



Tutorial

Joint Check

ANSYS[®]

03.12.2018
version 5.1

- ▶ In this tutorial, Joint Check is reviewed in details
- ▶ General Info
- ▶ Connection Types
- ▶ Connection design
- ▶ Joint Checks according to standards
- ▶ The report was generated with the help of report designer.

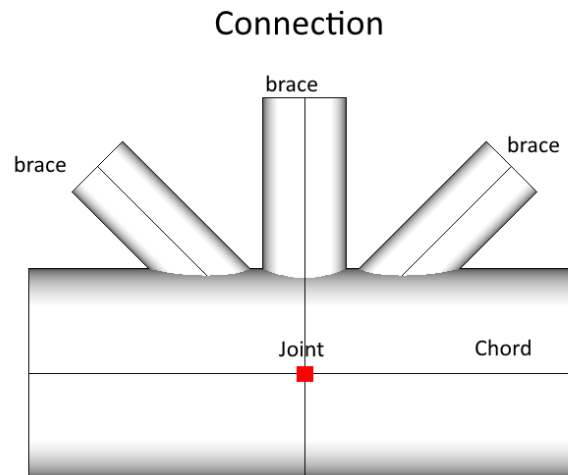
Joint Check – offshore check that verifies strength of tubular structure under tension or compression members according to the standards.

Joint is a node where two or more incline elements are connected.

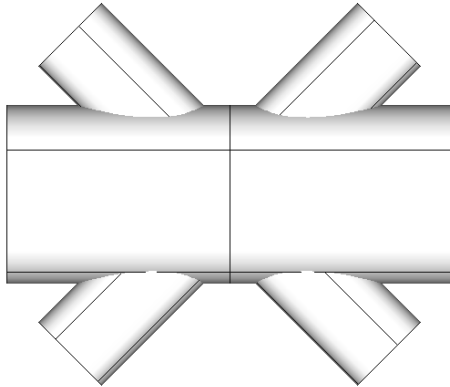
Connection is a set of elements of the same plane around a joint node.

Chord is a set of non-welded elements that form straight line.

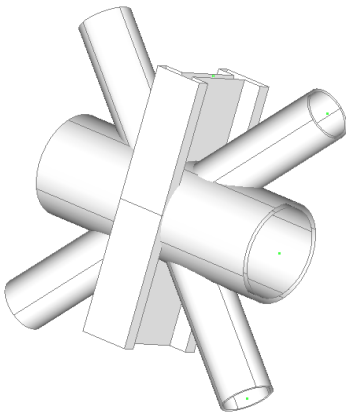
Brace is a welded to a chord element.



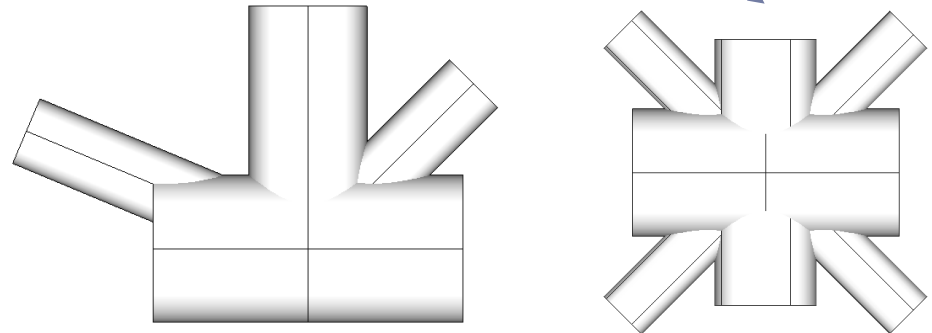
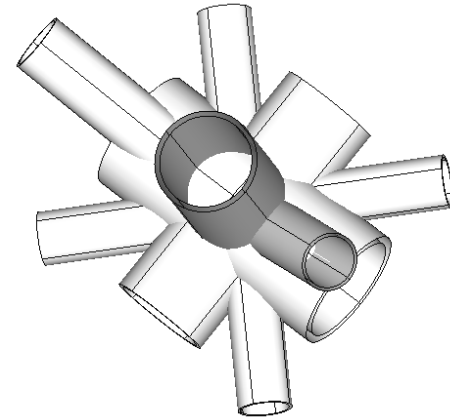
2D Connection. Set of elements of one plane



Connection can include only circular tube shape elements. Otherwise connection will not be recognized. Example of not recognized connection:



3D Connection. Will be split on 2D Connections





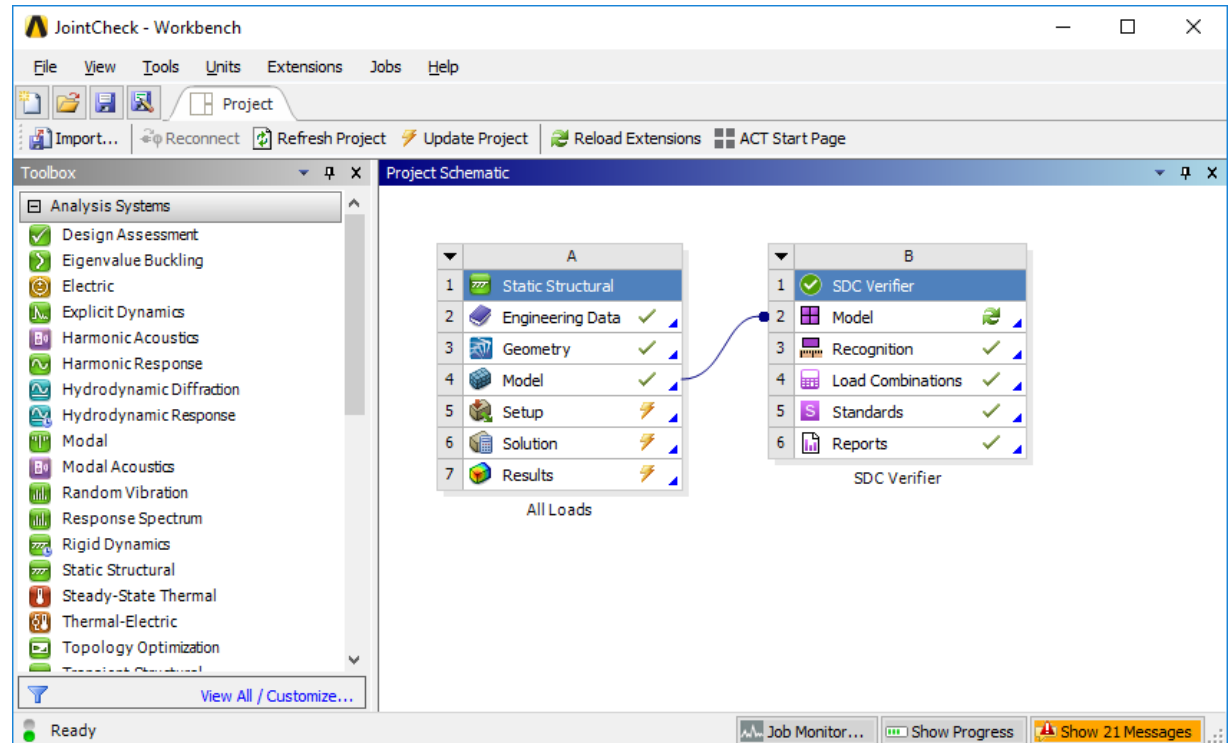
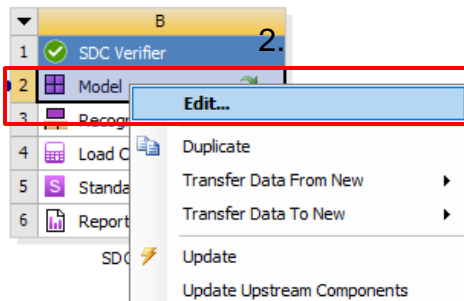
Launch SDC Verifier

1

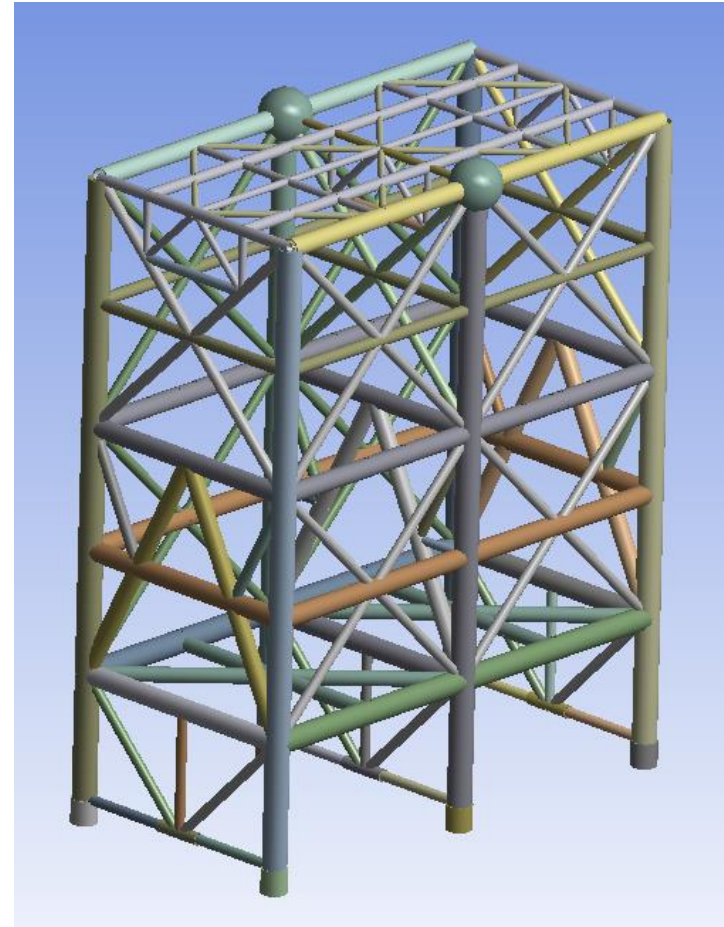
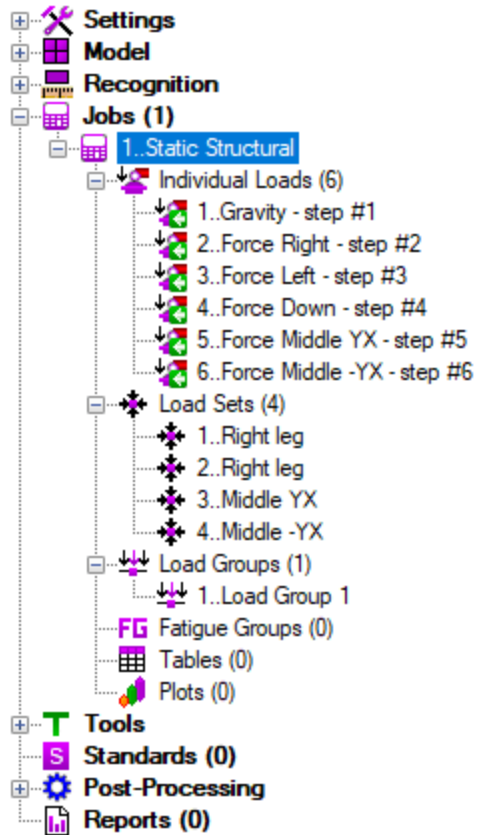
Open in **Ansys Workbench** 
JointCheck.wbpj

