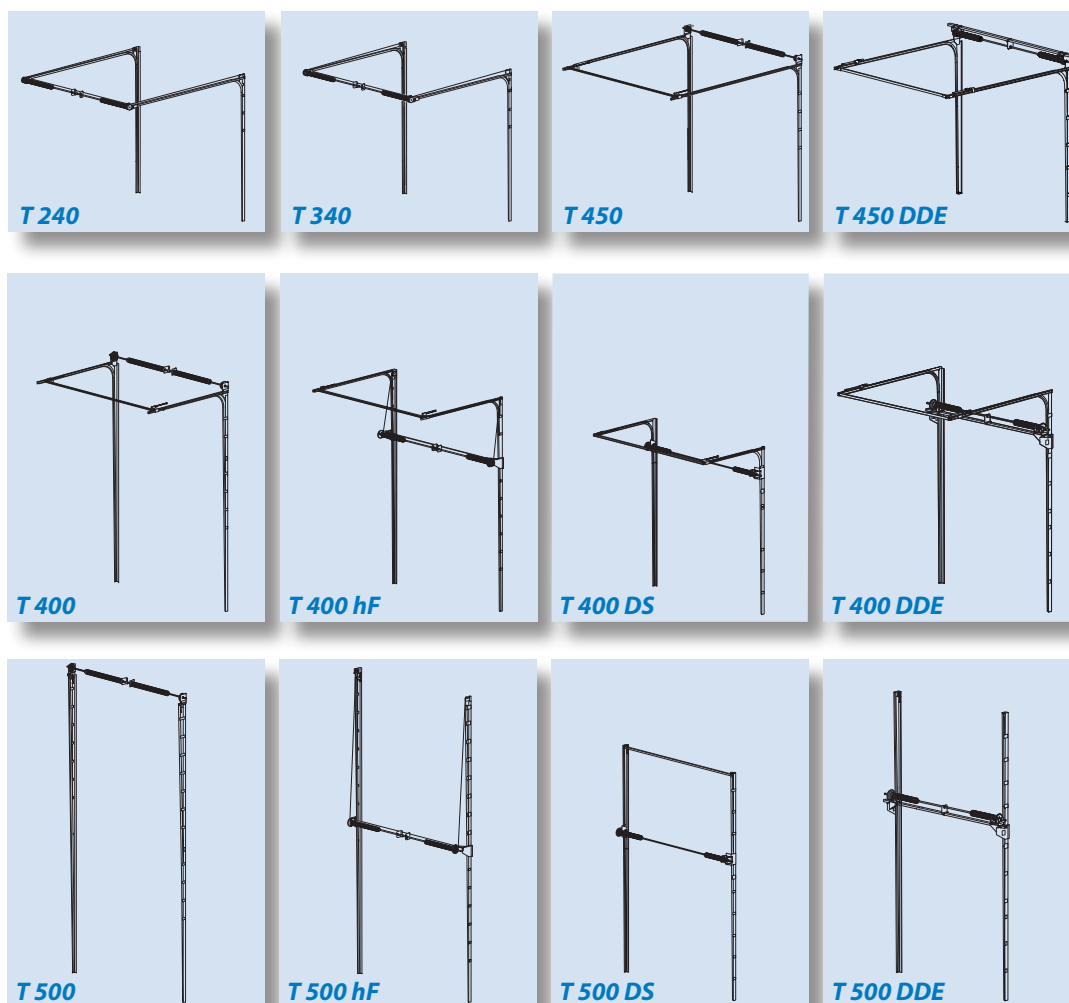


Track system, dimensions, installation criteria 60/80 mm



<i>Low headroom track system, internal cable runs + steel support beam</i>	T 240
<i>Normal lift track system, rear-mounted spring shaft assembly + steel support beam</i>	T 340
<i>Normal lift track system (standard)</i>	T 450
<i>Normal lift track system with pre-assembled low-mounted spring shaft assembly</i>	T 450 DDE
<i>High lift track system</i>	T 400
<i>High lift track system with low-mounted spring shaft assembly + steel support beam</i>	T 400 hF
<i>High lift track system with low-mounted spring shaft assembly</i>	T 400 DS
<i>High lift track system with pre-assembled low-mounted spring shaft assembly</i>	T 400 DDE
<i>Vertical lift track system</i>	T 500
<i>Vertical lift track system with low-mounted spring shaft assembly + steel support beam</i>	T 500 hF
<i>Vertical lift track system with low-mounted spring shaft assembly</i>	T 500 DS
<i>Vertical lift track system with pre-assembled low-mounted spring shaft assembly</i>	T 500 DDE



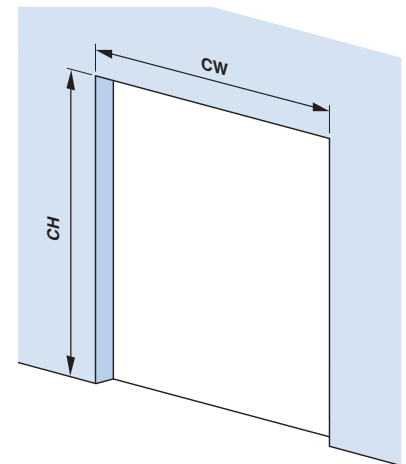
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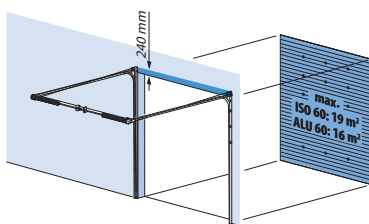
Read this first!

- The information contained in this document is based on sectional doors with balance springs. If a sectional door without springs applies, you can find the information in the last paragraph of each rail system.
- The choice of track system is primarily determined by the headroom available (installation space above the opening). The space from the underside of the lintel to the underside of the roof/ceiling determines the choice of track system.
- Allowances must be made for conduits, mobile crane guides, traverses, etc. that are fixed to the wall and/or hung from the roof in the area into which the door leaf retracts when open, as they restrict the available installation space. Such obstructions may make it necessary to select a different track system.
- It is recommended that the available headroom is used to the best possible advantage in order to achieve optimum door operation and reduce the distance that the open door leaf projects into the building.
- A summary of the eleven basic track systems can be found on pages 5 and 7. The systems are described in detail in the remainder of this document.
- Roof angle system details are shown separately in the detail information relating to each type of track system.
- All dimensions indicated are conservative. If there is only a slight difference (plus or minus) between the measured dimensions and the indicated required dimensions, it may still be possible to install the desired system. Please contact us for detail information.
- The upper limits set for each type of track system, such as door surface area, are not absolute values. They assume a "reasonable" relationship between the door width and door height. It is impossible to detail all the permutations in this documentation. If in doubt, please contact us.
- The number of m² stated is a guideline and depends on the door leaf design and corresponding weight.
- We do not accept responsibility for any errors or misprints. If you have any questions, please contact us.
- A choice can be made from:
 - T 240 Low headroom track system, internal cable runs + steel support beam
 - T 340 Normal lift track system, rear-mounted spring shaft assembly + steel support beam
 - T 450 Normal lift track system (standard)
 - T 450 DDE Normal lift track system with pre-assembled low-mounted spring shaft assembly
 - T 400 High lift track system
 - T 400 hF High lift track system with low-mounted spring shaft assembly + steel support beam
 - T400 DS High lift track system with low-mounted spring shaft assembly
 - T400 DDE High lift track system with pre-assembled low-mounted spring shaft assembly
 - T 500 Vertical lift track system
 - T 500 hF Vertical lift track system with low-mounted spring shaft assembly + steel support beam
 - T500 DS Vertical lift track system with low-mounted spring shaft assembly
 - T500 DDE Vertical lift track system with pre-assembled low-mounted spring shaft assembly



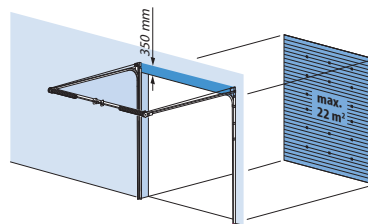
CW= clear width
CH= clear height

Rail systems



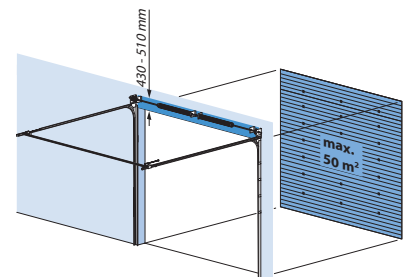
1.0 T 240 Low headroom track system, internal cable runs + steel support beam

- **ISO 80 / ALU 80 not possible.**
- Headroom requirement above the clear opening: 240 mm.
- Maximum door leaf area:
ISO 60: 19 m²,
ALU 60: 16 m².
- Maximum door width: 6500 mm.
- Roof angle system available, max. 15°.



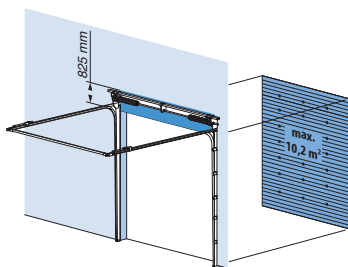
2.0 T 340 Normal lift track system, internal cable runs + steel support beam

- **ISO 80 / ALU 80 not possible.**
- Headroom requirement above the clear opening: 350 mm.
- Maximum door leaf area: 22 m².
- Maximum door width: 6500 mm.
- Roof angle system available, max. 30°.



3.0 T 450 Normal lift track system (standard)

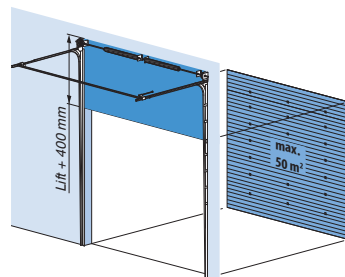
- Headroom requirement above the clear opening: 430 - 510 mm.
- Maximum door leaf area: 50 m².
- Roof angle system available.



4.0

T450 DDE Normal lift track system with low-mounted spring shaft assembly

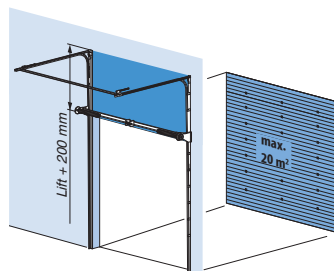
- Maximum door leaf area: 10.2 m².
- Maximum door width: 3200 mm.
- Maximum door height: 3200 mm.
- Roof angle system available.



5.0

T 400 High lift track system

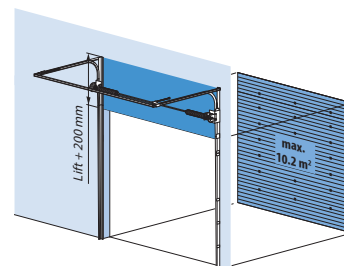
- Headroom requirement above the clear opening: lift + 400 mm, where lift is defined as the dimension from the bottom face of the lintel to the bottom face of the horizontal tracks.
- Maximum door leaf area: 50 m².
- Roof angle system available.
- Lift dimension: 300 – 4150 mm.



6.0

T 400 hF High lift track system with low-mounted spring shaft assembly + steel support beam

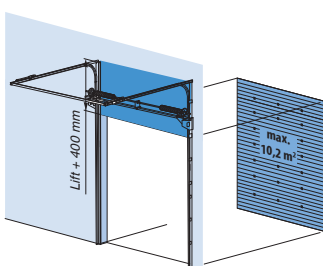
- Headroom requirement above the clear opening: lift + 200 mm, where lift is defined as the dimension from the bottom face of the lintel to the bottom face of the horizontal tracks.
- Maximum door leaf area: 20 m².
- Maximum door width: 4500 mm.
- Roof angle system available.
- Lift dimension: 1450 – 4150 mm.



7.0

T400 DS High lift track system with low-mounted spring shaft assembly

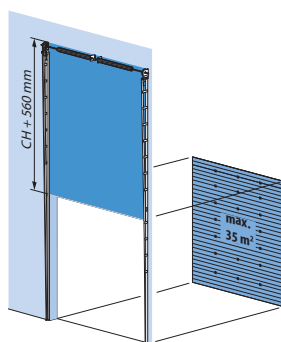
- Headroom requirement above the clear opening: lift + 200 mm, where lift is defined as the dimension from the bottom face of the lintel to the bottom face of the horizontal tracks.
- Maximum door leaf area: 10.2 m².
- Maximum door width: 3200 mm.
- Maximum door height: 3200 mm.
- Roof angle system available.
- Minimum lift dimension: 1700 mm.



8.0

T400 DDE High lift track system with low-mounted spring shaft assembly

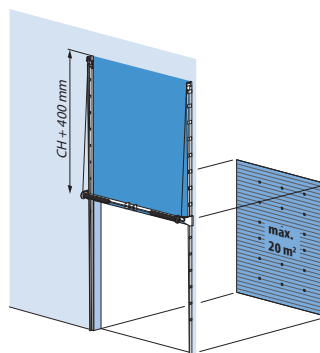
- Headroom requirement above the clear opening: lift + 400 mm, where lift is defined as the dimension from the bottom face of the lintel to the bottom face of the horizontal tracks.
- Maximum door leaf area: 10.2 m².
- Maximum door width: 3200 mm.
- Maximum door height: 3200 mm.
- Roof angle system available.
- Minimum lift dimension: 1800 mm.



9.0

T 500 Vertical lift

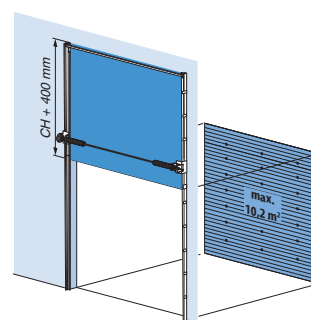
- Headroom requirement above the clear opening: clear opening height (CH) + 560 mm.
- Maximum door leaf area: 35 m².



10.0

T 500 hF Vertical lift track system with low-mounted spring shaft assembly + steel support beam

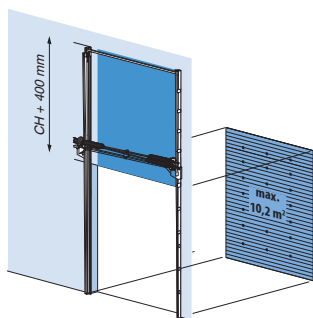
- Headroom requirement above the clear opening: clear opening height (CH) + 400 mm.
- Maximum door leaf area: 20 m² and maximum door width: 4500 mm.



11.0

T500 DS Vertical lift track system with low-mounted spring shaft assembly

- Headroom requirement above the clear opening: lift + 400 mm, where lift is defined as the dimension from the bottom face of the lintel to the bottom face of the horizontal tracks.
- Maximum door leaf area 10.2 m².
- Maximum door width: 3200 mm.
- Maximum door height: 3200 mm.



12.0

T500 DDE Vertical lift track system with low-mounted spring shaft assembly

- Headroom requirement above the clear opening: lift + 400 mm, where lift is defined as the dimension from the bottom face of the lintel to the bottom face of the horizontal tracks.
- Maximum door leaf area 10.2 m².
- Maximum door width: 3200 mm.
- Maximum door height: 3200 mm.

General information

- The information contained in this document is based on sectional doors with balance springs. If a sectional door without springs applies, you can find the information in the last paragraph of each rail system.

Mounting surface

ISO 60 + ALU 60

Standard frame (ST)

80 mm

Heavy-duty frame (ZHK)

100 mm

- The mounting surfaces (mounting frame) must be smooth and perfectly flush (if necessary, compensate for irregularities using angle profiles, flat strip, rectangular tube, etc.).
- The mounting surface (mounting frame) must be sufficiently stable in itself, or be securely fixed to the wall/structure of the building.

ISO 80

Standard frame (ST)

100 mm

Heavy-duty frame (ZHK)

120 mm

- The mounting surfaces (mounting frame) must be smooth and perfectly flush (if necessary, compensate for irregularities using angle profiles, flat strip, rectangular tube, etc.).
- The mounting surface (mounting frame) must be sufficiently stable in itself, or be securely fixed to the wall/structure of the building.

Water stop

ISO 60 + ALU 60

	Standard frame (ST)		Heavy-duty frame (ZHK)	
Panel thickness	60		60	
	A	B	A	B
Door without wicket door	140	100	165	120
Door with wicket door, threshold 16 mm	180	100	205	120
Door with wicket door, threshold 110 mm	140	100	165	120
Door with wicket door, threshold 195 mm	140	100	165	120

Dimensions are in mm.

ISO 80

	Standard frame (ST)		Heavy-duty frame (ZHK)	
Panel thickness	80		80	
	A	B	A	B
Door without wicket door	160	120	185	140

Dimensions are in mm.

Door type with corresponding rail system

	Rail system												
	T 240	T 340	T 450	T 400	T 400 hF	T 400 DS	T 400 DDE	T 500	T 500 hF	T 500 DS	T 500 DDE	Helix	S600
ISO 60	•	•	•	•	•	•	•	•	•	•	•		
ISO 80			•	•	•			•	•				
ALU 60	•	•	•	•	•	•	•	•	•	•	•		

Door type with standard duty frame

	T 240	T 340	T 450	T 400	T 400 hF	T 500	T 400 DS	T 400 DDE	T 500 hF	T 500 DS	T 500 DDE	Helix	S600
	•	•			•		•	•	•	•	•		

Springless sectional door option

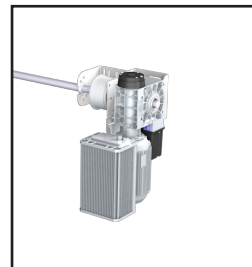
There are two types of springless sectional doors options

FLL type

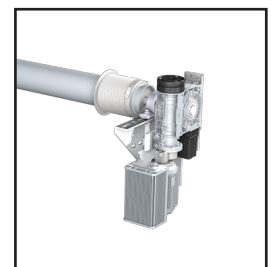
- Door leaf area possible up to 24 m² depending on door leaf weight.
- Maximum door width: 6000 mm.
- From clear opening width > 4000 mm, middle fixing is required.
- Installation dimensions: uses the standard installation dimensions of the guide system.

FLS type

- Installation dimensions: Use the table with the installation dimension of the guide system.



FLL



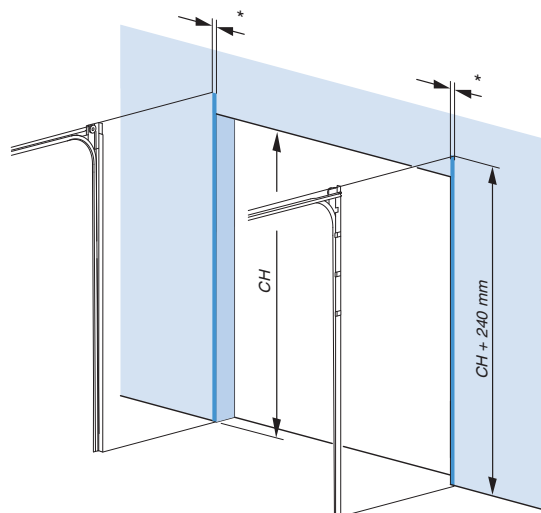
FLS

Application

	Rail system												
	T 240	T 340	T 450	T 400	T 400 hF	T 400 DS	T 400 DDE	T 500	T 500 hF	T 500 DS	T 500 DDE	Helix	S600
FLL Springless sectional door	•	•	•	•	0	0		•	0	0	–	–	–
FLS Springless sectional door	–	–	•	•	0	0		•	0	0	–	–	–
0 possible in consultation – not possible													

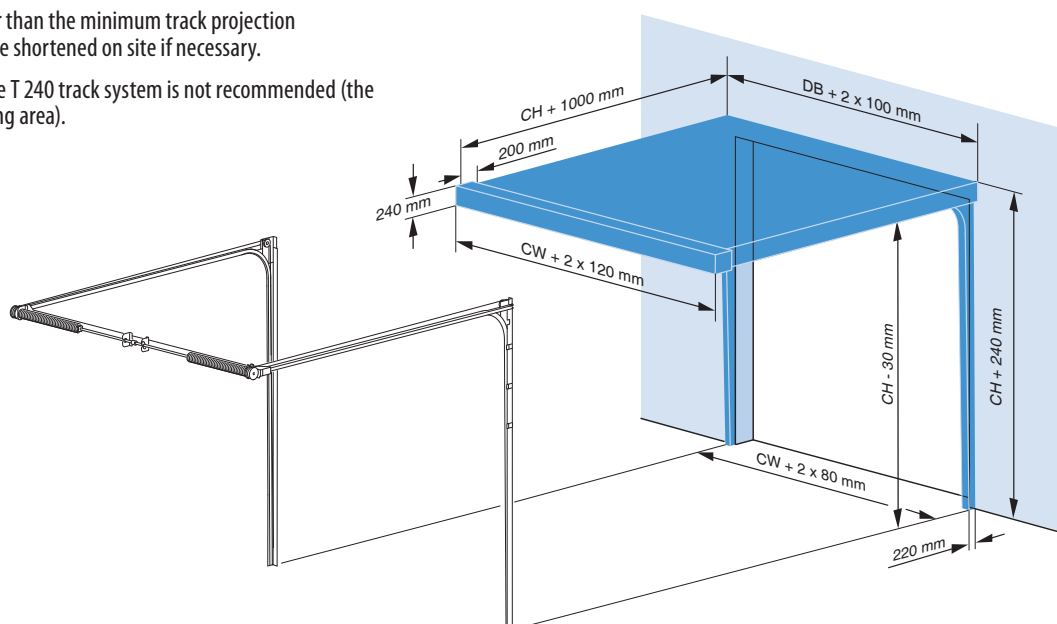
1.1 Installation space requirements – vertical tracks

- The T 240 is not suitable for an ISO 80 mm sectional door.
- Minimum width of the mounting surface (frame) *, see General information page.
- Minimum mounting surface height (mounting frame): $CH + 240$ mm.
- A horizontal surface of approx 80 mm high immediately above the clear opening (sealing surface for the top seal) is required. This surface must be smooth and flush with the other mounting surfaces. If a mounting frame is used, the simplest solution is to insert a cross member in this area.



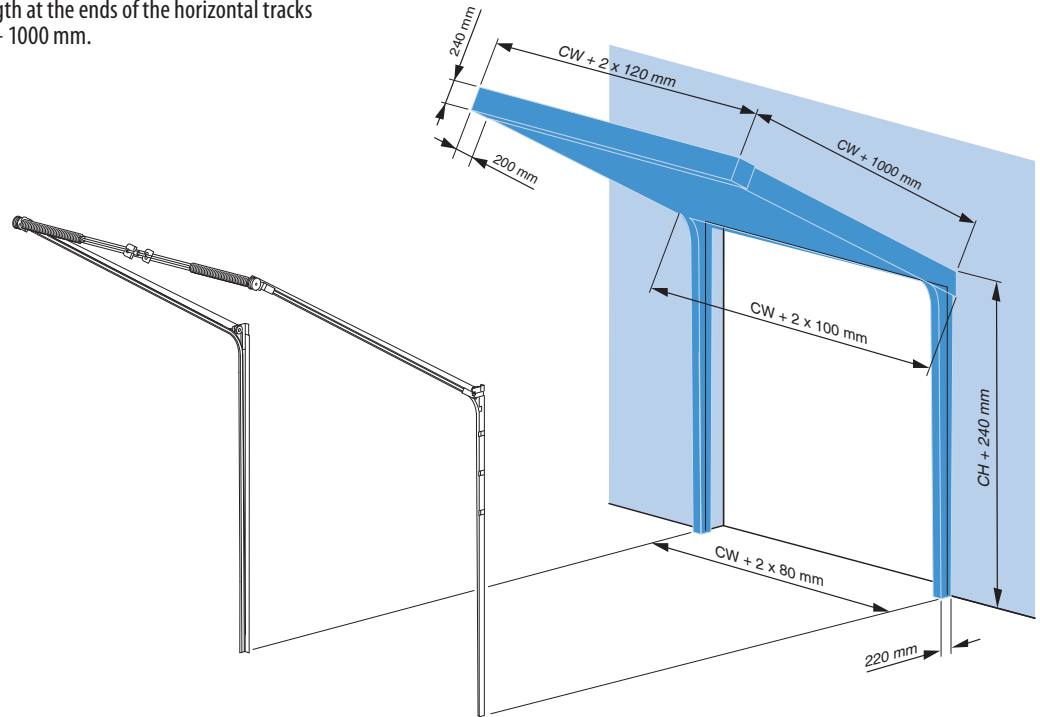
1.2 Installation space requirements – complete track system

- Minimum projection dimension (into the room): $CH + 1000$ mm.
- The installation space required for the horizontal tracks is included in the space requirement dimensions for unobstructed door movement.
- The spring shaft assembly requires an installation space of 200 mm x 240 mm in the horizontal plane at the end of the horizontal tracks, with a total width of $CW + 2 \times 120$ mm. The extra 200 mm length at the ends of the horizontal tracks is already included in the dimension $CH + 1000$ mm.
- The horizontal tracks are longer than the minimum track projection requirement. The tracks must be shortened on site if necessary.
- The use of a chain hoist with the T 240 track system is not recommended (the chain hangs down in the working area).



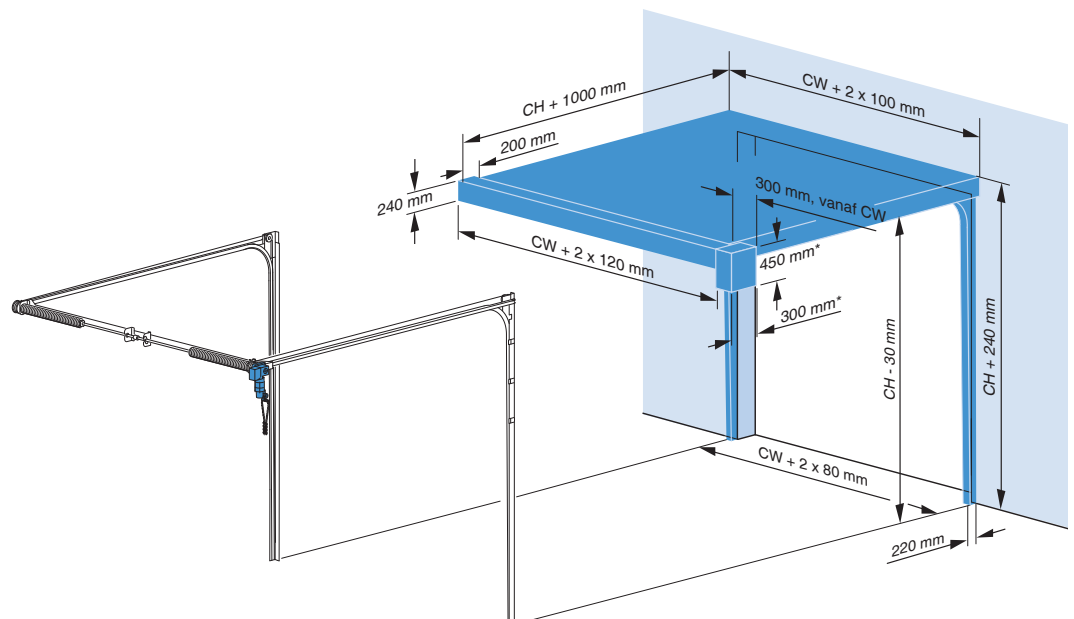
1.3 Installation space requirements – roof angle track system

- Minimum projection dimension (into the room): $CH + 1000$ mm.
- The installation space required for the horizontal tracks is included in the space requirement dimensions for unobstructed door movement.
- The spring shaft assembly requires an installation space of 200 mm x 240 mm in the horizontal plane at the end of the horizontal tracks, with a total width of $CW + 2 \times 120$ mm. The extra 200 mm length at the ends of the horizontal tracks is already included in the dimension $CH + 1000$ mm.
- The horizontal tracks are longer than the minimum track projection requirement. The tracks must be shortened on site if necessary.
- The use of a chain hoist with the T 240 track system is not recommended (the chain hangs down in the working area).



1.4 Installation space requirements for the horizontal tracks, cable guides, spring shaft assembly – with electric drive

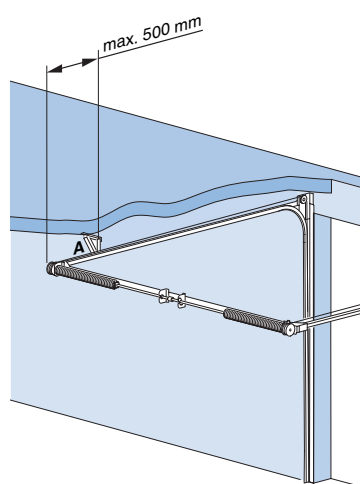
- Side room requirement for the electric drive (mounted at the end of the horizontal tracks), clear opening width (CW) + 300 mm, in a zone measuring 300 mm x 450 mm.
- The electric drive can be installed on the right-hand side or the left-hand side, as long as there is adequate space.
- Note that the electric drive reduces the clear opening height by 210 mm, this obstruction is to the side of the clear opening, but must still be allowed for.
- Springless electric drive (FLL): this requires an additional installation space of 590 mm (L) x 350 mm (W) and 430 mm (H).



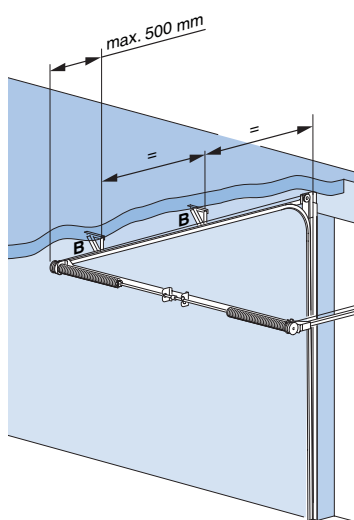
1.5 Track suspension points – quantity and position

- Clear opening height ≤ 3000 mm (or door leaf area ≤ 12 m²): 1 suspension point per horizontal track as shown in arrangement **A**.
- Clear opening height > 3000 mm and ≤ 5000 mm (or door leaf area ≤ 12 m² and ≤ 20 m²): 2 suspension points per horizontal track as shown in arrangement **B**.
- Clear opening height > 5000 mm (or door leaf area > 20 m²): 3 suspension points per horizontal track as shown in arrangement **C**.

