



INF. 15

23 February 2015

Original: German

RID/ADR/ADN

Joint Meeting of the RID Committee of Experts and the Working Party on the Transport of Dangerous Goods (Berne, 23 - 27 March 2015)

Agenda item 2 Tanks

Interpretation of the term cross-section in paragraph 6.8.2.1.20 of ADR and in section 6 of standard EN 13094:2008

Information transmitted by Germany

SUMMARY

<i>Executive Summary:</i>	Germany informs the Joint Meeting of the German opinion regarding the interpretation in the standard of the definition of tank shapes in the case of diverging geometry and design of corner radiuses in certain areas of the shell.
<i>Action to be taken:</i>	Discussion.
<i>Related documents:</i>	None

Introduction

1. In paragraph 6.8.2.1.20 of ADR and in sections 6.1 and 6.9.2.2 of standard EN 13094:2008, reference is made to tanks with different cross-section shapes. Here, a distinction is made between tanks with circular, elliptical or other cross-sections. There are shapes of tanks that cannot be assigned clearly, as they diverge in some parts from the standard geometry, e.g. when the original cylindrical, elliptical or boxlike cross-section has been detached and replaced by components of a different shape.
2. Germany would like to inform the Joint Meeting of its opinion that in these cases the original shape of the tank should be assumed as a basis for the tank shape to be assigned, i.e. the shape of the tank prior to the replacement of a partial segment by another component.
3. Thus, all calculations and evaluations apply to the originally defined tank shape. A prerequisite of this is that the entire cross-section of the tank is maintained for at least 70 % of the area and that the strength of the design has been proven by means of a method specified in the code.
4. Tank and cutout shapes used in Germany for many years are shown below:

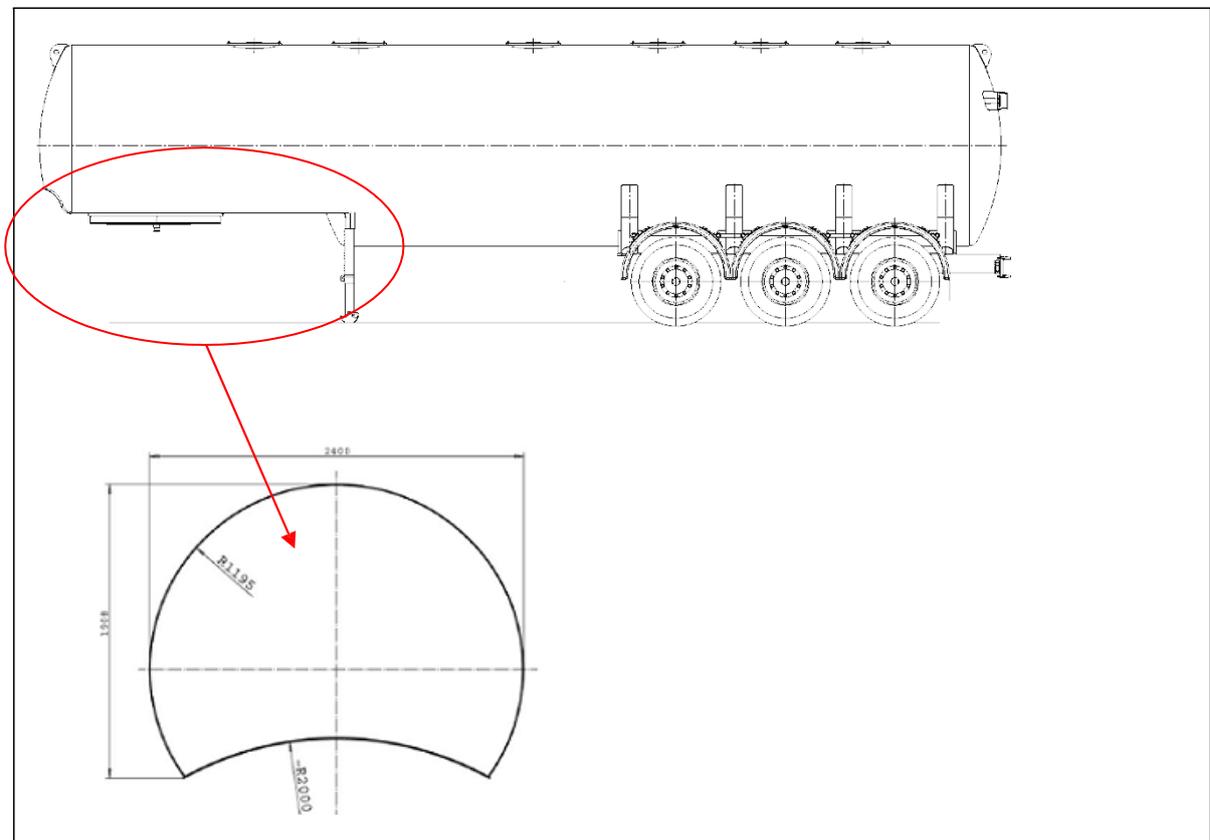


Fig. 1: Cylindrical tank with cutout above the fifth wheel coupling

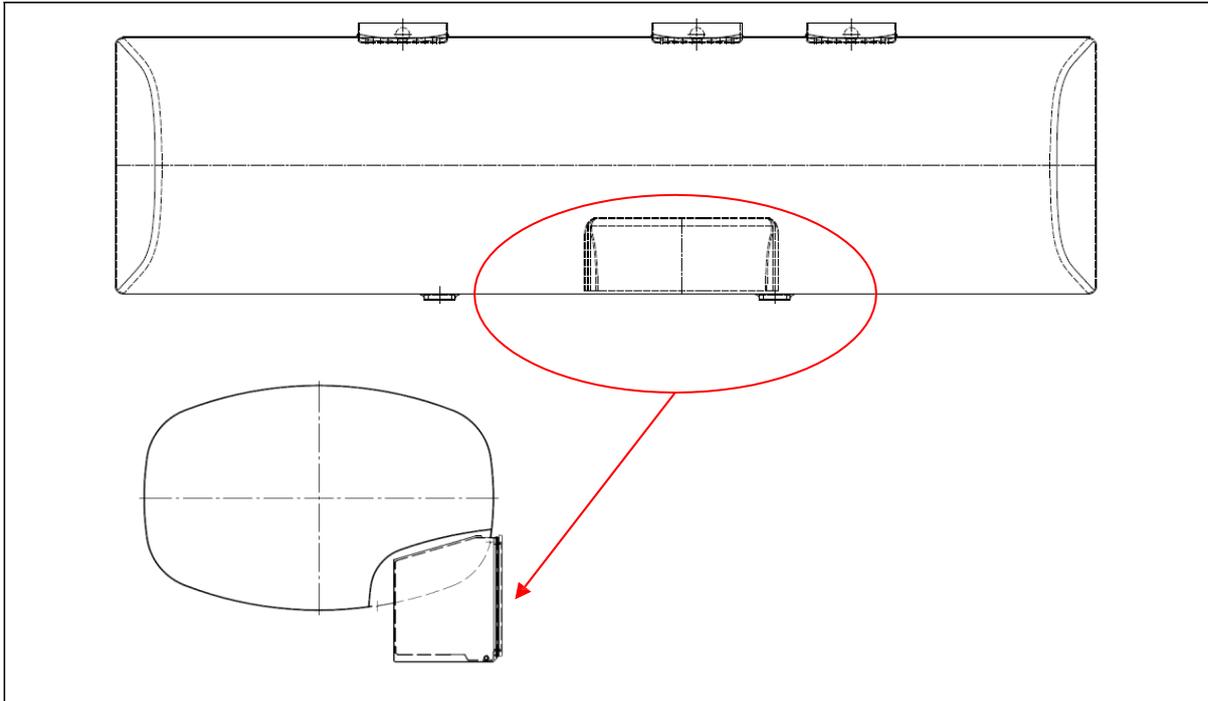


Fig. 2: Box-shaped tank with cutout for the fittings cabinet

5. Figure 1 shows a variant (in particular for tank semi-trailers) where the cross-section in the lower part above the semi-trailer towing vehicle is smaller than that of the original cylinder to make room for the semi-trailer towing vehicle. In this case, the tank is considered to be a cylindrical tank.
6. Figure 2 shows a fittings cabinet in a box-shaped tank; the cabinet is integrated with the tank to allow for a lower centre of gravity of the original tank without limiting the serviceability and the ground clearance with regard to the fittings cabinet. In this case, the tank is considered to be a box-shaped tank.
7. Another example for fixtures or attachments to tanks are, among others, additive devices under special provision 664. Germany considers these special fixtures or attachments to be "shell projections" as defined in section 6.3.2 of standard EN 13094. This means that in these areas the required radiuses under section 6.3.1 (b) need not be considered.
8. The strength of these tank sections has been proven under the conditions specified in the code.

Justification

9. The described design variants have been put on the market in Germany in large numbers since the beginning of the 1990s; over the many years, no irregularities with regard to fatigue strength or insufficient strength in the case of accidents have been found.
10. The considerable safety-related advantages of these designs predominate, i.e. the maximum lowering of the centre of gravity that is achieved in all these examples and that has proven to increase the driving stability and safety of tank-vehicles in Germany. The statistics concerning the number of accidents involving tank-vehicles, which have decreased to a minimum, clearly corroborate this.
11. Also in other countries, e.g. Belgium, Denmark, Lithuania, Luxembourg, the Netherlands, Romania, Slovenia and Hungary, German manufacturers have been granted type approvals for tanks with these design characteristics or the German type approvals have been recognized.

Example of a cutout in the tank for an operating panel in a Danish tank-vehicle:

