APPENDIX C - DoD Contracts (Aug 2012) for HII PO 4500402427

PRODUCT MARKING SPECIFICATION

Markings required by the part drawing or by any invoked specification may be established by any of the following methods, provided that the wall thickness of a pressure-boundary part is not reduced below the minimum specified:

1. Cast or forged integral with the part.
2. Impact die-stamping. Unless specified by the component drawing or specification, this method is limited to carbon steel with a specified carbon content of greater than 0.35 percent with a minimum elongation below 10%. Stamps shall be the round-bottom, low stress type (see Table I). Markings shall be applied only to low stress areas, flange rims, or integral pads or bosses. Tube or pipe and base material of pressure boundary parts less than 1/8 inch thick shall not be marked by this method.
3. Vibro-etching. The tool shall be fitted with a carbide tip (or equivalent) with a minimum radius of 0.005 inches. Markings shall be between 0.003 and 0.010 inches in depth. Hardened materials (except fasteners and HY-80/HY-100) shall not be vibro-etched. Buffing may be required prior to etching rough cast surfaces. The marking tool tips shall not be cadmium plated.
4. Electrochemical etch. Electrolyte shall be compatible with the base metal. This method shall not be used on carbon or alloy steels unless the material has been hardened or the wall thickness is below 0.125 inch nominal. Electrolyte containing total halogens, sulfur, and lead in excess of 250 parts per million shall not be used.
5. Inks or paints compatible with the base metal may be used on pipe and tube only, unless otherwise stated by the applicable specification. The marking shall not rub off or efface through normal handling, exposure to the elements, shipment, and storage.
6. Electric arc pencils shall not be used for any marking application.

Permanent marking is not required for the items listed below. Such items shall be packaged or segregated and the package or container labeled with the required marking. In case of doubt as to whether the item should be marked, contact the Precision Technology Buyer for determination before packaging and shipping.

1. Non-metallic components
2. Material having cosmetic finishes (e.g., chrome-plated fixtures)
3. Material with a suitable marking surface of less than 3/8 of a square inch
4. Items of configuration or condition that precludes the use on permanent markings (e.g., components with precision machined surfaces). The application of markings shall not affect form, fit, or function of an item.

TABLE I

DIMENSIONS FOR LOW STRESS DIE-STAMPS

CHARACTER SIZE	MINIMUM TIP RADIUS	IMPRESSION WIDTH FOR 0.010 INCH DEPTH
1/16 INCH	0.005 INCH	0.020 INCH
3/32	0.006	0.021
1/8	0.007	0.022
3/16	0.008	0.026
1/4	0.010	0.031
3/8	0.014	0.042
1/2	0.020	0.062