NOV Well Intervention and Stimulation Equipment

World’s Leading Equipment Supplier for:
- Coiled Tubing Units
- Snubbing
- Nitrogen Pumping
- Fracturing
- Cementing
- Pressure Pumping
- Wireline
- Pressure Control
- Data Acquisition

The WISE Group of NOV are dedicated to providing top class equipment to the oil and gas industry and in this edition we focus upon one of the WISE companies; NOV ASEP Elmar®.

Elmar® and ASEP were both formed in 1981 and became leaders in their respective fields. Both companies became known as designers and manufacturers of products that could be trusted and relied upon, and thus their products could be found in all oilfields of the world. Few in the oilfield intervention business will not have heard of the ASEP K-WINCH or the Elmar 5 Series module.

With the acquisition of ASEP by NOV® in 2009 and ASEP’s subsequent merger with Elmar®, the combined company NOV ASEP Elmar can provide a wireline service company with the full package it needs to perform an intervention – from the winch unit to the pressure control to the tools.

Our vision is to be globally recognized as the supplier of wireline equipment products, after sales and training against which all others are measured.

Visit [www.nov.com/ASEPElmar](http://www.nov.com/ASEPElmar) for more ASEP Elmar product information and contact details.

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**MicroCoil — The Zone 2 Containerized Capillary Unit**

Capillary tubing deployment provides a useful conduit for wellbore chemical dosage, e.g. foaming agents for dewatering of gas wells. MicroCoil is a fully containerized, sound-attenuated, Zone 2 capillary unit fitted for onshore and offshore deployment. Containerization provides security, mechanical and weather protection to the machine parts in addition to a good measure of environmental noise attenuation.

Power comes from a 125hp Tier II Stage II mechanical diesel fitted with full Zone 2 explosion protection system. MicroCoil features simple mechanical and hydraulic control systems for simplicity and field-proven reliability.

An optional wireline winch module is available. Supplementary wireline work is often featured in a capillary programme, for example to pull plugs and make gauge runs.

A companion transport skid contains the capillary reel, injector and PCE packing points, plus optional chemical tanks and dosing pumps.

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**NOV Hydra Rig Nitrogen Division introduces new mid range N₂ Pump**

NOV Hydra Rig Nitrogen Division has designed a new mid size nitrogen pump, between the current NP 200 and NP 1000 pump. The NP 400 pump is capable of pumping up to the equivalent of 830,000 SCFH, offering flexibility between small and large pumps designs.

The NP 400 has a rod load limit of 42,000 pounds allowing pumping pressures up to 15,000 PSI @ 360,000 SCFH, eliminating twin N2 pumps and 10,000 psi limits. The new NP 400 pump will reduce weight over the twin pump application and provide more room for maintenance.

Designed with durability in mind, the NP400 pump has all spherical roller bearings for low friction at any speed eliminating the concern of poor lubrication. Each cylinder has a pair of counter balance weights designed to reduce vibration and prolong the pumps life at maximum speed.
NOV Hydra Rig will be introducing the new HR6100 at the ICoTA Conference in the Woodlands March 23 and 24.

NOV Hydra Rig is answering the call of our customer's request to bring to the market a lighter 100k Injector. Our current HR5100 is a proven performer, but is quite heavy. Many customers have asked for a lighter 100k unit to help with their weight issues involved with over-the-road transport and handling at the wellsite.

The new HR6100 takes the proven performance of the 6-Series Injector to the next level. For easy adaption to current units in the field, the HR6100 will be the same mounting footprint as the HR660/680 injectors. It will be 4” taller, 25” narrower, and 12” less in depth compared to the HR5100.

The weight of the unit will be an estimated 12,500lbs without gooseneck, which makes it 3,500lbs lighter than the HR5100. The HR6100 will also have a slightly higher top end speed of 150fpm.

The HR6100 is currently in production, with the first unit to be presented at the Icota conference. The unit will return to Hydra Rig for rigorous testing and is planned for customer delivery in July of 2010. Come see NOV Hydra Rig’s latest addition to our line of injectors at the show.

