Technical Construction File

File No：*ZCL* -2018-0622

According to

Machinery Directive 2006/42/EC

related to the

CNC Automatic Cutting Machine

Model/Types: C.L-CNC-006 ， C.L-CNC-007

presented by

Shenzhen ZCL Technology Co., Ltd.

No.9 Building, Wodu Industrial Zone, Security Community, Henggang Street,

LongGang District, Shenzhen, Guangdong, China

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Part I：General

1.1 General description

The series of CNC Automatic Cutting Machine are the range of professional machines for the processing of various glasses part. They do not belong to the machinery listed in Annex IV of 2006/46/EC, the machinery safety directive.

The machine is of good rigidity and flexible operation. It carry out the processing procedures: mill, drill, bore, and tapping. So the machine can be used widely, especially for engraving those complicated two, or three D concavo, convex moulds and complicated die cavity and its surface.

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

The main risk of this kind of hot press could be:
- The risk of access to the driving system
- The risk of access to the power transmission elements.
- The risk of access to the working tool
- The risk of access to the area between moving parts and fixed parts which with crushing hazards.

In order to prevent the main risks mentioned above, the protection guarding system is provided, and all the detail safety provision are constructed in accordance with the requirement of EN.
In addition to the safety of the machinery mentioned above, the compliance the inspection and test report carried out according to the European standard of EN 60204-1 was provide too.

In order to ensure the conformity for CE marking for these hot press machines, some main European and/or International standards have been used to made assessment of conformity, they are：
—EN 12100 for carrying out risk assessment；
—EN 60204-1 for checking of electrical equipment；
—EN 12417 for checking of the safety of the CNC Automatic Cutting Machine；

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

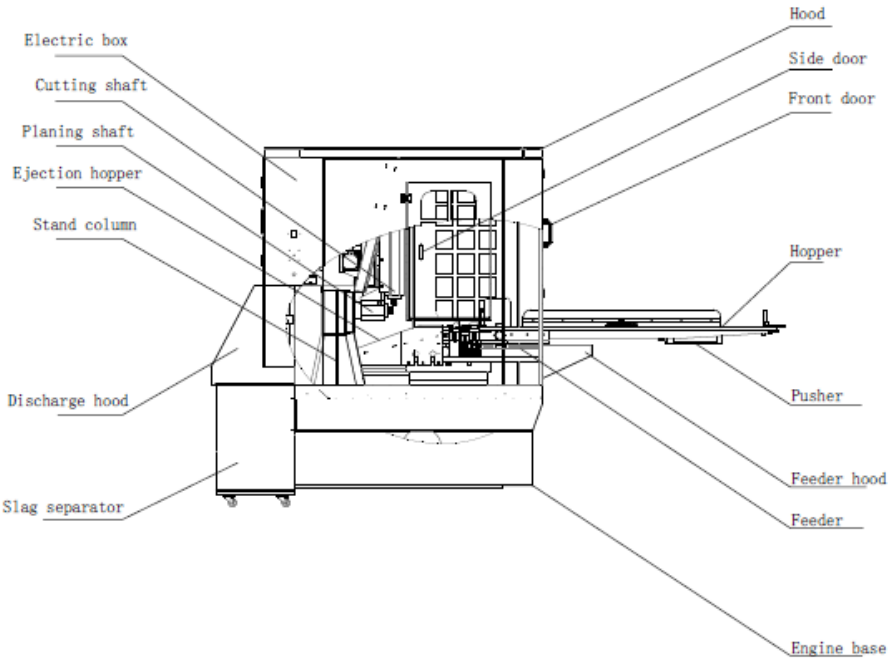
All models are with the same machine structure but with some small differences described as the Following:

1. The machine dimension is different.

2. The power of the machine is different.

3. The weight of the machine is differen

These machines main legend may be:



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1.2 Quality control system

In order to ensure the conformity of the series production, the Shenzhen ZCL Technology Co., Ltd. has taken the related procedures mentioned below：

（1）Apply for the consultant form the qualified body in China

The GoldSun has applied for the consultant form Centre Testing International Co.,Ltd. who is a competent institute for the CE marking consultant and certification in China.
The complete technical construction file（TCF）have been established before applying for the CE marking certificate under the consultant of CTI.

（2）Carry out the inspection for parts and components according to the TCF

Before the assemblies of the series production, the QC engineers of GoldSun 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 GoldSun have to do the necessary inspection and testing to ensure the conformity of related requirements. In particular, the testing and inspection of electrical characteristics and outer feature.

（4）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.

（5）Provision for the change of design

Any change of the products described in this TCF must be checked in detail and written down again in the TCF by the designer of GoldSun if the change may effects the related electrical or mechanical characteristics.

（6）Provision for the Quality Assurance

For the provisions of internal control measures to ensure the conformity of series production of the machines, GoldSun has built an internal quality control system in accordance with the international standard of ISO-9001.

1.4 Declaration of conformity

EC DECLARATION OF CONFORMITY

according to the following EC Directives

- Machinery Directive : 2006/42/EC

CE

The undersigned, _____, representing, *Shenzhen ZCL Technology Co., Ltd. /No.9 Building, Wodu Industrial Zone, Security Community, Henggang Street, LongGang District, Shenzhen, Guangdong, China* manufacturer declares that the machine described hereafter:

CNC AutomaticCutting Machine

Model/Types: C.L-CNC-006 ， C.L-CNC-007

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, Low Voltage Directive and Electromagnetic Compatibility 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:

• EN12417:2001+A2:2009/AC:2010
/ Machine tools – Machining centres
EN ISO 12100: 2010
Safety of machinery . General principles for design . Risk assessment and risk reduction.
EN 60204-1:2006+A1:2009+AC:2010
• EN 280:2013+A1-2015 Mobile elevating work platforms — Design calculations — Stability criteria — Construction — Safety — Examinations and tests
•EN ISO 13857:2008/Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs
• EN 349:1993 + A1:2008/ Safety of machinery - Minimum gaps to avoid crushing of parts of the human body
• EN 953:1997+A1:2009 Safety of machinery — Guards — General requirements for the design and construction of fixed and movable guards.
• EN ISO 3746:2010 Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure - Survey method using an enveloping measurement surface over a reflecting plane.
• EN 61000-6-2:2005 Electromagnetic compatibility (EMC) -- Part 6-2: Generic standards - Immunity for industrial environments
• EN 61000-6-4:2007Electromagnetic compatibility (EMC) -- Part 6-4: Generic standards - Emission standard for industrial environments

Date: _____

Signature:_____

Qualification: General Manager

Shenzhen ZCL Technology Co., Ltd.

Part II：Assessment of conformity

2.1 Essential health and safety requirements

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 to 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	*Pass.* *All the machines are fitted for the function: collection drills, milling, bore, broaching, ream*
	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	*Pass.* *These requirements have been complied with.*
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	*Pass* *Manufacturer has provided enough safety devices to eliminate or reduce risks.*
	- take the necessary protection measure in relation to risks that can't be eliminated	*Pass.* *Safety guards and other devices are used.*
	- 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	*Pass.* *Enough warnings are provided in the appropriate spot*
c)	When designing and constructing machinery, and when drafting the instruction, the manufacturer must envisage not the normal use of the machinery but also uses which could reasonably be expected	*Pass.* *All the conditions are considered by the manufacturer, and the related information also has been provided within the instruction manual*
	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	*Pass.* *These requirements have been complied with, and the related*

	attention to ways which experience has shown might occur- in which the machinery should not be used	*information also has been provided within the instruction manual.*
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	*Pass.* *These requirements have been taken into account during the design of this machine.*
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	*Pass.* *These requirements have been taken into account during the design of this machine.*
f)	Machinery must be supplied with all the essential special equipment and accessories to enable it to be adjusted, maintained and used without risk	*Pass.* *All the essential special equipment and related accessories have been supplied.*
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	*Pass.* *They cannot endanger exposed person's safety or health.*
	In particular, where fluids are used, machinery must be designed and constructed for use without risks due to filling, use, recovery or draining	*Not applicable.*
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	*Not applicable.*
	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	*Not applicable.*
	Internal parts requiring frequent inspection, and adjustment and maintenance areas, must be provided with appropriate lighting	*Not applicable.*
1.1.5	Design of machinery to facilitate its handling	-
	Machinery or each component part thereof must:	-
	- be capable of being handle safely	*Pass.* *Enough measures have been taken*

		to ensure the safe of the handling.
	- be packaged or designed so that it can be stored safely and without damage	*Pass.* *The machine can be stored in wood box safely and without damage.*
	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	*Pass.* *Provided*
	- be designed so that it can be fitted with such attachments, or	*Pass.* *Provided*
	- be shaped in such a way that standard lifting gear can easily be attached	*Not applicable.*
	Where machinery or one of its component parts is to be moved by hand, it must:	-
	- either be easily movable, or	*Not applicable.*
	- be equipped for picking up and moving in complete safety	*Not applicable.*
	Special arrangement must be made for the handling of tools and/or machinery parts, even if lightweight, which could be dangerous	*Not applicable.*
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	*Pass.* *The control system for this machine is safe and reliable by appropriate designing*
	Above all they must be designed and constructed:	-
	- they can withstand the rigors of normal use and external factors	*Pass.* *The control system can withstand related effects during normal operation.*
	- errors in logic don’t lead to dangerous situations	*Pass.* *Any error in logic doesn't lead to dangerous situations.*
1.2.2	Control devices	-
	Control devices must be:	-
	- clearly visible and identifiable and appropriately	*Pass.*

	marked where necessary	*Appropriate lables and markings are provided* *This requirement has been complied with.*
	- positioned foe safe operation without hesitation or loss of time, and without ambiguity	*Pass.* *Appropriate positions have been taken into account during design.*
	- designed so that the movement of the control is consistent with its effect	*Not applicable*
	- located outside the danger zones, except for certain controls where necessary, such as emergency stop, console for training of robots	*Pass.* *All control devices have been located outside the danger zones.*
	-positioned or that their operation can't cause additional risk	*Pass.* *All operation of control devices won't cause additional risk.*
	- designed or protected so that the desired effect, where a risk is involved, can't occur without an intentional operation	*Pass.* *Appropriate safety devices have been used to comply with this requirement.*
	- made so as to withstand foreseeable strain, particular attention must be paid to emergency stop devices liable to be subjected to considerable strain	*Pass.* *The emergency stop and other control devices have enough strength to withstand foreseeable strain.*
	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	*Not applicable*
	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	*Pass.* *These requirements have been taken into account during design.*
	Constraints due to the necessary foreseeable use of personal protection equipment must be taken into account	*Not applicable.*
	Machinery must be fitted with indicators as required for safe operation	*Pass.* *The indicators have been provided.*

	The operator must be able to read them from the control position	*Pass.* *The indicators are clearly visible in the control position.*
	From the main control position the operator must be able to ensure that there are no exposed persons in the danger zones	*Pass.* *The danger zones are visible for the operator in the main control position.*
	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	*Not applicable.*
	The exposed person must have the time and the means to take rapid action to prevent the machinery starting up	*Pass.* *Emergency stop , main switch and other related devices have been provided for the exposed person.*
1.2.3	Starting	-
	It must be possible to start machinery only by voluntary actuation of a control provided for the purpose	*Pass.* *Devices preventing unintended strating have been provided.*
	The same requirement applies:	-
	- when restarting the machinery after stoppage, whatever the cause	*Pass.* *Reset is necessary before restaring.*
	- when effecting a significant change in the operating conditions	*Pass.* *These requirements have been complied with.*
	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	*Pass.* *These requirements have been complied with by appropriate design.*
	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*
	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	*Pass.* *These requirements have been complied with by appropriate design.*
1.2.4	Stopping device	-
	Normal stopping	-
	Each machine must be fitted with a control whereby	*Pass.*

	the machine can be brought safety to a complete stop	*A normal stop control has been provided.*
	Each workstation must be fitted with a control to stop some or all of the moving parts of the machinery, depending on the type of hazard, so that the machinery is rendered safe	*Pass.* *A normal stop control has been provided.*
	The machinery's stop control must have priority over the start controls	*Pass.* *It has priority over the start control.*
	Once the machinery or its dangerous parts have stopped, the energy supply to the actuators concerned must be cut off	*Pass.* *The stops belong to the category 0, or category 1 stops.*
	Emergency stop	-
	Each machinery must be fitted with one or more emergency stop devices to enable actual or impending danger to be averted	*Pass.* *Two emergency stop is provided.*
	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*
	The emergency stop device must:	-
	- have clearly identifiable, clearly visible and quickly accessible controls	*Pass.* *The emergency sop has red button, yellow background and marked with "emergency stop"*
	- stop the dangerous process as quickly as possible, without creating additional hazards	*Pass.* *The emergency stop will stop the machine as soon as it is pressed and it will not create any additional hazards.*
	- where necessary, trigger or permit the triggering of certain safeguard movements	*Not applicable*
	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	*Pass.* *After the action of the emergency stop,machine can not be restarted until reset the emergency stop.*
	It must be possible to disengage the device only by an	*Pass.*

	appropriate operation, and disengaging the device must not restart the machinery but only permit restarting	*Operator should turn the emergency stop to disengage the device.*
	Complex installations	-
	In the case of machinery or parts of machinery designed to work together, 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	*Not applicable.*
1.2.5	Mode selection	-
	The control mode selected must override all other control systems with the exception of the emergency stop	*Pass* *The emergency stop is effective regardless of operating modes.*
	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	*Pass* *A lockable selector switch used.*
	Each position of the selector must correspond to a single operating or control mode	*Pass* *Complied with*
	The selector may be replaced by another selection method which restricts the use of certain functions of the machinery or certain categories of operator	*Not applicable.* *No this situation*
	If, for certain operations, the machinery must be able to operate with its protection devices neutralized, the mode selector must simultaneously:	*Pass* *This requirement has been taken into account during design.*
	- disable the automatic control mode	*Pass* *This requirement has been taken into account during design.*
	- permit movements only by controls requiring sustained action	*Pass* *Hold-to-run control used*
	- permit the operation of dangerous moving parts only in enhanced safety conditions while preventing hazards from linked sequences	*Pass* *This requirement has been taken into account during design.*
	- prevent any movement liable to pose a danger by acting voluntarily or involuntarily on the machine's internal sensors	*Pass* *This requirement has been taken into account during design.*
	In addition, the operator must be able to control	*Pass*

	operation of the parts he is working on at the adjustment point	*This requirement has been taken into account during design.*
1.2.6	Failure of the power supply	-
	The interruption, re-establishment after an interruption or fluctuation in whatever manner of the power supply to the machinery must not lead to a dangerous situation	*Pass.* *No any dangerous situation has been found.*
	In particular:	-
	- the machinery must not start unexpectedly	*Pass.* *Reset is necessary before restarting the machine.*
	- the machinery must not be prevented from stopping if the command has already been given	*Pass.* *The stop command has the priority over all other devices*
	- no moving part of the machinery or piece held by the machinery must fall or be ejected	*Pass.* *No such part is found.*
	- automatic or manual stopping of the moving parts whatever they may be must be unimpeded	*Pass.* *Stopping of the moving parts is always effective.*
	- the protection devices must remain fully effective	*Pass.* *The protection devices remain effective after the failure of the power supply.*
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	*Pass.* *No dangerous situation is found.*
	In particular:	-
	- the machinery must not start unexpectedly	*Pass.* *Reset is necessary before restarting the machine.*
	- the machinery must not be prevented from stopping if the command has already been given	*Pass.* *The stop command has the priority over all other devices*
	- no moving part of the machinery or piece held by the machinery must fall or be ejected	*Pass.* *No such part is found.*
	- automatic or manual stopping of the moving parts whatever they may be must be unimpeded	*Pass.* *Stopping of the moving parts is always available.*
	- the protection device must remain fully effective	*Pass.* *The protection devices remain*

		effective after the failure of the control circuit
1.2.8	Software	-
	Interactive software between the operator and the command or control system of a machine must be user-friendly	*Pass* *This requirement has been taken into account during design.*
1.3	Protection against mechanical hazards	-
1.3.1	Stability	-
	Machinery, components and fittings there of 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	*Pass.* *These requirements have been taken into account design*
	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.* *The sufficient stability has been offered for this machine.*
1.3.2	Risk of break-up during operation	-
	The various parts of machinery and their linkages must be able to withstand the stress to which they are subject when used when as foreseen by the manufacturer	*Pass.* *All parts of the machine can withstand related stress when they are used.*
	The durability of the materials used must be adequate for the nature of the workplace foreseen by the manufacturer, in particular as regards the phenomena of fatigue, aging, corrosion and abrasion	*Pass.* *All materials used for this machine are appropriate for their intended use and have adequate life.*
	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	*Pass.* *The related information have been provided within the instruction manual.*
	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	*Not applicable.* *No such risk is possible.*
	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	*Pass.* *This requirement has been taken into account during design.*

	must be taken to ensure that no risk is posed by a rupture	
	Where the material to be processed is fed to the tool automatically, the following conditions must be fulfilled to avoid risks to the persons exposed：	-
	- when the work piece comes into contact with the tool the later must have attained its normal working conditions	*Not applicable.*
	- when the tool starts and/or stops the feed movement and the tool movement must be coordinated	*Not applicable.*
1.3.3	Risked due to falling or ejected objects	-
	Precautions must be taken to prevent risks from falling or ejected object	*Pass* *Appropriate guard is provided.*
1.3.4	Risks due to surfaces, edges or angles	-
	In so far as their purpose allows, accessible parts of the machinery must have no sharp edges, no sharp angles, and no rough surfaces likely to cause injury	*Pass.* *All the surfaces,edges and similar parts has been treated appropriately.*
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 element constituting a danger or risk for the exposed person	*Not applicable.* *No this kind of combined machinery.*
	For this purpose, it must be possible to start and stop separately and elements that are not protected	*Not applicable.* *No this kind of combined machinery.*
1.3.6	Risks relating to variations in the rotation speeds 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	*Not applicable.* *No this situation*
1.3.7	Prevention of risks related to moving parts	-
	The moving parts of machinery must be designed, built and laid out to avoid hazards or, where hazards persist, fixed with guards or protective devices in such a way as to prevent all risk of contact which could lead to accidents	*Pass.* *This kind of hazards has been prevented by appropriate guards.*

	All necessary steps must be taken to prevent accidental blockage of moving parts involved in the work	*Pass.* *All necessary steps have been taken.*
	In cases where, despite the precaution 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	*Not applicable.* *No this kind of need.*
1.3.8	Choice of protection against risk related to moving parts	-
	Guards or protection devices used to protect against the risks related to moving parts must be selected on the basis of the type of risk	*Pass.* *It is in accordance with the risk assessment.*
	The following guidelines must be used to help make the choice	-
	A. Moving transmission parts Guards designed to protect exposed persons against the risks associated with moving transmission parts must be：	-
	- either fixed, complying with requirements 1.4.1 and 1.4.2.1 or	*See the related clauses.*
	- movable, complying with requirements 1.4.1 and 1.4.2.2.A	*See the related clauses.*
	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	*See the related clauses.*
	- 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 part of the operator’s body from encroaching to the danger zone in accordance with requirements 1.4.1 and 1.4.3	*See the related clauses.*
	However, when certain moving parts directly involved in the process can’t be completely or partially	-

	inaccessible during operation owing to operations requiring near-by operator intervention, where technically possible such parts must be fitted with：	
	- fixed guards, 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	*See the related clauses.*
	- 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	*See the related clauses.*
1.4	Required characteristics of guards and protection devices	-
1.4.1	General requirement	-
	Guards and protection devices must:	-
	- be of robust construction	*Pass.* *All the guards have enough strength.*
	- not give rise to any additional risk	*Pass.* *No additional risk is found.*
	- not be easy to bypass or render non-operational	*Pass.* *All the guards can't be bypassed or rendered non-operational by design.*
	- be located at an adequate distance from the danger zone	*Pass.* *All the guards comply with the safety distances.*
	- cause minimum obstruction to the view id the production process	*Pass.* *Appropriate materials are used to make guards.*
	- 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	*Pass.* *These requirements have been taken into account during design.*
1.4.2	Special requirements for guards	-
1.4.2.1	Fixed guards	-
	Fixed guard must be securely held in place	*Pass.* *They all be securely held in place by appropriate fixation.*
	They must be fixed by system that can be opened only with tools	*Pass.* *They all can be opened only with tools.*

	Where possible, guards must be unable to remain in place without their fixings	*Not applicable.*
1.4.4.2	Movable guards	-
	A. Type A movable guards must:	-
	- as far as possible remain fixed to the machinery when open	*Pass* *Complied with*
	- be associated with a locking device to prevent moving parts starting up as these parts can be accessed and to give a stop command whenever they are no longer closed	*Pass* *An interlock switch provided*
	B. Type B movable guards must be designed and incorporated into the control system so that	*Not applicable.* *No this kind of guard has been used.*
	- moving parts can't start up while they are within the operator's reach	*Not applicable.*
	- the exposed person can't reach moving parts once they have started up	*Not applicable.*
	- they can be adjusted only by means of an intentional action, such as the use of a tool, etc.	*Not applicable.*
	- the absence or failure of one of their components prevents starting or stops the moving parts	*Not applicable.*
	- protection against any risk of ejection is provided by means of an appropriate barrier	*Not applicable.*
1.4.2.3	Adjustable guards restricting access	-
	Adjustable guards restricting access to those areas of the moving parts strictly necessary for the work must:	*Not applicable.* *No this kind of guard has been used.*
	- be adjustable manually or automatically according to the type of work involved	*Not applicable.*
	- be readily adjustable without the use of tools	*Not applicable.*
	- reduce as far as possible the risk of ejection	*Not applicable.*
1.4.3	Special requirements for protection devices	-
	Protection devices must be designed and incorporated into the control system so that:	-
	- moving parts can't start up while they are within the operator's reach	*Pass.* *These requirements have been taken into account during design.*
	- the exposed person can't reach moving parts once they have started up	*Pass.* *Appropriate guards have been provided.*
	- they can be adjusted only by means of an intentional	*Pass.*

	action, such as the use of a tool, etc.	*These requirements have been taken into account during design.*
	-the absence or failure of one of their components prevents starting or stops the moving parts	*Pass.* *These requirements have been taken into account during design.*
1.5	Protection against other hazards	-
	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	*Pass.* *See the EN 60204-1 test report in detail.*
	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	*Pass.* *See the EN 60204-1 test report in detail.*
1.5.2	Static electricity	-
	Machinery must be so designed and constructed as to prevent or limit the build-up of potentially dangerous electrostatic changes and/or be fitted with a discharging system	*Pass.* *See the EN 60204-1 test report in detail.*
1.5.3	Energy supply other than electricity	-
	Where machinery is powered by an energy other than electricity, it must be so designed, constructed and equipped as to avoid all potential hazards associated with these types of energy	*Pass.* *No any additional hazard has been found for energy supply.*
1.5.4	Error of fitting	-
	Errors likely to be made when fitting or refitting certain parts which could be a source of risk must be made impossible by the design of such parts or, failing this, by information on moving parts and/or their housing where the direction of movement must be known to avoid a risk	*Pass.* *These requirements have been taken into account during design.*
	Any further information that may be necessary must be given in the instructions	*Pass.* *The related information has been provided within the instruction manual.*
	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,	*Pass.* *All related information have been provided within the instruction manual.*

	etc. and/or connectors blocks	*Necessary lables and markings have been provided.*
1.5.5	Extreme temperatures	-
	Step must be taken to eliminate any risk of injury caused by contact with or proximity to machinery parts or materials at high or very low temperatures	*Pass* *Apropriate guard provided,and also warning labels provided.*
	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	*Pass* *Apropriate guard provided,and also warning labels provided.*
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	*Not applicable.* *No this kind of risk exists.*
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	*Not applicable.* *No such risk is exist*
	To that end the manufacturer must take steps to:	-
	-avoid a dangerous concentration of products	*Not applicable.*
	- prevent combustion of the potentially explosive atmosphere	*Not applicable.*
	-minimize any explosion which may occur so that it doesn't endanger the surroundings	*Not applicable.*
	The same precautions must be taken if the manufacturer foresees the use of the machinery in potentially explosive atmosphere	*Not applicable.* *This machine is not intended to be used in potentially explosive atmosphere.*
	Electrical equipment forming part of the machinery must conform, as far as the risk from explosion is concerned, to the provision of the specific Directive in force	*Pass.* *See the 60204-4 test report in detail.*
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	*Pass.* *The design and construction of this machine are in conformity with this*

	technical progress and the availability of means of reducing noise, in particular at source	*requirements.* *Noise of this machine is 77dB*
1.5.9	Vibration	-
	Machinery must be so designed and constructed that risks resulting from the vibrations produced by the machinery are reduced to the lowest level, taking account of technical progress and the availability of means of reducing vibration, in particular at source	*Pass.* *The design and construction of this machine are in conformity with this requirements.* *Vibrations of this machine will not creat any risk.*
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 non-existent or reduced to non-dangerous proportions	*Not applicable.*
1.5.11	External radiation	-
	Machinery must be so designed and constructed that external radiation doesn't interfere with its operation	*Pass.* *The machine can withstand the external radiation by appropriate design and construction.*
1.5.12	Laser equipment	-
	Where laser equipment is used, the following provisions should be taken into account;	*Not applicable.* *No laser equipment has been used.*
	- laser equipment on machinery must be designed and constructed so as to prevent any accidental radiation	*Not applicable.*
	- laser equipment on machinery must be protected so that effective radiation, radiation produced by reflection or diffusion and secondary radiation don't damage health	*Not applicable.*
	- optical equipment for the observation or adjustment of laser equipment on machinery must be such that no health risk is created by the laser rays	*Not applicable.*
1.5.13	Emission of dust, gases, etc	-
	Machinery must be so designed, constructed and/or equipped that risk due to gases, liquids, dust, vapors and other waste materials which it produces can be avoided	*Not applicable* *No this hazard*
	Where a hazard exists, the machinery must be so equipped that the said substances can be contained	*Not applicable* *No this hazard*

	and/or evacuated	
	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* *No this hazard*
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	*Pass.* *No this kind of hazard*
1.5.15	Risk of slipping, tripping or falling	-
	Parts of the machinery where persons are liable to move about or stand must be designed and constructed to prevent persons slipping, tripping or falling on or off these parts	*Not applicable*
1.6	Maintenance	-
1.6.1	Machinery maintenance	-
	Adjustment, lubrication And maintenance points must be located outside danger zones	*Pass.* *The design and construction of this machine are in conformity with this requirements.*
	It must be possible to carry out adjustment, Maintenance, repair, cleaning and servicing Operations while machinery is at a standstill	*Pass.* *Maintenance, repair, cleaning and servicing,operations can only be implemented while machinery is at a standstill*
	If one or more of the above conditions can't be satisfied for technical reasons, operations must be possible without risk	*Not applicable.* *No this kind of situation.*
	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	*Pass.* *Some adequate provisions have been taken.*
	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	*Pass.* *The related parts can be removed and replaced easily and in safety.*
	Access to the components must enable these tasks to be	*Pass.*

	carried out with the necessary technical means in accordance with an operating method specified by the manufacturer	*All operation methods have been specified by the manufacturer.*
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	*Pass.* *Appropriate guards and safety control devices have been used.*
1.6.3	Isolation of energy sources	-
	All machinery must be fitted with means to isolate it from all energy sources	*Pass.* *The power switch has been used.*
	Such isolators must be clearly identified	*Pass.* *It has passed CE*
	They must be capable of being locked if reconnection could endanger exposed persons	*Not applicable.*
	In the case of machinery supplied with electricity through a plug capable of being plugged into a circuit, separation of the plug is sufficient	*Not applicable.*
	The isolator must be capable of being locked also where an operator is unable, from any of the points to which he has access, to check that the energy is still cut off	*Pass.* *The isolator can be locked in the off position.*
	After the energy is cut off, it must be possible to dissipate normally any energy remaining or stored in the circuits of the machinery without risk to exposed persons	*Pass.* *All the parts will not be live after After the energy is cut off.*
	As an exception to the above requirement, 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	*Not applicable.* *No this kind of situation.*
1.6.4	Operator intervention	-
	Machinery must be so designed, constructed and equipped that the need for operator intervention is limited	*Pass.* *The design and construction of this machine are in conformity with these requirements.*
	If operator intervention can't be avoided, it must be possible to carry it out easily and in safety	*Not applicable.* *No this kind of situation.*
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	*Pass.* *The design of this machine is allowed to carried out this work.*
	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	*Not applicable.* *No this kind of situation.*
1.7	Indicators	-
1.7.1	Information devices	-
	The information needed to control machinery must be unambiguous and easily understood	*Pass.* *The information is identified clearly and can be easily under understood.*
	It must not be excessive to the extent of overloading the operator	*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	*Pass.* *Considered*
1.7.2	Warning devices	-
	Where machinery is equipped with warning devices, these must be unambiguous and easily perceived	*Pass.* *The warning devices comply with ergonomic principles.*
	The operator must have facilities to check the operation of such warning devices at all times	*Pass.* *Such facilities are provided.*
	The requirements of the specific directives concerning colors and safety signals must be complied with	*Pass.* *These requirements are complied with.*
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	*Pass* *Appropriate warning labels provided*
	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	*Pass* *Appropriate warning labels provided*
1.7.4	Marking	-

	All machinery must be marked legibly and indelibly with the following minimum particular：	-
	- name and address of the manufacturer	*Pass.* *Name and address of the manufacturer has been marked in the nameplate.*
	- CE mark, which includes the year of construction	*Pass.*
	- designation of series or type	*Pass.* *Designation of series or type has been marked in the nameplate.*
	- serial number, if any	*Pass.* *Serial number has been marked in the nameplate.*
	Furthermore, where the manufacturer constructs machinery intended for use in a potentially explosive atmosphere, this must be indicated on the machinery	*Not applicable.* *This machine is not intended to be used in a potentially explosive atmosphere.*
	Machinery must also bear full information relevant to its type and essential to its safe use	*Pass.* *Such information is provide in manual and nameplate.*
	Where a machine part must be handled during use with lifting equipment, its mass must be indicated legible, indelibly and unambiguously	*Not applicable.*
	The interchangeable equipment referred to in Article 1（2）, third subparagraph, must bear the same information	*Pass.* *All the related information is provided legible, indelibly and unambiguously.*
1.7.5	Instruction	-
	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	*Pass.* *All related information have been provided within the instruction manual.*
	- foreseen use of the machinery within the meaning of 1.1.2(c)	*Pass. All related information have been provided within the instruction manual*

	- workstation(s) likely to be occupied by operators	*Pass.* *All related information have been provided within the instruction manual.*
	- instructions for safe	*Pass.* *All related information have been provided within the instruction manual.*
	- putting into service	*Pass.* *All related information have been provided within the instruction manual.*
	- use	-
	- handling, giving the mass of the machinery and its various parts where they are regularly to be transported separately	*Pass.* *All related information has been provided within the instruction manual.*
	- installation	*Pass.* *All related information has been provided within the instruction manual.*
	- assembling, dismantling	*Pass.*
	- adjustment	*Pass.*
	- maintenance (servicing and repair)	*Pass.*
	- where necessary, training instructions	*Pass.*
	- where necessary, the essential characteristics of tools which may be fitted to the machinery	*Pass.*
	Where necessary, the instructions should draw attention to ways in which the machinery should not be used	*Pass.* *All related information has been provided within the instruction manual.*
	b) The instructions , must be drawn up in one of the Community languages by the manufacturer or his authorized representative established in the Community	*Pass.* *Chinese and English versions of the instruction manual are provided.*
	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	*Pass.* *An English version of the instruction manual is provided.*

	original language	
	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	*Pass.* *The translation is done by the manufacture.*
	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	*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	*Pass.* *All related information has been provided within the instruction manual.*
	d) Any literature describing the machinery must not contradict the instructions as regards safety aspects	*Pass.* *No such situation exist.*
	The technical documentation describing the machinery must give information regarding the airborne noise emission referred to in(f) and, in the case of hand-help and/or hand-guided machinery, information regarding vibration as referred to in 2.2	*Pass.* *All related information has been provided within the technical documentation.*
	e) Where necessary, the instructions must give the requirement relating to installation and assembly for reducing noise or vibration	*Not applicable.*
	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 70dB(A),this fact must be indicated	*Pass.* *The noise pressure level is 77dB.*
	- peak C-weighted instantaneous sound pressure value at workstations, where this exceeds 63 Pa(130 dB in relation to 20 mPa)	*Not applicable.*

	- sound power level emitted by the machinery where the equivalent continuous A-weight sound pressure level at workstations exceeds 85 dB(A)	*Pass* *Appropriate warnings provided.*
	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.* *This machine is not a very large machinery.*
	Where the harmonized standards are not applied sound levels must be measured using the most appropriate method for the machinery	*Pass.* *Appropriate standards are applied to determine the sound level.*
	The manufacturer must indicate the operating conditions of the machinery during measurement and what methods have been used for the measurement	*Pass.* *All related information has been provided within the technical documentation.*
	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	*Not applicable.* *The workstation has been defined.*
	The position and value of the maximum sound pressure must be indicated	*Pass.* *It has been indicated in the appropriate position of the machine.*
	g) If the manufacturer foresees that the machinery will be used in a potentially explosive atmosphere, the instructions must give all the necessary information	*Not applicable.* *This machine is not intended to be used in a potentially explosive atmosphere.*
	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 requirement mentioned above, must take into account the level of general education and acumen that can reasonably be expected from such operators	*Pass.* *All these requirements have been taken into account.*
2	Essential health and safely requirements for certain categories of machinery	-
2.1	Agri-foodstuffs machinery	-
	Where machinery is intended to prepare and process foodstuffs, it must be so designed and constructed as to avoid any risk of infection, sickness or contagion and	*Not applicable.*

	the following hygiene rules must be observed:	
	a) materials in contact, or intended to come into contact, with the foodstuffs must satisfy the conditions set down in the relevant Directives	*Not applicable.*
	The machinery must be so designed and constructed that these materials can be clean before each use	*Not applicable.*
	b) all surfaces including their joinings must be so smooth, and must have neither ridges nor crevices which could harbor organic materials	*Not applicable.*
	c) assemblies must be designed in such a way as to reduce projections, edges and recesses to a minimum	*Not applicable.*
	They should preferably by made by welding or continuous bonding	*Not applicable.*
	Screws, screw heads and rivets may not be used except where technically unavoidable	*Not applicable.*
	d) all surfaces in contact with the foodstuffs must be easily cleaned and disinfected, where possible after removing easily dismantled parts	*Not applicable.*
	The inside surfaces must have curves of a radius sufficient to allow through cleaning	*Not applicable.*
	e) liquid deriving from foodstuffs as well as cleaning disinfecting and rinsing fluids should be able to be discharged from the machine without impediment	*Not applicable.*
	f) machinery must be so designed and constructed as to prevent any liquids or living creatures, in particular insects, entering, or any organic matter accumulating in area that can't be cleaned	*Not applicable.*
	g) machinery must be so designed and constructed that no ancillary substances can come into contact with foodstuffs	*Not applicable.*
	Where necessary, machinery must be designed and constructed so that continuing compliance with this requirement can be checked	*Not applicable.*
	Instructions	*Not applicable.*
	In addition to the information required in Section1, the instructions must indicate recommended products and methods for cleaning, disinfecting and rinsing(not only for easily accessible areas but also where areas to which access is impossible or inadvisable, such as	*Not applicable.*

	piping, have to be cleaned in it situ)	
2.2	Portable hand-help and/or hand-guided machinery	-
	Portable hand-help and/or hand-guided machinery must conform to the following essential health and safety requirements:	-
	- according to the type of machinery, it must have a supporting surface of sufficient size and have a sufficient number of handles and supports of an appropriate size and arranged to ensure the stability of the machinery under the operating conditions foreseen by the manufacturer	*Not applicable.*
	- except where technically impossible or where there is an independent control, in the case of handles which can't be released in complete safety, it must be fitted with start and stop controls arranged in such a way that the operator can operate them without releasing the handles	*Not applicable.*
	- it must be designed, constructed or equipped ton eliminate the risks of accidental starting and/or continued operation after the operator has released the handles	*Not applicable.*
	Equivalent steps must be taken if the requirement is not technically feasible	*Not applicable.*
	- portable hand-help machinery must be designed an constructed to allow, where necessary, a visual check of the contact of the tool with the material being processed	*Not applicable.*
	Instructions	-
	The instructions must give the following information concerning vibrations transmitted by hand-help and hand-guided machinery	-
	- the weight root mean square value to which the arms are subjected, if it exceeds 2.5 m/s^2 as determined by the appropriate test code	*Not applicable.*
	Where the acceleration doesn't exceed 2.5 m/s^2, this must be mentioned	*Not applicable.*
	If there is no applicable test code, the manufacturer must indicate the measurement methods and conditions under which measurement were made	*Not applicable.*

2.3	Machinery for working wood and analogous materials	-
	Machinery for working wood and machinery for working materials with physical and technology characteristics similar to those of wood, such as cork, bone, hardened rubber, hardened plastic material and other similar stiff material must conform the following essential health and safety requirements	-
	a) the machinery must be designed, constructed or equipped so that the piece being machined can be placed and guided in safety; where the piece is hand-help on a work-bench the later must be sufficiently stable during the work and must not impede the movement of the piece	*Not applicable.*
	b) where the machinery is likely to be used in conditions involving the risk of ejection of pieces of wood, it must be designed, constructed or equipped to eliminate this ejection, or, if this is not the case, so that the ejection doesn't engender risks for the operator and/or exposed persons	*Not applicable.*
	c) the machinery must be equipped with an automatic brake that stops the tool in a sufficiently short time if there is a risk of contact with the tool whilst it runs down	*Not applicable.*
	d) where the tool is incorporated into a non-fully automated machine, the latter must be so designed and constructed as eliminate or reduce the risk of serious accidental injury	*Not applicable.*
3	Essential health and safety requirement to offset the particular hazards due to the mobility machinery	-
4	Essential health and safety requirement to offset the particular hazards due to a lifting operation	-
5	Essential health and safety requirement for machinery intended for underground work	-
6	Essential health and safety requirement to offset the particular hazards due to the lifting or moving of persons	-

2.1 Risk assessment

This risk assessment report is based on the methods in the EN 1050 and DINV 19250 standards, and the 4 factors S-A-G-W have been used for evaluating the level of risks.

S：Severity of possible harm

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

A：Frequency any duration of exposure

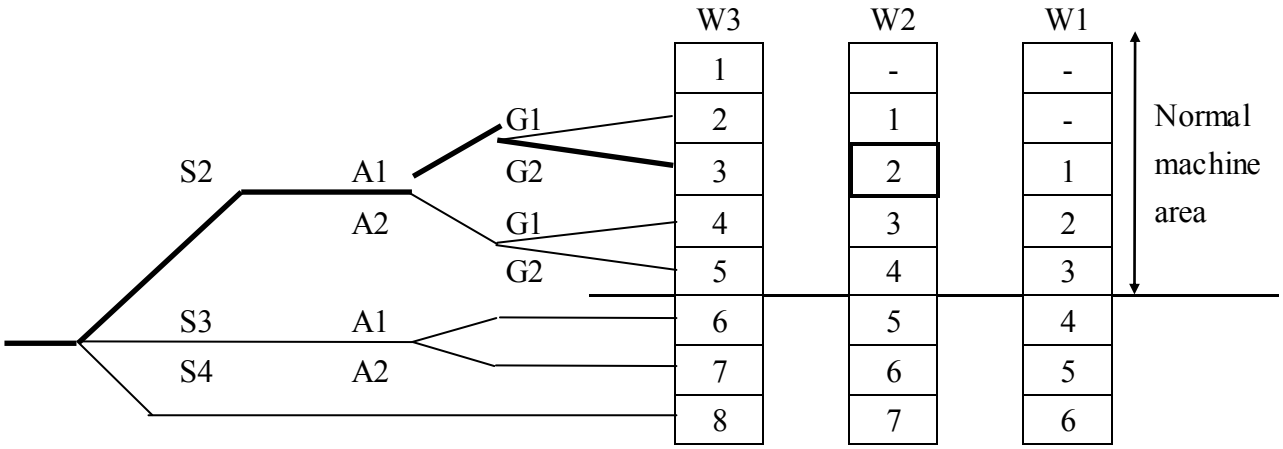
- A1：Seldom to very often
- A2：Frequent to continuous

G：Possibilities of avoidance

- G1：Possible
- G2：Impossible

W：Probability of occurrence of harm

- W1：Low
- W2：Medium
- W3：High



Solutions for the level of hazards

1：Protected by warning sign

2：Protected by guard and warning sign

3：Consider the other design, choose the best one, add both guard and warning sign

4：Consider another two design, choose the best one, add both guard and warning sign

5：Consider another three design, choose the best one, add both guard and warning sign

NO.	Hazards source	S	A	G	W	Level
Mechanical hazards						
1.0-1	Mechanical hazards due to machine parts or work pieces					
1.0-2	Mechanical hazards due to accumulation of energy inside the machinery					
1.1	Crushing					
1.2	Shearing					
1.3	Cutting or severing	*2*	*1*	*1*	*3*	*2*
1.4	Entanglement					
1.5	Drawing-in or trapping	*2*	*1*	*1*	*3*	*2*
1.6	Impact					
1.7	Stabbing or puncture					
1.8	Friction or abrasion					
1.9	High pressure fluid injection or ejection					
Electrical hazards						
2.1	Contact with live parts	*2*	*1*	*1*	*1*	*-*
2.2	Contact with parts which have become live under faulty conditions	*1*	*1*	*1*	*1*	*-*
2.3	Approach to live part under high voltage					
2.4	Electrostatic phenomena	*1*	*1*	*1*	*1*	*-*
2.5	Thermal radiation or other phenomena such as projection of molten particles and chemical effects form short-circuits, overloads etc.					
Thermal hazards						
3.1	Burns, scalds and other injuries by a possible contact of persons with objects or materials with an extreme high or low temperature, by flames or explosions and also by the radiation of heat sources					
3.2	Damage to health by hot or cold working environment					
Hazards generated by noise						
4.1	Hearing loss (deafness), other physiological disorders					
4.2	Interference with speech communication, acoustic signals, etc.					
Hazards generated by vibration						
5.1	Use of hand-help machines resulting in a variety of neurological and vascular disorder					
5.2	Whole body vibration, particular when combined with poor postures					
Hazards generated by radiation						
6.1	Low frequency, radio frequency radiation, microwaves					

6.2	Infrared, visible and ultraviolet light					
6.3	X and gamma rays					
6.4	Alpha, beta rays, electron or ion beams, neutrons					
6.5	Lasers					
Hazards generated by materials and substances processed or used by the machinery						
7.1	Hazards from contact with or inhalation of harmful fluids, gases, mists, fumes and dusts					
7.2	Fire and explosion hazard					
7.3	Biological and micro-biological (viral or bacterial) hazards					
Hazards generated by neglecting ergonomic principles in machine design						
8.1	Unhealthy postures or excessive effort	*2*	*1*	*1*	*1*	-
8.2	Inadequate consideration of hand-arm or foot-leg anatomy					
8.3	Neglected use of personal protection equipment					
8.4	Inadequate local lighting					
8.5	Mental overload or underload, stress					
8.6	Human error, human behavior	*1*	*1*	*1*	*1*	-
8.7	Inadequate design, location or identification of manual controls					
Combination of hazards						
9	Combination of hazards					
Unexpected start-up, unexpected overrun/over-speed						
10.1	Failure/disorder of the control system	*1*	*1*	*1*	*1*	-
10.2	Restoration of energy on supply after an interruption					
10.3	External influences on electrical equipment	*1*	*1*	*1*	*1*	-
10.4	Other external influences (gravity, wind, etc.)					
10.5	Errors in the software	*1*	*1*	*1*	*1*	-
10.6	Error made by the operator (due to mismatch of machinery with human characteristics and abilities, see 8.6)	*1*	*1*	*1*	*1*	-
Impossibility of stopping the machine in the best possible conditions						
11	Impossibility of stopping the machine in the best possible conditions					
Variations in the rotational speed of tools						
12	Variations in the rotational speed of tools					
Failure of the power supply						
13	Failure of the power supply	*1*	*1*	*1*	*1*	-
Failure of the control circuit						
14	Failure of the control circuit	*1*	*1*	*1*	*1*	-
Errors of fitting						
15	Errors of fitting					

Break-up during operation						
16	Break-up during operation					
Falling or ejected objects or fluids						
17	Falling or ejected objects or fluids					
Loss of stability / overturning of machinery						
18	Loss of stability / overturning of machinery					
Slip, trip and fall of persons (related to machinery)						
19	Slip, trip and fall of persons(related to machinery)					
Additional hazards, hazardous situations and hazardous events due to mobility						
20	Relating to the traveling function					
20.1	Movement when starting the engine					
20.2	Movement without a driver at the driving position					
20.3	Movement without all parts in a safe position					
20.4	Excessive speed of pedestrian controlled machinery					
20.5	Excessive oscillations when moving					
20.6	Insufficient ability of machinery to be slowed down, stopped and immobilisated					
Linked to the work position (including driving station) on the machine						
21.1	Fall of persons during access to (or at/from) the work position					
21.2	Exhaust gases/lack of oxygen at the work position					
21.3	Fire（flammability of the cab, lack of extinguishing means）					
21.4	Mechanical hazards at the work position： contact with the wheels； rollover； fall of objects, penetration by objects； break-up of parts rotation at high speed； contact of persons with machine parts or tools（pedestrian controlled machines）					
21.5	Insufficient visibility form the work positions					
21.6	Inadequate lighting					
21.7	Inadequate seating					
21.8	Noise at the work position					
21.9	Vibration at the work position					
21.10	Insufficient means for evacuation/emergency exit					
Due to the control system						
22.1	Inadequate location of manual controls					
22.2	Inadequate design of manual controls and their mode of operation					
Form handling the machine（lack of stability）						

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

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

NO.	**Hazards source**	**S**	**A**	**G**	**W**	**Level**
1.4	Entanglement	***2***	***1***	***1***	***3***	***2***
Where	*rotation parts (Gear etc……)*					
When	*Operator feeds or remove materials during working*					
Improvement result						
Method		**S**	**A**	**G**	**W**	**Level**
1. Use the fixed guard and movable guard *2. Warning label used* *3. Read instruction manual before operate the machine.*		***1***	***1***	***1***	***1***	**-**

NO.	**Hazards source**	**S**	**A**	**G**	**W**	**Level**
1.5	Drawing or trapping	***2***	***1***	***1***	***3***	***2***
Where	*rotation parts (Gear etc……)*					
When	*Operator feeds or remove materials during working*					
Improvement result						
Method		**S**	**A**	**G**	**W**	**Level**

1. Use the fixed guard and movable guard *2. Warning label used* *4. Read instruction manual before operate the machine.*	***1***	***1***	***1***	***1***	**-**

NO.	**Hazards source**	**S**	**A**	**G**	**W**	**Level**
2.1	Contact with live parts	***1***	***1***	***1***	***1***	**-**
Where	*Whole power and control systems*					
When	*The machine is power on*					
Improvement result						
Method		**S**	**A**	**G**	**W**	**Level**
1.Only operation by training/authorized persons. *2.Operation of the machine shall conform to the instructions of the instruction manual.* *3.Check and inspection according to the specified durations of the instruction manual.* *4.Using safety components in accordance with those relevant international standards.* *5.Use of warning label.*		***1***	***1***	***1***	***1***	**-**

NO.	**Hazards source**	**S**	**A**	**G**	**W**	**Level**
2.2	Contact with parts which have become live under faulty conditions	***1***	***1***	***1***	***1***	**-**
Where	*Whole power and control systems*					
When	*The machine is power on*					
Improvement result						
Method		**S**	**A**	**G**	**W**	**Level**
1. Only operation by training/authorized persons. *2. Operation of the machine shall conform to the instructions of the instruction manual.* *3. Check and inspection according to the specified durations of the instruction manual.* *4. Using safety components in accordance with those relevant international standards.* *5.Use of warning label.*		***1***	***1***	***1***	***1***	**-**

NO.	**Hazards source**	**S**	**A**	**G**	**W**	**Level**
2.4	Electrostatic phenomena	***1***	***1***	***1***	***1***	**-**

Where	*Whole power and control systems*
When	*The machine is power on and off*

Improvement result					
Method	**S**	**A**	**G**	**W**	**Level**
1. *appropriate earthing* *2. Check and inspection according to the specified durations of the instruction manual.* *3. Use of warning label.*	***1***	***1***	***1***	***1***	**-**

NO.	**Hazards source**	**S**	**A**	**G**	**W**	**Level**
8.1	Unhealthy postures or excessive effort	***2***	***1***	***1***	***1***	**-**
Where	*Operation position*					
When	*When the operator operates the machine*					

Improvement result					
Method	**S**	**A**	**G**	**W**	**Level**
1. *Read instruction manual before operate the machine.* *2. Use of warning label* *3. Enough rest time*	***1***	***1***	***1***	***1***	**-**

NO.	**Hazards source**	**S**	**A**	**G**	**W**	**Level**
8.6	Human error, human behavior	***2***	***1***	***1***	***1***	***1***
Where	*Whole machine*					
When	*Operation, adjustment or maintenance of the machine*					

Improvement result					
Method	**S**	**A**	**G**	**W**	**Level**
1. Only authorized person can use the machine. *2. Training before using this machine.* 3. *Make reference to the instruction manual before using this machine.*	***1***	***1***	***1***	***1***	**-**

NO.	**Hazards source**	**S**	**A**	**G**	**W**	**Level**
10.1	Failure/disorder of the control system	***1***	***1***	***1***	***1***	**-**

Where	*Control circuit/control components*
When	*During operation of the machine*

Improvement result

Method	S	A	G	W	Level
1. Only authorized person can use the machine. *2. Make reference to the instruction manual before using this machine.* *3. Check before operation.* 4. *Periodic maintenance.*	*1*	*1*	*1*	*1*	-

NO.	Hazards source	S	A	G	W	Level
10.3	External influences on electrical equipment	*1*	*1*	*1*	*1*	-
Where	*All electrical equipments equipped on the machine*					
When	*Working of the electrical equipments*					

Improvement result

Method	S	A	G	W	Level
1. Whole machine has been submitted to carry out the EMC testing according to relevant EN standards (e.g EN 55011, EN 50081-2 and EN 50082-2 etc.). *2. Connection of protective earthing indeed.* 3. *Excellent electrical shielded housing.*	*1*	*1*	*1*	*1*	-

NO.	Hazards source	S	A	G	W	Level
10.5	Errors in the software	*1*	*1*	*1*	*1*	-
Where	*Control system*					
When	*Running of the software*					

Improvement result

Method	S	A	G	W	Level
1.Whole machine has been submitted to carry out the EMC testing according to relevant EN standards (e.g EN 55011, EN 50081-2 and EN 50082-2 etc.). *2.Automative stopping devices* *3.Additional logic error senceor*	*1*	*1*	*1*	*1*	-

NO.	Hazards source	S	A	G	W	Level
14	Failure of the control circuit	*1*	*1*	*1*	*1*	-

Where	*Control circuit/control components*
When	*During operation of the machine*

Improvement result					
Method	**S**	**A**	**G**	**W**	**Level**
1. Checking before operation. *2. Make reference to the instruction manual before operate this machine.* 3. *Daily/periodic inspection and maintenance.*	***1***	***1***	***1***	***1***	**-**

NO.	**Hazards source**	**S**	**A**	**G**	**W**	**Level**
25.1	Unauthorized start-up/use	***1***	***1***	***1***	***1***	**-**
Where	*Control system*					
When	*Operation, adjustment or maintenance of the machine*					

Improvement result					
Method	**S**	**A**	**G**	**W**	**Level**
1. Always starting the machine by training/authorized persons. *2. During adjustment or maintenance, put a warning nameplate near the working area.* 3. *Lock the power switch of the machine.*	***1***	***1***	***1***	***1***	**-**

NO.	**Hazards source**	**S**	**A**	**G**	**W**	**Level**
26	Insufficient instructions for the driver/operator	***1***	***1***	***1***	***1***	**-**
Where	*Whole machine*					
When	*Installation, assembly/disassembly, operation, adjustment or maintenance of the machine*					

Improvement result					
Method	**S**	**A**	**G**	**W**	**Level**
1. Edit the instruction manual in conformity with those requirement of Machinery Directive and EN 292-2 standard. 2. *Each machine accompanied with a complete instruction manual.*	***1***	***1***	***1***	***1***	**-**

Part III ：Test report

3.1 EN 12417 test report

5	**Safety requirements and/or protective measures**		
5.1	General requirements Machining centers shall comply with the safety requirements and/or protective measures of this clause. In addition, the marching center shall be designed according to the principles of EN 292 *(Note: EN 292 is withdrawn, valid version of ISO 12100 applies)* for hazards relevant but not significant which are not dealt with by this standard.	*This requirement has been taken into account duringdesign.EN ISO 12100 considered*	**PASS**
5.2	**Specific requirements**	See below table 2.	
TABLE 2 – LIST OF SAFETY TEQUIREMENTS AND/OR PROTECTIVE MEASURES AND THEIR VERIFICATION PROCEDURES			
1	**Mechanical**		
1.1	**Work zone**	-	**-**
1.1.1	**Primary safeguards**	-	**-**
	The work zones of machining centres shall be safeguarded. The guarding arrangements shall be designed to prevent access to hazardous situations. NOTE General guidance for the design selection of safeguards, where the hazards from moving parts cannot be avoided by design is given in 4.1,4.2 and Table 1 of EN 292-2.1991 *(Note: valid version of ISO 12100 applies)*. For the purposes of this clause, 1) all protective equipment shall be in accordance with the following: in accordance with EN 61496-1 (ESPE), in accordance with IEC 61496-2:1997, category 4 (AOPD), in accordance with EN 1760-1 (PSPD). 2) Guards shall be in accordance with EN 953:1997, and interlocking devices shall be in accordance with EN1088.1995.	*Interlocked moveable guards is provided*	***PASS***
1.1.2	**Guarding strategies**	-	**-**
1.1.2.1	General The work zone shall be enclosed where possible by fixed and/or interlocked movable guards during machining operations. Where enclosure is not reasonably practicable (e.g. due to the size of the work piece, its geometry, other special characteristics of the machine or its application), operators and other exposed persons shall be safeguarded by a combination of other means (e.g. protected operator position (cabin), perimeter guarding, other protective devices).	*Interlocked movable guards are provided*	***PASS***

1.1.2.2	Enclosure Where reasonably practicable, work zone guarding shall be fixed to the structure of the machine (see 3.2.1 of EN 953:1997) (see also guard characteristics below and Figures C.1-C.4, C.6.	*The movable guards are fixed to the structure of the machine*	***PASS***
1.1.2.3	Alternatives to enclosures Access to the work zone, by the operator, from the normal (fixed) operating position shall be prevented by local guarding (typically forming a cabin - see Figures C.5 and C.7). Access to the cabin shall not require entry into the hazard zone enclosed by perimeter fencing or other protective devices. Where this is not possible because of the machine configuration or other operating constraints, the access route to the operating position shall not require approach to hazardous situations.	*From the operating position, the operator can't access to the work zone, interlock movable guard is provided.* *No cabin is used*	***PASS***

	Where the machine operator requires access to the work zone from the protected (fixed) operating position (cabin) e.g. for setting purposes or process control, the cabin shall be designed so that access is via an interlocked movable guard from within the cabin. Alternatively the movement of a pendant control from the cabin position shall have the same effect as the interlocked guard above. Operation of the machine in mode 1 (automatic cycle) shall only be possible when the pendant control (above) is relocated in the cabin. Any other powered movement of machine elements shall only be achieved by selection of the appropriate operating mode (see operating modes below). Access to the work zone by persons other than the mad-line operator shall be prevented by perimeter fencing and/or other means (e.g. elektrosensitive protective equipment (ESPE), active-opto electronic protective devices (AOPDs), pressure sensitive protective devices (PSPDs)- Where access points (e.g. gates), are provided they shall be interlocked. Where interlocking is not possible because of the particular machine configuration and application, any non interlocked access points shall be within the visual field of the operator(s) from the normal working position. Where it is foreseen that the machine will be operated unattended, for some or all of the operating cycle, other means of access control (e.g. key pad operated locks), shall be provided to prevent unauthorized access.	*No cabin is used .*	

