INSTRUCTION FOR USING CONSOLE KITS №1 AND №2

PRODUCED BY ROLL GRAND LLC

ATTENTION! This document describes one of the possible options for preparing the site and using Console Kits produced by **ROLL GRAND LLC**, and provides recommendations for further operation of the Console-type gates.

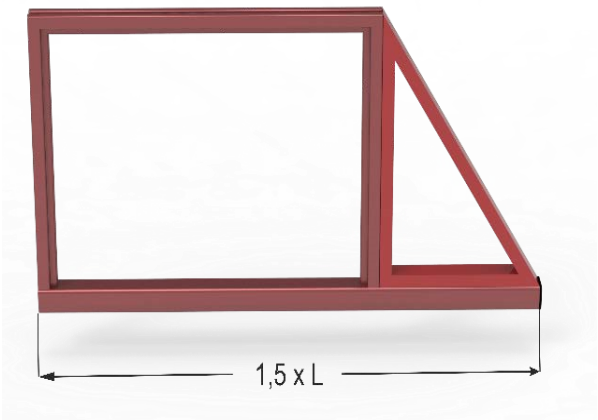
PREPARATORY WORKS

1. Check the clearance requirements for gate installation.

In the diagram, the gate clearance and the adjacent fence are schematically shown. The diagram considers a variant where the gates swing to the right side.

Since the gates will move along the fence within the territory, it is necessary to ensure there are no obstacles on this path. Pay attention to the slope (if present), trees growing in the gate movement zone, linearity of the gates, etc. The rollback area for console gates must be free of obstacles and larger than the gate clearance. We recommend considering the following ratio for all sizes of Console-type gates:

L of the guide = 1.5 x L of the gate clearance.



Thus, the length of the tail section of the gate leaf equals 50% of the gate clearance length.

Therefore, the rollback area for the gates should be at least one and a half times longer than the gate clearance length. The width of the rollback area is usually sufficient at 400 mm.

To install the console gates, the following steps are necessary:

- Prepare a reinforced concrete base (mark the pit, excavate the soil, fabricate and install the embedded element, pour the pit with concrete);

- If gate automation is planned, prepare the power cable connections;

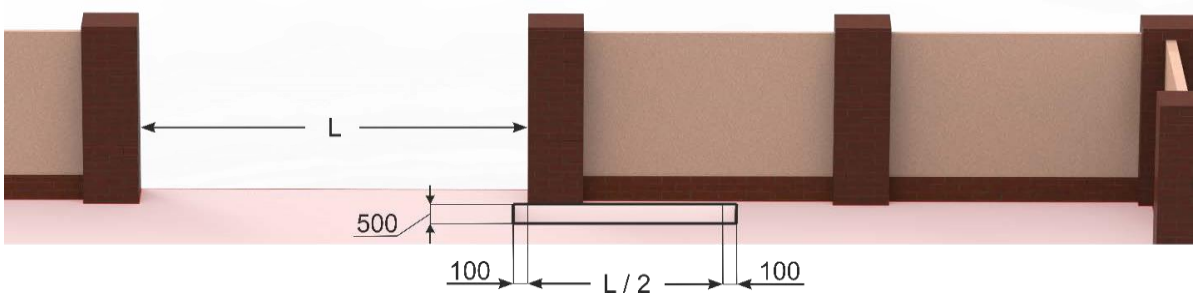
- Install the gates and, if necessary, the posts;

- Install the gate automation elements (drive, photo barriers, signal lamp, etc.) if required.

2. Fabrication of the concrete base for Console gates.

2.1. In the direction of the gate rollback, starting from the edge of the clearance, measure along the fence a distance equal to half the clearance length + 100 mm. From the same edge of the clearance, in the opposite

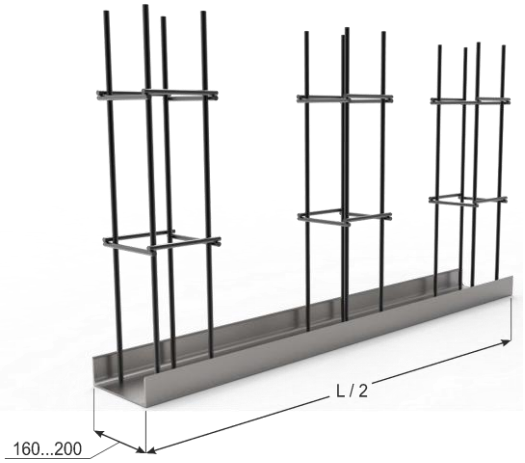
direction, measure 100 mm. Mark a point 500 mm away from the fence. Thus, you get the perimeter of the pit that needs to be prepared for the concrete base (see figure).



If the gates are to be automated, provisions must be made for wiring under the roadway between the posts. Metal or plastic pipes with an inner diameter of at least 20 mm can be used for this purpose.

