



Railway Systems Solutions

 www.babacankaucuk.com





Who are we?

- ▶ Our company, whose foundations were laid in 1986, is among the leading names in the sector in the production of spare parts and hardware elements of construction machines, construction industry, defense industry, rail systems, mining industry, medical and special production machines, with over 40 years of experience.



Babacan Group



Babacan Kauçuk
ve Yedek Parça



Babacan Endüstri



Babacan Hidrolik
ve Pnömatik



Akmepol
Poliüretan



Our Mission and Vision

In every field we operate;

Our mission

To provide high quality and functional products to our customers,
To add value to our industry with competitive, creative and original solutions,
To contribute to our country and our employees.

Our Vision

As a company that always improves itself without compromising on quality; To be among the most sought-after brands of the sector in the foreign market,
To be a leader in the domestic market.



Milestones

1986

Established in Ostim on an area of 25 m2 founded by Akman Karakülah

1997

Started production as Babacan Industry

2010

Started production of polyurethane spare parts

2015

Babacan Hydraulic and Pneumatic company started its operations

2017

Its production department is transferred to its factory in Yenikent - Sincan carried

2022

The foundations of Babacan Defense Company were laid in Ankara Aerospace and Aviation Specialized Organized Industrial Zone



Briefly Babacan Rubber



Sales store in Ostim on 1800 m2 area.

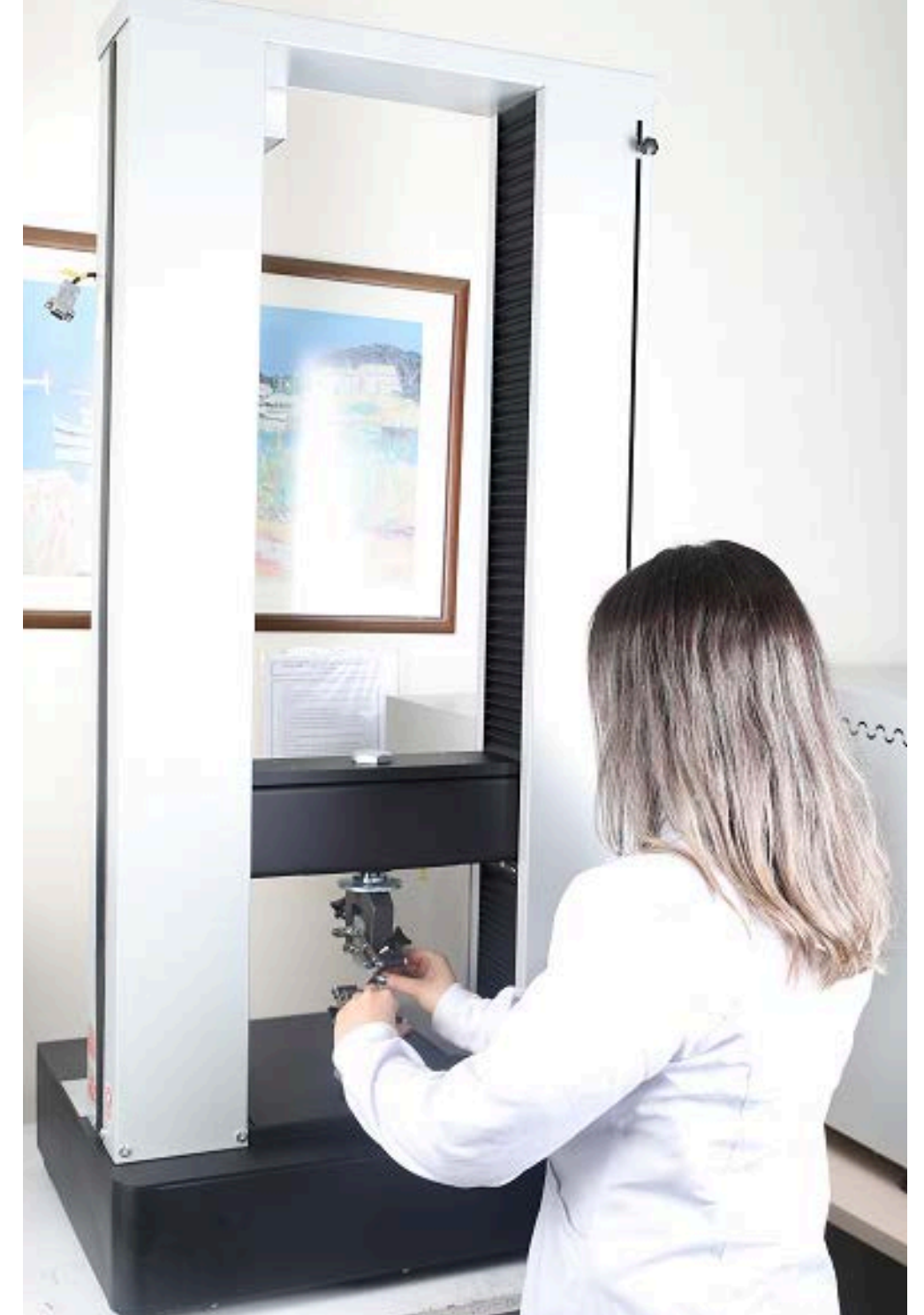
Factory in Yenikent Sincan with 6500 m2 open and 5000 m2 closed area.



15,000 Registered customers
80,000 Product variants
Export to 84 Countries
110 Colleagues.



Who are we?



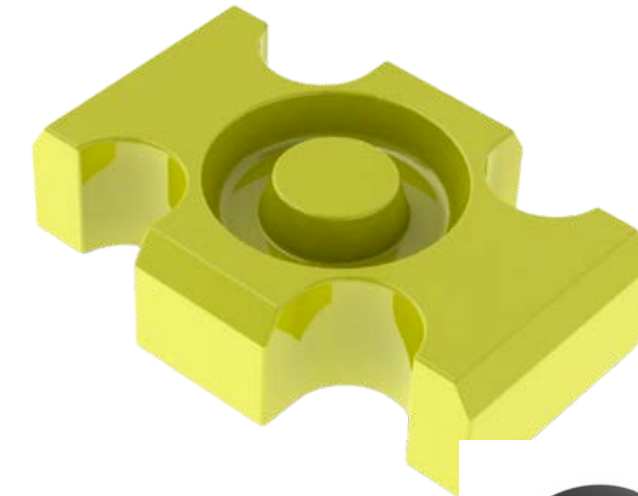
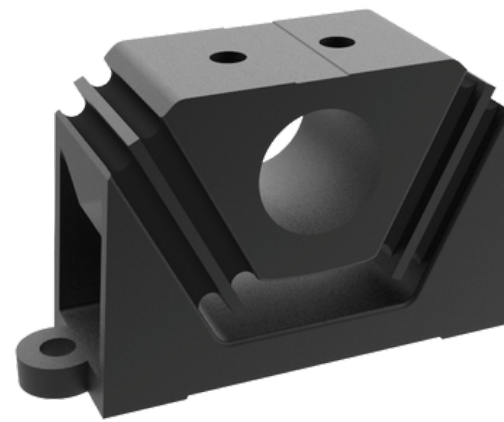
Sectors We Work In

- Heavy Construction Equipment
- Mining
- Railway
- Medical
- Defence Industry
- Electricity
- Babacan Rubber can produce special machines spare parts
- Babacan provides engineering, maintenance and repair services with its hydraulic and pneumatic company.

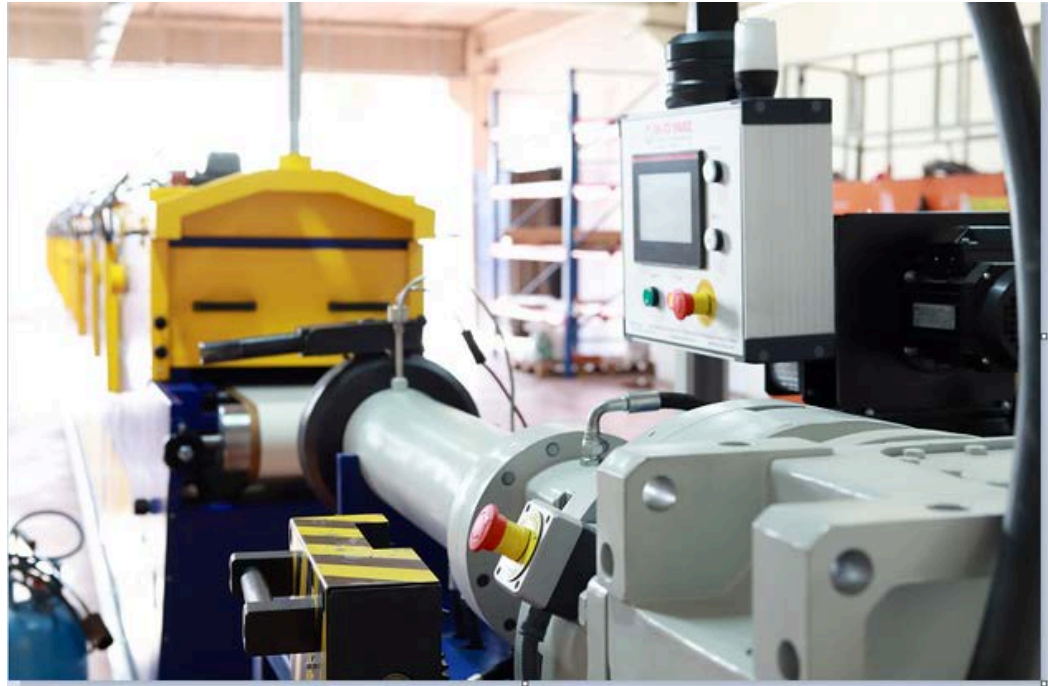


Our Main Products

- Shock Absorbers,
- Engine, Cabin mounting,
- Large Elastomers,
- Sealing Elements,
- Elastomer Couplings,
- Bellows,
- Rock Drill Machines Spare Parts,
- Hydraulic Breakers Machines Spare Parts,
- Concrete Pump Machines Spare Parts
- and Other Special Parts.



Babacan Rubber Factory



Machine Park



- 40 pieces Hydraulic Press Machines,
- 4 pieces CNC Vertical Machinings,
- 2 pieces CNC Turning Machines,
- 1 pieces Grinding Machines,
- 1 pieces Milling Machines,
- 4 pieces Lathes,
- 2 pieces Drilles,
- 4 pieces Arc Welding and Argon Gas Welding,
- 4 pieces ROLLFORM,
- 1 pieces Router,
- 1 pieces Extrusion Line and
- Elastomer Polyurethane Casting Line

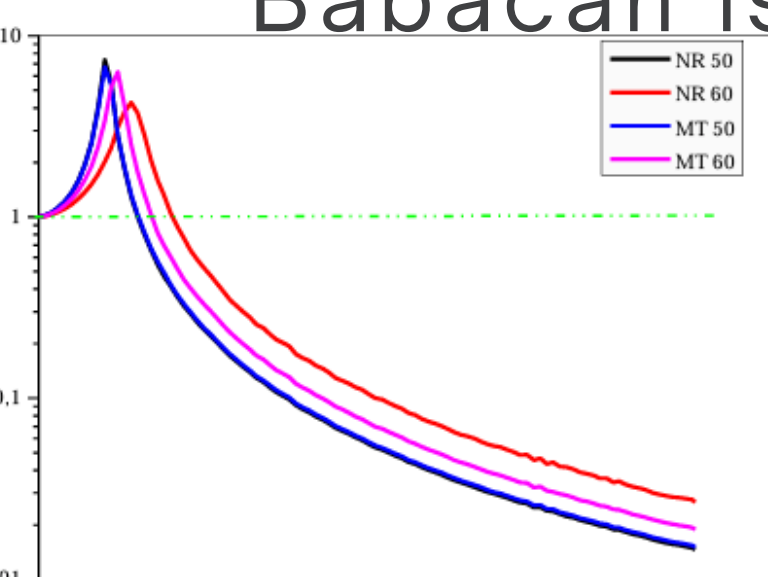
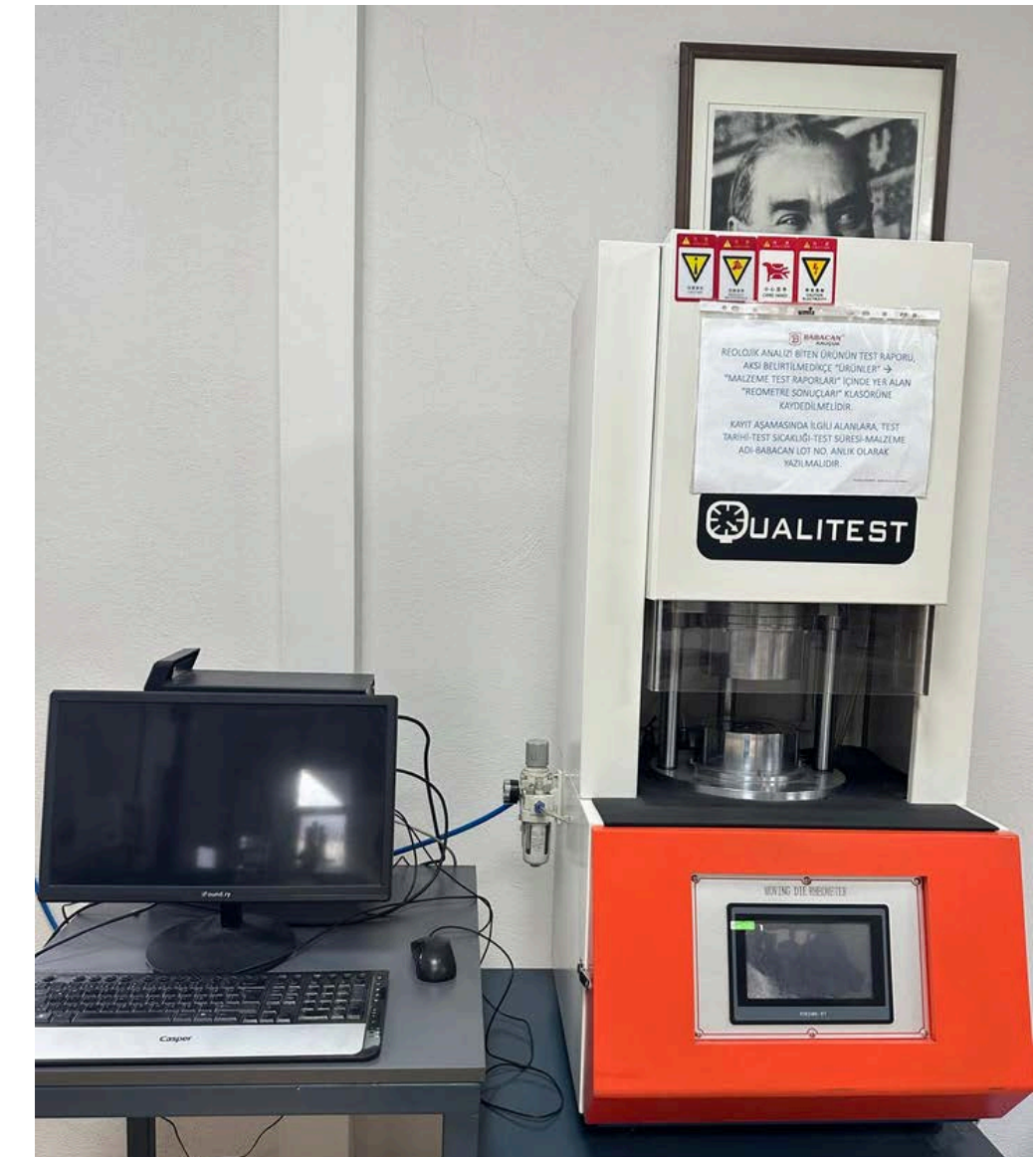
Machine Park



R&D

Thanks to its own laboratory;

- Mechanical Tests,
 - Rheometer,
 - Abrasion Test,
 - Aging Test,
 - Density Test,
 - Life Test,
 - Hardness Measurement,
- Babacan is able testings.



Babacan Factory

Babacan Rubber produces its own electricity with the energy it receives from the Sun and supports Renewable Energy.



New Factory

New factory for Defense Industry in Ankara
Aerospace and Aviation Specialized Organized
Industrial Zone

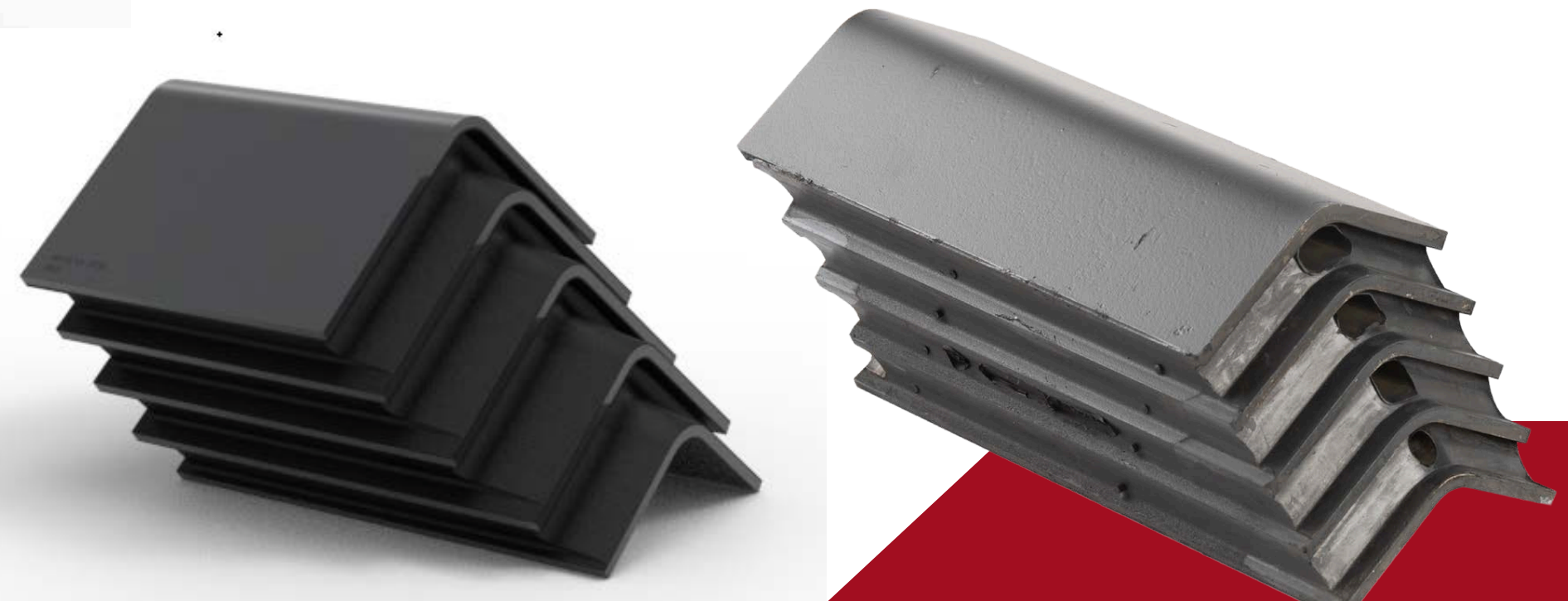


Suspension & Anti Vibration products for Bogies

Primary Suspension Chevron Springs



Chevron Springs also known Aks Springs multipurpose anti vibration springs are used in Metro, Freight Wagons, High Speed Passenger Coaches, LRV and Locomotives



Primary Suspension Chevron Spring

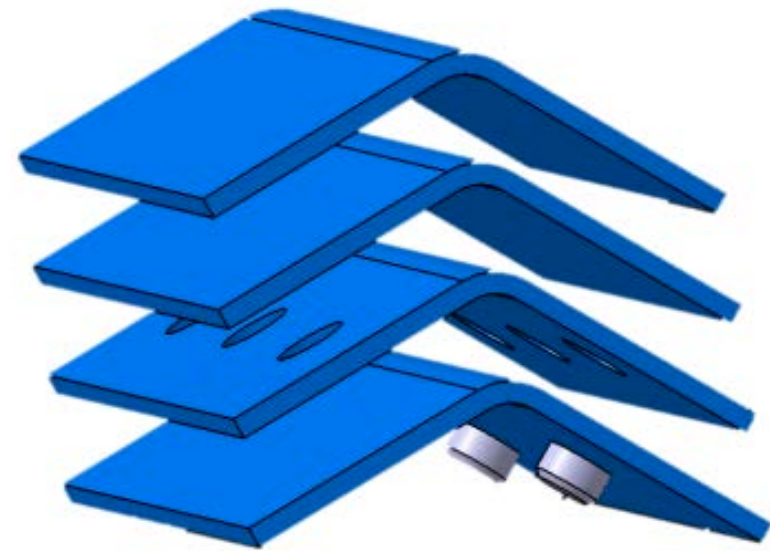


2009 First Chevron spring production in Turkey.

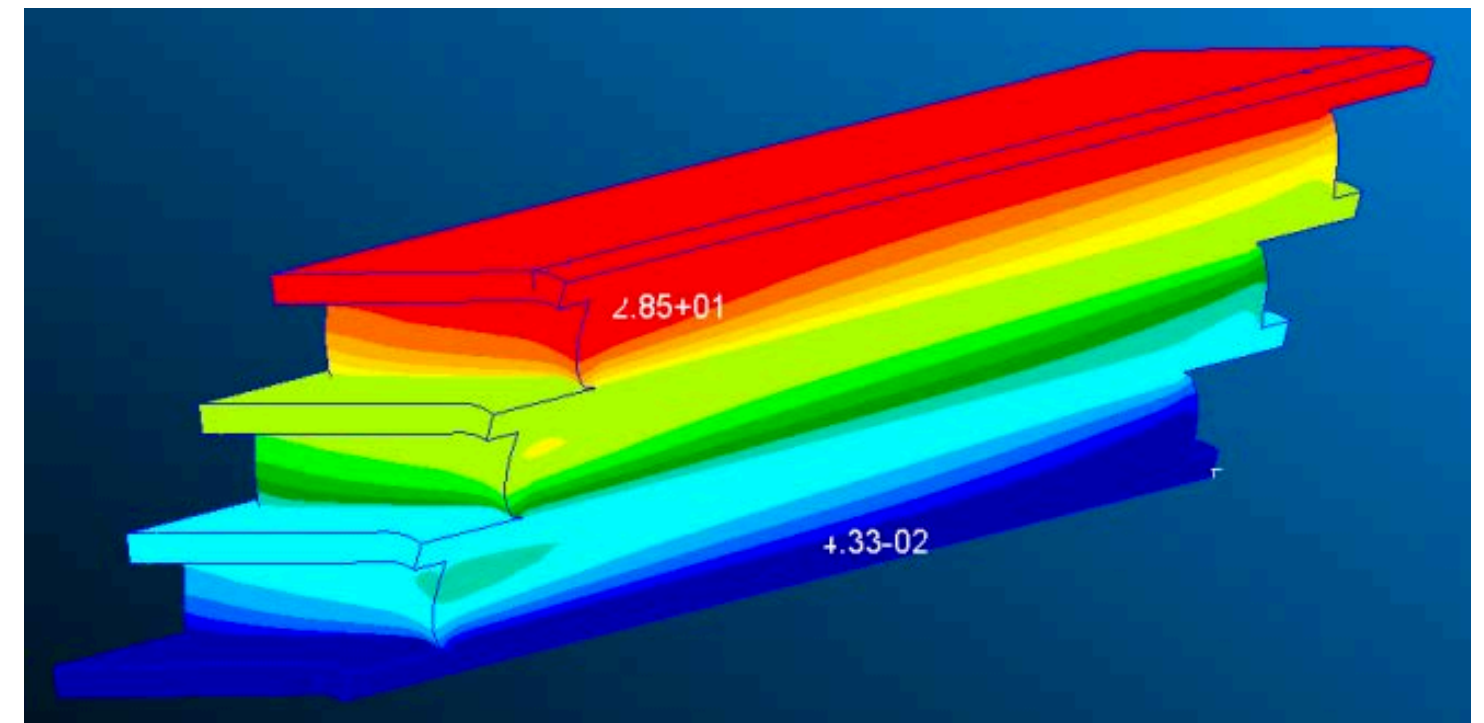
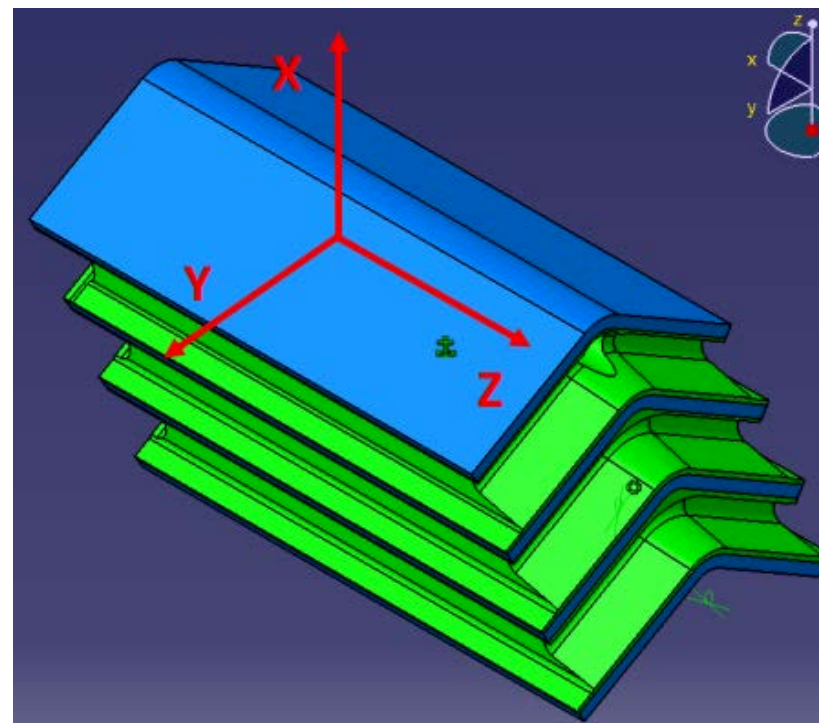
Ankara Metropolitan Municipality
1800 units were produced for Bombardier
Metro vehicles.



Primary Suspension Chevron Spring Modal Analyzes



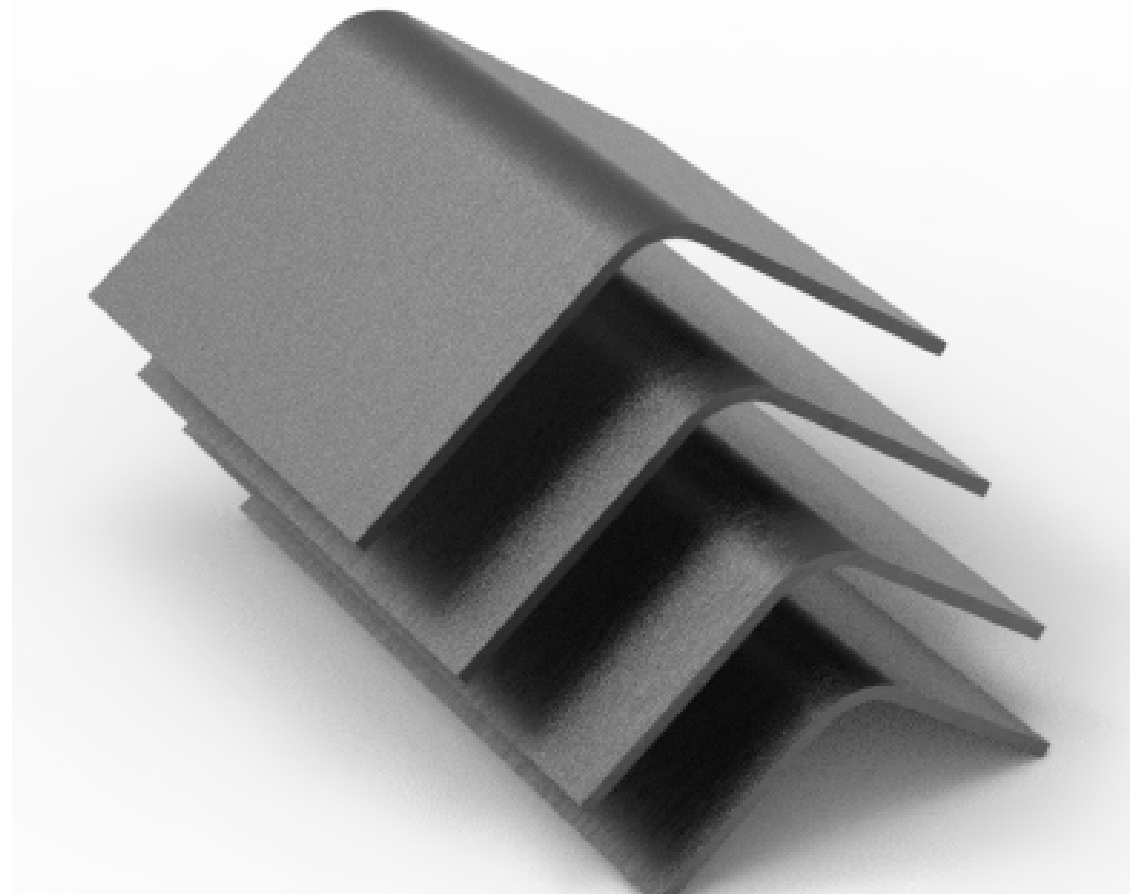
Thanks to computer-aided analysis programs, we can make (FEA) finite analyzes of products.



Chevron Spring Production



- It is prepared with special rubber formulas that have been tried and tested before.
- Prepared with specially supplied metals S355 J2+N
 - Mold design and manufacturing is done.
 - It is produced by transfer molding method under suitable process conditions.



Chevron Spring Production



- Vertical stiffness tests are performed according to the specifications with a test machine specially prepared for Chevron springs.
- It is shipped by special painting against corrosion and by writing the resistance values on the metals with a laser device.

Primary Suspension Chevron Spring



All rubber and metal tests were made and delivered to the user.

The products were used in subway vehicles for 10 years.



Primary Suspension Chevron Spring

BABACAN KAUÇUK		MALZEME RAPORU Material Data Sheet		Rapor No Report No	3622	
				Tarih Date	3.06.2022	
Malzeme Bilgisi Material Information						
NR 65 SH. A						
No.	Testler Tests	Standart No	Birim Unit	İstenen Değer Request Value	Ölçülen Results	
1	Sertlik Hardness	ASTM D 2240	Shore A	65	66	
2	Kopma Mukavemeti Tensile Strength	ISO 37	N/mm ²	20	24	
3	Kopma Anında Uzama Elongation at break	ISO 37	% min.	375	410	
4	ASTM NO 1 Yağda Yaşlandırma Resistance to ASTM NO 2 OY	Sertlik Değ. C. Hardness	ASTM D 471 70 h 100 °C	Shore A	±5	-5
5		Kopma Muk. Değ. C. Tensile Strength	ASTM D 471 70 h 100 °C	% max.	±20	+10
6		Kopma Uzaması Değ. C. in Ultimate Elong.	ASTM D 471 70 h 100 °C	% max.	±25	-3
7	Hacim Değ. C. in Volume	ASTM D 573-04	%	0,+15	+3	
4	Hızlandırılmış Yaşlandırma Aging in Air	Sertlik Değ. C. Hardness	ASTM D 573 TS ISO 188 72 h 70 °C	Shore A	±15	0
5		Kopma Muk. Değ. C. Tensile Strength	ASTM D 573 TS ISO 188 72 h 70 °C	% max.	±30%	-11,4%
6		Kopma Uzaması Değ. C. in Ultimate Elong.	ASTM D 573 TS ISO 188 72 h 70 °C	% max.	-50%	-25,9%
7	Kalıcı Deformasyon Compression Set	TS ISO 815-1 22 h 80 °C	% max.	50	37,0%	
8	Ozon Dayanımı Ozone resistance	ISO 1431:2012		with no cracks	no cracks	
9	Rubber-metal adhesion upon assembling between two metallic plates	SR ISO 814:2018	daN/cm ²	40	140	
Açıklama / Comment : As the specification value, the document values sent by the RELOCSA company were taken as reference.						
Kontrol Sonucu Inspection Result		Kontrol Eden-İmza Controlled By		Onay Approval		
uygun / OK. <input checked="" type="checkbox"/>		ELİF TEKSOY CHEMICAL ENGINEER QUALITY RESPONSIBLE		BABACAN KAUÇUK VE YEDEK PARÇA SAN. TİC. LTD. ŞTİ. Ostim Sanayi Sitesi 100. Yıl Bulvarı No: 44 Ostim - Ankara Tel: (0312) 354 23 77 - 385 49 10 (Pbx) Fax: (0312) 354 01 94 e-mail: br@babacankaucuk.com.tr		
uygun Değil / Not OK. <input type="checkbox"/>						
FR.06.010/01						

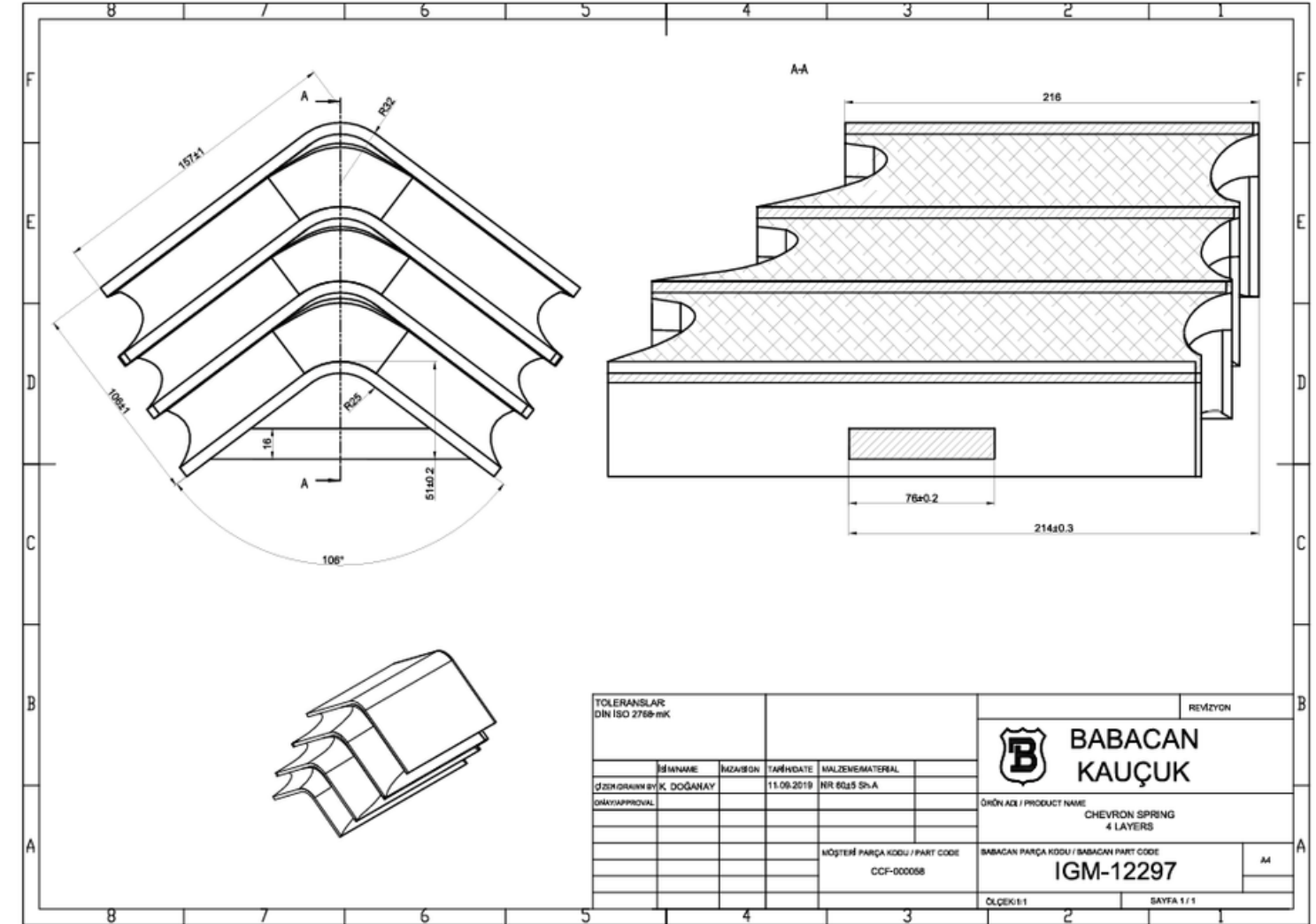


Ostim Sanayi Sitesi 100. Yıl Bulvarı No: 44 Ostim - Ankara
Tel: (0312) 354 23 77 - 385 49 10 (Pbx) Fax: (0312) 354 01 94
e-mail: br@babacankaucuk.com.tr

TEST SHEET
For chevron springs with 5 layers, drawing no. BL 102-32

Product and item name: Chevron springs with 5 layers
Manufacturing lot: 25654 din 03/22
Arrow 64±6 mm la F 44,6 kN
Difference in arrow: F(44,6 kN)-F(22,4 kN)=31⁺³_{-3,5}mm

Item no.	Chevron spring Lot/Series	Arrowhead (mm)	Difference in arrowheads (mm)
1	25654-1	61	29,5
2	25654-2	58	28,1
3	25654-3	63	30,5
4	25654-4	62	30,0
5	25654-5	58	28,1
6	25654-6	58	28,1
7	25654-7	68	32,9
8	25654-8	65	31,5
9	25654-9	64	31,0
10	25654-10	63	30,5
11	25654-11	61	29,5
12	25654-12	61	29,5
13	25654-13	63	30,5
14	25654-14	63	30,5
15	25654-15	65	31,5
16	25654-16	63	30,5
17	25654-17	60	29,1
18	25654-18	61	29,5
19	25654-19	59	28,6
20	25654-20	61	29,5
21	25654-21	61	29,5
22	25654-22	61	29,5
23	25654-23	62	30,0
24	25654-24	61	29,5
25	25654-25	58	28,1



Primary Suspension Chevron Spring References



ABB Bombardier
Metro - 2009
1800 Pieces



EtiKrom Freight Wagon
2011



Ankara Metropolitan Municipality -
Ansaldo Breda - LRV Ankaray 2012
72 products have been used for 12
years

Primary Suspension Chevron Spring References



Private Rail Systems
Company Ukraine
- 2013
920 Pieces



Private Rail Systems
Company
Poland - 2015



Adana Metropolitan Municipality -
2016
1144 Pieces

Primary Suspension Chevron Spring References



Private Rail Systems
Company Mexico 2018
864 Pieces



Gaziray - Alstom TSF LRV -
2021 - 2023
160 Pieces

Primary Suspension Chevron Spring References



Romanian Railways
Electrolocomotive Type
Co - Co 2020 - 2024
3707 Pieces



Romanian Railways
Electrolocomotive Type
Co - Co
2020 - 2024
3750 Pieces



Romanian Railways
Electrolocomotive Type
Co - Co
2020 - 2024
176 Pieces

Primary Suspension Chevron Spring References



The Ankara Metropolitan Municipality
BREDA Trams (ANKARAY)

800 Pieces

Delivery : 2023 - 2024



Suspension & Anti Vibration products for Bogies

Conical Springs



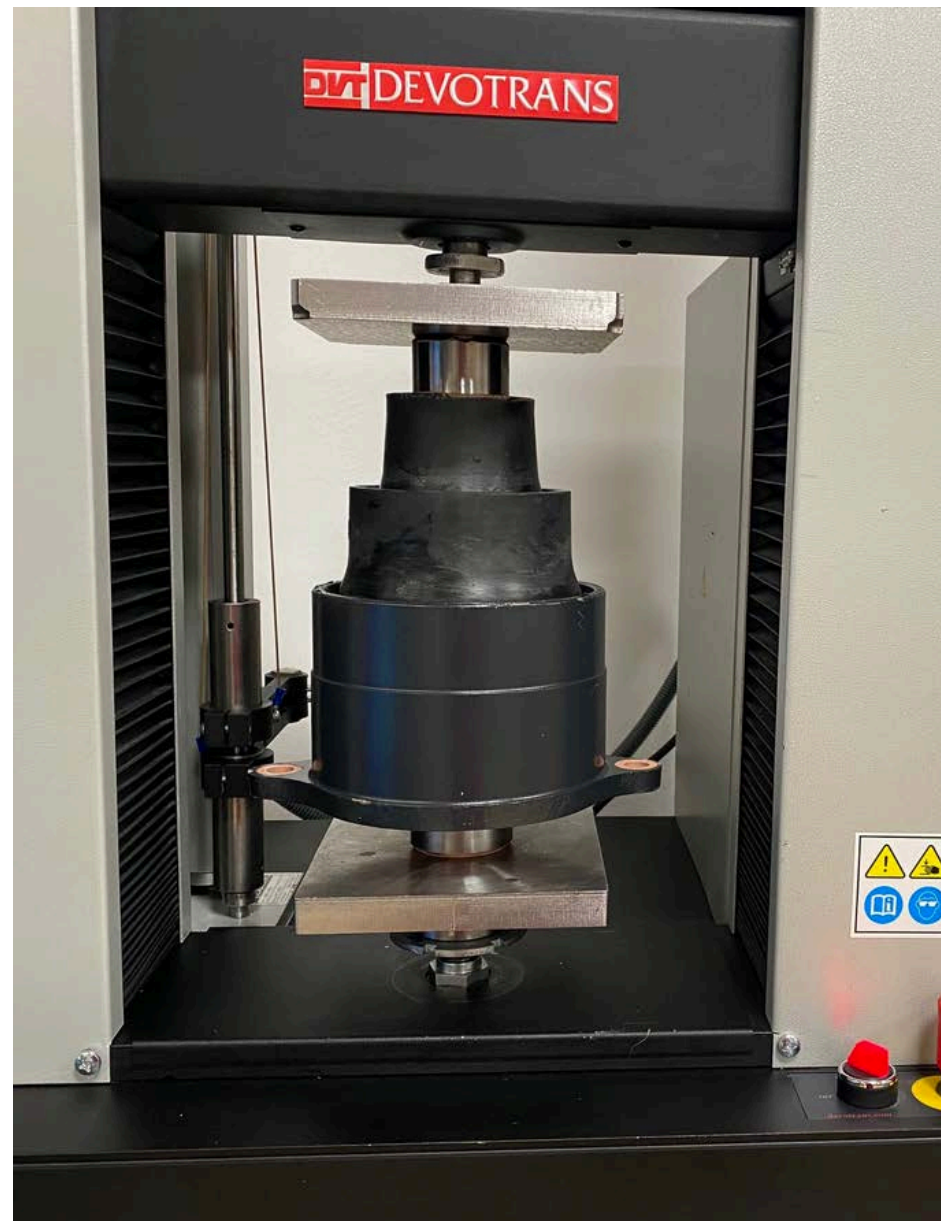
Metal - Rubber compound conical springs used in Metro, High Speed Passenger Coaches and LRV are being suspension and damping element.

Different designs of conical springs are available what provides very good resistance and suspension properties under heavy loads

Primary Suspension Conical Spring

Vertical, lateral stiffness, permanent deformation and rubber characterization tests of the products were carried out.

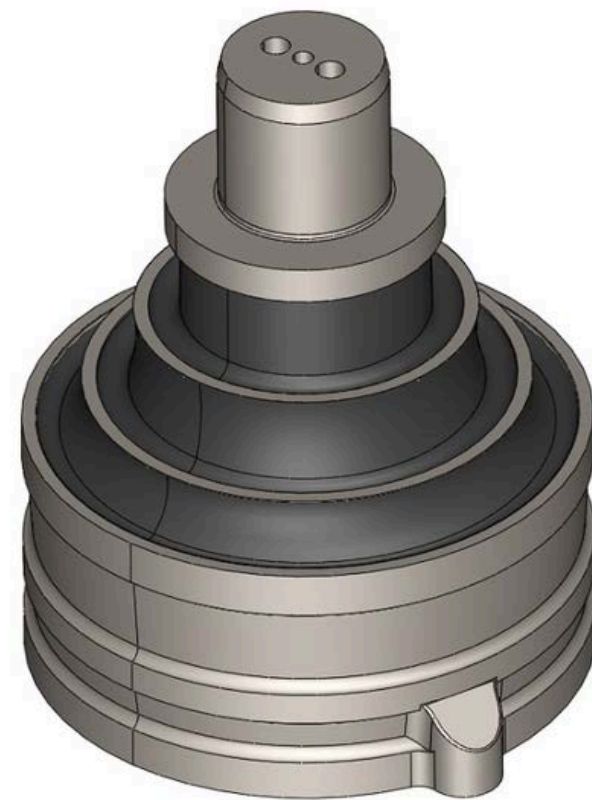
All test results provided specification values.



Primary Suspension Conical Spring References



Kayseri Metropolitan
Municipality Ansaldo
Breda Sirio Trams - 2021
960 Pieces



IRAN - MAPNA
Locomotives - 2024
110 Pieces



Primary Suspension Conical Spring References



Ongoing Projects:

Istanbul Metropolitan Municipality
Bombardier Trams - 500 Pieces



Suspension & Anti Vibration products for Bogies

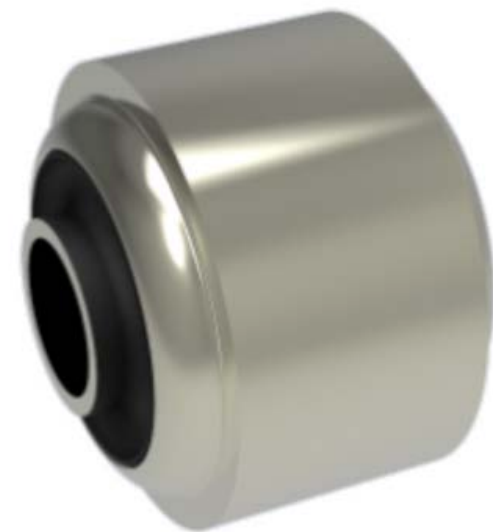
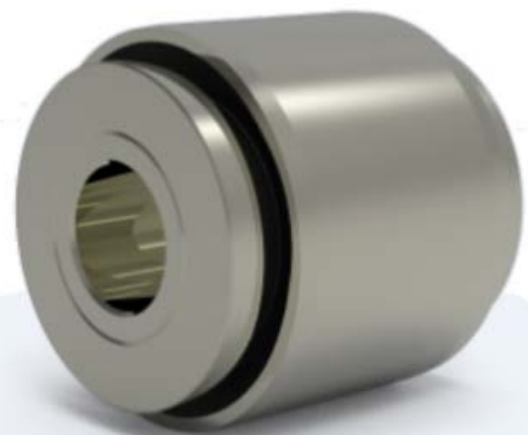
Layer Springs



Metal - Rubber compound layer springs uses are Metro, Freight Wagons, High Speed Passenger Coaches, LRV and Locomotives are being suspension and damping element. Layer springs provides very good resistance and suspension properties under heavy loads

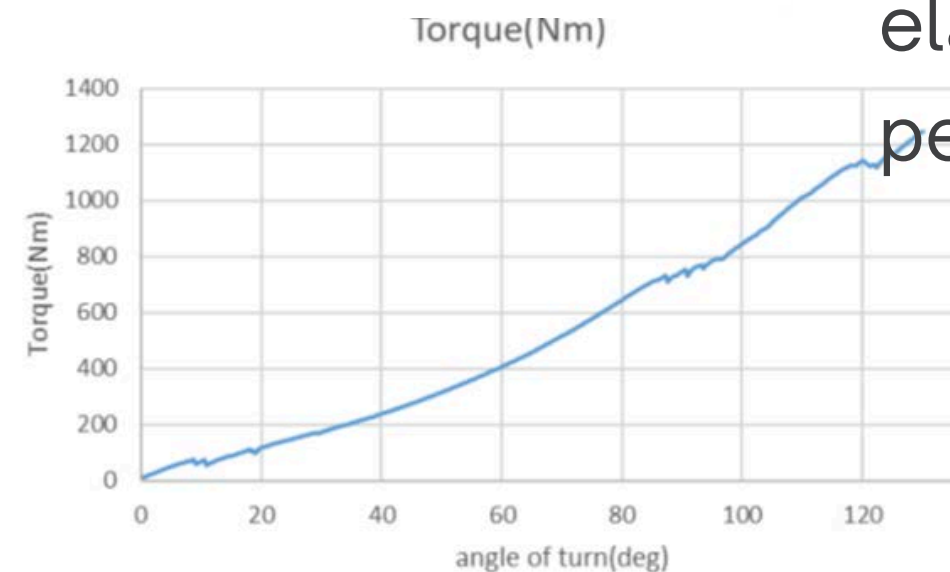
Suspension & Anti Vibration products for Bogies

Anti Roll Bar & Axle Guide Bushes



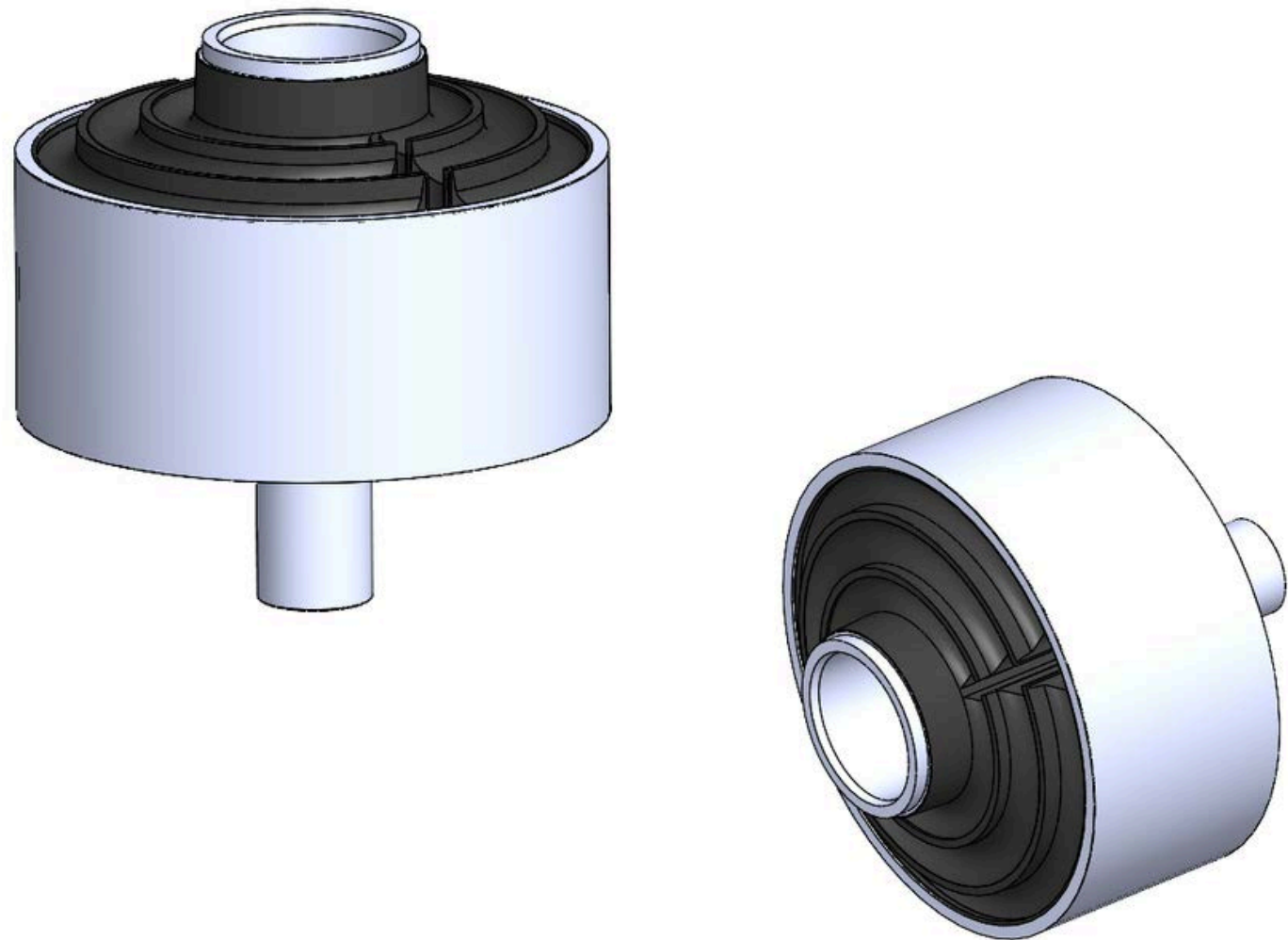
Bushes play a crucial role in bogie systems of Metro, Freight Wagons, High Speed Passenger Coaches, LRV and Locomotives.

These components are manufacturer with a durable elastomer - metal combination for long lasting performance.



Suspension & Anti Vibration products for Bogies

Guide Springs



Guide springs support the application of coil springs in primary & secondary suspensions. Guide springs uses in Metro, Freight Wagons, High Speed Passenger Coaches, LRV and Locomotives

These components are manufacturer with a durable elastomer - metal combination for long lasting performance.

Suspension & Anti Vibration products for Bogies

Buffer and Bump Stop



Buffer and bump stops uses in Metro, Freight Wagons, High Speed Passenger Coaches, LRV and Locomotives.

Products designed with special rubber formulas, taking into account the load and vibration in the place of use, are offered to the customer after load tests are performed.

Elastic Couplings



Elastic couplings ensure secure power transmission between railway vehicles engines, gearboxes and hydraulic systems by absorbing vibrations, mitigating impacts and preventing wear.

As Babacan Rubber, we have many elastic couplings in our product range.

Brake System Products



Brake system products; orings, seals, crankshaft seals uses in Metro, Freight Wagons, High Speed Passenger Coaches, LRV and Locomotives.

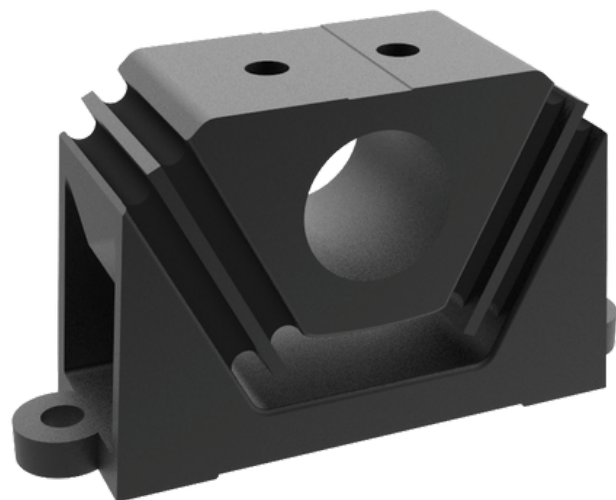
They are specially designed according to the pressure and temperature values in the place of use.

HVAC System Products

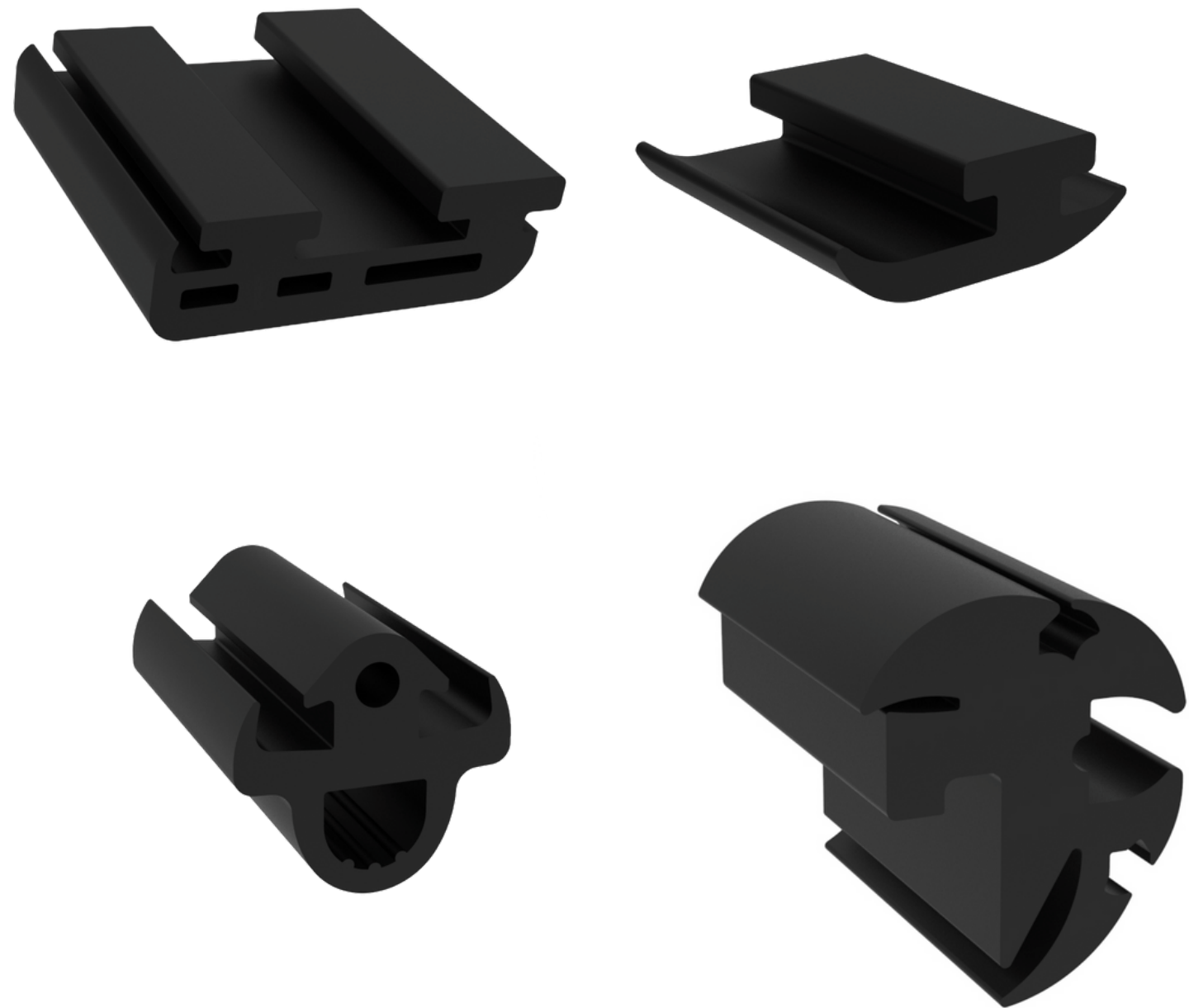


HVAC system products; Cone mount, shear mount flexible bellows are used in HVAC Systems in Metro, Freight Wagons, High Speed Passenger Wagons, Light Rail Systems and Locomotives.

They are specially designed according to the load values in the place of use.



Window, Door & Interior Products



Specially produced door and window profile rubbers according to EN 45545-2 Standard provide the highest level of durability and flame resistance.

We can produce products in all sizes in line with customer demands for railway system vehicles.



Other Products for Rail System Vehicles



Flame Resistant Product Production

TEST	DESCRIPTION	TEST RESULTS	EN 45545-2 : 2016 REQUIREMENTS
MARHE @ 25 kW/m2	Isı Yayılım Hızının Belirlenmesi (Determination of the heat release rate)	7,65	≤60
CITG @ 25 kW/m2	FTIR Gaz Analizi FTIR (Gas Analysis)	0,1	≤1,5
Ds max. @ 25 kW/m2	Gaz Analizi (Duman Zehirliliği) Gas Analysis (Smoke Toxicity)	62,52	≤300

BABACAN KAUCUK ADE3 RUBBER			
EN 45545-2:2016 / R9 / HL-HL2-HL3, TEST SONUÇLARI			
EN 45545-2:2016 / R9 / HL-HL2-HL-3, TEST RESULTS			
TEST	AÇIKLAMA DESCRIPTION	TEST SONUÇLARI TEST RESULTS	EN 45545-2 : 2016 GEREKLİLİKLERİ EN 45545-2 : 2016 REQUIREMENTS
MARHE @ 25 kW/m2	Isı Yayılım Hızının Belirlenmesi (Determination of the heat release rate)	38,52	≤60
CITG @ 25 kW/m2	FTIR Gaz Analizi FTIR (Gas Analysis)	0,14	≤1,5
Ds max. @ 25 kW/m2	Gaz Analizi (Duman Zehirliliği) Gas Analysis (Smoke Toxicity)	255,29	≤300

BABACAN KAUCUK ADE 2 CHLOROPRENER			
EN 45545-2:2016 / R9 / HL-HL2-HL3, TEST SONUÇLARI			
EN 45545-2:2016 / R9 / HL-HL2-HL-3, TEST RESULTS			
TEST	AÇIKLAMA DESCRIPTION	TEST SONUÇLARI TEST RESULTS	EN 45545-2 : 2016 GEREKLİLİKLERİ EN 45545-2 : 2016 REQUIREMENTS
MARHE @ 25 kW/m2	Isı Yayılım Hızının Belirlenmesi (Determination of the heat release rate)	31,04	≤60
CITG @ 25 kW/m2	FTIR Gaz Analizi FTIR (Gas Analysis)	0,24	≤1,5
Ds max. @ 25 kW/m2	Gaz Analizi (Duman Zehirliliği) Gas Analysis (Smoke Toxicity)	41,24	≤300

BABACAN KAUCUK Z114 ADE4 RUBBER				
EN 45545-2:2020 / R22-R23 / HL-HL2-HL3, TEST SONUÇLARI				
EN 45545-2:2020 / R22-R23 / HL-HL2-HL3, TEST RESULTS				
TEST	AÇIKLAMA DESCRIPTION	TEST SONUÇLARI TEST RESULTS	EN 45545-2 : 2020 GEREKLİLİKLERİ EN 45545-2 : 2020 REQUIREMENTS	
LOI (%)	Düşük Oksijen Sınırı Limiting Oxygen Index	33,29	≥32	≥32
Ds max.	Gaz Analizi (Duman Zehirliliği) Gas Analysis (Smoke Toxicity)	5,59	≤150	≤150
CITG @ 25 kW/m2	FTIR Gaz Analizi FTIR (Gas Analysis)	0,24	≤0,75	≤1,5
CITNLP @ 600 oC	FTIR Gaz Analizi FTIR (Gas Analysis)	0,08	≤0,75	≤1,5

BABACAN KAUCUK Z111 ADE5 RUBBER			
EN 45545-2:2020 / R1 / HL-HL2, TEST SONUÇLARI			
EN 45545-2:2020 / R1 / HL-HL2, TEST RESULTS			
TEST	AÇIKLAMA DESCRIPTION	TEST SONUÇLARI TEST RESULTS	EN 45545-2 : 2020 GEREKLİLİKLERİ EN 45545-2 : 2020 REQUIREMENTS
CFE @ 50 kW/m2	Alev Yayılması (Spread of Flame)	44,58	≤90
MARHE @ 50 kW/m2	Isı Yayılım Hızının Belirlenmesi (Determination of the heat release rate)	200,77	≤300
CITG @ 50 kW/m2	FTIR Gaz Analizi FTIR (Gas Analysis)	0,76	≤0,90



We are able to produce flame resistant products in R1/R9/R22/R23 norms certified according to EN 45545-2 Standard, which is mandatory for rail system vehicles.





Connect with us.

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Thank You!