



Technical data

Roll-up door systems with metal mesh

In cooperation with

berlinand brasellmann.de

Metal fabrics – Security



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Abbreviations

PD	Height above lintel - external motor
PD-TM	Height above lintel - external motor with TM
TM	Torque multiplier (vertical installation of motor)
ID-P	Installation depth of external motor incl. consoles
ID-TM	Installation depth of external motor with TM
ID-T	Installation depth of tube motor
ST	End-stop width of safety gear for tube motor
GR	Guide rail width
CM	Console dimension, motor side
CB	Console dimension - bearing side
BP	End-stop width, bearing side for plug-on motor
MT	End-stop width, motor side for tube motor
MS-P	End-stop width, motor side for external motor
MS-TM	End-stop width, motor side for plug-on motor with TM
TES	Top edge of shaft
TD	Height above lintel - tube motor
DIF	Height above lintel with inclined floor
US	Possible upward height shift of fastening point
S	Shaft diameter mm

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Function, security, & aesthetics

Roll-up systems made of metal mesh

Until now, secure shutter solutions in shopping malls, underground garages, or kiosks only rarely impressed through their appealing aesthetics. With the transparency that is typical of metal mesh, the new roll-up door and roller shutter system made of stainless steel mesh from GKD combines aesthetics with maximum function. At up to eight meters wide and five meters high, the translucent and air-permeable stainless steel construction is virtually maintenance-free in both indoor and outdoor applications. The roll-up doors and shutters are manufactured from high-quality stainless steel in line with European safety standards and are weather-resistant and easy to maintain. As such, the system offers a long service life and low maintenance costs along with a high degree of functional reliability.

Despite the filigree feel of the mesh, the strong roll-up doors and shutters prevent unwanted access and theft while at the same time ensuring optimum ventilation and an unhindered view of the areas behind. Individually adapted light concepts regulate the transparency of the mesh and emphasize features through reflections. The all-in-one system from GKD comprising mesh, motor, guide rails, end profiles, and wall switches is a complete solution from

a single source. The system is perfectly matched and easy to install, ensuring that the shutters are up and running quickly and easily. Depending on the desired degree of light transmission, the roller systems are available with the GKD meshes Tigris, Lago, or Sambesi.

GKD SER roll-up doors are produced in cooperation with Braselmann from Ennepetal.

Image: Roller shutter in a canteen, Münster; architect: Vervoorts & Schindler Architekten BDA, Bochum; mesh: Tigris, ©GKD/Holtkötter

Roll-up systems as a standard solution

External motor and tube motor

As a standard solution, roller shutters made of stainless steel mesh (Lago, Sambesi, or Tigris) are offered with improved guide rails, an individually customized winding shaft, and an updated lower bar including edge protection. Corresponding consoles and bearing blocks are provided to match the



type and size of motor. The length of the shaft and journals are adapted individually to the roll-up door. In contrast to the previous model, the guide rail is of a one-piece design – this offers even greater flexibility when it comes to installation. With just a few screws and very little space, the stainless steel rail can be mounted securely to substructures and walls. The mesh is set 40 mm into the guide rails at the side. Plus, additional wind hooks on the mesh ensure that it sits securely in the rails. The roll-up door is also fitted with push-up protection. The closure bar is fastened to the bottom of the mesh with screws and cap nuts and guarantees perfect closure thanks to its unusual form.

Special solutions can also be implemented depending on the technical feasibility and upon consultation with GKD and Braselmann.



Mesh types



LAGO



SAMBESI



TIGRIS

MESH	LAGO	SAMBESI	TIGRIS
Material	Stainless steel	Stainless steel	Stainless steel
Free area	44.00 %	42.00 %	65.00 %
Total fabric thickness	3.5 mm	7.0 mm	6.2 mm
Weight	6.8 kg/m ²	10.75 kg/m ²	6.4 kg/m ²
Maximum fabric width	8,000 mm	8,000 mm	8,000 mm
Standard width	6,000 mm	6,000 mm	6,000 mm
Solar factor	g_{total} 0.38, Fc 0.56	g_{total} 0.32, Fc 0.55	g_{total} 0.46, Fc 0.78
Wind class	-	WK 3/2: up to 4 m wide WK 1: up to 6 m wide	WK 3/2/1: up to 7.95 m wide
Use	Only indoors	Up to 4 m wide also Outdoors, wider systems only indoors	Indoors and outdoors

GKD metal mesh made of stainless steel is long-lasting, fully recyclable, and easy to clean with standard commercial cleaning agents. Please observe the GKD cleaning instructions for metal mesh.

External motor and tube motor

Differences between the systems

External motor systems (400 V) are easy to maintain as the motor is easily accessible through an additional service hatch. It can be easily replaced in the event of motor damage. Thanks to their high power output, systems with external motors can also be used for large installations. They can be used up to a maximum size of 8 m x 5 m in busy areas such as garages, vehicle entrances and exits in continuous operation (max. 10 cycles per hour, depending on the type of motor). Plug-on systems can be automated.

Tube motor systems (230V) are more compact than plug-on drives. However, as they have a lower power output and heat up more easily, they are only suitable for installations up to a max. width of

6 m (depending on the mesh type) and are limited to 5 to max. 10 movement cycles per day, between which there should be a break of at least 30 minutes. The installation is controlled exclusively via a key switch. As such, tube motor systems are especially suitable for closures which are not moved very often, for example kiosks or sales areas, which are only moved when the store opens or closes. It should be noted that in the case of motor damage, the complete shaft including shutter must be removed. Depending on the installation situation, this can cause problems and should therefore be taken into account when designing the installation.

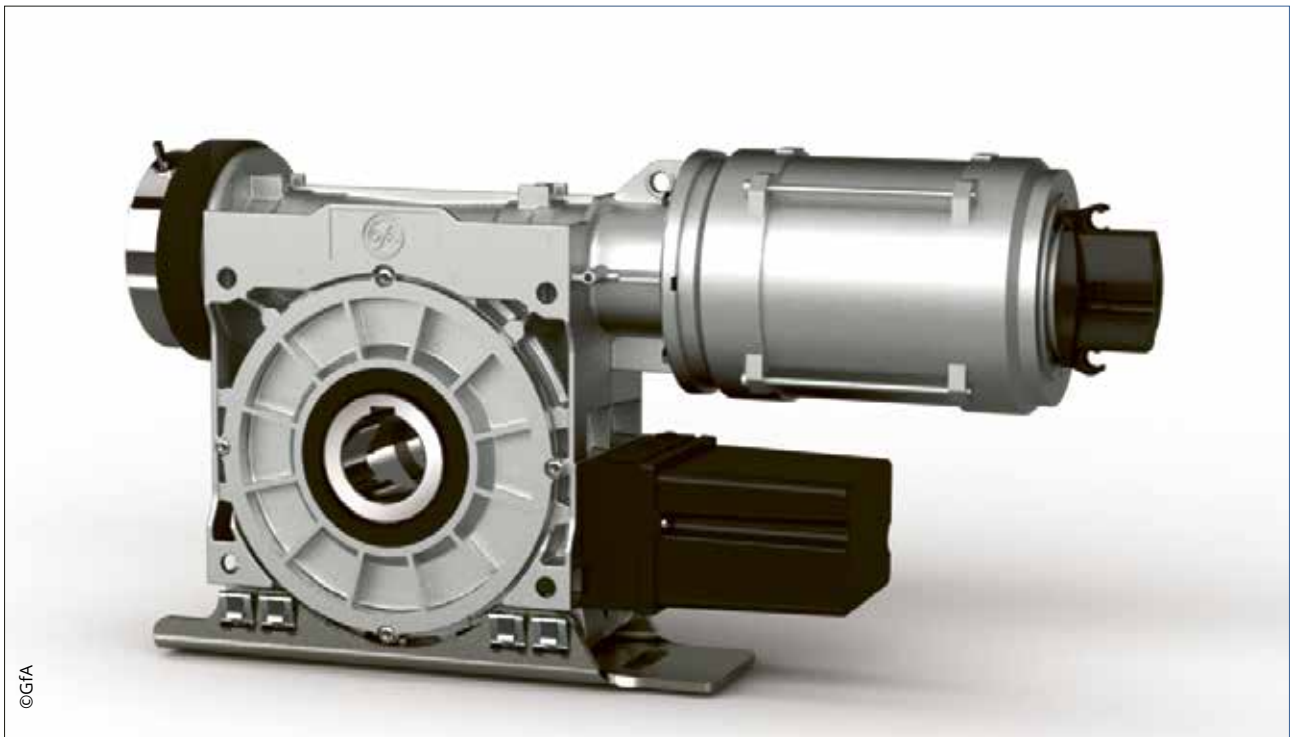
We therefore recommend installations with an external motor.



External motor

Motor: GFA / TYP SI 10.15 / 17.15 / 25.15 / 40.15 / 55.15 / 75.15

www.gfa-elektromaten.com



Type	SI 10.15	SI 17.15	SI 25.15	SI 40.15	SI 55.15	SI 75.15
Weight	12.50 kg	15.50 kg	21 kg	28 kg	30 kg	44 kg
Nm	100 Nm	170 Nm	250 Nm	400 Nm	550 Nm	750 Nm
rpm	15	15	15	15	15	15
Max cycles p. h.*	10	10	10	7	8	7

* When using the temperature range +40 °C ... +60 °C, the maximum cycles per hour must be halved.

Patented safety gear

- Guard against worm shaft and worm wheel breakage
- Independent of motor speed and direction
- Maintenance free and self-monitoring
- Very good damping characteristics in the event of a fall
- Supply voltage: 3-400V, other motors/voltages on request
- Design with emergency hand crank

Standard control system for plug-on drives: GfA TS 959

Dead man's switch for GfA ELEKTROMATEN® with digital limit switch (DLS) or cam limit switch (CLS)

TS 959 – Dead man's switch for DLS / CLS

Technical data

- For all GfA ELEKTROMATEN with DLS or CLS
- Supply voltage:
1N~230V, PE / 3~230V, PE / 3N~400V,
PE / 3~400V, PE
- Operating frequency: 50 / 60 Hz
- Permitted temperature range: -10 °C ... +50 °C

Housing

- Dimensions W x H x D [mm]: 155 x 386 x 90
- IP65 when connected directly or IP54 with CEE connector
- Protection against contact by covering the live parts
- Pluggable connecting cable to the ELEKTROMATEN, from below or above

Design

- Integrated OPEN-STOP-CLOSED command unit
- Safety reversing contactor (with second independent shut-down path)
- Settings via rotary selector with digital display
- Pluggable connection technology – connecting cable to the ELEKTROMATEN in various lengths
- Independently programmable relay contact, e.g. can be used for green light or ramp-clear signal
- Pluggable slack rope and door-in-door connection

Accessories

- Key switch (not as standard)

