

AViTECH

Anti-Vibration Technology

IRIS
Certification



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ABOUT US

Since 2014 we have been developing and manufacturing innovative, high-quality and technically advanced products made of rubber and metal components as well as molded rubber parts for noise reduction and vibration damping.

We are a company with a strong history from Germany.

Our production plant is located in Istanbul / Turkey. The core team of engineers in Germany supports our employees in Turkey in the development and manufacturing phases.

We always work together to carry out our tasks trouble-free and efficiently.

Our goal is to achieve the best performance with the longest service life, especially for the rail vehicle, construction, agricultural machinery, mechanical engineering and shipping industries.

With its innovative and pioneering structure, our company will be one of the most important suppliers of global companies with its high quality and advanced technology.

As a leading company in the industry with its flexible and evolving structure, AVITECH aims to create its own market around the world.

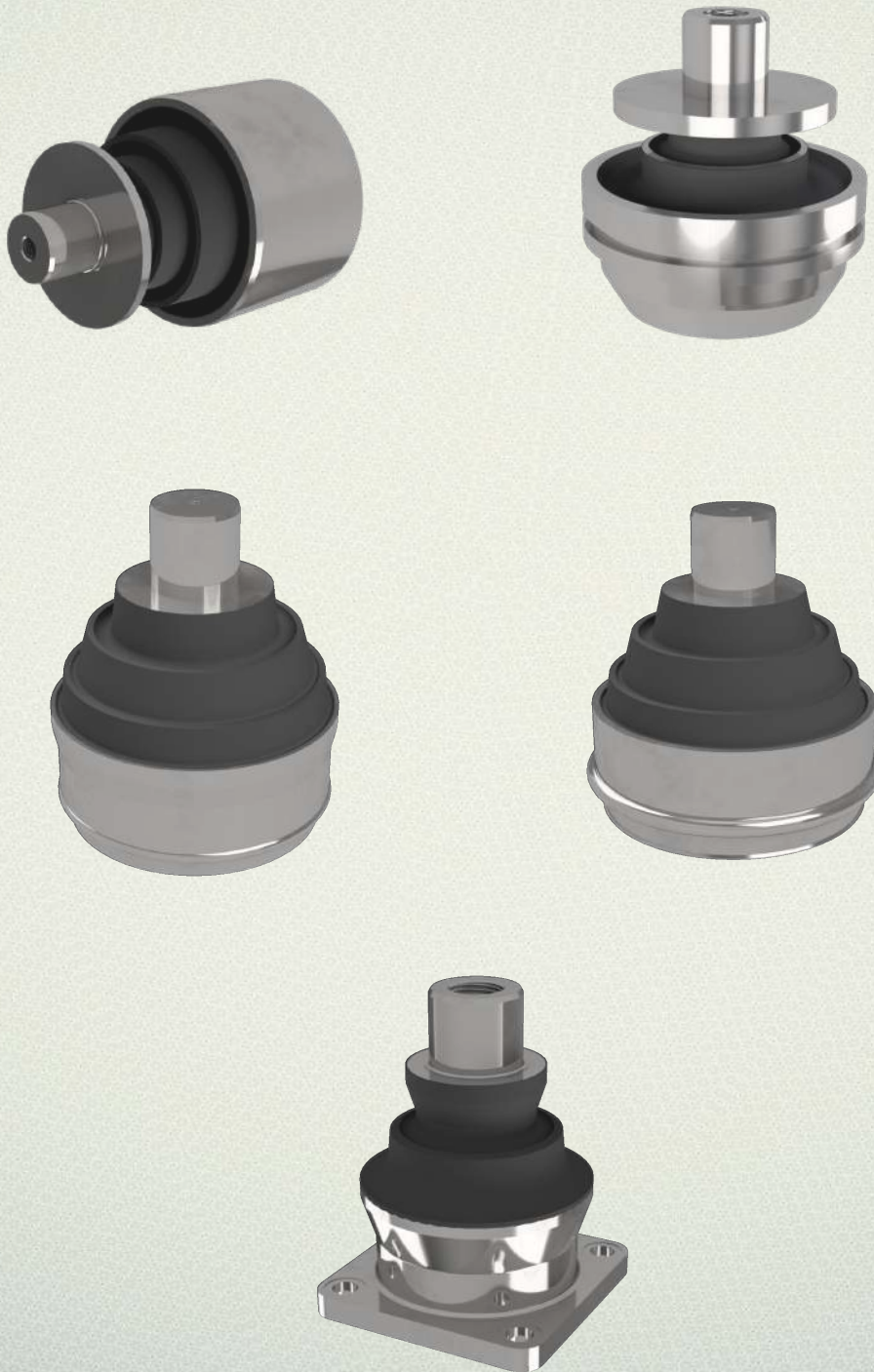
Our Benefits:

- Technical Know & How (from design to production)
- Qwn rubber compound recipes
- FE-Analysis, Strength and Damage Calculations
- Static and dynamic test capabilities
- Trustful cooperation with our customers & suppliers
- Cost-effective solutions
- On-time delivery
- Quality & Safety approved by ISO 9001 und IRIS certificates
- Individual solutions



