

Results of quality control of large size GEM detector based on Korean GEM foil for future upgrades of the CMS muon system

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GEM detectors have been developed for the Phase II upgrade and will be installed in the endcap stations of the CMS muon system. In detail, the detector station called GE1/1 will be installed during long shutdown 2 scheduled in 2019 and the other detector stations, called GE2/1 and ME0, later. This upgrade will improve the muon trigger and tracking performance in the high-eta region. The Korea CMS group and Mecaro, a company in Korea, have developed large GEM foils using a double-mask technique. Compared to the single-mask technique used so far, the production process is more simple and the more symmetric shape of the GEM holes improves the amplification process. We have built the first GEM chamber with such foils in double-mask technique and present results of several quality control tests on this GEM chamber.

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