



Brake Discs

We turn good ideas into a safe
and sustainable future.

www.kovis-group.com

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KOVIS is an internationally innovative company for the development and production of high-quality components for the railway industry and various parts for other industrial sectors.

We turn good ideas into a safe and sustainable future.



SLOVENIA, Brežice
Kavis d. o. o.



SLOVENIA, Štore
Kavis Livarna d. o. o.



SLOVENIA, Štore
Kavis Transporti d. o. o.




SERBIA, Bačka Palanka
Kavis BP d. o. o.



INDIA, Jabalpur
JWL Kavis Limited



Our Values.

-  We are an independent / family-owned company
-  We create good & innovative ideas for the future
-  We are a trustful & reliable partner
-  Our encouraged employees are a key factor in our success
-  Green mobility & sustainability is our path
-  Highest quality in all our operations & processes
-  Highest competence, know-how, design, process stability, inspection

Our Vision.

Thanks to our innovative culture, the reliable, 100% family-owned company, KOVIS wants to be a global niche player for high quality products for railway rolling stock and others.

Our Mission. Our Path.

With an innovative approach, we look for different paths that lead to excellent products, processes and relationships .

As a niche champion, KOVIS will contribute to safer, more efficient and climate friendly rail transport. We will continue to turn good ideas into a safe and sustainable future.

We are committed to produce excellent products, encourage our employees and find new ways of working that benefit our stakeholders, customers, partners and society.

Through sustainability development and innovation, we create new green business opportunities that enable us to live up to our slogan **good ideas create future.**



Kovis Success Path

-  More than 45 years focus on innovation, reliability, high quality and customer care
-  20x increased sales turnover in the last 10 years
-  Over 100 million € investments in the last 10 years
-  Own production sites foundry, machining, painting,...
-  Kovis® brand name worldwide known, over 200 active customers
-  Tailor made solutions

Complete Integrated Solution. Our Responsibility.

Recycling

80% of our products contain recycled raw materials.

Logistic services

To be reliable partner helps us also our own modernize transportation fleet. We care customers.

Painting & Protection

With finally touch we added value to our high quality products.

Quality & Assurance

- Quality is CERTIFIED.
- Laboratories (3D measurements, scanning, NDT methods, digital radioskopy)
- Dynamometer testing
- Real environment testing



Design & Development

With an INNOVATIVE APPROACH, we look for DIFFERENT paths that lead to EXCELLENCE and customers benefits.



Calculations & Simulations

- For checking the existing and constructing new products various software tools are in use.
- CFD simulations
- Thermal and structural simulation



High Quality Castings


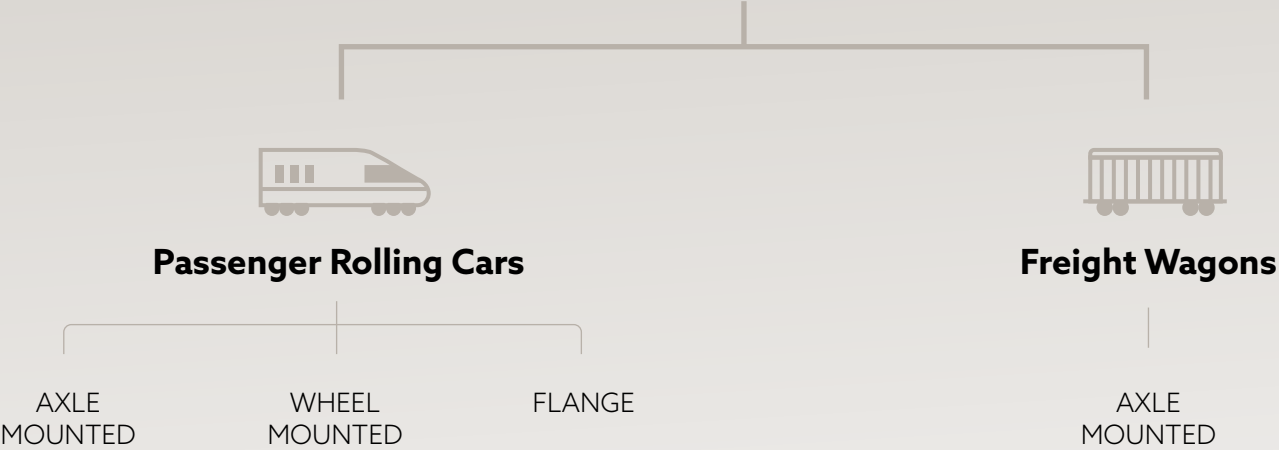
NEW FOUNDRY. We achieve technological progress and produce best possible quality for our customers.




