

## Thread calculation according to EN14359 Clause 5.5.6

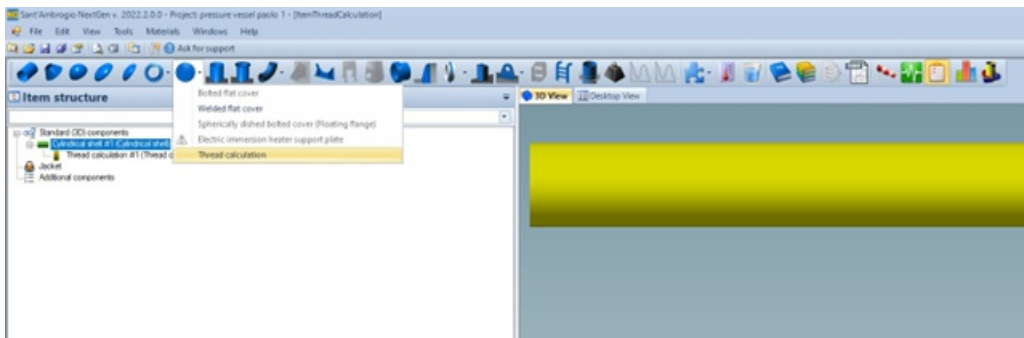
The thread calculation procedure allows to determine the minimum length of thread engagement for sustaining compressive stresses and the minimum length of thread engagement for sustaining shear stresses.

Online version: <https://nextgen.sant-ambrogio.it/KB503605>

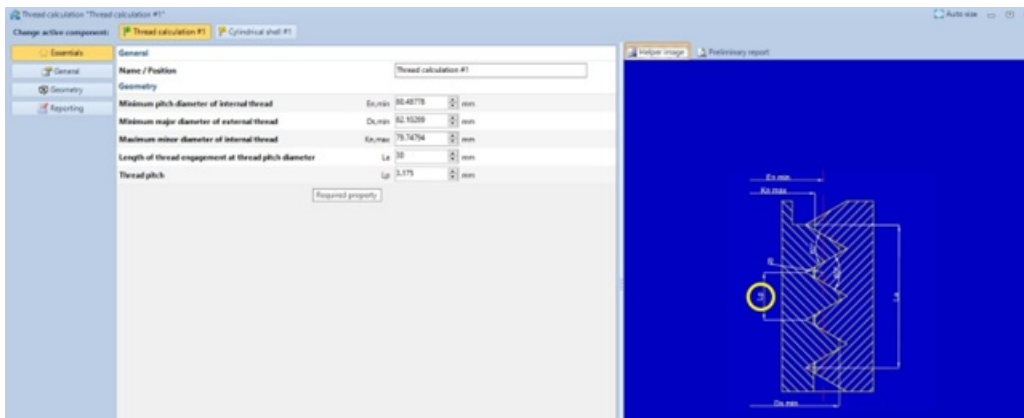
Latest update: 04 ott 2022

With NextGen it is possible to assess the stresses in the threads (of components having a cylindrical part) by performing a thread calculation procedure for projects according to EN13345. The thread calculation procedure allows to determine the minimum length of thread engagement for sustaining compressive stresses and the minimum length of thread engagement for sustaining shear stresses.

In order to perform the thread calculation the user must create a new component of type “thread calculation”. For doing this the user must first select the component on which he/she wants to perform the thread calculation procedure, and then click on the appropriate button for creating the “thread calculation” component as shown below:



On the window that appears the user shall insert all the necessary inputs:



When the cursor is positioned over a required geometrical input, in the helper image a yellow circle highlights that required input.

Calculation occurs in real time once all the inputs are inserted. The user can have a glance at the preliminary report for seeing the most important results of the calculation.

Preliminary report: Thread calculation		
According to: EN 13445 Ed. 2021 Issue 1 (2021-04) EN 14359:2017 S.S.6		
<b>Internal pressure</b>		
<b>Design data</b>		
Design temperature	T	250.00 °C
<b>Geometry</b>		
Inside diameter	Di	78.00 mm
Minimum pitch diameter of internal thread	En,min	80.49 mm
Minimum major diameter of external thread	Ds,min	82.10 mm
Maximum minor diameter of internal thread	Kr,max	79.75 mm
Length of thread engagement at thread pitch diameter	Le	30.00 mm
Thread pitch	Lp	3.18 mm
<b>Shear stress</b>		
Maximum Allowable Working Pressure Hot and Corroded on top of the vessel	PS	32.27 MPa
Shear stress	fs <sub>h</sub>	40.66 MPa
Allowable stress at design temperature	f	142.00 MPa
Allowable shear stress	fshear	113.60 MPa
Minimum required thread engagement length	LeMinShear	10.74 mm
		<b>fs<sub>h</sub> ≤ fshear: Ok</b>
		<b>Le ≥ Le,min: Ok</b>
<b>Thread compressive stress</b>		
Thread compressive stress	f <sub>comp</sub>	54.52 MPa
Yield strength	Rp0,2t	213.00 MPa
Minimum required thread engagement length	LeMinCompression	7.68 mm
		<b>f<sub>comp</sub> ≤ Rp0,2t: Ok</b>
		<b>Le ≥ Le,min: Ok</b>

The full detailed calculation is described in the final report.