



WMD 820, 250N

Chain actuator, Installation manual

UK

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Safety

WARNING

- Take care to avoid injury to hands when in the vicinity of moving mechanical parts. The forces used to open and close windows and doors can be significant. Actuators (spindles) could protrude into the room when opened.
- For this reason, safety measures have to be taken prior to starting up the actuators to exclude the danger of injury.



CAUTION

- The actuator should not be fitted to a window, intended for emergency escape / access.
- If the actuator is exposed to temperatures above 90°C it has to be checked by a WindowMaster technician.
- If the doors and windows are subjected to rain and/or high wind loads, we recommend connecting a wind/rain sensor to the MotorController for the automatic closing of the doors and windows.
- Do not connect the actuator to power supply until installation is complete.
- Please check/verify that loads acting on the WMD 820 conforms to the load constraints of the WMD 820.
- Test before commissioning.
- Make sure that mains voltage is disconnected when cleaning or other maintenance/service of the door/window is being undertaken, and ensure that it cannot be unintentionally reconnected.
- Installation must be in accordance with the national electrical regulations.

IMPORTANT

- Read and understand the manual completely before use.
- Only allow correctly trained, qualified and skilled personnel to carry out the installation work.
- Never use this product in other ways than specified in this manual.
- Do not perform repairs, disassembly, or assembly operations, extensions, re-adjustments or modifications to this product. These must be carried out by WindowMaster or by persons authorized by WindowMaster only.
- Never use the product if it is defective or damaged. Do not use a defective product before it has been repaired.
- Reliable operation and avoidance of damage and hazards are only guaranteed if installation and configurations are carried out carefully in accordance with these instructions.
- Always check that your system meets the valid national regulations.
- WindowMaster does not assume any liability for possible damage resulting from inappropriate use

IMPORTANT

- The actuator is a 24V DC product and must not be connected to the mains voltage, otherwise it will be damaged.
- Cable specifications are a guide only, the overall responsibility resides with the electrical contractor on site.
- Installation in rooms with a high level of humidity must comply with relevant regulations (contact a qualified electrician if necessary).
- Protect against humidity in connection with transportation, storing and installation.

NOTICE

- Make sure that the window or door is in a suitable condition for electric operation and that all old objects / door openers previously mounted have been removed prior to installation. Also ensure that nothing obstructs the door in opening and closing before mounting the opener.
- It is recommended to grease window hinges at least once a year after installation of the motor unit.
- This product is maintenance free. We recommend a WindowMaster service contract is taken out to ensure long term functioning of the system.
- WindowMaster window actuators should be connected to genuine WindowMaster power supplies.
- WindowMaster take no responsibility for the performance of third party products.
- In case of technical problems, please contact your supplier.

Intended use

The WindowMaster actuator WMD 820 is designed for opening and closing of doors. It can give precise position feedback and has three speeds when using the control unit with MotorLink®.

Opening speeds

Actuators connected to control units with MotorLink® (e.g. WCC) can be run with three different speeds:

- Automatically control speed – actuators run slowly with almost no sound.
- Manual control speed – actuators run faster with a little more sound.
- Heat and smoke (H&S) and safety control speed – actuators run fastest with more sound.

Actuator versions

One actuator on a door

WMD 820	1	G	IN	1S	01	Electronic lock output, 2 sec delay, 5 wire SIHF cable
	1	G	IN	2S	01	Electronic lock output, 6 sec delay, 5 wire SIHF cable
	1	G	IN	1E	01	Entrapment with electronic lock output 1 sec delay, 2+5 wire cable
	1	G	IN	1F	01	Feedback for fully open always with electronic lock
	1	G	OU	1S	01	Electronic lock output, 2 sec delay, 5 wire SIHF cable
	1	G	OU	2S	01	Electronic lock output, 6 sec delay, 5 wire SIHF cable
	1	G	OU	1E	01	Entrapment with electronic lock output 1 sec delay, 2+5 wire cable
	1	G	OU	1F	01	Feedback for fully open always with electronic lock

Two actuators on a double door (sequential control)

- First motor on a double door

WMD 820	2	G	IN	1S	01	Electronic lock output, 2 sec delay, 5 wire SIHF cable
	2	G	OU	1S	01	Electronic lock output, 2 sec delay, 5 wire SIHF cable

- Second motor on a double door

WMD 820	2	G	IN	2S	01	5 sec delay after motor one, 5 wire SIHF cable
	2	G	IN	2F	01	5 sec delay after motor one, 5 wire SIHF cable
	2	G	IN	2E	01	5 sec delay after motor one, 5 wire SIHF cable
	2	G	OU	2S	01	5 sec delay after motor one, 5 wire SIHF cable
	2	G	OU	2F	01	5 sec delay after motor one, 5 wire SIHF cable
	2	G	OU	2E	01	5 sec delay after motor one, 5 wire SIHF cable

Four actuators on a double door (sequential control)

- First two motors on a double door

WMD 820	4	G	IN	1S	01	Electronic lock output, 2 sec delay, 5 wire SIHF cable
	4	G	OU	1S	01	Electronic lock output, 2 sec delay, 5 wire SIHF cable

- Second two motors on a double door

WMD 820	4	G	IN	2S	01	5 sec delay after the first two motors, 5 wire SIHF cable
	4	G	IN	2F	01	5 sec delay after the first two motors, 5 wire SIHF cable
	4	G	IN	2E	01	5 sec delay after the first two motors, 5 wire SIHF cable
	4	G	OU	2S	01	5 sec delay after the first two motors, 5 wire SIHF cable
	4	G	OU	2F	01	5 sec delay after the first two motors, 5 wire SIHF cable
	4	G	OU	2E	01	5 sec delay after the first two motors, 5 wire SIHF cable

Two actuators on one window (synchro)

WMD 820	2	G	IN	0S	01	
	2	G	IN	0F	01	Feedback fully open, 0 delay after motor one, 5 wire SIHF cable
	2	G	IN	0E	01	Entrapment protection, 0 delay after motor one, 5 wire SIHF cable
	2	G	OU	0S	01	
	2	G	OU	0F	01	Feedback fully open, 0 delay after motor one, 5 wire SIHF cable
	2	G	OU	0E	01	Entrapment protection, 0 delay after motor one, 5 wire SIHF cable

Description of product code composition					
WMD 820	-nG	XX	XX	01	
				Product version: 1	
			0= No delay, 1= Short delay, 2= Long delay & S= Standard, E= Entrapment, F= Feedback		
			Inward (IN) or Outward (OU)		
		Actuator variant: 1 = single, 2 = double, 4 = 2 x double (sequential) & G = Grey			
Example of product code					
WMD 820-1G IN 1S 01: WMD 820 actuator, single, IN inwards, Short delay, standard, product version 1					

Product codes	
WMD	WindowMaster / Motor / Door
820	Model
1 / 2 / 4	Single / Double / 2 x double (sequential)
G	Grey
IN / OU	Inward / Outward
0 / 1 / 2	No delay / Short delay / Long delay
S / E / F	Standard / Entrapment / Feedback

The synchro actuators (-2 and -4) are equipped with a patented synchronization function, the actuators communicate directly with each other, which ensures the actuators operate at exactly the same speed and position. On large doors two actuators can be mounted on the same door with no need for an external synchronization module.

Installation

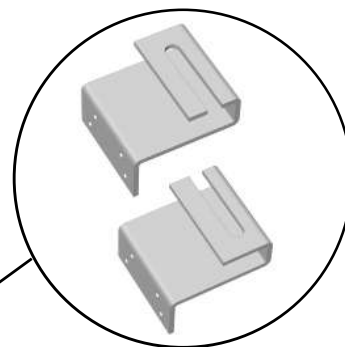
Aluminium profile mounting

Inward opening doors and windows

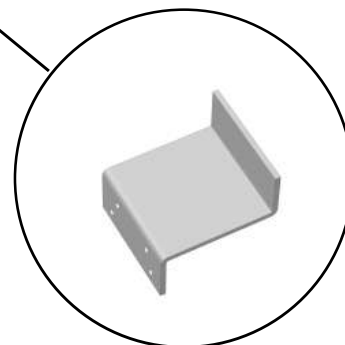


Brackets

The brackets must be mounted on the WMD 820 with the enclosed WindowMaster bolts. Tighten these bolts to 10 Nm. Use rivet nuts for mounting on aluminium profiles. Use Locktite or equivalent on the screws.



