Item 4
Adaptation of test procedure regarding class L drawbar eyes

Jan. 2014 the 17th
• **Situation:**

- Request to adapt a test procedure relevant to couplings class K and L,

- It is defined in R55 some specific requirements to test the hook couplings (no specific requirements when trailer load is less then 3.5 T) and standard requirements for drawbar ring
• It is accepted to consider that the contact between the pin and the drawbar eye is not similar when coupled with a pin coupling or a hook coupling, the resultant stress and the damage zone are different,

• With the test specifications on the R55-01, it is specified a positive test load without any test on the both sides of the coupling (±F_v and ±F_H),

• These specifications (test loads and conditions to apply the loads for tests) have no links to the mechanical contacts,

• These specifications are more severe than the standard used for Class C, D and S but not relevant to the use of the coupling,

• The main question is:
  • Why to make a difference in terms of loads conditions for tests and approval?
<table>
<thead>
<tr>
<th>Product class</th>
<th>Test force</th>
<th>Mean value (KN)</th>
<th>Amplitude (KN)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coupling and drawbars devices for hinged drawbars</td>
<td>Horizontal force</td>
<td>0</td>
<td>F_{hw} = +/-0.6 D</td>
<td></td>
</tr>
<tr>
<td>Coupling and drawbars devices for central axle trailers (&gt; 3.5T)</td>
<td>Horizontal force</td>
<td>0</td>
<td>F_{h} = +/-0.6 D_{c}</td>
<td>Vertical and horizontal loads are applied independently.</td>
</tr>
<tr>
<td></td>
<td>Vertical force</td>
<td>S*g/1000</td>
<td>F_{v} = +/-0.6 V</td>
<td></td>
</tr>
<tr>
<td>Coupling class K devices for hinged drawbars ( § 3.5.2.2 annex 6)</td>
<td>Horizontal force</td>
<td>0.475 D</td>
<td>F_{hw} = + 0.05 D + D</td>
<td></td>
</tr>
<tr>
<td>Coupling class K devices for central axle trailers ( § 3.5.2.3 annex 6)</td>
<td>Horizontal force</td>
<td>0.475 F_{hs res}</td>
<td>F_{hs res} = (F_{h}^2 + F_{s}^2)^{\frac{1}{2}}</td>
<td>F_{h} = D_{c}</td>
</tr>
<tr>
<td></td>
<td>Vertical force</td>
<td>Angle between F_{h} and F_{s}</td>
<td>F_{hs res} = + 0.05 F_{hs res} + F_{hs res}</td>
<td>F_{s} = S<em>g/1000 + 0.8</em>V</td>
</tr>
</tbody>
</table>
Proposal

- Our proposal should be to specify the same testings conditions (loads calculation and forces) for all the couplings and drawbars classes (class C/D; class K/L; class S/S, i.e. the couplings of class K shall be tested in the same manner as standard couplings,

- For both hook and pin couplings, we recommend:

  - To define tests conditions relevant to the use of the product
    - Alternative force in one direction for couplings < 3.5 T (report to § 3.1.1 annex 6)
    - Alternative force in both directions for couplings > 3.5 T,

  - To define similar force calculation \( F_v \) and \( F_h \), and application of forces, §3.3.3 and table 14

  - To suppress specific tests and load conditions dedicated to class K hook couplings ,

- For drawbar eyes:

  - To label the drawbar eyes for both applications (Class L and class S) with their relevant characteristic values.
Example of label

Réf. Type: ******

Classe L
55R-01******

Crochet Classe S:
D: 200 KN
Gc: 91 KN
S: 1000 KG
V: 34 KN

Crochet Classe K:
D: *** KN
Gc: ** KN
S: ***** KG
V: ** KN

Fab.N°