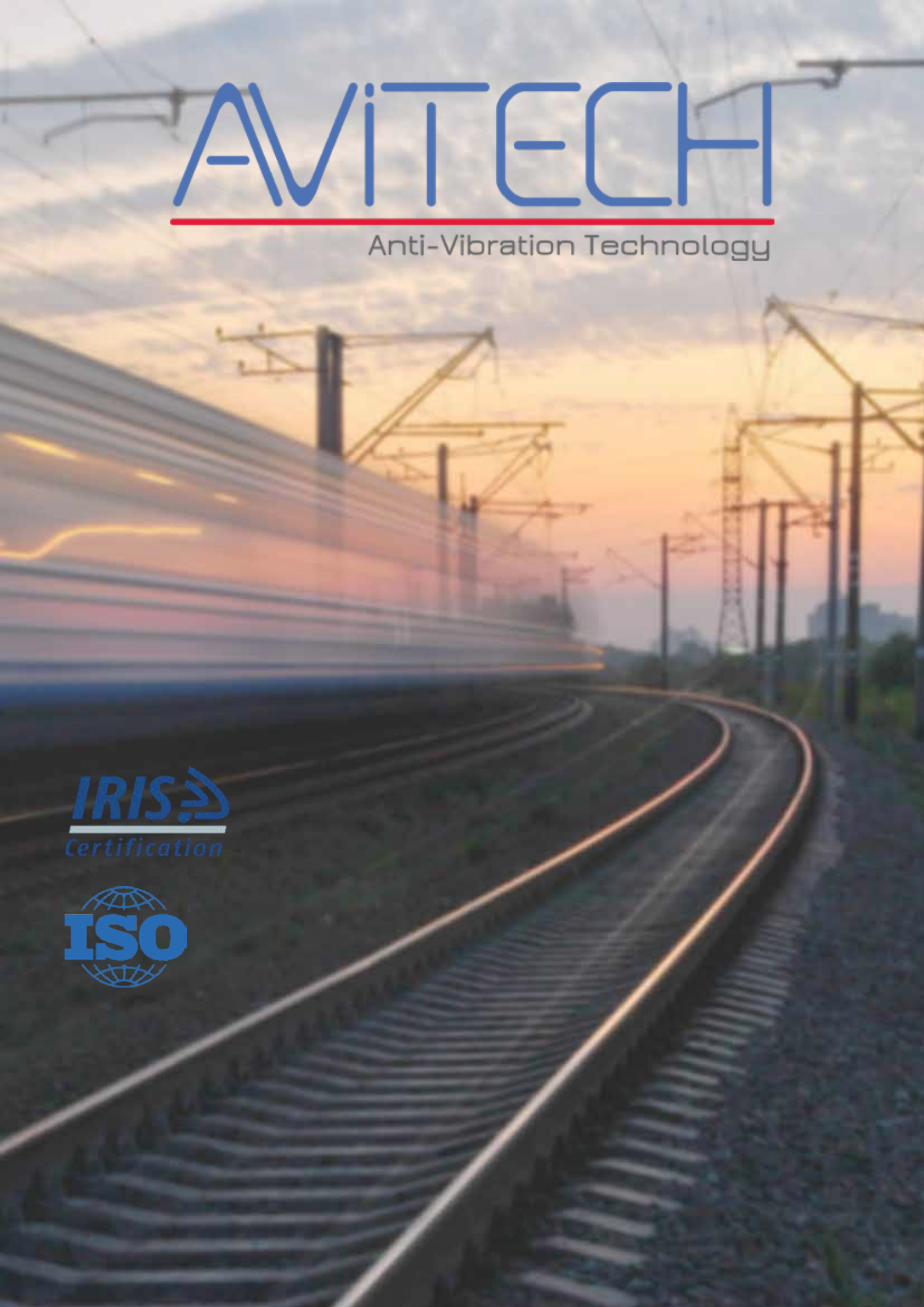
AViTECH

Anti-Vibration Technology



CONTENTS

About Us

Products

- Primary Suspension
  - Spherical Joints
  - Control Links
  - Elastic Bushes
  - Chevron Springs
  - Wheel Pads
- Secondary Suspension
  - Layer Springs
- Other Railway Products
- Rubber Buffers
- Anti Vibration Mounts

Applications

- Bogie Components
- Chevron Springs
- Machine Foot
- Construction Machinery
- Wind Turbine

Research and Development

- Simulations
- Typical Development

Measuring and Test

- Tensile And Compression
- Fatigue Machine
- Rubber Inspection Machines & Tools
- Coordinate Measuring Machine

Certifications

- ISO and IRIS

Gallery & References

ABOUT US

AVITECH was founded in 2014 in Turkey.

Production location in Istanbul / Turkey.

The development and production of technically sophisticated products from rubber & metal parts as well as rubber forming parts.

We are producing anti-vibration products especially for first and second suspension systems of the train and also wheel pads for the railway industry.

We have also ability to test the products in our factory. We can do static and dynamic test for the part that we are producing.

Also, we are 100% Turkish Company with a strong background from Germany.

With the regulations of Turkish government, we are a competitive company (both for the price and for the quality) and we have also IRIS certification which is the first company in Turkey who get this certification in rubber-metal competent production.

Also Quality & Safety approved by ISO 9001 certificates.

We are not only working in mass product but also working in project based production (from design to production).

Trustful cooperation with our customers & suppliers.

What we do?

We manufacture over products for Railway vehicles, Defense Industry, Construction machinery, Agricultural machines, Manufacturing & Machine tools, Renewable Energy & Power Generation, Aerospace/Aviation Industry over anti-vibration especially, etc.

The Best R&D Center

We take pride in our never-ending quest for innovation at Avitech, our 1000 m2 state-of-the-art research and development center launched with an investment. Equipped with high-tech tools, machinery, and engineers and designers, Avitech is constantly in pursuit of new products, processes, materials, and methods.

AVITECH
Anti-Vibration Technology

Primary Suspension

Spherical Joints

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 as mechanical joints on road and rail vehicle suspensions, pivot arms, engine / gearbox mountings and as captive cab mountings.

A range of Spherical Bearings are kept in stock, however for specific purposes, we can utilise Finite Element Analysis, 2D/3D modelling and mould tooling capability to provide bespoke solutions. Please contact Avitech for more information.

Control Links

Control Links or control arms (also know as link arm assemblies) can be manufactured to suit customers' individual requirements, incorporating either fully bonded bushes or rubber bearings (sometimes called spherical bearings) depending on the specific application.

Primarily manufactured for the rail vehicle industry to aid axle location and resistance to breaking and traction forces, control links can also be used in other industrial sectors, such as in automotive or off-highway vehicle suspension systems.

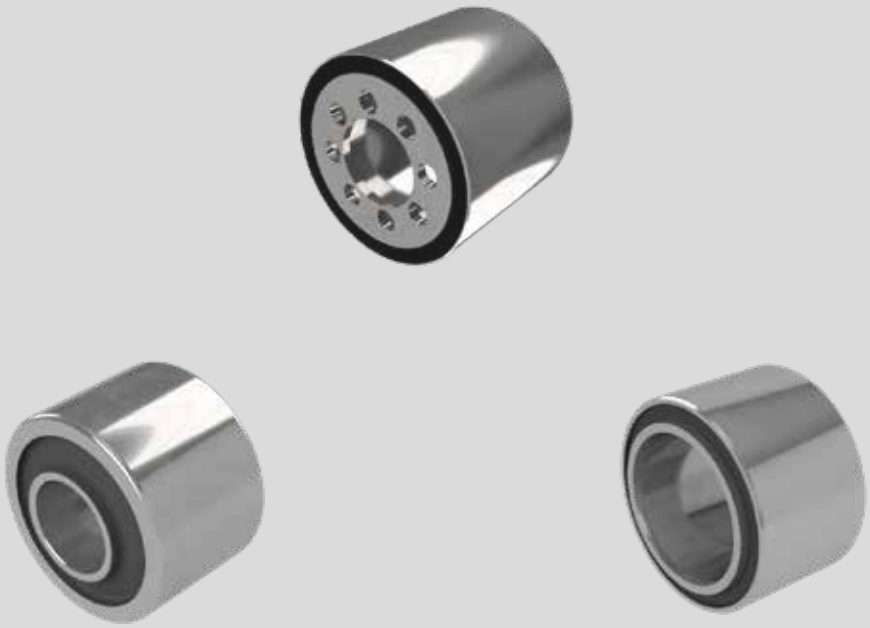
Primary Suspension

Elastic Bushes

Rubber bushes are a type of anti vibration bush 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 require rubber bushes for a specific application, our experienced engineers can offer a custom anti vibration service using our advanced Finite Element Analysis software and calculations.

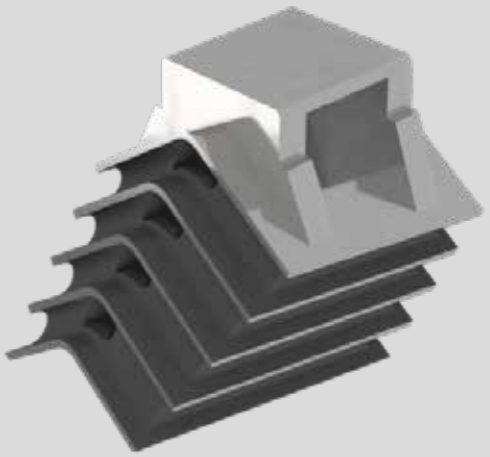
So if you have any queries regarding shock, vibration and noise reduction please contact us and we will find a solution for you.

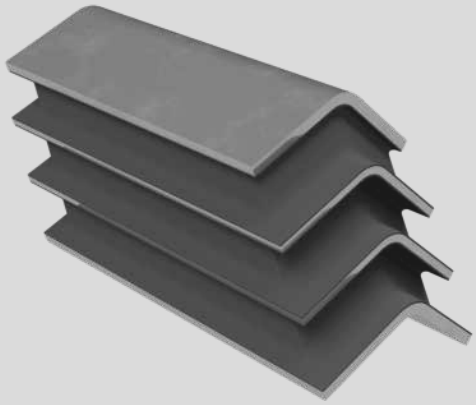


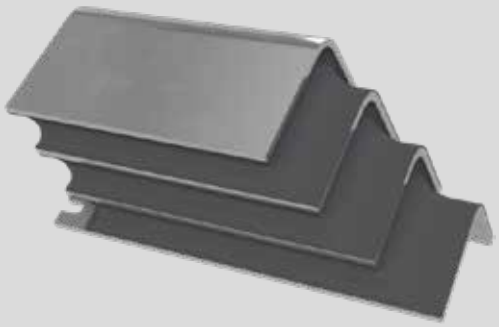
Chevron Springs

Chevron springs (also known as axle springs) are multipurpose vibration reducing elements, primarily used in the rail vehicle industry. 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 stiffness 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 extensive existing range, our experienced engineering team can design a bespoke solution for you.







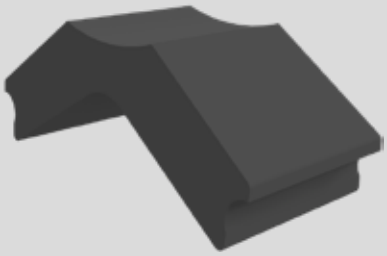
Primary Suspension

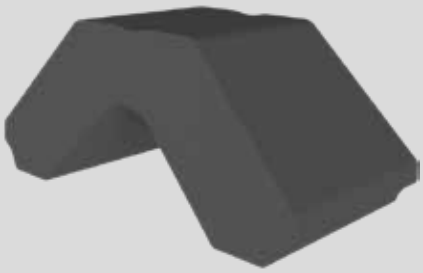
Wheel Springs – Rubber Blocks

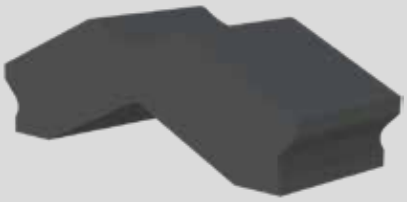
Wheel pads are fitted between wheel tyre and wheel rim. They provide flexibility of the wheel and a better comfort for the passengers.

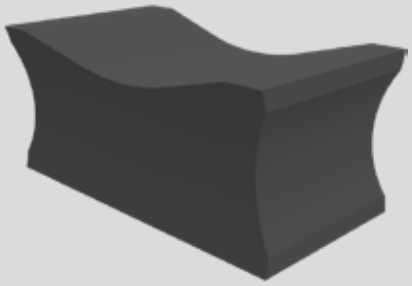
Noise will be reduced. Due to the ability of axial deflection the wheel tyre can better follow the track curve, which results in lower wear.

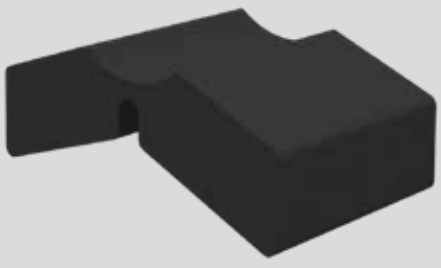
-Reduction of vibration
-Minimisation of wheel- and railwear
-Lower maintenance costs, in case of wear only tire has to be changed
-Used in metros and trams

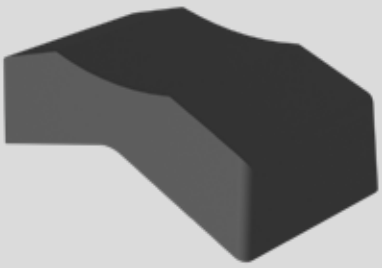










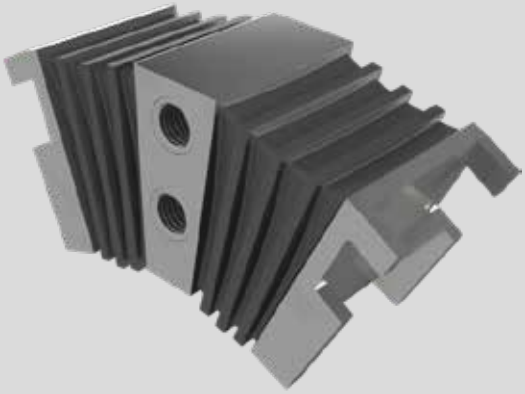


Layer Springs

Each component is manufactured using high strength steel and heavy-duty plates to give superior impact and wear characteristics, resist negative loading, and provide safe anchor points. There is also a built in fail-safe device to prevent total mount failure in the case of severe overload - also manufactured from the highest-grade steel to provide high tensile strength without compromising embrittlement.

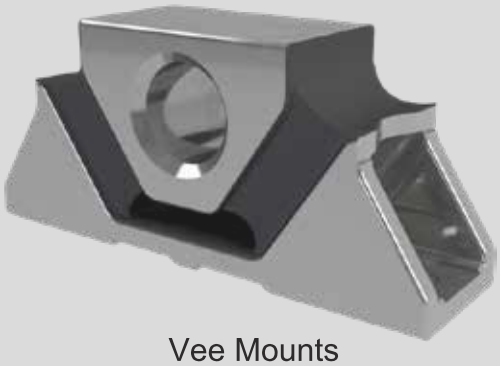
Avitech Kauçuk suspension springs are designed to provide a maintenance free flexible load bearing component, allowing angular and shear movement whilst supporting high axial loads. The latest FE analysis technology has been applied to ensure maximum reliability and minimum stress points whilst maintaining an

Other Railway Products

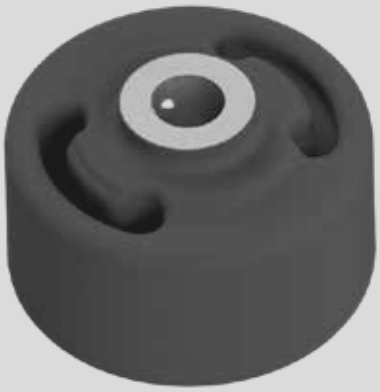


Keilpaket

Conical Mount



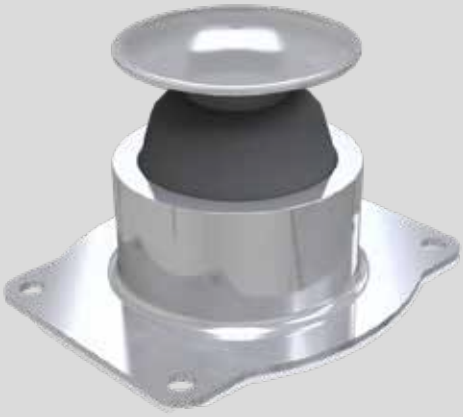
Vee Mounts



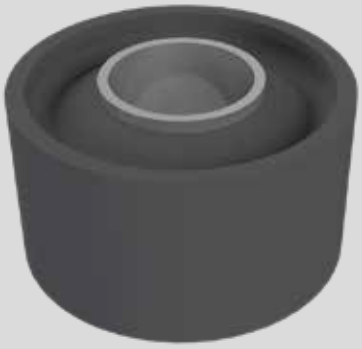
Rubber Bearing Bushes

Conical Spring

Guide Springs

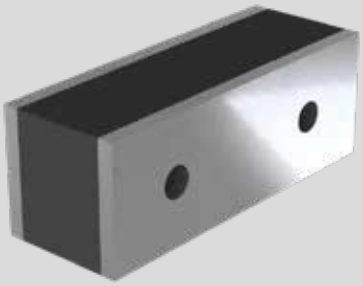


Shock Absorve

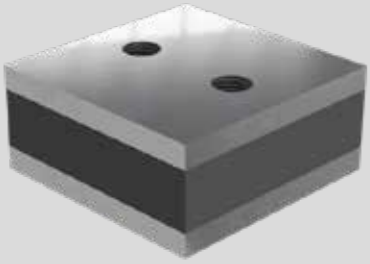


Rubber Drive Coupling

Rubber Ring

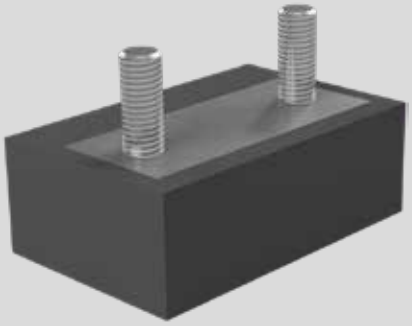


Lateral Buffer



Rectangular Buffer

Pad of Secondary Suspansiyon



Stop Buffer

Rubber Ring

Stop Buffer

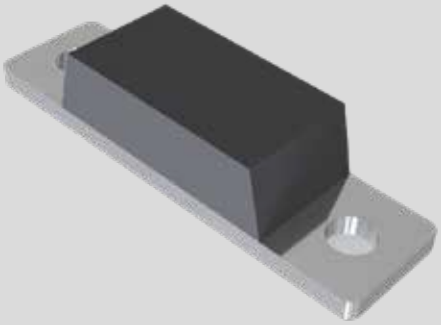
Bump Stop

Telephone Rubber

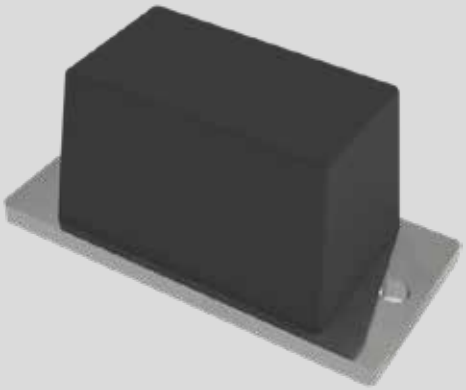
Rubber Buffers

Sandwich Mount

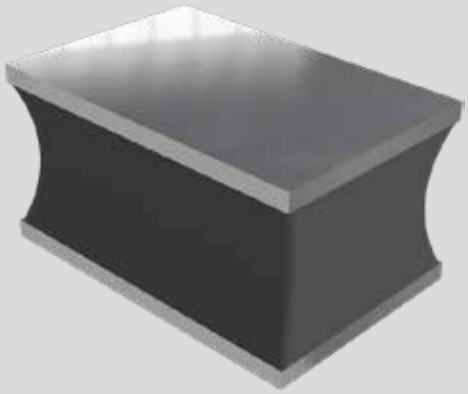
Rubber Compressor Feet



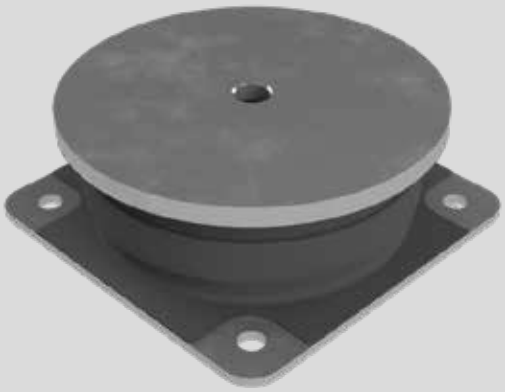
Rubber Dampers



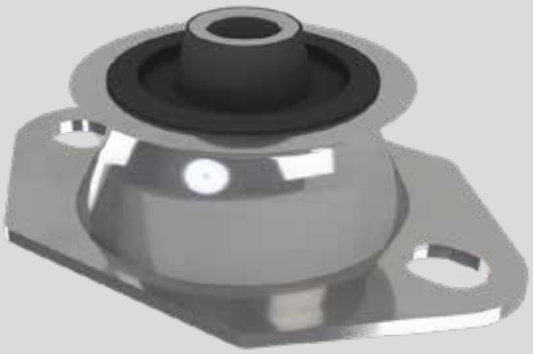
Rubber Dampers



Rubber Shock Absorber

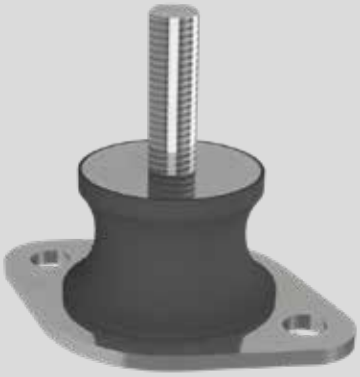


Spare Parts Shock Absorber

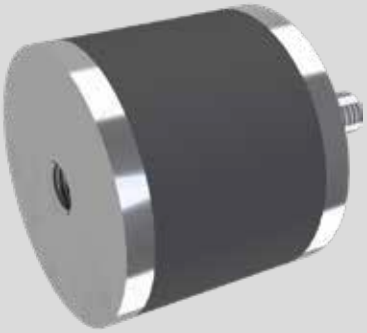


Cone Mount

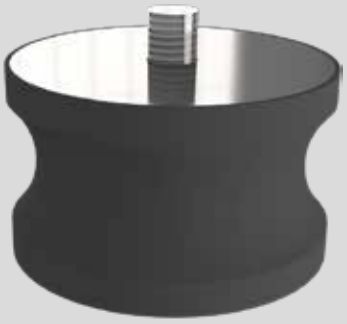
Machine Feet



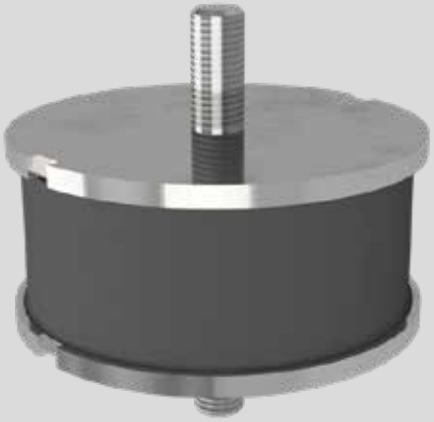
Construction Buffer



Rubber Buffer



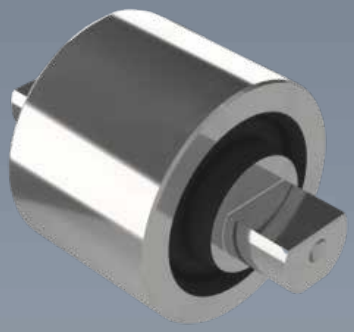
Rubber Buffer



Rubber Buffer for Bomag

Rubber Buffer for Bomag

Spherical Joints



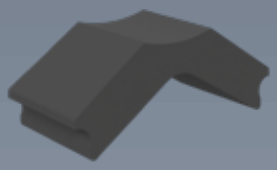
Guide elements play a key role in guiding the wheelset. As system components they can also be used to transmit loads in the traction link and anti roll system as well as in the driveline suspensions.

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.

Axle Boxes

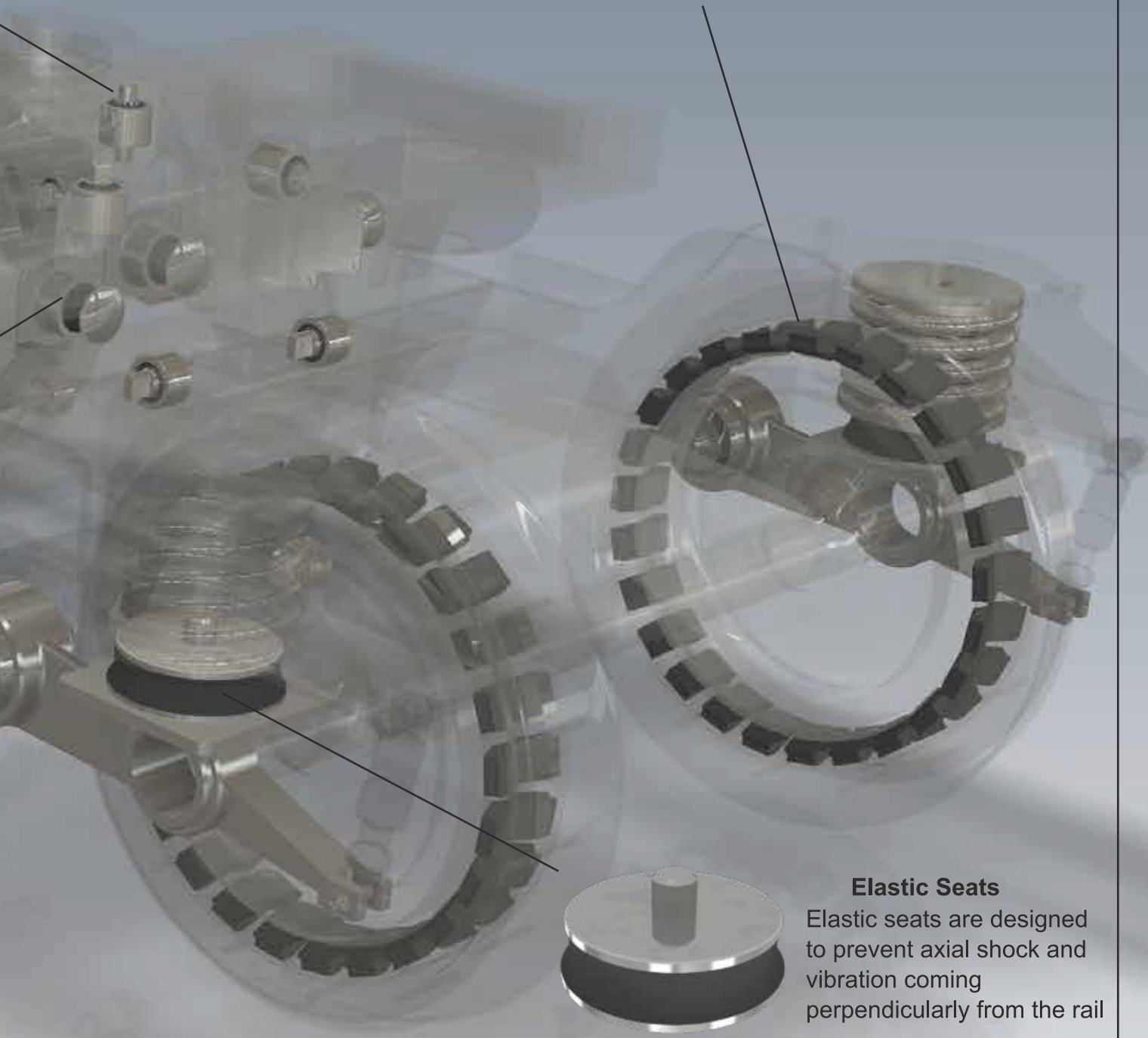
Axle boxes are system components they can also be used to transmit loads in the traction link and anti roll system as well as in the driveline suspensions.



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.

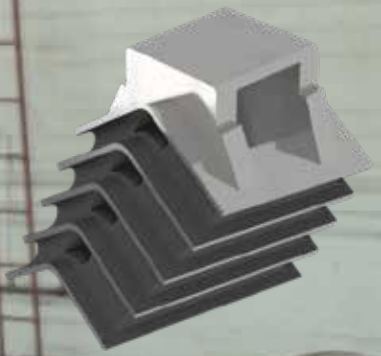
Split body shape allows the assembly of the wheel tire with the simplest means, under appropriate installation situation even under the vehicle.



Elastic Seats

Elastic seats are designed to prevent axial shock and vibration coming perpendicularly from the rail

Chevron Springs



Chevron axle multi-purpose springs have been designed to reduce vibrations. These components are ideal for all kinds of rail vehicles due to their long lifespan and being easy-to-install.

Avitech Kauçuk's specialist anti-vibration technology has improved operating performance for manufacturing facilities around the world. As well as improving business performance, we make operators' lives more comfortable through improvements to machine tools and noise reduction in operating machinery.

Avitech Kauçuk's anti-vibration solutions are reducing costs in construction by helping vehicles to operate for longer without maintenance, whilst extending the lifecycle of the

Spherical Joint

Wind turbines are source of vibration due to their continuous spinning. This vibration effects other components of the turbine such as alternator, gearbox etc. This vibration significantly shortens the life of components so whole turbine. To prevent this, turbine connections

Simulations

Innovative Through Research & Development

On the basis of your idea, we engage with you to discuss the design and its application, performing an in-situ inspection if necessary. The sooner Avitech Rubber becomes involved, the more effectively we can tune our model to your wishes, saving time and costs.

FEM

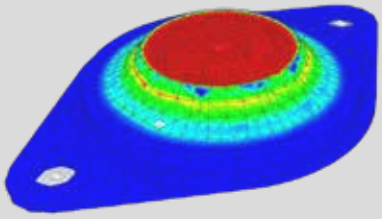
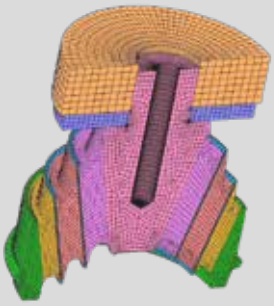
The development of a new moulded rubber product takes time and money. Avitech Rubber operates a Finite Element Method (FEM) to ensure that the development process of a new moulded rubber product can be conducted as quickly and effectively as possible.

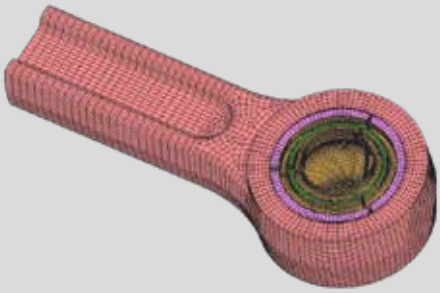
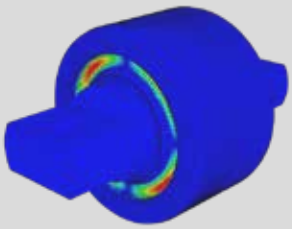
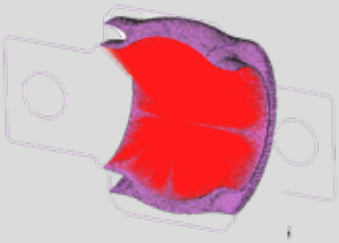
Custom-made for Avitech Rubber

We have complemented the FEM software package with our own laboratory test data and the parameters for the compounds that we apply. This means the FEM is totally tailor-made by and for Avitech Rubber. It enables us to calculate precisely which properties and values of a compound will yield the best results in terms of rigidity and/or damping of the moulded rubber product.

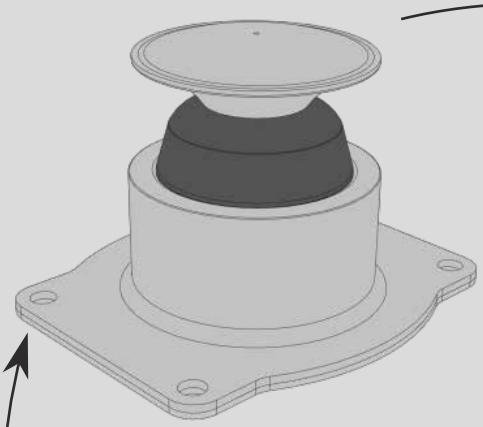
Increasingly Accurate Results

Using our FEM software, we translate practice into theory, which is then converted into new parameters. And since we are constantly entering more data, we can make increasingly accurate calculations.

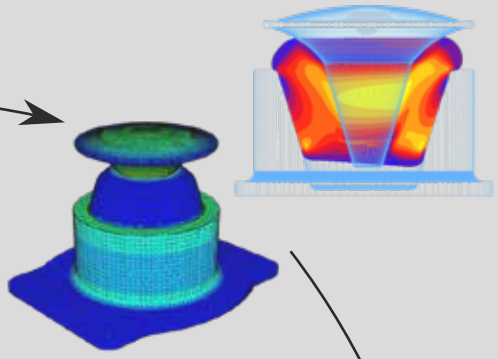



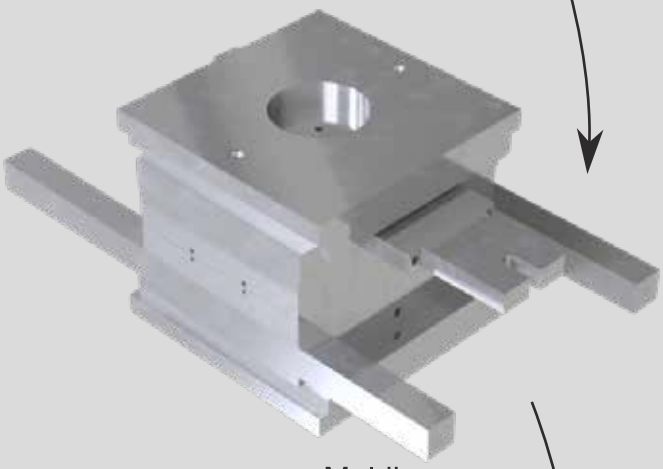
Typical Development Process



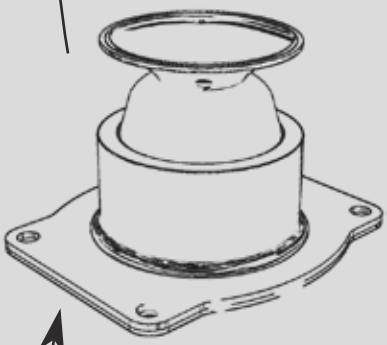
CAD Modeling



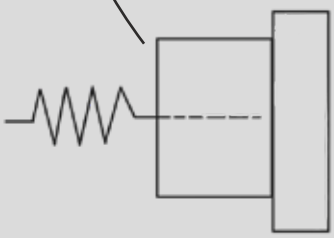
Simulations & Tests



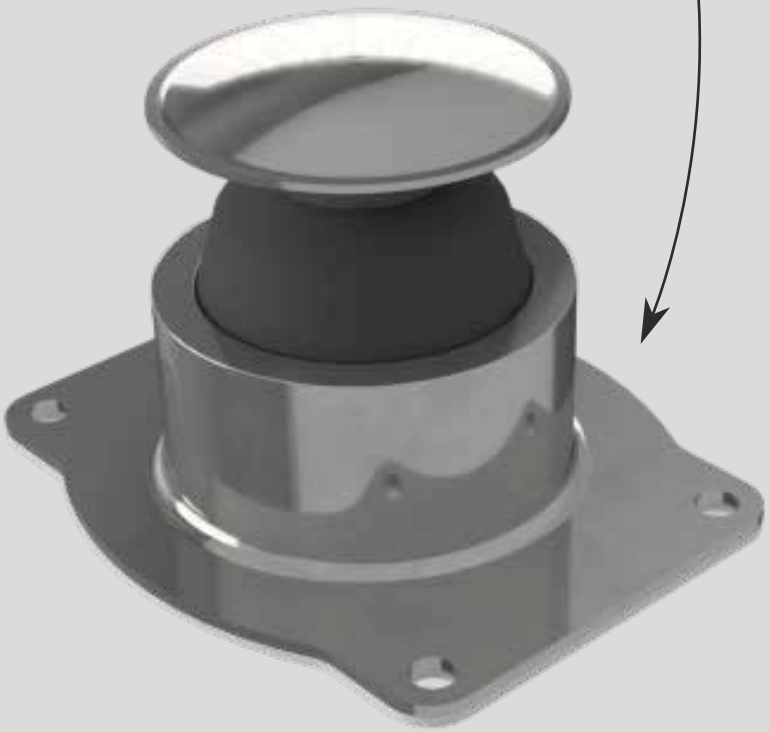
Molding



Illustrations



Concept & Defining The Requirements



Final Product

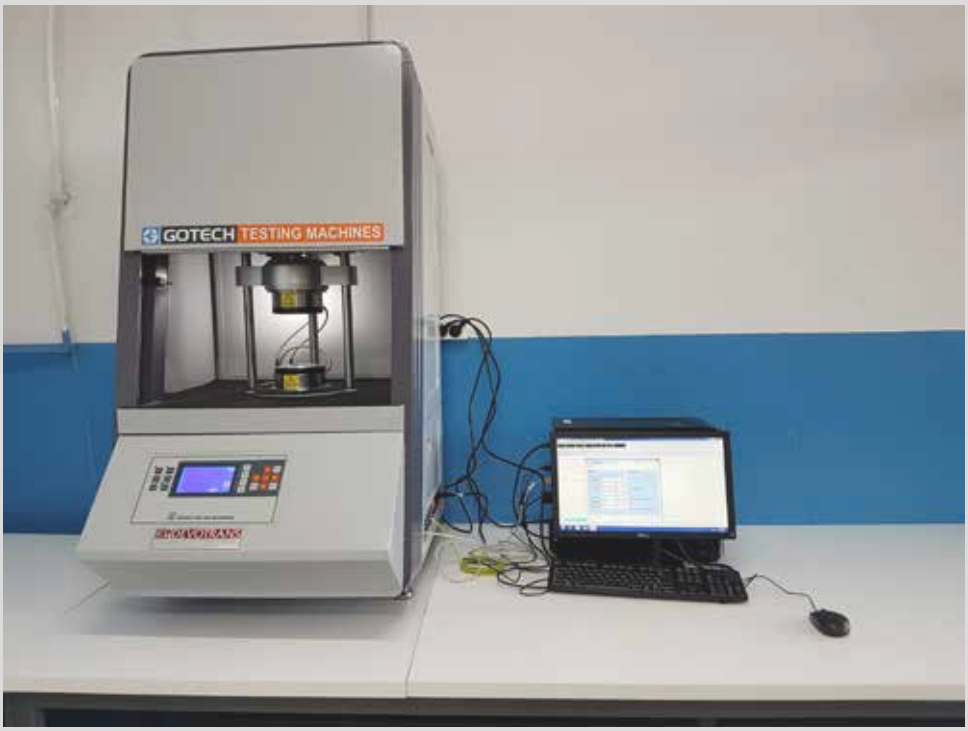
Static Testing

Static testing is carried out for moulded rubber products that will be immobile in use and on which a certain force is to be exerted. Spring stiffness is an essential element of static testing. Using a test bench, we can measure the static properties of a product, such as its axial, radial, torsion and cardanic rigidity. Loads can be exerted at any speed required. We can perform static testing from 2,5 to 250 tons, for dimensions up to 400 x 400mm as a maximum.

Dynamic Testing

Dynamic testing is applied for moulded rubber products that will be moving. Damping of vibration and the degree of heat development are, among other things, essential elements of dynamic testing. We subject our products to pressure force and tensile force on our dynamic test bench to measure the maximum loadings of the moulded rubber products.

Measuring And Test



Testing of Rubber Batches

All batches of rubber are controlled and 100% tested prior to being accepted for production. This ensures traceability through to the finished product and also suitability of the rubber batch to meet the customers requirements.

Metals Inspection

All parts are inspected according to detailed specifications. Full CMM capability ensures Avitech can accurately check goods received prior to accepting them for production.

Certifications

BUREAU VERITAS
Certification

AVITECH KAUÇUK METAL ENDÜSTRİ ÜRÜNLERİ SAN. VE TİC. LTD .ŞTİ.

AKÇABURGAZ MAH. 1592 SOK. ALKOP SANAYİ SİTESİ A5 BLOK D: 11-12 ESENYURT, İSTANBUL, TURKEY

Bureau Veritas Certification Holding SAS – UK Branch certify 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

Standard

ISO 9001:2015

Scope of certification

DESIGN, DEVELOPMENT AND MANUFACTURING OF PRIMARY & SECONDARY SUSPENSION PARTS (ROLLING RUBBER SPRINGS, CONICAL SUSPENSION SPRINGS, CHEVRON SPRINGS, ADDITIONAL SPRING, LATERAL BUFFERS) & SINGLE RAILWAY COMPONENTS (TIE ROD, BUSHES AND SPHERICAL BEARINGS, STOP BUFFERS, RUBBER WEDGE)

Original cycle start date: **02 May 2017**

Expiry date of previous cycle: **14 September 2018**

Certification / Recertification Audit date: **06 July 2018**

Certification / Recertification cycle start date: **28 December 2018**

Subject to the continued satisfactory operation of the organization's Management System, this certificate expires on: **27 December 2021**

Certificate No: TR007544 Version No: 1 Revision date: **28 December 2018**

İBRAHİM TAGAY
Signed on behalf of
BVCH SAS UK Branch

UKAS

0008

IRIS Certification

BUREAU VERITAS
Certification

CERTIFICATE

awarded to

Avitech Kaucuk Metal ve End. Ürünler San. Tic. Ltd.Şti
Akçaburgaz Mah.1592.Sok Alkop San. Sit. A5 Blok No:11-12 Esenyurt
34510, 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™ rules:2017
and based on
ISO/TS 22163:2017

for the activities of Design and Development and Manufacturing for the scopes of certification: 03 (Guidance), 19 (Single railway components) of Primary & Secondary Suspension Parts (Rolling Rubber Springs, Conical Suspension Springs, Chevron Springs, Additional Spring, Lateral Buffers) (3) & Single Railway Components (Tie Rod, Bushes and Spherical Bearings, Stop Buffers, Rubber Wedge) (19).

Certificate valid from: 03/03/2019 Certificate valid until: 02/03/2022*

Current date: 19/09/2018
Certificate-Register-No: TUR-IR - 000 1165

* Providing that the subsequent surveillance audits are successful before the validity date of the previous audit.

Certification body address: Le Triangle de l'Arche 9, cours du Triangle - CS 90096, 92937 Paris la Défense Cedex, France

1/1

ISO-Certified

Our QESH team (Quality, Environment, Safety & Health) measures and assesses the set standards, reporting on a daily basis whether these have been met. Our production sites are ISO 9001-certified for their quality management systems. We are also aiming to achieve the ISO 14001 certificate in 2018 by optimising our environmental management system.

IRIS-Certified

IRIS certification which is the first company in Turkey who get this certification in rubber-metal component production.

AVITECH
Anti-Vibration Technologies

TCDD

ANKARAY
Hafif Raylı Toplu Taşım İşletmesi

KARYER TATMAK

bozankaya®

GEREP
Shock absorbers made in Germany.

Ersatz-Teile-Schienenfahrzeuge GmbH

METRO İSTANBUL

TradeWorldOne
your parts for success

KAYSERİ ULAŞIM
Değer Katar

TÜVASAS

TMS®

AVİTECH KAUÇUK METAL END. ÜRÜNLER SAN. VE TİC. LTD.
Akçaburgaz Mah. 1592. Sokak Alkop San Sit. A-5 Bl. D.11-12
Esenyurt/İstanbul, Türkiye
Phone: (+90) 212 876 28 27
E-Mail: info@avi-tech.com.tr

www.avi-tech.com.tr