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BSM Higgs production cross sections at $\sqrt{s} = 7$ TeV (update in CERN Report4 2016)

- Cross sections reported in CERN Report 4. See here and here here for previous numbers in CERN Report 3.
- Higgs cross sections and BRs in Spread sheet are available in xlsx format [NEW](#)
- You can find figures at our gallery here.

• BSM Higgs-boson production cross section calculation

- Please check Proposal on how to provide reference "Higgs" cross sections for BSM applications
- Full mass scan should be provided for major Higgs production processes:
 1. Major process: ggF, VBF, WH (also separate W^+H and W^-H), ZH (also gg ZH)
 2. Associated Higgs with heavy quark: ttH, bbH
 3. Associated Higgs with single top-quark: tH (bq tHq', bg WtH, qq btH)
- Higgs width should be set to zero (NWA).
- Separate electroweak correction should be provided.
- For relevant processes, and if possible, the contributions proportional to different Higgs couplings should be given separately, together with the corresponding uncertainties.
- All other external parameters should be chosen as in the corresponding best SM predictions as well as the evaluation of the uncertainties.
- SM width: At each mass point, the corresponding Higgs widths calculated in the SM with the same characteristics above should be provided.
- Examples on how to use these predictions in specific cases are provided.

Mass range and step for BSM Higgs boson:

Higgs Mass range	step size	# of points	addendum
[10,150] GeV	5 GeV	29 points	
[150,500] GeV	10 GeV	35 points	+ $M_H=125.09$ GeV
[500,3000] GeV	50 GeV	50 points	

- Total 115 points for $M_H=[10,3000]$ GeV.
- Lower mass limit might depend on stability of the code at low Bjorken-x. To be assessed.

gluon-gluon Fusion Process

- Cross sections are calculated with dFG program at NNLO+NNLL QCD (only) accuracy. Separate NLO EW correction factors $1+_{EW}$ are also given for $M_H=[100,2500]$ GeV.
 - ◆ This is an interim recommendation, will be updated when new N3LO QCD numbers became available.
- Calculations are the same as CERN Report 3 (i.e. top, bottom and charm quark effects are taken into account), except it is in NWA (CPS in CERN Report 3).
- Program: dFG
- QCD scales: $\mu=\mu_F=\mu_R=M_H$, uncertainty estimated in the range $1/2 < \mu/M_H < 2$ with $1/2 < \mu_F/\mu_R < 2$ constraint.
 - ◆ No additional THU nor PU uncertainties assigned.
- PDF set: PDF4LHC15_nlo_30

m_H (GeV)				±(PDF+ _s) %	±PDF %	$1+_{EW}$
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	Cross Section (pb)	+QCD Scale %	-QCD Scale %			± s %	
10.00	4.101E+03	+47.3	-36.8	±6.2	±5.6	±2.7	0.0000
15.00	2.370E+03	+33.4	-27.3	±4.9	±4.0	±2.8	0.0000
20.00	1.092E+03	+24.9	-20.9	±4.3	±3.1	±2.9	0.0000
25.00	5.717E+02	+20.3	-16.9	±4.0	±2.6	±3.0	0.0000
30.00	3.402E+02	+18.0	-14.6	±3.9	±2.5	±3.0	0.0000
35.00	2.243E+02	+15.8	-13.3	±3.8	±2.3	±3.0	0.0000
40.00	1.598E+02	+14.1	-12.6	±3.7	±2.2	±3.0	0.0000
45.00	1.206E+02	+12.8	-11.8	±3.7	±2.1	±3.0	0.0000
50.00	9.490E+01	+11.8	-11.3	±3.6	±2.1	±3.0	0.0000
55.00	7.710E+01	+11.1	-10.8	±3.6	±2.0	±2.9	0.0000
60.00	6.414E+01	+10.5	-10.4	±3.5	±2.0	±2.9	0.0000
65.00	5.438E+01	+9.9	-10.0	±3.5	±2.0	±2.8	0.0000
70.00	4.679E+01	+9.5	-9.7	±3.4	±1.9	±2.8	0.0000
75.00	4.073E+01	+9.2	-9.5	±3.4	±1.9	±2.8	0.0000
80.00	3.580E+01	+8.9	-9.2	±3.3	±1.9	±2.8	0.0000
85.00	3.172E+01	+8.6	-9.0	±3.3	±1.9	±2.7	0.0000
90.00	2.830E+01	+8.4	-8.8	±3.3	±1.9	±2.7	0.0000
95.00	2.539E+01	+8.2	-8.7	±3.3	±1.9	±2.7	0.0000
100.00	2.291E+01	+8.0	-8.5	±3.3	±1.9	±2.7	1.0418
105.00	2.077E+01	+7.8	-8.4	±3.2	±1.9	±2.6	1.0436
110.00	1.891E+01	+7.7	-8.3	±3.2	±1.9	±2.6	1.0455
115.00	1.727E+01	+7.5	-8.2	±3.2	±1.8	±2.6	1.0474
120.00	1.583E+01	+7.4	-8.0	±3.2	±1.8	±2.6	1.0494
125.00	1.456E+01	+7.3	-7.9	±3.2	±1.8	±2.6	1.0514
130.00	1.343E+01	+7.1	-7.8	±3.2	±1.8	±2.6	1.0534
135.00	1.242E+01	+7.0	-7.7	±3.2	±1.8	±2.6	1.0553
140.00	1.152E+01	+6.9	-7.7	±3.2	±1.8	±2.6	1.0571
145.00	1.071E+01	+6.8	-7.6	±3.1	±1.8	±2.6	1.0587
150.00	9.973E+00	+6.8	-7.5	±3.1	±1.8	±2.5	1.0598
160.00	8.707E+00	+6.6	-7.4	±3.1	±1.9	±2.5	1.0486
170.00	7.664E+00	+6.4	-7.2	±3.2	±1.9	±2.5	1.0206
180.00	6.790E+00	+6.3	-7.1	±3.2	±1.9	±2.5	1.0053
190.00	6.056E+00	+6.2	-7.0	±3.2	±1.9	±2.5	0.9872
200.00	5.436E+00	+6.2	-6.9	±3.2	±1.9	±2.5	0.9793
210.00	4.908E+00	+6.1	-6.8	±3.2	±1.9	±2.5	0.9761
220.00	4.456E+00	+6.1	-6.7	±3.2	±2.0	±2.5	0.9749
230.00	4.067E+00	+6.1	-6.6	±3.2	±2.0	±2.5	0.9749
240.00	3.734E+00	+6.0	-6.5	±3.2	±2.0	±2.5	0.9755
250.00	3.446E+00	+6.0	-6.4	±3.3	±2.1	±2.5	0.9762
260.00	3.196E+00	+6.0	-6.4	±3.3	±2.1	±2.5	0.9772
270.00	2.982E+00	+6.0	-6.3	±3.3	±2.2	±2.5	0.9783
280.00	2.798E+00	+5.9	-6.3	±3.4	±2.2	±2.5	0.9795
290.00	2.643E+00	+5.9	-6.2	±3.4	±2.3	±2.6	0.9805
300.00	2.513E+00	+5.9	-6.1	±3.5	±2.3	±2.6	0.9813
310.00	2.410E+00	+5.9	-6.1	±3.5	±2.4	±2.6	0.9819
320.00	2.335E+00	+5.9	-6.0	±3.5	±2.4	±2.6	0.9820
330.00	2.292E+00	+5.9	-5.9	±3.6	±2.5	±2.6	0.9813
340.00	2.302E+00	+5.9	-5.9	±3.6	±2.5	±2.6	0.9779

