



Nasim Hamrah Industries Co. is a high tech research and development company that has produced its own brand as a unique manufacturer of Down-Hole logging equipment in Iran and Middle East.

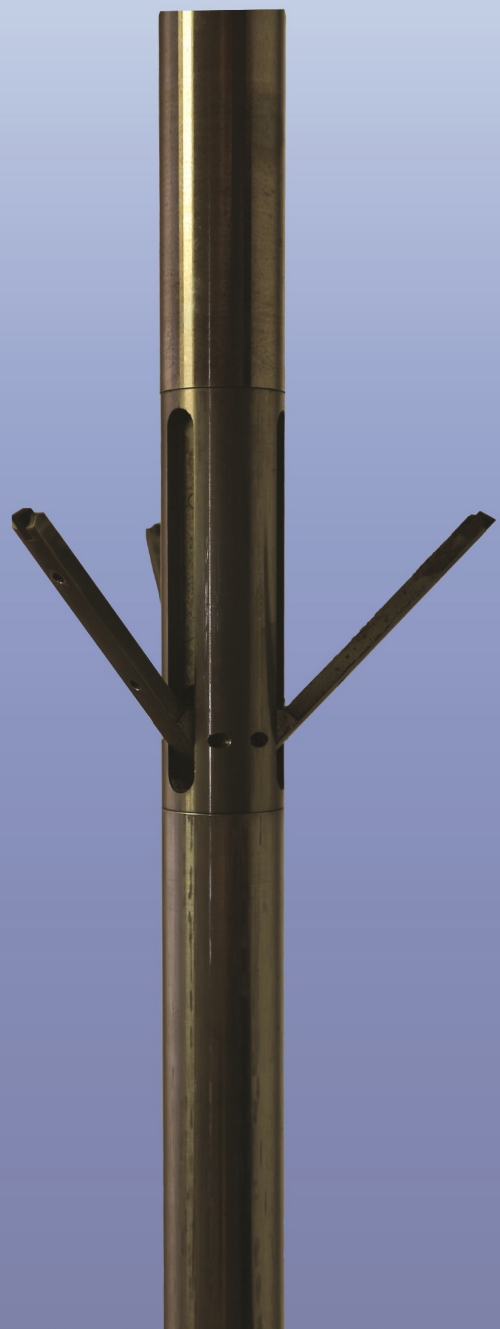


Free Point Indicator Tool (FPIT)

The Free Point Indicator tool is used to locate precisely where your drill pipe, tubing, or casing is stuck or partially stuck. FPI operates by detecting axial and rotary movements in the tubular when tension /torque is applied at the surface. With detecting any movement in both tension/torque forces, we can determine the stuck and the free sections of the stream. The FPI assembly comprises of an upper motorized anchor, CCL, high temperature electronics, sensor section and lower motorized anchor. It is designed to operate in critical conditions and harsh environments; so it can easily pass over restrictions with no need for extra force, and shear pin enables retrieval if the tool is stuck. Ultra-sensitive sensors can measure axial movement down to sub-micron and rotary movement down to sub-mdeg.

Success History:

Successful field test in Ahvaz 523 Well



POWER

LINE VOLT

LINE VOLTAGE

160

V

7.5

mA

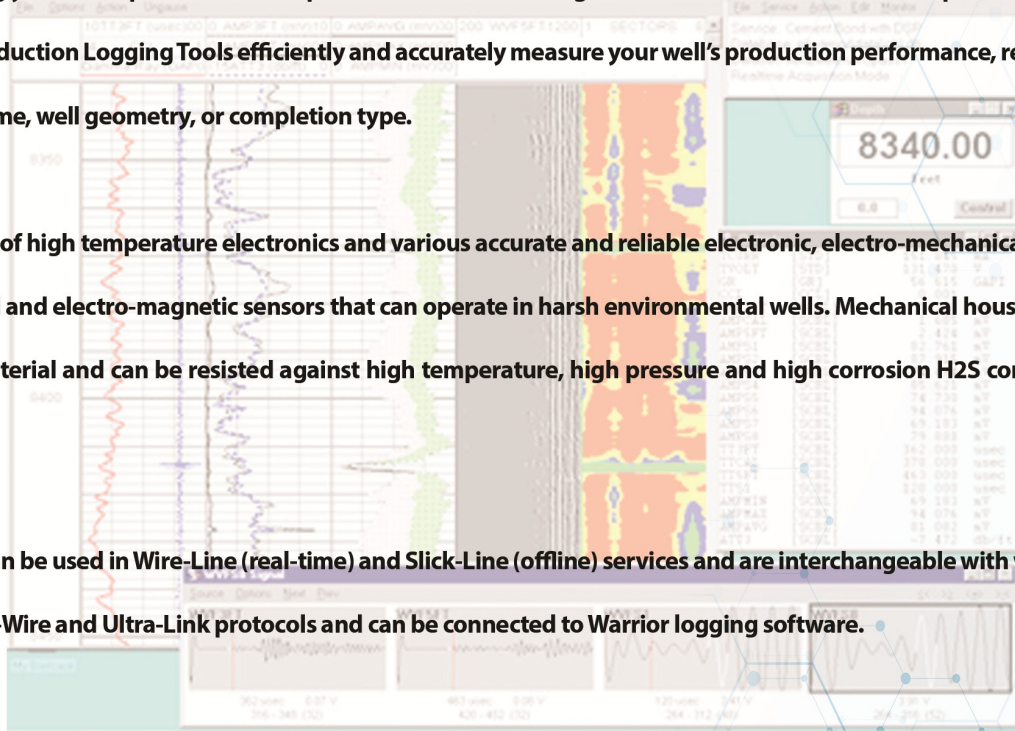


Production Logging Tools (PLT and Memory-PLT)

Understanding your well's production flow profile is crucial in making decisions that increase reservoir production for the long term. Production Logging Tools efficiently and accurately measure your well's production performance, regardless of your flow regime, well geometry, or completion type.

PLT comprises of high temperature electronics and various accurate and reliable electronic, electro-mechanical, electro-optical and electro-magnetic sensors that can operate in harsh environmental wells. Mechanical housing is made of the best material and can be resisted against high temperature, high pressure and high corrosion H₂S component of well fluid.

NHI PL tools can be used in Wire-Line (real-time) and Slick-Line (offline) services and are interchangeable with well-known SONDEX Ultra-Wire and Ultra-Link protocols and can be connected to Warrior logging software.





Memory Quartz Gauge (MQG) Memory Piezo Gauge (PRM)

The Memory Quartz Gauge has a high quality quartz pressure/temperature transducer and high temperature electronics. It is designed to precisely measure temperature and pressure and to store data points to memory in harsh environment, which provides useful information about the well conditions.

For other solutions with low cost benefits, Memory Piezo Gauge (PRM) is suggested instead of Quartz Gauge.

The software has a very user friendly interface, so operators with minimal experience can feel confident running the gauges and retrieving data. The gauge can be programmed with the desired profile (delay, sampling rates, durations and etc.). Jobs can be run consecutively without needing to reprogram the gauge, saving time onsite.

