



Metallic Brake Shoes Profile

Perfil de las Zapatas Metálicas



Characteristics



Friction Coefficient GG
Coeficiente de Fricción GG

Low Fade
Bajo Desvanecimiento

Bonded and Riveted Production
Producción Remachada y Vulcanizadas

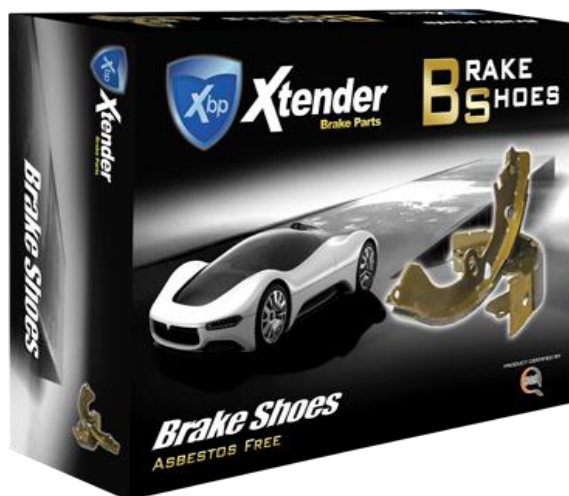
Excelent Stopping Power
Excelente Potencia de Frenado

Materials:

- Resin
- Steel, Glass, Kevlar Fibers
- Petroleum Coke
- Graphite
- Barium Sulfate
- Alumina

Materiales:

- Resina
- Fibras de Hierro, Vidrio y Kevlar
- Coque de Petróleo
- Grafito
- Sulfato de Bario
- Alumina



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.mol/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/cm3)	2.98	Hardness/HRR	64
pH Value	7.48	shear	7.3
Porosity/%	6.01	impact	2.073

Compressibility

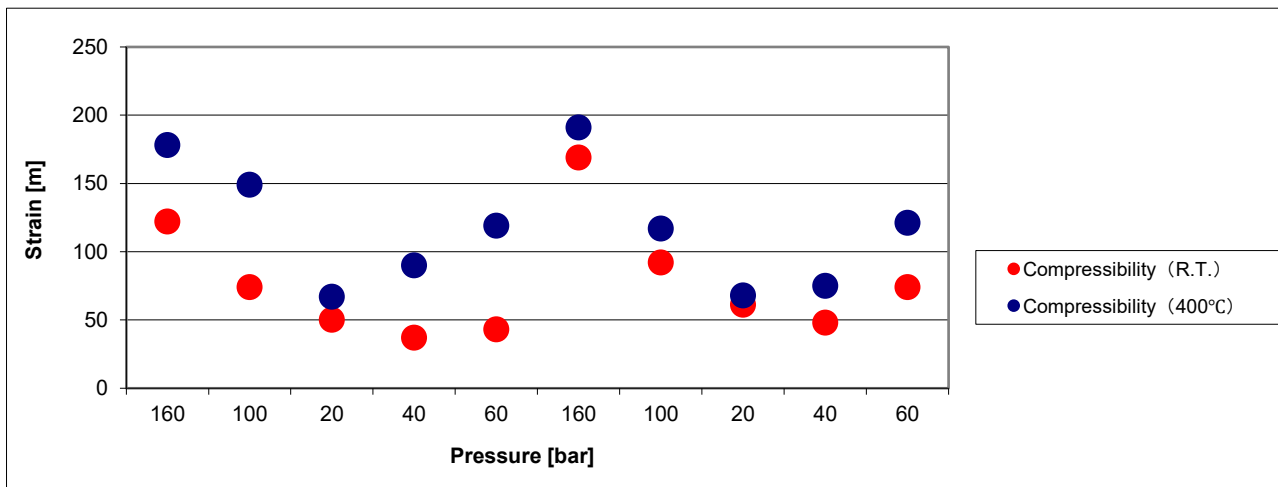
	Load Increment Ratio [Mpa/sec]	Intial Loading [Mpa]	Test Loading [Mpa]	Cycle
1	8±1	0.5	2--16	3

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	122.0	74.0	50.0	37.0	43.0	169.0	92.0	61.0	48.0	74.0

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	178	149	67	90	119	191	117	68	75	121



SAE J-661 Chase Test

Test Request #:
260682-01Customer Ref:
C-1098

SAE J661-2021

Test Information

Customer Name	International Motor Products, Inc.
Requestor	宋中宇
Program Number	J661noinsp.chp
Test Coordinator	Fiona Song
Test Equipment	Chase Machine
Test Dates	07/20/2026 - 07/21/2026
Datalogger	v1.0.23
Template Version	1.83

