Injection Wellsite Packages

Our fully integrated solutions also optimize onsite availability, maintenance and reduce operating costs.

Frames robust skid-mounted wells site packages are easily transported by road and can be offloaded in a single lift. Following placement on tarmac, beams or concrete supports, the injection well is rapidly brought into production by connecting the Christmas tree, upstream supply line, any power grids and, if required, the client control system. With minimal onsite interfaces, our clients benefit from fast hook-up times of only several days, with the Frames team of experienced service engineers readily available to support your business during the (pre-)commissioning and start-up stages.

Frames provides a highly mobile solution, well suited for marginal field development and reduction of capital expenditure. Frames skid-mounted wells site packages can be easily relocated if injection is no longer required, with options for solar power and battery back-up providing cost-attractive alternatives when operating in remote locations. The solar panels located on top of the wells site skids also provide shade for the electrical instruments. Minimized electrical consumption optimizes the number of solar panels and size of battery back-up.

Overall functionality, maintenance and operation of all wells site equipment can be optimized through integration of sub-systems onto one skid-mounted package. An on-skid (SIL-rated) Programmable Logic Controller (PLC) or logic solver can be used to control the Christmas tree valves (hydraulically operated), along with the choke, PSD and ESD valves. Injection flow and fluid properties can be measured on-skid, fed back and controlled via the on-skid PLC which controls the hydraulic or electric-operated choke valve.

Product Definition

By mounting all of the equipment required for gas, water or water alternating gas injection (WAG) onto a mobile skid-mounted unit, Frames injection wells site packages deliver a robust, ready-to-use solution for both onshore and offshore applications.

Certified for hazardous areas, Frames combines all hydraulics or pneumatics, valve automation, flow measurement, on-site control logics, communication, independent solar power supply, and back-up power into a single modular unit. Built for your unique operating conditions, your Frames package can be designed to drive crude oil recovery by using either gas, water or water alternating gas injection (WAG, SWAG, IWAG, MWAG, FAWAG). Gas systems can use natural gas, nitrogen or carbon dioxide, with water systems using either produced or sea water. Highly efficient and featuring sharp design solutions, Frames injection wells site packages are easy to install and require minimum on-site work.

Product Description

Frames injection wellsite packages combine all wells site equipment onto a single, ready-to-operate skid-mounted package. As opposed to traditional stick-built units, our clients benefit from minimum interface engineering, procurement time and fast commissioning times.
Process Description

Several processes can be used to increase the amount of crude oil or gas extracted from a field. These processes are also known as Enhanced Oil/Gas Recovery (EOR/EGR).

Gas injection is the (re-)injection of natural gas, nitrogen or carbon dioxide into an injection well. For water injection systems, produced water or sea water is injected into the reservoir. This injection of gas or water in the underground reservoir increases reservoir pressure which in turn stimulates production.

Water Alternating Gas injection (WAG) has a higher recovery efficiency than the sole use of water or gas injection. This is due to differences in gravitational force, whereby standalone water injection tends to sweep the lower parts of a reservoir, while gas injection predominantly sweeps the upper parts.

Variants of WAG injection include immiscible and miscible WAG, whereby the solution is either miscible or immiscible with the crude oil. With Simultaneously Water Alternating Gas (SWAG), gas is mixed with water before the mixture is injected as a two-phase fluid to improve the oil recovery process. With the Foam Assisted Water Alternating Gas (FAWAG) process, foam is used to improve the recovery of crude oil.
**Injection Wellsite Packages**

**Project Management**

At Frames, we understand that success depends on sharp project management. We are driven to support your business, with our dedicated project team always on hand for one-on-one contact, providing you with the best possible service.

From concept through to design, production, testing and delivery, our project team will know your operating environment, and will use the latest technology to precisely meet your needs.

We are solution orientated, understand your industry and always use strict document control and professional planning to exercise tight process control and meet all delivery deadlines. Our global office network, international supply chain and partnerships with leading vendors mean we are always able to supply the best systems and meet all of the local requirements and regulations, including possibilities for in-country manufacture to increase local content.

**Technical Details**

- Injection piping and instrumentation
- Process valves including control and operation
- Injection wellhead hydraulic control system
- Flow measurement (gas, oil or multi-phase)
- Electrical power distribution
- Solar powered (option) and power back-up
- Container-size skid for easy transport and installation
- Onsite (tele-)communication, safety control and logics (PLC and RTU)

**Added Value Frames**

- Simple interface engineering, with minimal onsite work for fast and easy startup
- Completely integrated solution for single-point project management
- Low HSE Exposure during construction, maintenance and operation – ideal for security sensitive areas
- Easy hook-up following injection well completion and highly mobile units that are easily relocated
- Fully customized for your unique operating environment

**References**

- Schoonebeek re-development, NAM, 12 Water Injection pump and valve packages – the Netherlands
- BuHasa Gas Lift Pilot Project, ADCO, 11 wellsites – United Arab Emirates

**Contact**

+31 172 461 600
integratedsolutions@frames-group.com

Frames
Integrated Solutions
Eikenlaan 237
2404 BP Alphen aan den Rijn
The Netherlands

+31 172 461 600
integratedsolutions@frames-group.com
frames-group.com