IS 17900 (Part : 1) : 2022 - LIFTS FOR THE TRANSPORT OF PERSONS AND GOODS			
CLASUE REF.NO	SUB CLAUSE NO	CLAUSE DESCRIPTION	COMPLAINCE AGAINST STANDARD
5. SAFETY REQUIREMENTS AND / OR PROTECTIVE MEASURES			
5.1	5.1.1	Passenger and goods lifts shall comply with the safety requirements and/or protective measures of the following clauses. In addition, the passenger and goods lifts shall be designed according to the principles of IS 16819 for hazards relevant but not significant that are not dealt with by this standard (for example, sharp edges).	•Safe construction and materials •Adherence to electrical safety standards •Installation of safety gears, emergency systems, and interlocks •Regular inspections and maintenance
	5.1.2	All labels, notices, markings and operating instructions shall be permanently affixed, indelible, legible and readily understandable (if necessary aided by signs or symbols). They shall be of durable material, placed in a visible position, and written in the accepted language(s) of the country/state where the lift is installed.	Operating instruction, identification with symbol all fixed permanently in home lifts and placed in a visible position and written in the accepted language.
5.2 Well, Machinery Spaces and Pulley Rooms	5.2.1.1	**Arrangement of lift equipment** All lift equipment shall be located in the well or in machinery spaces or pulley rooms.	•All lift components are integrated within the shaft. •The split unit is placed outside the shaft in a manner that prevents access by lift users and minimizes noise intrusion into the home where the lift is installed.
	5.2.1.1.2	If parts of different lifts are present in one machine and/or pulley room, each lift shall be identified with a number, letter or colour consistently used for all parts (machine, controller, overspeed governor, switches, etc.).	This clause is not applicable to our installation as our home lift operates independently and does not share machinery or pulley rooms with other lifts.
	5.2.1.2.1	The well, machine and pulley rooms shall not be used for purposes other than lifts. They shall not contain ducts, cables or devices other than for the lift. The lift well, machine and pulley rooms may, however, contain: a) equipment for air-conditioning or heating of these spaces, excluding steam heating and high-pressure water heating. However, any control and adjustment devices of the heating apparatus shall be located outside the well. b) fire detectors or extinguishers, with a high operating temperature (for example, above 80°C), appropriate for the electrical equipment and suitably protected against accidental impact. When sprinkler systems are used, activation of the sprinkler shall only be possible, when the lift is stationary at a landing and the electrical supply of the lift and lighting circuits are automatically switched off by the fire or smoke detection system. NOTE — Such smoke, fire detection and sprinkler systems are the responsibility of the building management	The well, machine, and pulley rooms are not applicable to our home lifts. Our elevators are stand-alone systems that do not require supporting beams, columns, or walls. They can be installed without any civil work or renovation to the residence.
	5.2.1.2.2	Machine rooms may contain machines for other kinds of lifts, for example, goods only lifts.	This clause is not applicable to our home lifts. Our elevators are stand-alone systems that do not share machine rooms with other kinds of lifts, such as goods-only lifts.
	5.2.1.2.3	In the case of partially enclosed lift wells according to 5.2.5.2.3, the well is regarded as the area: a) inside the enclosure where enclosures are present; b) being within a horizontal distance of 1.50 m from movable components of the lift, where enclosures are missing.	This clause is not applicable to our home lifts. Our lifts are fully enclosed and do not have partially enclosed lift wells. Thus, all movable components are contained within the enclosure.
	5.2.1.3	Ventilation of the well, machinery spaces and pulley rooms The well, machinery spaces and pulley rooms shall not be used to provide ventilation of rooms other than those belonging to the lift. Ventilation shall be such that the motors and equipment, as well as electric cables, etc., are protected from dust, harmful fumes and humidity	Ventilation of the well, machinery spaces and pulley rooms The well, machinery spaces and pulley rooms shall not be used to provide ventilation of rooms other than those belonging to the lift. Ventilation shall be such that the motors and equipment, as well as electric cables, etc., are protected from dust, harmful fumes and humidity.
	5.2.1.4 Lighting	The well shall be provided with permanently installed electric lighting, giving the following intensity of illumination, even when all doors are closed, at any position of the car throughout its travel in the well: a) at least 50 lux, 1.0 m above the car roof within its vertical projection; b) at least 50 lux, 1.0 m above the pit floor and above the pit platform (where provided), everywhere a person can stand, work and/or move between the working areas; c) at least 20 lux outside of the locations defined in a) and b), excluding shadows created by car or components. To achieve this, sufficient number of lamps shall be fixed throughout the well and, where necessary, additional lamp(s) may be fixed on the car roof as a part of the well's lighting system. Lighting elements shall be protected against mechanical damage. The supply for this lighting shall be in conformity with 5.10.7.1. NOTE — For specific tasks, additional temporary lighting can be necessary, for example, by hand lamp. The light meter should be oriented towards the strongest light source when taking lux level readings.	This clause is not applicable to our vacuum lifts. The transparent shaft of our lifts is exposed to natural light, eliminating the need for separate lighting when natural light is sufficient. In areas where natural light is dim, customers will ensure that adequate lighting is provided for the installation and maintenance of the lift.
	5.2.1.4.2	Machinery spaces and pulley rooms shall be provided with permanently installed electric lighting with an intensity of at least 200 lux at floor level everywhere a person needs to work, and 50 lux at floor level to move between working areas. The supply for this lighting shall be in conformity with 5.10.7.1. NOTE — This lighting can be part of the lighting of the well	This clause is not applicable to our home lifts. Our vacuum lifts do not have dedicated machinery spaces or pulley rooms as they are stand-alone systems. The lighting within the transparent shaft is naturally provided by daylight.

	5.2.1.5 Electric equipment in the pit and in machinery spaces and pulley rooms	5.2.1.5.1 There shall be in the pit: a) stopping device(s) visible and accessible on opening the door(s) to the pit, and from the pit floor, in conformity with the requirements of 5.12.1.11. The stopping device(s) shall be located as follows: 1) For pits with depth less than or equal to 1.60 m, the stop switch shall be: i) within a vertical distance of minimum 0.40 m above the lowest landing floor and a maximum of 2.0 m from the pit floor; ii) within a horizontal distance of maximum 0.75 m from the door frame inner edge. 2) For pits with depth greater than 1.60 m, two stop switches shall be provided i) the upper switch within a vertical distance of minimum 1.0 m above the lowest landing floor and within a horizontal distance of maximum 0.75 m from the door frame inner edge; ii) the lower one within a maximum vertical distance of 1.20 m above pit floor operable from a refuge space. 3) In the case of a pit access door, other than landing doors, a single stop switch, within a horizontal distance of maximum 0.75 m from the access door frame inner edge, at 1.20 m in height from the pit floor. Where there are two landing doors at the same	This clause is not applicable to our vacuum lifts. Our lifts do not have a traditional pit with fixed components. Instead, the design of our vacuum lifts includes: •Stopping Devices: Not required as there is no conventional pit. •Inspection Control Station: Integrated into the lift system as needed, not applicable in a traditional sense. •Socket Outlet: Not applicable due to the absence of a conventional pit. •Well Lighting: Lighting is naturally provided through the transparent shaft, eliminating the need for separate control switches in the pit area. Our lift design ensures compliance with relevant safety and operational standards without the need for conventional pit features.
	5.2.1.5.2	There shall be in machinery spaces and pulley rooms: a) a switch accessible only to authorized persons and placed close to each access point, at an appropriate height, controlling the lighting of the areas and spaces; b) at least one socket outlet (see 5.10.7.2) provided at an appropriate place for each working area; and c) a stopping device, in conformity with 5.12.1.11, installed in the pulley room, close to each point of access.	This clause is not applicable to our vacuum lifts. Our lift design does not include traditional machinery spaces or pulley rooms. Instead: •Lighting Switch: The lighting is naturally provided by daylight through the transparent shaft, and no specific switch is required. •Socket Outlet: Not applicable due to the absence of a conventional machinery space. •Stopping Device: Not required as there is no conventional pulley room. Our design ensures operational efficiency and safety in accordance with relevant standards without the need for these traditional features.
	5.2.1.6	Emergency release If no means to escape are provided for person(s) trapped in the well, alarm system according to 5.12.3.1 shall be installed at places where the risk of trapping exists (see 5.2.1.5.1, 5.2.6.4 and 5.4.7), operable from the refuge space(s). If there is a risk of trapping in areas outside of the well, such risks should be discussed with the building owner [see 0.4.2 e)].	This clause is not applicable to our vacuum lifts. Our lift design includes: •Emergency Release: The design does not involve traditional well areas where trapping risks exist. •Alarm System: Not required as there are no conventional well or refuge spaces where trapping could occur. The vacuum lift's design ensures safe operation and compliance with relevant safety standards without the need for traditional emergency release systems.

5.2.1.7	Handling of equipment One or more suspension point(s) with the indication of the safe working load, as appropriate, shall be provided in the machinery spaces and where necessary, at the top of the well, conveniently positioned to permit the hoisting of heavy equipment (see 0.4.2 and 0.4.15).	This clause is not applicable to our vacuum lifts. Our design does not include traditional machinery spaces or well tops that require equipment handling or hoisting. The system's design ensures that no additional suspension points or safe working load indicators are needed.
5.2.1.8 Strength of walls, floors and ceilings	The structure of the well, machinery spaces and pulley rooms shall conform to national/state building regulations and shall be able to support at least the loads which can be applied by the machine; by the guide rails at the moment of safety gear operation, in the case of eccentric load in the car; by the action of the buffers; by those which can be applied by the anti-rebound device; by loading and unloading the car; etc. See also Annex E, E-1.	This clause is not applicable to our vacuum lifts. Our lifts rely on support from the floor slab or staircase slab rather than traditional well, machinery spaces, or pulley rooms. The lift's structural support is adequately provided by the surrounding building elements, ensuring compliance with relevant safety standards.
5.2.1.8.2	The walls of the well shall have a mechanical strength such that when a force of 1 000 N, being evenly distributed over an area of 0.30 m × 0.30 m in round or square section, is applied at right angles to the wall at any point on either face, they shall resist without: a) permanent deformation greater than 1 mm; b) elastic deformation greater than 15 mm.	This clause is not applicable to our vacuum lifts. The structural support for our lifts is provided by the floor slab or staircase slab, not traditional well walls. Thus, the specific mechanical strength requirements for well walls do not apply to our lift design.
5.2.1.8.3	Glass panels, plane or formed, shall be made of laminated glass. They and their fixings shall withstand 1 000 N horizontal static force on an area of 0.30 m × 0.30 m at any point, from both inside and outside the well, without permanent deformation.	This clause is not applicable to our vacuum lifts. Our lift uses transparent Polycarbonated sheets, which are curved due to the cylindrical design of the lift. These materials and their fixings are designed to meet structural requirements specific to our cylindrical design, ensuring they provide adequate strength and durability without permanent deformation under typical operational conditions.
5.2.1.8.4	The floor of the pit shall be able to support beneath each guide rail, except hanging guide rails, the force due to the mass of the guide rails plus any load due to components fixed or linked to the guide(s) and/or any additional reaction, N, occurring during emergency stopping (for example, load on traction sheave due to rebound when machine on rails), plus the reaction at the moment of operation of the safety gear and any push through force exerted by the guide rails clips (see 5.7.2.3.5).	This clause is not applicable to our vacuum lifts. Our lift design does not include a traditional pit. The lift operates at a speed of 0.18 m/s using specially shaped aluminum guide rails and is controlled by a vacuum system. The design ensures full control over the movement and eliminates the need for traditional pit support requirements.
5.2.1.8.5	The floor of the pit shall be able to support beneath the car buffer supports, four times the static load imposed by the mass of the fully loaded car, evenly distributed between the total number of car buffers F g 4 n ▯ P Q ... (1) where F is the total vertical force in newtons; gn is the standard acceleration of free fall, [9.81 (m/s2)]; P is the mass of the empty car and components supported by the car that is, part of the travelling cable, compensation means (if any), etc. in kilograms; Q is the rated load (mass), in kilograms.	This clause is not applicable to our vacuum lifts. Our lift design does not involve traditional car buffers. Instead, the floor where the lift is installed must support the force exerted by the four aluminum pillars, the weight of the cabin, and the passenger load. This ensures that the floor can safely accommodate all operational loads and forces.
5.2.1.8.6	The floor of the pit shall be able to support beneath the counterweight buffer supports, four times the static load imposed by the mass of the counterweight, evenly distributed between the total number of counterweight buffers [see Formula (2)]: F g 4 n ▯ P qQ ... (2) where F is the total vertical force, in newtons; gn is the standard acceleration of free fall, [9.81 (m/s2)]; P is the mass of the empty car and components supported by the car that is, part of the travelling cable, compensation means (if any), etc., in kilograms; Q is the rated load (mass), in kilograms; q is the balance factor indicating the amount of counterbalance of the rated load by the counterweight	This clause is not applicable to our vacuum lifts. Our lift design does not include counterweights. Therefore, the requirement for supporting counterweight buffer loads is not relevant to our system. The lift operates without counterweights, and the structural support is based on the force exerted by the four aluminum pillars, the cabin weight, and the passenger load.
5.2.1.8.7	For hydraulic lifts, the floor of the pit shall be able to support beneath each jack the loads and forces (in newtons) imposed to it.	This clause is not applicable to our vacuum lifts. Our design does not use hydraulic jacks. Instead, our vacuum lift relies on a vacuum system
5.2.1.8.8	For hydraulic lifts, the total vertical force imposed on the fixed stops during operation of the pawl device can be evaluated approximately according to the following formulae: a) Pawl devices provided with energy accumulation type buffers [see Formula (3)]: F g P Q n 3 n ▯ ... (3) b) Pawl devices provided with energy dissipation type buffers [see Formula (4)]: F g P Q n 2 n ▯ ... (4) where F is the total vertical force in newtons on fixed stops imposed during operation of pawl device; gn is the standard acceleration of free fall, [9.81 (m/s2)]; n is the number of pawl devices; P is the mass of the empty car and components supported by the car, that is, part of the travelling cables, compensation means (if any), etc., in kilograms; Q is the rated load (mass) in kilograms	This clause is not applicable to our vacuum lifts. Our design does not use hydraulic jacks. Instead, our vacuum lift relies on a vacuum system
5.2.1.9	Surfaces of walls, floors and ceilings Surfaces of walls, floors and ceilings of wells, machine and pulley rooms shall be in durable material not favouring the creation of dust, for example, concrete, brick or blockwork. The surface of the floor where a person needs to work or to move between working areas shall be of non-slip material. NOTE — For guidance, see 4.2.4.6 of IS 16809 (Part 2). The floor of working areas shall be approximately level, except for any buffer and guide rail bases and water drainage devices. After the building-in of guide rail fixings, buffers, any grids, etc., the pit shall be impervious to infiltration of water. For hydraulic lifts, the space in which the power unit is situated and the pit shall be designed in such a way that it is impervious, so that all the fluid contained in the machinery placed in these areas is retained if it leaks out or escapes. NOTE — National/State regulations can require the protection of hydraulic pipe routed through the building	This clause is not applicable to our vacuum lifts. Our design does not include traditional wells, machine, or pulley rooms. The surfaces of the installation area for our vacuum lifts are designed with durable, non-slip materials as needed. The installation area is level and impervious to water infiltration, ensuring safe and clean operation without the need for specific hydraulic or traditional well requirements.

5.2.2 Access to Well and to Machinery Spaces and Pulley Rooms	5.2.2.1 The well, machinery spaces and pulley rooms and the associated working areas shall be accessible. Provisions shall be made to allow access to spaces other than the car interior only to authorized persons. See also Annex D, Fig. D-1.	This clause is not applicable to our vacuum lifts. Our design does not include traditional machinery spaces or pulley rooms. Access to the lift system is limited to authorized personnel only, ensuring safety and security. The design allows for necessary maintenance and inspection without requiring access to conventional well or machinery spaces.
5.2.2.2	The access way adjacent to any door/trap giving access to the well or to machinery spaces and pulley rooms shall be lit by a permanently installed electric lighting with an intensity of at least 50 lux. NOTE — National/State regulations can require lighting level greater than 50 lux	This clause is not applicable to our vacuum lifts. Our design does not include traditional wells, machinery spaces, or pulley rooms. However, the access areas for our lifts are designed to meet safety standards, and any required lighting is provided by the general lighting of the installation area, ensuring sufficient visibility for maintenance and inspection.
5.2.2.3	If access to the lift for maintenance and rescue purposes is via private premises, then permanent access of authorized persons to the premises and relevant instructions shall be provided. The manufacturer/installer should make the building designer/architect/owner aware of the agreement regarding access, fire, entrapment and also problems of security associated with lifts serving directly into private premises (see 0.4.2). NOTE — Access via private premises can be subject to national/state regulations.	For our vacuum lifts, access for maintenance and rescue is typically via private premises. Permanent access for authorized personnel is ensured, and relevant instructions are provided. We make building designers, architects, and owners aware of agreements regarding access, fire safety, entrapment, and security issues associated with lifts serving directly into private premises, in accordance with national/state regulations.
5.2.2.4	A means to enter the pit shall be provided consisting of: a) an access door where the pit depth exceeds 2.50 m; b) either an access door or a ladder inside the well, easily accessible from the landing door, where the pit depth is not exceeding 2.50 m Any pit access door shall comply with the requirements of 5.2.3. NOTE — The National Building Code may be referred to when pit depth exceeds 2.5 m and where an access door cannot be provided. Ladders shall comply with Annex F. Where there is a risk of the ladder in its deployed position colliding with moving elements of the lift, the ladder shall be provided with an electric safety device(s) in accordance with 5.11.2 to prevent the lift from operating if the ladder is not in its stored position. If the ladder is stored on the pit floor, all pit refuge spaces shall be maintained when the ladder is in its stored position.	This clause is not applicable to our vacuum lifts. Our design does not include traditional pits or the need for access doors or ladders within the well. The vacuum lift operates without a conventional pit, ensuring safe access and maintenance without the need for additional entry provisions.
5.2.2.5	A safe access for persons to machinery spaces and pulley rooms shall be provided. For preference, this should be effected entirely by way of stairs. If it is not possible to install stairs, ladders satisfying the following requirements shall be used: a) the access to the machinery spaces and pulley rooms shall not be situated more than 4 m above the level accessible by stairs. For access over 3 m in height by ladder, fall protection shall be provided; b) ladders shall be fastened to the access permanently or at least by rope or chain in such a way that they cannot be removed; c) ladders exceeding 1.50 m in height shall, when in position for access, form an angle between 65° and 75° to the horizontal and shall not be liable to slip or turn over; d) the clear width of the ladder shall be at least 0.35 m, the depth of the steps shall not be less than 25 mm and in the case of vertical ladders the distance between the steps and the wall behind the ladder shall not be less than 0.15 m. The steps shall be designed for a load not less than 1500 N; e) adjacent to the top end of the ladder, there shall be at least one hand hold within easy reach; f) around a ladder, within a horizontal distance of 1.50 m, the risk of falling by more than the height of the ladder shall be prevented.	This clause is not applicable to our vacuum lifts. Our design does not include traditional machinery spaces or pulley rooms that require access by stairs or ladders. The maintenance and inspection areas of our vacuum lifts are easily accessible from within the building, ensuring safety and convenience without the need for specialized access provisions.
5.2.3 Access and Emergency Doors — Access Trap Doors — Inspection Doors	When the distance between consecutive landing door sills exceeds 11 m, intermediate emergency lift landing door(s) shall be provided such that the distance between landings is not more than 11 m. Rescue to these landings is permissible in case of automatic rescue device operation.	This clause is not applicable to our vacuum lifts. Our lifts are designed for home use with travel distances that do not exceed 11 meters between consecutive landing door sills. Therefore, there is no need for intermediate emergency lift landing doors in our installations.
5.2.3.2	Access and emergency doors, access trap doors and inspection doors shall have the following dimensions: a) access doors to machine rooms and access doors to the well shall have a minimum height of 2.0 m and a minimum width of 0.60 m; b) access doors to pulley rooms shall have a minimum height of 1.40 m and a minimum width of 0.60 m; c) access trap doors for persons to machine and pulley rooms shall give a clear passage of at least 0.80 m × 0.80 m, and shall be counterbalanced; d) emergency doors shall have a minimum height of 1.80 m and a minimum width of 0.50 m; e) inspection doors shall have a maximum height of 0.50 m and a maximum width of 0.50 m and	This clause is not applicable to our vacuum lifts. Our lifts do not require access, emergency, or inspection doors as described, since our design is compact and self-contained within a transparent shaft, eliminating the need for separate machine or pulley rooms.
5.2.3.3	5.2.3.3 Access and emergency doors and inspection doors shall: a) not open towards the inside of the well or machine or pulley room; b) be provided with a key-operated lock, capable of being reclosed and relocked without a key; c) be openable from inside the well, machine or pulley room without a key, even when locked; d) be provided with an electric safety device in conformity with 5.11.2, checking the closed position; An electric safety device is not required in the case of access door(s) to machine and pulley rooms and in the case of access door(s) to the pit (see 5.2.2.4), if the pit door(s) does not give access to a hazardous zone. This is regarded to be the case if the free vertical distance between the lowest parts of car, counterweight or balancing weight including guide shoes, apron, etc. during normal operation and the bottom of the pit is at least 2 m The presence of travelling cables, compensation means and their equipment, tensioning pulleys for the overspeed governor and similar installations is not regarded as being hazardous; e) be imperforate, satisfy the same requirements for mechanical strength as the landing doors, and comply with the regulations relevant to the fire protection for the building concerned; f) have a mechanical strength such that when a force	This clause is not applicable to our vacuum lifts. Our design features a self-contained transparent shaft that does not include traditional access, emergency, or inspection doors as described. Therefore, the specific requirements for door operation, locking mechanisms, safety devices, and mechanical strength are not relevant to our lift installations.

5.2.3.4	Access trap doors, when they are closed, shall be able to support 2 000 N on an area of 0.20 m × 0.20 m at any position. Trap doors shall not open downwards. Hinges, if any, shall be of a type which cannot be unhooked. Trap doors used only for access of material may be locked from the inside only. When a trap door is in the open position, precautions shall be taken to prevent the fall of persons (for example, a guardrail) and prevent the trapdoor from closing such as to cause a crushing hazard (for example, by counterbalance).	This clause is not applicable to our vacuum lifts. Our design does not include traditional access trap doors. The transparent shaft of our lift system is self-contained and does not require access points for materials or personnel as described in the requirement. Therefore, the specifications for load-bearing capacity, opening direction, hinge design, locking mechanisms, and safety precautions for open trap doors are not relevant to our lift installations.
5.2.4.1 Notices	A notice bearing the following minimum inscription: "Lift Machinery — Danger Access forbidden to unauthorized persons" shall be fixed to the outside of doors or trap-doors (excluding landing doors and doors of emergency and test panels) giving access to machine and pulley rooms. The electrical warning sign shall be provided on the enclosure and access door to all machine rooms. Additional warning signs shall be provided as required by the Electricity Act, or the National Building Code, SP 7. In the case of trap-doors, a permanently visible notice shall indicate to those using the trap-door:	**Notice Requirements:** For areas related to our vacuum lift, which do not have traditional machine or pulley rooms, we ensure safety through visible warning signs at all critical access points. This includes clear notices that read: "Lift Machinery — Danger Access Forbidden to Unauthorized Persons." **Electrical Warning Signs**: We provide appropriate electrical warning signs on any access points related to our lift system, following safety regulations. **Trap Doors:** Our design does not include traditional trap doors. Instead, any necessary access points are designed to be safe and clearly marked to prevent unauthorized access.
5.2.4.2	Outside of the well, near the access doors and emergency doors, if any, there shall be a notice stating: "Lift well — Danger Access forbidden to unauthorized persons	The requirement to have a notice stating "Lift well — Danger Access forbidden to unauthorized persons" is not applicable to our vacuum lifts installed inside homes, as they do not require a well.
5.2.5 Well 5.2.5.1.2	The counterweight or the balancing weight of a lift shall be in the same well as the car	The requirement for the counterweight or balancing weight of a lift to be in the same well as the car is not applicable to our vacuum lifts, as they do not utilize counterweights or balancing weights and do not require a well.
5.2.5.1.3	For hydraulic lifts jacks shall be in the same well as the car. They may extend into the ground or other spaces.	The requirement for hydraulic lift jacks to be in the same well as the car is not applicable to our vacuum lifts, as they do not utilize hydraulic jacks and do not require a well.
5.2.5.2.1 Well enclosure	A lift shall be separated from the surroundings by: a) walls, floor and ceiling; or b) sufficient space. For dimensions and other civil details, the National Building Code of India, SP 7 shall be referred to	The requirement for a lift to be separated from the surroundings by walls, floor, ceiling, or sufficient space is not applicable to our vacuum lifts installed inside homes, as their design does not necessitate such separation.
5.2.5.2.2.1	5.2.5.2.2.1 The well shall be totally enclosed by imperforate walls, floor and ceiling. The only permissible openings are: a) openings for landing doors; b) openings for access and emergency doors to the well and inspection doors; c) vent openings for escape of gases and smoke in the event of fire; d) ventilation openings; e) necessary openings for the functioning of the lift between the well and the machine or pulley rooms	The requirement for the well to be totally enclosed by imperforate walls, floor, and ceiling, with only specific permissible openings, is not applicable to our vacuum lifts installed inside homes, as their design does not include a well.
5.2.5.2.2.2	Any horizontal projection from a wall into the well or horizontal beam greater than 0.15 m width, including separator beams, shall be protected from a person standing there, unless access is prevented by a car top balustrade in accordance with 5.4.7.4. Protection shall be, such as: a) the projection, where greater than 0.15 m, shall be chamfered to at least 45° to the horizontal; or b) a deflector forming an inclined surface of minimum 45° to the horizontal, capable of resisting a force of 300 N applied at right angles to the deflector at any point, distributed evenly over a surface of 5 cm2 in round or square section, such that it shall resist: 1) without permanent deformation; 2) without elastic deformation greater than 15 mm.	The requirement for horizontal projections from a wall into the well or horizontal beams greater than 0.15 m in width to be protected is not applicable to our vacuum lifts installed inside homes, as their design does not include a well.
5.2.5.2.3	Partially enclosed well Where the well is required to be partially enclosed, for example, observation lifts in connection with galleries or atriums, tower buildings, etc., the following apply: a) the height of the enclosure at places normally accessible to persons shall be sufficient to prevent such persons from: 1) being endangered by moving parts of the lift; 2) interfering with the safe operation of the lift by reaching lift equipment within the well, either directly or with hand-held objects. b) the height is assumed to be sufficient if it is in conformity with Fig. 1 and 2 that is: 1) minimum 3.50 m at a landing door side; 2) minimum 2.50 m at other sides and with a minimum horizontal distance of 0.50 m to moving parts of the lift. If the distance to moving parts exceeds 0.50 m, the value of 2.50 m can be reduced progressively to a minimum height of 1.10 m in a distance of 2.0 m. c) the enclosure shall be imperforate. d) the enclosure shall be located within 0.15 m maximum of the edges of floors, stairs or platforms (see Fig. 1) or be protected in accordance with 5.2.5.2.2.2 e) provisions shall be taken to prevent the interference with the operation of the lift by other equipment [see 5.2.1.2.3 b) and 7.2.2 c)]	The requirement for a partially enclosed well is not applicable to our vacuum lifts installed inside homes, as their design does not include a well.
5.2.5.3 Construction of the walls of the well and landing doors facing a car entrance	The horizontal distance between the inner surface of the well and the sill, door frame of the car or closing edge of car sliding doors shall not exceed 0.15 m, over the full height of the well (see Fig. 3). The distance given above: a) may be extended to 0.20 m over a height not exceeding 0.50 m. There shall not be more than one of such recesses in between two consecutive landing doors b) may be extended to 0.20 m throughout the travel on goods lifts in which the landing doors are vertically sliding; c) is not limited if the car is provided with a mechanically locked door in accordance with 5.3.9.2, which can only be opened in the unlocking zone of a landing door. The operation of the lift shall automatically depend on the locking of the corresponding car door except in the cases covered in 5.12.1.4 and 5.12.1.8. This locking shall be proved by an electric safety device in conformity with 5.11.2.	For our vacuum lifts installed inside homes, which do not have traditional well designs or sliding car doors, the requirement regarding the horizontal distance between the inner surface of the well and the car doors does not apply.

5.2.5.3.2	Below each landing door sill, the wall of the well shall comply with the following requirements: a) it shall form a vertical surface which is directly connected to the landing door sill, whose height is at least half the unlocking zone plus 50 mm and whose width is at least the clear opening of the car access plus 25 mm on both sides; b) this surface shall be continuous and be composed of smooth and hard elements, such as metal sheets, and shall be capable of withstanding a force of 300 N applied at a right angle to the wall at any point, being evenly distributed over an area of 5 cm2 in round or square section, it shall resist: 1) without permanent deformation; 2) without elastic deformation greater than 15 mm. c) any projections shall not exceed 5 mm. Projections exceeding 2 mm shall be chamfered at least 75° to the horizontal. Furthermore, it shall be either: 1) connected to the lintel of the next door; or 2) extended downwards using a hard smooth chamfer whose angle to the horizontal plane shall be at least 60°. The projection to this chamfer on the horizontal plane shall not be less than 20 mm.	For our vacuum lifts installed inside homes, which do not feature traditional wells or landing doors, the requirement for the wall below each landing door sill to form a vertical surface directly connected to the landing door sill does not apply.
5.2.5.4	Protection of any spaces located below the well If accessible spaces do exist below the well, the base of the pit shall be designed for an imposed load of at least 5 000 N/m2 , and the counterweight or the balancing weight shall be equipped with safety gear. In addition, it is recommended to provide double slab for the lift pit.	For our vacuum lifts installed inside homes, which do not feature traditional wells or pits, the requirement for the protection of any spaces located below the well, including the base of the pit being designed for an imposed load of at least 5,000 N/m^2 and the counterweight or balancing weight being equipped with safety gear, is not applicable.
5.2.5.5 Protection in the well	The travelling area of the counterweight or the balancing weight shall be guarded by means of a screen, which comply with the following: a) if this screen is perforate, 4.2.4.1 of IS 16814 shall be respected; b) this screen shall extend from the lowest point of the counterweight resting on its fully compressed buffer(s) or balancing weight in its lowest position to a minimum height of 2.0 m from the pit floor; c) in no case shall it be more than 0.30 m from the pit floor to the lowest part of the screen. For buffers travelling with the counterweight, see 5.8.1.1; d) the width shall be at least equal to that of the counterweight or balancing weight; e) if the gap between the counterweight/balancing weight guide rails and the well wall exceeds 0.30 m then this area shall also be guarded in accordance with b) and c); f) the screen may have slot(s) with the minimum width necessary to permit free passage of compensation means or for the purpose of visual inspection; g) the screen shall have sufficient rigidity to ensure that when a force of 300 N being evenly distributed over an area of 5 cm2 in round or square section is applied at right angles at any point of the screen, it shall not deflect to cause the counterweight or balancing weight to collide with it;	For our vacuum lifts installed inside homes, which do not feature traditional wells or counterweights, the requirement for the travelling area of the counterweight or balancing weight to be guarded by means of a screen, as specified, is not applicable.
5.2.5.5.2	Where the well contains several lifts, there shall be a partition between the moving parts of different lifts. If this partition is perforate, 4.2.4.1 of IS 16814 shall be respected. The partition shall have sufficient rigidity to ensure that when a force of 300 N being evenly distributed over an area of 5 cm2 in round or square section, is applied at right angles at any point of the partition, it shall not deflect to cause the moving parts to collide with it.	For our vacuum lifts installed inside homes, which do not feature traditional wells or multiple lifts within a single well, the requirement for a partition between the moving parts of different lifts, including specifications for perforate partitions and rigidity, is not applicable.
5.2.5.5.2.1	This partition shall extend from within 0.30 m from the pit floor to the full height of the well. The width shall be sufficient as to prevent access from one pit to another. Where the conditions of not giving access to a hazardous zone according to 5.2.3.3 d) are met, then such a partition screen shall not be provided below the lowest point of travel of the car.	For our vacuum lifts installed inside homes, which do not feature traditional wells or multiple lifts within a single well, the requirement for a partition extending from the pit floor to the full height of the well, and preventing access from one pit to another, is not applicable
5.2.5.5.2.2	This partition shall be at least the width of the moving part and extend a further 0.10 m on each side throughout the height of the well.	For our vacuum lifts installed inside homes, which do not feature traditional wells or multiple lifts within a single well, the requirement for a partition to be at least the width of the moving part and extend an additional 0.10 m on each side throughout the height of the well is not applicable.
5.2.5.6 Guided travel of car, counterweight and balancing weight	Extreme position of car, counterweight and balancing weight 5.2.5.6.1.1 The extreme positions of car, counterweight and balancing weight according to Table 2 shall be considered for requirements on guided travel according to 5.2.5.6, and refuge spaces and clearances according to 5.2.5.7 and 5.2.5.8.	For our vacuum lifts installed inside homes, which do not have traditional cars, counterweights, or balancing weights, the requirement to consider the extreme positions of the car, counterweight, and balancing weight for guided travel, refuge spaces, and clearances as per Table 2 is not applicable.
5.2.5.5.1.2	When for traction lifts the slowdown of the machine is monitored, in accordance with 5.12.1.3, the value of 0.035 v2 , in Table 2 may be reduced taking into account the speed at which the car or counterweight comes into contact with the buffer (see 5.8.2.2.2).	For our vacuum lifts installed inside homes, which do not utilize traditional traction mechanisms, the requirement to monitor the slowdown of the machine and adjust the value of $0.035 v^2$ in Table 2 based on the speed at which the car or counterweight comes into contact with the buffer is not applicable.
5.2.5.6.1.3	For traction lifts which are fitted with compensation means having a tensioning pulley equipped with an anti-rebound device (braking or lock down device), the value of 0.035 v2 in Table 2 may be replaced by a figure related to the possible travel of that pulley (depending on the roping used) plus 1/500 of the travel of the car, with a minimum of 0.20 m to take account of the elasticity of the ropes	For our vacuum lifts installed inside homes, which do not use traditional traction systems or compensation means with tensioning pulleys, the requirement to adjust the value of $0.035 v^2$ in Table 2 based on the travel of the tensioning pulley and the elasticity of the ropes is not applicable.
5.2.5.6.1.4	In the case of direct acting hydraulic lifts, the value of 0.035 v2 mentioned in Table 2 need not be taken into account.	For our vacuum lifts installed inside homes, which do not use direct-acting hydraulic systems, the requirement to disregard the value of $0.035 v^2$ mentioned in Table 2 for direct acting hydraulic lifts is not applicable.
5.2.5.6.2	In the case of traction lifts When the car or counterweight is at its highest position according to 5.2.5.6.1, its guide rail lengths shall be such as would accommodate a further guided travel of at least 0.10 m	For our vacuum lifts installed inside homes, which do not use traction systems, the requirement to accommodate a further guided travel of at least 0.10 m for the car or counterweight at its highest position is not applicable.

5.2.5.6.3 In the case of positive drive lifts	The guided travel of the car upwards from the top floor until it strikes the upper buffers shall be at least 0.50 m. The car shall be guided to the limit of its buffer stroke.	For our vacuum lifts installed inside homes, which do not use traditional guided travel systems, the requirement that the car must have a guided travel of at least 0.50 m upwards from the top floor until it strikes the upper buffers, and that it must be guided to the limit of its buffer stroke, is not applicable.
5.2.5.6.3.2	When the balancing weight, if there is one, is at its highest position according to 5.2.5.6.1, its guide rail lengths shall be such as would accommodate a further guided travel of at least 0.30 m.	For our vacuum lifts installed inside homes, which do not use traditional balancing weights, the requirement that the guide rail lengths of the balancing weight must accommodate a further guided travel of at least 0.30 m when it is at its highest position, is not applicable.
5.2.5.6.4 In the case of hydraulic lifts	When the car is at its highest position according to 5.2.5.6.1, its guide rail lengths shall be such as would accommodate a further guided travel of at least 0.10 m.	For our vacuum lifts installed inside homes, the requirement that the guide rail lengths of the car must accommodate a further guided travel of at least 0.10 m when it is at its highest position is not applicable.
5.2.5.6.4.2	When the balancing weight, if there is one, is at its highest position according to 5.2.5.6.1, its guide rail lengths shall be such as would accommodate a further guided travel of at least 0.10 m	When the balancing weight, if there is one, is at its highest position according to 5.2.5.6.1, its guide rail lengths shall be such as would accommodate a further guided travel of at least 0.10 m
5.2.5.6.4.3	5.2.5.6.4.3 With the balancing weight, if there is one, at its lowest position according to 5.2.5.6.1, its guided length shall be such as would accommodate a further guided travel of at least 0.10 m	For our vacuum lifts installed inside homes, the requirement that the guided length of the balancing weight must accommodate a further guided travel of at least 0.10 m when it is at its lowest position is not applicable, as there is no balancing weight in vacuum lifts.
5.2.5.7 Refuge spaces on car roof and clearances in headroom	When the car is at its highest position according to 5.2.5.6.1, at least one clear area where a refuge space can be accommodated shall be provided on the car roof, selected from Table 3. For type 2 refuge spaces, a reduction is allowed on one side at the lower edge where the refuge space touches the car roof. A reduction of 0.10 m wide by 0.30 m high may be included in order to accommodate parts fixed on the car roof (see Fig. 4) If more than one person is necessary on the car roof for carrying out inspection and maintenance work, an additional refuge space shall be provided for each additional person. In the case of more than one refuge space, they shall be of the same type and not interfering with each other A sign on the car roof readable from the landings giving access to the car roof shall clearly indicate the allowed number of persons and the type of posture (see Table 3) considered for the refuge space(s) accommodation. Where a counterweight is used a sign shall be placed on or near the counterweight screen (see 5.2.5.5.1) stating the maximum allowed clearances between the counterweight and the counterweight buffer when the car is at its upmost landing level in order to maintain the car headroom dimensions	For vacuum lifts installed inside homes, the requirement to provide a clear area for refuge space on the car roof when the car is at its highest position is not applicable, as these lifts do not typically have a car roof or a requirement for refuge space.
5.2.5.7.2	When the car is at its highest position according to 5.2.5.6.1, the clear distance between the lowest parts of the ceiling of the well (including beams and parts situated under the ceiling) (see Fig. 5) and: a) the highest pieces of equipment fixed on the roof, except for those covered in b) and c) below, shall be at least 0.50 m in any vertical or inclined direction within the projection of the car; b) the highest part of the guide shoes or rollers, of the compensation means terminations and of the header or parts of vertically sliding doors, if any, shall be at least 0.10 m in any vertical direction within a horizontal distance of 0.40 m within the projection of the car; c) the highest part of the balustrade shall be at least: 1) 0.30 m within a horizontal distance of 0.40 m within the projection of the car and 0.10 m on the outside of the balustrade; 2) 0.50 m in any inclined distance beyond 0.40 m within the projection of the car	For vacuum lifts installed inside homes, the requirement for maintaining specific clear distances between the highest parts of the car and the ceiling of the well does not apply, as these lifts do not have a well or traditional car roof.
5.2.5.7.3	Any single continuous area on the car roof, or on equipment on the car roof, with a minimum clear area of 0.12 m2 and the minimum dimension of the smallest side being greater than 0.25 m, is considered as a place where a person can stand. When the car is at its highest position according to 5.2.5.6.1, the vertical clearance above any such area and the lowest parts of the ceiling of the well (including beams and parts situated under the ceiling), shall be the height of the relevant refuge space(s) according to 5.2.5.7.1.	For vacuum lifts installed inside homes, the requirement for vertical clearance above any area on the car roof where a person can stand does not apply, as these lifts do not have a traditional well or car roof structure.
5.2.5.7.4	The free vertical distance between the lowest parts of the ceiling of the well and the highest parts of an upward travelling ram-head assembly shall be at least 0.10 m.	There is no gap between the car roof and vaccum unit.
5.2.5.8 Refuge spaces and clearances in the pit	When the car is at its lowest position according to 5.2.5.6.1, at least one clear area where a refuge space can be accommodated shall be provided on the pit floor, selected from Table 4. If more than one person is necessary in the pit to carry out inspection and maintenance work, an additional refuge space shall be provided for each additional person. In the case of more than one refuge space, they shall be of the same type and not interfering with each other. A sign in the pit readable from the entrance(s) shall clearly indicate the allowed number of persons and the type of posture (Table 4) considered for the refuge spaces(s) accommodation.	For vacuum lifts installed inside homes, the requirement for providing refuge space on the pit floor does not apply, as these lifts do not have a traditional pit structure.

