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THE UNITED KINGDOM VEHICLE APPROVAL AUTHORITY

Rev 1/03



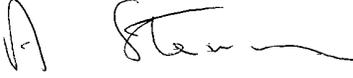
COMMUNICATION CONCERNING THE APPROVAL GRANTED OF A
REPLACEMENT BRAKE LINING ASSEMBLY OR REPLACEMENT DRUM
LINING PURSUANT TO ECE REGULATION NO: 90.01

Approval No: 90R-01184 / 3139

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: DP6610,DP2275,DP2289.
4. Make and type of brake lining: TD3
5. Vehicles/axles/brakes for which the brake lining assembly/drum brake lining type qualifies as original brake lining assembly: Not applicable
6. Vehicles/axles/brakes for which the brake lining assembly/drum brake lining type qualifies as replacement brake lining assembly: See Manufacturer's Information Documents

An executive agency of the Department for Transport



7. Submitted for approval on: 23 August 2006
8. Technical Service responsible for approval tests: Vehicle Certification Agency
- 8.1 Date of test report: 14 August 2006, 20 November 2006, 15 August 2006, 20 November 2006, and 23 November 2006.
- 8.2 Number of test report: VSG076369, VSG078081, VGS078079, VSG076364, and VSG078099.
9. Approval GRANTED
10. Place: BRISTOL
11. Date: 27 NOVEMBER 2006
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.

VSG076367



23/08/06	VCA Job No	VSG076367
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Dear Ted,

Please find enclosed the necessary documentation for you to submit applications for approval for various brake lining assemblies DP6610, DP2275, DP2289 in TD3 material pursuant to ECE Regulation No. 90/1. This application is on behalf of Juratek Ltd. and cross-references to our DP TD3 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-01184/3139 as a provisional number.
This approval is based on VSG076369, VSG078081, and VSG078079
plus additional OE Materials testing on VSG076364 and VSG078099.**

Yours sincerely,



Susan Owens
Q.B.T.



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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
DP6610 TD3	Equivalent to	SLB15578 leca-TD3
DP2275 TD3	Equivalent to	SLB532 leca-TD3
DP2289 TD3	Equivalent to	SLB1906 leca-TD3

Yours faithfully



Susan Owens
Q.B.T.



23/08/06

VCA Job No

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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 DP6610 TD3, DP2275 TD3, DP2289 TD3

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 DP11094 in material TD3
(Previously agreed single test reference)

Type of test:	Constant torque (para. 2.2.2.2)
$\mu_{op: 1}$	0.354
$\mu_{op: 2}$	0.361
$\mu_{min:}$	0.278
$\mu_{max:}$	0.422

Test dates: 02/06/2006



Susan Owens
Q.B.T.

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Bench tests

Manufacturer:			
Type of brake lining assy:	DP11094 TD3	Page	1/2

1. Shear strength test¹ (5.3.2.1 of ECE Regulation No. 90 Rev 1)

- Sample

Type of assembly: DP11094 TD3

Shear area [cm²]: 43.46

- Shear strength measured

Mean value [N/cm²]: 630

Required [N/cm²]: 250

Test date: 03/06/2006

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



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Manufacturer:			
Type of brake lining assy:	DP11094 TD3	Page	2/2

2. Compressibility test²
(5.3.2.2 of ECE Regulation No. 90 Rev 1)

- Sample

Type: III
Type of assembly: DP11094 TD3
Thickness, d_0 (nominal value) [mm]: 18.5
Pad area [cm²]: 43.464
Ram dia (corresponding to caliper piston dia) [mm]: 54

- Compressibility at specific surface pressure of 8000 kPa

Measured at ambient temperature

$$\text{Mean value: } \frac{d_4 - d'_3}{d_0} = 0.16 \%$$

Required: $\leq 2\%$

Measured at 400°C

$$\text{Mean value: } \frac{d_4 - d'_3}{d_0} = 0.65\%$$

Required: $\leq 5\%$

Test dates: 03/06/2006

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



Susan Owens
Q.B.T.

