



Severe Duty Brake Pads Profile

Perfil de las Pastillas Trabajo Severo



Characteristics



Friction Coefficient FF
Coeficiente de Fricción FF

Low Fade
Bajo Desvanecimiento

Positive Mold Production
Producción por Molde Positivo

Excelent Stopping Power at high temperatures
Excelente Potencia de Frenado a altas temperaturas

Materials: - Carbon Elements
- Inorganic Fibers, Kevlar
- Potassium Titane Flake
- Copper

Long Life even extreme driving conditions
Larga duración inclusive en condiciones extremas de manejo

Materiales: - Elementos de carbón
- Fibras Inorgánicas, Kevlar
- Hojuela de Potasio Titaniado
- Cobre

Low Dust
Bajo polvo



Physical Properties

a. Physical Properties

Density

	Temperature [°C]	Operation	Remarks
1	R.T.	Weight	In Air
2	R.T.	Weight	In Water

Hardness

	Scale	Rockwell	Penetrator Diameter,mm	Standards Loading [N]	Test Loading [N]
1	R	HRR	12.7	98.07	588.4

pH Value

	Scale	pH Value (Buffer Solution)	Soak Solution
1	0.00~14.00	4.00,6.86,9.18	KCl(aq.3mol/L)

Shear Strength

	Positive Pressure [MPa]	Shear Force [KN]	Loading Ratio [N/s]	Power [KW]
1	0-0.5	0-100	4500±500	1.5

Porosity

	Temperature [°C]	Time [hr]	Remarks
1	90±10	8	In Oil
2	90±10→R.T.	Over 12	In Oil

Impact Strength

	Impact Speed [m/s]	Impact Power [J]	Impact Angel [°]	Sample size [mm]
1	2.9	0.5	150	55*10*6

Physical Properties

b. Physical Properties

Density (g/cm ³)	2.90~3.00	Hardness/HRR	50~65
pH Value	7.40~7.60	Shear (N/mm ²)	>6.50
Porosity/%	5.95~6.05	Impact (KJ/m ²)	1.850~2.250

Compressibility

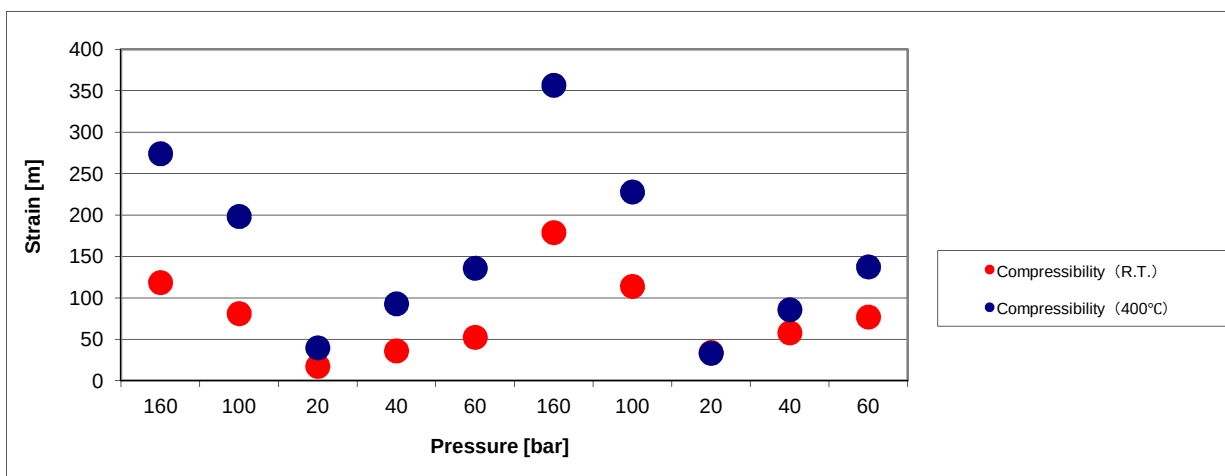
	Load Increment Ratio [Mpa/sec]	Initial Loading [Mpa]	Test Loading [Mpa]	Cycle
1	8±1	0.5	2~16	3

Compressibility (R.T.)