1.1.3	Multiple work zones Where more than one work zone is provided on a single machine, safeguards (e.g. fixed or movable interlocked guards, AOPD, ESPE) shall protect the operator(s) from adjacent active work zone hazards (e.g. When loading or unloading workpieces in a non-active work zone, cleaning), Unauthorized movement of the machine into an adjacent non-active work zone shall be prevented using a limiting device, (e.g. mechanical stops, range limit switches, light beams, AOPDs).	*Just one work zone*	***NA***
1.1.4	Guard Characteristics	-	**-**
1.1.4.1	Height and Position Where guards are floor mounted (e.g. perimeter fencing), they shall be securely fixed and have a minimum height of 1.4 m at a distance in accordance with Table 2 of EN 294.1992 *(Note: valid version of ISO 12100 applies)* from the hazard zone. Any opening between the bottom of the guard and the floor shall not exceed 300 mm.	*Guards is fixed to the structure of the machine*	***NA***
1.1.4.2	Containment Guards shall be designed to contain and/or prevent exposure to swarf/chips, fluids and parts that can be discharged or elected (see also 7.1.4 mist and vapor, 17.1 fluids mists and 17.2 ejection, 19.2 contamination of floors etc., in this table).	*This requirement is complied with.*	***PASS***
1.1.4.3	Observation Where routine observation of the machine operation is required, means (e.g. windows) shall be provided so that this can be achieved without the need to open, remove or suspend any work zone guard or other protect vice(s) (see also 8.4 lighting, in this table).	*Transparent window is provided.*	***PASS***
1.1.5	Interlocking	-	**-**

1.1.5.1	1.1.5,1 All movable guards through which frequent access to the work zone is required (i.e. more than once per shift) shall be interlocked, Opening of a guard or actuation of a protective device in mode 1 (automatic cycle - see below) shall cause hazardous movements to stop and further movement to be inhibited (see EN 1037). Measure to minimize the possible defeat of interlocking device(s) shall be taken (see clauses 5 and 7 of EN 1038:1995).	*Interlocking devices are provided.*	***PASS***
1.1.5.2	If opening of an interlocking movable guard exposes operators to hazards listed 1.1-1.7 of Table 1, guard locking shall be provided. (see EN 1088 and also 7.2.m, of clause 7)	*Considered*	***PASS***
1.1.6	Modes of operation		
1.1.6.1	General Each machine shall have al least two modes of operation (i.e. modes 1 and 2) with the option of a third mode (i.e. mode 3) The selection of a mode of operation shall be either by key switch, access code or equally secure means and shall only be permitted from outside the work zone-Selection of a mode shall not initiate hazardous situations.	*A key switch used for the mode selection.*	***PASS***
1.1.6.2	**Mode 1 - Automatic cycle (automatic production)** The guards shall be closed and/or the protective devices be achieve to permit execution of programmed sequential machine operation under numerical control.	*DNC mode and Auto mode belong to this class*	***PASS***

1.1.6.3	**Mode 2 – Setting** Setting mode is a mode of operation in, which adjustments for the subsequent machining process are performed by the operator. NOTE Assessment of tool or work piece position, e.g. by touching the workpiece with a probe or tool, and programme sequence checking, belong to the setting mode. When any interlocked movable guard is open or a protective device is suspended, powered machine movements shall only be permitted under the following conditions:	*Provided*	***PASS***
	a) Axis movements at maximum rate of 2m/min. or a maximum increment of 10 mm.	*1.2m/min<2m/min*	***PASS***
	These movements shall be selected one axis at a time and may be initiated and maintained by one of the following means: - a hold-to-run control device; - an electronic handwheel; - manual data input (MDI) followed by cycle start together with an enabling device.	*MDI, provided* *Electronic hand wheel provided* *Hold-to-run* *Provided*	***PASS***
	b) Spindle speed shall be limited by its stopping performance which shall not exceed 2 revolutions.	*Spindle should stopped in 2 revolutions after push the stop button.*	***PASS***
	Spindle rotation shall only be initiated and maintained by one of the following means: - a hold-to-run control device - a spindle start control device together with an enabling device. Release of an enabling device shall initiate a category 1 stop in accordance with 9.2.2 of EN 60204-1.	*Hold-to-run control used*	***PASS***
	c) The limits of speed or incremental distance shall be monitored and if exceeded, the power to the drives shall be removed by a controlled stop (Category 1- see 9.2.2 of EN 60204-1).	*This requiremnt has been taken into account during design.*	***PASS***

	d) Means shall be provided to prevent hazardous movement of vertical or slant axes under gravity.	*Non-return valve and motor brake are provided .*	***PASS***
	e) Automatic tool and workpiece changing mechanisms shall remain inhibited. Initiation of their automatic movement shall only be possible by reselection of mode 1. Exception: For maintenance in mode 2 only, the provisions contained in 1.2, 1.3, 1.4 and 1.5 of this table are permitted.	*Considered*	***PASS***
	f) Unguarded swarf/chip conveyor movements shall only be initiated and maintained by a hold-to-run control device.	*No this device*	***NA.***
	g) Where multiple hold-to-run control device locations are provided (e.g. main control station, hand-held pendant), only one shall be functional at a time.	*No this device*	***NA.***
1.1.6.4	**Mode 3 – Optional mode for manual intervention under restricted operating conditions.** When provided, this mode permits use of the machine under manual or numerical control with work zone guards open and/or protective devices suspended under the following conditions:	*No this operation mode.*	***NA.***
	a) This mode shall only be provided when details of the intended application are known and the required skill level of operators shall be defined in the instruction handbook. (see 7.2 g, of clause 7)	*No this operation mode.*	***NA.***
	b) Single axis and multiple axis vector speeds shall be limited to 5 m/min.	*No this operation mode.*	***NA.***

	c) Spindle speed shall be limited by its stopping performance which shall not exceed 5 revolutions. NOTE 1 in order to achieve This stopping requirement it may be necessary to provide tool diameter identification or measurement systems to limit the permitted speed of the spindle for each tool used. NOTE 2 Alternative solutions to this clause have been considered during the development of this standard but no firm conclusions have been reached. This particular problem will be re-visited in a future revision of this standard.	*No this operation mode.*	***NA.***
	d) Execution of a program shall be initiated by a cycle start control device in conjunction with an enabling device and maintained by the enabling device:	*No this operation mode.*	***NA.***
	e) Non-programmed movements shall be achieved as follows:	*No this operation mode.*	***NA.***
	1) Spindle rotation shall be initiated by a spindle start control device together with an enabling device and maintained by the enabling device. Release of the enabling device shall initiate a category 1 stop in accordance with 9.2.2 of EN 60204-1.	*No this operation mode.*	***NA.***
	2) Axis movements may be initiated and maintained by one of the following means: - a hold-to-run control device - an electronic handwheel - manual data input (MDI) followed by cycle start together with an enabling device.	*No this operation mode.*	***NA.***
	f) The limits of speed or incremental distance (defined in b and c) shall be monitored and if exceeded, the power to the drives shall be removed by a controlled stop. (category 1 – see 9.2.2 of EN 60204-1)	*No this operation mode.*	***NA.***
	g) The requirements d), e), f) and g) of mode 2 in 1.1.6.3 shall also apply.	*No this operation mode.*	***NA.***

(A1)	Where ergonomic consideration in the application of Mode 3 make the use of an enabling device impractical (e.g. because the duration of necessary process observation/intervention exceeds an acceptable fatigue time for the machine operator or the manipulation of multiple parameter control devices prevents the sustained operation of an enabling device) then a combination of alternative engineering control measures, to reduce entanglement and crushing risks, shall be substituted for the enabling device. Two examples of accepted alternative engineering control measure combinations are:	*No this operation mode.*	***NA.***
(A1)	h) A safe standing position for the operator that is monitored by an active optical protection device (AOPD) or other approved safety monitoring device, (e.g. a scanning device or light curtain), but excluding the use of a pressure sensitive mat or similar easily defeated device, together with: - a readily accessible emergency stop control device shall be provided plus, - safe edge emergency stop arrangements shall be applied to all moving machine elements that pose a crushing risk plus, - the monitoring for reduced spindle and axes speeds shall satisfy the requirements of EN 954-1:1996, Category 3, and - identification of appropriate personal protective equipment (PPE) shall be provided in the instructions for use (see 7.2 n) and 7.2 o) of this European Standard).	*No this operation mode.*	***NA.***

(A1)	i) Protection against entanglement risk by means of a fixed guard enclosing the rotating spindle and cutter or an AOPD (light curtain) around (or in front of) the rotating spindle and cutter (the position of AOPD) shall fulfil the requirements of EN999) together with: - a readily accessible emergency stop control device shall be provided plus, - safe edge emergency stop arrangements shall be applied to all moving machine elements that pose a crushing risk plus, - the monitoring for reduced spindle and axes speeds shall satisfy the requirements of EN 954-1:1996, Category 3, and - identification of appropriate personal protective equipment (PPE) shall be provided in the instructions for use (see 7.2 n) and 7.2 o) of this European Standard). NOTE 3 Other engineering control measures that provide the equivalent level of risk reduction, to those identified in h) and i) above, may be used. To reduce ejection risks, the cutting speed employed in any Mode 3 application shall be held below the scope of EN ISO 1564 1:2000. NOTE 4 The intended tool should preferably be a solid or one-piece milling cutter.	*No this operation mode.*	***NA.***
1.1.7	Release of trapped persons Means shall be provided for the movement of machine axes for emergency purposes (e.g. release of trapped persons). These means are for example:	*No this hazard*	***NA.***
	a) With power off: -Manually operated relief valves to depressurize systems under pressure; -Manual release of power-actuated brakes provided that weight-balancing exists;	*No this hazard*	***NA.***

	b) With power on: -Manual control facilities of power-piloted valves/ drives: -Control facilities to start counter motions. (see also 7.2 m, of clause 7).	*No this hazard*	***NA.***
1.2	Tool magazine	-	**-**
1.2.1	Access to hazardous movement of the tool magazine shall be prevented by fixed and/or interlocked movable guards (see EN 1088:1995, clause 7 and annexes).	*Movable guards are provided*	***PASS.***
1.2.2	When the interlocked movable guard is open, the tool magazine drive shall be stopped and further movements shall be inhibited.(see also 1.1.5 of this table)	*Interlock guards provided*	***PASS***
1.2.3	Access openings shall be in accordance with EN 547-1, EN 547-2, EN 547-3.	*Considered*	***PASS***
1.2.4	Where whole body access into the tool magazine guard enclosure is foreseen, a presence sensing device (e.g. ESPE, AOPD, PSPD) shall be provided to detect persons in the tool magazine area.	*No this situation.*	***NA.***
1.2.5	Where powered movements with the interlocked guard open are required for tool replenishment, maintenance, or adjustment purposes, this shall be achieved by means of a hold-to-run control to permit a single tool station index movement or a two-hand control device for continuous movement. This device shall be in accordance with 9.2.5.7 Type 3 of EN 60204-1 (see also EN574). Such movement shall either be at a reduced speed (i.e.15 m/min. where only an impact hazard exists; 2 m/min. where a crushing, shearing or trapping hazard exists) or be initiated from control devices positioned at a safe distance from the hazardous machine parts (see EN 194,EN 999). No hazardous machine movement shall arise from the actuation of any magazine sensor or feedback device(see 10.1.4 of EN 60204-1 and 7.2 f, of clause 7 in this standard).	*This requiremnt has been taken into account during design.*	***PASS***

1.2.6	In order to prevent falls or ejections, tools shall be securely held within the holders of the magazine. The design data for tool holding (e.g. limits for maximum mass, moment of inertia, tilting moment, spatial envelope of tools) shall be made available to the user (see 'information for user').	*Relative information provied.*	***PASS***
1.3	Tool changer	-	**-**
1.3.1	Access to hazardous movements from any direction shall be prevented by fixed and/or interlocked movable guards or hazardous movements shall be stopped or inhibited by the actuation of protective devices (see EN 1088, clause 7 and annexes).	*Moveable guard provided*	***PASS***
1.3.2	Where access is required to the tool changer with the guards open or protective devices suspended, powered motion shall only be initiated under the control of an enabling device together with a hold-to-run control device to permit step-by-step movement. When continuous movement is required, a two-hand control (see EN574) at a safe distance from the hazardous situation (see EN999) shall be provided .No hazardous machine movement shall arise from the actuation of any sensor or feedback device (see 10.1.1 of EN 60204-1 and 7.2 f, of clause 7 in this standard). In order to prevent falls or ejections, tools shall be securely held in the tool changer under all operating conditions and/or loss of power.	*No this necessary*	***NA.***
1.4	**Workpiece transfer devices (e.g. pallet changing devices, automatic workpiece changing devices)**	*No this device*	***NA.***
1.4.1	Load/unload positions for operators at workpiece transfer devices shall be located outside the work zone and away from other hazardous mechanisms (e.g. the tool changer).	*No this device*	***NA.***
1.4.2	Access to hazardous movement(s) shall be prevented by means of fixed and/or interlocked movable guards or hazardous movement(s) shall be either stopped or inhibited by the actuation of protective devices.	*No this device*	***NA.***

1.4.3	Where access is required with the guards open or the protective devices suspended, powered motion shall only be initiated under the control of an enabling device together with a hold-to-run device to permit step-by-step movement. When conditions movement is required, a two-hand control device shall be provided. This device shall be in accordance with 9.2.5.7 Type 3 of EN 60204-1 and shall be at a safe distance from the hazardous situation of any sensor or feedback device (see 10.1.4 of EN 60204-1 and 7.2 f, of clause 7 in this standard).	*No this device*	***NA.***
1.5	Swarf/chip collection and removal	--	**-.**
1.5.1	Access to hazardous moving parts of swarf/chip collection and removal systems shall be prevented by means of fixed guards. Guards shall be in accordance with EN 953.	*Guards and warning labels provided.*	***PASS***
1.5.2	Opening an interlocked movable guard, which provides access to the hazardous moving parts of a swarf/chip system shall cause the movement to cease and remain inhibited (see also 1.1.5 and 14.1.1 of this table).	*Movable guard provided. Additional sward collection device will stop*	***PASS***
1.5.3	If movement of a swarf/chip system with an interlocked guard open is essential the movement shall only be permitted under the control of a hold-to-run device with an adjacent emergency stop device. A warming sign shall indicate the hazardous area of the swarf/chip system discharge (see also 7.2 f, of clause7).	*Hold-to-run control is not provided.*	***PASS***
1.6	**Power transmission mechanisms (e.g. driveshafts, belts, pulleys, gears)**	-	**-**
1.6.1	Access to hazardous power transmission parts shall be prevented by means of fixed guards but interlocked movable guards shall be provided where operators have a need to access more frequently once per shift. Guard shall be in accordance with EN 953.	*Appropriate guards provided.*	***PASS***

1.6.2	Opening an interlocked movable guard, which exposes moving power transmission parts, shall cause their movement to cease and remain inhibited. Interlocking provisions shall conform to EN 1088 and as a minimum to category 1 of EN 954-1.	*Considered*	***PASS***
1.6.3	Where the hazardous moving parts can be reached before they come to rest. Guard locking shall be applied to prevent opening of the guard until the hazardous movement has ceased. Delayed unlocking shall be achieved by means of a motion detector or timer control (see 7.2 and 7.3 of EN 1088 and EN 999).	*This requirement has been taken into account during design.*	***PASS***
1.7	Pits	*NA.*	***NA***
1.7.1	Pits in or around a machine shall be covered or secured against falling into them by e.g. - railings; - cables with roll up device; - chains with a warning sign 1 m in front the fall down position.	*No this situation.*	***NA.***
1.7.2	Where access to pits is necessary for observation, maintenance, or adjustment purpose, entry into the pit shall be via interlocked access gates which prevent machine movement in mode 1. Where power machine movements are necessary, machine element may be moved under the condition set out in 1.1.6.3,1.2,1.3,1.4, and 1.5 of this table.	*No this situation.*	***NA.***
1.7.3	Safety distances between moving machine elements and pit walls or other fixed parts shall be in accordance with EN 349. Where these safety distances cannot be achieved, additional protective measure shall be provided to minimise the risk of crushing or trapping.	*No this situation.*	***NA.***
1.8	**Operating platforms (EN ISO 14122)**	-	**-**
1.8.1	- Prevent persons or objects falling from them. Guard-rails and toe plates shall be provided if the height of the platform is more than 500 mm;	*No this device.*	***NA.***

	- Provide sufficient space for the operator(s), i.e. the minimum headroom over platforms (and gangway) shall be 2100 mm and the clear width between guardrails shall be minimum 600 mm, preferably 800 mm;	*No this device.*	***NA.***
	- Have lighting and ventilation for the operating position(s);	*No this device.*	***NA.***
	- Provide safe means of access and egress for the operator, independent of power, to and form the platform in any position;	*No this device.*	***NA.***
	- The design shall be such that the danger zone cannot be reached, e.g. by safe distances or by virtue of fixed or interlocked movable guards with guard locking.	*No this device.*	***NA.***
	- Give protection against swarf/chips and metal working fluid.	*No this device.*	***NA.***
1.8.2	Powered machine movements shall only be possible when an operating platform guard is opened if the requirements of mode 2 or mode 3 are met.	*No this device.*	***NA.***
1.8.3	It shall be possible to control the flow of metal working fluid from the operating platform.	*No this device.*	***NA.***
1.8.4	For telescoping (horizontally or vertically) operating platforms, linked to a machine moving element, protective measures to prevent crushing and collision shall be provided (e.g. expansion bellows, metal roller shutters. Pressure sensitive devices).	*No this device.*	***NA.***
1.8.5	Powered movements of platforms shall only be permitted by the use of hold-to-run control in mode 2 or mode 3, and an emergency stop shall be provided.	*No this device.*	***NA.***
2	*Electrical*		

2.1	**Direct contact** To minimize the hazards of malfunction, shock or burn, all-electrical equipment shall be designed and applied in accordance with EN 60204-1. Means shall be provided to isolate the machine from sources of electrical energy (see 5.3 of EN60204-1: 1997). In particular in reference to EN 60204-1: Means of isolation shall be located at the main electrical enclosure in accordance with 6.2.2(b). All other enclosures shall be in accordance with 6.2.2(a). All live parts shall be protected against direct contact to at least IP2X in accordance with 6.2.2(c).	*Considered ,please also refer to TR EN 60204-1:2006*	***PASS***
2.2	**Indirect contact** The requirements of 6.3 of EN 60204-1: shall be followed.	*Considered ,please also refer to TR EN 60204-1:2006*	***PASS***
2.3	Protection of control gear Enclosures of control gear shall provide a degree of protection of at least IP22 (see EN 60529), except IP55 shall be provided for control gear enclosures within the work zone.	*Appropriate peotection of control gear provided*	***PASS***
4	*Noise generated*		
4.1	Noise reduction methods	*The noise of the machine is Max.77 in working station.*	***PASS***

4.1.1	Control of noise at source When designing machining centres, the information and technical measures to control noise at source given in EN ISO 11688-1 and EN ISO 11688-2 shall be followed. The design shall take into account noise from each source. Appropriate technical measures for reducing noise at the main sound sources of the machining centres are listed below: a) Transmission noise gearbox damping b) Pneumatic exhaust silencers c) Power generation source damping or absorber d) Noise under cutting process e) Cutting tool dumping or absorber f) Work piece change	*The noise of the machine is Max.77 in working station.*	***PASS***
4.1.2	Control of transmission paths Where noise levels must be reduced beyond those achievable by design at source the machine shall be provided with protective measures (e.g. noise enclosures, screens fitted to the machinery, silencers). The above list is not exhaustive alternative technical measures for noise reduction with greater efficiency can be used.	*The noise of the machine is Max.77 in working station.*	***PASS***
6	*Radiation*		
6.5	**Lasers** Built-in laser feedback systems shall be designed to prevent exposure to beam paths or specular reflections (see EN 60825-1)	*No laser is used.*	***PASS***
7	*Generated by materials or substances processed*		
7.1	**Fluids, mists, fumes, and dust**	-	**-**

	Because the materials which may be processed depend on specific applications, it is not possible to provide detailed recommendations for the reduction of the risks in this standard. However for metalworking fluids the following requirements apply:	*Considered*	***PASS***
7.1.1	The system design shall prevent splash, leakage and overflow of the metalworking fluid.	*Considered*	***PASS***
7.1.2	Fluid reservoirs and other system components shall be made of materials to ensure the integrity of the system and information on metalworking fluids to be used shall be given.	*Considered*	***PASS***
7.1.3	The metalworking fluid distribution system and delivery nozzles shall be designed to minimize spray.	*Considered*	***PASS***
7.1.4	Where the generation of harmful fine mists and vapour or smoke is foreseen in the work zone, means for containment shall be provided to prevent their escape and for the addition of integral or external extraction equipment (see EN626).	*No this hazard*	***PASS***
7.1.5	The metalworking fluid capacity shall match the correct function of the machine and be sufficient to avoid excessive heating and subsequent evaporation of the fluid or alternatively coolers shall be provided.	*Several fluids are recommended.relevent information provided in the manual*	***PASS***
7.1.6	The metalworking fluid system shall be capable of delivering sufficient amounts of fluids to prevent the generation of hazardous vapours at the cutting site.	*Considered*	***PASS***
7.1.7	Where it is foreseen to be necessary for operators to place their hands into the work zone, metalworking fluid shall be automatically stopped or diverted.	*When open the interlocked movable guard, the fluid will be stopped*	***PASS***
7.1.8	Tanks shall be fitted with metalworking fluid visual level indication and filling point which are easily accessible	*Level indication provided*	***PASS***

7.1.9	All system components shall be designed to reduce exposure of personnel to metalworking fluids during maintenance.	*Considered*	***PASS***
7.1.10	Means such as filters shall be provided to prevent the accumulation of swarf/chips and other material from metal cutting operations within the machine and the metalworking fluid tank in order to prevent the dissolving of hard metals into fluids	*Filters provided*	***PASS***
7.2	Fire or explosion	-	**-**
	Because of the diverse nature of workpiece materials which may be processed, and metalworking fluids which may be used, it is not possible to provide detailed requirements in this standard for the reduction of fire and explosion risks. Guidance may be found in EN 13478, Fire Prevention and Protection, and EN 1127 and others.	*Relevant information has been provided in the manual.*	***PASS***
7.3	**Minimizing biological and microbiological hazards in metalworking fluids**	-	**-**
7.3.1	The total content of the metalworking fluid systems shall be circulated in normal use so that no stationary volume within the tank exists except where settlement is required by design.	*This requiremnt has been taken into account during design.*	***PASS***
7.3.2	To avoid stagnant areas remaining within the machine metalworking fluid shall drain from the machine towards the tank under gravity.	*This requiremnt has been taken into account during design.*	***PASS***
7.3.3	Discharge pipework shall have sufficient diameter and slope to minimize sludge settlement.	*This requiremnt has been taken into account during design.*	***PASS***
7.3.4	The metalworking fluid system shall be provided with filtration for the removal of sediment (see 7.1.9 of this table).	*This requiremnt has been taken into account during design.*	***PASS***

7.3.5	When sediment build-up occurs, cleaning shall be made easy by design. Cleaning shall not require drainage of the whole system.	*This requiremnt has been taken into account during design.*	***PASS***
7.3.6	The inside of tanks shall not contribute to the growth of bacteria (e.g. smooth unpainted surface).	*This requiremnt has been taken into account during design.*	***PASS***
7.3.7	Provision shall be made to empty metalworking fluid containers completely.	*This requiremnt has been taken into account during design.*	***PASS***
7.3.8	Metal working fluid containers shall have covers designed to prevent the ingress of foreign matter.	*This requiremnt has been taken into account during design.*	***PASS***
7.3.9	Contamination of the metalworking fluid by oil or grease from external sources such as lost machine lubrication shall be avoided or means shall be provided for their systematic removal.	*This requiremnt has been taken into account during design.*	***PASS***
7.3.10	Means shall be provided to enable: a) fluid samples to be taken, b) sumps and pipework to be cleaned and c) filters to be changed Which minimize operators' exposure to fluid.	*This requiremnt has been taken into account during design.*	***PASS***
8	*Neglect of ergonomic principles in machinery design*		

8.1	**Unhealthy posture or excessive efforts (repetitive strain)** Machines shall be designed in accordance with ergonomic principles so as to avoid excessive effort, unhealthy posture or fatigue during use and in particular - Workpieces, tooling and accessories shall be easily moved. Lifting equipment may be required for parts over 10 kg in weight. (see EN 1005 series). - Where work handling equipment, hoists, or lifting devices are required, provision shall be made for their installation and operation (e g. by making work zone access possible through the top of the machine when guards are open). - Where parts are manually loaded, their fixtures, tool pockets or tool holder shall be positioned to prevent excessive reaching into the machine (see EN 1005 series), - Control devices to operate damping or gripping devices (e.g. drawbars, chucks) shall be positioned to avoid excessive reaching whilst supporting the weight of the tool or workpiece, (e.g. application of foot controls). (See clause 4 of EN 894-3:2000); - Movable guards shall be power operated where use of them will lead to repealed excessive effort (see also 4.2.2.6 of EN 292-2: 1991). *(Note: valid version of ISO 12100 applies).*	*This requiremnt has been taken into account during design.*	***PASS***
8.2	**Inadequate consideration of hand-arm or foot-leg anatomy** The positioning, labeling and illumination of control devices and points for observation or service such as those for filling and draining of tanks shall be chosen to satisfy ergonomic principles (see EN 614-1, -2; EN 894-1, EN 694-2, EN 894-3: EN 1005 series).	*This requiremnt has been taken into account during design.*	***PASS***

8.4	Inadequate local lighting Lighting within the work zone shall be provided in accordance with EN 1837 and be a minimum of 500 lux as measured at the tool tip with the interlocked movable guard open.	*Adequate lighting is provided*	***PASS***
8.6	**Human error, human behavior**	-	**-**
8.6.1	Identification of pockets in tool magazines shall be clear and unambiguous.	*Appropriate identification provided.*	***PASS***
8.6.2	Equipment and accessories indicated in the Instruction handbook and not readily available, for adjusting and maintaining the machine, shall be provided (see also 7.2 d, of clause 7).	*Provided*	***PASS***
8.7	**Inadequate design location or identification of manual controls** Input devices (e.g. key boards, key pads, push buttons) shall be in accordance with EN 894-1, EN 894-3.	*This requiremnt has been taken into account during design.*	***PASS***
8.8	**Inadequate design or location of visual display units** Screen displayed information shall be clear and unambiguous. Reflections and glare shall be minimized (see EN 894-1, EN 894-2)	*This requiremnt has been taken into account during design.*	***PASS***
10	**Unexpected startup unexpected overrun / over-speed**	-	**-**
10.1	Failure / disorder of the control system Control systems shall be designed in accordance with EN 60204-1, EN 982, and EN 983. Unexpected machine movements (e.g. spindle rotation, am movement, tool release from the spindle) shall be prevented (see EN 1037).	*The machine will not start unexpected*	***PASS***

10.2	Restoration of energy supply after an interruption Control system design shall ensure that automatic restart is prevented and re-actuation of the start control is always required to initiate powered movement following for example any change of mode, selection of optional function, system re-set, guard interlock interruption, restoration of adequate pressure or voltage, or correction of a system failure (see EN 1037).	*This requiremnt has been taken into account during design.No automatic restart will happen.*	***PASS***
13	Failure of the power supply	-	**-**
13.1	Energy supply failures	-	**-**
13.1.1	System shall be designed such that a line rupture in any circuit (e.g. broken wire, pipe or hose) will not result in the loss of a safety function(see EN 60204-1, EN982, EN983).	*Considered,please refer to EN 60204-1*	***PASS***
13.1.2	Interruption or failure of any energy supply shall not result in a hazard. Inadequate pressure or voltage shall be detected and the machine cycle shall be interrupted or inhibited.	*Considered*	***PASS***
13.1.3	Means shall be provided for the isolation of power supplies (see 5.1.6 of EN 982:1996, 5.1.6 of EN 983:1996 and 5.3 of EN 60204-1:1997) and dissipation of stored energy (see 5.3 of EN 1037:1995).	*Main power switch and appropriate valves are provided .*	***PASS***
14.1	**Safety functions of control systems**	-	**-**
14.1.1	Safety functions of control systems shall be implemented using safety-related part designed, constructed and applied in accordance with EN 954-1. In general, when activated, the input device to the safety function shall initiate a Category 1 stop, according to 9.2.2 of EN 60204-1, of the hazardous movements and preclude unexpected startup Safety functions shall meet the requirements for the categories of EN 954-1 as listed below.	*EN 954-1 considerd,appropriate category selected*	***PASS***

