



 **MABO** 1967
The power of tradition

MANUFACTURER OF THE LATEST SOLUTIONS IN THE STEEL CONSTRUCTION SECTOR



MABO
The power of innovation



With over 55 years of experience, we are a leader in the metal industry on polish market and a reliable and strong partner among manufacturers of steel and aluminum structures. Our product range includes steel structures for railway, tram and road infrastructure, as well as solutions for industry and civil engineering.

Every day we support our clients at every stage of their projects, starting with the selection of the best solutions and ending with comprehensive implementation of the projects with full commitment and support of our specialized staff.

MABO The power of tradition

We have a well-established brand name in the industry thanks to the high quality of our products and metal structures for the railway and road infrastructure, as well as urban infrastructure. We have been, are and will be there for our customers, sharing the knowledge and experience we have gained over the years. We are a customer oriented company with professional attitude towards our employees. In what we do, we value who we are and what we create.



We are guided in our actions by the thought of our founder. As Adolf Bogacki once said:

„... Metal is the best material - it is graceful, malleable, strong and if you know how to approach it and what you want to get, you'll do anything.”





MABO
The power of create

The product range for railway infrastructure includes ATD/TUN tensioners (Automatic Tensioning Devices) and OHE cantilever system made of aluminum and stainless steel as well as catenary network accessories.

MABO's original designs, covered by patents, are the result of many years of research and development work carried out together with scientific and research institutions.

We are constantly developing and adopting our products to meet and exceed new markets requirements. Currently we are also implementing mobile app that will provide the instructions for on - site installation and adjustment.



MABO:



Over 200

people employed in production, engineering, technology and logistics departments



Over 55 years of

experience; the company history dates back to 1967



up to **300 tonnes** of steel structures manufactured every month



50 % of our production is exported to foreign markets



6 production departments



17 thousand m² surface area of 6 production departments



hot-dip galvanizing plant



paint shop powder coating and wet painting

ATD/TUN-1 AUTOMATIC TENSIONING DEVICE



MABO is a company oriented towards innovative technical solutions, that is why our design team have created modern equipment for the overhead contact line. One of them is the Automatic Tensioning Device (ATD/TUN). Research and development on this solution was carried out in close cooperation with scientist from the AGH University of Science and Technology in Krakow. It was supported by the National Centre for Research and Development, under the INNOTECH programme. Responding to the market demand for a substitute of the traditional weight (pulley) tensioners, we have created family of spring tensioners for the OHE.

The new device is intended for compensating and tensioning the overhead traction network. Its operation is based on the steel spring generating tensioning force, by using a special cam to provide a constant tensioning force over the entire compensation length. This ensures that changes in contact wire and support line length caused by temperature changes are compensated.

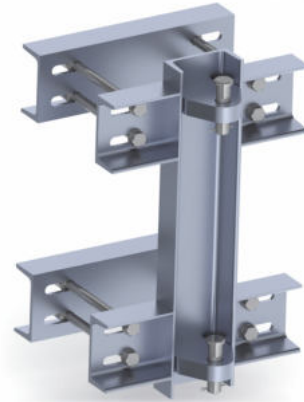
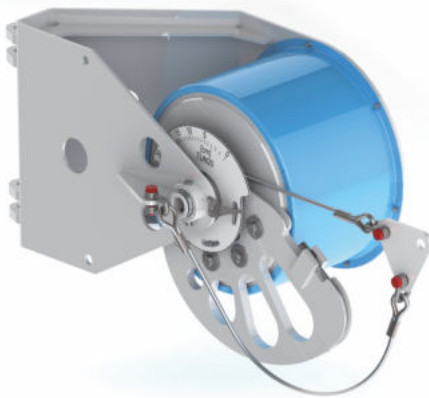
The compensation length range of MABO devices is 800 mm as standard and up to 1200 mm in special versions.



ATD/TUN - 1 Automatic Tensioning Device



Pole mounting for ATD/TUN - 1



Index	Tension force [N]	Compensation length [mm]	Number of springs
TUN-04	4000 - 4999	800	1
TUN-06	5000 - 6999	800	1
TUN-08	7000 - 8999	800	1
TUN-10	9000 - 10 999	800	1
TUN-12	11 000 - 12 999	800	1
TUN-14	13 000 - 14 999	800	1
TUN-16	15 000 - 16 999	800	1
TUN-18	17 000 - 18 999	800	1
TUN-20	19 000 - 20 999	730	1





ATD/TUN-2 AUTOMATIC TENSIONING DEVICE



BENEFITS of ATD/TUN Automatic Tensioning Device:

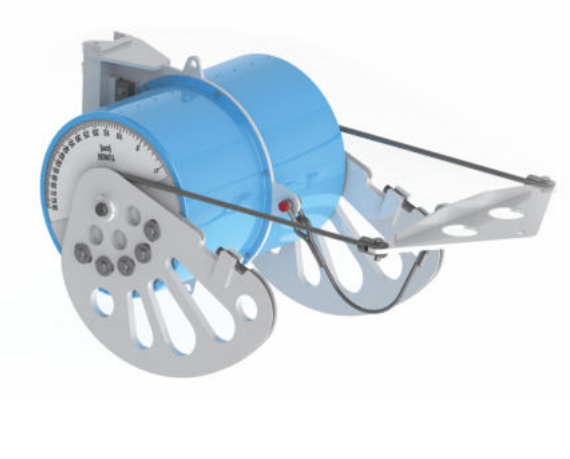
- quick and easy installation;
- maintenance-free - does not require periodic service for reduced operating costs;
- long service life;
- suitable for mounting on all types of poles;
- anti-corrosion protection: hot-dip galvanization and painting;
- inaccessible to criminal activity;
- the device is approved for use by PKP PLK S.A. and is used on polish railway lines.

ATD/TUN price offer includes:

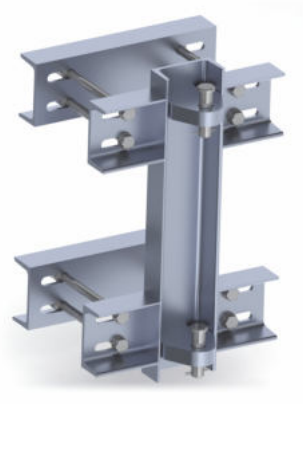
- complete set-up with adequate mounting bracket and insulator fastener;
- free installation training on site;
- special labelling of products for easier storage;
- additional warranty extension possible;
- housing painted in any colour from RAL palette;
- installation support with a proprietary mobile application;
- 24-hour technical support, including travel to the site;
- product customization (non-standard versions).



ATD/TUN - 2 Automatic Tensioning Device



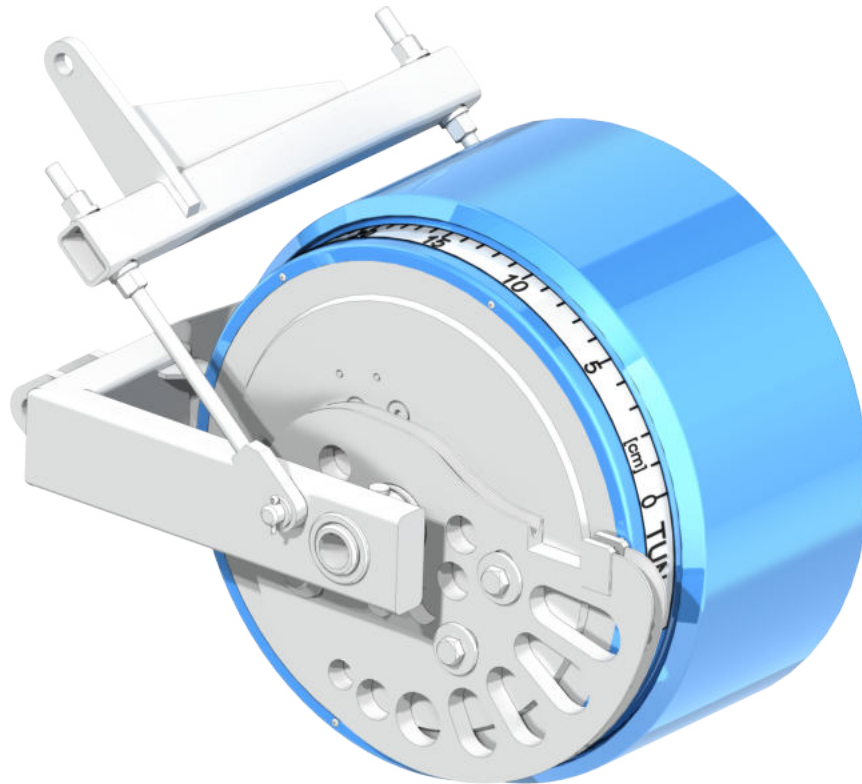
Pole mounting for ATD/TUN - 2



Index	Tension force [N]	Compensation length [mm]	Number of springs
TUN-22	21 000 - 22 999	800	2
TUN-24	23 000 - 24 999	800	2
TUN-26	25 000 - 26 999	800	2
TUN-28	27 000 - 28 999	800	2
TUN-30	29 000 - 30 999	800	2
TUN-32	31 000 - 32 999	800	2
TUN-34	33 000 - 34 999	800	2
TUN-36	35 000 - 36 999	800	2
TUN-38	37 000 - 38 999	800	2
TUN-40	39 000 - 40 999	800	2
TUN-42	41 000 - 42 000	800	2



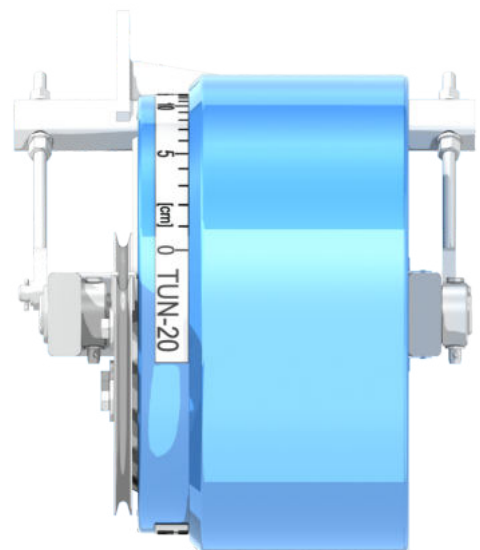
TUN-DS AUTOMATIC TENSIONING DEVICE



We do not stop at conducting research and work on the continuous improvement of our innovative devices. We have established a specialized R&D research department, thanks to which we are introducing a new, improved TUN-DS to the market.

ADVANTAGES of the new device:

- less weight and dimensions of the device,
- greater length of the compensated catenary sections,
- adapted for mounting on all types of poles,
- easy selection of devices to catenary specifications,
- increased corrosion protection,
- Polish product.





MABO
The power of create



NEW GENERATION CANTILEVER SYSTEM



We offer a cantilever system for the overhead traction network made of aluminum and stainless steel elements to suspend contact wires and support lines. Thanks to the applied design and materials, the new system is characterized by 50% lower weight in comparison to the currently used galvanized steel solutions. It also ensures quick and easy assembly providing very high corrosion resistance with the lifespan of over 40 years.

This solution is designed to be used on all types of catenary support structures. **The basic structural element is a specially developed profile, made of high-strength aluminum alloy, connected with stainless steel elements. Electrical insulation of the cantilever is provided by composite insulators.**

In comparison with the existing cantilever made of hot-dip galvanized steel, the MABO OHE cantilever system improves the OHE operation parameters by changing the overhead contact network parameters, which improves the overall OHE performance.

The materials used in our cantilever extend the lifetime in comparison to traditional OHE systems. We designed the cantilever structure assuming the minimum number of components and minimum types of fasteners. Only one spanner is required to install and adjust the cantilever. Our cantilevers are delivered pre-assembled and pre-adjusted which greatly simplifies and shortens the installation time. Moreover the design allows for quick and easy adjustments.

MABO cantilevers are adapted to the existing overhead line and can therefore be used for network modernization, as they do not change the geometry of the line or the types of contact wires, catenaries or connection wires.



ADVANTAGES OF ALUMINUM CANTILEVER SYSTEM:



SIMPLE DESIGN



QUICK INSTALLATION AND ADJUSTMENT



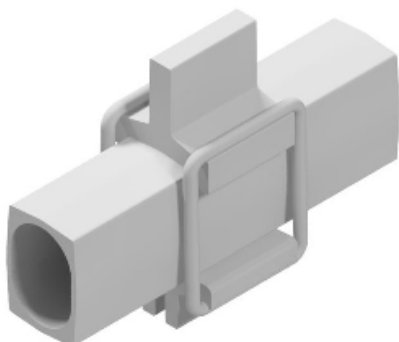
HIGH RESISTANCE TO CORROSION



AESTHETICS

When designing a new type of construction, we kept its rigidity at the level of a classic solution, while the new one was maximally simplified and made its assembly and adjustment easier.

- the classic, triangular suspension system with a bracket tube, registration arm and a stay tube has been preserved;
- the developed profile structure is characterized by high stiffness and low deflection for the adopted load patterns;
- the geometry of the profile and the mounting system ensures low weight of the structure and quick assembly using a minimum number of fasteners.



Our offer includes:

- free assembly training;
- products' marking with specific locations for easier storage;
- the possibility of adapting the cantilever to any catenary layout;
- available in two sizes - for smaller and larger catenary loads;
- technical support 24/7 with access to the investment site;

FINAL VERSION OF PROFILE AND MOUNTING OF A NEW GENERATION CANTILEVER SYSTEM

The construction material of the profile is the proprietary AlMgSi aluminum alloy with a strictly defined chemical composition, developed within the consortium. Design covered by a patent.

MABO The power of production



MILLING



HARDENING



**HOT-DIP
GALVANIZING**





PAINTING



MEASUREMENTS



ASSEMBLY



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