# Elmar Wireline Pressure Control Equipment

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# Elmar | NOY

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### Elmar Electric Line Pressure Control Equipment Rig Up

Buying quality equipment is the best way to cut costs and maximize safety. Our range of wireline pressure control equipment (WPCE) is carefully engineered, manufactured, thoroughly tested, and third-party certified with relevant API standards. Attention to detail in design and manufacturing ensures that your equipment is safe, easy to rig up, reliable, requires minimal servicing, and has a long operational life. You'll benefit from low cost of ownership with long asset life when using Elmar<sup>™</sup> WPCE.

Engineered using the latest finite element analysis techniques and rigorously tested, our standard products range from simple 3,000 psi rated open-hole pack offs to 20,000 psi rated pressure control strings. In addition, we can provide bespoke equipment up to 30,000 psi—the highest rated wireline pressure control equipment in the world.

We have the solution for all of your wireline intervention needs for eline or braided-line operations. Our comprehensive range of cased-hole equipment is available from 5,000- to 20,000-psi working pressure ratings and for standard or  $H_2S$  service. Inside diameters range from 2½ all the way to 9 in. Expertly engineered and rigorously tested, we always bring you quality and reliability as standard.



Our pressure control equipment is fully traceable and certified by independent authorities to the relevant design guidelines and manufacturing standards. We provide access to your certification and operational data packs worldwide and around the clock, keeping operations moving wherever you are in the world.



#### Typical Elmar Electric Line Pressure Control Rig-Up



\*Not required when grease and hydraulic control module is purchased. Equipment supplied with thread protectors. Wire size to be specified when ordering,



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Item	Description
1	Enviro stuffing box, line wiper, and grease head with concentric flow tubes
1.1	Extra injection coupling and flotube for dual injection
2	Grease injection control head with concentric flow tubes
2.1	Hydraulic line wiper with cable guide
2.2	Low pressure waste grease hose x 120-ft (from line wiper) 3,500-psi WP
3	Grease hose $\frac{1}{2}$ in. x 120-ft long with hex unions*
3.1	Flow control manifold*
4	Integral grease head cable cutter sub for cutting cable up 15/32 in.
4.1	Hand pump assembly for cable cutter sub
4.2	Hose assembly ¼ in. x 100-ft long with quick connections
5	Combination hydraulic tool catcher/ball check valve
6	Lubricator section with quick unions, 4-ft long
7	Lubricator section with quick unions, 5-ft long
8	Lubricator section with quick unions, 6-ft long
9	Lubricator section with quick unions, 8-ft long
10	Lubricator section with quick unions, 10-ft long
11	Lubricator lifting clamp, spreader beam, and wire rope slings
11.1	Lubricator dolly with quick union
12	Hydraulic tool trap with external indicator
13	Quick test sub
13.1	Hand pump assembly for quick test sub
13.2	Hose assembly ¼ in. x 25-ft long with quick connections
14	Triple hydraulic wireline valve
15	Galvanized triple wireline valve cage
16	Dual hydraulic wireline valve
17	Galvanized dual wireline valve cage
18	Quad hydraulic wireline valve
19	Galvanized quad wireline valve cage
20	Wireline valve manifold gauge
21	Pump-in sub with (1) 2-in1502 side outlet
21.1	Plug valve 2-in1502 Weco male x female
22	Wellhead adapter flange
23	5-Series triple-wireline valve grease and hydraulic control module
24	5-series maintrame
25	lifting hail
20	
21	Tost plug and collar
20	Safety flow diverter valve and wire clamp
30	Male thread protector (spare)
31	Female thread protector (spare)
32	Line winer stuffing box or tool catcher hand nump*
33	Hydraulic hose ¼ in x 100-ft long with quick couplings*
34	Tool trap or wireline valve hand pump *
35	Hydraulic hose ¼ in, x 50-ft long with quick couplings*
36	"Y" hose, wireline valve open*
37	"Y" hose, wireline valve close*
38	Low-pressure waste grease hose x 60-ft long (from wireline valve) 3,500-psi WP
39	Low-pressure waste grease hose x 60-ft long (from module) 3,500-psi WP



## **Elmar Slickline Pressure Control Equipment Rig Up**

You'll benefit from safe operations and low cost of ownership with long asset life when using Elmar<sup>™</sup> slickline well pressure control equipment. Easy to rig up, reliable, and with minimum maintenance requirements, our WPCE will keep your slickline operations running for many years to come.

A full range of slickline pressure control equipment is available including wellhead adapters, wireline valves, lubricators, stuffing boxes, and more. Specifications vary from the basic 21/2-in. ID 5,000-psi working pressure string with a manual wireline valve, through to 20,000-psi working pressure strings with triple and quad hydraulically operated wireline valves, up to 9-in. through bore.

Our equipment is designed with attention to detail and manufactured with care, providing you with equipment that is simple and fast to rig up, and comes with quality and reliability as standard.



Your slickline pressure control equipment is fully traceable and certified by independent authorities, giving you the confidence you need under pressure. We provide access to your certification worldwide and around the clock, keeping operations moving wherever you are in the world.



line and slickline

### **Typical Elmar Slickline Pressure Control Rig-Up**



\*Not required when control module is purchased. Equipment supplied with thread protectors. Wire size to be specified when ordering.



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Quick test sub

run operations

Wellhead adapter Our wellhead adapte flange provides a means of safely connecting the slickline

pressure control equipment

rig up to the wellhead



Item	Description
1	Hydraulic slickline stuffing box with sheave wheel
2	Liquid seal slickline control head
3	Chemical injection sub
4	Hydraulic tool catcher
5	Lubricator section with quick unions, 4-ft long
6	Lubricator section with quick unions, 5-ft long
7	Lubricator section with quick unions, 6-ft long
8	Lubricator section with quick unions, 8-ft long
9	Lubricator section with quick unions, 10-ft long
10	Lower lubricator section with bleed-down port
11	Lubricator lifting clamp, spreader beam, and wire rope slings
11.1	Lubricator dolly with quick union
12	Bleed-off sub
13	Quick test sub
13.1	Hand pump assembly for quick test sub
13.2	Hose assembly ¼ in. x 25-ft long with quick connections
14	Dual hydraulic wireline valve
15	Galvanized dual wireline valve cage
16	Single hydraulic wireline valve
17	Galvanized single wireline valve cage
18	Triple hydraulic wireline valve
19	Galvanized triple wireline valve cage
20	Wireline valve manifold gauge
21	Pump-in sub with (1) 2-in1502 side outlet
21.1	Plug valve 2-in1502 Weco male x female
22	Wellhead adapter flange
23	Hydraulic actuator for stuffing box, tool catcher, and wireline valve $\!\!\!\!\!\!^\star$
24	Lifting bail
25	Test cap/stump
26	Test plug and collar
27	Safety flow diverter valve and wire clamp
28	Male thread protector (spare)
29	Female thread protector (spare)
30	Line wiper, stuffing box, or tool catcher hand pump*
31	Hydraulic hose ¼ in. x 100-ft long with quick couplings
32	Wireline valve hand pump*
33	Hydraulic hose ¼ in. x 50-ft long with quick couplings
34	"Y" hose, wireline valve open
35	"Y" hose, wireline valve close
36	Transport frame





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# **Elmar Wellhead Adapter Flange**

Maximize the usage of your WPCE assets with our wellhead adapter flanges. These allow you to safely connect your existing WPCE to multiple different wellheads. Our flanges are manufactured and certified to the same strict standards as all our WPCE, meaning you can guarantee the integrity of your complete rig-up.

Our wellhead adapter flange consists of a quick union machined on a standard API 6A flange. The upper end can be supplied to suit any industry standard quick union, along with a blanking plug and collar if required.

These wellhead adapter flanges are available in various bore sizes and working pressures up to 20,000 psi.

We will design and manufacture wellhead adapter flanges for all API and Russian "GOST 28919" standard models. Our adapter flanges are fully traceable and certified to API 6A.



Typical Elmar wellhead adapter flange section



#### **Features and benefits**

- Full material traceability and 3rd party independent approval covering API 6A and NACE (for H<sub>2</sub>S), guaranteeing the integrity of your complete rig up
- API monogrammed versions available if your operations need it
- API 20E monogrammed stud bolts and nut fasteners supplied as standard, keeping you compliant with the latest regulations
- Maximize the returns from your assets by using your existing pressure control equipment on different sized wellheads



Test plug and collar

### **Elmar Pump-in Sub**

Our compact low height pump-in-sub (PIS) is a versatile addition to your WPCE rig up. It provides a large bore inlet through which various fluids can be pumped, for operations such as well control, inhibitor pumping, fluid sampling, and bleed-down and equalization.

Our pump-in sub has quick unions top and bottom for fast rig up, and a hammer union type side connection. Our PIS is typically supplied with a blind plug and nut on the hammer union port, the blind plug is replaced with a suitable valve when in operation.

A PIS is normally positioned below the wireline valve and above the wellhead. If you require positive isolation between the well bore and hammer union connection we have developed conversion kits to adapt our proprietary side inlet to API flanged valves. An Anson<sup>™</sup> flanged gate or plug valve can then be placed between the pump-in sub body and the hammer union.





Various bore sizes and working pressures up to 20,000 psi

Conversion kits to adapt our proprietary side inlet to API flange

Other hammer lug union inlet connections to suit client flowline

Elmar proprietary, API or integral inlet design

Supplied with any industry standard quick unions or flange/hub connections



#### Options

Corrosion resistant coatings and weld overlays provide increased service life
Test plug and collar (night cap)
Conventional bolting

Segmented flanges for dual completion

Various bore sizes and working pressures up to 20,000 psi

Various material API ring gaskets



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Options



#### **Features and benefits**

- Proprietary Elmar flange connection gives compact size for shorter rig-up heights
- Proprietary Elmar flange connection eliminates line pipe and potential thread back-off, leak or fracture
- Large Full-bore 2-in. inlet for maximum pump rates
- Figure 1502 and 2202 hammer lug union connections giving convenient connection type
- Full material traceability and 3rd party independent approval covering API 6A, and NACE (for H<sub>2</sub>S)
- Versatile asset that can be used for well control, inhibitor pumping, fluid sampling, and bleed-down and equalization





### **Elmar Compact Wireline Valve**

Safety, reliability and serviceability are the key design principals we use to keep your team safe on the well site, and keep your costs of ownership low.

Our wireline valve gives positive barrier protection during well service operations, providing sealing and/or shearing functions when running slickline, braided wireline, or electric line.

The Elmar™ original compact wireline valve has been in service for over 25 years, designed to be reliable, robust and easily serviceable to minimize your costs. Our track record and operational experience is backed up by independent third party approval for every wireline valve we make, meaning you can depend on your wireline valve when you need it most.

Reliability is designed into every compact wireline valve with detailed engineering design focused on operational simplicity, a minimum number of components and using standard elastomers for easy availability around the world. The mono-block forged construction of

the main body improves pressure integrity, and further reduces servicing cost, with fewer well pressure retaining seals and potential leak points.

Available as standard in single, dual, triple or quad ram configurations, and the full range of sizes and working pressures. 2½- to 9-in. bore sizes, and 5,000- to 20,000-psi working pressures. Special sizes are available on request to suit your operations.

Manifold assemblies include equalization, pressure monitoring, grease injection, glycol injection, and lubricator bleed- down facilities.