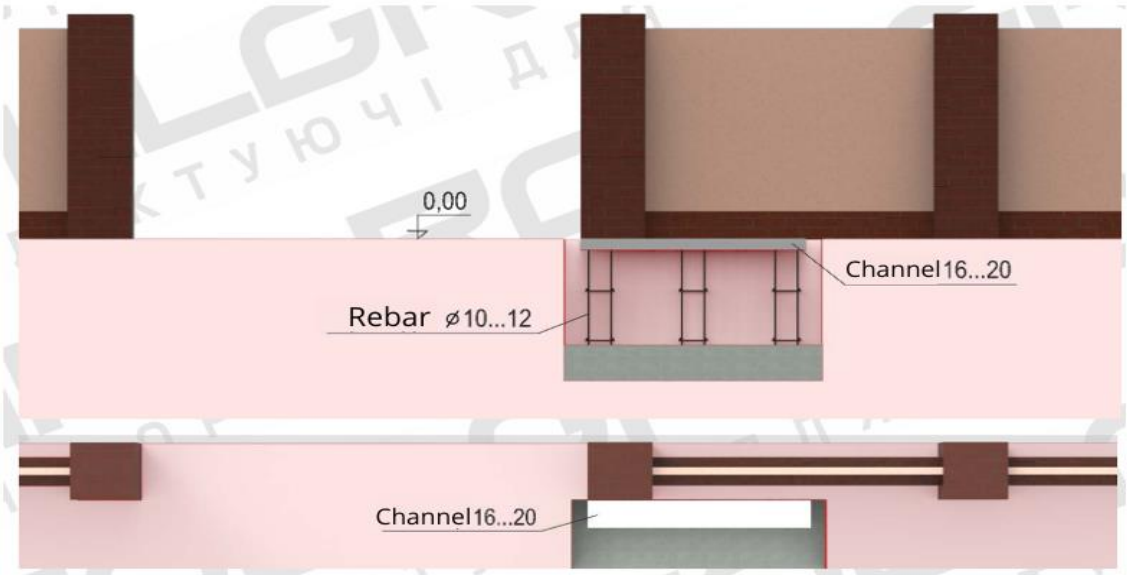
2.2. The excavation depth should be no less than 700 mm depending on the frost penetration depth.

2.3. Fabrication of the embedded element. For fabrication of the embedded element, use I-beam 16...20, its length equaling the length of the tail section; steel rebar Ø 10...12 mm for connections and reinforcement mesh. First, weld four pieces of rebar approximately 1000 mm long each to the I-beam blank.



Then, cross ties are welded using the same rebar (see figure).

2.4. Installation of the embedded element in the prepared pit. Place the metal structure in the pit with the rebar facing down and secure it so that the side surface of the I-beam snugly fits against the fence post. The body of the I-beam must be strictly horizontal (use a level) and parallel to the gate movement line.

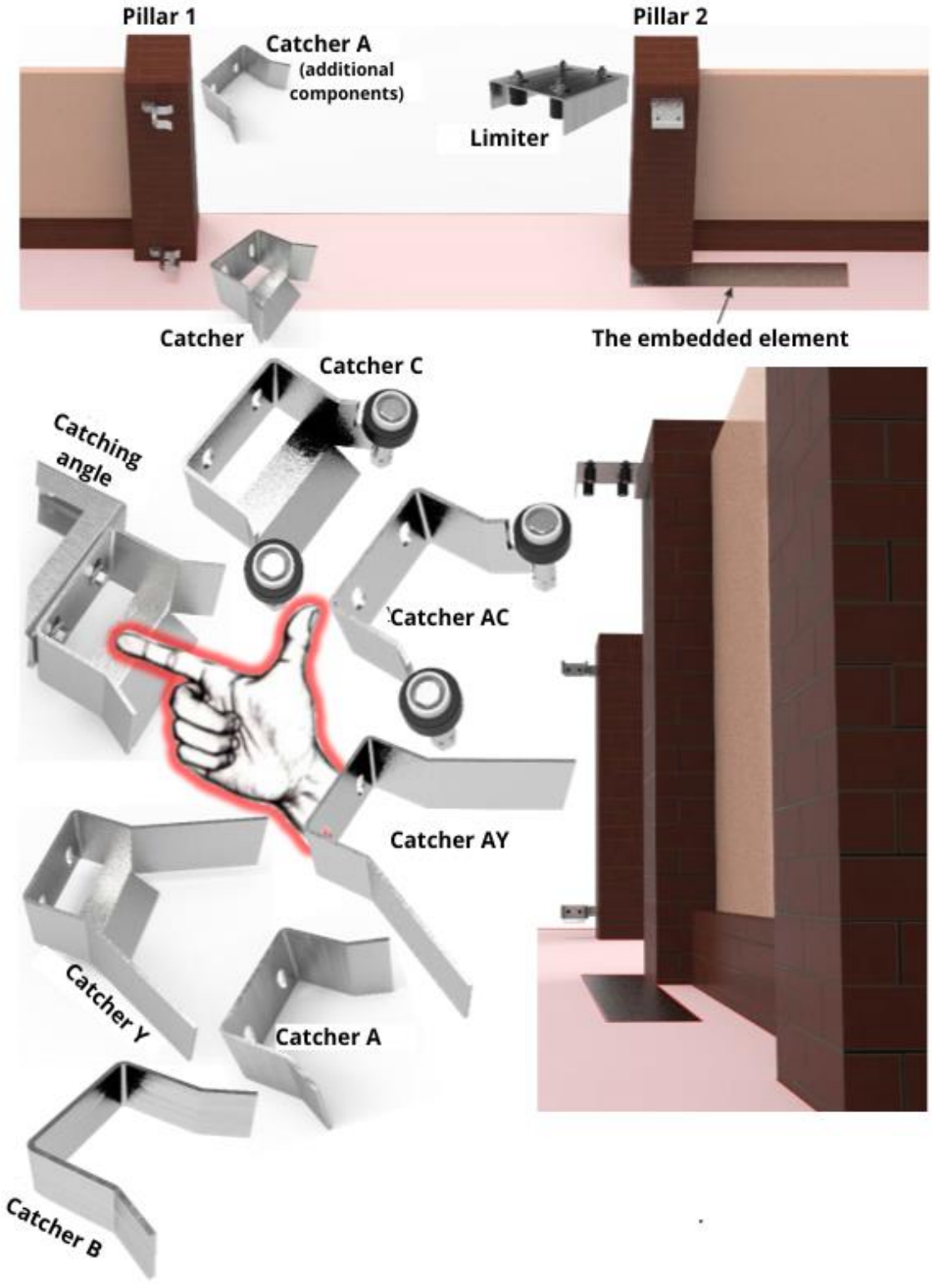


Particular attention should be paid to the level of the top surface of the embedded element. Depending on where you set the embedded element height-wise, the gap between the road surface and the bottom edge of the gates will vary.

