

HOBBELSTADJORDET 13 PHONE (+47)32 70 08 80
P.O.BOX 151 FAX (~~+47)32 75 27 84~~
3301 HOKKSUND, NORWAY MOBILE (+47)90 51 82 90
Comp. reg. no. 954735109MVA e-mail: odd-eddy@online.no
Internet: www.oddinvent.com

(CONFIDENTIAL)

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Name: EDVARSEN, ODD J.

Nationality: NORWEGIAN

Languages: ENGLISH (some GERMAN)

Profession: SENIOR MECHANICAL ENGINEER

Position at parent company: OWNER

Key Qualifications: **More than forty years experience in engineering of heavy rotating machinery with main focus on gas compressors, turbo generators and pumping systems, whereof sixteen years within offshore industry. Fifteen years from manufacturing industry for heavy rotating machinery and associated equipment mainly with experience from system engineering and project management, but also equipment design.**

Good general multidiscipline experience within electro, instrument, piping and HES/noise protection from engineering and inspection of very large turbine-, compressor- and pumping skids connected to SAS systems.

More than twenty years experience in regular equipment vendor inspection visits including technical follow-up, HMS related workshop situations as well as expediting and audits / examinations.

As reflected in this CV I have more than ten years experience from participation in Project Management Team's with oil companies like Statoil, Norsk Hydro and Shell

Education:

1981 - 1982 NORWEGIAN SCHOOL OF MANAGEMENT
Postgraduate studies in Economics

1966 - 1968 TELEMARKE COLLEGE OF ENGINEERING

1964 - 1965 VOCATIONAL SECONDARY SCHOOL, NAMDAL

Experience:

1995 **ING. ODD EDVARSEN**
(private consultant)

2014 - 2015 *Senior inspector* on behalf of **SMOE Shipyard**, Singapore through ACES for *Ivar Aasen Development Project*, owner: DET NORSKE
Responsible for follow up inspections and acceptance of various mechanical HVAC equipment.

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- 2014 July/August 3rd party inspector authorized by **DNV GL – Oil and Gas**
Client: Suncor ENERGY, Canada
Responsible for verification of production, testing and completion of Water Injection Spool Piece, 11", 700 kg's
Inspection sites: Norway (various) & UK (Everiting & heat treatment)
- 2014 - May 2014 Senior inspector authorized by **Aces Global Quality Services Srl**
Client: CB&I Engineering UK for Statoil Mariner project,
Responsible for:
- Regular ITP inspections of turbo generator units including cranes from Dresser Rand at Agility workshop in Drammen.
- 2013 - 2014 Senior inspector authorized by **DNV GL – Oil and Gas**
Client: DSME (Daewoo Shipyard) for Chevron, Mafumeira Oil project, Angola
Responsible for:
- weekly 3rd party follow-up inspections of three 21 MW turbo generator packages including cranes from Dresser Rand at Agility workshop in Drammen.
- 2012 - ongoing Principal Mech Engineer - ING ODD EDVARDSEN
Local mech. inspector
authorized by:
- **Germanischer Lloyd** (GL Noble Denton, Canada/South Korea)
- **NEXEN UK**, project Golden Eagle
- **ABS**, 3rd party inspection, gas turbine test at Dresser Rand
- 2009 - 2012 (Apr) Company Lead Mech. Eng hired by **Statoil**
Projects:
- TCM, CO2 capture test station Mongstad.
Responsible for:
- Supervision and follow-up of Amin EPC Engineering contractor and equipment subcontractor inspections during project execution.
- Mech.Completion (MC) verification of rotating equipment for entire plant during Mongstad site construction.
- 2007 - 2009 Company Lead Mech. Eng. / ass. Engineering manager, Project Management Team, hired by **StatoilHydro**
Projects:
- Troll B GI
- Troll C LPP
- Vega /Gjøa (Hydro/Statoil) new North Sea platform.
- Troll Future Development (TFD) Low pressure production upgrade
- Hydro Gulf of Mexico (HGoM) Drilling vessel from Daewoo, Korea
Responsible for:
- Selection, verification and acceptance of all categories mech. equipment including contractor / vendor supervision, inspections and follow-up.
- 2006 Sept - 2007 Apr Site Representativ / Site Team Manager
during design and production of MEG regeneration module in Strasbourg, France,
Project: NJORD Gas Export.
Hired by **Norsk Hydro**

