IDEA Tutorial



Import/Export of tendons in module StatiCa Tendon

by using formats DXF, TXT and table format

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1. Terminology

Reference curve – it is defined as a union of basic geometrical entities of parts of members. Reference curve goes through nodes of structural model. If the basic geometrical entity is a straight line, the reference curve is defined as a connecting line of the nodes, see the user guide IDEA Tendon - chap. 3.1. [1].

Uncoiled view (of member, tendon, design member) – is obtained by uncoiling of the reference curve/polygon. For more details see the user guide IDEA Tendon - chap. 3.1. [1].

2. Import

It is possible to import the tendons into IDEA Tendon from DXF file, see chap. 2.1, TXT file, see chap. 2.3, and from the table, see chap. 2.2. Tendons, which will be created in IDEA Tendon, can be exported to TXT file, see chap. 3.2. It is also possible to export content of the main window to DXF file, see chap. 3.1.

Export and import of tendons is performed by commands in ribbon group Import, Export.



Import of tendons



Export of tendons

- **Import > New tendon(s) from TXT file** create new tendons importing geometry • from text file. If the imported tendon is longer than target design member, the imported tendon is shortened automatically.
- **Import > New tendon from table** create new tendon using the table editor to define • tendon polygon vertexes.
- **Import > New tendon(s) from DXF file** create new polygonal tendons importing • the tendon geometry from DXF file
- Import > Change geometry from DXF file > Geometry XY import tendon • geometry into the uncoiled view XY of the current tendon from DXF file.
- **Import > Change geometry from DXF file > Geometry XZ** import tendon • geometry into the uncoiled view XZ of the current tendon from DXF file.
- **Export > Current tendon** – save geometry definition of current tendon to text file.
- **Export > All tendons** –save geometry definition of all tendons in current design member to text file.

2.1.Import from DXF file

After opening the file "PostTensionedEmpty.ideaBeam" in IDEA StatiCa Beam application and after recalculation, it is possible to start the module IDEA StatiCa Tendon.

Post	TensionedE	mpty.ideaBe	am' - IDEA	StatiCa Beam	
File	New Open	🖍 Undo	Calculate	Prestressing	
P	roject	Data		Design	of prestressed concrete member. IDEA StatiCa Tendon module will be launched.
Naviga	tor pject Project Data Cross-Sectio Materials ometry Members Haunches	▼ ins	₽ Mair	1	

Lauching IDEA Tendon

Design member named "Design member1" is created automatically. Tendons will be imported from DXF file to this new design member.

<complex-block>

2.1.1. Import of the first tendon

Import of new tendon from DXF

Click navigator command **Tendons > Tendons Layout** to enable input and modification of tendons.

To import the first tendon click **New tendon from DXF file** in ribbon group **Import**. Dialog **Open** appears. Select file to import the tendons from – 'TendonsTwo.dfx'.

A dialog **Tendon geometry** appears where the entities to define the polygon can be selected. The polygon can be inserted to individual projections of the geometry of tendon than.

- Tendon geometry		3
Meters Y Z Z Tolerance 0,1 mm m XY YZ YZ Discretisation 15° Numbers Consecutive Select Undo Clear		
Settings Tendon geometry		
Main	Details	ņ
Drawing boundaries are 26,500 x 5,555 m		
	Data	0
	Entities	Ϋ́
	$L_{\rm H} \propto L_{\rm ext} \sim X$ Laure X Color	
N N N N N N N N N N N N N N N N N N N		
A V	1 Polyline 2D 0	
	2 Line 0	
	3 Polyline 2D 0	
	4 Line 0	
	5 Line 0	
	6 Polyline 2D 0	
	7 Line 0	
	8 Polyline 2D 0	
	9 Line 0 📕	
	10 Line 0	
	11 Polyline 2D 0	-
	OK Cancel	

Imported DXF entities

The units conversion can be set on the top left. One length unit of DXF file than corresponds to one unit of selected type in IDEA application

The plane (XY, XZ, YZ) of loaded DXF file can be selected also. The projection of loaded DXF entities to the selected plane is drawn in the Main window.

Individual geometrical entities to be imported can be selected either by mouse or in the table **Entities** in the Data window (on the bottom right).

It is possible to import just one plane of tendon geometry. The target plane of tendon geometry will be selected later.