If the embedded element is installed flush with the road surface level, and adjustable supports are used, the minimum gap under the gates will be 110 mm.

It will be possible to increase the gap by several centimeters using Adjustable Supports, but decreasing it while maintaining the technological attachment of the Carriage will not be possible.

If a gap smaller than 110 mm is required between the road surface and the bottom edge of the gates, the embedded element should be installed below the driving surface at the desired distance.



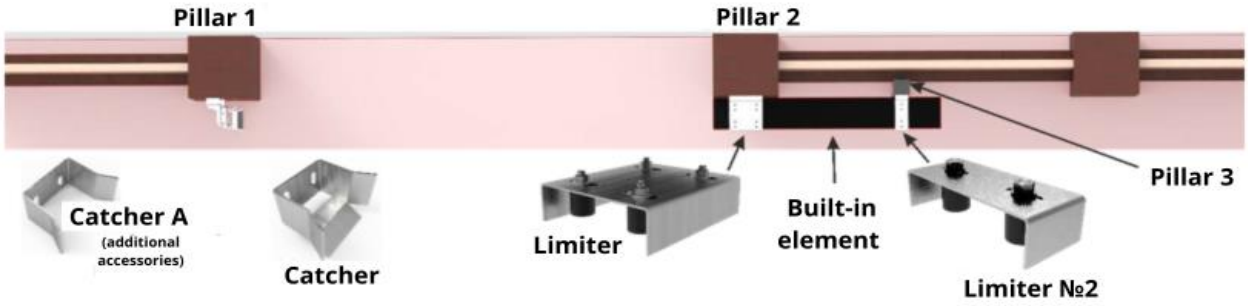
Depending on the existing possibilities of your fencing structures, the following preparation options are presented:

- Post 1 is used for attaching Catchers; Post 2 is used for attaching the Limiter (the easiest variant).

For attaching Catchers, a Corner Catcher can be used.

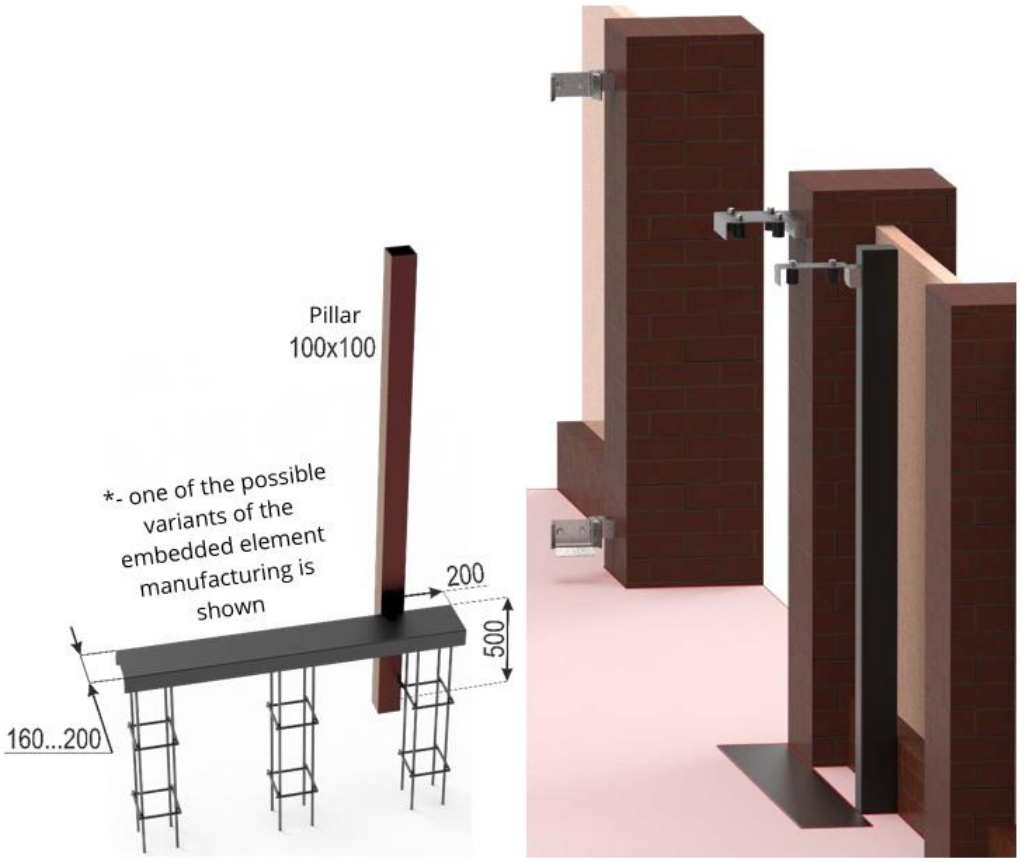
Considering the wide range of catchers produced by **ROLL GRAND** available today, only the lower Catcher is included in the standard kit. Depending on the gate design and operating conditions, additional components should be determined for further use.

- Post 1 is used for attaching Catchers; Post 2 is used for attaching the Limiter; Post 3 is used for attaching an additional Limiter to reinforce the gate structure during operation (as an additional option, Limiter №2 can be used).



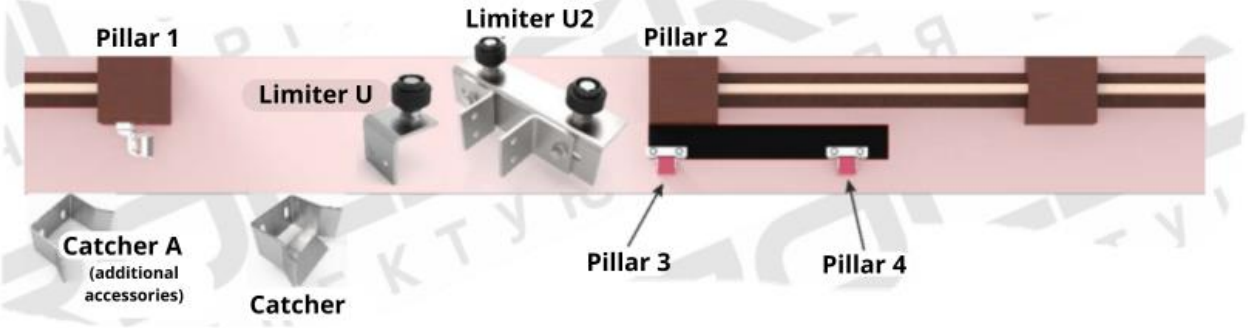
This construction variant is characterized by increased stability of the gate panel under wind loads during opening and closing.