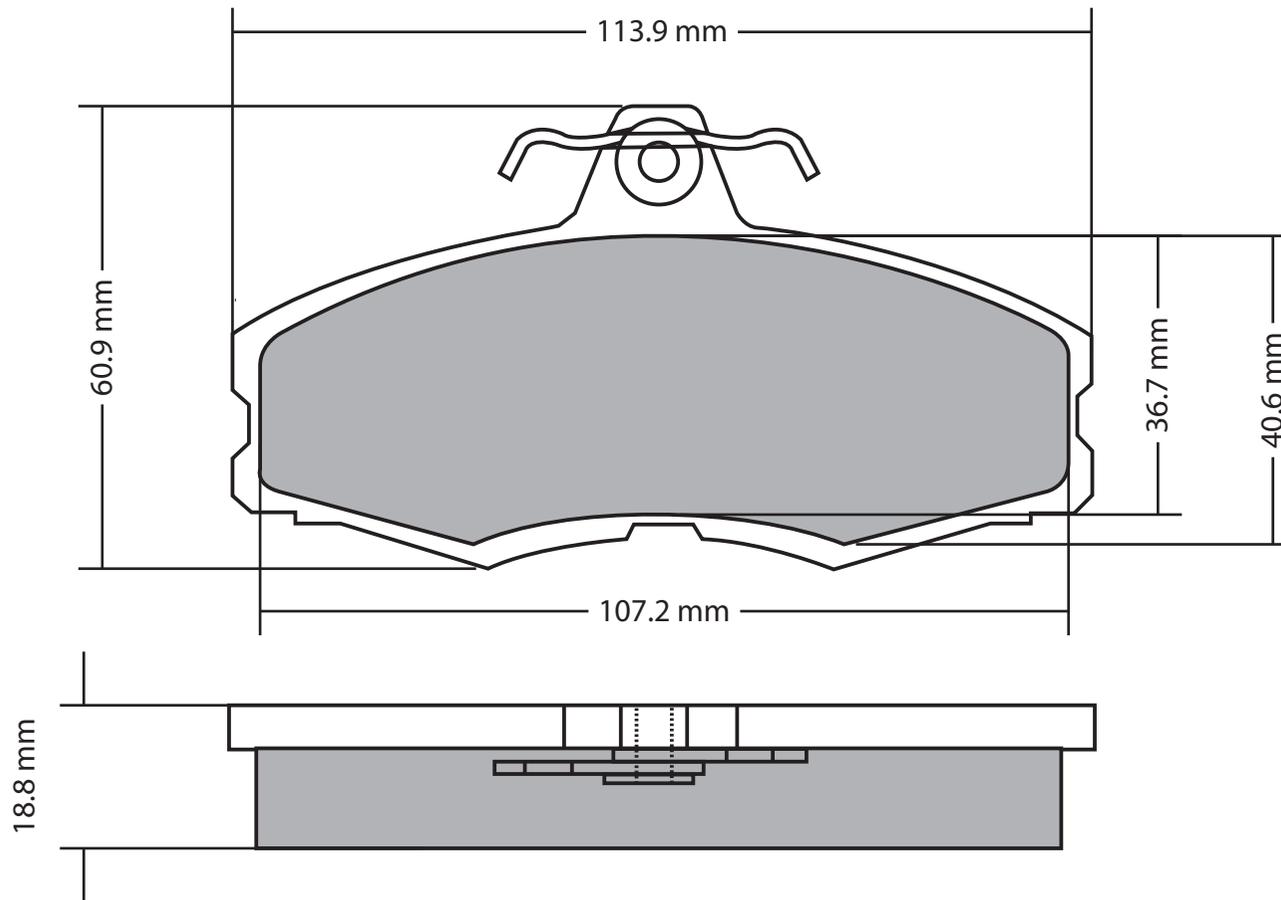


MAKE	MODEL 1	MODEL 2	MODEL 3	F/R	D	A	T	E	OE Caliper Manufacturer	S/ Dr	Disc /	Max Th Disc	
											Drum /	Shoe	
											Dia	Width	
DP6610	SKODA	Favorit	1.3		F	01	89	01	93	Lucas	S	236	12.9
DP6610	SKODA	Favorit	1.3		F	01	93	04	94	Lucas	S	236	13
DP6610	SKODA	Favorit	1.3		F	04	94	10	96	Lucas	S	236	13
DP6610	SKODA	Felicia	1.3, 1.6, 1.9 D		F	01	95			Lucas	S	236	13
DP6610	SKODA	Forman	1.3		F	01	92	01	93	Lucas	S	236	12.9
DP6610	SKODA	Forman	1.3		F	01	93	04	94	Lucas	S	236	13
DP6610	SKODA	Forman	1.3		F	04	94			Lucas	S	236	13
DP6610	SKODA	Favorit Van			F	01	91	01	93	Lucas	S	236	12.9
DP6610	SKODA	Favorit Van			F	01	93	04	94	Lucas	S	236	13
DP6610	SKODA	Favorit Van			F	04	94	10	96	Lucas	S	236	13
DP6610	SKODA	Forman	1.3 Pick-Up		F	01	92	01	93	Lucas	S	236	12.9
DP6610	SKODA	Forman	1.3 Pick-Up		F	01	93	04	94	Lucas	S	236	13
DP6610	SKODA	Forman	1.3 Pick-Up		F	04	94			Lucas	S	236	13
DP6610	VOLKSWAGEN	Caddy II	1.4i, 1.6i, 1.8i, 1.9 TDi		F	04	96	06	99	Lucas	S	256	13
DP2275	FORD	Sierra / Sapphire	1.3		F	01	82	10	86	Lucas	S	239	12.9
DP2275	FORD	Sierra / Sapphire	1.6		F	01	82	01	87	Lucas	S	239	12.9
DP2289	FORD	Sierra / Sapphire	1.3		F	01	82	10	86	Lucas	S	239	12.9
DP2289	FORD	Sierra / Sapphire	1.6		F	01	82	01	87	Lucas	S	239	12.9



