



Tianjin Timeast Offshore Engineering Co., Ltd.

www.chinatimeast.com

Company Introduction

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Company Profile

Tianjin Timeast Offshore Engineering Co., Ltd. was registered in Tianjin TEDA in January 2002 (former name is Tianjin TEDA Timeast Offshore Equipment Co., Ltd. Timeast for short hereinafter). There are 75 employees, including 54 technicians, 3 senior engineers, 5 constructors, 8 associate constructors. Timeast owns 601 pipeline laying barge and SE-12000 pre/post trenching Excavator etc. nearly 40 sets of large scale and professional engineering equipment.

Timeast focuses on offshore engineering business from the foundation, through years of efforts, our footprint spread all over the sea areas in China and also in Africa and Asia such as Indonesia, Philippines and Tanzania etc.

Company Profile

Our domestic business partner including: CNOOC, Petro-China, Sino-Pec, Tincy Energy Group, Liaobin Development Area, Tianjin Water Works (Group) Company Ltd. CFD Development Area, Energy China, the overseas business partner including: Roc Oil, Hyundai Corporation, CHIYODA, ConocoPhillips, KMG etc.

Timeast will continue to improve technology and develop market, put safety and environment protection at the first place, provide high quality and efficient service to Client. Timeast expects deeper cooperation and mutual success with you!

Main Business

Main Business:

- Submarine Oil & Gas Pipeline Laying and Repairing
- Submarine Pollution Drainage Pipeline, Water Transportation Pipeline Laying and Repairing
- Submarine (Optical) Cable Laying and Repairing
- Offshore Lifting; Facilities Installation
- Construction, Installation and Repairing of Jacket, Platform and Ancillary Facility
- Submarine Pipeline Pre/Post Trenching

Submarine Oil & Gas Pipeline Laying and Repairing

1. CNOOC Pinghu Oil Field Pipeline Repairing Project (Year 2002)

Project Introduction:

Pipeline was pending and cracking caused by tide flush, Timeast was invited to perform pipeline repairing work.



Submarine Oil & Gas Pipeline Laying and Repairing

2. Sinopec Hangzhou Bay Submarine Pipeline Laying Project (Year 2003)

Project Introduction:

This is gas pipeline crossing Hangzhou Bay project, Contractor is Hyundai Heavy Industries Co., Ltd.

Work Scope:

3 pipelines (30"、28"、12"), total length 7.5km, shallow water pipeline laying, end landing, hydrotesting, pre-trenching and backfilling.



Submarine Oil & Gas Pipeline Laying and Repairing

3. PetroChina Liaohe Oil Field Hainan-8 Submarine Pipeline Laying Project (Year 2005)

Project Introduction:

This is the first submarine pipeline of PetroChina, bad sea conditions, big tide difference, rapid flow in construction site, pipeline route exposed during low tide.

Work Scope:

7.5km long pipeline floating installation, pipeline landing, riser and spool installation, post-trenching, and hydrotesting.

Submarine Oil & Gas Pipeline Laying and Repairing



Submarine Oil & Gas Pipeline Laying and Repairing

4. PetroChina Dagang Oil Field Chenghai 4X1 Submarine Pipeline Laying Project (Year 2007)

Project Introduction:

Max water depth is 3.5m during high tide, pipeline route exposed during low tide.

Work Scope:

4.2km long pipeline floating installation, pre/post-trenching, backfilling, pulling and landing, site service etc.

Submarine Oil & Gas Pipeline Laying and Repairing



Submarine Oil & Gas Pipeline Laying and Repairing

5. PetroChina Jidong Nanpu Oil Field No. 1-2 Artificial Island Submarine Pipeline Laying Project (Year 2008)

Project Introduction:

Oil pipeline (ID 20"/26") and water pipeline (10"+ cement weight), total length 7.6km.

Work Scope:

Pipeline floating laying, pre/post-trenching, backfilling, pulling and landing, riser prefabrication, riser and spool installation, site service.

Submarine Oil & Gas Pipeline Laying and Repairing



Submarine Oil & Gas Pipeline Laying and Repairing

6. PetroChina Jidong Nanpu Oil Field No.1-3 Artificial Island Submarine Pipeline Laying (Year 2009)

Project Introduction:

Oil pipeline (14"/18") and water pipeline (8") installation, total length is 16km.

Work Scope:

Pipeline floating laying, pre/post trenching, backfilling, landing, riser and spool installation, hydrotesting.

Submarine Oil & Gas Pipeline Laying and Repairing



Submarine Oil & Gas Pipeline Laying and Repairing

7. PetroChina Liaohe Oil Field Hainan-8 Submarine Pipeline Repairing Project (Year 2009)

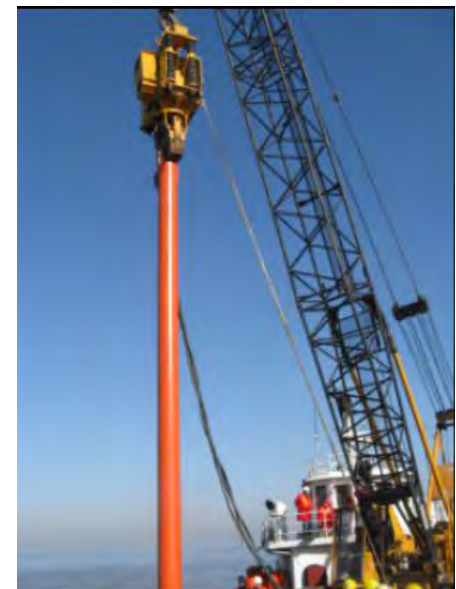
Project Introduction:

The pipeline was exposed and pending due to tide flushing, effective method was necessary to ensure pipeline safety.



Work Scope:

Pipeline pre-survey, plan design, and site construction.



Submarine Oil & Gas Pipeline Laying and Repairing

8. CNOOC JZ9-3 Oil Field Submarine Pipeline Laying (Year 2009)

Project Introduction:

P2 to P4 platform, pipeline total length 1.7km.

Work Scope:

Pipeline offshore Installation, pre/post-trenching, backfilling, riser installation, hydrotesting etc.



Submarine Oil & Gas Pipeline Laying and Repairing

9. PetroChina Zhaodong Submarine Pipeline Laying (Year 2010)

Project Introduction:

From CEP platform to artificial island, oil pipeline (16"/22") , gas pipeline (14"+ concret weight), total 10.8km.



Work Scope:

Pipeline offshore Installation, pre/post-trenching, backfilling, riser installation, hydrotesting etc.



Submarine Oil & Gas Pipeline Laying and Repairing

10. Tincy Energy Group Yuedong Submarine Pipeline Laying Project (Year 2011-2012)

Project Introduction:

Artificial island to land treatment terminal, B-C, B-D Island, pipeline total length 38km.

Work Scope:

Pipeline laying (barge laying and float laying method), pre/post-trenching, backfilling, hydrotesting, 9 sets of riser and spool installation, landing, hydrotesting etc.

Submarine Oil & Gas Pipeline Laying and Repairing



Submarine Oil & Gas Pipeline Laying and Repairing

11. Tanzania Songo Songo Island—Somanga Submarine Pipeline Laying Project (Year 2013)

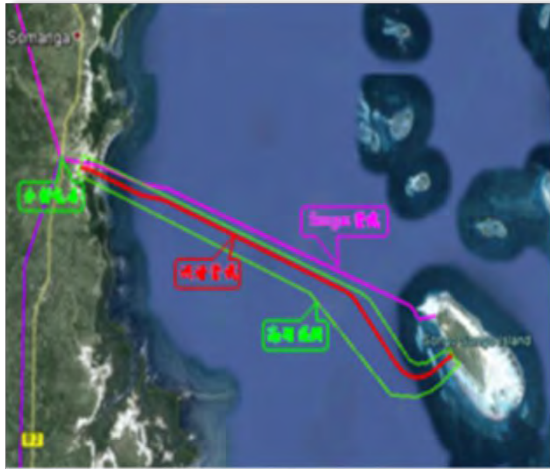
Project Introduction:

This is the first submarine pipeline in Tanzania, total length is 28km, 6km is shallow water area.

Work Scope:

Pipeline laying (float laying method), pre/post-trenching, pipeline pulling and landing.

Submarine Oil & Gas Pipeline Laying and Repairing



Submarine Oil & Gas Pipeline Laying and Repairing

12. Tanzania Mnazi Bay Submarine Pipeline Laying Project (Year 2014)

Project Introduction:

Part of gas pipeline crossing
Mnazi Bay, Shallow water area
is 2.2km total length 16km.

Work Scope:

Pipeline laying (float laying
method), pre/post-trenching,
pipeline pulling and landing.