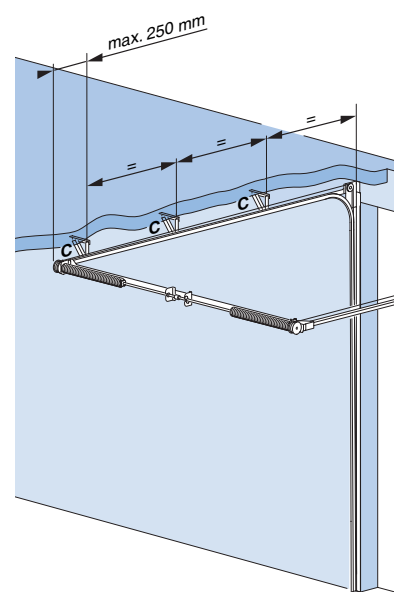
A: CH ≤ 3000 mm



B: CH > 3000 mm and ≤ 5000 mm

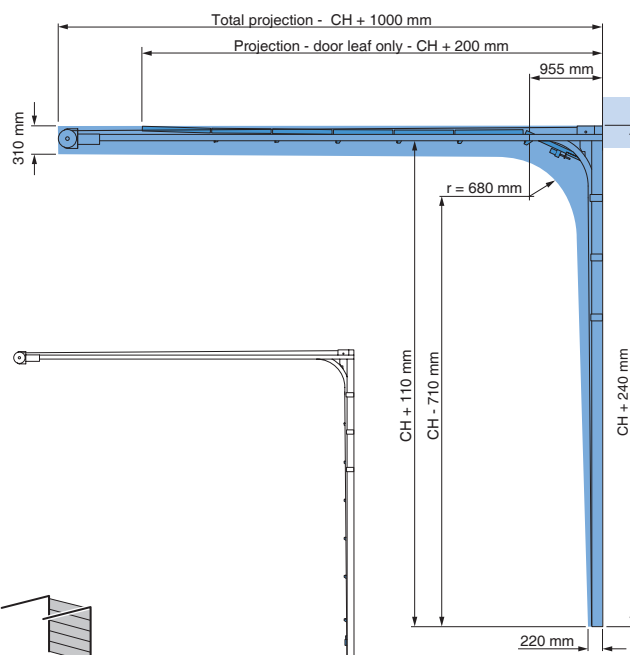


C: CH > 5000 mm

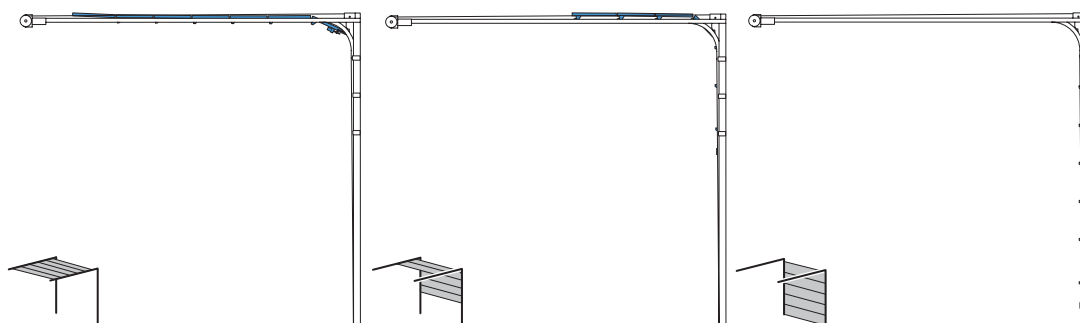


1.6 Space requirement for unobstructed door movement, various key dimensions

- Extra free space is required for unobstructed door movement. This applies particularly in the area of the track curves, as the sections pass through the curve. The entire path taken by the door when opening and closing must be free of obstacles.

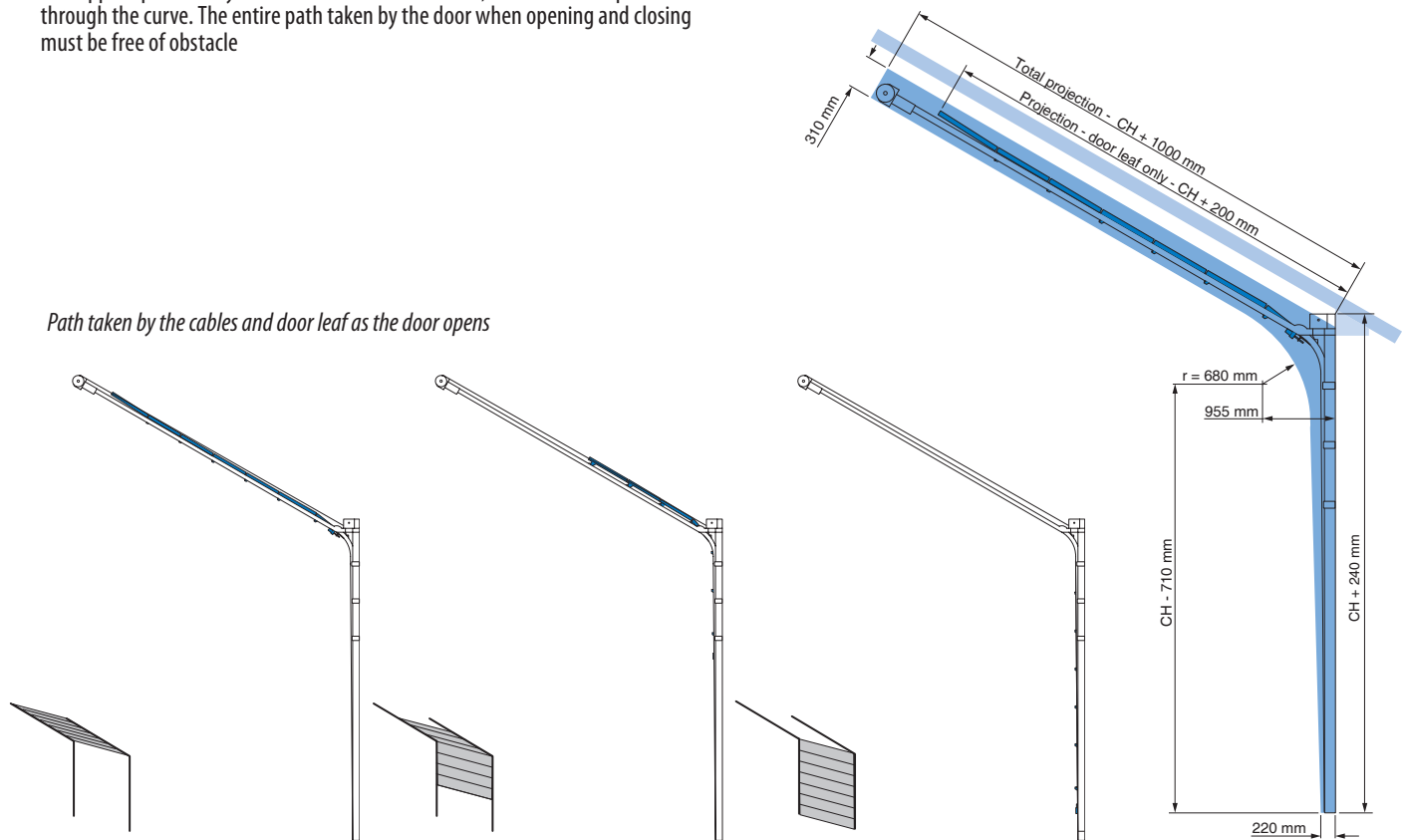


Path taken by the cables and door leaf as the door opens



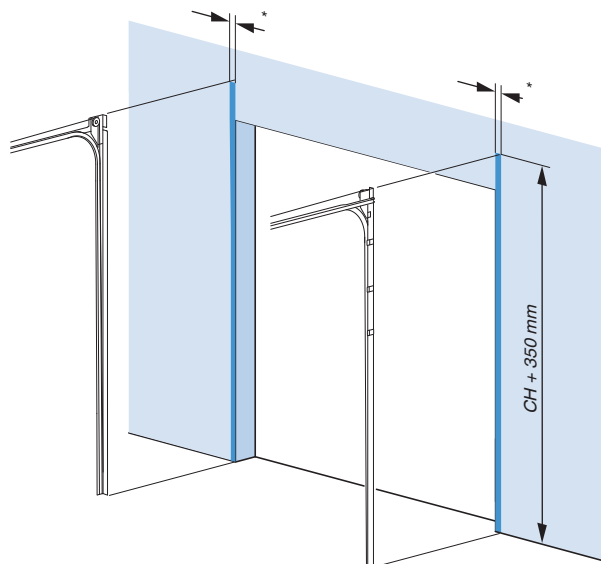
1.7 Space requirement for unobstructed door movement, various key dimensions – roof angle system

- Extra free space is required for unobstructed door movement. This applies particularly in the area of the track curves, as the sections pass through the curve. The entire path taken by the door when opening and closing must be free of obstacle



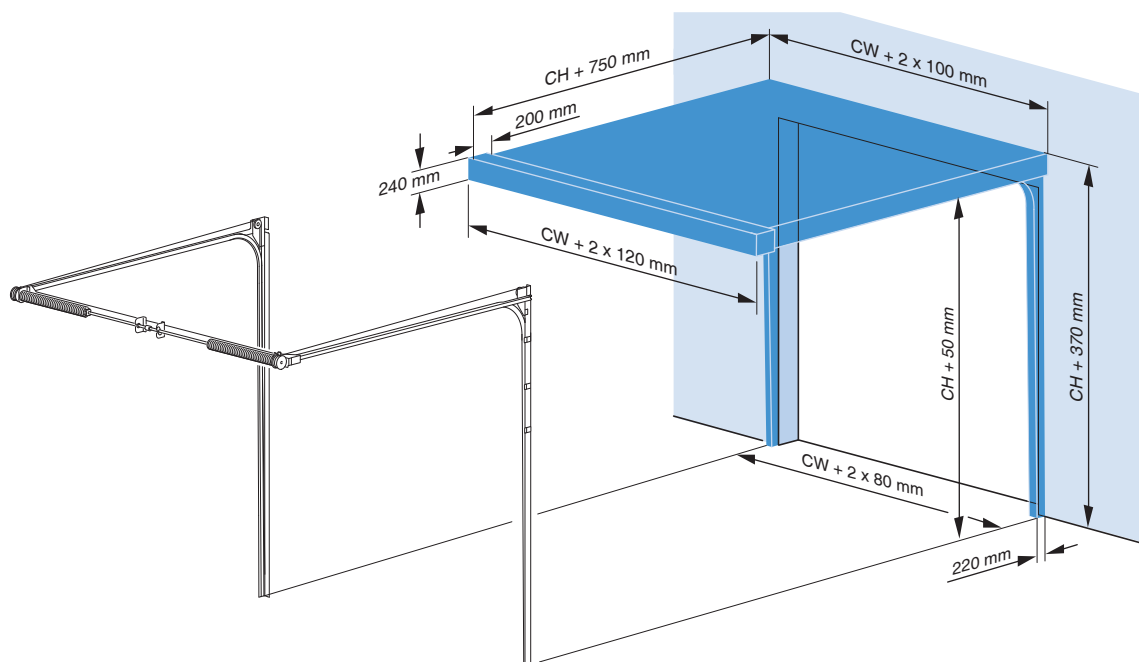
2.1 Installation space requirements – vertical tracks

- The T 340 is not suitable for an ISO 80 mm sectional door.
- Minimum width of the mounting surface (frame) *, see General information page.
- Minimum mounting surface height (mounting frame): $CH + 350 \text{ mm}$.
- A horizontal surface of approx 80 mm high immediately above the clear opening (sealing surface for the top seal) is required. This surface must be smooth and flush with the other mounting surfaces. If a mounting frame is used, the simplest solution is to insert a cross member in this area.



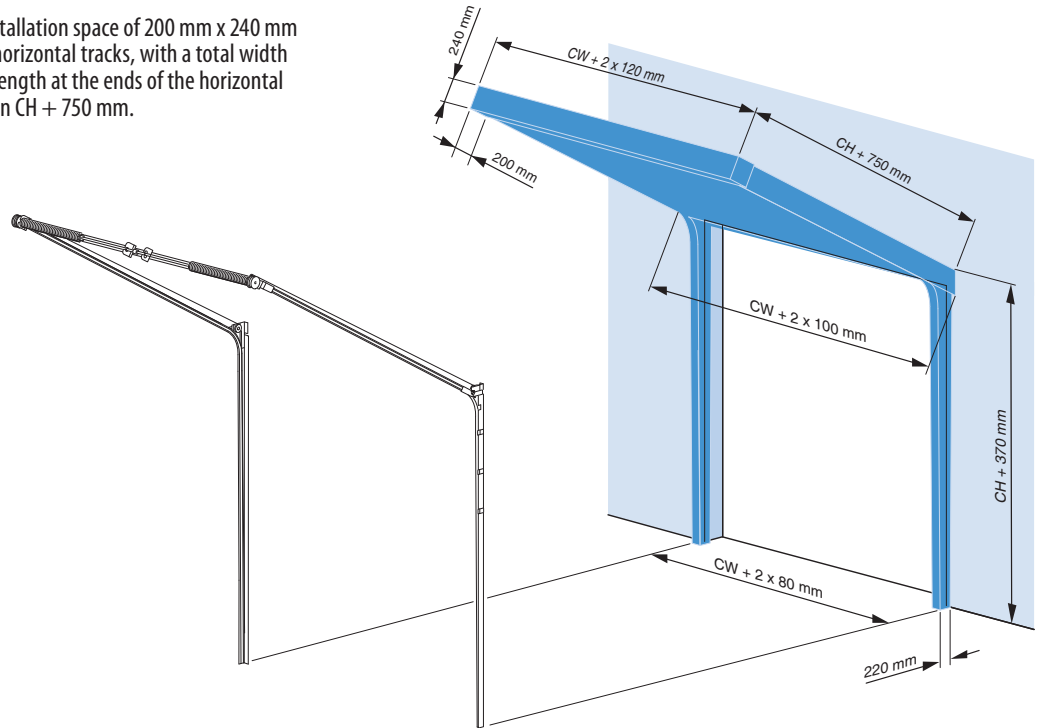
2.2 Installation space requirements – complete track system

- Minimum projection dimension (into the room): $CH + 750 \text{ mm}$.
- The installation space required for the horizontal tracks is included in the space requirement dimensions for unobstructed door movement.
- The spring shaft assembly requires an installation space of $200 \text{ mm} \times 240 \text{ mm}$ in the horizontal plane at the end of the horizontal tracks, with a total width of $CW + 2 \times 120 \text{ mm}$. The extra 200 mm length at the ends of the horizontal tracks is already included in the dimension $CH + 750 \text{ mm}$.
- The horizontal tracks are longer than the minimum track projection requirement. The tracks must be shortened on site if necessary.
- The use of a chain hoist with the T 340 track system is not recommended (the chain hangs down in the working area).



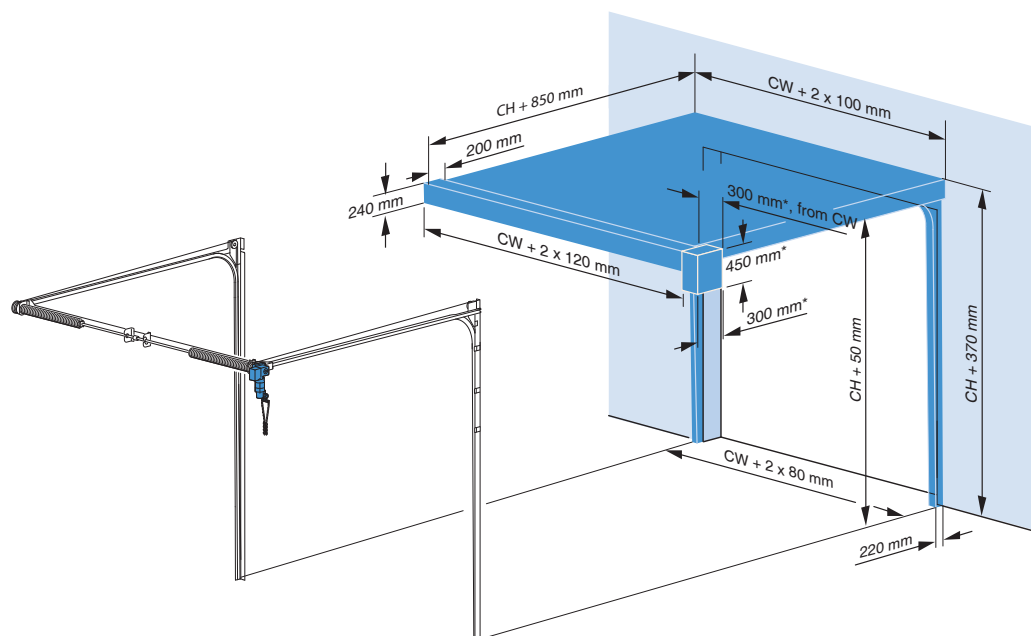
2.3 Installation space requirements – roof angle track system-

- Minimum projection dimension (into the room), following the angle of the roof: $CH + 750 \text{ mm}$.
- The installation space required for the horizontal tracks, which follow the roof angle in this case, is included in the space requirement dimensions for unobstructed door movement.
- The spring shaft assembly requires an installation space of $200 \text{ mm} \times 240 \text{ mm}$ in the horizontal plane at the end of the horizontal tracks, with a total width of $CW + 2 \times 120 \text{ mm}$. The extra 200 mm length at the ends of the horizontal tracks is already included in the dimension $CH + 750 \text{ mm}$.
- The horizontal tracks, which follow the roof angle in this case, are longer than the minimum track projection requirement. The tracks must be shortened on site if necessary.



2.4 Installation space requirements for installation and operation (emergency chain) - electric drive

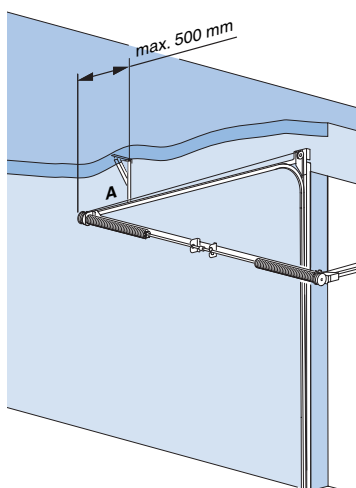
- Side room requirement for the electric drive (mounted at the end of the horizontal tracks), clear opening width (CW) + 300 mm, in a zone measuring $300 \text{ mm} \times 450 \text{ mm}$.
- The electric drive can be installed on the right-hand side or the left-hand side, as long as there is adequate space.
- Note that the electric drive reduces the clear opening height by 160 mm , this obstruction is to the side of the clear opening, but must still be allowed for.
- Springless electric drive (FLL): this requires an additional installation space of $590 \text{ mm} (L) \times 350 \text{ mm} (W)$ and $430 \text{ mm} (H)$.



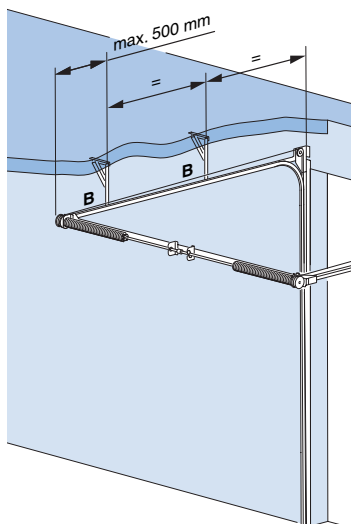
2.5 Track suspension points – quantity and position

- Clear opening height ≤ 3000 mm (or door leaf area ≤ 12 m²): 1 suspension point per horizontal track as shown in arrangement **A**.
- Clear opening height > 3000 mm and ≤ 5000 mm (or door leaf area ≤ 12 m² and ≤ 20 m²): 2 suspension points per horizontal track as shown in arrangement **B**.
- Clear opening height > 5000 mm (or door leaf area > 20 m²): 3 suspension points per horizontal track as shown in arrangement **C**.

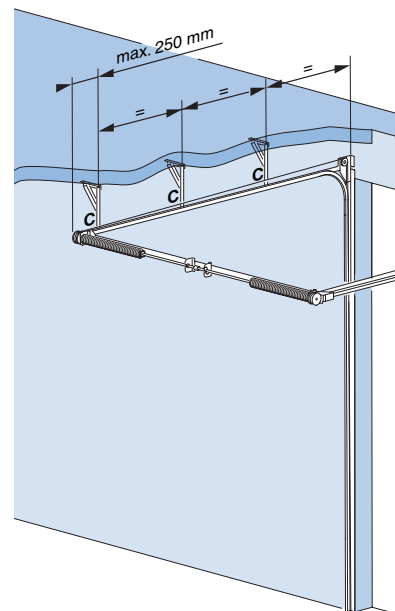
A: CH ≤ 3000 mm



B: CH > 3000 mm and ≤ 5000 mm



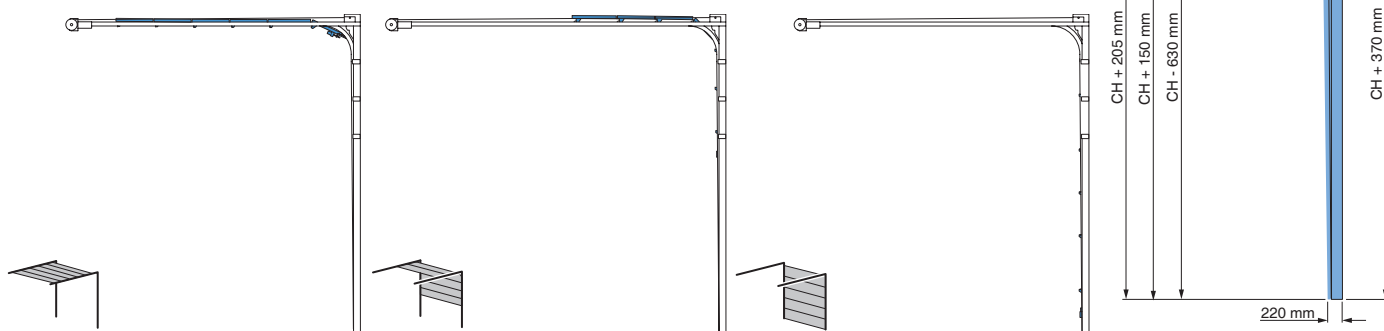
CH > 5000 mm



2.6 Space requirement for unobstructed door movement, various key dimensions

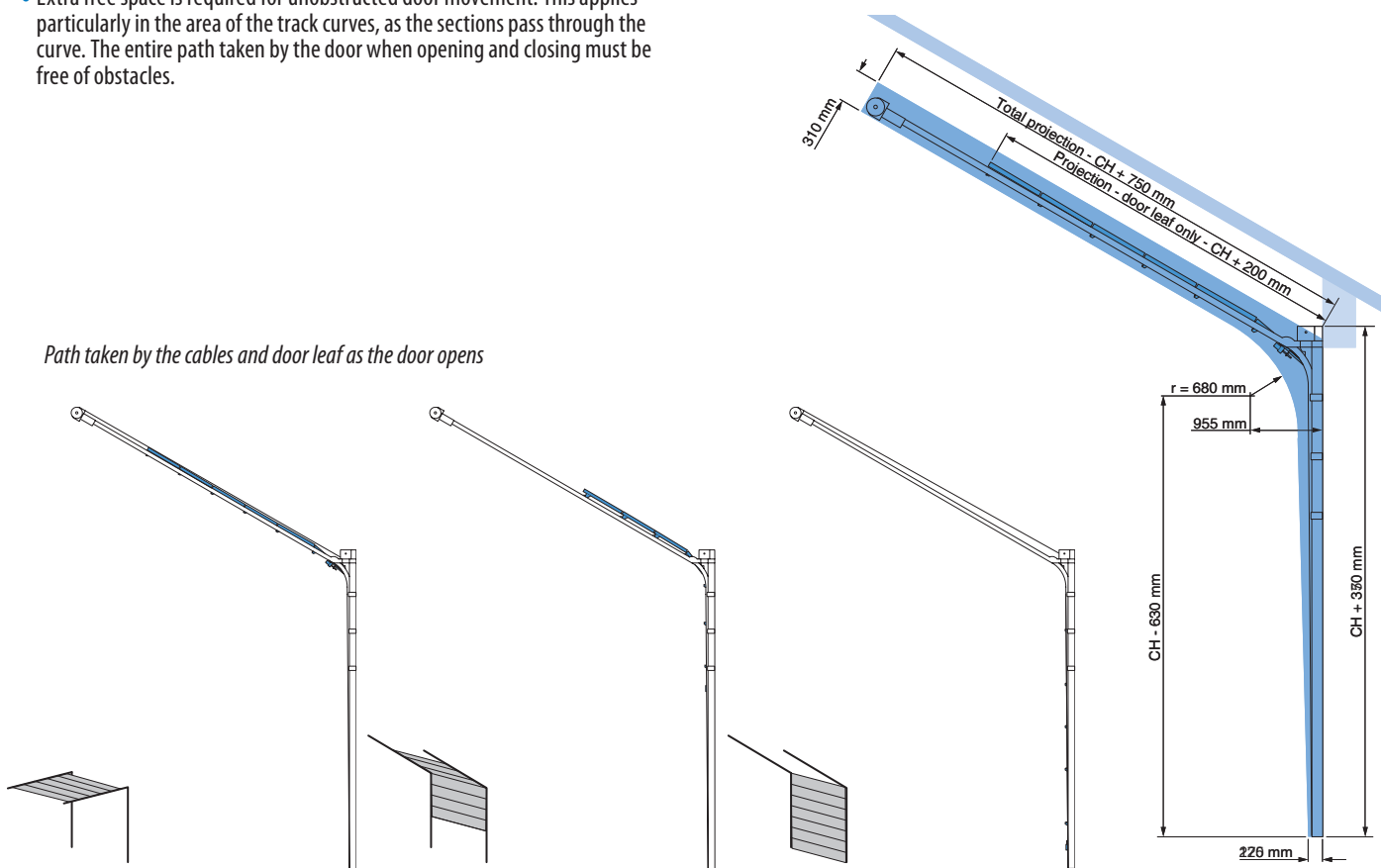
- Extra free space is required for unobstructed door movement. This applies particularly in the area of the track curves, as the sections pass through the curve. The entire path taken by the door when opening and closing must be free of obstacles.

Path taken by the cables and door leaf as the door opens




2.7 Space requirement for unobstructed door movement, various key dimensions – roof angle system

- Extra free space is required for unobstructed door movement. This applies particularly in the area of the track curves, as the sections pass through the curve. The entire path taken by the door when opening and closing must be free of obstacles.

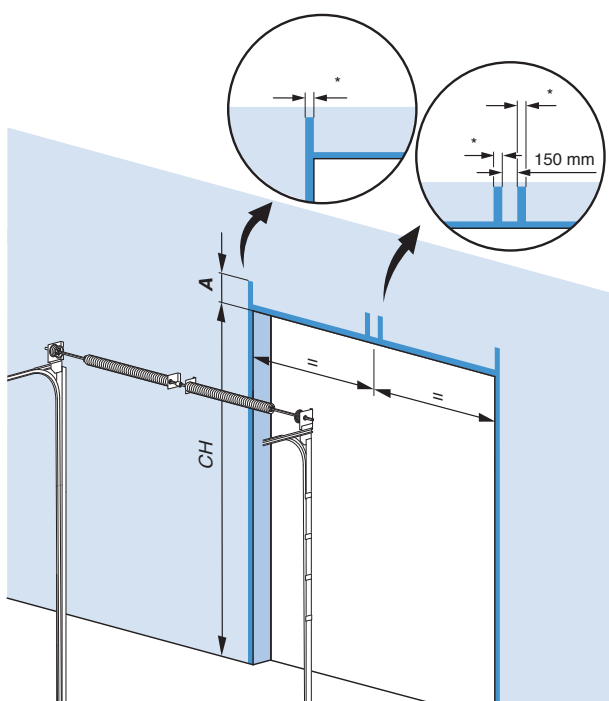


3.1 Installation space requirement – vertical tracks and spring shaft assembly

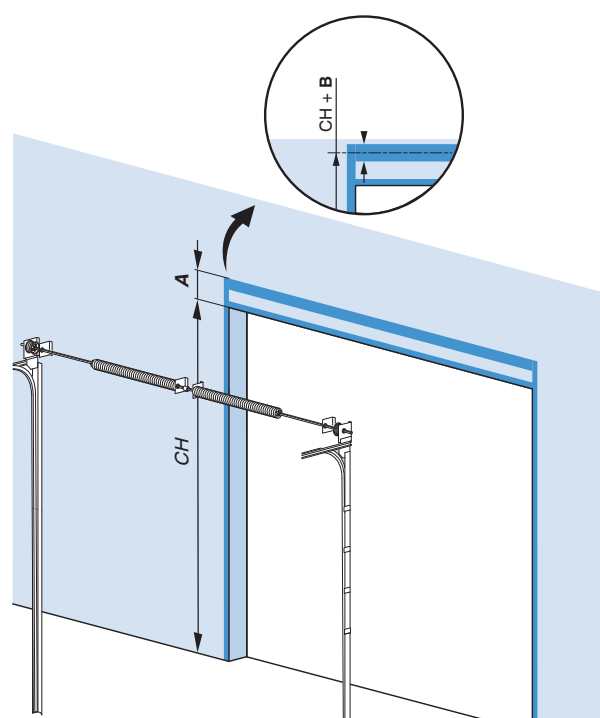
- Minimum width of the mounting surface (frame) *, see General information page.
- Minimum mounting surface height (mounting frame): CH + A.
- When door leaf area > 18 m², a continuous horizontal mounting surface is required for extra bearing plates (or multiple springs): 160 mm at CH + B.
- A horizontal surface of approx 80 mm high immediately above the clear opening (sealing surface for the top seal) is required. This surface must be smooth and flush with the other mounting surfaces. If a mounting frame is used, the simplest solution is to insert a cross member in this area.
- FLS Springless sectional door is possible for door leaf areas up to 48 m².

CH		A	B
CH < 5500 mm	ø 95,4 mm	430 mm	350 mm
CH < 5500 mm	ø 152,4 mm	460 mm	380 mm
CH > 5500 mm	-	510 mm	395 mm

Door leaf area ≤ 18 m²



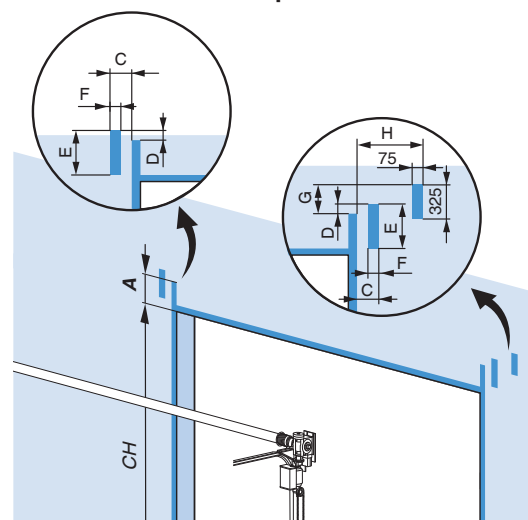
Door leaf area 18 m² - 50 m²



* FLS Springless sectional door is possible for door leaf areas up to 48 m².

