



Tutorial Table input

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Introduction

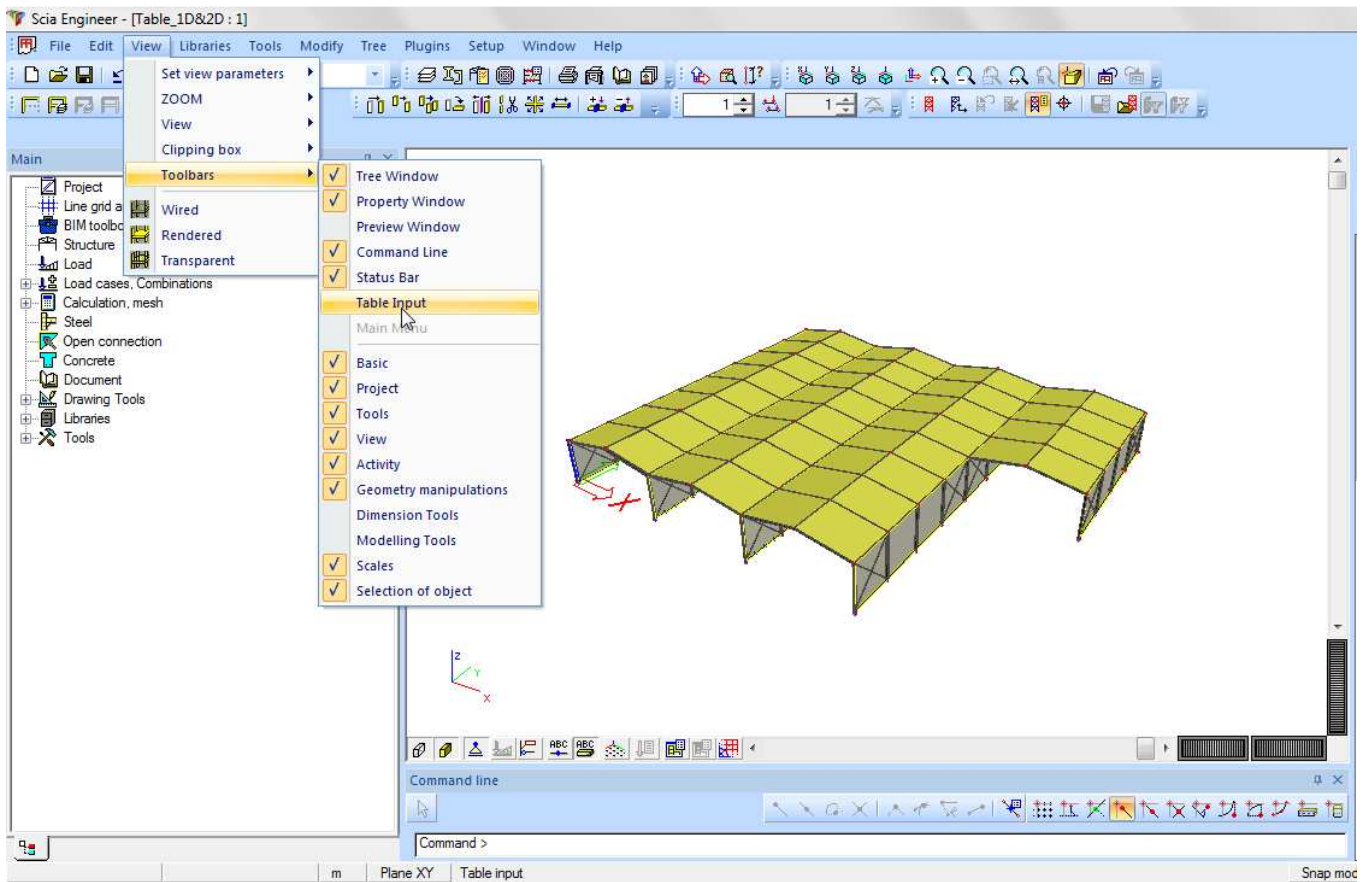
Table input is a new functionality of Scia Engineer 2011. It enables the user to numerically introduce or edit project data. Numerical data can also be handled simply by a Copy/Paste from Scia Engineer into Excel and vice versa.

Through this document, we will get an insight into the different possibilities offered by this functionality such as:

- Numerical input of data or copy/paste in Excel
- Renaming or renumbering of elements
- An easy way to adapt the model (copy, delete, edit properties...)
- Modeling of complex geometry using Excel
- ...





