

NA 060 DIN-Normenausschuss Maschinenbau (NAM)

[NA 060-33-01 AA](#) Aufzüge (SpA CEN/TC 10 und ISO/TC 178)

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Aktion

Information

N559_CommentsOnDIS_8100-1_disapproval.doc

Template for comments and secretariat observations

Date: 2024-02-12	Document: ISO/DIS 8100-1:2023	Project: Enquiry
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MB/ NC ¹	Line number (e.g. 17)	Clause/ Subclause (e.g. 3.1)	Paragraph/ Figure/ Table/ (e.g. Table 1)	Type of comment ²	Comments	Proposed change	Observations of the secretariat
DE					Germany disagrees for the following reasons: The document must be improved and cannot be issued as it is. Many technical improvements must be done, for details see following various comments. Requirements in the document seem to be protected by patents. The application of solutions regarding “brake monitoring, clause 4.9.2.2.8 b)” are protected or significant limited. Following patents are mentioned here: US7222698, US9061864, EP2297017, EP3351499 and EP3083473.		
DE			Figures 3, 5, 26	ge	When a clause has dimensions which are described by variables in a figure: refer to the variable in the clause.	Here are two examples: 4.3.4.2 The horizontal distance giving access to the well shall not exceed 0,10 m (see Figure 3, l1): ... 4.4.7.2 The following protection shall be provided: a) the car roof shall be provided with a toe board a minimum of 0,10 m high (see Figure 23, l1), positioned either: ...	
DE				ge/ed	All SIL3 without space between SIL and its associated number shall be inserted a space after SIL.	SIL 3	
DE				ge	The wording “electrical safety device” is used in the standard for two different kinds of	3.12	

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					applications: 1. Electrical Safety Devices for preventing any movement or immediately stopping the lift machine by opening the safety chain as defined in 4.11.2.1.1. 2. Electrical Safety Devices for bypassing of other Electrical Safety Devices. The standard uses the same definition for both applications and does not clear distinguish for the requirements. This caused to confusion and misunderstandings in the past. New definitions should be taken and the affected sections should be revised.	Stopping Electric Safety Device SESD safety contact, safety circuit or SIL-rated circuit, having the required reliability and function to stop the lift when it is activated 3.xx Bypassing Electric Safety Device BESD safety contact, safety circuit or SIL-rated circuit, having the required reliability and function to bypass a SESD The wording “electrical safety device” must be changed to Stopping Electrical Safety Device for the whole document except: • 4.6.2.2.4.1 e) (bridging of electrical safety device for blocking mechanism for rope tripping safety gear) • 4.6.5.9 (bridging safety device of PAWL device) • 4.12.1.4 (levelling, re-leveling) • 4.12.1.6.1 (emergency electrical operations for the function bypassing of the listed Stopping Electrical Safety Devices) • 4.12.1.8.2 a) (door bypass device) • Annex A (“Table A.1”) should be split into two tables: • Table A.1 – List of the Stopping Electric Safety Devices • Table A.2 – List of the Bypassing Electric Safety Devices	

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DE		3.2		ed	This definition is partly not correct, because "... response to the momentary actuation of operating devices" includes the operating devices of the inspection control and these of the emergency electrical operation. → Inspection operation and emergency electrical operation do not belong to "automatic operation"!	"3.2 automatic operation operation in which start of the movement of the lift happens in response to the momentary actuation of <u>the</u> operating devices <u>available for passengers</u> , or in response to any other automatic starting function"	
DE		3.29		ed	"Mission time" can be understood as lifetime after manufacturing, as working hours or as lifetime after taking into operation The definition must be clear!	3.29 mission time maximum period of time for which a system or subsystem can be used after taking in operation before it must be replaced.	
DE		3.45		ed	Unclear wording in this definition: "... which is capable to fulfil <u>demands</u> of an electric safety device. "Demands" is too general. It is not clear whether "all the demands" is meant or "at least one of the demands" is meant. I assume, there is meant "all the demands".	3.45 safety circuit circuit containing electrical and/or electronic components which is capable to fulfil <u>the</u> demands of an electric safety device	
DE		3.51	c)	ed	"computer" shall be replaced by "processor".	electronic devices based on computer processor technology (programmable electronic).	
DE		4.2.5.5.3		te	The smallest distance between the car and counterweight is usually at the car guide or parts of the safety gear assembly. A distance of 30 mm less than 50 mm is sufficient to prevent a collision between the car and counterweight. On the other side no minimum distance is required between the car and fixed components in the well. Furthermore, collision and other unsafe operation are covered by 4.7.2.1.2.	Delete 4.2.5.5.3	
DE		4.2.6.3.2.3		te	The distance of 0,30m should be above, beside and below unprotected rotating parts. The risk of	There shall be a clear perpendicular distance of at least 0,30 m around unprotected circumference of	

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					crushing parts of the body exists beside and below unprotected rotating parts too.	rotating parts of the lift machine.	
DE		4.2.6.4.5.3	c) 1)	te	The requirement itself is incomplete and should be completed by ladder requirements for distances above 0,50m: “1) the vertical distance between the floor of the platform and the level of the access does not exceed 0,50 m if no ladder is available for safe access. (See annex C.1).” For this clause no solutions are known on the market. It is not any more state of the art. Therefore, the requirement should be deleted.	Delete clause 4.2.6.4.5 and related subclauses.	
DE		4.3.1.4		te	The reduction of gaps from 6 mm to 5 mm is practically not possible. The components of lift doors have tolerances and a play within their guiding means. To many damages of doors in practice are expected.	4.3.1.4 When closed, the clearance between door panels, or between panels and uprights, lintels or sills, shall not exceed 56 mm and shall not exceed 4 mm at a height between 0,2 m and 1,6 m above the floor level. This values, due to wear, may reach 8 mm, except for doors as required in 4.3.6.2.2.1 i) and 4.3.6.2.2.1 j). These clearances are measured at the back of recesses, if present.	
DE		4.3.1.4	2 nd paragraph	te	The requirement “This values, due to wear, may reach 8 mm, ...” which means in reality “This value shall not reach more than 8 mm due to wear” is not testable. The value, which will be reached in the future, cannot be known to the time of the conformity assessment procedures. Therefore a related requirement should be added to chapter 6.2.4.	6.2.4 o) Procedures for measuring the clearances between door panels, or door panels and uprights according 4.3.1.4 and the inspection periods.	

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DE		4.3.1.7	a)	te	This point is not clearly formulated and therefore not understandable.	Please define clearly what is meant and improve the wording.	
DE		4.3.5.2.2		te	The current wording of the 2nd sentence implies that the requirements of bullet point a) and b) apply not just for the hanger plate (upper) retainers but also the lower retainers in the door sill. According to ISO 8100-20:2018, 6.2.2 "Lift maintenance and repair instructions" Where maintenance or repair is required to ensure continued safety, appropriate instructions shall be provided emphasizing that <u>suitably trained personnel</u> perform any required work. NOTE <u>This applies to the lifts and lift components and functions that are subject to wear and tear</u>, not to those designed for maintenance-free operation. So, it must not to be considered that worn out lower guiding elements of the door panels (which also fulfil the retainer function inside the sill) are replaced without mounting new appropriate lower guiding elements. It may also be useful to indicate, that the lower retainers in the sill shall be made of metal and secured against automatic loosening	4.3.5.2.2 Horizontal sliding doors and folding doors on the landing and car shall be provided with retainers for keeping the door panel(s) in position if any of their guiding elements fails. Hanger plate retainer(s) shall have overlapping to its counterpart(s) in normal operation position. Retainers shall be metallic devices preventing the door panels from leaving their closure positions, which are either structural parts of the normal guiding means or part of the panel/hanger. Hanger plate retainer(s) shall have overlapping to its counterpart(s) in normal operation position. Lower retainers in the sill shall be secured against self-loosening. which are either: a) devices separated from the guiding elements which do not need to be removed for replacement of the normal guiding elements; or b) non-removable or integrated part of the door panel / hanger with or without	

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						integrated guiding element.	
DE		4.3.5.2.2		ed	The wording can be read as all door panels of all doors of a lift have to be tested. Improve wording.	All door panels in their complete door assembly shall be able to withstand a pendulum shock test as specified in 4.3.5.2.4 a) at striking points according to Table 4 and Figure 14 1	
DE		4.3.5.2.2		te	The structural part of the lower normal guiding means may include the retainer. Therefor only the guiding, which can have wear or getting lost should be removed. (see also comment before).	All door panels in their complete door assembly shall withstand a pendulum shock test as specified in 4.3.5.2.4 a) at striking points according to Table 4 and Figure 14 The test shall be performed with the door assembly in the closed position including the upper normal guiding means in place and the lower normal guiding means, excluded structural metallic parts used for the retaining function, removed. The door shall resist the pendulum shock test also with the normal guiding means installed.	
DE		4.3.5.2.4	b)	te	Side frames could be part of the building or the car and not part of the door. Specify clearer that only side frames of doors are covered. Improve wording for "in side frames" to "in the side frames" or "in side-frames" to avoid	b) when an impact energy equivalent to a falling height of 0,50 m of the hard pendulum shock device (ISO 8100-2:2023, 4.16) is applied on glass doors or glass panels bigger than stated in 4.3.7.2.1 a),	

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					misunderstanding with “inside frames”. Add brackets at plural of panel(s).	striking in the middle of; — the glass door, or — glass panel(s) in doors, or — glass panel(s) in the side frames, if they are part of the door. at striking points from the landing side or from the inside of the car according to Table 4 or Table 5, there shall be: ...	
DE		4.3.5.2.4	b) Paragraph 1	ed	The reference to 4.3.7.2.1 a) is wrong. Such a sub-clause does not exist. → Correct might be “4.3.7.1 a)	“b) when an impact energy equivalent to a falling height of 0,50 m of the hard pendulum shock device (ISO 8100-2:2023, 4.16) is applied on glass doors or glass panels bigger than stated in 4.3.7.1 a), striking in the middle of;”	
DE		4.3.6.2.2.1	a)	te	In this chapter, the kinetic energy of an automatic power-operated door is limited to 10 J <u>at the average closing speed</u> . This requirement a) cannot be verified on site and b) is useless in terms of safety → a) To verify this requirement on site, it is necessary to measure the kinetic energy at the moment, the current door's speed is exactly the average speed. This is impossible, because there is no indication when (or where) the closing door have exactly the average speed. To calculate this kinetic energy is also impossible on site, because there is no possibility to measure the mass of the moving door at a fully assembled lift. b) It is very unlikely that a person or an obstacle	a) the kinetic energy of the landing and/or car door and the mechanical elements which are rigidly connected to it, calculated, or measured at the average maximum closing speed shall not exceed 10 15 J. The average closing speed of a sliding door is calculated over its whole travel, less: 1) 25- mm at each end of the travel in the case of centrally closing doors; 2) 50 mm at each end of the travel in the case of side closing doors; Comment/explanation: Assuming that there is a sinusoidal driving curve of the closing door, the kinetic energy of 10 J at the average closing speed corresponds to a kinetic energy of about 24 J at the maximum closing speed, which is permitted by the actual text of the draft. Since we think that this value is too high for persons being hit by the closing door, we propose the value 15 J at the maximum closing speed.	