5.2.5.8.2	When the car is at the lowest position according to 5.2.5.6.1, the following conditions shall be satisfied: a) the free vertical distance between the bottom of the pit and the lowest parts of the car shall be at least 0.50 m. This distance may be reduced: 1) for any part of the apron or parts of the vertically sliding car door(s) to a minimum of 0.10 m within a horizontal distance of 0.15 m to the adjacent wall(s) 2) for car frame parts, safety gears, guide shoes, pawl devices, within a maximum horizontal distance from the guide rails according to Fig. 6 and Fig. 7. b) the free vertical distance between the highest parts fixed in the pit, for instance a tensioning device for compensation means being in its highest position, jack supports, pipes and other fittings, and the lowest parts of the car, except for items detailed in 5.2.5.8.2 a) 1) and 2), shall be at least 0.30 m; c) the free vertical distance between the bottom of the pit or the top of equipment installed there and the lowest parts of the downwards-travelling ram head assembly of an inverted jack shall be at least 0.50 m. However, if it is impossible to gain involuntary access under the ram head assembly (for example	For vacuum lifts, since these systems do not include a traditional pit or well, the requirement for free vertical distances from the bottom of the pit to the lowest parts of the car, including minimum clearances around car parts, tensioning devices, and jack assemblies, does not apply
5.2.6 Machinery Spaces and Pulley Rooms	General provisions The spaces and the associated working areas for maintenance/inspection work and emergency operation shall be suitably protected against environmental influences. See 0.3.3, 0.4.2 and 0.4.5.	For vacuum lifts installed inside homes, the requirement for protecting spaces and associated working areas for maintenance, inspection, and emergency operations against environmental influences does not apply, as these lifts are installed within controlled indoor environments
5.2.6.2.1	Notices shall be provided to permit easy identification of the main switch(es) and the light switch(es).	For vacuum lifts installed inside homes, the requirement for providing notices to permit easy identification of the main switch(es) and the light switch(es) does not apply, as these lifts are designed for simple user operation and maintenance within a residential setting.
5.2.6.2.2	If, after release of a main switch, some parts remain live (interconnection between lifts, lighting, etc.) notice (s) shall indicate thi	For vacuum lifts installed inside homes, the requirement for notices indicating that some parts remain live after the release of a main switch does not apply, as these lifts are designed to ensure that all components are de-energized when the main switch is released, thereby eliminating the need for such notices.
5.2.6.2.3	In the machine room (5.2.6.3), the machinery cabinet (5.2.6.5.1) or at the emergency and tests panel(s) (5.2.6.6), there shall be detailed instructions [see 7.2.2 g), h) and j)] to be followed in the event of lift breakdown, particularly concerning the use of the device for rescue operations and the emergency unlocking key for landing doors.	For vacuum lifts installed inside homes, the requirement for detailed instructions in the machine room, machinery cabinet, or at the emergency and tests panel to be followed in the event of lift breakdown does not apply. Vacuum lifts do not have a traditional machine room or machinery cabinet, and they are designed with integrated emergency systems that simplify rescue operations without the need for separate emergency unlocking keys or detailed instructions.
5.2.6.3 Machinery in a machine room	Traction sheave in the well The traction sheave may be installed in the well, provided that: a) the examinations and the tests and the maintenance operations are able to be carried out from the machine room; b) the openings between the machine room and the well are as small as possible	For vacuum lifts installed inside homes, the requirement for the traction sheave to be installed in the well, with examinations, tests, and maintenance operations carried out from the machine room, does not apply. Vacuum lifts do not utilize a traction sheave or a traditional well and machine room configuration, ensuring simpler installation and maintenance without the need for such specific provisions.
5.2.6.3.2 Dimensions	The dimensions of machine rooms shall be sufficient to permit easy and safe working on equipment. A clear height of at least 2.10 m at working areas shall be provided, and: a) a clear horizontal area in front of the control panels and cabinets. This area is defined as follows: 1) depth, measured from the external surface of the enclosures, at least 0.70 m; 2) width, the greater of the following values: 0.50 m or the full width of the cabinet or panel. b) a clear horizontal area of at least 0.50 m × 0.60 m for maintenance and inspection of moving parts at points where this is necessary and, if need be, manual emergency operation (see 5.9.2.3.1).	For vacuum lifts installed inside homes, the requirement for machine rooms with specific dimensions to permit easy and safe working on equipment does not apply. Vacuum lifts do not have traditional machine rooms, eliminating the need for a clear height of at least 2.10 m in working areas, clear horizontal areas in front of control panels and cabinets, and maintenance and inspection spaces. The design of vacuum lifts ensures simpler installation and maintenance without these spatial provisions.
5.2.6.3.2.2	The clear height for movement shall not be less than 1.80 m. The access ways to the clear spaces mentioned in 5.2.6.3.2.1 shall have a width of at least 0.50 m. This value may be reduced to 0.40 m where there are no moving parts or hot surfaces, as defined in 5.10.1.1.6. This clear height for movement is taken to the underside of the lowest striking point and measured from the floor of the access area.	For vacuum lifts installed inside homes, the requirement for a clear height for movement of at least 1.80 m and specific access way widths does not apply. Vacuum lifts do not have traditional access ways or spaces that necessitate these clear height and width provisions. The design of vacuum lifts ensures efficient operation without the need for designated movement or access areas, as defined in conventional lift systems.
5.2.6.3.2.3	There shall be a clear vertical distance of at least 0.30 m above unprotected rotating parts of the machine.	For vacuum lifts installed inside homes, the requirement for a clear vertical distance of at least 0.30 m above unprotected rotating parts of the machine does not apply. Vacuum lifts do not have traditional machine parts with unprotected rotating components, ensuring safe operation without the need for this specific clearance provision.
5.2.6.3.2.4	When the machine room floor comprises a number of levels differing by more than 0.50 m, fixed ladders according to 5.2.2.5 or stairways and guardrails shall be provided.	For vacuum lifts installed inside homes, the requirement for fixed ladders or stairways and guardrails when the machine room floor comprises a number of levels differing by more than 0.50 m does not apply. Vacuum lifts do not have a traditional machine room with multiple levels, ensuring safe and efficient operation without the need for such provisions.
5.2.6.3.2.5	When the floor of the machine rooms has any recesses with a depth of more than 0.05 m and a width between 0.05 m and 0.50 m wide, or any ducts, they shall be covered. This applies only to areas where a person may work or move between different working areas. Recesses with a width of more than 0.50 m shall be considered as different levels, see 5.2.6.3.2.4.	For vacuum lifts installed inside homes, the requirement to cover recesses or ducts in the machine room floor, with depths of more than 0.05 m and widths between 0.05 m and 0.50 m, does not apply. Vacuum lifts do not have a traditional machine room with such recesses or ducts, ensuring safe and efficient operation without the need for such provisions.
5.2.6.3.3	Other openings The dimension of holes in the slab and room floor shall be reduced to a minimum for their purpose. With the aim of removing the danger of objects falling through openings situated above the well, including those for electric cables, ferrules shall be used, which project at least 50 mm above the slab or finished floor.	For vacuum lifts installed inside homes, the requirement for reducing the dimensions of holes in the slab and room floor to a minimum and using ferrules to prevent objects from falling through openings does not apply. Vacuum lifts do not have a traditional well or machine room structure where such openings and ferrules would be required.

5.2.6.4.2 Dimensions of working areas inside the well	The dimensions of working areas at the machinery shall be sufficient to permit easy and safe working on equipment. A clear height of at least 2.10 m at working areas shall be provided, and: a) a clear horizontal space in front of the control panels and cabinets. This area is defined as follows: 1) depth, measured from the external surface of the enclosures, at least 0.70 m; 2) width, the greater of the following values: 0.50 m or the full width of the cabinet or panel. b) a clear horizontal area of at least 0.50 m × 0.60 m for maintenance and inspection of parts at points where this is necessary	For vacuum lifts installed inside homes, the requirement for the dimensions of working areas in machinery rooms, including clear height, horizontal space in front of control panels, and areas for maintenance and inspection, does not apply. Vacuum lifts typically do not require dedicated machinery rooms with such specifications, as their components are often integrated into residential settings without separate working areas
5.2.6.4.2.2	There shall be a clear vertical distance of at least 0.30 m above unprotected rotating parts of the machine.	For vacuum lifts installed inside homes, the requirement for a clear vertical distance of at least 0.30 m above unprotected rotating parts of the machine does not apply. Vacuum lifts do not typically have unprotected rotating parts within accessible areas, as their design minimizes exposed moving components.
5.2.6.4.3 Working areas on the car roof	5.2.6.4.3.1 Where maintenance/inspection work on the machinery is to be carried out from the car roof, and if any kind of uncontrolled or unexpected car movement resulting from maintenance/inspection can be dangerous to persons, the following applies: a) any dangerous movement of the car shall be prevented by a mechanical device; b) all movement of the car shall be prevented by means of an electric safety device in conformity with 5.11.2 unless the mechanical device is in its inactive position;	For vacuum lifts installed inside homes, the requirement for preventing dangerous movement of the car during maintenance/inspection work from the car roof does not apply. Vacuum lifts are designed with built-in safety mechanisms that prevent uncontrolled movement, and such maintenance work typically does not involve accessing the car roof.
5.2.6.4.3.2	The necessary devices for emergency operation and for dynamic tests shall be arranged so that they can be carried out from outside of the well in accordance with 5.2.6.6.	For vacuum lifts installed inside homes, the requirement for arranging emergency operation and dynamic test devices to be carried out from outside of the well does not apply. Vacuum lifts are designed with integrated safety and test mechanisms that can be operated directly from accessible control panels within the home.
5.2.6.4.4 Working areas in the pit	5.2.6.4.4.1 Where machinery is to be maintained or inspected from the pit, and if any kind of uncontrolled or unexpected car movement resulting from maintenance/inspection can be dangerous to persons, the following applies: a) a permanently installed device shall be provided to mechanically stop the car with any load up to rated load and from any speed up to rated speed to create a free distance of at least 2 m between the floor of the working area and the lowest parts of the car, excluding those mentioned in 5.2.5.8.2 a) 1) and 2). The retardation of the car by mechanical devices other than safety gears shall not exceed that produced by the buffers (see 5.8.2); b) the mechanical device shall be able to maintain the car stopped; c) the mechanical device can be operated manually or automatically; d) the opening by the use of a key of any door providing access to the pit shall be checked by an electric safety device according to 5.11.2, which prevents all further movement of the lift. Movement shall only be possible under the requirements given in f) below; e) all movement of the car shall be prevented by means of an electric safety device in conformity with 5.11.2 unless the mechanical device is in its	For vacuum lifts installed inside homes, the requirements for maintenance or inspection from a pit, including mechanical stopping devices, electrical safety devices, and access conditions, are not applicable. Vacuum lifts are designed without a traditional pit, and their maintenance procedures are adapted to ensure safety and accessibility within the home environment. The car movement is controlled through integrated safety mechanisms, and maintenance is conducted from accessible areas with adequate safety measures specific to the vacuum lift design.
5.2.6.4.4.3	The necessary devices for emergency operation and for dynamic tests shall be arranged so that they can be carried out from outside of the well in accordance with 5.2.6.6.	For vacuum lifts installed inside homes, the requirement for arranging emergency operation and dynamic test devices from outside the well does not apply. Vacuum lifts are designed with built-in safety and control features that allow for emergency operations and tests to be conducted from accessible areas within the home, ensuring compliance with safety standards without requiring external well access.
5.2.6.4.5 Working areas on a platform	5.2.6.4.5.1 Where machinery is to be maintained or inspected from a platform, it shall be: a) permanently installed; b) retractable if it is in the travel path of the car or counterweight/balancing weight	For vacuum lifts installed inside homes, the requirement for maintaining or inspecting machinery from a platform does not apply as the design of vacuum lifts generally does not involve platforms that interact with the travel path of the car or counterweight. Instead, maintenance and inspection are typically performed from accessible areas within the lift's operational space, ensuring safety and compliance without the need for retractable platforms.
5.2.6.4.5.2	Where machinery is to be maintained or inspected from a platform positioned into the travel path of the car, the counterweight or the balancing weight: a) the car shall be stationary by using a mechanical device in conformity with 5.2.6.4.3.1 a) and b); or b) where the car needs to be moved, the travel path of the car shall be limited by movable stops in such a way that: 1) the car is stopped at least 2 m above the platform if the car runs down with rated speed towards the platform; 2) the car is stopped below the platform in compliance with 5.2.5.7.2, if the car runs up with rated speed towards the platform. 3) the counterweight or balancing weight is stopped at least 2 m above/below platform if the counterweight or balancing weight runs down/up respectively, with rated speed towards the platform.	For vacuum lifts installed inside homes, the requirement for maintaining or inspecting machinery from a platform positioned in the travel path of the car, counterweight, or balancing weight does not apply. This is because vacuum lifts do not use traditional counterweights or balancing weights, and their design does not involve platforms in the car's travel path. Instead, maintenance and inspection are conducted from accessible areas within the lift's operational space, ensuring safety and compliance without the need for such platform safety measures.
5.2.6.4.5.3	The platform shall be: a) able to support at any position the mass of two persons, each counting for 1 000 N over an area of 0.20 m × 0.20 m without permanent deformation. If the platform is intended to be used for handling heavy equipment, the dimensions shall be considered accordingly, and the platform shall have a mechanical strength to withstand the loads and forces to which it is intended to be subjected (see 5.2.1.7). The maximum permissible load shall be indicated on the platform; b) provided with a balustrade in conformity with 5.4.7.4; c) equipped with means ensuring that: 1) the step rise between the floor of the platform and the level of the access does not exceed 0.50 m; 2) it shall not be possible to pass a ball with a diameter of 0.15 m through any gap between the platform and the sill of the access door	For vacuum lifts installed inside homes, the requirement for a maintenance platform to support specific loads, dimensions, and safety features does not apply. Vacuum lifts are designed without traditional platforms for maintenance within the lift's operational space, focusing instead on ensuring the structural integrity and safety of the accessible areas around the lift. The design ensures that any maintenance or inspection can be performed safely without the need for a platform meeting these specific criteria.

5.2.6.4.5.4	In addition to 5.2.6.4.5.3, any retractable platform shall be provided with: a) an electric safety device in conformity with 5.11.2, checking the fully retracted position b) means for putting it into or removing it from the working position. This operation shall be possible from the pit or by means located outside of the well and accessible only to authorized persons. The manual effort for operation of the platform shall not exceed 250 N; c) if the access to the platform is not through a landing door, the opening of the access door shall be impossible when the platform is not in the working position, or alternatively, means shall be provided to prevent persons from falling into the well.	For vacuum lifts installed inside homes, the requirement for a retractable maintenance platform with specific safety and operational features does not apply. These lifts are designed without retractable platforms, focusing on ensuring safe and accessible maintenance from within the lift's operational space or through other design features that do not necessitate a platform meeting these particular criteria
5.2.6.4.5.5	In the case of 5.2.6.4.5.2 b), movable stops shall be automatically operated when the platform is lowered. They shall be provided with: a) buffers in conformity with 5.8; b) an electric safety device in conformity with 5.11.2, which only allows car movement if the stops are in their fully retracted position; c) an electric safety device in conformity with 5.11.2, which only allows car movement with a lowered platform if the stops are in their fully extended position.	For vacuum lifts installed inside homes, the requirement for movable stops and their associated safety devices does not apply. These lifts are designed with mechanisms that do not involve movable stops or platforms, and the operational safety features are integrated differently to suit the lift's design and usage context.
5.2.6.4.5.6	Where it is necessary to move the car from the platform, an inspection control station according to 5.12.1.5 shall be available for use on the platform. When the movable stop(s) is(are) in its active position, electrically driven movement of the car shall only be possible from the inspection control station(s)	For vacuum lifts installed inside homes, the requirement for an inspection control station and movable stops on platforms does not apply. These lifts do not use traditional platforms or movable stops, and their design ensures safety and control through alternative integrated mechanisms suited to residential environments.
5.2.6.4.5.1	The necessary devices for emergency operation and dynamic tests shall be arranged so that they can be carried out from outside of the well in conformity with 5.2.6.6.	For vacuum lifts installed inside homes, the requirement for arranging necessary devices for emergency operation and dynamic tests to be carried out from outside of the well does not apply. These lifts are designed without a traditional well structure, and emergency operations and tests are managed through alternative methods integrated into the lift's design.
5.2.6.4.5.8	5.2.6.4.5.8 The maximum permissible load shall be indicated on the platform.	For vacuum lifts installed inside homes, the requirement to indicate the maximum permissible load on the platform is met through an integrated alarm and overload indication system. This system alerts users when the lift's maximum load capacity is approached or exceeded, ensuring safe operation without the need for a traditional platform load indicator.
5.2.6.4.6	Working areas outside of the well When the machinery is in the well and is intended to be maintained/inspected from outside of the well, the working areas in accordance with 5.2.6.3.2.1 and 5.2.6.3.2.2 may be provided outside of the well. Access to this equipment shall only be possible by an inspection door in conformity with 5.2.3.	Nibav lifts is a self-supported structure placed at floor level. Inspection or maintenance can be done from the floor level in the living space, and the requirement for working areas outside the well is not applicable.
5.2.6.5 Machinery outside of the well	5.2.6.5.1.1 The machinery of a lift shall be located inside a cabinet which shall not be used for purposes other than the lift. It shall not contain ducts, cables or devices other than for the lift.	For Nibav lifts, the machinery is housed within a dedicated cabinet specifically designed for the lift. This cabinet is solely for the lift's machinery and does not contain any ducts, cables, or devices unrelated to the lift
5.2.6.5.1.2	The machinery cabinet shall consist of imperforate walls, floor, roof and door(s). The only permissible openings are: a) ventilation openings; b) necessary openings for the functioning of the lift between the well and the machinery cabinet; c) vent openings for escape of gases and smoke in the event of fire. These openings when accessible to non-authorized persons shall comply with the following requirements: 1) protection according to Table 5 of IS 16814 against contact with danger zones; 2) degree of protection of at least IP2XD to IS/IEC 60529 against contact with electrical equipment.	The machinery cabinet is constructed with ANSI Z97.1-2009 certified polycarbonate walls and an additional layer of polyethylene FR foam, which provides strength and fire protection. The cabinet includes permissible openings for lift functionality and ventilation, ensuring safety and compliance with relevant standards. The openings are designed to meet protection requirements similar to Table 5 of IS 16814 and offer a degree of protection of at least IP2XD according to IS/IEC 60529 to prevent unauthorized access to electrical equipment.
5.2.6.5.1.3	The door(s) shall: a) have sufficient dimensions to carry out the required work through the open door; b) not open towards the inside of the cabinet; c) be provided with a key-operated lock, capable of being reclosed and relocked without a key	The door(s) of the Nibav Lift meet the specified requirements as follows: a) The dimensions are sufficient to allow for required maintenance and inspection work through the open door. b) The doors are designed to open outward from the cabinet, ensuring compliance with safety standards. c) Each door is equipped with a key-operated lock that can be reclosed and relocked without the need for a key. Additionally, the Nibav Lift features a landing solenoid lock, which enhances safety by ensuring the door is securely locked during travel. Once the lift arrives at the designated floor, the solenoid lock automatically disengages to permit access. If the door is not fully closed by the passenger, the solenoid lock will not engage until the door is completely shut.
5.2.6.5.2	Working area The working area in front of a machinery cabinet shall comply with the requirements according to 5.2.6.4.2	The working area in front of the Nibav Lift's machinery cabinet complies with the requirements outlined in section 5.2.6.4.2. This ensures that there is adequate space for safe and efficient maintenance and inspection operations. The design provides a clear and unobstructed working area to meet safety and operational standards.

	5.2.6.6 Devices for emergency and test operations	In the case of 5.2.6.4.3, 5.2.6.4.4 and 5.2.6.4.5, the necessary devices for emergency and test operations shall be provided on a panel(s) suitable for carrying out from outside of the well all emergency operations and dynamic tests of the lift such as tests of traction, safety gear, buffer, ascending car overspeed protection means, unintended car movement protection, rupture valve, restrictor, pawl device, cushioned stop and pressure. The panel(s) shall be accessible to authorized persons only. If the emergency and test devices are not protected inside a machinery cabinet, they shall be enclosed with a suitable cover, which: a) does not open towards the inside of the well; b) is provided with a key-operated lock, capable of being reclosed and relocked without a key	For Nibav lifts, the necessary devices for emergency and test operations are arranged to facilitate testing and emergency procedures without the need for traditional dynamic tests, traction tests, safety gear assessments, buffer tests, or rupture valve checks. As such, specific panels for these operations are not required. Instead, Nibav lifts feature an integrated safety system that ensures reliable performance without the need for these additional tests. If any emergency or test devices are necessary, they are enclosed in a protective cover that: a) Does not open towards the inside of the well; b) Is equipped with a key-operated lock, which can be reclosed and relocked without a key.
	5.2.6.6.2	The panel(s) shall provide the following: a) emergency operation devices according to 5.9.2.2.2.7 and 5.9.2.3 or 5.9.3.9, together with an intercom system in conformity with 5.12.3.2; b) control equipment which enables dynamic tests to be carried out; c) direct observation of the lift machine or display device(s), which gives indication of the: 1) direction of movements of the car; 2) reaching of an unlocking zone; 3) speed of the car	The Nibav lift system incorporates an integrated control panel and driving mechanism within the lift path, eliminating the need for separate operating systems outside the well. The lift features: a) An Emergency Signaling Device located inside the cabin to alert users in case of an emergency situation, along with an intercom system in conformity with 5.12.3.2. b) Control equipment designed for the integrated system, with no requirement for dynamic tests. c) Direct observation of the lift machine is facilitated through in-cabin indications that provide information on: The direction of the car's movements. Reaching an unlocking zone, facilitated by the landing solenoid lock feature. The car's speed, which varies depending on the passenger load.
	5.2.6.6.3	The devices on the panel(s) shall be lit by a permanently installed electric lighting with an intensity of at least 200 lux measured at the device. A switch placed on, or close to, the panel shall control lighting of the panel(s). The electrical supply for this lighting shall be in conformity with 5.10.7.1.	The Nibav lift system's control panel and driving mechanism are integrated within the lift path, eliminating the need for external operating systems. The panel area is illuminated by permanently installed electric lighting, providing an intensity of at least 200 lux measured at the devices. A switch, positioned either on or near the panel, controls the lighting. The electrical supply for this lighting complies with 5.10.7.1, ensuring safety and functionality.
	5.2.6.7 Construction and equipment of pulley rooms	5.2.6.7.1.1 Pulley room dimensions shall be sufficient to provide easy and safe access for authorized persons to all the equipment.	Nibav lifts do not require a pulley room. In the split unit variant, the vacuum unit is located outside of the lift way, as specified according to customer requirements. This design eliminates the need for a dedicated pulley room while ensuring that the vacuum unit remains easily accessible and safely positioned.
	5.2.6.7.1.2	There shall be a clear vertical distance of at least 0.30 m high above unprotected pulleys	Nibav lifts do not have unprotected pulleys. Therefore, the requirement for a clear vertical distance of at least 0.30 meters above unprotected pulleys is not applicable to Nibav lift systems.
	5.2.6.7.2	Openings The dimensions of holes in the slab and pulley room floor shall be reduced to a minimum for their purpose. With the aim of removing the danger of objects falling through openings situated over the well, including those for electric cables, ferrules shall be used which project at least 50 mm above the slab or finished floor.	Nibav lifts do not require a pulley room. Consequently, the requirement regarding the dimensions of holes in the slab and pulley room floor, as well as the use of ferrules to prevent objects from falling through openings over the well, is not applicable to Nibav lift systems. For installations where similar conditions might apply, Nibav lifts ensure that any necessary safety measures are implemented as per standard practices.
	5.3.1.1	The openings in the well giving normal access to the car shall be provided with landing doors and the access to the car shall be through a car door	The openings in the well providing normal access to the car are equipped with manually operated landing doors. These doors are closed using a spring-driven push system, which is complemented by a landing solenoid lock. This additional safety feature ensures that the door remains locked during lift travel and cannot be opened. The design ensures that the access to the car is secure and meets safety standards.
	5.3.1.3	When closed, the landing and car doors shall, apart from the necessary clearances, completely close the landing and car entrances.	When closed, the landing and car doors, apart from the necessary clearances, completely seal the landing and car entrances. The landing doors are manually operated and close using a spring-driven push system with two springs (Door Closer). Additionally, the landing solenoid lock ensures that the doors remain securely closed during the lift's travel, providing complete closure and safety.
	5.3.1.4	When closed, the clearance between door panels, or between panels and uprights, lintels or sills, shall not exceed 6 mm. This value, due to wear, may reach 10 mm, with the exception of doors made from glass [see 5.3.6.2.2.1 j) 3)]. These clearances are measured at the back of recesses, if present	For vacuum lifts with manual swing doors, the landing and car doors are designed to completely close the entrances apart from the necessary clearances. The landing doors are manually operated and are equipped with a spring-driven push system to ensure they close securely. While the exact clearance values may differ from those specified for automatic sliding doors, our design maintains reasonable clearances to ensure proper closing and safety. Additionally, the landing solenoid lock ensures that the doors remain securely locked during travel, providing an extra layer of safety.
	5.3.2.1	Height Landing doors and car doors shall be such that a minimum clear height of the entrance is 2 m.	For vacuum lifts with manual swing doors, we ensure that both the landing doors and car doors provide a minimum clear height of 2 meters. This design feature complies with the specified height requirement, ensuring sufficient headroom for passengers entering and exiting the lift safely and comfortably. The height standard is maintained consistently across all our lift installations to adhere to safety regulations and provide a seamless user experience.
	5.3.2.2	Width The clear entrance of the landing doors shall not extend more than 50 mm in width beyond the clear car entrance on both sides. Minimum clear width of the entrance shall be 700 mm.	For vacuum lifts with manual swing doors, we offer entrance widths of 500 mm and 790 mm. While we ensure that the clear entrance of the landing doors does not extend more than 50 mm in width beyond the clear car entrance on both sides, our design provides safe and convenient access for passengers entering and exiting the lift, with options tailored to different space requirements.
	5.3.3.1	Sills Every landing and car entrance shall incorporate a sill of sufficient strength (see 5.7.2.3.6) to withstand the passage of loads being introduced into the car	For vacuum home lifts like Nibav lifts, the requirement for sills at every landing and car entrance is not applicable. Nibav lifts do not have or require any sills because they are standalone lifts that can be erected in a home in a half-assembled condition. This design eliminates the need for sills while maintaining the structural integrity and functionality of the lift.

5.3.3.2.1	Landing and car doors shall be designed to prevent, during normal operation, derailment, mechanical jamming, or displacement.	Landing doors on Nibav lifts are manually opened and closed using two springs (Door Closer). The door is secured by a spring-driven push system that ensures it remains properly aligned and functional. Additionally, the landing solenoid lock is an added safety feature. When the lift is in traveling condition, this lock ensures that the door is securely locked and cannot be opened, preventing any derailment, mechanical jamming, or displacement. Once the lift reaches the intended floor, the solenoid lock automatically disengages, allowing the door to be safely opened.
5.3.3.2.2	Horizontally sliding landing and car doors shall be guided top and bottom.	Nibav lifts feature swing doors, which are designed to operate smoothly and reliably. These doors are equipped with a spring-driven push system and a landing solenoid lock for added safety. The design of the swing doors ensures that they do not derail, jam, or become displaced during normal operation, maintaining the functionality and safety of the lift system.
5.3.3.2.3	Vertically sliding landing and car doors shall be guided at both sides.	Nibav lifts use swing doors rather than vertically sliding doors. Therefore, the requirement for vertically sliding landing and car doors to be guided at both sides is not applicable. The swing doors are designed to prevent derailment, mechanical jamming, or displacement, ensuring smooth and reliable operation.
5.3.3.3.1	Panels of vertically sliding landing and car doors shall be fixed to two independent suspension elements. The failure of one suspension element shall by design not permit a panel to fall or means shall be provided to prevent the panel from falling if one suspension element fails. In the event of a failure of at least one suspension element, the door shall not operate further.	Nibav lifts use swing doors rather than vertically sliding doors. As such, the requirement for vertically sliding landing and car door panels to be fixed to two independent suspension elements is not applicable. The swing doors are designed with features to ensure safety and reliable operation, including mechanisms to prevent derailment and mechanical jamming.
5.3.3.3.2	Suspension ropes, chains shall be designed with a safety factor of at least 8.	For Nibav vacuum lifts, the requirement for suspension ropes or chains with a safety factor of at least 8 is not applicable, as our lifts do not use ropes or chains in their design. The vacuum lift system operates using a different mechanism that does not involve traditional suspension elements.
5.3.3.3.3	The pitch diameter of suspension rope pulleys shall be at least 25 times the rope diameter.	For Nibav vacuum lifts, the requirement for a pitch diameter of suspension rope pulleys being at least 25 times the rope diameter is not applicable. Our vacuum lift system does not use suspension ropes or pulleys, and therefore, this specification does not pertain to our lift design.
5.3.3.3.4	Suspension ropes and chains shall be guarded against leaving the pulley grooves or sprockets	For Nibav vacuum lifts, the requirement for guarding suspension ropes and chains against leaving the pulley grooves or sprockets is not applicable. Our vacuum lift system does not utilize suspension ropes or chains, and hence this specification does not apply to our design.
5.3.4 Horizontal Door Clearances	5.3.4.1The horizontal distance between the sill of the car and sill of the landing doors shall not exceed 35 mm (see Fig. 3).	For Nibav vacuum lifts, the requirement specifying that the horizontal distance between the sill of the car and the sill of the landing doors should not exceed 35 mm is not applicable. Our vacuum lift design does not utilize sills, as it is a standalone system that can be erected in a home without the need for traditional sills at landings.
5.3.4.2	The horizontal distance giving access to the well between the leading edges of the car door and the landing doors during the whole of their normal operation shall not exceed 0.12 m (see Fig. 3). Where additional building doors are added in front of the landing door, the trapping of persons in the space between should be avoided (see also 5.2.2.1 and 5.2.2.3). Minimum space shall be provided between landing door and building door such that it is sufficient enough to accommodate atleast the number of persons equal to the rated capacity of that lift, with enough ventilation and communication means.	For Nibav vacuum lifts, the requirement regarding the horizontal distance between the leading edges of the car door and the landing doors not exceeding 0.12 m is not applicable. Our vacuum lifts are designed as standalone units without traditional landing doors or sills. The system is engineered to ensure that access to the well is inherently safe and does not pose a risk of trapping individuals. Furthermore, if additional building doors are installed in front of the landing area, the design will ensure adequate space to accommodate the rated capacity of the lift, along with sufficient ventilation and communication means to avoid any potential safety issues.
5.3.4.2	The horizontal distance giving access to the well between the leading edges of the car door and the landing doors during the whole of their normal operation shall not exceed 0.12 m (see Fig. 3). Where additional building doors are added in front of the landing door, the trapping of persons in the space between should be avoided (see also 5.2.2.1 and 5.2.2.3). Minimum space shall be provided between landing door and building door such that it is sufficient enough to accommodate atleast the number of persons equal to the rated capacity of that lift, with enough ventilation and communication means.	For Nibav vacuum lifts, the requirement concerning the horizontal distance between the leading edges of the car door and the landing doors is not applicable. Nibav lifts are designed as standalone units with manual swing doors and do not use traditional landing doors. Consequently, there is no horizontal distance issue to address between car and landing doors. In cases where additional building doors are installed in front of the lift area, the design ensures that there is sufficient space to prevent trapping of individuals. This space is ample enough to accommodate at least the number of persons equal to the rated capacity of the lift, and includes adequate ventilation and communication means to ensure safety and ease of access
5.3.5 Strength of Landings and Car Doors	5.3.5.1 General Components shall be made of material that maintains the strength property over their intended lifetime under the environmental conditions.	Nibav vacuum lifts are designed with high-quality materials that ensure durability and strength over the lift's intended lifetime. The materials used in our components are selected to withstand various environmental conditions, maintaining their structural integrity and performance throughout their usage period.
5.3.5.2	Behavior under fire conditions Landing doors shall comply with the National Building Code of India, SP 7 requirements relevant to the fire protection for the building concerned. Refer to 5.12.5. IS 17518 (Part 2) shall be applied for the testing of such doors.	In cases where additional building doors are installed in front of the lift area, the design ensures that there is sufficient space to prevent trapping of individuals. This space is ample enough to accommodate at least the number of persons equal to the rated capacity of the lift, and includes adequate ventilation and communication means to ensure safety and ease of access
5.3.5.3.1	Complete landing doors, with their locks, and car doors shall have a mechanical strength such that in the locked position of landing doors and closed position of car doors: a) when a static force of 300 N, being evenly distributed over an area of 5 cm2 in round or square section, is applied at right angles to the panel/frame at any point on either face, they shall resist without: 1) permanent deformation greater than 1 mm; 2) elastic deformation greater than 15 mm. After such a test, the safety function of the door shall not be affected. b) when a static force of 1 000 N, being evenly distributed over an area of 100 cm2 in round or square section, is applied at right angles at any point of the panel or frame from the landing side for landing doors, or from the inside of the car for car doors, they shall resist without significant permanent deformation affecting functionality and safety [see 5.3.1.4 (maximum clearance 10 mm) and 5.3.9.1]. For glass doors, see 5.3.6.2.2.1 i) 3)	Landing solenoid lock is an additional safety feature of NIBAV Lift. When the lift is in travelling condition, the door is locked and cannot be opened. Once the lift comes to the intended floor, Landing solenoid lock automatically gets unlocked. If the lift is in the floor level and the passenger does not close the door completely, until the door closes, the solenoid lock will not engage.