### Lubricator Equalisation bleed-down Pressure monitor Grease injection Check alve

Glycol

iniection

Typical triple manifold block type "C"

#### Features and benefits

- Full material traceability and 3rd party independent approval covering API 6A, API 16A, and NACE (for H<sub>2</sub>S)
- Compact size, for shorter rig-up heights
- Cylinder support arms for 4 to 9 in. wireline valves, reducing manual handling
- Manifold block with integral equalisation, wellhead pressure monitoring, bleed down facility and glycol and grease injection
- Threaded upper and lower adapters, allowing the use of any industry standard connection without changing the body
- Corrosion resistant coating on ram bores and sealing surfaces of wireline valve body
- Keyless ram bores, allowing ram inversion as and when required
- Ram position indicators
- Quick coupled hydraulic cylinders, allowing fast removal of cylinder for ram or seal replacement
- Cylinder lock rings used to assist cylinder assembly to body, ensuring smooth seal engagement
- Cylinder ram pockets assist on assembly and prevent accidental ram drop
- Manual back-up on hydraulic cylinder to positive lock CLOSE

#### **Electric Line and Slickline Pressure Control Equipment**

#### Options

•
Supplied with any industry standard quick unions or flange/hub connections
Quick union adapters - upper and lower connection to wireline valve body with metal to metal seal
Quick union or flanges integral to wireline valve body
Inconel Inlay on ram bore and sealing surfaces of the wireline valve body
Various corrosion resistant coating solutions
API 16A certified
Arctic; extreme cold weather certified
High temperature and geothermal applications
Pressure balance hydraulic cylinders to reduce volume and closing times
Q-GUIDE™ ram assembly
Ram assembly and inner seal dressed for slickline or braided line specific sizes
Constrictor™ multiline seal removing the need to change out ram elements - Blind to 5/16 in. - 5/16 to 15/32 in. - Blind to 15/32 in.
Q-GUIDE shear and seal ram assembly
Accessories
Test rod for closing on rams to perform a function test at working pressure
Steel protection cages and transport systems
Manifold gauge kit for monitoring well pressure
Low pressure drain hose for manifold bleed down
Y-Hose bridles for open and close hydraulic supply
Specialist hand tools for service and maintenance
Seal kit containing a set of o-rings and back-up rings to re-dress one complete assembly
Ouick union lift bail

1. Q-GUIDE ram assemblies 2. Fire resistant hydraulic supply lines 3. Single flanged wireline valve 4. 20,000-psi quad wireline valve 5. Dual wireline valve and transport frame 6. Lightweight pressure control equipment package





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### **Elmar Lightweight** Wireline Valve

A wireline valve gives positive barrier protection during well service operations, providing sealing and or shearing functions when running slickline, braided wireline, or electric line.

The need for lightweight equipment comes into its own when you are looking at ease of handling, are constrained by lifting capacity and space, or simply looking for reduced weights during maintenance. The Elmar<sup>™</sup> Lightweight Wireline Valve provides the same operational customer benefits as our Compact valve. In addition, they are up to 60% lighter and with pressure balanced piston design reducing hydraulic volume, allow rapid closure and reduce accumulator requirements. Engineered, manufactured, rigorously tested and supported by third party certification approval in accordance with API standards and NACE.

With over 20 years field experience, this valve complements our lightweight systems in 3-in. and 41/16-in. sizes



up to 60%

lighter than previous generation wireline valves

#### **Features and benefits**

- Full material traceability and 3rd party independent approval covering API 6A, API 16A and NACE (for H<sub>2</sub>S)
- Lightweight, allowing easier handling with shorter rig-up heights
- Pressure balance hydraulic cylinders to reduce volume and closing times
- Manifold block with integral equalisation, wellhead pressure monitoring, bleed down facility and glycol and grease injection
- Supplied with lightweight quick union connection integral to wireline valve body (4 in.), or with metal to metal seal adapter connection (3 in.)
- Corrosion resistant coating on ram bores and sealing surfaces of wireline valve body
- Keyless ram bores, allowing ram inversion as and when required.
- Ram position indicators
- Quick coupled hydraulic cylinders, allowing fast removal of cylinder for ram or seal replacement
- Cylinder ram pockets assist on assembly and prevent accidental ram drop
- Manual back-up on hydraulic cylinder to positive lock CLOSE
- Manual closure of cylinder in the event of hydraulic failure against full well pressure

#### **Electric Line and Slickline Pressure Control Equipment**

Supplied w	ith any industry standard quick unions or
flange/hub	connections
API 16A cer	tified
High Temp	erature and geothermal applications
Q-GUIDE™	ram assembly
Ram assen braided lin	bly and inner seal dressed for slickline or e specific sizes
Constrictor	<sup>TM</sup> multiline seal removing the need to change out ram elements
- 5/16 to 15/	az in.
- Blind to	<sup>1</sup> 5 <sub>32</sub> in.
Q-GUIDE sl	near and seal ram assembly
Accessorie	S
Test rod fo	r closing on rams to perform a function test at working pressure
Steel prote	ction cages and transport systems
Manifold ga	auge kit for monitoring well pressure
Low pressu	ire drain hose for manifold bleed down
Y-Hose brid	lles for open and close hydraulic supply
Specialist ł	and tools for service and maintenance
Seal kit cor one comple	itaining a set of o-rings and back-up rings to re-dress ete assembly
Quickupio	n lift hail

1. Q-GUIDE ram assemblies 2. 10,000-psi 41/16-in. triple lightweight WLV 3. 10,000-psi 3-in. single lightweight WLV 4. Lightweight WLV in protective cage



#### Weights (including Elmar lightweight quick unions)

3 in.		 	 
4¼16 in.			











Dual	Triple
251 lb (114 kg)	344 lb (156 kg)
595 lb (270 kg)	869 lb (394 kg)
	251 lb (114 kg) 595 lb (270 kg)



**Elmar Constrictor** 

**Multiline Ram** 

Designed for performance you can trust,

keeping your team safe and your costs low.

both your personnel and the environment.

industry's first multiline seal designed to be

12 continuous hours, sealing blind and at

third party witnessed and certified at extreme

conditions. Seals are certified by gas testing for

temperatures ranging from -46 °C to 180 °C to

best simulate a diversity of working environments.

the Constrictor™ multiline ram seal is certified,

multi size and long lasting with repeated activation,

A reliable wireline valve or wireline valve seal is one of the most

important safety barriers which prevent the catastrophic

release of well pressure and ensures the safety of

Our patented Constrictor is the well intervention

**Inner Seal** 

### **Elmar Q-GUIDE Wireline Rams**

The Elmar™ Q-GUIDE™ ram out performs all other wireline valve rams and helps reduce your operational costs by preventing damage to your wireline with our patented guiding features.



Designed to address the centralizing and trapping failures of historic designs, specifically relating to eccentric rig-ups and slack wire situations, the Q-GUIDE ram features four guiding surfaces arranged either side of the inner seal. With full-bore guiding, this ensures that under any condition the wireline is captured and placed into the inner seal without damage. Q-GUIDE rams accept standard Elmar inner and outer seals or our Constrictor™ multiline inner seal can be used for optimum performance.

You can make maximum use of your assets since the rams are easily inverted by moving the position of the guide rod, allowing the same wireline valve to be used for slickline or electric line operations.

#### Shear Seal Rams

oil company.



#### Options

HNBR inner and outer seal supplied as standard, other elastomer types available

Rams dressed to suit specific wireline size or multiline capability



#### Features and benefits

- Patented design removes the chance of wireline damage when rams are operational costs
- Easily inverted by moving position of guide rod when changing between slickline and electric line for maximum use of your WPCE
- The ram bodies are manufactured from H<sub>a</sub>S resistant alloy steel allowing them to be used in a wide variety of well conditions
- All existing Elmar wireline valves in the field can accommodate the Q-GUIDE ram with quick interchange
- Uses the Elmar standard inner and outer seals, minimizing stock holding
- The Q-GUIDE is available for all sizes of wireline valves
- Q-GUIDE shear blades are manufactured from hardened steel insuring repeatable

Middle: Q-GUIDE wireline ram assembly (inverted)

- actuated and closed, minimizing your

- Proven ability to cut up to <sup>15</sup>/<sub>32</sub>-in. wire

Lower: Q-GUIDE shear and seal ram assembly

#### Options

HNBR supplied as standard, other elastomer types available

Available wire size ranges for Constrictor

Note: Pressure rating dictated by chosen wire range size.

- Blind to 5/16 in.
- 5/16 to 15/32 in.
- Blind to 15/32 in.





The Constrictor is a wireline valve (formerly known as wireline BOP) multiline ram seal that controls well fluids through the wellbore during intervention operations involving braided line or electric line. It has evolved from earlier commercially proven ram seals, improved to be even more reliable, require less maintenance and operate under more challenging pressure and temperature conditions for longer durations.

This technology is the first of its kind to be third-party witness tested under extreme pressure, temperature, and time conditions, and then obtain an independent review certificate. Benefits verified by an independent third party include:

- In the event of unexpected cut and drop, it can seal blind, contain wellbore fluids for at least 12 hours, and seal successfully on any wireline up to 5/16 or 15/32 in. depending on version installed
- Standard seal has a wide operating temperature range whilst maintaining stated performance
- Fits existing Elmar Q-Guide<sup>™</sup> rams and can be retrofitted to an existing wireline valve while in operation and used repeatedly without degradation, making it suitable for fishing operations

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#### **Features and benefits**

- Repeated sealing action means fewer redresses required and minimizes costs
- Certified extreme performance to assure the safety of your crew
- NORSOK M710 elastomers and 16A qualified testing and certification
- 15,000 psi third party witnessed and certified from -12 °C to 121 °C
- 12-hour gas hold
- Working pressure of 15,000 psi
- Operating temperatures in addition to normal range:
  - Arctic: -46 °C to 30 °C
- Elevated: 20 °C to 180 °C





## **Elmar Safety Flow Diverter and Cable Clamp**

Safety flow diverter and cable clamp

Height

9 in. (22 cm)

Weight 49 lb (22 kg)

Easy to rig up and reliable, our safety flow diverter is designed to provide an additional safety measure when it is necessary to work around the wellhead during stranded cable repairs.

When the wireline valve is closed on a cable and the lubricator removed the safety flow diverter provides a manual packing around the cable to manage and divert any residual leakage through the wireline valve. Leaked fluids are diverted to a safe area through a bleed-off hose. The compact assembly incorporates a cable clamp for convenience to prevent tool loss and ensure wireline seal stability.

The safety flow diverter is installed on top of the wireline valve with the cable in the wellbore. Mounting of the diverter is possible without cutting the cable since all components are either slotted or split.

¼-in. NPT drain port

Bleed-off hose

#### Features and benefits

- Integral bleed-off valve and hose assembly to divert leaked fluid, enhancing work site safety to your personnel during stranded cable repairs
- Full material traceability and 3rd party independent approval covering API 6A, and NACE (for H<sub>2</sub>S)
- Integral cable clamp available for all electrical wireline sizes
- Brass clamping elements to prevent cable damage
- Designed to suit all industry standard quick unions

Wireline valve

### **Elmar Quick Test Sub - QTS**

Reducing non-productive time using the Elmar<sup>™</sup> Quick Test Sub will give operational cost savings as well as integrity of your well pressure string throughout operations.

Our Quick Test Sub (QTS) is designed to save rig time while pressure testing the wireline pressure control equipment string when multiple wireline runs are required.

Our quick test sub is inserted either above or below the wireline valve at the position of the joint normally opened to insert and retrieve tools from the well. After performing the first pressure test to check the integrity of the whole rig up, subsequent pressure tests can be made using the quick test sub to verify the integrity of the joint disconnected, rather than having to test the complete rig up.

The quick test is achieved by connecting a small hydraulic hand-pump to the quick test sub and testing the joint 'O' ring seal from the outside. It is estimated that the use of our quick test sub can reduce the time needed to pressure test the string at each subsequent test by more than half an hour.





