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## The Micromegas chambers for the upgrade of the forward muon detector of ATLAS

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The ATLAS collaboration at LHC has chosen the resistive Micromegas technology, along with the small-strip Thin Gap Chambers (sTGC), for the high luminosity upgrade of the first muon station in the high-rapidity region, the so called New Small Wheel (NSW) project. After the R&D, design and prototyping phase, the first series production Micromegas quadruplets are being constructed at the involved construction sites in France, Germany, Italy, Russia and Greece. This is a big step forward towards the installation of the NSW foreseen for the LHC long shutdown in 2019 and 2020. The construction of the four types of large size quadruplets, all having trapezoidal shapes with surface areas between 2 and 3 m<sup>2</sup>, will be reviewed. The achievement of the requirements for these detectors revealed to be even more challenging than expected, when scaling from the small prototypes to the large dimensions. We will describe the encountered problems, to a large extent common to other micro-pattern gaseous detectors, and the adopted solutions. Final quality assessment and validation results on the achieved mechanical precision, on the High-Voltage stability during operation with and without irradiation will be presented together with results from test-beam studies with the first production chambers.

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