## synergy BLUE

## Fact Sheet NC 91 B 00 - 40







The compact solution for medium-sized travel heights and average speeds. 450 kg - 1000 kg with 1 m/s.







### **Product Benefits**

# Fact Sheet synergy NC 91 B 00 - 40

### **Next Level Safety**

- CE type certificated product
- Risk analysis validated with APAVE notified body
- Compliant to EN 81-A3

#### **Next Level Efficiency**

- New generation motor with high efficiency
- Integrated VVVF controller
- · Energy saving
- LED Lighting
- Energy recovery
- Eco-/ high-speed mode
- · Passive cooling of he controller
- Energy efficiency class A \*

### **Next Level Design/Ergonomics**

- · Design for buildings of the future
- Three design lines (colour, wood, stainless)

#### **Next Level Innovation**

- · Absence of a machine room
- Reduced pit/headroom
- · Adapted for existing building
- E.COR \*\*
- RISC processor core
- · Multiprocessor technology
- Whisper control system for reduction of switching noises

### **Next Level Comfort**

- More floor space
- Low-noise (conform to VDI 2566 ST II) Low-vibration design
- · Smoothly and precisely stops
- \* 630kg, 4 landings, travel height 8.6m, utility class 1
- \*\* more detailed information is specified in E.COR Fact Sheet

### **Next Level Scope of Delivery**

- · Short delivery time
- Large number of options

### **Next Level Reliability**

- Robust
- · High-quality material
- · Efficient maintenance

### The synergy elevator system

A system solution based on requirements of the future. Hence the name synergy.

The synergy passenger elevator is an impressive revolutionary solution for new installations and modernizations that reflects the know-how of the company on an international level. A corporation-wide development strategy has produced a range of elevators that combine maximum quality, compactness and technology with an attractive design.

#### **OUR VISION FOR THE FUTURE:**

- Compact elevator system without machine room, also available without shaft head and/or without shaft pit on request.
- Suitable for residential and commercial buildings with a maximum of 12 floors.
- Modular construction for short delivery times and a wide range of individual requirements.



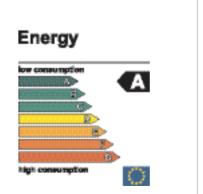
### **Energy Efficiency**

## E.COR protects the environment and budget.

Our control is characterized by the so called standby mode with the possibility to react on external calls and high flexibility. In this stage the energy consumption is reduced. Furthermore the parking level is adapted automatically to the traffic situation to reduce unnecessary runs and to optimize the handling capacity.

The combination of synergy\*, E.COR and our new generation of frequency inverter type RPI attains the energy efficiency class A with the usage category 1 according to VDI 4707. With this system we are contributing significantly the reduction of ongoing operating, energy costs and the reduction of CO2- emissions.

\* Measured by TÜV Süd at a installation with: 630kg, 4 landings, 8.6m travel height, LED lighting and automatic switching off cabin light, PMC gearless drive with RPI and basis scope of delivery with coventional shaft head and shaft pit.



# Technical Overview Fact Sheet synergy NC 91 B 00 - 40

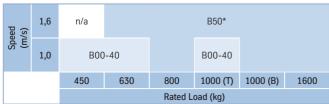
### Two-panel telescopic sliding doors (M2T - NC 91 B 00 / 10 / 30 / 40)