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					is hit with exact the average closing speed while the door is accelerating or decelerating. It is much more likely to be hit by the door at a higher speed, e.g. at its maximum speed. However, the kinetic energy at the maximum speed is actual unlimited! In addition, as far as I know injuries caused by a closing lift door are one of the most common reasons for lift accidents in the EU. This proofs that the current requirement, which is unchanged since EN 81-1/2 and EN 81-50, is not helpful.		
DE		4.3.6.2.2.1	b) 3)	te	In this chapter, the kinetic energy of the door shall be limited to 4 J if the protective device is not available, and the lift is kept in operation. a) It is undefined whether the value of 4 J is valid for the average speed or for the maximum speed. This limitation is formulated in a way that it is also valid for the opening door, which is not necessary! The concretization "...at any time the door(s) is (are) closing, only applies to the "acoustic signal", not to the door's kinetic energy.	"3) in case of failure, or deactivation of the protective device, the kinetic energy of the doors shall be limited to 4 J at its maximum closing speed, if the lift is kept in operation, and an acoustic signal shall operate at any time the door(s) is (are) closing"	
DE		4.3.6.2.2.1	c)	ed	This sub-clause is poorly worded in a way, that it is misinterpreted by some notified bodies in a way, which results in " the force which the closing door is allowed to bring on an obstacle shall not exceed 150 N". But this interpretation is nonsense, because it is impossible to limit this force! Reason: If the closing door hits a complete	"The door mechanism shall detect a static counterforce of max. 150 N when the door is closing, in order to cause a re-opening of the door. This counterforce shall be detected over a moving distance of max. 50 mm of the closing door. Note 1: Dynamic forces resulting from	

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					inelastic obstacle, it will be decelerated without any stopping distance from one moment to the other. This means 0 s deceleration time, which results in an infinite high deceleration. Independent from the doors closing speed and its moving mass, an infinite high deceleration causes an infinite high force on the obstacle. → The force brought on an obstacle which is hit by the closing door is only dependent on the obstacles characteristics! Therefore it cannot be limited by the door itself and therefore such a requirement would be nonsense. Therefore indeed the effort is limited for a person to prevent the door from closing. It means, a person who can muster a maximum of 150 N must be able to prevent the door from closing. This means, the door mechanism needs a kind of sensor to detect this counterforce of 150 N, in order to cause then the re-opening of the door. But this is not expressed clear enough. In addition it is left open how fast the detection of this counterforce shall be. What is the maximum moving distance of the door from the begin of the counterforce until its detection and until the expected rection of the door? → It needs to be defined. Up to now, "prevent from closing" can be interpreted as "prevent from reaching the closed position". Therefore currently it is enough if the closing door stops and re-opens 1 mm before reaching the closed position. It may be that this was not the intention the experts wanted to express, but it is the content of the current written text!	decelerating doors (kinetic energy) are different to static forces and require different measuring methods. Note 2: The measurement on the fast door panel e.g. could be carried out by following the door movement with increasing counterforce until the door panel reverses"	
DE		4.3.6.2.2.1	h)	te	h) the effort needed to prevent the door	Apply requirement to glass doors only:	

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					from opening shall not exceed 150 N, measured from the fastest panel, excluding the first third of the travel of the door; the door opening shall be stopped, and door movement shall be prevented for at least 20 seconds; This requirement is not feasible for high door weights and does not fulfil its justification because the first 1/3 is not protected.	h) the effort needed to prevent doors made from glass, with the exception of vision panels to 4.3.7.2.1 a), from opening shall not exceed 150 N, measured from the fastest panel; the door opening shall be stopped, and door movement shall be prevented for at least 20 seconds;	
DE		4.3.6.2.2.1	i) 2)	ed (te?)	The requirement is "2) sensing the presence of fingers <u>according to 4.3.6.2.2.1 i) 1)</u>; or", but 4.3.6.2.2.1 i) 1) does not deal with any sensing. Therefore, this requirement is not understandable.	Correct the reference or precise the requirement of the sensing in this sub-clause.	
DE		4.3.6.2.2.1	j)		The positions of the test object in - Car depth direction and - Horizontally to the gap are not defined. The orientation of the object is also not defined. Time for how long stopping is not defined. The test should also be described in chapter 5.2. The protected areas are not aligned (0,2 m vs 25 mm).	j) <u>automatic power-operated horizontally sliding car doors shall:</u> 1) be provided with means of detecting an object 8 mm thick, 40 mm wide and 80 mm length, where the second 40 mm is 12 mm thick with 45° chamfer [see Figure 18)], during opening the door. <u>The object with its side 8 mm x 40 mm facing to the gab and the side 40 mm x 80 mm toughing the door panel shall be detected between 0,20 m and 1,60 m above the sill latest directly before entering the gaps between door panels and uprights, and in-between door panels.</u>	

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						The door movement shall be stopped in the opening direction within 50 mm after detection as long as the object is present; or 2) have a limited gap: — between door panels and uprights; and — in-between door panels; of maximum 5 mm between 25 mm 0,2 m and 1,60 m above the sill. This value due to wear may reach 6 mm. 5.2.x Car Doors If the gaps between door panels and uprights, and in-between door panels, between 0,2 m and 1,60 m above the sill exceed 5 mm [4.3.6.2.2.1 j) 2)], it shall be tested, if the car doors stops within 50 mm after detecting an object entering the gaps between door panels and uprights, and in-between door panels between panels [4.3.6.2.2.1 j) 1)].	
DE		4.3.6.2.3.2		te	For sliding doors, ISO 8100 adopts the 1600 mm monitoring height already defined in EN81-20. For vertical doors, however a separate monitoring range of 2m is defined, which is not consistent in the context of ISO 8100: A person moving towards the area (when walking) will touch the monitoring area first with their hand or foot. A transported load for a lift will also touch the monitoring area first in the 1.6m range. Loads or people who touch the protected zone first in the 2m - 1.6m range (e.g. due to a stooped posture) would also be unprotected with a sliding	To take advantage of standardization, the monitoring heights of doors should be uniform across the board (e.g. 1.6 m).	

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					door, which means that the effect is worse with centrally closing doors, for example, as you could bump into them twice. If such protected areas are required, practice has already effectively shown that these special features are taken into account in tender texts in order to meet local requirements		
DE		4.3.9.1.1		te	The straight object is not defined clearly the width is not defined.	4.3.9.1.1 Each landing door shall be provided with a locking device satisfying the conditions of 4.3.8.1. The locking element shall be protected to prevent unlocking with a straight round object 300 mm long and with a diameter of 1 mm thick from the landing side.	
DE		4.3.9.1.9		ed	Here is used the Term "lock contacts", which is not correct. 4.3.9.1.1 requires the checking of the locking by an "electric safety device". The use of a <u>contact</u> is only one of possible 3 solutions for an electric safety device	"4.3.9.1.9 In the case where the <u>electric safety devices checking the locked position</u> are in a box,"	
DE		4.3.9.1.12	f)	ed	Here is the requirement "....The activation of the force limiter shall be checked by an <u>electric safety device</u> in conformity with 4.11.2. This device shall be in common with the <u>contacts</u> of the landing doors (4.3.9.4) or the landing door locks (4.3.9.1)." ➔ Since there are three possible solutions for an electric safety device (a "safety contact" is only one of them), the term "contacts" should not be used!	"This device shall be in common with the <u>electric safety devices</u> of the landing doors (4.3.9.4) or the landing door locks (4.3.9.1)."	
DE		4.4.2.1.3		ed	Wrong numbering. Sub-clause 4.4.2.1.3 is actual numbered as "4.4.2.4.3".	Change to "4.4.2.1.3"	
DE		4.4.2.2.1	c) 3)	ed	Would it make sense to move the 2 nd electrical safety device into an own sub number 4), current 4) then becoming 5), to clearly define individual	New 4) This device The electrical safety device acc. to 4.4.2.2.1 c) 3) shall be made inactive in the unlocking zone (4.3.8.1) by an electric safety	

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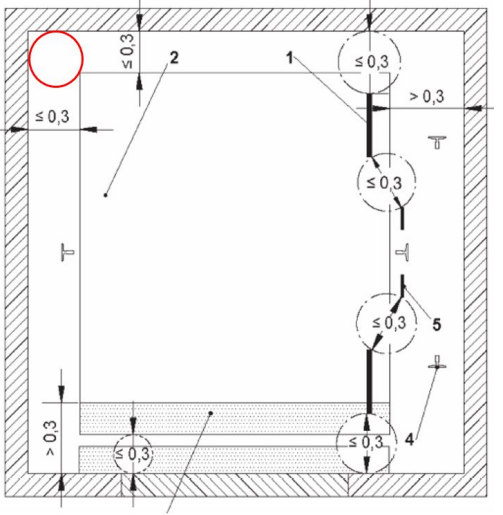
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					requirements?	device in conformity with 4.11.2;	
DE		4.4.2.2.1	c) 3)	te	For the electric safety device checking the retracted position of the mechanical device a SIL 1 is required. Why is for the electric safety device making the before mentioned electric safety device in the unlocking zone inactive a SIL 3 required? Applying one SIL higher, same as for 4.6.2.2.4.1 e) and 4.6.2.2.4.2 h), i.e. SIL 2, would be sufficient, wouldn't it?	-> To be reviewed	
DE		4.4.2.2.1	e)	te	e) the load control according 4.12.1.2 shall comply with the requirements of: 1) 4.11.2.3; or (electric safety circuit) 2) 4.11.2.4 with SIL3, HFT1. (SIL-rated circuit) It is not defined, what requirements for the processing of the signal of the load control device are given. The processing should not require a SIL-rated controller. Only the load measuring device shall be SIL-rated	e) the device measuring the load as part of the load control according 4.12.1.2 shall comply with the requirements of: 1) 4.11.2.3; or (electric safety circuit) 2) 4.11.2.4 with SIL3, HFT1. (SIL-rated circuit)	
DE		4.4.2.2.1	e) 1)	ed	Wrong order of the term "or" and the brackets. In addition, the semicolon after "4.11.2.3" is placed wrong.	"e) the load control according 4.12.1.2 shall comply with the requirements of: 1) 4.11.2.3 (electric safety circuit); or 2)"	
DE		4.4.2.2.2	g)		Here is the requirement from 4.4.2.2.1 e) repeated, but the explanatory brackets are missing.	Add "(electric safety circuit)" to sub-clause 1) and add "(SIL-rated circuit)" to sub-clause 2)	
DE		4.4.2.3.2		ed	What is the difference between "serial number" (ISO 8100-1:2019) and "identification number" (ISO/DIS 8100-1:2023)?		

