The components design window (component properties)

Most of the design work in NextGen happens within the component designer. In this article we see how it is organized.
Online version: https://nextgen.sant-ambrogio.it/KB423266
Latest update: 13 nov 2024

With NextGen 2019 we've introduced a revised version of one of the most important windows in our software, the one used to design components. In this article you'll find information about how to find previously available features in the new format as well as new features.

Note: for a limited amount of time, the old version will be mantained in parallel. To revert to the previous version, head to Tools > Options > Appearance > Revert to old Components window style.

Variations between the two versions

What follows is a brief list of commands we've moved.

A. The active component, available when more components are logically related to each other (e.g.: flanges, shell and nozzle, tubesheet and tubes bundle) has been moved from the left to the top side.

B. The categories have been moved from the top to the left side. This area has been redesigne to make all the categories visible all the time.

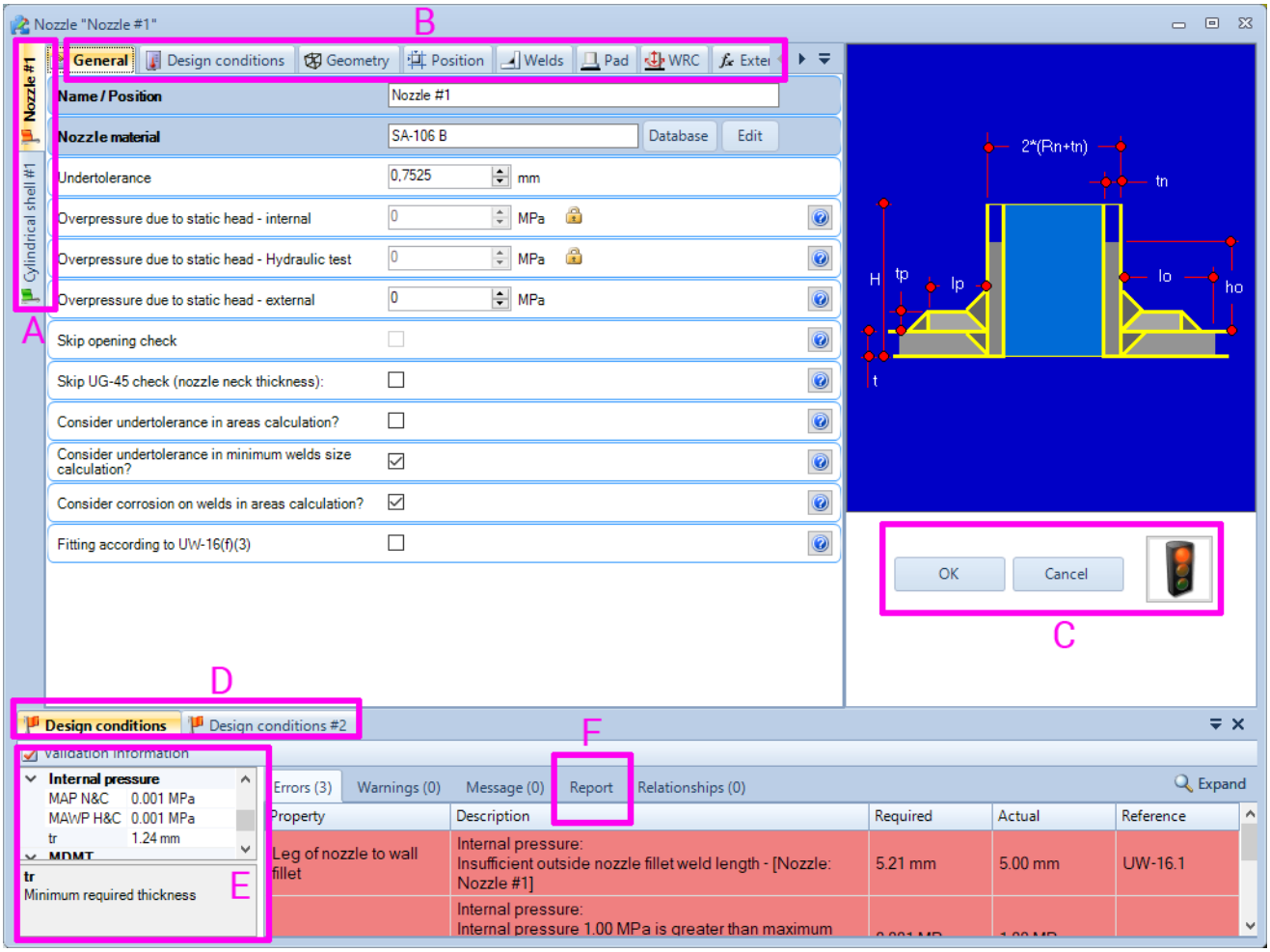
C. Confirmation, cancellation button and semaphore can be found in the lower-right corner of the window. Semaphore and OK button have been merged in a single command.

