# Start Counter Parameters and Geometry

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## 1 General Description

The CLAS start counter (Y.G.Sharabian et al. NIM **A 556** (2006) 246) has a hexagonal shape. Each side of a hexagon consists of 4, 2.15 mm thick and 29 mm wide scintillators. The geometry is a shown in the figures 1 and 2. However for GlueX the upstream ends of the scintillator bars will not be turned up but remain straight. For a PM readout system, we need acrylic light guides to the plug and, after a 90°bend, to the high field PMT. If we can use SiPM they will be directly mounted at the end. As a support structure we can use the same configuration as in CLAS made of rohacell.

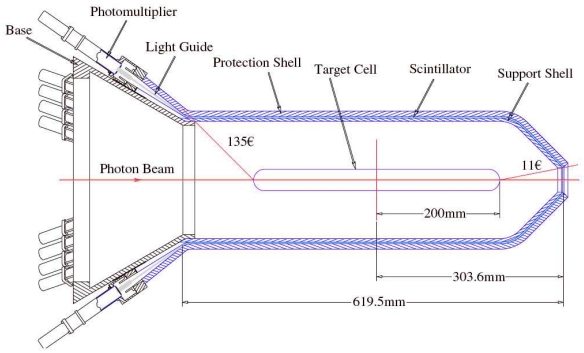


Figure 1: CLAS Start counter geometry

**Rohacell material parameters.**

| A | Z | Weight |
|---|---|---|
| 1.008 | 1 | 11 |
| 12.01 | 6 | 8 |
| 14.008 | 7 | 1 |
| 16.0 | 8 | 2 |

| **General detector parameters** | |
|---|---|
| Paddle length | 500 mm |
| Paddle width | 29 mm |
| Paddle (max) length after bend | 93 mm |
| bend angle | 45° |
| bend radius | 50.8 mm |
| Distance from beam center to | |
| inner support structure | 95 mm |
| Thickness of inner support | 5.3 mm |
| Density of inner support | 0.110 g/cm$^2$ |
| Thickness of scintillator | 2.15 mm |
| Thickness of outer protection layer | 9.8 mm |
| Density of outer support | 0.030 g/cm$^2$ |
| Location of the detector : | |
| target center – downstream end of start counter | 340 mm |

# 2 Simplified description:

The start counter geometry for GEANT could also be described by an array of 24 elements. Each element consists of a tube segment, representing the straight part of the paddle, and 2 conical segments which represent the bent part. The light guides can also be represented by tube segments leading to the upstream end of the solenoid. The same also applies to the rohacell support.

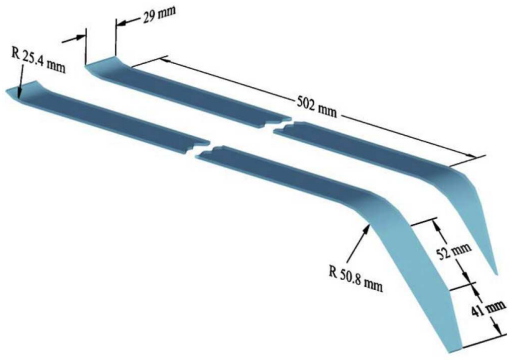


Figure 2: CLAS Start counter paddle