



# EXPERTISE FOR MARINE AND OFFSHORE INDUSTRIES



**The leading design, project management and expert services specialist  
for the technology and engineering industries**

# EXPERTISE FOR MARINE INDUSTRY

We are specialised in electrical and automation design, from the initial conceptual design phase through to the basic and detail design phases.



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## Electrical engineering:

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- Propulsion systems
- Electric power distribution
- Switchboards & distribution boards
- Technical space layouts
- Lighting
- Automation
- Low voltage systems
- AV systems
- Navigation and communication systems
- Safety/security systems
- IT networks

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## Mechanical engineering:

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- Azimuth propulsion
  - Structural strength analysis
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## WHY CHOOSE COMATEC AS A STRATEGIC PARTNER?

### We are experienced

Long-term, experience-based arctic and offshore technology know-how that is widely appreciated by the marine industry.

### We are knowledgeable

Using our knowledge of classification societies, local authorities and environmental requirements, we can promptly focus on results.

### We are effective

Comatec's project implementation method together with our capacity and understanding of the industry enables the shortest lead times.

### We are cost-efficient

High-quality, cost-competitive Finnish marine engineering offers flexibility according to your requirements.

### We are trusted

Projects are delivered in accordance to the planned timetable and budget. We follow through on all projects even in the most challenging project environments.

### We add value

Our professionals help you develop new features, functions, inventions and even patents for your product.

# CASE: Arctic ice-breaking supply vessel

## Customer need:

- Arctech Helsinki built an icebreaking supply vessel
- Year-round operation, including temperatures as low as -35°C
- Comatec was in charge of basic and detail design for the lighting, safety, navigation, communication and electricity distribution systems

## Customer benefits:

- Acquiring experienced designers from Comatec enabled considerable time-savings, thus shortening the project implementation time
- Reliable, on-time project delivery that fulfills environmental requirements



*"I have been very happy with the team's work. It has been easy to work with these design engineers since we already know each other. The work atmosphere has been very good"*

### TECHNICAL SPECIFICATIONS

Length	100 m
Breadth maximum	21 m
Draught, at design waterline	7.6 m
Deadweight	3000 t
Installed power	21 MW
Propulsion power	13 MW
Speed	16 knots
Speed at 1.5 m level ice	3 knots
Crew	28 + 42
Range	60 days

# CASE: Icebreaking platform supply vessel NB507 Arkutun Dagi for Arctech Helsinki Shipyard

Basic and detail design for Arctech Helsinki Shipyard.

## Customer need:

- Meeting customer demands for challenging time schedule and budget
- Design for arctic conditions according to DNV/RMRS class and Russian flag administration national requirements

## Customer benefits:

- Power distribution
- Lighting
- Automation
- Safety
- Navigation
- External communication
- Internal communication
- Electrical detail design for other vessel systems



Source Arctech Helsinki Shipyard

# CASE: Icebreaker for Arctech Helsinki Shipyard

## Icebreaker NB510 LNG Polaris

Basic and detail design for Arctech Helsinki Shipyard

Concept design for Aker Arctic

### Customer need:

- Specifying customer requirements
- Meeting customer demands for challenging time schedule and budget
- Design for subarctic conditions according to LR class and Finnish flag administration national requirements

### Customer benefits:

#### Scope of delivery:

- Electrical concept design & specifications
- Power distribution
- Lighting & lighting calculation
- Safety
- Navigation
- External communication
- Internal communication
- Electrical detail design for other vessel systems
- Supervision of electrical installation at yard



Source Arctech Helsinki Shipyard

### TECHNICAL SPECIFICATIONS

Length	110 m
Breadth maximum	24 m
Draught, at design waterline	8 m
Deadweight	3000 t
Installed power	21 MW
Propulsion power	19 MW
Speed	16 knots
Speed at 1.2 m level ice	6 knots
Crew	16 + 8
Range	30 days

# CASE: Subcontracted consulting references

## Crane and pipe laying vessel USOS E121 Heerema Offshore

Basic design for a marine industry consultant.

### Customer need:

- Providing experienced capacity for peak loads
- Short response time

### Customer benefits:

- Power distribution
- Lighting
- Internal communication

## Ropax ferry 14679 Stena 55

Basic design for a marine industry consultant & Nordic Yards Wismar.

### Customer need:

- Providing experienced additional capacity for peak loads
- A team with a strong passenger vessel background

### Customer benefits:

- Lighting
- Safety
- Navigation
- External communication
- Internal communication



# CASE: Hotel vessel for Sunborn international

## Hotel vessel Sunborn III

Concept, basic and detail design for Sunborn International.

### Customer need:

- Providing the customer with strong assistance in building a ship in Malaysia
- Meeting customer demands for challenging time schedule and budget

### Customer benefits:

- Power distribution
- Lighting
- Safety
- Navigation
- External communication
- Internal communication
- Electrical detail design for other vessel systems
- Supervision



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# CASE: Cruise vessel for Merima

## Cruise vessel NB1363 Oasis of the seas

Detail design for Merima (Pelk Finland).

### Customer need:

- A team with a strong passenger vessel background
- To expand the customer's expertise
- From vision to reality - executing architects' design in a cost-effective way

### Customer benefits:

- Electrical detail design for area turn key supplier in luxurious dining rooms, main theatre etc.



# REFERENCES

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## Electrical engineering:

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- Stand-by icebreaker NB512-514
- Supply icebreaker NB511
- Icebreaker NB510
- Multipurpose rescue vessel NB508
- Supply icebreaker NB506/507
- Color Superspeed NB 1359
- Brittany Ferries NB 1357
- Viking XPRS ropax ferry NB 1358
- Tallink ferries NB 1356, 1360
- Norilsk Nickel NB505
- Arctic icebreaking tanker

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## Others:

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- Electrical consultation for arctic ice going vessels
  - Project management of Caspian icebreaking tug
  - Mechanical engineering for diesels
  - Electrical & mechanical design for propulsion products
  - Electrical engineering for ice breaking supply vessels, ferries
  - Retrofit projects
  - Personal references include design for Carnival Spirit class vessels
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Aker Arctic

stx Europe

ABB

arctech  
WE MAKE YOU BREAK THE ICE

  
WÄRTSILÄ

  
MEYER TURKU  
SHIPYARD 1737

# DESIGN TOOLS

## MECHANICAL DESIGN

- AutoCAD
- Catia
- I-Deas
- Inventor
- Microstation
- NX
- Pro/Engineer
- Creo
- SolidWorks
- Vertex

## AUTOMATION DESIGN

### Logic families

- Siemens S5, S7
- Siemens PCS 7
- Siemens Teleperm
- Omron
- Allen-Bradley  
(ControlLogix, CompactLogic)
- GE Fanuc
- ifm
- Inter Control
- Epec

### PLC programming languages

- Siemens Step 5 & 7 Basic, SCL, CFC
- Omron CX-One
- Codesys
- RSLogix

## ELECTRICAL DESIGN

- AutoCAD
- CADS
- E3
- EPlan
- Vertex ED

## TECHNICAL CALCULATION

- Ansys
- Matlab



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DNV GL Business Assurance has granted Comatec Group the ISO 9001:2008 management system certificate. The certified operations include the Group's design, project management, site and expert services.