14.1.1 cont.	Safety function initiated or maintained by: a) EN 954 cat. 3 for Interlocking device associated with a movable guard applied to: - work zone - transmissions, drive mechanisms ++ - tool changer , tool magazine - work loading/unloading device - pallet changer - swarf/chip conveyor ++ - access to pits, gates in perimeter fencing ++ b) EN 954 cat. 3 for Hold-to-run control including to 2-hand control ** c) EN 954 cat. 1 for Enabling device d) EN 954 cat. 3 for Speed limit control, including tool identification (see 17.2) e) EN 954 cat. 1for Control of tool clamping f) EN 954 cat. 3 for Electrosensitive protective equipment (ESPE) The ESPE device shall meet the requirements of a type 4 (see EN 61496-1) g) EN 954 cat. 3 for Emergency stop h) EN 954 cat. 3 for Pressure sensitive protective devices (PSPD) The PSPD by itself shall meet the requirements of 4.15 of EN 1760-1:1997 ++ frequency of access is less than once per hour, then a Category 1 may be used. ** If this category cannot be achieved, then this function shall be combined with an enabling device. Monitoring shall be achieved by one of the following methods: - separate channels; continuous automatic monitoring (see 3.14 of EN 292-1) *(Note: valid version of ISO 12100 applies)* - other appropriate means (e.g. current, velocity and position loops in servo drives). *Note: See also 11 of EN 60204-1, IEC 61508, IEC 61511and IEC62061.*	*Appropriate category used for all the control system and interlock device.*	***PASS***

14.1.2	a) Each machine shall be fitted with one or more Emergency Stop control devices in accordance with 10.7 of EN 60204-1.	*One emergency is provided on main control panel*	***PASS***
	b) The Emergency Stop function shall be category 0 in accordance with 9.2.5.4.2. of EN 60204-1, except for mechanisms requiring a sequenced shut down where category 1 stop shall be implemented.	*Category 0 stop is provided.*	***PASS***
15	Errors of fitting	-	**-**
15.1	Means shall be embodied in the design of machine parts to prevent errors of fitting and/or the machine parts shall be marked with instructions for fitting.	*Considered*	***PASS***
17	Falling or ejected objects or fluids	-	**-**
17.1	Containment of processed materials and fluids Guards shall be provided to retain or contain the foreseeable ejection of processed material and metalworking fluid. Such guards shall be designed in accordance with clause 8 of EN 953:1997. These may take the form of a deflecting adjustable guard fixed to the spindle head to area or by a fixed guard covering the whole area of ejection (see 7.2.1 of clause 7).	*Enough guards are provided*	***PASS***
17.2	**Tool retention** For power operated spindle drawbars, the drawbar shall be designed to avoid risks from tool ejection if the power supply fails. The drawbar mechanism shall be monitored so that a failure to achieve correct registration or clamping of the retention knob on the tool shall inhabit the spindle start control in all operating modes. Unclamping of the tool by releasing of the drawbar shall be inhibited during spindle rotation.	*This requiremnt has been taken into account during design.*	***PASS***
18	Loss of stability / overturning of machinery	-	**-**

18.1	Machines shall be designed and constructed so that they are stable under foreseeable operating conditions, and without risks of overturning, falling or unexpected movement. When the use of foundation bolting is one of the measures used to help prevent overturning, manufacturers shall specify the bolts and foundation requirements necessary (see also 7.2 b, of clause 7).	*Bolts should be used in mounting the machine.information provided in the manual*	***PASS***
19	Slip, trip and fall of persons	-	-
19.1	**General requirements** Places of work and means of access on machines (such as stairs, integral ladders, platforms and walkways) shall be designed to minimize the likelihood of slip, trips, and falls by the provision of hand holds, foot holds, and where necessary slip resistant surfaces. Warnings about hazards and precautions shall be given in clause 7-Information for Use.	*Considered, information provided in the manual*	***PASS***
19.2	Contamination of floors Where a fluid application system is provided, it shall be designed to prevent splash, spray and mist outside the machine enclosure. Information for Use shall draw attention to the importance of preventing fluid spillage onto the surrounding area and thus creating a slipping hazard (see 7.2f, of clause 7)	*Considered, information provided in the manual*	***PASS***

19.3	High parts of the machine which must be accessible for maintenance or trouble shooting Where frequent access is required (i.e. at least once per shift), means of access shall be provided (see group A for examples). If only occasional access is required, one or both of the examples in B shall be provided. A - permanent means of access (e.g. stairways, ladders see EN IS014122-3); - fixed working platforms with fixed railings and toe boards against falling hazards (see EN ISO 14122-2), B -supports for safely bell: -means to attach movable ladders.	*No this situation*	***NA.***
7	Information for use	**-**	**-**
7.1	General	**-**	**-**
	Machine warning devices (e.g. audible and visual signals), markings (e.g. signs, symbols), and instructional material (e.g. manuals for operation, maintenance) shall be in accordance with EN 292-2: 1991, clause 5. *(Note: valid version of ISO 12100 applies).*	*EN ISO 12100 considered .*	***PASS***
7.2	Instruction handbook	**-**	**-**
	In addition to the requirements of 7.1, each machine shall be accompanied by an instruction handbook containing:		**-**
	a) the name and address of the manufacturer/supplier;	*Provided,please refer to the mnual*	***PASS***
	b) any necessary information for safe installation of the machine and its guarding system (e.g. floor conditions, services, anti-vibration mountings, guarding fitting);	*Provided,please refer to the mnual*	***PASS***

	c) instructions for how the initial test and examination of the machine and its guarding system are to be carried out before first use and being placed into production;	*Provided,please refer to the mnual*	***PASS***
	d) instructions for periodic maintenance, test and examination of the machine, guards, protective devices and other safety critical parts (e.g. spindle braking elements);	*Provided, please refer to the mnual*	***PASS***
	e) instructions for any test or examination necessary after change of component parts or addition of optional equipment (both hardware and software) to the machine which can affect the safety functions;	*Provided,please refer to the mnual*	***PASS***
	f) instructions for safe operation, setting and maintenance including safe working practices and the training necessary to achieve the required skill level of operators;	*Provided,please refer to the mnual*	***PASS***
	g) the intended application of the machine when mode 3 (see Table 2, 1.1.6.4) is provided;	*Provided,please refer to the mnual*	***PASS***
	h) instructions on control systems including circuit diagrams for electrical, hydraulic, and pneumatic systems;	*Provided,please refer to the mnual*	***PASS***
	I) the noise levels determined by methods specified in 7.3;	*Provided,please refer to the mnual*	***PASS***
	J) descriptions of possible failure modes and advice on detection and prevention by periodic maintenance and correction;	*Provided,please refer to the mnual*	***PASS***
	k) the specification for any fluid to be used in lubrication, braking, or transmission system;	*Provided,please refer to the mnual*	***PASS***
	I) guidance on correct selection, preparation, application, and maintenance of metal working fluids and/or lubricants;	*Provided,please refer to the mnual*	***PASS***
	m) provide guidance on the means for the release of persons trapped in the machine;	*Provided,please refer to the mnual*	***PASS***

	n) information describing residual risks (e.g. conditions where noise levels are likely to exceed 85 dB (A), hazards arising from sharp or hot tools/components);	*Provided,please refer to the mnual*	***PASS***
	o) recommendations on additional protective measures (e.g. personal protective equipment);	*Provided,please refer to the mnual*	***PASS***
	p) information defining the limits for the maximum mass, moment of inertia, tilting moment, and spatial envelope of tools for machines supplied with automatic tool magazine systems;	*Provided,please refer to the mnual*	***PASS***
	q) information defining the limits for the spatial envelope, maximum mass, position of the centre of gravity of the workpiece and work holding fixture;	*Provided,please refer to the mnual*	***PASS***
	r) procedures to avoid errors of fitting during maintenance of the machine.	*Provided,please refer to the mnual*	***PASS***
	A check list should be provided for the points d), e), and f) and include drawings and diagrams.	*Provided,please refer to the mnual*	***PASS***
7.3	Noise declaration	-	-
	Noise measurement shall be made according to EN ISO 3746 or EN ISO 11202 as appropriate. Guidance for noise emission measurement is given in annex D.	*Provided,please refer to the mnual*	***PASS***

	The declaration shall be made concerning the airborne noise emission (see annex A 1.7.4 f) of EN 292-2;1991/A1.1995) *(Note: valid version of ISO 12100 applies)*. The declaration and verification of noise emission values shall be according to EN ISO 4871:1997, using the dual-number form of declaration. The declaration shall be accompanied by a statement of the measuring method used and the conditions applied during the test and values for the uncertainty K (see EN ISO 4871) as follows: 4 dB when using EN ISO 3746:1995, 2 dB when using EN ISO 3744:1995. For example, for a sound power level lwA = 93 dB (measured value) Uncertainty K= 4 dB for measurements made in accordance with EN ISO 3746:1995	*Provided,please refer to the mnual*	***PASS***
	If the accuracy of the declared emission values is to be verified, measurements shall be made using the same method and the same operating conditions as those employed for the declaration.	*Provided,please refer to the mnual*	***PASS***
	The noise declaration shall be accompanied by the following statement: "The figures quoted are emission levels and are not necessarily safe working levels. Whilst there is a correlation between the emission and exposure levels, this cannot be used reliably to determine whether or not further precautions are required. Factors that influence the actual level of exposure of the workforce include characteristics of the work room, the other sources of noise, etc. i.e. the number of machines and other adjacent processes. Also the permissible exposure level can vary from country to country. This information^ however, will enable the user of the machine lo make a better evaluation of the hazard and risk."	*Provided,please refer to the mnual*	***PASS***
7.4	**Marking** Each machine shall be marked in a distinct and permanent manner with:	**-**	**-**

	a) manufacturer's name, address, model number and reference number, year of manufacture;	*Provided,please refer to the nameplate*	***PASS***
	b) mass of machine;	*Provided,please refer to the nameplate*	***PASS***
	c) supply data for electrical and where applicable, hydraulic, and pneumatic systems (e.g. minimum pneumatic pressure);	*Provided,please refer to the nameplate*	***PASS***
	d) lifting points for transportation and installation purposes where applicable;	*Appropriate warning label provided*	***PASS***
	e) speed range where applicable.	*Provided*	***PASS***
	Guards, protective devices and other parts that are part of the machine but not fitted shall be marked with identification data. Any other information needed for fitting shall be provided (see 7.2 b, of clause 7).	*All the appropriate information has been provided.*	***PASS***

3.3 EN60204-1 test report

1	Scope	-
	This part of EN 60204 applies to the application of electrical and electronic equipment and systems to machines not portable by hand while working. Including a group of machines working higher level system aspects	*Pass.* *CNC Automatic Cutting Machines are within this scope.*
	This part is applicable to the electrical equipment or parts of the electrical equipment that operate with nominal supply voltages not exceeding 1000V for alternating current and not exceeding 1500V for direct current, and with nominal frequencies not exceeding 200Hz	*Pass.* *The nominal supply voltage for these machines is AC 380-400V, and the nominal frequency is 50*
2	Normative references	-
3	Definitions	-
4	General requirements	-
4.1	General considerations (EN 1050; hazards, safeguarding (EN 292-2 cl. 4), inquiry form etc.)	*Pass* *Covered by Machinery Directive*
4.2	Selection of equipment	-
4.2.1	General (compliance with EN or IEC standards)	*Pass* *Evidence of compliance with relevent EU requirement provided for components:*
4.2.2	Electrical equipment in compliance with the IEC 60439 series	*Pass* *No this equipement*
4.3	Electrical supply (+/-10%, +/-1Hz, harmonics, unbalance, impulses, interruption, dips etc.)	*Pass* *Considered,relevent information provided in the manual*
4.4	Physical environment and operating conditions	-
4.4.1	General (see annex B)	*Pass* *See below*
4.4.2	Electromagnetic Compatibility (see EMC directive)	*Pass* *Considered*
4.4.3	Ambient Air Temperature (5-40°C) (see annex B)	*Pass* *Capable of operation of 5-40°C* *Relevant information provided in*

		the manual
4.4.4	Humidity (30-95%)	*Pass* *Capable of operation at humidity 30-95%* *Relevant information provided in the manual*
4.4.5	Altitude (1000m)	*Pass* *Capable of operation at altitude of 1000m*
4.4.6	Contaminants (see 12.3 and annex B for details)	*pass* *covered by 11.3* *Relevant information provided in the manual*
4.4.7	Ionizing and non-ionizing Radiation (see annex B)	*NA.* *No this hazard*
4.4.8	Vibration, Shock and Bump (see annex B)	*NA.* *No this hazard*
4.5	Transportation and storage (-25-55°C/70°C)	*Pass* *Capable of transportation of -25-55°C* *Relevant information provided in the manual*
4.6	Provision for handling (see 14.4.6)	*Pass* *Considered*
4.7	Installation (EN's for ergonomic design)	*Pass* *Considered,* *Relevant information provided in the manual*
5	Incoming supply conductors terminations and devices for disconnecting and switching off	-
5.1	Incoming supply conductor terminations	-
	Single or multiple power supply	*Pass.* *Single power supply.* Incoming terminal marked with L1, L2, L3, PE
	The supply conductors are terminated at the supply disconnection device if not, the separate terminals shall be provided	*Pass.* *Terminated at the supply disconnection device.*

	If a neutral conductor is used, it shall be indicated clearly in the technical documentation	*Not applicable.* *Not neutral has been used.*
	Labelled N shall be provided for the neutral conductor	*Not applicable.* *Not neutral has been used*
	No connection between the protective bonding circuit and the neutral conductor	*Not applicable.* *Not neutral has been used*
	All terminals for the incoming supply connection shall be identified clearly	*Pass.* *All of them have been identified clearly.*
	See 17.8 for the providion of the instructions of maintenance	*Pass* *Please see the clause 17.8*
5.2	Terminal for connection to the external protective earthing system	-
	Shall be in the vicinity of the associated phase conductor terminals	*Pass.*
	Cross-sectional area of the external protective copper conductor according to table 1	*Pass.*
	Marking of the external protective conductor with the letters “PE”	*Pass.*
	Other protective terminals shall be marked with the symbol ⏚	*Pass.*
	All protective terminals shall be coloured by use of the bicolor combination Green-And-Yellow	*Pass.*
5.3	Supply disconnecting (isolating) device	-
5.3.1	General	-
	Shall disconnect (isolate) the electrical equipment of the machine from supply when required	*Pass.* *Disconnect the electrical equipment of the machine from supply.*
	If two or more supply disconnecting devices are provided, protective interlocks shall be used	*Not applicable.*
5.3.2	Type	-
	a) Switch-disconnector according to en60947-3 b) A disconnector with auxiliary contact c) Circuit breaker according to EN 60947-2 d) Plug/ socket combination for a machine with a rated current not exceeding 16 A and a total power rating not exceeding 3 kW	*Pass.* *c).*
5.3.3	Requirements	-

	Have one OFF and one ON position only	*Pass.*
	Marked clearly with "I" and "O"	*Pass.*
	Have a reset(tripped) position between "O" and "I"	*Pass.*
	Have an external operating handle	*Pass.*
	The handle should be Black or Grey	*Pass.*
	Could be locked in the OFF position	*Pass.*
	Disconnect all live conductors of its power supply circuit	*Pass.*
	Sufficient breaking capacity	*Pass.*
5.3.4	Operating handle	-
	Shall be easily accessible and located:0.6 m~1.9 m	*Pass.* *Above 0.6m.*
5.3.5	Excepted circuits	-
	Have their own disconnecting device (Recommended)	*Not applicable.* *No excepted circuit has been found.*
	If no disconnecting device, the relevant safety requirements shall be complied with	*Not applicable.* *No excepted circuit has been found.*
5.4	Devices for switching off for prevention of unexpected start-up	-
	Unexpected start-up shall be prevented (Devices described in 5.3.2 may fulfil this function)	*Pass* *Main disconnet*
5.5	Devices shall be provided for disconnecting (isolating) electrical equipment to enable work to be carried out without a risk from electric shock or burn	*Pass.*
5.6	Protection against unauthorized, inadvertent and/or mistaken connection	-
	The devices described in 5.4 and 5.5 shall be equipped with such function	*Pass* *Main disconnet provided*
6	Protection against electric shock	-
6.1	General	*See the relevant clauses.*
6.2	Protection against direct contact	-
6.2.1	General	-
	Either 6.2.2 or 6.2.3 and, where applicable, 6.2.4 shall be applied	*See the relevant clauses.*
	When the equipment is located in places open to	*Not applicable.*

	all persons, measures of either 6.2.3 or 6.2.2 with a min. degree of protection against direct contact corresponding to IP4X or IPXXD shall be applied	*This machine shall be located in the factory, and be operated by the authorized persons.*
6.2.2	Protection by enclosures	-
	Min protection degree for live parts: IP2X or IPXXB	*Pass.* *IP2X.*
	Min. protection degree for top surface:IP4X or IPXXD	*Pass.* *IP4X.*
	Opening an enclosure shall only be possible under one of the following conditions:	-
a)	The use of a key or tool is necessary by skilled or instructed persons	*Pass.*
	Min. protection degree for live parts on the inside of doors:IP1X or IPXXA	*Pass.* *IP2X.*
	Min. protection degree for live parts inside the unclosure:IP2X or IPXXB	*Pass.* *IP2X.*
b)	The disconnection of live parts inside the enclosure before the enclosure may be opened (Use of the supply disconnecting device)	*Pass.*
	Min. protection degree for all parts are still have live after switching off the disconnecting device:IP2X or IPXXB	*Not applicable.*
	Such parts shall be marked with a warning sign:⚠	*Not applicable.*
c)	Opening without the use of a key or a tool and without disconnection of live parts shall be possible only when the min. protection degree is IP2X or IPXXB	*Not applicable.* *No this kind of situation.*
6.2.3	Protection by insulation of live parts	-
	Live parts shall be covered by insulation which can only be removed by destruction	*Pass.*
	Such insulation shall withstand the mechanical, chemical, electrical and thermal stresses under normal service conditions	*Pass.*
6.2.4	Protection against residual voltages	-
	After disconnecting, any exposed conductive part having a residual voltage that shall be discharged to 60V or less within 5 seconds	*Pass.*

	If mentioned above is not possible, a warning notice drawing shall be provided	*Not applicable.*
	If the withdrawal of plugs or similar devices would make the exposure of the conductors (e.g. pins),the discharge time shall not exceed 1 second such conductor shall have the protection degree at least IP2X or IPXXB	*Not applicable.* *No this kind of situation has been found.*
6.2.5	Protection by barriers	-
	For protection by barriers, see 412.2 of IEC 60364-4-41	*Not applicable.*
6.2.6	Protection by placing out of reach or protection by obstacles	-
	For protection by placing out of reach see 412.4 of IEC 60364-4-41	*Not applicable.*
	For protection by obstacles see 412.3 of IEC 60364-4-41	*Not applicable.*
	For collector wire systems or collector bar systems with a degree of protection less than IP2X see 13.8.1	*Not applicable.*
6.3	Protection against indirect contact	-
6.3.1	General	-
	For each circuit or part, at least one of the measures in accordance with 6.3.2 to 6.3.3 shall be applied	*See the following descriptions.*
6.3.2	Measure to prevent the occurrence of a hazardous touch voltage	-
6.3.2.1	General	-
6.3.2.2	Protection by use of class II equipment or by equivalent insulation	-
	Application of class II equipment or equivalent insulation	*Pass.* *Appropriate insulations have been provided.*
6.3.2.3	Protection by electrical separation	-
	Application of electrical separation	*Pass.*
6.3.2.4	Supply system design	-
	Application of a supply system designed with its neutral point either insulated from or having a high impedance to earth	*Not applicable.*
6.3.3	Protection by automatic disconnection of supply	-

	Use of the automatic disconnection of supply	*Not applicable.*
6.4	Protection by the use of PELV	-
6.4.1	General requirements	-
	PELV (protective extra-low voltage) circuits shall satisfy all of the conditions specified in this clause	*Not applicable.* *No PELV circuit has been used.*
6.4.2	Sources for PELV	-
	The sources for PELV shall be one of the conditions specified in this clause	*Not applicable.* *No PELV circuit has been used.*
7	Protection of equipment	-
7.1	General	-
7.2	Over current protection	-
7.2.1	General	-
7.2.2	Supply conductors	-
	The supplier is not responsible for providing the over current device for the supply conductors	*Pass.*
	Installation diagram with data necessary for selection of the over current protective device	*Pass.*
7.2.3	Power circuits	-
	All conductors shall be protected against over current (except earthed neutral conductor)	*Pass.*
	Cross-section area of neutral conductor	*Not applicable.* *No neutral conductor has been used.*
	For neutral conductors smaller than phase conductors then IEC 364-4-473 shall apply	*Not applicable.* *No neutral conductor has been used.*
	In IT-systems, it is recommended that the neutral conductor is not used	*Not applicable.*
7.2.4	Control circuits	-
	Conductors of control circuits connected to the supply voltage and of circuits feeding control circuit transformers shall be protected against over current in accordance with 7.2.3	*Pass.*
7.2.5	Socket outlets and their associated conductors	-
	Over current protection devices shall be provided in the unearthed live conductors	*Pass.*
7.2.6	Lighting circuits	-
	All unearthed conductors of circuits supplying	*Pass.*

	lighting shall be protected against the effects of short circuits by the provision of over current devices separate from those protecting other circuits	
7.2.7	Transformers	-
	Transformers shall be protected against Over current in accordance with IEC 60076-5 and IEC 60743 as appropriate	*Pass.* *All transformer have been protected against over current.*
	The type and setting of the overcurrent protective device should be in accordance with the recommendations of the transformer supplier	*Not applicable.* *No transformer has been used.*
7.2.8	Location of over current protective device	-
	Over current protective device shall be located at the point where the conductors to be protected are connected to their supply	*Pass.*
7.2.9	Over current protective devices	-
	Sufficient breaking capacity	*Pass.*
	Where fuses are used, a type readily available in the country of use shall be selected, or arrangement shall be made with the use for the supply of spare parts	*Pass.*
7.2.10	Rating and setting of over current protective devices	-
	The rated current of fuses or the setting current of other over current protective devices shall be selected as low as possible but adequate for the anticipated over currents	*Pass.*
	The rated current or setting of an over current protective device is determined by the current carrying capacity of the conductors to be protected by that device in accordance with 13.4	*Pass.*
7.3	Overload protection of motors	-
	Overload protection of motors shall be provided for each motor rated at more than 0.5kW	*Pass.* *The overload protection is provided.*
	In applications where an automatic interruption of the motor operation is unacceptable, the overload detection shall give a warning signal to which the operator can respond	*Not applicable.*

	Detection of overload shall be provided in each live conductor excepted for the neutral conductor	*Pas.* *This function has been provided.*
	For motors having single-phase or d.c. power supplies. Detection in only one unearthed live conductor is permitted	*Not applicable.* *The detection are in each unearthed live conductors.*
	Automatic restarting of any motor after the operation of overload protection shall be prevented	*Pass.* *No automatic restarting function has been used.*
7.4	Abnormal temperature protection	-
	Use of abnormal temperature protection	*Not applicable.* *No need.*
7.5	Protection against supply interruption or voltage reduction and subsequent restoration	-
	Where a voltage drop or a supply interruption can cause a hazardous condition, damage to the machine, or to the work in progress, under voltage protection shall be provided	*Not applicable.* *No this kind of hazard has been found.*
	The operation of the under voltage device shall not impair the operation of any stopping control of the machine	*Not applicable.* *No under voltage device is used.*
	Upon restoration of the voltage or upon switching on the incoming supply, automatic or unexpected restarting of the machine shall be prevented	*Pass.* *Automatic of unexpected restarting of the machine can be prevented.*
	Where only a part of the machine or of the group of machines working together in a coordinated manner is affected by the voltage reduction or supply interruption, the under voltage protection shall initiate appropriate control responses to ensure co-ordination	*Not applicable.*
7.6	Motor over speed protection	-
	Use of the motor over speed protection	*Not applicable.*
7.7	Earth fault/residual current protection	-
	Use of earth fault/residual current protection for automatic disconnection	*Not applicable.*
7.8	Phase sequence protection	-
	Where an incorrect sequence of the supply voltage can cause a hazardous condition or damage to the machine, protection shall be provided	*Not applicable.*

7.9	Protection against over voltage due to lighting and to switching surges	*Not applicable.*
	Protection devices can be provided to protect against the effects of over voltages due to lighting or to switching surges	*Not applicable.*
8	Equipotential bonding	-
8.1	General	-
8.2	Protective bonding circuit	-
8.2.1	General	-
	On mobile machines with on-board power supplies, it shall be connected to a protective bonding terminal to provide protection against electric shock	*Not applicable.* *Not a mobile machine with on-board power supply.*
	When a mobile machine is also capable of being connected to an external incoming supply, the protective bonding terminal shall be the connection point for the external protective conductor	*Not applicable.*
	All parts of the protective bonding circuit shall be so designed that they are capable of withstanding the highest thermal and mechanical stresses	*Pass.* *This requirement has been complied with.*
	Any structural part of the electrical equipment or of the machine may be used as part of protective bonding circuit	*Pass.* *They have been used as part of protective bonding circuit.*
	If an IT distribution system is used, the machine structure shall be sued as part of the protective bonding circuit in conjunction with an earth fault supervision system	*Not applicable.*
	The structural bonding is not required where all the equipment provided is in accordance with 6.3.2.2	*Pass.*
8.2.2	Protective conductors	-
	Protective conductors shall be identified according to 14.2.2	*Pass.* *See clause 14.2.2 in detail.*
	Copper conductors should be used	*Pass.*
	Where a conductors material other than copper is used, its electrical resistance per unit length shall not exceed that of the allowable copper conductor and such conductors shall not be less than 16	*Not applicable.* *Only copper conductors are used.*

	mm^2 in cross-sectional area	
	The cross-sectional area of protective conductors shall be determined according to the requirements of: -543 of IEC 60364-5-54; or -7.4.3.1.7 of IEC 60439-1, as appropriate	*Pass.* *They have been used according to these requirements.*
8.2.3	Continuity of the protective bonding circuit	-
	All exposed conductive parts shall be connected to the protective bonding circuit	*Pass.* *All the parts have been connected.*
	Where a part is removed for any reason, the protective bonding circuit for the remaining parts shall not be interrupted	*Pass.*
	Connection and bonding points shall be so designed that their current-carrying capacity is not impaired by mechanical, chemical, or electrochemical influence	*Pass.*
	Metal ducts of flexible or rigid construction and metallic cable sheathes shall not be used as protective bonding conductors	*Pass.* *No this kind of construction has been used as protective bonding conductor.*
	Nevertheless such metal ducts and the metal sheathing of all connecting cables shall be connected to the protective bonding circuit	*Not applicable.* *No metal duct or metal sheathing has been used.*
	Where the electrical equipment is mounted on lids, doors, or cover plates, continuity of the protective bonding circuit shall be ensured and it is recommended that a protective conductor is used	*Pass.*
	Otherwise fastenings, hinges or sliding contacts designed to have a low resistance shall be used	*Pass.*
	The continuity of the protective conductor in cables that are exposed to damage shall be ensured by appropriated measures	*Pass.* *Appropriate protection has been provided.*
	For requirements for the continuity of the protective conductor using collector wires, collector bars and slip-ring assemblies (see 13.8.2)	*Not applicable,* *No this kind of device is used.*
8.2.4	Exclusion of switching devices from the protective bonding circuit	-

	Shall not incorporate a switching device, an over current protective device nor a means for current detection for such devices	*Pass.*
	The only means permitted for interrqution shall be carried out by instructed or skilled persons by using a tool	*Pass.*
8.2.5	Parts that need not to be connected to the protective bonding circuit	-
	Screws, rivets, and nameplates and to parts inside an enclosure, are not necessary to connect to the protective bonding circuit	*Pass.*
8.2.6	Interruption of the protective bonding circuits	-
	The protective bonding circuit shall be interrupted only after the live conductors have been interrupted, and shall be re-established before any live conductor is reconnected	*Pass.*
	Metallic housings of plug/socket combinations shall be connected to the protective bonding circuit except where used for PELV	*Pass.*
8.2.7	Protective conductor connecting points	-
	All protective conductors shall be terminated in accordance with 14.1.1	*Pass.*
	Shall have no other function and shall not be used to attach or connect appliances or parts	*Pass.*
	Use of earthing symbol ⏚	*Pass.*
	By the bicolor combination GREEN-AND-YELLOW	*Pass.*
8.3	Bonding for operational purposes	-
	Use of bonding for operational purpose	*See the following descriptions.*
8.3.1	General	-
8.3.2	Bonding to the protective circuit	-
	One method for protection against unintended operation as a result of insulation failure is achieved by connection one side of a control circuit fed by a transformer to the protective bonding circuit	*Pass.* *The measure described in this clause has been used.*
8.3.3	Bonding to a common reference potential	-
	Use of bonding to a common reference potential	*Pass.*
9	Control circuits and control functions	-