Submarine Oil & Gas Pipeline Laying and Repairing

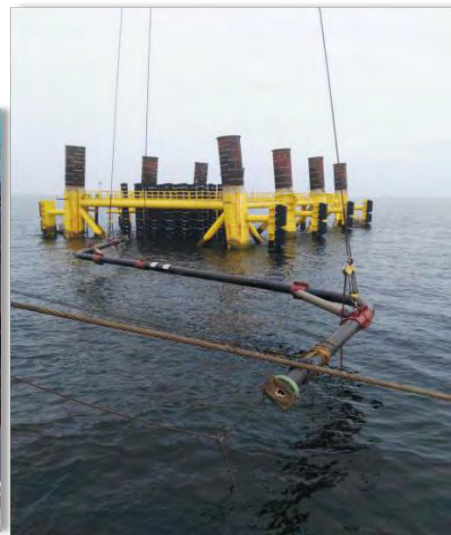


Submarine Oil & Gas Pipeline Laying and Repairing

13. Weizhou 12-2 Oil Field Phase II Development Project (Year 2016.11)

Project Introduction:

Measurement, prefabrication and installation of submarine pipeline expansion bend, damaged flat pipe section cutting, replaced flat pipe section prefabrication and installation. Specific work includes: welding procedure qualification, underwater measurement of expansion bend, welding prefabrication of expansion bend and flat pipe, NDT inspection and installation, pigging pressure test, etc.



Submarine Oil & Gas Pipeline Laying and Repairing

14. Ma Mu & Yu Shan Islands Submarine Pipelines Installation Project (Year 2018)

Project Introduction:

Horizontal Pipe Lifting; Inclined Riser Integrally Lifting and Overall Lower Down Work after Tie-In; Two Crude Oil Submarine Pipelines, One Natural Gas Pipeline Landing Point 150m Long Trench Flushing Work.



Submarine Oil & Gas Pipeline Laying and Repairing

15. Boxi and Gaoshaling Oil & Gas Treatment Plant Pipeline Recovery Project (Year 2018)

Project Introduction:

Abandoned 8" mixed transportation pipeline and 12" natural gas submarine pipeline of Boxi treatment plant, dismantled and recycled 600m section through the tunnel section of Gaoshaling port area, both ends on site sealing, pipeline ends sealing treatment;

Abandoned 8" mixed transportation pipeline and 12" natural gas submarine pipeline of Boxi treatment plant, dismantled and recycled 150m section through the breakwater, both ends on site sealing, pipeline ends sealing treatment.

Submarine Oil & Gas Pipeline Laying and Repairing



Submarine Pollution Drainage & Water Transportation Pipeline Laying and Repairing

1. Liaobin Development Area Submarine Pollution Drainage Pipeline Laying Project (Year 2016)

Project Introduction:

the designed drainage quantity is 50,000 m³/d, pipeline total length 9.4km (DN1000), wall thickness: 15.9mm.

Work Scope:

Pipeline laying, landing, onshore valve well and pile installation, post-trenching and backfilling.

Submarine Pollution Drainage & Water Transportation Pipeline Laying and Repairing



Submarine Pollution Drainage & Water Transportation Pipeline Laying and Repairing

2. Philippines 20MW [Net] Steam Turbine Genset Project (Year 2017-2018)

Project Introduction:

20MW [Net] Steam Turbine Genset Project is located in Lafarge cement plant in Iligan, North Mindanao, Philippines. The construction company is a joint venture established by PowerSource and Iligan cement plant in Lafarge, Philippines. The general contractor is China Energy Engineering Group Jiangsu Power Design Institute Co., Ltd.

Work Scope:

The length of the intake pipeline is about 115m and the length of the drainage pipeline is about 97m. Steel pipe and steel structure are Q235B, offshore pipeline specification **Ø1020mm O.D. × 10mm W.T.** The length of the dosing pipeline is 120m, the specification is DN100mm, the material is HDPE.

Submarine Pollution Drainage & Water Transportation Pipeline Laying and Repairing



Submarine Pollution Drainage & Water Transportation Pipeline Laying and Repairing

3. Hebei Province CFD Chemical Industrial Area Submarine Pollution Drainage Pipeline Laying Project (Year 2020)

Project Introduction:

onshore pipeline 0.2km,
offshore pipeline 1.37km

Work Scope:

pipeline procurement,
anticorrosion, onshore and
offshore pipeline and pile
installation, pre-trenching,
backfilling, hydrotesting.

Submarine Pollution Drainage & Water Transportation Pipeline Laying and Repairing



Submarine (Optical) Cable Laying and Repairing

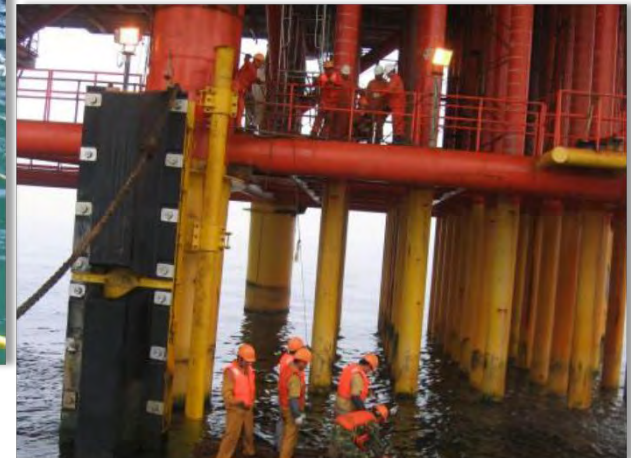
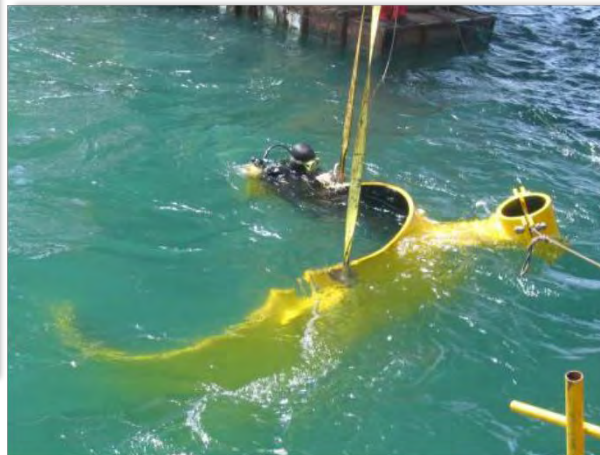
1. CNOOC LD5-2 Oil Field Cable Laying (Year 2007)

Project Introduction:

4 pipelines between platform. 9km long, 35kv.

Work Scope:

Cable protection pipe and clip fabrication and installation, cable laying, cable connection with platform, cable pressure testing.



Submarine (Optical) Cable Laying and Repairing

2. CNOOC JZ9-3 Oil Field Cable Laying (Year 2009)

Project Introduction:

3 pipelines between platform, 3.6km long, 10kv.

Work Scope:

Cable protection pipe and clip fabrication and installation, cable laying, cable connection with platform, cable pressure testing.



Submarine (Optical) Cable Laying and Repairing

3. Roc Oil Zhaodong Oil Field Cable Repairing (Year 2010)

Project Introduction:

P6-CEP broke cable need to be repaired emergently.

Work Scope:

Cable searching and salvage, fault point searching, checking, repairing and pressure testing.



Submarine (Optical) Cable Laying and Repairing

4. Roc Oil Zhaodong Oil Field Cable Repairing (Year 2012)

Project Introduction:

Cable of P4-CEP and P3-CEP broke need to be repaired emergently.

Work Scope:

Cable searching, fault point searching and checking, cable salvage, fault point repairing and pressure testing.



Submarine (Optical) Cable Laying and Repairing

5. Tincy Energy Group Yuedong Oil Field Submarine Cable Repairing (Year 2013)

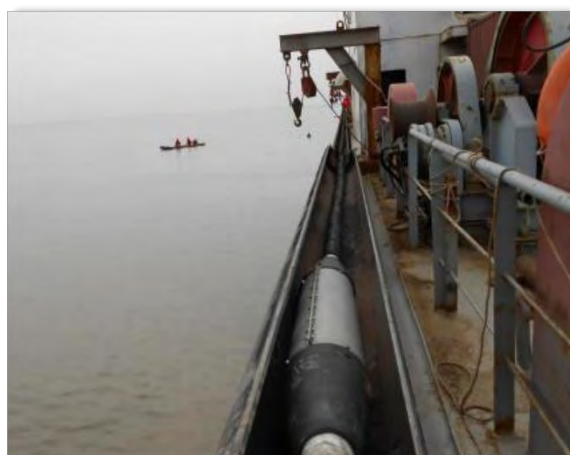
Project Introduction:

Yuedong Oil Field, A and B cable between Island and onshore broke and need to be repaired emergently.

Work Scope:

Cable searching, fault point searching and checking, cable salvage, fault point repairing and pressure testing.