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DE		4.4.2.4.3		ge	After 4.4.2.1.2 comes 4.4.2.4.3 and then 4.4.2.1.4.	It should be 4.4.2.1.3.	
DE		4.4.7.2	Figure 25	ge	The diameter of the red circle can be >300 mm, even if the distance from the car roof to the wall of the well is ≤300 mm. 	Add a dimension from the corner of the car roof to the corner of the shaft walls <300 mm in clause 4.4.7.2 and figure 25.	
DE		4.4.7	Figure 26	ed	The references in the legend are incorrect: Incorrect is 5.4. ... Correct is 4.4. ...	Correct the references.	
DE		4.5.1.2.2	i)	te	It is not clear when and in which situation “the above requirements shall be verified according to ISO 8100-2:2023, 5.14.1” - Only once, using a representative sample of the suspension means, similar to type certificate? - For every new lift installation using this	Please clarify the requirement.	

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					suspension means? For every charge of this suspension means??		
DE		4.5.2.1	Table 11	te	Elastomeric coated traction sheaves have not only advantages when small ropes are used but also for smaller D/d rations. Change 40 to 30.	Steel wire ropes with coated traction sheaves: 40 30	
DE		4.5.2.2.4		ed	Sub-clause 4.5.2.2.4 (content unknown) is missing. After 4.5.2.2.3 follows direct 4.5.2.2.5.	Add the missing sub-clause or re-number the following sub-clauses	
DE		4.5.2.2.5		ed	4.5.2.2.5 follows on 4.5.2.2.3	Correct "4.5.2.2.5" to "4.5.2.2.4"	
DE		4.5.2.2.5.1	Table 12	ed	It is not clear whether the "x" in the lines and columns of table 12 are marking an "OR" or and "AND". Therefore it is not clear, if e.g. in one line are occurring 4 "x", at least one of them is to realise or all of them are to realise.	Please precise the requirement.	
DE		4.5.2.2.5.2		ed	Subclause b) and c) are nearly identical	Delete clause b) as it is included in clause c)	
DE		4.5.2.2.5.2	f)	te	It is not clear what is really meant with this requirement: e) requires that the monitoring shall maintain the critical data, which means that the critical data is to be stored in the monitoring means. f) requires that in case of a failure of the monitoring means the critical data shall not be lost. → One solution for f) could be to separate the monitoring means from the data memory for the	Change wording to: f) There are two independent storage means required, in order to keep the critical data in case of a failure of one of them.	

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					critical data. Then in case of a failure of the monitoring means the data memory remains intact. But this would not be in line with e)! If really data stored in the monitoring means shall not be lost in every ttype of failure of this storage means, it is necessary to have a hot stand-by. ➔ It would be more honest to say direct: "There are two independent sets of monitoring means required, in order to keep the critical data in case of a failure of one of them."		
DE		4.5.2.2.5.4.2		ed	clause4.5.2.2.5.2 e)	Add " " after clause => clause 4.5.2.2.5.2 e)	
DE		4.5.3.1.3	b)	te	To fulfil this requirement two electric safety device for slack rope detection, on both sides of the traction sheave, are necessary. No other alternative is allowed. Why? If the elastomeric coated rope slips on the traction sheave it would also be ok! In addition, these electric safety devices cannot be tested, if the ropes will slip. Slipping ropes will not lead to slack rope.	b) Elastomeric coated ropes and traction belts, shall slip on the traction sheave and are calculated according to ISO 8100-2:2023, 4.11.2.2.3, where the friction factor f is based on 20 tests at different rope sections under worst case conditions or the machine shall be stopped by an electric safety device in conformity with 4.11.2; The return to automatic operation shall only be possible by manual resetting;	
DE		4.6.1.3	2nd paragraph	ed	Here is mentioned sub-clause 4.3.9.3.4 as a reference for "landing doors are <u>not</u> driven by the car door". But 4.3.9.3.4 is for another case, where "landing doors <u>driven</u> by the car door". Is the reference wrong?	Correct the reference	
DE		4.6.2.1.4.2	b)	te	b) in application of procedures available on site (6.2.2). There is a link to Chapter 6.2.2, this chapter doesn't include information about applications of procedures available on site.	b) in application of procedures available on site (6.2. 25 a)).	

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DE		4.6.2.2.4.1	e)	ed	Would it make sense to move the 2 nd electrical safety device into an own sub letter f), current f) then becoming g), and so on, to clearly define individual requirements?	f) This device The electrical safety device acc. to 4.6.2.2.4.1 e) shall be made inactive in the unlocking zone (4.3.8.1) by an electric safety device in conformity with 4.11.2;	
DE		4.6.2.2.4.2	h)	ed	Would it make sense to move the 2 nd electrical safety device into an own sub letter i) to clearly define individual requirements?	i) This device The electrical safety device acc. to 4.6.2.2.4.2 h) shall be made inactive in the unlocking zone (4.3.8.1) by an electric safety device in conformity with 4.11.2;	
DE		4.6.5.9	Paragraph 1	ed	Would it make sense to re-phrase 4.6.5.9 and move the 1 st and the 2 nd electrical safety device into own sub chapters to clearly define individual requirements?	4.6.5.9 The retracted position of the pawl a) shall be checked by an electric safety device in conformity with 4.11.2-; b) This device The electrical safety device acc. to 4.6.5.9 a) shall be made inactive in the unlocking zone (4.3.8.1) by an electric safety device in conformity with 4.11.2.	
DE		4.6.5.9 See also 4.4.2.2.1	Paragraph 1	te	For the electric safety device checking the retracted position of the pawl a SIL 1 is required. Why is for the electric safety device making the before mentioned electric safety device in the unlocking zone inactive a SIL 3 required? Applying one SIL higher, same as for 4.6.2.2.4.1 e) and 4.6.2.2.4.2 h), i.e. SIL 2, would be sufficient, wouldn't it?	➔ To be reviewed	
DE		4.6.6.2 4.6.7.3			The requirement for automatic brake monitoring every day as a general requirement is overshooting. In many areas in the world brake monitoring is part of regular maintenance and inspection. Accident analysis do not show issues in countries with legal requirements for regular maintenance and inspection. ISO 8100-1 should give a minimum safety requirement. Depending on national issues it can	In the case of using the machine brake, self-monitoring shall comply with 4.9.2.2.2.8 b) and 4.9.2.2.2.3 g).	

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					be decided on national bases to limit the given possibilities (wear control or brake torque verification) to only one of them.		
DE		4.6.6.2 4.6.7.3	3 rd paragraph	ge	The effectiveness of self-monitoring shall be verified according to ISO 8100-2:2023, 4.7.3.2.5. Self-monitoring cannot be verified in practice according ISO 8100-2:2023, 4.7.3.2.5 / 4.8.3.2.5 because: - many components are involved like brake, controller, inverter, motor, encoder, load weighting device, positioning system,... - components involved in monitoring are combined in various combinations	Delete chapters sentences 4.6.6.2 and 4.6.7.3 And Delete requirement ISO 8100-2, 4.7.3.2.5 and ISO 8100-2, 4.8.3.2.5	
DE		4.6.6.2 4.6.7.3		te	Since the machine brake is only a stupid mechanical device, it is clear that the machine brake cannot perform self-monitoring itself.	4.6.6.2/4.6.7.3 The means shall be capable of performing as required in 4.6.6.1 /4.6.7.2 without assistance from any lift component that controls the speed or retardation, or stops the car during automatic operation, unless there is built-in redundancy and correct operation is self-monitored. In the case of using the machine brake, self-monitoring shall comply with 4.9.2.2.2.8 b) and 4.9.2.2.2.3 g). ... The effectiveness of self-monitoring shall be verified according to ISO 8100-2:2023, 4.7.3.2.5. ...	

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DE		4.6.7.4	c)	te	Here is written “The stopping element of the means shall act on:;; c) the suspension or compensation steel wire ropes;” Since the term “steel wire ropes” is not defined in chapter 3, it is not clear what is meant here: Is it permitted that the stopping element acts on elastomeric coated <u>steel wire ropes</u>? Is it only permitted that the stopping element acts on <u>uncoated</u> steel wire ropes?	Please precise the requirement.	
DE		4.7.2.1.2		te	Deflections of buildings made of concrete or masonry can be neglected.	Add: <i>In the case of concrete and masonry, the deformation can be neglected.</i>	
DE		4.9.2.2.2.1	2nd paragraph / 2nd sentence	te	There is the new requirement “All the mechanical components of the machine brake which take part in the release of the brake <u>including manual operation</u> (see 4.9.2.3.1) shall be installed at least in two sets.” According to 4.9.2.3.1 a mechanical component for the release of the brake in manual operation can be e.g. a lever. ➔ This requirements means, that if there is used a lever for manual release of the brake, <u>at least two sets of levers are required</u>! It is not clear what is meant with this requirement. Two interpretations are possible: Normally at least two sets of components were used in safety technics in order to have some redundancy if one sets fails. Therefore the assumption is, that <u>each</u> of the	Clarify the requirement, because actual this sub- clause is not self-explaining. If possibility “2” is the correct one, add the missing requirement.	