Let's start with lower red line. Because the curve in the DXF file is composed of many entities, the entities to be converted to the tendon curve must be selected.

There are more possibilities how to select the entities. Entities of the curve can be either selected by mouse in the **Main window**, or can be selected in the **Entities** table at the bottom right.

It is also possible to select only part of the curve and after clicking **Consecutive** in the ribbon group **Settings** (which becomes active after selecting the first entity) the program it will automatically find 'the whole curve' – all preceding and following entities to the current entity are searched.

After selecting the entities, rows with indexes 0-4 should be selected in the **Entities** window. Those will be converted to the tendon geometry.

Click **Select** in ribbon group **Tendon geometry** to convert the selected entities to the final curve. The curve is shown in the upper right window **Details**.

Click **OK** to confirm the selection.

- Tendon geometry	_ • • _ •
Meters mm m XY XZ XZ XZ XZ YZ Tolerance 0,1 15° Numbers Consecutive Select Undo Clear Terdon ceometry	
Scango Inchoin geometry	
Main Drawing boundaries are 26,500 x 5,555 m	Details • 0
	Data
X	1 Polyline 2D 0 2 Line 0 3 Polyline 2D 0 4 Line 0
	5 Line 0 0 6 Polyline 2D 0 0 7 Line 0 0 8 Polyline 2D 0 0
	9 Line 0 10 Line 0 11 Polyline 2D 0
	OK Cancel

Selected entites and generated curve

A dialog **Setting the insertion position** appears to define the positioning of selected polygon into uncoiled view of design member.

The polygon must be a function f(x). It means that there is exactly one y-value for one argument x. Therefore it is not possible to import for example vertical parts of the curve.

Local coordinate system is assigned to the selected polygon. This system is used for the positioning of polygon into uncoiled view of design member.

The origin of the coordinate system [0;0] is placed to the beginning of the polygon - to the most left point.

Projection	XZ	•	
Related to	Centre of gravity Zcg	•	
Zcg		100	mm
Offset X		0,00	m

Insertion parameters

Individual options of **Setting the insertion position**:

- **Projection** select the target uncoiled view plane XY or XZ, into which the polygonal tendon will be inserted.
- **Related to** choose the reference point, to which the offset of the tendon origin is defined.
- v (Y-, Y+,Ycg, resp. Z-, Z+, Zcg) the distance between the beginning point of the tendon and the '**Related to**' point.
- Offset X the distance between the beginning point of the tendon and the beginning of the design member.

Set the parameters according to the picture above and click **OK**.

The tendon shape projection XZ is generated from the selected entities respecting the defined parameters.

The curve entities are transformed into a polygon. The second tendon geometry (XY in this case) is generated automatically as straight line and it is placed into the reference curve of the design member.

<mark>₩</mark> ∥₹		IDEA StatiCa Tendon - PostTer	sionedEmpty		
IDEA StatiCa Tendon Home V	ew				
Settings Segment Polygon Pretension New tendon	ed Pretensioned in line Tendon tools	Nove Delete Import Export Import, export Design member views	Y Y ↓	No draw Current tendon All tendons Tendon shape Tendon shape	draw Position 0.0 m IX IYZ don Current section
Navigator T X	Main	import, expert beargn member herro		=	
Design Member					Project Data
Design Member 1	<u>× ></u>				Project:
Tendon					Code: EN 1992-1-1 National Annex: E
Tendon 1					Import status: VIII In fo
	Plane XY			x	Current Design Member 🔶
Project Data					Design Member: Design Membe Correctness of input:
Tendons	Tendon 1			*	Length: 26,50m
Tendons Layout	Stationing				Tendons Mass: 31kg
Force Design ¥	Tendon points			6,50	Tendons Mass / m3 Concrete:2kg/m3 List of members associated with current
Short-term Losses 🛛 🗧	Plane XZ			~	design member:
Design Member Result 🛛 🗧		0.0	\$00e		
Design Member Check 🛛 🗧		++++++++++++++++++++++++++++++++++++++	122415673997		Current Section
Report ¥	. B.			20	Cross-section Material: C35/45
	Tendon 1			28	Current Position: 0,00
	1	224-		23	
	Stationing	* * 9 9 5 7 8 9101	12/3/4/5/6/7/8/9/04		
	Tendon points	882908885	1040-000-1810-0 1040-000-1810-0	20	у
		0.044400000	8888555588	28	
					Current Tenden
					Tendon: Tendon 1
	L				Type: Post-tensioned Material: Y1860S7-15.7
	Data	anden example. VZ		◆ # ×	Strands: 1 Total area: 150mm2
	Post-tensioned tendons	ndon geometry Az			Geometry: 🞺
	Tendon name Load case	Material Strands Duct diamet	uct material Stressing from Stressing procedur Det Ge	ometr Lo Tendon stre	Length: 26,62m Anchorage stress: 1475.00MPa
	Tanka d	[mm]			Anchorage force: 221,40kN Check 5 10 2 1(1)P
	Post-tensioning	1 14	retai • peginning • No correction •		Check 5.10.3(2)P
Pandy					

