

Hyperparameter Study Results

Grid Size

imax	converged	iterations	conv_rate	velocity_rmse	pressure_rmse	pressure_wiggles	final_residual	Reynolds_Number
100	1	1050	-0.001628	0.002127	0.3824	1	9.98e-05	20
200	1	939	-0.002229	0.001076	0.1119	1	9.993e-05	40
300	1	949	-0.002854	0.0007164	0.08188	1	9.946e-05	60
400	1	1078	-0.002356	0.000508	0.08394	1	9.951e-05	80
500	1	1232	-0.001818	0.0003809	0.08933	0	9.975e-05	100

Grid Aspect Ratio

imax/jmax	converged	iterations	conv_rate	velocity_rmse	pressure_rmse	pressure_wiggles	final_residual	Reynolds_Number
2	0	2000	nan	nan	nan	nan	0.0001275	134
5	1	1138	-0.0007696	0.0004885	0.09769	0	9.999e-05	84
7.5	1	718	-0.004203	0.0005816	0.09165	1	9.948e-05	68
10	1	949	-0.002854	0.0007164	0.08188	1	9.946e-05	60
12.5	1	1289	-0.001543	0.0008623	0.08368	1	9.982e-05	52
15	1	1676	-0.001077	0.0009589	0.09012	1	9.981e-05	48
20	0	2000	nan	nan	nan	nan	0.0002788	42

Reynolds Number

Re_target	converged	iterations	conv_rate	velocity_rmse	pressure_rmse	pressure_wiggles	final_residual	Reynolds_Number
0.1	1	569	-0.006257	1.109e-06	9.525e-05	5	9.862e-05	0.1
1	1	575	-0.006203	1.118e-05	0.0009312	5	9.76e-05	1
10	1	632	-0.005514	0.0001181	0.008018	3	9.803e-05	10
60	1	949	-0.002854	0.0007164	0.08188	1	9.946e-05	60
100	1	1109	-0.002235	0.001186	0.2287	1	9.977e-05	100
150	1	1260	-0.00183	0.001765	0.5495	1	9.972e-05	150
200	1	1375	-0.001591	0.002332	1.032	1	9.998e-05	200
250	1	397	nan	nan	nan	80	nan	250
300	1	164	nan	nan	nan	110	nan	300

Pressure Relaxation

relax_P	converged	iterations	conv_rate	velocity_rmse	pressure_rmse	pressure_wiggles	final_residual	Reynolds_Number
0.1	0	2000	nan	nan	nan	nan	0.0006245	60
0.2	1	1550	-0.001344	0.0007263	0.07872	1	9.993e-05	60
0.3	1	949	-0.002854	0.0007164	0.08188	1	9.946e-05	60
0.4	1	668	-0.004478	0.0006918	0.0903	1	9.856e-05	60
0.5	1	521	-0.005725	0.0006559	0.1032	1	9.922e-05	60
0.6	1	148	nan	8.005e+39	nan	22	nan	60
0.7	1	50	nan	0.005645	nan	123	nan	60
0.8	1	37	nan	0.004853	nan	86	nan	60
0.9	1	31	nan	0.004451	nan	104	nan	60
1	1	26	nan	0.004097	nan	103	nan	60
1.1	1	24	nan	0.003949	nan	103	nan	60

Velocity Relaxation

relax_u	converged	iterations	conv_rate	velocity_rmse	pressure_rmse	pressure_wiggles	final_residual	Reynolds_Number
0.1	0	2000	nan	nan	nan	nan	0.0001375	60
0.2	1	810	-0.007278	0.0006091	0.2097	1	9.902e-05	60
0.3	1	1338	-0.00111	0.0006425	0.09072	1	9.997e-05	60
0.4	1	862	-0.003505	0.0006475	0.1067	1	9.987e-05	60
0.5	1	885	-0.003363	0.0006856	0.09254	1	9.938e-05	60
0.6	1	910	-0.003251	0.0007068	0.08522	1	9.988e-05	60
0.7	1	949	-0.002854	0.0007164	0.08188	1	9.946e-05	60
0.8	1	984	-0.002396	0.0007211	0.0804	1	9.992e-05	60
0.9	1	1009	-0.002155	0.0007237	0.07956	1	9.984e-05	60
1	1	1027	-0.002046	0.0007254	0.079	1	9.959e-05	60
1.1	1	1040	-0.001989	0.0007267	0.07856	1	9.964e-05	60