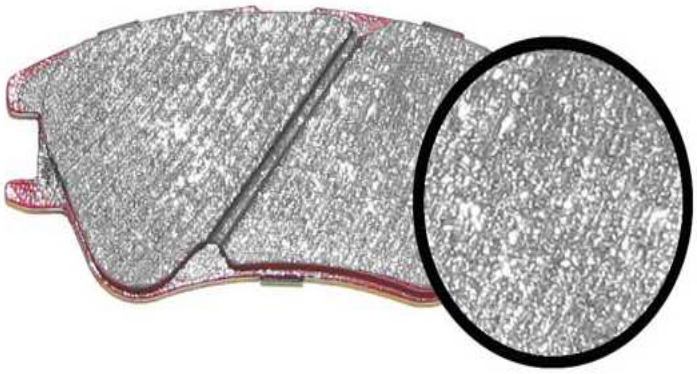
Xtender
Brake Parts

## Metallic Carbon Plus Brake Pads Profile

## Perfil de las Pastillas Metallica Carbon Plus

Costumer Reference: Metallic Evolution FF

# Characteristics



Friction Coefficient FF
Corficiente de Fricción FF

Flash Mold Production
Producción por molde rápido

Materials: - Carbon Elements
- Inorganic Fiber, Kevlar
- Resin

Materiales: - Elementos de Carbón
- Fibras Inorgánicas, Kevlar
- Resin

Low Fade
Bajo desvanecimiento

Excelent Stopping Power
Excelente Potencia de frenado

Long Life
Larga duración

Low Dust
Bajo Polvo

# Physical Properties

## a. Physical Properties

### Density

| | Temperature [℃] | 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 [℃] | 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/cm3) | 2.95~3.05 | Hardness/HRR | 105~115 |
| pH Value | 7.50~8.20 | Shear (N/mm2) | >5.0 |
| Porosity/% | 2.50~3.00 | Impact (KJ/m2) | 1.130~1.450 |

## Compressibility

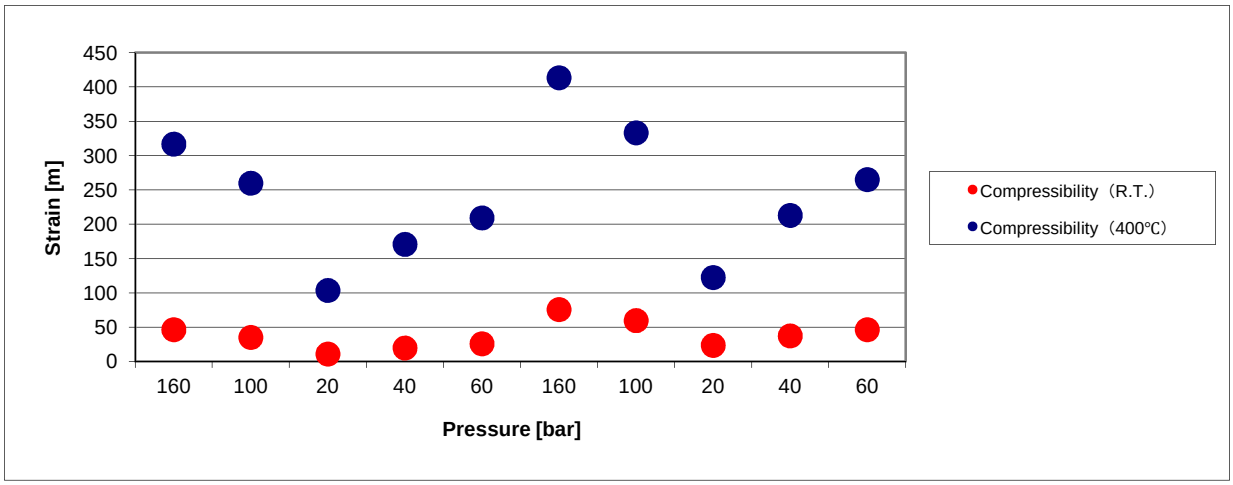
| | Load Increment Ratio [Mpa/sec] | Intial Loading [Mpa] | Test Loading [Mpa] | Cycle |
|---|---|---|---|---|
| 1 | 8±1 | 0.5 | 2~16 | 3 |

### 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 | 46.6 | 35.3 | 11.1 | 19.8 | 26 | 75.8 | 59.8 | 23.7 | 37.5 | 46.5 |

