



HUMAN CAPITAL
NATIONAL COHESION STRATEGY



Wrocław University of Technology

EUROPEAN UNION
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THE DEVELOPMENT OF THE POTENTIAL AND ACADEMIC PROGRAMMES OF WROCLAW UNIVERSITY OF TECHNOLOGY

Mining and Power Engineering

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CAD/CATIA



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CAD/ CATIA

LECTURE 10

**Parametric Models by Usage a Design Table
(2h)**

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Sometimes there is a need to link external source of data with parameterized model in CATIA. The examples of such situations can be:

- The calculations of e.g. a shaft are done in Excel and next results of these calculations are linked with 3D parameterized model. Every changes in Excel are observed in CATIA at the same time.
- Creation of the Library of the standard elements. It is possible to create a sheet in Excel with dimensions of e.g. bolts in full range of diameter. Next such sheet is linked with parameterized model of the bolt. For this moment the user has an access to the bolt model in full range of diameters.

A CATIA model can be connected with external source of data (Excel file, text file etc) by Design Table



that is located on the Knowledge Toolbar. The connection process bases on linking the parameters from external file with CATIA. When the parameters have the same name the linking is done automatically, if not - manually.

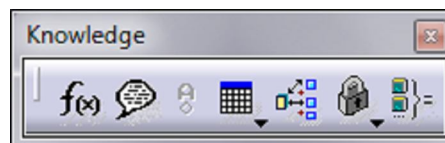


Fig. 1 The Knowledge Toolbar

When the function is started the Dialog box is opened (fig.2) where it is possible to select data orientation and if the design table can be linked with pre-existing file. When OK button will be clicked the File selection window will be opened, where the correct file can be selected. Afterwards the Dialog box will started (fig.3) with two tabs, where data can be seen and chosen (Associations tab) and association process can be controlled (Configurations tab).

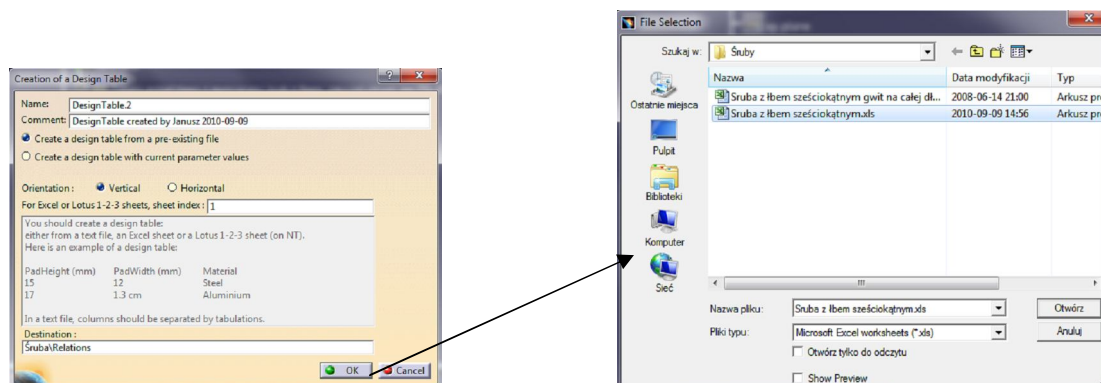


Fig. 2 The Design Table Dialog box with The File selection window.



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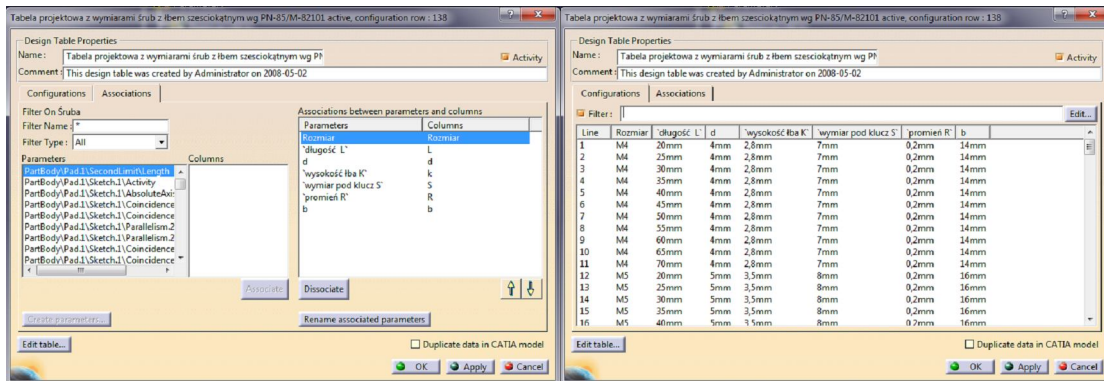


Fig. 3 The Dialog box that is shown after file selection process – two tabs are presented.

