MAUMELLE PLANT METAL STRIP PACKAGING STANDARD

1.0 SCOPE

This standard covers the Maumelle general packaging requirements for traverse wound and pancake coiled metal strip materials.

2.0 PURPOSE

The purpose of this standard is to clearly define to a vendor the preferred packaging requirements for Maumelle metal strip raw materials.

3.0 REFERENCE DOCUMENTS

3.1 REFERENCE DOCUMENTS

2090580042 Individual Metal Strip, Wire, Rod, Bar and Tube Specifications
2090580043 Geometric Conditions and Tolerances for Metal Strips
2090580044 Metal Strip Surface Conditions and Requirements

3.2 ORDER OF PRECEDENCE

In the event of a conflict between this standard and selected reference documents above, the order of precedence shall be as follows:

1. Purchase Order
2. Individual Strip or Wire Specification
3. This Standard

4.0 DEFINITIONS

P.I.W. (Specific Coil Weight): Pounds per inch of width. This refers to how much a coil weighs based on the width of material (i.e. a 400 P.I.W. coil that is 10 inches wide weighs 4,000lb.). 7 kg/mm is approximately equal to a 400 P.I.W.

Runner: This applies to 4” x 4” construction lumber that the pallet platform is built on. The runners support the weight of the pallet on the floor and allow the package to be transported by a fork-lift device.

Casting Heat: This is the unique identity assigned to a singular cast product that was processed as a continuous element. Casting heats are frequently characterized by a unique trace number that is assigned to a singular or body of chemical compositions that represent its unique starting identity.

Master Bar: Material from the same unique casting heat that has been processed as a continuous element to yield homogeneous physical properties. The continuous elements, once broken, must reflect a change in the master bar number while being traceable to the original casting heat number.

Spooling: This term is utilized when wire, which has a cast drawn into it, is wound onto a flanged drum (the spool). The terminology is such that: Wire *is spooled*.

Reeling: The term is utilized when flat wire or slit strip is traverse wound onto a flanged drum (the reel) with the appropriate tension and interspacing. The terminology is such that: Flat *wire and strip are reeled.*

Coiling: This term is utilized when a single element of strip or flat wire is layer wound on itself in the same plane with a specific starting inside diameter. This process yields a product that when observed lying flat in a horizontal plane resembles a pancake. Hence the terminology: *Pancake Coil*

Payoff Direction: This term indicates the direction in which the material travels when the package is unwound.

Weld Dogleg: This term refers to butt-welding two strips together. Two strips are welded together at an included angle, resulting in strip camber.

Label Slitting Map: The label slitting map describes what element of the slitter head is located in the master coil. The purpose is for containment and problem solving.

5.0 PROCEDURES

5.1 GENERAL PACKAGING

This document contains the standard minimum requirements for packaging metal strip products supplied to Maumelle but is not all inclusive. The ultimate responsibility for the integrity and suitability of all packaging remains with the supplier. In the event of processing issues, the Molex plant and supplier will work together to document and implement any necessary changes. Refer to the appendices for additional plant requirements and deviation from the General Standard.

5.1.1 MINIMUM PACKAGING REQUIREMENTS: TRAVERSE WOUND

See appendix A & C

a) There shall be a maximum of two heats per reel.
b) There will be a maximum of 2 reels per pallet. One singe reel per pallet on 454 kg (1,000 lb.) per order is allowable.
c) Wooden reels should be steel rimmed. No particle board allowed. Plastic reels are optional.
d) Wooden pallets shall **not be** constructed of “green” lumber and **must be** Heat Treated. Preferred fastening method is with screws or bolts. No metal protrusions on the bottom of the runners are allowed.
e) Pallets must be individually numbered for each shipment (i.e. pallet 1 of 4, pallet 2 or 4, etc.). The pallet number shall be located on a tag attached to the pallet, with the material supplier’s name, location where manufactured, and tare weight of the pallet.
f) Acceptable reel maintenance level: There shall be a reel maintenance criterion which checks that for rim feed, both flanges are the same diameter within 1.60 mm (1/16”).
g) Flanges must be concentric with no detectable flat spots.
h) Flanges must be perpendicular to the core of the reel.
i) The distance between outside pallet runners to be a minimum of 533 mm (21”), with 3 runners to a pallet.

j) Reels shall be shrink wrapped, and then paper covered.
k) Burr direction and payoff direction shall be specified.
l) Maximum gross weight of pallet: 1360 kg (3,000 lb.).
m) Maximum gross reel weight: 454 kg (1,000 lb.).
n) Maximum package height (floor to top): 1168 mm (46”).
o) CRITICAL SAFETY: outside flanges **must** be separated between two reels with a minimum 38 mm (1-1/2”) gap.

p) There must be a 76 mm (3”) minimum gap between the material and the pallet.
q) All reeled materials must be slit and welded in the same direction.
r) A 1830 mm (6’) minimum strip of material is required with shipment, easily accessible, and wrapped around the reel and on top of the paper protecting the material; or as a separate coupon attached to the spool or pallet.
s) All traverse wound spools must have the last 150 mm (6”) of strip on the outside wrap of the spool painted with the same dye that was used to mark the welds. The purpose of this marking is to provide a sample for the operators to calibrate the optical detection equipment. Alternatively, a coupon sample may be affixed to the spool or pallet for this purpose.

