

*floSmart*



**ENERGY SERVICES**

**Overview of Cased Hole  
Wireline Operations**

*floSmart*



PRESENTER

KENNETH EGWIM (FSM)

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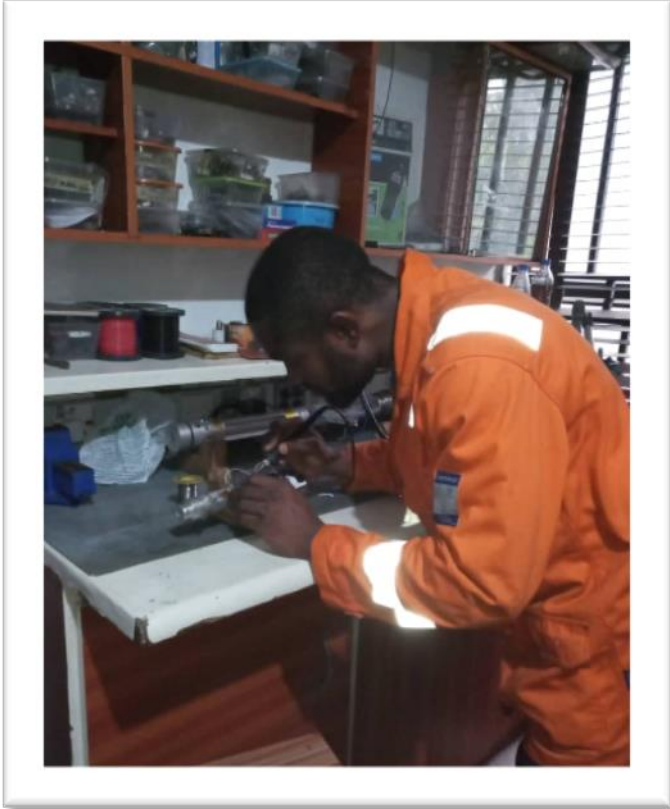
# OVERVIEW

- Incorporated according to the laws of Nigeria
- Started Operation in 2008
- Operating Bases:
  - Plot 88 Rivoc Road, Trans Amadi, PH, Nigeria (Main)
  - 8, Jack Mary Str, Off Akpabor Str, First Ugbor Road, GRA, Benin City, Nigeria
  - 45B Bamidele Eletu Street, Osappa London, Lekki, Nigeria
  - Website: [www.floSMART.com](http://www.floSMART.com)
- Principals: Over 50yrs Industry Experience
- Registered with all necessary Govt. bodies: NUPRC, NCDMB, ITF, NSITF etc.
- Strategic Alliances with Industry Leaders
- Diversity, Equity and Inclusion (DEI)

# OVERVIEW – Contd.

	Nigerian %	Foreign %
Ownership	100	0
Management	100	0
Employees	100	0

# OVERVIEW – Contd.



Tools Check in Electronics Lab./ Firstaid Training

# HSE

INDICATORS	2021	2022	2023
Total Man Hours Worked (Without LTI)	120,240	112,320	103,680
Average Number of Employee (yearly)	27(I.T Inclusive)	27(I.T Inclusive)	24
Number of Fatal Injuries (FI)	0	0	0
Lost Time Injury (LTI)	0	0	0
Medical First Aid Case (FAC)	1	0	1
Road Traffic Accident (RTA)	3	2	1
Near-Miss Reports	115	77	182
HSE Meeting	11	10	10
Fire Incident	0	1	0

## HSE STATISTICS

# MAJOR SERVICES

- Cased Hole Wireline and Perforation Services
- Memory Logging Services
- Tubing Conveyed Perforation
- Surface/Downhole Well Testing and Particle Detection
- Completion Services (Screens and Blanks, Gravel Pack)
- Instrumentation and Electrical Services



# CASED HOLE WIRELINE

## - Equipment



Truck-Mounted Logging Units

# CASED HOLE WIRELINE

## - Equipment



Skid-Mounted Logging Units

# CASED HOLE WIRELINE

## - Equipment



Downhole Tools

# CASED HOLE WIRELINE

## - Equipment



Equip Loadout with Pressure Control  
Equipment

# Electric Wireline Services

## – Services

- GR/CCL Correlation/Depth Determination
- Cement Bond Evaluation
- Production Logging Services
- Caliper and Corrosion Services
- Plugs/Packer/Cement Retainer Setting Services

# Electric Wireline Services

## – Services – contd.

- Through Tubing Vented Bridge Plug (WSO)
  - (Petal Basket Plug)
- Tubing Plugs: Magna Range (WSO)
- Cement Dump Bailers (WSO)
- Perforation Services
- Magnetic Orienting Tool

# Electric Wireline Services

## – Services – contd.

- Pipe Recovery Services
  - Free Point Indicator Tool
  - Tubing Puncher
  - Radial Cutting Torch
  - Chemical Cutters
  - Jet Cutters



# Memory Logging Services

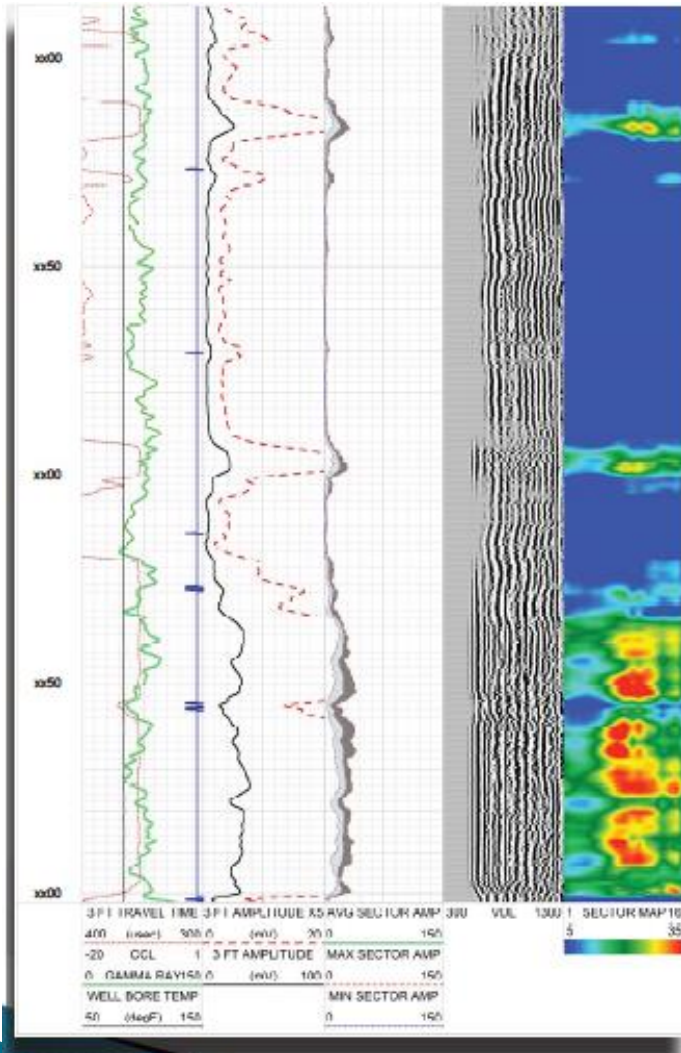
## – Services

- Production Logging Services
- Memory Multifinger Caliper Services
- Memory Cement Bond Evaluation
- Smart Blaster
- Smart Plug Set
- Smart Dump Bailers



# Electric Wireline Services

## – SEGMENTED CEMENT BOND TOOL



### ▶ Sizes

Diameter: 1.69ins, 2.75 ins, 3.5 ins

Pressure Rating: 25,000 psi

Temperature Rating: 400 degF (204 degC)

### ▶ Measurements

Near Receiver (3 feet)

Far Receiver (5 feet)

Radial Segmented Receivers (2 feet) – 8 Segments

Gamma Ray/CCL

### ▶ Recommended Casing Range

1.69 ins Tool: 2.38 ins to 7 ins

2.75 ins Tool: 4.5ins to 10.75 ins

3.5 ins Tool: 5.25ins to 13.625 ins

# Electric Wireline Services

## – SEGMENTED CEMENT BOND TOOL

### 3-1/2" High Speed Radial Cement Bond Logging Tool

- ▶ High Speed Radial (HSR)
- ▶ Next Generation of cement bond tools.
- ▶ Evaluates the cement bond quality and integrity to both casing and formation
- ▶ Provides a 360° cement map with a dedicated 12-segment Radial receiver located 2-ft from the transmitter
- ▶ Provides standard cement bond amplitude (CBL) through Near receiver (3-ft), and Variable Density Log (VDL) through Far receiver (5-ft).



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# Electric Wireline Services

## – PRODUCTION LOGGING TOOL



Controller

Battery

Accelerometer

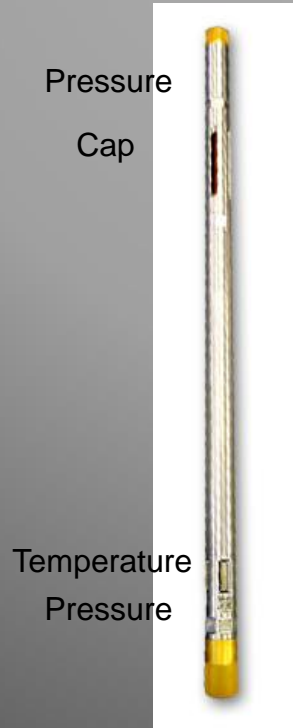
Memory



Gamma / CCL

Gamma Ray

CCL



TPCD Tool

Pressure  
Cap

Temperature  
Pressure



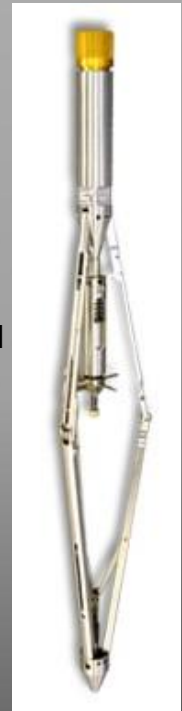
Centralizer



Pressure Bulkhead



Caged  
Spinner



Fullbore Spinner

Both Memory and SRO

Pressure

Temperature range

OD

Material

15,000 psi max

-40° C to +177° C

1.375" (except Flowmeters)