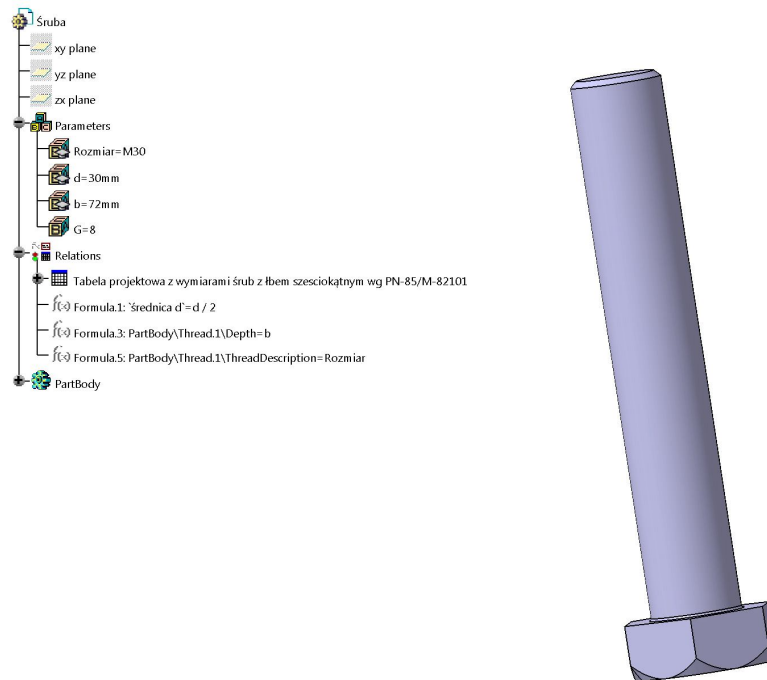


Fig. 4 The bolt model linked with Excel. Chosen size - M30.



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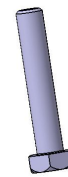


Fig. 5 The same bolt model as fig. 4 (the same picture scale). Chosen size - M10.

EXERCISES

Exercise 1

Create a parametric bolt model. Create an Excel sheet with the bolt dimensions (you can base on fig.3). Link both files.

Exercise 1

Create a parametric shaft model (fig. 6). All calculations must be done in Excel sheet and next results have to be linked with CATIA model. The shaft is made from steel C35 ($k_{gj} = 115 \text{ MPa}$, $k_{sj} = 75 \text{ MPa}$). Force $Q = 1 \text{ kN}$, power $N = 5 \text{ kW}$, rotational speed $n = 1500 \text{ rpm}$.



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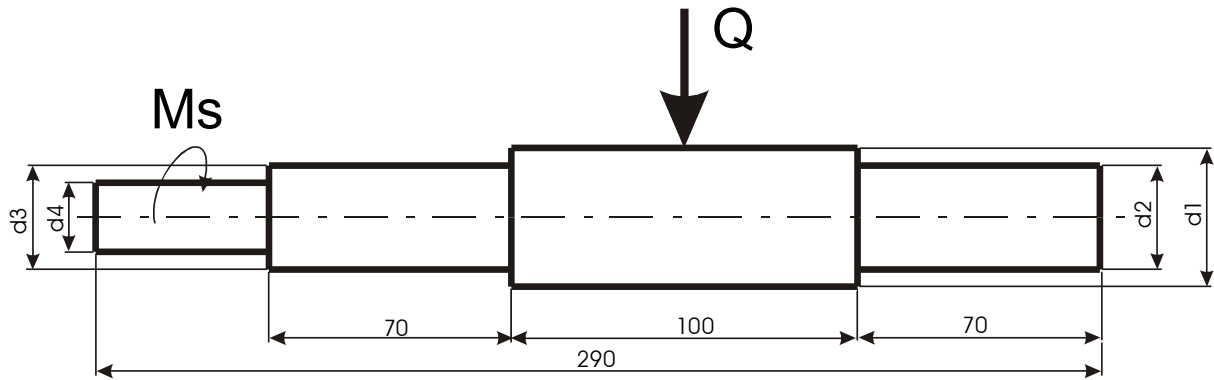


Fig.6 Problem description for the exercise 2