Tecon is a leading Italian Engineering Consulting Company in the field of structural offshore/marine engineering providing comprehensive design, project management, construction and installation supervision services for offshore and marine structures.

We assist our Clients during all the design process starting from the early feasibility phase up to Detailed Engineering.

More than 1000 projects have been developed with supply of the following Services:

- Structural Design and multidisciplinary Projects of Offshore Platforms
- Structural Design and multidisciplinary Projects of Oil and Gas Marine Terminals
- Structural Design of Offshore Modules with Stiffened Walls
- Structural Design of Ports and Jetties
- Marine Terminal Inspection and Revamping Engineering
- Naval Analysis of ships, barges and other floating bodies to study their sea-keeping characteristics and dynamic responses for free and moored vessels.
- Consultancy services for fabrication, handling, transportation and installation of heavy onshore and offshore structures.
- Technical specifications for Design, materials, fabrication, transportation and installation and operating manuals.
- Assistance to Clients for Design approval by Classification Authorities such as Det Norske Veritas, Lloyd’s Register of Shipping, Bureau Veritas, American Bureau of Shipping, Registro Italiano Navale.
- Detailed Design of Special Equipment for the Offshore/Sealine Installation Industry
Tecon has developed many detailed projects for Milan Metro and Rome lines.

- Structural Linear and Non-linear Seismic Analysis
- Steel Structure Stochastic Fatigue Analysis
- Piping Stress Analysis
- Metro and Railway Underground Stations
- Deep Reinforced Concrete Wells under Heavy Water Neap Pressure
- Assistance to Clients for Design approval by Classification and Statutory Authorities
- Geotechnical Design of Anchored Sheet Piles and Diaphragms
- Analysis and Assessment of settlement acceptability criteria for Buildings and Churches
- Design of special Steel Strut Systems for Heavy Diaphragm Walls
- Ground consolidation Design
Our experience in this field derives from more than 30 years activity in the sector involving all stages from feasibility phases for final Owners/Companies up to final detailing for Construction/Installation Contractors.

Offshore Industry requires the most cost effective solution based on both material weight saving and the best configurations compatible with the available installation means on the global market.

Continuous and intense activity of Tecon in this field give us a wide knowledge of the Installation Vessels/Cranes over the world enabling the search of the most economical solution from the installation point of view.

Key features of Tecon’s activity:

- Preparation of Basis of Design
- Design with International Codes as required by Clients (European, American, Indian, Japanese)
- Integrated Structural/Multidisciplinary Projects
- Specification for site Surveys and Geotechnical Investigations
- Geotechnical Reports
- Pile Design and Driveability
- Jacket/Pile Design in Liquefaction Conditions
- Platform/Jacket structures Design for the In Service Conditions
- Integrated Models Deck/Jacket/Foundations
- Jacket Seismic Design for different Return Periods
- Jacket Node Fatigue Design including Transportation effects
- Jacket Transportation and Installation Check including Barge Stiffness
- Jacket Lifting/Free Floating/Up-Ending
- Jacket Sleeves detailed FEM Analysis
- Jacket Installation Sequences
- Deck In Service Analysis
- Deck Transportation/Installation Analysis
- Sea Fastening Design
- Transportation Barge Check and Strengthening Design
- Dynamic Analysis of floating Crane Vessel during Lifting
- Platform Deck Mating Analysis
- Economical Studies for Platform Feasibility
- Jacket/Deck Detailing
- Assistance during Jacket/Deck Construction
- Roll Up Operation Design, Checks and Assistance
- Load-out Operation Design, Check and Assistance
- Existing Platform Survey and Structural Assessment
- Existing Platform Modification and Upgrading
- Design of Special Equipment
- Assistance to Client During Certification Process
Our wide experience in different marine fields, also dating from more than 30 years allows us to deliver tailored, integrated and cost effective solutions to our customers.

Design of jetty structures with integrated loading berths in open ocean conditions is a cost effective means of providing ship-loading facilities for dedicated ports.

Coastal geology and dredging conditions, possible mooring solutions at the berth, and the berth response to various oceanographic conditions are investigated in detail to define the jetty position and orientation.

Key features of Tecon’s activity:
- Preparation of Basis of Design
- Site selection
- Marine and Structural Design of Jetties and Wharves
- Integrated Structural/Multidisciplinary Projects
- Isolated sea island Berths
- Jacket Structures in poor ground conditions
- Modular construction
- Constructability assessments
- Geotechnical and Pile Design
- Design of optimal Berth Location and Orientation to minimize downtime
- Berthing and Fendering systems
- Vessel Mooring Analysis
- Mooring system Design and Assessment
- Vessel Motion Response Analysis
- Evaluation of the consequences of Line Failure
- Prediction and monitoring of Vessel, Gangway and Manifold movements
- Mooring procedures and safety studies
- Materials handling
- Selection of the most suitable Configuration and Materials
- Minimizing over-water work by providing innovative prefabrication techniques
- Identifying cost effective and schedule saving procurement options
- Considering cost effective fendering and berthing solutions
- Specifying an appropriate combination of material solutions, coating and active corrosion protection systems to maximize Design life
- Determination of limiting conditions for berth occupation and operation
- Existing jetty and terminal Condition surveys
- Revamping of Existing Jetties and Terminals
- Assistance to Client During Certification Process
For METRO-BRESCIA Tecon has developed the detailed project of four stations (Volta, Lamarmora, Brescia 2, and Vittoria) and the two departure and arrival wells for TBM.

