

3M™ Linear Delineation System

Health & Safety

Refer to the package label and the Material Safety Data Sheet for health, safety, and handling information on the products referenced in this bulletin. For 3M products, if necessary, you may contact our Toxicology/Product Responsibility Department on 01344 858000.

Product Description

3M™ Linear Delineation System (LDS) is intended for the linear reflectorisation of concrete barriers and metal guardrails. The LDS panels are fabricated from 3M™ Diamond Grade™ Reflective Sheeting, and are laminated onto a thin gauge of aluminum and formed to a unique shape, which provides retroreflection across a very wide range of entrance and observation angles. The LDS panels are available in a range of colours including white, amber and red, fluorescent orange and fluorescent yellow.

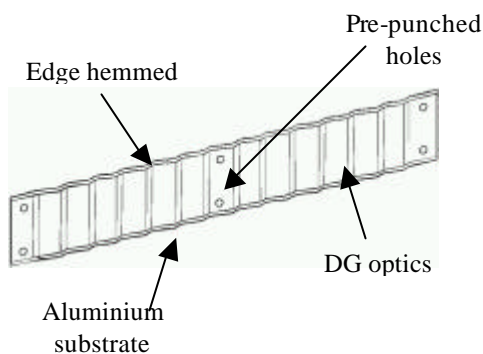


Figure 1

All colors are provided in 100mm or 150mm widths with a standard length of 863mm (914mm is the actual length of the panel prior to formation).

The LDS panels will provide continuous linear delineation by installing the panels edge to edge. If the LDS panels are spaced for day or night contrast, 3M recommends a spacing of 450mm between each panel, especially into and around a curve, such as a cloverleaf entrance. The LDS panels if spaced on a barrier or guardrail, running parallel with traffic, the spacing can be at a maximum of 450mm between panels. For example, on a typical concrete barrier (3m) two LDS panels are recommended at a spacing of 450mm. (see Figure 2).

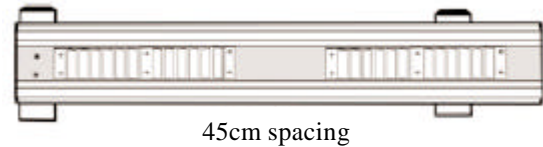


Figure 2

Installation Facts

LDS Concrete Installation

4 Person Crew = 60 Panels/hour
2 Person Crew = 30 Panels/hour

LDS Guardrail Installation

4 Person Crew = 40/hour
2 Person Crew = 20/hour

Coverage

- Without spacing 75 LDS panels = 65m
- With a 300mm spacing 75 LDS panels = 88m
- With a 450mm spacing 75 LDS panels = 100m
- With a 600mm spacing 75 LDS panels = 111m

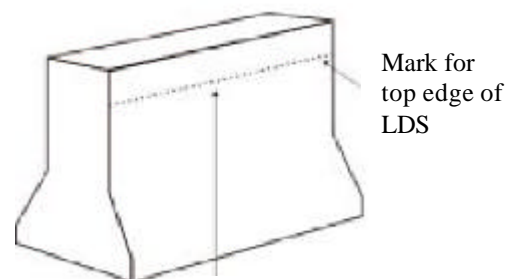
Installation Procedures

Product Installation Requirements

Note: It is the responsibility of the installer to contact a 3M sales representative or 3M technical service representative whenever there is a question regarding application procedures or substrate conditions (01344 857950).

Concrete Barriers

To assure a straight level application, it is recommended to snap a chalk line (see Figure 3).



Marking the application area

Figure 3

It is recommended to install the LDS panel near the top of the barrier to avoid dirt, snow, salt or road grime (see Figure 5).

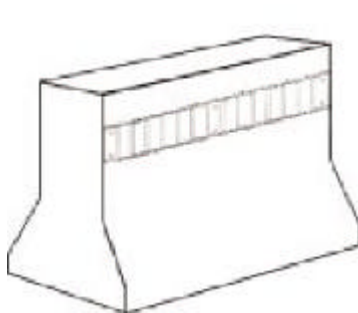


Figure 4

Using a black marking pen, mark where the panels will be mounted on the barrier (see Figure 4).

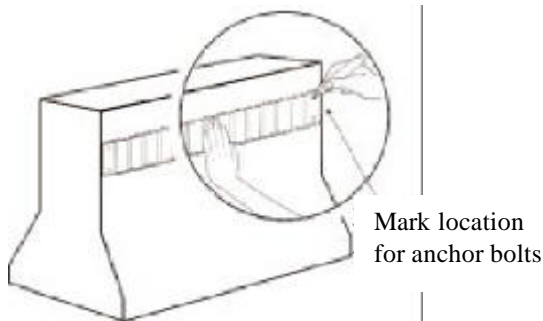


Figure 5

Once the barriers are marked for location, it is recommended by 3M to use a rotary hammer drill with a concrete drill bit to drill holes. The LDS panels are predrilled and can be used as individual drilling jig fixtures for concrete application (see Figure 6).



