

\sqrt{s} and pert. order	process	σ [fb]
8 TeV NLO	$t\bar{t}W^+$	$136.7^{+15.6}_{-15.2}$
8 TeV NLO	$t\bar{t}W^-$	$60.5^{+7.1}_{-6.8}$
8 TeV NLO	$t\bar{t}Z$	$189.8^{+24.5}_{-24.8}$
8 TeV NLO+NNLL	$t\bar{t}W^+$	$130.7^{+6.9}_{-4.9}$
8 TeV NLO+NNLL	$t\bar{t}W^-$	$59.1^{+3.1}_{-2.2}$
8 TeV NLO+NNLL	$t\bar{t}Z$	$203.9^{+13.5}_{-15.8}$
13 TeV NLO	$t\bar{t}W^+$	$356.3^{+43.7}_{-39.5}$
13 TeV NLO	$t\bar{t}W^-$	$182.2^{+23.1}_{-20.4}$
13 TeV NLO	$t\bar{t}Z$	$728.3^{+93.8}_{-90.3}$
13 TeV NLO+NNLL	$t\bar{t}W^+$	$341.0^{+23.1}_{-13.6}$
13 TeV NLO+NNLL	$t\bar{t}W^-$	$177.1^{+12.0}_{-6.9}$
13 TeV NLO+NNLL	$t\bar{t}Z$	$777.8^{+61.3}_{-65.2}$

Table 3. Total cross section for $t\bar{t}Z$ and $t\bar{t}W$ production at the LHC with $\sqrt{s} = 8$ and 13 TeV and MMHT 2014 PDFs. The default value of the factorization scale is $\mu_{f,0} = M/2$, and the uncertainties are estimated through variations of this scale (and of the resummation scales μ_s and μ_h when applicable).