

**ASME Code requirements  
 regarding the use of SI units in pressure equipment  
 design registration and shop construction**

Design submissions may be in either SI (Metric) units or U. S. Customary (Imperial) units, but there should be consistency, without a mix of units in the same design submission. For ASME Code Stamped construction, in accordance with the ASME Code requirements, the Manufacturer's Data Reports and nameplates must be in U. S. Customary units exclusively or both U. S. Customary units and SI units with the SI units shown parenthetically [ref. UG-115]. In that situation, for SI based designs, the conversions to U. S. Customary units for use on data reports and nameplates should be included in the design submission.

In most cases, with North American suppliers, materials are only available in the U.S. Customary unit based material specification (e.g., SA-516-70), as opposed to the SI or metric unit based material specification (e.g., SA-516M-485). When ordering U. S. Customary unit based materials for designs that are based upon SI units, the Purchase Orders that are generated for materials must specify the required U. S. Customary unit dimensions (i.e., the units should not be mixed). In these cases it would be permissible, but not mandatory, to indicate SI unit dimensions parenthetically on the purchase orders. The following table provides examples of correct and incorrect use of units for plate material:

Incorrect use	Correct use
Plate material 25.4 mm thick, SA-516-70	Plate material 1 inch thick, SA-516-70
	or
	Plate material 25 mm thick, SA-516M-485

The most common pipe materials, SA-106-B and SA-333, do not have an equivalent metric specification. For these pipe materials, and when applicable for flanges and pressure fittings, the dimensionless designator NPS (nominal pipe size) should be specified in place of nominal diameter, size or nominal size. The SA-53 specification does have a metric equivalent (SA-53M). When the SA-53M specification is used the DN (diameter nominal) designator should be used. The following table provides examples of correct and incorrect use of units for pipe material:

Incorrect use	Correct use (SA-106, SA-333)
Pipe material 33 mm OD, Schedule 40, SA-106 Grade B Seamless	Pipe material NPS 1, Schedule 40, SA-106 Grade B Seamless
	Correct use (SA-53/53M)
	Pipe material NPS 1, Schedule 40, SA-53 Grade B Seamless
	or
	Pipe material DN 25, Schedule 40, SA-53M Grade B Seamless

For ASME Code Stamped constructions, you are reminded that these requirements may be influenced by future ASME Code revisions or interpretations specifically on the use of SI units. In that case, we will provide an advisory bulletin accordingly.

For non-ASME Code Stamped construction, CSA B51 Manufacturer's Data Reports and the nameplates for these items may be in SI units only. Your attention is also drawn to the fact that there is a proposal to revise ASME Section VIII Division 3 in the near future to allow for the use of SI units as the primary units for Code construction, as an alternative to the use of traditional units.

Dr. K. T. Lau, Ph.D., P.Eng.  
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