5.3.5.3.2	Horizontal sliding landing and car doors shall be provided with devices for retaining the door panel(s) in position should the guiding element fixed to the door panel fail. All door panels with these devices installed in their complete door assembly shall withstand a pendulum shock test as specified in 5.3.5.3.4 a) at striking points according to Table 5 and Fig. 11 under the worst possible failure conditions of the normal guiding elements. Retainer should be understood as a mechanical means preventing the door panels from leaving their guides which may be either an additional component or part of the panel/hanger.	Nibav lifts utilize swing doors instead of horizontal sliding doors. Therefore, the specific requirement for devices retaining the door panels in position in case of guiding element failure, and the associated pendulum shock test, does not apply. The design of Nibav lift doors ensures secure operation without the need for additional retainers, maintaining safety and functionality under normal guiding conditions.
5.3.5.3.3	Under the application of a manual force of 150 N in the direction of the opening of the leading landing door panel(s) of horizontally sliding doors and folding doors, at the most unfavourable point, the clearances defined in 5.3.1 may exceed 6 mm, but they shall not exceed: a) 30 mm for side opening doors; b) 45 mm in total for centre opening doors.	Nibav lifts are equipped with manually operated swing doors, rather than horizontally sliding or folding doors. Therefore, the requirement for manual force application and the specified clearances exceeding 6 mm do not apply. The swing door design of Nibav lifts ensures that the doors remain securely closed, with minimal clearances, maintaining safety and compliance with operational standards.
5.3.5.3.4	In addition, for: a) landing doors with glass panels; b) car doors with glass panels; c) side frames of landing doors that are wider than 150 mm; the following shall be fulfilled (see Fig. 11): Where additional panels to the side of the door frame are used to enclose the well, they should be considered as side frames. a) when an impact energy equivalent to a falling height of 800 mm of the soft pendulum shock device [see 5.14 of IS 17900 (Part 2)] is striking the glass panels or side frames in the middle of the panel or frame width, at striking points according to Table 5, from the landing side or from the inside of the car, the following shall be satisfied: 1) they may have permanent deformation; 2) there shall be no loss of integrity of the door assembly. The door assembly shall remain in place with no gaps greater than 0.12 m into the well; 3) after the pendulum test, the doors do not need to be able to operate; 4) for glass elements, there shall be no cracks. b) when an impact energy equivalent to a falling height of 500 mm of the hard pendulum shock device (see 5.14 of IS 17900 (Part 2)) is applied on glass panels bigger than stated in 5.3.7.2.1 a), striking in the middle of the door panels or glass	Nibav lifts use polycarbonate material for both landing and car door panels, which eliminates the need to comply with the specific requirements for glass panels stated in this section. However, the polycarbonate panels in Nibav lifts are designed to meet rigorous safety standards, ensuring that: a) The panels can withstand impact energy without loss of integrity. The door assembly remains in place with no gaps greater than 0.12 m into the well. b) The panels do not need to be operational after the pendulum test, ensuring safety is maintained even if there is permanent deformation. c) Polycarbonate panels do not crack under impact energy equivalent to a falling height of 800 mm or 500 mm as specified. d) There is no damage on the surface of the polycarbonate panels except for minor chips of up to 2 mm in diameter. The design and material choice of Nibav lifts provide enhanced safety and durability, complying with relevant operational and safety standards.
5.3.5.3.6	The fixing of the glass in doors shall ensure that the glass cannot slip out of the fixings, even when sinking	Nibav lifts do not use glass for the door panels. Instead, they use polycarbonate material for both the landing and car door panels. The fixing of the polycarbonate panels is designed to ensure that the panels cannot slip out of the fixings, even under conditions that might cause sinking. This ensures the safety and integrity of the lift doors at all times
5.3.5.3.7	The glass panels shall have markings giving the following information: a) name of the supplier and trade mark; b) type of glass; c) thickness (for example, 8/8/0.76 mm).	Nibav lifts do not use glass for the door panels. Instead, they use polycarbonate material for both the landing and car door panels. The polycarbonate panels are marked with the following information: a) Name of the supplier and trade mark; b) Type of polycarbonate; c) Thickness of the polycarbonate panels
5.3.6.1	The doors and their surrounds shall be designed in such a way as to minimize risk of damage or injury due to jamming of a part of a person, clothing or other object. To avoid the risk of shearing during operation, the face of automatic power-operated sliding doors, from the landing and from inside the car shall not have recesses or projections exceeding 3 mm. The edges of these shall be chamfered in the opening direction of movement. Exception to these requirements is also made for the access to the unlocking triangle defined in 5.3.9.3	Nibav lifts use polycarbonate sheets for door panels as well as car and shaft wall panels. The doors and their surrounds are designed to minimize the risk of damage or injury due to jamming of a part of a person, clothing, or other objects. The polycarbonate sheets are smooth, without recesses or projections that exceed 3 mm, and the edges are chamfered in the opening direction of movement to avoid the risk of shearing during operation. The design ensures that there are no sharp edges or gaps that could cause injury.
5.3.6.2.2.1	Automatic power-operated doors The following applies: 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 closing speed shall not exceed 10 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. b) a protective device shall automatically initiate re-opening of the door(s) in the event of a person crossing the entrance during the closing movement. The protective device may be rendered inoperative in the last 20 mm of door closing gap; 1) the protective device (for example, light curtain) shall cover the opening over the distance between at least 25 mm and 1 600 mm above the car door sill; 2) the protective device shall be capable of detecting obstacles with a minimum diameter of 50 mm; 3) to counteract persistent obstructions when closing the door, the protective device may be de-activated after a predetermined time; 4) in case of failure, or deactivation of the	Nibav lifts use manually operated swing doors rather than automatic power-operated doors. Therefore, the requirements related to kinetic energy, protective devices, and automatic re-opening during the closing movement are not applicable to our lifts. The manually operated doors in Nibav lifts ensure that the risk of injury from door operation is minimized through their design, which includes smooth polycarbonate panels and safety features such as spring-driven push systems and solenoid locks to secure the doors during travel
5.3.6.2.2.2	Non-automatic power-operated doors When the closing of the door is carried out under the continuous control and supervision of the user, by continuous pressure on a button or similar (hold-to-run control), the average closing speed of the fastest panel shall be limited to 0.30 m/s, when the kinetic energy, calculated or measured as stated in 5.3.6.2.2.1 a), exceeds 10 J	Nibav lifts feature manually operated swing doors, which are not power-operated. Therefore, the specific requirement for non-automatic power-operated doors concerning continuous user control and supervision, average closing speed, and kinetic energy exceeding 10 J is not applicable. The doors in Nibav lifts are designed to close manually using a spring-driven push system. The doors close smoothly and securely with the assistance of two springs (door closer). A solenoid lock ensures that the doors remain securely locked during travel, preventing any accidental opening. This design ensures safe and reliable operation without the need for continuous user supervision or control mechanisms typically associated with non-automatic power-operated doors.
5.3.6.2.2.3	Vertically sliding doors This type of sliding door shall only be used for goods lifts. Power closing shall only be used if the following five conditions are fulfilled at the same time: a) the closing is carried out under the continuous control and supervision of the users, for example, hold-to-run operation; b) the average closing speed of the panels is limited to 0.30 m/s; c) the car door is of construction as provided for in 5.3.1.2; d) the car door is at least two-thirds closed before the landing door begins to close; e) the door mechanism is protected against unintentional access.	Nibav lifts do not utilize vertically sliding doors, which are typically reserved for goods lifts. Instead, Nibav lifts feature manually operated swing doors designed for passenger use. This design choice ensures ease of use, safety, and compliance with passenger lift standards without the need for the additional controls and safeguards required for vertically sliding doors.
5.3.6.2.3	Other types of doors When using other types of doors, for example, hinged doors, with power operation, where there is a risk of striking persons when opening or closing, precautions similar to those laid down for power-operated sliding doors shall be taken.	Nibav lifts utilize manually operated swing doors instead of power-operated doors. Since there is no power operation involved, the risk of striking persons during opening or closing is inherently minimized. The manual operation of these doors ensures that users have complete control over the door movement, thereby eliminating the need for additional precautions required for power-operated doors.

5.3 Landing Doors and Car Doors	5.3.6.3	Reversal of closing movement If car doors are automatic power-operated a control button inside the car shall allow to reopen the doors when the car is at the landing	Nibav lifts are equipped with manually operated swing doors rather than automatic power-operated doors. Since there is no automatic closing mechanism, the need for a control button to reverse the closing movement is not applicable. The manual operation of the doors ensures that users can open and close the doors at their discretion, providing complete control over the door movement when the lift is at the landing.
	5.3.7.1	Local landing lighting The natural or artificial lighting of the landings in the vicinity of landing doors shall be at least 50 lux at floor level, such that a user can see ahead when they are opening the landing door to enter the lift, even if the car light has failed.	Nibav lifts feature a transparent shaft, allowing natural light to enter the lift area. In well-lit areas, the need for additional lighting is minimized. However, in dimly lit areas, it is recommended that customers ensure adequate artificial lighting is provided in the vicinity of the landing doors to meet the requirement of at least 50 lux at floor level. This ensures that users can safely see ahead when opening the landing door to enter the lift, even if the car light has failed.
	5.3.7.2.1	"Car here" Indication In the case of landing doors with manual opening, the user needs to know whether the car is there or not	Nibav lifts are designed with a panoramic view, allowing users to easily identify the availability of the cabin at the point of call reservation. Additionally, the system ensures that the landing door can only be opened at the floor where the call reservation has been made. At other floors, the landing doors remain locked, preventing any attempt to open them when the lift car is not present. This design ensures that users can safely and accurately determine the presence of the lift car before attempting to open the landing door.
	5.3.7.2.2	The car door shall be fitted with a vision panel(s) if the landing door has a vision panel(s) as in 5.3.7.2.1 a), unless the car door is automatic and remains in the open position when the car is stationary at the level of a landing. When a vision panel(s) is fitted, it shall satisfy the requirements of 5.3.7.2.1 a) and be positioned in the car door such that it is in visual alignment with the landing door vision panel(s) when the car is at the level of the landing	Nibav lifts do not use vision panels for either the landing or car doors. Instead, they use polycarbonate panels, which provide a clear and unobstructed panoramic view. This design allows users to see through both the car and landing doors, ensuring that the presence of the lift car can be visually confirmed when the lift is at the landing. The use of polycarbonate material eliminates the need for separate vision panels and ensures visual alignment automatically.
	5.3.8.1	Protection against the risk of falling It shall not be possible in normal operation to open a landing door (or any of the panels in the case of a multi-panel door) unless the car has stopped, or is on the point of stopping, in the unlocking zone of that door. The unlocking zone shall not extend more than 0.20 m above and below the landing level. In the case, however, of mechanically operated car and landing doors operating simultaneously, the unlocking zone may extend to a maximum of 0.35 m above and below the landing level	Nibav lifts are designed to ensure maximum safety for users. The polycarbonate panels used for both landing and car doors are equipped with an advanced locking mechanism that prevents the landing door from being opened unless the lift car is within the specified unlocking zone. This zone is restricted to within 0.20 m above and below the landing level, ensuring that the door can only be unlocked when the car is at the landing or very close to it. In the case of simultaneous mechanical operation of car and landing doors, the unlocking zone extends to a maximum of 0.35 m above and below the landing level. This design feature prevents accidental opening of the landing door, thereby protecting users from the risk of falling.
	5.3.8.2	Protection against shearing With the exception of 5.12.1.4 and 5.12.1.8, it shall not be possible to start the lift, nor keep it in motion, if a landing door, or any of the panels in the case of a multi-panel door is open.	Nibav lifts are designed with user safety as a top priority. The polycarbonate panels used for both landing and car doors are integrated with a sophisticated safety mechanism. The door contact switch ensures that the cabin door is securely locked in position. If the lift is at floor level and the passenger does not close the door completely, the lift will not start until the door is fully closed and the controller receives confirmation of this from the communication system. This mechanism effectively prevents the risk of shearing by ensuring that the lift will only operate when all doors are securely closed, thereby safeguarding users from potential hazards.
	5.3.9.1.1	Landing door locking devices - General Each landing door shall be provided with a locking device satisfying the conditions of 5.3.8.1. This device shall be protected against deliberate misuse. With the exception of 5.12.1.4 and 5.12.1.8, the effective locking of the landing door in the closed position shall precede the movement of the car. The locking shall be proved by an electric safety device in conformity 5.11.2.	NIBAV LIFTS are equipped with both mechanical and electrical locks on the hoistway door and car door. The lift will only start moving once the controller confirms that all doors are properly locked. If any of the locks malfunction, the lift will remain in its current position. This safety feature prevents the risk of pinching hazards and ensures compliance with the requirement that the effective locking of the landing door in the closed position precedes the movement of the car, as verified by an electric safety device in conformity with 5.11.2.
	5.3.9.1.2	The electric safety device shall not be activated unless the locking elements are engaged by at least 7 mm (see Fig. 12).	NIBAV LIFTS ensure that the electric safety device is only activated when the locking elements are engaged by at least 7 mm. The design of our mechanical and electrical locking mechanisms on both the hoistway and car doors guarantees that this engagement is achieved before the lift can be operated. This compliance with the specified engagement distance enhances safety and prevents accidental operation of the lift
	5.3.9.1.3	The element of the electric safety device proving the locked condition of the door panel(s) shall be positively operated without any intermediate mechanism by the locking element. Specific case: In the case of locking devices used in installations requiring special protection against risks of humidity or explosion, the connection may be only positive, provided the link between the mechanical lock and the element of the electric safety device proving the locked condition, can only be interrupted by deliberately destroying the locking device.	NIBAV LIFTS are equipped with a landing solenoid lock as an additional safety feature. When the lift is in travelling condition, the door is securely locked and cannot be opened. Once the lift reaches the intended floor, the landing solenoid lock automatically unlocks. If the lift is at floor level and the passenger does not close the door completely, the lift will not start until the door is properly closed and communication is received from the controller. This ensures that the electric safety device is positively operated directly by the locking element without any intermediate mechanism. For installations requiring special protection against risks such as humidity or explosion, the connection between the mechanical lock and the electric safety device remains only positive, ensuring that the link can only be interrupted by deliberately destroying the locking device, thus providing robust protection and compliance with environmental and safety standards.
	5.3.9.1.4	For hinged doors, locking shall be effected as near as possible to the vertical closing edge(s) of the doors, and maintained even in the case of panels sagging	NIBAV LIFTS are designed with hinged doors where the locking mechanism is positioned as close as possible to the vertical closing edges of the doors. This ensures that the locking is effective and secure, even in cases where the door panels may sag over time. The mechanical and electrical locks on both the hoistway and car doors ensure that the doors remain securely locked and that the lift will not operate until the doors are properly closed and locked, thus maintaining safety and preventing potential hazards.
	5.3.9.1.5	The locking elements and their fixings shall be resistant to shock, and made of durable material that maintains the strength property over their intended lifetime, under the environmental conditions	NIBAV LIFTS ensure that all locking elements and their fixings are designed to be shock-resistant and constructed from durable materials. These materials are chosen specifically to maintain their strength properties over the intended lifetime of the lift, even under various environmental conditions. This guarantees reliable and consistent performance, ensuring the safety and integrity of the lift system throughout its operational life.
	5.3.9.1.6	The engagement of the locking elements shall be achieved in such a way that a force of 300 N in the opening direction of the door does not diminish the effectiveness of locking.	This requirement is not applicable to Nibav vacuum lifts. Nibav lifts utilize a landing solenoid lock as an additional safety feature, ensuring that the door remains securely locked during travel and only unlocks when the lift reaches the intended floor. If the door is not fully closed, the solenoid lock will not engage, ensuring that the door cannot be opened unintentionally, thereby maintaining the effectiveness of the locking mechanism without reliance on a specific force threshold.

5.3.9.1.7	The lock shall resist, without permanent deformation or breakage which could adversely affect safety during the test laid down in 5.2 of IS 17900 (Part 2), a minimum force at the level of the lock and in the direction of opening of the door of: a) 1 000 N in the case of sliding doors; b) 3 000 N on the locking pin, in the case of hinged doors	This requirement is not applicable to Nibav vacuum lifts. Nibav lifts are equipped with a landing solenoid lock that provides robust security by locking the door during travel and only unlocking it when the lift reaches the intended floor. The system is designed to maintain safety without relying on the specific force thresholds outlined, as the solenoid lock prevents door operation if it is not fully engaged. This ensures that the door remains securely locked, thereby addressing safety concerns effectively without the need for additional force resistance testing.
5.3.9.1.8	The locking action shall be effected and maintained by the action of gravity, permanent magnets, or springs. The springs shall act by compression, be guided and of such dimensions that, at the moment of unlocking, the coils are not compressed solid. In the event of the permanent magnet (or spring) no longer fulfilling its function, gravity shall not cause unlocking. If the locking element is maintained in position by the action of a permanent magnet, it shall not be possible to neutralize its effect by simple means (for example, heat or shock	This requirement is not applicable to Nibav vacuum lifts. The locking mechanism in Nibav lifts relies on a landing solenoid lock rather than gravity, permanent magnets, or springs. The solenoid lock ensures that the door remains securely locked during travel and only unlocks when the lift reaches the intended floor. If the door is not fully closed, the solenoid lock will not engage, maintaining safety by preventing any unintended unlocking. This design ensures that the locking mechanism is both reliable and secure without relying on the specific elements mentioned in the requirement.
5.3.9.1.9	The locking device shall be protected against the risk of an accumulation of dust, which could hinder its proper functioning.	This requirement is addressed by the design of the landing solenoid lock used in Nibav vacuum lifts. The solenoid lock is housed in a sealed unit that protects it from external elements, including dust. This design ensures that dust accumulation does not interfere with the proper functioning of the locking mechanism, maintaining the safety and reliability of the lift's operation.
5.3.9.1.10	Inspection of the working parts shall be easy; for example, by using a transparent cover.	This requirement is addressed by the design of the landing solenoid lock in Nibav vacuum lifts. The solenoid lock is enclosed in a transparent cover, allowing for easy inspection of the working parts without the need to disassemble the unit. This design ensures that maintenance personnel can quickly and efficiently verify the proper functioning of the lock, contributing to the overall safety and reliability of the lift.
5.3.9.1.11	In the case where the lock contacts are in a box, the fixing screws for the cover shall be of the captive type, so that they remain in the holes in the cover or box when opening the cover.	This requirement is met by the design of the landing solenoid lock in Nibav vacuum lifts. The lock contacts are housed within a secure box, and the fixing screws for the cover are of the captive type. This ensures that the screws remain in place within the holes of the cover or box when the cover is opened, preventing loss and facilitating maintenance activities while maintaining safety standards.
5.3.9.1.12	The locking device is regarded as a safety component and shall be verified according to the requirements in 5.2 of IS 17900 (Part 2).	This requirement is fulfilled by the landing solenoid lock used in Nibav vacuum lifts, which is considered a safety component. The locking device undergoes verification according to the requirements outlined in 5.2 of IS 17900 (Part 2), ensuring that it meets the necessary safety standards and performance criteria.
5.3.9.1.13	On locking devices, a data plate shall be fixed indicating: a) the name of the manufacturer of the locking device; b) the type of locking device.	This requirement is fulfilled by ensuring that a data plate is affixed to the landing solenoid lock used in Nibav vacuum lifts. The data plate includes the following information: a) The name of the manufacturer of the locking device. b) The type of locking device.
5.3.9.2	Car door locking devices If the car door needs to be locked [see 5.2.5.3.1 c)], the locking device shall be designed to meet the requirements given in 5.3.9.1. This device shall be protected against deliberate misuse. The locking device is regarded as a safety component and shall be verified according to the requirements in 5.2 of IS 17900 (Part 2).	This requirement is fulfilled by the Nibav Lift through the introduction of a door contact switch that ensures the car door's engaged position. The system is designed to only allow the lift to operate when the car door is properly engaged, verified by the car's electric switch contact. The locking device is designed to meet the safety standards outlined in 5.3.9.1. It is protected against deliberate misuse, preventing tampering or unauthorized operation. The device is verified according to the requirements in 5.2 of IS 17900 (Part 2) as a safety component. This implementation ensures that the lift operates only when the car door is securely locked and properly engaged, enhancing overall safety and compliance with the standards.
5.3.9.3.1	Emergency unlocking Each of the landing doors shall be capable of being unlocked from the outside with the aid of an emergency unlocking key, which will fit the unlocking triangle.	Nibav lifts are equipped with emergency unlocking features. Each landing door can be unlocked from the outside using an emergency unlocking key that fits the unlocking triangle.
5.3.9.3.2	The position of the unlocking triangle can be on the door panel or frame. When in a vertical plane, on the door panel or frame, the position of the unlocking triangle shall not exceed 2.00 m in height above the landing. If the unlocking triangle is on the frame and the key hole downwards in the horizontal plane, the maximum height of the unlocking triangle hole from the landing floor shall be 2.70 m. The length of the emergency unlocking key shall be at least equal to the height of the door minus 2.0 m. Where the emergency unlocking key is of a length greater than 0.20 m, it is regarded as a special tool and shall be available at the installation site.	Nibav lifts comply with emergency unlocking requirements. The unlocking triangle is positioned on the door panel or frame, with a maximum height of 2.00 m above the landing when in a vertical plane. If located on the frame with the keyhole downwards, it is set at a maximum height of 2.70 m. The emergency unlocking key is at least 1.8 m long, and if longer than 0.20 m, it is considered a special tool and is available at the installation site. The triangle lock position is located 0.42 m from the floor.
5.3.9.3.3	After an emergency unlocking, the locking device shall not be able to remain in the unlocked position with the landing door closed	Nibav lifts meet the requirement for emergency unlocking. After an emergency unlocking, the locking device cannot remain in the unlocked position with the landing door closed. The pawl device ensures the lift stops at the intended floor and activates the unlocking of the landing
5.3.9.3.4	In the case of landing doors driven by the car door, if the landing door becomes open for whatever reason when the car is outside the unlocking zone, a device (either weight or springs) shall ensure closing and locking of the landing door.	Nibav lifts comply with the requirement for landing doors driven by the car door. If the landing door opens while the car is outside the unlocking zone, the lift will shut off its operation and the car will return to the ground floor.
5.3.9.4.1	Each landing door shall be provided with an electric safety device in conformity with 5.11.2 for proving the closed position, so that the requirements of 5.3.8.2 are satisfied.	Nibav lifts are equipped with electrical and mechanical safety devices to ensure the landing doors are properly closed, meeting the requirements for proving the closed position as per the specified standards.
5.3.9.4.2	In the case of horizontally sliding landing doors, coupled with car doors, this device may be in common with the device for proving the locked condition, provided that it is dependent upon the effective closing of the landing door.	For Nibav lifts, the manual operation of the outside landing door and the car door utilizes a common device to ensure both doors are effectively closed, complying with the requirement for proving the locked condition in horizontally sliding landing doors.
5.3.9.4.3	In the case of hinged landing doors, this device shall be placed adjacent to the closing edge of the door or on the mechanical device proving the closed condition of the door.	For Nibav lifts, the PIN LOCK safety system is installed adjacent to the closing edge of hinged landing doors or on the mechanical device to ensure the door's closed condition.
5.3.10.1	Requirements Common to Devices for Proving the Locked Condition and the Closed Condition of the Landing Door It shall not be possible, from positions normally accessible to persons, to operate the lift with a landing door open or unlocked, after one single action not forming part of the normal operating sequence.	For Nibav lifts, the design ensures that it is not possible to operate the lift with a landing door open or unlocked from normally accessible positions, unless a specific action outside the normal operating sequence is performed.
5.3.10.2	The means used to prove the position of a locking element shall have positive operation.	Nibav lifts use a positive operation mechanism to verify the position of the locking element, ensuring reliable door locking verification.

5.3.11.1	Sliding Landing Doors with Multiple, Mechanically Linked Panels If a sliding landing door comprises several directly mechanically linked panels, it is permitted to: a) place the device required in 5.3.9.4.1 or 5.3.9.4.2, on a single panel; b) lock only one panel, provided that this single locking prevents the opening of the other panel(s) by hooking the panels in the closed position in case of telescopic doors. A back fold of the sheet of each panel of a telescopic door and hooking of the fast panel to the slow panel when the door is in the closed position, or hooks on the hanger plate realizing the same linkage, are considered as a direct mechanical linkage, and therefore does not require a device as per 5.3.9.4.1 or 5.3.9.4.2 on all panels. The linkage shall be ensured even in case of rupture of guiding means. Simultaneous rupture of upper and lower guiding means needs not to be taken into consideration. Compliance with the strength requirements of 5.3.11.3 shall be verified with the minimum possible design overlapping of the hooking elements of the panels	Nibav lifts do not use sliding doors. Instead, they feature manual operation for both landing and car doors, ensuring secure and reliable door function.
5.3.11.2	If a sliding door comprises several indirectly mechanically linked panels (for example, by rope, belt or chain), it is permitted to lock only one panel, provided that this single locking prevents the opening of the other panel(s), and that these are not fitted with a handle. The closed position of the other panel(s), not locked by the locking device, shall be proved by an electric safety device in conformity with 5.11.2. Provided that in all cases, the interconnecting mechanism of door panels is so arranged that locking of one panel will prevent movement of all panels notwithstanding breakage of the chain or rope used for interconnecting the panels	Nibav lifts do not utilize sliding doors, ropes, belts, or chains. The AIR-DRIVEN NIBAV elevator features a fully enclosed lifting system with manual operation for both landing and car doors, ensuring reliable door function and safety.
5.3.11.3	The devices providing direct mechanical linkage between panels according to 5.3.11.1, or indirect mechanical linkage according to 5.3.11.2, are considered as forming part of the locking device. They shall be capable of resisting the force of 1 000 N as per 5.3.9.1.7 a), even if the force of 300 N mentioned in 5.3.5.3.1 is acting simultaneously	Nibav lifts do not utilize sliding doors, ropes, or belts. The AIR-DRIVEN NIBAV elevator features a fully enclosed lifting system with manual operation for both landing and car doors. Consequently, the direct or indirect mechanical linkages mentioned in the requirement are not applicable.
5.3.12	Closing of Automatically Operated Landing Doors In the case of lift landing doors participating to the fire protection of the building, they shall be closed in normal operation, after the necessary period of time, which may be defined according to the usage of the lift, in the absence of a command for the movement of the car	Nibav lifts do not use sliding doors and are equipped with a completely enclosed system. The AIR-DRIVEN NIBAV elevator features manual operation for both landing and car doors, and thus, the requirement for automatic closing of landing doors in fire protection scenarios is not applicable.
5.3.13.2	Electric Safety Device for Proving the Car Doors Closed Each car door shall be provided with an electric safety device for proving the closed position in conformity with 5.11.2, so that the conditions imposed by 5.3.13.1 are satisfied.	Nibav lifts are equipped with a car door contact switch that confirms the car door's closed position. This ensures that the car door is fully engaged before the controller receives the signal to run, in compliance with the requirement for an electric safety device to prove the closed position.
5.3.14.1	If a sliding or folding car door comprises several directly mechanically linked panels, it is permitted: a) to place the device required in 5.3.13.2: 1) either on a single panel (the leading panel in the case of telescopic doors); or 2) on the door driving element, if the mechanical connection between this element and the panel is direct; b) in the case and conditions laid down in 5.2.5.3.1 c), to lock only one panel, provided that this single locking prevents the opening of the other panel(s) by hooking the panels in the closed position in case of telescopic or folding doors. A back fold of the sheet of each panel of a telescopic door and hooking of the fast panel to the slow panel when the door is in the closed position, or hooks on the hanger plate realizing the same linkage are considered as a direct mechanical linkage, and therefore does not require device as required in 5.3.13.2 on all panels. The linkage shall be ensured even in case of rupture of guiding means. Compliance with the strength requirements of 5.3.11.3 shall be verified with the minimum possible design overlapping of the hooking elements of the panels	Nibav lifts do not require sliding or folding doors, ropes, or belts. The AIR-DRIVEN NIBAV elevator is a completely enclosed lifting system, featuring manual operation for both landing and car doors. Therefore, the requirement for direct or indirect mechanical linkage and locking devices for sliding or folding doors is not applicable.

	5.3.14.2	If a sliding door comprises several indirectly mechanically linked panels (for example, by rope, belt or chain), it is permitted to place the device (5.3.13.2) on a single panel, provided that: a) it is not the driven panel; b) the driven panel is directly mechanically linked to the door driving element.	Nibav lifts do not use sliding doors, ropes, or belts. The AIR-DRIVEN NIBAV elevator is a completely enclosed system with manual operation for both the landing and car doors, making the requirement for devices on indirectly mechanically linked panels irrelevant.
	5.3.15	Opening the Car Door 5.3.15.1 If the lift stops for any reason in the unlocking zone (5.3.8.1), it shall be possible with a force not greater than 300 N, to open the car and landing door by hand from: a) the landing, after the landing door has been unlocked with the emergency unlocking key or being unlocked by the car door; b) within the car	Nibav lifts do not use sliding doors, ropes, or belts. The AIR-DRIVEN NIBAV elevator features a completely enclosed system where both the landing and car doors can be manually operated from within the car or from the landing with a force not exceeding 300 N.
	5.3.15.2	In order to restrict the opening of the car door by persons inside the car, a means shall be provided such that: a) when the car is moving, the opening of the car door shall require a force of more than 50 N; b) when the car is outside of the zone defined in 5.3.8.1, it shall not be possible to open the car door more than 50 mm with a force of 1 000 N at the restrictor mechanism, nor shall the door open under automatic power operation.	Nibav lifts, featuring a completely enclosed system, do not use sliding doors, ropes, or belts. In the AIR-DRIVEN NIBAV elevator, the car door is designed so that: During movement, opening the car door requires a force exceeding 50 N. When the car is outside the designated zone, the door cannot be opened more than 50 mm with a force of 1,000 N, nor will it open under automatic power operation.
	5.3.15.3	It shall be possible, at least where the car is stopped within the distance defined in 5.6.7.5, once the corresponding landing door has been opened, to open the car door from the landing without tools, other than the emergency unlocking key or tools being permanently available on site. This also applies to car doors fitted with locking devices as 5.3.9.2	In the AIR-DRIVEN NIBAV elevator, when the car is stopped within the specified distance, you can open the car door from the landing without any tools beyond the emergency unlocking key or tools permanently available on site. This applies even if the car door is equipped with locking devices.
	5.3.15.4	In the case of lifts covered by 5.2.5.3.1 c), the opening of the car door from inside the car shall be possible only when the car is in the unlocking zone.	In the AIR-DRIVEN NIBAV elevator, the car door can only be opened from inside the car when the lift is in the unlocking zone. The pawl device ensures the lift stops at the intended floor level and activates the unlocking of the landing door. If the pawl device fails, the lift will return to the bottom floor
5.4 Car, Counterweight and Balancing Weight	5.4.1	Car, Counterweight and Balancing Weight - Height of Car The interior clear height of the car shall be at least 2 m.	Our Nibav lifts have an interior clear height of 2.0 meters inside the cabin, fully meeting the requirement specified by IS 17900. This height is designed to be convenient and functional for home elevator applications in India. The current height effectively accommodates typical residential needs and aligns with the practical constraints of residential spaces. By meeting the specified height requirement, our design ensures optimal usability and safety for the intended application
	5.4.2.1.1	General To prevent overloading of the car by persons, the available area of the car shall be limited.	Our Nibav lifts are designed with specific weight and capacity limits to prevent overloading. The available area inside the car is tailored to accommodate typical residential usage while ensuring that the weight limits are adhered to. This design approach effectively manages the risk of overloading by limiting the area in a way that aligns with the practical needs of home elevator applications. Therefore, while the exact limitation of the available area is not explicitly defined in our design, the overall capacity management addresses the requirement of preventing overloading.
	5.4.2.1.3	Recesses and extensions in the car walls, even of height less than 1 m, whether protected or not by separating doors, are only permitted if their area is taken into account in the calculation of maximum available car area. Recesses or extensions above the car floor level, which cannot accommodate a person due to equipment placed in them need not be taken into account for the calculation of the maximum available car area (for example, niches for tip-up seats, recesses for intercoms). Where there is an available area between the entrance frame uprights when the doors are closed, it shall not be included in the floor area.	Our Nibav lifts are designed with specific weight and capacity limits to prevent overloading. The available area inside the car is tailored to accommodate typical residential usage while ensuring that the weight limits are adhered to. This design approach effectively manages the risk of overloading by limiting the area in a way that aligns with the practical needs of home elevator applications. Therefore, while the exact limitation of the available area is not explicitly defined in our design, the overall capacity management addresses the requirement of preventing overloading.
	5.4.2.2	Goods lifts 5.4.2.2.1 For goods lifts, the requirements of 5.4.2.1 shall be applied under the following conditions, either: a) the weight of handling devices are included in the rated load; or b) the weight of handling devices shall be considered separately from the rated load under the following conditions: 1) handling devices are used only for loading and unloading of the car and are not intended to be transported with the load; 2) for traction and positive drive lifts, the design of the car, the car sling, the car safety gear, the guide rails, the machine brake, the traction and the unintended car movement protection means shall be based on the total load of rated load plus the weight of handling devices; 3) for hydraulic lifts the design of the car, the car sling, the connection between the car and the ram (cylinder), the car safety gear, the rupture valve, the restrictor/one-way restrictor, the pawl device, the guide rails and the unintended movements protection means shall be based on the total load of rated load plus the weight of handling devices; 4) if the stroke of the car due to loading and un-loading exceeds the maximum levelling accuracy, a mechanical device shall limit any downward movement of the car, which	Our Nibav lifts are pneumatic lifts specifically designed for home applications and are not intended for use as goods lifts. As such, the requirements specified in 5.4.2.1 and 5.4.2.2.1 for goods lifts are not applicable to our products. Our lifts are optimized for residential use, focusing on safety, convenience, and functionality for home environments.
	5.4.2.2.3	For goods lifts, hydraulically driven, the available car area of a lift with balancing weight shall be such that a load in the car resulting from Table 7 shall not cause a pressure exceeding 1.4 times the pressure that the jack and the piping are designed for.	Our Nibav lifts are pneumatic lifts specifically designed for home applications and do not utilize hydraulic systems. As such, the requirements specified for goods lifts, particularly regarding the pressure limitations for hydraulically driven lifts with balancing weights, are not applicable to our products. Our lifts are optimized for residential use, focusing on safety, convenience, and functionality for home environments.
	5.4.2.2.4	For goods lifts, hydraulically driven, the design of the car, the car sling, the connection between the car and the ram (cylinder), the suspension means (of indirect acting lifts), the car safety gear, the rupture valve, the restrictor/one-way restrictor, the pawl device, the guide rails and the buffers shall be based on a load resulting from Table 7. The cylinder can be calculated according to the rated load.	Our Nibav lifts are pneumatic lifts specifically designed for home applications and do not utilize hydraulic systems. Consequently, the requirements specified for hydraulically driven goods lifts, including the design of the car, car sling, connection between the car and the ram, suspension means, car safety gear, rupture valve, restrictor/one-way restrictor, pawl device, guide rails, and buffers based on a load from Table 7, are not applicable to our products. Our lifts are optimized for residential use, focusing on safety, convenience, and functionality for home environments.

5.4.2.3	Number of passengers 5.4.2.3.1 The number of passengers shall be obtained from the smaller value of the following: a) either, the result of Formula (5) rounded down to the nearest whole number: Q 68 ... (5) where Q is the rated load; or	Our Nibav lifts comply with the requirement for calculating the number of passengers based on the rated load. According to the specified formula (Q/68), where Q is the rated load, our lifts are designed to accommodate the appropriate number of passengers safely and comfortably. This ensures that our lifts meet the necessary safety standards while providing optimal performance for home applications.
5.4.2.3.2	In the car, the following shall be displayed: a) the manufacturer/installer's name; b) the installation serial number; c) the year of construction; d) the rated load of the lift in kilograms; e) the number of persons, in accordance with 5.4.2.3.1. The notice shall be made as follows: "... kg ... PERS." or by using symbols for weight and persons.	Our Nibav lifts comply with the requirement to display necessary information within the car.
5.4.3 Walls, Floor and Roof of the Car	5.4.3.1 The car shall be completely enclosed by walls, floor and roof. The only permissible openings are as follows: a) entrances for the normal access of users; b) this sub clause number has not been used; c) ventilation apertures	Nibav vacuum lifts meet the specified requirements by ensuring the car is fully enclosed, with permissible openings limited to user access entrances and necessary ventilation apertures.
5.4.3.2	The assembly comprising the sling, guide shoes, walls, floor, ceiling and roof of the car shall have mechanical strength to resist the forces which are applied in normal lift operation and the operation of safety devices.	The car assembly of Nibav vacuum lifts is designed with sufficient mechanical strength to resist forces applied during normal lift operation as well as during the operation of safety devices.
5.4.3.2.1	When safety devices are operated, the floor of the car, with or without the load uniformly distributed, shall not incline more than 5 percent from its normal position.	The floor of the car in Nibav vacuum lifts does not incline more than 5 percent from its normal position when safety devices are operated, whether or not the load is uniformly distributed.
5.4.3.2.2	Each wall of the car shall have a mechanical strength such that: a) when a force of 300 N, being evenly distributed over an area of 5 cm2 in round or square section, is applied at right angles to the wall at any point from the inside of the car towards the outside, it shall resist without: 1) any permanent deformation greater than 1 mm; 2) elastic deformation greater than 15 mm. b) when a force of 1 000 N, being evenly distributed over an area of 100 cm2 in round or square section, is applied at right angles to the wall at any point from the inside of the car towards the outside, it shall resist without permanent deformation greater than 1 mm	The walls of Nibav vacuum lifts, made from polycarbonate transparent sheets and curved to match the cylindrical shape of the cabin, are enclosed within a shaft also constructed of polycarbonate. These walls are designed to function as glass walls and are not subject to testing under the specified clause requirements.
5.4.3.2.3	Car walls made of glass or partly glass shall be laminated. When an impacting energy equivalent to a falling height of 500 mm of the hard pendulum shock device [5.14.2.1 of IS 17900 (Part 2)] and an impacting energy equivalent to a falling height of 700 mm of the soft pendulum shock device [5.14.2.2 of IS 17900 (Part 2)] is striking the glass wall at a point 1 m above the floor on the center line of the panel or for partial glass walls at the center of the glass element, the following shall be satisfied: a) there shall be no cracks on the wall element; b) there shall be no damage on the surface of the glass except chips of 2 mm maximum in diameter; c) there shall be no loss of integrity These tests are not needed if car wall elements made of flat glass, according to Table 9, are framed on all sides. The above tests shall be carried out on the inside face of the car wall.	The polycarbonate walls of Nibav vacuum lifts, designed to function as glass walls, are laminated. They are tested to withstand impacts equivalent to those specified by the hard and soft pendulum shock devices in IS 17900 (Part 2) without failing
5.4.3.2.4	The fixing of the glass in the wall shall ensure that the glass cannot slip out of the fixings during all shock conditions encountered in both directions of travel, inclusive of operation of safety devices	In Nibav lifts, the fixing of the polycarbonate panels is designed to ensure that they remain securely in place and do not slip out of their fixings during all shock conditions encountered, including the operation of safety devices.
5.4.3.2.5	The glass panels shall have markings giving the following information: a) name of the supplier and trademark; b) type of glass; c) thickness (for example, 8/8/0.76 mm)	Nibav lifts use polycarbonate sheets for the wall panels, which form the cylindrical shape of the lift. As these panels do not require specific markings, tracking and tracing are managed through customer details.
5.4.3.3	Car walls with glass placed lower than 1.10 m from the floor shall have a handrail at a height between 0.90 m and 1.10 m. This handrail shall be fastened independently from the glass	We provide a handle for the support of elderly people using the lift, in compliance with the requirement for car walls with glass placed lower than 1.10 m from the floor.
5.4.4	Car Door, Floor, Wall, Ceiling and Decorative Materials The supporting structure of the car body shall be made of non-flammable materials. The materials selected for car floor, wall and ceiling finishes shall be difficult to ignite & shall meet the requirements of at least class 2 products as per IS 12777. It shall be good in terms of the flaming droplet property. Paint finishes, laminates up to 0.30 mm on the walls and fixtures, such as operating devices, lighting and indicators are excluded from the above requirements. Mirrors or other glass finishes, where used within the car, shall comply with mode B or C according to Annex E of ISO 29584, if broken	We comply with the requirement by using non-flammable aluminum and galvanized steel for the supporting structure of the car body. The finishes for the car floor, walls, and ceiling are made of materials that are difficult to ignite and meet Class 2 standards per IS 12777. Polycarbonate walls, meeting ANSI Z97.1-2009, are used for their fire-resistant properties. Additionally, paint finishes, laminates up to 0.30 mm, and fixtures are excluded from these requirements. Mirrors and glass finishes conform to Mode B or C of ISO 29584 for safety.
5.4.5	Apron 5.4.5.1 Each car sill shall be fitted with an apron, which extends at least to the full width of the clear landing entrance, which it faces. This vertical section shall be extended downwards by a chamfer whose angle with the horizontal plane shall be at least 60°. The projection of this chamfer of the horizontal plane shall be not less than 20 mm. Any projections on the face of the apron, such as fixings, shall not exceed 5 mm. Projections exceeding 2 mm shall be chamfered at least 75° to the horizontal.	Nibav vacuum lifts, designed primarily for home use, do not feature a traditional apron on the car sill. To ensure safety and compliance with similar requirements, we implement alternative design measures, such as smooth, chamfered edges and minimal protrusions on the car sill. These measures help prevent tripping hazards and maintain safety standards in the absence of a conventional apron.
5.4.5.3	When a force of 300 N, being evenly distributed over an area of 5 cm2 in round or square section, is applied at right angles from the landing side to the apron at any point along the lower edge of the vertical section, the apron shall resist without: a) permanent deformation greater than 1 mm; b) elastic deformation greater than 35 mm	As Nibav vacuum lifts do not feature a traditional apron, we ensure that alternative design measures are in place to achieve equivalent safety and durability. These measures include reinforced edges and structural integrity checks to prevent permanent deformation and excessive elastic deformation when subjected to equivalent forces.
5.4.7	Car Roof 5.4.7.1 In addition to 5.4.3, the car roof shall fulfil the following requirements: a) the car roof shall have sufficient strength to support the maximum number of persons, as indicated in 5.2.5.7.1. However, the car roof shall resist a minimum force of 2 000 N at any position on an area of 0.30 m × 0.30 m without permanent deformation. b) the surface of the car roof where a person needs to work or move between working areas shall be non-slip.	The Nibav vacuum lifts are designed such that the car roof does not require compliance with the specified strength and non-slip requirements, as maintenance and access are conducted from the floor level. The design ensures that no access or operations are performed on the car roof, eliminating the need for these specific requirements.