Mechanical Machining

New & modern CNC machine park for technologically very demanding products.

Brake Discs




Production of axle mounted, wheel mounted and flange brake discs.



For applications: high speed trains, EMV, DMV, LRV, passenger coaches, freight wagons, locomotives.



Certified by DB, Nedtrain, RENFE, SNCF, SNCB, Stadler, Alstom, Siemens, SŽ, ČD,...



With different connection elements, material and cooling system

+25.000

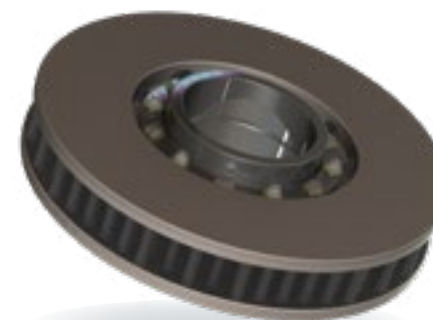
Total annual production

+500

different types in production.



Axle Mounted Brake Discs



Axle mounted
NON DIVIDED



Axle mounted
DIVIDED



Axle mounted
MONOBLOCK

Design adjusted to customer needs

Dimensional requirements, different connection elements, material and cooling system...

Application requirements speed, axle load, energy, braking mass

Material

IRON

STEEL

Axle mounted brake disc application

- Speed application- max 250 km/h
- Available size: 350-740 mm
- Available width: up to 112 mm
- Materials: special cast iron, ductile iron, vermicular iron ...
- Compliant with standards EN14535, UIC 541-3...

- Speed application- max 350 km/h
- Available size: up to 640 mm
- Available width: 80-110 mm
- Materials: special cast steel
- Compliant with standards EN14535, UIC541-3...

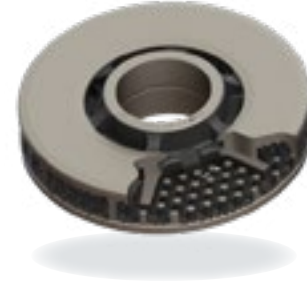
Connection Systems Axle Mounted



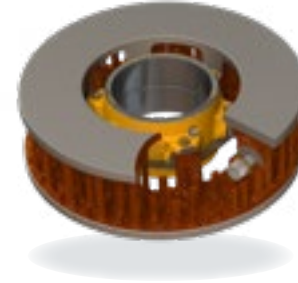
BOLT
(type K)



BUSH
(type P)



MONOBLOCK
(type N)

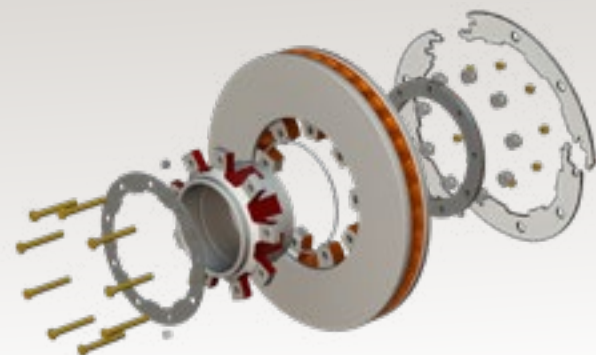


SHAPE
(FSO)

Main features:

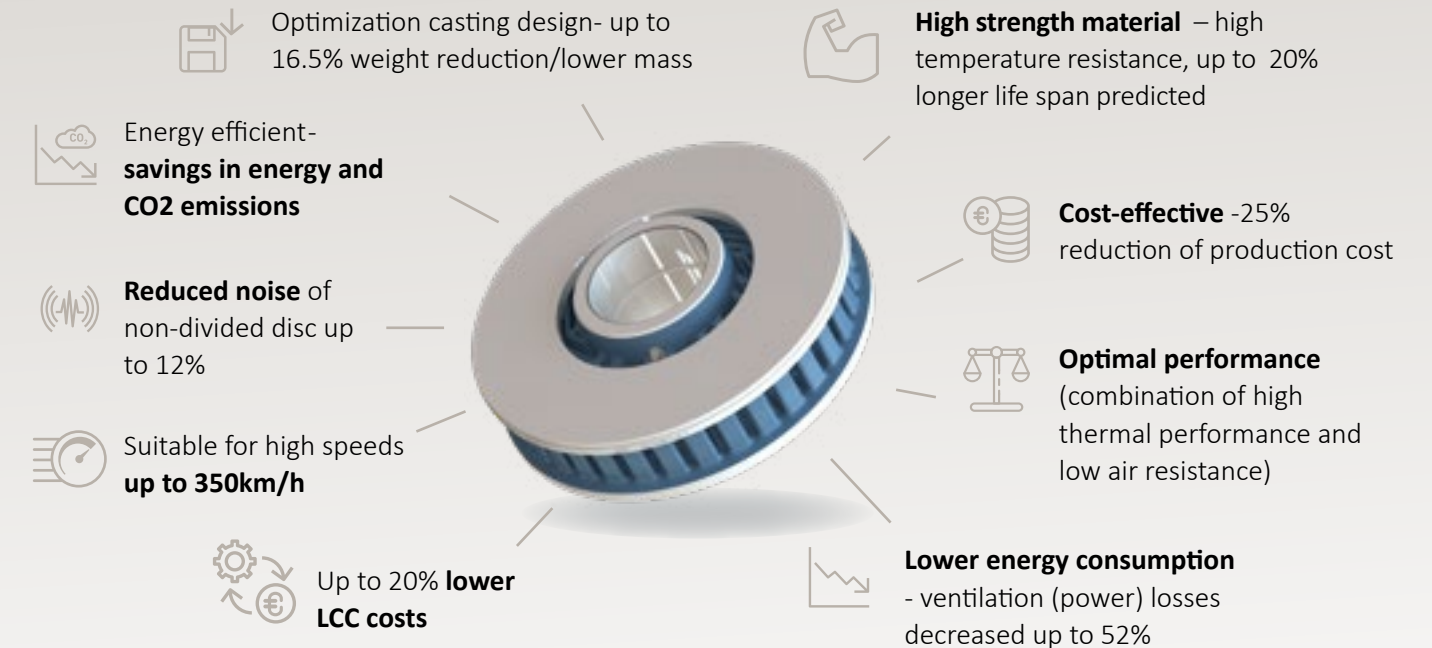
- #Cooling design: high stiffness, lower friction surface stresses, higher heat dissipation
- #Bolt connection: up to 12% dynamic bolt load reduction
- #VENTring: up to 57% lower ventilation losses = high amount of energy savings
- #Noise - reduction: up to 12% noise reduction of non divided disc

Future of high speed rail



type K + VENTring

Advantages of Kovis Axle Mounted Brake Discs



References:



Wheel Mounted Brake Discs



Wheel mounted
NON - DIVIDED



Wheel mounted
DIVIDED

Design adjusted to customer needs

Dimensional requirements,
different connection
elements, material and
cooling system...

Application requirements
- speed, axle load, energy,
braking mass...

Material

**CAST
IRON**

STEEL

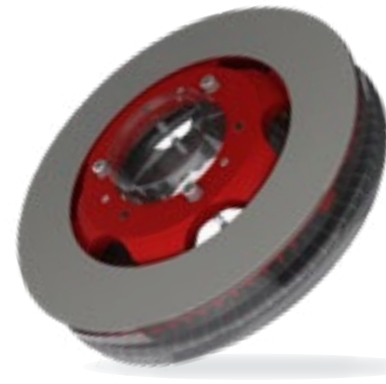
Wheel mounted brake disc application

- Speed application- max 250 km/h
 - Available size: up to 920 mm
 - Materials: special cast iron, ductile iron, vermicular iron ...
 - Compliant with standards EN14535, UIC 541-3...
-
- Speed application- up to 350 km/h
 - Available size: up to 750 mm
 - Materials: special cast steel
 - Compliant with standards EN14535, UIC 541-3...

