IRB 6620 – New competitive robot for the automotive industry

With the focus on the automotive industry and specifically on spot welding, ABB is introducing a new compact and economical robot – the IRB 6620. The robot was designed after discussions with Daimler Chrysler, among others, for the purpose of developing a cost-effective and easy to use robot that could handle weights of up to 150 kilos.

Ola Svanström, Product Manager for the new IRB 6620 power robot from ABB.

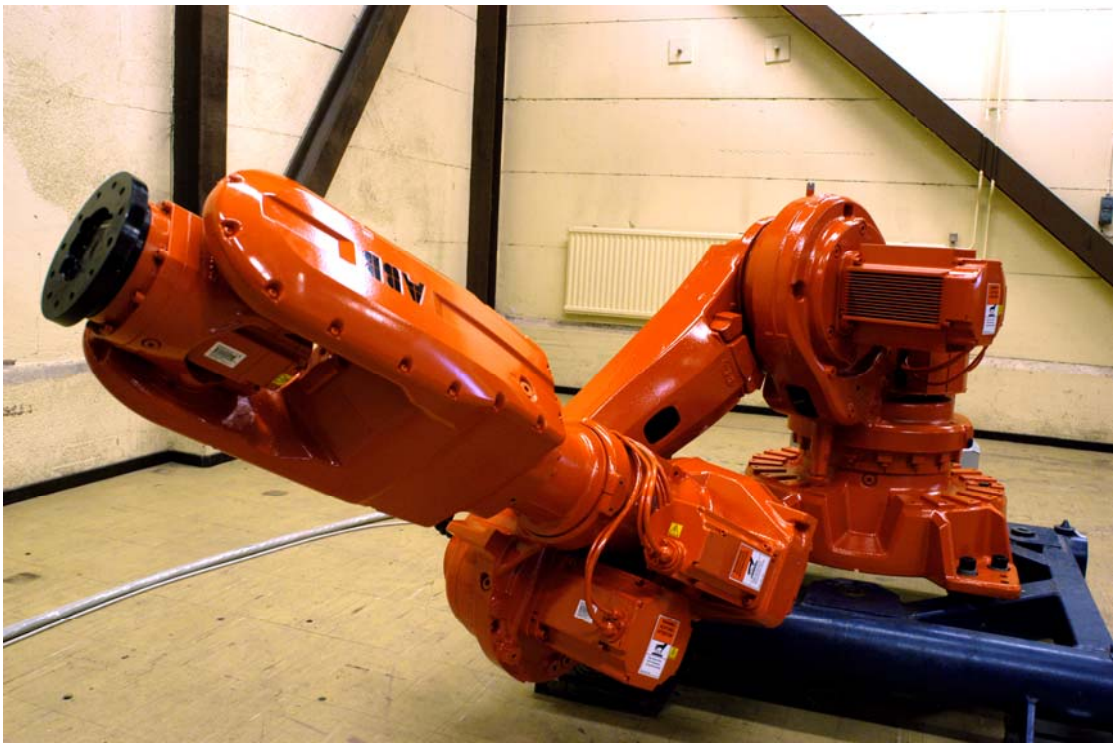
The primary drivers for development were pressures to reduce costs from the automotive industry and the wish to have an ultimate robot just for spot welding. With flexibility as its foremost characteristic, the IRB 6620 can be installed on plant floors, inverted or tilted. These are characteristics that also make the new robot attractive in applications other than spot welding.

The discussions with Daimler Chrysler in Germany began in 2004
There was demand for a robot that would be easy to use but without sacrificing capacity or reach. Producing a cost-effective solution was also an important factor for automakers. It was a challenge. The drive components – the gearing and motor – represent 60 to 70 percent of a robot's cost. But if a somewhat smaller robot could be produced …

The question we asked was this:
How large a portion of spot-welding applications can we handle with a more compact robot that contributes to more cost-effective production lines for our customers?

"After thorough investigation, with assessments of lines that ABB had previously delivered, we settled on a more compact and flexible robot that could handle 70 to 80 percent of all the market's spot-welding applications," says ABB product manager Ola Svanström.

The result…
IRB 6620, a compact robot with an enormous working area in relation to its modest size and with a reach of 2.2 meters. The robot can also work bending backwards and has a large downward working area (semi-shelf). All this at an attractive price that satisfies the demands of the market.



IRB 6620 – The agile spot welder

The new agile and compact robot includes a number of new conceptual benefits. It can be installed on two levels, with one robot working from above and another from the side.

With the IRB 6620, a line's physical length can be significantly shortened, leading to lower overall investment costs. The new compact robots can be installed on different levels, thus providing faster runs through production lines. In the same space, there is now room for eight robots instead of four. As with all installations, it is naturally important to have a good balance and coordination between the robots so as to avoid bottlenecks.

A major advantage of the IRB 6620 is that it is much easier to install compared to similar robots. The IRB 6620 weighs just 900 kilos. It is absolutely the lightest robot in its class and can be easily moved with a standard forklift truck.

High recognition factor
The IRB 6620 has much in common with its predecessors and its big brother, the IRB 6600. As an example, the robots have the same hole patterns both for their bases and faceplates. When installing the robot, the same tools and spare parts are used as when performing service work. System integrators and service engineers will recognize components and features in that the robots have been designed along the same principles.

Options

EPS

The IRB 6620 is the first robot to be designed for EPS (Electronic Position Switches) instead of traditional mechanical position switches. EPS is a fully software-based solution that is easy to set up and fine tune.

“With EPS we can optimize the actual robot, and in this way, attain a solution that is much easier to install,” says Ola Svanström. “Moreover, we avoid mechanical problems with switches that age and wear out with time.”

EPS is well-suited to the new compact robot in that it also contributes to a more compact robot. Thanks to the new software-base switches, space is saved that previously was occupied by bulky cables and mechanical switches.

Tip dresser option

The IRB 6620 can also be supplied with a tip dresser fitted to the robot base. A tip dresser on the robot base replaces the traditional pedestal-mounted unit, for dressing electrode tips, which tends to get in the way and is incompatible with robot installations on two levels.