9.1	Control circuits	-
9.1.1	Control circuit supply	-
	Transformers shall be used for supplying the control circuits	*Pass.* *The transformers have been used.*
	Transformers are not mandatory for machines with a single motor starter and a maximum of two control devices	*Not applicable.*
9.1.2	Control circuit voltages	-
	The nominal voltage shall not exceed 277 V when supplied from a transformer	*Pass.* *The nominal voltage for control circuit is 110/220V.*
9.1.3	Protection	-
	Over current protection shall be provided according to 7.2.4 and 7.2.10	*Pass.* *The over current protection has been provided.*
9.1.4	Connection of control devices	-
	Appropriate connection for control devices	*Pass.*
9.2	Control functions	-
9.2.1	Start functions	-
	Start functions shall operate by energizing the relevant circuit	*Pass.*
9.2.2	Stop functions	-
	Each machine shall be equipped with appropriate stop functions	*Pass.*
9.2.3	Operating modes	-
	When hazardous conditions can arise from mode selection, such selection shall be prevented by suitable means	*Pass.* *No hazardous condition can arise when model selection operation.*
	Mode selection by itself shall not initiate machine operation (A separate action by the operator shall be required)	*Not applicable.* *No automatic mode selection.*
	Safeguarding shall remain effective for all operating modes	*Pass.*
	Indication of the selected operating mode shall be provided	*Pass.*
9.2.4	Suspensions of safeguarding	-
	Where it is necessary to suspend safeguarding, a secure provision shall be provided to prevent automatic operation	*Pass.*

9.2.5	Operation	-
9.2.5.1	General	-
	The necessary interlocks (see 9.3) shall be provided for safe operation	*Pass.*
	Measures shall be taken to prevent movement of the machine in an unintended manner after any stopping of the machine	*Pass.* *No unintended operation can be occurred after any stopping of the machine.*
9.2.5.2	Start	-
	The start of an operation shall be possible only when all the safeguards are in place and functional (except described in 9.2.4)	*Pass.*
	Hold-to-run control shall be used for the others machines, as appropriate	*Not applicable.*
	Suitable interlocks shall be provided to secure correct sequential starting	*Pass.*
	The use of more than one control station to initiate a start	*Not applicable.* *Only one control station is used.*
9.2.5.3	Stop	-
	Category 0, category 1 and/or category 2 stops shall be provided where indicated by the risk assessment and the functional requirements of the machines	*Pass.*
	Stop functions shall override related start functions	*Pass.*
9.2.5.4	Emergency operations (emergency stop, emergency switching off)	-
9.2.5.4 .1	General	-
9.2.5.4 .2	Emergency stop	-
	Shall function either as a category o stop or as a category 1 stop	*Pass.* *Category 0 stop.*
	The choice of the emergency stop shall be determined by the risk assessment of the machine	*Pass.* *According to the result of risk assessment of the machine. Two emergency stop provided.*
	Where a category 0 stop is used for emergency stop function, it shall have only hard-wired	*Pass* *This requirement have been taken*

	electromechanical components	*into account during design.*
	The operation of emergency stop shall not depend on electronic logic or on the transmission of commands over a communications network or link	*Pass.* *No this kind of situation.*
	Where a category 1 stop is used for the emergency stop function, final removal of power to the machine actuators shall be ensured and carried out by means of electromechanical components	*Not applicable*
9.2.5.4.3	Emergency switching off	-
	Use of emergency switching off	*Pass.* *Identical to that of emergency stop.*
9.2.5.5	Monitoring of command actions	-
	Movement or action of a machine or part of a machine that can result in a hazardous condition shall be monitored	*Pass.* *They have been monitored by the controller during the working of the machine.*
9.2.5.6	Hold-to-run controls	-
	Hold-to run controls shall require continuous actuation of the control devices to achieve operation	*Pass* *Considered*
9.2.5.7	Two-hand control	-
	Three types of two-hand control are available, the selection of which is determined by the assessment	*Not applicable.* *No two-hand control has been used.*
9.2.5.8	Enabling device	-
	It shall be designed to allow motion when actuated in one position only (In any other position motion shall be stopped)	*Pass.* *These machines have been designed to allow motion when actuated in one position only.*
9.2.6	Combined start and stop controls	-
	Push-buttons and similar devices that, when operated, alternately initiate and stop motion shall only be used for functions which cannot result in a hazardous condition	*Not applicable.* *No this kind of device has been used.*
9.2.7	Cableless control	-
9.2.7.1	General	-

	Means shall be provided to readily remove or disconnect the power supply of the operator control station	*Not applicable.* *No cableless control is used.*
	Means shall be provided, as necessary, to prevent unauthorized use of the operator control station	*Not applicable.* *No cableless control is used.*
	Each operator control station shall carry an unambiguous indication of which machine is intended to be controlled by that operator control station	*Not applicable.* *No cableless control is used.*
9.2.7.2	Control limitation	-
	Measures shall be taken to prevent the machine from responding to signals other than those from the intended operator control station	*Not applicable.* *No cableless control is used.*
	Where necessary, means shall be provided so that the machine can only be controlled from operator control station in one or more predetermined zones or locations	*Not applicable.* *No cableless control is used.*
9.2.7.3	Stop	-
	Cableless control stations shall include a separate and clearly identifiable means to intiate the stop funtion of the machine or all the operations that can cause a hazardous situation.	*Not applicable.* *No cableless control is used.*
	The actuating means to initiate this stop function shall not be marked or labeled as an emergency stop device	*Not applicable.* *No cableless control is used.*
	A machine which is equipped wit cableless control shall have a means of automatically initiating the stopping of the machine and of preventing a potentially hazardous operation	*Not applicable* *No cableless control is used.*
9.2.7.4	Series data communication	-
	In a machine where the control of safety-related functions relies on series data transfer, correct communications shall be ensured by using an error detection method that is able to cope with up to three error bits in any command sequence	*Not applicable* *No cableless control is used.*
9.2.7.5	Use of more than one operator control station	-
	Where a machine has more than one operator control station, measures shall be taken to ensure that only one control station can be enabled at a	*Not applicable* *No cableless control is used.*

	given time	
	An indication of which operator control station is in control of the machine shall be provided at suitable locations as determined by the risk assessment of the machine	*Not applicable* *No cableless control is used.*
9.2.7.6	Battery-powered operator control stations	-
	A variation in the battery voltage shall not cause a hazardous condition	*Not applicable* *No cableless control is used.*
	If one or more potentially hazardous motions are controlled using a battery-powered operator control station, a clear warning shall be given to the operator when a variation in battery voltage exceeds specified limits	*Not applicable* *No cableless control is used.*
	Under those circumstances, the operator control station shall remain functional long enough to put the machine into a non-hazardous condition	*Not applicable* *No cableless control is used.*
9.3	Protective interlocks	-
9.3.1	Reclosing or resetting of an interlocking safeguard	-
	The reclosing or resetting of an interlocking safeguard shall not initiate machine motion or operation	*Pass* *No safeguard can initiate machine motion or operation*
9.3.2	Over travel limits	-
	Use of a position sensor or limit switch	*Pass.* *Appropriate position sensors and limit switches have been used.*
9.3.3	Operation of auxiliary functions	-
	The correct operation of auxiliary functions shall be checked by appropriate devices	*Not applicable.*
	Use of appropriate interlocking	*Not applicable.*
9.3.4	Interlocks between different operations and for contrary motions	-
	Interlocking shall be provided against incorrect operation	*Pass.* *Appropriate interlocking has been provided.*
9.3.5	Reverse current braking	-
	Use of reverse current braking	*Not applicable.*
9.4	Control functions in the event of failure	-
9.4.1	General requirements	-

	Provision of control functions in case of failure according to the level of risk assessment	*Pass.* *According to the risk assessment.*
9.4.2	Measures to minimize risk in the event of failure	-
9.4.2.1	Use of proven circuit techniques and components	-
	Use of proven circuit techniques and components	*Pass.* *Appropriate components have been used.*
9.4.2.2	Provisions for redundancy	-
	Provisions for redundancy	*Not applicable.* *Appropriate provisions have been taken.*
9.4.2.3	Use of diversity	-
	Use of diversity	*Not applicable.* *Appropriate provisions have been taken.*
9.4.2.4	Functional tests	-
	Carried out automatically by the control system or manually by inspection	*Pass.* *By inspection manually.*
9.4.3	Protection against maloperation due to earth faults, voltage interruptions and loss of circuit continuity	-
9.4.3.1	Earth faults	-
	Bonding to the protective bonding circuit may be provided according to 8.2 and the devices may be connected as described in 9.1.4	*Pass.* *Make reference to the relevant clauses.*
9.4.3.2	Voltage interruptions	-
	Where a memory device is used, proper functioning in the event of power failure shall be ensured to prevent any loss of memory that can result in a hazardous condition	*Pass.* *Any loss of memory can't result in a hazardous condition.*
9.4.3.3	Loss of circuit continuity	-
	Where the loss of continuity of safety-related control circuits depending upon sliding contacts can result in hazardous condition, appropriate measures shall be taken	*Not applicable.* *No this kind of situation.*
10	Operator interface and machine-mounted control devices	-
10.1	General	-
10.1.1	General device requirements	-

	As far as is practicable, those devices shall be selected, mounted, and identified or coded according to IEC 60073and IEC 60447	*Pass.* *These requirements appropriate for this machine have been complied with.*
10.1.2	Location and mounting	-
	Appropriate location mounting for machine-mounted and hand-operated control devices	*Pass*
10.1.3	Protection	-
	Operator and machine mounted control devices shall with stand the stress of expected use	*Pass.* *They can withstand the stress of expected use.*
	The operator interface control devices shall have a min. degree of protection: IPXXD	*Pass.* *IP2XD.*
10.1.4	Position sensors	-
	Position sensors shall not be damaged in the event of over travel	*Pass.* *Because of the location of those position sensors, they can not be damaged in the event of over travel.*
	Position sensors used in circuits with safety-related functions either hall have positive opening operation or shall provide similar reliability	*Pass.* *Positive opening mode.*
10.1.5	Portable and pendant control stations	-
	Portable and pendant control stations and their control devices shall be so selected and arranged as to minimize the possibility of inadvertent machine operations caused by shocks and vibrations	*Not applicable.*
10.2	Push-buttons	-
10.2.1	Colors	-
	Push-button actuators shall be color -coded according to table 2	*Pass.* *Their colors are according to table 2.*
10.2.2	Markings	-
1.2.3	Use of adequate markings for push-buttons	*Pass.* *Adequate markings are used.*
10.3	Indicator lights and displays	-

10.3.1	Modes of use	-
	Indication and /or confirmation	*Pass*
10.3.2	Colors	-
	Color-coded according to table 3 (Unless otherwise agree between the supplier and the user)	*Pass.* *Their colors are according to table 3.*
10.3.3	Flashing lights	-
	Use of flashing lights	*Pass.* *A Red-Yellow-Green flashing light is used.*
10.4	Illuminated push-buttons	-
	Color-coded according to table 2 and 3	*Pass.* *Their colors are according to table 3.*
10.5	Rotary control devices	-
	Devices having a rotational member shall be mounted to prevent rotation of the stationary member (Friction alone shall not be sufficient)	*Pass.* *Appropriate measure has been provided to prevent rotation of the stationary member.*
10.6	Start devices	-
	Shall be constructed and mounted to minimise inadvertent operation	*Pass.* *Flat type start push -buttons are used to prevent inadvertent operation.*
10.7	Devices for emergency stop	-
10.7.1	Location	-
	Devices for emergency stop shall be readily accessible	*Pass.* *It is readily accessible.*
	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	*Pass.* *All of them are located at each operator control station.*
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	*Pass.* *A push-button operated switch.*
	Shall be of the self-latching type and shall have	*Pass.*

	positive opening operation	*Self-latching type and positive opening operation.*
10.7.3	Restoration of normal function after emergency stop	-
	It shall not be possible to restore an emergency stop circuit until all emergency stop devices have been manually reset	*Pass.* *This requirement has been complied with.*
10.8.5	Local operation of the supply disconnecting device to effect emergency switching off	-
	Where the supply disconnecting device is to be locally operated for emergency switching off, it shall be readily accessible and should meet the colour requirements of 10.8.4	*Not applicable* *No this kind of situation.*
10.9	Displays	-
		Pass.
11	Control gear: location, mounting, and enclosures	-
11.1	General requirements	-
11.2	Location and mounting	-
11.2.1	Accessibility and maintenance	-
	All control gears can be identified without moving or the wiring	*Pass.* *All of them can be identified without moving or the wiring.*
	Replacement without dismantling other equipment or parts of the machine	*Pass.* *They can be replaced without dismantling other equipment or parts of the machine.*
	Terminals not associated with control gear shall also comply with the requirements mentioned above	*Pass.* *Those relative requirements have been complied with.*
	Facilitate operation and maintenance from the front	*Pass.*
	Use of special tools (if necessary)	*Pass.* *Key for enclosure door.*
	If access is required for regular maintenance or adjustment, the devices shall be located between 0.4 m and 2.0 m above the severing level	*Pass.* *This requirement has been complied with.*
	It is recommended that terminals be at least 0.2m above the servicing level and so placed that connectors and cables can be easily connected to	*Pass.* *Above 0.2m and can be connected easily.*

	them	
	Except those for operating, indicating, measuring and cooling, no devices shall be mounted on doors, and normally removable access covers, of enclosures	*Pass.* *No this kind of mounting.*
	If control devices are connected through plug-in arrangements, their association shall be made clear by type (shape), marking or designation, singly or in combination.	*Not applicable.* *No control device is connected through plug-in arrangement.*
	Plug in devices shall be provided with non-interchangeable features	*Not applicable.* *No Plug-in device is used.*
	Use of plug/socket combinations shall be unobstructed access	*Not applicable.* *No plug/socket combinations.*
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 control gear	*Pass.* *No this kind of parts or devices are located within enclosures containing control gear.*
	Devices such as solenoid valves should be separated from the other electrical equipment	*Pass.* *All solenoid valves have be separated from the other electrical equipment.*
	Control devices mounted in the same location and connected to the supply voltage, or to both supply and control voltages, shall be grouped separately from those connected only to the control voltages	*Pass.* *Appropriate separation has been taken.*
	Terminals shall be separated into groups for : - power circuits; - associated control circuits - other control circuits, fed from external sources	*Pass.* *They have been separated appropriately.*
	The clearances and creep distances specified for the devices shall be maintained	*Pass.* *Appropriately clearances and creep distances have been provided.*
11.2.3	Heating effects	-
	Heat generating components shall be located so that the temperature of each component in the cicinity remains within the permitted limit	*No applicable.* *No heating element.*
11.3	Degrees of protection	-

	Enclosures of control gear: at least IP 22	*Pass.* *IP23.*
11.4	Enclosures, doors and openings	-
	Enclosure shall be constructed using materials capable of withstanding the mechanical, electrical and thermal stresses	*Pass.* *The material（metal plate with painting）used for enclosure can withstand the mechanical, electrical and thermal stresses.*
	Fasteners used to secure doors and covers should be of the captive type	*Pass.* *Captive type.*
	Windows provided for viewing internally mounted indicating devices shall be of a material suitable to withstand mechanical stress and chemical attach	*Not applicable.* *No this kind of window.*
	It is recommended that enclosures doors shall have: - Not wider than 0.9 m - Vertical hinges - Lift-off type - Angle of opening at least 95°	*Pass.* *These requirements have been taken.*
	If enclosures which readily allow a person fully to enter, the relevant requirements specified in this clause shall be comply	*Not applicable.* *No this kind of situation.*
	The joints or gaskets of doors, lids, covers and enclosures shall withstand the chemical effects of the aggressive liquids, vapours, or gases used on the machine	*Pass.* *They can withstand the chemical effects of the aggressive liquids, vapours, or gases used on the machine.*
	The means used to maintain the degree of protection of an enclosure on doors, lids and covers that require opening or removal for operation or maintenance shall be secured	*Pass.* *They can be secured firmly.*
	The degree of protection for all openings in the enclosures shall be secured	*Pass.* *The degree of protection can be secured.*
	Openings for cable shall be easily re-opened on site	*Pass.* *They can be re-opened easily.*
	There shall be no opening between enclosures containing electrical equipment and	*Pass.* *No this kind of opening has been*

	compartments containing coolant, lubricating or hydraulic fluids, or those into which oil, other liquids, or dust can penetrate	*found.*
	The requirement mentioned above does not apply to electrical devices specially designed to operate in oil nor to electrical equipment in which coolants are used	*Not applicable.*
	Where there are holes in an enclosure for mounting purpose, the degree of protection for the enclosure shall be secured	*Pass.* *Appropriate protection degree can be secured.*
	Equipment that, can attain a surface temperature sufficient to cause a risk of fire or harmful effect to an enclosure material, the relevant requirements shall be complied	*Not applicable.* *No this kind of equipment.*
11.5	Access to control gear	-
	The min. dimensions of gangways in front of and between control gear shall be according to 481.2.4 of IEC 60364-4-481	*Not applicable.* *No this kind of gangway has been found.*
	Doors in gangways and for access to electrical operating areas shall: - be at least 0.7 m wide and 2.0 m high; - open outward; - have a menace to allow opening from the inside without the use of a key or tool	*Not applicable.* *No this kind of gangway has been found.*
12	Conductors and cables	-
12.1	General requirements	-
	Conductors and cables shall b e selected so as to be suitable for the operating conditions and external influences	*Pass.* *All of conductors and cables used on these machines are suitable for the operating conditions and external influences.*
12.2	Conductors	-
	Conductors shall be of copper	*Pass.* *Copper.*
	Conductors of any other material shall have a nominal cross-sectional area such that, carrying the same current, the max. temerparure shall not exceed the value given in table 4	*Not applicable.* *Only copper conductors are used.*
	If aluminium is used, the cross-sectional area	*Not applicable.*

	shall be at least 16mm^2	*Only copper conductors are used.*
	All conductors that are subject to frequent movement shall have flexible stranding of class 5 or class 6 (see table C.4)	*Pass.*
12.3	Insulation	-
	Dielectric strength test for insulation conductors and cables: - 2000 V a.c. for a duration of 5 min (for operating voltage higher than 50 V a.c. or 120 V d.c.) - 500 V a.c. for duration of 5 min. (for separate PELV circuit)	*Pass.* *This test has been carried out for the cables, and there is no breakdown is occurred.*
	The mechanical strength and thickness ofj the insulation shall not be damaged in operation of during laying, especially for cables pulled into ducts	*Pass.* *Apporpriate insulation with sufficient mechanical strength and thickness is provided.*
12.4	Current-carrying capacity in normal service	-
	Max. allowable temperature of rocnductors shall not exceed the values given in table 4	*Pass.* *According to table 4.*
12.5	Conductor and cable voltage drop	-
	The voltage drop for conductors and cables shall not exceed 5% of the nominal voltage	*Pass.* *Not exceed 5%.*
12.6	Minimum cross-section area	-
	To ensure adequate mechanical strength, the corss - secitonal area of conductors should be less than as shown in table 6	*Pass.* *According to table6.*
12.7	Flexible cables	-
12.7.1	General	-
	Flexible cables shall have class 5 or class 6 conductors	*Not applicable.* *No flexible cable has been used.*
	Cables that are subjected to server duties shall be of adequate construction	*Not applicable.*
12.7.2	Mechanical rating	-
	The tensile stress for copper conductors shall not exceed 15 N/mm^2 of the copper cross-sectional area	*Pass.* *Not exceed 15 N/mm^2*
	If the demands of the application exceed the tensile stress, it of 15 N/mm^2, cables with special	*Not applicable.* *No this kind of situation.*

	construction fertures should be used and the allowed max. tensile stress strength should be agree with the cable manufacturer	
12.7.3	Current-carry capacity of cables wound on drums	-
	Cables to be wound on drums shall be selected with conductors having a cross-sectional area such that, when fully wound on the drum and carrying the normal service load, the max. Allowable conductor temperature is not exceeded	*Not applicable.* *No cable is wound on drums.*
	For cables of circular cross-sectional area installed on drums, the max. current-carrying capacity in free air should be derated according to table 7	*Not applicable.* *No cable is wound on drums.*
12.8	Collector wires, collector bars and slip-ring assemblies	-
12.8.1	Protection against direct contact	-
	Collector wires, collector bars and slip-ring assemblies shall be installed or enclosed by the applicantion of one of the following protective measures: -by partial insulation of live parts -by enclosures or barriers of at least IP2X	*Not applicable.* *No collector wires, collector bars or slip-ring assemblies has been used on these machines.*
	Min. protector degree of horizontal top surface of barriers or enclosures that are readily accessible: IP4X	*Not applicable.*
	If the required degree of protection is not achieved, protection by placing live parts out of reach in combination with emergency switching off according to 9.2.5.4.3 shall be applied	*Not applicable.*
	Collector wires and collector bars shall be so placed and/or protected as to: -prevent contact -prevent damage from a swinging load	*Not applicable.*
12.8.2	Protective conductor circuit	-
	Where collector wires, collector bars and slip-ring assemblies are installed as part of the	*Not applicable.*

	protective bonding circuit, they shall not carry current in normal operation	
	The continuity of the protective conductor circuit using sliding contacts shall e ensured by taking appropriate measures	*Not applicable.*
12.8.3	Protective conductor current collectors	-
	Not interchangeable with the other current collectors	*Not applicable.*
	Not interchangeable with the other current collectors	*Not applicable.*
	Such current collectors shall be of the sliding contact type	*Not applicable.*
12.8.4	Removable current collectors with a disconnect function	-
	Shall be so designed that the protective conductor circuit is interrupted only after the live conductors have been disconnected, and the continuity of the protective conductor circuit is re-established before any live conductor is reconnected	*Not applicable.*
12.8.5	Clearance in air	-
	Shall be suitable for operation in pollution degree 3 conditions	*Not applicable.*
12.8.6	Creepage distances	-
	Shall be suitable for operation in pollution degree 3 conditions	*Not applicable.*
12.8.7	Conductor system sectioning	-
	If collector wires or collector bars can be divided into isolated sections, suitable design measures shall be employed to prevent the energization of adjacent sections by the current collectors themselves	*Not applicable.*
12.8.8	Construction and installation of collector wire, collector bar systems and slip-ring assemblies	*Not applicable.*
	Used for power circuits shall be grouped separately from those used for control circuit	*Not applicable.*

	Shall be capable of withstanding, without damage, the mechanical forces and thermal effects of short-circuit currents	*Not applicable.*
	Removable covers shall not be opened by one person without the aid of a tool	*Not applicable.*
	If collector bars are installed in a common metal enclosure, the individual sections of the enclosure shall be bonded together and earthed are several points depending upon their length	*Not applicable.*
	Metal covers of collector bar laid underground or underflow shall also be bonded together and earthed	*Not applicable.*
	Undergound and underflow collector bar ducts shall have drainage facilities	*Not applicable.*
13	Wiring practices	-
13.1	Connections and routing	-
13.1.1	General requirements	-
	All connections shall be secured against accidental loosening	*Pass.* *All connections can be secured against accidental loosening.*
	The means of connection shall be suitable for the cross-sectional areas and neutral of the conductors being terminated	*Pass.* *The means of connection is suitable.*
	The connection of two or more conductors to one terminal is permitted (only when the terminal is designed for that purpose)	*Pass.* *No terminal has been connected with three or more conductors.*
	One protective bonding circuit conductor shall be connected to one terminal connecting point	*Pass.* *One conductor connected to one terminal.*
	Soldered connections shall only be permitted if terminals are suitable for soldering	*Not applicable.* *No soldered connection hass been taked.*
	Terminals on terminal blocks shall be plainly identified to correspond with markings on the diagrams	*Pass.* *All of them have been marked corresponding to markings on the diagrams.*
	The installation of flexible conduits and cables shall be such that liquids shall drain away from	*Pass.* *Liquids can drain away from the*

	the fittings	*fittings.*
	Means of retaining conductor strands shall be provided (Solder shall not be used for that purpose)	*Pass.* *By appropriate terminals.*
	Shielded conductors shall be so terminated s to prevent fraying of strands and to permit easy disconnection	*Pass.* *Appropriate termination is taken.*
	Identification tags shall be legible, permanent, and appropriate for the physical environment	*Pass.* *They are legible, permanent, and appropriate for the physical environment.*
	Terminal blocks shall be so mounted and wired, that the internal and external wiring does not cross over the terminals	*Pass.* *No conductor cross over the terminals.*
13.1.2	Conductor and cable runs	-
	Shall be urn from terminal to terminal without splices or joints	*Pass.* *All of them are run from terminal to terminal without splices or joints.*
	If it is necessary to connect and disconnect cables assemblies, a sufficient extra length shall be provided	*Pass.*
	The terminations of cables shall be adequately supported to prevent mechanical stresses at the terminations of the conductors	*Pass.* *Adequate support measure has been taken.*
13.1.3	Conductors of different circuits	-
	Suitable arrangement for conductors of different circuits	*Pass,* *Suitable arrangement is provided.*
13.2	Identification of conductors	-
13.2.1	General requirements	-
	Conductors shall be identifiable at each termination according to the technical documentation (see clause 18)	*Pass.* *Make reference to clause 18.*
	Use of color-coding for identification of conductors	*Pass.* *Color-coding for identification is used.*
	Color GREEN or YELLOW should hot be used	*Pass.*

		No GREEN or YELLOW conductor is used.
13.2.2	Identification of the protective conductor	-
	Shall be really distinguishable by shape, location, marking or color	*Pass By marking and color.*
	When identification is by color alone, the bicolor combination GREEN-AND YELLOW shall be used	*Pass.* *By GREEN-AND-YELLOW.*
	For the bicolor combination GREEN-AND YELLOW : one of the color covers at least 30% and not more than 70% of the surface of the conductor, the other color covering the remainder of the surface	*Pass.*
	Use of graphical symbol ⏚	*Pass.* *The earthing symbol has been used.*
13.2.3	Identification of the neutral conductor	-
	The color shall be Light Blue	*Not applicable.* *No neutral conductor is used.*
	Requirements for bare conductors used as neutral conductors	*Not applicable.* *No neutral conductor is used.*
13.2.4	Identification of other conductors	-
	Identification of other conductors shall be by color, number, alphanumeric, or a combination of color and numbers or alphanumeric	*Pass.* *By a combination of color and numbers or alphanumeric.*
13.3	Wiring inside enclosures	-
	Panel conductors shall be supported where necessary to keep them in place	*Pass.* *Appropriate supports is provided.*
	Non-Metallic ducts shall be permitted only when they are made with a flame-retardant insulating material	*Pass.* *Some non-metallic ducts are used with a flame-retardant insulating material.*
	Connections to devices mounted on doors or to other movable parts shall be made using flexible conductors according to 13.2	*Pass.* *Connections according to 13.2.*
	The conductors shall be anchored to the fixed part and to the movable part independently of the	*Pass.* *Adequate anchored measures*

	electrical connection	*have been taken.*
	Conductors and cables that do not run in ducts shall be adequately supported	*Pass.* *All of them have been supported adequately.*
	Terminal blocks or plug-socket combinations shall be used for control wiring that extends beyond the enclosure	*Pass.* *This application has been taken.*
13.4	Wiring outside enclosures	-
13.4.1	General requirements	-
	The protection degree shall be ensured when cables or ducts are introduced into the enclosure	*Pass.* *The protection degree can be secured.*
13.4.2	External ducts	-
	Shall be enclosed in suitable ducts as described in 14.5 except for suitably protected cables	*Not applicable.*
	Fittings used with ducts or multiconductor cable shall be suitable for the physical environment	*Not applicable.*
	Flexible coduit or flexible multiconductor cable shall be used where it is necessary to employ flexible connections to pendant push-button stations	*Not applicable.*
	The weight of the pendant stations shall be supported by means other that the flexible conduit or the flexible multiconductor cable	*Not applicable.*
	Flexible conduit or flexible multiconductor cable shall be used for connections involving small or infrequent movements	*Not applicable.*
13.4.3	Connection to moving elements of the machine	-
	Connection to frequently moving parts shall be made using conductors according to 13.2	*Not applicable.* *No device is connected to moving elements of the machine.*
	Flexible cable and flexible conduit shall be so installed as to avoid excess flexing and strainging, particularity t the fittings	*Not applicable.*
	Cables subject to movement shall be supported in such a way that there is no mechanical strain on the connection points nor any sharp flexing	*Not applicable.*
	If the requirement mentioned above is achieved	*Not applicable.*

	by using of a loop, it shall have sufficient length to provide for a bending radius of the cable of at least 10 times the diameter of the cable	
	Flexible cables of machines shall be protected to minimize the possibility of external damage	*Not applicable.*
	The cable sheath shall be resistant to the normal wear that can be expected from movement and to the effects of atmospheric contaminants	*Not applicable.*
	If cables subject to movement are close to moving parts, it shall have a space of at least 25 mm between the moving parts and the cables	*Not applicable.*
	Where the distance mentioned above is not practicable, fixed barriers shall be provided between the cables and the moving parts	*Not applicable.*
	The cable handing system shall be so designed that the lateral cable angles do no exceed 5°, avoiding torsion in the cable	*Not applicable.*
	Measures shall be taken to ensure that at least two turns of flexible cables always remain on a drum	*Not applicable.*
	Min. permitted bending radii for the forced guiding of flexible cables shall not less than the values given in table 8	*Not applicable.*
	The strength section between section between two bends in an S-shaped length or a bend into another plane shall be at least 20 times the diameter of the cable	*Not applicable.*
	Where flexible conduit is adjacent to moving parts, the construction and supporting means shall prevent damage to the flexile conduit under all conditions of operation	*Not applicable.*
	Flexible metallic conduit shall not be used for rapid of frequent movements	*Not applicable.*
13.4.4	Interconnection of devices on the machine	-
	The connections shall be conveniently placed, adequately protected, and shown on the relevant diagrams	*Pass.* *Through terminals.*
	Such terminals shall be conveniently placed, adequately protected, and shown on the relevant	*Pass.* *These requirements have been*

	diagrams	*complied with.*
13.4.5	Plug/socket combinations	-
	Shall be of adequate size and shall have sufficient contact pressure and a wiping action to ensure electrical continuity	*Not applicable.* *No plug/socket combinations is used.*
	Clearances between contacts shall e adequate for the voltages used and shall be maintained during insertion and removal of the connectors	*Not applicable.* *No plug/socket combinations is used.*
	Prevent unintentional contact with live parts at any time	*Not applicable.* *No plug/socket combinations is used.*
	Protective bonding circuit connection shall be made before any live connections are made, and shall not disconnected until all live connections in the plug are disconnected	*Not applicable.* *No plug/socket combinations is used.*
	Rated at more than 16 A or that remain connected during normal service shall be of a remaining type to prevent unintended disconnection	*Not applicable.* *No plug/socket combinations is used.*
	Rated at 63 A or above shall be of an interlocked type with a switch, so that connection and disconnection is possible only when the switch is in the OFF position	*Not applicable.* *No plug/socket combinations is used.*
	If more than one plug-socket combination is used in the same electrical equipment, they shall be clearly identifiable	*Not applicable.* *No plug/socket combinations is used.*
	It is recommended that mechanical coding be used to prevent incorrect insertion	*Not applicable.* *No plug/socket combinations is used.*
	According to IEC 60309-1 or of a type used for domestic application shall not be used for control circuits	*Not applicable.* *No plug/socket combinations is used.*
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	*Pass.* *All of them are enclosed suitably.*
13.4.	Additional conductors	-

