



Automotive

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# TÜV SÜD AUTOMOTIVE TIRE TEST - 2010

**CUSTOMER:** ZHONGCE

**REPORT No.:**76243920

**TEST CRITERIA:**




ROLLING RESISTANCE (ACC. TO ISO 28580)  
ELECTRICAL RESISTANCE (ACC. TO ISO 16392)  
WET BRAKING (ACC. TO ECE R-117)  
FUEL CONSUMPTION

## TIRE IDENTIFICATION TABLE (1/2)

TÜV-CODE	POSITION	DOT-CODE	BRAND	COMMERCIAL NAME	PRODUCTION COUNTRY	SIZE DESIGNATION	TREAD AND SIDEWALL INFORMATION	E / e - APPROVAL-NO.	UTQG-MARKING	SYMMETRY*	DIRECTIONALITY**	TREAD PROFILE
A1 M8	FL	7DHDDAJ 2510	GOODRIDE	Radial SP06	China	195/65 R15 91H	TR: 1 Polyester 2 Steel 1 Nylon SW: 1 Polyester	E4: 000183-S 0237644	TW: 500 Trac.: A Temp: A	A	N	
	FR	7DHDDAJ 2510										
	RL	7DHDDAJ 2510										
	RR	7DHDDAJ 2510										
	SPARE	7DHDDAJ 2510										
A2 H8	FL	7DHDDAJ 2510	GOODRIDE	Radial SP06	China	195/65 R15 91H	TR: 1 Polyester 2 Steel 1 Nylon SW: 1 Polyester	E4: 000183-S 0237644	TW: 500 Trac.: A Temp: A	A	N	
	FR	7DHDDAJ 2510										
	RL	7DHDDAJ 2510										
	RR	7DHDDAJ 2510										
	SPARE	7DHDDAJ 2510										
A3 C10	FL	7DHDDAJ 2510	GOODRIDE	Radial SP06	China	195/65 R15 91H	TR: 1 Polyester 2 Steel 1 Nylon SW: 1 Polyester	E4: 000183-S 0237644	TW: 500 Trac.: A Temp: A	A	N	
	FR	7DHDDAJ 2510										
	RL	7DHDDAJ 2510										
	RR	7DHDDAJ 2510										
	SPARE	7DHDDAJ 2510										
A4 K4	FL	7DHDDAJ 2510	GOODRIDE	Radial SP06	China	195/65 R15 91H	TR: 1 Polyester 2 Steel 1 Nylon SW: 1 Polyester	E4: 000183-S 0237644	TW: 500 Trac.: A Temp: A	A	N	
	FR	7DHDDAJ 2510										
	RL	7DHDDAJ 2510										
	RR	7DHDDAJ 2510										
	SPARE	7DHDDAJ 2510										