SERVICES:
- Detailed Design of all the earth retaining structures made up by anchored slurry walls and micropiles
- Detailed Design of the anchoring and strut systems
- Detailed Design of all the station and well reinforced concrete structures
- Detailed Design of all the temporary steel bridges and decks
- Bar bending sheets
- Assistance to Contractor during execution
- Assistance to Contractors and Owner during commissioning
- Three dimensional FEM Analysis of several Brescia buildings and Churches subject to TBM settlement fields
- Assessment of settlement acceptability criteria for Buildings and Churches
In the last decade city of Milan has expanded its metro lines and built new ones.

**MAIN PROJECTS:**
- Line 1: "Prolungamento Molino Dorino - Rho Fiera"
- Line 2: "Prolungamento: Famagosta - Assago - Milanofiori forum"
- Line 3: "Prolungamento verso Comasina - Affori Centro e Affori Nord"
- Line 5: "Costruzione Stazioni: Bignami, Zara, Deposito"

**SERVICES:**
- Detailed Design of all the earth retaining structures made up by anchored slurry walls and micropiles
- Detailed Design of the anchoring and strut systems
- Detailed Design of all the station and well reinforced concrete structures
- Detailed Design of all the temporary steel bridges and decks
- Bar bending sheets
- Assistance to Contractors during execution
- Assistance to Contractors and Owner during commissioning

**OTHER PROJECTS:**
- **ROME - METRO B1**
- **BOLOGNA - HIGH SPEED MAIN STATION**
Our policy is to adopt the most up to date computer techniques in terms of both hardware and software and to maximise the staff productivity by in house tailor made procedures.

MARINE/OFFSHORE STRUCTURES

- SACS System by Engineering Dynamic (Bentley) for structural Analysis (for offshore structures)
- MOSES by Ultramarine for naval Analysis and dynamic simulation
- LPILE by Ensoft (Lymon C. Reese) for laterally loaded piles
- APILE by Ensoft (Lymon C. Reese) for axially loaded piles
- RFWAVE by Delft Hydraulics for wave description with stream function
- OPTIMOOR by Tension Technology International, Inc. for Mooring Analysis
- TEKLA steel structure drafting Design program

GEOTEchnical AND soil/STRUCTURE INTERACTION PROGRAMS

- MIDAS GTS FEM geotechnical/structural Analysis program
- LPILE by Ensoft (Lymon C. Reese) for laterally loaded piles
- APILE by Ensoft (Lymon C. Reese) for axially loaded piles
- PARATIE by Ceas for foundation diaphragms
- GRLWEAP Wave Equation Analysis Program

OFFSHORE PIPELINES AND PIPING

- TCS/LAY for non linear laying Analysis
- CAESAR II piping stress Analysis

GENERAL PURPOSE STRUCTURAL/CIVIL AND FEM PROGRAMS

- SAP2000 general purpose program for structural Analysis
- MIDAS GEN general purpose program for structural staged Analysis
- MIDAS FEA non linear structural Analysis program
- DIANA FEM structural program for special materials (masonry, composites, rock, etc)

HARDWARE

In order to ensure the maximum reliability and security of all design data, Tecon avails itself of the most advanced hardware and always keeps it up to date.

All Tecon central Information System and distributed Hardware are based on HP products.

Tecon central Information System is organised on three levels:

- Servers: three BL460c Blade Servers – one DL360 managing the blades and one DL380 Linux Server.
- Data Storage: SAN, Storage Area Network (HP Enterprise Virtual Array 4400) – 12 N. FC Disks.
BELAYIM Field - 40 m water depth (1982)
Owner/Client: PETROBEL
Services: Four platforms for a total weight of 2500 t excluding piles - Structural detail design of platforms including decks, jackets and piles.

VEGA A Platform (1986)
Owner/Client: SELM/TECNIMONT
Services: Well-head and Separation Modules weighing 1100t and 1300t - Structural basic and de-tail design.

EDOP Field (1989)
Owner/Client: MOBIL
Services: Switchgear and Workshop Module - Basic and detail structural and architectural design.

EDOP & UBIT Fields 50 m water depth (1991)
Owner/Client: MOBIL
Services: Underwater manifold & line crossing structures Basic and detail structural design of two manifold supporting frames and several crossings

CLAYMORE Field 110 m water depth (1992)
Owner/Client: CIO
Services: Jacket weight 4200t Piles weight 1800t - Complete structural design for bid of jacket and piles

DARIA B Platform 56 m water depth (1993)
Owner/Client: AGIP/ROSETTI
Services: Platform weight 1000t Piles weight 500t - Complete structural design from the bid stage to the issue of all A.F.C. drawings

BONACCIA Field 86 m water depth (1994)
Owner/Client: SAIPEM
Services: Platform weight 1900t Piles weight 1000t - Basic structural design of deck, jacket and piles.