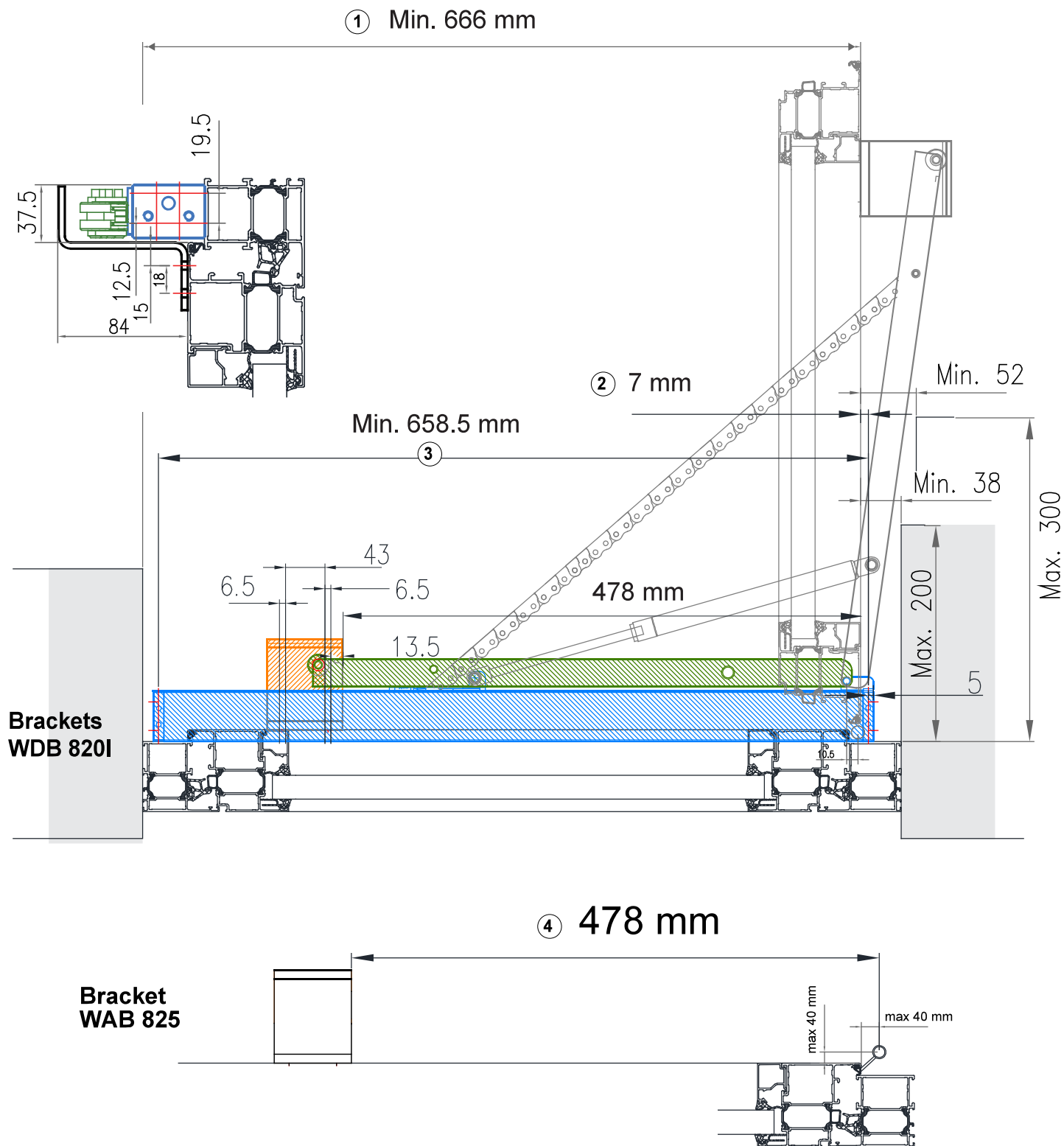
Use either **WDB 820 L/R** brackets for automatically operated left (L) and right (R) hung doors/windows.



Or use a **WAB 825** bracket for manually operated left and right hung doors/windows. The door/window must be fitted with an electronic lock.

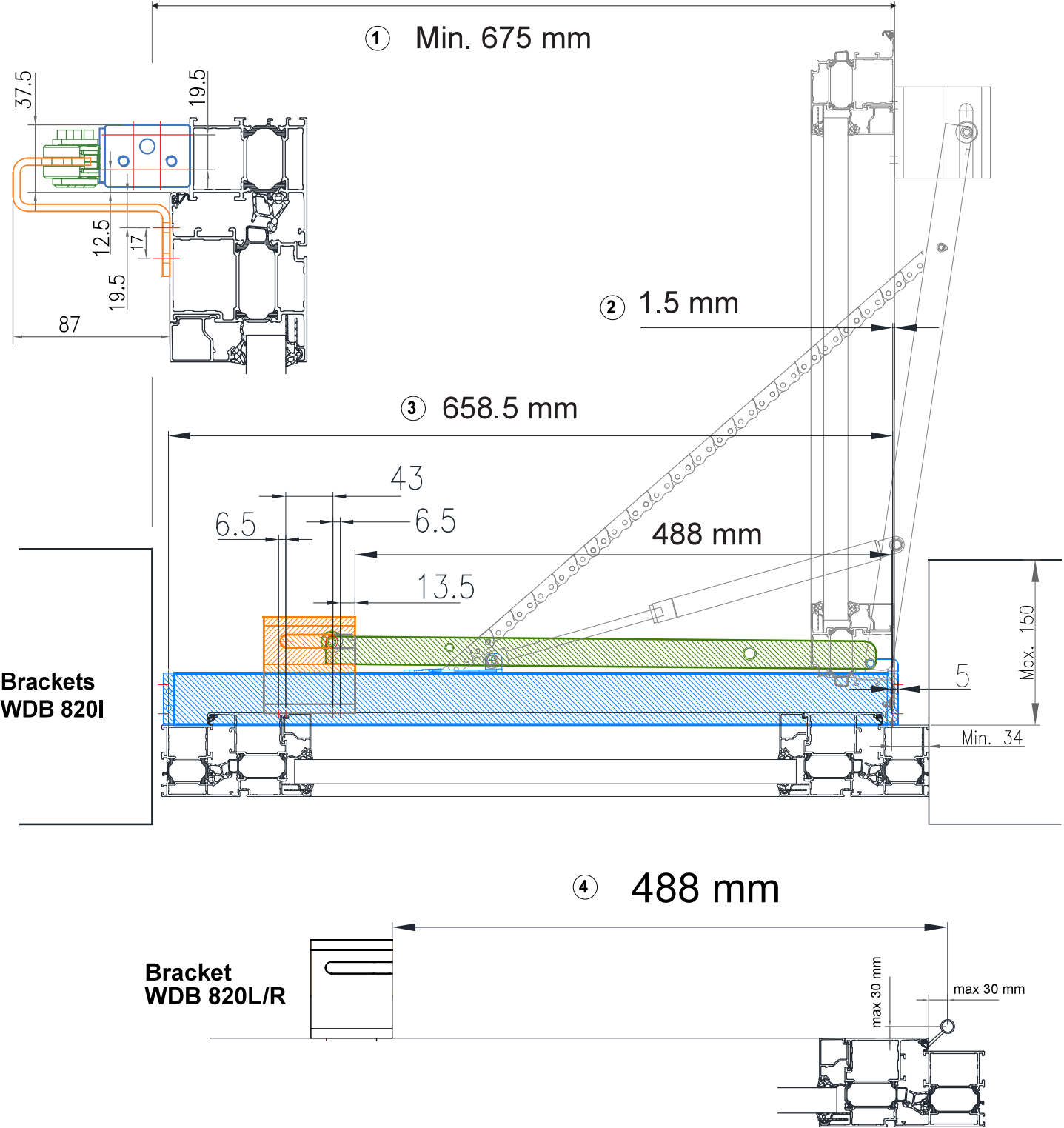
Manually operated door

Left hung inward opening door in an aluminium frame. The door can be manually operated and must be fitted with an electronic lock.