\*) S: symmetric A: asymmetric \*\*) U: unidirectional N: non-directional

**TIRE IDENTIFICATION TABLE (2/2)**

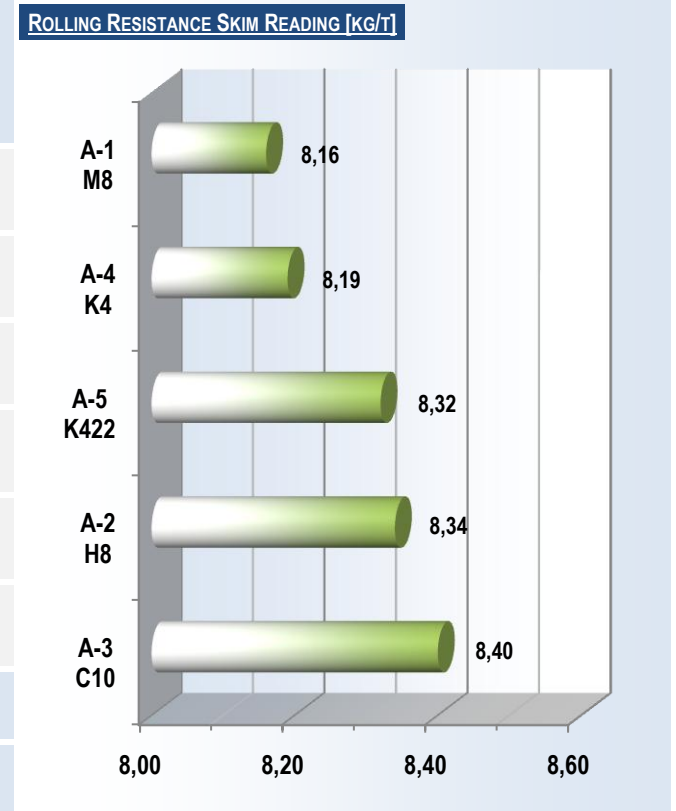
TÜV-CODE	POSITION	DOT-CODE	BRAND	COMMERCIAL NAME	PRODUCTION COUNTRY	SIZE DESIGNATION	TREAD AND SIDEWALL INFORMATION	E / e - APPROVAL-NO.	UTQG-MARKING	SYMMETRY*	DIRECTIONALITY**	TREAD PROFILE
A5 K422	FL	7DHDDAJ 2510	GOODRIDE	Radial SP06	China	195/65 R15 91H	TR: 1 Polyester 2 Steel 1 Nylon SW: 1 Polyester	E4: 000183-S 0237644	TW: 500 Trac.: A Temp: A	A	N	
	FR	7DHDDAJ 2510										
	RL	7DHDDAJ 2510										
	RR	7DHDDAJ 2510										
	SPARE	7DHDDAJ 2510										
AR	FL	HDTA6KTX 1510	Michelin	Energy Saver	Italy	195/65 R15 91H	TR: 1 Polyester 2 Steel 1 Nylon SW: 1 Polyester	e2: 020651-S E2: 022542	TW: 400 Trac.: A Temp: A	N	N	
	FR	HDTA6KTX 1510										
	RL	HDTA6KTX 1510										
	RR	HDTA6KTX 1510										
	SPARE	-										
SRTT	FL	ANKABBV 1108	Uniroyal	Tiger Paw	USA	P175/75 R14	TR: 1 Polyester 2 Steel  SW: 1 Polyester	-	TW: 280 Trac.: B Temp.: C	N	N	
	FR	ANKABBV 1108										
	RL	ANKABBV 1108										
	RR	ANKABBV 1108										

\*) S: symmetric A: asymmetric \*\*) U: unidirectional N: non-directional

**DATASHEET: ROLLING RESISTANCE MEASUREMENTS**
**ROLLING RESISTANCE**

<b>Customer:</b>	Zhongce	<b>Test location:</b>	Garching (D)
<b>Order-No.:</b>	76243920	<b>Test rig:</b>	H8/ZF1
<b>Test standard:</b>	ISO 28580	<b>Drum-Ø [mm]:</b>	2000
<b>Test method:</b>	Electrical power method / Torque method	<b>Tire size:</b>	195/65 R15 91H
<b>Speed(s) [kph]:</b>	80	<b>Tire inflation [bar]:</b>	2.1
<b>Test rim:</b>	6Jx15	<b>Test load [kg]:</b>	492

TIRE	A-1	A-2	A-3	A-4	A-4	A-5
	M8	H8	C10	K4	K4 (ZF1) <i>Torque method</i>	K422
T <sub>Ambient</sub> [°C]:	23,9	24,6	25,4	25,7	20,6	25,6
Tire Width [mm]:	200	200	200	200	200	200
Tire Weight [kg]:	7,606	7,727	7,687	7,794	7,794	8,041
Static Circumference [mm]:	1987	1985	1985	1987	1990	1986
Rolling Radius (at 80 kph) [mm]:	290,9	290,5	291,0	290,7	288,9	290,7
Rolling Circumference (at 80 kph) [mm]:	1917,0	1917,0	1916,0	1918,0	1919,6	1917,0
<b>Skim test reading: F<sub>R</sub> [N]:</b>	<b>39,4</b>	<b>40,2</b>	<b>40,5</b>	<b>39,4</b>	<b>38,4</b>	<b>40,1</b>
<b>Skim test reading: C<sub>R</sub> [kg/t]:</b>	<b>8,16</b>	<b>8,34</b>	<b>8,40</b>	<b>8,19</b>	<b>7,95</b>	<b>8,32</b>



Above values refer to 2 meter drum (reference in ISO 28580) and are not converted to flat surface.

