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TÜV SÜD – Tire Test 2021

205/55 R16 91T – SEMPERIT SPEED-GRIP 5

TÜV TIRE TEST MARK acc. to PPP 90006B:2018

Test Period: February – March 2021

Report No. 713205315-TM

TIRE DETAILS

DIMENSION: 205/55 R16 91T

TIRE BRANDS / PATTERNS IN THE TEST:

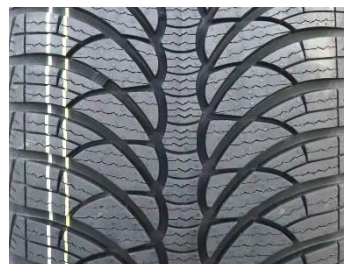
CANDIDATE TIRE:



**SEMPERIT
SPEED-GRIP 5
DOT 1HW 03MN4A 5020**



**FALKEN
EUROWINTER HS01
DOT AH8K DMFR 2620 / 2920**



**FULDA
KRISTALL MONTERO 3
DOT K50F JWPR 3220**

COMPETITOR TIRES:



**FIRESTONE
WINTERHAWK 4
DOT VR0F W3B 4420 / 4520**



**HANKOOK
WINTER i*CEPT RS2
DOT BBRP FWH 1420**

- All Semperit Speed-Grip 5 test samples were provided for the tests by the customer.
- All other test samples were purchased in the normal market by TÜV SÜD.
- TÜV SÜD randomly selected the tires for the individual tests.



TEST DETAILS

■ Test Locations

- Snow: Continental Arvidsjaur (S)
- Wet & Dry: Contidrom (D), ATP Papenburg (D)
- Rolling Resistance & High Speed Test Advanced: TÜV SÜD PS Garching (D)
- Rolling Noise: Neubiberg (D)

■ Test Vehicles

- VW Golf Mk7 1.4TSI, VW Golf Mk8 1.5TSI, VW Golf Mk8 2.0TDI

■ Procedure and Evaluation

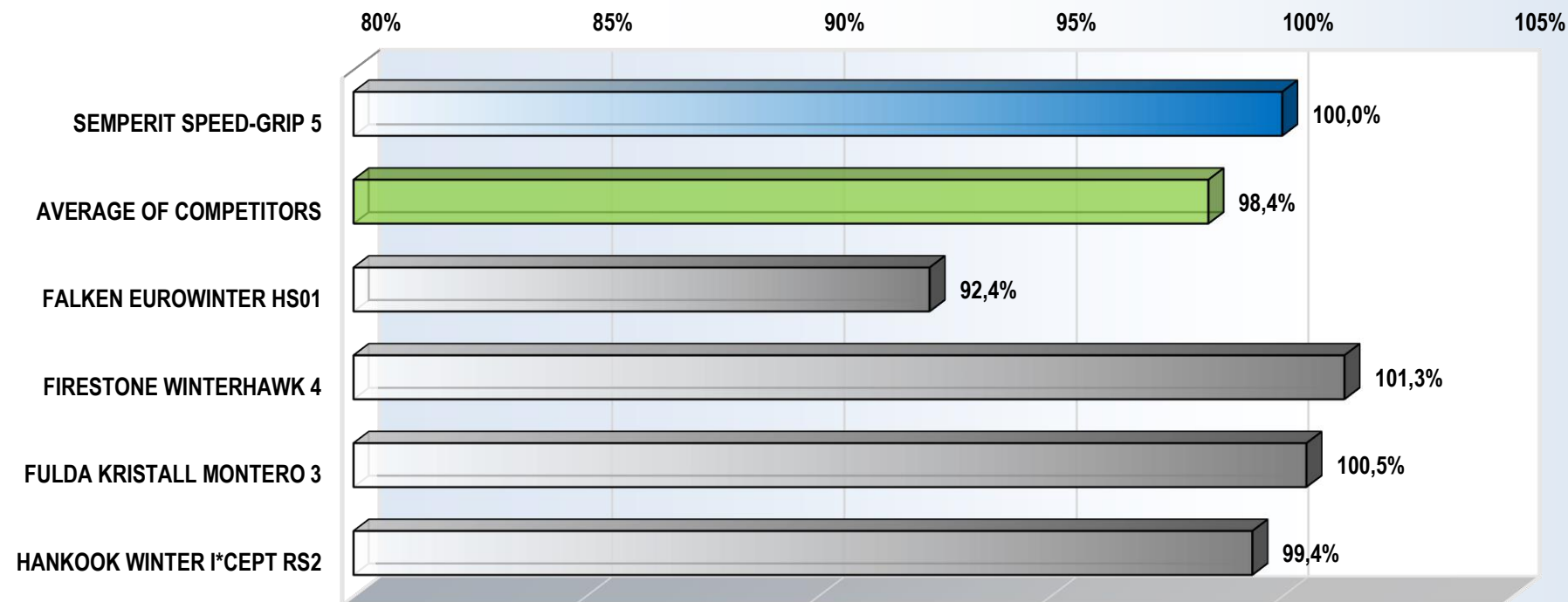
- In most tests, the reference/control tire is tested repeatedly in the progress of the test to detect and consider changes of the ambient test parameters and correct its performance by linear interpolation.
- Generally, all tires in a test are primarily evaluated in relation to the reference/control tire.
- The performance is expressed as a percentage value, calculated on the basis of the measured and corrected test data.
- In this present evaluation, the performance of each tire is assessed relative to Semperit Speed-Grip 5 ($\triangleq$ 100%).
- In all evaluations, a percentage $\geq 100\%$ means better and $\leq 100\%$ means worse.