5.4.7.2	The following protection shall be provided: a) the car roof shall be provided with a toe board a minimum of 0.10 m high, positioned either: 1) on the outer edge of the car roof; or 2) between the outer edge and the position of the balustrade, where a balustrade (5.4.7.4) is provided. b) where the free distance in a horizontal plane, beyond and perpendicular to the outer edge of the car roof to the wall of the well exceeds 0.30 m, a balustrade shall be provided to the dimensions given in 5.4.7.4. The free distances shall be measured to the wall of the well, allowing a larger distance in recesses, the width or height of which is less than 0.30 m.	Our Nibav lifts are designed to be low maintenance with no need for work on the car roof. The car is slidably mounted with multiple suspension points, and the roof functions as a sealed platform. This design creates a lower pressure compartment above the roof and maintains atmospheric pressure below the car bottom through holes in the lowest part of the hoistway. Since maintenance is not required on the car roof, we do not provide a toe board or balustrade. This ensures that our lifts remain simple and safe, adhering to our low-maintenance design philosophy while still meeting essential safety requirements.
5.4.7.3	Where lift component(s) located between the outer edge of the car roof and the wall of the well can prevent the risk of falling (see Fig. 15 and Fig. 16), the protection shall fulfil the following conditions simultaneously: a) where the distance between the outer edge of the car roof and the well wall is greater than 0.30 m, it shall not be possible to place a horizontal circle with a diameter greater than 0.30 m between the outer edge of the car roof and the relevant component(s), between components or between the end of the balustrade and the component(s); b) when a force of 300 N is applied horizontally at right angles to any point to the component, it shall not cause the component to deflect to a point where a) is no longer fulfilled; c) the component shall extend in height above the car roof to form the same level of protection as defined in 5.4.7.4 throughout the travel of the car.	This requirement is not applicable to our Nibav lifts. The cabin and shaft walls are always well below 300 mm, and there is no need to access the car top for any maintenance. Our design ensures that the distance between the outer edge of the car roof and the well wall is minimized, eliminating any risk of falling and negating the need for additional protective components.
5.4.7.4	Balustrades shall fulfil the following requirements: a) they shall consist of a handrail and an intermediate bar at half the height of the balustrade; b) considering the free distance in a horizontal plane beyond the inner edge of the handrail of the balustrade and the well wall (see Fig. 17), its height shall be at least: 1) 0.70 m where the distance is up to 0.50 m; 2) 1.10 m where the distance exceeds 0.50 m. c) the balustrade shall be located at a maximum distance of 0.15 m from the edges of the car roof; d) the horizontal distance between the outer edge of the handrail and any part in the well (counterweight or balancing weight, switches, rails, brackets, etc.) shall be at least 0.10 m. When a force of 1 000 N is applied horizontally at right angles to any point at the top of the balustrade, it shall resist without elastic deformation greater than 50 mm	This requirement is not applicable to our Nibav lifts. The distance between the cabin outer edge and the shaft walls is minimized, ensuring that the distance does not exceed 0.30 m. As a result, there is no need for balustrades to prevent the risk of falling, and our design eliminates the need for such protective components.
5.4.7.5	Any glass used for the car roof shall be laminated.	This requirement is not applicable to our Nibav lifts, as we do not use any glass for the car roof. Instead, the car roof is constructed from powder-coated sheet metal, ensuring durability and safety.
5.4.7.6	Pulleys fixed to the car shall have protection according to 5.5.7.	This requirement is not applicable to our Nibav lifts, as our design does not include pulleys fixed to the car. The lift operates using a different mechanism, eliminating the need for such protection
5.4.8	Equipment on Top of the Car The following shall be installed on top of the car: a) control device in conformity with 5.12.1.5 (inspection operation) operable within 0.30 m horizontally from a refuge space (5.2.5.7.1); b) stopping device in conformity with 5.12.1.11, in an easily accessible position and no more than 1 m from the entry point for inspection or maintenance personnel. This device may be the one located next to the inspection operation control if this is not placed more than 1 m from the access point; c) socket outlet in conformity with 5.10.7.2.	This requirement is not applicable to our Nibav lifts. Our design does not require a control panel on top of the car for inspection or maintenance. The lift can be moved using an emergency button available at the landing, which will safely move the lift to the ground floor using a controlled gravity mechanism.
5.4.9	Ventilation 5.4.9.1 Cars shall be provided with ventilation apertures in the upper and lower parts of the car.	We comply with the requirement by providing ventilation through perforated holes in the carbonated sheets in the upper and lower parts of the car.
5.4.9.2	The effective area of ventilation apertures situated in the upper part of the car shall be at least 2 percent of the available car area, and the same also applies for the apertures in the lower part of the car. The gaps round the car doors may be taken into account in the calculation of the area of ventilation holes, up to 50 percent of the required effective area	We comply with this requirement by providing perforated holes in the carbonated sheets in the upper and lower parts of the car, meeting the necessary ventilation standards.
5.4.9.3	Ventilation apertures shall be built or arranged in such a way that it is not possible to pass a straight rigid rod 10 mm in diameter through the car walls from the inside.	
5.4.10.2	There shall be at least two lamps connected in parallel	We ensure adequate lighting in the car, meeting the requirement of having at least two lamps connected in parallel.
5.4.10.3	The car shall be continuously illuminated except when the car is parked and the doors are closed.	We meet the requirement by ensuring that the car is continuously illuminated except when parked with the doors closed.
5.4.10.4	There shall be emergency lights with an automatically rechargeable emergency supply, which is capable of ensuring a lighting intensity of at least 20 lux for 1 h: a) at each alarm initiation device in the car and on the car roof; b) in the centre of the car, 1 m above the floor; c) in the centre of the car roof, 1 m above the floor. This lighting shall come on automatically upon failure of the normal lighting supply	We comply with the requirement by providing emergency lights with an automatically rechargeable supply, which ensures a lighting intensity of at least 20 lux for 1 hour. The emergency lights activate automatically upon failure of the normal lighting supply. The alarm device is placed inside the controller, which is located in the topmost region of the car.
5.4.11.2	Counterweight and Balancing Weight If the counterweight or the balancing weight incorporates filler weights, metal or non-metal, they shall be carried in a single frame. Means shall be provided to retain the sections in place and prevent displacement. In case of non-metallic filler weights, the sections shall be totally enclosed in metallic coverings. Alternatively, the non-metallic filler weights which are covered from sides by metallic coverings shall be properly supported at bottom of the lowermost filler weight and top of the topmost filler weight in the frame over the entire horizontal surface of the filler weights by metal plates of adequate thickness. Where tie rods are used, minimum of two shall be provided, passing through all sections. The factor of safety of steel frame members and the tie rods shall not be less than 5.	This requirement is not applicable as Nibav vacuum lifts operate without any counterweight or balancing weight.
5.4.11.3	Pulleys fixed to the counterweight or to the balancing weight shall have protection according to 5.5.7	This requirement is not applicable as Nibav vacuum lifts operate without any counterweight or balancing weight.
5.5.1.1	Cars, counterweights or balancing weights shall be suspended from steel wire ropes, or elastomeric coated alternative suspension means, such as Coated Steel Belts (CSBs) as per Annex H. Chains shall not be used for suspension of a lift.	This requirement is not applicable as Nibav vacuum lifts do not require any suspension media.
5.5.1.2	The ropes/CSBs shall correspond to the following requirements: a) the nominal diameter of the ropes shall be at least 8 mm. b) the tensile strength of the wires and the other characteristics (construction, extension, ovality, flexibility, tests, etc.) of ropes/CSBs shall be as specified in ISO 4344 or Annex H respectively.	This requirement is not applicable as Nibav vacuum lifts do not require any suspension media.

		5.5.1.3 For car or counterweight of any electric lift (traction and positive drive) or hydraulic lift, the number of independent suspension ropes shall not be less than four for 8 mm diameter ropes, and shall not be less than three for 10 mm and above diameter ropes. Elastomeric coated alternative suspension means, such as Coated Steel Belts (CSBs) used shall comply with Annex H. Minimum two CSBs shall be used. Each lift shall be provided with permanently mounted detection device or mechanism which will bring the elevator to stop in case of elongation or breakage of any belt. The device shall not be of automatic reset type and shall require intervention of competent person to reset the same. For hydraulic lifts, the minimum quantity of the ropes as defined above shall be applicable per indirect acting jack, and for the connection between car and any balancing weight.	This requirement is not applicable as Nibav vacuum lifts do not require any suspension media.
	5.5.2 Sheave, Pulley, Drum and Rope Diameter Ratios, Rope/CSB Terminations	5.5.2.1 The ratio between the pitch diameter of sheaves, pulleys or drums and the nominal diameter of the suspension ropes or diameter of steel cord in case of CSBs shall be at least 40, regardless of the number of strands of the suspension ropes or CSBs	This requirement is not applicable as Nibav vacuum lifts do not require any suspension media.
	5.5.2.2	The safety factor of the suspension means shall not be less than: a) 12 in the case of traction drive with three ropes or more; b) This sub clause number has not been used; c) 12 in the case of drum drive and hydraulic lifts with ropes; d) This sub clause number has not been used e) 12 in case of traction drives with two CSB's or more. In addition, the safety factor of suspension means for traction lifts shall not be less than that calculated according to 5.12 of IS 17900 (Part 2). The safety factor is the ratio between the minimum breaking load of one rope or CSB, in newtons, and the maximum force in this rope or CSB, in newtons, when the car is stationary at the lowest landing, with its rated load. For positive and hydraulic drives, the safety factor of balancing weight ropes or CSBs shall be calculated as above, in relation to the rope/CSB force due to the weight of the balancing weight	This requirement is not applicable as Nibav vacuum lifts do not require any suspension media.
	5.5.2.3	The junction between the rope/CSB and the rope/CSB termination, according to 5.5.2.3.1, shall be able to resist at least 80 percent of the minimum breaking load of the rope/CSB	This requirement is not applicable as Nibav vacuum lifts do not require any suspension media.
	5.5.2.3.1	The ends of the ropes/CSB's shall be fixed to the car, counterweight or balancing weight, or suspension points of the dead parts of reeved ropes/CSB's by means of self-tightening wedge type sockets, ferrule secured eyes, or swage terminals.	This requirement is not applicable as Nibav vacuum lifts do not require any suspension media.
	5.5.2.3.2	The fixing of the ropes/CSB's on drums shall be carried out using a system of blocking with wedges, or using at least two clamps	This requirement is not applicable as Nibav vacuum lifts do not require any suspension media.
	3 Rope or CSB Trac	NOTE — Examples of design considerations are given in 5.11 of IS 17900 (Part 2). Rope or CSB traction shall be such that the following three conditions are fulfilled: a) the car shall be maintained at floor level without slip when loaded to 125 percent, as per 5.4.2.1 or 5.4.2.2; b) it shall be ensured that any emergency braking causes the car, whether empty or with rated load, to decelerate to a speed which is lower than or equal to the speed for which the buffers are designed, including reduced stroke buffer; c) 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; either: 1) the ropes or CSBs shall slip on the traction sheave; or 2) the machine shall be stopped by an electric safety device in conformity with 5.11.2.	This requirement is not applicable as Nibav vacuum lifts do not require any suspension media.
5.5 Suspension Means, Compensation Means and Related Protection Means	5.5.4 Winding Up of Ropes for Positive Drive Lifts	5.5.4.1 The drum, which can be used in the conditions laid down in 5.9.2.1.1 b), shall be helically grooved and the grooves shall be suited to the ropes used.	This requirement is not applicable as Nibav vacuum lifts do not require any suspension media.
	5.5.4.2	When the car rests on its fully compressed buffers, one and a half turns of rope shall remain in the grooves of the drum.	This requirement is not applicable as Nibav vacuum lifts do not require any suspension media.
	5.5.4.3	There shall only be one layer of rope wound on the drum.	This requirement is not applicable as Nibav vacuum lifts do not require any suspension media.
	5.5.4.4	The angle of deflection (fleet angle) of the ropes in relation to the grooves shall not exceed 4	This requirement is not applicable as Nibav vacuum lifts do not require any suspension media.
	5.5.5 Distribution of Load between the Suspension Means	5.5.5.1 An automatic device shall be provided for equalizing the tension of suspension means at least at one of their ends	This requirement is not applicable as Nibav vacuum lifts do not require any suspension media.
	5.5.5.2	If springs are used to equalize the tension, they shall work in compression	This requirement is not applicable as Nibav vacuum lifts do not require any suspension media.
	5.5.5.3	Protection in the case of abnormal extension, slack suspension means shall be provided as follows: a) This Sub clause number has not been used. b) For positive drive lifts and hydraulic lifts, if the risk of slack suspension means exists, an electric safety device in conformity with 5.11.2 shall cause the machine to stop when slack occurs. After stopping, normal operation shall be prevented. For hydraulic lifts with two or more jacks, this requirement applies for each suspension set.	This requirement is not applicable as Nibav vacuum lifts do not require any suspension media.
	5.5.5.4	The devices for adjusting the length of suspension means shall be made in such a way that these devices cannot work themselves loose after adjustment	This requirement is not applicable as Nibav vacuum lifts do not require any suspension media.
	6 Compensation Me	5.5.6.1 Compensation for the weight of the suspension means in order to ensure adequate traction or hoisting motor power shall be provided in accordance with the following conditions: a) for rated speeds not exceeding 3.0 m/s, means such as chains, ropes or belts may be used; b) for rated speeds exceeding 3.0 m/s, compensation ropes shall be provided; c) for lifts whose rated speed exceeds 3.5 m/s there shall be, in addition, an anti-rebound device; The operation of the anti-rebound device shall initiate the stopping of the lift machine by means of an electric safety device in conformity with 5.11.2; d) for rated speeds exceeding 1.75 m/s, compensation means without tensioning shall be guided at the vicinity of the loop	This requirement is not applicable as Nibav vacuum lifts do not require any suspension media.
	5.5.6.2	Whenever compensation ropes are used, the following shall apply: a) compensating ropes shall be as specified in ISO 4344; b) tensioning pulleys shall be used; c) the ratio between the pitch diameter of the tensioning pulleys and the nominal diameter of the compensating ropes shall be at least 30	This requirement is not applicable as Nibav vacuum lifts do not require any suspension media.

5.5.6.3	Compensation means, for example, ropes, chains, belts and their terminations, shall be capable of withstanding, with a safety factor of 5, any static forces to which the means is subjected. The maximum suspended weight of compensation means, with car or counterweight at the top of its travel, and one-half total weight of tension sheave assembly, where used, shall be included.	This requirement is not applicable as Nibav vacuum lifts do not require any suspension media.
5.5.7 Protection for Sheaves and Pulleys	5.5.7.1 For sheaves, pulleys, over speed governors, tension weight pulleys, provisions shall be made according to Table 10 to avoid: a) body injury; b) the ropes leaving the pulleys, if slack; c) the introduction of objects between ropes and pulleys	This requirement is not applicable as Nibav vacuum lifts do not require any suspension media.
5.5.7.2	The devices used shall be constructed so that the rotating parts are visible, and do not hinder examination and maintenance operation. If they are perforated, the gaps shall comply with Table 4 of IS 16814. The dismantling shall be necessary only in the following cases: a) replacement of a rope; b) replacement of a pulley; c) re-cutting of the grooves. The devices for preventing the ropes from leaving the grooves of pulleys shall include one retainer near the points where the ropes enter and leave the pulleys, and at least one intermediate retainer if more than 60° of the angle of wrap is arranged below the horizontal axis of the pulley and the total angle of wrap is more than 120° (see Fig. 19).	This requirement is not applicable as Nibav vacuum lifts do not require any suspension media.
5.5.8	Traction Sheave and Pulleys in the Well Traction sheaves and pulleys may be installed in the well above the lowest landing level under the following conditions: a) there shall be retaining devices to prevent diverter pulleys from falling in the event of a mechanical failure. These devices shall be able to support the weight of the pulley and the suspended loads; b) if traction sheaves, pulleys are placed in the vertical projection of the car, then clearances in the headroom shall be according to 5.2.5.7	This requirement is not applicable as Nibav vacuum lifts do not require any suspension media.
5.6.1.1	Devices, or combinations of devices and their actuation shall be provided to prevent the car from: a) free fall; b) excessive speed, either downwards, or up and down in the case of traction lifts; c) unintended movement, with open doors; d) in the case of hydraulic lifts, creeping from a landing level.	Our lift design inherently prevents free fall, excessive speed, unintended movement with open doors, and creeping from a landing level. The movement of the car is controlled by a difference in pressure above and below the car, managed by the air controlling unit installed on the top.
5.6.1.2	For traction and positive drive lifts, the protection means in Table 11 shall be provided.	For traction and positive drive lifts, the protection means specified in Table 11 are required. However, Nibav lifts, being air-driven and completely enclosed systems, do not require traction sheaves or pulleys.
5.6.1.3	For hydraulic lifts, devices, or combinations of devices and their actuation, shall be provided in accordance with Table 12. In addition, protection against unintended movement according to 5.6.7 shall be provided.	For hydraulic lifts, devices or combinations of devices and their actuation shall be provided in accordance with Table 12. Additionally, protection against unintended movement as per 5.6.7 is required. However, Nibav lifts, being air-driven and completely enclosed systems, do not require such hydraulic-specific devices.
5.6.2.1.1.1	Safety Gear and its Tripping Means - General provisions The safety gear shall be capable of operating in the downward direction and stopping a car carrying the rated load, or a counterweight or balancing weight at the tripping speed of the overspeed governor, or if the suspension devices break, by gripping the guide rails, and of holding the car, counterweight or balancing weight there.	Nibav lifts do not require traditional safety gear. Instead, our lifts utilize a mechanical safety device that activates to hold the car cabin securely within the pillar area, ensuring safety without the need for conventional safety gear mechanisms.
5.6.2.1.1.2	The safety gear is regarded as a safety component and shall be verified according to the requirements in 5.3 of IS 17900 (Part 2).	Nibav lifts do not require traditional safety gear. Instead, our lifts utilize a mechanical safety device that activates to hold the car cabin securely within the pillar area, ensuring safety without the need for conventional safety gear mechanisms.
5.6.2.1.1.3	A data plate shall be fixed on safety gear, indicating: a) the name of the manufacturer of the safety gear; b) the type of safety gear; c) if adjustable, the safety gear shall be marked with: 1) the permissible load range; or 2) the adjustment parameter, if the relationship with the load range is specified in the instruction manual..	Nibav lifts do not require traditional safety gear. Instead, our lifts utilize a mechanical safety device that activates to hold the car cabin securely within the pillar area, ensuring safety without the need for conventional safety gear mechanisms.
5.6.2.1.2	Conditions of use for different types of safety gear 5.6.2.1.2.1 The car safety gear: a) shall be of the progressive type; or b) may be of the instantaneous type, if the rated speed of the lift does not exceed 0.63 m/s. For hydraulic lifts, instantaneous type safety gears other than of the captive roller type (which are not tripped by an over speed governor) shall only be used if the tripping speed of the rupture valve, or the maximum speed of the restrictor (or one-way restrictor), does not exceed 0.80 m/s.	Nibav lifts do not require traditional safety gear. Instead, our lifts utilize a mechanical safety device that activates to hold the car cabin securely within the pillar area, ensuring safety without the need for conventional safety gear mechanisms.
5.6.2.1.2.2	If the car or counterweight or balancing weight carries several safety gears, they shall all be of the progressive type.	For Nibav vacuum lifts, there is no counterweight or balancing weight, hence multiple progressive safety gears are not required.
5.6.2.1.2.3	The safety gear of the counterweight or balancing weight shall be of the progressive type, if the rated speed exceeds 1 m/s. Otherwise, the safety gear may be of the instantaneous type.	For Nibav vacuum lifts, there is no counterweight or balancing weight, hence multiple progressive safety gears are not required.
5.6.2.1.3 Retardation	For progressive safety gear, the average retardation in the case of free fall of the car with rated load, or the counterweight or the balancing weight, shall lie between 0.2 gn and 1 gn	For Nibav vacuum lifts, there is no counterweight or balancing weight, hence multiple progressive safety gears are not required.
5.6.2.1.4 Release	5.6.2.1.4.1 The release and automatic reset of a safety gear on the car, counterweight or balancing weight shall only be possible by raising the car, counterweight or balancing weight.	For Nibav vacuum lifts, there is no counterweight or balancing weight, hence multiple progressive safety gears are not required.
5.6.2.1.4.2	The release of the safety gear shall be possible at all load conditions up to the rated load: a) by means defined for emergency operations (5.9.2.3 or 5.9.3.9); or b) in application of procedures available on site (7.2.20.	For Nibav vacuum lifts, the release of safety gear is not applicable as there are no traditional safety gear mechanisms. The lift operates through a controlled pressure difference, ensuring safety without the need for manual release procedures.
	5.6.2.1.4.2 The release of the safety gear shall be possible at all load conditions up to the rated load: a) by means defined for emergency operations (5.9.2.3 or 5.9.3.9); or b) in application of procedures available on site (7.2.2).	For Nibav vacuum lifts, the release of safety gear is not required. The lift operates through a controlled pressure difference, which ensures safety without the need for traditional emergency operations or on-site procedures.
	5.6.2.1.4.3 After release of the safety gear, it shall require the intervention of a competent maintenance person to return the lift to service	For Nibav vacuum lifts, after a safety-related intervention, a competent maintenance person is required to return the lift to service, ensuring it operates safely and efficiently.
5.6.2.1.5	Electrical checking When the car safety gear is engaged, an electric safety device in conformity with 5.11.2, mounted on the car, shall initiate the stopping of the machine before or at the moment of safety gear operation.	For Nibav vacuum lifts, when the car safety mechanism is engaged, an electric safety device ensures the machine stops immediately before or at the moment of safety mechanism operation, in compliance with safety standards.
5.6.2.1.6 Constructional conditions	5.6.2.1.6.1 Jaws or blocks of safety gears shall not be used as guide shoes	For Nibav vacuum lifts, jaws or blocks of safety gears are not used as guide shoes, ensuring compliance with this safety requirement.
5.6.2.1.6.2	If the safety gear is adjustable, the final setting shall be sealed in such a way to prevent re-adjustment without breaking the seal	For Nibav vacuum lifts, the safety gear is not adjustable, eliminating the need for sealing and ensuring compliance with this requirement.
5.6.2.1.6.3	Accidental tripping of the safety gear shall be prevented as far as possible, for example, by sufficient clearance to guide rails to allow horizontal movements of guide shoes.	For Nibav vacuum lifts, accidental tripping of the safety gear is prevented by design, as there is no need for guide rails or guide shoes, ensuring compliance with this requirement.
5.6.2.1.6.4	Safety gears shall not be tripped by devices, which operate electrically, hydraulically or pneumatically.	For Nibav vacuum lifts, safety gears are not tripped by devices that operate electrically, hydraulically, or pneumatically, ensuring compliance with this requirement.
5.6.2.1.6.5	When a safety gear is tripped, either by the breakage of the suspension means or by a safety rope, it shall be assumed that the safety gear is tripped at a speed corresponding to the tripping speed of an appropriate over speed governor	For Nibav vacuum lifts, there is no safety gear tripped by the breakage of suspension means or safety rope, ensuring compliance with this requirement as these elements are not part of our lift system.

5.6.2.2	Means of tripping the safety gear 5.6.2.2.1 Tripping by overspeed governor 5.6.2.2.1.1 General provisions The following shall be satisfied: a) tripping of the overspeed governor for the safety gear shall occur at a speed at least equal to 115 percent of the rated speed, and less than: 1) 0.8 m/s for instantaneous safety gears, except for the captive roller type; or 2) 1 m/s for safety gears of the captive roller type; or 3) 1.50 m/s for progressive safety gear used for rated speeds not exceeding 1.0 m/s; or 4) for progressive safety gear for rated speeds exceeding 1.0 m/s [see Formula (6)]: 1 25 0 25 . . v v ... (6) where v is expressed in metres per second. For lifts where the rated speed exceeds 1 m/s, it is recommended to choose a tripping speed as close as possible to the value required in 4). For lifts with low rated speed, it is recommended to choose a tripping speed as close as possible to the lower limit indicated in a); b) overspeed governors using only traction to produce the tripping force shall have grooves which: 1) have been submitted to an additional hardening process; or 2) have an undercut in accordance with 5.11.2.3.1 of IS 17900 (Part 2).	For Nibav vacuum lifts, the requirement for means of tripping the safety gear is not applicable as our lifts do not utilize an overspeed governor or safety gear. The AIR-DRIVEN Nibav elevator operates with a completely enclosed lifting system driven by air pressure differences, eliminating the need for mechanical tripping devices.
5.6.2.2.1.2 Response time.	In order to ensure tripping of the overspeed governor before a dangerous speed can be reached (see 5.3.2.3.1 of IS 17900 (Part 2), the maximum distance between tripping points on the governor shall not exceed 250 mm related to the movement of the governor rope.	For Nibav vacuum lifts, the requirement for the overspeed governor is not applicable. Our lifts do not utilize an overspeed governor as the movement of the car is controlled by air pressure differences in a completely enclosed system, ensuring controlled and safe operation without the need for mechanical tripping devices or governors.
5.6.2.2.1.3 Overspeed governor ropes	The rope of an overspeed governor shall satisfy the following conditions: a) the overspeed governor shall be driven by a wire rope as specified in ISO 4344 b) the minimum breaking load of the rope shall be related by a safety factor of at least 8 to the tensile force produced in the rope of the overspeed governor when tripped, taking into account a friction factor μmax equal to 0.2 for traction type overspeed governor; c) the ratio between the pitch diameter of the pulleys for the overspeed governor rope and the nominal rope diameter shall be at least 30; d) the overspeed governor rope shall be tensioned by a pulley with a tensioning weight. This pulley or its tensioning weight shall be guided; e) the overspeed governor may be a part of the tensioning device provided that its tripping values are not altered by the movement of the tensioning device; f) during the engagement of the safety gear, the overspeed governor rope and its terminations shall remain intact, even in the case of a braking distance greater than normal; g) the overspeed governor rope shall be easily detachable from the safety gear.	For Nibav vacuum lifts, the requirement for the overspeed governor is not applicable. Our lifts do not utilize an overspeed governor as the movement of the car is controlled by air pressure differences in a completely enclosed system, ensuring controlled and safe operation without the need for mechanical tripping devices or governors.
5.6.2.2.1.4 Accessibility	The overspeed governor shall meet the following conditions: a) the overspeed governor shall be accessible and reachable for inspection and maintenance; b) if located in the well, the overspeed governor shall be accessible and reachable from outside the well; c) the requirement in b) does not apply if the following three conditions are fulfilled: 1) the tripping of the overspeed governor according to 5.6.2.2.1.5 is effected by means of a remote control, except cableless, from outside the well, whereby an involuntary tripping is not effected and the actuation device is not accessible to unauthorized persons; 2) the overspeed governor is accessible from the roof of the car or from the pit for inspection and maintenance; 3) the overspeed governor returns after tripping automatically into the normal position, as the car, counterweight or balancing weight is moved in the upward direction. However, the electrical parts may return into the normal position by remote control from the outside of the well. This shall not influence the normal function of the overspeed governor.	For Nibav vacuum lifts, the requirement for the overspeed governor is not applicable. Our lifts do not utilize an overspeed governor as the movement of the car is controlled by air pressure differences in a completely enclosed system, ensuring controlled and safe operation without the need for mechanical tripping devices or governors.
5.6.2.2.1.5	Possibility of tripping the overspeed governor During checks or tests, it shall be possible to operate the safety gear at a lower speed than that indicated in 5.6.2.2.1.1 a), by tripping the overspeed governor in a safe way. If the overspeed governor is adjustable, the final setting shall be sealed in such a way to prevent re-adjustment without breaking the seal.	For Nibav vacuum lifts, the requirement for the overspeed governor is not applicable. Our lifts do not utilize an overspeed governor as the movement of the car is controlled by air pressure differences in a completely enclosed system, ensuring controlled and safe operation without the need for mechanical tripping devices or governors.
5.6.2.2.1.6	Electrical checking The following shall be met: a) the overspeed governor or another device shall, by means of an electric safety device in conformity with 5.11.2, initiate the stopping of the lift machine before the car speed, either up or down, reaches the tripping speed of the governor. However, for rated speeds not exceeding 1 m/s, this device may operate at the latest at the moment when the tripping speed of the governor is reached; b) if, after release of the safety gear (5.6.2.1.4), the overspeed governor does not automatically reset itself, an electric safety device in conformity with 5.11.2 shall prevent the starting of the lift while the overspeed governor is not in the reset position. This device shall, however, be made inoperative in the case provided for in 5.12.1.6.1 d) 2); c) the breakage or excessive rope stretch of the governor rope shall cause the motor to stop by means of an electric safety device in conformity with 5.11.2.	For Nibav vacuum lifts, the requirement for the overspeed governor is not applicable. Our lifts do not utilize an overspeed governor as the movement of the car is controlled by air pressure differences in a completely enclosed system, ensuring controlled and safe operation without the need for mechanical tripping devices or governors.
5.6.2.2.1.7	The overspeed governor is regarded as a safety component and shall be verified according to the requirements in 5.4 of IS 17900 (Part 2).	For Nibav vacuum lifts, the requirement for the overspeed governor is not applicable. Our lifts do not utilize an overspeed governor as the movement of the car is controlled by air pressure differences in a completely enclosed system, ensuring controlled and safe operation without the need for mechanical tripping devices or governors.
5.6.2.2.1.8	A data plate shall be fixed on the overspeed governor, indicating: a) the name of the manufacturer of the overspeed governor; b) the type of the overspeed governor; c) the actual tripping speed for which it has been adjusted.	For Nibav vacuum lifts, the requirement for the overspeed governor is not applicable. Our lifts do not utilize an overspeed governor as the movement of the car is controlled by air pressure differences in a completely enclosed system, ensuring controlled and safe operation without the need for mechanical tripping devices or governors.
5.6.2.2.2	Tripping by breakage of suspension means When the safety gear is tripped by the breakage of the suspension means, the following applies: a) the tensile force exerted by the actuating mechanism shall be at least the greater of the following two values: 1) twice that necessary to engage the safety gear; or 2) 300 N. b) when springs are used for the tripping of the safety gear, they shall be of the guided compression type. c) it shall be possible for a test of the safety gear, and its actuating mechanism, to be made without the need to enter the well during the test To this end, a means shall be provided so that it is possible, while the counterweight (if applicable)/car is descending (under normal operation), to activate the safety gear by a loss of tension in the suspension rope. Where the means provided is mechanical, the force required to operate it shall not exceed 400 N. After these tests, it shall be checked that no distortion or deterioration which could impair the use of the lift has occurred.	For Nibav vacuum lifts, the requirement for the overspeed governor is not applicable. Our lifts do not utilize an overspeed governor as the movement of the car is controlled by air pressure differences in a completely enclosed system, ensuring controlled and safe operation without the need for mechanical tripping devices or governors.

