| Parameter | SM prediction | Best fit value | Uncertainty |  |  |  | Best fit value | Uncertainty |  |  |  | Best fit value | Uncertainty |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Stat | Expt | Thbgd | Thsig |  | Stat | Expt | Thbgd | Thsig |  | Stat | Expt | Thbgd | Thsig |
|  |  | ATLAS＋CMS |  |  |  |  | ATLAS |  |  |  |  | CMS |  |  |  |  |
| $\begin{aligned} & \sigma(g g \rightarrow \\ & H \rightarrow \mathrm{ZZ})[\mathrm{pb}] \end{aligned}$ | $0.51 \pm 0.06$ | $\begin{array}{r} 0.59_{-0.10}^{+0.11} \\ \binom{{ }^{+0.11}}{-0.10} \end{array}$ | $\begin{gathered} +0.11 \\ \binom{-0.10}{\binom{+0.11}{-0.09}} . \end{gathered}$ | $\left.\begin{array}{c} +0.02 \\ -0.01 \\ \left({ }_{-0.02}^{+0.02}\right. \\ -0.02 \end{array}\right)$ | $\begin{gathered} +0.01 \\ \left(\begin{array}{c} -0.01 \\ +0.01 \\ -0.01 \end{array}\right) \end{gathered}$ | $\left.\begin{array}{c} +0.01 \\ -0.01 \\ \left({ }_{-0.01}^{+0.01}\right. \\ -0.01 \end{array}\right)$ | $\begin{array}{r} 0.77{ }_{-0.17}^{+0.19} \\ \binom{{ }^{+0.16}}{-0.14} \end{array}$ | $\begin{gathered} +0.19 \\ \binom{-0.16}{\binom{+0.16}{-0.13}} . \end{gathered}$ | $\begin{gathered} { }_{-0.03}^{+0.04} \\ \left(\begin{array}{c} +0.03 \\ \\ -0.02 \end{array}\right) \end{gathered}$ | $\begin{gathered} { }_{-0.02}^{+0.02} \\ \binom{+0.01}{-0.01} \end{gathered}$ | $\begin{gathered} +0.01 \\ \left(\begin{array}{c} -0.01 \\ +0.01 \\ -0.01 \end{array}\right) \end{gathered}$ | $\begin{array}{r} 0.44{ }_{-0.12}^{+0.14} \\ \binom{{ }^{+0.15}}{-0.13} \end{array}$ | $\begin{gathered} +0.13 \\ \binom{-0.11}{\left({ }_{-0.13}^{+0.15}\right.} \end{gathered}$ | $\begin{gathered} { }_{-0.03}^{+0.04} \\ \binom{+0.03}{{ }_{-0.02}^{+0}} \end{gathered}$ | $\begin{gathered} +0.01 \\ \left(\begin{array}{c} -0.01 \\ { }_{-0.01}^{+0.01} \\ -0.01 \end{array}\right) \end{gathered}$ | $\begin{gathered} +0.02 \\ \binom{-0.01}{{ }_{-0.01}^{+0.02}} \end{gathered}$ |
| $\sigma_{\mathrm{VBF}} / \sigma_{g g \mathrm{~F}}$ | $0.082 \pm 0.009$ | $\begin{array}{r} 0.109_{-0.027}^{+0.034} \\ \left(\begin{array}{l} { }_{-0.024}^{+0.029} \end{array}\right) \end{array}$ | $\begin{gathered} { }_{-0.024}^{+0.029} \\ \binom{+0.024}{{ }_{0}^{+0.020}} \end{gathered}$ | $\begin{gathered} +0.01 \\ \binom{-0.009}{{ }_{-0.009}^{+0.012}} \end{gathered}$ | $\left(\begin{array}{c} +0.006 \\ \left(\begin{array}{c} -0.004 \\ +0.005 \\ -0.003 \end{array}\right) \end{array}\right.$ | $\begin{gathered} { }_{-0.008}^{+0.010} \\ \binom{+0.009}{-0.007} \end{gathered}$ | $\begin{array}{r} 0.079{ }_{-0.026}^{+0.035} \\ \binom{{ }^{+0.042}}{-0.031} \end{array}$ | $\begin{gathered} { }_{-0.023}^{+0.030} \\ \binom{+0.036}{{ }_{-0.028}^{+0 .}} \end{gathered}$ | $\left(\begin{array}{c} +0.014 \\ \left(\begin{array}{c} -0.09 \\ +0.0 .016 \\ -0.010 \end{array}\right) \end{array}\right.