



pdfPost Tutorial

Parameters

This tutorial shows how to use parameters in certain fields of the pdfPost XML configuration file. In pdfPost 1.9, three (3) types of parameters were introduced:

- Double / Integer
- String
- Incremental

Currently, parameters can be used only in few fields (Plot Title, Plot Description, Plot Footer and Value Ranges). In this tutorial, all types of parameters will be presented with the emphasis on dynamic color legend (Value Ranges).



1. Input files

- a. Following pdfPost input files should be available in Tutorial5-Parameters.zip folder:
 - i. Geometry files – parameters.elem, parameters.node, parameters.cm;
 - ii. Result files – parameters.VONM, parameters.SX, parameters.SY, parameters.SXY, parameters.def;
 - iii. Configuration files – parameters.xml, rangeRainbow6_magenta2.xml, rangeRainbow7_magenta1.xml;



2. Defining parameters

- a. Parameters can be defined in “Parameters” tab using name and value;
 - i. pdfPost automatically detects type of the parameter;
 - ii. Parameter name can contain only A-Z (case sensitive) and 0-9 characters;
 - iii. Parameter name cannot start with a digit;
- b. STRING
 - i. Any string that is not a DOUBLE/INTEGER or INCREMENTAL is considered a STRING parameter;
 - ii. Parameters can have other parameters included;
- c. DOUBLE / INTEGER
 - i. Parameters are culture invariant with “.” as decimal separator;
 - ii. No mathematical operations are allowed;
- d. INCREMENTAL
 - i. Parameter is defined by start,increment ex. 1,2;
 - ii. Only integers are allowed;
 - iii. Parameter updates after each use;
- e. INTERNAL
 - i. Internal parameters cannot be defined and/or replaced by user. Values are applied internally based on input data;
 - ii. min – DOUBLE parameter contains minimum result value for given plot;
 - iii. max – DOUBLE parameter contains maximum result value for given plot;
 - iv. plotCount – INTEGER parameter contains active plot count;
- f. In this tutorial, following parameters were used:
 - i. STRING > Name=“projectName”, Value=“Tutorial 5 - Parameters”;
 - ii. STRING > Name=“stressUnits”, Value=“[N/mm2]”;
 - iii. INCREMENTAL > Name=“plotCounter”, Value=“1,1”;
 - iv. DOUBLE > Name=“fY36”, Value=“3.26e2”;
 - v. DOUBLE > Name=“fY36xy”, Value=“163.0”;



3. Using parameters

- a. To use parameter, its name should be enclosed in curly bracket/braces “{ }”;
- b. Plot Title: “{projectName}”
 - i. projectName string value will be used in this field;
- c. Plot Description: “SX plot {stressUnits} (min={min}, max={max})”
 - i. stressUnits string value will be used in this field;
 - ii. min and max internal values will be used for each plot based on results for active components;
- d. Plot Footer: “Generated with pdfPost Page {plotCounter} / {plotCount}”
 - i. plotCounter incremental parameter will be used for page number;
 - ii. plotCount internal parameter will be used to indicate total number of 3D plots in PDF document;
- e. Value Ranges in SX, SY and SXY stress plots:
 - i. “{IIF(min<(-1*fY36),min,(-1*fY36))};{IIF(min<(-1*fY36),(-1*fY36),min)};{IIF(min<(-1*fY36),(-0.9*fY36),(0.9*min))};{IIF(min<(-1*fY36),(-0.5*fY36),(0.5*min))};0;{IIF(max>fY36,(0.5*fY36),(0.5*max))};{IIF(max>fY36,(0.9*fY36),(0.9*max))};{IIF(max>fY36,fY36,max)};{IIF(max>fY36,max,fY36)}”
 - ii. rangeRainbow6_magenta2.xml color legend is used for these plots. Three (3) colors for negative values, three (3) colors for positive values and 2 magenta colors for negative and positive values that are exceeding permissible stress values;
 - iii. for each color a check is carried out to assess, if plot minimum/maximum values exceed permissible ones;
- f. Value Ranges in VONM stress plot:
 - i. “{min};{IIF(max<fY36,(0.2*max),(0.2*fY36))};{IIF(max<fY36,(0.5*max),(0.5*fY36))};{IIF(max<fY36,(0.6*max),(0.6*fY36))};{IIF(max<fY36,(0.7*max),(0.7*fY36))};{IIF(max<fY36,(0.8*max),(0.8*fY36))};{IIF(max<fY36,(0.9*max),(0.9*fY36))};{IIF(max<fY36,max,fY36)};{IIF(max<fY36,fY36,max)}”
 - ii. rangeRainbow7_magenta1.xml color legend is used for this plot. Six (6) colors for positive values and one magenta for values exceeding permissible one;
 - iii. for each color a check is carried out to assess, if plot maximum value exceeds permissible one;
- g. Additional options when using parameters:
 - i. Addition, subtraction, multiplication and division are allowed for double/integer parameters;
 - ii. IIF(condition, if true, else) – condition check formula;

Tutorial 5 - Parameters

SXY plot [N/mm²] (min=-132.049, max=123.879)



N/A

-163.000



-132.049



-118.844



-66.025



0.000



61.940



111.491



123.879



163.000

Tutorial 5 - Parameters

Von Mises plot [N/mm²] (min=0.026, max=458.067)



BP SOLUTIONS

pdfPost converter 1.9

MESCO

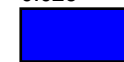
ANSYS ANSYS
Channel Partner

ANSYS Mechanical Plug-in
in cooperation with MESco



N/A

0.026



65.200



163.000



195.600



228.200



260.800



293.400



326.000



458.067

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