TECHNICAL CONSTRUCTION FILE (TCF)

SHANGHAI GIENI INDUSTRY CO., LTD

ROTARY FILLING MACHINE Model: JR-02-E, JR-01-E, JR-01-M, JR-02-M, JR-01-L, JR-02-L, JR-01-N, JR-02-N, JR-01-P, JR-02-P

TCF No.: SZAHS180712005-01

Date: 2018-07-19

Applicant : SHANGHAI GIENI INDUSTRY CO., LTD 2-408, JIALUO ROAD, JIADING DISTRICT, SHANGHAI 201809

Manufacturer : SHANGHAI GIENI INDUSTRY CO., LTD 2-408, JIALUO ROAD NO. 1661, JIADING DISTRICT, SHANGHAI 201809

Contents

Part I: General

- 1.1 General description
- 1.2 Quality control system
- 1.3 List of appliances regulations and standards

Part II: Test Report

- 2.1 EN ISO 12100:2010 test report
- 2.2 EN 60204-1:2006+A1:2009+AC:2010 test report

Annex: Technical Information

- A.1 User manual with related specification information
- A.2 Critical BOM
- A.3 Photo documentation



Part I: General 1.1 General description

The characteristics and basic specification of ROTARY FILLING MACHINE are as following:

1. Brand Name: N.A.

2. Input rating: AC220-240V, 50/60Hz, 1KW

This report mainly checked safety of machine and electric for ROTARY FILLING MACHINE, representative model sample JR-02-E.

Applicant name, Address Tel. & Fax No. SHANGHAI GIENI INDUSTRY CO., LTD

2-408, JIALUO ROAD NO. 1661, JIADING DISTRICT, SHANGHAI 201809

Manufacturer name, Address Tel. & Fax No. SHANGHAI GIENI INDUSTRY CO., LTD 2-408, JIALUO ROAD NO. 1661, JIADING DISTRICT, SHANGHAI 201809

Product name: ROTARY FILLING MACHINE

Model No.: JR-02-E, JR-01-E, JR-01-M, JR-02-M, JR-01-L, JR-02-L, JR-01-N, JR-02-N, JR-01-P, JR-02-P Photographs: Refer to the enclosed product photos

Operating environments

The machine is used in commercial environment and could meet Machinery Directive. In order to ensure the conformity for CE marking for this equipment, 2006/42/EC Directive Essential Health and Safety Requirements relating to the design and construction of machinery and safety components. EN ISO12100: 2010 for checking of mechanical structures and risk assessment, EN 60204-1:2006+A1:2009 for checking of electrical equipment have been used to made assessment of conformity.

1.2 Quality control system

I. Introduction

SHANGHAI GIENI INDUSTRY CO., LTD is now establishing its quality assurance system in accordance with the ISO 9000 quality system. The following pages will describe SHANGHAI GIENI INDUSTRY CO., LTD 's idea and concept about quality system and how they executive the system.

II. SHANGHAI GIENI INDUSTRY CO., LTD 's quality system

- 1. Management responsibility
- Quality policy

The quality policy shall be relevant to the SHANGHAI GIENI INDUSTRY CO., LTD 's Organizational goals and the expectations and needs of its customers.

SHANGHAI GIENI INDUSTRY CO., LTD shall ensure that this policy is understood, implement, and maintained at all levels of the organization.

Management review

ootek SZAHS180712005-01

Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited Page 3 of 87

SHANGHAI GIENI INDUSTRY CO., LTD management with executive responsibility shall review the quality system at defined intervals sufficient to ensure its continuing suitability and effectiveness in satisfying the requirements of these requirements.

2. Quality system

SHANGHAI GIENI INDUSTRY CO., LTD shall establish, document and maintain a quality system as a means of ensuring that product conforms the specified requirements.

3. Contract review

Before submission of a tender, or the acceptance of a contract or order, the tender, contract, or order shall be reviewed by the SHANGHAI GIENI INDUSTRY CO., LTD.

4. Design control

SHANGHAI GIENI INDUSTRY CO., LTD shall establish and maintain documented procedures to control and verify the design of the product in order to ensure that the specified requirements are met.

5. Document and data control

SHANGHAI GIENI INDUSTRY CO., LTD shall establish and maintain documented procedures to control all documents and data that the requirements of this requirements including to the extent applicable, documents of external origin such as standard and customer drawing. The TCF for CE marking is one of the controlled documents.

6. Purchasing

SHANGHAI GIENI INDUSTRY CO., LTD shall establish and maintain documented procedures to ensure that purchased product conforms to specified requirements.

7. Control of customer supplied product

SHANGHAI GIENI INDUSTRY CO., LTD shall establish and maintain documented procedures for the control of verification, storage and maintenance of customer-supplied product provided incorporation into the SHANGHAI GIENI INDUSTRY CO., LTD or for related activities.

8. Product identification and tractability

Where appropriate, the SHANGHAI GIENI INDUSTRY CO., LTD shall establish and maintain documented procedures for identifying the product by suitable means from receipt and during all stages of production, delivery, and installation.

9. Process control

SHANGHAI GIENI INDUSTRY CO., LTD shall identify and plan the production, installation and servicing processes which directly affect quality and shall ensure that these processed are carried out under controlled condition.

10. Inspection and testing

SHANGHAI GIENI INDUSTRY CO., LTD shall establish and maintain documented procedures for inspection and testing activities in order to verify that the specified requirements for the product are met.

11. Control of inspections, measuring, and test equipment

SHANGHAI GIENI INDUSTRY CO., LTD shall establish and maintain documented procedures to control, calibrate and maintain inspection, measuring, and test equipment used by the SHANGHAI GIENI INDUSTRY CO., LTD to demonstrate the conformance of product to the specified requirements. Inspection, measuring

ootek SZAHS180712005-01

Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited Page 4 of 87

and test requirement shall be used in a manner which ensure that the measurement uncertainty is known and is consistence with the required measurement capability.

12. Inspection and test status

The inspection and test status of product shall be identified by suitable means, which indicate the conformance or nonconformance of product with regard to inspection and tests performed.

13. Control of nonconforming product

SHANGHAI GIENI INDUSTRY CO., LTD shall establish and maintain documented procedures to ensure that product that does not conform to specified requirements is prevented from unintended use or installation.

14. Corrective and preventive action

SHANGHAI GIENI INDUSTRY CO., LTD shall establish and maintain documented procedure for implementing corrective and preventive action.

15. Handling, storage, packaging, preservation and delivery

SHANGHAI GIENI INDUSTRY CO., LTD shall establish and maintain documented procedures for handling, storage, packaging, preservation and delivery of product.

16. Control of quality records

SHANGHAI GIENI INDUSTRY CO., LTD shall establish and maintain documented procedures for identification, collection, indexing, access, fitting, storage, maintenance, and disposition of quality records.

17. Internal quality audits

SHANGHAI GIENI INDUSTRY CO., LTD shall establish and maintain documented procedures for planning and implementing internal quality audits to verify whether quality activity and related results comply with planned arrangements and to determine the effectiveness of the quality system.

18. Training

SHANGHAI GIENI INDUSTRY CO., LTD shall establish and maintain documented procedures for identifying training needs and provide for the training deeds and provide for the training of all personnel performing activities affecting quality.

19. Servicing

Where servicing is specified requirements, the SHANGHAI GIENI INDUSTRY CO., LTD shall establish and maintain documented procedure for performing, verifying and reporting that the servicing meets the specified requirements.

20. Statistical techniques

SHANGHAI GIENI INDUSTRY CO., LTD shall identify the need for statistical techniques required for establishing, controlling and verifying process capability and product characteristics.

21. Provisions 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 TCG by the designer of SHANGHAI GIENI INDUSTRY CO., LTD if the change may affects the related electrical or mechanical characteristics.

22. Provisions for the quality assurance

For the provisions of internal control measurements to ensure the conformity of series production of the

otek SZAHS180712005-01

Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited Page 5 of 87

machines, SHANGHAI GIENI INDUSTRY CO., LTD has built an internal control system in accordance with international standard of ISO 9001:2008.

1.3 List of applicable regulations and standards

Regulations: Machinery Directive: 2006/42/EC Low Voltage Directive: 2014/35/EU

Standards:

EN ISO 12100:2010 Safety of machinery–General principles for design–Risk assessment and risk reduction. EN 60204-1:2006+A1:2009+AC:2010 Safety of machinery–Electrical equipment of machines Part 1: General requirements.



SZAHS180712005-01
Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 6 of 87



Anbotek (Guangzhou) Compliance Laboratory Limited

 Address: Room 508, Building 2, No.232, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou, Guangdong, China
 Tel: (86)020-82575416 Fax: (86)020-82575023

MD MEASUREMENT & TEST REPORT

Test Report No.: SZAHS180712005-01

	bold Ann ster noo An K
Applicant:	SHANGHAI GIENI INDUSTRY CO., LTD
Address:	2-408, JIALUO ROAD NO. 1661, JIADING DISTRICT, SHANGHAI 201809
Manufacturer:	SHANGHAI GIENI INDUSTRY CO., LTD
Address:	2-408, JIALUO ROAD NO. 1661, JIADING DISTRICT, SHANGHAI 201809
Product Name:	ROTARY FILLING MACHINE
All Model(s):	JR-02-E, JR-01-E, JR-01-M, JR-02-M, JR-01-L, JR-02-L, JR-01-N, JR- 02-N, JR-01-P, JR-02-P
Major Model:	JR-02-E Anbotek Anbotek Anbotek Anbotek Anbotek
According To:	Machine Directive (2006/42/EC) Low Voltage Directive (2014/35/EU)
Test Standard(s):	EN ISO 12100:2010 EN 60204-1:2006+A1:2009+AC: 2010
Test By:	Elounon Theong TBOTES
	Elaiven Zhuang
Verify By:	Towy lian Epite
	Terry Tian
Trekt Deterbotek Anbot	And Anbotek Anbotek Anbotek Anbotek Anbotek

Test Date: Jul. 12, 2018 to Jul. 19, 2018 Issuance Date: Jul. 19 2018

Anbotek Product Safety

SZAHS180712005-01 Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 7 of 87

Test Report No.: SZAHS180712005-01

lek pri		Anbotek EN	ISO 12100				000
Clause	Requirement – Test	abotek	Anboro	Annotek	Res	ult - Remark	Verdict
12.	stek subo	pr.	noter	And		ek abor	PC

Part II: Test Report

2.1 EN ISO 12100:2010 test report

	100:2010 General principles for design–Risk assessment and risk reduction
6 Risk red	
	The objective of risk reduction can be achieved by the elimination of hazards, or by separately or simultaneously reducing each of the two elements that determine the associated risk: —severity of harm from the hazard under consideration; —probability of occurrence of that harm. All protective measures intended for reaching this objective shall be applied in the following sequence, referred to as the three-step method (see also Figures 1 and 2). Step 1: Inherently safe design measures
Anb Anb	Step 2: Safeguarding and/or complementary protective measures Step 3: Information for use
6.2	Inherently safe design measures
6.2.1	General
Anbotek Anbotek Anbotek potek Anbotek	Inherently safe design measures are the first and most important step in the risk reduction process. This is because protective measures inherent to the characteristics of the machine are likely to remain effective, whereas experience has shown that even well-designed safeguarding can fail or be violated and information for use may not be followed. Inherently safe design measures are achieved by avoiding hazards or reducing risks by a suitable choice of design features for the machine itself and/or interaction between the exposed persons and the machine.
6.2.2	Consideration of geometrical factors and physical aspects
6.2.2.1	Geometrical factors
K Anbro otek Anbro Anbotek Anbotek Anbotek K Anbotek K Anbotek K Anbo	Such factors include the following. a)The form of machinery is designed to maximize direct visibility of the working areas and hazard zones from the control position —reducing blind spots, for example —and choosing and locating means of indirect vision where necessary (mirrors, etc.) so as to take into account the characteristics of human vision, particularly when safe operation requires permanent direct control by the operator, for example: —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

SZAHS180712005-01

Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited Page 8 of 87

Test Report No.: SZAHS180712005-01

Ant	EN ISO 12100	tek nbotek	Anbo
Clause	Requirement – Test	Result - Remark	Verdic
ote. An		nbo k bot	2K
Lotek	are avoided by increasing the minimum gap between the	Anboro Ant	Yo.
up- k	moving parts, such that the part of the body under consideration	h. stek and	pote.
boten	can enter the gap safely, or by reducing the gap so that no part	Anbo A.	Yer
All	of the body can enter it (see ISO 13854 and ISO 13857).	hotek	anbo-
Anbore	c) Avoiding sharp edges and corners, protruding parts: in so far as	And	not
- ot	their purpose allows, accessible parts of the machinery shall	ek nbote.	Ann
Anbo	have no sharp edges, no sharp angles, no rough surfaces, no	A. stek	- 0
Yex Yes	protruding parts likely to cause injury, and no openings which	hotek Anbo	Pre
Dro Am	can "trap" parts of the body or clothing. In particular, sheet	note note	34
otek	metal edges shall be deburred, flanged or trimmed, and open	anbote. And	X
nbo	ends of tubes which can cause a "trap" shall be capped.	A. stek at	pte.
aboter	d) The form of the machine is designed so as to achieve a	Anbo, An	-Kek
All	suitable working position and provide accessible manual	hotek	hupor
Anbor	controls (actuators).	Ann	not
6.2.2.2	Physical aspects	lek anbore	Ann
Pur	Such aspects include the following:	K botek	Ant
tek anb	a) limiting the actuating force to a sufficiently low value so that the	poter And	. ·
Y.	actuated part does not generate a mechanical hazard;	stek nbote	
boten P	b) limiting the mass and/or velocity of the movable elements, and	Anboy Ar	*ek
Le K	hence their kinetic energy;	hotek Anb	0
Anbore	c) limiting the emissions by acting on the characteristics of the	And	Lotek
tek	source using measures for reducing	abote. P	102
And	1) noise emission at source (see ISO/TR 11688-1),	A. stek	nbote
abote	2) the emission of vibration at source, such as redistribution or	ek Anbo	Pre
Pre	addition of mass and changes of process parameters [for	botek botek	Ant
cek anb	example, frequency and/or amplitude of movements (for hand-	ote And	
N.	held and hand-guided machinery, see CR 1030-1)],	atek anbote	Р
poter P	3) the emission of hazardous substances, including the use of	Aupo M.	lek.
-tek	less hazardous substances or dust-reducing processes	aboten Anb	
Anbo	(granules instead of powders, milling instead of grinding), and	All	boten
hotek	4) radiation emissions, including, for example, avoiding the use of	Anbore A	10
And	hazardous radiation sources, limiting the power of radiation to	y notek	Anbore
nbote	the lowest level sufficient for the proper functioning of the	Anbo	10
p.,	machine, designing the source so that the beam is	Lek boten	Anb
ek Anbr	concentrated on the target, increasing the distance between the	ore Am	4
. N	source and the operator or providing for remote operation of the	notek Anbore	P
pore A	machinery [measures for reducing emission of non-ionizing	KUD K MC	iek.
otek	radiation are given in 6.3.4.5 (see also EN 12198-1 and EN 12198-3)].	anboten Anbo	X
6.2.3	Taking into account general technical knowledge of machine d	esian	upote.
0.2.0 ter	This general technical knowledge can be derived from technical	kolgn v	. ote
htek	specifications for design (standards, design codes, calculation	K aboten	AUD
Anbo	rules, etc.), which should be used to cover	Allek	ab ^o
× 50	a) mechanical stresses such as	otek Anbou	Pu
Ann	-stress limitation by implementation of correct calculation,	w wotek	D
otek	construction and fastening methods as regards, for example,	aboten Ano	V
p~ pr	bolted assemblies and welded assemblies,	tek abo	P P
poten	-stress limitation by overload prevention (bursting disk, pressure-	Anbor An	-Kelt
Ant	limiting valves, breakage points,torque-limiting devices, etc.),	hotek ar	por
Anboro	—avoiding fatigue in elements under variable stresses (notably	And	- otek
tek	cyclic stresses), and	aboten	And
Anbo	-static and dynamic balancing of rotating elements,	Pitt	-00

SZAHS180712005-01

Anbotek

Prepared by Anbotek (Guangzhou) Compliance aborator mited of 87

Clause	Requirement – Test	Result - Remark	Verdict
en auto	hole half tot have all hole have all hole have been hole hole hole hole hole hole hole hole		
- P	b) materials and their properties such as	Lek abot	SW
		Anbors An	401
	-resistance to corrosion, ageing, abrasion and wear,	h stek an	oter
	—hardness, ductility, brittleness,	Anbo. An	Kek
	—homogeneity,	wotek.	nbor
	—toxicity, and	And	ote
	—flammability, and	ok boten	Anbo
	c) emission values for	Ant	
	-noise, https://www.acceleration.com	tek abote.	Ann
	—vibration,	por pri	1
	-hazardous substances, and	otek anbou	P
	—radiation.	Anbo	Xek.
	When the reliability of particular components or assemblies is	hoten Ant	
	critical for safety (for example, ropes, chains, lifting accessories	And	Lotek
	for lifting loads or persons), stress limits shall be multiplied by	poter	np-
		All	bote
CO4	appropriate workingcoefficients.	ok Anboro	Ann
6.2.4	Choice of appropriate technology	history	a alb
	One or more hazards can be eliminated or risks reduced by the	oten Anbo	be.
	choice of the technology to be used in certainapplications such as	K note	- D
	the following:	abote. Anu	. N.
	a)on machines intended for use in explosive atmospheres, using	All Lok b	oter
	 appropriately selected pneumatic or hydraulic control system 	Anbore Ann	X
	and machine actuators,	h. tek	hote.
	—intrinsically safe electrical equipment (see IEC 60079-11);	Anbo	Ne V
	b)for particular products to be processed (for example, by a	a) and b).	ANN
	solvent), by using equipment that ensures thetemperature will	And And	
	remain far below the flash point;	botek botek	Anbe
	c)the use of alternative equipment to avoid high noise levels, such	ote Anu	
		rek abote	P
	as	upor An	No
	—electrical instead of pneumatic equipment,	stek phb	
	-in certain conditions, water-cutting instead of mechanical	Anbo A.	Yer
All	equipment.	notek a	100-
6.2.5	Applying principle of positive mechanical action	And	dek
	Positive mechanical action is achieved when a moving	k boten	AUPC
	mechanical component inevitably moves another component	Ann	no
	along with it, either by direct contact or via rigid elements. An	tek pote.	P
	example of this is positive opening operation of switching devices	D' A' Let	
	in an electrical circuit (see IEC 60947-5-1 and ISO 14119).	stek subore	Pr
6.2.6	Provisions for stability	ANDO IN	Let-
0.2.0	Machines shall be designed so that they have sufficient stability to	boten prov	
		Ann	otek
	allow them to be used safely in their specified conditions of use.	abote A	a v
	Factors to be taken into account include	All	boter
	—the geometry of the base,	K anbore	Pur
	—the weight distribution, including loading,	h. tek	npot
	—the dynamic forces due to movements of parts of the machine,	otek Anbo	Pri
	of the machine itself or of elements held by the machine which	K otek	20
	can result in an overturning moment,	boten Anbo	P
	-vibration,	NY NO	1814
	—oscillations of the centre of gravity,	aboten Anbo	34
		P.I.	hotek
	-characteristics of the supporting surface in case of travelling or	abote Ar	V
	installation on different sites (ground conditions, slope, etc.),	P	poter
	and pole All pole And and the state	Anbore	Aur
	-external forces, such as wind pressure and manual forces.	P. Lek	abot
	Stability shall be considered in all phases of the life cycle of the	ok bor	PI

Test Report No.: SZAHS180712005-01

SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 10 of 87

Test Report No.: SZAHS180712005-01

lause	Requirement – Test	Result - Remark	Verdi
in allow		rtoour rtomant	Voru
p.v.	maching including bandling travelling installation use	Lek both	34
	machine, including handling, travelling, installation, use,	Anboro Ant	. K
	dismantling, disabling and scrapping.	n stek ont	oter
	Other protective measures for stability relevant to safeguarding	Anboy An	. eV
An	are given in 6.3.2.6.	notek	npor
5.2.7	Provisions for maintainability	Ann	
	When designing a machine, the following maintainability factors	ek abote.	Ann
	shall be taken into account to enable maintenance of the	All	
	machine:	otek Anbor	P
	 accessibility, taking into account the environment and the 	po v note	Ь
	human body measurements, including the dimensions of the	aboten Anbo	
	working clothes and tools used;	Ann 10K	oter
	-ease of handling, taking into account human capabilities;	anbote An	X
	—limitation of the number of special tools and equipment.	r. tok	npoter
5.2.8	Observing ergonomic principles	Anbo	
P	Ergonomic principles shall be taken into account in designing	woter	Anbo
	machinery so as to reduce the mental or physical stress of, and	Anu	
	strain on, the operator. These principles shall be considered when	tek aboten	PL
	allocating functions to operator and machine (degree of	por All	-
	automation) in the basic design.	sotek Anbote	
	NOTE Also improved are the performance and reliability of	And	tek
	operation and hence the reduction in the probability of errors at all	boten Anb	
	stages of machine use.	Ant	notek
		apporte. P	02
	Account shall be taken of body sizes likely to be found in the	Printek	abot
	intended user population, strengths and postures, movement	K Anbou	Pri
	amplitudes, frequency of cyclic actions (see ISO 10075 and ISO	K sotek	20
	10075-2).	oten Anbe	P.
	All elements of the operator-machine interface, such as controls,	Lok bote	
	signalling or data display elements shall be designed to be easily	upole An	No
	understood so that clear and unambiguous interaction between	stek sub	10
	the operator and the machine is possible. See EN 614-1, EN	Anbo	tek
	13861 and IEC 61310-1.	hoten A	100
	The designer's attention is particularly drawn to following	Ann	not
	ergonomic aspects of machine design.	K abote.	AUD
	a) Avoid the necessity for stressful postures and movements	Pr. Kek	P
	during the use of the machine (for example, providing facilities	otek Anbou	Pu
	to adjust the machine to suit the various operators).	K sotek	
	b) Design machines, especially hand-held and mobile machines,	nboten Anb	N.
	so as to enable them to be operated easily, taking into account	kek sho	er
	human effort, actuation of controls and hand, arm and leg	Anbor Ann	Lak.
	anatomy.	Lotek At	port
	c) Limit as far as possible noise, vibration and thermal effects	And	de
	such as extreme temperatures.	k boten	Anbo
	d) Avoid linking the operator's working rhythm to an automatic	An	
	succession of cycles.	tek abote.	Aur
	e) Provide local lighting on or in the machine for the illumination of	Pittek	
	the working area and of adjusting, setting-up and frequent	hotek Anbor	
	maintenance zones when the design features of the machine	in K in	8K
	and/or its guards render the ambient lighting inadequate.	aboter Anbo	57
	Flicker, dazzling, shadows and stroboscopic effects shall be	All	otek
		Anboro An	
	avoided if they can cause a risk. If the position or the lighting	Rivek	npote
	source has to be adjusted, its location shall be such that it does	Anbor	bu.
	not cause any risk to persons making the adjustment.	K stek	anb
not	f) Select, locate and identify manual controls (actuators) so that	ter anbo	Pr.

SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited Page 11 of 87

Test Report No.: SZAHS180712005-01

Clause	Requirement – Test	Result - Remark	Verdic
oten Ar	bo her nbote And ak hotek A	nbor Ar	Ne
1.0X	-they are clearly visible and identifiable, and appropriately	hotek Anbo.	
nbolt	marked where necessary (see 6.4.4),	And	otek
atek.	-they can be safely operated without hesitation or loss of time	aboten Ant	16
Anbo	and without ambiguity (for example, a standard layout of	All	boter
hotek	controls reduces the possibility of error when an operator	Anboro	PUL.
And	changes from a machine to another one of similar type having	V stek	nboi
k nbot	the same pattern of operation),	ien Anbo	10
Pr.	-their location (for push-buttons) and their movement (for levers	ok botek	An
stek An	and hand wheels) are consistent with their effect (see IEC	pore Ant	4
N.	61310-3), and	stek subor	
aboten	-their operation cannot cause additional risk.	Aupo	Xek.
Kek	See also ISO 9355-3.	botek Ant	р-
6.2.9	Electrical hazards	har	boter
hotet	For the design of the electrical equipment of machines, IEC	Anbolt	-
Anu	60204-1 gives general provisions about disconnection and	Vo un a unitek	Anbor
abot	switching of electrical circuits and for protection against electric	See IEC/EN	10
	shock. For requirements related to specific machines, see	60204-1 for	PAN
tek ant	corresponding IEC standards (for example, IEC 61029, IEC	details.	-
X	60745 or IEC 60335).	otek Anbore	
6.2.10	Pneumatic and hydraulic hazard	Ambo	oten
otek	Pneumatic and hydraulic equipment of machinery shall be	anboren Ano	X
And	designed so that	P. stek	pote.
boten	-the maximum rated pressure cannot be exceeded in the circuits	Anbo	
Alle	(using, for example, pressure-limiting devices),	k hotek	Anbor
Anbor	-no hazard results from pressure fluctuations or increases, or	And	
r	from loss of pressure or vacuum,	tek aboten	Ani
len Ant	—no hazardous fluid jet or sudden hazardous movement of the	por An	
Y.	hose (whiplash) results from leakage or component failures,	hotek Anbor	1
bore	—air receivers, air reservoirs or similar vessels (such as in gas-	And	Lek.
tek	loaded accumulators) comply with the applicable design	aboter And	N.
Anbo	standard codes or regulations for these elements,	P.I.	boten
boten	—all elements of the equipment, especially pipes and hoses, are	Anbor A	
Ant	protected against harmful external effects,	y stek	AntNte
nbote	—as far as possible, reservoirs and similar vessels (for example,	Anbe	r-
Pre	gas-loaded accumulators) are automatically depressurized	Lek boten	Anb
ek Anb	when isolating the machine from its power supply (see 6.3.5.4)	or An	
N.	and, if not possible, means are provided for their isolation, local	stek subore	P
poto P	depressurizing and pressure indication (see also ISO	up .	ek
	14118:2000, Clause 5), and	aboten Anbo	
	—all elements which remain under pressure after isolation of the	All	ooten
hotek	machine from its power supply are provided with clearly	Anbolt Ar	-
	identified exhaust devices, and there is a warning label drawing	tek	Anbore
abote	attention to the necessity of depressurizing those elements	Anbo	r.,
	before any setting or maintenance activity on the machine.	lek hotek	Anb
6.2.11	Applying inherently safe design measures to control systems	hto And Lok	
6.2.11.1	General	hotek Anbor	P
4 ***	The design measures of the control system shall be chosen so	Lek no	84
	that their safety-related performance provides a sufficient amount	Antine Anti	1 at
And	of risk reduction (see ISO 13849-1 or IEC 62061).	See IEC/EN	pote
aboten	The correct design of machine control systems can avoid	60204-1 for	Pev
All	unforeseen and potentially hazardous machine behavior.	details.	Anbor
Anbore	Typical causes of hazardous machine behavior are	Ano	
17		Lek hoter	Public

tek SZAHS180712005-01

Anbo

Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 12 of 87

			SHAN
Test	Report No.: S	ZAHS1807	12005-01

nbotek

Clause	Requirement – Test	Result - Remark	Verdic
er A'	nbo have anbole And ak notek Al	100. N.	No
	-an unsuitable design or modification (accidental or deliberate)		
	of the control system logic,		oten
	-a temporary or permanent defect or failure of one or several		You
	components of the control system,		npoto
	—a variation or a failure in the power supply of the control system,		
	and hote And hotek hipport And		Anbe
	-inappropriate selection, design and location of the control		
	devices.		b,
	Typical examples of hazardous machine behavior are		St-
	unexpected start-up (see ISO 14118),		N.
	—uncontrolled speed change,		pter
	—failure to stop moving parts,		Lok
	-dropping or ejection of part of the machine or of a workpiece		nbolt
	clamped by the machine, and		
	-machine action resulting from inhibition (defeating or failure) of		Anos
	protective devices.		
	obten Anbo A. stek abote Ano		PU
	In order to prevent hazardous machine behaviour and to achieve		1
	safety functions, the design of control systems shall comply with		N.
	the principles and methods presented in this subclause (6.2.11)		oter
	and in 6.2.12.		No.Y
	hotek Anbo Ant tek poter And		hou
	These principles and methods shall be applied singly or in		
	combination as appropriate to the circumstances (see ISO 13849-		And
	1, IEC 60204-1 and IEC 62061).		
	ster Anbo Anbo An ster Anbote Anbo		Pri
	Control systems shall be designed to enable the operator to		6-
	interact with the machine safely and easily. This requires one or		N.
	several of the following solutions:		ter
	-systematic analysis of start and stop conditions;		Kek.
	—provision for specific operating modes (for example, start-up		Npor
	after normal stop, restart after cycle interruption or after		not
	emergency stop, removal of the workpieces contained in the	K abote.	Anu
	machine, operation of a part of the machine in case of a failure		No.
	of a machine element);		bu.
	—clear display of the faults;		-
	-measures to prevent accidental generation of unexpected start		X
	commands (for example, shrouded start device) likely to cause		10-
	dangerous machine behaviour (see ISO 14118:2000, Figure 1);		Nek
	-maintained stop commands (for example, interlock) to prevent		000-
	restarting that could result in dangerous machine behaviour		note
	(see ISO 14118:2000, Figure 1).		AUN
	An assembly of machines may be divided into several zones for		a ala
	emergency stopping, for stopping as a result of protective devices		Pres
	and/or for isolation and energy dissipation. The different zones		
	shall be clearly defined and it shall be obvious which parts of the		X
	machine belong to which zone. Likewise, it shall be obvious which	stek sbo	0
	control devices (for example, emergency stop devices, supply		Kek-
	disconnecting devices) and/or protective devices belong to which		por
	zone. The interfaces between zones shall be designed such that		ate
	no function in one zone creates hazards in another zone which		AUD
	has been stopped for an intervention.		0
	Control systems shall be designed to limit the movements of parts	tek nbott	Aun

SZAHS180712005-01

Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 13 of 87

Test Report No.: SZAHS180712005-01

Clause	Requirement – Test		Anu Anu	Result - Remark	Verdict
ek N	bor Ant Lak botek	Anbo An	otek .	pore Ano	X
N.	of the machinery, the machine its	elf, or workpieces and	d/or loads	otek suboti	1
	held by the machinery, to the safe			Anbo	-Yek
	example, range, speed, accelerat			hotek Ant	0.
	Allowance shall be made for dyna			And	rek
			y or loads,	boten	rup.
	etc.).		Anbore	Ann	bote
	For example:	boten Anbo		ek photo	Ann
	-the travelling speed of mobile p			A. BR	20
	other than remote-controlled sh	nall be compatible wit	h walking	otek Anbor	Pri
	speed;	P	boten An	p- v	6
	-the range, speed, acceleration			boten Anbe	r V
	of the person-carrier and carry			All of the	oten
	shall be limited to non-hazardo	us values, taking into	account	anbore And	X
	the total reaction time of the op	perator and the maching	ne; knoo	A. tok	abote
	-the range of movements of par	ts of machinery for lift	ting loads	Anbo	, e
	shall be kept within specified lir		AUD	K wotek	Anbor
	When the machinery contains val		an be	And	1
	operated independently, the cont			rek boten	Aup
	prevent risks arising out of a lack			por An-	
	collision prevention system).	boten An	Berner M.	stek subore	P
6.2.11.2	Starting of an internal power so	ource/switching on a	an external n	ower supply	tek
10K	The starting of an internal power			Autor Califordia Auto	
	external power supply shall not re			Ann	hotek
	For example:		tek	appore. A	(1 ²
		a engine shall not lear	d to Anbo	P	aboter
				K Anbor	P
	movement of a mobile machine		t in the Anbe	K sotek	Anbo
	-connection to mains electricity		t in the	oter Anbu	le.
	starting of working parts of a m		por An	lok hotel	D.
Jek.	See IEC 60204-1:2005, 7.5 (see		В).	mboto Any	10
6.2.11.3	Starting/stopping of a mechani		ANDU ANDU	n atek pape	10.
	The primary action for starting or			Anbo	stek
	mechanism should be performed			hotek A	100
	of voltage or fluid pressure, or			Ann	hotek
	considered — by passage from s		re state 1	k aboten	AUD
	represents the highest energy sta	ate).	sk anbor	PULLER	000
	The primary action for stopping o	r slowing down should	d be	otek Anbor	Pur
	performed by removal or reduction			K stek	
	- if binary logic elements are con			aboten Anbo	per per
	state 1 to state 0 (where state 1 r			in you	en
	state).	er Anbo	atek	Anboro Ano	Р
	In certain applications, such as hi	igh-voltage switchgea	ar, this	m. rek	poter
	principle cannot be followed, in w			Anbor Al	Kett.
	should be applied to achieve the			otek	Anboro
	stopping or slowing down.	same lever of conflue	Manufactor uno	Anbe	
	When, in order for the operator to	maintain normanant	control of	where wotek	Anbo
				anu Anu	
	deceleration, this principle is not			tek aboten	PU
	hydraulic braking device of a self			upor All	2K
	machine shall be equipped with a		nd stopping	otek pabol	~
poter	in case of failure of the main brak		totek.	Anbo An	Yer
6.2.11.4	Restart after power interruption	n _{tek} abote	Ann	otek an	po.
Anbore	If a hazard could be generated, the			Ann	"otek
	machine when it is re-energized a			aboten	And
	prevented (for example, by use o			An	Pot
		a son-maintainea re	iuy,		

otek SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited Page 14 of 87

Test Report No.: SZAHS180712005-01

lause	Requirement – Test		And	Result - Remark	Verdict
19	pote Anto Anton	All		poter Ander	
6.2.11.5	Interruption of power supply	botek Anbort	AU.	tek not	sr.
0.2.111.0	Machinery shall be designed to prevent ha	zardous situations	No.	Aupo, Au	NOK-
	resulting from interruption or excessive flue		or.N		0
	supply. At least the following requirements		ofer		wotek
			*eK		AUD-
	-the stopping function of the machinery s		nbor		boter
	-all devices whose permanent operation		ly		Pur
	shall operate in an effective way to main		Anbo		Papp
	example, locking, clamping devices, coc				he.
	power-assisted steering of self-propelled); bu		L D
	—parts of machinery or workpieces and/or		6		N.
	machinery which are liable to move as a				pter
	energy shall be retained for the time neo	cessary to allow the	em to		Kerk.
Ann	be safely lowered.	poten Ano		ate ^K	abolt
6.2.11.6	Use of automatic monitoring	P. Lak	boter	And	tek
P	Automatic monitoring is intended to ensure	e that a safety funct	tion	K boten	Anbo
	or functions implemented by a protective n	neasure do not fail	to be		no
	performed if the ability of a component or a				Pur
	its function is diminished, or if the process				-
	such that hazards are generated.				P
	Automatic monitoring either detects a fault	immediately or car	ries		otek
	out periodic checks so that a fault is detect				X
	demand upon the safety function. In either				N ^{oot} N
	measure can be initiated immediately or de				Kar
	event occurs (for example, the beginning of				Anbore
	The protective measure may be, for example,		pote		
	—the stopping of the hazardous process,	Anbolt	Pur		Anbo
	—preventing the restart of this process after	er the first stop	201		
	following the failure, or		ke.		PU
	—the triggering of an alarm.				LeK.
6.2.11.7	Safety functions implemented by progra	ammable electron	ic con	trolevetome	
6.2.11.7 6.2.11.7.1	General			aurayatemia	botek
<u></u>	A control system that includes programma	hle electronic	-otek	Anboro A	nr ak
			10-		Anbote
	equipment (for example, programmable co				P**
	appropriate, be used to implement safety f				Anbo
	Where a programmable electronic control				
	necessary to consider its performance req		11 10	tek aboter	PU
	the requirements for the safety functions.				1ek
	programmable electronic control system sl		No.		
	that the probability of random hardware fai				otek
	of systematic failures that can adversely a				100
	the safety-related control function(s) is suf				botek
	programmable electronic control system p		ig de		P
	function, the system behavior on detection		Anbo		npote
	considered (see also the IEC 61508 series	s for further guidanc	ce).		Pre
	tak boten Anbor An	tek abote.	Ann		ant
	NOTE Both ISO 13849-1 and IEC 62061,	specific to machine	ry		Y.
	safety, provide guidance applicable to prog				Br
	control systems.	np	eK.		. N
	otek Anbols Ant				poter
	The programmable electronic control syste	em should he install	led		You
	and validated to ensure that the specified		.50		Anbort
	example, safety integrity level (SIL) in IEC		foty		10
		O DOOLIOLEACH SA			.00.
	function has been achieved. Validation cor				Ann

Anbotek Product Safety

SZAHS180712005-01 Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 15 of 87

Test Report No.: SZAHS180712005-01

Clause	Requirement – Test	Result - Remark	Verdi
len M	pote Ant ak botek Antoo At	boten bub	.V.
N.	analysis (for example, static, dynamic or failure analysis) to show	stek subot	21
	that all parts interact correctly to perform the safety function and	Anbo	Yer.
	that unintended functions do not occur.	hotek Ant	0
6.2.11.7.2		Pub-	wole'
ALTINIZ	The hardware (including, for example, sensors, actuators and	. apoter	ab .
	logic solvers) shall be selected, and/or designed and installed, to	Artek	da
	meet both the functional and performance requirements of the	ek Anbor	b.
		K sotek	D
	safety function(s) to be performed, in particular, by means of	poter Ano	
	-architectural constraints (the configuration of the system, its	rek pote	5 C -
	ability to tolerate faults, its behaviour on detection of a fault,	anbour An.	- No
	etc.),	tek nh	pre P
	-selection, and/or design, of equipment and devices with an	Anbo	Net
	appropriate probability of dangerous random hardware failure,	botek	nbo
	and hoter protect and hoter	An	
	—the incorporation of measures and techniques within the	ek subote.	AUN
	hardware so as to avoid systematic failures and control	P	
<u>v</u>	systematic faults.	otek Anbor	P
6.2.11.7.3	Software aspects	ate ate	K
	The software, including internal operating software (or system	nbote Ano	N.
	software) and application software, shall be designed so as to	A. stek ab	oter
	satisfy the performance specification for the safety functions (see	Anbor An	No.K
	also IEC 61508-3).	otek	upor
	Application software should not be reprogrammable by the user.	And	
	This may be achieved by use of embedded software in a non-	K boten	Anbo
	reprogrammable memory [for example, micro-controller,	Ant	Р
	application-specific integrated circuit (ASIC)].	stek subote	PL
	When the application requires reprogramming by the user, the	tel h	6
	access to the software dealing with safety functions should be	hotek Anbo	
	restricted (for example, by locks or passwords for the authorized	And ok be	tek
	persons).	anbote And	-14
6.2.11.8	Principles relating to manual control	atek a	abole
aboren	These are as follows.	Ano	c ³
	a) Manual control devices shall be designed and located	k boten	Anbo
	according to the relevant ergonomic principles given in 6.2.8,	Ann	· · · ·
	item f).	stek suboter	An
	b) A stop control device shall be placed near each start control	P. Lek	
	device. Where the start/stop function is performed by means of	botek Anbor	
	a hold-to-run control, a separate stop control device shall be	in which we	ek
	provided when a risk can result from the hold-to-run control	anbote. Ano	N.
	device failing to deliver a stop command when released.	P. stek	poter
	c) Manual controls shall be located out of reach of the danger	Anbor A	
	zones (see IEC 61310-3), except for certain controls where, of	k potek	Anbor
	necessity, they are located within a danger zone, such as	Ano	Р
	emergency stop or teach pendant.	tek soten	An
	d) Whenever possible, control devices and control positions shall	Ant Ant	
		otek subore.	
	be located so that the operator is able to observe the working	up.	SK
	area or hazard zone.	hotek Anbo	
	1) The driver of a ride-on mobile machine shall be able to actuate	Ann	otek
	all control devices required to operate the machine from the	aboten Ar	P-
	driving position, except for functions which can be controlled	RIV	abote
	more safely from other positions.	Anbort	PU.
	2) On machinery intended for lifting persons, controls for lifting	tek.	a al
	and lowering and, if appropriate, for moving the carrier shall	ten hnbo	Pres

SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited Page 16 of 87

Test Report No.: SZAHS180712005-01

Clause	Requirement – Test Result - Remark Verdi
ter A	hore An tek abotes Anbo y atek Anbots Ano
.V.	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.
	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 of, among others, a portable control unit
	(such as a teach pendant), with which the operator
	can enter danger zones.
	f) Control actuators shall be designed or guarded so that their
	effect, where a risk is involved, cannot occur without intentional
abote	operation (see ISO 9355-1, ISO 9355-3 and ISO 447).
	g) For machine functions whose safe operation depends on
	permanent, direct control by the operator, measures shall be
	implemented to ensure the presence of the operator at the
	control position (for example, by the design and location of
	control devices).
	h) For cableless control, an automatic stop shall be performed
	when correct control signals are not received, including loss of
An	communication (see IEC 60204-1).
6.2.11.9	Control mode for setting, teaching, process changeover, fault-finding, cleaning or
P	maintenance
	Where, for setting, teaching, process changeover, fault-finding,
	cleaning or maintenance of machinery, a guard has to be
	displaced or removed and/or a protective device has to be
	disabled, and where it is necessary for the purpose of these
	operations for the machinery or part of the machinery to be put
	into operation, the safety of the operator shall be achieved using a
	specific control mode which simultaneously
	a) disables all other control modes,
	b) permits operation of the hazardous elements only by
	continuous actuation of an enabling device, a two-hand control
	device or a hold-to-run control device,
	c) permits operation of the hazardous elements only in reduced
	risk conditions (for example, reduced speed, reduced
	power/force, step-by-step, for example, with a limited
	movement control device), and
	d) prevents any operation of hazardous functions by voluntary or
	involuntary action on the machine's sensors.
	NOTE For some special machinery other protective measures can
	be appropriate.
	This control mode shall be associated with one or more of the
	following measures:
	-restriction of access to the danger zone as far as possible;
	—emergency stop control within immediate reach of the operator;
	(allowing sight of the controlled elements).
Anbort	See IEC 60204-1.
6.2.11.10	Selection of control and operating modes
Ano	If machinery has been designed and built to allow for its use in P