Inconel 718 Sour Service

# Electric Wireline Services

## - PRODUCTION LOGGING TOOL

### Specifications:

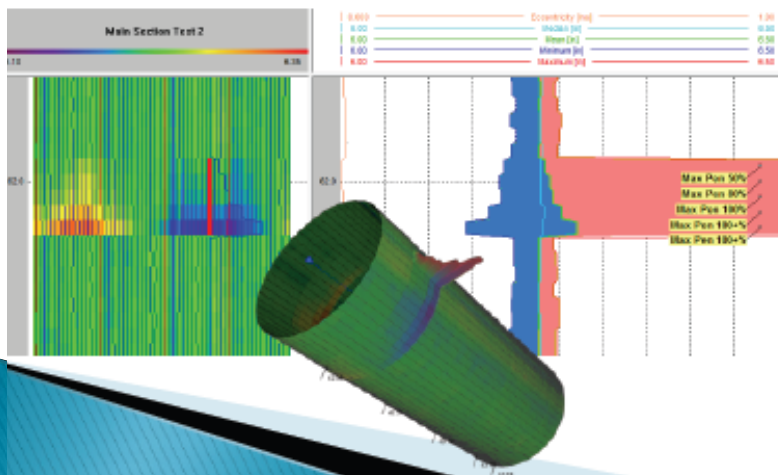
Operating Specifications				
Pressure Rating	15,000 psi (max)	Temperature Range	-40° F to 350° F [-40° C to 177° C]	
Housing Material	Inconel 718* (sour)	Dimensions	Length	Diameter
Master Controllers	Power Requirements	<u>Compact PLT</u> Battery Housing Electronics	1.17 ft 2.26 ft	1.375 inches 1.375 inches
Memory Voltage Current (max)	12.0 - 15.6 V (4 cell pack) Depends on configuration	<u>Compatible Sensors</u> Casing Collar Locator Gamma Ray / CCL Gamma Ray Press / Temp (Sapphire) Press / Temp (Quartz) Capacitance Acoustic Density Caged Flowmeter Full Bore Flowmeter In Line Flowmeter X-Y Caliper Roller Centralizer Pressure Bulkhead	1.41 ft 2.91 ft 2.20 ft 1.00 ft 1.50 ft 1.39 ft 1.39 ft 1.32 ft 2.25 ft 1.21 ft 3.32 ft 2.58 ft 0.32 ft	1.375 inches 1.375 inches 1.375 inches 1.375 inches 1.375 inches 1.375 inches 1.680 inches 1.375 inches 1.680 inches 1.375 inches 1.375 inches 1.375 inches
Communications	RS232 / USB			
Data Acquisition Memory Sample Rate Logging Time	128 Mb 1, 2, 5, or 10 samples/sec Standard CPLT (4 sensors) at 1 sec sample for 258 hours			
Performance Specifications				
Spinner Range Operating Diameter Resolution Accuracy Threshold In Line Caged Fullbore	+/- 200 rps 1.81" minimum Caged Spinner 0.125 rps +/- 2%  8 ft/min (oil flow) 4 ft/min (oil flow) 2 ft/min (oil flow)	Pressure Range Resolution Accuracy	<u>Sapphire</u> 15,000 psi 0.003% F.S. 0.05% F.S.	<u>Quartz</u> 15,000 psi 0.00006% F.S. 0.024% F.S.
		Acoustic Density Sensor Range Resolution Accuracy	Vibrating Element 0 - 2 g/cc 0.01 g/cc 0.03 g/cc	
Temperature Range Resolution Accuracy	-40° C to 177° C 0.01° C +/- 1° C	Fluid Capacitance Resolution WHI Accuracy	0.1% 2% (range 0% - 30%) 5% (range 30% - 60%)	
Gamma Ray Detector Type Range	Scintillation 0 - 10,000 API	Casing Collar Locator Detector Type	Electromagnetic	
Accelerometer Range Resolution Accuracy	+/- 5 g 0.01 g +/- 0.1 g	X-Y Caliper Range Resolution Accuracy	2.0 to 9.0 inches +/- 0.02 inches +/- 0.1 inches	
Roller Centralizer Range	1.4 to 8.2 inches	Pressure Bulkhead Range	15,000 psi	

# Electric Wireline Services

## - MULTI-FINGER CALIPER TOOL (MFCT)

### SPECIFICATIONS

	1-11/16"
MAX TEMPERATURE	350°F (175 °C)
MAX PRESSURE	15,000 psi (103.4 MPa)
MAKE-UP LENGTH	49.88" (1267mm)
TOOL WEIGHT	16.06 lbs (7.3 kg)
ARMS	24
DIAMETER	43 mm
MEASURING RANGE	1.88-7" (48-177mm)
MEASURING ACCURACY	.05" (1.5mm) dia
POWER	180Vdc / 30 mA Logging with WTS Telemetry Sub
LOGGING SPEED	30 ft/min (600 m/h)



# Electric Wireline Services

## - PLUG SETTING TOOLS



Setting Tool Maintenance

### ▶ Types

1. E-4 Wireline Setting Tool, Size 10
2. E-4 Wireline Setting Tool, Size 20
3. 2-1/8" MultiStage Setting Tool
4. 1-11/16" MultiStage Setting Tool

### ▶ E-4 Tool Ratings

Max. Operating Temperature: 400 degF  
Max. Operating Pressure: 15,000 psi  
Max. Setting Force: 55,000 lbs

# Electric Wireline Services

## - WATER SHUT-OFF (WSO)

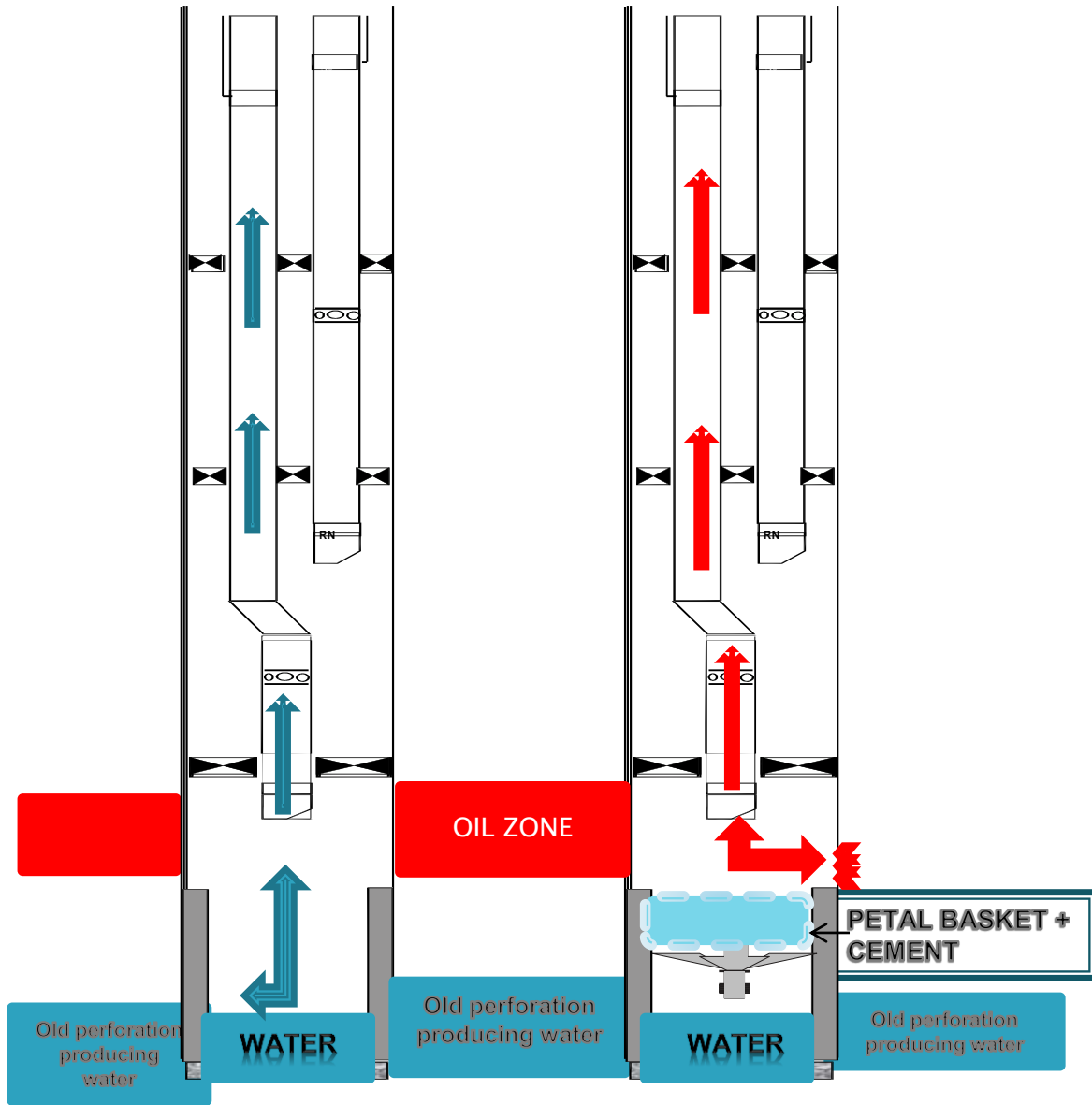
### **Shut-Off Water, Let Oil flow !!!**

- Initial Drift / Depth Determination
- Set the right plug at specified depth
- Consolidate Plug by Dumping Cement
- Perforate zone of future yield

