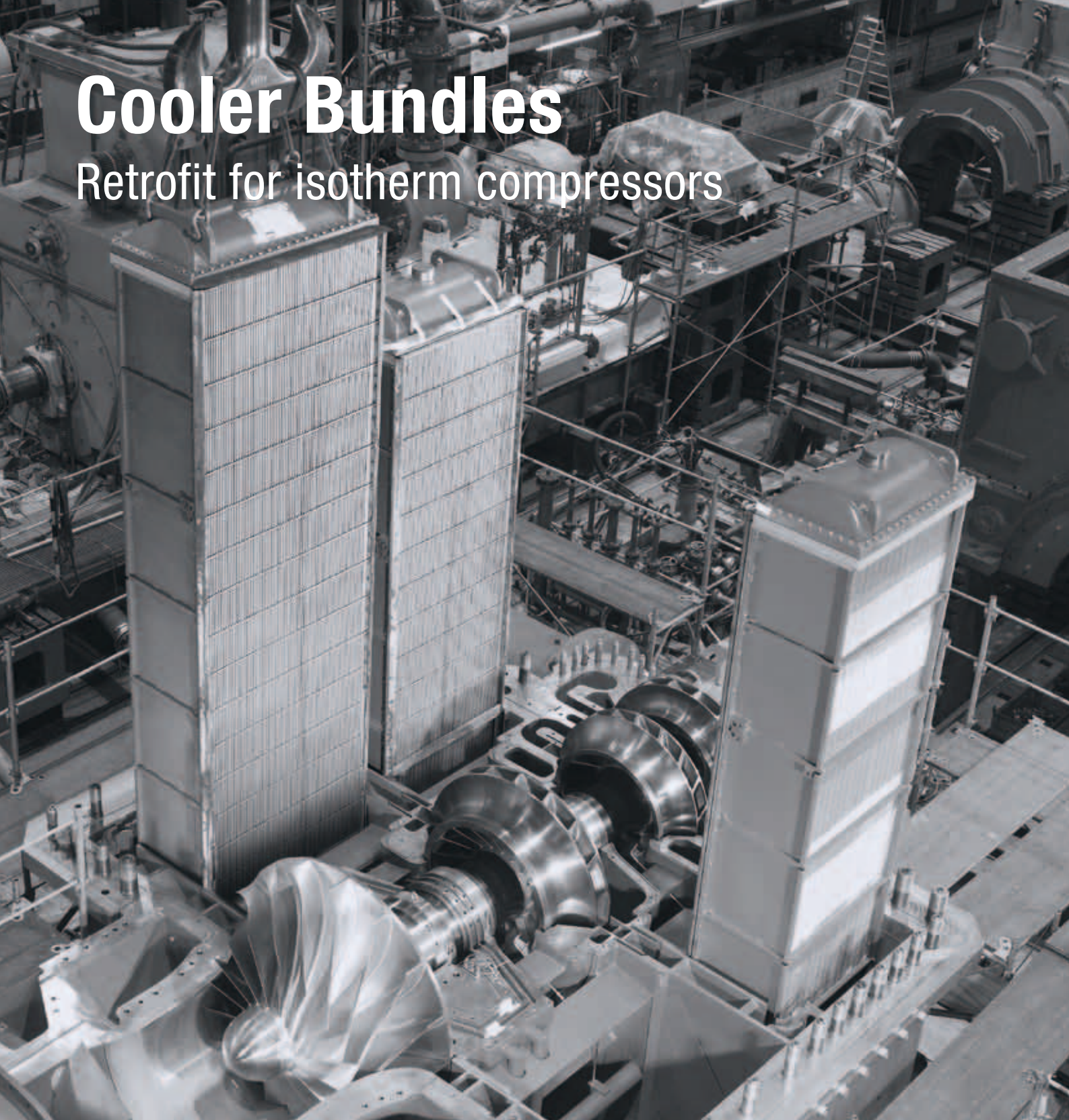


Cooler Bundles

Retrofit for isotherm compressors



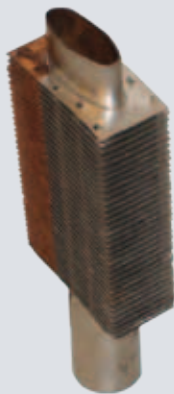
Cooler Bundles

The significance of intermediate cooling



Assembly of plate fin coolers into an isotherm compressor

Isotherm compressors are established in different sectors of industry, such as air separation, chemistry, the steel industry and mining. They compress high volume flows of air and technical gases to the required process operating pressures. As a result of intermediate cooling, isotherm compressors save up to 25% of drive power compared with other compressor types without cooling. However, a precondition for reliable operation and excellent efficiency are high-capacity cooler bundles with a large cooling surface and a low pressure drop on the gas side keeping the internal losses at a minimum.



Old design with round tubes and round / rectangular fins

New compact cooler bundle design

Challenge

In the past, round or oval tubes with either round or rectangular fins have been used. Occasionally, vibrating tubes can cause the tube to crack and consequently water leaks into the compressor can occur. Tube vibrations cannot be completely eliminated and avoided due to the length of the cooler design as such and the various operating conditions. It should additionally be noted that the supplier might be unable to provide original tube designs in the future.

Solution

We recommend our customers to install the latest plate fin cooler technology with the next cooler replacement. The fins are replaced by a single sheet, covering the complete cooler bundle cross-section. The tubes are integrated into a complete stack of plate fins. The cooler surface per cooler volume could be increased by about 10 to 20% on the gas side. As well as overcoming the problem of vibrating tubes, thermodynamic improvements can also be achieved with the latest technology.

Advantages

- compact design
- tube vibrations are eliminated and therefore higher reliability and longer lifetime of cooler bundles can be achieved
- potential for power savings due to more efficient cooling and reduced pressure losses depending on specific application
- potential for cost savings due to optimised production technology

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