Functions

- Automatic detection of DLS or CLS

- Change of direction via keyboard
- Settings for the stop positions (with DLS) and all functions from the operating level
- Selectable operating mode:
 - Dead man's switch CLOSE / OPEN
 - Dead man's switch CLOSE / self-retaining OPEN
 - Extended dead man's switch CLOSE / self-retaining OPENWith this function, the operator must press the CLOSE button until the shutter is fully closed. If the CLOSE button is released before this, the shutter moves automatically into the OPEN stop position.
- Status and information display (including display of the last 6 errors), expanded evaluation via optionally available service kit (adapter + software)
- Cycle counter (cannot be reset)
- Maintenance cycle counter:
 - Can be set between 1,000 - 99,000 cycles
 - When the maintenance cycle count is reached, this can be displayed or the system switches to dead man's mode
- Blockage monitoring (with DLS), the control system detects a shutter blockage and switches off the drive
- Dynamic run time monitoring (with CLS)
 - With every movement of the shutter, the run time between the stop positions is measured and compared with the last reference time
- If the run time increases (preconfigurable deviation), the control system switches off the drive
- Adjustable power monitoring in OPEN direction (with DLS):
 - Self-learning, meaning that the power monitoring is not triggered by a change to the spring tension, for example

Automatic control for GfA-Elektromaten® with digital limit switch (DLS) or cam limit switch (CLS)



Inspections and certificates for TS 971/ type approval test in accordance with:

DIN EN 12453
 DIN EN 12978
 DIN EN 60335-2-103
 DIN EN ISO 13849-1
 TÜV NORD CERT GmbH

©GfA

Overview of the TS 959 control unit

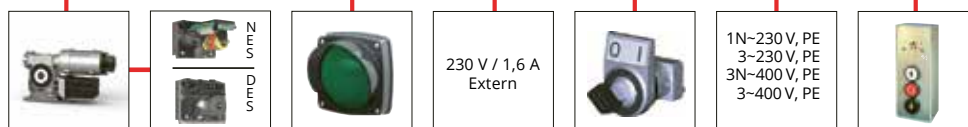
CONNECTION OPTIONS

TS 959

Art. no. installation drawing:
 50001664



If you have further questions about the motor and accessories, contact your GfA dealer:
www.gfa-elektromaten.com



©GfA

Key switch – special solution available at a surcharge



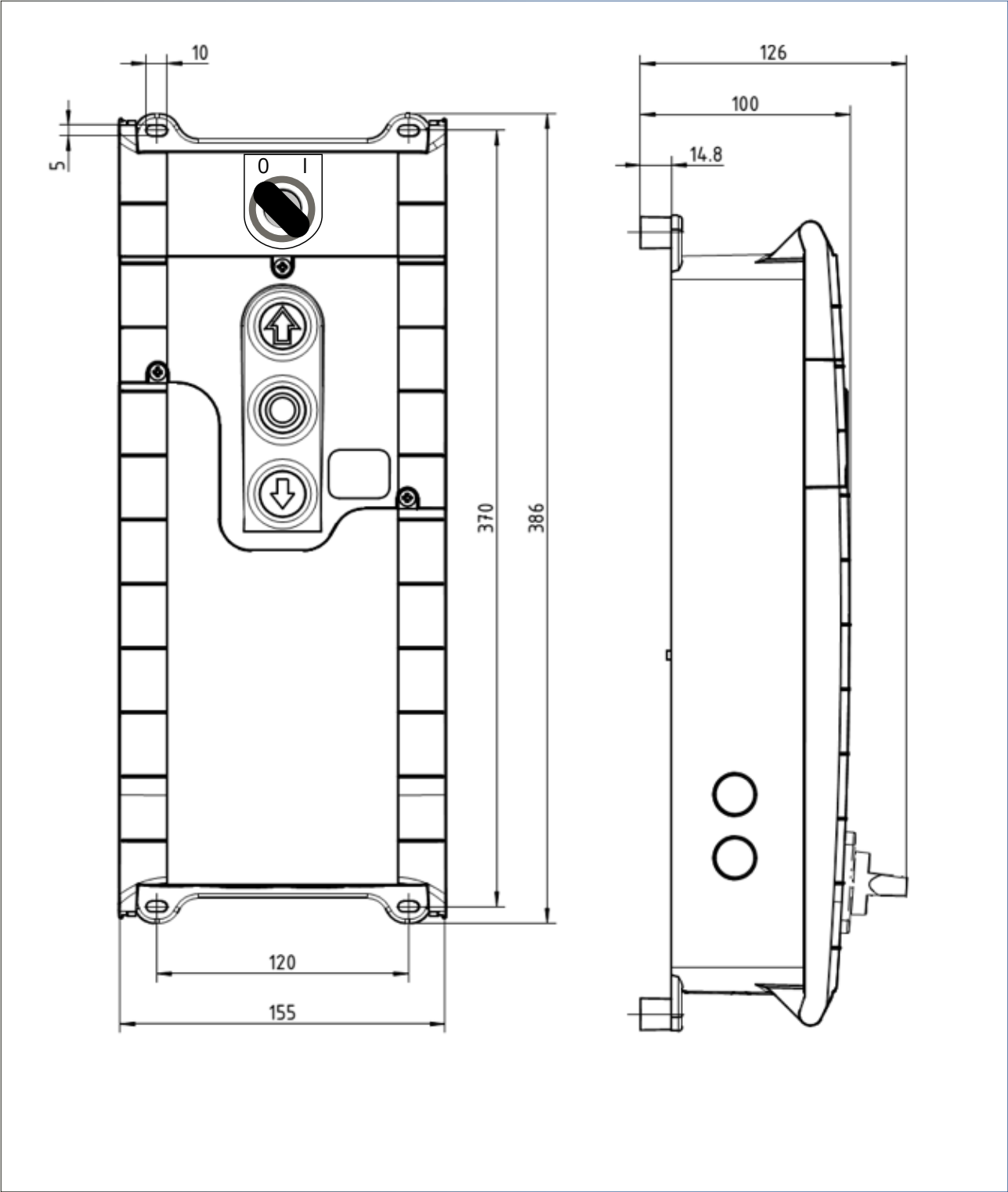
If desired, we will supply a key switch in addition to the TS 959 control unit

- Universal key switch with touch and latching function
- Operation possible on one or both sides
- SURFACE-MOUNTED installation no. 420 aP / keyed alike / dimensions 70x90x65 [mm]
- Alternative: FLUSH-MOUNTED installation no. 421 uP / keyed alike
 - Housing dimensions 70x90x65
 - Plate dimensions 100*125

Order no.	Voltage	Connection option	Switching power
2212079	250V – AC	1 Motor	10A

Installation dimensions

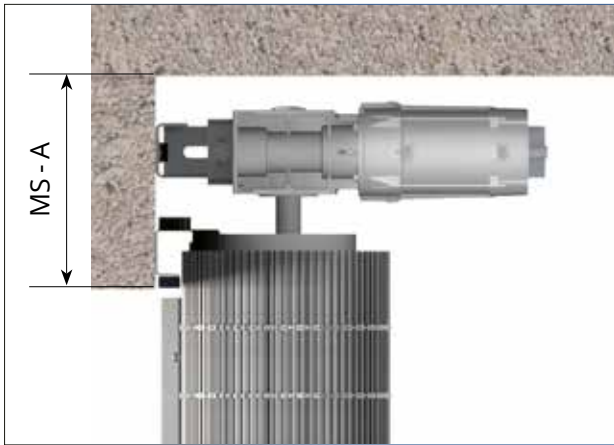
GFA TS 959 control unit



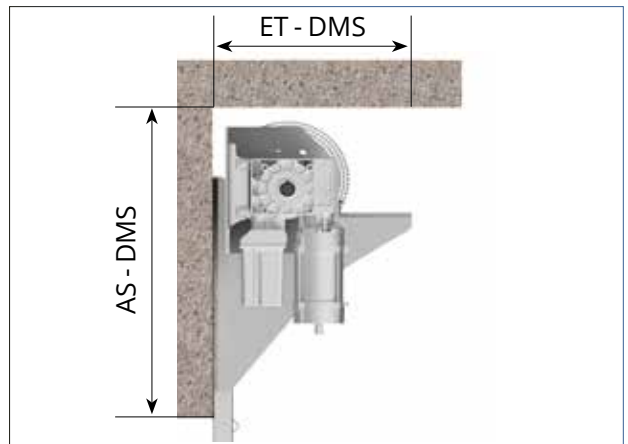
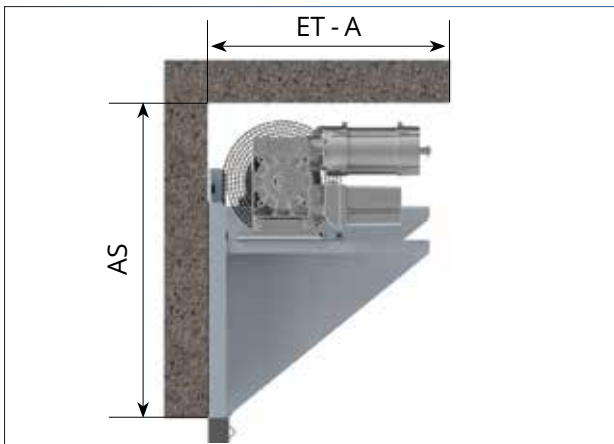
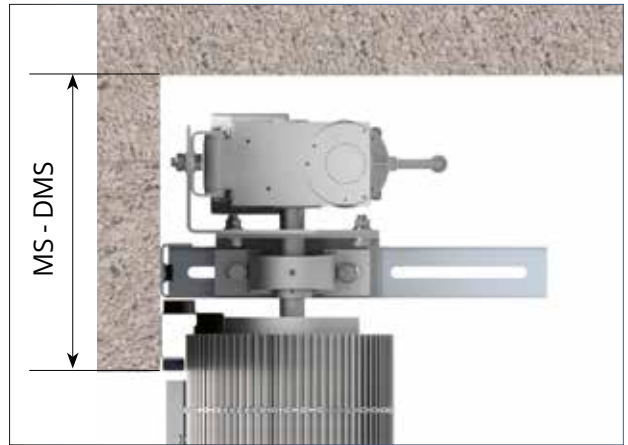
Installation dimensions