# Electric Wireline Services BEFORE

## - WSO SOLUTIONS

- ▶ PERFORATION USING THRU-TUBING PERFORATION GUNS (TTPG):
- ▶ GUN SIZES: 1-11/16", 2-1/8"
- ▶ SHUT DENSITY, 4SPF, 6SPF

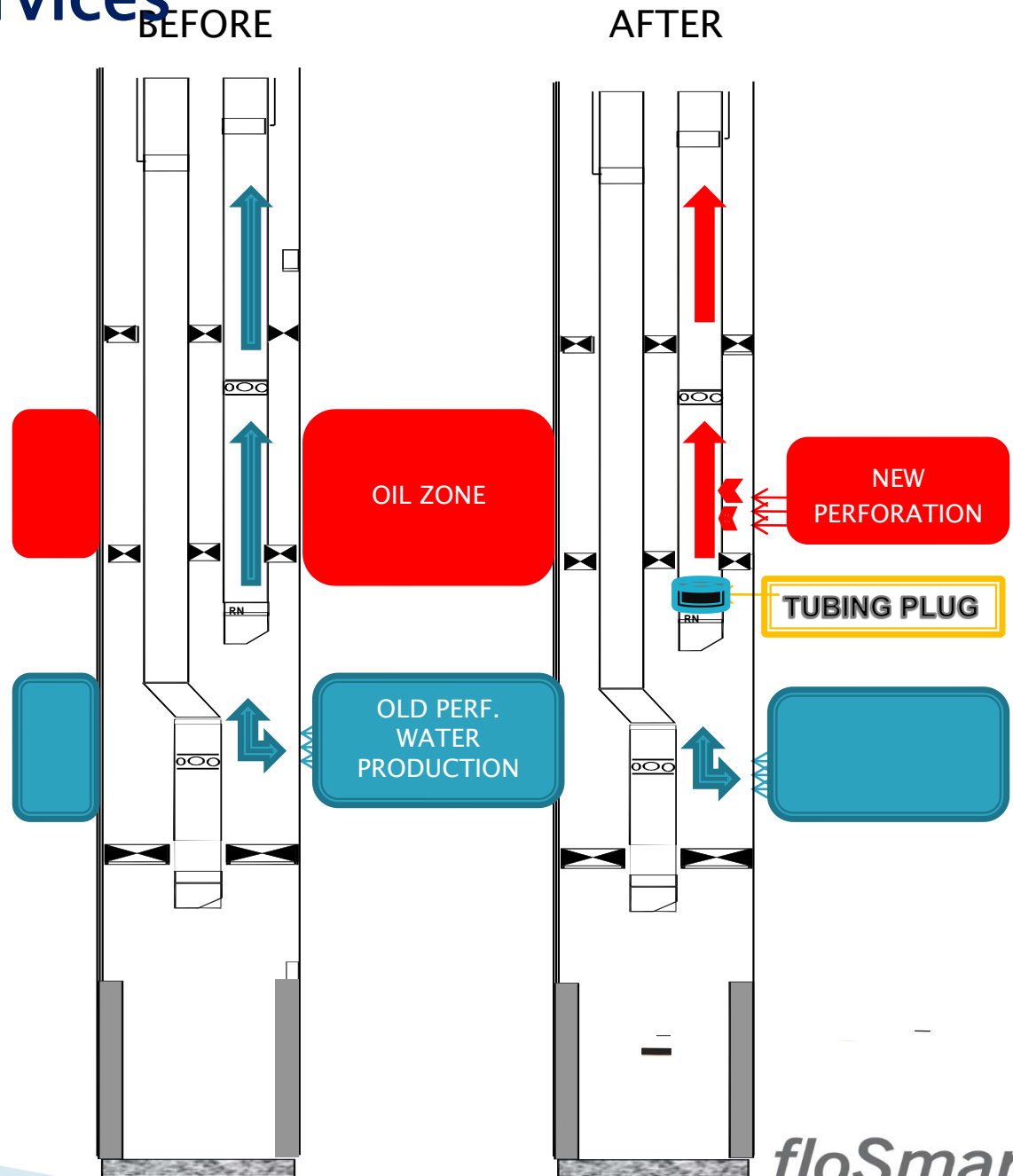




# Electric Wireline Services

## - WSO SOLUTIONS

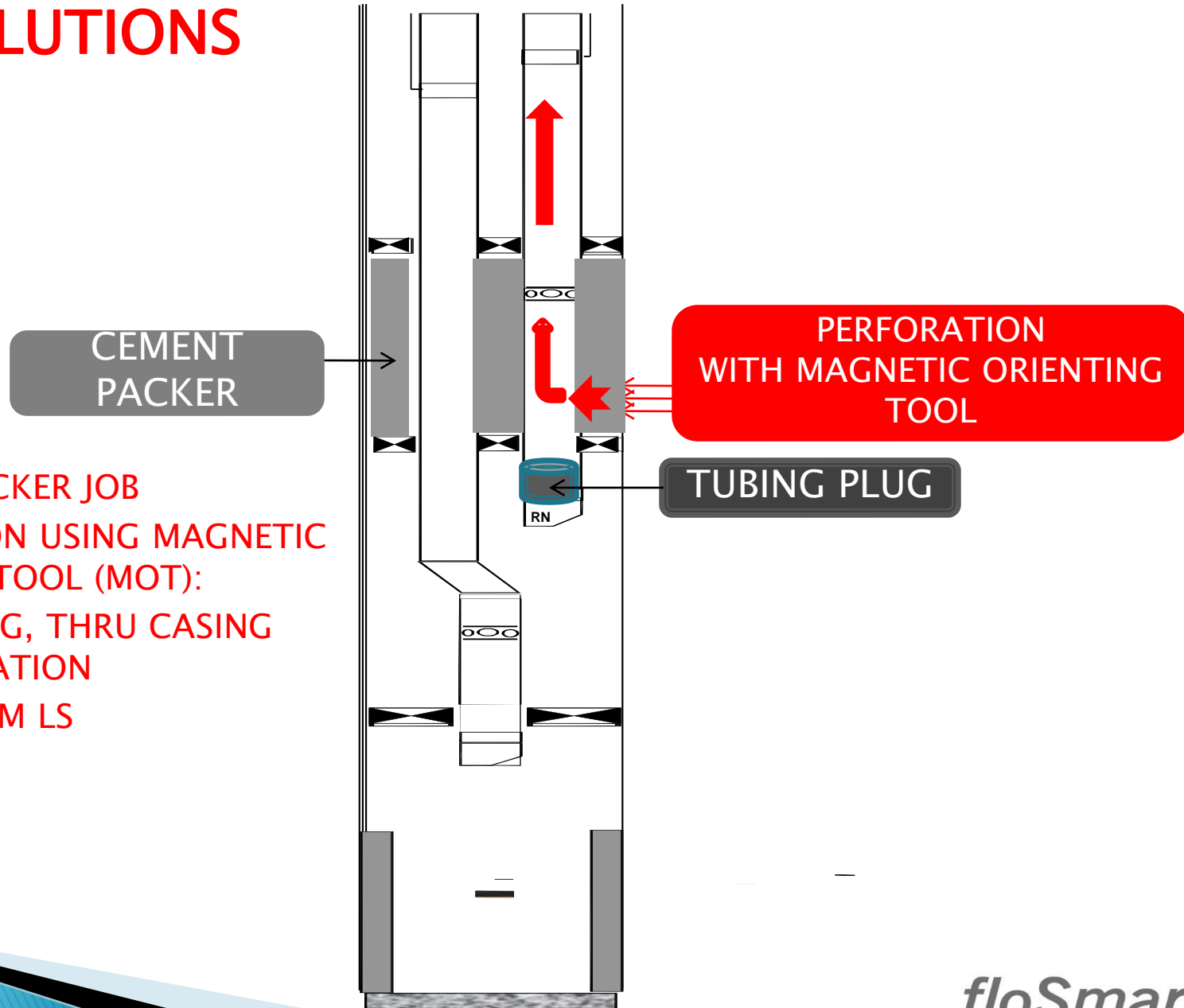
- ▶ PERFORATION USING MAGNETIC ORIENTING TOOL (MOT):
- ▶ THRU TUBING, THRU CASING INTO FORMATION
- ▶ ORIENT FROM LS



# Electric Wireline Services

## - WSO SOLUTIONS

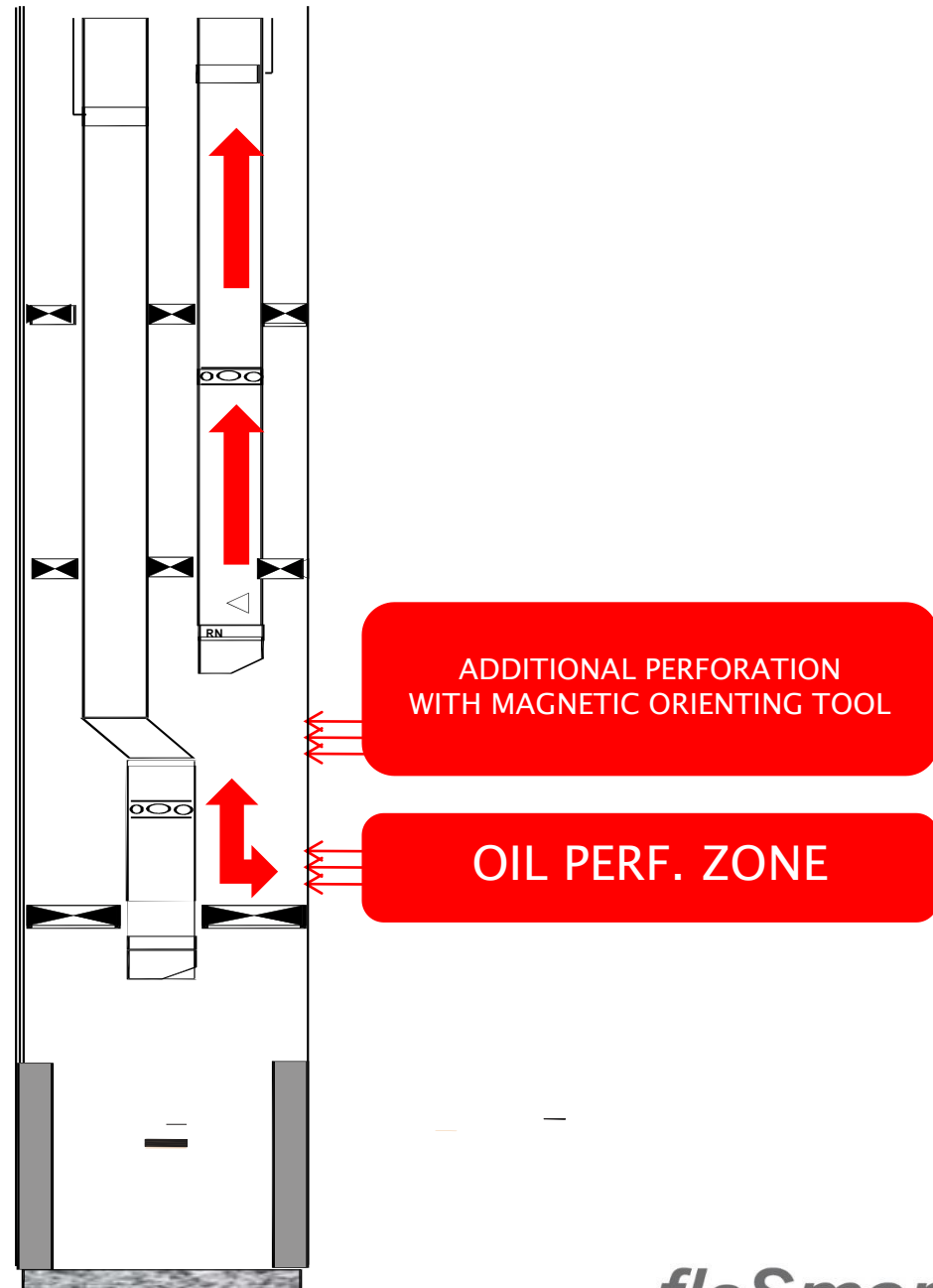
- ▶ CEMENT PACKER JOB
- ▶ PERFORATION USING MAGNETIC ORIENTING TOOL (MOT):
- ▶ THRU TUBING, THRU CASING INTO FORMATION
- ▶ ORIENT FROM LS