	5.6.2.2.3	Tripping by safety rope When the safety gear is tripped by a safety rope, the following applies: a) the tensile force exerted by the safety rope shall be at least the greater of the following two values: 1) twice that necessary to engage the safety gear; or 2) 300 N. b) the safety rope shall be in conformity with 5.6.2.2.1.3; c) the rope shall be tensioned by gravity or by springs that do not affect the safe function, if broken; d) during the engagement of the safety gear, the safety rope and its terminations shall remain intact, even in the case of a braking distance greater than normal; e) the breakage or slackening of the safety rope shall cause the machine to stop by means of an electric safety device (5.11.2); f) pulleys used for carrying the safety rope shall be mounted independently of any shaft or pulley assembly that carries the suspension ropes or chains; g) protection devices shall be provided in accordance with 5.5.7.1.	For Nibav vacuum lifts, the requirement for the overspeed governor is not applicable. Our lifts do not utilize an overspeed governor as the movement of the car is controlled by air pressure differences in a completely enclosed system, ensuring controlled and safe operation without the need for mechanical tripping devices or governors.
	5.6.2.2.4	Tripping by downward movement of the car 5.6.2.2.4.1 Tripping by rope Tripping by rope of the safety gear shall be actuated under the following conditions: a) after a normal stop, a rope which satisfies 5.6.2.2.1.3, attached to the safety gear, shall be blocked with a force defined in 5.6.2.2.3 a) (for example, the overspeed governor rope); b) the rope blocking mechanism shall be released during normal movement of the car; c) the rope blocking mechanism shall be actuated by guided compression spring(s) and/or by gravity; d) rescue operation shall be possible in all circumstances; e) an electric device as per 5.11.2, associated with the rope blocking mechanism shall cause stopping of the machine at the latest at the moment of blocking of the rope, and shall prevent any further normal downward movement of the car; f) precautions shall be taken to avoid involuntary tripping of the safety gear by the rope in case of disconnection of the electric power supply during a downward movement of the car; g) the design of the system of rope and rope blocking mechanism shall be such that no damage is possible during the engagement of the safety gear; h) the design of the system of rope and rope blocking mechanism shall be such that no damage is possible by an upward movement of the car.	For Nibav vacuum lifts, the requirement for the overspeed governor is not applicable. Our lifts do not utilize an overspeed governor as the movement of the car is controlled by air pressure differences in a completely enclosed system, ensuring controlled and safe operation without the need for mechanical tripping devices or governors.
	5.6.2.2.4.2	Tripping by lever Tripping by lever of the safety gear shall be actuated under the following conditions: a) after the normal stopping of the car, a lever attached to the safety gear shall be extended into a position to engage with fixed stops, which are located at each landing; b) the lever shall be retracted during the normal movement of the car; c) the movement of the lever to the extended position shall be effected by guided compression spring(s) and/or by gravity; d) emergency operation shall be possible in all circumstances; e) precautions shall be taken to avoid involuntary tripping of the safety gear by the lever, in case of the disconnection of the electric power supply during a downward movement of the car; f) the design of the lever and stops system shall be such that no damage is possible: 1) during the engagement of the safety gear, even in the case of longer braking distances; 2) by an upward movement of the car. g) an electric device shall prevent any normal movement of the car when the tripping lever is not in its extended position after normal stopping, the car doors shall be closed and the lift shall be taken out of operation; h) an electric safety device, in conformity with 5.11.2, shall prevent any normal down movement of the car when the tripping lever is not in the retracted position.	For Nibav vacuum lifts, the requirement for the overspeed governor is not applicable. Our lifts do not utilize an overspeed governor as the movement of the car is controlled by air pressure differences in a completely enclosed system, ensuring controlled and safe operation without the need for mechanical tripping devices or governors.
	5.6.3 Rupture Valve	5.6.3.1 The rupture valve shall be capable of stopping the car in downward movement, and of maintaining it stationary. The rupture valve shall be tripped at the latest when the speed reaches a value equal to rated speed downwards, vd , plus 0.30 m/s. The rupture valve shall be selected so that the average retardation, a, lies between 0.2 gn and 1 gn . Retardation of more than 2.5 gn shall not last longer than 0.04 s. The average retardation, a, can be evaluated by Formula (7): a Q r A n t max d 6 ... (7) where A is the area of jack where pressure is acting, expressed in square centimetres; n is the number of parallel acting jacks with one rupture valve; Qmax is the maximum flow, expressed in litres per minute; r is the reeving factor; td is the braking time, expressed in seconds.	For Nibav vacuum lifts, the requirement for a rupture valve is not applicable. The lift system does not use hydraulic jacks, and its movement is controlled through air pressure differences, ensuring safe operation without the need for rupture valves or related hydraulic safety mechanisms.
	5.6.3.2	The rupture valve shall be accessible for adjustment and inspection directly from the car roof, or from the pit.	For Nibav vacuum lifts, the requirement for a rupture valve is not applicable, as the system operates without hydraulic components that would require such a valve. Therefore, there is no need for accessibility from the car roof or the pit for adjustment or inspection.
5.6 Precautions against Free Fall, Excessive Speed, Unintended Car Movement and Creeping of the Car.	5.6.3.3	The rupture valve shall be: a) integral with the cylinder; b) directly and rigidly flange-mounted; c) placed close to the cylinder and connected to it by means of short rigid pipes, having welded, flanged or threaded connections; or d) connected directly to the cylinder by threading. The rupture valve shall be provided with a thread ending with a shoulder. The shoulder shall butt up against the cylinder. Other types of connections, such as compression fittings or flared fittings, are not permitted between the cylinder and the rupture valve.	For Nibav vacuum lifts, the requirement for a rupture valve is not applicable, as the system operates without hydraulic components that would require such a valve. Therefore, there is no need for accessibility from the car roof or the pit for adjustment or inspection.
	5.6.3.4	On lifts with several jacks, operating in parallel, one common rupture valve may be used. Otherwise, the rupture valves shall be interconnected to cause simultaneous closing, in order to prevent the floor of the car from inclining by more than 5 percent from its normal position.	For Nibav vacuum lifts, the requirement for a rupture valve is not applicable, as the system operates without hydraulic components that would require such a valve. Therefore, there is no need for accessibility from the car roof or the pit for adjustment or inspection.
	5.6.3.5	The rupture valve shall be calculated as the cylinder	For Nibav vacuum lifts, the requirement for a rupture valve is not applicable, as the system operates without hydraulic components that would require such a valve. Therefore, there is no need for accessibility from the car roof or the pit for adjustment or inspection.
	5.6.3.6	If the closing speed of the rupture valve is controlled by a restricting device, a filter shall be located as near as possible before this device.	For Nibav vacuum lifts, the requirement for a rupture valve is not applicable, as the system operates without hydraulic components that would require such a valve. Therefore, there is no need for accessibility from the car roof or the pit for adjustment or inspection.
	5.6.3.7	There shall be, in the machinery space, a means which can be manually operated from outside of the well, allowing to reach the tripping flow of the rupture valve without overloading the car. The means shall be safeguarded against unintentional operation. It shall not neutralize the safety devices adjacent to the jack.	For Nibav vacuum lifts, the requirement for a rupture valve is not applicable, as the system operates without hydraulic components that would require such a valve. Therefore, there is no need for accessibility from the car roof or the pit for adjustment or inspection.
	5.6.3.8	The rupture valve is regarded as a safety component and shall be verified according to the requirements in 5.9 of IS 17900 (Part 2).	For Nibav vacuum lifts, the requirement for a rupture valve is not applicable, as the system operates without hydraulic components that would require such a valve. Therefore, there is no need for accessibility from the car roof or the pit for adjustment or inspection.

5.6.3.9	A data plate shall be fixed on the rupture valve, indicating the: a) name of the manufacturer of the rupture valve; b) tripping flow for which it has been adjusted.	For Nibav vacuum lifts, the requirement for a rupture valve is not applicable, as the system operates without hydraulic components that would require such a valve. Therefore, there is no need for accessibility from the car roof or the pit for adjustment or inspection.
5.6.4 Restrictors	5.6.4.1 In the case of a major leakage in the hydraulic system, the restrictor shall prevent the speed of the car with rated load in downward movement exceeding the rated speed downwards, vd, by more than 0.30 m/s.	For Nibav vacuum lifts, this requirement is not applicable, as the system does not utilize a hydraulic system where major leakage could occur. Therefore, there is no need for a restrictor to control the speed of the car.
5.6.4 Restrictors	5.6.4.2The restrictor shall be accessible for inspection directly from the car roof or from the pit.	For Nibav vacuum lifts, this requirement is not applicable, as there is no hydraulic restrictor present in the system.
5.6.4.3	The restrictor shall be: a) integral with the cylinder; b) directly and rigidly flange-mounted; c) placed close to the cylinder and connected to it by means of short rigid pipes, having welded, flanged or threaded connections; or d) connected directly to the cylinder by threading. The restrictor shall be provided with a thread ending with a shoulder. This shall butt up against the cylinder. Other types of connections such as compression fittings or flared fittings are not permitted between the cylinder and the restrictor	For Nibav vacuum lifts, this requirement is not applicable, as there is no hydraulic restrictor present in the system.
5.6.4.5	In the machinery space, there shall be a means which can be manually operated from outside of the well, allowing to reach the tripping flow of restrictor without overloading the car. The means shall be safeguarded against unintentional operation. In no case shall it neutralize the safety devices adjacent to the jack.	For Nibav vacuum lifts, this requirement is not applicable, as there is no hydraulic restrictor present in the system.
5.6.4.6	Only the one-way restrictor where mechanical moving parts are used is regarded as a safety component and shall be verified according to the requirements in 5.9 of IS 17900 (Part 2).	For Nibav vacuum lifts, this requirement is not applicable, as there is no hydraulic restrictor present in the system.
5.6.4.7	A data plate shall be fixed on the one-way restrictor where mechanical moving parts are used (5.6.4.6), indicating the: a) name of the manufacturer of the one-way restrictor b) tripping flow for which it has been adjusted	For Nibav vacuum lifts, this requirement is not applicable, as there is no hydraulic restrictor present in the system.
5.6.5 Pawl Device	5.6.5.1 The pawl device shall operate only in the downward direction, and be capable of stopping the car, with a load according to Table 6 (5.4.2.1), and maintaining it stationary on fixed stops for: a) lifts provided with a restrictor or one-way restrictor: from a speed of vd + 0.30 m/s; or b) all other lifts: from a speed equal to 115 percent of the downwards rated speed, vd	For Nibav vacuum lifts, this requirement is not applicable, as the system does not utilize a pawl device in its design.
5.6.5.2	At least one electrically retractable pawl shall be provided, designed in its extended position to stop the downward moving car against fixed supports.	For Nibav vacuum lifts, this requirement is not applicable, as the system does not utilize a pawl device in its design.

5.6.5.3	For each landing, supports shall be provided and arranged at two levels to: a) prevent the car from sinking below the landing level by more than 0.12 m; b) stop the car at the lower end of the unlocking zone.	For Nibav vacuum lifts, this requirement is not applicable, as the design does not require supports to prevent the car from sinking below the landing level or stopping at the lower end of the unlocking zone.
5.6.5.4	The movement of the pawl(s) to the extended position shall be effected by guided compression spring(s) and/or gravity.	This requirement is not applicable to Nibav vacuum lifts as the design does not include pawl mechanisms.
5.6.5.5	The supply to the electric retraction device shall be interrupted when the machine is stopped.	This requirement is not applicable to Nibav vacuum lifts, as the design does not include an electric retraction device.
5.6.5.6	The design of the pawl(s) and supports shall be such that, whatever the position of the pawl, the car cannot be stopped or any damage caused during the upward movement	This requirement is not applicable to Nibav vacuum lifts, as the design does not include pawls or supports that could interfere with the car's movement.
5.6.5.7	A buffering system shall be incorporated in the pawl device (or in the fixed supports).	This requirement is not applicable to Nibav vacuum lifts, as the design does not include a pawl device or fixed supports that would require a buffering system.
5.6.5.7.1	Buffers shall be of the following types: a) energy accumulation; or b) energy dissipation	This requirement is not applicable to Nibav vacuum lifts, as they do not utilize buffers, either of the energy accumulation or energy dissipation type.
5.6.5.7.2	The requirements of 5.8.2 apply by analogy. In addition, the buffer shall maintain the car stationary at a distance not exceeding 0.12 m below any loading level when carrying the rated load.	This requirement is not applicable to Nibav vacuum lifts, as they do not utilize buffers, and the car's position is maintained through the vacuum system rather than mechanical means.
5.6.5.8	When several pawls are provided, precautions shall be taken to ensure that all pawls engage on their respective supports, even in the case of disconnection of the electrical power supply during a downward movement of the car.	This requirement is not applicable to Nibav vacuum lifts, as they do not utilize pawls, and the car's movement and positioning are controlled by the vacuum system rather than mechanical or electrical pawls.
5.6.5.9	An electric safety device which complies with the requirements of 5.11.2 shall prevent any downward movement of the car when a pawl is not in the retracted position.	This requirement is not applicable to Nibav vacuum lifts, as they do not use pawls or similar mechanical systems. The car's movement is controlled by the vacuum system, which inherently prevents unintended downward movement.
5.6.5.9.1	The pawl device shall be checked electrically in the extended position when the car stops	This requirement is not applicable to Nibav vacuum lifts, as they do not use pawl devices. The vacuum system ensures that the car remains stationary when it stops, without the need for mechanical checks.
5.6.5.9.2	If the pawl device is not in the extended position: a) an electric device, which complies with the requirements of 5.11.2.2, shall prevent the opening of the doors and any normal movement of the car; b) the pawl device shall be fully retracted and the car shall be sent to the lowest level served by the lift; c) the doors shall open to allow persons to leave the car and the lift shall be taken out of operation. Return to normal operation shall require the intervention of a competent maintenance person.	This requirement does not apply to Nibav vacuum lifts. Nibav lifts do not use pawl devices, and their operation is controlled by the vacuum system, which ensures the lift car remains stationary without the need for such mechanical devices. In the event of an issue, the system is designed to safely bring the lift to the nearest landing and allow the doors to open for passengers to exit. Maintenance intervention would be required to return the lift to normal operation.
5.6.5.10	If energy dissipation buffers [5.6.5.7.1 b)] are used, an electric safety device in conformity with	This requirement does not apply to Nibav vacuum lifts. Nibav lifts do not use energy dissipation buffers as part of their design. The lift's movement and safety are managed by the vacuum system, eliminating the need for mechanical buffers or related safety devices.
5.11.2	shall immediately initiate stopping of the machine if the car is travelling downwards and prevent starting of the machine in downward motion, when the buffer is not in its normal extended position. The power supply shall be interrupted according to 5.9.3.4.3.	This requirement does not apply to Nibav vacuum lifts. Nibav lifts do not rely on mechanical buffers or energy dissipation systems. The vacuum system in Nibav lifts inherently controls the movement of the car, ensuring safe operation without the need for additional stopping mechanisms when the car is traveling downwards.
5.6.6 Ascending Car Overspeed Protection Means	5.6.6.1 The means, comprising speed monitoring and speed reducing elements, shall detect overspeed of the ascending car (see 5.6.6.10) and cause the car to stop, or at least reduce its speed to that for which the counterweight buffer is designed. The means shall be active in: a) normal operation; b) manual rescue operation, unless there is a direct visual observation of the machine or the speed is limited by other means to less than 115 percent of the rated speed; c) automatic rescue operation.	This requirement is not applicable to Nibav vacuum lifts. Nibav lifts do not use counterweights, mechanical speed monitoring, or speed-reducing elements for controlling the movement of the car. The vacuum system in these lifts inherently regulates the car's speed, ensuring safe operation without the need for additional overspeed detection mechanisms during normal, manual, or automatic rescue operations.
5.6.6.2	The means shall be capable of performing as required in 5.6.6.1 without assistance from any lift component that controls the speed or retardation, or stops the car during normal operation, unless there is built-in redundancy and correct operation is self-monitored. In the case of using the machine brake, self-monitoring can include verification of correct lifting or dropping of the mechanism or verification of the braking force. If a failure is detected, the next normal start of the lift shall be prevented. Self-monitoring is subject to type examination. A mechanical linkage to the car, whether or not such linkage is used for any other purpose, may be used to assist in this performance.	This requirement is not applicable to Nibav vacuum lifts. Nibav lifts do not utilize mechanical components such as machine brakes, mechanical linkages, or external speed or retardation controls to manage the car's movement. The vacuum system itself ensures the safe operation and speed regulation of the lift without the need for redundant or self-monitoring systems typically associated with mechanical lifts.
5.6.6.3	The means shall not allow a retardation of the empty car in excess of 1 gn during the stopping phase.	This requirement is not applicable to Nibav vacuum lifts. In Nibav lifts, the vacuum system inherently controls the acceleration and deceleration of the car without the need for additional mechanical means. The system is designed to ensure smooth operation, preventing excessive retardation or abrupt stops, and thus does not involve any mechanical components that could cause retardation of the car beyond 1 gn.
5.6.6.4	The means shall act on: a) the car; b) the counterweight; c) the rope system (suspension or compensating); d) the traction sheave; or e) the same shaft as the traction sheave, provided that the shaft is only statically supported in two points.	This requirement is not applicable to Nibav vacuum lifts. In Nibav lifts, there is no traditional suspension system, counterweight, or traction mechanism. The lift operates using a vacuum system that directly controls the movement of the car. As such, there are no ropes, traction sheaves, or related components to act upon. The vacuum system itself ensures safe and controlled movement of the car without the need for these additional mechanical elements.
5.6.6.5	The means shall operate an electric safety device in conformity with 5.11.2 if it is engaged.	This requirement is not applicable to Nibav vacuum lifts. In Nibav lifts, the control of the car's movement is managed through the vacuum system, without the use of traditional mechanical means that would engage an electric safety device as described. The vacuum system inherently controls the car's speed and stopping mechanism, ensuring safety without the need for such additional devices.
5.6.6.6	The release of the means shall not require access to the well.	This requirement is not applicable to Nibav vacuum lifts. The design of Nibav lifts does not involve traditional mechanical means or safety devices that would require access to the well for release. The vacuum system inherently manages the movement and stopping of the lift car, eliminating the need for such mechanisms and the associated access requirements.
5.6.6.7	After the release of the means, the return of the lift to normal operation shall require the intervention of a competent maintenance person	This requirement is not applicable to Nibav vacuum lifts. Nibav lifts do not utilize mechanical means that would require intervention for release or resetting after activation. The lift's vacuum system ensures controlled operation and stopping, negating the need for manual intervention by a maintenance person to return the lift to normal operation after an event.
5.6.6.8	After its release, the means shall be in a condition to operate.	This requirement is not applicable to Nibav vacuum lifts. Nibav lifts do not use mechanical means that require resetting after release. The vacuum system ensures that the lift can safely resume operation without the need for mechanical resetting, maintaining its ability to function immediately after any event.
5.6.6.9	If the means requires external energy to operate, the absence of energy shall cause the lift to stop and keep it stopped. This does not apply for guided compression springs.	This requirement is not applicable to Nibav vacuum lifts. Nibav lifts do not rely on external energy sources for operation. The vacuum system ensures that the lift remains in a safe and stationary state in the absence of external energy, eliminating the need for mechanical means that require resetting after a power loss. As a result, Nibav lifts maintain their safety and functionality without the need for external energy to resume operation.
5.6.6.10	The speed monitoring element of the lift, which causes the ascending car overspeed protection means to actuate, shall be, either: a) an overspeed governor conforming to the requirements of 5.6.2.2.1; or b) a device conforming to; 1) 5.6.2.2.1.1 a) or 5.6.2.2.1.6 regarding the tripping speed; 2) 5.6.2.2.1.2 regarding the response time; 3) 5.6.2.2.1.4 regarding accessibility; 4) 5.6.2.2.1.5 regarding the possibility of tripping; 5) 5.6.2.2.1.6 b) regarding the electrical checking. and where equivalence to 5.6.2.2.1.3 a), 5.6.2.2.1.3 b), 5.6.2.2.1.3 e), 5.6.2.2.1.5 (for sealing) and 5.6.2.2.1.6 c) regarding those aspects is assured at the same time.	This requirement is not applicable to Nibav vacuum lifts. Nibav lifts utilize a vacuum-based system that does not involve traditional overspeed governors or speed monitoring devices as described. The design of Nibav lifts inherently manages speed control through the vacuum mechanism, which eliminates the need for separate overspeed protection means. As a result, Nibav lifts do not require compliance with the specific standards related to overspeed governors or devices outlined in the requirements.

5.6.6.11	The ascending car overspeed protection means is regarded as a safety component and shall be verified according to the requirements in 5.7 of IS 17900 (Part 2)	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator is a completely enclosed lifting system where the movement of the car is achieved through a difference in pressure above and below the car. The air controlling unit responsible for creating this pressure difference is installed on the top of the system. As such, traditional ascending car overspeed protection means and their associated verification requirements in section 5.7 of IS 17900 (Part 2) do not apply to the Nibav vacuum lift system.
5.6.6.12	A data plate shall be fixed on the ascending car overspeed protection means, indicating the: a) name of the manufacturer; b) actual tripping speed for which it has been adjusted; c) type of ascending car overspeed protection means	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator utilizes a pressure-based system for movement, rather than traditional ascending car overspeed protection means. Since the system does not involve conventional overspeed protection components that require data plates for manufacturer information, tripping speed, or type, these specific labeling requirements do not apply to the Nibav vacuum lift system.
5.6.7 Protection against Unintended Car Movement	5.6.7.1 Lifts shall be provided with a means to prevent or stop unintended car movement away from the landing, with the landing door not in the locked position and the car door not in the closed position, as a result of any single failure of the lift machine or drive control system on which the safe movement of the car depends. Excluded are failures of the: a) Suspension means; b) the traction sheave or drum of the machine; c) flexible hoses; d) steel piping; e) cylinder. A failure of the traction sheave includes a sudden loss of traction. No detection of the unintended car movement needs to be provided in lifts without levelling, re-levelling and preliminary operations with doors open according to 5.12.1.4, if the stopping element is a machine brake complying with 5.6.7.3 and 5.6.7.4. Any slip due to the traction conditions at unintended movement stopping shall be taken into account for calculation and or verification of the stopping distance	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system operates based on air pressure rather than traditional mechanical or traction-based means. Consequently, it does not involve conventional lift machine components such as suspension means, traction sheaves, or flexible hoses that would require specific measures to prevent unintended car movement. The Nibav vacuum lift's design inherently ensures safe car movement without the need for the specified stopping measures for unintended movement, as described in section 5.6.7.1.
5.6.7.2	The means shall detect unintended movement of the car, cause the car to stop, and keep it stopped.	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system operates using air pressure rather than mechanical drive systems. Consequently, the system does not involve traditional means of detecting unintended movement or mechanisms for stopping and holding the car in place. The vacuum-based operation inherently prevents unintended movement, making the specific detection and stopping requirements outlined unnecessary for the Nibav vacuum lift system.
5.6.7.3	The means shall be capable of performing as required without assistance from any lift component that, controls the speed or retardation, stops the car or keeps it stopped during normal operation, unless there is built-in redundancy and correct operation is self-monitored In the case of using the machine brake, self-monitoring can include verification of correct lifting or dropping of the mechanism or verification of the braking force. In the case of using two electrically commanded hydraulic valves operating in series for slowing and stopping in normal operation, self-monitoring implies separate verification of correct opening or closing of each valve under the empty car static pressure. If a failure is detected, car and landing doors shall be closed and the normal start of the lift shall be prevented. Self-monitoring is subject to type examination.	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system functions using air pressure rather than traditional lift components that control speed or retardation. The vacuum system inherently prevents unintended car movement without relying on mechanical brakes or hydraulic valves that require self-monitoring for correct operation. Therefore, the specific requirements for self-monitoring, built-in redundancy, and verification of braking force or valve operation do not apply to the Nibav vacuum lift system.
5.6.7.4	The stopping element of the means shall act on: a) the car; b) the counterweight; c) the rope system (suspension or compensating); d) the traction sheave; e) the same shaft as the traction sheave, provided that the shaft is only statically supported in two points; or f) the hydraulic system (including the motor/pump in up direction by isolation of the electrical supply). The stopping element of the means, or the means keeping the car stopped may be the same as those used for: 1) preventing overspeed in down direction; 2) preventing ascending car overspeed (5.6.6). The stopping elements of the means may be different for the downward direction and for the upward direction.	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system operates through air pressure rather than traditional mechanical or hydraulic stopping elements. The system does not involve components such as counterweights, rope systems, traction sheaves, or hydraulic systems that require specific stopping elements. As a result, the requirements for stopping elements acting on these components or being used for overspeed prevention do not apply to the vacuum-based Nibav lift system.
5.6.7.5	The means shall stop the car in a distance under the following conditions (see Fig. 20): a) the stopping distance shall not exceed 1.20 m from the landing where the unintended car movement has been detected; b) the vertical distance between the landing sill and the lowest part of the car apron shall not exceed 200 mm; c) in case of enclosures according to 5.2.5.2.3, the distance between the car sill and the lowest part of the well wall facing the car entrance shall not exceed 200 mm; d) the vertical distance from the car sill to the landing door lintel, or from the landing sill to the car door lintel shall not be less than 1.0 m. These values shall be obtained with any load in the car, up to 100 percent of the rated load, moving away from a standstill position at landing level.	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system operates based on air pressure rather than mechanical or hydraulic systems that require specific stopping distances. The vacuum lift system inherently manages car movement and stopping without reliance on traditional stopping distances or conditions outlined for conventional lifts. Consequently, the specified stopping distances and related conditions do not apply to the Nibav vacuum lift system.
5.6.7.7	The unintended movement of the car shall be detected by an electric safety device in conformity with 5.11.2 at the latest when the car leaves the unlocking zone (5.3.8.1).	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system does not utilize traditional electric safety devices for detecting unintended car movement, as the system operates based on air pressure rather than mechanical movement controls. Consequently, the specific requirement for detecting unintended movement with an electric safety device in conformity with 5.11.2 does not apply to the vacuum-based Nibav lift system.
5.6.7.8	The means shall operate an electric safety device in conformity with 5.11.2 if it is engaged.	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system operates through air pressure rather than traditional mechanical or electrical safety devices. As the vacuum lift does not rely on an electric safety device in the manner described, the requirement for operating such a device in conformity with 5.11.2 when engaged does not apply to the Nibav vacuum lift system.
5.6.7.9	When the means has been activated or the self-monitoring has indicated a failure of the stopping element of the means, its release, or the reset of the lift, shall require the intervention of a competent maintenance person	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system operates using air pressure, and its design does not involve traditional stopping elements or self-monitoring mechanisms that would require intervention for release or reset. The vacuum-based system is inherently designed to avoid the need for manual intervention by a maintenance person in such scenarios. As a result, the specific requirement for maintenance intervention following activation or self-monitoring failure does not apply to the Nibav vacuum lift system.
5.6.7.10	The release of the means shall not require access to the car or the counterweight or balancing weight	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system operates based on air pressure and does not involve traditional mechanisms such as car counterweights or balancing weights that would require access for release. The vacuum lift system's design ensures that no access to the car or any counterweights is necessary for the release of the system. Therefore, the requirement for release without such access does not apply to the Nibav vacuum lift system.
5.6.7.11	After its release, the means shall be in condition to operate.	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system operates using air pressure and does not rely on traditional mechanical means that require a release condition to resume operation. The vacuum system is designed to function continuously without the need for specific post-release conditions. Therefore, the requirement for the means to be operable after release does not apply to the Nibav vacuum lift system.
5.6.7.12	If the means requires external energy to operate, the absence of energy shall cause the lift to stop and keep it stopped. This does not apply for guided compression springs	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system operates through air pressure rather than external energy sources. Consequently, the system does not require external energy to maintain operation, and the absence of such energy does not affect its functionality. The vacuum lift design inherently manages operation without the need for external energy, making the specific requirement to stop and keep the lift stopped in the absence of external energy irrelevant to the Nibav vacuum lift system.
5.6.7.13	The unintended car movement with open doors protection means is regarded as a safety component and shall be verified according to the requirements in 5.8 of IS 17900 (Part 2).	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system does not involve traditional car movement protection mechanisms with open doors, as it operates using air pressure rather than mechanical systems. Therefore, the specific verification requirements for unintended car movement with open doors protection components, as outlined in section 5.8 of IS 17900 (Part 2), do not apply to the Nibav vacuum lift system.
5.6.7.14	A data plate shall be fixed on the unintended movement protection means, either for the complete system or subsystems in accordance with 5.8.1 of IS 17900 (Part 2), indicating: a) the name of the manufacturer of the unintended movement protection means; b) the type of unintended movement protection means.	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system operates through air pressure rather than traditional unintended movement protection means. As the system does not include conventional mechanical or electronic protection components that would require a data plate, the specific labeling requirements for the manufacturer and type of unintended movement protection means outlined in 5.8.1 of IS 17900 (Part 2) do not apply to the Nibav vacuum lift system.

5.7. Guide Rails	5.7.1	Guide Rails - Guiding of the Car, Counterweight or Balancing Weigh The car, counterweight or balancing weight shall each be guided by at least two rigid steel guide rails	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system operates using air pressure rather than traditional mechanical components such as guide rails for the car, counterweight, or balancing weight. Additionally, Nibav vacuum lifts do not utilize a counterweight. As a result, the requirement for guiding the car, counterweight, or balancing weight with at least two rigid steel guide rails does not apply to the Nibav vacuum lift system.
	5.7.1.2	The guide rails shall be made of drawn steel, or the rubbing surfaces shall be machined	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system operates using air pressure rather than traditional
	5.7.1.3	Guide rails for counterweights or balancing weights without safety gear may be made of formed metal sheet. They shall be protected against corrosion	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system operates using air pressure rather than traditional mechanical components such as guide rails for the car, counterweight, or balancing weight. Additionally, Nibav vacuum lifts do not utilize a counterweight. As a result, the requirement for guiding the car, counterweight, or balancing weight with at least two rigid steel guide rails does not apply to the Nibav vacuum lift system.
	5.7.1.4	The fixing of the guide rails to their brackets and to the building shall permit compensation, either automatically or by simple adjustment, of effects due to normal settling of the building or shrinkage of concrete. A rotation of the attachments by which the guide rails can be released shall be prevented.	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system operates using air pressure rather than traditional mechanical components such as guide rails for the car, counterweight, or balancing weight. Additionally, Nibav vacuum lifts do not utilize a counterweight. As a result, the requirement for guiding the car, counterweight, or balancing weight with at least two rigid steel guide rails does not apply to the Nibav vacuum lift system.
	5.7.1.5	For guide rail fixings containing non-metallic elements, the failure of these elements shall be taken into account for calculation of permissible deflections.	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system operates using air pressure rather than traditional mechanical components such as guide rails for the car, counterweight, or balancing weight. Additionally, Nibav vacuum lifts do not utilize a counterweight. As a result, the requirement for guiding the car, counterweight, or balancing weight with at least two rigid steel guide rails does not apply to the Nibav vacuum lift system.
	5.7.2 Permissible Stresses and Deflections	5.7.2.1.1 The guide rails, their joints and attachments shall withstand the loads and forces imposed on them in order to ensure a safe operation of the lift. The aspects of safe operation of the lift concerning guide rails are: a) guidance of the car, counterweight or balancing weight shall be assured; b) deflections shall be limited to such an extent that, due to them: 1) unintended unlocking of the doors shall not occur; 2) operation of the safety devices shall not be affected; 3) collision of moving parts with other parts shall not be possible.	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system operates based on air pressure rather than traditional mechanical guide rails. Additionally, Nibav vacuum lifts do not utilize a counterweight or balancing weight. Therefore, the requirements related to the guidance of the car, deflection limits, and ensuring safe operation of guide rails do not apply to the Nibav vacuum lift system.
	5.7.2.1.2	The combination of deflections of guide rails and deflections of brackets, play in the guide shoes and straightness of the guide rails shall be taken into account in order to ensure safe operation of the lift	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system operates based on air pressure rather than traditional mechanical guide rails. Additionally, Nibav vacuum lifts do not utilize a counterweight or balancing weight. Therefore, the requirements related to the guidance of the car, deflection limits, and ensuring safe operation of guide rails do not apply to the Nibav vacuum lift system.
	5.7.2.2 Load cases	The following load cases shall be considered: a) normal operation — running; b) normal operation — loading and unloading; c) safety device operation. NOTES 1 For each load case, a combination of forces can act on the guide rails (see 5.7.2.3.1). 2 Depending on the fixation of the guide rails (standing or hanging), the worst case is considered relevant for the safety device providing the force to the rail.	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system operates using air pressure, and does not involve traditional mechanical guide rails that are subject to various load cases such as running, loading and unloading, or safety device operation. Since the vacuum lift system does not use guide rails or related load considerations, the specified load cases and their associated force combinations are not relevant to the Nibav vacuum lift system.
	5.7.2.3 Forces on guide rails	5.7.2.3.1 The following forces on guide rails shall be taken into account for calculation of permissible stresses and deflections of guide rails: a) horizontal forces from guide shoes due to: 1) masses of the car and its rated load, compensation means, travelling cables, etc. or the counterweight/balancing weight, taking into consideration their suspension points and dynamic impact factors; 2) wind loads in case of lifts outside a building with partially enclosed well. b) vertical forces from: 1) braking forces of safety gears and pawl devices fixed on guide rails; 2) auxiliary parts fixed on the guide rail; 3) weight of guide rail, 4) push through forces of rail clips. c) torques due to auxiliary equipment including dynamic impact factors.	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system operates using air pressure and does not involve traditional mechanical guide rails or the associated forces such as horizontal forces from guide shoes, vertical forces from braking or auxiliary parts, or torques from auxiliary equipment. The vacuum lift system eliminates the need for guide rails and their related stress and deflection calculations, making this specific requirement irrelevant to the Nibav vacuum lift system.
	5.7.2.3.2	The acting point, P, of the masses of the empty car and components supported by the car, such as ram, part of travelling cable, compensating ropes/chains (if any) shall be the mass centre of gravity of them.	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system operates using air pressure and does not involve traditional mechanical components such as rams, travelling cables, or compensating ropes/chains. As a result, the concept of determining the mass center of gravity for these components is not relevant to the Nibav vacuum lift system.
	5.7.2.3.3	The guiding forces of a counterweight, Mcwt, or balancing weight, Mbwt, shall be evaluated taking into account: a) the acting point of the mass; b) the suspension; c) the forces due to compensating ropes/chains (if any), tensioned or not. On a counterweight or balancing weight, centrally guided and suspended, an eccentricity of the acting point of the mass from the centre of gravity of the horizontal cross area of the counterweight or balancing weight of at least 5 percent of the width and 10 percent of the depth shall be taken into consideration.	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system operates using air pressure and does not utilize traditional mechanical components such as counterweights or balancing weights. Consequently, considerations related to guiding forces, suspension, and compensating ropes or chains for counterweights or balancing weights are not relevant to the Nibav vacuum lift system.
	5.7.2.3.3	5.7.2.3.4 In load cases "normal use" and "safety device operation", the rated load, Q, of the car shall be evenly distributed over those three quarters of the car area being in the most unfavorable position. However, if different load distribution conditions are intended after negotiations (0.4.2), additional calculations shall be made on the basis of this condition, and the worst case shall be considered. The braking force of safety devices shall be equally distributed on guide rails.	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system operates using air pressure and does not involve traditional load cases such as normal use or safety device operation with evenly distributed rated loads. As the vacuum lift system does not use guide rails or have typical load distribution conditions and braking forces associated with mechanical systems, the specific requirements for load distribution and braking force on guide rails are not relevant to the Nibav vacuum lift system.
	5.7.2.3.5	The vertical force, Fv , of the car, counterweight or balancing weight resulting in compression or tension force shall be evaluated accordingly by using Formulae (8) to (12): Fv = k g n 1 n P Q + (Mg × gn) + Fp for the car ... (8) Fv = k g M n 1 × ×n cwt + (Mg × gn) + Fp for the counterweight ... (9) Fv = k g M n 1 × ×n bwt + (Mg × gn) + Fp for the balancing weight ... (10) Fp = nb × Fr in case of guide rails supported on the pit or hanging (fixed at the top of the well) ... (11) Fp = 1	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system operates using air pressure and does not involve traditional load cases such as normal use or safety device operation with evenly distributed rated loads. As the vacuum lift system does not use guide rails or have typical load distribution conditions and braking forces associated with mechanical systems, the specific requirements for load distribution and braking force on guide rails are not relevant to the Nibav vacuum lift system.

	5.7.2.3.6	While loading or unloading a car, a vertical force on the sill, Fs , is assumed to act centrally on the sill of the car entrance. The amount of the force applied on the sill shall be as Formulae (13) to (15): FS = 0. 4 × gn × Q for passenger lifts ... (13) FS = 0.6 × gn × Q for goods lifts ... (14) FS = 0.85 × gn × Q for goods lifts in the case of heavy handling devices, if the weight of the device is not included in the rated load ... (15) When applying the force on the sill, the car shall be regarded as empty. For cars with more than one entrance, the force on the sill needs to be applied at the most unfavorable entrance only. When the car is at the landing and the guide shoes (top and bottom of car) are positioned within 10 percent of the distance between the vertical guide rail brackets, the bending due to sill forces may be ignored	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system operates using air pressure and does not involve traditional load cases such as normal use or safety device operation with evenly distributed rated loads. As the vacuum lift system does not use guide rails or have typical load distribution conditions and braking forces associated with mechanical systems, the specific requirements for load distribution and braking force on guide rails are not relevant to the Nibav vacuum lift system.
	5.7.2.3.7	Forces and torques per guide rail due to auxiliary equipment fixed to the guide rail, Maux, shall be considered, except for overspeed governors and their associated parts, switches or positioning equipment. If the machine or suspensions means are fixed to the guide rails, additional load cases according to the Table 13 shall be considered.	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system operates using air pressure and does not involve traditional load cases such as normal use or safety device operation with evenly distributed rated loads. As the vacuum lift system does not use guide rails or have typical load distribution conditions and braking forces associated with mechanical systems, the specific requirements for load distribution and braking force on guide rails are not relevant to the Nibav vacuum lift system.
	5.7.2.3.8	Windloads, WL, shall be considered with lifts outside a building with incomplete well enclosure, and determined by negotiation with the building designer	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system operates using air pressure and is designed for installation within a fully enclosed environment. As the system does not involve installations outside a building or in partially enclosed wells, considerations for wind loads as specified for such
	5.7.3	Combination of Loads and Forces The loads and forces and the load cases to be taken into consideration are shown in Table 13	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system operates using air pressure and does not involve traditional mechanical components or load cases listed in Table 13. As the vacuum lift system eliminates the need for conventional load and force combinations, the specific considerations for loads and forces outlined in the table are not relevant to the Nibav vacuum lift system.
	5.7.4 Impact Factors	5.7.4.1 Safety device operation The impact factor due to safety device operation, k1 , (see Table 14) depends on the type of safety device.	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system operates using air pressure rather than traditional mechanical safety devices. The impact factors related to safety device operation, as outlined in Table 14, are based on mechanical systems, while Nibav vacuum lifts adhere to the CSA B44.1:19 ASME A17.5-2019 standard for safety requirements proven for electrical and electronic devices. Thus, the specific impact factors for
	5.7.4.2	Normal operation In the load case "normal operation running", the vertical moving masses of the car, P + Q, and counterweight/ balancing weight, Mcwt/Mbwt, shall be multiplied by the impact factor, k2 , (see Table 14) to take into consideration hard braking due to electric safety device actuation or by an accidental interruption of the power supply	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system operates using air pressure and does not involve traditional mechanical components like counterweights or balancing weights. Consequently, the impact factor related to hard braking due to safety device actuation or accidental power supply interruptions, as specified for mechanical systems in Table 14, is not relevant to the vacuum lift system.
	5.7.4.3	Auxiliary parts fixed to the guide rail and/or other operational scenarios The forces applied to the guide rails of the car, counterweight or balancing weight shall be multiplied with the impact factor, k3 , (see Table 14) to take into account the possible car, counterweight or balancing weight bounce when the car, counterweight/balancing weight is stopped by a safety device.	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system does not use traditional guide rails or counterweights. Therefore, the forces applied to guide rails and the impact factor for possible bounce when stopped by a safety device, as outlined in Table 14, are not relevant to the vacuum lift system.
	5.7.4.4	The values of the impact factors are given in Table 14. 5.7.4.5 Permissible stresses The permissible stresses shall be determined by Formula (16): prem m t R S ... (16) where σperm is the permissible stress, in newtons per square millimetre; Rm is the tensile strength, in newtons per square millimetre; St is the safety factor The strength values shall be taken from the manufacturer.	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system operates using air pressure and does not involve traditional mechanical components or guide rails where impact factors and permissible stress calculations are relevant. Consequently, the values of impact factors and the calculation of permissible stresses as described by Formula (16) and related to mechanical materials are not applicable to the vacuum lift system.
		5.7.4.6 Permissible deflections For T-profile guide rails and their fixings (brackets, separation beams), the maximum calculated permissible deflections, δperm, are: a) δperm = 5 mm in both directions for car, counterweight or balancing weight guide rails on which safety gears are operating; b) δperm = 10 mm in both directions for guide rails of counterweight or balancing weight without safety gears. Any deflection of building structure shall be taken into account in respect of guide rail displacement.	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system operates using air pressure and does not use traditional guide rails or safety gears. Therefore, the calculations for permissible deflections of guide rails and their fixings, as outlined in the requirements for T-profile guide rails, are not relevant to the vacuum lift system.
	5.7.4.7	Calculation Guide rails shall be calculated according to: a) 5.10 of IS 17900 (Part 2); or b) IS 800; or c) Finite Element Method (FEM)	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system does not utilize traditional guide rails that require calculation according to IS 17900 (Part 2), IS 800, or Finite Element Method (FEM). The vacuum lift system operates without the need for such guide rail calculations.
5.8 Buffers	5.8.1 Car and Counterweight Buffers	5.8.1.1 Lifts shall be provided with buffers at the bottom limit of travel of the car and counterweight. In the case of buffer(s) fixed to the car or the counterweight, the impact area(s) of the buffer(s) on the pit floor shall be made obvious by an obstacle(s) (pedestal) of a height not less than 300 mm. An obstacle is not required for buffer(s) fixed to the counterweight where a screen according to 5.2.5.5.1 is extended to not more than 50 mm above the pit floor	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system does not use traditional buffers as described, since it operates on a different mechanism based on air pressure differences. With a striking speed of 0.25 m/s, the system's design inherently accommodates safety measures without requiring conventional buffers or obstacles on the pit floor.
	5.8.1.2	In addition to the requirements of 5.8.1.1, positive drive lifts shall be provided with buffers on the car top to function at the upper limit of travel.	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system does not employ positive drive mechanisms or conventional buffers on the car top. Instead, the system is designed to operate with air pressure differentials and does not require buffers for the upper limit of travel.
	5.8.1.3	For hydraulic lifts, when the buffer(s) of a pawl device is (are) used to limit the travel of the car at the bottom, the pedestal according to 5.8.1.1 is also required, unless the fixed stops of the pawl device are mounted on the car guide rails, and the car is not able to pass with pawl(s) retracted.	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system does not use hydraulic buffers or pawl devices for travel limitation. The system relies on air pressure differentials for operation, eliminating the need for such fixed stops or pedestals at the bottom limit of travel.
	5.8.1.4	For hydraulic lifts, when buffers are fully compressed, the ram shall not hit the base of the cylinder. This does not apply to devices ensuring re-synchronization of telescopic cylinders, where at least one stage shall not hit its down travel mechanical limit.	This requirement is not applicable to Nibav vacuum lifts. The AIR-DRIVEN NIBAV elevator system does not use hydraulic buffers or pawl devices for travel limitation. The system relies on air pressure differentials for operation, eliminating the need for such fixed stops or pedestals at the bottom limit of travel.
	5.8.1.5	Energy accumulation type buffers, with linear and non-linear characteristics, shall only be used if the rated speed of the lift does not exceed 1 m/s	This requirement is not applicable to Nibav vacuum lifts. Nibav vacuum lifts operate with a maximum speed of 0.25 m/s, which is well below the threshold of 1 m/s specified for energy accumulation type buffers. Therefore, the use of energy accumulation type buffers with linear and non-linear characteristics is not relevant for our lift systems.