Hand pump for 10,000- or 15,000-psi working pressure

Hose assembly with quick

Metal to metal seal, seals valve

### Options

connectors

- Supplied with any industry standard quick unions or flange/hub connections
- Working connection lubricator dolly
- Test plug and collar for middle working connection with lift facility
- Hand pump and hose assembly for 10,000-psi or 15,000-psi working pressure



Weights and dimensions

Bleed-off hose assembly, 60-ft long

Line sized kits to suit common sizes

Safety flow diverter (E09)

Options

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ellhead adapter flange

Safety flow diverte and cable clamp

in position

Pump-in sub







after pressure test



# **Elmar Hydraulic Tool Trap** with External Indicator

Prevent the cost and inconvenience of losing wireline tools downhole with an Elmar™ tool trap.

Our hydraulic tool trap features an external indicator and is installed between the wireline valve and the lubricator string.

It prevents the loss of wireline tools downhole in the event of the wire being pulled-off the rope socket, by retaining the dropping tool on a fast-acting flapper.

The flapper has an opening large enough to prevent damage to the wireline, but smaller than the tool string. The flapper is opened by a hydraulic actuator, through an external handle, connected to the flapper with a low-torque pressure-balanced shaft. The external handle doubles as a tool passage indicator. The tool string may be pulled freely upwards through the tool trap. The flapper will open, together with the external handle, indicating tool passage. As soon as the string bottom has cleared the flapper, the flapper will close into the trap position, driven by a torsion spring. The flapper can be opened remotely when running a tool in the well by activating the piston in the hydraulic actuator. Pumping back the piston to its original position allows the flapper to return to its trap position.

The tool trap can be operated by a dual output manual pump or with one of our hydraulic control modules.



#### Options

Supplied with any industry standard quick unions or flange/hub connections
Dual flapper: Low friction coated flapper
Manual tool trap with external indicator
Hand pump and twin hose assembly

#### Features and benefits

/draulio

actuator

- Pressure-balanced flapper shaft ensuring fast closing of the trap
- Positive tool passage indicator showing the tool is safely in the lubricators
- Remote hydraulic operation. Enhanced operational safety with no need for working at height or near the wellhead
- Can be operated manually in case of hydraulic failure to prevent NPT
- Full material traceability and 3rd party independent approval covering API 6A, and NACE (for H<sub>a</sub>S)

Dual flapper optic



For applications when a bleed off port is required on the lubricator string, bleed-off subs are available with a ½-in. NPT port for connection of a suitable valve. The bleed-off sub is particularly effective when used in conjunction with our lightweight lubricator.



#### Options

Block and bleed needle valve and gauge kit for monitoring and bleeding well pressure Supplied with any industry standard quick unions or flanges



Handle/indicator

Hydraulic actuator

protection and lift handle

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Dual flapper







#### **Features and benefits**

- Integral body ensuring minimal potential leak paths and minimizes redress time
- Small replaceable body extends lubricator life to minimize operational cost
- Full material traceability and 3rd party independent approval covering API 6A, and NACE (for H<sub>2</sub>S)

### **Electric Line and Slickline Pressure Control Equipment**

# **Elmar Lightweight Lubricator**

Our lightweight wireline lubricators help maximize the use of your WPCE assets and reduce your operational costs. Lightweight for easy handling or where lifting capacity is reduced, with pressure ratings of 10,000 and 15,000 psi, and suitable for use in H<sub>2</sub>S environments, these field proven lubricators can be used in most intervention applications. With NACE compliant stainless tubes, corrosion resistant materials, and coatings your maintenance costs will be reduced, and the operational life of your asset extended.

Lightweight lubricators enable the wireline tool string to be introduced or retrieved from a well bore under pressure, and are typically positioned above the wireline valve, tool trap or quick test sub.

The need for lightweight equipment comes into its own when you are looking at ease of handling, are constrained by lifting capacity and space, or simply looking for reduced weights during maintenance. By using high strength stainless steel alloys, the weight of a lubricator section is reduced by up to 70% with respect to conventional integral lubricators.

The first and original lightweight lubricator designed by Elmar consists of four basic parts: a quick union collar, a male quick union, a lubricator tube, and a female guick union. The guick unions are manufactured in H<sub>2</sub>S resistant alloy steel to prevent galling.

Our lightweight lubricators are rated at 10,000- and 15,000-psi H<sub>2</sub>S service and available from 3- to 6%-in. inside diameter. Elmar lightweight quick unions have been selected for optimum weight reduction and to prevent unsafe cross-string assembly. Upper and lower adapters are available to connect existing equipment.



up to

lighter than an integral equivalent

#### Features and benefits

- Up to 70% lighter than conventional lubricators, allowing access to well sites where lifting capacity is restricted
- Corrosion resistant materials and coatings reduce maintenance requirements and extend life to reduce vour operational cost
- Corrosion resistant tube made from high strength NACE compliant stainless steel
- Quick unions are coupled through premium Elmar lite thread:
- Primary tube-to-union seal is metal-to-metal - Special torque and handling tools are available. Calibrated torque is not required
- Available in multiple lengths to suit your requirements
- Bending stresses at the thread undercut are minimized
- Adapter anti-back off feature
- Full material traceability and 3rd party independent approval covering API 6A, and NACE (for H<sub>2</sub>S)
- Elmar optimized lightweight quick unions: E09, E12, E32, E56 and E59

### **Elmar Wireline Lubricator** with Threaded Unions

Our threaded union wireline lubricators provide a cost-effective solution that can be easily configured as a crossover lubricator since the threaded design allows for different upper and lower adapters.

Lubricators enable the wireline tool string to be introduced or retrieved from a well bore under pressure. They are normally positioned above the wireline valve, tool trap or quick test sub.

Quick union adapters are of the screwed type with an ACME thread, which incorporates an o-ring seal. The design is highly versatile, and these lubricators are available rated from 5,000 to 15,000 psi, with inside diameter of 3 to 9 in., lengths to suit your application and in standard or H<sub>2</sub>S service.



Supplied with any industry standard quick unions

#### Options

Supplied with any industry standard quick unions

Ported lower adapter with block and bleed needle valve and gauge kit for monitoring and bleeding well pressure

Customized lengths up to 24 ft (7.32 m) available

Service and maintenance tools

Accessories: Lubricator lifting clamp and spreader beam, tool safety sub and wheel dolly



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Customized lengths available

Quick union collar hang-off facility

Options





#### **Features and benefits**

- Cost effective solution
- Threaded design allows for change of upper and lower adapters to suit your needs
- Easily configured as a crossover lubricator allowing maximum reuse of existing equipment
- Adapter anti-back off feature
- Tube corrosion pitting allowance to maximize service life
- Full material traceability and 3rd party independent approval covering API 6A, and NACE (for  $H_2S$ )

Ported version with block and bleed needle valve and gauge kit for monitoring and bleeding well pressure

Accessories: Lubricator lifting clamp and spreader beam, tool safety sub and wheel dolly



**Features and benefits** 

maintenance cost

and NACE (for H<sub>2</sub>S)

high pressure operations

• Fewest leak paths giving reduced

• Up to 20,000-psi working pressure for

• Tube corrosion pitting allowance to

maximize asset life and reduce costs

• Full material traceability and 3rd party

independent approval covering API 6A,

# **Elmar Variable Length** Lubricator - VLL

Reducing non-productive time is critical if you have a wireline issue during runs.

Our lightweight variable length lubricator is designed to achieve two specific functions: To effectively contain well pressure during wireline intervention and provide safe and easy access to the wireline in the event of a problem.

As with conventional lightweight lubricators, our variable length lubricator enables the wireline toolstring to be introduced into the well while maintaining full pressure integrity.

By using high strength stainless steel alloys, the weight of the lubricator section is reduced by up to 70% compared to integral equivalent.

Our lightweight variable length connection is comprised of two specially designed adapters and a locking ring.

The variable length and quick union adapters are connected to the lubricator tube by a premium-threaded connection with a metal-to-metal seal, backed up by an elastomer seal. The use of stainless-steel alloys reduces the amount of maintenance required between jobs.

Should there be a problem with the wireline during intervention work, e.g. stranded line, once bled down, our lightweight variable length lubricator can be unlocked and disconnected above the wireline valve and the lower section raised and locked in the retracted position allowing access to the wireline.

A lightweight pulley kit provides a safe and controlled lift of the lower variable length section. This is particularly useful whenever the top sheave and the lubricator string are supported by a single lifting device.

It is recommended that the variable length lubricator be used in conjunction with our cable cutter sub to maximize line length and minimize recovery steps.

#### Options

Cable cutter sub
Ranges from 3-in to 5½-in. 10,000-psi working pressure
Crossovers from VLL to WPCE
Service and maintenance tools



# **Elmar Wireline Lubricator** with Integral Unions

Integral union lubricators provide the minimum number of leak paths and reduced maintenance requirements of any lubricator design.

Lubricators enable the wireline tool string to be introduced or retrieved from a well bore under pressure. They are normally positioned above the wireline valve, tool trap or quick test sub.

The integral design means there is an absolute minimum number of seals required combined with the designed in tube corrosion allowance ensures maintenance time and operational costs are reduced.

These lubricators are rated from 5,000 to 20,000 psi, available from 3- to 9-in. inside diameter, in standard or H<sub>2</sub>S service and a variety of lengths giving comprehensive options to suit your well conditions and operations.



#### Options

Supplied with any industry standard quick unions

Ported version with block and bleed needle valve and gauge kit for monitoring and bleeding well pressure

Customized lengths available

Quick union collar hang-off facility

Accessories: Lubricator lifting clamp and spreader beam, tool safety sub and wheel dolly



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### **Elmar Chemical Injection Sub**

Challenging well conditions or simply ensuring that the wireline performance is maximized are critical considerations during intervention work.

Our chemical injection sub is designed to apply a variety of fluids to the wireline during well service operations. These include de-icing agents, corrosion inhibitors or simply lubricating oils.

Installed below the grease injection control head or slickline stuffing box, our chemical injection sub utilizes replaceable felt packings to maximize injected fluid contact with the wireline and minimize the amount of fluid required.

The chemical injection sub consists of a one-piece body with integral quick unions on both ends, a quick union collar assembly, a manifold injection block assembly with integral check valve and a felt packing retainer assembly. The check valve assembly is designed for easy and quick replacement.

Our chemical injection subs are available in a full range of wire sizes, and 5,000 to 20,000-psi working pressures.



Check valve assembly

#### Options

Supplied with any industry standard quick unions Chemical injection unit and hoses Slickline stuffing box with incorporated chemical injection sub Compact e-line option: 2-in. 10 Acme thread

Retainer and replaceable felt packings



#### Features and benefits

- Increase sealing performance and life span of stuffing box packing when used on a slickline rig-up
- Allows fluid contact with the wireline to combat challenging well conditions
- Integral and replaceable check valve that eliminates well pressure return to the injection unit
- Replaceable manifold block that ensures integral check valve is fully protected
- Full material traceability and 3rd party independent approval covering API 6A, and NACE (for H<sub>2</sub>S)
- Available to suit all slickline and electric line sizes



### **Elmar Combination Hydraulic** Wireline Tool Catcher and Ball Check Valve

Prevent the cost and inconvenience of losing wireline tools downhole with an Elmar™ tool catcher.

Our hydraulic tool catcher is a safety device for installation below the grease injection head or slickline stuffing box.

If the tool is pulled into the top of the lubricator and the wire stripped from the rope socket, the tool catcher will engage the tool's fishing neck and prevent the loss of the tool string into the well bore. The tool catcher is designed to be fail-safe: it is permanently in the catch position and requires hydraulic pressure to release.

With safety in mind; preventing hydrocarbon release in operations is paramount, so our hydraulic tool catchers for electric line are normally supplied with an integral ball check valve assembly, and a top connection into which a grease head can be directly screwed. As an option the tool catcher is available with a glycol injection port. For slick line operations our hydraulic tool catchers are available with quick unions top and bottom.