We recommend using a profile tube measuring 100x100 mm as a reinforcing post.



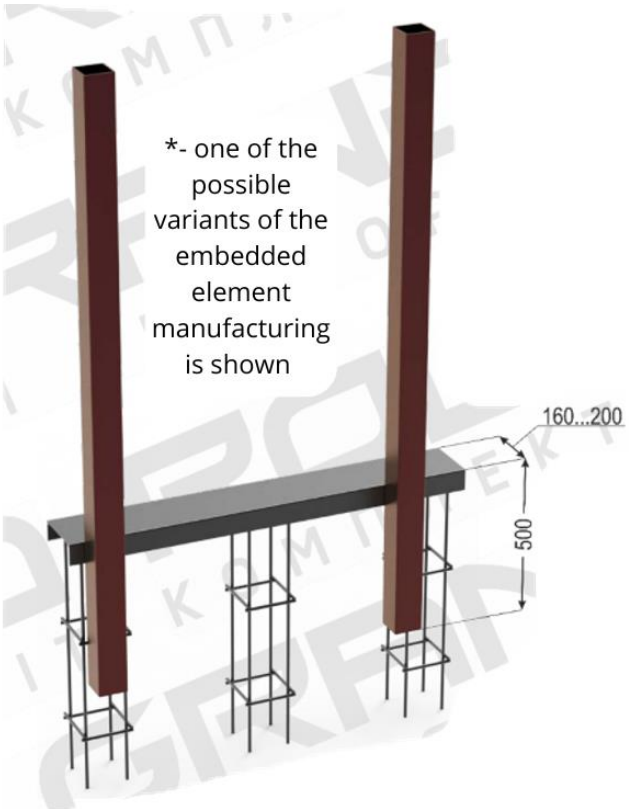
The height of Post 3 should be 50 mm higher than the distance from the foundation base to the top edge of the gates. The ready post is installed in the pit and connected to the embedded element according to the provided diagram.

- Separately, we should address cases where Post 2 cannot be used as a supporting post for Console-type gates or when the upper edge of the gates is decorated with elements such as "Spikes" and other forged elements, as well as cases where it is necessary to install two supporting posts. Two supporting posts are recommended for solid Console-type gates covering clearances greater than 4500 mm inclusive, to increase the stability of the gate panel under wind loads during opening and closing.

