	General	-	-
7.2.2	Supply conductors	-	-
	Unless otherwise specified by the user, the supplier of the electrical equipment is not responsible for providing the overcurrent protective device for the supply conductors to the electrical equipment (see Annex B).	The manufacturer does not provide the over-current protection for the whole machine.	Pass
	The supplier of the electrical equipment shall state on the installation diagram the data necessary for selecting the overcurrent protective device (see 7.2.10 and 17.4).	The data necessary for over current protective device is provided in the electrical installation diagram.	Pass
7.2.3	Power circuits	-	-
	Devices for detection and interruption of overcurrent, selected in accordance with 7.2.10, shall be applied to each live conductor.	Each power circuit has their overcurrent protective device.	Pass
	The following conductors, as applicable, shall not be disconnected without disconnecting all associated live conductors:	-	-
	– the neutral conductor of a.c. power circuits;	It is in compliance with this requirenment.	Pass
	– the earthed conductor of d.c. power circuits;	It is in compliance with this requirenment.	Pass
	– d.c. power conductors bonded to exposed conductive parts of mobile machines.	No this situation.	N/A

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	For a neutral conductor with a cross-sectional area smaller than that of the associated phase conductors, the measures detailed in 524 of IEC 60364-5-52 shall apply.	The 524 of IEC 60364-5-52 has been checked to comply with.	Pass
	In IT systems, it is recommended that the neutral conductor is not used. However, where a neutral conductor is used, the measures detailed in 431.2.2 of IEC 60364-4-43 shall apply.	No this situation.	N/A
7.2.4	Control circuits	-	-
	Conductors of control circuits directly connected to the supply voltage and of circuits supplying control circuit transformers shall be protected against overcurrent in accordance with 7.2.3.	The overcurrent protective device is provided for conductors of control circuits.	Pass
	Conductors of control circuits supplied by a control circuit transformer or d.c. supply shall be protected against overcurrent (see also 9.4.3.1):	The overcurrent protective device is provided for conductors of control circuits.	Pass
	in control circuits connected to the protective bonding circuit, by inserting an overcurrent protective device into the switched conductor;	-	-
	– in control circuits not connected to the protective bonding circuit;	It is in compliance with this requirement.	Pass
	- where the same cross sectional area conductors are used in all control circuits, by inserting an overcurrent protective device into the switched conductor, and;	No this situation.	N/A
	- where different cross sectional areas conductors are used in different sub-circuits, by inserting an overcurrent protective device into both switched and common conductors of each sub-circuit.	No this situation.	N/A
7.2.5	Socket outlets and their associated conductors	-	-
	Overcurrent protection shall be provided for the circuits feeding the general purpose socket outlets intended primarily for supplying power to maintenance equipment. Overcurrent protective devices shall be provided in the unearthed live	No socket outlet is used for this machine.	N/A

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	conductors of each circuit feeding such socket outlets.		
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 overcurrent devices separate from those protecting other circuits	No lighting circuit is used for this machine.	N/A
7.2.7	Transformers	-	-
	Transformers shall be protected against overcurrent in accordance with the manufacturer's instructions. Such protection shall (see also 7.2.10):	-	-
	- avoid nuisance tripping due to transformer magnetizing inrush currents;	It is in compliance with this requirement.	Pass
	- avoid a winding temperature rise in excess of the permitted value for the insulation class of transformer when it is subjected to the effects of a short circuit at its secondary terminals.	It is in compliance with this requirement.	Pass
	The type and setting of the overcurrent protective device should be in accordance with the recommendations of the transformer supplier.	It is in compliance with this requirement.	Pass
7.2.8	Location of overcurrent protective devices	-	-
	An overcurrent protective device shall be located at the point where a reduction in the cross- sectional area of the conductors or another change reduces the current-carrying capacity of the conductors	Appropriate location of overcurrent protective device has been found during the inspection of equipment.	Pass
7.2.9	Overcurrent protective devices	-	-
	The rated short-circuit breaking capacity shall be at least equal to the prospective fault current at the point of installation. Where the short-circuit current to an overcurrent protective device can include additional currents other than from the supply (for example from motors, from power factor correction capacitors), those currents shall be taken into consideration.	Every overcurrent protective device has been checked with sufficient breaking capacity.	Pass
	A lower breaking capacity is permitted where another protective device (for	No this situation.	N/A

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	example the overcurrent protective device for the supply conductors (see 7.2.2) having the necessary breaking capacity is installed on the supply side. In that case, the characteristics of the two devices shall be co-ordinated so that the let-through energy (I2t) of the two devices in series does not exceed that which can be withstood without damage to the overcurrent protective device on the load side and to the conductors protected by that device (see Annex A of IEC 60947-2).		
	Where fuses are provided as overcurrent protective devices, a type readily available in the country of use shall be selected, or arrangements shall be made for the supply of spare parts.	No this situation.	N/A
7.2.10	Rating and setting of overcurrent protective devices	-	-
	The rated current of fuses or the setting current of other overcurrent protective devices shall be selected as low as possible but adequate for the anticipated overcurrents (for example during starting of motors or energizing of transformers). When selecting those protective devices, consideration shall be given to the protection of switching devices against damage due to overcurrents (for example welding of the switching device contacts).	The rating and setting of overcorrect protective device is appropriate.	Pass
	determined by the current carrying capacity of the conductors to be protected in accordance with 12.4, D.2 and the maximum allowable interrupting time t in accordance with Clause D.3, taking into account the needs of co-ordination with other electrical devices in the protected circuit.	The rating and setting of overcorrect protective device is appropriate.	Pass
7.3	Protection of motors against overheating	-	-
7.3.1	General	-	-
	Protection of motors against overheating shall be provided for each motor rated at more than 0,5 kW.	Overload protection of motor has been provided for this machine.	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	Automatic restarting of any motor after the operation of protection against overheating shall be prevented where this can cause a hazardous situation or damage to the machine or to the work in progress	It has been provided this machine.	Pass
7.3.2	Overload protection	-	-
	Where overload protection is provided, detection of overload(s) shall be provided in each live conductor except for the neutral conductor.	It is in compliance with this requirement.	Pass
	Where overload protection is achieved by switching off, the switching device shall switch off all live conductors. The switching of the neutral conductor is not necessary for overload protection.	It is in compliance with this requirement.	Pass
	Where motors with special duty ratings are required to start or to brake frequently (for example, motors for rapid traverse, locking, rapid reversal, sensitive drilling) it can be difficult to provide overload protection with a time constant comparable with that of the winding to be protected. Appropriate protective devices designed to accommodate special duty motors or over-temperature protection (see 7.3.3) can be necessary.	No this situation.	N/A
	For motors that cannot be overloaded (for example torque motors, motion drives that either are protected by mechanical overload protection devices or are adequately dimensioned), overload protection is not required.	No this situation.	N/A
7.3.3	Over-temperature protection	-	-
	The provision of motors with over-temperature protection (see IEC 60034-11) is recommended in situations where the cooling can be impaired (for example dusty environments). Depending upon the type of motor, protection under stalled rotor or loss of phase conditions is not always ensured by over-temperature protection, and additional protection	The motor has over-temperature protection.	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	should then be provided.		
	Over-temperature protection is also Recommended for motors that cannot be overloaded (for example torque motors, motion drives that are either protected by mechanical overload protection devices or are adequately dimensioned), where the possibility of over-temperature exists (for example due to reduced cooling).	The motor has over-temperature protection.	Pass
7.3.4	Current limiting protection	-	-
	Where protection against the effects of overheating in three phase motors is achieved by current limitation, the number of current limitation devices may be reduced from 3 to 2 (see 7.3.2). For motors having single phase a.c or d.c. power supplies, current limitation in only one unearthed live conductor is permitted.	It is in compliance with this requirement.	Pass
7.4	Abnormal temperature protection	-	-
	Resistance heating or other circuits that are capable of attaining or causing abnormal temperatures (for example, due to short-time rating or loss of cooling medium) and therefore can cause a hazardous situation shall be provided with suitable detection to initiate an appropriate control response.	No this situation.	N/A
7.5	Protection against supply interruption or voltage reduction and subsequent restoration	-	-
	Where a supply interruption or a voltage reduction can cause a hazardous situation, damage to the machine, or to the work in progress, under voltage protection shall be provided by, for example, switching off the machine at a predetermined voltage level.	No under-voltage protection is used for this machine.	N/A
	Where the operation of the machine can allow for an interruption or a reduction of the voltage for a short time period, delayed undervoltage protection may be provided. The operation of the undervoltage device shall not impair the	No under-voltage protection is used for this machine.	N/A

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	operation of any stopping control of the machine.		
	Upon restoration of the voltage or upon switching on the incoming supply, automatic or unexpected restarting of the machine shall be prevented where such a restart can cause a hazardous situation.	Automatic or unexpected restarting of the machine has been prevented.	Pass
	Where only a part of the machine or of the group of machines working together in a co- ordinated manner is affected by the voltage reduction or supply interruption, the undervoltage protection shall initiate appropriate control responses to ensure co-ordination.	No under-voltage protection is used for this machine.	N/A
7.6	Motor overspeed protection	-	-
	Overspeed protection shall be provided where overspeeding can occur and could possibly cause a hazardous situation taking into account measures in accordance with 9.3.2. Overspeed protection shall initiate appropriate control responses and shall prevent automatic restarting.	No motor over-speed protection is used for this machine.	N/A
	The overspeed protection should operate in such a manner that the mechanical speed limit of the motor or its load is not exceeded.	No motor over-speed protection is used for this machine.	N/A
7.7	Earth fault/residual current protection	-	-
	In addition to providing overcurrent protection for automatic disconnection as described in 6.3, earth fault/residual current protection can be provided to reduce damage to equipment due to earth fault currents less than the detection level of the overcurrent protection.	No this situation	N/A
	The setting of the devices shall be as low as possible consistent with correct operation of the equipment.	No this situation	N/A
7.8	Phase sequence protection	-	-
	Where an incorrect phase sequence of the supply voltage can cause a hazardous situation or damage to the machine, protection shall be provided.	Inverter can prevent this situation	N/A

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
7.9	Protection against overvoltages due to lightning and to switching surges	-	-
	Protective devices can be provided to protect against the effects of overvoltages due to lightning or to switching surges.	No this situation	N/A
	Where provided:	-	-
	- devices for the suppression of overvoltages due to lightning shall be connected to the incoming terminals of the supply disconnecting device.	No this situation	N/A
	- devices for the suppression of overvoltages due to switching surges shall be connected across the terminals of all equipment requiring such protection.	No this situation	N/A
8	Equipotential bonding	-	-
8.1	General	-	-
8.2	Protective bonding circuit	-	-
8.2.1	General	-	-
	All parts of the protective bonding circuit shall be so designed that they are capable of withstanding the highest thermal and mechanical stresses that can be caused by earth-fault currents that could flow in that part of the protective bonding circuit.	It is in compliance with this requirement.	Pass
	Where the conductance of structural parts of the electrical equipment or of the machine is less than that of the smallest protective conductor connected to the exposed conductive parts, a supplementary bonding conductor shall be provided. This supplementary bonding conductor shall have a cross-sectional area not less than half that of the corresponding protective conductor.	It is in compliance with this requirement.	Pass
	If an IT distribution system is used, the machine structure shall be part of the protective bonding circuit and insulation monitoring shall be provided. See 6.3.3 c).	It is in compliance with this requirement.	Pass
	Conductive structural parts of equipment in accordance with 6.3.2.2 need not be connected to the protective bonding circuit. Extraneous conductive parts which	It is in compliance with this requirement.	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	form the structure of the machine need not be connected to the protective bonding circuit where all the equipment provided is in accordance with 6.3.2.2.		
	Exposed conductive parts of equipment in accordance with 6.3.2.3 shall not be connected to the protective bonding circuit.	It is in compliance with this requirement.	Pass
8.2.2	Protective conductors	-	-
	Protective conductors shall be identified in accordance with 13.2.2.	It is in compliance with this requirement.	Pass
	Copper conductors are preferred. Where a conductor 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 be not less than 16 mm2 in cross-sectional area.	It is in compliance with this requirement.	Pass
	The cross-sectional area of protective conductors shall be determined according with the requirements of : - 543 of IEC 60364-5-54; or - 7.4.3.1.7 of IEC 60439-1, as appropriate	It is in compliance with this requirenment.	Pass
8.2.3	Continuity of the protective bonding circuit	-	-
	All exposed conductive parts shall be connected to the protective bonding circuit in accordance with 8.2.1	It is in compliance with this requirement.	Pass
	Where a part is removed for any reason (for example routine maintenance), the protective bonding circuit for the remaining parts shall not be interrupted.	It is in compliance with this requirement.	Pass
	Connection and bonding points shall be so designed that their current-carrying capacity is not impaired by mechanical, chemical, or electrochemical influences. Where enclosures and conductors of aluminium or aluminium alloys are used, particular consideration should be given to the possibility of electrolytic corrosion.	It is in compliance with this requirement.	Pass
	Metal ducts of flexible or rigid construction and metallic cable sheaths shall not be used as protective conductors.	It is in compliance with this requirement.	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	Nevertheless, such metal ducts and the metal sheathing of all connecting cables (for example cable armouring, lead sheath) shall be connected to the protective bonding circuit.		
	Where the electrical equipment is mounted on lids, doors, or cover plates, continuity of the protective bonding circuit shall be ensured and a protective conductor (see 8.2.2) is recommended. Otherwise fastenings, hinges or sliding contacts designed to have a low resistance shall be used (see 18.2.2, Test 1).	No this situation.	N/A
	The continuity of the protective conductor in cables that are exposed to damage (for example flexible trailing cables) shall be ensured by appropriate measures (for example monitoring).	No this situation.	N/A
	For requirements for the continuity of the protective conductor using conductor wires, conductor bars and slip-ring assemblies, see 12.7.2.	No this situation.	N/A
8.2.4	Exclusion of switching devices from the protective bonding circuit	-	-
	The protective bonding circuit shall not incorporate a switching device or an overcurrent protective device (for example switch, fuse).	No switching device and/or over-current protective device was found to connect to the protective bonding.	Pass
	No means of interruption of the protective bonding conductor shall be provided.	It is in compliance with this requirement.	Pass
	Where the continuity of the protective bonding circuit can be interrupted by means of removable current collectors or plug/socket combinations, the protective bonding circuit shall be interrupted by a first make last break contact. This also applies to removable or withdrawable plug-in units (see also 13.4.5).	It is in compliance with this requirement.	Pass
8.2.5	Parts that need not be connected to the protective bonding circuit	-	-
	It is not necessary to connect exposed conductive parts to the protective bonding circuit where those parts are mounted so	-	-

