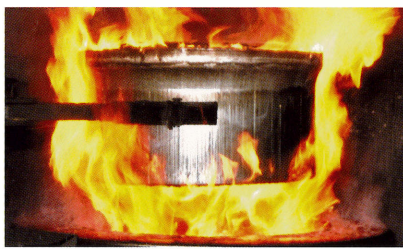


Making the Strongest Wheels: Alcoa Forging Process



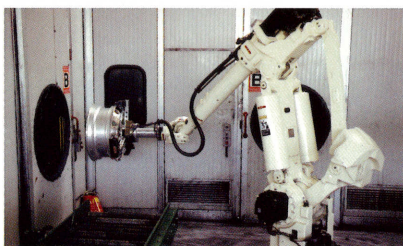
Every wheel starts as a single block of high-strength corrosion-resistant aluminium alloy.



With a 8,000 ton press, the block is forged into a wheel shape. Once forged, the wheels are heat-treated to maximise overall mechanical strength.



The Alcoa forging process aligns the grain structure of aluminium with the shape of the wheel, resulting in wheels with unrivalled strength. This is the same technology Alcoa uses to produce aluminium wheels for M-1 tanks and 747 aircrafts.



The mirror polish operation gives the wheel its reflective shine. By end of the forging process, Alcoa wheels are 423% stronger than steel wheels. Don't confuse FORGING WITH CASTING!

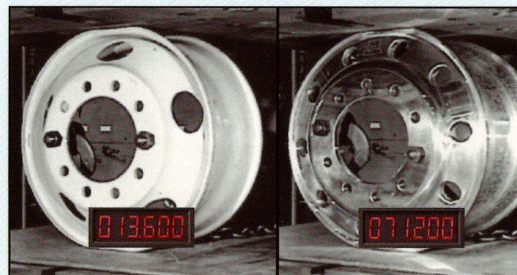
Approved by all Major Testing Bodies (TüV, LBF, JWL-T)

With more than 120 years of experience in the aluminium industry, Alcoa has grown and developed innovative products to meet customer needs in markets we invented.

Alcoa aluminium products have penetrated almost every industry in various forms including pharmaceutical foils, automotive extrusion, automotive closure panel, aluminium shipbuilding plate, can sheets, aerospace and industrial products, flexible packing foil, brazing stock, wall cladding/painted sheets and wheel products, just to name a few.

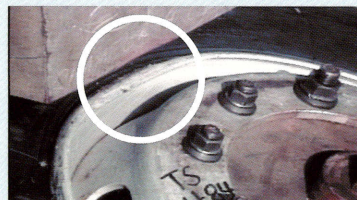
Beginning in 1948, Alcoa invented the first forged aluminium truck wheel in the United States. As a testimony to the strength of Alcoa wheels, our range of products is widely used across many transportation modes, from heavy duty commercial fleets, to M1-tanks and state-of-the art aircrafts. Even 300-tonne jumbo jets land on forged aluminium wheels from Alcoa!

High Strength Test Results

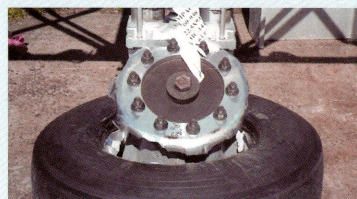


Tests have shown that Forged Alcoa wheels are much stronger than steel wheels and cast aluminium wheels. A forged Alcoa wheel withstands a load of 71,200kg before it deforms by 5cm. The rim of the steel wheel is deformed by 5cm at only 13,700kg!

Impact Test Results



Steel wheel



Cast aluminium



Alcoa forged aluminium wheel

The Japanese JWL test simulates a truck hitting a high curb at 50km/h. A 910kg weight is dropped onto the wheel assembly. While the steel wheels show excessive rim deformation and air loss, and cast aluminium wheels break, the Alcoa wheels passed the test successfully.