Setup Details

Sample Material	XBP 1 GG
Sample Size	1 inch x 1 inch
Sample Manufacturer	International Motor Products, Inc.
Test Pressure	150.0 psi

Sample Test Summary

Normal Friction Coefficient	0.452	Pass
Normal Friction Class	G	
Hot Friction Coefficient	0.482	Pass
Hot Friction Class	G	
Minimum Bold Coefficient	0.380	Pass
Max Variation Below Average for Bold Readings	0.022	Pass
Max % Variation for Bold Readings	5.11%	Pass

Pass / Fail

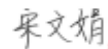
Pass

Comments:

N/A

Created by: Fiona Song

Signature:

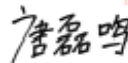
日期: 2026.07.22
12:51:31 +08'00'

Date

7/21/2026

Reviewed by: Duel Tang

Signature:

2026.07.22
14:20:38
+08'00'

Date

7/21/2026

SAE J-661 Chase Test

Test Request #:
260682-01



Customer Ref:
C-1098

Test Number							Manufacturer: International Motor Products, Inc. Material: XBP 1 GG		
	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5				
	260682-01-A	260682-01-B	260682-01-C	260682-01-D	260682-01-E				
Initial Baseline									
Application	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5				
1	0.314	0.391	0.319	0.362	0.363				
20	0.501	0.500	0.475	0.483	0.449				
First Fade									
Temp (°F)	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5				
200.0	0.452	0.487	0.436	0.470	0.426		Normal	0.452	G
550.0	0.472	0.509	0.440	0.492	0.446		Hot	0.482	G
(or Temp @ 10min)									
First Recovery									
Temp (°F)	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Average	Norm/Hot		
500.0	0.516	0.521	0.521	0.526	0.496	0.516			
400.0	0.533	0.527	0.545	0.528	0.520	0.531	Hot		
300.0	0.511	0.501	0.512	0.499	0.495	0.504	Hot		
200.0	0.476	0.477	0.500	0.469	0.488	0.482			
Wear									
Application	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5				
1	0.537	0.506	0.534	0.516	0.504				
100	0.468	0.472	0.463	0.469	0.478				
Second Fade							Max Var.		
Temp (°F)	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Average	< Average	Norm/Hot	% Var
200.0	0.380	0.409	0.386	0.382	0.387	0.389	0.009	Normal	2%
250.0	0.452	0.465	0.481	0.460	0.472	0.466	0.014	Normal	3%
300.0	0.463	0.470	0.484	0.468	0.467	0.470	0.007	Normal	2%
350.0	0.464	0.463	0.493	0.474	0.478	0.474	0.011	-	2%
400.0	0.489	0.477	0.480	0.472	0.492	0.482	0.010	Normal	2%
450.0	0.481	0.464	0.485	0.469	0.467	0.473	0.009	Hot	2%
500.0	0.490	0.489	0.486	0.489	0.497	0.490	0.004	Hot	1%
550.0	0.494	0.493	0.479	0.501	0.492	0.492	0.013	Hot	3%
600.0	0.483	0.475	0.467	0.491	0.469	0.477	0.010	Hot	2%
650.0	0.443	0.443	0.438	0.444	0.422	0.438	0.016	Hot	4%
(or Temp @ 10min)									
Second Recovery							Max Var.		
Temp (°F)	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Average	< Average	Norm/Hot	% Var
600.0	0.478	0.490	0.485	0.469	0.478	0.480	0.011	-	2%
500.0	0.476	0.477	0.482	0.492	0.481	0.482	0.006	Hot	1%
400.0	0.473	0.466	0.469	0.490	0.470	0.474	0.008	Hot	2%
300.0	0.441	0.452	0.467	0.463	0.456	0.456	0.015	Hot	3%
200.0	0.432	0.405	0.418	0.438	0.441	0.427	0.022	-	5%
Final Baseline									
Application	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5				
1	0.432	0.431	0.437	0.454	0.440				
20	0.524	0.493	0.490	0.507	0.523				

SAE J-661 Chase Test

Test Request #:
260682-01



Customer Ref:
C-1098

Manufacturer: International Motor Products, Inc.
Material: XBP 1 GG
Test Pressure: 150.0 psi

Test Dates: 07/20/2026 - 07/21/2026

Summary of 5 Samples

Coefficient of Friction

