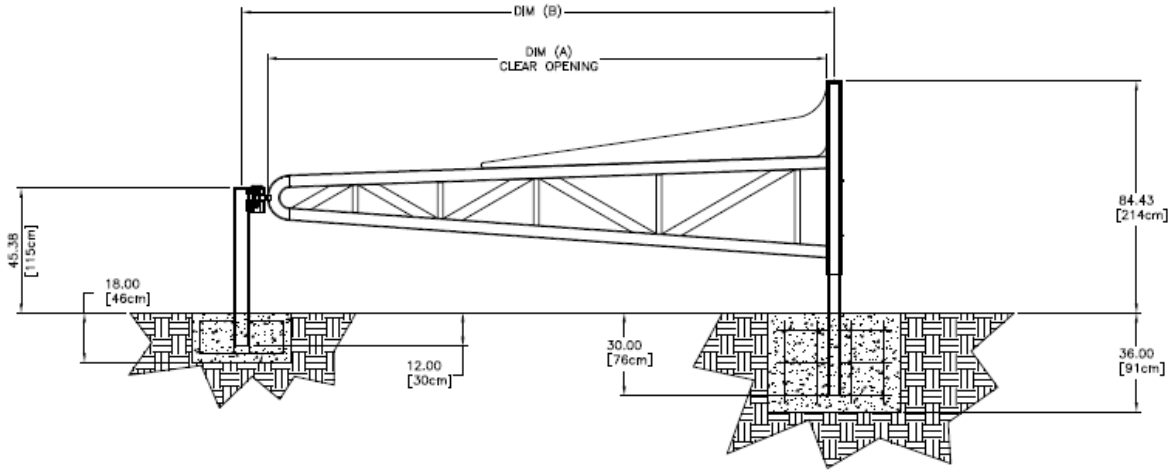
DELTA MODEL MG215 SWING GATE
INSTALLATION INSTRUCTIONS

General

The objective of the Delta Model MG215 installation is to accurately excavate, form, and pour a concrete foundation for the gate and stop post. The center distance between the gate and stop post is determined by the order data. So there are no mistakes, the materials should be laid out and examined. In particular, the swing gate assembly should be measured to confirm its full length. With the swing gate assembly laid out on a horizontal surface, measure the overall length. This dimension should measure Dim (B) as defined on the general arrangement drawing. This dimension is the clear opening + 12.0".



Referenced Dimensions

The length of the swing gate assembly is defined as the **clear opening length**, and it is purchased on that basis. The **center to center** distance of the posts is 12 inches **longer** than the clear opening. For example, if a 144 inch Barrier was purchased the **center to center** separation of the posts will be 152 inches.

Application Notes

When designing a MG215 or its variations into a roadway site, it is helpful to consider the following points:

1) The Barrier is purchased on the basis of the clear opening, which is defined as the inside dimension measured between the posts.

2) Make sure that there are no obstructions that will interfere with the path of the Swing Gate; for example, power lines, trees, overhanging buildings, etc. Additionally, since the ground must be excavated for the foundation posts, the site must be examined for underground utilities that may interfere with the excavation.

3) Delta Scientific Corporation suggests that a layout be done of the actual site to examine the fit of the Barrier. The thought put into the layout can mean the difference between a successful installation and a poorly performing Barrier.

Delta Scientific Corporation welcomes your questions in regard to application of our products and we will be pleased to review any site drawings or make recommendations on the appropriate length and position of the Swing Gate Barrier.

Soils

The Barrier posts are to be cast in place in dug foundation pits. The outside of the posts are the forms, no additional flashing or forming should be necessary.

See the appropriate foundation drawing in the Drawing Section of the manual. The foundations shown on Delta drawings, unless specially noted, are designed on a soil load-bearing factor of 1.5 tons/ft2 [14,600 kg/m2]. The soil should be low-cohesive, well-graded crushed stone or broken gravel of a particle size comparable to Table 1. Soil depth should be at least the foundation depth and 1.5 times embedment depth behind the installation or 2 feet [0.6 meters], whichever is greater up to a maximum of 6 feet. Soil should be compacted to a density of not less than 90 percent maximum dry density.