2

Double Click on  Model 
or in context menu click *Edit*



Predefined Project

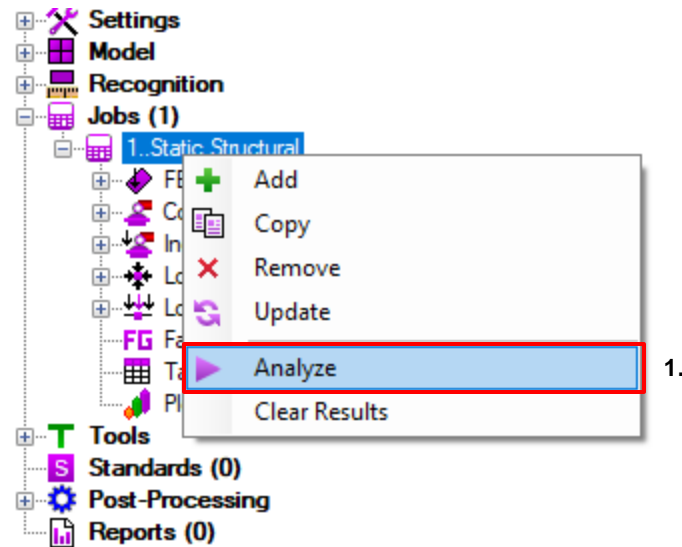


This tutorial uses project with predefined boundary conditions. The model contains only circular tube beams

Analyze Job

1

Execute ► **Analyze** from *Static Structural* context menu



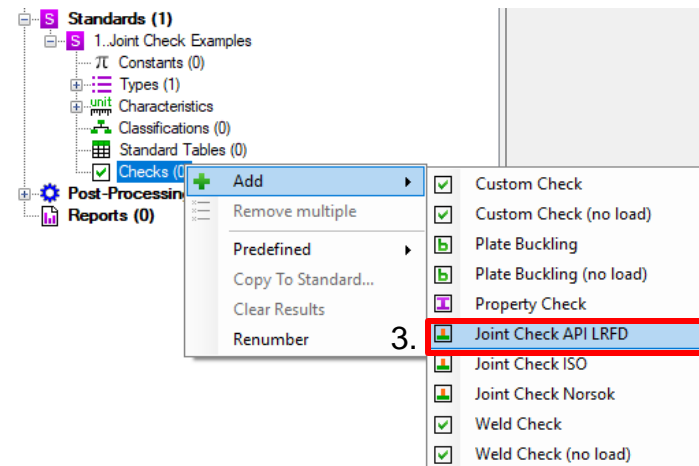
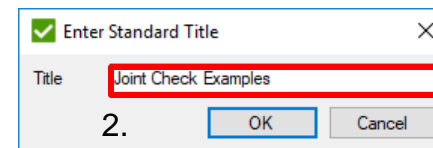
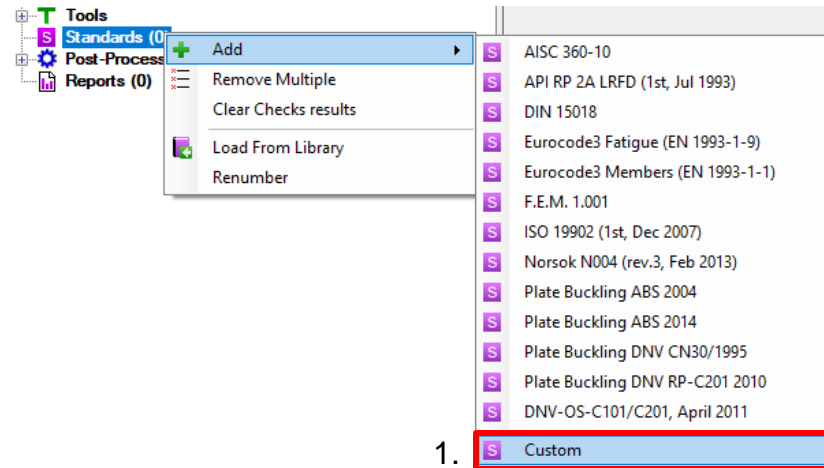
Joint Check API LRFD

1 Execute **Standards->Add->Custom**

2 **Title:** Joint Check Examples. Press *OK*

3 Execute **Checks->Add->Joint Check API LRFD**

Joint Check API LRFD is a part of the standard
API RP 2A LRFD (1st, Jul 1993)



Joint Check Settings

1

Joint nodes to be checked. Part of the model can be checked by selecting required joints.

2

Maximum distance between joint nodes of one connection. Include connections that are formed by multiple joints. Recommended distance is $D/4$. It is possible to set custom distance.

3

Angle between braces treated as in one plane. Braces that are located in different planes of one connection with an angle A to each other will be treat as in-plane connection.

4

Chord maximum curvature angle – defines the maximum allowable straightness of the chord. Default angle is 3 degrees.

5

Forces tolerance. Maximum allowable difference between axial tension and compression forces that are perpendicular to the chord from the one side of the connection. If forces are balanced, all braces are considered to be K joint.

6

Calculate all braces as TY. Ignore all loading conditions and set all brace types to TY if turned on.

7

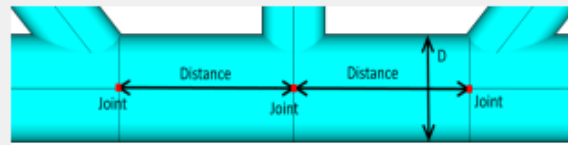
Press *Find Connections* to perform recognition.

Joint Check Settings are common for all available types of joint checks: API, ISO and Norsok.

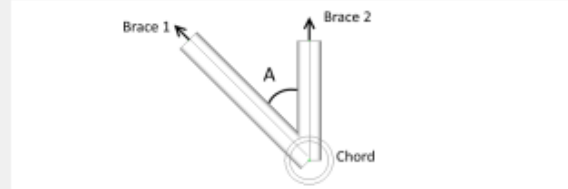
General
ID 2 Title Joint Check 2
Alias Check2
Description

1. Joint nodes to be checked
Selection All Entities

2. Recognition settings
Maximum distance between joint nodes of one connection on the chord:
☒ Use $D/4$ (D - chord diameter)
☐ Custom distance 0.1



3. Angle between braces treated as in one plane. $A = [0 \text{ to } 90]$ 15



4. Chord maximum curvature angle [0 to 15] 3

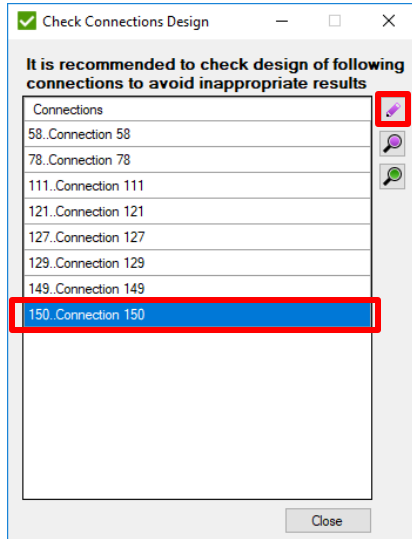
5. Joint type recognition settings
Forces Tolerance, % 1

6. ☐ Calculate all braces as TY

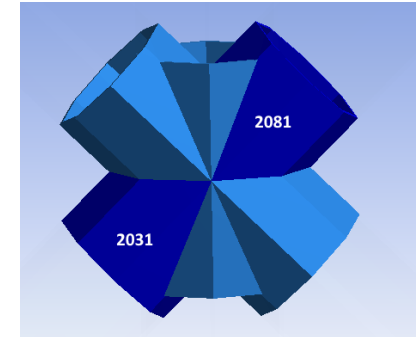
7. Find Connections

Connections design

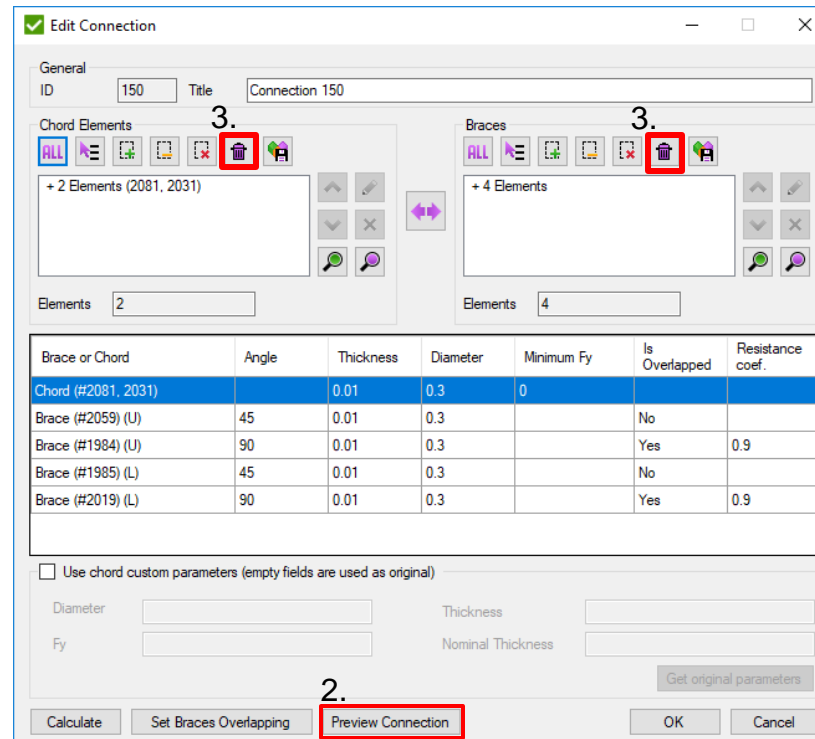
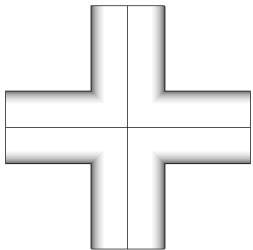
List of connections that are recommended to be checked:



All connections in the list are recommended to be checked as all elements of each connection are of the same diameters and thicknesses. Depending on the welding process it is possible to modify connection and set chord and braces manually.



