



BP SOLUTIONS

pdfPost Tutorial

Using Symbols

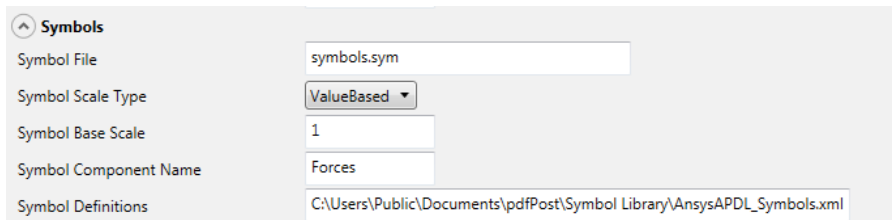
This tutorial will walk user through options necessary to generate 3D PDF with additional symbols such as force vector or boundary condition. pdfPost allows user to generate user-defined symbols (line segments) based on FE node numbers or XYZ coordinates. Symbols can be grouped and displayed in geometry tree with additional information about value (ex. force magnitude). This option is perfect for sharing information about loads, boundary conditions and couplings.

1. Input files

- a. Following pdfPost input files should be available in Tutorial7_files.zip folder:
 - i. Geometry files – symbols.elem, symbols.node, symbols.cm;
 - ii. Result files – symbols.VONM;
 - iii. XML Configuration file – symbols.xml;
 - iv. Symbol File – symbols.sym;
 - v. Symbol Definitions – AnsysAPDL_Symbols.xml – this tutorial uses predefined symbols in Documents\pdfPost\Symbol Library folder (automatically created during pdfPost installation);

2. Options within XML Plot definition

- a. Each 3D Plot within PDF document can be enriched with symbols. In “Plots” tab following options can be found:



Symbol File	symbols.sym
Symbol Scale Type	ValueBased
Symbol Base Scale	1
Symbol Component Name	Forces
Symbol Definitions	C:\Users\Public\Documents\pdfPost\Symbol Library\AnsysAPDL_Symbols.xml

- i. Symbol File – ASCII file which contains information about nodes (or XYZ coordinates), values, symbol types and sub-components;
 - ii. Symbol Scale Type –describes how symbol base geometry will be scaled and displayed;
 - iii. Symbol Base Scale – initial scale factor for original symbol base geometry;
 - iv. Symbol Component Name – main component in model tree, where all other symbol sub-components will be located;
 - v. Symbol Definitions – XML file with base geometry definitions (line segments).
- b. Symbol File

This file should be generated based on loads and boundary conditions within FEA software. Each line describes single symbol instance (ex. arrow representing single force). Symbol instance can be defined using node number or XYZ coordinates:

356, FX, -15.5, ZForces

or

0.0, 10.5, 15.5, FX, -15.5, ZForces

Symbol File should be based on nodes OR coordinates. File with mixed entries will not be processed completely.



- c. Symbol Scale Type
Fixed – only Symbol Base Scale will be considered during symbol generation;
ValueBased – Symbol Base Scale and value from Symbol File will be considered;
 - d. Symbol Base Scale
Each Symbol definition is created in their coordinate system. Ex. if FE geometry is exported in millimeters and symbol are defined in meters, this scale factor should be set to 1e-3.
 - e. Symbol Component Name
Name of the main symbol component in model tree;
 - f. Symbol Definitions
This XML file contains geometry definitions for points and line segments. Line segments, together with color information are used to build symbols. In Documents\pdfPost\Symbol Library\AnsysAPDL_Symbols.xml there are predefined symbols based on Mechanical APDL. Users can create their own libraries by following our documentation <http://www.bpsolutions.com.pl/pdfpost/documentation/configuration-files/#symbolDefinitions>
- 3. Additional information**
- a. Symbol File generation is not yet implemented in APDL library nor in ACT Extension;
 - b. Considerable number of symbol instances within single subcomponent may lead to performance issues on slower machines (performance in Acrobat Reader);
 - c. Currently, symbols are limited to line segments.

Tutorial 7 - Using Symbols

Equivalent Stress [N/mm²] (min=0.018, max=305.378)



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pdfPost converter 1.9

MESCO

ANSYS ANSYS
Channel Partner

ANSYS Mechanical Plug-in
in cooperation with MESco

Click to activate 3D content



N/A

0.018



33.946



67.875



101.804



135.733



169.662



203.591



237.520



271.449



305.378