QC

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Replacing QC/T 649-2000

Motor Vehicles - Steering Control Mechanism - Performance Requirements and Test Methods

汽车转向操纵机构性能要求和试验方法

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Attachment

Standard No., standard name and implementation date of 71 industry standards of automotive industry

No.	Standard No.	Standard name	Standard No. replaced	Implementation date
476	QC/T 427-2013	Automobile use battery main switch technical requirement	QC/T 427-1999	2013-09-01
477	QC/T 431-2013	Spark plug ceramic insulator specifications	QC/T 431-1999 QC/T 432-1999 QC/T 433-1999 QC/T 434-1999 QC/T 435-1999 QC/T 436-1999 QC/T 437-1999	2013-09-01
478	QC/T 29032-2013	Alarms sensor for automobile air filters	QC/T 29032-1991	2013-09-01
479	QC/T 526-2013	Automobile engine - Engineering approval evaluation program	QC/T 526-1999	2013-09-01
480	QC/T 68-2013	Technical Specification of Magneto for Motorcycles and Mopeds	QC/T 68-1993 QC/T 69-1993	2013-09-01
481	QC/T 898-2013	Wire spoke of motorcycles and mopeds		2013-09-01
482	QC/T 899-2013	Spoke nipple of motorcycles and mopeds		2013-09-01
483	QC/T 684-2013	Specifications of sealing gaskets for engines of motorcycles and mopeds	QC/T 684-2002	2013-09-01
484	QC/T 225-2013	Technical Specification of Starting Motor for Motorcycles and Mopeds	QC/T 225-1997	2013-09-01
485	QC/T 64-2013	Carburetor of motorcycle and moped	QC/64-2013 QC/65-2013	2013-09-01
486	QC/T 902-2013	Technical Specifications of Motorcycle Electronic Control Fuel-injection System		2013-09-01
487	QC/T 29117-2014	Test Regulations for the Engine of Motorcycle and Moped Production Quality	QC/T 29117.10-1993	2013-09-01
488	QC/T 29115-2013	Test regulations for motorcycle and moped production quality	QC/T 29115-1993 QC/T 29117.2-1993 QC/T 20117.3-1993	2013-09-01
489	QC/T 903-2013	Fault-types for motorcycles and mopeds		2013-09-01
490	QC/T 904-2013	Wheels hub of motorcycles and mopeds		2013-09-01
491	QC/T 305-2013	Motor vehicles - Hydraulic power steering control valve - Performance requirements and test methods	QC/T 305-1999 QC/T 306-1999	2013-09-01
492	QC/T 529-20134	Motor vehicles - Hydraulic power steering gear - Technique requirements and test methods	QC/T 529-2000 QC/T 530-2000	2013-09-01
493	QC/T 649-2013	Motor vehicles - Steering control	QC/T 649-2000	2013-09-01

Motor Vehicles - Steering Control Mechanism - Performance Requirements and Test Methods

1 Scope

This Standard specifies the performance requirements and test methods for automobile steering control mechanism.

This Standard is applicable to automobile steering control mechanism.

2 Normative References

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this document.

GB 11557 The Stipulation Protecting Drivers from Being Injured by Motor Vehicle Steering Mechanism

GB 15740 Protective Devices against Unauthorized Use of Motor Vehicles

GB/T 5179 Motor Vehicle – Steering System – Terms and Definitions

QC/T 563 Test Methods for Automobile Steering Wheel

QC/T 647 Automobile Steering Universal Joint Assembly Performance Requirements and Test Methods

3 Terms and Definitions

For the purpose of this Standard, the terms and definitions given in GB/T 5179 and the following apply.

3.1 Center of steering wheel

Fix the steering wheel on the steering shaft according to the loading method, and the center of the center circle of the steering wheel rim.

5.1.4 Torsion clearance of sliding spline

For the sliding spline structure, the twisting angle of the sliding spline is no greater than 25'.

5.2 Rotating torque

5.2.1 No-load rotating torque of steering column.

Rotating torque is no greater than 0.30N • m; change rate of rotating torque, *k*, is no greater than 33.3%.

5.2.2 Change Rate of load rotating torque of steering column assembly.

The change rate of load rotating torque of steering column assembly, *k*, is no more than 20%.

5.3 Steering column adjustment characteristics

5.3.1 Angle adjustment force of steering column.

The angle adjustment force of steering column is no greater than 98N, and there is no abnormal feeling during operation.

5.3.2 Height adjustment force of steering column.

The height adjustment force of steering column is no greater than 160N, and there is no abnormal feeling during operation.

5.3.3 Angle adjustment and holding force of steering column.

The angle adjustment and holding force of steering column is no less than 490N.

5.3.4 Height adjustment and holding force of steering column.

The height adjustment and holding force of steering column is no less than 490N.

5.3.5 Operating force of the handle.

The operating force of the handle is in the range of 49N ~ 147N.

5.4 Rigidity

5.4.1 Vertical bending rigidity.

The amount of vertical bending deformation is no greater than 0.5mm.

5.4.2 Lateral bending rigidity.

5.9.5 Sliding spline wear test.

The increase in clearance in the direction of rotation is no greater than 5'.

5.10 Vibration test

5.10.1 Vibration test.

There is no damage to each part; and the tightening bolts are not loose; and no abnormalities are allowed.

5.10.2 Resonant frequency.

The resonant frequency is no less than 35Hz.

5.11 Universal joint test

The performance requirements of the universal joint are implemented according to QC/T 647.

6 Test Methods

6.1 General

The symbols used in the test methods are instructed as follows:

p - Force applied to the test sample during test, such as p_1, p_2, …;

T - Torque applied to the test sample during the test, such as: T_1, T_2, …;

F - Force generated by sample test results, such as: F_1, F_2, …;

M – Torque generated by sample test results, such as M_1, M_2, …;

Θ_1 – Angle between the steering column axis and horizontal line;

± - Refers to the application of force, torque, rotation angle, displacement direction, respectively.

6.2 Clearance measurement

6.2.1 Axial clearance.

Fix the steering column according to the loading method, see Figure 1. Apply axial force p_1 = ±29.4N to the steering wheel side of the steering shaft; plot the relationship curve between the steering shaft axial force p_1 and the axial clearance δ, see Figure 2. δ_1 is the axial clearance.

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