

TOUGH & ADVANCED
ROBOTICS

The robotic-human
experience



DANIELI

TELEROBOT LABS

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ROBOTICS FOR HARSH, DELICATE AND UNCONVENTIONAL SCENARIOS



There are some operations that man alone cannot perform, that are essential and that a simple machine cannot carry out. Operations that must be conceived, designed and planned so as to be carried out from a distance, making use of specific machines and devices.

These machines must be reliable and robust but very often that are not available on the market as

standard or tested products, needing instead to be designed and custom made.

When dealing with remotely operated interventions in metal, steel or nuclear plants, in offshore subsea stations or even in surgical applications, we are facing very different scenarios with one common characteristic: the ability to carry out functions, requiring specific expertise and state of the art technology, in complex, unstructured as well as hostile scenarios.

For over 24 years we have faced and solved just such challenges. With advanced technical and organizational resources we have put together an impressive portfolio of successful robotic solutions.

Danieli Telerobot Labs offers the highest level of expertise and turnkey solutions, specializing in the development of customized machines and robots.

We achieve this by integrating on-site the most advanced technical solutions, man-machine applications and an unconventional use of industrial robots.

We provide beginning-to-end project planning and design, from feasibility and conceptual studies to integrated solutions and product delivery. Our results are guaranteed by the way we integrate all steps of the process: design, engineering, procurement, manufacturing, tests and certifications, field constructions and after-sale services.



METAL INDUSTRY



Robot applications to help operators work better and in greater safety

Q-ROBOT is the result of the most advanced integration between industrial robotics and process automation.

A set of solutions for each production area allowed the introduction of flexible automation in dangerous locations where human intervention is still essential.

An anthropomorphic robot enables people to be relocated to healthier environments. It easily deals with repetitive and labor intensive tasks which are closely related to poor process quality. However, operators maintain total control of all operating parameters. All Q-ROBOT systems are specifically designed for use in harsh environments with severe pollution.



MELT



SAMPLE

sampling
& analysis



EBT

remotely operated
interventions



SCAN

vision, inspection
& measurement



CAST



LADLE

sampling
& analysis



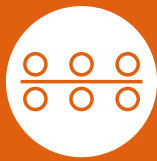
**MOULD
DEBUR**

remotely operated
interventions



FINISHING

tag & mark



ROLL



**TAG
MARK**

tag & mark



DESTRAP

destrap



DEBUR

remotely operated
interventions



SAMPLE

sample
preparation



ZINC



SKIM

skimming



INGOT

ingot



DESTRAP

destrap





ENERGY



Robotized applications for operations in hostile and dangerous areas

Design, production and servicing of remotely operated robots, autonomous vehicles and special machines for the laying of oil & gas pipelines.

Some relevant activities in this field are:

- > Robotized self propelled pipe crawler tractor unit for 32" pipelines (tested for over 1000 km);
- > Custom underwater diamond wire-cutting machine (certified to 2500 m below sea level);
- > 32" internal closed loop field joint sandblasting machine;
- > Self propelled buckle detectors from 10" to 48" set-up (16 units operating worldwide)

Inspection, decommissioning and waste management facilities as well as tools for Italian nuclear power plants:

- > Handling and cut robotic facility for nuclear waste at Nucleco ICS 42 plant;
- > Handling and cut robotic facility for nuclear turbine dismantling at Sogin Garigliano NPP;
- > Chimney sampling and decontamination robot at Sogin Garigliano NPP;
- > Cut robotic facility for steam generator dismantling at Sogin Latina NPP

Design and solution validation for the Nuclear Fusion Program:

- > IFMIF program with ENEA and ITER project with Iter Org.