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	that they do not constitute a hazard because:		
	– they cannot be touched on large surfaces or grasped with the hand and they are small in size (less than approximately 50 mm × 50 mm); or	No this situation.	N/A
	– they are located so that either contact with live parts, or an insulation failure, is unlikely.	No this situation.	N/A
	This applies to small parts such as screws, rivets, and nameplates and to parts inside an enclosure, irrespective of their size (for example electromagnets of contactors or relays and mechanical parts of devices) (see also 410.3.3.5 of IEC 60364-4-41).	No connection of protective bonding circuit between screws, rivets, and magnetic contactor	Pass
8.2.6	Protective conductor connecting points	-	-
	All protective conductors shall be terminated in accordance with 13.1.1.	It is in compliance with this requirement. Please see the clause 13.1.1	Pass
	shall have no other function and are not intended, for example, to attach or connect appliances or parts.	They have no other function and are used to attach or connect appliances or parts.	Pass
	Each protective conductor connecting point shall be marked or labelled as such using the symbol IEC 60417-5019 (DB:2002-10):	Earthing symbol ⏚ is used.	Pass
	or with the letters PE, the graphical symbol being preferred, or by use of the bicolour combination GREEN-AND-YELLOW, or by any combination of these.	It is in compliance with this requirement.	Pass
8.2.7	Mobile machines	-	-
	On mobile machines with on-board power supplies, the protective conductors, the conductive structural parts of the electrical equipment, and those extraneous conductive parts which form the structure of the machine shall all be connected to a protective bonding terminal to provide protection against electric shock. Where a mobile machine is also capable of being connected to an external incoming power supply, this protective bonding terminal	It is in compliance with this requirementi.	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	shall be the connection point for the external protective conductor.		
8.2.8	Additional protective bonding requirements for electrical equipment having earth leakage currents higher than 10 mA a.c. or d.c.	-	-
	Where electrical equipment has an earth leakage current (for example adjustable speed electrical power drive systems and information technology equipment) that is greater than 10 mA a.c. or d.c. in any incoming supply, one or more of the following conditions for the associated protective bonding circuit shall be satisfied:	-	-
	a) the protective conductor shall have a cross-sectional area of at least 10 mm2 Cu or 16 mm2 Al, through its total run;	No this situation.	N/A
	b) where the protective conductor has a cross-sectional area of less than 10 mm2 Cu or 16 mm2 Al, a second protective conductor of at least the same cross-sectional area shall be provided up to a point where the protective conductor has a cross-sectional area not less than 10 mm2 Cu or 16 mm2 Al.	No this situation.	N/A
	c) automatic disconnection of the supply in case of loss of continuity of the protective conductor.	No this situation.	N/A
	To prevent difficulties associated with electromagnetic disturbances, the requirements of 4.4.2 also apply to the installation of duplicate protective conductors.	No this situation.	N/A
	In addition, a warning label shall be provided adjacent to the PE terminal, and where necessary on the nameplate of the electrical equipment. The information provided under 17.2 b)1) shall include information about the leakage current and the minimum cross-sectional area of the external protective conductor.	No this situation.	N/A
8.3	Functional bonding	-	-

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	Protection against maloperation as a result of insulation failures can be achieved by connecting to a common conductor in accordance with 9.4.3.1.	No this situation.	N/A
	For recommendations regarding functional bonding to avoid maloperation due to electromagnetic disturbances, see 4.4.2.	No this situation.	N/A
8.4	Measures to limit the effects of high leakage current	-	-
	The effects of high leakage current can be restricted to the equipment having high leakage current by connection of that equipment to a dedicated supply transformer having separate windings. The protective bonding circuit shall be connected to exposed conductive parts of the equipment and, in addition, to the secondary winding of the transformer. The protective conductor(s) between the equipment and the secondary winding of the transformer shall comply with one or more of the arrangements described in 8.2.8.	No this situation.	N/A
9	Control circuits and control functions	-	-
9.1	Control circuits	-	-
9.1.1	Control circuit supply	-	-
	Where control circuits are supplied from an a.c. source, control transformers shall be used for supplying the control circuits. Such transformers shall have separate windings. Where several transformers are used, it is recommended that the windings of those transformers be connected in such a manner that the secondary voltages are in phase.	It is in compliance with this requirement.	Pass
	Where d.c. control circuits derived from an a.c. supply are connected to the protective bonding circuit (see 8.2.1), they shall be supplied from a separate winding of the a.c. control circuit transformer or by another control circuit transformer.	It is in compliance with this requirement.	Pass
	Transformers are not mandatory for machines with a single motor starter	No this situation.	N/A

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	and/or a maximum of two control devices (for example interlock device, start/stop control station).		
9.1.2	Control circuit voltages	-	-
	The nominal value of the control voltage shall be consistent with the correct operation of the control circuit. The nominal voltage shall not exceed 277V when supplied from a transformer.	It is in compliance with this requirement.	Pass
9.1.3	Protection	-	-
	Control circuits shall be provided with overcurrent protection in accordance with 7.2.4 and 7.2.10.	Appropriate overcurrent protective has been provided for the control circuit.	Pass
9.2	Control functions	-	-
9.2.1	Start functions	-	-
	Start functions shall operate by energizing the relevant circuit (see 9.2.5.2).	Start function are operated properly.	Pass
9.2.2	Stop functions	-	-
	There are three categories of stop functions as follows:	It is in compliance with this requirement.	Pass
	Each machine shall be equipped with appropriate stop functions	Appropriate stop function has been found for this machine.	Pass
9.2.3	Operating modes	-	-
	Each machine can have one or more operating modes determined by the type of machine and its application. When a hazardous situation can result from a mode selection, unauthorised and/or inadvertent selection shall be prevented by suitable means (for example key operated switch, access code).	The entire different operation mode has been well protected under the same safety device of this machine.	Pass
	Mode selection by itself shall not initiate machine operation. A separate actuation of the start control shall be required.	No any additional mode selection other than the start operation is used for this machine.	Pass
	For each specific operating mode, the relevant safety functions and/or protective measures shall be implemented.	The safeguarding means remain effective for the all three different operation mode.	Pass
	Indication of the selected operating mode shall be provided (for example the position of a mode selector, the provision of an indicating light, a visual display indication).	Indication of the selected operating mode has been provided for this machine.	Pass
9.2.4	Suspension of safety functions and/or	-	-

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	protective measures		
	Where it is necessary to suspend safety functions and/or protective measures (for example for setting or maintenance purposes), protection shall be ensured by:	No need to suspend safeguarding.	N/A
	- disabling all other operating (control) modes; and	No this situation.	N/A
	- other relevant means (see 4.11.9 of ISO 12100-2:2003), that can include, for example, one or more of the following:	-	-
	- initiation of operation by a hold-to-run device or by a similar control device;	No this situation.	N/A
	- a portable control station with an emergency stop device and, where appropriate, an enabling device. Where a portable control station is in use, initiation of motion shall only be possible from that control station;	No this situation.	N/A
	- a cableless control station with a device to initiate stop functions in accordance with 9.2.7.3 and, where appropriate, an enabling device. Where a cableless control station is in use, initiation of motion shall only be possible from that control station;	No this situation.	N/A
	limitation of the speed or the power of motion;	No this situation.	N/A
	- limitation of the range of motion.	No this situation.	N/A
9.2.5	Operation	-	-
9.2.5.1	General	-	-
	The necessary safety functions and/or protective measures (for example interlocks (see 9.3)) shall be provided for safe operation.	The interlocking function has been checked to meet the requirement resulting from the risk assessment report.	Pass
	Measures shall be taken to prevent movement of the machine in an unintended or unexpected manner after any stopping of the machine (for example due to locked-off condition, power supply fault, battery replacement, lost signal condition with cableless control).	No additional measure was taken due to any risk of this kind of risk.	N/A
	Where a machine has more than one control station, measures shall be	No this situation.	N/A

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	provided to ensure that initiation of commands from different control stations do not lead to a hazardous situation.		
9.2.5.2	Start	-	-
	The start of an operation shall be possible only when all of the relevant safety functions and/or protective measures are in place and are operational except for conditions as described in 9.2.4.	The start of an operation is possible only when all the safeguards are in place and function.	Pass
	On those machines (for example mobile machines) where safety functions and/or protective measures cannot be applied for certain operations, manual control of such operations shall be by hold-to-run controls, together with enabling devices, as appropriate.	No hold-to-run control is used for this machine.	N/A
	Suitable interlocks shall be provided to secure correct sequential starting.	Appropriate interlock has been provided for this machine.	Pass
	In the case of machines requiring the use of more than one control station to initiate a start, each of these control stations shall have a separate manually actuated start control device. The conditions to initiate a start shall be:	-	-
	- all required conditions for machine operation shall be met, and	No this situation.	N/A
	- all start control devices shall be in the released (off) position, then	No this situation.	N/A
	- all start control devices shall be actuated concurrently (see 3.6).	No this situation.	N/A
9.2.5.3	Stop	-	-
	Stop category 0 and/or stop category 1 and/or stop category 2 stop functions shall be provided as indicated by the risk assessment and the functional requirements of the machine (see 4.1).	It is provied for the machine.	Pass
9.2.5.4	Emergency operations (emergency stop, emergency switching off)	-	-
9.2.5.4.1	General	-	-
	the effect of this command shall be sustained until it is reset. This reset shall be possible only by a manual action at that location where the command has	It is in compliance with this requirement.	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	been initiated. The reset of the command shall not restart the machinery but only permit restarting.		
	It shall not be possible to restart the machinery until all emergency stop commands have been reset. It shall not be possible to reenergize the machinery until all emergency switching off commands have been reset.	It is in compliance with this requirement.	Pass
9.2.5.4.2	Emergency stop	-	-
	Principles for the design of emergency stop equipment, including functional aspects, are given in ISO 13850.	It is in compliance with this requirement.	Pass
	The emergency stop shall function either as a stop category 0 or as a stop category 1 (see 9.2.2). The choice of the stop category of the emergency stop depends on the results of a risk assessment of the machine.	It is in compliance with this requirement.	Pass
	In addition to the requirements for stop (see 9.2.5.3), the emergency stop function has the following requirements:	-	-
	- it shall override all other functions and operations in all modes;	It is in compliance with this requirement.	Pass
	- power to the machine actuators that can cause a hazardous situation(s) shall be either removed immediately (stop category 0) or shall be controlled in such a way to stop the hazardous motion as quickly as possible (stop category 1) without creating other hazards;	It is in compliance with this requirement.	Pass
	- reset shall not initiate a restart.	It is in compliance with this requirement.	Pass
9.2.5.4.3	Emergency switching off	-	-
	Emergency switching off should be provided	It has used emergency switching off.	Pass
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 by providing	It is in compliance with this requirement.	Pass
9.2.6	Other control functions	-	-
9.2.6.1	Hold-to-run controls	-	-

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	Hold-to-run controls shall require continuous actuation of the control devices to achieve operation	No any Hold-to-run control is used for this machine.	N/A
9.2.6.2	Two-hand control	-	-
	Three types of two-hand control are defined in ISO 13851, the selection of which is determined by the risk assessment	No any two-hand control is used for this machine.	N/A
9.2.6.3	Enabling device	-	-
	Enabling control shall be so arranged as to minimize the possibility of defeating,. It should not be possible to defeat the enabling function by simple means.	It is in compliance with this requirement.	Pass
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	No cableless control is used for this machine.	N/A
	Means shall be provided, as necessary, to prevent unauthorized use of the operator control station	No cableless control is used for this machine.	N/A
	Each operator control station shall carry an unambiguous indication of which machine is intended to be controlled by that operator control station	No cableless control is used for this machine.	N/A
9.2.7.2	Control limitation	-	-
	Measures shall be taken to prevent the machine from responding to signals other than those from the intended operator control station	No cableless control is used for this machine.	N/A
	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	No cableless control is used for this machine.	N/A
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	No this situation.	N/A
	The actuating means to initiate this stop function shall not be marked or labelled	No this situation.	N/A