NOV Rolligon has provided Daqing Oilfield in Northeast China with a state of the art, winterized fracturing equipment fleet. The equipment provided includes truck mounted data vans, 2500 bhp frac pumps, and fully automated blenders. All equipment can be remotely controlled, monitored, and logged from the data vans using PC software. An NOV Rolligon technical team has successfully tested all equipment and communications interfaces and performed preliminary training of oilfield personnel. Final phase commissioning and operational training shall take place in March 2010 after the Chinese New Year celebration. Daqing is one of the largest oilfields in the world, and currently performs over 4000 frac jobs per year.
NOV Rolligon High Ambient Temperatures

NOV Rolligon has completed development and manufacture of a new high ambient twin quintuplex pumping unit. Engineered for coiled tubing drilling support, this unit is designed for a desert environment up to 140°F. NOV Rolligon has pushed the envelope with a package capable of maintaining acceptable equipment temperatures without compromising pump horsepower.

Built with a split skid design, this unit features twin 800 BHP engines, automatic transmissions, two-speed auxiliary gearboxes, and 1000 BHP short quintuplex pumps. The equipment is monitored and controlled with Rolligon’s Frac Control and Data Acquisition systems. The option for remote operation is also included with Data Acquisition compatible with CTES’s Orion.

Standard cooling demands for the engines, transmissions, and hydraulic fluid are traditionally satisfied with twin horizontal radiators. Due to immense cooler size requirements in high ambient temperatures, the twin radiator design was condensed into a single structure. The new radiator design fulfills the cooling demands while achieving space and weight reduction. In addition to the primary radiator, a specialized independent stack cooler was engineered for maintaining adequate pump and auxiliary transmission oil temperatures. If high ambient temperature operation is the goal, this package is the answer.

NOV Rolligon Dry Gel Hydration Systems Reduce Cost, Benefit Environment

Are new environmental laws forcing you to go “GREEN”? NOV Rolligon now offers a complete dry gel system as an option on their hydration units. This gives you an alternative to slurried gels.

Traditionally gels slurried in diesel have been utilized based on their ease of metering. However, as environmental laws continue to make it more difficult to utilize slurry gel; accurate dry gel additive systems will become a vital part of the well fracturing industry. Rolligon hydration systems can be setup to accommodate both dry gel and slurry gel, giving you the ability to choose the type of gel used on a job by job basis.

The NOV Rolligon HYDRATRAC system is an automatic control system that precisely meters both liquid chemicals (including slurried gel) and dry gel based on the suction water rate. The operator can program up to 50 stages of gel concentration and stage volume. Once in “Auto” mode, HYDRATRAC varies the gel and chemicals based on the fresh water rate and desired ratio for the current stage. NOV Rolligon’s HYDRATRAC system and automatic tub level control system make the hydration unit a virtually hands-free unit.
The Capillary Tubing is a growing sector of the industry; NOV Texas Oil Tools has designed a small lightweight BOP to work in this area of the industry. This BOP is designed with a smaller bore and rams to accommodate the 1/4” and 3/8” capillary tubing applications. Although rarely do the applications have high surface pressure this BOP is designed to be able to handle up to 10,000psi surface pressure. As the applications for capillary tubing expands so does the type of wells it is used in. Some of the new applications are increasing in the working pressure requirements of the equipment. New shear seal rams have been designed to shear and seal the tubing with one action. Special designed pipe slip rams are able to seal and grip the tubing and hold up to 1,000lbs of load.

In addition to the 1.50” bore BOP we also have rams for conventional coiled tubing Blowout Preventers that can be used for capillary applications. These rams range in capillary sizes from 1/4” up to 5/8”. We have manufactured and qualified rams for the 2.50”, 3.06”, 4.06”, 5.12”, and 6.38” bore sizes. Rams can be either single function pipe rams or multi function Combi Pipe Slip Rams.

A Smaller Stripper Packer has been designed for the capillary tubing applications. This is the smallest Side Door on the market it has a bore size of 2.00 rated to 10,000psi. NOV Texas Oil Tools has taken the benefits from the coiled tubing Side Door Stripper Packer technology and incorporated it for the capillary market. Stripper Packer Inserts can easy be replaced during the job, although the long life expectancy of our latest urethane material will not be a problem in completing a job.

A manual split pack-off rounds out the latest in the products for the capillary market. For those jobs that the tubing will remain in the well we have a tool that can be set around the tubing that will seal it and also grip the tubing holding it in the slip bowl. The pack-off slip assembly is rated for the 1/4” and 3/8” sizes of capillary tubing.
In today’s complex wellsite environment, coiled tubing (CT) failure can occur as a result of mechanical damage due to erosion, corrosion, tensile overload, and abrasion. These failures are not only costly, but time-consuming for both the service provider and the well operator.