### Compressibility（400℃）

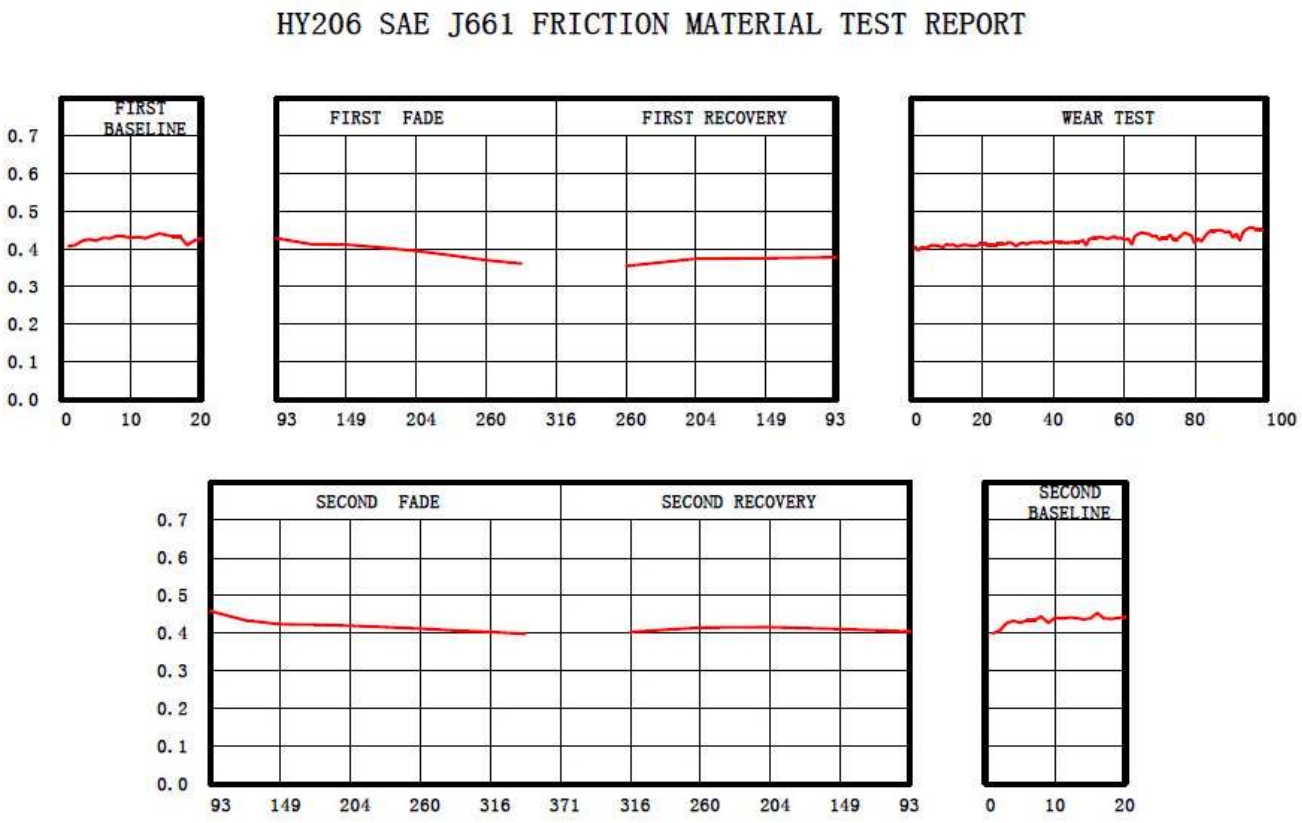
| Load/bar | 160 | 100 | 20 | 40 | 60 | 160 | 100 | 20 | 40 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|
| Cycle | 2↓ | 2↑ | 2↑ | 2↑ | 2↑ | 1↓ | 1↑ | 1↑ | 1↑ | 1↑ |
| Mean | [µm] | [µm] | [µm] | [µm] | [µm] | [µm] | [µm] | [µm] | [µm] | [µm] |
| Value | 316.8 | 259.9 | 103.7 | 170.8 | 209.4 | 413.6 | 333.4 | 122.6 | 213.1 | 265.1 |



