SIZE

Maximum Dimensions

Size: 4’ x 4’ x 8’ (1219 x 1219 x 2438 mm)

Minimum Dimensions

Size: 1.5” x 1.5”(38.1 x 38.1 mm)

TOLERANCES

± .005 Holes to Hole (Inches)
± .005 No Holes (Inches)
± .003/-.000 PEM Holes Before Powder (Inches)
± .005 Cut Edge to Feature (Inches)

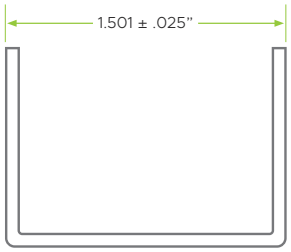
MULTIPLE SURFACES

Feature to Single Bend:

± .015” (.38mm)

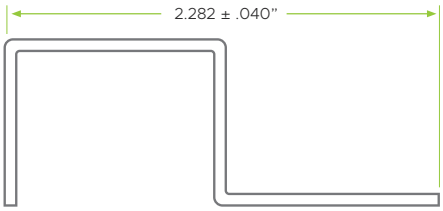
Across Two Bends:

± .025” (.64mm)



Across Three or Four Bends:

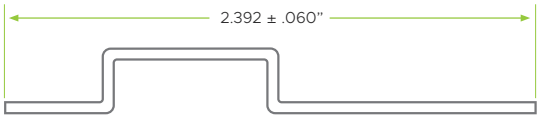
± .040” (1.02mm)



± 1° Angles

Across Five or More Bends:

± .060” (1.52mm)



For parts with five or more bends, tolerances of bends may need to be of gauging considerations.

MATERIALS

Cold Rolled Steel
ASTM A 1008

Hot Rolled Steel
ASTM A 1011

Galvanized Steel
ASTM A 653, G90

Stainless Steel
ASTM A 240, 304 2B

Aluminum
ASTM B 209, 5052 H-32

MATERIAL THICKNESS

MPE STANDARD THICKNESSES					
Gauge	Cold Rolled Steel	Galvanized	Hot Rolled Steel	Stainless Steel	Aluminum
24	.024”	.027”		.027”	
22	.030”	.033”		.031”	
20	.036”	.039”		.037”	.032”
18	.048”	.051”		.050”	.040”
16	.060”	.063”		.063”	.050”
14	.074”	.078”		.078”	.063”
13	.089”	.093”		.094”	
12	.104”	.108”		.109”	.080”
11	.119”	.123”		.125”	.090”
10	.134”	.138”		.140”	.100”
9					
8			.164”	.172”	.125”
7			.179”	.187”	
6					.160”
3			.250”	.250”	
2					.250”

FINISHING

PROCESS	AVERAGE LEAD TIME
Powder Coat	MPE IN HOUSE
Silkscreen	
Chromate Conversion Coating	7 DAYS
Anodize	
Zinc Plating	
Passivation	
Nickel Plating	
Electroless Nickel Plating	
E-Coat	
Wet Paint	
Tin Plating	
Black Oxide	
Electroless Polishing	

BEND RADIUS

- ± 1 Degree
- Standard bend radius = material thickness unless otherwise specified on MPE or customer prints

HEMS

- MPE forms both open and closed hems. Hem tolerance is dependent on the hem's radius, material thickness, and features
- MPE recommends the minimum inside diameter equals the material thickness, and a return length of 6x the material thickness on the hem

OFFSETS

(Below is a list of standard offsets we have. Other custom offsets can be purchased.)

- .048”
- .095”
- .110”
- .125”
- .187”
- .203”
- .250”
- .330”
- .344”
- .346”
- .500”
- .525”
- .687”
- .750”

HOLES AND SLOTS

MPE recommends that holes and slots be a minimum of material thickness in diameter. If material is .036" or thinner, the hole should be .062" from the edge; if thicker than .036", the hole should be .125" from the edge to avoid distortion. MPE utilizes PEM and Southco inserts, please refer to manufacturer's website for installation data:

- www.pemnet.com
- www.southco.com

COUNTERSINKS

MPE offers both machined and formed countersinks. Standard angles: 82°, 90°, 100°, and 120°. Tolerance for formed major diameters is +/- 0.010"

SPECIAL PUNCHES

Embossed features (dimples, louvers, cards guides, etc) involve displacement of material which will affect flatness, straightness, and surface finish of the part. The extent of the distortion will need to be verified upon prototyping

WELDING

MPE can resistance spot weld (RSW) parts up to 12 ga. (.1046") thick steel or .090 aluminum. For thicker material it is recommended to MIG/TIG weld the parts

General Tolerances

- **All dimensions 25" and under:** ±.040" (1.0mm)
- **All dimensions over 25":** ±.060" (1.52mm)

RIVETING

Where design considerations allow, MPE prefers and recommends the use of "Pop" and "Gesipa" style rivets for part fastening. In many instances, superior part positioning can be achieved at a lower cost. See manufacturers website for data:

- www.stanleyengineeredfastening.com/fasteners/rivets
- www.gesipausa.com/products/blind_rivet_technology/blind_rivets/

POWDER COATING

Masking

Standard masking dot diameters (stock items at MPE)

- 1/4”, 5/16”, 3/8”, 1/2”, 5/8”, 3/4”, 1”, 1¼”

Standard masking tape widths (stock items at MPE)

- 1/4”, 3/8”, 1/2”, 3/4”, 1”, 1½”, 1¾”, 2”

Powder Coating

MPE coats parts with epoxy, urethane, polyester, and hybrid thermoset powder coatings

Texture classifications

- Smooth
- Textured: determined by formulation of the powder, not application method

MPE uses three grades for product appearance which are defined further in form 55246-011 (MPE Cosmetic Specification)

- Grade A: A user contact surface or highly visible to the user in any use position
- Grade B: Usually visible though not normally directly facing the user while the product is in use
- Grade C: Usually hidden by other parts of the assembly or the inside surface of the assembly. Requires coverage for protection purposes only