FLS door leaf areas*	A	C	D	E	F	G	H
up to 20 m ²	450 mm	140 mm	63 mm	356 mm	80 mm	225 mm	315 mm
up to 48 m ²	450 mm	160 mm	95 mm	415 mm	100 mm	300 mm	265 mm

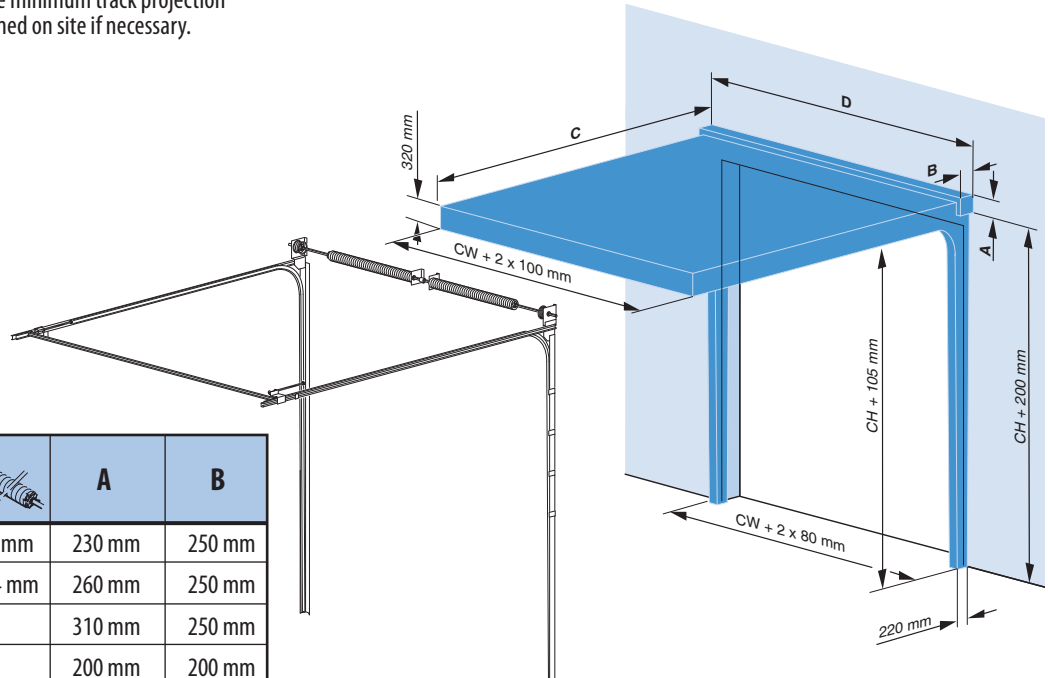
*depending on the weight of the door surface



3.2 Installation space requirements – complete track system

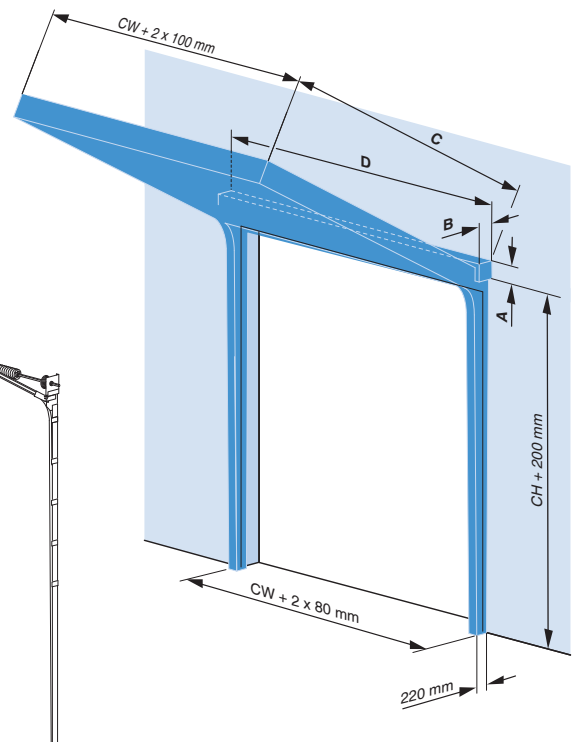
- Minimum projection dimension (into the room): $CH + 650$ mm.
- The installation space required for the horizontal tracks is included in the space requirement dimensions for unobstructed door movement.
- Minimum space required for the spring shaft assembly **D**: $CW + 2 \times 120$ mm.
FLS Springless sectional door: $CW + 2 \times 140$ mm.
- The horizontal tracks are longer than the minimum track projection requirement. The tracks must be shortened on site if necessary.
- Total projection **C**:
Manually operated – pullcord: $C = CH + 650$ mm
Manually operated – chain holst: $C = CH + 850$ mm
Electric drive / prepared for electric drive: $C = CH + 850$ mm

CH		A	B
$CH < 5500$ mm	$\varnothing 95,4$ mm	230 mm	250 mm
$CH < 5500$ mm	$\varnothing 152,4$ mm	260 mm	250 mm
$CH > 5500$ mm	-	310 mm	250 mm
FLS Springless sectional door	-	200 mm	200 mm



3.3 Installation space requirements – roof angle track system

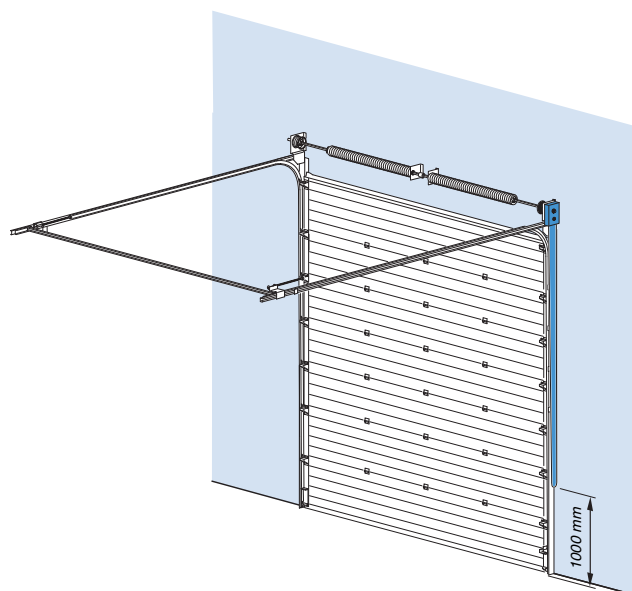
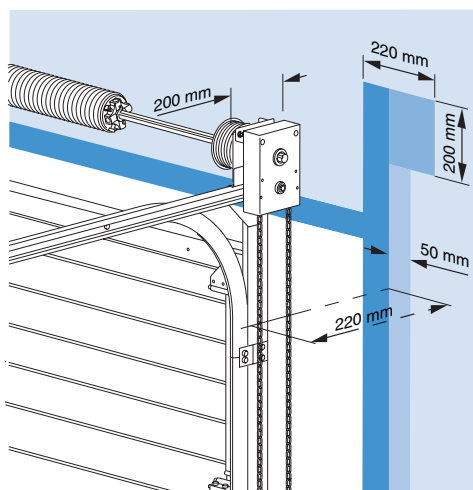
- Minimum projection dimension (into the room), following the angle of the roof: $CH + 650$ mm.
- The installation space required for the horizontal tracks, which follow the roof angle in this case, is included in the space requirement dimensions for unobstructed door movement.
- Minimum space required for the spring shaft assembly **D**: $CW + 2 \times 120$ mm.
FLS Springless sectional door: $CW + 2 \times 140$ mm.
- The horizontal tracks, which follow the roof angle in this case, are longer than the minimum track projection requirement. The tracks must be shortened on site if necessary.
- Total projection **C**:
Manually operated – pullcord: $C = CH + 650$ mm
Manually operated – chain holst: $C = CH + 850$ mm
Electric drive / prepared for electric drive: $C = CH + 850$ mm



CH		A	B
$CH < 5500$ mm	$\varnothing 95,4$ mm	230 mm	250 mm
$CH < 5500$ mm	$\varnothing 152,4$ mm	260 mm	250 mm
$CH > 5500$ mm	-	310 mm	250 mm
FLS Springless sectional door	-	200 mm	200 mm

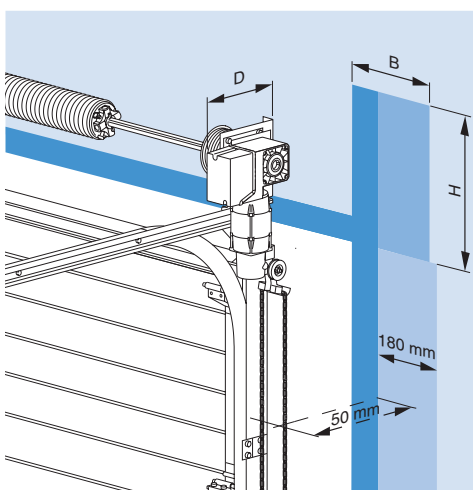
3.4 Installation space requirements for installation and operation – chain hoist

- Minimum space required for the installation of the chain hoist: approx. 200 x 220 x 200 mm, the dimension of 220 mm is the dimension required for the chain hoist when in the installed state. If a chain hoist needs to be installed on an existing door by sliding it onto the spring shaft, 300 mm is required. With some extra work (loosening and pulling back the spring shaft), it is always possible to replace or install a chain hoist, even if no more than 220 mm is available.
- Chain space requirement down to operating height: approx. 220 x 50 mm.
- The chain hoist can be installed on the right-hand side or the left-hand side, as long as there is adequate space.



3.5a Installation space requirements for installation and operation (emergency chain) - electric drive

- Minimum space required for the installation of the electric drive: approx. 300 mm (D) x 250...300* mm (B) x 450 mm (H), the dimension of 250...300 mm is the dimension required for the electric drive when in the installed state. If an electric drive needs to be installed on an existing door by sliding it onto the spring shaft, 350 mm is required. With some extra work (loosening and pulling back the spring shaft), it is always possible to replace or install an electric drive, even if no more than 250...300 mm mm is available.
* Engine mounting width depends on engine type.
- Springless electric drive (FLL): This requires an additional installation space for the actuator of 430 mm (D) x 350 mm (B) x 590 mm (H).
- Emergency chain space requirement down to operating height: approx. 50 x 180 mm.
- The electric drive can be installed on the right-hand side or the left-hand side, as long as there is adequate space.

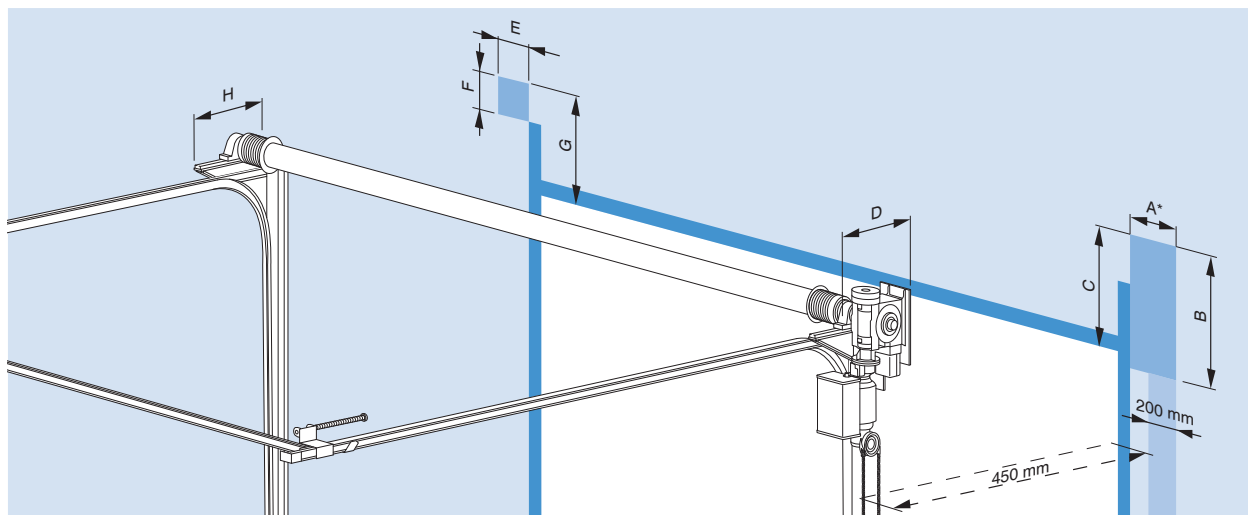


3.5b Installation space requirements for installation and operation (emergency chain) - electric drive for FLS Springless sectional door

- See table for minimum free space for electric operation.
Please note: Dimension A applies to the installation of the motor during initial installation. If the motor is to be fitted subsequently to an already installed door, an additional free space of A + 50 mm must be taken into account. Dimension A is possible with some additional work, whereby the shafts have to be shifted, etc..
- Minimum free space for the chain up to the operating height: approx. 450 x 200 mm. Dimension turning point chain is at height of 1000 mm.
- The electric drive can be installed on the right-hand side or the left-hand side, as long as there is adequate space.

FLS door leaf areas*	A*	B	C	D	E	F	G	H
up to 20 m ²	400 mm	610 mm	695 mm	400 mm	140 mm	140 mm	659 mm	400 mm
up to 48 m ²	325 mm	830 mm	782 mm	550 mm	160 mm	140 mm	659 mm	510 mm

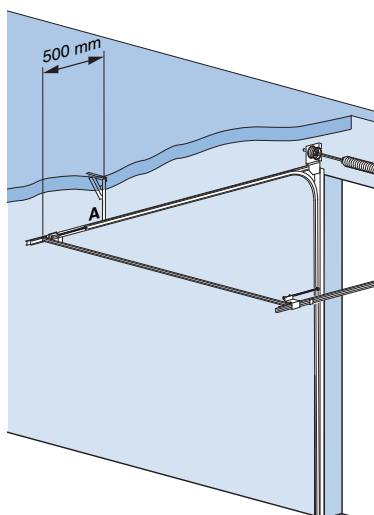
*depending on the weight of the door surface



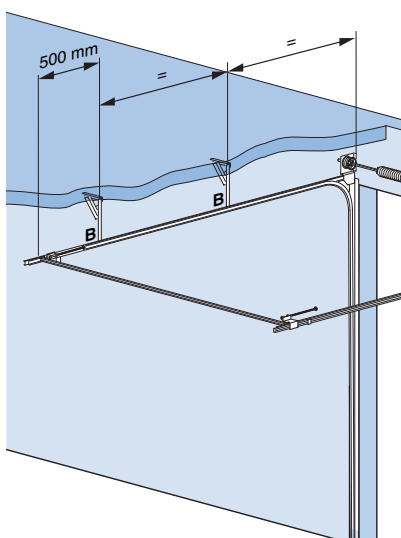
3.6 Track suspension points – quantity and position

- Clear opening height ≤ 3000 mm (or door leaf area ≤ 12 m²): 1 suspension point per horizontal track as shown in arrangement **A**.
- Clear opening height > 3000 mm and ≤ 5000 mm (or door leaf area ≤ 12 m² and ≤ 20 m²): 2 suspension points per horizontal track as shown in arrangement **B**.
- Clear opening height > 5000 mm (or door leaf area > 20 m²): 3 suspension points per horizontal track as shown in arrangement **C**.

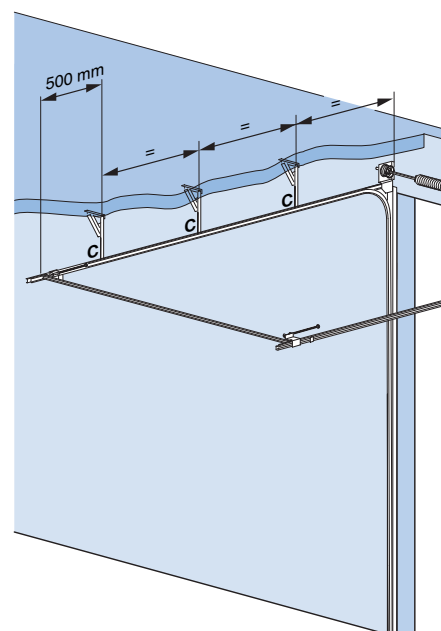
A: CH ≤ 3000 mm



B: CH > 3000 mm and ≤ 5000 mm



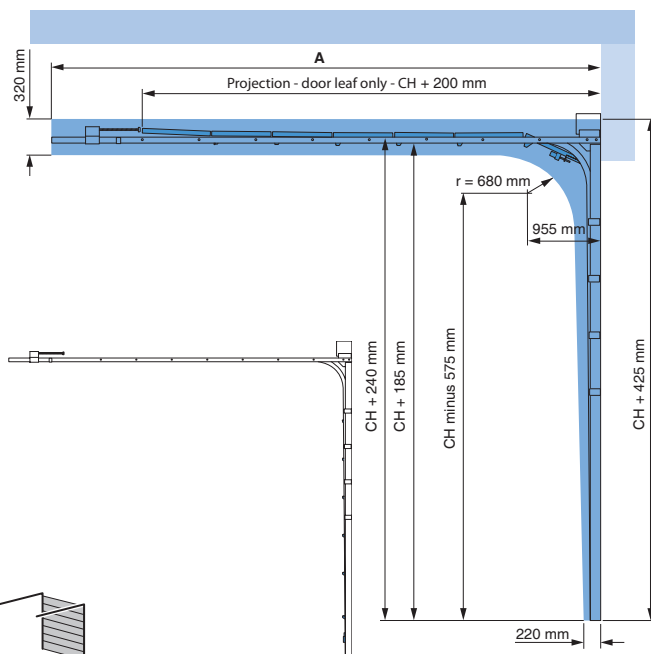
C: CH > 5000 mm



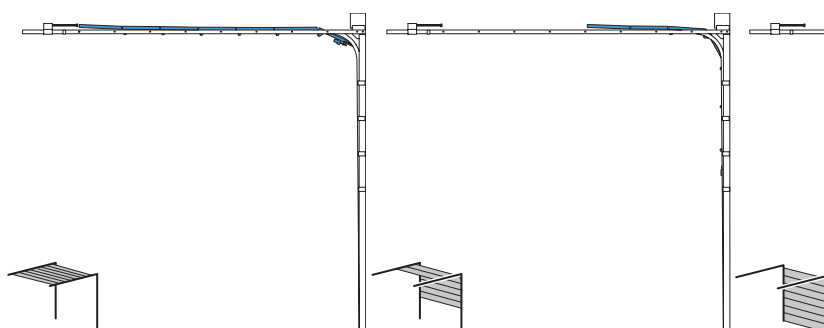
3.7 Space requirement for unobstructed door movement, various key dimensions

- Extra free space is required for unobstructed door movement. This applies particularly in the area of the track curves, as the sections pass through the curve. The entire path taken by the door when opening and closing must be free of obstacles.

- Total projection **A** :
 Manually operated - pullcord: $A = CH + 650 \text{ mm}$
 Manually operated - chain holst: $A = CH + 850 \text{ mm}$
 Electric drive / prepared for electric drive: $A = CH + 850 \text{ mm}$



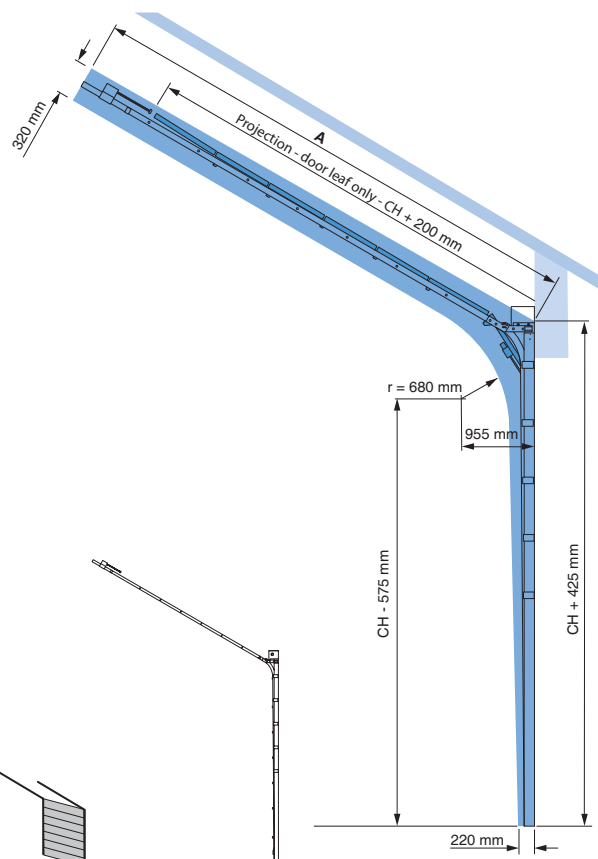
Path taken by the cables and door leaf as the door opens



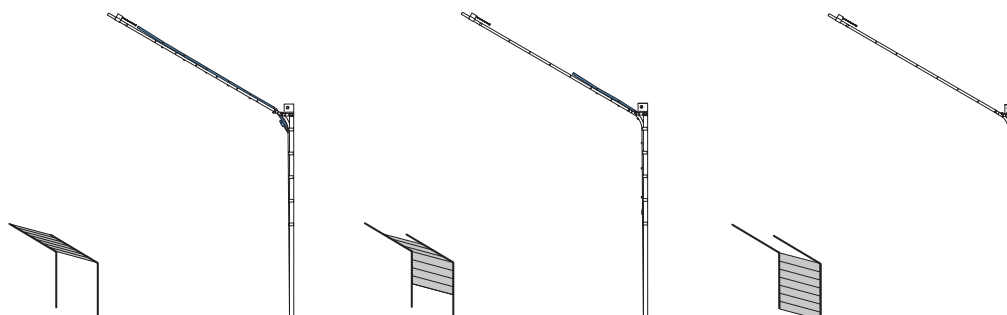
3.8 Space requirement for unobstructed door movement, various key dimensions – roof angle system

- Extra free space is required for unobstructed door movement. This applies particularly in the area of the track curves, as the sections pass through the curve. The entire path taken by the door when opening and closing must be free of obstacles.

- Total projection **A** :
 Manually operated - pullcord: $A = CH + 650 \text{ mm}$
 Manually operated - chain holst: $A = CH + 850 \text{ mm}$
 Electric drive / prepared for electric drive: $A = CH + 850 \text{ mm}$

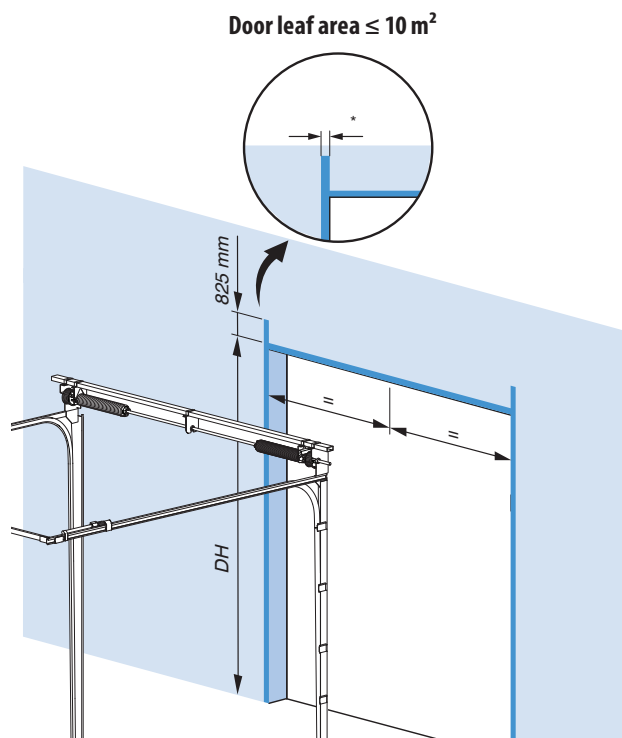


Path taken by the cables and door leaf as the door opens



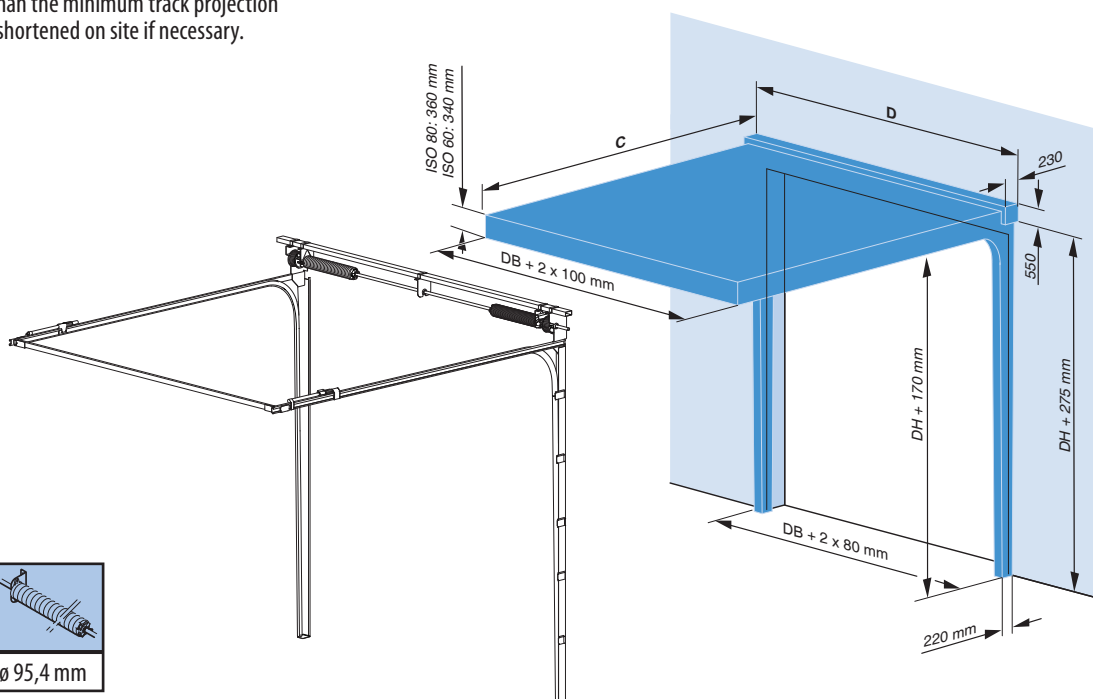
4.1 Installation space requirement – vertical tracks and spring shaft assembly


- Minimum width of the mounting surface (frame) *, see General information page.
- Minimum mounting surface height (mounting frame): CH + 825 mm.
- A horizontal surface of approx 80 mm high immediately above the clear opening (sealing surface for the top seal) is required. This surface must be smooth and flush with the other mounting surfaces. If a mounting frame is used, the simplest solution is to insert a cross member in this area.



4.2 Installation space requirements – complete track system

- Minimum projection dimension (into the room): CH + 650 mm.
- The installation space required for the horizontal tracks is included in the space requirement dimensions for unobstructed door movement.
- Minimum space required for the spring shaft assembly **D**: CW + 2 x 125 mm.
- The horizontal tracks are longer than the minimum track projection requirement. The tracks must be shortened on site if necessary.
- Total projection **C**:
 Manually operated – pullcord: C = CH + 650 mm
 Manually operated – chain holst: C = CH + 850 mm
 Electric drive / prepared for electric drive: C = CH + 850 mm

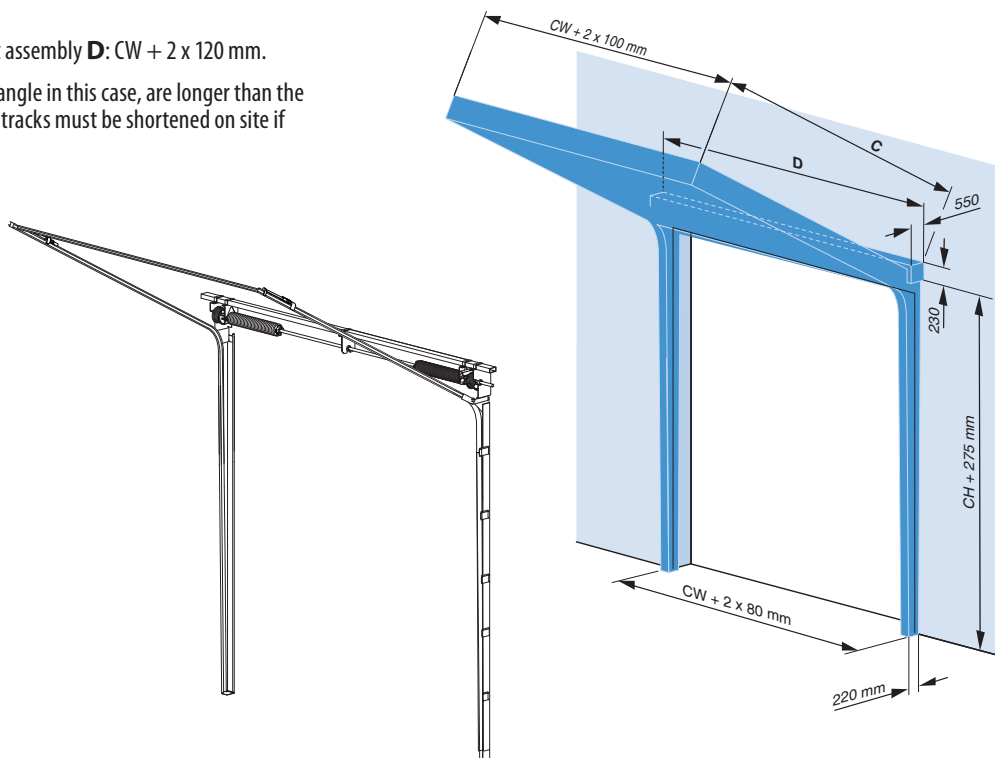


CH	
CH < 3200 mm	ø 95,4 mm

4.3 Installation space requirements – roof angle track system

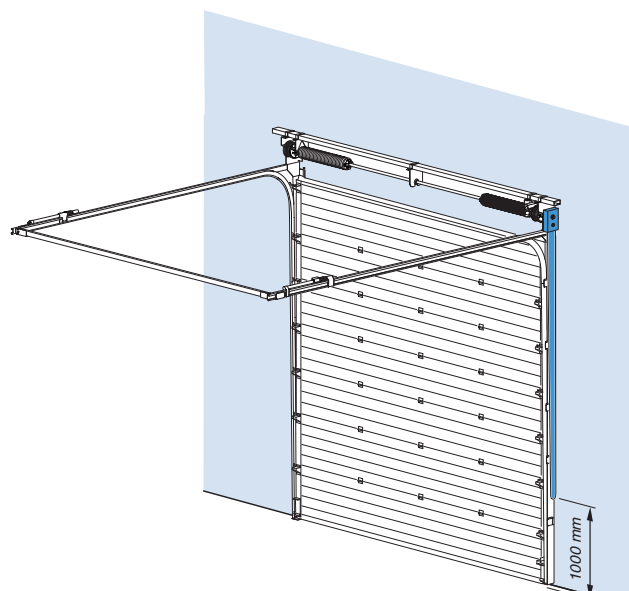
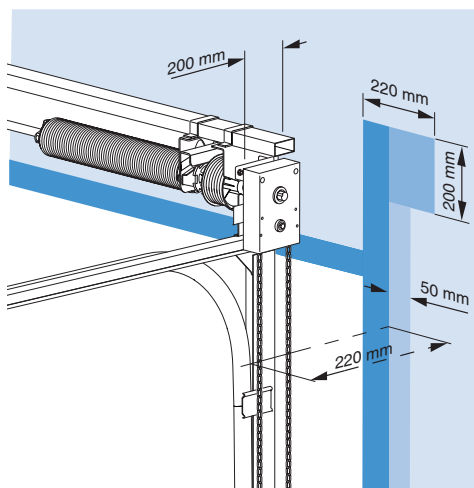
- Minimum projection dimension (into the room), following the angle of the roof: $CH + 650 \text{ mm}$.
- The installation space required for the horizontal tracks, which follow the roof angle in this case, is included in the space requirement dimensions for unobstructed door movement.
- Minimum space required for the spring shaft assembly **D**: $CW + 2 \times 120 \text{ mm}$.
- The horizontal tracks, which follow the roof angle in this case, are longer than the minimum track projection requirement. The tracks must be shortened on site if necessary.
- Total projection **C** :
 Manually operated - pullcord: $C = CH + 650 \text{ mm}$
 Manually operated – chain hoist: $C = CH + 850 \text{ mm}$
 Electric drive / prepared for electric drive: $C = CH + 850 \text{ mm}$

CH	
$CH < 3200 \text{ mm}$	$\varnothing 95,4 \text{ mm}$



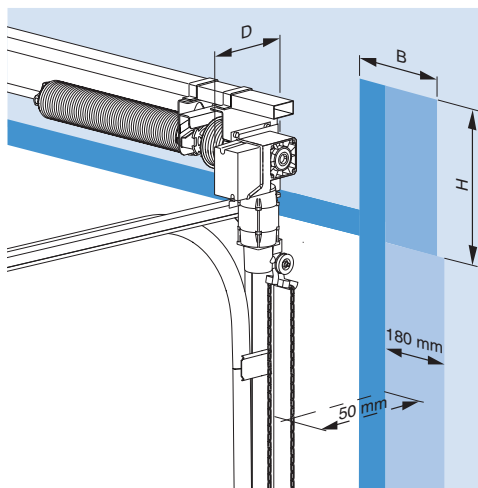
4.4 Installation space requirements for installation and operation – chain hoist

- Minimum space required for the installation of the chain hoist: approx. $200 \times 220 \times 200 \text{ mm}$, the dimension of 220 mm is the dimension required for the chain hoist when in the installed state. If a chain hoist needs to be installed on an existing door by sliding it onto the spring shaft, 300 mm is required. With some extra work (loosening and pulling back the spring shaft), it is always possible to replace or install a chain hoist, even if no more than 220 mm is available.
- Chain space requirement down to operating height: approx. $220 \times 50 \text{ mm}$.
- The chain hoist can be installed on the right-hand side or the left-hand side, as long as there is adequate space.



