

Physics process	Generator	Parton shower	Normalisation	Tune	PDF (generator)	PDF (PS)
$t\bar{t}$	POWHEG-Box v2 [62,63,64,65]	PYTHIA 8.230 [66]	NNLO+NNLL [67]	A14 [49]	NNPDF3.0NLO [68]	NNPDF2.3LO [50]
$t\bar{t} + V (V = W, Z)$	MADGRAPH5_aMC@NLO [47]	PYTHIA 8.210 [66]	NLO [69,47]	A14	NNPDF3.0NLO	NNPDF2.3LO
$t\bar{t} + WW$	MADGRAPH5_aMC@NLO	PYTHIA 8.186 [48]	NLO [47]	A14	NNPDF2.3LO	NNPDF2.3LO
$tZ, t\bar{t}t\bar{t}, t\bar{t}t$	MADGRAPH5_aMC@NLO	PYTHIA 8.230	NLO [47]	A14	NNPDF3.0NLO	NNPDF2.3LO
Single top (Wt)	POWHEG-Box v2 [63,64,70]	PYTHIA 8.230	NLO+NNLL [71,72]	A14	NNPDF3.0NLO	NNPDF2.3LO
$Z/\gamma^* (\rightarrow ll)+\text{jets}$	SHERPA 2.2.1 [73,74,75]	SHERPA 2.2.1	NNLO [76]	SHERPA default [75]	NNPDF3.0NNLO [68]	NNPDF3.0NNLO [68]
WW, WZ, ZZ	POWHEG-Box v2 [63,64,77,78]	PYTHIA 8.210	NLO [45,77,78]	AZNLO [79]	CT10 NLO [80]	CTEQ6L1[81]
$VVV (V = W, Z)$	SHERPA 2.2.2 [73,74,45]	SHERPA 2.2.2	NLO [74,45]	SHERPA default [45]	NNPDF3.0NNLO	NNPDF3.0NNLO
Higgs boson	POWHEG-Box v2 [63,82,64,83,84,85]	PYTHIA 8.186	NLO [86]	AZNLO	NNPDF3.0NLO ^a	CTEQ6L1

^aThe PDF4LHC15 set have been used for some Higgs production processes, as via gluon-gluon fusion, VBF and VH.