$ | $\begin{gathered} { }_{-0.0005}^{+0.008} \\ \binom{+0.010}{-0.006} \end{gathered}$ | $\begin{gathered} +0.009 \\ \binom{-0.006}{{ }_{-0.008}^{+0.011}} \end{gathered}$ | $\begin{array}{r} 0.138_{-0.051}^{+0.073} \\ \binom{{ }^{+0.043}}{-0.033} \end{array}$ | $\begin{gathered} { }_{-0.046}^{+0.061} \\ \binom{+0.037}{-0.029} \end{gathered}$ | $\begin{gathered} +0.033 \\ \binom{+0.019}{\binom{+0.020}{-0.012}} \end{gathered}$ | $\begin{gathered} +0.014 \\ \left(\begin{array}{c} -0.006 \\ +0.006 \\ -0.003 \end{array}\right) \end{gathered}$ | $\left(\begin{array}{c} +0.015 \\ \left(\begin{array}{c} -0.010 \\ +0.000 \\ -0.008 \end{array}\right) \end{array}\right.$ |
| $\sigma_{\text {WH }} / \sigma_{g g \mathrm{~F}}$ | $0.037 \pm 0.004$ | $\begin{gathered} 0.031_{-0.026}^{+0.028} \\ \binom{+0.021}{-0.021} \end{gathered}$ | $\begin{gathered} { }_{-0.022}^{+0.024} \\ \binom{+0.019}{{ }_{-0.015}} \end{gathered}$ | $\left(\begin{array}{c} +0.012 \\ \left(\begin{array}{c} -0.012 \\ +0.008 \\ -0.005 \end{array}\right) \end{array}\right.$ | $\begin{gathered} +0.008 \\ \left(\begin{array}{c} -0.008 \\ +0.007 \\ -0.005 \end{array}\right) \end{gathered}$ | $\begin{gathered} +0.003 \\ \binom{0.002}{\binom{+0.002}{-0.002}} . \end{gathered}$ | $\begin{gathered} 0.054_{-0.026}^{+0.036} \\ \binom{+0.032}{-0.022} \end{gathered}$ |  | $\left(\begin{array}{c} +0.012 \\ \left(\begin{array}{c} -0.008 \\ +0.010 \\ -0.006 \end{array}\right) \end{array}\right.$ | $\begin{gathered} +{ }_{-0.009}^{+0.014} \\ \binom{+0.011}{-0.006} \end{gathered}$ | $\left(\begin{array}{c} +0.007 \\ -0.004 \\ \binom{+0.005}{{ }_{-0.002}} \end{array}\right.$ | $\begin{gathered} 0.005_{-0.037}^{+0.044} \\ \left(\begin{array}{c} { }_{-0.022}^{+0.032} \end{array}\right) \end{gathered}$ | $\left(\begin{array}{c} +0.087 \\ -0.028 \\ \binom{+0.027}{-0.020} \end{array}\right.$ | $\left(\begin{array}{c} +0.021 \\ \left(\begin{array}{c} -0.023 \\ +0.014 \\ -0.008 \end{array}\right) \end{array}\right.$ | $\left(\begin{array}{c} +0.010 \\ \left(\begin{array}{c} -0.008 \\ +0.009 \\ { }_{-0.006} \end{array}\right) \end{array}\right.$ | $\begin{gathered} +0.003 \\ \left(\begin{array}{c} -0.001 \\ +0.003 \\ -0.001 \end{array}\right) \end{gathered}$ |
| $\sigma_{\text {ZH }} / \sigma_{g g \mathrm{~F}}$ | $0.0216 \pm 0.0024$ | $\begin{gathered} 0.066_{-0.031}^{+0.039} \\ \binom{{ }^{+0.0 .011}}{-0.016} \end{gathered}$ | $\begin{gathered} { }_{-0.025}^{+0.032} \\ \left(\begin{array}{c} +0.014 \\ 0 \\ 0.0 .010 \end{array}\right) \end{gathered}$ | $\begin{gathered} \left.{ }_{-0.012}^{+0.018}{ }_{( }^{\prime}{ }_{\left({ }^{+0.0006}\right.}^{-0.003}\right) \end{gathered}$ | $\left(\begin{array}{c} +0.014 \\ \binom{-0.012}{{ }_{-0.0003}} \end{array}\right.