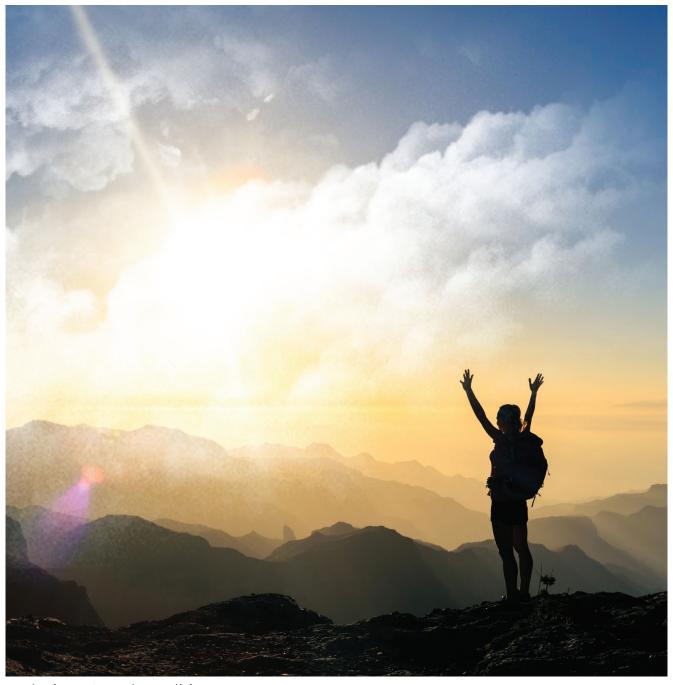


Customized Elevator Solutions

SYMPHONY MRL

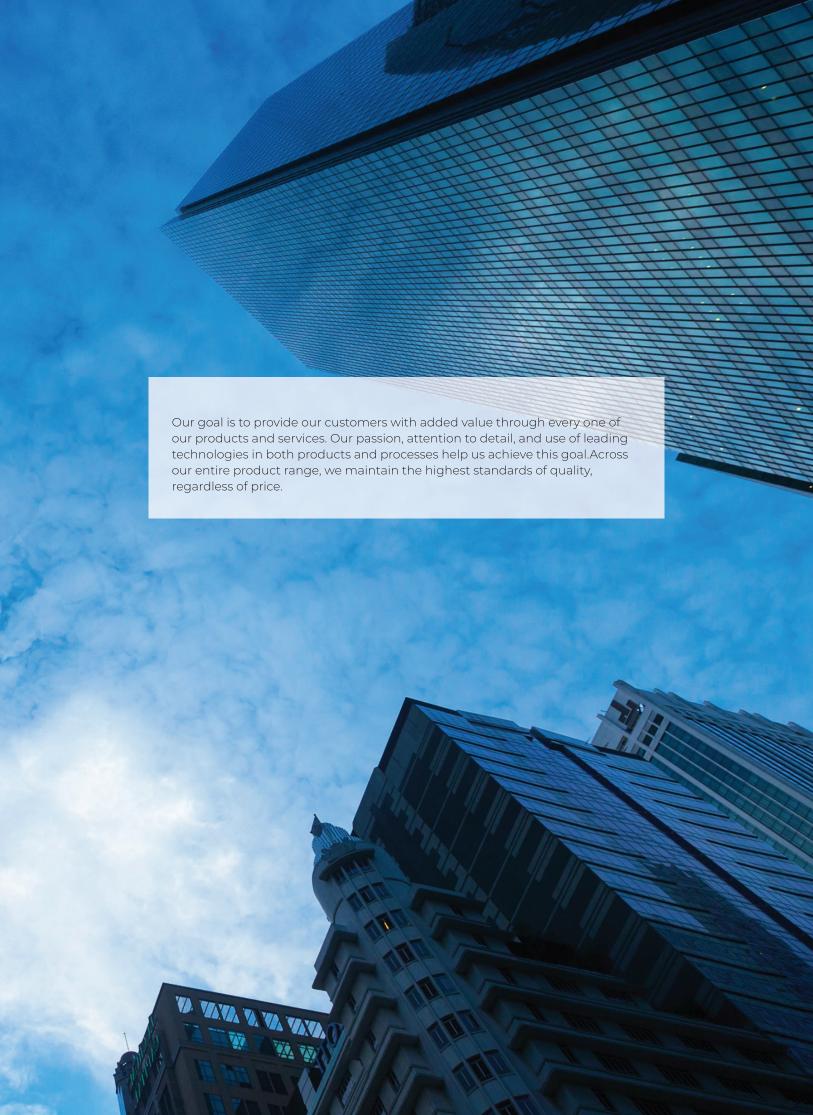


Exclusive US Market Edition













CONTENT SYMPHONY

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Doors	12-13
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Cabins	19-33
Control system	35-39
Layout	40-46

SYMPHONY **OVERVIEW**



SYMPHONY **MRL** WITH MACHINE ROOMLESS

SYMPHONY **OVERVIEW**

SYMPHONY is a machine-room-less electric elevator with high ride quality and low noise emission. The system is available in a machineroomless execution or with a small machine room. Symphony is developed and produced self-directed. Being designed for a wide variety of buildings, the modular construction kit provides customized solutions for almost every use case - in single and group control.