Submarine (Optical) Cable Laying and Repairing



Submarine (Optical) Cable Laying and Repairing

6. Sinochem Quanzhou PetroChemical Submarine Cable Laying (Year 2014)

Project Introduction: 2 pipelines total length 13km, 35kv.



Submarine (Optical) Cable Laying and Repairing

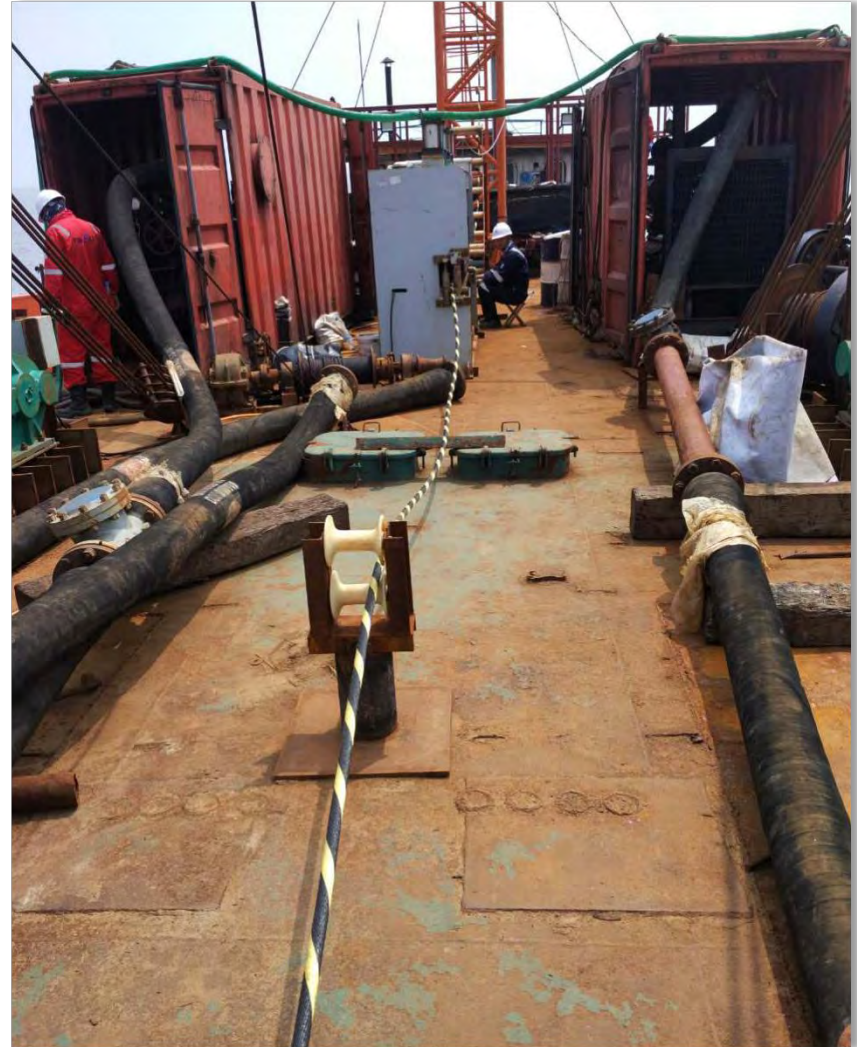
7. Huludao Submarine Optical Cable Laying (Year 2017)

Project Introduction:

Approximate 13km submarine cable laying (including landing installation at both ends) , submarine cable connection at both ends, submarine cable inspection, hydrotesting work etc.

High pressure hydraulic jet embedding machine (traction type) is adopted to carry out laying and burying at the same time. Bury depth is no less than 3 meters. By modification of equipment, Timeast met the construction quality requirements at one time and successfully completed the construction task, and achieved another breakthrough in technology.

Submarine (Optical) Cable Laying and Repairing



Submarine (Optical) Cable Laying and Repairing

8. Yuedong Oil Field Submarine Cable Exposing Repairing Project(Year 2019)

Project Introduction:

Since the production of Yuedong oil Field submarine pipelines/cables in Oct., 2013, burial depth investigations on the submarine pipelines/cables carried out in 2014, 2016 and 2018 respectively. Emergency management work had been carried out on several suspended and exposed submarine pipelines/cables in 2015, 2016 and 2017. According to the latest burial depth investigation results, new exposed conditions have emerged. At the present stage, we will focus on the submarine cables with larger hidden dangers.

The main project purpose is to finish A and B submarine cables hidden dangers treatment work between kp12.40 to kp13.15 and kp10.80 to kp11.40 within this year.

Submarine (Optical) Cable Laying and Repairing



Submarine (Optical) Cable Laying and Repairing

9. Tangshan Laoting Puti Island Offshore Wind Farm 300MW Demonstration Project 35KV Submarine Photoelectric/Optical Composite Cable Laying Project (Year 2019)

Project Introduction:

the project is located at Puti Island, Laoting County, between Jingtang Port and Caoheidian Port, Tangshan City. The total installed capacity of the wind farm is 300MW, 75 units of Wind turbine generator with single capacity of 4MW. 12 circuits are arranged for 35kV power collection line cables among 75 units of Wind turbine generator, and a new 220kV offshore booster station is built by connecting 35kV submarine optic/electric composite cable to the site.

Work Scope:

the 220kV transmission ashore cables (3 sections, each is about 14210m in length, totaling 42.63km) and the 35kV power collection line cables (75 sections, each is 940m-6845m in length, totaling 112.685km) both are submarine optic/electric composite cable.

Submarine (Optical) Cable Laying and Repairing



Submarine (Optical) Cable Laying and Repairing

10. Dalian Offshore/Submarine Cable Laying Project (Year 2020)

Work Scope: 1. Construction and protection of offshore/subsea from the landing point to designated position, including joint casing procurement and installation;
2. 2000m submarine/underwater cable laying construction, etc.



Submarine Pipeline Landing

1. CNOOC DF1-1 Oil Field Submarine Pipeline Landing Project (Year 2002)

Project Introduction:

CNOOC DF1-1 oil field submarine pipeline landing project is part of DF oil and gas develop project.

Work Scope:

Steel pile installation, pre-trenching, pipeline pulling and landing, backfilling, site service, local authority relationships coordination.



Submarine Pipeline Landing

2. CNOOC LD Submarine Pipeline Laying Project (Year 2004)

Project Introduction:

LD submarine pipeline laying project is part of CNOOC LD 5-2 oil field oil and gas development project.

Work Scope:

landing part reef blasting, pre-trenching, pipeline pulling and landing, backfilling, site service, local authority relationships coordination.



Submarine Pipeline Landing

3. CNOOC Panyu Submarine Pipeline Landing Project (Year 2004)

Project Introduction:

Panyu submarine pipeline landing project is part of submarine pipeline of CNOOC Panyu Oil and Gas oil field development project.



Work Scope:

Landing approach pre-trenching, pipeline pulling and landing, backfilling, site service, local authority relationships coordination.



Submarine Pipeline Landing

4. CNOOC Indonesia SES Gas Submarine Pipeline Landing Project (Year 2005)

Work Scope:

Construction site temporary building, pre-trenching, pulling and landing, backfilling, local authority relationship coordination.



Submarine Pipeline Landing

5. CNOOC BN Submarine Pipeline Landing Project (Year 2005)

Project Introduction:

BN 26-2 submarine pipeline landing project is part of CNOOC BN oil field development project.

Work Scope:

Site preparation, construct, life support, pipeline onshore pre-trenching and backfilling, nearshore pipeline pre-trenching and backfilling, pipeline pulling and site reinstatement, local authority relationships coordination.

Submarine Pipeline Landing



Offshore Platform and Facilities Construction, Installation, Repairing

1. CNOOC Jidong Nanpu Oil Field No.1 and 2 Island Pipeline Jacket Fabrication, Transportation and Site Installation

Project Introduction:

This project is part of Jidong Nanpu Oil Field No.1 and 2 Submarine Pipeline Landing Island Riser Platform.

Work Scope:

Material procurement, structure fabrication, structure onshore/offshore transportation, site installation.



Offshore Platform and Facilities Construction, Installation, Repairing

2. Tincy Energy Group Yuedong Oil Field, Bumper of Offshore Production Platform A1,A2, Design, Fabrication and Site Installation

Project Introduction:

Jacket leg was seriously destroyed by ice fluent in winter, the new bumper breaks every year.

Work Scope:

To solve the problem completely, Timeast re-design the structure, calculation and structure fabrication, offshore installation.