350.00	2.444E+00	+5.9	-5.8	±3.7	±2.6	±2.6	0.9595
360.00	2.503E+00	+6.0	-5.7	±3.7	±2.6	±2.6	0.9608
370.00	2.470E+00	+6.0	-5.7	±3.8	±2.7	±2.7	0.9642
380.00	2.382E+00	+6.0	-5.6	±3.9	±2.8	±2.7	0.9677
390.00	2.261E+00	+6.0	-5.6	±3.9	±2.8	±2.7	0.9713
400.00	2.122E+00	+6.0	-5.5	±4.0	±2.9	±2.7	0.9741
410.00	1.976E+00	+6.0	-5.5	±4.0	±3.0	±2.7	0.9771
420.00	1.827E+00	+6.0	-5.5	±4.1	±3.0	±2.7	0.9802
430.00	1.682E+00	+6.0	-5.4	±4.1	±3.1	±2.7	0.9830
440.00	1.543E+00	+6.0	-5.4	±4.2	±3.2	±2.8	0.9853
450.00	1.412E+00	+6.0	-5.4	±4.3	±3.3	±2.8	0.9878
460.00	1.290E+00	+6.0	-5.4	±4.3	±3.3	±2.8	0.9900
470.00	1.177E+00	+6.0	-5.3	±4.4	±3.4	±2.8	0.9921
480.00	1.072E+00	+6.0	-5.3	±4.5	±3.5	±2.8	0.9940
490.00	9.756E-01	+6.0	-5.3	±4.5	±3.5	±2.8	0.9961
500.00	8.875E-01	+6.0	-5.3	±4.6	±3.6	±2.8	0.9981
550.00	5.523E-01	+6.1	-5.2	±5.0	±4.0	±2.9	1.0069
600.00	3.460E-01	+6.2	-5.2	±5.3	±4.4	±3.0	1.0152
650.00	2.195E-01	+6.2	-5.3	±5.7	±4.8	±3.1	1.0226
700.00	1.413E-01	+6.3	-5.3	±6.2	±5.2	±3.2	1.0301
750.00	9.229E-02	+6.4	-5.4	±6.6	±5.7	±3.3	1.0377
800.00	6.113E-02	+6.5	-5.5	±7.0	±6.1	±3.4	1.0454
850.00	4.107E-02	+6.6	-5.5	±7.5	±6.6	±3.5	1.0532
900.00	2.791E-02	+6.7	-5.6	±7.9	±7.0	±3.7	1.0610
950.00	1.922E-02	+6.8	-5.7	±8.4	±7.5	±3.8	1.0695
1000.00	1.335E-02	+7.0	-5.8	±8.9	±7.9	±3.9	1.0783
1050.00	9.376E-03	+7.1	-5.9	±9.3	±8.4	±4.1	1.0890
1100.00	6.648E-03	+7.2	-5.9	±9.9	±8.9	±4.2	1.1004
1150.00	4.749E-03	+7.3	-6.0	±10.4	±9.4	±4.3	1.1122
1200.00	3.423E-03	+7.4	-6.1	±10.9	±9.9	±4.5	1.1242
1250.00	2.484E-03	+7.5	-6.2	±11.5	±10.5	±4.7	1.1364
1300.00	1.815E-03	+7.6	-6.3	±12.0	±11.0	±4.8	1.1475
1350.00	1.334E-03	+7.7	-6.4	±12.6	±11.6	±5.0	1.1586
1400.00	9.864E-04	+7.8	-6.5	±13.2	±12.2	±5.2	1.1700
1450.00	7.333E-04	+7.9	-6.6	±13.8	±12.8	±5.3	1.1816
1500.00	5.478E-04	+8.0	-6.7	±14.5	±13.4	±5.5	1.1937
1550.00	4.112E-04	+8.1	-6.8	±15.1	±14.0	±5.7	1.2069
1600.00	3.100E-04	+8.1	-7.0	±15.8	±14.7	±5.9	1.2206
1650.00	2.346E-04	+8.1	-7.1	±16.5	±15.3	±6.1	1.2347
1700.00	1.782E-04	+8.2	-7.2	±17.3	±16.0	±6.4	1.2493
1750.00	1.359E-04	+8.2	-7.7	±9.0	±3.3	±8.4	1.2644
1800.00	1.039E-04	+8.2	-7.8	±10.6	±6.6	±8.3	1.2798
1850.00	7.973E-05	+8.3	-7.9	±12.7	±9.7	±8.2	1.2955
1900.00	6.133E-05	+8.3	-8.0	±14.9	±12.4	±8.2	1.3117
1950.00	4.730E-05	+8.4	-8.1	±17.1	±14.9	±8.3	1.3283
2000.00	3.656E-05	+8.4	-8.2	±19.1	±17.2	±8.3	1.3453
2050.00	2.832E-05	+8.4	-8.3	±21.0	±19.2	±8.4	1.3627
2100.00	2.199E-05	+8.5	-8.4	±22.7	±21.1	±8.6	1.3806
2150.00	1.711E-05	+8.5	-8.4	±24.4	±22.7	±8.8	1.3989
2200.00	1.333E-05	+8.6	-8.5	±25.9	±24.3	±9.0	1.4176