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					sets (e.g. <u>each</u> lever) shall be capable to release <u>all</u> brake sets to the same time. If one set (e.g. one lever) fails, it is possible to use another one to perform manual rescue operation. 2. Another possible interpretation would be, that each braking set shall have its own set of manual realising components (e.g. its own lever), where each of the releasing sets is <u>not</u> capable to release <u>all</u> brakes to the same time (= normally one lever releases only one brake). → If this is meant, there is missing an additional requirement that all of the at least two releasing sets (e.g. all of the at least two levers) shall be possible to be operated all together to the same time <u>using only one hand</u>. This is necessary, because the other hand is needed to operate the hand winding wheel (otherwise two persons are needed for manual rescue operation)		
DE		4.9.2.2.2.2		ed/te	This requirement is nearly unchanged taken over from EN 81-20:2020, but it seems to be badly formulated since it does not meet the reality: There are 2 requirements for the coupling of the component on which the machine brake operates and the traction sheave: 1. The coupling shall be <u>direct</u>. 2. The coupling shall use positive mechanical means In reality all over the EU there are geared lift machines used for new lifts, where between the brake and the traction sheave works a gear ratio. → This is an <u>indirect</u> coupling, not a <u>direct</u> coupling.	Improve the wording of the requirement in order to meet the reality.	

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					Since I assume that there are not thousands of geared lift machines in use within the EU, which do not meet the requirements of EN 81-20 (and perhaps older standards?), I assume that only the formulation of this sub-clause is misleading and a gear between the brake and the traction sheave is of course allowed.		
DE		4.9.2.2.2.3	a)	te	There is missing the possibility of “two independent electromechanical devices according to 5.10.3.1, whether or not integral with those, which cause interruption of the current feeding the lift machine;”, which is sub-clause 5.9.2.2.2.3 a) 1) in actual EN 81-20:2020 ➔ This solution is well proofed in hundred of thousand lift installations in Europe without any problems. There is no reason to forbid it now! In addition, EN ISO 8100-1 will define the current “state of the art”, which will lead to the consequence that hundred of thousands lift installations in Europe will become “unsafe”, because they do not meet the state of the art. All these lifts then will need a technical update to “increase the safety according to the state of the art”, what is really not necessary.	Keep the “two independent electromechanical devices according to 5.10.3.1” as permitted means.	
DE		4.9.2.2.2.3 and 4.9.2.2.2.3	a) 1) f)	te	Requiring a safety circuit for interrupting the brake is overshooting. To higher the safety level, a third switching element according 4.9.2.2.2.3 f) is sufficient.	4.9.2.2.2.3 a): 1) Safety circuit according to 4.11.2.3, or 1) two independent electromechanical devices according to 4.10.3.1, whether or not integral with those, which cause interruption of the current feeding the lift machine; If, whilst the lift is stationary, one of the electromechanical devices has not opened the brake circuit, any further movement of the car shall be prevented. A stuck-at failure of this	

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						monitoring function shall have the same result; 4.9.2.2.2.3 f) f) where the machine brake is part of the means to stop the car according to 4.6.6 or 4.6.7, a separate means in addition to a) shall be used to control the brake current during automatic operation;	
DE		4.9.2.2.2.3	g)	te	The monitoring of the release of the brake should only be required for brakes used as stopping means for ACOP or UCMP. ACOP and UCMP are the backup for a failing brake, a double backup is overshooting.	If the machine brake is used as stopping means for ascending car overspeed protection (4.6.6.2) or as stopping means for protection against unintended car movement (4.6.7.3), the release of each brake set of the machine brake shall be monitored. If a failure is detected, car and landing doors shall be closed, and further movement of the car in automatic operation shall be prevented. If a failure is detected during movement, the next start of the lift in automatic operation shall be prevented. Failure to continuous “0” or “1” state of this monitoring function shall have the same result.	
DE		4.9.2.2.2.8	b)	ge	According to CEN and ISO regulations patented solutions cannot be required by standards.	Delete requirement.	
DE		4.9.2.2.2.8		te	Require additional brake monitoring only if the brake is used as stopping means for ACOP or UCMP. ACOP and UCMP are the backup for a failing brake, a double backup is overshooting.	4.9.2.2.2.8 If the machine brake is used as stopping means for ascending car overspeed protection (4.6.6.2) or as stopping means for protection against unintended car movement (4.6.7.3) the machine brake shall be monitored by one of the following means:	

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						a) the maximum wear of the brake lining material shall be detected; b) automatic braking torque verification at least once every 24 hours of automatic operation. Monitoring shall verify that in case of failure of any single brake set the remaining brake sets are able to hold the rated load + 10% in the car at the landing If a failure is detected, the car and landing doors shall be closed, and the start of the lift in automatic operation shall be prevented. Failure to continuous “0” or “1” state of this monitoring function shall have the same result.	
DE		4.9.2.2.2.3 4.9.2.5.4 4.9.3.4.2 4.9.3.4.3	a) 2) d) e) e) c)	te	There is used the term “PFH” in “..., with a hardware fault tolerance of at least 1 and $PFH \leq 2,5 \cdot 10^{-8}$”. This term is undefined in “3 Terms and definitions” and therefore unknown. Only ISO 8100-2 gives in a note at the bottom of Table A.3 a definition of “PFH”. ➔ This is too less.	At the best, add a definition of “PFH” in “3 Terms and definitions”. (this also apply to the term “PFD”)	
DE		4.9.2.2.2.3	c)	ed/te	In the sentence “braking shall become effective after opening of the brake release circuit ...” is used the wrong term “release circuit”. It is not the “release circuit” which is opened! It is the power supply of the brake(s) which is opened (or cut) by the means of the release circuit.	“c) braking shall become effective after opening of the brake power-supply circuit without a delay in addition to those of passive acting electrical component (e.g. diode, capacitor or varistors) that reduces sparking;”	

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DE		4.9.2.2.2.8	b)	ed	The automatic brake verification shall be done once a day and not every 24 hours to give more flexibility for the time-shift of summer/winter time	b) automatic braking torque verification at least once every 24-hours day of automatic operation. Monitoring shall verify that in case of failure of any single brake set the remaining brake sets are able to hold the rated load + 10% in the car at the landing.	
DE		4.9.2.2.2.8	Various sections	te	Reset is required when leaving the pit (pit inspection control station). Same safety level should be given when leaving car top. "0" or "1" is not understandable for everybody	Additionally , return to automatic operation of the lift from the-pit inspection station operation shall only be made under the following conditions: Failure to continuous "0" activated or "1" deactivated state of this monitoring function shall have the same result.	
DE		4.9.2.3.1	Very last Sentence	ed	Here is required as action "..., automatic operation, inspection operation <u>or</u> emergency electrical operation of the lift shall be prevented ...". The use of the term "or" means that - automatic operation, or - inspection operation, or - emergency electrical operation shall be prevented. This does not make any sense. In my opinion it should be an "and".	"Additionally for electrical operation if one fault combined with a second fault can lead to a dangerous situation, automatic operation, inspection operation <u>and</u> emergency electrical operation of the lift shall be prevented after occurrence of the first fault."	
DE		4.9.2.3.3		te	This requirement is formulated in a way, which make it harder to fulfil than necessary. Example: q = 0,5 Q = 1000 kg This means that it shall be possible to move the car to an adjacent floor with a load in the car of	"The load range where it is <u>not</u> possible to move the car shall <u>not</u> by wider than 0,2 * Q, where Q is the rated load. Outside this load range it shall be possible to move the car to an adjacent floor by either:	

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					400 kg and with a load in the car of 600 kg. → This requirement is valid for each position in the well, while the not compensated weight of the suspension means could be quite different. It is easier to meet the requirement, if it is not related to an absolute load in the car, but to the difference to the balanced load. → The balanced load could be different, depending to the car's position in the shaft. I propose to formulate it the other way round, that the load range where it is not possible to move the car shall not be wider than 0,2 * Q. Than also the balance factor q is not necessary. Than in the upper area of the well e.g. 450 kg load and 650 kg load shall make it possible to move the car, while in the lower area of the well e.g. 350 kg and 550 kg are making it possible. → The load range in both cases and in all cases between is always 0,2 * 1000 kg = 200 kg	a) b)"	
DE		4.9.2.3.9		te	At manual electrical brake release the speed should be limited to the speed the buffer is designed for.	4.9.2.3.9 With the machine brake manually released, the car speed shall be limited to the speed for which the buffers are designed, unless the brake is released mechanically and there is direct visual observation of the lift machine, or display device(s) according to 4.2.6.6.2 e) are available.	
DE		4.9.2.6	1st Paragraph	te	Here is written about "safety circuits according to 4.11.2.3 and 4.11.2.4". This is wrong, because only 4.11.2.3 deals with safety circuits, 4.11.2.4 deals with SIL-rated circuits. Since 4.11.2.3 and 4.11.2.4 are numbered on the	"Control devices according to 4.9.2.5.3.2 b) 2) or 4.9.2.5.4 b) 2), and monitoring devices according to 4.9.2.5.3.2 b) 3) or 4.9.2.5.4 b) 3) need not be safety circuits according to 4.11.2.3 or <u>SIL-rated circuits according to 4.11.2.4.</u>	

