



ENGINEERING DESIGN CONSULTING

# OIL & GAS OFFSHORE MARINE STRUCTURES





More than  
**1500**  
structural  
projects  
have been  
developed





## COMPANY

**TECON** was founded in 1982 by engineers coming from an experience with an Italian fabrication/installation Contractor involved in the 80's with international offshore contracts.

Today, after more than 40 years, Tecon is an affirmed engineering consulting company specialized in the offshore/maritime structural field. We are able to supply effective projects starting from feasibility to follow up on site for demanding international clients including major oil and gas companies, fabrication and erection companies and installation contractors.

## MISSION

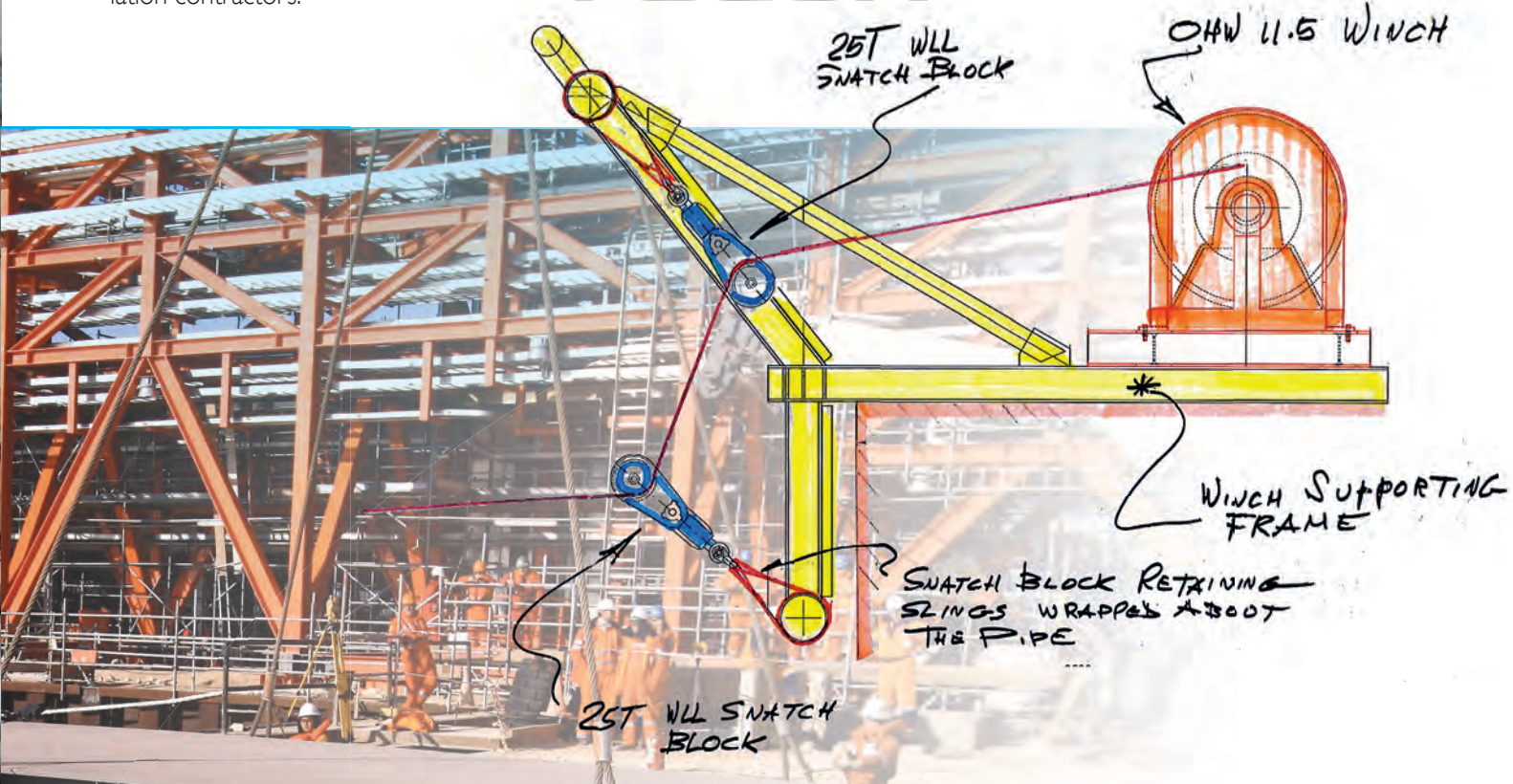
Our Mission is to supply tailored engineering to our Clients targeting the most economical and efficient solution, using expertise and know-how acquired along the years to face big project challenges with innovative solutions and, to assist our clients during the whole design process starting from the early feasibility phase up to detailed engineering.