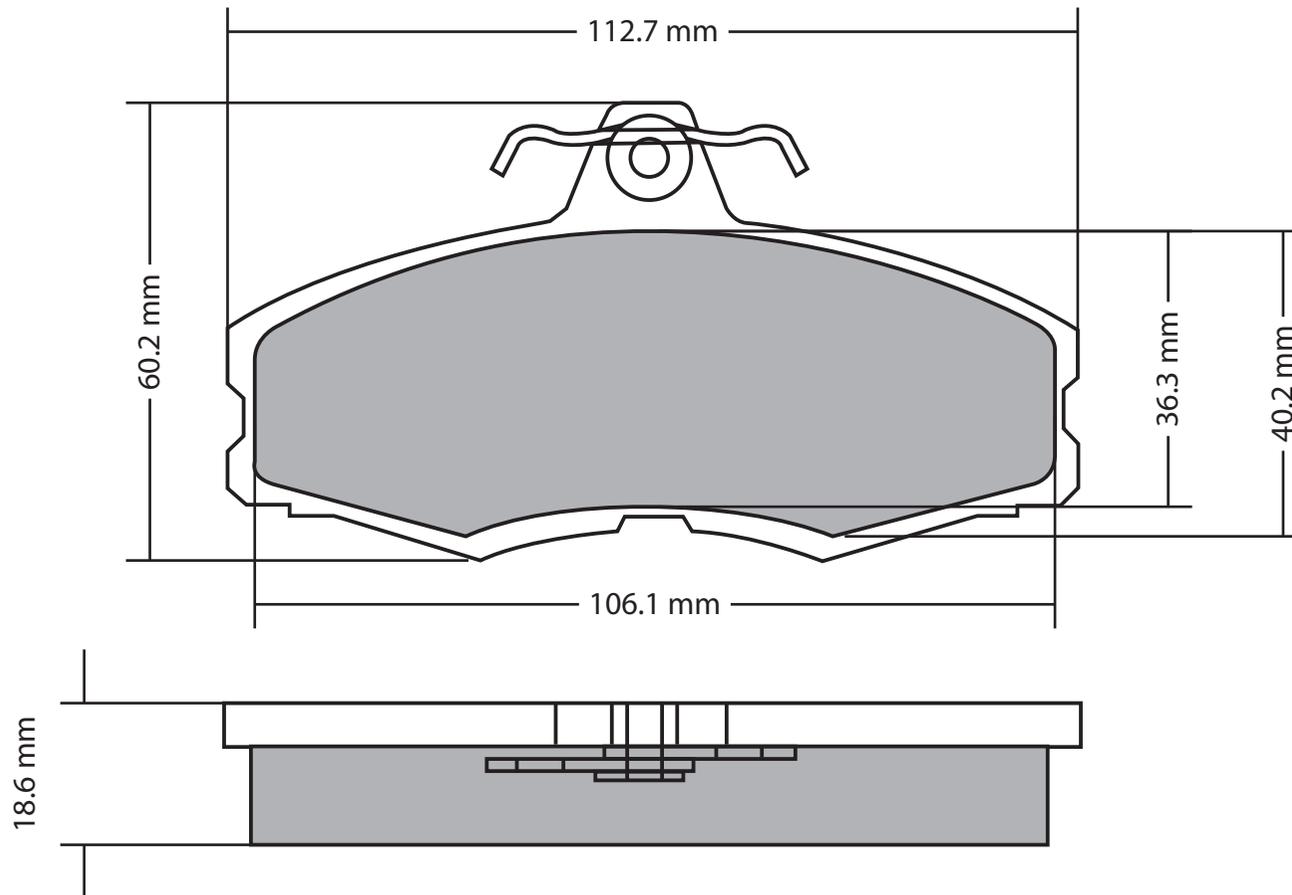
CALIPER ACTUATION	BRAKING SPLIT F/R, DIAG or H / I	CALIPER PISTON DIA	HERST NUMBER	TYP / SCHL NUMBER	MAX SPEED Km/h	80% V MAX Km/h	VEHICLE /		ENERGY FACTOR .5 MV 2	MAXIMUM ROLLING RADIUS	INERTIA UNLADEN	VEHICLE INERTIA LADEN
							AXLE WEIGHT UNLADEN	VEHICLE WEIGHT LADEN				
Hyd	Diag	54	8004	305, 307, 308,	150	120	944	1370	9864000	0.33	39.578616	57.439305
Hyd	Diag	54	8004	305, 307, 308,	150	120	944	1370	9864000	0.33	39.578616	57.439305
Hyd	Diag	54	8004	305, 307, 308,	150	120	944	1370	9864000	0.33	39.578616	57.439305
Hyd	Diag	54	8004	310, 311, 313,	160	128	1130	1490	12206080	0.33	47.376945	62.470485
Hyd	Diag	54	8004	310, 311, 313,	160	128	1130	1490	12206080	0.33	47.376945	62.470485
Hyd	Diag	54	8004	310, 311, 313,	160	128	1130	1490	12206080	0.33	47.376945	62.470485
Hyd	Diag	54	8004	310, 311, 313,	160	128	1130	1490	12206080	0.33	47.376945	62.470485