Dimensions comments			
Number	From	To	Dimension
1	Inside of door frame	Outside of door blade	Min. 666 mm
2	Rear motor mounting holes	Outside of door blade	7 mm
3	Front motor mounting holes	Outside of door blade	Min. 658.5 mm
4	Back of mounting bracket	Center of door hinge	478 mm

Automatically operated door Left hung inward opening door in an aluminium frame.



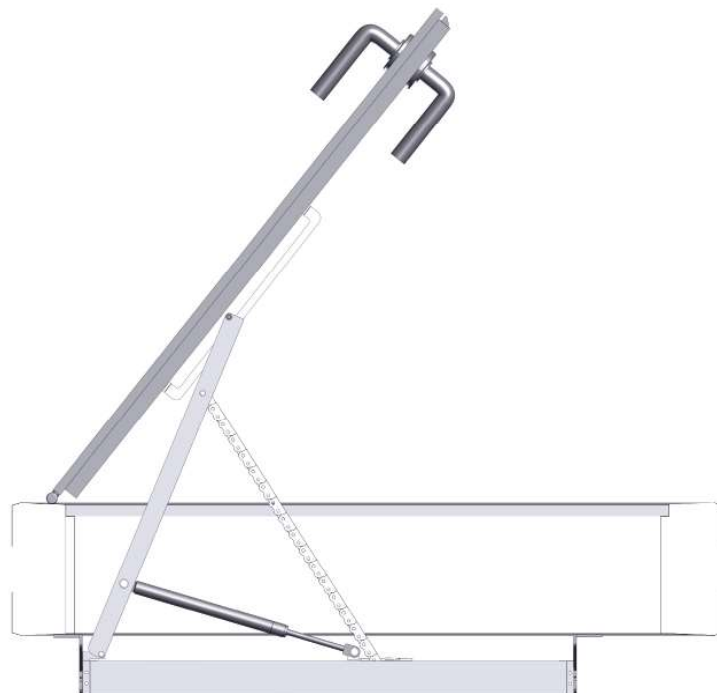
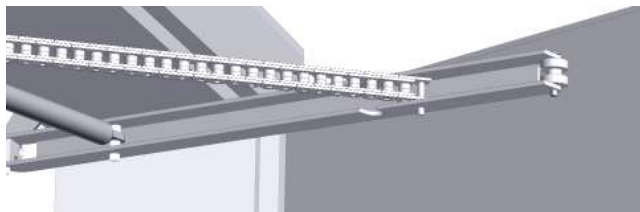
Dimensions comments			
Number	From	To	Dimension
1	Inside of door frame	Outside face of door	Min. 675 mm
2	Rear motor mounting holes	Outside face of door	1.5 mm
3	Front motor mounting holes	Outside face of door	Min. 658.5 mm
4	Back of mounting bracket	Center of door hinge	488 mm

Aluminium profile mounting

Outward opening doors and windows

Manual doors

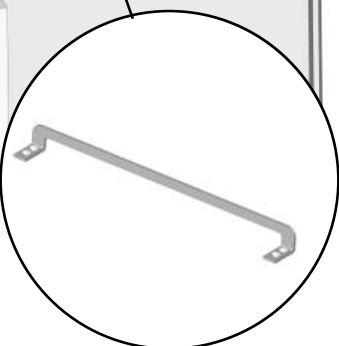
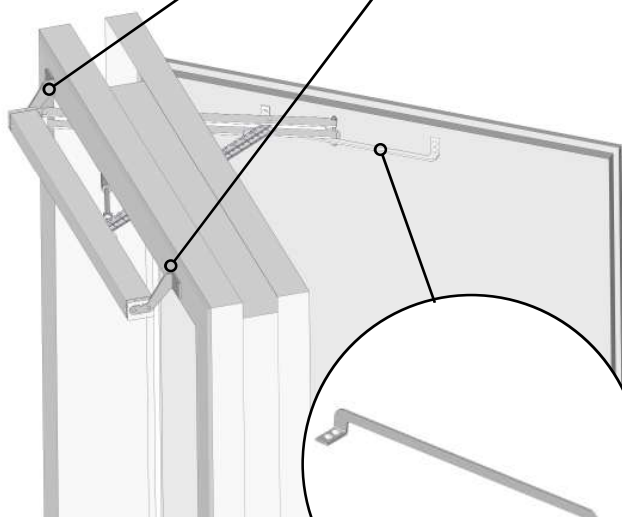
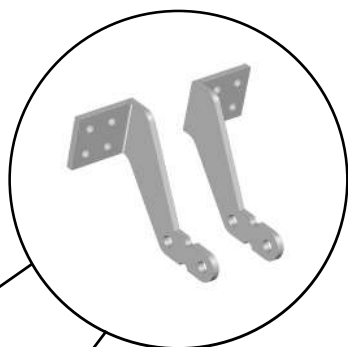
Manually operated doors and windows do not need a bracket. The door must be fitted with an electronic lock.



Brackets

Bracket WDB 820B

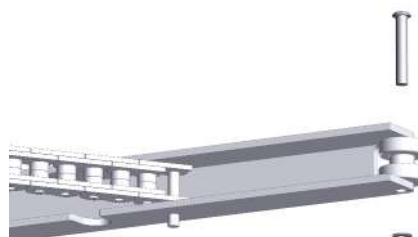
For mounting in aluminium profiles.



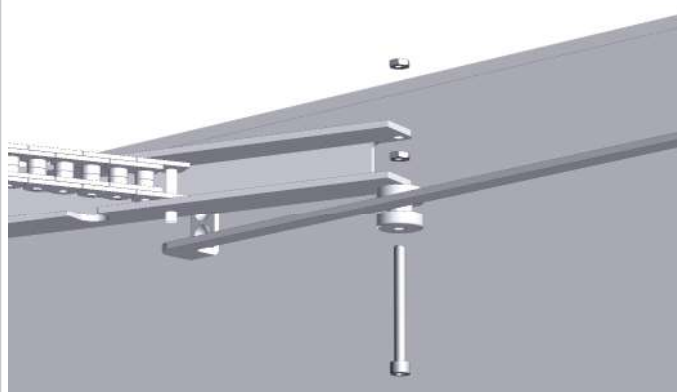
Bracket WDB 820M
For automatic doors.

Automatic doors

When using bracket **WDB 820M** for automatic doors, the wheel must be moved down.