Offshore Platform and Facilities Construction, Installation, Repairing

3. CFD11-2 Offshore Oil Field Jumper Hose and Cable Check, Repair and Installation between SPM and FPSO

Project Introduction:

- Jumper Hose Parameter: $\varnothing 24" \times 55\text{m}$
- Working pressure: 139bar
- Jumper Cable Parameter: $\varnothing 149\text{mm} \times 55\text{m}$

Work Scope:

- Visual Inspection and Performance Testing
- Transportation and Load and Sea Fastening
- Offshore Installation

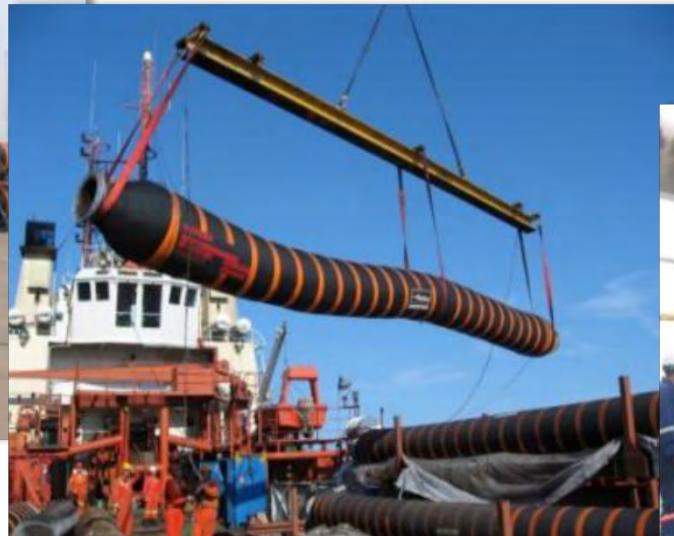
Offshore Platform and Facilities Construction, Installation, Repairing



Offshore Platform and Facilities Construction, Installation, Repairing

4. Floating Hose Inspection, Displace, Installation

Timeast performed many CNOOC QHD32-6、CFD11-2 and JZ9-3 offshore oil field floating inspection and displacement project.



Offshore Platform and Facilities Construction, Installation, Repairing

5. JZ9-3 Oil Field Platform Anti Icing Design, Fabrication and Installation

Project Introduction:

JZ9-3 oil field Jacket anti-icing destroyed seriously.

Work Scope:

Structure re-design, fabrication, site installation, cable protection pipe and pipe clip installation.



Submarine Pipeline Pre/Post Trenching

Timeast owns patented trenching machine system and completed many pre trenching and post trenching project.



Submarine Pipeline Pre/Post Trenching

1. Liaohe Submarine Pipeline Post-Trenching Project (Year 2005)

7km Submarine Pipeline Post-Trenching



Submarine Pipeline Pre/Post Trenching

2. Indonesia SES Gas Submarine Pipeline Pre-Trenching Project (Year 2005)

3km Submarine Pipeline Pre-Trenching



Submarine Pipeline Pre/Post Trenching

3. Dagang Oil Field Submarine Pipeline Post-Trenching Project (Year 2007)

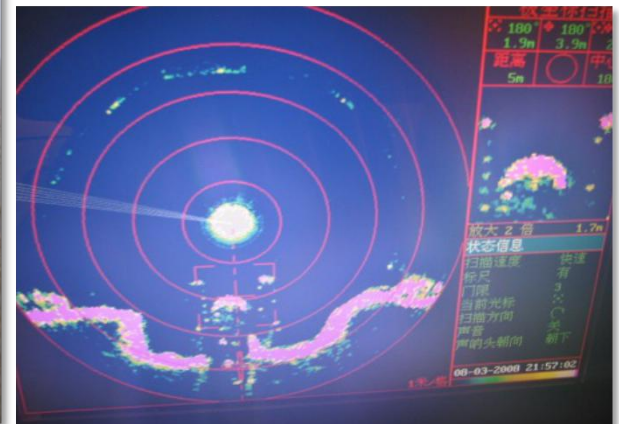
4.2km Submarine Pipeline Post-Trenching



Submarine Pipeline Pre/Post Trenching

4. Jidong Oil Field 1-2 Island Submarine Pipeline Post-Trenching Project (Year 2008)

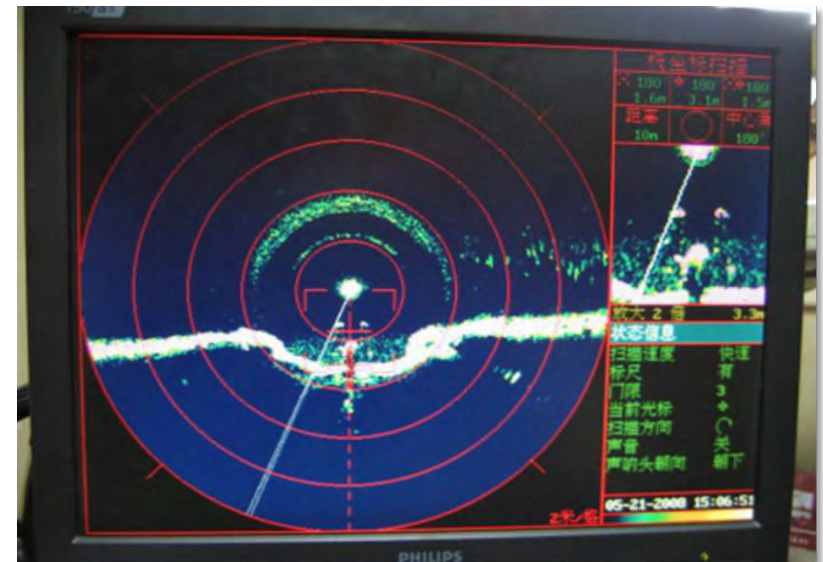
7.6km Submarine Pipeline Post-Trenching



Submarine Pipeline Pre/Post Trenching

5. Weizhou Submarine Pipeline Post-Trenching Project (Year 2008)

28km Submarine Pipeline Post-Trenching



Submarine Pipeline Pre/Post Trenching

6. Jidong Oil Field1-3 Island Submarine Pipeline Post-Trenching Project (Year 2009)

16km Submarine Pipeline Post-Trenching



Submarine Pipeline Pre/Post Trenching

7. CNOOC JZ9-3 Oil Field Submarine Pipeline Laying (Year 2009)

1.7km Submarine Pipeline Post-trenching.



Submarine Pipeline Pre/Post Trenching

8. Zhaodong Oil Field Submarine Pipeline Post-Trenching Project (Year 2010)

10km Submarine Pipeline Post-Trenching



Submarine Pipeline Pre/Post Trenching

9. Yuedong Oil Field Submarine Pipeline Post-Trenching Project (Year 2011-2012)

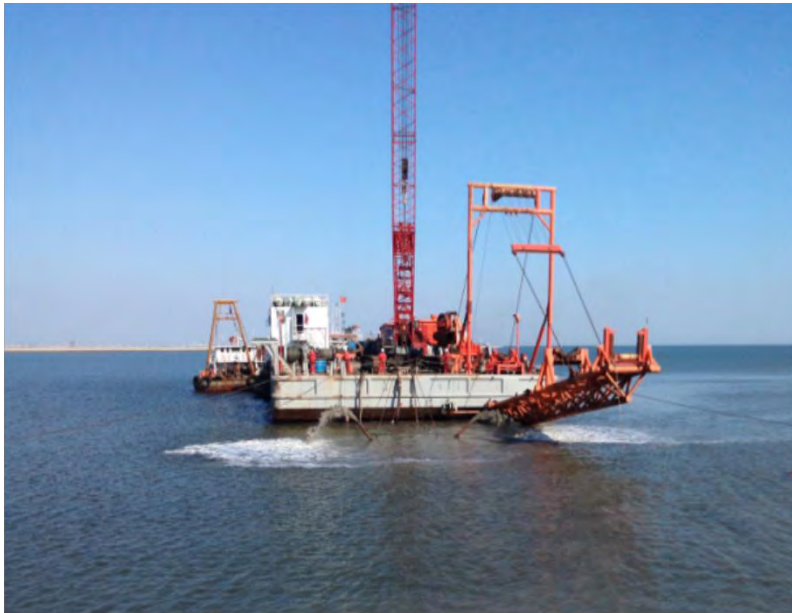
38km Submarine Pipeline Post-Trenching



Submarine Pipeline Pre/Post Trenching

10. Liaobin Submarine Pipeline Post-Trenching Project (Year 2016)

9.4km Submarine Pipeline Post-Trenching



Main Equipment

1. S-Lay Barge-TIMEAST 601
2. SE-12000 Excavator
3. SE-18000 Excavator
4. Cable Laying Equipment
5. Cable Testing and Repairing



Lay Barge — TIMEAST 601

TIMEAST 601 is a multi-functional S-lay barge, designed and built by TIMEAST for shallow water project requirement, it can work for submarine pipeline laying, submarine cable and optical cable laying, offshore repairing, submarine pipeline pre/post trenching, offshore facility, offshore project service and transportation.