RATED LOAD	450 kg	63	0 kg	1000 k	g (deep)	
Speed (m/s)	1,0	1,0		1,0		
Travel height max. (m) *	33	Ţ	33		33	
Number of passengers	6		8		13	
Front and rear entrance	no	no	yes	no	yes	
Number of landings max.	12	:	12		12	
Car width CW	1000	1:	100	1:	100	
Car depth CD	1250	14	400	2:	100	
Car height CH [DH+100]	2100 / 2200 / 2300 / 2500	2100 / 2200	/ 2300 / 2500	2100 / 2200	/ 2300 / 2500	
Door width DW	800	800 / 900		800 / 900		
Door height DH	2000 / 2100 / 2300	2000 / 2100 / 2300		2000 / 2100 / 2300		
Shaft width SW (with DW 800)	1500	1600		1600		
Shaft width SW (with DW 900)	-	16	600	16	600	
Shaft depth S11/D11 door in shaft	1650	1785	2010	2485	2710	
Shaft depth S11/D11 door in recess	1580	1715	1870	2415	2570	
Shaft depth S11/D11 door in landing	1550	1685	1810	2385	2510	
Shaft depth S8A/D11 door in shaft	1655	1790	2020	2490	2720	
Shaft depth S8A/D11 door in recess	1600	1735	1910	2435	2610	
Shaft head height with reduced shaft head [CH + 500] with S11	2600 / 2700 / 2800 / 3000	2600 / 2700	/ 2800 / 3000	2600 / 2700	/ 2800 / 3000	
Shaft head height with red. shaft head [DH + 715] with S8A or glass door	2715 / 2815 / 3015	2715 / 28	315 / 3015	2715 / 28	315 / 3015	
Shaft head height conventional [CH + 1300]	3400 / 3500 / 3600 / 3800	3400 / 3500	/ 3600 / 3800	3400 / 3500	/ 3600 / 3800	
Shaft pit depth without shaft pit	400	4	.00	4	00	
Shaft pit depth conventional	1100 - 1850	1100	- 1850	1100	- 1850	
Floor-to-floor-distance min. [DH+550]	2550	25	550	2!	550	
•						

### Two-panel central opening door (M2Z - only with NC 91 B 00)

RATED LOAD	450 kg	63	0 kg	1000 H	kg (deep)
Speed (m/s)	1,0	1,0		1,0	
Travel height max. (m)	33		33		33
Number of passengers	6		8		13
Front and rear entrance	no	no	yes	no	yes
Number of landings max.	12		12		12
Car width CW	1000	1	100	1	100
Car depth CD	1250	1	400	2	100
Car height CH [DH+100]	2100 / 2200 / 2300 / 2500	2100 / 2200	/ 2300 / 2500	2100 / 2200	/ 2300 / 2500
Door width DW	800	800 / 900		800 / 900	
Door height DH	2000 / 2100 / 2300	2000 / 2	100 / 2300	2000 / 2	100 / 2300
Shaft width SW (with DW 800)	1800	1	800	1	800
Shaft width SW (with DW 900)	-	2	000	2	000
Shaft depth SD S11/D11 door in shaft	1610	1745	1930	2445	2630
Shaft depth SD S11/D11 door in recess	1540	1675	1790	2375	2490
Shaft depth SD S11/D11 door in landing	1510	1645	1730	2345	2430
Shaft depth SD S8A/D11 door in shaft	1575	1710	1860	2410	2560
Shaft depth SD S8A/D11 door in recess	1560	1695	1830	2395	2530
Shaft head height conventional [CH + 1300]	3400 / 3500 / 3600 / 3800	3400 / 3500	/ 3600 / 3800	3400 / 3500	/ 3600 / 3800
Shaft pit depth conventional	1100 - 1850	1100	- 1850	1100	- 1850
Floor-to-floor-distance min. [DH+550]	2550	2	550	2	550

### NC91 - type classification



<sup>\*</sup> Not available at the moment.

# Technical Specification I Fact Sheet synergy NC 91 B 00 - 40

Rated load	450 kg	630 kg	1000 kg (deep)
Drive	Synchronous gearless drive, frequency controlled (VVVF)	Synchronous gearless drive, frequency controlled (VVVF)	Synchronous gearless drive, frequency controlled (VVVF)
Start per hour max.	180 s/h	180 s/h	180 s/h
Operating input power (kVA) 1,2	3,6	4,7	7,2
Operating current (A) 1, 3	5,1	6,7	10,4
Starting current (A) 1,3	7,8	10,0	15,1
Landing accuracy	+ / - 5mm	+ / - 5mm	+ / - 5mm

<sup>1)</sup> With 400 Volt / 50 Hz. 2) For the control unit 2.1 kVA have to be added. 3) For the control unit 2.1 kVA have to be added

During the planning phase, please consider all applicable regulations stipulated by the relevant notified body and all applicable national regulations. Our sales advisors would be glad to provide information or explanations on these issues.