Imported first tendon

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The import of the second projection (XY) is done in similar way. As far as the XY geometry of the tendon exists, not a new tendon will be imported, but the existing tendon geometry will be changed using import from the DXF file.

<mark>_</mark> ∥∓	DEA StatiCa Tendon - PostTensionedEmpty	
IDEA StatiCa Tendon Home	Jew	
Settings Settings Segment Polygon Pretensic New tendo	hed Pretensioned in line in li	t draw Position 0,0 tm Exit dr X2 td VZ Current section
Navigator + 4 X	Main An Provide The Provide Th	Info • 4 ×
Design Member 1	Plane XY	Project Uata × Project Code: EN 1992-1-1 National Annex: EN Import status: Info Current Design Member *
Project Data	Change tendon geometry	Design Member: Design Membe Correctness of input:
Project Data Image: Constraint of the second seco	Tendon 1 Tendon 1 Change polygonal geometry XY of the current tendon points Change polygonal geometry XY of the current	Length: 26,50m Tendons Length: 26,82m Tendons Mass: 31kg Tendons Mass / m3 Concrete:2kg/m3 List of members: design member:
Short-term Losses ×		M1
Design Member Check × Report ×		Current Section Member: 1 Cross-section Material: C35/45 Current Position: 0,00
	Tendon 1 23 33 Stationing	y
		Current Tendon Tendon: Tendon 1 Type: Post-tensioned Untracify V405007 45 7
	Data • 0 × 0 × 0 × 0 × 0 × 0 × 0 × 0 × 0 × 0	Strands: 1 Total area: 150mm2 Geometry:
	Tendon name Load case Material Strands Duct diamet [rmn] Duct material Stressing from Stressing procedur Det Geometr Lo Tendon str	Length: 26,62m Anchorage stress: 1476,00MPa Anchorage force: 221,40kN
	1 Tendon 1 Post-tensioning Y1860S7- V 1 14 Metal V beginning V No correction V V	Check 5.10.2.1(1)P
Ready		

Starting modification of XY projection

Click **Import > Change geometry from DXF file > Geometry XY** in ribbon group **Import, export** to modify the XY projection of the tendon.

The entities for the XY projection are imported from the same DXF file and are selected in similar way as for the initial import. Select entities of the top red curve is for the XY projection. Rows of indexes 10-17 should be selected in the **Entities** table in the Data window.

- Tendon geometry		3
Meters V L Z Tolerance 0,1 J L V Discretisation 15° V L V DiscretisAtio		
XY XZ YZ Numbers Consecutive Select Undo Clear		
Settings Tendon geometry		
Main	Details	ņ
Drawing boundaries are 26,500 x 5,555 m		
		_
	Data	4
	Id V Entity V Layer V Color	
A v	1 Polyline 2D 0	
	2 Line 0	
	3 Polyline 2D 0	
	4 Line 0 📕	
	5 Line 0	
	6 Polyline 2D 0	
	7 Line 0 📕	
	8 Polyline 2D 0	
	9 Line 0 🗖	
	10 Line 0	
	11 Polyline 2D 0	-
	OK Cancel	

Selected entities and generated curve for modification of XY projection

After selecting the entities click **OK** to close the dialog **Tendon geometry.** The dialog **Setting the insertion position** appears. The **Projection** cannot be changed, because it was determined using the command **Geometry XY** at the launch of import and **Offset X** cannot be changed - it is set automatically to the beginning of the opposite projection. Set the parameters according to the picture below and click **OK**.