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					same numbering level, SIL-rated circuits are not interpreted as a sub-group of safety circuits! ➔ Otherwise 4.11.2.3 would also apply to SIL-rated circuits. But this was not the intention!		
DE		4.9.3.4.2	d)	te	No PFH specified for safe torque off function fulfilling SIL3	...of at least 1 <u>and PFH ≤ 5*10⁻⁸</u>	
DE		4.9.3.4.2	e)	te	In opposite to traction lifts (motor + brake), at hydraulic lifts only the motor must be stopped. Therefore, a PFH value of 5*10 ⁻⁸ is sufficient.	e) <u>the electric motor shall be stopped by a SIL-rated circuit according to 4.11.2.4 fulfilling SIL3 requirements, with a hardware fault tolerance of at least 1 and PFH ≤ 2,5*10⁻⁸ 5*10⁻⁸.</u>	
DE		4.9.3.4.3		te	Similar to electric driven lifts there is missing the possibility “by at least two independent electromechanical devices according to 5.10.3.1, connected in series, or”, which is sub-clause 5.9.3.4.3 a) in current EN 81-20:2020.	Similar to electric driven lifts, also permit this well proofed solution. Add: <u>d) by at least two independent electromechanical devices according to 4.10.3.1, connected in series</u>	
DE		4.9.3.4.3	c)	te	In opposite to traction lifts (motor + brake), at hydraulic lifts only the downward direction valve must be stopped. Therefore, a PFH value of 5*10 ⁻⁸ is sufficient.	<u>c) SIL-rated circuit according to 4.11.2.4 fulfilling SIL3 requirements with a hardware fault tolerance of at least 1 and PFH ≤ 2,5*10⁻⁸ 5*10⁻⁸.</u>	
DE		4.9.3.9.1.4		ed	It is missing a “.” In the numbering: Paragraph 4.9.3.9.1.4 is written as “4.9.3.91.4”	Add the missing dot.	
DE		4.9.3.10.1		ed	It is missing a “.” In the numbering: Paragraph 4.9.3.10.1 is written as “4.9.310.1”	Add the missing dot.	
DE		4.9.3.10.1 and 4.9.3.10.4		te	Paragraph 4.9.3.10.1 requires a motor run time limiter also under the condition if “... the car does not move”, independent from the foreseen moving direction. This is not necessary, because also in a frequency controlled hydraulic, there is no risk to damage the motor when trying to move	4.9.3.10.1 Hydraulic lifts shall have a motor run time limiter causing the de-energizing of the motor and keeping it de-energized if the motor does not rotate when a start in up direction is initiated, or the car does not move <u>trying to move upwards.</u>	

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					downward. This risk only exists when trying to move upward. Therefore, in 4.9.3.10.4 it is not necessary to make an exception for the electrical anti-creep system (4.12.1.10). Movements caused by the electrical anti creep system are always downward. Note: Re-levelling is not a part of the electrical anti creep system according to 4.12.1.10.		
DE		4.9.3.10.4		ed	Here the term “or” is used, which is wrong. Actual the run time limiter shall not prevent the inspection operation <u>or</u> the emergency electrical operation <u>or</u> the electrical anti-creep system. Since this does not make any sense, an “<u>and</u>” would be correct.	“4.9.3.10.4 The motor run time limiter, even if tripped, shall not prevent the inspection operation (4.12.1.5), the emergency electrical operation (4.12.1.6), <u>and</u> the electrical anti-creep system (4.12.1.10).”	
DE		4.10.1.1		te	Related to EN 81-20:2020 the headline “Limits of application” was kept, but the content of EN 81-20, 5.10.1.1.1 is now missing! The now missing content is very important, because it pointed out that “The lift shall be considered as a whole, in the same way as a machine with its built-in electrical equipment”. The now missing content stated clear that “The national requirements relating to electricity supply circuits apply as far as the input terminals of the switches. They apply to the whole lighting and socket outlet circuits of the machine room and the pulley room.” The now missing content has drawn a well-defined boundary in 5.10.1.1.1 a), b) and c) what is normative regulated by this standard, and what is regulated by other standards.	Keep the actual sub-clause 5.10.1.1.1 of EN 81-20:2020	

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					→ Without this, other national or european regulations may apply. This could hinder the free movement of goods!		
DE		4.10.1.1.4	2nd sentence	te	Here is used the phrase "...accessible parts within arm's reach ...". Now there are two problems: 1. "arms reach" is not defined in this standard and no reference to another standard defining "arm's reach" is given. → This is not a <u>clear</u> requirement. 2. If a certain value of "arm's reach" would be available, the starting point for the measurement of this distance remains unknown. → "Arm's reach" from which position? In this form it is not a clear requirement. Different interpretations are possible	Add the missing value for "arm's reach" in the form "xxx mm" and define the missing position.	
DE		4.10.1.1.4	Table 19	te	Temperature limits for accessible parts For "Parts which need not be touched" non-metallic non temperature limit is given. Limit should be 90°C	Parts which need not be touched: Non Metallic: 90°C	
DE		4.10.1.1.5		te	Only safety related lift components are affected. Specify, when a device is capable of connectivity.	Lift components that are capable of wireless connectivity or connected to external systems and, which are related to a function required in this document , shall comply with the requirements of ISO 8102-20:2022. Connectivity is covering wireless connections, wired connections and free accessible onsite access via connectors. Also, onsite inputs via keypads are covered.	

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DE		4.10.1.1.5		te	The requirement “Lift components that are capable of connectivity to external systems shall comply with the requirements of ISO 8102-20:2022” is too hard! → A threat to cyber security only exists, when the possibility of a connection to an external system really is used. The mere possibility of a connection does not create any risk. Therefore it is good practice at existing lifts, to cut any connection to external systems in order to guarantee cyber security. → This common practice should be supported by this standard!	<u>A warning notice nearby a lift component shall be visible if the component is capable of connectivity to external systems and does not comply with the requirements of ISO 8102-20:2022.</u>	
DE		4.10.1.2.1	Paragraph 2	ed	Warning sign shall be placed at all enclosure door(s) and cover(s) from which electrical equipment that can give rise to a risk of electrical shock is accessible.	Enclosures that do not otherwise clearly show that they contain electrical equipment that can give rise to a risk of electric shock, shall be marked with the warning sign ISO 7010:2019, W012, with a minimum height of 25 mm on the enclosure door(s) or cover(s) <u>from which this electrical equipment is accessible</u>, see Figure 33.	
DE		4.10.3.2.2	Paragraph 2	te	ISO 8100-2, Table 3, 3.1 and 3.6 require for failure exclusion of safety circuits IP54 to allow use of pollution degree 2. Therefore, IP5X shall be replaced by IP54. ISO 8100-2, Table 3, 3.1 and 3.6 state “... pollution degree 2 can be used.” Therefore, “may” shall be replaced by “can”.	If the protection of the device is IP5X IP54 (IEC 60529:1989+AMD1:1999+AMD2:2013) or better, <u>at least</u> pollution degree 2 <u>shall</u> be used	
DE		4.10.5.1.3		te	This requirement will be mostly interpreted as “a device according to IEC 60204-1:2016+A1:2021, 5.5 is permitted to be installed <u>instead</u> of a main switch”. If this is the correct intention, then ok. If this is not the intention, then the requirement	Precise the requirement. Proposal: <u>an additional ⚠ device according to IEC 60204-1:2016+A1:2021, 5.5 shall be provided at the location of that component.</u>	

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					needs to be improved. ➔ The existence of this question alone proves that the requirement is not clear enough.		
DE		4.10.6.1		ge	"Where higher fire classification is needed..." Unclear. Not further specified to which cases this applies.	Needs to be specified more precisely.	
DE		4.10.6.3.6		ed	This sub-clause is actual numbered as "5.10.6.3.6", which seems to be a copy-paste failure.	Correct to "4.10.6.3.6"	
DE		4.10.6.3.6	Paragraph 2	ed	"the" shall be replaced by "an".	Conductors and cables connected to the an electric safety device and subject to contact with moving parts or sharp edges shall be protected mechanically.	
DE		4.10.10	Headline	ed	The headline " <u>Electrical</u> identification" is wrong, because what is required is a <u>visible</u> identification instead of an only <u>electrical</u> one.	"4.10.10 Identification of electrical components"	
DE		4.11.2.1.4		ed	"further down" is confusing and shall be replaced by "subsequently in".	An output signal emanating from an electric safety device shall not be altered by an extraneous signal emanating from another electric device placed further-down subsequently in the same circuit, which would result in a dangerous condition.	
DE		4.11.2.3.2	Paragraph 1	ed	4.11.2.3.2 states: "... relative to the appearance of a fault." 4.11.2.4.2 states: "... regarding the appearance of a fault." Which one shall be used for both?	➔ To be reviewed	
DE		4.11.2.3.2	Paragraph 2	ed	ISO 8100-2, 4.17, 2 nd § states: "...for relevant operating parameters at normal operating conditions.". For consistency same wording should be used also in 2 nd § of 4.11.2.3.2.	... for the relevant operating parameters at normal operating conditions.	

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DE		4.11.2.3.2	Paragraph 2	te	Here a certain over-dimensioning factor shall be considered for the "relevant parameters at normal operating conditions". That is too imprecise! Neither the "relevant parameters" nor the "normal operation conditions" are defined!	Define which parameters are "relevant" and which parameters are "irrelevant". and define which operation conditions are "normal" and which operation conditions are "abnormal".	
DE		4.11.2.3.2	Paragraph 2	te	What does the term "shall be considered" mean? It is not clear whether over-dimensioning is a requirement (mandatory) or only a proposal.	Either "... of at least 1,5 shall be <u>applied</u> ..." or remove this sub-clause completely, since standard should content only real requirements and not any proposals.	
DE		4.11.2.3.2	3rd sentence	te	There is missing any requirement as a benchmark for the decision, whether a justification is acceptable or not. Is e.g. the justification that realising an over-dimensioning factor of only 1,1 is cheaper, that to realise 1,5, an acceptable justification? According to the actual text, yes!	Define useful requirements for the demanded justification.	
DE		4.11.2.3.2		te	For many electric components (e.g. transistors, diodes, resistors, ICs, etc.), the operating temperature might be a relevant parameter, for which the manufacturer give max. and min. values in the datasheet. It is complete unclear <u>how</u> over-dimensioning concerning the operating temperature is to be done! ➔ If e.g. a transistor has to work at an ambient temperature of +65 °C. Does it mean that a transistor must be choosen, which allows an ambient temperature of $65\text{ °C} * 1,5 = 97,5\text{ °C}$? Or, since $65\text{ °C} = 338\text{ °K}$, a transostor must be	Please define and describe in which way over-dimensioning can be applied to the parameter "temperature".	