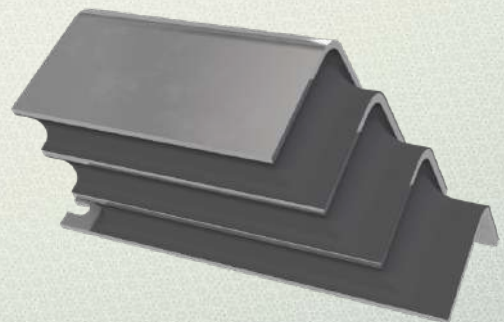
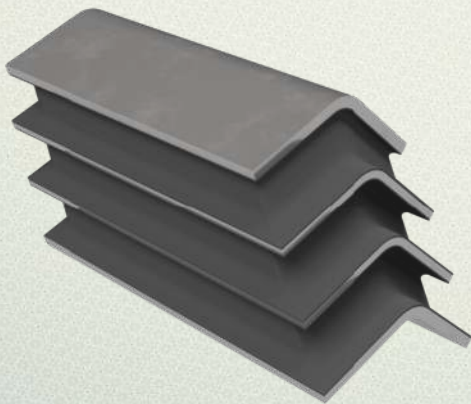
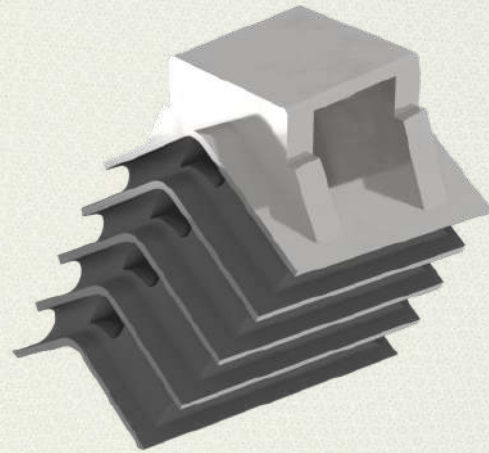
Conical springs are usually installed in pairs in an axle housing and provide stiffness in three directions: Vertical, horizontal and transversal. The vertical stiffness is soft and gradually hardens to prevent derailment. The horizontal and transverse stiffness is important for the transmission of braking and tractive force as well as for the stability of the vehicles.

By adding cavities in the rubber contour, the stiffness in the directions can be adjusted. AVT conical springs are very effective in damping noise and vibration with a simple design.



Axle springs (also known as Chevron springs) are multipurpose vibration reducing elements. They are both simple to install and easy to maintain. Thanks to their durability, they offer a long service life meaning they are ideal for use in all types of rail vehicle application. By selecting the angle of the steel sections and the number of intermediate steel interleaves, in conjunction with the relative installation angle of the chevron spring pair, three different spring stiffness' can be achieved. Furthermore, the degree of stiffnesses can also be varied by altering the geometric dimensions of the individual layers, and also by changing the rubber hardness.

Please contact Avitech today if you have specific requirement with regard to chevron axle springs. If we can't provide you with a suitable spring from our existing range, our experienced engineering team can design a solution for you.



Like the conical spring, the rolling rubber spring is installed in pairs in an axle housing. It connects the axle to the bogie. It is assembled from 3 main components such as the housing, rubber ring and core, which also makes the roller spring low-wear. In small installation spaces, it provides a large spring deflection, which can be adjusted progressively or linearly as required. The rolling rubber spring is characterised by good emergency running and damping properties as well as high cost-effectiveness thanks to the replaceable rubber ring.



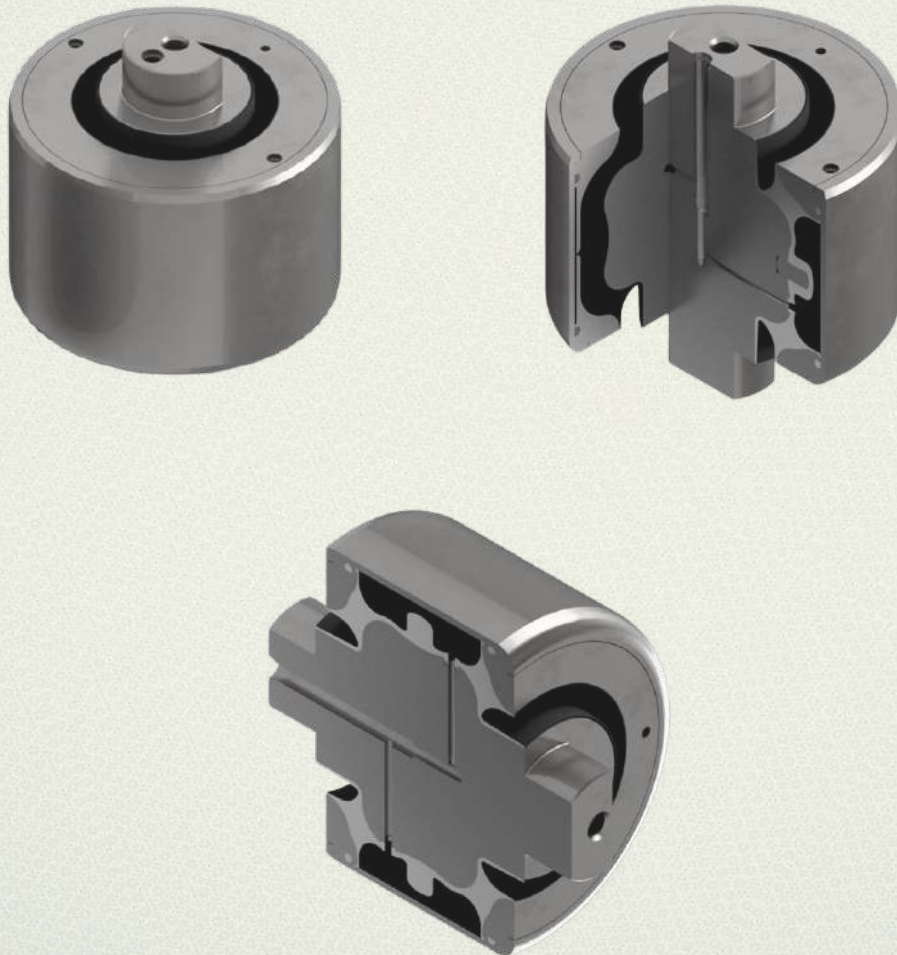
Air spring systems are mainly used in trains for secondary suspension between the bogie frame and the carriage body. They utilise the compressibility of the air to cushion and dampen the natural vibrations of the bogie and carriage body as well as driving noise. The low natural frequency ensures a high level of suspension comfort and consistently good suspension behaviour.

