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NEMA STANDARDS PUBLICATION

NEMA MW 780

RETURNABLE MAGNET WIRE PACKAGING SYSTEMS

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NEMA Standards Publication MW 780-1997

Returnable Magnet Wire Packaging Systems

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Foreword

The purpose of this standard is to provide engineering guidelines to magnet wire manufacturers in the design and construction characteristics of returnable magnet wire packaging products.

The information contained herein is based on the input of suppliers of magnet wire packaging products known to be in production at the time of publication. This standard is not intended to conflict with standards already in place. The issuance or existence of this Standards Publication does not, in any respect, prevent or restrict any member or non-member of NEMA from supplying their customers with magnet wire packaging systems not in conformance with its contents.

This Standards Publication has been developed by the NEMA Magnet Wire Section, which periodically reviews it for any revisions necessary in recognizing changes in technology. Comments or proposed revisions are welcomed and should be submitted to:

Vice President, Engineering
National Electrical Manufacturers Association
1300 N. 17th Street, Suite 1847
Rosslyn, VA 22209

This Standards Publication was developed by the Magnet Wire Section of the National Electrical Manufacturers Association. At the time it was approved, the Magnet Wire Section had the following members:

Alcatel Magnet Wire, Inc.
La Grange, KY

American Wire Corporation
Sandy Hook, CT

Bridgeport Insulated Wire Company
Bridgeport, CT

Elektrisola, Inc.
Boscawen, NH

Essex Group, Inc.
Magnet Wire Products
Fort Wayne, IN

MagneTek, Inc.
Gallman, MS

Optec D D USA, Inc.
Mexico, MO

Phelps Dodge Magnet Wire Company
Fort Wayne, IN

Rea Magnet Wire Company, Inc.
Fort Wayne, IN

Southwire Specialty Products
Osceola, AR

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Section 1
GENERAL

1.1 SCOPE

This standard applies to products intended exclusively for the packaging/storage of magnet wire products. It provides guidelines for the minimum information required for the design and production of a returnable pallet generally made of a synthetic material, intended to accommodate the three reels most commonly used by magnet wire producers. These include the following:

a. 15/16 X 12 (250 lbs.)
b. 15/16 X 24 (500 lbs.)
c. All known 1000-pound reels

This standard also provides guidelines for the minimum information required for the design and production of a returnable pallet generally made of a synthetic material, intended to accommodate small spools and reels most commonly used by magnet wire producers. These include the following:

a. 6 X 6 spool
b. DIN-160 spool
c. DIN-200 spool
d. 12 X 7 straight flange reel
e. 8-1/4 / 9 X 9-1/2 (50#) cartoned
f. 10/11 X 12 (100#) cartoned, wrapped, and in pails

Reels of other sizes can be accommodated within the design specifications of this standard with minor modifications and/or adapters.

1.2 REFERENCES

In this publication, reference is made to the following publications. Copies are available from the sources indicated.

National Electrical Manufacturers Association
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NEMA MW 755-1996 *Straight Flange Plastic Magnet Wire Spools/Reels*

NEMA MW 760-1996 *Tapered Flange Plastic Magnet Wire Spools/Reels*

1.3 DEFINITIONS

Each of the terms defined in 1.3.1 through 1.3.3 are also illustrated in Figure 1-1.

1.3.1 Cover

The upper portion of the magnet wire packaging system, used for securing the top sides of magnet wire reels, and providing a means for installation and banding of a matching cap.

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1.3.2 Reel

A cylindrical device with a top and bottom flange extending beyond the cylinder surface, for the purpose of holding wire for packaging, transportation, and de-reeling.

1.3.3 Pallet

The lower portion of the magnet wire packaging system, used for securing, or nesting, the bottom sides of magnet wire reels.

1.3.4 Pail

A cylindrical device of approximately a five gallon capacity used to hold and transport a 85# reel of approximate 10/11 X 12 size.

1.3.5 Interchangeable Nesting Sheets

A plastic sheet designed to accommodate a specific spool, reel, or pail configuration that may be designed to fit on top of a standard pallet.