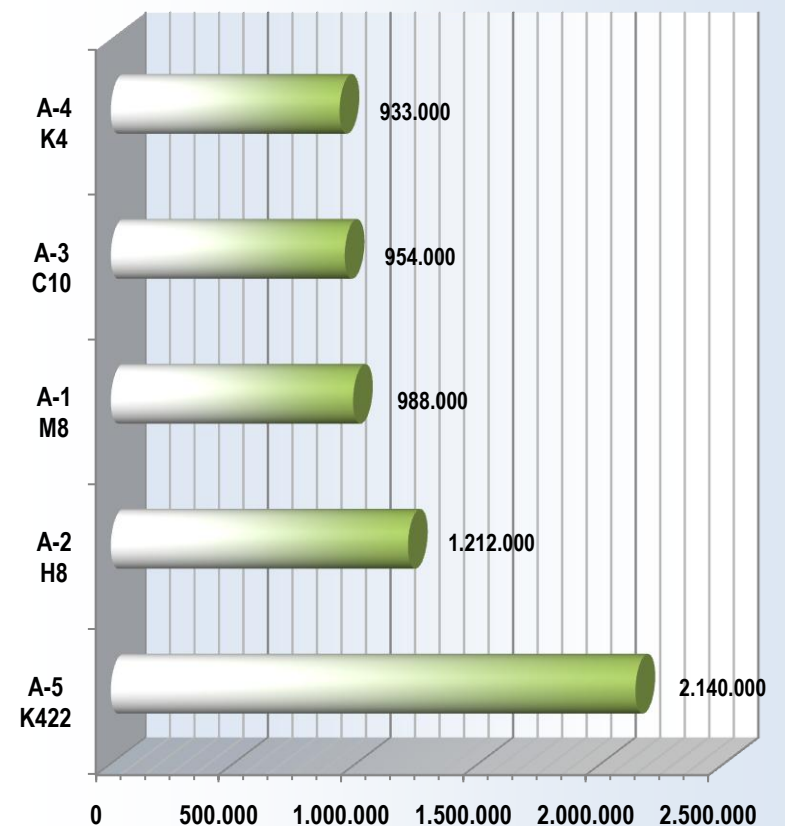
## DATASHEET: ELECTRICAL RESISTANCE MEASUREMENTS

### ELECTRICAL RESISTANCE

<b>Customer:</b>	Zhongce	<b>Test location:</b>	Garching (D)
<b>Order-No.:</b>	76243920	<b>Tire size:</b>	195/65 R15 91H
<b>Test standard:</b>	ISO 16392	<b>Condition Humidity [%]:</b>	~37
<b>Test method:</b>	Electrical Resistance	<b>Condition Temperature [°C]:</b>	~23
<b>Test rim:</b>	6Jx15 H2	<b>Test load [N]:</b>	4827

TIRE	A-1 M8	A-2 H8	A-3 C10	A-4 K4	A-5 K422
Tire Pressure [kPa]:	2,4	2,4	2,4	2,4	2,4
Temperature [°C]:	20,9	20,6	20,7	20,6	20,6
Humidity [%]:	35,4	35,0	34,7	35,0	34,6
Applied Voltage [V]:	100	100 / 1000	100	100	100 /1000
first measurement max. [Ω]:	5,01E+05	8,60E+05	4,62E+05	5,13E+05	1,11E+06
first measurement end [Ω]:	4,49E+05	7,43E+05	4,01E+05	4,65E+05	9,78E+05
second measurement max. [Ω]:	9,64E+05	1,13E+06	8,42E+05	9,12E+05	1,84E+06
second measurement end [Ω]:	7,95E+05	9,10E+05	6,71E+05	7,20E+05	1,52E+06
third measurement max. [Ω]:	1,23E+06	1,52E+06	1,27E+06	1,26E+06	2,64E+06
third measurement end [Ω]:	9,88E+05	1,21E+06	9,54E+05	9,33E+05	2,14E+06
<b>Highest Result end [Ω]:</b>	<b>9,88E+05</b>	<b>1,21E+06</b>	<b>9,54E+05</b>	<b>9,33E+05</b>	<b>2,14E+06</b>