With elevator car flooring material thickness of up to 3.5 mm; shaft pit depth of 425 mm with flooring material thickness of up to 25 mm

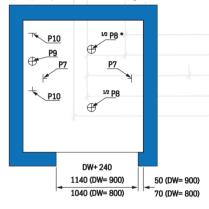
### Occuring forces in the shaft pit

Rated load (kg)	450	630	1000
nated load (ng)	400	555	1000
Load points P 7 (guide rails)	16	20	29
Load points P 8 (car buffer)	48	59	86
Load point P 9 (counterweight buffer)	37	44	62
Loadpoints P 10 (guide rails)	16	19	27
Extraordinary Forces:			
Load points P 11 (machine frame)	4x3.5	4 x 4.5	4x6
Load points P 12 (rope and bracket)	4x2.5-4x6.5	4x3.5-4x9.0	4x6.0-4x13.5

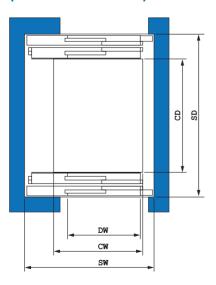
Load specifications are guide values in kN.

The forces P7-P10 never occur simultaneously.

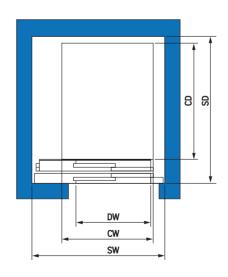
\* two buffers with reduced shaft pit. With normal shaft pit only one buffer between the guide rails.



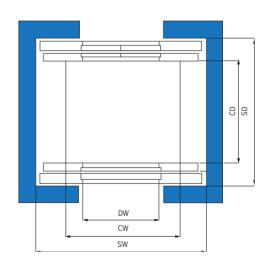
### Car entrance with telescopic door (front and rear entrance)



### Car entrance with telescopic door



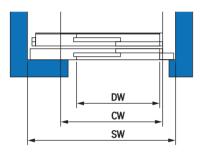
### Car entrance with central opening door



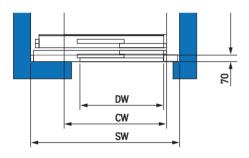
# Technical Specifications II Fact Sheet synergy NC 91 B 00 - 40

### **Landing door installations**

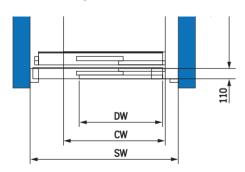
Landing door installed directly in the shaft using dowels, otherwise no special structural requirements.

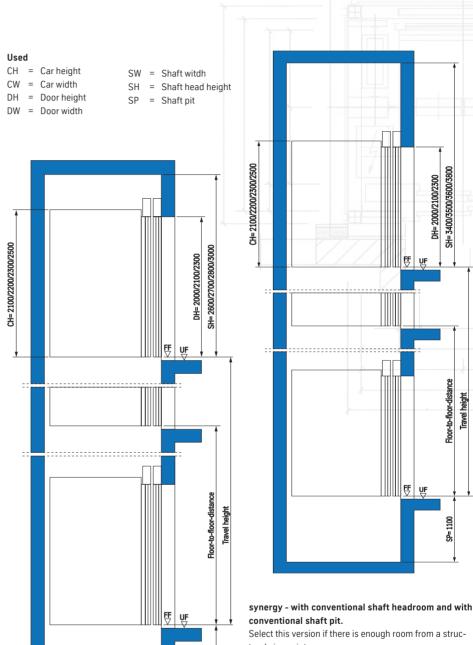


Landing door installed in recess in the shaft; the shaft depth can be optimized as a result.



Landing door installed on the landing in the entire shaft front wall; no special shaft door opening required in the building.





