

NEW



SHAFT COPYING SYSTEMS FOR TRIGGERING ELECTROMECHANICAL SAFETY GEARS



Up to the next level

An industry in transition. Digitalization and functional safety technology are enabling entirely new elevator concepts. Today, numerous mechanical components are already eliminated by SIL3-certified sensor systems. This leads to comprehensive time and cost savings.

With the triggering of electromechanical safety gears Kübler presents a further evolutionary step in elevator technology: the conventional overspeed governor is replaced by SIL3-certified sensors from Kübler.

The safety of the passengers is not the only consideration here. Already during the scaffoldless installation or during maintenance work in shafts with a reduced shaft head / pit the safety of the personnel is also taken into account.

By combining the sensor with the position supervisor unit additional safety functions according to EN 81-20/21/50 can be realized, e.g.:

- Final limit switch
- Inspection limit switch
- Retardation control (ETSL)
- Door bridging
- UCM (Unintended Car Movement)
- Shield Mode (refuge space during scaffoldless installation and maintenance within reduced shaft head / pit)
- Triggering of the electromechanical safety gear in case of overspeed



ADVANTAGES AT A GLANCE

- Elimination of the mechanical overspeed governor
- Reduced installation and maintenance effort
- Easy teach-in of the nominal speed
- Various safety concepts can be realized
- Safe refuge spaces
- SIL3-certified system
- Status monitoring of the safety gear with reset function



Shield Mode Installation

Refuge space during scaffoldless installation



Overspeed

Triggering of electromechanical safety gear



UCM (Unintended Car Movement)

Triggering of electromechanical safety gear



Shield Mode Maintenance

Refuge space during maintenance within reduced shafts acc. EN 81-21

Use Cases: Triggering electromechanical safety gear

Shield Mode Installation



Shield mode installation ensures a refuge space for the employees even before the elevator is put into operation. During scaffoldless installation, such as rail fastening, a refuge space is created sequentially according to the progress of the installation. Depending on the position, the car is secured with a tolerance of ± 5 cm.

Overspeed



Elimination of the mechanical overspeed governor: In case of overspeed the safety circuit will be open respectively the electromechanical safety gear will be triggered.

UCM (Unintended Car Movement)



If the car leaves unintended a defined door zone with open doors the safety circuit will be open respectively the electromechanical safety gear will be triggered.

Shield Mode Maintenance



Before entering the shaft with reduced shaft head / pit acc. to EN 81-21, the Shield Mode will be activated via the door release. A refuge space that enables safe working for the maintenance employees is created.



i Teaching of the nominal speed

- Insert configuration strip into the sensor
- Visual validation by LED flashing pattern possible at any time
- Documentation of nominal speed on sensor label

Overview of safety functions

Maximum safety for passengers and employees. Kübler Safe systems fulfill numerous safety functions acc. to EN 81-20/21/50. Find the right system for your elevator.

	reference EN standard	SIL
Absolute position feedback	no standard reference	no SIL
Final limit switch	EN 81-20: 5.12.2.3.1 b)	1
Retardation control (ETSL)	EN 81-20: 5.12.1.3	3
UCM (Unintended Car Movement)	EN 81-20: 5.6.7.7	2
Door bridging	EN 81-20: 5.12.1.4 a), b), c), 2), d)	2
BYPASS doors (bridging of car and shaft doors)	EN 81-20: 5.12.1.8 and 5.12.1.9	no SIL
Two redundant signals for the door zone (door zone magnet emulation)	no standard reference	no SIL
Door zone signalization in case of evacuation with 12 V emergency power supply	no standard reference	no SIL
Overspeed pretripping 115 %	EN 81-20: 5.6.2.2.1.6	2
Overspeed triggering electromechanical safety gear	EN 81-20: 5.6.2.2.1	3
Status control of electromechanical safety gear	EN 81-20: 5.6.2.1.5	1
Reset control of electromechanical safety gear	no standard reference	3
Triggering electromechanical safety gear in case of upwards movement	EN 81-20: 5.6.6.5	2
Triggering electromechanical safety gear in case of activating emergency braking switch	no standard reference	3
Inspection limit switch within reduced shaft head / pit	EN 81-21: 5.5.3.4, 5.7.3.4	2
Shield Mode: triggering of electromechanical safety gear for ensuring refuge space	EN 81-21: 5.5.2.3, 5.7.2.3	2
Triggering switch for opening safety circuit (within reduced shaft head / pit)	EN 81-21: 5.5.2.3.3 f)	2
Reset device control	EN 81-21: 5.5.3.3 c)	2
Shield Mode: refuge space during scaffoldless installation	no standard reference	3
Limits during inspection and electrical emergency operation	EN 81-20: 5.12.1.5.2.1 g)	no SIL
Overspeed during teaching (1 m/s)	no standard reference	3
Overspeed during inspection (0.63 m/s)	EN 81-20: 5.12.1.5.1 e)	no SIL
Safe configuration management for accelerated approval process	no standard reference	no SIL



SIL3
Functional Safety
EN 81



SIL3
Functional Safety
EN 81 EN81-20/21/50



AFC 2023

SIL3
Functional Safety
EN 81 EN81-20/21/50

LES03 + SGT02

LES03 + SGT02 + PSU02

LES03 + PSU03

optional

-	✓	✓
-	✓	✓
-	✓	✓
-	✓	✓
-	✓	✓
-	-	optional
-	✓	✓
-	✓	✓
✓	✓	✓
✓	✓	✓
✓	✓	✓
✓	✓	✓
✓	✓	✓
✓	✓	✓
✓	✓	✓
✓	✓	✓
✓	✓	✓
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✓	✓	✓
✓	✓	✓
✓	✓	✓
-	-	optional
-	✓	✓
✓	✓	✓
✓	✓	✓




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