Sieve Size	Mass Percentage Passing
50 mm (2 in.)	100
25 mm (1 in.)	75-95
9.5mm (3/8 in.)	40-75
4.75mm (no. 4)	30-60
2.00mm (no. 10)	20-45
0.425mm (no. 40)	15-30
0.075mm (no. 200)	5-20

Table 1

Site Preparation and Concrete Pour

1) Establish the distance between the mounting posts as per above.

2) Layout the location of the Barrier foundation excavations and the posts with a chalk line, tape, paint, or other method. The distance between the posts should be within plus or minus 1.0 inch [25 mm]. There is some lateral (side to side) adjustment but be as accurate as possible.

3) Confirm from site drawings that no buried power lines, drains, etc are present at the installation location.

4) Excavate two holes at the appropriate locations in accordance with the General Arrangement drawing.

Note: The size of the excavation, the composition of the back fill material and its compaction are important elements in the operation of this Barricade

system and must be adhered to in order to maintain the full crash rating.

5) Place the indicated rebar in the excavation as shown in the Foundation Specification.

6) Set the post in place so that they are located correctly in the excavations. Block the posts to keep them square and plumb.

7) It is recommended that the swing gate be test fit before the concrete is poured, since each swing gate can vary in straightness by a couple degrees. Once it's been verified that the swing gate won't rub against the close post, the concrete can be pour. The swing gate can be left installed if preferred.

8) Concrete notes and specifications:

   A) Contractor shall verify and be responsible for all dimensions and conditions at the job site.

   B) Foundation concrete may be placed directly into neat excavations, provided the sides of the excavation are stable. Where caving occurs, provide shoring. Type and method of shoring shall be at the contractor's option.

   C) The excavation shall be kept dry at all times. Groundwater, if encountered, shall be pumped from the excavation.

   D) Concrete shall be laboratory designed, machine mixed, producing 3,000 psi (20,68 MPa) at 28 days.

   E) Cement shall be tested Portland cement conforming to ASTM C150, Type II.

   F) Aggregates shall conform to ASTM C33 & Grade B per standard specifications. Maximum size of aggregate shall be 1.5 inch (38 mm).

   G) Reinforcing steel shall be deformed bars conforming to ASTM A615, Grade 60 (60,000 psi or 413,7 MPa).

   H) Hooks and bends shall conform to ACI Standard 318, latest revision. Inside diameter of hooks and bends shall be at least 6 bar diameters.

   I) Provide spacer bars, chairs, spreaders, blocks, etc, as required to positively hold the steel in place. All dowels shall be firmly wired in place before concrete is poured.

   J) Concrete shall be conveyed from the mixer to final deposit by methods that will prevent separation or loss of materials. Troughs, buckets or the like may be used to convey concrete. In no case shall concrete be allowed to free drop more than 5 feet (1,5 M).

   K) Concrete shall be thoroughly consolidated by suitable means during placement and shall be thoroughly worked around reinforcement and embedded fixtures

and into corners of forms.

L) Concrete shall be maintained above 50ºF [10ºC] and in a moist condition for at least 7 days after placement. Adequate equipment shall be provided for heating concrete materials and protecting concrete during freezing or near freezing weather.

M) Where exterior wall face requires shoring and/or forming, the forms shall be substantial and sufficiently tight to prevent leakage. Forms shall not be removed until the concrete is 7 days old.

N) Backfilling shall be done by depositing and tamping into place clean base material compacted to 95 percent. Base material shall be per Table 1. Water jetting shall not be allowed.

O) Conduits and pipes of aluminum shall not be embedded in concrete unless effectively coated or covered to prevent aluminum/concrete reaction or electrolytic action between aluminum and steel.

P) Construction joints not indicated on the drawings shall not be allowed. Where a construction joint is to be made, the surface of concrete shall be thoroughly cleaned and all laitance and standing water removed.

Q) Contractor shall be responsible for the protection of all adjacent areas against damage and shall repair or patch all damaged areas to match existing improvements.

R) Contractor shall keep the construction area clean at all times and at completion of work remove all surplus materials, equipment and debris and leave the premises in a clean condition acceptable to the owner or owner's representative.

9) After required concrete cure time, strip the forms. Confirm center to center dimensions and that the posts are vertical. Back fill and compact to 95 percent around the foundation area.

10) If shim sockets are still present, remove them by knocking them off. If necessary, grind and then touch up with paint.

11) Paint, stucco or texture the above grade concrete faces as desired for appearance.