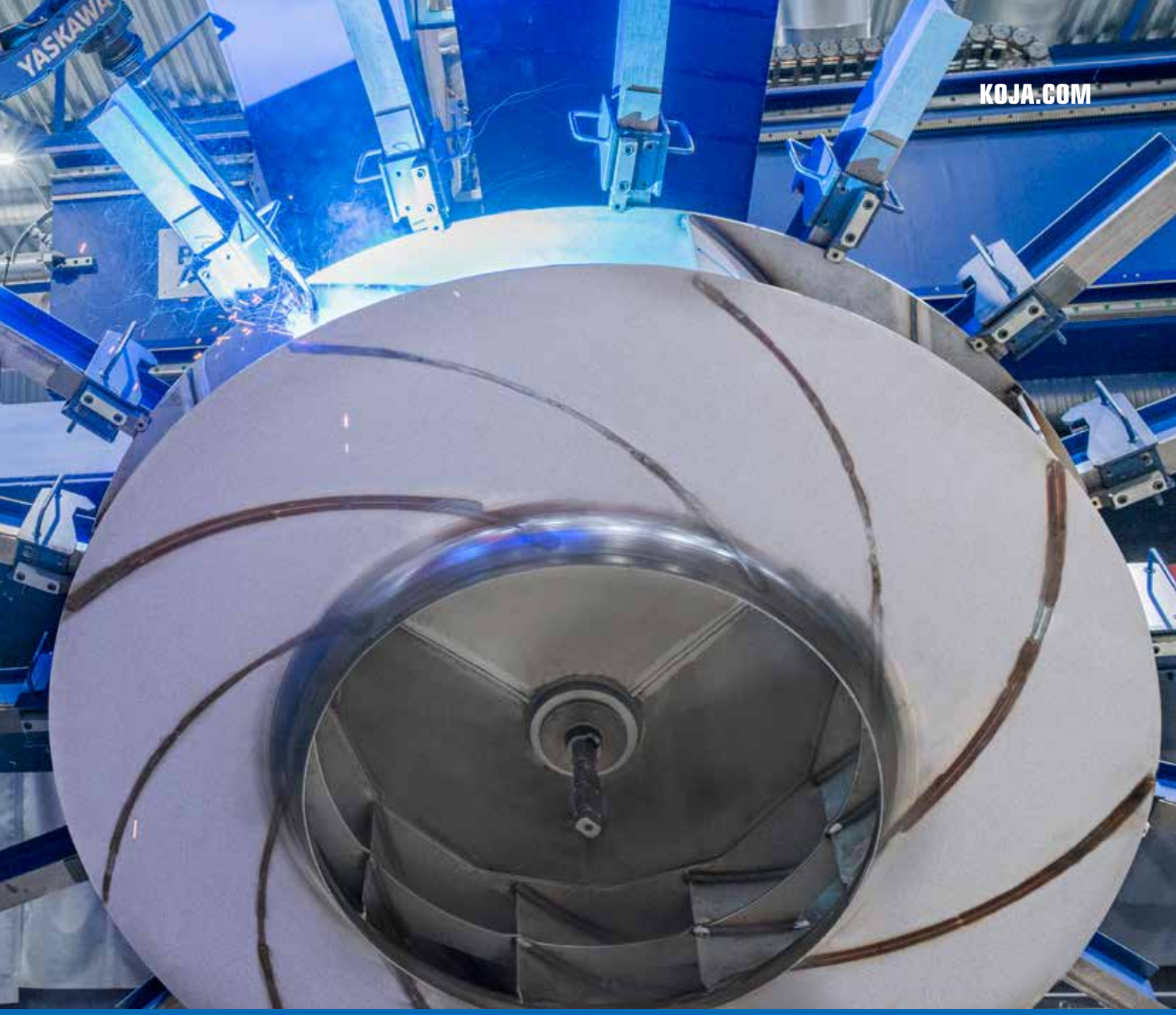

Process Fans

STEEL STRUCTURE FATIGUE

A cleaner tomorrow today.

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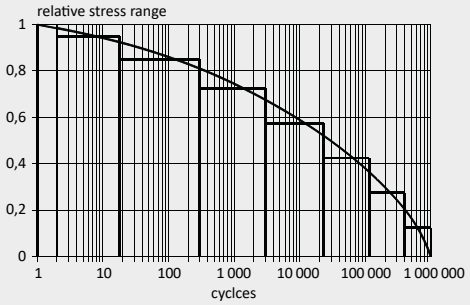
IMPELLERS HAVE SPECIFIC AND CALCULABLE LIFETIMES DUE TO FATIGUE

Industrial process fans that are subjected to significant tension fluctuations are prone to experiencing physical fatigue in the impeller. This can lead to impeller breakage, with serious consequences. It's important to note that the service life of impellers is limited and cannot be extended through repairs. Even if the weakest point of damage is repaired, another weak spot is likely to show damage soon after. The concept of "memory of fatigue" involves the accumulation of stress fluctuations and fatigue, which also plays a role. The progression of fatigue can be estimated by calculating the magnitude and number of rotation speed fluctuations of the impeller.

Regular inspections are crucial for maintaining the safety and efficiency of the process. Inspecting the process fans regularly and replacing any impeller that has exceeded its calculated service life or is broken with a new one can prevent potential impeller breakage.

GAUSSIAN NORMAL DISTRIBUTION

Example of cumulative frequency diagram (stress spectrum)



Fatigue of steel structures in process fans in a nutshell:

- ✔ Fatigue is caused by fluctuations in tension, among other factors.
- ✔ Fatigue has a memory: fluctuations add up, and fatigue accumulates over time.
- ✔ An impeller that has exceeded its calculated service life must be promptly replaced with a new one.
- ✔ Ensure safety and efficiency by conducting regular inspections.

We are delighted to help at any point of your project or product life cycle.
Please contact our experts for more information.

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