Roll-up door

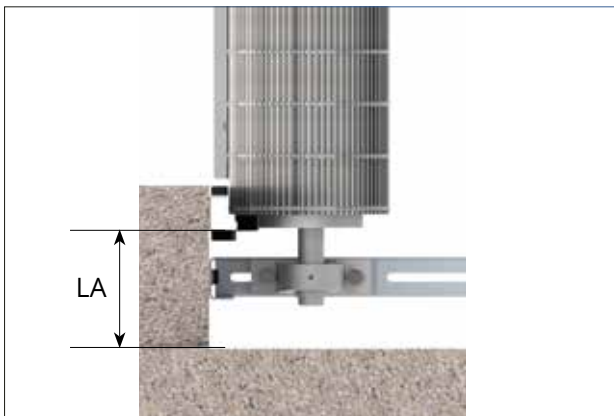
Motor side for external motor



External motor with DLS

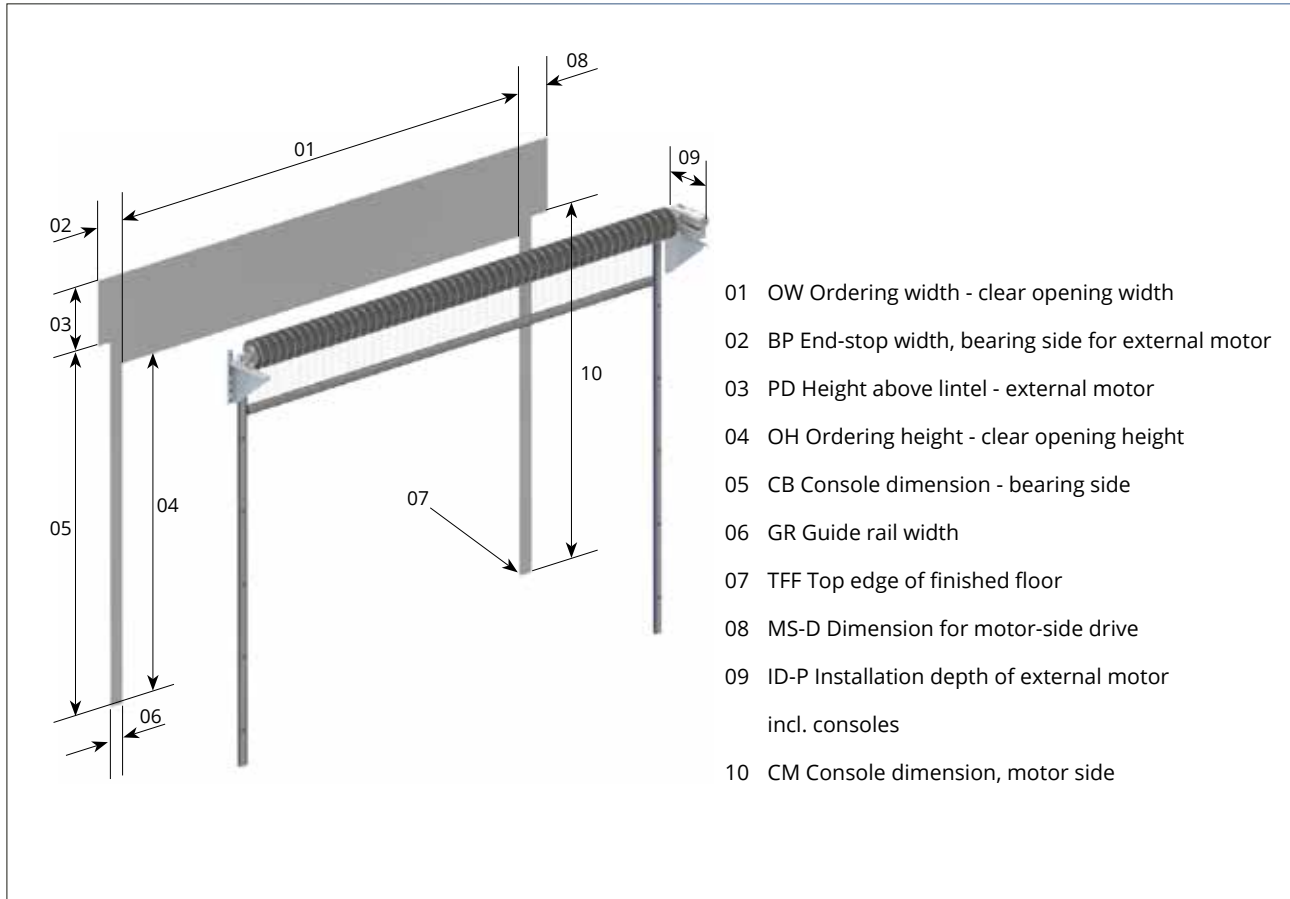


Bearing side for external motor



Space requirement for GKD roll-up door

Plug-on drive



PD = Space required for drive, height above lintel $= 320 + \frac{1}{2} H_{Motor}$		
SI10.15-17.15	H_{Motor}	250 mm
SI25.15-40.15	H_{Motor}	300 mm
SI55.15-75.15	H_{Motor}	390 mm

ID-P = Horizontal installation depth incl. emergency hand crank		
SI 10.15 – 55.15	ID-P	680 mm
SI 75.15	ID-P	950 mm
with TM (turned)	ID-DLS	420 - 570 mm depending on console

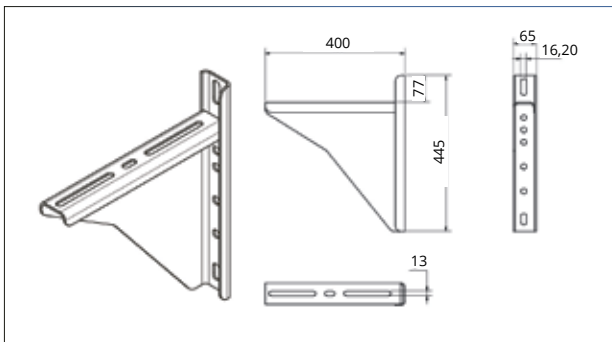
Type	SI 10.15	SI 17.15	SI 25.15	SI 40.15	SI 55.15	SI 75.15
Bearing side BP	170 mm	220 mm	220 mm	220 mm	220 mm	260 mm
Motor side MS-D	330 mm	300 mm	300 mm	300 mm	300 mm	320 mm
Motor side MS-TM	380 mm	380 mm	380 mm	380 mm	380 mm	480 mm

Consoles

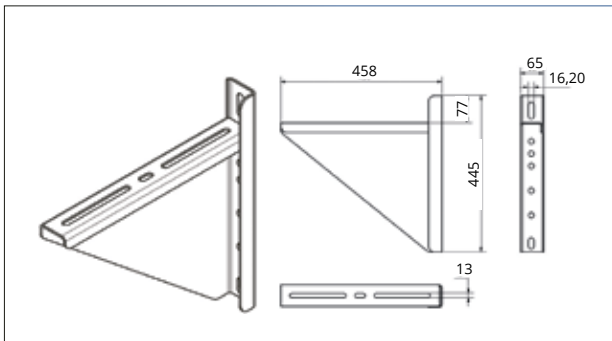
Plug-on drive

Consoles: 7.0 only SI 10.15 / 7.1 max. 450 kg / 7.5 max. 795 kg

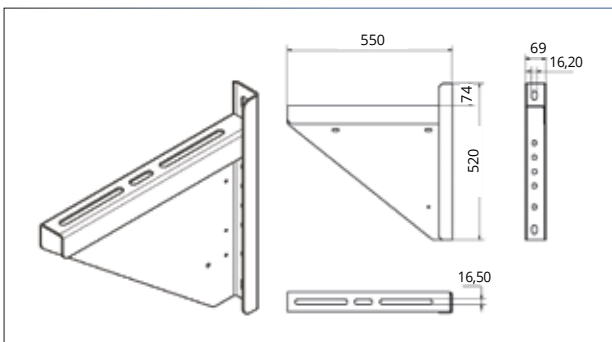
Dimensions of console attachment 7.0



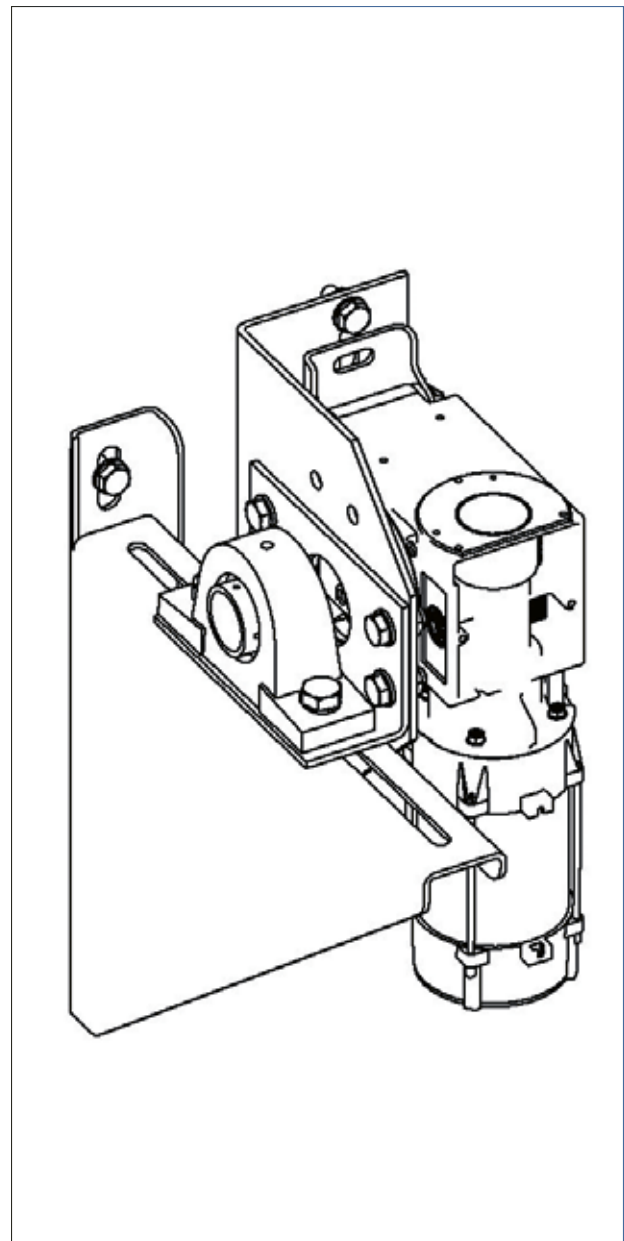
Dimensions of console attachment 7.1



Dimensions of console attachment 7.5



Console with TM (torque multiplier)



Reference value table

External motor

LAGO mesh



External motor Mesh: **LAGO EM**

Type/Legend	SI 10.15		SI 17.15		SI 25.15		SI 40.15		SI 55.15		
Height	Width								W159	W178	
	2 m	2.50 m	3 m	3.50 m	4 m	4.50 m	5 m	6 m	7 m	8 m	
2.00 m	89 kg	108 kg	126 kg	145 kg	164 kg	184 kg	203 kg	240 kg	277 kg	351 kg	Total weight Motor type Rolled-up shutter Ø
	10.15	10.15	10.15	10.15	10.15	17.15	17.15	17.15	17.15	25.15	
	200 mm	200 mm	200 mm	200 mm	200 mm	200 mm	200 mm	200 mm	200 mm	215 mm	
2.50 m	97 kg	117 kg	137 kg	159 kg	181 kg	201 kg	221 kg	362 kg	307 kg	379 kg	
	10.15	10.15	10.15	10.15	17.15	17.15	17.15	17.15	25.15	25.15	
	205 mm	205 mm	205 mm	205	205 mm	205 mm	205 mm	205 mm	205 mm	220 mm	
3.00 m	104 kg	126 kg	147 kg	171 kg	195 kg	217 kg	238 kg	288 kg	331 kg	413 kg	W178
	10.15	10.15	10.15	17.15	17.15	17.15	17.15	25.15	25.15	40.15	
	210 mm	210 mm	210 mm	210	210 mm	210 mm	210 mm	210 mm	210 mm	225 mm	
3.50 m	111 kg	136 kg	161 kg	185 kg	209 kg	233 kg	256 kg	308 kg	389 kg	455 kg	W194
	10.15	10.15	17.15	17.15	17.15	17.15	17.15	25.15	40.15	40.15	
	215 mm	215 mm	215 mm	210	215 mm	215 mm	215 mm	215 mm	230 mm	245 mm	
4.00 m	118 kg	145 kg	172 kg	198 kg	223 kg	251 kg	279 kg	329 kg	413 kg	483 kg	
	10.15	10.15	17.15	17.15	17.15	25.15	25.15	25.15	40.15	40.15	
	220 mm	220 mm	220 mm	210	220 mm	220 mm	220 mm	220 mm	235 mm	250 mm	
4.50 m	126 kg	154 kg	182 kg	210 kg	237 kg	267 kg	296 kg	350 kg	438 kg	510 kg	
	10.15	10.15	17.15	17.15	17.15	25.15	25.15	25.15	40.15	40.15	
	225 mm	225 mm	225 mm	210	225 mm	225 mm	225 mm	225 mm	240 mm	255 mm	
5.00 m	123 kg	158 kg	193 kg	225 kg	256 kg	285 kg	314 kg	378 kg	462 kg	540 kg	
	10.15	10.15	17.15	17.15	25.15	25.15	25.15	40.15	40.15	55.15	
	230 mm	230 mm	230 mm	230 mm	230 mm	230 mm	230 mm	230 mm	245 mm	260 mm	
									W159	W178	W194

