

DK COMPOSITE

Test Report 700C D40TL-28-24H-UD

DK Composite

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1 Introduction

Test Date	22.01.2024	Model	D40TL-28-24H-UD
Doc Number	DK-TR-220124	Serial Number	DK-D40TL-28-SP
Weight	345/339g	Version	V1
Test Status	Sample Test	Test basis	ISO 4210/UCI/DK standard
Drawing	<p>The drawing shows a cross-section of a component with the following dimensions:</p> <ul style="list-style-type: none"> Top width: 28,39 Inner top width: 27,15 Inner width at the neck: 21 Total height: 40 Height of the neck: 5,55 Height of the base: 8,3 Outer diameter at the top: Ø632.8 Inner diameter at the top: Ø621.7 		

2 Summary

Test requirements fulfilled.
All laboratory tests passed.

3 Laboratory Tests

3.1 Flatness and Roundness Tests

A: Test Condition

1. Place the rim on the test turntable, with the dial indicator aligned with the middle of the brake track;
2. Rotate the rim for a circle, and record the maximum and minimum values of the dial indicator, the difference between the two is the flatness of the braking track;
3. The method of testing the roundness of the rim is the same as above.

B: Judgement Standard

1. Brake track flatness $\leq 0.3\text{mm}$;
2. The roundness of the rim is $\leq 0.3\text{mm}$.

C: Test Results

1. Brake track flatness is 0.08/0.09mm;
2. The roundness of the rim is 0.14/0.16mm.

D: Test Pictures



3.2 Lateral Stiffness Test

A: Test Condition

1. Fix the rim on the special fixture;
2. Apply 20kgf(196N) force to the valve hole, record its deformation and calculate the corresponding stiffness values;
3. Take the average values of the stiffness obtained from three different applied forces as the final rim stiffness value;
4. Measure once before and after the wheel building;
5. The built wheel is a disc brake rear wheel with stainless steel spoke, the hub axle size is 142mm, and the spoke tension on the drive side is 120 ± 10 kgf. The drive side is placed upward during the test.

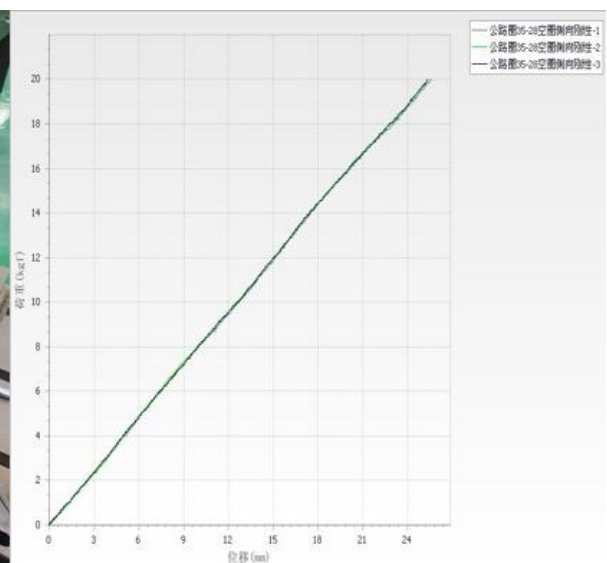
B: Judgment Standard

1. The stiffness value before wheel building is ≥ 6 N/mm.
2. The stiffness after wheel building (rear wheel drive side) ≥ 30 N/mm

C: Test Results

Test Results: (Rim)	NO.	1	2	3	Average Stiffness (N/mm)	Judgement
	Deformation (mm) :	22.347	22.247	21.913		
	Stiffness (N/mm) :	8.8	8.8	8.9	8.8	OK
Test Results: (Wheel)	NO.	1	2	3	Average Stiffness (N/mm)	Judgement
	Defomation (mm) :	4.813	4.813	4.78		
	Stiffness (N/mm) :	40.7	40.7	41.0	40.8	OK

D: Test Picture



3.3 Radial Stiffness Test

A: Test Condition

1. Fix the rim on the bottom plate of the universal testing machine, with the valve hole facing up;
2. Apply a force of 50kgf (490N) to the valve, record its deformation and calculate the corresponding stiffness value;
3. Take the average value of the stiffness obtained by three different applied forces as the final rim stiffness value.

