ANSYS Mechanical Getting Started

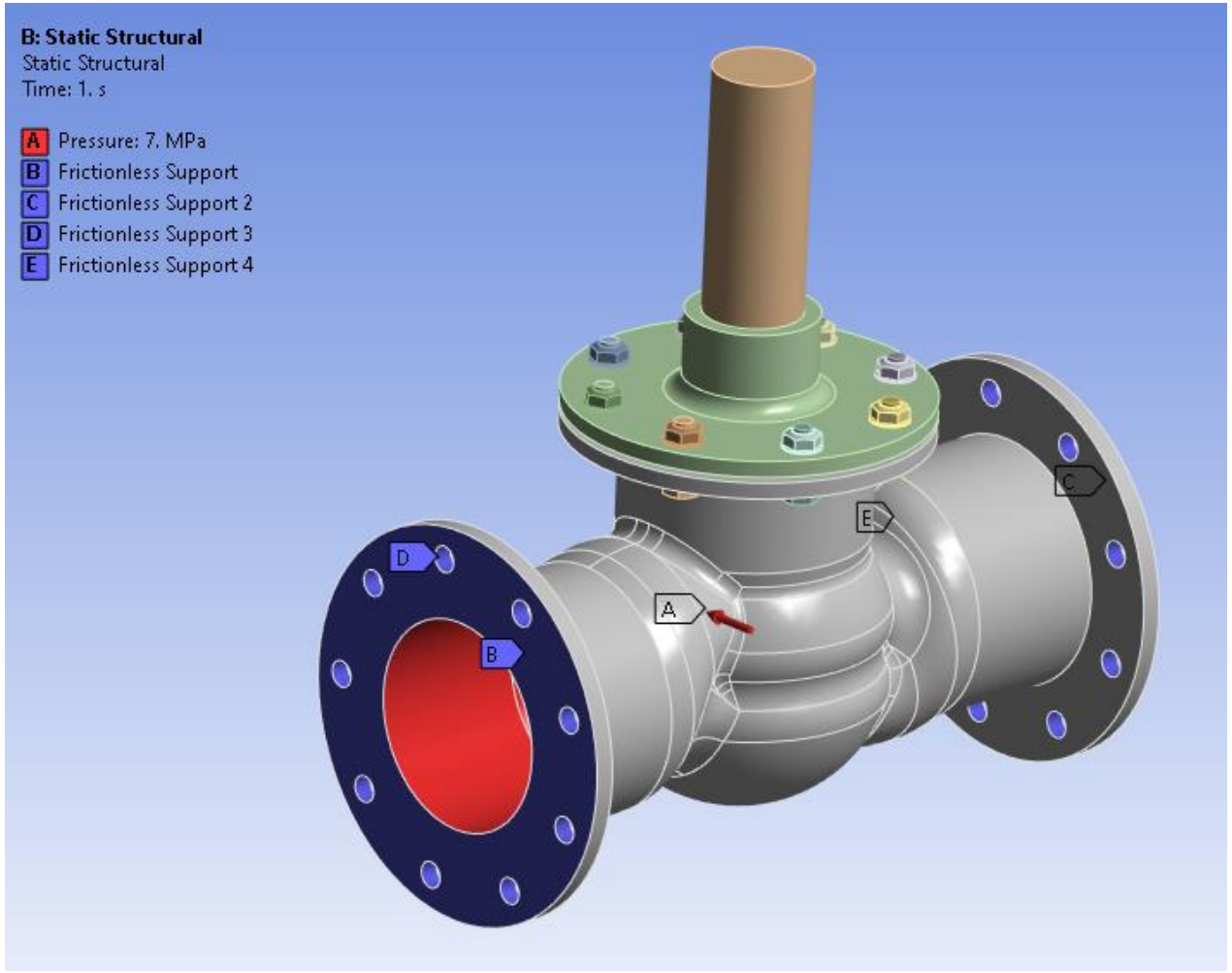
Module 07 Student Step-by-Step Guide: Analysis Settings, Loads, and Supports

Release 2023 R1

Please note:
- These training materials were developed and tested in Ansys Release 2023 R1. Although they are expected to behave similarly in later releases, this has not been tested and is not guaranteed.
- The screen images included with these training materials may vary from the visual appearance of a local software session.

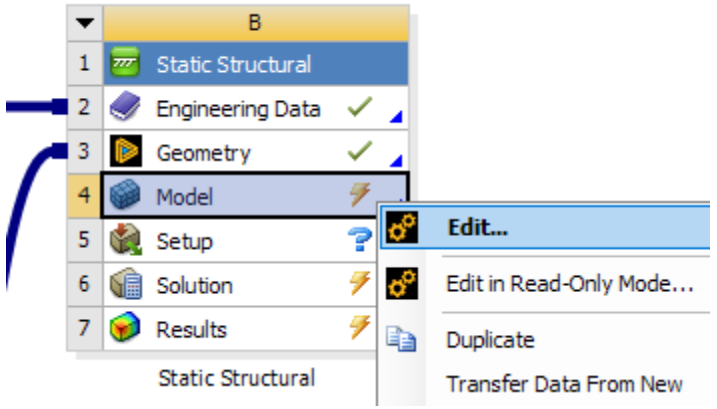
Step-by-Step Guide 07: Analysis Settings, Loads, and Supports

- **Use this guide to repeat the steps the instructor demonstrated in this module.**



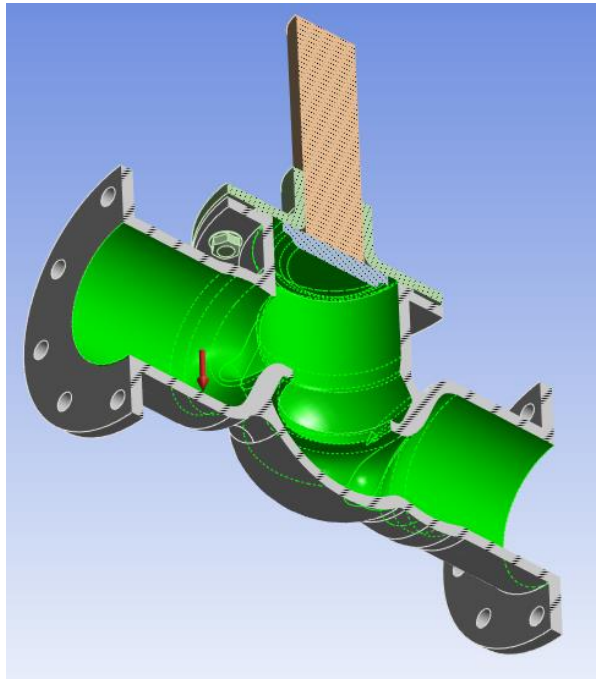
Step-by-Step Guide 07: Analysis Settings, Loads, and Supports

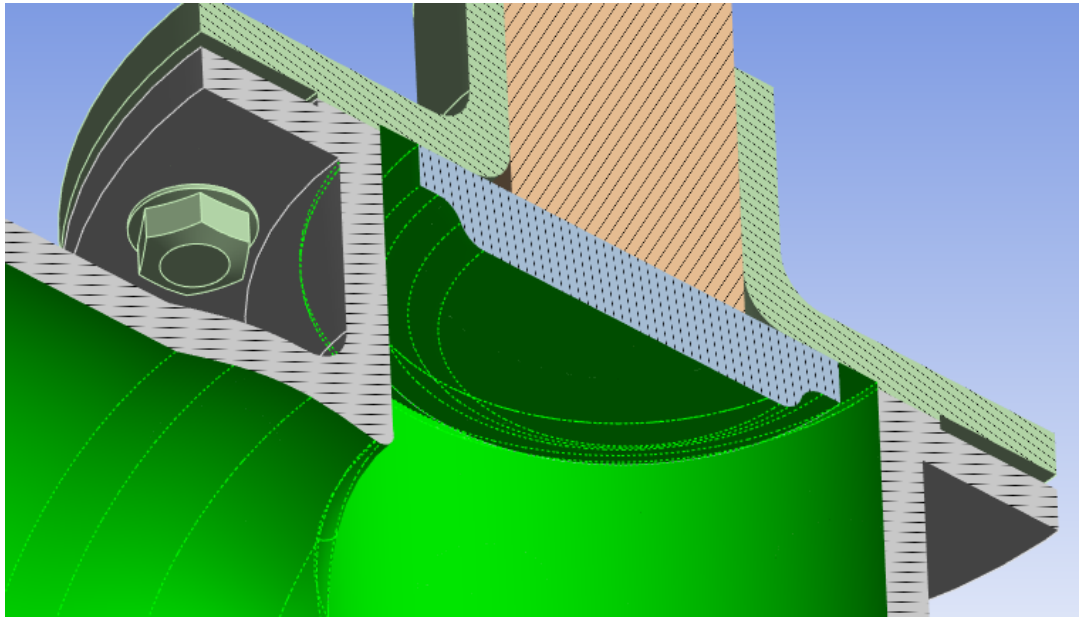
- Open ANSYS Workbench: Windows **Start Menu** button → **All apps** → **ANSYS** nn.n → **Workbench** nn.n
- File → Open…
- Browse for archive file Globe_Valve_SS07_Start.wbpz → Open → Save to a convenient location.
- RMB—Model cell → Edit…



Step-by-Step Guide 07: Analysis Settings, Loads, and Supports

- Select all “wetted” surfaces:
  - should be 48 on the **ValveBody** part, 2 on the **flange** part, and 5 on the **seal** part for a total of 55 surfaces.
  - Define **Section Plane 1** for ease in viewing the desired surfaces.
  - Consider the same technique as used in the Module 01 Step-by-Step Guide for the surfaces on the valve body.





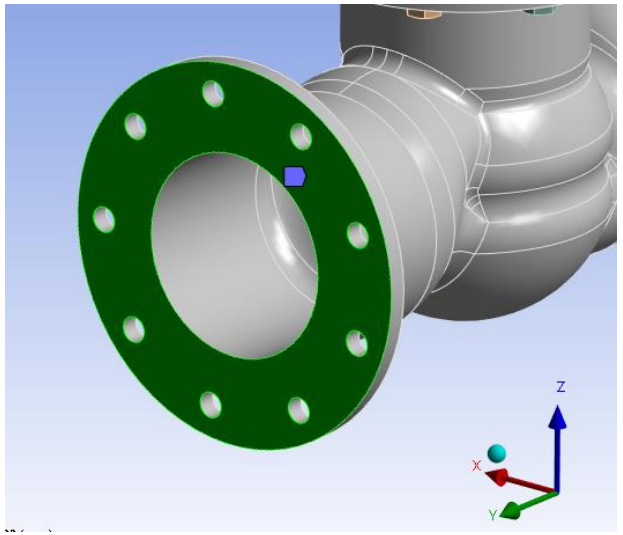
Step-by-Step Guide 07: Analysis Settings, Loads, and Supports

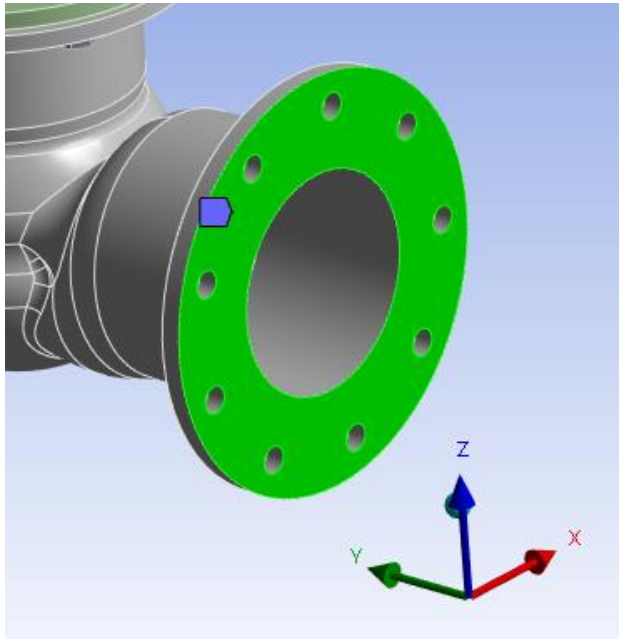
- **RMB—Static Structural → Insert → Pressure**
- Enter a magnitude of **7 MPa**

Details of "Pressure"	
Scope	
Scoping Method	Geometry Selection
Geometry	55 Faces
Definition	
Type	Pressure
Define By	Normal To
Applied By	Surface Effect
Loaded Area	Deformed
Magnitude	7. MPa (ramped)
Suppressed	No

Step-by-Step Guide 07: Analysis Settings, Loads, and Supports

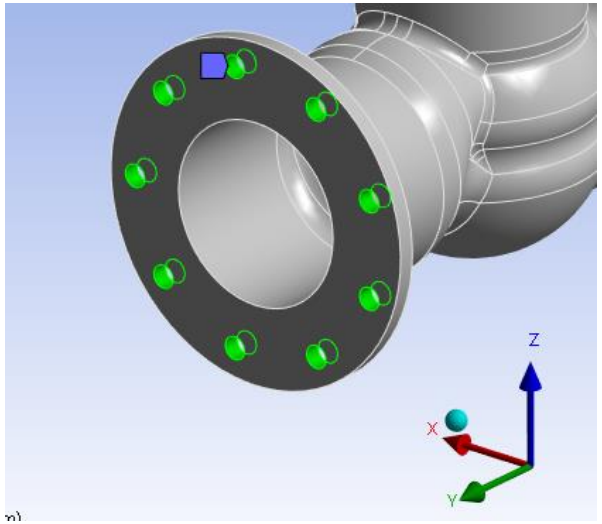
- Select one end flange surface
- **RMB—Static Structural → Insert → Frictionless Support**
- Select the other end flange surface
- **RMB—Static Structural → Insert → Frictionless Support**

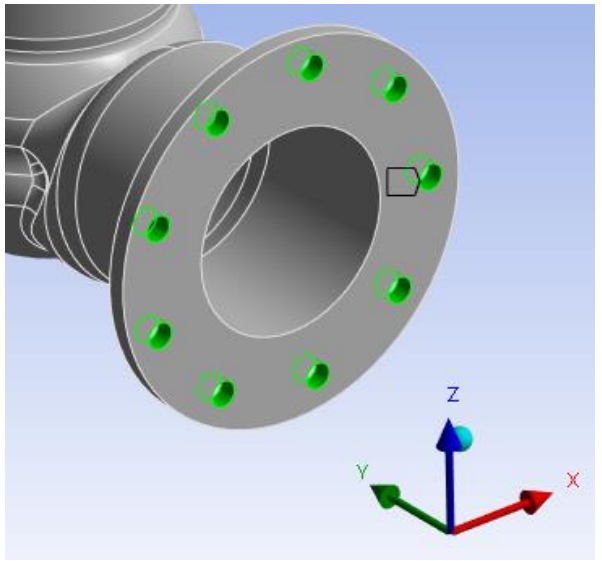




Step-by-Step Guide 07: Analysis Settings, Loads, and Supports

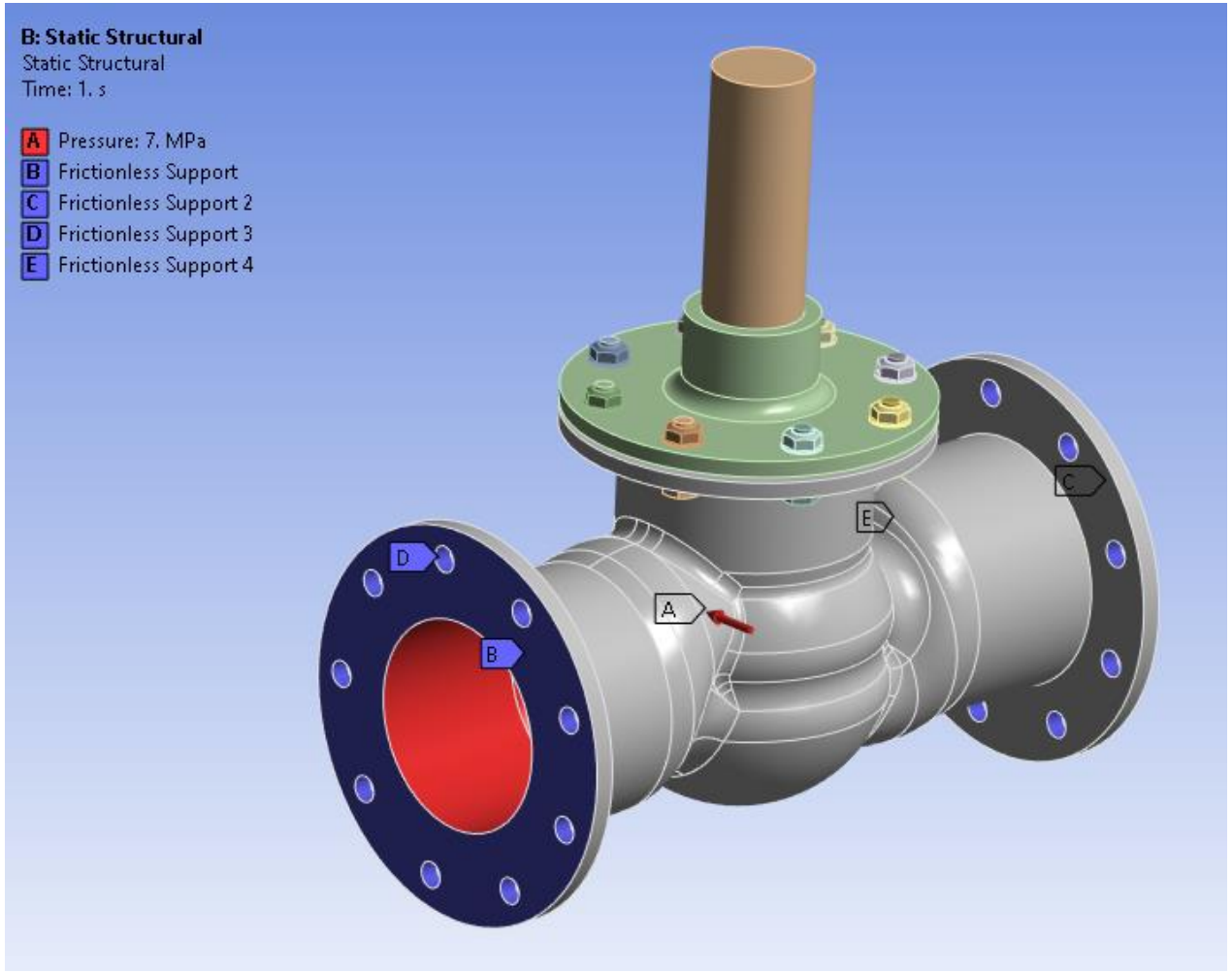
- Select all 9 cylindrical hole surfaces on one end flange
- **RMB—Static Structural → Insert → Frictionless Support**
- Select all 9 cylindrical hole surfaces on the other end flange
- **RMB—Static Structural → Insert → Frictionless Support**





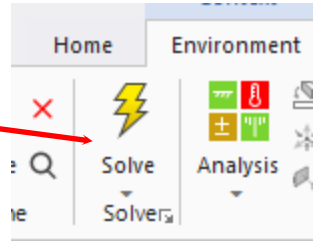
Step-by-Step Guide 07: Analysis Settings, Loads, and Supports

- Select the environment (**Static Structural**) branch and review the graphics display

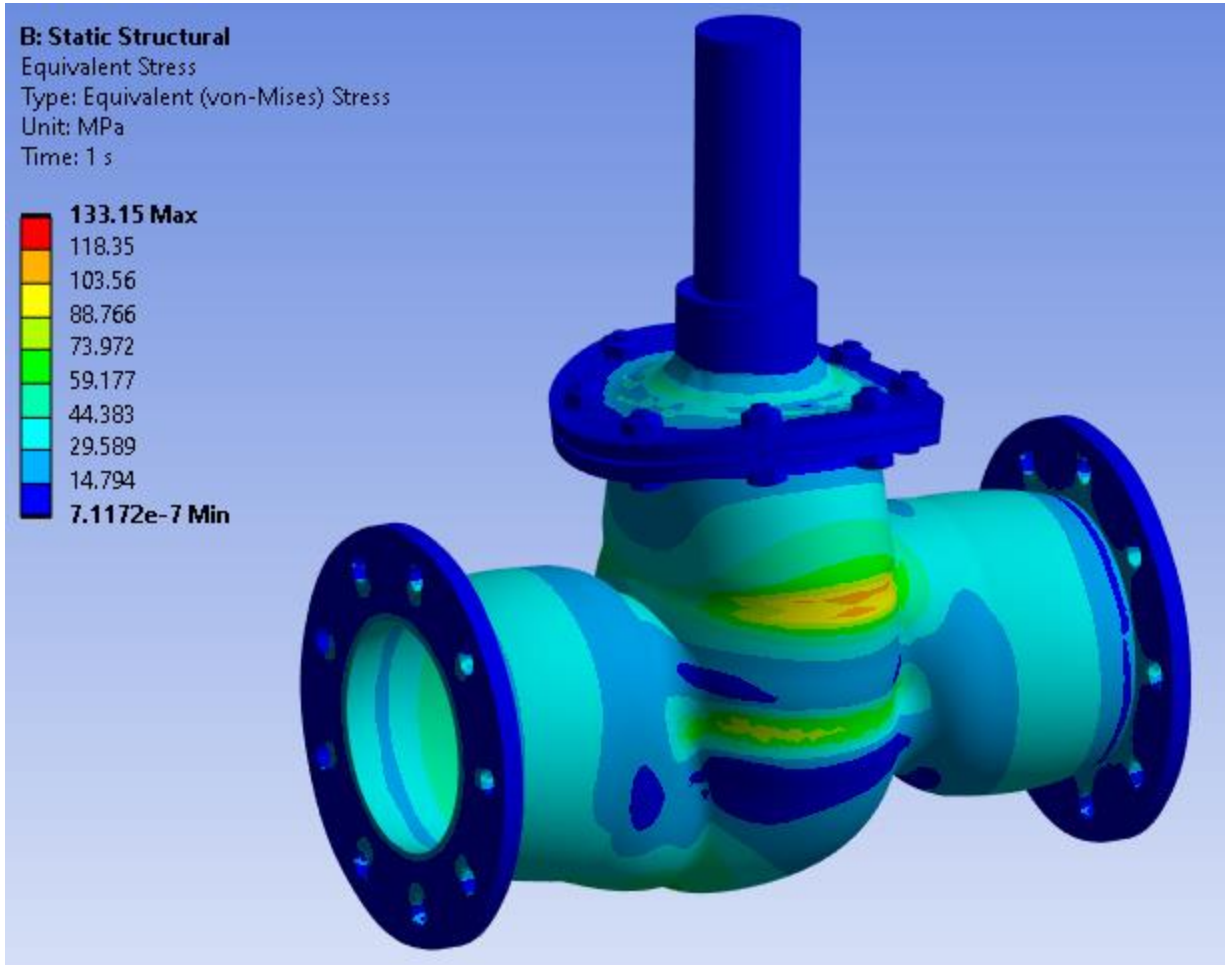


Step-by-Step Guide 07: Analysis Settings, Loads, and Supports

- **Solve**



- **RMB—Solution → Insert → Deformation → Total**
- **RMB—Solution → Insert → Stress → Equivalent**
- **RMB—Solution → Evaluate** All **Results**
- Select, in turn, the **Total Deformation** and **Equivalent Stress** branches to review the corresponding results



End of presentation