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					chosen which allows an ambient temperature of 338 °K * 1,5 = 507 °K? And what is about the lower temperature limit of e.g. +5 °C. <u>How</u> should over-dimensioning work at that limit? It is clear, that over-dimensioning means, that the transistor shall allow also temperatures below + 5 °C. But which value exactly?		
DE		4.11.2.3.5	Paragraph 1	ed	The data plate allows the identification of the safety circuit. Safety circuits without electronic components also need to be identifiable. Therefore, requirement for a data plate shall not be limited to safety circuits with electronic components.	A data plate shall be fixed on all safety circuits containing electronic components , indicating:	
DE		4.11.2.4.2		ed	Paragraph should be organized similar to 4.11.2.3.1 and 4.11.2.3.2. Note results in a renumbering of following current § numbers 4.11.2.4.3 and following.	4.11.2.4.2 Failure analysis of SIL-rated circuits shall take into account failures for the entire circuit including sensors, signal transmission paths, power supplies, safety logic and safety output. 4.11.2.4.3 SIL-rated circuits shall comply with the requirements of 4.11.1 relative to the appearance of a fault. Failure analysis of SIL-rated circuits shall take into account failures for the entire circuit including sensors, signal transmission paths, power supplies, safety logic and safety output. For all components of SIL-rated circuits, an over-dimensioning factor of at least 1,5 shall be considered for the relevant parameters at normal operating conditions. Operating any hardware elements with an over-dimensioning factor of less than 1,5 shall be justified and documented.	
DE		4.11.2.4.2	3rd and 4 th paragraph	te	The same comments concerning over-dimensioning, written for 4.11.2.3.2 (safety	The same proposals as for the safety circuits	

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					circuits) apply here to the SIL-rated circuits	apply here.	
DE		4.11.2.4.3	Paragraph 1	ed	"SIL-rated circuit" shall read "SIL-rated circuits".	For SIL-rated circuits a proof test interval at least 20 years shall be used in PFD_{avg} /PFH calculations.	
DE		4.11.2.4.3	Paragraph 3	ed	A "S" is missing	For SIL-rated circuits, applied as	
DE		4.11.2.4.3	Table 21	ed	There is a mismatch concerning the unit of PFH between table 21 and the other sub-clauses of the whole document dealing with a certain PFH. In the other sub-clauses for PFH is only given a value without any unit, while in Table 21 the unit "h ⁻¹ " is used. It should be always the same! In my opinion, "h ⁻¹ " is correct.	Align the units used for PFH in the whole standard. At the best use "h ⁻¹ " as unit.	
DE		4.11.2.4.8	1st sentence	te	This requirement is not precise enough! → It is not clear what is meant exactly with "the failure state of the SIL-rated circuit". - The fact that the SIL-rated circuit has transit to a safe state due to a discovered failure in the SIL-rated circuit itself? - Not only the fact, but the precise reason for the transit to a safe state due to a discovered failure in the SIL-rated circuit itself? - The fact that the SIL-rated circuit has transit the lift to a safe state due to any detected reason outside the SIL-rated circuit? - Not only the fact, but the precise reason for transit the lift to a safe state due to any detected reason outside the SIL-rated circuit?	4.11.2.4.8 A SIL-rated circuit shall it shall be possible to identify indicate its internal the failure state of the SIL-rated circuit , either by a built-in system or by an external tool. If this external tool is a special tool, it shall be available on the site.	

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					? For a fact, a simple LED is enough. For a precise reason a kind of display is necessary.		
DE		4.11.2.4.9.1	Paragraph 2	te	What is the verification measure for “prevented from unintentional modification”?	➔ To be reviewed	
DE		4.11.2.4.10		ed	Sub-clause 4.11.2.4.10 is missing. After 4.11.2.4.9.2 follows direct 4.11.2.4.11	Add the missing sub-clause 4.11.2.4.10, which's content is unknown, or re-number the following sub-clauses.	
DE		4.11.2.4.12	d)	te	The definition of mission time is not clear. Does it include storage and delivery time? In my opinion yes.	4.11.2.4.12 d) maximum mission time . 4.11.2.4.12 d) date end of mission .	
DE		4.12.1		ed/te	There is a wrong numbering scheme in 4.12.1, which is misleading. There are <u>on the same numbering level</u>: 4.12.1.1 Control of normal operation (resp. automatic operation) 4.12.1.2 Load control 4.12.1.3 Monitoring the normal slowdown of the lift machine in case of reduced buffer stroke. 4.12.1.4 Control of levelling, re-levelling and preliminary operation with doors not closed and locked. 4.12.1.5 Control of inspection operation 4.12.1.6 Control of emergency electrical operation 4.12.1.7 Protection for maintenance operations 4.12.1.8 Landing and car door bypass device	Re-number chapter 4.12.1 in a way, that current 4.12.1.2 4.12.1.3 4.12.1.4 4.12.1.7 4.12.1.9 4.12.1.10 4.12.1.11 4.12.1.12 are numbered as sub-clauses of 4.12.1.1, because they all belong to “automatic operation”.	

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					4.12.1.9 Prevention of automatic operation of the lift with faulty door contact circuits 4.12.1.10 Electrical anti-creep system 4.12.1.11 Stopping devices 4.12.1.12 Control of automatic rescue operation The misleading problem now is that some points on this same level are alternatives to automatic (or normal?) operation. There is “automatic operation” <u>or</u> “inspection operation” <u>or</u> “emergency electrical operation” <u>or</u> “landing and car door bypass device active”. The other points are <u>not</u> alternatives to automatic operation. They are active <u>while</u> automatic operation happens, they are a part of automatic operation In a chapter where the headline of 4.12 is “Controls – Final limit switches – <u>Priorities</u>” this is very misleading. ➔ E.g. it is unclear whether “4.12.1.4 Control of levelling,” shall be active during automatic operation, or not.		
DE		4.12.1.1	headline	ed/te	The term “normal operation” is undefined. It was also undefined in EN 81-1/2 and in EN 81-20, therefore it was decided to replace it by the term “automatic operation”, which is well defined in 3.2	Replace “normal operation” by “automatic operation” or define “normal operation” in chapter 3 Terms and definition and explain, what in “normal operation” is deviating from the behaviour in “automatic operation”.	
DE		4.12.1.1		ed	“Normal operation” has been mostly replaced by “automatic operation” but is still used in various sections and may be misunderstood. Replace / Remove “normal operation” complete.	4.12.1.1 Control of user initiated normal operation Replace wording also where 4.12.1.1 is referenced.	
DE		4.12.1.2.2		te	In the actual EN 81-20 this requirement is	4.12.1.2.2 The overload shall be detected at the	

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					supplemented by the addition "with a minimum of 75 kg", which is missing in this draft. This means that a lift with a rated load of e.g. 320 kg shall detect overload at least when the rated load is exceeded by 32 kg. This is a strong tightening of the requirement! In face of the friction between the guide rails and the car's guiding, especially after some wear, it is unclear whether this tightened requirement can be fulfilled by the well-known load sensors in the suspension ropes or in the pressure system of a hydraulic lift. In addition, there was no known any accident due to overload in the EU, with the reason of a too weak requirement in EN 81-20 or in EN 81-1/2. → The previous requirements have proven their worth, there is no need to tighten them.	latest when the rated load is exceeded by 10 % with a minimum of 75 kg."	
DE		4.12.1.5.2.1	a)	ed	Here is used the term "normal operation controls". This is undefined because the term "normal operation" is undefined. This term was replaced by "automatic operation".	"a) neutralize the automatic operation controls (4.12.1.1.1);"	
DE		4.12.1.5.1.2 in combination with 4.12.1.5.2.1	a)	te	According to 4.12.1.5.1.2 a) the inspection switch "... shall satisfy the requirements for electric safety devices (4.11.2)." This means it shall be a part of the electric safety chain and shall cause the immediate stopping of the lift machine. Then 4.12.1.5.2.1 demands additional things, which shall be deactivated when the inspection operation switch is in the inspection position. → Not all of this things can be deactivated by using the electric safety chain. Therefore the inspection switch needs at least one more contact which cannot be an electric safety device	Please state clearly, that the inspection switch needs additional contacts, which need not to meet the requirements of 4.11.2	

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					according to 4.11.2!		
DE		4.12.1.5.2.1	d) 1)	te	Here is written, "Power-operated closing of the door(s) shall depend on the operation of a direction push button for car movement" while "any automatic movement of power-operated doors shall be prevented". It is undefined what shall happen if the doors protective device (light curtain) of 4.3.6.2.2.1 b) detects a person crossing the entrance during the closing movement. → There is no exception from 4.3.5.2.2.1 b) allowed, therefore the door should re-open automatically. → But this would be an automatic movement, which shall be prevented while the inspection switch is active. What is now correct? Or direct question: Shall the door automatically re-open when the protective device detects a person crossing the closing door, which is caused by pressing an inspection direction button, or shall it hit the crossing person. Or shall the kinetic energy limited to 4 J.	Don't leave this relevant situation undefined. d) any automatic movement of power-operated doors shall be prevented. Power-operated closing of the door(s) shall depend on: 1) the operation of a direction push button for car movement; or 2) additional switches protected against accidental operation for controlling the mechanism of doors. The closing energy of the doors shall be limited to 4 J.	
DE		4.12.1.5.2.1	d) 2)	te	It does not make any sense to allow here "additional switches". It should be "additional push buttons". Push buttons are safer when using it, especially hold to run buttons.	Replace "additional switches" by "additional push buttons".	
DE		4.12.1.5.2.1	g) and h)	te	g) permits the further movement beyond the normal travel limits under certain conditions. Because this may lead to a technician trapped in	Add the missing requirement for bypassing the electric safety device of 4.5.3.1.3	

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					the pit, h) then requires the bypassing of the electric safety devices on the buffers and of the final limit switches. → There is missing the bypassing of the electric safety device required in 4.5.3.1.3 ("It shall not be possible to raise the empty car, or the counterweight, to a dangerous position if either the car or the counterweight is stalled") → When using the pit's inspection control station to move e.g. the car onto the buffer, the electric safety device of 4.5.3.1.3 might open the electric safety chain. Without any possibility to bypass it, the technician is trapped in the pit.		
DE		4.12.1.5.2.1	h) 2nd Sentence	te	The final limit switches and the buffer switches shall be bypassed by a electrical safety device. The conditions for bypassing are not clear. Shall this be done for the whole shaft or only for the areas beyond the final limit switches? What about the risk of a wrong adjusted position sensor, which may result in not speed reduction close to the shaft ends? Shall the electrical safety device monitor the shaft position sensors? (two independent sensors)	Clarify intention and wording. Consider a practicable wiring of the safety chain.	
DE		4.12.1.5.2.2		te	Reset is required when leaving the pit (pit inspection control station). Same safety level should be given when leaving car top.	Additionally, return to automatic operation of the lift from the pit inspection station operation shall only be made under the following conditions:	
DE		4.12.1.5.2.2	2nd sentence	te	Here is required "Additionally, return to automatic operation of the lift from the pit inspection station shall only be made under the following conditions:". What does this mean exactly, if both inspection operation control stations are switched to inspection operation?	Please define clearly what is necessary and what is not necessary in the different use cases.	