TEST RESULTS

■ ACCELERATION ON SNOW

- Acceleration on compressed snow with activated ETC (double execution)
- Result: Ø Acceleration time [s] from 10 to 35 km/h → Mean acceleration [m/s²]

ACCELERATION ON SNOW PERFORMANCE * [%]



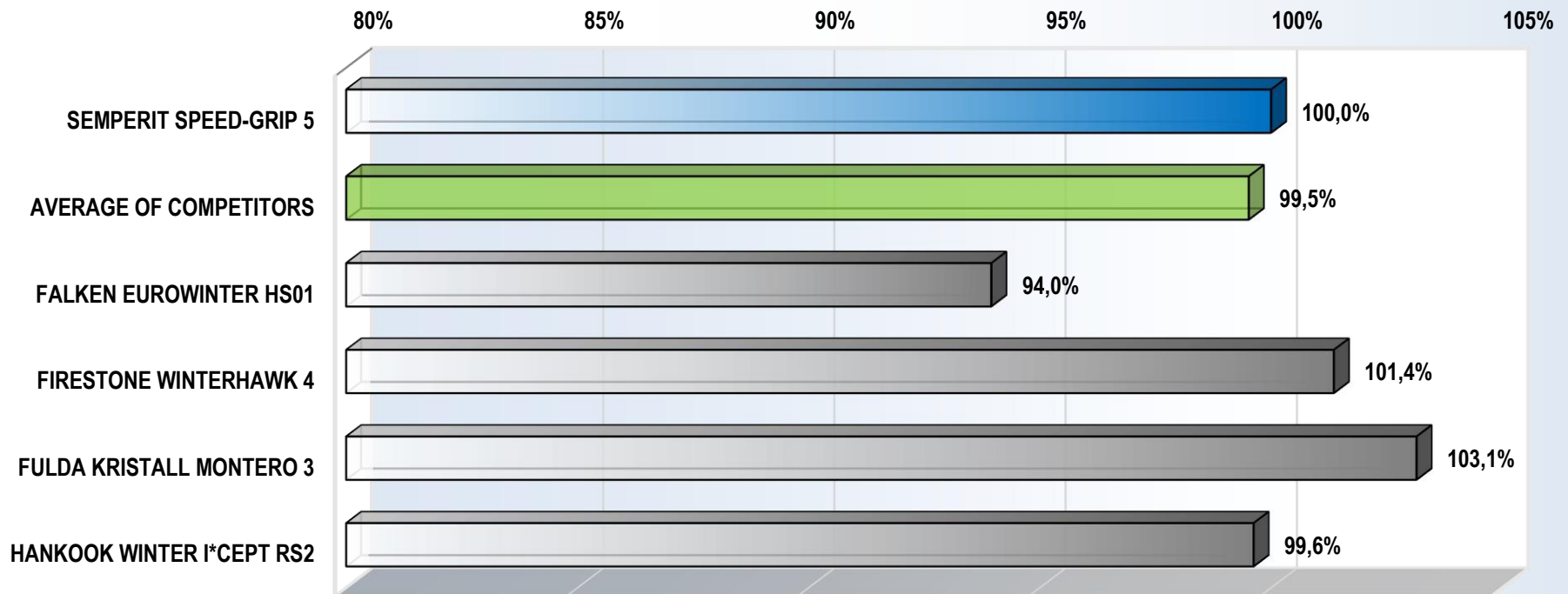
*) The calculation of the percentage performance is based on the mean acceleration values resulting from the measured acceleration times.

TEST RESULTS

■ BRAKING ON SNOW

- ABS-braking on compressed snow (double execution)
- Result: Ø Stopping distance [m] from 40 to 5 km/h → Mean deceleration [m/s²]

SNOW BRAKING PERFORMANCE * [%]