5.1.2 MINIMUM PACKAGING REQUIREMENTS: PANCAKE COILS
See appendix B

a) Maximum pallet size: 1067 mm x 1067 mm (42” x 42”).
b) Wooden pallets shall not be constructed of “green” lumber and **must be** Heat Treated. Preferred fastening method is with screws or bolts. No metal protrusions on the bottom of the runners are allowed.
c) Maximum package height: 812 mm (32”).
d) Maximum gross weight: 1360 kg (3,000 lb.).
e) Multiple coils: payoff to be in the same direction.
f) Maximum coil O.D. is 915 mm (36”).
g) Maximum coil weight is 225 kg (500 lb.).
h) At least four (4) spacers separating coils from the skid, and each other, are required, 38 mm (1-1/2”) minimum thickness. Spacers are to be made from homasote or moisture barrier wrapped wooden spacers.
i) Only one heat per pallet. Pallets must be individually labeled and numbered for each shipment (i.e. pallet 1 of 4, pallet 2 of 4 etc.). The pallet number shall be located on an end pallet runner, with the material supplier’s name, location where manufactured, and tare weight of the pallet.
j) Minimum width between outside runners: 533 mm (21”).
k) Certification and a packing slip are required for each shipment.
l) Minimum coil I.D. is 305 mm (12”).
m) I.D. cores to be used on material less than 20 mm (3/4”).
n) An 1830 mm (6’) minimum strip of material is required with shipment, easily accessible, and attached to the pallet as a separate coupon.

5.2 LABELING AND IDENTIFICATION

5.2.1 END-OF REEL IDENTIFICATION: TRAVERSE WOUND
See appendix D

5.2.2 LABELING AND IDENTIFICATION: TRAVERSE WOUND AND PANCAKE COILS
Each reel or coil shall have the following information stated on a label(s).

a) Label Slitting Map (master coil number, weld number, winder number, and reel/coil number).
b) Molex Material Number (also referred to as Molex EDP #, Molex P/N).
c) Molex Purchase Order Number.
d) Actual weight of the material.
e) For pancake coils only, each coil must reference the Molex P/N, supplier master coil number, and supplier master coil number and supplier cut number, located on the I.D. and O.D. tails of the material strip.

5.2.3 PACKING SLIP: TRAVERSE WOUND AND PANCAKE COILS
A packing slip is required for each shipment, identifying the new weight (kg) of each pallet. **See appendix A & B**

5.2.4 CERTIFICATION: TRAVERSE WOUND AND PANCAKE COILS
Certification is required for each shipment, and must include:

a) Molex Document Number and Revision (if applicable).
b) Molex Material Number (also referred to as Molex EDP #, Molex P/N).
c) Molex Purchase Order number.
d) Lot number.
e) Quantity (net weight).
f) Date shipped.
g) UNS Alloy No. and chemical composition
h) Physical and Mechanical properties (Tier 1: actual variables data) including
   - ❖ Strip width and thickness dimensions (mm)
   - ❖ Tensile (MPa)
   - ❖ Yield (MPa)
   - ❖ % Elongation (%)
   - ❖ Average Grain size (µm)*
   - ❖ Plating finish, composition and thickness
   - ❖ Bending (passing r/t)
   - ❖ Electrical Conductivity (IACS%)
   - ❖ Surface Roughness (Ra, µm)*
i) Geometric properties (Tier 2: attribute data, **ref. 2090580043**) including
   - ❖ Edge Burr
   - ❖ Camber
   - ❖ Coil Set
   - ❖ Die Exit Twist*

**: Applicable when called out in the Purchase Order, Individual Metal Strip Specification (or Part Number), or Material Alloy Specification.*

5.3 WELDS

5.3.1 DIMENSION AND NUMBER OF WELDS

The following table specifies the maximum number of welds for traverse wound reels based on specific width categories.