2250.00	1.042E-05	+8.6	-8.6	±27.3	±25.7	±9.2	1.4367
2300.00	8.135E-06	+8.6	-8.6	±28.6	±27.0	±9.5	1.4563
2350.00	6.371E-06	+8.7	-8.7	±29.8	±28.2	±9.8	1.4763
2400.00	4.991E-06	+8.7	-8.7	±31.1	±29.4	±10.1	1.4968
2450.00	3.916E-06	+8.8	-8.8	±32.3	±30.5	±10.5	1.5177
2500.00	3.075E-06	+8.8	-8.8	±33.5	±31.7	±10.8	1.5390
2550.00	2.412E-06	+8.8	-8.8	±34.7	±32.8	±11.2	0.0000
2600.00	1.897E-06	+8.9	-8.9	±35.9	±34.0	±11.6	0.0000
2650.00	1.496E-06	+8.9	-8.9	±37.3	±35.3	±12.0	0.0000
2700.00	1.181E-06	+9.0	-9.0	±38.7	±36.6	±12.4	0.0000
2750.00	9.285E-07	+9.0	-9.0	±40.2	±38.1	±12.9	0.0000
2800.00	7.321E-07	+9.0	-9.0	±41.8	±39.7	±13.3	0.0000
2850.00	5.788E-07	+9.1	-9.1	±43.6	±41.4	±13.7	0.0000
2900.00	4.549E-07	+9.1	-9.1	±45.6	±43.4	±14.1	0.0000
2950.00	3.594E-07	+9.2	-9.2	±47.8	±45.5	±14.5	0.0000
3000.00	2.823E-07	+9.2	-9.2	±50.1	±47.9	±15.0	0.0000

VBF Process

- Cross sections are calculated at (approx.) NNLO QCD accuracy.
- Calculations are the same as CERN Report 3, except it is in NWA (CPS in CERN Report 3).
- Program: NNLO QCD (VBF@NNLO)
- QCD scales: $\mu = \mu_F = \mu_R = M_W$, uncertainty estimated in the range $1/2 < \mu/M_W < 2$ (scales have been varied independently by factor 2).
 - ◆ No additional THU nor PU uncertainties assigned.
- PDF set: PDF4LHC15_nnlo_30_pdfas

m_H (GeV)	Cross Section (pb)	+QCD Scale %	-QCD Scale %	±(PDF+ _s) %	±PDF %	± _s %	1+ _{EW}
10.00	4.452E+00	+0.9	-0.5	±2.0	±1.8	±0.7	
15.00	4.224E+00	+0.8	-0.4	±2.0	±1.8	±0.7	
20.00	3.994E+00	+0.8	-0.4	±2.0	±1.8	±0.7	
25.00	3.768E+00	+0.7	-0.4	±2.0	±1.8	±0.7	
30.00	3.555E+00	+0.6	-0.4	±1.9	±1.8	±0.6	
35.00	3.350E+00	+0.6	-0.3	±1.9	±1.8	±0.6	
40.00	3.157E+00	+0.6	-0.3	±1.9	±1.8	±0.6	
45.00	2.977E+00	+0.6	-0.3	±1.9	±1.8	±0.6	
50.00	2.808E+00	+0.5	-0.3	±1.9	±1.8	±0.6	
55.00	2.651E+00	+0.5	-0.3	±1.9	±1.8	±0.6	
60.00	2.504E+00	+0.5	-0.3	±1.9	±1.8	±0.6	
65.00	2.367E+00	+0.4	-0.2	±1.9	±1.8	±0.5	
70.00	2.240E+00	+0.4	-0.2	±1.9	±1.8	±0.5	
75.00	2.120E+00	+0.4	-0.2	±1.9	±1.9	±0.5	
80.00	2.009E+00	+0.4	-0.2	±1.9	±1.9	±0.5	
85.00	1.905E+00	+0.3	-0.2	±1.9	±1.9	±0.5	
90.00	1.807E+00	+0.3	-0.2	±1.9	±1.9	±0.5	
95.00	1.716E+00	+0.3	-0.2	±1.9	±1.9	±0.5	
100.00	1.631E+00	+0.3	-0.2	±1.9	±1.9	±0.5	
105.00	1.550E+00	+0.3	-0.2	±1.9	±1.9	±0.5	
110.00	1.475E+00	+0.2	-0.2	±1.9	±1.9	±0.4	
115.00	1.405E+00	+0.2	-0.2	±1.9	±1.9	±0.4	
120.00	1.339E+00	+0.2	-0.2	±1.9	±1.9	±0.4	

125.00	1.276E+00	+0.2	-0.2	± 1.9	± 1.9	± 0.4	
130.00	1.217E+00	+0.2	-0.2	± 1.9	± 1.9	± 0.4	
135.00	1.162E+00	+0.2	-0.1	± 1.9	± 1.9	± 0.4	
140.00	1.110E+00	+0.2	-0.1	± 1.9	± 1.9	± 0.4	
145.00	1.061E+00	+0.2	-0.1	± 1.9	± 1.9	± 0.4	
150.00	1.014E+00	+0.2	-0.1	± 2.0	± 1.9	± 0.4	
160.00	9.285E-01	+0.2	-0.1	± 2.0	± 1.9	± 0.4	
170.00	8.518E-01	+0.2	-0.1	± 2.0	± 1.9	± 0.3	
180.00	7.830E-01	+0.2	-0.1	± 2.0	± 1.9	± 0.3	
190.00	7.210E-01	+0.2	-0.1	± 2.0	± 2.0	± 0.3	
200.00	6.650E-01	+0.2	-0.1	± 2.0	± 2.0	± 0.3	
210.00	6.143E-01	+0.2	-0.1	± 2.0	± 2.0	± 0.3	
220.00	5.684E-01	+0.3	-0.1	± 2.0	± 2.0	± 0.3	
230.00	5.266E-01	+0.3	-0.1	± 2.0	± 2.0	± 0.3	
240.00	4.886E-01	+0.3	-0.1	± 2.0	± 2.0	± 0.3	
250.00	4.539E-01	+0.3	-0.2	± 2.0	± 2.0	± 0.2	
260.00	4.222E-01	+0.3	-0.2	± 2.1	± 2.0	± 0.2	
270.00	3.932E-01	+0.3	-0.2	± 2.1	± 2.1	± 0.2	
280.00	3.666E-01	+0.3	-0.2	± 2.1	± 2.1	± 0.2	
290.00	3.421E-01	+0.3	-0.2	± 2.1	± 2.1	± 0.2	
300.00	3.196E-01	+0.3	-0.3	± 2.1	± 2.1	± 0.2	
310.00	2.989E-01	+0.3	-0.3	± 2.1	± 2.1	± 0.2	
320.00	2.798E-01	+0.3	-0.3	± 2.1	± 2.1	± 0.2	
330.00	2.621E-01	+0.3	-0.3	± 2.2	± 2.1	± 0.2	
340.00	2.457E-01	+0.3	-0.4	± 2.2	± 2.2	± 0.2	
350.00	2.306E-01	+0.3	-0.4	± 2.2	± 2.2	± 0.1	
360.00	2.166E-01	+0.3	-0.4	± 2.2	± 2.2	± 0.1	
370.00	2.035E-01	+0.3	-0.4	± 2.2	± 2.2	± 0.1	
380.00	1.914E-01	+0.3	-0.4	± 2.2	± 2.2	± 0.1	
390.00	1.802E-01	+0.3	-0.5	± 2.2	± 2.2	± 0.1	
400.00	1.697E-01	+0.3	-0.5	± 2.3	± 2.3	± 0.1	
410.00	1.599E-01	+0.3	-0.5	± 2.3	± 2.3	± 0.1	
420.00	1.508E-01	+0.3	-0.5	± 2.3	± 2.3	± 0.1	
430.00	1.423E-01	+0.3	-0.5	± 2.3	± 2.3	± 0.1	
440.00	1.343E-01	+0.3	-0.5	± 2.3	± 2.3	± 0.1	
450.00	1.269E-01	+0.3	-0.6	± 2.3	± 2.3	± 0.1	
460.00	1.199E-01	+0.3	-0.6	± 2.4	± 2.4	± 0.1	
470.00	1.134E-01	+0.3	-0.6	± 2.4	± 2.4	± 0.1	
480.00	1.073E-01	+0.3	-0.6	± 2.4	± 2.4	± 0.0	
490.00	1.015E-01	+0.3	-0.6	± 2.4	± 2.4	± 0.0	
500.00	9.616E-02	+0.3	-0.7	± 2.4	± 2.4	± 0.0	
550.00	7.372E-02	+0.3	-0.7	± 2.5	± 2.5	± 0.0	
600.00	5.706E-02	+0.3	-0.8	± 2.6	± 2.6	± 0.0	
650.00	4.453E-02	+0.3	-0.9	± 2.7	± 2.7	± 0.1	
700.00	3.501E-02	+0.3	-1.0	± 2.8	± 2.8	± 0.1	
750.00	2.769E-02	+0.4	-1.1	± 2.9	± 2.9	± 0.1	
800.00	2.203E-02	+0.4	-1.2	± 3.0	± 3.0	± 0.1	
850.00	1.761E-02	+0.5	-1.3	± 3.1	± 3.1	± 0.1	
900.00	1.414E-02	+0.5	-1.4	± 3.2	± 3.2	± 0.2	
950.00	1.139E-02	+0.5	-1.4	± 3.3	± 3.3	± 0.2	