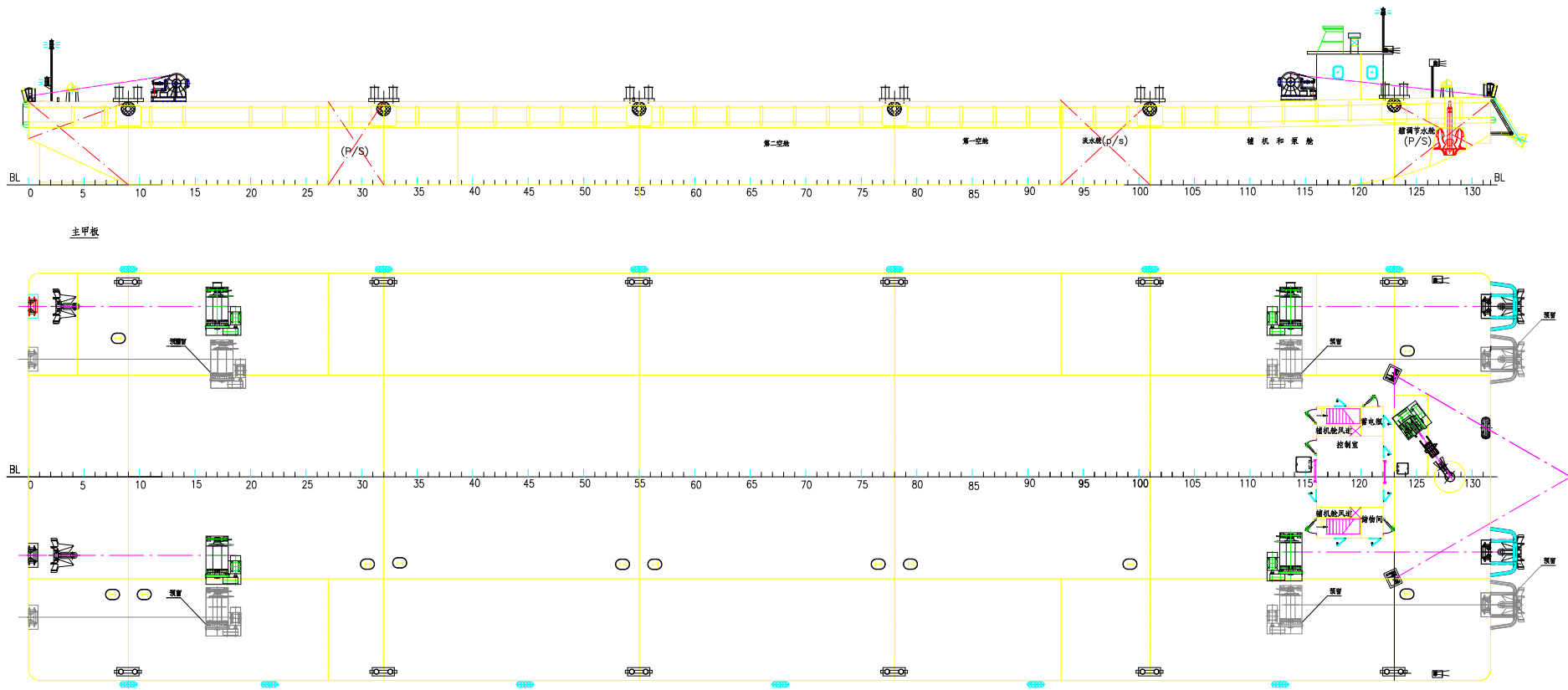


Lay Barge — TIMEAST 601

TIMEAST 601 performs movement and positioning control during construction by 4*300KN hydraulic anchor winches and 4*200KN hydraulic anchor winches, and meets different requirements by adjusting 120t crawler crane and other modular extendable equipment.



Lay Barge — TIMEAST 601



Lay Barge — TIMEAST 601



Lay Barge — TIMEAST 601



Lay Barge — TIMEAST 601

Barge Information

✧ Shipyard	Zhejiang Yongan Ship Building Plant
✧ Year of Build	2008
✧ Barge Classification	ZC
✧ Barge Name	TIMEAST 601
✧ Registration No.	2008F2191922
✧ National Flag	China
✧ Port of Registry	Tianjin
✧ Navigating Zone	Offshore A1+A2 Ship Information

Lay Barge — TIMEAST 601

Hull Main Dimension

✧ LOA	79.20M
✧ Breadth	22.00M
✧ Depth	4.50M
✧ Light Draft	1.373M
✧ Loaded Draft	1.90M
✧ Full Loaded Displacement	3083.633T
✧ Empty Loaded Displacement	2184.633T
✧ Accommodation Unit	75 Persons

Lay Barge — TIMEAST 601

Hull Main Equipment

Item	Qty.	Spec.
✧ Bow Anchor	1	C2640
✧ Positioning Anchor	8	C4050
✧ Bow Anchor Winch	1	226QL46
✧ Positioning Anchor Winch	8	244QL125
✧ Main Generator Set	3	CCFJ300JCST
✧ Harbor Generator Set	1	CCFJ90JDM

Lay Barge — TIMEAST 601

Lifesaving Firefighting Equipment

Item	Qty.	Spec.
✧ Life-Buoy	80	
✧ Life-raft	8	QJF-B25
✧ Fire Pump	1	80CWL-11
✧ Emergency Fire Pump	1	65CWY-40
✧ Carbon Dioxide Extinguishing System	1	CDE-2

Lay Barge — TIMEAST 601

Lifesaving Firefighting Equipment



Lay Barge — TIMEAST 601

Pipe Laying Equipment

✧ Tensioner

Tension 20T

Retraction Speed 9m/s

DN 3"—48"

✧ A/R Winch

Retraction Load 20T

Retraction Speed 3m/s

Drum Capacity 350m



Lay Barge — TIMEAST 601

Stinger

Stinger Length	22m
Bearing	30T
DN	3"-48"
Winch	8T

Working Station	3
Welding Station	
30mX6m	
Tie-in Station	1
Welding/Testing/Maintenance Station	1
Anticorrosion Station	1