How to open the Table input menu

To be able to use the Table input, you have to display it through **View > Toolbars > Table input**:



The menu is displayed under the command line but can be dropped into any other position like this is already possible for other menu windows (main menu, properties menu...).

You can open the different tables using the tabs that are at the bottom of the Table editor. You can choose the data table that has to be displayed among the available tabs.

Table input						
<div>    None</div>						
	Name	Coord X [m]	Coord Y [m]	Coord Z [m]	Member	2D member
1	K1	0,000	0,000	0,000	S1	S1
2	K2	0,000	0,000	5,000	S1	S1
3	K3	6,000	0,000	6,000	S2	S6
4	K4	12,000	0,000	5,000	S3	S2
5	K5	12,000	0,000	0,000	S4	S2
6	K6	0,000	5,000	5,000	S5	
<div>Surface support Layers Force - node Force - beam Free force Line force - beam Line force - edge Free line force Surface force Free surface force Moment - node</div>						

The list of available data in the Table input menu is: **nodes, 1D members, 2D members, supports, load panels, layers and loads.**


Editing of data

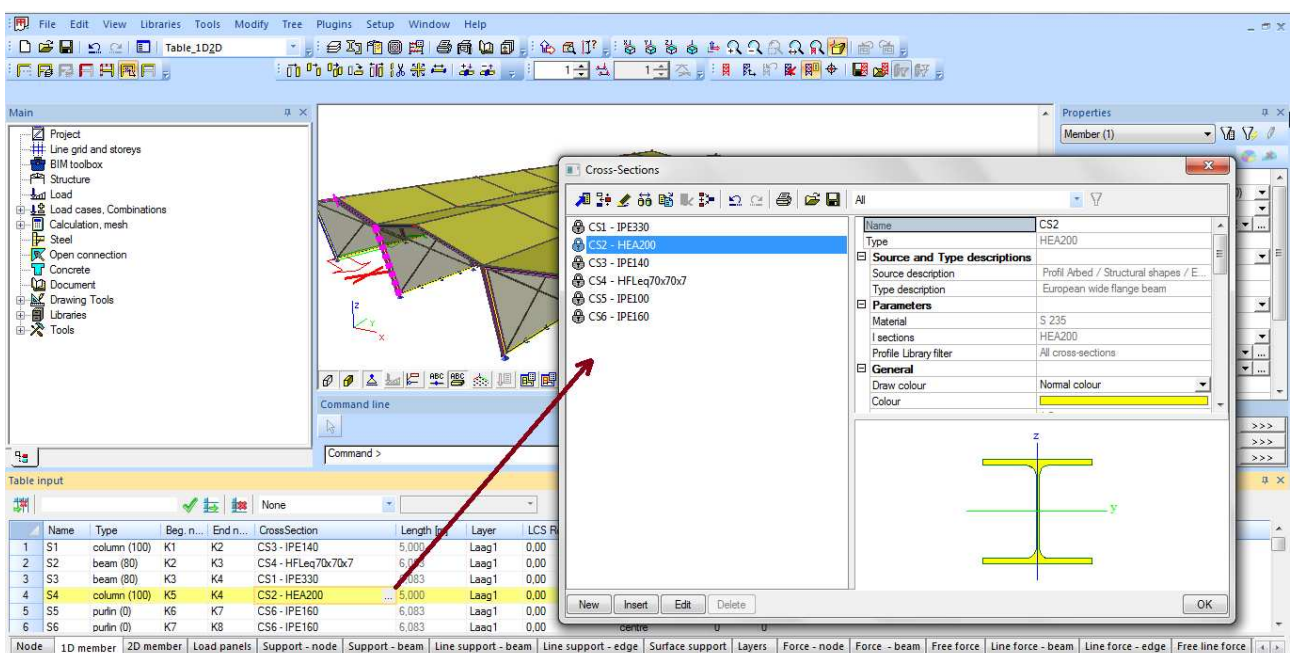
Editing of a value

In order to change a certain value, you simply need to select the cell that has to be adapted and enter the new value. The modification is instantaneously taken into account in the representation of the model in the graphical window.