The Argus TubeSpec is a unique, patented, ultrasonic, CT measuring device. During field operations, as the tubing passes through the device, the TubeSpec provides highly accurate, frequent, circumferential CT wall-thickness measurements. These measurements allow the user to evaluate the CT’s wall thickness along the CT string.

While most Ultrasonic Transducer (UT) methods require clean water to couple the ultrasonic probe to the material measured, the Argus TubeSpec uses a polyurethane element as a medium between the sensor and the CT, therefore eliminating the need for water coupling.

The polyurethane element (a solid) exhibits excellent wear characteristics. When compressed, the element transforms to exhibit the attributes of a liquid, filling changes in the surface contour of the tubing. The polyurethane element is therefore not contaminated by the environment, and accurate circumferential wall-thickness measurements can be made.

OrionNET™ software reveals CT depth, wall thickness, diameter, ovality, and seam weld data as it is measured and recorded by the TubeSpec system.

OrionNET provides users with three initial methods of viewing data: chart, probe data, and waveform. The user may plot data in relation to depth or time, and may otherwise configure data (including historically) to best suit viewing needs.

The Reporting functionality allows trimming of the data to reduce file size, and the ability to create hard copies of data or PDFs for electronic distribution.
NOV Downhole division has now completed the transfer of all of the NOV slickline tools product line to NOV ASEP Elmar. This move will consolidate overlapping products, enhance our ability to service our client’s needs and streamline new product development by leveraging the established strengths of the respective product lines.

When our clients issue requests for quotations for well intervention equipment, slickline wireline tools are frequently bundled with other NOV ASEP Elmar products such as winches, masts and surface pressure control equipment. We are now ideally placed to offer our clients the full spectrum of well intervention equipment requirements.

Engineering, product line development and production of the slickline wireline tools product line will be centered at the NOV ASEP Elmar manufacturing and service facility in Singapore.

NOV ASEP Elmar now has the most comprehensive high quality slickline wireline tools product offering available anywhere.

**NOV ASEP Elmar e-drive System**

In the challenging environment of well servicing nothing stays the same for very long. Driven by the high cost of energy extraction and with a clear mandate to limit environmental impact, well servicing companies are driven to utilize ever more sophisticated deployment systems.

Once again ASEP Elmar has risen to this challenge and with the introduction of its market leading range of e-drive units is set to establish a new standard in wireline logging and slickline units.

These units are controlled by the ASEP Elmar SmartMonitor control system with its fully enabled touch screen which controls the whole unit in a safe and optimal manner.

The units are capable of delivering all of the functionality of the standard ASEP Elmar units but with the added advantage of the many key ownership features and benefits.
NOV CTEs – Ken Barnes has been transferred to NOV CTEs, with the title of Embedded Programmer. Ken will continue to office within the Hydra Rig, Ft. Worth facility and will report to Trevor Pugh, CTEs VP Engineering.

ASEP Elmar senior management appointments upon the merger between ASEP and Elmar: regional General Managers; Brian Garden, Alastair Ellis, Tony Clark, Murdo Bain, Brian King. Business Development Manager, Mike Halton. Sales and Marketing Director; Andrew Douglas. Engineering Director; Carl Wood. Divisional Controller; Alastair Fleming. Vice President; David Brebner.

Technical Handbook Update:

NOV Group Coiled Tubing Handbook is available on CD by contacting Gloria.Butchard@nov.com

NOV Group Wireline Handbook is available on CD by contacting Karen.Walker@nov.com

NOV Well Intervention and Stimulation Equipment 2010 Trade Shows

- SPE/ICoTA - Woodlands, Texas  
  March 23 - 24
- CIPPE – Beijing, China  
  March 22 – 24
- ICOTA – Stavanger, Norway  
  April
- OTC - Houston, Texas  
  May 3 – 6
- OGU Oil and Gas Conference  
  Tashkent, Uzbekistan  
  May 12 – 13
- Neftegaz – Moscow, Russia  
  June 21-25
- The 11 International CT and Well Intervention Conference, Moscow, Russia  
  September 15-17
- Kazakhstan International Oil and Gas Exhibition and Conference (KIOGE)  
  Almaty, Kazakhstan  
  October 5-8
- Abu Dhabi International Petroleum Exhibition And Conference, Abu Dhabi, UAE  
  November 1-4
- Petroleum Exhibition and Conference of Mexico, Tabasco, Mexico  
  November 9-11
- ICOTA Europe - Aberdeen  
  November 17

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