

# Gefico

Offshore Sector



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## GEFICO

Gefico is a leading company that designs, develops and supplies solutions to customers for the water treatment market.

Over the past 35 years, Gefico has been manufacturing equipment for diverse sectors such as maritime, oil and gas and industry.

Our products and solutions are intended to operate in extremely harsh conditions. With more of 7000 offshore and inland installations, we cover globe with worldwide solutions.

In 2011, Gefico became part of industrial group Cetus . With a quality product certificate, the group focuses on sustainability and environmental solutions, holding several innovation awards and CSR (Corporate Social Responsibility)

Environmental impact is one of our main concerns. We therefore work to minimize negative impact on the environment by continuously developing new opportunities compatible with sustainable development.



## SERVICES

Gefico delivers equipment and systems for the world's largest offshore companies installing on board semisubmersible platforms, drillships and offshore supply vessel.

Special offshore equipment has been developed to ensure an adequate safety and reliability.

Our company designs and manufactures a wide range of plants for desalination by means of Reverse Osmosis and Evaporation, seawater pretreatment and potable water treatment for human consumption, and antifouling systems to avoid and prevent the biological growth.

We understand our customers, thus we are awarded about how important is to support them wherever they are. For this reason, we also focus on strengthening our After Sales services on being able to send spare parts across the globe.

The Gefico after sales service is ready to reply and provide service to our customers with the most efficient and quick way to solve their inquiries:

- SpareParts
- Technical Support
- Commissioning and Start-Up
- Training





## GLOBAL IMPACT

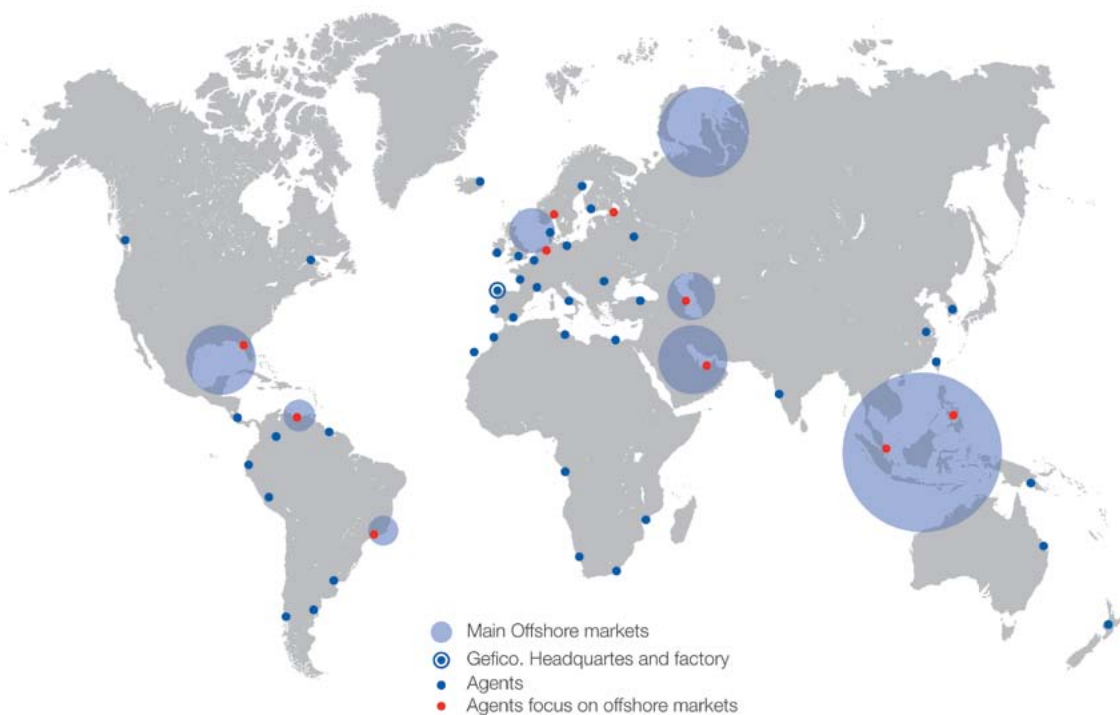
Gefico is a global company with worldwide agents and distributors.