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	as an emergency stop device		
	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	No this situation.	N/A
9.2.7.4	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	It is in compliance with this requirement.	Pass
	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	It is in compliance with this requirement.	Pass
9.2.7.5	Battery-powered operator control stations	-	-
	A variation in the battery voltage shall not cause a hazardous condition	No battery-powered operator control station is used for this machine.	N/A
	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	No battery-powered operator control station is used for this machine.	N/A
	Under those circumstances, the operator control station shall remain functional long enough to put the machine into a non-hazardous condition	No battery-powered operator control station is used for this machine.	N/A
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	The reclosing or resetting of an interlocking safeguard will not initiate machine motion or operation.	Pass
9.3.2	Exceeding operating limits	-	-
	W here an operating limit can be exceeded leading to a hazardous situation, means shall be provided to detect when a predetermined limit(s) is exceeded and	Position sensors or limit switches are used for this purpose.	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	initiate an appropriate control action.		
9.3.3	Operation of auxiliary functions	-	-
	The correct operation of auxiliary functions shall be checked by appropriate devices	The appropriate use of auxiliary function has been specified in the instruction manual.	Pass
	W here the non-operation of a motor or device for an auxiliary function can cause a hazardous situation, or cause damag to the machine or to the work in progress, appropriate interlocking shall be provided.	The same safety level of interlocking has been specified in the instruction manual	N/A
9.3.4	Interlocks between different operations and for contrary motions	-	-
	Interlocking shall be provided against incorrect operation	Redundancy design with monitoring system has been provided against incorrect operation according to EN 201.	Pass
9.3.5	Reverse current braking	-	-
	Use of reverse current braking	No reverse current braking is used for this machine.	N/A
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	The appropriate provision has been provided.	Pass
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	The proven circuit and component have been used as far as possible.	Pass
9.4.2.2	Provisions of partial or complete redundancy	-	-
	Provisions for redundancy	The redundancy for the interlocking of movable door of mould area has been constructed.	Pass
9.4.2.3	Provision of diversity	-	-
	The use of control circuits having different principles of operation, or using different types of components or devices can reduce the probability of hazards resulting from faults and/or failures.	-	-
	–the combination of normally open and normally closed contacts operated by interlocking guards;	The appropriate provision has been provided.	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	–the use of different types of control circuit components in the circuit;	Not used in this machine.	N/A
	–the combination of electromechanical and electronic equipment in redundant configurations.	Not used in this machine.	N/A
9.4.2.4	Provision for functional tests	-	-
	Functional tests may be carried out automatically by the control system, or manually by inspection or tests at start-up and at predetermined intervals, or a combination as appropriate	The automatic functional test after this machine is initiated has been used.	Pass
9.4.3	Protection against maloperation due to earth faults, voltage interruptions and loss of circuit continuity	The mal-operation mentioned in this clause could be detected by the manual test system.	Pass
9.4.3.1	Earth faults	-	-
	Earth faults on any control circuit shall not cause unintentional starting, potentially hazardous motions, or prevent stopping of the machine.	The appropriate bonding circuit has been provided according to 8.2, and connected as described in 1.9.4.	Pass
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	The power for keeping memory is only the operation parameter. The loss of parameter will not cause any hazardous situation, because the ranger for setting appropriate parameter has been constructed in the PLC, Which is not possible to be modified in any situation.	Pass
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 a hazardous condition, appropriate measures shall be taken	For this machine, no this kind of risk is found.	N/A
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	The relevant standard has been followed as far as possible.	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	identified or coded in accordance with relevant parts of IEC 61310.		
10.1.2	Location and mounting	-	-
	Appropriate location mounting for machine-mounted and hand-operated control devices	The mounting of control device has followed the requirement of this clause.	Pass
10.1.3	Protection	-	-
	Operator and machine mounted control devices shall withstand the stress of expected use	The appropriate specification of component used has been provided to withstand the stress of expected use.	Pass
	The operator interface control devices shall have a min. degree of protection : IPXXD	The IP54 degree of protection has been found on the operator interface on control devices.	Pass
10.1.4	Position sensors	-	-
	Position sensors (for example position switches, proximity switches) shall be so arranged that they will not be damaged in the event of overtravel.	Because of the use of mechanical protection for over-travel, no damage of limit switch will occur while over-travel.	Pass
	Position sensors in circuits with safety-related control functions shall have direct opening action (see IEC 60947-5-1) or shall provide similar reliability	The necessary positive opening operation for the protection device has been provided.	Pass
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	No portable and pendant control station is used for this machine.	N/A
10.2	Push-buttons	-	-
10.2.1	Colours	-	-
	Push-button actuators shall be colour-coded according to table 2	The suitable color according to table 2 has been found on the control push button.	Pass
10.2.2	Markings	-	-
	Use of adequate markings for push-buttons	Appropriate marking for push buttons have been checked in compliance with ISO-7000.	Pass
10.3	Indicator lights and displays	-	-
10.3.1	General	-	-
	Indicator lights and displays shall be	The models of indicating lights have	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	selected and installed in such a manner as to be visible from the normal position of the operator (see also IEC 61310-1). Indicator light circuits used for warning lights shall befitted with facilities to check the operability of these lights.	been indicated.	
10.3.2	Colours	-	-
	Colour-coded according to table 3 (Unless otherwise agree between the supplier and the user)	The suitable color according to table3 has been found .	Pass
10.3.3	Flashing lights	-	-
	Use of flashing lights	The red flashing light for the alarm of machine has been used for this machine.	Pass
10.4	Illuminated push-buttons	-	-
	Colour-coded according to table 2 and 3	The appropriate color has been used according to table 2 and 3.	Pass
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)	Rotational member are so mounted that could prevent rotation of the stationary member.	Pass
10.6	Start devices	-	-
	Shall be constructed and mounted to minimise inadvertent operation	Start device is so constructed and mounted that could minimize inadvertent operation.	Pass
10.7	Devices for emergency stop	-	-
10.7.1	Location	-	-
	Devices for emergency stop shall be readily accessible	Emergency stop device is readily accessible.	Pass
	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	Four emergency stop device has been found.	Pass
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	A push button operated switch is used.	Pass
	Shall be of the self-latching type and shall	Emergency stop devices is the self-	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	have positive opening operation	latching type.	
10.7.3	Colour of Actuators	-	-
	Shall be coloured Red and background be coloured Yellow	The emergency stop device is colored Red and background is colored Yellow.	Pass
	The actuator of a push-button operated switch shall be of the palm or mushroom head type	The mushroom type of emergency stop is used for this machine.	Pass
10.7.4	Local operation of the supply disconnecting device to effect emergency stop	-	-
	The supply disconnecting device may be locally operated to serve the function of emergency stop when : - readily accessible - of the type described in 5.3.2 a), b) or c)	The supply-disconnecting device may be operated to serve the function of emergency when readily accessible.	Pass
	It shall meet the colour requirements of 10.7.4	It has met the colour requirements of 10.7.4.	Pass
10.8	Devices for emergency switching off	-	-
10.8.1	Location	-	-
	Emergency switching off devices shall be located as necessary for the given application	Emergency switching off devices have been located as necessary for the given application.	Pass
10.8.2	Types	-	-
	The type of device for emergency switching off include : - a push-button operated switch; - a pull-cord operated switch	A push-button operated switch.	Pass
	The devices shall be of the self-latching type and shall have positive (or direct) opening operation	The clause has been met.	Pass
	The push-button operated switch may be in a break-glass enclosure	No this situation.	N/A
10.8.3	Colour of Actuators	-	-
	Shall be coloured RED	The clause has been met.	Pass
	The background immediately around the device actuator should be coloured YELLOW	It has been met.	Pass
	The actuator of a push-button operated emergency switching off device shall be of the palm or mushroom head type	The actuator of a push-button operated emergency switching off devive has been of the mushroom head type.	Pass
10.8.4	Local operation of the supply	-	-

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	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	The clause has been met.	Pass
10.9	Enabling control device	-	-
	W hen an enabling control device is provided as a part of a system, it shall signal the enabling control to allow operation when actuated in one position only. In any other position, operation shall be stopped or prevented. Enabling control devices shall be selected and arranged so as to minimize the possibility of defeating.	The clause has been met.	Pass
11	Controlgear: location, mounting, and enclosures	-	-
11.1	General requirements	-	-
11.2	Location and mounting	-	-
11.2.1	Accessibility and maintenance	-	-
	All controlgears can be identified without moving or the wiring	All controlgears could be indentified without moving or the wiring.	Pass
	Replacement without dismantling other equipment or parts of the machine	Easy replacement of parts has been found.	Pass
	Terminals not associated with controlgear shall also comply with the requirements mentioned above	All the terminals are found to comply with the requirement mentioned above.	Pass
	Facilitate operation and maintenance from the front	The control gears of this machine are found to facilitate operation and maintenance from the front	Pass
	Use of special tools(if necessary)	Not required.	N/A
	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	All component requiring regular maintenance and/or adjustment have been located between 0.4m and 2.0m.	Pass
	It is recommended that terminals be at least 0.2 m above the servicing level and so placed that connectors and cables can be easily connected to them	No any terminal was located at the position, which is lower than 0.2m form ground plane.	N/A
	Except those for operating, indicating, measuring and cooling, no devices shall	Only operational and indication component was found at the door of control cabinet.	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	be mounted on doors, and normally removable access covers, of enclosures		
	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	No this kind of device is provided for this machine.	N/A
	Plug-in devices shall be provided with non-interchangeable features	No plug-in device is used for this machine.	N/A
	Use of plug/socket combinations shall be unobstructed access	No plug/socket combination.	N/A
11.2.2	Physical separation or grouping	-	-
	Non-electrical parts and devices not directly associated with the electrical equipment shall not be located within enclosures containing controlgear	No non-electrical part is found within the enclosure containing control gear.	Pass
	Devices such as solenoid valves should be separated from the other electrical equipment	Solenoid valves have been separated from the other electrical equipment.	Pass
	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	Appropriate separation has been made between the circuits of connected to supply voltage and the control voltage.	Pass
	Terminals shall be separated into groups for : - power circuits; - associated control circuits - other control circuits, fed from external sources	Appropriate separation has been checked between the terminal of power circuit and control circuit.	Pass
	The clearances and creepage distances specified for the devices shall be maintained	The clearances and creepage distances for the devices could be maintained.	Pass
11.2.3	Heating effects	-	-
	Heat generating components shall be located so that the temperature of each component in the vicinity remains within the permitted limit	It has been complied with.	Pass
11.3	Degrees of protection	-	-
	Enclosures of controlgear : at least IP 22	The degree of protection of control enclosure is found to be greater than IP22.	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
11.4	Enclosures, doors and openings	-	-
	Enclosure shall be constructed using materials capable of withstanding the mechanical, electrical and thermal stresses	The material of control enclosure is SS-41 steel plate, witch is found capable of withstand the mechanical, electrical and thermal stresses.	Pass
	Fasteners used to secure doors and covers should be of the captive type	Fasteners used to secure the cover of control enclosure are found to be captive type.	Pass
	Windows provided for viewing internally mounted indicating devices shall be of a material suitable to withstand mechanical stress and chemical attack	The door of control enclosure has been checked to meet the requirement of this clause.	Pass
	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°	The door of control enclosure has been checked to meet the requirement of this clause.	Pass
	If enclosures which readily allow a person fully to enter, the relevant requirements specified in this clause shall be comply	No this kind enclosure is used for this machine.	N/A
	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	The joints or gaskets of doors, lids, covers and enclosures could withstand the chemical effects of the aggressive liquids, vapours or gases used on the machine.	Pass
	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	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 could be secured.	Pass
	The degree of protection for all openings in the enclosures shall be secured	The degree of protection for all openings in the enclosures could be secured.	Pass
	Openings for cable shall be easily re-opened on site	Opening for cable could be easily re-opened on site.	Pass
	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	No any opening of this kind is found during inspection.	Pass
	The requirement mentioned above does not apply to electrical devices specially	No this situation.	N/A

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	designed to operate in oil nor to electrical equipment in which coolants are used		
	Where there are holes in an enclosure for mounting purpose, the degree of protection for the enclosure shall be secured	No any hole, which breaks the degree of protection, is found during inspection.	Pass
	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	No any this kind of component is found during inspection.	Pass
11.5	Access to controlgear	-	-
	The min. dimensions of gangways in front of and between controlgear shall be according to 481.2.4 of IEC 60364-4-481	No this kind of gangway is used for this machine.	N/A
	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 means to allow opening from the inside without the use of a key or tool	No this king of gangway is used for this machine.	N/A
12	Conductors and cables	-	-
12.1	General requirements	-	-
	Conductors and cables shall be selected so as to be suitable for the operating conditions and external influences	Conductors and cables are selected so as to be suitable for the operating conditions and external influences.	Pass
12.2	Conductors	-	-
	Conductors shall be of copper	Conductors are made of copper.	Pass
	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	No this situation.	N/A
	If aluminium is used, the cross-sectional area shall be at least 16 mm^2	No this situation.	N/A
	All conductors that are subject to frequent movement shall have flexible stranding of class 5 or class 6 (see table C.4)	Class 6 conductor is used for the conductor of movable part.	Pass
12.3	Insulation	-	-
	Dielectric strength test for insulation conductors and cables :	2000Vac for a duration of 5 min is used for this dielectric strength test of insulation conductors.	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	- 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 a duration of 5 min. (for separate PELV circuit)		
	The mechanical strength and thickness of the insulation shall not be damaged in operation or during laying, especially for cables pulled into ducts	The mechanical strength and thickness of the insulation has no damage in operation or during laying.	Pass
12.4	Current-carrying capacity in normal service	-	-
	Max. allowable temperature for conductors shall not exceed the values given in table 4	Temperature rise for conductors have been tested under the limit of table4.	Pass
12.5	Conductor and cable voltage drop	-	-
	The voltage drop for conductors and cables shall not exceed 5 % of the nominal voltage	The voltage drop of conductors has been tested. The test result does not exceed 1%(about 1V for 380V test voltage).	Pass
12.6	Flexible cables	-	-
12.6.1	General	-	-
	Flexible cables shall have class 5 or class 6 conductors	The class 6 flexible cable is provided for this equipment.	Pass
	Cables that are subjected to severe duties shall be of adequate construction	No this situation.	N/A
12.6.2	Mechanical rating	-	-
	The tensile stress for copper conductors shall not exceed 15 N/mm^2 of the copper cross-sectional area	The class 6 flexible cable is provided for this equipment.	Pass
	If the demands of the application exceed the tensile stress limit of 15 N/mm^2, cables with special construction features should be used and the allowed max. tensile stress strength should be agreed with the cable manufacturer	No this situation.	N/A
12.6.3	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	No this situation.	N/A
	For cables of circular cross-sectional area	No this situation.	N/A

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	installed on drums, the max. current-carrying capacity in free air should be derated according to table 7		
12.7	Collector wires, collector bars and slip-ring assemblies	-	-
12.7.1	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	Every wires are protected with the control enclosure of IP2X	Pass
	Min. protection degree of horizontal top surface of barriers or enclosures that are readily accessible : IP4X	The degree of protection for the horizontal top surface of control enclosure is IP54.	Pass
	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	No this situation.	N/A
	Collector wires and collector bars shall be so placed and/or protected as to : - prevent contact - prevent damage from a swinging load	The appropriate provision for preventing contact and damage from a swinging load has been found during inspection.	Pass
12.7.2	Protective conductor circuit	-	-
	Where collector wires, collector bars and slip-ring assemblies are installed as part of the protective bonding circuit, they shall not carry current in normal operation	No this situation.	N/A
	The continuity of the protective conductor circuit using sliding contacts shall be ensured by taking appropriate measures	No this situation.	N/A
12.7.3	Protective conductor current collectors	-	-
	Not interchangeable with the other current collectors	No this situation.	N/A
	such current collectors shall be of the sliding contact type	No this situation.	N/A
12.7.4	Removable current collectors with a disconnector 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	No this kind of current collector is used for this machine.	N/A