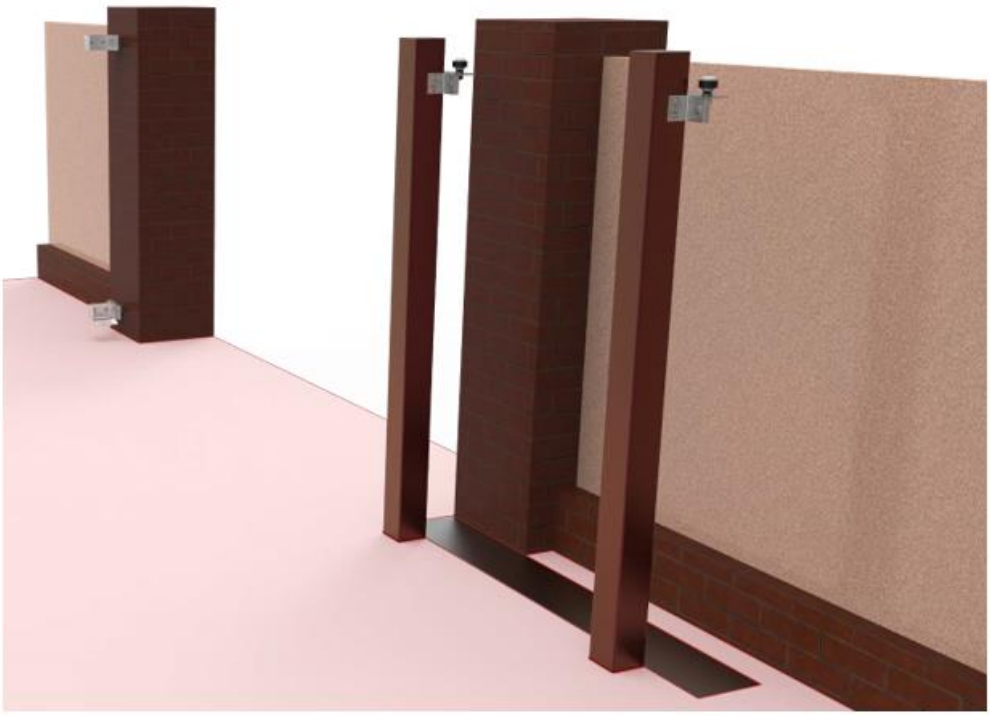


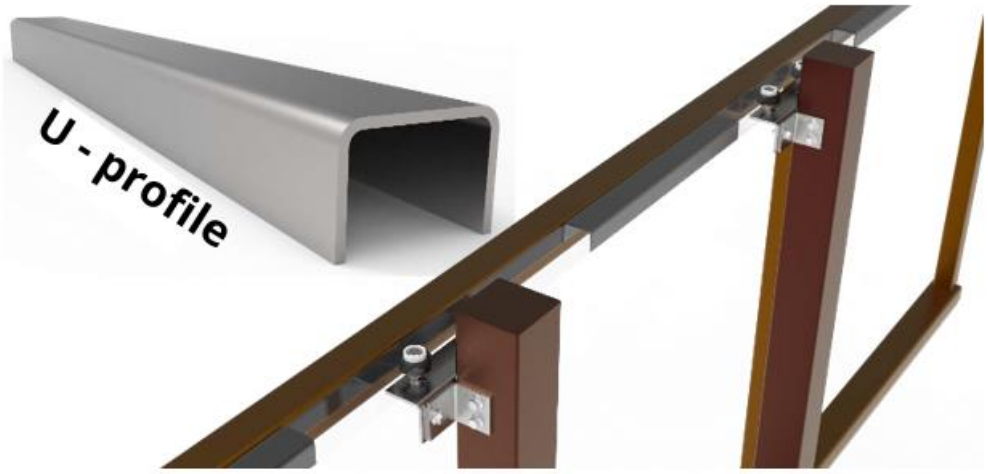
Prepare one or two support posts depending on the need (weak posts or wide gates). The size of the posts should be 50 mm taller than the distance from the foundation base to the top edge of the gates.

The ready posts (or post) are installed in the pit and connected to the embedded element according to the provided diagram.



In such cases, to increase the stability of the gate panel under wind loads during opening and closing, we recommend using a U-profile attached directly to the gate leaf. On Posts 3, 4, special Limiters U or Limiters U2 are attached.





2.5. After installing the embedded element, the pit must be poured with concrete. The concrete level in the pit must not cover the surface of the embedded element. After pouring the embedded elements with concrete, allow time for the mixture to cure (not less than 6 days).

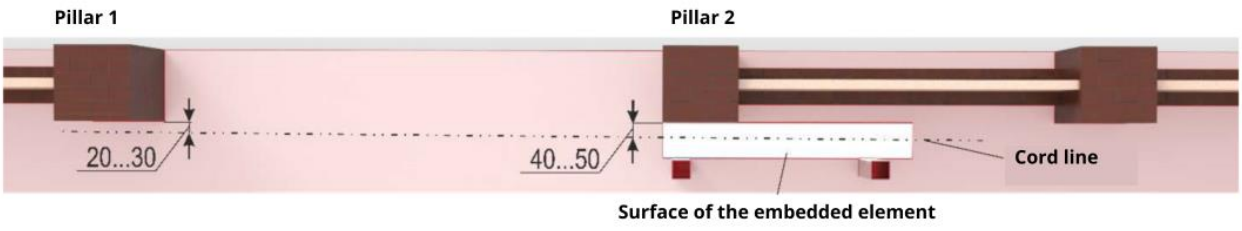
INSTALLATION OF GATES (*- one of the possible variants)

1. Determining and marking the gate movement line.

Stretch a master string along the fence line from Post 1 to the end of the concrete base. At this point, the distance from Post 1 to the string should be 20...30 mm, and from the string to Post 2 – 40...50 mm.

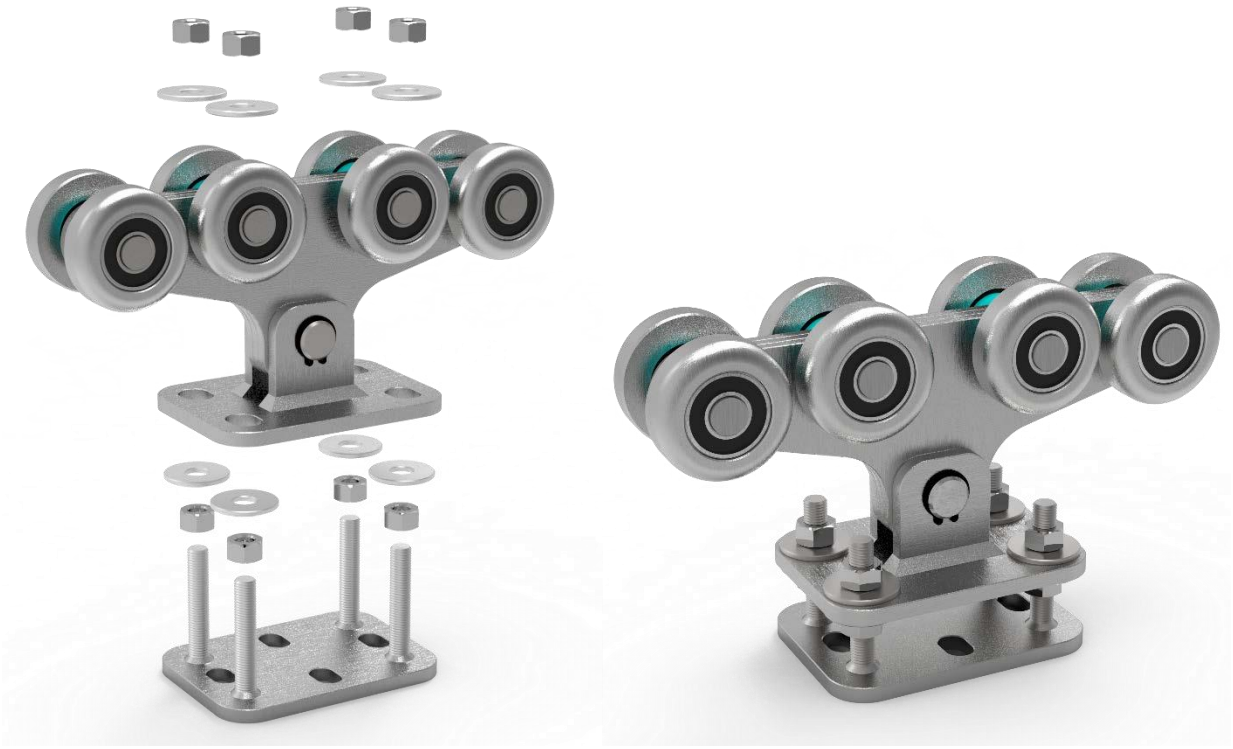
It's best to position the string at a height of 150...200 mm – this will be the tangent line to the outer edge of the Large Guide.