4.5 Installation space requirements for installation and operation (emergency chain) - electric drive

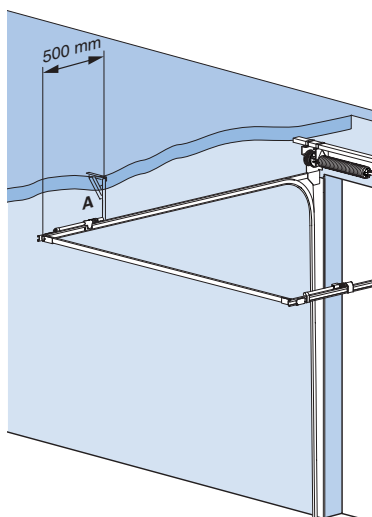
- Minimum space required for the installation of the electric drive: approx. 300 mm (D) x 250...300* mm (B) x 450 mm (H), the dimension of 250...300 mm is the dimension required for the electric drive when in the installed state. If an electric drive needs to be installed on an existing door by sliding it onto the spring shaft, 350 mm is required. With some extra work (loosening and pulling back the spring shaft), it is always possible to replace or install an electric drive, even if no more than 250...300 mm mm is available.
* Engine mounting width depends on engine type.
- The electric drive can be installed on the right-hand side or the left-hand side, as long as there is adequate space.
- Emergency chain space requirement down to operating height: approx. 50 x 180 mm.



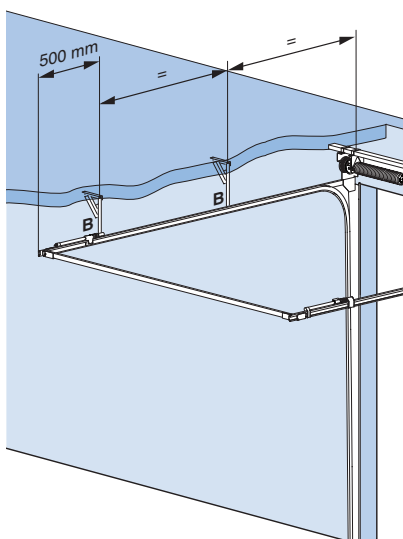
4.6 Track suspension points – quantity and position

- Clear opening height ≤ 3000 mm (or door leaf area $\leq 12 \text{ m}^2$): 1 suspension point per horizontal track as shown in arrangement **A**.
- Clear opening height > 3000 mm and ≤ 5000 mm (or door leaf area $\leq 12 \text{ m}^2$ and $\leq 20 \text{ m}^2$): 2 suspension points per horizontal track as shown in arrangement **B**.
- Clear opening height > 5000 mm (or door leaf area $> 20 \text{ m}^2$): 3 suspension points per horizontal track as shown in arrangement **C**.

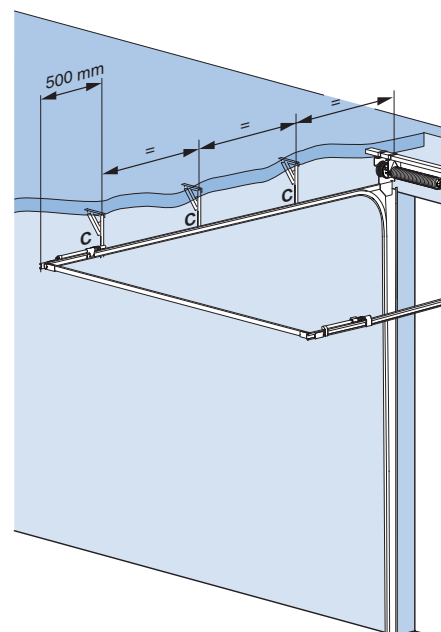
A: CH ≤ 3000 mm



B: CH > 3000 mm and ≤ 5000 mm



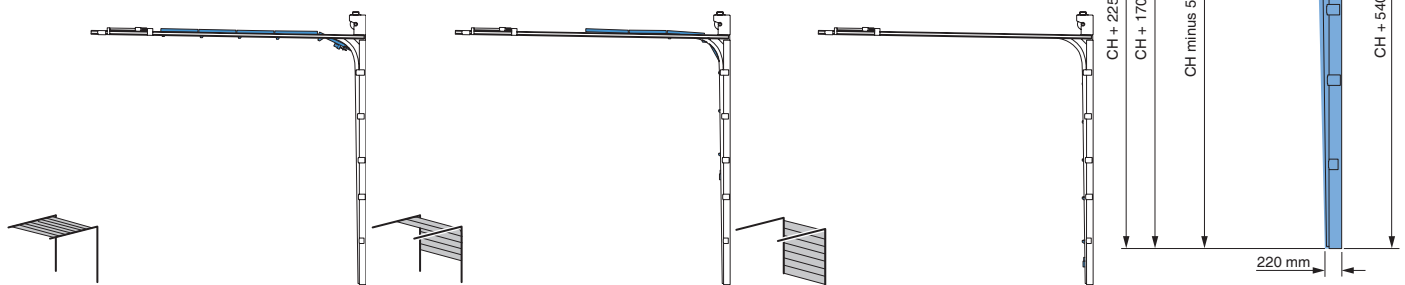
C: CH > 5000 mm



4.7 Space requirement for unobstructed door movement, various key dimensions

- Extra free space is required for unobstructed door movement. This applies particularly in the area of the track curves, as the sections pass through the curve. The entire path taken by the door when opening and closing must be free of obstacles.
- Total projection **A**:
 Manually operated - pullcord: $A = CH + 650 \text{ mm}$
 Manually operated - chain holst: $A = CH + 850 \text{ mm}$
 Electric drive / prepared for electric drive: $A = CH + 850 \text{ mm}$

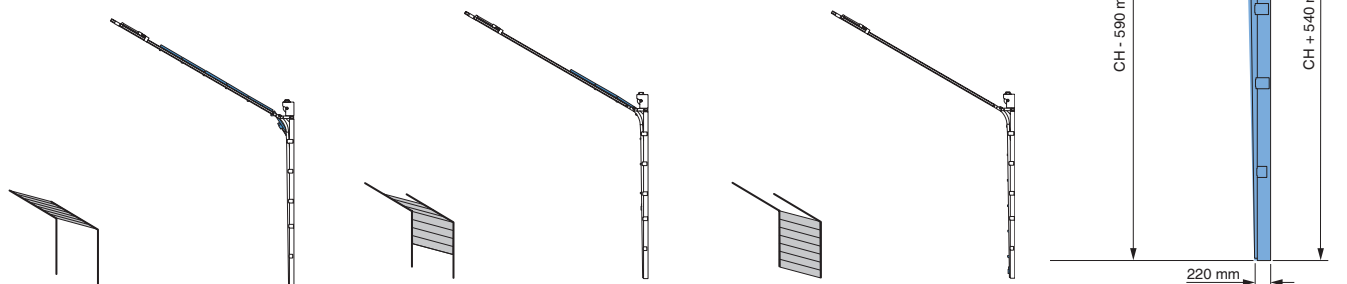
Path taken by the cables and door leaf as the door opens



4.8 Space requirement for unobstructed door movement, various key dimensions – roof angle system

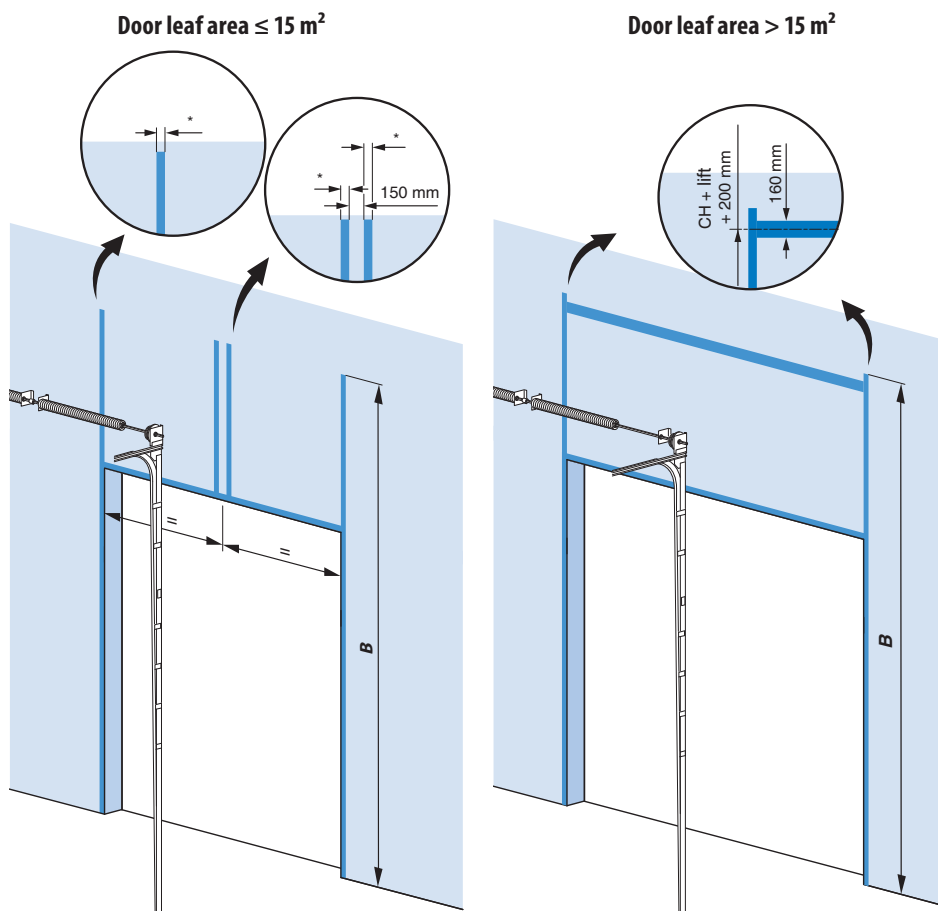
- Extra free space is required for unobstructed door movement. This applies particularly in the area of the track curves, as the sections pass through the curve. The entire path taken by the door when opening and closing must be free of obstacles.
- Total projection **A**:
 Manually operated - pullcord: $A = CH + 650 \text{ mm}$
 Manually operated - chain holst: $A = CH + 850 \text{ mm}$
 Electric drive / prepared for electric drive: $A = CH + 850 \text{ mm}$

Path taken by the cables and door leaf as the door opens

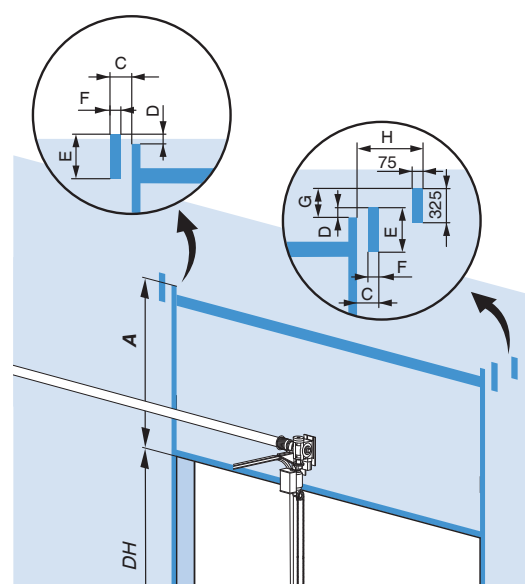


5.1 Installation space requirement – vertical tracks and spring shaft assembly

- Minimum width of the mounting surface (frame) *, see General information page.
- Minimum mounting surface height:
B: CH + lift + 245 ... 375 mm.
- When door leaf area > 15 m², a continuous horizontal mounting surface is required for extra bearing plates (or multiple springs), 160 mm at CH + lift + 200 mm.
- A horizontal surface of approx 80 mm high immediately above the clear opening (sealing surface for the top seal) is required. This surface must be smooth and flush with the other mounting surfaces. If a mounting frame is used, the simplest solution is to insert a cross member in this area.
- FLS Springless sectional door is possible for door leaf areas up to 48 m².



****deurbladoppervlak tot 48 m²**
FLS Veerloze sectionaaldeur

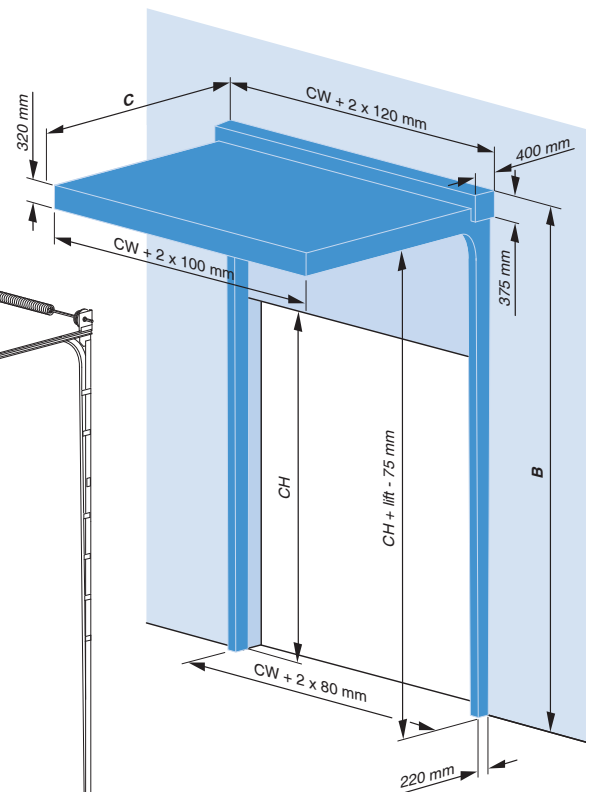
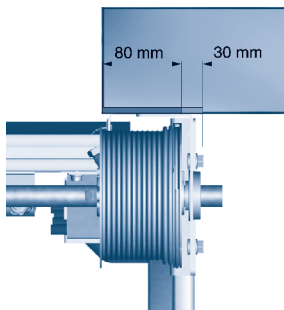


FLS door leaf areas**	A	C	D	E	F	G	H
up to 20 m ²	lift + 375 mm	140 mm	63 mm	356 mm	80 mm	225 mm	315 mm
up to 48 m ²	lift + 375 mm	160 mm	95 mm	415 mm	100 mm	300 mm	265 mm

**depending on the weight of the door surface

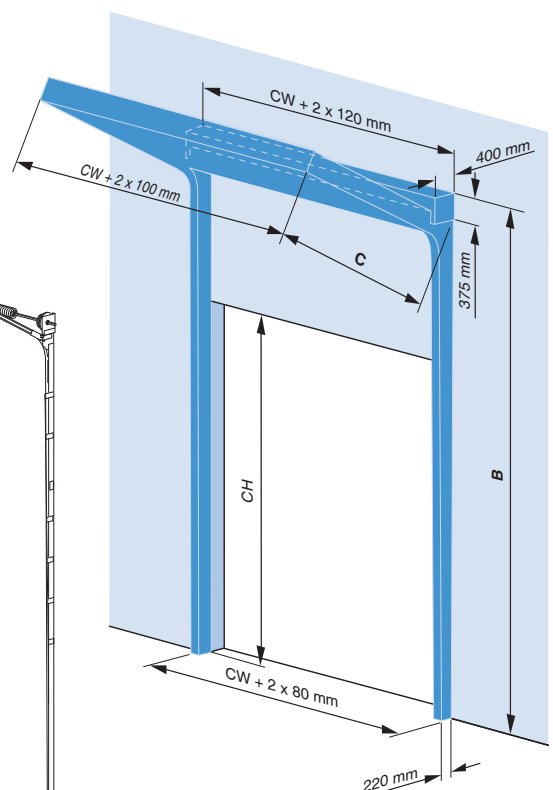
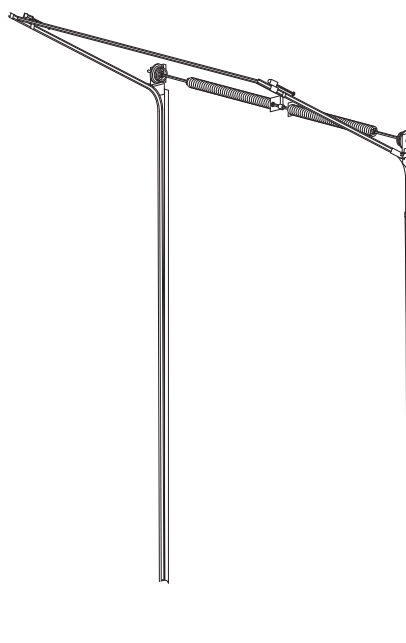
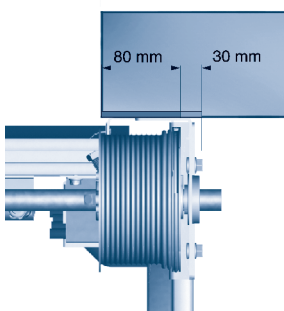
5.2 Installation space requirements – complete track system

- Minimum projection dimension (into the room): $CH + 650 \dots 850 \text{ mm}$.
- The horizontal tracks are longer than the minimum track projection requirement. The tracks must be shortened on site if necessary.
- Minimum clearance for the spring shaft assembly: $CW + 2 \times 120 \text{ mm}$, for FLS springless sectional door $CW + 2 \times 140 \text{ mm}$, for FLS springless sectional door $CW + 2 \times 140 \text{ mm}$
- The installation space required for the horizontal tracks is included in the space requirement dimensions for unobstructed door movement.
- The minimum height of the mounting surface (frame):
 $B = CH + \text{levy} + 245 \dots 375 \text{ mm}$.
- Total projection **C**:
Manually operated – pullcord:
 $C = CH - \text{lift} + 650 \text{ mm}$
Manually operated – chain holst:
 $C = CH - \text{lift} + 850 \text{ mm}$
Electric drive / prepared for electric drive:
 $C = CH - \text{lift} + 850 \text{ mm}$



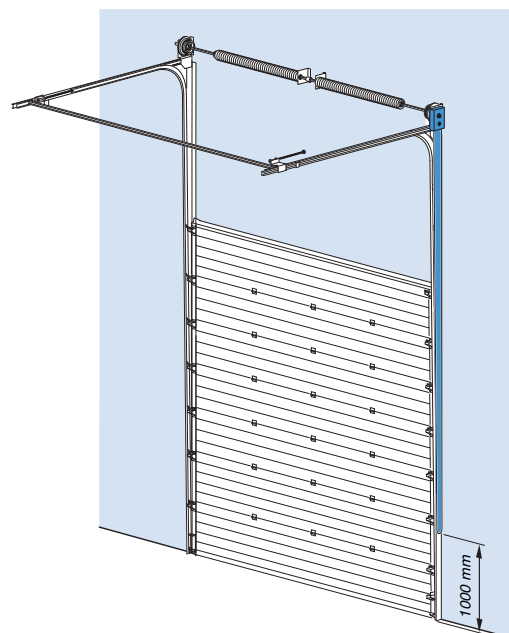
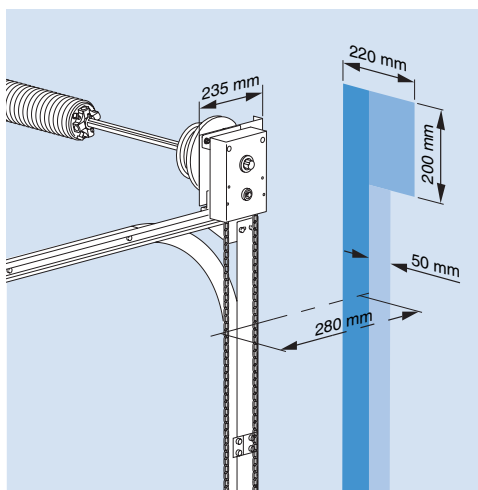
5.3 Installation space requirements – roof angle track system

- Minimum projection dimension (into the room): $CH + 650 \dots 850 \text{ mm}$.
- Minimum clearance for the spring shaft assembly: $CW + 2 \times 120 \text{ mm}$, for FLS springless sectional door $CW + 2 \times 140 \text{ mm}$, for FLS springless sectional door $CW + 2 \times 140 \text{ mm}$
- The installation space required for the horizontal tracks is included in the space requirement dimensions for unobstructed door movement.
- The minimum height of the mounting surface (frame):
 $B = CH + \text{levy} + 245 \dots 375 \text{ mm}$.
- Total projection **C**:
Manually operated – pullcord:
 $C = CH - \text{lift} + 650 \text{ mm}$
Manually operated – chain holst:
 $C = CH - \text{lift} + 850 \text{ mm}$
Electric drive / prepared for electric drive:
 $C = CH - \text{lift} + 850 \text{ mm}$



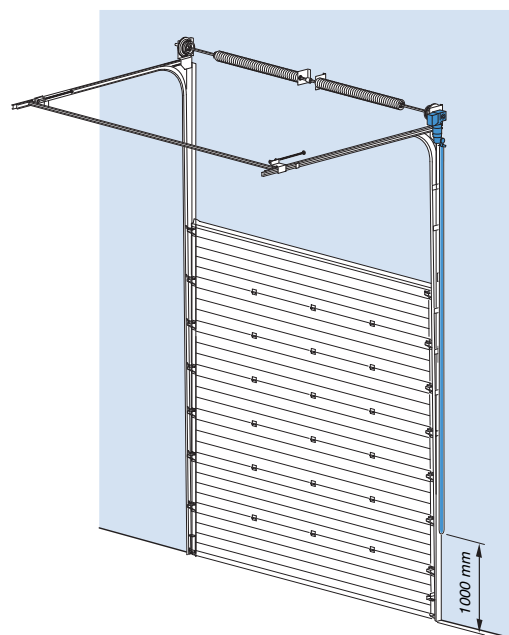
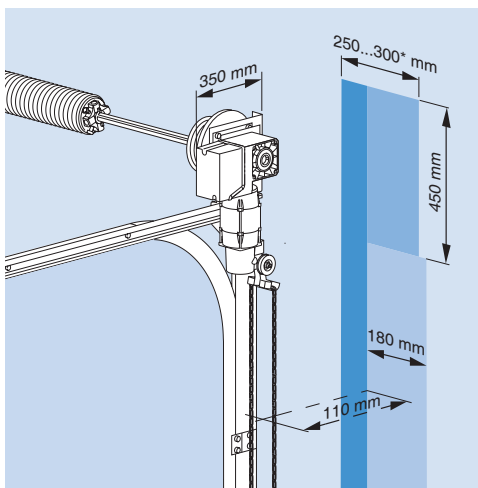
5.4 Installation space requirements for installation and operation – chain hoist

- Minimum space required for the installation of the chain hoist: approx. 235 x 220 x 200 mm, the dimension of 220 mm is the dimension required for the chain hoist when in the installed state. If a chain hoist needs to be installed on an existing door by sliding it onto the spring shaft, 300 mm is required. With some extra work (loosening and pulling back the spring shaft), it is always possible to replace or install a chain hoist, even if no more than 220 mm is available.
- Chain space requirement down to operating height: approx. 280 x 50 mm.
- The chain hoist can be installed on the right-hand side or the left-hand side, as long as there is adequate space.



5.5a Installation space requirements for installation and operation (emergency chain) - electric drive

- Minimum space required for the installation of the electric drive: approx. 350 x 250...300* x 450 mm, the dimension of 250...300 mm is the dimension required for the electric drive when in the installed state. If an electric drive needs to be installed on an existing door by sliding it onto the spring shaft, 350 mm is required. With some extra work (loosening and pulling back the spring shaft), it is always possible to replace or install an electric drive, even if no more than 250...300 mm is available.
* Engine mounting width depends on engine type.
- Emergency chain space requirement down to operating height: approx. 110 x 180 mm.
- The electric drive can be installed on the right-hand side or the left-hand side, as long as there is adequate space.
- Springless electric drive (FLL): This requires an additional installation space for the actuator of 430 mm (D) x 350 mm (W) x 590 mm (H).
- Minimum free space for electric actuation with FLS Springless sectional door see 4.5b

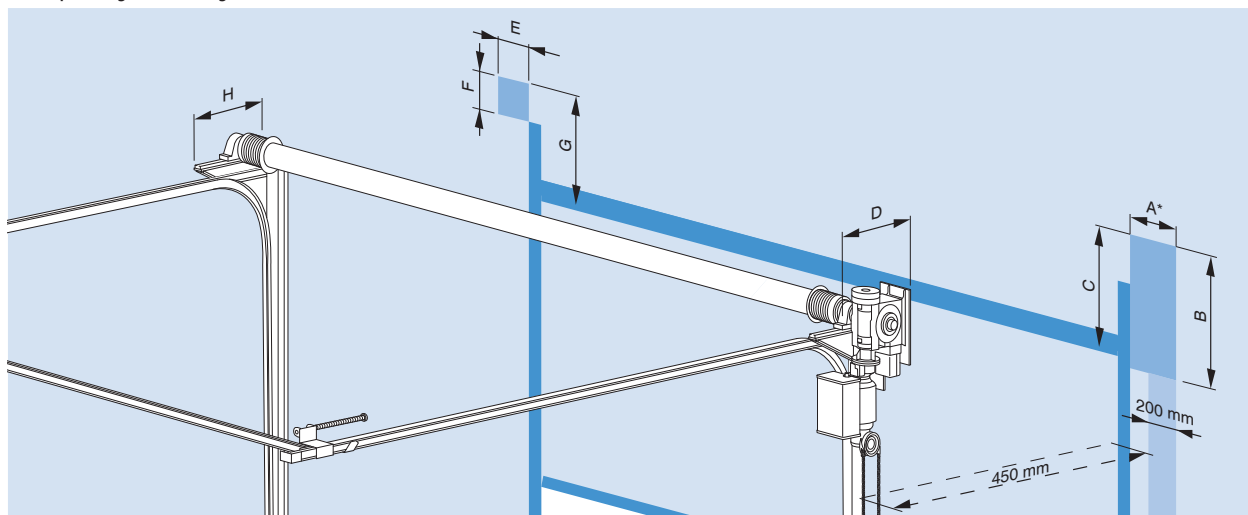


5.5b Installation space requirements for installation and operation (emergency chain) - electric drive for FLS Springless sectional door

- See table for minimum free space for electric operation.
Please note: Dimension A applies to the installation of the motor during initial installation. If the motor is to be fitted subsequently to an already installed door, an additional free space of A + 50 mm must be taken into account. Dimension A is possible with some additional work, whereby the shafts have to be shifted, etc.
- Minimum free space for the chain up to the operating height: approx. 450 x 200 mm. Dimension turning point chain is at height of 1000 mm.
- The electric drive can be installed on the right-hand side or the left-hand side, as long as there is adequate space.