# SAE J-661 Chase Test

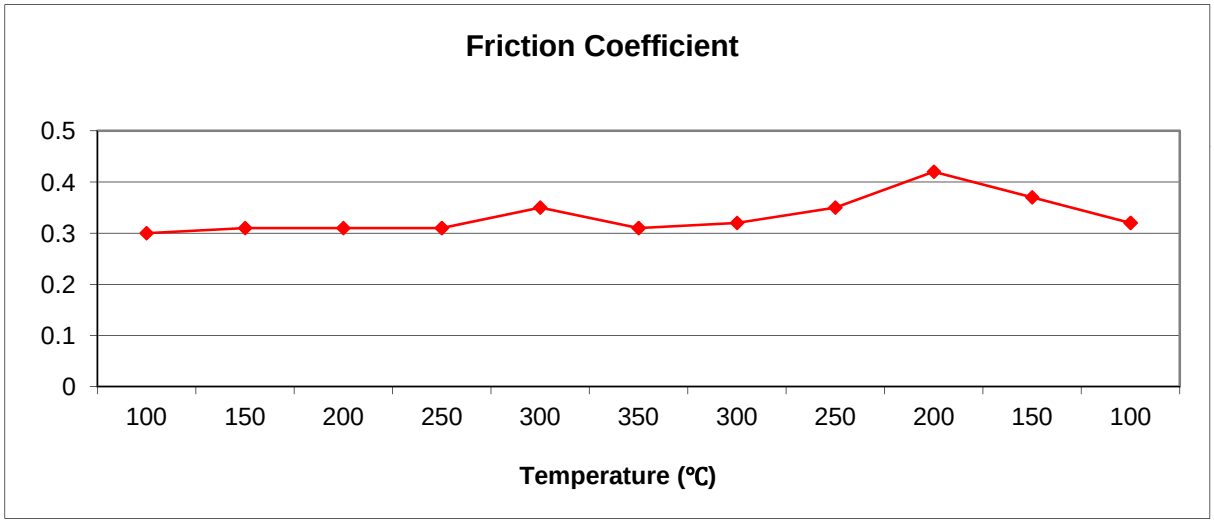
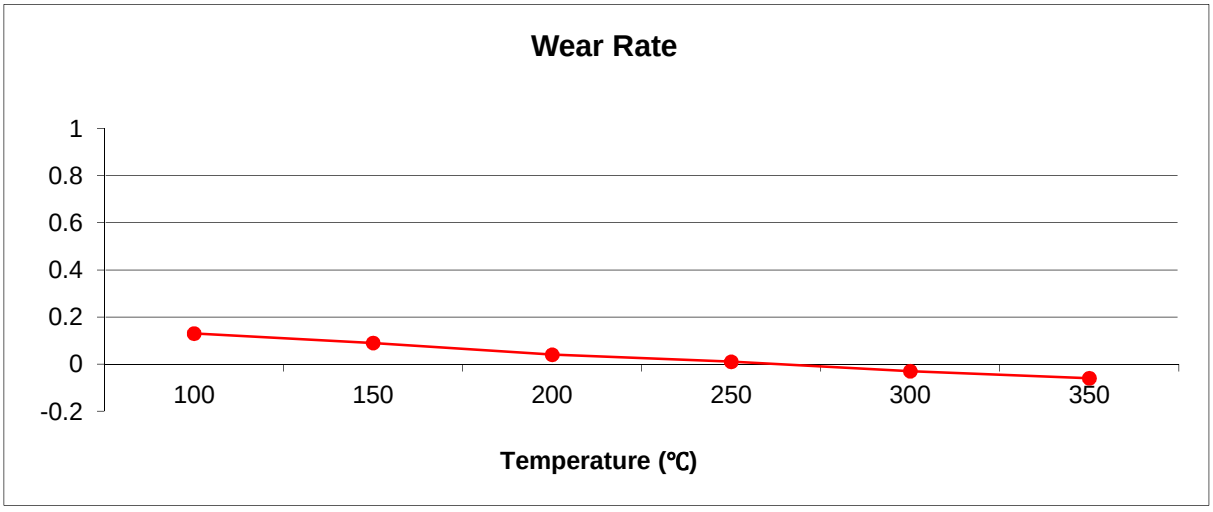
## a. Friction and wear

| | Before Test | After Test | Loss | Loss% |
|---|---|---|---|---|
| **Mass (g)** | 13.13 | 12.96 | 0.17 | 1.29% |
| **Thickniss (mm)** | 6.74 | 6.69 | 0.05 | 0.74% |
| **μ** | normal | 0.352 | hot | 0.352 |



# Friction and Wear - Constant Speed

## b. Friction and wear

**Equipment Name: Constant speed tester** **Standard Applied: GB5763-2008**

| Test Temperature (℃) | Friction Coefficient | Coefficient appointed | Wear Rate 10-7cm3/ (N·m) | Test Temperature (℃) | Friction Coefficient | | Wear Rate 10-7cm3/ (N·m) |
|---|---|---|---|---|---|---|---|
| | | | | | Warming | Cooling | |
| 100 | 0.25-0.65 | 0.35±0.08 | 0-0.50 | 100 | 0.30 | 0.32 | 0.13 |
| 150 | 0.25-0.70 | 0.35±0.10 | 0-0.70 | 150 | 0.31 | 0.35 | 0.09 |
| 200 | 0.25-0.70 | 0.35±0.10 | 0-1.00 | 200 | 0.31 | 0.42 | 0.04 |
| 250 | 0.25-0.70 | 0.35±0.10 | 0-1.50 | 250 | 0.31 | 0.37 | 0.01 |
| 300 | 0.25-0.70 | 0.35±0.12 | 0-2.00 | 300 | 0.35 | 0.32 | -0.03 |
| 350 | 0.25-0.70 | 0.35±0.12 | 0-2.50 | 350 | 0.31 | | -0.06 |