Reference value table

External motor

SAMBESI mesh



External motor SAMBESI EM mesh

Type/Legend	SI 10.15	SI 17.15	SI 25.15	SI 40.15	SI 55.15	SI 75.15					
Height	Width						W159	W178	W194		
	2 m	2.50 m	3 m	3.50 m	4 m	4.50 m	5 m	6 m	7 m	8 m	
2.00 m	112 kg	137 kg	162 kg	186 kg	210 kg	234 kg	257 kg	310 kg	391 kg	457 kg	Total weight Motor type Rolled-up shutter Ø
	10.15	10.15	17.15	17.15	17.15	17.15	17.15	25.15	40.15	40.15	
	225 mm	225 mm	225 mm	225 mm	225 mm	225 mm	225 mm	225 mm	240 mm	250 mm	
2.50 m	124 kg	152 kg	179 kg	206 kg	233 kg	262 kg	291 kg	344 kg	431 kg	502 kg	W194
	10.15	10.15	17.15	17.15	17.15	25.15	25.15	25.15	40.15	40.15	
	235 mm	235 mm	235 mm	235 mm	235 mm	235 mm	235 mm	235 mm	250 mm	260 mm	
3.00 m	135 kg	166 kg	196 kg	228 kg	260 kg	290 kg	320 kg	385 kg	437 kg	571 kg	W219
	10.15	17.15	17.15	17.15	25.15	25.15	25.15	40.15	40.15	55.15	
	245 mm	245 mm	245 mm	245 mm	245 mm	245 mm	245 mm	245 mm	260 mm	290 mm	
3.50 m	150 kg	182 kg	214 kg	249 kg	283 kg	319 kg	355 kg	418 kg	509 kg	616 kg	
	17.15	17.15	17.15	25.15	25.15	25.15	40.15	40.15	40.15	55.15	
	255 mm	255 mm	255 mm	255 mm	255 mm	255 mm	255 mm	255 mm	280 mm	295 mm	
4.00 m	162 kg	200 kg	237 kg	272 kg	306 kg	345 kg	383 kg	475 kg	563 kg	674 kg	
	17.15	17.15	25.15	25.15	25.15	40.15	40.15	40.15	55.15	75.15	
	265 mm	265 mm	265 mm	265 mm	265 mm	265 mm	265 mm	275 mm	285 mm	305 mm	
4.50 m	173 kg	214 kg	254 kg	295 kg	336 kg	374 kg	411 kg	511 kg	602 kg	719 kg	
	17.15	17.15	25.15	25.15	40.15	40.15	40.15	55.15	55.15	75.15	
	275 mm	275 mm	275 mm	275 mm	275 mm	275 mm	275 mm	285 mm	295 mm	310 mm	
5.00 m	185 kg	228 kg	271 kg	315 kg	358 kg	399 kg	439 kg	545 kg	656 kg	754 kg	
	17.15	17.15	25.15	25.15	40.15	40.15	40.15	55.15	75.15	75.15	
	280 mm	280 mm	280 mm	280 mm	280 mm	280 mm	280 mm	295 mm	305 mm	320 mm	
							W159	W178	W194	W219	

Reference value table

External motor

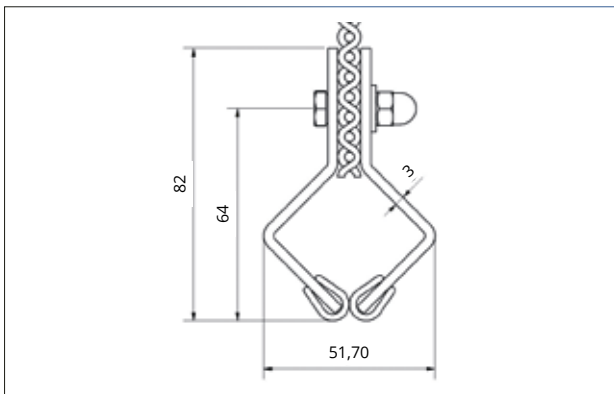
TIGRIS mesh

Type/Legend		SI 10.15		SI 17.15		SI 25.15		SI 40.15					
		SI 10.15		SI 17.15		SI 25.15		SI 40.15					
Height	Width		3 m	3.50 m	4 m	4.50 m	5 m	6 m	W159		W178		
	2 m	2.50 m							7 m	8 m			
2.00 m	89 kg	108 kg	126 kg	145 kg	164 kg	184 kg	203 kg	240 kg	277 kg	351 kg	Total weight	Motor type	
	10.15	10.15	10.15	10.15	10.15	17.15	17.15	17.15	17.15	25.15			Rolled-up shutter Ø
	200 mm	200 mm	200 mm	200 mm	200 mm	200 mm	200 mm	200 mm	200 mm	215 mm			
2.50 m	97 kg	117 kg	137 kg	159 kg	181 kg	201 kg	221 kg	362 kg	307 kg	379 kg			
	10.15	10.15	10.15	10.15	17.15	17.15	17.15	17.15	25.15	25.15			
	205 mm	205 mm	205 mm	205 mm	205 mm	205 mm	205 mm	205 mm	205 mm	220 mm			
3.00 m	104 kg	126 kg	147 kg	171 kg	195 kg	217 kg	238 kg	288 kg	331 kg	413 kg			
	10.15	10.15	10.15	17.15	17.15	17.15	17.15	25.15	25.15	40.15			
	210 mm	210 mm	210 mm	210 mm	210 mm	210 mm	210 mm	210 mm	210 mm	225 mm			
3.50 m	111 kg	136 kg	161 kg	185 kg	209 kg	233 kg	256 kg	308 kg	389 kg	455 kg			
	10.15	10.15	17.15	17.15	17.15	17.15	17.15	25.15	25.15	40.15			
	215 mm	215 mm	215 mm	215 mm	215 mm	215 mm	215 mm	215 mm	230 mm	245 mm	W178		
4.00 m	118 kg	145 kg	172 kg	198 kg	223 kg	251 kg	279 kg	329 kg	413 kg	483 kg			
	10.15	10.15	17.15	17.15	17.15	25.15	25.15	25.15	40.15	40.15			
	220 mm	220 mm	220 mm	220 mm	220 mm	220 mm	220 mm	220 mm	235 mm	250 mm	W194		
4.50 m	126 kg	154 kg	182 kg	210 kg	237 kg	267 kg	296 kg	350 kg	438 kg	510 kg			
	10.15	10.15	17.15	17.15	17.15	25.15	25.15	25.15	40.15	40.15			
	225 mm	225 mm	225 mm	225 mm	225 mm	225 mm	225 mm	225 mm	240 mm	255 mm			
5.00 m	123 kg	158 kg	193 kg	225 kg	256 kg	285 kg	314 kg	378 kg	462 kg	540 kg			
	10.15	10.15	17.15	17.15	25.15	25.15	25.15	40.15	40.15	40.15			
	230 mm	230 mm	230 mm	230 mm	230 mm	230 mm	230 mm	230 mm	245 mm	260 mm			
								W159	W178	W194			

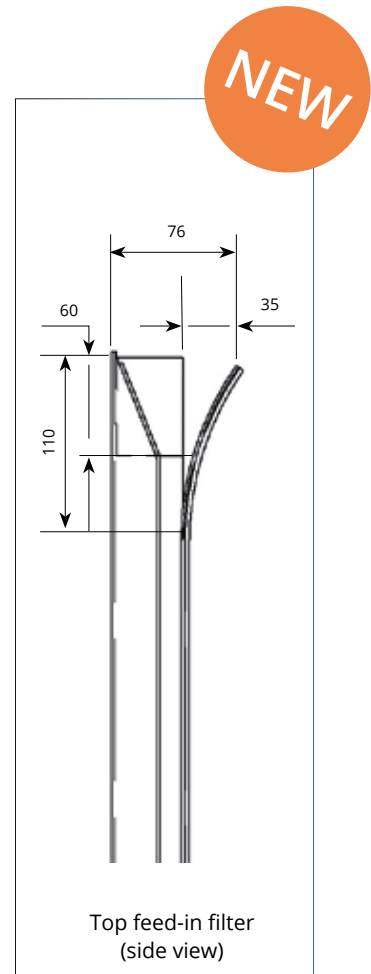
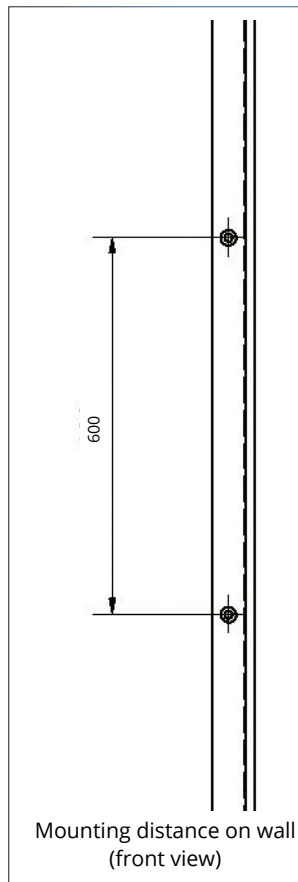
Guides and closure bar

