

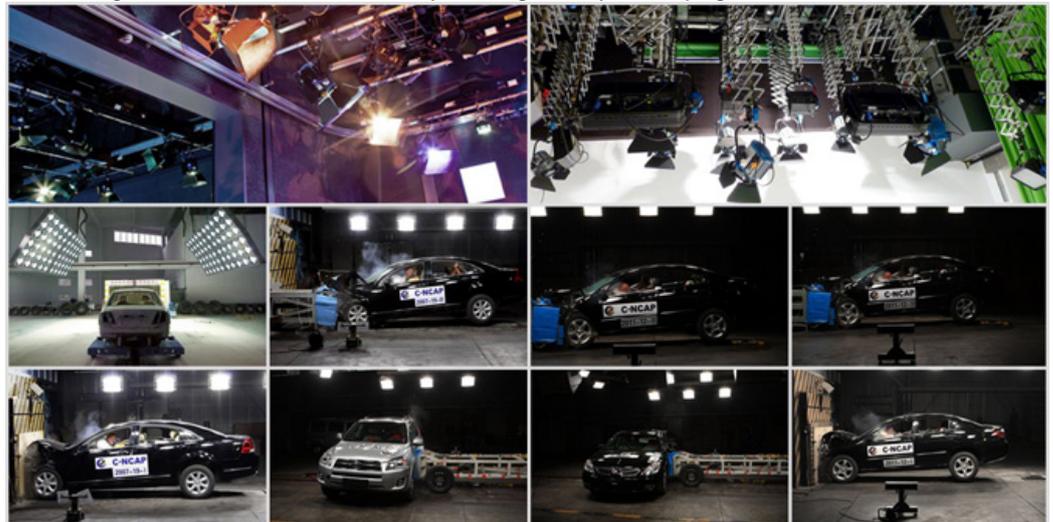
## Advanced Lighting System for Auto Collision Test Lab

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**Jebsen Industrial and ARRI design, manufacture, install, and support a complete lighting system for high-speed camera to meet the stringent requirements of a new auto industry crash test lab in Beijing.**

### The Challenge: Equip a State-of-the-Art Collision Lab

China Automotive Technology & Research Center (CATARC) and its partner Beijing Products Quality Supervision and Inspection Institute began building a new automotive industry testing facility in Beijing in 2009. Called the



Supervision and Inspection Center (NAQSIC), it was designed as a world-class facility to support the China New Car Assessment Programme (C-NCAP).

### Promoting Road Safety in China

C-NCAP is a vehicle safety rating system that publishes star ratings for new cars based on their performance in ~~National Automotive Quality~~ tests. More stringent than current mandatory requirements, it provides consumers with objective information and encourages car manufacturers to improve safety standards. Ultimately, C-NCAP aims to reduce traffic accidents and the harm they cause.

With the backing of central Government, C-NCAP is managed by CATARC, the main body providing technical and regulatory support to the auto industry and national authorities in China. CATARC is responsible for formulating the C-NCAP standards and collaborating with those managing other industry rating systems around the world.

The C-NCAP collision tests include front and side impacts and pay particular attention to the performance of passive safety devices such as seatbelts, airbags, bumpers, and the structure of the car body. CATARC has performed more than 113 impact tests to date, with plans to assess 30 new vehicle models every year.

### Stringent Requirements for Crash Test Lighting

To create a world-class test facility that would meet the requirements of C-NCAP, CATARC had to equip its new collision lab with the most sophisticated technology available. The lighting contract was particularly competitive.



Lighting systems for vehicle crash testing labs have to satisfy several critical requirements to ensure the quality of the high-speed photography that is essential to the assessment process. These requirements include:

- Optimum light output and flicker-free performance for clear photographic images at high frame speeds, especially illumination  $\geq 120000$ lux ; and
- High durability, long life and reliable operation; and
- Reasonable and portable structure, minimal setup time.

For CATARC, the lighting at the new facility had to also meet the requirements of the updated 2012 C-NCAP Protocol. This particularly specifies non-stroboscopic high-speed film lighting that will not unduly raise the temperature of the impact zone.