1000.00	9.209E-03	+0.6	-1.5	±3.5	±3.5	±0.2	
1050.00	7.468E-03	+0.6	-1.6	±3.6	±3.6	±0.2	
1100.00	6.072E-03	+0.7	-1.7	±3.7	±3.7	±0.2	
1150.00	4.949E-03	+0.7	-1.8	±3.9	±3.9	±0.2	
1200.00	4.043E-03	+0.8	-1.9	±4.0	±4.0	±0.2	
1250.00	3.308E-03	+0.8	-2.0	±4.2	±4.2	±0.2	
1300.00	2.712E-03	+0.9	-2.1	±4.4	±4.4	±0.2	
1350.00	2.226E-03	+0.9	-2.2	±4.5	±4.5	±0.2	
1400.00	1.830E-03	+1.0	-2.3	±4.7	±4.7	±0.2	
1450.00	1.506E-03	+1.0	-2.4	±4.9	±4.9	±0.2	
1500.00	1.240E-03	+1.1	-2.5	±5.2	±5.1	±0.2	
1550.00	1.023E-03	+1.1	-2.6	±5.4	±5.4	±0.2	
1600.00	8.438E-04	+1.2	-2.7	±5.6	±5.6	±0.2	
1650.00	6.967E-04	+1.2	-2.8	±5.9	±5.9	±0.1	
1700.00	5.756E-04	+1.3	-2.9	±6.1	±6.1	±0.1	
1750.00	4.757E-04	+1.4	-3.0	±6.4	±6.4	±0.1	
1800.00	3.933E-04	+1.4	-3.1	±6.7	±6.7	±0.1	
1850.00	3.253E-04	+1.5	-3.2	±7.0	±7.0	±0.1	
1900.00	2.690E-04	+1.5	-3.3	±7.4	±7.4	±0.0	
1950.00	2.226E-04	+1.6	-3.4	±7.7	±7.7	±0.0	
2000.00	1.841E-04	+1.7	-3.5	±8.1	±8.1	±0.0	
2050.00	1.523E-04	+1.7	-3.6	±8.5	±8.5	±0.0	
2100.00	1.260E-04	+1.8	-3.7	±8.9	±8.9	±0.1	
2150.00	1.042E-04	+1.9	-3.8	±9.3	±9.3	±0.1	
2200.00	8.614E-05	+2.0	-3.9	±9.7	±9.7	±0.1	
2250.00	7.121E-05	+2.0	-4.1	±10.2	±10.2	±0.2	
2300.00	5.884E-05	+2.1	-4.2	±10.7	±10.7	±0.2	
2350.00	4.860E-05	+2.2	-4.3	±11.2	±11.2	±0.3	
2400.00	4.012E-05	+2.3	-4.4	±11.7	±11.7	±0.3	
2450.00	3.311E-05	+2.4	-4.5	±12.2	±12.2	±0.4	
2500.00	2.730E-05	+2.4	-4.7	±12.8	±12.8	±0.4	
2550.00	2.250E-05	+2.5	-4.8	±13.4	±13.4	±0.4	
2600.00	1.854E-05	+2.6	-4.9	±14.0	±14.0	±0.5	
2650.00	1.526E-05	+2.7	-5.0	±14.7	±14.7	±0.6	
2700.00	1.255E-05	+2.8	-5.2	±15.4	±15.3	±0.6	
2750.00	1.032E-05	+2.9	-5.3	±16.0	±16.0	±0.7	
2800.00	8.471E-06	+3.0	-5.4	±16.8	±16.8	±0.7	
2850.00	6.950E-06	+3.0	-5.5	±17.5	±17.5	±0.8	
2900.00	5.698E-06	+3.2	-5.7	±18.3	±18.3	±0.8	
2950.00	4.666E-06	+3.3	-5.8	±19.1	±19.1	±0.9	
3000.00	3.818E-06	+3.4	-5.9	±20.0	±19.9	±1.0	

WH Process

- Cross sections are calculated at NNLO QCD accuracy.
 - ◆ Calculations are the same as CERN Report 3.
- Program: NNLO QCD (VH@NNLO)
- QCD scales: $\mu = \mu_F = \mu_R = M_{VH} = (p_V + p_H)^2$ for QCD part. Uncertainty is estimated in the range $1/3 < \mu/M_{VH} < 3$ (μ_F and μ_R are varied independently).
 - ◆ No additional THU nor PU uncertainties assigned.

