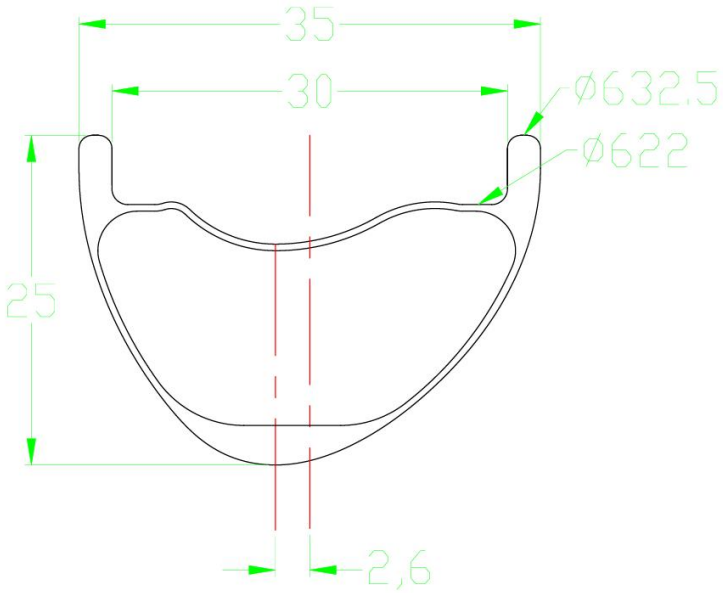
DK COMPOSITE

Test Report M2535HL-29-28H-UD

DK Composite

Content

1 Introduction

Test Date	18.08.2023	Model	M2535HL-29-28H-UD
Doc Number	DK-TR-06022023	Serial Number	DK-M2535HL-29ER
Weight	277/280/319/320g	Version	XC/AM/ED
Test Status	Sample Test	Test basis	ISO 4210/UCI/DK standard
Drawing			

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 ≤0.3mm;

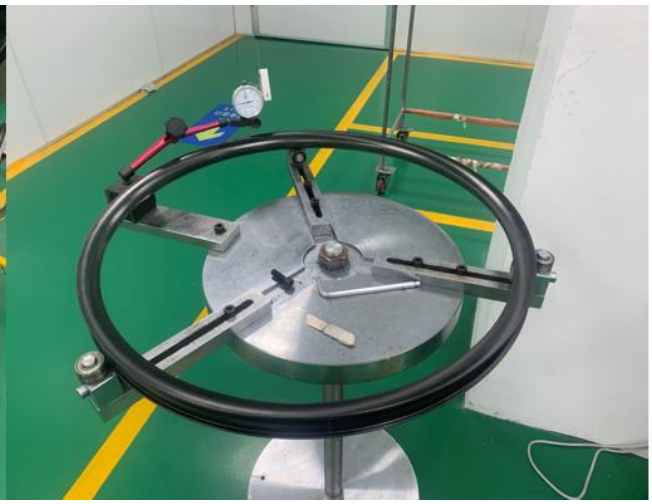
2.The roundness of the rim is ≤0.3mm.

C: Test Results

1.Brake track flatness is 0.2mm;

2.The roundness of the rim is 0.1mm.

D: Test Pictures



3.2 Lateral Stiffness Test: M2535HL-29ER-XC-277g

A: Test Condition

1. Fix the rim on the special fixture;
2. Apply force to the valve hole (rim 10kgf, wheel 20kgf), 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, the hub axle size is 148mm, and the spoke tension on the drive side is 120±10kgf. The drive side is placed upward during the test.

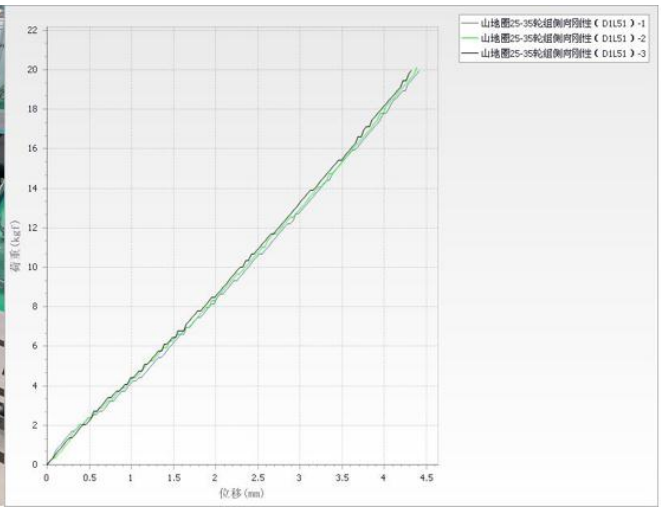
B: Judgment Standard

1.The stiffness value before wheel building is ≥5N/mm.
2.The stiffness after wheel building (rear wheel drive side) ≥ 30N/mm