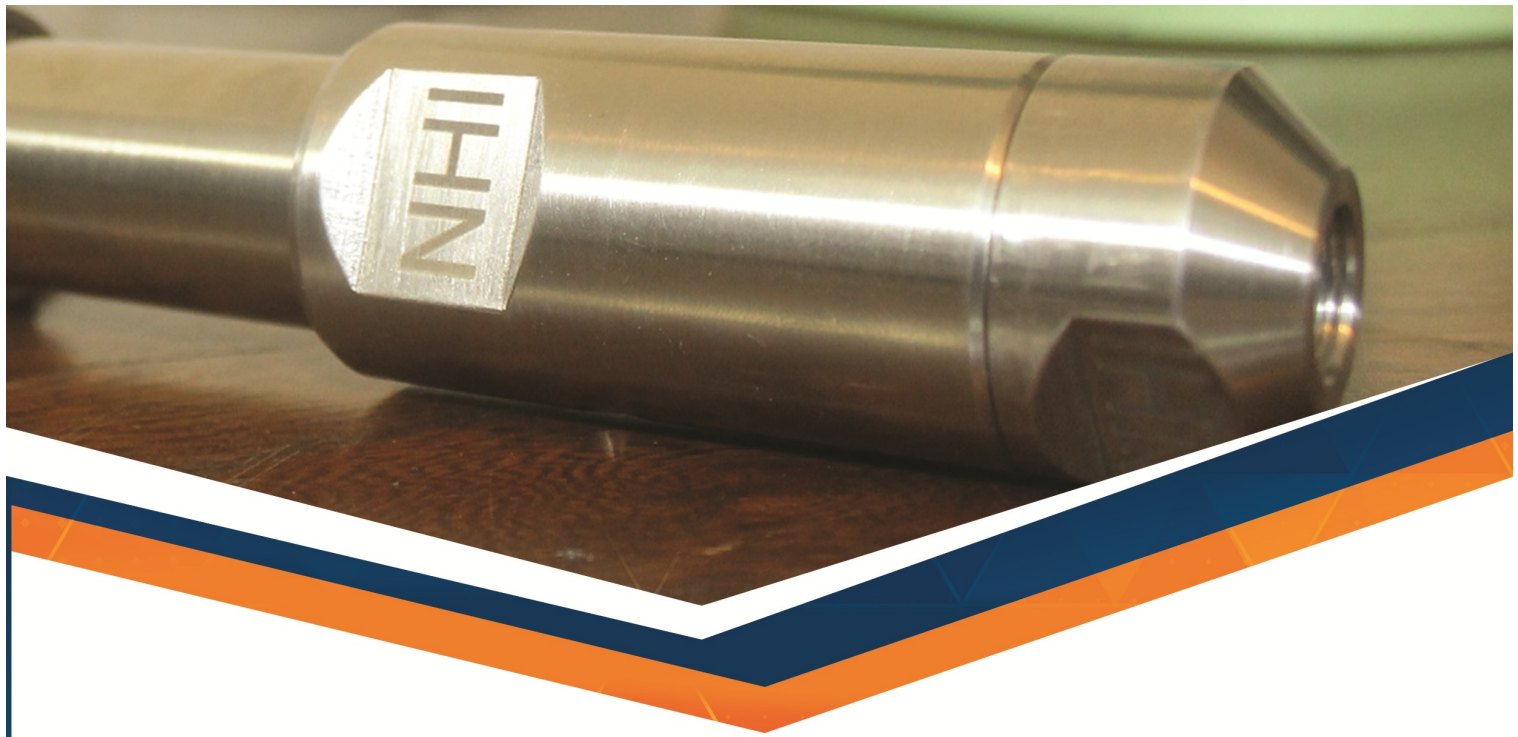
By plugging in the battery, the operator starts the gauge and the program sequence. The tool ends when the battery is removed or program duration reaches.

Log data can be plotted in software and elementary mathematical and filtering function can be applied. Data can be exported as various standard file formats used in third party software.

Success History:

Successful field test in the extreme HPHT Maroon Khani 308 Well up to 15000 psi pressure and 300°F temperature and Parsi 53 Well





MQG1400	
Specifications	Range
Pressure	Quartz Sensor
Range	16000 psi
Accuracy	±0.02% FS
Resolution	< 0.01 psi
Temperature: Quartz Sensor	
Range	177°C
Accuracy	±0.15°C
Resolution	< 0.005°C
Mechanics	
Material	Inconel 718, 17-4 PH sour services (H2S, CO, acid)
OD	1- 3/4" (31.75 mm)
Length	760 mm
Weight	2.5 kg
Threads	15/16" 10 UNS (pin up to x box down)
Bottom Nose	3/4" (NPT female)
Memory with Redundancy	
Capacity	2M data points of pressure and/or temperature(*)
Computer and Software	
Programming Modes	Conventional, Advanced
Parameters	1s – 18 h Scanning Rate, Delay
Windows	RS232/USB

(*) can be customized upon order up to 8M

(**) Smart Battery and RTC is available upon request

↓ Applications

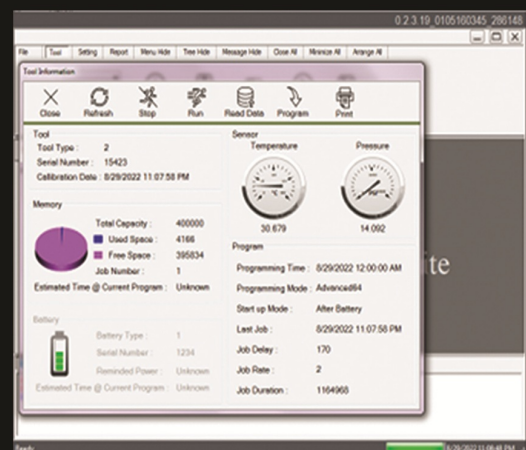
- High sensitivity, high stability, high resolution and fast response temperature measurement
- High quality data appropriate for HPHT environment wells

↓ Benefits

- User-friendly and safely handling system
- Special handling and disposal procedures for batteries

↓ Features

- High temperature electronics
- User friendly software
- Designed for critical and harsh environment well testing





↓ Applications

- Conventional and high-angle wells
- Wells with stuck or partially stuck pipe, tubing, or casing