Our hydraulic tool catchers are available with ratings from 5,000- to 15,000-psi working pressure, STD and H<sub>2</sub>S service. The catcher can be dressed to suit a variety of fish necks by changing the collets. Collet sizes vary from 1- to 1¾-in. fishing necks.

For multi-catch options please see our multiline service tool catchers.

#### Weights and dimensions example

	Make-up height	Weight
Tool catcher (e-line E09)	22 in. (55 cm)	93 lb (42 kg)

#### Options

Vent valve for ported assemblies
Collet sizes 1, 1¾16, 1¾, and 1¾ in.
Quick union x quick union for slickline operations
Combined ball check valve for direct connection of grease injection head
Hand pump and hose assembly





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#### **Features and benefits**

- Fail-safe positive catching with a single hydraulic actuation to release
- Prevent hydrocarbon release in the event of a rope socket release from the wire with the combined ball check valve
- Combined with compact ball check valve for eline operations, or reduced height slickline option where quick union x quick union is offered
- Quick disconnect and split tool stop for wireline tool head removal
- Full material traceability and 3rd party independent approval covering API 6A, and NACE (for H<sub>a</sub>S)
- Port located in upper body for injection of glycol, corrosion inhibitor or pressure test venting



Optional hydraulic vent valve



## **Elmar Tool Catchers** for Multiline Service

Prevent the cost and inconvenience of losing wireline tools downhole with an Elmar<sup>™</sup> tool catcher.

For service companies that perform multiline services the Elmar range of multi catchers offers the ability to catch a wide variety of fishnecks within a single product. With no down time on changing collets, this product gives great flexibility when running between slickline and electric line operations.

Our Piranha<sup>™</sup> wireline tool catcher features a one-piece multi-finger collet machined from a high strength alloy to perform tool catching duties, cover fishnecks from 1 to 1¾ in., and provide the smallest and lightest package on the market.

In addition, this new generation tool catcher also features other improvements, including a larger diameter mandrel to allow the latest head diameters to pass through, a stronger return spring to reduce reset time, the relocation of the piston seal to the upper body, and the application of a corrosion-resistant coating to minimize the impact of corrosion.

Where an increased collet range is required then our MultiCatcher with 1- to 25/16-in. collet is available.

Originally designed for the Norwegian market and is the catcher of choice for the multiline service companies. The exacting standards within this sector and the catcher's success is a testimonial in itself. This tool catcher offers additional safety features including a damper spring that will reduce the shock on the rope socket if the tool string was to come into the catcher at speed, and an ejector device to release the rope socket from the collet prior to running in hole.

Vent valve for ported assemblies - optional on multi catcher

Combined ball check valve for direct connection of grease injection head

Quick union x quick union for slickline operations

### Ball check valve Injection port Piranha tool catcher with combined ball check valve for e-line



MultiCatcher with quick unions prepped for slickline



### **Features and benefits**

- Prevent hydrocarbon release in the event of a rope socket release from the wire with the combined ball check valve
- Combined with compact ball check valve for e-line operations or reduced height slickline option where quick union x quick union is offered
- Quick disconnect and split tool stop for wireline tool head removal
- Full material traceability and 3rd party independent approval covering API 6A, and NACE (for H<sub>a</sub>S)
- Single line hydraulic actuation with fail safe positive tool catching
- Reduced collet return times

#### Piranha

- Single piece collet for easy assembly
- Reduce non-productive time with reliable catching from 1- to 1<sup>3</sup>/<sub>4</sub>-in. fishing necks
- Tool stop design allows the latest head diameters to pass through already made up to the wirleline
- Designed for increased corrosion resistance, reducing maintenance costs
- Port located in upper body for injection of glycol, corrosion inhibitor or pressure test venting

#### MultiCatcher

- Winch operator assistance with the damper and rope socket ejector assembly
- Reduce non-productive time with reliable catching from 1- to 25/16-in. fishing necks

# Weights and dimensions example

## **Elmar Venting/Glycol Injection Valve**

Reducing non-productive time using the Elmar<sup>™</sup> Venting/Glycol Injection Valve will give operational cost savings.

Our venting/glycol injection valve is designed to save rig time while pressure testing the wireline pressure control equipment string through the removal of trapped and entrained air.

The venting/glycol injection valve can be controlled from a test pump unit and hand pump and has three functions:

(1). Before pumping commences, hydraulic pressure is applied thereby opening the vent valve which allows air to escape, making the filling operation quicker. Once escaping fluid is observed the valve is closed allowing the operator to pressure test, confident that no air is trapped.



(2). When bleeding down the lubricator this valve can be opened to allow air back into the system thereby discharging the fluid quickly.

(3). Glycol can be injected below the grease head - the point most affective to prevent the formation of hydrates.



### Weights and dimensions example

	Height	Weight	
10 k venting/glycol injection valve Bowen 2 in10	7 in. (17 cm)	49 lb (22 kg)	
15 k venting/glycol injection valve Bowen 2 in10	7 in. (18 cm)	40 lb (18 kg)	



Quick union ball check valve

Hand pump and hose assembly

Options

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	Make-up height	Weight
Piranha (e-line E09)	22 in. (56 cm)	101 lb (46 kg)
Piranha (slickline E09)	18 in. (45 cm)	88 lb (40 kg)
MultiCatcher (slickline 002)	31 in. (79 cm)	229 lb (104 kg)





#### Options

Supplied with any industry standard quick unions for slickline operations

Chemical injection unit and hoses

Hand pump and hose

Vent only valve



### Elmar Cable Cutter Sub (CCS)

Reducing non-productive time is critical if you have a wireline issue during runs.

Our Cable Cutter Sub - CCS is positioned in the lubricator string above the tool catcher/ball check valve and immediately below the grease injection head.

In the event of wire becoming jammed in the grease injection flotubes, to the extent that no wireline movement (upwards or downwards) is possible, the wireline can be cleanly cut well above the wireline valve, thus allowing an easier recovery in stranded armour situations, along with cleanly dropping the severed end of the wireline into the well when so required by safety considerations.

When used with the variable length lubricator it makes it possible in a single lift set-up to open the lubricator string after sealing with the wireline valve, secure the wireline, and start recovery procedures without stripping wireline through the wireline valve seals and potentially losing seal.



Cable cutter sub Bowen 2 in10 (10,000 psi)	7 in. (17 cm)	33 lb (15 kg)
Cable cutter sub Bowen 2 in10 (15.000 psi)	7 in. (17 cm)	49 lb (22 kg)

#### **Features and benefits**

- Reduces NPT in the event of a problem during wireline runs
- Ensure positive barrier protection during stranded line remedial work using the CCS and the variable length lubricator
- Full material traceability and 3rd party independent approval covering API 6A, and NACE (for H<sub>2</sub>S)
- Suitable for cutting wireline up to <sup>15</sup>/<sub>32</sub>-in. multi-conductor
- 10,000 and 15,000-psi working pressure, H<sub>2</sub>S service
- 2-in. 10TPI female box x 2-in. 10TPI male pin for electric line operations
- Hydraulically operated piston for cutting that is operated remotely using supplied hand pump
- Enhanced operational safety with unique hydraulic quick connections and padlocked pump to prevent inadvertent use
- Safety shear pinned cutting piston



## **Elmar Enviro Wireline Grease Injection Control Head**

Mitigate the risk of hydrocarbon release during well interventions. As the primary pressure control device, our Enviro<sup>™</sup> grease injection control head is designed to create a seal around a moving wireline, giving positive protection and allowing intervention access to wells under pressure.

Designed to minimize environmental impact by ensuring the line wiper element is positioned for optimum wiping performance, the Enviro assembly maintains a clean working environment for operations and personnel around the wellhead.

Positioned at the uppermost point of the pressure control equipment string, the first Enviro grease injection control head on the market comprises of two major sub-assemblies, the Enviro combination stuffing box and line wiper and the flotube assembly.

The hydraulic stuffing box is designed to pack-off on a stationary wireline by means of a pack-off rubber, the hydraulic line wiper will wipe excess grease from a moving wireline.

As standard the grease injection head is supplied with concentric flotube assemblies, made up of an inner flotube sized to fit tightly around the wireline and an outer sleeve to support the assembly.

The number of assemblies and injection points is dependent on expected well pressure and well fluids. Recommended flotube to wire clearance + 0.003 to 0.005 in. optimum 0.008 in. maximum.

To complete the Enviro grease injection control head, the assembly needs to be dressed with the appropriate line sized kit and flotubes.

Additional flotube and injection coupling assembly

The bottom connection can be mated to a quick-union, or a ball check valve/tool catcher combination.

Specific flotubes sizes available to suit all measured wireline

Note: Parts included in line size Kit (1). Seal kit (o-ring and BURs) does not include line size kit parts.

Ball check valve

Options	
<sup>17</sup> / <sub>32</sub> in. wireline version	
Supplied with any industry standard quick unions for slickline operations	
Cable cutter assembly with either 60-ft, 100-ft, or 120-ft hose length	
Case for cable cutter assembly	





Line sized kits to suit common wireline size

Flotube Go-Nogo drift gauges

Dual grease injection

Options





Low pressure waste grease hose

Stuffing box test plug and line wiper test spacer

Re-dress seal kit

Specialist hand tools



### **Elmar Air Line Wiper**

Minimize the environmental impact of spillage when running grease injection operations by maintaining a clean working area around the wellhead.

Our air line wiper has been designed to replace the traditional hydraulically activated line wiper or to work along side it when extreme environmental pressures demand it.

Our air line wiper consists of a steel wiper body, aluminium alloy wire guide, bronze upper bushing and a special nozzle insert. It is designed to be a non-contact line wiper and uses compressed air to wipe grease from the wire. The compressed air is focused on the cable through nozzles in the wiper insert. The nozzles are arranged in a proprietary pattern to create an effective wiping action.

The insert and upper bushing are line size items and need to be ordered as a line size kit to go along with the main assembly. The line size kit can be retrofitted to one of our standard hydraulic line wipers to convert it to an air line wiper.





#### **Features and benefits**

- Proprietary nozzle pattern ensuring excess grease is returned to drain line
- Air operating pressure 120 to 150 psi (8 to 10 bar)
- Can be fitted retrospectively
- Environmental impact of spillage

# **Sheave - TAS**

**Elmar Turn Around** 

Our turn around sheave has been specially designed to reduce the overall height of the pressure equipment string.

In a conventional pressure equipment system, the top sheave is positioned above the tool catcher, grease injection control head and line wiper. By installing the sheave inside a pressure retaining chamber and connecting one side to the tool catcher, the grease injection control head and line wiper can be connected to the other side and run vertically downward, thus reducing the overall height of the system.

The design of the turn around sheave allows the operator to utilize existing equipment, eliminating the need to purchase all new items. The turn around sheave must be secured to a member rated to twice the maximum line pull (similar to a wireline top sheave) and cannot be used unsupported. To maximize bearing life a continuous flow of grease needs to be injected through the port and check valve provided ensuring debris and well fluids do not contact the bearings.

The internal design of the chamber is shaped so that should





1 in. NPT high volume drain hose

Crossover assembly for connection to an Elmar Enviro combination stuffing box and line wiper

Weights and dimensions

Air line wiper

Options

Re-dress seal kit

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#### **Features and benefits**

- Full material traceability and 3rd party independent approval covering API 6A, and NACE (for H<sub>a</sub>S)
- Available up to 15,000 psi
- Available in 14-, 16-, and 20-in. versions
- Optimised design minimizes weight
- Reduces overall rig-up height
- Adapters to suit a variety of connections
- Bleed-off port for gas breakout from wireline
- Multiple padeye points to accommodate rig-up variations



20-in, turn around sheave



## **Elmar Lightweight Stuffing Box**

Mitigate the risk of hydrocarbon release during slickline well interventions. As the primary pressure control device, the Elmar<sup>™</sup> lightweight stuffing box gives positive protection and allows intervention access to wells under pressure.