The core components were developed and qualified considering strict quality standards according to the latest state of engineering art. Innovation, reliability and efficiency represent the leading principles here.

With the ambition to reach the perfect harmonic interaction of control system, mechanical structure and the drive train, this flexible elevator system has arisen.

Modern technology in combination with approved techniques ensure a quick installation, as well as an uncomplicated and anticipatory maintenance.

Numerous options are available to meet the individual needs of the intended purpose.

SYMPHONY MRL is a machineroomless electric rope lift. For this type of elevator, no additional machine room is needed. The gearless drive and the control unit are located in the shaft head. The control unit is usually located in the top landing next to the shaft door, in front of the door frame or integrated inside the door frame.

This space-saving design avoids disruptive roof structures and gains valuable usable space.



Brief overview of ADVANTAGES

Realization of a shaft pit of minimum 400mm independent to cabin dimensions.

With the application of an underslung cabin, regardless of the cabin dimensions, shaft heads of minimum 2500mm and shaft pits of minimum 450mm can be realized.

Cabin widths and cabin depths can be realized in 1 mm increments

Minimal transfer of lateral forces into the side walls of the shaft advantages in statics and noise transmission

Centrally guided overslung ride unit - excellent ride comfort

Unlimited possibilities of cabin design

Unlimited possibilities of door executions

Same technology up to rated speeds of 2.5 m/s

Easy installation and commissioning

- pre-assembled and pre-configured components
- Plug and Play

Integrated access control in the cabin as standard function

Online / GSM service to support commissioning

Integrated monitoring system as standard function

Preventive maintenance through E-Service

Integrated emergency call system via GSM

Analog load measuring device as standard function ensures a smooth driving comfort

Protection classes of IP54 are possible

SYMPHONY DOORS

We deliver automatic doors in standard:

2PS: Two panel side opening2PC: Two panel center opening4PC: Four panel center opening



T-100: Door panels out of powder coated steel or stainless steel brushed

T-200: Glass door panels out of laminated safety glass with full frame out of powder coated steel or stainless steel brushed

T-300: Glass door panels out of laminated safety glass with frame on top and bottom out of powder coated steel or stainless steel brushed

The door frame is made out of powder coated steel or stainless steel brushed at all executions.

STANDARD SURFACE FINISHING



Following fire resistances of the shaft doors type ST-100 are available acc. to EN81-58: E120, EW60, EI30, EI60

Further options are available on demand.

CABIN DOOR



modern frequency regulated synchronous drive noise level <50 dB adjustable opening and closing speed power consumption in standby mode 4W up to 360 cycles per hour non-contact monitoring by a high-resolution light curtain EN81-20/50 conform

DOOR SILLS

Aluminum sills are supplied in standard Stainless steel sills can be supplied optionally



Aluminium Stainless steel

BUTTONS





LANDING OPERATING PANELS







LOP-US-ERM F1102



LOP-US-ERM F1103

The body is made of matt stainless steel. The elements can be attached to the wall next to the shaft door or to the shaft door frame (observing the rules for required fire protection class).

LANDING INDICATING PANELS







LOP-US-ERM 1201

LOP-US-ERM 1202 LOP-US-ERM 1203

Optionally, full color TFT displays can also be used in the landings. The elements can be mounted on the wall above or next to the landing door.

Shortcut	Explanation
LIP	Landing indicating panel
S	Surface mounted
F	Flat mounted
TFT3	TFT-indicator, 3 = 3 inch
TFT5	TFT-indicator, 5 = 5 inch
R	Illuminated directional arrows



CABIN OPERATING PANEL S SERIES

Our newly developed exclusive cabin operating panel of the **S series** is equipped with a full color TFT display and allows a flexible positioning inside the cabin by surface mounting.

It provides the highest visual overview to the passengers. The height is 1270mm.

The standard version includes:

buttons braille and tactile

integrated access control via Dallas Key -Reader

door-close and door-open-button

intercom

call cancelation function in the cabin

type plate

5" TFT display

brushed stainless steel body

emergency button

The available options are:

VIP key switch

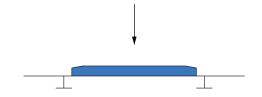
body made of other materials (e.g. stainless steel linen or powder-coated steel)