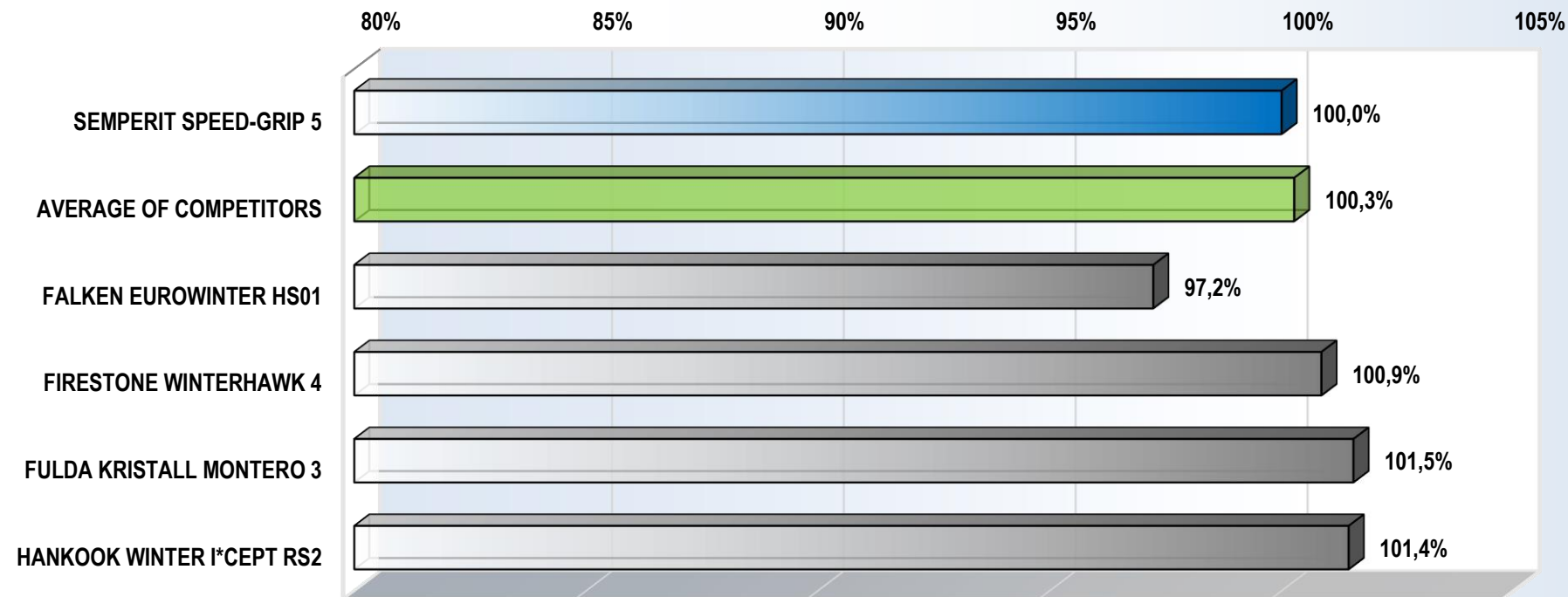
*) The calculation of the percentage performance is based on the mean deceleration values resulting from the measured braking distances.

TEST RESULTS

■ HANDLING ON SNOW

- Subjective assessment and lap times on a snow handling circuit (double execution)
- Result: Rating (min.1, max.10) and Ø lap times [s] → Average speed [km/h]; total result from speed and rating score (2:1)

SNOW HANDLING PERFORMANCE * [%]



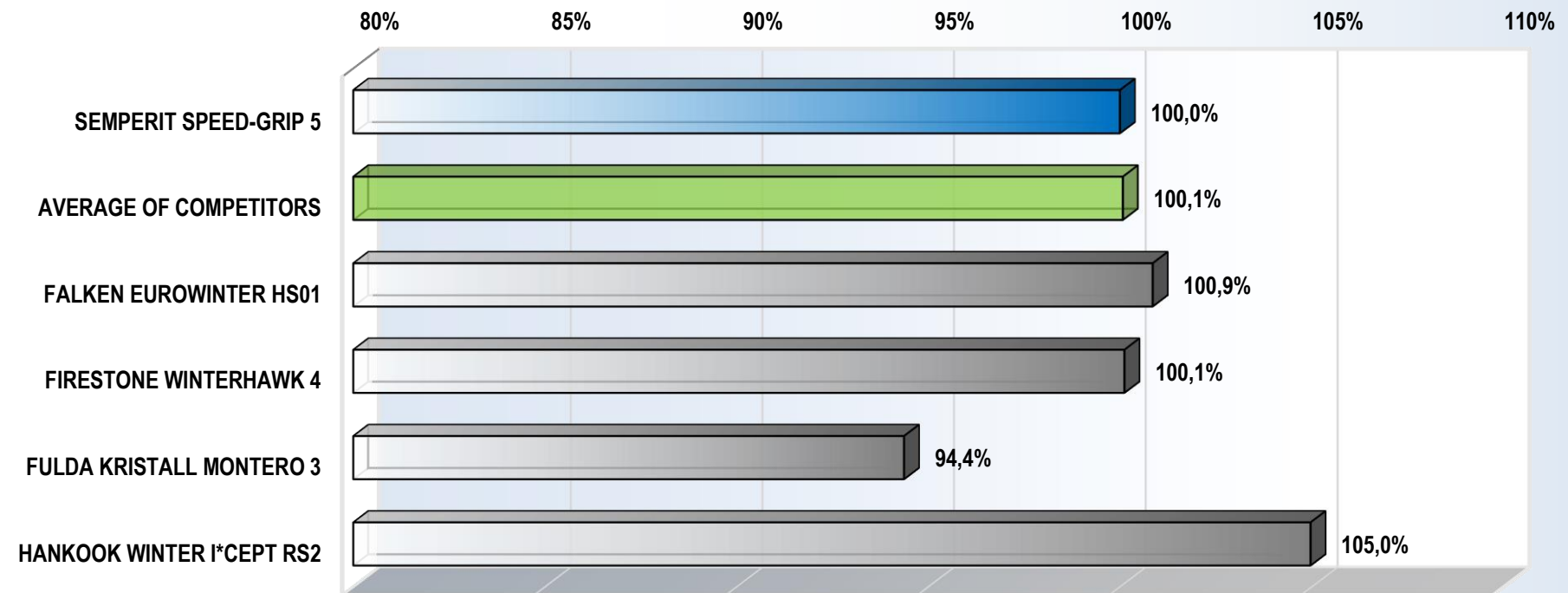
*) The calculation of the percentage performance is based on the speed and the rating scores (at the ratio 2:1).

