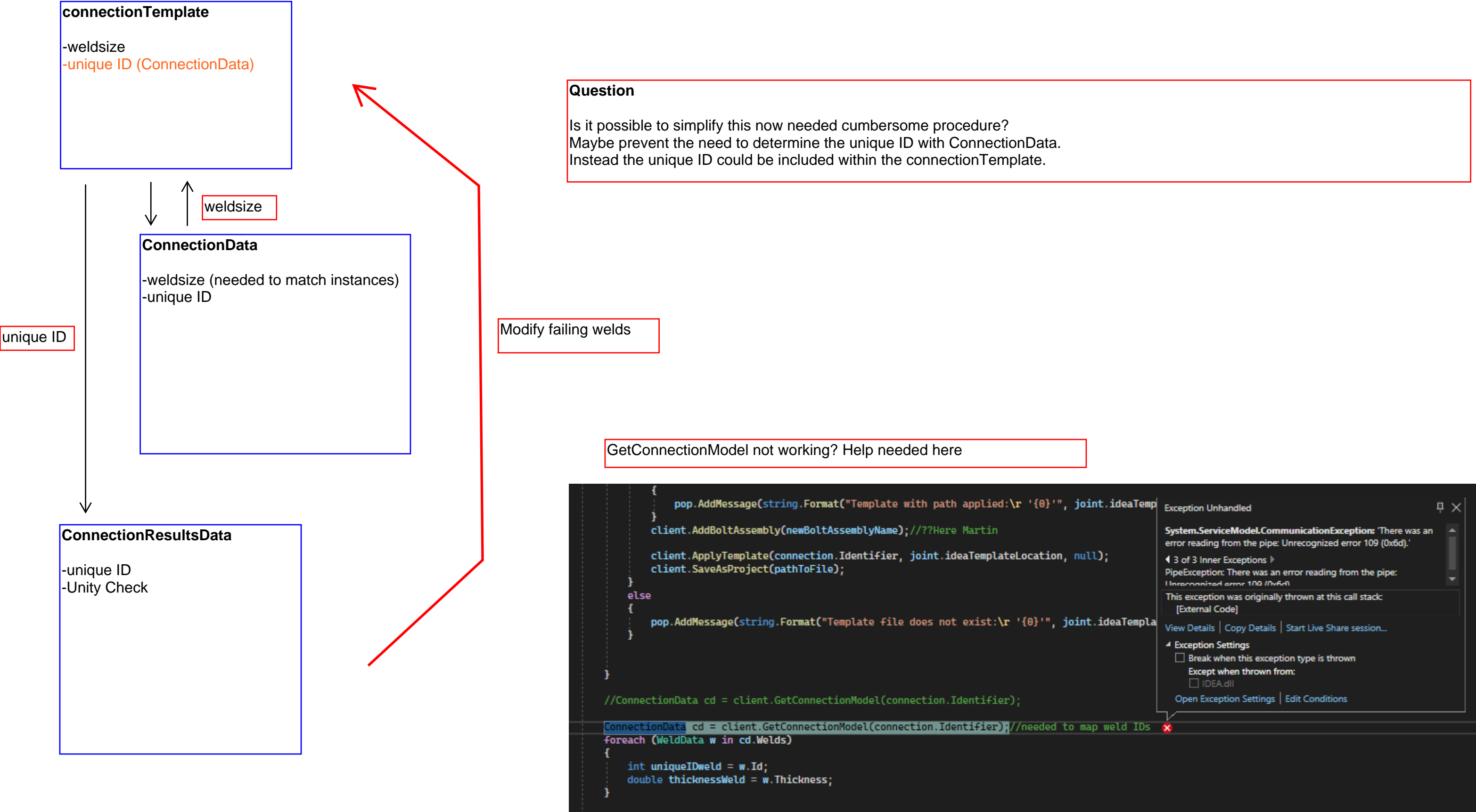**Mapping welds in IDEA StatiCa**

Welds can be mapped by setting an unique weldsize to every weld instance in the connectionTemplate. After for every weld instance in the connectionTemplate, the related weld in ConnectionData can be found by the weldsize, which will reveal the unique ID of the weld.