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	Spare conductors shall be connected to spare terminals or isolated to prevent contact with live parts	*Pass.* *All spare conductors are connected to spare terminals or isolated to prevent contact with live parts.*
13.5	Ducts, connection boxes and other boxes	-
13.5.1	General requirements	-
	Min. protection degree for ducts: IP 33	*Pass.* *IP 33.*
	Appropriate protection for conductors insulation	*Pass.* *Suitable protection is taken.*
	Drain holes of 6 mm diameter are permitted	*Pass.*
	Ducts and cables trays shall be rigidly supported and positioned at a sufficient distance from moving parts	*Pass.* *Suitable support and sufficient distance have been taken.*
	In areas where human passage is required, the ducts and cable trays shall be mounted at least 2 m above the working surface	*Not applicable.* *No this kind of area.*
	Ducts shall be provided only for mechanical protection	*Pass.* *Adequate mechanical protection is provided.*
	Cable trays that are partially covered should not be considered to be ducts or cable trunking system, and the cables used shall be suitable for installation on cable trays	*Not applicable.* *No cable tray is used.*
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	*Pass.* *This requirement has been complied with.*
13.5.3	Rigid metal conduit and fittings	-
	Shall be of galvanized steel or of a corrosion-resistant material	*Not applicable.* *No rigid metal conduit is used.*
	Conduits shall be securely held in place and supported at each end	*Not applicable.* *No rigid metal conduit is used.*
	Fitting shall be threaded	*Not applicable.*

		No rigid metal conduit is used.
	Where threadless fittings are used, the conduit shall be securely fastened to the equipment	*Not applicable.* *No rigid metal conduit is used.*
	The conduit shall not be damage and the internal diameter of the conduit shall not e effectively reduced when it is bent	*Not applicable.* *No rigid metal conduit is used.*
13.5.4	Flexible metal conduit and fittings	-
	Flexible metal trbing and suitable for the expected physical environment	*Not applicable.* *No rigid metal conduit is used.*
13.5.5	Flexible non-metal conduit and fittings	-
	Shall be resistant to kinking and suitable for the expected physical environment	*Not applicable.* *No flexible non-metal conduit is used.*
13.5.6	Cable trunking systems	-
	Shall be rigidly supported and clear of all moving or contaminating portions of the machine	*Not applicable.* *No cable trunkling system is used.*
	Covers shall be shaped to overlap the sides; gasket shall be permitted	*Not applicable.* *No cable trunkling system is used.*
	Covers shall be attached to cable trunking systems gy hinges or chain and held closed by means of captive screws or other suitable fasteners	*Not applicable.* *No cable trunkling system is used.*
	On horizontal cable trunking systems, the cover shall not be on the bottom	*Not applicable.* *No cable trunkling system is used.*
	Where the cable trunking system is furnished in sections, the joints between sections shall fit tightly but need not be gasketed	*Not applicable.* *No cable trunkling system is used.*
	The only openings permitted shall be those required for wiring or for drainage	*Not applicable.* *No cable trunkling system is used.*
	Cable trunking systems shall not have opened but unused knockouts	*Not applicable.* *No cable trunkling system is used.*
13.5.7	Machines compartments and cable trunking systems	-
	Are isolated from coolant or oil reservoirs and are entirely enclosed	*Not applicable.* *No this kind of situation.*

	Conductors run in enclosed compartment and cable trunking systems shall be so secured and arranged that they are not subject to damage	*Not applicable.* *No this kind of situation.*
13.5.8	Connection boxes and other boxes	-
	Shall be readily accessible for maintenance	*Pass.* *They are readily accessible for maintenance.*
	Shall provide protection against the ingress of solid bodies and liquids	*Pass.* *Adequate protection is provided.*
	Shall not have opened but unused knockouts nor any other opening and shall be so constructed as to exclude materials such as dust, flying, oil, and coolant	*Pass.* *These requirements have been complied with.*
13.5.9	Motor connection boxes	-
	Shall enclose only connections to the motor and motor-mounted devices	*Pass.* *They enclose only connections to the motor and motor-mounted devices.*
14	Electric motors and associated equipment	-
14.1	General requirements	-
	Electric motor should conform to the requirements of IEC 60034-1	*Pass.* *The electric motor is in conformity with the requirements of IEC 60034-1.*
	Motor control equipment shall be located and mounted according to clause 12	*Pass.* *According to clause 12.*
14.2	Motor enclosures	-
	Protection degree shall be at least IP 23	*Pass.* *At least IP23.*
14.3	Motor dimensions	-
	As far as is practicable, the dimensions of the motors shall comply with IEC 60072-1 and IEC 60072-2	*Pass.* *It is in compliance with IEC 60072-1 and IEC 60072-2.*
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	*Pass.* *They have adequate protection and are easily for inspection.*

	inspection	
	Shall be such that all motor hold-down means can be removed and all terminal boxes are accessible	*Pass.* *This requirement has been complied with.*
	The proper cooling shall be ensured and the temperature rise remains within the limits of the insulation class	*Pass.* *This requirement has been complied with.*
	Motor compartment should be clean and dry, and shall be ventilated directly to the exterior of the machine	*Not applicable.* *No motor compartment is found.*
	The vents shall be such that ingress of swarf, dust, or water spray is at an acceptable level	*Pass.* *Adequate vents are provided.*
	There shall be no opening between the motor compartment and any other compartment that does not meet the motor compartment requirements	*Pass.* *No this kind of opening.*
	If a conduit or pipe is run into the motor compartment from another compartment not meet the motor compartment requirements, any clearance around the conduit or pipe shall e sealed	*Not applicable.* *No this kind of situation.*
14.5	Criteria for motor selection	-
	Shall be selected according to the anticipated service and physical environment conditions	*Pass.* *They are selected according to the anticipated service and physical environment conditions.*
14.6	Protective devices for mechanical brakes	-
	Operation of the overload and over current protective devices for mechanical brake actuators shall initiate the simultaneous de-energization (release) of the associated machine actuators	*Not applicable.* *No this kind of device.*
15	Accessories and lightning	-
15.1	Accessories	-
	Socket-outlets for accessory equipment shall comply:	-
	Should conform to IEC 60309-1 (if this is not possible, they should be clearly marked with the voltage and current ratings)	*Pass.* *Marked with the voltage and current ratings.*
	The continuity of the protective bonding circuit	*Pass.*

	to the socket-outlet shall be ensured	*It can be ensured.*
	All unearthed conductors: Over current or overload protection according to 7.2 and 7.3 separately from the protection of other circuits	*Pass.* *Over current protection is provided.*
	If the power supply to the socket outlet is not disconnected by the supply disconnecting device, the clause 5.3.5 shall apply	*Not applicable.* *No this kind of situation.*
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.* *No lighting has been used.*
	The ON-OFF switch shall not be incorporated in the lamp holder or in the flexible connecting cords	*Not applicable.* *No lighting has been used.*
	Stroboscopic effects from lights shall be avoided	*Not applicable.* *No lighting has been used.*
15.2.2	Supply	-
	The nominal voltage of the local lighting circuit shall not exceed 250 V	*Not applicable.* *No lighting has been used.*
	Lighting circuits shall be supplied from one of the sources specified in this clause	*Not applicable.* *No lighting has been used.*
15.2.3	Protection	-
	Local lighting shall be protected according to 7.2.6	*Not applicable.* *No lighting has been used.*
15.2.4	Fittings	-
	Adjustable lighting fittings shall be suitable for the physical environment	*Not applicable.* *No lighting has been used.*
	The lamp holders shall be: - According to the relevant IEC publication; - Constructed with an insulating material protection the lamp cap so as to prevent unintended contact	*Not applicable.* *No lighting has been used.*
	Reflectors shall be supported by a bracket and not by the lamp holder	*Not applicable.* *No lighting has been used.*
16	Marking, warning signs and reference	-

	designations	
16.1	General	-
	The electrical equipment shall be marked with the supplier's name, trade mark, or other identifying symbol and, when required, with a certification mark	*Pass.* *These information have been marked.*
	Shall be of sufficient durability to withstand the physical environment involved	*Pass.* *They can withstand th physical environment involved.*
17.2	Warning signs	-
	Enclosures shall be marked with the warning sign 	*Pass.* *This warning sign has been used.*
	The warning sign shall be plainly visible on the enclosure door or cover	*Pass.* *It is plainly visible on the enclosure door.*
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	*Pass.* *Appropriate markings have been provided for these devices.*
	Preference should be given to the use of standard symbols give in IEC 60417 and ISO 7000	*Pass.* *These relevant requirements appropriate for this machine have been used.*
16.4	Marking of control equipment	-
	Control equipment shall be legibly and durably marked in a way that is plainl6 visible after the equipment is installed	*Pass.* *They have been marked legibly and durably.*
	A nameplate giving the relevant information specified in this clause shall be attached to the enclosure	*Pass.* *A nameplate is used.*
	The full-load current shown on the nameplate shall be sufficient	*Pass.*
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	*Pass.* *These information have been provided within the instruction manual.*

	Where size or location preclude the use of an individual reference designation, group reference designation shall be used	*Pass.* *Make reference to the instruction manual.*
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, tales and instructions	*Pass.* *All the information have been provided by many forms.*
	The information shall be in an agreed language	*Pass.* *In English.*
	The supplier shall be ensure that the technical documentation in this clause is provided with each machine	*Pass.* *The instruction manual is equipped with each machine.*
17.2	Information to be provided	-
	The information provided with the electrical equipment shall include the requirements specified in this clause	*Pass.*
17.3	Requirements applicable to all documentation	-
	Relevant requirements according to 18.4 to 18.10 shall be complied	*Pass.*
17.4	Basic information	-
	Min. requirements for he technical documentation shall be contained	*Pass.*
17.5	Installation diagram	-
	Use and requirements for installation diagram	*Pass.* *Installation diagrams are provided.*
17.6	Block (system) diagrams and function diagrams	-
	Use and requirements for system (block) diagram	*Pass.* *System diagrams are provided.*
17.7	Circuit diagrams	-
	Use and requirements for circuit diagrams	*Pass.* *Circuit diagrams are provided.*
17.8	Operating manual	-
	Use and requirements for operating manual	*Pass.* *Operating manual is provided.*
17.9	Maintenance manual	-
	Use and requirements for maintenance manual	*Pass.*

		Maintenance manual is provided.
17.10	Parts list	-
	Use and requirements for parts list	*Pass.* *Parts list is provided.*
18	Testing and verification	-
18.1	General	-
	When these tests are performed, it is recommended that they follow the sequence listed For test in accordance with 18.2 and 18.3,measuing equipemnt should in accordace with EN 61557	*Pass.* *All tests have been carried out according to the following sequence.*
	When the electrical equipment is modified, the requirements stated in 19.7 shall apply	*Pass.*
18.2	Continuity of the protective bonding circuit	-
	Test conditions: a current of at least 10 A at 50 Hz or 60 Hz	*Pass.*
	The measured voltage shall not exceed the values given in table 9	*Pass.* *See the test report in detail.*
18.3	Insulation resistance tests	-
	Test conditions : 500 V d.c.	*Pass.*
	The measured values shall not less than 1 MΩ	*Pass.* *See the test report in detail.*
18.4	Voltage tests	-
	Test conditions : - at least 1 second - test voltage is twice the raged supply voltage of the equipment or 1000 V, whichever is greater - frequency of 50/60 Hz - supplied from a transformer with a min. rating of 500 VA	*Pass.*
	Shall not breakdown	*Pass.* *See the test report in detail.*
18.5	Protection against residual voltages	-
	Tests shall be preformed to ensure complacence with 6.2.4	*Not applicable.*
18.6	Functional test	-

	The functions of electrical equipment shall be tested (particularly those related to safety and safeguarding)	*Pass.* *All functions equipped with this machine have been tested.*
18.7	Retesting	-
	Where a portion of the machine and its associated equipment is changed or modified, that portion shall ere verified and retested, as is appropriate	*Not applicable.*

3.3: Grounding/Insulation resistance/ Withstand voltage Test report

Manufacturer	**Shenzhen ZCL Technology Co., Ltd.**		
Type	**C.L-CNC-006**		
Sample specifications			
Rated voltage	**220V**	Rated frequency	**50HZ**
Rated Output	**3.5kW**	Weight	**1750Kg**
Test date	June 16, 2018.		
Test specification	EN 60204-1:		
Remark			
Tested by	Jerry Zheng		
In conclusion cell, “P” denotes “Pass”, “:F” denotes “Fail”, “——” denotes “Not applicable”.			

Test item	**Protective Bonding circuit**		
Date	June 16, 2018.	Clause of standard	Clause 19.2
Test requirements	Injecting a current of at least 10A, the tests are to be made between the PE terminals and relevant points that are part of the protective bonding circuit Measured voltage between the PE terminal and the points of test is not to exceed the limits		
Points Tested To:	Test requirement	Measured Value	Test result
1:PE-Elec. Cabinet	≤1.0V	0.06	Pass
2:PE-Elec. Control Panel	≤1.0V	0.18	Pass
3:PE-Machine Frame	≤1.0V	0.13	Pass
4:PE-Main Motor Enclosure	≤1.0V	0.04	Pass
5:PE-other Motor Enclosure	≤1.0V	0.39	Pass

Conclusion	Pass		

Test item	Insulation resistance test		
Date	June 16, 2018.	Clause of standard	Clause 19.3
Test requirements	The insulation resistance measured at 500V dc between the power circuit conductors and the protective bonding circuit is to be not less than the limits.		
Test points	Limit value/ Resistance（Ω）	Measured Value (Ω)	Test result
1:L/N – PE	≥ 1M	>200M	Pass
2:L(motor) – PE	≥ 1M	>200M	Pass
Conclusion	Pass		

Test item	Electric strength test		
Date	June 16, 2018.	Clause of standard	Clause 19.4
Test requirements 试验要求	The electrical equipment shall withstand a test voltage applied for a period of at least one second between the conductors of all circuits and the protective bonding circuit		
Test points 试验部位	VoltageV）	Test result/	
1:L/N – PE	1000	Pass	
2:L(motor) – PE	1000	Pass	
Conclusion	Pass		

Test Equipment List

1. Insulation Resistance Meter Tester

2. Ground Continuity Tester

3.Withstanding Voltage Tester

Equipments No.	Equipment's name	Model	Specification	Last time calibrate	Next time calibrate	Manufacturers
T513	Withstanding Voltage Tester	YD-2670A	AC: 1.5KV/5KV, 100mA,60s	2008.7.10	2009.7.09	ChangzhouYangzi
T523	Insulation Resistance Meter Tester	SH2401	0.1MΩ~800MΩ	2008.5.11	2009.5.10	Sunho Electronic Equipment Co., Ltd
T525	Ground Continuity Tester	SH2302	0~0.25Ω, 1~99s	2008.7.1	2009.6.30	Sunho Electronic Equipment Co., Ltd

3.4Noise test reoport

according to the EC Machinery Directive 98/37/EEC.

related to the

CNC Automatic Cutting Machine

Model/Types: C.L-CNC-006

its variants and modifications,

presented by

Shenzhen ZCL Technology Co., Ltd.

No.9 Building, Wodu Industrial Zone, Security Community, Henggang Street, LongGang District, Shenzhen, Guangdong, China

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3.1 Microphone Positions.

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IV. Test Results

I. Introduction.

In general this test report for the CNC Automatic Cutting Machine made by GoldSun was carried out in accordance with the clause 1.7.4 of Machinery Directive and some relative requirements described as following.

1.1 Normative references

Operating conditions for noise measurement are in accordance with ISO7960:1995.
Emission sound power levels are measured in accordance with the enveloping surface measuring method shown in EN 3746:1995.
Emission sound pressure levels at the workstation are measured in accordance with EN ISO 11202:1995.

1.2 Types of noise sources

The international standard mentioned above is applicable to the noise source of any type & size except for the machinery with very tall and/or very long size. It is found appropriate for this machinery to use this standard during the testing of noise level.

1.3 Test environment

The testing was carried out to the machine located inside factory with the appropriate control of background noise.

1.4 The machine features

The machines to be measured have the following features:

II. Test Instruments

Equipments	Equipment's name	Model	Specification	Last time calibrate	Next time calibrate	Manufacturers
T102	Sound level meter	AWA5610D	20Hz～12.5kHz,35～130dBA,38～130dBC,40～130dBZ	2017.7.1	2018.6.30	HangzhouAihua equpmentCo., Ltd

III. Microphone Positions & Machinery Conditions

3.1 Microphone positions.

The microphone is set up according to ISO 7960:1995. The position on the top of machine is omitted to keep the inspector from dangerous situation. Such a procedure is acceptable by the ISO/TC 43 Technical committee.

3.2 Machinery Conditions.

The new machine with features described above have been provided for the test.

IV. Test Result.

Noise Test Report

Manufacturer	Shenzhen ZCL Technology Co., Ltd.		
EUT	CNC Automatic Cutting Machine		
Model	**C.L-CNC-006**	Date	June 16, 2018.
According to	EN 3746		
Test Condition		Running Free	

Test Result

Shenzhen ZCL Technology Co., Ltd.

Given as dB 'A' Weighted

Position 1	68.1	Position 6	68.2
Position 2	67.5	Position 7	67.8
Position 3	68.7	Position 8	69.1
Position 4	67.5	Position 9	68.1
Position 5	68.3	-	
Average of 1 to 5	68.2	*Average of 1 to 9*	68.2

Sound Pressure Level	68	Sound Power Level	81
Temperature	28 °C	Background	60.2

Noise Test Report

Manufacturer	Shenzhen ZCL Technology Co., Ltd.		
EUT	CNC Automatic Cutting Machine		
Model	**C.L-CNC-006**	Date	June 16, 2018.
According to	EN 3746:1995		
Test Condition		Normal working	

Test Result

Given as dB 'A' Weighted

Position 1	76.1	Position 6	75.2
Position 2	77.5	Position 7	77.2
Position 3	75.7	Position 8	76.1
Position 4	76.5	Position 9	75.6
Position 5	74.8	-	
Average of 1 to 5	76.2	*Average of 1 to 9*	75.9

Sound Pressure Level	76.1	Sound Power Level	89.0
Temperature	28 °C	Background	60.2

3.5 EN 12100 test report

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

6.2.2.1	Geometrical factors Such factors include the following.	-
	a) The form of machinery is designed to maximize direct visibility of the working areas and hazard zones from the control position — reducing blind spots, for example — and choosing and locating means of indirect vision where necessary (mirrors, etc.) so as to take into account the characteristics of humanvision, particularly when safe operation requires permanent direct control by the operator, for example: _ the travelling and working area of mobile machines; _ the zone of movement of lifted loads or of the carrier of machinery for lifting persons; _ the area of contact of the tool of a hand-held or hand-guided machine with the material being worked. The design of the machine shall be such that, from the main control position, the operator is able to ensure that there are no exposed persons in the danger zones.	Pass. Appropriate machine design has been performed by the manufacturer.
	b) The form and the relative location of the mechanical components parts: for instance, crushing and shearing hazards are avoided by increasing the minimum gap between the moving parts, such that the part of the body under consideration can enter the gap safely, or by reducing the gap so that no part of the body can enter it (see ISO 13854 and ISO 13857).	Pass. Appropriate machine design has been performed by the manufacturer.
	c) Avoiding sharp edges and corners, protruding parts: in so far as their purpose allows, accessible parts of the machinery shall have no sharp edges, no sharp angles, no rough surfaces, no protruding parts likely to cause injury, and no openings which can “trap” parts of the body or clothing. In particular, sheet metal edges shall be deburred, flanged or trimmed, and open ends of tubes which can cause a “trap” shall be capped.	Pass. Appropriate machine design has been performed by the manufacturer.
	d) The form of the machine is designed so as to achieve a suitable working position and provide accessible manual controls (actuators).	Pass. Appropriate machine design has been performed by the manufacturer.
6.2.2.2	Physical aspects -	-
	Such aspects include the following:	-
	a) limiting the actuating force to a sufficiently low value	Pass.

	so that the actuated part does not generate a mechanical hazard;	The actuating force has been limited to be a sufficiently low value so that the actuated part does not generate a mechanical hazard.
	b)limiting the mass and/or velocity of the movable elements, and hence their kinetic energy;	Pass. This have been limited.
	- c) limiting the emissions by acting on the characteristics of the source using measures for reducing 1) noise emission at source (see ISO/TR 11688-1), 2) the emission of vibration at source, such as redistribution or addition of mass and changes of process parameters [for example, frequency and/or amplitude of movements (for hand-held and hand-guided machinery, see CR 1030-1)], 3) the emission of hazardous substances, including the use of less hazardous substances or dust-reducing processes (granules instead of powders, milling instead of grinding), and 4) radiation emissions, including, for example, avoiding the use of hazardous radiation sources, limiting the power of radiation to the lowest level sufficient for the proper functioning of the machine, designing the source so that the beam is concentrated on the target, increasing the distance between the source and the operator or providing for remote operation of the machinery [measures for reducing emission of non-ionizing radiation are given in 6.3.4.5 (see also EN 12198-1 and EN 12198-3)].	Pass. The emissions by acting on the characteristics of the source have been limited.
4.3	Taking into account the general technical knowledge regarding machine design This general technical knowledge can be derived from technical specifications for design (e.g. standards, design codes, calculation rules).These should be used to cover :	-
	a) mechanical stresses such as	-

	- stress limitation by implementation of correct calculation, construction and fastening methods as regards, e.g. bolted assemblies, welded assemblies	Pass. Has been taken into account.
	- stress limitation by overload prevention, (e.g. “fusible” plugs, pressure-limiting valve, breakage points, torque-limiting devices);	Pass. Has been taken into account.
	- avoiding fatigue in elements under variable stresses (notably cyclic stresses);	Pass. Has been taken into account.
	- static and dynamic balancing of rotating elements;	Pass. Has been taken into account
	b) materials and their properties such as	-
	- resistance to corrosion, ageing, abrasion and wear;	Pass. It has appropriate coating.
	- hardness, ductility, brittleness;	Pass. The materials have been treated by appropriate methods.
	- homogeneity;	Pass. The materials have been treated by appropriate methods
	- toxicity;	Pass. The materials is non-toxicity.
	- flammability.	Pass. The materials no flammability.
	c) emission values for :	-
	- noise;	Pass. No noise will result in hazard in this machine.
	- vibration;	Pass. No vibration will result in hazard in this machine.
	- hazardous substances;	Pass. No hazardous substances will result in hazard in this machine.
	- radiation.	Pass. No radiation will result in hazard in this machine.