Load/bar	160	100	20	40	60	160	100	20	40	60
Cycle	3↓	3↑	3↑	3↑	3↑	1↓	1↑	1↑	1↑	1↑
Mean	[μm]	[μm]	[μm]	[μm]	[μm]	[μm]	[μm]	[μm]	[μm]	[μm]
Value	118.5	81.1	17.5	36.1	52.5	178.9	114.0	34.2	57.9	77.0

Compressibility (400°C)

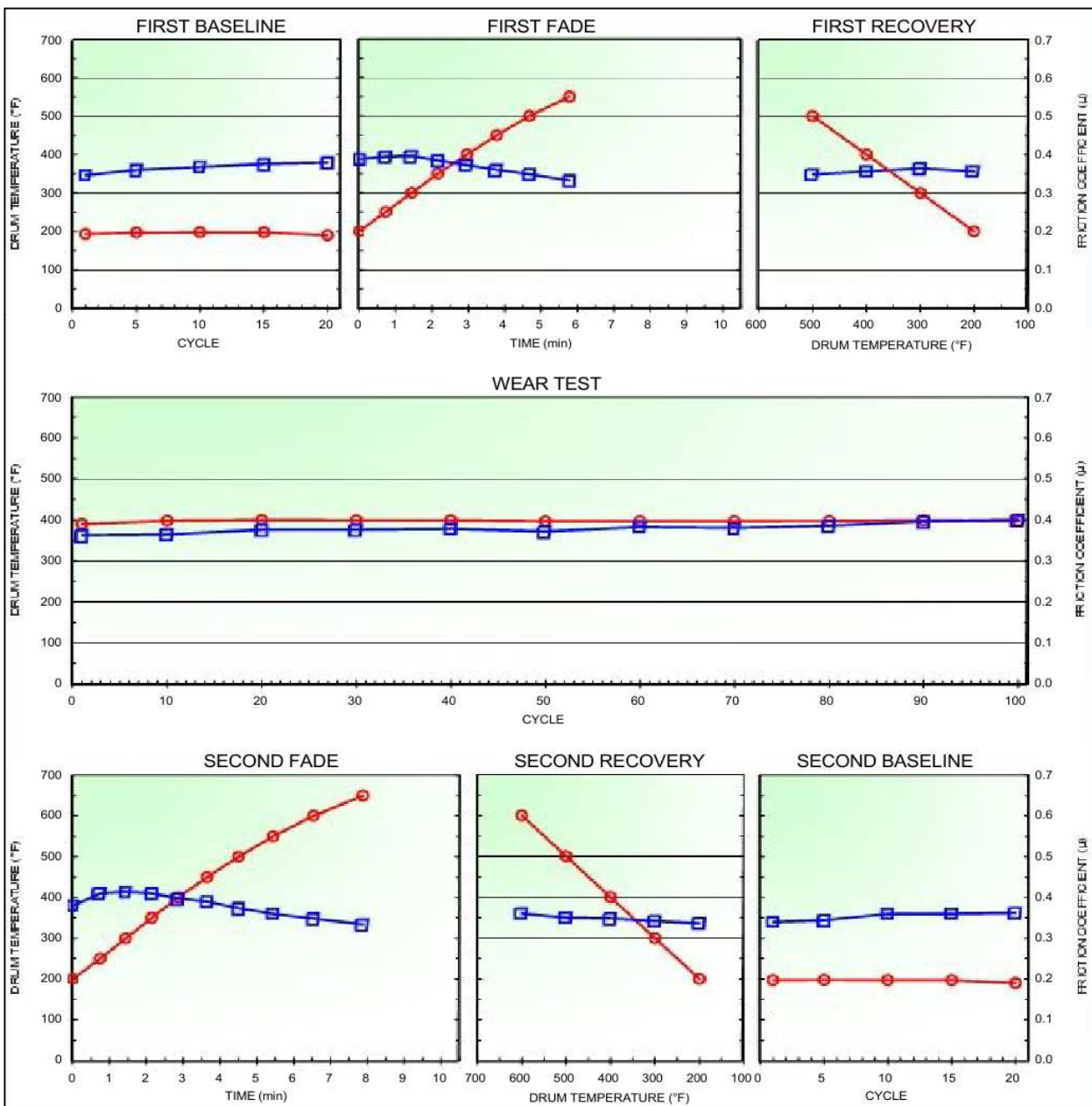
Load/bar	160	100	20	40	60	160	100	20	40	60
Cycle	2↓	2↑	2↑	2↑	2↑	1↓	1↑	1↑	1↑	1↑
Mean	[μm]	[μm]	[μm]	[μm]	[μm]	[μm]	[μm]	[μm]	[μm]	[μm]
Value	274	198.3	39.8	92.9	135.8	356.6	227.9	33.2	85.8	137.4



SAE J-661 Chase Test

a. Friction and wear

	Before Test	After Test	Loss	Loss%
Weight (g)	12.16	11.94	0.22	1.81%
Thickniss (mm)	6.54	6.41	0.13	1.99%
μ	normal	0.401	hot	0.357