D. When more than one operating conditions are available, these are now visible in the top area of the window. They were previously placed above the validation errors.

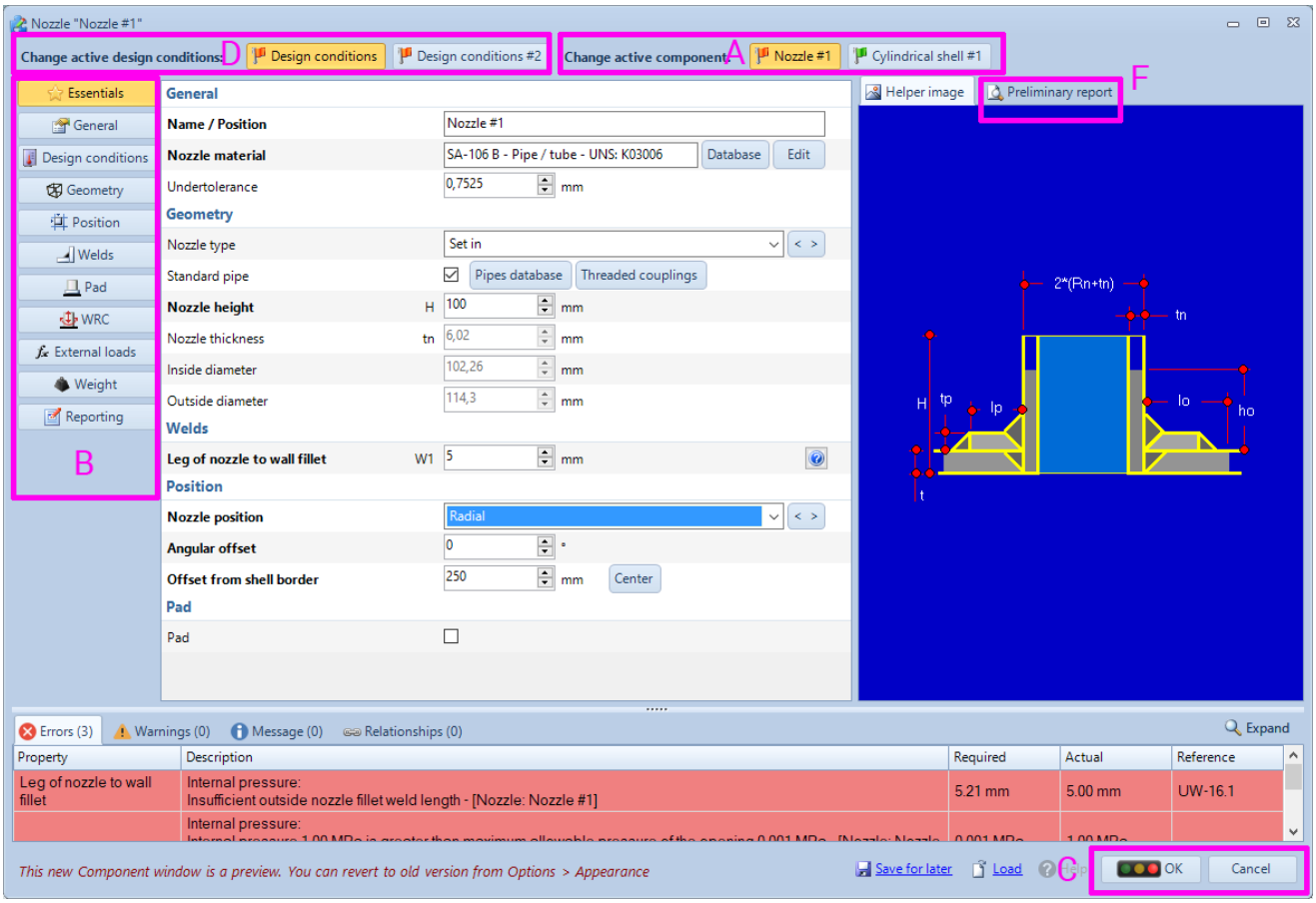
E. The lower-left table showing some of the validation results has been removed. These results are now available in the preliminary report.