(*- one of the possible variants for marking the movement line of Console-type gates)



2. Preparation of the Carriages for installation (provided Adjustable Supports are used, which are part of the additional components in the standard Console kits).

First, fix the Adjustable Supports on the Carriage platforms as shown in the diagrams.



3. Determining the boundary positions of the Carriages.

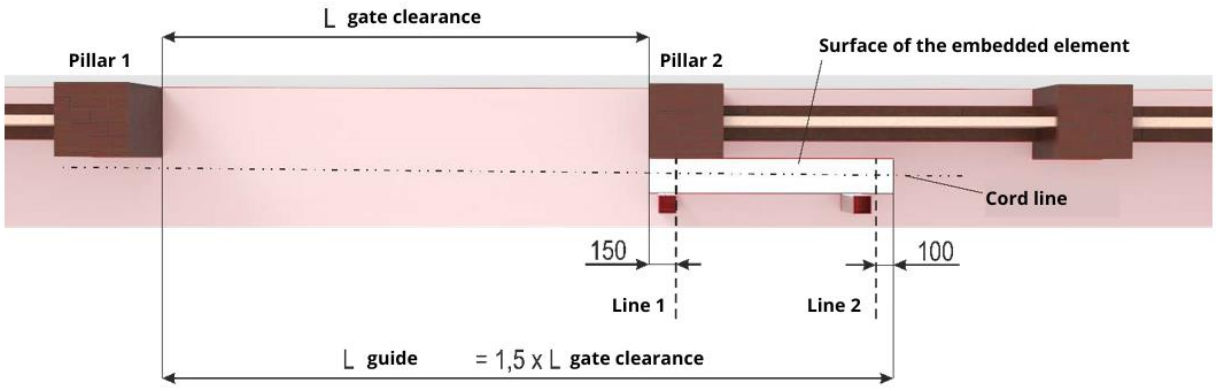
From the edge of the clearance along the plane of the embedded element, step back 150 mm and draw a line – this will be Line 1 – the tangent to the front edge of the first Adjustable Support. To determine the extreme position of the second Adjustable Support, perform the following actions:

- Measure the total length of the gates, including the tail section;

- Subtract 100 mm from the obtained size;

- Lay out the obtained distance from the edge of Post 1 along the clearance on the plane of the embedded element – this will be Line 2 – the tangent to the outer edge of the second Adjustable Support.

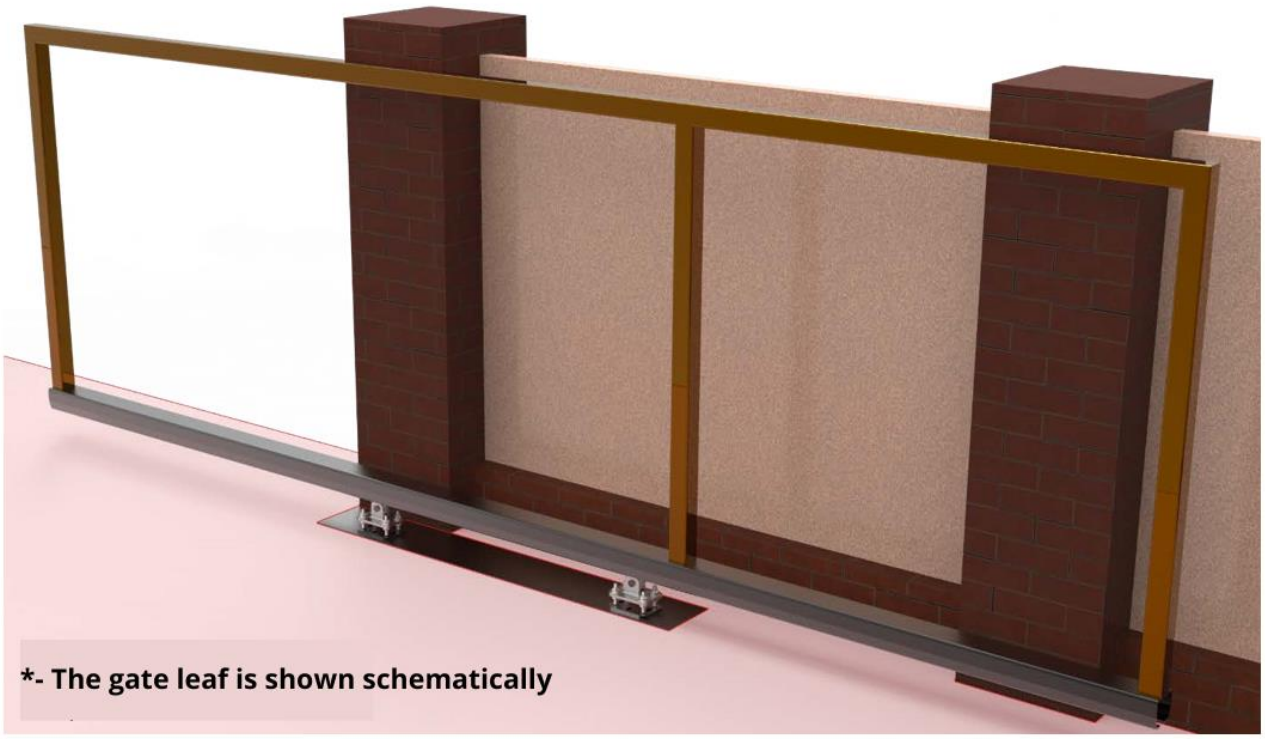
(*- one of the possible variants for determining the boundary positions of the Carriages for Console-type gates)



4. Preparing the gate leaf for mounting.

Carriages prepared for mounting should be sequentially inserted inside the Large/Medium Guide and moved to the center of the gates. After that, place the gates vertically, with the Adjustable Supports on the embedded element.