	When the reliability of particular components or assemblies is critical for safety (e.g. ropes, chains, lifting accessories for lifting loads or persons), stress values shall be multiplied by appropriate working coefficients.	Pass. Appropriate working coefficients have been taken into account during design and calculation.
6.2.4	Choice of an appropriate technology	-
	One or more hazards can be eliminated or risks reduced by the choice of the technology to be used in certain applications, e.g. :	-
	a) on machines intended for use in explosive atmospheres: - fully pneumatic or hydraulic control system and machine actuators; - “intrinsically safe” electrical equipment (see IEC60079-11)	Not applicable.
	b) for particular products to be processed such as a solvent: equipment assuring that the temperature will remain far below the flash point.	Not applicable.
	c) alternative equipment to avoid high noise level, e.g.: - electrical instead of pneumatic equipment - in certain conditions, water cutting instead of mechanical equipment.	Not applicable.
6.2.5	Applying the principle of the positive mechanical action	-
	Positive mechanical action is achieved when a moving mechanical component inevitably moves another component along with it, either by direct contact or via rigid elements. An example of this is positive opening operation of switching devices in an electrical circuit (see IEC 60947-5-1 and ISO 14119).	Pass. The principle of the positive mechanical action of a component on another component has been applied.
6.2.6	Provisions for stability	-
	Machines shall be designed to have sufficient stability to allow them to be used safely in their specified conditions of use.	Pass. Satisfied it.
	Factors to be taken into account include	-
	- geometry of the base; - weight distribution, including loading; - dynamic forces due to movements of parts of the machine, of the machine itself, or of elements held by the machine which may result in an overturning	Pass. Taken into account during design.

	moment; - vibration	
	- oscillations of the centre of gravity;	Not applicable
	- characteristics of the supporting surface in case of traveling or installation on different sites (e.g. ground conditions, slope);	Pass. Taken into account during design.
	- external forces (e.g. wind pressure, manual forces)	Pass. Taken into account during design.
	Stability shall be considered in all phases of the life of the machine, including handling, traveling, installation, use, de-commissioning and dismantling.	Pass. Taken into account during design.
	Other protective measures for stability relevant to safeguarding are given in 6.3.2.6	Pass. Please see the related clause.
6.2.7	Provision for maintainability	-
	When designing a machine, the following maintainability factors shall be taken into account:	-
	- accessibility, taking into account the environment and the human body measurements, including the dimensions of the working clothes and tools used;	Pass. These factors have been taken into account during design.
	- ease of handling, taking into account human capabilities;	Pass. The factor has been taken into account during design.
	- limitation of the number of special tools and equipment;	Pass. The factor has been taken into account during design.
6.2.8	Observing ergonomic principles	-
	Ergonomic principles shall be taken into account in designing machinery to reduce mental or physical stress and strain of the operator.	Pass. Appropriate ergonomic principles have been taken into account in designing machinery
	These principles shall be considered when allocating functions to operator and machine (degree of automation) in the basic design.	Pass.These principles have beentaken into account during allocating functions to operatorand machine.
	Account shall be taken of body sizes likely to be found in the intended user population, strengths and postures, movement amplitudes, frequency of cyclic actions (see	Pass. All these factors have been taken into account during

	ISO 10075 and ISO 10075-2)	design.
	All elements of the “operator-machine” interface such as controls, signaling or data display elements, shall be designed to be easily understood so that clear and unambiguous interaction between the operator and the machine is possible.(see EN 614-1, ISO 6385, EN 13861 and IEC 61310-1)	Pass. All arrangement and design of manual controls have been checked in compliance with.
	Designer’s attention is especially drawn to following ergonomic aspects of machine design	-
	a) Avoiding stressful postures and movements during use of the machine (e.g. by providing facilities to adjust the machine to suit the various operators).	Pass. Stressful postures and movements during use of the machine have been avoided.
	b) Designing machines, and more especially hand-held and mobile machines to enable them to be operated easily taking into account human effort, actuation of controls and hand, arm and leg anatomy.	Pass.This machine has been adjusted to the human strength and convenient movement.
	c) Limit as far as possible noise, vibration and thermal effects such as extreme temperatue	Pass. This machine with low noise, low vibration.
	d) Avoid linking the operator's working rhythm to an automatic succession of cycles.	Pass. This situation has been avoided.
	e) Providing local lighting on or in the machine for the illumination of the working area and of adjusting, setting-up, and frequent maintenance zones when the design features of the machine and /or its guards render the ambient lighting inadequate. Flicker, dazzling, shadows and stroboscopic effects shall be avoided if they can cause a risk. If the position of the lighting source has to be adjusted, its location shall be such that it does not cause any risk to persons making the adjustment.	Not applicable.
	f) Select, locate and identify manual controls (actuators) so that	-
	- they are clearly visible and identifiable and appropriately marked where necessary (see6.4.4)	Pass. All design and arrangement are compliance with this

		requirement.
	- they can be safely operated without hesitation or loss of time and without ambiguity (e.g. a standard layout of controls reduces the possibility of error when an operator changes from a machine to another one of similar type having the same pattern of operation)	Pass. All design and arrangement of the control logic have been checked incompliance with this requirement.
	- their location(for push-buttons) and their movement (for levers and handwheels) are consistent with their effect (see IEC 61310-3)	Pass. All the function has been checked in compliance with this requirement.
	Where a control is designed and constructed to perform several different actions, namely where there is no one-to-one correspondence (e.g. keyboards), the action to be performed shall be clearly displayed and subject to confirmation where necessary.	Not applicable.
	Controls shall be so arranged that their layout, travel and resistance to operation are compatible with the action to be performed, taking account of ergonomic principles.	Pass. All the arrangement of the control logic have been checked in compliance with this requirement.
	Constraints due to the necessary or foreseeable use of personal protective equipment(such as footwear, gloves)shall be taken into account.	Pas. taken into account
	g) Select, design and locate indicators, dials and visual display units so that	-
	- they fit within the parameters and characteristics of human perception	Pass.
	- information displayed can be detected, identified and interpreted conveniently, i.e. long lasting, distinct, unambiguous and understandable with respect to the operator’s requirements and the intended use;	Pass. All the information displayed comply with this requirement.
	- the operator is able to perceive them form the control position	Pass.
6.2.9	Preventing electrical hazard	-
	For the design of the electrical equipment of machines IEC 60204-1 gives general provisions, especially in clause 6 for protection against electric shock.	Pass. Please also make reference to EN 60204-1 test report.
	For requirements related to specific machines, see	Not applicable.

	corresponding IEC standards (e.g. series of IEC 61029, IEC 60745, IEC 60335).	
6.2.10	Preventing and hydraulic hazards	-
	Pneumatic and hydraulic equipment of machinery shall be designed so that :	-
	- the maximum rated pressure cannot be exceeded in the circuits (e.g. by means of pressure limiting devices)	Pass. Appropriate limiting devices have been provided.
	- no hazard results from pressure surges or rises, pressure losses or drops or losses of vacuum;	Pass. No such hazards exist.
	- no hazardous fluid jet or sudden hazardous movement of the hose (whiplash)results from leakage or component failures;	Not applicable.
	- air receivers, air reservoirs or similar vessels (e.g. in gas loaded accumulators) comply with the design rules for these elements;	Pass. The devices are designed appropriately.
	- air elements of the equipment, and especially pipes and hoses, be protected against harmful external effects;	Pass. The pipes have been protected by appropriated devices.
	- as far as possible, reservoirs and similar vessels (e.g. in gas loaded accumulators)are automatically depressurized when isolating the machine from its power supply (see 6.3.5.4) and, if it is not possible, means are provided for their isolation, local depressurizing and pressure indication (see also ISO 14118:2000, clause 5)	This requirement is complied with
	- all elements which remain under pressure after isolation of the machine from its power supply be provided with clearly identified exhaust devices, and a warning label drawing attention to the necessity of depressurizing those elements before any setting or maintenance activity on the machine. See also ISO 4413 and ISO4414	Pass. This requirement is complied with by appropriate design.
6.2.11	Applying inherently safe design measures to control system	-
6.2.11.1	General	-
	The design measures of the control system shall be chosen so that their safety-related performance provides a sufficient amount of risk reduction (see ISO 13849-1	Pass. Inherently safe design measures to control system

	or IEC 62061)	have applied.
	The correct design of machine control systems can avoid unforeseen and potentially hazardous machine behaviour.	Pass. Inherently safe design measures to control system have applied.
	- an unsuitable design or modification (accidental or deliberate) of the control system logic;	Pass. No this kind of hazard in this machine
	- a temporary or permanent defect or a failure of one or several components of the control system;	Pass
	- a variation or a failure in the power supply of the control system;	Pass.No this kind of hazard in this machine
	- inappropriate selection, design and location of the control devices;	Not applicable. No this kind of hazard in this machine
	Typical examples of hazardous machine behaviour are :	-
	- unintended/unexpected start-up(see ISO 14118)	Pass.No this kind of hazard
	- uncontrolled speed change;	Pass.No this kind of hazard
	- failure to stop moving parts;	Pass.No this kind of hazard
	- dropping or ejection of a mobile part of the machine or of a workpiece clamped by the machine;	Pass.No this kind of hazard
	- machine action resulting from inhibition (defeating or failure) of protective devices	Pass.No this kind of hazard
	In order to prevent hazardous machine behaviour and to achieve safety functions, the design of control systems shall comply with the principles and methods presented in this subclause 6.2.11 and in 6.2.12.	Pass. the design of control systems comply with the related principles and methods
	These principles and methods shall be applied singly or in combination as appropriate to the circumstances (see ISO 13849-1 and IEC 60204-1and IEC 62061).	Pass. Please see the related clause.
	Control systems shall be designed to enable the operator to interact with the machine safely and easily; this requires one or several of the following solutions;	-
	- systematic analysis of start and stop conditions;	Pass.Systematic analysis have been applied.
	- provision for specific operating modes (e.g. start-up after normal stop, restart after cycle interruption or after emergency stop, removal of the workpieces contained in	Pass. Enough provisions have been provided.

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

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

	shall be prevented (e.g. by use of a self-maintained relay, contactor or valve).	amachine when it is re-energized after power interruption has been prevented by contactor.
6.2.11.5	Interruption of power supply situations resulting from interruption or excessive fluctuation of the power supply. At least the following requirements shall be met:	Machinery shall be designed to prevent hazardous
	- the stopping function of the machinery shall remain;	Pass.
	- all devices whose permanent operation is required for safety shall operation an effective way to maintain safety (e.g. locking, clamping devices, cooling or heating devices, power-assisted steering of self-propelled mobile machinery);	Pass.
	- parts of machinery or workpieces and/or loads held by machinery which are liable to move as a result of potential energy shall be retained for the time necessary to allow them to be safely lowered.	Pass. No such situation exists.
6.2.11.6	Use of automatic monitoring	-
	Automatic monitoring is intended to ensure that a safety function(s) implemented by a protective measure do(es) not fail to be performed if the ability of a component or an element to perform its function is diminished, or if the process conditions are	Pass. Appropriate automatic monitoring has been used.
	Automatic monitoring either detects a fault immediately or carries out periodic checks so that a fault is detected before the next demand upon the safety function.	Pass. Appropriate automatic monitoring has been used.
	In either case, the protective measure can be initiated immediately or delayed until a specific event occurs (e.g. the beginning of the machine cycle.) The protective measures may be , e.g.:	Pass. Appropriate automatic monitoring has been used.
	- the stopping of the hazardous process;	Pass. Emergency stop is provided.
	- preventing the re-start of this process after the first stop following the failure;	Pass. Reset before restart is necessary.
	- the triggering of an alarm	Not applicable
6.2.11.7	Safety functions implemented by programmable electronic control systems	-

6.2.11.7.1	General	-
	A control system including programmable electronic equipment (e.g. programmable controllers) can be used to implement safety functions t machinery.	Pass
	equipment (e.g. programmable controllers) can be used to implement safety functions t machinery.	Pass safety functions are considered during design.
	The design of the programmable electronic control system shall be such that the probability of random hardware failures and the likelihood of systematic failures that can adversely affect the performance of the safety-related control function(s) are sufficiently low.	Pass safety functions are considered during design.
	Where a programmable electronic control system performs a monitoring function, the system behaviour on detection of a fault shall be considered (see also IEC 61508 series for further guidance)	Pass satisfied this
	The programmable electronic control system should be installed and validated to ensure that the specified performance (e.g. safety integrity level (SIL) in IEC 61508 series) for each safety function has been achieved.	Pass ,it be installed and validated to ensure that the specified performance
	Validation comprises testing an analysis (e.g. static, dynamic or failure analysis) to show that all parts interact correctly to perform the safety function and that unintended functions do not occur.	Pass. All parts interact correctly to perform the safety function and that unintended functions do not occur.
6.2.11.7.2	Hardware aspects	
	The hardware (including e.g. sensors, actuators, logic solvers) shall be selected (and/or designed) and installed to meet both the functional and performance requirements of the safety function(s) to be performed, in particular, by means of :	Pass. The hardware has been selected and installed to meet both the functional and performance requirements of the safety functions to be performed.
	- architectural constraints (e.g. the configuration of the system, its ability to tolerate faults, its behaviour on detection of a fault);	Pass. Appropriate devices are provided.
	- selecting (and/or designing) equipment and devices with an appropriate probability of dangerous random	Pass. Appropriate devices are provided

	hardware failure;	
	Incorporating measures and techniques within the hardware to avoid systematic failures and control systematic faults.	Pass. Appropriate devices are provided.
6.2.11.7.3	Software aspects	-
	The software (including internal operating software (or system software) and application software) shall be designed so as to satisfy the performance specification for the safety functions (see also IEC 61508-3)	Pass. It has PLC.
	Application software	-
	Application software should not be re-programmable by the user.	Not applicable.
	This may be achieved by use of embedded software in a non re-programmable memory (e.g. micro-controller, application specific integrated circuit (ASIC)	Not applicable.
	When the application requires reprogramming by the user, the access o the software dealing with safety functions should be restricted e.g. by : - locks; - passwords for the authorized persons	Not applicable.
6.2.11.8	Principles relating to manual control	
	a) Manual control devices shall be designed and located according to the relevant ergonomic principles given in 6.2.8	Pass. Manual control devices have been designed and located according to the relevant ergonomic principles given in 4.8.7.
	b) A stop control device shall be placed near each start control device. Where the start/stop function is performed by means of a hold-to-run control, a separate stop control device shall be provided when a risk can result from the hold-to-run control device failing to deliver a stop command when released.	Pass. A stop control device has been placed near each start control device.
	c) Manual controls shall be located out of reach of the danger zones (see IEC 61310-3), except for certain controls where, of necessity, they are located within a danger zone, such as emergency stop or teach pendant.	Pass. Manual controls have been located out of reach of the danger zones.
	d) Whenever possible, control devices and control	Pass. The control devices

	positions shall be located so that the operator is able to observe the working area or hazard zone.	and control positions have been located so that the operator is able to observe the working area or hazard zone.
	The driver of a ride-on mobile machine shall be able to actuate all control devices required to operate the machine from the driving position, except for functions which can be controlled more safely from other positions.	Not applicable.
	On machinery intended for lifting persons, controls for lifting and lowering and, if appropriate, for moving the carrier, shall generally be located in the carrier. If safe operation requires controls to be situated outside the carrier, the operator in the carrier shall be provided with the means of preventing hazardous movements.	Not applicable.
	e) if it is possible to start the same hazardous element by means of several controls, the control circuit shall be so arranged that only one control is effective at a given time. This applies especially to machines which can be manually controlled by means among others of a portable control unit (teach pendant, for instance), with which the operator may enter danger zones.	Not applicable.
	f) Control actuators shall be designed or guarded so that their effect, where a risk is involved, cannot occur without intentional operation (see ISO 9355-1 and ISO 447)	Pass. This requirement is complied with.
	g) For machine functions whose safe operation depends on permanent, direct control by the operator, measures shall be taken to ensure the presence of the operator at the control position , e.g. by the design and location of control devices.	Pass. This requirement is complied with.
	g) For machine functions whose safe operation depends on permanent, direct control by the operator, measures shall be taken to ensure the presence of the operator at the control position , e.g. by the design and location of control devices.	Pass. This requirement is complied with.
	h) For cableless control an automatic stop shall be performed when correct control signals are not received,	Not applicable.

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

	and shall exclusively allow one control or operating mode.	
	The selector may be replaced by another selection means which restricts the use of certain functions of the machinery to certain categories of operators (e.g. access codes for certain numerically controlled functions).	Not applicable.
6.2.11.11	Applying measures achieve electromagnetic compatibility (EMC)	-
	For guidance on electromagnetic compatibility, see IEC 60204-1, and IEC 61000-6 series.	Not applicable
6.2.11.12	Provision of diagnostic systems to aid fault-finding	-
	Diagnostic systems to aid fault finding should be included in the control system so that there is no need to disable any protective measures.	Not applicable.
6.2.12	Minimizing the probability of failure of safety functions	-
6.2.12.1	General	-
	Safety of machinery is not only dependent on the reliability of the control systems but also on the reliability of all parts of the machine.The continued operation of the safety functions is essential for the safe use of the machine. This can be achieved by :	Pass
6.2.12.2	Use of reliable components	-
	“Reliable components” means components which are capable of withstanding all disturbances and stresses associated with the usage of the equipment in the conditions of intended use (including the environmental conditions), for the period of time or the number of operations fixed for the use, with a low probability of failures generating a hazardous malfunctioning of the machine. Components shall be selected taking into account all factors mentioned above(see also 6.213)	Pass. Reliable components have been used.
6.2.12.3	Use of “oriented failure mode” components	-
	“Oriented failure mode” components or systems are those in which the predominant failure mode is known in advance and which can be used so that such a failure leads to a non-hazardous alteration of the machine function.	Not applicable.
	The use of such components should always be	Not applicable.

	considered, particularly in cases where redundancy is (see 6.2.12.4) not employed.	
6.2.12.4	Duplication (or redundancy) of components or subsystems	-
	In the design of safety-related parts of the machine, duplication (or redundancy) of components may be used so that, if one component fails, another component (or other components) continue(s) to perform its (their) function, thereby ensuring that the safety function remains available.	Not applicable.
	In order to allow the proper action to be initiated, component failure shall be preferably detected by automatic monitoring (see 6.2.11.6) or in some circumstances by regular inspection,	Not applicable.
	provided that the inspection interval is shorter than the expected lifetime of the components.	Not applicable.
	Diversity of design and/or technology can be used to avoid common cause failures (e.g. from electromagnetic disturbance) or common mode failures.	Not applicable.
6.2.13	Limiting exposure to hazards through reliability of equipment	-
	Increased reliability of all component parts of machinery reduces the frequency of incidents requiring rectification, thereby reducing exposure to hazards.	Pass. This requirement is complied with.
	This applies to power systems (operative part) as well as to control systems, to safety functions as well as to other functions of machinery.	Pass. This requirement is complied with.
	Safety-critical components (as e.g. certain sensors) with a known reliability shall be used.	Pass. Safety-critical components are used in this machine.
	The elements of guards and of protective services shall be particularly reliable, as their failure can expose persons to hazards, and also as poor reliability would encourage attempts to defeat them.	Pass. This requirement is complied
6.2.14	Limiting exposure to hazards through mechanization or Automation of loading(feeding) /unloading (removal) operations	-
	Mechanization and automation of machine loading/unloading operations and more generally of	Pass. This requirement is

	handling operations (of workpieces, materials, substances) limit the risk generated by these operations by reducing the exposure of persons to hazards at the operating points.	complied with.
	Automation can be achieved e.g. by robots, handling devices, transfer mechanisms, air blast equipment.	Pass. This requirement has been complied with by design.
	Mechanization can be achieved, e.g. by feeding slides, push rods, hand-operated indexing tables.	Pass. This requirement has been complied with by design.
	While automatic feeding and removal devices have much to offer in preventing accidents to machine operators, they can create danger when any faults are being rectified.	Pass. Appropriate provisions have been provided.
	Care shall be taken to ensure that the use of these devices does not introduce further hazards (e.g. trapping, crushing) between the devices and parts of the machine or workpieces/materials being processed.	Pass. These devices will not introduce further hazards
	Suitable safeguards (see 6.3) shall be provided if this cannot be ensured.	Pass. Please see the related clause.
	Automatic feeding and removal devices with their own control systems and the control systems of theassociated machine shall be interconnected after thoroughly studying how all safety functions are performed in all control and operation modes of the whole equipment.	Pass. This requirement has been complied with by design.
6.2.15	Limiting exposure to hazards through location of the setting and maintenance points outside of danger zones.	Pass.
	The need for access to danger zones shall be minimized by locating maintenance, lubrication and setting points outside these zones.	Pass. This requirement has been complied with by design.
6.3	Safeguarding and complementary protective measures	-
6.3.1	General	-
	Guards and protective devices shall be used to protect persons whenever inherently safe design does not reasonably make it possible either to remove hazards or to sufficiently reduce risks. Complementary protective measures involving additional equipment (e.g. emergency stop equipment)may have to be implemented.	Pass. Appropriate guards and protective devices have been used to protect persons whenever inherently safe design does not reasonably make it possible either to remove

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

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

	also ISO 14119, ISO 14120 and 6.3.3.2.3 of this standard);	
	b) sensitive protective equipment, e.g electro-sensitive protective equipment (see IEC 61496)	Not applicable.
	e) two-hand control device (see ISO 13851)	Not applicable.
	e) two-hand control device (see ISO 13851)	Not applicable.
6.3.2.4	Where access to the hazard zone is required for machine setting, teaching, process changeover, fault finding, cleaning or maintenance.	-
	As far as possible, machines shall be designed so that the safeguards provided for the protection of the production operator may ensure also the protection of personnel in charge of setting, teaching, process changeover, fault finding, cleaning or maintenance without hindering them in performing their task.	Not applicable.
	Such tasks shall be identified and considered in the risk assessment as parts of the use of the machine (see 5.2)	Not applicable.
6.3.2.5	Selection and implementation of sensitive protective equipment	-
6.3.2.5.1	Selection	-
	Due to the great diversity of the technologies on which their detection function is based, all types of sensitive protective equipment are far from being equally suitable for safety applications.	Not applicable.
	The following provisions are intended to provide the designer with criteria for selecting , for each application , the most suitable device(s).	Not applicable.
	Types of sensitive protective equipment include, e.g.:	-
	- light curtains;	Not applicable.
	- scanning devices as, e.g. laser scanners;	Not applicable.
	- pressure sensitive mats;	Not applicable.
	- trip bars, trip wires.	Not applicable.
	Sensitive protective equipment can be used:	-
	- for tripping purposes;	Not applicable.
	- for presence sensing;	Not applicable.
	- for both tripping and presence sensing	Not applicable.
	- to re-initiate machine operation, a practice which is subject to stringent conditions.	Not applicable.
	The following characteristics of the machinery, among	Not applicable.-

	others, can preclude the sole use of sensitive protective equipment:	
	- tendency for the machinery to eject materials or component parts;	Not applicable.
	- necessity to guard against emissions (noise, radiation, dust, etc.)	Not applicable.
	- erratic or excessive machine stopping time;	Not applicable.
	- inability of a machine to stop part-way through a cycle.	Not applicable.
6.3.2.5.2	Implementation	-
	consideration should be given to :	-
	a) - size, characteristics and positioning of the detection zone (see ISO 13855, which deals with the positioning of some types of sensitive protective equipment)	Not applicable.
	b) - reaction of the device to fault conditions (see IEC 61496for electro-sensitive protective equipment)	Not applicable.
	c)- possibility of circumvention	Not applicable.
	d)- detection capability and its variation over the course of time (e.g. as a result of its susceptibility to different environmental conditions such as the presence of reflecting surfaces, other artificial light sources, sunlight or impurities in the air.	Not applicable.
	sensitive protective equipment shall be integrated in the operative part and associated with the control system of the machine so that:	-
	- a command is given as soon as a person or part of a person is detected;	Not applicable.
	- the withdrawal of the person or part of a person detected does not, by itself, restart the hazardous machine function (s); therefore, the command given by the sensitive protective equipment shall be maintained by the control system until a new command is given;	Not applicable.
	- restarting the hazardous machine function(s) results from the voluntary actuation , by the operator, of a control device placed outside the hazard zone, where this zone can be observed by the operator;	Not applicable.
	- he machine cannot operate during interruption of the detection function of the sensitive protective	Not applicable.

	equipment, except during muting phases,;	
	- the position and the shape of detection field prevents, ,possibly together with fixed guards, a person or part of a person from entering the hazard zone, or being present in it, without being detected.	Not applicable.
6.3.2.5.3	Additional requirements for sensitive protective equipment when used for cycle initiation.	-
	In this exceptional application, starting of the machine cycle is initiated by the withdrawal of a person or of the detected part of a person from the sensing field of the sensitive protective equipment, without any additional start command, hence deviating from the generalrequirement given in the second point of the dashed list in 6.3.2.5.2, above. After switching on the power supply, or when the machine has been stopped by the tripping function of the sensitive protective equipment, the machine cycle shall be initiated only by voluntary actuation of a start control.	Not applicable.
	Cycle initiation by sensitive protective equipment shall be subject to the following conditions:	-
	a) only active optoelectronic protective devices (AOPDs) complying with IEC 61496 series shall be used;	Not applicable.
	b) the requirements for an AOPD used as a tripping and presence-sensing device (see IEC 61496) are satisfied — in particular, location, minimum distance (see ISO 13855), detection capability, reliability and monitoring of control and braking systems;	Not applicable.
	c) the cycle time of the machine is short and the facility to re-initiate the machine upon clearing of the sensing field is limited to a period commensurate with a single normal cycle;	Not applicable.
	d) entering the sensing field of the AOPD(s) or opening interlocking guards is the only way to enter the hazard zone;	Not applicable.
	e) if there is more than one AOPD safeguarding the machine, only one of the AOPD（s） is capable of cycle re-initiation;	Not applicable.
	f) with regard to the higher risk resulting from	Not applicable.

	automatic cycle initiation, the AOPD and the associated control system comply with a higher safety-related performance than under normal conditions.	
6.3.2.6	Protective measures for stability	-
	If stability cannot be achieved by inherently safe design measures such as weight distribution (see 4.6), it will be necessary to maintain it by protective measures such as the use of :	-
	- anchorage bolts;	Pass Anchorage bolts have been used.
	- locking devices	Not applicable.
	- movement limiters or mechanical stops;	Not applicable.
	- acceleration or deceleration limiters;	Not applicable.
	- load limiters;	Not applicable.
	- alarms warning of the approach to stability or tipping limits;	Not applicable.
6.3.2.7	6.3.2.7 Other protective devices	-
	When a machine requires continuous control by the operator(e.g. mobile machines, cranes) and an error of the operator can generate a hazardous situation, this machine shall be equipped with the necessary devices to enable the operation to remain within specified limits , in particular:	Not applicable.
	- when the operator has insufficient visibility of the hazard zone;	Not applicable.
	- when the operator lacks knowledge of the actual value of a safety –related parameter (e.g. .a distance, a speed, the mass of a load, the angle of a slope)	Not applicable.
	- when hazards may result from operations other than those controlled by the operator;	Not applicable.
	The necessary devices include:	-
	- devices for limiting parameters of movement (distance, angle, velocity , acceleration)	Not applicable.
	- overloading and moment limiting devices:	Not applicable.
	- devices to prevent collisions or interference with other machines;	Not applicable.
	-device for preventing hazards to pedestrian operators of mobile machinery or other pedestrians;	Not applicable.
	- torque limiting devices, breakage points to prevent	Not applicable.

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

	- be located at an adequate distance from the danger zone (see ISO 13857 and ISO 13855).	Pass. This requirement has been taken into account during design.
	- cause minimum obstruction to the view of the production process;	Pass. This requirement has been taken into account during design.
	- enable essential work to be carried out on installation and/or replacement of tools and also for maintenance by allowing access only to the area where the work has to be done, if possible without the guard or protective device having to be moved;	Pass. This requirement has been taken into account during design.
	For openings in the guards see ISO 13857	Pass. This requirement has been taken into account during design.
6.3.3.2	Requirements for fixed guards	
6.3.3.2.1	Functions of guards	-
	The functions that guards can achieve are:	Pass These functions are achieved by fixed guards.
	- prevention of access to the space enclosed by guard and/or - containment/capture of materials, workpieces, chips, liquids which may be ejected or dropped by the machine and reduction of emissions(noise, radiation, hazardous substances such as dust, fumes, gases) which may be generated by the machine.	Pass These functions are achieved by fixed guards.
	Additionally, they may need to have particular propertied relating to electricity, temperature, fire, explosion, vibration, visibility(see ISO 14120) and operator position ergonomics(e.g. usability, operator's movements, posture, repetitive movements).	These functions are achieved by fixed guards.
6.3.3.2.2	Requirements for fixed guards	-
	Fixed guards shall be securely held in place:	-
	- either permanently (e.g. by welding) - or by means of fasteners (screws, nuts) making removal/opening impossible without using tools; they should not remain closed without their fasteners (see	Pass All the fixed guards are securely held in place by appropriate fasteners.

	ISO 14120)	
6.3.3.2.3	Requirements for movable guards	-
	a) movable guards which provide protection against hazards generated by moving transmission parts shall :	-
	- as far as possible remain fixed to the machinery or other structure (generally by means of hinges or guides) when open;	Pass. Gemels are used for the movable guards.
	- be interlocking guards (with guard locking when necessary) (see ISO 14119)	NO
	b) movable guards against hazards generated by non-transmission moving parts shall be designed and associated with the machine control system so that:	-
	- moving parts cannot start up while they are within the operator’s reach and the operator cannot reach moving parts once they have started up ; this can be achieved by interlocking guards, with guard locking when necessary.	Pass. Interlocking guards are provided to comply with these requirements.
	- they can be adjusted only by an intentional action , such as the use of a tool or a key;	Pass. This requirement is complied with.
	- the absence or failure of one of their components prevents starting of the moving parts or stops them; this can be achieved by automatic monitoring (see 4.11.6)	Pass. This requirement is complied with.
6.3.3.2.4	Requirements for adjustable guards	-
	Adjustable guards may only be used where the hazard zone cannot for operational reasons be completely enclosed;	Not applicable.
	They shall :	-
	- be designed so that the adjustment remains fixed during a given operation;	Not applicable.
	- be readily adjustable without the use of tools;	Not applicable.
6.3.3.2.5	Requirements for interlocking guards with a start function (control guards)	-Not applicable.
	An interlocking guard with a start function may be used provided that	-Not applicable.
	- all requirements for interlocking guards are satisfied (see ISO 14119)	Not applicable.
	- the cycle time of the machine is short	Not applicable.
	- the maximum opening time of the guard is present to a low value (e.g. equal to the cycle time). When this time is exceeded, the hazardous function(s) cannot be	Not applicable.

	nitiated by the closing of the interlocking guard with a tart function and resetting is necessary before restarting he machine.	
	- the dimensions or shape of the machine do not allow a person, or part of a person, to stay in the hazard zone or between the hazard zone and the guard while the guard is closed (see ISO 14120)	Not applicable.
	- all other guards whether fixed (removable type) or movable are interlocking guards;	Not applicable.
	- the interlocking device associated with the interlocking guard with a start function is designed in such a way – e.g. by duplication of position detectors and use of automatic monitoring (see 4.11.6)- that its failure cannot lead to an unintended/unexpected start-up;	Not applicable.
	- the guard is securely held open (e.g. by a spring or counterweight)such that it cannot initiate a start while falling by its own weight;	Not applicable.
6.3.3.2.6	Hazards from guards	-
	Care shall be taken to prevent hazards which might be generated by :	-
	- the guard construction (e.g. sharp edges or corners, material);	Pass. This requirement has been taken into account during design.
	- the movements of the guards (shearing or crushing zones generated by power-operated guards and by heavy guards which are liable to fall)	Pass. This requirement has been taken into account during design.
6.3.3.3	Technical characteristics of protective devices	-
	Protective devices shall be selected or designed and connected to the control system so as to ensure correct implementation of their safety function (s) is ensured.	Pass. This requirement has been taken into account during design.
	Protective devices shall be selected on the basis of their having met the appropriate product standard (for example, IEC 61496 for active optoelectronic protective devices) or shall be designed according to one or several of the principles formulated in ISO 13849-1 or	Pass. This requirement has been taken into account during design.