body with LED - Backlight

preparation for code card reader

9" TFT display

text announcement





Bringing **Luxurious**, **Elegant** yet **simple design** to Building



ELEGANCESTAINLESS STEEL



CLASSICPOWDER COATING



AMBIENTE

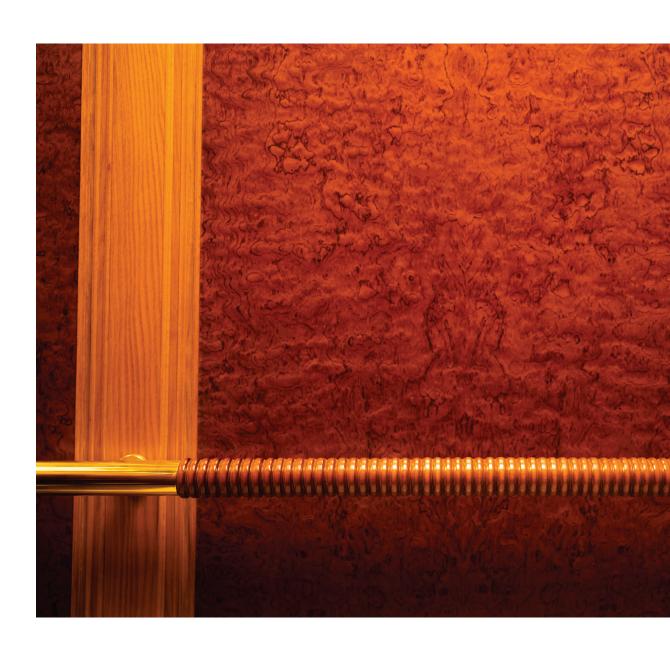
GLASS



PANORAMA

SPECIAL CABINS







Discover excellence in design and functionality.

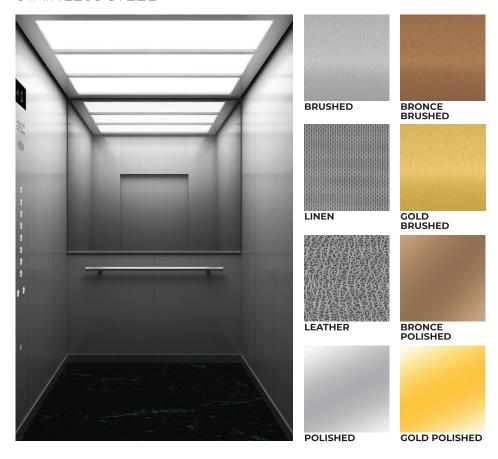




Hand Crafted
Cabin Designs of
Supreme Quality



ELEGANCE STAINLESS STEEL



Standard scope of supply

Walls: Stiff car panel construction in brushed stainless steel.

Other stainless steel designs are available according to our «Stainless Steel Design Collection».

Ceiling: Traversable, suspended ceiling made of brushed stainless steel with matt-white acrylic glass and fluorescent tubes or optionally with LED lighting. Other versions are available acc. to «accessories ceilings».

Flooring: Linoleum. Further variants are available acc. to «Accessories floor coverings».

Skirting: brushed stainless steel.

Car entrance panels: brushed stainless steel.

 $\textbf{Mirror:} \text{ safety glass with polishes edges, } \frac{1}{2} \text{ height on back wall.}$

Car operating panel: integrated column panel of the **F Series** or surface mounted panel of the **S Series**.

CLASSICPOWDER COATED



Standard scope of supply

Walls: Stiff car panel construction out of powder coated steel according to our «RAL Colors Collection».

Ceiling: Traversable, suspended ceiling made of powder coated steel (RAL 9010) with matt-white acrylic glass and fluorescent tubes or optionally with LED lighting. Other versions are available acc. to «accessories ceilings».

Flooring: Linoleum. Further variants are available acc. to «Accessories floor coverings».

Skirting: powder coated steel.

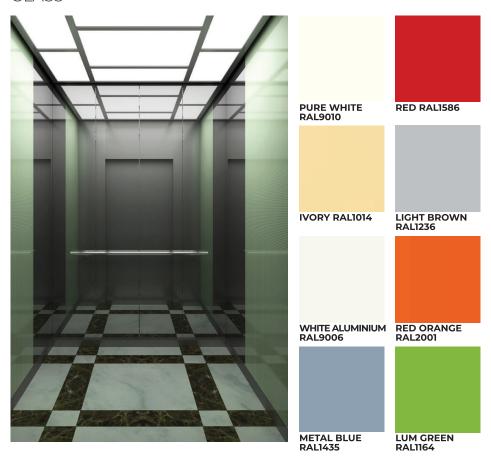
Car entrance panels: powder coated steel.

 $\textbf{Mirror:} \text{ safety glass with polishes edges, } \frac{1}{2} \text{ height on back wall.}$

Car operating panel: integrated column panel of the **F Series** or surface mounted panel of the **S Series**.

AMBIENTE

GLASS



Standard scope of supply

Walls: Stiff car panel construction out of zinced steel cladded with glass panels acc. to our «Glass Panel Collection».

Ceiling: Traversable, suspended ceiling made of brushed stainless steel with matt-white acrylic glass and fluorescent tubes or optionally with LED lighting. Other versions are available acc. to «accessories ceilings».

Flooring: Linoleum. Further variants are available acc. to «Accessories floor coverings».

Skirting: brushed stainless steel.

Car entrance panels: brushed stainless steel.

Mirror: safety glass with polishes edges, ½ height on back wall.

Car operating panel: integrated column panel of the **F Series** or surface mounted panel of the **S Series**.