SZAHS180712005-01

tek

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 17 of 87

Test Report No.: SZAHS180712005-01

Clause	Requirement – Test	Result - Remark	Verdic
otek A	hor An tek aboten And K sotek A	upor An	4
N.	several control or operating modes requiring different protective	otek Anbor	
abote.	measures and/or work procedures (for example, to allow for	Anbe	1ek
Lox.	adjustment, setting, maintenance, inspection), it shall be fitted	hotek Ant	0.
nbore	with a mode selector which can be locked in each position. Each	And	Notek
A. stek	position of the selector shall be clearly identifiable and shall	boten	upo an
Anbor		Ann	bot
	exclusively allow one control or operating mode.	ek nbore	Pur
And	The selector may be replaced by another selection means which	h. stek	
Yo.	restricts the use of certain functions of the machinery to certain	otek Anbo	Pre
Dr. Pr	categories of operators (for example, access codes for certain	K note	t-
. stek	numerically controlled functions).	spote. And	N.
6.2.11.11	Applying measures to achieve electromagnetic compatibility (E		oter
aboten	For guidance on electromagnetic compatibility, see IEC 60204-1	Exceed	Nek
P.I.	and IEC 61000-6.	evaluation	nbo
Anbor	An tek aboten Anbo h. atek inbote.	scope, see EMC	Note
1	er Anbor An Anbor An	relevant report	AUR
Anbo	Anboite Ant at potek Anboi	for details.	100
6.2.11.12	Provision of diagnostic systems to aid fault-finding	potek Anbor	Pre
Pr	Diagnostic systems to aid fault-finding should be included in the	rek bote	1
Lotek	control system so that there is no need to disable any protective	hold An	X
ND- K	measure.	atek anb	N
aboten	NOTE Such systems not only improve availability and	Anbo	Nor
All	maintainability of machinery, they also reduce the exposure of	hotek p	upo-
anbore	maintenance staff to hazards.	And	note
6.2.12	Minimizing probability of failure of safety functions	ek sobote.	And
6.2.12.1	General	r tek	0 m
ek al	Safety of machinery is not only dependent on the reliability of the	oten Anbo	per.
br.	control systems but also on the reliability of all parts of the	where hotel	P
otek	machine.	abore Ant	N. D
10- K	The continued operation of the safety functions is essential for the	tek nbc	(e.
aboten	safe use of the machine. This can be achieved by the measures	Anbo A.	tek
All	given in 6.2.12.2 to 6.2.12.4.	hotek A	100-
6.2.12.2	Use of reliable components	And	notel
note	"Reliable components" means components which are capable of	K Anbore	Pur
Ann	withstanding all disturbances and stresses associated with the	K stek	npb
ek st	usage of the equipment in the conditions of intended use	oten Anbo	100
Pr	(including the environmental conditions), for the period of time or	Lek boten	P
otek	the number of operations fixed for the use, with a low probability	nbott Ant	X
V.	of failures generating a hazardous malfunctioning of the machine.	stek sabo	0
aboten	Components shall be selected taking into account all factors	Anbo An	Nek
P.I.	mentioned above (see also 6.2.13).	hotek at	00°
Anbort	NOTE 1 "Reliable components" is not a synonym for "well-tried	Ann	notek
ate	components" (see ISO 13849-1:2006, 6.2.4).	k aboten	AUD
Anbo	NOTE 2 Environmental conditions for consideration include	P	200
w Ye	impact, vibration, cold, heat, moisture, dust, corrosive and/or	otek anbou	Pur
And	abrasive substances, static electricity and magnetic and electric	K sotek	1
atek -	fields. Disturbances which can be generated by those conditions	aboter Anos	v r
po P	include insulation failures and temporary or permanent failures in	Lek no	SE
botek	the function of control system components.	Anbor Ann	Kelk-
6.2.12.3	Use of "oriented failure mode" components	hotek an	Port
Anbore	"Oriented failure mode" components or systems are those in	Anthe	notek
tel	which the predominant failure mode is known in advance and	aboten	AndP
Anbo	which can be used so that the effect of such a failure on the	P. N.	100
		Lot not	Alle

botek SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 18 of 87

Test Report No.: SZAHS180712005-01

Clause	Requirement – Test	Ann	boten	Anbo	Result - Remark	Verdict
nause		otek Anboter	Anv			Veruiot
PI	machine function can be are	diated	Anboro	2.9	Lek both	P
	machine function can be pre		o odditional	lek.	Anborn Ann	Yo.
	NOTE In some cases, it will				h. dek ant	oter
	measures to limit the negati			hotek	Anbo	*ek
	The use of such component			N K	Lotek	nbor
	particularly in cases where r	edundancy (see 6.2	2.12.4) is not	npoter	Anberry	otel
p.	employed.	etek.	anbor	bu.	ak poter	Anb
6.2.12.4	Duplication (or redundance				Ant	
	In the design of safety-relate	ed parts of the mach	ine, duplicat	ion	otek Anbore	Pur
	(or redundancy) of compone	ents may be used so	that, if one	Ar	po n	jt-
	component fails, another co	mponent or compon	ents continu	e to	hotek Anbo	P
	perform the respective funct				And	otek
	safety function remains avai		o pri	*ek	aboten And	1
	In order to allow the proper		. component	por	P	boten
	failure shall be detected by				Anbolt P	P
	in some circumstances by re				v stek	Anboro.
	inspection interval is shorter				en Anbo	1 m
	components.	than the expected i		Ann	wet notek	Anbo
	Diversity of design and/or te	chnology can be us	biove of he	- 0	poro Ann	-
	common cause failures (for			Pr	tek pote	PL
			ionagnetic	18	Anbo, An	Y9+
6040	disturbance) or common mo			ann Air A	wotek anth	1 °
6.2.13	Limiting exposure to haza				And	wetek.
	Increased reliability of all co				poter p	np-
	the frequency of incidents re	equiring intervention	, thereby red	ucing	Ann	botek
	exposure to hazards.	poten P	mbu		K abote	Ann
	This applies to power syster				P. tek	abot
	well as to control systems, a		ns as well as	to	otek Anbor	Pri
	other functions of machinery			Ani	-K sotek	D M
	Safety-related components		n sensors) of	N-	aboten Anbo	N P P
	known reliability shall be use	ed.	Anbore		Al. Jek Joc	fer
	The elements of guards and		es shall be	otek	Anbor Ant	Apr
	especially reliable, as their f			zards,	atek	poro
	and also because poor relia				Anbo	Here
	defeat them.	atek	nbore P	102	k hotek	Anbot
6.2.14	Limiting exposure to haza	rds through mecha	anization or	automa	ation of loading	not
V	(feeding)/unloading (remo		Anbo	14	otek Anboth	Ann
Pur	Mechanization and automat		ing/unloading	a Aue	K stek	'na
	operations and, more gener		- N.V.	•	aboten Anbu	Pres
	workpieces, materials or sul				nak no	er
	by these operations by redu				Anboro Ano	X
	hazards at the operating poi		ten Anbr		r. sek	poter
	Automation can be achieved		bots handlin	ngotek	Anbor Al	Kett.
	devices, transfer mechanism			.9	wotek	Anbolt
	Mechanization can be achie			los bote	Anbe	
			, recurry sild	165,	hok hotek	Anbor
	push-rods and hand-operate		The market	ff and	and And	Р
	While automatic feeding and				tek aboten	Ant
	in preventing accidents to m				upor All	N.
	danger when any faults are				notek pabot	
	to ensure that the use of the				Anbo	Net
	hazards, such as trapping o				notek an	por
	parts of the machine or worl				And	Lotek.
	parts of the machine of won	hpieces/materials be	ing processe	u .		
					boten	AUD
	Suitable safeguards (see 6.3 ensured.				Anboten	And

SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 19 of 87

Test Report No.: SZAHS180712005-01

Clause	Requirement – Test	Result - Remark	V
rek nal	pore And wet And And	abote Ano	
N.	systems and the control system of the associated machine shall	stek subot	
	be interconnected after thorough study of how all safety functions	Anboy An	12
	are performed in all the control and operation modes of the entire	otek an	00,
	equipment.	And	
C 2 4 5		acintononae naint	nd.
6.2.15	Limiting exposure to hazards through location of setting and n outside danger zones	namenance points	5
	The need for access to danger zones shall be minimized by	Ant	
	locating maintenance, lubrication and setting points outside these	stek subore	
	zones.	por protection	3K-
6.3	Safeguarding and complementary protective measures	boten Anbo	_
6.3.1	General	Ant rek at	0
hotek	Guards and protective devices shall be used to protect persons	Puporo Pur	Т
	whenever an inherently safe design measure does not reasonably	otek	n'
apoter	make it possible either to remove hazards or to sufficiently reduce	And	
	risks. Complementary protective measures involving additional	K botek	
	equipment (for example, emergency stop equipment) may have to	Ant	
	be implemented.	atek aboter	
	be implemented.	pu pu ke	y-
	NOTE The different kinds of guards and protective devices are	botek Anbor	
	defined in 3.27 and 3.28.	Ann	033
		Anboten Anb	
	Certain safeguards may be used to avoid exposure to more than	Pr. rek	3
	one hazard.	Anbor	1
		K wotek	
	EXAMPLE A fixed guard preventing access to a zone where a	Anbe y	
	mechanical hazard is present used to reduce noise levels and	Lek aboten	
anbr	collect toxic emissions.	Jore An	6
6.3.2	Selection and implementation of guards and protective devices	s otek anbou	
6.3.2.1	General	And	10
	This subclause gives guidelines for the selection and the	Anto Ant	
	implementation of guards and protective devices the primary	P. stek	0
	purpose of which is to protect persons against hazards generated	Anbo	
	by moving parts, according to the nature of those parts (see	k notek	1
	Figure 4) and to the need for access to the danger zone(s).	And	1
	The exact choice of a safeguard for a particular machine shall be	tek aboten	
	made on the basis of the risk assessment for that machine.	P. P.	
	In selecting an appropriate safeguard for a particular type of	botek Anbolt	
	machinery or hazard zone, it shall be borne in mind that a fixed	IND	e
	guard is simple and shall be used where the access of an	aboten Anbi	
	operator into a danger zone is not required during the normal	All	
	operation (operation without malfunction) of the machinery.	Anboro A	1
	As the need for frequency of access increases, this inevitably	tek	
	leads to the fixed guard not being replaced. This requires the use	Anbor	P
	of an alternative protective measure (movable interlocking guard,	where where	
	sensitive protective equipment).	oter Ano	
	A combination of safeguards can sometimes be required. For	tek boten	
	example, where, in conjunction with a fixed guard, a mechanical	upor An	N
	loading (feeding) device is used to feed a workpiece into a	otek pobo	10
		Anbo	
	machine, thereby removing the need for access to the primary	hotek ar	pc
	hazard zone, a trip device can be required to protect against the	Ann	
	secondary drawing-in or shearing hazard between the mechanical	boten	P
	loading (feeding) device, when reachable, and the fixed guard. Consideration shall be given to the enclosure of control positions	An	

SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited Page 20 of 87

			SHAN
Test	Report No.: S	ZAHS1807	12005-01

nbotek

,tek

Clause	Requirement – Test	Result - Remark	Verdict
ien Ar	bo her tek aboten And k sotek N	upor An	14
N.	or intervention zones to provide combined protection against	stek supor	
	several hazards including	Anbo	No.K
	a) hazards from falling or ejected objects, using, for example,	hotek Ant	0.
	protection in the form of a falling objects, using, for example,	And	tek
		boten	upo
	(FOPS),	Ann	note
	b) emission hazards (protection against noise, vibration, radiation,	ek poter	AUD
	substances hazardous to health, etc.),	All	-10
	c) hazards due to the environment (protection against heat, cold,	stek subort	Aur
	foul weather, etc.),	por hi	t-
	d) hazards due to tipping over or rolling over of machinery, using,	hotek Anbo	F
	for example, protection in the form of roll-over or tip-over	AND	tek
	protection structures (ROPS and TOPS).	boten And	
	The design of enclosed work stations, such as cabs and cabins,	Ann	hotek
	shall take into account ergonomic principles concerning visibility,	poto P	UP I
	lighting, atmospheric conditions, access, posture.	P	pote
<u> </u>			DU.
6.3.2.2	Where access to the hazard zone is not required during normal	operation	dn a
	Where access to the hazard zone is not required during normal	oten Anbo	br.
	operation of the machinery, safeguards should be selected from	where we tel	Ь
	the following:	abote. Anu	N.
	a) fixed guards (see also ISO 14120);	Arr. Lek b	ter
	b) interlocking guards with or without guard locking (see also	Anbore An	Ň
	6.3.3.2.3, ISO 14119 and ISO 14120);	rek	Node
	c) self-closing guards (see ISO 14120:2002, 3.3.2);	Anbor	KeV
	d) sensitive protective equipment, such as electrosensitive	K wotek	Anbor
	protective equipment (see IEC 61496) or pressure-sensitive	And	
	protective devices (see ISO 13856).	Lek boten	Anbi
6.3.2.3	Where access to the hazard zone is required during normal ope	eration	
	Where access to the hazard zone is required during normal	oten Anbolo	P
	operation of the machinery, safeguards should be selected from	Anbo	lek.
	the following:	hoten Anbi	
	a) interlocking guards with or without guard locking (see also ISO	Ann	hotek
		abote. A	NP
	14119, ISO 14120 and 6.3.3.2.3 of this document);	P	aboter
	b) sensitive protective equipment, such as electrosensitive	K anbor	P
	protective equipment (see IEC 61496);	V stek	nbo
	c) adjustable guards;	oten Anbo	P
	d) self-closing guards (see ISO 14120:2002, 3.3.2);	K hotek	AT
	e) two-hand control devices (see ISO 13851);	nbote Anu	X
	f) interlocking guards with a start function (control guard) (see	Yek you	6,
noten	6.3.3.2.5).	Anbor An	. As
6.3.2.4	Where access to the hazard zone is required for machine setting	ng, teaching, proce	SS
	changeover, fault-finding, cleaning or maintenance	Anbo	
nboten		hoter	And
Anbotek	production operator also ensure the protection of personnel	6 ST 1	
Anbotek	production operator also ensure the protection of personnel carrying out setting, teaching, process changeover, fault-finding,	Pro	
Anbotek	carrying out setting, teaching, process changeover, fault-finding,	tek Autobotek	Anbe
Anbotek Anbotek Anbotek	carrying out setting, teaching, process changeover, fault-finding, cleaning or maintenance, without hindering them in the	otek Anbotek	Anbe
Anbotek Anbotek Anbotek	carrying out setting, teaching, process changeover, fault-finding, cleaning or maintenance, without hindering them in the performance of their task.	otek Anbotek	Anbo
Anbotek Anbotek Anbotek Anbo	carrying out setting, teaching, process changeover, fault-finding, cleaning or maintenance, without hindering them in the performance of their task. Such tasks shall be identified and considered in the risk	nbotek Anbotek	Anbe An
Anbotek Anbotek Anbotek Anbo	carrying out setting, teaching, process changeover, fault-finding, cleaning or maintenance, without hindering them in the performance of their task. Such tasks shall be identified and considered in the risk assessment as parts of the use of the machine (see 5.2).	nbotek Anbotek	Anbo An
Anbolek Anbotek Jtek Anbotek	carrying out setting, teaching, process changeover, fault-finding, cleaning or maintenance, without hindering them in the performance of their task. Such tasks shall be identified and considered in the risk assessment as parts of the use of the machine (see 5.2). NOTE Isolation and energy dissipation for machine shut-down	nbotek Anbotek Anbotek Anbotek	Anbo An e ^k P
Anbolek Anbotek ptek hbotek	carrying out setting, teaching, process changeover, fault-finding, cleaning or maintenance, without hindering them in the performance of their task. Such tasks shall be identified and considered in the risk assessment as parts of the use of the machine (see 5.2). NOTE Isolation and energy dissipation for machine shut-down (see 6.3.5.4, and also ISO 14118:2000, 4.1 and Clause 5) ensure	nbotek Anbotek Anbotek Anbotek Anbotek	Anbo An ar potek
Anbotek Anbotek htek Anbotek	carrying out setting, teaching, process changeover, fault-finding, cleaning or maintenance, without hindering them in the performance of their task. Such tasks shall be identified and considered in the risk assessment as parts of the use of the machine (see 5.2). NOTE Isolation and energy dissipation for machine shut-down	htek Anbotek htek Anbotek Anbotek Anbotek Anbotek Anbot	Anbe An a ^k P potek
Anbotek Anbotek htek Anbotek Anbotek	carrying out setting, teaching, process changeover, fault-finding, cleaning or maintenance, without hindering them in the performance of their task. Such tasks shall be identified and considered in the risk assessment as parts of the use of the machine (see 5.2). NOTE Isolation and energy dissipation for machine shut-down (see 6.3.5.4, and also ISO 14118:2000, 4.1 and Clause 5) ensure	nbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek	Anbe e ^k P potek Anbotek
Anbotek Anbotek htek Anbotek Anbotek Anbotek	carrying out setting, teaching, process changeover, fault-finding, cleaning or maintenance, without hindering them in the performance of their task. Such tasks shall be identified and considered in the risk assessment as parts of the use of the machine (see 5.2). NOTE Isolation and energy dissipation for machine shut-down (see 6.3.5.4, and also ISO 14118:2000, 4.1 and Clause 5) ensure the highest level of safety when carrying out tasks (especially	otek Anbotek nbotek Anbotek Anbotek Anbot Anbotek Anbot Anbotek Anbot	Anbe ak P potek Anbotek

Anbotek SZAHS180712005-01

Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited Page 21 of 87

Test Report No.: SZAHS180712005-01

lause	Requirement – Test	Result - Remark	Verdi
A	hoo his nek hnbores And ak hotek p	upor Al.	No
.3.2.5	Selection and implementation of sensitive protective equipme	nt ¹⁾ oten Anbo	
.3.2.5.1	Due to the great diversity of the technologies on which their	Ann	otek
	detection function is based, all types of sensitive protective	Anbore An	N N
	equipment are far from being equally suitable for safety	H. tek	npote
	applications. The following provisions are intended to provide the	Anbo	
	designer with criteria for selecting, for each application, the most	K notek	Anbe
	suitable device(s).	Ant Ant	
	Types of sensitive protective equipment include	stek aboter	P
	-light curtains,	noo At	24
	scanning devices, for example, laser scanners,	hotek Anbo	
	-pressure-sensitive mats, and	And	otek.
	—trip bars, trip wires.	aboten An	p-
	Sensitive protective equipment can be used	Alt	aboter
	—for tripping purposes,	Anbo	P
	—for presence sensing,	K wotek	P
	—for both tripping and presence sensing, or	Ano	
	-to re-initiate machine operation - a practice subject to stringent	tek aboten	P.
	conditions.	Dor Mr.	1
	NOTE Some types of sensitive protective equipment can be	botek Anbou	
	unsuitable either for presence sensing or for tripping purposes.	And	otek
	The following characteristics of the machinery, among others, can	anboten Ant	N.
	preclude the sole use of sensitive protective equipment:	All	boter
	-tendency for the machinery to eject materials or component	Anbor	200
	parts;	k sotek	Anbo
	–necessity to guard against emissions (noise, radiation, dust,	And	1 miles
	etc.);	tek soten	PL
	—erratic or excessive machine stopping time;	hor Ann	16
	—inability of a machine to stop part-way through a cycle.	hotek Anbore	
.3.2.5.2	Implementation	Ann ok n	otek
- otek	Consideration should be given to	supore An	No.
	a) the size, characteristics and positioning of the detection zone	P. sek	hote.
	(see ISO 13855, which deals with the positioning of some types	Anbor	
	of sensitive protective equipment),	K wotek	anboi
	b) the reaction of the device to fault conditions (see IEC 61496 for	en Anbo	10
	electrosensitive protective equipment),	kek spoten	An
	c) the possibility of circumvention, and	port Ant	6
	d) detection capability and its variation over the course of time (as	hotek habote	
	a result, for example, of its susceptibility to different	Inp	No.
	environmental conditions such as the presence of reflecting	aboten Anb	
	surfaces, other artificial light sources and sunlight or impurities	All	ooten
	in the air).	Anbore A	
	NOTE 1 IEC 61496 defines the detection capability of	tek.	P
abote	electrosensitive protective equipment.	Anbo	Pro-
	Sensitive protective equipment shall be integrated in the operative	Let botek	Ant
	part and associated with the control system of the machine so that	poro Ann	
	—a command is given as soon as a person or part of a person is	otek subote	1
	detected,	Pupp P.	YSE H
	-the withdrawal of the person or part of a person detected does	botek Anbo	
		Ann	hotek
	not, by itself, restart the hazardous machine function(s), and	aboter A	0.02-
	therefore the command given by the sensitive protective	All	abote
	equipment ismaintained by the control system until a new	Anbore	Am
	command is given,	-W	~
	—restarting the hazardous machine function(s) results from the	V Ale.	0.00

SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited Page 22 of 87

			SHAN
Test	Report No.: S	ZAHS1807	12005-01

nbotek

Clause	Requirement – Test	Result - Remark	Verdic
er A'	hour And tek noter And k hotek	upote And	4 No
10.	voluntary actuation by the operator of a control device placed	potek Anbor	
	outside the hazard zone, where this zone can be observed by	And	otek
	the operator,	aboten Ant	
	-the machine cannot operate during interruption of the detection	Aller	bote
	function of the sensitive protective equipment, except during	Anbort	Pro.
	muting phases, and	K sotek	anbr
	-the position and the shape of the detection field prevents,	And k	
	possibly together with fixed guards, a person or part of a person	tek aboten	P
	from entering or being present in the hazard zone without being	por pri	1
	detected.	hotek Anbor	
	NOTE 2 Muting is the temporary automatic suspension of a safety	Ann	otek
	function(s) by safety-related parts of the control system (see ISO	aboten Ant	N.
	13849-1).	An	aboter
	For detailed consideration of the fault behaviour of, for example,	Anbor	2.1.
	active optoelectronic protective devices, IEC 61496 should be	K hotek	Anbo
	taken into account.	Anb K	,
5.3.2.5.3	Additional requirements for sensitive protective equipment wh	en used for cycle	P.
An	initiation wet model All and model All	bo hi ate	*
	In this exceptional application, the starting of the machine cycle is	boten Anbu	
	initiated by the withdrawal of a person or of the detected part of a	Annie jek	otek
	person from the sensing field of the sensitive protective	Anbore Ant	You
	equipment, without any additional start command, hence deviating	otek	npote
	from the general requirement given in the second point of the	Anbo	
	dashed list in 6.3.2.5.2, above. After switching on the power	ak boten	Anbo
	supply, or when the machine has been stopped by the tripping	Anniek	
	function of the sensitive protective equipment, the machine cycle	otek nbote	PL
	shall be initiated only by voluntary actuation of a start control.	tel	5
	Cycle initiation by sensitive protective equipment shall be subject	aboten Anbo	14
	to the following conditions:	All Lek ab	ster
	a) only active optoelectronic protective devices (AOPDs)	Anbor An	*eX
	complying with IEC 61496 series shall be used;	Lotek A	hpor
	b) the requirements for an AOPD used as a tripping and	And	
	presence-sensing device (see IEC 61496) are satisfied — in	K aboten	AUD
	particular, location, minimum distance (see ISO 13855),	A.	
	detection capability, reliability and monitoring of control and	otek Anbor	P
	braking systems;	K sotek	
	c) the cycle time of the machine is short and the facility to re-	nboter Anb	
	initiate the machine upon clearing of the sensing field is limited	tek abc	e
	to a period commensurate with a single normal cycle;	Anbor An	Kek-
	d) entering the sensing field of the AOPD(s) or opening	hotek A'	001
	interlocking guards is the only way to enter the hazard zone;	Anu	not
	e) if there is more than one AOPD safeguarding the machine, only	k anbote.	AUD
	one of the AOPDs is capable of cycle re-initiation;	Artek	10
	f) with regard to the higher risk resulting from automatic cycle	otek Anbo	Pre
	initiation, the AOPD and the associated control system comply	hok hotek	
	with a higher safety-related performance than under normal	nbore Any	X
	conditions.	otek pobo	0.
	NOTE 1 The hazard zone as referred to in d) is any zone where	Anbo An	1ek
	the hazardous function (including ancillary equipment and	hotek Ar	por
	transmission elements) is initiated by clearing of the sensing field.	Ant	note
	NOTE 2 See also IEC/TS 62046.	h hbote.	Ann
.3.2.6	Protective measures for stability		

SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited Page 23 of 87

	EN ISO 12100		abol
Claure Anbo	10 X X X X X X X X X X X X X X X X X X X	Provide Drivert	P
Clause	Requirement – Test	Result - Remark	Verdic
An An		nt not	314
	such as weight distribution (see 6.2.6), it shall be maintained by	Anbote, Anu	X
	the use of protective measures such as	n stek snt	ote
	-anchorage bolts,	Anbo	Nek
	-locking devices,	boten	vupo.
	-movement limiters or mechanical stops,	Ant	tod.
	-acceleration or deceleration limiters,	ek anbore	Aur
	-load limiters, and	K otek	60
6 2 2 7	-alarms warning of the approach to stability or tipping limits.	boter pape	P
6.3.2.7	Other protective devices	tek abote	10
	error of the operator can generate a hazardous situation, this	anbore An	- ak
	machine shall be equipped with the necessary devices to enable	otek ont	010
	the operation to remain within specified limits, in particular	Anbo	tek
	-when the operator has insufficient visibility of the hazard zone,	boten	nbu
	-when the operator lacks knowledge of the actual value of a	Am	both
	safety-related parameter (distance, speed,mass, angle, etc.),	ek anbolt	Pur
	and when becards can result from operations other than these	K otek	ont
	-when hazards can result from operations other than those	poten Anbo	1
	controlled by the operator.	tek bote	
	The necessary devices include	Anboit Ant	-No.
	a) devices for limiting parameters of movement (distance, angle,	wotek anb	0100
	velocity, acceleration),	And	Notek
	b) overloading and moment limiting devices,	boten P	upe
	c) devices to prevent collisions or interference with other	An	bote
	machines,	K Anboro	Aur
	d) devices for preventing hazards to pedestrian operators of	K stek	Pnb
	mobile machinery or other pedestrians,	oten Anbo	Р
	e) torque limiting devices, and breakage points to prevent	Let bote	P
	excessive stress of components and assemblies,	Inboro Ant	No
	f) devices for limiting pressure or temperature,	wotek anbr	
	g) devices for monitoring emissions,	Anbo	stek
	h) devices to prevent operation in the absence of the operator at	boten A	100
	the control position,	Anthope	bote
	i) devices to prevent lifting operations unless stabilizers are in	K Anboro	Aur
	place,	tek	nb
	j) devices to limit inclination of the machine on a slope, and	oten Anbo	Pr.
	k) devices to ensure that components are in a safe position before	Lek botek	P
	travelling.	nbore Ant	No.
	Automatic protective measures triggered by such devices that	stek ppbo	0
	take operation of the machinery out of the control of the operator	Anbo	Nek
	(for example, automatic stop of hazardous movement) should be	boten At	bo
	preceded or accompanied by a warning signal to enable the	Ann	noter
tel tel	operator to take appropriate action (see 6.4.3).	h hote.	Anv
6.3.3	Requirements for design of guards and protective devices	No. Not	odp.
6.3.3.1	General requirements	oten Anbo	P.c.
	Guards and protective devices shall be designed to be suitable for	hotek hotek	D'
	the intended use, taking into account mechanical and other	abote Anu	X
	hazards involved. Guards and protective devices shall be	stek spo	6
	compatible with the working environment of the machine and	Anbo. An	Yek
	designed so that they cannot be easily defeated. They shall	notek pr	Por P
	provide the minimum possible interference with activities during	Ano	-otek
	operation and other phases of machine life, in order to reduce any	boten	And
	incentive to defeat them.	Alle	.00
	NOTE For additional information, see ISO 14120, ISO 13849-1,		- 0.7

Test Report No.: SZAHS180712005-01

SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance of 87 aborato mited

			SHAI
Test	Report No.: S	ZAHS1807	12005-01

nbotek

Clause	Requirement – Test	Result - Remark	Verdict
ten Ant	Jor Ann tek boten Ann Kantek	upor An	14
V.	ISO 13851, ISO 14119, ISO 13856, IEC 61496 and IEC 62061.	stek subor	P
boten	Guards and protective devices shall	Anbo A.	-Yek
-oK	a) be of robust construction,	hotek Ant	0.
Anbore	b) not give rise to any additional hazard,	And	~otek
tek	c) not be easy to bypass or render non-operational,	aboter	up-
Anbo	d) be located at an adequate distance from the danger zone (see	Allek	pote
bote	ISO 13855 and ISO 13857),	ek Anbou	Pri
Aur	e) cause minimum obstruction to the view of the production	K wotek	Anb
ek nb	process, and	poter Anb	
	f) enable essential work to be carried out for the installation and/or	tek abote	P
boten I	replacement of tools and for maintenance by allowing access	Anbor An	*eK
Yo.	only to the area where the work has to be	otek anb	010
nbote	carried out — if possible, without the guard having to be	And	. otek
h. stek	removed or protective device having to be disabled.	aboten P	up.
Anbo	For openings in the guards, see ISO 13857.	P.I.	poter
6.3.3.2		lek Anbor	D.I.
6.3.3.2 6.3.3.2.1	Requirements for guards	K wotok	Anb
0.3.3.2.1	Functions of guards The functions that guards can achieve are	poter Anbo	F
M	—prevention of access to the space enclosed by the guard,	stek spote	P
ooten p	and/or	Aupor Ar	Kek-
No.K	-containment/capture of materials, workpieces, chips, liquids	hotek Anbr	
Anbore	which can be ejected or dropped by the machine, and reduction	Ann	notek
wotek.	of emissions (noise, radiation, hazardous substances such as	Anboro A	nº w
Ano	dust, fumes, gases) that can be generated by the machine.	P. stek	P
aboter	dust, fumes, gases) that can be generated by the machine.	Anbo	P.
Pri	Additionally, they could need to have particular properties relating	lek botek	Anbo
sk anbe	to electricity, temperature, fire, explosion, vibration, visibility (see	pore Ann	
N.	ISO 14120) and operator position ergonomics (for example,	stek subote.	P
oter A	usability, operator's movements, postures, repetitive movements).	Anbo	Lek.
6.3.3.2.2	Requirements for fixed guards	aboten Aribi	
0.0.0.2.2	Fixed guards shall be securely held in place either	All	boten
hotek	—permanently (for example by welding), or	Anbors A	1. Alex
Ant	—by means of fasteners (screws, nuts) making removal/opening	K wotek	Anbolt
anbote.	impossible without using tools; they should not remain closed	Anbo	P
	without their fasteners (see ISO 14120).	rek poter	Anbe
K Anbo	NOTE A fixed guard can be hinged to assist in its opening.	or An Lok	
6.3.3.2.3	Requirements for movable guards	woter and	P.2
0.0.0.2.0	Movable guards which provide protection against hazards	A LO	e¥.
dek	generated by moving transmission parts shall	aboten Anbo	14
nbo	a) as far as possible when open remain fixed to the machinery or	P	poter
hotek	other structure (generally by means of hinges or guides), and	Anbor An	Kelk.
Ann	b) be interlocking (with guard locking when necessary) (see ISO	tek untek	Anbort
anboter	14119).	Anb	
P.	See Figure 4.	tek aboten	Anbo
Anbo	Movable guards against hazards generated by non-transmission	pin pin	P
.ok	moving parts shall be designed and associated with the machine	botek Anbore	Pu
pro An	control system so that	mb k int	8K
atek.		aboten Anbo	
nbo.	-moving parts cannot start up while they are within the operator's	An	ootek
Lotek	reach and the operator cannot reach moving parts once they	Anbore An	-V-
And	have started up, with this able to be achieved by interlocking	P	nboter
aboten	guards, with guard locking when necessary,	Anbo	p.
Put	 —they can be adjusted only by an intentional action, such as the 	Kek.	, abor

SZAHS180712005-01

Anbotek

Product Safety

Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited Page 25 of 87

SHAN Test Report No.: SZAHS180712005-01

nbotek

Clause	Requirement – Test	Result - Remark	Verdic
oten an	both Anno tek boten Anno tek	upore An	N.
N.	use of a tool or a key, and	tek nboth	
poter	—the absence or failure of one of their components either	Anbor An	You
ins .K		otek ont	ore
aboter	prevents starting of the moving parts or stops them, with this	Anbo	Nor
An	able to be achieved by automatic monitoring (see 6.2.11.6).	Lotek	nbor
abore	See Figure 4 and ISO 14119.	And	
6.3.3.2.4	Requirements for adjustable guards	ek poter	And
Anbo	Adjustable guards may only be used where the hazard zone	Allek	
N N	cannot for operational reasons be completely enclosed.	otek nabou	b.
ote. Ant	Manually adjustable guards shall be	po nate	ь р
Not	-designed so that the adjustment remains fixed during a given	hotek Anbu	F
nbore	operation, and	Ann	otek.
rek	-readily adjustable without the use of tools.	aboten And	14
6.3.3.2.5	Requirements for interlocking guards with a start function (cor	trol quards)	aboton
bolek	An interlocking guard with a start function may only be used	Anbort	
Ann	provided that	K atek	Anbor
pote	a) all requirements for interlocking guards are satisfied (see ISO	And	
Pr.	14119),	lek hotek	Ant
tek anb	b) the cycle time of the machine is short,	poro Ann	
Y.	c) the maximum opening time of the guard is preset to a low value	stek subote	
boter P		Anbo	Yex
Xo.	(for example, equal to the cycle time) and, when this time is	hotek Anb) · · ·
nbore	exceeded, the hazardous function(s) cannot be initiated by the	Ano	. otek
h. stek	closing of the interlocking guard with a start function and	boten A	Up_
Anbo	resetting is necessary before restarting the machine,	An	-b010
Lotel	d) the dimensions or shape of the machine do not allow a person,	K nbore	Ann
And	or part of a person, to stay in the hazard zone or between the	h. tek	Not
ok yo	hazard zone and the guard while the guard is closed (see ISO	otek Anbo	bre.
Aur Aur	14120),	K sotel	
stek .	e) all other guards, whether fixed (removable type) or movable,	aboten Anb	N
ibo. h	are interlocking guards,	All sex abc	ler
hotek	f) the interlocking device associated with the interlocking guard	Anbor An	No.
Ann	with a start function is designed such that —for example, by	otek N	port
abote	duplication of position detectors and use of automatic	And	10
Pit	monitoring (see 6.2.11.6) — its failure cannot lead to an	k boten	Anbo
Anbor	unintended/unexpected start-up, and	Ann	
N	g) the guard is securely held open (for example, by a spring or	tek nbote.	And
en Aup	counterweight) such that it cannot initiate a start while falling by	A. tek	
No.	its own weight.	botek Anbo	P
6.3.3.2.6	Hazards from guards	an wok no	ler-
hoten	Care shall be taken to prevent hazards which could be generated	Anbor And	. K
Ann	by the second process of the second	atek at	pore
aboter	—the guard construction (sharp edges or corners, material, noise	Anbo	. el
P.I.	emission, etc.),	k hotek	Antp
Anbors	—the movements of the guards (shearing or crushing zones	Ann	-
Y	generated by power-operated guards and by heavy guards	tek aboten	And
an Anbo	which are liable to fall).	Pittek	
6.3.3.3	Technical characteristics of protective devices	Lotek Anbor	P
0.0.0.0	Protective devices shall be selected or designed and connected to	1 × × × × 0	o.V.
atek.	the control system such that correct implementation of their safety	aboter Anbo	56
Anbo		P. Lok	poter
Lotek	function(s) is ensured.	Anbour An	P
Anu	Destanting devices shall be aslanted as the basis of their basis	tek	nbote
aboten	Protective devices shall be selected on the basis of their having	Anbo	-
P	met the appropriate product standard (for example, IEC 61496 for	K worker	anbo

botek SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 26 of 87

			SHAN
Test	Report No.: S	ZAHS1807	12005-01

nbotek

Clause	Requirement – Test	Result - Remark	V
oten An	po hek noole And ak holek A	upor Ar.	No
You	active optoelectronic protective devices) or shall be designed	hotek Anbo.	
	according to one or several of the principles formulated in ISO	And	05
	13849-1 or IEC 62061.	aboten An	-
	At tek poote And k potek Andor	All	
	Protective devices shall be installed and connected to the control	Anbore	100
	system so that they cannot be easily defeated.	Y solek	
6.3.3.4	Provisions for alternative types of safeguards	ten Anbo	-
	Provisions should be made to facilitate the fitting of alternative	rek poten	
	types of safeguards on machinery where it is known that it will be	port An	16
	necessary to change the safeguards because of the range of work	sotek subor	
	to be carried out.	Anbo	35
6.3.4	Safeguarding to reduce emissions	aboten Ant	
6.3.4.1	General	P.I.	Ň
hotek	If the measures for the reduction of emissions at source specified	Anbor	
	in 6.2.2.2 are not adequate, the machine shall be provided with	K atek	
	additional protective measures (see 6.3.4.2 to 6.3.4.5).	Anbo	
6.3.4.2	Noise	rek botek	<u> </u>
0.0.4.2	Additional protective measures against noise include	por Ann	N-
	enclosures (see ISO 15667),	hotek Anbore	
	—enclosures (see ISO 15667), —screens fitted to the machine, and	And	Re
		boten Anb	
6.3.4.3	silencers (see ISO 14163). Vibration	All	
0.3.4.3		Anbolt	70.
	Additional protective measures against vibration include	tek	
	-vibration isolators, such as damping devices placed between	an Anbo	3
	the source and the exposed person,	lok botek	
	—resilient mounting, and	ote Ant	6
	-suspended seats.	stek subote	
	For measures for vibration isolation of stationary industrial	Aupo H.	e
0.0.4.4	machinery see EN 1299.	poten Anb	
6.3.4.4	Hazardous substances	All	10
	Additional protective measures against hazardous substances	Anbore P	
	include	tek.	
	encapsulation of the machine (enclosure with negative	Anbo	r
	pressure),	Lek boten	
	-local exhaust ventilation with filtration,	or Ann	4
	—wetting with liquids, and	potek Anbore	
	-special ventilation in the area of the machine (air curtains,	ind k	e
	cabins for operators).	aboter Anbi	
	See ISO 14123-1.	P.'.	10
6.3.4.5	Radiation	Anbor A	125
	Additional protective measures against radiation include	otek	0
	—use of filtering and absorption, and	And	10
P	—use of attenuating screens or guards.	tek spoten	
6.3.5	Complementary protective measures	or Alle	
6.3.5.1	General	wotek subore	-
	Protective measures which are neither inherently safe design	np-	18K
	measures, nor safeguarding (implementation of guards and/or	aboter Anbo	
	protective devices), nor information for use, could have to be	Am	00
	implemented as required by the intended use and the reasonably	Anboro Ar	
	foreseeable misuse of the machine. Such measures include, but	tek	
boten	are not limited to, those dealt with in 6.3.5.2 to 6.3.5.6.	Anbo	P.1
6.3.5.2	Components and elements to achieve emergency stop function	K notek	
· · · · ·		19	

Anbotek SZAHS180712005-01

Product Safe

Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 27 of 87

Test Report No.: SZAHS180712005-01

Clause	Requirement – Test		Result - Remar	k Verdict
len Di	poter Ant wotek	Anbor All stek	anboten Ano	No.
.V.	If, following a risk assessment, a ma	achine needs to be fitted w	ith den ont	Jon P
	components and elements to achiev			Net
	for enabling actual or impending em		ok botek	Aupor
	averted, the following requirements		And K	Lotek
	—the actuators shall be clearly iden		tek	And
	readily accessible;	illiable, clearly visible and	abor All tek	boten
	—the hazardous process shall be st	topped as quickly as pessi	blowdek Anbor	Priv
				K ANDO
	without creating additional hazard			1 m
	the risk cannot be reduced, it show		All wether to	oter A
	implementation of an emergency	stop function is the best	Anboro Ant	X
	solution;	the second se	h stek	nbote
	-the emergency stop control shall t		ing Anboard	Ne K
	of certain safeguard movements v		K botek	Podna
	NOTE For more detailed provisions,	, see ISO 13850.	boter And	. otek
	ek anbote Ano	hotek Anbor Al	kek aboter	And
	Once active operation of the emerge		ed	6
	following an emergency stop comma		otek Anbort	Pur
	command shall be sustained until it			tel Nat
	possible only at the location where t			
	has been initiated. The reset of the o		Ant	hotek
	machinery, but shall only permit rest	tarting.	ek Anboro A	nº K
	otek Anbore An		P. stek	apote.
	More details for the design and sele	ection of electrical compone	ents	Prek
	and elements to achieve the emerge		K hotek	Anbor
	provided in IEC 60204.	hoo Air stek	nboten Anb	10
6.3.5.3	Measures for the escape and reso	cue of trapped persons	tek nbote.	AUD
An	Measures for the escape and rescue	e of trapped persons may	Anbo	tek an
	consist, among others, of	Anto Anto	hotek Anbc	P.
	-escape routes and shelters in inst	tallations generating opera	tor-	~ clek
	trapping hazards,	Anbo	ek abote A	Nº K
	-arrangements for moving some el	lements by hand, after an	P	boten
	emergency stop,	Ano K	otek Anbor	AN PLOK
	—arrangements for reversing the m	ovement of some elements	S. Kotek	Anbore
	-anchorage points for descender d		aboten Anbe	1
	-means of communication to enable		for here would	Anbo
	help.	Annotek	Anbore An	ok No
6.3.5.4	Measures for isolation and energy	v dissipation	Lotek Anbo	Pa
,	Machines shall be equipped with the		Ve	det
	isolation from power supply(ies) and			10-
	by means of the following actions:		95 Print	poten
	a) isolating (disconnecting, separatin	ng) the machine (or define	dtek Anbore	An
	parts of the machine) from all pow		d h otek	nbote
	b) locking (or otherwise securing) al		aboten Anbo	m
	isolating position;		An notek	Anbor
	c) dissipating or, if this is not possible	le or practicable restrainin	Anto Anto	P
				Pur
	(containing) any stored energy wh		aru, problem pre	484
	d) verifying, by means of safe working		hotek an	00
	actions taken according to a), b) a	and c) above have produce	eu Anue P	otek
	the desired effect.		tok boten	Ano
	See ISO 14118:2000, Clause 5, and	a i⊨C 60204-1:2005, 5.5 ai	na An-	potek
	5.6.		V NOTO	Alle
6.3.5.5	Provisions for easy and safe hand	14 VO	- OFE	

SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 28 of 87

SHAN Test Report No.: SZAHS180712005-01

Clause	Requirement – Test	Result - Remark	Verdic
Lek An	ooter Ann ok wotek Anno An	boten bub	X
.V.	transported by hand shall be provided or be capable of being	otek hnboth	
	provided with suitable attachment devices for transport by means		Xek.
	of lifting gear.		
			-oter
	These attachments may be, among others,		vup-
			0
	-standardized lifting appliances with slings, hooks, eyebolts, or		Pur
	tapped holes for appliance fixing,		
	—appliances for automatic grabbing with a lifting hook when		P
	attachment is not possible from the ground,		1-
	-fork locating devices for machines to be transported by a lift		14
	truck,		oter
	 —lifting and stowing gear and appliances integrated into the 		V
	machine.		poter
	Anbo her stek noote And k notek		
	Parts of machinery which can be removed manually in operation		pabo
	shall be provided with means for their safe removal and		10
	replacement.		D
	hopideoniterit.		
	See also 6.4.4 c), item 3).		
6.3.5.6		Anbor An	404
0.3.3.0	Measures for safe access to machinery	otok nap	01-
	Machinery shall be so designed as to enable operation and all		1ek
	routine tasks relating to setting and/or maintenance to be carried		upo
	out as far as possible by a person remaining at ground level.		
	anbole Ant Anto Anbor An		AUD
	Where this is not possible, machines shall have built-in platforms,		
	stairs or other facilities to provide safe access for those tasks;		PL
	however, care should be taken to ensure that such platforms or		b-
	stairs do not give access to danger zones of machinery.		
	her whoten Anbo Ar stek photee		Lek.
	The walking areas shall be made from materials which remain as		N.
	slip resistant as practicable under working conditions and,		boter
	depending on the height from the ground, shall be provided with		
	suitable guard-rails (see ISO 14122-3).		nboi
			Pre
	In large outemated installations, particular attention shall be given		na
	In large automated installations, particular attention shall be given		1
	to safe means of access, such as walkways, conveyor bridges or		P
	crossover points.		P
	And And And And And And		
	Means of access to parts of machinery located at height shall be		Kek.
	provided with collective means of protection against falls (for		por
npote	example, guard-rails for stairways, stepladders and platforms		1
	and/or safety cages for ladders).		Anbu.
	Au tak aboten Anbo hatek abote		
	As necessary, anchorage points for personal protective	tek abote.	An
	equipment against falls from height shall also be provided (for		
	example, in carriers of machinery for lifting persons or with		
	elevating control stations).		NS.
	Openings shall, whenever possible, open towards a safe position.		notek
	They shall be designed to prevent hazards due to unintended		~bote
	opening.		Ann
	and and a subort Ant at botek Anbor		10
	The necessary aids for access shall be provided (steps,		Pri

Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited Page 29 of 87

Product Safety

Test Report No.: SZAHS180712005-01

Clause	Requirement – Test	Result - Remark	V
otek A	nbor An tek abolen And K sotek Ant	Dor bu	40
40	handholds, etc.). Control devices shall be designed and located to	woter anbo	
npote	prevent their being used as aids for access.		Ne
rek.	nbote, Ann k sotek anbor An		100
Anbot	When machinery for lifting goods and/or persons includes		1
notek	landings at fixed levels, these shall be equipped with interlocking		VU.
Ant	guards for preventing falls when the platform is not present at a		
e npo	level. Movement of the lifting platform shall be prevented while the		3
P.	guards are open.		
otek Al	htpoter And K hotek And		N.
You	For detailed provisions see ISO 14122.		
6.4	Information for use	TUP K	ote
6.4.1	General requirements	Vuporo, Vu	2
6.4.1.1	Drafting information for use is an integral part of the design of a	atek.	do
aboten	machine (see Figure 2).Information for use consists of		Pr-
Pri	communication links, such as texts, words, signs, signals,		P
Anbo	symbols or diagrams, used separately or in combination to convey		
No.	information to the user. Information for use is intended for		
pre. Ar	professional and/or non-professional users.		1
tek	anbote. And ak potek Anbor An tek		
0,00	NOTE See also IEC 62079 for structuring and presentation of		oter
poter	information for use.	Anbor An	
6.4.1.2	Information shall be provided to the user about the intended use		vup.
Anbors	of the machine, taking into account, notably, all its operating		
	modes.		P
Anb	K otek Anbore Ant ok botek Anbo		
ek a	The information shall contain all directions required to ensure safe		
Pr.	and correct use of the machine. With this in view, it shall inform		1
notek	and warn the user about residual risk.		N
Kok.	This is formation about indicate as the mount about the Andrew K		o
Anbore	The information shall indicate, as appropriate,		
tek	—the need for training, —the need for personal protective equipment, and	abote. P	"ND
Anbe			
bot	-the possible need for additional guards or protective devices		P.
Priv	(see Figure 2, Footnote d).		
ek ant	It shall not exclude uses of the machine that can reasonably be expected from its designation and description and shall also warn		6
N.	about the risk which would result from using the machine in other		
pote	ways than the ones described in the information, especially		1ek
tek	considering its reasonably foreseeable misuse.		
6.4.1.3	Information for use shall cover, separately or in combination,	P	100
abotek	transport, assembly and installation, commissioning, use of the		
Ann	machine (setting, teaching/programming or process changeover,		An
Anborr	operation, cleaning, fault-finding and maintenance) and, if		
. V	necessary, dismantling, disabling and scrapping.		
6.4.2	Location and nature of information for use	y stel	
dek .	Depending on the risk, the time when the information is needed	boten Ano	V.
	by the user and the machine design, it shall be decided whether		18h
botek	the information — or parts thereof — are to be given		
Ann	a) in/on the machine itself (see 6.4.3 and 6.4.4),		por
Anbote	b) in accompanying documents (in particular instruction		
n' de	handbook, see 6.4.5),	aboter	An
Anbou	c) on the packaging,	P.I.	
N.	aten hard when at hore And	ek abor	

tek SZAHS180712005-01

Anbo

Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 30 of 87

Test Report No.: SZAHS180712005-01

Clause	Requirement – Test	Result - Remark	Verdi
No.	polo Ann Ann Ann Ann		, vora
P	d) by other means such as signals and warnings sutside the	Lek bot	C.K.
	d) by other means such as signals and warnings outside the	Antono Ant	N.
	machine.	P. Kek	oter
	Anbor An tek boter Anb	Anbore An	N
	Standardized phrases shall be considered where important	M. Kelt	npote.
	messages such as warnings are given (see also IEC 62079).	Anbor	ber.
6.4.3	Signals and warning devices	× solek	anbe
nbo	Visual signals, such as flashing lights and audible signals such as	on Anbo	
	sirens may be used to warn of an impending hazardous event	when woten	D
	such as machine start-up or overspeed. Such signals may also be	pote. And	
		tek both	35-
	used to warn the operator before the triggering of automatic	Auport An	X
	protective measures (see 6.3.2.7).	M. Yek al	ote.
	Anbo Andrek noote And K sotek	Anbor An	LeK.
	It is essential that these signals	atek	nbore
	a) be emitted before the occurrence of the hazardous event,	Anbo	
	b) be unambiguous,	K wotek	Anbo
	c) be clearly perceived and differentiated from all other signals	Anp	
	used, and	let hotek	D.Y
	d) be clearly recognized by the operator and other persons.	poro Ann	Р
	a) be deally recognized by the operator and other persons.	tek abote	
	http://www.instantek.ek.et.et.eboter.ex.ek	Anbor Ann	- Xo
	The warning devices shall be designed and located such that	r. tek ab	ofer
	checking is easy. The information for use shall prescribe regular	Anbor An	No.K
	checking of warning devices.	atek .	abor
	And tek unbols Ann ok noten	Anbo	
	The attention of designers is drawn to the possibility of "sensorial	K wotek	anbo
	saturation", which can result from too many visual and/or acoustic	And	1.0
	signals and which can also lead to defeating the warning devices.	where where we have a strength where we have a	D.C
	signals and which can also lead to deleating the warning devices.	jote Ant	
	NOTE Consultation of the upper on this publicat is often passagery	tek spote	
tek	NOTE Consultation of the user on this subject is often necessary.	Pupor bu	Lek-
5.4.4	Markings, signs (pictograms) and written warnings	wotek and	010
	Machinery shall bear all markings which are necessary	And	otek
	a) for its unambiguous identification, including at least	hoten A	NPC
	1) the name and address of the manufacturer,	Ann	
	2) the designation of series or type, and	k boten	Anbe
	3) the serial number, if any,	Ann	
	b) in order to indicate its compliance with mandatory	tek abote.	An
	requirements, comprising	pit pit	6
	1) marking, and	otek photo	
	2) written indications, such as the authorized representative of the	mby h.	1ek
		hotek Anbe	
	manufacturer, designation of the machinery, year of	And	dek
	construction, and intended use in potentially explosive	hoten A	000
	atmospheres),	Anu	D
	c) for its safe use, for example,	k boter	Anto
	1) maximum speed of rotating parts,	Ann	
	2) maximum diameter of tools,	rek poter	Ant
	3) mass (in kilograms) of the machine itself and/or of removable	pr priv	
		stek spote.	1
	parts,	upo. Air	No.
	4) maximum working load,	otek nbo	
	5) necessity of wearing personal protective equipment,	Anbor An	4.ext
	6) guard adjustment data, and	atek ar	por
	7) frequency of inspection.	Anbo	10
	hoter Andre Andre Andre Andre	otek	nbor
	Information printed directly on the machine should be permanent	Anbo	10
	and remain legible throughout the expected life of the machine.	K otek	anb

SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 31 of 87

SHAN Test Report No.: SZAHS180712005-01

Clause	Requirement – Test	Result - Remark	Verdi
SK D	inboro Ann tek nootek Anboo k notek	Anbore Ano	4
Kok.	aboten Anbou to atek Mabote Anbo	hotek Anbor	1212
	Signs or written warnings indicating only "Danger" shall not be	Ann	
	used.	ak abote Ant	
	And anbote. And ak hotek Anbor	P.I.	
	Markings, signs and written warnings shall be readily	otek Anbor	
	understandable and unambiguous, especially as regards the pa	irt v sotek	
	of the function(s) of the machine to which they are related.	abolen Anbe	
	Readily understandable signs (pictograms) should be used in	All boten	
	preference to written warnings.	Apport Ann	
	hotek Anbo Anbo tek aboten Anbo	the stek	
	Signs and pictograms should only be used if they are understoo	d Anbor A	
	in the culture in which the machinery is to be Used.	k hotek Anb	
		Anu	
	Written warnings shall be drawn up in the language(s) of the	stek spoter p	
	country in which the machine will be used for the first time and,	on lek	
	request, in the language(s) understood by operators.	bolek Anbor	
	request, in the language(s) understood by operators.	K sotek	
	NOTE In some countries the use of specific language(s) is	apoter Anbe	
	covered by legal requirements.	A' tek pote	
		Anbor An	
	Markings shall comply with recognized standards (for example,	k wotek anbe	
	ISO 2972 or ISO 7000, for pictograms, symbols and colours in	Anbe	
		tek stoten A	
	particular).	Ant Lok	
	See IEC 60204 1 as regards marking of electrical equipment	otek Anbore	
	See IEC 60204-1 as regards marking of electrical equipment.	nbo tek	
	See ISO 4412 and ISO 4414 far hydraulia and provincia	boten Anbo	
	See ISO 4413 and ISO 4414 for hydraulic and pneumatic	An ok botek	
6.4.5	entionent		
	equipment.	dhook)	No
	Accompanying documents (in particular — instruction han	dbook)	lek.
	Accompanying documents (in particular — instruction han Contents	dbook)	Lek Notok
	Accompanying documents (in particular — instruction han Contents The instruction handbook or other written instructions (for	dbook)	lorek lek
	Accompanying documents (in particular — instruction han Contents The instruction handbook or other written instructions (for example, on the packaging) shall contain, among others, the	dbook)	lek botok
	Accompanying documents (in particular — instruction hand Contents The instruction handbook or other written instructions (for example, on the packaging) shall contain, among others, the following:	tek Anbotek Ar	lotok Anbot
	Accompanying documents (in particular — instruction han Contents The instruction handbook or other written instructions (for example, on the packaging) shall contain, among others, the following: a) information relating to transport, handling and storage of the	tek Anbotek Ar	botok Anbot
	Accompanying documents (in particular — instruction hand Contents The instruction handbook or other written instructions (for example, on the packaging) shall contain, among others, the following: a) information relating to transport, handling and storage of the machine, such as 	tek Anbotek Ar	lootok Anbot An
	 Accompanying documents (in particular — instruction hand Contents The instruction handbook or other written instructions (for example, on the packaging) shall contain, among others, the following: a) information relating to transport, handling and storage of the machine, such as 1) storage conditions for the machine, 	Anbotek	botok Anbot
	Accompanying documents (in particular — instruction hand Contents The instruction handbook or other written instructions (for example, on the packaging) shall contain, among others, the following: a) information relating to transport, handling and storage of the machine, such as 1) storage conditions for the machine, 2) dimensions, mass value(s), position of the centre(s) of gravity 	Anbotek	botok Anbot An
	 Accompanying documents (in particular — instruction hand Contents The instruction handbook or other written instructions (for example, on the packaging) shall contain, among others, the following: a) information relating to transport, handling and storage of the machine, such as 1) storage conditions for the machine, 2) dimensions, mass value(s), position of the centre(s) of gravity and 	Anbotek	lek botok Anbot An ek
	Accompanying documents (in particular — instruction hand Contents The instruction handbook or other written instructions (for example, on the packaging) shall contain, among others, the following: a) information relating to transport, handling and storage of the machine, such as 1) storage conditions for the machine, 2) dimensions, mass value(s), position of the centre(s) of gravity and 3) indications for handling (for example, drawings indicating 	Anbotek	ek botek Anbot An ek
	 Accompanying documents (in particular — instruction hand Contents The instruction handbook or other written instructions (for example, on the packaging) shall contain, among others, the following: a) information relating to transport, handling and storage of the machine, such as 1) storage conditions for the machine, 2) dimensions, mass value(s), position of the centre(s) of gravity and 3) indications for handling (for example, drawings indicating application points for lifting equipment); 	Anbotek	eek botok Anbot An ek botek
	 Accompanying documents (in particular — instruction ham Contents The instruction handbook or other written instructions (for example, on the packaging) shall contain, among others, the following: a) information relating to transport, handling and storage of the machine, such as 1) storage conditions for the machine, 2) dimensions, mass value(s), position of the centre(s) of gravity and 3) indications for handling (for example, drawings indicating application points for lifting equipment); b) information relating to installation and commissioning of the 	Anbotek	ek botok Anbot ek botek
	 Accompanying documents (in particular — instruction ham Contents The instruction handbook or other written instructions (for example, on the packaging) shall contain, among others, the following: a) information relating to transport, handling and storage of the machine, such as 1) storage conditions for the machine, 2) dimensions, mass value(s), position of the centre(s) of gravity and 3) indications for handling (for example, drawings indicating application points for lifting equipment); b) information relating to installation and commissioning of the machine, such as 	Anbotek	ek hotek Anbot ek botek AntP
	 Accompanying documents (in particular — instruction ham Contents The instruction handbook or other written instructions (for example, on the packaging) shall contain, among others, the following: a) information relating to transport, handling and storage of the machine, such as 1) storage conditions for the machine, 2) dimensions, mass value(s), position of the centre(s) of gravity and 3) indications for handling (for example, drawings indicating application points for lifting equipment); b) information relating to installation and commissioning of the machine, such as 1) fixing/anchoring and dampening of noise and vibration 	Anbotek	ek botok Anbot ek botek Ant <mark>P</mark> t
	 Accompanying documents (in particular — instruction ham Contents The instruction handbook or other written instructions (for example, on the packaging) shall contain, among others, the following: a) information relating to transport, handling and storage of the machine, such as 1) storage conditions for the machine, 2) dimensions, mass value(s), position of the centre(s) of gravity and 3) indications for handling (for example, drawings indicating application points for lifting equipment); b) information relating to installation and commissioning of the machine, such as 1) fixing/anchoring and dampening of noise and vibration requirements, 	Anbotek	ek Anbot An ek botek Ant Pt
	 Accompanying documents (in particular — instruction ham Contents The instruction handbook or other written instructions (for example, on the packaging) shall contain, among others, the following: a) information relating to transport, handling and storage of the machine, such as 1) storage conditions for the machine, 2) dimensions, mass value(s), position of the centre(s) of gravity and 3) indications for handling (for example, drawings indicating application points for lifting equipment); b) information relating to installation and commissioning of the machine, such as 1) fixing/anchoring and dampening of noise and vibration requirements, 2) assembly and mounting conditions, 	Anbotek	ek Anbot An ek potek An P
	 Accompanying documents (in particular — instruction ham Contents The instruction handbook or other written instructions (for example, on the packaging) shall contain, among others, the following: a) information relating to transport, handling and storage of the machine, such as 1) storage conditions for the machine, 2) dimensions, mass value(s), position of the centre(s) of gravity and 3) indications for handling (for example, drawings indicating application points for lifting equipment); b) information relating to installation and commissioning of the machine, such as 1) fixing/anchoring and dampening of noise and vibration requirements, 2) assembly and mounting conditions, 3) space needed for use and maintenance, 	Anbotek	ek Anbot Anbot ek potek Ant Ant
	 Accompanying documents (in particular — instruction ham Contents The instruction handbook or other written instructions (for example, on the packaging) shall contain, among others, the following: a) information relating to transport, handling and storage of the machine, such as 1) storage conditions for the machine, 2) dimensions, mass value(s), position of the centre(s) of gravity and 3) indications for handling (for example, drawings indicating application points for lifting equipment); b) information relating to installation and commissioning of the machine, such as 1) fixing/anchoring and dampening of noise and vibration requirements, 2) assembly and mounting conditions, 3) space needed for use and maintenance, 4) permissible environmental conditions (for example, 	Anbotek	ek Anbot Anbot ek potek Ant Ant Ant
	 Accompanying documents (in particular — instruction ham Contents The instruction handbook or other written instructions (for example, on the packaging) shall contain, among others, the following: a) information relating to transport, handling and storage of the machine, such as 1) storage conditions for the machine, 2) dimensions, mass value(s), position of the centre(s) of gravity and 3) indications for handling (for example, drawings indicating application points for lifting equipment); b) information relating to installation and commissioning of the machine, such as 1) fixing/anchoring and dampening of noise and vibration requirements, 2) assembly and mounting conditions, 3) space needed for use and maintenance, 4) permissible environmental conditions (for example, temperature, moisture, vibration, electromagnetic radiation), 	Anbotek	ek Anbot Anbot ek potek Ant Ant Ant ak
	 Accompanying documents (in particular — instruction ham Contents The instruction handbook or other written instructions (for example, on the packaging) shall contain, among others, the following: a) information relating to transport, handling and storage of the machine, such as 1) storage conditions for the machine, 2) dimensions, mass value(s), position of the centre(s) of gravity and 3) indications for handling (for example, drawings indicating application points for lifting equipment); b) information relating to installation and commissioning of the machine, such as 1) fixing/anchoring and dampening of noise and vibration requirements, 2) assembly and mounting conditions, 3) space needed for use and maintenance, 4) permissible environmental conditions (for example, temperature, moisture, vibration, electromagnetic radiation), 5) instructions for connecting the machine to power supply 	Anbotek	ek Anboł Anboł ek potek Anti Anti ak
Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek	 Accompanying documents (in particular — instruction hamonia contents The instruction handbook or other written instructions (for example, on the packaging) shall contain, among others, the following: a) information relating to transport, handling and storage of the machine, such as 1) storage conditions for the machine, 2) dimensions, mass value(s), position of the centre(s) of gravity and 3) indications for handling (for example, drawings indicating application points for lifting equipment); b) information relating to installation and commissioning of the machine, such as 1) fixing/anchoring and dampening of noise and vibration requirements, 2) assembly and mounting conditions, 3) space needed for use and maintenance, 4) permissible environmental conditions (for example, temperature, moisture, vibration, electromagnetic radiation), 5) instructions for connecting the machine to power supply (particularly on protection against electrical overloading), 	Anbotek	ek Anboł Anboł ek potek Ant Ant Ant Ant Ant Ant
	 Accompanying documents (in particular — instruction hamonic contents The instruction handbook or other written instructions (for example, on the packaging) shall contain, among others, the following: a) information relating to transport, handling and storage of the machine, such as 1) storage conditions for the machine, 2) dimensions, mass value(s), position of the centre(s) of gravity and 3) indications for handling (for example, drawings indicating application points for lifting equipment); b) information relating to installation and commissioning of the machine, such as 1) fixing/anchoring and dampening of noise and vibration requirements, 2) assembly and mounting conditions, 3) space needed for use and maintenance, 4) permissible environmental conditions (for example, temperature, moisture, vibration, electromagnetic radiation), 5) instructions for connecting the machine to power supply (particularly on protection against electrical overloading), 6) advice on waste removal/disposal, and 	Anbotek	ek Anboł An ek potek Ant Ant Ant Ant Ant Ant
	 Accompanying documents (in particular — instruction hamonia contents The instruction handbook or other written instructions (for example, on the packaging) shall contain, among others, the following: a) information relating to transport, handling and storage of the machine, such as 1) storage conditions for the machine, 2) dimensions, mass value(s), position of the centre(s) of gravity and 3) indications for handling (for example, drawings indicating application points for lifting equipment); b) information relating to installation and commissioning of the machine, such as 1) fixing/anchoring and dampening of noise and vibration requirements, 2) assembly and mounting conditions, 3) space needed for use and maintenance, 4) permissible environmental conditions (for example, temperature, moisture, vibration, electromagnetic radiation), 5) instructions for connecting the machine to power supply (particularly on protection against electrical overloading), 	Anbotek	ek Anbot An ek potek Ant Ant Ant Ant Ant Ant

SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 32 of 87

Page 33 of 87

lause	Requirement – Test	Result - Remark	Verd
A	nov notek anbolt Anti tek abotek Al	bos Al.	eK.
	additional safeguards (see Figure 2, Footnote d), safety	aboten Anbo	N
	distances, safety signs and signals;	A" Lok	oten
	c) information relating to the machine itself, such as	Anbore An	
	1) detailed description of the machine, its fittings, guards and/or	A	npote
	protective devices,	Anbor	1.1.
	2) the comprehensive range of applications for which the machine	K wotek	Anbr
	is intended, including prohibited usages, if any, taking into	en Anbe	1.0
	account variations of the original machine if appropriate,	Lok boten	P
	3) diagrams (especially schematic representation of safety	poro An	36-
	functions),	stek suboti	
	4) data on noise and vibration generated by the machine, and on	Anbor A.	Y94
	radiation, gases, vapours and dust emitted by it, with reference	Lotek ant	0.
		And	tek
	to the measuring methods (including measurement	boten	upo
	uncertainties) used,	Ann	0
	5) technical documentation of electrical equipment (see IEC	ek abote.	AUN
	60204), and	P	
	6) documents attesting that the machine complies with mandatory	otek Anboro	P
	requirements;	y ne	¥
	d) information relating to the use of the machine, such as that	aboten Anbo	
	related to or describing	Ann	otek
	1) intended use,	anboten Anb	N.
	2) manual controls (actuators),	P. Lok	boten
	3) setting and adjustment,	Anbor	
	4) modes and means for stopping (especially emergency stop),	tek	npo
	5) risks which could not be eliminated by the protective measures	Anbo.	Pre
	implemented by the	where woter	D.T
	designer,	ote Ano	1
	6) particular risks which can be generated by certain applications,	kek bote	e.
		Anbor An	-ox
	by the use of certain fittings, and about specific safeguards	notek nab	
	necessary for such applications,	Anbo	Nek
	7) reasonably foreseeable misuse and prohibited applications,	hotek A	Np0-
	8) fault identification and location, for repair and for restarting after	Anu	mat
	an intervention, and	k aboter	AUD
	9) personal protective equipment needed to be used and the	All	
	training that is required;	stek subote	PU
	e) information for maintenance, such as	p. let	
	1) the nature and frequency of inspections for safety functions,	botek Anbor	
	2) specification of the spare parts to be used when these can	in k	ek
	affect the health and safety of operators,	aboter Anbi	42
	3) instructions relating to maintenance operations which require a	All	boten
	definite technical knowledge or particular skills and hence	Anbore A	
	need to be carried out exclusively by skilled persons (for	P	abott
	example,	Anbo	P.
	maintenance staff, specialists),	K stek	nat
		oter Anbo	Pro-
	4) instructions relating to maintenance actions (replacement of	hotek hotek	1
	parts, etc.) which do not require specific skills and hence may	nbote. Anu	X
	be carried out by users (for example, operators), and	kek wo	181.
	5) drawings and diagrams enabling maintenance personnel to	Anbor Ann	Yar
	carry out their task rationally (especially fault-finding tasks);	rtek ar	poto
	f) information relating to dismantling, disabling and scrapping;	Anbo. Ai	10
	g) information for emergency situations, such as	notek	Aupor
	1) the operating method to be followed in the event of accident or	Anbe	
	breakdown,	ok hotek	Anb
		NOV NOV	

An

botek

SZAHS180712005-01

Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited .

SHAN Test Report No.: SZAHS180712005-01

1	EN ISO 12100	tek anboite	Ann
Clause	Requirement – Test	Result - Remark	Verdic
yer A	nbo Anotek Anbote Ano K hotek A	upor Air	eK.
	2) the type of fire-fighting equipment to be used, and	botek Anbo	
nbor	3) a warning of possible emission or leakage of hazardous	Ann	notek
totek.	substance(s) and, if possible, an indication of means for fighting	Anboto, An	N N
And	their effects;	A. stek	nbote.
aboter	h) maintenance instructions provided for skilled persons [item e)	Anbo	
Pr	3) above] and maintenance instructions provided for unskilled	ek hotek	Anbo
k anbo	persons [item e) 4) above], that need to appear clearly	Ant Ant	
	separated from each other.	stek subote.	Ar
6.4.5.2	Production of instruction handbook	ipo h.	eK.
	The following applies to the production and presentation of the	boten Anbo	
nbos	instruction handbook.	All	opter
hotek	a) The type fount and size of print shall ensure the best possible	anbore An	Yo.
Anu	legibility. Safety warnings and/or cautions should be	otek	nporo
aboten	emphasized by the use of colours, symbols and/or large print.	And	-
P.	b) The information for use shall be given in the language(s) of the	ak boten	Anbo
Anbo	country in which the machine will be used for the first time and	An	
X	in the original version. If more than one language is to be used,	otek Anbore	Pu
te. Ar	each should be readily distinguished from another, and efforts	y w	16
tek	should be made to keep the translated text and relevant	aboten Anbe	
upor	illustration together.	All Lok	oten
hotek	Anbor All tek abolen Anbor K sotek	Anboro An	You
And	NOTE In some countries the use of specific language(s) is	otek	aboto
npoter	covered by legal requirements.	Anbo	n at
Pri	et poter And K potek Anbor An	K boten	Anbo
Anbo	c) Whenever helpful to the understanding, text should be	Anthope	-V
N N	supported by illustrations. These illustrations should be	otek Anboro	P
ce. An	supplemented with written details enabling, for example,	te de	N.
Hatek	manual controls (actuators) to be located and identified. They	aboten Anbo	57
100.	should not be separated from the accompanying text and	All Let 10	oten
hotek	should follow sequential operations.	Anbors An.	KeK.
Ann	d) Consideration should be given to presenting information in	Lotek D	hport
nbote	tabular form where this will aid understanding. Tables should be	And	Ne
p.	adjacent to the relevant text.	K aboter	Anbe
Anbo	An otek nboten And k potek Anbou	Alle	-10
X X	e) The use of colours should be considered, particularly in relation	otek Anbou	Pur
Au.	to components requiring quick identification.	v votel	6
otek	Noor Ann ack bolek Anbor An Lek	aboten Anbo	No. 1
0°	f) When information for use is lengthy, a table of contents and/or	tek ab	Dier
boten	an index should be provided.	Anbor An	Yek
Ann	boten Anbo A. stek subote. Anbo	hotek b	n port
hpolo.	g) Safety-relevant instructions which involve immediate action	Ano	. ote
P* NO	should be provided in a form readily available to the operator.	k poter	And
6.4.5.3	Drafting and editing information for use	A. tok	
14	The following applies to the drafting and editing of information for	otek Anbou	Pri
An	USE. Model Million Million Million Million	why wotek	D
otek .	a) Relationship to model: the information shall clearly relate to the	abote Ano	Y.
р~ I	specific model of machine and, if necessary, other appropriate	tek abo	181.
botek	identification (for example, by serial number).	Anbor An	D
Ann	b) Communication principles: when information for use is being	wotek N	por
anboten	prepared, the communication process "see - think - use"	And	otel
P	should be followed in order to achieve the maximum effect and	boten	Anbo
Anbor	should follow sequential operations. The questions, "How?" and	Ann	10
P	"Why?" should be anticipated and the answers provided.	Ví volo	000

SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited Page 34 of 87

Test Report No.: SZAHS180712005-01

lause	Requirement – Test	Result - Remark	Verdict
SK AL	bor Anto tek nooten Anto k sotek	nbors Any	N _e
- ok	c) Information for use shall be as simple and as brief as possible,	hotek Anbor	P
	and should be expressed in consistent terms and units with a	And	otek
	clear explanation of unusual technical terms.	aboten Ant	
	d) When it is foreseen that a machine will be put to non-	All	boten
	professional use, the instructions should be written in a form	Anboro	Ant of
	that is readily understood by the non-professional user. If	h. stek	nbote
	personal protective equipment is required for the safe use of the	en Anbo	Pr.
	machine, clear advice should be given, for example, on the	k hotek	Anbo
	packaging as well as on the machine, so that this information is	pote. Anu	
	prominently displayed at the point of sale.	tek abote	P
		Anbors An	. No.
	e) Durability and availability of the documents: documents giving	ntek onb	Dre
	instructions for use should be produced in durable form (i.e.	Anbo	Nor
	they should be able to survive frequent handling by the user). It	hotek I	nbo.
	can be useful to mark them "keep for future reference". Where	Ant	Lotek
	information for use is kept in electronic form (CD, DVD, tape,	ek aboter	AUD
	hard disk, etc.), information on safety-related issues that need	Print	200
	immediate action shall always be backed up with a hard copy	otek Anbor	Pur
e. An	that is readily available.	po f	-
7 Docume	ntation of risk assessment and risk reduction	E 07	
	The documentation shall demonstrate the procedure that has	A	oter
	been followed and the results that have been achieved. This	Anbor An	No.K
	includes, when relevant, documentation of	otek	hore
	a) the machinery for which the risk assessment has been made	Anbo	atek.
	(for example, specifications, limits, intended use);	K boten	Anbo
	b) any relevant assumptions that have been made (loads,	Ant	no
	strengths, safety factors, etc.);	tek poter	And
	c) the hazards and hazardous situations identified and the	por Air	
	hazardous events considered in the risk assessment;	hotek Anbou	b.
	d) the information on which risk assessment was based (see 5.2):	Aup	Lek.
	1) the data used and the sources (accident histories, experience	boten Anb	
	gained from risk reduction applied to similar machinery, etc.);	Ann	noten
	2) the uncertainty associated with the data used and its impact on	Anboro A	ar w
	the risk assessment;	h. stek	nbote.
	e) the risk reduction objectives to be achieved by protective	anbo.	P
		K sotek	anbo.
	measures; f) the protective measures implemented to eliminate identified	oter Ano	
	f) the protective measures implemented to eliminate identified	Lek poter	An
	hazards or to reduce risk;	Anton Ant	ek.
	g) residual risks associated with the machinery;	otek anbo	
	h) the result of the risk assessment (see Figure 1);	Anbo An	-tek
	i) any forms completed during the risk assessment.	hotek at	00-
	All tek boten Anbor All tek uboten	Anu	~otek
	Standards or other specifications used to select protective	k aboten	And
	measures referred to in f) above should be referenced.	Ann	hote
	ek Anbor An tek toten Anbo A.	stek subote	Ann
	NOTE No requirement is given in this International Standard to	P. stek	No.
	deliver the risk assessment documentation together with the	hotek Anbor	P.c.
	machine. See ISO/TR 14121-2 for information on documentation.	02	40

Anbotek Product Safety

Anbotek

SZAHS180712005-01 Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 35 of 87

Test Report No.: SZAHS180712005-01

EN 60204-1				
Clause	Requirement – Test	Result - Remark	Verdic	
stek.	anbotek Anbo k sotek Anbote And tek	abotek Anbo	,	
2.2 EN 6	60204-1:2006 + A1:2009 test report			
EN 60204	-1:2006 + A1:2009 Electrical equipment of machines–Part 1: Gene	eral requirments	hotek	
4	General requirments		-AUY	
4.1	General considerations	ek boter	And	
Anbe	This part of IEC 60204 is intended to apply to electrical equipment	Prin Fek		
	used with a wide variety of machines and with a group of	hotek Anbor	Þ.	
	machines working together in a co-coordinated manner.	tek bot	et	
	The risks associated with the hazards relevant to the electrical	Anbore Ant	No.K	
	equipment shall be assessed as part of the overall requirements	hotek An	P	
	for risk assessment of the machine. This will determine the	Anu	notek	
	adequate risk reduction and the necessary protective measures for persons who can be exposed to those hazards, while still	Anboro	bur	
	maintaining an acceptable level of performance of the machine	K wotek	Anbor	
	and its equipment.	Ano		
4.2	Selection of equipment	otek Anbote	P.C	
4.2.1	General	po hot hot	3K	
otek	Electrical components and devices shall:	Be suitable for	- No.	
	—be suitable for their intended use; and	their intended	port	
	—conform to relevant IEC standards where such exist; and	use and conform	bo'P	
	—be applied in accordance with the supplier's instructions risk	to relevant	PUL	
	assessment of the machine.	IEC/EN standards.	Anbor	
4.2.2	Electrical equipment in compliance with the EN 60439 series	stanuarus.		
T.L.L	Depending upon the machine, its intended use and its electrical	otek Anbote	20	
	equipment, the designer may select parts of the electrical	N wote	14	
	equipment of the machine that are in compliance with EN 60439-1	Anbote. Anb	N P	
	and, as necessary, other relevant parts of the EN 60439 series	notek ant	ofter.	
nbote	(see also Annex F).	And	Natek	
4.3	Electrical supply	abote	7UD-	
4.3.1	General	p. sek	nboth	
	The electrical equipment shall be designed to operate correctly	Anbe K	1	
	with the conditions of the supply:	a bet and a set of the	Ant	
	—as specified in 4.3.2 or 4.3.3, or —as otherwise specified by the user (see Annex B), or as	Comply with clause 4.3.2.	P	
	specified by the supplier in the case of a special source of	Clause 4.5.2.	1	
	supply such as an on-board generator.	atek anb	oler	
4.3.2	AC supplies	Anbury	Lotek	
wotek.	Voltage:	AC:220-240V	2000	
	Steady state voltage: 0,9 to 1,1 of nominal voltage.	Sum _{2nd-5th}	npote	
	Frequency:	harmonic<=10%	r.,	
	0,99 to 1,01 of nominal frequency continuously;	Sum _{6nd-30th}	Anb	
	0,98 to 1,02 short time.	harmonic<=2%	6	
	Harmonics:	botek Anbor	P	
	Harmonic distortion not exceeding 10 % of the total r.m.s. voltage	50Hz/60Hz	Ne ^K P	
	between live conductors for the sum of the 2nd through to the 5th	Anbor Ann	*eX	
	harmonic. An additional 2 % of the total r.m.s. voltage between	Voltage	n'port	
	live conductors for the sum of the 6th through to the 30th harmonic is permissible.	unbalance<=2%	botek	
	Voltage unbalance:	Voltage	Ann	

k SZAHS180712005-01

An

SHAN Test Report No.: SZAHS180712005-01

nbotek

Clause	Requirement – Test	Result - Remark	Ve
4.ek	bote And K solek hipoli An	boten Anbo	
0* P1	voltage of the zero sequence components in three-phase supplies	<=3ms	04
. otek		<-SINS AG	
nbo	exceeding 2 % of the positive sequence component.	A. H. stek	bose
noten	Voltage interruption:	Voltage	
Ann	Supply interrupted or at zero voltage for not more than 3 ms at any	dips<=20%	100
aboten	random time in the supply cycle with more than 1 s between	Anbo	
Priv	successive interruptions.	K hotek	
k nboi	Voltage dips:	And And	
P	Voltage dips not exceeding 20 % of the peak voltage of the supply	tek aboten	
stek An	for more than one cycle with more than 1 s between successive	por An	de.
X	dips.	stek nbor	
4.3.3	DC supplies	AUB	10
New	From batteries, Voltage 0,85 to 1,15 of nominal voltage 0,7 to 1,2	hotek Ant	9
Anbor	of nominal voltage in the case of battery-operated vehicles .	Ant	10
otek	Voltage interruption:	aboter	bur
Anbo		P	
not	Not exceeding 5 ms From converting equipment: Voltage:	Only A Chiboli	P
Ann	0,9 to 1,1 of nominal voltage.	Only AC	
Kek at	Voltage interruption:	supplies.	
P.C.	Not exceeding 20 ms with more than 1 s between successive	wote note	5
otek	interruptions.	Anbote Ano	
upo .	Ripple (peak-to-peak):	Pr. rek of	ote
to tek	Not exceeding 0,15 of nominal voltage.	Anbor An.	
4.3.4	Special supply systems	atek	nþ
npoter	For special supply systems such as on-board generators, the	Anbo	
Pri	limits given in 4.3.2 and 4.3.3 may be exceeded provided that the	K boten	P
Anbor	equipment is designed to operate correctly with those conditions.	Ann	
4.4	Physical environment and operating conditions	dek nbor	
4.4.1	General	100	K
Lok.	The electrical equipment shall be suitable for the physical	hoter Anbor	Т
por P	environment and operating conditions of its intended use. The	And	del
tek	requirements of 4.4.2 to 4.4.8 cover the physical environment and	aboter And	
Anbo	operating conditions of the majority of machines covered by this	P.I.	100
hotek	part of EN 60204. When special conditions apply or the limits	Anbor P	-
And	specified are exceeded, an agreement between user and supplier	, tek	
abote	(see 4.1) is recommended (see Annex B).	on Anbo	10
4.4.2		noter noter	_
4.4.3	Ambient air temperature	pote And	4
N. 14.	Electrical equipment shall be capable of operating correctly in the	tek pote	
poter P	intended ambient air temperature. The minimum requirement for	Aupor Au	ek.
. Ac	all electrical equipment is correct operation between air	hotek Anbr	0
nbote	temperatures of +5 °C and +40 °C. For very hot environments (for	And	
h. rek	example hot climates, steel mills, paper mills) and for cold	boten A	1000
Anbor	environments, additional measures are recommended (see Annex	Ann	
otel	B) Anbote And and moter Anbot At	ek abote.	P
4.4.4	Humidity we have have have have	h. rek	
ak ni	The electrical equipment shall be capable of operating correctly	oten Anbo	Τ
Anu	when the relative humidity does not exceed 50 % at a maximum	K otek	b.
tek	temperature of +40 °C. Higher relative humilities are permitted at	aboten Anbo	1.7
por P	lower temperatures (for example 90 % at 20 °C).	hat no	1st
rotek	Harmful effects of occasional condensation shall be avoided by	Anboro Anu	
And	design of the equipment or where necessary, by additional	h. Jek	pot
botek		Anbox A	
Ann	measures (for example built-in heaters, air conditioners, drain	v otek	0.0
apoter	holes).	Aupo	1.5
4.4.5	Altitude		

botek SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited Page 37 of 87

Test Report No.: SZAHS180712005-01

Clause	Requirement – Test	Result - Remark	Verdic
sten Ar	bo An stek poole And K potek A	upor Air	No
	Electrical equipment shall be capable of operating correctly at	<2000m.	P
nbort	altitudes up to 1 000 m above mean sea level.	~2000III.	otek
4.4.6	Contaminants	anbote, An	N.
	Electrical equipment shall be adequately protected against the	h. tek	nbote
	ingress of solids and liquids.	For electrical	a' a'
	The electrical equipment shall be adequately protected against	equipment,	P94
	contaminants (for example dust, acids, corrosive gases, salts) that	IP2X.	
	can be present in the physical environment in which the electrical	oter. Anbote	Pu
te. An	equipment is to be installed (see Annex B).	ipo n	*
4.4.7	Ionizing and non-ionizing radiation	boten Anbe	
	When equipment is subject to radiation (for example microwave,	No ionizing and	oten
	ultraviolet, lasers, X-rays), additional measures shall be taken to	non-ionizing	Ket-
	avoid malfunctioning of the equipment and accelerated	radiation outside	nboP
	deterioration of the insulation. A special agreement is	this equipment.	note
17	recommended between the supplier and the user		Ano
4.4.8	Vibration, shock, and bump	Printer	
	Undesirable effects of vibration, shock and bump (including those	Undesirable	Pre
	generated by the machine and its associated equipment and those	effects be	1
	created by the physical environment) shall be avoided by the	avoided by the	- Mar
	selection of suitable equipment, by mounting it away from the	selection of	occ. P
	machine, or by provision of anti-vibration mountings. A special	suitable	-otek
	agreement is recommended between the supplier and the user	equipment.	up
AUPO	(see Annex B).	P	apote
4.5	Transportation and storage	ek Anbor	Pr.
	Electrical equipment shall be designed to withstand, or suitable	botek botek	Anb
	precautions shall be taken to protect against, the effects of transportation and storage temperatures within a range of –25 °C	Within the	
	to +55 °C and for short periods not exceeding 24 h at up to	SMPS during	D P
	+70 °C. Suitable means shall be provided to prevent damage from	approval	tek
	humidity, vibration, and shock. A special agreement can be	approvar	N.
	necessary between the supplier and the user (see Annex B).	A. tek	boter
4.6	Provisions for handling	Anbo	10
10	Heavy and bulky electrical equipment that has to be removed from	K botch	Anbo
	the machine for transport or that is independent of the machine,	Ant	- 10
	shall be provided with suitable means for handling by cranes or	otek Anboro	BUD
	similar equipment.	K solek	
4.7	Installation	aboten Anbo	. N.
y y	wotek Anbor And ak notek Anbor	Installed and	101
	Anor K notek Anbore Ann ak notek	operated in	Nek
	anboter And K sotek Anbote And	accordance with	100-
	Electrical equipment shall be installed in accordance with the	supplier's	botel
	electrical equipment snall be installed in accordance with the	instructions and	An P
		take into	Anbo
	to Ann ak notek Anbour Ann tak	account	Pro.
	atek anbote Ante Ante at anbote Ante	ergonomic	P
otek A	ibo A. tek abote And K atek	principles.	×10
	ng supply conductor terminations and devices for disconnecting	and switching of	f
5.1	Incoming supply conductor terminations	Ann	notek
wotek	It is recommended that, where practicable, the electrical	Plugs and	L. K.
	equipment of a machine is connected to a single incoming supply.	couplers are	npeter
	Where another supply is necessary for certain parts of the	provided. All	Pr.
	equipment (for example, electronic equipment that operates at a	terminals	odpo

tek SZAHS180712005-01

Anbo

Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 38 of 87

SHAN Test Report No.: SZAHS180712005-01

ol no	EN 60204-1	Durut Dur	N/. "
Clause	Requirement – Test	Result - Remark	Verdic
ter	inder hander andore Am and Am	upo. h.	2K
	different voltage), that supply should be derived, as far as is	marked correct	
	practicable, from devices (for example, transformers, converters)	labels.	otek
	forming part of the electrical equipment of the machine. For large	anbote, An	Vé
	complex machinery comprising a number of widely-spaced	P	poter
	machines working together in a coordinated manner, there can be	Anbors	Y11.
	a need for more than one incoming supply depending upon the	y stek	nbo
	site supply arrangements (see 5.3.1) Unless a plug is provided	len Aupo	P
	with the machine for the connection to the supply (see 5.3.2 e), it	k hotek	D
	is recommended that the supply conductors are terminated at the	boto And	4
	supply disconnecting device where a neutral conductor is used it	tek pote	
	shall be clearly indicated in the technical documentation of the	Aupor An	No.X
	machine, such as in the installation diagram and in the circuit	otek ont	020
		Anbo	tek
	diagram, and a separate insulated terminal, labeled N in	botek	nbo
	accordance with 16.1, shall be provided for the neutral conductor	Ann	10
	(see also Annex B)	ek aboten	AUDO
	There shall be no connection between the neutral conductor and	Pill	
	the protective bonding circuit inside the electrical equipment nor	otek anbou	PL
	shall a combined PEN terminal be provided	p- ne	-
	Exception: a connection may be made between the neutral	boten Anbo	
	terminal and the PE terminal at the point of the connection of the	Ann	tek
	power supply to the machine for TN-C systems.	anboten Anb	N.
	All terminals for the incoming supply connection shall be clearly	P	poter
	identified in accordance with IEC 60445 and 16.1. For the	Anbor	
	identification of the external protective conductor terminal, see 5.2.	v stek	Anbo
	See 17.8 for the provision of instructions for maintenance	an Aupon	10
5.2	Terminal for connection to the external protective earthing syst	em	PL
AT AT	For each incoming supply, a terminal shall be provided in the	Jon print	
	vicinity of the associated phase conductor terminals for connection	Copper	
	of the machine to the external protective earthing system or to the	conductor used,	Kek.
	external protective conductor, depending upon the supply	cross-sectional	Р
	distribution system. The terminal shall be of such a size as to	area S<16mm ² ,	notek
	enable the connection of an external protective copper conductor	PE label used.	VD-
	with a cross-sectional area in accordance with Table		abot
		K Anboro	Ann
5.3 mbo	Supply disconnecting (isolating) device	K stok	12.4
5.3.1	General	oter Anbo	Pre
	A supply disconnecting device shall be provided:	lek hotek	
	—for each incoming source of supply to a machine(s);	nboro Anu	X
	—for each on-board power supply.	stek sbc	6.
	The supply disconnecting device shall disconnect (isolate) the	Anbos An	Kek.
	electrical equipment of the machine from the supply when required	hotek A	por
	(for example for work on the machine, including the electrical	And	P
	equipment).	k boten	Aupo
	When two or more supply disconnecting devices are provided,	Ann	
	protective interlocks for their correct operation shall also be	stek subote.	Aur
	provided in order to prevent a hazardous situation, including	P. Lek	
	damage to the machine or to the work in progress.	hotek Anbor	
5.3.2	Type		let.
-ter	The supply disconnecting device shall be one of the following	aboter Anbo	9.4
		Comply with	notek
	types:	Comply with	-
	a) switch-disconnect or, with or without fuses, in accordance with	requirement e).	P
	IEC 60947-3, utilization category AC-23B or DC-23B;	Plugs and	Prin
		DTF.	
	b) disconnect or, with or without fuses, in accordance with IEC 60947-3, that has an auxiliary contact that in all cases causes	couplers used.	an ^b

SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited Page 39 of 87

Test Report No.: SZAHS180712005-01

Clause	Requirement – Test	Result - Remark	Verdi
lek b	nbote And tek botek Anbo	nboten Anot	No.
.Ve	switching devices to break the load circuit before the opening	stek phot	
	of the main contacts of the disconnector;	Anbo	Nor-
	c) a circuit-breaker suitable for isolation in accordance with IEC	hotek An	00-
	60947-2;	And	. otek
	d) any other switching device in accordance with an IEC product	aboten	AUD
	standard for that device and which meets the isolation	All	200
	requirements of IEC 60947-1 as well as a utilization category	lek Anbou	Pur
	defined in the product standard as appropriate for on-load	v otek	1
	switching of motors or other inductive loads;	boten Anbo	, P
		lok both	3K-
5.3.3	e) a plug/socket combination for a flexible cable supply. Requirements	ANDOLO ANT	- ek
5.3.3		n stek pri	ote
	When the supply disconnecting device is one of the types	Anbo	tek
	specified in 5.3.2 a) to d) it shall fulfill all of the following	boten	Aupo
	requirements:	Ann	50
	—isolate the electrical equipment from the supply and have one	ek anbote.	Aur
	OFF (isolated) and one	p. tek	
	ON position marked with "O" and "I" (symbols IEC 60417-5008	potek Anbor	P.
	(DB:2002-10) and IEC 60417-5007 (DB:2002-10), see 10.2.2);-	K wote	1
	have a visible contact gap or a position indicator which cannot	anbote, Anot	N.
	indicate OFF (isolated) until all contacts are actually open and	At tek	oter
	the requirements for the isolating function have been satisfied;	Anbor An	*e¥
	—have an external operating means (for example handle),	potek (nbor
	(exception: power-operated switchgear need not be operable	And	
	from outside the enclosure where there are other means to	ex poter	Anb
	open it). Where the external operating means is not intended for	Anthopy	
	emergency operations, it is recommended that it be colored	stek habore	PU
	BLACK or GREY (see 10.7.4 and 10.8.4);	por hi ste	6
	—be provided with a means permitting it to be locked in the OFF	hotek Anbo	
	(isolated) position (for example by padlocks). When so locked,	Ant	tek
	remote as well as local closing shall be prevented;	The supply	V.
	-disconnect all live conductors of its power supply circuit.	disconnecting	boten
	However, for TN	device is are	AntPr
	supply systems, the neutral conductor may or may not be	plugs. See	anbor
	disconnected	subclause	1.0
	except in countries where disconnection of the neutral conductor	13.4.5.	An
	(when used) is compulsory;	Pin Pin	6
	-have a breaking capacity sufficient to interrupt the current of the	botek Anbore	
	largest motor	AUD. K	Lek
	Anbore Ann ak hotek Anbor An rek	aboter Anb	14
	when stalled together with the sum of the normal running currents	Pitt	boter
	of all other motors and/or loads. The calculated breaking	Anbolo A	
	capacity may be reduced by the use of a proven diversity factor.	tek	Anbor
abot	When the supply disconnecting device is a plug/socket	Anbo	100
	combination, it shall fulfill the following requirements: have the	Lek hotek	Ant
	switching capability, or be interlocked with a switching device that	ore Ann	
	has a breaking capacity, sufficient to interrupt the current of the	otek suboter	1
	largest motor when stalled together with the sum of the normal	nbo A.	Kek-
	running currents of all other motors and/or loads. The calculated	hotek Anbo	
		Ann	otek
	breaking capacity may be reduced by the use of a proven diversity	poter Ar	10-
	factor.	All	pote
	When the interlocked switching device is electrically operated (for	Anboro	Aur
	example a contactor) it	w stek	ap
	-shall have an appropriate utilization category.	ten anbo	P.

ek SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited Page 40 of 87

SHAN Test Report No.: SZAHS180712005-01

	Requirement – Test		Su vup.	Result - Remark	Verdict
lause		apoter Anbo	k.		veruici
Ar	han solt in motely habour	Po" allok at	oter Al	NP- W	48
	Where the supply disconnecting devi		*eK	aboten Anbo	14 P
	combination, a switching device with			All	oten
	category shall be provided for switch			Anbore An	X
	This can be achieved by the use of the	ne interlocked switch	ning	P. Kek	abote.
boten	device described above.	And AND	notek	Anbor	NI. sel
5.3.4	Operating means	stek subore	Pur	K hotek	Anbo
anbo'	The operating means (for example, a	handle) of the supp	oly wo	The supply	
	disconnecting device shall be easily			disconnecting	And
	between 0,6 m and 1,9 m above the			device is easily	, Р
	of 1,7 m is recommended.	aboten Anb		accessible.	P
5.3.5	Excepted circuits	P.C.	botok		ter
5.0.0	The following circuits need not be dis	connected by the si	upply	botok Ant	0*
	disconnecting device:	sconnected by the st	uppiy	Ant	Lotek
		during maintananas	or rongin	abote. P	(Up
	-lighting circuits for lighting needed			PULLER	boten
	—plug and socket outlets for the exc			ek supor	Pur
	maintenance tools and equipment	(for example hand d	rills, test	h stek	nbo
	equipment);	Anbore Ans	X	notek Anbo	Pre
	—under voltage protection circuits th	at are only provided	for	K sote	5.4
	automatic		19H	aboten Anbo	Y.
	tripping in the event of supply failure		nbor	p	oter
	-circuits supplying equipment that s		ain atek	Anbore Ano	X
	energized for	ek noten	Anbo	riek	abote
	correct operation (for example tem	perature controlled	measuring	Anbo	Not.
	devices,	tek sole	Ann	K otek	Anbort
	product (work in progress) heaters	program storage de	evices).	And And	-
	-control circuits for interlocking.	program storage u	511003),	No such	Nnbo
		uch circuita ha prav	idod with	devices.	IN
	It is recommended, however, that s	such circuits be prov		tek boter	An
	their own disconnecting device.	And	otek.	Anbort Ant	As
	Where such a circuit is not disconr	nected by the supply	100	stek spbc	10.
	disconnecting device:	Ann	botek	Anbo An	Nex
	 permanent warning label(s) in according to the second secon	ordance with 16.1 sh	nall be	wotek N	por
	appropriately		boten	And	atek.
	placed in proximity to the supply di	sconnecting device;	Ann	k hotek	Anbo
	-a corresponding statement shall be			And	- ot
	manual, and one or more of the fo		Pri	tek boten	Anos
	—a permanent warning label in acco		affixed in	All All	
	proximity to each excepted circuit, of			otek subore.	An
	—the excepted circuit is separated fr		boten	inpo pr	ek
				hotek Anbo	
	-the conductors are identified by co	iour taking into acco	unit the	And	otek
A6K	recommendation of 13.2.4.	K phore	PI	poter pr	(P~
5.4 pote	Devices for switching off for preve			All	potek
	Devices for switching off for the preve			K Anboro	Pur
	shall be provided (for example where			M. tek	abote
	up of the machine or part of the macl			No such	Pri
	Such devices shall be appropriate an			- P.1-	Nant
	use, shall be suitably placed, and rea			devices.	v "
	function and purpose (for example by			wolk wo	er I
	accordance with 16.1 where necessa		rek	anboten Anbo	N.
5.5	Devices for disconnecting electric	1.623.1	ANDOL	p	boter
hotek			dovices	Anbolt An	You
	be carried out when it is de-energized shall be:	u anu isolaleu. SUCI	ruevices	hetek	nbote
	STORAL DATE			· v.0*	126.1
	-appropriate and convenient for the	or priv	~ote	And	P

SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 41 of 87

SHAN Test Report No.: SZAHS180712005-01

Anp.	Deminement That holen And And A	Desuit D 14	N
lause	Requirement – Test	Result - Remark	Verdi
EN 60204-1 Clause Requirement – Test Result - Remark readily identifiable as to which part(s) or circuit(s) of the equipment is served (for example by durable marking in accordance with 16.1 where necessary). Means shall be provided to prevent inadvertent and/or mistaken closure of these devices either at the controller or form other locations (see also 5.6). The supply disconnecting device (see 5.3) may, in some cases, fuffi that function. However where it is necessary to work on individual parts of the electrical equipment of a machine, or on one of a number of machines fed by a common conductor bar, conductor wire or inductive power supply system, a disconnecting device shall be provided for each part, or for each machine, requiring separate isolation. In addition to the supply disconnecting device, the following devices that fulfil the isolation function may be provided for this purpose: 	eK.		
		boten Anbo	
		Ann	otek
	accordance with 16.1 where necessary).	abote. An	
	Means shall be provided to prevent inadvertent and/or mistaken	River	abote.
	closure of these devices either at the controller or from other	Anbor	71.
	locations (see also 5.6). The supply disconnecting device (see	K sotek	anbo
		cen Anot	1.
		lok boten	P
		poro Ant	it-
		stek subor	0
		Anbo	*ek
		Lotek ant	0.
		And	tek
		boten	puppe
		All	100
		ek nboto	Pur
		M. stek	
		otek Anbor	P
		K woth	all a
		aboten Ano	
0-		Pri.	ster
5.6		onnection	X
		otek	abore
	enclosed electrical operating area shall be equipped with means	Anbo	-
	to secure them in the OFF position (disconnected state), (for	K sotek	Anbo
	example by provisions for padlocking, trapped key interlocking).	Anu	
		rek spoten	PL
		Dora Min	4
		- stek photo	_
		Plug used.	tek P
		hotek Anb	- -
		Ann	notek
		nbote. P	112
		P	abot
		K Anbor	Pu
		K stek	00
Drotoot		ter up	r
		der ob	
10		rupo, bri	et
		hotek Anb	
		And	otek
		aboten A	00-
		Phil whole	-bott
		See below.	Purb
		v stek	a al
		oten Anbo	P.
		lak hotek	1
Kek .		abote Any	X
		tek abc	16.
6.2.1	General	Anbo, An	*ek
No.	For each circuit or part of the electrical equipment, the measures	woter N	po-
	of either 6.2.2 or 6.2.3 and where applicable, 6.2.4 shall be	And	ate
	applied.	IP4X.	AnbP
	Exception: where those measures are not appropriate, other	Ann	
		1 C 1	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 42 of 87

SHAN Test Report No.: SZAHS180712005-01

	EN 60204-1	ten pabot	Pri
Clause	Requirement – Test	Result - Remark	Verdi
en P	nbor Andrek nboten Anbrik hotek A	upor An	e.K
	using barriers, by placing out of reach, using obstacles, using	hotek Anbor	
	construction or installation techniques that prevent access) as	And	otek
	defined in IEC 60364-4-41 may be applied (see 6.2.5 and 6.2.6).	nbote, An	N.
	When the equipment is located in places open to all persons,	Artek	npote
	which can include children measures of either 6.2.2 with a	Anbor	201
	minimum degree of protection against direct contact	K notek	Anbe
	corresponding to IP4X or IPXXD (see IEC 60529), or 6.2.3 shall	Ler And	
14 P	be applied.	tek poter	P
6.2.2	Protection by enclosures	bor Ar	K
	Live parts shall be located inside enclosures that conform to the	aboten Anbo	
	relevant requirements of Clauses 4, 11, and 14 and that provide	Ann	oten
	protection against direct contact of at least IP2X or IPXXB (see	Anbore An	Ya
	IEC 60529).	n atek	nboto
aboten	Where the top surfaces of the enclosure are readily accessible,	Anbo	
	the minimum degree of protection against direct contact provided	ek botek	Anbo
	by the top surfaces shall be IP4X or IPXXD Opening an enclosure	Ant	
	(i.e. opening doors, lids, covers, and the like) shall be possible	IP2X, protected	P
	only under one of the following conditions:	by earthed metal	P
	a): The use of a key or tool is necessary for access. For enclosed	enclosure.	
	electrical operating areas;	All bak	otek
	b): The disconnection of live parts inside the enclosure before the	Anboro Ant	. A
	enclosure can be opened;	h. dek	abote
	c): Opening without the use of a key or a tool and without	Anbo	
	disconnection of live parts shall be possible only when all live	k hotek	Anbo
	parts are protected against direct contact to at least IP2X or	Ann	
v.	IPXXB.	stek subote.	P.L
6.2.3 🔊	Protection by insulation of live parts	po natel	6
	Live parts protected by insulation shall be completely covered with	aboten Anoc	NG
	insulation that can only be removed by destruction. Such	All tek ab	ter
	insulation shall be capable of withstanding the mechanical,	Anbor An	P
	chemical, electrical, and thermal stresses to which it can be	Lotek A	hore
abote	subjected under normal operating conditions.	Anbo	1
6.2.4	Protection against residual voltages	K boten	Anbe
	Live parts having a residual voltage greater than 60 V after the	An	
	supply has been disconnected shall be discharged to 60 V or less	otek Anbor	Pri
	within a time period of 5 s after disconnection of the supply voltage	why woter	
	provided that this rate of discharge does not interfere with the	nbote, Anot	N
	proper functioning of the equipment. Exempted from this	stek sbc	6.
	requirement are components having a stored charge of 60 μ C or	Anbo An	. Kek
	less. Where this specified rate of discharge would interfere with	hotek by	por
	the proper functioning of the equipment, a durable warning notice	Ano	
	drawing attention to the hazard and stating the delay required	IP2X, residual	Aupo
	before the enclosure may be opened shall be displayed at an		Р
	easily visible location on or immediately adjacent to the enclosure	voltage less than 60V after 1s.	her,
	containing the capacitances.	ouv aller 15.	1
	In the case of plugs or similar devices, the withdrawal of which	aboten Anbe	V.
	results in the exposure of conductors (for example pins), the	kek bo	SL.
	discharge time shall not exceed 1 s, otherwise such conductors	Anbort Ant	You
	shall be protected against direct contact to at least IP2X or IPXXB.	otek ar	poto
	If neither a discharge time of 1 s nor a protection of at least IP2X	Anbe	Ne
	or IPXXB can be achieved (for example in the case of removable	botek	Aupo
		0.00	- C - C - C - C - C - C - C - C - C - C
	collectors on conductor wires, conductor bars, or slip-ring	h	10

SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited Page 43 of 87

SHAN Test Report No.: SZAHS180712005-01

Clause	Requirement – Test	Result - Remark	V
stek Al	bore Ant tek botek Antoo Att atek	nbote And	N.
N.	appropriate warning device (for example a warning notice in	dek phor	
	accordance with 16.1) shall be applied	Anbo	1
6.2.5	Protection by barriers	boten An	2
Anbor	For protection by barriers, 412.2 of IEC 60364-4-41 shall apply.	horizott	
6.2.6	Protection by placing out of reach or protection by obstacles	Anbore	P
Pub	For protection by placing out of reach, 412.4 of IEC 60364-4-41	y oter	
	shall apply. For protection by obstacles, 412.3 of IEC 60364-4-41	Anbc Anbc	
	shall apply. For conductor wire systems or conductor bar systems	Lok poter	
	with a degree of protection less than IP2X, see 12.7.1.	por An	6
6.3	Protection against indirect contact	Lotek Anbol	
6.3.1	General	Pupe	de
oter.	Protection against indirect contact (3.29) is intended to prevent	boten Ant	
	hazardous situations due to an insulation fault between live parts	Anniek	X
	and exposed conductive parts.	Anbolt	ter.
	For each circuit or part of the electrical equipment, at least one of	K sotek	
	the measures in accordance with 6.3.2 to 6.3.3 shall be applied:	See below.	
	measures to prevent the occurrence of a touch voltage (6.3.2);	Lee Delow.	1
	or	por An-	5
	-automatic disconnection of the supply before the time of contact	sotek anbore	1
	with a touch voltage can become hazardous (6.3.3).	And	re
6.3.2	Prevention of the occurrence of a touch voltage	aboter Anb	
6.3.2.1	General	P.I.	20
0.0.2.1 K	Measures to prevent the occurrence of a touch voltage include the	Anbor	111
	following:	Class I	12
	—provision of class II equipment or by equivalent insulation;	equipment.	
	electrical separation.	equipment.	
6.3.2.2	Protection by provision of class II equipment or by equivalent i	noulation	_
0.3.2.2		Insulation	1
	This measure is intended to prevent the occurrence of touch	And	e
	voltages on the accessible parts through a fault in the basic insulation.	abote. Any	
	This protection is provided by one or more of the following:	P. stek	0
		Anbo	
	 —class II electrical devices or apparatus (double insulation, reinforced insulation or by equivalent insulation in accordance 	K notek	D
	with IEC 61140);	Anu	
	—switchgear and control gear assemblies having total insulation	stek suboten	1
	in accordance with IEC 60439-1;	pu pri tek	
	—supplementary or reinforced insulation in accordance with 413.2	botek Anbor	
	of IEC 60364-4-41.	Ann we we	lek
6.3.2.3		Anbote Ano	
0.0.2.3	Protection by electrical separation Electrical separation of an individual circuit is intended to prevent	h. set	0
	a touch voltage through contact with exposed conductive parts	Anbo	
		K hotek	N
	that can be energized by a fault in the basic insulation of the live	And	
	parts of that circuit.	tek suboter	1
	For this type of protection, the requirements of 413.5 of IEC	P. sek	1
622	60364-4-41 apply.	botek pribor	1
6.3.3	Protection by automatic disconnection of supply	An wo	eX
	This measure consists of the interruption of one or more of the line	Anbote Anb	1
	conductors by th automatic operation of a protective device in	P	00
	case of a fault. This interruption shall occur within a sufficiently	Anbor Al	1
	short time to limit the duration of a touch voltage to a time within	K wotek	2.0
			1
	which the touch voltage is not hazardous. Interruption times are given in Annex A.	Ant	

SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited Page 44 of 87

			SHAN
Test	Report No.: S	ZAHS1807	12005-01

nbotek

5.4 5.4.1			
		nº .	Ye
6.4.1	Protection by the use of PELV	hotek Anbor	
	General requirements	Ant	otek
	The use of PELV (Protective Extra-Low Voltage) is to protect	anbote. An	.V.
	persons against electric shock from indirect contact and limited	P	aboter
	area direct contact (see 8.2.5). PELV circuits shall satisfy all of the	Anbor	Nº P
	conditions:	K sotek	anbor
5.4.2 Joo	Sources for PELV	ten Anbe	
- 19-1 - 19-1	The source for PELV shall be one of the following:	kek aboten	Pup
	-a safety isolating transformer in accordance with IEC 61558-1	por An	6
	and IEC 61558-2-6;	hotek Anbor	P
	—a source of current providing a degree of safety equivalent to	AUDA	Nek
	that of the safety isolating transformer (for example a motor	aboten Anb	
	generator with winding providing equivalent isolation);	All	boten
	—an electrochemical source (for example a battery) or another	Anbor	N .o
	source independent of a higher voltage circuit (for example a	K sotek	Anbore
	diesel-driven generator);	er Anb	
	-an electronic power supply conforming to appropriate standards	Lek botek	Anb
	specifying measures to be -taken to ensure that, even in the	por Ann	~
	case of an internal fault, the voltage at the outgoing terminals	otek Anbore	P
	cannot exceed the values specified in 6.4.1.	And	tek
7 Protect	on of equipment	- do - b	2
7.1	General	4.94	, bor
botok	This Clause details the measures to be taken to protect equipment	Anbor A	LeV
	against the effects of:	K sotek	Aupor
	—overcurrent arising from a short circuit;	And And	
	-overload and/or loss of cooling of motors;	rek spoter	Anbi
	-abnormal temperature;	port Ann	
	-loss of or reduction in the supply voltage;	notek Anboit	PN
	—overspeed of machines/machine elements;	Ambo	tek.
	earth fault/residual current;	aboten Ano	M
	—incorrect phase sequence;	Privek	boten
	-overvoltage due to lightning and switching surges.	Anbor A	- ak
7.2	Overcurrent protection	K woter	Anpolt
. <u>.</u> 7.2.1	General	Pupp. K	100
	Overcurrent protection shall be provided where the current in a	tek aboter	Pub-
	machine circuit can exceed either the rating of any component or	o Al tek	
	the current carrying capacity of the conductors whichever is the	potek Anbor	D
	lesser value. The ratings or settings to be selected are detailed in	Inv K NO	lek.
	7.2.10.	Anboten Anbo	N.
7.2.2	Supply conductors	P.'.	poter
.L.L tek	Unless otherwise specified by the user, the supplier of the	Aupor	* CH
	electrical equipment is not responsible for providing the	K hotek	Anbor
		Anu	
	overcurrent protective device for the supply conductors to the	tek aboten	Anbe
	electrical equipment (see Annex B).	pri più	
	The supplier of the electrical equipment shall state on the	hotek Anbore	Pu
	installation diagram the data necessary for selecting the	mp K int	ek
N.	overcurrent protective device (see 7.2.10 and 17.4).	aboten Anbo	14
.2.3	Power circuits	An	poter
	Devices for detection and interruption of overcurrent, selected in	The cross-	Xa
	accordance with 7.2.10 shall be applied to each live conductor.	sectional area of	npPter
	The following conductors, as applicable, shall not be disconnected	the neutral	Pr. B
Pur	without disconnecting all associated live conductors:	conductor is	Aupor

Anbotek SZAHS180712005-01

Product Safety

Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 45 of 87

SHAN Test Report No.: SZAHS180712005-01

	EN 60204-1	tek papor	Pri
Clause	Requirement – Test	Result - Remark	Verdic
Lek A	bor Andrek aboten Anbur K sotek A	upor Any	A's
. et	—the neutral conductor of a.c. power circuits;	equal to the	
	—the earthed conductor of d.c. power circuits;	phase	tek
	-d.c. power conductors bonded to exposed conductive parts of	conductors.	,
	mobile machines.	Am	boter
	Where the cross-sectional area of the neutral conductor is at least	Anbore	YU.
	equal to or equivalent to that of the phase conductors, it is not	K sotek	anbo
	necessary to provide over current detection for the neutral	ten Anbe	r
	conductor nor a disconnecting device for that conductor. For a	Lek boten	P
	neutral conductor with a cross-sectional area smaller than that of	born All	16
	the associated phase conductors, the measures detailed in 524 of	totek Anbor	
	IEC 60364-5-52 shall apply.	Anbo	tek
	In IT systems, it is recommended that the neutral conductor is not	aboten Ant	
	used. However, where a neutral conductor is used, the measures	All	potek
	detailed in 431.2.2 of IEC 60364-4-43 shall apply.	Anbore	YU.
7.2.4	Control circuits	K stek	Anbo
npot	Conductors of control circuits directly connected to the supply	Anbo	
	voltage and of circuits supplying control circuit transformers shall	tek aboten	pr
	be protected against over current in accordance with 7.2.3.	por All	
	Conductors of control circuits supplied by a control circuit	hotek Anbore	
	transformer or d.c. supply shall be protected against over current	Anbo	tek
	(see also 9.4.3.1):	aboten Anb	
	—in control circuits connected to the protective bonding circuit, by	All	boten
	inserting an over current protective device into the switched	A nanbolo P	11.
	conductor;	Switch and fuse	An P
	—in control circuits not connected to the protective bonding circuit;	provided.	14.
	—where the same cross sectional area conductors are used in all	lek botek	An
	control circuits, by inserting an over current protective device	pote Ant	
	into the switched conductor, and;	otek Anbote	
	—where different cross sectional areas conductors are used in	Anbo	Nor
	different sub-circuits, by inserting an overcurrent protective	boten Anb	
	device into both switched and common conductors of each sub-	Ann	boten
	circuit.	Anbore A	<u></u>
7.2.5	Socket outlets and their associated conductors	h. stek	Anboth
abote	Overcurrent protection shall be provided for the circuits feeding	Aupo	10°
	the general purpose socket outlets intended primarily for supplying	lek botek	An
	power to maintenance equipment. Overcurrent protective devices	No such socket	N
	shall be provided in the unearthed live conductors of each circuit	outlets.	
	feeding such socket outlets.	And K	lek.
7.2.6	Lighting circuits	aboter Anor	14
YUN .	All unearthed conductors of circuits supplying lighting shall be	All	boten
	protected against the effects of short circuits by the provision of	No provided.	N
	over current devices separate from those protecting other circuits.	no provided.	Anboli
7.2.7	Transformers	Proprie	100
1. 4 .1	Transformers shall be protected against over current in	rek sporek	Ant
	accordance with the manufacturer's instructions. Such protection	or Ann	
		wotek Anbore.	1
	shall (see also 7.2.10):	Built in SMDS	ek
	-avoid nuisance tripping due to transformer magnetizing inrush	Built-in SMPS	
	currents;	and complied	oteP
	-avoid a winding temperature rise in excess of the permitted	with relevant	-
	value for the insulation class of transformer when it is subjected	standards.	npote
	to the effects of a short circuit at its secondary terminals. The type and setting of the over current protective device should	Anbor	b.

SZAHS180712005-01

An

botek

Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 46 of 87

SHAN Test Report No.: SZAHS180712005-01

Clause	Requirement – Test	Result - Remark	Verdic
oter A	hor And tek pooten And K sotek	nbor An	Y.
N.	supplier.	stek supor	
7.2.8	Location of over current protective devices	Ann	Nek
atek	An over current protective device shall be located at the point	abote. An	N.
	where a reduction in the cross-sectional area of the conductors or	Artek	aboten
	another change reduces the current-carrying capacity of the	Anbor	P.1.
	conductors, except where all the following conditions are satisfied:	K hotek	Anbo
	-the current carrying capacity of the conductors is at least equal	Le. And	
	to that of the load;	stek subote.	P
	-the part of the conductor between the point of reduction of	por principal	6
	current-carrying capacity and the position of the over current	boten Anbo	
	protective device is no longer than 3 m;	Antick	otek
	—the conductor is installed in such a manner as to reduce the	Anboro An	You
	possibility of a short-circuit for example, protected by an	otek	nbote
abote.	enclosure or duct.	Anbo	
7.2.9	Overcurrent protective devices	ok boten	Anbo
	The rated short-circuit breaking capacity shall be at least equal to	PILLER	
	the prospective fault current at the point of installation. Where the	ootek Anbour	Pri
	short-circuit current to an over current protective device can	with note	-
	include additional currents other than from the supply (for example	Anboto Ano	. No
	from motors from power factor correction capacitors), those	A. stek and	oter
	currents shall be taken into consideration.	Anbo	dek.
	A lower breaking capacity is permitted where another protective	Using	upor
	device (for example the over current protective device for the	overcurrent	bot
	supply conductors (see 7.2.2) having the necessary breaking	protective	P
	capacity is installed on the supply side. In that case, the	device, such as	100
	characteristics of the two devices shall be co-coordinated so that	fuse.	pr.
	the let-through energy $(l2t)$ of the two devices in series does not	rek pote	0-
	exceed that which can be withstood without damage to the over	Auport An	Yex
	current protective device on the load side and to the conductors	hotek Anb	
	protected by that device (see Annex A of IEC 60947-2). Where fuses are provided as over current protective devices, a	And	Lotek
	type readily available in the country of use shall be selected, or	poter A	10
	arrangements shall be made for the supply of spare parts.	P	nbote
7.2.10	Rating and setting of overcurrent protective devices	K AUDO	Pri
7.2.10	The rated current of fuses or the setting current of other over	Lok botek	Put
	current protective devices shall be selected as low as possible but	Joro Anti-	
	adequate for the anticipated over currents (for example during	notek Anbore	1
	starting of motors or energizing of transformers). When selecting	AUD K	Lek.
	those protective devices, consideration shall be given to the	anboten Anb	NC
	protection of switching devices against damage due to over	Printer	poter
	currents (for example welding of the switching device contacts).	Anbo, A	No
	The rated current or setting of an over current protective device is	K hotek	Anbor
	determined by the current carrying capacity of the conductors to	Ann	~
	be protected in accordance with 12.4, D.2 and the maximum	otek subote.	And
	allowable interrupting time <i>t</i> in accordance with Clause D.3, taking	K P. stek	
	into account the needs of co-ordination with other electrical	aboten Anbo	P
por P	devices in the protected circuit.	Lek bo	er
7.3	Protection of motors against overheating	Anbor And	Yor
7.3.1	General	Lotek M	100-
Anbore	Protection of motors against overheating shall be provided for	And	otel
	each motor rated at more than 0,5 kW.	boter	AnbN
	Exceptions:	P.I.	de
	ter who have and	Lek bor	Par

botek SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 47 of 87

SHAN Test Report No.: SZAHS180712005-01

Clourseant	Boquirement Test	Result - Remark	Vard
Clause	Requirement – Test	Result - Remark	Verdie
61-	And Andrew Andrew Ann tak spoten A	upo h.	4 s
	In applications where an automatic interruption of the motor	aboten Anbo	14
	operation is unacceptable (for example fire pumps), the means of	An	oten
	detection shall give a warning signal to which the operator can	Anborto An	You
	respond.	hetek	npote
	Protection of motors against overheating can be achieved by:	Anbo	
	—overload protection (7.3.2),	ak hotek	Anbo
	—over-temperature protection (7.3.3), or	And Ak	
	—current-limiting protection (7.3.4).	tek aboten	P
	Automatic restarting of any motor after the operation of protection	bor Ar.	1
	against overheating shall be prevented where this can cause a	hotek Anbor	
	hazardous situation or damage to the machine or to the work in	Anbo	tek
	progress.	boten Ant	
7.3.2	Overload protection	part	bote.
note	Where overload protection is provided, detection of overload(s)	Anboit	
	shall be provided in each live conductor except for the neutral	" atek	nbo
	conductor. However, where the motor overload detection is not	en Anbo	Pri
	used for cable overload protection (see also Clause D.2), the	K hotek	D.Y
	number of overload detection devices may be reduced at the	poter And	
	request of the user (see also Annex B). For motors having single-	tek abote	
	phase or d.c. power supplies, detection in only one unearthed live	Anbour Am	Yo.
	conductor is permitted.	wotek ant	0,200
		Anbo	. stek
	Where overload protection is achieved by switching off, the	boten	Upc
	switching device shall switch off all live conductors. The switching	Ant	no
	of the neutral conductor is not necessary for overload protection.	sk abote	N
	Where motors with special duty ratings are required to start or to	Pr. rek	
	brake frequently (for example, motors for rapid traverse, locking,	otek Anbor	b.
	rapid reversal, sensitive drilling) it can be difficult to provide	K bote	6
	overload protection with a time constant comparable with that of	aboten And	N.
	the winding to be protected. Appropriate protective devices	All tek ab	ter
	designed to accommodate special duty motors or over-	Anbor An	×eX
	temperature protection (see 7.3.3) can be necessary.	Lotek D	hore
	For motors that cannot be overloaded (for example torque motors,	Anbo	
	motion drives that either are protected by mechanical overload	K boten	Anbo
	protection devices or are adequately dimensioned) overload	Ant	· .
	protection is not required.	stek subote.	AU
7.3.3 🔊	Over-temperature protection	ter his	6
	The provision of motors with over-temperature protection (see IEC	boten Anbu	
	60034-11) is recommended in situations where the cooling can be	An ok be	ler
	impaired (for example dusty environments). Depending upon the	Anbore Ant	. K
	type of motor, protection under stalled rotor or loss of phase	histok	pote
	conditions is not always ensured by over-temperature protection,	Anbo	-
	and additional protection should then be provided.	K hotek	Na
	Over-temperature protection is also recommended for motors that	And	
	cannot be overloaded (for example torque motors, motion drives	tek aboten	Ant
	that are either protected by mechanical overload protection	All All	
	devices or are adequately dimensioned), where the possibility of	wotek Anbore	
	over-temperature exists (for example due to reduced cooling).	mb-	eK.
7.3.4	Current limiting protection	aboter Anbo	M
(h o	Where protection against the effects of overheating in three phase	All	oter
	motors is achieved by current limitation, the number of current	Anbort Ar	
	limitation devices may be reduced from 3 to 2 (see 7.3.2). For	atek	Anbote
	motors having single phase a.c or d.c. power supplies, current	Anbo	No.
	limitation in only one unearthed live conductor is permitted.	ok notek	anb
		Any Any	

SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited Page 48 of 87

Test Report No.: SZAHS180712005-01

Clause	Requirement – Test	Result - Remark	Verdic
ter N	poro Ant botek Antoo At tek	abote Ano	N.
7.4	Abnormal temperature protection	tek nbot	21-
hoter	Resistance heating or other circuits that are capable of attaining or	Aupor Ar	Lek.
	causing abnormal temperatures (for example, due to short-time	otek on	olu
		And	NPK
	rating or loss of cooling medium) and therefore can cause a	boten	Lupon .
	hazardous situation shall be provided with suitable detection to	Ann	not
	initiate an appropriate control response.	tek note	And
7.5 Anbo	Protection against supply interruption or voltage reduction and	subsequent resto	oration
	Where a supply interruption or a voltage reduction can cause a	hotek Anbo	Pri
	hazardous situation, damage to the machine, or to the work in	K woth	t -
	progress, under voltage protection shall be provided by, for	abote, And	N.
	example, switching off the machine at a predetermined voltage	Pri rek at	oten
	level where the operation of the machine can allow for an	Anbor An	10×
	interruption or a reduction of the voltage for a short time period,	otek	nbote
	delayed under voltage protection may be provided. The operation	And	25
	of the under voltage device shall not impair the operation of any	ek boten	Anbo
	stopping control of the machine.	Ann	N
	Upon restoration of the voltage or upon switching on the incoming	otek anboter	AU
	supply, automatic or unexpected restarting of the machine shall be	po pr	£
	prevented where such a restart can cause a hazardous situation.	hotek Anbor	
	Where only a part of the machine or of the group of machines	Ann	otek
	working together in a coordinated manner is affected by the	aboten And	34
	voltage reduction or supply interruption, the under voltage	P	boter
	protection shall initiate appropriate control responses to ensure	Anbors P	
	co-ordination.	v stek	nbor
7.6 M	Motor overspeed protection	Anbo	
i i e par	Cause a hazardous situation taking into account measures in	tek boten	Put
	accordance with 9.3.2. Overspeed protection shall initiate	pore Ant	
	appropriate control responses and shall prevent automatic	otek subore	1
	restarting.	Aupo	N Yor
	The overspeed protection should operate in such a manner that	boten Anb	
	the mechanical speed limit of the motor or its load is not	Ann	notek
	exceeded.	Anboro A	112
77		P.' .	npote
7.7	Earth fault/residual current protection	ek prov	P.
	In addition to providing over current protection for automatic	Kun ungtek	anb
	disconnection as described in 6.3, earth fault/residual current	Using copper	
	protection can be provided to reduce damage to equipment due to	wires connect to	P
	earth fault currents less than the detection level of the over current	the earth	ek
	protection. The setting of the devices shall be as low as possible	system.	-
upote.	consistent with correct operation of the equipment.	Anbo	Yex
7.8	Phase sequence protection	poten A	100
	Where an incorrect phase sequence of the supply voltage can	Ann	notel
	cause a hazardous situation or damage to the machine, protection	Single phase.	PULN
Ano	shall be provided.	P. tek	ab
7.9	Protection against over voltages due to lightning and to switch	ing surges	h.,
PUL	Protective devices can be provided to protect against the effects of	K woten	D
	overvoltage due to lightning or to switching surges.	aboten Anbe	× r
	Where provided:	kelk bo	er
	—devices for the suppression of over voltages due to lightning	Anbore And	1 at
	shall be connected to the incoming terminals of the supply	n stek	poteN
	disconnecting device.	Anbor	*e¥
		k wotek	Anbor
	-devices for the suppression of over voltages due to switching	And	
	surges shall be connected across the terminals of all equipment	ten	anbo

tek SZAHS180712005-01

Anbo

Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 49 of 87

Clause	Requirement – Test	Result - Remark	V
oten p	nbo kek nbole And k notek	upor An	No
. As	requiring such protection.	potek Anbo	
8 Equipm	nent potential bonding		
8.1	General	abore An	2
And	This Clause provides requirements for both protective bonding	his rok	-N
	and functional bonding.	Anbort	20
8.2	Protective bonding circuit	K soten	-
8.2.1	General	pren Anor	
0.2.1	The protective bonding circuit consists of:	rek poter	Т
	—PE terminal(s) (see 5.2);	bors An	36
	-the protective conductors in the equipment of the machine	totek Anbou	
	including sliding contacts where they are part of the circuit;	And	n'e
	—the exposed conductive parts and conductive structural parts of	aboten Ant	3
	the electrical equipment;	Complied.	-10
	—those extraneous conductive parts which form the structure of	Somplica	Alle
	the machine.	Kuntek	2
	All parts of the protective bonding circuit shall be so designed that	And And	1
	they are capable of withstanding the highest thermal and	tek boten	
	mechanical stresses that can be caused by earth-fault	poro An	34
8.2.2	Protective conductors	wotek Anbor	.L
10°	Protective conductors shall be identified in accordance with	prop v	10
	13.2.2.	aboten Anb	
	Copper conductors are preferred. Where a conductor material	P.I.	0
	other than copper is used, its electrical resistance per unit length	Anbor	A.C.
	shall not exceed that of the allowable copper conductor and such	K sotek	D
	conductors shall be not less than 16 mm2 in cross-sectional area.	Copper	
	The cross-sectional area of protective conductors shall be	conductors	
	determined in accordance with the requirements of:	comply with	6
	—543 of IEC 60364-5-54; or	relevant clause,	
	-7.4.3.1.7 of IEC 60439-1, as appropriate.	and PE label	tel
	This requirement is met in most cases where the relationship	marked.	
	between the cross-sectional area of the phase conductors	Pr. rek	100
	associated with that part of the equipment and the cross-sectional	Anbor	
	area of the associated protective conductor is in accordance with	K wotek	0
	Table 1 (see 5.2) See also 8.2.8.	Anoc K	1.0
8.2.3	Continuity of the protective bonding circuit	tek aboter	
0.2.5 An	All exposed conductive parts shall be connected to the protective	AL. Kel	
	bonding circuit in accordance with 8.2.1.	hotek Anbort	
	Exception: see 8.2.5.	AND AK AG	le ^K
	Where a part is removed for any reason (for example routine	anboten Anb	
	maintenance), the protective bonding circuit for the remaining	P. Kek	100
	parts shall not be interrupted.	Anbor A	1
	Connection and bonding points shall be so designed that their	K wotek	25
	current-carrying capacity is not impaired by mechanical, chemical,	Anb	
	or electrochemical influences. Where enclosures and conductors	See clause 18.2.	
		Dee clause 10.2.	e.
	of aluminum or aluminum alloys are used, particular consideration should be given to the possibility of electrolytic corrosion.	hotek Anbor	
	Metal ducts of flexible or rigid construction and metallic cable	AUD A	1ek
		aboter Anbo	
	sheaths shall not be used as protective conductors. Nevertheless,	Pill	100
	such metal ducts and the metal sheathing of all connecting cables	Anbolu Ar	
	(for example cable armoring, lead sheath) shall be connected to	tek	20
	the protective bonding circuit.	Anbo	Per.
P.s.	Where the electrical equipment is mounted on lids, doors, or cover	to hotek	1