F. A new, revised preliminary report is now available for some calculation codes (ASME VIII Div. 1 and AD2000). More codes will follow in the next update.

Previous version:

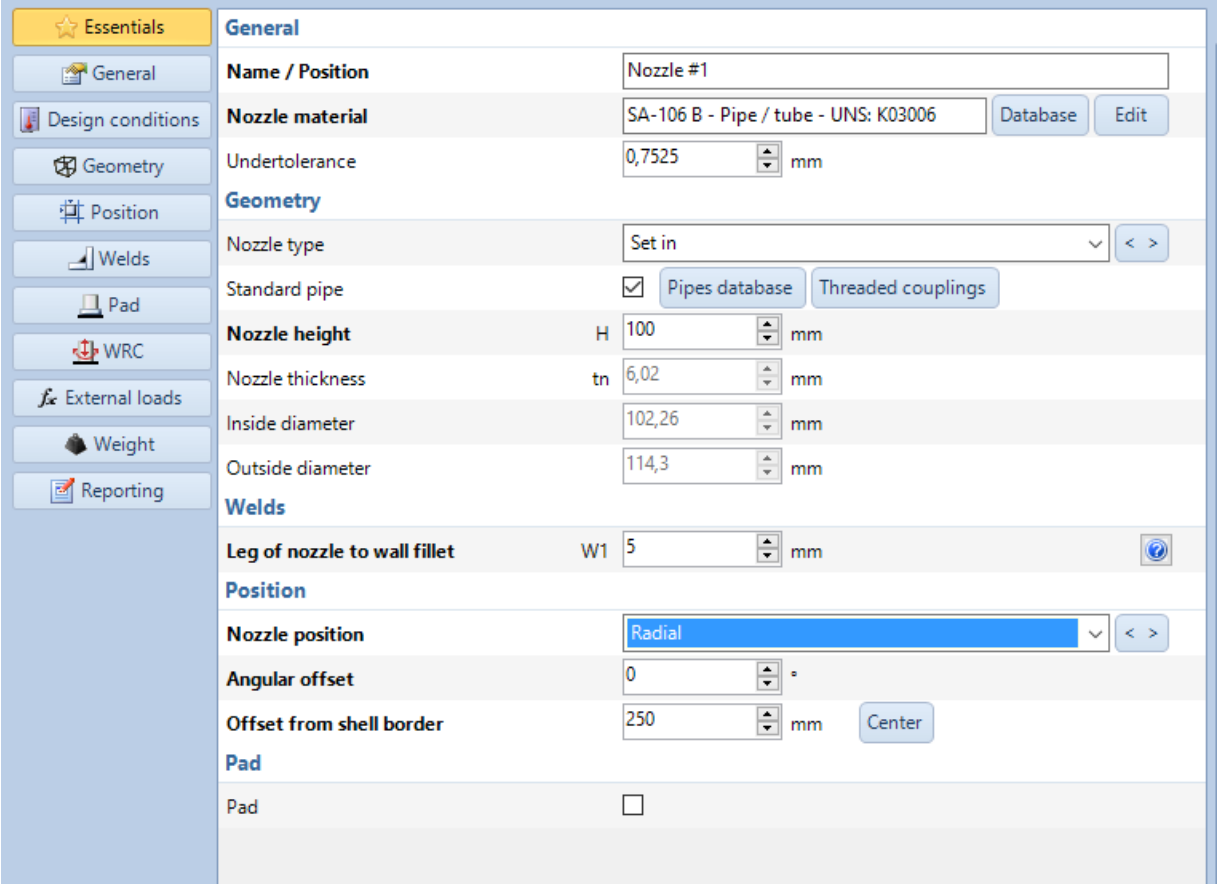


Current version:

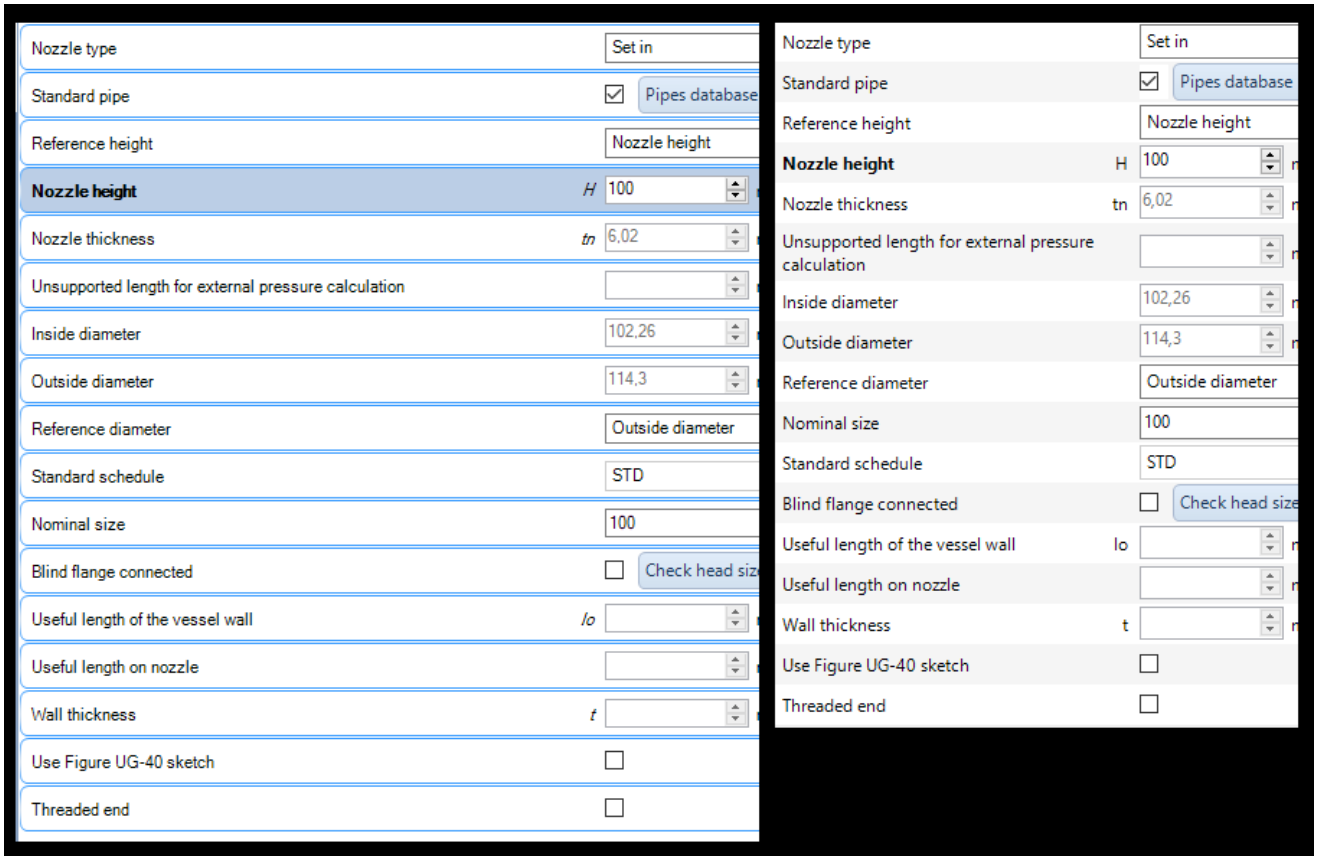


Improvements

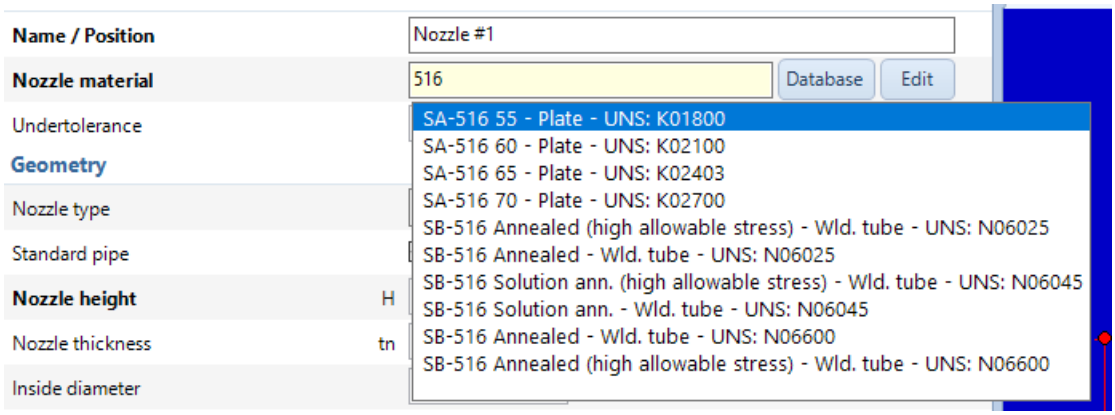
- "Essentials" category: main properties for each component are now grouped in a single category, named "Essentials". For the supported components, this category allows a faster design, without moving between different tabs. Advanced details are always available by switching to different categories.



