



WISGROUP

GOING FROM

STRENGTH TO STRENGTH

**AIR BELOW
(AIR SPRING)**



The home of
Automotive Industry

www.wisgroup.com.tr



**CERTIFIED
AUTOMOTIVE
QUALITY
MANAGEMENT
SYSTEM**

The home of
Automotive Industry



WORLD CLASS MANUFACTURER GROUP

OUR COMPANY

Wisgroup is owned family manufacturers established in 1968 and was one of **THE FIRST** manufacturers of **Steering & Suspension products, brake equipments of trucks, fifth wheel, locking parts of trailers, all kind of forging parts for train** in Turkey. Today our company continues to go from **STRENGTH TO STRENGTH** with continuous significant investments being made In order to further enhance our leading position within the automotive manufacturing Industry. Everything we manufacture is done **ALL UNDER 1 ROOF** at our **FULLY CERTIFIED** 365.000 m² State Of The Art facility In Konya / Turkey.

OUR CAPABILITIES

Today, producing in excess of **50+ MILLION** finished parts annually and this output continues to increase due to all of our ongoing investments and all of our Monthly New To Range releases. In parallel with these important activities and due to all of our in house capabilities, **INDUSTRY KNOW HOW & EXPERTISE** we are also adding many more New Product Lines to our ever expanding product portfolio providing our customers with a **ONE STOP SHOP**.

OUR INDUSTRY LEADING RANGE

Wisgroup manufacturers is renowned across the Globe for its Industry Leading Range of **ALL MAKES** products for Commercial Vehicle Applications & Train. Our ongoing commitment to **PRODUCT DEVELOPMENT** ensures we are able to meet all of our customers very diverse vehicle parc needs but more importantly offer them a **COMPLETE SOLUTION** when It comes to these safety critical parts. Our **SPEED TO MARKET & FIRST TO MARKET** developments are Second to none and clearly demonstrates our core focus on **BUILDING FOR THE FUTURE**.




The home of
Automotive Industry

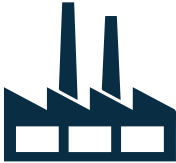
PRODUCT OFFERING

Our ever expanding product portfolio comprises of **Steering & Suspension, CE approved Air Tanks, Brake Equipments, Fifth Wheel Repair Kits, King Pin Sets, Brake Dust Covers, Engine Parts** as well as our very latest product releases which includes **AIR SPRINGS**.

The combination of a wealth of Experience, professionalism & Know How at every stage from the design, manufacture and testing our Air Springs are guaranteed to ensure that our products meet and exceed all of the aftermarket demands for this safety critical product.



47 years
know-how



365.000 m²
production campus
with 12 factories



5.500+
employees



R&D and Test Center
powered with more
than 150+ engineers



More than 40.000+
unique products



Export to
more than 65+
countries

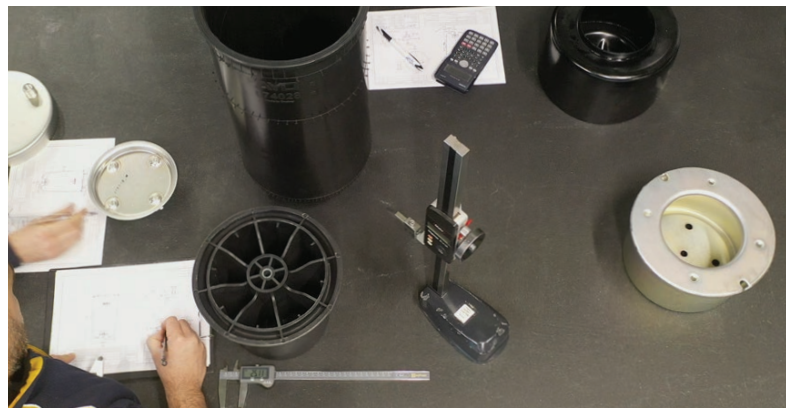
R&D



IN HOUSE R&D CENTER

When it comes to Air Springs no stone is left unturned and all of our Advanced Technologies allow us meet and exceed all the required fit, form and functionality requirements providing drivers with the smooth ride and ensuring their cargo is safe at all times whether driving night or day or on smooth or rough road surfaces. As we all know fitting sub standard Air Springs can result in premature tire wear and in some cases catastrophic failure resulting In serious safety concerns and issues.

- * 150 Dedicated & Experienced Engineers
- * 3D Scanning & Imaging Equipment used to obtain Stereo Graphic Data
- * 100% Application Engineering of all Components & Finished Products
- * Prototyping & Real Time Simulation Equipment
- * Variety of testing (endurance life cycle testing, expanding testing, burst testing)
- * Robust processes & procedures





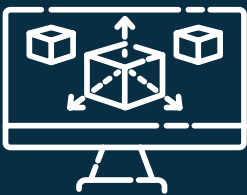
**150 Dedicated
Engineer**



**State of the art
Testing & Engineering
Technologies**



**Real Time
Simulation
Equipment**



**Designing New Test
Equipments**

RUBBER LAYERS STUDIES

- * Humidity resistance
- * Ozone resistance
- * Chemical Resistance
- * Dynamic Crack Resistance
- * Shore Testing
- * Mechanical Protective Function
- * Restricted Material Detection
- * Pressure Maintenance

FABRIC LAYER

- * Resilience of structure
- * Dimensional inspection
- * Layer bonding control
- * Perfect match on angles between the layers

ASSEMBLING COMPONENTS

- * OE standard thickness & dimensional test
- * Coating thickness inspection
- * Go & No Go gage control
- * High humidity resistance testing
- * Welding penetration inspection
- * Corrosion resistance
- * Salt spray testing
- * Impact strength

NO COMPROMISE ON QUALITY

At Wisgroup we **NEVER COMPROMISE** on quality or safety and we always follow all the Industry standards and legislations that are applicable today and we always take the Health, safety and wellbeing of all our employees very seriously at all times. All of our employees are 100% totally committed in supporting and achieving all of these well known international Quality Standards (IATF: 16949, ISO: 14001, ISO: 9001, ISO: 27001, CE & SAEJ10) and they all play a vital part in the execution and continuous improvements when it comes to our **TOTAL QUALITY MANAGEMENT (TQM) system at Wisgroup**. Our products are always manufactured following robust processes and procedures ensuring we meet and exceed our **TOTAL QUALITY PROGRAMME**.

Our ongoing commitment and continued investments in education, training programs for all our employees plays an integral role at Wisgroup and are important key core activities that ensure we only ever achieve the very **HIGHEST STANDARDS** when it comes to quality which in turn creates **PEACE OF MIND** for all our valued customers when fitting these Safety Critical Products. This knowledge Expertise & Know How experience is very evident especially when it comes to the designing, testing and manufacturing of Air Springs and is a prime example where all the required international certification requirements are always met.

CERTIFICATES



ISO 9001:2015



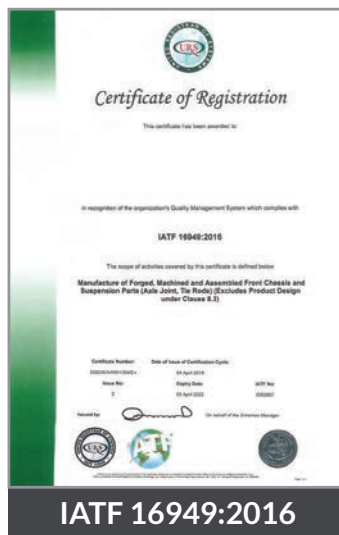
TS EN ISO 3834-2



ISO: 27001:2013



TS EN ISO 14001:2015



IATF 16949:2016

TOOLING SHOP



INHOUSE TOOLING

Our **IN HOUSE** tooling capabilities enable us to produce our own moulds for every different part within our complete product offering. All of the tooling is 100% owned by Wisgroup and our tooling department is fully equipped with the very latest in software and technological equipment which in turn allows us to produce tools & moulds efficiently and error-free which again demonstrates **THE Wisgroup DIFFERENCE**.

This gives us an unrivalled Speed of Development time across all product categories, which is something we are very proud of and one of our key differentiators which in turn means **OE QUALITY** with **AFTERMARKET FLEXIBILITY**. Today we are developing in excess of 400+ new tools a month and many of these are for vehicle applications that are still covered under the manufacturer's warranty which simply means there are many parts where we are **FIRST TO MARKET**.

Our unrivalled Speed of Development times across all product categories is something we are very proud of and one of our key differentiators which gives you **OE QUALITY** with **AFTERMARKET FLEXIBILITY**. Today we are developing in excess of 400+ new tools a month and many of these are for vehicle applications that are still covered under the manufacturer's warranty which simply means there are many parts where we are **FIRST TO MARKET** and meeting our customers Vehicle Parc Coverage needs for the future.



METAL FORMING



Wisgroup AIR SPRINGS are **ALWAYS** manufactured to the **HIGHEST STANDARDS**. Extreme care is taken during every step of the production process and especially when it comes to product geometric appearance and function, pressure resistance, product aesthetics and all the critical welding operations. All of these important activities are carried out using our fully automated **STATE OF THE ART** manufacturing equipment.



WELDING



IN HOUSE WELDING

As we all know Air Spring joints are a critical part of the product and welded joints **MUST ALWAYS** be closely monitored and 100% checked during the manufacturing process. As well-known sub-standard welding can result in catastrophic failures. It has multiple automated Robotic welding lines and regular welding checks and tests are conducted throughout the production process of all our air Springs.

- * Fully automatic robot line for sleeve welding,
- * Special automated welding lines for cylinder butt welding,

Our Air Spring metal components welding quality is kept under constant control and regular destructive and non-destructive examinations and tests are carried out by selecting random samples on a regular basis during the production process.

PRODUCTION



CORD FABRIC CUTTING

The Cord Fabric Cutting operation is conducted using Fully Automated Technological Machines which have a zero-defect policy.



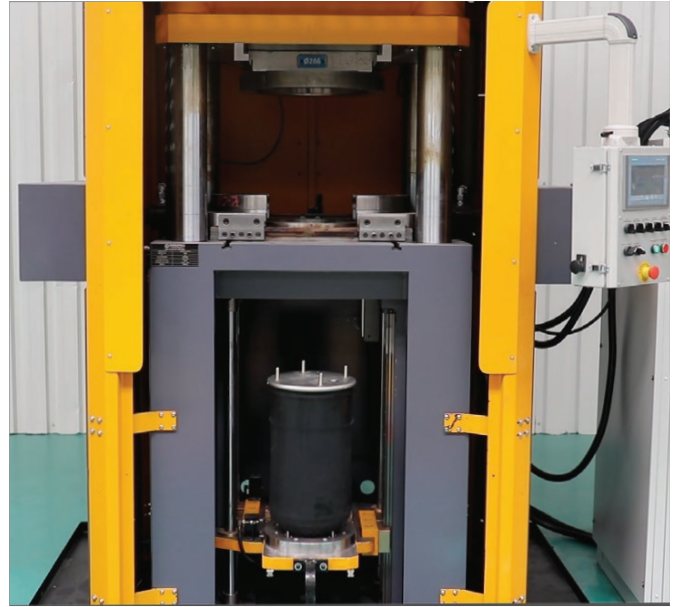
WINDING MACHINE

Our fully automated technological winding machines have a zero-defect. This is where we combine both the inner and outer rubbers with the cord fabric and these are assembled in preparation for the Vulcanization operation.



VULCANIZATION PROCESS

This important operation is conducted using the very latest in technology Steam Presses, taking the semi-finished product and used for bonding the rubber together and also forming the final structure of the Air Spring



ASSEMBLY

Every Air Spring components we use such as pistons and plates are all manufactured and finished within our facility. All of these components go through all the Important product analysis, measurement and testing analysis before being assembled during the final manufacturing process & all of the pre coating and plating of these parts is all conducted using all of our In house plating equipment.

TESTING

Our Air Springs are subjected to very stringent tests from when we receive raw materials through to shipment of product to our customers ensuring only the **HIGHEST QUALITY PRODUCT STANDARDS** are met. Typical test carried out include **Rubber Quality, Dynamic Test, Cord Rope, Verifying Sheet Metal Quality, Sealing, Expansion & Burst, Life Cycle and Field Tests / Real Time.**



Wisgroup performs lifecycle tests at 7 Bar and 3.3Hz.
Although the OEM standard is 1 million cycles, our products meet 3 million cycle.

Suspension Air Bellows (Air Spring), Metal Measurement and Control Equipment



We determine the time and heat required for the vulcanization and also the properties of the rubber by conducting a Rheometer test.



Finished products are tested for impermeability with water in certain quantities.



Although the working pressure of the vehicles is 7 bar, our products meet the pressure standard of 21 bar min, which is 3 times higher.



TESTING



REAL LIFE TEST

Wisgroup subjects its products to the real life test under the vehicle with harsh road conditions.



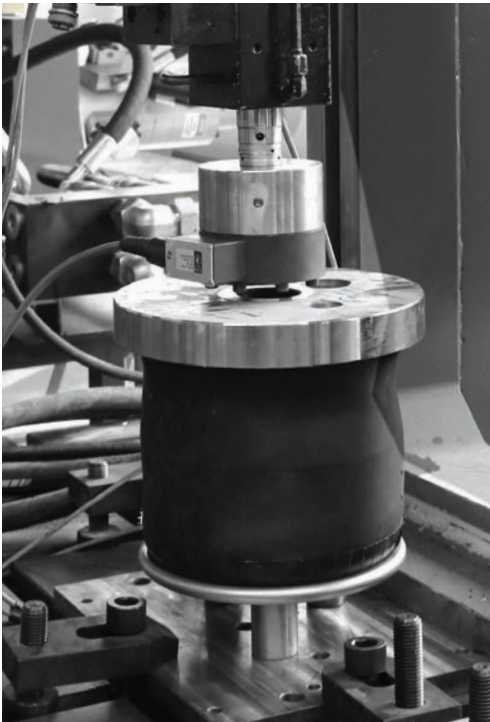
TENSILE TEST

We determine the elongation and tensile values of the rubber



YARN TEST

The yarn twist, strength, elasticity, elongation and tensile values are determined with the Yarn test.

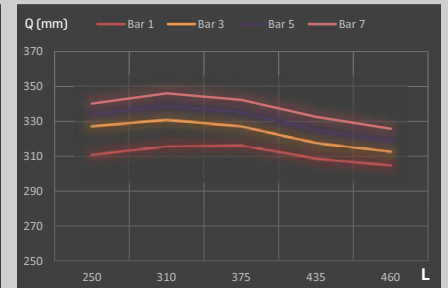
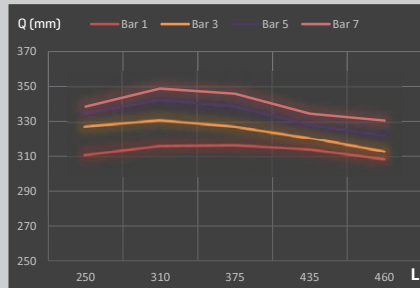


DYNAMIC TEST

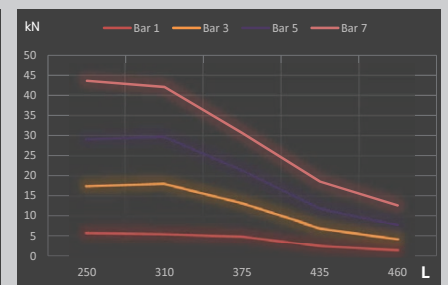
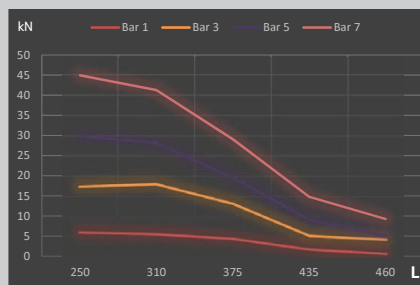
WISGROUP

OEM

DIAMETER CHANGE



FORCE LOADING CAPACITY





WISGROUP

WHY WE SHOULD BE YOUR PARTNER OF CHOICE

Air Springs

ROBUST TESTING PROCEDURES

Tested EVERY STEP of the way. From receipt of Raw Material to finished product. Material, Dynamic, Static, Thermal Characterization & Mechanical Testing & detailed Analysis of all components and finished parts. Rain, Acid, Salt Spray & Corrosion Test Equipment & Environmental Chamber

1

AIR SPRING CAPABILITIES

Capability of designing Air Springs to any required specification & dimensional requirements

2

QUALITY IS IN OUR DNA

Our Pedigree & Expertise & Know How ensure our Air Springs ALWAYS meet the highest Quality Standards

3

STATE OF THE ART MACHINE PARC.

High-Tech Advanced Production Equipment supported by a Highly Skilled & Experienced workforce.

4

OE QUALITY AFTERMARKET FLEXIBILITY

Our Capabilities & Flexibility create Peace Of Mind for all our partners in all the sectors we serve

5

EXPERTISE OF RUBBER

Extensive Laboratory Know How & Expertise when It comes to using The Highest Quality Rubber Compounds & Formulas

6

TESTED TO THE EXTREME

Wisgroup Air Springs subjected to extensive Real Time Dynamic (P R C Air Spring Standard GB/T 13061-2017) & Simulated Lifecycle testing.

7

LONGER LASTING COATING DURABILITY

Longer lasting coating providing you with the highest corrosion resistance on all products

8

