

PYTHIA8 Parameter	CP5 [? ]	CP5-CR1	CP5-CR2 <sup>1</sup>
PDF set	NNPDF3.1 NNLO	NNPDF3.1 NNLO	NNPDF3.1 NNLO
$\alpha_S(m_Z)$	0.118	0.118	0.118
SpaceShower:rapidityOrder	on	on	on
MultipartonInteractions:EcmRef [GeV]	7000	7000	7000
$\alpha_S^{\text{ISR}}(m_Z)$ value/order	0.118/NLO	0.118/NLO	0.118/NLO
$\alpha_S^{\text{FSR}}(m_Z)$ value/order	0.118/NLO	0.118/NLO	0.118/NLO
$\alpha_S^{\text{MPI}}(m_Z)$ value/order	0.118/NLO	0.118/NLO	0.118/NLO
$\alpha_S^{\text{ME}}(m_Z)$ value/order	0.118/NLO	0.118/NLO	0.118/NLO
StringZ:aLund	–	0.38	–
StringZ:bLund	–	0.64	–
StringFlav:probQQtoQ	–	0.078	–
StringFlav:probStoUD	–	0.2	–
SigmaTotal:zeroAXB	off	off	off
BeamRemnants:remnantMode	–	1	–
ColourReconnection:mode	–	1	2
MultipartonInteractions:pT0Ref [GeV]	1.410	1.375	1.454
MultipartonInteractions:ecmPow	0.033	0.033	0.054
MultipartonInteractions:coreRadius	0.763	0.605	0.649
MultipartonInteractions:coreFraction	0.630	0.445	0.489
ColourReconnection:range	5.176	–	–
ColourReconnection:junctionCorrection	–	0.238	–
ColourReconnection:timeDilationPar	–	8.580	–
ColourReconnection:m0	–	1.721	–
ColourReconnection:m2lambda	–	–	4.917
ColourReconnection:fracGluon	–	–	0.993
$N_{\text{dof}}$	183 <sup>2</sup>	157	158
$\chi^2/N_{\text{dof}}$	1.04	2.37	0.89