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					- Both inspection switches, on the car roof and in the pit are activated → Everything is well defined. Movements in inspection operation are only possible if on both inspection stations the corresponding direction buttons and the drive buttons are pressed. - Then the inspection switch in the pit is deactivated → Are movements using only the inspection station on the car roof are allowed now, or is it necessary to “reset” the pit inspection from outside the pit, as described in 4.12.1.5.2.2 a) ... c)? Assuming such movements are allowed without “reset” of the pit inspection from outside the pit, what should happen if then also the inspection switch on the car roof is deactivated? → Is now the direct return to automatic operation allowed? → Or is now the “reset” of the pit inspection under the conditions of 4.12.1.5.2.2 a) ... c) necessary?		
DE		4.12.1.6.1	a)	te	Assuming that the emergency electrical operation switch when operated shall open the electric safety chain, the buttons described in a) has to close the electric safety chain again. Otherwise no movement using the emergency electrical operation will be possible. → These buttons need to bypass the type a) electric safety device of the emergency electrical operation switch. → These buttons need to be defined as type b) electric safety devices. Such a requirement and such a definition is missing, what feeds the assumption that it is not necessary that the emergency electrical	a) operation of the emergency electrical operation switch shall allow the control of car movement by constant pressure on direction buttons protected against accidental operation. The direction of movement shall be clearly indicated; These direction buttons shall belong to the following categories, as defined in IEC 60947-5-1:2016: — AC-15 for contacts in A.C. circuits; — DC-13 for contacts in D.C. circuits.	

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					operation switch when operated opens the electric safety chain. (NOTE: If the terms “type a) electric safety device” and “type b) electric safety device” are unknown, please read first the comment where the usage of these terms is proposed)	The durability shall be at least 1 000 000 mechanical and electrical operating cycles related to the applied load.	
DE		4.12.1.6.1	d) 1) / new sentence after the semicolon	te	This new requirement cannot be fulfilled since it is not in line with other requirements of this standard! → In 4.5.5.3 b) is demanded an electric safety device to detect slack rope or chain. → By definition an electric safety device is part of the electric safety chain and shall, when operated, open the electric safety chain, which then causes immediately the stopp of the lift. → There exists only one single electric safety chain, not one for upward movements and one for downward movements. → Therefore a direction dependent bypassing of an electric safety device is impossible! Of course it would be possible ty apply a second switch at the slack rope detection device, which enables only upward movements when operated and the emergency electrical operation is activated. But this additional switch cannot be an electric safety device. Up to now there is no requirement written for such an additional switch.	Delete this new sentence in 4.12.1.6.1 d) 1) and add a requirement in 4.5.5.3 b) for an additional switch in cases where the hydraulic does not prevent further sinking of the ram beyond that causing slackening of all ropes / chains.	
DE		4.12.1.8.1 and 4.12.1.8.2 and	a), b) and c)	ed	In the sub-clauses mentioned there is only written about “contacts”, “door contacts” and so on. Beside the electric safety devices at the door(s) there might exist additional door-contacts for signalling or for information of the lift controller about the doors closing-status.	Replace the terms “contacts” and “door contacts” by “electric safety devices”.	

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		4.12.1.8.3	b)		Therefore some confusion might occur, which of the contacts at the door(s) are meant here, which type of door contacts need to have a bypass-possibility I assume there are meant the electric safety devices at the door(s), which are monitoring the closed and locked position of the door(s) for safety purposes.		
DE		4.12.1.8.1 and 4.12.1.8.2 and 4.12.1.8.3		ed/te	4.12.1.8.1 speaks about "... <u>a bypass device</u> ..." which shall be provided (singular). 4.12.1.8.2 speaks about "The device(s) shall be either ...", which means singular and optional plural 4.12.1.8.3 then speaks about "...when any of bypass devices is in bypass state" (only plural). This is very confusing.	Please give a clear statement whether there is one single bypass device with certain functionalities required, or whether there are more than one bypass devices required. But at least use the same wording in all the sub-clauses!	
DE		4.12.1.8.3	a)	ed	Here is used the term "normal operation controls". ➔ "Normal operation" is undefined and was therefore replace by the term "automatic operation".	"automatic operation controls (4.12.1.1.1),"	
DE		4.12.1.8.3	a)	te	It is not clear what is really meant with "neutralization the operation of any automatic power-operated doors". Does it mean that the lift controller shall remove any control signals to door controller, in order to cause the door controller to remove any door motor torque? ➔ This might lead to uncontrolled closing movements of the door(s) caused by the closing weight or closing spring of a landig door.	Please clarify what is really the requirement.	

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					Or does it mean that the lift controller shall cause the door controller to decelerate a moving door by active torque of the door motor and then to hold the reached stopping position of the door by using the door controllers position regulation?		
DE		4.12.1.8.3	b)	ed/te	Here is written about "bypassed car <u>closed contact(s)</u>". This term is used together with the term "separate monitoring signal" in one sub-clause. The required "separate monitoring signal" of course could be realised by using an additional car closed contact. ➔ Now it is not clear whether this additional contact shall also be one the "contacts" which shall be bypassed by the or by one of the bypass devices, as required in 4.12.1.8.2 a).	Distinguish always between "contacts" or "door contacts" and "electric safety devices"!	
DE		4.12.1.8.3	c)	te	There is missing a requirement for the minimum intensity of the flashing light under the car, while the minimum sound level of the audible warning <u>in the car</u> is well defined. ➔ The warning <u>in the well</u>, the flashing light must be noticed - by persons working in the shaft, using the shaft light, and - by persons who has opened a landing door using an unlocking key, while the normal lighting in the landing is active. ➔ A certain minimum intensity of the flashing light is necessary, otherwise it will not be noticed while the other light sources are active!	Please define the necessary minimum intensity of the flashing light under the car.	
DE		4.12.1.8.4		ed	Here is used the plural "bypass devices" and in the last sentence then "bypass device(s)".	Align the usage of the singular or plural with all relevant other sub-clauses.	

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					In addition, there is also used “the contacts to be bypassed”.	Remove “the contacts to be bypassed” by “the electric safety devices to be bypassed” or better by “the type a) electric safety devices to be bypassed”	
DE		4.12.1.9 Prevention of automatic operation of the lift with faulty door contact circuits	Headline and penultimate sentence	ed	In the headline is written about “faulty door <u>contact</u> circuits”. In the penultimate sentence is also used the term “contacts”. I assume there is not meant every type of “contact” at a door, independent of its usage. In my opinion there are meant the circuits of the <u>electric safety devices</u> checking the door’s closed and locked position. Since there are different possibilities to realise an electric safety device (not only safety contacts!), it is misleading to use here the term “contact”. furthermore It is not clear, what shall really be checked! The headline and the indents says “the <u>circuits</u> used for ... “ shall be checked. The penultimate sentence then says “The contacts ... may be checked ...” In case of using safety contacts to realise the electric safety devices, there may be no difference between “contacts” and “circuits”. But in case of using safety circuits or SIL-rated circuits to realise the electric safety devices, there will be a difference.	“4.12.1.9 Prevention of automatic operation of the lift with faulty door contact circuits in case of wrong door safety information During automatic operation, the correct operation of correctness of the safety information concerning the: – the circuit used for checking of the closed position of a car door (4.3.13.2); – the circuit used for checking of the locked position of a landing door locking device (4.3.9.1); and – the monitoring signal referred to in 4.12.1.8.3 b) If a circuit or the monitoring signal door safety information is detected faulty due to a defect circuit, a defect electric safety device or a defect monitoring signal, automatic operation of the lift shall be prevented.	
DE		4.12.1.9 Prevention	Sentence after the	ed / te	The new added phrase “checked at least once” is	shall be checked at least once while the car is in a unlocking zone, each time the car door is opened	

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		of automatic operation of the lift with faulty door contact circuits	indents		very confusing and is not an exact statement. It will be understood as “During automatic operation, the correct operation of shall be checked <u>at least once</u>, while ...”. - When shall it be checked? → During automatic operation, while the described condition is fulfilled. - How often shall it be checked? → “at least once”, which means “only one single time during the automatic operation. I cannot imagine that this is really the intention of the authors. I assume there is missing the requirement that this check shall be performed in <u>every landing the car stops</u>, and there is also missing the requirement that the check shall be repeated <u>every time a door opens in a landing!</u>	and the landing door lock is released. In cases where more than one car doors shall open in a certain landing, the different car doors shall open with a time offset in order to enable the checking of the first opening door. At the next stop at this landing, another car door shall be open first.	
DE		4.12.1.9 Prevention of automatic operation of the lift with faulty door contact circuits	Penultimate sentence	te	A functioning door assembly consists of the combination of a power operated car door and a passively moved shaft door. Therefore this sentence will be understood that is is permitted to check the series connection of the electric safety device(s) of the car door and of all landing doors, as it exists in the electric safety chain, as a whole. → Realising it in that way means, that e.g. an incorrect function of a landing door’s electric safety device(s) will not be detected as long as the car door’s electric safety device(s) operates correct. I assume, this was not the intention of the experts who wrote the standard. It should be pointed out that it is <u>not permitted</u> to check the car door and the landing doors together	In case, a car door or the landing doors having more than one single electric safety device for checking their closed and/or locked position, the electric safety devices of the car door, as well as the electric safety devices of the landing doors, may be checked in a series connected circuits but separately for car door and landing doors.	