$ | $\begin{gathered} +0.005 \\ \binom{+0.003}{\binom{+0.002}{-0.001}} \end{gathered}$ | $\begin{array}{r} 0.013_{-0.014}^{+0.028} \\ \left({ }_{-0.014}^{+0.027}\right) \end{array}$ | $\begin{gathered} { }_{-0.012}^{+0.021} \\ \binom{+0.023}{-0.013} \end{gathered}$ | $\left(\begin{array}{c} { }_{-0.005}^{+0.013} \\ \binom{+0.009}{-0.0 .03} \end{array}\right.$ | $\begin{gathered} { }_{-0.005}^{+0.013} \\ \binom{+0.011}{-0.004} \end{gathered}$ | $\begin{gathered} +0.003 \\ \left(\begin{array}{c} -0.002 \\ +0.003 \\ -0.001 \end{array}\right) \end{gathered}$ | $\begin{array}{r} 0.123{ }_{-0.053}^{+0.076} \\ \binom{+0.024}{-0.013} \end{array}$ | $\begin{gathered} { }_{-0.046}^{+0.063} \\ \binom{+0.020}{-0.012} \end{gathered}$ | $\begin{gathered} { }_{-0.022}^{+0.038} \\ \binom{{ }^{+0.0010}}{-0.004} \end{gathered}$ | $\begin{gathered} { }_{-0.013}^{+0.019} \\ \binom{+0.009}{-0.004} \end{gathered}$ | $\begin{gathered} { }_{-0.009}^{+0.009} \\ \binom{+0.002}{-0.001} \end{gathered}$ |
| $\sigma_{t t H} / \sigma_{g g \mathrm{~F}}$ | $0.0067 \pm 0.0010$ | $\begin{array}{r} 0.02200_{-0.0057}^{+0.0068} \\ \binom{-0.0042}{{ }_{-0.0035}^{+0}} \end{array}$ | $\begin{gathered} +0.0055 \\ (-0.0048 \\ \binom{+0.0033}{-0.0027} \end{gathered}$ | $\begin{gathered} { }_{-0.0023}^{+0.0031} \\ \binom{+0.0018}{-0.0013} \end{gathered}$ | $\begin{gathered} +0.0023 \\ (-0.0020 \\ \binom{+0.0020}{-0.0019} \end{gathered}$ | $\begin{gathered} +0.0014 \\ \left(\begin{array}{c} -0.0010 \\ \left(\begin{array}{l} +0.00005 \end{array}\right) \end{array}{ }_{-0.0003}\right. \end{gathered}$ | $\begin{array}{r} 0.0126_{-}^{+0.00066} \\ \binom{-0.0053}{{ }_{-0.0041}^{+0.0045}} \end{array}$ | $\begin{gathered} { }_{-0.0042}^{+0.0052} \\ \binom{+0.0047}{-0.0035} \end{gathered}$ | $\begin{gathered} +0.0031 \\ (-0.0023 \\ \binom{+0.0026}{-0.0017} \end{gathered}$ | $\begin{gathered} { }_{-0.0020}^{+0.0024} \\ \binom{+0.0027}{-0.0022} \end{gathered}$ | $\begin{gathered} { }^{+0.00013} \\ \binom{+0.00008}{-0.00044} \end{gathered}$ | $\begin{array}{r} 0.03400_{-0.0116}^{+0.0158} \\ \binom{+0.0066}{-0.0054} \end{array}$ | $\begin{gathered} { }^{+0.00091} \\ \left(\begin{array}{c} -0.0097 \\ (-0.0051 \\ -0.0038 \end{array}\right) \end{gathered}$ | $\begin{gathered} +0.0085 \\ \left(\begin{array}{c} -0.0051 \\ +0.0027 \\ -0.0016 \end{array}\right) \end{gathered}$ | $\begin{gathered} +0.0048 \\ (-0.0036 \\ \binom{+0.0032}{-0.0034} \end{gathered}$ | $\begin{gathered} +0.0026 \\ \left(\begin{array}{c} -0.0015 \\ (+0.0006 \\ -0.0002 \end{array}\right) \end{gathered}$ |