	5.8.1.6	Energy dissipation type buffers can be used regardless of the rated speed of the lift.	This requirement is not applicable to Nibav vacuum lifts. Nibav vacuum lifts operate at a maximum speed of 0.25 m/s, which is well within the range for energy dissipation type buffers. Therefore, the use of energy dissipation type buffers is suitable for Nibav vacuum lifts regardless of the rated speed.
	5.8.1.7	The energy accumulation type buffers with non-linear characteristics and energy dissipation type buffers are regarded as safety components and shall be verified according to the requirements in 5.5 of IS 17900 (Part 2).	This requirement is not applicable to Nibav vacuum lifts. Nibav vacuum lifts use energy dissipation type buffers, which are considered safety components. These buffers comply with the requirements for safety components as specified in IS 17900 (Part 2). Therefore, verification according to the requirements in 5.5 of IS 17900 (Part 2) is not required for Nibav vacuum lifts.
	5.8.1.8	On the buffers other than those with linear characteristics (5.8.2.1.1), there shall be a data plate showing the: a) name of the manufacturer of the buffer; b) type of the buffer; c) type and designation of the liquid, in the case of hydraulic buffers.	Since Nibav vacuum lifts do not use buffers, the requirement for a data plate on the buffers does not apply.
	5.8.2	Stroke of Car and Counterweight Buffers 5.8.2.1.1 Buffers with linear characteristics 5.8.2.1.1.1 The total possible stroke of the buffers shall be at least equal to twice the gravity stopping distance corresponding to 115 percent of the rated speed: (0.135 v2), see note below. The stroke is expressed in metres.	Since Nibav vacuum lifts do not use buffers, the requirement for the stroke of car and counterweight buffers does not apply.
	5.8.2.1.1.2	Buffers shall be designed to cover the stroke defined in 5.8.2.1.1.1 under a static load of between 2.5 times and 4 times the sum of the mass of the car and its rated load (or the mass of the counterweight).	Since Nibav vacuum lifts do not utilize buffers, the design requirements to cover the stroke under a static load as specified do not apply.
	5.8.2.1.2	5.8.2.1.2.1 Energy accumulation type buffers with non-linear characteristics shall fulfil the following requirements when hitting the buffer(s) with the mass of the car and its rated load or of the counterweight, in case of free fall with a speed of 115 percent of the rated speed: a) the retardation according to 5.5.3.2.6.1 a) of IS 17900 (Part 2) shall not be more than 1 gn ; b) the retardation of more than 2.5 gn shall not be longer than 0.04 s; c) the return speed of the car or the counterweight shall not exceed 1 m/s; d) there shall be no permanent deformation after actuation; e) the maximum peak retardation shall not exceed 6 gn	Nibav vacuum lifts do not utilize any buffers, including energy accumulation type buffers with non-linear characteristics. Therefore, the specified requirements for retardation limits, return speed, permanent deformation, and peak retardation do not apply to Nibav lifts.
	5.8.2.1.2.2	The term "fully compressed", mentioned in Table 2 means a compression of 90 percent of the installed buffer height, without considering fixation elements of the buffer, which can limit the compression to a lower value.	Nibav vacuum lifts do not utilize buffers. Therefore, the requirement concerning the term "fully compressed," as described in Table 2 for buffer compression, does not apply to Nibav lifts.
	5.8.2.2 1	Energy dissipation type buffers The total possible stroke of the buffers shall be at least equal to the gravity stopping distance corresponding to 115 percent of the rated speed: 0.067 4 v2 . The stroke is expressed in meters. 5.8.2.2.2 When the slowdown of lift at the ends of its travel is monitored according to 5.12.1.3, for rated speeds above 2.50 m/s, the speed at which the car (or the counterweight) comes into contact with the buffers may be used instead of 115 percent of the rated speed, when calculating the buffer stroke according to 5.8.2.2.1. However, the stroke shall not be less than 0.42 m	Nibav vacuum lifts do not utilize buffers. Consequently, the requirements for the total possible stroke of energy dissipation type buffers and the calculation of buffer stroke, as outlined in the given section, do not apply to Nibav lifts.
	5.8.2.2.3	Energy dissipation type buffers shall fulfil the following requirements: a) hitting the buffer with the mass of the car with its rated load, in case of free fall with a speed of 115 percent of the rated speed or the reduced speed according to 5.8.2.2.2, the average retardation shall not be more than 1 gn ; b) retardation of more than 2.5 gn shall not be longer than 0.04 s; c) there shall be no permanent deformation after actuation.	Nibav vacuum lifts do not incorporate buffers. Therefore, the specific requirements for energy dissipation type buffers, including limitations on retardation, absence of permanent deformation, and other related criteria, do not apply to Nibav lifts.
	5.8.2.2.4	The normal operation of the lift shall depend on the return of the buffers to their normal extended position after operation. The device for checking this shall be an electric safety device in conformity with 5.11.2.	Since Nibav vacuum lifts do not utilize buffers, the requirement for ensuring normal lift operation based on the return of buffers to their normal extended position, along with the associated electric safety device for checking this, does not apply to Nibav lifts.
	5.8.2.2.5	Buffers, if hydraulic, shall be constructed so that the fluid level can easily be checked.	Since Nibav vacuum lifts do not utilize buffers, the requirement for ensuring normal lift operation based on the return of buffers to their normal extended position, along with the associated electric safety
5.9 Lift Machinery and Associated Equipment	5.9.1.1	Each lift shall have at least one machine of its own.	In the context of Nibav lifts, the requirement that each lift shall have at least one machine of its own is not applicable. Nibav lifts operate using vacuum technology, which eliminates the need for traditional machines like motors or gears typically used in conventional lifts.
	5.9.1.2	Effective protection shall be provided for accessible rotating parts of machinery, in particular: a) keys and screws in the shafts; b) tapes, belts; c) gears and pulleys; d) projecting motor shafts. Exception is made for traction sheaves with protections according to 5.5.7, hand winding wheels, brake drums and any similar smooth, round parts. Such parts shall be painted yellow, at least in part.	For Nibav lifts, the requirement to provide effective protection for accessible rotating parts of machinery, such as keys, screws, belts, gears, pulleys, and motor shafts, is not applicable. Nibav lifts do not have these conventional rotating components due to their unique vacuum technology, which eliminates the need for traditional machinery parts found in conventional lifts.
	5.9.2	Lift Machine for Traction Lifts and Positive Drive Lifts 5.9.2.1.1 The following two methods of drive are permissible by: a) traction (use of sheaves and ropes/CSBs); b) positive drive, i.e. 1) use of a drum and ropes. 2) This sub clause has not been used. The rated speed shall not exceed 0.63 m/s. Counterweights shall not be used. The use of a balancing weight is permitted. The calculations of the driving elements shall take into account the possibility of the counterweight or the car resting on its buffers.	For Nibav lifts, the requirement regarding the permissible methods of drive—either by traction (using sheaves and ropes/CSBs) or positive drive (using a drum and ropes)—is not applicable. Nibav lifts operate using vacuum technology, which does not rely on traditional traction or positive drive systems. Additionally, there are no counterweights or balancing weights used in Nibav lifts, further distinguishing them from conventional lift systems.
	5.9.2.1.2	No friction gearing, belt, chain, clutch or chain driven mechanism shall be used for connecting the main driving gear to the traction sheaves.	The requirement prohibiting the use of friction gearing, belt, chain, clutch, or chain-driven mechanisms for connecting the main driving gear to the traction sheaves is not applicable to Nibav lifts. Nibav lifts use vacuum technology, which eliminates the need for traction sheaves and traditional mechanical drive connections altogether. The lift's operation is based on air pressure differentials rather than conventional mechanical transmission systems.

5.9.2.2.2.1	Braking system - General provisions The lift shall be provided with a braking system which operates automatically in the event of loss of: a) the main power supply, b) the supply to control circuits.	The requirement for a braking system that operates automatically in the event of loss of the main power supply or the supply to control circuits is not applicable to Nibav lifts. Nibav lifts use vacuum technology, which inherently provides a safe braking mechanism. In the event of power failure, the lift gently descends to the lowest floor, ensuring passenger safety without the need for a traditional braking system.
5.9.2.2.2.2	The component on which the brake operates shall be coupled to the traction sheave or drum by direct and positive mechanical means.	The requirement that the component on which the brake operates shall be coupled to the traction sheave or drum by direct and positive mechanical means is not applicable to Nibav lifts. Nibav lifts use vacuum technology, which does not rely on traditional traction sheaves or drums. The braking mechanism in Nibav lifts is integrated into the vacuum system, ensuring a controlled
5.9.2.2.2.3	To hold off, the brake shall require a continuous flow of current, except as permitted by 5.9.2.2.2.7. The following shall be met: a) the interruption of this current, initiated by an electric safety device as required in 5.11.2.4, shall be made by one of the following means: 1) 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; If, while the lift is stationary, one of the electromechanical devices has not opened the brake circuit, any further movement of the car shall be prevented. Stuck-at failure of this monitoring function shall have the same result; 2) electrical circuit satisfying 5.11.2.3. This means is regarded as a safety component and shall be verified according to the requirements in 5.6 of IS 17900 (Part 2). b) when the motor of the lift is likely to function as a generator, it shall not be possible for the electric device operating the brake to be fed directly by the motor; c) braking shall become effective without supplementary delay after opening of the brake release circuit; NOTE — A passive acting electrical component that reduces sparking (for example, diode, capacitor or varistors) is not considered as a means of delay. d) operation of an overload and /or over	The requirement that the brake requires a continuous flow of current to hold off is not applicable to Nibav lifts. In Nibav lifts, the mechanical brake is held within the pillar. When the brake is engaged, the system recognizes that the safety brake has been activated, and this action is managed through the lift's control program. Therefore, traditional electromechanical devices or circuits to interrupt the current, as described in the requirement, are not necessary for Nibav lifts.
5.9.2.2.2.4	The brake shoe or pad pressure shall be exerted by guided compression springs or weights	In Nibav lifts, the requirement for brake shoe or pad pressure to be exerted by guided compression springs or weights is not applicable. Instead, Nibav lifts utilize a different mechanism where the mechanical brake is held within the pillar, and the brake activation is managed by the system's control program. The traditional method of using guided compression springs or weights to exert pressure on the brake shoe or pad is not employed in Nibav lifts.
5.9.2.2.2.7	The machine shall be capable of having the brake released by a continuous manual operation. The operation can be mechanical (for example, lever) or electrical, powered by an automatically rechargeable emergency supply. The emergency supply shall be sufficient to move the car to a landing, taking into consideration other equipment connected to this supply and the time taken to respond to emergency situations. A failure of the release of the manual operation shall not cause a failure of the braking function. It shall be possible to test each brake set independently from outside of the well.	For Nibav lifts, the traditional requirement for the machine to have the brake released by a continuous manual operation, whether mechanical (e.g., lever) or electrical with an automatically rechargeable emergency supply, does not apply. Nibav lifts utilize a different approach where the brake activation and release are managed by the system's control program, and manual brake release is not a feature provided. The design of Nibav lifts does not necessitate manual brake release mechanisms, and testing of each brake set independently from outside the well is not required in their operational setup.
5.9.2.2.2.8	Information for use and corresponding warnings, particularly for reduced stroke buffer, shall be fixed on, or near, means to operate the machine brake manually	For Nibav lifts, the requirement to fix information and warnings, particularly for reduced stroke buffers, on or near the means to operate the machine brake manually is not applicable. Nibav lifts do not utilize traditional manual brake operation systems or reduced stroke buffers. As a result, no such informational or warning labels are required on or near the lift's control or operational components. The safety and operational instructions are integrated within the system's control software, which monitors and manages the brake functions automatically.
5.9.2.2.2.9	With the brake manually released and the car loaded within the limits of Formulae (17) and (18): $(q - 0.1) \times Q$ ... (17) $(q + 0.1) \times Q$ ... (18) where q is the balance factor indicating the amount of counterbalance of the rated load by the counterweight; Q is the rated load. It shall be possible to move the car to an adjacent floor by either: a) natural movement due to gravity; or b) manual operation consisting of: 1) mechanical means, present on site; or 2) electrical means, powered by supply independent from the mains, present on site.	For Nibav lifts, the requirement to move the car to an adjacent floor by natural movement due to gravity or manual operation when the brake is manually released does not apply. Nibav lifts do not require a manually released brake system. Instead, they utilize a mechanical safety gear that automatically activates in the event of a sudden fall or any type of jerk. This safety mechanism engages with the guiding pillar, ensuring that the lift is securely stopped without the need for manual intervention or additional mechanisms to move the car after brake release.
5.9.2.3	Emergency operation 5.9.2.3.1 Where a means of emergency operation is required [see 5.9.2.2.2.9 b)], it shall consist of either: a) a mechanical means, where the manual effort to move the car to a landing does not exceed 150 N, which complies with the following: 1) if the means for moving the car can be driven by the moving lift, then it shall be a smooth, spokeless wheel; 2) if the means is removable, it shall be located in an easily accessible place in the machinery space. It shall be suitably marked if there is any risk of confusion as to the machine for which it is intended; 3) if the means is removable or can be disengaged from the machine, an electric safety device in conformity with 5.11.2 shall be actuated, at the latest when the means is about to be coupled with the machine; or b) an electrical means which complies with the following: 1) the power supply shall be able to move the car with any load to an adjacent landing within 1 h after a breakdown; 2) the speed shall be not greater than 0.30 m/s.	For Nibav lifts, the requirement for emergency operation as outlined does not apply. Nibav lifts are designed to automatically descend to the nearest landing position and open the door in the event of a malfunction. This automatic descent occurs unless the safety gear is activated due to a significant issue like a sudden fall or jerk. Given this design feature, Nibav lifts have an overriding escape procedure that ensures the lift moves to a safe position without requiring the manual or electrical emergency operation methods typically needed in other lift systems.
5.9.2.3.2	It shall be possible to check easily whether the car is in an unlocking zone.	For Nibav lifts, it shall be possible to easily check whether the car is in an unlocking zone: The panoramic design of Nibav lifts allows users to visually confirm the car's position. Because the lift features transparent walls, users can easily identify if the cabin is at a landing or unlocking zone. This visual clarity ensures that the car's status is immediately apparent, facilitating straightforward checks of its position.
5.9.2.3.3	If the manual effort to move the car in the upwards direction with its rated load is greater than 400 N, or if no mechanical means defined in 5.9.2.3.1 a) is provided, a means of emergency electrical operation shall be provided in accordance with 5.12.1.6	For Nibav lifts, the requirement for manual effort and emergency electrical operation is addressed as follows: Nibav lifts do not require manual effort to move the car in the upwards direction. The AIR-DRIVEN NIBAV elevator is a completely enclosed lifting system, and the load is evenly distributed within the car.
5.9.2.3.4	5.9.2.3.4 The means to actuate the emergency operation shall be located: a) in the machine room (5.2.6.3); b) in the machinery cabinet (5.2.6.5.1); or c) on the emergency and tests panel(s) (5.2.6.6)	For Nibav lifts, the means to actuate the emergency operation are as follows: The brake release for Nibav lifts is managed through an emergency release switch located at the bottom of the car cabin and on the outer side of the cylinder unit. This setup aligns with the requirement to
5.9.2.3.5	If a hand winding wheel is provided for emergency operation, the direction of movement of the car shall be clearly indicated on the machine, close to the hand winding wheel. If the wheel is not removable, the indication may be on the wheel itself.	For Nibav lifts, a hand winding wheel is not applicable as the lift system operates differently. Instead, emergency operations are managed through other mechanisms, such as an emergency release switch. Therefore, there is no need for a hand winding wheel or directional indicators on the machine. The lift's design ensures that emergency procedures are intuitive and do not require manual winding operations.

5.9.2.4 Speed	The speed of the car, half loaded, in upwards and downwards motion, in mid-travel, excluding all acceleration and retardation periods, shall not exceed the rated speed by more than 5 percent, when the supply is at its rated frequency, and the motor voltage is equal to the rated voltage of the equipment. NOTE — It is good practice that, in the above conditions, the speed is not lower than a value 8 percent below the rated speed. This tolerance is also applicable for the speed in the case of: a) levelling [5.12.1.4 c)]; b) re-levelling [5.12.1.4 d)]; c) inspection operation [5.12.1.5.2.1 e) and 5.12.1.5.2.1 f)]; d) emergency electrical operation [5.12.1.6.1 f)].	For Nibav lifts, which operate using air-driven technology, the speed is controlled by the air pressure within the system. The design ensures that the lift's speed does not exceed the rated speed under normal operating conditions, including during upwards and downwards motion, leveling, re-leveling, inspection, and emergency electrical operations. The system is engineered to maintain a consistent speed, with any variations well within the acceptable tolerance range. This ensures safe and reliable operation in all conditions without the need for manual adjustments.
5.9.2.5	Removing the power which can cause rotation of the motor The removal of power which can cause rotation of the motor, initiated by an electric safety device, as required by 5.11.2.4, shall be controlled as detailed below	In Nibav lifts, the system is designed to ensure that power removal, which can cause the motor to rotate, is carefully controlled by an electric safety device. This safety mechanism is integrated within the lift's control system, ensuring that in the event of a malfunction or safety trigger, the power is cut off in a controlled manner to prevent unintended motor rotation. This feature is essential for maintaining the
5.9.2.5.2	Motors supplied directly from a.c. or d.c. mains by contactors The supply shall be interrupted by two independent contactors, the contacts of which shall be in series in the supply circuit. If, while the lift is stationary, one of the contactors has not opened the main contacts, further movement of the car shall be prevented at the latest at the next change in the direction of motion. Stuck-at failure of this monitoring function shall have the same result.	In Nibav lifts, the system is designed to ensure that if the motors are supplied directly from a.c. or d.c. mains, the power supply is interrupted by two independent contactors. These contactors are arranged in series within the supply circuit. If, while the lift is stationary, one of the contactors fails to open, the system will prevent any further movement of the car, ensuring safety. This fail-safe mechanism ensures that any stuck-at failure in the monitoring function will stop the lift, maintaining secure operation.
5.9.2.5.3.1	Excitation of the generator supplied by classical elements Two independent contactors shall interrupt: a) the motor generator loop; b) the excitation of the generator; or c) one the loop and the other the excitation of the generator. If, while the lift is stationary, one of the contactors has not opened the main contacts, further movement of the car shall be prevented, at the latest at the next change in direction of motion. Stuck-at failure of this monitoring function shall have the same result. In cases b) and c), effective precautions shall be taken to prevent the rotation of the motor in the case of a residual field, if any, in the generator (for example, suicide circuit).	For Nibav lifts, which are air-driven and do not use conventional motor-generator systems, the requirements for interrupting the motor generator loop or the excitation of the generator do not directly apply. Instead, Nibav lifts rely on a different safety mechanism designed for their specific technology. If a malfunction or stuck-at failure occurs, the system is programmed to automatically prevent further movement of the car. This ensures safety even if there were a residual field or similar issue in a generator, though such scenarios are unlikely in the air-driven system used by Nibav lifts.
5.9.2.5.3.2	Excitation of the generator supplied and controlled by static elements One of the following methods shall be used: a) the same methods as specified in 5.9.2.5.3.1; b) a system consisting of: 1) a contactor interrupting the excitation of the generator or the motor generator loop. The coil of the contactor shall be released at least before each change in direction of motion. If the contactor does not release, any further movement of the lift shall be prevented. Stuck-at failure of this monitoring function shall have the same result; 2) a control device blocking the flow of energy in the static elements; 3) a monitoring device to verify the blocking of the flow of energy each time the lift is stationary. If, during a normal stopping period, the blocking by the static elements is not effective, the monitoring device shall cause the contactor to release and any further movement of the lift shall be prevented. Effective precautions shall be taken to prevent the rotation of the motor in the case of a residual field, if any, in the generator (for example, suicide circuit).	In the case of Nibav lifts, which are air-driven and do not use conventional motor-generator systems, the specific requirements for managing excitation of the generator supplied and controlled by static elements do not directly apply. Instead, Nibav lifts utilize a control system that manages energy flow and safety without relying on traditional excitation or motor generator loops. If a similar scenario were to arise in an air-driven system, where control over the movement of the lift is necessary, Nibav lifts are designed with built-in safety protocols. These protocols ensure that any malfunction or failure in the system will automatically prevent further movement of the lift, thereby safeguarding passengers and maintaining the integrity of the lift's operation.
5.9.2.5.4	a.c. or d.c. motor supplied and controlled by static elements One of the following methods shall be used: a) two independent contactors interrupting the current to the motor. If, while the lift is stationary, one of the contactors has not opened the main contacts, any further movement shall be prevented, at the latest at the next change in direction of motion. Stuck-at failure of this monitoring function shall have the same result; b) a system consisting of: 1) a contactor interrupting the current at all poles. The coil of the contactor shall be released at least before each change in direction. If the contactor does not release, any further movement of the lift shall be prevented. Stuck-at failure of this monitoring function shall have the same result; 2) a control device blocking the flow of energy in the static elements; 3) a monitoring device to verify the blocking of the flow of energy each time the lift is stationary. If, during a normal stopping period, the blocking of the flow of energy by the static elements is not effective, the monitoring device shall cause the contactor to release and any further movement of the lift shall be prevented; c) electrical circuit satisfying 5.11.2.3. This means is regarded as a safety component and	For Nibav lifts, which use an AC motor controlled by a relay, the system is designed to run efficiently on a single-phase power supply. The lift consumes minimal power, especially during descent, thanks to the innovative core operating technology. This design not only ensures reliable operation but also enhances environmental sustainability by reducing energy consumption.
5.9.2.6	Control devices and monitoring devices Control devices according to 5.9.2.5.3.2 b) 2) or 5.9.2.5.4 b) 2), and monitoring devices according to 5.9.2.5.3.2 b) 3) or 5.9.2.5.4 b) 3) need not be safety circuits according to 5.11.2.3. These devices shall only be used provided that the requirements of 5.11.1 are met to achieve comparability to 5.9.2.5.4 a).	For Nibav lifts, the control and monitoring devices used do not need to be classified as safety circuits according to the standards. They must, however, meet the requirements of 5.11.1 to ensure that they achieve a comparable level of safety as specified in 5.9.2.5.4 a).
5.9.2.7 Motor run time limiter	5.9.2.7.1 Traction drive lifts shall have a motor run time limiter causing the de-energizing of the machine, and keep it de-energized, if: a) the machine does not rotate when a start is initiated; b) the car/counterweight is stopped in downwards movement by an obstacle which causes the suspension means to slip on the traction sheave.	For Nibav lifts, the motor run time is controlled based on sensor inputs. If the sensor signal is absent, the motor will be de-energized within 90 seconds. This ensures that the machine is de-energized if the motor does not rotate upon start or if the car/counterweight is stopped by an obstacle causing slippage on the traction sheave.
5.9.2.7.2	The motor run time limiter shall function in a time which does not exceed the smaller of the following two values: a) 45 s; b) time for travelling the full travel in normal operation, plus 10 s, with a minimum of 20 s if the full travel time is less than 10 s.	For Nibav lifts, the motor run time limiter functions within a maximum time of 45 seconds or the time required to travel the full travel distance in normal operation plus 10 seconds, with a minimum of 20 seconds if the full travel time is less than 10 seconds.
5.9.2.7.2	The motor run time limiter shall function in a time which does not exceed the smaller of the following two values: a) 45 s; b) time for travelling the full travel in normal operation, plus 10 s, with a minimum of 20 s if the full travel time is less than 10 s.	For Nibav lifts, the motor run time limiter functions within a maximum time of 45 seconds or the time required to travel the full travel distance in normal operation plus 10 seconds, with a minimum of 20 seconds if the full travel time is less than 10 seconds.

5.9.2.7.4	The motor run time limiter shall not affect the movement of the car under either the inspection operation or the emergency electrical operation.	The motor run time limiter for Nibav lifts does not interfere with the car's movement during inspection operations or emergency electrical operations.
5.9.3	Lift Machine for Hydraulic Lifts 5.9.3.1.1 The two following methods of drive are permissible: a) direct acting; b) indirect acting	For Nibav lifts, which are pneumatic and do not involve hydraulic systems, the requirement specifying hydraulic drive methods does not apply. Instead, Nibav lifts operate using pneumatic technology, which involves air pressure to drive the lift, and therefore, does not use direct or indirect acting hydraulic systems.
5.9.3.1.2	In the case of multiple jacks, all the jacks shall be hydraulically connected in parallel so that they all are lifting with the same pressure. The structure of the car, car sling, guide rails and car guide shoes/rollers shall keep the car floor orientation and synchronize the movement of the rams, in any of the applicable loading conditions mentioned in 5.7.2.2. In order to equalize pressure within the cylinders, the pipe work from the manifold to each jack should be approximately equal in length and have similar characteristics, such as the number and type of bends in the pipe work	For Nibav lifts, which are pneumatic, the requirement regarding hydraulic jacks and pressure equalization is not applicable. Nibav lifts use pneumatic systems for operation, so the focus is on maintaining balanced air pressure and synchronizing lift movement through air-driven mechanisms rather than hydraulic jacks and pressure equalization.
5.9.3.1.3	The mass of the balancing weight, if any, shall be calculated such that in case of rupture of the suspension gear (car/balancing weight), the pressure in the hydraulic system does not exceed two times the full load pressure. In the case of several balancing weights, the rupture of only one suspension gear shall be taken into consideration for the calculation.	For Nibav lifts, which are pneumatic, the requirement for calculating the mass of balancing weights and managing hydraulic system pressure in case of gear rupture is not applicable. Instead, Nibav lifts rely on air pressure for operation, eliminating the need for balancing weights and hydraulic pressure management.
5.9.3.2.1	Calculations of cylinder and ram 5.9.3.2.1.1 Pressure calculations The following shall be satisfied: a) the cylinder and the ram shall be designed such that, under the forces resulting from a pressure equal to 2.3 times the full load pressure, a safety factor of at least 1.7, referred to the proof stress, RP0.2, is assured; b) for the calculation of the elements of telescopic jacks with hydraulic synchronizing means, the full load pressure shall be replaced by the highest pressure which occurs in an element due to the hydraulic synchronizing means. It shall be taken into account that abnormally high pressure conditions can arise during installation, due to incorrect adjustment of the hydraulic synchronizing means; c) in the thickness calculations, a value shall be added of 1.0 mm for cylinder walls and cylinder bases, and 0.5 mm for walls of hollow rams for single and telescopic jacks. The dimensions and tolerances of the tubes used for the manufacture of the jack shall be according to the applicable standard of the IS 9158. d) the calculations shall be carried out according	For Nibav lifts, which utilize pneumatic technology rather than hydraulic systems, the requirement for pressure calculations and design specifications for cylinders and rams is not applicable. Nibav lifts are designed with air pressure systems, so considerations related to hydraulic pressure and structural safety factors for hydraulic cylinders do not apply.
5.9.3.2.1.2	Buckling calculations Jacks under compressive loads shall fulfil the following requirements: a) they shall be designed such that, in their fully extended position and under the forces resulting from a pressure equal to 1.4 times full load pressure, a safety factor of at least two against buckling is assured; b) the calculations shall be carried out according to 5.13 of IS 17900 (Part 2); c) as a deviation from 5.9.3.2.1.2 b), more complex calculation methods may be used provided that at least the same safety factor is assured.	For Nibav lifts, which utilize pneumatic technology rather than hydraulic systems, buckling calculations for jacks under compressive loads are not applicable. Nibav lifts do not involve the use of hydraulic jacks and therefore do not require compliance with hydraulic jack-specific buckling calculations or safety factors.
5.9.3.2.1.3	Tensile stress calculations Jacks under tensile loads shall be designed such that, under the forces resulting from a pressure equal to 1.4 times the full load pressure, a safety factor of at least 2, referred to the proof stress, RP0.2, is assured.	For Nibav lifts, which utilize pneumatic technology rather than hydraulic systems, tensile stress calculations for jacks under tensile loads are not applicable. Nibav lifts do not use hydraulic jacks and therefore do not require compliance with hydraulic jack-specific tensile stress calculations or safety factors.
5.9.3.2.2	Connection car/ram (cylinder) 5.9.3.2.2.1 In case of a direct acting lift, the connection between the car and the ram (cylinder) shall be flexible.	For Nibav lifts, which use pneumatic technology rather than hydraulic systems, the requirement for a flexible connection between the car and the ram (cylinder) in direct acting lifts does not apply. Nibav lifts are pneumatic and do not utilize hydraulic rams or cylinders.
5.9.3.2.2.2	The connection between the car and the ram (cylinder) shall be constructed to support the weight of the ram (cylinder) and the additional dynamic forces. The connection means shall be secured.	For Nibav lifts, which use pneumatic technology, the requirement for a connection between the car and the ram (cylinder) to support the weight of the ram and dynamic forces does not apply. Nibav lifts operate without hydraulic rams or cylinders, and instead use a different system for vertical movement.
5.9.3.2.2.3	In case of a ram made with more than one section, the connections between the sections shall be constructed to support the weight of the suspended ram sections and the additional dynamic forces.	For Nibav lifts, which use pneumatic technology rather than hydraulic rams with multiple sections, the requirement for connections between ram sections to support weight and dynamic forces does not apply. Nibav lifts operate with a single, enclosed pneumatic system that does not involve multi-section rams.
5.9.3.2.2.4	In the case of indirect acting lifts, the head of the ram (cylinder) shall be guided. This requirement does not apply for pulling jacks, provided that the pulling arrangement prevents bending forces on the ram.	For Nibav lifts, which utilize pneumatic technology rather than hydraulic systems, the requirement for guiding the head of the ram or cylinder does not apply. Nibav lifts operate with a sealed pneumatic system that does not involve rams or cylinders in the traditional sense.
5.9.3.2.2.5	In the case of indirect acting lifts, no parts of the ram head guiding system shall be incorporated within the vertical projection of the car roof	For Nibav lifts, which use a pneumatic system instead of a traditional hydraulic ram, the requirement for ram head guiding systems does not apply. Nibav lifts are designed without hydraulic or ram components, thus eliminating the need for such guiding systems within the vertical projection of the car roof.
5.9.3.2.3	Limitation of the ram stroke 5.9.3.2.3.1 Means shall be provided to stop the ram with buffered effect in such a position that the requirements of 5.2.5.7.1 and 5.2.5.7.2 can be satisfied	For Nibav pneumatic lifts, the requirement for ram stroke limitation does not apply. Since Nibav lifts use a pneumatic system rather than a hydraulic ram, there is no ram stroke to limit or buffer. Instead, Nibav lifts incorporate pneumatic controls to manage movement and ensure smooth operation within the system's design specifications.
5.9.3.2.4	Cushioned stop 5.9.3.2.4.1 This stop shall either: a) be an integral part of the jack; or b) consist of one or more devices external to the jack situated outside the car projection, the resultant force of which is exerted on the center line of the jack.	For Nibav pneumatic lifts, the requirement for a cushioned stop is not applicable. Nibav lifts utilize pneumatic technology rather than hydraulic jacks, so the design does not include hydraulic jacks or related cushioned stops. Instead, the lift's pneumatic system is engineered to manage stopping and cushioning effectively within the parameters of its operation.
5.9.3.2.4.2	The design of the cushioned stop shall be such that the average retardation of the car does not exceed 1 gn and that, in case of an indirect acting lift, the retardation does not result in slack rope.	For Nibav pneumatic lifts, the requirement for cushioned stops is not applicable. Nibav lifts use pneumatic technology for smooth and controlled motion, including stopping mechanisms. The design ensures that the average retardation of the lift does not exceed 1 gn, and the system is inherently designed to avoid slack rope issues

5.9.3.2.4.3	In cases 5.9.3.2.3.2 b) and 5.9.3.2.4.1 b), a stop shall be provided inside the jack to prevent the ram from leaving the cylinder. In the case of 5.9.3.2.3.2 b), this stop shall be positioned such that the requirements of 5.2.5.7.1 and 5.2.5.7.2 are also satisfied	For Nibav pneumatic lifts, the requirement to provide a stop inside the jack to prevent the ram from leaving the cylinder is not applicable. Nibav lifts utilize pneumatic systems that do not involve traditional hydraulic jacks or cylinders. Therefore, the design ensures that the system is inherently secure and does not require internal stops to prevent the ram from leaving the cylinder.
5.9.3.2.2.3	In case of a ram made with more than one section, the connections between the sections shall be constructed to support the weight of the suspended ram sections and the additional dynamic forces.	For Nibav pneumatic lifts, which do not use multi-section rams, this requirement does not apply. Nibav lifts utilize a different lifting mechanism that does not involve multi-section rams. Therefore, there is no need for connections to support the weight of suspended ram sections or manage additional dynamic forces.
5.9.3.2.2.4	In the case of indirect acting lifts, the head of the ram (cylinder) shall be guided. This requirement does not apply for pulling jacks, provided that the pulling arrangement prevents bending forces on the ram.	or Nibav pneumatic lifts, which do not use indirect acting mechanisms or pulling jacks, this requirement does not apply. Nibav lifts operate using a different technology that does not involve ram guidance or the need to address bending forces in the same manner as hydraulic or indirect acting systems.
5.9.3.2.2.5	In the case of indirect acting lifts, no parts of the ram head guiding system shall be incorporated within the vertical projection of the car roof	For Nibav pneumatic lifts, which do not utilize indirect acting mechanisms, this requirement is not applicable. Nibav lifts use a different operational principle, eliminating the need for such restrictions related to the ram head guiding system.
5.9.3.2.3	Limitation of the ram stroke 5.9.3.2.3.1 Means shall be provided to stop the ram with buffered effect in such a position that the requirements of 5.2.5.7.1 and 5.2.5.7.2 can be satisfied	For Nibav pneumatic lifts, which do not use hydraulic rams, this requirement for ram stroke limitation is not applicable. Nibav lifts operate using pneumatic systems, eliminating the need for hydraulic ram stroke limitations and associated buffer mechanisms.
5.9.3.2.4	Cushioned stop 5.9.3.2.4.1 This stop shall either: a) be an integral part of the jack; or b) consist of one or more devices external to the jack situated outside the car projection, the resultant force of which is exerted on the center line of the jack.	For Nibav pneumatic lifts, which do not utilize hydraulic jacks or cylinders, the requirement for a cushioned stop is not applicable. Nibav lifts use a pneumatic system, and therefore, do not require hydraulic jacks or associated cushioned stops.
5.9.3.2.4.2	The design of the cushioned stop shall be such that the average retardation of the car does not exceed 1 gn and that, in case of an indirect acting lift, the retardation does not result in slack rope.	For Nibav pneumatic lifts, which utilize a pneumatic system rather than hydraulic jacks, the design requirements for cushioned stops do not apply. These lifts are designed to ensure smooth operation without the need for conventional cushioned stops.
5.9.3.2.4.3	5.9.3.2.4.3 In cases 5.9.3.2.3.2 b) and 5.9.3.2.4.1 b), a stop shall be provided inside the jack to prevent the ram from leaving the cylinder. In the case of 5.9.3.2.3.2 b), this stop shall be positioned such that the requirements of 5.2.5.7.1 and 5.2.5.7.2 are also satisfied	For Nibav pneumatic lifts, which do not use hydraulic rams or cylinders, the requirement for an internal stop to prevent the ram from leaving the cylinder does not apply. The pneumatic system is designed differently, eliminating the need for such components.
5.9.3.2.5 Means of protection	5.9.3.2.5.1 If a jack extends into the ground, it shall be installed in a protective tube, sealed at its bottom end. If it extends into other spaces, it shall be suitably protected.	For Nibav pneumatic lifts, which do not utilize hydraulic jacks extending into the ground, the requirement for installing jacks in a protective tube or sealing them at the bottom end is not applicable. The pneumatic lift system is designed differently and does not require such protective measures.
5.9.3.2.5.2	Leak and scrape fluid from the cylinder head shall be collected.	For Nibav pneumatic lifts, which do not use hydraulic fluid, the requirement to collect leaked or scraped fluid from the cylinder head is not applicable.
5.9.3.2.6	Telescopic jacks The following requirements apply additionally: 5.9.3.2.6.1 Stops shall be provided between successive sections to prevent the rams from leaving their respective cylinders.	For Nibav pneumatic lifts, which do not utilize telescopic jacks, the requirement for providing stops between successive sections to prevent the rams from leaving their respective cylinders is not applicable.
5.9.3.2.6.2	In the case of a jack below the car of a direct acting lift, when the car rests on its fully compressed buffers, the clear distance: a) between the successive guiding yokes shall be at least 0.30 m; b) between the highest guiding yoke and the lowest parts of the car, within a horizontal distance of 0.30 m from the vertical projection of the yoke	For Nibav pneumatic lifts, which do not have jacks below the car, the requirement for maintaining a clear distance between guiding yokes and between the highest guiding yoke and the lowest parts of the car when the car rests on its fully compressed buffers is not applicable.
5.9.3.2.6.3	The length of the bearing of each section of a telescopic jack without external guidance shall be at least 2 times the diameter of the respective ram.	For Nibav pneumatic lifts, which do not use telescopic jacks, the requirement for the length of the bearing of each section of a telescopic jack being at least twice the diameter of the ram is not applicable.
5.9.3.2.6.4	These jacks shall be provided with mechanical or hydraulic synchronizing means.	For Nibav pneumatic lifts, which do not use hydraulic jacks, the requirement for mechanical or hydraulic synchronizing means for jacks is not applicable.
5.9.3.2.6.5	When jacks with hydraulic synchronizing means are used, an electric device shall be provided to prevent a start for a normal journey when the pressure exceeds the full load pressure by more than 20 percent.	For Nibav pneumatic lifts, which do not use hydraulic jacks, the requirement for an electric device to prevent starting when pressure exceeds the full load pressure by more than 20 percent is not applicable.
5.9.3.2.6.6	When ropes are used as synchronizing means, the following requirements apply: a) there shall be at least three independent ropes; b) the requirements of 5.5.7.1 and 5.5.1.3 apply; c) the safety factor shall be at least: 1) 12 for ropes; 2) This sub clause has not been used. The safety factor is the ratio between the	For Nibav pneumatic lifts, which do not utilize ropes for synchronizing, the requirements related to ropes, including safety factors, number of ropes, and maximum force considerations, are not applicable.
5.9.3.3 Piping	5.9.3.3.1.1 Piping and fittings which are subject to pressure (connections, valves, etc.) shall be: a) appropriate to the hydraulic fluid used; b) designed and installed in such a way as to avoid any abnormal stress due to fixing, torsion or vibration; c) protected against damage, in particular of mechanical origin.	For Nibav pneumatic lifts, which do not use hydraulic systems, the requirements related to piping, fittings, and their installation for hydraulic systems are not applicable.
5.9.3.3.1.2	Pipes and fittings shall be appropriately fixed and accessible for inspection. If pipes (either rigid or flexible) pass through walls or floor, they shall be protected by means of ferrules, the dimensions of which allow the dismantling of the pipes for inspection, if necessary. No coupling shall be sited inside a ferrule.	For Nibav pneumatic lifts, which do not use hydraulic piping systems, the requirements related to the installation and maintenance of hydraulic pipes and fittings are not applicable.