↓ Features

- Motorized positive anchoring system
- Independent measurement of torque and stretch- performed sequentially
- Real-time monitoring of stretch and torque as they are transmitted
- Correlation of the drill string configuration with tool measurement

↓ Benefits

- Reduces setup time
- Maneuvers more easily in difficult wells
- Eliminates the need for extra equipment
- Effective operation from drill ships and in highly deviated wells
- Improves pipe recovery decision making

Operation temperature	177°C
Operation Pressure	16000 psi
OD(*)	35mm(1-3/8")
Length	3.55 m
Weight	15.5 kg
Arm	Motorized,3 Arm Anchor
Cable Head	GO1 (mono conductor)

*:40mm with Slack-Joint protection cover

Working Voltage	40-60V
Working Current	30-35mA
Arm Opening Current	170mA
Arm Closing Current	200mA
Open/Close time	60-90 Sec
Standard Arm	5-1/2" Well Diameter
Arm Extension1	5" to 9-5/8" Well Diameter
Arm Extension2	8-5/8" to 13-3/8" Well Diameter

Sensors	Resolution
Axial/Linear Movement	0.1 um
Rotary Movement	1 mdeg
Cable Head Voltage	1 mV
Motor Current	1 mA
Temperature	0.1°C
CCL	1mV



SIGNAL LEVEL



FRAME LOCK



N H I

Ultralink

LINE POWER AND DSP TELEMETRY

↓ Applications

- Wire-Line (real-time) and Slick-Line (offline) production logging services.
- Perforation jobs by using shooting panel and CCL

↓ Benefits

- Identifies producing zones and the fluids from them (oil, water, gas or mixtures).
- Detects leaks, low pressure zones or problem zones that require remedial work to repair the damage or block off zones
- Calculates qualitatively the flow rates of oil, gas and water from each producing zone
- Profile injection fluids (typically water or gas)

↓ Features

- High temperature up to 177°C and high pressure up to 16000 psi with 1-1 1/16" OD
- Accurate sensors
- SONDEX interchangeable
- Warrior Compatible

↓ Tool String

- **ULP:** Surface unit that comprises a Down-Hole power supply, Modem and Well-Head monitoring
- **XTU:** collects data from lower tools and real-time transmits this data to the Surface.
- **UMT:** collects data from lower tools and stores them in memory to read out later at surface.
- **CCL:** locates casing damage or collars and helps in depth controlling
- **PRT:** provides continuous borehole fluid temperature
- **QPS:** provides continuous borehole fluid pressure
- **CWH:** provides continuous borehole log of water volume fraction
- **FDR:** measures fluid density of a sample as it flows through the tool
- **PGR:** identifies of Radioactive Scale, possible sign of water entry
- **PDC:** measures casing deformation and major corrosion.
- **CFB/CFJ:** profiles Flow in complex well completions and flow regimes
- **ILS:** measures Velocity independent of casing and tubing size
- **PKJ:** reduces the weight of tools that are located in the center and have a large deviation or in horizontal wells
- **PSJ:** prevents the transmission of rotational force to the string of tools

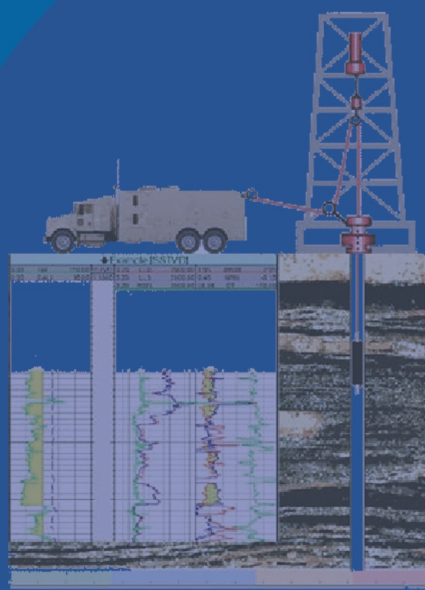




- More than 15 years of experience in maintenance, design and manufacturing downhole instruments and related software
- Using of electronic, mechanic and oil industry experts
- Approved by National Iranian Oil Company (NIOC) and other Iranian logging service providers
- Member of Petroleum Industry Innotech Park

Some of our services in oil and gas well logging projects:

- Production Logging Tools (PLT and MPLT)
- Free Point Indicator Tool (FPIT)
- Memory Piezo and Quartz Gauges (MQG and PRM)
- Openhole and while drilling logging



Nasim Hamrah Industries Co.
Website: www.nhi.ir
Phone number: +98 - 9121453367