Table input						
				None		
	Name	Coord X [m]	Coord Y [m]	Coord Z [m]	Member	2D member
1	K1	0,000	0,000	0,000	S1	S1
2	K2	0,000	0,000	5,000	S1	S1
3	K3	6,000	0,000	5,000	S2	S6
4	K4	12,000	0,000	5,000	S3	S2
5	K5	12,000	0,000	0,000	S4	S2
6	K6	0,000	5,000	5,000	S5	

Node	1D member	2D member	Load panels	Support - node	Support - beam	Line support - beam	Line support - edge
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When the modification concerns a library element such as a cross section in the 1D element table, you have to click on the  button



Multiple editing

A modification can also be applied to different objects at the same time. In order to do that, you have to start by selecting the different cells then you can introduce a value in the Editbox and finally click on the button Apply edit:

Table input						
	2			None		
	Name	Coord X [m]	Coord Y [m]	Coord Z [m]	Member	2D member
1	N1	-6,609	-3,417	0,000	B1	
2	N2	-0,742	10,511	0,000	B1	
3	N3	0,146	-4,055	0,000	B2	
4	N4	9,507	1,659	0,000	B2	
5	N5	0,953	1,659	0,000	B3	
6	N6	7,385	11,843	0,000	B3	
Node	1D member	2D member	Load panels	Support - node		

Table input						
	2			None		
	Name	Coord X [m]	Coord Y [m]	Coord Z [m]	Member	2D member
1	N1	-6,609	-3,417	0,000	B1	
2	N2	-0,742	10,511	2,000	B1	
3	N3	0,146	-4,055	2,000	B2	
4	N4	9,507	1,659	2,000	B2	
5	N5	0,953	1,659	0,000	B3	
6	N6	7,385	11,843	0,000	B3	
Node	1D member	2D member	Load panels	Support - node	Support - beam	Lib

Copy/Paste into Excel

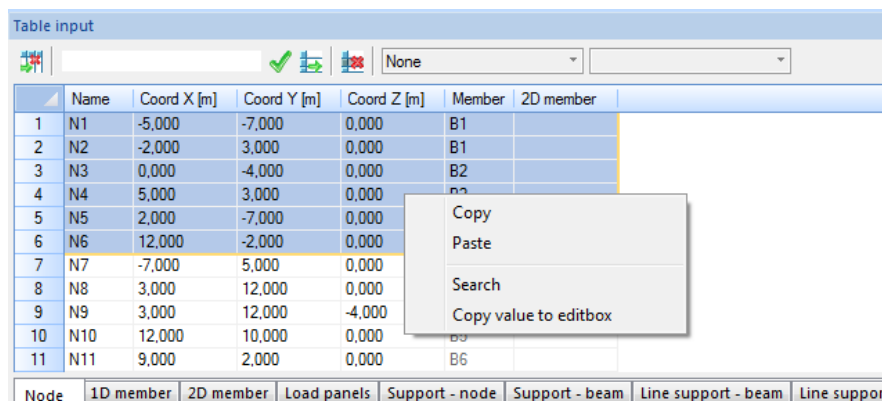
In Excel, you can edit data easily and then reuse it in Scia Engineer. You may also directly create all the data in Excel and export it to Scia Engineer using a Copy/Paste procedure.

To edit a table using Excel, you need to follow these steps:

- 1- Select the data that has to be edited then select Copy in the list after a right click on the table.

Remark: It is also possible to use the different keyboard shortcuts **CTRL+C** to copy, **CTRL+V** to paste and **CTRL+A** to select all the rows.

Table input



	Name	Coord X [m]	Coord Y [m]	Coord Z [m]	Member	2D member
1	N1	-5,000	-7,000	0,000	B1	
2	N2	-2,000	3,000	0,000	B1	
3	N3	0,000	-4,000	0,000	B2	
4	N4	5,000	3,000	0,000	B2	
5	N5	2,000	-7,000	0,000	B3	
6	N6	12,000	-2,000	0,000	B3	
7	N7	-7,000	5,000	0,000	B4	
8	N8	3,000	12,000	0,000	B4	
9	N9	3,000	12,000	-4,000	B5	
10	N10	12,000	10,000	0,000	B5	
11	N11	9,000	2,000	0,000	B6	

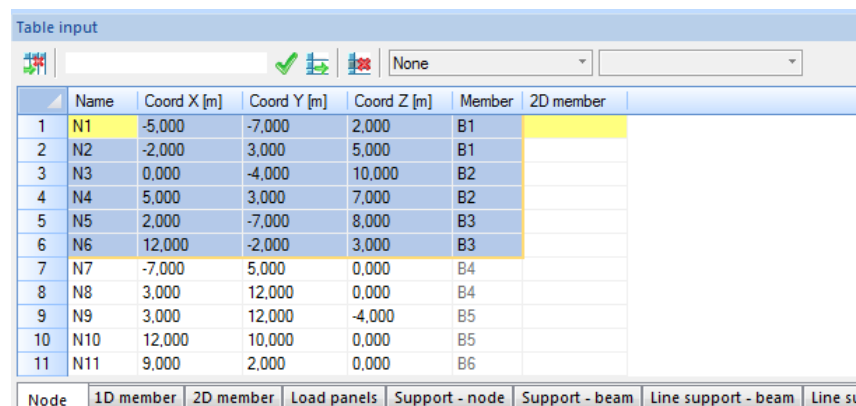
Node | 1D member | 2D member | Load panels | Support - node | Support - beam | Line support - beam | Line support

- 2- Open Excel and paste the table in it. In the following example, we will change the values for Coord Z:

N1	-5	-7	2	B1
N2	-2	3	5	B1
N3	0	-4	10	B2
N4	5	3	7	B2
N5	2	-7	8	B3
N6	12	-2	3	B3

- 3- Make another Copy/Paste from Excel into Scia Engineer. You will see that the data in the table as well as the model in the graphical window are immediately adapted:

Table input



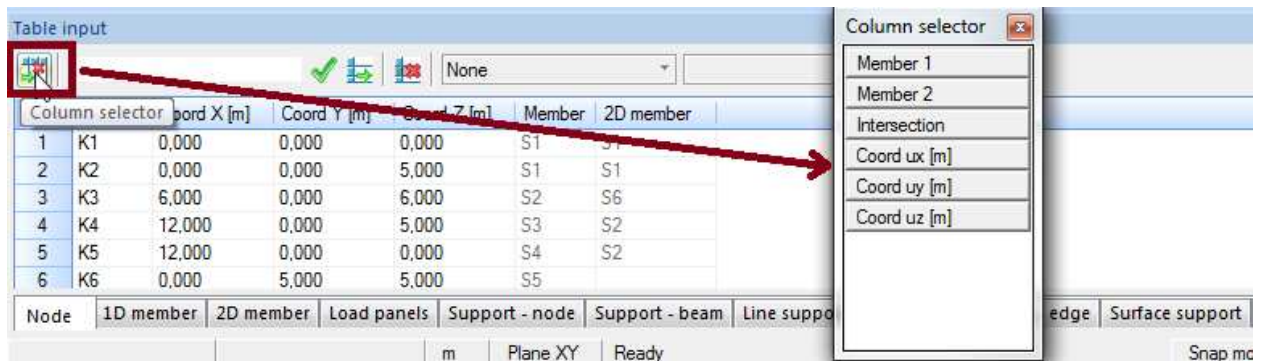
	Name	Coord X [m]	Coord Y [m]	Coord Z [m]	Member	2D member
1	N1	-5,000	-7,000	2,000	B1	
2	N2	-2,000	3,000	5,000	B1	
3	N3	0,000	-4,000	10,000	B2	
4	N4	5,000	3,000	7,000	B2	
5	N5	2,000	-7,000	8,000	B3	
6	N6	12,000	-2,000	3,000	B3	
7	N7	-7,000	5,000	0,000	B4	
8	N8	3,000	12,000	0,000	B4	
9	N9	3,000	12,000	-4,000	B5	
10	N10	12,000	10,000	0,000	B5	
11	N11	9,000	2,000	0,000	B6	

Node | 1D member | 2D member | Load panels | Support - node | Support - beam | Line support - beam | Line support