### ELECTRICAL RESISTANCE [Ω]

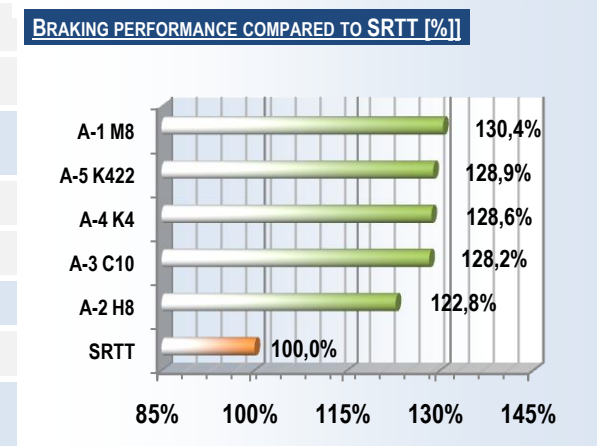
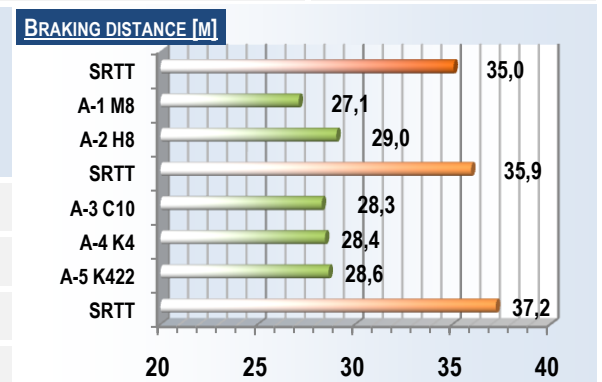


The threshold for normal applications according to ISO 16392 lies at max.  $10^{10} \Omega$

**DATASHEET: WET GRIP PERFORMANCE (according to ECE R117)**
**WET BRAKING ECE R117**

<b>Customer:</b>	Zhongce	<b>Test Tire Load:</b>	FL/FR: 450/450	<b>Order No.:</b>	76243920
<b>Date:</b>	8-Sep-10		RL/RR: 450/450	<b>Test Location:</b>	Boxberg (D)
<b>Air Temperature [°C]:</b>	min:14.0 max:15.5	<b>Rim Size:</b>	6Jx14 (SRTT)	<b>BPN &amp; texture depth [mm]:</b>	BPN: 60 / 0.42
<b>Surface Temperature [°C]:</b>	min:16.1 max:16.4		6Jx15	<b>Tire Inflation [bar]:</b>	FA:2.2 RA:2.2
<b>ABS:</b>	on	<b>Tire Size:</b>	P195/75 R14 (SRTT)	<b>v<sub>1</sub> [kph]:</b>	80
<b>Test Vehicle:</b>	Golf VI 1.4 TSI		195/65 R15 91H	<b>v<sub>2</sub> [kph]:</b>	20

	SRTT	A-1 M8	A-2 H8	SRTT (rep. 1)	A-3 C10	A-4 K4	A-5 K422	SRTT (rep. 2)
<b>Stopping distance</b>								
Value s <sub>1</sub> [m]	35,2	27,3	29,0	35,7	27,9	28,9	28,9	37,1
Value s <sub>2</sub> [m]	35,2	27,1	29,1	36,0	28,0	28,2	28,8	37,2
Value s <sub>3</sub> [m]	34,7	27,0	29,0	36,1	27,8	28,3	28,4	37,3
Value s <sub>4</sub> [m]	-	27,0	28,8	-	28,8	28,7	28,2	-
Value s <sub>5</sub> [m]	-	27,2	29,3	-	28,3	28,3	28,6	-
Value s <sub>6</sub> [m]	-	26,9	28,9	-	28,8	28,2	28,8	-
<b>Mean Value [m]</b>	<b>35,0</b>	<b>27,1</b>	<b>29,0</b>	<b>35,9</b>	<b>28,3</b>	<b>28,4</b>	<b>28,6</b>	<b>37,2</b>
Standard Variation ( $\sigma_{n-1}$ ) [m]	0,24	0,13	0,16	0,17	0,41	0,27	0,25	0,08
Coefficient of Variation [%]	0,67%	0,50%	0,54%	0,47%	1,44%	0,95%	0,87%	0,22%
<b>Mean Deceleration [m/s<sup>2</sup>]</b>	<b>6,61</b>	<b>8,55</b>	<b>7,98</b>	<b>6,44</b>	<b>8,19</b>	<b>8,14</b>	<b>8,09</b>	<b>6,22</b>
Reference Value [m/s <sup>2</sup> ]	6,61	6,55	6,50	6,44	6,39	6,33	6,28	6,22
<b>Wet Grip Index (G)</b>	<b>1,000</b>	<b>1,304</b>	<b>1,228</b>	<b>1,000</b>	<b>1,282</b>	<b>1,286</b>	<b>1,289</b>	<b>1,000</b>



