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[410] Search for a single produced vector-like quark B decaying to a b quark and a Higgs boson in a full hadronic final state using boosted topologies

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A search is presented for single production of a heavy vector-like quark (VLQ) B in its full-hadronic decay channel: $B \rightarrow bH(\bar{b}b)$. Higgs-tagging methods and jet substructure techniques are employed to identify decay products of boosted Higgs boson and to discriminate signal-like events against multijet background. Signal sensitivity is also enhanced by the identification of forward jets, as their presence is a peculiar feature of VLQs single production signature. The search is performed using proton–proton collision data at $\sqrt{s} = 13$ TeV, collected by the CMS experiment at the Large Hadron Collider in 2016 and corresponding to an integrated luminosity of 35.9 fb^{-1} .

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