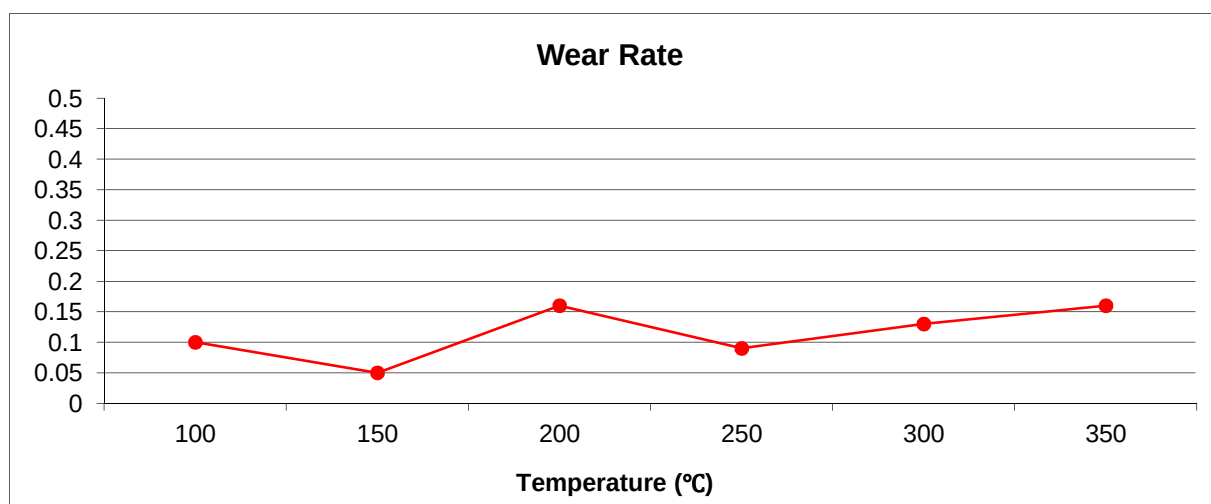
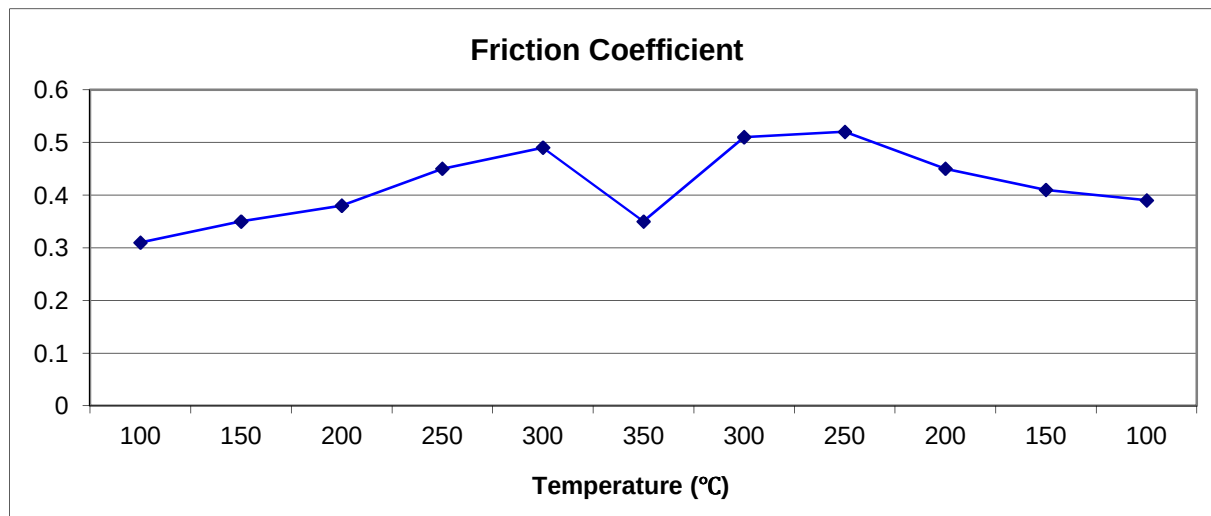
Friction and Wear - Constant Speed