Quality Meets Modern Beauty In your Buildings



PANORAMASPECIAL CABINS

Individual design
Various geometric shapes
Unlimited design possibilities
Framed and frameless execution
Exclusive materials







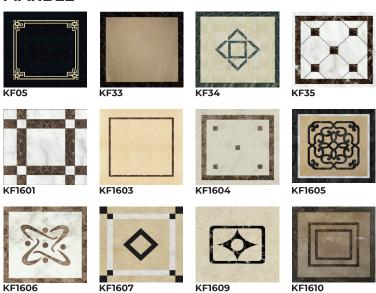
ACCESSORIES

FLOORING

LINOLEUM

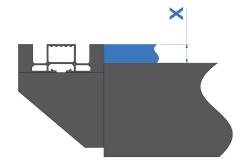


MARBLE



Lowering for on-site flooring

For an on-site floor covering (e.g. tiles) a floor lowering X of 10 - 40mm can be provided.



ACCESSORIES HANDRAILS



KHL-9707

Straight pipe out of natural stainless steel



KHL-9014

Curved pipe out of natural stainless steel

ACCESSORIES

CEILINGS



ZD-01



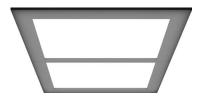
ZD-05



ZD-02



ZD-06



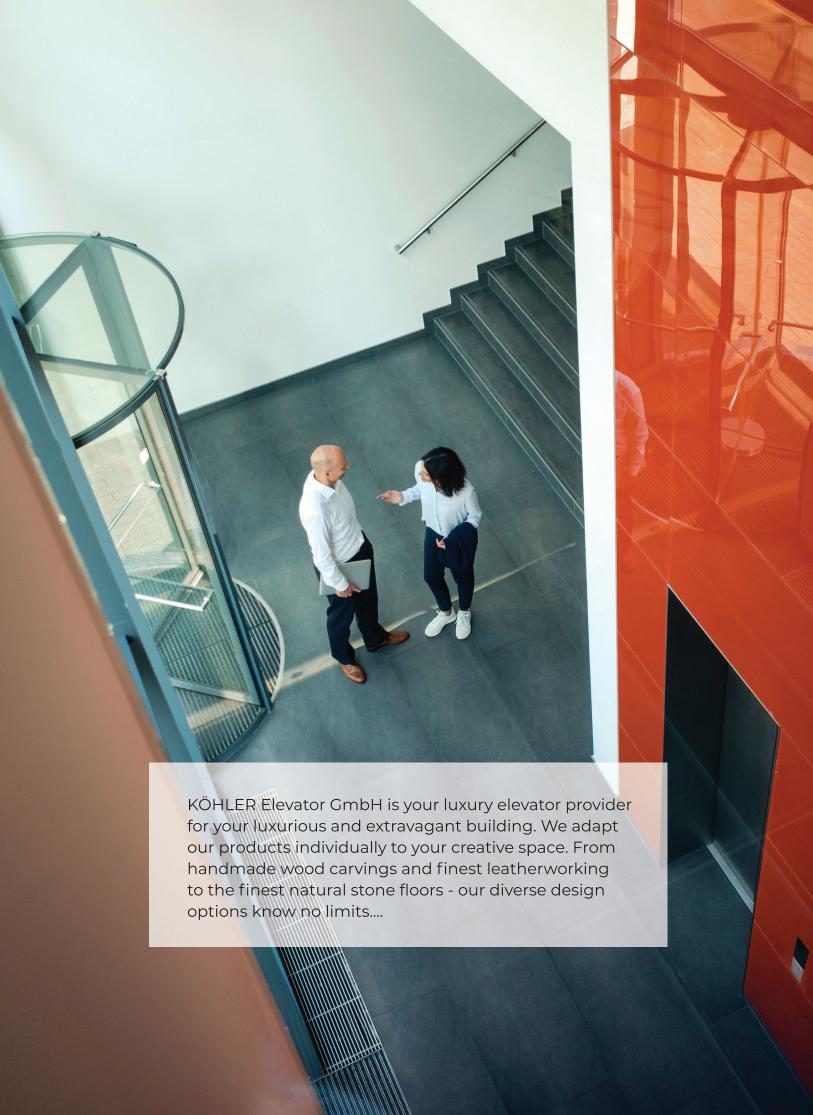
ZD-03



ZD-07



ZD-08





ELEVATOR CONTROL SYSTEM KM-12

KM-12 represents a next-generation control system designed for both traction and hydraulic lifts. This system offers state-of-the-art technology along with emphasis on maximum operational reliability.



SYSTEM FEATURES

Standards	ASME 17.1 - EN81-1-20-50
Application	new installations / modernization
Installation of control	machine room / landing /
unit	integrated in door panel/shaft
Human interface	- parametrization panel with LCD display inside the control unit
	- remote control by laptop,
	tablet or smartphone
Processor	micro-processor
Type of lifts	regulated and unregulated rope and hydraulic lifts
Rated speed	maximum 4 m/s = 787.4 ft/min
Number of stops	maximum 60
Group control	maximum 6 lifts
Positioning system	magnetic incremental / absolute
Protection class	IP20 / IP54 as option
Integrated special	- access control in the cabin
options	- monitoring system via GSM or internet - emergency call system via GSM - E-Service for maintenance
	L Service for maintenance

