

Unfold of covers with radius of Concordance

The unfold of covers used in pressure vessels and tanks is very simple. The difficulty is in manufacturing these components because they use a profound plastic conforming process and for some materials this operation is done when the materials are hot.



Figure A – Typical manufacturing process of covers with radius of concordance

The dimension of the diameter of the primitive disk (unfold of the cover) is simple and obeys the length of the average line (neutral line) of the cover already conformed (yellow line in figure B). However, manufacturers usually add correction factors to the theoretical formula due to the high level of plastic deformation of this process.

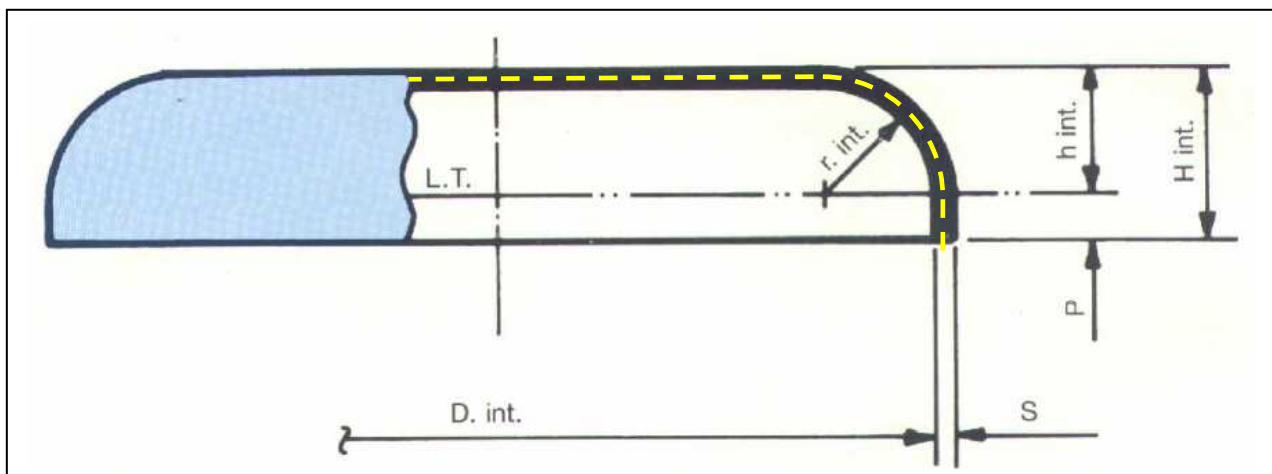


Figure B – cover plan with its variables

This way, it is normal to obtain tables and formulas to calculate the primitive disk (unfold of the cover) for the several types of covers from manufacturers and those who render services in manufacturing covers. These formulas and tables usually already contemplate correction factors which consider the high plastic deformations of the process. In Brazil, there are 2 large manufacturers of covers in service rendering and examples of their tables can be seen in figures C and D.

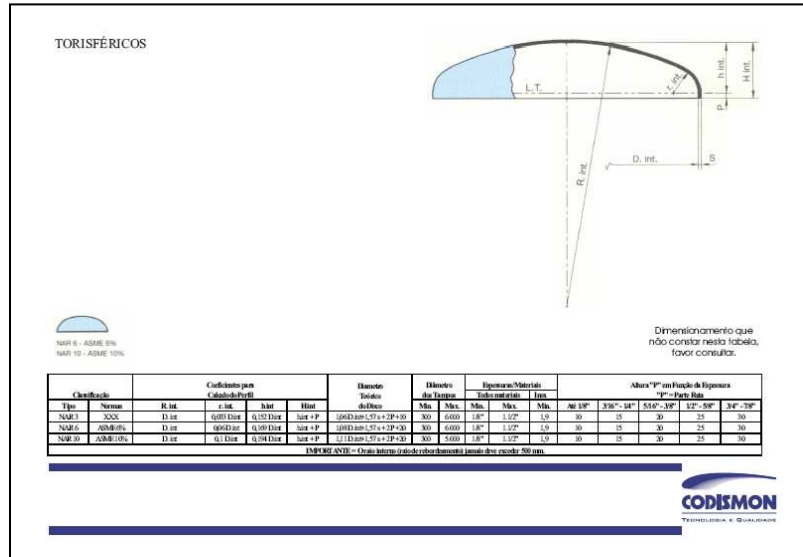


Figure C – Example of a calculation table of the manufacturer of covers Codismon – Dedini / Brasil. www.dedini.com.br

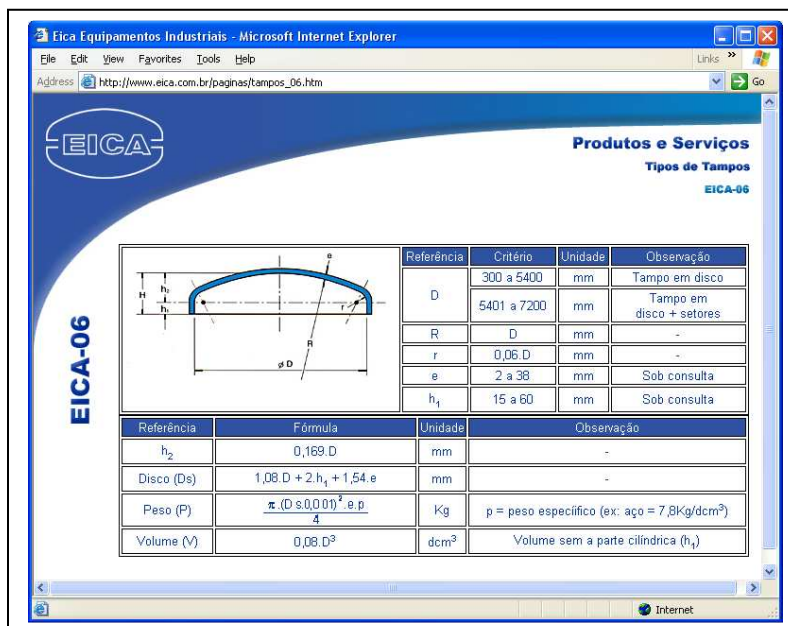


Figure D – Example of a calculation table of the manufacturer of covers Eica / Brasil. www.eica.com.br



Example of a cover made with divisions.

As the complete conforming of the cover is complex and is directly associated to the manufacturing process of the company (or service renderer in conforming), another good practice would be to make this cover in "divisions" using this resource of the Revolve module of the CALDsoft7.