- PDF set: PDF4LHC15_nnlo_mc (QCD part)

- Photon-induced contribution of O(5%)

◆ NOT included for total cross section (agrees with CERN Report 3 numbers within 1%).

m_H (GeV)	Cross Section (pb)	+QCD Scale %	-QCD Scale %	\pm ;(PDF+ %)	\pm ;PDF %	\pm ; %	1+ EW	W+H (pb)	W-H (pb)
10.00	1.191E+02	+0.9	-1.2	± 2.0				7.139E+01	4.775E+01
15.00	7.322E+01	+0.8	-1.1	± 2.0				4.406E+01	2.916E+01
20.00	4.865E+01	+0.4	-1.0	± 2.0				2.940E+01	1.925E+01
25.00	3.394E+01	+0.5	-1.0	± 2.0				2.057E+01	1.337E+01
30.00	2.451E+01	+0.6	-0.8	± 2.0				1.489E+01	9.618E+00
35.00	1.822E+01	+0.5	-0.7	± 2.0				1.112E+01	7.101E+00
40.00	1.383E+01	+0.5	-0.8	± 2.0				8.473E+00	5.357E+00
45.00	1.069E+01	+0.4	-0.8	± 2.0				6.569E+00	4.121E+00
50.00	8.385E+00	+0.5	-0.6	± 2.0				5.164E+00	3.221E+00
55.00	6.671E+00	+0.5	-0.7	± 2.0				4.120E+00	2.551E+00
60.00	5.366E+00	+0.5	-0.7	± 2.0				3.327E+00	2.039E+00
65.00	4.364E+00	+0.4	-0.8	± 2.0				2.713E+00	1.651E+00
70.00	3.581E+00	+0.4	-0.8	± 2.0				2.232E+00	1.349E+00
75.00	2.962E+00	+0.4	-0.8	± 2.0				1.851E+00	1.111E+00
80.00	2.468E+00	+0.5	-0.7	± 2.0				1.546E+00	9.215E-01
85.00	2.071E+00	+0.5	-0.7	± 2.1				1.301E+00	7.701E-01
90.00	1.751E+00	+0.5	-0.8	± 2.1				1.103E+00	6.476E-01
95.00	1.487E+00	+0.5	-0.8	± 2.1				9.391E-01	5.480E-01
100.00	1.270E+00	+0.6	-0.8	± 2.1				8.040E-01	4.658E-01
105.00	1.090E+00	+0.6	-0.8	± 2.1				6.923E-01	3.981E-01
110.00	9.408E-01	+0.5	-0.9	± 2.1				5.987E-01	3.421E-01
115.00	8.146E-01	+0.6	-0.8	± 2.1				5.196E-01	2.950E-01
120.00	7.089E-01	+0.6	-0.9	± 2.0				4.533E-01	2.556E-01
125.00	6.191E-01	+0.7	-0.9	± 2.1				3.967E-01	2.224E-01
130.00	5.427E-01	+0.6	-0.9	± 2.1				3.486E-01	1.941E-01
135.00	4.773E-01	+0.7	-0.9	± 2.2				3.072E-01	1.701E-01
140.00	4.212E-01	+0.7	-0.9	± 2.2				2.717E-01	1.495E-01
145.00	3.727E-01	+0.8	-0.9	± 2.2				2.410E-01	1.317E-01
150.00	3.310E-01	+0.7	-0.9	± 2.2				2.145E-01	1.165E-01
160.00	2.629E-01	+0.7	-1.0	± 2.3				1.711E-01	9.176E-02
170.00	2.109E-01	+0.9	-1.0	± 2.3				1.378E-01	7.308E-02
180.00	1.707E-01	+0.9	-0.9	± 2.4				1.120E-01	5.872E-02
190.00	1.394E-01	+0.9	-1.0	± 2.4				9.185E-02	4.759E-02
200.00	1.148E-01	+0.9	-1.0	± 2.5				7.589E-02	3.887E-02
210.00	9.509E-02	+0.9	-1.1	± 2.5				6.312E-02	3.197E-02
220.00	7.928E-02	+1.0	-1.1	± 2.6				5.282E-02	2.646E-02
230.00	6.652E-02	+1.0	-1.1	± 2.6				4.447E-02	2.205E-02
240.00	5.610E-02	+1.1	-1.1	± 2.6				3.764E-02	1.846E-02
250.00	4.758E-02	+1.1	-1.2	± 2.7				3.203E-02	1.555E-02
260.00	4.053E-02	+1.1	-1.2	± 2.7				2.737E-02	1.316E-02
270.00	3.470E-02	+1.1	-1.3	± 2.7				2.351E-02	1.119E-02
280.00	2.982E-02	+1.1	-1.3	± 2.8				2.027E-02	9.551E-03
290.00	2.574E-02	+1.2	-1.4	± 2.8				1.755E-02	8.187E-03
300.00	2.228E-02	+1.2	-1.5	± 2.9				1.524E-02	7.044E-03
310.00	1.936E-02	+1.2	-1.5	± 3.0				1.328E-02	6.084E-03