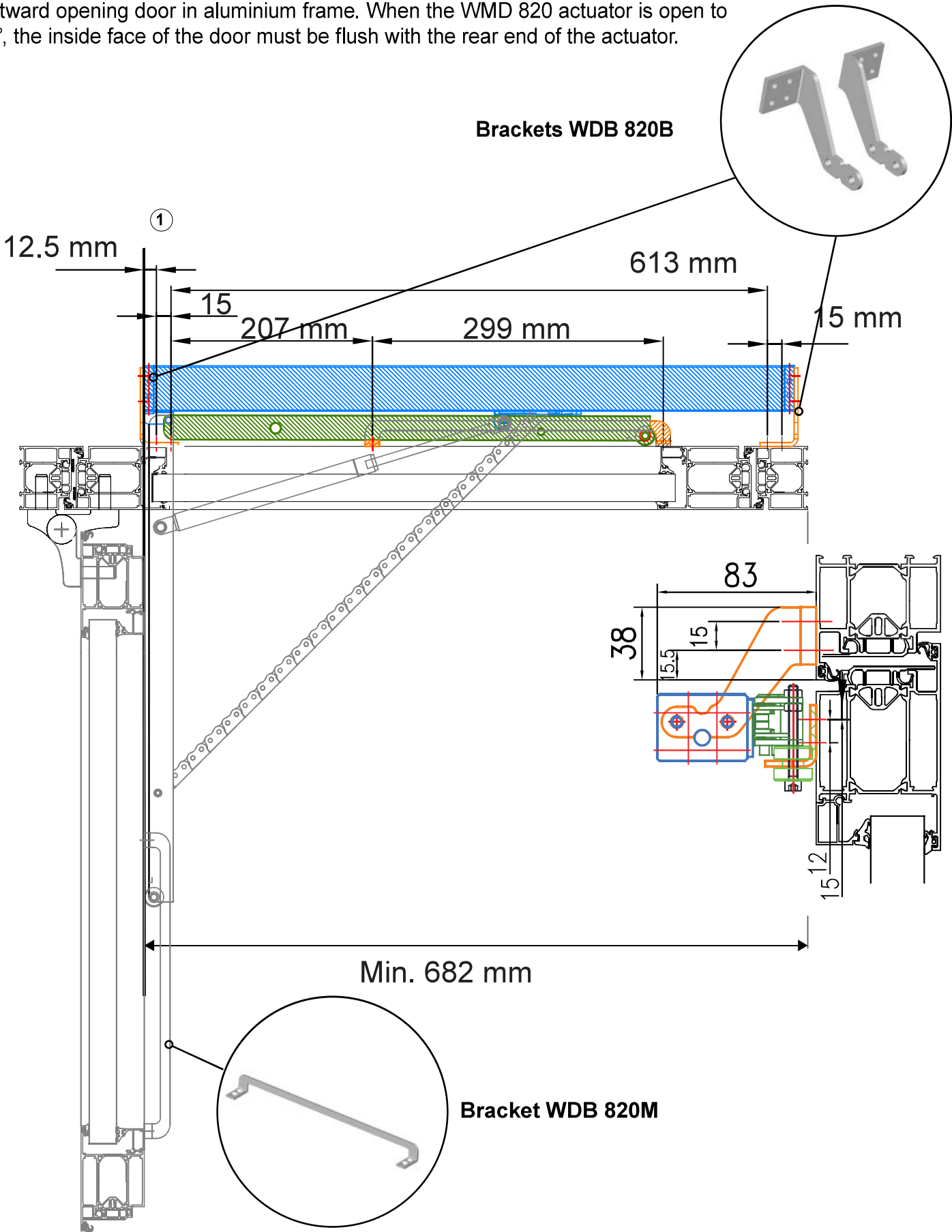
Remove the lockwasher and the pin.



Mount the wheel under the motor arm using the supplied bolt. Make sure that the wheel is mounted behind the bracket **WDB 820M**. Fasten the nuts with a torque of 2 Nm.

Automatically operated door

Outward opening door in aluminium frame. When the WMD 820 actuator is open to 90°, the inside face of the door must be flush with the rear end of the actuator.

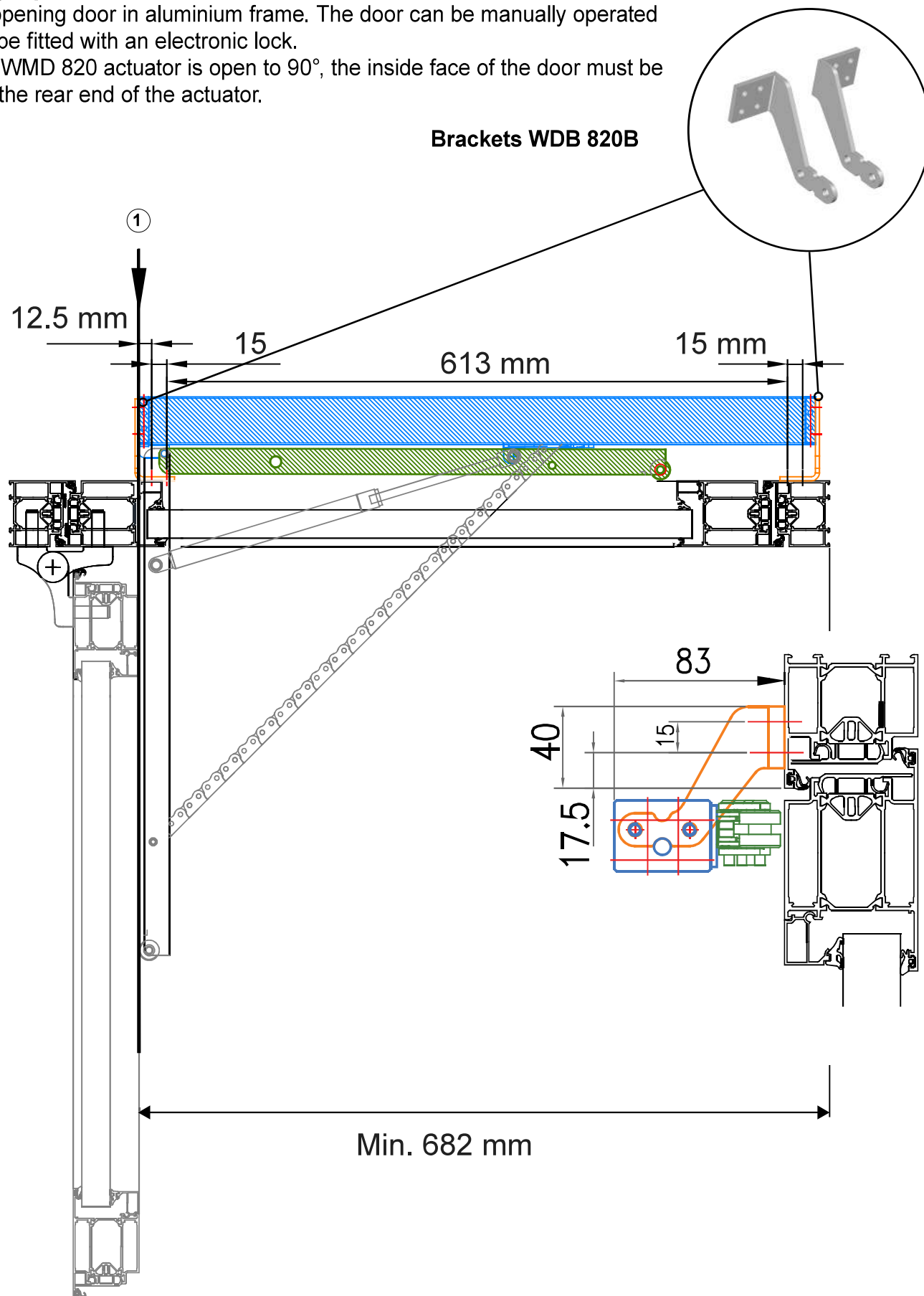


Dimensions comments			
Number	From	To	Dimension
1	Inside face of door	Rear end of actuator	FLUSH

Manually operated door

Outward opening door in aluminium frame. The door can be manually operated and must be fitted with an electronic lock.

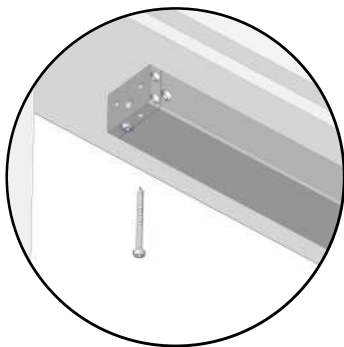
When the WMD 820 actuator is open to 90°, the inside face of the door must be flush with the rear end of the actuator.



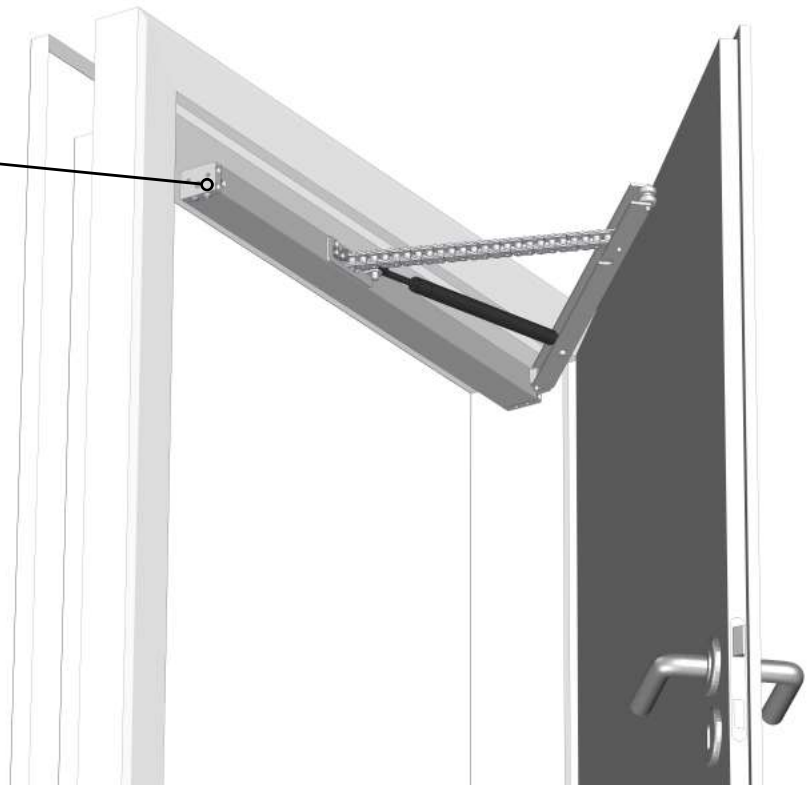
Dimensions comments			
Number	From	To	Dimension
1	Inside face of door	Rear end of actuator	FLUSH

