Nieuwe of minder bekende maar handige functionaliteiten van PLE

- PLE bevat meerdere handig (maar niet goed bekende) functionaliteiten

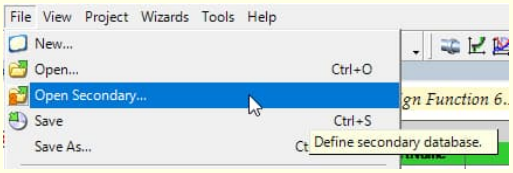
PLE

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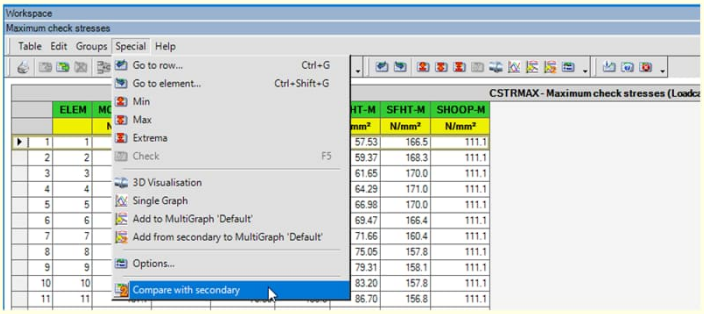
1

Secondary database

- Open a second database



- Table comparison



PLE

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2

Secondary database

CSTRMAX - Maximum check stresses (Loadcase NEN3650; Weighing factors Unused)

	ELEM	MOHR1-M	MOHR1-M	MOHR2-M	MOHR2-M	TRESCA-M	TRESCA-M	MISES-M	MISES-M	SXHT-M	SXHT-M	SFHT-M	SFHT-M	SHOOP-M
		N/mm²	N/mm²	N/mm²	N/mm²	N/mm²	N/mm²	N/mm²	N/mm²	N/mm²	N/mm²	N/mm²	N/mm²	N/mm²
55	55	901.6	213.4	-8.022E+2	-104.7282	450.79	109.55	871.5	190.9	541.39	210.50	900.5	130.0	111.1
56	56	930.8	289.1	-8.342E+2	-184.2707	465.40	151.33	831.6	262.2	357.26	288.21	929.6	143.2	111.1
57	57	931.7	361.0	-8.339E+2	-258.9313	470.58	191.22	892.4	332.9	635.51	360.43	929.6	157.8	111.1
58	58	961.1	424.1	-8.537E+2	-324.1489	613.84	225.31	1,089.9	394.7	914.19	423.67	948.9	166.2	111.1
59	59	1,184.0	476.4	-8.776E+2	-378.2673	747.53	252.37	1,299.1	445.5	1,181.77	476.06	949.0	166.3	111.1
60	60	1,444.8	519.6	-1.139E+3	-423.8250	878.49	275.14	1,521.8	488.8	1,443.82	519.29	949.0	166.3	111.1
61	61	1,700.6	553.8	-1.397E+3	-460.6640	1,006.54	293.56	1,750.1	524.1	1,700.02	553.53	949.0	166.3	111.1
62	62	1,941.8	579.1	-1.619E+3	-488.6016	1,116.05	307.52	1,956.7	551.0	1,941.34	578.93	927.5	166.3	111.1
63	63	2,025.2	595.9	-1.754E+3	-507.4386	1,054.71	316.94	1,960.4	569.2	2,024.95	595.66	520.5	166.3	111.1
64	64	2,027.9	604.1	-1.846E+3	-516.9652	1,013.93	321.70	1,972.2	578.4	2,027.65	603.93	160.9	166.3	111.1
65	65	2,027.9	604.1	-1.846E+3	-516.9652	1,013.93	321.70	1,972.2	578.4	2,027.65	603.93	160.9	166.3	111.1
66	66	2,025.2	595.9	-1.754E+3	-507.4386	1,054.71	316.94	1,960.4	569.2	2,024.95	595.66	520.5	166.3	111.1
67	67	1,941.8	579.1	-1.619E+3	-488.6016	1,116.05	307.52	1,956.7	551.0	1,941.34	578.93	927.5	166.3	111.1
68	68	1,700.6	553.8	-1.397E+3	-460.6640	1,006.54	293.56	1,750.1	524.1	1,700.02	553.53	949.0	166.3	111.1
69	69	1,444.8	519.6	-1.139E+3	-423.8250	878.49	275.14	1,521.8	488.8	1,443.82	519.29	949.0	166.3	111.1
70	70	1,184.0	476.4	-8.776E+2	-378.2673	747.53	252.37	1,299.1	445.5	1,181.77	476.06	949.0	166.3	111.1
71	71	961.1	424.1	-8.537E+2	-324.1489	613.84	225.31	1,089.9	394.7	914.19	423.67	948.9	166.2	111.1
72	72	931.7	361.0	-8.339E+2	-258.9313	470.58	191.22	892.4	332.9	635.51	360.43	929.6	157.8	111.1
73	73	930.8	289.1	-8.342E+2	-184.2707	465.40	151.33	831.6	262.2	357.26	288.21	929.6	143.2	111.1

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3

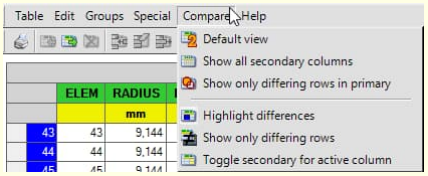
Secondary database

- **Blue cells highlight differences**

Table Edit Groups Special Compare Help

	ELEM	RADIUS	DOUT	WALL	LAMBDA	ANGOCC	ANGOCC	S-ALLOW
		mm	mm	mm		°	°	N/mm²
43	43	9,144	914.4	7.52		70	70	346.5
44	44	9,144	914.4	7.52		70	70	346.5
45	45	9,144	914.4	7.52		70	70	346.5
46	46	9,144	914.4	7.52		70	70	346.5
47	47	9,144	914.4	7.52		71	74	346.5
48	48	9,144	914.4	7.52		81	83	346.5
49	49	9,144	914.4	7.52		71	72	346.5
50	50		914.4	7.52		70	70	346.5
51	51		914.4	7.52		70	70	346.5
52	52		914.4	7.52		70	70	346.5

- **Comparison options**



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4

Secondary database

- **Tables like NOTICES, Soil Wizard are also possible**

NOTICES - Project notices (errors, warnings & messages)

	DF	DF	IDENT	IDENT	MESSAGE	MESSAGE
1	DF 2	DF 2	I2-001	**I2-001**	Project contains 129 nodes.	Project contains **129 nodes**.
2	DF 6.1	DF 6.1	S61-002	**S61-002**	Allowable implosion moment due to bending moment reached or exeeded between elements 59 and 70, with pea...	Allowable implosion moment *due to bending moment* reached or exeeded between elements 59 and 70, with peak of 102.3% at element 59.
3	DF 6.2...	DF 6.2...	W620/1	**W620/1**	Calculated stress gt allowable stress	Calculated stress gt allowable stress
4		DF 6.2...	W600/4		Axial buckling strain > critical one	

SLOC - Soil profile locations

	IDENT	PROFILE1	PROFILE1	PROFILE2	SOILNB1	SOILNB2	INSTALL1	INSTALL2	DEFORM1	DEFORM2
1	start	Road bed	Ditch		Neutral		TrenchUnCompressed		Slow	
2	BEND1	Road bed	Ditch		Neutral		TrenchUnCompressed		Slow	
3	SIDEL	Road bed	Ditch		Neutral		TrenchUnCompressed		Slow	
4	DITCHL	Road bed	Ditch		Neutral		TrenchUnCompressed		Slow	
5	CENTREL	Road bed	Ditch		Neutral		TrenchUnCompressed		Slow	
6	CENTRE	Road bed	Ditch		Neutral		TrenchUnCompressed		Slow	
7	CENTRER	Road bed	Ditch		Neutral		TrenchUnCompressed		Slow	
8	DITCHR	Road bed	Ditch		Neutral		TrenchUnCompressed		Slow	
9	SIDER	Road bed	Ditch		Neutral		TrenchUnCompressed		Slow	
10	BEND2	Road bed	Ditch		Neutral		TrenchUnCompressed		Slow	
11	END	Road bed	Ditch		Neutral		TrenchUnCompressed		Slow	

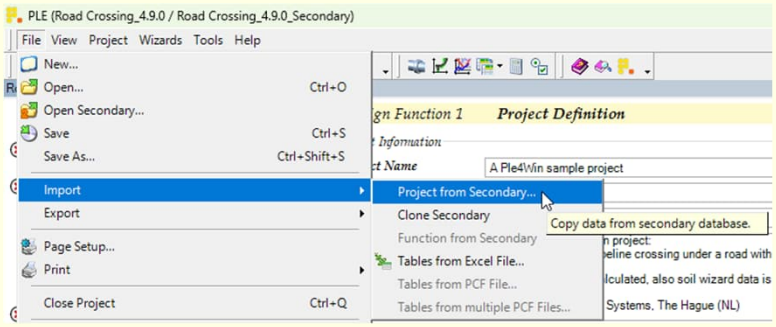
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Secondary database

