

# Charged and neutral Higgs bosons in final states with 6 bottom quarks

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In extensions of two Higgs doublet models with vectorlike quarks, the decays of vectorlike quarks may be easily dominated by cascade decays through charged or neutral Higgs bosons leading to signatures with 6 top or bottom quarks. Since top quark decays also contain bottom quarks, the 6 bottom quarks in final states is a common signature to a large class of possible decay chains. We present a search strategy focusing on this final state and find the mass ranges of vectorlike quarks and Higgs bosons that can be explored at the Large Hadron Collider. Among other results the sensitivity to the charged Higgs boson, extending above 2 TeV, stands out when compared to models without vectorlike matter.

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