Our agents are prepared to give assistance to our customers wherever they are.

Since the last two years, we have been carrying out an expansion process, to expand our global coverage, and at the same time specialize in growing markets such as Oil & Gas.

Nowadays, we have specialized distributors with offshore industry experience in the regions of major known Oil & Gas reserves:

- Kara Sea
- Brazil
- Caspian Sea
- Gulf of Mexico
- Persian Gulf
- Southeast Asia
- North Sea
- ...



## EVAPORATORS

Gefico evaporators unit operates with a vacuum system using tubing. Our evaporators are able to produce high-quality distillate in order to maintain boiler-water levels. The energy source for producing fresh water utilizes waste heat improving energy efficiency.

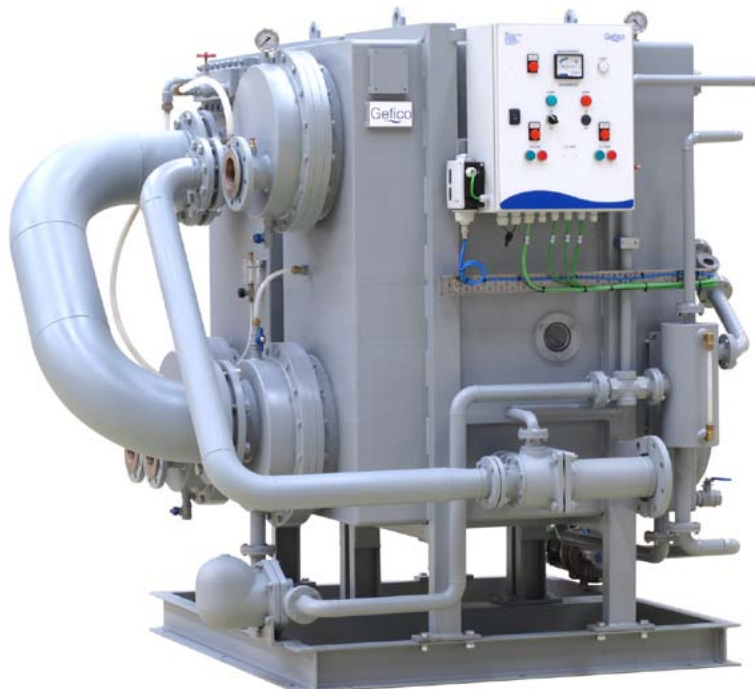
Our Evaporators treats all water as a source, i.e. sea water, brackish water, The solution that contains the desired product can be sea water, brackish water, surface water, etc.

Gefico Evaporators are installed onboard to produce different waters:

1. Technical Water: intended for boilers, cooling system and any process.
2. Potable Water: Potable water is water that is safe for humans to drink.

When the waste heat is not enough for operate in good conditions, the Gefico's Double Stage Evaporator are the best solution for producing distilled water. Consumption of these equipments is reduced by 50% with respect to a simple stage.

Gefico manufactures Flash Evaporators which are employed for producing fresh water from sea water by using the source of heat from jacket cooling water from a ship's main engine.



Gefico double stage Evaporator, model AQ-25/2.

Small range. 1 to 10 ton/day

MODEL	AQ-1/2	AQ-2/3	AQ-3/4A	AQ-4/5A	AQ-5/6A	AQ-6/8	AQ-8/10	AQ-10/12
PRODUCTION (m3/day)	1	2	3	4	5	6	8	10
WEIGHT (Kg)	184	191	210	390	423	540	587	642
ENERGY (Kw)	30	61	92	122	153	184	245	308
DIMENSIONS								
Length (mm)	760	860	1000	1080	1220	1123	1350	1550
Width (mm)	495	495	495	560	560	700	700	700
Height (mm)	680	680	680	900	900	1070	1070	1070



Evaporator model AQ-4/5A.



