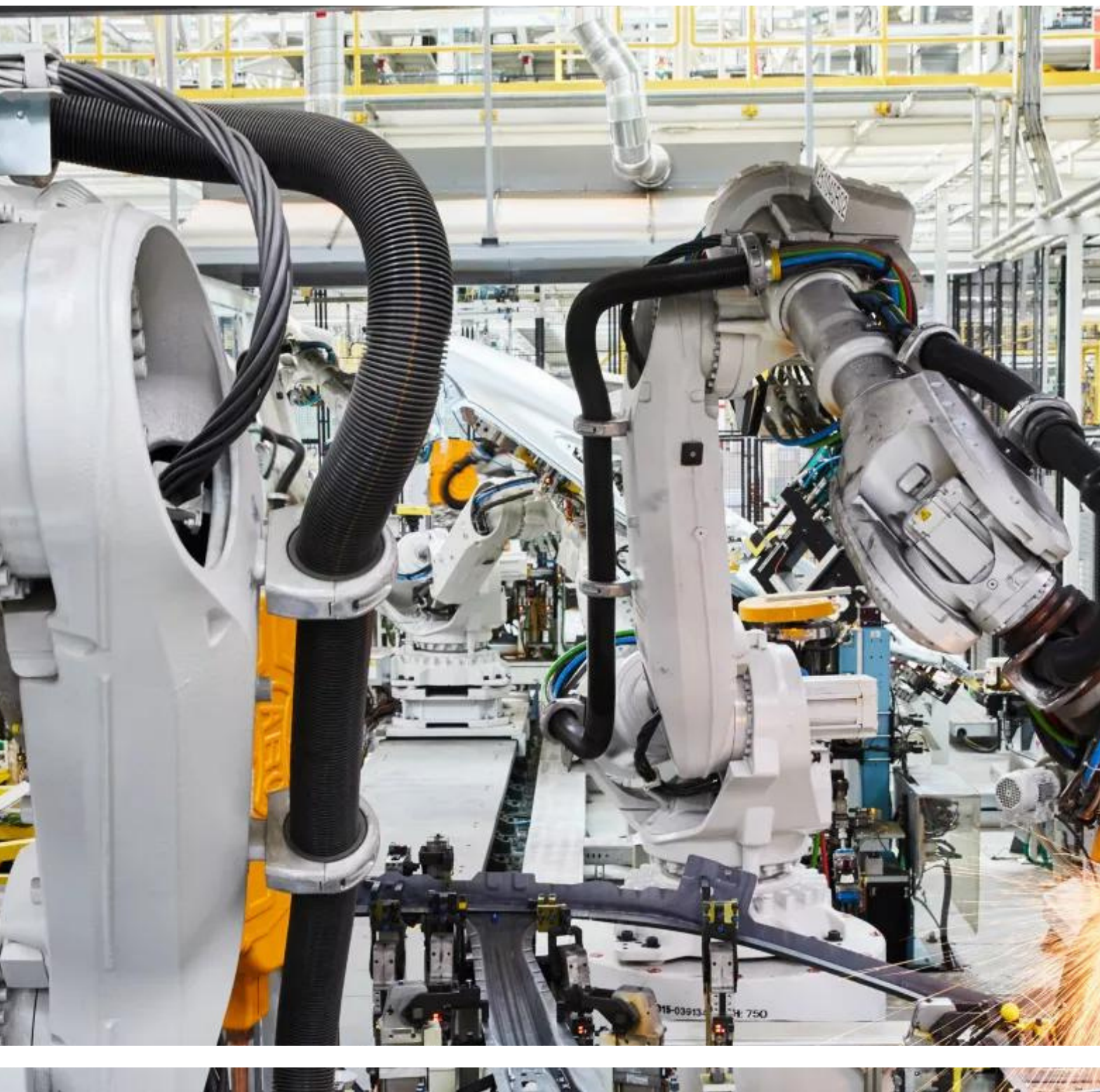




AUTOMOTIVE INDUSTRY





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HISTORY

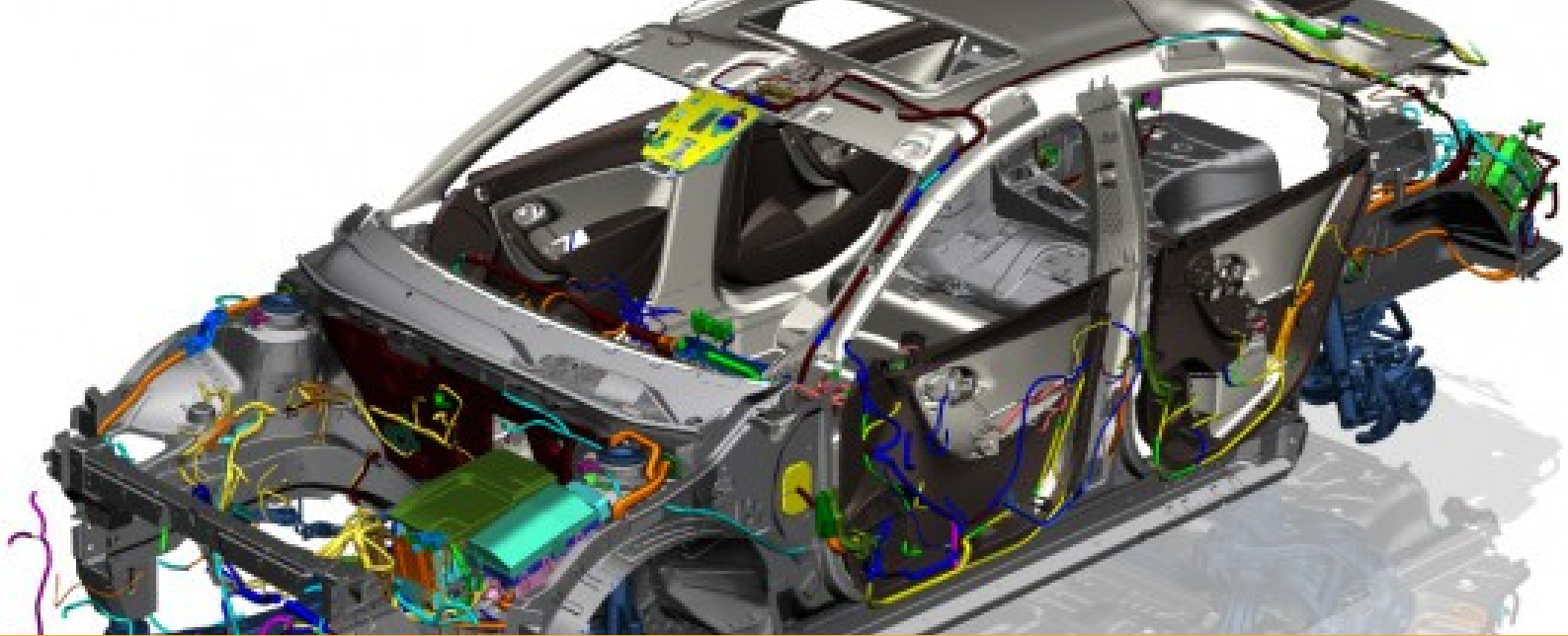
The automotive industry comprises a wide range of companies and organizations involved in the design, development, manufacturing, marketing, and selling of motor vehicles.

It is one of the world's largest industries by revenue. The automotive industry does not include industries dedicated to the maintenance of automobiles following delivery to the end-user,[citation needed] such as automobile repair shops and motor fuel filling stations.

ABILITY™ FOR AUTOMOTIVE

A strong solutions focus helps automotive manufacturers around the world improve productivity, product quality and worker safety.

In the automotive industry, growing global competition requires flexibility from manufacturers who need production and logistic systems to serve the ever-increasing demand for model diversity. To further meet that demand, auto manufacturers must expand and even redefine their core competencies in order to adapt to Industry 4.0 developments, demographic change and data-driven production.



COMPUTER-AIDED DESIGN & ENGINEERING TECHNIQUES

Digital design that breathes life into dream vehicles

Models created in a digital world undergo simulation analysis and installation evaluation testing through automotive simulation and a digital 3-D design process to examine possible issues in advance. This process greatly optimizes the technical design and minimizes development times.

