






# Our history

Founded in 1950, **Growermetal** is one of the world's leading **manufacturers of security washers, blanked parts and railway spring washers.**

Since its establishment, our company has maintained its independence and has been run by the **Cattaneo family**, now managed by the second generation.



Located in Calco, 40 km from Milan, Growermetal supplies its services to **Italy, Europe** and the main international markets, including **North America, South America, Middle East, China** and many other countries worldwide.

  
**~180**  
Employees

  
**~23.500** sqm  
Premises area








# Application fields

In addition to the production of standard safety washers, Growermetal has developed a great experience in the **manufacturing of customized parts** according to customer's drawing.

Our know-how allows us to meet the requirements of a **wide range of sectors**, including applications demanding maximum performance under the most extreme conditions.



 Automotive	 Railway
 Electromechanic and electronic	 Aerospace
 Power generation	 Constructions & Infrastructures
 Oil & Gas	 Industrial machinery
 Agricultural and Earth moving machines	 Transportation



# Mission

In order to provide a reliable and efficient partnership to our customers, employees and suppliers, Growermetal counts on a **completely in-house manufacturing process**, ranging from tooling and mold design to finishing treatments.



01.

## COMMITMENT

we work in accordance with regulations, respecting the environment and our code of ethics.

02.

## RESPONSIBILITY

we pursue the best results and investments, being responsible to our partners and stakeholders.

03.

## SUSTAINABILITY

we promote sustainable development, reducing waste production and energy consumption.

04.

## INNOVATION

we create innovative products and manufacturing, organization and management systems.

05.

## COMMUNICATION

we provide accurate, clear and objective information, establishing long-lasting relationships.

06.

## PROACTIVITY

we anticipate problems and create better processes and products through flexible approaches and a full spectrum of services.

# Vision

The continuous flow between the departments, high-quality raw materials and the investments in R&D allow us to reach some important goals:

- Supply **excellent products and services** guaranteeing fast delivery times, supporting customers and designing the best solutions for their needs.
- Enhance the quality of our work, boosting growth and integrating **cutting-edge technologies** in the production process.
- Promote **sustainable business development**, through the use of renewable energies and solutions aimed at reducing our footprint.
- Create strong **bonds with our suppliers**, in order to provide competitive sales services while maintaining a high quality.

# Research and Development

Sharing experience to expand our potential.

The partnership between Politecnico di Milano, Growermetal S.p.A. and other companies of the territory led to the rise of the Joint Research Center MATT – Metal and Transformation Technologies. A shared research center that offers a strategic and cultural approach to innovation, according to the principles of Open Innovation.



Thanks to Growermetal in-house R&D laboratory, we design and develop ever more efficient products, expanding and renewing our range of safety washers and special parts.

Innovation, technology and experience are the keys to change and allow us to create cutting-edge technical washer solutions in line with the market requests.

# Sustainability

## OUR KEY POINTS

### 1 Increased self-generated energy

Since 2010 we have been investing in renewable and clean energy sources through our photovoltaic plant.

**94 kWp**  
of power

**101,400 kWh**  
produced per year

**70.5 ton**  
of CO<sub>2</sub> saved per year

### 2 Improved energy efficiency

We maximize the solar energy collected by the panels through power optimizers.

### 4 Resource recovery approaches

After the distillation process, every liter of water and quenching oil are reused in a closed loop.

### 3 Low-impact models

Reducing and monitoring emissions and chemical consumption is our priority.