- **Importing data**
- **Get secondary data into main project**

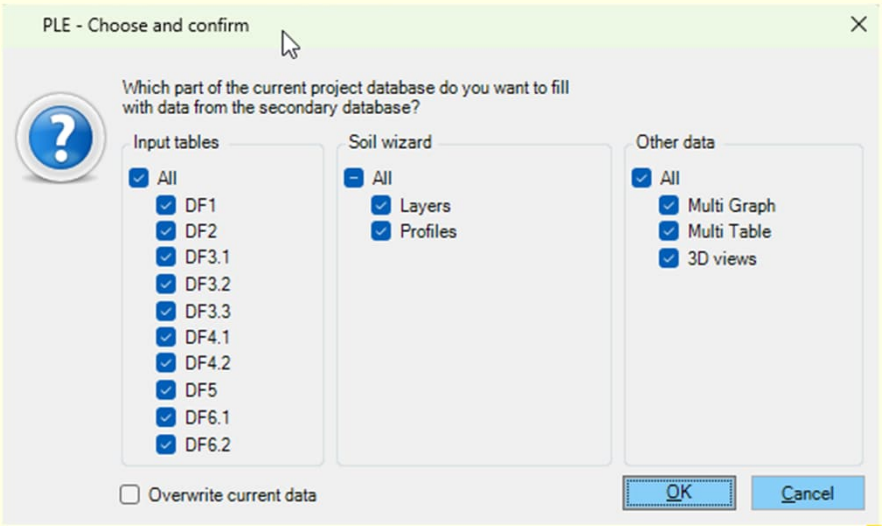


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Secondary database

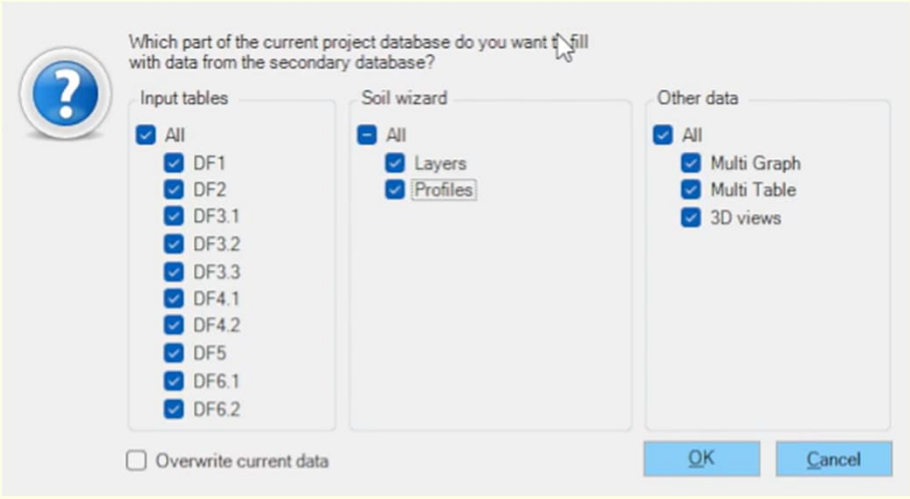


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Secondary database



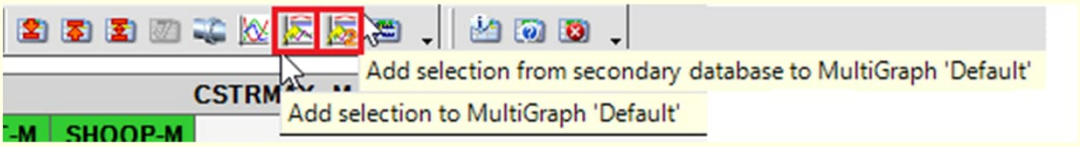
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Secondary database

- **Secondary database data can be added to multigraph for comparison**

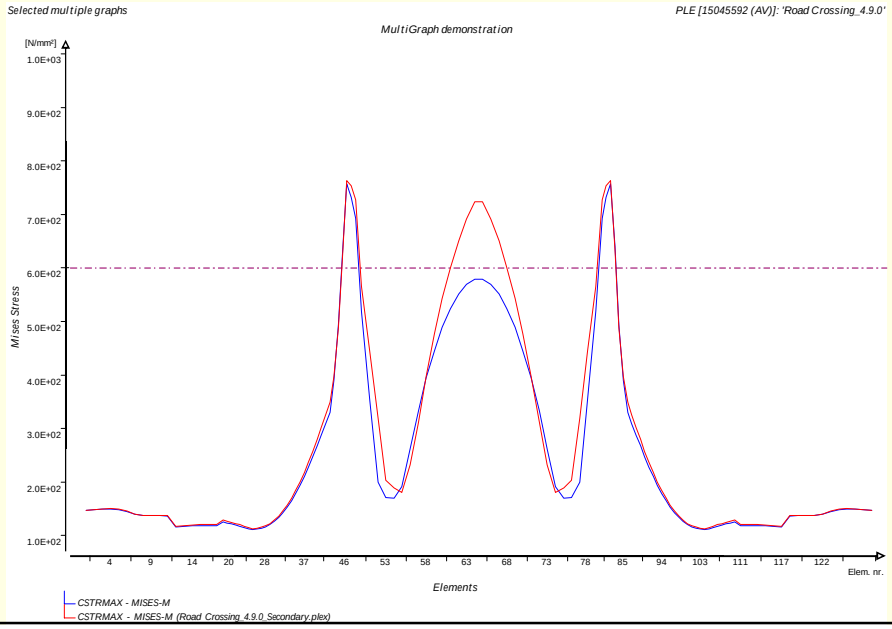


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Secondary database



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License without a Dongle

- License without a Dongle are now possible
- Licence can be linked directly to your device



PLE

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11

Batch processing

- .BAT files allow processing multiple PLE projects

```
"C:\Program Files (x86)\PLE professional\PLE.exe" /r "C:\PLE data\Project1.plex"
"C:\Program Files (x86)\PLE professional\PLE.exe" /r "C:\PLE data\Project2.plex"
"C:\Program Files (x86)\PLE professional\PLE.exe" /r "C:\PLE data\Project3.plex"
... ... ...
"C:\Program Files (x86)\PLE professional\PLE.exe" /r "C:\PLE data\ProjectN.plex"
```

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Batch processing

- **Batch file can respond to error level returned by PLE**
- **Useful to stop the Batch file from continuing**

```
... ... ...
"C:\Program Files (x86)\PLE professional\PLE.exe" /r "C:\PLE data\Project2.plex"
if errorlevel 9 exit
"C:\Program Files (x86)\PLE professional\PLE.exe" /r "C:\PLE data\Project3.plex"
if errorlevel 9 exit
... ... ...
```

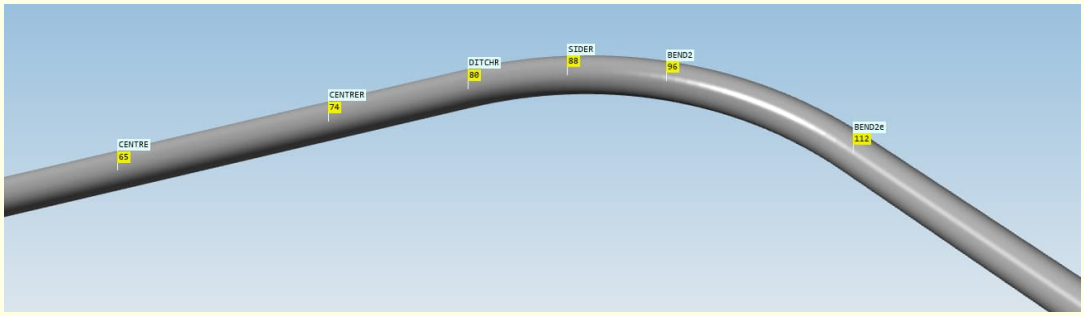
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13

3D Visualisation

- **Distance between idents can be measured in the 3D visualisation**



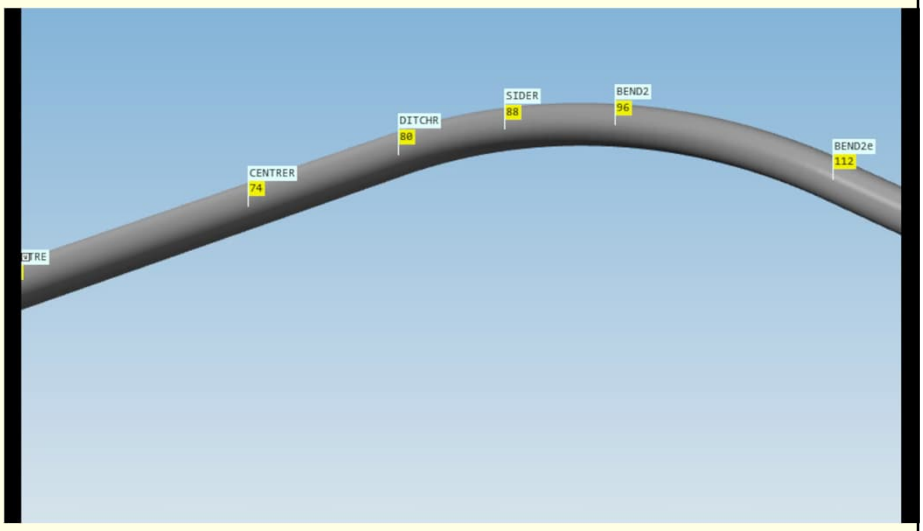
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3D Visualisation

- Right clicking idents to measure distance

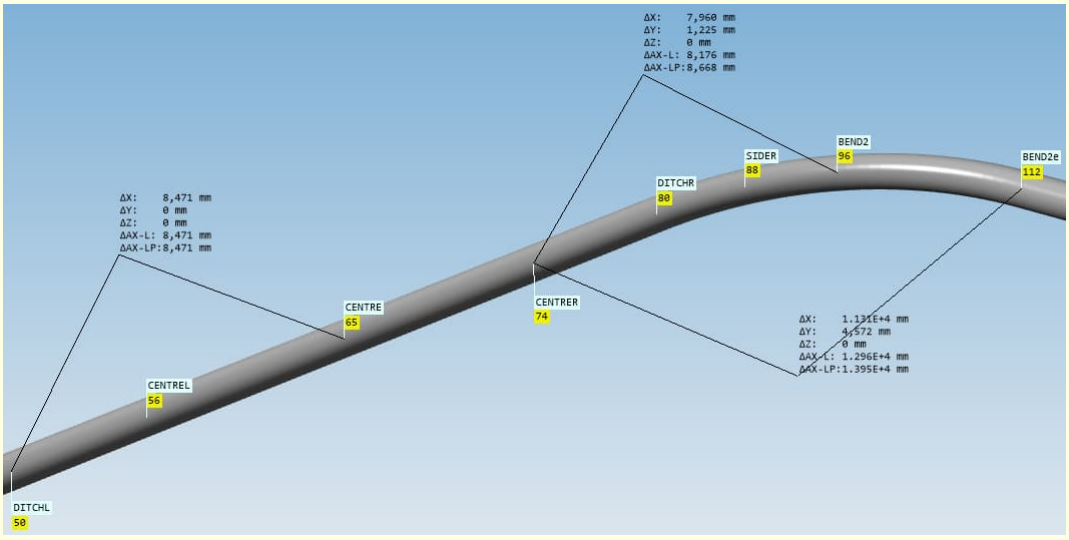


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3D Visualisation



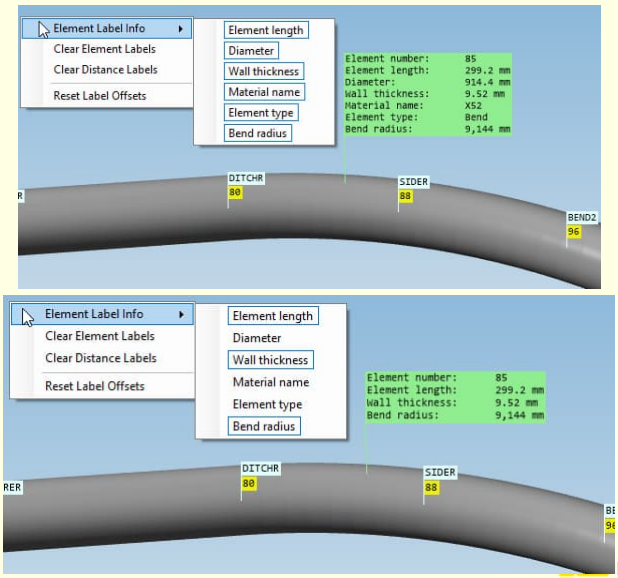
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3D Visualisation

