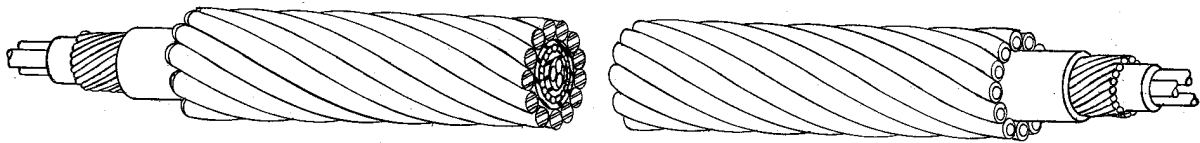


# ARMOR RODS

Abrasion Protection

- ! Use On Wire Rope, E/M Cable & Hose Bundles*
- ! Fast, Field Installable Protection*
- ! Unique Helical Wrap-On Design*
- ! Corrosion Resistant*



#### FIELD INSTALLABLE

Precision formed helical Armor Rod sets simply wrap on by hand. No special tools required. Can be easily installed anywhere along cable length. Access to cable end is not required.

#### ABRASION PROTECTION

Wrap-on metal rods provide a layer of protection to critical segments of your cable or hose bundle. Protect against abrasion, cuts, crushing, and handling damage.

#### CORROSION RESISTANT

Standard Armor Rods are made of galvanized steel. Specials can be fabricated from stainless steels and other corrosion resistant materials.

#### BENDING PROTECTION

Provide limited bending protection by increasing stiffness of cable segment.

#### ADDITIONAL PROTECTION

Multiple layers of differing lengths can provide variable bending stiffness and increased protection from external damage.

#### PROVEN PERFORMANCE

PMI Armor Rods have been used at sea by offshore petroleum, military, and oceanographic industry customers for protection of power cables, communication cables, and hoses against bottom irregularities and at cable crossing locations.



# ARMOR RODS Abrasion Protection

Armor Rods can be fabricated in a wide range of sizes and lengths to meet customer requirements. Standard material is galvanized steel but stainless steels and other corrosion resistant materials can be supplied. As an indication of existing designs, the following are examples of Armor Rods that have been furnished to our customers.

Customer	Description
<b>MAJOR EUROPEAN CABLE MANUFACTURER</b>	Double layer armor protection for 4.213 inch (107 mm) diameter jacketed oil field umbilical. Inner and outer layer fabricated from 0.232 inch (5.89 mm) diameter hard drawn galvanized steel wire. The overall helically formed length was approximately 30 feet (9.1 m).
<b>MAJOR COMMUNICATIONS TECHNOLOGY CORP.</b>	Single layer armor chafing protection for a nominal 3.00 inch (76.20 mm) diameter jacketed E/M cable. Armor wire size of 0.241 inch (6.12 mm) diameter hard drawn galvanized steel, helically formed in 20 foot (6.1 m) lengths. 200 feet of cable is covered with 20 foot sections of Armor Rods. Smooth transitions between rod sets are developed by staggering individual rods to mesh each set, eliminating a concentrated fatigue point between sets.
<b>U.S. NAVY</b>	Single layer armor chafing protection for a nominal 1.713 inch (43.51 mm) diameter aramid strength member E/M cable. Armor wire size of 0.138 inch (3.50 mm) diameter hard drawn galvanized steel, helically formed in 12 foot (3.66 m) lengths.
<b>MAJOR U.S. OIL COMPANY</b>	Single layer armor chafing protection for a 2.85 inch (72.39 mm) diameter E/M aramid strength member underwater control cable. Armor wire size of 0.241 inch (6.12 mm) diameter hard drawn galvanized steel, helically formed in 18.3 foot (5.58 m) lengths.
<b>MAJOR U.S. CABLE MANUFACTURER</b>	Single layer armor chafing protection for a 6.44 inch (164 mm) diameter E/M cable. Armor wire size of 0.312 inch (7.92 mm) diameter MONEL® wire, helically formed in 15 foot (4.57 m) lengths.
<b>MAJOR HOSE &amp; UMBILICAL MANUFACTURER</b>	Single layer armor chafing protection for a 4.33 inch (110 mm) diameter hose bundle. Armor wire size of 0.159 inch (4.0 mm) diameter hard drawn galvanized steel, helically formed in 30 foot (9.1 m) lengths.
<b>U.S. NAVY</b>	Single layer armor chafing protection for a 1.075 inch (27.3 mm) diameter aramid strength member E/M cable. Armor wire size of 0.123 inch (3.12 mm) diameter hard drawn galvanized steel, helically formed in 8 foot (2.43 m) lengths.

Armor Rods have been fabricated of electro-galvanized steel, stainless steel types 304, 316, aluminized steel, MONEL® and NITRONIC® 50 wire.

## IMPORTANT ORDERING INFORMATION

Armor Rods are built to close tolerances. To insure satisfaction, specify cable or hose diameter, construction, specific use (abrasion protection, bending protection etc.), material, length, and lay direction of outer strength members. For assistance in selecting correct products contact PMI Industries, Inc. or our sales representatives.