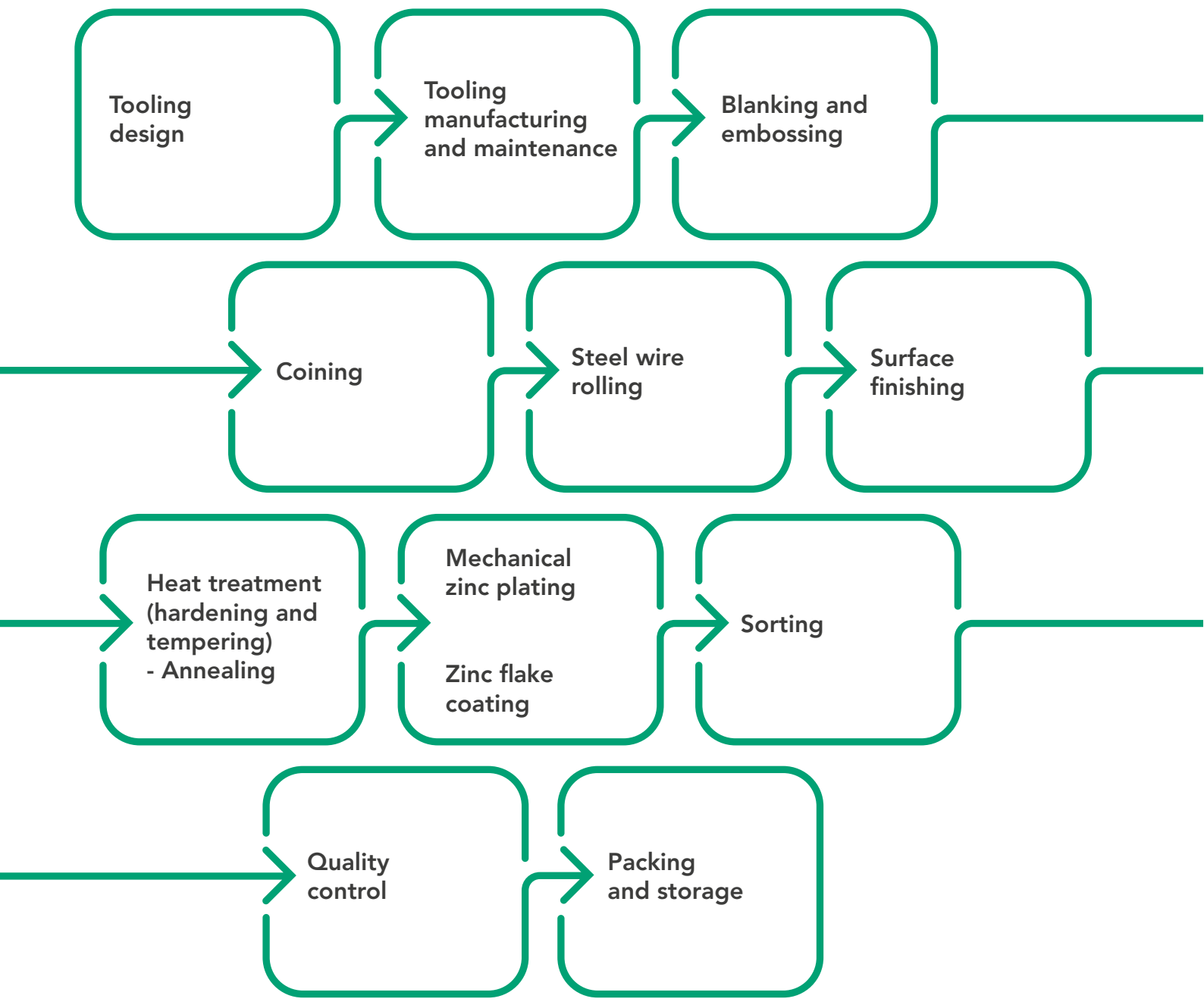
### 5 A shared commitment

We involve the staff members by making them active participants in improving the company from a sustainable perspective.



# Our Process

Growermetal's manufacturing process is completely developed by in-house departments, through functional services and processes.