- User can set what details are shown in labels



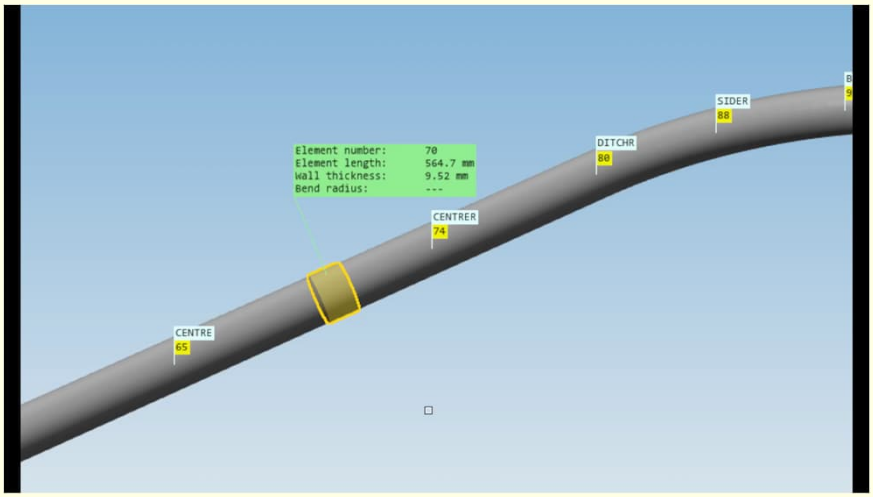
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3D Visualisation

- (Shift) Tab can be used to move through elements



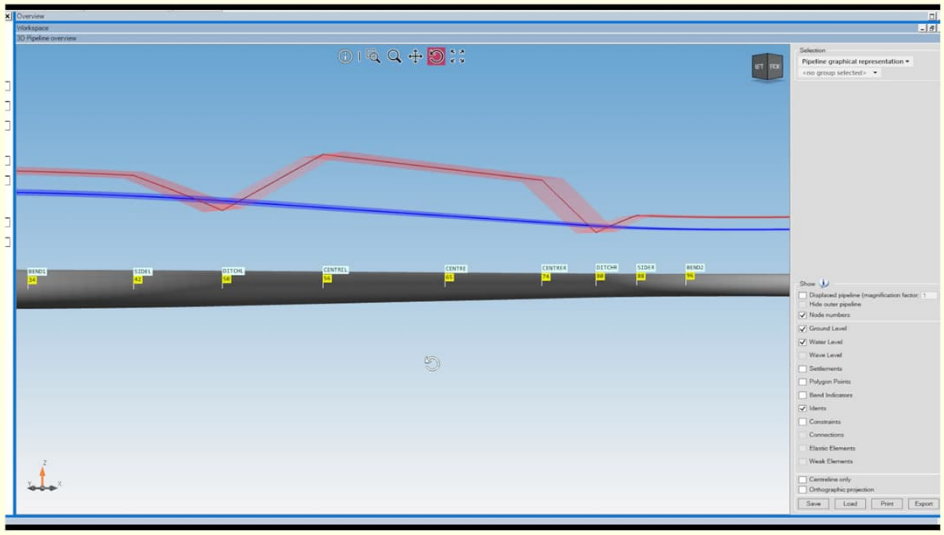
PLE

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3D Visualisation

- Displaced pipeline



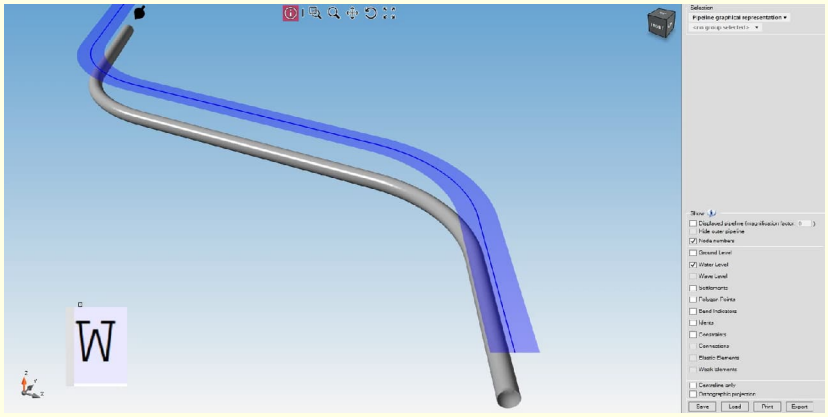
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19

3D Visualisation

- Many shortcuts for viewing pipeline
- D: Trimetric view
- F: Front view
- G: Toggle Ground Level
- W: Water level
- Etc...

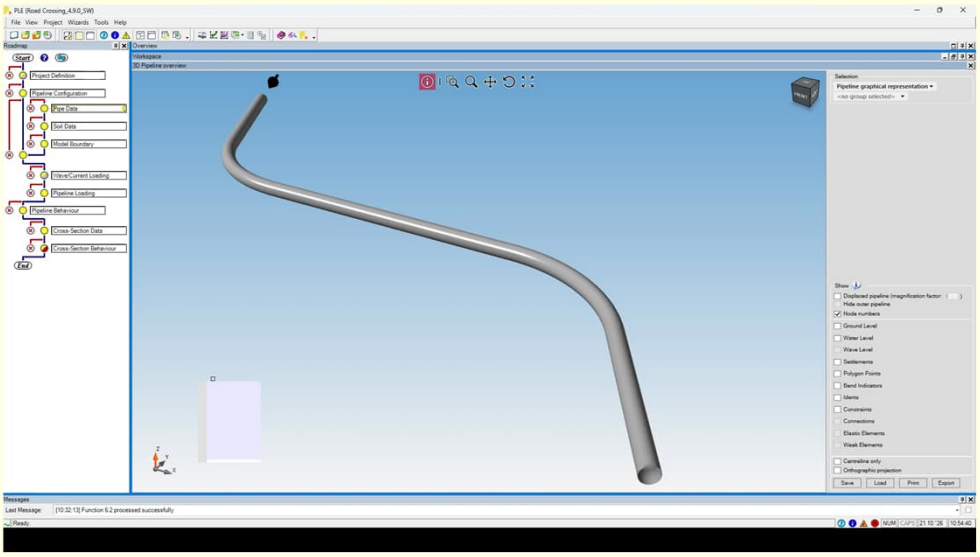


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3D Visualisation



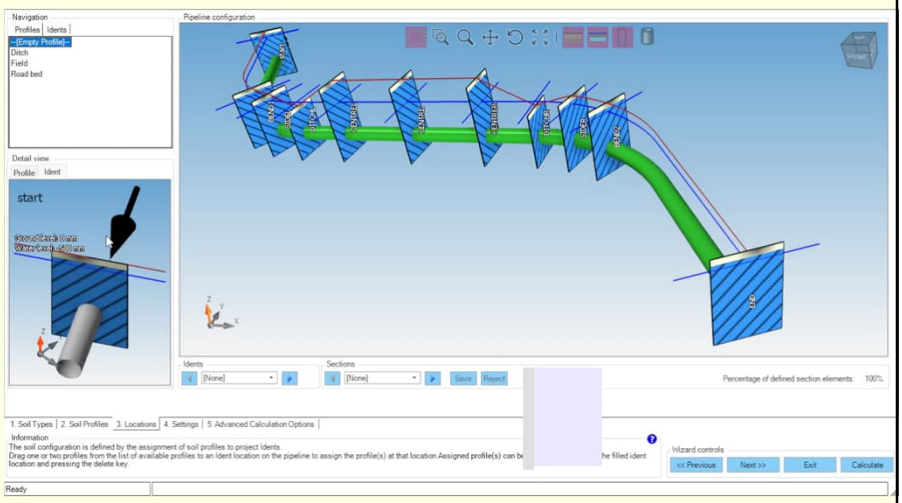
PLE

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3D Visualisation

- **Soil Wizard 3D heeft ook shortcuts**



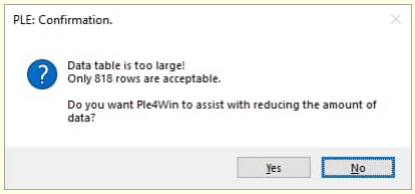
PLE

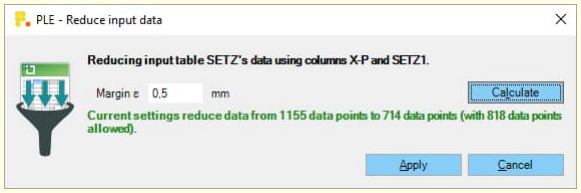
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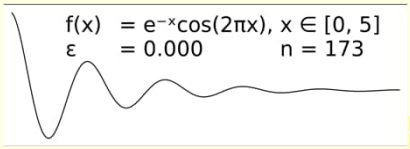
22

Data reduction

- Too large input table can be reduced in size
- User inputs margin ε
- Ramer–Douglas–Peucker algorithm