## QUALITY

A Quality Management System has been in use since 2005 and is certified ISO 9001:2008 by Lloyd's Register Quality Assurance since 2011.

Tecon QMS is now certified ISO 9001:2015 for "Design of steel and reinforced concrete structures for offshore and onshore infrastructural projects; feasibility, basic and detail design of large structures."

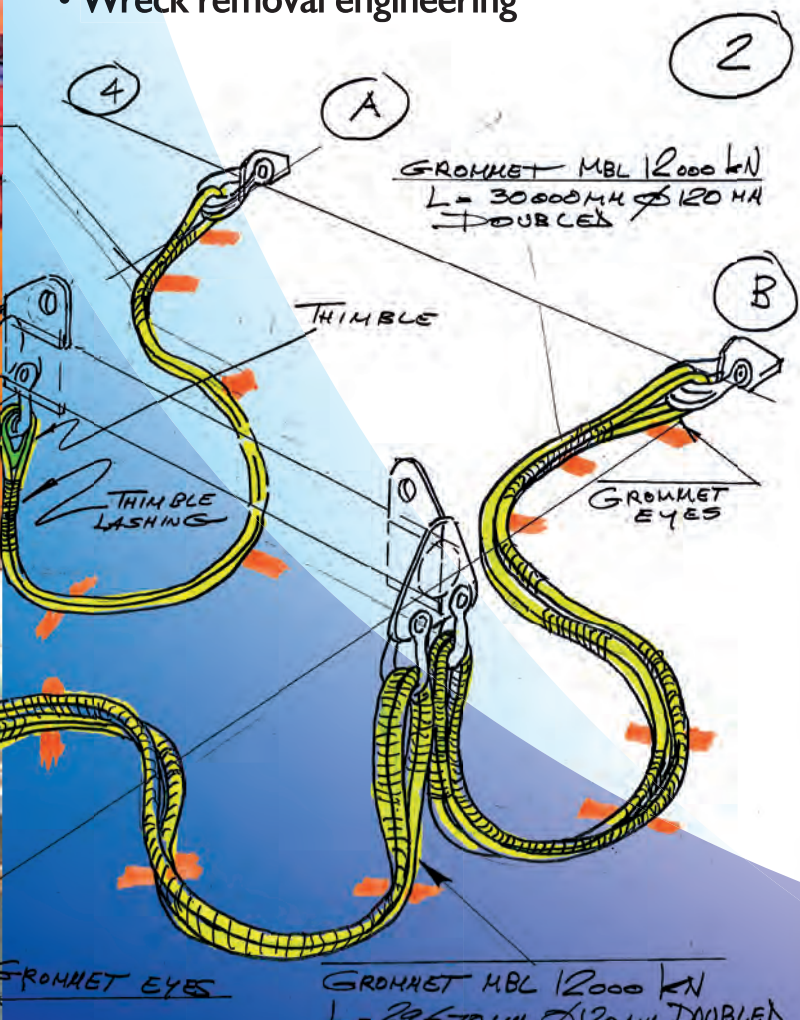
**TECON**



# EXPERTISE

Expertise and flexibility are the components of our strength which enable us to satisfy the Client needs along all design process phases. We start from feasibility studies and basic design, FEED design, detailed design, construction / installation engineering, site supervision and assistance, re-evaluation and revamping of existing structures.

- Offshore platforms
- Offshore modules with self bearing corrugated steel plate shear walls
- Platform brownfield
- Stinger engineering
- Marine terminals and jetties
- Engineering for jetty revamping
- Fabrication and installation engineering
- Design of special equipment for the offshore industry
- Metro and railway structural engineering
- Wreck removal engineering





**ENGINEERING DESIGN**



- Basic design and economic studies for platform feasibility
- Integrated structural/multidisciplinary projects
- Specification for site surveys and geotechnical reports
- Pile design and driveability analyses
- Jacket/pile design in soil liquefaction conditions
- Platform/jacket/deck structures design for the in-service conditions
- Integrated models of deck/jacket/non-linear foundations
- Jacket seismic design for different return periods
- Jacket node fatigue design, including transportation effects
- Jacket sleeves detailed FEM analysis
- Jacket installation sequences
- Existing platform survey and structural assessment
- Existing platform modification and upgrading
- Design of special equipment for pile installation
- Marine and structural design of jetties and wharves
- Modular construction studies
- Design of optimal berth locations to minimize downtime
- Berthing and fendering systems considering cost effective solutions
- Vessel motion, mooring analysis and mooring system analysis
- Evaluation of consequences of mooring line failures
- Mooring procedures and safety studies
- Determination of limiting conditions for berth occupancy and operation
- Existing jetty and terminal condition surveys and revamping
- Assistance to client during certification process





