

# FDUEG



## TRANSFORMERS AND REACTORS FOR OIL AND GAS INDUSTRY





## OIL AND GAS INDUSTRY

The **extraction of hydrocarbons** is an ongoing industrial sector of strategic importance.

The continuous increase in energy requirements all over the world makes it necessary to find new supplying fields.

The first plants on land have been rapidly replaced by **offshore oil rigs** situated in a variety of areas and suitable for in-depth drilling. The evolution of the market and the unceasing increase in the cost of fossil fuels have made the exploitation of oilfields that until a

few years ago were considered to be uneconomic profitable. These extractive plants require never-ending technological development to face new challenges all the time and to adapt systems to difficult environmental conditions.

In this field, **Fdueg has proved to be a careful partner**, always ready to face problems with **innovative and reliable solutions**.

# OFFSHORE APPLICATIONS

Undersea oilfields will be the main source of oil and gas in the future. Shallow water seabeds have been exploited thanks to suitable technology, but the fact that we are drilling deeper and deeper asks for new plants able to operate in different and more complex conditions. This aspect, in its turn, requires the manufactures in this sector to show great flexibility and innovation effort.

FdueG has focused its activity on the development of **new products for highly-technological applications and innovative solutions.**

The problems related to the design and manufacture of plants for offshore oil rigs involve several sectors.

A common aspect is the conversion of energy for feeding and the control of pumps and motors; **transformers for converters** play an important role to **optimize the working order and efficiency of rectifiers and inverters.**

Each plant has special requirements and the components must guarantee that the **system** can work **in an efficient, safe way.**

Thanks to its **cooperative relationship with customers and the expertise of its staff**, FdueG is in a position to meet all sorts of requirements by designing and manufacturing transformers and reactors that can easily adapt to the changing conditions of the extractive industry.





## ENVIRONMENTAL CONDITIONS

Offshore safety regulations are particularly strict. Unsuitable product can cause serious accidents and therefore heavy economic losses.

**FdueG dry transformers and reactors are safe and reliable:** they do not need to be immersed in inflammable fluids and they are made with self-extinguishing materials to prevent any fire hazards.

Thanks to their building technology, FdueG products require **little maintenance**, this **optimizing management costs** and ensuring **constant reliability and efficiency**.

Space exploitation in constricted surroundings is always a critical aspect as it generally calls for the design of non-standard products: our design

experience and flexibility allow us to meet these needs without endangering the performance of our articles. The **climate condition** in which offshore plants have to operate are generally quite extreme: high temperature ranges, high level of air dampness and salinity can easily damage conventional plants.

FdueG takes into account all these aspects: the most **suitable materials** and the most **appropriate technological solutions** are assessed with care to optimize and guarantee the **highest electrical and mechanical performance** of our products.

# FDUEG SOLUTIONS FOR OIL AND GAS INDUSTRY

FdueG is an **ideal partner** in the design of solutions to problems connected with the **extractive industry**.

Our **high competence and experience** allow us to offer transformers and reactors that can satisfy the most varied technical needs both for power plants and the environment.

Our **product** are **reliable and safe**, thanks to the use of self-extinguishing materials that maintain their mechanical and properties in the long run.

Our **vacuum-impregnated transformers and reactors**, equipped with adequate enclosure protection boxes, guarantee **excellent working order and performance with little maintenance**.

Unlike cast resin transformers, where electric tightness is threatened by wear and tear caused by mechanical and electrical stress, vacuum-impregnated transformers and reactors **do not need any extraordinary maintenance** as a result of coil ageing.

The use of adequate **enclosure protection boxes** ensures that FdueG products can work in a monitored environment with maintenance levels similar to those for cast resin transformers.





## FDUEG PRODUCTS

### TRANSFORMERS FOR CONVERTER

FdueG specializes in the design and manufacture of **transformers for power electronics**. Transformers for converter can be made for plants at 6-12-18-24-36-48 impulses and designed taking into account the **balancing of the loads** and **harmonic currents** in the system.

### NEUTRAL GROUNDING REACTORS

FdueG manufactures neutral grounding reactors, designed according to plant specifications, to **limit current in case of failure** between the phase and the earth. Careful design makes it possible to tune the reactor and plant, this reducing or clearing current failures as well as protection protecting other plant components and staff/workers.

### ACCESSORIES

Accessories available **on demand**:

- On-load tap changer
- Anti-vibration dumper
- Cable box
- Temperature monitor

### PRE-CHARGING TRANSFORMERS

FdueG makes devices **for the preloading of the nucleus** of transformers for big converters **to decrease the energizing effects** on the supply line.

### SHUNT REACTORS

FdueG can offer **shunt reactors designed for specific applications**, envisaging solutions with wide adjustments and reduced losses

### ENCLOSURE PROTECTION BOXES

FdueG products come with **enclosure protection boxes up to IP56** which guarantee that transformers or reactors can be installed in environments characterized by **severe weather conditions**.

They are equipped with air-water or air-air **ventilation systems** where the ventilation air of the transformers is protected and independent from the air outside the enclosure.

These systems ensure **better performance** by decreasing the size and allowing the installation of vacuum-impregnated products in **difficult operating conditions**.



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