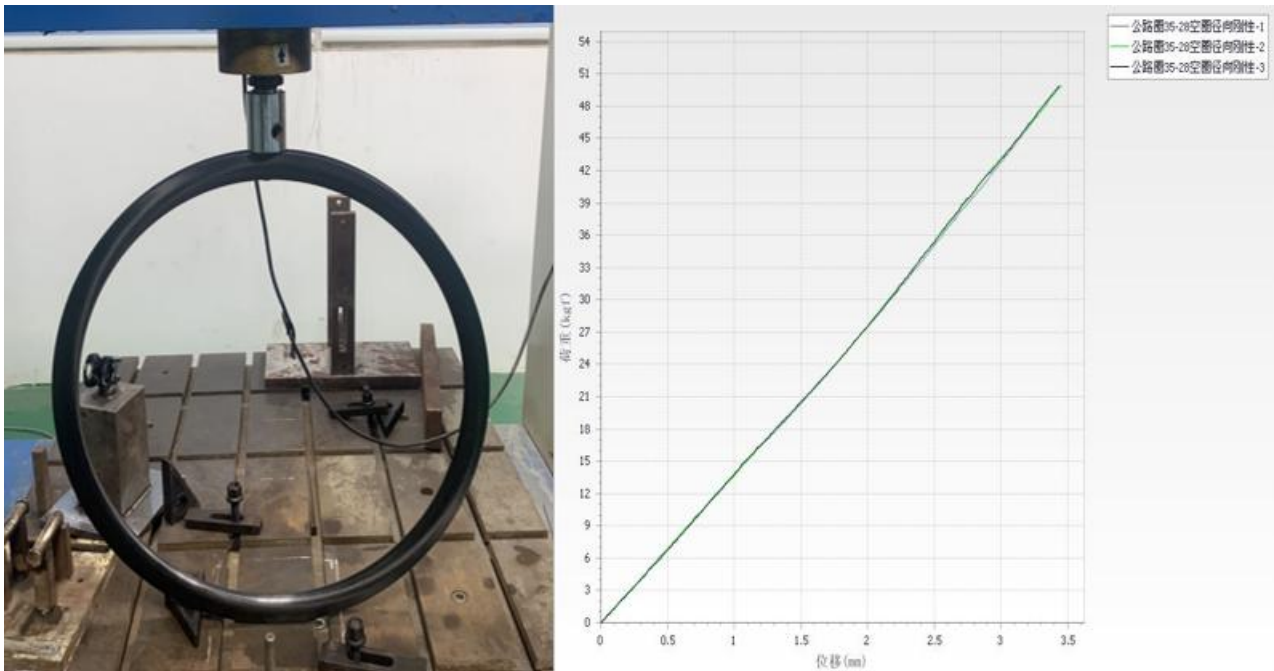
B: Judgement Standard

1. Stiffness value (rim) $\geq 100\text{N/mm}$

C: Test Results

Test Results (Rim)	NO.	1	2	3	Average Stiffness (N/mm)	Judgement
	Deformation (mm)	2.293	2.255	2.259		
	Stiffness (N/mm)	213.7	217.3	216.9	216.0	OK

D: Test Picture:



3.4 Wheel Impact Test

A: Test Conditions:

1. Drop hammer weight: 22.5kg;
2. Drop hammer shape: cylindrical, flat bottom, bottom with silicone pad, thickness 10mm (hardness Shore A=50±5);
3. Rear wheel 24 holes, test without tires;
4. After the wheel set is fixed, raise the drop hammer to 48J (height 217mm), release the drop hammer, let it fall freely to the outer circle of the rim, and observe whether the rim is cracked or broken. If there is no crack or break, then increase the height successively and continue the test until crack or break appears.

B: Judgement Standard:

1. 60J without any damage, it is determined that the test is passed.

C: Test Result:

Test Results	NO.	Joule(Height)	Test results	判定
	1	48J (217mm)	OK	OK
	2	60J (272mm)	OK	OK
	3	70J (317mm)	OK	OK
	4	80J (363mm)	OK	OK
	5	90J (408mm)	Broken	NG
	6	100J (454mm)		
	7	110J (499mm)		
	8	120J (544mm)		

D: Test Pictures:

3.5 Spoke Hole Pull Out Test

A: Test Conditions:

1. Fix the rim on the special fixture;
2. The rising speed of the machine head is 10mm/min;
3. Apply a force of 300kgf to the spoke holes, and test 6 different hole positions;