Our hydraulic slickline stuffing box is designed to pack-off all sizes of solid wireline up to 0.160 in., from 5,000- to 15,000-psi working pressures, with safety and convenience.

It is lightweight, compact and simple to operate. Positioned at the uppermost point of the pressure control equipment rig up, our slickline stuffing box incorporates a blow-out plug to automatically shut-in the well pressure in the event of packing failure, the slickline breaking or being stripped from the rope socket.

The slickline stuffing box consists of a chamber which contains packing with an external hydraulic packing nut assembly. The slickline passes through the packing which can be energized by the hydraulic packing nut to regain a seal when required. A 16-in. diameter sheave bracket assembly (or 20-in. diameter in case of 0.160-in. wire) and a male guick union assembly are supplied with the stuffing box as standard.

When operational demands require it, our stuffing box can be upgraded to include an integrated ball check valve assembly and chemical/lubrication injection port with felt packing. In addition a variety of packing compounds can be supplied to suit well conditions.





Combined blow-out plug and ball check valve providing a built-in dual barrier safety system preventing uncontrolled well fluid loss

Stuffing box with optional chemical injection facility

### Options

•
Line sized kits to suit common slickline sizes
Combined blow-out plug and ball check valve for standard stuffing box
Stuffing box with injection facility
Test plug assembly for stuffing box
Stuffing box hand pump & hydraulic hose assemblies for 50- and 100-ft long
Chemical injection unit and hose
A variety of packing compounds



#### **Features and benefits**

- Full material traceability and 3rd party independent approval covering API 6A, and NACE (for H<sub>2</sub>S)
- Lightweight for manual handling, simple operation with remote hydraulic actuation
- 16- and 20-in. sheave brackets with solid lightweight sheave wheels preventing finger entrapment
- Suitable for all line sizes up to 0.160 in.
- Line sized parts manufactured from aluminium bronze to ensure no wireline damage
- Packings engineered to suit specific line size, eliminating the need for well site reaming and reducing the chance of premature failures due to improper centralization
- Packings available to suit various well conditions, with selection critical for fluid compatibility and reduced friction of the slickline

#### **Optional injection facility**

- Injection point to increase sealing performance and life span of slickline stuffing box packing
- Allows fluid contact with the wireline to combat challenging well conditions
- Integral and replaceable check valve that eliminates well pressure return to the injection unit
- Replaceable manifold block that ensures integral check valve is fully protected

#### Weights and dimensions example

	Height	Weight
Stuffing box (E09)	31 in. (79 cm)	68 lb (31 kg)
Stuffing box (with optional injection facility)	33 in. (84 cm)	88 lb (40 kg)

## Elmar QuickLoad Slickline **Stuffing Box**

Mitigate the risk of hydrocarbon release during slickline well interventions. As the primary pressure control device, the Elmar™ QuickLoad™

Stuffing Box gives positive protection and allows intervention access to wells under pressure.

Our QuickLoad stuffing box is an evolutionary product that reinforces the company's position as market leaders in wireline pressure control equipment. It is lighter, more reliable and easier to maintain than its alternatives.



QuickLoad has a working pressure of up to 15,000 psi.

Weighing just 18 kg the main assembly is easily carried by one person and so can be assembled in a convenient location away from the well. The sheave bracket, at 15 kg, can be assembled onto the main assembly even after the cable head is fed through. This is a major advantage of the new design and negates the need for a removable cartridge.

When using the spiral-cut packing, the element can be changed with the line in-situ by hydraulically accessing the packing chamber at the top, providing an operational time and cost saving over other stuffing box designs. The stuffing box can also be used with conventional packing elements when required.

The QuickLoad incorporates a combined blow-out plug and ball check valve providing a built-in dual barrier safety system preventing uncontrolled well fluid loss in the event of packing failure, the slickline breaking or being stripped from the rope socket.

An injection port with an integral check valve is provided for injection of chemicals such as glycol and methanol. This port can also be used for oiling of the line if required.

#### Weights and dimensions example

	Height	Weight
QuickLoad slickline stuffing box (E09)	-	40 lb (18 kg)
Sheave Bracket 16 in.	-	33 lb (15 kg)
Combined	32 in. (81 cm)	73 lb (33 kg)

#### Options

Line sized kits to suit common slickline sizes
Sheave bracket 16 or 20 in.
Test plug assembly for stuffing box
Stuffing box hand pump & hydraulic hose assemblies for 50- and 100-ft long
Chemical injection unit and hoses



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#### **Features and benefits**

- Full material traceability and 3rd party independent approval covering API 6A, and NACE (for H<sub>a</sub>S)
- Suitable for all line sizes up to 0.160 in.
- Lightweight and split sub-assemblies for manual handling and ease of rig-up
- 16- and 20-in. sheave brackets with solid lightweight sheave wheels preventing finger entrapment
- Combined ball check valve and blow out plug to automatically shut-in the well pressure in event of slickline breaking or being stripped from the rope socket
- Dynamic seal parts manufactured from corrosion resistant alloys
- Line sized parts manufactured from aluminium bronze to ensure no wireline damage
- Single piece spiral-cut packing facilitating easy packing change
- Packings engineered to suit specific line size, eliminating the need for well site reaming and reducing the chance of premature failures due to improper centralization
- Packings available to suit various well conditions, with selection critical for fluid compatibility and reduced friction of the slickline
- Injection point to increase sealing performance and life span of slickline stuffing box packing
- Allows fluid contact with the wireline to combat challenging well conditions
- Integral and replaceable check valve that eliminates well pressure return to the injection unit
- Replaceable manifold block that ensures integral check valve is fully protected



# **Elmar Liquid Seal Slickline Control Head**

Mitigate the risk of hydrocarbon release during slickline well interventions. As the primary pressure control device, the Elmar™ liquid seal stuffing box gives positive protection and allows intervention access to wells under pressure.

Our liquid seal control head is designed to seal around a slickline while minimizing drag and wear of both the slickline and the pack-off. It is the optimum product for use with slickline and of particular benefit when used on high-pressure gas wells. Our liquid seal control head is available up to 20,000 psi.

The control head provides two pressure control devices; the primary device is the flotube stack and the secondary device is the hydraulic pack-off or stuffing box.

The primary seal is achieved by injecting viscous grease into the flow tube stack at a pressure above wellhead pressure. The flow tubes are closely fitting around the slickline, and the grease effectively seals-off the narrow annular space. This creates a dynamic, zero friction, seal around the moving slickline. In the event of grease seal loss, the stuffing box is used to pack-off around the slickline. Re-establishing grease seal is best achieved around a stationary line.

The liquid seal control head is of a modular design; a common upper assembly and a lower quick union assembly to suit the rest of your equipment. The lower assembly incorporates a ball check valve, felt packings, and an oil chamber.

A compact, air operated grease injection and hydraulic control panel is available for use with the liquid seal control head.

#### Options

Line sized kits to suit common slickline sizes
Test plug assembly for stuffing box
Supplied with any industry standard quick unions
Re-dress seal kit
Grease and hydraulic control panels
Grease Pump WIWA 235:1
Stuffing Box Hand Pump
Grease and hydraulic hose assemblies 50- and 100-ft long
Wireline grease

#### **Features and benefits**

- Full material traceability and 3rd party independent approval covering API 6A, and NACE (for H<sub>2</sub>S)
- 16- and 20-in. sheave brackets with solid lightweight sheave wheels preventing finger entrapment
- Line size kits to suit 0.092 to 0.160 in.
- Line sized parts manufactured from aluminium bronze to ensure no wireline damage
- Packings engineered to suit specific line size, eliminating the need for well site reaming and reducing the chance of premature failures due to improper centralization
- Primary liquid seal ensures packings are in optimum condition in the event of grease seal loss
- Packings available to suit various well conditions, with selection critical for fluid compatibility and reduced friction of the slickline
- Grease injection point with integral and replaceable check valve that eliminates well pressure return to the grease injection unit
- Replaceable manifold block that ensures integral check valve is fully protected
- Felt packings and oil chamber to eliminate dirt and gas ingress
- Compact ball check valve to automatically shut-in the well pressure in event of slickline breaking or being stripped from the rope socket

#### Weights and dimensions

Upper

assembly

Stuffing

Grease

return

manifold

Flowtubes

Lower

Grease and hydraulic control module

assembly

Felt

packing

Ball check

hox

	Height	Weight
Liquid seal slickline control head	62 in. (157 cm)	202 lb (92 kg)

### **Elmar Slick Cable Pack-Off**

Our slick cable pack-off is designed to seal against a moving smooth jacketed braided cable under pressure giving positive protection during well service operations.

Positioned uppermost in the pressure control string when performing cased hole operations. The slick cable is passed through the assembly before terminating with a rope socket and connecting the required tools.

The lightweight slick cable pack-off works by independently engerizing two sealing arrangements positioned around the wire. Each element seals on the slick cable against well pressure, while lubricant is pumped to reduce friction. A third, manually adjusted rubber, is provided at the top of the assembly for wiping fluid from the wire.

The pack-off is available up to 15,000-psi working pressure and H<sub>2</sub>S service, and is designed so that the sealing arrangement in direct contact with the wire can be easily replaced.

A small combination control unit complements the pack-off and provides all the required functionality. Alternatively, the pack-off can be controlled using indivdual hand pumps.

Optior	15
Combin	ation hydraulic and lubrication control unit with hose assemblies
Hydraul	ic hand pump and hose assemblies
Crossov	er to well connection
Line size	d kits to suit common wireline size
Test stu	mp or test cap
Test rod	
Test plu	g (dummy packing element)
Various	packing options to suit for pump down, pump up, and speed



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Ball check valve

#### **Features and benefits**

- Full material traceability and 3rd party independent approval covering API 6A, and NACE (for H<sub>a</sub>S)
- Designed for smooth surface jacketed braided cables
- Two independent sealing arrangements using opitmized packing elements
- Easy access to line sized elements
- Line sized parts manufactured from aluminium bronze to ensure no wireline damage
- High pressure lubrication port with check valve reducing friction in and out of hole
- Line wiper arrangement to prevent oil from passing down hole, and to protect seal arrangements from well debris
- Integral and replaceable check valve that eliminates well pressure return to the injection unit

15,000-psi working pressure combination control unit. 10,000 psi option available.

#### Weights and dimensions

	Height	Weight
10 k cable pack-off (E09)	24 in. (61 cm)	60 lb (27 kg)
15 k cable pack-off (B06)	25 in. (64 cm)	86 lb (39 kg)

# Casing and Open-Hole Pressure Control Equipment

5½-in. Single Manual Wireline Valve

Enviro Single Pack-Off

Enviro Dual Pack-Off

Dual Hydraulic Wireline Annular Valve (BOP-D)

SLIMLITE Equipment





# Elmar 5<sup>1</sup>/<sub>2</sub>-in. Single Manual Wireline Valve

Providing a safe, reliable and effective dual pressure control device solution for open-hole work; our hydraulic pack-off and line wiper is used in combination with our manual wireline valve for pressures up to 5,000 psi.

#### Hydraulic pack-off and line wiper (HLWB)

Our hydraulic pack-off and line wiper is designed to seal on a moving open hole cable under pressure. It is designed to connect directly to the accompanying wireline valve using a 7-in. ACME connection. The internal parts are designed so that they can be separated and removed, allowing the wireline tools to enter the well. Once the tools are in the well the internal parts can then be refitted.

The hydraulic pack-off and line wiper is energized using a hand pump, which applies pressure to a rubber element surrounding the wireline creating the seal.

The split internal design means the rubber element in direct contact with the cable (packer insert) can be easily replaced if excessively worn during operation.

### Single manual wireline valve (BOP-M)

Our manually operated wireline valve is used to seal a seasoned open hole cable (stationary) in the event of a well-kick or pack-off element replacement. The wireline valve is opened and closed by turning the handles which are directly connected to the rams. The wireline valve incorporates an equalisation valve arrangement.