CABINDA Field 70 m water depth (1995)
Owner/Client: C.G.O.Co - CHEVRON
Services: Underwater guide frame structure 400t - Basic and detail structural design of the underwater structure and levelling system

IVANA A Platform (1996)
Owner/Client: INAGIP/ROSETTI
Services: Complete structural design of jacket, deck and living quarter from the bid stage to the issue of A.F.C. dwgs (43 m water depth)

DABHOL Power Project (1997)
Owner/Client: SAIPEM
Services: Detail design of 20” sealine connecting the SBM PLEM to the Onshore Plant

BARBARA NW Platform (1997)
Owner/Client: AGIP
Services: Basic and detail structural design of jacket and deck including issue of tender specifications. (70 m water depth)

ESSAR OIL REFINERY Project (1997)
Owner/Client: SASP
Services: Detail design of two 48” sealines for Essar Oil Refinery of the 48” sealine for crude oil and the 48” sealine for water outfall

ODIDI (1998)
Owner/Client: SHELL NIGERIA/ABB-SOIMI
Services: Basic and detail structural design of the Combined Utilities Module for the Oddi Field

KOMBI LIKALALA Project (1998)
Owner/Client: ELF CONGO/ROS-BOS Consortium
Services: Basic and detail structural design of two drilling decks for platforms offshore Congo

DARFEEL Project (1998)
Owner/Client: AGIP
Services: Detail structural design of the electrical & instrumental module structure

CLARA COMPLEX Project (1999)
Owner/Client: AGIP/SASP
Services: Basic and detail structural design of three drilling and gas production platforms for the Adriatic sea, in water depths ranging from 73 to 77 m

IVANA B, D and E Platforms (1999)
Owner/Client: INAGIP
Services: Complete structural design of two tripod and one monopod satellite platforms including jackets, decks, living quarters and helidecks as applicable, from the bid stage to the is-sue of A.F.C. dwgs. (41 m water depth)
Owner/Client: ABB-SOIMI
Services: Basic and detail design of the structures housing the complete oil production plant. The structures are installed on a floating concrete caisson operating in the Niger river delta

SOROOSH Field Development Project – NIOC Iran (1999)
Owner/Client: EDISON
Services: Structural design for bid of one production & utility platform, one drilling platform and one living quarter platform, in 45 m water depth

MWAFI & FOUKANDA Platforms (2000)
Owner/Client: AGIP CONGO/SASP
Services: Basic and detail structural design including all A.F.C. drawings, developed together with SASP, of the platforms. Tecon was responsible to perform the complete design of the decks and for the foundation design and all naval and installation analyses (100 - 105 m water depth). Due to the very poor top soil characteristics, the foundation was based on pre-installed piles driven through a purpose designed guide frame

TEMSAH NW Platform (2000)
Owner/Client: PETROBEL/SASP
Services: Basic and detail structural design, developed together with SASP, of the platform jacket in 85 m water depth. Tecon was responsible to perform the foundation design and all naval and installation analyses. All A.F.C. structural drawings were also developed by Tecon

ROSETTA Phase 2 (2000)
Owner/Client: EDISON
Services: Feasibility study and conceptual design of one minimum facilities wellhead platform in 63 m water depth

BD1 Platform Deck (2001)
Owner/Client: TOTAL-FINA-ELF/ROSBOS
Services: Basic and detailed structural design of the 8 leg drilling and production deck for BD1 platform, Total Fina Elf C137 B development project, in Libya

OKONO/OKPOHO Field (2001)
Owner/Client: NIOC - AGIP NIGERIA/SEI
Services: Basic and detail structural design of the Okpoho wellhead platform in 100 m water depth

MARICA Platform (2002)
Owner/Client: INAGIP/ROSETTI
Services: Conceptual, basic and detail structural design of one four legged platform including jacket, deck, well head module. (69 m water depth)

SABRATHA Platform (2002)
Owner/Client: AGIP LIBYA/SEI
Services: Detail structural design of all risers, j-tubes and caissons of the Sabratha jacket to be installed offshore Libya in 188 m water depth

PFD Platform (2002)
Owner/Client: PETROBEL/SEI
Services: Detail structural design of the tripod platform for the Port Fouad field including the sub-structure, wellhead module and deck.

RPP Platform (2002)
Owner/Client: PETROBEL/SEI
Services: Detail structural design of the jacket of one four legged platform for the Port Fouad field.

RED SEA Platforms (2002)
Owner/Client: ENI AGIP
Services: Basic and detail structural design of the 113M18A monopod and of the MWP5 tripod including substructures and decks. (Water depths from 24 to 37 m)

TEA Platform (2002)
Owner/Client: AGIP/TECNOMARE
Services: Detail structural design of the jacket of one four legged platform, in 41.5 m water depth, including the wellhead module.

IVANA K Platform (2002)
Owner/Client: INAGIP
Services: Conceptual and basic structural design of one four legged compression platform including jacket and deck. (43 m water depth)

TEMSAH 4, BARBONI 1, BALTIM NORTH Project (2003)
Owner/Client: ENI AGIP
Services: Conceptual structural design of the Temsah 4, Barboni 1 and Baltim North platforms to be installed in the Mediterranean Sea offshore Egypt in water depths ranging from 75 to 91 m. The foundation of all jackets is based on the same concept of pre-installed piles and guide frame already adopted for the Foukanda, Mwafi and Okpoho platforms