Other options

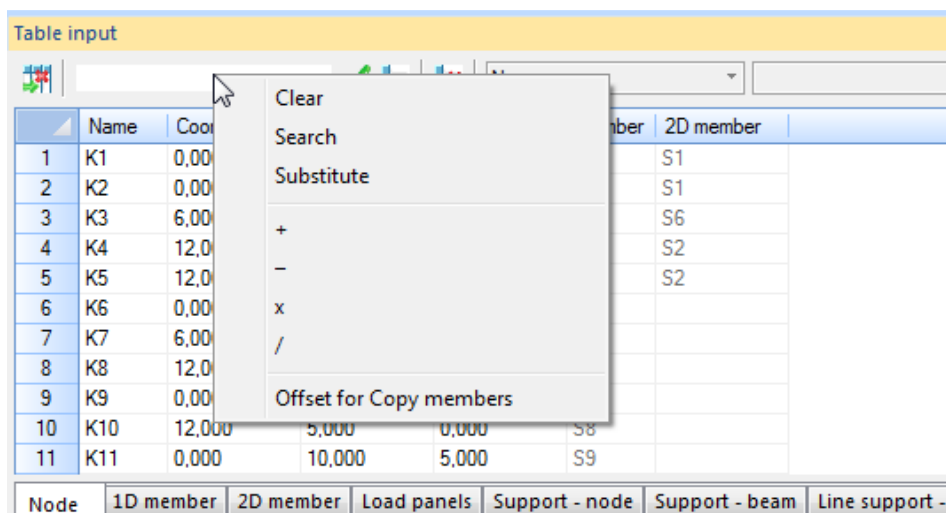
Column selector

You can display more columns in the table or hide them using the column selector. It enables you to select the columns that you currently need and hide the rest. The size of the table is reduced in that way.



Editbox

The editbox can be used to make various operations. You can display those different options by a right click of the mouse in the editbox:

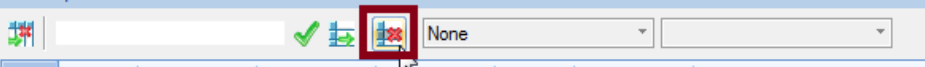


- Clear: deletes the text in the editbox
- Search: you can search for an element, a node or a support in the table. Example: ?N137
- Substitute: replaces a value/property by the inserted value. This can also be used with a multiple selection.
- Basic manipulations +, -, x, /: to add, subtract, multiply, divide the cells by the inserted value
- Offset for the copy of element/ see the chapter 'Copy row'

Delete a row

You can delete an element by deleting the row that defines it in a table. You can use the button 'Delete row'.

Table input



	Name	Coord X [m]	Coord Y [m]	Coord Z [m]	Member	2D member
1	K1	0,000	0,000	0,000	S1	S1
2	K2	0,000	0,000	5,000	S1	S1
3	K3	6,000	0,000	6,000	S2	S6
4	K4	12,000	0,000	5,000	S3	S2
5	K5	12,000	0,000	0,000	S4	S2
6	K6	0,000	5,000	5,000	S5	
7	K7	6,000	5,000	6,000	S5	
8	K8	12,000	5,000	5,000	S6	

Some objects such as nodes cannot be deleted because they are linked to a beam or a surface.

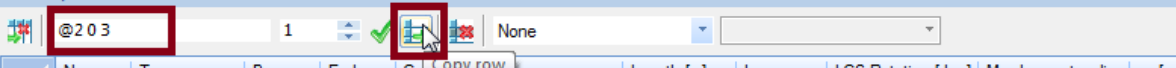
Copy row

You can copy rows; it allows you to copy the elements that are in the table. Each element that is copied will have an offset relatively to the previous one using the option 'Offset for copy members', available from the editbox.

You can also directly enter '@' in the editbox, followed by the value of the offset in every direction of the coordinate system. It should be written as follow: @ X Y Z

Example: The element B1 will be copied with an offset of 2 in X and 3 in Z:

Table input

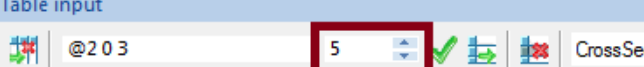


	Name	Type	Beg. n...	End n...	Cross	Copy row	Length [m]	Layer	LCS Rotation [deg]	Member system-li...	ey [mm]
1	B1	general (0)	N1	N2	CS1 - HEA200		11,402	Layer1	0,00	centre	0
2	B2	general (0)	N3	N4	CS1 - HEA200		11,402	Layer1	0,00	centre	0

The same function can be used to copy supports. In that case, it is not an offset value that is specified but the name of the node where the support is located. For a nodal support for example: @N12

It is also possible to create multiple copies by changing the number of copies:

Table input



	Name	Type	Beg. n...	End n...	Cross	Copy row	Length [m]	Layer	LCS Rotation [deg]	Member system-li...	ey [mm]
1	B1	general (0)	N1	N2	CS1 - HEA200		11,402	Layer1	0,00	centre	0

Filter

It can be useful to filter the elements of a table according to one of their properties. This can be done in the table editor of Scia Engineer using two combo boxes that are on top of the Table editor menu.