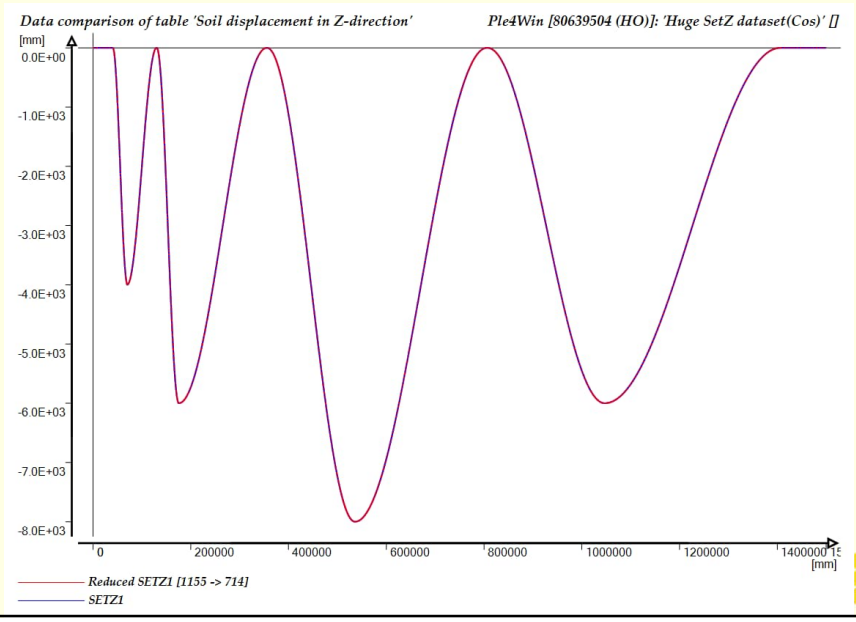


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23

Data reduction

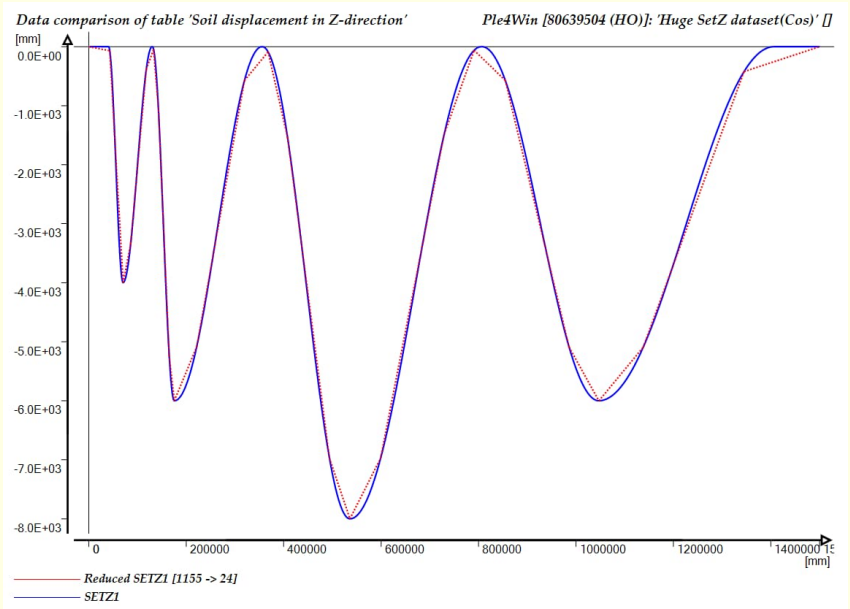


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Data reduction



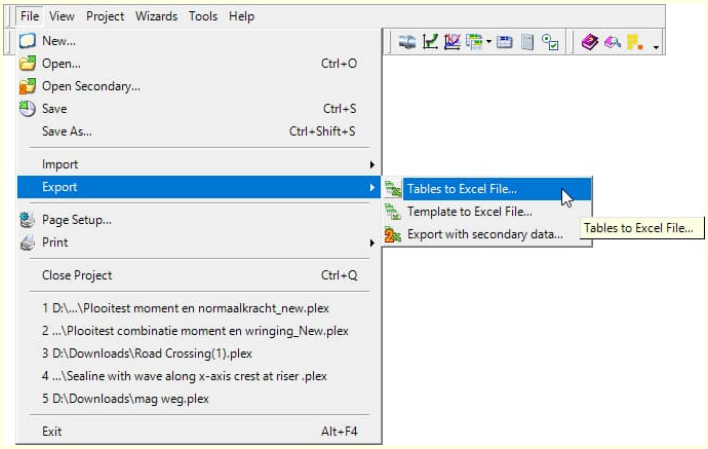
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25

Excel

- **Export PLE data to Excel**



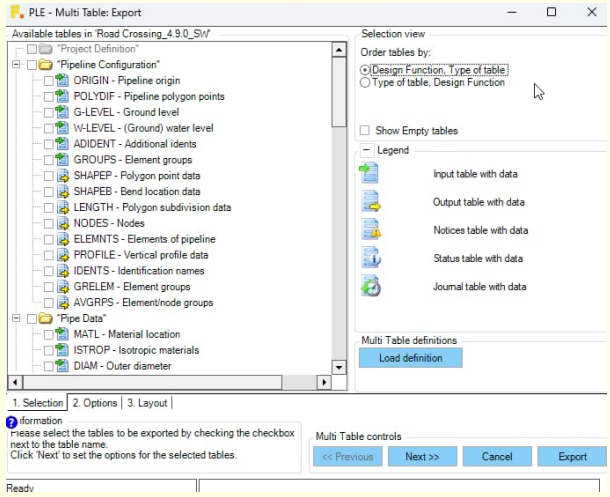
PLE

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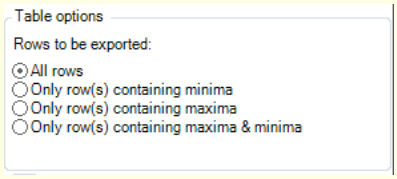
26

Excel

- **Choose which tables**



- **Choose which rows**



PLE

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27

Excel

- **Resulting Excel tables**

	A	B	C	D	E	F	G	H	I	J	K	L
1		IDENT	ΔX-N	ΔY-N	Z-N	BENDRAD	ETYP	BEND_EL	PIPE_EL	EXT	N-KINK	L-SEGM
2			mm	mm	mm	mm		mm	mm			mm
3	1	BEND1	7500	-12990.4	-2757.2	9144		300	600			
4	2	CENTRE	13750	0	-2757.2	0			600			
5	3	BEND2	13750	0	-2757.2	9144		300	600			
6	4	END	7500	-12990.4	-2757.2	0			600			
7												

POLYDIF | NODES | DIAM

PLE

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Excel

- **Resulting Excel tables**

	A	B	C	D	E	F	G	H	I
1		ELEM	MOHR1-M	MOHR2-M	TRESCA-M	MISES-M	SXHT-M	SFHT-M	SHOOP-M
2			N/mm²	N/mm²	N/mm²	N/mm²	N/mm²	N/mm²	N/mm²
3	1	1	166.517904		83.258952	146.332564	58.5536934	166.38247	111.1008731
4	11	11	123.15931		61.57965501	116.2426484	77.8809537	122.603415	111.1008731
5	25	25	127.5635055		63.78175275	111.9583173	62.64964	119.178429	111.1008731
6	47	47	673.9342249	-515.1240608	408.0894772	755.1718309	505.463684	673.881418	111.1008731
7	64	64	652.2049871	-562.4428487	345.7256623	623.0561451	652.000867	173.470333	111.1008731
8	103	103	128.45064		64.22532002	113.0013141	57.1726422	120.592056	111.1008731
9	116	116	123.3344296	-1.312784607	61.66721479	118.2606435	84.1512021	122.648412	111.1008731
10									

CSTRMAX

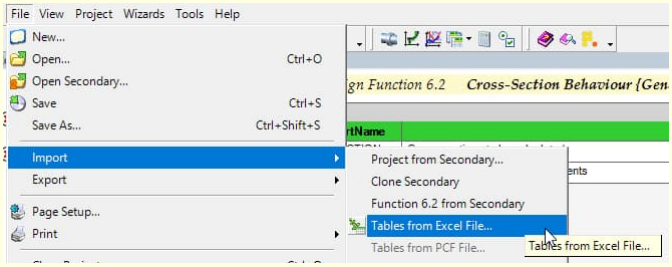
PLE

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29

Excel

- **Import PLE data from Excel**



- **Table format required**

	A	B	IDENT	ΔX-N	ΔY-N	Z-N	BENDRAD	ETYP	BEND_EL	PIPE_EL	EXT	N-KINK	L-SEGM
1				mm	mm	mm	mm		mm	mm			mm
2	1	BEND1	7500	-12990.4	-2757.2	9144		300	600				
3	2	CENTRE	13750	0	-2757.2	0			600				
4	3	BEND2	13750	0	-2757.2	9144		300	600				
5	4	END	7500	-12990.4	-2757.2	0			600				
6													

POLYDIF

Ready Accessibility: Good to go 100%

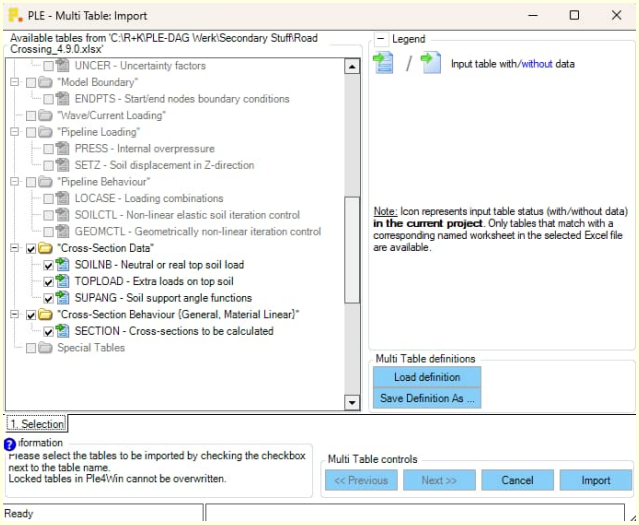
PLE

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Excel

- **Only import non-locked functions**



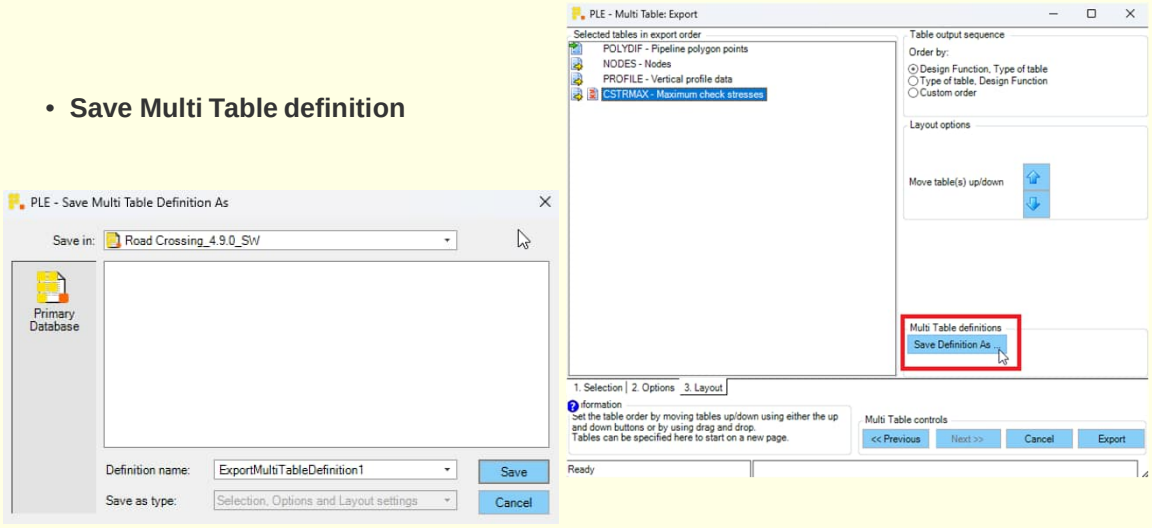
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Excel

- **Save Multi Table definition**



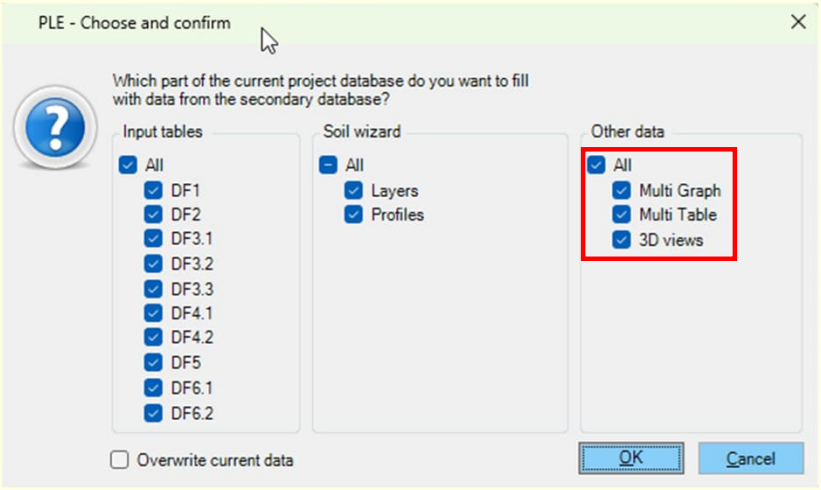
PLE

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Excel

- **Use Secondary database to copy Multi Table Definitions**



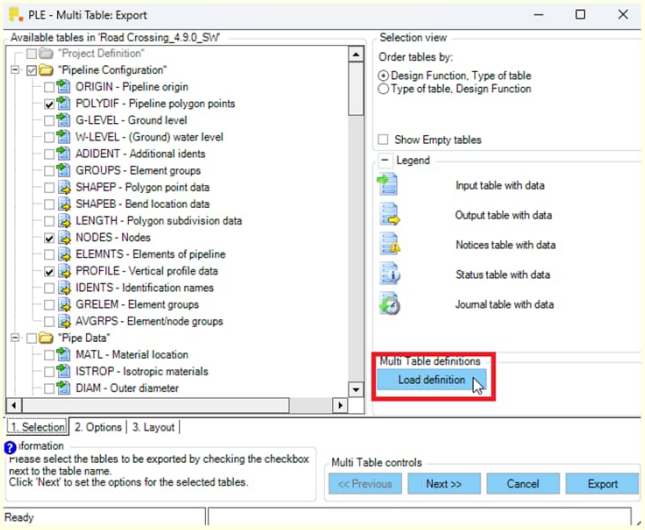
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Excel

