

EXCELLENT & DYNAMIC



EXEDY Friction Material Co., Ltd.

Tomoaki Goto.

President

**EXEDY**

EXEDY Friction Material Co.,Ltd.



## EXEDY Friction Material Co., Ltd. (EFM)

President

Tomoaki Goto.



### [Career summary]

- 1969 Born in Hiroshima (50 years old)
- 1991 Joined EXEDY.
- 2009 Became President of EFM
- 2013 Executive Officer of EXEDY Friction Material Co., Ltd. (in charge of friction material)
- 2014 Representative of ASEAN Regional Office (simultaneously serving as directors of 11 companies in ASEAN Region)

Advisor to Thai-government-related agencies

- Thai Tribology Association  
Industrial Advisor
- King Mongkut's University of Technology Thonburi  
Advisory Committee, Industrial Advisor
- Small and medium-sized Enterprises Research & Development Promotion Center Advisor
- Vocational Ability Development Association  
Advisor



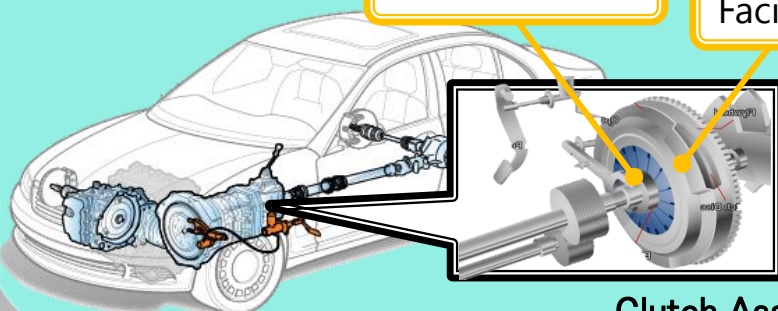
# Product introduction

## Friction Material for 4-wheeled vehicles



Friction washer

Facing



Clutch Ass'y

## Friction material for Hybrid vehicles



Friction Washer



Facing



Avalon

Odyssey

Crown

Accord

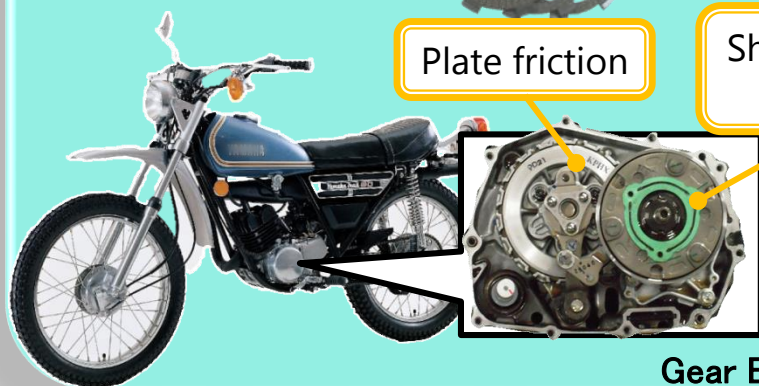
## Friction Material for 2-wheeled vehicles



Plate friction



Shoe Clutch Weight



Gear Box

Drive plate



X-Trail





# Railway Brake

## Products Presentation.

### Composite Brake Shoes



### Cast Iron brake shoes





## Composite Brake Shoes

Since around 1955, high speed and light weight have become the major targets of rolling stock. To meet these specific requirements, Now we has been developing “Composite Brake Shoes” (using the mixture of inorganic materials and metal powder with synthetic resin) to replace the ‘Cast Iron Brake Shoes’. These products have been practically and successfully used.

### Features of Composite Brake Shoes

- High abrasion-proof (long service life)
- The coefficient of friction is stabilized at the time of braking at high speed, without fading phenomenon.
- Light weight with superior in replacement workability
- Stabilized coefficient of friction in rain and snow conditions. (for snow weather)
- Enriched adhesion between wheels and rails (for increased adhesion)
- Rolling stock noise reduction



# Railway Brake

## Composite Brake Shoes for snow weather

- ❖ Stabilized coefficient of friction in rain and snow conditions



**JR-series koki-50000**



**JR-series521**





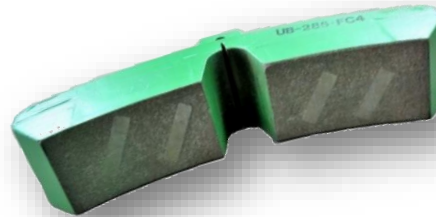
# Railway Brake

## Composite Brake Shoes for increased adhesion

### ❖ New Standard Brake Shoes

Automatic Train Operation (ATO), Train Automatic Stop-position Controller (TASC)

Tokyu-toyoko Line



Hankyu-kyoto Line



Tokyo Metro-touzai Line







# Railway Brake

## Composite Brake Shoes for Brake force allotment type

❖ Disk Lining + Brake Shoes



JR-series225



JR-series683







## Cast Iron brake shoes

The conventional cast iron brake shoes have been used for many decades. At present, they are applied in many places because of their stabilized braking performance. However, reduction in both maintenance and volume of work as well as the improvement in economy are the needs of today. Based on rich experience and knowhow, Now we has developed and improved “general cast iron brake shoes” to “high-Phosphorus’ US brake shoes” , “US Lite brake shoes, classes 1 through 6” and other new products.

### Features of Special Cast Iron (US Lite) Brake Shoes

- Availability in variety of products designed for various vehicles and operating conditions
- Stabilized coefficient of friction at high-speed zones
- Abrasion-proof and economical -- the volume of work can be reduced.
- Minimized spark generation
- All-weather brake shoes – as the friction performance is stabilized in rain/snow and cold areas.



# Railway Brake

## Common Cast Iron Brake Shoes



Steam Locomotive



Kobe Electric Railway





# Railway Brake

## Alloy Cast Iron(US Lite) Brake Shoes

Class1 common (~100km/h)



Diesel Car



Freight Car







# Railway Brake

## Alloy Cast Iron(US Lite) Brake Shoes

Class2, 4 high-speed (~130km/h)



JR-series kiha85



JR-series kiha71





# Railway Brake

## Alloy Cast iron(US Lite) Brake Shoes

Class3, 6 Locomotive (for heavy-Duty use)



Diesel Locomotive series DD51



Electric Locomotive series EF81





# Railway Brake

## Alloy Cast iron(EV Lite) Brake Shoes Streetcar



Toyohashi Railroad



Hakodate City Tram Department







# Education Promotion : (Tram Noi Project)

## Tram Noi Project From Japan .. to Khon Kaen



15 November 2018: Mr.Tomoaki Goto took the governor of Khon Kaen ,The Mayor of Khon Kaen Municipality ,The Vice President of Rajamangala University of Technology Isan Khon Kaen Campus and his team met the Mayor of Hiroshima City. And the President of Hiroshima Dentetsu at Hiroshima Japan for got the tram in “Tram Noi Project” that run around Bueng Kaen Nakhon.



## Education Promotion : (Tram Noi Project)



*Khon Kaen Municipality accepted the tram from Hiroshima*

25 March 2019 at the City Pillar Shrine, Khon Kaen Province, Mr. Tomoaki Goto, President of Exedy Friction Material, delivered the Tram to Khon Kaen Municipality and Rajamangala University of Technology Isan Khon Kaen Campus for develop rail system and laboratory.



# Thank you very much

