Summary of Case 3 meshes for HLPW-5
As of 02/27/2024

TEST CASE 3 is Reynolds Number Study

Most of the provided grids are "free air" (half-model with symmetry plane in free air). They are given a Mesh Series designation X.a.YY. The X indicates the test case number (1, 2, or 3). The a indicates the grid type (R=fixed-grid RANS, A=ADAPT, H=High-Order, L=HRLES, W=WMLES). The YY is used to order the meshes within a category; these are simply numbers starting at 01 and incrementing up. If any grid series gets superseded by a revision, this will be designated by a () in its designation. For example, version 2 would be designated by (2).

In-tunnel grids are indicated with "T" designation at the end.

Disclaimer: The grids available for download may or may not be appropriate for your solver, and may or may not be of sufficient density and quality to yield accurate results. You must judge for yourself.

Note that the mesh sequences have been given somewhat arbitrary labels by their creators regarding their size: sometimes by sequential letter (A, B, C,...), sometimes by increasing number, and sometimes by XC,C,M,F. These are all <u>arbitrary</u> designations with little practical meaning, and there is no consistency between different mesh series. Mesh size comparisons should instead be gauged by looking at the README files.

IMPORTANT: Please double-check the BCs in any grid that you download. We have noticed small mistakes/typos/inconsistencies occasionally.

<u>RANS grids</u>

3.R.01 (POINTWISE, mixed element unstructured)
    Re=1.05M:
        A – 52M cells, 29M nodes
        B – 162M cells, 104M nodes
        C – 352M cells, 242M nodes
        D – 954M cells, 701M nodes
    Re=5.49M:
        A – 58M cells, 35M nodes
        B – 179M cells, 120M nodes
        C – 407M cells, 297M nodes
        D – 1.09B cells, 834M nodes
    Re=16M:
        A – 62M cells, 39M nodes
        B – 189M cells, 130M nodes
        C – 444M cells, 333M nodes
        D – 1.18B cells, 922M nodes

Re=30M:
      A – 64M cells, 41M nodes
      B – 196M cells, 136M nodes
      C – 465M cells, 354M nodes
      D – 1.23B cells, 973M nodes

3.R.02 (HELDENMESH, mixed element unstructured)
   Re=1.05M:
      C – 12M cells, 3.5M nodes
      M – 48M cells, 14M nodes
      F – 230M cells, 59M nodes
      G – 490M cells, 119M nodes
      R – 1.50B cells, 339M nodes
   Re=5.49M:
      C – 13M cells, 4.0M nodes
      M – 48M cells, 14M nodes
      F – 246M cells, 66M nodes
      G – 521M cells, 133M nodes
      R – 1.58B cells, 377M nodes
   Re=16M:
      C – 14M cells, 4.4M nodes
      M – 51M cells, 16M nodes
      F – 261M cells, 73M nodes
      G – 554M cells, 145M nodes
      R – 1.66B cells, 405M nodes
   Re=30M:
      C – 14M cells, 4.6M nodes
      M – 53M cells, 17M nodes
      F – 269M cells, 76M nodes
      G – 567M cells, 152M nodes
      R – 1.70B cells, 420M nodes

ADAPT grids

Nothing available yet

HO grids

3.H.01 (BSC curving solver, all tet, isotropic, intended for WMLES; no dependence on Reynolds number, all replaced on 2/26/2024)
   Q2 mesh:
      C – 4.2M cells, 6.3M nodes
      F – 12.5M cells, 17.3M nodes
   Q3 mesh:
      C – 4.2M cells, 20.3M nodes
      F – 12.5M cells, 57.7M nodes

HRLES grids

Nothing available yet

WMLES grids

Nothing available yet