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# FOREWORD

The Auto/Steel Partnership (A/SP) is a North American industrial innovation. Formed in 1987, it is a unique international consortium and the first to include Chrysler LLC, Ford, General Motors and their suppliers. Although the principal Partnership role is sponsoring and directing applied research and validation, followed by communication of the results and conclusions, the most important role may be that of the forum for discussing matters of mutual interest and concern to the automotive, steel and related industries. This open communication channel fosters improved understanding, cooperation and resource leveraging that benefits all participants and optimizes automotive body designs, processes and tooling.

The Auto/Steel Partnership members are:

AK Steel Corporation	ArcelorMittal
Chrysler LLC	Newcore Corporation
ArcelorMittal Dofasco	Severstal North America Inc.
Ford Motor Company	United States Steel Corporation
General Motors Corporation	

In addition to the NAAMS Assembly standardization and the Stamping standardization projects, the Auto/ Steel Partnership sponsors efforts in other areas, such as:

- Design manuals for mild steels, high strength steels, manufacturability, tailored blanks, etc.
- Production sheet steel mechanical property, surface texture and coating weight studies
- Stamping and assembly tooling cost and lead time optimization
- Dimensional management and process control options for the automotive body-in-white
- Development of standardized permanent deformation, resistance welding and corrosion tests
- Research projects to optimize resistance welding electrode wear and stamping lubricants.

The Partnership is continually evaluating other endeavors that may offer strategic opportunities for future advancement. Several examples are:

1. Increased utilization of various national and international applied research activities
2. Alternate joining technology assessment
3. Potential benefits of a center of expertise for metal fabrication coupled with improved technical training and education.

# METRICATION AND STANDARDIZATION BACKGROUND

The potential benefits for commonized or standardized tooling within the auto industry have been recognized for several decades; however, progress had been virtually nil. At the December, 1991 annual meeting of the Michigan Tooling Association (MTA), the MTA members proposed to the automotive representatives in attendance from Chrysler LLC, Ford, and General Motors that the auto industry consider the challenge of commonization or standardization one more time. The intent of this type of endeavor would be to:

- Reduce overall assembly and stamping tooling cost
- Provide standardized metric convention for tooling
- Provide standardized metric componentry for tooling
- Reduce the variety of functionally similar items.

The automotive representatives suggested that the Auto/Steel Partnership (A/SP) could provide an appropriate avenue for pursuing this activity since the A/SP has an excellent success rate for efforts and projects of this nature. Subsequent to the MTA meeting, the A/SP and the Industrial Development Division of the University of Michigan hosted an “ad hoc” group of representatives from the three automotive companies and the Michigan Tooling Association in January, 1992 to determine if they felt further standardization discussions could lead to a mutually satisfactory end point. The participants in this initial meeting did conclude that:

1. A mutually satisfactory end point could be reached and
2. The Auto/Steel Partnership could provide the appropriate avenue for this effort. In February, 1992 the A/SP Joint Policy Board agreed to sponsor and fund commonization/standardization activities related to automotive assembly and stamping tooling.

After several meetings with the tooling and automotive communities, singularly and collectively, these communities agreed to form the Assembly Tooling Standardization Group (ATSG) in May, 1992 to address potential development and adoption of common assembly tooling standards. A similar group, the Stamping Tooling Standardization Group, was also formed at the same time to address potential development and adoption of common stamping tooling standards.

The Mechanical Components Project Team and the North American Automotive Metric Standards Project Team were organized within the Assembly Tooling Standardization Group. The latter team completed its charter and disbanded. The result of their efforts is this body of recommended automotive tooling practices related to metric convention as well as several thousand standardized hard metric components. Chrysler LLC, Ford Motor Company and General Motors Corporation have adopted a substantial portion of these standards for use in assembly tooling design, specification and construction.

The Auto/Steel Partnership recognizes that the true NAAMS success belongs to the representatives of the supplier and automotive companies who dedicated significant time and effort to this activity. Many representatives contributed countless hours researching, designing and verifying the information contained in these standards. These same people, plus many others, have participated in regular meetings (averaging two to three hours each) since 1992. Each meeting was typically attended by:

- One or more representatives each from Chrysler LLC, Ford and General Motors
- One representative from three or more tier one tooling suppliers
- Representatives of other interested entities, e.g., tier two and tier three suppliers, component manufacturers and distributors, and related design houses.

# PREFACE

This set of standards is a companion to the NAAMS Global Standard Components – Stamping. The products described herein are applicable to, or components of, body assembly tools designed and built for the North American automotive companies, i.e. Chrysler LLC, Ford Motor Company and General Motors Corporation and their supplier/support companies. The standards have been developed to establish metric measurements for envelope dimensions and operational characteristics for the various components specified for assembly tools used by the North American automotive companies.

Dimensions and other parameters are normally given in hard metric dimensions versus soft conversion of U.S. customary dimensions to metric. There are two exceptions, for which inch dimensions are still used:

1. Construction and flat steel stock. This material specified may be either in inch or metric dimensions due to commercial considerations.
2. Components with features that receive fasteners such as screws and dowels. Components with full metric specifications are the standard. Optional components are listed with identical dimensions except that inch units are applied to the fastening features. The optional components are distinguished by different NAAMS Code numbers.

It is the intent of the Auto/Steel Partnership to discontinue all standards using U.S. Customary units as soon as practical.

The participating Project Teams were responsible for determining the dimensions and characteristics for each component and for organizing the standards in their final form. The only exception is Section F, Fasteners, which was developed jointly with the NAAMS Stamping Project Team. Items within this standard reflect a balanced representation of the various designers, manufacturers and users of the products. All agreements and concessions made by the individual participants were for the general good of the standardization process.

Approval and control for these standards, and authority to add, delete, modify, etc., rests with the Auto/Steel Partnership. All communication related to the participating Project Team, or standards, should be made through the NAAMS Administrator, Telephone (248) 945-4779, fax (248) 356-8511, or e-mail [gene@a-sp.org](mailto:gene@a-sp.org)

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# REQUEST FOR CHANGE

This form is provided for the convenience of those who wish to request changes, additions or deletions to those standards. Please use this page as a duplication master and submit one request for each change.

To: AUTO/STEEL PARTNERSHIP  
2000 Town Center, Suite 320  
Southfield, MI 48075-1123  
Attn.: NAAMS Team  
fax (248) 356-8511

Submitted by: \_\_\_\_\_

Company: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

Phone Number: \_\_\_\_\_ Fax Number: \_\_\_\_\_

Section and Page Number: \_\_\_\_\_ Item Number: \_\_\_\_\_

Type of Change:

- |                                   |                                      |
|-----------------------------------|--------------------------------------|
| <input type="checkbox"/> Text     | <input type="checkbox"/> Add Item    |
| <input type="checkbox"/> Graphics | <input type="checkbox"/> Delete Item |

Details of requested change: \_\_\_\_\_

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