Finally, adjust the first and second Adjustable Supports to the respective tangents (Line 1, Line 2), and align the gates parallel and snug to the master string.



5. Gate installation. Adjusting the position of the Carriages.

Weld the Adjustable Support (#2 in the figure). Then move the gates to the fully closed position and, if necessary, perform final adjustment of the horizontal position of the gates.

Next, weld the Adjustable Support #1 and perform the following steps:

- Remove the gate leaf from the Carriages;

- Remove the Carriages from the Adjustable Supports;

- Weld around the contour of the Adjustable Supports, securing them to the embedded element;

- Secure the Carriages onto the Adjustable Supports;

- Reinstall the gate leaf onto the Carriages;

- Set the gates to the fully closed position;

- Place a level on the surface of the Large Guide and, using a wrench, adjust the gate leaf horizontally using the Adjustable Supports (raising or lowering the Carriages relative to each other on the spindles of the Adjustable Supports).

* - The horizontal position of Console-type gates is adjusted only for the fully closed position!

6. Adjusting the position of the Carriages inside the Large Guide.

Loosen the fastening of the Carriages to the Adjustable Supports (only the top nuts) and roll the gates from the fully closed to the fully open position. These actions will allow the Carriages to take the correct position inside the Large Guide.

After ensuring that the gates move without excessive effort, tighten the fastening of the Carriages (top nuts).

The next step is to check for any unwanted changes in the quality of gate movement from the fully closed to the fully open position. If the leaf becomes harder to move after tightening, it is necessary to loosen the fastening (only the top nuts) and eliminate possible misalignments of the Carriages on the mount.

* - Particular attention should be paid to the plane perpendicular to the gate movement!

7. Installation of the End Roller and Large Plugs.

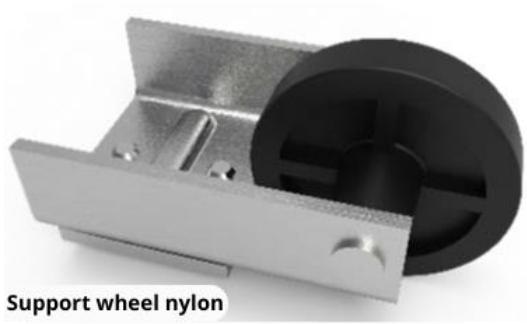
Insert the End Roller into the Large Guide from the side of the front edge of the gate leaf and secure it with two M8 bolts.

Secure the Large Plugs at both ends of the Large Guide using special protrusions made on the polymer parts.

Installing Large Plugs is necessary to prevent unwanted elements (earth, leaves, snow, etc.) from entering the Large Guide.

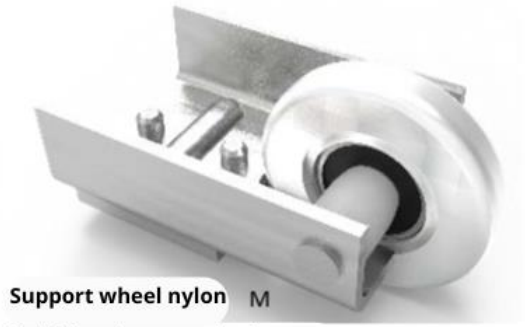
The absence of Large Plugs on the gates will cause them to malfunction.

Possible End Roller variants:



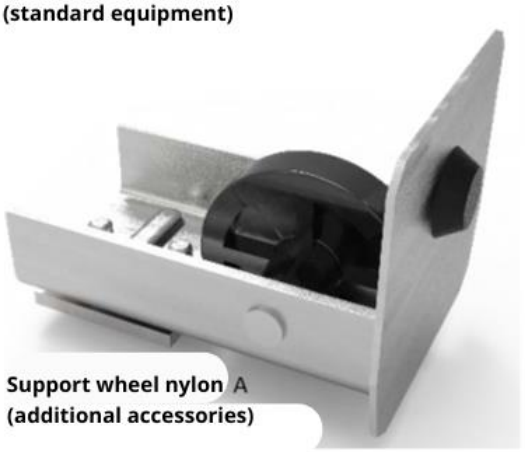
Support wheel nylon

(standard equipment)



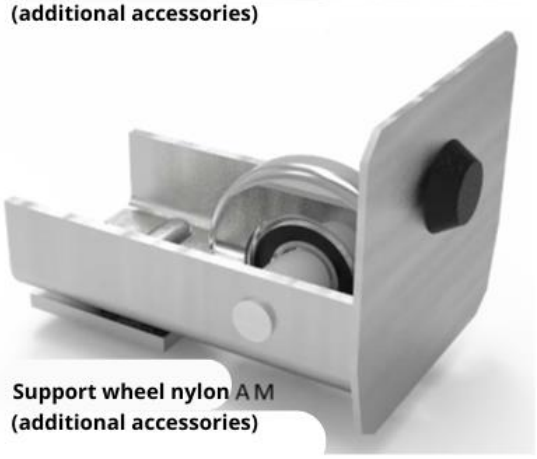
Support wheel nylon M

(additional accessories)



Support wheel nylon A

(additional accessories)