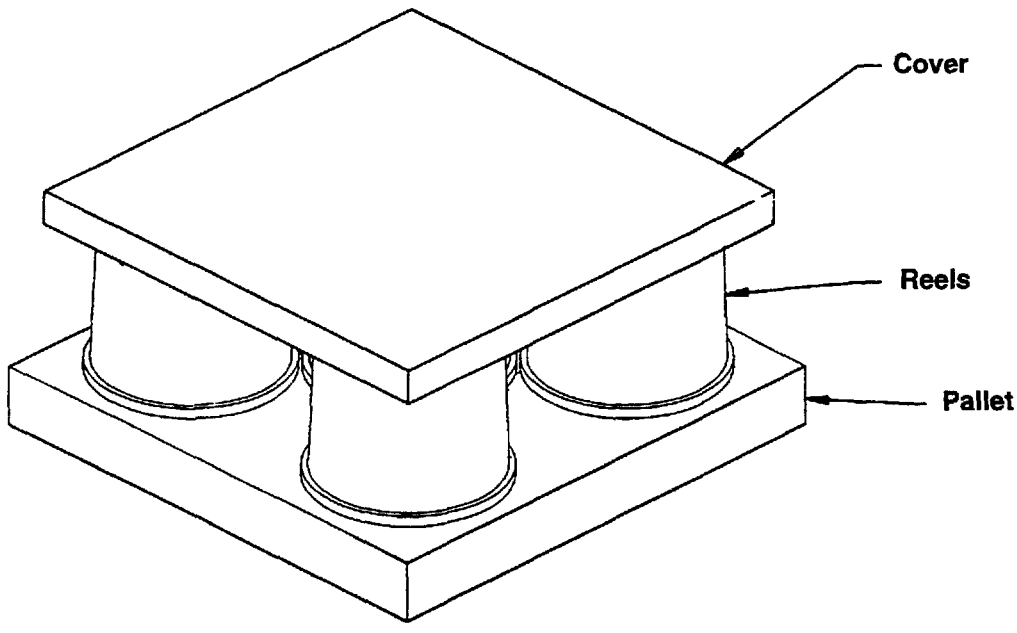


Figure 1-1
TYPICAL MAGNET WIRE PACKAGING SYSTEM

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Section 2
DESIGN SPECIFICATIONS FOR ACCOMMODATING LARGE REELS

2.1 PACKAGING SYSTEM

2.1.1 General

The magnet wire packaging system shall be designed to be returnable and reusable. A cover shall be provided for the reels, yielding a total system of pallet and matching cap. The cap shall be contained by banding of steel and/or plastic, or stretch wrap. A securing system designed and provided in a way other than that which is stated above, for the combined load of pallet, reels, and top, would be acceptable.

2.1.2 Interchangeable Nesting Sheets

The design of the system shall be open so as to provide for a basic pallet and the use of nesting sheets, used as an interchangeable second sheet to lock permanently to the pallet, and requiring a tool for removal. The design would allow the changing of the top sheet, giving the pallet the capability of accommodating reels with a variety of flange diameters such as the 11-inch, 19-inch, or 20-inch sizes.

2.1.3 Reel Sizes

The design of the system shall accommodate five (5) reels of either the 15/16 x 12" or 15/16 x 24" sizes, or four of any known 1000-pound reels, as defined in NEMA Standards Publications MW 755 and MW 760. The system would be designed such that only one size reel would be accommodated at a time.

2.2 PALLETS

2.2.1 Dimensions

Pallets for magnet wire reels shall be 41.5 x 41.5 inches, + 1/2 inch.

2.2.2 Configuration

2.2.2.1 The pallet surface where the reels rest shall have a design that provides a positive locating system that limits movement of the reels during shipment.

2.2.2.2 The top design of the pallet shall fit a minimum of five (5) reels of the 15/16 x 12" or 15/16 x 24" reels as described above, or four (4) of any known 1000-pound reels.

2.2.2.3 The pallet system shall be designed to allow for secure stacking among themselves.

2.2.3 Handling

Pallets shall be capable of four-way entry by mechanized pallet handling equipment. The reel "nest" pattern shall provide space for the wheels of a two-wheeled cart to have access to the center reel.

2.3 STRENGTH

2.3.1 Load

Magnet wire pallets shall be capable of supporting a static stacked load of not less than 15,000 pounds.

2.3.2 Transportation

The in-transit, or live load, shall not exceed 5000 pounds total. A system with 500-pound or 1000-pound reels shall not be stacked for transportation.

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2.3.3 Storage

The design shall allow for pallets to be stored in a rack structure, constructed with rack beams only, with a maximum of 38-inches between beams, and no decking.