Now that we now the unique ID of every weld in connectionTemplate, we can link the Results with the correct welds. Making it possible increase the welds with a unity check higher than 100%.

connectionTemplate

-weldsize
-unique ID (ConnectionData)

Question

Is it possible to simplify this now needed cumbersome procedure?
Maybe prevent the need to determine the unique ID with ConnectionData.
Instead the unique ID could be included within the connectionTemplate.

weldsize

ConnectionData

-weldsize (needed to match instances)
-unique ID

unique ID

Modify failing welds

ConnectionResultsData

-unique ID
-Unity Check

GetConnectionModel not working? Help needed here

```
        {
            pop.AddMessage(string.Format("Template with path applied:\r '{0}'", joint.ideaTemp
        }
        client.AddBoltAssembly(newBoltAssemblyName);//??Here Martin

        client.ApplyTemplate(connection.Identifier, joint.ideaTemplateLocation, null);
        client.SaveAsProject(pathToFile);
    }
    else
    {
        pop.AddMessage(string.Format("Template file does not exist:\r '{0}'", joint.ideaTempla
    }


}

//ConnectionData cd = client.GetConnectionModel(connection.Identifier);

ConnectionData cd = client.GetConnectionModel(connection.Identifier);//needed to map weld IDs ❌
foreach (WeldData w in cd.Welds)
{
    int uniqueIDweld = w.Id;
    double thicknessWeld = w.Thickness;
}
```

Exception Unhandled

System.ServiceModel.CommunicationException: 'There was an error reading from the pipe: Unrecognized error 109 (0x6d).'

◀ 3 of 3 Inner Exceptions ▶
PipeException: There was an error reading from the pipe:
Unrecognized error 109 (0x6d)

This exception was originally thrown at this call stack:
    [External Code]

View Details | Copy Details | Start Live Share session...

⊿ Exception Settings
    ☐ Break when this exception type is thrown
        Except when thrown from:
            ☐ IDEA.dll

Open Exception Settings | Edit Conditions

connectionTemplate

Name	Value
▲ ⊕ connectionTemplate	{IdeaRS.Connections.Data.ConnectionTemplate}
▷ 🔧 Criteria	null
🔧 Name	null
▷ 🔧 Parameters	Count = 0
▷ 🔧 ParametersModelLinks	Count = 0
▲ 🔧 Properties	{IdeaRS.Connections.Data.ConnectionPropData}
▲ 🔧 Items	Count = 2
▲ ⊕ [0]	{[1, IdeaRS.Connections.Data.CutBeamByBeamData]}
🔧 Key	1
▲ 🔧 Value	{IdeaRS.Connections.Data.CutBeamByBeamData}
🔧 CuttingObjectPath	"BeamByOperationId(1)"
🔧 ExtendToPlane	true
▲ 🔧 FlangesWeld	{IdeaRS.Connections.Data.WeldData}
🔧 BeginOffset	0
🔧 EndOffset	0
🔧 IntermittentGap	0
🔧 IntermittentLength	0
🔧 Size	0.012
🔧 WeldMaterialName	"#1"
🔧 WeldType	Fillet
▷ ⊕ Non-Public members	
🔧 IsWeld	true
🔧 KeptPartCode	1
🔧 Method	BoundingBox
🔧 ModifiedObjectPath	"BeamByOperationId(2)"
🔧 Name	"CUT1"
🔧 Offset	0
🔧 OperationId	1
🔧 Orientation	Parallel
🔧 PlaneOnCuttingObject	Closer
▲ 🔧 Weld	{IdeaRS.Connections.Data.WeldData}
🔧 BeginOffset	0
🔧 EndOffset	0
🔧 IntermittentGap	0
🔧 IntermittentLength	0
🔧 Size	0.005
🔧 WeldMaterialName	"#1"
🔧 WeldType	DoubleFillet
▷ ⊕ Non-Public members	
▷ ⊕ Non-Public members	
▷ ⊕ Non-Public members	
▷ ⊕ [1]	{[2, IdeaRS.Connections.Data.CutBeamByBeamData]}
▷ ⊕ Raw View	
▲ ⊕ Non-Public members	
▷ ⊕ c35110b3333df78b00c734440bb786ed6	Count = 2
▷ 🔧 Sequence	{IdeaRS.Connections.Data.ManufacturingSequence}
▷ 🔧 TemplateId	{adc23f34-465a-4aef-8fd2-2cfdc9ef8433}
🔧 TopologyCode	9223372036854775824
🔧 Version	19
▷ ⊕ Non-Public members	

ConnectionData (Only exist after connetion has been created)

