

Former issues of this standard: October 2019

1. Scope and field of application:

- 1.1 This EUWA - Standard defines guidelines to design rims in an area where the TPMS concepts systems could be placed. The main aim of this standard is to collect rim parameters which shall be covered from the TPMS sensors geometrical adjustment so that during the system development this information can be taken into consideration and systems would automatically fit to existing and new truck wheels.

TPMS systems will become mandatory in the EU for trucks and trailers. In order to avoid non suitable wheels and TPMS systems, the EUWA has decided to proactively define the restriction space for such TPMS systems

- 1.2 The following guideline is valid for tubeless truck wheels. The main designation for these wheels will be Europe, but generally these wheels are used worldwide.

2. References

2.1 Definition

A parallel definition has already been agreed with the ETRTO. The result for the space restrictions is shown on pages R.22 and R.23 of the ETRTO Standard Manual 2019, chapters 16.1 and 16.2 in the RIM section.

2.2 Restrictions

All other dimensional restrictions from ETRTO standard manual for tubeless truck wheels, apply.

3. Drop center rim parameters for TPMS system accommodation design dimensioning

3.1 Steel Wheels

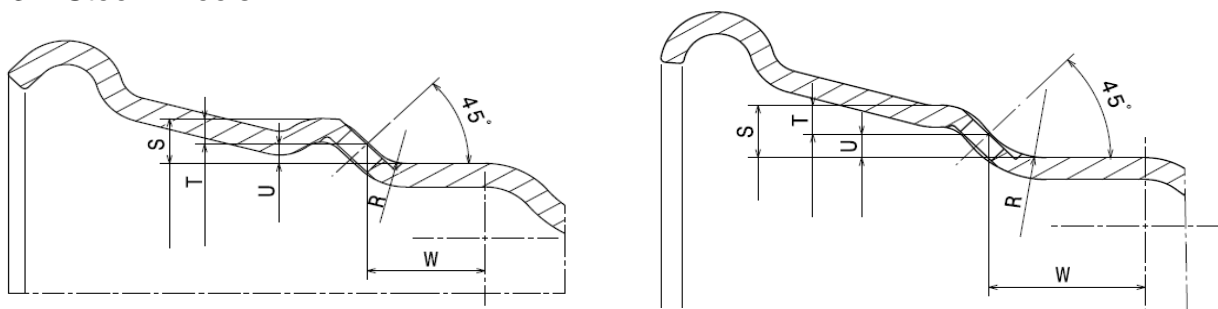


Figure 1: Basic Contours of steel truck wheels and parameter definition

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EUWA specific responsibility for standard: Responsible Department for release: Main changes to last issue:	EUWA Technical Commission EUWA Competence Center - Tel.: +49 2373 7602920 Table 1 & 2 – "Envelope values per diameter code" & "rounding of numbers" - Rationale: Same TPMS per each class of wheel
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Size (WxD)		Smin	Umin	Umax	Wmin	R			ALV	Valve Hole Angle		
[inch]		[mm]	[mm]	[mm]	[mm]	[mm]				[°]		
6.00	17.5	7	3	7	22	5	-	16	ALV	43	-	49
6.75												
6.75	19.5											
7.50												
8.25												
7.50	22.5											
8.25												
9.00												
9.75												

*Contour #1
Standard
Wheel Sizes*

Size (WxD)		Smin	Umin	Umax	Wmin	R			ALV	Valve Hole Angle		
[inch]		[mm]	[mm]	[mm]	[mm]	[mm]				[°]		
11.75	22.5	20,0	6,0	12,5	-	20	-	36	ALV	33	-	53
13.00												
14.00												
15.00												

*Contour #2
Wide well
rims contour*

Size (WxD)		Smin	Umin	Umax	Wmin	R			ALV	Valve Hole Angle		
[inch]		[mm]	[mm]	[mm]	[mm]	[mm]				[°]		
8.5	24	20,0	12,5	19,0	36,5	7	-	36	ALV	27	-	54

*Contour #3
24" diameter
code contour*

Table 1: Parameter Limits for tubeless Steel Truck Wheels (Remark: "ALV" for external valve solution)