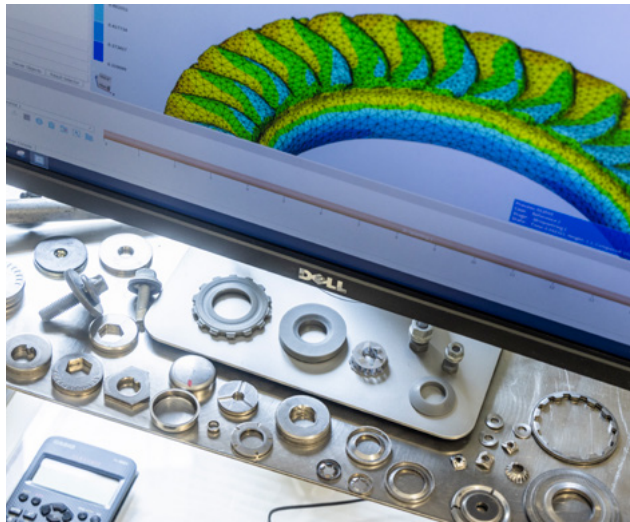


# Know-how

Your **quality** needs are at the center of our **research**.

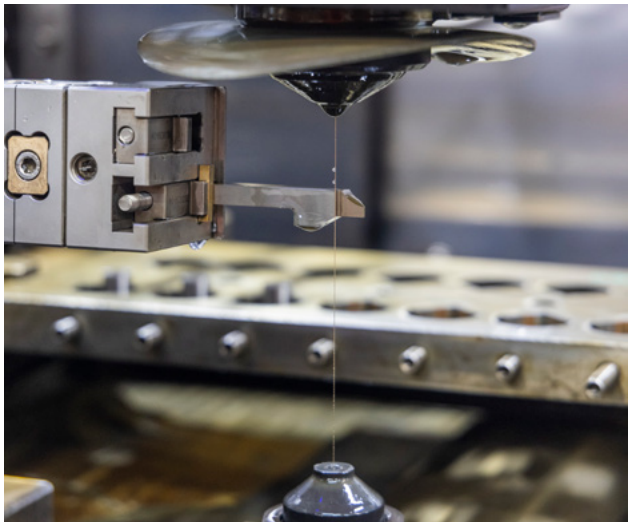
The attention to small details leads us to develop big projects. Every single step we make starts from a specific request: that of our customers. This is the real driving force behind our ambition to improve our products and build relationships based on trust.

The internal management allows a competitive service, thanks to the optimization of the timing, the constant investment in human resources and the continuous technological innovation.



## TOOLING DESIGN

Growermetal offers maximum flexibility in terms of tooling and mold design thanks to CAD - CAM - CAE technologies. These tools allow us to shape the most suitable design to our customers' requests.



## TOOLING MANUFACTURING AND MAINTENANCE

In order to achieve the highest precision of the toolings and production equipments, we rely on different technologies, including CNC drilling-milling machines, EDMs, CNC grinding machines and CNC lathes.





BLANKING



COINING



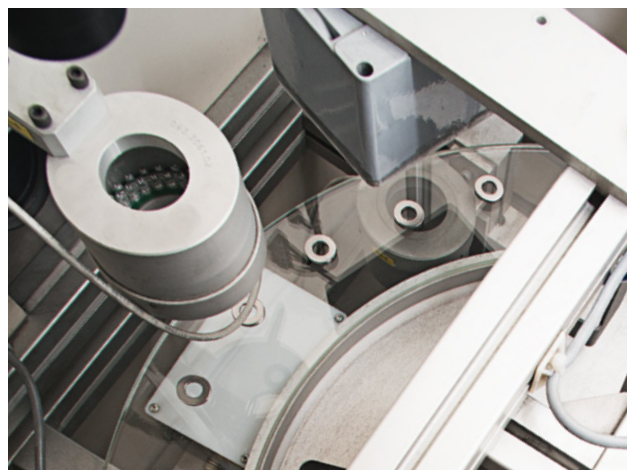
STEEL WIRE ROLLING



SURFACE FINISHING AND CLEANING



HEAT TREATMENT



SORTING



## MECHANICAL ZINC PLATING

Mechanical zinc plating is an **anticorrosive and high resistant coating**, free from embrittlement risks due to the presence of hydrogen and obtained through a low energy consumption process.

Developed inside a modern plant, for this process Growermetal uses exclusively **original Mac Dermid® chemicals**, which have been studied on purpose to get a high-quality and high-performing coating.