FLS door leaf areas*	A*	B	C	D	E	F	G	H
up to 20 m ²	400 mm	610 mm	625 mm	400 mm	140 mm	140 mm	583 mm	400 mm
up to 48 m ²	325 mm	830 mm	625 mm	550 mm	160 mm	140 mm	583 mm	510 mm

*depending on the weight of the door surface



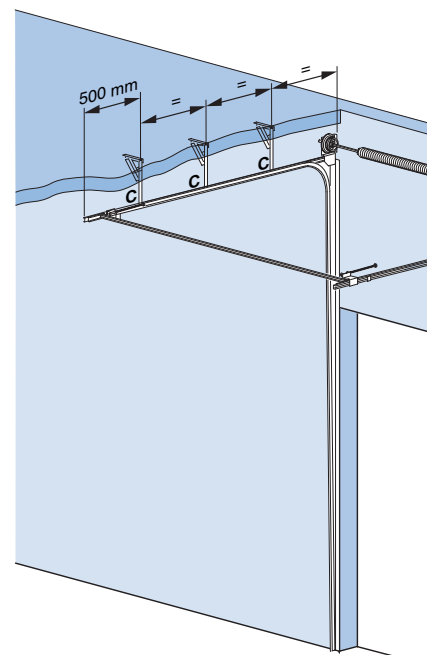
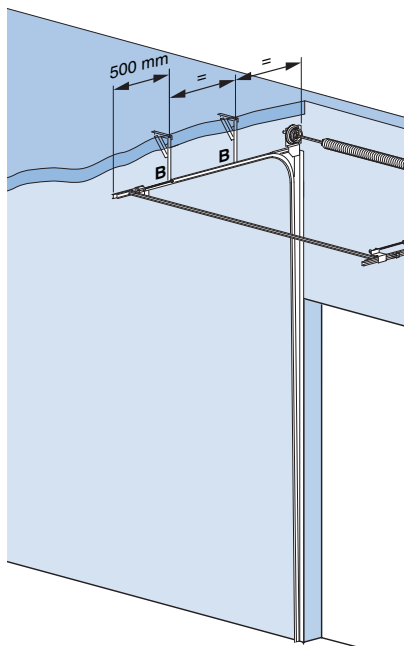
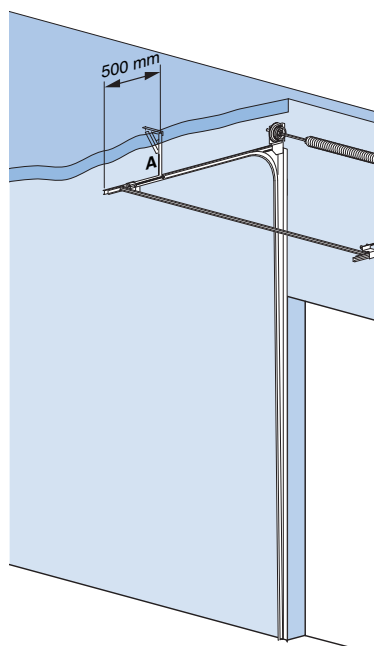
5.6 Track suspension points – quantity and position

- Projection dimension of CH – lift ≤ 3000 mm (or door leaf area ≤ 12 m²): 1 suspension point per horizontal track as shown in arrangement A.
- Projection dimension of CH – lift > 3000 mm and ≤ 5000 mm (or door leaf area ≤ 12 m² and ≤ 20 m²): 2 suspension points per horizontal track as shown in arrangement B.
- Projection dimension of CH – lift > 5000 mm (or door leaf area > 20 m²): 3 suspension points per horizontal track as shown in arrangement C.

A: CH - lift ≤ 3000 mm

B: CH - lift > 3000 mm and ≤ 5000 mm

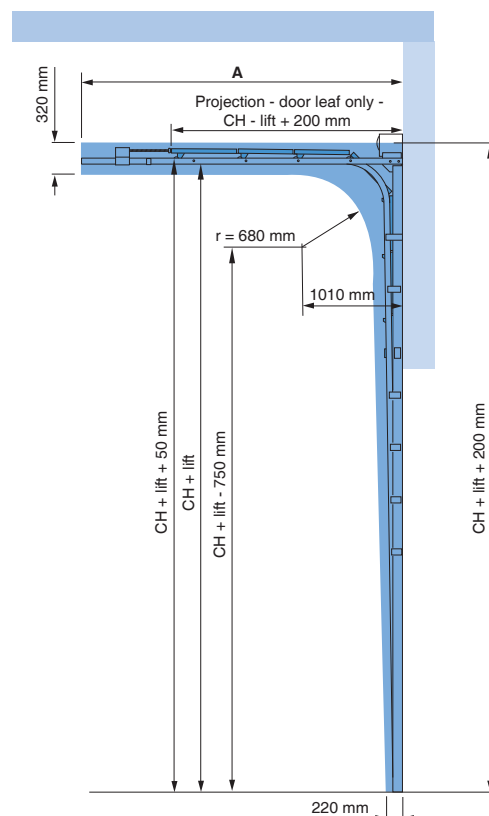
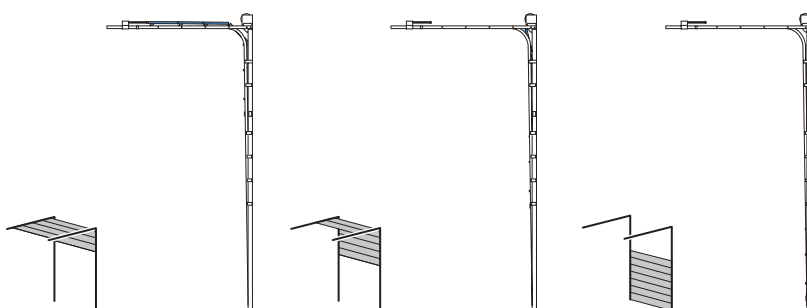
C: CH - lift > 5000 mm



5.7 Space requirement for unobstructed door movement, various key dimensions

- Extra free space is required for unobstructed door movement. This applies particularly in the area of the track curves, as the sections pass through the curve. The entire path taken by the door when opening and closing must be free of obstacles.
- Total projection **A** :
 Manually operated - pullcord: $A = CH - \text{lift} + 650 \text{ mm}$
 Manually operated - chain holst: $A = CH - \text{lift} + 850 \text{ mm}$
 Electric drive / prepared for electric drive: $A = CH - \text{lift} + 850 \text{ mm}$

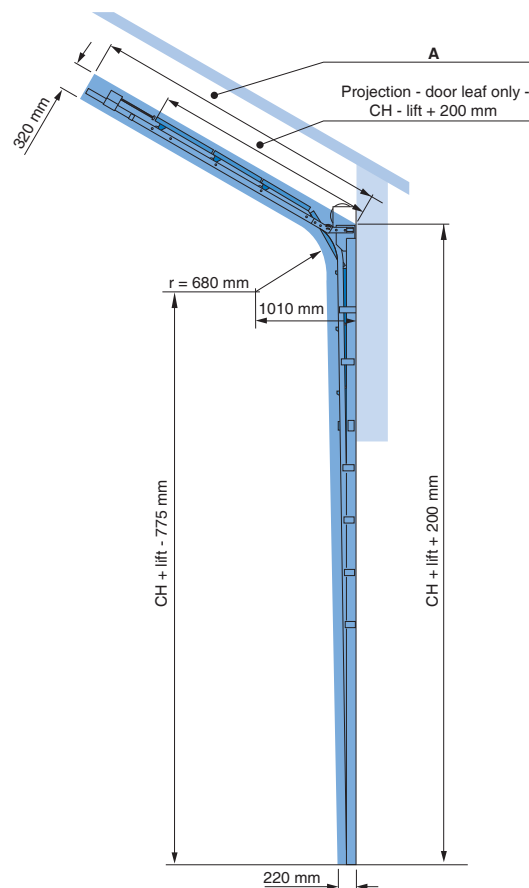
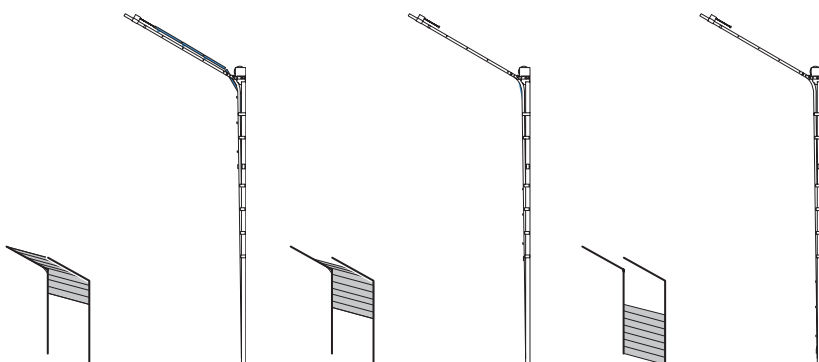
Path taken by the cables and door leaf as the door opens



5.8 Space requirement for unobstructed door movement, various key dimensions – roof angle system

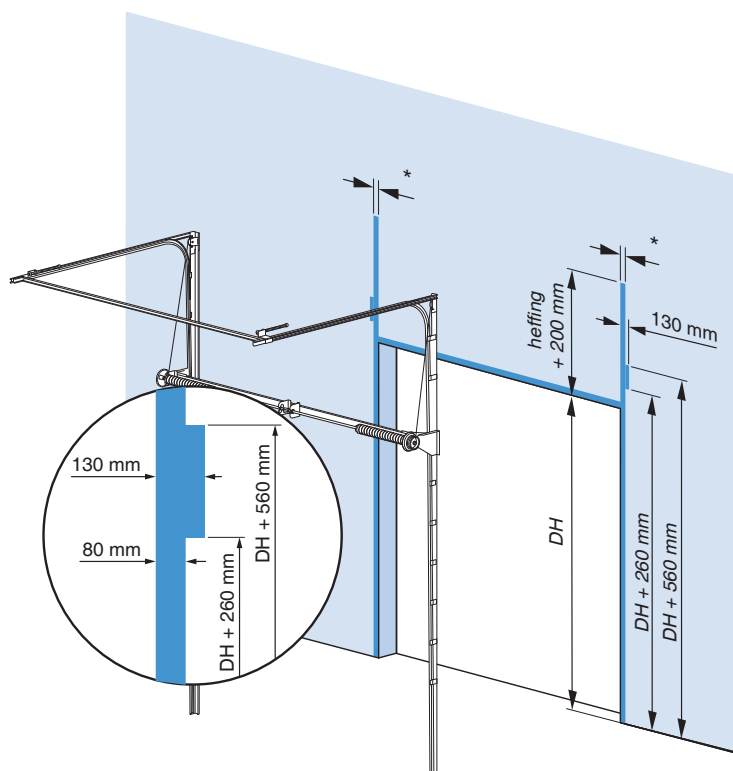
- Extra free space is required for unobstructed door movement. This applies particularly in the area of the track curves, as the sections pass through the curve. The entire path taken by the door when opening and closing must be free of obstacles.
- Total projection **A** :
 Manually operated - pullcord: $A = CH - \text{lift} + 650 \text{ mm}$
 Manually operated - chain holst: $A = CH - \text{lift} + 850 \text{ mm}$
 Electric drive / prepared for electric drive: $A = CH - \text{lift} + 850 \text{ mm}$

Path taken by the cables and door leaf as the door opens



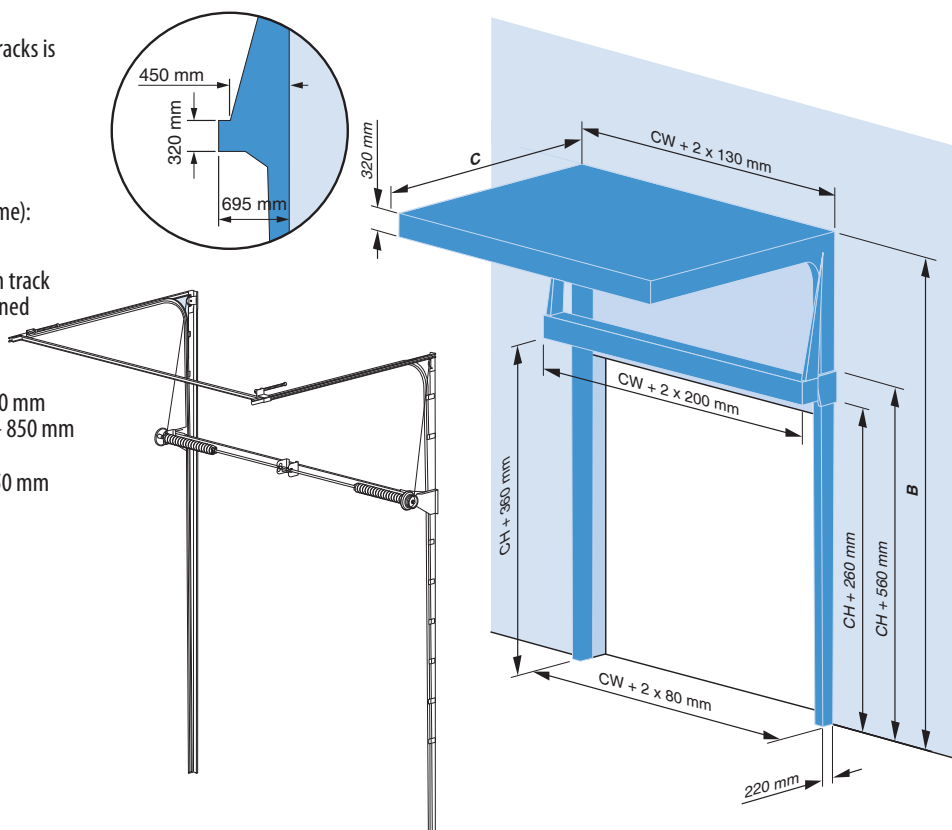
6.1 Installation space requirement – vertical tracks and spring shaft assembly

- Minimum width of the mounting surface (frame) *, see General information page.
- Minimum mounting surface height: $CH + \text{lift} + 200 \text{ mm}$.
- A horizontal surface of approx 80 mm high immediately above the clear opening (sealing surface for the top seal) is required. This surface must be smooth and flush with the other mounting surfaces. If a mounting frame is used, the simplest solution is to insert a cross member in this area.



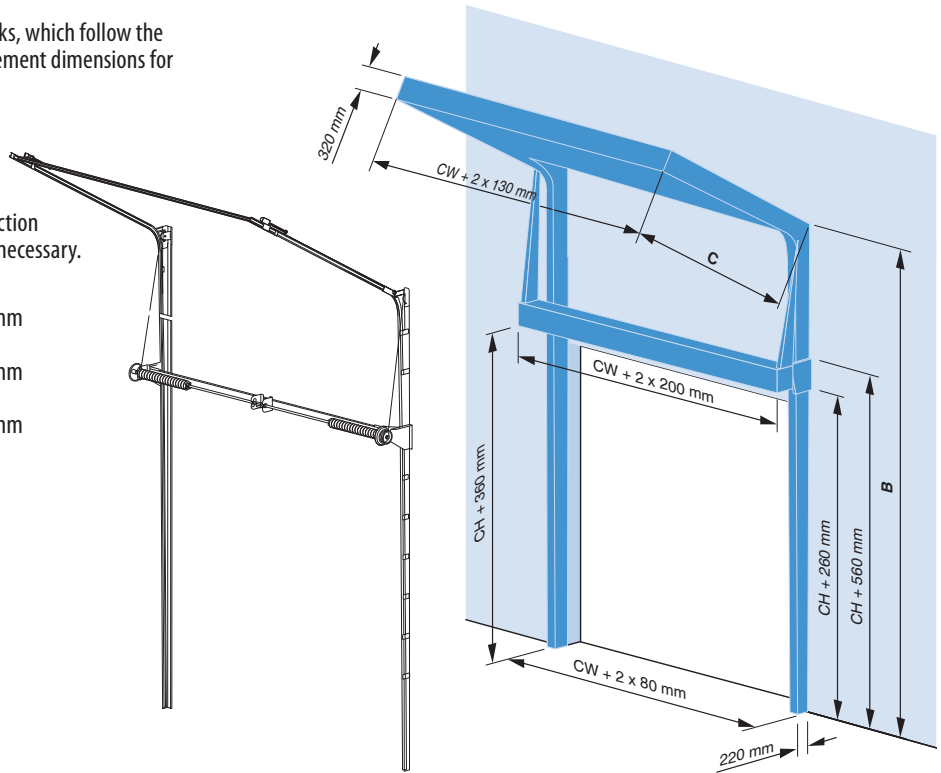
6.2 Installation space requirements – complete track system

- Minimum projection dimension (into the room): $CH - \text{lift} + 650 \dots 850 \text{ mm}$.
- The installation space required for the horizontal tracks is included in the space requirement dimensions for unobstructed door movement.
- Minimum space required for the spring shaft assembly: $CW + 2 \times 200 \text{ mm}$.
- The minimum height of the mounting surface (frame): $B = CH + \text{levy} + 245 \dots 375 \text{ mm}$
- The horizontal tracks are longer than the minimum track projection requirement. The tracks must be shortened on site if necessary.
- Total projection **C**:
 Manually operated - pullcord: $C = CH - \text{lift} + 650 \text{ mm}$
 Manually operated – chain holst: $C = CH - \text{lift} + 850 \text{ mm}$
 Electric drive / prepared for electric drive:
 $C = CH - \text{lift} + 850 \text{ mm}$



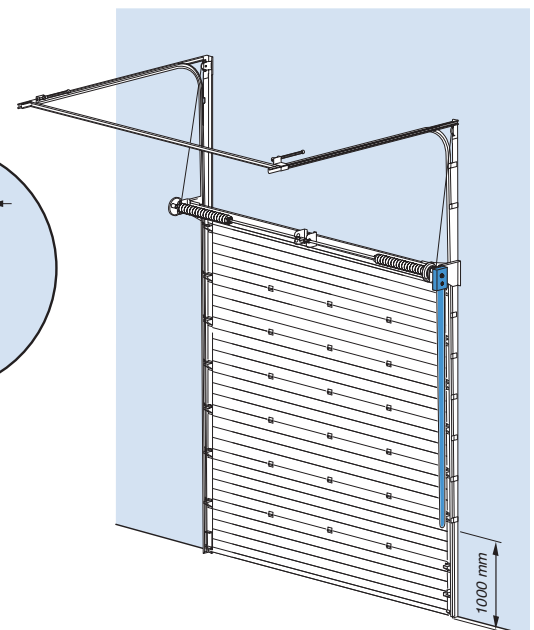
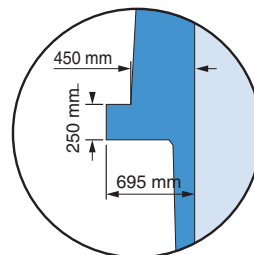
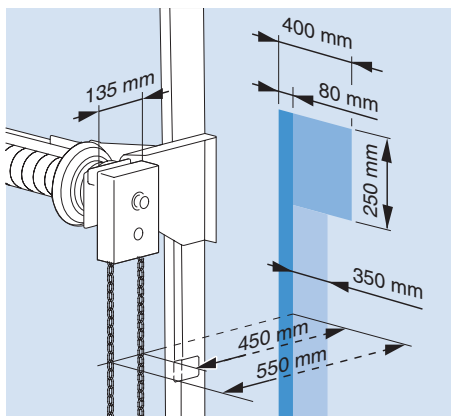
6.3 Installation space requirements – roof angle track system

- Minimum projection dimension (into the room), following the angle of the roof: $CH - \text{lift} + 600 \dots 850 \text{ mm}$.
- The minimum height of the mounting surface (frame):
 $B = CH + \text{levy} + 245 \dots 375 \text{ mm}$
- The installation space required for the horizontal tracks, which follow the roof angle in this case, is included in the space requirement dimensions for unobstructed door movement.
- Minimum space required for the spring shaft assembly: $CW + 2 \times 200 \text{ mm}$.
- The horizontal tracks, which follow the roof angle in this case, are longer than the minimum track projection requirement. The tracks must be shortened on site if necessary.
- Total projection **C**:
Manually operated - pullcord: $C = CH - \text{lift} + 650 \text{ mm}$
Manually operated – chain hoist:
 $C = CH - \text{lift} + 850 \text{ mm}$
Electric drive / prepared for electric drive:
 $C = CH - \text{lift} + 850 \text{ mm}$



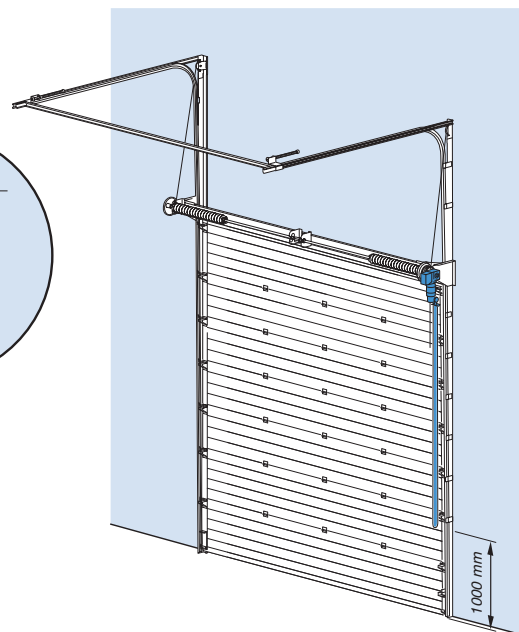
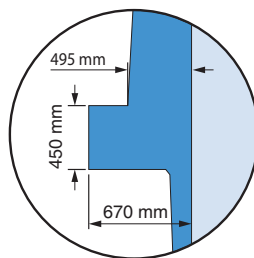
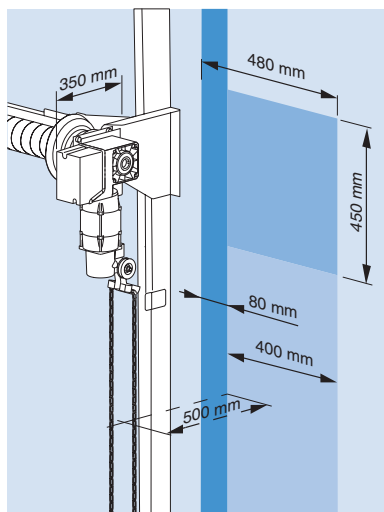
6.4 Installation space requirements for installation and operation – chain hoist

- Space requirement for the cable guides left and right: width 80 mm, from top to bottom, 175 mm to 450 mm.
- Minimum space required for the installation of the chain hoist: approx. 135 x 400 x 250 mm.
- Chain space requirement down to operating height: 350 mm.
- The chain hoist can be installed on the right-hand side or the left-hand side, as long as there is adequate space.



6.5 Installation space requirements for installation and operation (emergency chain) - electric drive

- Space requirement for the cable guides left and right: width 80 mm, from top to bottom, 175 mm to 450 mm.
- Minimum space required for the installation of the electric drive: approx. 350 x 480 x 450 mm.
- Emergency chain space requirement down to operating height: 400 mm.
- The electric drive can be installed on the right-hand side or the left-hand side, as long as there is adequate space.



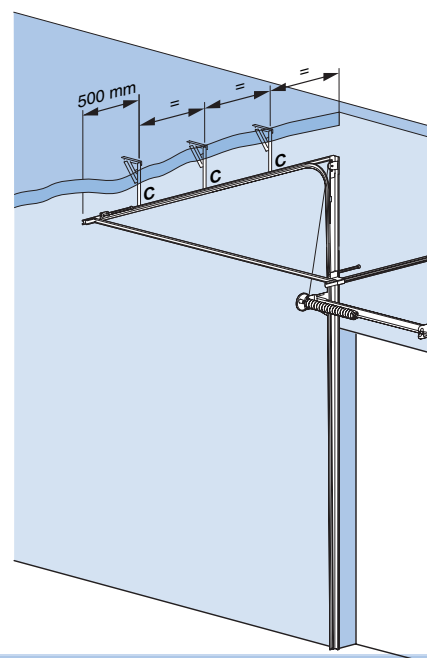
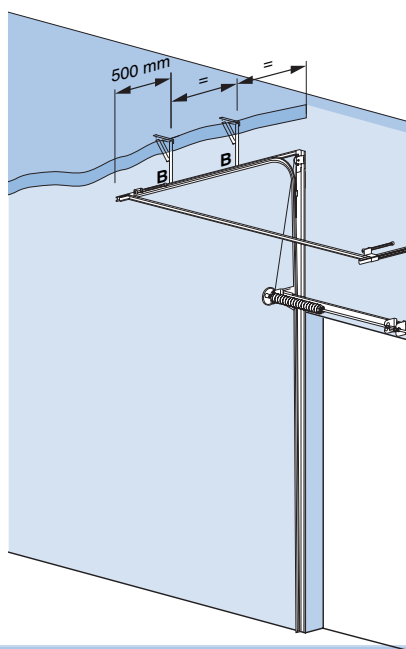
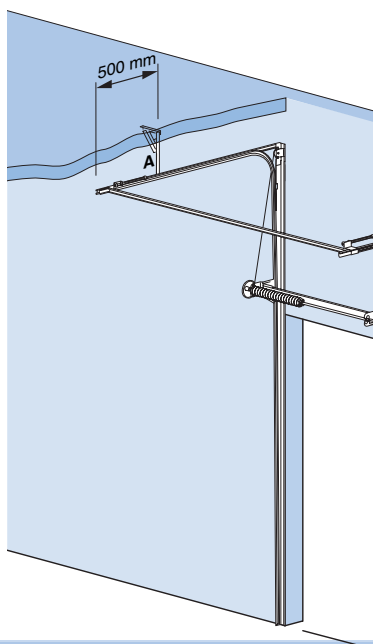
6.6 Track suspension points – quantity and position

- Projection dimension of CH – lift ≤ 3000 mm (or door leaf area ≤ 12 m²): 1 suspension point per horizontal track as shown in arrangement **A**.
- Projection dimension of CH – lift > 3000 mm and ≤ 5000 mm (or door leaf area ≤ 12 m² and ≤ 20 m²): 2 suspension points per horizontal track as shown in arrangement **B**.
- Projection dimension of CH – lift > 5000 mm (or door leaf area > 20 m²): 3 suspension points per horizontal track as shown in arrangement **C**.

A: CH - lift ≤ 3000 mm

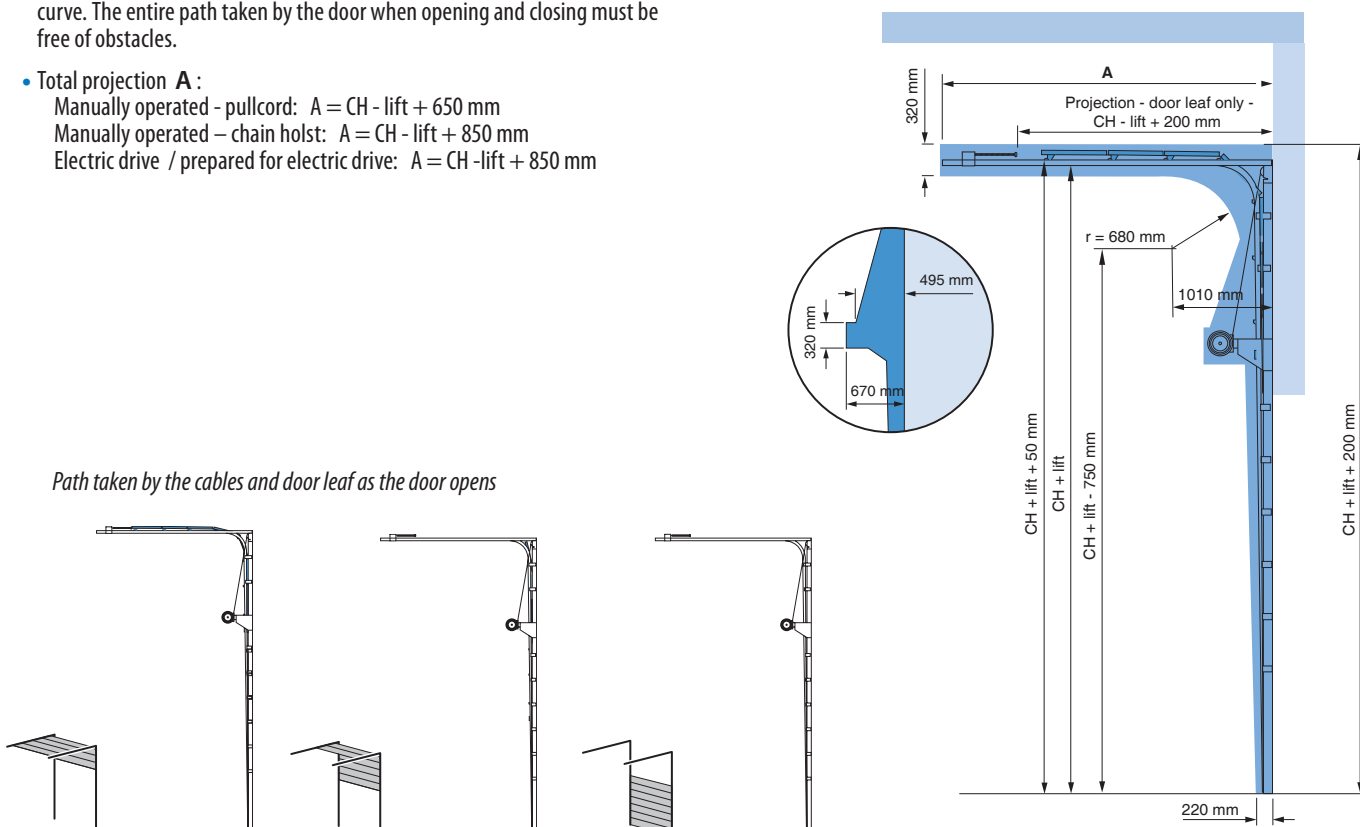
B: CH - lift > 3000 mm and ≤ 5000 mm

C: CH - lift > 5000 mm



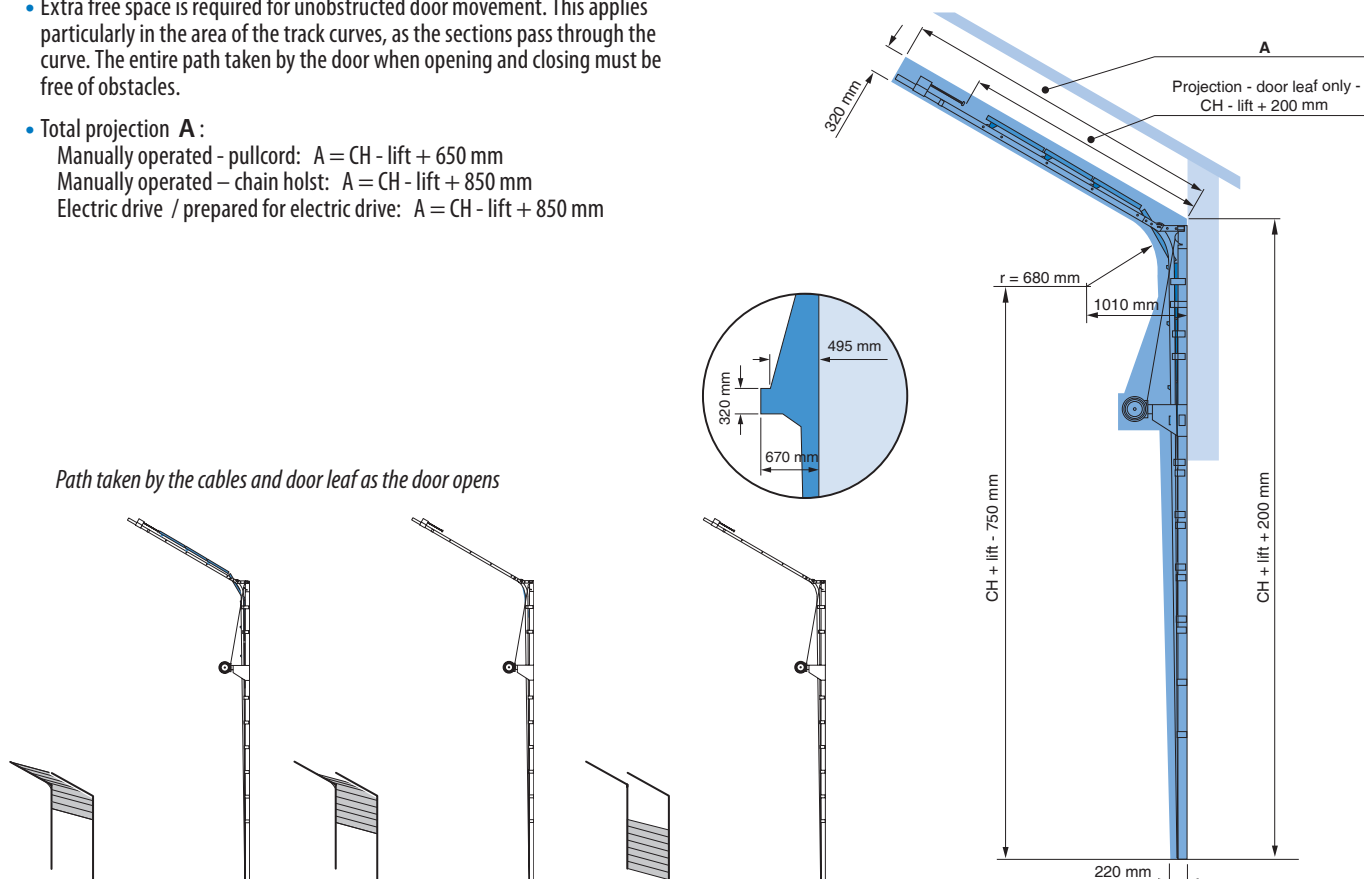
6.7 Space requirement for unobstructed door movement, various key dimensions