Two separate connections will be created automatically for cross type of joint with equal dimensions. With chord parallel and perpendicular.



1

Select Connection 150 and press Edit button.

2

Press Preview Connection

3

Press Remove all conditions in chord and braces selection

Connections design

1

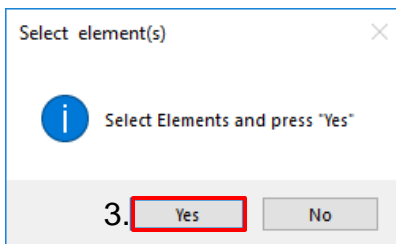
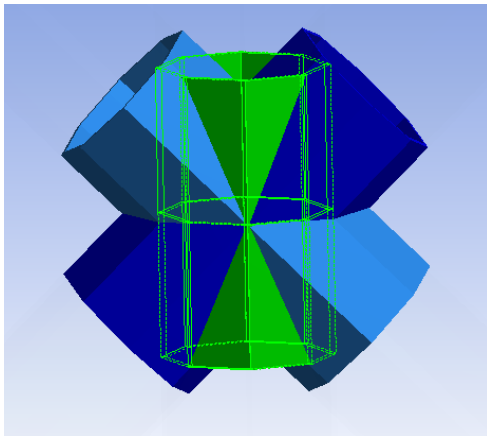
Press *Add entities using Ansys*

2

Select *Mesh elements ID 2510, 2497.*

3

Press Yes



Edit Connection

General
ID: 150 Title: Connection 150

Chord Elements
ALL [Add] [Remove] [Reset] [Apply] [OK] [Cancel]

Braces
ALL [Add] [Remove] [Reset] [Apply] [OK] [Cancel]

Elements: 0

Brace or Chord	Angle	Thickness	Diameter	Minimum Fy	Is Overlapped	Resistance coef.
Chord (#2081, 2031)		0.01	0.3	0		
Brace (#2059) (U)	45	0.01	0.3		No	
Brace (#1984) (U)	90	0.01	0.3		Yes	0.9
Brace (#1985) (L)	45	0.01	0.3		No	
Brace (#2019) (L)	90	0.01	0.3		Yes	0.9

☐ Use chord custom parameters (empty fields are used as original)

Diameter: [] Thickness: []
Fy: [] Nominal Thickness: []

Get original parameters

Calculate Set Braces Overlapping Preview Connection OK Cancel

2.

Entity	Element ID	Element Type	Body	Node ID
2 Mesh Elements, Summary				
Mesh Element 1	2059	Low Order Beam	Beam (Pipe D300x10)	1927
Mesh Element 2	1985	Low Order Beam	Beam (Pipe D300x10)	1847

Connections design

1

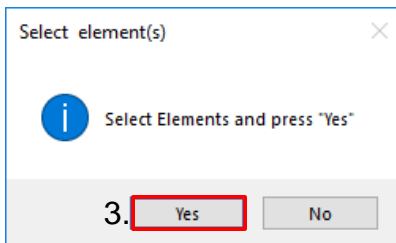
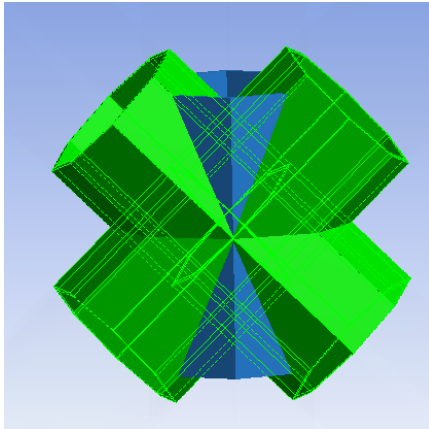
Press *Add entities using Ansys*

2

Select *Mesh elements ID 2526, 2528, 2525, 2527.*

3

Press Yes



Edit Connection

General
ID: 113 Title: Connection 113

Chord Elements
+ 2 Elements (2510, 2497)
Elements: 2

Braces
1.
Elements: 0

Brace or Chord	Angle	Thickness	Diameter	Minimum Fy	Is Overlapped	Resistance coef.
Chord (#2528, 2527)		0.01	0.3	0		
Brace (#2497) (U)	44.99998	0.01	0.3		No	
Brace (#2526) (U)	89.99998	0.01	0.3		Yes	0.9
Brace (#2510) (L)	44.99998	0.01	0.3		No	
Brace (#2525) (L)	89.99994	0.01	0.3		Yes	0.9

☐ Use chord custom parameters (empty fields are used as original)

Diameter: Thickness:
Fy: Nominal Thickness:

Get original parameters

Calculate Set Braces Overlapping Preview Connection OK Cancel

2

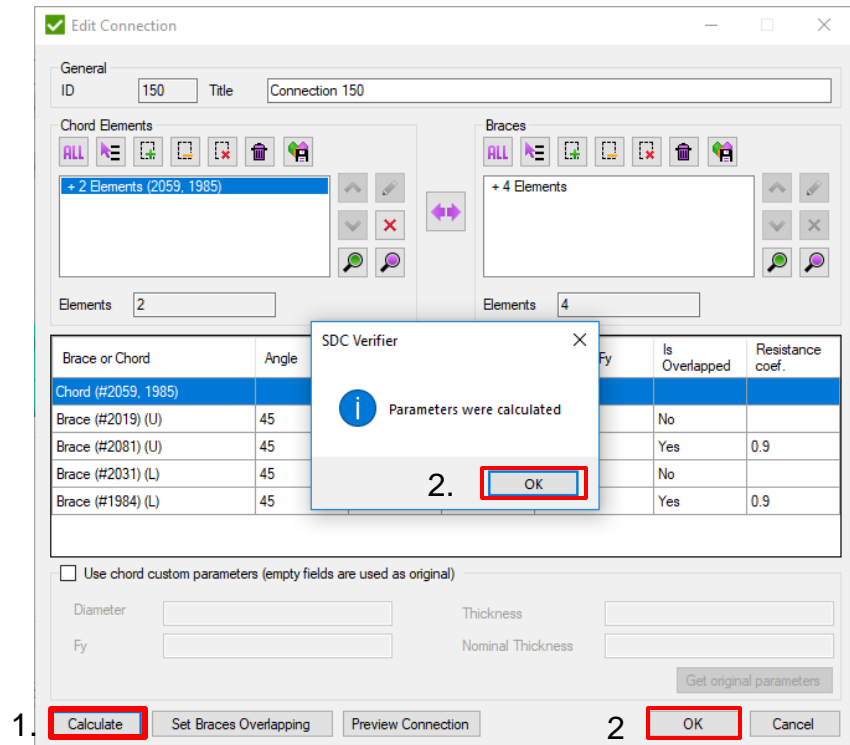
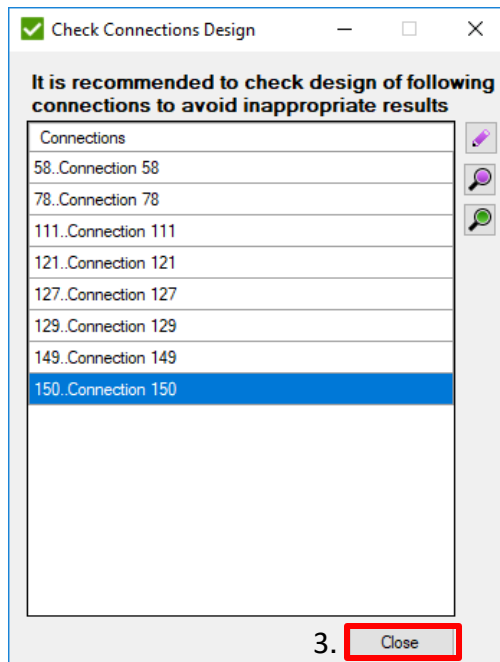
Entity	Element ID	Element Type	Body	Node ID
4 Mesh Elements, Summary				
Mesh Element 1	2081	Low Order Beam	Beam (Pipe D300x10)	1947
Mesh Element 2	2031	Low Order Beam	Beam (Pipe D300x10)	1847
Mesh Element 3	1984	Low Order Beam	Beam (Pipe D300x10)	1858
Mesh Element 4	2019	Low Order Beam	Beam (Pipe D300x10)	1847

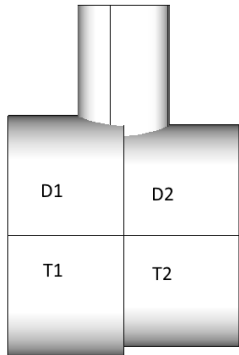
Connections design

1 Press *Calculate*

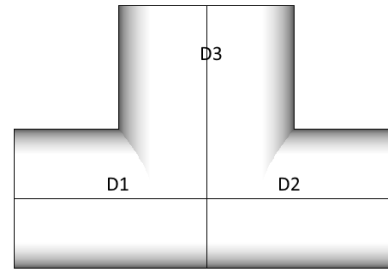
2 Select *Ok* twice.

3 Press *Close*

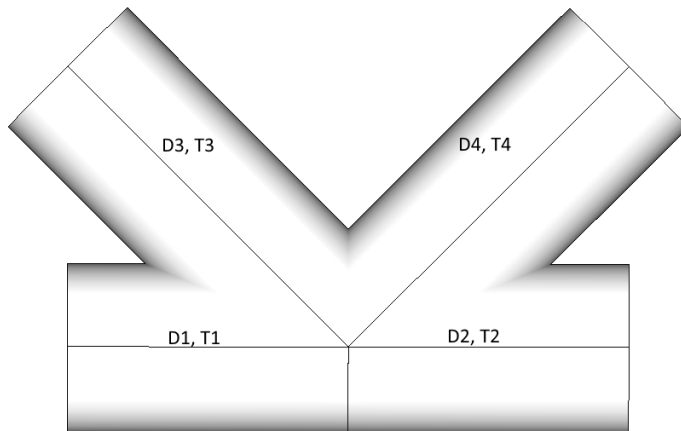




When Chord is formed by elements with different properties around the joint node and $D1 \neq D2$, $D = \min(D1, D2)$; $T = \min(T1, T2)$ are considered for calculations.



$D1 = D2$, $D1 < D3$. For such case $D3$ is recognized as chord as it has bigger diameter. Naturally pipe of bigger diameter cannot be welded to smaller. Such connections are recommended to be checked.



$D1 = D2 = D3 = D4$;

$T1 = T2 = T3$; $T4 > T1$;

When all diameters of connection are equal, thicknesses are compared. Element with thickness = $T4$ is recognized as chord.

In case when:

$D1 = D2 = D3 = D4$;

$T1 = T2 = T3 = T4$;

When all elements of connection are of the same dimensions, chord is recognized as pair of elements that form straight line. If any pair that match condition is found, random element will be recognized as chord.

In both cases such types of connections are recommended to be checked.

Joint Check API LRFD

Navigation. Fill *Connection ID* and Press *Navigate* to find connection in the table

Connection info. Chord, Braces and their properties

Add, Edit, Preview and Remove selected connections.

Joint Check

General
ID: 1 Title: Joint Check 1
Alias: Check1
Description:

Navigation
Connection ID: 23

Joint nodes to be checked
Selection: All Entities

Recognition settings
Maximum distance between joint nodes of one connection on the chord:
☒ Use D/4 (D - chord diameter) 0.1
☐ Custom distance

Angle between braces treated as in one plane. $A = [0 \text{ to } 90]$ 15

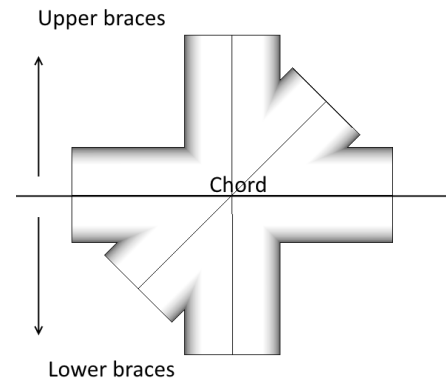
Chord maximum curvature angle [0 to 15] 3

Joint type recognition settings
Forces Tolerance, % 1
☐ Calculate all braces as TY

ID	Title	Brace or Chord	Angle	Thickness	Diameter	T > t	Is Overlapped	Resistance coef.
23	Connection 23	Chord (#1777, 1776)		0.02	0.252			
		Brace (#1772) (U)	44.999759	0.01	0.2	Yes	No	
		Brace (#1775) (U)	44.999759	0.01	0.2	Yes	Yes	0.9
		Brace (#1774) (L)	44.999759	0.01	0.2	Yes	No	
		Brace (#1773) (L)	44.999759	0.01	0.2	Yes	Yes	0.9
24	Connection 24	Chord (#1784, 1780)		0.02	0.252			
		Brace (#1779) (U)	44.999742	0.012	0.22	Yes	No	
		Brace (#1778) (U)	44.999742	0.012	0.22	Yes	Yes	0.9
		Brace (#1783) (L)	44.999759	0.012	0.22	Yes	No	
		Brace (#1782) (L)	44.999759	0.012	0.22	Yes	Yes	0.9
25	Connection 25	Chord (#1822, 1819)		0.02	0.252			
		Brace (#1821) (U)	44.999759	0.01	0.2	Yes	No	
		Brace (#1820) (U)	44.999759	0.01	0.2	Yes	Yes	0.9
		Brace (#1823) (L)	44.999759	0.01	0.2	Yes	No	
		Brace (#1824) (L)	44.999759	0.01	0.2	Yes	Yes	0.9
26	Connection 26	Chord (#1959, 1974)		0.03	0.48			
		Brace (#1890) (U)	90	0.02	0.252	Yes	No	
27	Connection 27	Chord (#1959, 1974)		0.03	0.48			
		Brace (#1897) (U)	90	0.02	0.252	Yes	No	
28	Connection 28	Chord (#994, 1009)		0.03	0.48			
		Brace (#1891) (U)	90	0.02	0.252	Yes	No	
29	Connection 29	Chord (#994, 1009)		0.03	0.48			

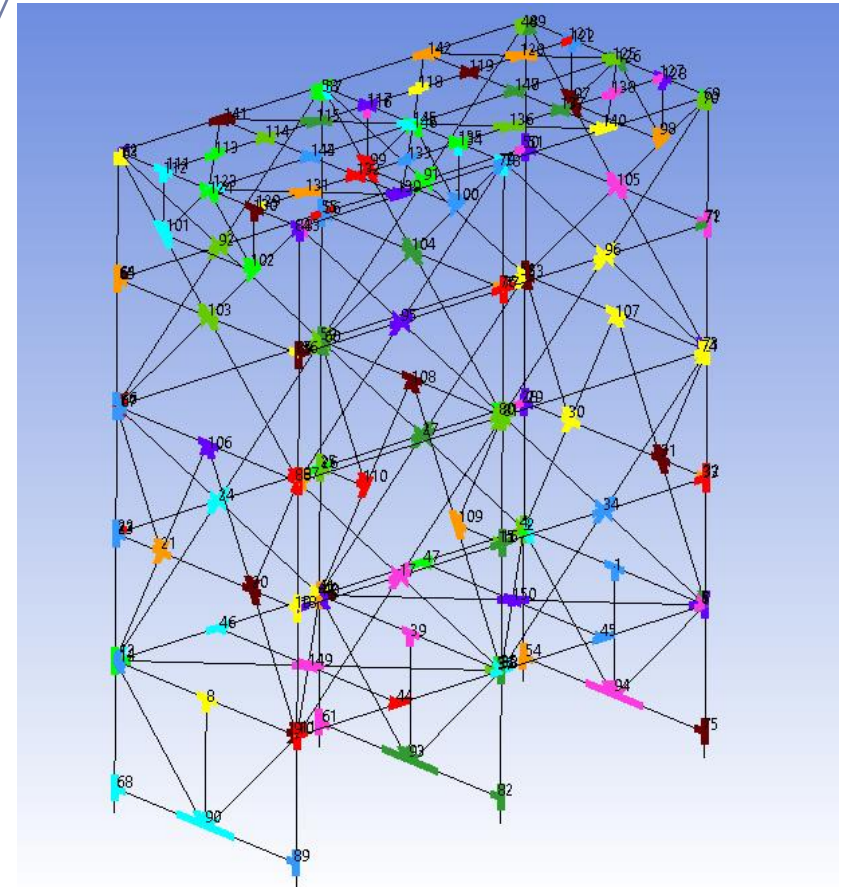
Find Connections Clear Results Set Resistance Coefficients Overall table Set brace load transfer OK Cancel

Selection and recognition settings



#1777,1776 – IDs of related elements in the model.
(U) – Upper (0°-180°) braces
(L) – Lower (180°-360°) braces

Select all connections in the list (Ctrl + A) and press *Plot* to display all connections with labels of IDs.

[illegible]

Joint Check API LRFD

Resistance coefficient depends on the strength of welding and is used in calculations of overlapping (Section E.3.2 API 2A RP LRFD). **Table J 2.5** is taken from **Load and resistance factor design specification for structural steel buildings December, 27 1999 (AISC)**. Default value is 0.9. It can be applied to overlapped braces

TABLE J2.5
Design Strength of Welds

Types of Weld and Stress [a]	Material	Resistance Factor ϕ	Nominal Strength F_{BM} or F_w	Filler Metal Requirements [b, c]
Complete-Joint-Penetration Groove Weld				
Tension normal to effective area	Base	0.90	F_y	Matching filler metal shall be used. For CVN requirements see footnote [d].
Compression normal to effective area	Base	0.90	F_y	
Tension or compression parallel to axis of weld				
Shear on effective area	Base Weld	0.90 0.80	$0.60F_y$ $0.60F_{EXX}$	
Partial-Joint-Penetration Groove Weld				
Compression normal to effective area	Base	0.90	F_y	Filler metal with a strength level equal to or less than matching filler metal is permitted to be used.
Tension or compression parallel to axis of weld [e]				
Shear parallel to axis of weld	Base Weld	$\left[\frac{f}{0.75}\right]$	$0.60F_{EXX}$	
Tension normal to effective area	Base Weld	0.90 0.80	F_y $0.60F_{EXX}$	
Fillet Welds				
Shear on effective area	Base Weld	$\left[\frac{f}{0.75}\right]$	$\left[\frac{f}{0.60F_{EXX}}\right]$ [g]	Filler metal with a strength level equal to or less than matching filler metal is permitted to be used.
Tension or compression parallel to axis of weld [e]	Base	0.90	F_y	
Plug or Slot Welds				
Shear parallel to faying surfaces (on effective area)	Base Weld	$\left[\frac{f}{0.75}\right]$	$0.60F_{EXX}$	Filler metal with a strength level equal to or less than matching filler metal is permitted to be used.

1.

2.

It is possible to set overlapped braces and their resistance coef. manually in 1.Edit Connection -> 2.Set Braces Overlapping. Alternatively set coefficients to multiple connections by pressing **Set Resistance Coefficients** button:

Joint Check API LRFD

Load transfer has an influence on a chord stability. Axial branch capacity is calculated using Can and Nominal chord element parameters (**Section E.3.4 API 2A RP LRFD**)

E.3.4 Load Transfer Across Chords. Cross joints, launch leg joints, and other joints in which load is transferred across the chord should be designed to resist general collapse. However, for such joints reinforced only by a joint can having increased thickness T_c and length L (for cases where joint cans are centered on the brace of interest L is defined as shown in Figure E.3-6a) and having brace chord diameter ratio less than 0.9, the allowable axial branch load shall be taken as:

$$P = P(1) + \frac{L}{2.5D} [P(2) - P(1)] \quad \text{for } L < 2.5D \quad (\text{E.3.4-1a})$$

$$P = P(2) \quad \text{for } L > 2.5D \quad (\text{E.3.4-1b})$$

where:

$P(1) = P_a$ from Equation E.3.1-4a using the nominal chord member thickness

$P(2) = P_a$ from Equation E.3.1-4a using thickness T_c

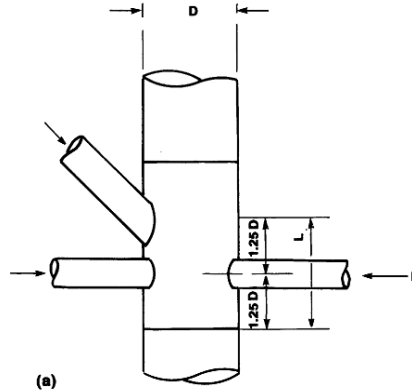
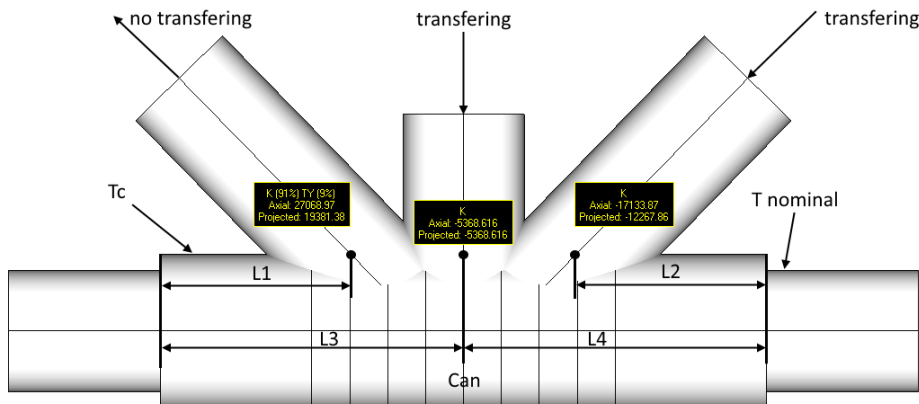


FIG. E.3-6
DEFINITION OF EFFECTIVE CORD LENGTH



Effective length is calculated for each brace separately. It is the minimum distance from the end of the can till the point of intersection of chord and brace multiplied on 2. $L1, L2 \leq 1.25D$. If $L1$ and $L2$ exceed $1.25D$ distance, can will not be recognized.

$T_c \geq T$ nominal.

$L = 2 * L1 = 0.6293$ – effective length for the left brace

$L = 2 * L3 = 2 * L4 = 1$ – effective length for the middle brace

$L = 2 * L2 = 0.6293$ – effective length for the right brace

T nominal = 0.01; $T_c = 0.02$;

It is possible to set load transfer and effective length manually by pressing *Set brace load transfer* button.

Set Resistance Coefficients

Overall table

Set brace load transfer

☒ Set braces load transfer

Connection ID	Brace #	Is Load Transfer	Effective Length
7	#01(Elem ID = 2543)	Yes	0.62932
	#11(Elem ID = 2427)	Yes	1
	#21(Elem ID = 2564)	Yes	0.62932
19	#01(Elem ID = 2541)	Yes	0.62932
	#11(Elem ID = 2425)	Yes	1
	#21(Elem ID = 2554)	Yes	0.62932
20	#01(Elem ID = 2442)	Yes	0.273172
21	#01(Elem ID = 2426)	Yes	1
22	#01(Elem ID = 2422)	Yes	0.273172

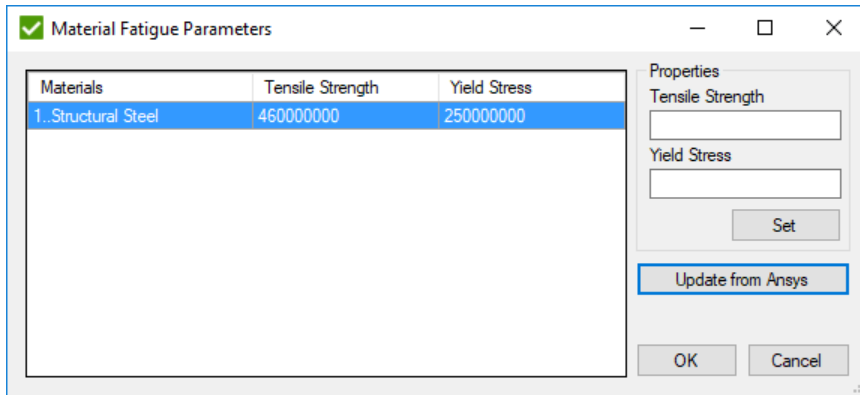
Is Load Transfer: Yes

Effective Length:

Material Properties

All results are based on material fatigue parameters Tensile Strength and Yield Stress. Parameters are used to define allowable static stress of material. **Sallowable = Min(Yield Stress, Tensile Strength * 2 / 3)**. For ISO and Norsok joint checks: **Sallowable = Min(Yield Stress, Tensile Strength * 0.8)**.

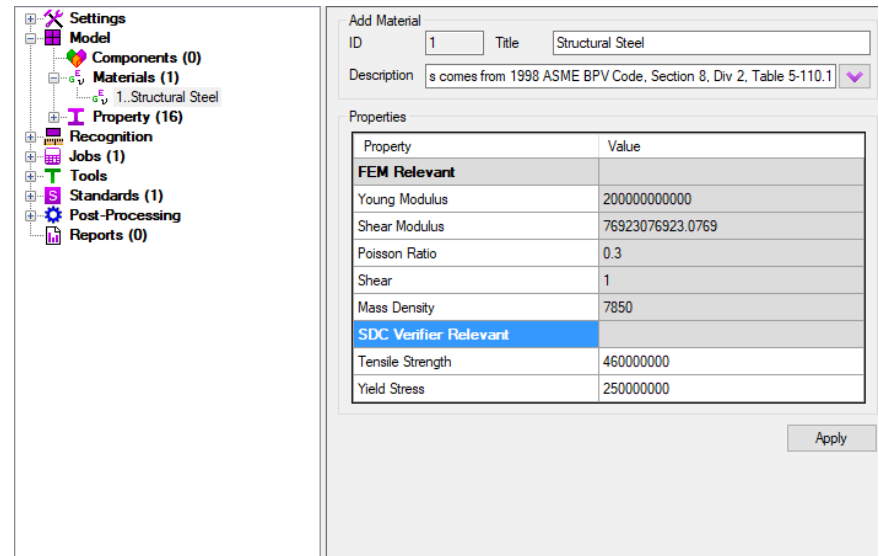
If material parameters are not set, window will be displayed before calculating results:



Set values for Tensile and Yield and press *Set* to selected materials.

Press OK to apply changes and continue calculations, Cancel to discard.

Alternatively it is possible to set values for selected materials in the Main Window. Select material, fill parameters and press Apply.



Joint Check Expand Table

1. Press *Add Expand table*. Detailed table of results for each brace

2. *Selected Load: Load Group'1..Load Group 1'*

3. *Show only joints that fail : ON*
Sort by parameter : Overall Utilization Factor

4. Press *Fill Table*

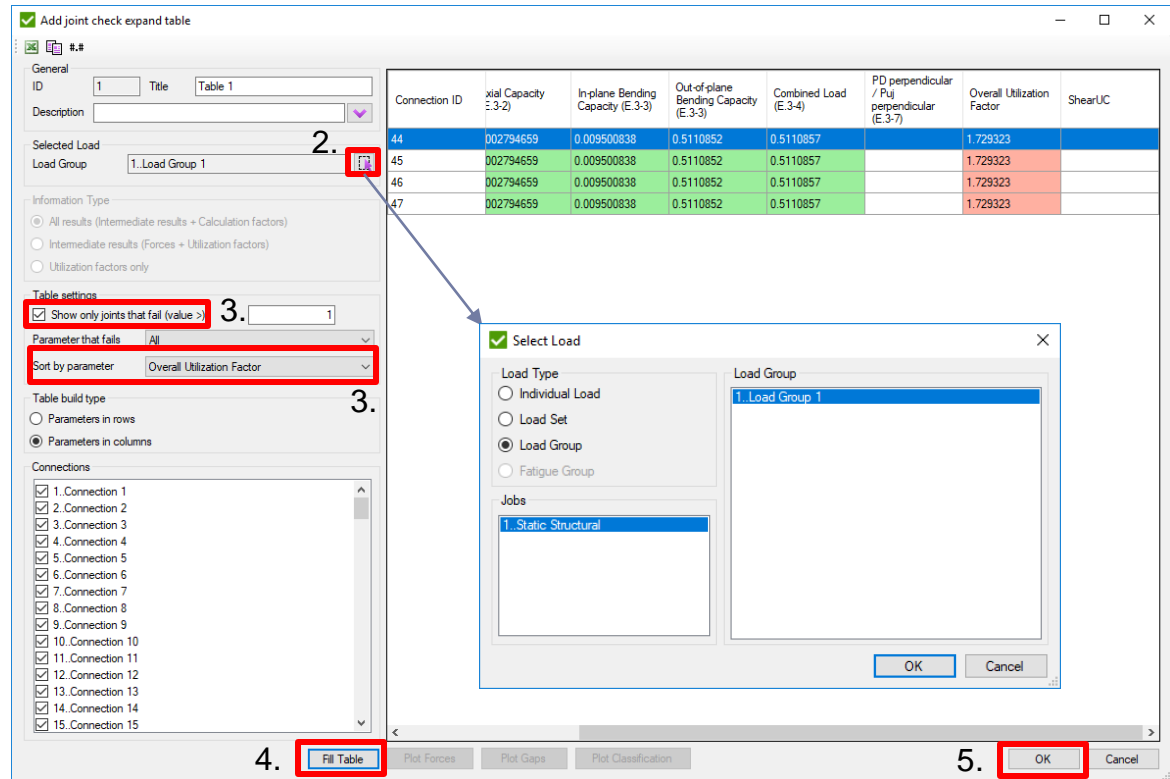
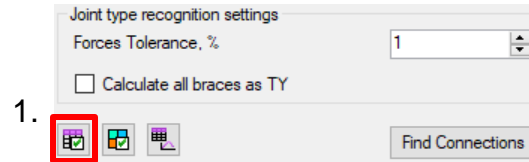
5. Press *OK*

Table build type allows to fill parameters in columns and connections in rows and vice versa. *Parameters in rows* can be used for a single connection for example.

Plot Forces – plot original, transformed axial forces and brace joint types

Plot Gaps – plot gaps if there is more than one brace in connection

Plot Classification – plot brace joint types



Brace Joint Type

Joint classification as K, T & Y, or cross (X) should apply to individual braces according to their load pattern for each load case. To be considered a K-joint, the punching load in a brace should be essentially balanced by loads on other braces in the same plane on the same side of the joint. In T and Y joints the punching load is reacted as beam shear in the chord. In cross joints the punching load is carried through the chord to braces on the opposite side. For braces that carry part of their load as K-joints, and part as T & Y or cross joints interpolate based on the portion of each in total. Examples are shown in Figure E.3-2. See Commentary on Joint Classifications.