b. Friction and wear

Equipment Name: Constant speed tester

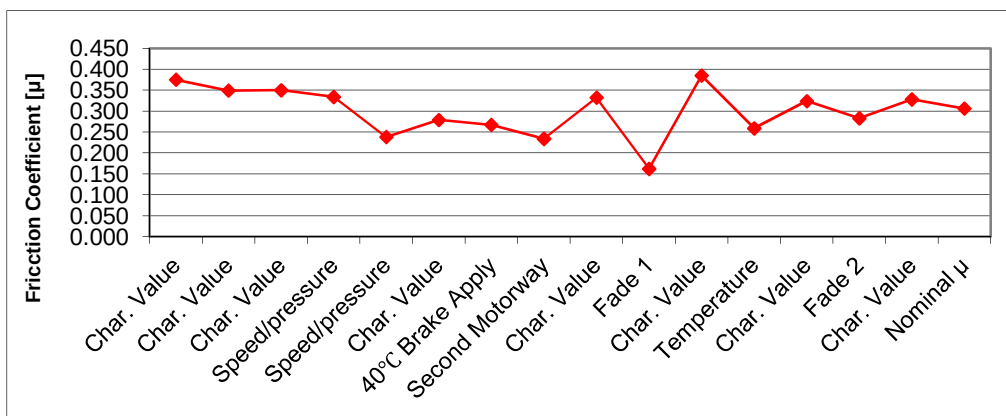
Standard Applied: GB5763-2008

Test Temperature (°C)	Friction Coefficient	Coefficient appointed	Wear Rate 10-7cm ³ / (N·m)	Test Temperature (°C)	Friction Coefficient		Wear Rate 10-7cm ³ / (N·m)
					Warming	Cooling	
100	0.25-0.65	0.35±0.08	0-0.50	100	0.31	0.39	0.10
150	0.25-0.70	0.35±0.10	0-0.70	150	0.35	0.41	0.05
200	0.25-0.70	0.35±0.10	0-1.00	200	0.38	0.45	0.16
250	0.25-0.70	0.35±0.10	0-1.50	250	0.45	0.52	0.09
300	0.25-0.70	0.35±0.12	0-2.00	300	0.49	0.51	0.13
350	0.25-0.70	0.35±0.12	0-2.50	350	0.35		0.16



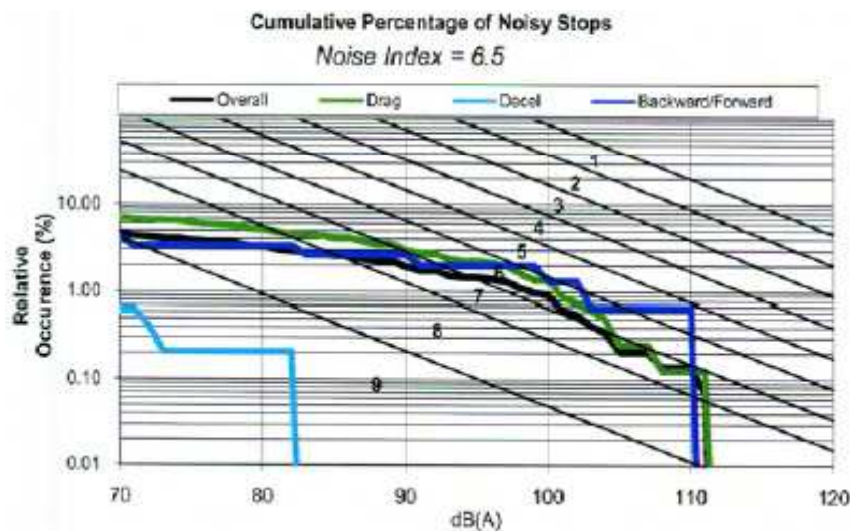
SAE J-2522 DYNAMOMETER BRAKE EFFECTIVENESS

Vehicle	Sample Model		D787-7656	
	Engine Size		2.0 L	
	Required Load		529 Kg	
	Required Inertia		55.2 Kg.m2	
	Piston Diameter		56.6 mm	
	Effective Radius		112.0 mm	
Dynamometer Brake				
Characteristic Values μ			AVG	MIN
Char. Value	(6.1)	μ_{avg}	0.375	
Char. Value	(6.2)	μ_{avg}	0.349	
Char. Value	(6.3)	μ_{0p6}	0.350	
Speed/pressure	(6.4.3)	μ_{v120}	0.334	
Speed/pressure	(6.4.5)	μ_{vmax}	0.238	
Char. Value	(6.5)	μ_{0P6}	0.279	
40°C Brake Apply	(6.6)	μ_{T40}	0.267	
Second Motorway	(6.7)	μ_{Mw2}	0.234	
Char. Value	(6.8)	μ_{0P18}	0.332	
Fade 1	(6.9)	μ_{F1}		0.162
Char. Value	(6.10)	μ_{0P18}	0.385	
Temperature	(6.12)	T500/ μ_{T300}		0.259
Char. Value	(6.13)	μ_{0P18}	0.324	
Fade 2	(6.14)	μ_{F2}		0.283
Char. Value	(6.15)	μ_{0P18}	0.328	
Nominal μ		μ_{avg}	0.306	