Projection	XY	Ŧ	
Related to	Centre of gravity	Centre of gravity Ycg 🔹	
Ycg		0	
Offset X		0,00	m

Insertion parameters for modification

If the length of imported geometry is not identical with the length of the second projection, a point is added at the end of the shorter of both geometries to get two identical geometries. A last point of the shorter projection is taken and its copy is created. The copy has the same y-coordinate (or z-, depending on the projection) and is moved to the x coordinate that corresponds to the end point coordinate of the longer projection.

Both imported geometries are of the same length in this example.

<mark>≝</mark> ∥∓		IDEA StatiCa Tendon - PostTensionedEmpty	
IDEA StatiCa Tendon Home V	ïew		۵
Settings Segment Polygon Pretension New tendan	ted Pretensioned in line	Move Copy Delete Delete Deete at moort Export Disclet Socie Scale XY 1.0 No draw Copy Mode Scale XZ No draw Scale XZ XZ <	ot draw Position 0,0
Navigator • 4 ×	Main		info ▼ A ×
Design Member			Project Data
Design Member 1	* *		Project:
			Code: EN 1992-1-1 National Annex: EN EN
			Import status: VIII Info
Iendon 1	l i	1/ane XY	Current Design Member 🛛 🕆
	1		Design Member: Design Membe
Project Data 🛛 🕹	1	endon 1 2 3 4 56 7 8 90 11 1213141561718190 21	Length: 26,50m
Tendons 🕆	Stationing		Tendons Length: 26,62m Tendons Mass: 219kg
Tendons Layout	Tendon points @	6 50 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Tendons Mass / m3 Concrete:15kg/m3
Force Design 🛛 🗧	F	Plane XZ	List of members associated with current design member:
Short-term Losses 🛛 🕹			M1
Design Member Result 🔹		++++++++++++++++++++++++++++++++++++++	Current Section
Design Member Check 🛛 🕹	1	20	Member: 1
керогт 🔹		endon 1	Current Position: 0,00
	1 Stationing Tendon points &	23 23455759101 78557689885 78557689885 78557689752 8 8 8 8 8 8 8 8 8 8 8 8 8	y
			Current Tendon *
	Data	• # X	Type: Post-tensioned Material: Y1860S7-15.7
	Tendons Tendon geor	zetry XY Tendon geometry XZ	Strands: 7 Total area: 1050mm2
	Tendon name	.oad case Material Strands Duct diamet fmm1 Duct material Stressing from Stressing procedur Det Geometr Lo Tendon stre	Geometry: V Length: 26,62m
	1 Tendon 1 F	ost-tensioning Y188057- • 🖊 7 37 Metal • beginning • No correction • 🖌 🖌 🗸	Anchorage stress: 1476,00MPa Anchorage force: 1549,80kN Check 5.10.2.1(1)P
			Check 5.10.3(2)P
Ready			

Both projections of the imported tendon

Only the tendon geometry is imported, other tendon parameters are set to default values.

The final tendon geometry is created by composition of both projections and geometry of the reference curve of the design member. In this case the design member geometry is a straight line, thus it does not affect the final geometry.



Final 3D tendon geometry of the first tendon

2.1.2. Import of the second tendon

The import is analogous to the import of the first tendon, now the blue entities of the DXF file are used.

- Tendon geometry	_ _ ×
Meters V XY XZ YZ Discretisation 15° Numbers Consecutive Select Undo Clear	
Settings Tendon geometry	
Main	Details • 1
Drawing boundaries are 26,500 x 5,555 m	\$ 2 \$ 2
	Data v 0 Entities
	Id 🝸 Entity 🝸 Layer 🏹 Color
,Υ	0 Line 0
X	1 Polyline 2D 0
	2 Line 0
	3 Polyline 2D 0
	4 Line 0 📕
	5 Line 0
	6 Polyline 2D 0
	7 Line 0
	8 Polyline 2D 0
	9 Line 0
	10 Line 0
	11 Polyline 2D 0
	OK Cancel

Selected entities and generated curve for XZ projection of second tendon

Entities in rows with indexes 5-9 should be selected for the XZ projection of second tendon.