Hyd	Diag	54	8004		150	120	944	1370	9864000	0.33	39.578616	57.439305
Hyd	Diag	54	8004		150	120	944	1370	9864000	0.33	39.578616	57.439305
Hyd	Diag	54	8004		150	120	944	1370	9864000	0.33	39.578616	57.439305
Hyd	Diag	54	8004		160	128	1130	1490	12206080	0.33	47.376945	62.470485
Hyd	Diag	54	8004		160	128	1130	1490	12206080	0.33	47.376945	62.470485
Hyd	Diag	54	8004		160	128	1130	1490	12206080	0.33	47.376945	62.470485
Hyd	Diag		0600	095, 285, 110,	165	132	1240	1800	15681600	0.33	51.98886	75.4677
Hyd	Diag	54	0928 / 2028 /	559, 560	165	132	1147	1550	13503600	0.33	48.0896955	64.986075
Hyd	Diag	54	0928 / 2028 /	559, 560, 565	165	132	1204	1625	14157000	0.33	50.479506	68.1305625
Hyd	Diag	54	0928 / 2028 /	559, 560	165	132	1147	1550	13503600	0.33	48.0896955	64.986075
Hyd	Diag	54	0928 / 2028 /	559, 560, 565	165	132	1204	1625	14157000	0.33	50.479506	68.1305625