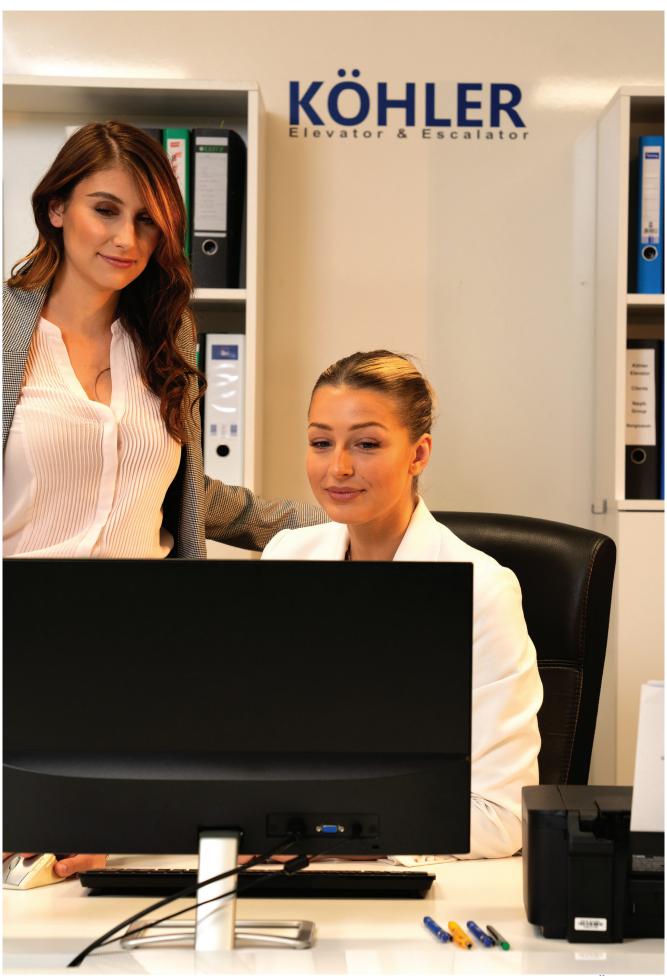
SYMPHONY **CONTROL SYSTEM**

CONTROL FUNCTIONS

STANDARD FUNCTIONS

Ref. Nr.	Description
CF-01	Directional dependent collective control
CF-02	Full collective control
CF-03	Priority control via dallas reader
CF-04	Access control via dallas reader
CF-05	Call cancellation in the cabin
CF-06	Intercom system between car, control and shaft pit (EN81-20/50)
CF-07	Standby mode cabin light, control system and inverter
CF-08	analog load measurung device
CF-09	Prevention of abuse of commands in the cabin
CF-10	emergency horn
CF-11	Emergency call system GSM
CF-12	Emergency light in the cabin, car roof and control box (EN81-20/50
CF-13	Parking function in a defined stop
CF-14	Door-open and door-close button
CF-15	Non-contact monitoring by a high-resolution light curtain
CF-16	Online monitoring system
CF-17	E-Service for mainnenance
CF-18	Bypass function at full cabin

OPTI	ONAL FUNCTIONS
Ref. Nr.	. Description
CF-19	Group control duplex
CF-20	Group control triplex
CF-21	Group control quadroplex
CF-22	Arrival gong
CF-23	Text announcment in the cabin
CF-24	Automatic static evacuation in case of fire (detectors provided by customer)
	Automatic dynamic evacuation in case of fire (detectors provided by customer)
	Automatic rescue in case of power failure (by on-site generator)
CF-27	Automatic rescue device in case of power failure load dependent to the next landing
CF-28	Automatic rescue device in case of power failure load independent to a defined landing
CF-29	Preparation for a customer-side card reader
CF-30	Re-levelling of the cabin
CF-31	Pre-opening of door
CF-32	Preparation for a customer BMS (Building Management System)
	Priority control via key switch
CF-34	Acoustic signal on button acivation in the cabin
CF-35	Acoustic signal on button activation in the landing
CF-36	Release of the buttons in the cabin by means of a key switch
CF-37	Penthouse control
CF-38	Preparation for a customer video camera in the cabin
	video camera in the cabin
	Advertising and information display in the cabin
CF-41	3 3
CF-42	Energy recovery through inverter



KÖHLER 37

SYMPHONY CONTROL SYSTEM

ADVANTAGES OF KM-12

MODERN AND PROVEN COMPONENTS - HIGH QUALITY GUARANTEE

At the selection of our control components, we attach great importance to safety and durability. Only this way can we achieve a long-term satisfaction of our customers.



INTEGRATED ACCESS CONTROL IN THE CABIN - STANDARD FEATURE

Every elevator of KÖHLER Elevator is equipped with an access control system in the cabin. This allows to define individual access rights. In Standard, a dallas reader is used here.

INTEGRATED MONITORING SYSTEM – STANDARD FEATURE

Every elevator of KÖHLER Elevator is equipped with an online monitoring system.
With the Lift Online Monitor, the elevator operator can monitor his elevators via the internet.





PREVENTIVE MAINTENANCE BY E-SERVICE

Maintenance companies receive a tool for remote maintenance. This system provides various evaluations and usage statistics of the elevator. In addition, a factory online support can be provided Commissioning or maintenance are provided.

SYMPHONY CONTROL SYSTEM

ADVANTAGES OF KM-12

CONTACTORLESS TECHNOLOGY - SILENT OPERATION

By means of contactorless technology, the noisy operation of the motor contactors is avoided.