for external motor and tube motor

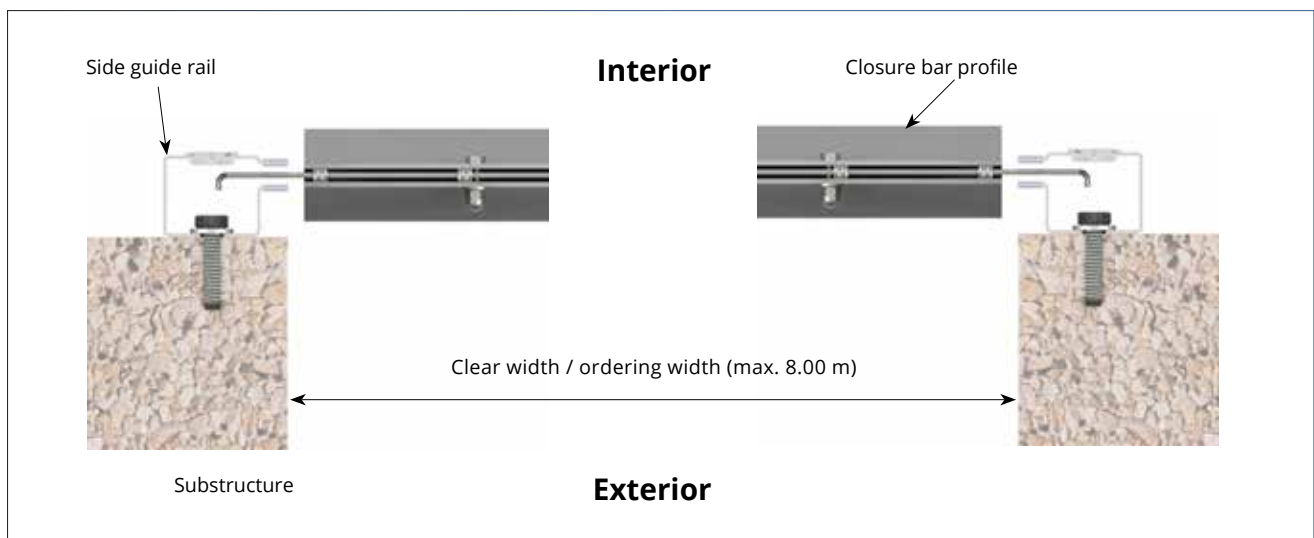
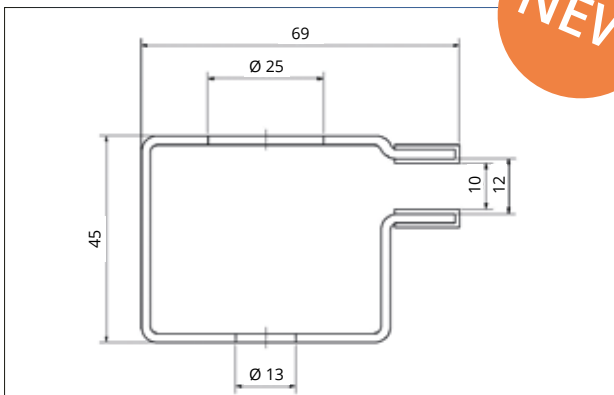
Cross-section of closure bar profile



Side guide rail



Cross-section of side guide rail



Box motor – SIK external motor

NEW

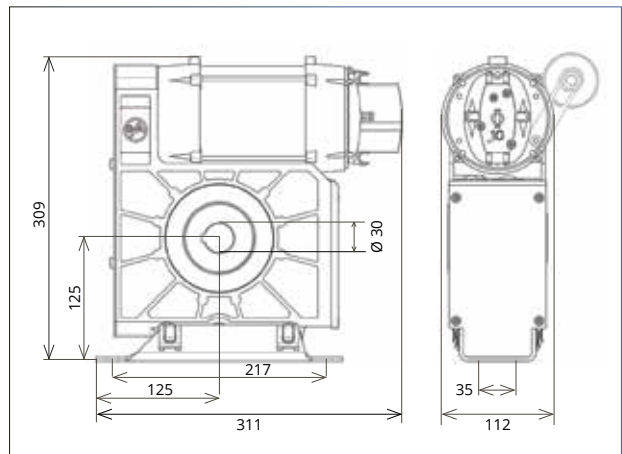
SIK 25.10
"The secure compact option"

The SIK motor range newly introduced at GKD includes special drives for roll-up doors where little space is available. Along with the integrated safety gear, the motor is installed on the door shaft, like the SI external motors. The centrally positioned hollow shaft makes the SIK motors particularly well suited to tight installation sites. Like the stan-

dard external motors, the SIK motors have emergency hand operation (emergency hand crank or fast chain) as well as an integrated limit switch. The door control is connected using unique plug connectors, which means they can be easily replaced with other GfA door control units. The control voltage is 24 V.



- Guard against worm shaft and worm wheel breakage
- Independent of motor speed and direction
- Maintenance free, self-monitoring
- Very good damping characteristics in the event of a fall
- Compact dimensions



Designation	Drive torque	Drive speed	Operating voltage	Output	Hollow drive shaft	Dimensions W x L x H [mm]	Weight
SIK 25.10	250 Nm	10 rpm	3~230V / 400V	0.4 kW	30 mm	112x311x309	16 kg

Tube motor

Motor manufacturer:
SIMU / TYP T8S - 150 / 200 / 250

www.simu.com

Control unit for single-phase tube motor



Type	T8S - 150	T8S - 200	T8S - 250
Weight	9.5 kg	11 kg	11.5 kg
Nm	150 Nm	200 Nm	250 Nm
rpm	8	8	8

- Supply voltage: 230 V
- Design with emergency hand crank

FOR SAFETY: NARROW LIMITATION SYSTEM
A third switch interrupts the power supply of the motor as per EN 12453 if it drives beyond the upper or lower vertex.

Thermal shut-down	4 minutes
T8S DMI reduction gear ratio of the emergency hand crank	190/1
Protection type	IP44
Temperature of working environment	from -10 °C to +40 °C, in extreme cases from -20 °C to +60 °C
Supply cable	2.5 meters (4 x 0.75 mm ² wires, white H05 VVF)
Cycles per day	max. 10, not consecutive

Key switch



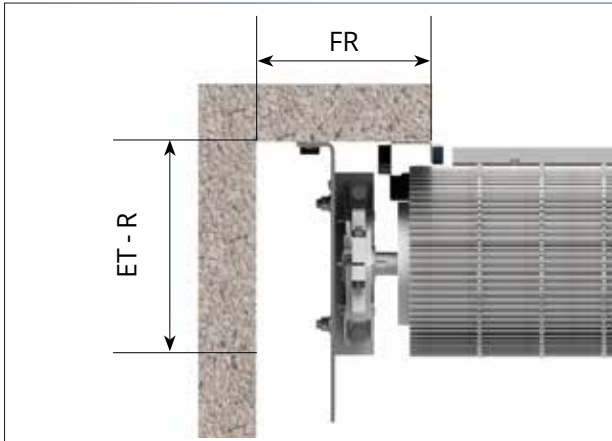
Surface-mounted / flush-mounted

- Universal key switch with touch and latching function
- Operation possible on one or both sides
- Protection type IP54
- Dimensions: 83 x 83 x 58 mm

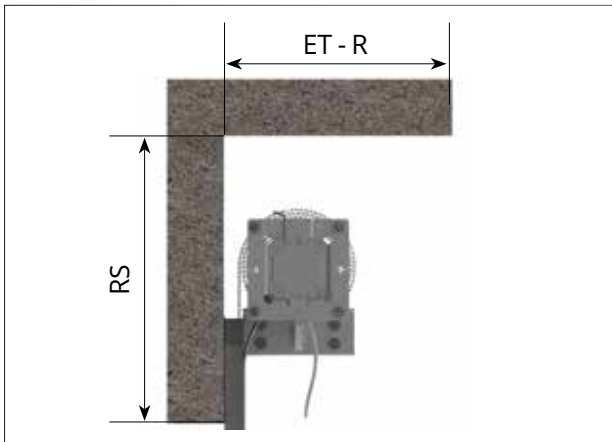
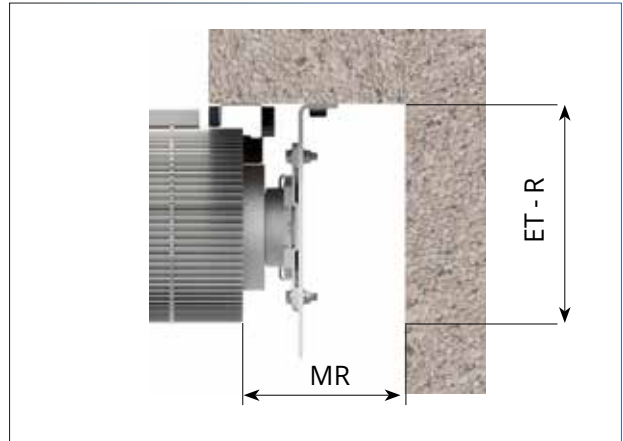
Order no.	Voltage	Connection option	Switching power
2212079	250V - AC	1 motor	10A

Installation dimensions

Bearing side, tube motor



Motor side, tube motor



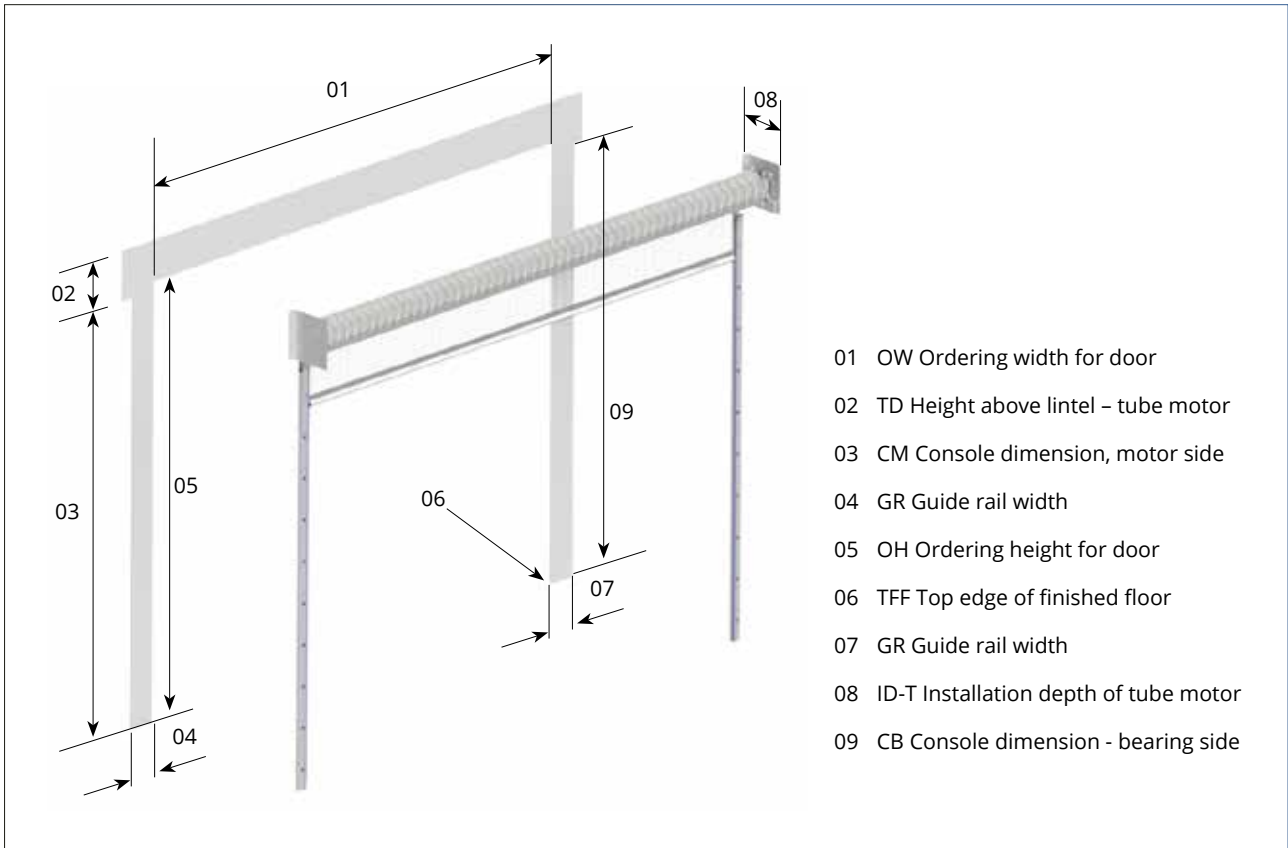
- ST Space required for safety gear, bearing side
- MT Space required, motor side
- DT Space required, height above lintel
- ID-T Space required, installation depth for tube motor