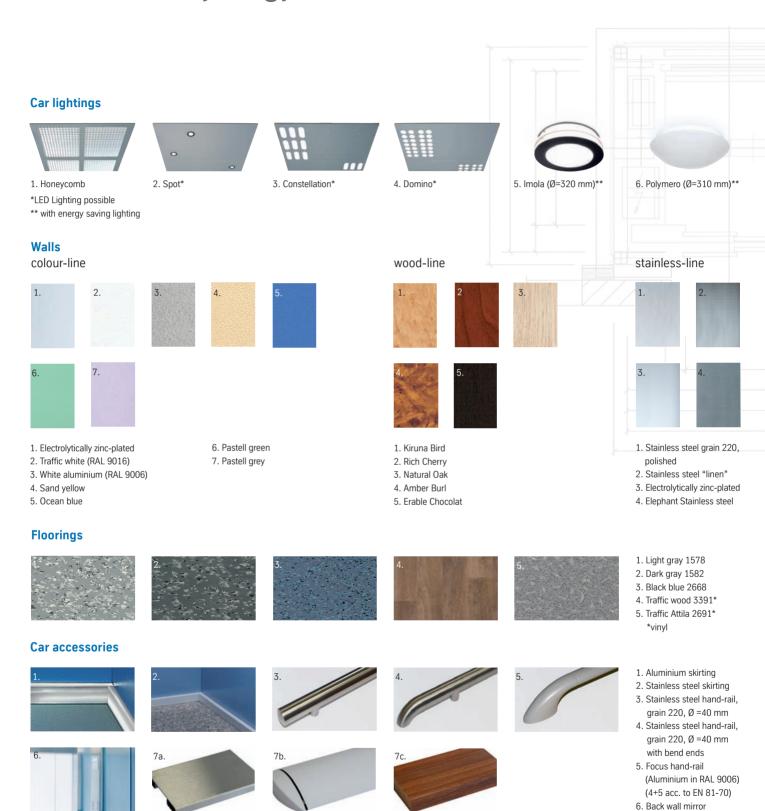
synergy - without shaft head and without shaft pit for maximum utilization of space.

synergy is also available with conventional shaft pit on request. Please observe all applicable regulations stipulated by the relevant notified body and all applicable national regulations. Our sales advisors would be glad to provide information or explanations on these issues.

tural viewpoint.

## **Design Options**

# Fact Sheet synergy NC 91 B 00 - 40



7. Bumper rails
a. Stainless steel
b. PVC (white/ red/ blue)
c. Wood (exotic red/ oak)

# Operating panel & Display

# Fact Sheet synergy NC 91 B 00 - 40

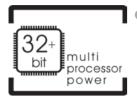
The modern operating and indicating elements inside and outside the car characterized by an attractive, functional design and hard-wearing quality and are user-friendly in every respect.





### E.COR

## Fact Sheet synergy NC 91 B 00 - 40



#### Technology with a secure future

A **manufacturer-independent computer core** with integrated passive cooling ensures the corresponding computing performance with higher energy efficiency, enabling up to 127 landings and 32 elevators in one group.



#### Monitoring / inital operation / maintenance

An included internet interface via Ethernet delivers specific information for service personnel regarding components that are subject to wear. Another feature of E.COR is the possibility of using existing networks to connect a monitoring system. Malfunction indicators and performance management of the elevators via LAN network enable rapid identification of the cause of disruption—this ensures higher availability and faster repair times. Verbal instructions for elevator attendants in emergency situations ("sound on board") are an additional component, which will be available in the future.



#### **Environmentally friendly production**

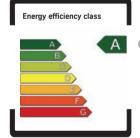
Even during the production of our E.COR control system, we ensure that the environment is protected. Thus, for instance, the components used comply with the latest national environmental regulations like for example the EG guideline ROHS (2002/95/EL). Of course, our suppliers also produce according to this regulations.



#### **Graphical LCD display**

E.COR offers a built-in graphical LCD display with pictograms for fast and easy operation. This enables simple and rapid inital operation, even without a laptop or diagnostic unit.

National languages are supported (Arabic, Cyrillic, Chinese characters etc. are available later). In the future E.COR also provides an integrated voice announcement tool. Text modules can be entered via internet or the graphical display soon.