Wooden profile mounting

Outward opening doors and windows

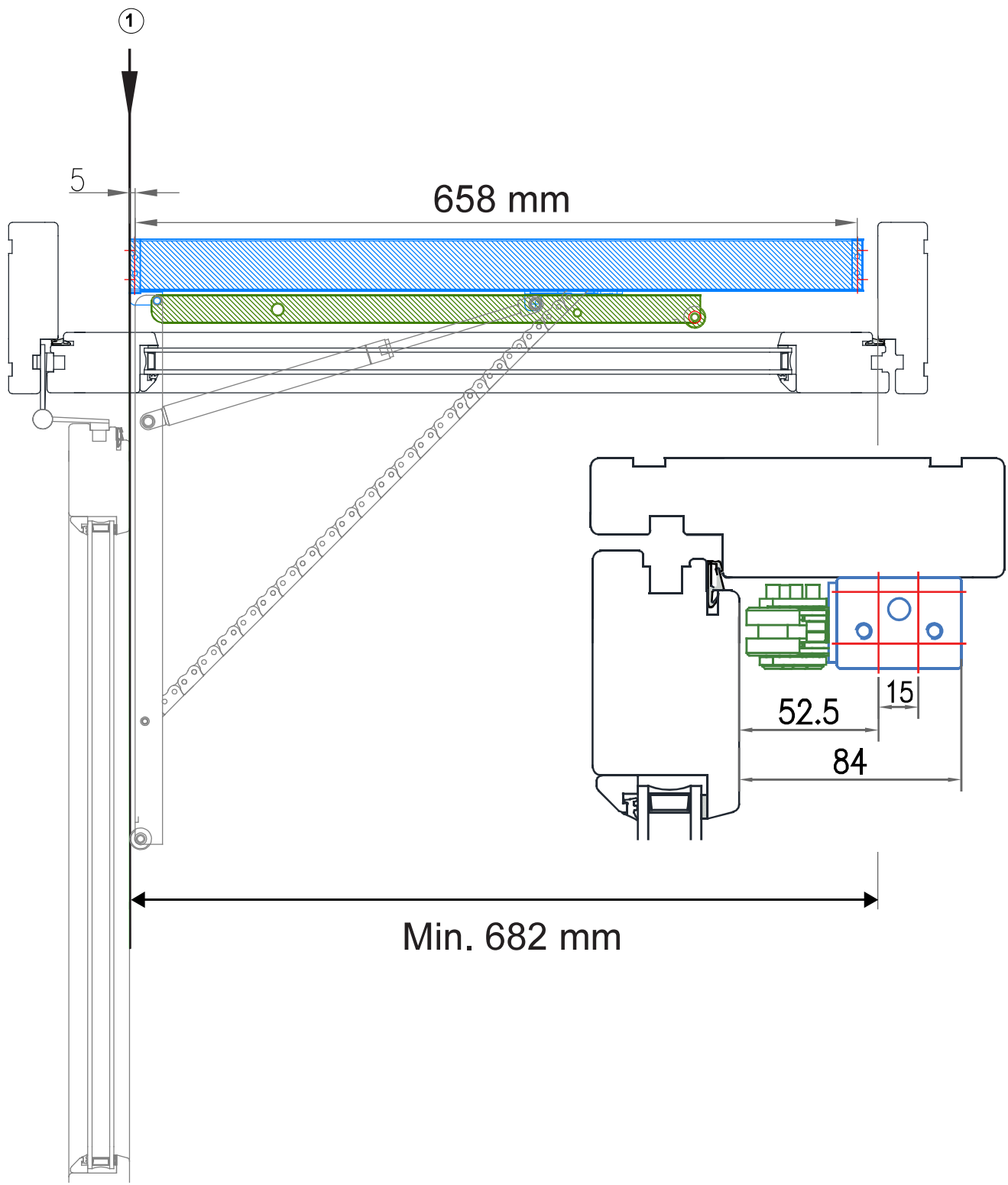


Fasten the actuator in the door frame.



Manually operated door

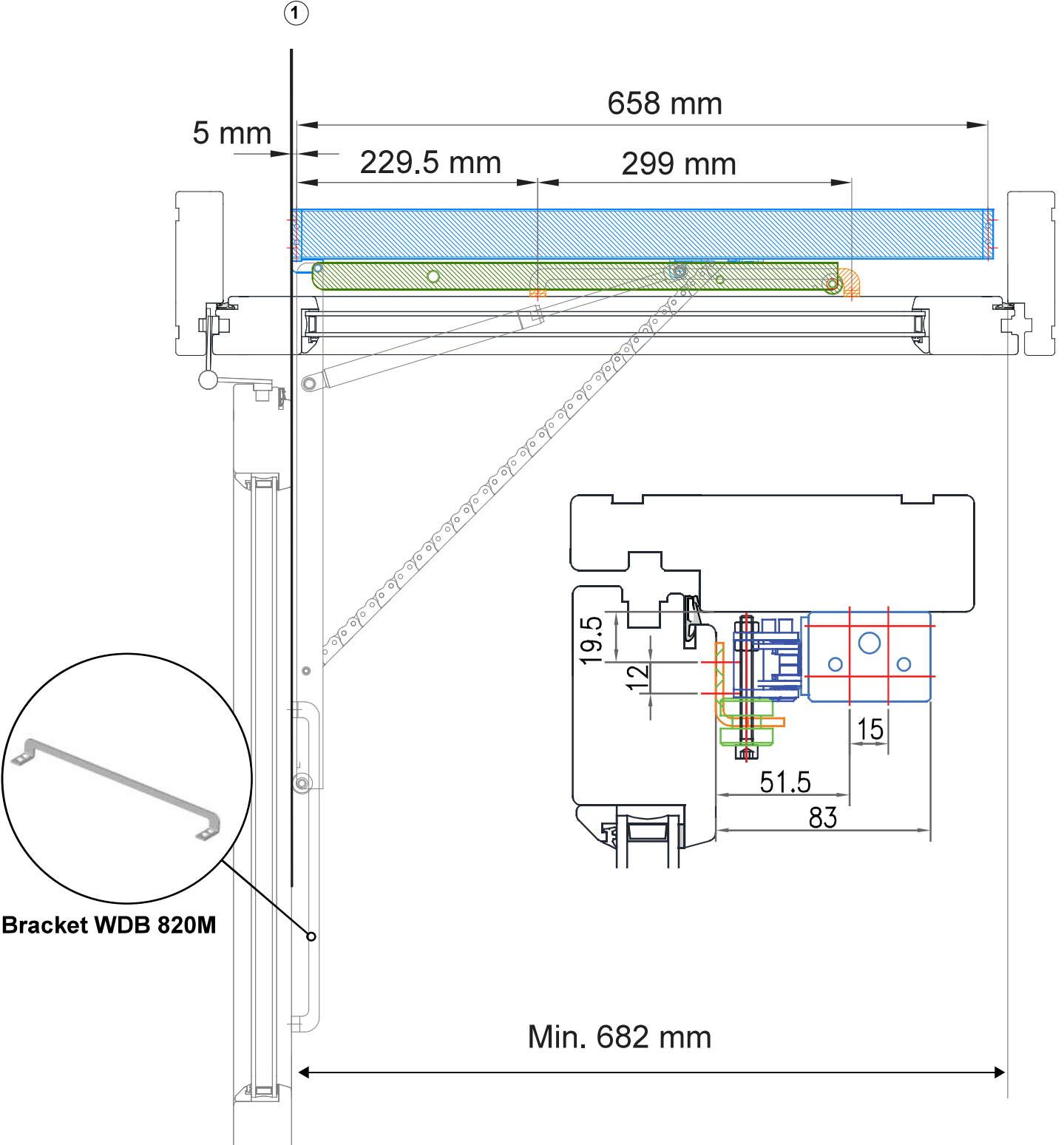
Outward opening door in a wooden frame. The door can be manually operated and must be fitted with an electronic lock. When the WMD 820 actuator is open 90°, the inside face of the door must be flush with the rear end of the actuator.