The first list displays the properties of the selected tab:

Table input										
					None					
Name	Type	Beg. n...	End n...	None	Length [m]	Layer	LCS Rotation [deg]	Member system-i...	ey [mm]	
1	S1	column (100)	K1	K2	5,000	Laag1	0,00	centre	0	
2	S2	beam (80)	K2	K3	6,083	Laag1	0,00	centre	0	
3	S3	beam (80)	K3	K4	6,083	Laag1	0,00	centre	0	
4	S4	column (100)	K5	K4	5,000	Laag1	0,00	centre	0	
5	S5	purlin (0)	K6	K7	6,083	Laag1	0,00	centre	0	
6	S6	purlin (0)	K7	K8	6,083	Laag1	0,00	centre	0	
7	S7	column (100)	K9	K6	5,000	Laag1	0,00	centre	0	
8	S8	secondary c...	K10	K8	5,000	Laag1	0,00	centre	0	
9	S9	purlin (0)	K11	K12	6,083	Laag1	0,00	centre	0	
10	S10	purlin (0)	K12	K13	6,083	Laag1	0,00	centre	0	
11	S11	column (100)	K14	K11	5,000	Laag1	0,00	centre	0	

Node 1D member 2D member Load panels Support - node Support - beam Line support - beam Line support - edge Surface support Lay

The second list shows the different objects that are contained in the chosen property:

Table input										
					CrossSection					
Name	Type	Beg. n...	End n...	CrossSection	Any	S Rotation [deg]	Member system-i...	ey [mm]		
1	S1	column (100)	K1	K2	CS3 - IPE140	0	centre	0		
2	S2	beam (80)	K2	K3	CS4 - HFLq70x70x7	0	centre	0		
3	S3	beam (80)	K3	K4	CS1 - IPE330	0	centre	0		
4	S4	column (100)	K5	K4	CS2 - HEA200	0	centre	0		
5	S5	purlin (0)	K6	K7	CS6 - IPE160	6,083	Laag1	0,00	centre	0
6	S6	purlin (0)	K7	K8	CS6 - IPE160	6,083	Laag1	0,00	centre	0
7	S7	column (100)	K9	K6	CS2 - HEA200	5,000	Laag1	0,00	centre	0
8	S8	secondary c...	K10	K8	CS2 - HEA200	5,000	Laag1	0,00	centre	0
9	S9	purlin (0)	K11	K12	CS6 - IPE160	6,083	Laag1	0,00	centre	0
10	S10	purlin (0)	K12	K13	CS6 - IPE160	6,083	Laag1	0,00	centre	0
11	S11	column (100)	K14	K11	CS2 - HEA200	5,000	Laag1	0,00	centre	0

Node 1D member 2D member Load panels Support - node Support - beam Line support - beam Line support - edge Surface support La

By choosing 'CrossSection' in the first list and 'CS2 – HEA200' in the second, the table only contains the elements of section type HEA200:

Table input										
					CrossSection					
Name	Type	Beg. n...	End n...	CrossSection	Length [m]	Layer	LCS Rotation [deg]	Member system-i...	ey [mm]	
1	S4	column (100)	K5	K4	5,000	Laag1	0,00	centre	0	
2	S7	column (100)	K9	K6	5,000	Laag1	0,00	centre	0	
3	S8	secondary c...	K10	K8	5,000	Laag1	0,00	centre	0	
4	S11	column (100)	K14	K11	5,000	Laag1	0,00	centre	0	
5	S12	column (100)	K15	K13	5,000	Laag1	0,00	centre	0	
6	S15	column (100)	K19	K18	5,000	Laag1	0,00	centre	0	
7	S16	column (100)	K20	K16	5,000	Laag1	0,00	centre	0	
8	S19	column (100)	K24	K21	5,000	Laag1	0,00	centre	0	
9	S20	column (100)	K25	K23	5,000	Laag1	0,00	centre	0	
10	S42	column (100)	K29	K26	5,000	Laag1	0,00	centre	0	
11	S43	column (100)	K30	K28	5,000	Laag1	0,00	centre	0	

Node 1D member 2D member Load panels Support - node Support - beam Line support - beam Line support - edge Surface support Lay