KASHAGAN POWER GENERATION Barge (2004)
Owner/Client: ABB - RR Consortium
Services: Detailed structural design of the barge hull and superstructures housing four Rolls-Royce power generation units and relevant switchgear and control building, for the Ka-shagan field development, Experimental Programme Project, Block D, barge 8.
Owner/Client: INAGIP/NAVALMARE
Services: Detail structural design of the compression platform Ivana K and
monopod platform Ivana C for Inagip offshore Croatia 43 m water depth

EAP Project Platforms (2004)
Owner/Client: EXXON-MOBIL/SEI
Services: Detail structural design of three riser platforms as part of the East
Area development project offshore Nigeria in water depths ranging from 25
to 40 m

WEST ESPOIR Platform (2005)
Owner/Client: CNR INTERNATIONAL/SEI
Services: Detail structural design of the three leg jacket and deck for the West
Espoir field off-shore Ivory Coast, in 120 m water depth

VALDEMAR AB Platform Deck (2005)
Owner/Client: MAERSK OIL/ROSETTI
Services: Detailed structural design of the 5 level topsides for Valdemar AB for
the Danish sector of the North Sea.

HALFDAN CA and BC Platform (2006)
Owner/Client: MAERSK OIL/ROSETTI
Services: Detailed structural design of the HBC Topside (3000t lifting weight)
and HCA Deck (600t lifting weight) for the Danish sector of the North Sea.

AKCO Kashagan Project LERs (2007)
Owner/Client: AKCO/JV SKEMA TOZZI
Services: Detail design of LERs, each made by two modules weighing about
800 t each

Izabela Field Development in North Adriatic Sea (2007)
Owner/Client: EDINA
Services: Feed Design of two Paltform and interconnecting sealines to be
installed in North Adria-tic Sea in about 40m water depth. The scope of work
included the preparation of the ITT for EPC contracts

IKALOU Development Project (2007)
Owner/Client: SEI
Services: Detailed structural design of two drilling and production platforms to
be installed in West Africa, offshore Congo, in 80m water depth

HALFDAN BB Platform (2007)
Owner/Client: MAERSK OIL/SEI
Services: Detailed structural design of the HBB Deck (600t lifting weight) for
the Danish sector of the North Sea

Owner/Client: AGIP-INAGIP/SEI
Services: Detail structural design of Annamaria A and B Platforms to be installed
in Adriatic Sea in 70m water depth. The Jacket and deck lifting weights are
1100t and 1500t respectively

Offshore Wind Power Generation (2007-2008)
Owner/Client: CESI RICERCA
Services: Feasibility study and basic design of floating base structures of various
types for deep-water offshore wind power generation units analysing different
types of foundations.

AKCO Kashagan Project Buildings (2008-2010)
Owner/Client: AKCO/JV SKEMA TOZZI
Services: Detail design of 18 buildings, weighing from 400 to 1200 t each. The
service include the engineering for load-out and transportation and the super-
vision of all load-outs.

AKCO Kashagan Project Infill Decks (2009)
Owner/Client: AKCO/TECNOMARE
Services: Detail design of two infill decks, each weighing about 500 t.

LIBONDO Platform (2008-2009)
Owner/Client: TOTAL/ROSETTI MARINO
Services: Detailed structural design of the Libondo platform deck, jacket and
foundations to be in-stalled offshore Congo in 113.6 m water depth

NAQ-PII Platform (2010)
Owner/Client: AQP/ROSETTI MARINO
Services: Basic and detail design of a platform to be installed in Egypt,
Mediterranean sea at Abu Qir Filed in 35m water depth.

WEST FRANKLIN – ELGIN B Deck (2012 - in progress)
Owner/Client: TOTAL UK/ROSETTI MARINO
Services: Detail design of two decks to be fabricated in Ravenna and installed
in North Sea. The expected deck weigh is 4000t and 3500t.

CMMP Platform (2012 - in progress)
Owner/Client: SOUTH OIL COMPNAY / SAIPEM
Services: Detail structural design of a platform to be installed in Arabic Gulf in
27m water depth. The deck weighing 9000t will be installed by floatover.

COSTA CONCORDIA Wreck Removal Project (2012 – in progress)
Owner/Client: TITAN MICOPERI JV
Services: Concept studies and detail design of holdback system and supporting
platforms re-quired for removing the Costa Concordia wreck.
MARLIN Platform (2012 – in progress)
Owner/Client: FOXTROT/ROSETTI MARINO
Services: Detail structural design of jacket and deck of Marlin platform to be installed offshore Ivory Coast in 120m water depth.

OFFSHORE STRUCTURES - FABRICATION ENGINEERING

CONSORZIO ITALOFFSHORE - Punta Cugno Yard (Sicily)
From 1985 to 1995 Tecon was permanently involved in the fabrication engineering and technical assistance to special operations such as heavy lifts, roll-ups and load-outs.