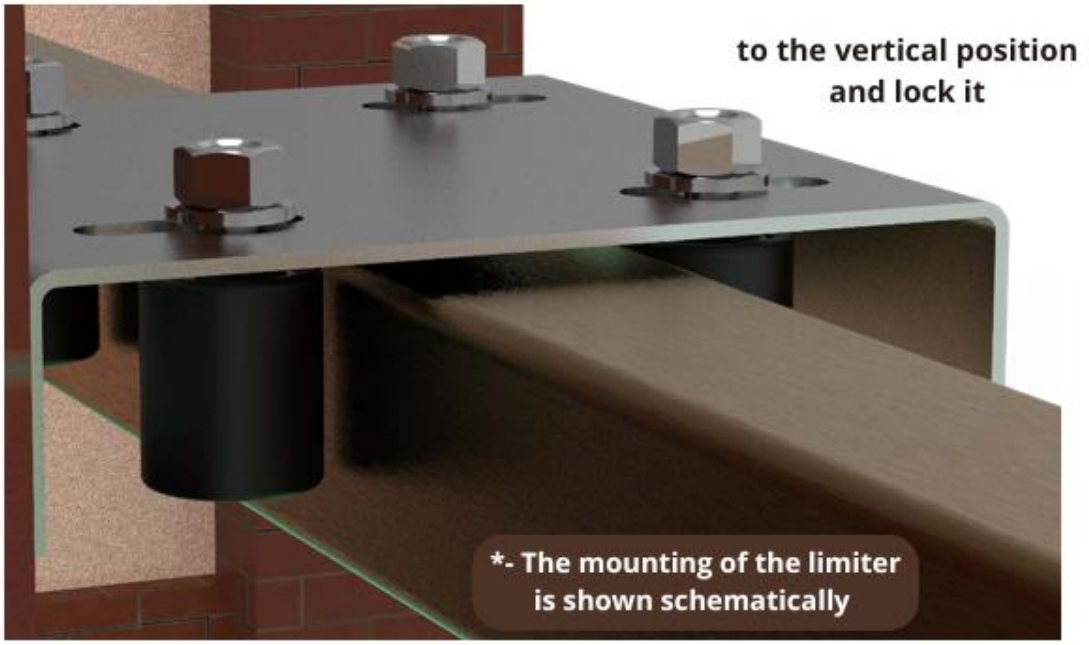


Support wheel nylon A M

(additional accessories)

8. Installation of the Limiter.

Loosen the fastening of the Limiter rollers. Secure the Limiter above the gate leaf so that the rollers encompass the top edge of the gates. The height of the Limiter installation is determined by the working surface of the rollers that contact the gate leaf during operation. Using a level, set the gate leaf vertically and secure it with the Limiter rollers.



The gap between the gate leaf and the Limiter rollers is 1-2 mm on each side.

For better operating conditions of the gates, it is possible to use a special aluminum strip (not included in the set of components produced by ROLL GRAND LLC), which is attached to the top part of the gates on both sides along the entire length of the leaf at the roller level of the Limiter. In this case, during gate operation with the Limiter rollers, the aluminum strip contacts, protecting the paint coating of the leaf.

If necessary (see Section 2.4 "PREPARATORY WORKS", pages 7-9), additional Limiters should be secured.

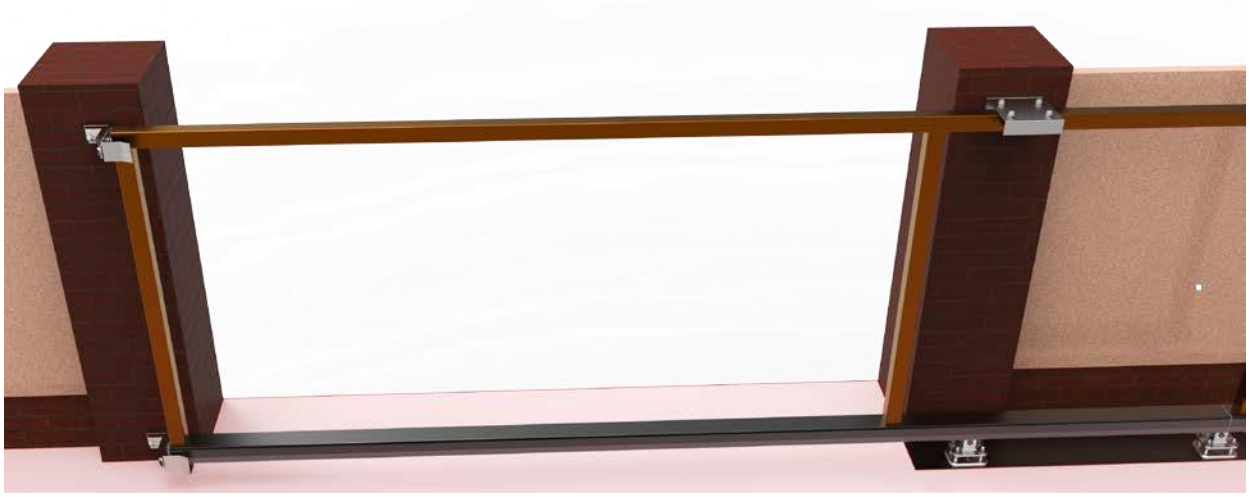
9. Cladding the gate leaf.

If cladding is used on Console-type gates, the next step will be mounting the corrugated sheet on the gate leaf. Corrugated sheets are supplied cut-to-size by height.

Corrugated sheet mounting should start from the front edge of the gates. The sheet is inserted inside the perimeter of the leaf and secured with riveting. After securing the first sheet, the second is installed overlapping the first by one wave and secured. The laying and mounting of sheets are performed sequentially until the leaf is filled. If the last sheet does not fit into the perimeter, it should be trimmed to size with an angle grinder (angle grinder) with a cutting disc for stainless steel 1.2 – 1.5 mm thick.

10. Installation of Catchers.

The Catcher is intended for partial unloading of the Carriages in the fully closed position of the Console-type gates. Installation of the Catcher is performed only with fully loaded gates.



To determine the position of the Catcher, move the gates to the fully closed position and bring the Catcher from below under the End Roller until snug contact. The bearing surface of the Catcher should not be higher than the position of the End Roller.

Additional Catchers №2 or other supplementary Catchers (see page 6) are intended to hold the gate leaf from swaying under wind loads in the closed position.

We recommend using a specially designed product – the Catcher Bracket – for secure operation of Console-type gates.

11. Automation installation.

If the gates are to be operated automatically, the automation installation should be carried out according to the Instruction provided with the automation kit.