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	protective conductor circuit is re-established before any live conductor is reconnected		
12.7.5	Clearance in air	-	-
	Shall be suitable for operation in pollution degree 3 conditions	No this situation.	N/A
12.7.6	Creepage distances	-	-
	Shall be suitable for operation in pollution degree 3 conditions	No this situation.	N/A
12.7.7	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	No this situation.	N/A
12.7.8	Construction and installation of collector wire, collector bar systems and slip-ring assemblies	-	-
	Used for power circuits shall be grouped separately from those used for control circuit	No this situation.	N/A
	Shall be capable of withstanding, without damage, the mechanical forces and thermal effects of short-circuit currents	No this situation.	N/A
	Removable covers shall not be opened by one person without the aid of a tool	No this situation.	N/A
	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	No this situation.	N/A
	Metal covers of collector bar laid underground or underfloor shall also be bonded together and earthed	No this situation.	N/A
	Underground and underfloor collector bar ducts shall have drainage facilities	No this situation.	N/A
13	Wiring practices	-	-
13.1	Connections and routing	-	-
13.1.1	General requirements	-	-
	All connections shall be secured against accidental loosening	All connections are secured against accidental loosening.	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	The means of connection shall be suitable for the cross-sectional areas and neutral of the conductors being terminated	It is in compliance with this situation.	Pass
	The connection of two or more conductors to one terminal is permitted (only when the terminal is designed for that purpose)	No this kind of connection.	N/A
	One protective bonding circuit conductor shall be connected to one terminal connecting point	One protective bonding circuit conductor is connected to one terminal connecting point.	Pass
	Soldered connections shall only be permitted if terminals are suitable for soldering	No soldered connection is used for provided.	N/A
	Terminals on terminal blocks shall be plainly identified to correspond with markings on the diagrams	Appropriate identification has been provided.	Pass
	The installation of flexible conduits and cables shall be such that liquids shall drain away from the fittings	The appropriate provision of drain has been provided for the installation of flexible conduits.	Pass
	Means of retaining conductor strands shall be provided (Solder shall not be used for that purpose)	Appropriate retaining provisions for the conductor strands have been provided.	Pass
	Shielded conductors shall be so terminated as to prevent fraying of strands and to permit easy disconnection	Appropriate termination has been found for the shield conductors.	Pass
	Identification tags shall be legible, permanent, and appropriate for the physical environment	Appropriate identification has been found for the conductors and terminals.	Pass
	Terminal blocks shall be so mounted and wired, that the internal and external wiring does not cross over the terminals	No any external and/or internal wiring was found to cross over the terminals.	Pass
13.1.2	Conductor and cable runs	-	-
	Shall be run from terminal to terminal without splices or joints	Conductors have been found to run from terminal to terminal.	Pass
	If it is necessary to connect and disconnect cables assemblies, a sufficient extra length shall be provided	Not necessary to disconnect the cable assemblies.	N/A
	The terminations of cables shall be adequately supported to prevent mechanical stresses at the terminations of the conductors	Appropriate support for the terminal of cable was found.	Pass
	Wherever practicable, the protective conductor shall be placed close to the	No this situation.	N/A

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	associated live conductors in order to decrease the impedance of the loop.		
13.1.3	Conductors of different circuits	-	-
	Suitable arrangement for conductors of different circuits	Appropriate arrangement for the connection of different circuit has been found.	Pass
13.1.4	Connection between pick-up and pick-up converter of an inductive power supply syste	-	-
	The cable between the pick-up and the pick-up converter as specified by the manufacturer of the inductive power supply shall be:	-	-
	– as short as practicable;	No this situation.	N/A
	– adequately protected against echanical damage.	No this situation.	N/A
13.2	Identification of conductors	-	-
13.2.1	General requirements	-	-
	Each conductor shall be identifiable at each termination in accordance with the technical documentation (see Clause 17).	It is in compliance with this requirenment.	Pass
	Conductors should be identified by number, alphanumeric, colour (either solid or with one or more stripes), or a combination of colour and numbers or alphanumeric. When numbers are used, they shall be Arabic; letters shall be Roman (either upper or lower case).	It is in compliance with this requirenment.	Pass
13.2.2	Identification of the protective conductor	-	-
	The protective conductor shall be readily distinguishable by shape, location, marking, or colour.	It is in compliance with this requirenment.	Pass
	When identification is by colour alone, the bicolour combination GREEN-AND-YELLOW shall be used throughout the length of the conductor. This colour identification is strictly reserved for the protective conductor.	It is in compliance with this requirenment.	Pass
	For insulated conductors, the bicolour	No this situation.	N/A

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	combination GREEN-AND-YELLOW shall be such that on any 15 mm length, one of the colours covers at least 30% and not more than 70% of the surface of the conductor, the other colour covering the remainder of the surface.		
	Where the protective conductor can be easily identified by its shape, position, or construction (for example a braided conductor, uninsulated stranded conductor), or where the insulated conductor is not readily accessible, colour coding throughout its length is not necessary but the ends or accessible locations shall be clearly identified by the graphical symbol IEC 60417-5019 (DB:2002-10) or by the bicolour combination GREEN-AND-YELLOW.	No this situation.	N/A
13.2.3	Identification of the neutral conductor	-	-
	The colour shall be Light Blue	The color used for neutral conductor is light blue.	Pass
	Requirements for bare conductors used as neutral conductors	The color used for neutral conductor is light blue.	Pass
13.2.4	Identification by colour	-	-
	Where colour-coding is used for identification of conductors (other than the protective conductor (see 13.2.2) and the neutral conductor (see 13.2.3)), the following colours may be used: BLACK, BROW N, RED, ORANGE, YELLOW, GREEN, BLUE (including LIGHT BLUE), VIOLET, GREY, WHITE, PINK, TURQUOISE.	It is in compliance with this requirenment.	Pass
	For safety reasons, the colour GREEN or the colour YELLOW should not be used where there is a possibility of confusion with the bicolour combination GREEN-AND-YELLOW (see 13.2.2).	It is in compliance with this requirenment.	Pass
	Colour identification using combinations of those colours listed above may be used	It is in compliance with this requirenment.	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	provided there can be no confusion and that GREEN or YELLOW is not used except in the bicolour combination GREEN-AND- YELLOW.		
13.3	Wiring inside enclosures	-	-
	Conductors inside enclosures shall be supported where necessary to keep them in place.	It is in compliance with this requirenment.	Pass
	Non-metallic ducts shall be permitted only when they are made with a flame-retardant insulating material (see the IEC 60332 series).	It is in compliance with this requirenment.	Pass
	Connections to devices mounted on doors or to other movable parts shall be made using flexible conductors in accordance with 12.2 and 12.6 to allow for the frequent movement of the part.	No this situation.	N/A
	The conductors shall be anchored to the fixed part and to the movable part independently of the electrical connection (see also 8.2.3 and 11.2.1).	It is in compliance with this requirement.	Pass
	Conductors and cables that do not run in ducts shall be adequately supported.	It is in compliance with this requirement.	Pass
	Terminal blocks or plug/socket combinations shall be used for control wiring that extends beyond the enclosure.	It is in compliance with this requirement.	Pass
	Power cables and cables of measuring circuits may be directly connected to the terminals of the devices for which the connections were intended.	It is in compliance with this requirement.	Pass
13.4	Wiring outside enclosures	-	-
13.4.1	General requirements	-	-
	The means of introduction of cables or ducts with their individual glands, bushings, etc., into an enclosure shall ensure that the degree of protection is not reduced (see 11.3)	It is in compliance with this requirement.	Pass
13.4.2	External ducts	-	-
	shall be enclosed in suitable ducts (i.e. conduit or cable trunking systems) as described in 13.5 except for suitably protected cables. Where devices such as position switches or proximity switches are	It is in compliance with this requirement.	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	supplied with a dedicated cable, their cable need not be enclosed in a duct		
	Fittings used with ducts or multiconductor cable shall be suitable for the physical environment.	It is in compliance with this requirenment.	Pass
	Flexible conduit or flexible multiconductor cable shall be used where it is necessary to employ flexible connections to pendant push-button stations.	No this situation.	N/A
	The weight of the pendant stations shall be supported by means other than the flexible conduit or the flexible multiconductor cable, except where the conduit or cable is specifically designed for that purpose.	It is in compliance with this requirement.	Pass
13.4.3	Connection to moving elements of the machine	-	-
	Connection to frequently moving parts shall be made using conductors according to 13.2	The appropriate conductor has been chosen according to the requirement of 13.2	Pass
	Flexible cable and flexible conduit shall be so installed as to avoid excess flexing and straining, particularity at the fittings	Flexible cable and flexible conduit have been so installed as to avoid excess flexing and straining, particularity at the fittings.	Pass
	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	Appropriate support for this purpose has been found on the machine.	Pass
	When this is achieved by the provision 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.	It is in compliance with this requirement.	Pass
	Flexible cables of machines shall be protected to minimize the possibility of external damage	Appropriate protection has been provided.	Pass
	The cable sheath shall be resistant to the normal wear that can be expected from movement and to the effects of environmental contaminants (for example oil, water, coolants, dust).	It is in compliance with this requirement.	Pass
	Where cables subject to movement are close to moving parts, precautions shall	It is in compliance with this requirement.	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	be taken to maintain a space of at least 25 mm between the moving parts and the cables. Where that distance is not practicable, fixed barriers shall be provided between the cables and the moving Parts.		
	The cable handing system shall be so designed that the lateral cable angles do not exceed 5°, avoiding torsion in the cable	This requirement of wiring work has been followed, and no inappropriate wiring that causes torsion is found during inspection.	Pass
	Measures shall be taken to ensure that at least two turns of flexible cables always remain on a drum.	No this situation.	N/A
	The straight section between two bends shall be at least 20 times the diameter of the cable.	It is in compliance with this requirement.	Pass
	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.	No this situation.	N/A
	Flexible conduit shall not be used for connections subject to rapid or frequent movements except when specifically designed for that purpose.	No this situation.	N/A
13.4.4	Interconnection of devices on the machine	-	-
	Where several machine-mounted switching devices (for example position sensors, push-buttons) are connected in series or in parallel, it is recommended that the connections between those devices be made through terminals forming intermediate test points..	It is in compliance with this requirement.	Pass
	Such terminals shall be conveniently placed, adequately protected, and shown on the relevant diagrams	It is in compliance with this requirement.	Pass
13.4.5	Plug/socket combinations	-	-
	Where plug/socket combinations are provided, they shall fulfil one or more of the following requirements as applicable:	-	-
	a) When installed correctly in accordance with f), plug/socket combinations shall be of such a type as to prevent unintentional	No this situation.	N/A

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	contact with live parts at any time, including during insertion or removal of the connectors. The degree of protection shall be at least IPXXB. PELV circuits are excepted from this requirement.		
	b) Have a first make last break protective bonding contact (earthing contact) (see also 6.3, 8.2.4) if used in TN- or TT-systems.	No this situation.	N/A
	c) Plug/socket combinations intended to be connected or disconnected during load conditions shall have sufficient load-breaking capacity. Where the plug/socket combination is rated at 30 A, or greater, it shall be interlocked with a switching device so that the connection and disconnection is possible only when the switching device is in the OFF position.	No this situation.	N/A
	d) Plug/socket combinations that are rated at more than 16 A shall have a retaining means to prevent unintended or accidental disconnection.	No this situation.	N/A
	e) Where an unintended or accidental disconnection of plug/socket combinations can cause a hazardous situation, they shall have a retaining means.	No this situation.	N/A
	The installation of plug/socket combinations shall fulfil the following requirements asapplicable:	-	-
	f) The component which remains live after disconnection shall have a degree of protection of at least IP2X or IPXXB, taking into account the required clearance and creepage distances. PELV circuits are excepted from this requirement.	No this situation.	N/A
	g) Metallic housings of plug/socket combinations shall be connected to the protective bonding circuit. PELV circuits are excepted from this requirement.	No this situation.	N/A
	h) Plug/socket combinations intended to carry power loads but not to be disconnected during load conditions shall	No this situation.	N/A

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	have a retaining means to prevent unintended or accidental disconnection and shall be clearly marked that they are not intended to be disconnected under load.		
	i) Where more than one plug/socket combination is provided in the same electrical equipment, the associated combinations shall be clearly identifiable. It is recommended that mechanical coding be used to prevent incorrect insertion.	No this situation.	N/A
	j) Plug/socket combinations used in control circuits shall fulfil the applicable requirements of IEC 61984. Exception: see item k).	No this situation.	N/A
	k) Plug/socket combinations intended for household and similar general purposes shall not be used for control circuits. In plug/socket combinations in accordance with IEC 60309-1, only those contacts shall be used for control circuits which are intended for those purposes.	No this situation.	N/A
13.4.6	Dismantling for shipment	-	-
	Terminals shall be suitably enclosed and plug/socket combinations shall be protected from the physical environment during transportation and storage.	No this situation.	N/A
13.4.7	Additional conductors	-	-
	Consideration should be given to providing additional conductors for maintenance or repair. When spare conductors are provided, they shall be connected to spare terminals or isolated in such a manner as to prevent contact with live parts.	It is in compliance with this requirement.	Pass
13.5	Ducts, connection boxes and other boxes	-	-
13.5.1	General requirements	-	-
	Ducts shall provide a degree of protection suitable for the application (see IEC 60529).	It is provided a degree at least IP33	Pass
	All sharp edges, flash, burrs, rough surfaces, or threads with which the insulation of the conductors can come in contact shall be removed from ducts and	It is in compliance with this requirement.	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	fittings. Where necessary, additional protection consisting of a flame-retardant, oil-resistant insulating material shall be provided to protect conductor insulation.		
	Drain holes of 6 mm diameter are permitted in cable trunking systems, connection boxes, and other boxes used for wiring purposes that can be subject to accumulations of oil or moisture.	The clause has been met.	Pass
	In order to prevent confusion of conduits with oil, air, or water piping, it is recommended that the conduits be either physically separated or suitably identified.	The clause has been met.	Pass
	Ducts and cable trays shall be rigidly supported and positioned at a sufficient distance from moving parts and in such a manner so as to minimize the possibility of damage or wear. In areas where human passage is required, the ducts and cable trays shall be mounted at least 2 m above the working surface.	No this situation.	N/A
	Ducts shall be provided only for mechanical protection (see 8.2.3 for requirements for connection to the protective bonding circuit).	The clause has been met.	Pass
	Cable trays that are partially covered should not be considered to be ducts or cable trunking systems (see 13.5.6), and the cables used shall be of a type suitable for installation with or without the use of open cable trays or cable support means.	The clause has been met.	Pass
13.5.2	Percentage fill of ducts	-	-
	The dimensions and arrangement of the ducts be such as to facilitate the insertion of the conductors and cables	It is in compliance with this requirement.	Pass
13.5.3	Rigid metal conduit and fittings	-	-
	Shall be of galvanized steel or of a corrosion-resistant material	The metal conduit and fitting are made of corrosion-resistant material.	Pass
	Conduits shall be securely held in place	Conduit has been securely.	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	and supported at each end		
	Fittings shall be threaded	The clause has been met.	Pass
	Where threadless fittings are used, the conduit shall be securely fastened to the equipment	Not applicable	N/A
	The conduit shall not be damage and the internal diameter of the conduit shall not be effectively reduced when it is bent	The conduit will not be damage and the internal diameter of the conduit will not be effectively reduced when it is bent.	Pass
13.5.4	Flexible metal conduit and fittings	-	-
	A flexible metal conduit shall consist of a flexible metal tubing or woven wire armour. It shall be suitable for the expected physical environment.	The clause has been met.	Pass
	Fittings shall be compatible with the conduit and appropriate for the application.	The clause has been met.	Pass
13.5.5	Flexible non-metallic conduit and fittings	-	-
	Flexible non-metallic conduit shall be resistant to kinking and shall have physical characteristics similar to those of the sheath of multiconductor cables.	It is in compliance with this requirement	Pass
	The conduit shall be suitable for use in the expected physical environment.	It is in compliance with this requirement	Pass
	Fittings shall be compatible with the conduit and appropriate for the application.	It is in compliance with this requirement	Pass
13.5.6	Cable trunking systems	-	-
	Cable trunking systems external to enclosures shall be rigidly supported and clear of all moving or contaminating portions of the machine.	The clause has been met.	Pass
	Covers shall be shaped to overlap the sides; gaskets shall be permitted.	The clause has been met.	Pass
	Covers shall be attached to cable trunking systems by suitable means.	The clause has been met.	Pass
	On horizontal cable trunking systems, the cover shall not be on the bottom unless specifically designed for such installation.	No this situation.	N/A
	Where the cable trunking system is furnished in sections, the joints between sections shall fit tightly but need not be gasketed.	No this situation.	N/A

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	The only openings permitted shall be those required for wiring or for drainage.	No this situation.	N/A
	Cable trunking systems shall not have opened but unused knockouts.	No this situation.	N/A
13.5.7	Machine compartments and cable trunking systems	-	-
	Are isolated from coolant or oil reservoirs and are entirely enclosed	It is in compliance with this requirement	Pass
	Conductors run in enclosed compartment and cable trunking systems shall be so secured and arranged that they are not subject to damage	Conductors run in enclosed compartment have been so secured and arranged that they be not subject to damage.	Pass
13.5.8	Connection boxes and other boxes	-	-
	Shall be accessible for maintenance.	Connection boxes and other boxes have been checked readily accessible for maintenance.	Pass
	Shall provide protection against the ingress of solid bodies and liquids, taking into account the external influences under which the machine is intended to operate (see 11.3).	Connection boxes and other boxes have been provided protection against the ingress of solid bodies and liquids.	Pass
	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	Connection boxes and other boxes have been checked in compliance this requirement.	Pass
13.5.9	Motor connection boxes	-	-
	Shall enclose only connections to the motor and motor-mounted devices	Motor connection boxes enclose only connections to the motor and motro-mounted devices.	Pass
14	Electric motors and associated equipment	-	-
14.1	General requirements	-	-
	Electric motor should conform to the requirements of IEC 60034 series	Electric motors conform to the requirement of IEC60034 series.	Pass
	The protection requirements for motors and associated equipment are given in 7.2 for overcorrect protection, in 7.3 for overload protection, and in 7.6 for overspend protection.	It is compliance with the requirement of these clauses.	Pass
	As many controllers do not switch off the supply to a motor when it is at rest, care shall be taken to ensure compliance with the requirements of 5.3, 5.4, 5.5, 7.5, 7.6 and 9.4. Motor control equipment shall be located	It is compliance with the requirement of these clauses.	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	and mounted in accordance with Clause 11.		
14.2	Motor enclosures	-	-
	It is recommended that motor enclosures be chosen from those included in IEC 60034-5.	It is conform to IEC 60034-5.	Pass
	Protection degree shall be at least IP 23	Protection degree of motor enclosure is IP 23.	Pass
14.3	Motor dimensions	-	-
	As far as is practicable, the dimensions of the motors shall conform to those given in the IEC 60072 series.	The dimensions of the motors have been compliance with IEC 60072 series.	Pass
14.4	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 maintenance, adjustment and alignment, lubrication, and replacement.	Appropriate mounting has been found that they are adequately protected and are easily for inspection.	Pass
	Shall be such that all motor hold-down means can be removed and all terminal boxes are accessible	Motor hold-down means can be removed and all terminal boxes are accessible.	Pass
	The proper cooling shall be ensured and the temperature rise remains within the limits of the insulation class	The proper cooling has been ensured and the temperature rise remains within the limits of the insulation class.	Pass
	Motor compartment should be clean and dry, and when required, shall be ventilated directly to the exterior of the machine	All motor compartments are clean and dry, and are ventilated directly to the exterior of the machine.	Pass
	The vents shall be such that ingress of swarf, dust, or water spray is at an acceptable level	The vents have been such that ingress of swarf, dust, or water spray is at an acceptable level.	Pass
	There shall be no opening between the motor compartment and any other compartment that does not meet the motor compartment requirements	There is no opening between the motor compartment and any other compartment that does not meet the motor compartment requirements.	Pass
	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	No any conduit or pipe run into the motor compartment from another compartment not meet the motor compartment requirements.	Pass
14.5	Criteria for motor selection	-	-
	Shall be selected according to the anticipated service and physical	It is compliance with this requirement.	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	environment conditions		
	In this respect, the points that shall be considered include:	-	-
	– type of motor;	The clause has been met.	Pass
	– type of duty cycle (see IEC 60034-1);	The clause has been met.	Pass
	– fixed speed or variable speed operation, (and the consequent variable influence of the ventilation);	The clause has been met.	Pass
	– mechanical vibration;	The clause has been met.	Pass
	– type of motor control;	The clause has been met.	Pass
	– influence of the harmonic spectrum of the voltage and/or current feeding the motor (particularly when it is supplied from a static convertor) on the temperature rise;	The clause has been met.	Pass
	– method of starting and the possible influence of the inrush current on the operation of other users of the same power supply, taking also into account possible special considerations stipulated by the supply authority;	The clause has been met.	Pass
	– variation of counter-torque load with time and speed;	The clause has been met.	Pass
	– influence of loads with large inertia	The clause has been met.	Pass
	– influence of constant torque or constant power operation;	The clause has been met.	Pass
	– possible need of inductive reactors between motor and converter.	The clause has been met.	Pass
14.6	Protective devices for mechanical brakes	-	-
	Operation of the overload and overcurrent protective devices for mechanical brake actuators shall initiate the simultaneous de-energization (release) of the associated machine actuators	Appropriate motor has been used for this machine.	Pass
15	Accessories and lightning	-	-
15.1	Accessories	-	-
	Socket-outlets for accessory equipment shall comply :	-	-
	Should conform to IEC 60309-1. Where that is not possible, they should be clearly marked with the voltage and current ratings	The clause has been met.	Pass
	The continuity of the protective bonding	The clause has been met.	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	circuit to the socket-outlet shall be ensured except where protection is provided by PELV		
	All unearthed conductors : Overcurrent or overload protection according to 7.2 and 7.3 separately from the protection of other circuits	The clause has been met.	Pass
	If the power supply to the socket outlet is not disconnected by the supply disconnecting device, the clause 5.3.5 shall apply	The clause has been met.	Pass
15.2	Local lighting of the machine and equipment	-	-
15.2.1	General	-	-
	Connections to the protective bonding circuit according to 8.2.2	Not applicable.	N/A
	The ON-OFF switch shall not be incorporated in the lampholder or in the flexible connecting cords	Not applicable.	N/A
	Stroboscopic effects from lights shall be avoided	Not applicable.	N/A
	Where fixed lighting is provided in an enclosure, electromagnetic compatibility should be taken into account using the principles outlined in 4.4.2.	Not applicable.	N/A
15.2.2	Supply	-	-
	The nominal voltage of the local lighting circuit shall not exceed 250 V beteew conductors	Not applicable.	N/A
	Lighting circuits shall be supplied from one of the sources specified in this clause	Not applicable.	N/A
15.2.3	Protection	-	-
	Local lighting shall be protected according to 7.2.6	Not applicable.	N/A
15.2.4	Fittings	-	-
	Adjustable lighting fittings shall be suitable for the physical environment	Not applicable.	N/A
	The lamp holders shall be : - according to the relevant IEC publication; - constructed with an insulating material protecting the lamp cap so as to prevent unintended contact	Not applicable.	N/A

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	Reflectors shall be supported by a bracket and not by the lampholder	Not applicable.	N/A
16	Marking, warning signs and reference designations	-	-
16.1	General	-	-
	Warning signs, nameplates, markings, and identification plates shall be of sufficient durability to withstand the physical environment involved.	It is compliance with this requirement.	Pass
16.2	Warning signs	-	-
16.2.1	Electric shock hazard	-	-
	Enclosures that do not otherwise clearly show that they contain electrical equipment that can give rise to a risk of electric shock shall be marked with the graphical symbol IEC 60417-5036 (DB:2002-10) 	 has been used for every electricity part	Pass
	The warning sign shall be plainly visible on the enclosure door or cover	 is plainly visible on the enclosure door.	Pass
16.2.2	Hot surfaces hazard	-	-
	Where the risk assessment shows the need to warn against the possibility of hazardous surface temperatures of the electrical equipment, the graphical symbol IEC 60417-5041 (DB:2002-10) shall be used. 	 has been used for every hazardous surface temperatures.	N/A
16.3	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	The function test according to the instruction manual has been carried out during inspection.	Pass
	Preference should be given to the use of standard symbols given in IEC 60417 and ISO 7000	The symbols referred to IEC 60417 and/or ISO-7000 have been used for the operational function of this machine.	Pass
16.4	Marking of equipment	-	-
	Equipment shall be legibly and durably marked in a way that is plainly visible after the equipment is installed	It is in compliance with this requirement.	Pass
	A nameplate giving the relevant	The appropriate nameplate has	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	information specified in this clause shall be attached to the enclosure	been found on the machine.	
	The full-load current shown on the nameplate shall be not less than the running currents for all motors and other equipment that can be in operation at the same time under normal conditions.	Full-load current has been found on the nameplate.	Pass
	Where only a single motor controller is used, that information may instead be provided on the machine nameplate where it is plainly visible.	Not applicable.	N/A
16.5	Reference designations	-	-
	All enclosures, assemblies, control devices, and components shall be plainly identified with the same reference designations as shown in the technical documentation	Appropriate identification has been found on the nameplate of this machine.	Pass
17	Technical documentation	-	-
17.1	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	Electrical circuit diagrams, component part lists, as well as the installation instruction have been included on the technical construction file.	Pass
	The information shall be in an agreed language	Basically the information is constructed in English.	Pass
	The information provided may vary with the complexity of the electrical equipment.	It is in compliance with this requirement.	Pass
	For very simple equipment, the relevant information may be contained in one document, provided that the document shows all the devices of the electrical equipment and enables the connections to the supply network to be made.	It is in compliance with this requirement.	Pass
17.2	Information to be provided	-	-
	The information provided with the electrical equipment shall include the requirements specified in this clause	It is in compliance with this requirement.	Pass
17.3	Requirements applicable to all documentation	-	-
	Unless otherwise agreed between manufacturer and user:	-	-
	– the documentation shall be in	It is in compliance with this	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	accordance with relevant parts of IEC 61082;	requirement.	
	– reference designations shall be in accordance with relevant parts of IEC 61346;	It is in compliance with this requirement.	Pass
	– instructions/manuals shall be in accordance with IEC 62079.	It is in compliance with this requirement.	Pass
	– parts lists where provided shall be in accordance with IEC 62027, class B.	It is in compliance with this requirement.	Pass
	For referencing of the different documents, the supplier shall select one of the following methods:	-	-
	– where the documentation consists of a small number of documents (for example less than 5) each of the documents shall carry as a cross-reference the document numbers of all other documents belonging to the electrical equipment; or	Not applicable.	N/A
	– for single level main documents only (see IEC 62023), all documents shall be listed with document numbers and titles in a drawing or document list; or	Not applicable.	N/A
	– all documents of a certain level (see IEC 62023) of the document structure shall be listed,with document numbers and titles, in a parts list belonging to the same level.	It is in compliance with this requirement.	Pass
17.4	Installation documents	-	-
	shall give all information necessary for the preliminary work of setting up the machine (including commissioning). In complex cases, it may be necessary to refer to the assembly drawings for details.	Installation for the electrical control system has been included on the instruction manual.	Pass
	The recommended position, type, and cross-sectional areas of the supply cables to be installed on site shall be clearly indicated.	It is clearly indicated.	Pass
	The data necessary for choosing the type, characteristics, rated currents, and setting of the overcurrent protective device(s) for the supply conductors to	It is in compliance with this requirement.	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	the electrical equipment of the machine shall be stated (see 7.2.2).		
	Where necessary, the size, purpose, and location of any ducts in the foundation that are to be provided by the user shall be detailed (see Annex B).	Not applicable.	N/A
	The size, type, and purpose of ducts, cable trays, or cable supports between the machine and the associated equipment that are to be provided by the user shall be detailed (see Annex B).	It has been included on this technical construction file.	Pass
	Where necessary, the diagram shall indicate where space is required for the removal or servicing of the electrical equipment.	It has been included on this technical construction file.	Pass
	In addition, where it is appropriate, an interconnection diagram or table shall be provided. That diagram or table shall give full information about all external connections. Where the electrical equipment is intended to be operated from more than one source of electrical supply, the interconnection diagram or table shall indicate the modifications or interconnections required for the use of each supply.	It has been included on this technical construction file.	Pass
17.5	Overview diagrams and function diagrams	-	-
	an overview diagram shall be provided. An overview diagram symbolically represents the electrical equipment together with its functional interrelationships without necessarily showing all of the interconnections.	It has been included on this technical construction file.	Pass
	Function diagrams may be provided as either part of, or in addition to, the overview diagram.	It has been included on this technical construction file.	Pass
17.6.	Circuit diagrams	-	-
	This diagram(s) shall show the electrical circuits on the machine and its associated electrical equipment. Any graphical symbol not shown in IEC 60617-DB:2001 shall be separately shown and described on the diagrams or supporting documents.	The control circuit diagram has been included on this technical construction file.	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	The symbols and identification of components and devices shall be consistent throughout all documents and on the machine.		
	a diagram showing the terminals for interface connections shall be provided. That diagram may be used in conjunction with the circuit diagram(s) for simplification. The diagram should contain a reference to the detailed circuit diagram of each unit shown.	The diagram has been included on this technical construction file.	Pass
	Switch symbols shall be shown on the electromechanical diagrams with all supplies turned off (for example electricity, air, water, lubricant) and with the machine and its electrical equipment ready for a normal start.	The diagram has been included on this technical construction file.	Pass
	Conductors shall be identified in accordance with 13.2.	It is in compliance with this requirement.	Pass
	Circuits shall be shown in such a way as to facilitate the understanding of their function as well as maintenance and fault location. Characteristics relating to the function of the control devices and components which are not evident from their symbolic representation shall be included on the diagrams adjacent to the symbol or referenced to a footnote.	It is in compliance with this requirement.	Pass
17.7	Operating manual	-	-
	The technical documentation shall contain an operating manual detailing proper procedures for set-up and use of the electrical equipment. Particular attention should be given to the safety measures provided.	Appropriate operation manual has been provided.	Pass
	Where the operation of the equipment can be programmed, detailed information on methods of programming, equipment required, program verification, and additional safety procedures (where required) shall be provided.	Not applicable.	N/A
17.8	Maintenance manual	-	-
	The technical documentation shall contain	Necessary maintenance has been	Pass