### Concerning energy efficiency the ThyssenKrupp Aufzugswerke GmbH sets a new benchmark

synergy BLUE is able to convince with the highest energy efficiency class A for standby and drive operation. This was impressively demonstrated by a neutral and independent certification by TÜV SÜD as an approved body. With additional energy saving technology E.COR provides more than market requirements and VDI demands and thereby introduces the new pioneering direction.

For each individual system a proof in terms of energy efficiency can be substantiated during the bidding phase by a corresponding manufacturer certificate.

### E.COR

## Fact Sheet synergy NC 91 B 00 - 40

### Elevator control and communication in one.

### System components

Type	Component
1	LCD display
2	LED-lighting
3	Elevator control
4	High efficient drives
5	Frequency converter





### **LCD Display**

The environment already begins in the head. The synergy BLUE display therefore provides you with a visual representation of the operating modes the elevator is in. At the same time the LCD technology that is used is much more efficient than comparable LED displays.

### **LED-lighting**

The use of highly efficient and energy-saving LED lighting can achieve energy savings of up to 78% compared with fluorescent tubes.

### E.COR - elevator control

E.COR protects both the environment and your budget - it is the intelligent heart of your elevator. The principle is both simple and ingenious: E.COR only switches on components when they are actually needed. In this way, standby demand (depending on the selected option, etc.) is reduced to a minimum (36 watts for NC 91 B 00, 630 kg, 4 landings, basic scope of delivery LED lighting). In order to increase efficiency even further during elevator travel, the control system can switch between an Eco mode and highspeed mode thanks to an integrated transport forecast tool. This enables a further energy saving of 5% to be achieved.

### E.COR

## Fact Sheet synergy NC 91 B 00 - 40



### High efficient drives

A compact and extremely quietrunning gearless synchronous drive with an efficiency of up to and over 90% is used. The drive is significantly more efficient than hydraulic and geared systems. There is also no need for an oil change (as is the case with geared systems).

### **RPI-Frequency converter**

Each synergy BLUE contains a converter with power regeneration. Here, electrical power is generated during an upward movement of the car when it is carrying only a few occupants or during a downward movement of the car when it is carrying a lot of occupants. Whereas conventional elevators with no power regeneration dissipate this kinetic energy to the environment in the form of heat, the RPI feeds this energy back to the building's electrical mains supply, where it is made available to other electrical consumers / devices. This constitutes a savings potential in conjunction with the drive of up to 39% (comparison of MRL with/ without possible\*). The unit also features the newly developed 1-contactor technology\*\*. This technology significantly reduces the switching operations of the travel contactor. In conventional elevators this contactor switches during every car movement. In the case of synergy BLUE it is actuated just once a day for testing or when the elevator is placed in standby mode.