SHAN Test Report No.: SZAHS180712005-01

tek SZAHS180712005-01

Anbo

Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 50 of 87

SHAN Test Report No.: SZAHS180712005-01

	at All work And And All work	Part I	
Clause	Requirement – Test	Result - Remark	Verdic
ter A	nbo A stek npote. And it notek A	nbor An	4s
	plates, continuity of the protective bonding circuit shall be ensured	hotek Anbo	
	and a protective conductor (see 8.2.2) is recommended.	And	otek
	Otherwise fastenings, hinges or sliding contacts designed to have	aboten An	N. N.
	a low resistance shall be used (see 18.2.2, Test 1).	Alle	boter
	The continuity of the protective conductor in cables that are	Anbore	70.
	exposed to damage (for example flexible trailing cables) shall be	v stek	nbo
	ensured by appropriate measures (for example monitoring).	ten Anbo	r
	For requirements for the continuity of the protective conductor	Lek boten	Ar
	using conductor wires conductor bars and slip-ring assemblies,	poro An-	16
	see 12.7.2.	otek Anbou	
8.2.4	Exclusion of switching devices from the protective bonding circ	cuit	dek
-KeK	The protective bonding circuit shall not incorporate a switching	boton Ant	
	device or an over current protective device (for example switch,	Ann	botek
	fuse).	nbore	P.U.
	No means of interruption of the protective bonding conductor shall	v stek	Anbot
	be provided.	er Anbo	100
	Exception: links for test or measurement purposes that cannot be	Lek botek	pr
	opened without the use of a tool and that are located in an	poro Ann	Р
	enclosed electrical operating area.	stek subote	
	Where the continuity of the protective bonding circuit can be	Anbo	tek
	interrupted by means of removable current collectors or	hotek Anb	0
	plug/socket combinations, the protective bonding circuit shall be	Ann	hotek
	interrupted by a first make last break contact. This also applies to	abote.	05
	removable or withdrawable plug-in units	Artek	nbot
8.2.5	Parts that need not be connected to the protective bonding circ	Suit Anbo	P.
0.2.0	It is not necessary to connect exposed conductive parts to the	hotek hotek	An
	protective bonding circuit where those parts are mounted so that	pore Ant	
	they do not constitute a hazard because:	stek subote	
	—they cannot be touched on large surfaces or grasped with the	Aupo A.	Nek
	hand and they are small in size (less than approximately 50	hotek Anb	
	mm); or	Ant	hotek
	—they are located so that either contact with live parts, or an	photo. P	P
	insulation failure, is unlikely.	P	npote
	This applies to small parts such as screws, rivets, and nameplates	K Anbo	Pri
		K wotek	ant
	and to parts inside an enclosure, irrespective of their size (for	oter Ano	
	example electromagnets of contactors or relays and mechanical	tek aboter	1
0.2.6	parts of devices) (see also 410.3.3.5 of IEC 60364-4-41).	Aupor Au	198
8.2.6	Protective conductor connecting points	hotek Anbe	
	All protective conductors shall be terminated in accordance with	PE circuit not	notek
	13.1.1. The protective conductor connecting points shall have no	interrupted	0.0-
	other function and are not intended, for example to attach or	except for	pote
	connect appliances or parts.	destructing. PE	Pro
	Each protective conductor connecting point shall be marked or	symbol and	Ph
	labelled as such using the symbol IEC 60417-5019 or with the	GREEN-AND-	he.
	letters PE, the graphical symbol being preferred, or by use of the	YELLOW	D
	bicolour combination GREEN-AND-YELLOW, or by any	conductor used.	No.
	combination of these.		
8.2.7	Mobile machines	Ano	*ek
	On mobile machines with on-board power supplies, the protective	hotek at	1001
	conductors, the conductive structural parts of the electrical	Ann	note
	equipment, and those extraneous conductive parts which form the	aboten	AUN
	structure of the machine shall all be connected to a protective	P.V. POK	ala la
	bonding terminal to provide protection against electric shock.	V. InOl	0.11

ek SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited Page 51 of 87

SHAN Test Report No.: SZAHS180712005-01

nbotek

Clause	Requirement – Test			Result - Remark	Ve
oten An	por pris tek poter	And	otek	Vupore Vu	Yo.
N.	Where a mobile machine is also ca	pable of being	connected to an	otek onb	5.0
abote	external incoming power supply, thi			Anbo	.e
You	shall be the connection point for the			notek A	upo-
Anbolt	Additional protective bonding red				h w
8.2.8	leakage currents higher than 10 i				And
Aup	Where electrical equipment has an			tek.	
iode A	example adjustable speed electrica		N N	olek Anbor	P
Priv	information technology equipment)			notek notek	
stek an	or d.c. in any incoming supply, one			abote. And	1
Y P	conditions for the associated protect			A stek anbo	ter
boten	satisfied:	sive bonding c		Anbor Ar.	10
in wak	a) the protective conductor shall ha		tional area of at	Lotek Al	1por
Anbort	least 10 mm ² Cu or 16 mm ² Al, th			Anu	-
rek	b) where the protective conductor h			K aboter	bup
Anbo	less than 10 mm ² Cu or 16 mm ²			PIL	
not	conductor of at least the same cr			otek Anbor	P
Aur	provided up to a point where the			K otek	
tek at	cross-sectional area not less that			apoter Anb	
Pro	c) automatic disconnection of the si			kek bo	e
boten	continuity of the protective condu		I IUSS UI	Anbor An	vel
nr	To prevent difficulties associated w		notic And	Lotek Ar	por
Anbore	disturbances, the requirements of 4			Anot	
htek				k aboten	Pup.
Anbo	installation of duplicate protective c In addition, a warning label shall be		cont to the DE	An	
hote				otek anbou	P
And	terminal, and where necessary on t			, otek	
ek ab	equipment. The information provide			boten Anbo	
P.	information about the leakage curre			in lot	ek
8.3	sectional area of the external protect Functional bonding		hotek	Anbor An	N.g.
0.3	Protection against maloperation as	a recult of incu	ulation failures	hotok An	000
Anbort	can be achieved by connecting to a			Ant	200
otek	accordance with 9.4.3.1.			k abote.	PUP
Anbo		notional bandin	a to ovoid	P.I. FEK	
bote	For recommendations regarding fur maloperation due to electromagnet			otok Anbor	b,
9.4				w wotek	
8.4	Measures to limit the effects of h			avote Anu	N
N.	The effects of high leakage current			stek nbot	0.1
poter p	equipment having high leakage cur			Anbos priv	ek
KeV.	equipment to a dedicated supply tra			botek Ant	20
Anbort	windings. The protective bonding ci			<10 mA	no
notek	exposed conductive parts of the eq				PUP
And	secondary winding of the transform			Pr. tek	- 0
bote	between the equipment and the sec			ster Anbou	Pr
Run	transformer shall comply with one c		anangements	ak sotek	
0 Control	described in 8.2.8.		P. V.	. ote, vub-	
	circuits and control functions	.00	P**	oter Ann	
9.1	Control circuits	Ant	boten	Aupor A.	Nex.
9.1.1	Control circuit supply	from	NUT OF A SA S	aboten Ant	
Anbor	Where control circuits are supplied			Ann	not
Lotek	transformers shall be used for supp			anbote.	7Um
Anbo	transformers shall have separate w			Pittek	2
botek	transformers are used, it is recomm			ter Anbor	Pri
Ann	those transformers be connected in	n such a manne	er that the	Kek.	

botek SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 52 of 87

SHAN Test Report No.: SZAHS180712005-01

nbotek

Clause	Requirement – Test	Result - Remark	V
10K	abote Ano k hotek Anbor An	aboten Anot	
ur pi	secondary voltages are in phase.	kek abot	
	Where d.c. control circuits derived from an a.c. supply are	Anbor An	20
	connected to the protective bonding circuit (see 8.2.1), they shall	otek pri	000
	be supplied from a separate winding of the a.c. control circuit	Anbe	
	transformer or by another control circuit transformer.	boten	1n
		Anthopk	
	Transformers are not mandatory for machines with a single motor starter and/or a maximum of two control devices (for example	tek Anbore	
		V notek	
9.1.2	interlock device, start/stop control station).	boten pabo	
9.1.2	Control circuit voltages	Lek both	3r
	The nominal value of the control voltage shall be consistent with	Loss than 250V	
	the correct operation of the control circuit. The nominal voltage	Less than 250V.	0,1,
a de a	shall not exceed 277 V when supplied from a transformer.	Puppo h.	
9.1.3	Protection	-locter	no ^Y
	Control circuits shall be provided with over current protection in	Ann	
	accordance with 7.2.4 and 7.2.10.	tek stiboro	
9.2	Control functions	K history	
9.2.1	Start functions	poten Anbo	
P.	Start functions shall operate by energizing the relevant circuit	text spote	
9.2.2	Stop functions	Anbors An	
	There are three categories of stop functions as follows:	potek Ant	0.
	-stop category 0: stopping by immediate removal of power to the	Ano	
	machine actuators (i.e. an uncontrolled stop – see 3.56);	poten	100
	-stop category 1: a controlled stop (see 3.11) with power	All	0
	available to the machine actuators to achieve the stop and then	osk anboit	P
	removal of power when the stop is achieved;	K sotek	
	-stop category 2: a controlled stop with power left available to the	boten Anbo	
be.	machine actuators.	tok bote	· ·
9.2.3	Operating modes	Aupor Au	10
	Each machine can have one or more operating modes determined	hotek Anb	0
	by the type of machine and its application. When a hazardous	Ant	~
	situation can result from a mode selection unauthorized and/or	abote. P	300
	inadvertent selection shall be prevented by suitable means (for	P	
	example key operated switch, access code).	Manual mode	P
	Mode selection by itself shall not initiate machine operation. A	and auto mode	
	separate actuation of the start control shall be required.	used.	6
	For each specific operating mode, the relevant safety functions	stek spote	1
	and/or protective measures shall be implemented.	Aupor Au	eV
	Indication of the selected operating mode shall be provided (for	potek anbr	
	example the position of a mode selector, the provision of an	And	
r kek	indicating light, a visual display indication).	A spoter A	40.
9.2.4	Suspension of safety functions and/or protective measures	Alt	
	Where it is necessary to suspend safety functions and/or	anbor	P
	protective measures (for example for setting or maintenance	wotek wotek	
	purposes), protection shall be ensured by:	oter And	
	—disabling all other operating (control) modes	tek aboter	
oter p	—other relevant means.	upo Au	No
9.2.5	Operation	hotek Anbo	
9.2.5.1	General	Ann	
otek	The necessary safety functions and/or protective measures (for	anbote. At	1
	example interlocks (see 9.3) shall be provided for safe operation.	P	
	Measures shall be taken to prevent movement of the machine in	Anbou	P.
	an unintended or unexpected manner after any stopping of the	K sotek	
M.		101	

otek SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 53 of 87

SHAN Test Report No.: SZAHS180712005-01

nbotek

Clause	Requirement – Test	Result - Remark	Verdi
der an	pote And k hotek Andor All tek	boten Aup	
от ра	machine (for example due to locked-off condition, power supply	kek abot	25
hoten	fault, battery replacement, lost signal condition with cableless	Anbor An	Lot.
ins ik	control).	otek ph	pore
a pote.	Where a machine has more than one control station, measures	Anbo	tek
An	shall be provided to ensure that initiation of commands from	boten	AUPO
Anbo	different control stations do not lead to a hazardous situation.	Anthopk	-00
0.0.5.0		tek npole	An
9.2.5.2	Start	A. Hek	
A94	The start of an operation shall be possible only when all of the	hotek Anbo	p.
pro pro	relevant safety functions and/or protective measures are in place	K note	34
otek.	and are operational except for conditions as described in 9.2.4.	abote And	N.
nbo.	On those machines (for example mobile machines) where safety	Ar. Lek at	oter
hotek	functions and/or protective measures cannot be applied for certain	Anbor An	404
Anu	operations, manual control of such operations shall be by hold-to-	otek	nbore
nbote	run controls, together with enabling devices, as appropriate.	Anbo	03
Pri	Suitable interlocks shall be provided to secure correct sequential	ok botek	Anbo
Anbor	starting.	Ant	P
Г [.] М.	In the case of machines requiring the use of more than one control	stek saboter	PU
er Ant	station to initiate a start each of these control stations shall have a	pu pi	1
LeK.	separate manually actuated start control device.	hotek Anbor	
poto	The conditions to initiate a start shall be:	Ann	stek.
Nek	-all required conditions for machine operation shall be met, and	aboter Anb	
Anbo	—all start control devices shall be in the released (off) position,	All	boten
notek	then	Anbort	192
And	—all start control devices shall be actuated concurrently (see 3.6).	v stek	nbot
9.2.5.3	Stop	Anbu	10
	Stop category 0 and/or stop category 1 and/or stop category 2	Lok hotok	Ant
sk anb	stop functions shall be provided as indicated by the risk	DOLO AUD	
Y.	assessment and the functional requirements of the machine. Stop	stek spote	
oter	functions shall override related start functions (see 9.2.5.2).	Anbo, A.	NeK.
LeK.	Where required, facilities to connect protective devices and	botek Anb	
Anbolt	interlocks shall be provided. If such a protective devices and	Ann	hotek
untek.		nbote. A	P
Anbo	causes a stop of the machine, it may be necessary for that	P	abote
hote	condition to be signaled to the logic of the control system. The	K Anbor	Prin
Ann	reset of the stop function shall not initiate any hazardous situation.	K stek	nnt
K	Where more than one control station is provided, stop commands	oter Anbo	Pre-
Priv	from any control station shall be effective when required by the	Lek hoter	1
Note N	risk assessment of the machine.	abore Ane	105
9.2.5.4	Emergency operations (emergency stop, emergency switching	off)	Nº.
9.2.5.4.1	General	And A.	Yak
Net	Switching off functions of the emergency operations listed in	boten A	0,00
Anbor	Annex E, both of which are, in this part of IEC 60204, initiated by a	Ann	note
tel	single human action.	K abote	AUD
Anbo	Once active operation of an emergency stop (see 10.7) or	P	N ^O
K	emergency switching off (see 10.8) actuator has ceased following	otek Anbor	IN
AUN	a command, the effect of this command shall be sustained until it	K ntek	
tek	is reset. This reset shall be possible only by a manual action at	boten Anbu	1
P P	that location	in wat no	18K
9.2.5.4.2	Emergency stop	Anbore Anb	N.
0.2.0.7.2	Given in ISO 13850.	Pr.	poter
hotek		Anbor Ar	a di
Ann	The emergency stop shall function either as a stop category 0 or	otek	N
aboten	as a stop category 1 (see 9.2.2). The choice of the stop category	Anbo	
D. 3.3	of the emergency stop depends on the results of a risk	You	- 100

botek SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 54 of 87

SHAN Test Report No.: SZAHS180712005-01

nbotek

Clause	Requirement – Test			And	Result -	Remark	V
den pr	pote And K hotek	Anbou	All		boter	PUPO	
о р.	assessment of the machine.	at notek	Anbor	p.	YOK	abot	1
hoten	In addition to the requirements for	$r \operatorname{stop} (\operatorname{sop} 0.2)$	5.3) the	ek			20
IND K							002
aboten	emergency stop function has the			oten			
Ann	-it shall override all other function						m
npoto	-power to the machine actuator						
p.	situation(s) shall be either rem						
Anboi	0) or shall be controlled in such						
	motion as quickly as possible (stop category 1) without cre	ating			
ster An	other hazards;			24			36
V.	-reset shall not initiate a restart.	K boten		N.			
9.2.5.4.3	Emergency switching off	P	K abot	01	Aun	, V	de
atek	The functional aspects of emerge	ency switching o	ff are given i	in.ex	pote	PUI	-
Anbo	536.4 of IEC 60364-5-53.	, , , ,	otek ant	por			-10
notek	Emergency switching off should l	be provided whe	ere:	Notek			bere
Ano	-protection against direct contact			orbu			~
bot	wires, conductor bars, slip ring						1
Ann	electrical operating areas) is a	chieved only by	na or year in	of Ano			1
tek at			placing out C	יי			
Pr.	reach or by obstacles (see 6.2		Apport	Pr			1
tek	-there is the possibility of other	nazards or dama	age caused	бу			
up.	electricity.	hotel	Anbo				ote
boten	Emergency switching off is accor						
Ann	relevant incoming supply by elec	tromechanical sv	witching dev	ices,			do
npoter	effecting a stop category 0 of ma			o this			
Pri	incoming supply. When a machir	ne cannot tolerat	e this stop	ZU.			P
Anbor	category 0 stop, it may be neces	sary to provide c	other measu	res, vol			
in the	for example protection against di						
tek Ant	switching off is not necessary.		hotek	Ant			<u>s</u> -
9.2.5.5	Monitoring of command action	is photo	Pur	K.	noten	Anbo	-
100- 1	Movement or action of a machine	e or part of a ma	chine that ca	an	ZIL.		der
otek	result in a hazardous situation sh						
Anbe	example, over travel limiters, mo			0 ,			00
hoten	mechanical overload detection of			Lotek.			
9.2.6	Other control functions	Ask	pore P	10°	6	. oter	10.1
9.2.6.1	Hold-to-run controls	Anbor	Nek	abote	P	pb-	
v.	Hold-to-run controls shall require	continuous actu	ation of the	per	-Kek	nboter	Т
en Anb	control device(s) to achieve oper		noter of the	Ant			6
9.2.6.2	Two-hand control		Pup		Lotet	Anbor	
p <u>a,</u> }	Three types of two-hand control	are defined in IS	0 13851 th	e l	ar		J.ex
ctek	selection of which is determined				nboten		
Anbu	shall have the following features:		Someric. The	00			100
notek		abote. Anbe		Lotek			
Anu	Type I: this type requires:	and a second at the second	hoten A	nbo			~ 3
boter	-the provision of two control dev	vices and their c	oncurrent	note			Þ.
Pur	actuation by both hands;	rek	nboto	Ann			1
ek ab	-continuous concurrent actuation				No such	And	
Pri.	-machine operation shall cease				devices		
otek p	both of the control devices whe	en hazardous sit	uations are	still	UCVICES	Aun	X
y r	present.					abo	Nor
boter	A Type I two-hand control device	is not considere	ed to be suita	able			
Ann	for the initiation of hazardous ope			N.			100
aboten	Type II: a type I control requiring		oth control	boten			1
PUL	devices before machine operatio						An
Anbore	Type III: a type II control requiring			nbote			
12	Type in. a type it control requiring	g sonsurrent act		P	14	1010	_

botek SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 55 of 87

SHAN Test Report No.: SZAHS180712005-01

nbotek

control devices as follows:	Clause	Requirement – Test	Result - Remark	V
	YOK NO	bote And k solek Antroit An	woter Anos	
		control devices as follows:	kek abot	1
certain time limit of each other, not exceeding 0.5 s: 			Anbor An	
			otek pr	000
released before machineoperation can be initiated. 9.2.6.3 Enabling control Enabling control (see also 10.9) is a manually activated control function interlock that: 			Anbo	
9.2.6.3 Enabling control (see also 10.9) is a manually activated control function interlock that: a) when activated allows a machine operation to be initiated by a separate start control and b) when de-activated initiates a stop function in accordance with 9.2.5.3, and prevents initiation of machine operation. Enabling control shall be so arranged as to minimize the possibility of defeating, for example by requiring the de-activation of the enabling control device before machine operation may be reinitiated. It should not be possible to defeat the enabling function by simple means. 9.2.6.4 Combined start and stop controls Push-buttons and similar control devices that, when operated, alternately initiate and stop motion shall only be provided for functions which cannot result in a hazardous situation. 9.2.7 Cableless control 9.2.7.1 General This sub clause deals with the functional requirements of control systems employing cableless (for example radio, infra-red) techniques for transmitting commands and signals between a machine control system and operator control station (s). Means (for example key operated switch, access code) shall be provided, as necessary, to prevent unauthorized use of the operator control station. Derator control station. Each operator control station. Beasures shall be taken to ensure that control commands: affect only the intended functions. Measures shall be taken to prevent the machine form responding to signals other than tho			boten	PU)
Enabling control (see also 10.9) is a manually activated control function interlock that: 	0262		An	<u> </u>
function interlock that: a) when activated allows a machine operation to be initiated by a separate start control and b) when de-activated —-initiates a stop function in accordance with 9.2.5.3, and —prevents initiation of machine operation. Enabling control shall be so arranged as to minimize the possibility of defeating, for example by requiring the de-activation of the enabling control device before machine operation may be reinitiated. It should not be possible to defeat the enabling function by simple means. 9.2.6.4 Combined start and stop controls 9.2.7 Cableless control 9.2.7.1 General This sub clause deals with the functional requirements of control systems employing cableless (for example radio, infra-red) techniques for transmiting commands and signals between a machine control system and operator control station(se). Means shall be provided to readily remove or disconnect the operator control station. Each operator control station (see als 9.2.7.3). Means (for example key operated switch, access code) shall be provided, as necessary, to prevent unauthorized use of the operator control station. Each operator control station (see als 9.2.7.3). Means (for example key operated switch, access code) shall be provided, as necessary, to prevent unauthorized use of the operator control station. Each operator control station shall carry an unambiguous indication of which machine(s) is (are) intended to be controlled by that operator control stations. Measures shall be taken to ensure that control commands: —affect only the intended machine; —affect only the intended functions. Measures shall be taken to prevent the machine from responding to signals other than those from the intended operator control station(s). Where necessary, means shall be provided so that the machine can only be controlled from operator control stations in one or more predetermined zones or locations. 9.2.7.3 Stop Cableless control stations shall include a separate and clearly iduntifiable means to initiate the stop function shall not be	9.2.0.3		tek Anbols	Т
 a) when activated allows a machine operation to be initiated by a separate start control and b) when de-activated initiates a stop function in accordance with 9.2.5.3, and prevents initiation of machine operation. Enabling control shall be so arranged as to minimize the possibility of defeating, for example by requiring the de-activation of the enabling control device before machine operation may be reinitiated. It should not be possible to defeat the enabling function by simple means. 92.6.4 Combined start and stop controls Push-buttons and similar control devices that, when operated, alternately initiate and stop motion shall only be provided for functions which cannot result in a hazardous situation. 9.2.7.1 General This sub clause deals with the functional requirements of control systems employing cableless (for example radio, infra-red) techniques for transmitting commands and signals between a machine control system and operator control station(s). Means shall be provided to readily remove or disconnect the power supply of the operator control station (see also 9.2.7.3). Means (for example key operated switch, access code) shall be provided, as necessary, to prevent unauthorized use of the operator control station shall carry an unambiguous indication of which machine(s) is (are) intended to be controlled by that operator control station shall carry an unambiguous indication of which machine(s) is (are) intended to perator control station. 9.2.7.2 Control limitation 9.2.7.3 Stop Cableless control station shall be provided so that the machine can only be control led from operator control stations in one or more predetermined zone sor locations. 9.2.7.3 Stop Cableless control station shall include a separate and clearly iduitible means to initiate the stop function of the machine or of all the operations that can cause a hazardous situat			K sotek	
 separate start control and b) when de-activated initiates a stop function in accordance with 9.2.5.3, and prevents initiation of machine operation. Enabling control shall be so arranged as to minimize the possibility of defeating, for example by requiring the de-activation of the enabling control device before machine operation may be reinitiated. It should not be possible to defeat the enabling function by simple means. 9.2.6.4 Combined start and stop controls Push-buttons and similar control devices that, when operated, alternately initiate and stop motion shall only be provided for functions which cannot result in a hazardous situation. 9.2.7 Cableless control 9.2.7 Cableless control 9.2.7 Cableless control 9.2.7 General This sub clause deals with the functional requirements of control systems employing cableless (for example radio, infra-red) techniques for transmitting commands and signals between a machine: control station shall on (see also 9.2.7.3). Means shall be provided to readily remove or disconnect the power supply of the operator control station (see also 9.2.7.3). Means (see an eccessary, to prevent unauthorized use of the operator control station. 9.2.7.2 Control limitation 9.2.7.3 Control station shall carry an unambiguous indication of which machine(s) is (are) intended to be controlled by that operator control station. 9.2.7.4 Control limitation 9.2.7.5 Control limitation 9.2.7.6 Control limitation 9.2.7.7 Control limitation 9.2.7.8 Control limitation 9.2.7.9 Control limitation 9.2.7.9 Cableless control station shall carry an unambiguous indication of which machine(s) is (are) intended to be controlled by that operator control station shall carry an unambiguous			boten Anbo	
			Let bote	35
			Anbor An	- 0
Enabling control shall be so arranged as to minimize the possibility of defeating, for example by requiring the de-activation of the enabling control device before machine operation may be reinitiated. It should not be possible to defeat the enabling function by simple means. 9.2.6.4 Combined start and stop controls Push-buttons and similar control devices that, when operated, alternately initiate and stop motion shall only be provided for functions which cannot result in a hazardous situation. 9.2.7.1 Cablelees control 9.2.7.1 General This sub clause deals with the functional requirements of control systems employing cableless (for example radio, infra-red) techniques for transmitting commands and signals between a machine control system and operator control station(s). Means shall be provided to readily remove or disconnect the power supply of the operator control station (see also 9.2.7.3). Means (for example key operated switch, access code) shall be provided, as necessary, to prevent unauthorized use of the operator control station. Each operator control station. Suffect only the intended functions. Measures shall be taken to prevent the machine from responding to signals other than those from the intended operator control station(s). Where necessary, means shall be provided so that the machine can only be controlled from operator control stations in one or more predetermined zones or locations. 9.2.7.3 Stop Cableless control station shall include a separate and clearly identifiable means to initiate the stop function of the machine or of all the operations that can cause a hazardous situation. The actuating means to initiate the stop function situation. The actuating means to initiate the stop function situation. The actuating means to initiate the stop function situation. The actuating means			otek ant	10,0
of defeating, for example by requiring the de-activation of the enabling control device before machine operation may be reinitiated. It should not be possible to defeat the enabling function by simple means. 9.2.6.4 Combined start and stop controls Push-buttons and similar control devices that, when operated, alternately initiate and stop motion shall only be provided for functions which cannot result in a hazardous situation. 9.2.7 Cableless control 9.2.7.1 General This sub clause deals with the functional requirements of control systems employing cableless (for example radio, infra-red) techniques for transmitting commands and signals between a machine control system and operator control station(s). Means shall be provided to readily remove or disconnect the power supply of the operator control station (see also 9.2.7.3). Means (for example key operated switch, access code) shall be provided, as necessary, to prevent unauthorized use of the operator control station. 9.2.7.2 Control limitation Measures shall be taken to ensure that control commands: — affect only the intended functions. Measures shall be taken to prevent the machine from responding to signals other than those from the intended operator control station (s). Where necessary, means shall be provided so that the machine can only be controlled from operator control station. 9.2.7.3 Stop Control limitation General 9.2.7.3 Stop Cableless control stations shall be provided so that the machine can only be controlled from operator control stations in on			And	
enabling control device before machine operation may be reinitiated. It should not be possible to defeat the enabling function by simple means. 92.6.4 Combined start and stop controls 9.2.6.4 Combined start and stop controls 9.2.6.4 Combined start and stop controls 9.2.7 Cableless control 9.2.7 Cableless control 9.2.7 Cableless control 9.2.7 General This sub clause deals with the functional requirements of control systems employing cableless (for example radio, infra-red) techniques for transmitting commands and signals between a machine control system and operator control station (s). Means shall be provided to readily remove or disconnect the power supply of the operator control station (see also 9.2.7.3). Means (for example key operated switch, access code) shall be provided, as necessary, to prevent unauthorized use of the operator control station. No such cableless control. 9.2.7.2 Control limitation Measures shall be taken to ensure that control commands: —affect only the intended functions. Measures shall be taken to prevent the machine from responding to signals other than those from the intended operator control station, sin one or more predetermined zones or locations. 9.2.7.3 Stop Catheless control efform operator control station shall nolude a separate and clearly identifiable means to initiate the stop function of the machine or of all the operator initiate the stop function of the machine or of all the operator initiate the stop function			aboten	put
reinitiated. It should not be possible to defeat the enabling function by simple means. 9.2.6.4 Combined start and stop controls Push-buttons and similar control devices that, when operated, alternately initiate and stop motion shall only be provided for functions which cannot result in a hazardous situation. 9.2.7. Cableless control 9.2.7.1 General This sub clause deals with the functional requirements of control systems employing cableless (for example radio, infra-red) techniques for transmitting commands and signals between a machine control system and operator control station(s). Means shall be provided to readily remove or disconnect the power supply of the operator control station (see also 9.2.7.3). Means (for example key operated switch, access code) shall be provided, as necessary, to prevent unauthorized use of the operator control station. Each operator control station shall carry an unambiguous indication of which machine(s) is (are) intended to be controlled by that operator control station. 9.2.7.2 Control limitation Measures shall be taken to ensure that control commands: affect only the intended machine; affect only the intended functions. Measures shall be taken to prevent the machine from responding to signals other than those from the intended operator control station(s). Where necessary, means shall be provided so that the machine can only be controlled from operator control stations in one or more predetermined zones or locations. 9.2.7.3 Stop Cableless control station shall include a separate and clearly identifiable means to initiate the stop fun			Annak	1
by simple means. 92.6.4 Combined start and stop controls Push-buttons and similar control devices that, when operated, alternately initiate and stop motion shall only be provided for functions which cannot result in a hazardous situation. 9.2.7 Cableless control 9.2.7.1 General This sub clause deals with the functional requirements of control systems employing cableless (for example radio, infra-red) techniques for transmitting commands and signals between a machine control system and operator control station (s). Means shall be provided to readily remove or disconnect the power supply of the operator control station (see also 9.2.7.3). Means (for example key operated switch, access code) shall be provided, as necessary, to prevent unauthorized use of the operator control station. No such cableless control. 9.2.7.2 Control limitation Station. Station of which machine(s) is (are) intended to be controlled by that operator control station. No such cableless control. 9.2.7.2 Control limitation Measures shall be taken to ensure that control commands:affect only the intended machine;affect only the intended dunctions. Measures shall be taken to prevent the machine from responding to signals other than those from the intended operator control station, signals other than those from the intended operator control station in one or more predetermined zones or locations. 9.2.7.3 Stop Cableless control station shall include a separate and clearly identifiable means to initiate the stop function of the machine or of all the operation stat can c			ek anbore	
9.2.6.4 Combined start and stop controls Push-buttons and similar control devices that, when operated, alternately initiate and stop motion shall only be provided for functions which cannot result in a hazardous situation. 9.2.7 Cableless control 9.2.7.1 General This sub clause deals with the functional requirements of control systems employing cableless (for example radio, infra-red) techniques for transmitting commands and signals between a machine control system and operator control station(s). Means shall be provided to readily remove or disconnect the power supply of the operator control station (see also 9.2.7.3). Means (for example key operated switch, access code) shall be provided, as necessary, to prevent unauthorized use of the operator control station. No such cableless control 9.2.7.2 Control limitation 9.2.7.3 Control limitation 9.2.7.4 Control limitation 9.2.7.5 Control limitation 9.2.7.6 Control limitation 9.2.7.7 Control limitation 9.2.7.8 Measures shall be taken to ensure that control commands: —affect only the intended functions. Measures shall be taken to prevent the machine from responding to signals other than those from the intended operator control station (s). Where necessary, means shall be provided so that the machine can only be controlled from operator control stations in one or more predetermined zones or loccations.			K otek	1
Push-buttons and similar control devices that, when operated, alternately initiate and stop motion shall only be provided for functions which cannot result in a hazardous situation. 9.2.7 Cableless control 9.2.7.1 General This sub clause deals with the functional requirements of control systems employing cableless (for example radio, infra-red) techniques for transmitting commands and signals between a machine control system and operator control station(s). Means shall be provided to readily remove or disconnect the power supply of the operator control station (see also 9.2.7.3). Means (for example key operated switch, access code) shall be provided, as necessary, to prevent unauthorized use of the operator control station. No such cableless control. 9.2.7.2 Control station. Each operator control station (see also 9.2.7.3). Measures shall be taken to ensure that control commands:affect only the intended machine;affect only the intended functions. Measures shall be taken to ensure that control commands:affect only the intended functions. Measures shall be taken to prevent the machine from responding to signals other than those from the intended operator control stations in one or more predetermined zones or locations. 9.2.7.3 Stop Cableless control stations shall be provided so that the machine can only be controlled from operator control stations in one or more predetermined zones or locations. 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 contr	0264		poter Anbu	
alternately initiate and stop motion shall only be provided for functions which cannot result in a hazardous situation. 9.2.7 Cableless control 9.2.7.1 General This sub clause deals with the functional requirements of control systems employing cableless (for example radio, infra-red) techniques for transmitting commands and signals between a machine control system and operator control station(s). Means shall be provided to readily remove or disconnect the power supply of the operator control station (see also 9.2.7.3). Means (for example key operated switch, access code) shall be provided, as necessary, to prevent unauthorized use of the operator control station. No such cableless control. 9.2.7.2 Control Imitation Measures shall be taken to ensure that control commands: — affect only the intended machine; — affect only the intended functions. Measures shall be taken to prevent the machine from responding to signals other than those from the intended operator control station(s). Where necessary, means shall be provided so that the machine can only be controlled from operator control stations in one or more predetermined zones or locations. 9.2.7.3 Stop Cableless control station shall include a separate and clearly identifiable means to initiate the stop function of the machine or of all the operations that can cause a hazardous situation. The actuating means to initiate the stop function and the marked or labeled as an emergency stop device (see10.7).	J.2.0.4		ter pote	<u>8</u>
functions which cannot result in a hazardous situation. 9.2.7 Cableless control 9.2.7.1 General This sub clause deals with the functional requirements of control systems employing cableless (for example radio, infra-red) techniques for transmitting commands and signals between a machine control system and operator control station(s). Means shall be provided to readily remove or disconnect the power supply of the operator control station (see also 9.2.7.3). Means (for example key operated switch, access code) shall be provided, as necessary, to prevent unauthorized use of the operator control station. Each operator control station shall carry an unambiguous indication of which machine(s) is (are) intended to be controlled by that operator control station. 9.2.7.2 Control limitation Measures shall be taken to ensure that control commands: —affect only the intended functions. Measures shall be taken to prevent the machine from responding to signals other than those from the intended operator control station (s). Where necessary, means shall be provided so that the machine can only be controlled from operator control stations in one or more predetermined zones or locations. 9.2.7.3 Stop Cableless control station shall include a separate and clearly identifiable means to initiate this stop function of the machine or of all the operations that can cause a hazardous situation. The actuating means to initiate this stop function of the marked or labeled as an emergency stop device (see10.7).			Anbour An	20
9.2.7 Cableless control 9.2.7.1 General This sub clause deals with the functional requirements of control systems employing cableless (for example radio, infra-red) techniques for transmitting commands and signals between a machine control system and operator control station(s). Means shall be provided to readily remove or disconnect the power supply of the operator control station (see also 9.2.7.3). Means (for example key operated switch, access code) shall be provided, as necessary, to prevent unauthorized use of the operator control station. Each operator control station shall carry an unambiguous indication of which machine(s) is (are) intended to be controlled by that operator control station. No such cableless control. 9.2.7.2 Control limitation Measures shall be taken to ensure that control commands: —affect only the intended functions. Measures shall be taken to prevent the machine from responding to signals other than those from the intended operator control station(s). Where necessary, means shall be provided so that the machine can only be controlled from operator control stations in one or more predetermined zones or locations. 9.2.7.3 Stop Cableless control stations shall include a separate and clearly identifiable means to initiate the stop function of the machine or of all the operator stations shall include a separate and clearly identifiable means to initiate this stop function shall not be marked or labeled as an emergency stop device (see10.7).			potek Anb	0
9.2.7.1 General This sub clause deals with the functional requirements of control systems employing cableless (for example radio, infra-red) techniques for transmitting commands and signals between a machine control system and operator control station(s). Means shall be provided to readily remove or disconnect the power supply of the operator control station (see also 9.2.7.3). Means (for example key operated switch, access code) shall be provided, as necessary, to prevent unauthorized use of the operator control station. Each operator control station shall carry an unambiguous indication of which machine(s) is (are) intended to be controlled by that operator control station. No such cableless control. 9.2.7.2 Control limitation Measures shall be taken to ensure that control commands: —affect only the intended machine; —affect only the intended functions. Measures shall be taken to prevent the machine from responding to signals other than those from the intended operator control stations in one or more predetermined zones or locations. 9.2.7.3 Stop Cableless control station shall include a separate and clearly identifiable means to initiate the stop function of the machine or of all the operations that can cause a hazardous situation. The actuating means to initiate this stop function of the machine or of all the operator stop of locations of provided as an emergency stop device (see10.7).	anbote.		Anbo	
This sub clause deals with the functional requirements of control systems employing cableless (for example radio, infra-red) techniques for transmitting commands and signals between a machine control system and operator control station(s). Means shall be provided to readily remove or disconnect the power supply of the operator control station (see also 9.2.7.3). Means (for example key operated switch, access code) shall be provided, as necessary, to prevent unauthorized use of the operator control station. Each operator control station shall carry an unambiguous indication of which machine(s) is (are) intended to be controlled by that operator control station. No such cableless control station 9.2.7.2 Control limitation 9.2.7.3 Measures shall be taken to ensure that control commands: —affect only the intended machine; —affect only the intended functions. Measures shall be taken to prevent the machine from responding to signals other than those from the intended operator control station(s). Where necessary, means shall be provided so that the machine can only be controlled from operator control stations in one or more predetermined zones or locations. 9.2.7.3 Stop Cableless control station shall include a separate and clearly identifiable means to initiate the stop function shall not be marked or labelled as an emergency stop device (see 10.7).			aboter p	1np
systems employing cableless (for example radio, infra-red) techniques for transmitting commands and signals between a machine control system and operator control station(s). Means shall be provided to readily remove or disconnect the power supply of the operator control station (see also 9.2.7.3). Means (for example key operated switch, access code) shall be provided, as necessary, to prevent unauthorized use of the operator control station. Each operator control station shall carry an unambiguous indication of which machine(s) is (are) intended to be controlled by that operator control station. No such cableless control. 9.2.7.2 Control limitation 9.2.7.3 Measures shall be taken to ensure that control commands: affect only the intended functions. Measures shall be taken to prevent the machine from responding to signals other than those from the intended operator control station(s). Where necessary, means shall be provided so that the machine can only be controlled from operator control stations in one or more predetermined zones or locations. 9.2.7.3 Stop Cableless control stations shall include a separate and clearly identifiable means to initiate the stop function shall not be marked or labelled as an emergency stop device (see10.7).	9.2.7.1		Ar.	_
techniques for transmitting commands and signals between a machine control system and operator control station(s). Neans shall be provided to readily remove or disconnect the power supply of the operator control station (see also 9.2.7.3). Means (for example key operated switch, access code) shall be provided, as necessary, to prevent unauthorized use of the operator control station. No such cableless control. generator control station. Each operator control station shall carry an unambiguous indication of which machine(s) is (are) intended to be controlled by that operator control station. No such cableless control. 9.2.7.2 Control limitation Measures shall be taken to ensure that control commands: —affect only the intended machine; —affect only the intended functions. Measures shall be taken to prevent the machine from responding to signals other than those from the intended operator control station(s). 9.2.7.3 Stop Cableless control stations shall include a separate and clearly identifiable means to initiate the stop function shall not be marked or labelled as an emergency stop device (see 10.7).			ek Anbor	1
machine control system and operator control station(s). Means shall be provided to readily remove or disconnect the power supply of the operator control station (see also 9.2.7.3). No such cableless Means (for example key operated switch, access code) shall be provided, as necessary, to prevent unauthorized use of the operator control station. No such cableless control. Each operator control station shall carry an unambiguous indication of which machine(s) is (are) intended to be controlled by that operator control station. Secontrol. 9.2.7.2 Control limitation Measures shall be taken to ensure that control commands: —affect only the intended machine; —affect only the intended functions. Measures shall be taken to prevent the machine from responding to signals other than those from the intended operator control station(s). 9.2.7.3 Stop 9.2.7.3 Stop 9.2.7.3 Stop			K sotek	
Means shall be provided to readily remove or disconnect the power supply of the operator control station (see also 9.2.7.3). Means (for example key operated switch, access code) shall be provided, as necessary, to prevent unauthorized use of the operator control station. No such cableless control. Each operator control station shall carry an unambiguous indication of which machine(s) is (are) intended to be controlled by that operator control station. Image: Control Imitation 9.2.7.2 Control limitation Image: Control Imitation 9.2.7.3 Measures shall be taken to ensure that control commands: —affect only the intended functions. Measures shall be taken to prevent the machine from responding to signals other than those from the intended operator control station(s). 9.2.7.3 Stop 9.2.7.3 Stop Cableless control stations shall include a separate and clearly identifiable means to initiate the stop function of the machine or of all the operations that can cause a hazardous situation. The actuating means to initiate this stop function shall not be marked or labelled as an emergency stop device (see 10.7).			poten And	
power supply of the operator control station (see also 9.2.7.3). No such Means (for example key operated switch, access code) shall be provided, as necessary, to prevent unauthorized use of the operator control station. Cableless Each operator control station shall carry an unambiguous indication of which machine(s) is (are) intended to be controlled by that operator control station. Station 92.7.2 Control limitation Measures shall be taken to ensure that control commands: affect only the intended machine; affect only the intended functions. Measures shall be taken to prevent the machine from responding to signals other than those from the intended operator control station(s). Where necessary, means shall be provided so that the machine can only be controlled from operator control stations in one or more predetermined zones or locations. 92.7.3 Stop Cableless control station shall include a separate and clearly identifiable means to initiate the stop function of the machine or of all the operations that can cause a hazardous situation. The actuating means to initiate this stop function shall not be marked or labelled as an emergency stop device (see10.7).			tek pote	
power supply of the operator control station (see also 9.2.7.3). cableless Means (for example key operated switch, access code) shall be provided, as necessary, to prevent unauthorized use of the operator control station. cableless Each operator control station shall carry an unambiguous indication of which machine(s) is (are) intended to be controlled by that operator control station. executive station 9.2.7.2 Control limitation executive shall be taken to ensure that control commands:			No such	0
Means (for example key operated switch, access code) shall be provided, as necessary, to prevent unauthorized use of the operator control station. control. Each operator control station shall carry an unambiguous indication of which machine(s) is (are) intended to be controlled by that operator control station. control. 9.2.7.2 Control limitation measures shall be taken to ensure that control commands: affect only the intended machine; affect only the intended functions. Measures shall be taken to prevent the machine from responding to signals other than those from the intended operator control station(s). Where necessary, means shall be provided so that the machine can only be controlled from operator control stations in one or more predetermined zones or locations. 9.2.7.3 Stop Cableless control stations shall include a separate and clearly identifiable means to initiate the stop function of the machine or of all the operations that can cause a hazardous situation. The actuating means to initiate this stop function shall not be marked or labelled as an emergency stop device (see10.7).			10	0
provided, as necessary, to prevent unauthorized use of the operator control station. Each operator control station shall carry an unambiguous indication of which machine(s) is (are) intended to be controlled by that operator control station. 9.2.7.2 Control limitation 9.2.7.2 Control limitation 9.2.7.3 Measures shall be taken to ensure that control commands: —affect only the intended machine; —affect only the intended functions. Measures shall be taken to prevent the machine from responding to signals other than those from the intended operator control station(s). Where necessary, means shall be provided so that the machine can only be controlled from operator control stations in one or more predetermined zones or locations. 9.2.7.3 Stop Cableless control stations shall include a separate and clearly identifiable means to initiate the stop function of the machine or of all the operations that can cause a hazardous situation. The actuating means to initiate this stop function shall not be marked or labelled as an emergency stop device (see10.7).			AD.	-
Each operator control station shall carry an unambiguous indication of which machine(s) is (are) intended to be controlled by that operator control station. 9.2.7.2 Control limitation 9.2.7.2 Measures shall be taken to ensure that control commands: affect only the intended machine; affect only the intended functions. Measures shall be taken to prevent the machine from responding to signals other than those from the intended operator control station(s). Where necessary, means shall be provided so that the machine can only be controlled from operator control stations in one or more predetermined zones or locations. 9.2.7.3 Stop Cableless control stations shall include a separate and clearly identifiable means to initiate the stop function of the machine or of all the operations that can cause a hazardous situation. The actuating means to initiate this stop function shall not be marked or labelled as an emergency stop device (see10.7).			poter p	310
indication of which machine(s) is (are) intended to be controlled by that operator control station. 9.2.7.2 Control limitation 9.2.7.2 Measures shall be taken to ensure that control commands: affect only the intended machine; affect only the intended functions. Measures shall be taken to prevent the machine from responding to signals other than those from the intended operator control station(s). Where necessary, means shall be provided so that the machine can only be controlled from operator control stations in one or more predetermined zones or locations. 9.2.7.3 Stop Cableless control stations shall include a separate and clearly identifiable means to initiate the stop function of the machine or of all the operations that can cause a hazardous situation. The actuating means to initiate this stop function shall not be marked or labelled as an emergency stop device (see10.7).			P.I. Kek	
that operator control station. 9.2.7.2 Control limitation 9.2.7.2 Control limitation Measures shall be taken to ensure that control commands: affect only the intended machine; affect only the intended functions. Measures shall be taken to prevent the machine from responding to signals other than those from the intended operator control station(s). Where necessary, means shall be provided so that the machine can only be controlled from operator control stations in one or more predetermined zones or locations. 9.2.7.3 Stop Cableless control stations shall include a separate and clearly identifiable means to initiate the stop function of the machine or of all the operations that can cause a hazardous situation. The actuating means to initiate this stop function shall not be marked or labelled as an emergency stop device (see10.7).			anbor	P
9.2.7.2 Control limitation Measures shall be taken to ensure that control commands: affect only the intended machine; affect only the intended functions. Measures shall be taken to prevent the machine from responding to signals other than those from the intended operator control station(s). Where necessary, means shall be provided so that the machine can only be controlled from operator control stations in one or more predetermined zones or locations. 9.2.7.3 Stop Cableless control stations shall include a separate and clearly identifiable means to initiate the stop function of the machine or of all the operations that can cause a hazardous situation. The actuating means to initiate this stop function shall not be marked or labelled as an emergency stop device (see10.7).			K wotek	
Measures shall be taken to ensure that control commands: —affect only the intended machine; —affect only the intended functions. Measures shall be taken to prevent the machine from responding to signals other than those from the intended operator control station(s). Where necessary, means shall be provided so that the machine can only be controlled from operator control stations in one or more predetermined zones or locations. 9.2.7.3 Stop Cableless control stations shall include a separate and clearly identifiable means to initiate the stop function of the machine or of all the operations that can cause a hazardous situation. The actuating means to initiate this stop function shall not be marked or labelled as an emergency stop device (see10.7).	10 10		oter Ano	
 —affect only the intended machine; —affect only the intended functions. Measures shall be taken to prevent the machine from responding to signals other than those from the intended operator control station(s). Where necessary, means shall be provided so that the machine can only be controlled from operator control stations in one or more predetermined zones or locations. 9.2.7.3 Stop Cableless control stations shall include a separate and clearly identifiable means to initiate the stop function of the machine or of all the operations that can cause a hazardous situation. The actuating means to initiate this stop function shall not be marked or labelled as an emergency stop device (see10.7). 	9.2.7.2		tek poter	_
 —affect only the intended functions. Measures shall be taken to prevent the machine from responding to signals other than those from the intended operator control station(s). Where necessary, means shall be provided so that the machine can only be controlled from operator control stations in one or more predetermined zones or locations. 9.2.7.3 Stop Cableless control stations shall include a separate and clearly identifiable means to initiate the stop function of the machine or of all the operations that can cause a hazardous situation. The actuating means to initiate this stop function shall not be marked or labelled as an emergency stop device (see10.7). 			Anboy A.	lev
Measures shall be taken to prevent the machine from responding to signals other than those from the intended operator control station(s). Where necessary, means shall be provided so that the machine can only be controlled from operator control stations in one or more predetermined zones or locations. 9.2.7.3 Stop Cableless control stations shall include a separate and clearly identifiable means to initiate the stop function of the machine or of all the operations that can cause a hazardous situation. The actuating means to initiate this stop function shall not be marked or labelled as an emergency stop device (see10.7).			abotek Anbo	
to signals other than those from the intended operator control station(s). Where necessary, means shall be provided so that the machine can only be controlled from operator control stations in one or more predetermined zones or locations. 9.2.7.3 Stop Cableless control stations shall include a separate and clearly identifiable means to initiate the stop function of the machine or of all the operations that can cause a hazardous situation. The actuating means to initiate this stop function shall not be marked or labelled as an emergency stop device (see10.7).			Ant	00
station(s). Where necessary, means shall be provided so that the machine can only be controlled from operator control stations in one or more predetermined zones or locations. 9.2.7.3 Stop Cableless control stations shall include a separate and clearly identifiable means to initiate the stop function of the machine or of all the operations that can cause a hazardous situation. The actuating means to initiate this stop function shall not be marked or labelled as an emergency stop device (see10.7).			Anbore A	
Where necessary, means shall be provided so that the machine can only be controlled from operator control stations in one or more predetermined zones or locations. 9.2.7.3 Stop Cableless control stations shall include a separate and clearly identifiable means to initiate the stop function of the machine or of all the operations that can cause a hazardous situation. The actuating means to initiate this stop function shall not be marked or labelled as an emergency stop device (see10.7).			h. tek	
can only be controlled from operator control stations in one or more predetermined zones or locations. 9.2.7.3 Stop Cableless control stations shall include a separate and clearly identifiable means to initiate the stop function of the machine or of all the operations that can cause a hazardous situation. The actuating means to initiate this stop function shall not be marked or labelled as an emergency stop device (see10.7).			Anbo	P
more predetermined zones or locations. 9.2.7.3 Stop Cableless control stations shall include a separate and clearly identifiable means to initiate the stop function of the machine or of all the operations that can cause a hazardous situation. The actuating means to initiate this stop function shall not be marked or labelled as an emergency stop device (see10.7).			lok notek	
9.2.7.3 Stop Cableless control stations shall include a separate and clearly identifiable means to initiate the stop function of the machine or of all the operations that can cause a hazardous situation. The actuating means to initiate this stop function shall not be marked or labelled as an emergency stop device (see10.7).			oto Anu	
Cableless control stations shall include a separate and clearly identifiable means to initiate the stop function of the machine or of all the operations that can cause a hazardous situation. The actuating means to initiate this stop function shall not be marked or labelled as an emergency stop device (see10.7).	he.		tek aboter	
identifiable means to initiate the stop function of the machine or of all the operations that can cause a hazardous situation. The actuating means to initiate this stop function shall not be marked or labelled as an emergency stop device (see10.7).	9.2.7.3		Aupor A.	No
all the operations that can cause a hazardous situation. The actuating means to initiate this stop function shall not be marked or labelled as an emergency stop device (see10.7).			aboten Anbo	
actuating means to initiate this stop function shall not be marked or labelled as an emergency stop device (see10.7).			All	00
or labelled as an emergency stop device (see10.7).			Anboro Ar	
			htek	
Finabling control shall be so arranged as to minimize the possibility			Anbo	Pr.
Enabling control on an object of an angled do to minimize the possibility	Pur	Enabling control shall be so arranged as to minimize the possibility	K sotek	