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	a maintenance manual detailing proper procedures for adjustment, servicing and preventive inspection, and repair.	included on the instruction manual.	
17.9	Parts list	-	-
	Use and requirements for parts list	Component part list has been provided on this report.	Pass
18	Verification	-	-
18.1	General	-	-
	When these tests are performed, it is recommended that they follow the sequence listed	Test has been carried out as the sequence listed below.	Pass
	When the electrical equipment is modified, the requirements stated in 18.7 shall apply	Attention for the test of re-construction has been stated on the instruction manual.	Pass
	The tests shall be carried out by measuring equipment in accordance with relevant IEC standards. For tests in accordance with 18.2 and 18.3, measuring equipment in accordance with the IEC 61557 series is applicable.	The test is accordance with relevant IEC standards.	Pass
	The results of the verification shall be documented.	The results has been included on this technical construction file.	Pass
18.2	Verification of conditions for protection by automatic disconnection of supply	-	-
18.2.1	General	-	-
	The conditions for automatic disconnection of supply (see 6.3.3) shall be verified by tests	Appropriate test condition has been set according to this requirement.	Pass
18.2.2	Test methods in TN-systems	-	-
	Test 1 verifies the continuity of the protective bonding circuit. Test 2 verifies the conditions for protection by automatic disconnection of the supply.	Appropriate test condition has been set according to this requirement.	Pass
18.2.3	Application of the test methods for TN-systems	-	-
	Test 1 of 18.2.2 shall be carried out on each protective bonding circuit of a machine.	It is in compliance with this requirement.	Pass
	When Test 2 of 18.2.2 is carried out by measurement, it shall always be preceded by Test 1	It is in compliance with this requirement.	Pass
18.3	Insulation resistance tests	-	-
	Test conditions: 500 V d.c.	Test voltage=500Vd.c.	-

Clause	Requirement – test EN 60204-1:2006/A1:2009	Result	Verdict
	The measured values shall not less than 1 MÙ	It is in compliance with this requirement.	Pass
18.4	Voltage tests	-	-
	Test conditions : - frequency of 50/60 Hz - test voltage is twice the rated supply voltage of the equipment or 1000 V, whichever is greater - approximately 1 s	Test voltage=1000VAC Test frequency=50HZ Test time=15 seconds	-
	Components and devices that are not rated to withstand the test voltage shall be disconnected during testing.	It is in compliance with this requirement.	Pass
	Components and devices that have been voltage tested in accordance with their product standards may be disconnected during testing.	It is in compliance with this requirement.	Pass
18.5	Protection against residual voltages	-	-
	Tests shall be performed to ensure compliance with 6.2.4	After this testing the machine is operating normally.	Pass
18.6	Functional tests	-	-
	The functions of electrical equipment shall be tested (particularly those related to safety and safeguarding)	The functions of the equipment related to safety are tested, and there is no abnormal condition in this machine.	Pass
	The function of circuits for electrical safety (for example earth fault detection) shall be tested.	Appropriate test condition has been set according to this requirement.	Pass
18.7	Retesting	-	-
	Where a portion of the machine and its associated equipment is changed or modified, that portion shall be reverified and retested, as appropriate(see 18.1)	It is in compliance with this requirement.	Pass
	Particular attention should be given to the possible adverse effects that retesting can have on the equipment (for example overstressing of insulation, disconnection/reconnection of devices).	It is in compliance with this requirement.	Pass

EN60204-1 Test Report

Manufacturer: NINGBO HAIJIANG MACHINERY MANUFACTURING CO.,LTD.

EUT： Plastic Injection Moulding Machine

Model HJF2000

Test Equipment Withstand Voltage Tester:ZC25-3
Insulation Resistance Tester:ZC25-4
Grounding Tester:JD-8
10A/50HZ

Test conditions

According to: Chapter 52 and 53 of EN 60204-1

Date: Dec. 05, 2017

1. Continuity of the protective bonding circuit

Test Points	Test Result(mΩ)	Test Current(A)	Voltage Drop(V)
PE-Control Panel	55	10	0.55
PE-Electrical Box	70	10	0.7
PE-Motor1	65	10	0.65
PE-Motor2	60	10	0.6
Transformer1	68	10	0.68

2. Insulation Resistance

Test Points	Test Result(M
PE-Power Inlet	300
PE-Motor1	240
PE-Motor2	200
Transformer1	270

3. Withstanding Voltage

Test Points	Breakdown
PE-Power Inlet	No
PE-Motor1	No
PE-Motor2	No
Transformer1	No

Noise Test Report

Manufacturer	NINGBO HAIJIANG MACHINERY MANUFACTURING CO.,LTD.		
EUT	Plastic Injection Moulding Machine		
Model	HJF2000	Date	Dec. 05, 2017
Test Condition		Running Free	
Test Equipment	Digital Sound Level Meter Type Test 1350A Manufacturer: TES Electronic Industrial Co., LTD.		

Give as “dB (A)” unit, A-Weighted

	Cycle 1	Cycle 2	Cycle 3	Cycle 4	Cycle 5	Average
Position 1	63	64	64	63	63	63.6
Position 2	63	64	63	63	63	63.2
Position 3	64	63	64	64	64	63.8
Position 4	64	64	64	63	64	63.8
Average of 1 to 4						63.6

Manufacturer	NINGBO HAIJIANG MACHINERY MANUFACTURING CO.,LTD.		
EUT	Plastic Injection Moulding Machine		
Model	HJF2000	Date	Dec. 05, 2017
Test Condition		At normal working	
Test Equipment	Digital Sound Level Meter Type Test 1350A Manufacturer: TES Electronic Industrial Co., LTD.		

Give as “dB (A)” unit, A-Weighted

	Cycle 1	Cycle 2	Cycle 3	Cycle 4	Cycle 5	Average
Position 1	80.3	80.2	80.1	80	81	80.3
Position 2	80.1	80.1	80	80.5	80	80.1
Position 3	80.2	80.1	80	80	80.1	80.1
Position 4	80.1	80	80	80.2	80.3	80.1
Average of 1 to 4						80.2

Hot Surface Temperature Test Report

Manufacturer	NINGBO HAIJIANG MACHINERY MANUFACTURING CO.,LTD.		
Product	Plastic Injection Moulding Machine		
Test standard	EN ISO 13732-1		
Model	HJF2000	Date	Dec. 05, 2017
Worked by	Geophy Zhang	Verified by	Emma Xu

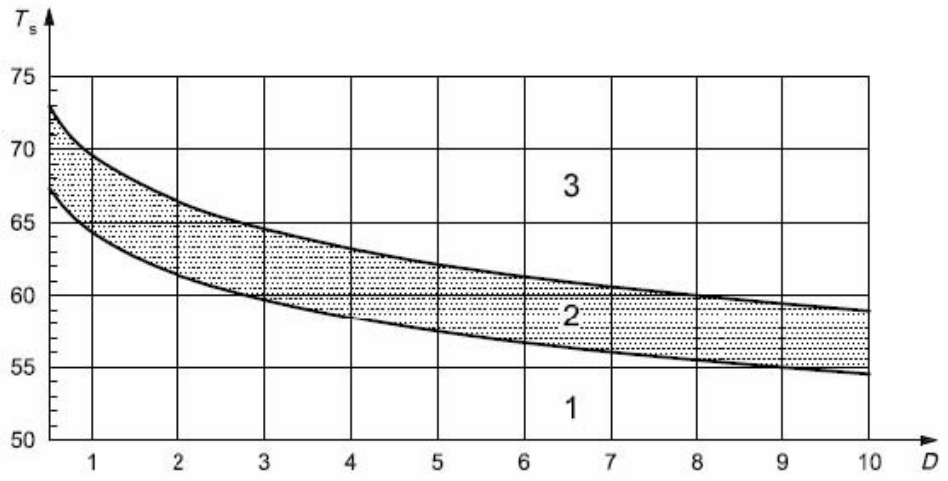
Measure temperature:

Contact period up to	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5
4s	52	55	51	51	50

Choice of applicable burn threshold value:

-contact period: 4s(see EN ISO 13732-1 5.5.2.2 a)

- surface material: uncoated metals
- surface texture: smooth surfaces



Key

D contact period, s
T_s surface temperature, °C
1 no burn
2 burn threshold
3 burn

Conclusion The measured temperature lies below the burn threshold, the skin will not normally suffer injury. There is in general no risk of burning.

Annex: Technical Information

A.1 Declaration of conformity with signature

A.2 Specifications table

A.3 Mechanical drawing

A.4 Hydraulic drawing

A.5 Electrical system

A.6 Nameplate

A.7 Safety Pictures

A.8 Instruction manual

EC DECLARATION OF CONFORMITY

CE

According to the following EC Directives,

Machinery & Low Voltage Directive: 2006/42/EC

Manufacturers Name:

NINGBO HAIJIANG MACHINERY MANUFACTURING CO.,LTD.

Tongyi Industrial Zone, Dongwu Town, Yinzhou, Ningbo, Zhejiang, China

Product name: Plastic Injection Molding Machine

Type(s): HJF1000, HJF780，HJF650, HJF530, HJF400, HJF360, HJF280, HJF180, HJF240, HJF140, HJF118, HJF80, HJF200, HJF580, HJF1200, HJF1400, HJF1600, HJF2000

Refer to in this declaration conforms with the following standard(s):

Provided that it is used and maintained in accordance with the general accepted codes of good practice and the recommendations of the instructions manual, meet the essential safety and health requirements of the Machinery Directive. For the most specific risks of this machine, safety and compliance with the essential requirements of the Directive has been based on elements of :

EN 201:2009 EN 60204-1:2006+A1:2009+AC:2010 EN ISO 12100: 2010

Notified body information:

ENTE CERTIFICAZIONE MACCHINE SRL

Via Ca Bella, 243/A-loc. Castello di Serravalle 40053 Valsamoggia (BO) Italy

Notified Body number : 1282

The company named above will keep on file for review the following technical documentation:

Operating and maintenance instructions;

Technical drawings

Risk assessment

Description of measures designed to ensure conformity

Other technical documentation, e.g. quality assurance measures for design and production

ATTENTION

The attention of the specified, purchase, installer, or user is drawn to special measures and limitations to use which must be observed when the product is taken into service to maintain compliance with the above directives, details of these special measures and limitations to use are available on request, and are also contained in the product manuals.

Date: 2017-12-06

Signature:

Qualification: General Manager

Specifications table

	Name	Conventional type	Variable pump type	Servo type
Electrical equipment	Electrical control system	Computer: PORCHESON 6 pole motor	Computer:PORCHESON 4 pole motor	Computer: PRCHEOSON Servomotor driver: GIE
	Travel switch	Schneider(France)	Schneider(France)	Schneider
	Single-Pole Switch	Schneider(France)	Schneider(France)	Schneider(France
	AC contactor	Schneider(France)	Schneider(France)	Schneider(France
	Electronic ruler	Moot	Moot	Moot
	Spare power	Double	Double	Double

	Name	Conventional type	Variable pump type	Servo type
Electrical equipment	Electrical control system	Computer: PORCHESON 6 pole motor	Computer: PORCHESON 4 pole motor	Computer: PORCHESO Servomotor: Pha Inovance
	Travel switch	Schneider(France)	Schneider(France)	Schneider (France)
	AC contactor	Schneider (France)	Schneider (France)	Schneider (France)
	Electronic ruler	Moot	Moot	Moot
	Spare power	Double	Double	Double
	Single-Pole Switch	Schneider (France)	Schneider (France)	Schneider (France)

