



A REAL SENSITIVE ROBOT

Yes, we did it!

Munich, 21 June 2016 – Industry 4.0 redefines the roles of automated machinery and man in a collaborative context. Over the years, automation has improved working conditions, allowing people to deal less with heavy, tiring and dangerous tasks and giving them a superior position in the process, all while increasing their efficiency, productivity and the quality of the final result. Today, we can achieve the same degree of improvement by enabling a fully fledged, close and direct collaboration between man and machine. A collaboration which, thanks to Comau, is no longer limited to service robots, nor to the use of small size robots in industrial applications, or those with a limited payload.

AURA – Advanced Use Robotic Arm

AURA – *Advanced Use Robotic Arm* – is an innovative upcoming product for the robotics industry that, for the first time, creates a true collaboration between high payload robots and man.

Extending the features of collaborative robots to machines with high payload means that a lot of industrial sector has the option to implement safe applications throughout their processes.

We have exploited the senses

AURA is inspired by human interactions. When we interact, we use our senses in combination, especially touch and sight. We observe the movements of other people and move with them through the surrounding space. Our perception of others via touch directs our actions and reactions, as does sight - whether the other person is at the center or edge of our visual field and our attention, it is sight that directs our behavior. Finally, when we want to touch someone, we contact or push them in a specific direction, and even more so when our bodies instinctually react to something, like fending off a blow.

A robot that wants to be collaborative must be able to interact with man, and to do so, it needs to respect these factors.



That's what AURA is all about.

The robots are equipped with sensors installed under a layer of protective foam to ensure total safety. The management of sensitivity is a unique feature of Comau solutions; for the very first time, AURA combines the simultaneous perception of the proximity of a person – or of any other component of the automation – as well as contacts and their intensity. The combined use of these technologies, employing laser scanners to identify the positions of persons dynamically makes it possible to ramp down the motion of the robot to a complete stop only when it is very close to or actually in contact with the worker.

But that's not all. When AURA is touched, it stops moving and can react according to operator needs, using its sensors as if they were buttons.

The solution includes sight, too. A vision system, integrated into the robot controls, transmits data regarding the proximity of persons to the robot's area of action, enabling a specific software to predict their movements and modify the robot's trajectory accordingly.

Extended cooperation without compromise

AURA is a unique technical solution in the field of collaborative robots and, above all, solves a number of issues of today's existing solutions.

The combined, integrated use of sensors and controls ensures that Comau collaborative robots can be installed in any position, even overhead, and without the need to avoid vibration.

AURA makes compromises in design, layout and footprint a thing of the past, and replaces them with an unequivocal series of advantages:

- High payload management
- Fully collaborative robotic systems
- Collision prevention
- Collaborative hollow wrist technology on the NJ4 model
- Technology unaffected by vibration



- Soft, sensitive skin covering the entire machine
- Smart speed tuning in different safe zones
- Smart interface

And uses 6 safety layers:

- Laser scanner
- Proximity sensor
- Contact sensor
- Wrist force sensor
- Vision system
- Full coverage foam skin

Comau extended the technologies used on AURA robots to its associated equipment as well; together with the robots, Comau offers a collaborative gripper and rotary table.

The rotary table and gripper round out the Comau collaborative system - a world first for the robotics industry. Along with the technologies shared with the robots, the collaborative rotary table implements the SEA (Series Elastic Actuation) technology, composed of a spring combined with a double encoder to enable the table to yield when pushed by the operator. The gripper, on the other hand, is equipped with a force/torque sensor fitted to the robot flange and uses the same safety layers of the robot.

**About Comau:**

Comau is the worldwide leader in manufacturing flexible, automatic systems and integrating products, processes and services that increase efficiency while lowering overall costs. Headquartered in Turin, Italy, with an international network that spans 17 countries that employ more than 12,600 employees, Comau uses the latest technology and processes to deliver advanced turnkey systems that consistently exceed the expectations of its customers. Comau specializes in body joining & assembly, powertrain machining & assembly, robotics and maintenance, as well as advanced production systems and environmental services for a wide range of industrial sectors. The continuous development of its products and services enables Comau to lead the automation industry in meeting the unique requirements of each customer, and through all phases of the project – from design, implementation and installation, to production start-up and maintenance services.

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