VEGA Jacket, M.S.F and Piles (1985)
Owner/Client: SELM/C.I.O. (CONSORZIO ITALOFFSHORE)
Services: Management of the fabrication engineering including shop drawings, logistics of prefabricated components, engineering and supervision in the yard of all major lifts, roll-ups and load-outs for the 12000 t jacket and other components. (120 m water depth)

Owner/Client: AGIP U.K./C.I.O. (CONSORZIO ITALOFFSHORE)
Services: Management of the fabrication engineering including shop drawings, logistics of prefabricated components, engineering and supervision in the yard of all major lifts, roll-ups and load-outs for the 17000 t jacket, 2200 t MSF and 7800 t piles. (126 m water depth)

JUDY Jacket and Piles (1995)
Owner/Client: PHILLIPS/C.I.O. (CONSORZIO ITALOFFSHORE)
Services: Management of the fabrication engineering including shop drawings, logistics of prefabricated components, engineering and supervision in the yard of all major lifts, roll-ups and load-outs for the 8000 t jacket. (75 m water depth)

INTERMARE SARDA - Arbatax Yard (Sardinia)
From 1982 to 1995 Tecon was permanently involved in the fabrication engineering and technical assistance to special operations such as heavy lifts, roll-ups and load-outs.

BARBARA C, D, E Jackets and Piles (1985)
Owner/Client: AGIP/Intermare Sardegna
Services: Management of the fabrication engineering including shop drawings, engineering and supervision in the yard of all major lifts, roll-ups and load-outs for the 1600 t each jackets. (70 m water depth)

LUNA B Jacket and Piles (1990)
Owner/Client: AGIP/Intermare Sardegna
Services: Management of the fabrication engineering including shop drawings, engineering and supervision in the yard of all major lifts, roll-ups and load-outs for the 5000 t jacket. (125 m water depth)

ASPF3 Jacket and Piles (1995)
Owner/Client: ELF Tunisia/Intermare Sardegna
Services: Management of the fabrication engineering including shop drawings, engineering and supervision in the yard of all major lifts, roll-ups and load-outs for the 1300 t jacket. (67 m water depth)

In 2003 Saipem Intermare Sardegna were awarded the fabrication contract for the Sabratha jacket and piles and Tecon was involved as follows:

SABRATHA Jacket and Piles (2003)
Owner/Client: AGIP Libya/Intermare Sardegna
Services: Preparation of shop drawings and M.T.O.s for all structural material requisitions, engineering and supervision in the yard of all major roll-ups for the 23000 t jacket. (188 m water depth)

ROSETTI - Piomboni Yard (Ravenna)
Since the beginning of its activities up to present Tecon is involved in the fabrication and temporary works engineering and technical assistance to special operations such as heavy lifts, roll-ups and load-outs.

BD1 Jacket and Piles (2002)
Owner/Client: Total Fina Elf/Rosetti Marino
Services: Management of the fabrication engineering including logistics of prefabricated components, engineering and supervision in the yard of all major lifts, roll-ups and load-outs for the 6000 t jacket. (87 m water depth)

LIBONDO Deck (2008-2009)
Owner/Client: Total/Rosetti Marino
Services: Follow-up in the fabrication yard of the structural design, definition of the erection sequence and engineering and supervision of all major lifts.

JASMINE, JRP and JRQ Jacket (2010)
Owner/Client: Conoco Phillips/Rosetti Marino
Services: Fabrication engineering of 3 jackets for North Sea weighing 5500t, 6000t and 4000t. The activities include the definition of the erection sequence and engineering and supervision of all roll-ups, main lifts and load-outs.
WIN Platform - 65 m water depth (1984)
Owner/Client: ONGC India/MICOPERI
Services: Complete installation engineering including launching and up-ending simulations

ASPF 2 Platform - 70 m water depth (1984)
Owner/Client: SEREPT/SNAMPROGETTI
Services: Transportation and launching analyses of the 1800t jacket

C40 Module - Weight 6000t (1989)
Owner/Client: BP Norway/MICOPERI
Services: Transportation engineering and sea fastening design

MOKOKO ABANA Field (1990)
Owner/Client: PECTEN Cameroon/SAIPEM
Services: Installation engineering for three jackets and decks and for all sea lines and risers

SAFANIYA GOSP 4 Complex (1992)
Owner/Client: ARAMCO/SAIPEM
Services: Complete design of the installation aids for all jackets, decks, modules and bridges

NORTHERN ADRIATIC Field (1995)
Owner/Client: AGIP
Services: Study of the installation of mono-tower platforms using a crane barge or a jack-up drill-ing rig

Owner/Client: SHELL/SAIPEM
Services: Transportation engineering and sea fastening design for all structures: jackets (max. weight 10000 t), living quarters, bridges and flares

Installation by MATING (1996)
Owner/Client: SAIPEM
Services: Conceptual and feasibility study of the installation by Mating of large topside structures

Client: SAIPEM
Services: Tecon has developed on behalf of Saipem a number of dynamic naval analyses for actual installations (Helang, Cakerawala, Sakhalin) and for a patented active system of load transfer. The PA-B and Lun-A Sakhalin topsides weighed up to 30000t, were transported on T-shaped barges built on purpose and were installed on concrete bases with large cylindrical columns, which proximity to the barge hull required the development of special elements to be introduced in the Moses software.