Connection Systems Wheel Mounted



BOLT+BUSH
(type G)

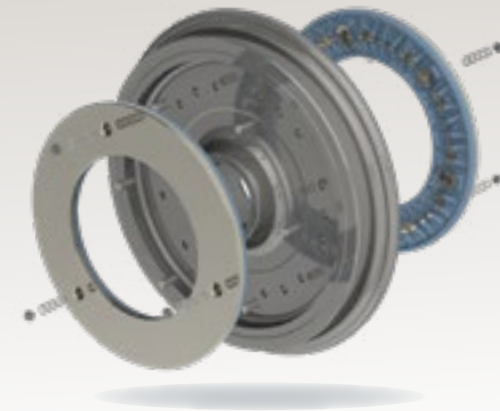


BOLT
(type K)

Main features:

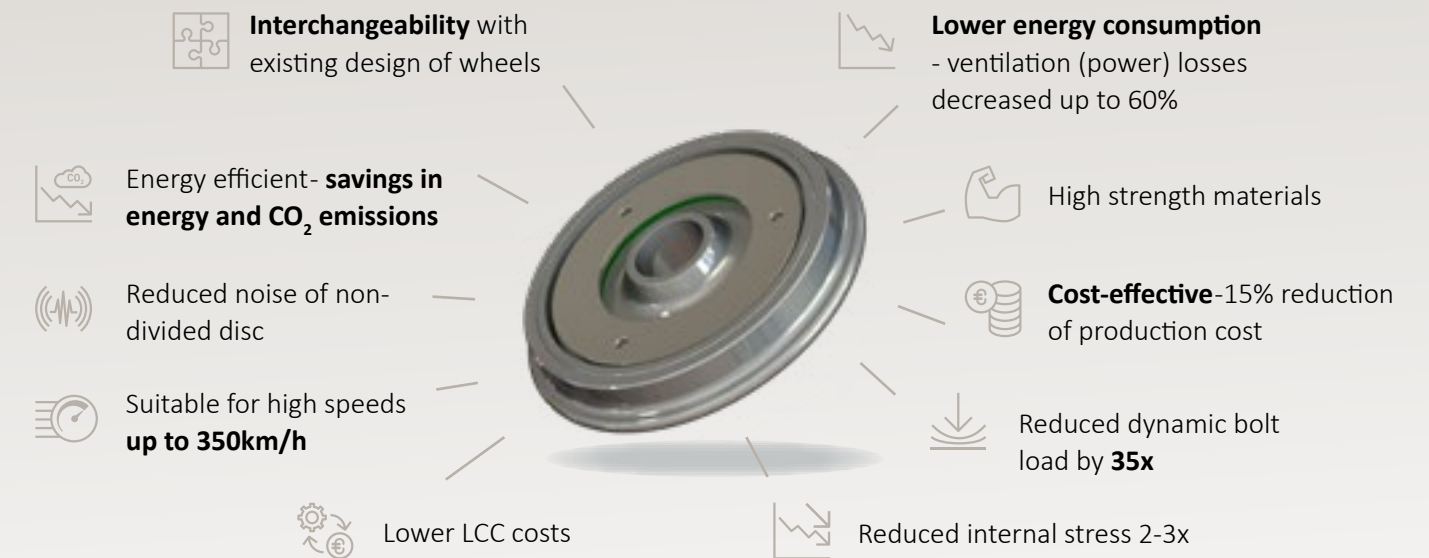
- #Cooling design (XNET) feature: high stiffness, lower friction surface stresses, pocket air recirculation - higher heat dissipation - patented
- #Free floating (swivel) feature: 13x lower tension on the screws - patented
- #2-edges feature (stiffness and low ventilation losses) - closed outer edges - 60% lower ventilation losses = high amount of energy savings
- #Six visible connecting elements – therefore increased brake surface by 7%, longer life cycle, more even brake pad wear, lower temperature gradients
- #New connection locking design