A key feature of these systems is the automatic levelling system, which keeps the vehicle body at a constant entry height regardless of the load, thus ensuring consistent ride comfort. The half bellows in particular, with its long bellows wall length, takes over the entire relative movement between the vehicle body and bogie when travelling around bends.

To summarise, air suspension systems help to transfer vertical loads and enable horizontal relative movements, while at the same time significantly improving ride quality and comfort in rail transport thanks to their suspension properties and level control.



Hydraulic axle guide bushings are an advanced technology that perform an important role in rail transport technology. These bearings consist of 2 chambers that are filled with hydraulic fluid and connected to each other via a throttle channel. This allows different stiffnesses to be set for different loads and frequencies. Low static stiffness at low-frequency excitations and high dynamic stiffness at higher frequencies make the hydraulic axle guide bushing so unique. The contact angle of the wheel on the rail is reduced during cornering due to the radial adjustment of the wheel sets. This reduces the force between the wheel and the rail, which in turn reduces wear and noise. On straight stretches at high speed, the component stiffens and a safe, stable ride is guaranteed.



Tie Rods consist of a metal rod and pressed into the rod eyes two sockets. These parts are generally used between the bogie and car body in order to transmit the longitudinal forces such as shocks, driving and braking forces, and to dampen the structure-borne noise.

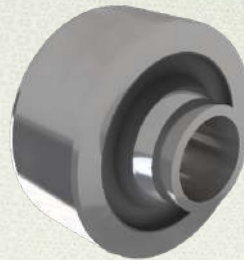
Depending on requirements, the material of the handlebar can be selected from cast iron, or nodular cast iron, forged or tempered steel.

Typical applications: Light rail, express trains



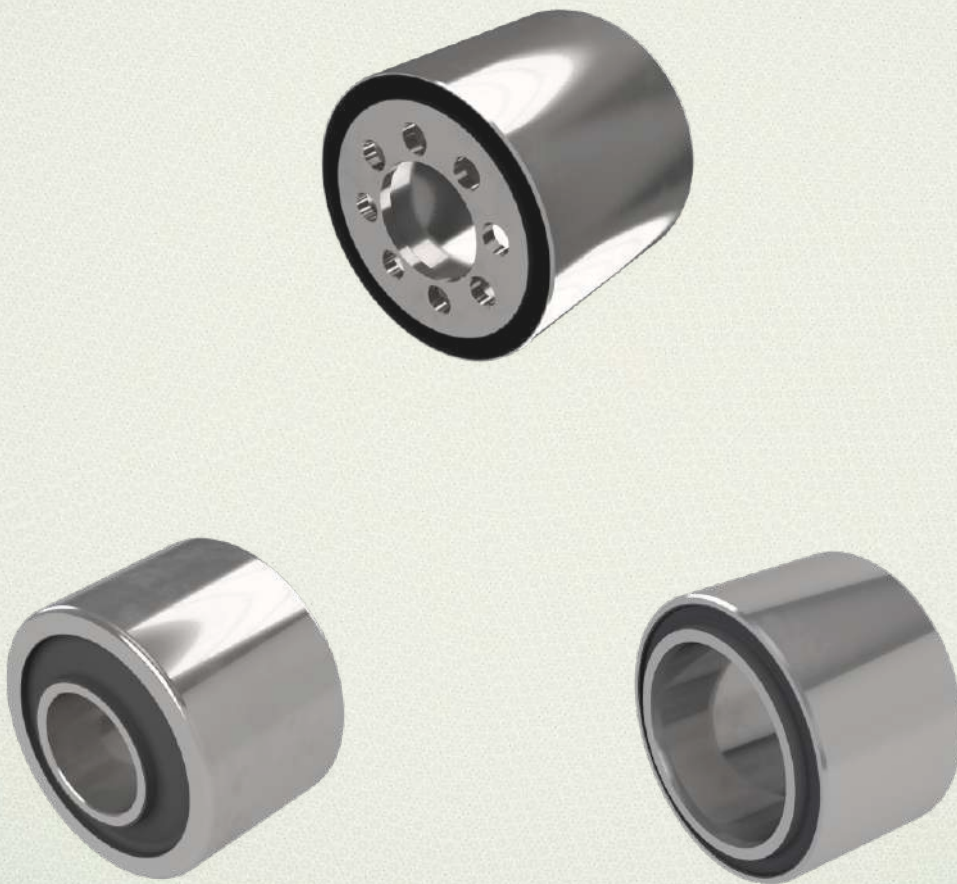
Spherical Bearings are designed to allow displacement around a center axis, usually they support a rotating shaft that is required to move rotationally and in various angles.

This kind of joints are widely used in engineering applications as mechanical joints on road and rail vehicle suspensions, engine / gearbox mountings and captive cab mountings.



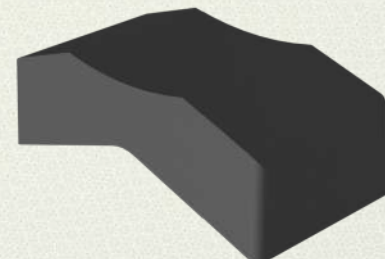
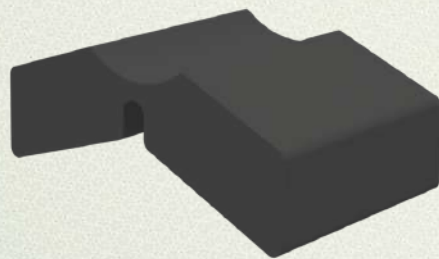
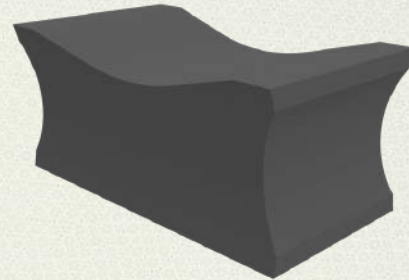
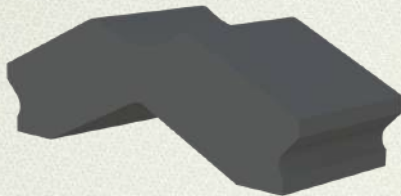
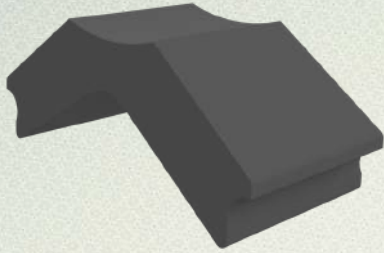
The Rubber bush is a type of anti vibration part that generally consist of cylindrical inner and outer metals, fully bonded with rubber in between. The rubber bush for the suspension can be pressed into a housing, which will provide compliance between the inner and outer metals in the radial, axial , torsional and conical directions.

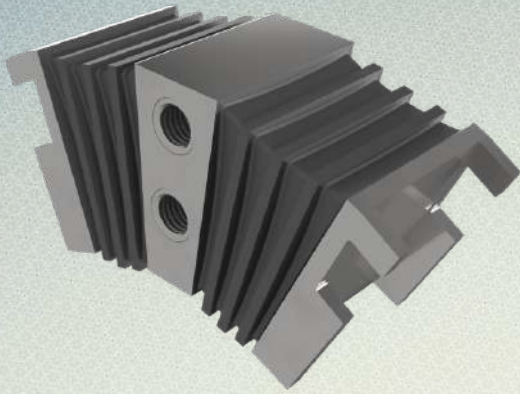
A wide range of rubber bush designs can be offered; with hollow inner metals, solid inner metals (with lugs), segmented outer metals, and profiled inner/outer metals. If you need rubber bushes for a specific application, our experienced engineers can offer an individual solution.



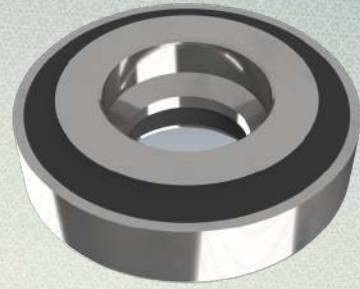
Wheel pads are damping elements that are used between wheel tires and wheel discs. They allow strong reduction of structure-borne noise, shock absorption, wear reduction on wheels and rails. Split body shape allows the assembly and disassembly of the wheel tire with the simplest means, under appropriate installation situation even under the vehicle.

Typical applications: Metros and Trams

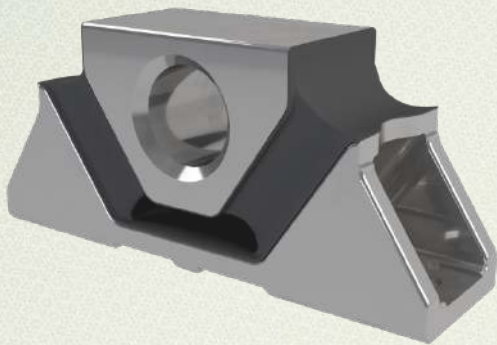




Key Packet Coupling



Support Bearing



Isolator Vee



Guide Spring



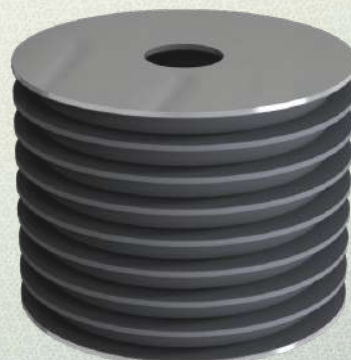
Federteil



Stützfeder

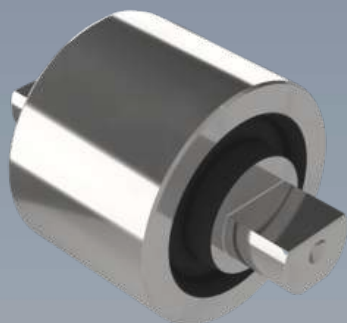


Federelement

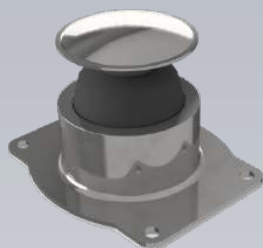


Schichtfeder KX

Spherical Joints



Guide elements play a key role in guiding the wheelset. As system components they can also be used to transmit loads in the traction link and anti roll system as well as in the driveline suspensions.



Shock Absorbers

Shock absorbers, as its name, absorb shocks which comes with strong impact effect and provides smooth acceleration and deceleration for the railway vehicle.

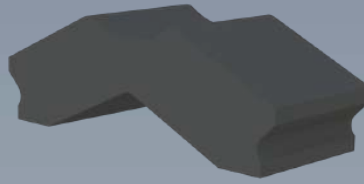
Elastic Element for Axle Box



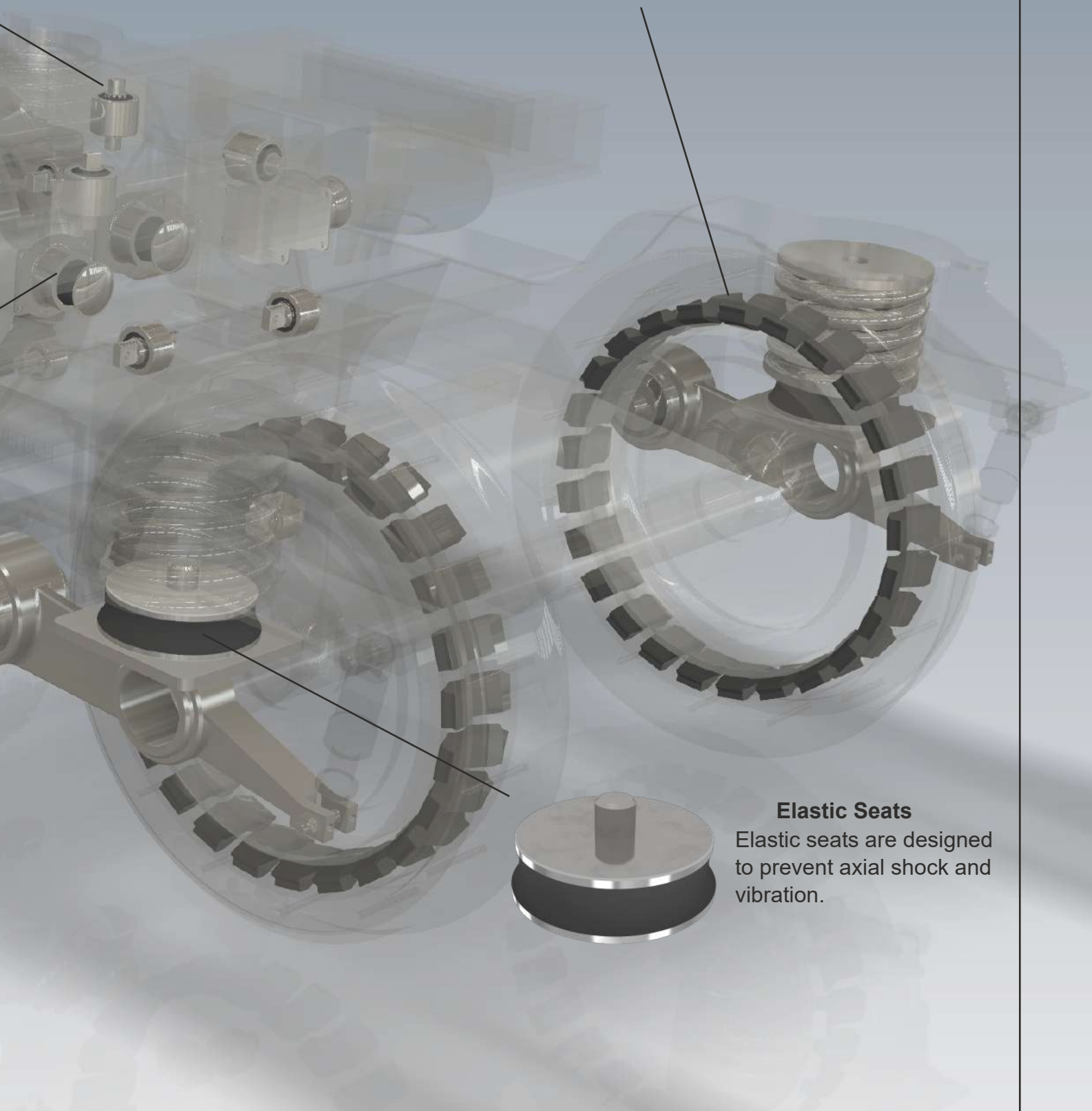
As a primary spring, the axle-guide elements are used to ensure a smoother and safer running of vehicle on rail.

Bogie Suspension Parts

Wheel Pads

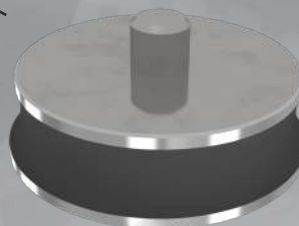


Wheel pads are damping elements that are used between wheel tires and wheel discs. They provide strong shock reduction on wheels and rails.



Elastic Seats

Elastic seats are designed to prevent axial shock and vibration.



Research and Development

FE-Analysis, Mold-Design and Calculations

FE-Analysis:

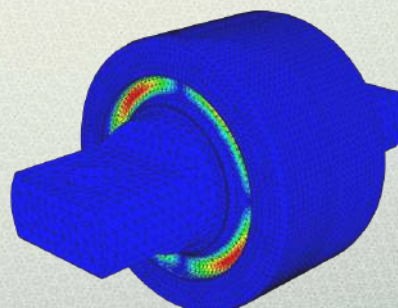
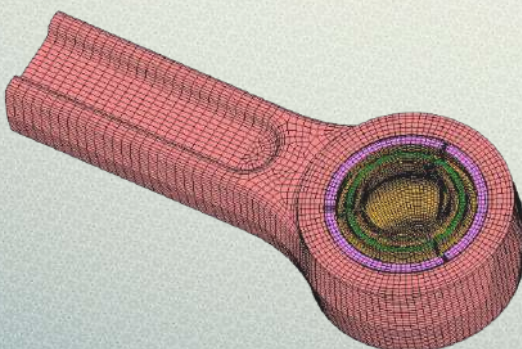
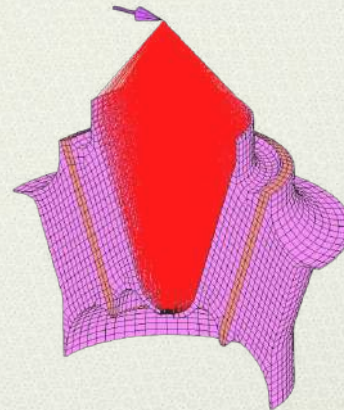
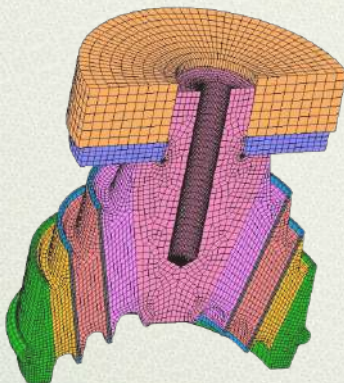
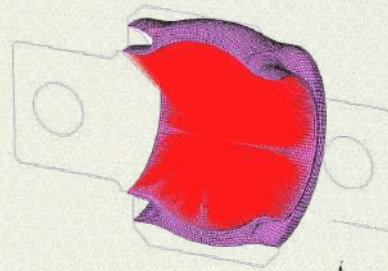
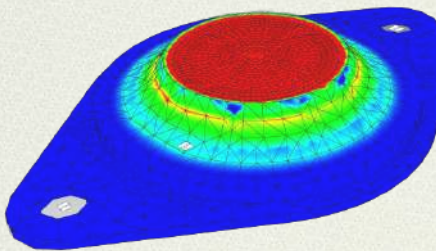
Before producing a rubber or rubber-metal bonded product, it is very important to use a correct mold design and a suitable rubber compound.

Thanks to our many years of experience and facilities, we are able to carry out the design and production process in the shortest time and most accurate way by using the software that is effective in the field of rubber calculations for FEA Analysis and the calculation program we have self-developed.

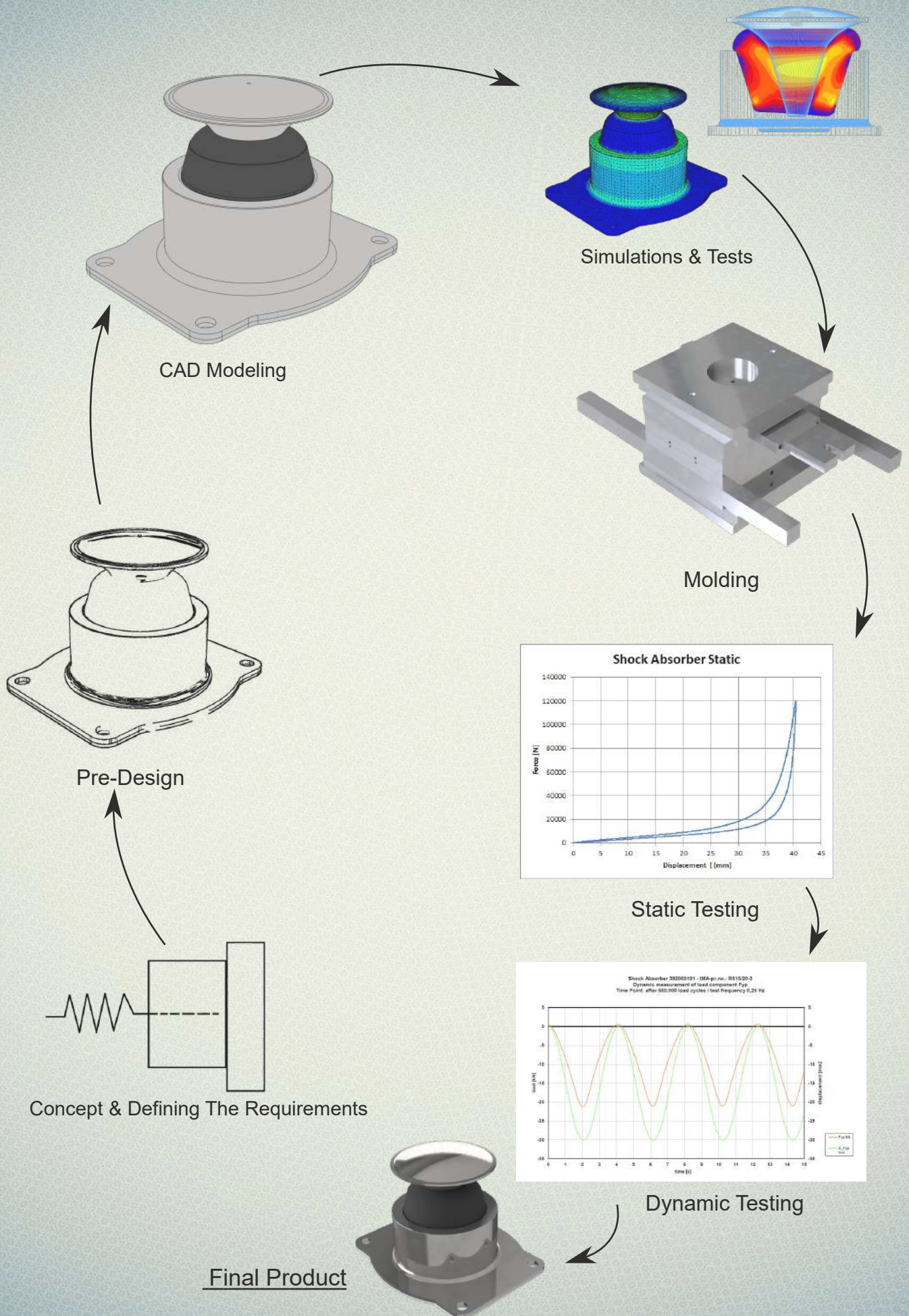
Mold design:

With our expert engineers, we have the ability to design the most accurate mold as quickly as possible.

With our effective and systematic working principle, our primary goal is to deliver high quality anti-vibration products to our customers on time.



Typical Development Process





Static Testing

With our test machine, we can measure the static stiffnesses in axial and radial directions for moulded rubber or rubber-metal products. Avitech also has the ability to perform static torsion and cardanic tests. The test machine has a load capacity from 2,5 to 250 kN and the finished products up to 400x400mm can be tested.



Dynamic Testing

Avitech has the ability to check the behavior of designed rubber-metal parts under dynamic loads. We can perform the fatigue tests either based on test parameters determined by us (Loads, Number of Cycles and Test frequency) or test specifications provided by the customer. The working performance of the parts are evaluated according to the test results.



Testing of Rubber Materials

The rubber materials produced from our own recipes are always checked and 100% tested before starting injection or compression molding. This ensures traceability through to the finished product and also suitability of the rubber qualities to meet the customers requirements.



3D-Test Machine

All parts are inspected according to detailed specifications. With the CMM, the parts are precisely measured and checked in accordance with technical specifications or standards.

Bureau Veritas Certification

AVITECH KAUCUK METAL VE ENDÜSTRİYEL ÜRÜNLERİ SANAYİ VE TİCARET LİMİTED ŞİRKETİ

AKÇABURG AZ MAHALLESİ 3102. SOKAK NO:7 İÇ KAPI NO:1 ESENYURT, İSTANBUL, TÜRKİYE

Bureau Veritas Certification certifies that the Management System of the above organisation has been audited and found to be in accordance with the requirements of the management system standards detailed below

ISO 9001:2015

Scope of certification

DESIGN AND MANUFACTURING OF RUBBER PRIMARY AND SECONDARY SUSPENSION PARTS AND SINGLE RAILWAY COMPONENTS

Original Cycle Start Date: 29-04-2022
Expiry Date of Previous Cycle: NA
Certification / Recertification Audit date: NA
Certification / Recertification cycle start date: 28-04-2025

Subject to the continued satisfactory operation of the organization's Management System, this certificate expires on: 28-04-2028

Certificate No.: TR014623 Version: 1 Issue Date: 28-04-2025

Certification Manager
İBRAHİM TAGAY

Head Office: Pasco Plaza Altayçeşme Mah. Çamlı Sok. No: 21 Kat: 8
Maltepe, İstanbul, 34843 Türkiye

Further clarifications regarding the scope and activity of this certificate, and the applicability of the management system requirements, please call: +90 216 518 40 50

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IRIS Certification

C E R T I F I C A T E

awarded to

Avitech Kaucuk Metal ve End. Ürünler San. Tic. Ltd.Şti
Akçaburgaz Mahallesi 3102. Sokak No: 7 İç Kapi No: 1 34518 Esenyurt/ İstanbul, Türkiye
34518, İstanbul
Turkey

BUREAU VERITAS CERTIFICATION

confirms, as an IRIS Certification[®] approved certification body, that the Management System of the above organization has been assessed and found to be in accordance with the

IRIS Certification[®]

Certification activities:
Design and Development of products and services & Production and service provision & Control of externally provided processes, products and services & Project management & Requirements for products and services

Business category:
Rolling Stock

Product scope:
Components, Guidance

Guidance (Damping: Primary & Secondary Suspension Parts like Rolling Rubber Springs, Conical Suspension Springs, Chevron Springs, Additional Spring, Lateral Buffers) and Components (Rubber: Tie Rod, Bushes and Spherical Bearings, Stop Buffers, Rubber Wedge)

Certificate valid from: 13/05/2025 Certificate valid until: 12/05/2028^{*}

Current date: 16/04/2025
Certificate-Register-No: TUR-IR - 000 2161
Version: 01

^{*} Providing that the subsequent surveillance audits are successful before the validity date of the previous audit. Certification body address: TOUR ALTO 1 PLACE ZAHARA HADID CS 40381, 92062 Paris la Defense Cedex, France

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INTERNATIONAL FIRST CERTIFICATION

IFC GLOBAL

SERTİFİKA

Avitech Kaucuk Metal ve Endüstriyel Ürünleri Sanayi Ve Ticaret Limited Şirketi

Akçaburgaz Mah. 31.02. Sok. No:7 İç Kapi No:1 Esenyurt, İstanbul

IFC Global Sertifikasyon, yukarıda adı geçen kuruluşun yönetim sisteminin değerlendirildiğini ve aşağıdaki standardın gerekliliklerine uygun olduğunu teyit eder.

Standard:
ISO 14001:2015

Kapsam:
Kauçuk, kauçuk-metal metal bileşimi birincil ve ikincil süspansiyon parçaları ve demiryolu bileşenlerinin tasarımı ve imalatı

İlk Yayın Tarihi : 2.05.2025
Yayın Tarihi : 2.05.2025
Sertifika Geçerlilik Tarihi : 1.05.2026
Sertifika Bitiş Tarihi : 1.05.2028
Sertifika No : IFC-E-5-25-2056

IFC GLOBAL SERTİFİKASYON MÜHÜRÜNE VE GİZLİK HİZMETLERİ ANONİM ŞİRKETİ
Adalar Mah. 2132/2 Sokak No:3 Trend Office D:45 Bayraksız İZMİR TÜRKİYE T: +90 850 304 35 00 F: +90 850 304 35 00
www.ifcglobal.com.tr info@ifcglobal.com.tr

INTERNATIONAL FIRST CERTIFICATION

IFC GLOBAL

SERTİFİKA

Avitech Kaucuk Metal ve Endüstriyel Ürünleri Sanayi Ve Ticaret Limited Şirketi

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Standard:
ISO 45001:2018

Kapsam:
Kauçuk, kauçuk-metal metal bileşimi birincil ve ikincil süspansiyon parçaları ve demiryolu bileşenlerinin tasarımı ve imalatı

İlk Yayın Tarihi : 2.05.2025
Yayın Tarihi : 2.05.2025
Sertifika Geçerlilik Tarihi : 1.05.2026
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Sertifika No : IFC-O-5-25-2056

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Adalar Mah. 2132/2 Sokak No:3 Trend Office D:45 Bayraksız İZMİR TÜRKİYE T: +90 850 304 35 00 F: +90 850 304 35 00
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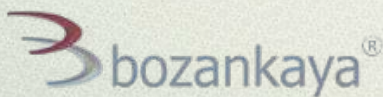
We are the first company in Turkey, which is certified in the area of rubber-metal components with IRIS.



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Ersatz-Teile-Schienenfahrzeuge GmbH

AVİTECH

Anti-Vibration Technology

AVİTECH KAÜÇUK METAL END. ÜRÜNLER SAN. VE TİC. LTD. ŞTİ

Akçaburgaz Mahallesi 3102. Sokak No: 7 İç Kapı No:1

34518 Esenyurt/ İstanbul, Türkiye

Phone: (+90) 212 876 28 27

E-Mail: info@avi-tech.com.tr



www.avi-tech.com.tr