- **Load Multi Table definition**



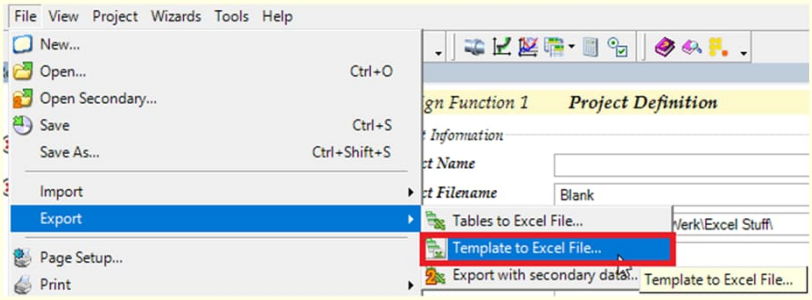
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Excel

- **Generate template Excel file**



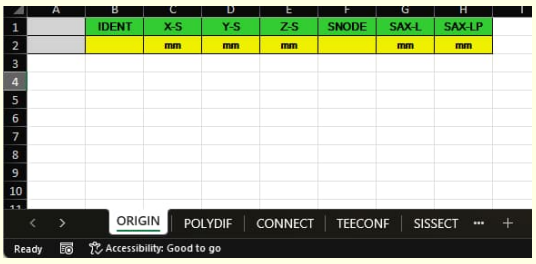
PLE

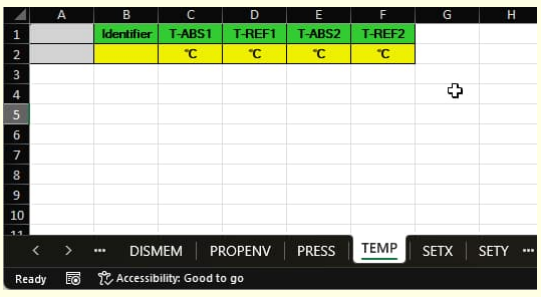
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35

Excel

- **Template Excel**





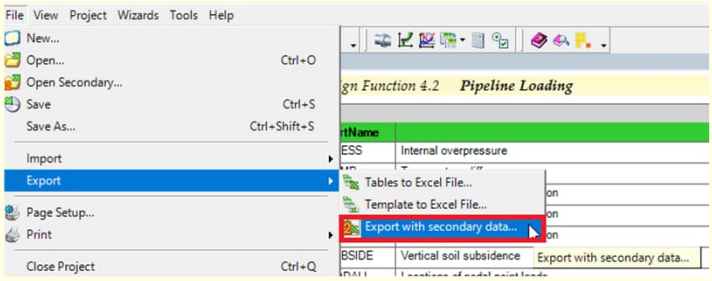
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Excel

- **Export secondary and original data to Excel for further analysis.**



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Excel

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1		ELEM	MOHR1-M	MOHR2-M	TRESCA-M	MISES-M	SXHT-M	SFHT-M	SHOOP-M	ELEM	MOHR1-M	MOHR2-M	TRESCA-M	MISES-M	SXHT-M	SFHT-M	SHOOP-M
2			N/mm²	N/mm²	N/mm²	N/mm²	N/mm²	N/mm²	N/mm²		N/mm²	N/mm²	N/mm²	N/mm²	N/mm²	N/mm²	N/mm²
3	1	1	166.6140937		83.30704687	146.596394	57.532484	166.4983	111.1008731	1	167.2588921		83.62944607	147.146676	57.865068	167.12942	111.1008731
4	2	2	168.4461334		84.22306669	148.002418	59.37126	168.31513	111.1008731	2	169.1097167		84.55485836	148.55666	59.791995	168.96256	111.1008731
5	3	3	170.172929		85.08646452	149.248977	61.654299	170.02252	111.1008731	3	170.7716781		85.38583906	149.729794	62.172132	170.60191	111.1008731
6	4	4	171.1425829		85.57129147	149.759693	64.286283	170.96535	111.1008731	4	171.6997093		85.84985467	150.186877	64.943488	171.49908	111.1008731
7	5	5	170.208245		85.10412249	148.541938	66.975476	169.99098	111.1008731	5	170.8283265		85.41416324	149.011132	67.839206	170.58252	111.1008731
8	6	6	166.6755774		83.33778868	145.036861	69.469525	166.39711	111.1008731	6	167.2382545		83.61912723	145.450115	70.544802	166.92376	111.1008731
9	7	7	160.7308482		80.36542411	139.492342	71.662145	160.36168	111.1008731	7	161.6143189		80.80715946	140.19758	73.10023	161.19903	111.1008731
10	8	8	158.2353407		79.11767034	137.111097	75.051311	157.75905	111.1008731	8	158.4715148		79.23575738	137.277206	76.593248	157.93352	111.1008731
11	9	9	158.7195534		79.35977668	137.456709	79.307633	158.12022	111.1008731	9	158.9593085		79.47965423	137.666428	81.153646	158.28493	111.1008731
12	10	10	158.4925964		79.24629818	137.296327	83.20062	157.75604	111.1008731	10	158.6388096		79.3194048	137.482654	85.323561	157.80922	111.1008731
13	11	11	157.7027211		78.85136055	136.75088	86.701227	156.79489	111.1008731	11	157.7949412		78.89747061	136.962707	89.106952	156.76971	111.1008731
14	12	12	123.495045		61.74752252	116.276279	77.770116	122.94379	111.1008731	12	123.7823913		61.89119565	117.469798	80.508666	123.18937	111.1008731
15	13	13	123.6106078		61.80530389	117.275817	80.911617	123.00028	111.1008731	13	123.9463381	-1.24413538	61.97316905	118.666276	83.942778	123.28843	111.1008731
16	14	14	123.6304913	-0.23283271	61.81524564	118.004685	83.545602	122.95157	111.1008731	14	124.0359706	-3.22157421	62.01798528	119.599717	86.851399	123.30241	111.1008731
17	15	15	123.7269336	-1.28556258	61.86346678	118.53286	85.547095	122.96795	111.1008731	15	124.1897093	-4.51752879	62.09485463	120.299608	89.094977	123.36727	111.1008731
18	16	16	123.9601508	-1.52443088	61.98007541	118.778453	86.745315	123.10323	111.1008731	16	124.1740386	-4.87958778	62.08701928	120.465262	90.466675	123.24388	111.1008731
19	17	17	124.2476278	-0.75220542	62.12381388	118.649766	86.938486	123.25054	111.1008731	17	124.446839	-4.23838146	62.22341952	120.391195	90.800052	123.38622	111.1008731
20	18	18	132.9710789	-8.44938278	66.48553945	125.492231	95.829911	129.16373	111.1008731	18	135.657255	-13.0175561	67.82862748	128.867786	100.73097	131.40685	111.1008731
21	19	19	132.1718693	-5.79818852	66.08593464	123.630417	93.448781	127.58046	111.1008731	19	134.9783245	-10.3424385	67.48916224	127.029312	98.306505	129.91146	111.1008731
22	20	20	131.1451228	-2.54375431	65.57256138	121.477965	90.413734	125.81155	111.1008731	20	134.052503	-7.02504003	67.02625148	124.865839	95.187858	128.21745	111.1008731

RDPLMAX | CSTRMAX | PSTRMAX | BSTRMAX | RSTRMAX | TSTRMAX | MSTRMAX | RD

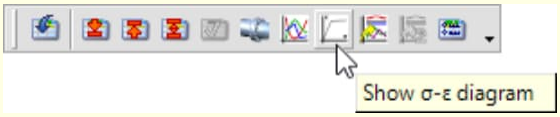
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Sigma-Epsilon Diagram

- PIPEMAT and PIPEPLS can generate Stress-Strain diagrams



- Material of first element in table is used

PIPEMAT - Pipe material data

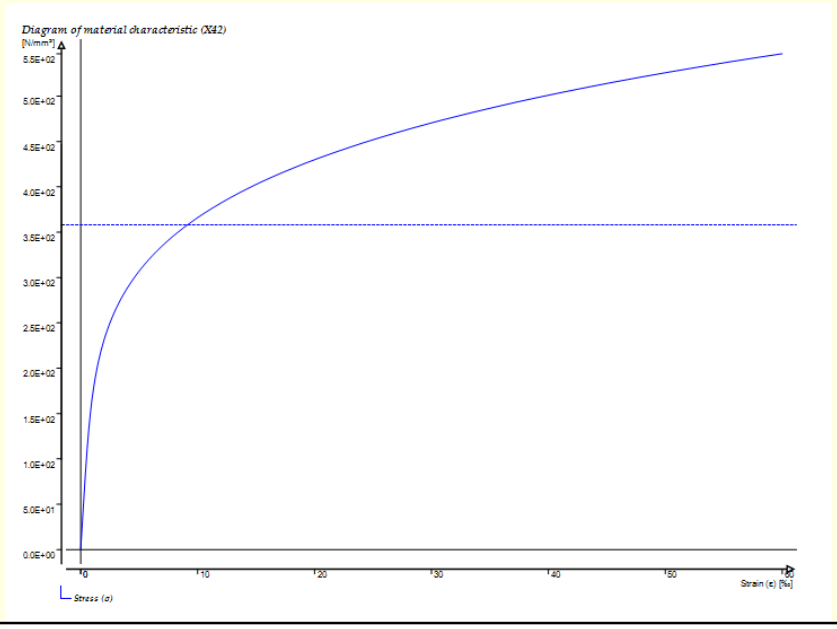
	ELEM	MATREF	MATTYP	FABMET	Emod-NX	Emod-MX	Gmod-TX	Emod-NF	Emod-MF	Nu-XF	Nu-FX	ALPHA-X	Re	ReT
					N/mm²	N/mm²	N/mm²	N/mm²	N/mm²			1/°C	N/mm²	N/mm²
▶ 1	1	X52	Isotropic		2.100E+5	2.100E+5	8.077E+4	2.100E+5	2.100E+5	.300	.300	1.200E-5	358	
2	2	X52	Isotropic		2.100E+5	2.100E+5	8.077E+4	2.100E+5	2.100E+5	.300	.300	1.200E-5	358	
3	3	K03006	Isotropic		2.070E+5	2.070E+5	7.962E+4	2.070E+5	2.070E+5	.300	.300	1.170E-5	240	
4	4	K03006	Isotropic		2.070E+5	2.070E+5	7.962E+4	2.070E+5	2.070E+5	.300	.300	1.170E-5	240	

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Sigma-Epsilon Diagram



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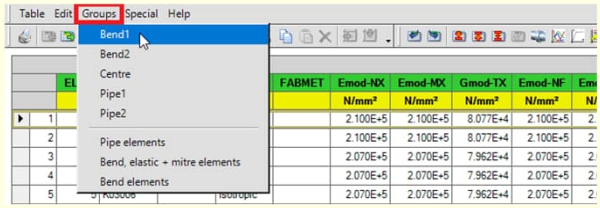
40

Sigma-Epsilon Diagram

- GROUPS table can be used to select other materials for the diagram

GROUPS - Element groups

	Start Element	End Element	NAME
1	1	17	Pipe1
2	18	49	Bend1
3	50	79	Centre
4	80	111	Bend2
5	112	128	Pipe2



- This changes what element are shown in the table (First element is also different then)

PIPEMAT - Pipe material data - "Bend1"

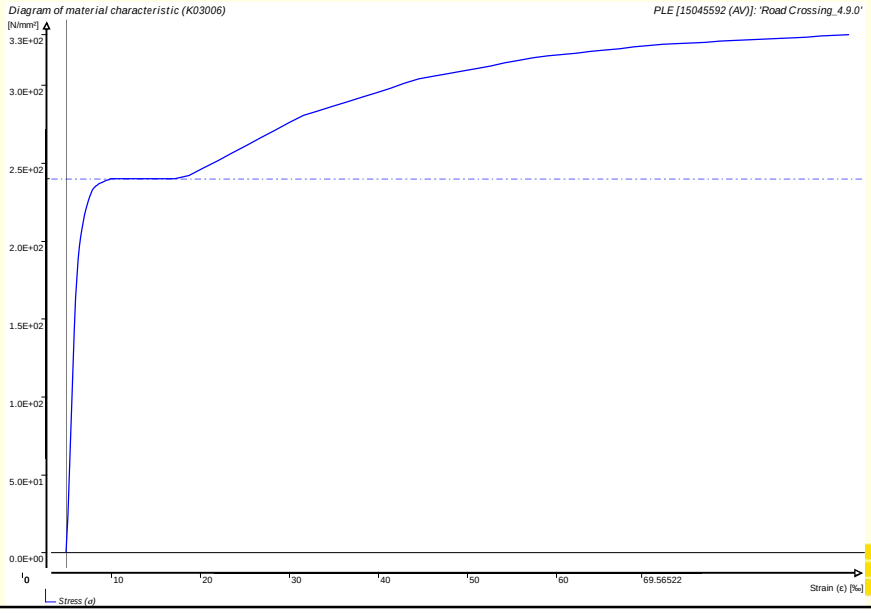
	ELEM	MATREF	MATCAT	MATTYP	FABMET	Emod-NX	Emod-MX	Gmod-TX	Emod-NF	Emod-MF	Nu-XF	Nu-FX	ALPHA-X	Re	ReT
						N/mm²	N/mm²	N/mm²	N/mm²	N/mm²			1/°C	N/mm²	N/mm²
1	18	K03006		Isotropic		2.070E+5	2.070E+5	7.962E+4	2.070E+5	2.070E+5	.300	.300	1.170E-5	240	
2	19	K03006		Isotropic		2.070E+5	2.070E+5	7.962E+4	2.070E+5	2.070E+5	.300	.300	1.170E-5	240	
3	20	K03006		Isotropic		2.070E+5	2.070E+5	7.962E+4	2.070E+5	2.070E+5	.300	.300	1.170E-5	240	
4	21	K03006		Isotropic		2.070E+5	2.070E+5	7.962E+4	2.070E+5	2.070E+5	.300	.300	1.170E-5	240	

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Sigma-Epsilon Diagram



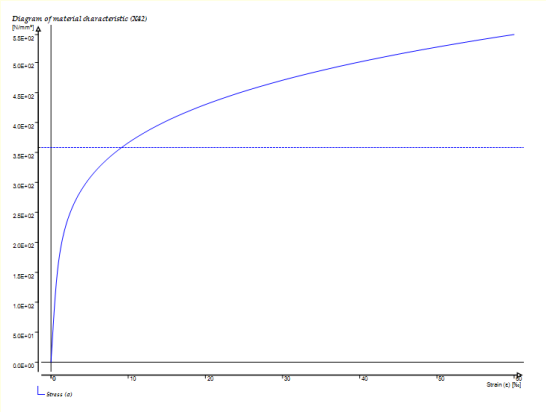
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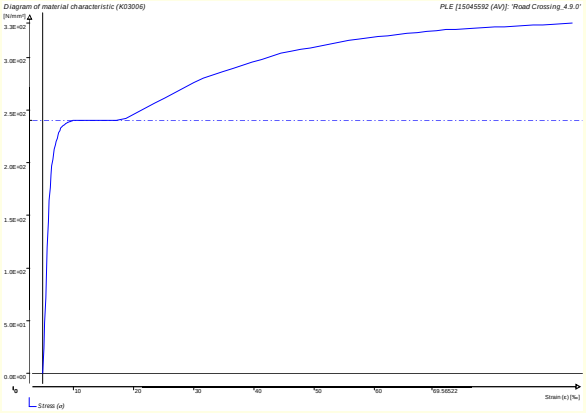
42

Sigma-Epsilon Diagram

- X52



- K03006



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Hoop Stress NEN

- Using NEN 3650-2 analysis, Hoop Stress is calculated using NEN load factor of 1.25
- User Load Factor from table LOCASE is NOT used

LOCASE - Loading combinations

	LC	GLOADF	PRESS-F	T-DIF-F	DEADW-F	SETL-F	NODAL-F	ELBND-F	WAVC-F
1	NEN3650	1	1.15		1.1	1.1			

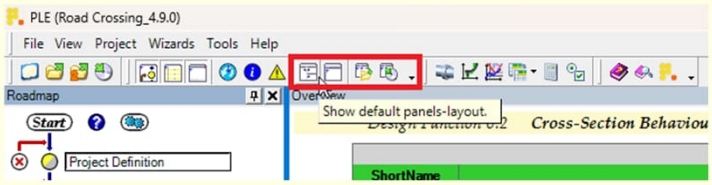
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Workspace customization

- **Customise and save your entire workspace layout**



- **Save custom layout**



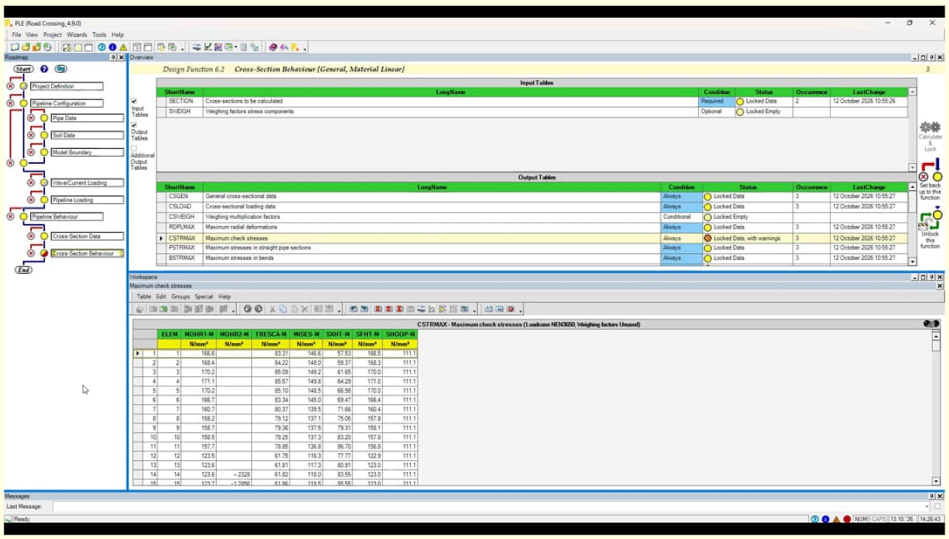
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Workspace customization

- **Drag windows around**

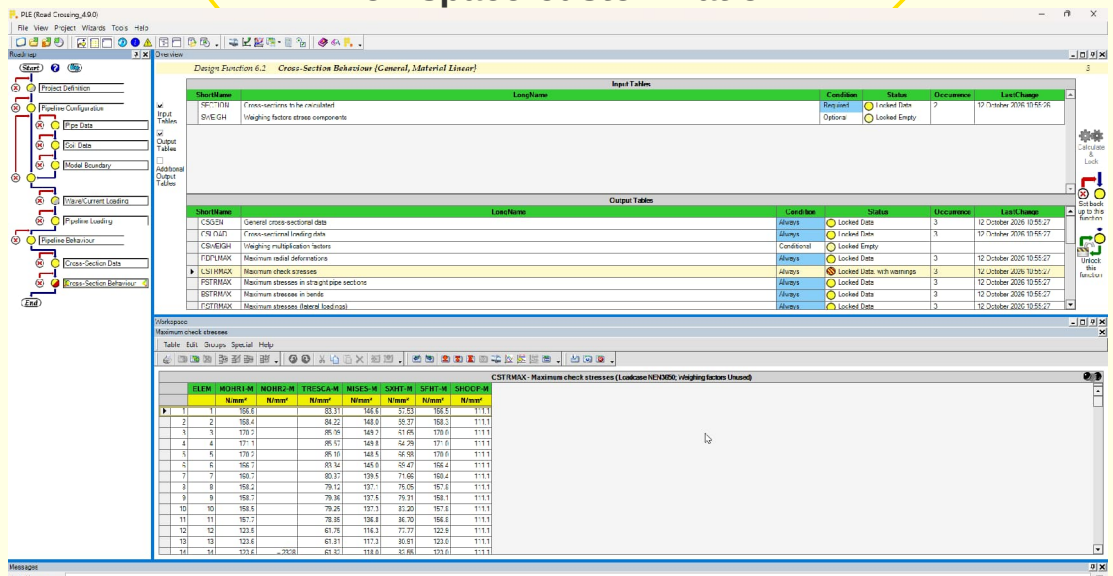


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Workspace customization

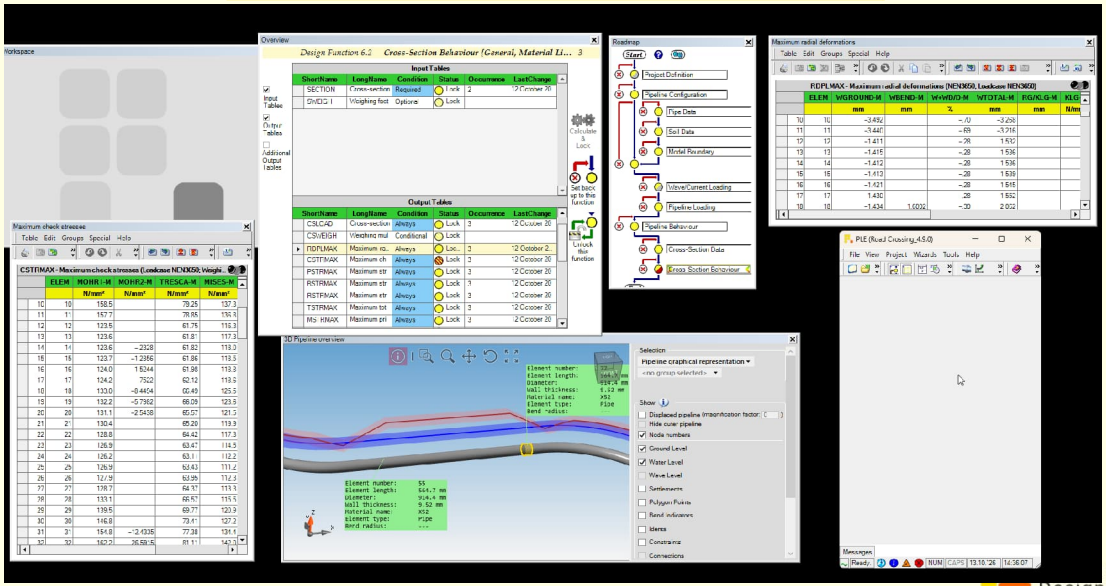


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Workspace customization

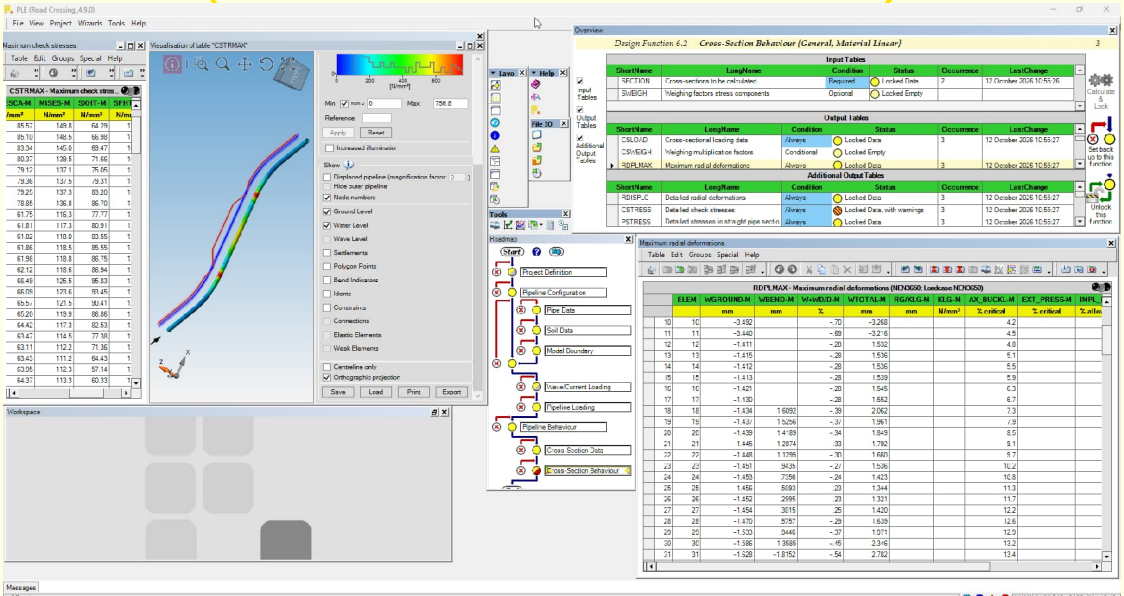


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Workspace customization



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Design Systems

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Predefined Materials

- List of predefined materials

MATL - Material location

	Identifier	MATREF	FABMET	MATFACT
1	Start			

Value	Description
L245NE	L245NE (Mat. no. 1.0457, NEN-EN-ISO 3183:2012 (Annex M))
L245ME	L245ME (Mat. no. 1.0418, NEN-EN-ISO 3183:2012 (Annex M))
L290NE	L290NE (Mat. no. 1.0484, NEN-EN-ISO 3183:2012 (Annex M))
L290ME	L290ME (Mat. no. 1.0429, NEN-EN-ISO 3183:2012 (Annex M))

- Istrop filled

ISTROP - Isotropic materials

	MATREF	Emod	Gmod	Nu	ALPHA	Re	ReT	WEIGHT
		N/mm²	N/mm²		1/°C	N/mm²	N/mm²	N/mm³
1	L290NE	207000		0.3	1.17E-05	290		7.7E-05

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Predefined Materials

- Make custom material

MATL - Material location

	Identifier	MATREF	FABMET	MATFACT
1	Start	Steel		

Value	Description
L245NE	L245NE (Mat. no. 1.0457, NEN-EN-ISO 3183:2012 (Annex M))

- Save it to custom list

ISTROP - Isotropic materials

	MATREF	Emod	Gmod	Nu	ALPHA	Re	ReT	WEIGHT
		N/mm²	N/mm²		1/°C	N/mm²	N/mm²	N/mm³
1	Steel	207000		0,3	1,16E-05	415	373	7,7E-05

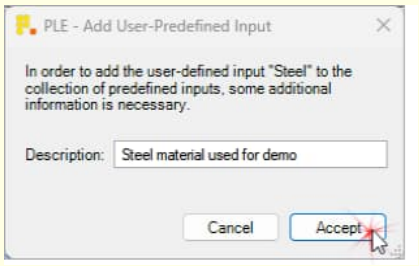
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Predefined Materials

- Description of material



- Appears in MATL

MATL - Material location

	Identifier	MATREF	FABMET	MATFACT
1	Start	Steel		

Value	Description
Steel	Steel material used for demo

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Predefined Materials

- **Update material**

ISTROP - Isotropic materials

	MATREF	Emod	Gmod	Nu	ALPHA
		N/mm²	N/mm²		1/°C
1	Steel	208000		0,3	1,16E-05

- **Remove material**

ISTROP - Isotropic materials

	MATREF	Emod	Gmod	Nu	ALPHA
		N/mm²	N/mm²		1/°C
1	Steel	208000		0,3	1,16E-05
3	L450Q	207000		0,3	1,17E-05

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Graphing

- **Single Graph**

Maximum check stresses

Table Edit Groups Special Help

Show SingleGraph

CSTRMAX - Maximum check stresses (Loadcase NEN3650; Weighing factors Unused)

	ELEM	MOHR1-M	MOHR2-M	TRESCA-M	MISES-M	SXHT-M	SFHT-M	SHOOP-M
		N/mm²	N/mm²	N/mm²	N/mm²	N/mm²	N/mm²	N/mm²
1	1	166.5		83.26	146.3	58.55	166.4	111.1
2	2	168.3		84.15	147.6	60.82	168.1	111.1
3	3	169.4		84.71	148.3	63.45	169.2	111.1
4	4	168.8		84.40	147.3	66.18	168.6	111.1
5	5	166.1		83.05	144.6	68.90	165.8	111.1
6	6	160.7		80.36	139.5	71.27	160.3	111.1
7	7	157.1		78.54	136.1	74.38	156.6	111.1
8	8	157.5		78.73	136.4	78.70	156.9	111.1
9	9	157.2		78.60	136.2	82.70	156.5	111.1
10	10	156.5		78.27	135.8	86.38	155.6	111.1
11	11	123.2		61.58	116.2	77.88	122.6	111.1
12	12	123.3		61.64	117.4	81.24	122.7	111.1
13	13	123.3	-1.313	61.67	118.3	84.15	122.6	111.1

Maximum radial deformations | Graphs of table 'Maximum check stresses' | Maximum check stresses

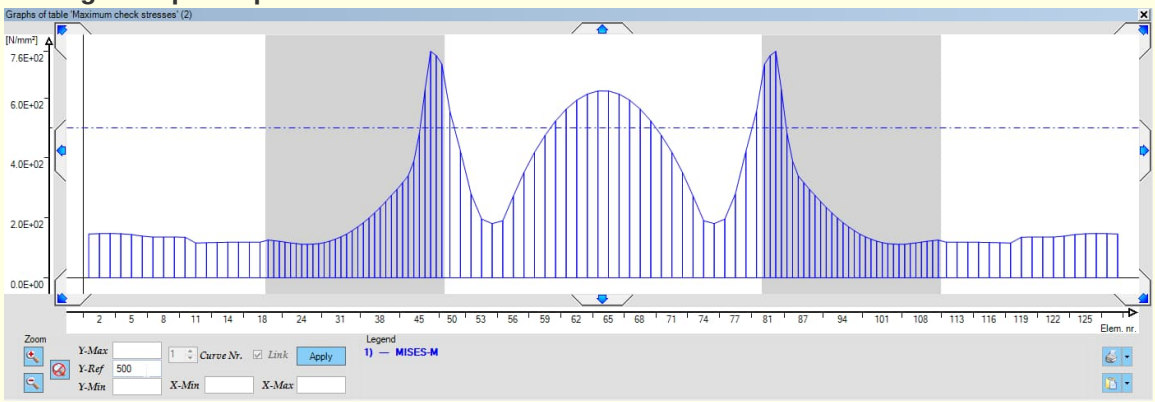
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Graphing

- **Single Graph output**



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Graphing

- **Single Graph multiple columns**

Maximum check stresses

Table Edit Groups Special Help

CSTRMAX - Maximum check stresses (Loadcase NEN3650; Weighing factors Unused)

	ELEM	MOHR1-M	MOHR2-M	TRESCA-M	MISES-M	SXHT-M	SFHT-M	SHOOP-M
		N/mm²	N/mm²	N/mm²	N/mm²	N/mm²	N/mm²	N/mm²
1	1	166.5		83.26	146.3	58.55	166.4	111.1
2	2	168.3		84.15	147.6	60.82	168.1	111.1
3	3	169.4		84.71	148.3	63.45	169.2	111.1
4	4	168.8		84.40	147.3	66.18	168.6	111.1
5	5	166.1		83.05	144.6	68.90	165.8	111.1
6	6	160.7		80.36	139.5	71.27	160.3	111.1
7	7	157.1		78.54	136.1	74.38	156.6	111.1
8	8	157.5		78.73	136.4	78.70	156.9	111.1
9	9	157.2		78.60	136.2	82.70	156.5	111.1
10	10	156.5		78.27	135.8	86.38	155.6	111.1
11	11	123.2		61.58	116.2	77.88	122.6	111.1
12	12	123.3		61.64	117.4	81.24	122.7	111.1
13	13	123.3	−1.313	61.67	118.3	84.15	122.6	111.1

Maximum radial deformations | Graphs of table 'Maximum check stresses' | Maximum check stresses