botek SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 56 of 87

SHAN Test Report No.: SZAHS180712005-01

nbotek

Clause	Requirement – Test	Result - Remark	Ve
ster h	noote have at hove Anwar her	aboten Anor	
v p	of defeating, for example by requiring the de-activation of the	tek nbot	1
aboten	enabling control device before machine operation may be	Anbo A.	. e
No.	reinitiated. It should not be possible to defeat the enabling function	hotek An	00-
Anbolo	by simple means.	And	10
otek	A machine which is equipped with cableless control shall have a	npoter	AUP
Anbo	means of automatically initiating the stopping of the machine and	Andek	
K	of preventing a potentially hazardous operation, in the following	lek Anbo	P
Pur	situations:	notek	
stek Al	—when a stop signal is received;	bore Ann	d'h
N.	-when a fault is detected in the cableless control system;	otek nboth	5
aboter	—when a valid signal (which includes a signal that communication	Anbo	re
Kek	is established and maintained) has not been detected within a	boten Ant	p
Anbo	specified period of time (see Annex B), except when a machine is	All	0
hotek	executing a pre-programmed task taking it outside the range of the	Anbols	berr
And	cableless control where no hazardous situation can occur.	K wotek	5
9.2.7.4	Use of more than one operator control station	Le. Ano	
V. 10.	Where a machine has more than one operator control station,	stek aboten	Τ
ter Ar	including one or morecableless control stations, measures shall be	por pri	14
494	provided to ensure that only one of the control stations can be	hotek Anbo	
abore	enabled at a given time. An indication of which operator control	And	otel
Lotek.	station is in control of the machine shall be provided at suitable	Anbote, Anb	1
And	locations as determined by the risk assessment of the machine.	h. stek	ab
aboten	Exception: a stop command from any one of the control stations	Anbo	2
Pri	shall be effective when required by the risk assessment of the	K botek	P
Anbo	machine.	Ann	
9.2.7.5	Battery-powered operator control stations	otek anbor	
co An	A variation in the battery voltage shall not cause a hazardous	ot note	×-
otek	situation. If one or more potentially hazardous motions are	nbote. Anb	N
lb-	controlled using a battery-powered cableless operator control	atek pab	cre.
nboter	station, a clear warning shall be given to the operator when a	Anbo	
Artek	variation in battery voltage exceeds specified limits. Under those	poter P	1100
Anbot	circumstances, the cableless operator control station shall remain	Anniek	
hot	functional long enough for the operator to put the machine into a	K anbor	P
Ant	nonhazardous situation.	K wotek	
9.3	Protective interlocks	poter Ano	6
9.3.1	Reclosing or resetting of an interlocking safeguard The reclosing or resetting of an interlocking safeguard shall not	tet npote	
poten	initiate hazardous machine operation	Anbor A.	lek-
9.3.2	Exceeding operating limits	boten Andr	2
9.3.2	Where an operating limits (for example speed, pressure, position)	An	.00
hotek	can be exceeded leading to a hazardous situation, means shall be	Anbolt A	
Ann	provided to detect when a predetermined limit(s) is exceeded and	k wotek	DT
nbote	initiate an appropriate control action.	And	100
9.3.3	Operation of auxiliary functions	ter aboter	
3.3.3 pro	The correct operation of auxiliary functions shall be checked by	or An	-
*eX	appropriate devices (for example pressure sensors).	botek Anbor	
Dorn L	Where the non-operation of a motor or device for an auxiliary	in you	Nek
wotek	function (for example lubrication, supply of coolant, swarf removal)	Anboten Anbo	
AUDA	can cause a hazardous situation, or cause damage to the machine	M. Jek	pot
aboten	or to the work in progress, appropriate interlocking shall be	Anbor Ai	
All	provided.	h notek	Anl
9.3.4	Interlocks between different operations and for contrary motion	is have	
J.J.T	menories between unerent operations and for contrary motion	10 hoter	

SZAHS180712005-01

An

botek

Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited Page 57 of 87

Test Report No.: SZAHS180712005-01

Clause	Requirement – Test	Result - Remark	Ve
10%	nbote And k solek Anbols An-	boten Anbo	
25 P	All contactors, relays, and other control devices that control	All tek abo	100
	elements of the machine and that can cause a hazardous situation	Anbors An	-0
	when actuated at the same time (for example those which initiate	otek an	00,00
	contrary motion), shall be interlocked against incorrect operation.	Anbo	
		ak boten	AUp
	Reversing contactors (for example those controlling the direction	And	
	of rotation of a motor) shall be interlocked in such a way that in	lek photo	ſ
	normal service no short circuit can occur when switching.	por A. stek	
	Where, for safety or for continuous operation, certain functions on	hotek Anbo	
	the machine are required to be interrelated, proper co-ordination	And we not	Sk-
	shall be ensured by suitable interlocks. For a group of machines	anbote Ant	
	working together in a co-coordinated manner and having more	P. stek	ote
	than one controller provision shall be made to co-ordinate the	Anbor An	
	operations of the controllers as necessary.	k hotek	anb
	Where a failure of a mechanical brake actuator can result in the	And	
	brake being applied when the associated machine actuator is	tek spoter	P
	energized and a hazardous situation can result, interlocks shall be	PIL PIL	
×	provided to switch off the machine actuator.	wetek pabor	
9.3.5	Reverse current braking	And K both	K
	Where braking of a motor is accomplished by current reversal,	anbote. Anu	
	measures shall be provided to prevent the motor starting in the	A. stek	ote
	opposite direction at the end of braking where that reversal can	Anbor An	
	cause a hazardous situation or damage to the machine or to the	K Lotek	nb
	work in progress. For this purpose, a device operating exclusively	And	
	as a function of time is not permitted.	tek aboten	P
	Control circuits shall be so arranged that rotation of a motor shaft,	or All rek	
	for example manually shall not result in a hazardous situation.	hotek habor	
9.4	Control functions in the event of failure	int bote	1-
9.4.1	General requirements	Anboro An	105
	Where failures or disturbances in the electrical equipment can	wotek and	0100
	cause a hazardous situation or damage to the machine or to the	And	
	work in progress, appropriate measures shall be taken to minimize	h aboten P	Wp-
	the probability of the occurrence of such failures or disturbances.	All	
	The required measures and the extent to which they are	stok anbore	P
	implemented, either individually or in combination depend on the	K wotek	
× • • • •	level of risk associated with the respective application (see 4.1).	poter Anbo	
9.4.2	Measures to minimize risk in the event of failure	ket apote	
9.4.2.1	Use of proven circuit techniques and components These measures include but are not limited to:	Aupor Pri	Le [¥]
		boten Anb	
	—bonding of control circuits to the protective bonding circuit for	All	00
	functional purposes (see 9.4.3.1 and Figure 2); —connection of control devices in accordance with 9.4.3.1;	Anbore A	
		h. stek	~ 5
	—stopping by de-energizing (see 9.2.2);	(See appended	be.
	-the switching of all control circuit conductors to the device being	table)	
	controlled (see 9.4.3.1);	hote And	
	-switching devices having direct opening action (see IEC 60947-	atek anboter	
	5-1);	Aupor Au	Net
	-circuit design to reduce the possibility of failures causing	hotek Anbo	
	undesirable operations.	Ann	not
0400	Provisions of partial or complete redundancy By providing partial or complete redundancy, it is possible to	Anbolo A	32
9.4.2.2		the second	
9.4.2.2		e.	0.55
9.4.2.2	minimize the probability that one single failure in the electrical circuit can result in a hazardous situation. Redundancy can be	tek Anbote	Pri

botek SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 58 of 87

Test Report No.: SZAHS180712005-01

Clause	Requirement – Test	Result - Remark	Verdic
ten A	hoor And tak boten Anor tak	nbore And	X
N.	effective in normal operation (on-line redundancy) or designed as	stek phot	
	special circuits that take over the protective function (off-line	Anbo	Nor-
	redundancy) only where the operating function fails.	botek Ant	0.
	Where off-line redundancy which is not active during normal	And	tek
	operation is provided, suitable measures shall be taken to ensure	boten	AUDO
	that those control circuits are available when required.	Alle	100
9.4.2.3	Provision of diversity	tek Anboro	An
9.4.2.3		K otok	
	The use of control circuits having different principles of operation,	boten Anbo	le.
	or using different types of components or devices can reduce the	nt note	1
	probability of hazards resulting from faults and/or failures.	Anbore Ant	X
	Examples include:	h. stek and	oter
	-the combination of normally open and normally closed contacts	Anboy An	Nor-
	operated by interlocking guards;	hotek I	upo.
	-the use of different types of control circuit components in the	Ann	N
	circuit;	ek aboter	And
	-the combination of electromechanical and electronic equipment	Printer	
	in redundant configurations.	otek Anbou	b.,
	The combination of electrical and non-electrical systems (for	ak note	-
	example mechanical, hydraulic, pneumatic) may perform the	aboten Anb	14
00	redundant function and provide the diversity.	pri.	oter
9.4.2.4	Provision for functional tests	Aupor Au	Note
	Functional tests may be carried out automatically by the control	hotek p	nbor
	system, or manually by inspection or tests at start-up and at	Ano	P.V.
	predetermined intervals or a combination as appropriate (see also	ek nbote.	Ano
Anb	17.2 and 18.6).	P	~
		Y	100
9.4.3	Protection against maloperation due to earth faults, voltage interest against maloperation due to earth faults, voltage interest against against against maloperation due to earth faults, voltage interest against against maloperation due to earth faults, voltage interest again	erruptions and los	s of
k.	circuit continuity	erruptions and los	s of
9.4.3 9.4.3.1		erruptions and los	s of
k.	circuit continuity	erruptions and los	s of
k.	circuit continuity Earth faults Earth faults on any control circuit shall not cause unintentional	erruptions and los	s of
k.	circuit continuity Earth faults	erruptions and los	s of
k.	circuit continuity Earth faults Earth faults on any control circuit shall not cause unintentional starting, potentially hazardous motions, or prevent stopping of the	erruptions and los	s of
k.	circuit continuity Earth faults Earth faults on any control circuit shall not cause unintentional starting, potentially hazardous motions, or prevent stopping of the machine. Methods to meet these requirements include but are not limited to	erruptions and los	s of
k.	circuit continuity Earth faults Earth faults on any control circuit shall not cause unintentional starting, potentially hazardous motions, or prevent stopping of the machine.	erruptions and los	s of
k.	circuit continuity Earth faults Earth faults on any control circuit shall not cause unintentional starting, potentially hazardous motions, or prevent stopping of the machine. Methods to meet these requirements include but are not limited to the following: Method a): Control circuits, fed by control transformers;	erruptions and los	s of Antone
p.	circuit continuity Earth faults Earth faults on any control circuit shall not cause unintentional starting, potentially hazardous motions, or prevent stopping of the machine. Methods to meet these requirements include but are not limited to the following: Method a): Control circuits, fed by control transformers; Method b): Control circuits fed from a control transformer with a	Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek	tek Ibotek Anbote Anb
k.	circuit continuity Earth faults Earth faults on any control circuit shall not cause unintentional starting, potentially hazardous motions, or prevent stopping of the machine. Methods to meet these requirements include but are not limited to the following: Method a): Control circuits, fed by control transformers; Method b): Control circuits fed from a control transformer with a centre-tapped winding, this centre tap connected to the protective	erruptions and los	s of
p.	circuit continuity Earth faults Earth faults on any control circuit shall not cause unintentional starting, potentially hazardous motions, or prevent stopping of the machine. Methods to meet these requirements include but are not limited to the following: Method a): Control circuits, fed by control transformers; Method b): Control circuits fed from a control transformer with a centre-tapped winding, this centre tap connected to the protective bonding circuit;	Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek	tek nbotek Anbote Anb
k.	circuit continuity Earth faults Earth faults on any control circuit shall not cause unintentional starting, potentially hazardous motions, or prevent stopping of the machine. Methods to meet these requirements include but are not limited to the following: Method a): Control circuits, fed by control transformers; Method b): Control circuits fed from a control transformer with a centre-tapped winding, this centre tap connected to the protective bonding circuit; Method c): Where the control circuit is not fed from a control	Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek	tek Ibotek Anbote Anb
p.	circuit continuity Earth faults Earth faults on any control circuit shall not cause unintentional starting, potentially hazardous motions, or prevent stopping of the machine. Methods to meet these requirements include but are not limited to the following: Method a): Control circuits, fed by control transformers; Method b): Control circuits fed from a control transformer with a centre-tapped winding, this centre tap connected to the protective bonding circuit; Method c): Where the control circuit is not fed from a control transformer and is either:	Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek	tek nbotek Anbote Anb
p.	circuit continuity Earth faults Earth faults on any control circuit shall not cause unintentional starting, potentially hazardous motions, or prevent stopping of the machine. Methods to meet these requirements include but are not limited to the following: Method a): Control circuits, fed by control transformers; Method b): Control circuits fed from a control transformer with a centre-tapped winding, this centre tap connected to the protective bonding circuit; Method c): Where the control circuit is not fed from a control transformer and is either: 1) directly connected between the phase conductors of an earthed	Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek	tek nbotek Anbote Anb
p.	circuit continuity Earth faults Earth faults on any control circuit shall not cause unintentional starting, potentially hazardous motions, or prevent stopping of the machine. Methods to meet these requirements include but are not limited to the following: Method a): Control circuits, fed by control transformers; Method b): Control circuits fed from a control transformer with a centre-tapped winding, this centre tap connected to the protective bonding circuit; Method c): Where the control circuit is not fed from a control transformer and is either: 1) directly connected between the phase conductors of an earthed supply, or;	Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek	tek Ibotek Anbote Anb
p.	circuit continuity Earth faults Earth faults on any control circuit shall not cause unintentional starting, potentially hazardous motions, or prevent stopping of the machine. Methods to meet these requirements include but are not limited to the following: Method a): Control circuits, fed by control transformers; Method b): Control circuits fed from a control transformer with a centre-tapped winding, this centre tap connected to the protective bonding circuit; Method c): Where the control circuit is not fed from a control transformer and is either: 1) directly connected between the phase conductors of an earthed supply, or; 2) directly connected between the phase conductors or between a	Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek	tek hotek Anbote Anb
k.	 circuit continuity Earth faults Earth faults on any control circuit shall not cause unintentional starting, potentially hazardous motions, or prevent stopping of the machine. Methods to meet these requirements include but are not limited to the following: Method a): Control circuits, fed by control transformers; Method b): Control circuits fed from a control transformer with a centre-tapped winding, this centre tap connected to the protective bonding circuit; Method c): Where the control circuit is not fed from a control transformer and is either: 1) directly connected between the phase conductors of an earthed supply, or; 2) directly connected between the phase conductors or between a phase conductor and a neutral conductor of a supply that is not 	Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek	tek hotek Anbote Anb
9.4.3.1 P.4.3.1 Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek	 circuit continuity Earth faults Earth faults on any control circuit shall not cause unintentional starting, potentially hazardous motions, or prevent stopping of the machine. Methods to meet these requirements include but are not limited to the following: Method a): Control circuits, fed by control transformers; Method b): Control circuits fed from a control transformer with a centre-tapped winding, this centre tap connected to the protective bonding circuit; Method c): Where the control circuit is not fed from a control transformer and is either: 1) directly connected between the phase conductors of an earthed supply, or; 2) directly connected between the phase conductors or between a phase conductor and a neutral conductor of a supply that is not earthed or is earthed through a high impedance. 	Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek	tek hotek Anbote Anb
p.	 circuit continuity Earth faults Earth faults on any control circuit shall not cause unintentional starting, potentially hazardous motions, or prevent stopping of the machine. Methods to meet these requirements include but are not limited to the following: Method a): Control circuits, fed by control transformers; Method b): Control circuits fed from a control transformer with a centre-tapped winding, this centre tap connected to the protective bonding circuit; Method c): Where the control circuit is not fed from a control transformer and is either: 1) directly connected between the phase conductors of an earthed supply, or; 2) directly connected between the phase conductors or between a phase conductor and a neutral conductor of a supply that is not earthed or is earthed through a high impedance. Voltage interruptions 	Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek	tek hotek Anbote Anb
9.4.3.1 P.4.3.1 Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek	 circuit continuity Earth faults Earth faults on any control circuit shall not cause unintentional starting, potentially hazardous motions, or prevent stopping of the machine. Methods to meet these requirements include but are not limited to the following: Method a): Control circuits, fed by control transformers; Method b): Control circuits fed from a control transformer with a centre-tapped winding, this centre tap connected to the protective bonding circuit; Method c): Where the control circuit is not fed from a control transformer and is either: 1) directly connected between the phase conductors of an earthed supply, or; 2) directly connected between the phase conductors or between a phase conductor and a neutral conductor of a supply that is not earthed or is earthed through a high impedance. Voltage interruptions The requirements detailed in 7.5 shall apply. 	Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek	tek hotek Anbote Anb
9.4.3.1 P.4.3.1 Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek	 circuit continuity Earth faults Earth faults on any control circuit shall not cause unintentional starting, potentially hazardous motions, or prevent stopping of the machine. Methods to meet these requirements include but are not limited to the following: Method a): Control circuits, fed by control transformers; Method b): Control circuits fed from a control transformer with a centre-tapped winding, this centre tap connected to the protective bonding circuit; Method c): Where the control circuit is not fed from a control transformer and is either: 1) directly connected between the phase conductors of an earthed supply, or; 2) directly connected between the phase conductors or between a phase conductor and a neutral conductor of a supply that is not earthed or is earthed through a high impedance. Voltage interruptions The requirements detailed in 7.5 shall apply. 	Method a).	tek hotek Anbote Anb
9.4.3.1 P.4.3.1 Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek	 circuit continuity Earth faults Earth faults on any control circuit shall not cause unintentional starting, potentially hazardous motions, or prevent stopping of the machine. Methods to meet these requirements include but are not limited to the following: Method a): Control circuits, fed by control transformers; Method b): Control circuits fed from a control transformer with a centre-tapped winding, this centre tap connected to the protective bonding circuit; Method c): Where the control circuit is not fed from a control transformer and is either: 1) directly connected between the phase conductors of an earthed supply, or; 2) directly connected between the phase conductors or between a phase conductor and a neutral conductor of a supply that is not earthed or is earthed through a high impedance. Voltage interruptions The requirements detailed in 7.5 shall apply. Where the control system uses a memory device(s), proper functioning in the event of power failure shall be ensured (for 	Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek	tek hotek Anbote Anb
9.4.3.1 P.4.3.1 Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek	 circuit continuity Earth faults Earth faults on any control circuit shall not cause unintentional starting, potentially hazardous motions, or prevent stopping of the machine. Methods to meet these requirements include but are not limited to the following: Method a): Control circuits, fed by control transformers; Method b): Control circuits fed from a control transformer with a centre-tapped winding, this centre tap connected to the protective bonding circuit; Method c): Where the control circuit is not fed from a control transformer and is either: 1) directly connected between the phase conductors of an earthed supply, or; 2) directly connected between the phase conductors or between a phase conductor and a neutral conductor of a supply that is not earthed or is earthed through a high impedance. Voltage interruptions The requirements detailed in 7.5 shall apply. 	Method a).	tek hotek Anbote Anb
9.4.3.1 P.4.3.1 Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek	 circuit continuity Earth faults Earth faults on any control circuit shall not cause unintentional starting, potentially hazardous motions, or prevent stopping of the machine. Methods to meet these requirements include but are not limited to the following: Method a): Control circuits, fed by control transformers; Method b): Control circuits fed from a control transformer with a centre-tapped winding, this centre tap connected to the protective bonding circuit; Method c): Where the control circuit is not fed from a control transformer and is either: 1) directly connected between the phase conductors of an earthed supply, or; 2) directly connected between the phase conductors or between a phase conductor and a neutral conductor of a supply that is not earthed or is earthed through a high impedance. Voltage interruptions The requirements detailed in 7.5 shall apply. Where the control system uses a memory device(s), proper functioning in the event of power failure shall be ensured (for 	Method a).	tek hotek Anbote Anb
9.4.3.1 P.4.3.1 Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek	 circuit continuity Earth faults Earth faults on any control circuit shall not cause unintentional starting, potentially hazardous motions, or prevent stopping of the machine. Methods to meet these requirements include but are not limited to the following: Method a): Control circuits, fed by control transformers; Method b): Control circuits fed from a control transformer with a centre-tapped winding, this centre tap connected to the protective bonding circuit; Method c): Where the control circuit is not fed from a control transformer and is either: 1) directly connected between the phase conductors of an earthed supply, or; 2) directly connected between the phase conductors or between a phase conductor and a neutral conductor of a supply that is not earthed or is earthed through a high impedance. Voltage interruptions The requirements detailed in 7.5 shall apply. Where the control system uses a memory device(s), proper functioning in the event of power failure shall be ensured (for example by using a non-volatile memory) to prevent any loss of 	Method a).	tek Ibotek Anbote Anb

botek SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 59 of 87

SHAN Test Report No.: SZAHS180712005-01

nbotek

Clause	Requirement – Test	potek Anbou	Result - Remark	V
oter A	nbo k hotek knbote Ar	tek abotek	Anbor	Ng.
	Where the loss of continuity of safety-re		aboten Anbo	
	depending upon sliding contacts can res		Am	rote
	situation, appropriate measures shall be	e taken (for example by	ak anbote At	5.
Anb	duplication of the sliding contacts).	notek Anbo	P. Kett	N.
	tor interface and machine-mounted con	ntrol devices		
10.1	General	iek Anbor An	ok poter	
10.1.1	General device requirements	N Notek	anbor An tok	_
	This Clause contains requirements for d	levices mounted outside	or otek Anbour	
	partially outside control enclosures.		ARD	lek.
	As far as is practicable, those devices sl	hall be selected, mounte	d, boten Anbo	
	and identified or coded in accordance w	ith relevant parts of IEC	Ran	note
	61310.	Anbo A. te	k abote An	500
	The possibility of inadvertent operation s	shall be minimized by. fo	r Pittek	00
	example, positioning of devices, suitable			bere
	additional protective measures. Particula			
	given to the selection, arrangement, pro		bolen Anbe	
	operator input devices such as touch sc		with notek	
	keyboards, for the control of hazardous		Ano Ant	N.
	IEC 60447.	machine operations. Set	ntek abot	,o
10.1.2	Location and mounting	All botok	Anbor Pr.	ale a
Le ^k	As far as is practicable, machine-mount	ed control devices shall	k boten An	0
	be:	ed control devices shall	Ann	10
		intenence	tek nbote	Par
	-readily accessible for service and mai		Pri tek	
	-mounted in such a manner as to minir		sotek Anbor	P
	damage from activities such as mater		nbc stek	
	The actuators of hand-operated control	devices shall be selected	a poten Anbo	
	and installed so that:		An both	3/4-
	—they are not less than 0,6 m above the			
	within easy reach of the normal working		or; control.	pore
	-the operator is not placed in a hazard	ous situation when	Anden	
	operating them.		ok hotek	AND'
	The actuators of foot-operated control d	evices shall be selected	And AK	
	and installed so that:		tek abote.	P
	-they are within easy reach of the norm	nal working position of th	IC PART	
	operator;		otek Anbor	
	-the operator is not placed in a hazard	ous situation when	Ant	X
	operating them.		aboten Anbo	
10.1.3	Protection	hotek Anbor	Pr. Pok -0	oter
boten	The degree of protection (see IEC 6052	9) together with other	Anbor An	Τ
	appropriate measures shall afford protect		v otek	100
	-the effects of aggressive liquids, vapo		e And	
	physical environment or used on the r		ok boten	P
	—the ingress of contaminants (for exam		ate Ant	
	matter).		stek suboter	
	In addition, the operator interface control	ol devices shall have a	Anbo An rel	4
	minimum degree of protection against d		hotek Anbor	
	(see IEC 60529).		AUD	Net
10.1.4	Position sensors	Anbor An	anboten And	
Aug. 11-4	Position sensors (for example position s	witches proximity	Lek .	000
	switches) shall be so arranged that they		en Anbor P	μ°.
	the event of over travel.	wiii not be damayed III	K notek	20
		olated control functions	bote Ano	1.0
Pres	Position sensors in circuits with safety-re	elated control lunctions	at hotek	

SZAHS180712005-01

An

hotek

Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited Page 60 of 87

SHAN Test Report No.: SZAHS180712005-01

nbotek

Clause	Requirement – Test		Result - Remark	Ve
oten A	nbo And And	K sotek p	upor An	No
nbotek	shall have direct opening action (see IEC 609 provide similar reliability (see 9.4.2).	47-5-1) or shall	Anbotek Anbo	te
10.1.5	Portable and pendant control stations	por An rek	boten Ar	100
Anbo	Portable and pendant operator control station	s and their control	har lok	
nbotek	devices shall be so selected and arranged as	to minimize the	Anboto	70.
p.	possibility of inadvertent machine operations of		ek poter	1
Anbo	and vibrations (for example if the operator cor		An Lek	
N.	dropped or strikes an obstruction) (see also 4	.4.8).	sotek sabor	
10.2	Push-buttons	K poter A	not not	ek
10.2.1	Colors	p.v.	aboten Anb	_
nbo	Push-button actuators shall be color-coded in	accordance with	Pr. tek	pote
boten	Table 2 (see also 9.2 and Annex B).		Anbor An	
Ant	The colors for START/ON actuators should be		hotek	drug
Anboro	BLACK or GREEN with a preference for WHI	FE. RED shall not be	Ann	
1	used.		tek aboten	P
Anbo	The color RED shall be used for emergency s	top and emergency	Privek	
Not	switching off actuators.	Ann	potek Anbort	
No An	The colors for STOP/OFF actuators should be		the wold	21-
tek	WHITE with a preference for BLACK. GREEN		nboten Anb	
nb0	RED is permitted, but it is recommended that	RED is not used	All sek	pote
boten	near an emergency operation device.		Anbor An	
Ant	WHITE, GREY, or BLACK are the preferred c		Lotek	DUP
nbore	actuators that alternately act as START/ON a		And	1
p.	buttons. The colors RED, YELLOW, or GREE	N shall not be used	Complied.	P
Anbo	(see also 9.2.6).		Complica.	
ak da	WHITE, GREY, or BLACK is the preferred col		Lotek Anbor	
ce An	actuators that cause operation while they are		k wote	3/4
stek	the operation when they are released (for exa		aboten Ano	14
100	The colors RED, YELLOW, or GREEN shall n		Al. stek	Joter.
boten	Reset push-buttons shall be BLUE, WHITE, G		Anbor An	
All	Where they also act as a STOP/OFF button, t		hotek	VUP0
Anbore	GREY, or BLACK are preferred with the main	preference being for	And	
in all	BLACK. GREEN shall not be used.		ok nboter	P
Anbo	Where the same color WHITE, GREY, or BLA		P	
ek Na	various functions (for example WHITE for STA		otek Anbo	
Pu.	STOP/OFF actuators) a supplementary mean		K hote	*
otek	example shape, position, symbol) shall be use	ed for the	nbote, And	N
p-	identification of push-button actuators.	ter Anbo	Kelt sel	ole
10.2.2	Markings	where woter	Anbo	
P	In addition to the functional identification as de		botek p	1100
Anbor	recommended that pushbuttons be marked, n		Ann	
10	directly on the actuators, with the symbols giv	en in Table 3.	K bote.	Ar
10.3	Indicator lights and displays	hotek Anbo	A. Kek	
10.3.1	General	And	otek Anbo	
bu.	Indicator lights and displays serve to give the	following types of	hot hotel	5
otek	information:	V notek	mbore And	X
V.	-Indication: to attract the operator's attention		otek pob	210
aboten	certain task should be performed. The color		Anboy An	
Ant	BLUE, and GREEN are normally used in th		notek a	upo,
Anboro	indicator lights and displays, see 10.3.3.	atek abote	Anu	
rel	-confirmation: to confirm a command, or a co	ondition, or to	k nboten	An
Anbo	confirm the termination of a change or trans		Pir	
M	oter Andre Pri Lak aboter	Alle	ten nool	

botek SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited Page 61 of 87

SHAN Test Report No.: SZAHS180712005-01

nbotek

Clause	Requirement – Test		Result - Remark	V
oten A	horse And lak wolen And	atek a	nbore And	No.
N.	colors BLUE and WHITE are normally used in the	nis mode and	stek nboi	1
	GREEN may be used in some cases.	hoten	Anbor Ar	40
	Indicator lights and displays shall be selected and	installed in such	hotek An	00,
	a manner as to be visible from the normal position		And	
	Indicator light circuits used for warning lights shall		boten	AUD
	facilities to check the operability of these lights.		Anniek	
10.3.2	Colors	, po 17	tek anbore	1
10.3.2		the uper	K wotek	1
	Unless otherwise agreed between the supplier and		boten Ano	
	Indicator lights shall be color-coded with respect to		tek abot	Se.
	(status) of the machine in accordance with Table 4		Anbors An	-0
	Indicating towers on machines should have the ap		otek ant	0,00
	in the following order from the top down; RED, YE	LLOW, BLUE,	And	
P.I.	GREEN and WHITE.	Ant lot	Dotek	d'n la
10.3.3	Flashing lights and displays	otek phote	Ann	1
	For further distinction or information and especially		ek anbore	P
	additional emphasis, flashing lights and displays c	an be provided	v stek	
	for the following purposes:		noten Anbo	
	-to attract attention;		lak hote	1
	to request immediate action;	otek	Anbolt Ant	1
	-to indicate a discrepancy between the command	and actual	r. dek ant	ote
	state;	k boten	Anbo	
	-to indicate a change in process (flashing during		hotek	up
	It is recommended that higher frequency flashing I		Ant	
	be used for higher priority information (see IEC 60		ek abote.	P
	recommended flashing rates and pulse/pause ratio		An	
	Where flashing lights or displays are used to provi	de higher	otek Anbor	
	priority information, audible warning devices shoul	d also be	K wote	6
atek	provided	P. Kek	abote. And	5.0
10.4	Illuminated push-buttons	Anbo	A. Hek ab	oter
	Illuminated push-button actuators shall be color-co	ded in	Anbo	
	accordance with Tables 2 and 4.		boten P	Wpc.
	Where there is difficulty in assigning an appropriat		Ann	
	shall be used. The color RED for the emergency s	top actuator	K nbore	P
And	shall not depend on the illumination of its light.	hotek Anbo	h. stek	
10.5	Rotary control devices	the lok	otek Anbo	
	Devices having a rotational member, such as pote	ntiometers and	Let botel	
	selector switches, shall have means of prevention		Anbor Ant	No
	the stationary member. Friction alone shall not be	considered	otek pabr	
abote.	sufficient.	K boten	And	
10.6	Start devices	P.I.	boter A	400
Anbo	Actuators used to initiate a start function or the mo	vement of	All	
	machine elements (for example slides, spindles, ca	arriers) shall be	K anbor	P
	constructed and mounted so as to minimize inadve	ertent operation.	K stek	
	However, mushroom-type actuators may be used	for two-hand	oter Anb	
Pri	control (see also ISO 13851).	Anbor An	Lek botek	
10.7	Emergency stop devices	Lotek .	upor An	No.
10.7.1	Location of emergency stop devices	Ann	hotek Anbo	
nport	Devices for emergency stop shall be readily acces	sible.	Ann	
	Emergency stop devices shall be located at each		boten Ar	po.
	station and at other locations where the initiation of		Ann	
	stop can be required (exception: see 9.2.7.3).	N N	Anboro	PU
	There can be circumstances where confusion can	occur between	Y stek	
V6 10		y	oten hobo-	-

botek SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 62 of 87

SHAN Test Report No.: SZAHS180712005-01

Clause	Requirement – Test	Result - Remark	Verdic
ter ar	pore Anno Lak botek Anno Ali	aboten Ano	N.
N.	active and inactive emergency stop devices caused by disabling	stek snbot	
	the operator control station. In such cases means (for example,	Anbo	*ek
	information for use) shall be provided to minimize confusion.	hotek Ant	0.
10.7.2	Types of emergency stop device	Paper	"otek
Lotek.	The types of device for emergency stop include:	anbote.	app.
	—a push-button operated switch with a palm or mushroom head	A. stek	nboth
	type;	lek Anbor	P.c.
	—a pull-cord operated switch;	K botek	P.n
	—a pedal-operated switch without a mechanical guard.	bote. And	6
	The devices shall have direct opening operation (see IEC 60947-	tek nbote	
	5-1, Annex K).	Anbor An	*eX
10.7.3	Color of actuators	otok Ant	0
10.7.5		PUD K	Lotok
	Actuators of emergency stop devices shall be colored RED. If a	aboten	INP- D
	background exists immediately around the actuator, then this	P.I.	bote
40.7.4	background shall be colored YELLOW. See also ISO 13850.	ak phore	P.I.
10.7.4	Local operation of the supply disconnecting device to effect em	iergency stop	D.T.Y
	The supply disconnecting device may be locally operated to serve	poter Anbe	- P*
	the function of emergency stop when:	tek abote	1
	it is readily accessible to the operator; and	Anbor An	Ne ^X P
	—it is of the type described in 5.3.2 a), b), c), or d).	wotek anb	010
	When also intended for such use, the supply disconnecting device	Anbo	. otek
M. stok	shall meet the colour requirements of 10.7.3.	poter p	Up_
10.8	Emergency switching off devices	P.I.	vote
10.8.1	Location of emergency switching off devices	ek photo	P.c.
	Emergency switching off devices shall be located as necessary for	K sotek	anb
	the given application.	oten Anbo	- P2
	Normally, those devices will be located separate from operator	Lek abote	P
	control stations. Where it is necessary to provide a control station	Anbor An	P
	with an emergency stop device and an emergency switching off	Lotek Anbr	10
	device, means shall be provided to avoid confusion between these	And	tek
h. stek	devices.	aboter A	10-
10.8.2	Types of emergency switching off device	All	pote
	The types of device for emergency switching off include:	K Anbor	Priv
	—a push-button operated switch with a palm or mushroom head	K sotek	anb
	type of	oter Ano	
	actuator;	tek poter	P
	-a pull-cord operated switch. The devices shall have direct	upor All	ex P
	opening action	hotek Anbo	
	(see IEC 60947-5-1, Annex K). The push-button operated switch	Anu	Lotek
	may be in a	aboten Al	10-
Anbo	break-glass enclosure.	An	poter
10.8.3	Color of actuators	K Anbor	bi.
	Actuators of emergency switching off devices shall be colored	w wotek	Anbe
	RED. If a background exists immediately around the actuator, then	oter And	
	this background shall be colored YELLOW.	stek spoten	PN
	Where confusion can occur between emergency stop and	mbo. Al.	ek.
	emergency switching off devices means shall be provided to	hotek Anbo	
nbolo	minimize confusion.	Anu	dek
10.8.4	Local operation of the supply disconnecting device to effect em	nergency switching	g off
Anbo	Where the supply disconnecting device is to be locally operated	Pr. BK	aboter
	for emergency switching off, it shall be readily accessible and	Anbor	P
	should meet the color requirements of 10.8.3.	K sotek	onbo
6 100	Late 300 Parts	te. MP	