Figure 6

Note: It is helpful to use an adhesive caulking system (similar to the 3M™ Windo-Weld™ Super Fast Urethane 08603 mentioned in the guardrail section) to aid in the alignment of the panels to the chalk line, prior to drilling through the pre-drilled LDS holes. The adhesive will adhere fast at temperatures ranging 15°C to 35°C. The adhesive can only be used with LDS panels on concrete in conjunction with the Hilti anchoring system.

After drilling, simply hammer in 1/4" x 1" stainless steel anchors (similar Hilti Stainless Steel Metal Hit Anchor 304 (Model #230520/9). Be sure to use a 5/16" nylon washer with each anchor, other than the Hilti anchor mentioned above. The Hilti anchors are removable, if necessary.

Note: Other anchor systems, including drilling (mechanical fasteners) or concrete epoxy systems, can be used to attach LDS panels to concrete. The end user is responsible to test durability and strength of the anchor or epoxy.

Standard Galvanized Metal Guardrails

Panel Width - Use the 100mm or 150mm wide LDS panels that will fit your guardrail properly.

Note: In snowplow areas, 100mm panels should be used. The 100m panel fits within the guardrail, which protects it from snowplow damage.

Panel Positioning - Check on spacing recommendations. Mark the area on the guardrail where the LDS panels and mounting brackets will be installed. Spacing distances may vary depending upon configuration and construction of the guardrail (see Figure 7).

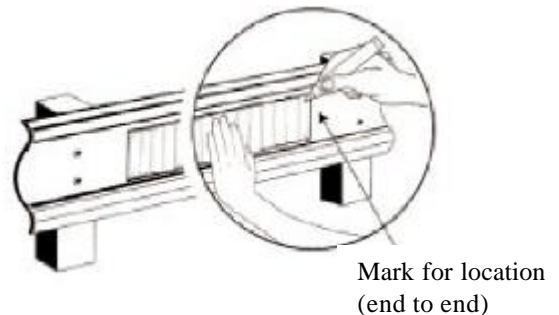


Figure 7

Surface Preparation and Cleaning - With the guardrail properly marked for installation, use a wire brush or sander with drill motor or sanding wheel. Only light sanding is recommended (see Figure 8). Lightly clean sanded guardrail with rubbing alcohol or isopropyl alcohol.

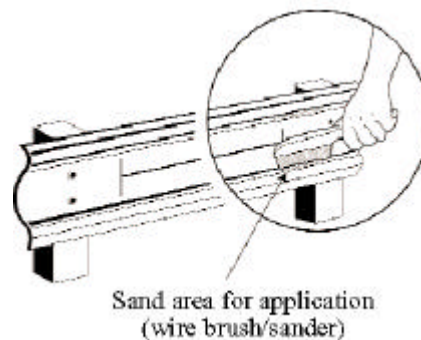


Figure 8

Bracket Size - Two styles of brackets are available and can be purchased from 3M. The brackets must be matched to fit the exact 100mm or 150mm wide LDS panels. The brackets are packaged 30 each to a carton and labeled LDS-4B for 100mm brackets and LDS-6B for 150mm brackets. End user must use three brackets per panel on either 100mm or 150mm LDS styles (see Figure 9).

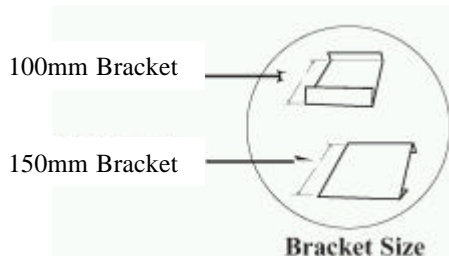


Figure 9

LDS Panel and Bracket Mounting - For mounting the 3M brackets to the guardrail and the LDS panels to the brackets, 3M recommends the use of the 3M™ Windo-Weld™ Super Fast Urethane 08603*. This product is available in a standard caulking tube and should be applied to the brackets and panels with a construction style caulking gun. The adhesive must be applied at 10°C+ in dry weather conditions. One tube of s adhesive will adhere 10 LDS panels and 30 LDS brackets of either 100mm or 150mm styles (see Figure 10).

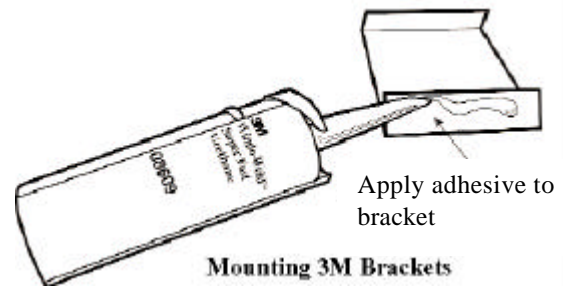


Figure 10

Note: Guardrails should be dry, without rain in the forecast for 8 hours after the adhesive is applied for the LDS installation.

*Other epoxy and adhesive systems can be used to mount brackets and LDS panels to the guardrails, but the end user is responsible to test the durability and strength of the epoxy type system they use.

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Technical Assistance

For help on specific questions relating to 3M Traffic Safety Systems Division Products, contact your local Technical Service Representative.

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