# Electric Wireline Services

## - WSO SOLUTIONS

- ▶ PERFORATION USING MAGNETIC ORIENTING TOOL (MOT):
- ▶ THRU TUBING, THRU CASING INTO FORMATION
- ▶ ORIENT FROM LS



# Electric Wireline Services

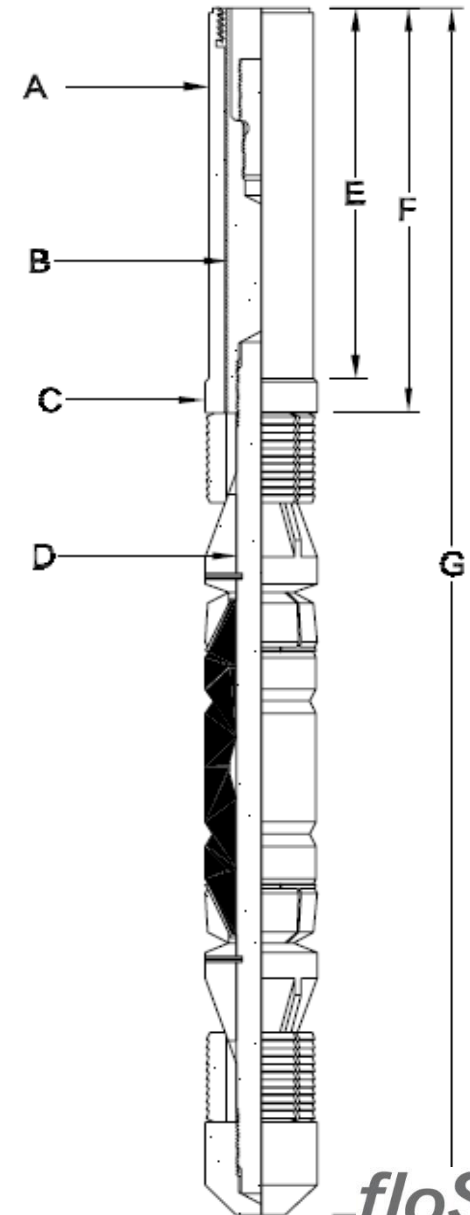
MAGNA RANGE PLUG SPECIFICATIONS

## - WSO - PLUG

### DIMENSIONAL DATA (INCHES)

Bridge Plug Size	A	B	C	D	E	F	G AFTER SET
1.500	1.40	.625	1.468	.625	.56	.88	11.88
1.750	1.70	1.093	1.750	.750	7.00	7.50	20.50
1.906	1.70	1.093	1.906	.750	7.00	7.50	21.88
2.187	2.00	1.250	2.187	.750	7.25	7.71	21.71
2.281	2.00	1.250	2.281	.750	7.25	8.00	22.56
2.500	2.50	1.250	2.500	1.25	2.56	2.56	17.25
2.750	2.75	1.250	2.750	1.25	2.56	2.56	17.25
3.000	3.00	1.250	3.000	1.25	2.63	2.63	17.25
3.250	3.25	1.500	3.250	1.50	1.68	1.68	15.88
4.062	4.06	2.750	4.062	2.50	2.78	3.53	20.84

Plug Max. O.D.	Setting Range		Setting Force (lbs.)
	Min.	Max.	
1.500	1.610	1.995	8,000
1.750	1.905	2.441	
1.906	2.156	2.765	
2.187	2.375	3.000	
2.281	2.441	3.343	
2.500	2.875	3.500	25,000
2.750	3.187	3.920	
3.000	3.437	4.154	
3.250	3.920	4.276	27,000
4.062	4.154	5.044	30,000

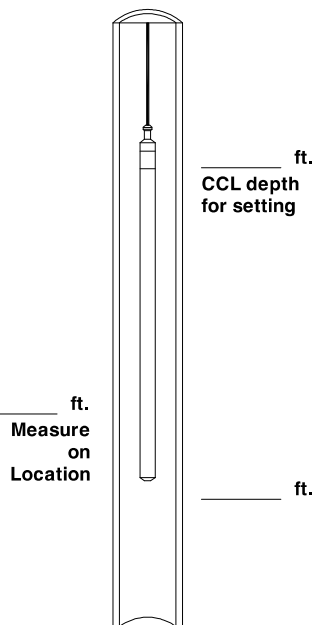


# Electric Wireline Services

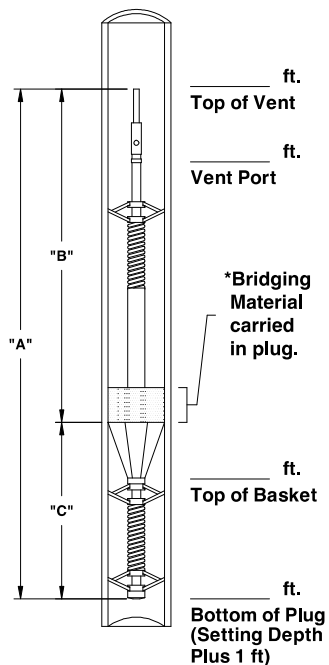
## - WSO - PETAL BASKET PLUG plus CEMENT DUMP

### HIP PLUG OPERATIONAL SEQUENCE

I. Running



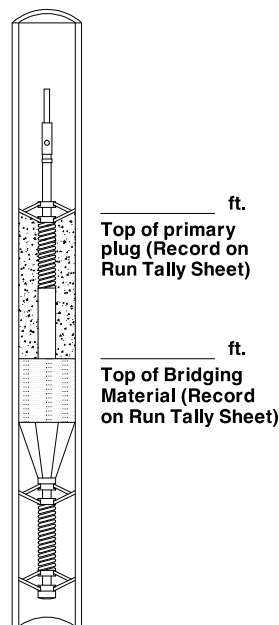
II. Setting



\* HIP/WS Model only  
(3 in. max height.)

\* Dimensions A, B, C are  
listed on QC reports

III. Primary Plug



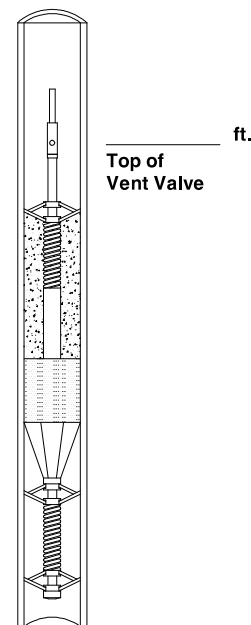
\* Additional Bridging Material  
Recommended for:

- Deviated Wells
- Wells with crossflow
- Wells with open perms
- Large diameter casing

\* TOC 12 in.- 18 in. below  
Vent Port

\* WOC 24 Hrs. min  
Vent Port

IV. Close Vent

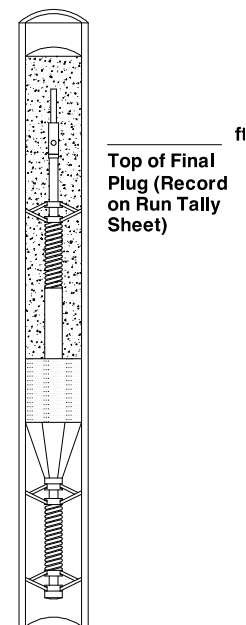


\* Set Down with  
Lead Impression  
Block

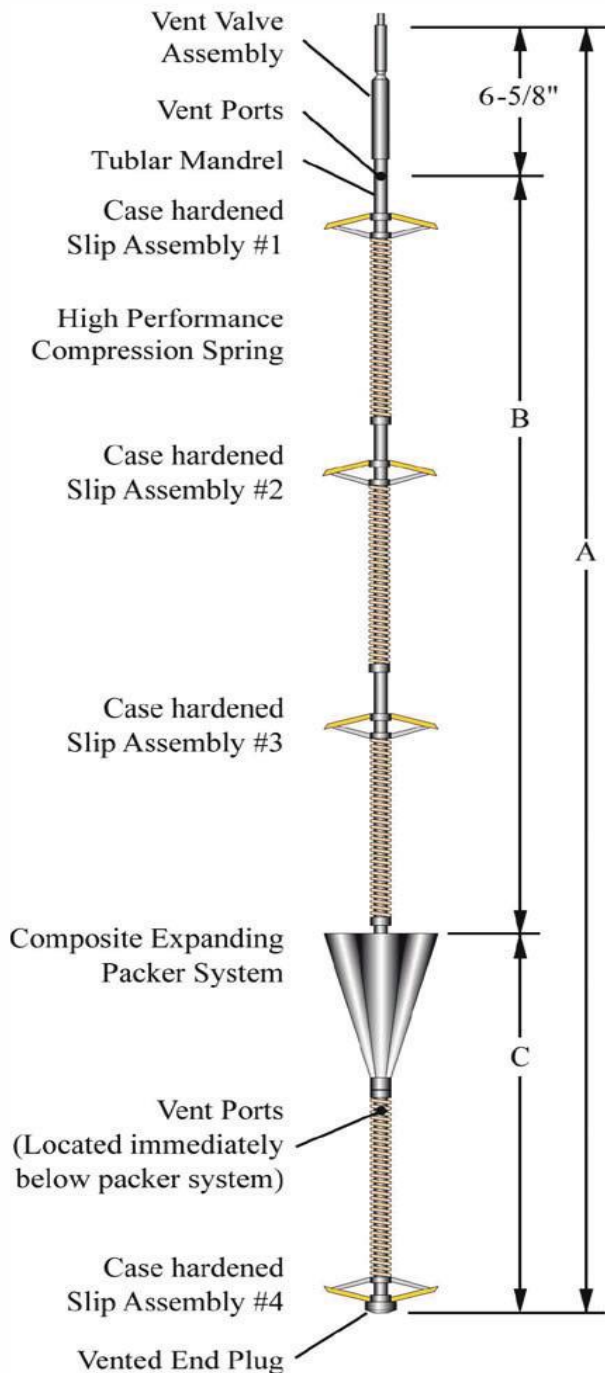
\* Vent closes at  
200# force  
Date: \_\_\_\_\_

