3M™ Electronic Marking System (EMS) Rope 7700 Series Locatable Rope for Horizontal Directional Drilling and Direct Bury Application Instructions

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1.0 General

1.1 The 3M™ Electronic Marking System (EMS) Rope 7000 Series is designed with electronic markers weaved into the strands to allow for installation in direct bury and HDD (Horizontal Direction Drilling) applications. The markers built into the rope are located with a 3M™ Dynatel™ Locator 7000 Series or earlier iD version locators with upgraded software. With no transmitter connection and no grounding needed, the 3M EMS Rope provides a fast, convenient, accurate and long lasting method for locating buried plastic pipe.

The 3M EMS HTS (High Tensile Strength) rope markers are designed for path marking and operate at a different frequency than the point markers, such as 3M™ EMS Ball and RFID Markers which are used for point marking. This is necessary in order to eliminate confusion with existing buried markers and reduce signal congestion.

1.2 SAFETY INFORMATION

Please read, understand, and follow all safety information contained in these instructions prior to the use of this 3M Electronic Marking System (EMS) Rope 7700 Series. Retain these instructions for future reference.

INTENDED USE:

This 3M Electronic Marking System (EMS) Rope 7700 Series is intended to provide path marking for underground utilities. This 3M Electronic Marking System (EMS) Rope 7700 Series is used in horizontal directional drilling or direct bury applications. It is expected that all users be fully trained in the safe operation of this 3M Electronic Marking System (EMS) Rope 7700 Series. Use in any other application has not been evaluated by 3M and may lead to an unsafe condition.

⚠ CAUTION

To reduce the risks associated with impact which, if not avoided, could result in minor or moderate injury:

Always wear impact resistant safety goggles or impact resistant safety spectacles with side shields.

2.0 Open Trench Installation

The rope can be placed into the trench alongside any non-metallic utilities such as plastic pipe or fiber optic cable. Set up the spool so the rope can be pulled into the trench. It is not necessary to maintain rope continuity and a new section can be placed in the trench where the previous section has ended.

Note: The 3M EMS R Rope has a direct bury limit of 48" (1.2 M) and must be 4" (10 cm) away for any metal in all directions to provide the best locatable signal. Test the rope after installation with a compatible 3M locator.

2.1 Excavate trench and place buried utility, e.g., plastic pipe and fiber optic cable.

2.2 Rope can be placed next to non-metallic utilities that are 48" (1.2 M) or less in depth.

2.3 For Deep Applications - When a utility is deeper than 48" (1.2 M), place enough backfill on the utility to place the locatable rope within 48" (1.2 M) locate depth.

2.4 Test the locate signal of the rope with a compatible locator.

2.5 Cover the rope and utility with backfill.

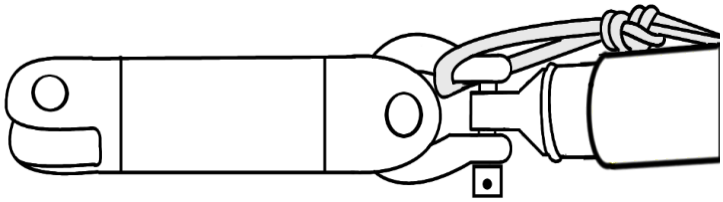
Notes: The 3M EMS Rope does not need to be connected to a transmitter for locating and can be completely buried. Before final fill, cover sections of the tape with loose fill to maintain marker position.

For locator operating instructions, please refer to the following Operator's Manuals: 3M Dynatel Marker Locator 7420, 3M Dynatel Cable/ Pipe/Fault Locator 7550 or 3M Dynatel Cable/Pipe/Fault Locator 7573.

3.0 Connecting 3M™ Electronic Marking System (EMS) Rope to the Swivel in a Horizontal Directional Drilling Installation

3.1 Place the reel near the pipe feed and free of any obstructions.

3.2 Tie the rope to the swivel once the bore is complete and the pipe is connected to the swivel.



3.3 Use a double overhand knot or comparable high strength knot to tie the rope to the D-Ring.

3.4 Monitor the reel during the pull to verify enough rope is on the spool to complete the job. If the reel does not have enough rope to complete the job then stop the pull and tie a rope from a new spool onto the end of the rope being pulled. Use a bloodknot to tie the ropes together. During the pull, ensure that the rope can be pulled freely from the reel without getting snagged.

