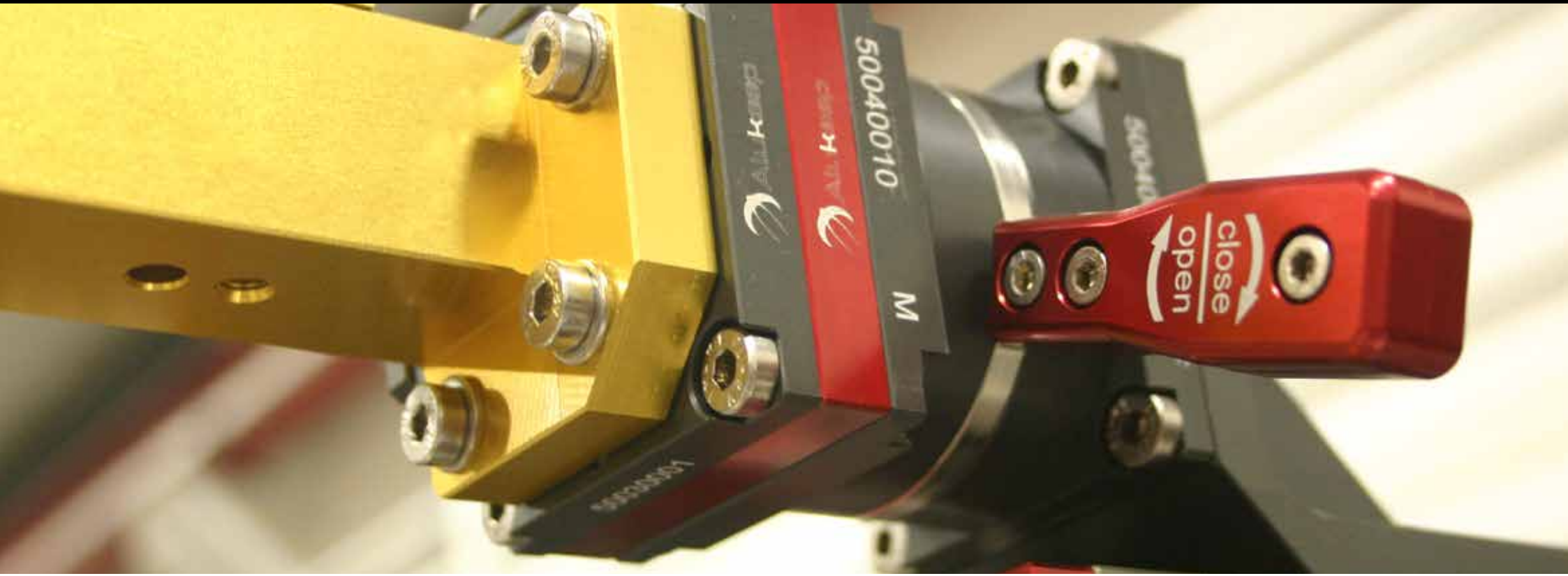
Alukeep 尚展
GLOBAL GMBH

A single partner to manage the implementation of control processes.



Win-win synergy between companies far apart in the world but with one mutual goal: the quality

A technical and commercial joint venture for Meisterbocks and checking fixtures in the field of the car manufacturers and automotive subcontracting.

who we are

Alukeep GmbH and **Anhui Shangzhan Mold Industry Co., Ltd (SZM)** management at the signature of the partnership contract.

Alukeep GmbH
modular fixturing for metrology

who we are

ALUKEEP is a German company situated in Munich, with the Headquarter located in the north-east of Italy, in Verona, a territory in Veneto region with a high concentration of precision mechanics production.
For 15 years ALUKEEP has been producing a patented modular fixturing system for measurement equipments and regularly exported in 25 countries in the world through distributors operating in the metrology market.
The automotive field, especially car manufacturers and their suppliers are the main users of our product.
ALUKEEP modular fixturing system has been appreciated for its quality, competitive price, easy use and flexibility.
Inspired by our worldwide agents, who operate close to the final customers in various fields, we tried to develop the field of utilization of our system adding components to our range, day after day.
We technically developed our product bringing the system to level requested by car manufacturers for its use in the high-tech checking systems such as Meisterbock Fixture and Checking Fixtures for sheet metal and/or plastic components.
All the patented components are subjected to strict quality and repeability checks to guarantee the highest level of reliability, stability and recyclability.

engineering experience

who we are

Anhui Shangzhan Mold Industry Co., Ltd (SZM) is a professional checking fixture manufacturing Taiwanese-owned enterprise, located in ShuangFeng Industry District, Hefei, Anhui province. With 60 acres floor space, and workshop area of 50,000 square meter in total. The company owns international advanced design software as well as many processing inspection equipment which are imported from Japan and Italy. There are about 200 employees in our company and 40 people among them are designers. That makes us very strong in research and development.