NUCLEAR



waste management



remote handling



remote inspection



OFF SHORE



welding and sandblasting



pipe laying monitoring



remotely operated cutting



NUCLEAR DECOMMISSIONING



remote contamination measurement



rad waste size reduction and handling



remote inspection

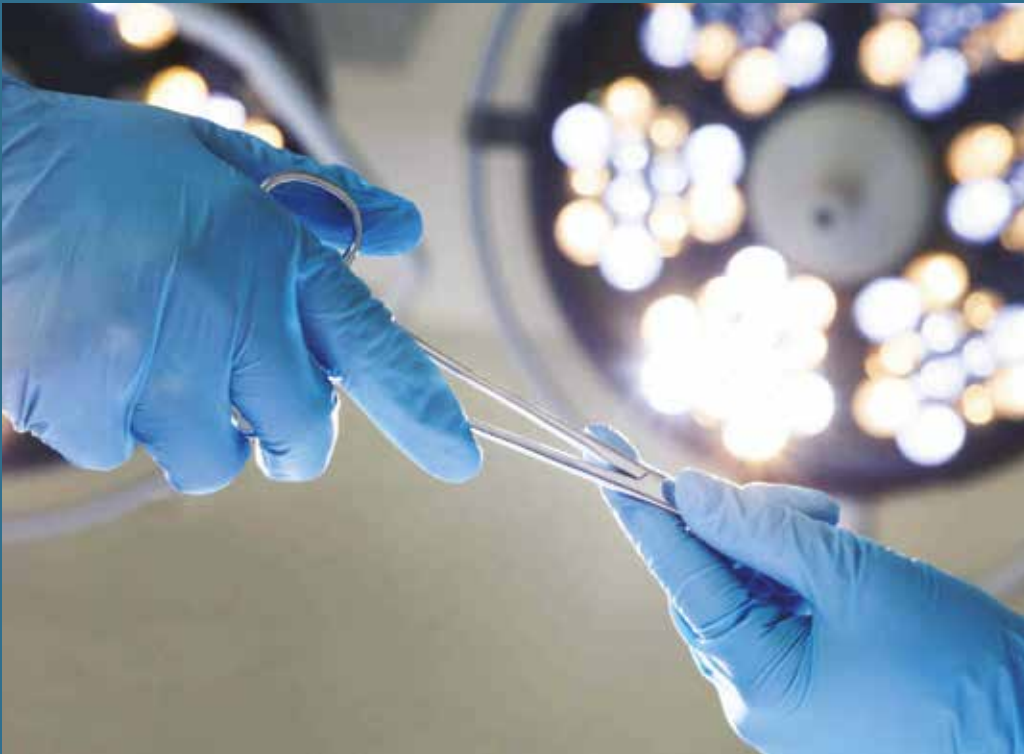


decontamination





MEDICAL



A complete range of robots specifically designed to operate in the health sectors

Robotic surgery, rehabilitation devices, automation for analysis laboratories, drug preparation and delivery.

Danieli Telerobot Labs develops custom machines and robotic devices in three relevant fields of application:

- > Diagnostic (Mri compliant patient positioning table and In-vessel diagnostic automated workstation);
- > Surgical (minimally invasive robotic application for laparoscopy, endoscopy and single port);
- > Rehabilitation (upper limb, lower limb and hand robotic rehabilitation devices)



LAB AUTOMATION



sample preparation
and handling



in vitro diagnostic
automation



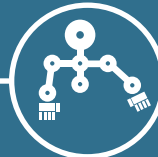
SURGERY



surgical robots



REHABILITATION AND ASSISTIVE TECHNOLOGIES



upper limb



lower limb



distal (hand)





ADVANCED



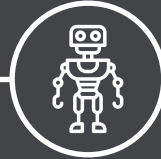
Advanced robotics for research and experimental applications

Danieli Telerobot Labs collaborates actively in robotic research projects both as partner and as technology provider or subcontractor. Some recent and relevant project in this sector are:

- > FP6 Robot Cub project (European humanoid robot iCub)
- > FP7 ECHORD and EURO-C
- > LIFE-FIBERS for asbestos passivation
- > H2020 BOTS2REC for the development of asbestos removal robots



ROBOTICS



humanoids



exoskeletons



PROCESSES



asbestos
processing



simulations



TECHNOLOGIES



haptics



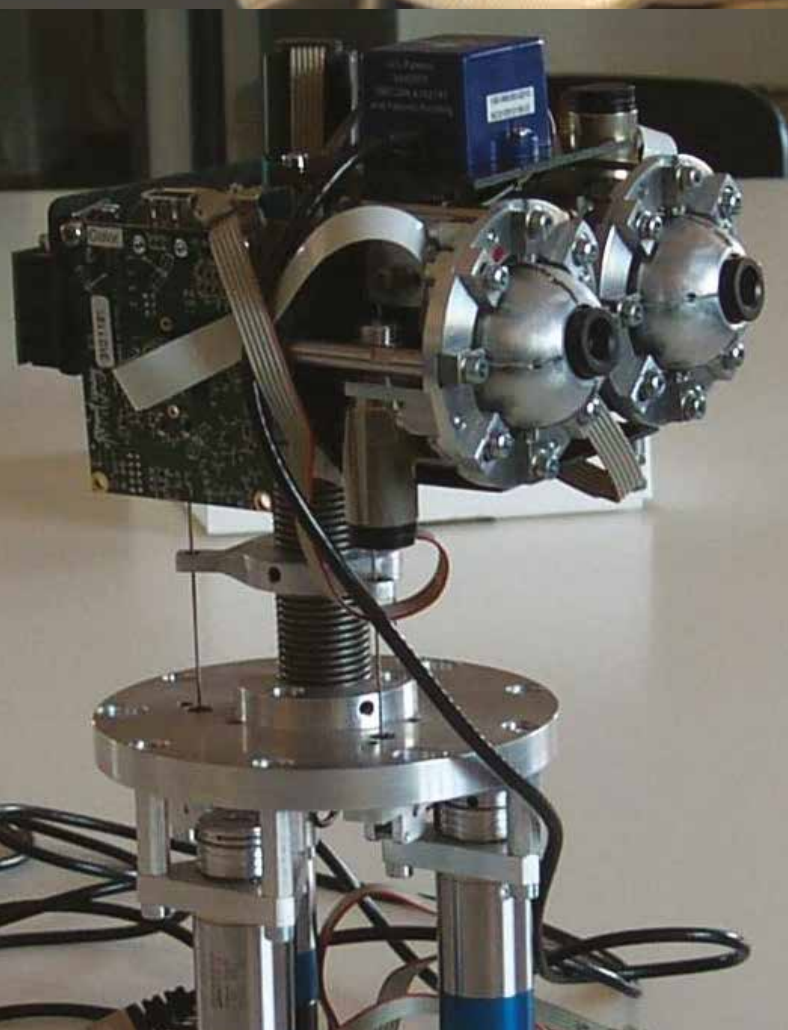
flexible compliant
actuators



"man in the loop"
robotics



advanced
materials



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