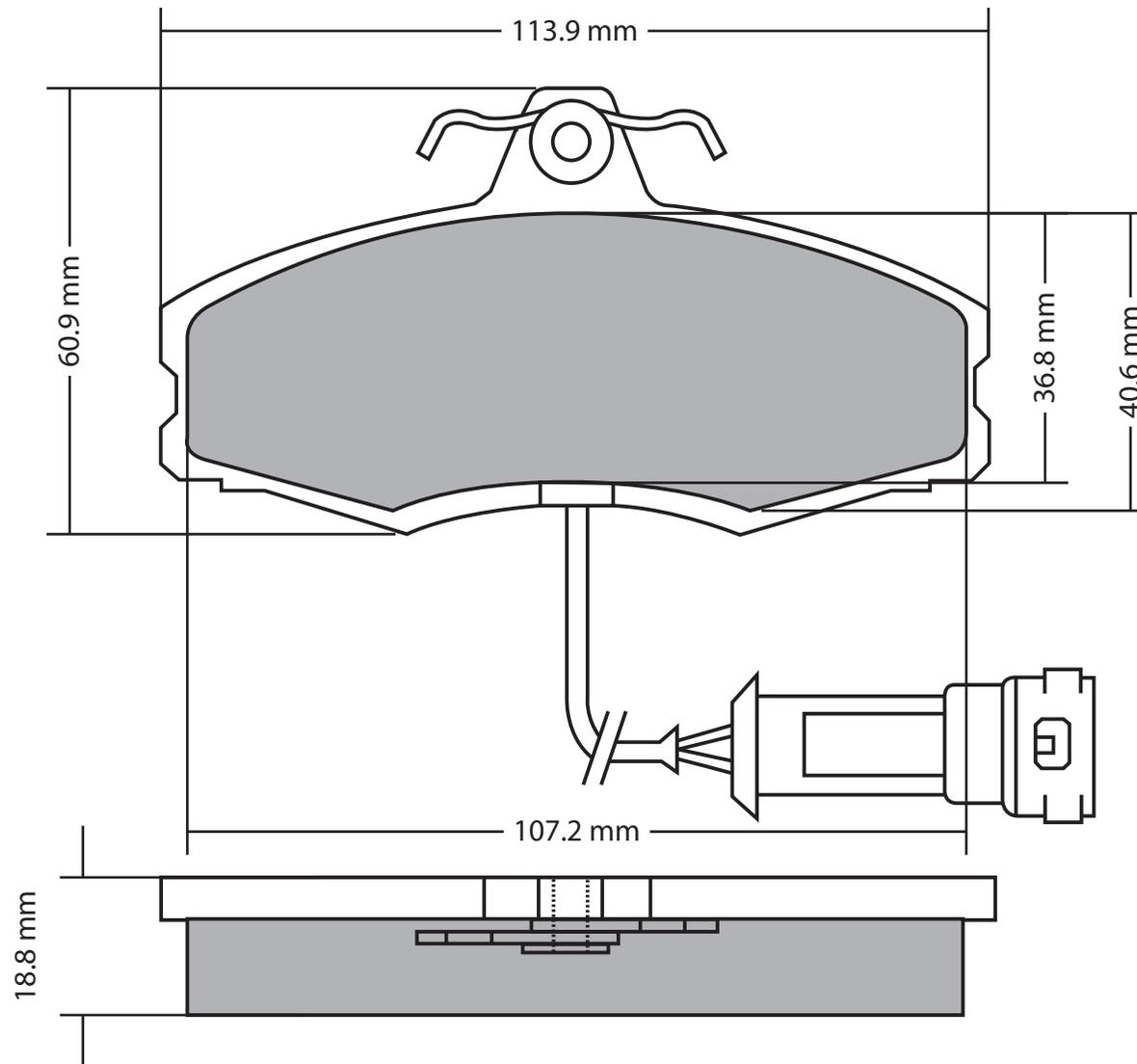


Material Area		Drawn By	Description	Issue No.	Part No.
3503.0 mm			Disc Pad Assembly	1	
Modification	Initial Date	Date	General Tolerance	$\pm 0.25\text{mm}$	Not To Scale