Dimensions comments			
Number	From	To	Dimension
1	Inside face of door	Rear end of actuator	FLUSH

Automatically operated door

Outward opening door in wooden frame.
When the WMD 820 actuator is open 90°, the inside face of the door must be flush with the rear end of the actuator.

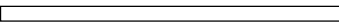


Dimensions comments			
Number	From	To	Dimension
1	Inside of door	Rear end of actuator	FLUSH

Wiring

The green wire is either intended for maintenance or synchronization. This depends on the configuration. The blue and the purple wire have different functions depending on the actuator model.

Wire colours

	White	+24V DC	
	Green	Maintenance / Sync cable	
	Brown	0V	
	Blue	Single actuator:	Lock
	Purple	Not single actuator:	Lock, Entrapment or Feedback

If extra cable on single actuator

	Brown	Single actuator:	Entrapment or Feedback
	White		



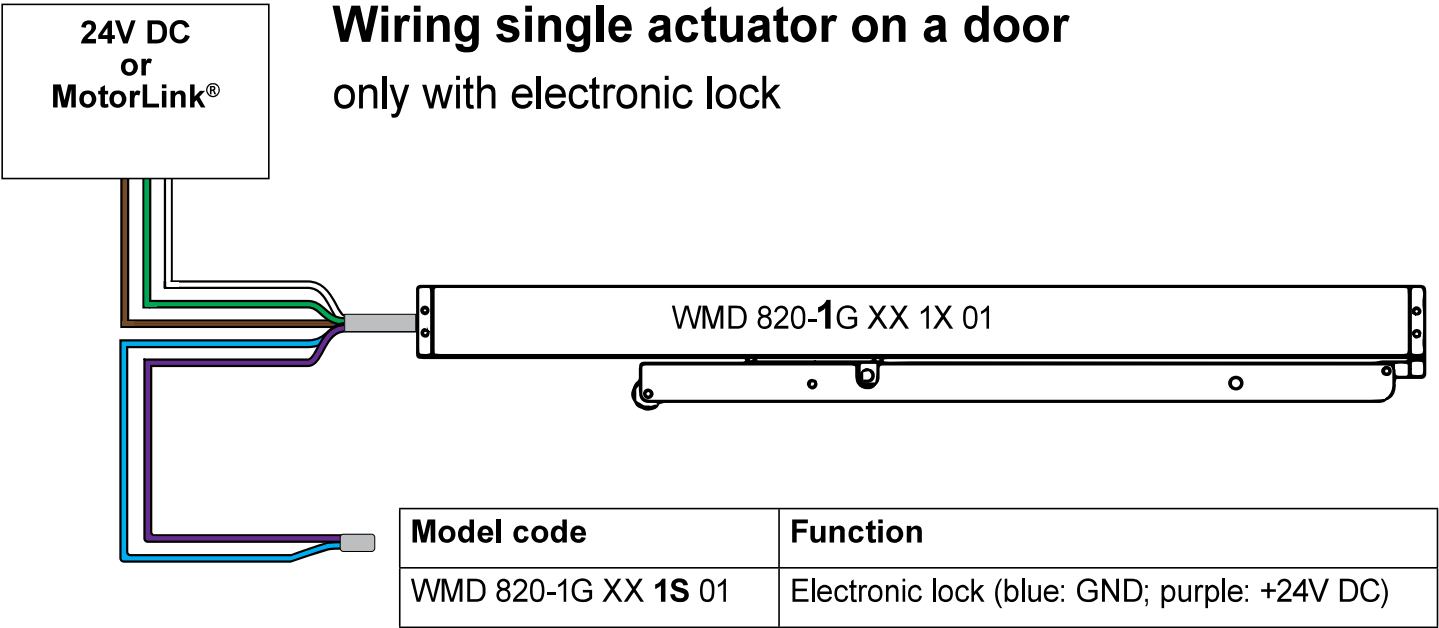
The label on the actuator unit shows the model code.

The detailed example is for an actuator with electronic lock function.

NOTICE

When connecting to 24V DC: DO NOT connect the green cable. It is for maintenance only. When connecting to MotorLink® the green cable is for Synchronization communication.

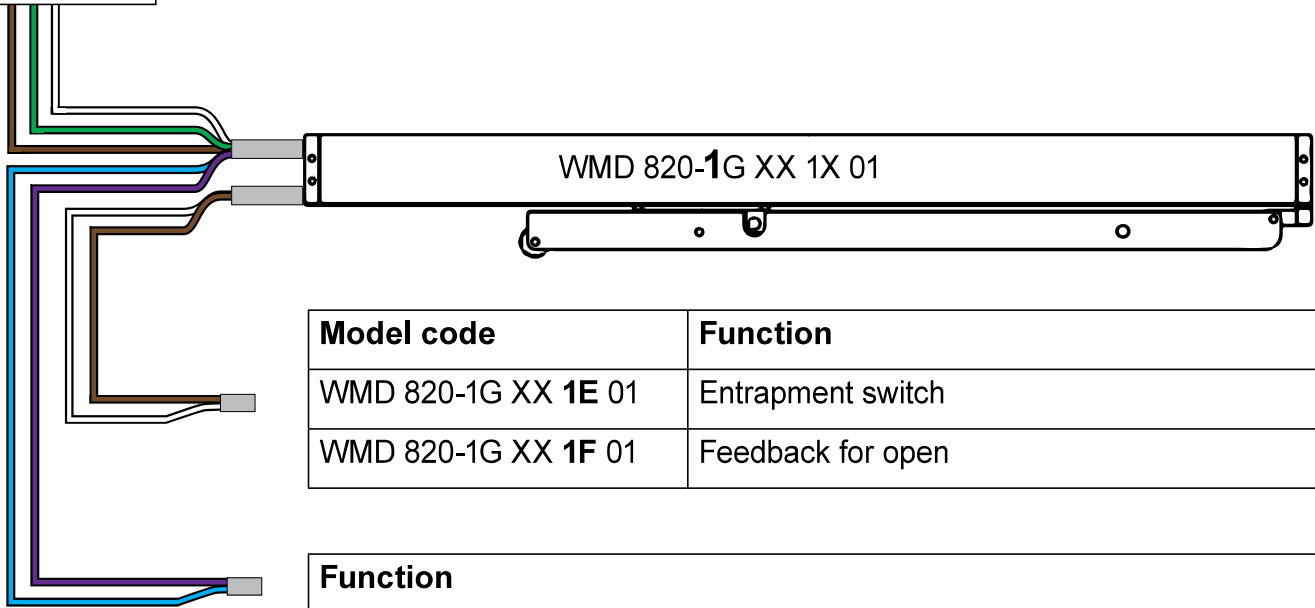
Wiring single actuator on a door only with electronic lock