\* source: Elevatori

\*\* optional

TECHNICAL DATA	COLOUR-LINE	WOOD-LINE	STAINLESS-LINE
Rated load			
450 kg / 630 kg / 1000 kg	• / • / •	• / • / •	•/•/•
630 kg / 1000 kg (open through car)	0/0	0/0	0/0
Speed 1.0 m/s	•	•	•
Travel height max. 33 m	•	•	•
Number of landings max. 12	•	•	•
Car height CH 2100 mm / 2200 mm / 2300 mm / 2500 mm	•/0/0/0	•/0/0/0	•/0/0/0
Type of door	2707070	2707070	7,0,0,0
2 panel telescopic sliding door	•	•	•
2 panel central opening doors (only with NC 91 A 00)	0	0	0
Door width 800 mm / 900 mm (telescopic)	0/•	0/•	0/•
	•/0/0	•1010	•/0/0
Door height 2000 mm / 2100 mm / 2300 mm	₩1010	•/0/0	₩1010
Shaft head		•	
min. 3400 mm, CH+1300 mm	0		0
reduced min. 2715 mm, DH+715 mm (VF400)	0	0	0
reduced min. 2600 mm, CH+500 mm	0	0	0
Shaft pit			
min. 1100 mm	•	•	•
min. 1100 mm - 1850 mm	0	0	0
reduced min. 400 mm+ height of floor	0	0	0
reduced 450 mm - 1100 mm	0	0	0
Dowel fixing	0	0	0
Counterweight with safety gear	0	0	0
Roller guide shoes on car and counterweight	0	0	0
Halfen Fixing	0	0	0
Compatible Supports for calcium silicate wall (1000 kg, only normal overhead) *	0	0	0
Halogen free cables	0	0	0
LANDING DOOR			
Landing door in shaft	•	•	•
Landing door in recess (80 mm)> 20 mm for S8A	0	0	0
Landing door on landing floor (110 mm)> not available for S8A	0	0	0
Full front shaft door with flexible shaft dimensions (1600-1800 mm)	0	0	0
Fire test report E120 EW60	•	•	•
Fire test report Russia / UK	0/0	0/0	0/0
Gap covering finishing			
Prime painted / Electrolytically zinc-plated	0/0	0/0	0/0
Stainless steel grain 220 / Linen / Elephant Skin	0/0/0	0/0/0	0/0/0
Finishing			
Prime painted [RAL 7005] / Electrolytically zinc-plated	● [ECD] / ● [S8A]	0/0	0/0
Stainless steel grain 220 / Linen / Elephant Skin	0/0/0	•/0/0	•/0/0
Sill finish material stainless steel	0	0	0
Sill finish material aluminium	•	•	•
Profile of aluminium between shaft door frame	0	0	0
Dowel fixing	0	0	0
Floor-to-floor distance min. DH+360 mm	0	0	0

<sup>\*</sup> Not available for germany

Regarding availability of options please be in contact to our sales advisors.

<sup>•</sup> Serial Equipment, O Option, - Not available.

CAR DOOR	COLOUR-LINE	WOOD-LINE	STAINLESS-LINE
Re-opening device			
with one beam photo cell (not for glass door)	•	0	0
with light curtain	0	•	•
Door panel finishing			
Electrolytically zinc-plated	•	0	_
Prime painted [RAL 7005]	0	0	0
Stainless steel grain 220	0	•	•
Stainless steel linen	0	0	0
Elephant Skin	0	0	0
Painted Traffic White <sup>1</sup> / White Aluminium <sup>2</sup>	0/0	0/0	0/0
Sill finish material aluminium	•	•	•
Car door locking device mechanical	0	0	0
CAR AESTHETICS			
Car height 2100 mm / 2200 mm / 2300 mm / 2500 mm	•/0/0/0	•/0/0/0	•/0/0/0
Wall finishing			
Electrolytically zinc-plated	•	0	0
Traffic White <sup>1</sup> / White Aluminium <sup>2</sup> / Sand Yellow / Ocean Blue	0/0/0/0	_	_
Rich Cherry / Amber Burl / Natural Oak / Kiruna Bird / Erable Chocolat	_	0/0/0/•/0	_
Pastell Green / Pastell Grey	0/0	-/-	-/-
Stainless steel grain 220 / Linen / Elephant Skin	-/-/-	-/-/-	•/0/0
Car roof finishing Traffic White <sup>1</sup>	•	•	•
Car lighting			
Honeycomb	0	0	0
Spot	0	0	0
Constellation	•	•	•
Domino	0	0	0
lmola	0	0	0
Polymero	0	0	0
LED (Spot / Constellation / Domino)	0/0/0	0/0/0	0/0/0
Car front panel finishing			
Prime painted / Stainless Steel grain 220 / Stainless steel Linen /			
Stainless steel "Elephant skin"	0/•/0/0	0/•/0/0	0/•/0/0
Painted Traffic White <sup>1</sup> / White Aluminium <sup>2</sup>	0/0	0/0	0/0
Skirting (aluminium / stainless steel grain 220)	0/0	•/0	•/0
Flooring			
Light grey 1578 / Dark grey 1582 / Black blue 2668 (glued on factory)	0/•/0	•/0/0	•/0/0
Traffic wood 3391 / Traffic Attila 2691 (glued on factory)	0/0	0/0	0/0
Type of flooring 25 mm height (flooring by others)	0	0	0

<sup>&</sup>lt;sup>1)</sup> RAL 9016, <sup>2)</sup> RAL 9006

Regarding availability of options please be in contact to our sales advisors.