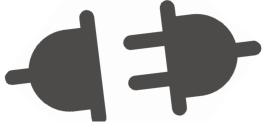


EASY COMMISSIONING – FACTORY PRE-CONFIGURATION

Each control is preconfigured and pre-parameterized order wise. Additional functions such as autotuning of the drive and automatic shaft learning accelerate the commissioning process.

EASY INSTALLATION - PLUG AND PLAY

The single components of the controller are largely pre-wired, pre-assembled and connected to each other by plugs.



HIGH ENERGY EFFICIENCY -ENERGY EFFICIENCY CLASS A ACC. TO VDI 4707 POSSIBLE

For high energy efficiency we use gearless, frequency controlled permanent magnet drives. In standby mode during rest periods, the energy consumption of the system is reduced to a minimum.

INTEGRATED REMOTE TELEPHONE SYSTEM WITH GSM

According to EN81-28, every lift is equipped with an emergency call device. Even in the event of a power failure, it will be supplied by the controls own emergency power supply. This device is also used as a communication medium for the online monitoring system and E-SERVICES.

SYMPHONY MRL is a machine roomless electric steel rope elevator.

For this type of elevator, no additional machine room is needed. The gearless drive and the control unit can be located in the shaft head. The control unit is located in the top landing next to the shaft door, in front of the door frame or integrated inside the door frame, also available with controller room or closet.

KÖHLER MRL Passenger Elevator Product Overview												
Maximum Travel Height	100'	140'	160'									
Maximum Number of Stops	10	14	16									
Speed (fpm)	150(0.76)	200(1.02)	350(1.78)									
Capacity	2,100-4,500											

Overhead Clearance under the hoist beam	150 (fpm)	200 (fpm)	350 (fpm)
8'-0" Car Height	12'-11"	13'-00"	14'-2"
9'-10" Car Height	14'-9"	14'-11"	15'-11"
Minimum pit depth	5'	5'-6"	

Control Box Dimensions										
Option 1	Controller On Door Jamb	9' x 5'-9"	(WxD)							
Option 2	Control Room	6'-0" x Shaft Depth x 8'-0"	(WxDxH)							
Option 3	Duplex Control Room	8'-0" x Shaft Depth x 9'-0"	(WxDxH)							
Option 4	Control Closet	1'-6" × 1'-9" × 7'-0"	(WxDxH)							

Notes:

In accordance with the ${f Safety}$ ${f Code}$ for ${f Elevators}$ ${f ASME}$ ${f A17.1}$, please contact your local ${f K\"OHLER}$

Elevator representative for clear overhead dimensions.

Clear car dimensions may vary depending on interior finishes.

Clear cab height varies based on ceiling type and floor recess.

Doors with right or left openings are available as optional diagonal doors. If required for stretcher compliance, please contact your local KÖHLER Elevator Sales Representative for more details.

Multi-car groups or smaller dimensions are available upon request.

Clear overhead is defined as the distance from the lowest point below any obstruction, hoist beam, or building beams.

Power supply is 3-phase; a 110V disconnect must be located both in the hoistway overhead and in a location outside of the hoistway within the building.

These dimensions are for reference only and cannot be used for construction purposes without confirmation from KÖHLER Elevator.

The hoistway dimensions shown above include installation margins and seismic provisions. The hoistway width dimensions represent nominal values with a ± 2 " tolerance, evenly distributed on both sides

For improved efficiency, we recommend increasing hoistway width dimensions by 2° .

For a duplex elevator system (2-car group or more), provide a double hoistway by adding a 4" hoist beam divider. Multiply, accordingly, to determine the total hoistway dimensions for multiple elevators.

Important Remark:

For better planning, we recommend contacting your local KÖHLER Elevator representative before beginning your project.

DIMENSIONS &PERFORMANCE MATRIX Standard Products and Planning Guide

2100	Hoistway Width	Hoistway Depth	Cabin Width	Cabin Depth	Door Dimensions		
lbs	7'-7" Non Seismic	5'-9" Singel Opening	5'-8 ⁵ ⁄16"	4'-3 [%] 16" Single Opening	3'-0" W		
KÖHLER	7'-11" 6'-3 ¹ / _{4"} Seismic Car Through	5-8 /	4'-2 ¹³ / _{16"} Car Through	- 7'-0" H 2 Panel Side Opening			

2500	Hoistway Width	Hoistway Depth	Cabin Width	Cabin Depth	Door Dimensions
lbs	8'-4" Non Seismic	5'-9" Singel Opening	6'-5 ³ 8"	4'-6 ^½ " Single Opening	3'-6" W 7'-0" H
KÖHLER	8'-8" Seismic	6'-3 ¹ ⁄4" Car Through	6-5 ~	4'-6" Car Through	2 Panel Central Opening

3000	Hoistway Width	Hoistway Depth	Cabin Width	Cabin Depth	Door Dimensions
lbs	8'-4" Non Seismic	6'-3" Singel Opening	6'-2 ^½ "	5'-1 [%] " Single Opening	3'-6" W 7'-0" H
KÖHLER	8'-8" Non Seismic	6'-11 [%] " Car Through	6-278	5'-3 ³ 8" Car Through	2 Panel Central Opening

