

User-centric solutions for a flexible and modular
manufacturing in small and medium-sized shipyard



COLLABORATIVE ROBOTS: PLASMA CUT APPLICATION

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Collaborative robots: *Plasma Cut Application*

The technology



Funded by
the European Union

Collaborative robots: *Plasma Cut Application*

The technology

- *Portable solution* for plasma cut applications or different applications
- Required material:

Magnetic Base	Collaborative robot (UR10)
3D Camera (Intel RealSense d435i)	Plasma cut machine and torch

- *Automatic robot localization* with artificial vision
- Detect cutting plane and *perform automatic trajectory*
- Data acquisition and *vertical integration* for tradability
- Easy *parameter configuration* to perform cuts in different positions



Collaborative robots: *Plasma Cut Application*

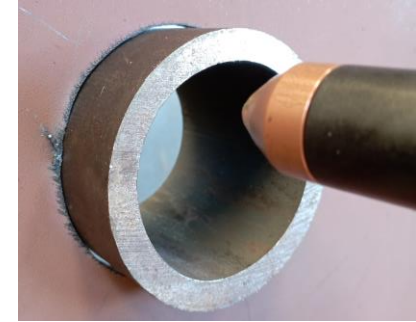
The demonstration in the shipyard



Collaborative robots: *Plasma Cut Application*

Demonstration in the shipyard: Objectives

1. Put a pipe on the performed cut with less corrections
2. Demonstrate robot portability



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COLLABORATIVE ROBOTS: Plasma Cut Application
Hardware deployment and electrical connections

MARI4YARD
MARI4ALLIANCE

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TECHNOLOGY CENTRE

nodosa
group



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Collaborative robots: *Plasma Cut Application*

Demonstration in the shipyard: Objectives

3. Demonstrate easy deployment

4. Vertical integration of process (tradability)

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COLLABORATIVE ROBOTS: Plasma Cut Application Software sequence and GUI

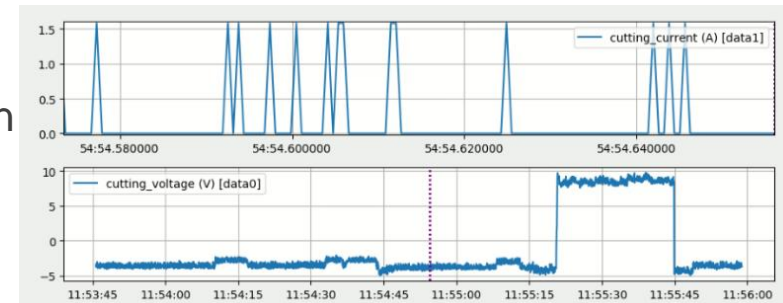


COLLABORATIVE ROBOTS: Plasma Cut Application Vertical Integration



RT Data acquisition

*Voltage, Current,
Robot position*



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Collaborative robots: *Plasma Cut Application*

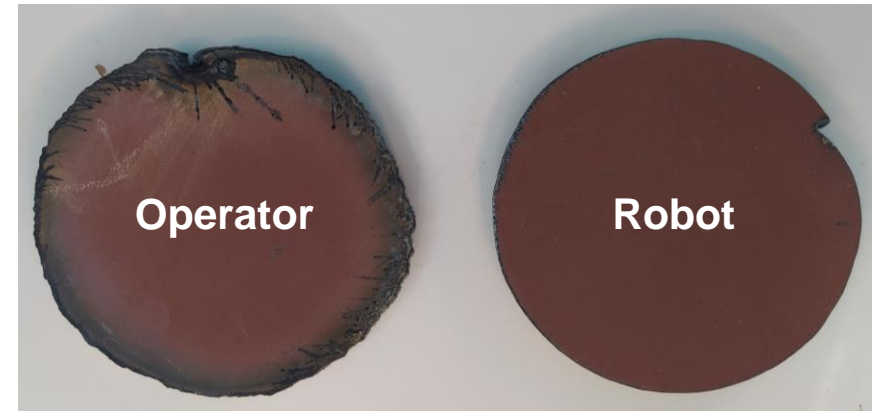
The impact for the shipbuilding industry



Collaborative robots: *Plasma Cut Application*

Impact for the shipbuilding industry

- Reduce number of operations during cut with cleaner results
 - Operator (3)
 - Robot (1)
- Reduce total time for operation
 - Operator (8:45 min)
 - Robot (7 min) (20% time reduction)
- Cut accuracy of 5 mm
- Perform previous tasks before shipyard manufacturing



Thank you!



Catalogue
of technologies



 **MARI4YARD**

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