AL SHAHEEN Project (1998)
Owner/Client: MAERSK/SAIPEM
Services: Engineering of transportation, sea-fastening, docking and upending of the BA and CA jackets

HELANG Field Project (2000)
Owner/Client: NIPPON OIL/SAIPEM MALAYSIA
Services: Engineering of launching and upending of the jacket and mating of the deck

SANHA Condensate Project (2001)
Owner/Client: CHEVRON/SAIPEM USA
Services: Engineering of launching and upending of three jackets with definition of additional buoyancy tanks and of jacket modifications

CAKERAWALA Field Project (2001)
Owner/Client: CARIGALI TRITON/SAIPEM MALAYSIA
Services: Handling and installation engineering for a number of risers and spool pieces of the 18” and 6” sealines linking three platforms and one FSO

CASPIAN SEA BLUE STREAM Project (2002)
Owner/Client: SAIPEM
Services: Transportation engineering and sea fastening design for a number of transportations in the Mediterranean and Black Seas of pipe joints and sealine installation equipment

ACG Full Field Development (AZERBAIJAN) (2002)
Owner/Client: ACG/SAIPEM
Services: Check of the limiting weight for the DP jacket due to transportation stability and barge strength. Study of the deck installation by mating. Transportation engineering for the template and piles

PECIKO Phase 3 Project (2002)
Owner/Client: GUNANUSA/SAIPEM INDONESIA
Services: Basic engineering of the jacket upending and establishment of criteria for the final analyses to be performed by the jacket designer
CLARA EAST & NORTH Project (2002)
Owner/Client: AGIP/ROSETTI
Services: Detail engineering for transportation and installation of two helideck modules, including the preparation of installation manuals and the assistance to the operations

CALPURNIA Project (2002)
Owner/Client: AGIP/COSMI
Services: Detail engineering for transportation and installation of one living quarter module, including the preparation of installation manuals and the assistance to the operation

ACG Full Field Development (AZERBAIJAN) (2002)
Owner/Client: ACG/SAIPEM
Services: Detail structural design of all reinforcements of the STB1 barge, required by the load-out and transportation loads generated by the jackets and decks relevant to phase 1 and phase 2 of the full field development

LIKALALA Project (2003)
Owner/Client: ELF Congo/ABB
Services: Detail engineering for transportation and installation of one 50 m long flare boom, including the preparation of installation manuals and the assistance to the operation

YACHENG Field Project (2003)
Owner/Client: SAIPEM MALAYSIA
Services: Engineering of free floating and upending of the jackets with definition of additional buoyancy tanks and relevant design

PS1K Platform (2003)
Owner/Client: SAIPEM
Services: Dynamic naval and structural analyses of the docking operation of PS-1K jacket, in a water depth of 33.26 m, over the pre-installed docking pile

MARICA Project (2003)
Owner/Client: INAGIP/MICOPERI
Services: Engineering for the installation of the jacket and deck of the Marica platform and for the installation of the sealine from Barbara T2 to Marica

SAKHALIN Project (2003)
Owner/Client: SAIPEM
Services: Study and development of all naval analyses for the transportation and float over instal-lation of the Sakhalin PA-B and LUN-A topsides. The two units, weighing up to almost 30000 t, will be transported on purpose built T-shaped barges. The simulation results were checked against the findings of physical model tests

TEMSAH – NW2 Platform (2005)
Owner/Client: ENI Petrobel/SAIPEM
Services: Time domain dynamic simulation of the 2000t deck lifting and installation. The simulation was performed for the three body system (HLV S3000, transport barge and deck) in different seastates and different position with scope of identifying the limiting installation conditions. The platform was installed in Mediterranean Sea, offshore Egypt

WEST ESPOIR Platform (2005)
Owner/Client: CNR (CANADIAN NATURAL RESOURCES)/SAIPEM
Services: Time domain dynamic simulation of the 1500t three-leg jacket lifting and installation. The jacket was successfully installed in West Africa, offshore Ivory Coast

HEAVY LIFTS by SAIPEM S3000 (2005-2006)
Client: SAIPEM
Services: Tecon was asked by Saipem to study the dynamics of a number of heavy lifts using multi-body simulations that included the S3000, the transportation barge and the deck or jacket being lifted and in case of jackets being lowered into the water. Such simulations were performed for the Temsah NW2, West Espoir, Awa Palouko platforms and resulted in precisely defining the operational limits for the vessel as a function of full environmental data (direction, height and period of waves, direction and speed of wind and current).

AKOGEP PHASE 2 AMP1-AMP2 Bridge (2006)
Owner/Client: AKOGEP/SAIPEM
Services: Time domain dynamic simulation of the 750t, 100m long bridge lifting from the transport-tation barge and installation between the Amenam AMP1 and AMP2 platforms. The jacket was successfully installed in West Africa, offshore Ivory Coast

M30 Laying Barge (2006-2009)
Owner/Client: MICOPERI
Services: Basic and detail design of the fire line and laying ramp modifications to increase the barge laying capabilities. Basic and detail design of the new stinger. Basic and detail design of the gantry crane reinforcements for the new 1250 t capacity hook.

S3000 VESSEL (2005)
Owner/Client: SAIPEM
Services: Dynamic analysis of the installation of various topsides performed by dynamic position-ing vessel S3000 including the multibody simulation of the behaviour in time domain of the crane vessel transportation barge and lifted structure.
STINGER for Laying Pipes (2007)
Owner/Client: SAIPEM
Services: Feasibility study and basic design of an articulated stinger for laying pipes with a broad spectrum of sizes, weights, and water depth conditions.

KASHAGAN Experimental Program (2006-2010)
Owner/Client: AKCO/SAIPEM
Services: Development of all naval analyses to ascertain the static and dynamic stability and the dynamic loads on transported items for all equipment and material transportations in the Caspian Sea on standard and purpose-built barges.

