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Abstract

Broadly speaking, industrial plants in the United States have been making strides towards improving processes, reducing costs, and finding new ways to increase profit margins. The desire to reduce waste and better understand daily plant operations has spawned a number of strategies to accomplish these goals. One such strategy is Root Cause Analysis.

Root Cause Analysis (RCA) is a systematic approach to problem solving, commonly applied when there is a significant failure or issue with far-reaching impact. Its goal is to identify the factors of the negative event and determine what needs to change to prevent similar future occurrences. The spirit of RCA is investigative and collaborative in nature, whereby a team works together to discuss and carefully document the findings.

This paper will discuss how to apply Root Cause Analysis to compressed air systems; more specifically, applying the 5-Whys process to common plant problems.

Getting to the root of the problem

According to a survey conducted by the US Department of Energy, approximately 10% of the electricity consumed at a typical industrial facility is for generating compressed air. In some facilities, this percentage can reach 30% or more.[1] Much of this power is wasted in generation due to poor choices in compressor size and lack of controls. Additionally, it's estimated that half of all compressed air generated is wasted.[2] Despite the widespread waste of compressed air and the potential for optimizing a compressed air system, it is quite often neglected when plant efficiency initiatives are discussed.

In one example, a furniture manufacturer had grown its business and over the years, its compressed air system had grown into a 2400 hp system. Now, with a power bill for compressors over \$1 million per year, it was time to take a look at ways to improve the system. An in-depth assessment produced some eye-opening results. The total productive demand on the system could be satisfied with only half of the compressors currently being used. The manu-

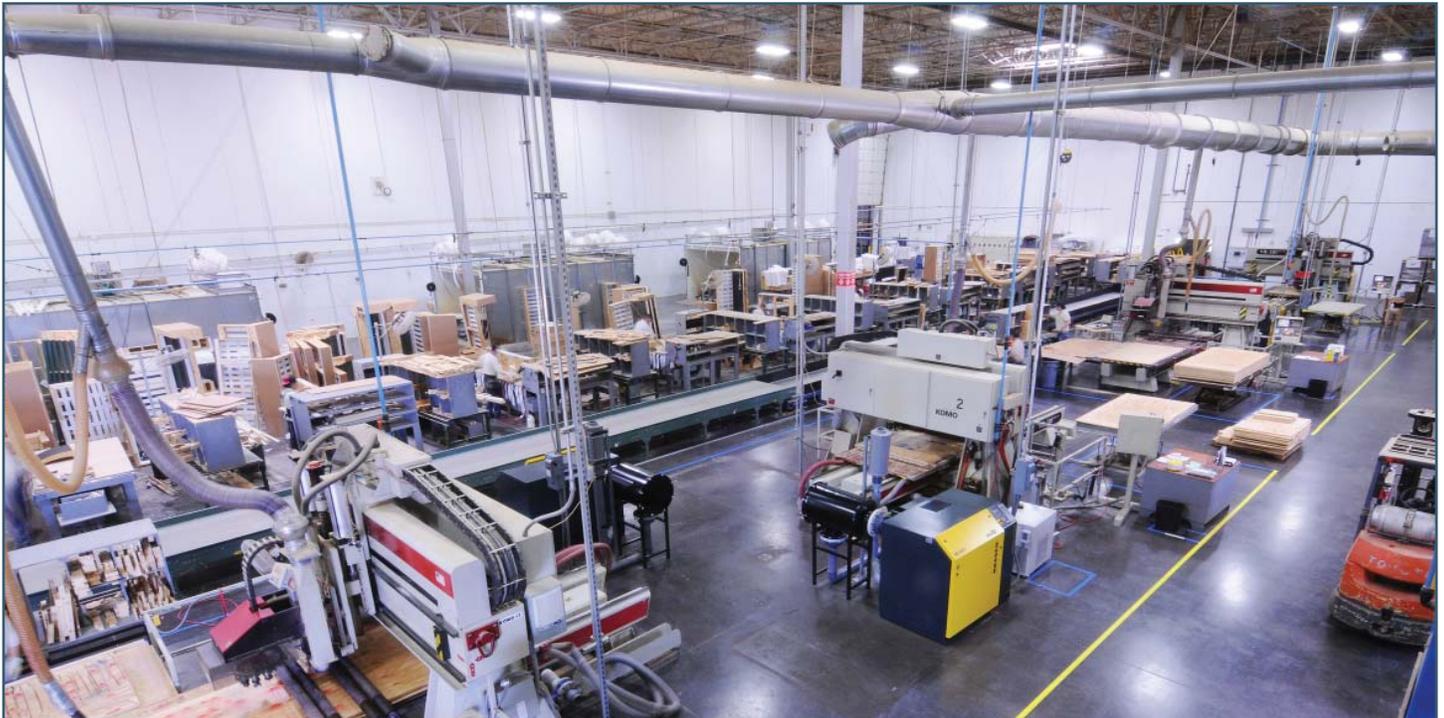


IMAGE 1: A furniture manufacturer identified significant savings when they conducted a compressed air assessment.