

FORGED PRODUCTS

LIGHTWEIGHT ALUMINUM ALLOYS

The new forged aluminium alloy with strength, heat resistance and design

The birth of an ultra-high performance component that can be used for racing.
It was made possible by the persistence of our engineers to achieve all the performance requirements.

The motivation behind the development of the new brake was "To win the world".

The braking systems used in Formula 1 machines are made from a special aluminium alloy used in aviation. This aluminium alloy is an ideal lightweight material, with a low density (specific gravity 2.5g/cm³) and the same or higher rigidity than Extra Super Duralumin (ESD).

However, while boasting overwhelmingly high performance, there are issues with heat resistance, toughness, corrosion resistance and recyclability, and its use is limited to structural materials for aircraft.

Brake components, such as calipers and bells, are exposed to high temperatures during racing due to repeated braking.

UACJ engineers Okubo and Shimizu, who specialize in the manufacture of large forgings, have collaborated with the R & D center to thoroughly analyze the material properties that provide maximum performance in those high-temperature environments.

Through comprehensive research and

development of nano-level metal structure control, heat treatment and forging methods, we produced a high-strength aluminum alloy that compensates for the shortcomings of conventional aluminum alloys even at high temperatures.

As exterior design is an important factor for production cars, we have also adjusted the alloy composition so that the anodized appearance looks beautiful.

Touring cars fitted with these forged brake calipers have achieved top class results in international racing.



BRAKE CALIPER (product of ENDLESS)

A Brake caliper made of forged aluminium alloy developed by UACJ.

It is lightweight, rigid and heat resistant, and have been treated to give them a beautiful colored anodized aluminium.

ENGINEER INTERVIEW



UACJ Foundry & Forging is a specialist manufacturer of precision castings and high quality forgings of the UACJ Group, and was the first company in Japan to produce aluminium forgings.

We have the largest share of the world market in the manufacture of compressor wheels for turbochargers, but we have only developed a small number of forgings for automobile components.

We intend to expand automobile component business in the future.



PROFILE

Yoshimasa Ookubo
UACJ Foundry & Forging Corporation
General Manager, Product Engineering Division