Tube drive

Minimum space requirements

RD = Space required for drive above lintel = 320 + ½ rolled-up shutter diameter	
With a rolled-up shutter diameter up to 220 mm	430 mm
With a rolled-up shutter diameter up to 320 mm	530 mm

ID-T = Horizontal installation depth incl. emergency hand crank	
T8S-150, T8S-200 und T8S-250	380 mm

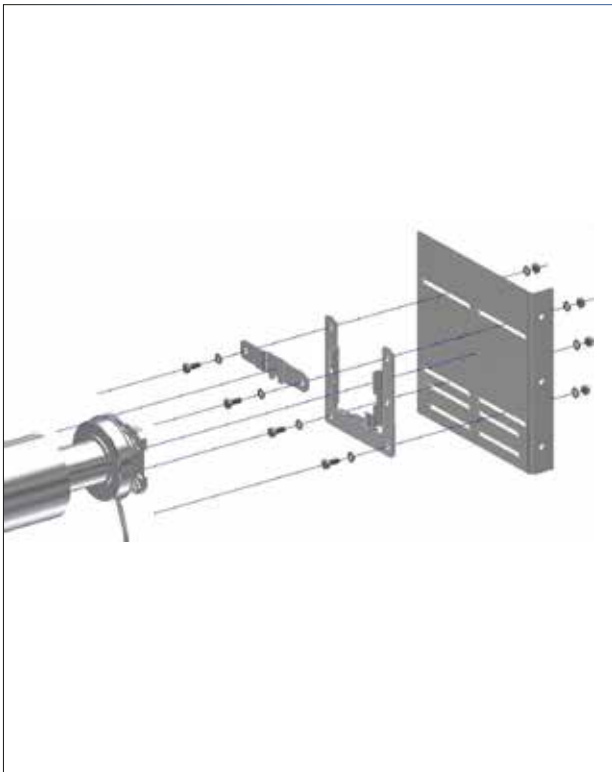


Type	T8S 150 Nm	T8S 200 Nm	T8S 250 Nm
Bearing side SG	131 mm	131 mm	131 mm
Motor side MT	159.5 mm	159.5 mm	159.5 mm

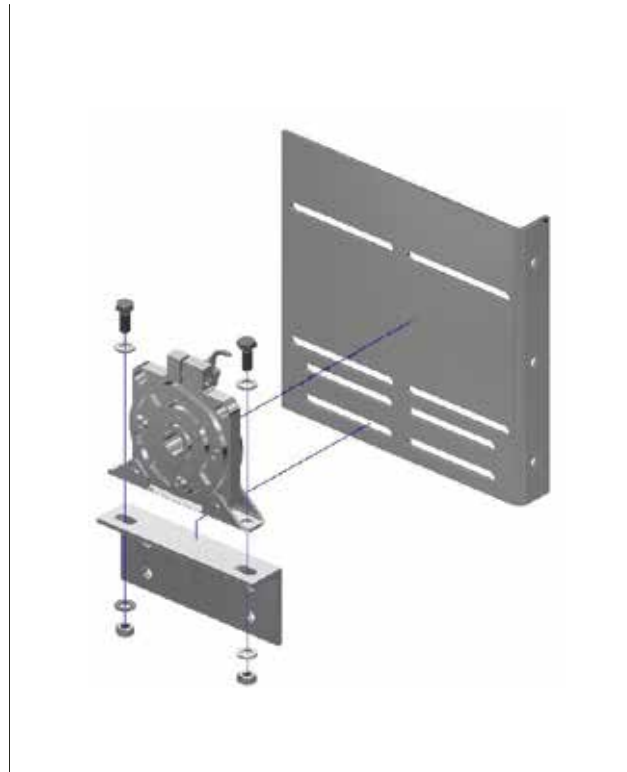
Consoles

Tube drive

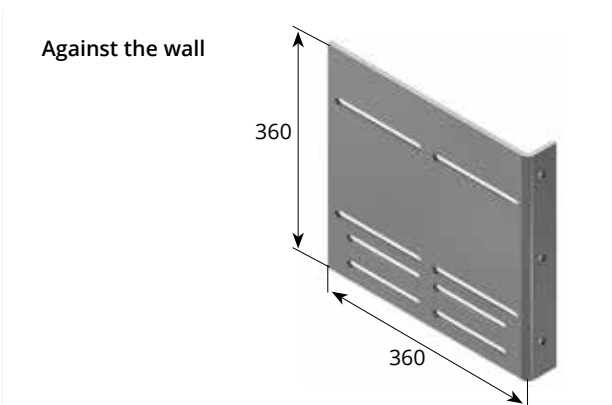
Motor console



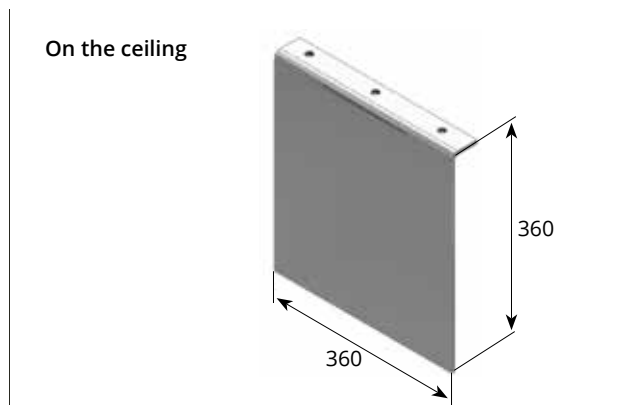
Console unroll safeguard - opposite side



Installation variants for tube motor and unroll safeguard



Standard solution



Ceiling variant only as special solution
Mounting boreholes for tube motor, flange, and unroll safeguard must be made on site

Reference value table for tube motor

LAGO mesh



Tube motor Fabric: **LAGO RM**

Type/Legend	T8S DMI 150Nm			T8S DMI 200Nm			T8S DMI 250Nm			
Height	Width								W159	
	2 m	2.50 m	3 m	3.50 m	4 m	4.50 m	5 m	6 m		
2.00 m	89 kg T8S 150Nm 200 mm	108 kg T8S 150Nm 200 mm	126 kg T8S 150Nm 200 mm	145 kg T8S 150Nm 200 mm	164 kg T8S 150Nm 200 mm	182 kg T8S 150Nm 200 mm	200 kg T8S 150Nm 200 mm	237 kg T8S 150Nm 200 mm	Total weight Motor type Rolled-up shutter Ø	
2.50 m	97 kg T8S 150Nm 205 mm	117 kg T8S 150Nm 205 mm	137 kg T8S 150Nm 205 mm	159 kg T8S 150Nm 205 mm	181 kg T8S 150Nm 205 mm	200 kg T8S 150Nm 205 mm	218 kg T8S 150Nm 205 mm	260 kg T8S 200Nm 205 mm		
3.00 m	104 kg T8S 150Nm 210 mm	126 kg T8S 150Nm 210 mm	147 kg T8S 150Nm 210 mm	171 kg T8S 150Nm 210 mm	195 kg T8S 150Nm 210 mm	217 kg T8S 150Nm 210 mm	238 kg T8S 200Nm 210 mm	280 kg T8S 200Nm 210 mm		
3.50 m	111 kg T8S 150Nm 215 mm	136 kg T8S 150Nm 215 mm	161 kg T8S 150Nm 215 mm	185 kg T8S 150Nm 215 mm	209 kg T8S 150Nm 215 mm	232 kg T8S 150Nm 215 mm	254 kg T8S 200Nm 215 mm	301 kg T8S 250Nm 215 mm		
4.00 m	118 kg T8S 150Nm 220 mm	145 kg T8S 150Nm 220 mm	172 kg T8S 150Nm 220 mm	198 kg T8S 200Nm 220 mm	223 kg T8S 200Nm 220 mm	251 kg T8S 200Nm 220 mm	279 kg T8S 200Nm 220 mm	329 kg T8S 250Nm 220 mm		
4.50 m	126 kg T8S 150Nm 225 mm	154 kg T8S 150Nm 225 mm	182 kg T8S 150Nm 225 mm	210 kg T8S 200Nm 225 mm	237 kg T8S 200Nm 225 mm	263 kg T8S 200Nm 225 mm	289 kg T8S 250Nm 225 mm	350 kg T8S 250Nm 225 mm		
5.00 m	123 kg T8S 150Nm 230 mm	158 kg T8S 150Nm 230 mm	193 kg T8S 150Nm 230 mm	225 kg T8S 200Nm 230 mm	256 kg T8S 200Nm 230 mm	283 kg T8S 250Nm 230 mm	310 kg T8S 250Nm 230 mm			
W159										

Reference value table for tube motor

SAMBESI mesh

Type/Legend		T8S DMI 150Nm			T8S DMI 200Nm			T8S DMI 250Nm	
Closure bar:	Angle profile	60x40x3							
Height	Width	2.50 m	3 m	3.50 m	4 m	4.50 m	5 m	W159 6 m	
2.00 m	112 kg T8S 150Nm 220 mm	135 kg T8S 150Nm 220 mm	159 kg T8S 150Nm 220 mm	183 kg T8S 150Nm 220 mm	206 kg T8S 150Nm 220 mm	230 kg T8S 200Nm 220 mm	255 kg T8S 200Nm 220 mm	303 kg T8S 250Nm 220 mm	Total weight Motor type Rolled-up shutter Ø
2.50 m	124 kg T8S 150Nm 230 mm	150 kg T8S 150Nm 230 mm	176 kg T8S 150Nm 230 mm	203 kg T8S 150Nm 230 mm	229 kg T8S 200Nm 230 mm	256 kg T8S 200Nm 230 mm	283 kg T8S 200Nm 230 mm	337 kg T8S 250Nm 230 mm	
3.00 m	135 kg T8S 150Nm 240 mm	164 kg T8S 150Nm 240 mm	193 kg T8S 150Nm 240 mm	223 kg T8S 200Nm 240 mm	252 kg T8S 200Nm 240 mm	283 kg T8S 200Nm 240 mm	313 kg T8S 250Nm 240 mm		
3.50 m	147 kg T8S 150Nm 250 mm	180 kg T8S 150Nm 250 mm	212 kg T8S 200Nm 250 mm	244 kg T8S 200Nm 250 mm	276 kg T8S 250Nm 250 mm	295 kg T8S 250Nm 250 mm			
4.00 m	159 kg T8S 150Nm 260 mm	194 kg T8S 150Nm 260 mm	229 kg T8S 200Nm 260 mm	264 kg T8S 200Nm 260 mm	299 kg T8S 250Nm 260 mm				
4.50 m	170 kg T8S 150Nm 270 mm	208 kg T8S 200Nm 270 mm	246 kg T8S 200Nm 270 mm	273 kg T8S 250Nm 270 mm					
5.00 m	182 kg T8S 150Nm 280 mm	223 kg T8S 200Nm 280 mm	264 kg T8S 250Nm 280 mm						
W159									