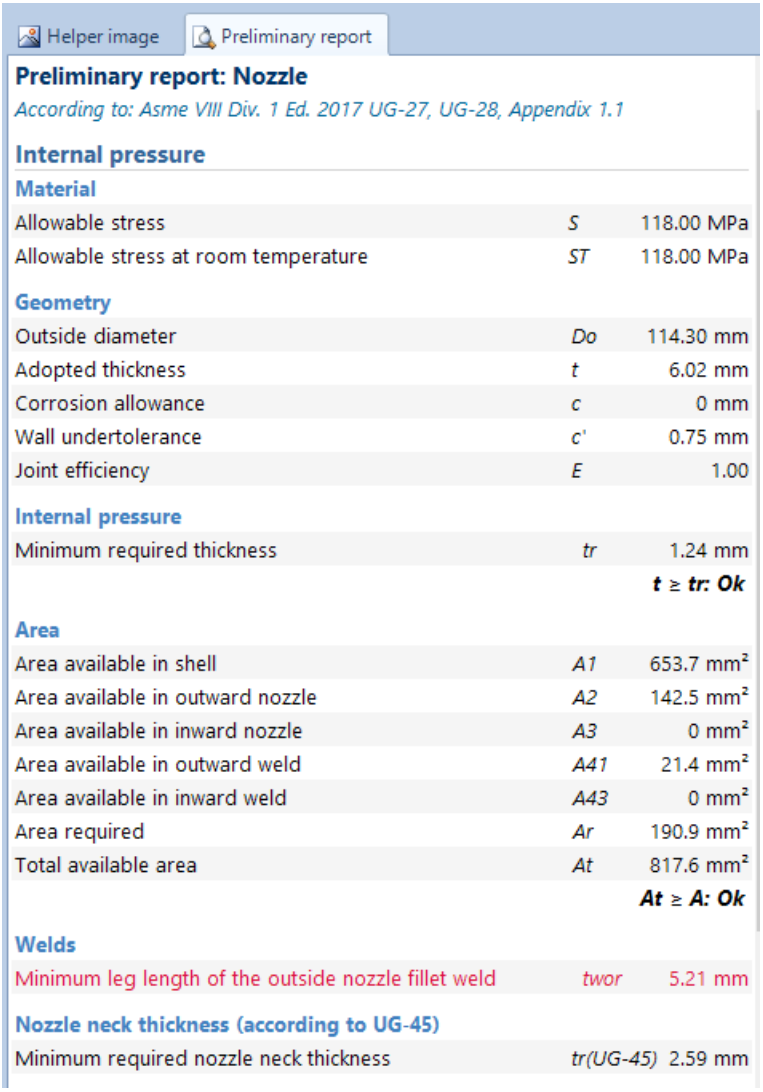
- Information density: property rows are now more compact, allowing more information to be displayed in the same vertical space



- Quick materials search: when typing a keyword (material name, UNS, etc.), the pop-up window allowing the quick selection of a material has been redesigned to display more material properties.