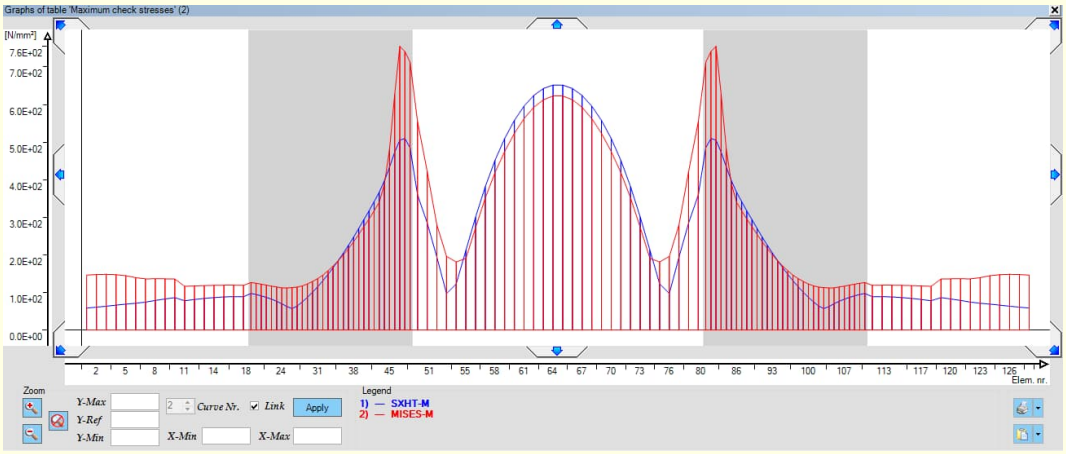
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Graphing

- **Single Graph multiple data columns**



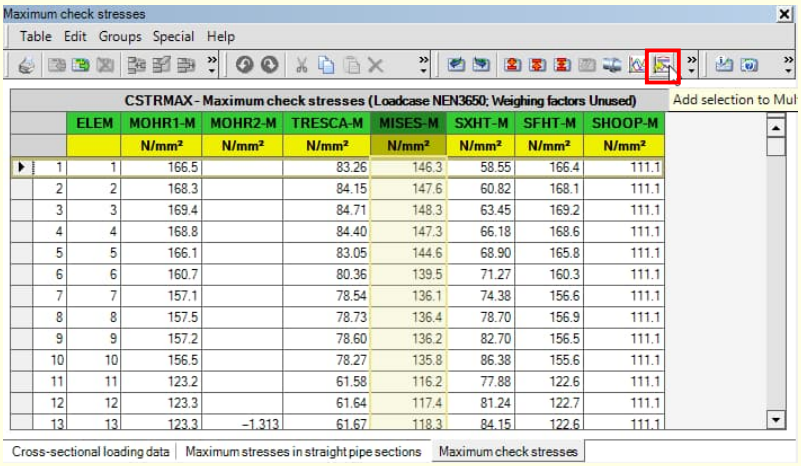
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Graphing

- **Multi Graph**



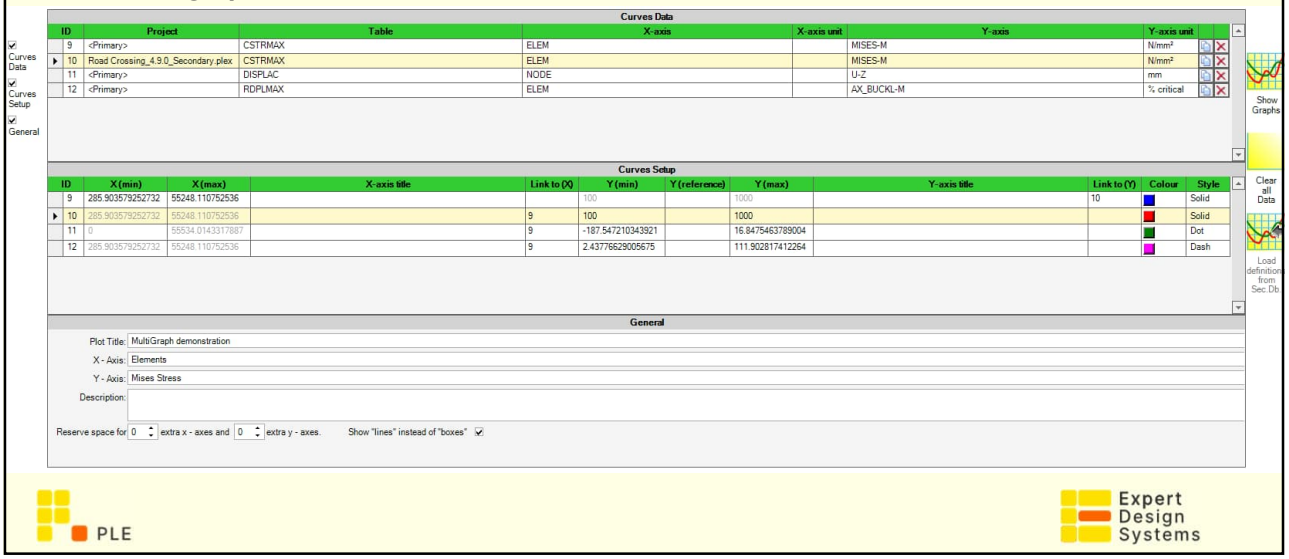
PLE

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Graphing

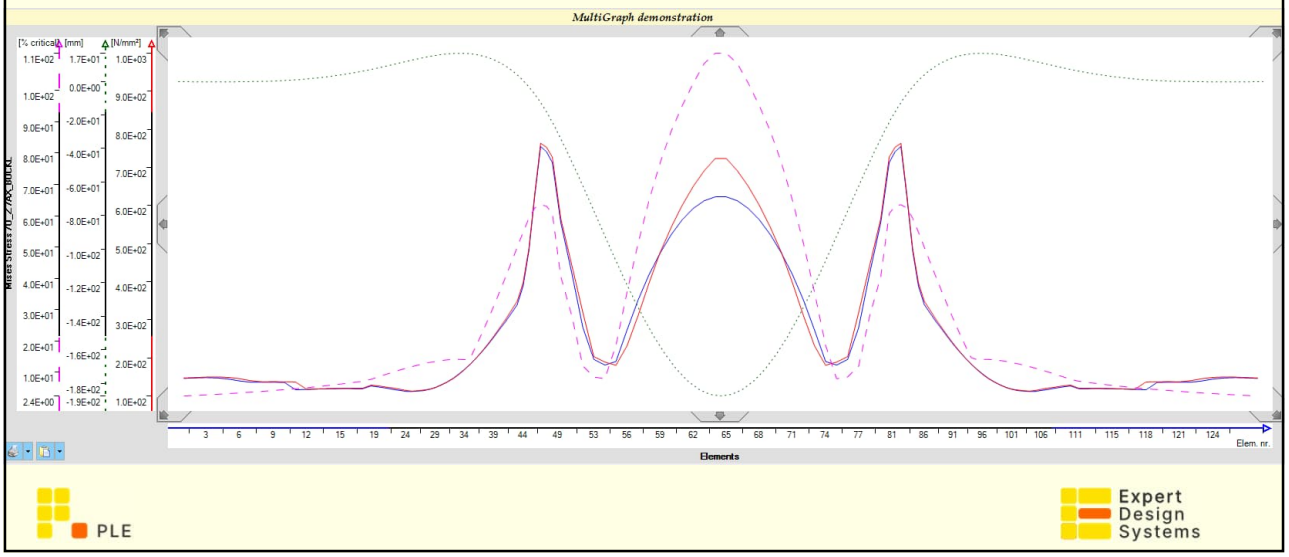
- **Multi graph tool**



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Graphing

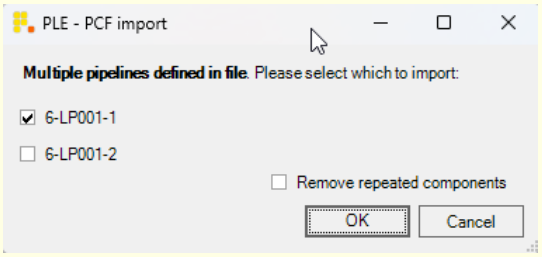
- **Multi graph output**

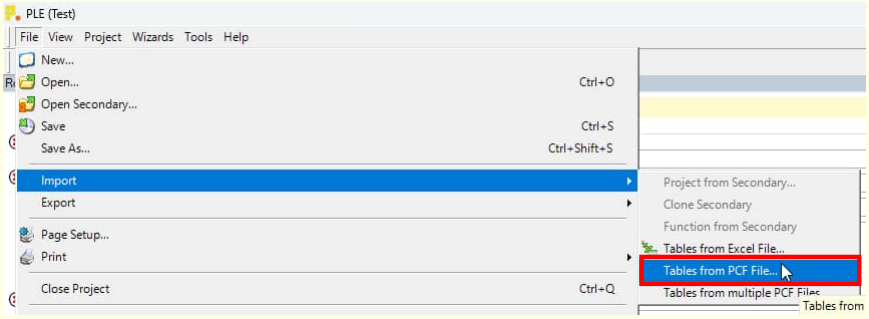


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PCF Import

- Piping Component Files can be imported
- ORIGIN, POLYDIF and DIAM tables



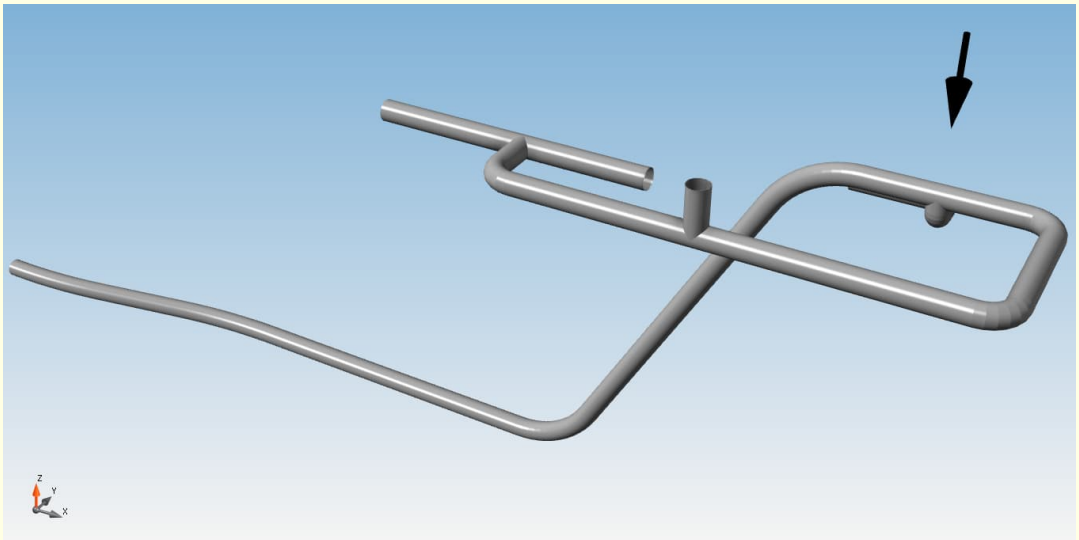


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PCF Import



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Vragen

- Vragen over eerder genoemde onderwerpen, of andere dingen?

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