Strip Width (mm)	454 kg Reel	907 kg
6.35 - 12.69	8 Welds	16 Welds
12.70 - 18.99	4 Welds	8 Welds
19.00 - 25.39	3 Welds	6 Welds
25.40 - 37.99	2 Welds	4 Welds
38.00 - 50.79	1 Weld	2 Welds
≥ 50.80	1 Weld	2 Welds

Strip Width (mm)	454 kg Reel	907 kg
.250 - .499	8 Welds	16 Welds
.500 - .749	4 Welds	8 Welds
.750 - .999	3 Welds	6 Welds
1.000 - 1.499	2 Welds	4 Welds
1.500 - 1.999	1 Weld	2 Welds
≥ 2.000	1 Weld	2 Welds

5.3.2 WELD CRITERIA

See appendix D

a) Weld thickness will equal the strip thickness at the specified tolerance on the Molex material specification.
b) Weld width will equal the strip width at the specified tolerance on the Molex material specification.
c) There shall be no visible voids.
d) Weld dogleg equals the strip camber to the specified tolerance on the Molex material specification.
e) Welding process must produce material that bends around a 76 mm (3”) diameter mandrel without any visible cracking.
f) End of reel and weld identification required.
Preferred marking fluid Dykem corp. P/N s:
81478 Dark Blue Opaque 8 oz. Cap /w Brush Applicator
77001 Dark Blue Opaque Brite Mark Jumbo Markers
81478 Dark Blue Opaque 1 Gallon Bottle
81824 Dark Blue Opaque 5 Gallon Pail
Use any of the above; apply to both sides of the material stip.

6.0 SUMMARY OF CHANGES

5.1.1. m): Change from 2,000 lbs to 1,000 lbs.

5.1.2. h): Change from three to four spacers.

5.2.4: Additions of “Actual Variable Data” vs “Attribute Data”.

- Included: Electrical conductivity, surface roughness, edge burr, camber, coil set, plating thickness, UNS Alloy No.
- Added the reference of **2090580043** for new geometric requirements and **2090580044** for surface condition requirements.

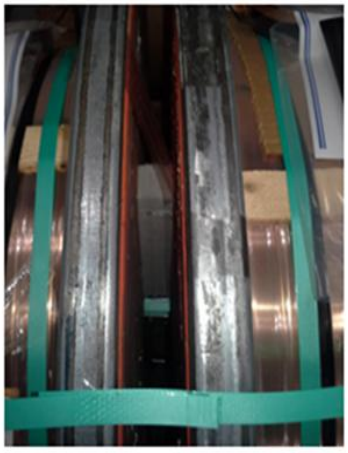
Appendix A:

- Item 8: Change from 2,000 lbs to 1,000 lbs.
- Item 13: Change from “1/8 inch” to “less than 50% of the material width”.

MAUMELLE APPENDIX A

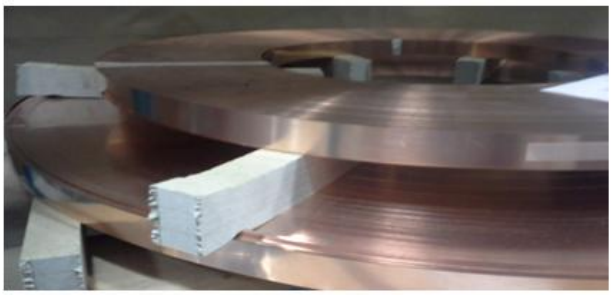
MAUMELLE (3106) TRAVERSE PACKAGING REQUIREMENTS (Also see Section 5.0)

1. Maximum pallet size:1067 mm X 1067mm (42"X 42").
2. A 150mm (6") Dykem sample readily accessible for sensor calibration shall be attached to pallet or spool.
3. Two (2) bands around each reel.
4. One band through spool.
5. All reeled materials must be slit and welded in the same direction.
6. Reel label Required on each spool.
7. Maximum gross weight:1,360kg (3,000 lbs).
8. Maximum gross spool weight: 454kg (1,000).
9. Maximum package height: 1168mm (46").
10. Minimum width between outside runners: 533mm (21").
11. CRITICAL SAFETY: Outside flanges must be separated between two (2) reels with a minimum 38mm (1-1/2") gap.
12. There must be a 76 mm (3") minimum gap between the material and the pallet to accommodate a sling.
13. The minimum distance between the material and the inside surface of the flange must be less than 50% of the material width.
14. Maximum of two (2) reels per pallet.
15. Stretch wrap then paper cover with the burr direction and pay off clearly marked.
16. A 1830 mm (6') strip of material is required with shipment, easily accessible and wrapped around the reel and on top of the paper protecting the material, or a separate coupon attached to the spool or pallet.
17. There shall be two (2) Heats maximum per reel.
18. Three (3) homasote or wooden spacers, at 90 degrees apart.
19. No metal protrusions are allowed on bottom runners.



