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APTU Uniform Rules (Appendix F to COTIF 1999)

Uniform Technical Prescriptions (UTP) relating to the Subsystem Rolling Stock

FREIGHT WAGONS - ANNEX K

VEHICLE TRACK INTERACTION AND GAUGING – WHEELSETS

Explanatory note:

The texts of this UTP which appear without columns are identical with corresponding texts of the European Union regulations. Texts which appear in two columns differ; left-hand column contains the UTP regulations, right-hand column shows the text in the corresponding EU regulations. The text in the right hand column is for information only and not part of the OTIF regulations.

OTIF UTP

Corresponding text in EU regulations ¹

EU ref. ²

WHEELSETS

K.1 ASSEMBLY OF COMPONENTS.

K.1.1 GENERAL

Before fitting, all elements which comprise the wheelset, shall comply with the geometric requirements of the documents which define them. The wheels and axle shall be ready to assemble.

It is permissible to either shrink-fit or press-fit the wheelset elements. Wheelset journal bearings shall be fitted onto the wheelset according to the manufacturer's instructions.

The static imbalance of the two wheels of each wheelset shall be in the same diametrical plane and on the same side of the axle.

K.1.2 INTERFERENCE BETWEEN AXLE WHEELSEAT AND WHEEL BORE-HUB.

Where no specific interference fit has been specified, the interference ' j ' in mm shall be:

- shrinkfit: $0,0009 \text{ dm} \leq j \leq 0,0015 \text{ dm}$
- pressfit: $0,0010 \text{ dm} \leq j \leq 0,0015 \text{ dm} + 0,06$


where dm is the mean diameter of the wheelseat in mm.

K.1.3 PRESS FITTING DIAGRAM.

For press fitting, a force–displacement curve gives confidence that the fitted surfaces are not damaged and that the specified interference has been achieved. The range of the end fitting force, depends on the force F defined in K.2.1 and shall be:

¹ TSI Freight Wagons – The Annex to the Commission Decision 2006/861/EC published in the EU Official Journal L344 on 08.12.2006 as amended by Commission Decision 2009/107/EC published in EU Official Journal L45 on 14.02.2009.

² If no EU reference is indicated, it means that the chapter/section number is the same as in the OTIF text.

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0,85 F < end fitting force < 1,45 F

K.2 WHEELSET CHARACTERISTICS.

K.2.1 MECHANICAL RESISTANCE OF THE ASSEMBLIES.

Wheelsets shall be tested to prove correct wheel fitment using a press incorporating a force-recording device. A proving thrust F shall be gradually and uniformly applied around the wheel and sustained for a period of 30 seconds. Unless otherwise specified by the designer, the value of the force F shall be:

$$F = 4 \times 10^{-3} dm \text{ MN}$$

where

0,8 dm < L < 1,1 dm and

dm is the mean diameter of the wheel seat (mm);

L is the length of the wheel hub (mm).

Results to be achieved:


There shall be no displacement of the wheel relative to the axle after the application of the proving thrust.

K.3 DIMENSIONS AND TOLERANCES.

K.3.1 GENERAL

The dimensions of the wheelset shall be in accordance with the design drawings. The dimensional and geometrical tolerances to be applied in the assembly of the different component parts on the wheelset are given in the following subclauses.

Measurements shall be made without any load on the wheelset.

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K.3.2 CHARACTERISTICS OF MOUNTED WHEELS.

Fig. K.1

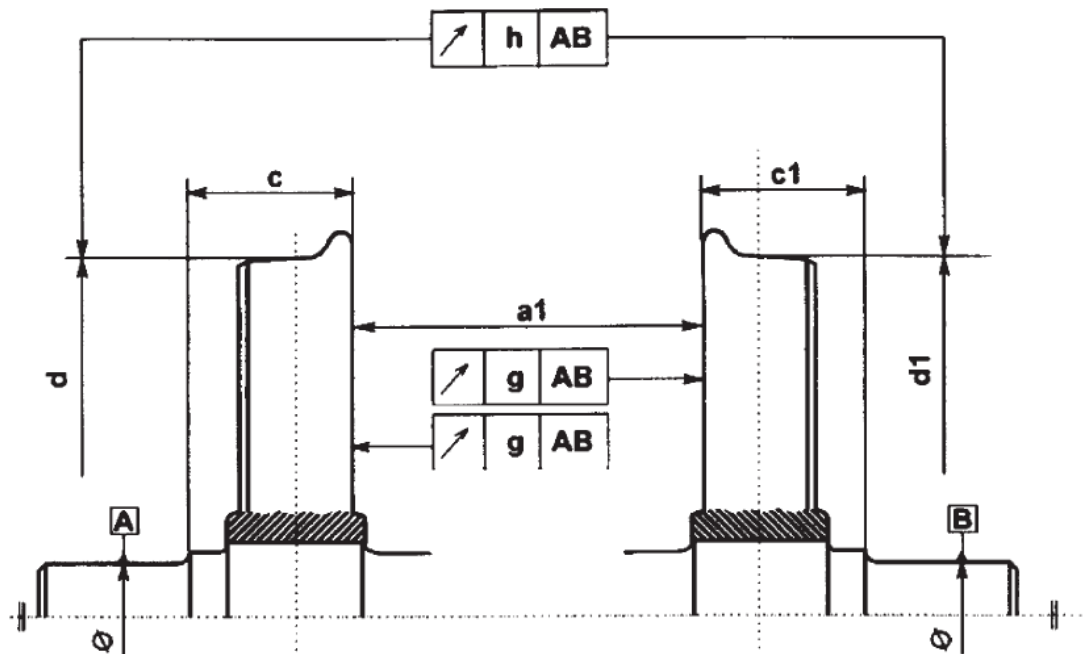


Table K.18

Description	Symbol	Tolerance (mm)	
		≤120km/h	>120km/h
Distance between internal wheel faces ⁽¹⁾ (Back-to-Back distance)	a_1	+2 ⁽²⁾	
		0	
Distance between the Flange Back and the plane showing, on the journal side, the corresponding bearing collar	$c - c_1$ or $c_1 - c$	≤ 1	
Difference in tread circle diameter.	$d - d_1$ or $d_1 - d$	≤ 0,5	≤ 0,3
Radial deviation at the tread	h	≤ 0,5	≤ 0,3
Axial deviation of the Flange Backs ⁽¹⁾	g	≤ 0,8	≤ 0,5
⁽¹⁾ Measured 60 mm below the top of the flange. ⁽²⁾ Tolerances may be changed for special design wheelsets.			

K.3.3 OVERHANG OF THE WHEEL.

The lengths of the wheelseat and the wheel hub shall be selected so that the hub slightly overlaps the wheelseat, especially on the axle body side. The overlap length shall be between 2 and 7 mm.

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K.4 PROTECTION AGAINST CORROSION.

Wheelsets components shall be protected according to the requirements of their design specification.

It is permissible for cavities arising from the overhang of the wheel hub on the wheelseat to be filled with an anticorrosion product.

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Fig. E.1