| $B^{W W} / \mathrm{B}^{Z Z}$ | $8.09 \pm<0.01$ | $\begin{gathered} 6.7_{-1.3}^{+1.6} \\ \binom{+2.2}{{ }_{-1.7}} \end{gathered}$ | $\begin{gathered} +1.5 \\ \binom{+1.2}{-1.0} \end{gathered}$ | $\begin{gathered} { }^{+0.4} \\ \binom{0.3}{+0.7} \\ { }_{-0.5}^{+0.5} \end{gathered}$ | $\begin{gathered} +0.4 \\ \left(\begin{array}{c} +0.3 \\ \left(\begin{array}{c} +0.5 \end{array}\right) \end{array}, ~\right. \end{gathered}$ | $\begin{gathered} +0.3 \\ (-0.2 \\ \binom{+0.3}{-0.2} \end{gathered}$ | $\begin{gathered} 6.5_{-1.6}^{+2.1} \\ \binom{+3.5}{-2.4} \end{gathered}$ | $\begin{gathered} +2.0 \\ -1.4 \\ \binom{+3.3}{-2.2} \end{gathered}$ | $\begin{gathered} { }_{-0.4}^{+0.6} \\ \binom{+0.9}{-0.6} \end{gathered}$ | $\begin{gathered} { }_{-0.4}^{+0.5} \\ \binom{+0.8}{-0.6} \end{gathered}$ | $\begin{gathered} +0.3 \\ -0.2 \\ \binom{+0.4}{-0.3} \end{gathered}$ | $\begin{gathered} 7.1_{-2.1}^{+2.9} \\ \binom{+3.2}{-3.2} \end{gathered}$ | $\begin{gathered} +2.6 \\ \binom{-1.8}{-2.9} \end{gathered}$ | $\begin{gathered} +1.0 \\ -0.7 \\ \binom{+1.1}{-0.8} \end{gathered}$ | $\begin{gathered} +0.7 \\ (-0.5 \\ \binom{+0.7}{-0.5} \end{gathered}$ | $\begin{gathered} +0.4 \\ \binom{+0.3}{\left(\begin{array}{c} 0.5 \end{array}\right)} \end{gathered}$ |
| $\mathrm{B}^{\gamma \gamma} / \mathrm{B}^{Z Z}$ | $0.0854 \pm 0.0010$ | $\begin{array}{r} 0.069_{-0.014}^{+0.018} \\ \binom{+0.025}{-0.019} \end{array}$ | $\begin{gathered} +0.018 \\ \binom{-0.14}{\left({ }_{-0.019}^{+0.04}\right.} \end{gathered}$ | $\begin{gathered} +0.003 \\ \binom{-0.002}{\binom{+0.005}{-0.003}} \end{gathered}$ | $\begin{gathered} +0.002 \\ \binom{-0.001}{{ }_{-0.0001}^{+0.002}} \end{gathered}$ | $\begin{gathered} { }_{-0.0002}^{+0.002} \\ \binom{+0.0003}{-0.002} \end{gathered}$ | $\begin{gathered} 0.062_{-0.018}^{+0.024} \\ \binom{+0.040}{-0.027} \end{gathered}$ | $\begin{gathered} +0.02 \\ \binom{+0.017}{\binom{+0.027}{-0.027}} \end{gathered}$ | $\begin{gathered} { }_{-0.0007}^{+0.007} \\ \binom{+0.000}{-0.005} \end{gathered}$ | $\begin{gathered} +0.002 \\ (-0.001 \\ \binom{+0.0003}{-0.002} \end{gathered}$ | $\begin{gathered} +0.00 \\ \binom{-0.002}{\binom{+0.003}{-0.003}} \end{gathered}$ | $\begin{array}{r} 0.079{ }_{-0.023}^{+0.034} \\ \left({ }_{-0.025}^{+0.035}\right) \end{array}$ | $\begin{gathered} +0.032 \\ \binom{-0.023}{{ }_{-0.024}^{+0.04}} \end{gathered}$ | $\begin{gathered} +0.009 \\ \binom{0.005}{\binom{+0.007}{-0.004}} . \end{gathered}$ | $\begin{gathered} +0.00 \\ \binom{-0.002}{\binom{+0.002}{-0.001}} \end{gathered}$ | $\begin{gathered} +0.004 \\ \binom{+0.003}{\left(\begin{array}{c} +0.0003 \end{array}\right)} \end{gathered}$ |
| $\mathrm{B}^{\tau \tau} / \mathrm{B}^{Z Z}$ | $2.36 \pm 0.05$ | $\begin{array}{r} 1.77_{-0.46}^{+0.59} \\ \binom{+0.90}{-0.68} \end{array}$ | $\begin{gathered} +0.52 \\ (-0.41 \\ \binom{+0.55}{-0.58} \end{gathered}$ | $\begin{gathered} +0.27 \\ \binom{+0.20}{\left({ }_{-0.33}^{+0.37}\right.} \end{gathered}$ | $\begin{gathered} +0.05 \\ \left(\begin{array}{c} -0.04 \\ +0.08 \\ -0.06 \end{array}\right) \end{gathered}$ | $\begin{gathered} +0.06 \\ \binom{-0.04}{\left({ }_{-0.06}^{+0.0}\right.