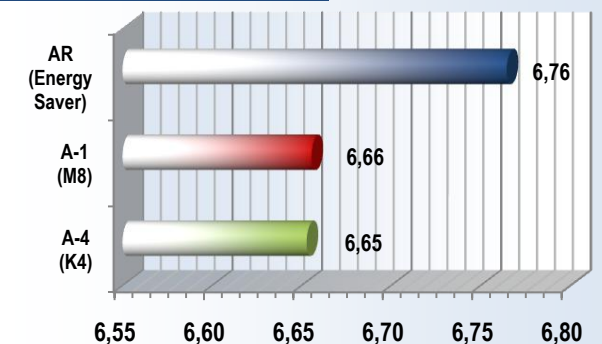
**DATASHEET: FUEL CONSUMPTION**
**FUEL CONSUMPTION TEST**

<b>Customer:</b>	Zhongce	<b>Test location:</b>	Highway roads (A9, A92) near Munich (D)
<b>Order-No.:</b>	76243920	<b>Tire size:</b>	195/65 R15 91H
<b>Route Profile:</b>	~ 95% with various share of constant speed (80, 100, 120 km/h), rest mixed traffic	<b>Average speed:</b>	~ 94 km/h
<b>Test Vehicles:</b>	VW Golf Mk VI 1.4 TSI (identical cars, 90 kW)	<b>Tire inflation [bar]:</b>	FA: 2.0 RA: 2.0

**Further test information:** The test was carried out at nighttime to avoid influences of traffic with other cars; the test cars were driving in convoy but with a distance of ~ 300 - 400 m to avoid influences from slipstream; the speed was kept constantly by electronic cruise control of the vehicles, the exact speed was measured by GPS based V-Box systems in the vehicle. The test was carried out in three loops, each loop consisting of three runs (each run ~105 km); each run was driven by the same driver on the same vehicle with the same tire; for each next run, the drivers were changed between the cars; for the next loop, the tires were changed between the vehicles. After all three loops, each tire/driver/vehicle combination had covered the same total distance.

The fuel consumption was measured by determining the exact amounts at fueling (at start of a loop) and draining of the tank (at the end of a loop) and controlled with the on board computer of the cars. The measurement error at determination of the amounts of fuel and the resulting calculation of the average fuel consumption can be regarded as <0.5%.

TIRE	AR (Energy Saver)	A-1 (M8)	A-4 (K4)
Ø Fuel consumption [ l /100 km] Loop 1:	6,789	6,563	6,653
Ø Fuel consumption [ l /100 km] Loop 2:	6,730	6,658	6,743
Ø Fuel consumption [ l /100 km] Loop 3:	6,774	6,745	6,562
<b>Ø Fuel consumption [ l /100 km] Total:</b>	<b>6,76</b>	<b>6,66</b>	<b>6,65</b>
<b>Fuel consumption compared to Michelin [%]:</b>	<b>100,0%</b>	<b>98,4%</b>	<b>98,3%</b>
Ø Fuel range [km/l] Loop 1:	14,73	15,24	15,03
Ø Fuel range [km/l] Loop 2:	14,86	15,02	14,83
Ø Fuel range [km/l] Loop 3:	14,76	14,82	15,24
<b>Ø Fuel range [km/l] Total:</b>	<b>14,8</b>	<b>15,0</b>	<b>15,0</b>
<b>Mileage/liter compared to Michelin [%]:</b>	<b>100,0%</b>	<b>101,6%</b>	<b>101,7%</b>

**AVERAGE FUEL CONSUMPTION [L/100KM]**

**MILEAGE COMPARED TO MICHELIN [%]**