Set the insertion parameters according to the picture below	ow
---	----

Setting the insertion	position		×
Projection	•		
Related to	Centre of gravity Zcg	•	
Zcg		-100	mm
Offset X		0,00	m
 	ок		Cancel

Insertion parameters of XZ projection

After XZ projection is imported the XY projection can be modified.

- Tendon geometry	
Meters Y Y Z Tolerance 0.1 2 3 Consecutive Select Undo Clear mm M XZ YZ YZ Discretisation 15* Numbers Consecutive Select Undo Clear	
Settings Tendon geometry	
Main	Details 👻 0
Drawing boundaries are 26,500 x 5,555 m	
	Data 👻 🧛
	Entities
	Id 🍸 Entity 🍸 Layer 🏹 Color
.Y	0 Line 0 📕
X	1 Polyline 2D 0
	2 Line 0
	3 Polyline 2D 0
	4 Line 0 📕
	5 Line 0 🔳
	6 Polyline 2D 0
	7 Line 0
	8 Polyline 2D 0
	9 Line 0
	10 Line 0
	11 Polyline 2D 0
	OK Cancel

Selected entities and generated curve for modification of XY projection

Entities in rows with indexes 18-25 should be selected for the modification of XY projection of the second tendon.

Set the insertion parameters according to the picture below.

Projection	XY	Ŧ	
Related to	Centre of gravity Ycg	•	
Ycg		0	mm
Offset X	0	0,00	m

Insertion parameters for modification of the second tendon

<mark>₩</mark> ▼	IDEA StatiCa Tendon - PostTensionedEmpty	
IDEA StatiCa Tendon Home V	View	
Settings Segment Polygon Pretension on edge New tendon	ned Pretensioned in line tontadia Tondon todos Tondon todos	aw Position 0.0 rm Z Image: Current section Exit
Navigator • 4 ×	/ Main	fo – a ×
Design Member		Project Data
Design Member 1		Project:
		Code: Code: EN 1992-1-1 National Annex: EN
Tendon		Import status: 🖌 Info
Tendon 2	Plane XY	Current Design Member 🛛 🕆
	- 2 3 3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Design Member: Design Membe
Project Data 🛛 🕹	Tendon 2	Length: 26.50m
Tendons 🕆	Stationing	Tendons Length: 53,20m
Tendons Layout		Tendons Mass / m3 Concrete:30kg/m3
Force Design 🛛 🕹	いためのかすするの 20 たただな税税税税 2011 第二名 11 名 21	List of members associated with current design member:
Short-term Losses 🛛 🗧	fore	M1
Design Member Result 🛛 🗧 🗧	234557800 MM84700 4	Current Section
Design Member Check 🛛 🗧		Member: 1
Report ¥	592	Cross-section Material: C35/45 Current Position: 0,00
	Image: Stationing Image: Stationing	y
		Current Tendon 🙁
	Data 👻 🗸	Tendon: Tendon 2 Type: Post-tensioned
	Tendons Tendon geometry XZ	Material: Y1860S7-15.7 Strands: 7
	Post-tensioned tendons	Total area: 1050mm2 Geometry:
	Tendon name Load case Material Strands Duct diamet Duct material Stressing from Stressing procedur Det: Geometry Lo Tendon si	Length: 26,58m
	1 Tendon 1 Post-tensioning V186057- V 7 37 Metal • beginning • No correction • 2 • •	Anchorage stress: 1476,00MPa Anchorage force: 1549,80kN
	2 Tendon 2 Post-tensioning Y186057- V 7 37 Metal v beginning v No correction v / V V	Check 5.10.2.1(1)P
		· · · · · · · · · · · · · · · · · · ·

Ready

Both projections of the second imported tendon



3D view of both imported tendons

2.2.New tendon by table

New tendon can be created by defining the coordinates of individual vertexes of the polygon in the table.