320.00	1.688E-02	+1.2	-1.5	±3.1				1.161E-02	5.271E-03
330.00	1.476E-02	+1.3	-1.5	±3.2				1.018E-02	4.581E-03
340.00	1.295E-02	+1.3	-1.6	±3.3				8.959E-03	3.994E-03
350.00	1.139E-02	+1.3	-1.6	±3.4				7.900E-03	3.492E-03
360.00	1.005E-02	+1.3	-1.7	±3.4				6.987E-03	3.062E-03
370.00	8.882E-03	+1.4	-1.7	±3.5				6.191E-03	2.691E-03
380.00	7.871E-03	+1.4	-1.7	±3.5				5.500E-03	2.371E-03
390.00	6.991E-03	+1.4	-1.7	±3.6				4.897E-03	2.094E-03
400.00	6.224E-03	+1.4	-1.8	±3.7				4.370E-03	1.854E-03
410.00	5.550E-03	+1.4	-1.8	±3.8				3.906E-03	1.644E-03
420.00	4.959E-03	+1.4	-1.8	±3.9				3.497E-03	1.462E-03
430.00	4.440E-03	+1.5	-1.9	±4.0				3.138E-03	1.302E-03
440.00	3.983E-03	+1.5	-1.9	±4.1				2.821E-03	1.162E-03
450.00	3.577E-03	+1.5	-1.9	±4.2				2.539E-03	1.038E-03
460.00	3.219E-03	+1.5	-2.0	±4.3				2.289E-03	9.296E-04
470.00	2.900E-03	+1.6	-2.0	±4.4				2.067E-03	8.333E-04
480.00	2.618E-03	+1.6	-2.1	±4.5				1.869E-03	7.486E-04
490.00	2.365E-03	+1.6	-2.1	±4.6				1.692E-03	6.732E-04
500.00	2.140E-03	+1.6	-2.1	±4.7				1.533E-03	6.065E-04
550.00	1.323E-03	+1.7	-2.2	±5.3				9.561E-04	3.670E-04
600.00	8.402E-04	+1.8	-2.4	±5.9				6.116E-04	2.286E-04
650.00	5.455E-04	+1.8	-2.5	±6.5				3.996E-04	1.459E-04
700.00	3.609E-04	+1.9	-2.6	±7.0				2.658E-04	9.508E-05
750.00	2.425E-04	+2.0	-2.8	±7.6				1.794E-04	6.307E-05
800.00	1.652E-04	+2.1	-2.9	±8.2				1.227E-04	4.250E-05
850.00	1.138E-04	+2.2	-3.0	±8.7				8.477E-05	2.903E-05
900.00	7.923E-05	+2.2	-3.1	±9.3				5.915E-05	2.008E-05
950.00	5.563E-05	+2.3	-3.3	±9.9				4.160E-05	1.403E-05
1000.00	3.936E-05	+2.3	-3.4	±10.5				2.946E-05	9.901E-06
1050.00	2.804E-05	+2.5	-3.5	±17.6				2.099E-05	7.047E-06
1100.00	2.009E-05	+2.6	-3.6	±24.7				1.504E-05	5.054E-06
1150.00	1.447E-05	+2.6	-3.7	±31.8				1.082E-05	3.650E-06
1200.00	1.046E-05	+2.7	-3.8	±38.8				7.810E-06	2.653E-06
1250.00	7.598E-06	+2.8	-3.9	±45.8				5.659E-06	1.939E-06
1300.00	5.535E-06	+2.9	-4.0	±52.7				4.110E-06	1.425E-06
1350.00	4.044E-06	+3.0	-4.2	±59.6				2.992E-06	1.052E-06
1400.00	2.962E-06	+3.0	-4.3	±66.4				2.182E-06	7.800E-07
1450.00	2.174E-06	+3.1	-4.5	±73.1				1.593E-06	5.808E-07
1500.00	1.598E-06	+3.2	-4.6	±79.4				1.164E-06	4.340E-07
1550.00	1.177E-06	+3.3	-4.7	±86.5				8.512E-07	3.254E-07
1600.00	8.670E-07	+3.5	-4.8	±92.8				6.222E-07	2.448E-07
1650.00	6.393E-07	+3.6	-5.0	±98.9				4.546E-07	1.847E-07
1700.00	4.715E-07	+3.7	-5.1	±104.8				3.318E-07	1.397E-07
1750.00	3.477E-07	+3.8	-5.3	±110.5				2.418E-07	1.059E-07
1800.00	2.564E-07	+3.9	-5.4	±115.8				1.759E-07	8.052E-08
1850.00	1.890E-07	+4.1	-5.5	±120.9				1.276E-07	6.135E-08
1900.00	1.392E-07	+4.2	-5.7	±125.6				9.233E-08	4.683E-08
1950.00	1.023E-07	+4.3	-5.8	±129.9				6.652E-08	3.582E-08
2000.00	7.514E-08	+4.5	-6.0	±133.8				4.769E-08	2.745E-08

ZH Process

- Cross sections are calculated at NNLO QCD accuracy.
 - ◆ Calculations are the same as CERN Report 3.
 - ◆ gg ZH (box-diagram) occurs as a part of NNLO QCD correction and included in the total cross section.
- Program: NNLO QCD (VH@NNLO)
- QCD scales: $\mu=\mu_F=\mu_R=M_{VH}=(p_V+p_H)^2$ for QCD part. Uncertainty is estimated in the range $1/3 < \mu/M_{VH} < 3$ (μ_F and μ_R are varied independently).
 - ◆ No additional THU nor PU uncertainties assigned.
- PDF set: PDF4LHC15_nlo_mc (QCD part)
- Photon-induced contribution of O(1%) or below
 - ◆ NOT included for total cross section (agrees with CERN Report 3 numbers).

m_H (GeV)	Cross Section (pb)	+QCD Scale %	-QCD Scale %	\pm (PDF+ s) %	\pm PDF % \pm s	1+ EW	(gg ZH) (pb)
10.00	5.145E+01	+0.8	-0.9	± 2.1			
15.00	3.242E+01	+0.7	-0.9	± 2.1			
20.00	2.200E+01	+0.4	-0.9	± 2.1			
25.00	1.564E+01	+0.4	-0.9	± 2.1			
30.00	1.150E+01	+0.3	-0.7	± 2.1			
35.00	8.665E+00	+0.4	-0.8	± 2.1			
40.00	6.674E+00	+0.5	-0.8	± 2.1			
45.00	5.225E+00	+0.6	-0.8	± 2.1			
50.00	4.153E+00	+0.7	-0.9	± 2.0			
55.00	3.340E+00	+0.7	-0.9	± 2.0			
60.00	2.716E+00	+0.8	-1.0	± 2.0			
65.00	2.230E+00	+0.9	-1.0	± 2.0			
70.00	1.849E+00	+1.1	-1.2	± 1.9			
75.00	1.544E+00	+1.2	-1.2	± 1.9			
80.00	1.299E+00	+1.3	-1.4	± 1.9			
85.00	1.100E+00	+1.5	-1.3	± 1.9			
90.00	9.384E-01	+1.6	-1.4	± 1.9			
95.00	8.038E-01	+1.8	-1.5	± 1.8			
100.00	6.925E-01	+1.9	-1.7	± 1.8			
105.00	5.995E-01	+2.0	-1.7	± 1.8			
110.00	5.216E-01	+2.2	-1.8	± 1.8			
115.00	4.556E-01	+2.4	-2.0	± 1.8			
120.00	3.992E-01	+2.6	-2.0	± 1.7			
125.00	3.514E-01	+2.6	-2.1	± 1.7			
130.00	3.103E-01	+2.8	-2.3	± 1.7			
135.00	2.750E-01	+2.9	-2.4	± 1.7			
140.00	2.442E-01	+3.1	-2.5	± 1.8			
145.00	2.177E-01	+3.2	-2.7	± 1.8			
150.00	1.942E-01	+3.4	-2.7	± 1.8			
160.00	1.561E-01	+3.6	-3.0	± 1.9			
170.00	1.265E-01	+3.7	-3.2	± 1.9			
180.00	1.031E-01	+3.9	-3.4	± 1.9			
190.00	8.462E-02	+4.0	-3.5	± 2.0			
200.00	6.979E-02	+4.0	-3.5	± 2.0			
210.00	5.780E-02	+4.1	-3.5	± 2.1			
220.00	4.809E-02	+4.1	-3.5	± 2.1			