Notes: Follow local safety guidelines handling and pulling rope. Eye protection is recommended when using this product.

4.0 Double Figure Eight (Tie to the D-Ring of the Swivel)

4.1 Form a bight at the end of the rope.

4.2 Cross the bight onto itself.

4.3 Wrap the bight for one full wrap.

4.4 Pull the end of the bight through the loop and pull hand tight.

4.5 Place the loop into the D-Ring and secure.

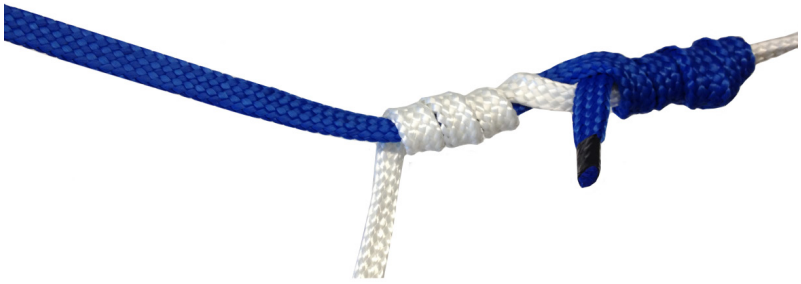
5.0 Bloodknot (used to tie two ropes together.)

5.1 Overlap the two ropes.

5.2 Take one rope and wrap around the second rope for three to six turns.

5.3 Bring the end back to the beginning of the knot and place between both ropes.

5.4 Take the end of the second rope and wrap around first rope three to six times.



5.5 Bring the end of the second rope to the beginning of the knots and place between the two ropes.

5.6 Pull the knot hand tight.

3M™ Electronic Marking System (EMS) Rope Specifications

Specifications	
Description	(1/2”) 12 mm Locatable Polyester Rope
Length:	984 ft (300 m)
Reel Weight:	73 lbs. (33 kg)
Diameter @ Marker	0.9 inch (22,8 mm) at marker
Working Load Limit	500 lbs.
Maximum Detection Depth:	48” for 3M™ Dynatel™ Locators 7420, 7550 and 7573. 36” for 3M™ Dynatel™ Locators 1420, 2250M-iD, 2273M-iD, 2550-iD and 2573-iD.
Minimum Separation from Metallic facility	4 in (10 cm)
Distance Between Markers	8 ft (2.4 m) Nominal (7705-CGV-GAS has 6.5 ft (2 m) Nominal
Rope Length Indication	Remaining length is printed on rope every 3.3 ft (1 m)
Compatibility:	3M™ Dynatel™ Locators, 7420, 7550 and 7573, 1420, 2250M-iD, 2273M-iD, 2550-iD and 2573-iD.
Environmental Specifications	
Operating Temperature	-4°F to 122°F (-20°C to 50°C)
Storage Temperature	-4°F to 149°F (-20°C to 65°C)

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Conditional Limited Warranty: 3M provides the following Conditional Limited Warranty for its EMS Caution Tape 7600 Series and EMS Rope 7700 Series Products: When installed in accordance with 3M's installation instructions, 3M warrants EMS Caution Tape and EMS Rope for a period of one (1) year from the date of purchase of the product, to be free from defects in material and manufacture, provided EMS Caution Tape and EMS Rope are located with 3M™ Dynatel™ Locators or other brand locators as may be designated by 3M in writing. This warranty does not extend to EMS Caution Tape and/or EMS Rope that has been subjected to misuse or improper application or that have been repaired or altered by others. **3M MAKES NO OTHER WARRANTIES INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** If the EMS Caution Tape and/or EMS Rope is found to be defective within the warranty period, your exclusive remedy shall be, at 3M's options, to repair or replace the EMS Caution Tape and/or EMS Rope or refund the purchase price. **Except where prohibited by law, 3M will not be liable for any direct, indirect, special, incidental or consequential loss or damage arising from this 3M product, regardless of the legal theory asserted.**

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