TEST RESULTS

■ AQUAPLANING STRAIGHT-LINE

- Water depth: ~ 9 mm
- Result: Ø Aquaplaning speed [km/h] at 15% slip difference

AQUAPLANING STRAIGHT-LINE PERFORMANCE * [%]



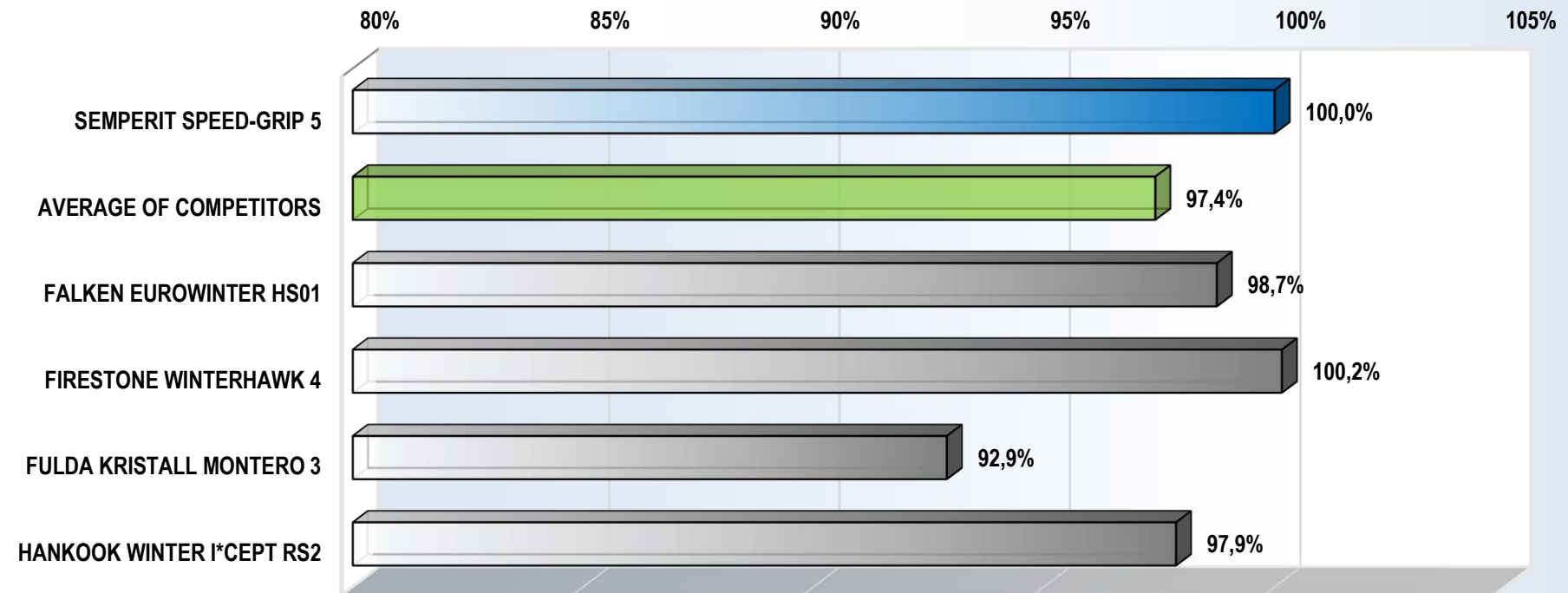
*) The calculation of the percentage performance is based on the measured aquaplaning speed.

TEST RESULTS

WET BRAKING

- ABS-braking on wet asphalt surface acc. to ECE R117 Annex 5
- Result: Ø Stopping distance [m] from 80 to 20 km/h → Mean deceleration [m/s²]

WET BRAKING PERFORMANCE * [%]



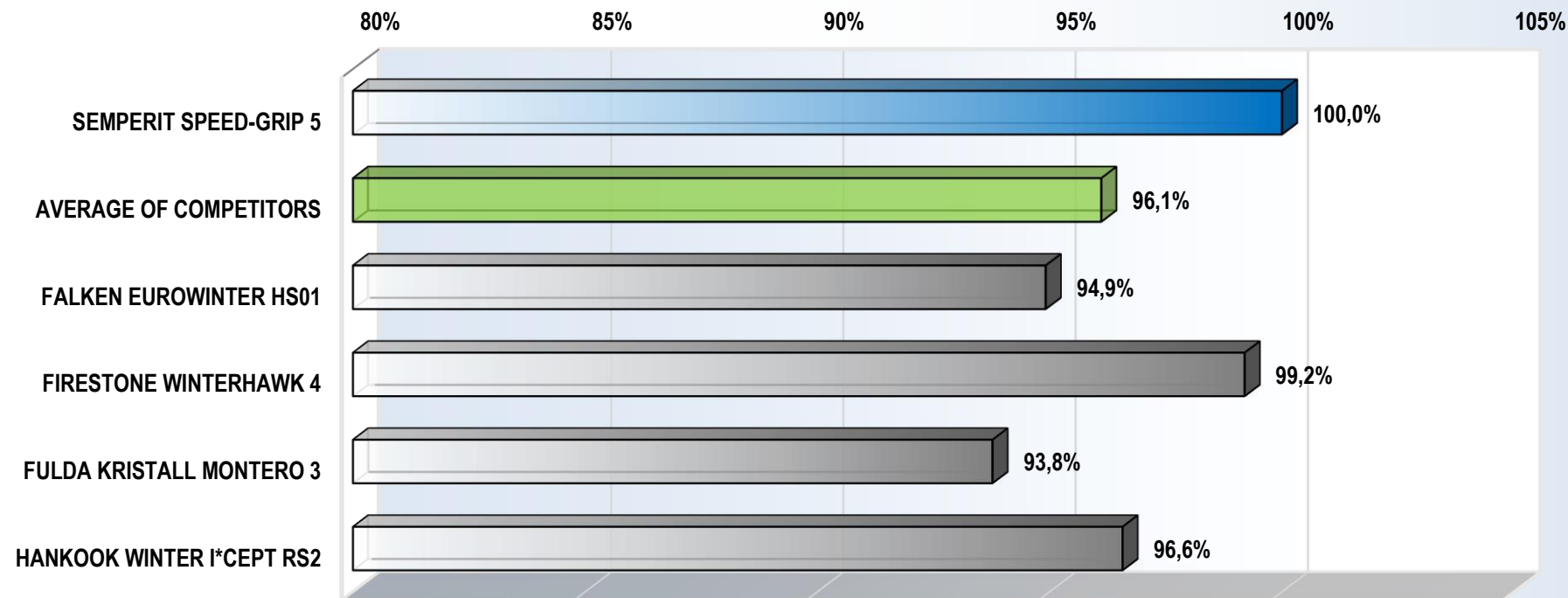
*) The calculation of the percentage performance is based on the mean deceleration values resulting from the measured braking distances.

TEST RESULTS

■ WET HANDLING

- Subjective assessment and lap times on a wet handling circuit
- Result: Rating (min.1, max.10) and Ø lap times [s] → Average speed [km/h]; total result from speed and rating score (2:1)

WET HANDLING PERFORMANCE * [%]



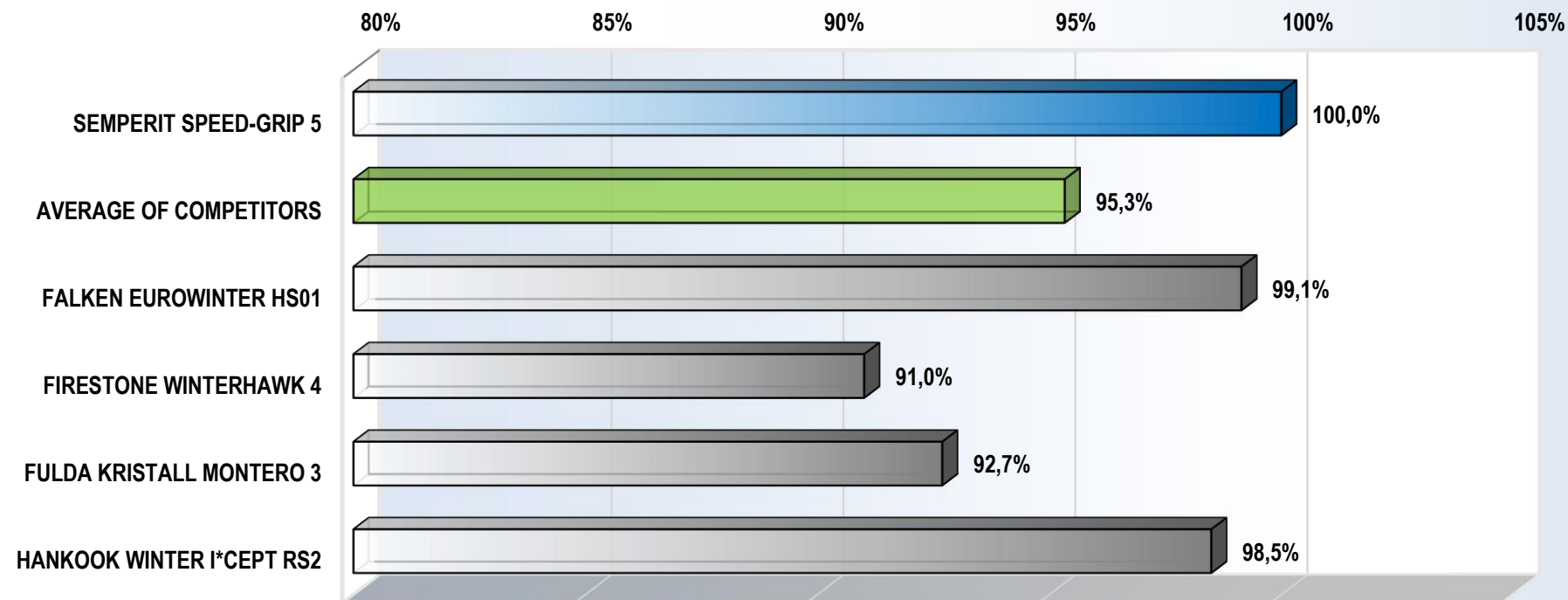
*) The calculation of the percentage performance is based on the speed and the rating scores (at the ratio 2:1).

TEST RESULTS

■ DRY BRAKING

- ABS-braking on dry asphalt surface
- Result: Ø Stopping distance [m] from 100 to 0 km/h → Mean deceleration [m/s²]

DRY BRAKING PERFORMANCE * [%]



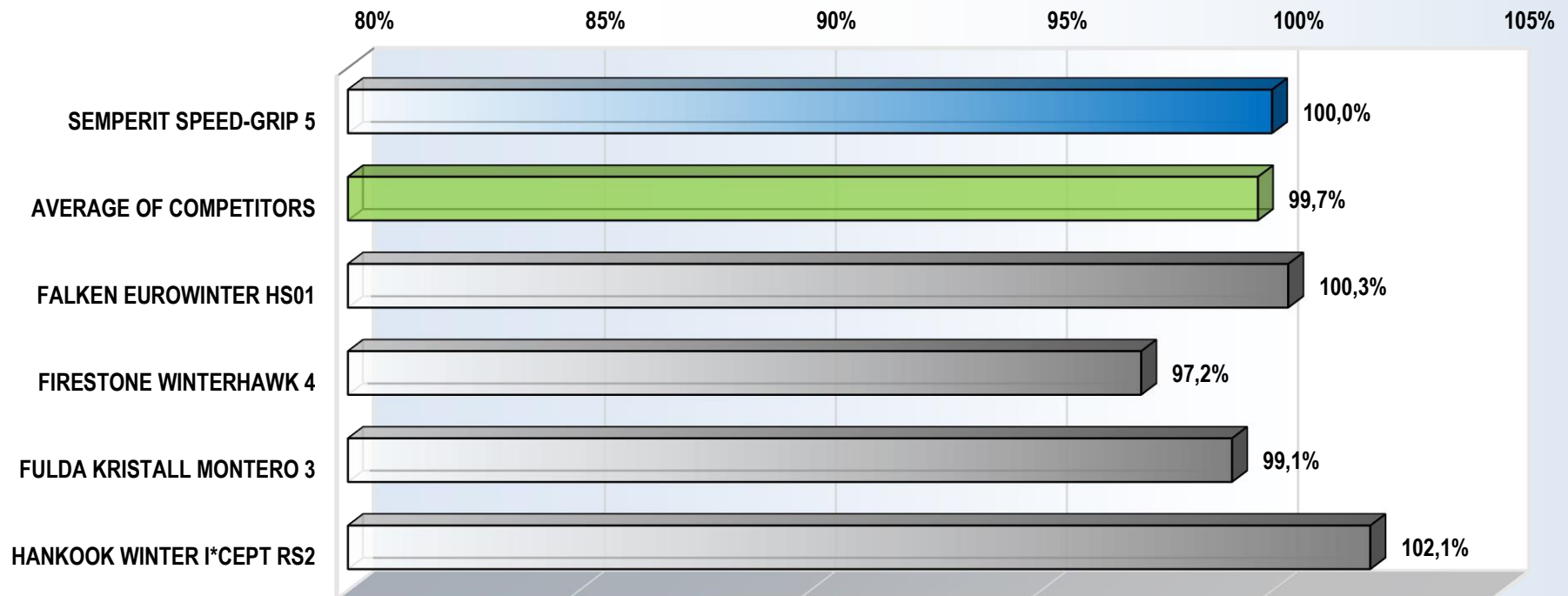
*) The calculation of the percentage performance is based on the mean deceleration values resulting from the measured braking distances.

TEST RESULTS

■ DRY HANDLING

- Subjective assessment and lap times on a dry handling circuit
- Result: Rating (min.1, max.10) and Ø lap times [s] → Average speed [km/h]; total result from speed and rating score (2:1)

DRY HANDLING PERFORMANCE * [%]



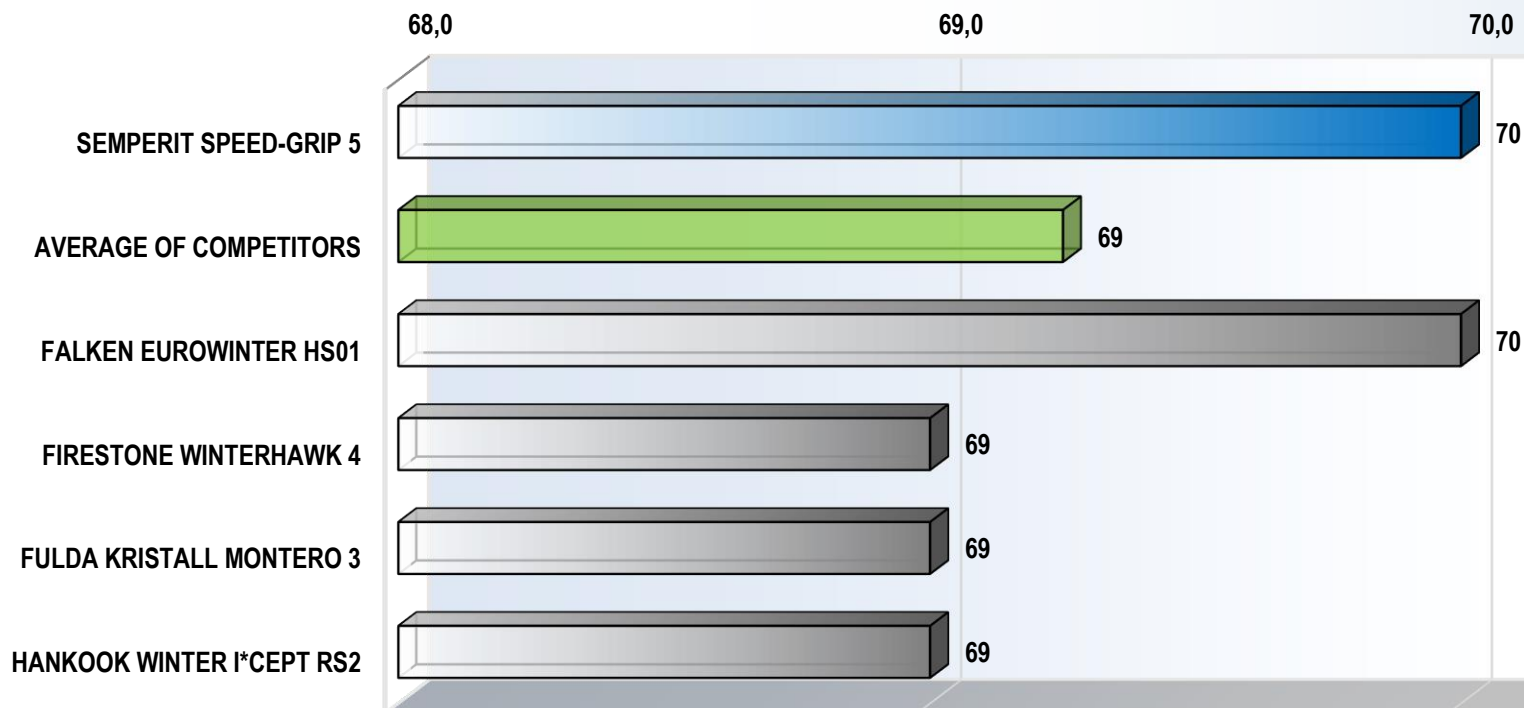
*) The calculation of the percentage performance is based on the speed and the rating scores (at the ratio 2:1).

TEST RESULTS

■ PASS-BY NOISE

- Acc. to ECE R117 Annex 3
- Result: Rolling Noise Level [dB(A)] EC Label Value

TIRE ROLLING NOISE (ECE TYPE APPROVAL VALUE) [dB(A)]

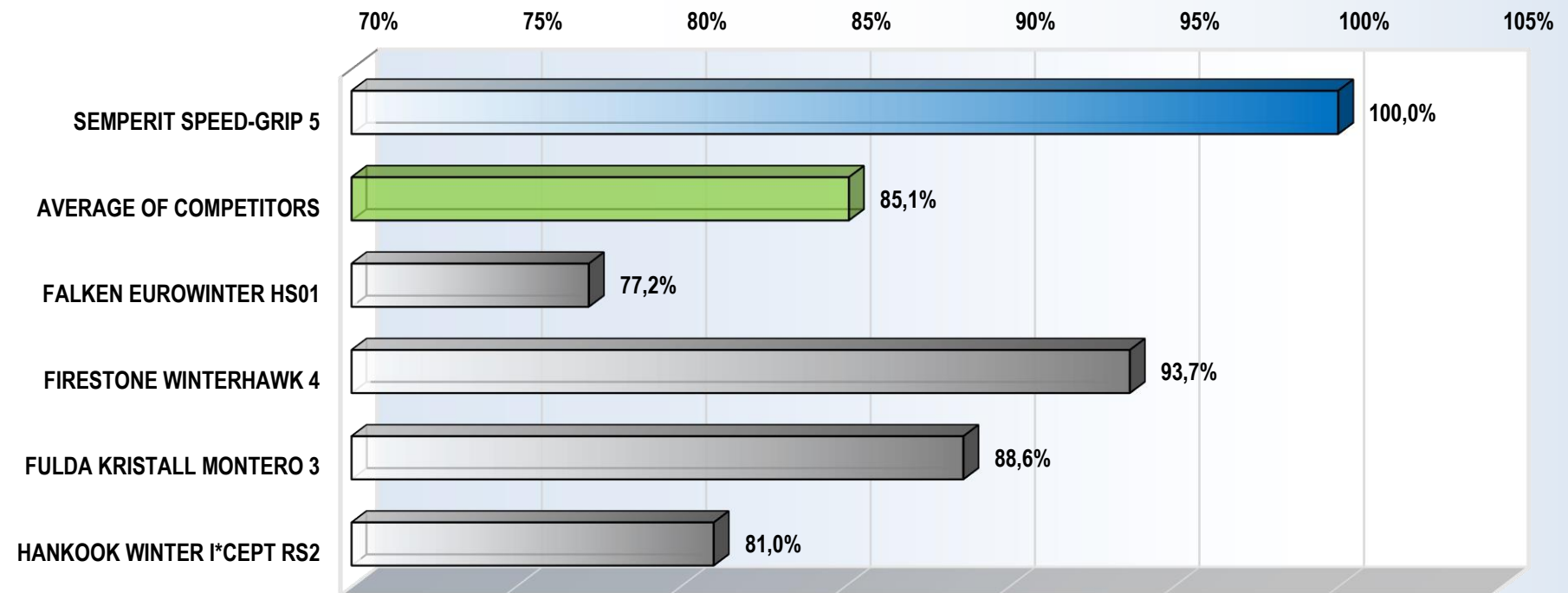


TEST RESULTS

■ ROLLING RESISTANCE

- Acc. to ECE R117 Annex 6
- Result: Rolling Resistance Coefficient (c_R) EC Label Value [kg/t]

ROLLING RESISTANCE PERFORMANCE * [%]



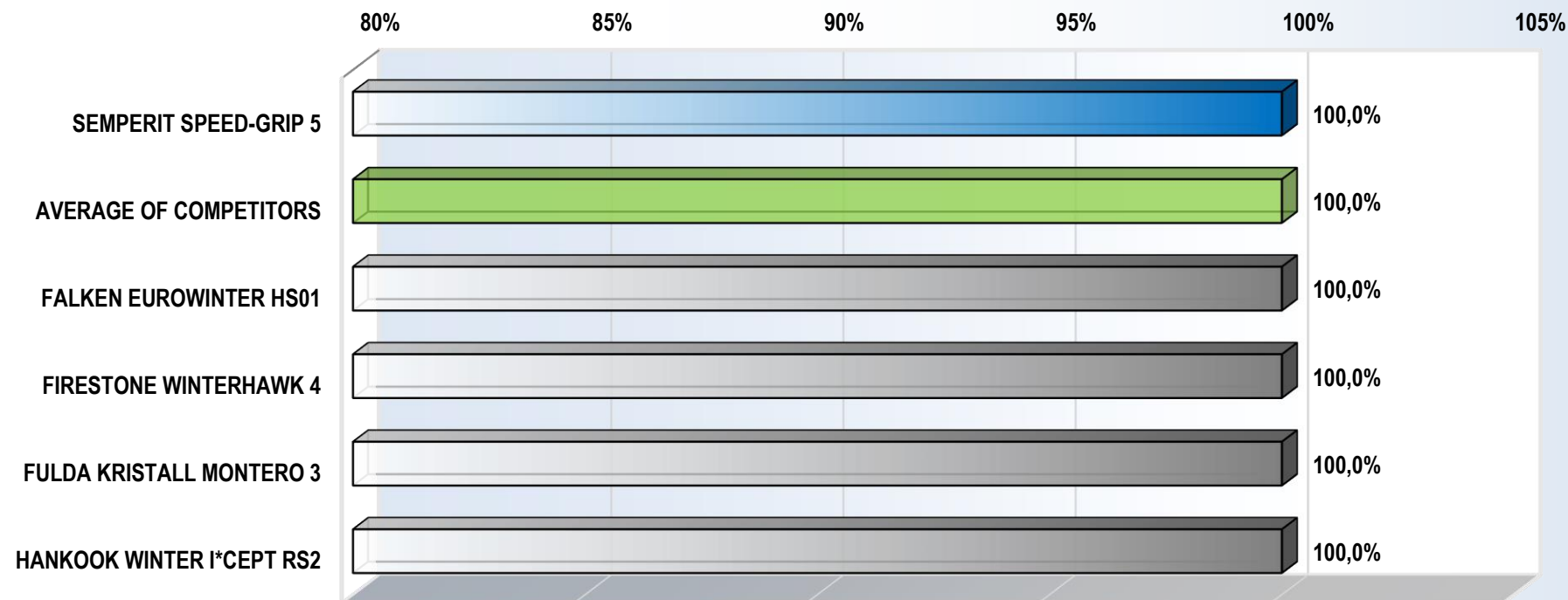
*) The calculation of the percentage performance is based on the reciprocal values of the measured rolling resistance forces.

TEST RESULTS

■ HIGH SPEED TEST ADVANCED

- Acc. to ECE R30 + extension at 2° camber at v_{max} for max. 60 min
- Result: Total running time without visible failure

HIGH SPEED PERFORMANCE * [%]



*) The calculation of the percentage performance is based on the total running time without defect.



TEST SUMMARY

Percentage > 100% means better, percentage < 100% means worse	Weighting factor	Limit single criterion	SEMPERIT SPEED-GRIP 5	TÜV MARK REFERENCE COLLECTIVE	SEMPERIT SPEED-GRIP 5	FALKEN EUROWINTER HS01	FIRESTONE WINTERHAWK 4	FULDA KRISTALL MONTERO 3	HANKOOK WINTER *CEPT RS2
ACCELERATION ON SNOW Ø Run 1 & 2	0,100	95%	102%	100%	100,0%	92,4%	101,3%	100,5%	99,4%
BRAKING ON SNOW Ø Run 1 & 2	0,100	95%	100%	100%	100,0%	94,0%	101,4%	103,1%	99,6%
HANDLING ON SNOW Ø Run 1 & 2	0,100	95%	100%	100%	100,0%	97,2%	100,9%	101,5%	101,4%
AQUAPLANING STRAIGHT-LINE	0,100	95%	100%	100%	100,0%	100,9%	100,1%	94,4%	105,0%
WET BRAKING (ECE R117 Annex 5)	0,150	100%	109%	TÜV-MARK INDEX	100,0%	98,7%	100,2%	92,9%	97,9%
WET HANDLING	0,125	95%	104%	100%	100,0%	94,9%	99,2%	93,8%	96,6%
DRY BRAKING	0,125	95%	105%	100%	100,0%	99,1%	91,0%	92,7%	98,5%
DRY HANDLING	-	-	not mandatory for TM		100,0%	100,3%	97,2%	99,1%	102,1%
ROLLING NOISE (ECE R117 Annex 3)	0,050	95%	105%	TÜV-MARK INDEX	70 dB(A)	70 dB(A)	69 dB(A)	69 dB(A)	69 dB(A)
ROLLING RESISTANCE (ECE R117 Annex 6)	0,050	95%	112%	TÜV-MARK INDEX	100,0%	77,2%	93,7%	88,6%	81,0%
HIGH SPEED TEST ADVANCED	0,100	95%	110%	TÜV-MARK INDEX	100,0%	100,0%	100,0%	100,0%	100,0%
TOTAL RESULT (weighted)	Σ 1,000	100%	104%	100,0%	Limits are reached. TÜV MARK <u>passed</u> .				