### Options

Brass bushing and packing inserts for common cable sizes (HLWB)
Ram assemblies for common cable sizes
Hand pump for pack-off
Hydraulic hose assemblies 25- and 50-ft long
Cable clamp for packing element removal
Quick union adapters to suit both pack-off and wireline valve
Hydraulic cylinders for wireline valve
Well site and workshop testing accessories



Hydraulic pack-off

Optional adapters

### Features and benefits

- The original industry standard pressure control equipment for open hole operations
- Simple, compact and lightweight in design
- Full-bore 5½-in. tool entry
- Split or slotted internal elements facilitates easy packing change during operations
- Line sized parts manufactured from aluminium bronze to ensure no wireline damage
- Full material traceability and 3rd party independent approval covering API 6A, and NACE (for H<sub>2</sub>S)



Weights and dimensions								
	Height	Weight						
Hydraulic pack-off and line wiper	20 in. (51 cm)	161 lb (73 kg)						
Single manual heavy duty wireline valve	20 in. (50 cm)	276 lb (125 kg)						

### **Elmar Enviro Single Pack-Off**

Our Enviro<sup>™</sup> single hydraulic pack-off gives positive protection during well service operations. Compact, reliable, and robust, this pack-off is designed to wipe clean moving cable under pressure.

This lightweight solution is used for open hole and low pressure cased hole and swabbing operations. The single pack-off is built around the cable before the wireline tool is lowered into the well.

The pack-off works by squeezing the independent rubber element wrapped around the wire. The element seals the cable outer armour against well pressure and wipes the wire free of fluid. The sealing element will seal on a cable provided the cable is well seasoned or pre-filled.

The pack-off is designed so that the rubber element in direct contact with the wire is easily replaced.

The pack-off is rated to 5,000-psi working pressure (static wireline) and H<sub>2</sub>S service. A 0-3000-psi hand pump and hose is required to operate the Enviro single pack-off.

A quick union lower connection provides wellhead flexibility using a range of crossovers.

Options	
Line sized kits to suit common wireline size	
Hydraulic hand pump and hose assemblies	
Crossover to well connection	
Lifting clamp	
Test stump or test cap	
Test rod	
Tost plug (dummu packing plamont)	



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#### Features and benefits

- Full material traceability and 3rd party independent approval covering API 6A, and NACE (for H<sub>a</sub>S)
- Easy access to line sized elements
- Tulip design and extended lower body provides cable head support and prevents cable damage during rigging operations
- Integral lifting shoulder to accept lifting clamp for efficient and safe operations
- Line sized parts manufactured from aluminium bronze to ensure no wireline damage

Weights and dimensio	ns	
Clean ID 4.42 cm (1.74 in.)	Height	Weight
Enviro single pack-off (B01)	28 in. (72 cm)	75 lb (34 kg)



### **Elmar Enviro Dual Pack-Off**

Our Enviro<sup>™</sup> dual hydraulic pack-off gives positive protection during well service operations. Compact, reliable, and robust, this pack off is designed to wipe clean moving cable under pressure.

This lightweight solution is used for open hole and low pressure cased hole and swabbing operations, where adherence to a dual pressure control device philosophy is required. The dual pack-off is built around the cable before the wireline tool is lowered into the well.

The dual pack-off works by squeezing the independent rubber elements wrapped around the wire. The element seals the cable outer armour against well pressure and wipes the wire free of fluid. The sealing element will seal on a cable provided the cable is well seasoned or pre-filled.

The pack-off is designed so that the rubber elements in direct contact with the wire are easily replaced.

The pack-off is rated to 5,000-psi working pressure (static wireline) and H<sub>2</sub>S service. A 0-3000-psi hand pump and hose is required to operate each of the Enviro dual pack-off sections.

A guick union lower connection provides wellhead flexibility using a range of crossovers.

#### **Features and benefits**

- Full material traceability and 3rd party independent approval covering API 6A, and NACE (for H<sub>2</sub>S)
- Meets operator dual pressure control device philosophy
- Easy access to line sized elements
- Tulip design and extended lower body provides cable head support and prevents cable damage during rigging operations
- Integral lifting shoulder to accept lifting clamp for efficient and safe operations
- Line sized parts manufactured from aluminium bronze to ensure no wireline damage

### **Elmar Dual Hydraulic Wireline Annular Valve (BOP-D)**

Compact, reliable, and robust, our dual hydraulic wireline annular valve is designed to wipe clean a moving cable or seal on a static cable provided it is well seasoned or pre-filled. It is recommended for "safety while logging" applications and for perforating with large guns.

Giving positive protection during well service operations with adherence to an operators' dual pressure control device philosophy when required.

Positioned above the drilling BOP, or a shooting nipple, it offers, once rigged up, a clean bore of 6 to 6½ in. (depending on connection type) to run a tool through. The cable and rope socket are initially threaded through the upper section and then connected to the head before passage through the middle and lower section. Several elements are split or slotted for ease of assembly. In subsequent runs the upper and middle sections are lifted with the logging head and remains around the cable while tools are laid down.

Our dual hydraulic wireline annular valve seals by squeezing a split rubber element which is wrapped around the wire. This element seals on the cable outer armour against well pressure, as well as wiping the wire free of fluid. It is designed so that the rubber element which is in direct contact with the wire can be easily replaced.



### Options

Line sized kits to suit common wireline size	_
Hydraulic hand pump and hose assemblies	
Crossover to well connection	
Lifting clamp	
Test stump or test cap	Weights and dimensions
Test rod	Clean ID 1.74 in. (4.42 cm)
Test plug (dummy packing element)	Enviro dual pack-off (B01)





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Weight

99 lb (45 kg)

Height

41 in. (104 cm)







#### **Features and benefits**

- Full material traceability and 3rd party independent approval covering API 6A, and NACE (for H<sub>2</sub>S)
- Meets operator dual pressure control device philosophy
- Full-bore access up to 61/2 in. on lower assembly
- Multiple lifting features to aid operations
- Hydraulic fittings protection plate
- Air line cleaner
- Easy access to line sized elements
- Tulip design and tool overshot provides cable head support and prevents cable damage during rigging operations
- Line sized parts manufactured from aluminium bronze to ensure no wireline damage

Air connections are provided for enhanced cable cleaning.

The annular valve is rated to 3,000-psi working pressure (static wireline) and H<sub>2</sub>S service. A 0-3000-psi hand pump and hose is required to operate each of the annular valve sections.

Weights and dimension	ons example	
	Height	Weight
Dual annular valve	40 in. (102 cm)	192 lb (87 kg)
Options		
Line sized kits to suit common	wireline size	
Crossover to well connection		
Hydraulic hand pump and hos	e assemblies	
Lifting clamp and slings		
Test stump or test cap		
Test rod		
Test pieces (dummy packing e	lement and overshot repla	cement)



### **Elmar SLIMLITE Equipment**

Our SLIMLITE equipment is a range of large bore equipment available in H<sub>2</sub>S service and typically used during open hole wireline intervention work, or for perforating operations with large casing guns. With NACE compliant stainless tubes and corrosion resistant materials and coatings your maintenance costs will be reduced, and the operational life of your asset extended.

The SLIMLITE family uses high strength stainless steel lubricator tubes, with a 5,000-psi H<sub>2</sub>S service rating. Our SLIMLITE equipment retains a 2.0 safety factor with test pressure = 2.0 x working pressure and exceeds API 6A specifications. Elmar SLIMLITE quick unions have been selected for optimum weight reduction and to prevent unsafe cross-string assembly.

SLIMLITE lubricators are designed around common casing sizes 5½-in. OD (4.89-in. ID) and 7%-in. OD (6.67-in. ID) and in any length up to 24 ft.



#### Features and benefits

- Delivers H<sub>2</sub>S service with an enhanced safety factor and the same operational weight as STD service traditional P-110 casing solutions
- Corrosion resistant materials and coatings reduce maintenance requirements and extend life to reduce your operational cost
- Corrosion resistant tube made from high strength NACE compliant stainless steel
- Quick unions are coupled through premium Elmar Lite thread
- Available in multiple lengths to suit your requirements
- Bending stresses at the thread undercut are minimized
- Adapter anti-back-off feature
- Full material traceability and 3rd party independent approval covering API 6A, and NACE (for H<sub>2</sub>S)
- Complimented with a full range of WPCE parts to suit:
  - Flange
- Tool trap
- Quick test sub
- Wireline valve
- Pump-in sub

#### Options

Can be supplied with any industry standard quick unions

Ported lower adapter with block and bleed needle valve and gauge kit for monitoring and bleeding well pressure

Customized lengths up to 24 ft (7.32 m) available

Service and maintenance tools

Accessories: Lubricator lifting clamp and spreader beam, tool safety sub and wheel dolly



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SLIMLITE tube

high strength stainless steel

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### **Pressure Equipment Systems and Solutions**

Lightweight Pressure Equipment Solutions 15,000-psi Pressure Equipment System 20,000-psi Pressure Equipment System 30,000-psi "NOLA" Pressure Equipment System Ultra-High Pressure Equipment Solutions QuickLatch - Hydraulic Quick-Connect

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## **Elmar Lightweight Pressure Equipment Solutions**



Safety, reliability, low cost of ownership, and easy handling all come as standard with our lightweight wireline pressure control equipment. Using high-strength stainless steel alloys in our lightweight lubricators and advanced finite element analysis techniques gives improved reliability and extended equipment life, lowering your operational cost.

### Why go lightweight?

- The necessity for lightweight equipment becomes crucial when ease of handling is important, lifting capacity and space are limited, or when aiming to reduce weights during maintenance.
- With pressure ratings of 10,000 and 15,000 psi, and suitable for use in H<sub>2</sub>S environments, our field-proven equipment can be used in slickline, braided wireline or electric line intervention applications





- By using NACE-compliant stainless tubes and incorporating corrosion-resistant materials and coatings in our lightweight pressure control packages, you can extend the operational life of your asset and reduce maintenance costs
- Engineered, manufactured, rigorously tested, and supported by third-party certification approval in accordance with API standards and NACE

#### Features and benefits

- Full material traceability and 3rd party independent approval covering API 6A, API 16A, and NACE (for H<sub>2</sub>S)
- Lightweight, allowing easier handling with shorter rig-up heights
- Corrosion resistant materials and coatings reduce maintenance requirements and extend life to minimize your operational costs
- Up to 60% lighter than previous generation wireline valves
- Pressure balanced hydraulic cylinders to reduce volume and closing times
- Up to 70% lighter than conventional lubricators, allowing access to well sites where lifting capacity is restricted
- Corrosion resistant tube made from high strength NACE compliant stainless steel
- Packaged in a mainframe for ease of transportation

#### **Available sizes**

The original 3-in lightweight lubricator was designed by Elmar has been complimented by a wider range of equipment sizes:

#### 10.000-psi working pressure H<sub>2</sub>S

- 3-in. ID: E06 4<sup>3</sup>/<sub>4</sub>-4thd (3.750-in. seal dia)
- 3-in. ID: E09 4¾-4x2thd (3.750-in. seal dia)
- 4<sup>1</sup>/<sub>16</sub>-in. ID: E12 6<sup>1</sup>/<sub>8</sub>-4x2thd (4.750-in. seal dia)
- 5<sup>1</sup>/<sub>8</sub>-in. ID: E32 7<sup>7</sup>/<sub>8</sub>-4x2thd (6.125-in. seal dia)
- 63%-in. ID: E59 91/2-4x2thd (7.500-in. seal dia)

#### 15.000-psi working pressure H<sub>2</sub>S

• 5<sup>1</sup>/<sub>8</sub>-in. ID: E56 9<sup>1</sup>/<sub>4</sub>-4thd (6.500-in. seal dia)

Elmar guick union sizes, considerably smaller than industry standard Otis and Bowen equivalents

# Elmar 15,000-psi Pressure



Plan your high-pressure operations with confidence, and accept no compromises when working with high pressures.

