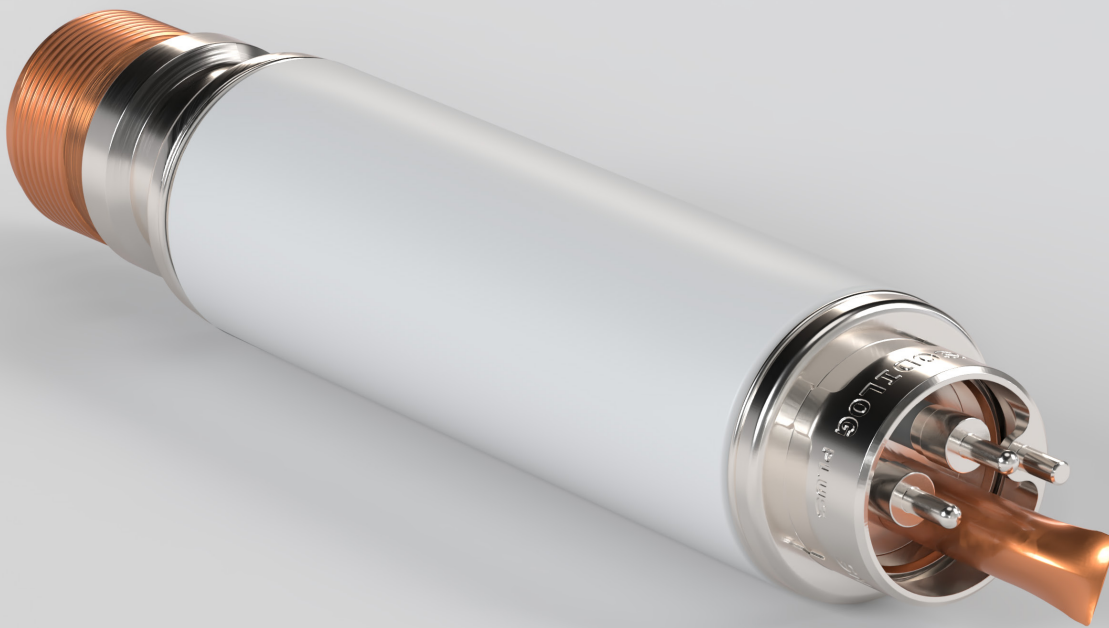


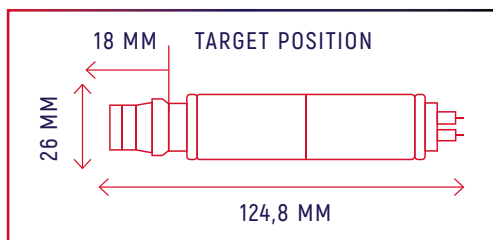
## NEW NEUTRON TUBE FOR 1'11/16 PULSED NEUTRON LOGGING TOOL



- Novel very high voltage structure • Optimized ion source geometry
- Zirconium hydride (Target & Replenisher)
- Better reliability and extended lifetime
- Reduced internal arcing effect
- Higher neutron yield
- Extended temperature range
- Compactness and shortened target distance

We are available to discuss your business needs and mission requirements,  
provide pricing and technical proposal :

**CONTACT US: [SALES-DEPARTMENT@SODERN.FR](mailto:SALES-DEPARTMENT@SODERN.FR)**



The **SODILOG<sup>plus</sup>** neutron tube is a metal ceramic vacuum-sealed component including an ion source, a target, and a gas replenisher/getter device. In case of a SodilogPlus D-T, a mixture of deuterium and tritium is stored partly in the replenisher, partly in the target. The ion source is a Penning type cold cathode gas discharge ion source. Target is a film of metal hydride, loaded with a mixture of deuterium and tritium. Under bombardment of the deuterium (D) and tritium (T) ion beam, target emits neutrons following the reaction:  $D + T \rightarrow {}^4\text{He} + n$  (14,1 MeV)

## GENERAL OPERATION

Typical neutron flux at nominal setpoint	1.5x10 <sup>8</sup> n/s
Maximum neutron flux	3x10 <sup>8</sup> n/s
Maximum VHV	100 kV
Maximum average beam current	120 µA
Maximum peak beam current	850 µA
Maximum Ion source voltage	2.5 kV
Maximum replenisher current	1.6 A
Minimum pulse width	15 µs
Duty cycle	5% to 100%
Typical rise and fall times	5-6 µs
Maximum allowed target power	12 W

At 85 kV, 80 µA, 10% neutron duty cycle and 20°C (for DT tube - 14 MeV neutrons)  
Minimum guaranteed flux : 1,3 e8 n/s

Absolute ratings depend on many parameters.<sup>1</sup>

Including typical Sigma mode, C/O mode and more complex pulses sequences.<sup>1</sup>

At 185°C tube temperature

## ENVIRONMENTAL

Insulation gas pressure (SF6 or eq.)	6 - 10 bars (@ 20°C)
Maximum tube temperature	185°C
Vibrations	7.5 Grms
Shocks	40 G ; 11 ms

85 - 145 psi

Sodern will provide guidance for best thermal cooling of the target

Suitable for wireline operation  
LWD upon request

## SAFETY

Tritium content	120 GBq
Sealed device	Yes

DT version • 3.3 Curie

ISO 2919

## LIFETIME

Lifetime at nominal setpoint	1000 h
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At 85 kV ; 80 µA ; 10% neutron duty cycle  
Qualified with 24 hrs thermal cycles (11 hrs @60°C ; ramp-up ; 11 hrs @185°C and ramp down)

Product specifications are subject to change without notice or obligation

<sup>1</sup>Ask Sodern for guidance

### BEST IN CLASS

Over 50 years of experiences in designing and production of Neutron Technology for the industry

### SMART DESIGN

Streamline architecture for sustainable volume deliveries

### LONG LIFETIME & EXCELLENT ROBUSTNESS

- Over 1000 working hours
- Unique ultra clean manufacturing process
- Strong SODILOG neutron tubes heritage
- Reduced internal arcing effect

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