- 2005 - 2012** Company Lead Mech. Eng. Hired by **Norsk Hydro, Statoil/Hydro & Statoil**
 Projects:
 - *Fram West Water Injection Upgrade* – pumps, umbilical & HPU power unit
 - *NJORD Gas Export* – pressure vessel- and MEG modules
 - *Troll C* - gas compression module
 - *Mongstad CO2 Test station* - all categories mech. equipment
 Responsible for: (see details above)
 - Selection, verification and acceptance of all categories mech. equipment including contractor / vendor supervision, inspections and follow-up.
- 2004 - 2005** Principal Mech Engineer, hired by **Bergesen dy Offshore**
 Project: “Berge Helene” FPSO for Chinguetti field, Mauretania
 Client: Woodside, Australia
 Responsible for:
 - Supervision, vendor inspections and follow-up of topside contractor supplied items like 3 x 33% 4,2 MW reciprocating gas injection compressor and highspeed water injection pumps.
- 2004 - 2004** Principal Mech. Engineer, hired by **Aker Kværner / MPC(N)**
 Project: Alvheim Critical Path Activities
 Client: Marathon Petroleum Company (Norway)
 Responsible for Technical Requisition, bid evaluation, bid clarification and purchase order “Kick-off meeting” for:
 - Gas Export Compression and Recompression Train
- 2004 - 2004** Spesialist Engineer, hired by **Real Consept Group**
 Project: Prirazlomnoye Oil Field, Barents Sea, North of Russia
 Responsible for:
 - bid evaluation for 3 x 28 MW Gas Turbine Driven Main Generator sets.
 Client: SEVERNOYE MASHINOSTROITELNOYE PREDPRIYATIYE
- 2003 - 2004** Company Lead Mech. Eng. Hired by **Norsk Hydro**
 Klegg/Alvheim tie-in to Heimdal (Consept study).
 Responsible for:
 - Mech. Equipment supervision, vendor inspections and follow-up of Engineering contractor "Aker Kværner"
- 2002 - 2004** Company Lead Mech. Engineer Hired by **Norsk Hydro**
 “Skirne - Byggve” new booster compressor module on the HEIMDAL platform.
 Responsible for equipment selection, procurement and installation of :
 - booster compressor driven by Solar gas turbine including associated scrubber and after cooler.
- 2001 - 2002** Specialist Engineer, hired by **Statoil**
 Project: Kristin – Innkjøp (Kristin – Procurement)
 Responsible for technical inquiry specification and data sheets for:
 - Air Compressor and Dryer package
 - Essential & Emergency Generator package
- 2001 - 2001** Specialist Engineer, hired by **Kværner Oil & Gas**
 Project: Kristin FEED
 Client: Statoil
 Responsible for technical specification and data sheets for:
 - Glycol Contactor & Regeneration unit (Pressure vessels)
 - Condensate Pumps