24V DC
or
MotorLink®

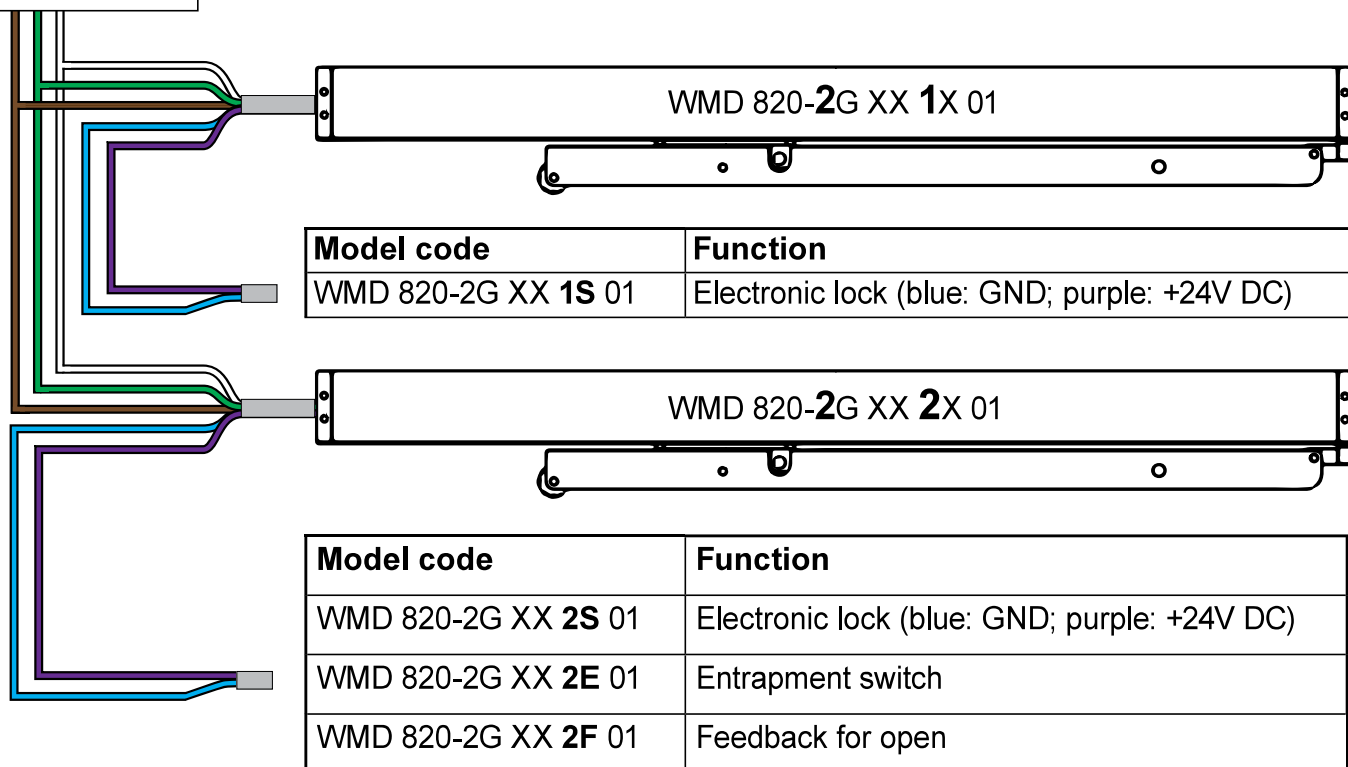
Wiring single actuator on a door

with electronic lock & entrapment or feedback



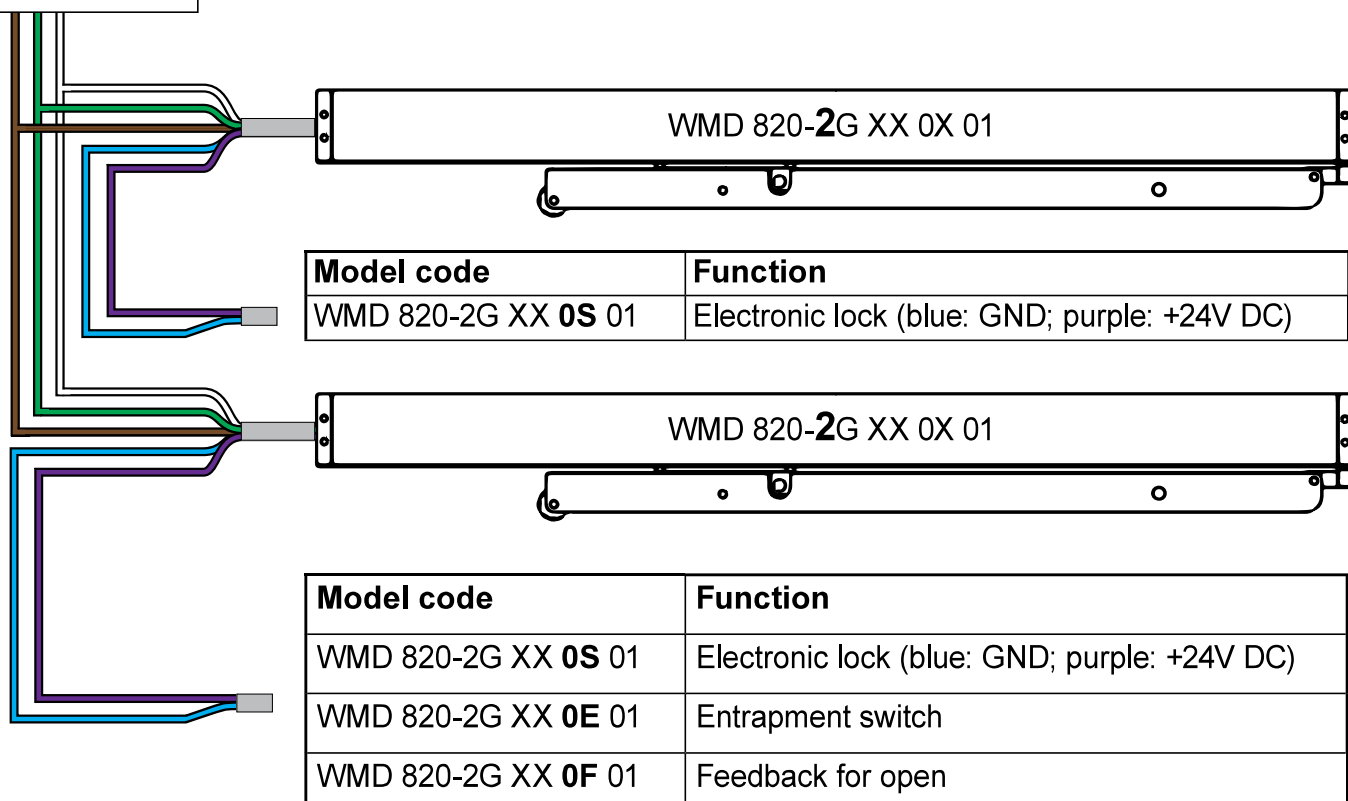
24V DC
or
MotorLink®

Wiring two actuators on two doors (sequential)