Name	Value	Type
◢ ● connectionData	{IdeaRS.OpenModel.Connection.ConnectionData}	IdeaRS.OpenModel.Connec
◢ 🔧 Beams	Count = 3	System.Collections.Generic.I
▶ ● [0]	{IdeaRS.OpenModel.Connection.BeamData}	IdeaRS.OpenModel.Connec
◢ ● [1]	{IdeaRS.OpenModel.Connection.BeamData}	IdeaRS.OpenModel.Connec
🔧 CrossSectionType	"RolledI"	🔍 ▾ string
◢ 🔧 Cuts	Count = 1	System.Collections.Generic.I
◢ ● [0]	{IdeaRS.OpenModel.Connection.CutData}	IdeaRS.OpenModel.Connec
▶ 🔧 PlaneNormalX	{IdeaRS.OpenModel.Geometry3D.Vector3D}	IdeaRS.OpenModel.Geome
▶ 🔧 PlaneNormalY	{IdeaRS.OpenModel.Geometry3D.Vector3D}	IdeaRS.OpenModel.Geome
▶ 🔧 PlanePoint	{IdeaRS.OpenModel.Geometry3D.Point3D}	IdeaRS.OpenModel.Geome
▶ ● Raw View		
🔧 Id	16386	int
🔧 MPRLName	""	🔍 ▾ string
🔧 Name	"DM2"	🔍 ▾ string
🔧 OriginalModelId	null	string
▶ 🔧 Plates	Count = 3	System.Collections.Generic.I
▶ ● [2]	{IdeaRS.OpenModel.Connection.BeamData}	IdeaRS.OpenModel.Connec
▶ ● Raw View		
▶ 🔧 BoltGrids	Count = 0	System.Collections.Generic.I
▶ 🔧 ConcreteBlocks	Count = 0	System.Collections.Generic.I
▶ 🔧 Plates	Count = 0	System.Collections.Generic.I
◢ 🔧 Welds	Count = 6	System.Collections.Generic.I
◢ ● [0]	{IdeaRS.OpenModel.Connection.WeldData}	IdeaRS.OpenModel.Connec
◢ 🔧 ConnectedPartIds	Count = 2	System.Collections.Generic.I
● [0]	null	string
● [1]	null	string
▶ ● Raw View		
▶ 🔧 End	{IdeaRS.OpenModel.Geometry3D.Point3D}	IdeaRS.OpenModel.Geome
🔧 Id	16391	int
🔧 Material	"S275"	🔍 ▾ string
🔧 Name	""	🔍 ▾ string
◢ 🔧 Start	{IdeaRS.OpenModel.Geometry3D.Point3D}	IdeaRS.OpenModel.Geome
🔧 Id	0	int
🔧 Name	null	string
🔧 X	-0.217051754386127	double
🔧 Y	-0.049999926075669276	double
🔧 Z	0.21999999999999975	double
🔧 Thickness	0.012	double
◢ ● [1]	{IdeaRS.OpenModel.Connection.WeldData}	IdeaRS.OpenModel.Connec
▶ 🔧 ConnectedPartIds	Count = 2	System.Collections.Generic.I
▶ 🔧 End	{IdeaRS.OpenModel.Geometry3D.Point3D}	IdeaRS.OpenModel.Geome
🔧 Id	16392	int
🔧 Material	"S275"	🔍 ▾ string
🔧 Name	""	🔍 ▾ string
▶ 🔧 Start	{IdeaRS.OpenModel.Geometry3D.Point3D}	IdeaRS.OpenModel.Geome
🔧 Thickness	0.012	double
◢ ● [2]	{IdeaRS.OpenModel.Connection.WeldData}	IdeaRS.OpenModel.Connec
▶ 🔧 ConnectedPartIds	Count = 2	System.Collections.Generic.I
▶ 🔧 End	{IdeaRS.OpenModel.Geometry3D.Point3D}	IdeaRS.OpenModel.Geome
🔧 Id	16393	int
🔧 Material	"S275"	🔍 ▾ string
🔧 Name	""	🔍 ▾ string
▶ 🔧 Start	{IdeaRS.OpenModel.Geometry3D.Point3D}	IdeaRS.OpenModel.Geome
🔧 Thickness	0.005	double