<mark>₩</mark> -		IDEA StatiCa Tendon - PostTensionedEmpty	
IDEA StatiCa Tendon Home V	iew		۵
Settings Segment Polygon Pretension on edge New tendon	ed Pretensioned in line Extend / Copy Endonract Tendon tools	Scale XY 1.0 No draw mport Export Uncolled 30 Cross-section XX Dimension Xx Scale XY 1.0 Current tensor Label Most wateries/b from Tot Ke views Uncolled view Tendon points label Alterians	Not draw Position 0,0 mm Factor m Ext Grid X Grid YZ Current section
Navigator 🔻 🕂 🗙	Main		Ţ Info
Design Member 🛛 💊		A New tendon from DYE file	Project Data 😞 📥
Design Member 1	**	Change geometry from DXF file •	Project:
Tendon		New tendon from table Import new polygonal tendon from table to	Code: National Annex: Import status: Current Design Member
Project Data		tiolec:	Design Member: Design Membe Correctness of input:
Tendons ô			Length: 26,50m
Tendons Layout	Plane XY		Tendons Kengul. 0,00m Tendons Mass: 0kg
Force Design 🛛 🕹			List of members associated with current
Short-term Losses 🛛 🕹	Plane XZ		design member:
Design Member Result 🛛 😣		35	
Design Member Check 🛛 🗧			Current Section
Report ¥	<u>↔</u>		Cross-section Material: C35/45
		2	Current Tendon *
	Data	• ŭ	X Type: Material:
	Tendons No tendons		Strands: Total area: Geometry:
			Length: Anchorage stress: Anchorage force: Check 5.10.2.1(1)P Check 5.10.3(2)P
Ready			

Input of new tendon by table

Click **New tendon from table** in ribbon group **Import** to start input of the coordinates of tendon polygon vertexes. It is possible to copy a table of coordinates from Microsoft Excel table too.

Example of imported coordinates table:

0	740
3975	300
7950	70
18550	70
22525	300
26500	740

Projection XY				Projectio	n XZ		
Related to	Reference axis v	•		Related t	0	Reference axis v	•
v		0	mm	v			0 mm
X [mm]	Y [mm]	(0		X [mm]	Z [mm]	0

Tables to define tendon polygon coordinates

The coordinates can be filled manually or inserted from the clipboard (eg. from Excel) to the required projection. In this example it is XZ projection.

-	Tendo	n geometry for	uncoiled view								x	
Γ											_	
	Project	tion XY			Projection XZ							
	Related	d to	Reference axis v	•		Related	l to	Minin	num Z-] •		
	v			0	mm	Z-				0 mm		
		X [mm]	Y [mm]		9		X [mm]		Z [mm]	0		
	*					1		0	740			
						2	39	975	300			
						3	79	950	70			
						4	185	550	70			
						5	225	525	300			
						6	265	500	740			
						*						
	0	v		0.00								
	Unset /	^		0,00	m							
									ОК	Canc	el	



Enter the coordinates and set the insertion parameters according to the picture above.

Both projections are defined at once in one dialogue. The values **Relative to** and corresponding values **"v**" etc. have the similar meaning as for the import from DXF file.

But, in contrast with import from DXF, the first point of polygon is not moved to the point [0;0]. The value of **Offset X** is added to the entered values of X coordinates (eg. if the first point coordinate X is 700 mm and the Offset X is set to value 1 m, the beginning of tendon is placed in a distance of 1.7 m from the beginning of the design member).

If the second projection is not defined (XY in this example), it is automatically completed by two points with X coordinates corresponding to the X coordinates of the first and the last

point in the defined projection and the Y coordinates are set to zero (it means that the tendon is straight).



Tendon geometry created using the table

The coordinates can be also defined for both projections. In such case the X-coordinates of the first and the last points in both projections must match. If the coordinates do not match, an error message appears and the import is not performed.

2.3.Import from TXT

The complete cable including the geometry is imported from the TXT file. The TXT file can be created by exporting the existing tendon from IDEA Tendon or can be created manually. The TXT file with the extension "*.nav" has a special XML format.

All items are always imported from the file.

3. Export

3.1.Export to DXF

Click right mouse button on the **Main window** to display context menu with following commands:

Zoom All	• Zoom all – show the whole structure.
Looman	• Print – start the print of the current view on selected printer.
Print	• Into bitmap – start export of the current view to the raster graphics
To Bitmap	file.
To DXF	• To DXF – start export of the current view to the DXF file.
To Clipboard	• To Clipboard - copy the content of the current view to the
	clipboard as a bitmap.