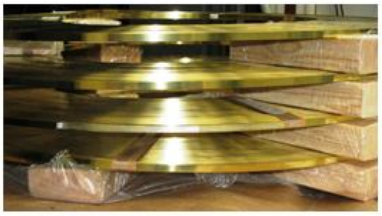
Critical Saftey:
Must have a minimum 38 mm
(1-1/2") gap between spools

MAUMELLE APPENDIX B



MAUMELLE PANCAKE PACKAGING REQUIREMENTS
(also see 5.0)

1. Maximum pallet size 1067 mm x 1067 mm (42" x 42").
2. Wooden pallet shall not be constructed of "green" lumber.
3. Maximum package height: 812 mm (32").
4. Maximum gross weight: 1360 kg (3,000 lbs.).
5. When supplying multiple coils, payoff to be in the same direction.
6. Only one heat per pallet.
7. Packing slip must specify net weight of each pallet tag.
8. Minimum width between outside runners: 533 mm (21").
9. Spacers are to be made from homasate or moisture barrier wrapped wooden spacers.
10. 38 mm (1-1/2") spacers are required under the 1st pancake of material and between each additional stack.
11. I.D. cores are preferred; they are required on stock strip less than 19 mm (3/4") wide.
12. Maximum coil O.D. is 915 mm (36").
13. Maximum coil weight is 225 kg (500 lb.).



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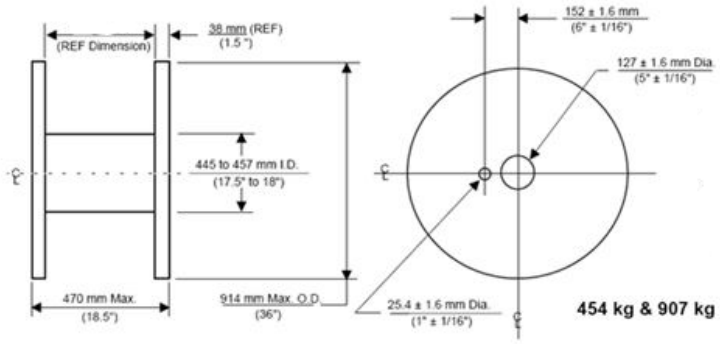
CHANGE NO.	849682						
REVISED BY	ELIJAH RESNICK	DATE	2026/04/15	DOC TYPE	DOC TYPE DESCRIPTION	DOC PART	SERIES
REV APPR BY	DANIEL MOLLA	DATE	2026/04/15	QMD	ENGINEERING STANDARD	000	215686
INITIAL RELEASE				CUSTOMER	DOCUMENT NUMBER	REVISION	SHEET
INITIAL DRWN	DANIEL MOLLA	DATE	2026/02/23	MOLEX INTERNAL	2010170002 TS 000	B	8 OF 9
INITIAL APPR	SHIVA B. ARALI	DATE					

MAUMELLE APPENDIX C



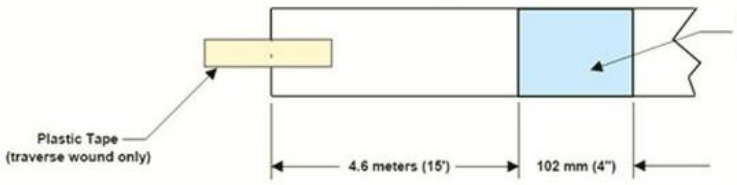
454 kg & 907 kg Spools (1000 & 2000 lb)

Reference Typical Industry Spools
(also see 5.0)

1. Spool flanges must be the same diameter to within +/- 1.6 mm (+\- 1/16"" of each other.
2. Spool flanges must be concentric, with no detectable flat spots.
3. Wooden spools should be steel rimmed.
4. Flange to core must be perpendicular to each other.
5. For Maumelle plant the most critical is that the spool fits onto a 127 mm (5") center hub payout.

MAUMELLE APPENDIX D

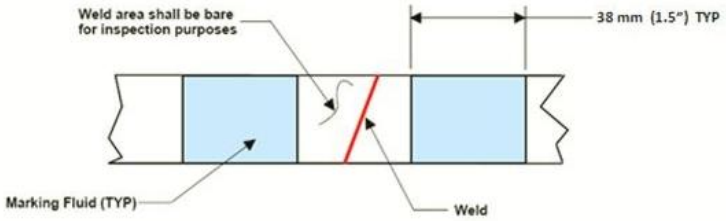
END OF REEL IDENTIFICATION



END OF REEL AND WELD IDENTIFICATION REQUIREMENTS
(also see 5.0)

1. Preferred marking fluid Dykem corp. P/Ns:
   81478 Dark Blue Opaque 8 oz. Cap /w Brush Applicator
   77001 Dark Blue Opaque Brite Mark Jumbo Marker
   81478 Dark Blue Opaque 1 Gallon Bottle
   81824 Dark Blue Opaque 5 Gallon Pail
   Use any of the above; apply to both side of the strip

WELD IDENTIFICATION



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