Future of high speed rail



HIGH SPEED DISC XNET

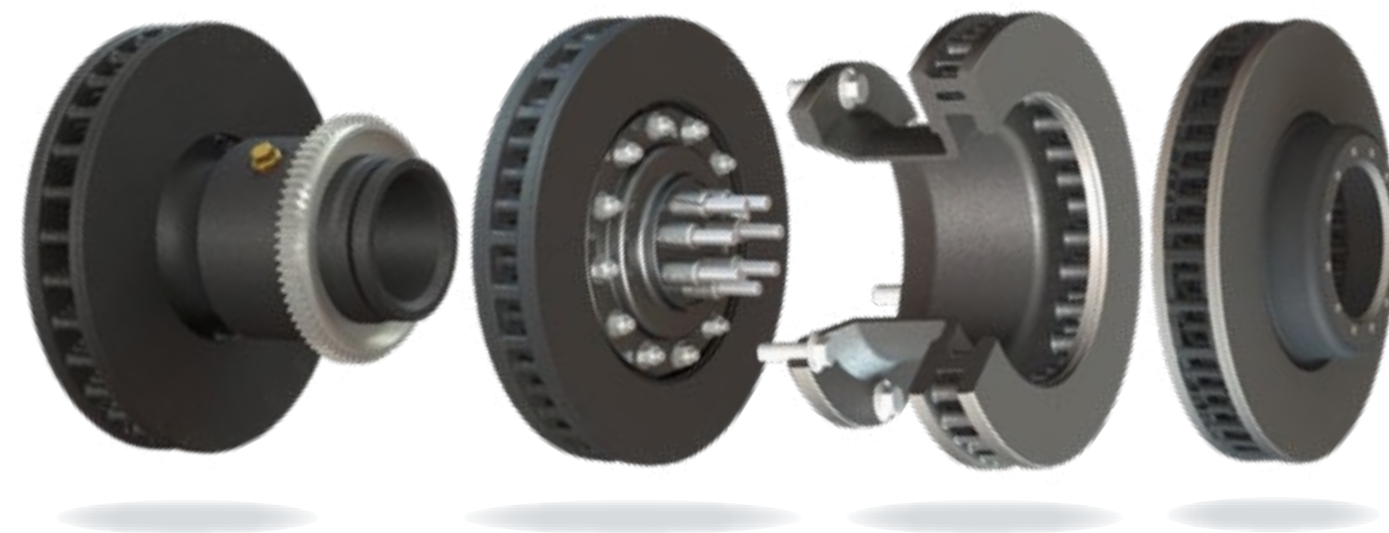
Advantages of Kavis Wheel Mounted Brake Discs



References:



Flange - Brake Discs



Flange
NON - DIVIDED

Design adjusted to customer needs

Dimensional requirements, different connection elements, material, cooling system and different industries.
Application requirements - speed, axle load, energy, braking mass...

Material

CAST IRON

Flange brake disc

- Speed application- max 160 km/h
- Available size: 248-710 mm
- Available width: 40-162 mm
- Materials: special cast iron, ductile iron

References:

SIEMENS

TRUBEKA
TECHNIK B.V.

SOILTEC
MASS TRANSIT

WILLBRANDT
VAFITECHNIK

Progress Rail
A Caterpillar Company

SFT

ALSTOM

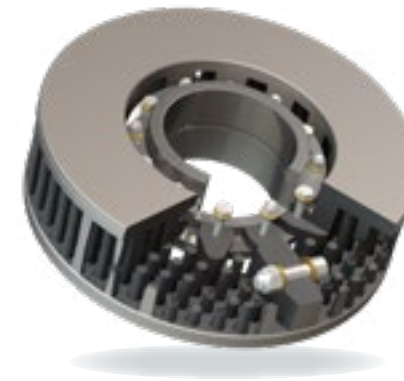
H
HAWKING & BULL

Furka

FGV

Brake Discs for Freight Wagons

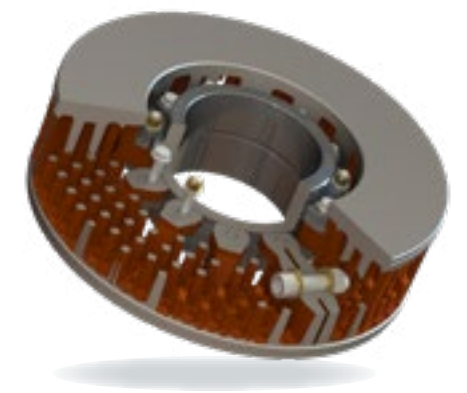
Connection and cooling systems



Connection: Bolt (type K)
Cooling system: TSK



Connection: Shape
Cooling system: FUTURA FSO



Connection: Bolt (type K)
Cooling system: QSK

Design adjusted to customer needs

Dimensional requirements, different connection elements, material and cooling system...

Application requirements
- speed, axle load, energy, braking mass...