	IEC62061.	
	Protective devices shall be installed and connected to the control system so that they cannot be easily defeated.	Pass. his requirement has been Taken into account during design
6.3.3.4	Provisions for alternative types of safeguards.	-
	Provisions should be made to facilitate the fitting of alternative types of safeguards on machinery where it s known that this fitting will be necessary because the work to be done on it will vary.	Not applicable.
6.3.4	Safeguarding for reducing emissions	
6.3.4.1	General	-
	If the measures for the reduction of emissions at source mentioned in 6.2.2.2 are not adequate, the machine shall be provided with additional protective measures (see 6.3.4.2 to 6.3.4.5).	Pass. No such hazard exists.
6.3.4.2	Noise	-
	Additional protective measures include, for example: - enclosures (see ISO 15667) - screens fitted to the machine; - silencers (see ISO 14163)	Pass. No such hazard exists.
6.3.4.3	Vibration	-
	Additional protective measures include, for example, damping devices for vibration isolation between the source and the exposed person such as resilient mounting or suspended seats.	Pass. No such hazard exists.
	For measures for vibration isolation of stationary industrial machinery see EN 1299	Pass. No such hazard exists.
6.3.4.4	Hazardous substances	-
	Additional protective measures include, for example:	-
	- encapsulation of the machine (enclosure with negative pressure);	Not applicable.
	- local exhaust ventilation with filtration.	Not applicable.
	- wetting with liquids;	Not applicable.
	- special ventilation in the area of the machine (air curtains , cabins for operators)	Not applicable.
6.3.4.5	Radiation	-
	Additional protective measures include, for example:	-
	- use of filtering and absorption;	Not applicable.
	- use of attenuating screens or guards	Not applicable.

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

	Measures for the escape and rescue of trapped persons may consist e.g. of :	-
	- escape routes and shelters in installations generating operator-trapping hazards’	Not applicable.
	- arrangements for moving some elements by hand, after an emergency stop	Not applicable.
	- arrangements for reversing the movement of some elements	Not applicable.
	- anchorage points for descender devices;	Not applicable.
	- means of communication to enable trapped operators to call for help	Not applicable.
6.3.5.4	Measures for isolation and energy dissipation	-
	Especially with regard to their maintenance and repair , machines shall be equipped with the technical means to achieve the isolation from power supply(ies) and dissipation of stored energy as a result of following actions:	-
	a) isolating (disconnecting, separating) the machine (or defined parts of the machine) from all power supplies;	Pass. A main switch with lock is provided.
	b) locking (or otherwise securing) all the isolating units in the isolating position;	Pass. Please see the report for IEC 60204
	c) dissipating or , if this is not possible or practicable, restraining (containing) any stored energy which may give rise to a hazard;	Pass. Please see the report for IEC 60204
	d) verifying, by means of a safe working procedure, that the actions taken according to a), b) and c) above have produced the desired effect.	Pass. Please see the report for IEC 60204
	See ISO 14118:2000, clause 5 and IEC 60204-1:2005, 5.5 and 5.6	
6.3.5.5	Provisions for easy and safe handling of machines and their heavy component parts	-
	Machines and their component parts which cannot be moved or transported by hand shall be provided or capable of being provided with suitable attachment devices for transport by means of lifting gear.	Pass. Appropriate attachments are provided.
	These attachments may be, among others,	-
	- standardized lifting appliances with slings, hooks, eyebolts, or tapped holes for appliance fixing;	Not applicable.

	- appliances for automatic grabbing with a lifting hook when attachment is not possible from the ground.	Pass. Such devices are used.
	- guiding grooves for machines to be transported by a fork truck;	Not applicable.
	- lifting gear and appliances integrated into the machine.	
	Parts of machinery which can be removed manually in operation shall be provided with means for their safe removal and replacement; See also 6.4.4c)（ item 3).	Pass
6.3.5.6	Measures for safe access to machinery	-
	Machinery shall be so designed as to enable operation and all routine tasks relating to setting and/or maintenance, to be carried out, as far as possible, by a person remaining at ground level.	These requirements have been taken into account during design.
	Where this is not possible, machines shall have built-in platforms, stairs or other facilities to provide safe access for those tasks, but care should be taken to ensure that such platforms or stairs do not give access to danger zones of machinery.	Not applicable.
	The walking areas shall be made from materials which remain as slip resistant as practicable under working conditions and, depending on the height from the ground, suitable guard-rails (see ISO 14122-3) shall be provided.	Not applicable.
	In large automated installations, particular attention shall be given to safe means of access such as walkways, conveyor bridges or crossover points.	Not applicable.
	Means of access to parts of machinery located at a height shall be provided with collective means of protection against falls (e.g. guard-rails for stairways, stepladders and platforms and/or safety cages for ladders)	Not applicable.
	As necessary , anchorage points for personal protective equipment against falls from a height shall also be provided (e.g. in carriers of machinery for lifting persons or with elevating control sations)	Not applicable.
	Openings shall whenever possible open towards a safe position. They shall be designed to prevent hazards due to unintended opening.	Not applicable.
	The necessary aids for access shall be provided (e.g.	Not applicable.

	steps, handholds). Control devices shall be designed and located to prevent their being used as aids for access.	
	When machinery for lifting goods and/or persons includes landings at fixed levels, these shall be equipped with interlocking guards preventing falls when the platform is not present at the level.	Not applicable.
	Movement of the lifting platform shall be prevented while the guards are open.	Not applicable.
	For detailed provisions see ISO 14122.	Not applicable.
6.4	Information for use	-
6.4.1	General requirements	-
	Drafting information for use is an integral part of the design of a machine (see figure 2).	Pass. Please see the related clause.
6.4.1.1	Information of use consists of communication links, such as texts, words, signs, signals, symbols or diagrams, used separately or in combination to convey information to the user. It is directed to professional and/or non-professional users.	Pass. All the information is stated in the appropriate place.
6.4.1.2	Information shall be provided to the user about the intended use of the machine, taking into account, notably, all its operating modes.	-
	The information shall contain all directions required to ensure safe and correct use of the machine. With this in view, it shall inform and warn the user about residual risk.	Pass. All the information is stated in the appropriate place.
	The information shall indicate, as appropriate,	-
	- the need for training,	Pass. All the information is stated inthe appropriate place.
	- the need for personal protective equipment,	Pass. All the information is stated inthe appropriate place.
	- the possible need for additional guards or protective devices (see Figure 2, Footnote d).	Pass. All the information is stated inthe appropriate place.
	It shall not exclude uses of the machine that can	Pass.

	reasonably be expected from its designation and description and shall also warn about the risk which would result from using the machine in other ways than the ones described in the information, especially considering its reasonably foreseeable misuse.	All the information is stated in the appropriate place.
6.4.1.3	Information for use shall cover, separately or in combination, transport, assembly and installation, commissioning, use of the machine (setting, teaching/programming or process changeover, operation, cleaning, fault-finding and maintenance) and, if necessary, dismantling, disabling and scrapping.	Pass. All the information is stated in the appropriate place.
6.4.2	Location and nature of the information for use	-
	Depending on the risk , the time when the information is needed by the user and the machine design , it shall be decided whether the information – or parts thereof – are to be given:	Pass. All the information is stated inthe appropriate place.
	- in /on the machine itself (see 6.3 and 6.4.4)	Pass. Adequate information is stated in the machine itself.
	- in accompanying documents (in particular instruction handbook , see 6.4.5)	Pass. Adequate information is stated in the accompanying documents
	- on the packaging	Pass. Adequate information is stated on the packaging
	- by other means such as signals and warnings outside the machine.	Pass. Adequate information is stated
	Standardized phrases shall be considered where important messages such as warnings need to be given (see also IEC 62079)	This requirement is considered.
6.4.3	Signals and warning devices	-
	Visual signals (e.g. flashing lights) and audible signals (e.g. sirens) may be used to warn of an impending hazardous event such as machine start-up or overspeed.	Pass. Signals and warning devices are provided.
	Such signals may also be used to warn the operator	Pass.

	before the triggering of automatic protective measures (see last paragraph of 5.2.70	Please the related clause.
	It is essential that these signals:	-
	- be emitted before the occurrence of the hazardous event;	taken into account during design and selection of the warning devices.
	- be unambiguous;	Pass. This requirement is taken into account during design and selection of the warning devices.
	- be clearly perceived and differentiated from all other signals used; - be clearly recognized by the operator and other persons.	Pass. This requirement is taken into account during design and selection of the warning devices.
	The warning devices shall be designed and located such that checking is easy.	Pass. This requirement is taken into account during design and selection of the warning devices.
	The information for use shall prescribe regular checking of warning devices.	Pass. This requirement is taken into account during design and selection of the warning devices.
	The attention of designers is drawn to the risks from “sensorial saturation” which results from too many visual and/or acoustic signals, which may also lead to defeating the warning devices.	Pass. This requirement is taken into account during design and selection of the warning devices.
6.4.4	Markings, signs (pictograms), written warnings	-
	Machinery shall bear all markings which are necessary:	-
	a) for its unambiguous identification, at least - name and address of the manufacturer; - designation of series or type; - serial number, if any.	Pass. Adequate information is provided.
	b) in order to indicate its compliance with mandatory requirements;	-
	- marking; - written indications (e.g. for machines intended for use in potentially explosive atmosphere)	Pass. Adequate information is provided.
	c) for its safe use, e.g. :	
	- maximum speed of rotating parts;	Pass.

	- maximum diameter of tools; - mass (expressed in kilograms) of the machine itself and/or of removable parts' - maximum working load; - necessity of wearing personal protective equipment; - guard adjustment data; - frequency of inspection.	Adequate information is provided.
	Information printed directly on the machine should be permanent and remain legible throughout the expected life of the machine.	Pass. This requirement is complied with.
	Signs or written warnings only saying "danger" shall not be used.	Pass. This requirement is complied with.
	Readily understandable signs (pictograms) should be used in preference to written warnings.	Pass. This requirement is complied with.
	Signs and pictograms should only be used if the are understood in the culture in which the machinery is to be used.	Pass. This requirement is complied with.
	Markings shall comply with recognized standards (see ISO 2972, ISO 7000, particularly for pictograms, symbols , colours) See IEC 60204 series as regards marking of electrical equipment.	Pass. This requirement is complied with.
6.4.5	Accompanying documents (in particular, instruction handbook)	-
6.4.5.1	Contents	-
	The instruction handbook or other written instructions (e.g. on the packaging) shall contain among others:	-
	a) information relating to transport, handling and storage of the machine e.g. :	-Pass. All the related information is stated in the instruction handbook
	- storage conditions for the machine;	-Pass. All the related information is stated in the instruction handbook
	- dimensions , mass value(s), position of the centre (s) of gravity;	-Pass. All the related information is stated in the instruction handbook

	- indications for handling (e.g. drawings indicating application points for lifting equipment)	-Pass. All the related information is stated in the instruction handbook
	b) information relating to installation and commissioning of the machine, e.g.	-
	- fixing/anchoring and vibration dampening requirements	Pass. All the related information is stated in the instruction handbook
	- assembly and mounting conditions;	Pass. All the related information is stated in the instruction handbook
	- space needed for use and maintenance;	Pass. All the related information is stated in the instruction handbook
	- permissible environmental conditions (e.g. temperature, moisture, vibration, electromagnetic radiation);	Pass. All the related information is stated in the instruction handbook
	- instructions for connecting the machine to power supply (particularly about protection against electrical overloading);	Pass. All the related information is stated in the instruction handbook
	- advice about waste removal /disposal;	Pass. All the related information is stated in the instruction handbook
	- if necessary, recommendations about protective measures which have to be taken by the user; e.g. additional safeguards (see ISO 12100-1:2003, figure 1, note 4), safety distances, safety signs and signals.	Pass. All the related information is stated in the instruction handbook
	c) information relating to the machine itself, e.g. :	-
	- detailed description of the machine, its fittings, its guards and/or protective devices;	Pass. All the related information is stated in the instruction handbook

	- comprehensive range of applications for which the machine is intended, including prohibited usages, if any , taking into account variations of the original machine if appropriate.	Pass. All the related information is stated in the instruction handbook
	- diagrams (especially schematic representation of safety functions);	Pass. All the related information is stated in the instruction handbook
	- data about noise and vibration generated by the machine, about radiation , gases, vapours, dust emitted by it, with reference to the measuring methods used.	Pass. All the related information is stated in the instruction handbook
	- technical documentation about electrical equipment (see IEC 60204 series)	Pass. All the related information is stated in the instruction handbook
	- documents attesting that the machine complies with mandatory requirements;	Pass. All the related information is stated in the instruction handbook
d)	information relating to the use of the machine, e.g. about:	-
	- intended use; - description of manual controls (actuators); - setting and adjustment; - modes and means for stopping (especially emergency stop) - risks which could not be eliminated by the protective measures taken by the designer; - particular risks which may be generated by certain applications, by the use of certain fittings, and about specific safeguards which are necessary for such applications. - reasonably foreseeable misuse and prohibited usages; - fault identification and location , repair, and re-starting after an intervention; - personal protective equipment which need to be used and training required.	Pass. All the related information is stated in the instruction handbook
	e) information for maintenance e.g.	-

	- nature and frequency of inspections for safety functions; - instructions relating to maintenance operations which require a definite technical knowledge or particular skills and hence should be carried out exclusively by skilled persons (e.g. maintenance staff, specialists) - instructions relating to maintenance actions (e.g. replacement of parts) which do not require specific skills and hence may be carried out by users (e.g. operators) - drawings and diagrams enabling maintenance personnel to carry out their task rationally (especially fault-finding tasks) f) information relating to de-commissioning , dismantling and disposal; g) information for emergency situations , e.g. : - type of fire-fighting equipment to be used. - warning about possible emission or leakage of harmful substance(s), and if possible, indication of means to fight their effects.	Pass. All the related information is stated in the instruction handbook
	h) maintenance instructions provided for skilled persons (second dash in e))and maintenance instructions provided for unskilled persons (third dash in e)), that should appear clearly separated from each other.	Pass. All the related information is stated in the instruction handbook
6.4.5.2	Production of the instruction handbook	-
	a) type and size of print shall ensure the best possible legibility. Safety warnings and/or cautions should be emphasized b the use of colours, symbols and/or large print.	Pass. All the related information is stated in the instruction handbook
	b) information for use shall be given in the language(s) of the country in which the machine will be used for the first time and in the original version. If more than one language are to be used, each language should be readily distinguished from the other(s), and efforts should be made to keep the translated text and the relevant illustration together.	Pass. All the related information is stated in the instruction handbook
	c) whenever helpful to the understanding, text should be supplemented with written details enabling , for instance, manual controls (actuators) to be located and	Pass. All the related information is stated in the instruction

	identified; they should not be separated from the accompanying text and should follow sequential operations.	handbook
	d) consideration should be given to presenting information in tabular form where this will aid understanding.Tables should be adjacent to the relevant text.	Pass. All the related information is stated in the instruction handbook
	e) the use of colours should be considered, particularly in relation to components requiring quick identification.	Pass. All the related information is stated in the instruction handbook
	f) when information for use is lengthy, a table of contents and/or an index should be given.	Pass. All the related information is stated in the instruction handbook
	g) safety-relevant instructions which involve immediate action should be provided in a form readily available to the operator.	Pass. All the related information is stated in the instruction handbook
6.4.5.3	Drafting and editing information for use	-
	a) relationship to model : the information shall clearly relate to the specific model of machine and, if necessary, other appropriate identification (for example, by serial number).	Pass. All the related information is stated in the instruction handbook
	b) communicate principles : when information for use is being prepared, the communication process “see-think-use” should be followed in order to achieve the maximum effect and should follow sequential	Pass. All the related information is stated in the instruction handbook
	operations. The questions “how ?” and “why ?” should be anticipated and the answers provided.	Pass. All the related information is stated in the instruction handbook
	c) information for use shall be as simple and as brief as possible, and should be expressed in consistent terms and units with a clear explanation of unusual technical terms.	Pass. All the related information is stated in the instruction handbook
	d) when it is foreseen that a machine will b put to non-professional use, the instructions should be written in a form that is readily understood by the	Pass. All the related information is stated in the instruction

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

		report in detail.
	i) any forms completed during the risk assessment.	See the risk assessment report in detail.

A.1 Declaration of conformity with signature

EC DECLARATION OF CONFORMITY

according to the following EC Directives

- Machinery Directive : 2006/42/EC

CE

The undersigned, _____, representing, *Shenzhen ZCL Technology Co., Ltd. /No.9 Building, Wodu Industrial Zone, Security Community, Henggang Street, LongGang District, Shenzhen, Guangdong, China* manufacturer declares that the machine described hereafter:

CNC AutomaticCutting Machine

Model/Types: C.L-CNC-006 ， C.L-CNC-007

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, Low Voltage Directive and Electromagnetic Compatibility 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:

• EN12417:2001+A2:2009/AC:2010
/ Machine tools – Machining centres
EN ISO 12100: 2010
Safety of machinery . General principles for design . Risk assessment and risk reduction.
EN 60204-1:2006+A1:2009+AC:2010
• EN 280:2013+A1-2015 Mobile elevating work platforms — Design calculations — Stability criteria — Construction — Safety — Examinations and tests
•EN ISO 13857:2008/Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs
• EN 349:1993 + A1:2008/ Safety of machinery - Minimum gaps to avoid crushing of parts of the human body
• EN 953:1997+A1:2009 Safety of machinery — Guards — General requirements for the design and construction of fixed and movable guards.
• EN ISO 3746:2010 Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure - Survey method using an enveloping measurement surface over a reflecting plane.
• EN 61000-6-2:2005 Electromagnetic compatibility (EMC) -- Part 6-2: Generic standards - Immunity for industrial environments
• EN 61000-6-4:2007Electromagnetic compatibility (EMC) -- Part 6-4: Generic standards - Emission standard for industrial environments

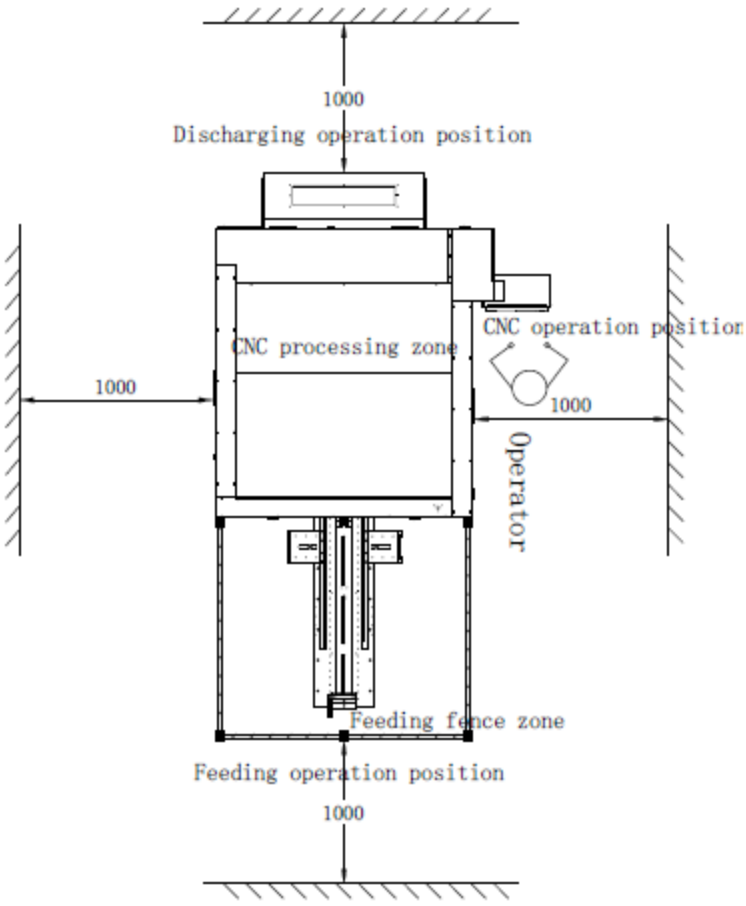
Date: _____

Signature:_____

Qualification: General Manager

Shenzhen ZCL Technology Co., Ltd.

A.2 Operation position

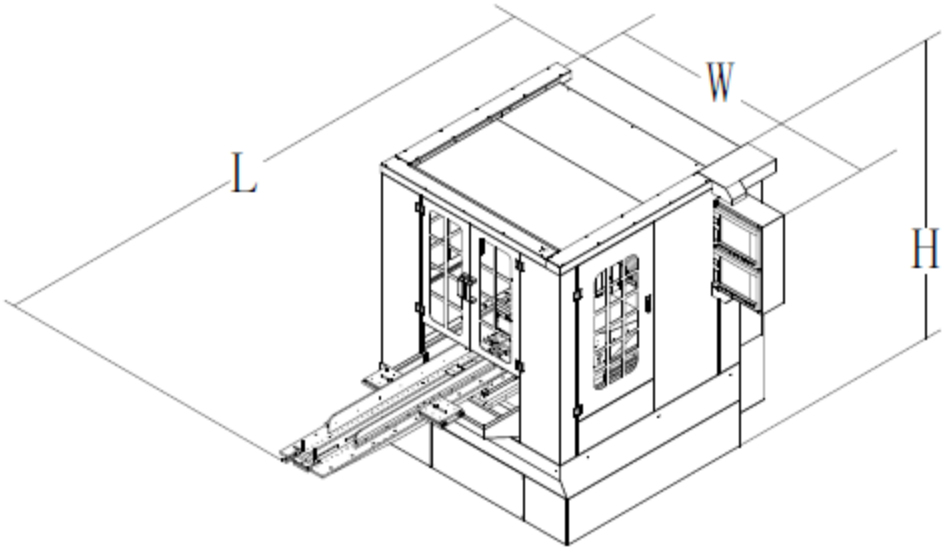


A.3 Specification

Model	Outer dimension (mm)	Maximum processing material length (mm)	Motor power (kw)	Weight (kg)	Voltage (v)
C.L-CNC-006	2942X1631X1798	1700	3.5	1.75	220
C.L-CNC-007	2903X1629X1792	1700	3.5	1.7	220

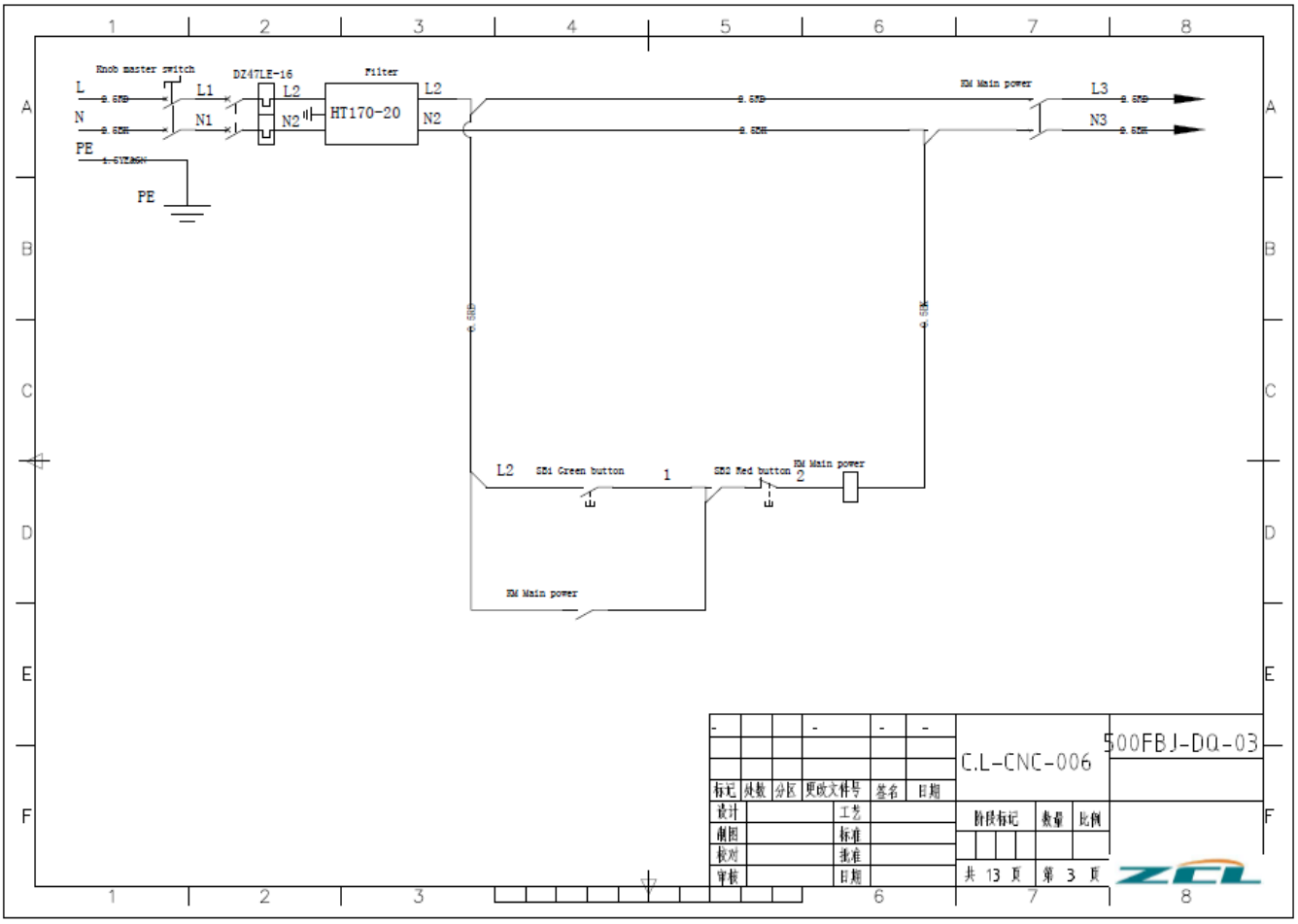
A.4 Overall drawing

Machine Size(Figure)



Articles of box	L(MM)	W(MM)	H(MM)	Wight (kg)
C.L-CNC-006	2942	1651	1798	1.75
C.L-CNC-007	2905	1629	1792	1.7

A.5 Electric diagram



A.6 Electric Components List

C.L-CNC-006

List of 500 Horizontal and Vertical Cutting Machine Electrical Parts

S/N	Name	Spec.	Quantity	Supplier	Certification
1	11MB System	11MB-10.4 inch, F01-11MB-SEP-D	1	SYNTEC	CE
2	Delta driver	ASD-B2-0721-B	3	DELTA	CE
3	Delta driver	ASD-B2-0421-B	2	DELTA	CE
4	1.5W Converter	VFD7A5MS21ANSAA	2	DELTA	CE
5	20A Filter	HT170-20-L8-B3	1	LE FENG	
6	16A Fuse	R015 Ø10.3*38	2	CHINT	CE
7	RT18 Fuse holder	RT18-32	2	CHINT	CE
8	24V Intermediate relay	LY2N-J DC24V	4	THINKSTART	
9	intermediate relay holde	DTF08A	4	CHINT	CE
10	1210 Contactor	NXC-12	1	CHINT	CE
11	2P10A Air switch	NXB-63 C10	2	CHINT	CE
	Leakage air switch	2P NXBLE-32 16A	1	CHINT	CE
14	Switch power supply	S-75-24	1	MEAN WELL	CE
15	IO board	Positive 16-bit input	1	HAOJIA	
16	IO board	Negative 16-bit output	1	HAOJIA	
17	IO board relay	40.6L.7.24.0001	16	QIANJI	
18	IO line		2	HAOJIA	
19	Knob master switch	GLD11-32A	1	HONGWEI	
20	Network module panel		1		
21	Cable module		1		
22	Plug		1		
23	PG13.5 waterproof joint		1		
24	Socket		1		
25	Three-hole socket outlet		1		
26	Three-pin plug		1		
27	Dual color light (short)	TD50/2/24/C/F/Z/+	1	Southern Tiancheng	
28	Proximity switch	FQ-0802P	1	DORLAND	
29	Optoelectronic switch	FC-SPX-310P	2	DORLAND	
30	Handwheel	MYST1469-100PPR-5L	1	SHENGYUE	
31					
32					
33					
34					
35					
36					
37					

A.7 Machine Photo

……End of the report ……

Shenzhen ZCL Technology Co., Ltd.