ID van las

Thickness van las

Name	Value
◢ ● connectionData	{IdeaRS.OpenModel.Connection.ConnectionData}
▶ 🔧 Beams	Count = 3
▶ 🔧 BoltGrids	Count = 0
▶ 🔧 ConcreteBlocks	Count = 0
▶ 🔧 Plates	Count = 0
◢ 🔧 Welds	Count = 6
▶ ● [0]	{IdeaRS.OpenModel.Connection.WeldData}
▶ ● [1]	{IdeaRS.OpenModel.Connection.WeldData}
▶ ● [2]	{IdeaRS.OpenModel.Connection.WeldData}
▶ ● [3]	{IdeaRS.OpenModel.Connection.WeldData}
▶ ● [4]	{IdeaRS.OpenModel.Connection.WeldData}
▶ ● [5]	{IdeaRS.OpenModel.Connection.WeldData}
▶ ● Raw View	

6 welds in total

Members
✓ DM1
✓ DM2
✓ DM3
Load effect
☑ CO1
Operations
✓ CUT1
✓ CUT2
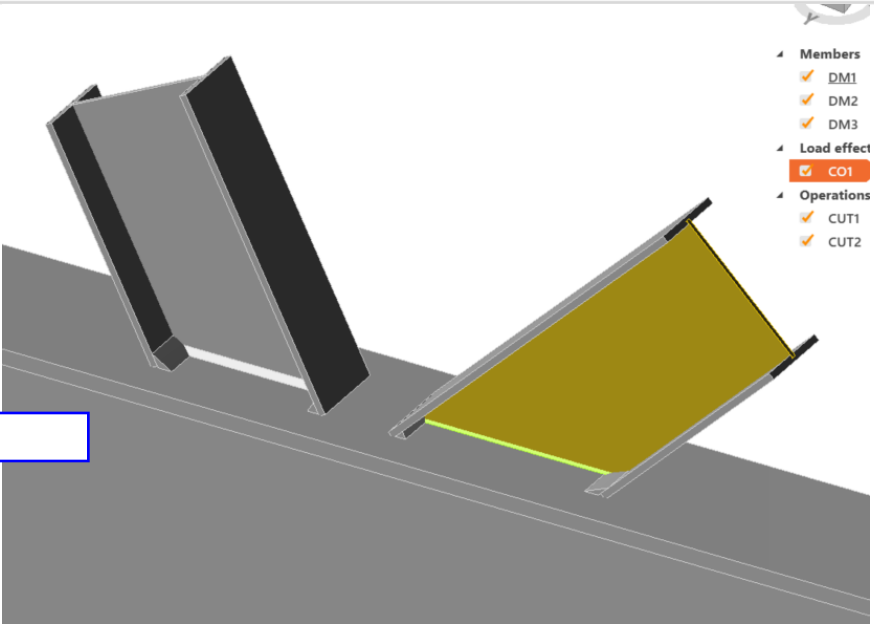
ConnectionResultsData

connectionResultsData	{IdeaRS.OpenModel.Connection.ConnectionResultsData}	
ConnectionCheckRes	Count = 1	
[0]	{IdeaRS.OpenModel.Connection.ConnectionCheckRes}	
CheckResAnchor	Count = 0	
CheckResBolt	Count = 0	
CheckResConcreteBlock	Count = 0	
CheckResPlate	Count = 9	
CheckResSummary	Count = 4	
[0]	{IdeaRS.OpenModel.Connection.CheckResSummary}	
[1]	{IdeaRS.OpenModel.Connection.CheckResSummary}	
[2]	{IdeaRS.OpenModel.Connection.CheckResSummary}	
CheckStatus	true	
CheckValue	72.814210232558139	
LoadCaseId	0	
Name	"Welds"	
UnityCheckMessage	" 72,8 < 100%"	
[3]	{IdeaRS.OpenModel.Connection.CheckResSummary}	
Raw View		
CheckResWeld	Count = 8	
[0]	{IdeaRS.OpenModel.Connection.CheckResWeld}	
CheckStatus	true	
Id	0	
Items	Count = 1	
[0]	16391	
Raw View		
LoadCaseId	1	
Name	"DM1-tfl 1"	
UnityCheck	30.388911395348838	
[1]	{IdeaRS.OpenModel.Connection.CheckResWeld}	
[2]	{IdeaRS.OpenModel.Connection.CheckResWeld}	
[3]	{IdeaRS.OpenModel.Connection.CheckResWeld}	
[4]	{IdeaRS.OpenModel.Connection.CheckResWeld}	
[5]	{IdeaRS.OpenModel.Connection.CheckResWeld}	
[6]	{IdeaRS.OpenModel.Connection.CheckResWeld}	
[7]	{IdeaRS.OpenModel.Connection.CheckResWeld}	
CheckStatus	true	
Id	0	
Items	Count = 1	
LoadCaseId	1	
Name	""	
UnityCheck	72.795043720930238	
Raw View		
ConnectionID	{98f1d2c0-c300-4891-b5eb-271f63d9c419}	
Messages	null	
Name	"Con N3"	
Raw View		