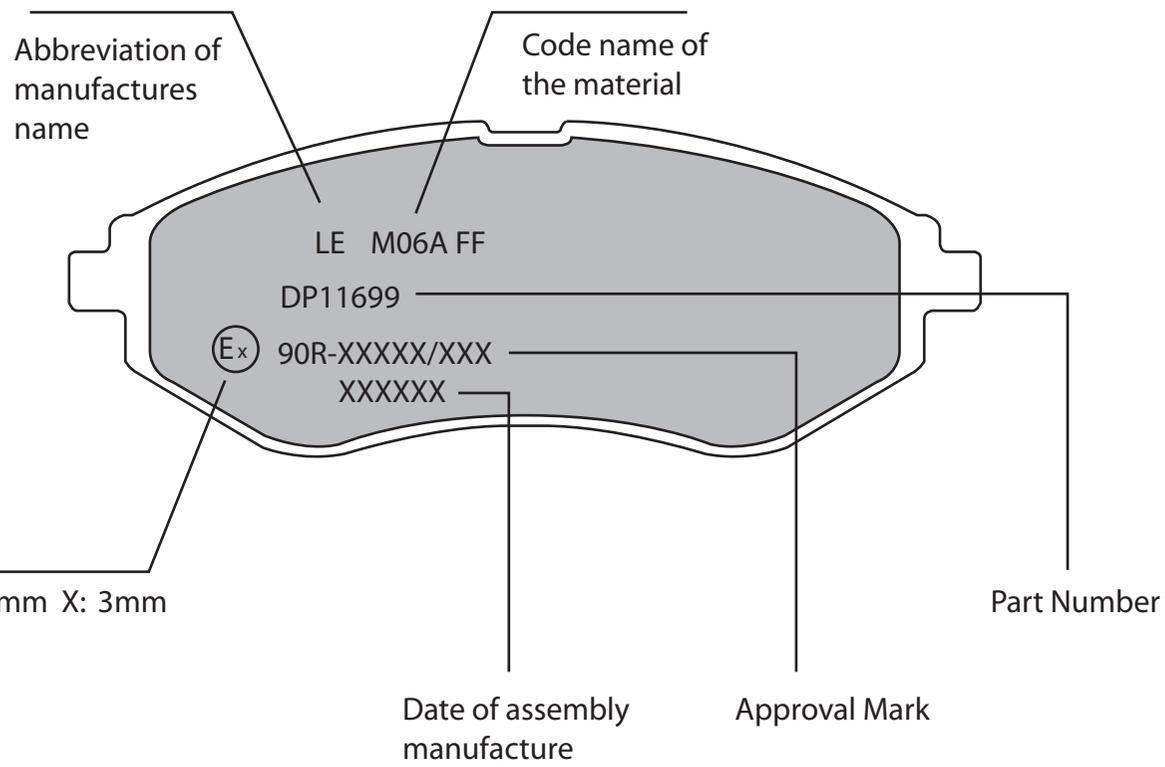


Material Area		Drawn By	Description	Issue No.	Part No.	 DP2275 2006 <small>Manufacturing Approval Authority</small>
3430.9 mm			Disc Pad Assembly	1		
Modification	Initial Date	Date	General Tolerance	± 0.25mm	Not To Scale	



Material Area			Drawn By	Description	Issue No.	Part No.
3505.8 mm				Disc Pad Assembly	1	
Modification	Initial Date	Date		General Tolerance	± 0.25mm	Not To Scale





Material Area			Drawn By	Description Disc Pad Assembly	Issue No.	Part No.
					1	
Modification	Initial Date	Date		General Tolerance	$\pm 0.25\text{mm}$	Not To Scale