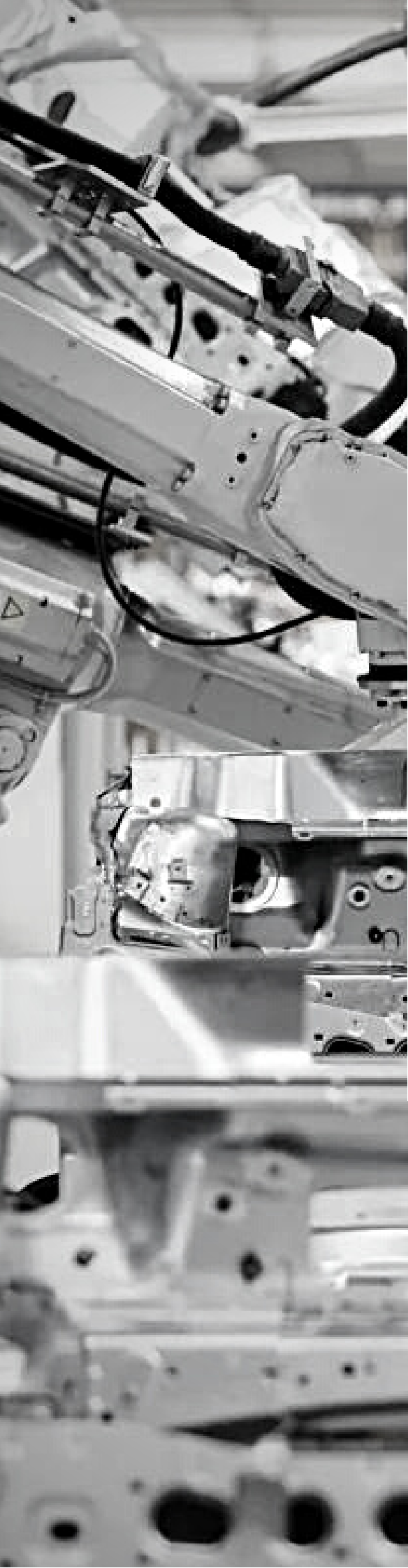
NVH ANALYSIS (NOISE, VIBRATION AND HARSHNESS)

To control the levels of vibration and noise encountered while driving, we analyze the causes of vibration and the characteristics of how vibration is transmitted to vehicle occupants. The reduction of these factors is done using computer simulation two to three years before doing them on a real car. After reviewing several engineering design proposals, an optimal solution is selected and a prototype car is produced. To minimize noise and vibration while driving, we identify their points of origin and then try to eliminate the root causes. This process is carried out with the help of computer technologies up to three years before the first prototypes of the vehicle are built. Once all imaginable sources of noise and vibration have been isolated, we can then start manufacturing the first prototypes.

B-PILLAR



The vertical roof support structure located between the front and rear doors on a typical vehicle. It corresponds with the A pillar located on either side of the windshield at the front of the car and the C pillar which sits on either side of the rear window on a typical sedan. On SUVs, minivans and wagons with extended cargo areas, the C Pillar is the vertical structure behind the rear door while the vertical supports at the rear of the vehicle are called D pillars.



ROBOTIC

ROBOT APPLICATIONS IN AUTOMOTIVE MANUFACTURING

For more than 50 years, the automotive industry has been using robots in their assembly lines for a variety of manufacturing processes. Today, automakers are exploring the use of robotics in even more processes. Robots are more efficient, accurate, flexible, and dependable on these production lines. This technology has allowed the automotive industry to remain one of the most automated supply chains globally, and one of the largest users of robots.

With thousands of wires and parts in every vehicle, it takes a complex manufacturing process to get components to where they need to be. Here are several robotic applications that are crucial to an efficient assembly line:

ROBOTSTUDIO SIMULATION



ROBOTSTUDIO IS ABB'S SIMULATION AND OFFLINE PROGRAMMING SOFTWARE, OFFERING A COMPLETE DIGITAL REPLICA (DIGITAL TWIN) OF PHYSICAL ASSETS OR SYSTEMS SO YOU CAN SEE WHAT'S GOING ON IN YOUR PRODUCTION LINE REMOTELY.