KASHAGAN Experimental Program (2009-2011)
Owner/Client: EXXONMOBIL / SAIPEM
Services: Complete engineering services for re-location of the RIG 401 and RIG 402 from D-Island to DC05 Island and Bautino Base. The activities include the structural check of the module and the design of required reinforcement, the study of load-out, transportation and offloading operations, and the direction of the main operations.

VENICE FLOOD PREVENTION Scheme (1987 - in progress)
Owner/Client: Magistrato alle Acque di Venezia/Technital
Services: Management of the engineering team in charge of the development of the design of the flap gates and related equipment and plants. The activities included studies and research projects performed by international hydraulic and structural laboratories and led to the design, construction, installation, and test campaigns of the full-scale prototype MOSE.

Owner/Client: AGIP U.K./C.I.O. (CONSORZIO ITALOFFSHORE)
Services: Management of all engineering activities related to the EPIC contract for the 27,000 tons platform, including detail design, fabrication engineering, material management, transportation, and installation engineering.

STOREBÆLT Suspension Bridge (1995-1996)
Owner/Client: Danish Authorities/COINFRA
Services: Management of the engineering team co-ordinating the development of the procedures and the design of all temporary structures, equipment, and tools necessary to erect the nearly 2700 m long suspension bridge over the Storebælt Eastern Channel in Denmark.

MARINE TERMINALS AND SPECIAL PROJECTS

Ras el Mungar Oil Terminal (1992)
Owner/Client: Saipem
Services: Feasibility Study and Basic Design of a 300 m Jetty, loading facilities, dolphins

North Adriatic LNG Terminal (2001)
Owner/Client: Tecnimont / Sofregaz
Services: Design for Bid of the Modules Housing the Re-gasification Plant

IDKU - Egypt LNG Project-Marine Terminal (2002)
Owner/Client: British Gas and Bechtel/Tecnimont
Services: FEED design of a Marine Terminal for loading LNG gas carriers.

KASHAGAN Saipem Fabrication Yard (2003)
Owner/Client: Saipem
Services: Detailed Design of the quay structures for the fabrication yard

Owner/Client: Magistrato alle Acque di Venezia/Technital
Services: Detailed Design of Flap Gates

BRINDISI LNG Project - Marine Terminal (2005-2006)
Owner/Client: BRINDISI LNG/ATI Tecnimont GLF
Services: Detailed Design of a marine terminal for unloading LNG gas carriers

Panigaglia LNG Terminal (2005)
Owner/Client: GNL ITALIA/ SEI (SAIPEM)
Services: Basic Design to increase capacity Gas Carriers from 70,000 m3 to 140,000 m3.

NEW CALEDONIA-DONIAMBO LNG Marine Terminal (2005)
Owner/Client: SOGREAH
Services: Feasibility design of a marine terminal for 30,000 to 80,000 LNG carriers

TOTAL-SOUTH PARS LNG Project Marine Terminal (2005)
Owner/Client: SOGREAH/TECHNIP/TOTAL
Services: Feed design of a marine terminal for 60,000 to 250,000 LNG carriers
Owner/Client: TECHNIP ROME/SNAMPROGETTI
Services: Bid design of the Topsides and Piling alternative of the Approach Trestle

JAMNAGAR Marine Terminal Increase Capacity Project (2006-2008)
Owner/Client: Reliance Port & Terminal LTD/BECHTEL FRANCE
Services: Multi-discipline detailed engineering of marine terminal upgrade to increase the crude processing capacity from 33 MMTPA to 64.6 MMTPA

PORTO MARGHERA Canale Sud- New Terminal 33/34 Bis (2007-2008)
Owner/Client: POLIMERI EUROPA
Services: Multi-discipline Feed design of the new terminal quay for petrochemical products.

CONGO DEVELOPMENT PROGRAM – M’BOUNDI (2008-2009)
Owner/Client: ENI CONGO/S.E.S. (Saipem Energy Services)
Services: Multi-discipline Feed design of the new terminal LPG Island and W.I. Jetty.

DUNKERQUE LNG Project - Marine Terminal (2008)
Owner/Client: Dunkerque LNG-EDF-CT/SOGREAH-SOFREGAZ
Services: Feed structural design of a marine terminal for 70.000 to 250.000 LNG carriers

GIOIA TAURO LNG - Marine Terminal (Phase 1) (2008-2009)
Owner/Client: LNG MED GAS (Sorgenia – Iride)
Services: Pre-Feed structural design of a marine terminal for 70.000 to 250.000 LNG carriers

KASHAGAN – Rosetti Fabrication Yard (2009)
Owner/Client: ROSETTI MARINO
Services: Detailed Design of the quay structures site preparation for the fabrication yard

API TERMINAL FALCONARA (2009)
Owner/Client: API Refinary
Services: Basic and detailed engineering of revamping of the near shore terminal facilities and loading/unloading platforms.

JAMNAGAR Berth A1 Project (2009-2010)
Owner/Client: Reliance Port & Terminal LTD India
Services: Multi-discipline detailed engineering of the new Berth Platform A1

INDUSTRIAL STRUCTURES
BASIC & DETAIL DESIGN

Telecommunication towers height 20 to 40 m (1991)
Owner/Client: ERICSSON
Services: Complete structural design of several telecommunication towers

Stockertown cement plant (USA) (1992)
Owner/Client: ITALCEMENTI
Services: Structural design of a 70 m high preheater tower for the kiln n. 3 revamping.