Time: \_\_\_\_\_

V. Final Plug



\* Recommended:  
15' in 5-1/2" CSG  
20' in 7" CSG  
WOC 24 Hrs. min



## THROUGH TUBING VENTED BRIDGE PLUG

- Electro-Hydraulic Trigger System
- No Explosives, No Radio Silence
- Reliable in elevated bore temps/pressures
- Solid base and Static Anulus for Initial Cement
- Accommodates Crossflow during Cement dump

### 1-5/8" Run-In Diameter

Model	Casing Size	A*	B*
163-238-2001 A	2-3/8"	-	-
163-288-2001 A	2-7/8"	-	-
163-350-2001 A	3-1/2"	9' 2"	6' 7"
163-400-2001 A	4"	9' 2"	6' 7"
163-450-2001 A	4-1/2"	9' 2"	6' 6"
163-500-2001 A	5"	9' 2"	6' 6"
163-550-2001 A	5-1/2"	9' 2"	6' 6"
163-663-2001 A	6-5/8"	13' 2"	10' 4"
163-700-2001 A	7"	13' 2"	10' 4"
163-763-2001 A	7-5/8"	13' 2"	10' 4"

### 2" Run-In Diameter

Model	Casing Size	A*	B*
201-863-2001 A	8-5/8"	13'	9' 3"
201-963-2001 A	9-5/8"	13'	9' 3"

# Electric Wireline Services

## - WSO - DUMP BAILER CEMENT SYSTEMS

### HIP MIX & HIGH SHEAR BOND (HSB) HIP MIX CEMENT SYSTEMS

#### TYPICAL API COMPRESSIVE STRENGTHS

TEMPERATURE	HIP MIX		HSB HIP MIX	
	@ 24 hours	@ 72 hours	@ 24 hours	@ 72 hours
200°F	3,150 psi	4,400 psi	3,500 psi	5,200 psi
250°F	3,750 psi	5,200 psi	4,600 psi	6,700 psi
300°F	5,100 psi	7,000 psi	6,600 psi	8,800 psi

Actual cement strengths in service depend on dumping technique and downhole conditions.

#### APPROXIMATE COMPRESSIVE STRENGTHS AT VARIOUS TIMES

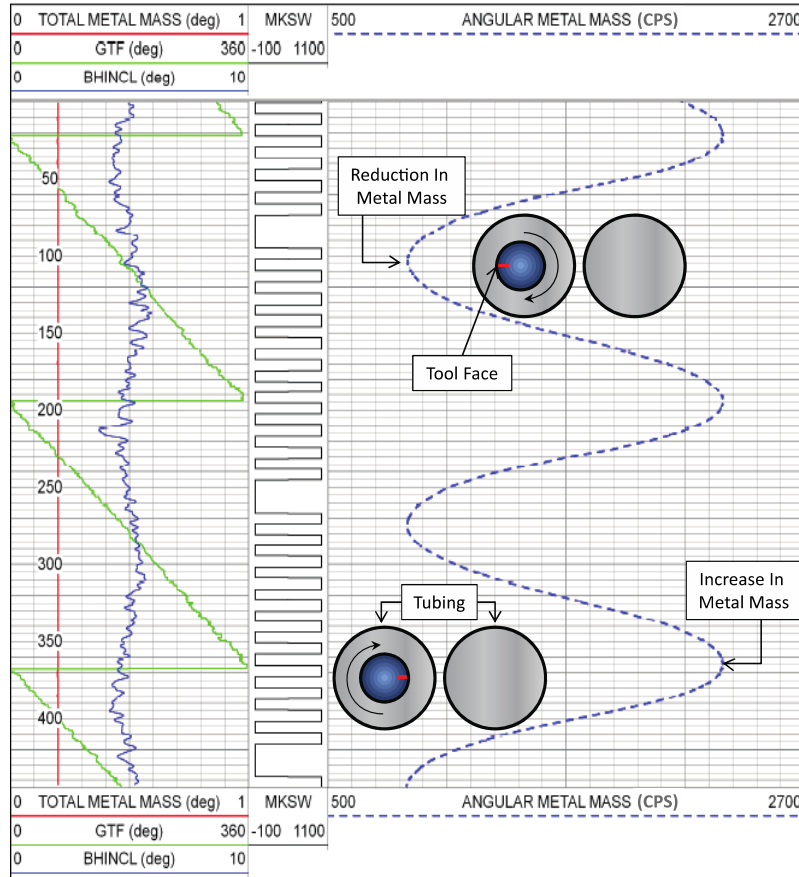
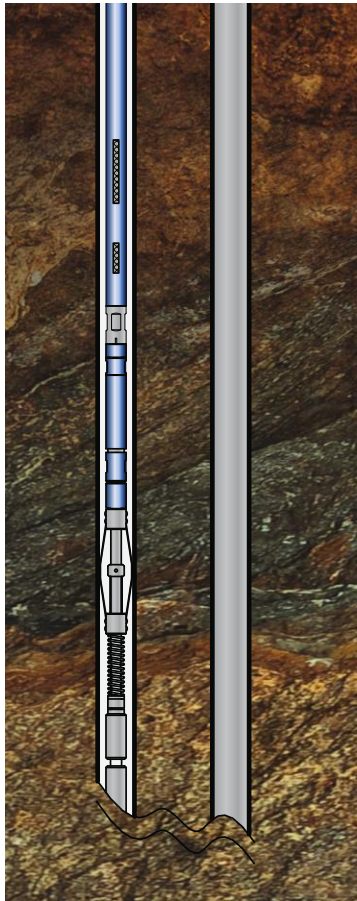
##### STRENGTH EXPRESSED AS A PERCENT OF THE 24 HOUR COMPRESSIVE STRENGTH

TEMPERATURE	200°F	250°F	300°F
Retarder Concentration	Per HIP Mix Instructions	Per HIP Mix Instructions	Per HIP Mix Instructions
Time at Temperature	--	--	--
12 hr	40%	50%	55%
18 hr	65%	70%	75%
20 hr	75%	80%	85%
24 hr	100%	100%	100%
72 hr	125 - 150%	125 - 150%	125 - 150%

If the slurry is over retarded by adding 2 retarder packs more than specified in the instructions, cement strengths will be delayed by:  
a) 10 hours if the BHT = 200°F, b) 6 hours if the BHT = 250°F, and c) 4 hours if the BHT = 300°F.

# Electric Wireline Services

## - MOT WITH ZERO-PHASED TTPG



THRU-TUBING PERFORATION SYSTEM

ZERO-PHASED GUN SYSTEM



MAGNETIC ORIENTING SERVICE



# Electric Wireline Services

## - PERFORATING SERVICES



LICENSED EXPLOSIVES BUNKERS



EOD PERSONNEL RESIDENCE



GUN CARRIERS

# Electric Wireline Services

## – PERFORATING SERVICES

THRU-TUBING PERFORATION SYSTEMS

RIGID GUN SYSTEMS

AVAILABLE

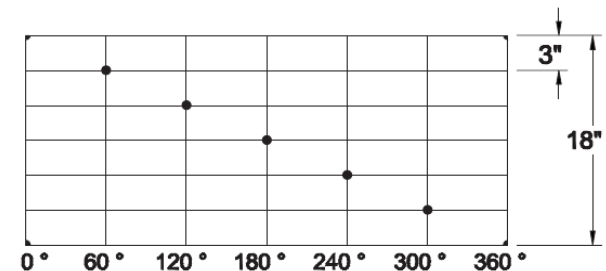
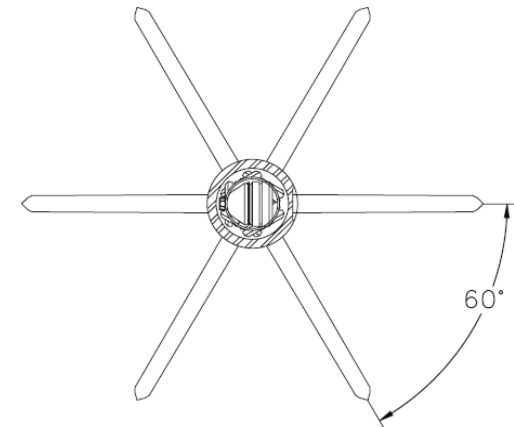
1. 1-11/16" PHASED, 6 SPF
2. 1-11/16" PHASED, 4SPF
3. 2-1/8" PHASED, 6SPF
4. 2-1/8" PHASED, 4SPF
5. 3-3/8" PHASED, 6SPF

ALSO AVAILABLE

1. 1-11/16" 6SPF RTG, 0 PHASE
2. 2-1/8" 6SPF RTG, 0 PHASE



SPECIFICATIONS		
PRESSURE RATING	172.4 MPa	25,000 psi
TEMPERATURE	UP To 260°C	UP TO 500°F
TENSILE STRENGTH	28,470 daN	64,000 lbf
CARRIER THREAD	1-9/32 - 12 STUB ACME	
GUN WEIGHT LOADED	4.06 KG/M	2.72 LB/FT
TORSIONAL YIELD	949 N·m	700 lb-ft