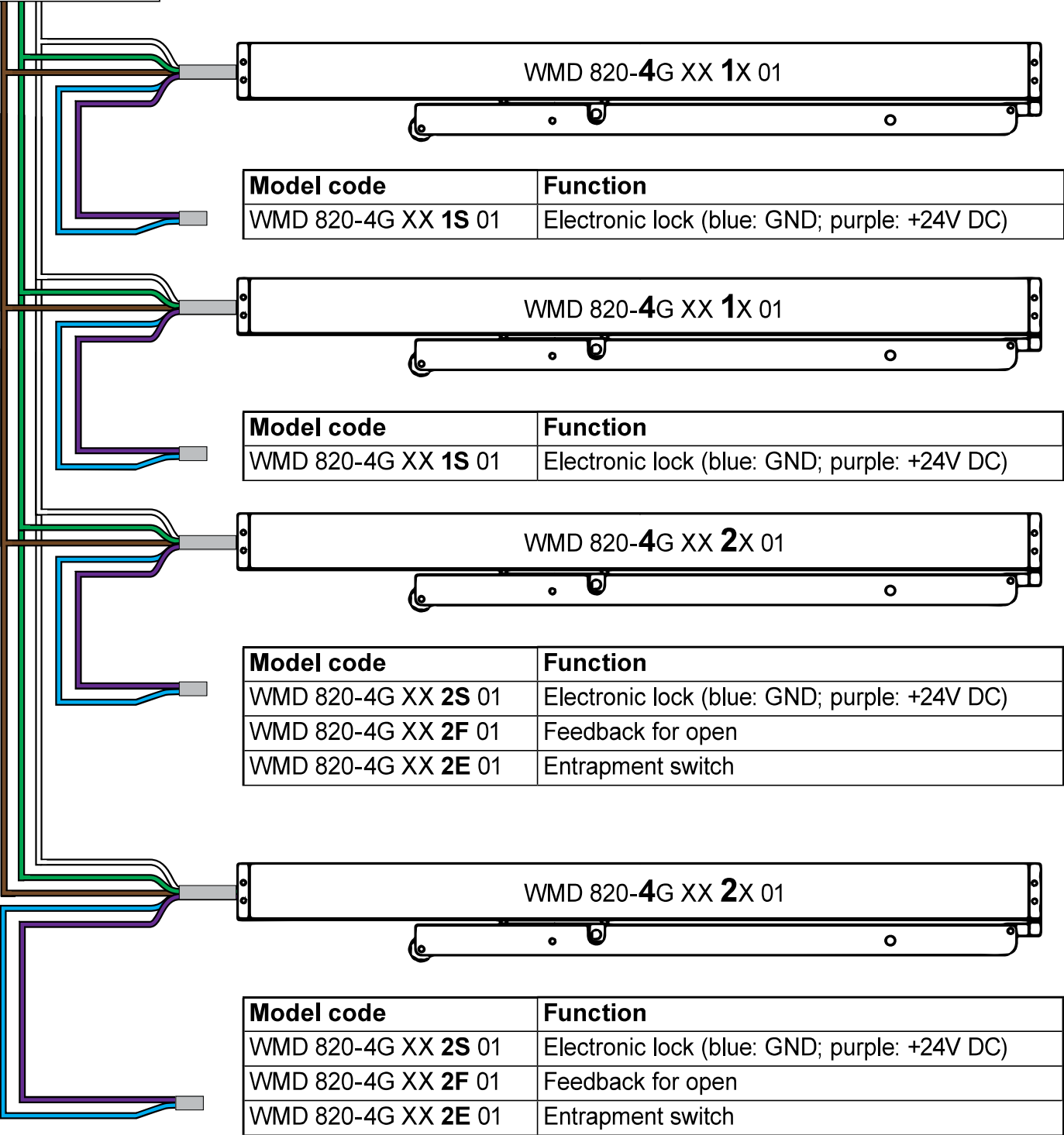
24V DC
or
MotorLink®

Wiring two synchro actuators on a window



24V DC
or
MotorLink®

Wiring four actuators on two doors (sequential)

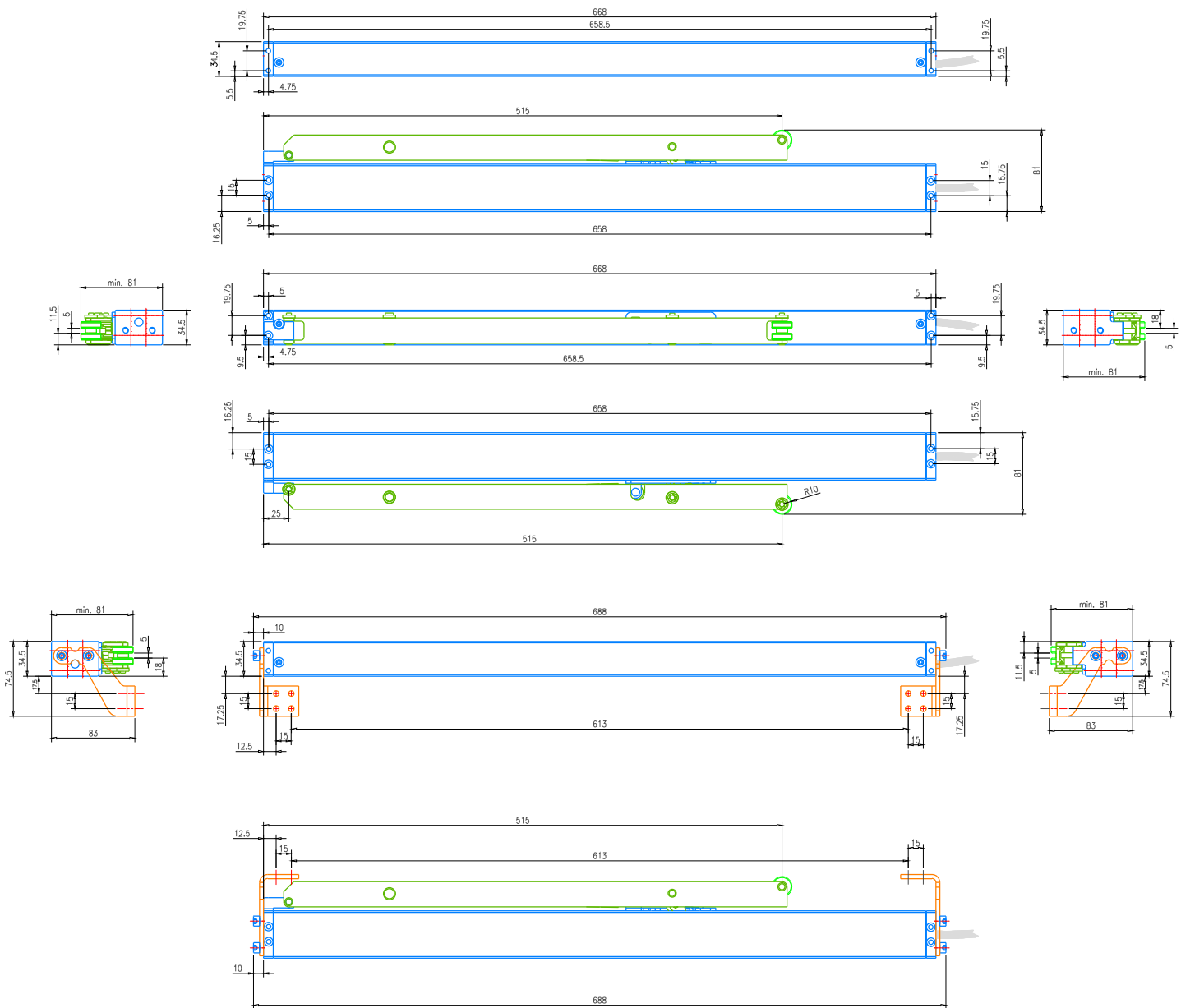


Cable core dimensions and distances

Core dimensions and lengths – 24V DC				
Dimension	0.75 mm ²	1.50 mm ²	2.50 mm ²	4.0 mm ²
Length, 1 actuator	42 m	84 m	140 m	224 m
Length, 2 actuators	21 m	42 m	70 m	112 m
Length, 4 actuators	10 m	21 m	35 m	56 m

Core dimensions and lengths – MotorLink®				
Dimension	0.75 mm ²	1.50 mm ²	2.50 mm ²	4.0 mm ²
Length, 1 actuator	42 m	50 m		
Length, 2 actuators	21 m	42 m	50 m	
Length, 4 actuators	10 m	21 m	25 m	

Dimensions



Technical data	
Traction force on the arm roller	250N
Locking force	2000 - 3000N depending on the brackets
Maximum opening angle	OU 90° / IN 98°
Opening speed	< 60 sec
Window & Door types	Side hung – vent or door size should be confirmed with both the window supplier and WindowMaster
Nominal voltage	24V DC (max. 10% ripple)
Voltage	20 - 36V DC
Open circuit voltage	Max. 36V DC
Potential free output	F version, 18Ω, max. 100 mA
Current consumption	Max. 1,0A
Electronic lock	S version, output 24V DC / max. 1A
Consumption of power	Max. 24W
Operating conditions	-5°C - +74°C, max. 90% relative humidity (not condensing)
Switch-on-duration	ED 40% (max. 4min. per 10min)
Material	Anodised aluminium housing with stainless steel chain WMD 820: with 5m grey silicone cable 5-cores 0.34m ²
Colour	Anodized aluminium. RAL colours available at an additional price
Size	34 x 76mm (H x D), length (L) 668mm – (688mm incl. brackets) (D = 81mm incl. arm roll)
Weight	3.5kg
IP rating	IP32
Fire test	Tested according to B300, part 3.6 (30 min. / 300°)
Certification	B300 tested according to EN 12101-2
Life span	Tested with 10,000 opening and closing movements
Delivery includes	WMD 820: actuator with 5m cable
To be ordered separately	Brackets

Disposal

The product must be disposed of in conformity with national regulations for electronic waste and not with usual household waste. The packaging can be disposed of together with ordinary household waste.



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