3500	Hoistway Width	Hoistway Depth	Cabin Width	Cabin Depth	Door Dimensions
lbs	8'-4" Non Seismic	6'-11" Singel Opening	6'-2 ^⅓ "	5'-9 ⁵ a" Single Opening	3'-6" W 7'-0" H
KÖHLER	8'-8" Non Seismic		6-2 /**	5'-9 ^½ 2" Car Through	2 Panel Central Opening

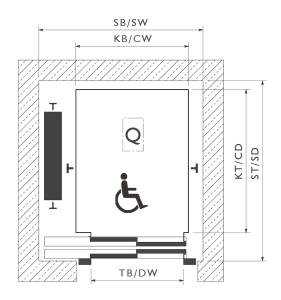
	Hoistway Width	Hoistway Depth	Cabin Width	Cabin Depth	Door Dimensions
4000 lbs	9'-4" Non Seismic	6'-11" Singel Opening		5'-9 ^{5%} " Single Opening	4'-0" W
KÖHLER	ÖHLER 9'-8" 7'-6" Seismic Car Through		7'-2 ^½ "	5'-9 ^½ " Car Through	7'-0" H 2 Panel Central Opening

4500	Hoistway Width	Hoistway Depth	Cabin Width	Cabin Depth	Door Dimensions
lbs	9'-7" Non Seismic	7'-2" Singel Opening	7'-5 ^⅓ "	6'-0 ^{5/a} " Single Opening	4'-0" W 7'-0" H
KÖHLER	9'-]]" Seismic	7'-9" Car Through	7-5 /**	6'-0 ^½ 2" Car Through	2 Panel Central Opening

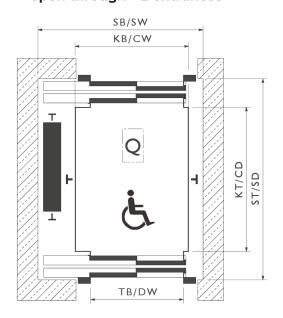
SYMPHONY **LAYOUT**

CROSS SECTIONS

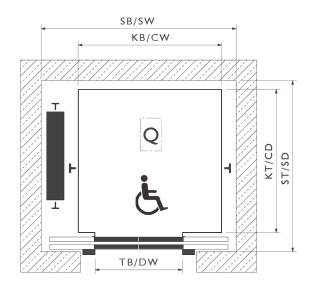
2PS – 2 panel side opening single entrance – 1 entrance



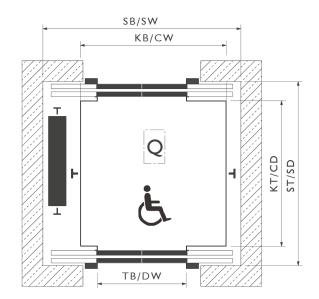
2PS - 2 panel side opening open through - 2 entrances



2PC - 2 panel central opening single entrance - 1 entrance

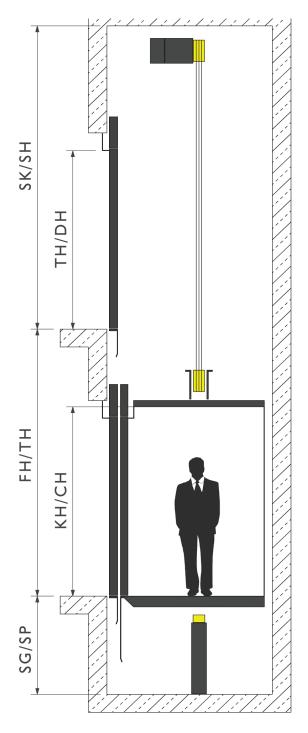


2PC - 2 panel central opening open through - 2 entrances

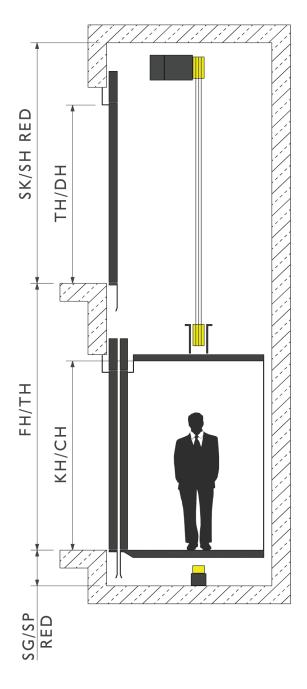


VERTICAL SECTIONS MRL

STANDARD SHAFT HEAD STANDARD SHAFT PIT



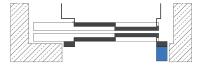
REDUCED SHAFT HEAD REDUCED SHAFT PIT



CONTROL CABINET MRL

COMPACT IN FRONT OF THE DOOR FRAME

separate slim control cabinet in front of the door frame compact arragment doors with fire protection applicable for central and side opening doors

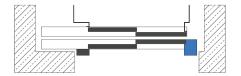




COMPACT INSIDE THE DOOR FRAME

control cabinet integrated into the door frame most compact arragment

doors with fire protection not applicable side opening doors only

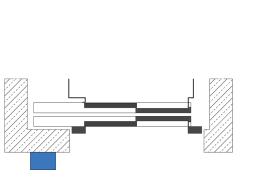


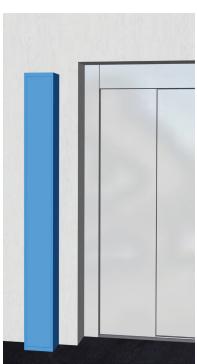


CONTROL CABINET MRL

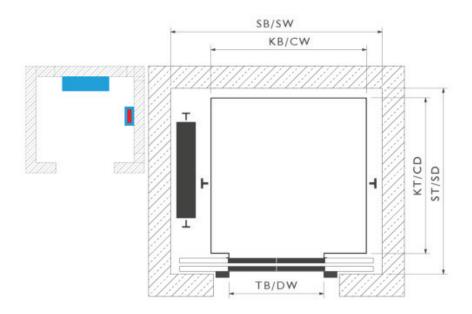
SEPARATE CONTROL CABINET

separate flexibly positionable control cabinet most maintenance friendly doors with fire protection applicable independent to door execution





CONTROL ROOM



PERFORMANCE MATRIX machineroomless with already Built Hoistway

				SYI	MPH	ЭИҮ І	MRL	ASM	E A17	'.1								
lbs		1000		1390			2200			3500				4400				
		2:1			2	2:1			2:1			2:1				2:1		
fpm	200	350	500	200	350	500	600	200	350	500	600	200	350	500	600	200	350	500
feet	131	197	197	131	197	197	197	131	197	197	262	131	262	262	262	131	262	262
									op	otiona	I							
					SHA	AFT D	IME	NSIO	NS									
inch	К	B + 1'-8	3"		KB+	- 1'-8"			KB+	- 1'-8"			KB+	1'-10"		ŀ	(B + 2'-C)"
inch		3'-7"			3'-	-7"			3'-	-7"	-		3'-	11"			4'-3"	
inch	кт	+ KP +	- 3"		KT + k	(P + 3"	,		KT + k	(P + 3'	,		KT + K	(P + 3'	,	K	T + KP +	3"
inch	KT + 2x TP			KT +	2x TP		KT + 2x TP				KT + 2	2x TP		KT + 2x TP				
inch	5"	5-4"	5-8"	5"	5-4"	5-8"	6"	5"	5-4"	5-8"	6"	5"	5-4"	5-8"	6"	5"	5-4"	5-8"
inch	KH+ 3'-11"	KH+ 4'-7"	KH+ 4'-11"	KH+ 3'-11"	KH+ 4'-7"	KH+ 4'-11"	KH+ 6'-1"	KH+ 3'-11"	KH+ 4'-7"	KH+ 4'-11"	KH+ 6'-1"	KH+ 4'-3"	KH+ 4'-11"	KH+ 5'-3"	KH+ 6'-5"	KH+ 4'-7"	KH+ 5'-3"	KH+ 5'-9"
						D	oor!	5										
inch	3	5' - 3'-6	n	3' - 4'		3' - 4'		3' - 4'-6"			3' - 6'-6"							
inch		7' - 8'		7' - 8'		7' - 8'			7' - 8'			7' - 8'						
inch	2	PS/4P	С	2PS/2PC/4PC		2PS/2PC/4PC			2PS/2PC/4PC			2PS/2PC/4PC						
inch		11"/11"		11"/8"/11"			11"/8"/11"			11"/8"/11"				וו"/8"/וו				
		12"/12"			12"/9"/12"			12"/9"/12"			12"/9"/12"			12"/9"/12"				
					CAE	BIN D	IME	ISIO I	NS									
inch	3	3' - 3'-7	,,		3' - 4	4'-11"		3'-3" - 6'-11"			3'-11" - 6'-11"				4	'-7" - 6'-1	17"	
inch	3'-	7" - 4'-	7"		3'-7"	- 5'-11"		3'-7" - 7'-3"			4'-7" - 8'-2"				5'-3" - 8'-10"			
inch	6'-	11" - 8'-	10"	6'-11" - 8'-10"		6'-11" - 8'-10"			6'-11" - 8'-10"				6'-11" - 8'-10"					
IIICII	_	6'-11" - 8'-10" 3'-3" × 4'-1" × 7'-3"		1	3'-7" × 4'-7" × 7'-3"		3'-7" × 6'-11" × 7'-3" 5'-3" × 4'-7" × 7'-3"			4'-7" × 7'-11" × 7'-3" 5'-3" × 6'-11" × 7'-3"			4'-11" x 8'-10" x 7'-7" 5'-9" x 7'-7" x 7'-3"					
	fpm feet inch inch inch inch inch inch inch inc	inch KI inch KI inch KI inch KI inch S'' inch 3'-11" inch 2 inch 33 inch inch 33 inch	inch 200 350 feet 131 197 197	197 197	Ibs	Ibs 1000 13 13 13 14 197 197 131 197 197 131 197 197 131 197	Ibs	Ibs	Ibs	Ibs	Part Part	Ibs	Ibs	Ibs	Ibs 1000	Ibs 1000	Ibs	Ibs 1000 1390 2200 3500 3500 4400

This table intends to give an orientation. different executions are possible on demand.





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