**OFFSHORE  
and  
MARITIME**

**40  
YEARS  
ACTIVITY  
IN THE  
SECTOR**

**TECON**





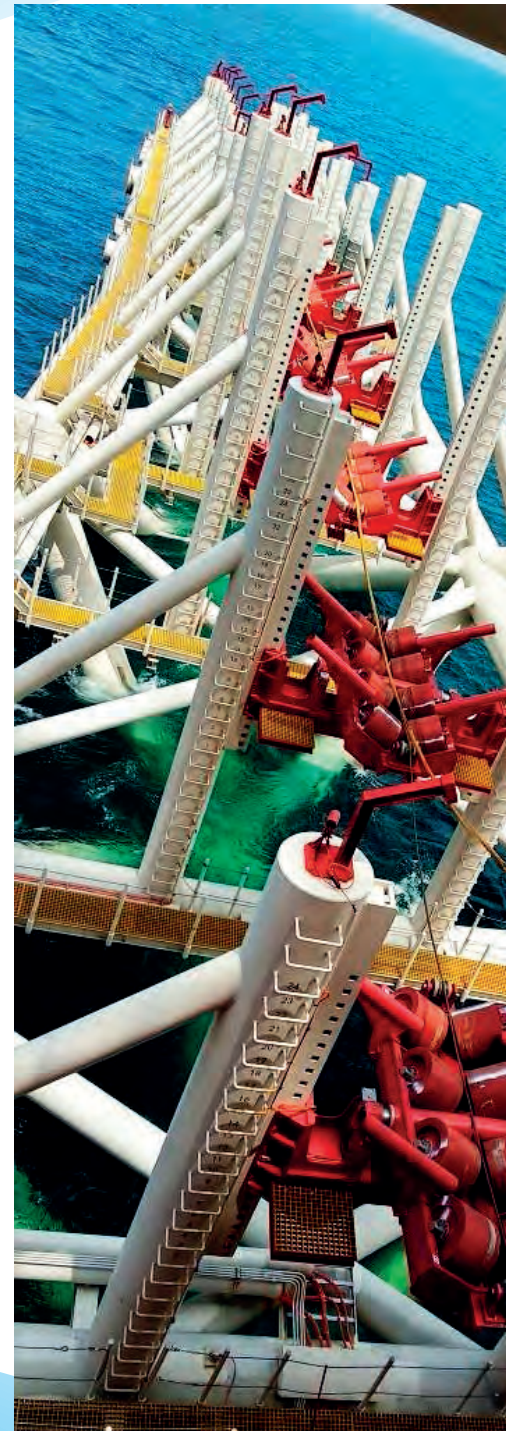
# STINGERS AND SPECIAL EQUIPMENT

Tecon has developed a number of sealine laying projects.

Tecon knowledge is based on the offshore environment experience and capacity of analysing complex dynamic responses of structures and vessels to such environment. Tecon has also developed the structural design of the main equipment used in the laying operations, such as winch basements, pulling heads, and floaters for bottom pulled lines, and stinger or J-lay towers for vessel laid lines.

Key features of Tecon's activity:

- Preparation of basis of design
- Feasibility analysis of laying
- Selection of laying method
- Definition of shore approach method
- Preparation of technical specifications
- Sealine strength checks for all laying phases
- Sealine stability checks during laying and in operation
- Definition of the onshore assembly yard area and profile
- Design of fixed and adjustable rollers for the onshore line assembly yard
- Design of floaters and relevant attachments to the sealine
- Design of pulling head and pulling line fittings
- Mooring system design and assessment
- Definition of stinger dimensions and handling system (fixed, buoyant, articulated, hydraulically operated)
- Structural design of stinger and connections to the laying vessel and operating system
- Dynamic analysis of vessel motions considering the mooring lines or DP and the presence of the stinger and sealine
- Study of the stinger installation and removal and design of necessary handling aids
- Structural design of J-lay tower and connections to the laying vessel
- Study of the J-lay tower installation and removal and design of necessary handling aids





MICOPERI 30

PESCARA



# FABRICATION and INSTALLATION ENGINEERING

- Constructability studies and assessments
- Fabrication engineering
- Installation engineering
- Deck transportation/installation analysis
- Sea-fastening design
- Transportation barge check and strengthening design
- Dynamic analysis of floating crane vessel during lifting
- Platform deck mating and float-over analyses
- Assistance during jacket/deck construction
- Roll-up and load-out operation design, check and assistance
- Jacket transportation and installation check including barge stiffness
- Jacket lifting/free floating/up-ending

*TECON*





# SPECIAL PROJECTS

On January 13, 2012, the **Costa Concordia** ship sank in front of the Giglio island harbor, after colliding with a rock of “le Scole” reef that opened a big flaw in its portside shell. 30 months and 15 days later, the Concordia wreck, kept afloat by 30 sponsons secured to its sides, entered the port of Genoa, and was moored to the Prà Voltri quay.