- Preliminary report: important information about the calculation are displayied in a revised preliminary report. This report can be printed by right clicking on it.



Helper image | Preliminary report

Preliminary report: Nozzle

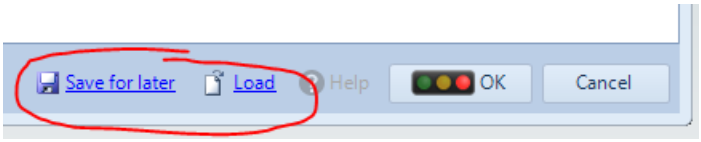
According to: Asme VIII Div. 1 Ed. 2017 UG-27, UG-28, Appendix 1.1

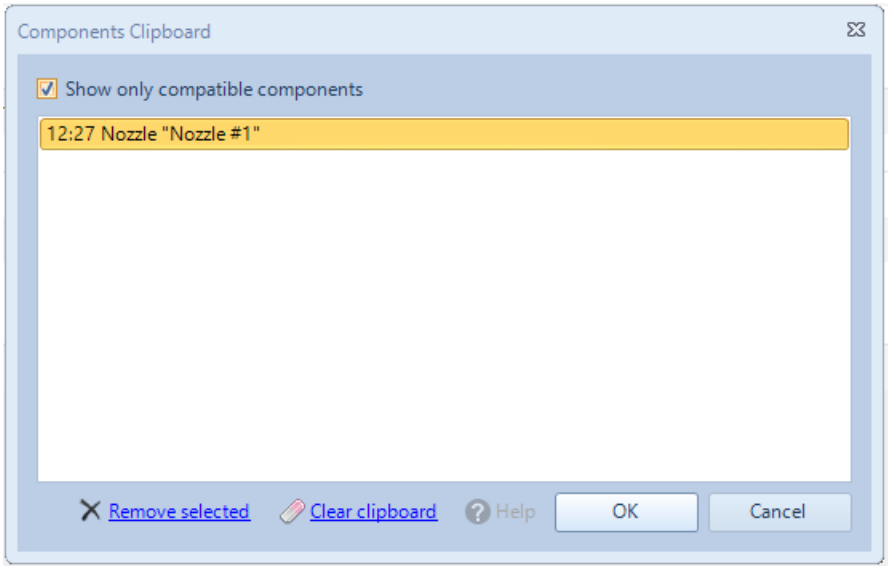
Internal pressure

Material		
Allowable stress	*S*	118.00 MPa
Allowable stress at room temperature	*ST*	118.00 MPa
Geometry		
Outside diameter	*Do*	114.30 mm
Adopted thickness	*t*	6.02 mm
Corrosion allowance	*c*	0 mm
Wall undertolerance	*c'*	0.75 mm
Joint efficiency	*E*	1.00
Internal pressure		
Minimum required thickness	*tr*	1.24 mm
		***t* ≥ *tr*: Ok**
Area		
Area available in shell	*A1*	653.7 mm²
Area available in outward nozzle	*A2*	142.5 mm²
Area available in inward nozzle	*A3*	0 mm²
Area available in outward weld	*A41*	21.4 mm²
Area available in inward weld	*A43*	0 mm²
Area required	*Ar*	190.9 mm²
Total available area	*At*	817.6 mm²
		***At* ≥ *A*: Ok**
Welds		
Minimum leg length of the outside nozzle fillet weld	*twor*	5.21 mm
Nozzle neck thickness (according to UG-45)		
Minimum required nozzle neck thickness	*tr(UG-45)*	2.59 mm

New features

- Components clipboard: a component can now be saved in a new clipboard, even when its properties are partially defined. This "parked" version of the component can be later reloaded. This allows both copy-paste of components and the ability to close the component form without loosing the filled information.\





Reverting to the old version

We thoroughly tested this new interface to make it reliable and usable. If for any reason, a return to the old version is needed, this can be achieved via the appropriate option under Tools > Options as shown below. The old window will stay available for some versions and later decommissioned.