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AFNeT Standards Days

Smart Manufacturing Dive In / Collaborative Robots

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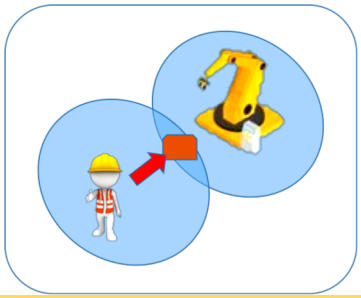
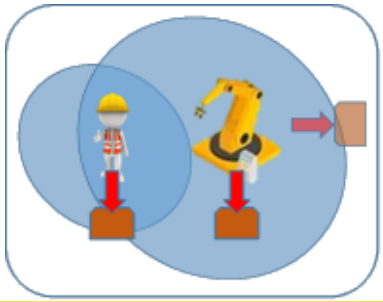
Collaborative Robotics – What does it mean?

- Commonly simplified under the name "collaborative robotics", the implementation of a collaborative robotic application in Industry reflects the possibility for Man & robot to cooperate in the realization of a production task by sharing the **same** workspace.
- The robot can handle repetitive or difficult manipulations, share the working time on the same part, assist in the gesture ... are all interactive work configurations in which the robot is a real tool **at the service** of the operator.
- The "collaborative robotics" market segment is a real opportunity to make work processes **more flexible** and to improve ergonomics at the operator station.
- Use cases :
  - Case 1: Working on the same part, simultaneous actions (direct collaboration)
  - Case 2: Working on the same piece, alternating actions (indirect collaboration)
  - Case 3: Autonomous work on different parts (human-robot coexistence)





Collaborative Robotics – What for?

- These new robotic technologies and the design of collaborative application solutions must place the security issue at the forefront of the approach.
- Thanks to these existing standards, French industry has acquired a new tool to exploit the potential of "collaborative robotics" and to structure its uses.
- The implementation of collaborative man/robot workstations augurs new prospects for French industry and improves the **flexibility** and versatility of the manufacturing tool by **complementing** the skills of the human operator.

=> The robotic application designed for collaborative use will bring precision, endurance and effort where the operator will capitalize on expertise, intelligence and decision making.

Industrial robotics « behind cages »

Collaborative robot in interaction

ISO Standard in Robotics – Overview and ongoing work

- Standard in two parts (published): NF EN ISO 10218-1 and 2 (2011)
  - Part 1 : Robots
  - Part 2 : Robot systems and integration

⇒ Provides presumption of conformity with the Machinery Directive 2006/42/EC

⇒ **Under systematic review** = everybody welcome to “collaborate” on the revision!

⇒ Main changes : take into consideration all items under collaborative robotics specification

- Collaborative operation : ISO/TS 15066 (2015)

⇒ Specifies additional elements for the functioning of collaborative industrial robots as described in ISO 10218-1 and ISO 10218-2

⇒ Guidelines for the design and organization of a cooperative workspace to reduce the risks to which people may be exposed (particularly in terms of contact).

⇒ Provide recommendations on how to deal with the risk of contact between the operator and the robot in operation and limit values to be applied according to the foreseeable contact scenario.

Questions
&
Answers

6th and 7th October

http://standardsdays.afnet.fr