# Electric Wireline Services

## – PERFORATING SERVICES

THRU-TUBING PERFORATION SYSTEMS

EXPOSED GUN SYSTEMS

AVAILABLE

1. 1-11/16" SHOGUN, 6 SPF
2. 1-11/16" SHOGUN, 4SPF
3. 2-1/8" SHOGUN, 6SPF
4. 2-1/8" SHOGUN, 4SPF

ALSO AVAILABLE

1. 1-11/16" STRIP, 0 PHASE
2. 2-1/8" STRIP, 0 PHASE



### Description

Owen's Spiral Shogun, when combined with the new Shogun N.T. Charge, possesses the three most important features of an ideal perforator - Ideal Phasing, Deep Penetration, and High Shot Density

### Benefits / Capabilities

- 6 spf in 1-11/16" & 2-1/8" versions
- N.T. Shogun charge shoots 40% better than standard Shogun DP charge
- 40° & 60° Spiral phasing available

### Specifications

O.D.	1-11/16"	2-1/8"	2-1/2"
Min. Restriction	1-25/32"	2-3/16"	2-19/32"
Pressure Rating	See Table		
Temperature*	375° F		
* HNS/Nona Charge Capable of 450°F available			

PART NO.	CHARGE DESCRIPTION	PRESSURE RATING PSI (MPa)
STP-1687-401NTX STP-1687-401NT STP-1687-401NB	Charge, 1-11/16" HMX, Shogun NT, DP Charge, 1-11/16" HMX, Shogun NT, DP Charge, 1-11/16" HMX, Shogun NT, BH	20,000 psi (138 Mpa)
STP-1687-301E STP-1687-301BE	Charge, 1-11/16" RDX, Shogun II DP Charge, 1-11/16" RDX, Shogun II BH	15,000 psi (103 Mpa)
STP-2125-401NTX STP-2125-401NT STP-2125-401NB	Charge, 2-1/8" HMX, Shogun NTX, DP Charge, 2-1/8" HMX, Shogun NT, DP Charge, 2-1/8" HMX, Shogun NT, BH	20,000 psi (138 Mpa)
STP-2125-301E STP-2125-301BE	Charge, 2-1/8" RDX, Shogun II DP Charge, 2-1/8" RDX, Shogun II BH	15,000 psi (103 Mpa)
STP-2500-401NT STP-2500-401NTXII	Charge, 2-1/2" HMX, Spiral Shogun NT, SDP Charge, 2-1/2" HMX, Spiral Shogun NTXII, SDP	20,000 psi (138 Mpa)

\*This product is protected by one or more of the following patents:  
5,542,480; 5,662,178; 5,638,901

# Electric Wireline Services

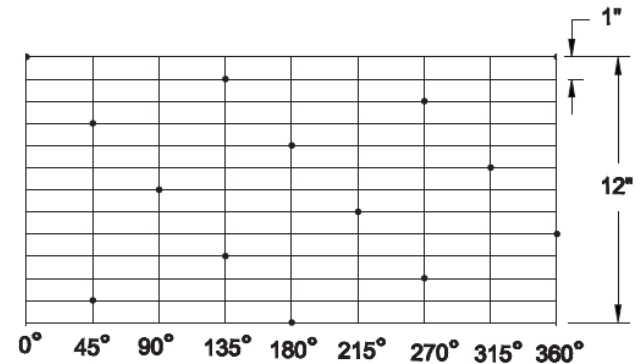
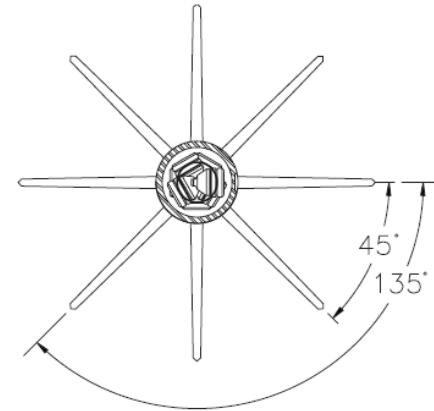
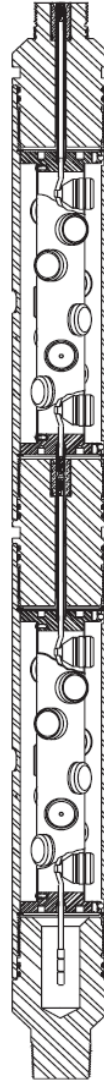
## - PERFORATING SERVICES

CASING GUN PERFORATION SYSTEMS

HSD GUN SYSTEMS

AVAILABLE

1. 4-1/2" HSD, DP, 12 SPF
2. 4-1/2" HSD, BH, 12 SPF
3. 7" HSD, DP, 12 SPF
4. 7" HSD, BH, 12 SPF
5. 7" HSD, BH, 18 SPF



Specifications		
Pressure Rating	124 MPa	18,000 psi
Temperature	UP TO 260°C	UP TO 500°F
Tensile Strength	167,800 kg	370,000 lbs
Carrier Thread	3-15/16" - 6 ACME	
Tandem Shot Spacing	0.37 m	1.22 ft
Gun Weight Loaded	32.7 kg/m	22 lb/ft

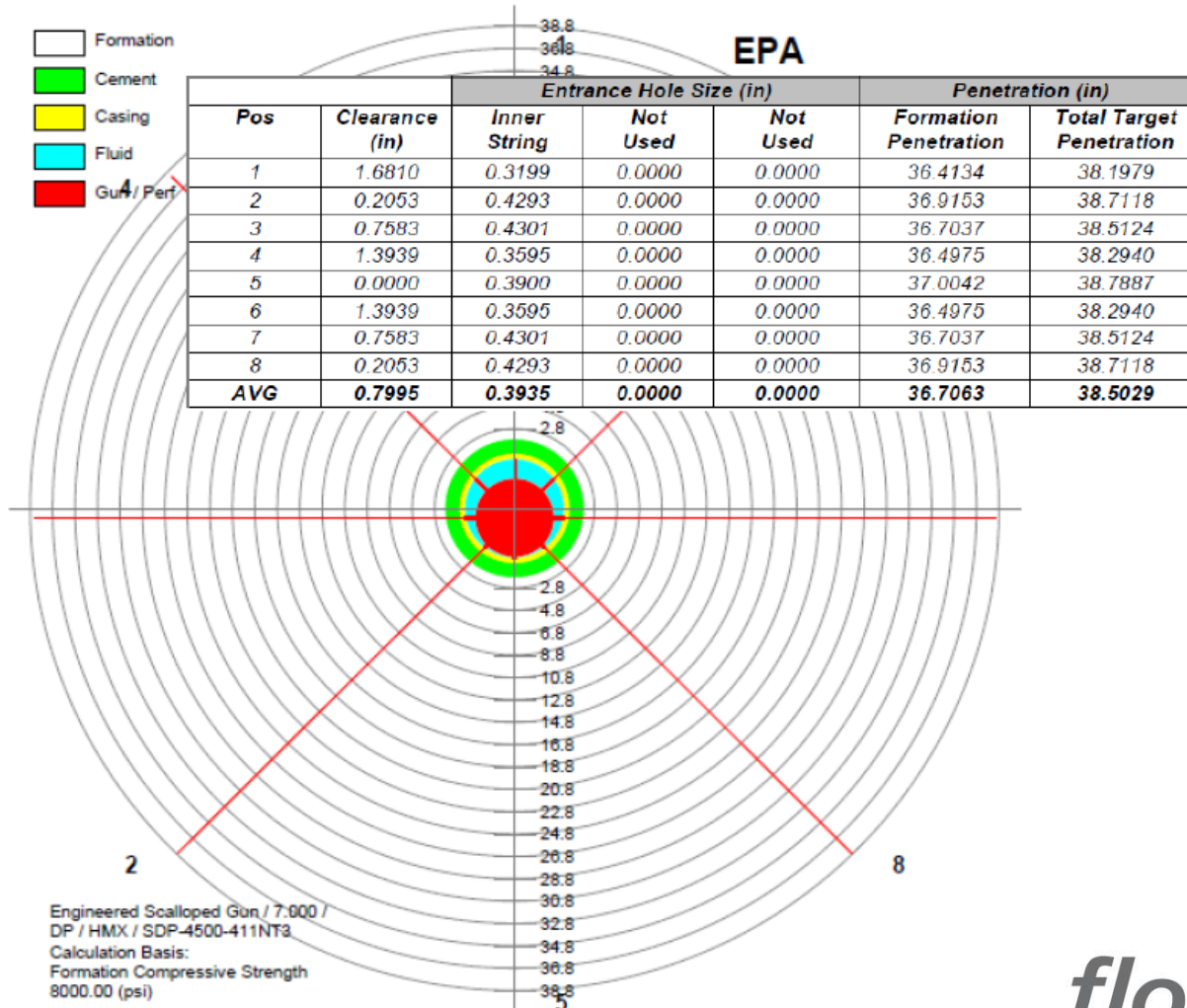
# Electric Wireline Services

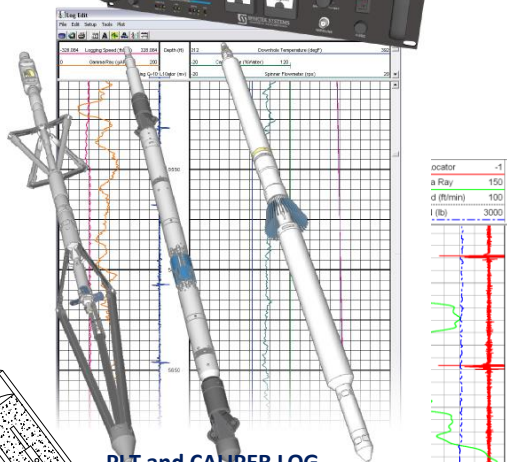
## - PERFORATING SERVICES



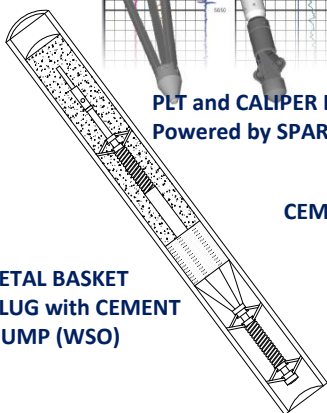
### EPA (ENGINEERED PERFORATION ANALYSIS)

### Performance Report



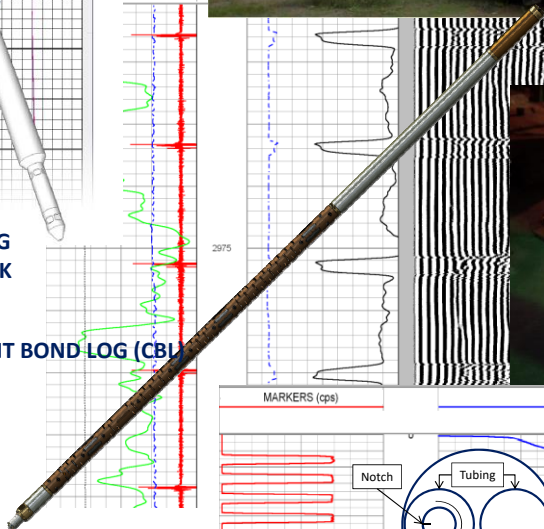


**PLT and CALIPER LOG  
Powered by SPARTEK**

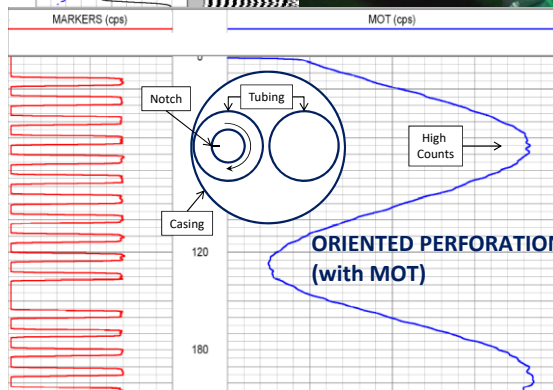


**PETAL BASKET  
PLUG with CEMENT  
DUMP (WSO)**

**CEMENT BOND LOG (CBL)**



**PHASER PERFORATION  
GUN CARRIER**



**COMPLETE WATER SHUT-OFF SOLUTION**

- PRODUCTION LOGGING and CALIPER SURVEY
- WATER SHUT-OFF (PETAL BASKET PLUG)
- WATER SHUT-OFF (MAGNA RANGE PLUG)
- CEMENT DUMP BAILER (WIRELINE)
- CEMENT BOND LOG (CBL)
- THRU TUBING PERFORATION (CONVENTIONAL)
- THRU TUBING PERFORATION (ORIENTED with Magnetic Orienting Tool)

**OTHER PRODUCT LINES**

- WIRELINE LOGGING AND PERFORATION
- SURFACE WELL TESTING
- DST/TCP
- GAUGES AND RECORDERS
- PARTICLE DETECTION and CORROSION MONITORING
- COMPLETIONS SERVICES



# Electric Wireline Services

## – PIPE RECOVERY SYSTEM – MOTORIZED FREE POINT TOOL

Many factors can contribute to a drilling or workover string getting stuck in the well. Some examples are borehole conditions, wellbore fluid properties, formation characteristics and assembly problems.

Hunting Titan's Motorized Free Point Tool accurately determines the stuck point in pipe, tubing or a casing string. The real-time data allows the operator to make rapid and informed decisions in determining the next steps to recover the stuck downhole assembly.

The Hall sensor picks up movements in the assembly associated with tension, compression or torque measurements and converts that to an AC signal. This signal is then processed at the surface by the Free Point Panel for display and recording for permanent records.

### APPLICATIONS

- Stuck pipe determination

### FEATURES

- 375°F operation
- Tension, compression and torque measurements
- Built in Casing Collar Locator (CCL)
- Solid-state electronic motor control
- Full open/close sensors
- Seven anchor sizes available for most applications
- Temperature stable Hall sensor

### BENEFITS

- Real-time data assists in optimizing pipe recovery methods
- Accurate depth determination of stuck assembly
- Controlled electronics protect damage to gear and drive assemblies
- Interchangeable anchors for different assemblies

### ANCHOR SELECTION CHART

LEG PART NUMBER	Closed Diameter (in)[mm]	Open Diameter (in)[mm]
8140-143-016-1	1.43 [37] <sup>†</sup>	2.74 [70] @ 45°
8140-143-016-2	1.43 [37] <sup>†</sup>	4.17 [106] @ 45°
8140-143-016-3	1.43 [40] <sup>†</sup>	5.56 [141] @ 45°
8140-143-016-4	4.10 [104]	5.28 [134] @ 30°
8140-143-016-5	4.10 [104]	6.43 [163] @ 30°
8140-143-016-6	5.86 [149]	8.40 [213] @ 30° 9.17 [233] @ 45°
8140-143-016-7	7.38 [187]	10.52 [267] @ 30° 11.27 [286] @ 45°

<sup>†</sup> 1.56 in (40 mm) for 18,000 psi (124 MPa) version

### SPECIFICATIONS

*\*Note: The part numbers have been changed to reflect the higher temperature in which this tool is rated. 7/2014*

Part Number*	1-7/16 in (37 mm)	1-9/16 in (40 mm)
With Panel	8140-14362MHXXX-XX-00-H	8140-15662MHXXX-XX-00-H
Without Panel	8140-14362MHXXX-XX-00	8140-15662MHXXX-XX-00

### MEASUREMENTS

Vertical Resolution (in)[mm]	4.03 [1.23]	4.03 [1.23]
Logging Speed CCL (ft/min)[m/min]	60 [18.3]	60 [18.3]
Mud Type • Weight	No limitations	No limitations

### ENVIRONMENTAL

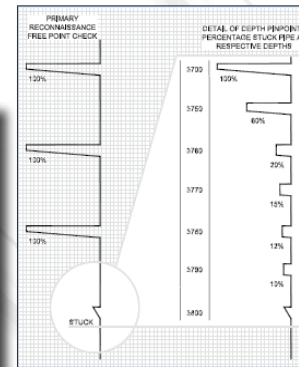
Temperature rating (°F)[°C]	375 [191]	375 [191]
Pressure Rating (psi)[MPa]	15,000 [103]	18,000 [124]
Material	Nedox® coated steel	Carbon steel

### MECHANICAL

Outside Diameter (in)[mm]	1.43 [36.5]	1.56 [39.7]
Length (ft)[m]	8.32 [2.54]	8.32 [2.54]
Weight (lb)[kg]	45 [20]	50 [23]
Fishing Strength (lbf)[kN]	22,000 [98]	22,000 [98]
Min. • Max. Pipe I.D. (in)[mm]	1.77 [45] • 11.27 [287]	1.90 [48] • 11.27 [287]
Top Connection	1-3/16" GO Box	1-3/16" GO Box

### ELECTRICAL

Operating Voltage & Current		
Operating Anchors	32 VDC @ 240±20 mA	32 VDC @ 240±20 mA
Operating Sensors	40 VDC @ 200±10 mA	40 VDC @ 200±10 mA
Output Signal (Peak to Peak)	1.0 V variable frequency	1.0 V variable frequency
Cable Type	Single conductor	Single conductor
Stretch/Torque Sensor	Magnetic Hall Effect	Magnetic Hall Effect



Example illustrating how the location of stuck pipe can be determined by the Motorized Free Point Tool. The ideal depth to perform backoff operations will be somewhere between 3700ft and 3750ft.

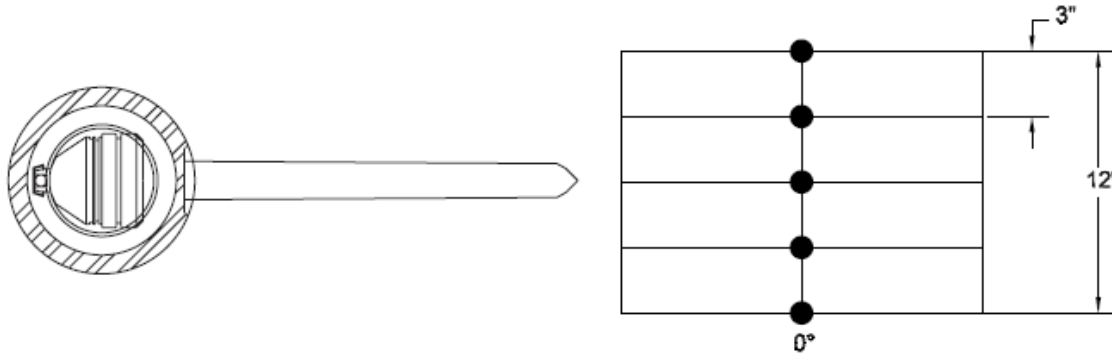


The Free Point Panel (8140-000-500) provides control functionality to the tool and processes signals coming from the tool. The panel is available separately.

floSmart

# Electric Wireline Services

## - PIPE RECOVERY SYSTEM-TUBING PUNCHER



SPECIFICATIONS		
Pressure Rating	25,000 psi	172.4 MPa
Temperature Rating	UP TO 500 degF	UP TO 260 degC
Tensile Strength	64,000 lbf	28,470 daN
Carrier Thread	1-9/32 – 12 Stub Acme	
Gun Weight Loaded	2.72 lb/ft	4.06 kg/m
Torsional Yield	700 lb-ft	949 N.m

CIRCULATING CHARGE	EXPLOSIVE TYPE	ENTRY HOLE (INCHES)	PENETRATION (INCHES)
RTG-1562-450	HMX	0.31	0.125 – 0.188
RTG-1562-451	HMX	0.39	0.250 – 0.375
RTG-1562-453	HMX	0.41	0.375 – 0.500
RTG-1562-455	HMX	0.40	0.500 – 0.625
RTG-1562-457	HMX	0.28	0.625 – 0.750