} \end{gathered}$ | $\begin{array}{r} 2.17{ }_{-0.74}^{+1.07} \\ \binom{+0.54}{-0.98} \end{array}$ | $\begin{gathered} \left.\begin{array}{c} +0.89 \\ -0.64 \\ \left({ }_{-0.36}^{+1.30}\right. \end{array}\right) \end{gathered}$ | $\begin{gathered} +0.53 \\ \left(\begin{array}{c} +0.35 \\ +0.76 \\ -0.44 \end{array}\right) \end{gathered}$ | $\begin{gathered} +0.16 \\ \left(\begin{array}{c} +0.10 \\ \binom{+0.22}{-0.12} \end{array}, ~\right. \end{gathered}$ | $\begin{gathered} +0.17 \\ \left(\begin{array}{c} +0.09 \\ +0.22 \\ -0.10 \end{array}\right) \end{gathered}$ | $\begin{array}{r} \left.1.56_{-0.61}^{+0.90}{ }_{\left({ }_{-0.86}^{+1.23}\right.}^{-0.86}\right) \end{array}$ | $\begin{gathered} +0.78 \\ \binom{-0.54}{\left({ }_{-0.73}^{+1.3}\right.} \end{gathered}$ | $\begin{gathered} { }_{-0.26}^{+0.45} \\ \binom{+0.66}{-0.44} \end{gathered}$ | $\begin{gathered} \left.+\begin{array}{c} +0.07 \\ -0.05 \\ \left({ }_{-0.04}^{+0.04}\right. \end{array}\right) \end{gathered}$ | $\begin{gathered} +0.07 \\ \left(\begin{array}{c} -0.04 \\ +0.12 \\ -0.07 \end{array}\right) \end{gathered}$ |
| $\mathrm{B}^{b b} / \mathrm{B}^{Z Z}$ | $21.5 \pm 1.0$ | $\begin{gathered} 4.2{ }_{-}^{+4.4} \\ \binom{-16.6}{-9.0} \\ \hline \end{gathered}$ | $\begin{gathered} +2.8 \\ -2.0 \\ \binom{+1.9}{-7.9} \\ \hline \end{gathered}$ | $\begin{gathered} +2.3 \\ (-1.1 \\ \binom{+6.3}{-2.8} \\ \hline \end{gathered}$ | $\begin{array}{r} +2.5 \\ -1.2 \\ \binom{+6.7}{-3.3} \\ \hline \end{array}$ | $\begin{gathered} +0.4 \\ \left(\begin{array}{c} +0.2 \\ \binom{+2.1}{-0.9} \\ \hline \end{array} ⿳ ⺈ ⿴ 囗 十 一 ⿱ 亠 䒑 十\right. \end{gathered}$ | $\begin{gathered} 9.6_{-5.7}^{+10.1} \\ \binom{-5.7 .3}{-11.8} \\ \hline \end{gathered}$ |  | $\begin{gathered} +4.5 \\ \left(\begin{array}{c} +2.4 \\ \left(\begin{array}{l} +10.9 \end{array}\right) \\ -3.3 \end{array}\right) \\ \hline \end{gathered}$ |  | $\begin{array}{r} \begin{array}{c} +1.3 \\ -0.5 \\ \binom{+4.0}{-1.2} \\ \hline \end{array} ⿳ ⺈ ⿴ 囗 十 一 ⿱ 亠 䒑 十 \end{array}$ | $\begin{gathered} 3.7_{-2.4}^{+4.1} \\ \binom{+2.4 .4}{-11.9} \\ \hline \end{gathered}$ | $\begin{gathered} \left.\begin{array}{c} +3.1 \\ -2.0 \\ \left(\begin{array}{c} 23.4 \end{array}\right) \\ -10.4 \end{array}\right) \\ \hline \end{gathered}$ | $\begin{gathered} \left.\begin{array}{c} +1.8 \\ -0.9 \\ \left(\begin{array}{l} +12.7 \end{array}\right) \\ \hline-3.8 \end{array}\right) \\ \hline \end{gathered}$ | $\begin{gathered} +1.9 \\ (-1.1 \\ \binom{+1.2}{-4.4} \\ \hline \end{gathered}$ |  |

Parameter
SM prediction
Pa

| Best fit | Uncertainty |  |  |  |
| :--- | :--- | :--- | :--- | :---: |
| value | Stat | Expt $\quad$ Thbgd $\quad$ Thsig |  |  |

$1.5 \pm 1.0$
$\binom{+29.3}{-11.8}$

Best fit Uncertainty
＂
$\left(\begin{array}{l}+11.9\end{array}\right)$

Uncertainty $\qquad$
est fit