Tecon has been involved in the removal project by the Titan (USA) - Micoperi (Italy) JV since the very first days of the challenge promoted by the ship owner, insurance companies, and Italian government ‘observatory’. We have played a leading role in the design of the overall system for the wreck removal in one piece. The following services have been provided to the JV:

- System conception and preliminary design during bid phase
- Detailed design of the pull-back anchoring system
- Detailed design of the par-buckling system
- Detailed design of the supporting platforms
- Geotechnical design of the anchoring and piling systems with the support of the geotechnical consultant SOIL
- Detailed design of the forebody blister connection system to thrusters tunnels
- Detailed design of the structural components and installation aids of the sponsons (naval design by SPLINE)
- Installation aids design
- Assistance during structure fabrication
- Coordination and assistance to site during all the execution phases

**TECON**





www.tecnostituzioni.it

Haulotte

10100 10000

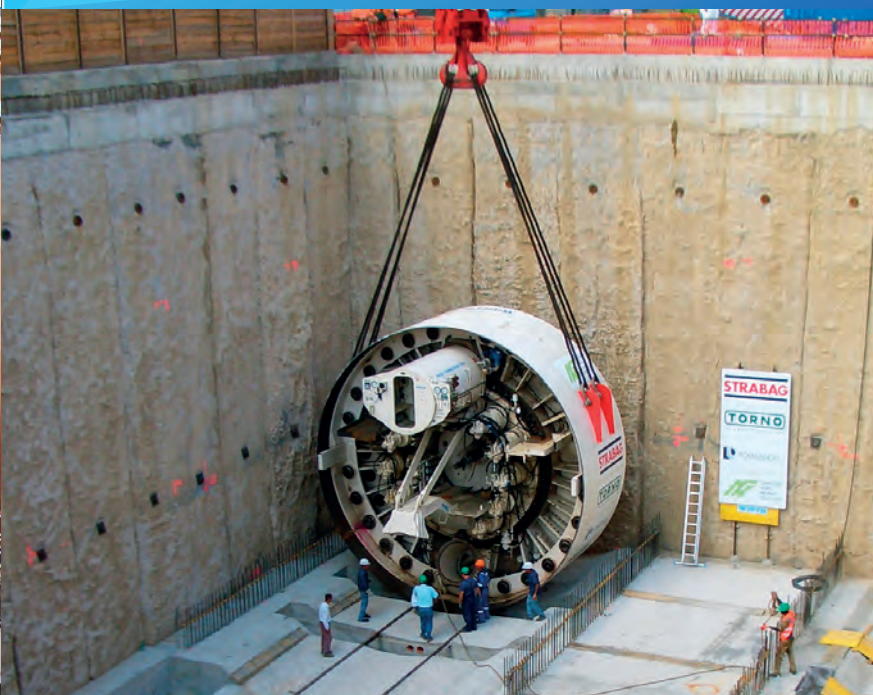
# CIVIL INFRASTRUCTURES



Tecon has developed many detailed projects for civil contractors, focusing on high speed stations and metro lines.

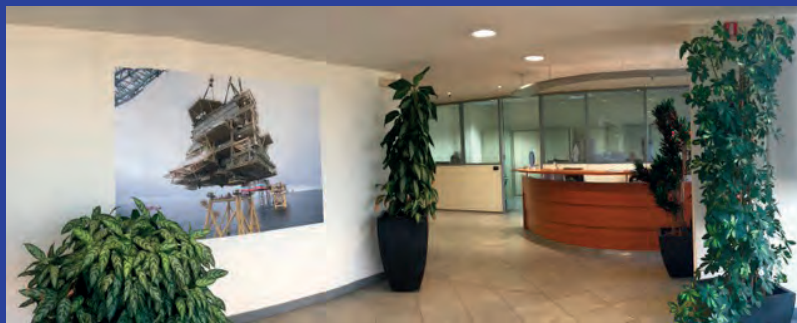
Tecon's services:

- Detailed design of earth retaining structures made up by anchored slurry walls and micropiles
- Detailed design of the anchoring and strut systems
- Detailed design of stations and reinforced concrete structures
- Detailed design of temporary steel bridges and decks
- Assistance to contractors during execution
- Assistance to contractors and owner during commissioning
- 3D FEM analyses of buildings subjected to settlement fields
- Assessment of settlement acceptability criteria for buildings and churches





## OFFICE - LOCATIONS



**TECON s.r.l. headquarters in Milan:**  
Milanofiori - Strada 1 - Palazzo Congressi  
20090 ASSAGO (MI) - ITALY  
Land-line phone: +39 02 92882 150

[www.teconsrl.it](http://www.teconsrl.it)