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Section 3
DESIGN SPECIFICATIONS FOR ACCOMMODATING SMALL SPOOLS AND REELS

3.1 PACKAGING SYSTEM

3.1.1 General

The magnet wire packaging system shall be designed to be returnable and reusable. A cover shall be provided for the system, yielding a total package of pallet and matching cap and possibly an intermediate tray. The system shall be designed to accommodate only one size of carton, reel, or pail at any one time. The design may require a series of "interchangeable nesting sheets" on top of the basic pallet in order to accommodate the various load requirements. Where an intermediate tray is required, it shall be of such design that will allow it to be used as a top cap. The system shall be contained by banding of steel and/or plastic or stretch wrap. Banding location positions shall be provided on the pallet and top units. A securing system designed in a way other than that which is stated above, for the combined load of pallet, reels, and top, shall be considered be acceptable if it meets the requirement of full load containment.

3.1.2 Interchangeable Nesting Sheets

The design of the system shall be open so as to provide for a basic pallet and the use of nesting sheets, used as an interchangeable second sheet to lock securely to the pallet, and requiring a tool for removal. The design would allow the changing of the top sheet, giving the pallet the capability of accommodating reels with a variety of flange diameters such as the 11-inch or the 9-inch of the 50# 8/9 X 9 reel.

3.1.3 Load Sizes

The design of the system shall accommodate the list in the scope of this specification. The 6 x 6, DIN-160, and DIN-200 shall be cartoned. In general, there will be six cartons to a layer in a 3 x 2 pattern. Additionally, the design may also fit cartons for the smallest spools of 3-inch, 5-inch, and 6 x 3½-inch size. The 8-1/4 / 9 x 9-1/2 (50#) shall be cartoned and follow a pattern of eight reels in cartons to a layer and in a 2 x 4 pattern and two layers high. The common 10/11 x 12 (100#) must be handled in one of three configurations: a reel with only a wrapper, in a carton, or in pails. These will follow a pattern of six reels to a layer in a 2 x 3 pattern and two layers high. The 12 x 7 reel shall be handled in a manner with only a wrapper and in the same configuration as the 10/11 x 12 reels. The system shall be such that only one size spool/reel would be accommodated at a time.

3.2 PALLETS

3.2.1 Dimensions

Pallets shall be no greater than 29-½ x 40 inches.

3.2.2 Configuration

3.2.2.1 The pallet surface where the reels rest shall have a design that provides a positive locating system that limits movement of reels during shipment.

3.2.2.2 The pallet surface when designed for cartoned product shall have a non-slip surface to maintain integrity of the carton stack.

3.2.2.3 The pallet system shall be designed to allow for secure stacking among themselves.

3.2.3 Handling

Pallets shall be capable of two-way entry by mechanized pallet handling equipment. If possible, the system shall also allow the use of "pallet jacks" which requires smooth access for the wheeled part of the equipment.

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3.3 STRENGTH

3.3.1 Load

Magnet wire pallets shall be capable of supporting a static stacked load of not less than 6,000 pounds.

3.3.2 Transportation

The in-transit, or live load, shall not exceed 2,000 pounds total. A system with "100" pound reels shall not be stacked during transportation, but shall be capable of double stacking for lift truck and in plant handling.

3.3.3 Storage

The design shall allow for pallets to be stored in a rack structure, constructed with rack beams only, with a maximum of 24 inches between beams in a normal front to back definition and with no decking.

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Section 4
MATERIALS

4.1 GENERAL

Plastic materials have been generally planned as the system's material, however, materials used for magnet wire packaging systems shall not be limited to plastics.

4.2 CHARACTERISTICS

The system's material shall be recyclable and present no potential material conflict with magnet wire reels, wire, or wire insulation.

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Section 5
MARKING

5.1 MATERIAL IDENTIFICATION

The pallet, tops, and/or other parts of a magnet wire packaging system shall be coded with the chasing arrows generally used as a code for signifying that a material is reusable, as well as the recycling material number code of 1 through 7, and the material letters to indicate the material type (e.g., PS, for polystyrene).

5.2 MANUFACTURER'S IDENTIFICATION

All parts of a magnet wire packaging system shall have available space for either the individual wire manufacturer's company logo or other form of identification such as a color strip and/or mark of some distinctive nature. Two spaces shall be provided (one on each of two opposing sides) for bar code labeling approximately 2 x 3 inches in size.

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