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- 2000 - 2001 Specialist Engineer, hired by **Aker Offshore Partners (AOP)**
Project: bp v & m, Gyda (GAFA-0443)
Client: BP
Specialist support to Process Eng. and Package Responsible Eng.
Responsible for:
- Technical advisory during modification of existing water injection pumps.
- 2000 - 2001 Specialist Engineer, hired by **Aker Offshore Partners (AOP)**
Balder FPSO Modifications
Client: ESSO
Specialist support to Process Eng. and Package Responsible Eng.
Responsible for:
- Approval of Data Sheets & Technical Requisition for purchase of Produced Water Transfer Pumps, and final selection of pumps.
- 2000 - 2001 Principal Mechanical Engineer, hired by **Aker Offshore Partners (AOP)**
Gulfaks C Modifications
Client: Statoil
Responsible for:
- El. submerged fire water pump package.
- 2000 - 2000 Senior Mechanical Engineer, hired by **Umoe/ABB Offshore Systems as Specialist Engineer / Lead Engineer Mechanical division** for ORMEN LANGE platform conceptual study.
Client: Norsk Hydro A/S
Responsible for:
- Early identification of requirement for all categories of mechanical equipment with main focus on power generation, gas recompression and export trains (135MW), main pumps and process systems.
- Master Equipment List, Weight- and plot-plan input to main study.
- 1999 - 2000 Senior Mechanical Engineer, hired by **Process Consultants**, Drammen
Responsible for:
- design and construction of Shell & Tube heat exchanger for Sande Papermill
- 1999 - 1999 Senior Mechanical Engineer, hired by **Norsk Hydro, T&U Div. as Company Lead Mech. Engineer** for the "Kvitbjørn Tie-in" project, new compressor module on Oseberg C
Responsible for:
- selection of compressors and associated equipment
- material handling considerations
- mechanical input to Main Study
- 1998 - 1999 Company Lead Mec. Engineer hired by **Norsk Hydro, T&U Div. as Fram and Grane projects**
Responsible for:
- early identification of requirements for heavy turbo equipment.
- contractor follow up.
- 1997 - 1998 Senior Mechanical Engineer, hired by **Kværner Engineering as Lead Engineer, Mechanical division** for OSEBERG ØST project.
Client: Norsk Hydro A/S

Responsible for detail engineering of:

- Gas compression trains
- SW/FW pumps, Crude oil pumps, Water injection pumps
- Emergency power generation, Separator/Scrubber pressure vessels

1996 - 1997

Senior Mechanical Engineer, hired by **PROCESS CONSULTANTS A.S**
Co-responsible for erection of production machinery and equipment for a new salad and vegetable food factory built by BAMA-DOLE.
Responsible for design & construction of storage tanks, heat exchangers and various other machinery items for local paper and pulp factories.

1996 - 1996

Senior Mechanical Engineer, hired by Kværner Eureka/Kværner Installasjon for «Intgrated Technical Team» (ITL), HALONUTFASINGSPROSJEKTET.
Client: STATOIL

Specialist Engineer responsible for:

- Decide Acceptance Criteria for presently introduced «Water Mist Nozzles»
- review if present Water Mist Nozzel design is «Fit For Purpose»

1995 - 1996

Company Lead Mech. Engineer, hired by **A.S Norske Shell**
DRAUGEN UPGRADE PROJECT,
Company Lead Mechanical Engineer
Technical responsible for total scope of upgrade as:
Responsible Engineer for:

- Turbo machinery and rotating equipment

1995 - 1995

Senior Mechanical Engineer, hired by **Aker Engineering**
NJORD project, P45 Floating Production Unit
Client: NORSK HYDRO
Responsible engineer for engineering, quality and purchase of:

- Drain Pump Package
- Centrifugal Pump Package

1992 - 1995

AKER ENGINEERING A.S, OSLO

1993 - 1995

Senior Project Engineer/
CPI Coordinator, Heidrun Project,
Client: Conoco
Responsible for multidiscipline interface of topside subsea related equipment to TLP substructure, and further to subsea hang-off:

- All mechanical equipment in the platform concrete hull.
- Invention and design of hydraulic remotely controlled subsea TTMS landing tool.

1992 - 1993

Senior Mechanical Engineer, SSP Project, Staffjord Satellites.
Lead Engineer, Mechanical discipline
Client: Statoil.
Responsible engineer (PRE) bid evaluation, P.O., vendor coordination and follow on of Water Injection Pumps.

1991 - 1992

NORWEGIAN PETROLEUM CONSULTANTS A.S (NPC)

1991 - 1992

Senior Mechanical Engineer, seconded to Aker Engineering, SSP project, Staffjord C Satellites.

Client: Statoil

Responsible for:

- preparation of Turbogenerator package requisition issued for IDC comments.

1988 - 1991

ING. ODD EDVARDSEN

(private consultant)

Main activities:

- development and contracting of own invented products such as spring loaded belt locks and belts.
- 1990 - 1991 Hired project and system engineer on mechanical fastening equipment on contract from OSP Trading a.s, Trondheim.

Scholarship holder for invention, design and development of internal fire nozzles (1990)

1986 - 1988

ANDERSEN & KRUSSAND A.S, DRAMMEN

Production Manager, for mechanical workshop employing 25 labourers and 4 engineers.

Responsible for the manufacture of:

- water cannons for capacity up to 20 000 l/min with joy stick operated el. hydraulic control systems for fixed or proportional monitoring speed.
- sprinkler- and foam fire protection systems.
- general service work for offshore and landbased industry, (overhaul of drilling pipes, heat exchangers, gears, winches, mud shakers, rigging equipment, compressors etc.)
- subsea winches and gear (connection tool) for pipe tow-in and hook-up on the East Frigg field
Contractor: Kongsberg Subsea Systems
Client: Elf Aquitaine
- complete pigging system comprising multi-shot launcher, receiver, dividing-Y, constricting-Y,. Contractor: Seanor Engineering, Client: British Petroleum

1973 - 1986

THUNE EUREKA A.S (later Kværner Eureka A/S)

1978 - 1986

Project Manager, Ships- & Offshore department.

External firefighting systems.

Overall responsible for:

- engineering and development of large offshore firefighting systems up to 3 tonn/sec. capacity and a total power consumption of 5800 kW involving gas turbine, el., or diesel driven pump, ultra large water cannons with el. hydraulic control system for joystick or computer monitoring control.
- ballast/deballast and engine room pumping systems
- technical solution, engineering and system design

- tender documents, negotiations, contract documents, contract coordination, production progress, contract purchase, end audit
- preparation, handling and quality of contract documents.
- installation supervision and final commissioning.

More than seventy reference systems delivered world-wide to clients such as Statoil, Mobil, ONGC India, Zapata Marine USA, W.Wilhelmsen. Anders Wilhelmsen, Gulf Marine, AGIP, Smit Lloyd, Shell International.

Considerable experience with engineering pumping equipment in tropical areas.

1973 - 1978

Senior Project Engineer, Ships department.

Responsible for:

- cargo oil pumping systems
- ballast/deballast and engine room pumping systems
- engineering of seagoing oil-spill control equipment such as oil disc skimmers, containment booms and portable emergency unloading pumps with diesel hydraulic power pack

1968 - 1973

G. HEIER A.S, OSLO

Engineer. System engineering of transmission equipment including gears, couplings, transmission- and conveyor chains.

Published articles:

The Motor Ship, February 1983: Offshore Firefighting with Water/Foam Monitors.

OTC papir no. 3652 of 1979: Ultra Large Fire Fighting Installations in North Sea Emergency Support - Associated author.

Lectures:

- 1980 Lecturer on the subject of pumping systems and installation of offshore firefighting equipment with emphasise on optimisation of hydrodynamic piping layout at the HARLANS seminar, Bergen Norway.
- 1981 Lecturer on the subject of offshore firefighting with foam, powder and water monitors for The Indian Coastguard, New Delhi, India.
- 1983 Lecturer on the subject of pumping-, and offshore firefighting systems for SHELL Sarawak, Miri, Borneo.
- 1983 Lecturer on the subject of pumping-, offshore firefighting-, and oil spill recovery systems for PETRONAS, Kuala Lumpur, Malaysia.
- 1985 Lecturer on the subject of pumping -, and offshore firefighting, and oil spill recovery systems at Pacific Western University, Los Angeles, USA.

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- 1985 Lecturer and demo squad team lead during a very large Oil Spill Recovery Equipment Demonstration and Conference arranged by Marine Mutual Aid Centre, BAHRAIN
 - 1986 Lecturer on the subject of engineering ultra large firefighting systems onboard offshore multipurpose supply vessels (MSV`s) for a design team at HYUNDAI shipyard,Ulsan, Korea.
 - 1987 Lecturer on the subject of offshore firefighting with foam, powder and water monitors for AUSTRALIAN OFFSHORE SERVICES, Melbourne, Australia.
 - 1987 Lecturer on the subject of offshore firefighting with foam, powder and water monitors for HOWARD SMITH Ltd. Sydney, Australia.