ABB'S ROBOTSTUDIO OFFLINE PROGRAMMING TOOL ENABLES USERS TO CREATE, SIMULATE AND TEST A COMPLETE ROBOT INSTALLATION IN A VIRTUAL 3D ENVIRONMENT WITHOUT HAVING TO VISIT OR DISTURB THEIR ACTUAL PRODUCTION LINE

IRB 6700



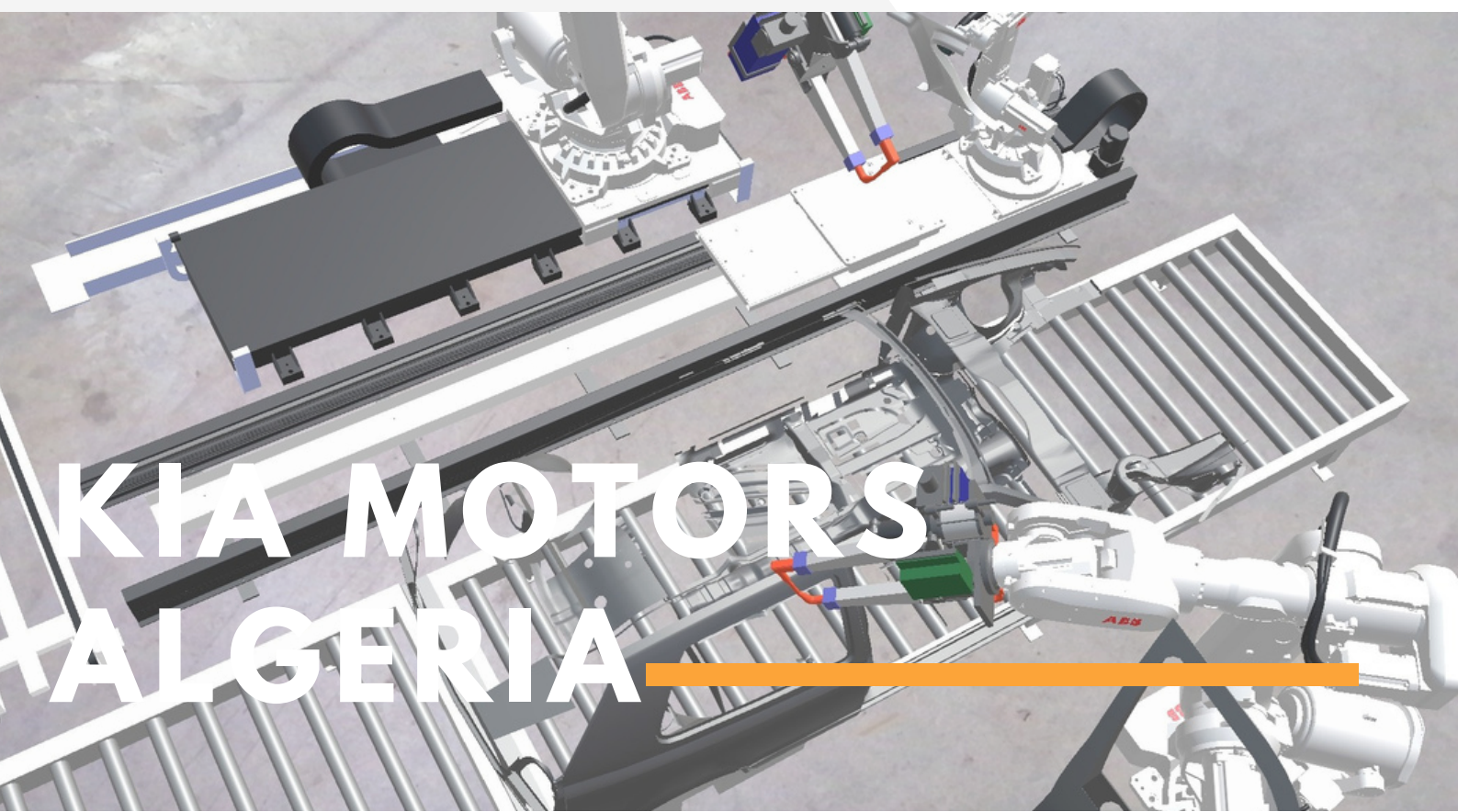
The 7th generation of large industrial robots. The IRB 6700 family of robots is a natural evolution following 40 years of large robot heritage at ABB. This 7th generation of large ABB robots features a multitude of next generation improvements derived from intimate customer relationships and exhaustive engineering studies.

Key features

The IRB 6700 family is the highest performance robots in the 150-300 kilogram class, now with a 20 percent reduction in total cost of ownership achieved through more robust design, longer service intervals, increased efficiency and simplified maintenance versus the previous generation.

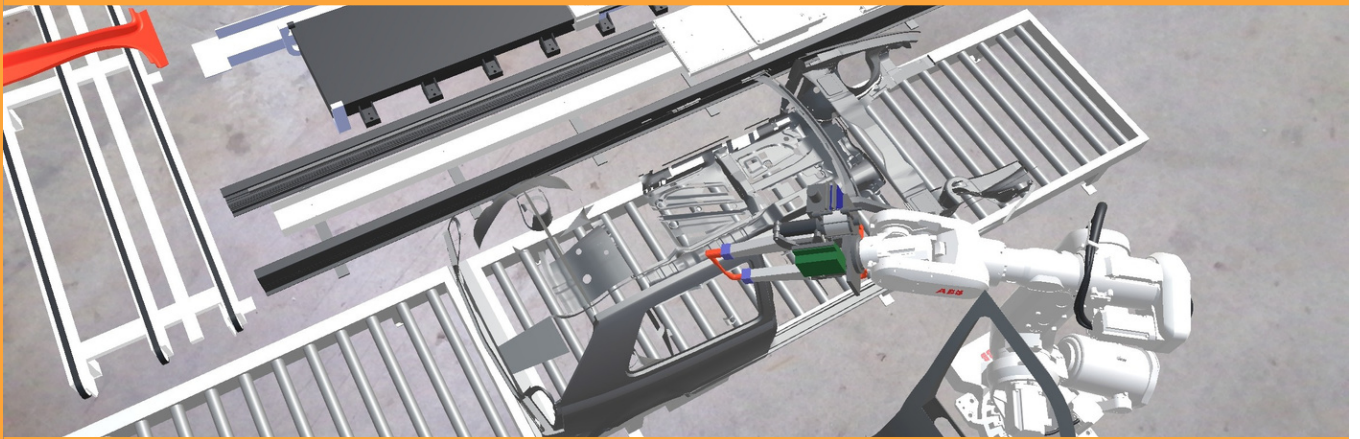
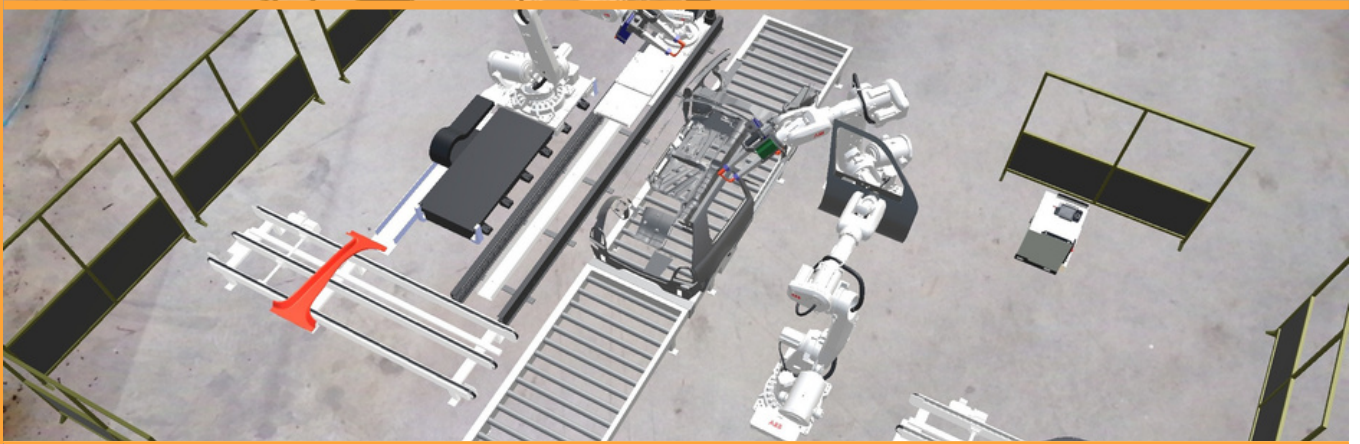
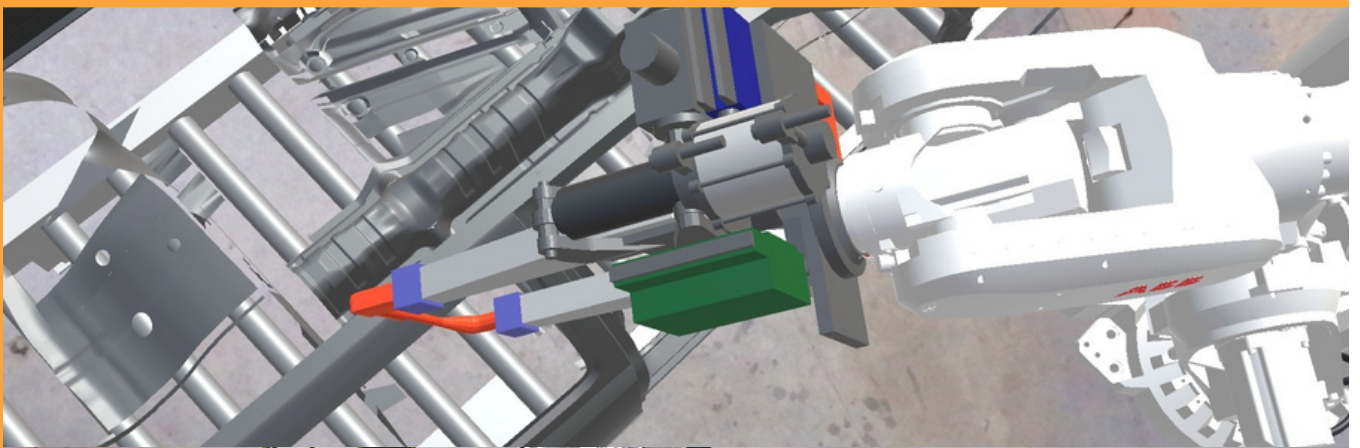
Multiple variants

These robots enhance ABB's portfolio by combining greater uptime, higher payloads and longer reach for use in Spot Welding, Material Handling and Machine Tending applications at the automotive and the general industries. This array of robot variants has payloads from 150 to 300 kg, reaches 2.6 to 3.2 meters, and are available as floor mounted and inverted versions.



Large industrial robots with long arms and higher payload capabilities handle spot welding on heavy body panels. Smaller robots weld lighter parts such as mounts and brackets. Robotic tungsten inert gas (TIG) and metal inert gas (MIG) welders can position the torch in the exact same orientation on every cycle. Preserving high welding standards in every fabrication is doable due to the repeatable arc and speed gap.

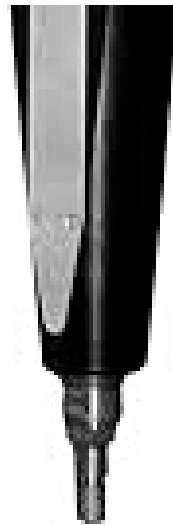
Collaborative robots work together with other large industrial robots on massive assembly lines. Robotic welders and handlers must collaborate to keep the assembly line moving. Robot handlers need to place panels at the precise location so the welding robot can perform all the programmed welds.



SPOT WELDING EQUIPMENT

SPOT WELD FUNCTION PACKAGE

IRB 6700 SpotPack is a function package for spot welding that is completely configured and ready-to-use. The solution is a combination of hardware and software modules. It is an ideal solution for manufacturers looking for a safe spot welding process and long-term optimized production.



PAINT PROCESS AUTOMATION



TODAY'S AUTOMOTIVE BUSINESS ATMOSPHERE DEMANDS HIGH-QUALITY PRODUCT OUTPUT, INCREASED PROFITABILITY, AND THE ABILITY TO ADJUST TECHNOLOGY TO MEET BUSINESS NEEDS AND MARKET DEMAND. IMPROVE THE PRODUCTIVITY AND QUALITY OF YOUR PAINT SHOP OPERATIONS
IN PAINT PROCESS AUTOMATION, THE GOAL IS TO DO MORE WORK IN LESS SPACE, INCREASE WORKPLACE SAFETY AND OF COURSE, OPTIMIZE ACCURACY AND QUALITY.

Robotics technology has excelled in the area of industrial painting where a high-quality, flawless and consistent finish can be produced in large scale operations such as car manufacturing plants.

Now, industrial painting robots equipped with software, sensors, algorithms and cameras are able to analyze and inspect an object, determine the location of edges, recognize patterns, evaluate size and more, providing new options for businesses, small and large, to compete in the global marketplace.

TO AN AUTOMOBILE, THE POWERTRAIN IS EQUIVALENT TO ITS HEART. WITHOUT IT, IT CAN'T RUN. THAT'S WHY THE PROCESS OF POWERTRAIN AUTOMATION MUST BE INCREDIBLY PRECISE AND RELIABLE.

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