The current content of the **Main window** is exported to the DXF file. The content of the **Main window** can be controlled using commands in ribbon groups.

	t [¥]	† ^z		î.	Scale XY	2,0	\$	No draw	2 ^m	Not draw		Position	0,0	\$ m
	<mark>↓ ×</mark> ·	₩¥7	Dimension	Avie	Scale XZ	2,0	¢	Current tendon	- era	Grid X	Set			
0100100 30 01033-3001011		~~	lines	~~~~	-2 Tendor	n points	label	All tendons	Laber	Grid YZ	Grid YZ	→		
Design member views	ign member views Uncoiled view			Tendon shape		Tendon spacers		Curre	nt secti	on				

Ribbon groups to control the drawing content

Following options are set to be drawn: uncoiled view - projection XY and XZ, dimension lines, axes and tendon points label. Only the current tendon with labels and tendon spacers YZ is set to be drawn.

The setting of spacers drawing is described below. According to the settings in the YZ projection the stationing along design the member is calculated for tendon spacers with spacing of 200 mm from the bottom edge, in the XZ projection the stationing along the design member is calculated for tendon spacers of height 100 mm and 300 mm from the bottom edge.

Tendon Spacer				×
XY projection				XZ projection
Reference point Equidistant grid levels	Minimum ✓	•		Reference point Minimum
Distance Distances of grid levels	;	200	mm	Distances of grid levels
				2 300
				OK Cancel

Tendon spacer settings

Click **To DXF** in the context menu to start the export.

- II -	DEA StatiCa Tendon - PostTensioned_dxf export	
DEA StatiCa Tendon Home V Settings Segment Polygon Preten Naw tendon	Vew majoried on edge in local in line Move M	don Label spacers - proham
Navinator IX	Main	= Info
Navgalor	Main Plane XY Tendon 3 Stationing Tendon points CommAl Print To Eithopard Tendon 3 Plane XZ CommAl Print To Eithopard Tendon 3 Plane XZ CommAl Plane XZ CommAl Plane XZ CommAl Tendon 3 CPL1 Stationing Plane XZ CommAl Tendon 3 CPL1 CPL7 CommAl Tendon 3 CPL7 C	 Info Info Project Data Project Data Project Code: N 1992-1-1 NationalAnnex: Info Current Design Member Corrections of sput: 26,50m Tendons Length: Current Section Member: Current Section Member: Current Section 2
	L (m) 7.99 eT 10.5 eT 10.5	Current Tendon Tendon: Tendon 3 Tendon: Tendon 3 Tendon: Y180657-157 Strands: 7 Total area: 1050mm2 Goendtry: Cenck 5:10:21/P Check 5:10:21/P
Ready		

Context menu of the Main window

Dialog **Save the DXF file** appears. The different scale, unit of output and layers generation mode can be set. Also request to fill regions and export dimensions can be set.

In this example keep default settings except layers. Set the layers to be generated **By line type**.

😑 Save as dxf file		
Uložit do:	Počítač 🗨 🔁 🖝 📰 🗸	Dxf export settings
Mistní disk (C:) Dokumenty Naposledy otevřené polož Plocha	Jednotky pevných disků (2) Místní disk (C:) 108 GB volných z 149 GB DATA (D:) 28,1 GB volných z 139 GB Zařízení s vyměnitelným úložištěm (1) Jednotka CD-ROM (E:)	Scale Uutput units : Meters Uayers : By line type Fill regions Dimensions
Počítač	Název souboru:	
	Ulozit jako typ: Dxf Files (*.dxf)	

Save as DXF dialog with DXF export settings



Content of exported DXF file

All text are placed to layer 0 in the exported file. Other lines are sorted to the layers according their line types - see the picture of layers from AutoCAD below.

All entities are exported in one block. The block can be exploded to enable the modifications.



Drawing layers in AutoCAD

3.2.Export to TXT

All tendon properties including the geometry are exported when performing export to TXT file. To start the export to TXT file click **Export > Current tendon** or **Export > All tendons** in ribbon group **Import, export**. A file with the extension '*.NAV' is created, which has a special XML format.



Export to TXT file

4. Literature and links

1. IDEA StatiCa Tendon, *IDEA Tendon 4, User guide*, IDEA RS s.r.o., U Vodarny 2a, 616 00 BRNO, www.idea-rs.com