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					in a series connected circuit.		
DE		4.12.1.10	Headline and 1st sentence	te	There is no reason to require the anti-creep system to be an “electrical” one. Mechanic, hydraulic or pneumatic systems are also conceivable to realise the required functionality.	“4.12.1.10 Anti-creep system (see Table 15) An anti-creep system shall satisfy” Also adjust Table 15.	
DE		4.12.1.11	Headline	ed	There is missing a space between the “11” and the “S” of “Stopping devices”.	Add the missing space.	
DE		4.12.1.11.1	1st sentence	te	In the first sentence is also demanded, that the power operated doors shall be stopped and maintained out of service if a stopping device is operated. It is not fully clear what this shall mean: a) Shall it mean that power operated doors shall be active decelerated until $v_{door} = 0$ m/s is reached using the power of the door motor and the door controller? Shall the actual position where $v_{door} = 0$ m/s has been reached then active be kept by means of the position regulation function of the door controller? Or shall it mean that the lift controller shall deactivate the control signals to the door controller in order to tell him to remove any force of the door motor, in order to be able to move the door manual (by hand)?	A stopping device shall be provided for stopping, and maintaining the lift out of service and prevent automatic movement of including the power-operated doors:.	
DE		4.12.1.11.2	1st sentence	te	According to this sub-clause, “The stopping devices shall consist of electric safety devices in conformity with 4.11.2” This is too less! According to the definitions of electric safety	The stopping devices shall consist of Electric safety devices in conformity with 4.11.2 in order to cause the immediate stop of the lift; and other means to stop and maintain power operated doors out of service.	

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					devices, their only function is to cause immediately the stopping of the lift machine (or to bypass another electric safety device). ➔ The requirement of 4.12.1.11.1 "... including the power-operated doors;" cannot be fulfilled directly by means of the electric safety chain.		
DE		4.12.1.12.1		ed / te	The formulation is not clear. "... in case of a failure or loss of power supply." leaves two possibilities of understanding: 1. The term "failure" is only related to the power supply. ➔ Automatic rescue operation if provided shall move the lift car to a landing in all cases, it cannot move using the normal power supply. Automatic rescue operation is a means only against the risk of a faulty power supply. The term "failure" relates to anything which could have a failure which prevents the lift from moving. ➔ Automatic rescue operation may also move the lift car to a landing in cases, e.g. the frequency controller is defect.	Please define very clear under which conditions automatic rescue operation shall move the lift car to a landing.	
DE		4.12.1.12.2		te	This sub-clause is the permission to make an electric safety device ineffective under certain conditions. To do this it is necessary to bypass this electric safety device with an additional electric safety device. But this forbidden by sub-clause 4.11.2.1.2.	Name in 4.11.2.1.2 also sub-clause 4.12.1.12.2 as permitted exception.	
DE		5.2.2	b)	te	In the higher half of the well a higher breaking force is needed to decelerate, stop and hold the car than in the lower half of the well.	where one brake set is not working, the remaining brake set(s) decelerate, stop and hold the car, when travelling downwards at the lower half of the well, at rated speed and with rated load plus 10% in the car and travelling upwards with empty car at	

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						the higher half of the well	
DE		5.2.5	2nd paragraph	ed	Here is used the wording "..., the lift <u>machine</u> running until the suspension means slip or <u>become slack</u>". It is not clear whether this requirement only applies to electric driven lifts, or also to indirect acting hydraulic driven lifts. The question arise because most of the hydraulic driven lifts are moving downwards without a running lift machine, they only use the gravity and an opened downward valve.	Clarify whether this requirement also applies to indirect acting hydraulic lifts, or not. If "YES", specify in clear words, that this means that the downward valve has to remain open until the suspension means become slack.	
DE		5.2.5	2nd paragraph	te	The requirement is that the lift machine is running until the suspension means slip or become slack. To realise this behaviour it is necessary to bypass the electric safety devices at the speed governor and at the safety gear during the test. In the cases where the test has to be performed at a speed greater than 0,3 m/s, it is not possible to use the means of the emergency electric operation for the needed bypass! Since there is no requirement for the existence of a corresponding bypass device, the person who performs the test of the safety gear has to find a possibility to bridge the electric safety devices on its own. This introduces the risk to forget the bridges after performing the test! In addition, dependent of realisation of the electric safety chain, it could be nearly impossible to apply the necessary bridges. When formulating such a requirement, it is necessary also to require a built in possibility for applying the necessary bypasses in a safe way. Actual it is prohibited to install such a bypass device, because 4.11.2.1.2 does not allow any	Add a requirement for a built in bypass device for bypassing the electric safety devices of the speed governor and the safety gear and add the sub-clause 5.2.5 to the permitted exceptions in 4.11.2.1.2. In order to prevent this bypass device from being activated after the test, it needs some monitoring. The typical solution that only inspection mode or emergency electric operation is allowed while the bypass is active, is not possible here, since the test has to be performed at rated speed. A solution could be to activate automatically the maintenance mode according to 4.12.1.7 if the bypass is activated, and to perform the test in this maintenance mode.	

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					electric equipment in parallel to an electric safety device in other cases than 4.6.5.10, 4.12.1.4, 4.12.1.5, 4.12.1.6 and 4.12.1.8.		
DE		5.2.5	b)	te	Here is written, that for progressive safety gear the test shall be performed with the car travel at the rated speed <u>or lower</u>. As replacement measure "...the manufacturer shall provide curves to illustrate the behaviour of the type tested progressive safety gear when dynamically tested with the suspensions attached. " → This does not meet the requirement of the 1th paragraph of 5.2.5 "The aim of the test, before putting into service, is to check the correct mounting, correct setting <u>and the soundness of the complete assembly, comprising car and decorative finishes, safety gear, guide rails and their fixing to the building.</u>" When tested at a significant lower speed than the rated speed, the soundness of the named components remains unchecked.	Require always the rated speed for tests of the safety gear.	
DE		5.2.7	a) 1st paragraph	ed	Here is used the term "contacts" in the sentence "the <u>contacts</u> on the Pawl device and on the energy dissipation buffer [5.6.5.7 b)], if any, being short-circuited to avoid closing of the down direction valves." An "electric safety contact" is only one possible solution out of three for the required "electric safety device" at the Pawl device! In addition the reference to "5.6.5.7 b)" is wrong. It must be "4.6.5.7 b)".	"...; the <u>electric safety devices</u> on the Pawl device and on the energy dissipation buffer [4.6.5.7 b)], if any, being short-circuited to avoid closing of the down direction valves." Headline is also wrong: 5.2.7 Pawl device (4.6.5)	

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DE		5.10.6.3.6 (4.10.6.3.6)		ed	The chapter numbering following chapter 4.10.6.3.5 is wrong (5.10.6.3.6) and shall read 4.10.6.3.6.	54.10.6.3.6 In order to ensure continuity of mechanical protection, the protective sheathing of conductors and cables shall fully enter the casings of switches and appliances, or shall terminate in a cable gland.	
DE		6.2.2	i)	te	It is not clear what is meant exactly with the term "configuration record". • Shall it be understood as a data file, which can be used for direct download in the parametrized device? Shall it be understood as a simple text, readable only for a human, describing the parametrization only in a qualitative way?	i) configuration record describing listing the setting of all changeable parameter settings.	.
DE		6.2.5		ed	Improve overview by using bullet point	6.2.5 Information for emergency operation The instructions shall include in particular the following information on emergency operations: a) instructions for emergency operation in different expected situations, in particular on the release of • the brake, • ascending car overspeed protection means, • unintended car movement protection means, • reduced stroke buffer, • rupture valve and • the safety gear;	
DE		7 Use of		te	The wording "... includes requirements that <u>shall</u>	Do not declare requirement of a TS to a part of the	

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² **Type of comment:** **ge** = general **te** = technical **ed** = editorial

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		ISO/TS 8100-3			be followed <u>when applicable</u> ..." is not clear. ISO/TS 8100-3 is only a "technical specification" and not a valid standard! Requirements made in this TS therefore cannot be part of the requirements of the real standard ISO 8100-1. In addition "when applicable" is no precise statement / requirement! Who shall decide whether a certain requirement of ISO/TS 8100-3 is applicable or not? This is the task of this standard!	requirements of this standard. When nevertheless doing so, define precise which of these requirements apply, and which not.	
DE		Annex A		ed	The application and use of Annex A is not described. Add a related sentence before table A.1	This minimum SIL level shall be applied when the function of the related device is performed by a SIL-rated circuit (see 4.11.2.4).	
DE		Annex A	Table A.1, 4.12.1.3	ed	Wrong reference. Clause 4.12.1.3 should read 4.12.1.3.1.		
DE		Annex A	Table A.1 / line 4.12.1.8.2	ed	Here is used the term "landing and car door <u>contacts</u> ", where an electric safety device is meant. An "electric safety contact" is only one solution out of three for an electric safety device.	"Bypass device for landing and car door <u>electric safety devices</u> "	
DE		Annex B,	B.2.3	te	For safety reasons, it is necessary to ventilate lift shafts properly.	Necessary measures for environmental conditions are negotiated and clarified, such as: - Temperature - Humidity - Ventilation - Building sway (wind); - Chemical substances (salt, chloride);	

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						- Outdoor installations; - Altitude of installation.	
DE		Annex C	C.1 e) and f)	te	A foldable ladder according figure C.3 e) and f) is too dangerous when picking and storing.	Remove bullet points e) and f) and Figures C.3, e) and f). Adapt remaining Annex C accordingly.	
DE		Annex C	C.2.3	ed	A ladder could also have only one handhold.	In the position of use, the ladder stiles or at least one handholds shall extend to a minimum height of 1,10 m measured vertically above the landing sill.	
DE		Annex ZA	Headline	ed	The headline “Relationship between this European Standard and the essential requirements of Directive 2014/33/EU aimed to be covered” is not correct, because also the European machinery directive 2006/42/EC is covered in table ZA.2	“Relationship between this European Standard and the essential requirements of Directives 2014/33/EU and 2006/42/EC aimed to be covered”	

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