Material

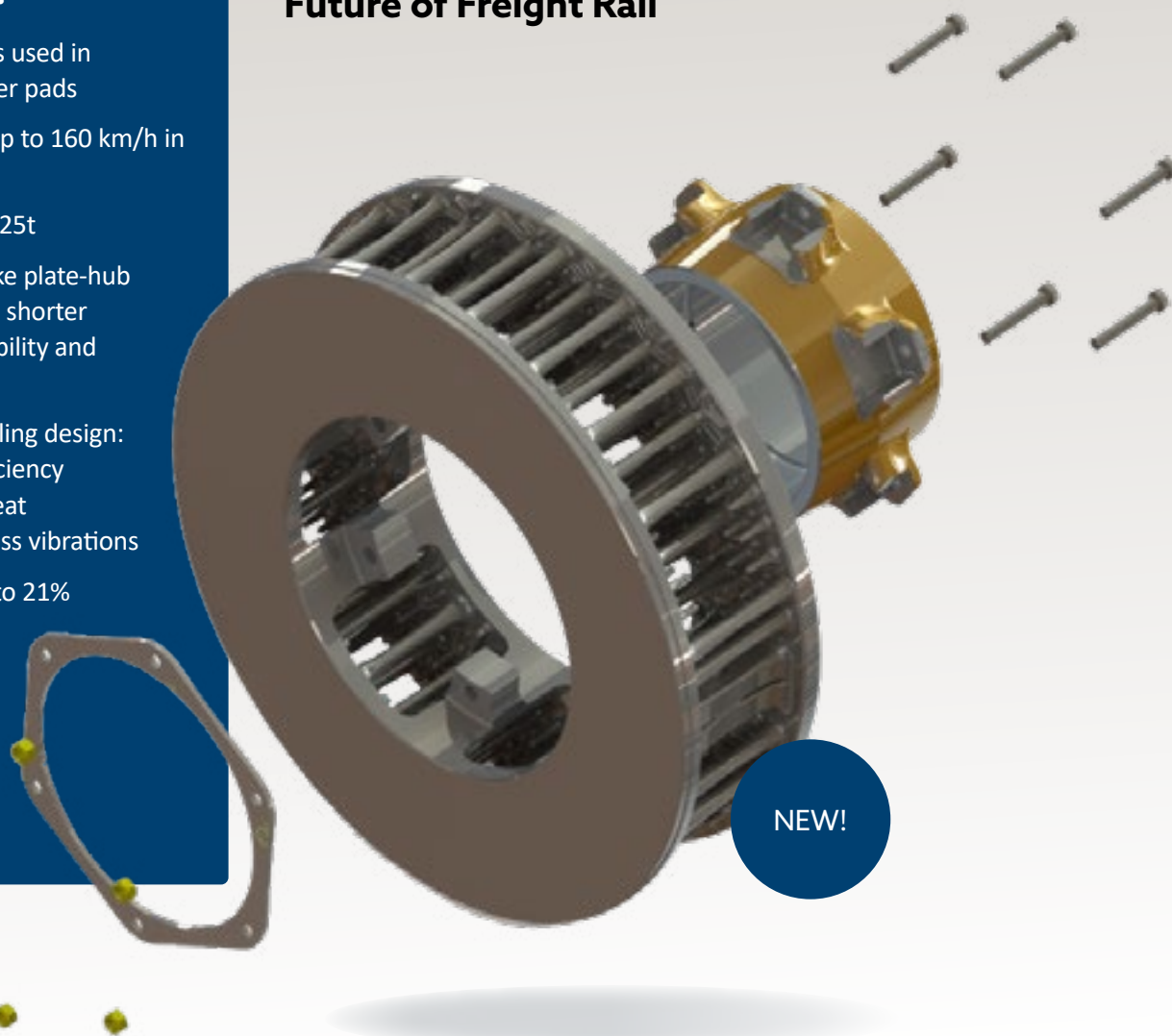
IRON

Axle mounted brake disc application

- Speed application- max 160 km/h
- Available size: 590-610 mm
- Available width: 110-170 mm
- Materials: special cast iron, ductile iron, vermicular iron
- Cooling systems: TSK, QSK, FSO
- Compliant with standards EN14535, UIC 541-3

Main features:

- #Special cast iron discs used in combination with sinter pads
- #Maximum velocity: up to 160 km/h in freight transport
- #Maximum axle load: 25t
- #Special patented brake plate-hub connection: up to 11% shorter braking distance possibility and higher safety
- #Special patented cooling design: up to 11% greater efficiency through 15% better heat dissipation and 14% less vibrations
- #13% lower LCC: due to 21% reduction of weight and up to 60% lower maintenance costs
- #Energy efficient: savings in energy and CO2 emissions



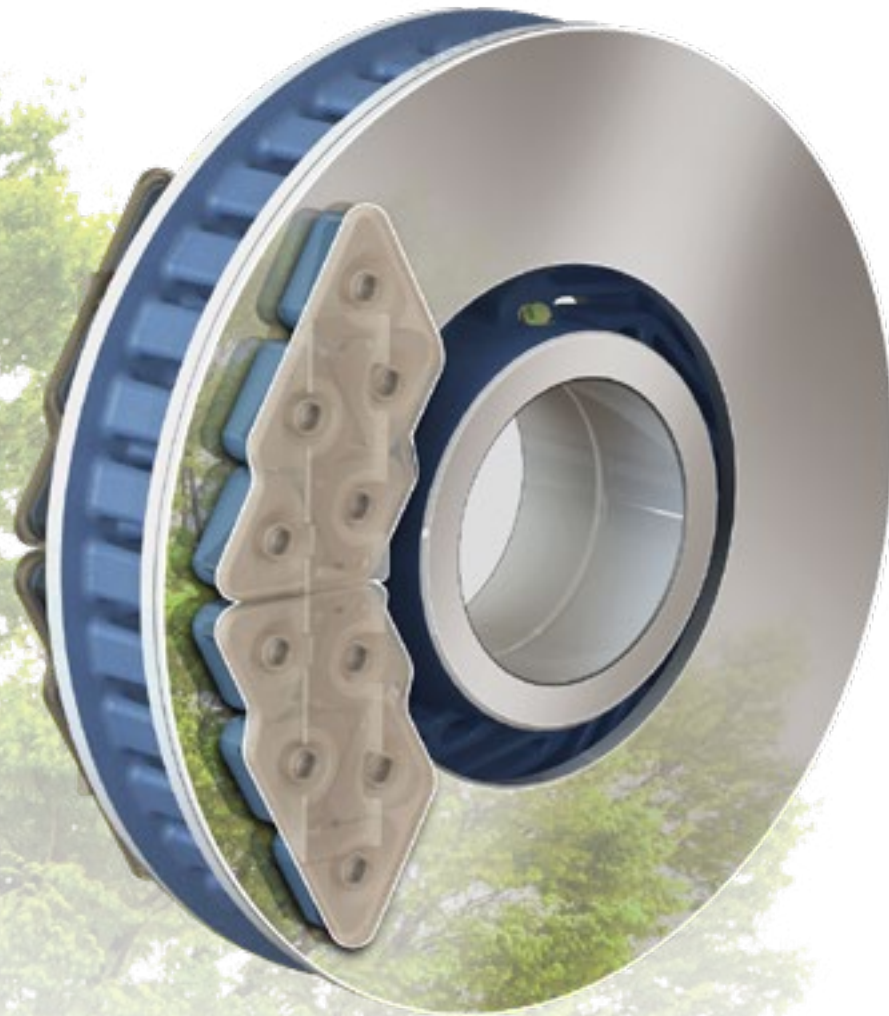
FSO - new light freight brake disc Future of Freight Rail

References:





Kovis & Miba



sMart braKe is the heart of train braking. It solves sustainability, material, market, safety and environmental challenges smartly.

The new market innovation, offered by KOVIS and MIBA in the new alliance, combines the excellent properties of **brake pads** and **brake discs**.

The combination of pads and discs allows even **better safety** and **reliability when braking**. sMart BraKe is environmentally friendly because it **reduces braking noise**. This not only enables a more comfortable ride, but also a better quality of life for people near railways and metros.



sMart braKe FLEX – Path of Success



References:



Business Footprint



Over **43** countries sale

Over **160** active customers

Global sale date last 5 years:

BRAKE DISCS	PRODUCTS FOR PASSENGER VEHICLES
GEAR BOXES	PRODUCTS FOR FREIGHT RAIL CARS

Our Sustainability. Our Identity.

In our mission we commit to create good ideas based on an innovative and sustainable approach for a better future.

Today's climate changes are becoming more urgent and in our sustainability strategy we are focused on the United National global Sustainable Development Goals (SDGs).

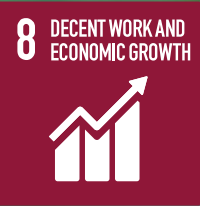
Kovis® Thinking Green

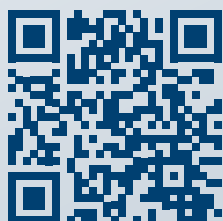
The decisions we make today can shape our future for the better.

Kovis sees prospective in rail transport and has good ideas that will help to create a better future through an innovative approach.

Our commitment:

- Safer. Cleaner.
- Partner Care.
- Cost Efficient





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