botek SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 63 of 87

SHAN Test Report No.: SZAHS180712005-01

ClauseAnd	Boguirement Test	Booult Domor	Vord
IO.9Enabling comWhen an enablic shall signal to actuated in on be stopped or Enabling contrest features: —designed in —for a two-poilition 1: oil —position 1: oil —position 2: eil —for a three-pi —position 1: oil —position 2: eil position); —position 2: eil position); —position 3: oil position); —when return function is nice and the enabling control gear: location and equipment.11.0General requited and the enabling control gear: location and equipment.11.1General requited and the enabling control gear control g	Requirement – Test	Result - Reman	verai
P	designed in accordance with ergonomic principles; for a two-position type: position 1: off-function of the switch (actuator is not operated); position 2: enabling function (actuator is operated). for a three-position type: position 2: enabling function (actuator is operated in its mid position 2: enabling function (actuator is operated past its mid position 2: enabling from position 3 to position 2, the enabling function is not activated. or gear: location, mounting, and enclosures General requirements All control gear shall be located and mounted so as to facilitate:		
10.9		rek poter Ant)~
		system,	hoten
		stek subore	TUN
	actuated in one position only. In any other position, operatio	n shall	npote
Clause Requirement – Test Result - Remark Verd 10.9 Enabling control device Image: Control device is provided as a part of a system, it shall signal the enabling control to allow operation when actuated in one position only. In any other position, operation shall be stopped or prevented. Image: Control devices shall be selected and arranged so as to minimize the possibility of defeating. Image: Control devices shall be selected that have the following features: Image: Control devices shall be selected that have the following features: Image: Control devices shall be selected that have the following features: Image: Control devices shall be selected that have the following features: Image: Control devices shall be selected that have the following features: Image: Control devices shall be selected that have the following features: Image: Control devices shall be selected that have the following features: Image: Control devices shall be selected that have the following features: Image: Control devices shall be selected that have the following features: Image: Control devices shall be selected that have the following features: Image: Control devices shall be selected that have the following features: Image: Control devices shall be selected that have the following features: Image: Control devices shall be selected that have the following features: Image: Control devices shall be selected that have the following features: Image: Control devices shall be following features: Image: Control devices shall be following features: Image: Control devices shall be following features:	2.5		
	Clause Requirement – Test Result - Remark N 10.9 Enabling control device When an enabling control device is provided as a part of a system, it shall signal the enabling control to allow operation when actuated in one position only. In any other position, operation shall be stopped or prevented. Enabling control devices shall be selected and arranged so as to minimize the possibility of defeating. Obvious for the selected in the selected that have the following features: —designed in accordance with ergonomic principles; —for a two-position type: —position 2: enabling function (actuator is not operated); —position 2: enabling function (actuator is operated). —for a three-position type: —position 2: enabling function (actuator is operated); —position 3: off-function of the switch (actuator is not operated); —position 3: off-function (actuator is operated past its mid position); —position 3: off-function (actuator is operated past its mid position); —position 3: off-function (actuator is operated past its mid position); —position 3: off-function (actuator is operated past its mid position); —position 3: off-function (actuator is operated past its mid position); —position against the external influences or conditions under which it is intended to operate; —operation adminetanace; It Control gear shall be located and mounted so as to facilitate: —its accessibility and maintenance; —its accessibility and maintenance; It can be identified without moving them or the wing. For items that require checking for correct operation or that are liable to need replacement. It can b		
10.9 Enabling control device When an enabling control device is provided as a part of a system, it shall signal the enabling control to allow operation when actuated in one position only. In any other position, operation shall be stopped or prevented. Enabling control devices shall be selected and arranged so as to minimize the possibility of defeating. Obvious the following features: —designed in accordance with ergonomic principles; —for a two-position rype: Obvious to operated). —for a two-position fype: —position 1: off-function of the switch (actuator is not operated); —position 1: off-function of the switch (actuator is not operated); —position 1: off-function of the switch (actuator is not operated); —position 1: off-function (actuator is operated in its mid position); Obvious to operated); —position 1: off-function (actuator is operated past its mid position); —position 3: off-function (actuator is operated past its mid position); Obvious to operated); —position 3: off-function (actuator is operated past its mid position); —position 3: to position 2, the enabling function is not activated. 11. General requirements Mall control gear shall be located and mounted so as to facilitate: —its protection agains the external influences or conditions under which it is intended to operate; —operation and maintenance 11.2 Location and mounting Ital 11.2.1 Accessibilit	P		
		And And	i de
		he stek and	oter
		Obvious to	*eX
			nbor P
			tek
When an enabling control device is provided as a part of a system, it shall signal the enabling control to allow operation when actuated in one position only. In any other position, operation shall be stopped or prevented. Image: Control control control control principles control control devices shall be selected and arranged so as to minimize the possibility of defeating. Image: Control content conton control control control control control con			
	When an enabling control device is provided as a part of a system, it shall signal the enabling control to allow operation when actuated in one position only. In any other position, operation shall be stopped or prevented. Image: Control devices shall be selected and arranged so as to minimize the possibility of defeating. Enabling control devices shall be selected that have the following features: —designed in accordance with ergonomic principles; Obvious to operation 1: off-function of the switch (actuator is not operated); —position 1: off-function of the switch (actuator is not operated); —position 1: off-function of the switch (actuator is not operated); —position 1: off-function (actuator is operated) and its mid position); —position 1: off-function (actuator is operated in its mid position); —position 1: off-function (actuator is operated in its mid position); —position 3: off-function (actuator is operated past its mid position); —when returning from position 3 to position 2, the enabling function is not activated. P 11 Control gear shall be located and mounted so as to facilitate: —its accessibility and maintenance; P —its accessibility and maintenance All control gear shall be located and oriented so that they can be identified without moving them or the wing. For items that require checking for correct operation or that are liable to need replacement, those actions shull be possible without dismantting other equipment or pasts of the machine (except opening doors or removing covers, barriers or obstacles). Terminals not part of control gear shall be mounted so as to facilitate its operation and maintenance from the front. Where a special tool is necessary to adjus		
		6	
		otek Anbore	PL
		Arou	tek
		ok boten Anbr	
	—when returning from position 3 to position 2, the enabling	And	wotek
		tek nboter A	0.5
11 Contro			
		woten anbo	h
Part		ate.	npo
		boten Anbo	Pr.
		under	D.Y
		under Ano	P
		ptod kek abo	ter
		aled	No
		tek h	,pqt
		soten Anbo	tek
11.2.1		the noten	Anbo
			not
	can be identified without moving them or the wiring. For item	ns that	AUD
	require checking for correct operation or that are liable to ne	ed noo	
When an enabling control device is provided as a part of a system, it shall signal the enabling control to allow operation when actuated in one position only. In any other position, operation shall be stopped or prevented. Enabling control devices shall be selected and arranged so as to minimize the possibility of defeating. Enabling control devices shall be selected that have the following features: designed in accordance with ergonomic principles; for a two-position type: position 1: off-function of the switch (actuator is not operated); position 1: enabling function (actuator is operated). for a three-position type: position 2: enabling function (actuator is operated in its mid position); position 3: off-function of the switch (actuator is not operated); position 3: off-function (actuator is operated past its mid position); when returning from position 3 to position 2, the enabling function is not activated. Obvious to operator. 11 Ceneral requirements Its accessibility and maintenance; 	Pu		
			ek
			olek
		tek spoten Ar	10-
		tion	noten
			Pur
			abot
			P
			mark Vero
			P.
			er
	terminals be at least 0,2 m above the servicing level and be	SO Anote Ano	V.
			00181
When an enabling control device is provided as a part of a system, it shall signal the enabling control to allow operation when actuated in one position only. In any other position, operation shall be stopped or prevented. Enabling control devices shall be selected and arranged so as to minimize the possibility of defeating. Obviou Enabling control devices shall be selected that have the following features: designed in accordance with ergonomic principles; for a two-position type: position 1: off-function of the switch (actuator is not operated); position 1: off-function of the switch (actuator is not operated); position 1: off-function (actuator is operated in its mid position); position 3: off-function (actuator is operated in its mid position); position 3: off-function (actuator is operated past its mid position); position 3: off-function (actuator is operated past its mid position); when returning from position 3 to position 2, the enabling function is not activated. 11 Control gear shall be located and mounted so as to facilitate: 	otek anbote An	-Ve	
Clause Reguirement – Test Result - R	ind	poter	
	lause Requirement – Test Result - Remark 0.9 Enabling control device When an enabling control to allow operation when a actuated in one position only. In any other position shall be stopped or prevented. Enabling control devices shall be selected and arranged so as to minimize the possibility of defeating. Enabling control devices shall be selected that have the following features:	PI	
Idause Requirement – Test Result - Remark Ver 10.9 Enabling control device Idea Idea </td <td>nbote</td>	nbote		
			12.5
		Anbor	F *
	connected through plug-in arrangements, their association s		ant

SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited Page 64 of 87

SHAN Test Report No.: SZAHS180712005-01

	EN 60204-1	KCV .	Pub.	h.
Clause	Requirement – Test	Result	- Remark	Verdic
ten A	nbort Anto tek nboren Antoo k notek	nborn	Pun	No
X	singly or in combination (see 13.4.5).	Lotek	anbo.	
	Plug-in devices that are handled during normal operation shall be	And		tek
	provided with no interchangeable features where the lack of such	not		0
	a facility can result in malfunctioning.	Aur		"otek
	Plug/socket combinations that are handled during normal	10		7UD
	operation shall be located and mounted so as to provide	Pr.		00
	unobstructed access.	LeK.		Prin
	Test points for connection of test equipment, where provided, shall	N.		1
	be:	boten		1°
		1ª		t.
	-mounted so as to provide unobstructed access;	npote		X
	-clearly identified to correspond with the documentation (see	p. de	You M	oter
	17.3);	Anbor		104
	-adequately insulated;			nbor
boto	—Sufficiently spaced.	And)	
11.2.2	Physical separation or grouping	K	boter	Anbo
	Non-electrical parts and devices, not directly associated with the	1		
	electrical equipment, shall not be located within enclosures	dek.		PL
	containing control gear. Devices such as solenoid valves should	po		-
	be separated from the other electrical equipment (for example in a	notek		
	separate compartment). Control devices mounted in the same	And		stek.
	location and connected to the supply voltage, or to both supply	bote		×
	and control voltages, shall be grouped separately from those	PIL		boter
	connected only to the control voltages.	anb		05
	Terminals shall be separated into groups for:			npo
	—power circuits;	S/r		Pre
	-associated control circuits;	No.		Po
		oten		
	interlocking). The groups may be mounted adjacently, provided	Kelt.		
	that each group can be readily identified (for example by	nbor		-de
		otel		
	markings, by use of different sizes, by use of barriers or by	AUD		Notek
	colors). When arranging the location of devices (including	10		100
	interconnections), the clearances and creep age distances	Aur		not
	specified for them by the supplier shall be maintained, taking	K.		Ann
	into account the external influences or conditions of the physical	P		
÷	environment.	otek	anbor	Pri
11.2.3 🔊	Heating effects		, ster	
	Heat generating components (for example heat sinks, power	nbote.		No
	resistors) shall be so located that the temperature of each	*ek		N
poten	component in the vicinity remains within the permitted limit.	Anbor	br.	You
11.3	Degrees of protection		tek al	por
	The protection of control gear against ingress of solid foreign	Anbe		- Ote
	objects and of liquids shall be adequate taking into account the	4		AUDO
	external influences under which the machine is intended to	Þ,		
	operate (i.e. the location and the physical environmental	otek		Aur
	conditions) and shall be sufficient against dust, coolants, and			
	swarf.	Fotek	Anbo	. 1
	Enclosures of control gear shall provide a degree of protection of	Degree		P N
	at least IP22 (see IEC 60529).	protecti	on: IP2X.	
	Exceptions:	Pur		poten
	a) Where an electrical operating area is used as a protective	anbo'		
		Pr		npote
	enclosure for an appropriate degree of protection against the	ar ar		b.
	ingress of solid bodies and liquids. b) Where removable collectors on conductor wire or conductor bar	V.		anb
	I ny where removable collectors on conductor wire or conductor bar	105		100

SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 65 of 87

SHAN Test Report No.: SZAHS180712005-01

nbotek

Clause	Requirement – Test	Result - Remark	Verdic
pter p	nb hotek nbote An k botek A	upor Air	eK.
	systems are used and IP22 is not achieved, but the measures of 6.2.5 are applied.	Anbotek Anbo	otek
11.4	Enclosures, doors and openings	abote. An	P
12 Condu	ictors and cables		
12.1 pote	General requirements	Anbo	h
be.	Conductors and cables shall be selected so as to be suitable for	ok noter	Anbo
	the operating conditions (for example voltage, current, protection	Reinforce/doubl	
	against electric shock, grouping of cables) and external influences	e insulation PVC	P
	(for example ambient temperature, presence of water or corrosive	cables provided.	4
	substances mechanical stresses (including stresses during	cables provided.	
upor.	installation), fire hazards) that can exist.	Ann	oter
12.2	Conductors	Anbort An.	You
Ann	In general, conductors shall be of copper. Where aluminum	otek	nbor
	conductors are used, the cross-sectional area shall be at least 16	Anbo	ote
	mm ² . M ^{DO}	Copportuged	Anbo
	To ensure adequate mechanical strength, the cross-sectional area	Copper used, conform to	
	of conductors should not be less than as shown in Table 5.	relevant IEC/EN	Pint
	However, conductors with smaller cross-sectional areas or other	standards.	-
	constructions than shown in Table 5 may be used in equipment	stanualus.	-V-
	provided adequate mechanical strength is achieved by other	p. stek ab	oter
boten	means and proper functioning is not impaired.	Anbor Ar.	Yo.
12.3	Insulation	potek p	nbor
	The types of insulation include (but are not limited to):	And	note
	—polyvinyl chloride (PVC);	ek abote.	And
	-rubber, natural and synthetic;	A. stek	00
	–silicone rubber (SiR);	otek Anbo	P.
	—mineral;	welk bote	e p
	cross-linked polyethylene (XLPE);	Anboro Ann	X
	—ethylene propylene compound (EPR).	notek np	Lo.
	Where the insulation of conductors and cables (for example PVC)	Protection	tek
	can constitute hazards due to the propagation of a fire or the	degree of	ND-
	emission of toxic or corrosive fumes, guidance from the cable	electrical	pote
	supplier should be sought. It is important to give special attention	operation box:	PnA
	to the integrity of a circuit having a safety-related function.	IP55.	anb
	The insulation of cables and conductors used, shall be suitable for	2000Vac for	P.4
	a test voltage:	5min.	P
	-not less than 2 000 V a.c. for a duration of 5 min for operation at	rupor bu	ek
	voltages higher than 50 V a.c. or 120 V d.c., or – not less than	botek Anbo	
	500 V a.c. for a duration of 5 min for PELV circuits (see IEC	Ann	hotek
	60364-4-41 class III equipment).	Anbote, A	N. N
	The mechanical strength and thickness of the insulation shall be	h. stek	nboter
	such that the insulation cannot be damaged in operation or during	Anbo	P.
40.4	laying, especially for cables pulled into ducts.	work notek	Anbe
12.4	Current-carrying capacity in normal service	oto Ant	
	The current-carrying capacity depends on several factors, for	otek Anboter	P
	example insulation material number of conductors in a cable,	mbu h.	ek
	design (sheath), methods of installation, grouping and ambient	aboten Anbo	
	temperature. One typical example of the current-carrying	Ann	oteP
	capacities for PVC insulated wiring between enclosures and	Anboro Ar	No.
	individual items of equipment under steady-state conditions is	htek	nboter
40 E apote	given in Table 6.	Anbo	P
12.5	Conductor and cable voltage drop	te ^k	a abo

SZAHS180712005-01

An

hotek

Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited Page 66 of 87

SHAN Test Report No.: SZAHS180712005-01

nbotek

Clause	Requirement – Test	potek Anb	ore Ann	Result - Remark	Ve
oter A	The set is shotek in Ambore A	in tek	apoten A	nbor h.	No
	The voltage drop from the point of supp			aboten Anbe	
	exceed 5 % of the nominal voltage und			P	oote
	conditions. In order to conform to this re-			Anbor An	
	necessary to use conductors having a	larger cross-sec	tional area	otek	np
abote.	than that derived from Table 6.	P.I.	s poter	Anbo	
12.6	Flexible cables	otek Anbort	Pri	tek apoten	_
12.6.1	General	·	stek Anbe	All All	—
N.	Flexible cables shall have Class 5 or C	lass 6 conducto	rs.	Class 5.	
12.6.2	Mechanical rating	tek.	abote A	not not	34
	The cable handling system of the mach			Anbore And	
	keep the tensile stress of the conductor			n stek ant	pote
	during machine operations. Where cop			Anbo An	
	the tensile stress applied to the conduct			notek	pinb
	N/mm2 of the copper cross-sectional a			Flexible cables:	T
	the application exceed the tensile stres			VDE or UL	P
	with special construction features shou			certificate	1
	maximal tensile stress should be agree	ed with the cable		provided.	1
	manufacturer.			y nete	1
	The maximum stress applied to the cor	nductors of flexil	ble cables	aboten Anbo	
	with material other than copper shall be			Ann	ote
	manufacturer's specification.			Anbore Ant	
12.6.3	Current-carrying capacity of cables	wound on drun	ns And	otek	nb
aboton	Cables to be wound on drums shall be			And	Τ
	having a cross-sectional area such that			K boten	P
	drum and carrying the normal service lo			Ant	
	allowable conductor temperature is not		Pr.	stek spote.	
	For cables of circular cross-sectional and		drums the	por An	ş.
	maximum current-carrying capacity in f			Lotek Anbor	
	accordance with Table 7 (see also Clau			And	deV
12.7	Conductor wires, conductor bars an			Anboter And	1
12.7.1	Protection against direct contact	u onp mig uoo	Ando	Rivelek	nbe
aboter	Conductor wires, conductor bars and s	lip-ring assembl	ies shall be	Anbo	T
	installed or enclosed in such a way that			K boten	P
	the machine, protection against direct of			Anu	
	application of one of the following prote			tek nbote.	
	—protection by partial insulation of live			por pri-	4
	notpracticable;	parts, or where	1115 15	potek anbou	
	—protection by enclosures or barriers of	of at least ID2V	(600 /12 2	LUP K	J.ek
	of IEC 60364-4-41).		12.2	aboten Anb	1
	Horizontal top surfaces of barriers or er	nclosures that a	re readily	P	00
				Anbolt A	
	accessible shall provide a degree of pro	olection of allea	15L IF4A	tek	23
	(see 412.2.2 of IEC 60364-4-41).	n in not achieve	y pote	Anbe	100
	Where the required degree of protection			lak botek	
	protection by placing live parts out of re			or Ann	
	emergency switching off in accordance	with 9.2.5.4.3 s	snall be	stek subote.	1
	applied.	All	boten	inpo A.	Net
	Conductor wires and conductor bars sh	nall be so placed	and/or	hotek Anbo	1
	protected as to:	p	anboten	Ann	
	-prevent contact, especially for unprot			poter Ar	Nor
	conductor bars, with conductive item			All	
	cord switches, strain-relief devices a	nd drive chains;		Anboro	Pu
Anos	—prevent damage from a swinging loa	d. K hote	Anbo	rek	
N.	aller And	or Ann		ter abo	_

botek SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 67 of 87

SHAN Test Report No.: SZAHS180712005-01

nbotek

Clause	Requirement – Test	Result - Remark	V
oten Al	nbo A stek spote And K sotel	Aupor An	No.
12.7.2	Protective conductor circuit	K botek anbr	2.
nport	Where conductor wires, conductor bars and slip-ring assem	olies	
	are installed as part of the protective bonding circuit, they sh	all not	00
	carry current in normal operation. Therefore, the protective	hore Am	X
	conductor (PE) and the neutral conductor (N) shall each use	a stek subore	70.
	separate conductor wire, conductor bar or slip-ring. The con		
	of the protective conductor circuit using sliding contacts shall		
	ensured by taking appropriate measures (for example, dupli		1
	of the current collector continuity monitoring).	Ant Ant	1
12.7.3	Protective conductor current collectors	A stek and	1.60
121110	Protective conductor current collectors shall have a shape o	tok Anbo Ai	10
	construction so that they are not interchangeable with the ot		Upor
	current collectors. Such current collectors shall be of the slid		
		tek aboten	bur
40 7 4	contact type.	Allhor All	
12.7.4	Removable current collectors with a disconnector funct		1
	Removable current collectors having a disconnector function		
	be so designed that the protective conductor circuit is interru		
	only after the live conductors have been disconnected, and t		le.
	continuity of the protective conductor circuit is re-established	ek Anbore And	
10-	before any live conductor is reconnected (see also 8.2.4).	h. stek	pore de
12.7.5	Clearances in air	sotek Anbo A	
	Clearances between the respective conductors and between		PUP
	adjacent systems, of conductor wires, conductor bars, slip-ri		
	assemblies and their current collectors shall be suitable for a	at least	P
	a rated impulse voltage of an overvoltage category III in	Anbo, An.	
ek No	accordance with IEC 60664-1.	notek Anbor	
12.7.6	Creepage distances	And K bot	ek
tek	Creepage distances between the respective conductors, bet	ween	
	adjacent systems of conductor wires, conductor bars and sli		bole
	assemblies, and their current collectors shall be suitable for	otek Anbor An	
	operation in the intended environment, for example open air	(IEC	anbe
	60664-1), inside buildings, protected by enclosures.	aboten Anbe	1.2
	In abnormally dusty, moist or corrosive environments, the	All boten	P
	following creepage distance requirements apply:	Anbor Ant	
	-unprotected conductor wires, conductor bars, and slip-ring	tek photo	
	assemblies shall be equipped with insulators with a minim		Ng
	creepage distance of 60 mm;	K aboten Anbo	
	enclosed conductor wires, insulated multipole conductor b	ars	olek
	and insulated individual conductor bars shall have a minin		
	creepage distance of 30 mm.	h stek	100
	The manufacturer's recommendations shall be followed rega	arding	1
	special measures to prevent a gradual reduction in the insula		DI
	values due to unfavorable ambient conditions (for example	Anbote And	
	deposits of conductive dust, chemical attack).	At tek aboter	
12.7.7		Antor An	K
14.1.1	Conductor system sectioning	hot hotek anbou	
	Where conductor wires or conductor bars are arranged so the	iai Ano	Neto
	they can be divided into isolated sections, suitable design	tek spoten Ant	1-
	measures shall be employed to prevent the energization of	Au Ak	00
wet ek	adjacent sections by the current collectors themselves.	text store	7Um
12.7.8	Construction and installation of conductor wire, conductor	tor bar systems and slip	>-rin
hotel	assemblies	otek Anbor	Pr
Ann	Conductor wires, conductor bars and slip-ring assemblies in	power	
		101	

SZAHS180712005-01

An

botek

Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited Page 68 of 87

SHAN Test Report No.: SZAHS180712005-01

Clause	Requirement Test shorter Ander Ander	Result - Remark	Verdict
Jause	Requirement – Test	Result - Remark	Verdict
P. P	nt hotek anbor All lek poter P	nbo r	*ex
	circuits shall be grouped separately from those in control circuits.	aboten And	
	Conductor wires, conductor bars and slip-ring assemblies shall be	All	roter
	capable of withstanding without damage, the mechanical forces	Anbore A	in the
	and thermal effects of short-circuit currents.	heret	nbote
	Removable covers for conductor wire and conductor bar systems	Anbo	28
	laid underground or under floor shall be so designed that they	K hotek	Anbor
	cannot be opened by one person without the aid of a tool.	Anbe A	
	Where conductor bars are installed in a common metal enclosure,	Lek boter	And
	the individual sections of the enclosure shall be bonded together	por An	of
	and connected to a protective bonding conductor at several points	stek snbo	Pro P
	depending upon their length. Metal covers of conductor bars laid	Aupo	*ek
	underground or under floor shall also be bonded together and	hotek Al	100-
	connected to a protective bonding conductor.	And	Lotek
	The protective bonding circuit shall include the covers or cover	aboten	AUD
	plates of metal enclosures or under floor ducts. Where metal	RIV	bote
	hinges form a part of the bonding circuit, their continuity shall be	tek Anbor	Plin
	verified (see Clause 18).	v stek	anb
	Underground and under floor conductor bar ducts shall have	poten Anbo	. P.
		net no	rey D
42 \\/:	drainage facilities.	note Ant	
	practices		
13.1	Connections and routing	AUDO H.	Notok
13.1.1	General requirements	Terminal and	Pubu
	All connections, especially those of the protective bonding circuit,		hoten
	shall be secured against accidental loosening.	bonding used for	PUA
Anu	tell abor Att y sofer And	fixing.	Den a
13.1.2	Conductor and cable runs	poter Ano	1
	Conductors and cables shall be run from terminal to terminal	tok you	er A
	without splices or joints.	Anboro An	X
	Connections using plug/socket combinations with suitable	otek pr	polo
	protection against accidental disconnection are not considered to	Anbo	rek
	be joints for the purpose of this Sub clause.	hotek	ANDO
	Exception: Where it is impracticable to provide terminals in a	And	Lotek
	junction box (for example on mobile machines, on machines	ak aboter	AUD
	having long flexible cables; cable connections exceeding a length	An	000
	which is not practical to be supplied by the cable manufacturer on	otek Anbore	Pur
	one cable drum; repair of cable due to mechanical stresses during	v n	× P
	installation and operation), splices or joints may be used.	aboten Anbo.	Po
	Where it is necessary to connect and disconnect cables and cable	Alter	oler
	assemblies, a sufficient extra length shall be provided for that	Anboro Ani	X
	purpose.	Printer	poten
	The terminations of cables shall be adequately supported to	Anbor	P.V.
	prevent mechanical stresses at the terminations of the conductors.	tek	Anboro.
		Aupor	P
	Whorever practicable, the protective conductor shall be placed	- V.	00
	Wherever practicable, the protective conductor shall be placed	K soter	Dur
	close to the associated live conductors in order to decrease the	otek Anboten	Pur
Anbote	close to the associated live conductors in order to decrease the impedance of the loop.	otek Anboten	K AD
13.1.3	close to the associated live conductors in order to decrease the impedance of the loop. Conductors of different circuits	otek Anboten nbotek Anbote	k pr
13.1.3	close to the associated live conductors in order to decrease the impedance of the loop.Conductors of different circuitsConductors of different circuits may be laid side by side, may	nbotek Anboten	otek pri
13.1.3	close to the associated live conductors in order to decrease the impedance of the loop.Conductors of different circuitsConductors of different circuits may be laid side by side, may occupy the same duct (for example conduit, cable trunking	Conductors for	NK AN
13.1.3	close to the associated live conductors in order to decrease the impedance of the loop.Conductors of different circuitsConductors of different circuits may be laid side by side, may	Conductors for different circuits	ote ^k
Anbote Anbote 13.1.3	close to the associated live conductors in order to decrease the impedance of the loop.Conductors of different circuitsConductors of different circuits may be laid side by side, may occupy the same duct (for example conduit, cable trunking		orex npotek
Anbote Anbote 13.1.3 .nbotek Anbotek	close to the associated live conductors in order to decrease the impedance of the loop.Conductors of different circuitsConductors of different circuits may be laid side by side, may occupy the same duct (for example conduit, cable trunking system), or may be in the same multiconductor cable provided that the arrangement does not impair the proper functioning of the	different circuits lie side by side of	
Anbote Anbote 13.1.3 .nbotek Anbotek	close to the associated live conductors in order to decrease the impedance of the loop.Conductors of different circuitsConductors of different circuits may be laid side by side, may occupy the same duct (for example conduit, cable trunking system), or may be in the same multiconductor cable provided that	different circuits	

SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited Page 69 of 87

			SHAI
Test	Report No.: S	ZAHS1807	12005-01

nbotek

Clause	Requirement – Test	Result - Remark	V
oter Al	Not the solet anbout Ant set soleter A	nbor A.	No
	within the same duct can be subjected, for example line to line	boten Anbo	
	voltage for unearthed systems and phase to earth voltage for	Ann	030
	earthed systems.	aboten An	
13.1.4	Connection between pick-up and pick-up converter of an induc	tive power supply	~
13.1.4 tek	system	Anbor	
Ru	The cable between the pick-up and the pick-up converter as	Adequately	
	specified by the manufacturer of the inductive power supply shall	protected	
	be:	against	
	as short as practicable;	mechanical	14
	-adequately protected against mechanical damage.	damage.	
13.2	Identification of conductors	damaye.	20
13.2.1	General requirements	Lotok Ant	0.
13.2.1		P.MP	
	Each conductor shall be identifiable at each termination in	nboten	rup
	accordance with the technical documentation (see Clause 17). It is	Print	
	recommended (for example to facilitate maintenance) that	Identification at	P
	conductors be identified by number, alphanumeric, color (either	each termination.	
	solid or with one or more stripes), or a combination of color and	poten Anbe	
	numbers or alphanumeric. When numbers are used, they shall be	walk note	-
Netek	Arabic; lettersbvshall be Roman (either upper or lower case).	mbotte Ant	
13.2.2	Identification of the protective conductor	r dek ab	ote
	The protective conductor shall be readily distinguishable by shape,	Anbo, A.	
	location, marking, or color. When identification is by color alone,	hotek p	00
	the bicolor combination GREEN-ANDYELLOW shall be used	And	
	throughout the length of the conductor. This colour identification is	ek sboten	P
	strictly reserved for the protective conductor.	Alli	
	For insulated conductors, the bicolor combination GREEN-AND-	stek photo	
	YELLOW shall be such that on any 15 mm length, one of the	por h. tel	6-
	colors covers at least 30 % and not more than 70 % of the surface	GREEN-	
	of the conductor, the other color covering the remainder of the	ANDYELLOW	te
	surface.	conductor used.	
	Where the protective conductor can be easily identified by its		10
	shape, position, or construction (for example a braided conductor,	Anbor A	
		tek	
	uninsulated stranded conductor), or where the insulated conductor	an Anbo	10
	is not readily accessible, color coding throughout its length is not	wotek	1
	necessary but the ends or accessible locations shall be clearly	ote Ano	
	identified by the graphical symbol IEC 60417-5019 (DB: 2002-10)	tek aboter	1
oten 1	or by the bicolor combination GREEN-AND-YELLOW.	Autor Aut	N
13.2.3	Identification of the neutral conductor	hotek anbo	1
	Where a circuit includes a neutral conductor that is identified by	Ann	C
	color alone, the color used for this conductor shall be BLUE. In	aboten A	10.
	order to avoid confusion with other colors, it is recommended that	All	
	an unsaturated blue be used, called here "light blue" (see 3.2.2 of	anboro	P
	IEC 60446). Where the selected color is the sole identification of	h. stek	
	the neutral conductor, that color shall not be used for identifying	otek Anbo	
	any other conductor where confusion is possible.	where wotek	
	Where identification by color is used, bare conductors used as	abote Ano	V.
	neutral conductors shall be either colored by a stripe, 15 mm to	kek bo	er
	100 mm wide in each compartment or unit and at each accessible	Anbor Ann	
	location, or colored throughout their length.	atek ar	00
13.2.4	Identification by color	Anbor	L
- Mart	Where color-coding is used for identification of conductors (other	K notok	P2
		Anu	
h	than the protective conductor (see 13.2.2) and the neutral	noter noter	1

Anbotek SZAHS180712005-01

Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 70 of 87

SHAN Test Report No.: SZAHS180712005-01

nbotek

Clause	Requirement – Test	Result - Remark	V
Lek .	abote Anto Ak potek Antoo Al	aboten Anot	54
v p	conductor (see 13.2.3)), the following colors may be used:	kek abo	100
	BLACK, BROWN, RED, ORANGE, YELLOW, GREEN, BLUE	Anbor An	20
	(including LIGHT BLUE), VIOLET, GREY, WHITE, PINK,	otek an	000
	TURQUOISE.	Anbo	
13.3	Wiring inside enclosures	aboten	Par
10.5 pro	Conductors inside enclosures shall be supported where necessary	An	Т
	to keep them in place.	lek Anbou	
	Non-metallic ducts shall be permitted only when they are made	K sotek	
		boten Anbo	
	with a flame-retardant insulating material (see the IEC 60332	Keep in place	35
	series).	and modify from	
	It is recommended that electrical equipment mounted inside	front panel, and	0,00
	enclosures be designed and constructed in such a way as to	against flame.	
	permit modification of the wiring from the front of the enclosure	boten	pinto
	(see also 11.2.1). Where that is not practicable and control	Ann	
	devices are connected from the rear of the enclosure, access	ek anbore	ſ
And	doors or swing out panels shall be provided.	h. dek	
13.4	Wiring outside enclosures	boten Anbo	
13.4.1	General requirements	ter pote	1
	The means of introduction of cables or ducts with their individual	Anbore Ann	
	glands, bushings, etc., into an enclosure shall ensure that the	r stek snt	,0°00
poter	degree of protection is not reduced (see 11.3).	Anbo A.	
13.4.2	External ducts	to etek	nb
	Conductors and their connections external to the electrical	Ant	
	equipment enclosure(s) shall be enclosed in suitable ducts (i.e.	ek nbote.	P
	conduit or cable trunking systems) as described in 13.5except for	A	
	suitably protected cables that may be installed without ducts and	otek Anbou	
	with or without the use of open cable trays or cable support	K wote	8-
	means. Where devices such as position switches or proximity	aboter And	
	switches are supplied with a dedicated cable, their cable need not	All tek np	over
	be enclosed in a duct when the cable is suitable for the purpose,	Anbor Ar	
	sufficiently short, and so located or protected, that the risk of	Lotek p	npe
	damage is minimized.	And	
	Fittings used with ducts or multiconductor cable shall be suitable	K aboten	P
Anbo	for the physical environment.	All	
13.4.3	Connection to moving elements of the machine	otek Anbo	
Pri	Connections to frequently moving parts shall be made using	K notel	le le
	conductors in accordance with 12.2 and 12.6. Flexible cable and	abote, Anos	
	flexible conduit shall be so installed as to avoid excessive flexing	tek ab	ster
	and straining, particularly at the fittings.	Anbo. An	
13.4.4	Interconnection of devices on the machine	noter b	upo
Anbou	Where several machine-mounted switching devices (for example	Ann	Т
	position sensors, pushbuttons) are connected in series or in	k aboten	P
	parallel, it is recommended that the connections between those	P	
	devices be made through terminals forming intermediate test	otek Anbor	
	points. Such terminals shall be conveniently placed, adequately	K otek	
	protected, and shown on the relevant diagrams.	aboten Anoc	14
13.4.5	Plug/socket combinations	Let abo	10r
boton	Where plug/socket combinations are provided, they shall fulfill one	Aupor Aur	
	or more of the following requirements as applicable:	wotek at	100
	Exception: The following requirements do not apply to	Comply with	
	components or devices inside an enclosure, terminated by fixed	a)~f) and i).	Ar
	plug/socket combinations (no flexible cable), or components	An	
	progradie combinations (no nexible cable), or components	alon motor	1

SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 71 of 87

			SHAN
Test	Report No.:	SZAHS1807	712005-01

nbotek

Clause	Requirement – Test	Result - Remark	Verdic
ter Al	Not the spitek anboirs Ann tek spoten A	nbor k.	24
	connected to a bus system by a plug/socket combination.	anboten Anbo	N.
	a)/b)/c)/d)/e)/f)/g)/ h)/i)/j)/k)	Ar. tek	oter
	Exception: The requirements of item k) do not apply to control	Anbo. An	-xek
42 4 C 10	functions using high frequency signals on the power supply.	hotek	prov.
13.4.6	Dismantling for shipment	Ant	
	Where it is necessary that wiring be disconnected for shipment,	lek anbore	Aur
	terminals or plug/socket combinations shall be provided at the	K notek	Pan
	sectional points. Such terminals shall be suitably enclosed and plug/socket combinations shall be protected from the physical	boten Anbo	- EC
	environment during transportation and storage.	tek abote	e.
13.4.7	Additional conductors	Aupor An	NON
10.4.1	Consideration should be given to providing additional conductors	botok Ant	0*
	for maintenance or repair.	Ann	hotek
	When spare conductors are provided, they shall be connected to	Anboro I	P
	spare terminals or isolated in such a manner as to prevent contact	K wotek	Anbor
	with live parts.	en Anbe	100
13.5	Ducts, connection boxes and other boxes	stek suboten	Pri
13.5.1 🔊	General requirements	po v ote	4
dek	Ducts shall provide a degree of protection suitable for the	aboter Anu	N.
	application (see IEC 60529).	princiek and	oter
	All sharp edges, flash, burrs, rough surfaces, or threads with	Anbor An	Not
	which the insulation of the conductors can come in contact shall	No sharp edges,	upor
	be removed from ducts and fittings. Where necessary additional	flash, burrs,	P
	protection consisting of a flame-retardant, oil-resistant insulating	rough surfaces	Aur
	material shall be provided to protect conductor insulation.	or threads.	ant
	Drain holes of 6 mm diameter are permitted in cable trunking	poten Anbo	10
	systems, connection boxes, and other boxes used for wiring	tek pote	1
13.5.2	purposes that can be subject to accumulations of oil or moisture.	Anbor Ar	Ket.
13.5.2	Percentage fill of ducts Consideration of the percentage fill of ducts should be based on	boten publ	
	the straightness and length of the duct and the flexibility of the	P.I.	boten
	conductors. It is recommended that the dimensions and	Anbor	B
	arrangement of the ducts be such as to facilitate the insertion of	K hotek	Anbor
	the conductors and cables.	Ann	
13.5.3	Rigid metal conduit and fittings	oten Anbole	Par
Pur	Rigid metal conduit and fittings shall be of galvanized steel or of a	why noter	D
	corrosion-resistant material suitable for the conditions. The use of	nbote Anu	ex-
	dissimilar metals in contact that can cause galvanic action should	wotek anbo	.0
	be avoided.	And	otek
	Conduits shall be securely held in place and supported at each	aboten At	10-
	end, Fittings shall be compatible with the conduit and appropriate	Printek	AntNie
	for the application. Fittings shall be threaded unless structural	Anbor	Pri
	difficulties prevent assembly. Where threadless fittings are used,	Lak notek	Anbr
	the conduit shall be securely fastened to the equipment.	oto Anu	
	Conduit bends shall be made in such a manner that the conduit	notek Anbore.	P
	shall not be damaged and the internal diameter of the conduit	upo v	ek
12 5 4	shall not be effectively reduced.	upoter Anbo	
13.5.4	Flexible metal conduit and fittingsA flexible metal conduit shall consist of a flexible metal tubing or	pt. tek	poter
	woven wire amour. It shall be suitable for the expected physical	Anbor Ar	tek
	environment.	botek	AUDA
	Fittings shall be compatible with the conduit and appropriate for	Ann	00
		ter apole	202

Anbotek SZAHS180712005-01

Product Safety

Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited Page 72 of 87

SHAN Test Report No.: SZAHS180712005-01

nbotek

Clause	Requirement – Test	Result - Remark	V
tek pi	pote Anto k wolek Antoo At	aboten Anot	3.6
- p.	the application.	Lek bot	22
13.5.5	Flexible non-metallic conduit and fittings	Anbor An	
13.3.3	Flexible non-metallic conduit shall be resistant to kinking and shall	work an	0
		And	
	have physical characteristics similar to those of the sheath of	Completivith	201
	multiconductor cables.	Comply with	
	The conduit shall be suitable for use in the expected physical	relevant	
	environment.	requirements.	
	Fittings shall be compatible with the conduit and appropriate for	hotek Anbo	
No Pri	the application.	and not	36
13.5.6	Cable trunking systems	Ant Ant	—
	Cable trunking systems external to enclosures shall be rigidly	A. stek ant	100
	supported and clear of all moving or contaminating portions of the	Anbo. An	1
	machine.	notek	m
	Covers shall be shaped to overlap the sides; gaskets shall be	And	
	permitted. Covers shall be attached to cable trunking systems by	ek aboten	
	suitable means. On horizontal cable trunking systems, the cover	All	1
	shall not be on the bottom unless specifically designed for such	otek Anbor	
	installation.	v ste	1
	Where the cable trunking system is furnished in sections, the	aboten Anbo	
	joints between sections shall fit tightly but need not be gasketed.	Am	010
	The only openings permitted shall be those required for wiring or	Anbore An	
	for drainage. Cable trunking systems shall not have opened but	h. stek	00
	unused knockouts.	Anbo	
13.5.7	Machine compartments and cable trunking systems	ok hoter	1
Aupor	The use of compartments or cable trunking systems within the	Pres w	Т
	column or base of a machine to enclose conductors is permitted	stek spote.	
	provided the compartments or cable trunking systems are isolated	por pri-	6-
	from coolant or oil reservoirs and are entirely enclosed.	hotek Anbor	
	Conductors run in enclosed compartments and cable trunking	And	e'e
	systems shall be so secured and arranged that they are not	Any Any	
	subject to damage.	P. sek	0
13.5.8	Connection boxes and other boxes	Anbor	
10.010	Connection boxes and other boxes used for wiring purposes shall	K wotek	D
	be accessible for maintenance. Those boxes shall provide	And	
	protection against the ingress of solid bodies and liquids, taking	tek poten	
	into account the external influences under which the machine is	por An Lot	
	intended to operate (see 11.3).	botek Anboro	
	Those boxes shall not have opened but unused knockouts nor any	Ann	lev
	other openings and shall be so constructed as to exclude	aboten Anb	1
	materials such as dust, flying, oil, and coolant.	An	100
12 5 0		Anbor A	
13.5.9	Motor connection boxes	K Otok	N
	Motor connection boxes shall enclose only connections to the	Anbo	r
	motor and motor-mounted devices (for example brakes,	lek hotek	1
14	temperature sensors plugging switches, tachometer generators).	ote Ant	
	c motors and associated equipment		
14.1	General requirements	upo h.	No
	Electric motors should conform to the relevant parts of IEC 60034	boten Anbo	1
	series.	Ann	00
	The protection requirements for motors and associated equipment	abote. Ar	1
	are given in 7.2 for over current protection, in 7.3 for overload	Rick	
	protection, and in 7.6 for overspeed protection.	Anbou	P.
	As many controllers do not switch off the supply to a motor when it	tek	

botek SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited Page 73 of 87

SHAN Test Report No.: SZAHS180712005-01

and.	And the holes and the total	No. Pub	
Clause	Requirement – Test	Result - Remark	Verdi
er A	nbo h. stek poote And k potek A	upor Al.	No
	is at rest, care shall be taken to ensure compliance with the	hotek Anboy	
	requirements of 5.3, 5.4, 5.5, 7.5, 7.6 and 9.4. Motor control	And	otek
	equipment shall be located and mounted in accordance with	aboten An	
Anbo	Clause 11.	All	aboter
14.2 otor	Motor enclosures	Anbo	P.
Pri	It is recommended that motor enclosures be chosen from those	ak hotek	Anbe
	included in IEC 60034-5. The degree of protection shall be at least	And Ank	
	IP23 (see IEC 60529) for all motors. More stringent requirements	stek subote.	P
	can be needed depending on the application and the physical	por pri	N N
	environment (see 4.4). Motors incorporated as an integral part of	hotek Anbo	
	the machine shall be so mounted that they are adequately	Ann	otek
	protected from mechanical damage.	aboten Ant	V
14.3	Motor dimensions	h. stok	aboto
boter	As far as is practicable, the dimensions of motors shall conform to	Anbo	
	those given in the IEC 60072 series.	ok notek	Anno
4.4 M	Motor mounting and compartments	Pur K	
	Each motor and its associated couplings, belts, pulleys, or chains,	stek abotet	P
	shall be so mounted that they are adequately protected and are	por pri	4
	easily accessible for inspection, maintenance, adjustment and	hotek Anbo	
	alignment, lubrication, and replacement. The motor mounting	And	otek
	arrangement shall be such that all motor hold-down means can be	anbote. Ant	X
	removed and all terminal boxes are accessible.	P. tek	abote.
	Motors shall be so mounted that proper cooling is ensured and the	Anbor	
	temperature rise remains within the limits of the insulation class	K wotek	Anbo
	(see IEC 60034-1).	And	
	Where practicable, motor compartments should be clean and dry,	tek aboten	N
	and when required, shall be ventilated directly to the exterior of the	Dorn All.	. ·
	machine. The vents shall be such that ingress of swarf, dust, or	hotek Anbolt	
	water spray is at an acceptable level.	And	tek
	There shall be no opening between the motor compartment and	aboten And	N.
	any other compartment that does not meet the motor compartment	P.I. Lok	boter
	requirements. Where a conduit or pipe is run into the motor	Aupore P	
	compartment from another compartment not meeting the motor	v stek	nbo
nboth	compartment requirements, any clearance around the conduit or	Anbo	2
	pipe shall be sealed.	Lek botek	An
4.5	Criteria for motor selection	ore And	6
4.5	The characteristics of motors and associated equipment shall be	woter photo	
	selected in accordance with the anticipated service and physical	Aup.	lek
	environmental conditions (see 4.4). In this respect, the points that	aboten Anb	
	shall be considered include:	P	boten
	-type of motor;	Anbolt A	
	—type of hiddi, —type of duty cycle (see IEC 60034-1);	K otek	Anbot
	—iype of duty cycle (see IEC 00034-1), —fixed speed or variable speed operation, (and the consequent	Anbe	F.C
	variable influence of the ventilation);	kek sooten	Ant
	—mechanical vibration;	All All	Ν
	-type of motor control;	wotek anbore	IN
	—uppe of motor control, —influence of the harmonic spectrum of the voltage and/or current	mp	Kek.
		aboten Anbo	
	feeding the motor (particularly when it is supplied from a static	An	potek
	convertor) on the temperature rise;	Anboro Ar	
	-method of starting and the possible influence of the inrush	h. stek	nbote
	current on the operation of other users of the same power	Anbo	Pre
	supply, taking also into account possible special considerations	ok notek	Anb
	stipulated by the supply authority;	40	

SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited Page 74 of 87

SHAN Test Report No.: SZAHS180712005-01

nbotek

Clause 14.6 15 Acc 15.1	Requirement – Test variation of counter-torque load with time and speed; influence of loads with large inertia; influence of constant torque or constant power operation; possible need of inductive reactors between motor and converter. Protective devices for mechanical brakes Operation of the overload and over current protective devices for mechanical brake actuators shall initiate the simultaneous deenergization (release) of the associated machine actuators. essories and lighting Accessories Where the machine or its associated equipment is provided with socket-outlets that are intended to be used for accessory equipment (for example hand-held power tools, test equipment), the following apply: the socket-outlets should conform to IEC 60309-1. Where that is not practicable, they should be clearly marked with the voltage and current ratings; the continuity of the protective bonding circuit to the socket-outlet shall be ensured except where protection is provided by PELV; all unearthed conductors connected to the socket-outlet shall be protected against over current and, when required, against overload in accordance with 7.2 and 7.3 separately from the protection of other circuits; where the power supply to the socket-outlet is not disconnected by the supply disconnecting device for the machine or the section of the machine, the requirements of 5.3.5 apply.	Result - Remark	
15 Acc 15.1	 —influence of loads with large inertia; —influence of constant torque or constant power operation; —possible need of inductive reactors between motor and converter. Protective devices for mechanical brakes Operation of the overload and over current protective devices for mechanical brake actuators shall initiate the simultaneous deenergization (release) of the associated machine actuators. Ressories and lighting Accessories Where the machine or its associated equipment is provided with socket-outlets that are intended to be used for accessory equipment (for example hand-held power tools, test equipment), the following apply: —the socket-outlets should conform to IEC 60309-1. Where that is not practicable, they should be clearly marked with the voltage and current ratings; —the continuity of the protective bonding circuit to the socket-outlet shall be ensured except where protection is provided by PELV; —all unearthed conductors connected to the socket-outlet shall be protected against over current and, when required, against overload in accordance with 7.2 and 7.3 separately from the protection of other circuits; —where the power supply to the socket-outlet is not disconnected by the supply disconnecting device for the machine or the 	Anbotek Anbotek Anbotek Anbotek botek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek	ak toote Anb ak Anb Anb Anb Anb
15 Acc 15.1	 —influence of loads with large inertia; —influence of constant torque or constant power operation; —possible need of inductive reactors between motor and converter. Protective devices for mechanical brakes Operation of the overload and over current protective devices for mechanical brake actuators shall initiate the simultaneous deenergization (release) of the associated machine actuators. Ressories and lighting Accessories Where the machine or its associated equipment is provided with socket-outlets that are intended to be used for accessory equipment (for example hand-held power tools, test equipment), the following apply: —the socket-outlets should conform to IEC 60309-1. Where that is not practicable, they should be clearly marked with the voltage and current ratings; —the continuity of the protective bonding circuit to the socket-outlet shall be ensured except where protection is provided by PELV; —all unearthed conductors connected to the socket-outlet shall be protected against over current and, when required, against overload in accordance with 7.2 and 7.3 separately from the protection of other circuits; —where the power supply to the socket-outlet is not disconnected by the supply disconnecting device for the machine or the 	Anbotek Anbotek botek Anbotek botek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek	at nbo
15 Acc 15.1	 —influence of constant torque or constant power operation; —possible need of inductive reactors between motor and converter. Protective devices for mechanical brakes Operation of the overload and over current protective devices for mechanical brake actuators shall initiate the simultaneous deenergization (release) of the associated machine actuators. Recessories and lighting Accessories Where the machine or its associated equipment is provided with socket-outlets that are intended to be used for accessory equipment (for example hand-held power tools, test equipment), the following apply: —the socket-outlets should conform to IEC 60309-1. Where that is not practicable, they should be clearly marked with the voltage and current ratings; —the continuity of the protective bonding circuit to the socket-outlet shall be ensured except where protection is provided by PELV; —all unearthed conductors connected to the socket-outlet shall be protected against over current and, when required, against overload in accordance with 7.2 and 7.3 separately from the protection of other circuits; —where the power supply to the socket-outlet is not disconnected by the supply disconnecting device for the machine or the 	Anbotek Anbotek Anbotek Anbotek botek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek botek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek	kote kno ek ek ek ek ek kno kno kno kno kno kno kno kno kno kn
15 Acc 15.1	 —possible need of inductive reactors between motor and converter. Protective devices for mechanical brakes Operation of the overload and over current protective devices for mechanical brake actuators shall initiate the simultaneous deenergization (release) of the associated machine actuators. Ressories and lighting Accessories Where the machine or its associated equipment is provided with socket-outlets that are intended to be used for accessory equipment (for example hand-held power tools, test equipment), the following apply: —the socket-outlets should conform to IEC 60309-1. Where that is not practicable, they should be clearly marked with the voltage and current ratings; —the continuity of the protective bonding circuit to the socket-outlet shall be ensured except where protection is provided by PELV; —all unearthed conductors connected to the socket-outlet shall be protected against over current and, when required, against overload in accordance with 7.2 and 7.3 separately from the protection of other circuits; —where the power supply to the socket-outlet is not disconnected by the supply disconnecting device for the machine or the 	Anbolek Anbolek botek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek	Anbo Anbo Anbo Anbo
15 Acc 15.1	converter. Protective devices for mechanical brake actuators shall initiate the simultaneous de- energization (release) of the associated machine actuators. dessories and lighting Accessories Where the machine or its associated equipment is provided with socket-outlets that are intended to be used for accessory equipment (for example hand-held power tools, test equipment), the following apply: —the socket-outlets should conform to IEC 60309-1. Where that is not practicable, they should be clearly marked with the voltage and current ratings; —the continuity of the protective bonding circuit to the socket-outlet shall be ensured except where protection is provided by PELV; —all unearthed conductors connected to the socket-outlet shall be protected against over current and, when required, against overload in accordance with 7.2 and 7.3 separately from the protection of other circuits; —where the power supply to the socket-outlet is not disconnected by the supply disconnecting device for the machine or the	Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek	Anbo Anbo Anbo Anbo Anbo
15 Acc 15.1	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. Ressories and lighting Accessories Where the machine or its associated equipment is provided with socket-outlets that are intended to be used for accessory equipment (for example hand-held power tools, test equipment), the following apply: —the socket-outlets should conform to IEC 60309-1. Where that is not practicable, they should be clearly marked with the voltage and current ratings; —the continuity of the protective bonding circuit to the socket-outlet shall be ensured except where protection is provided by PELV; —all unearthed conductors connected to the socket-outlet shall be protected against over current and, when required, against overload in accordance with 7.2 and 7.3 separately from the protection of other circuits; —where the power supply to the socket-outlet is not disconnected by the supply disconnecting device for the machine or the	ek Anbotek potek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek	Anbo Anbo
15 Acc 15.1	Operation of the overload and over current protective devices for mechanical brake actuators shall initiate the simultaneous deenergization (release) of the associated machine actuators. ressories and lighting Accessories Where the machine or its associated equipment is provided with socket-outlets that are intended to be used for accessory equipment (for example hand-held power tools, test equipment), the following apply: —the socket-outlets should conform to IEC 60309-1. Where that is not practicable, they should be clearly marked with the voltage and current ratings; —the continuity of the protective bonding circuit to the socket-outlet shall be ensured except where protection is provided by PELV; —all unearthed conductors connected to the socket-outlet shall be protected against over current and, when required, against overload in accordance with 7.2 and 7.3 separately from the protection of other circuits; —where the power supply to the socket-outlet is not disconnected by the supply disconnecting device for the machine or the	ek Anbotek potek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek	Anbo Anbo Anbo
15.1 Anbotek botek Anbotek Anbotek Anbotek	 mechanical brake actuators shall initiate the simultaneous de- energization (release) of the associated machine actuators. essories and lighting Accessories Where the machine or its associated equipment is provided with socket-outlets that are intended to be used for accessory equipment (for example hand-held power tools, test equipment), the following apply: —the socket-outlets should conform to IEC 60309-1. Where that is not practicable, they should be clearly marked with the voltage and current ratings; —the continuity of the protective bonding circuit to the socket- outlet shall be ensured except where protection is provided by PELV; —all unearthed conductors connected to the socket-outlet shall be protected against over current and, when required, against overload in accordance with 7.2 and 7.3 separately from the protection of other circuits; —where the power supply to the socket-outlet is not disconnected by the supply disconnecting device for the machine or the 	Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek	ote Ambro Ak Jotek Anboo
15.1 Anbotek botek Anbotek Anbotek Anbotek	 energization (release) of the associated machine actuators. Accessories Where the machine or its associated equipment is provided with socket-outlets that are intended to be used for accessory equipment (for example hand-held power tools, test equipment), the following apply: —the socket-outlets should conform to IEC 60309-1. Where that is not practicable, they should be clearly marked with the voltage and current ratings; —the continuity of the protective bonding circuit to the socket-outlet shall be ensured except where protection is provided by PELV; —all unearthed conductors connected to the socket-outlet shall be protected against over current and, when required, against overload in accordance with 7.2 and 7.3 separately from the protection of other circuits; —where the power supply to the socket-outlet is not disconnected by the supply disconnecting device for the machine or the 	botek Anbotek Anbotek ek Anbotek ootek Anbotek potek Anbotek Anbotek Anbotek Anbotek Anbotek Anbote Anbotek Anbotek Anbotek Anbotek utek Anbotek	ote Ambri A Jotek Anbo
15.1 Anbotek botek Anbotek Anbotek Anbotek	Accessories Where the machine or its associated equipment is provided with socket-outlets that are intended to be used for accessory equipment (for example hand-held power tools, test equipment), the following apply: —the socket-outlets should conform to IEC 60309-1. Where that is not practicable, they should be clearly marked with the voltage and current ratings; —the continuity of the protective bonding circuit to the socket- outlet shall be ensured except where protection is provided by PELV; —all unearthed conductors connected to the socket-outlet shall be protected against over current and, when required, against overload in accordance with 7.2 and 7.3 separately from the protection of other circuits; —where the power supply to the socket-outlet is not disconnected by the supply disconnecting device for the machine or the	poor An Anbotek Anbotek ek Anbotek potek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek	otel Ambri A Jotek Anbo
15.1 Anbotek botek Anbotek Anbotek Anbotek	Accessories Where the machine or its associated equipment is provided with socket-outlets that are intended to be used for accessory equipment (for example hand-held power tools, test equipment), the following apply: —the socket-outlets should conform to IEC 60309-1. Where that is not practicable, they should be clearly marked with the voltage and current ratings; —the continuity of the protective bonding circuit to the socket- outlet shall be ensured except where protection is provided by PELV; —all unearthed conductors connected to the socket-outlet shall be protected against over current and, when required, against overload in accordance with 7.2 and 7.3 separately from the protection of other circuits; —where the power supply to the socket-outlet is not disconnected by the supply disconnecting device for the machine or the	Anbotek Anbotek ek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek	Anbo Anbo
15.1 Anbotek botek Anbotek Anbotek Anbotek	Accessories Where the machine or its associated equipment is provided with socket-outlets that are intended to be used for accessory equipment (for example hand-held power tools, test equipment), the following apply: —the socket-outlets should conform to IEC 60309-1. Where that is not practicable, they should be clearly marked with the voltage and current ratings; —the continuity of the protective bonding circuit to the socket-outlet shall be ensured except where protection is provided by PELV; —all unearthed conductors connected to the socket-outlet shall be protected against over current and, when required, against overload in accordance with 7.2 and 7.3 separately from the protection of other circuits; —where the power supply to the socket-outlet is not disconnected by the supply disconnecting device for the machine or the	Anbotek Anbotek ek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek	poter Anbr At Jotek Anboo
Anbotek Anbotek botek Anbotek Anbotek Anbotek 15.2	 Where the machine or its associated equipment is provided with socket-outlets that are intended to be used for accessory equipment (for example hand-held power tools, test equipment), the following apply: —the socket-outlets should conform to IEC 60309-1. Where that is not practicable, they should be clearly marked with the voltage and current ratings; —the continuity of the protective bonding circuit to the socket-outlet shall be ensured except where protection is provided by PELV; —all unearthed conductors connected to the socket-outlet shall be protected against over current and, when required, against overload in accordance with 7.2 and 7.3 separately from the protection of other circuits; —where the power supply to the socket-outlet is not disconnected by the supply disconnecting device for the machine or the 	Anbotek Anbotek ootek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek	Anbo A Jotek Anbo
	 socket-outlets that are intended to be used for accessory equipment (for example hand-held power tools, test equipment), the following apply: —the socket-outlets should conform to IEC 60309-1. Where that is not practicable, they should be clearly marked with the voltage and current ratings; —the continuity of the protective bonding circuit to the socket-outlet shall be ensured except where protection is provided by PELV; —all unearthed conductors connected to the socket-outlet shall be protected against over current and, when required, against overload in accordance with 7.2 and 7.3 separately from the protection of other circuits; —where the power supply to the socket-outlet is not disconnected by the supply disconnecting device for the machine or the 	Anbotek ootek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek	A A Jotek Anbo Ar
	 equipment (for example hand-held power tools, test equipment), the following apply: —the socket-outlets should conform to IEC 60309-1. Where that is not practicable, they should be clearly marked with the voltage and current ratings; —the continuity of the protective bonding circuit to the socket-outlet shall be ensured except where protection is provided by PELV; —all unearthed conductors connected to the socket-outlet shall be protected against over current and, when required, against overload in accordance with 7.2 and 7.3 separately from the protection of other circuits; —where the power supply to the socket-outlet is not disconnected by the supply disconnecting device for the machine or the 	ek Anbotek potek Anbotek Anbotek Anbotek Anbotek Anbote Anbotek Anb ek Anbotek Anbotek Anbotek botek Anbotek	Anbo Anbo Anbo
	 the following apply: —the socket-outlets should conform to IEC 60309-1. Where that is not practicable, they should be clearly marked with the voltage and current ratings; —the continuity of the protective bonding circuit to the socket-outlet shall be ensured except where protection is provided by PELV; —all unearthed conductors connected to the socket-outlet shall be protected against over current and, when required, against overload in accordance with 7.2 and 7.3 separately from the protection of other circuits; —where the power supply to the socket-outlet is not disconnected by the supply disconnecting device for the machine or the 	ek Anbotek Dotek Anbotek Anbotek Anbote Anbotek Anbote Anbotek Anbotek Anbotek Anbotek Dotek Anbotek	A Jotek Anbo
	 —the socket-outlets should conform to IEC 60309-1. Where that is not practicable, they should be clearly marked with the voltage and current ratings; —the continuity of the protective bonding circuit to the socket-outlet shall be ensured except where protection is provided by PELV; —all unearthed conductors connected to the socket-outlet shall be protected against over current and, when required, against overload in accordance with 7.2 and 7.3 separately from the protection of other circuits; —where the power supply to the socket-outlet is not disconnected by the supply disconnecting device for the machine or the 	en Anbor potek Anbor Anbotek Anbor Anbotek Anbor Anbotek Anb ek Anbotek botek Anbotek	A potek Anbo
	 not practicable, they should be clearly marked with the voltage and current ratings; —the continuity of the protective bonding circuit to the socket-outlet shall be ensured except where protection is provided by PELV; —all unearthed conductors connected to the socket-outlet shall be protected against over current and, when required, against overload in accordance with 7.2 and 7.3 separately from the protection of other circuits; —where the power supply to the socket-outlet is not disconnected by the supply disconnecting device for the machine or the 	potek Anbotek Anbotek Anbote Anbotek Anb ek Anbotek Anbotek Anbotek Anbotek	ak potek Anbo Ar
	 and current ratings; —the continuity of the protective bonding circuit to the socket- outlet shall be ensured except where protection is provided by PELV; —all unearthed conductors connected to the socket-outlet shall be protected against over current and, when required, against overload in accordance with 7.2 and 7.3 separately from the protection of other circuits; —where the power supply to the socket-outlet is not disconnected by the supply disconnecting device for the machine or the 	poter Anbo Anbotek Anbote Anbotek Anbo ek Anbotek botek Anbotek botek Anbotek	ek potek Anbo Ar
	 —the continuity of the protective bonding circuit to the socket- outlet shall be ensured except where protection is provided by PELV; —all unearthed conductors connected to the socket-outlet shall be protected against over current and, when required, against overload in accordance with 7.2 and 7.3 separately from the protection of other circuits; —where the power supply to the socket-outlet is not disconnected by the supply disconnecting device for the machine or the 	Anbotek Anbote Anbotek Anb ek Anbotek Dotek Anbotek Dotek Anbotek	Aupo Aupo
	 outlet shall be ensured except where protection is provided by PELV; —all unearthed conductors connected to the socket-outlet shall be protected against over current and, when required, against overload in accordance with 7.2 and 7.3 separately from the protection of other circuits; —where the power supply to the socket-outlet is not disconnected by the supply disconnecting device for the machine or the 	Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek	Anbo Anbo
	 PELV; —all unearthed conductors connected to the socket-outlet shall be protected against over current and, when required, against overload in accordance with 7.2 and 7.3 separately from the protection of other circuits; —where the power supply to the socket-outlet is not disconnected by the supply disconnecting device for the machine or the 	Anbotek Anb Anbotek Anbotek Anbotek Anbotek	Anbo
	 —all unearthed conductors connected to the socket-outlet shall be protected against over current and, when required, against overload in accordance with 7.2 and 7.3 separately from the protection of other circuits; —where the power supply to the socket-outlet is not disconnected by the supply disconnecting device for the machine or the 	Anbovek Anbotek Anbotek Anbotek Anbotek	Anbo
	 protected against over current and, when required, against overload in accordance with 7.2 and 7.3 separately from the protection of other circuits; —where the power supply to the socket-outlet is not disconnected by the supply disconnecting device for the machine or the 	ek Anbotek Anbotek botek Anbotek	Anbo
	 overload in accordance with 7.2 and 7.3 separately from the protection of other circuits; —where the power supply to the socket-outlet is not disconnected by the supply disconnecting device for the machine or the 	ek Anbotek Anbotek Jotek Anbotek	A
	 protection of other circuits; —where the power supply to the socket-outlet is not disconnected by the supply disconnecting device for the machine or the 	ek Anboten potek Anbotek	P
	—where the power supply to the socket-outlet is not disconnected by the supply disconnecting device for the machine or the	potek Anbotek	
	by the supply disconnecting device for the machine or the	otek Anboro	
	by the supply disconnecting device for the machine or the	por hi ste	
			N
		hoten Anbo	
	Local lighting of the machine and equipment	Pur n	oter
Anto	General Connections to the protective	Pupor Pue	
	The ON/OFF switch shall not be incorporated in the lampholder or	A. stek	100
	in the flexible connecting cords.	Anbo	
	Stroboscopic effects from lights shall be avoided by the selection	K wotek	20
	of appropriate luminaries.	No lamp used.	1.1
	Where fixed lighting is provided in an enclosure, electromagnetic	No lamp useu.	
		Jore Ann	6
	compatibility should be taken into account using the principles	stek subore	
oten	outlined in 4.4.2.	nbo pu	Lev.
15.2.2	Supply	hotek anbr	07
	The nominal voltage of the local lighting circuit shall not exceed	Any	10
	250 V between conductors. A voltage not exceeding 50 V between	aboten A	2010-
Anbo	conductors is recommended.	P.I.	
15.2.3	Protection	K Anboro	Pu
An	Local lighting circuits shall be protected in accordance with 7.2.6.	Y stek	
15.2.4	Fittings	oten Anbo	
	Adjustable lighting fittings shall be suitable for the physical	why woter	
	environment.	abote Anu	V.
	The lamp holders shall be:	kelk bo	Ner
	—in accordance with the relevant IEC standard;	Anbor Ani	
		atek	apot
	-constructed with an insulating material protecting the lamp cap	Anbo	
	so as to prevent unintentional contact.	L wotek	ant
		And	
P.c.	Reflectors shall be supported by a bracket and not by the lamp holder.		

botek SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited Page 75 of 87

SHAN Test Report No.: SZAHS180712005-01

nbotek

Clause	Requirement – Test	Anbote. And	Result - Remark	V
pter P	Exception: where fixed lighting is out of reach o	f operators during	nbo A. bot	40
	normal operation, the provisions of this Sub clau		Anbore Ant	~ 0
16 Marki	ng, warning signs and reference designations	de de net apply.	· · · · · · · · · · · · · · · · · · ·	
16.1	General	poten Anbu	h. rek	~
bote	Warning signs, nameplates, markings, and iden	tification plates	Anbore	1
	shall be of sufficient durability to withstand the p		ok notek	
anbr	environment involved.	ptek anbc	And Ank	
16.2	Warning signs	Anbo	atek anbore	
16.2.1	Electric shock hazard	aboter A	npo r	Ng
	Enclosures that do not otherwise clearly show the	hat they contain	aboten Anbo	
	electrical equipment that can give rise to a risk of		All tek	ote
	shall be marked with the graphical symbol IEC 6	60417-	Anboy An	
	5036(DB:2002-10).	pore Ann	abotek	pint
	The warning sign shall be plainly visible on the	enclosure door or	Annak	
	cover.	Anthe Stank	tek Anbore	1
	The warning sign may be omitted (see also 6.2.		K wotek	
	-an enclosure equipped with a supply disconn		poter And	1
	 —an operator-machine interface or control station —a single device with its own enclosure (for example, and the state of t		otek pobote	2
	sensor).	ample position	Anbor	.e
16.2.2	Hot surfaces hazard	All	boten And	1
10.2.2	Where the risk assessment shows the need to v	warn against the	All'	20
	possibility of hazardous surface temperatures o		Anbor	Sec.
	equipment, the graphical symbol IEC 60417-50-		K botek	P
	shall be used.	hotek Anbol	Anthek	
16.3	Functional identification	And	Lotek Anbor	
P.	Control devices, visual indicators, and displays	(particularly those	K hote	10-
	related to safety) shall be clearly and durably m		anboten Anu	N
	to their functions either on or adjacent to the iter		ntek nb	ofe.
	Such markings may be as agreed between the		Anbo	
	supplier of the equipment (see Annex B). Prefer		a poten P	No.
	given to the use of standard symbols given in IE	<u>-</u> C 60417- DB:	Antek	
to do not	2002 and ISO 7000.	Ant bot	ek Anbor	P
16.4	Marking of equipment	Anto Anto	Let botek	
	Equipment (for example control gear assemblie		Doro Anti-	6
	and durably marked in a way that is plainly visib		hotek Anbort	
	equipment is installed. A nameplate giving the f information shall be attached to the enclosure a		AMP with with	Jek
	incoming supply:	ajacent lo edon	Anbote And	
	—name or trade mark of supplier;		otek	100
	-certification mark, when required;		Anbo	
	—serial number, where applicable;		K aboten	P
	-rated voltage, number of phases and frequen	cy (if a.c.), and full-	P	
	load current for each supply;	All work	otek Anbou	
	-short-circuit rating of the equipment;		kek botek	
	—main document number (see IEC 62023).		anbor Ant	No.
	The full-load current shown on the nameplate sl		hotek Anbo	1
	than the running currents for all motors and other		And	no'
	can be in operation at the same time under norr		Anboten Ar	No
	Where only a single motor controller is used, the		Ritek	
	instead be provided on the machine nameplate	where it is plainly	Anbo	Pr
	visible.		Lek-	

ek SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited Page 76 of 87

SHAN Test Report No.: SZAHS180712005-01

nbotek

Clause	Requirement – Test	Result - Remark	V
Lek .	nbote And k wotek Anbot An	boten Aupo	
16.5	Reference designations	kek abot	25
notor	All enclosures, assemblies, control devices, and components shall	Anipoli An	1.0
	be plainly identified with the same reference designation as shown	sotek an	Por
	in the technical documentation.	And	
17 Tochr	nical documentation	194	1.03
17.1	General	1.8%	
17.1		rek anbor	Т
	The information necessary for installation, operation, and maintenance of the electrical equipment of a machine shall be	K wotek	
	supplied in the appropriate forms, for example, drawings,	boter And	
		tek abot	Ser
	diagrams, charts, tables, instructions. The information shall be in	Anbor An	20
	an agreed language (see also Annex B). The information provided	otek ant	000
	may vary with the complexity of the electrical equipment. For very	And	
	simple equipment, the relevant information may be contained in	aboten	bur
	one document, provided that the document shows all the devices	Anth	
	of the electrical equipment and enables the connections to the	ek anbou	
47 0 Any	supply network to be made.	K wotek	
17.2	Information to be provided	poter Ano	
	The information provided with the electrical equipment shall	tek abote	2
	include:	Anbor An	*0
	a) A main document (parts list or list of documents);	hotek Ant	1000
hore	b) Complementary documents	AND	
17.3	Requirements applicable to all documentation	apoter l	7UD
	Unless otherwise agreed between manufacturer and user:	A. rek	
	-the documentation shall be in accordance with relevant parts of	sk anbor	P
	IEC 61082;	K sotek	
	-reference designations shall be in accordance with relevant	poten Anos	
	parts of IEC 61346;	tek pote	
	-Instructions/manuals shall be in accordance with IEC 62079.	Anbor An	e
	—Parts lists where provided shall be in accordance with IEC	hotek Anb	0
	62027, class B.	And	10
	NOTE See item 13 of Annex B.	poter	200
	For referencing of the different documents, the supplier shall	P.I. Fek	
	select one of the following methods:	K Anbor	P
	—where the documentation consists of a small number of	K wotek	
	documents (for example less than 5) each of the documents	oten Ano	
	shall carry as a cross-reference the document numbers of all	kek abote	2
	other documents belonging to the electrical equipment; or	Vupo. Viv	Ne
	-for single level main documents only (see IEC 62023), all	hotek anbr	2
	documents shall be listed with document numbers and titles in a	Anu	-
	drawing or document list; or	abote A	200
	—all documents of a certain level (see IEC 62023) of the	P.'.	
	document structure shall be listed, with document numbers and	K Anbou	P
An	titles, in a parts list belonging to the same level.	Note H	
17.4	Installation documents	oter And	-
	The installation documents shall give all information necessary for	stek suboter	
	the preliminary work of setting up the machine (including	mbo A.	Net
	commissioning). In complex cases, it may be necessary to refer to	botek Anbo	
abolt	the assembly drawings for details.	Ann	1.0
17.5	Overview diagrams and function diagrams	Albore, Al	22
	Where it is necessary to facilitate the understanding of the	history	
	principles of operation, an overview diagram shall be provided. An	Anbo	P.
Alle	overview diagram symbolically represents the electrical equipment	at atek	

botek SZAHS180712005-01

An

Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited Page 77 of 87

SHAN Test Report No.: SZAHS180712005-01

	EN 60204-1	ter photo	h.,
Clause	Requirement – Test	Result - Remark	Verdic
Lek Al	bor An rek aboter Anon y acter	nbor An	40
N.	together with its functional interrelationships without necessarily	stek phot	
	showing all of the interconnections.	Anbo	40K
		otek an	out
		Anbo	Note K
		hotek	Anbo-
- suport		And	100
17.6	Circuit diagrams	ek poter	And
		Pri. rek	
		nterconnections. of overview diagrams can be found in IEC tion diagrams may be provided as either part the overview diagram.) shall be provided. This diagram(s) shall show is on the machine and its associated electrical aphical symbol not shown in IEC 60617- eparately shown and described on the ting documents. The symbols and identification I devices shall be consistent throughout all the machine. a diagram showing the terminals for interface the provided. That diagram may be used in e circuit diagram(s) for simplification. The tain a reference to the detailed circuit diagram all be shown on the electromechanical upplies turned off (for example electricity, air, di with the machine and its electrical equipment start. e identified in accordance with 13.2. owm in such a way as to facilitate the ter function as well as maintenance and fault istics relating to the function of the control onents which are not evident from their symbolic I be included on the diagrams adjacent to the ed to a footnote.	
	equipment. Any graphical symbol not shown in IEC 60617-	of the interconnections. mples of overview diagrams can be found in IEC . Function diagrams may be provided as either part iction to, the overview diagram. rams	
	DB:2001 shall be separately shown and described on the	hoten Anbo	
	diagrams or supporting documents. The symbols and identification	Aments. The symbols and identification shall be consistent throughout all nine. Im showing the terminals for interface ed. That diagram may be used in liagram(s) for simplification. The ference to the detailed circuit diagram own on the electromechanical urned off (for example electricity, air, e machine and its electrical equipment ed in accordance with 13.2. Uch a way as to facilitate the on as well as maintenance and fault ating to the function of the control nich are not evident from their symbolic ded on the diagrams adjacent to the otnote. In shall contain an operating manual proset-up and use of the electrical ion should be given to the safety equipment can be programmed, nods of programming, equipment in, and additional safety	
		boten Ant	
	documents and on the machine.	Ann	notek
		abote	SUP.
		Print	000
		ek anbor	Pur
		y stek	
		oten Anbor	Pri
	of each unit shown.	K sote	P
	Switch symbols shall be shown on the electromechanical	boten Anb	
	diagrams with all supplies turned off (for example electricity, air,	Ann	oten
	water, lubricant) and with the machine and its electrical equipment	Ant Ant	.V.
	ready for a normal start.	P	boter
	Conductors shall be identified in accordance with 13.2.	Aupor P	1. C.
		tek	nboi
		an Anbo	k.
		K sotek	na
		oten And	P ²
		wet note	-
		abote Ant	N
	symbol or referenced to a footnote.	Ar. Not ob	161
17.7	Operating manual	Aupor Au	Nor
	The technical documentation shall contain an operating manual	Lotek D	por
	detailing proper procedure for set-up and use of the electrical	Dotailing proper	×1
	equipment. Particular attention should be given to the safety		Anbo
	measures provided.		
	Where the operation of the equipment can be programmed,		Zo
	detailed information on methods of programming, equipment		
		equipment.	
		NUD N	1ek
17.8	Maintenance manual	botek Anbe	
17.0		And	hotek
		aboter A	0.0-
	detailing proper procedures for adjustment, servicing and	All	pote
	preventive inspection, and repair. Recommendations on	K anbote.	Any
	Maintenance/service intervals and records should be part of that	P	P
	manual. Where methods for the verification of proper operation	otek Anbor	Pu
	are provided (for example software testing programs), the use of	v stek	
		V	1
		boten And	
40K 17.9	those methods shall be detailed.	nboten Anb	Let-
17.9	those methods shall be detailed. Parts list	anbotek Anbo	Let.
17.9	those methods shall be detailed. Parts list The parts list, where provided, shall comprise, as a minimum,	Anbotek Anbo	botek
tek 17.9 nbotek	those methods shall be detailed. Parts list The parts list, where provided, shall comprise, as a minimum, information necessary for ordering spare or replacement parts (for	Anbutek Anbu Anbutek Anbu	potek
Anbotek Anbotek	those methods shall be detailed. Parts list The parts list, where provided, shall comprise, as a minimum, information necessary for ordering spare or replacement parts (for example components, devices, software, test equipment, technical	Anbotek Anbo Anbotek Anbotek Ar	potek
tek 17.9 hbotek Anbotek	those methods shall be detailed. Parts list The parts list, where provided, shall comprise, as a minimum, information necessary for ordering spare or replacement parts (for example components, devices, software, test equipment, technical documentation) required for preventive or corrective maintenance	Anbotek Anbotek Anbotek	pote ^k Anb P ^e
Anbotek Anbotek Anbotek	those methods shall be detailed. Parts list The parts list, where provided, shall comprise, as a minimum, information necessary for ordering spare or replacement parts (for example components, devices, software, test equipment, technical	Anbotek Anbo Anbotek Anbotek Ar Anbotek Ar	potek Anb P e

Anbotek Product Safety Dropared by Arbotek

Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited Page 78 of 87

Ann	EN 60204-1	Ano	eK.	nbotek	Anbore
Clause	Requirement – Test	otek Anbe	Result -	Remark	Verdict
teh Al	Manification	-otek an	por.	br.	4
<u>18</u> 18.2	Verification TABLE: Earth bonding	abote	Ann		o ^{te} P
no.z		Annotek	10Anbote	n Aul	P F
	Test Current (A)	Anu	10A	otek	
Anv	Ambient (°C)	Anbo	25	- atek	
Test locati	ons (most unfavorable case)	Conducto diameter (m		Measu resistance	
	PE – enclosure outside	0.75	botel	32.2	<u> </u>
bo	PE – inner motor	0.75	An. Lotel	34.3	oten
18.3	TABLE: Insulation resistance test	Anboto	Ann	otek .	Р
Anboth	Test Voltage (V)	50 store	0Va.c.	dek	
	Ambient (°C)	tek Anbote	25	nbo	
Test locati	ons (most unfavorable case)	Insulati	ion resist	ance (MΩ)
otek	PE-L Annotek photek Anno	hotek	>100	AUD	-ok
	PE-N And Jok And	And wotek >	>100	And	, eK
18.4	TABLE: Dielectric test	And	anbo	ter P	Р
And	Test Voltage (V)	100	00Va.c.	nbotek	
	Test Duration (s)	And 1	min.	Anbotek	
Test locati	ons (most unfavorable case)		Observa	tion	
10 ¹⁰	PE-Lx Anboten Anbo of Anborek	□Puncture	□Flash-o	over	tek
	PE - N	□Puncture	□Flash-o	over	potek
18.5	Protection against residual voltages	Anbotek	Anbo	etek P	nbotek
Anbote	Where appropriate, tests shall be performed to ensure compliance with 6.2.4.	See clause 6	6.2.4.	Anbotek	Ribot
18.6	Functional tests	poter Anb	otek	Anbotek	PU
oter I	The functions of electrical equipment shall be tested. The function of circuits for electrical safety (for example earth fault detection) shall be tested.	Anboten A	Anbotek	Anbo	P



SZAHS180712005-01 Page 79 of 87 Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited

Measuring equipment list

No.	Measuring equipment	Model	Cal. date	Due. date	Manufacturer
1.	Grounding continuity tester	351A	2017.10.17	2018.10.16	CEPREI
2.	Digital Insulation tester	YD2685	2017.10.17	2018.10.16	Yangzi
3.	Withstanding voltage tester	125B	2017.10.17	2018.10.16	CEPREI
4.	Sound level meter	HS5670XB	2017.10.17	2018.10.16	China Yiqi Co., Ltd.

General remarks

- 1. Throughout this report a dot is used as the decimal separator.
- 2. The test results presented in this report relate only to the object tested.
- 3. This report shall not be reproduced except in full without the written approval of the testing laboratory.



SZAHS180712005-01 Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 80 of 87

Annex: Technical Information

A.1 User manual with related specification information

Attachment I

OPERATING & INSTRUCTIONS MANUAL

Anbotek Product Safety

SZAHS180712005-01
Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 81 of 8

A.2 Critical BOM

No.	Object/part	Manufacturer/ trademark	Type/model	Technical parameters	Approval
atek.	Main plug	Y003	10/16A 250V	LIAN FEI	VDE
	Power cord	227IEC53 (RVV)	300/500V	LIAN FEI	VDE
2. Ar	Internal Wire	60227IEC06(RV) 1.5 m ²	300/500 V	YUAN DONG	CE
3.	Terminal block	TB-1508L	600V, 12A, 8P	Nuolite	CE NO
1. ote ^K	Heatsink tube	nbotek Anbotek	Temp.Rating:125°C Voltage Rating:600V Flammability: VW-1	Hua Yi	nbotek UL
5. pot	Motor	YTJ-60-4/90	60W, 0.7A,220V, 50Hz,14V,	Yuan Hua	CE
3. <u>A</u> n'	Power switch	RF-1004	18A, 125VAC, 1/4HP; 18A,250VAC, 1/3Hp; 16(4)A,250V-1E4 T85/55; 10(4)A,250V-5E4, T85/55	Rong Feng	CE
tek	EMO button	LAY37(PBC)	15A 600V	REN YU	CE
hbot	SSR	MGR-1 D4825	3-32VDC	Yue Qing	CE
9. Ant	Heating indicator light	AD16-22DS	AC220V	ONPOW	CE
0.	Thermal controls	XMTG-8181P	Volts:200VAC 180-240VAC,50/60Hz 7VA	Anbotek Anbo	CE
ι ,1₽. ^κ	Foot Switch	Antotek XF-1 Antotek	10A/250VAC	XURUI	CE CE
2.	Circular Connector	WS16K2	otek Anbotek Anbote	tek Anbotek	CE



SZAHS180712005-01
Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 82 of 87

Anbotek A.3 Photo documentation



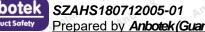
Photo 1: Overall View



Photo 2: Overall View



SZAHS180712005-01 Prepared by Anbotek (Guangzhou) Compliance Laboratory L imited Page 83 of 87



Prepared by Anbotek (Guangzhou) Compliance Laboratory I Page 84 of 87 imited

Anbot

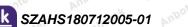




Photo 4: Overall View



Photo 3: Overall View



SHANGHAI GIENI INDUSTRY CO., LTD



Photo 5: Partial View



Photo 6: Partial View



SZAHS180712005-01 Prepared by Anbotek (Guangzhou) Compliance Laboratory Limited Page 85 of 87

Anbo

Anb



Photo 7: Partial View

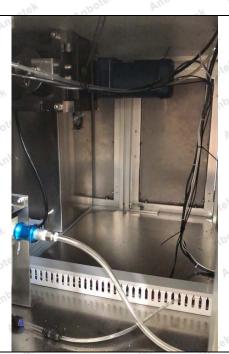


Photo 8: Partial View



Anbo

SZAHS180712005-01 Prepared by Anbotek (Guangzhou) Compliance Laboratory L imited Page 86 of 87

Anbotek Product Safety

SZAHS180712005-01 Prepared by Anbotek (Guangzhou) Compliance Laboratory LimitedPage 87 of 87

Anbour An notek hogen

athe

SIGNATURE AND STAMP:

DONE (AT): CHINA SIGNATORY'S NAME: Kathy MO (ON): 2018/07/17 TITLE: MANAGER

EN ISO 12100:2010 EN 60204-1:2008+A1:2009+AC:2010

AND COMPLIES WITH THE PROVISIONS OF THE FOLLOWING STANDARDS:

MD 2006/42/EC LVD 2014/35/EU

COMPLIES WITH THE PROVISIONS OF THE FOLLOWING DIRECTIVE:

TRADE MARK: N.A. YEAR OF CONSTRUCTION: 2018

NAME: ROTARY FILLING MACHINE MODEL: JR-02-E, JR-01-E, JR-01-M, JR-02-M, JR-01-L, JR-02-L, JR-01-N, JR-02-N, JR-01-P, JR-02-P

HEREBY DECLARES THAT THE PRODUCT DESCRIBED BELOW:

NAME: SHANGHAI GIENI INDUSTRY CO., LTD ADDRESS: 2-408, JIALUO ROAD, JIADING DISTRICT, SHANGHAI 201809

THE TECHNICAL DOCUMENTATION WAS COMPILED BY:

NAME: SHANGHAI GIENI INDUSTRY CO., LTD ADDRESS: 2-408, JIALUO ROAD, JIADING DISTRICT, SHANGHAI 201809

MANUFACTURER:

CE EC DECLARATION OF CONFORMITY CE

SHANGHAI GIENI INDUSTRY CO., LTD

Attachment: Declaration of conformity with signature

SHANGHAI GIENI INDUSTRY CO., LTD