Evaporator model AQ-16/20.

Top range. 12 to 25 ton/day

MODEL	AQ-12/16	AQ-16/20A	AQ-20/25A	AQ-25/30A
PRODUCTION (m3/day)	12	16	20	25
WEIGHT (Kg)	800	1100	1375	1666
ENERGY (Kw)	355	480	610	730
DIMENSIONS				
Length (mm)	1490	1490	1800	2060
Width (mm)	850	950	1050	1050
Height (mm)	1310	1510	1760	1760

Modular range. 30 to 100 ton/day

MODEL	AQ-30/35A	AQ-35/40A	AQ-40/50A	AQ-50/60A	AQ-60/70A	AQ-80/100A	AQ-100/120A
PRODUCTION (m3/day)	30	35	40	50	60	80	100
WEIGHT (Kg)	2250	2340	2450	3400	3900	4400	4900
ENERGY (Kw)	880	1120	1210	1480	1765	2370	2958
DIMENSIONS							
Length (mm)	2780	2780	2780	3190	3190	3250	3250
Width (mm)	1485	1485	1485	1485	1595	1820	1925
Height (mm)	2200	2200	2200	2200	2370	2370	2370



Evaporator model AQ-25/2.



Evaporator model AQ-60/70.

Double stage range. 5 to 100 ton/day

MODEL	AQ-5/2	AQ-12/2	AQ-25/2	AQ-40/2	AQ-60/2	AQ-75/2	AQ-100/2
PRODUCTION (m3/day)	5	12	25	40	60	75	100
WEIGHT (Kg)	750	1170	2040	3400	4700	5800	7200
ENERGY (Kw)	80	192	420	682	1030	1160	1546
DIMENSIONS							
Length (mm)	1220	1370	1985	2540	2820	4250	4250
Width (mm)	1100	1190	1730	2000	2395	2600	2725
Height (mm)	900	1100	1840	2060	2120	2430	2430



## OUR CUSTOMERS



*"West Phoenix"*

Two double stage evaporator plants model AQ-40/2. Seadrill.



*"P-26"*

One double stage evaporator plant model AQ-40/2. Petrobras.



*"Northern Lights"*

Two double stage evaporator plants model AQ-40/2. Gazprom.



*FPSO "Cidade de Vitoria"*

One single stage evaporator plant model AQ-40/50 with steam injector.



## REVERSE OSMOSIS

The Gefico Reverse Osmosis Unit uses reverse osmosis method. Solute is retained on the pressurized side of the semipermeable membrane and the pure solvent is allowed to pass to the other side and consequently salt cannot pass through the membrane.

Our RO Units can treat water to be used as potable water or intended for the industry or agriculture sector ensuring the minimum consumption.

With our Reverse Osmosis product range, we cover needs from 1,6 to 500 tons per day.

Gefico's unit are modular made. All components are installed in a common frame so only the Booster Pump, Disc Filter and Dechlorination filter are independently supplied for the installation at the feed flow.



Gefico Reverse Osmosis plant, model AQE-120DDA explosion proof.

Small range. 1,6 to 30 ton/day

MODEL	AQE-2D	AQE-4D	AQE-6D	AQE-10D	AQE-15D	AQE-18D	AQE-20D	AQE-25D	AQE-30MD
PRODUCTION (m3/day)	1,6	3,2	4,8	8	12	15	20	25	30
WEIGHT (Kg)	120	130	140	380	415	432	520	550	580
<b>DIMENSIONS</b>									
Length (mm)	1300	1300	1300	1570	1570	1570	1514	1514	1521
Width (mm)	740	740	740	990	990	990	1210	1210	1210
Height (mm)	660	660	660	890	890	940	910	910	910



Reverse Osmosis model AQE-20D.