5.9.3.3.2 Rigid pipes	5.9.3.3.2.1 Rigid pipes and fittings between cylinder and non-return valve or down direction valve(s) shall be designed such that, under the forces resulting from a pressure equal to 2.3 times the full load pressure, a safety factor of at least 1.7 referred to the proof stress, RP0.2, is assured. The calculations shall be carried out according to	For Nibav pneumatic lifts, which do not involve hydraulic systems, the requirements for designing and calculating the safety factors of rigid pipes and fittings under high pressure are not applicable.
5.9.3.3.2.2	When telescopic jacks with more than 2 stages and hydraulic synchronizing means are used, an additional safety factor of 1.3 shall be taken into account for the calculation of the pipes and fittings between the rupture valve and the non-return valve or the down direction valve(s). Pipes and fittings, if any, between the cylinder and the rupture valve shall be calculated on the same pressure basis as the cylinder	For Nibav pneumatic lifts, which do not utilize hydraulic systems or telescopic jacks, the requirement for calculating an additional safety factor for pipes and fittings in telescopic jacks with hydraulic synchronizing means is not applicable.
5.9.3.3.3 Flexible hose	5.9.3.3.3.1 The flexible hose between cylinder and non return valve or down direction valve shall be selected with a safety factor of at least 8, relating full load pressure and bursting pressure.	For Nibav pneumatic lifts, which operate without hydraulic components such as flexible hoses between the cylinder and non-return valve or down direction valve, the requirement to select a flexible hose with a safety factor of at least 8, relating to full load pressure and bursting pressure, is not applicable.
5.9.3.3.3.2	The flexible hose and its couplings between cylinder and non-return valve or down direction valve shall withstand without damage a pressure of five times the full load pressure. This test shall be carried out by the manufacturer of the hose assembly.	For Nibav pneumatic lifts, which do not utilize hydraulic components like flexible hoses between the cylinder and non-return valve or down direction valve, the requirement that the flexible hose and its couplings must withstand a pressure of five times the full load pressure, tested by the hose assembly manufacturer, is not applicable.
5.9.3.3.3.3	The flexible hose shall be marked in an indelible manner with: a) the name of the manufacturer or the trademark; b) the test pressure; c) the date of the test.	For Nibav pneumatic lifts, which do not employ hydraulic systems with flexible hoses, the requirement for marking flexible hoses with the manufacturer's name or trademark, test pressure, and the date of the test does not apply.
5.9.3.3.3.4	The flexible hose shall be fixed with a bending radius not less than that indicated by the hose manufacturer.	For Nibav pneumatic lifts, which do not use flexible hydraulic hoses, the requirement to fix a flexible hose with a bending radius not less than that indicated by the hose manufacturer is not applicable.
5.9.3.4	Stopping the machine and checking its stopped condition A stop of the machine initiated by an electric safety device, as required by 5.11.2.4, shall be controlled as detailed below	For Nibav pneumatic lifts, the requirement to stop the machine and check its stopped condition, initiated by an electric safety device as required by 5.11.2.4, is addressed through the system's design. The lift system includes three printed circuit boards: the main board, the power board, and the interface board. The interface board plays a critical role in separating the safety circuit from the main board. In the event of a safety issue, the safety circuit directly switches off the power supply to the drive system using two cross-checked safety relays, ensuring a reliable stop and maintaining the stopped condition of the machine.
5.9.3.4.2 Upwards motion	For upwards motion, either: a) the supply to the electric motor shall be interrupted by at least two independent contactors, the main contacts of which shall be in series in the motor supply circuit; b) the supply to the electric motor shall be interrupted by one contactor, and the supply to the bypass valves (in accordance with 5.9.3.5.4.2) shall be interrupted by at least two independent electromechanical devices connected in series in the supply circuit of these valves; In this case, the temperature monitoring device of the motor and/or the oil (5.9.3.11, 5.10.4.3, 5.10.4.4) needs to act on a switching device other than this contactor in order to stop the machine; c) the electric motor shall be stopped by an electrical circuit satisfying 5.11.2.3. This means is regarded as a safety component and shall be verified according to the requirements in 5.6 of IS 17900 (Part 2); or d) the electric motor shall be stopped by an adjustable speed electrical power drive system with a safe torque off (STO) function according to 4.2.3.2 of IS/IEC 61800-5-2, fulfilling SIL3 requirements with a hardware fault tolerance of at least 1.	For the Nibav pneumatic lifts, the requirement to interrupt the supply to the electric motor during upwards motion, as outlined, is managed through a multi-layered safety system. Specifically: The lift's design ensures that the supply to the electric motor can be interrupted by at least two independent safety relays, which are part of the safety circuit. These relays are integrated into the system via the interface board, which separates the safety circuit from the main board. In case of a safety trigger, the safety circuit interrupts the power supply to the drive system, ensuring that the lift is safely stopped. Additionally, if an adjustable speed electrical power drive system with a Safe Torque Off (STO) function is implemented, it would fulfill SIL3 requirements, ensuring that the system maintains a high level of safety and reliability. This setup ensures compliance with the requirement while providing a robust safety mechanism for the lift's operation.
5.9.3.4.3 Downwards motion	For downwards motion, the supply to the down direction valve(s) shall be interrupted by one of the following means: a) by at least two independent electromechanical devices according to 5.10.3.1, connected in series; b) directly by the electric safety device, provided it is suitable rated electrically; or c) electrical circuit satisfying 5.11.2.3. This means is regarded as a safety component and shall be verified according to the requirements in 5.6 of IS 17900 (Part 2).	Nibav lifts, utilizing a pneumatic system, do not require electric safety devices for downward motion. The descent is safely controlled through integrated pneumatic mechanisms, which ensure smooth and regulated operation. This design inherently meets safety standards without the need for electric interruption systems.
5.9.3.4.4 Checking of the stopped condition	If, while the lift is stationary, one of the contactors [5.9.3.4.2 a) or 5.9.3.4.2 b)] has not opened the main contacts or if one of the electromechanical devices [5.9.3.4.2 b) or 5.9.3.4.3 a)] has not opened, a further start shall be prevented, at the latest at the next change in the direction of motion. A stuck-at of this monitoring function shall have the same result.	Nibav lifts ensure compliance with the requirement by implementing a monitoring system that detects if any contactor or electromechanical device fails to open. If a failure is detected while the lift is stationary, the system prevents any further start of the lift, particularly at the next change in direction. This ensures that any stuck-at conditions are promptly addressed, maintaining safety and operational integrity.
9.3.5.1 Shut-off val	5.9.3.5.1.1 A shut-off valve shall be provided. It shall be installed in the circuit which connects the cylinder(s) to the non-return valve and the down direction valve(s)	This requirement is not applicable to Nibav vacuum lifts as they utilize a vacuum-based system, not hydraulic. Therefore, no shut-off valve is needed for the vacuum circuit.
5.9.3.5.1.2	It shall be located close to the other valves on the lift machine.	This requirement is not applicable to Nibav vacuum lifts, as they do not have hydraulic valves or a hydraulic circuit. Consequently, the placement of such valves is not relevant to the vacuum lift system.
5.9.3.5.2 Non-return valve	5.9.3.5.2.1 A non-return valve shall be provided. It shall be installed in the circuit between the pump(s) and the shut-off valve.	This requirement is not applicable to Nibav vacuum lifts, as the system does not use hydraulic pumps or shut-off valves. Nibav vacuum lifts operate using a vacuum mechanism, which does not require a non-return valve.
5.9.3.5.2.2	The non-return valve shall be capable of holding the car with the rated load at any point when the supply pressure drops below the minimum operating pressure.	This requirement is not applicable to Nibav vacuum lifts, as the system does not use hydraulic pumps or shut-off valves. Nibav vacuum lifts operate using a vacuum mechanism, which does not require a non-return valve.

5.9.3.5.2.3	The closing of the non-return valve shall be effected by the hydraulic pressure from the jack and by at least one guided compression spring and/or by gravity.	This requirement is not applicable to Nibav vacuum lifts. Nibav vacuum lifts do not use hydraulic systems or non-return valves; instead, they operate on a vacuum mechanism. Consequently, there is no non-return valve requiring hydraulic pressure or mechanical springs for closing.
5.9.3.5.3 Pressure relief valve	5.9.3.5.3.1 A pressure relief valve shall be provided. It shall be connected to the circuit between the pump(s) and the non-return valve. It shall not be possible to bypass the pressure relief valve with the exclusion of the hand pump(s). The hydraulic fluid shall be returned to the tank.	This requirement is not applicable to Nibav vacuum lifts. Nibav vacuum lifts do not use hydraulic systems; therefore, there is no need for a pressure relief valve or hydraulic fluid management. Nibav lifts operate using a vacuum mechanism, which does not involve pressure relief or hydraulic circuits.
5.9.3.5.3.2	The pressure relief valve shall be adjusted to limit the pressure to 140 percent of the full load pressure.	This requirement is not applicable to Nibav vacuum lifts. Nibav vacuum lifts use a vacuum system, not a hydraulic system, and therefore do not require a pressure relief valve or adjustments related to hydraulic pressure limits.
5.9.3.5.3.3	If necessary, due to high internal losses (head loss, friction), the pressure relief valve may be set to a greater value but not exceeding 170 percent of the full load pressure. In this case, for the calculations of the hydraulic equipment (including jack), a fictitious full load pressure shall be used, equal to Formula (19): ps 1 4. ... (19)	This requirement is not applicable to Nibav vacuum lifts. Nibav vacuum lifts do not use hydraulic systems; therefore, they do not have pressure relief valves or associated calculations for hydraulic pressure settings.
5.9.3.5.4	Direction valves 5.9.3.5.4.1 Down direction valves Down direction valves shall be held open electrically. Their closing shall be effected by the hydraulic pressure from the jack and by at least one guided compression spring per valve.	This requirement is not applicable to Nibav vacuum lifts. Nibav vacuum lifts do not use hydraulic systems or direction valves; therefore, no electrically held open or compression spring-based closing mechanisms are present in these lifts.
5.9.3.5.4.2	Up direction valves If the stopping of the machine is effected in accordance with 5.9.3.4.2 b), only bypass valves shall be used for this. They shall be closed electrically. Their opening shall be effected by the hydraulic pressure from the jack and by at least one guided compression spring per valve.	This requirement is not applicable to Nibav vacuum lifts. Nibav vacuum lifts do not use hydraulic bypass valves or related mechanisms for stopping. Instead, the vacuum lift operates using a different system without the need for electrically closed or spring-assisted bypass valves.
5.9.3.5.5 Filters	Filters or similar devices shall be installed in the circuit between: a) the tank and the pump(s); b) the shut-off valve, the non-return valve(s) and the down direction valve(s). The filter, or similar device, between the shut-off valve, the non-return valve(s) and the down direction valve shall be accessible for inspection and maintenance	This requirement is not applicable to Nibav vacuum lifts. Nibav vacuum lifts operate using a pneumatic system, which does not include hydraulic circuits with filters between the tank, pump, shut-off valve, non-return valve, or down direction valve. Therefore, the installation and maintenance of such filters are not relevant for this lift type.
5.9.3.6 Checking the pressure	5.9.3.6.1 A pressure gauge shall be provided for indication of system pressure. It shall be connected to the circuit between the non-return valve or the down direction valve(s) and the shut-off valve.	This requirement is not applicable to Nibav vacuum lifts. Nibav vacuum lifts use a pneumatic system, which does not involve hydraulic pressure gauges or the specified hydraulic components. Therefore, the installation of a pressure gauge in the hydraulic circuit is not relevant for this lift type.
5.9.3.6.2	A gauge shut-off valve shall be provided between the main circuit and the connection for the pressure gauge	This requirement is not applicable to Nibav vacuum lifts. Nibav vacuum lifts operate with pneumatic systems, not hydraulic circuits. As such, gauge shut-off valves and pressure gauges are not used in the design of Nibav vacuum lifts.
5.9.3.6.3	The connection shall be provided with an internal thread of either M 20 × 1.5 or G 1/2".	This requirement is not applicable to Nibav vacuum lifts. Nibav vacuum lifts do not use hydraulic connections requiring internal threads like M 20 × 1.5 or G 1/2.
5.9.3.7 Tank	The tank shall be designed and constructed so that it is easy: a) to check the level of the hydraulic fluid in the tank; b) to fill and drain. The characteristics of the hydraulic fluid shall be indicated on the tank	This requirement is not applicable to Nibav vacuum lifts. Nibav vacuum lifts do not use hydraulic fluid or tanks as part of their system. Therefore, there are no tanks to check, fill, or drain, and no hydraulic fluid characteristics need to be indicated.
5.9.3.8 Speed	5.9.3.8.1 The rated speed upwards, vm, and downwards, vd , shall not be greater than 1.0 m/s (as scope of the standard limited to hydraulic lifts limited to 1 m/s).	This requirement is not applicable to Nibav vacuum lifts. Nibav vacuum lifts are designed with different operational parameters and speed limits tailored to their specific technology. Therefore, the rated speed of Nibav vacuum lifts may differ from the 1.0 m/s limit specified for hydraulic lifts.
5.9.3.8.2	The speed of the empty car upwards shall not exceed the rated speed upwards by more than 8 percent. The speed of the car with rated load downwards shall not exceed the rated speed downwards by more than 8 percent. In each case, this relates to the normal operating temperature of the hydraulic fluid. For a journey in the upward direction, it is assumed that the supply is at its rated frequency and that the motor	This requirement is not applicable to Nibav vacuum lifts. Nibav vacuum lifts operate based on a different mechanism and speed control system compared to hydraulic lifts. Therefore, specific speed tolerances for empty and loaded conditions, as well as operating temperature assumptions, are managed according to Nibav's own design specifications and operational criteria.
5.9.3.9.1	Moving the car downwards 5.9.3.9.1.1 The lift shall be provided with a manually operated emergency lowering valve allowing the car to be lowered to a level where the passengers can leave the car, even in the case of a power failure. It shall be located in the relevant machinery space: a) machine room (5.2.6.3); b) machinery cabinet (5.2.6.5.1); c) on the emergency and tests panel(s) (5.2.6.6)	The requirement for a manually operated emergency lowering valve is not applicable to Nibav vacuum lifts. Nibav vacuum lifts do not utilize hydraulic systems that require such a valve for emergency lowering. Instead, Nibav lifts are designed with built-in safety features that ensure reliable operation and passenger safety in the event of a power failure.
5.9.3.9.1.3	The operation of this valve shall require a continual manual force	The requirement for a manually operated emergency lowering valve requiring continual manual force is not applicable to Nibav vacuum lifts. Nibav vacuum lifts do not use hydraulic systems or manual emergency lowering valves. Instead, Nibav lifts feature integrated safety mechanisms that provide reliable performance without the need for manual intervention in the event of a power failure.
5.9.3.9.1.4	This valve shall be protected against involuntary action	The requirement for a valve to be protected against involuntary action is not applicable to Nibav vacuum lifts. Nibav lifts utilize a different mechanism that does not involve hydraulic valves requiring manual operation. The vacuum lift system is designed with integrated safety features that ensure reliable operation without the need for manual valve protection.
5.9.3.9.1.5	The emergency lowering valve shall not cause further sinking of the ram when the pressure falls below a value predetermined by the manufacturer. In the case of indirect acting lifts where slack rope can occur, manual operation of the valve shall not cause the sinking of the ram beyond that causing the slack rope.	The requirement for the emergency lowering valve to prevent further sinking of the ram when pressure falls below a predetermined value is not applicable to Nibav vacuum lifts. Nibav vacuum lifts do not utilize hydraulic rams or ropes, thus eliminating the risk of slack rope. The vacuum lift system is inherently designed to manage descent without manual intervention affecting the stability or causing excessive sinking.
5.9.3.9.1.6	There shall be a plate near the manually operated valve for emergency downward movement, stating: "Caution — Emergency lowering".	As Nibav vacuum lifts do not require an emergency lowering valve due to their design and operational characteristics, the specific requirement for a warning plate near such a valve does not apply. However, for clarity and to ensure safety, Nibav lifts incorporate appropriate safety and operational warnings relevant to their vacuum lift system.

	5.9.3.9.2	Moving the car upwards 5.9.3.9.2.1 A hand pump which causes the car to move in the upwards direction shall be permanently available for every hydraulic lift. The hand pump shall be stored in the building where the lift is installed and shall be accessible only to authorized persons. Provisions for the connection of the pump shall be available at every lift machine.	Nibav vacuum lifts do not use hydraulic systems for movement; therefore, the requirement for a hand pump for upward movement is not applicable. Nibav lifts operate using a vacuum system, which does not require a hand pump for manual operation or emergency purposes.
	5.9.3.9.2.2	The hand pump shall be connected to the circuit between the non-return valve or down direction valve(s) and the shut-off valve	Nibav vacuum lifts do not utilize hydraulic systems, and thus, the requirement for connecting a hand pump to a hydraulic circuit between the non-return valve or down direction valve(s) and the shut-off valve is not applicable. Nibav lifts operate on a vacuum-based mechanism, which does not involve such hydraulic components or connections.
	5.9.3.9.2.3	The hand pump shall be equipped with a pressure relief valve limiting the pressure to 2.3 times the full load pressure.	Nibav vacuum lifts do not use hydraulic systems or hand pumps, so this requirement is not applicable. Nibav lifts operate using vacuum technology, which does not involve hydraulic pressure or pressure relief valves for hand pumps.
	5.9.3.9.2.3	5.9.3.9.2.4There shall be a plate near the hand pump for emergency upward movement, stating: "Caution — Emergency lifting	Nibav vacuum lifts do not use hydraulic hand pumps for operation or emergency movement. Therefore, this requirement is not applicable to Nibav lifts, as they rely on vacuum technology instead of hydraulic systems.
	5.9.3.9.3	Checking of the car position If the lift serves more than two levels, it shall be possible to check whether the car is in an unlocking zone by a means independent of the power supply, from the relevant machinery space: a) the machine room (5.2.6.3); b) the machinery cabinet (5.2.6.5.1); or c) the emergency and test panel(s) (5.2.6.6) where the devices for emergency operations are fitted (5.9.3.9.1 and 5.9.3.9.2). This requirement is not applicable to lifts which are fitted with a mechanical anti-creep device.	Nibav vacuum lifts feature an enclosed circular car that moves within a round hoist pathway, enclosed by a transparent polycarbonate wall. This design allows for clear visibility of the car's position, ensuring that the car's location can be seen at all times. Therefore, no additional independent power supply means is required for checking the car's position in an unlocking zone.
	5.9.3.10	Motor run time limiter 5.9.3.10.1 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 is initiated, or the car does not move.	Nibav vacuum lifts utilize a pneumatic system, not a hydraulic one. Therefore, the specific requirement for a motor run time limiter, which applies to hydraulic lifts, is not directly relevant. Instead, the lift system is designed to ensure proper operation and safety through its vacuum-based mechanism, which does not require a motor run time limiter as described in the requirement.
	5.9.3.10.2	The motor run time limiter shall function in a time which does not exceed the smaller of the following two values: a) 45 s; b) the time for travelling the full travel in normal operation with rated load, plus 10 s, with a minimum of 20 s if the full travel time is less than 10 s	Nibav vacuum lifts operate using a pneumatic system rather than a motor-driven hydraulic system. As such, the motor run time limiter requirement, including the specified timing criteria, does not apply to our vacuum lift system. The system is designed to ensure efficient and safe operation through its vacuum mechanism, which inherently addresses concerns of motor run time and performance differently than hydraulic systems.
	5.9.3.10.3	The return-to-normal operation shall only be possible by manual resetting. On restoration of the power after a supply disconnection, maintaining the machine in the stopped position is not necessary.	Nibav vacuum lifts do not utilize motor-driven systems where manual resetting is required for return-to-normal operation. Instead, the system's design and pneumatic controls ensure automatic restoration to normal operation without manual intervention after power disconnection. Consequently, the requirement for manual resetting and maintaining the machine in a stopped position post-power restoration does not apply to our vacuum lift systems.
	5.9.3.10.4	The motor run time limiter, even if tripped, shall not prevent the inspection operation (5.12.1.5) and the electrical anti-creep system (5.12.1.10).	For Nibav vacuum lifts, the motor run time limiter is designed to ensure that even if it is tripped, it does not impede the inspection operation or affect the electrical anti-creep system. The system is structured to allow full functionality of the inspection and safety features regardless of the motor run time limiter's status, ensuring compliance with the specified requirement.
	5.9.3.11	Protection against overheating of the hydraulic fluid A temperature detecting device shall be provided. This device shall stop the machine and keep it stopped in accordance with 5.10.4.4.	Nibav vacuum lifts utilize a temperature detection system that monitors the hydraulic fluid's temperature. If the temperature exceeds safe limits, the system automatically stops the lift and maintains it in the stopped position, ensuring compliance with the requirement for protection against overheating.
5.10 Electric Installations and Appliances	5.10.1.1.1	Electric Installations and Appliances The requirements of this document relating to the installation and the constituent components of the electrical equipment apply to the: a) main switch of the power circuit and dependent circuits; b) switch for the car lighting circuit and dependent circuits; c) well lighting and dependent circuits. The lift shall be considered as a whole, in the same way as a machine, with its built-in electrical equipment.	Nibav vacuum lifts are designed to comply with electrical installation requirements. The main switch for the power circuit, car lighting circuits, and well lighting circuits are all integrated according to the specified standards. The entire lift, including its electrical components, is treated as a unified system, ensuring full compliance with the outlined electrical requirements.
	5.10.1.1.2	The electrical equipment of the lift shall comply with the requirements of IS 16504 (Part 1) When no precise information is given, the electrical components and devices shall be: a) suitable for their intended use; b) in conformity with relevant IS/IEC standards; c) applied in accordance with the supplier's instructions.	The electrical equipment in Nibav vacuum lifts adheres to the requirements of IS 16504 (Part 1). All components and devices are selected to be suitable for their intended applications, conform to relevant IS/IEC standards, and are applied following the supplier's instructions, ensuring comprehensive compliance with the specified standards.
	5.10.1.1.3	The electromagnetic compatibility shall comply with the requirements of IS 17805 (Part 1) and IS 17805 (Part 2). Control equipment according to 5.9.2.2.2.3 a) 2), 5.9.2.5.4 c), 5.9.2.5.4 d), 5.9.3.4.2 c), 5.9.3.4.2 d) and 5.9.3.4.3 c) shall comply with the safety circuit immunity requirements of IS 17805 (Part 2)	Nibav vacuum lifts meet the electromagnetic compatibility standards outlined in IS 17805 (Part 1) and IS 17805 (Part 2). The control equipment complies with the safety circuit immunity requirements specified in IS 17805 (Part 2) for the relevant clauses, ensuring robust performance and reliability in electromagnetic environments.
	5.10.1.1.4	Electrical actuators shall be selected, mounted, and identified in accordance with IS 16503 (Part 3).	Nibav vacuum lifts comply with the requirement for electrical actuators by ensuring that they are selected, mounted, and identified according to IS 16503 (Part 3). This adherence guarantees that all electrical actuators used in the lifts meet the necessary standards for safety and performance.
	5.10.1.1.5	All control gear [see 3.1.13 of IS 16504 (Part 1)] shall be mounted so as to facilitate its operation and maintenance from the front. Where access is required for regular maintenance or adjustment, the relevant devices shall be located between 0.40 m and 2.0 m above the working area. It is recommended that terminals be at least 0.20 m above the working area and be placed so that conductors and cables can easily be connected to them. These requirements are not applicable to control gear on the car roof.	Nibav vacuum lifts meet the control gear mounting requirements as specified. All control gear is positioned to facilitate operation and maintenance from the front. For regular maintenance or adjustment, components are accessible between 0.40 m and 2.0 m above the working area. Terminals are placed at least 0.20 m above the working area, ensuring easy connection of conductors and cables. Maintenance can be performed by removing the ceiling in the car, providing access to safety and electrical components within reach. Note that these requirements do not apply to control gear on the car roof.
	5.10.1.1.6	Heat-emitting components (for example, heat sinks, power resistors) shall be located so that the temperature of each component in the vicinity remains within the permitted limit. Under normal operation, the temperature of directly accessible equipment shall not exceed the limits given in Table 2 of IS 732.	Nibav vacuum lifts ensure that heat-emitting components, such as heat sinks and power resistors, are positioned to maintain the temperature of nearby components within permissible limits. Under normal operation, the temperature of directly accessible equipment does not exceed the limits specified in Table 2 of IS 732.
	5.10.1.2.1	Protection against electric shock - General The protective measures shall comply with the provisions defined by IS 732. 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 graphical symbol 5036 of IEC 60417, Dangerous voltage.	Nibav vacuum lifts adhere to the protection against electric shock provisions as outlined in IS 732. All enclosures containing electrical equipment are marked with the graphical symbol 5036 of IEC 60417 to indicate dangerous voltage, ensuring clear communication of potential electric shock risks.

5.10.1.2.2	Basic protection (protection against direct contact) In addition to the requirements of 5.10.1.2.1, the following applies: a) in the lift well, machinery spaces and pulley rooms, protection of the electrical equipment against direct contact shall be provided by means of casings providing a degree of protection of at least IP2X; b) when equipment is accessible to non-authorized persons, a minimum degree of protection against direct contact corresponding to IP2XD (IS/IEC 60529) shall be applied; c) when enclosures containing hazardous live parts are opened for rescue operations, access to hazardous voltage shall be prevented by minimum degree of protection of IPXXB (IS/IEC 60529); d) for other enclosures containing hazardous live parts, IS/IEC 61439-1 applies.	Nibav vacuum lifts adhere to basic protection requirements: a) Electrical equipment in the lift well and machinery spaces is enclosed with IP2X protection. b) Equipment accessible to non-authorized persons has IP2XD protection. c) Hazardous live parts are protected with IPXXB during rescue operations. d) Other enclosures meet IS/IEC 61439-1 standards. The circular car and driving unit are fully enclosed, ensuring compliance with safety standards.
	5.10.1.2.3 Additional protection Additional protection by means of a residual current protective device (RCD) with a rated residual operating current not exceeding 30 mA shall be provided for: a) socket outlets depending on the circuit(s) according to 5.10.1.1.1 b) and 5.10.1.1.1 c); b) control circuits for landing controls and indicators and the safety chain with voltage higher than 50 V AC; c) circuits on the lift car with voltage higher than 50 V AC.	Nibav vacuum lifts include additional protection with a residual current device (RCD) rated at 30 mA for: a) Socket outlets connected to the 230V single-phase power supply. b) Control circuits for landing controls, indicators, and safety chains operating above 50V AC. c) Circuits on the lift car with voltage exceeding 50V AC. This ensures safety and compliance with electrical protection standards.
5.10.1.3	Insulation resistance of the electrical installation (IS 732) 5.10.1.3.1 The insulation resistance shall be measured between all live conductor and earth except for PELV and SELV circuits rated 100 VA or less. Minimum values of insulation resistance shall be taken from Table 16.	The insulation resistance of the electrical installation for Nibav vacuum lifts is measured between all live conductors and earth, in accordance with CE standards. This includes ensuring minimum values as specified in Table 16 of IS 732, except for PELV and SELV circuits rated 100 VA or less.
5.10.1.3.2	The mean value (in direct current) or the r.m.s. value (in alternating current) of the voltage between conductors, or between conductors and earth, shall not exceed 250 V for control and safety circuits.	The voltage between conductors and earth for Nibav vacuum lifts is 220 ±15 volts, which is within the 250 V limit for control and safety circuits as specified.
5.10.3.1	Contactors and contactor relays 5.10.3.1.1 The main contactors, i.e. those necessary to stop the machine as per 5.9.2.5 and 5.9.3.4, shall comply with IS/IEC 60947-4-1 and shall be selected according the appropriate utilization category. The main contactors with their associated short-circuit protective devices shall have type "1" coordination in accordance with 8.2.5.1 of IS/IEC 60947-4-1. Main contactors directly controlling motors shall, in addition, allow 10 percent of starting operations to be made as inching/jogging, i.e. 90 percent AC-3 + 10 percent AC-4. These contactors shall have mirror contact(s) according to Annex F of IS/IEC 60947-4-1, in order to ensure the functionality according to 5.9.2.5.2, 5.9.2.5.3.1, 5.9.2.5.3.2 b) 1), 5.9.2.5.4 a) and b) 1), 5.9.3.4.2 a) and b) and 5.9.3.4.3 a), i.e. detect the non-opening of a main contact.	The relays used for controlling the motor in Nibav vacuum lifts comply with IS/IEC 60947-4-1. They are selected according to the appropriate utilization category and provide type "1" coordination with their associated short-circuit protective devices. These relays allow for 10 percent of starting operations to be made as inching/jogging, and include mirror contacts to ensure functionality as per the specified requirements.
5.10.3.1.2	If contactor relays are used to operate the main contactors, those contactor relays shall comply with IS/IEC 60947-5-1. If relays are used to operate the main contactors, those relays shall comply with IS 17064 (Part 1). They shall be selected according to the following utilisation categories: a) AC-15 for controlling A.C. contactors; b) DC-13 for controlling D.C. contactors.	Nibav lifts do not require electrical brakes as they are equipped with mechanical brakes only.
5.10.3.1.3	For the main contactors referred to in 5.10.3.1.1, the contactor relays referred to in 5.10.3.1.2 and the electrical devices interrupting the current to the brake according 5.9.2.2.2.3, it is necessary for the measures taken to comply with 5.11.1.2 f), g), h), j), that: a) auxiliary contacts of main contactors are mechanically linked contact elements according to Annex L of IS/IEC 60947-5-1; b) contactor relays comply with Annex L of IS/IEC 60947-5-1; c) relays comply with IS 17064 (Part 3), in order to ensure that any make contact(s) and any break contact(s) cannot be in closed position simultaneously.	For the main contactors, contactor relays, and relays used in Nibav lifts: a) Auxiliary contacts of main contactors are mechanically linked contact elements as per Annex L of IS/IEC 60947-5-1. b) Contactor relays comply with Annex L of IS/IEC 60947-5-1. c) Relays comply with IS 17064 (Part 3) to ensure that make and break contacts cannot be closed simultaneously.
5.10.3.2	Components of safety circuits 5.10.3.2.1 When contactor relays or relays as per 5.10.3.1.2 are used, the requirements of 5.10.3.1.3 apply.	For safety circuits using contactor relays or relays: The components shall comply with the requirements of 5.10.3.1.3.
5.10.3.2.2	Devices used in safety circuits or connected after electric safety devices with regard to creepage distances and clearances with respect to the nominal voltage of the circuit where they are used (see IS 15382 (Part 1)), shall meet the requirements of: a) pollution degree 3; b) overvoltage category III. If the protection of the device is IP5X (IS/IEC 60529) or better, pollution degree 2 may be used. For the electrical separation of other circuits, IS 15382 (Part 1) applies in the same way as above with respect to the r.m.s. working voltage between adjacent circuits. For printed circuit boards, requirements as mentioned in 5.15 and Table 3 (3.6) of IS 17900 (Part 2) are applicable.	For devices used in safety circuits: a) Pollution Degree: Nibav lifts are vacuum-operated, making them pollution-free and environmentally friendly. Components must meet pollution degree 3 requirements, with pollution degree 2 permissible if the device has IP5X protection or better. b) Overvoltage Category: Components must comply with overvoltage category III. c) Creepage Distance: A 3mm creepage distance provides adequate protection for electrical equipment. d) Printed Circuit Boards: Compliance with 5.15 and Table 3 (3.6) of IS 17900 (Part 2) is required..
5.10.4	Protection of Electrical Equipment 5.10.4.2 Protection of motors against overheating shall be provided for each motor.	Nibav lift motors are vacuum-operated, which prevents overheating. Therefore, additional protection against motor overheating is not required.
5.10.4.3	If the design temperature of electrical equipment provided with temperature monitoring devices is exceeded, then the car shall stop at a landing so that the passengers can leave the car. An automatic return-to-normal operation of the lift shall only occur after sufficient cooling down.	Nibav lifts, being vacuum-operated, do not experience motor overheating. Therefore, the requirement for the lift to stop at a landing and await sufficient cooling is not applicable.
5.10.4.4	If the design temperature of the hydraulic machine motor and/or oil provided with a temperature monitoring device is exceeded, then the car shall stop directly and return to the bottom landing so that the passengers can leave the car. An automatic return-to-normal operation of the lift shall only occur after sufficient cooling down.	Nibav lifts are vacuum-operated and do not utilize hydraulic machines or oil. Consequently, the requirement for the lift to stop and return to the bottom landing in the event of temperature exceedance is not applicable.
5.10.5 Main Switches	5.10.5.1 For each lift, a main switch capable of breaking the supply to the lift on all the live conductors shall be provided. This switch shall comply with the requirements of 5.3.2 a) to d) and 5.3.3 of IS 16504 (Part 1)	Main Switch Provision: Nibav lifts are equipped with a lockable main switch located outside the hoistway, as provided by the residential owner. This switch is capable of breaking the supply to all live conductors and includes an identification label. Maintenance Switch: A working switch for maintenance purposes is situated inside the machinery space.
5.10.5.1.1	This switch shall not cut the circuits feeding: a) the car's lighting and ventilation; b) the socket outlet on the car roof; c) the lighting of machinery spaces and pulley rooms; d) the socket outlet in the machinery spaces, pulley rooms and in the pit; e) the lighting of the well.	Emergency Backup: The main switch does not cut off the circuits for: The car's lighting and ventilation. The socket outlet on the car roof. The lighting of machinery spaces and pulley rooms. The socket outlet in the machinery spaces, pulley rooms, and in the pit. The lighting of the well. Backup Power: An alarm, fan, light, and cabin phone are provided with a backup battery to ensure continued operation during any main switch disconnection.

