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CONFIDENTIAL

TEST REPORT

CV Global Spec.- Strength Tests

SAF Intradisc with Knorr Bremse SB7000

<i>Test Report Number:</i>	070906
<i>Covers Test Numbers:</i>	070906-1
<i>Test Procedure:</i>	BTI 412 rev.1
<i>Customer:</i>	Juratek
<i>Customer Contact:</i>	Allan Hooks
<i>Customer PO Number:</i>	179
<i>Report Date:</i>	02-10-06
<i>Report Prepared by:</i>	Richard Clark

The contents of this test report are confidential, and are subject to the BTI Ltd Standard Terms and Conditions of Work



GLOBAL SPEC. - STRENGTH TEST

Dynamometer test procedure

<i>Test number</i>		070906
<i>BTI Procedure No.</i>		BTI 412 rev1
<i>Test date</i>		26/09/2006
<i>Customer</i>		Juratek
<i>Customer Contact</i>		Allan Hooks
<i>Cust. PO ref</i>		179
<i>Dynamometer</i>		CV1
<i>Inertia</i>	<i>kgm²</i>	1641.00
<i>Friction Material</i>		Jurid 539FF
<i>Batch No.</i>		N/A
<i>Part No.</i>		WVA 29087
<i>R90 Approval</i>		N/A
<i>Brake Pad</i>	<i>Pt Nr</i>	JCP988
<i>Brake Disc</i>	<i>Pt Nr</i>	SAF Intradisc
<i>Brake Caliper</i>	<i>Pt Nr</i>	SB 7000
<i>Piston diameter</i>	<i>mm</i>	N/A
<i>No. of pistons</i>		N/A
<i>Effective radius</i>	<i>mm</i>	175
<i>Rolling radius</i>	<i>mm</i>	528

PROJECT No. 070906

SAF Intradisc Global Spec. Strength Test

**Vehicle Specification**

Vehicle Description	Any 22.5" Wheel
GVM	N/A kg
FAM	11500 kg
RAM	N/A kg

Tyre Specification

Rolling Circumference (Max)	3349.37 mm
Tyre size (Max)	N/A
Rolling Radius (Max)	533.0 mm
Revs of tyre at 60 km/hr	299 rpm

Rolling Circumference (Min)	3349.37 mm
Tyre size (Min)	N/A
Dynamic Rolling Radius (Min)	533.00 mm
Revs of tyre at 60 km/hr	299 rpm

Test Conditions

Direction	Forward (RH Brake)
Calculate Inertia via	$(FAM/2) * (RR_{max})^2 = 1633.51 \text{ kgm}^2$
Speed Scaling Factor	Speed to be calculated from 299 rev/km
Selected Machine Inertia (CV1)	1641.00 kgm^2
Machine Inertia Error	0.46 %

Brake Specification

Brake Type	Disc
Type of Disc Brake	SAF Intradisc
Caliper Description	SB 7000
Brake Efficiency	95 %
Disc Description	Vented
Disc Effective Radius	175.00 mm
Pad Description	OE Jurid 539FF
Pad Part Number (WVA)	29087
Total Pad Area	N/A
Rubbing Path Area (per disc face)	888.2 cm^2

Brake Actuation

Air Chamber Type	24
Piston Diameter	N/A mm
Piston Area	N/A mm^2
Lever Length	N/A mm
Ramp Lead	N/A
Threshold Pressure	0.25 bar

Miscellaneous

Units Conversion Factor	N/A
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SAF Intradisc

Global Spec. Strength Test

independent testing for



Test No.	070906
Test Ref.	BTI 412 rev1
Test Date	38986

Friction Matl.	Jurid 539FF
Batch No.	N/A
Inertia	1641.00 kgm2

Brake Caliper	SB 7000
Piston dia.	N/A mm
Brake disc	SAF Intradisc

Effective rad.	175 mm
Rolling rad.	528 mm

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Test Results

Test Programme (Section 4.1.2.2.2)

500 brake applications to be carried out from a speed of 50 km/h to 10 km/h, with a brake torque of 90% of the maximum brake torque specified. For this test the maximum brake torque specified was taken to be the torque required to obtain 50% g, which is 15000 Nm. Therefore the test torque was 13500 Nm.

Initial temperature: $\leq 200^{\circ}\text{C}$

Test Requirement (Section 4.1.2.2.3)

The test is regarded to have been passed if the brake disc does not exhibit any signs of fracture after 500 brake applications.

Test Results

The Juratek Supplied 'SAF Intradisc' was seen not to have any cracks following the Strength test as described above. It can be seen in the following photos that there are no fracture or damage after the 500 brake applications.

SAF Intradisc

Global Spec. Strength Test

independent testing for



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Test Ref.	BTI 412 rev1
Test Date	26/9/06

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Batch No.	N/A
Inertia	1641.00 kgm2

Brake Caliper	SB 7000
Piston dia.	N/A mm
Brake disc	SAF Intradisc

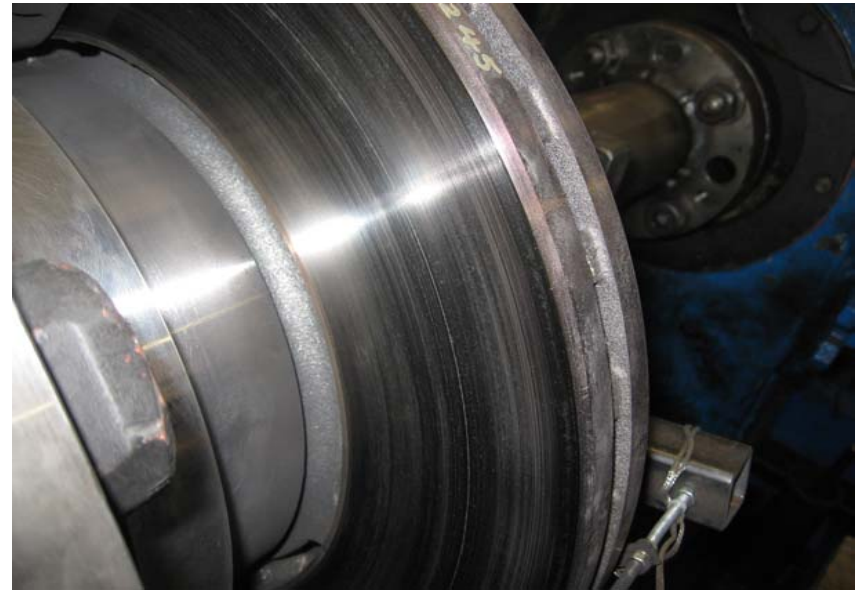
Effective rad.	175 mm
Rolling rad.	528 mm

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Inboard of Disc After 200 Brake Stops



Outboard of Disc After 200 Brake Stops

SAF Intradisc

Global Spec. Strength Test

independent testing for



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Friction Matl.	Jurid 539FF
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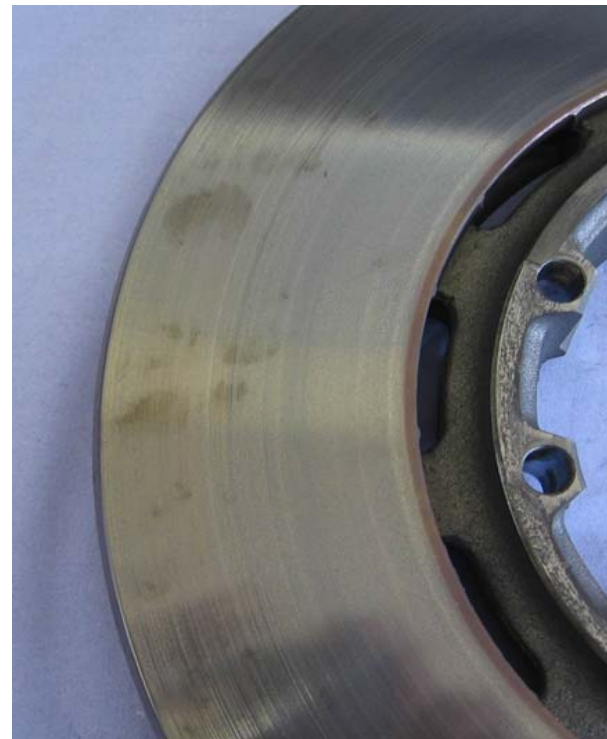
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