230.00	4.015E-02	+4.0	-3.4	±2.2				
240.00	3.365E-02	+3.8	-3.3	±2.2				
250.00	2.831E-02	+3.6	-3.3	±2.3				
260.00	2.392E-02	+3.4	-3.2	±2.3				
270.00	2.030E-02	+3.3	-3.0	±2.4				
280.00	1.731E-02	+3.1	-2.9	±2.4				
290.00	1.482E-02	+2.9	-2.8	±2.4				
300.00	1.274E-02	+2.8	-2.7	±2.5				
310.00	1.100E-02	+2.7	-2.6	±2.5				
320.00	9.530E-03	+2.5	-2.5	±2.6				
330.00	8.289E-03	+2.4	-2.5	±2.6				
340.00	7.237E-03	+2.4	-2.4	±2.7				
350.00	6.347E-03	+2.3	-2.4	±2.7				
360.00	5.586E-03	+2.4	-2.4	±2.8				
370.00	4.934E-03	+2.4	-2.5	±2.8				
380.00	4.370E-03	+2.4	-2.5	±2.9				
390.00	3.880E-03	+2.5	-2.6	±2.9				
400.00	3.454E-03	+2.6	-2.7	±3.0				
410.00	3.082E-03	+2.6	-2.7	±3.0				
420.00	2.756E-03	+2.8	-2.8	±3.0				
430.00	2.470E-03	+2.8	-2.9	±3.1				
440.00	2.218E-03	+2.9	-3.0	±3.1				
450.00	1.995E-03	+3.0	-3.1	±3.1				
460.00	1.798E-03	+3.1	-3.2	±3.2				
470.00	1.623E-03	+3.3	-3.3	±3.2				
480.00	1.467E-03	+3.4	-3.4	±3.3				
490.00	1.329E-03	+3.5	-3.5	±3.3				
500.00	1.205E-03	+3.6	-3.6	±3.3				
550.00	7.547E-04	+4.3	-4.1	±3.6				
600.00	4.868E-04	+5.1	-4.8	±3.8				
650.00	3.218E-04	+5.8	-5.4	±4.1				
700.00	2.171E-04	+6.6	-6.1	±4.4				
750.00	1.490E-04	+7.4	-6.7	±4.6				
800.00	1.038E-04	+8.2	-7.4	±4.9				
850.00	7.328E-05	+9.0	-8.0	±5.1				
900.00	5.229E-05	+9.9	-8.6	±5.4				
950.00	3.771E-05	+10.6	-9.3	±5.7				
1000.00	2.741E-05	+11.4	-9.9	±5.9				
1050.00	2.009E-05	+12.2	-10.5	±6.5				
1100.00	1.482E-05	+13.0	-11.1	±7.1				
1150.00	1.101E-05	+13.8	-11.7	±7.6				
1200.00	8.219E-06	+14.5	-12.3	±8.2				
1250.00	6.167E-06	+15.3	-12.8	±8.7				
1300.00	4.646E-06	+16.1	-13.3	±9.3				
1350.00	3.516E-06	+16.8	-13.9	±9.9				
1400.00	2.671E-06	+17.7	-14.4	±10.4				
1450.00	2.036E-06	+18.5	-15.0	±11.0				
1500.00	1.556E-06	+19.1	-15.5	±11.6				
1550.00	1.193E-06	+19.9	-16.0	±12.1				
1600.00	9.170E-07	+20.6	-16.5	±12.7				

1650.00	7.066E-07	+21.3	-17.0	±13.2				
1700.00	5.456E-07	+21.9	-17.5	±13.8				
1750.00	4.220E-07	+22.8	-18.0	±14.4				
1800.00	3.269E-07	+23.5	-18.4	±14.9				
1850.00	2.537E-07	+24.3	-18.8	±15.5				
1900.00	1.972E-07	+25.0	-19.3	±16.1				
1950.00	1.534E-07	+25.6	-19.8	±16.6				
2000.00	1.195E-07	+26.5	-20.3	±17.8				

ttH Process

- Cross sections are calculated at NLO QCD accuracy.
 - ◆ Calculations are the same as CERN Report 3.
- Program: MadGraph5_aMC@NLO (Sherpa+OpenLoops as cross ceck)
- QCD scales: $\mu=\mu_F=\mu_R=M_{top}+M_H/2$, uncertainty estimated in the range $1/2 < \mu/(M_{top}+M_H/2) < 2$ (with $1/2 < \mu_F/\mu_R < 2$ constraint).
 - ◆ No additional THU nor PU uncertainties assigned.
- PDF set: PDF4LHC15_nlo_30_pdfas

m_H (GeV)	Cross Section (pb)	+QCD Scale %	-QCD Scale %	±(PDF+ _s) %	±PDF %	± _s %	1+ _{EW}
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bbH Process

- The cross sections are the Santander matched numbers with 5FS (NNLO) and 4FS (NLO).
- Program: SusHi for 5FS and dedicated version of MadGraph5_aMC@NLO for 4FS.
- QCD scales:
 - ◆ 5FS: $\mu_F=M_H/4$, $\mu_R=M_H$,
 - ◆ 4FS: $\mu_F=\mu_R=(M_H+2M_b)/4$,
 - ◆ scale with 7-point variation by a factor of 2 in both cases.
- Uncertainties
 - ◆ 5FS: Linearly added scale + (PDF_s) + $M_b + \mu_b$ (PDF and _s uncertainties are added in quadrature).
 - ◆ 4FS: Only scale uncertainties (as they are the dominant ones) and no PDF uncertainties are included.
- PDF set
 - ◆ 5FS: Dedicated sets produced with APFEL are used which are generated from the PDF4LHC15_nlo_100 sets taken below the M_b -threshold and evolved upwards, while generating a b-PDF set at high scale.
 - ◆ 4FS: PDF4LHC15_nlo_nf4_100

m_H (GeV)	Cross Section (pb)	+(QCD Scale+PDF+ _s) %	-(QCD Scale+PDF+ _s) %	1+ _{EW}
10.00	5.391E+01	+82.2	-54.9	
15.00	2.900E+01	+58.5	-47.4	
20.00	1.807E+01	+49.3	-42.5	
25.00	1.189E+01	+42.7	-38.7	
30.00	8.222E+00	+38.5	-35.9	
35.00	5.786E+00	+35.2	-33.5	
40.00	4.217E+00	+33.5	-36.1	
45.00	3.160E+00	+32.4	-37.3	
50.00	2.422E+00	+30.6	-36.8	
55.00	1.894E+00	+29.4	-35.7	
60.00	1.503E+00	+28.0	-34.3	
65.00	1.210E+00	+27.4	-32.9	

