Casting Design and Performance
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Component geometry is a powerful aspect of casting design in terms of both effective production and the function of a cast part. Many tools have been developed for casting design, and the examples of past designs, even those of years ago, provide an important baseline in producing effective castings. Computer modeling and simulation has greatly facilitated the design process, and the article “Modeling of Casting and Solidification Processing” provides an extensive review of the subject. In addition, the complex aspects of configuration design are detailed in a series of articles in the sections on “Process Design” and “Design and Geometry.” Several of these articles are based on the ASM publication *Casting Design Handbook* (1962), which has been out-of-print for many years. Nonetheless, the lessons are still relevant today, as the basic fundamentals of geometry, metallurgy, and physics remain unchanged (even within the view of new modern perspectives and the advent of more powerful analytical or numerical tools).

It is noted that the distinct sections on “Process Design” and “Design and Geometry” are a somewhat artificial division of topics, because really both process and design are intertwined in complex ways, especially for castings. In a sense, the “design” is like the fulcrum that leverages these two important aspects of castings into effective products. It is hoped that this collection of articles provides a useful reference on casting design. Finally, the performance of cast products is covered in a series of articles in the last section. Ultimately, the performance of product determines its success.

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