- Extra free space is required for unobstructed door movement. This applies particularly in the area of the track curves, as the sections pass through the curve. The entire path taken by the door when opening and closing must be free of obstacles.
- Total projection **A** :
 Manually operated - pullcord: $A = CH - \text{lift} + 650 \text{ mm}$
 Manually operated - chain holst: $A = CH - \text{lift} + 850 \text{ mm}$
 Electric drive / prepared for electric drive: $A = CH - \text{lift} + 850 \text{ mm}$



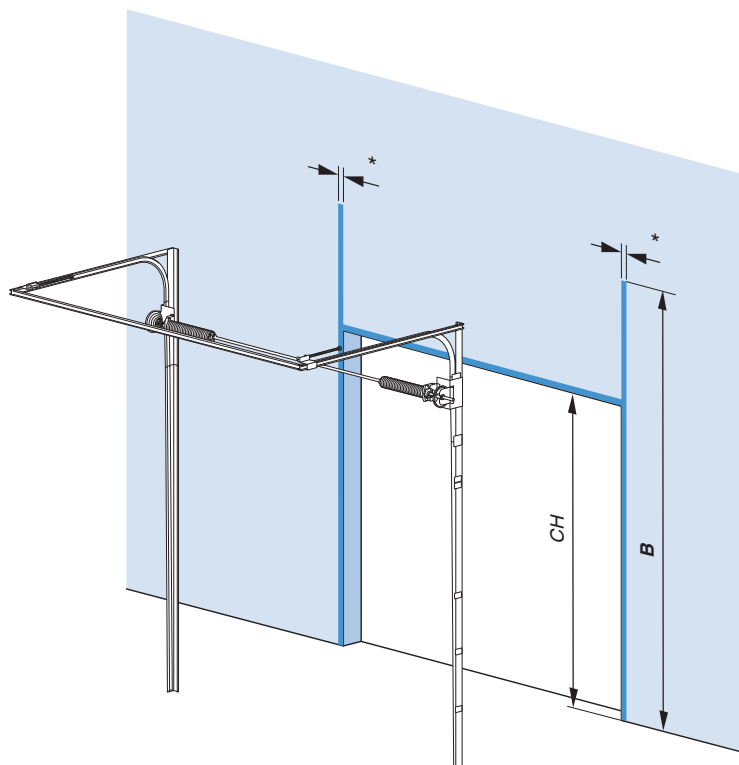
6.8 Space requirement for unobstructed door movement, various key dimensions – roof angle system

- Extra free space is required for unobstructed door movement. This applies particularly in the area of the track curves, as the sections pass through the curve. The entire path taken by the door when opening and closing must be free of obstacles.
- Total projection **A** :
 Manually operated - pullcord: $A = CH - \text{lift} + 650 \text{ mm}$
 Manually operated - chain holst: $A = CH - \text{lift} + 850 \text{ mm}$
 Electric drive / prepared for electric drive: $A = CH - \text{lift} + 850 \text{ mm}$



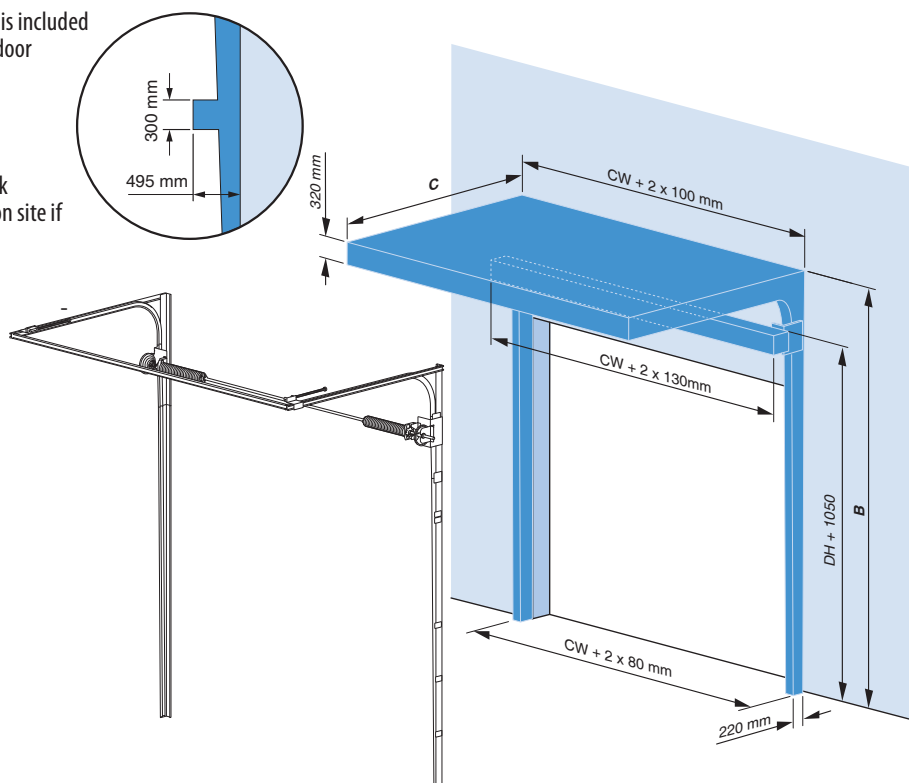
7.1 Installation space requirement – vertical tracks and spring shaft assembly

- Minimum width of the mounting surface (frame) *, see General information page.
- Minimum mounting surface height: $B = CH + \text{lift} + 200 \text{ mm}$.
- A horizontal surface of approx 80 mm high immediately above the clear opening (sealing surface for the top seal) is required. This surface must be smooth and flush with the other mounting surfaces. If a mounting frame is used, the simplest solution is to insert a cross member in this area.



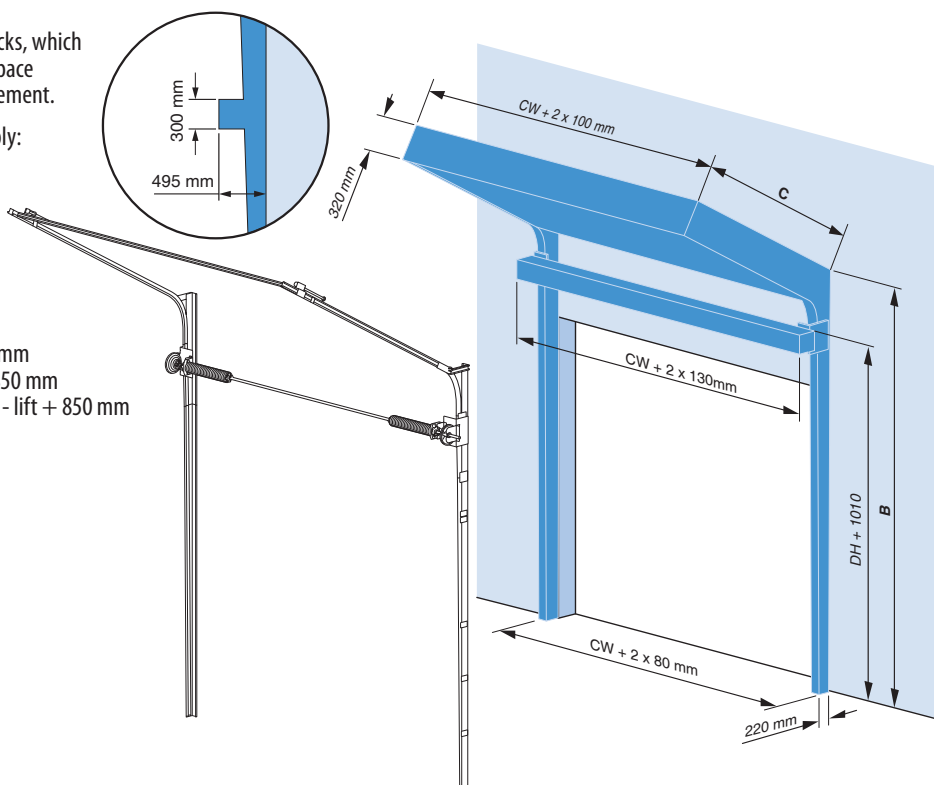
7.2 Installation space requirements – complete track system

- The minimum height of the mounting surface (frame):
 $B = CH + \text{levy} + 245 \dots 375 \text{ mm}$
- Minimum projection dimension (into the room): $CH - \text{lift} + 600 \dots 850 \text{ mm}$.
- The installation space required for the horizontal tracks is included in the space requirement dimensions for unobstructed door movement.
- Minimum space required for the spring shaft assembly:
 $CW + 2 \times 130 \text{ mm}$.
- The horizontal tracks are longer than the minimum track projection requirement. The tracks must be shortened on site if necessary.
- Total projection **A**:
Manually operated pullcord:
 $A = CH - \text{lift} + 650 \text{ mm}$
Manually operated – chain holst:
 $A = CH - \text{lift} + 850 \text{ mm}$
Electric drive / prepared for electric drive:
 $A = CH - \text{lift} + 850 \text{ mm}$



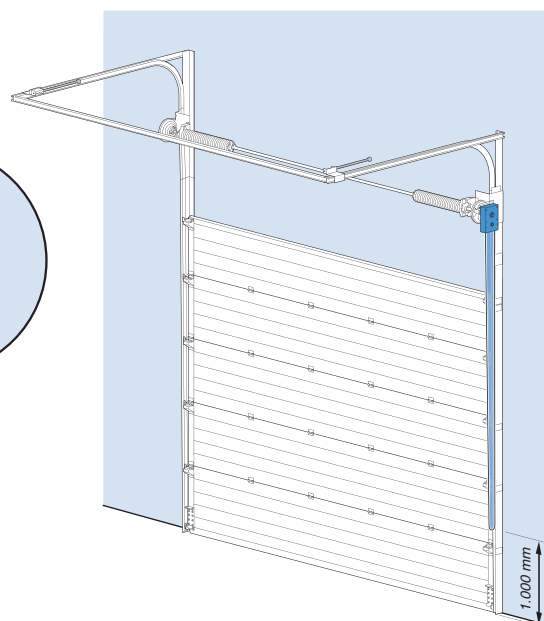
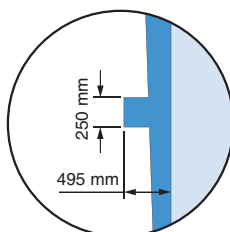
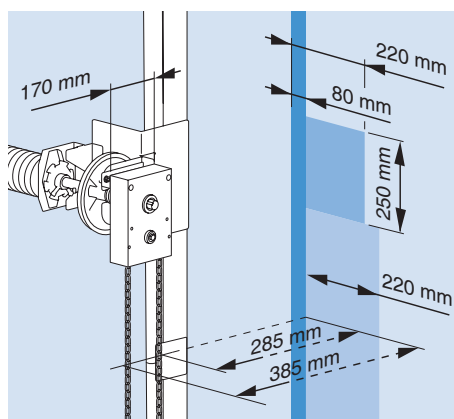
7.3 Installation space requirements – roof angle track system

- Minimum mounting surface height (mounting frame):
 $B = CH + \text{lift} + 240 \text{ mm}$.
- Minimum projection dimension (into the room), following the angle of the roof: $CH - \text{lift} + 600 \dots 850 \text{ mm}$.
- The installation space required for the horizontal tracks, which follow the roof angle in this case, is included in the space requirement dimensions for unobstructed door movement.
- Minimum space required for the spring shaft assembly:
 $CW + 2 \times 130 \text{ mm}$.
- The horizontal tracks, which follow the roof angle in this case, are longer than the minimum track projection requirement. The tracks must be shortened on site if necessary.
- Total projection **C**:
Manually operated - pullcord: $C = CH - \text{lift} + 650 \text{ mm}$
Manually operated – chain hoist: $C = CH - \text{lift} + 850 \text{ mm}$
Electric drive / prepared for electric drive: $C = CH - \text{lift} + 850 \text{ mm}$



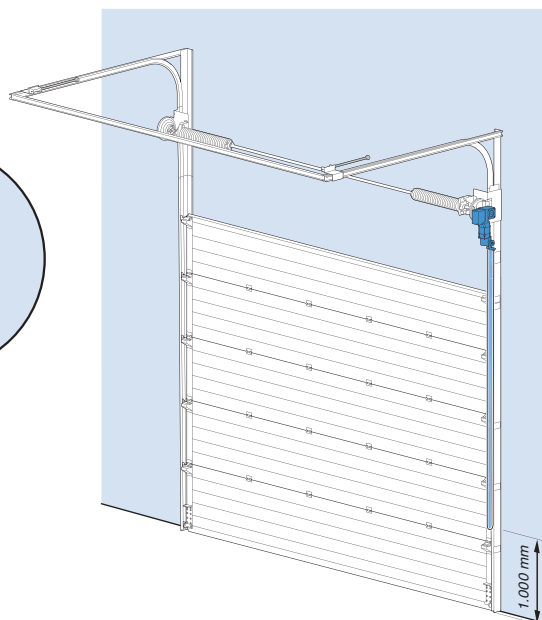
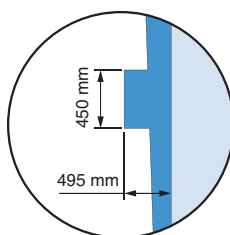
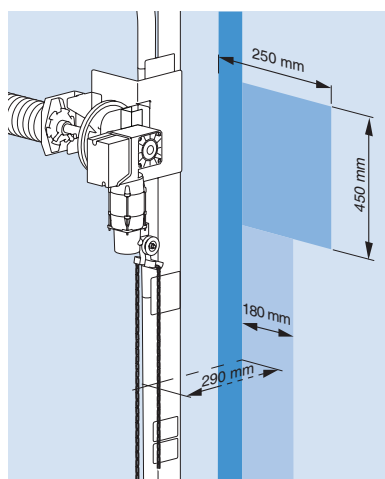
7.4 Installation space requirements for installation and operation – chain hoist

- Space requirement for the cable guides left and right: width 80 mm, from top to bottom, 175 mm to 450 mm.
- Emergency chain space requirement down to operating height: approx. 135 x 220x250 mm.
- Chain space requirement down to operating height: approx. 220 mm.
- The chain hoist can be installed on the right-hand side or the left-hand side, as long as there is adequate space.

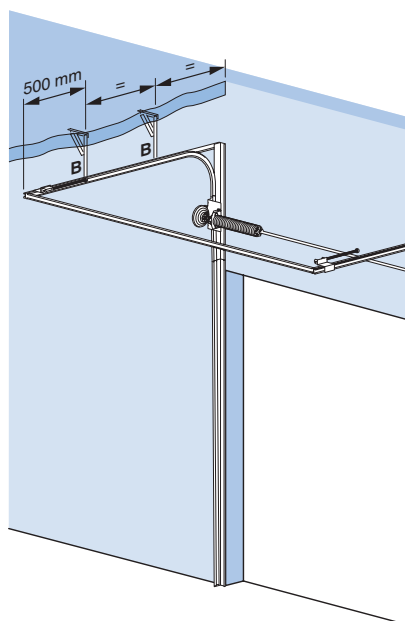
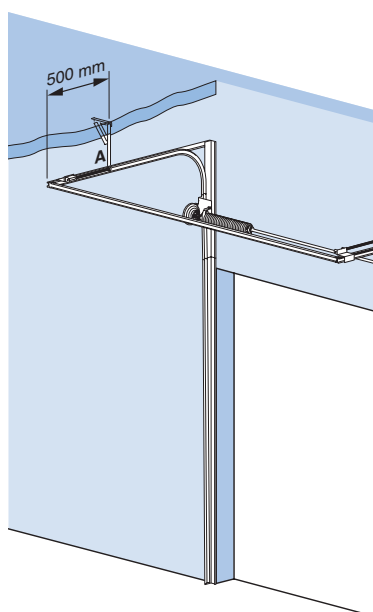


7.5 Installation space requirements for installation and operation (emergency chain) - electric drive

- Space requirement for the cable guides left and right: width 80 mm, from top to bottom, 175 mm to 450 mm.
- Emergency chain space requirement down to operating height: approx. 350 x 250x450 mm.
- Chain space requirement down to operating height: approx. 250 mm.
- The chain hoist can be installed on the right-hand side or the left-hand side, as long as there is adequate space.

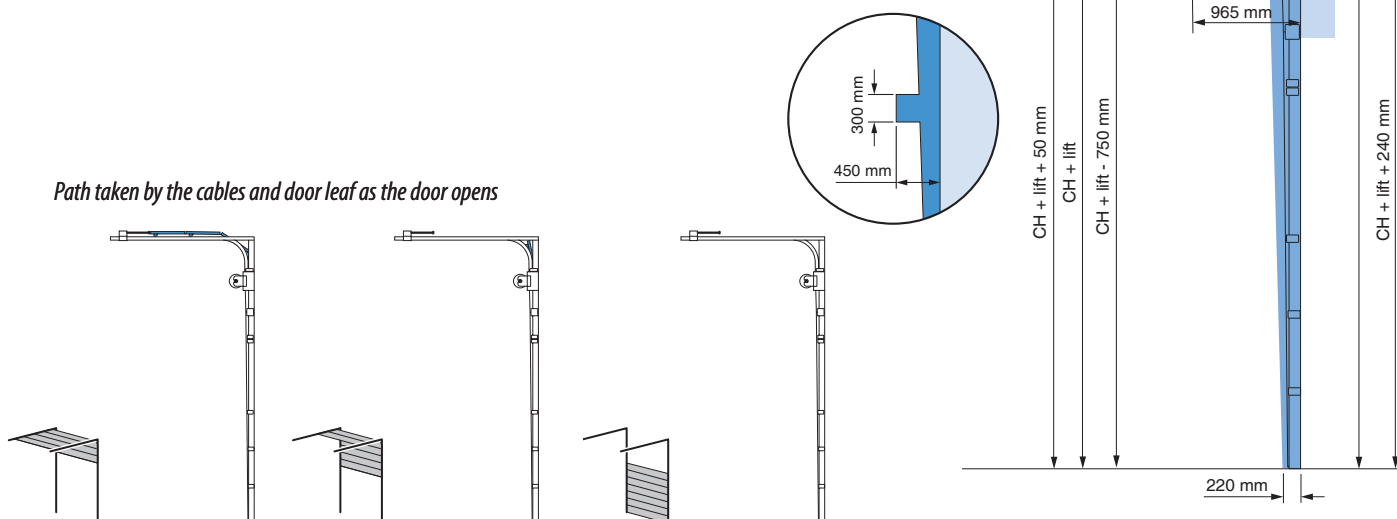


7.6 Track suspension points – quantity and position



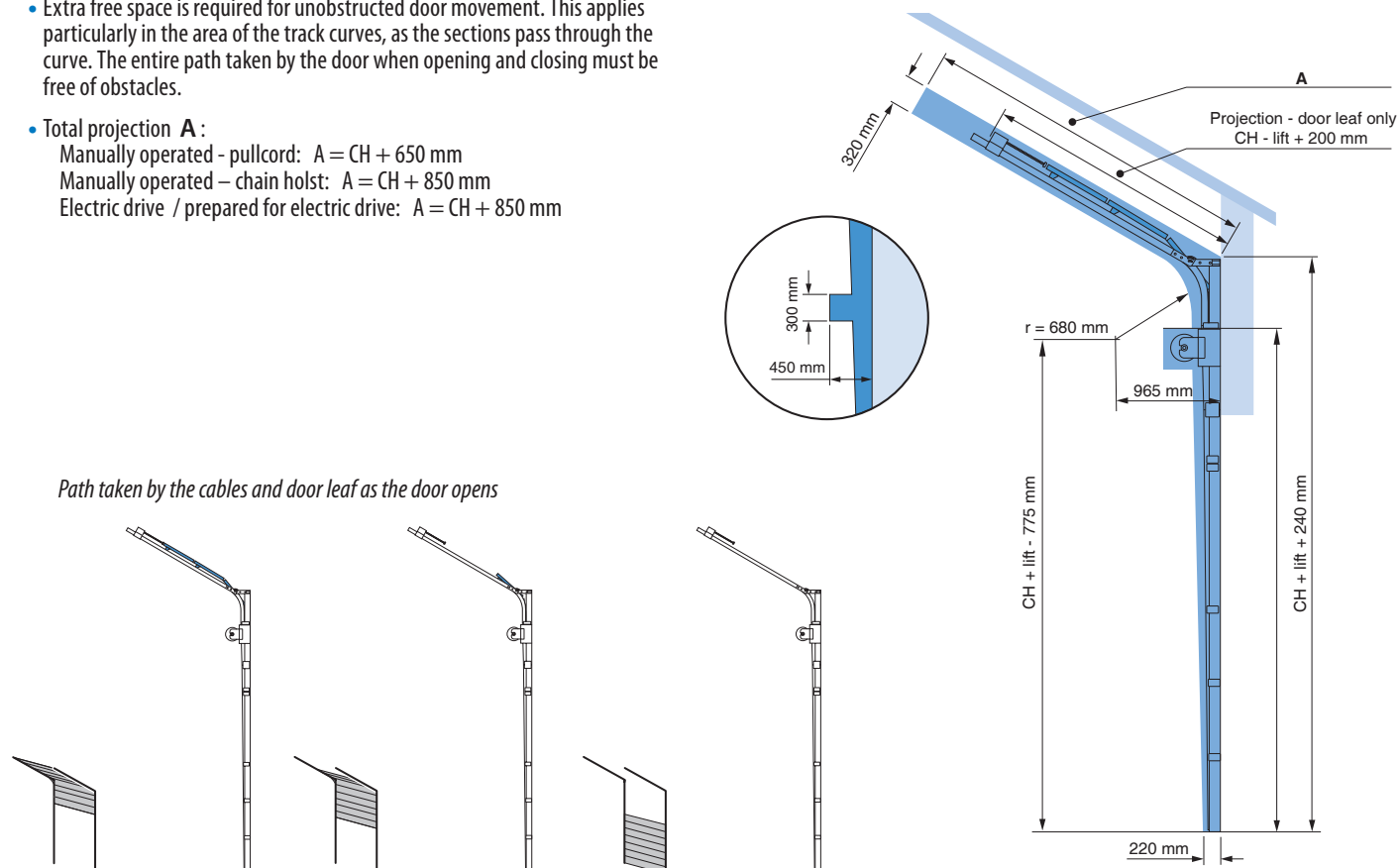
7.7 Space requirement for unobstructed door movement, various key dimensions

- Extra free space is required for unobstructed door movement. This applies particularly in the area of the track curves, as the sections pass through the curve. The entire path taken by the door when opening and closing must be free of obstacles.
- Total projection **A**:
 Manually operated - pullcord: $A = CH + 650 \text{ mm}$
 Manually operated - chain holst: $A = CH + 850 \text{ mm}$
 Electric drive / prepared for electric drive: $A = CH + 850 \text{ mm}$



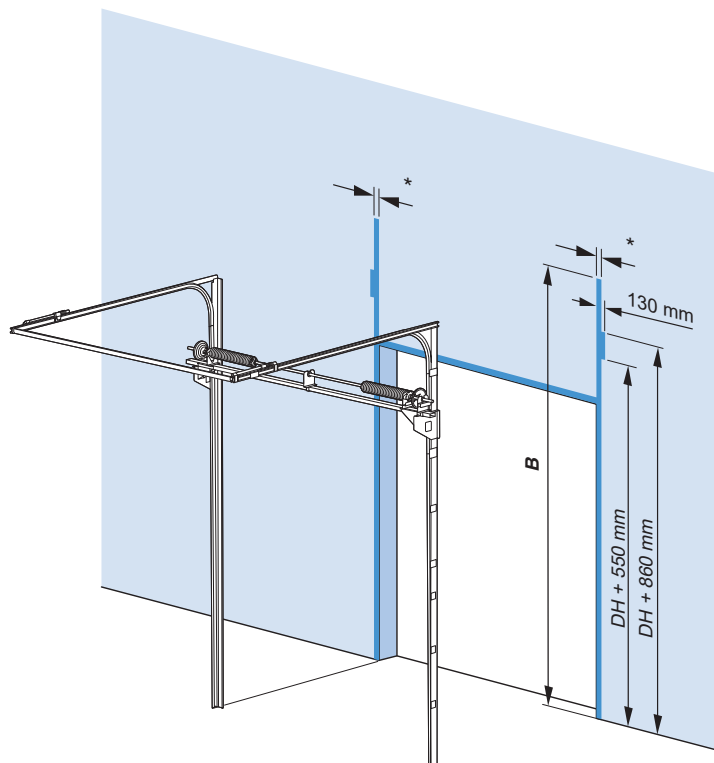
7.8 Space requirement for unobstructed door movement, various key dimensions – roof angle system

- Extra free space is required for unobstructed door movement. This applies particularly in the area of the track curves, as the sections pass through the curve. The entire path taken by the door when opening and closing must be free of obstacles.
- Total projection **A**:
 Manually operated - pullcord: $A = CH + 650 \text{ mm}$
 Manually operated - chain holst: $A = CH + 850 \text{ mm}$
 Electric drive / prepared for electric drive: $A = CH + 850 \text{ mm}$



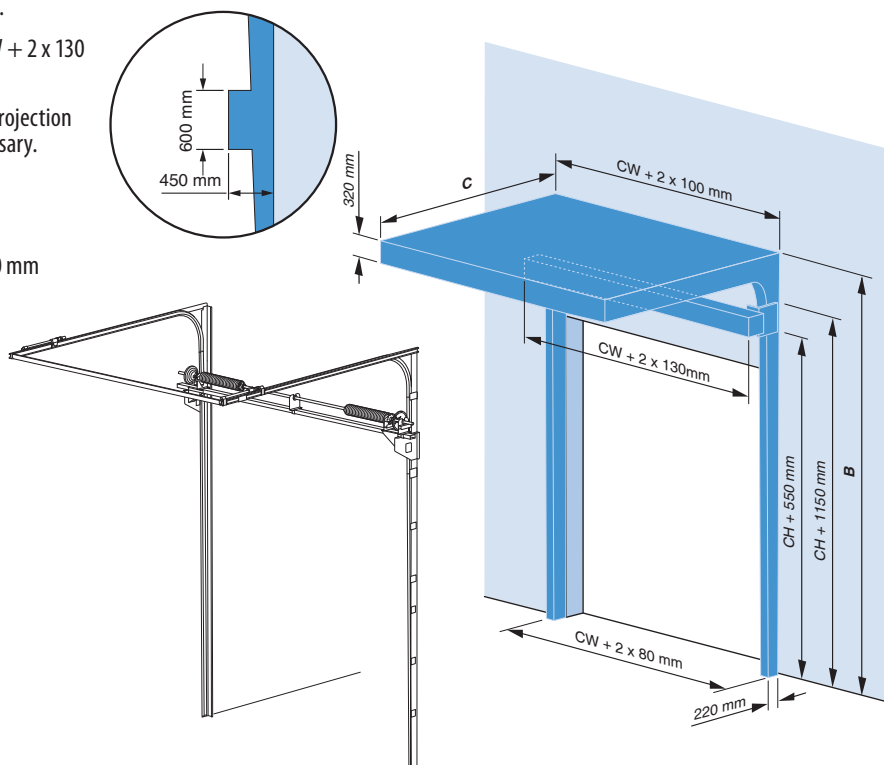
8.1 Installation space requirement – vertical tracks and spring shaft assembly

- The T 400 DDE is not suitable for an ISO 80 mm sectional door.
- Minimum width of the mounting surface (frame) *, see General information page.
- Minimum mounting surface height: $CH + \text{lift} + 200 \text{ mm}$.
- A horizontal surface of approx 80 mm high immediately above the clear opening (sealing surface for the top seal) is required. This surface must be smooth and flush with the other mounting surfaces. If a mounting frame is used, the simplest solution is to insert a cross member in this area.