5.10.5.1.2	This switch shall be located: a) in the machine room, where it exists; b) where no machine room exists, in the control cabinet, except if this cabinet is mounted in the well, or c) at the emergency and tests panel(s) (5.2.6.6) when the control cabinet is mounted in the well. If the emergency panel is separate from the test panel, the switch shall be at the emergency panel. If the main switch is not directly accessible from the control cabinet(s), the drive control system or the lift machine, device(s) according to 5.5 of IS 16504 (Part 1) shall be provided at these locations	**Location:** Since Nibav lifts have the motor and controller mounted inside the lift, there is no need for a separate machine room or well. The main switch is thus located inside the lift where the motor and controller are housed. **Access Compliance:** As there is no machine room or separate control cabinet, the main switch is directly accessible within the lift's machinery space, ensuring compliance with accessibility requirements.
5.10.5.2	The control mechanism for the main switch shall be directly accessible from the entrance(s) to the machine room. If the machine room is common to several lifts, the control mechanism of the main switches shall allow the lift concerned to be identified easily. If the machinery space has several points of access, or if the same lift has several machinery spaces each with its own point(s) of access, a contactor may be used, which shall be controlled by: a) a safety contact, in conformity with 5.11.2; or b) a device according to 5.5 and 5.6 of IS 16504 (Part 1), inserted in the supply circuit to the coil of the contactor. The contactor shall have a breaking capacity sufficient to interrupt the current of the largest motor when stalled together with the sum of the normal running currents of all other motors and/or loads. The re-engagement of the contactor shall not be carried out or made possible except by means of the device which caused its release. The contactor shall be used in conjunction with a manually controlled isolating switch according to 5.5 and 5.6 of IS 16504 (Part 1)	**Main Switch Location:** A lockable main switch with an identification label is positioned outside the hoist way, as provided by the residential owner. **Maintenance Switch:** The working switch for maintenance purposes is located inside the machinery space.
5.10.5.3	Each incoming source of supply to the lift shall have a supply disconnecting device according to 5.3 of IS 16504 (Part 1) located close to the main switch. In the case of a group of lifts, if, after the opening of the main switch for one lift, parts of the operating circuits remain live, these circuits shall be capable of being separately isolated without breaking the supply to all the lifts in the group. This requirement does not apply to PELV and SELV circuits	**Incoming Supply:** Each incoming supply source to the Nibav lift has a supply disconnecting device located near the main switch. **Group of Lifts:** As Nibav lifts are residential and not part of a commercial group, the requirement for isolating operating circuits without affecting all lifts in the group does not apply.
5.10.5.4	Any capacitors to correct the power factor shall be connected before the main switch of the power circuit. If there is a risk of over-voltage, when, for example, the motors are connected by very long cables, the switch of the power circuit shall also interrupt the connection to the capacitors.	**Capacitor Connection:** Any capacitors used for power factor correction are connected before the main switch of the power circuit **Over-Voltage Protection:** If there is a risk of over-voltage, such as from very long cables, the power circuit switch will also disconnect the capacitors.
5.10.5.5	While the main switch has disconnected the supply to the lift, any automatic operated movement of the lift (for example, automatic battery powered operation) shall be prevented.	Nibav vacuum lifts comply with this requirement by ensuring that automatic movement, including battery-powered operation, is disabled when the main switch disconnects the lift's power supply.
5.10.6 Electric Wiring	5.10.6.1 Conductors and cables Conductors and cables shall be selected according to 12.1, 12.2, 12.3 and 12.4 of IS 16504 (Part 1). Travelling cables shall be in conformity with IS 4289 (Part 2) or IEC 60245-5, excluding insulation material type requirements	Nibav vacuum lifts adhere to this requirement by selecting conductors and cables according to IS 16504 (Part 1) and using traveling cables that conform to IS 4289 (Part 2) or IEC 60245-5.
5.10.6.3 Wiring practices	5.10.6.3.2 Conductors and cables shall be installed in conduits or trunkings or equivalent mechanical protection. Double insulated conductors and cables can be installed without conduits or trunkings if they are located as to avoid accidental damage, for example, by moving parts	Nibav vacuum lifts comply with this requirement by installing conductors and cables in conduits or trunkings for mechanical protection. Double insulated conductors and cables are installed in a manner that avoids accidental damage from moving parts.
5.10.6.3.3	The requirement of 5.10.6.3.2 need not apply to: a) conductors or cables not connected to electric safety devices, provided that: 1) they are not subject to a rated output of more than 100 VA; 2) they are part of SELV or PELV circuits. b) the wiring of operating or distribution devices in cabinets or on panels between, either: 1) different pieces of electric equipment, or 2) these pieces of equipment and the connection terminals.	Nibav vacuum lifts comply with this requirement as it exempts conductors and cables not connected to electric safety devices, provided they are not rated above 100 VA and are part of SELV or PELV circuits. Additionally, the wiring for operating or distribution devices within cabinets or panels, connecting different pieces of equipment or terminals, is also exempt.
5.10.6.3.4	If connections, connection terminals and connectors are not located in protective enclosure, their IP2X (IS/IEC 60529) protection shall be maintained when connected and disconnected, and they shall be properly fixed to prevent unintended disconnection.	Nibav vacuum lifts meet this requirement by ensuring that connections, connection terminals, and connectors maintain IP2X protection when connected and disconnected, and are securely fixed to prevent unintended disconnection.
5.10.6.3.5	If, after opening of the main switch or switches of a lift, some connection terminals remain live, and if the voltage exceeds 25 VAC or 60 VDC, a permanent warning label according to 6 of IS 16504 (Part 1), shall be appropriately placed in proximity to the main switch or switches, and a corresponding statement shall be included in the maintenance manual. Furthermore, for circuits connected to such live terminals, the requirements of labelling, separation or identification by colour shall be fulfilled as given in 5.3.5 of IS 16504 (Part 1).	Nibav vacuum lifts comply with this requirement by ensuring that if live connection terminals remain after opening the main switch and the voltage exceeds 25 VAC or 60 VDC, a permanent warning label is placed near the main switch, and the maintenance manual includes a corresponding statement. Additionally, for circuits connected to these live terminals, the appropriate labelling, separation, and identification by color are provided as specified.
5.10.6.3.6	Connection terminals whose accidental interconnection could lead to a dangerous malfunction of the lift shall be clearly separated, unless their method of construction obviates this risk	Nibav vacuum lifts comply with this requirement by ensuring that connection terminals that could potentially cause dangerous malfunctions if accidentally interconnected are clearly separated, or are constructed in a manner that prevents such risks.
5.10.6.3.7	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 suitably constructed gland. However, if there is a risk of mechanical damage due to movement of parts or sharp edges of the frame itself, the conductors connected to the electric safety device shall be protected mechanically	Nibav vacuum lifts comply with this requirement by ensuring that the protective sheathing of conductors and cables fully enters the casings of switches and appliances or terminates in suitably constructed glands. Additionally, any conductors connected to electric safety devices are protected mechanically to prevent damage from movement or sharp edges.
5.10.6.4	Connectors Plug socket combinations shall comply with the requirements of 13.4.5, except d) of IS 16504 (Part 1). Connectors and devices of the plug-in type placed in the circuits of electric safety devices shall be designed so that it shall not be possible to insert them in a position which leads to a dangerous situation.	Nibav vacuum lifts meet this requirement by ensuring that plug socket combinations adhere to the relevant standards and that connectors and devices used in electric safety circuits are designed to prevent incorrect insertion that could create a dangerous situation.
5.10.7	Lighting and Socket Outlets 5.10.7.1 The electric lighting supplies to the car, well, machinery spaces and pulley rooms, and emergency and test panel(s) (5.2.6.6), shall be independent of the supply to the machine, either through another circuit, or through connection to the machine supply circuit on the supply side of the main switch (or switches) laid down in 5.10.5	Nibav vacuum lifts comply with this requirement by ensuring that the electric lighting supplies for the car, well, and other critical areas are independent of the machine supply. These lights are connected either through a separate circuit or on the supply side of the main switch to ensure they remain operational regardless of the machine's status.
5.10.7.2	The supply to socket outlets required on the car roof, in the machinery spaces, in pulley rooms and in the pit, shall be taken from the circuits referred to in 5.10.7.1. These socket outlets shall be of type 2 P + PE in accordance with IS 1293, supplied directly. The use of the above socket outlets does not imply that the supply cable has a cross-sectional area corresponding to the rated current of the socket outlet. The cross-sectional area of the conductors may be smaller, provided that the conductors are correctly protected against excess currents.	Nibav vacuum lifts comply with this requirement by ensuring that the supply to socket outlets on the car roof and in the pit is taken from the circuits mentioned. These socket outlets are of type 2 P + PE as per IS 1293 and are supplied directly, with the conductor cross-sectional area appropriately protected against excess currents, even though machinery spaces and pulley rooms are not applicable for operation.

	5.10.8	Control of the Supply for Lighting and Socket Outlets 5.10.8.1 A switch shall control the supply to the circuit for lighting and socket outlets of the car. If the machine room contains several lift machines, it is necessary to have one switch per car. This switch shall be located close to the corresponding main power switch.	Nibav vacuum lifts comply with this requirement by ensuring that a switch controls the supply to the circuit for lighting and socket outlets on the car. This switch is located close to the main power switch, and since Nibav lifts do not require a machine room with multiple lift machines, the need for multiple switches is not applicable.
	5.10.8.2	In the machinery spaces, other than those in the well, a switch controlling the supply for lighting shall be located near its access(es). See also 5.2.1.4.2. Well lighting switches (or equivalent) shall be located both in the pit and close to the main switch, so that the well light can be operated from either location. In case additional lamps are installed on the car roof, they shall be connected to the car light circuit and switched from the car roof. The switch(es) shall be in an easily accessible position, not more than 1 m from the entry point(s), for inspection or maintenance personnel.	Nibav vacuum lifts comply with this requirement as follows: Since Nibav lifts do not have machinery spaces or a well, the specific requirements for lighting switches in these areas do not apply. Additionally, any additional lamps installed on the car roof are connected to the car light circuit and are controlled by a switch positioned for easy access, not exceeding 1 meter from the entry point for maintenance personnel.
	5.10.8.3	Each circuit controlled by the switches laid down in 5.10.8.1 and 5.10.8.2 shall have its own over current protection devices.	Nibav vacuum lifts meet this requirement as each circuit controlled by the relevant switches is equipped with its own overcurrent protection devices, ensuring proper safety and compliance.
	5.10.10	Electrical Identification All control devices, and electrical components shall be plainly identified with the same reference designation as shown in the electrical diagrams. The necessary fuse specifications, such as value and type, shall be marked on the fuse or on/near the fuse holders. In the case of the use of multiple wire connectors, only the connector, and not the wires, needs to be marked.	Nibav vacuum lifts comply with this requirement by ensuring that all control devices and electrical components are plainly identified with the reference designations shown in the electrical diagrams. Additionally, the necessary fuse specifications are marked on the fuse or near the fuse holders, and for multiple wire connectors, only the connectors are marked.
5.11 Protection Against Electric Faults; Failure Analysis; Electric Safety Devices	5.11	Protection Against Electric Faults; Failure Analysis; Electric Safety Devices If any single fault listed in 5.11.1.2 in the electric equipment of a lift cannot be excluded under conditions described in 5.11.1.3 and/or 5.15 of IS 17900 (Part 2), it shall not, on its own, be the cause of a dangerous malfunction of the lift. For safety circuits, see 5.11.2.3.	Nibav vacuum lifts adhere to this requirement by ensuring that any single fault in the electric equipment does not, on its own, lead to a dangerous malfunction of the lift. This compliance is achieved through rigorous failure analysis and the implementation of appropriate electric safety devices.
	5.11.1.2	Faults envisaged: a) absence of voltage; b) voltage drop; c) loss of continuity of a conductor; d) insulation fault in relation to the metalwork or the earth; e) short circuit or open circuit, change of value or function in an electrical component, for example, resistor, capacitor, transistor, lamp, etc.; f) non-attraction or incomplete attraction of the moving armature of a contactor or relay; g) non-separation of the moving armature of a contactor or relay; h) non-opening of a contact; j) non-closing of a contact; k) phase reversal.	Nibav vacuum lifts are designed to address and mitigate the impact of faults such as absence of voltage, voltage drop, loss of continuity of a conductor, insulation faults, short circuits, changes in electrical component values, and issues with contactors or relays, including non-attraction, non-separation, or contact issues, as well as phase reversal.
	5.11.1.3	The non-opening of a contact need not be considered in the case of safety contacts conforming to the requirements of 5.11.2.2.	Nibav vacuum lifts meet the requirement for safety contacts by conforming to the standards specified in 5.11.2.2, ensuring that non-opening of a contact does not present a risk.
	5.11.1.4	An earth fault in a circuit in which there is an electric safety device, or in a circuit controlling the brake according to 5.9.2.2.2.3, or in a circuit controlling the down valve according to 5.9.3.4.3, shall: a) either cause the immediate stopping of the machine; or b) prevent restarting of the machine after the first normal stop, if the first earth fault alone is not dangerous. Return to service shall only be possible by manual resetting.	Nibav vacuum lifts ensure safety by either causing immediate stopping of the machine in the event of an earth fault in critical circuits or preventing restarting after the first normal stop, with return to service only possible through manual resetting.
	5.11.2	Electric Safety Devices 5.11.2.1.1 During the operation of one of the electric safety devices, as listed in Annex A, the movement of the machine shall be prevented, or it shall be caused to stop immediately, as indicated in 5.11.2.4. The electric safety devices shall consist of: a) either one or more safety contacts satisfying 5.11.2.2; or b) safety circuits satisfying 5.11.2.3, consisting of one, or a combination, of the following: 1) either one or more safety contacts satisfying 5.11.2.2; 2) contacts not satisfying the requirements of 5.11.2.2; 3) components in accordance with 5.15 of IS 17900 (Part 2); 4) programmable electronic systems in safety related applications in accordance with 5.11.2.6.	Nibav lifts utilize a comprehensive safety system featuring a lock and door switch, with all safety devices connected in series and providing feedback through parallel lines. This setup ensures protection against abnormal operation. Additionally, the door solenoid prevents unauthorized door openings, and the electronic systems, controlled by microcontroller inputs and programmed parameters, safeguard the lift from unintended movements.
	5.11.2.1.2	Apart from exceptions permitted in this standard (see 5.12.1.4, 5.12.1.5, 5.12.1.6 and 5.12.1.8), no electric equipment shall be connected in parallel with an electric safety device. Connections to different points of the electric safety chain are only permitted for gathering information. The devices used for that purpose shall fulfil the requirements for safety circuits according to 5.11.2.3.2 and 5.11.2.3.3.	Nibav lifts ensure that no electric equipment is connected in parallel with any electric safety device, except for the exceptions specified in the standard. Connections to different points within the electric safety chain are solely for information gathering, and the devices used for this purpose comply with the safety circuit requirements specified in 5.11.2.3.2 and 5.11.2.3.3.
	5.11.2.1.3	The effects of internal or external induction or capacity shall not cause failure of electric safety devices in accordance with IS 17805 (Part 2).	Nibav lifts are designed to ensure that internal or external induction or capacity effects do not cause failure of the electric safety devices, in accordance with IS 17805 (Part 2).
	5.11.2.1.4	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 the same circuit, which would result in a dangerous condition.	Nibav lifts are engineered so that an output signal from an electric safety device is not affected by extraneous signals from other devices in the same circuit, thereby preventing dangerous conditions.
	5.11.2.1.5	In safety circuits comprising two or more parallel channels, all information other than that required for parity checks shall be taken from one channel only.	Nibav lifts are designed so that in safety circuits with multiple parallel channels, all information, aside from that required for parity checks, is sourced from a single channel only.
	5.11.2.1.6	Circuits which record, or delay, signals shall not, even in event of fault, prevent or appreciably delay the stopping of the machine through the functioning of an electric safety device, i.e. the stopping shall occur in the shortest time compatible with the system.	Nibav lifts are engineered so that circuits responsible for recording or delaying signals do not impede or significantly delay the machine's stopping response when an electric safety device is activated. The stopping action is ensured to occur within the shortest time compatible with the system.
	5.11.2.1.7	The construction and arrangement of the internal power supply units shall be, such as to prevent the appearance of false signals at outputs of electric safety devices due to the effects of switching	Nibav lifts are designed with internal power supply units constructed and arranged to prevent the generation of false signals at the outputs of electric safety devices due to switching effects.
	5.11.2.2	Safety contacts Safety contacts shall comply with the requirements of Annex K of IS/IEC 60947-5-1, with a minimum protection degree of IP4X (IS/IEC 60529) and a mechanical durability suitable for its purpose (at least 106 operating cycles). Alternatively, they shall fulfil the following requirements.	Nibav lifts use safety contacts that comply with Annex K of IS/IEC 60947-5-1, providing a minimum protection degree of IP4X and mechanical durability of at least 1 million operating cycles.
	5.11.2.2.2	The operation of a safety contact shall be by positive separation of the circuit-breaking devices. This separation shall occur even if the contacts have welded together. The design of a safety contact shall be such as to minimize the risk of a short-circuit resulting from component failure.	Nibav lifts employ safety contacts designed to ensure positive separation of circuit-breaking devices, even if contacts become welded together. The design minimizes the risk of short-circuits due to component failure.
	5.11.2.2.3	The safety contacts shall be provided for a rated insulation voltage of 250 V if the enclosure provides a degree of protection of at least IP4X (IS/IEC 60529), or 500 V if the degree of protection of the enclosure is less than IP4X (IS/IEC 60529). The safety contacts shall belong to the following categories as defined in IS/IEC 60947-5-1: a) AC-15 for safety contacts in a.c. circuits; b) DC-13 for safety contacts in d.c. circuits.	Nibav lifts use safety contacts rated for 250 V insulation voltage with an enclosure providing at least IP4X protection. For circuits with a lower protection degree, the contacts are rated for 500 V. The safety contacts conform to AC-15 and DC-13 categories for a.c. and d.c. circuits, respectively.

	5.11.2.2.4	If the degree of protection is equal or less than IP4X (IS/IEC 60529), the clearances shall be at least 3 mm, the creepage distances at least 4 mm and the distances for breaking contacts at least 4 mm after separation. If the protection is better than IP4X (IS/IEC 60529), the creepage distance may be reduced to 3 mm.	Nibav lifts ensure that safety contacts with an IP4X protection degree maintain clearances of at least 3 mm, creepage distances of at least 4 mm, and breaking contact distances of at least 4 mm. For contacts with a protection degree better than IP4X, the creepage distance is maintained at 3 mm.
	5.11.2.2.5	In the case of multiple breaks, the distance after separation between the contacts shall be at least 2 mm	Nibav lifts use a mechanical brake, which does not incorporate a feedback switch.
	5.11.2.2.6	Abrasion of conductive material shall not lead to short-circuiting of contacts.	Nibav lifts are designed with fully insulated cables and enclosed connectors, which prevent abrasion of conductive materials and the resulting risk of short-circuiting contacts.
	5.11.2.3.1	Protection Against Electric Faults; Failure Analysis; Electric Safety Device - Safety circuits - General Fault analysis of safety circuits shall take into account failures in the whole safety circuit, including sensors, signal transmission paths, power supplies, safety logic and safety output.	Nibav lifts' safety circuits incorporate comprehensive fault analysis, accounting for potential failures in sensors, signal transmission paths, power supplies, safety logic, and safety outputs.
	5.11.2.3.3	5.11.2.3.3Furthermore, as illustrated by Fig. 21, the following requirements shall apply: a) if one fault combined with a second fault can lead to a dangerous situation, the lift shall be stopped at the latest at the next operating sequence in which the first faulty element should participate All further operation of the lift shall be impossible as long as this fault persists. The possibility of the second fault occurring after the first, and before the lift has been stopped by the sequence mentioned above, is not considered; b) if two faults, which by themselves do not lead to a dangerous situation, can lead to a dangerous situation when combined with a third fault, the lift shall be stopped at the latest at the next operating sequence in which one of the faulty elements should participate The possibility of the third fault leading to a dangerous situation before the lift has been stopped by the sequence mentioned above is not considered; c) if a combination of more than three faults is possible, then the safety circuit shall be designed with multiple channels and a monitoring circuit checking the equal status of the channels. If a different status is detected, the lift shall be stopped. In case of two channels, the function of the monitoring circuit shall be checked at the latest prior to a re-start of the lift and, in case of failure, re-starting shall not be possible;	Nibav lifts' safety circuits are designed to address complex fault scenarios: 1. The system ensures that if a fault combined with another fault could lead to a dangerous situation, the lift will be stopped at the next operating sequence involving the first faulty element, and further operation will be prevented until the fault is resolved. 2. For situations where two faults do not individually cause danger but could lead to a dangerous situation combined with a third fault, the lift will be stopped at the next sequence involving one of the faulty elements. 3. In cases where more than three faults could occur, the safety circuit includes multiple channels with monitoring to detect discrepancies, ensuring the lift is stopped if any differences are found. 4. After power restoration, the system ensures the lift remains in a stopped position during the next sequence if needed, following the fault criteria. 5. Redundancy measures are implemented to minimize the risk of simultaneous defects from a single cause.
	5.11.2.3.4	Safety circuits containing electronic components are regarded as safety components and shall be verified according to the requirements in 5.6 of IS 17900 (Part 2).	Nibav lifts incorporate electronic components in their safety circuits, which are verified to meet the stringent requirements outlined in 5.6 of IS 17900 (Part 2), ensuring their reliability and adherence to safety standards.
	5.11.2.3.5	A data plate shall be fixed on safety circuits containing electronic components, indicating: a) the name of the manufacturer of the safety component; b) the type of electric safety device.	Nibav lifts' safety circuits containing electronic components are equipped with a data plate that clearly displays the manufacturer's name and the type of electric safety device, ensuring compliance with the specified requirements.
	5.11.2.4	Operation of electric safety devices An electric safety device, when operated, shall immediately initiate the stopping of the machine and prevent it from setting into motion. The electric safety devices shall act directly on the equipment controlling the supply to the machine, in accordance with the requirements of 5.9.2.2.2.3 a), 5.9.2.5 and 5.9.3.4. If relays or contactor relays according to 5.10.3.1.3 are used to control the equipment controlling the supply to the machine, the monitoring of these relays or contactor relays shall be done as defined in 5.9.2.2.2.3 a), 5.9.2.5 and 5.9.3.4.4	For Nibav lifts, when an electric safety device is activated, it immediately halts the lift and prevents any further motion. The safety devices directly control the equipment managing the lift's power supply, aligning with the requirements of 5.9.2.2.2.3 a), 5.9.2.5, and 5.9.3.4. Additionally, if relays or contactor relays are used for controlling this equipment, their monitoring is conducted according to the standards specified in 5.9.2.2.2.3 a), 5.9.2.5, and 5.9.3.4.4.
	5.11.2.4	Operation of electric safety devices An electric safety device, when operated, shall immediately initiate the stopping of the machine and prevent it from setting into motion. The electric safety devices shall act directly on the equipment controlling the supply to the machine, in accordance with the requirements of 5.9.2.2.2.3 a), 5.9.2.5 and 5.9.3.4. If relays or contactor relays according to 5.10.3.1.3 are used to control the equipment controlling the supply to the machine, the monitoring of these relays or contactor relays shall be done as defined in 5.9.2.2.2.3 a), 5.9.2.5 and 5.9.3.4.4 If the devices for actuating electric safety devices are, through the nature of their installation, accessible to persons, they shall be built so that these electric safety devices cannot be rendered inoperative by simple means. NOTE — A magnet or a bridge piece is not considered a simple means. In the case of redundancy-type safety circuits, it shall be ensured by mechanical or geometric arrangements of the transmitter elements that a mechanical fault shall not cause loss of redundancy. For transmitter elements of safety circuits, the requirements of 5.6.3.1.1 of IS 17900 (Part 2) apply.	For Nibav lifts, when an electric safety device is activated, it will immediately stop the lift and prevent it from moving. The safety devices directly control the equipment managing the power supply to the lift, as outlined in the standards 5.9.2.2.2.3 a), 5.9.2.5, and 5.9.3.4. If relays or contactor relays are employed to control this equipment, they will be monitored according to the same standards. In cases where devices for actuating electric safety devices are accessible to persons, they are designed to prevent disabling the safety devices by simple means. Note that items like magnets or bridge pieces are not considered simple means for this purpose. For redundancy-type safety circuits, mechanical or geometric arrangements of transmitter elements ensure that a mechanical fault does not compromise redundancy. Additionally, the transmitter elements of safety circuits comply with the requirements of 5.6.3.1.1 of IS 17900 (Part 2).
	5.11.2.6	Programmable electronic systems in safety related applications (PESSRAL) Table A-1 gives the minimum safety integrity level for each electric safety device. Safety circuits, including programmable electronic systems designed in accordance with 5.11.2.6, cover the requirements of 5.11.2.3.3. PESSRAL shall comply with the design rules for relevant safety integrity levels (SIL) as listed in 5.16 of IS 17900 (Part 2). To avoid unsafe modification, measures to prevent unauthorized access to the program code and safety-related data of PESSRAL shall be provided, for example, using EPROM, access code, etc. If a PESSRAL and a non-safety-related system share the same printed circuit board (PCB), the requirements of 5.10.3.2 shall apply for the separation of the two systems. If a PESSRAL and a non-safety-related system share the same hardware, the requirements for PESSRAL shall be met. It shall be possible to identify the failure state of the PESSRAL, 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	For Nibav lifts: Programmable Electronic Systems in Safety-Related Applications (PESSRAL) used in the safety circuits are designed to meet the minimum Safety Integrity Level (SIL) as specified in Table A-1. These systems comply with the design rules for relevant SILs as outlined in 5.16 of IS 17900 (Part 2). To prevent unauthorized modifications, PESSRAL includes measures such as EPROM or access codes to safeguard program code and safety-related data. When a PESSRAL and a non-safety-related system share the same PCB, they must adhere to the separation requirements specified in 5.10.3.2. For shared hardware, the PESSRAL must meet all relevant safety requirements. Additionally, the failure state of the PESSRAL must be identifiable through either a built-in system or an external tool, with any special external tools available on-site for this purpose.
5.12 Controls — Final Limit Switches — Prioritie	5.12.1.1.1	This control shall be carried out through buttons or similar devices, such as touch control, magnetic cards, etc. These shall be placed in boxes, such that no live parts are accessible to the user. The colour yellow shall not be used for other control devices than the alarm initiation device	For Nibav lifts: Control of the lift shall be managed through buttons or similar devices, such as touch controls or magnetic cards. These controls shall be housed in enclosures that prevent access to live parts by the user. The color yellow shall be exclusively reserved for the alarm initiation device and not used for any other control devices.
	5.12.1.1.2	The control devices shall be clearly identified by reference to their function, see also ISO 4190-5.	For Nibav lifts: The control devices shall be clearly identified with labels or markings that reference their specific functions, in accordance with ISO 4190-5.
	5.12.1.1.3	Visible notices or signals shall enable persons in the car to know at which landing the lift has stopped	For Nibav lifts: Visible notices or signals shall be provided within the enclosed circular car to indicate the current landing where the lift has stopped. Since the car moves within a transparent polycarbonate hoist pathway, passengers can also see the landing stage directly through the transparent walls.

5.12.1.1.4	The stopping accuracy of the car shall be ±10 mm. If, during loading and unloading phases for example, the levelling accuracy of ±20 mm is exceeded, it shall be corrected to ±10 mm	For Nibav lifts: The stopping accuracy of the car shall be ±10 mm. During loading and unloading phases, if the levelling accuracy exceeds ±20 mm, it shall be corrected to within ±10 mm. The car will initially pass the intended floor by 10 cm at a slow speed. After reaching this position, the pumps will stop, and the car will then descend while simultaneously activating the pawl device to ensure accurate stopping within the specified tolerance.
5.12.1.2 Load control	5.12.1.2.1 The lift shall be fitted with a device to prevent normal starting, including re-levelling, in the event of overload in the car. In the case of hydraulic lifts, the device shall not prevent re-levelling	For Nibav lifts: The lift shall be equipped with a device to prevent normal starting, including re-levelling, in the event of an overload in the car. Overload is considered to occur when the rated load exceeds 230 kg (507 pounds) for the Standard Model or 350 kg (770 pounds) for the Max Model. The lift is also fitted with an alarm and an overload indication light. However, this device shall not prevent re-levelling in the case of hydraulic lifts.
5.12.1.2.2	The overload shall be detected at the latest when the rated load is exceeded by 10 percent, with a minimum of 68 kg.	For Nibav lifts: The overload detection system shall identify an overload condition at the latest when the rated load is exceeded by 10 percent, with a minimum threshold of 68 kg.
5.12.1.2.3	In the event of overload: a) users shall be informed by an audible and a visible signal in the car; b) automatic power-operated doors shall be brought into the fully open position; c) manually operated doors shall remain unlocked; d) any preliminary operation in accordance with 5.12.1.4 shall be nullified	For Nibav lifts: In the event of an overload: a) Users will be alerted by both audible and visible signals within the car. b) Automatic power-operated doors will be fully opened. c) Manually operated doors will remain unlocked. d) Any preliminary operations as specified in 5.12.1.4 will be nullified.
5.12.1.3	Monitoring the normal slowdown of the machine in case of reduced buffer stroke In the case of 5.8.2.2.2, electric safety devices in conformity with 5.11.2 shall check that the slowdown is effective before arrival at terminal landings. If the slowdown is not effective, the machine brake shall cause the car speed to be reduced in such a way that if the car or the counterweight comes into contact with the buffers, the striking speed shall not exceed that for which the buffers were designed.	For Nibav lifts: To ensure effective slowdown of the machine with reduced buffer stroke: Electric safety devices conforming to 5.11.2 will monitor that the slowdown is effective before reaching terminal landings. If the slowdown is not effective, the machine brake will be activated to reduce the car's speed. This ensures that if the car or counterweight contacts the buffers, the impact speed will not exceed the design specifications of the buffers.
5.12.1.4	Control of levelling, re-levelling and preliminary operation with doors not closed and locked Movement of the car with landing and car doors not closed and locked is permitted for levelling, re-levelling and preliminary operation on condition that: a) the movement is limited to the unlocking zone (5.3.8.1) by an electric safety device in conformity with 5.11.2. During preliminary operations, the car shall be kept within 20 mm from the landing (see 5.12.1.1.4 and 5.4.2.2.1); b) during levelling operations, the means for making the electric safety devices of doors inoperative shall only function after the stopping signal for this landing has been given; c) the speed of levelling does not exceed 0.80 m/s. In addition, on lifts with manually controlled landing doors, it shall be checked that: 1) for machines whose maximum speed of rotation is determined by the fixed frequency of the supply, only the control circuit for the low speed movement has been energized; 2) for other machines, the speed at the moment the unlocking zone is reached does not exceed 0.80 m/s; d) the speed of re-levelling does not exceed 0.30 m/s	For Nibav lifts: To ensure safety during levelling, re-levelling, and preliminary operations with doors not closed and locked: Movement Control: Movement of the car with landing and car doors not fully closed and locked is permitted for levelling, re-levelling, and preliminary operation, provided that: a) The movement is restricted to the unlocking zone and monitored by an electric safety device in compliance with 5.11.2. During preliminary operations, the car must stay within 20 mm of the landing. b) During levelling operations, the means to deactivate the electric safety devices of doors will only function after the stopping signal for the landing has been received. c) The speed of levelling does not exceed 0.80 m/s. For lifts with manually controlled landing doors: 1) Machines with a fixed frequency supply must ensure only the low-speed control circuit is energized. 2) For other machines, the speed when entering the unlocking zone must not exceed 0.80 m/s. d) The speed of re-levelling does not exceed 0.30 m/s. Additional Safety Feature: If the lift is at the floor level and the passenger has not completely closed the door, the solenoid lock will not engage until the door is fully closed.
5.12.1.5.1.3	The inspection control station shall have a minimum degree of protection of IPXXD (refer IS/IEC 60529). Rotary control switches shall have a means of prevention of rotation of the stationary member. Friction alone shall not be considered sufficient.	For Nibav lifts: The inspection control station meets the required protection level of IPXXD, as per IS/IEC 60529, ensuring it is safeguarded against access to hazardous parts and solid objects. Rotary control switches in the inspection control station are equipped with a mechanism that prevents the rotation of the stationary member, ensuring compliance beyond just friction.
5.12.1.5.2.1	Inspection operation switch The inspection operation switch, when in the inspection position, shall satisfy the following conditions for functioning simultaneously: a) neutralize the normal operation controls; b) neutralize emergency electrical operation (5.12.1.6); c) levelling and re-levelling (5.12.1.4) shall be disabled; 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. e) the car speed shall not exceed 0.63 m/s; f) the car speed shall not exceed 0.30 m/s when the vertical distance above any standing area on car roof (see 5.2.5.7.3) or in pit is 2.0 m or less; g) the limits of normal car travel shall not be overrun, that is, not exceed the stopping positions in normal operation; h) the operation of the lift shall remain dependent on the safety devices; j) if more than one inspection control station is switched to "INSPECTION", it shall not be possible to move the car from any of them, unless the same push buttons on the inspection control stations are operated simultaneously.	For Nibav lifts: The inspection operation switch effectively neutralizes normal operation controls, emergency electrical operation, and disables levelling and re-levelling functions when in the inspection position. Automatic movement of power-operated doors is prevented, with closing dependent on either a direction push button or additional protected switches. Car speed is limited to 0.63 m/s and to 0.30 m/s when the vertical distance above any standing area is 2.0 m or less. The car travel limits are strictly maintained, ensuring no overruns beyond normal stopping positions. The operation remains dependent on safety devices. If multiple inspection control stations are active, the car movement is only possible when push buttons are operated simultaneously at each station.

	5.12.1.5.2.2	Return-to-normal operation of the lift The return-to-normal operation of the lift shall only be effected by switching the inspection operation switch(es) back to normal. Additionally, return-to-normal operation of the lift from the pit inspection station shall only be made under the following conditions: a) the landing doors giving access to the pit are closed and locked; b) all the stopping devices in the pit are inactive; c) the electrical reset device outside the well is operated and located: 1) in conjunction with emergency unlocking means of the door giving access to the pit; or 2) in a place accessible to authorized persons only, for example, inside a locked cabinet located in close proximity to the door giving access to the pit. Precautions shall be taken to prevent all involuntary movement of the car, in the event of one of the faults listed in 5.11.1.2 appearing in the circuit(s) involved in the inspection operation	For Nibav lifts: Return-to-normal operation of the lift is achieved by switching the inspection operation switch back to the normal position. From the pit inspection station, the lift can only return to normal operation if: The landing doors giving access to the pit are closed and locked. All stopping devices in the pit are inactive. The electrical reset device outside the well is operated and located either with the emergency unlocking means of the pit access door or in a locked cabinet accessible only to authorized persons nearby. Precautions are in place to prevent involuntary car movement in the event of faults appearing in the inspection operation circuits.
	5.12.1.5.2.3 Push buttons	The movement of the car in inspection operation shall solely depend on constant pressure on a direction push button, and the "RUN" push button. It shall be possible to operate the "RUN" button and a direction button with one hand simultaneously. The inspection operation electric safety device shall be bypassed by one of the following solutions: a) a series connection of a direction and the "RUN" push button. These push buttons shall belong to the following categories, as defined in IS/IEC 60947-5-1: 1) AC-15 for contacts in a.c. circuits; 2) DC-13 for contacts in d.c. circuits. The durability shall be at least 1 000 000 mechanical and electrical operating cycles related to the applied load. b) an electric safety device in accordance with 5.11.2 which is monitoring the correct operation of the direction and "RUN" push buttons	For Nibav lifts: The car movement during inspection operation relies solely on continuous pressure on both the direction push button and the "RUN" push button. It is possible to operate both buttons with one hand simultaneously. The inspection operation electric safety device is bypassed by: Using a series connection of the direction and "RUN" push buttons, which meet the following criteria: AC-15 for a.c. circuits DC-13 for d.c. circuits The buttons are durable for at least 1,000,000 mechanical and electrical operating cycles. Alternatively, by an electric safety device that monitors the correct operation of both buttons in accordance with the specified standards.
	5.12.1.5.2.4	Inspection control station(s) The following information shall be given on the inspection control station(s) (see Fig. 22) the: a) words "NORMAL" and "INSPECTION" on or near the inspection operation switch; b) direction of motion identified by colours, as in Table 17	For Nibav lifts: The inspection control station(s) are clearly labeled with the words "NORMAL" and "INSPECTION" near the inspection operation switch. The direction of motion is identified by colors according to the specified standards in Table 17.
	5.12.1.6	Control of emergency electrical operation 5.12.1.6.1 If a means of emergency electrical operation is required in accordance with 5.9.2.3.3, an emergency electrical operation switch in conformity with 5.11.2 shall be installed. The machine shall be supplied from the normal main supply, or from the stand-by supply if there is one. The following conditions shall be satisfied simultaneously: a) operation of the emergency electrical operation switch shall allow the control of car movement by constant pressure on buttons protected against accidental operation. The direction of movement shall be clearly indicated. b) after operation of the emergency electrical operation switch, all movement of the car, except that controlled by this switch, shall be prevented c) the effects of the emergency electrical operation shall be overridden by switching on the inspection operation as follows: 1) when actuating the emergency electrical operation switch while the inspection operation is actuated, the emergency electrical operation is inactive, the up/down/run buttons of the inspection operation shall remain effective; 2) when actuating the inspection operation while the emergency electrical operation is actuated, the emergency electrical operation becomes inactive, the up/down/run buttons of the inspection operation shall become	For Nibav lifts: The emergency electrical operation switch complies with 5.11.2, using either the normal or standby supply. It allows car movement with constant pressure on protected buttons and indicates direction clearly. Activating the switch prevents all other movements except those controlled by it. The emergency operation is overridden by inspection operation: Activating the emergency switch makes it inactive if inspection operation is active, and vice versa. The switch renders inoperative devices related to slack suspension, car safety gear, overspeed detection, ascending car overspeed protection, buffers, and final limit switches. It is positioned for direct or display observation and limits car speed to 0.30 m/s. The switch and buttons have IPXXD protection and rotary control switches have means to prevent unintended rotation.