 $<sup>\</sup>bullet$  Serial Equipment, O Option, - Not available.

CAR AESTHETIC	COLOUR-LINE	WOOD-LINE	STAINLESS-LINE
Fan	0	0	0
Handrail			
Stainless Steel dia. 40 mm with bend end (EN 81-70)	0	0	0
Stainless Steel dia. 40 mm	0	0	0
Focus (EN 81-70)	0	0	0
Wall mirror			
side wall	0	0	0
back wall	0	0	0
Glass rear wall (basic / comfort)	0	0	0
Car tip up seat (mounted on wall)	0	0	0
Bumper rails	0	0	0
ACCESS SOLUTIONS			
Preparation for card reader for car call access	0	0	0
Preparation for card reader access control at landing	0	0	0
Car call with digicode control from inside the car	0	0	0
Key switch access control in cabin	0	0	0
Key switch access control at landing	0	0	0
OPERATING AND INDICATING ELEMENTS			
Car operating panel (COP) blue-line	•	•	•
Button STEP classic blue / Blue Tactile, Braille	•/0	•/0	•/0
Button Focus blue tactile*	0	0	0
Direction indicator STEP classic at every landing (LED dot matrix blue)	•	•	•
Position indicator STEP classic at every landing (LED dot matrix blue)	0	0	0
Direction & Position indicator LINK at every landing	0	0	0
LCD indicator position & direction indicator at every landing (LCD blue)	0	0	0
Priority switch	0	0	0
Inscription panel in case of fire in COP	0	0	0
Positioning of landing operating & indicating elements			
STEP Modul (in door frame)	•	•	•
in wall	0	0	0
shaft door frame front	0	0	0
Car key switch on COP	0	0	0

<sup>\*</sup> Not available for CSC TKAW.

Regarding availability of options please be in contact to our sales advisors.

<sup>•</sup> Serial Equipment, O Option, - Not available.

CONTROL FUNCTIONS E.COR	
Control box	
stainless steel grain 220	•
built up on wall / recessed in wall / in the front wall of the elevator well	•/0/0
in upper landing / at any landing / shifted (length of electrical line 2.5 / 5.0 / 10 m)	•/0/0
One-button control	•
Two-button control	0
Duplex-Control (Group of 2 lifts) only in combination with E.COR	0
Relevelling	0
Levelling with advanced door opening	0
Two opposite car entrances on the same level	0
Selective door control	0
Fire emergency	
potential-free contract prepared for 1 fire emergency evacutation landing	0
potential-free contract prepared for 2 fire emergency evacutation landings	0
activation of key switch in 1 landing	0
No service to floors on fire	0
Start interlocking for groups of elevators (only in combination with E.COR)	0
Manual switching off controller / light: activating by key switch in wall-mounted push-button box	0
Collective fault signal	•
Automatic evacuation	
by release in nearest landing (load-dependent)	0
in any landing UPS (uninterruptible power supply), included	0
with emergency power supply (starting sequence control)	0
Parking level (Adaption to traffic volume)	0
Intercom	
two way	•
third intercom unit	0
Penthouse control	0
Emergency light in the car	
with emergency button / with STEP element	•/0
Teleservice (only in combination with E.COR)	
Generation 7 / inclusive modem	0/0
Lift warden	0
Potential free contact for emergency call	0
Emergency system	
Easy alarm / MEMCO	0/0
Landing key switch for locking of landings	0
Humidity sensor in the pit	0
Phase failure monitoring	0
Blue Function	
Energy Recovery (RPI)	•
Sleep Mode	•
Eco/High-Speed Mode, automatic reversible	•
Standby- and Sleep Mode of the RPI	•
Automatic switching off cabin light to reduce the energy consumption	•
Potential free contact "lift in service"	0

<sup>•</sup> Serial Equipment, O Option, - Not available.

Regarding availability of options please be in contact to our sales advisors.

Technical protocol currently only in Germany available. Options and availability: see calculation system.





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