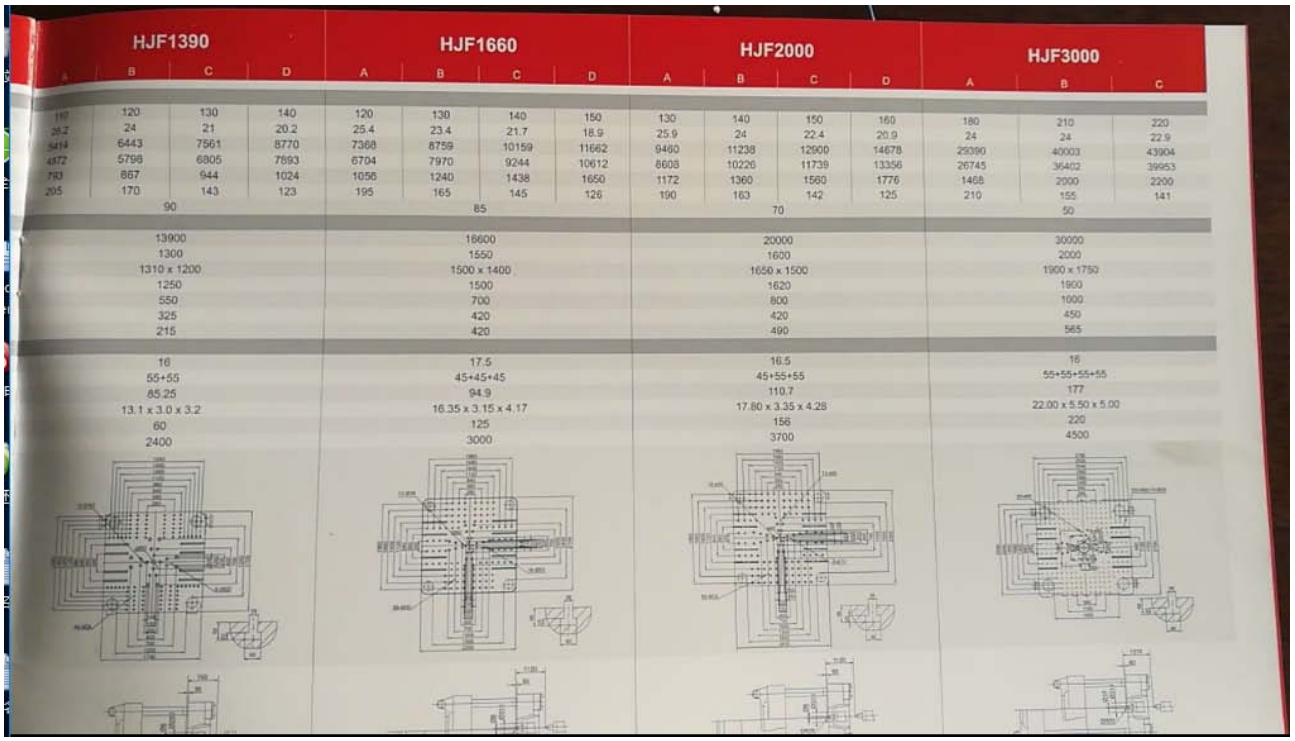
	SPECIFICATION		HJF140			HJF180			HJF240		
			A	B	C	A	B	C	A	B	C
Injection Unit	Screw Diameter	mm	38	42	45	40	45	48	45	50	55
	Screw L/D Ratio	L/D	22.1	21.6	19.5	22.5	20	18.8	22.2	20	18.2
	Shot Size(Theoretical)	cm^3	193	227	278	253	320	363	406	508	570
	Injection Weight(PS)	g	176	206	252	230	291	331	369	462	518
	Injection Rate	g/s	94	105	135	108	128	158	120	148	179
	Injection Pressure	Mpa	205	159	140	202	159	140	216	180	160.8
	Screw Speed	rpm	0-220			0-185			0-180		
Clamping Unit	Clamp Tonnage	KN	1400			1800			2800		
	Toggle Stroke	mm	380			430			540		
	Space Between tie Bars	mm	420x420			470x470			580x580		
	Max.Mold Height	mm	450			500			600		
	Min.Mold Height	mm	170			180			220		
	Ejector Stroke	mm	120			130			145		
	Ejector Tonnage	KN	33			45			75		
Others	Max.Pump Pressure	Mpa	16			16			16		
	Pump Motor Power	Kw	13			15			30		
	Heater Power	kw	7.2			7.5			15		
	Machine Dimension(LxWxH	m	4.5x1.2x1.7			5.1x1.4x1.9			6.0x1.6x2.1		
	Machine Weight	t	4.2			5.5			8.5		
	Oil Tank Capactity	L	230			240			570		

	SPECIFICATION		HJF280			HJF360			
			A	B	C	A	B	C	D
Injection Unit	Screw Diameter	mm	55	60	65	60	65	70	75
	Screw L/D Ratio	L/D	23.1	21	19.3	22.6	21.2	19.4	18.5
	Shot Size(Theoretical)	cm^3	712	847	994.9	960	1128	1306	1480
	Injection Weight(PS)	g	648	779.9	905	873	1026	1180	1346
	Injection Rate	g/s	210	240	270	239	275	328	420
	Injection Pressure	Mpa	205	168	143	213	183	160	146
	Screw Speed	rpm	0-180			0-180			
Clamping Unit	Clamp Tonnage	KN	2800			3600			
	Toggle Stroke	mm	540			670			
	Space Between tie Bars	mm	580x580			660x660			
	Max.Mold Height	mm	600			670			
	Min.Mold Height	mm	220			240			
	Ejector Stroke	mm	145			160			
	Ejector Tonnage	KN	75			62			
Others	Max.Pump Pressure	Mpa	16			16			
	Pump Motor Power	Kw	30			37			
	Heater Power	kw	15			17.25			
	Machine Dimension(LxWxH	m	6.0x1.6x2.1			6.3x1.9x2.4			
	Machine Weight	t	8.5			12.5			
	Oil Tank Capactity	L	570			620			

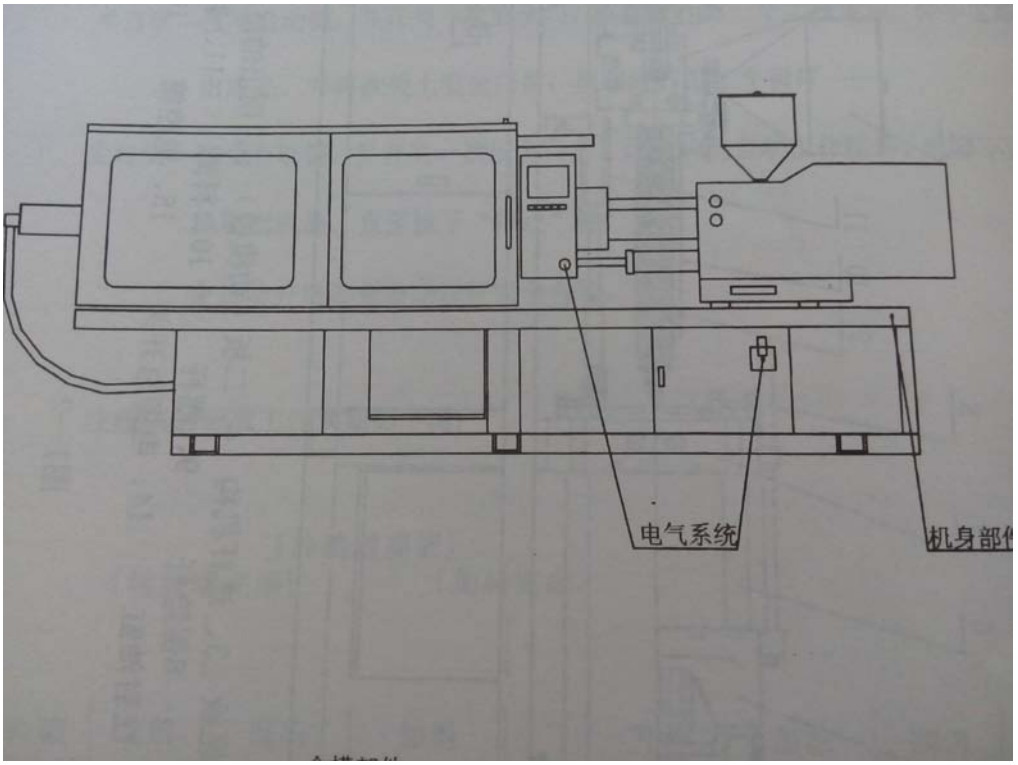
	SPECIFICATION		HJF400			HJF530			
			A	B	C	A	B	C	D
Injection Unit	Screw Diameter	mm	70	75	80	75	80	85	90
	Screw L/D Ratio	L/D	22	20.5	19.25	22.7	21	20	18.9
	Shot Size(Theoretical)	cm^3	1286	1479	1683	1727	1965	2218	2487
	Injection Weight(PS)	g	1170	1346	1532	1560	1788	2018	2266
	Injection Rate	g/s	382	438	499	386	442	499	560
	Injection Pressure	Mpa	200	174	155	191	168	148	132
	Screw Speed	rpm	0-160			130			
Clamping Unit	Clamp Tonnage	KN	4000			5300			
	Toggle Stroke	mm	720			770			
	Space Between tie Bars	mm	720x720			820x800			
	Max.Mold Height	mm	810			810			
	Min.Mold Height	mm	280			330			
	Ejector Stroke	mm	170			240			
	Ejector Tonnage	KN	110			150			
Others	Max.Pump Pressure	Mpa	16			16			
	Pump Motor Power	Kw	37			45			
	Heater Power	kw	20			31.4			
	Machine Dimension(LxWx	m	7x1.9x2.4			8.4x1.92x2.76			
	Machine Weight	t	14.5			21			
	Oil Tank Capactity	L	950			900			

	SPECIFICATION		HJF650				HJF780			
			A	B	C	D	A	B	C	D
Injection Unit	Screw Diameter	mm	90	95	100	105	90	95	105	110
	Screw L/D Ratio	L/D	20	19	18	17.1	23.2	22	19.9	19
	Shot Size(Theoretical)	cm^3	2544	2835	3140	3461	2861	3188	3894	4273
	Injection Weight(PS)	g	2315	2580	2858	3149	2603	2901	3543	3888
	Injection Rate	g/s	552	612	679	748	574	640	781	858
	Injection Pressure	Mpa	184	165	149	135	195	175	143	130
	Screw Speed	rpm	150				115			
Clamping Unit	Clamp Tonnage	KN	6580				7800			
	Toggle Stroke	mm	870				950			
	Space Between tie Bars	mm	860x860				980x950			
	Max.Mold Height	mm	900				960			
	Min.Mold Height	mm	350				400			
	Ejector Stroke	mm	250				280			
	Ejector Tonnage	KN	150				186			
Others	Max.Pump Pressure	Mpa	16				16			
	Pump Motor Power	Kw	55				37+30			
	Heater Power	kw	42.95				56.7			
	Machine Dimension(LxWx	m	10.2x2.24x2.71				11.43x2.40x3.14			
	Machine Weight	t	28				37			
	Oil Tank Capactity	L	1300				1500			

	SPECIFICATION		HJF1000			
			A	B	C	D
Injection Unit	Screw Diameter	mm	100	110	120	130
	Screw L/D Ratio	L/D	23	22	20	18.6
	Shot Size(Theoretical)	cm^3	3610	4369	5429	6371
	Injection Weight(PS)	g	3300	3980	4940	5798
	Injection Rate	g/s	590	720	867	948
	Injection Pressure	Mpa	211	174	146	125
	Screw Speed	rpm	100			
Clamping Unit	Clamp Tonnage	KN	10000			
	Toggle Stroke	mm	1100			
	Space Between tie Bars	mm	1100x1100			
	Max.Mold Height	mm	1100			
	Min.Mold Height	mm	500			
	Ejector Stroke	mm	325			
	Ejector Tonnage	KN	215			
Others	Max.Pump Pressure	Mpa	16			
	Pump Motor Power	Kw	45+45			
	Heater Power	kw	59			
	Machine Dimension(LxWxH	m	12.1x2.64x3.00			
	Machine Weight	t	53			
	Oil Tank Capactity	L	2206			