Montalto di Castro Racks (Italy) (1993)
Owner/Client: ITIN
Services: Structural design of pipe racks for the Montalto di Castro power plant.

Telecommunication towers height 20 to 40 m (1997)
Owner/Client: ICOMA
Services: Complete structural verification of several telecommunication towers

GPDF Plant in Algeria (2001)
Owner/Client: ABB
Services: Structural design of steel buildings, equipment and tanks foundations

OK1 Plant in Algeria (2003)
Owner/Client: ABB
Services: Structural design of steel buildings, equipment and tanks foundations

Bir Berkine Plant in Algeria (2004)
Owner/Client: ABB
Services: Structural design of steel buildings, equipment and tanks foundations
Upgrading of the Milan Rogoredo Station (2000)
Owner/Client: RFI/TORNO
Services: Underground tunnels made by the jacked-digged-out pipe technique.

Owner/Client: COMUNE DI ROMA/ROCKSOIL
Services: Detailed design of four deep access wells and two metro stations.

Rome Connection Road under Monte Mario (2000)
Owner/Client: ROCKSOIL / ASTALDI
Services: Detailed design of one multiple access well for tunnel excavation.

Milan Underground Line 1 up to Rho Exhibition Terminal (2002)
Owner/Client: METROPOLITANA MILANESE
Services: Basic design of the Rho station, of the artificial tunnels, of four ventilation wells and of the safety exits.

Owner/Client: METROPOLITANA MILANESE
Services: Feasibility design of seven open trench stations.

Milan Underground Line 3 – Comasina Unit (2002)
Owner/Client: METROPOLITANA MILANESE
Services: Basic design of the station and of all open trench structures of the lengthening up to Comasina.

Milan Underground Line 3 – Dergano Station (2001)
Owner/Client: TORNO / CMC
Services: Detailed and construction design of the station and of all open trench structures.

Owner/Client: METROPOLITANA MILANESE
Services: Basic design of the underground station structures and budget estimate of the works.

Underground Line 1 up to Rho Exhibition Terminal (2004-2006)
Owner/Client: METROPOLITANA MILANESE /TORNO - MAIRE Engineering
Services: Detail construction design of the Rho and Pero stations and of the artificial tunnels and deep wells.

Owner/Client: METROBRESCIA-ANSALDO-ASTALDI-NESCO
Services: Detail construction design of five deep stations and two in-out wells for TBM machine.

Milano-Genoa High Speed Railway Project (2004)
Owner/Client: MAIRE Engineering
Services: Advanced basic design of a 10 kilometre long artificial tunnel.

COLL. FERROVIARIO SARONNO-MALPENSA (2005)
Owner/Client: TORNO / ROMAGNOLI
Services: Detailed construction design of several wells and of all open trench structures.

Owner/Client: METROPOLITANA MILANESE/SALINI LOCATELLI
Services: Detailed design of two open trench stations, several wells and artificial galleries.

Owner/Client: METROPOLITANA MILANESE/ TORNO INT. S.p.A./IMPRESA
Services: Detailed design of two open trench stations, several wells and artificial galleries.

Owner/Client: METROPOLITANA MILANESE.
Services: Underground tunnel made by the jacked-digged-out pipe technique.

BOLOGNA – High Speed Railway Underground Main Station (2005-2009)
Owner/Client: ITALFERR/STONE/ ASTALDI
Services: Detailed design of the station concrete-and steel structures.

Tunneling by TBM under Brescia Town (2005)
Owner/Client: METROBRESCIA-ANSALDO-ASTALDI-NESCO
Services: Building response to tunnelling with TBM effects – FEM analyses of concrete and ma-soory hysterical buildings.

Owner/Client: METROPOLITANA MILANESE /ASTALDI /TORNO/ROCKSOIL
Services: Detailed and construction design of three concrete stations.
Clients:

ABB PS • AGIP • API • ASTALDI
BAYARDS ITALIA • BASIS
ENGINEERING • BECHTEL
CONSORZIO VENEZIA NUOVA
EDINA • EDISON • E&M SERVICES
ERSAI • FORES ENGINEERING
GRANDI LAVORI FINCOSIT
INTERMARE SARDA • MAIRE
ENGINEERING • METROPOLITANA
MILANESE • MICOPERI
POLIMERI EUROPA • RELIANCE
PORTS & TERMINALS • ROCKSOIL
ROSETTI MARINO • SAIPEM
SALINI LOCATELLI • SAIPEM
ENERGY SERVICES • SKEMATOZZI
SYNDIAL • SNAMPROGETTI
SOREGAH • SOREGAZ • TECHINT
TECHNIP ITALIA • TECHNITAL
TECNIMONT • TECNOMARE
TORNO INTERNAZIONALE

Owner: SHELL
Client: ROCKSOIL
Country: North Sea
Period: 2012
Value of Works: $500,000,000
TECON SOW: Details
BASIS SOW: Details

WORK DESCRIPTION:

- The Clipper PH platform is situated off the Norfolk coast. The accomodates people and all relevant facilities on existing PT Platform.

TECON/BASIS SOW:

- Detailed design of the Topside structures
- Detailed design of the Foundations