

The Backbone of Japanese Industry

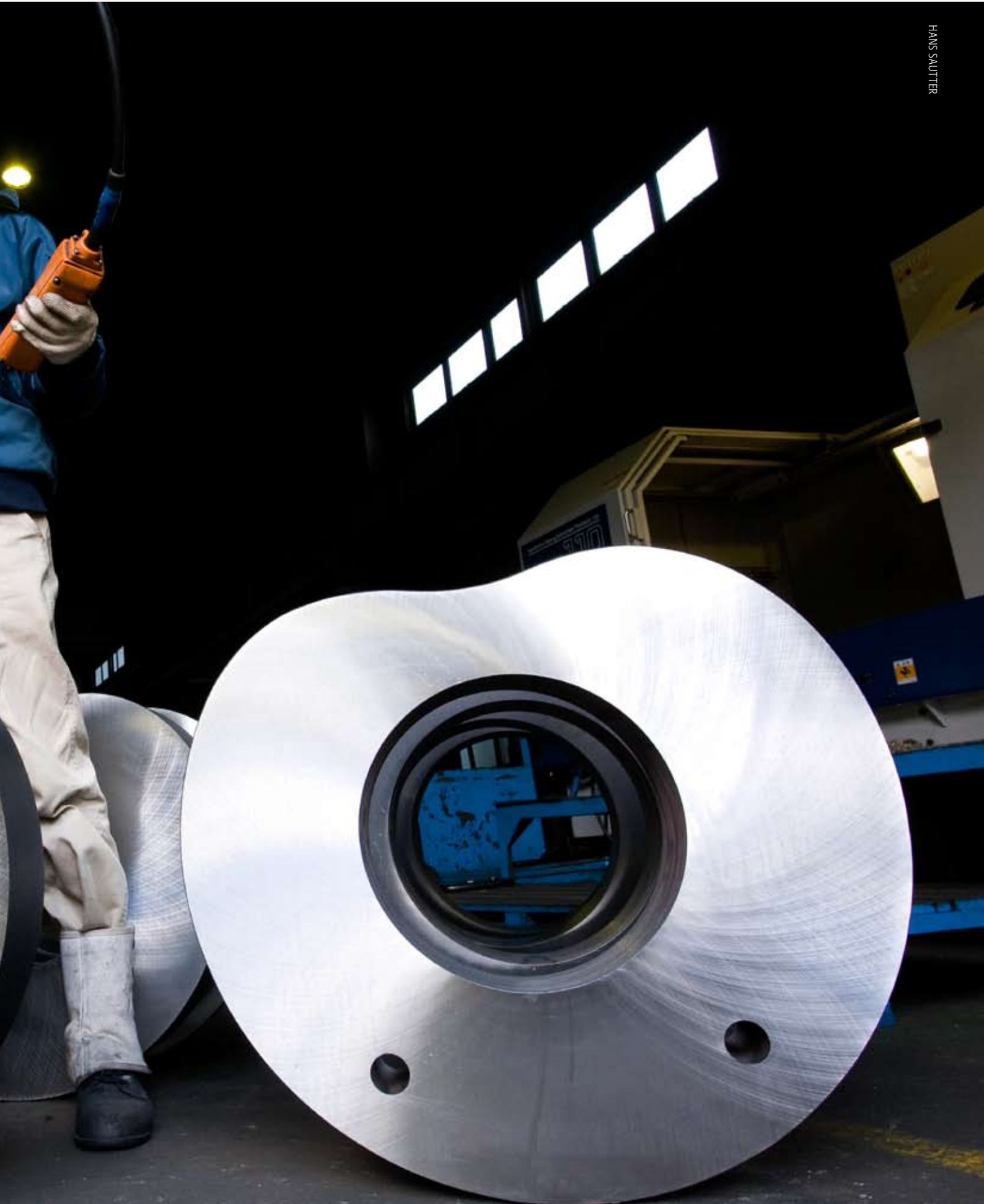
Small and medium enterprises account for some 99% of Japan's companies, forming the backbone of Japanese industry and the country's economy. Among these small and medium enterprises are those with the world's highest technological levels, and others that create new added value with their innovative ideas, and it is these enterprises that are the source of Japan's global competitiveness. This month, we look at some of these unsung heroes, and promising players of Japanese industry.

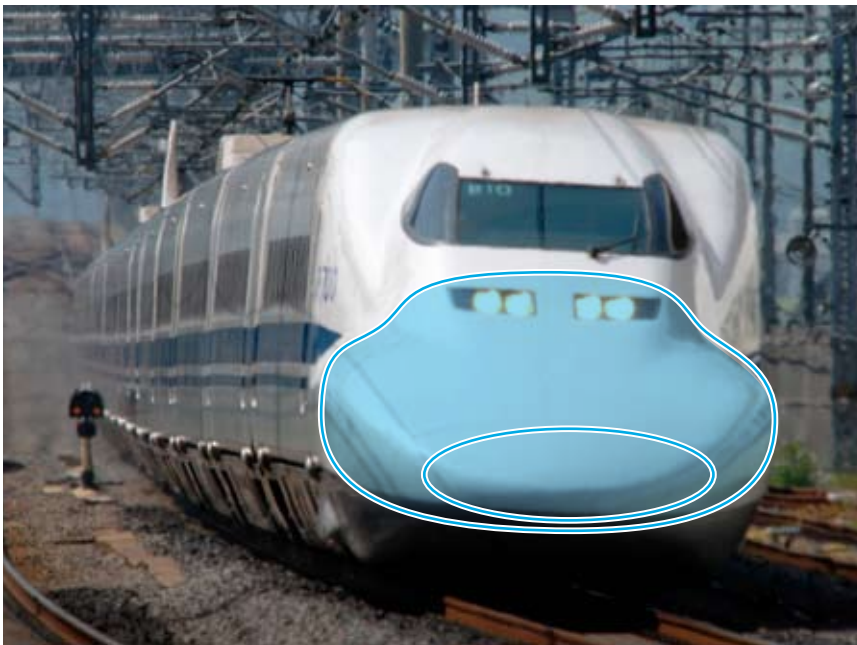
PHOTO: A Syoei Co.,Ltd craftsman hoists a giant cam for use on a 8150-unit container ship. With its superior heat treatment technology, Syoei commands a 60% share of the global market for this type of cam.



SPECIAL FEATURE

HANS SAUTER





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SEIYA KAWAMOTO

The **Face** of the **Bullet Train**

The *shinkansen*, or “bullet train” as it is known overseas, is the super express train that made Japan’s railway technology known to the world when it debuted in 1964. One of its most distinctive features is the elongated “forehead” at the front of all the main models, many of which were produced by artisans working for the same company.

Yamashita Kogyosho Co., Ltd. is a small urban factory in Kudamatsu City, an industrial city in Yamaguchi Prefecture. The company has worked on the

body structure of the front of most major models of the *shinkansen* from the 0 Series to the 700 Series. It has also worked on express trains as well as monorails and experimental cars for MAGLEV trains, and receives orders for train cars from places as far afield as China, Taiwan, Dubai, Singapore and South Korea.

There are very few companies in the world with sheet metal beating skills that can equal the capabilities of Yamashita Kogyosho. Aluminium sheets just



FACING ABOVE: A part of the face of the Shinkansen 700 series manufactured by Yamashita Kogyosho Co., Ltd.

FACING BELOW: The blue part on the face of the *shinkansen* indicates the component being produced in the above photo.

THIS PAGE: The interior parts of a *shinkansen* manufactured by Yamashita Kogyosho.

a few millimeters thick are hammered into shape over an anvil. The completed parts are then welded together to produce the elegant, streamlined shape of the leading car.

“You can tell by the sound of the hammer on the metal if there is any distortion in the shape,” says Jiro Kunimura, a sheet metal worker who is also one of the company’s founding members. “There is far more to the job than meets the eye, and I reckon it takes a good ten years before you are anywhere near mastering it.”

In recent years, the industry has seen a shift to

using cutting machinery for the process of shaving away parts of a metal body, but the manual skills of the company’s workers come into their own for very fine linings on interior parts or for complex shapes.

The president of the company himself, Kiyoto Yamashita, was himself originally an outstanding automobile sheet metal worker. Hitachi, Ltd., one of the companies contracted to make the *shinkansen* cars, appreciated his ability and established Yamashita Kogyosho in 1963 to manufacture the *shinkansen*. “It feels like I have always lived with the *shinkansen*,” Yamashita says.