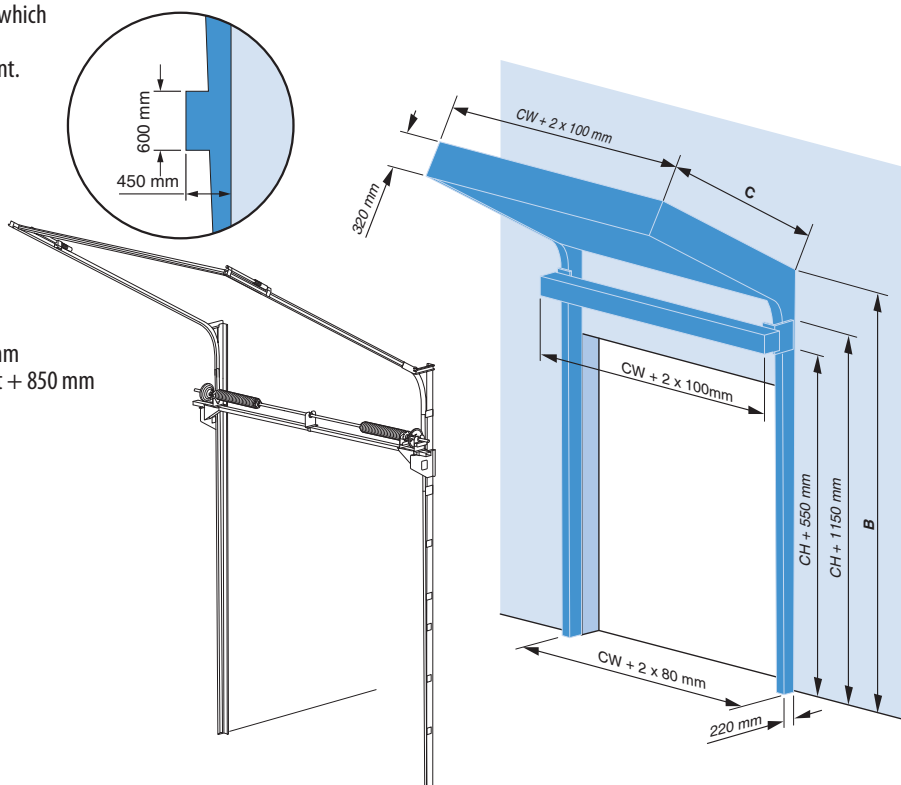
8.2 Installation space requirements – complete track system

- Minimum projection dimension (into the room): $CH + \text{lift} + 650 \dots 850 \text{ mm}$.
- The minimum height of the mounting surface (frame): $B = CH - \text{lift} + 200 \text{ mm}$.
- The installation space required for the horizontal tracks is included in the space requirement dimensions for unobstructed door movement.
- Minimum space required for the spring shaft assembly: $CW + 2 \times 130 \text{ mm}$.
- The horizontal tracks are longer than the minimum track projection requirement. The tracks must be shortened on site if necessary.
- Total projection **C**:
 Manually operated – pullcord: $C = CH + 650 \text{ mm}$
 Manually operated – chain holst: $C = CH + 850 \text{ mm}$
 Electric drive / prepared for electric drive: $C = CH + 850 \text{ mm}$



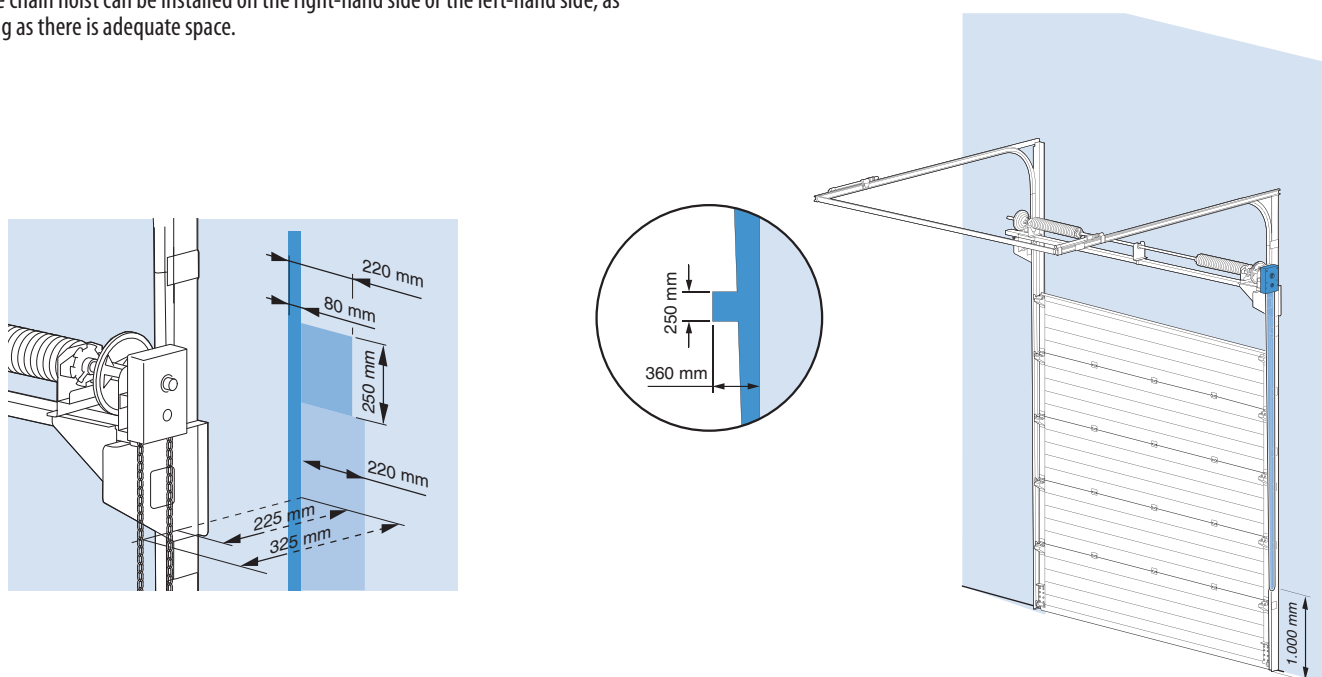
8.3 Installation space requirements – roof angle track system

- Minimum projection dimension (into the room), following the angle of the roof: $CH - \text{lift} + 600 \dots 850 \text{ mm}$.
- Minimum mounting surface height: $CH + \text{lift} + 200 \text{ mm}$.
- The installation space required for the horizontal tracks, which follow the roof angle in this case, is included in the space requirement dimensions for unobstructed door movement.
- Minimum space required for the spring shaft assembly: $CW + 2 \times 100 \text{ mm}$.
- The horizontal tracks, which follow the roof angle in this case, are longer than the minimum track projection requirement. The tracks must be shortened on site if necessary.
- Total projection **C**:
 Manually operated – pullcord: $C = CH - \text{lift} + 650 \text{ mm}$
 Manually operated – chain hoist: $C = CH - \text{lift} + 850 \text{ mm}$
 Electric drive / prepared for electric drive: $C = CH - \text{lift} + 850 \text{ mm}$



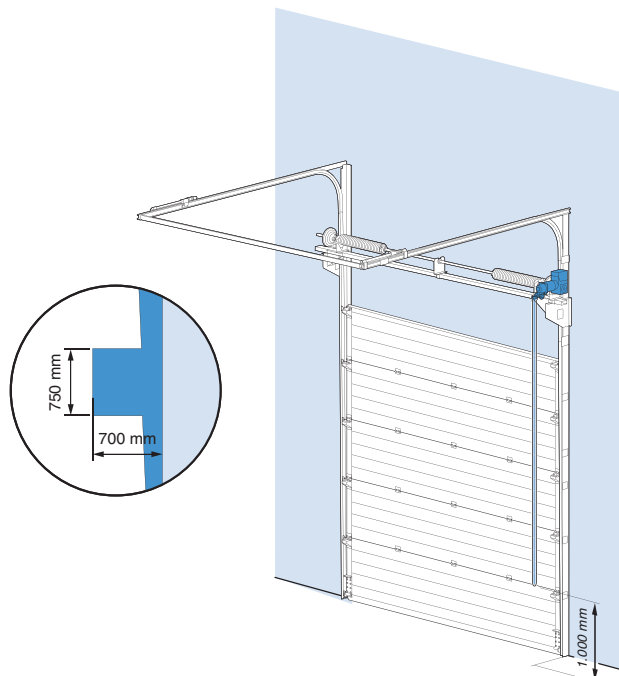
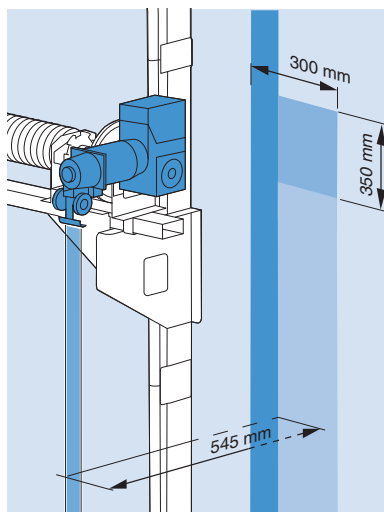
8.4 Installation space requirements for installation and operation – chain hoist

- Space requirement for the cable guides left and right: width 80 mm , from top to bottom, 175 mm to 450 mm .
- Emergency chain space requirement down to operating height: approx. $170 \times 220 \times 250 \text{ mm}$.
- Chain space requirement down to operating height: approx. 220 mm .
- The chain hoist can be installed on the right-hand side or the left-hand side, as long as there is adequate space.

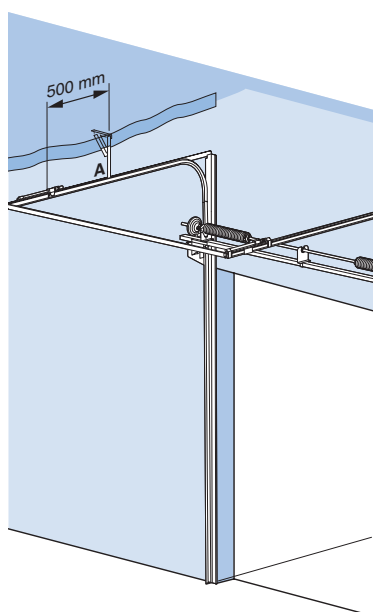


8.5 Installation space requirements for installation and operation (emergency chain) - electric drive

- Space requirement for the cable guides left and right: width 80 mm, from top to bottom, 175 mm to 450 mm.
- Emergency chain space requirement down to operating height: approx. 470 x 300x350 mm.
- Chain space requirement down to operating height: approx. 300 mm.
- The chain hoist can be installed on the right-hand side or the left-hand side, as long as there is adequate space.



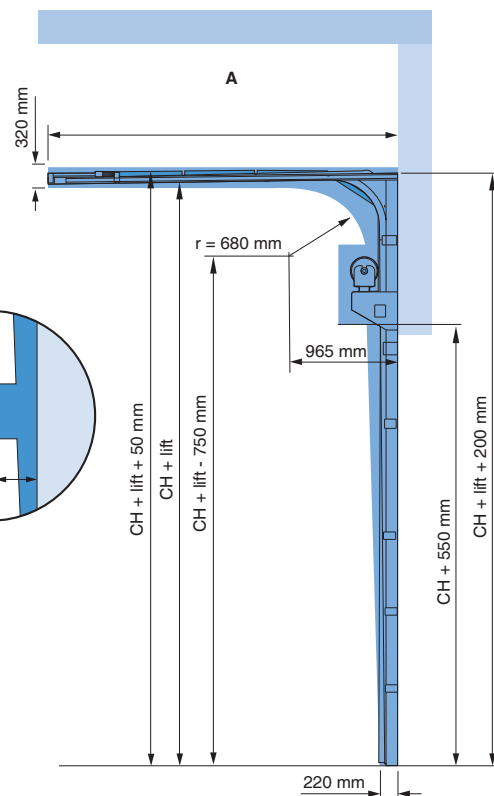
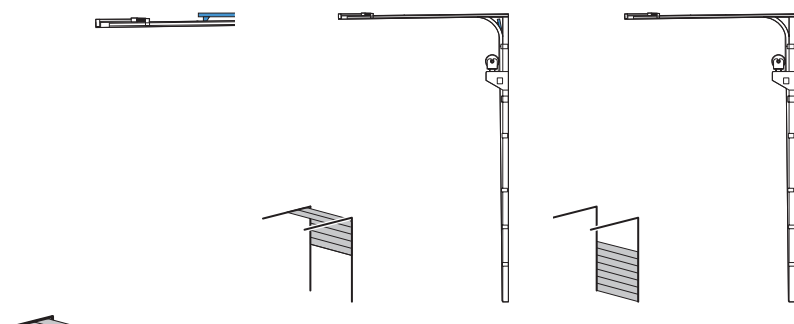
8.6 Track suspension points – quantity and position



8.7 Space requirement for unobstructed door movement, various key dimensions

- Extra free space is required for unobstructed door movement. This applies particularly in the area of the track curves, as the sections pass through the curve. The entire path taken by the door when opening and closing must be free of obstacles.
- Total projection **A**:
 Manually operated - pullcord: $A = CH - \text{lift} + 650 \text{ mm}$
 Manually operated - chain holst: $A = CH - \text{lift} + 850 \text{ mm}$
 Electric drive / prepared for electric drive: $A = CH - \text{lift} + 850 \text{ mm}$

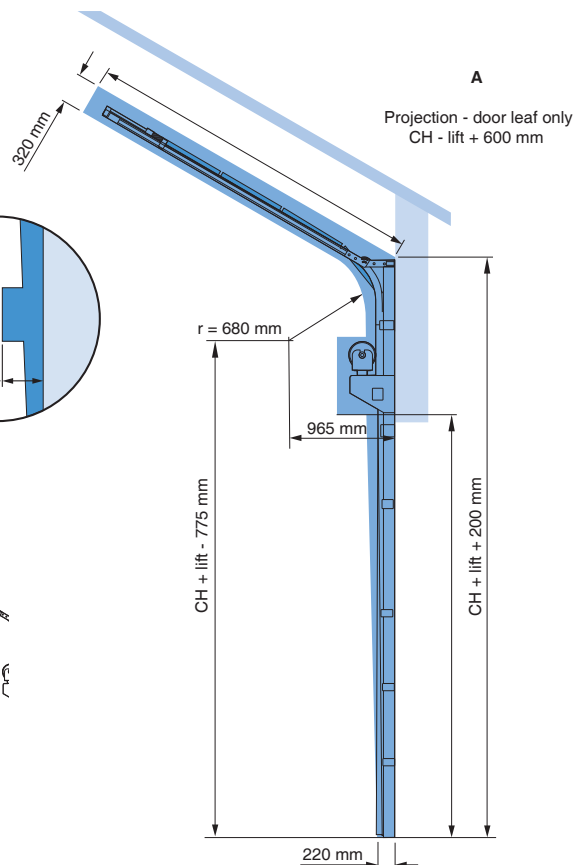
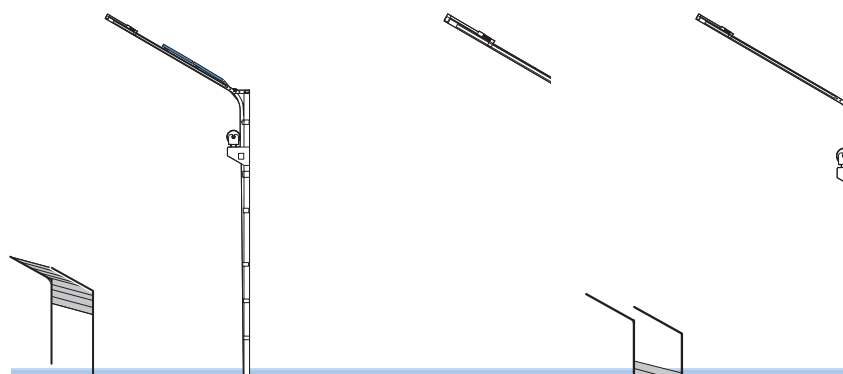
Path taken by the cables and door leaf as the door opens



8.8 Space requirement for unobstructed door movement, various key dimensions – roof angle system

- Extra free space is required for unobstructed door movement. This applies particularly in the area of the track curves, as the sections pass through the curve. The entire path taken by the door when opening and closing must be free of obstacles.
- Total projection **A**:
 Manually operated - pullcord: $A = CH - \text{lift} + 650 \text{ mm}$
 Manually operated - chain holst: $A = CH - \text{lift} + 850 \text{ mm}$
 Electric drive / prepared for electric drive: $A = CH - \text{lift} + 850 \text{ mm}$

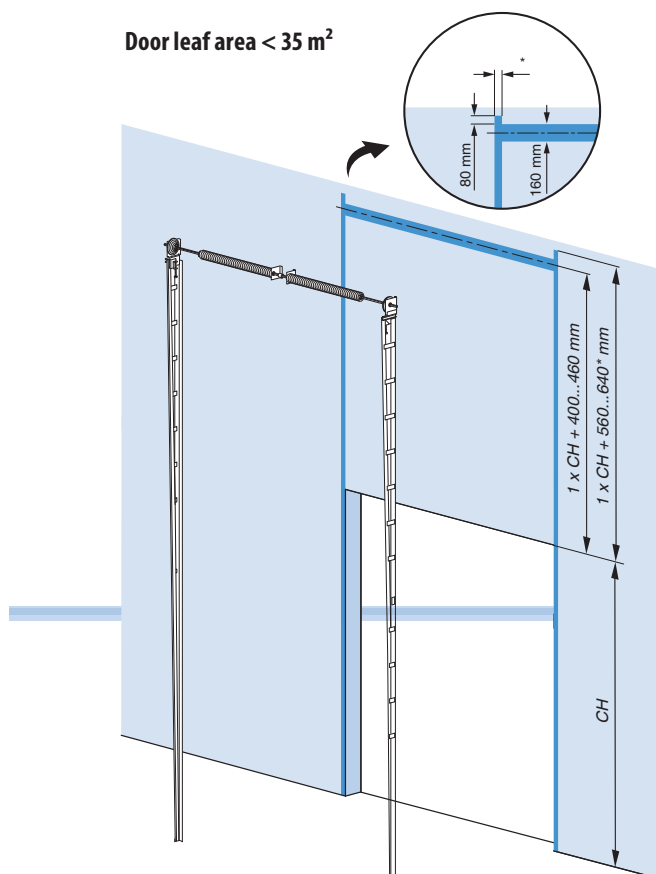
Path taken by the cables and door leaf as the door opens



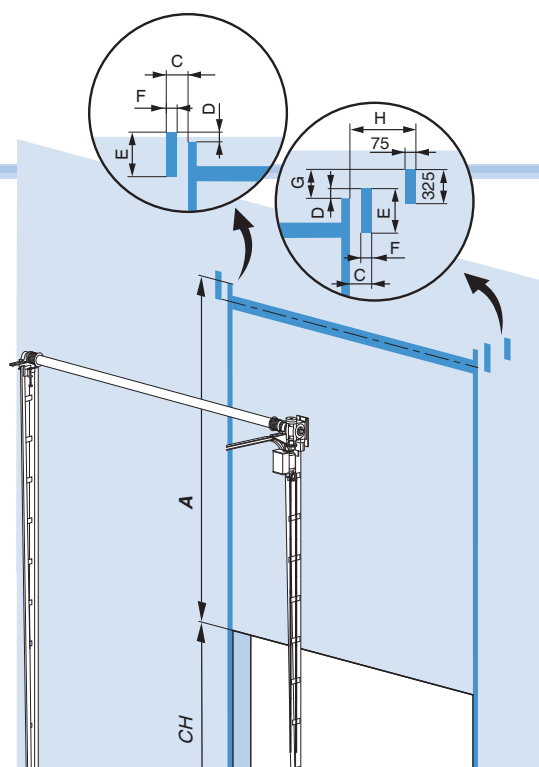
9.1 Installation space requirement – vertical tracks and spring shaft assembly

- Minimum width of the mounting surface (frame) *, see General information page.
- Minimum mounting surface height (mounting frame): $2 \times CH + 560 \dots 640^*$ mm.
* Engine mounting width depends on engine type.
- For additional bearing plates (or several springs), a continuous horizontal mounting surface is required from a door surface area of 15 m^2 .
- A horizontal surface of approx 80 mm high immediately above the clear opening (sealing surface for the top seal) is required. This surface must be smooth and flush with the other mounting surfaces. If a mounting frame is used, the simplest solution is to insert a cross member in this area.
- FLS Springless sectional door is possible for door leaf areas up to 48 m^2 .

Door leaf area < 35 m^2



Door leaf area < 35 m^2
FLS Springless sectional

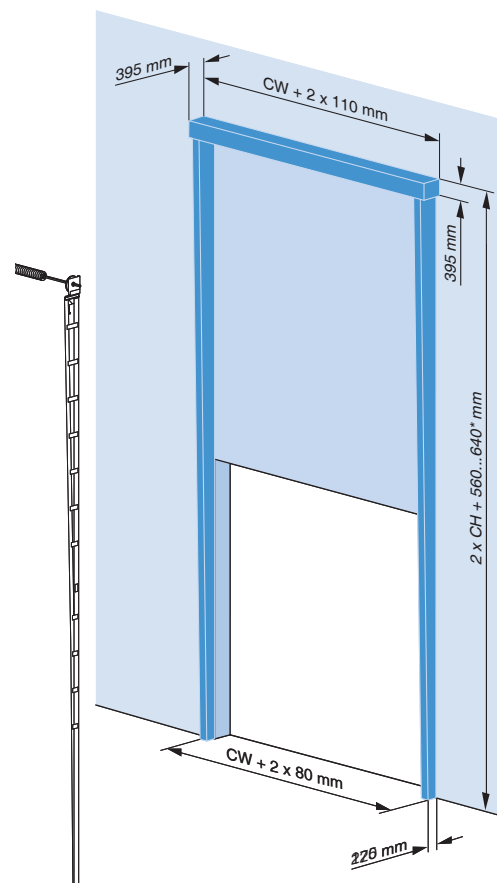


FLS door leaf areas**	A	C	D	E	F	G	H
up to 20 m^2	CH + 560 mm	140 mm	63 mm	356 mm	80 mm	225 mm	315 mm
up to 48 m^2	CH + 560 mm	160 mm	95 mm	415 mm	100 mm	300 mm	265 mm

**depending on the weight of the door surface

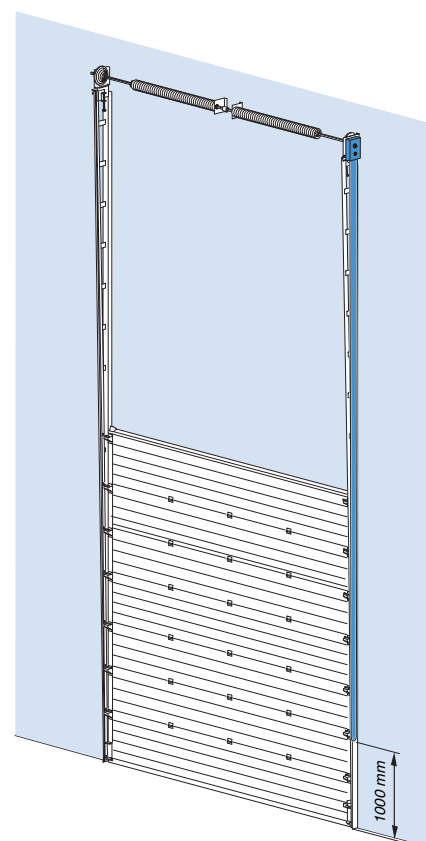
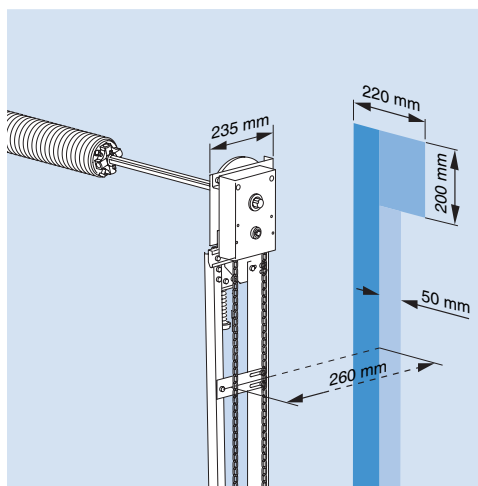
9.2 Installation space requirements – complete track system

- Minimum space required for the spring shaft assembly: $CW + 2 \times 110 \text{ mm}$,
FLS Springless sectional door: $CW + 2 \times 140 \text{ mm}$.
- Minimum mounting surface height (mounting frame): $2 \times CH + 560 \dots 640^* \text{ mm}$.
* Engine mounting width depends on engine type.



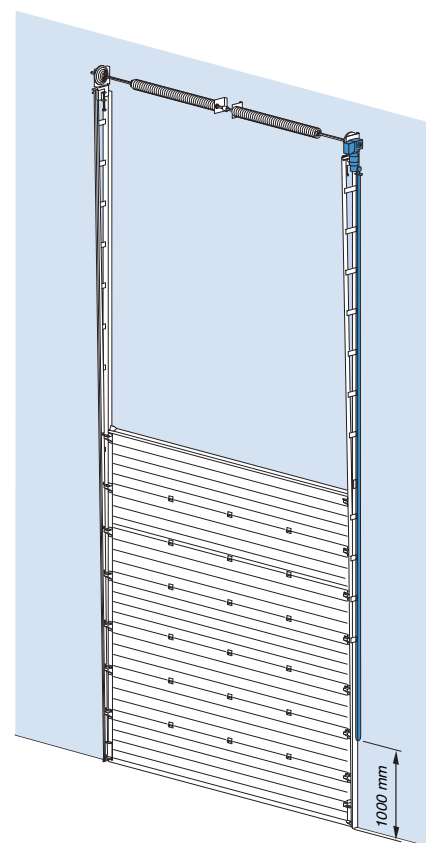
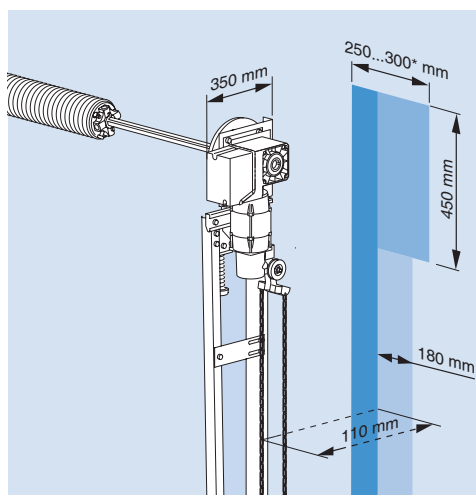
9.3 Installation space requirements for installation and operation – chain hoist

- Minimum space required for the installation of the chain hoist: approx. $235 \times 220 \times 200 \text{ mm}$, the dimension of 220 mm is the dimension required for the chain hoist when in the installed state. If a chain hoist needs to be installed on an existing door by sliding it onto the spring shaft, 300 mm is required. With some extra work (loosening and pulling back the spring shaft), it is always possible to replace or install a chain hoist, even if no more than 220 mm is available.
- Chain space requirement down to operating height: approx. $260 \times 50 \text{ mm}$.
- The chain hoist can be installed on the right-hand side or the left-hand side, as long as there is adequate space.



9.4a Installation space requirements for installation and operation (emergency chain) - electric drive

- Minimum space required for the installation of the electric drive: approx. 350 x 250...300 x 450 mm, the dimension of 250 mm is the dimension required for the electric drive when in the installed state. If an electric drive needs to be installed on an existing door by sliding it onto the spring shaft, 350 mm is required. With some extra work (loosening and pulling back the spring shaft), it is always possible to replace or install an electric drive, even if no more than 250...300 mm is available.
- Emergency chain space requirement down to operating height: approx. 110 x 180 mm.
- The electric drive can be installed on the right-hand side or the left-hand side, as long as there is adequate space.
- * Springless electric drive (FLL): this requires an additional installation space of 590 mm (L) x 350 mm (W) and 430 mm (H).
- The chain hoist can be installed on the right-hand side or the left-hand side, as long as there is adequate space.
- Minimum free space for electric actuation with **FLS Springless sectional door** see 8.4b



9.4b Installation space requirements for installation and operation (emergency chain) - electric drive, FLS Springless sectional door

- See table for minimum free space for electric operation. Please note: Dimension A applies to the installation of the motor during initial installation. If the motor is to be fitted subsequently to an already installed door, an additional free space of A + 50 mm must be taken into account. Dimension A is possible with some additional work, whereby the shafts have to be shifted, etc.
- Minimum free space for the chain up to the operating height: approx. 450 x 200 mm. Dimension turning point chain is at height of 1000 mm.
- The electric drive can be installed on the right-hand side or the left-hand side, as long as there is adequate space.

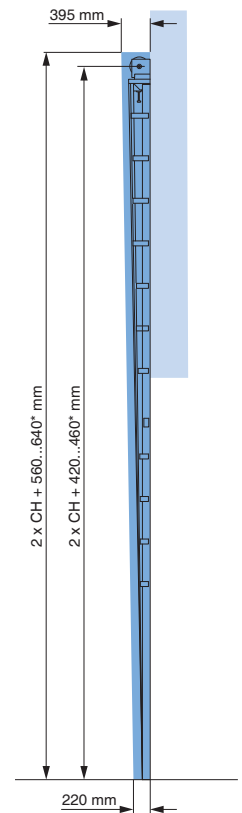
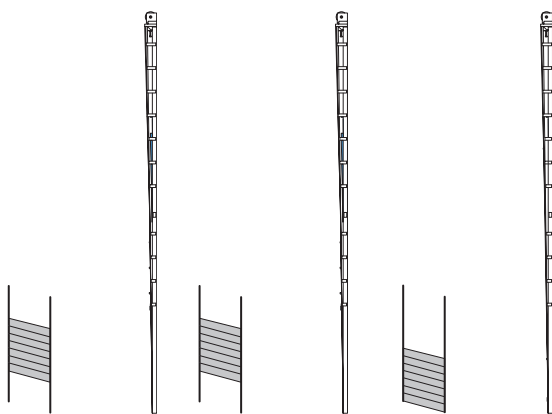
FLS door leaf areas*	A*	B	C	D	E	F	G	H
up to 20 m ²	400 mm	810 mm	625 mm	400 mm	140 mm	140 mm	770 mm	400 mm
up to 48 m ²	325 mm	855 mm	625 mm	550 mm	160 mm	140 mm	770 mm	510 mm

*depending on the weight of the door surface

9.5 Space requirement for unobstructed door movement, various key dimensions

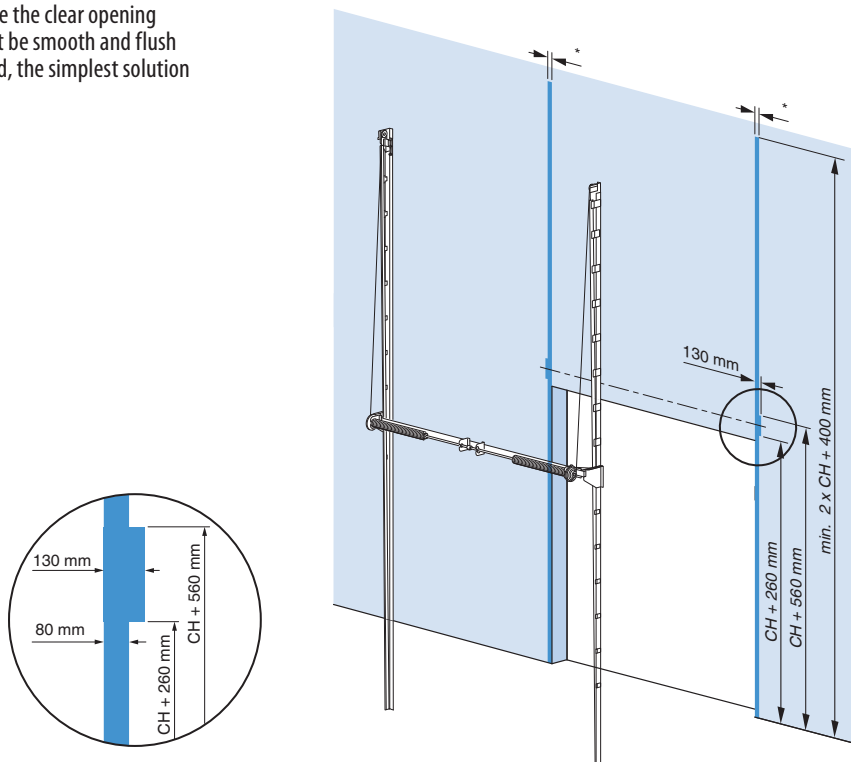
- Extra free space is required for unobstructed door movement. The entire path taken by the door when opening and closing must be free of obstacles.
* Installation height depends on door height.
- Chain space requirement down to operating height: approx. 110 x 180 mm.
- The chain hoist can be installed on the right-hand side or the left-hand side, as long as there is adequate space.