# Electric Wireline Services

## – PIPE RECOVERY SYSTEM – PIPE CUTTERS



### ▶ RADIAL CUTTING TORCH

No Explosives required

Very Clean cut

Very Reliable and effective

High Range of Sizes for different pipe sizes

### ▶ CHEMICAL CUTTER

Clean cut

High Range of Sizes for different pipe sizes

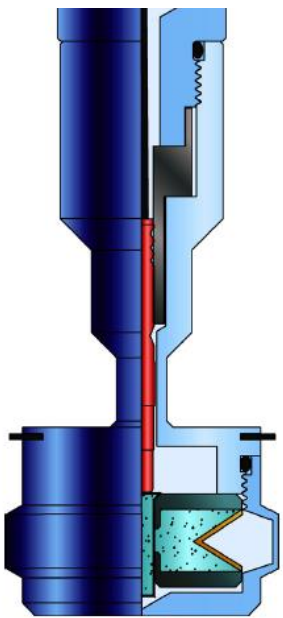
Very Reliable and effective

### ▶ JET CUTTER

High Range of Sizes for different pipe sizes

Very Reliable and effective

High Pressure and Temperature ratings



# Memory Logging Services

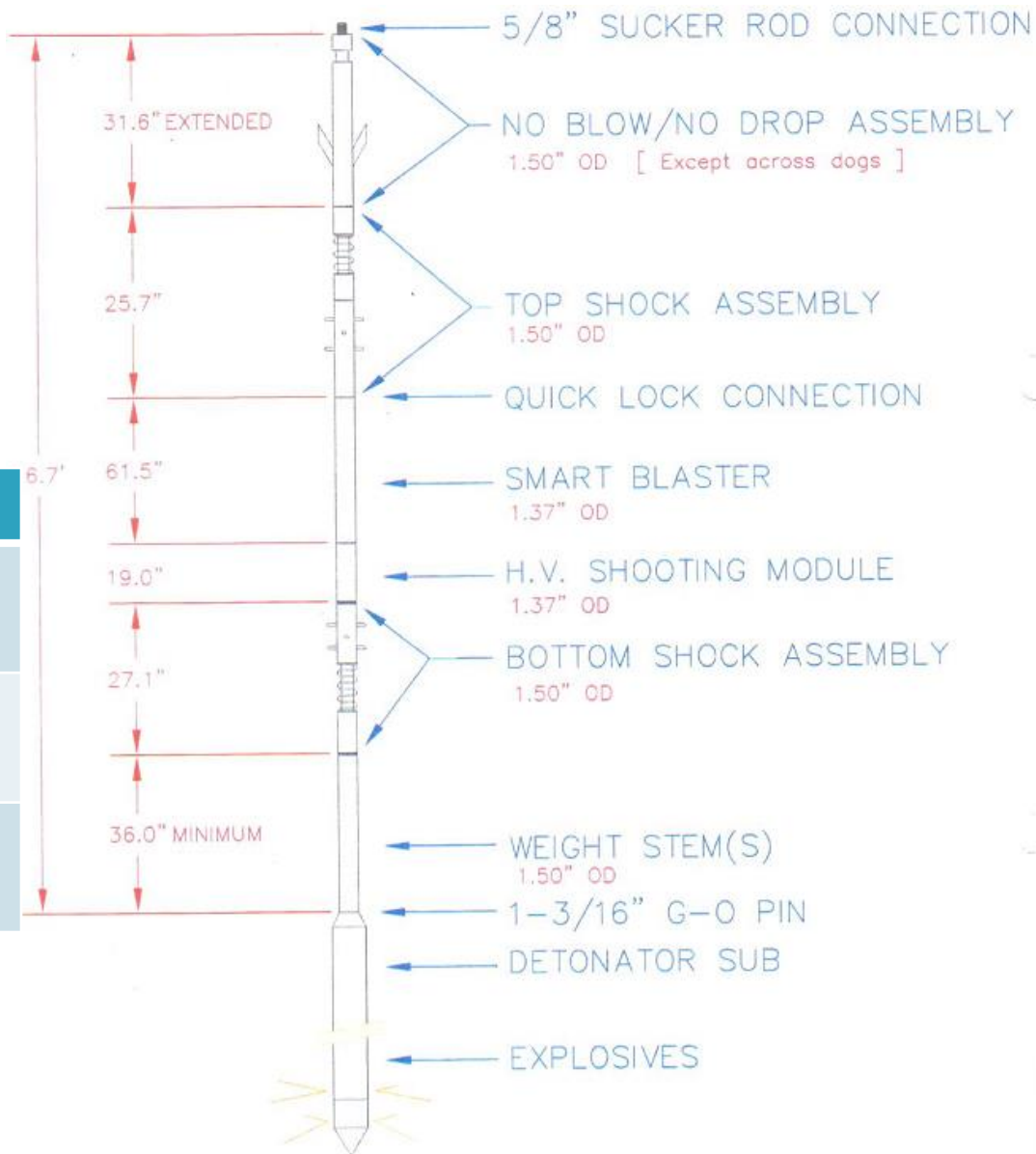
## - SMART BLASTER

### SLICKLINE TRIGGER SYSTEM

- Perforate wells
- Set Plugs
- Dump Cement with Dump Bailers
- Cut Tubing

### Specifications

Operating Temperature	32°F to 302°F (0°C to 150°C)
Outside Diameter	1.38 in. (3.5 cm) Nominal
Maximum Pressure	15,000 psi (103,000 kPa)



# RECENT SERVICES

	Client	Service	Date
1	BGT/MIDWESTER	PROVISION OF 7" HSD GUN SYSTEM WITH DEEP PENETRATING CHARGES AT UMU-19	DECEMBER, 2023
2	AOS/SPDC	PROVISION OF MAGNETIC ORIENTING TOOLS (MOT) AT OKPORHURU 3ST	DECEMBER, 2023
3	STERLING/ACE	PROVISION OF 2" RTG GUN STSTEM (DP PUNCH) AT AKAI NORTH 1ST	NOVEMBER, 2023
4	BAKER	PROVISION OF 4-1/2" HSD PERFORATION GUNS, DP, 12SPF AT BRITANNIA U. AJAPA 3ST	NOVEMBER, 2023
5	ALPHA/SEPLAT	PROVISION OF RADIAL CUTTING TORCH SERVICES AT OKPORHURU	OCTOBER, 2023
6	AOS/SPDC	PROVISION OF MAGNETIC ORIENTING TOOLS (MOT) AT OKPORHURU 3ST	OCTOBER, 2023
7	STERLING/ACE	PROVISION OF 4-1/2" HSD GUN SYSTEM WITH DP CHARGES AT UTA-37	SEPTEMBER, 2023

# RECENT SERVICES – Contd.

	Client	Service	Date
8	GEOPLEX/COINOIL	PROVISION OF CBL AND SKID MOUNTED LOGGING UNIT CHARGE	SEPTEMBER, 2023
9	BAKER	PROVISION OF 4-1/2" HSD PERFORATION GUNS, BH, 12SPF AT APANI	SEPTEMBER, 2023
10	STERLING/ACE	PROVISION OF 4-1/2" HSD GUS SYSTEM WITH BH CHARGES AT AGU-32WD	AUGUST, 2023
11	STERLING/ACE	PROVISION OF 4-1/2" HSD GUS SYSTEM WITH BH CHARGES – AT AKUBO-1	AUGUST, 2023
12	STERLING/ACE	PROVISION OF 4-1/2" HSD GUS SYSTEM WITH BH CHARGES AT AKUBO-2 –	JULY, 2023
13	NPDC/ENERGY QUEST	PROVISION OF PRODUCTION LOGGING TOOLS SERVICES AND PERSONNEL – WELL FLOWING AND WELL SHUT IN AT UTOROGU 31T	JULY, 2023
14	STERLING/ACE	PROVISION OF 4-1/2" HSD GUS SYSTEM WITH BH CHARGES AT UTA-39	JUNE, 2023

# RECENT SERVICES – Contd.

	Client	Service	Date
15	STERLING/ACE	PROVISION OF 4-1/2" HSD GUS SYSTEM WITH BH CHARGES AT AGU-16	MAY, 2023
16	STERLING/ACE	PROVISION OF 4-1/2" HSD GUS SYSTEM WITH BH CHARGES AT AGU-06	MAY, 2023
17	STERLING/ACE	PROVISION OF 2-1/8" STRIP GUN AT EKinima	APRIL, 2023
18	HALLIBURTON/AGIP	PROVISION TUBING PUNCH SERVICES AT OBRIKOM	APRIL, 2023
19	STERLING/ACE	PROVISION OF 4 1/2" HSD GUN SYSTEM WITH BH CHARGES AT ENYIE 3	MARCH, 2023
20	ALPHA/WALTER SMITH	PROVISION OF MAST-CRANE TRUCK AT IBIGWE FROM 11 <sup>TH</sup> FEBRUARY 7 TO 17 <sup>TH</sup> Feb., 2023	FEBRUARY, 2023
21	SEPLAT	PROVISION OF GRAVEL PACK PUMPING SERVICES AT OBEN	NOVEMBER, 2022

# RECENT SERVICES – Contd.

	Client	Service	Date
22	GEOPLEX/SHELL	PROVISION OF 4 1/2" HSD PERFORATION AT AGBADA 17	OCTOBER, 2022
23	AOS/SPDC	PROVISION OF LOGGING UNITS AND PERSONNEL	JULY, 2022
24	AOS/SPDC	PROVISION OF LOGGING UNITS AND PERSONNEL AT CARACAL 20 FROM 28TH JUNE TO 7TH JULY, 2022	JUNE, 2022
25	STERLING/ACE LOGGER NIGERIA LTD	PROVISION CBL-VDL-GR-CCL, 4 1/2" HSD Perforation, Packer Correlation from 10/5/2022 to 23/5/2022 at UTA 25	MAY, 2022
26	STERLING/ACE LOGGER NIGERIA LTD	PROVISION OF CBL-VDL, HSD PERFORATION, PARKER CORRELATION AT ENYIE 01	APRIL, 2022
27	STERLING/ACE LOGGERS NIGERIA LTD	PROVISION OF 4,5" HSD PERFORATION SERVICES WITH GR-CCL AT UTA 22	FEB.2022
28	SPDC	UPPER COMPLETION SERVICES AND EQUIPMENT AT KOLO CREEK 43	Feb-22

# RECENT SERVICES – Contd.

	Client	Service	Date
29	STERLING/ACE LOGGERS NIGERIA LTD	PROVISION OF 4,5” HSD PERFORATION SERVICES WITH GR-CCL AT UTA 20	JAN, 2022
30	STERLING/ACE LOGGERS NIGERIA LTD	PROVISION OF JUNK BASKET / GR-CCL SERVICES AND PROVISION CBL-VDL-GR- CCL SERVICES	JAN, 2022
31	ALPHA/ELCREST	PROVISION OF PLT SERVICES (MEMORY PLT) - WELL FLOWING AND WELL SHUT IN & INTERPRETATION	JAN, 2022

**THE END**  
**THANK YOU**