C: Test Results

Test Results: (Rim)	NO.	1	2	3	Average Stiffness (N/mm)	Judgement
	Deformation （mm）:	10.513	10.713	10.38		
	Stiffness （N/mm）:	9.3	9.1	9.4	9.3	OK
Test Results: (Wheel)	NO.	1	2	3	Average Stiffness （N/mm）	Judgement
	Defomation （mm）:	4.415	4.383	4.32		
	Stiffness （N/mm）:	44.4	44.7	45.4	44.8	OK

D: Test Picture



3.2 Lateral Stiffness Test: M2535HL-29ER-AM-319g

A: Test Condition

1. Fix the rim on the special fixture;
2. Apply force to the valve hole (rim 10kgf, wheel 20kgf), 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, the hub axle size is 148mm, and the spoke tension on the drive side is 120±10kgf. The drive side is placed upward during the test.

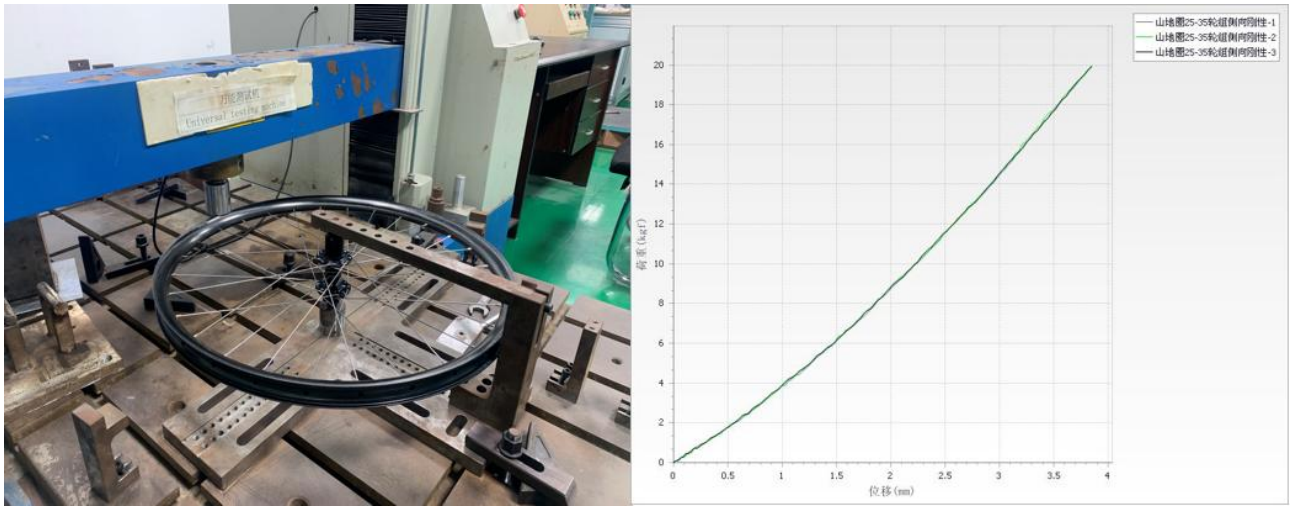
B: Judgment Standard

1.The stiffness value before wheel building is ≥5N/mm.
2.The stiffness after wheel building (rear wheel drive side) ≥ 30N/mm

C: Test Results

Test Results: (Rim)	NO.	1	2	3	Average Stiffness (N/mm)	Judgement
	Deformation （mm）:	8.58	8.547	8.413		
	Stiffness （N/mm）:	11.4	11.5	11.6	11.5	OK
Test Results: (Wheel)	NO.	1	2	3	Average Stiffness （N/mm）	Judgement
	Defomation （mm）:	3.847	3.847	3.847		
	Stiffness （N/mm）:	50.9	50.9	50.9	50.9	OK

D: Test Picture



3.3 Radial Stiffness Test: M2535HL-29ER-XC-277g

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.