Furthermore, the lighting solution for CATARC also had to deliver both:

- Maximum energy-saving; and
- Rapid return on investment.

Through close cooperation, long-term partners Jebsen Industrial and [ARRI](#) developed a complete lighting solution that met all of CATARC's critical requirements.

### **The Solution: Complete Lighting Solution**

"Collision testing labs need specialized lighting solutions that combine advanced products and technology and a high level of service. As the Greater China partner of [ARRI](#) since 1960, Jebsen Industrial was able to offer the complete lighting solution CATARC needed, with the flexibility and local expertise to take the project from the drawing board through production to installation and ongoing maintenance and support," said Lorenz Zimmermann, Director, Jebsen Industrial.

[ARRI](#) of Germany is a world-leading manufacturer of advanced cameras, lighting systems, and digital intermediate equipment. Its 90-year history is a record of constant innovation, with several products designed especially for car crash test environments, including the 40/25 lamphead ect. Over the past five years, [ARRI](#) and Jebsen Industrial have cooperated on several installations for China's vehicle testing industry.

Jebsen Industrial and [ARRI](#) began preparing for the CATARC project in 2009 and won the NAQSIC lighting contract in January 2012. The whole lighting systems were locally manufactured and delivered in October 2012, with the new facility undertaking its first collision tests in December 2012.

### **Comprehensive Technical Support**

Throughout the project, from the earliest stages onwards, Jebsen Industrial met frequently with CATARC in order to fully understand the lighting requirements of the new NAQSIC facility. It also liaised with [ARRI](#) to produce detailed technical drawings for the installation and to arrange for the local manufacture of components. Furthermore, it was able to develop a lighting system software in collaboration with local experts based on PLC technology.

The technical drawings produced by [ARRI](#) and Jebsen Industrial for CATARC covered the load index of overall structure, the electric power, pipeline construction, trunking, cable and connector installation, and lift and angles for lighting unit installation. To produce the level of detail required, Jebsen Industrial made a meticulous study of the collision lab construction drawings, and conducted extensive on-site measurements to confirm the actual dimensions of the completed facility.

"Due to the complexity of the design and changes to the facility as construction progressed, we needed to update the technical drawings more than 50 times over the initial three years of this project. The fact that our specialized engineering team always worked efficiently and provided a fast response was noted by the client and very much appreciated," explained Mr. Zimmermann.



The team's technical expertise, international experience, and in-depth local operation methods and knowledge, including a strong background in supporting state-owned enterprises, ensured the project proceeded smoothly. The stability of the team was also seen as a bonus.

"The Jebsen Industrial engineering team made frequent trips to CATRAC and to the NAQSIC facility and the same managers and engineers led the project throughout the bidding process and installation, delivering real value to the client," Mr. Zimmermann continued.

### **Advanced [ARRI](#) Technology**

In the NAQSIC collision lab, the [ARRI](#) products deliver high-strength low-heat 360° lighting to illuminate the entire collision zone so that the 10 high-speed cameras specified under the C-NCAP regulations can capture each collision from every angle.

The lighting system designed for CATARC superbly complements its complete crash testing data acquisition and analysis system. It comprises:

- INDY Lighting Fixture (40/25 lamphead etc.)
- VGI 4000 Ballast System
- Suspension System
- PLC lighting control software

[ARRI](#) lamps are trusted in leading laboratories worldwide and in the most demanding rescue and military operations, e.g., it's used in Volkswagen vehicle Laboratory in the state of Niedersachsen. Both [ARRI](#) LED and fluorescent lamps offer exceptional reliability and stability, deliver high brightness, and have sound environmental credentials.

The new LED models can be fitted with an active cooling system with reduced size and weight. They lower power consumption by 75% and offer a service life of 100,000 hours, lasting around 200 times longer than an ordinary tungsten bulb and greatly reducing maintenance costs. They also feature built-in dimmers and other cost reduction measures to deliver fast return on investment.

### **For More Information**

For more information about Jebsen Industrial solutions for demanding industrial lighting projects, please send an email to [indenquiry@jebsen.com](mailto:indenquiry@jebsen.com) or visit the website at: [www.jebsenindustrial.com](http://www.jebsenindustrial.com)