Reverse Osmosis model AQE-60D-SS.

Top range. 40 to 250 ton/day

MODEL	AQE-30D	AQE-60D	AQE-80D	AQE-100	AQE-120D	AQE-250D
PRODUCTION (m3/day)	40	50	70	80	150	250
WEIGHT (Kg)	950	1050	1340	1450	1560	2100
<b>DIMENSIONS</b>						
Length (mm)	2200	2200	2200	2200	3204	3204
Width (mm)	1418	1418	1840	1840	1840	1840
Height (mm)	1230	1230	1580	1580	1691	1691

## OUR CUSTOMERS



BUMIARMADA

*FPSO "D1"*

Vessel re-built to FPSO. Two Reverse Osmosis plant model AQE-120 explosion proof.

GRUP SERVICE PETROLIERE  
member of LUPETROM GROUP*"GSP Atlas"*

One Reverse Osmosis plant model AQE-60.  
Group Service Petrolere.

*"Socar"*

One Reverse Osmosis plants model AQE-15D. Several platforms in the Caspian sea.

*"Senusret"*

One Reverse Osmosis plant model AQE-30D.  
Egyptian Drilling.





### CUSTOMIZED UNITS

Gefico offers the possibility of developing different proposals for RO systems in compliance with different regulations, required specifications, customer's requirements:

- Stainless steel
- Duplex steel
- ATEX regulations
- Contained systems



Contained Reverse Osmosis plant.



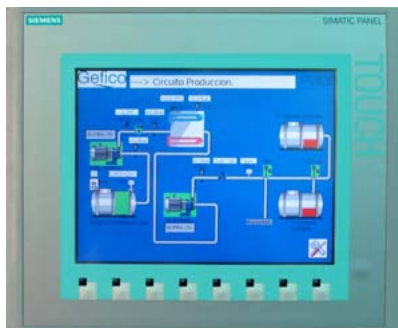
Reverse Osmosis plant model AQE-15DHHTS.

### AUTOMATIC PROCESS

Our watermakers can be supplied fully automatic for monitoring and control.

This control allows a further optimization of the process, through the possibility of carrying out analysis of the several parameters that affect to production.

Our installations can be controlled locally or by a remote system TCP / IP that allows to the customer analyze and check all process factors.



Control software for Gefico plant.



## WATER TREATMENT

Gefico supplies a wide range of products for water treatment:

### ***MHF Rehardening filters***

To avoid corrosion in the subsequent parts of the ships distribution system the pH-correction of produced distillate is absolutely necessary.

The pH-adjustment of the distillate is effected during its flow through the Rehardening Filter. In addition, MHF filters provides the correct hardness to distilled water.

### ***UV sterilizer lamps***

Ultraviolet lamps are used to deliver sterilized drinking water.

### ***Gefico dosing systems***

The Gefico dosing systems are used for:

- Seawater Treatment
- Drinking Water Treatment

### ***Gefico Carbon filters***

Potable water post-treatment:

- To eliminate flavours and odors
- To remove chlorine contents



Gefico Mineralizer filter model MHF-3500

## OUR CUSTOMERS



*"Arbol Grande"*

One double stage evaporator plant with mineralizer filter model MHF-3500.



*"Bigfoot 3"*

One Reverse Osmosis plant with UV sterilizer lamps models UBK-2 and UB2-3.



**Østensjø Rederi AS**

*"Edda Fides"*

Complete system for potable water post-treatment for flotel vessel.



*"Bourbon Oceanteam 101"*

Potable water post-treatment.



## WATER TREATMENT

### ***Potable water heaters***

Our water heater consists in a pressurized tank which incorporates electric resistances heating, thermostats and sensors PT-100 for temperature control, a safety valve, level switches and electrical controls.

It also incorporates a recirculation pump to maintain hot water temperature in different pipes.