Mechanical drawing



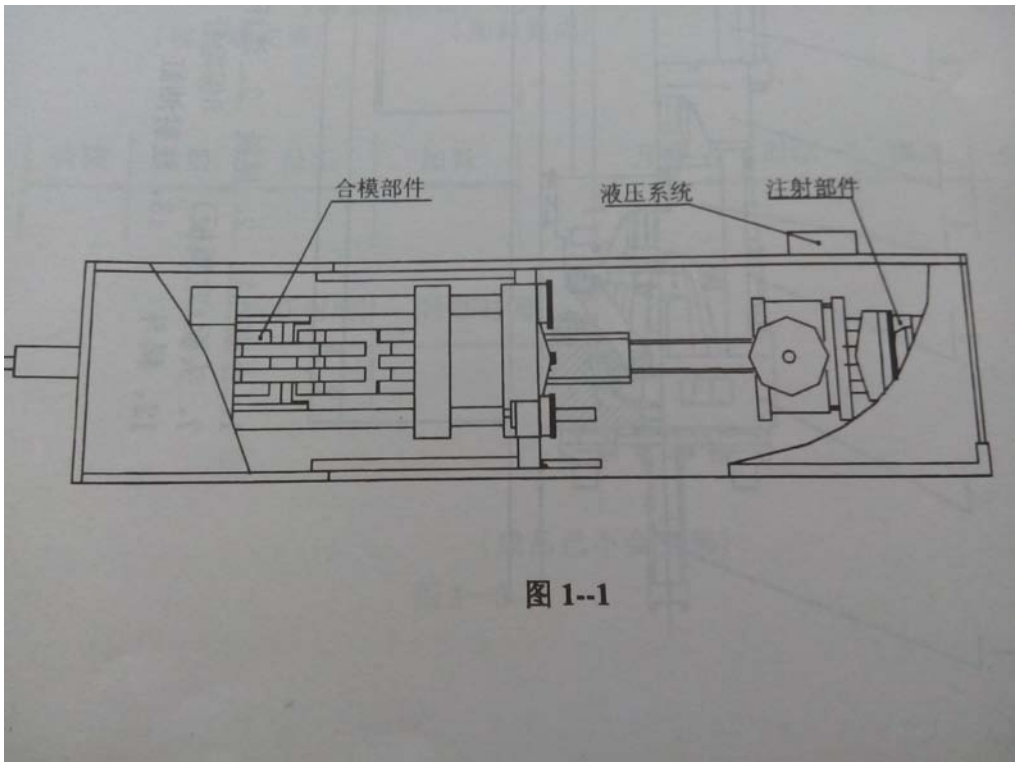
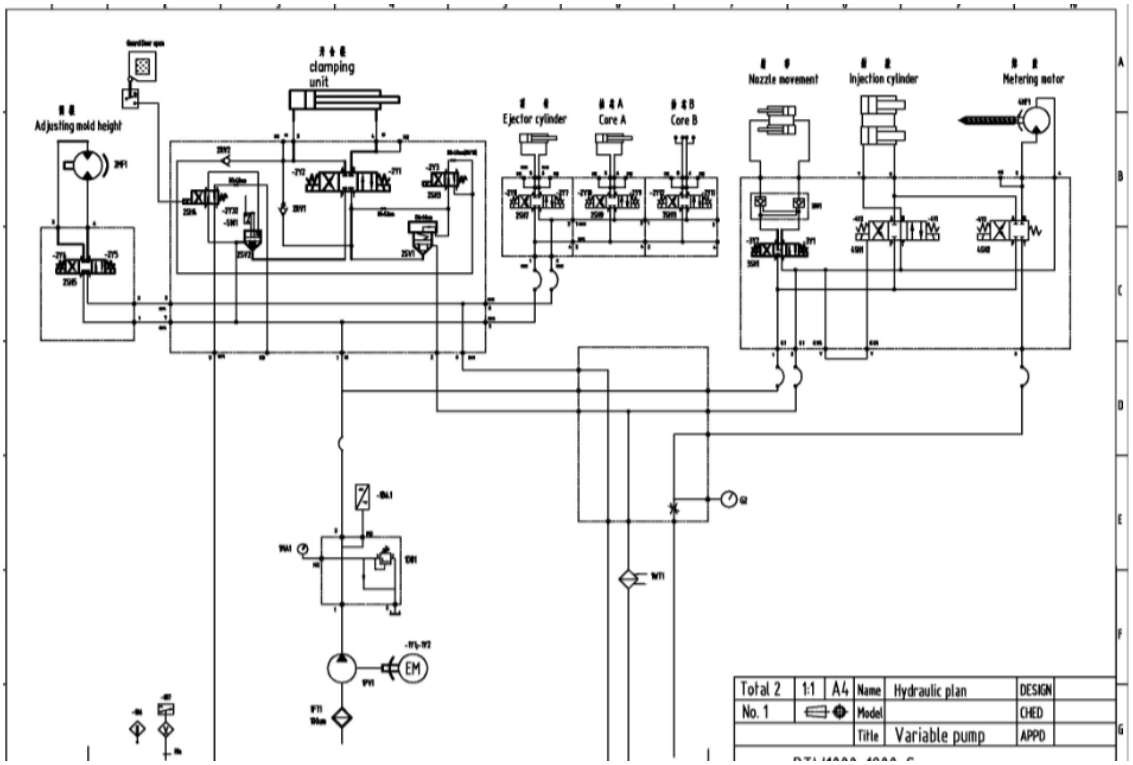
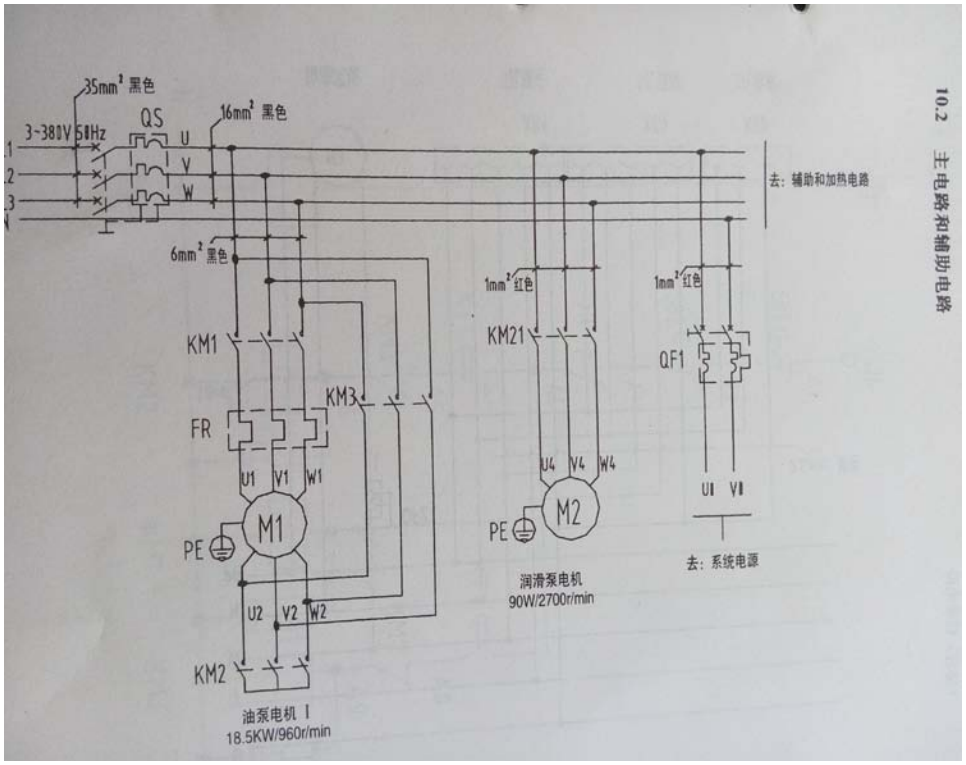


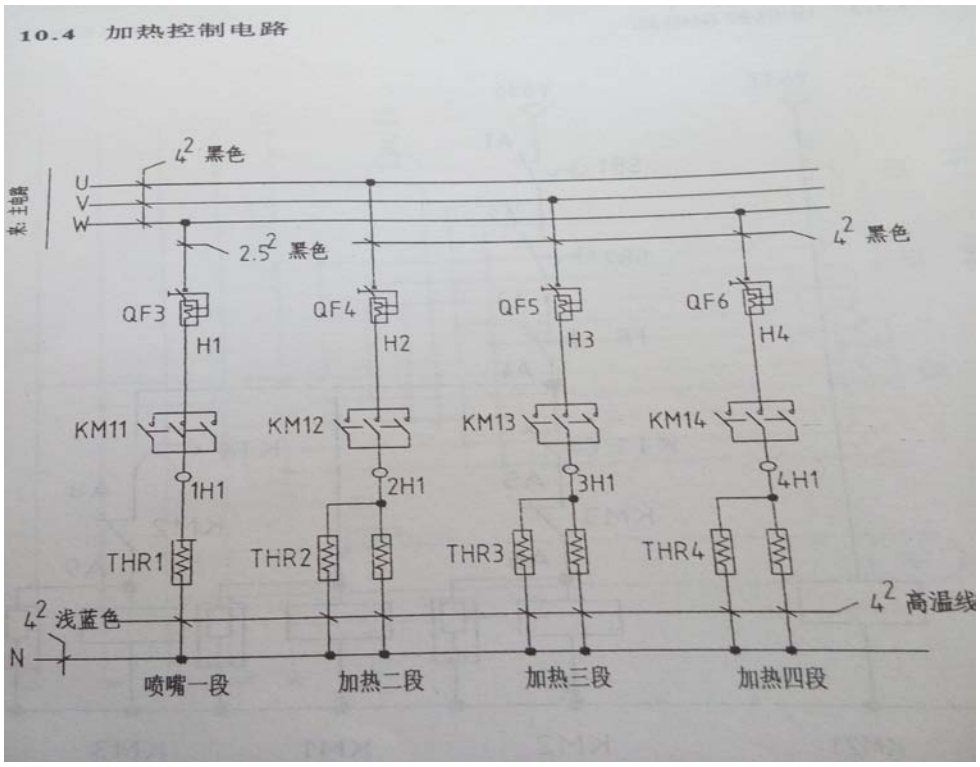
图 1--1

Hydraulic drawing



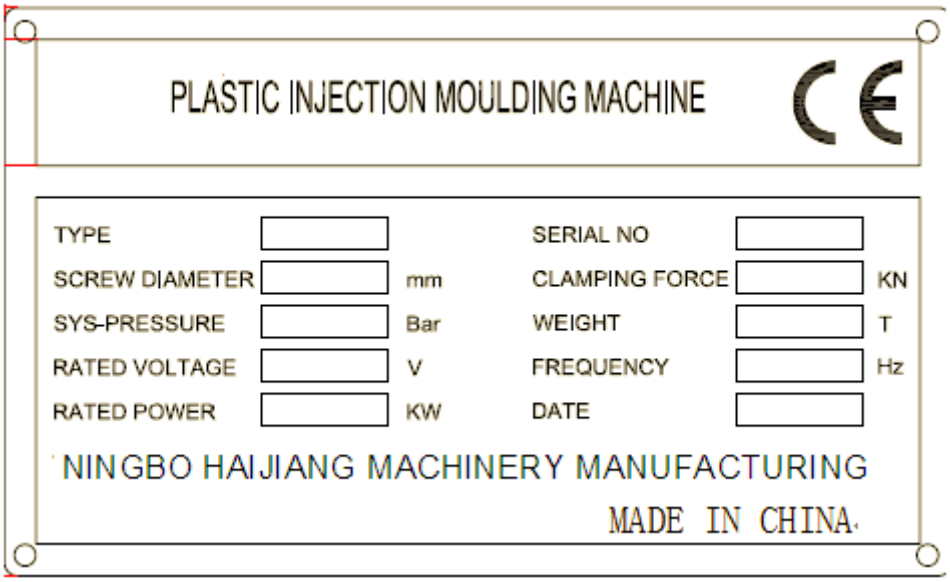
Electrical system





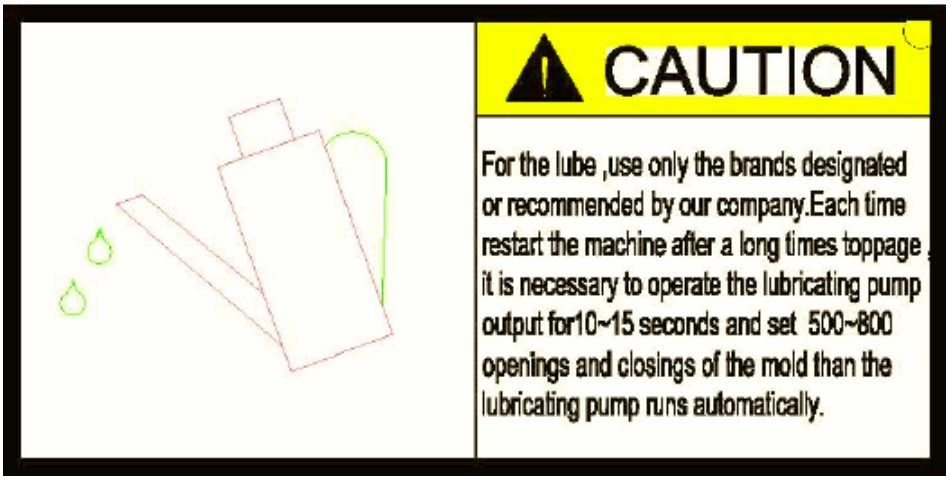
Nameplate


宁波海江机械制造有限公司
NINGBO HAIJIANG PLASTIC MACHINERY CO.,LTD
CE
产品名称: 塑料注射成型机
NAME PLASTIC INJECTION MOLDING MACHINE
规格型号 MODEL
合模力 CLAMPING FORCE kN
电源 POWER V Hz
注射容量 INJECTION CAPACITY cm3
主电机 MOTOR kW
出厂日期 DATE 年 月
机器重量 MACHINE WEIGHT t
外形尺寸 MACHINE SIZE m
出厂编号 SERIAL No.
地址：宁波市鄞州区东吴镇童一工业区
Add: ning bo shi Yinzhou qu dong wu zhen tong yi gong ye qu
电话(TEL):0574-88233242 传真(FAX):0574-88396095
MADE IN CHINA


PLASTIC INJECTION MOULDING MACHINE
CE
TYPE
SERIAL NO
SCREW DIAMETER mm
CLAMPING FORCE KN
SYS-PRESSURE Bar
WEIGHT T
RATED VOLTAGE V
FREQUENCY Hz
RATED POWER KW
DATE
NINGBO HAIJIANG MACHINERY MANUFACTURING
MADE IN CHINA


WARNING
High speed moving parts.
DO not operate with gate/guards removed or open.
Do not reach around, under, over or through gate/guards while machine is operating. Can cause crushing injury .

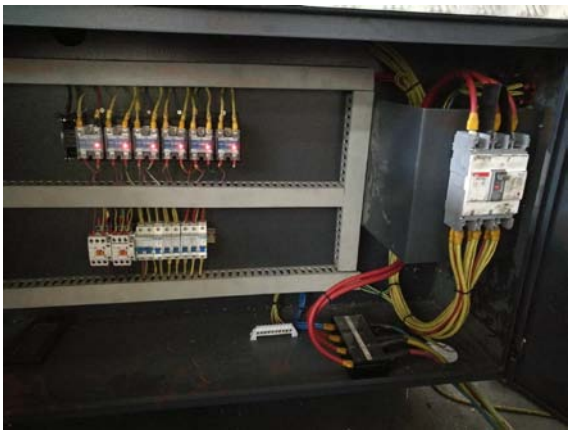

WARNING
Avoid injury.
Keep hands and fingers clear.

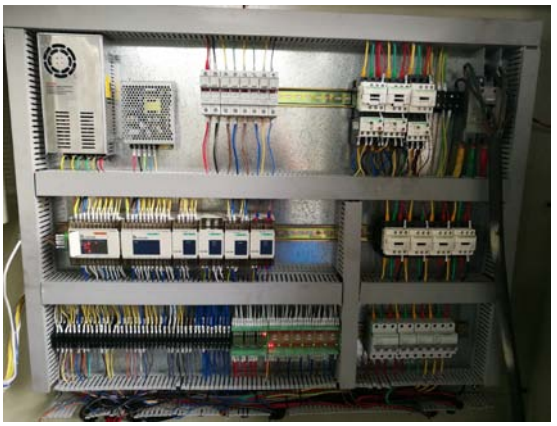

CAUTION
For the lube ,use only the brands designated or recommended by our company.Each time restart the machine after a long times toppage , it is necessary to operate the lubricating pump output for10~15 seconds and set 500~800 openings and closings of the mold than the lubricating pump runs automatically.

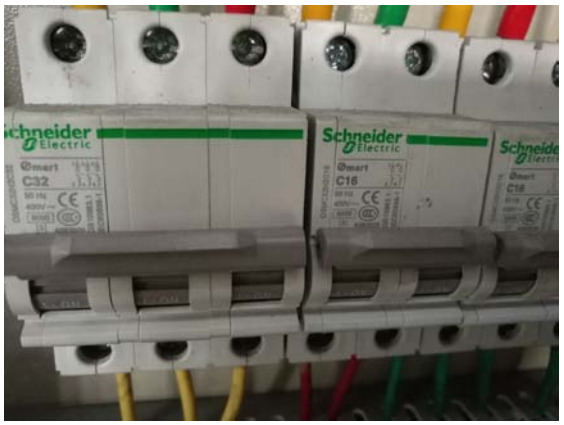
Safety Pictures

Safety Pictures

Safety Pictures







Instruction manual

========== End of Test Report =========