



# BF<sub>3</sub> COUNTER TUBES

Proportional Counter Tubes BF<sub>3</sub> Filled



Nuclear  
Power



Healthcare



Homeland  
Security  
& Defense



Labs and  
Education



Industrial and  
Manufacturing

## OVERVIEW

The neutron sensitivity of these proportional counters is achieved by filling the tube with the gas boron-tri-fluorid, made of highly enriched Boron-10. Thermal neutrons react with the isotope Boron-10 emitting alpha particles, which produce ionization in the gas filling of the detector (electrons and gas ions). In the electrical field between the electrodes these charged particles will be accelerated and secondary ionization happens. This so called “gas amplification” multiplies proportionally the amount of charge generated in the tube.

## KEY FEATURES

- Detection of thermal neutrons
- High sensitivity due to filling with enriched BF<sub>3</sub> gas
- Proven construction
- 1” (25.4 mm) diameter
- Large measuring range
- Output signal: charge pulses
- Very low gamma sensitivity

## RELATED PRODUCTS

- KNK/KNU 50: neutron ionization chambers
- Self-powered neutron detectors
- TK 250: digital signal processing channels for start-up and power range

## PREFERRED TYPES OF THE 1" SERIES

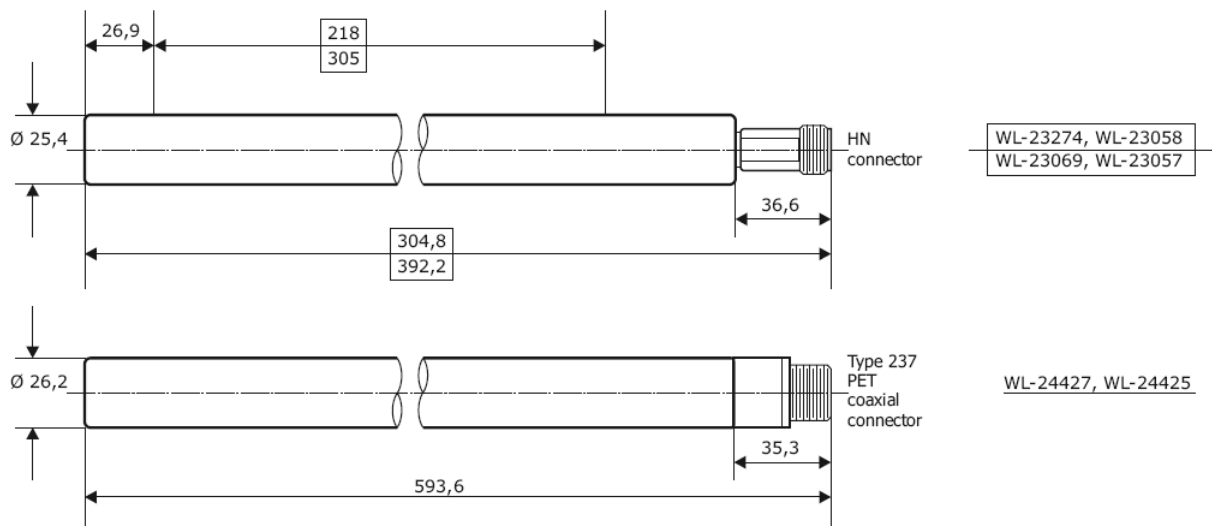
Notice: 1 nv = 1/cm<sup>2</sup>s; 1 cps/nv = 1 cm<sup>2</sup>

Type	Sensitivity	Measuring Range	Operating Voltage	Gas Pressure	Length	Connector
<b>WL-23274</b>	4.5 cps/nv	0.1 ... 1e5 nv	2000V	55 cm Hg	305 mm (12 in)	HN
<b>WL-23069</b>	6.5 cps/nv	0.08 ... 7e4 nv	2000V	55 cm Hg	392 mm (15.4 in)	HN
<b>WL-24427</b> (~WL-23817)	10 cps/nv	0.1 ... 1e4 nv	1825V	55 cm Hg	594 mm (23.4 in)	#237*
<b>WL-23058</b>	13 cps/nv	0.04 ... 4e4 nv	4000V	160 cm Hg	305 mm (12 in)	HN
<b>WL-23057</b>	19 cps/nv	0.03 ... 2.6e4 nv	2200V	160 cm Hg	392 mm (15.4 in)	HN
<b>WL-24425</b> (~WL-23770)	25 cps/nv	0.04 ... 4e3 nv	3000V	160 cm Hg	594 mm (23.4 in)	#237*

\*Designed for the pulse range of the KWU-PWR with PET coaxial plug type 237

## COMMON DATA

- Max. operating temperature: 120°C (248°F),  
WL-24425/-24427: 107°C (224°F)
- Gas filling: BF<sub>3</sub>-gas with > 90% enriched B10
- Housing: aluminium
- Insulators: alumina ceramic
- Manufacturer: Mirion Technologies (IST) Corporation,  
Horseheads, NY/USA



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