Editorial

Compressors of various types, absorb nearly 20% of the electrical power, generated in industrialised countries and the world annual production rate of such machines is many times greater than that of motor vehicles. There is, therefore a continuing need to improve their efficiency, thereby reducing their power consumption, while competition between the many manufacturers worldwide is the driver to reduce their cost. Consequently, despite the relative maturity of the industry, ever more detailed studies of the processes within existing types of machine are being undertaken, while novel means of effecting the compression process are continually being investigated.

In addition to the need to improve compressor design and manufacture, growing interest in the recovery of power from low grade heat sources has led to widespread examination of the possibility of using various types of compressor, run in reverse mode, as expanders, as a preferred alternative to turbines for such applications. Taken overall, the fields of application of compressors are so numerous that it is not easy to enumerate all of them, but they are the key components in many heating and cooling processes, in refrigeration and air conditioning and in the process industries. In many of these applications, they are required to operate on a continuous basis, day and night, throughout the year. Reliability and long service life are therefore considerations that may supersede capital cost and efficiency in evaluating their worth

In recognition of these trends and for benefit of industrial and academic participants, biennial international conferences on compressors and their systems are held at City, University of London, jointly convened with the IMechE, IIR and IOR. This special issue contains a small selection from the 80 papers presented at the 9th international conference on compressors and their systems, held in 2015.

As can be seen, compressor research and development presented in the conference embraces the entire scope of Mechanical Engineering. The specimen papers published here, cover sound and vibration studies, lubrication, manufacturing problems, thermal considerations and the effect of expander performance on the plant efficiency.

We, therefore, hope that this issue will be both of interest and value to the wider engineering public.

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Editors