Lay Barge — TIMEAST 601

Pipe Laying Equipment

✧ Line-in Station

DN **3"—48"**

Pipe Weight **28T**

Horizontal Adjustment Scope **±200mm**

Vertical Adjustment Scope **±200mm**



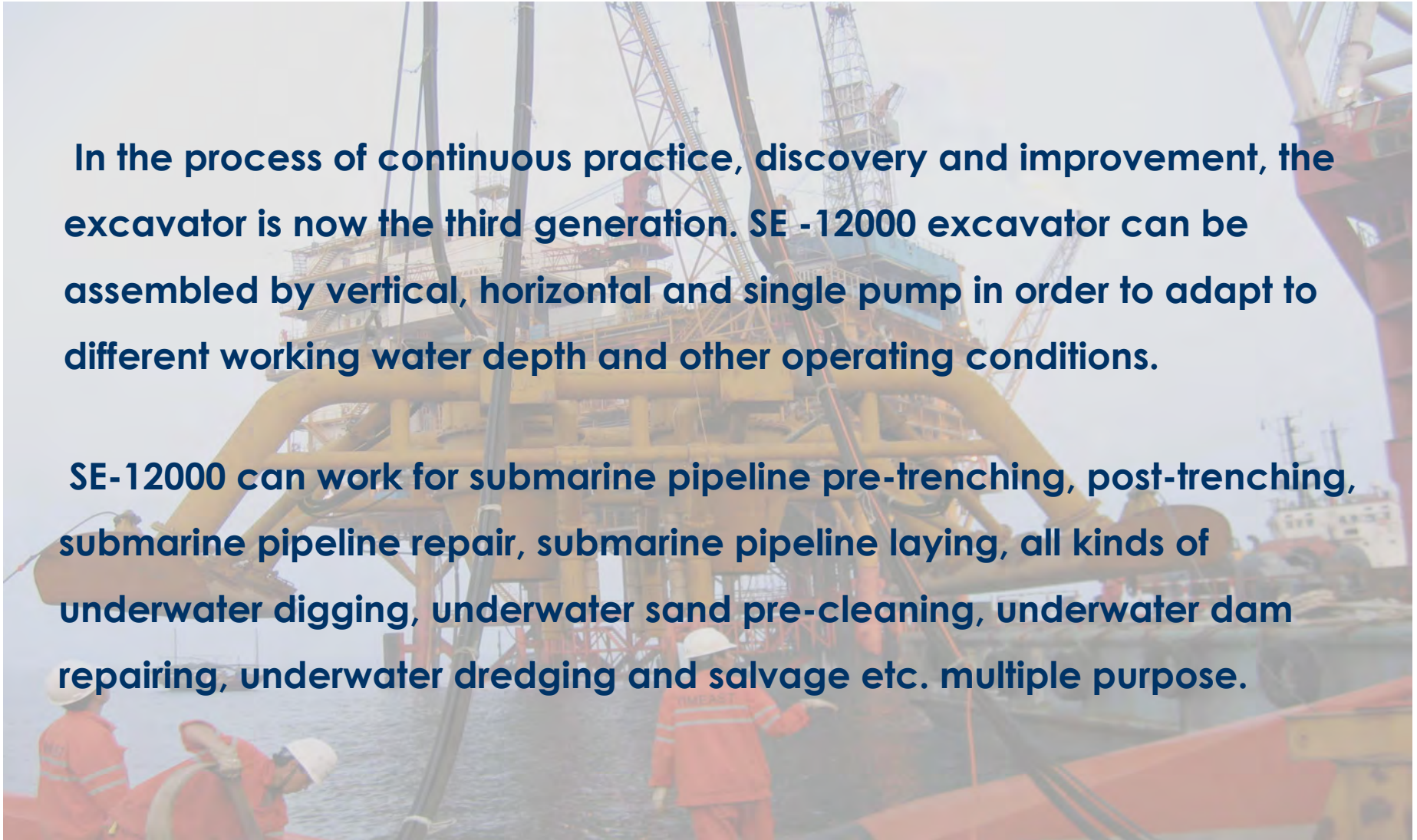
SE-12000 Excavator

SE-12,000 Excavator is a new type and multi-functional underwater excavation equipment developed by Tianjin Timeast Offshore Engineering Co., Ltd. It was designed based on the principle of fluid mechanics, makes use of high pressure jet head to break seafloor silt, and then makes use low lift and large flow of water flushing seabed to perform dredging and trenching. The diesel engine system is equipped with high power and excellent performance, the hydraulic system is safe and reliable, the operation part is convenient to assemble and disassemble, the working system is stable and the efficient. The main machine installed in the container, operation part is convenient to assemble and disassemble for transportation. The Excavators equipped with sonar detection system, which can monitor the trenching state at any time.

SE-12000 Excavator

In the process of continuous practice, discovery and improvement, the excavator is now the third generation. SE -12000 excavator can be assembled by vertical, horizontal and single pump in order to adapt to different working water depth and other operating conditions.

SE-12000 can work for submarine pipeline pre-trenching, post-trenching, submarine pipeline repair, submarine pipeline laying, all kinds of underwater digging, underwater sand pre-cleaning, underwater dam repairing, underwater dredging and salvage etc. multiple purpose.



SE-12000 Excavator

Performance Parameters:

Item	Spec.	Item	Spec.
Engine Power	444 KW _{XZ} (mechanical efficiency 90%)	Excavation Capability	1000 m ³ /h
Hydraulic System Pressure	31.5 MPa	Excavation Rate	400 m/h
Axial Pump Max. Flow	12000 m ³ /h	Work Depth	2~50 m
Axial Pump Head	3.4 m	High Pressure Pump Diesel Engine Power	210KW _{XA}
Axial Pump Efficiency	0.71	High Pressure Pump Head	270 m
Hydraulic System Efficiency	0.75	High Pressure Pump Max. Flow	300 m ³ /h
Equipment Efficiency	0.48	N/A	N/A

SE-12000 Excavator



Vertical Type



Horizontal Type

SE-12000 Excavator



Operation On Site

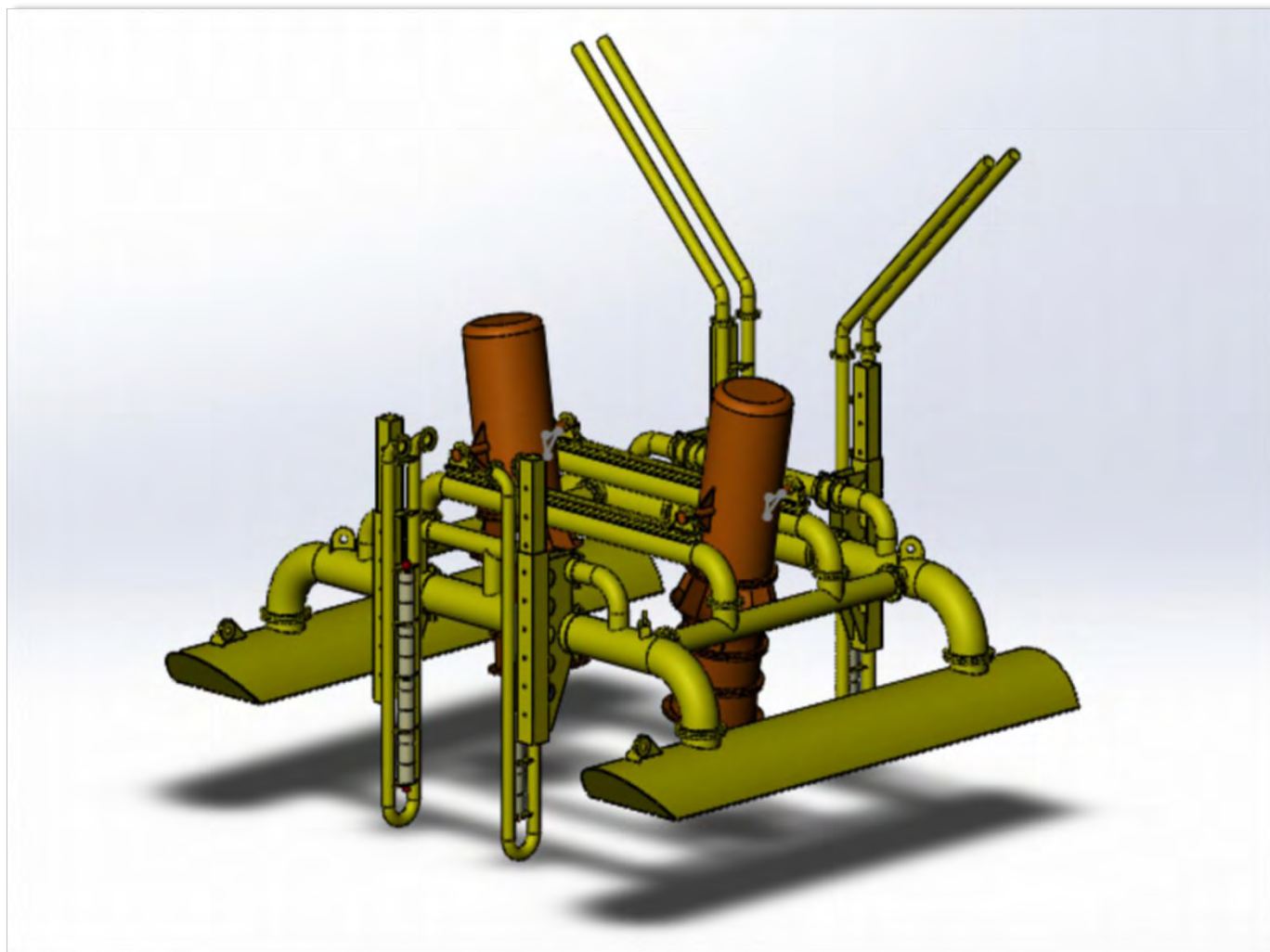
SE-18000 Excavator

SE-18000 Excavator is independently researched and developed by Tianjin Timeast Offshore Engineering Co., Ltd. It is a high power, high head, multi-function, high efficiency machine, it is the fourth generation of submarine pipeline post trenching machine, the machine is in the stage of construction.

Main Parameter:

✧ Max Water Depth:	70m
✧ Max Trenching Depth:	3m
✧ Applicable Sea Bed Condition:	< 30KPa
✧ Applicable Pipeline Diameter:	2"~48"