Verloop kabel en deurblad in verschillende openingsstadia



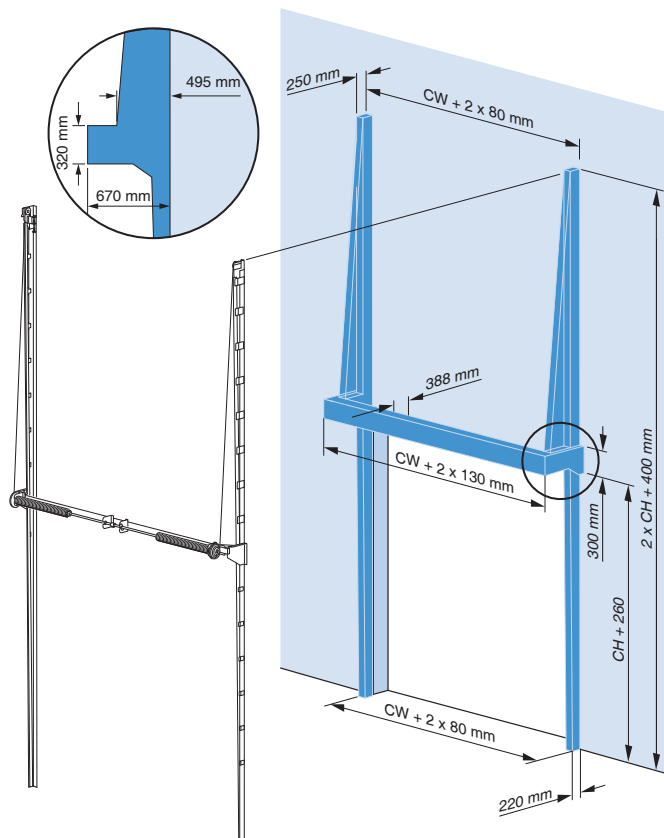
10.1 Installation space requirements – vertical tracks

- Minimum width of the mounting surface (frame) *, see General information page.
- Minimum mounting surface height (mounting frame): $2 \times CH + 400 \text{ mm}$
- A horizontal surface of approx 80 mm high immediately above the clear opening (sealing surface for the top seal) is required. This surface must be smooth and flush with the other mounting surfaces. If a mounting frame is used, the simplest solution is to insert a cross member in this area.



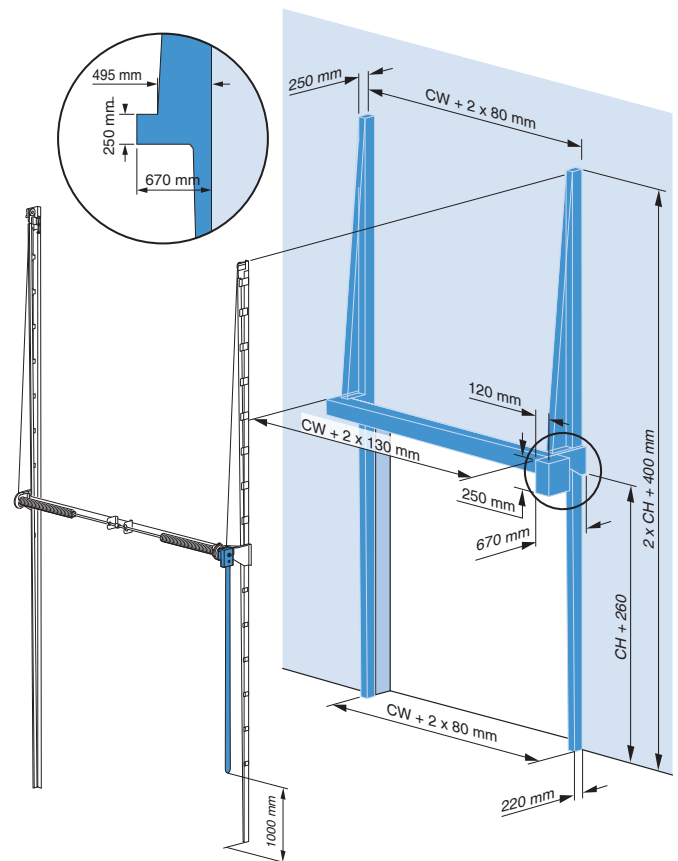
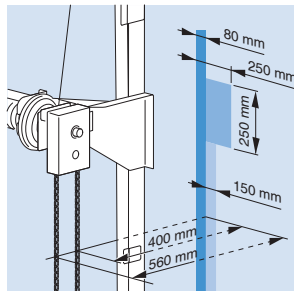
10.2 Installation space requirements – complete track system, cable guides and spring shaft assembly

- Space requirement for the cable guides left and right: width 80 mm, from top to bottom, 270 mm to 450 mm.
- The spring shaft assembly requires an installation space of 670 x 320 mm.
- Minimum space required for the spring shaft assembly: $CW + 2 \times 130 \text{ mm}$.



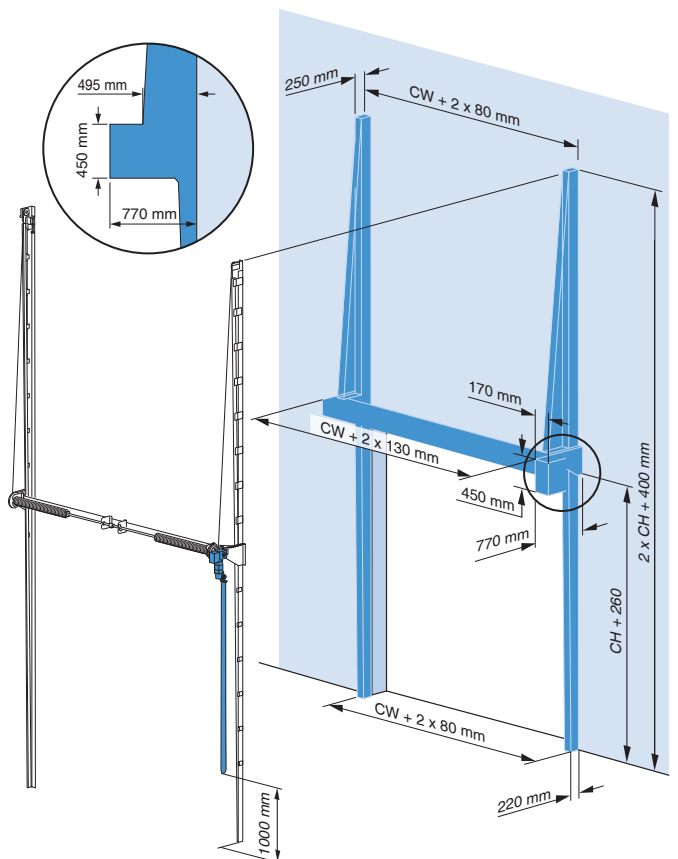
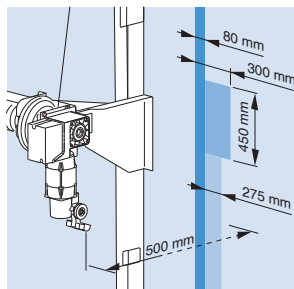
10.3 Installation space requirements for installation and operation – chain hoist

- Space requirement for the cable guides left and right: width 80 mm, from top to bottom, 270 mm to 450 mm.
- Minimum space required for the installation of the chain hoist: approx. 250 x 250 x 250 mm.
- Chain space requirement down to operating height: 150 x 560 mm.
- The chain hoist can be installed on the right-hand side or the left-hand side, as long as there is adequate space.



10.4 Installation space requirements for installation and operation (emergency chain) - electric drive

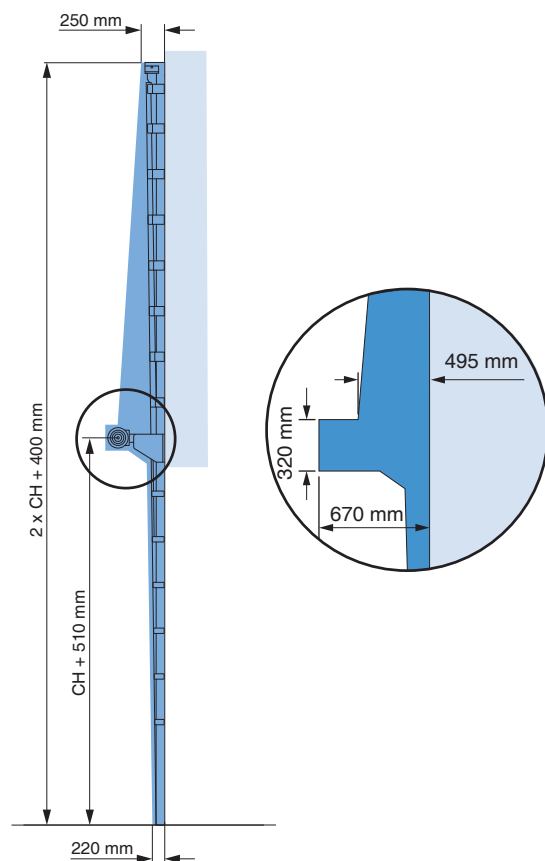
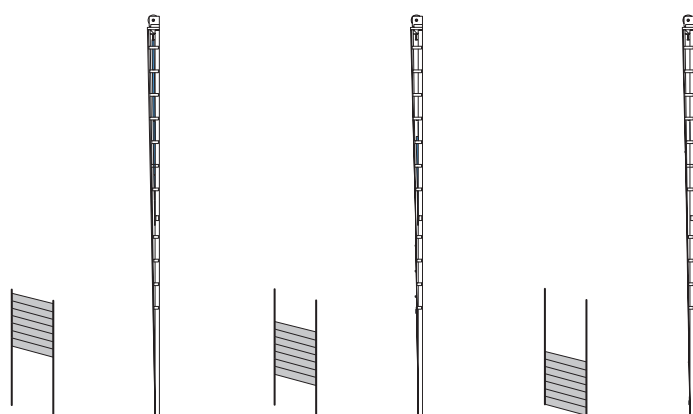
- Space requirement for the cable guides left and right: width 80 mm, from top to bottom, 270 mm to 450 mm.
- Minimum space required for the installation of the electric drive: approx. 300 x 300 x 450 mm.
- Emergency chain space requirement down to operating height: 275 mm.
- The electric drive can be installed on the right-hand side or the left-hand side, as long as there is adequate space.



10.5 Space requirement for unobstructed door movement, various key dimensions

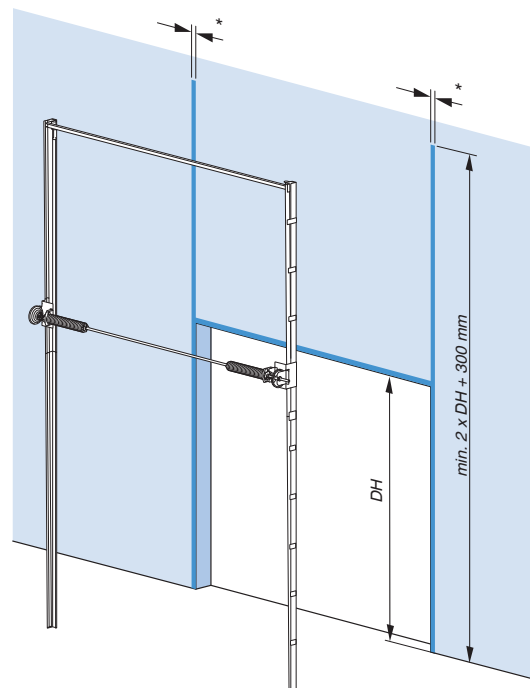
- Extra free space is required for unobstructed door movement. The entire path taken by the door when opening and closing must be free of obstacles.

Path taken by the cables and door leaf as the door opens



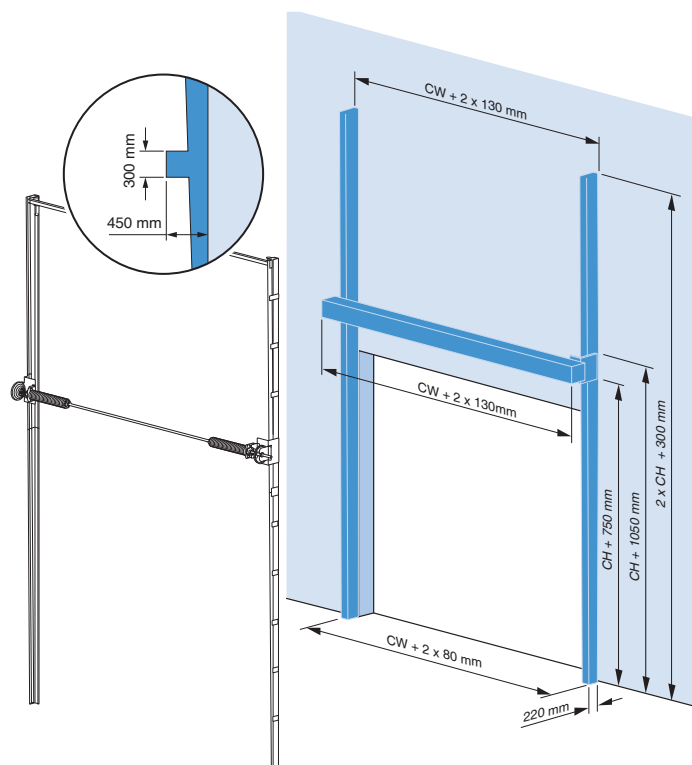
11.1 Installation space requirement – vertical tracks

- The T 500 DS is not suitable for an ISO 80 mm sectional door.
- Minimum width of the mounting surface (frame) *, see General information page.
- Minimum mounting surface height: $2 \times CH + 300 \text{ mm}$.
- A horizontal surface of approx 80 mm high immediately above the clear opening (sealing surface for the top seal) is required. This surface must be smooth and flush with the other mounting surfaces. If a mounting frame is used, the simplest solution is to insert a cross member in this area.



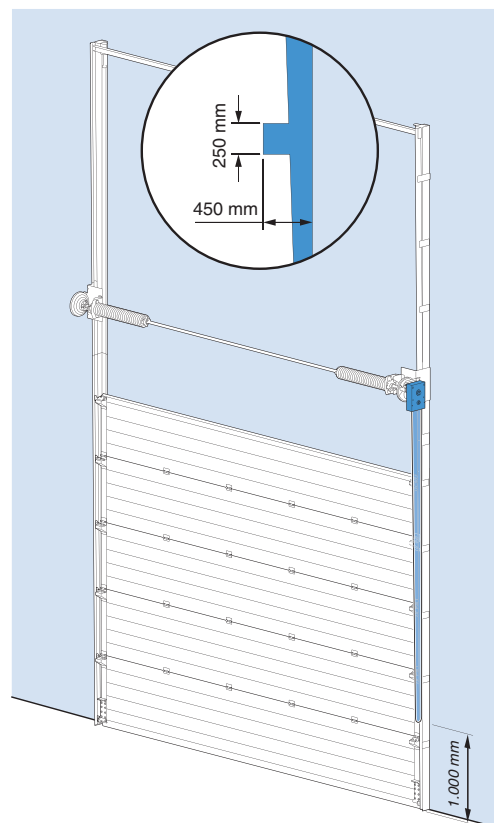
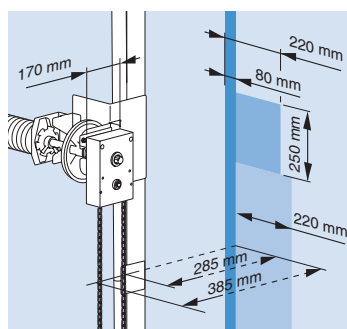
11.2 Installation space requirements – complete track system

- Space requirement for the cable guides left and right: width 80 mm, from top to bottom, 270 mm to 450 mm.
- The spring shaft assembly requires an installation space of 300 x 450 mm.
- Minimum space required for the spring shaft assembly: $CW + 2 \times 130 \text{ mm}$.



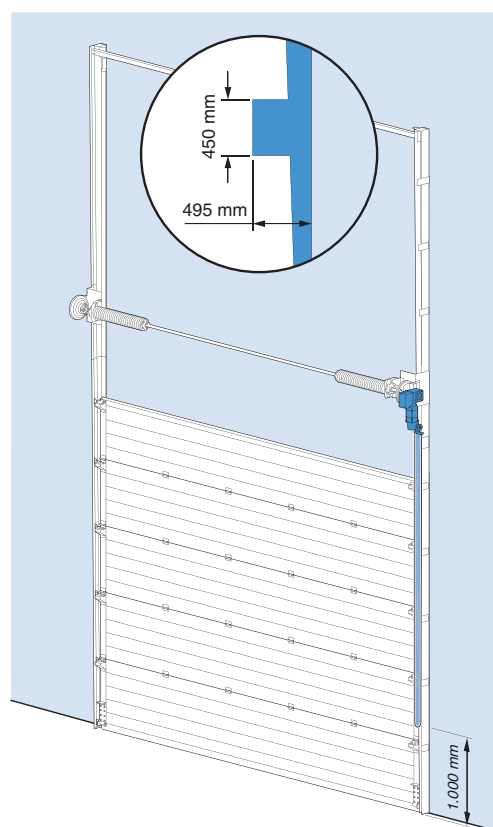
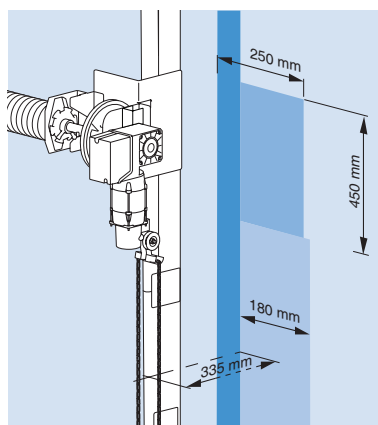
11.3 Installation space requirements for installation and operation – chain hoist

- Space requirement for the cable guides left and right: width 80 mm, from top to bottom, 270 mm to 450 mm.
- Minimum space required for the installation of the chain hoist: approx. 170 x 220 x 250 mm.
- Chain space requirement down to operating height: 350 x 385 mm.
- The chain hoist can be installed on the right-hand side or the left-hand side, as long as there is adequate space.



11.4 Installation space requirements for installation and operation (emergency chain) - electric drive

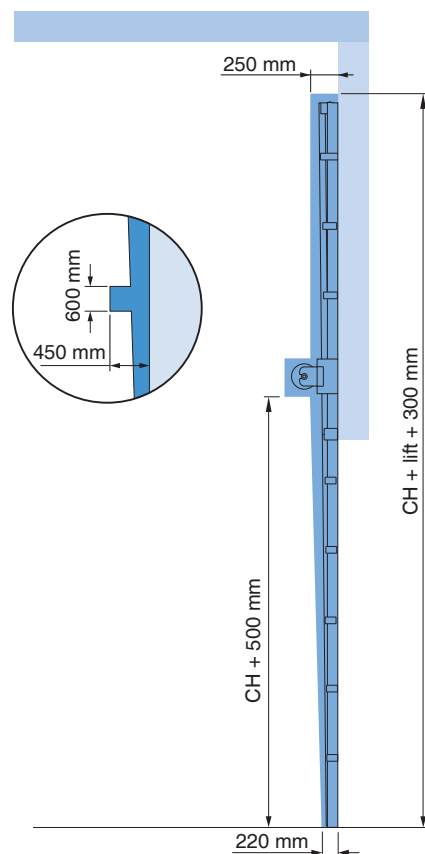
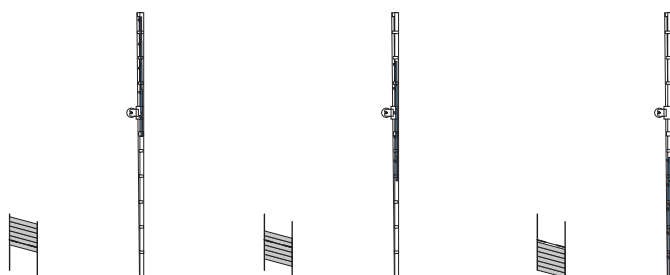
- Space requirement for the cable guides left and right: width 80 mm, from top to bottom, 270 mm to 450 mm.
- Minimum space required for the installation of the electric drive: approx. 350 x 250 x 450 mm.
- Emergency chain space requirement down to operating height: 400 x 335 mm.
- The electric drive can be installed on the right-hand side or the left-hand side, as long as there is adequate space.



11.5 Space requirement for unobstructed door movement, various key dimensions

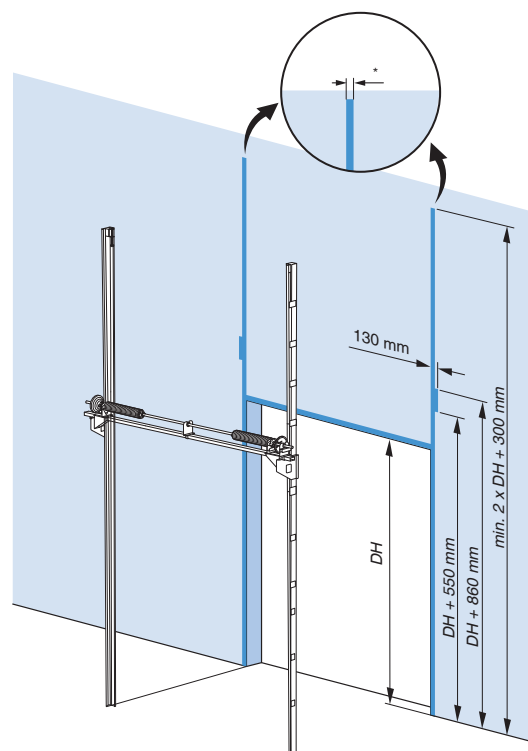
- Extra free space is required for unobstructed door movement. The entire path taken by the door when opening and closing must be free of obstacles.

Path taken by the cables and door leaf as the door opens



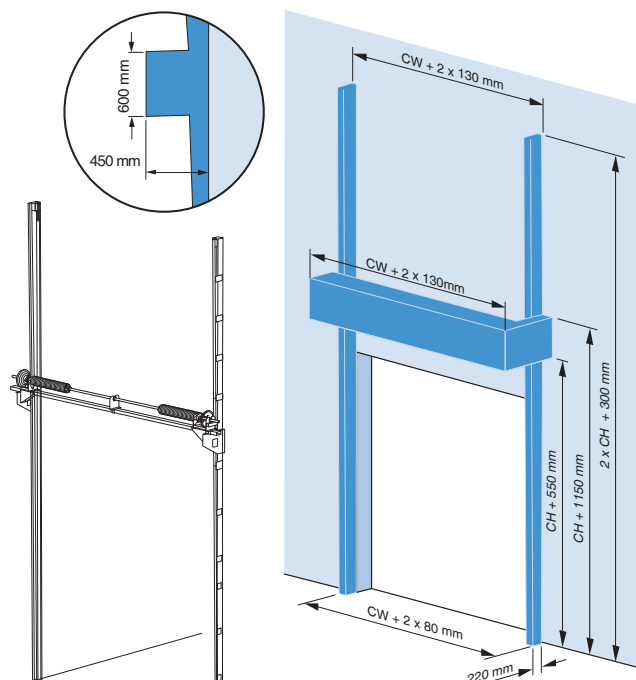
12.1 Installation space requirement – vertical tracks

- The T 500 DS is not suitable for an ISO 80 mm sectional door.
- Minimum width of the mounting surface (frame) *, see General information page.
- Minimum mounting surface height: $2 \times CH + 300 \text{ mm}$.
- A horizontal surface of approx 80 mm high immediately above the clear opening (sealing surface for the top seal) is required. This surface must be smooth and flush with the other mounting surfaces. If a mounting frame is used, the simplest solution is to insert a cross member in this area.



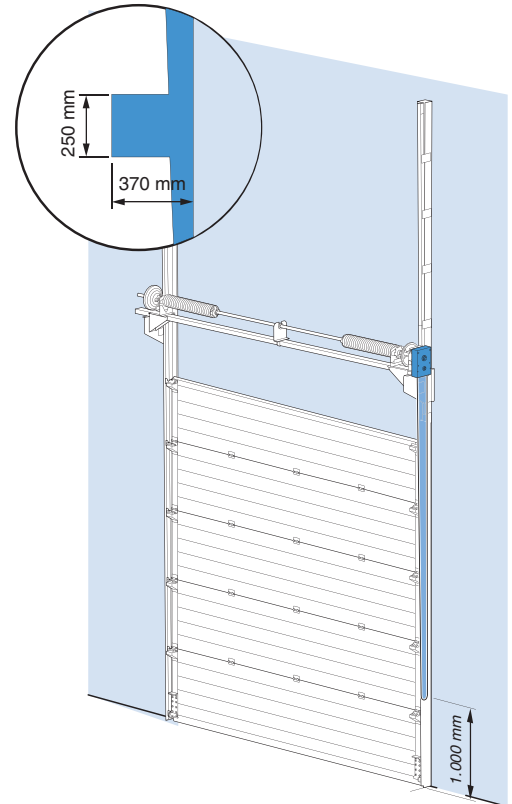
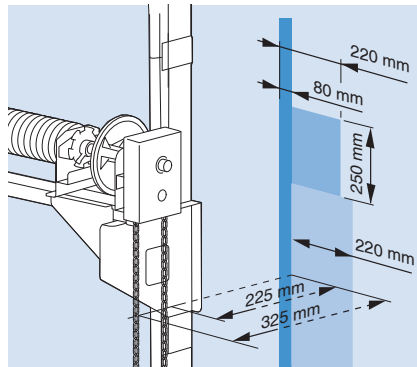
12.2 Installation space requirements – complete track system

- Space requirement for the cable guides left and right: width 80 mm, from top to bottom, 270 mm to 450 mm.
- The spring shaft assembly requires an installation space of 450 x 600 mm.
- Minimum space required for the spring shaft assembly: $CW + 2 \times 100 \text{ mm}$.



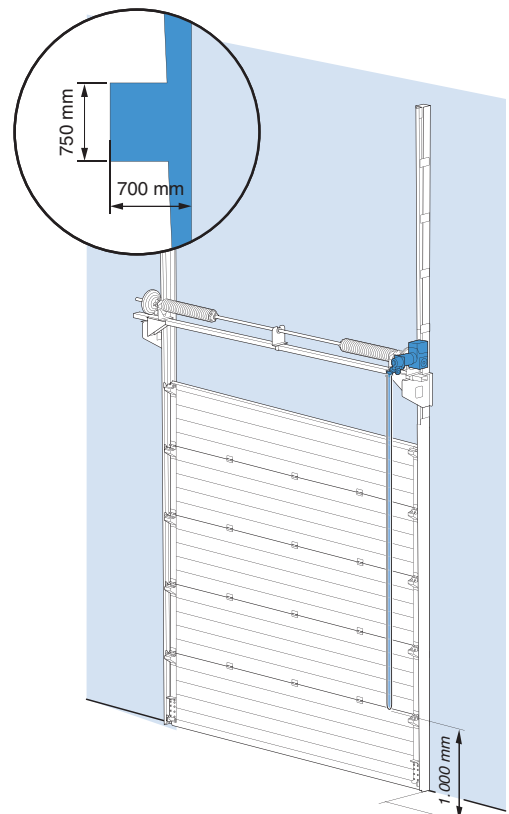
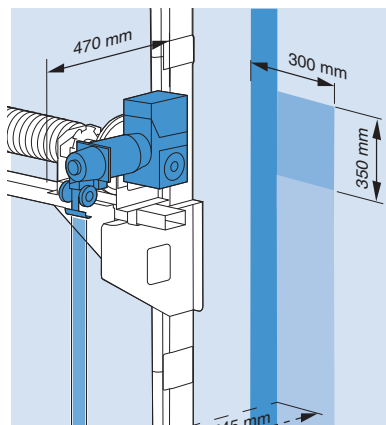
12.3 Installation space requirements – roof angle track system

- Space requirement for the cable guides left and right: width 80 mm, from top to bottom, 270 mm to 450 mm.
- Minimum space required for the installation of the chain hoist: approx. 170 x 220 x 250 mm.
- Chain space requirement down to operating height: 220 x 325 mm.
- The chain hoist can be installed on the right-hand side or the left-hand side, as long as there is adequate space.



12.4 Installation space requirements for installation and operation (emergency chain) - electric drive

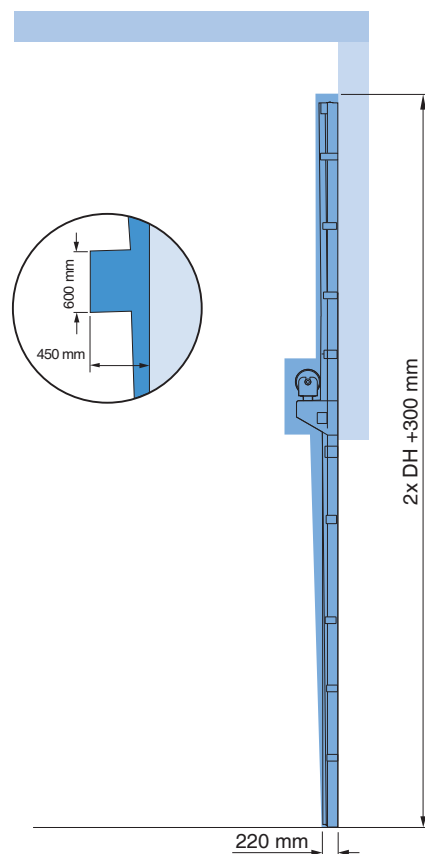
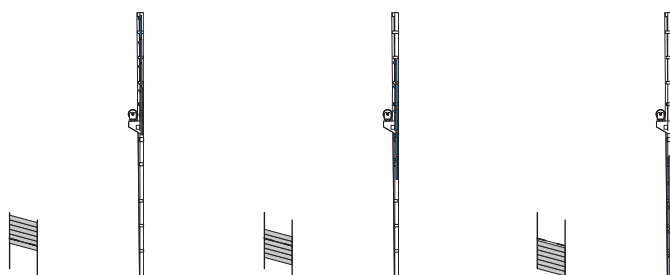
- Space requirement for the cable guides left and right: width 80 mm, from top to bottom, 270 mm to 450 mm.
- Minimum space required for the installation of the electric drive: approx. 470 x 300 x 350 mm.
- Emergency chain space requirement down to operating height: 545 x 300 mm.
- The electric drive can be installed on the right-hand side or the left-hand side, as long as there is adequate space.



12.5 Installation space requirements for installation and operation (emergency chain) - electric drive

- Extra free space is required for unobstructed door movement. The entire path taken by the door when opening and closing must be free of obstacles.

Path taken by the cables and door leaf as the door opens





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