Tank heaters are supplied insulated, thus ensuring a low temperature of the tank.

### ***Hydrophore tanks***

Hydrophore tanks are used in the fresh water system to keep the entire water circuit with the suitable pressure, in order to can supply the fresh water to different parts and heights of the installation for any purpose.

These Gefico hydrophores are designed to store and provide the fresh water at a pressure of 6 bar.



Gefico hydrophore tank of 500 liters capacity.

## ANTIFOULING SYSTEM

The Biological Seawater contained in the sea water can cause marine growth in the cooling system.

Marine growth reduces the volume of water flowing through the system and minimizes the cooling effect. As a result the working temperature of the components connected to the cooling system increases.

The solution is a mechanical cleaning in order to eliminate the marine growth from the piping system. Such a mechanical cleaning requires turn off the whole system, which means time consuming.

Gefico has developed the Gefico copper ion generator to solve this problem.

The Gefico's Antifouling system prevents marine growth by releasing copper ions into seawater utilising a small electrical DC current.

With a seawater treatment capacity from 200 to 2500 cubic meters per day.

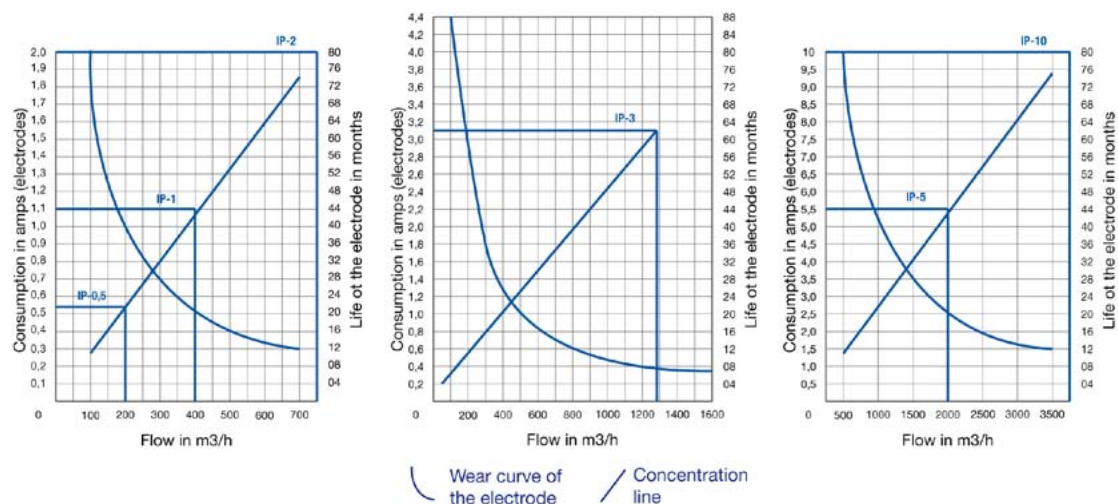
We also have ion copper-aluminium generators to prevent and avoid corrosion further the biological growth.



Gefico Antifouling systems by ion injection of copper and aluminium.

Antifouling system. Treatment capacity from 200 to 2500 ton/day

MODEL	IP-0,5	IP-1	IP-2	IP-3	IP-5	IP-10
PRODUCTION (m3/day)	200	400	700	1200	2000	2500
ENERGY (Kw)	0,04	0,5	0,5	1,5	2	2
<b>DIMENSIONS</b>						
Length (mm)	483	483	483	610	710	710
Width (mm)	395	395	395	530	770	770
Height (mm)	637	637	637	820	790	790
<b>CONTROL PANEL</b>						
Length (mm)	200	400	400	400	400	400
Width (mm)	300	500	500	500	500	500
Height (mm)	150	200	200	200	200	200



Selection graphic tables for antifouling.



## OUR CUSTOMERS

### *"Far Sailor"*

Offshore Supply Vessel with one antifouling system model IP-0'5.