SAE J-2521 Noise Performance

Fixture Identification: D787-7656
Required Wheel Load: 528.5 Kg
Actual Wheel Load: 528.5 Kg
Required Inertia: 55.2 Kg·m²
Actual Inertia: 55.0 Kg·m²
Pri/Lead/Inner Lining: XBP 2701 FF
Sec/Trail/Outer Lining: XBP 2701 FF
Comments: With normal shim No Knuckle



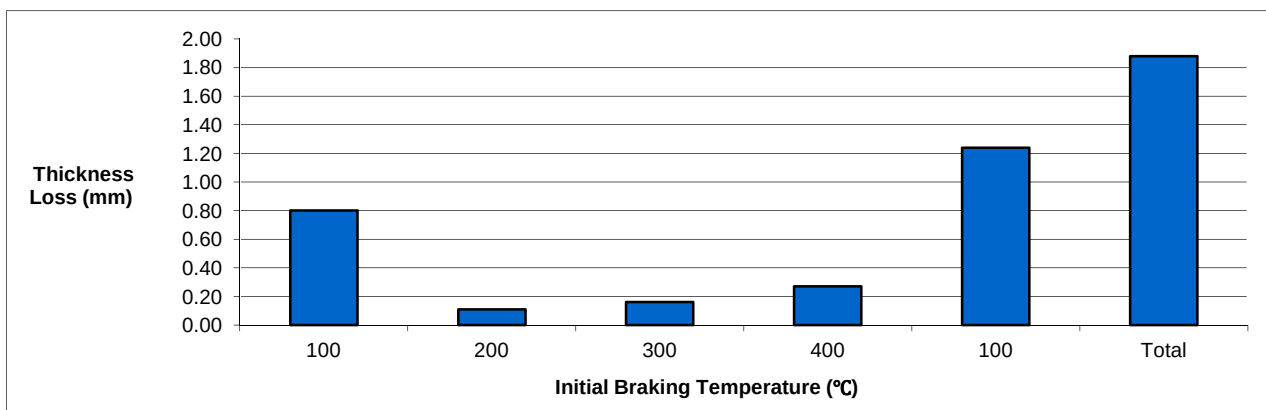
Frequency Range	Threshold	Number of Noisy Stops (per frequency range / apply type)				Percentage (%) Noisy Stops (per frequency range / apply type)			
		Overall	Drag	Decel	Back/Fwd	Overall	Drag	Decel	Back/Fwd
2 kHz to 17 kHz	>70 dB(A)	65	56	3	6	4.5%	7.0%	0.6%	4.0%
	>80 dB(A)	45	39	1	5	3.1%	4.9%	0.2%	3.3%
2 kHz to 4 kHz	>70 dB(A)	1	0	0	1	0.1%	0.0%	0.0%	0.7%
	>80 dB(A)	0	0	0	0	0.0%	0.0%	0.0%	0.0%
4 kHz to 6 kHz	>70 dB(A)	0	0	0	0	0.0%	0.0%	0.0%	0.0%
	>80 dB(A)	0	0	0	0	0.0%	0.0%	0.0%	0.0%
6 kHz to 10 kHz	>70 dB(A)	3	3	0	0	0.2%	0.4%	0.0%	0.0%
	>80 dB(A)	0	0	0	0	0.0%	0.0%	0.0%	0.0%
10 kHz to 14 kHz	>70 dB(A)	53	48	1	4	3.7%	6.0%	0.2%	2.7%
	>80 dB(A)	37	34	0	3	2.6%	4.3%	0.0%	2.0%
14 kHz to 17 kHz	>70 dB(A)	17	12	2	3	1.2%	1.5%	0.4%	2.0%
	>80 dB(A)	13	10	1	2	0.9%	1.3%	0.2%	1.3%
Total # of Stops						1430	798	482	150

SAE J-2521 Noise Performance

Applied Standar	Appended Table 1 List of Test Items				
	initial speed	Initial brake temperture °C	Braking deceleration G	Number of applications	Remark
JASO C427	50	100	0.3	1000	Measure the thickness of pads for each specified temperature in parentheses are optional.
	50	200	0.3	1000	
	50	300	0.3	1000	
	50	400	0.3	1000	
	100	100	0.3	1000	

Thicknees Loss

Fixture	100	200	300	400	100	Total
D787-7656	0.8	0.11	0.16	0.27	1.24	1.88



Weight Loss

Fixture	100	200	300	400	100	Total
D787-7656	0.75	1.25	3.30	6.90	14.55	26.75

