

Standard flanges and flanges according to calculation code

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Online version: <https://nextgen.sant-ambrogio.it/KB824161>

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Using NextGen it is possible to design and calculate flanges; these components can be calculated in two different ways:

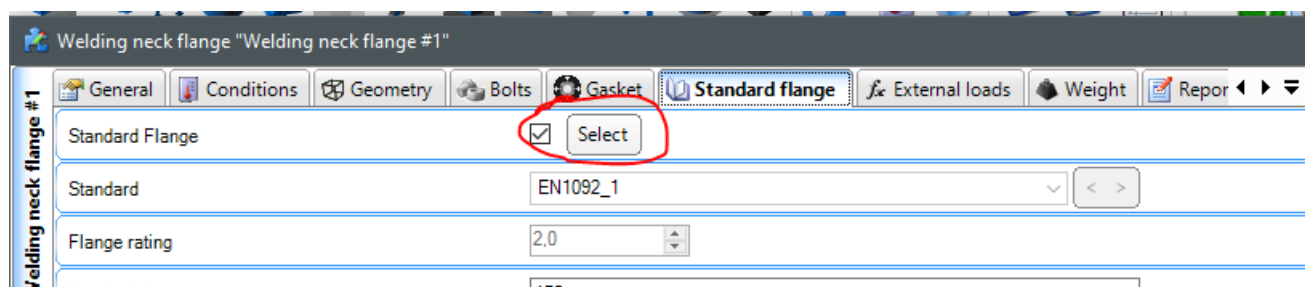
- Standard flange: this flange is usually bought compliant to a standard and suitable for a certain amount of pressure (rating). NextGen does not calculate this flange, it simply verifies that said rating is enough to withstand design pressure
- Flange according to a calculation code: this type of flange can be designed using a custom geometry (this usually happens for main body flanges) or using standard flange dimensions. NextGen calculates this flange according to calculation code in use

One thing to keep in mind is that each calculation code declares which flanges standard can be adopted using the first option when used within a project: this means that a flange can be considered standard only when used within a compatible calculation code. It is not possible for example to use ANSI flanges by their rating within an EN13445 project; similarly, an EN1092-1 or EN 1759-1 flange can't be used by its rating in an ASME project, even if EN 1759-1 flanges have basically the same dimensions as ANSI B16.

The following table shows how standard flanges are calculated when adopted in each calculation code supported by NextGen:

	ASME VII Div. 1	ASME VII Div. 2	EN13445	AD2000
ANSI B16	Rating	Rating	Clause 11 or Annex G	B 8
DIN	Appendix 2	4.16	Clause 11 or Annex G	B 8
EN1092-1	Appendix 2	4.16	Rating	Rating
EN1759-1	Appendix 2	4.16	Rating	B 8

This applies to flanges selected from databases available in our software when "standard flange" option is checked:



Bolting validation is carried on only when explicitly required by the reference standard (e.g., bolts made of an "intermediate strength" material in ANSI B16.5).

Note: it is perfectly normal and very common to receive validation errors when calculating a standard flange according to a calculation code.

Calculation report of a standard flange is pretty simple; note the "maximum pressure allowed by specification" value.

Standard Welding neck flange - Welding neck flange #1		
According to: EN 13445 Ed. 2014 Issue 3, Part 3, Clause 11		
Flange material	P305GH (N) (EN 10222-2:1999) t ≤ 35.00 mm- Forging	
Shell material	P355 Modificato- Plate	
Calculation performed as a standard flange	=	Yes
Flange standard / specification	=	EN 1092-1:2007
Flange rating	PN =	40
Nominal size	DN =	150
Number of bolts	=	8
Bolt type	=	ISO M24 x 3.00
Material group	=	3E1
Calculation temperature	T =	200.00 °C
Internal pressure	Pd =	1.00 MPa
Overpressure due to static head	Ph =	0 MPa
Calculation pressure	P =	1.00 MPa
Maximum pressure at temperature allowed by the specifications	PS (Annex F) =	4.57 MPa