The Elmar™ 15,000-psi WPCE solution is packaged with separate 15-series grease and hydraulic control modules and full set of pressure control equipment. This high-pressure rating is available in 21/2 in. through to 73% in. and to suit any slickline or e-line operation.

To meet the need for lightweight and efficient operations in the pump-down wireline market, our 15,000-psi WPCE solution is available in a lightweight design, seeing considerable weight savings versus conventional 15,000-psi equipment.









#### This system can accommodate

- Dual enviro stuffing box and grease head with dual grease Injection
- Liquid seal head for high gas/pressure environments
- Tool catcher
- Lubricators
- Tool trap
- Quick test sub
- Wireline valve triple or quad
- Wireline valve shear
- Constrictor ram seals
- Field proven elastomer arrangements on quick unions and dynamic well pressure seals
- Integral connection designs and metal-to-metal joints where applicable, reducing leak potentials
- Heavy duty, single lift transport frame
- 15-series grease control module
- 15-series hydraulic control module



### Elmar 20,000-psi Pressure **Equipment System**



Our 20 Series system consists of a 25D grease and hydraulic control module, transport frame and a full set of 41/16-in ID pressure control equipment.

#### **Pressure Control Equipment**

- Includes a quad wireline valve plus a single wireline valve with shear and seal wireline rams
- Quad wireline valve is 50% lighter than standard industry design
- Full material traceability and third-party independent approval covering API 6A and NACE (H<sub>2</sub>S)



- Designed, manufactured and tested in accordance with API 6A and PSL 4 (includes gas testing) • A 25,000-psi working pressure diesel
- driven grease control module, features an Elmar high-pressure grease intensifier pump which delivers high flow rates at high pressure

#### Features and benefits

- Transport frame accommodates a single wireline valve, all accessories and 64-ft of lubricator
- Quad wireline valve housed in galvanized cage with floor stand and separate transport frame
- Forklift runners and large storage locker
- Heavy duty, single lift transport frame
- Separate 25D grease and hydraulic control module

#### This system accommodates

- Lubricators x 7
- Single and quad wireline valves
- Grease and hydraulic control module
- Grease head
- Liquid seal stuffing box
- Tool trap
- Tool catcher
- Crossover
- Quick Test Sub QTS
- Quick union pump-in sub
- Transport frame
- Accessories

# Elmar 30,000-psi "NOLA" **Pressure Equipment System**

The safety and efficiency of your team during pressure well intervention is our top priority. With our 30,000 psi WPCE, NOV Elmar<sup>™</sup> has field-proven solutions to support your slickline and wireline operations.

We proudly offer the only 30,000-psi rated wireline pressure control equipment, with government agency operational consent, in the industry. This qualification requires an experienced engineering team, innovative design solutions, industry leading analysis, and extensive testing. With test facilities to safely test up to 60,000 psi, we're ready and able to support your ultra-high pressure equipment needs. Our system comprises of a hydraulic control module, grease injection control module, and a full set of 3%-in. ID pressure control equipment.







Slickline frame including: Top sheave, slickline grease injection head, and tool catcher





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#### Features and benefits

- 3%16-in. ID. All the components of industry normal 10,000-psi pressure control strings with
- Single and dual wireline valves with shear/seal and multiline rams
- Hydraulic cable clamp
- Grease head with de-gassing feature
- Quick test feature on each lubricator joint
- Patented constrictor 30,000 psi rated multiline inner seals
- Full third party certification
- Electric driven modules (no use of compressed air)
- Hydraulic quick unions to enable efficient rig up and rig down

#### This system accommodates

- Tool trap, pump-in sub, wireline valves, hydraulic cable clamp, quick test sub, lubrictors and tool catcher
- Slickline grease injection head with transport frame
- Braided line grease injection head with transport frame
- Dual pack-off for braided line
- Hydraulic control module
- Grease injection control module
- Transport frame with integral grease injection
- Transport frames for all WPCE
- C-Table for derrick rig-up





### **Elmar Ultra-High Pressure Equipment Solutions**

The safety and efficiency of your team during ultra-high pressure well intervention is our top priority. Whether your needs are 20,000 psi or 30,000 psi, NOV Elmar™ has field-proven solutions to support your slickline and wireline operations.

We proudly offer the only 30,000-psi rated wireline pressure control equipment, with government agency operational consent, in the industry. This qualification requires an experienced engineering team, innovative design solutions, industry leading analysis, and extensive testing. With test facilities to safely test up to 60,000 psi, we're ready and able to support your ultra-high pressure equipment needs.





# 20,000 psi 30,000 psi

third party certified

#### **Features and benefits:**

- Experienced engineering team—the right people to deliver high pressure projects
- Designed, analysed, and tested WPCE from 3,000 psi to 30,000 psi
- Innovative design solutions
- Hydraulic latching between lubricators with quick test function to guarantee integrity and speed
- De-gassing grease head to mitigate the risks from high pressure gas (patented)
- Vertical control solutions to maximize control performance and safety
- 30k rated constrictor seals (patented)
- Industry leading analysis design validation you can depend on
- FEA stress analysis
- Fatigue and equipment life analysis
- Temperature effects analysis
- Full third-party certification independently verified performance you can rely on
- High pressure in-house testing facilities-verify performance with best-in-class testing and recording equipment

### Elmar QuickLatch—Hydraulic **Quick-Connect**



### **Our Concept: A rapid and safe wireline PCE** connector, robust and simple by design

Introducing our new QuickLatch<sup>™</sup> connector – designed for a fast and secure connection when it matters most. Reduce on-site delays and enhance safety with its integrated speed and safety features. The QuickLatch stands out with its unique combined quick test/load test capability and sensors that monitor piston positioning and well bore pressure. These features work together to prevent the latch from inadvertently opening under well pressure.



QuickLatch - inverted



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#### **QuickLatch - standard**

Our compact QuickLatch connector features a single external moving piston to maximize reliability and keep the mechanism safe from handling damage. The standard orientation features the stinger pin on PCE quick connect; this facilitates applications where night cap installation is required.



QuickLatch - standard

#### **OuickLatch** - inverted

When your operations don't require night caps, our inverted QuickLatch reduces your equipment cost. Connected to the PCE, and with the stinger pin on the well head, a single latch can be used for all the wells on the pad. This single latch allows a simpler low-cost control module to complete your cost reductions.

# **Operational Support**

E-Lite Pressure Equipment Mainframe Package



**Common Quick Union Type Connections** 

6

Configured Transport Frames

Pressure Test Accessories and Operational Ancillaries

Spares, Operational Accessories, and Specialist Hand Tools

Certification Matrix





## **Elmar E-Lite Pressure Equipment Mainframe Package**

First impressions last, the Elmar™ original E-Lite™ mainframe package ensures ease of handling, storage and single lift transportation of your pressure control equipment.

This system consists of the 5 series E-Lite grease and hydraulic control module and full set of lightweight pressure control equipment.







- Accommodates single, dual, or triple wireline valves, all accessories and sufficient lubricator for electric line operations
- Wireline valves are housed in galvanized cages for ease of use and protection
- Galvanized lubricator profiles (4- to 10-ft joints)
- Forklift runners
- Large storage locker
- Heavy duty, single lift transport frame supplied with load test certificate or available fully certified to latest DNV 2.7-1 requirements

#### Typical system accommodates

- Crossover/flange to wellhead
- Single, dual or triple wireline valve
- Quick test sub
- Tool trap
- Lubricators
- Tool catcher
- Grease head
- Grease and hydraulic control module
- Accessories

## **Elmar Configured Transport Frames**

Meet the demands of the industry with your purpose-built Transport Frame to support your WPCE operations. Improving logistical efficiencies and protecting your equipment during transport ensures you can be relied upon as soon as you arrive at the wellsite.







### **WPCE Trailer Unit**

Make sure nothing gets left behind, and haul all the gear you need to get the job done on one trailer unit. Our gooseneck WPCE trailers can be custom configured to suit the equipment you need in the field. Whether you need a QuickLatch connector set and control module or a full WPCE string, we will make the trailer that suits you and maximizes your efficiency.

Generous deck space and high-capacity axles and brakes, with a 30,000-lb load rating means we can configure the trailer to your requirements. Attention to detail makes a difference; with our careful engineering and weight distribution you will have a trailer that can be easily towed, and is safe on the highway. Finished in your colours these trailers make a statement on the professionalism and commitment to efficiency you bring to the job.



#### Weights and dimensions

	Length	Width	Height	Weight
3 in. e-lite pressure equipment system, DNV 2.7-1	138 in. (351 cm)	51 in. (130 cm)	71 in. (182 cm)	10,141 lb (4,600 kg)
4¼6 in. e-lite pressure equipment system, DNV 2.7-1	144 in. (367 cm)	51 in. (130 cm)	71 in. (182 cm)	12,015 lb (5,450 kg)
5½6 in. e-lite pressure equipment system, DNV 2.7-1	153 in. (389 cm)	51 in. (130 cm)	80 in. (203 cm)	14,991 lb (6,800 kg)



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#### **Features and benefits**

#### **Transport and storage frames**

- Lubricator storage
- Wireline valve transport frames with oil inhibitor tank
- Slickline PCE transport frame
- Control module transport frame
- Wireline tool and drum boxes

#### WPCE trailer unit

- Custom configuration to suit your WPCE needs
- High-capacity trailer with heavy-duty axles and brakes
- · Anti-slip surfaces, hand rails, and access steps to minimize accidents in the field
- Balanced weight distribution for easy and safe towing



#### **Operational Support**

# **Common Quick Union Type Connections**



Typical quick union pin and collar showing Bowen type quick union profile



Typical quick union box showing Bowen type quick union profile

#### Quick union connection legend

Item	Description
A	Thread size
В	Threads per inch (T.P.I.)
С	Seal diameter
D	Nominal ID

Note: All sizes in inches. Additional connections available on request.