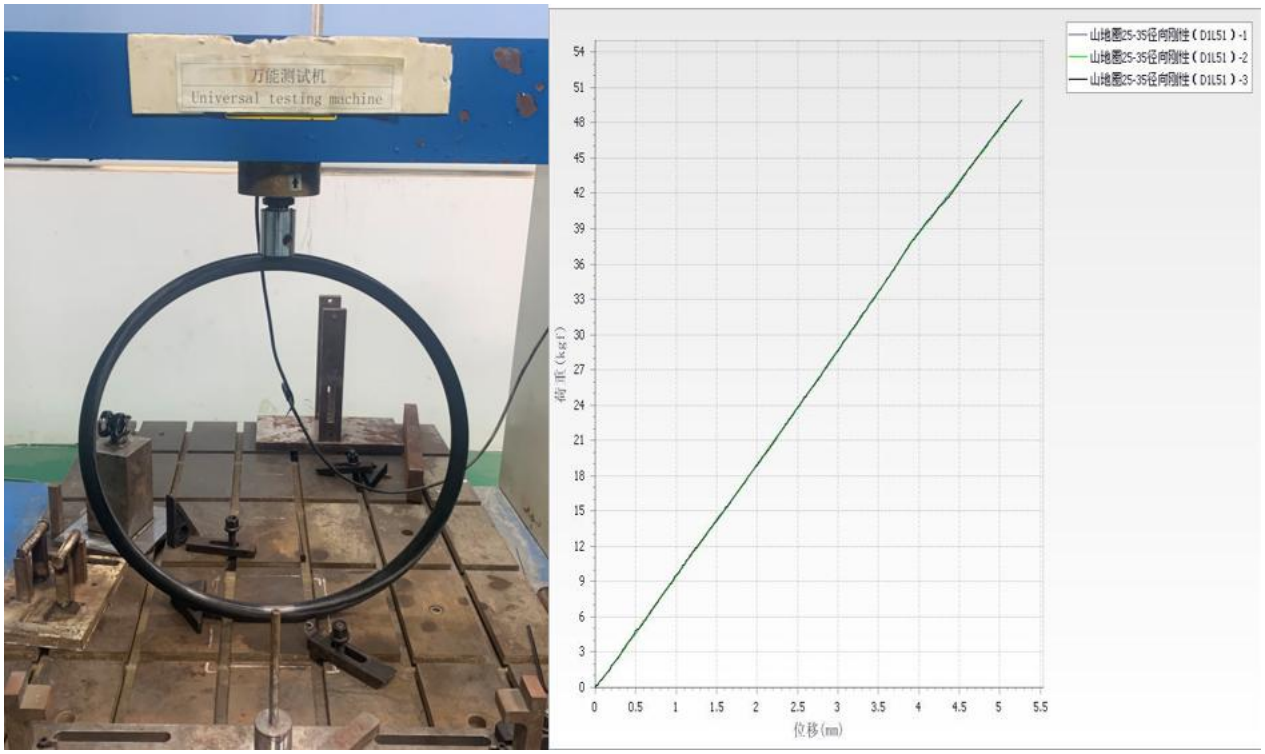
B: Judgement Standard

1. Stiffness value (rim) ≥ 50N/mm

C: Test Results

Test Results (Rim)	NO.	1	2	3	Average Stiffness (N/mm)	Judgement
	Deformation （mm）	5.271	5.269	5.273		
	Stiffness （N/mm）	93.0	93.0	92.9	93.0	OK

D: Test Picture:



3.3 Radial Stiffness Test: M2535HL-29ER-AM-319g

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.