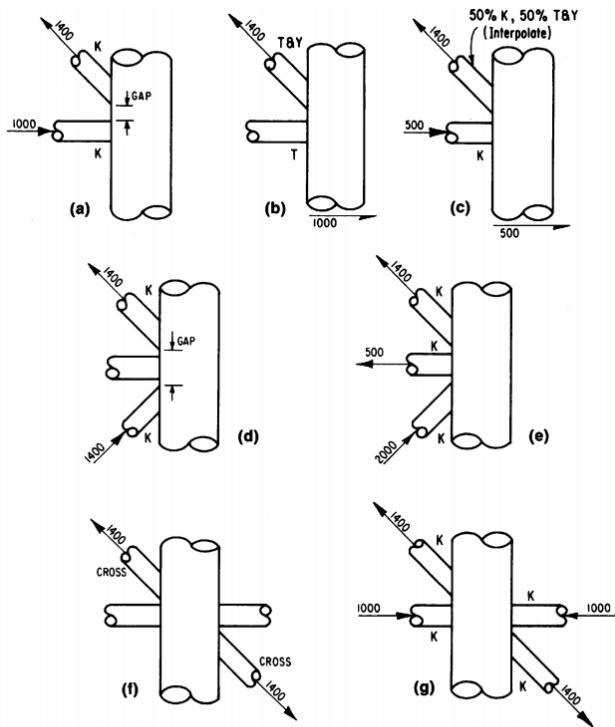


FIG. E.3-2
EXAMPLES OF JOINT CLASSIFICATION

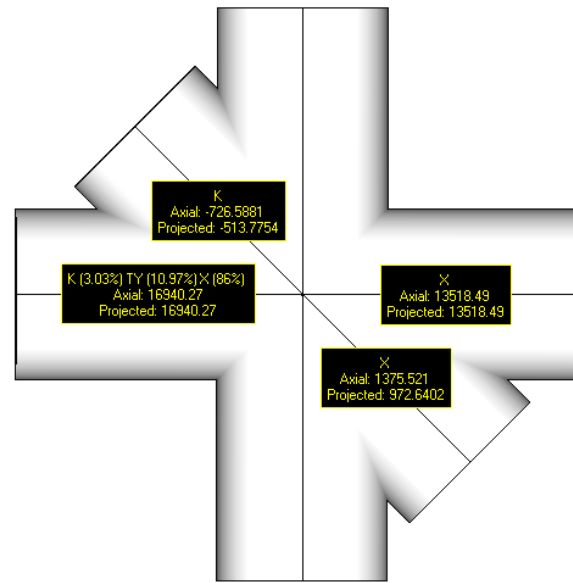
Joint type is based on type of loading. By checking if forces of connection are balanced joint types are classified on K, TY and X (Cross).

K – tension and compression loads are balanced.

TY – tension or compression load goes as shear force in a chord.

X (Cross) – Connection has to contain braces from the both sides to check on cross joint. If balanced forces of all braces of one side and balanced forces of all braces of other side are equal then all braces are classified as X (Cross).

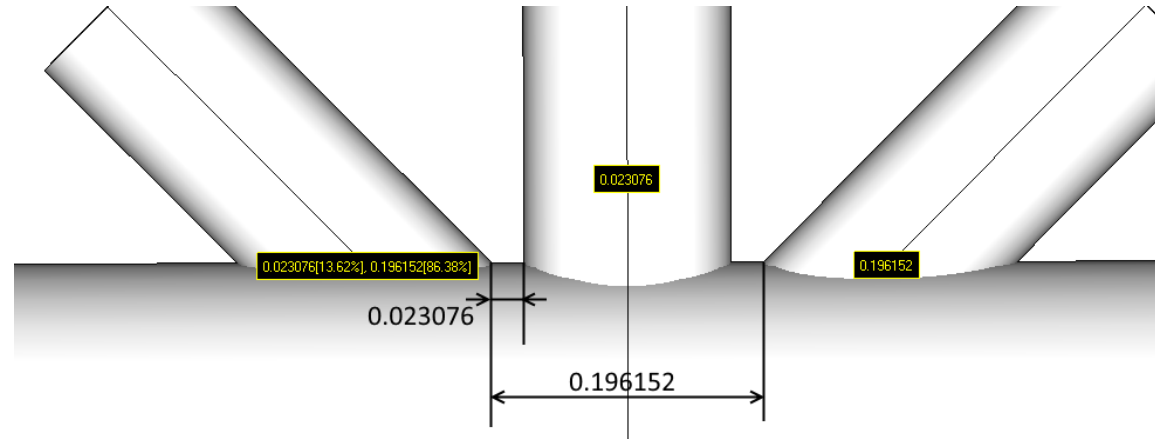
Interpolation – the order of joint type recognition is following: K -> X (Cross) -> TY. Each brace can have all 3 types of joint type taken as percentage of axial load of brace to summation of all braces loads.



Projected – axial force that is perpendicular to the chord.

If Projected = 0 – brace type is set to TY.

If percentage is not mentioned 100% is taken for the type.



Gap is the distance between two differently loaded braces (tension and compression) on a shell of a chord.

Depending on load it is possible that brace can have two or more gaps to consider. Each gap percentage depends on the percentage of taken load:

$$percentage = \begin{cases} \frac{projected}{F_{Compression}}, & projected < 0 \\ \frac{projected}{F_{Tension}}, & projected \geq 0 \end{cases}$$

Projected – axial force of the brace, perpendicular to the chord;

F_{Tension} – sum of all positive projected axial forces;

F_{Compression} – sum of all negative projected forces;

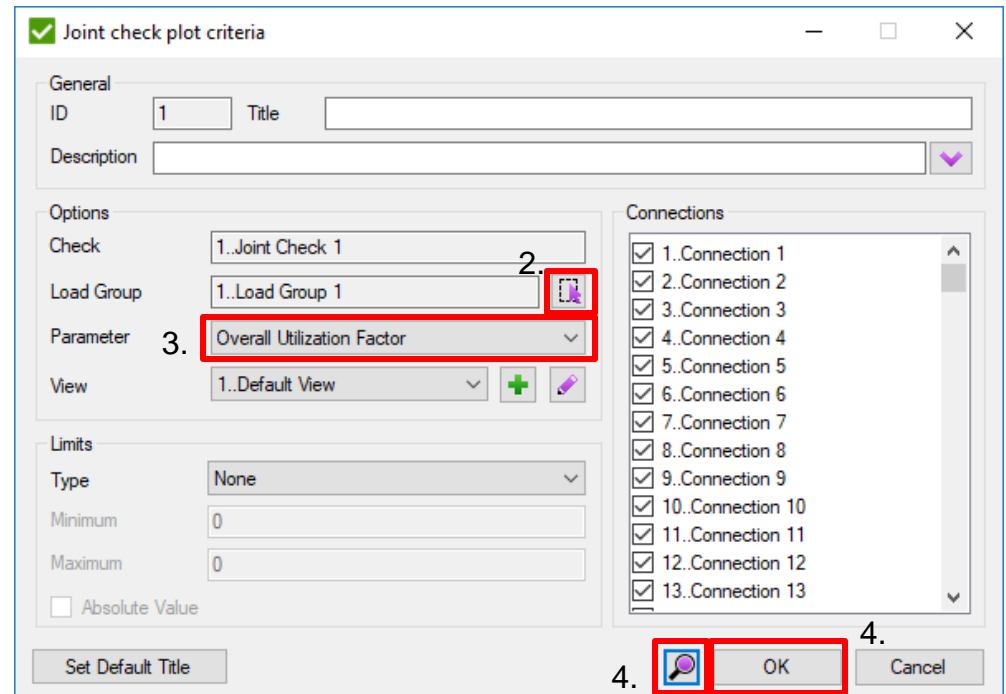
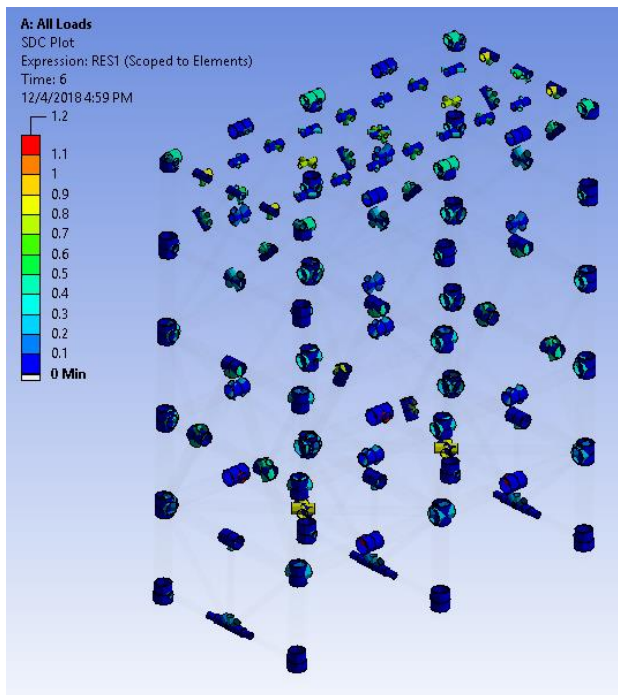
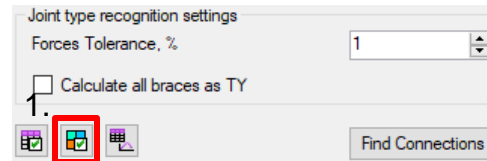
Joint Check Criteria Plot

1 Press *Add Criteria plot*

2 Select Load: **Load Group'1..Load Group 1'**

3 Parameter : **Overall Utilization Factor**

4 Press . Press **OK**



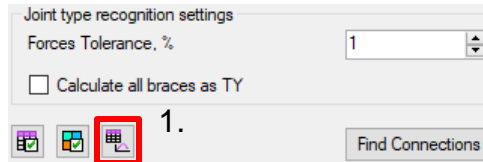
Joint Check Expand Flow Table

1 Press Add Expand Flow Table

2 Select all Load Sets

3 Press Fill Table

4 Press OK



Expand Flow table is used to display multiple load results at once for each selected connection

Skip rows without maximum – for the single connection if load does not cause extreme values on any parameter it will not be displayed.

It is possible to display only **Load Results**, only **Min/Max** results or both

Joint Check Expand Flow Table

General

ID: 2 Title: Expand Flow Table 2

Description:

Loads

Count: 4

Display Options

☐ Show Load Results ☒ Skip rows without maximum

☐ Show Min/Max

☒ Show Load Results And Min/Max

Connections

1. Connection 1

2. Connection 2

3. Connection 3

4. Connection 4

5. Connection 5

6. Connection 6

7. Connection 7

8. Connection 8

9. Connection 9

10. Connection 10

11. Connection 11

12. Connection 12

13. Connection 13

14. Connection 14

Connection ID, Brace #	Load	Effective Strength (E.3-1)	Axial Capacity (E.3-2)	In-plane Bending Capacity (E.3-3)	Out-of-plane Bending Capacity (E.3-3)	Combined Load (E.3-4)	PD perpendicular / P _u perpendicular (E.3-7)	Overall Utilization Factor
1.1 (Id=1045)	TY	0.40	0.00	0.00	0.01	0.01		0.40
	LS2	0.40	0.00	0.00	0.01	0.01		0.40
	LS4	0.40	0.00	0.01	0.00	0.01		0.40
	Min	0.40	0.00	0.00	0.00	0.01		0.40
	Max	0.40	0.00	0.01	0.01	0.01		0.40
2.1 (Id=1361)	K	0.11	0.00	0.00	0.01	0.01	0.00	0.11
	LS2	0.11	0.00	0.00	0.01	0.01	0.00	0.11
	LS3	0.11	0.01	0.00	0.00	0.00	-0.01	0.11
	LS4	0.11	0.00	0.00	0.00	0.00	0.00	0.11
	Min	0.11	0.00	0.00	0.00	0.00	-0.01	0.11
	Max	0.11	0.01	0.00	0.01	0.01	0.00	0.11
2.2 (Id=9)	K (26.95%) TY (7...	0.40	0.01	0.00	0.00	0.00		0.40
	K (42.93%) TY (5...	0.40	0.00	0.00	0.00	0.00		0.40
	K (84.05%) TY (1...	0.40	0.00	0.01	0.00	0.01		0.40
	LS4	0.40	0.00	0.00	0.00	0.01		0.40
	Min	0.40	0.00	0.00	0.00	0.00		0.40
	Max	0.40	0.01	0.01	0.00	0.01		0.40
2.3 (Id=736)	K (26.96%) TY (7...	0.13	0.00	0.00	0.00	0.00	0.00	0.13
	K (84.03%) TY (1...	0.13	0.01	0.00	0.00	0.00	0.02	0.13

Previous Loads: LS: 4;

All Loads

All Individual Loads

All Load Sets

All Load Groups

All Fatigue Groups

Recent Loads

Fill Table

OK

Cancel

Joint Check ISO

Joint Check ISO interface is similar to Joint Check API.

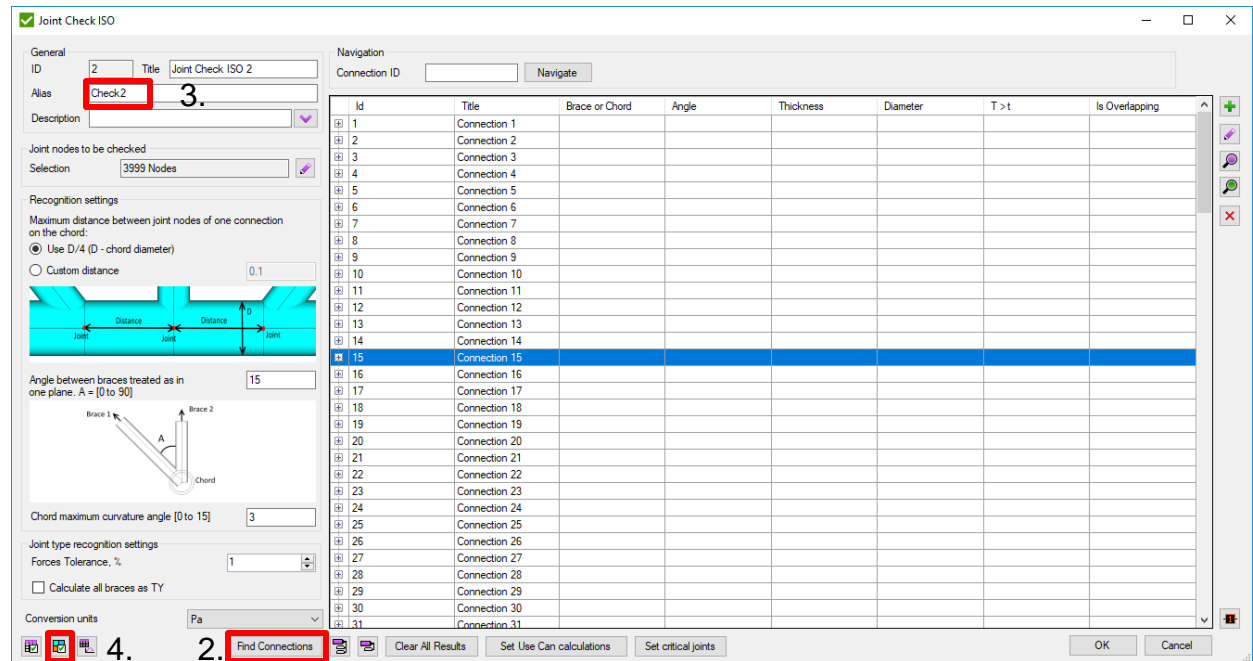
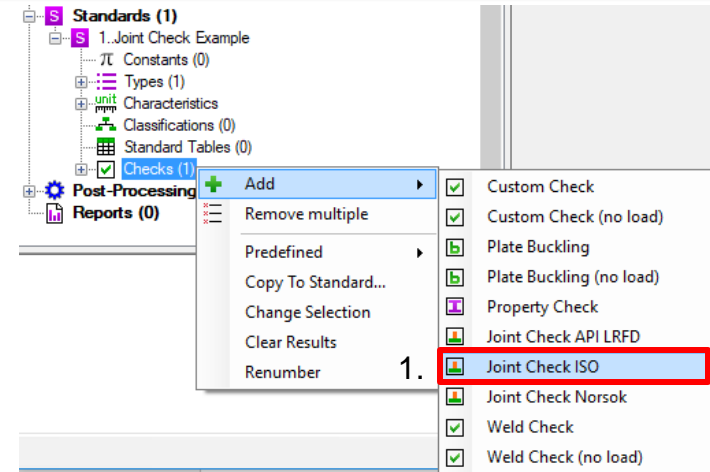
1 Execute **Checks->Add->Joint Check ISO**

2 Press *Find Connections*

3 Alias: **Check2**

4 Press *Add Criteria plot*

Joint Check ISO is a part of the standard ISO 19902 (first edition, published 12 DEC 2007)

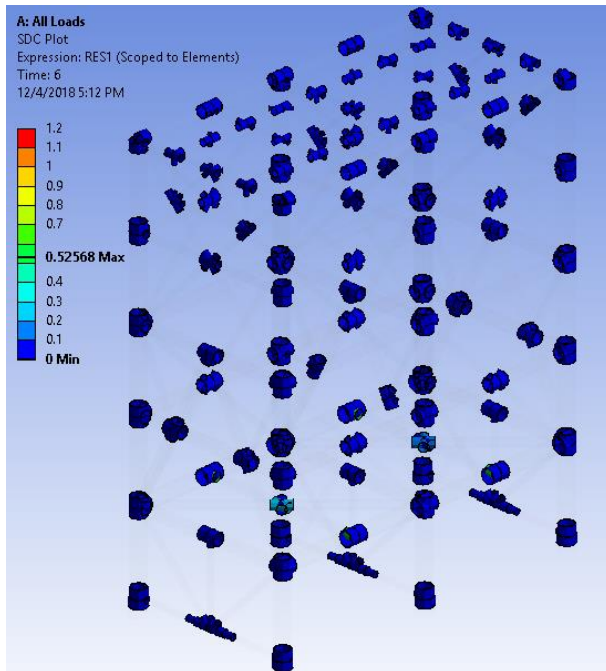


Joint Check ISO

1 Select Load: Load Group '1..Load Group 1'

2 Parameter : Overall Utilization Factor

3 Press . Press OK




Joint check plot criteria

General
ID 1 Title
Description

Options
Check 2..Joint Check ISO 2 1.
Load Group 1..Load Group 1
Parameter 2. Overall Utilization Factor
View 1..Default View

Limits
Type None
Minimum 0
Maximum 0
☐ Absolute Value

Connections
☒ 1..Connection 1
☒ 2..Connection 2
☒ 3..Connection 3
☒ 4..Connection 4
☒ 5..Connection 5
☒ 6..Connection 6
☒ 7..Connection 7
☒ 8..Connection 8
☒ 9..Connection 9
☒ 10..Connection 10
☒ 11..Connection 11
☒ 12..Connection 12
☒ 13..Connection 13

3.  4. OK Cancel

Joint Check Norsok

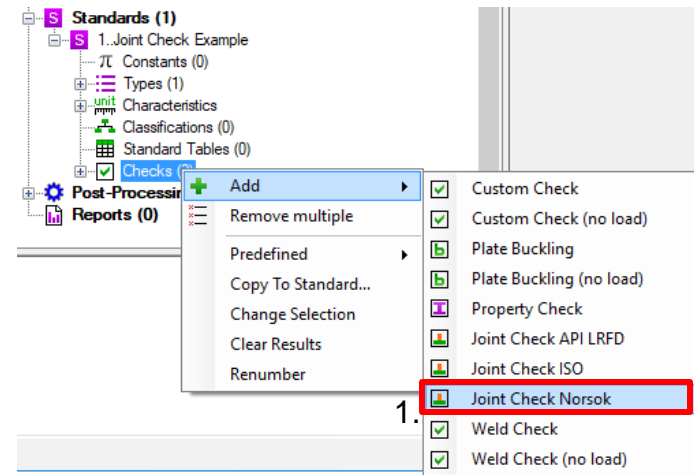
Joint Check Norsok interface is similar to Joint Check API

1 Execute **Checks->Add->Joint Check Norsok**

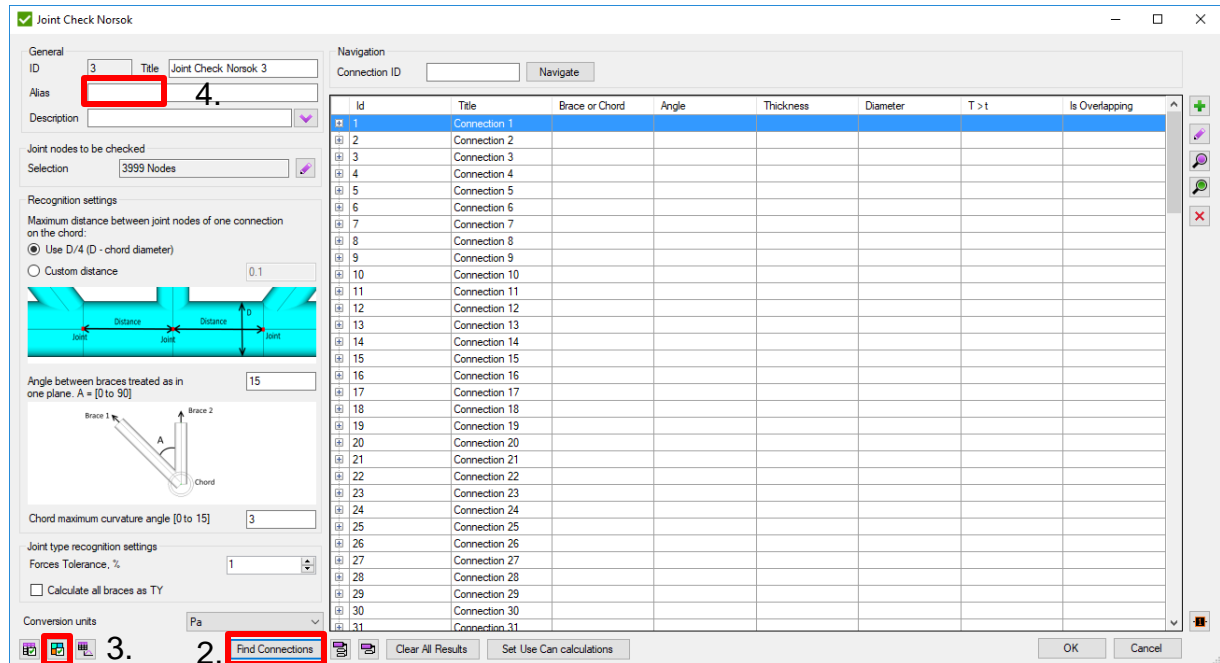
2 Press *Find Connections*

3 Alias: **Check3**

4 Create *Criteria plot* for Load Set '1..All Steps'



Joint Check Norsok is a part of the standard Norsok N004 (Rev. 3, February 2013)

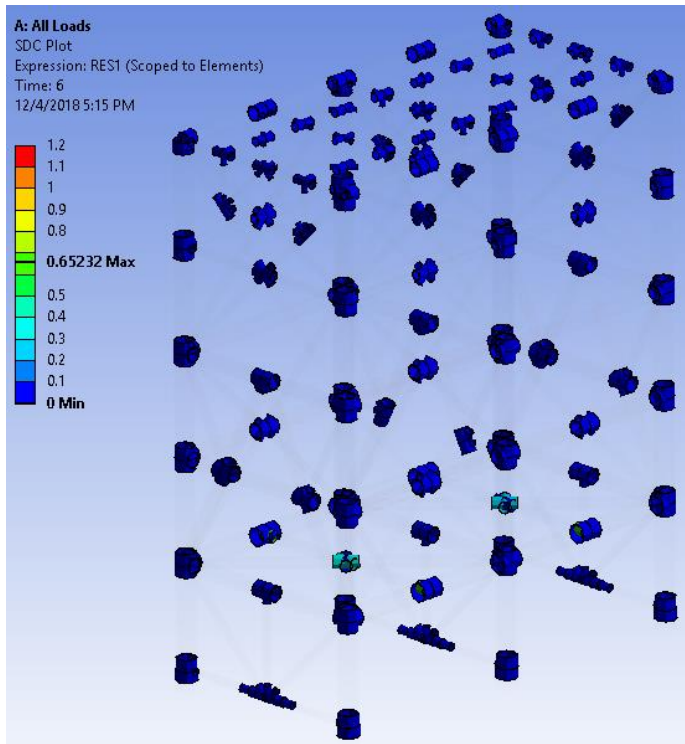


Joint Check Norsok

1 Select Load: Load Group '1..Load Group 1'

2 Parameter : Overall Utilization Factor

3 Press Preview plot. Press OK



Joint check plot criteria

General

ID 1 Title

Description

Options

Check 3..Joint Check Norsok 3 1.

Load Group 1..Load Group 1

Parameter 2. Overall Utilization Factor

View 1..Default View

Limits

Type None

Minimum 0

Maximum 0

☐ Absolute Value

Connections

- ☒ 1..Connection 1
- ☒ 2..Connection 2
- ☒ 3..Connection 3
- ☒ 4..Connection 4
- ☒ 5..Connection 5
- ☒ 6..Connection 6
- ☒ 7..Connection 7
- ☒ 8..Connection 8
- ☒ 9..Connection 9
- ☒ 10..Connection 10
- ☒ 11..Connection 11
- ☒ 12..Connection 12
- ☒ 13..Connection 13

Set Default Title

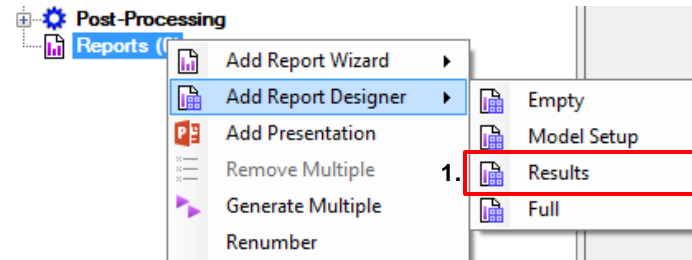
3. 4. OK Cancel

1

Execute *Add Report Designer* =>
Results from *Report* context menu.

2

Exclude Tables in the Joint Check
API



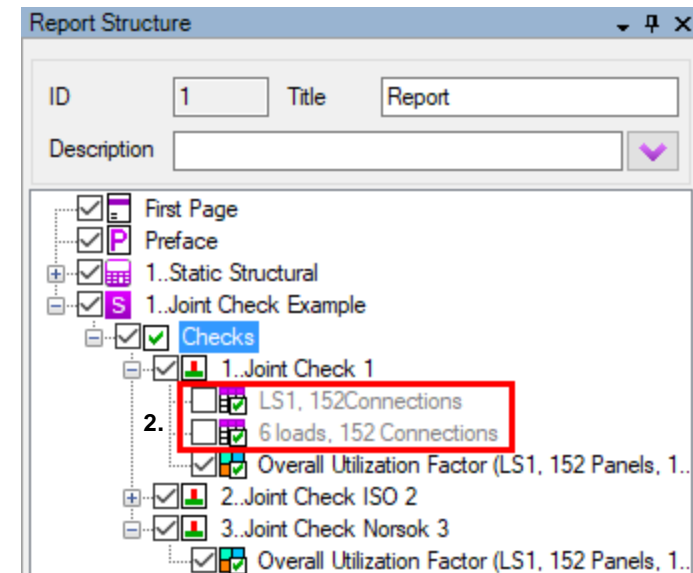
There are 4 templates of the reports:

Empty – only first page and preface items are included;

Model Setup – description of the model data (materials, properties, components, boundary conditions) is included;

Results – for each load extreme displacement tables, stress and displacement plots are included. Predefined tables: sum of reaction forces, stresses/displacements summary tables. In addition all standards are included with a set of tables/plots created in the project;

Full – Model Setup + Results + all tables/plots created in jobs.

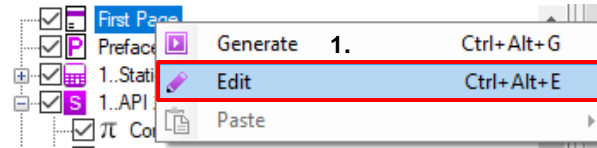


Report. First Page


1 Right click on *First Page* => *Edit*.

2 Fill in information about project.


3 Press *OK*.

A screenshot of the 'First Page Editor' dialog box. The dialog is divided into several sections: 'Engineer details', 'Customer details', 'Project Details', and 'Image'. The 'Engineer details' section contains fields for Engineer (Support), Company (SDC Verifier), E-mail (support@sdcverifier.com), Phone (+31 15 30-10-310), Address (Zijlvest 25 [...]), Web Site (sdcverifier.com), and a Logo field showing the SDC Verifier logo. The 'Customer details' section contains fields for Contact Person (customer), Company (company), E-mail (customer@company.com), Phone (+31 15 555-55-55), Address (Zijlvest 25 [...]), Web Site (company.com), and a Logo field showing the word 'Company'. The 'Project Details' section contains fields for Number and Version (1), and a Name field. The 'Image' section has two options: 'From file' (selected) and 'From View' (1..Default View). At the bottom right, there are 'OK' and 'Cancel' buttons, with the 'OK' button highlighted by a red box and the number '3.' next to it.

Report exported to Microsoft Word

Press  to generate complete report.



Press  to export to Word.

Report



Prepared by:
SDC Verifier
+31 15 30-10-310
sdoverifier.com
Zijlvest 25
2011 VB Haarlem
The Netherlands

Prepared for:
company
+31 15 555-55-55
company.com
Zijlvest 25
2011 VB Haarlem
The Netherlands

Engineer:
Customer:
Project Number:
Version:
Date:

Support
company
1
15/02/2018

First page

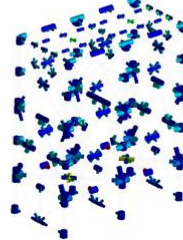
1..Joint Check 1

15/02/2018

Page 3 of 5

Value
152
1
0.1
15

Factor (LS1, 152 Connections, 1..Default View)



1..Joint Check 1	Load Set	LS1..All Steps
Overall Utilization Factor	Connections	152

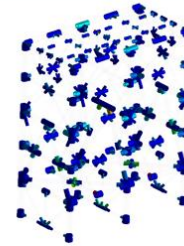
2..Joint Check ISO 2

15/02/2018

Page 4 of 5

Value
152
1
0.1
15

Factor (LS1, 152 Connections, 1..Default View)



2..Joint Check ISO 2	Load Set	LS1..All Steps
Overall Utilization Factor	Connections	152

Joint Check ISO

Joint Check API

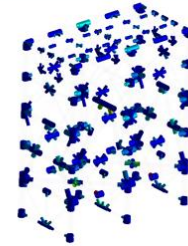
3..Joint Check Norsok 3

15/02/2018

Page 5 of 5

Value
152
1
0.1
15

Factor (LS1, 152 Connections, 1..Default View)



3..Joint Check Norsok 3	Load Set	LS1..All Steps
Overall Utilization Factor	Connections	152

Joint Check Norsok

Prepared By SDC Verifier

Prepared For Company

Prepared By SDC Verifier

Prepared For Company

Prepared By SDC Verifier

Prepared For Company