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3.2 Aluminum Wheels

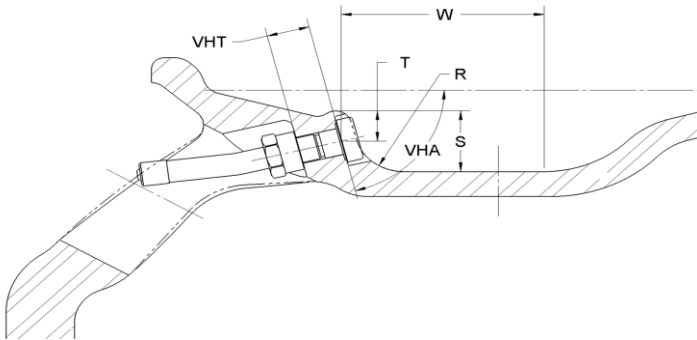


Figure 2: Basic Contour Aluminum Truck Wheel

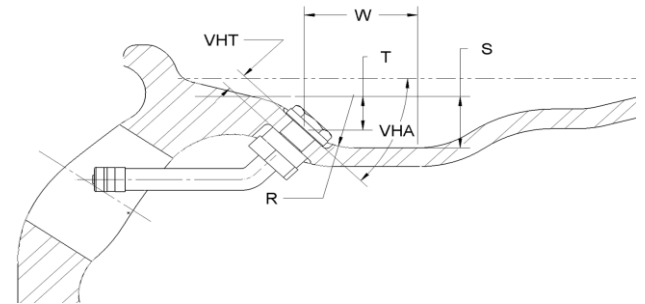


Figure 3: Basic Contour Aluminum Truck Wheel

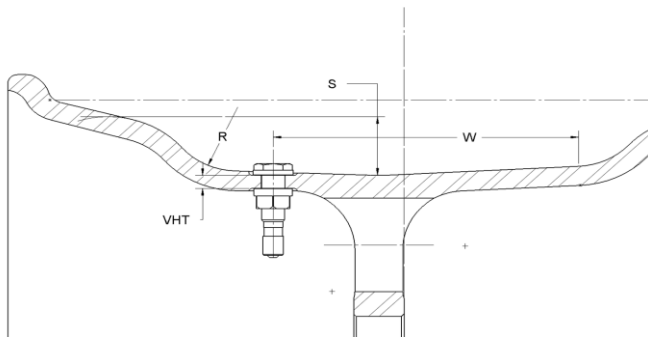


Figure 4: Basic Contour Aluminum Truck Wheel

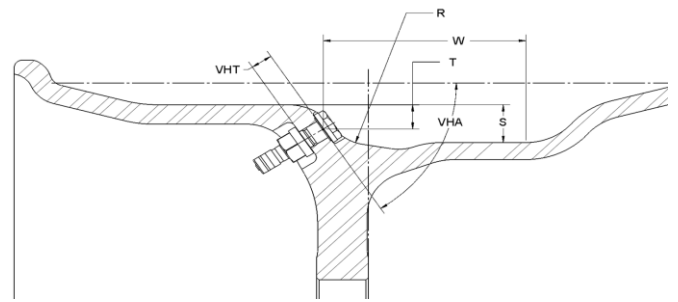


Figure 5: Basic Contour Aluminum Truck Wheel

	Wheel		VHA		VHT		S		U(U=S-T)		R		W	
	Diameter [inch]	Width [inch]	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
			[°]		[mm]		[mm]		[mm]		[°]		[mm]	
Fig. 2	17.5	All	74	81	6	15	18		4	12	7	26	36	
	19.5	All												
	22.5	7.5					22	42	7	18			60	
	22.5	8.25/9.00												
	22.5	11.75			4		7	26	90					
Fig. 3	17.5	All	30	46	6	10	16		2	10	15	22	36	
Fig. 4	22.5	11.75	-2	2	6	12	20		N/A		15	50	90	
	22.5	13.00/14.00	-2	2										
Fig.5	22.5	11.75	50	60	6	12	17		7	16	15	50	90	

Table 2: Parameter Limits for tubeless Aluminum Truck Wheels

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4. Recommendations

- 4.1 For a proper planning of the TPMS to be installed for each wheel application, the TPMS system study shall take in consideration the widest rim parameters range variation.
- 4.2 Regarding the tire mounting process, make sure that the tyre bead does not touch / hurt the (TPMS) sensor during lifting. Keep tyre bead away from sensor.
Observe during the tire bead unseating operation and during the overall tyre demounting process the TPMS sensor and make sure that the tyre bead does not touch / hurt the (TPMS) sensor.
In case of mounting issues and/or uncertainties, specific mounting tests between TPMS-, wheel- & tyre-supplier should be planned and agreed with the customer.
- 4.3 It is highly recommended that the valve stems of the TPMS systems are isolated vs the base metal of the rim to avoid electrochemical corrosion. This could be for example done by a suitable grommet or sealing ring on the TPMS side.
- 4.4 During the mounting and demounting process of the valves/TPMS systems damages, scratches etc. to the wheel body shall be avoided to prevent corrosion, that, located in highly stressed areas, could cause early fatigue cracks.
- 4.5 Exceeding the above-mentioned rim design parameters may be feasible in specific cases, but must be agreed upfront with the customer in a case-by-case evaluation. The OEMs are in charge to take care on the design of the sensors when deciding for one TPMS supplier. For the existing sensors, it is probable that TPMS suppliers did not considered all present type of wheel design in market.
- 4.6 The additional static/dynamic unbalance generated by TPMS systems has to be taken into consideration for the assembly process and the selected balance weights. It is recommended that OEM balance requirements are adjusted to reflect the additional weight of the TPMS system.

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