70.00	9.787E-01	+26.4	-31.6
75.00	8.024E-01	+25.8	-30.3
80.00	6.602E-01	+24.8	-29.1
85.00	5.501E-01	+24.3	-28.0
90.00	4.604E-01	+23.9	-27.0
95.00	3.876E-01	+23.1	-26.0
100.00	3.289E-01	+22.7	-25.3
105.00	2.805E-01	+22.1	-24.4
110.00	2.402E-01	+21.8	-23.8
115.00	2.069E-01	+21.5	-23.3
120.00	1.782E-01	+21.0	-22.8
125.00	1.552E-01	+20.7	-22.4
130.00	1.351E-01	+20.3	-22.1
135.00	1.183E-01	+20.1	-21.7
140.00	1.038E-01	+19.8	-21.4
145.00	9.117E-02	+19.4	-21.1
150.00	8.073E-02	+19.3	-20.8
160.00	6.348E-02	+19.0	-20.3
170.00	5.043E-02	+18.6	-19.9
180.00	4.052E-02	+18.3	-19.6
190.00	3.286E-02	+18.0	-19.3
200.00	2.678E-02	+17.8	-19.0
210.00	2.202E-02	+17.6	-18.7
220.00	1.821E-02	+17.6	-18.5
230.00	1.515E-02	+17.6	-18.3
240.00	1.268E-02	+17.4	-18.0
250.00	1.067E-02	+17.3	-17.9
260.00	9.011E-03	+17.5	-17.8
270.00	7.650E-03	+17.3	-17.7
280.00	6.537E-03	+17.2	-17.6
290.00	5.581E-03	+17.1	-17.5
300.00	4.802E-03	+17.2	-17.4
310.00	4.146E-03	+17.4	-17.4
320.00	3.588E-03	+17.4	-17.4
330.00	3.115E-03	+17.5	-17.4
340.00	2.712E-03	+17.6	-17.4
350.00	2.370E-03	+17.7	-17.4
360.00	2.077E-03	+17.9	-17.4
370.00	1.822E-03	+18.0	-17.3
380.00	1.602E-03	+18.1	-17.3
390.00	1.413E-03	+18.3	-17.4
400.00	1.249E-03	+18.4	-17.4
410.00	1.105E-03	+18.5	-17.3
420.00	9.824E-04	+18.7	-17.3
430.00	8.738E-04	+18.9	-17.4
440.00	7.790E-04	+19.0	-17.5
450.00	6.948E-04	+19.2	-17.5
460.00	6.218E-04	+19.3	-17.7
470.00	5.567E-04	+19.4	-17.7
480.00	4.992E-04	+19.5	-17.7

490.00	4.490E-04	+19.9	-17.9
500.00	4.039E-04	+20.0	-17.9
550.00	2.427E-04	+20.7	-18.5
600.00	1.505E-04	+21.0	-19.2
650.00	9.547E-05	+21.2	-20.3
700.00	6.203E-05	+21.7	-21.4
750.00	4.109E-05	+22.4	-22.9
800.00	2.764E-05	+23.1	-24.4
850.00	1.889E-05	+24.4	-25.9
900.00	1.307E-05	+26.0	-27.0
950.00	9.154E-06	+27.7	-28.1
1000.00	6.472E-06	+29.2	-29.3
1050.00	4.623E-06	+30.6	-30.5
1100.00	3.332E-06	+31.9	-31.8
1150.00	2.420E-06	+33.2	-33.1
1200.00	1.771E-06	+34.5	-35.2
1250.00	1.304E-06	+36.2	-37.2
1300.00	9.644E-07	+38.1	-39.3
1350.00	7.191E-07	+40.0	-41.5
1400.00	5.379E-07	+42.2	-43.7
1450.00	4.047E-07	+44.1	-45.8
1500.00	2.995E-07	+46.8	-48.1
1550.00	2.317E-07	+49.1	-49.4
1600.00	1.779E-07	+51.6	-51.0
1650.00	1.346E-07	+54.6	-53.1
1700.00	1.043E-07	+57.3	-54.7
1750.00	7.913E-08	+60.3	-56.8
1800.00	6.096E-08	+60.9	-58.5
1850.00	4.702E-08	+61.4	-60.3
1900.00	3.635E-08	+61.8	-63.2
1950.00	2.820E-08	+63.8	-65.4
2000.00	2.190E-08	+67.2	-67.8
2050.00	1.703E-08	+70.7	-70.5
2100.00	1.311E-08	+74.9	-73.7
2150.00	1.035E-08	+78.3	-75.8
2200.00	8.084E-09	+82.4	-78.7
2250.00	6.318E-09	+86.7	-81.7
2300.00	4.946E-09	+91.2	-84.8
2350.00	3.875E-09	+95.8	-88.0
2400.00	3.036E-09	+98.0	-91.2
2450.00	2.382E-09	+100.2	-94.5
2500.00	1.865E-09	+104.3	-98.1
2550.00	1.455E-09	+110.0	-102.0
2600.00	1.154E-09	+112.5	-104.5
2650.00	9.065E-10	+114.4	-107.5
2700.00	7.107E-10	+119.0	-111.5
2750.00	5.606E-10	+124.9	-114.8
2800.00	4.401E-10	+131.4	-118.3
2850.00	3.459E-10	+138.2	-121.7
2900.00	2.718E-10	+145.3	-125.2

2950.00	2.135E-10	+152.8	-128.7
3000.00	1.677E-10	+160.5	-132.3

tH Process (t-ch)

- Cross sections are calculated at NLO QCD accuracy in 5FS.
- Program: MadGraph5_aMC@NLO
- QCD scales: $\mu=\mu_F=\mu_R=(M_{\text{top}}+M_H)/4$, uncertainty estimated in the range $1/2 < \mu/\{(M_{\text{top}}+M_H)/4\} < 2$ (with $1/2 < \mu_F/\mu_R < 2$ constraint).
 - ◆ Flavour scheme (FS) dependence (4FS - 5FS envelope) included in the scale uncertainty. No PU uncertainty assigned.
- PDF set:
 - ◆ PDF4LHC15_nlo_30_pdfas (5FS)
 - ◆ PDF4LHC15_nlo_nf4_100 (4FS central set), used to compute the combined scale+FS uncertainty in tH t-channel.

m_H (GeV)	Cross Section (pb)	+(QCD Scale + FS) %	-(QCD Scale + FS) %	±(PDF+ s) %	±PDF %	± s %	1+ EW	tH (pb)	tbarH (pb)
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tH Process (s-ch)

- Cross sections are calculated at NLO QCD accuracy in 5FS.
- Program: MadGraph5_aMC@NLO
- QCD scales: $\mu=\mu_F=\mu_R=(M_{\text{top}}+M_H)/2$, uncertainty estimated in the range $1/2 < \mu/\{(M_{\text{top}}+M_H)/2\} < 2$ (with $1/2 < \mu_F/\mu_R < 2$ constraint).
 - ◆ No additional THU nor PU uncertainties assigned.
- PDF set:
 - ◆ PDF4LHC15_nlo_30_pdfas (5FS)

m_H (GeV)	Cross Section (pb)	+QCD Scale %	-QCD Scale %	±(PDF+ s) %	±PDF %	± s %	1+ EW	tH (pb)	tbarH (pb)
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-- ReiTanaka - 2016-03-01

This topic: LHCPHysics > CERNYellowReportPageBSMA7TeV
Topic revision: r16 - 2016-12-08 - MarcoPieri



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