ID of weld can be linked to ID of ConnectionData

UnityCheck

[6]	{IdeaRS.OpenModel.Connection.CheckResWeld}	
CheckStatus	true	
Id	0	
Items	Count = 1	
[0]	16396	
Raw View		
LoadCaseId	1	
Name	"DM1-tfl 1"	
UnityCheck	72.814210232558139	
[7]	{IdeaRS.OpenModel.Connection.CheckResWeld}	
CheckStatus	true	
Id	0	
Items	Count = 1	
[0]	16396	
Raw View		
LoadCaseId	1	
Name	""	
UnityCheck	72.795043720930238	
Raw View		
ConnectionID	{98f1d2c0-c300-4891-b5eb-271f63d9c419}	
Messages	null	
Name	"Con N3"	

Analysis Plates **Welds**

Check of welds for extreme load effect (Plastic redistribution)

	Status	Item	Edge	Th [mm]	L [mm]	Loads	$\sigma w,Ed$ [MPa]	ε,Pl [%]	$\sigma\perp$ [MPa]	$\tau\|\|$ [MPa]	$\tau\perp$ [MPa]	Ut [%]	Utc [%]
+	✓	DM1-tfl 1	DM2-bfl 1	◢12,0	100	CO1	123,0	0,0	68,5	11,5	57,8	30,4	25,9
+	✓	DM1-tfl 1	DM2-tfl 1	◢12,0	100	CO1	112,6	0,0	-40,1	-8,3	60,2	27,8	24,2
> +	✓	DM1-tfl 1	DM2-w 1	◢5,0◣	214	CO1	142,9	0,0	64,9	-34,4	64,9	35,3	12,8
+	✓			◢5,0◣	214	CO1	142,9	0,0	65,0	34,4	-64,9	35,3	12,8
+	✓	DM1-tfl 1	DM3-bfl 1	◢12,0	100	CO1	109,0	0,0	77,3	12,1	42,7	26,9	24,2
+	✓	DM1-tfl 1	DM3-tfl 1	◢12,0	100	CO1	83,8	0,0	-23,0	6,5	46,1	20,7	19,6
+	✓	DM1-tfl 1	DM3-w 1	◢2,8◣	271	CO1	294,7	0,0	138,5	-58,2	138,5	72,8	21,1
+	✓			◢2,8◣	271	CO1	294,6	0,0	138,4	58,2	-138,4	72,8	21,1

Check of welds for extreme load effect (Plastic redistribution)

		Status	Item	Edge	Th [mm]	L [mm]	Loads	$\sigma w,Ed$ [MPa]	ε,Pl [%]	$\sigma\perp$ [MPa]	$\tau\|\|$ [MPa]	$\tau\perp$ [MPa]	Ut [%]	Utc [%]
>	+	✓	DM1-tfl 1	DM2-bfl 1	◢12,0	100	CO1	123,0	0,0	68,5	11,5	57,8	30,4	25,9
	+	✓	DM1-tfl 1	DM2-tfl 1	◢12,0	100	CO1	112,8	0,0	-40,2	-8,4	60,2	27,9	24,2
	+	✓	DM1-tfl 1	DM2-w 1	◢5,0◣	214	CO1	142,9	0,0	64,9	-34,4	64,9	35,3	12,8
	+	✓			◢5,0◣	214	CO1	142,9	0,0	65,0	34,4	-64,9	35,3	12,8
	+	✓	DM1-tfl 1	DM3-bfl 1	◢12,0◣	100	CO1	61,5	0,0	26,2	5,6	31,6	15,2	13,6
	+	✓			◢12,0◣	100	CO1	102,7	0,0	11,1	-2,7	-58,9	25,4	24,5
	+	✓	DM1-tfl 1	DM3-tfl 1	◢12,0◣	100	CO1	28,6	0,0	-14,6	9,0	-11,0	7,1	6,7
	+	✓			◢12,0◣	100	CO1	58,1	0,0	-4,2	6,2	32,9	14,4	14,3
	+	✓	DM1-tfl 1	DM3-w 1	◢5,6	271	CO1	103,0	0,0	47,9	21,8	-47,9	25,5	16,0