### *"Island Innovator"*

Semi-submersible platform with one Antifouling system model IP-1AL and one IP-2AL.



### *"Island Wellserver"*

Offshore service vessel with one Antifouling system model IP-2 and one IP-3.



### *"Viking Poseidon"*

Offshore Construction Vessel with one Anti-fouling system model IP-3 and one IP-0'5.



## EVAPORATORS CUSTOMERS. 1996-2012

Final Customer	Country	Unit	Year
Oceanteam Shipping	Holland	2 x AQ-25/2	2011
Oceanteam Shipping	Holland	2 x AQ-25/2	2010
North Sea Shipping	Norway	2 x AQ-25/2	2008
Oceanteam Shipping	Holland	2 x AQ-25/2	2008
Gazflot (Rig Northern Lights)	Russia	2 x AQ-40/2	2008
Gazflot (Rig Polar Star)	Russia	2 x AQ-40/2	2008
Seadrill (Rig West Phoenix)	Norway	2 x AQ-40/2	2006
Seadrill (Rig West Eminence)	Norway	2 x AQ-40/2	2006
Oceanteam Shipping	Holland	2 x AQ-25/2	2006
Petrobras	Brazil	1 x AQ-40/50	2006
Shell Todd	New Zealand	1 x AQ-25/30A	2003
North Sea Shipping	Norway	3 x AQ-25/2	2002
Petrobras	Brazil	1 x AQ-40/2	1996

## REVERSE OSMOSIS CUSTOMERS. 2005-2013

Final Customer	Country	Unit	Year
Petrobras (Rig Copacabana)	Brazil	2 x AQE-100DPP	2013
Petrobras (Rig Grumari)	Brazil	2 x AQE-100DPP	2013
Petrobras (Rig Ipanema)	Brazil	2 x AQE-100DPP	2013
Petrobras (Rig Leblon)	Brazil	2 x AQE-100DPP	2013
Petrobras (Rig Leme)	Brazil	2 x AQE-100DPP	2013
Petrobras (Rig Marambaia)	Brazil	2 x AQE-100DPP	2013
Petrobras (Rig Jaotinga)	Brazil	2 x AQE-100DPP	2013
GSP (GSP Fortuna)	Romania	1 x AQE-120D	2013
GSP (GSP Orizont)	Romania	1 x AQE-120D	2013
Bumi Armada (FPSO D1)	Singapore	2 x AQE-120D	2012
Jiangsu Zhenjiang Shipyard	Singapore	2 x AQE-30MD	2011
GSP	Romania	1 x AQE-30MD	2011
Bumi Armada	Singapore	2 x AQE-30MD	2011
Bergesen	Norway	1 x AQE-60	2011
Bumi Armada (FSO Sepat)	Singapore	2 x AQE-60D	2011
Bumi Armada (FPSO TGT1 Layat)	Singapore	2 x AQE-60D	2010
Halul Offshore	UAE	1 x AQE-15D	2010
Halul Offshore	UAE	1 x AQE-30MD	2010
Industmarine Engineers Ltd	Singapore	2 x AQE-60D	2010
GSP (GSP Orizont)	Romania	2 x AQE-30MD	2010
Teekay (FPSO Rita)	Norway	1 x AQE-30MD	2009
Industmarine Engineers Ltd	Singapore	2 x AQE-60	2009
Fujian Mawei	Singapore	2 x AQE-60/35	2009
Fujian Mawei	Singapore	2 x AQE-60/35	2009
Socar (Rig Azeri Chirag Deep Water...)	Azerbaijan	1 x AQE-15D	2008
Socar (Rig Bahar Gum Deniz)	Azerbaijan	1 x AQE-15D	2008
Socar (Rig Binegedi)	Azerbaijan	1 x AQE-15D	2008