Furthermore, Growermetal has been approved for the mechanical zinc plating process according to the **automotive standard FCA PS.50042** as the sole plater on the markets in Europe, Middle East and Africa (EMEA).

## ZINC FLAKE COATING

The wide range of zinc flake coatings provides **outstanding quality and aesthetic** on Growermetal's entire production. In addition to a protection against corrosion, during the coating process no hydrogen is produced and thus there is no risk of any embrittlement of the parts.

These results are made possible by the use of exclusively **original Dörken chemicals**, which guarantee the best performing coatings with different solutions of base and top coats.







17

Storage levels



1.000

Missions per day



11.000

Storage locations



4.000

Items handled

## FULLY AUTOMATIC WAREHOUSE

The storage automatization optimizes all stacker cranes missions, allowing us to satisfy customer's needs quickly and without errors.

We have a modern warehouse with a self-supporting structure, with **more than 11000 storage locations**. In addition, the handling of the automated packing lines is assured by laser controlled LGV-shuttles and by 4 stacker cranes with **140 combined cycles per hour**.





















The whole warehouse is supported by an innovative computerized system with a **Management Software** (WMS – Warehouse Management System) which has been exclusively developed and tailored to meet Growermetal's requirements. This system optimizes all stacker cranes missions, monitors the stock levels, elaborates picking lists, etc.























Our Products

Over 4.500 standard washers according to DIN, ASME, NFE and other international standards.

More than 2.500 special items manufactured according to customer's specifications or drawings.

	STEEL	CARBON STEEL	STAINLESS STEEL AISI 304 (A2)	STAINLESS STEEL AISI 316 (A4)	BRONZE
	TEETHED AND TOOTHED WASHERS				
	DIN 6798 A	•	•	•	•
	DIN 6798 J	•	•	•	•
	DIN 6798 V	•			
	DIN 6797 A	•	•		•
	DIN 6797 J	•	•		•
	DIN 6797 V	•			
	ASME B 18.21.1	•			
	INTERNAL WITH NARROW BAND	•			
	DOUBLE TOOTHED WASHER	•			
	DIN 6907 *	•	•		
	DIN 6906 *	•	•		
	FOR SELF-TAPPING SCREWS *	•			
	CONICAL ELASTIC WASHERS				
	DIN 6796	•	•		
	NF E 25-510	•			
	DIN 6908 *	•			
	FIAT / FCA 10187 *	•			
	RENAULT 07-58-240 *	•			
	RIBBED CONICAL ELASTIC WASHERS				
	CONTACT WASHERS				
	NF E 25-5111 M Medium	•	•	•	
	NF E 25-5111 L Large	•	•	•	
	NF E 25-5111 N Narrow	•	•	•	
	SN 70093 Toothed	•	•	•	
	SPERRKANT WASHERS				
	TYPE M Medium	•		•	
	TYPE L Large	•		•	
	TYPE S Narrow	•		•	
	TYPE Z Cylindrical	•		•	
	TYPE K Toothed	•		•	
	COILED SPRING WASHERS				
	DIN 127 B	•	•	•	•
	FIAT 10188	•			



	STEEL	CARBON STEEL	STAINLESS STEEL AISI 304 (A2)	STAINLESS STEEL AISI 316 (A4)	BRONZE
	DIN 7980	•	•	•	
	NF E 25-515	•			
	ASME B 18.21.1		•	•	•
	DIN 127 B *	•	•	•	
	DIN 6905 *	•			
	COILED SPRING WASHERS FOR RAILWAY TRACKS				
	UIC 864-3V	•		•	
	UNI 6217	•			
	1967 A.R.E.A.	•			
	PLAIN PATTERN SQUARE EDGE	•			
	CONVEXED AND CORRUGATED ELASTIC WASHERS				
	DIN 137 A	•	•		
	DIN 137 B	•	•		
	DIN 6904 *	•	•		
	FLAT WASHERS				
	DIN 6902 *	•			
	DIN 6903 *	•			
	ISO 10673 *	•			
	ELECTRIC TERMINAL WASHERS				
	DIN 46288	•			
	SPHERICAL WASHERS				
	DIN 6319 C	•			
	DIN 6319 D	•			
	DIN 6319 G	•			
	SEALING PUSH-IN CAPS				
	DIN 443 A Conical	•			
	DIN 443 B Cylindrical	•			
	SAFETY WASHERS				
	GROWER TENKEEP® M Medium	•			
	GROWER TENKEEP® L Large	•			
	GROWER TENKEEP® C Cylindrical	•			
	WEDGE-LOCK WASHERS				
	GROWER TWIN-LOCK®	•		•	
	GROWER TWIN-LOCK® Large	•		•	

\* CAPTIVE WASHER FOR PRE-ASSEMBLY ON SCREW



TEETHED AND TOOTHED WASHERS



**DIN 6798 A**  
**DIN 6798 J**  
**DIN 6798 V**  
**DIN 6907\***  
**For self-tapping screws\***

Washers with overlapped teeth for fasteners with limited tightening torque. Those washers are normally designed for use with bolt assemblies of a property class less than 8.8.



**Double toothed washers**

Toothed washers, suitable when the diameter of the bore is larger than the diameter of the screw or when the bore is lengthened.



**DIN 6797 A**  
**DIN 6797 J**  
**DIN 6797 V**  
**ASME B 18.21.1**  
**Internal with narrow band**  
**DIN 6906 \***

Washers with teeth for fasteners with limited tightening torque. Those washers are normally designed for use with bolt assemblies of a property class less than 6.8.

CONICAL ELASTIC WASHERS



**DIN 6796**  
**NF E 25-510**  
**DIN 6908\***  
**FIAT 10187\***  
**RENAULT 07-58-240\***

Conical elastic washers range has been designed to prevent loosening of assemblies by 2 actions: the elastic compensation of expansion and contraction and the elimination of play. They are ideal for applications requiring low vibration resistance and parts supporting temperature variations. Conical elastic washers are normally used with bolt of property class 6.8, 8.8 and 10.9.

RIBBED CONICAL ELASTIC WASHERS

Contact washers

Sperrkant washers



**NF E 25-5111 M** Medium  
**NF E 25-5111 L** Large  
**NF E 25-5111 N** Narrow  
**SN 70093** Toothed

Conical elastic Contact washer range has been designed to create an elastic pre-load in a bolted-joint connection so as to reduce risk of unwanted loosening. Contact washers range is ideal in applications requiring vibration resistance, parts subject to temperature variations and oversized or oval holes. Those washers are normally used with bolt of property class 6.8 and 8.8.



**TYPE M** Medium  
**TYPE L** Large  
**TYPE S** Narrow  
**TYPE Z** Cylindrical  
**TYPE K** Toothed

Conical elastic Sperrkant washers range has been designed to create an elastic pre-load in a bolted-joint connection so as to reduce risk of unwanted loosening. Sperrkant washers range is ideal in applications requiring vibration resistance and parts subject to temperature variations. Those washers are normally used with bolt of property class 6.8 and 8.8.

COILED SPRING WASHERS



**DIN 127 B**  
**FIAT 10188**



**NF E 25-515**  
**DIN 127 B\***



**DIN 7980**  
**ASME B 18.21.1**



**DIN 6905\***

Coiled spring washers are the most common washers used to prevent the bolted joint connection from loosening. Those washers are normally designed for use with bolt assemblies involving fasteners of a property class 6.8 and 8.8.

Corrugated coiled spring washers for screw and washer assemblies (sems) only.

\* CAPTIVE WASHER FOR PRE-ASSEMBLY ON SCREW



## COILED SPRING WASHERS FOR RAILWAY TRACKS



### 1967 A.R.E.A. PLAIN PATTERN SQUARE EDGE

Single coil spring washers developed by the American Railroad Engineering Association specifically to secure track assemblies and to withstand the vibrations that are caused by the transit of the trains.



### UIC 864-3V UNI 6217

Double coil spring washers are used for railway applications, thanks to its unique geometry which prevents the rail loosening from the railroad ties.

## CONVEXED AND CORRUGATED ELASTIC WASHERS



### DIN 137 A

Convexed spring washer with reduced thickness and outside diameter for light applications and limited tightening couples. Those washers are normally engineered for use with bolt of a property class less than 5.8.



### DIN 137 B DIN 6904\*

Corrugated elastic washers are designed to compensate for axial play and misalignment in an assembly and to reduce risk of disassembly. They provide light to moderate spring forces in tight spaces. Corrugated elastic washers are normally designed for use with bolt/nut assemblies involving fasteners of a property class less than 5.8.



### DIN 443 A Conical DIN 443 B Cylindrical

Sealing caps are used in various industrial applications, such as when sealing a hole to prevent the introduction of foreign bodies.

## SEALING PUSH-IN CAPS

## FLAT WASHERS



### DIN 6902\* DIN 6903\* ISO 10673\*

Flat washers to be used for captive preassembling with metric pitch screws.

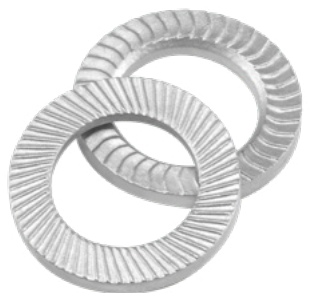
## SPHERICAL WASHERS



### DIN 6319 C DIN 6319 D DIN 6319 G

The spherical washer (type C) is used in combination with the conical seat (type D and G), both are manufactured according to DIN 6319. A safe locking function on non-parallel bearing surfaces can be guaranteed thanks to their coupling.

## SAFETY WASHERS



### GROWER TENKEEP® M Medium TENKEEP® L Large TENKEEP® C Cylindrical

The Grower TenKeep® safety washers of Growermetal are flat washers that have the two surfaces with knurls of different geometry, specially designed in order to ensure maximum performance against loosening of the bolted joints, even in the presence of extreme vibrations and dynamic loads. Grower TenKeep are designed for bolt of property class up to 10.9.

## WEDGE-LOCK WASHERS



### GROWER TWIN-LOCK® Normal series

Securing wedge-lock system ideal in the presence of vibrations or dynamic loads. These washers are supplied glued in pairs. Grower Twin-Lock are designed for use with bolt assemblies involving fastener of property class up to 10.9.



### GROWER TWIN-LOCK® Large series

The large series is ideal for varnished bearing surfaces and soft materials.



## SPECIAL PRODUCTS ACCORDING TO DRAWING

Our production range offers numerous special articles produced according to Customer's specification.



**Flat washers**



**Ribbed Flat washers**



**Conical washers**



**Tooth lock washers**



**Spherical washers**



**Electric Terminal washers**



**Crown lock washers for shaft**



**Special Shaped washers**



**Shaped Blanked parts**



**Eccentric washers**



**Cup washers**



**Disc Springs**

## NEW PRODUCTS

Thanks to Growermetal in-house R&D laboratory, we design and develop ever more efficient products, expanding and renewing our range of safety washers and special parts. Innovation, technology and know-how are the keys to change and allow us to create cutting-edge technical washer solutions in line with the market requests.



**Special shaped blanked and bended parts**



**High thickness and precision flat washers**



**Metallic parts with molded EPDM inserts**



**Metallic parts with glued EPDM inserts**





# Quality control

Providing flawless products is our mission.

A company's credibility and authority are closely linked to its commitment to create products that meet the highest technical, quality and safety standards. This is why we invest significant resources every year to equip our laboratories with testing instruments and tools.

## Certifications



### ISO 9001

Growermetal's Quality Management System is certified according to the ISO 9001 standard since 1997.



### ISO 14001

Growermetal's Environmental Management System is certified according to the ISO 14001 standard since 2006.



### IATF 16949

Growermetal's Quality Management System is certified according to the standard IATF 16949 edition 2016 for the Automotive industry.



### EN 9100

In April 2021 Growermetal achieved Quality Management System certification according to the EN 9100:2018 standard for the Aerospace industry.



## Contacts



**Growermetal**

Around ideas

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