SE-18000 Excavator



Submarine Cable (Optical Cable) Laying Equipment

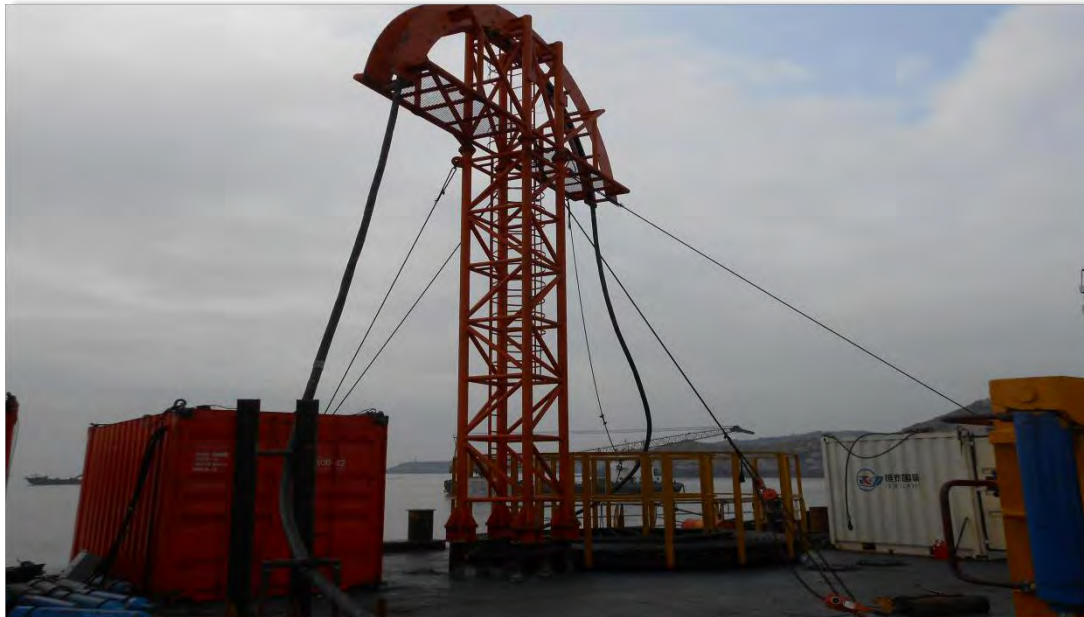
Timeast designed submarine cable laying equipment independently, which can work from 4m to 60m, cable diameter is less than $\phi 200\text{MM}$, bury depth is from 0.5m to 3.2m, seabed shearing strength less than 2Mpa, cable bury speed is from 1M/Min to 10M/Min.

Cable laying operation line consists of cable tray, back twist frame, guide frame, tensioner, cable holder, burying machine, high pressure pump etc.

Submarine Cable (Optical Cable) Laying Equipment

1.0 Back Twist Frame

Back Twist frame is 15m high, top wheel bending radius is 3m, the supporting frame consist of 3 parts, they are 7m/3m/1m respectively, 1 set of rolling-wheel rack, all parts connected with flanges, and link with deck by 4 steel wires to ensure stability of back twist frame.



Submarine Cable (Optical Cable) Laying Equipment

2.0 Tensioner

During cable laying operation, tensioner help cable keep pulling force, to avoid cable injury due to sliding caused by self weight or tide, current or wind influence. The parameter is as below:

✧ Tension force	0-10T
✧ Retraction Speed	0~12m/min
✧ Clamp Force	0~10.9Mpa
✧ Cable Diameter	1"~10"

Submarine Cable (Optical Cable) Laying Equipment

3.0 Capability of Cable Layer

✧ Cable Diameter Less Than	200mm
✧ Suitable Water Depth	2m~50m
✧ Seabed shear stress Less Than	2Mpa
✧ Tide Velocity Less Than	6Knot
✧ Wind Speed Less than	5 Grade
✧ Wave Height less than	1.2m

Parameter of Burying Machine:

✧ Size	7000×5000×4500mm
✧ Self Weight	8T
✧ Cable Bury Depth	0.5~3.2m

Submarine Cable (Optical Cable) Laying Equipment

4.0 Cable Bury Monitor Equipment

Cable bury monitor system monitor the state of bury machine state on seabed, trenching depth, GPS position, pressure, cable bearing pulling force (tensioner control) etc.

Monitor Accuracy:

- Attitude Indicator X Axis: Less than 0.1
- Attitude Indicator Y Axis: Less than 0.1
- Trenching Depth Inspection: Less than 7

Cable Testing and Repairing

1. High Pressure DC High Voltage Equipment KHHV—5mA/100KV

Main Parameter:

100KV; 5Ma

Function:

**For High Pressure Submarine
Cable and Equipment DC High
Voltage Test.**



Cable Testing and Repairing

2. Insulation Resistance Tester KYORITSU 3125

- ✧ **Function:** For Insulation Resistance
- ✧ **Main Parameter:** 500V,1000V,2500V,5000V



Cable Testing and Repairing

3. Submarine Cable Fault Detector Equipment ST-400E/ST-3000

✧ Function:

For Submarine Power Cable Fault Detection

✧ Main Parameter:

Survey distance of both ends is 10m, relative difference is less than $\pm 2\%$



Cable Testing and Repairing

4. Fiber Optical Fusion Splicer Type-39

✧ Function: For Optical Fiber Connection



Cable Testing and Repairing

5. Optical Time-Domain Reflectometer AQ7275

- ✧ **Function:** For Optical Fiber Fault Detection, Light Attenuation Survey
- ✧ **Main Parameter:** Loss and Breakpoint Survey (0~100km)



Cable Testing and Repairing

6. Underwater Cold Cutting Equipment for Submarine Pipelines and Structures



Company Qualification

BH 1720535



营业执照

(副本)

统一社会信用代码 91120116679425581X

名	称 天津天易海上工程有限公司
类	型 有限责任公司
住	所 天津经济技术开发区洞庭路74号3号楼203室
法 定 代 表 人	汪建伟
注 册 资 本	叁仟陆佰万元人民币
成 立 日 期	二00八年九月二十二日
营 业 期 限	2008年09月22日至 2023年09月21日
经 营 范 围	海上油气管道、电缆铺设、安装；石油、石化领域技术咨询、技术服务、设备租赁、工程劳务分包；船舶设备、五金、仪表的销售与维修；钢结构、五金制品的加工制造（凭环保审批经营）；电梯安装及维修保养服务。（依法须经批准的项目，经相关部门批准后方可开展经营活动）





登记机关

2017 年 12 月 07 日

每年1月1日至6月30日，应登录公示系统报送年度报告，逾期列入经营异常名录

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Business License



高新技术企业

证书

企业名称：天津天易海上工程有限公司	证书编号：GR201912002078
发证时间：2019年11月28日	有效 期：三年
批准机关：	





High-Tech Enterprise Certificate



Company Qualification



Professional Contracting for
Offshore Oil Engineering



Safety
Production
License

Company Achievement

Submarine Pipeline Installation Achievement

No.	Project	Work Scope	Duration	Client
1	Hebei Province CFD Chemical Industrial Area Submarine Pollution Drainage Pipeline Laying Project	Onshore pipeline 0.2km, offshore pipeline 1.37km; Pipeline procurement, anticorrosion, onshore and offshore pipeline and pile installation, pre-trenching, backfilling, hydrotesting.	2020.7-Now	Tangshan CFD Yongtai Industrial Co., Ltd.
2	Boxi and Gaoshaling Treatment Plant Pipeline Landing Project	Recycling of 600m pipeline, sealing pipeline ends, Pipeline abandonment of 8" and 12" pipeline, 150m dismantlement and recycling, end sealing at site.	2018.11	CNOOC
3	Zhejiang Petrochemical Co., Ltd. Ma Mu & Yu Shan islands submarine pipelines installation project	Horizontal Pipe Lifting; Inclined Riser Integrally Lifting and Overall Lower Down Work after Tie-In; Two Crude Oil Submarine Pipelines, One Natural Gas Pipeline Landing Point 150m Long Trench Flushing Work.	2018.4~2018.5	CNOOC
4	Philippines 20MW [Net] Steam Turbine Genset Project	Installation of 115m water intake pipe and 94m drainage pipe, pipe diameter is DN1000mm, material is Q235B.	2017.11~2018.5	Jiangsu Power Design Institute Co., Ltd.

Company Achievement

Submarine Pipeline Installation Achievement

No.	Project	Work Scope	Duration	Client
5	Weizhou 12-2 Oil Field Phase II Development Project	Measurement, prefabrication and installation of submarine pipeline expansion bend, damaged flat pipe section cutting, replaced flat pipe section prefabrication and installation. Specific work includes: welding procedure qualification, underwater measurement of expansion bend, welding prefabrication of expansion bend and flat pipe, NDT inspection and installation, pigging pressure test, etc.	2016.11	Guangzhou Salvage Bureau of the Ministry of Transport
6	Liaobin Submarine Waste Drainage Pipeline Laying	9.4KM DN:1016, Pipeline, Diffuser and Baffle Installation, Post-trenching and Backfilling etc.	2016.5~2016.7	PetroChina
7	Tanzania Submarine Pipeline Installation	2.2km Shallow Water Pipeline Installation, Pre/post-trenching etc.	2014.4~2014.7	PetroChina
8	Tanzania Submarine Pipeline Installation	6km Shallow Water Pipeline Installation, Pre/post-trenching etc.	2013.8~2013.11	PetroChina
9	Hainan Yuedong Submarine Pipeline Installation	38km Submarine Pipeline Installation, Pre/post-trenching, Backfilling, Jacket and Riser Installation, Hydrotesting etc.	2011.3--2012.9	Tincy Energy Group
10	Zhaodong Oil Field Submarine Pipeline Installation	10.8km Submarine Pipeline Installation, Pre/post-trenching, Backfilling, Jacket & Riser Installation, Hydrotesting etc.	2010.6-2010.10	PetroChina
11	Liaohe Oil Field Submarine Pipeline Repairing Project	Pipeline Suspension Section Piling and Sand Damping Treatment	2009.10~2009.11	PetroChina