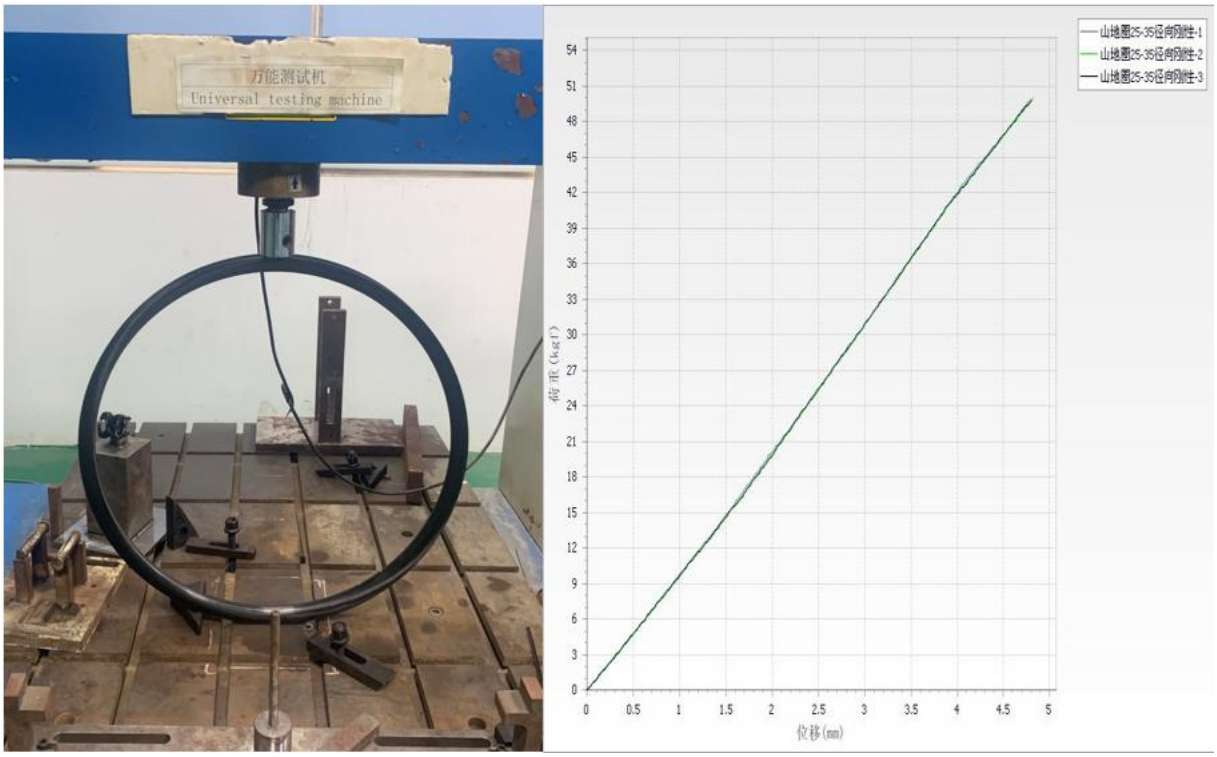
B: Judgement Standard

1. Stiffness value (rim) ≥ 50N/mm

C: Test Results

Test Results (Rim)	NO.	1	2	3	Average Stiffness (N/mm)	Judgement
	Deformation （mm）	4.793	4.828	4.81		
	Stiffness （N/mm）	102.2	101.5	101.9	101.9	OK

D: Test Picture:



3.4 Wheel Impact Test: M2535HL-29ER-XC-277g

A: Test Conditions:

1. Drop hammer weight: 22.5kg;
2. Drop hammer shape: cylindrical, flat bottom;
3. 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:

	NO.	Joule(Height)	Test results	判定
Test Results	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:

3.4 Wheel Impact Test: M2535HL-29ER-XC-319g

A: Test Conditions:

1. Drop hammer weight: 22.5kg;
2. Drop hammer shape: cylindrical, flat bottom;
3. 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:

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

D: Test Pictures:

3.5 Spoke Hole Pull Out Test: M2535HL-29ER-XC-277g

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 250kgf to the spoke holes, and test 7 different hole positions;

B: Judgment Standard:

1.After the tensile force reaches 250kgf, there should be no cracks and bulges in the spoke holes.

C: Test Result

Test Results	Spoke Hole	1	2	3	4	5	6	7
	Tensile Force （300kgf）	OK	OK	OK	OK	OK	OK	OK
	Judgemet	OK	OK	OK	OK	OK	OK	OK

D: Test Pictures: