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**THE UNITED KINGDOM VEHICLE APPROVAL AUTHORITY**

Rev 1/03



COMMUNICATION CONCERNING THE APPROVAL GRANTED OF  
A REPLACEMENT BRAKE LINING ASSEMBLY OR REPLACEMENT  
DRUM LINING PURSUANT TO ECE REGULATION NO: 90.01

Approval No: 90R-01200 / 3800

1. Applicant's name and address:

Juratek Ltd. Unit 16, Carcroft Enterprise Park, Station Road, Doncaster DN6 8DD

2. Manufacturer's name and address:

3. Make and type of brake lining assembly: DP11386.

4. Make and type of brake lining: LE M09A FF

5. Vehicles/axles/brakes for which the brake lining assembly/drum brake lining type qualifies as original brake lining assembly: Not applicable

6. Vehicles for which the brake lining assembly qualifies as replacement brake lining assembly:

An executive agency of the Department for Transport



7. Submitted for approval on: 18 May 2007
8. Technical Service responsible for approval tests: Vehicle Certification Agency
- 8.1 Date of test report: 3/11/06, 15/11/06, 24/05/06, 17/04/07, 17/04/07.
- 8.2 Number of test reports : VSG078115, VSG173037, VSF066709, VSG177009, VSG177010.
9. Approval GRANTED
10. Place: BRISTOL
11. Date: 11 JUNE 2007
12. Signature:   
A. W. STENNING  
Head of Product Certification
13. Annexed to this communication is a list of documents in the approval file deposited at the administrative services having delivered the approval and which can be obtained upon request.

VSH178488



18/05/07	<b>VCA Job No</b>	VSG178488
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Dear Claire,

Please find enclosed the necessary documentation for you to submit applications for approval for various brake lining assemblies DP11386 in LE M09A FF material pursuant to ECE Regulation No. 90/1. This application is on behalf of Juratek Ltd and cross-references to our DP LE M09A FF application details. We would like the application made to the VCA; I have addressed the formal letter of application accordingly.

The documents contained are: -

1. Formal letter of application
2. Manufacturers declarations
3. Lab test results :-
  - Friction test results
  - Shear test results
  - Compressibility test results
4. Vehicle fitment details
5. Disc pad assembly drawings
6. General disc pad marking drawing

**Please note: Allocated with E11 90R-01200/3800**

**This approval is based on VSG078115, VSG173037 and VSF066709 plus additional OE Materials testing on VSG177009 and VSG177010.**

Yours sincerely,



Susan Owens  
Q.B.T.



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Vehicle Certification Agency  
1 Eastgate Office Centre  
Eastgate Road  
Bristol  
BS5 6XX

**Letter of application for an approval pursuant to ECE Regulation No. 90/1**

Dear Sirs,

Herewith we apply for an approval for our brake lining assembly pursuant to ECE Regulation No. 90/1.

Applicants name and address:

Juratek Ltd. Unit 16, Carcroft Enterprise Park, Station Road, Doncaster DN6 8DD

Manufacturers name and address:

Make and type of brake lining	LE M09A FF
Make and type of brake lining assembly	as listed below

Assembly Number	Assembly Contains...(see enclosed drawings)	Material Code
DP11386	4 identical pads	LE M09A FF



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For vehicles / axles / brakes for which the lining assembly qualifies as replacement brake lining assembly, see following application list.

Assembly Number	Equivalent to	Also supplied as Assembly Number
DP11386 LE M09A FF	Equivalent to	
	Equivalent to	

Yours faithfully



Susan Owens  
Q.B.T.



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### Manufacturer's Declaration

for granting of Approval for replacement brake lining according to ECE Regulation No. 90/1.

We, the company  
declare herewith that

Replacement pad assemblies DP11386 LE M09A FF

are produced in our factory

We certify that no application has been made regarding this permission/approval by us or by companies appointed by us in countries which as contract parties would also be entitled to grant permission/approval.

We are aware of the following: -

A type marking of vehicles/vehicle components of the above mentioned type with the officially assigned approval mark can only be granted if the products have been manufactured in the above mentioned factory or at one of our listed and approved manufacturing sites, and if they comply with the official approval documents.

Companies manufacturing products for our company or under license may not use the officially assigned approval mark for vehicles/vehicle components produced at their factories unless they are listed as an approved manufacturing site, and fully comply with our quality procedures.

A marking of vehicles/vehicle components of the above mentioned type with different factory or trade marks but the same approval mark is only permissible if written consent has been obtained from the Vehicle Certification Agency.



Susan Owens  
Q.B.T.



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### Friction test results

Conducted in accordance with Annex 8, of ECE Regulation No. 90 Rev1 including supplement 2 to the 01 series of amendments. (TRANS/SC1/WP29/GRRF/R90 Rev 1).

Type of assembly: Part Number DP1143 in material LE M09A FF  
(Previously agreed single test reference)

Type of test:	Constant torque (para. 2.2.2.2)
$\mu_{op}: 1$	0.37
$\mu_{op}: 2$	0.39
$\mu_{min}$ :	0.29
$\mu_{max}$ :	0.41

Test dates: 11/02/2007



Susan Owens  
Q.B.T.



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## Bench tests

Manufacturer:			
Type of brake lining assy:	DP1143 LE M09A FF	Page	1/2

### 1. Shear strength test<sup>1</sup> (5.3.2.1 of ECE Regulation No. 90 Rev 1)

- Sample

Type of assembly:

DP1143 LE M09A FF

Shear area [cm<sup>2</sup>]:

46.24

- Shear strength measured

Mean value [N/cm<sup>2</sup>]:

564.4

Required [N/cm<sup>2</sup>]:

250

Test date: 10/02/2007

1) Test procedure according to ISO Standard 6312 (2001)



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Manufacturer:			
Type of brake lining assy:	LE M09A FF	Page	2/2

2. Compressibility test<sup>2</sup>  
(5.3.2.2 of ECE Regulation No. 90 Rev 1)

- Sample

Type: III  
Type of assembly: LE M09A FF  
Thickness,  $d_0$  (nominal value) [mm]: 15.0  
Pad area [cm<sup>2</sup>]: 46.24  
Ram dia (corresponding to caliper piston dia) [mm]: 60

- Compressibility at specific surface pressure of 8000 kPa

Measured at ambient temperature

$$\text{Mean value: } \frac{d_4 - d'_3}{d_0} = 0.45 \%$$

Required:  $\leq 2\%$

Measured at 400°C

$$\text{Mean value: } \frac{d_4 - d'_3}{d_0} = 1.49\%$$

Required:  $\leq 5\%$

Test dates: 10/02/2007

2) Test procedure according to ISO Standard 6310 (2001)



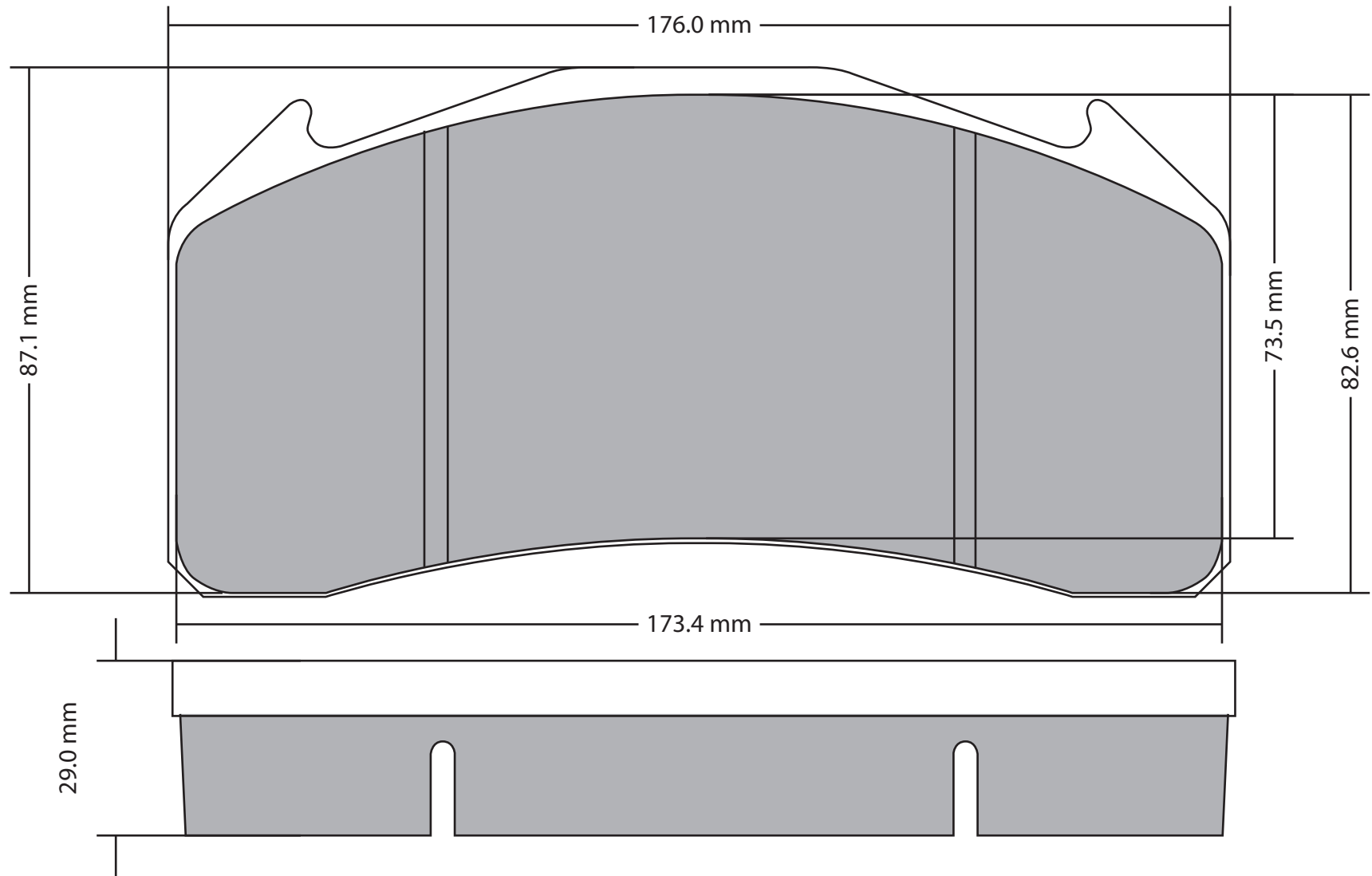
Susan Owens  
Q.B.T.



MAKE		MODEL 1	MODEL 2	MODEL 3	MODEL 4	MODEL 5	F/R	D	A	T	E	OE Caliper Manufacturer	S/V Dr	Disc / Drum / Dia	Max Th Disc / Shoe Width
DP11386	MERITOR (Includes Lucas CV, Rockwell, R.O.F.)	B Duco	17.5" wheels									Meritor (Lucas)	V		
DP11386	SAF / SAUER	with Meritor brakes	B Duco	17.5" wheels								Meritor (Lucas)	V		
DP11386	TRAILERS	with Meritor brakes	B Duco	17.5" wheels			R	01	98			Meritor (Lucas)	V		
DP11386	VOLVO	FL Series 05/00-->05/06	FL6.12	17.5" wheels	B Duco		F	05	00			Meritor (Lucas)	S		
DP11386	VOLVO	FL Series 05/00-->05/06	FL6.12	17.5" wheels	B Duco		R	05	00			Meritor (Lucas)	S		

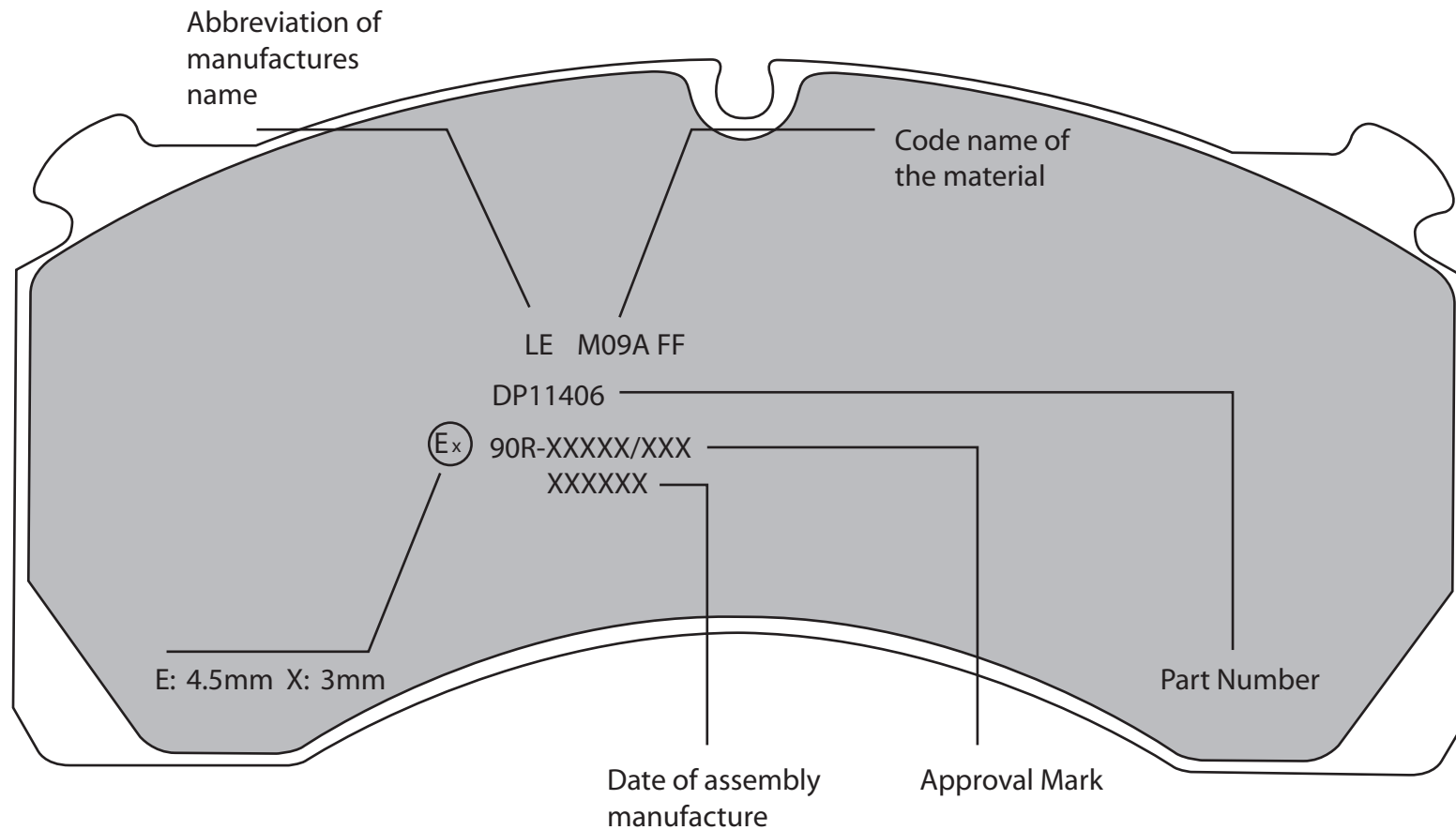
CALIPER ACTUATION	BRAKING SPLIT F/R, DIAG or H / I	CALIPER PISTON DIA	PAD FRICTION AREA mm^	HERST NUMBER	TYP / SCHL NUMBER	MAX SPEED Km/h	80% V MAX Km/h	VEHICLE /		VEHICLE WEIGHT LADEN	AXLE WEIGHT LADEN	ENERGY FACTOR .5 MV 2	MAXIMUM ROLLING RADIUS	INERTIA UNLADEN	VEHICLE INERTIA LADEN	AXLE INERTIA LADEN
								AXLE WEIGHT UN-LADEN								
Air	F/R					90	72			10000	5900	25920000	0.365	0	213.16	216.1575625
Air	F/R					90	72			10000	5900	25920000	0.365	0	213.16	216.1575625
Air	F/R					90	72			10000	5900	25920000	0.365	0	366.36875	216.1575625
Air	F/R					90	72			11000	6500	28512000	0.365	0	564.207875	238.1396875
Air	F/R					90	72			11000	6500	28512000	0.365	0	234.476	238.1396875






Material Area			Drawn By	Description	Issue No.	Part No.	DP11386
12184.2 mm				Disc Pad Assembly	1		11 Jun 07
Modification	Initial Date	Date	General Tolerance	± 0.25mm		Not To Scale	





Material Area			Drawn By	Description	Issue No.	Part No.	 11-Jun-07 Not To Scale
				Disc Pad Assembly	1		
			Date	General Tolerance	± 0.25mm		
Modification	Initial	Date					