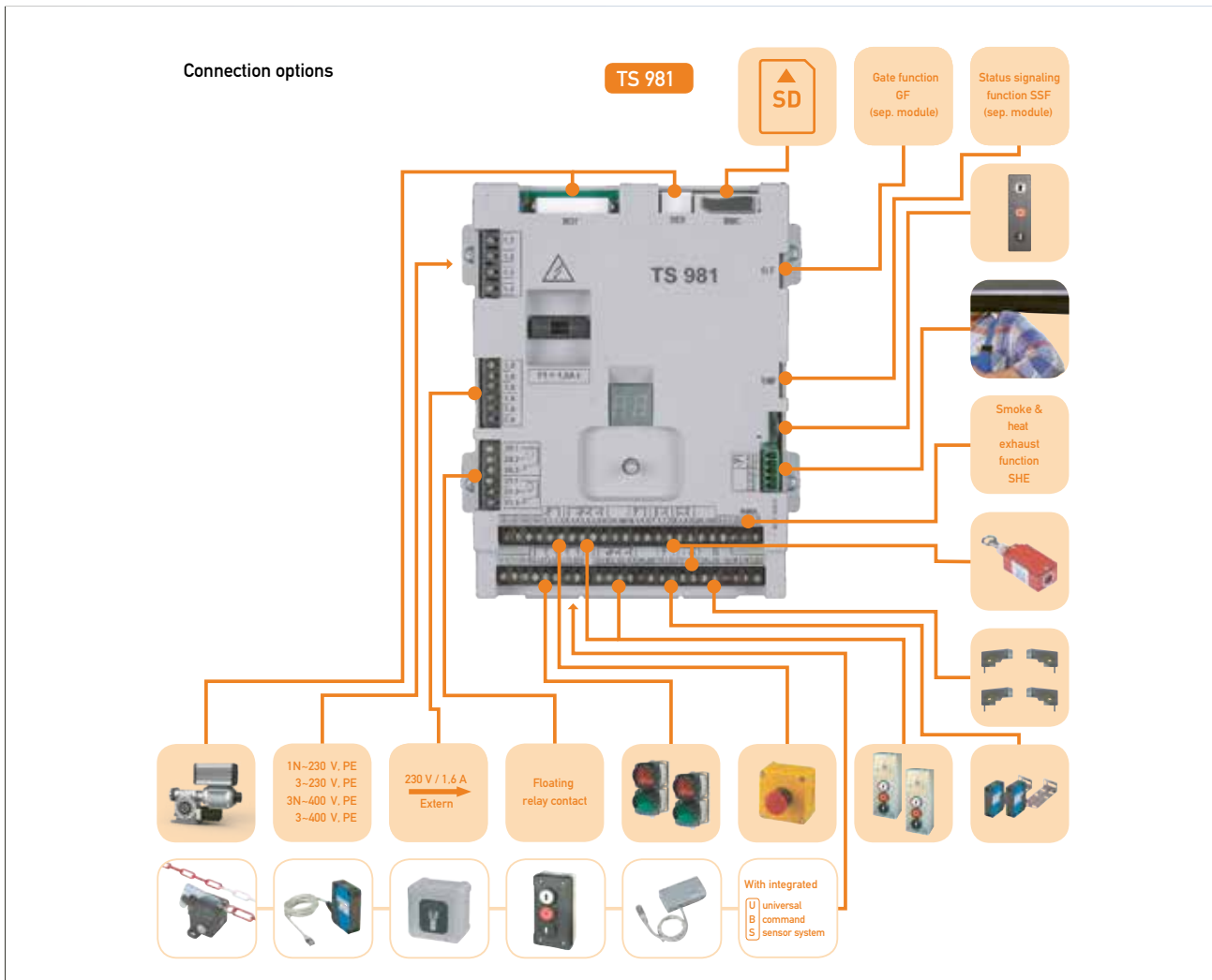
Reference value table for tube motor

TIGRIS mesh

Model /Legend		T8S DMI 150Nm			T8S DMI 200Nm			T8S DMI 250Nm		Total weight Motor type Rolled-up shutter Ø
		Width 2 m	2.50 m	3 m	3.50 m	4 m	4.50 m	5 m	W159 6 m	
2.00 m	85 kg T8S 150Nm 200 mm	103 kg T8S 150Nm 200 mm	120 kg T8S 150Nm 200 mm	138 kg T8S 150Nm 200 mm	155 kg T8S 150Nm 200 mm	174 kg T8S 150Nm 200 mm	193 kg T8S 150Nm 200 mm	228 kg T8S 150Nm 200 mm		
2.50 m	92 kg T8S 150Nm 205 mm	111 kg T8S 150Nm 205 mm	129 kg T8S 150Nm 205 mm	149 kg T8S 150Nm 205 mm	168 kg T8S 150Nm 205 mm	188 kg T8S 150Nm 205 mm	208 kg T8S 150Nm 205 mm	246 kg T8S 150Nm 205 mm		
3.00 m	98 kg T8S 150Nm 210 mm	119 kg T8S 150Nm 210 mm	139 kg T8S 150Nm 210 mm	161 kg T8S 150Nm 210 mm	183 kg T8S 150Nm 210 mm	204 kg T8S 150Nm 210 mm	224 kg T8S 150Nm 210 mm	264 kg T8S 200Nm 210 mm		
3.50 m	104 kg T8S 150Nm 215 mm	126 kg T8S 150Nm 215 mm	148 kg T8S 150Nm 215 mm	172 kg T8S 150Nm 215 mm	196 kg T8S 150Nm 215 mm	210 kg T8S 150Nm 215 mm	239 kg T8S 200Nm 215 mm	289 kg T8S 200Nm 215 mm		
4.00 m	111 kg T8S 150Nm 220 mm	136 kg T8S 150Nm 220 mm	160 kg T8S 150Nm 220 mm	184 kg T8S 150Nm 220 mm	208 kg T8S 150Nm 220 mm	224 kg T8S 200Nm 220 mm	255 kg T8S 200Nm 220 mm	307 kg T8S 250Nm 220 mm		
4.50 m	117 kg T8S 150Nm 230 mm	144 kg T8S 150Nm 230 mm	170 kg T8S 150Nm 230 mm	195 kg T8S 150Nm 230 mm	220 kg T8S 150Nm 230 mm	238 kg T8S 200Nm 230 mm	276 kg T8S 200Nm 230 mm	326 kg T8S 250Nm 230 mm		
5.00 m	124 kg T8S 150Nm 240 mm	152 kg T8S 150Nm 240 mm	179 kg T8S 150Nm 240 mm	265 kg T8S 200Nm 240 mm	233 kg T8S 200Nm 240 mm	255 kg T8S 200Nm 240 mm	291 kg T8S 200Nm 240 mm	344 kg T8S 250Nm 240 mm		
W159										

Control unit for automatic operation: GFA TS 981*

Only in connection with light curtain, scan field monitoring or



*Dead man's operation also possible

Technical data

- For all GfA ELEKTROMATEN with DLS or CLS
- Supply voltage:
1N~230V, PE / 3~230V, PE / 3N~400V, PE / 3~400V, PE
- Operating frequency: 50 / 60 Hz
- Control voltage: 24V DC
- Power supply for external devices:
24V DC (0.35A) / 230V AC (1.6A)
- Permitted temperature range: -10 °C ... +50 °C

Housing

- Dimensions W x H x D [mm]: 190 x 300 x 115
- IP65 when connected directly or IP54 with CEE connector
- Protection against contact by covering the live parts
- Pluggable connecting cable to the ELEKTROMATEN, can be introduced from below or above

Design

- Integrated three-way button OPEN-STOP-CLOSE
- Connection options for two external 3-way buttons
- Safety reversing contactor (with second independent shut-down path)
- Settings via rotary selector with digital display
- Pluggable connection technology – connecting cable to the ELEKTROMATEN in various lengths
- Two independently programmable relay contacts, e.g. for use with signaling contacts (e.g. status signaling function)
- UBS connection with 5 plug-in connections for easy connection of command devices, light barriers, radio receivers, etc.
- Pluggable slack rope and door-in-door connection
- Status signaling function module (SSF)
 - Five additional floating relay contacts for position and error signals
 - Integration into fire alarm system possible
- Gate function module (GF)
 - For operation of two TS 981 control units as gate
- Panic module (expansion to GF)
 - Interruption of the gate function upon activation of an additional command device

Functions

- Settings for the stop positions (with DLS) and all functions from the operating level
Selectable operating mode:
 - Dead man's switch CLOSE / OPEN

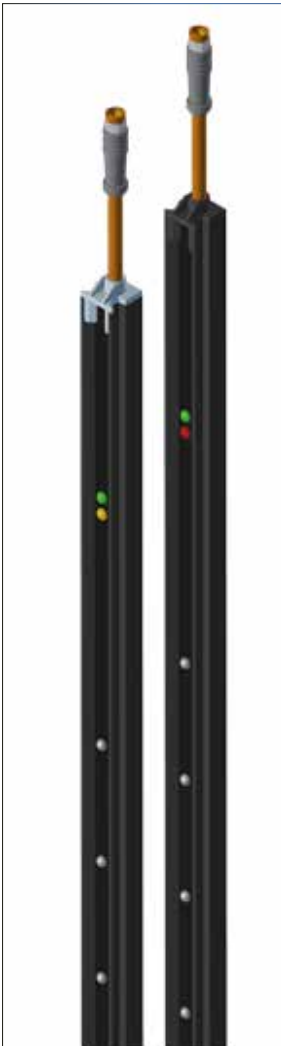
- Dead man's switch CLOSE / self-retaining OPEN
- Self-retaining CLOSE / OPEN
- Automatic switching strip detection and evaluation:
 - Optical switching strip
 - Normally open principle 8K2
 - Normally closed principle 1K2 with testing
- After it reaches the top stop position or „partial opening“, the door automatically closes after the set time
- This time can be optionally interrupted by activating the light barrier
- Adjustable partial opening with individual programming options; evaluation of draw-in safeguard, optional:
 - Optical systems
 - Normally closed - normally open principle with resistance evaluation
 - Safety light barriers
- Status and information display (including display of the last 2 errors)
- Cycle counter (cannot be reset)
- Maintenance cycle counter:
 - Can be set between 1,000 - 99,000 cycles
 - When the maintenance cycle count is reached, this can be displayed or the system switches to dead man's mode
- Blockage monitoring (with DLS), the control system detects a shutter blockage and switches off the drive
- Power monitoring in OPEN direction (with DLS):
 - For weight-compensating doors, detects sudden change in the weight compensation
 - Self-learning, meaning that the power monitoring is not triggered by a change to the spring tension, for example
- Automatic detection of ELEKTROMATEN with direct converter (DC) or frequency converter (FC):
 - Setting of the drive speed
 - Smooth start and smooth stop through automatic adjustment of the acceleration and braking ramps
 - Changes to the acceleration and braking ramps possible
- Memory card
The use of SD or MMC cards enables a simple software update or reprogramming for special software

Accessories (not as standard)

- Key switch (available as standard)
- Main switch
- Emergency OFF switch
- Status signaling function module (SSF)

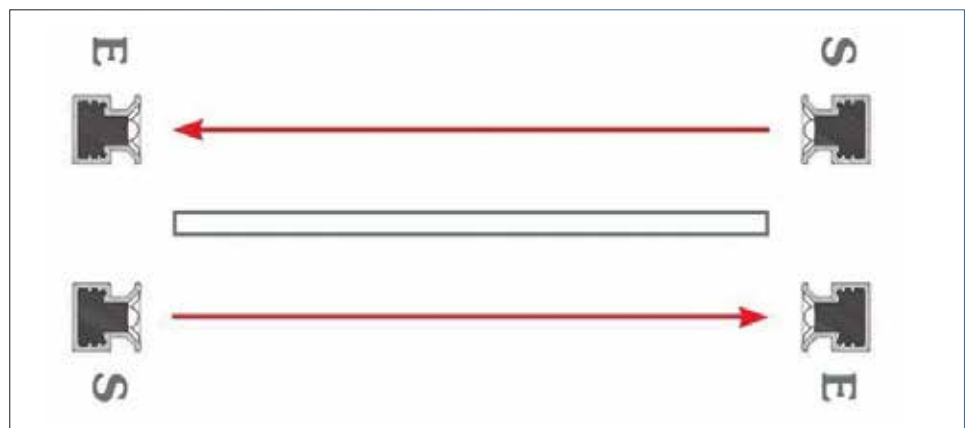
Monitoring in automatic operation

Light curtain LIGI (Witt Sensoric) including adjusting clamp



Automated systems are only possible in connection with a monitoring function – such as a light curtain. In accordance with DIN EN 12453, light curtains for monitoring the gate/mesh layer are a mandatory minimum for roll-up doors in public spaces. One alternative to light curtains is what is known as a „scan field“, which is described in a later chapter. Due to the required GfA TS 981 gate control unit, only roller shutter systems with external motors (in exceptional cases also SIK box motors) can be implemented. Tube motors do not have the necessary control unit.

The light curtains are mounted in front of and behind the mesh layer. The distance between the two light curtains should be chosen so that a person cannot go undetected between the gate and the installed protective fields ($x = \max. 160 \text{ mm}$). The two transmitter light curtains are mounted on opposite sides of the gate here.



The distance between the transmitter and receiver must be at least 1,600 mm. Narrower automated roll-up doors cannot be implemented.

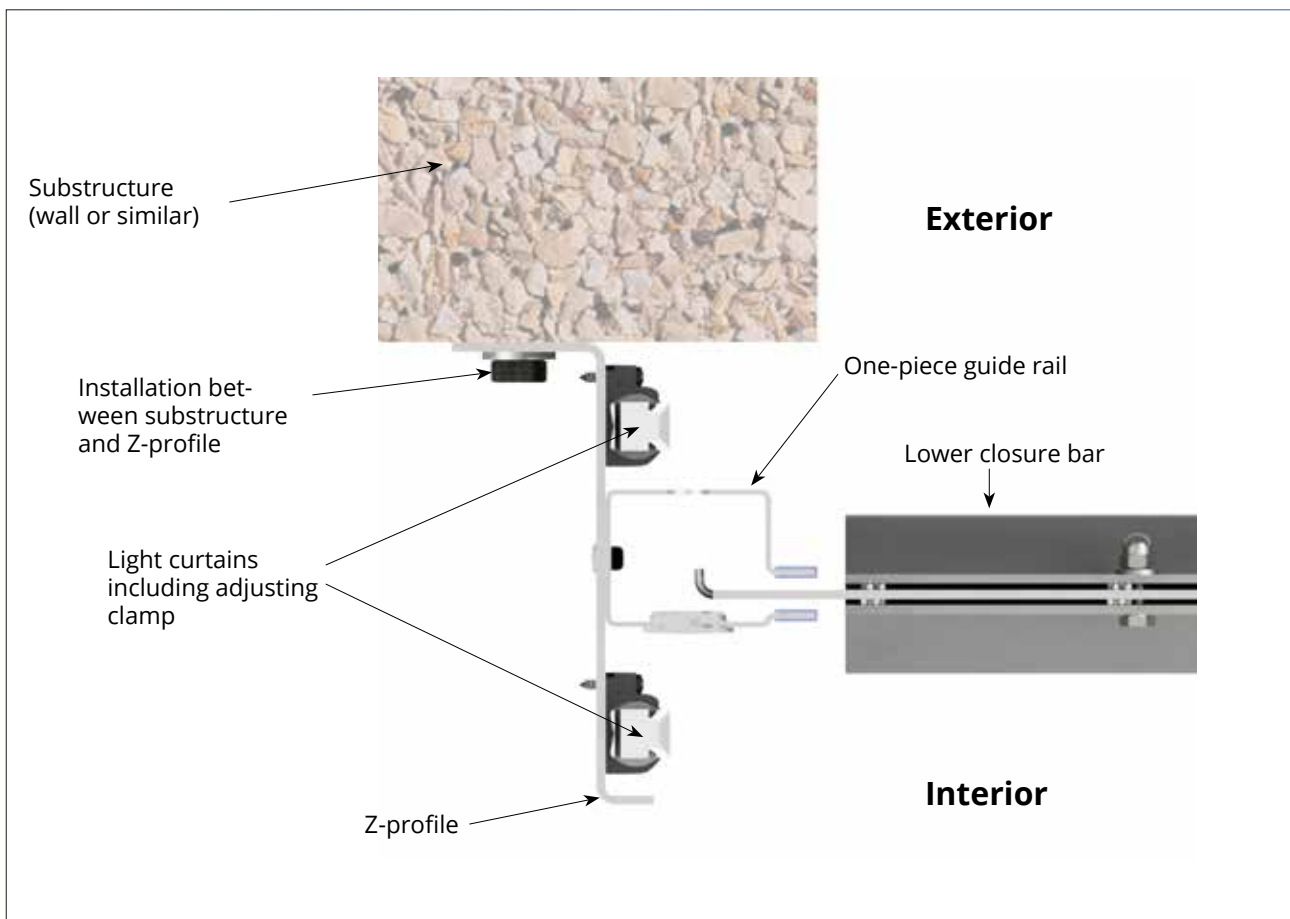
The standard prescribes a maximum height of the protected area of 2,520 mm above the floor. Up to a height of 500 mm above the floor, a test specimen with a diameter of 50 mm must be detectable.

The maximum distance between the LEDs in this area may not be greater than 45 mm. Above 500 mm, a square test specimen with an edge length of 200 mm must be detectable. The maximum distance between the LEDs here is 180 mm.

Components of the roll-up door with automatic mode

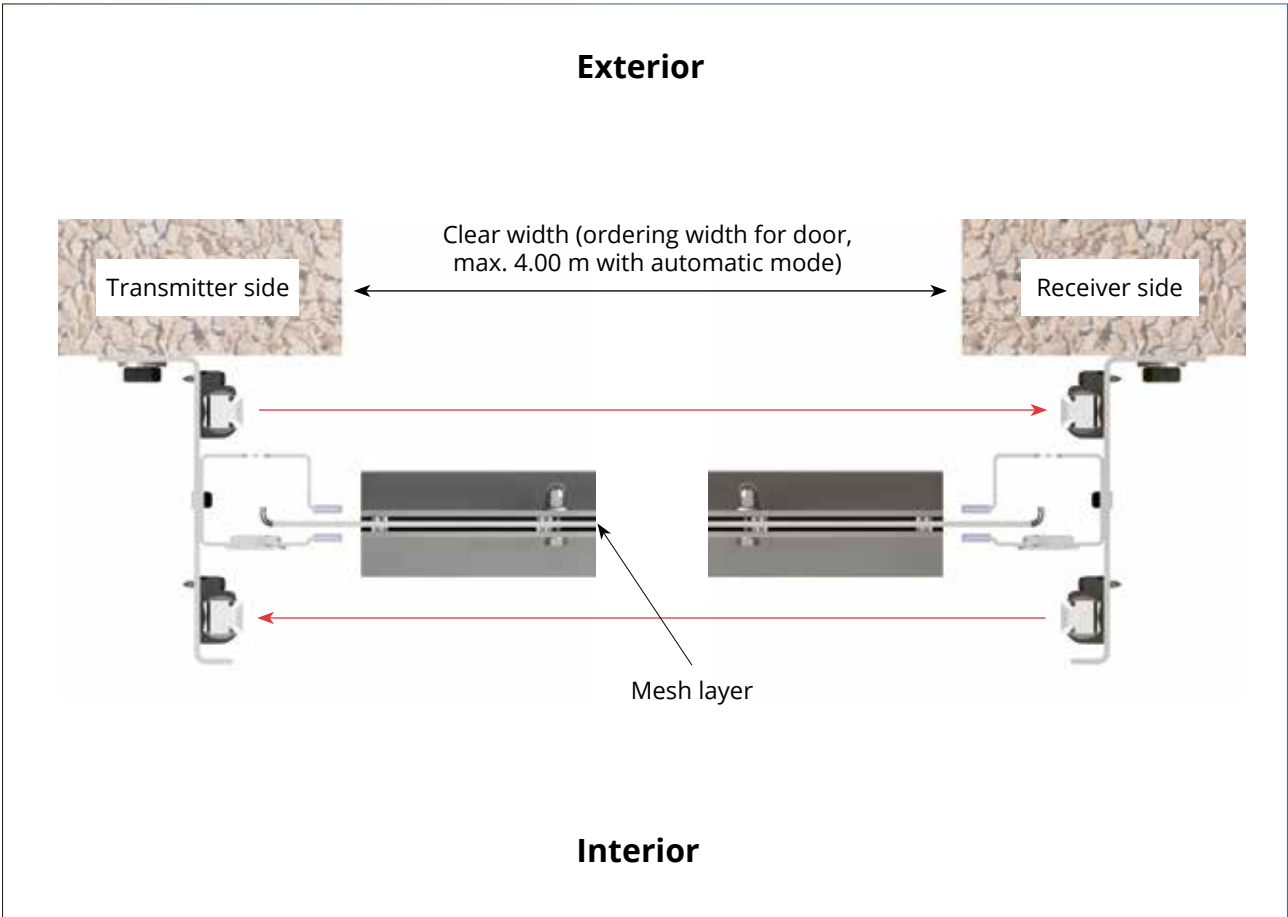
In comparison with the GKD standard solutions, automatic mode requires a series of additional components. Alongside the expansion of the control unit (GfA TS 981), light curtains absolutely must be installed in front of and behind the mesh layer (see figure on next page). For safety reasons, the two light curtains may not be mounted more than 160 mm from one another, otherwise people or objects could be in the danger area without being detected by the infrared beams of the light curtain. The light curtains mounted opposite one another are positioned in

adjusting clamps which enable a $\pm 10^\circ$ adjustment. The light curtains and the one-piece guide rail are screwed or riveted onto a Z-profile. The borehole positioned in the longer leg is used to mount it to the substructure (wall or similar). The following figure shows how the individual components are mounted in automatic mode. Due to possible unintentional triggering of the light curtain by the stainless steel mesh becoming dislodged, the maximum clear width of the roll-up door is 4.00 m.



Arrangement of transmitter-receiver

Automatic door



Roll-up doors lower than 2.5 m

For roll-up doors lower than 2.5 m and with less than 80 mm clearance between the winding shaft (when fully rolled up) and the ceiling, an additional light bar is necessary. This light bar is positioned above the winding shaft.

The light bars necessary at the sides are shortened to the required measurements.

Remote control (optional)



The system can be fitted with a remote control. This can be designed as a 1, 2, 3, or 4-channel control so that up to four doors can be controlled at the same time.

A remote control is only to be used for doors in automatic mode.



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