Company Achievement

Submarine Pipeline Installation Achievement

No.	Project	Work Scope	Duration	Client
12	JZ9-3 West Submarine Pipeline Installation Project	1.7km Submarine Pipeline Installation, Riser and Spool Fabrication and Installation, Post-trenching, Hydrotesting etc.	2009.06~2009.08	CNOOC
13	Jidong Oil Field 1-3 Island Submarine Pipeline Installation Project	16km Submarine Pipeline Installation Pre/post-trenching, Backfilling, Site Reinstatement Riser Installation, Hydrotesting etc.	2009.03~2009.06	PetroChina
14	Jidong Oil Field 1-2 Island Submarine Pipeline Installation Project	Pipeline Prefabrication(7.6km), Installation, Pre/post-trenching, Backfilling, Site Reinstatement, Jacket & Riser Installation, Temporary Building, Pipeline Landing, Site Service etc.	2008.03~2008.07	PetroChina
15	Dagang Oil Field Submarine Pipeline Project	4.2km Pipeline Prefabrication and Installation, Pre/post-trenching, Backfilling, Site and Temporary Building, pulling and landing, site service etc.	2007.05~2007.11	PetroChina
16	PetroChina Liaohe Oil Field Hainan-8 Submarine Pipeline Laying Project	From Hainan-8 artificial island to Hainan-3 artificial island, and from Hainan-8 artificial island to Hainan-24 platform, total 7.5km submarine pipeline floating installation, pipeline landing, riser and spool installation, post-trenching, hydrotesting, etc.	2005.04~2005.08	PetroChina
17	Sinopec Hangzhou Bay Submarine Pipeline Laying Project	3 pipelines (30"、28"、12"), total length 7.5km, shallow water pipeline laying, end landing, hydrotesting, pre-trenching and backfilling.	2003.09~2004.02	Hyundai
18	Pinghu Submarine Pipeline Repairing	Submarine Pipeline Crack Repairing	2002.6~2002.7	CNOOC

Company Achievement

Submarine Cable Installation Achievement

No.	Project	Work Scope	Duration	Client
1	Dalian Offshore/Submarine Cable Laying Project	Construction and protection of offshore/subsea from the landing point to designated position, including joint casing procurement and installation; 2000m submarine/underwater cable laying construction, etc.	2020.5-2020.6	Hengtong Offshore Engineering co., Ltd
2	Tangshan Laoting Puti Island Offshore Wind Farm 300MW Demonstration Project 35KV Submarine Photoelectric/Optical Composite Cable Laying Project	Submarine Photoelectric/Optical Composite Cable Laying	2019.10-2020.4	Hengtong Offshore Engineering co., Ltd
3	Weizhou 12-2 Oil Field Phase II Development Project	Submarine cable termination installation and test	2016.11	Guangzhou Salvage Bureau of the Ministry of Transport
4	Huludao Submarine Optical Cable Laying	13km Submarine Optical Cable Laying: 24 Cores, 13km	2017.4	Hluludao Juehuadao Tourism Administration
5	Yuedong Oil Field Submarine Cable Repairing	3 Cable, 5 Crack Point Repairing	2014.4	Tincy Energy Group

Company Achievement

Submarine Cable Installation Achievement

No.	Project	Work Scope	Duration	Client
6	Quanzhou Petrochemical Submarine Cable Laying	2 Cable, total 13km, 35KV Cable Laying	2012.11	SINOPEC
7	Zhaodong Oil Field Submarine Cable Laying & Repairing	P4-CEP and P3-CEP Cable Repairing CEP-Transformer Station, 4km, 35KV Cable Laying	2012.4-2012.5	Roc Oil
8	Zhaodong Oil Field Submarine Cable Repairing	P6-CEP Cable Repairing	2010.1	Roc Oil
9	JZ9-3 Oil Field Submarine Cable Laying	3 Cable, total 3.6km, 10KV Composite Cable Laying	2009.8	CNOOC
10	LD 5-2 Oil Field Submarine Cable Laying	4 Cable, total 9km, 35KV Composite Cable Laying	2007.7	CNOOC

Company Achievement

Submarine Pipeline/Cable Exposing and Suspending Repairing Achievement

No.	Project	Work Scope	Duration	Client
1	Yuedong Oil Field Submarine Cable Exposing Repairing Project	Submarine Cable Exposing Repairing	2019.9	Tincy Energy Group
2	Yuedong Oil Field Submarine Cable Repairing	Submarine Cable Cracking Repairing	2014~2015	Tincy Energy Group
3	Yuedong Oil Field Submarine Pipeline Repairing	Submarine Pipeline Exposing Repairing	2013~2015	Tincy Energy Group
4	Zhaodong Oil Field Submarine Pipeline and Cable Repairing	Submarine Pipeline Exposing, Cable Cracking Repairing	2011~2013	Roc Oil
5	Hainan 8 Submarine Pipeline Repairing	Submarine Pipeline Exposing and Suspending Repairing	2009.9	PetroChina
6	Nanpu Oil Field Submarine Pipeline Repairing	Submarine Pipeline Exposing and Suspending Repairing	2008.10	PetroChina
7	Chenghai Submarine Pipeline Exposing Repairing	Chenghai Submarine Pipeline Exposing Repairing	2007.8	PetroChina
8	Pinghu Submarine Pipeline Repairing Project	Submarine Pipeline Crack Repairing	2002.6~2002.7	CNOOC

Company Achievement

Submarine Pipeline Pre/Post-Trenching Achievement

No.	Project	Work Scope	Client	Duration
1	Liaobin Submarine Waste Drainage Pipeline Laying	9.4km Post-trenching, DN:1016mm, Bury Depth: 2.0m	2016.7~2016.8	PetroChina
2	Yuedong Oil Field Submarine Pipeline Laying	38km Post-trenching, Max DN: 559mm, Bury Depth: 1.5m	2011.8,2012.7	Tincy Energy Group
3	Zhaodong Oil Field Submarine Pipeline Laying	10km Post-trenching, Max Size: 455mm, Bury Depth: 1.5m	2010.6~2010.9	PetroChina
4	JZ9-3 West Submarine Pipeline Post-trenching	1.7KM Submarine Pipeline Post-trenching	2009.08~2009.08	CNOOC
5	Jidong Oil Field No.1-3 Island Submarine Pipeline Post-trenching Project	16km Submarine Pipeline Post-trenching	2009.05~2009.06	PetroChina
6	Jidong Oil Field No.1-2 Island Submarine Pipeline Post-trenching Project	7.6km Submarine Pipeline Post-trenching	2008.06~2008.07	PetroChina
7	Weizhou Submarine Pipeline Post-trenching Project	28km Submarine Pipeline Post-trenching	2008.05~2008.06	CNOOC
8	Dagang Oil Field Post Trenching Project	4.2km Submarine Pipeline Post-trenching	2007.10~2007.11	PetroChina
9	Indonesia SES Gas Pre-trenching Project	3km Submarine Pipeline Pre-trenching	2005.08~2006.04	CNOOC
10	Liaohe Submarine Pipeline Post-trenching	7km Submarine Pipeline Post-trenching	2005.04~2005.08	PetroChina

Company Achievement

Offshore Lifting Facility Installation, Jacket and Platform Fabrication and Installation

No.	Project	Work Scope	Duration	Client
1	Yuedong Oil Field A1\A2 Platform Bumper Repairing	4 Bumpers Design, Fabrication, Installation and Jacket Anode Repairing etc.	2013.8	Tincy Energy Group
2	Yuedong Oil Field Bumper Repairing	Design, Fabrication and Installation of Bumpers between Platform	2012.10	Tincy Energy Group
3	JZ 9-3 West Riser, Spool Fabrication and Installation	2 Sets of Riser, Spool Fabrication and Installation	2009.07~2009.10	CNOOC
4	Jidong Nanpu Oil Field No.1-3 Island Jacket, Spool, Riser Fabrication and Installation	4 Sets of Jacket, Spool, Riser Fabrication and Installation	2009.03~2009.06	PetroChina
5	Jidong Nanpu Oil Field No.1-2 Island Jacket, Spool, Riser Fabrication and Installation	4 Sets of Jacket, Spool, Riser Fabrication and Installation	2008.03~2008.05	PetroChina
6	Dagang Oil Field Jacket, Spool, Riser Fabrication and Installation	1 Set of Jacket, Spool, Riser Fabrication and Installation	2007.06~2007.08	PetroChina
7	SZ36-1 Transformer Lifting Project	Platform Transformer Replacement	2007.03~2007.04	CNOOC
8	Liaohe Oil Field Jacket, Spool, Riser Fabrication and Installation	1 Set of Jacket, Spool, Riser Fabrication and Installation	2005.06~2005.09	PetroChina

Thank You !

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