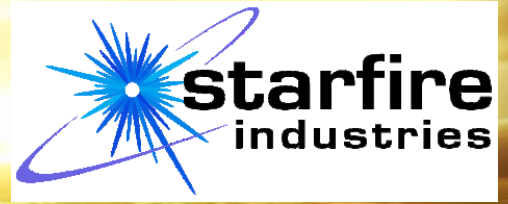


nGen-100B FOR WELL LOGGING

powered by starfire industries nGen technology



PROVIDING A SAFER ALTERNATIVE FOR WELL LOGGING

The Starfire Industries nGen-100B utilizes innovative nGen technology to provide a safer alternative to sealed AmBe sources for well logging. Designed for the downhole environment and using a high-output, long-life electric D-D fusion neutron tube, the nGen-100B provides radiation on/off capability, increasing safety for operators and the environment.

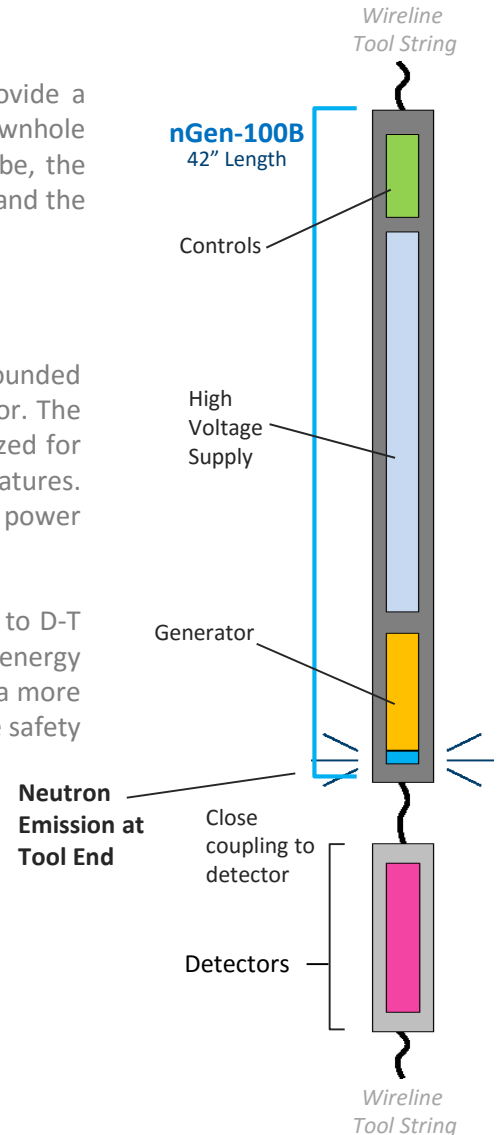
WELL LOGGING WITH A NEUTRON GENERATOR

The nGen-100B is designed for the well logging environment. An innovative grounded target design allows for placement of the neutron source very near the detector. The ion source is electrodeless for longer tube life. The high-pressure housing is sized for small diameter logging and all components operate at high ambient temperatures. Because the target is heat-sunked to the tool body, it can tolerate higher power loading.

Using a D-D neutron generator in place of a sealed AmBe source is preferable to D-T due to neutron energy, safety and regulation considerations. The D-D neutron energy (2.5 MeV) is closer to that of AmBe (4.2 MeV) than D-T (14.1 MeV) is, allowing a more AmBe-like response. D-D generators also avoid radioactive materials that create safety and regulatory concerns for AmBe or D-T users.

KEY FEATURES

- Neutron emission at one end for close placement to detectors
- Onboard microcontroller with serial communications
- Designed to integrate with existing tool strings with pass through cables
- Steady state operation (pulsed option available)
- Integrated HV supply and RF generator
- Avoids radioactive materials by using DD
- Integrated gas reservoir



BENEFITS OF THE nGen-100B FOR WELL LOGGING

- Radiation can be turned off
- Avoids regulatory hassle and export restrictions
- Replaces 4 or 16 Ci AmBe source
- Neutron spectrum favorable for AmBe replacement and compensated neutron log

APPLICATIONS

- Porosity Measurement
- Elemental Analysis
- Cross-Section Measurement
- Hydraulic Fracture Characterization
- Well Integrity Inspection
- Wireline Applications



SPECIFICATIONS

Neutron Output	
Base Yield	10 ⁷ n/s
High Output Option	up to 5x10 ⁷ n/s
DD Neutron Energy	2.5 MeV
Ion Source Type	Electrodeless RF
Lifetime	over 1000 hrs (estimated)
Power and Operation	
Input Voltage	18V, 100V DC regulated
Input Power	100W base, 250W option
Operating Voltage	120-140 kV
Operating Temperature	85°C base, 125°C shallow well, 175°C option
Operating Pressure	10 kpsi (SS) or 20 kpsi (Inconel)
System Information	
Outer Diameter, Housing	1-11/16" (4.29 cm)
Inner Diameter, Components	1.30" (3.30 cm)
Length	42in (107 cm)
Weight	approximately 20lbs (9 kg)

nGen Technology makes the nGen-100B possible

Starfire Industries' nGen Technology has 5-10x greater neutron output over existing generators of the same size. Patented biased RF ion source, ultra compact HV and grounded target technologies enable higher voltages in a small form factor, higher power operation >100W and detector placement near the neutron source plane.

Other nGen Neutron Generator Applications

- Homeland Security (cargo inspection, portable interrogation)
- Neutron Radiography
- Elemental Composition and Material Analysis
- Laboratory Research