## REVERSE OSMOSIS CUSTOMERS. 2005-2012

Final Customer	Country	Unit	Year
Socar (Rig Kurudagh)	Azerbaijan	1 x AQE-15D	2008
Socar (Rig Kursengi and Garabaghli)	Azerbaijan	1 x AQE-15D	2008
Socar (Rig Mishovdagh Kelameddin)	Azerbaijan	1 x AQE-15D	2008
Socar (Rig Neftechala)	Azerbaijan	1 x AQE-15D	2008
Socar (Rig Pirsahhat)	Azerbaijan	1 x AQE-15D	2008
Socar (Rig Ramany)	Azerbaijan	1 x AQE-15D	2008
Socar (Rig Shah Deniz)	Azerbaijan	1 x AQE-15D	2008
Socar (Rig Surkhany)	Azerbaijan	1 x AQE-15D	2008
Socar (Rig Three Blocks...)	Azerbaijan	1 x AQE-15D	2008
Socar (Rig Zigh Hovsan)	Azerbaijan	1 x AQE-15D	2008
Socar (Rig Absheron)	Azerbaijan	1 x AQE-15D	2008
Socar (Rig Bulla Deniz)	Azerbaijan	1 x AQE-15D	2008
Socar (Rig UMID)	Azerbaijan	1 x AQE-15D	2008
Petra Perdama	Singapore	2 x AQE-60	2008
Bumi Armada	Singapore	2 x AQE-60/35	2008
Equinox Offshore	Singapore	2 x AQE-120D	2008
Handle Maritime	Singapore	2 x AQE-60	2008
Petra Perdama	Malaysia	2 x AQE-60	2008
Industmarine Engineers Ltd	Singapore	2 x AQE-80	2008
Otto Marine Ltd	Singapore	4 x AQE-6D	2007
Robin Shipyard (Rig Searex IX)	Singapore	2 x AQE-60	2007
MMHE Shipyard (Rig W.D. Kent)	Malaysia	2 x AQE-60	2007
Handle Maritime	Singapore	2 x AQE-60	2007
Petrom	Romania	2 x AQE-30	2006
Petrom	Romania	2 x AQE-60	2006
Jurong Shipyard (Rig Charley Graves)	Singapore	1 x AQE-60	2005

## ANTIFOULING SYSTEM CUSTOMERS. 2005-2012

Final Customer	Country	Unit	Year
Farstad Shipping	Norway	1 x IP-0'5	2012
-	Norway	2 x IP1 + 2 x IP3	2011
-	Norway	1 x IP-2	2011
Neptune Offshore	Norway	1 x IP-2	2010
Neptune Offshore	Norway	1 x IP-2	2010
North Star Shipping	United Kingdom	1 x IP2AL	2009
STX Offshore	Norway	1 x IP-3	2009
STX Offshore	Norway	1 x IP-3	2009
Farstad Shipping	Norway	1 x IP-3	2008
Neptune Seismic	Norway	2 x IP-0'5	2008
STX Offshore	Norway	1 x IP-3	2008
STX Offshore	Norway	1 x IP-3	2008
Sanco Shipping	Norway	2 x IP-3	2008
Farstad Shipping	Norway	1 x IP-3	2008
Farstad Shipping	Norway	1 x IP-3	2008
Eidesvik Offshore	Norway	1 x IP0'5 + 1 x IP3-SB	2007
Island Offshore	Norway	1 x IP2 + 1 x IP3	2007
STX Offshore	Norway	1 x IP-3	2007
STX Offshore	Norway	1 x IP-3	2006
STX Offshore	Norway	1 x IP-3	2006
Rem Offshore	Norway	1 x IP-3	2006
STX Offshore	Norway	1 x IP-3	2006
STX Offshore	Norway	1 x IP-3	2006
STX Offshore	Norway	1 x IP-3	2006
STX Offshore	Norway	1 x IP-3	2006
STX Offshore	Norway	1 x IP-3	2005
STX Offshore	Norway	1 x IP-3	2005



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# Gefico

## Excellence in water



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