

LOW MATTER DENSITY CYLINDRICAL PROPORTIONAL CHAMBERS

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The construction, technology and characteristics of cylindrical multiwire proportional chambers with low amount of matter in the working volume are described.

The chambers have been built at JINR, Dubna, and are intended for the use as coordinate detectors of charged particles in the multipurpose magnetic spectrometer ARES /Analyser of Rare Events/.

They may be used also in experiments where detectors with large solid angle and axial symmetry are needed.

There are two types of the chambers: pure wire chambers and strip chambers. The first type has wire anodes and cathodes stretched over the perimeter of the cylinder. Cathodes of the strip chambers are solid with helical stripes. They allow the measurement of the coordinate along the chamber. The length of the chambers is in the range from 0.36 m to 0.6 m, the diameter varies within 0.1 - 1.0 m and the amount of the matter is $/15 - 30 \cdot 10^{-4}$ radiation length.