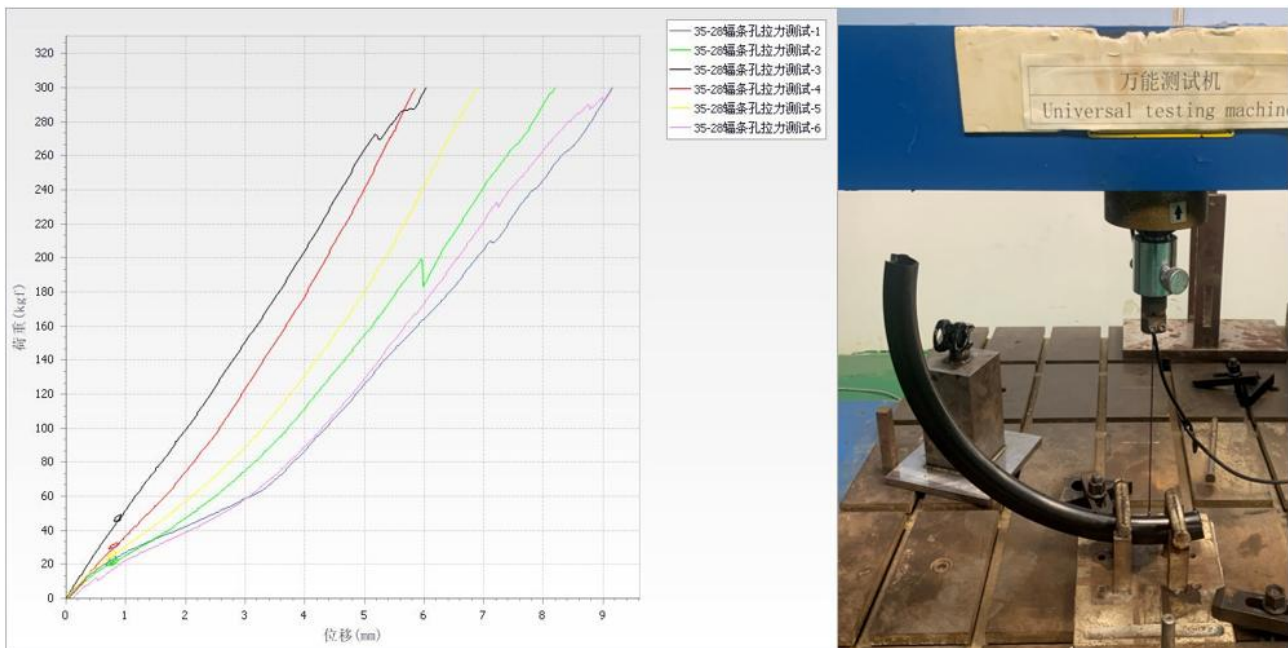
B: Judgment Standard:

1. After the tensile force reaches 300kgf, there should be no cracks and bulges in the spoke holes.

C: Test Result

Test Results	Spoke Hole	1	2	3	4	5	6
	Tensile Force (300kgf)		OK	OK	OK	OK	OK
Judgement		OK	OK	OK	OK	OK	OK

D: Test Pictures:



3.6 Tire Pressure Test

A: Test Condition

1. Pumping tool: pump;
2. Tire model: Schwable pro one 25C tubeless tire, no rim tape;
3. Tire pressure: 100psi;
4. Inflating steps (single rim without wheel building):
 - a. Tire installation (check the difficulty of tire installation);
 - b. Inflate (pay attention to whether it is easy to inflate, and pay attention to check the air pressure when the tire is fully in place);
 - c. Check the deformation of the rim after inflating;
 - d. The inspection tool checks the deformation of the braking edge;
 - e. Water inspection (check the sealing condition of the rim);
 - f. Tire removal (check the difficulty of tire removal).

B: Judgment Standard

1. It should be easier to install and remove tires. When inflating, the tires should be fully in place at 50-100psi. After deflation, the tires should be stuck in place and cannot automatically bounce off;
2. After inflating, the rim surface must not be sunken or twisted;
3. The deformation of the brake side (superimposed on both sides) after inflating is $\leq 0.3\text{mm}$. If the gage passes, it is OK; if the gage fails, it is NG;
4. After reaching the specified tire pressure, there is no air leakage in the water test.

C: Test Results

1	Difficulty of loading tires	Difficult:	OK:	√	Easy:	Very Easy:	
2	Difficulty of pumping up	Difficult:	OK:		Easy:	√	Very Easy:
3	Tire removal difficulty	Difficult:	OK:	√	Easy:	Very Easy:	
4	Tire pressure when the tire is fully seated:				100psi	Judgement:	OK
5	Whether the rim is deformed or dented after reaching the specified tire pressure:				NO	Judgement:	OK
6	Whether the brake side inspection tool passes:				Passed	Judgement:	OK
7	Air leakage in water test:				No leak	Judgement:	OK
8	Whether the tire automatically pops down after deflation:				NO	Judgement:	OK

D: Test Pictures:

3.7 Tire Inflatable Pressure Test

A: Test Condition

1. Tire: Model PURSUER 700*25C clincher tire, inflated with an air pump;
2. When the tire pressure reaches 100psi, measure and record the deformation of the brake edge;
3. Continue to inflate to 200psi, and observe whether there is any abnormal sound during the process;
4. Return the tire pressure to 100psi, measure the deformation of the brake edge again and record it, and calculate whether there is any change in the comparison of the two measurement data before and after.

B: Judgment Standard

1. When the air pressure reaches 150psi, let it stand for 5 minutes, no abnormal sound is allowed;
2. When the air pressure reaches 190psi, stand still for 5 minutes, no continuous abnormal sound or more than three short-term abnormal sounds are allowed;
3. The difference between the measured data before and after the tire pressure of 100psi should be less than 0.05mm.

C: Test Results

1. 150, 190psi no abnormal sound.
2. There is a brief abnormal sound at 200psi;
3. The change of deformation before and after the measured tire pressure at 100psi is less than 0.05mm.

D: Test Pictures:

