

# How Gear Standards are Written

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Several years ago my friend, colleague and past Technical Division Executive Committee (TDEC) Chairman Doctor Phil Terry (retired chief metallurgist, Lufkin Industries and now owner of P. Terry and Associates) wrote a very good article titled "Raising the Standards" about the AGMA Technical Division and the AGMA TDEC. Doctor Phil's words are still applicable today, and I'd like to revisit some parts of the article with a few updates, as well as explain the AGMA Standard and Information Sheet writing process.

The AGMA mission statement is "To help members compete more effectively in today's global marketplace." A large part of that mission has to do with the standards and information sheets created by the 26 committees in the Technical Division.

The Technical Division of AGMA is overseen by the TDEC. The TDEC has the responsibility to supervise the development and maintenance of AGMA Standards and other technical publications, as well as supervising the division's activities and coordinating them with the Administrative Division. The TDEC also organizes and conducts the annual Fall Technical Meeting.

The TDEC consists of a chairman (myself – T.J. "Buzz" Maiuri of The Gleason Works) and 7 voting members: John B. Amendola, Sr. of Artec Machine Systems; Terry Klaves of Milwaukee Gear Company; Bob Wasilewski of Arrow Gear Company; Dan Phebus of Fairfield Manufacturing Company; Todd Schatzka of Rexnord Corporation; Todd Praneis of Cotta Transmission Company and Bill Hankes of A-C Equipment Services. We meet face to face two to three times a year, once online via Web-Ex. As necessary, we use conference calls and e-mails throughout the year to take care of any business that needs to be addressed between meetings.

All TDEC meetings are attended by AGMA headquarters personnel Charlie Fischer – VP Technical Division and Amir Aboutaleb – staff engineer. Joe Franklin Jr. – president of AGMA also

attends the meetings, as does the AGMA chairman of the board. The new chairman is Lou Ertel of Overton Chicago Gear Corporation, and the chairman emeritus is Matt Mondek of Reliance Gear Corporation.

Each member of the TDEC is also the liaison to several of the technical committees. As the liaison, he helps the committee chairman evaluate new projects and prepare proposals to the TDEC for the committees, as well as submit progress reports, completed work and committee problems to the TDEC.

The technical committees are responsible for the timely development, maintenance and theoretical accuracy of the technical publications of AGMA. Each committee has a chairman and vice chairman.

Several of the technical committees also serve as the United States Technical Advisory Group to programs within ISO TC 60 and ISO TC 14 (International Organization for Standardization – Technical Committee). The scope for ISO TC 60 is the standardization in the field of gears, including terminology, nominal dimensions, tolerances and tools for manufacturing and control. The scope for ISO TC 14 is the standardization in the field of shafts for machines, their keys and keyways, splines and serrations and their accessories such as couplings, flanges, etc.

AGMA is the secretary of ISO TC 60 and procedurally oversees all the standards programs that are undertaken.

All AGMA standards have the status of being American national standards as defined by the American National Standards Institute (ANSI). To maintain this status, AGMA's Technical Division operations are audited by ANSI every five years to ensure compliance with our own policy and practices, and with ANSI's requirements. The next audit will be in 2014.

There are currently 53 AGMA standards and 30 information sheets.

Information sheets are similar to standards, but are different in a few major ways. ANSI/AGMA standards com-

prise proven, reliable information. Information sheets, however, often contain material that is still being tested and proven. Information sheets are also a forum for setting new material before the industry so that they can be used and refined. ANSI/AGMA standards require balloting before the entire membership of AGMA, as well as any other interested parties. An information sheet requires only approval of the technical committee that prepared it, and permission to publish from the TDEC. One advantage to preparing an information sheet is that it can be published more quickly, since it does not go through the general ballot process. However, information sheets are not standards and do not carry the authority of consensus standards.

New standards and information sheet projects can originate from within an AGMA technical committee, the AGMA Business Management Executive Committee (BMEC), from AGMA membership, or from sources outside of AGMA.

The whole process from the proposal of a new standard or information sheet to its publication will take some time, and there are a number steps along the way. AGMA headquarters with the guidance of the TDEC has prepared a document titled "Operating Instructions for AGMA Committee Chairmen and Vice Chairman," which outlines the procedures for writing standards and information sheets. As an example, the document contains an extensive flow chart as well as a checklist with 30 task items for standards development. In addition, the manual contains other useful information in the "Policy and Practice Guide" portion of the document. (Note that the TDEC is in the process of reviewing the document for necessary updates to reflect current procedures.)

In brief, the process for a proposed standard will go something like this:

If the proposed standard originates from within a Technical Committee, the proposal will contain a written scope and justification for the standard. It

will then be directed to the appropriate Committee Liaison on the TDEC.

The TDEC will then review and discuss the proposal, and if approved, the appropriate technical committee will be selected to work on the standard. Through filling of required forms with ANSI, interested parties outside of the AGMA membership body will be notified and invited to comment on the new project.

The technical committee will then create a working draft of the standard. The draft will be reviewed for style, format and metrification by the AGMA Technical Division before distributing it to the members of the committee for review and comments. The committee responsible for the development of the draft will then meet to review and resolve the comments submitted. Following this step, a new draft of the document will be prepared and a request will be made to the TDEC for permission to send the standard out for general ballot. If granted, the standard goes out for general ballot and the ballot comments are resolved by the technical committee. The general ballot list includes interested AGMA member companies, academic and honorary members as well as interested non-AGMA members subject to TDEC approval.

Another revision (if necessary from the ballot comments) is prepared and the technical committee will then recommend, through the TDEC liaison, the approval of the standard for publication.

If the TDEC approves the standard for publication, required forms will be submitted to ANSI to register the new document as an American National Standard and a recommendation will then be made to the Board of Directors to approve publication of the document.

AGMA Standards are reviewed every five years for reaffirmation, revision or withdrawal. AGMA also has a defined procedure involving headquarters, TDEC, and the technical committees for handling requests for interpretation of standards.

Individuals serving on the technical committees and the TDEC are volunteers from member compa-

nies. Involvement in AGMA is a win/win situation for everyone — the individuals serving, as well as the companies they are representing, and AGMA. There is no better way to learn about the standards, about the art of gearing and the gearing industry than participating on an AGMA technical committee. You don't have to be an expert to get involved, but I know for a fact that if you do participate on an AGMA committee, you will be working alongside some of

the most knowledgeable individuals in the world of gearing.

We are always looking for new people to participate. If you are interested, we encourage you to contact Amir Aboutaleb at [Aboutaleb@agma.org](mailto:Aboutaleb@agma.org).

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