Elmar code	Thread size (in.)	TPI	Seal dia (in.)	Nominal ID (in.)	WP	Service	0-ring	BU-ring	BU-ring retainer		
001	5	4	3.500	3.00	5k	STD	L-870310	N/A	N/A		
002	5 3/4	4	4.000	3.00	10k	H <sub>2</sub> S	L-870490	L-873680	N/A		
003	6/4	4	4.000	2.50	15k	H <sub>2</sub> S	L-870490	L-974353	L-873260		
004	61⁄2	4	4.750	4.00	10k	STD	L-870540	L-873720	N/A		
005	61⁄2	4	5.188	4.00	5k	STD	L-873140	N/A	N/A		
006	71/2	4	5.500	3.00	15k	H <sub>2</sub> S	L-870580	L-974602	L-876260		
007	81/4	4	6.188	5.00	5k	H <sub>2</sub> S	L-870710	N/A	N/A		
008	83%	4	5.250	4.00	10k	H <sub>2</sub> S	L-875560	L-875570	N/A		
009	8¾	4	7.500	6.38	5k	STD	L-870720	N/A	N/A N/A		
010	9	4	6.750	5.00	10k	H <sub>2</sub> S	L-870850	L-876160	N/A		
011	91⁄2	4	6.250	4.00	15k	H <sub>2</sub> S	L-872560	L-977411	L-871005		
012	91⁄2	4	8.000	6.38	5k	H <sub>2</sub> S	L-873120	N/A	N/A		
013	111/2	4	8.250	6.38	10k	H <sub>2</sub> S	L-876060	L-876070	N/A		
014	12	4	10.313	9.00	5k	H <sub>2</sub> S	L-872440	N/A	N/A		
015	121/4	4	7.000	5.00	15k	H <sub>2</sub> S	L-875810	L-982000	L-873150		
016	5	4	3.500	3.00	5k	H <sub>2</sub> S	L-870310	N/A	N/A		
017	61⁄2	4	4.750	4.00	5k	H <sub>2</sub> S	L-870540	N/A	N/A		
018	71/2	4	5.500	4.50	10k	H <sub>2</sub> S	L-870580	L-873760	N/A		
019	61⁄2	4	4.750	3.00	10k	H <sub>2</sub> S	L-870540	L-873720	N/A		
O20	5	4	3.500	2.50	15k	STD	L-870460	L-976083	L-875640		
021	5	4	3.500	3.00	10k	STD	L-870310	L-873570	N/A		
022	81⁄4	4	6.188	5.12	10k	H <sub>2</sub> S	L-870710	L-875001	N/A		
023	6	4	4.875	4.00	5k	H <sub>2</sub> S	L-870550	N/A	N/A		

Bowen quick union type connections

Otis quick union type connections

Elmar code	Thread size (in.)	ΤΡΙ	Seal dia (in.)	Nominal ID (in.)	WP	Service	0-ring	BU-ring	BU-ring retainer	
B01	4¾	4	3.750	3.00	5k	H <sub>2</sub> S	L-870470	N/A	N/A	
B02	6%16	4	4.375	3.00	10k	H <sub>2</sub> S	L-870520	L-873700	N/A	
B03	6%16	4	3.750	2.50	15k	H <sub>2</sub> S	L-870470	L-974535	L-873170	
B04	51/2	4x2	4.375	3.00	5k	H <sub>2</sub> S	L-870520	N/A	N/A	
B06	7	5	4.375	3.00	15k	H <sub>2</sub> S	L-870520	L-974603	L-873260	
B07	81/4	4x2	6.000	4.00	10k	H <sub>2</sub> S	L-870690	L-875340	N/A	
B08	7	5	5.250	4.00	5k	H <sub>2</sub> S	L-875560	N/A	N/A	
B09	81/4	4x2	6.750	5.50	5k	H <sub>2</sub> S	L-870850	N/A	N/A	
B10	95/32	4x2	6.750	5.50	10k	H <sub>2</sub> S	L-870850	L-876160	N/A N/A N/A N/A	
B11	9%	4x2	8.000	6.38	5k	H <sub>2</sub> S	L-873120	N/A	N/A N/A N/A N/A	
B12	4¾	4	3.750	3.00	10k	STD	L-870470	L-873660	N/A	
B13	51/2	4x2	4.375	3.00	10k	STD	L-870520	L-873700	N/A	
B14	41/16	4	3.000	2.00	5k	H <sub>2</sub> S	L-870430	N/A	N/A	
B15	10%	4	7.500	5.63	10k	H <sub>2</sub> S	L-870720	L-870021	N/A	
B16	41/2	4	3.000	2.00	10k	H <sub>2</sub> S	L-870430	L-873630	N/A	
B17	81%	4x2	6.500	5.00	10k	STD	L-873280	L-875540	N/A	
B18	13	4	9.500	7.06	10k	H <sub>2</sub> S	L-874008	L-874009	N/A	
B19	81%	4x2	5.500	4.00	15k	H <sub>2</sub> S	L-873270	L-980815	L-871029	
B20	6	4x2	4.875	3.38	5k	H <sub>2</sub> S	L-870550	N/A	N/A	
B21	12	2	7.500	5.125	20k	H <sub>2</sub> S	L-870720	L-9701031023	L-870103671	
B22	8¾	4	6.500	5.00	10k	H <sub>2</sub> S	L-873280	N/A	N/A	
B23	7	5	4.750	3.00	10k	H <sub>2</sub> S	L-870540	L-873720	N/A	
B24	81/4	4	6.625	5.125	10k	H <sub>2</sub> S	L-871130	L-873860	N/A	

#### Elmar quick union type connections

Elmar code	Thread size (in.)	трі	Seal dia (in.)	Nominal ID (in.)	WP	Service	0-ring	BU-ring	BU-ring retainer
E04	6¾	4	5.375	4.892	5k	STD	L-870610	N/A	N/A
E05	9	4	7.500	6.765	5k	STD	L-870660	N/A	N/A
E06	43⁄4	4	3.750	3.00	10k	H <sub>2</sub> S	L-870470	L-873660	N/A
E07	81/2	4	7.250	6.765	3k	STD	L-870840	N/A	N/A
E08	8¾	4	6.500	5.00	10k	H <sub>2</sub> S	L-870630	L-873790	N/A
E09	43⁄4	4x2	3.750	3.00	10k	H <sub>2</sub> S	L-870470	L-873660	N/A
E12	61/8	4x2	4.750	4.06	10k	H <sub>2</sub> S	L-870540	L-873720	N/A
E13	3¾	8	2.500	-	10k	H <sub>2</sub> S	L-875630	L-872700	N/A
E14	9	4	7.500	6.625	5k	H <sub>2</sub> S	L-870660	N/A	N/A
E16	6¾	4	5.375	4.892	5k	H <sub>2</sub> S	L-870610	N/A	N/A
E21	9%	4	7.750	6.67	5k	H <sub>2</sub> S	L-870006	N/A	N/A
E22	6%	4	5.625	4.892	5k	H <sub>2</sub> S	L-870590	N/A	N/A
E30	91⁄2	4	5.500	4.06	20k	H <sub>2</sub> S	L-8701008706	L-9701008692	L-871029
E32	71/8	4x2	6.125	5.125	10k	H <sub>2</sub> S	L-873040	L-872080	N/A
E37	111/2	4x2	9.150	7.38	10k	H <sub>2</sub> S	L-8721068070	L-8721068073	N/A
E45	71/8	2	6.125	5.12	12.5k	H <sub>2</sub> S	L-873040	L-872003	N/A
E56	91/4	4	6.500	5.12	15k	H <sub>2</sub> S	L-873280	L-17888058-001	L-8701046459
E59	91⁄2	4x2	7.500	6.38	10k	H <sub>2</sub> S	L-870720	L-870021	N/A

**Operational Support** 

## **Elmar Pressure Test Accessories** and Operational Ancillaries

### Safe, reliable, and designed for repeatable performance.

Our selection of accessories and ancillary equipment ensures your personnel's safety and protection during pressure testing, maintenance, and operational work. This also ensures that your equipment is properly managed and protected throughout all wellsite activities, maximizing your investment and extending your operational uptime.

Our operational support equipment is meticulously engineered, manufactured, and tested-both for pressure and load-under third-party certification, ensuring compliance with relevant API standards and any applicable lifting standards and regulations.



Lubricator lifting clamp **Test rod for Enviro** and spreader beam Designed specifically for lifting pressure

grease injection head Designed to protect your SB/LW packing during function tests and to ensure the rod remains contained within the assembly during hydrostatic testing.



Lubricator entry guide

Reduces the chance of rope socket cable

pull off at surface when the wireline

conveyed tools string is entering the

lubricator

Elmar | N/

equipment strings on wellsites.



Lubricator dolly Designed to quick connect to the lower lubricator section and bring the WPCE string safely from the horizontal to the vertical position and back again.



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(Blanking cap) Test plug and collar Quick union test plug is used to cap off the WPCE for pressure testing or designed to safely and effectively shut in a wellhead.



Combined test plug and lift bail Effecient way to lift and move WPCE, followed by pressure testing, effectively reduces operational time and cost.

### **Spares, Operational Accessories, and Specialist** Hand Tools



### Commitment to the purchase of quality equipment, is only the start of the Product Life Cycle.

As an original equipment manufacturer (OEM) of wellhead pressure control equipment, we ensure that our spare parts do not breach the certification of the product when supplied. Elmar™ prides itself in supporting client operations long after the asset has been delivered.

#### **WPCE** spares

An item kept in case another item of the same type is lost, broken, or worn out.

- O-Rings and back-up rings
- ReDress seal kits
- Slickline stuffing box packing
- Pack-off line wiper rubbers
- Brass bushings for pack-offs, GIEs, and stuffing box
- Flotubes
- Inner and outer seals ram elements
- API 6A flange studbolts and nuts
- Ring gaskets
- Thread protectors
- Hydraulic quick connects

#### **Specialist Hand Tools**

To simplify and speed-up maintenance of our wellhead pressure control equipment, a range of specialist hand tools are available, packaged (upon request) in custom made tool boxes.

#### Accessories

A thing which can be added to something else in order to make it more useful.

- Pressure test plugs and caps
- Lifting bails
- Hand pump and hoses for pack-offs and QTS
- Spreader beam/delta plates/lubricator lifting clamps
- Flowline plug and gate valves
- Specialist hand tools to support service and mainentance

#### Ancillaries

Providing necessary support to the primary activities or operation Ancillaries.

- Lubricator entry guide
- Lubricator laydown stands
- Drip trays for under the bottom sheaves
- Barrels of polybutene multigrade wireline grease
- WIWA pump for grease transfer
- Chart recorders











# **Certification Matrix**

You can rely on Elmar™ Wireline Pressure Control Equipment with detailed traceability and wide range of certification and third-party verification options.

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					Stan	dard	MR
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Certification MRB Matrix.				non /			Ę,
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	\$1	<b>S1</b>	<b>S1</b>	<b>S1</b>	<b>S1</b>	<b>S1</b>	s
					-		-
	WPCE	(wire	eiine i	ressu	ire Co	ntroi	Equ
Adaptor Flange	•	-		•			
Ball Check Valve	•	•		•			-
Bleed Off Manifold	_	_	_			-	_
Blind, Adaptor and Spool Hange (API Monogram)		-	-	-			_
Cable Cutter - Hydraulic		-		-			
		-		-			
Crossover Adaptor		-		-			-
Crossover Audptor (Arr miedoling wonogram)		-	-	-			
Gale valves - Alison Grassa Injaction Assambly		-		-			
Grease Injection Assembly Grease Injection Stuffing Box Assembly - Hydraulic (Enviro)		-	-	-			
Hand Pump - Hydraulic	-	-		-			
Hoses for Wireline Valve. Stuffing Box etc Hydraulic						-	
Lift Bail						-	
Lifting Bail Combined Test Plug	•	•		•			
Lifting Clamps		-		-			
Line Wiper - Hydraulic	•	•		•			
Lub Dolly	-	-		_			-
Lubricator / Riser	•	•		•			
Pack Off - Hydraulic	٠	•		٠			
Plug Valves - Anson	٠	•		٠			
Pump-In Sub	٠	•		٠			
Quick Test Sub	٠	٠		٠			
QuickLatch	•	•		٠			
Rigging Sheave							
Safety Flow Diverter Assembly	٠	٠		٠			
Sheave Bracket							
Slickline Stuffing Box - Hydraulic *Load Test Certificate if Supplied with Sheave Bracket	•	٠		٠			
Slickline Stuffing Box - Manual *Load Test Certificate if Supplied with Sheave Bracket	٠	٠		٠			
Slickline Stuffing Box - Liquid Seal *Load Test Certificate if Supplied with Sheave Bracket	•	٠		٠			
Test Cap / Stump Assembly	•	•		٠			
Test Plug Assembly	•	٠		٠			
Test Rod							
Tool Catcher - Hydraulic	•	٠		٠			
Tool Trap - Hydraulic	•	•		٠	•		
Tool Trap - Manual	•	•		•	•		
Turn Around Sheave and Adaptors	•	•		٠			
Vent Valve Assembly	•	٠		٠			
Guardian Wireline Shear and Seal Valve (WSSV)	•	٠		٠			
Wireline Valve - Hydraulic	•	•		•	•		-
Wireline Valve - Manual	•	•	_	•	•		•
Wireline Valve - Ram Assembly		•	_			•	
Wireline Valve - Cage	_	_	_				
WPCE Transport or Mainframe							









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