All the processes including design, review, welding the BASE, stock preparation, NC machining and assembly detection are finished in the company. So that we can control the quality and the rate of progress at any time. In order to satisfy the requirement of the customer, we strictly respect ISO9001:2008 quality management system requirements seriously, and establish a system of inner quality management. SZM have all kinds of products including auto exterior parts, interior parts, stamping parts and BIW sheet metal welding assembly. Also, we are the assigned supplier of Shanghai GM and Ford North American.

Since 2005, SZM has successfully developed screw body and BIW for Hainan Mazda. In 2006, Yokoki Engineering Co., Ltd. (the famous company of auto welding line, airplane assembly equipment in Japan) came up to our company and set up the ideal partnership with us. We cooperated in many projects of Japanese cars, for example: SUZUKI Japan, NISSAN, etc. In 2007, we established a cooperative relationship with European automobile company, and we joined forces in the projects of RENAULT E33, E95, Honda UK CIVIC, and so on. Meanwhile, the products have been sold to Spain, UK and many other countries

Based on a long-term vision, looking to the future! Shangzhan staff insists on the management concept "science & technology first, credit flourishes career, supreme quality, precision manufacture", and supply advanced quality products and service for clients inland and abroad.

Cubing are used in the automotive industry for the quality and precision evaluation of all vehicle elements (body, closures, internal / external trims) starting from pre-series production to the complete manufacturing cycle.
The automotive industry uses cubing & master for the evaluation of adjustment precision of groups of sub-assembly's groups and single components.
For example, during the process from pre-series model to SOP (Start of Production), Master – cubing are used to evaluate the matching of a single component on the vehicle during the assembly phase.
After the SOP approval, it is possible to use body-cubing components to evaluate eventual assembly on chassis or the assembly of accessories in the production line, as door accessories we can considerate door-glass lift, handles, gaskets etc..

meisterbock

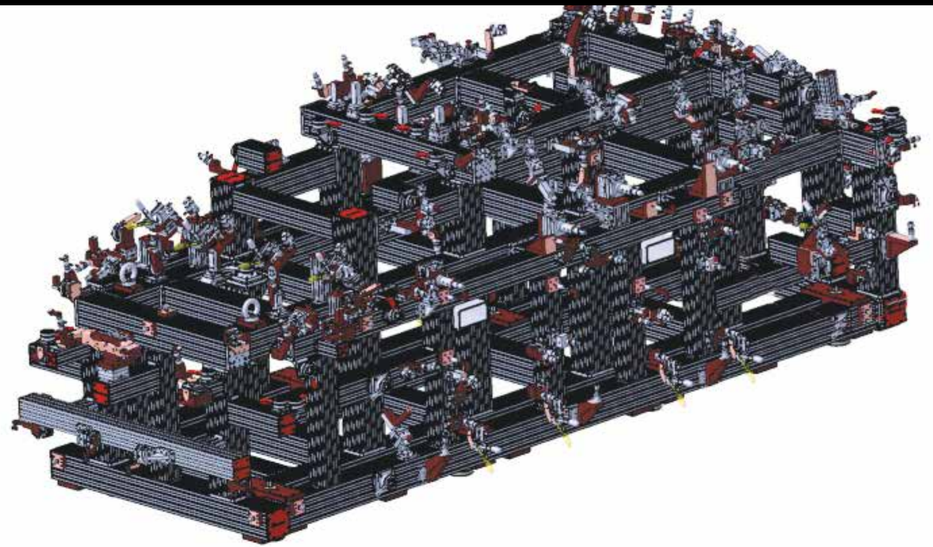
meisterbock

A **Meisterbock** is a theoretical and accurate reproduction of vehicle assembly process, free from welding breakings, deformations and other typical events that may occur in a real context. In the former phase, meisterbock was used by car manufacturers to analyze the equipment for production cycle calibration such as welding line.
Afterwards Meisterbock's goal became monitoring the geometry conditions of assembly processes during all its lifetime. Meisterbock is designed and built in order to assure the assembly of production components subjected to dimensional check, both as sheet metal and sub-groups.
Our constructive philosophy aims to use modular material from our own production, from our own design and manufacturing, with first level features.
Usually, Meisterbock is built from an assembled structure with modular bars in order to assure the maximum stiffness. In our case, we have a high stiffness modular bar, completely CNC machined for its 6 sides, with highlighted mechanical and geometrical features.

The structure can be used on sandwich plates or bars structure depending on the movement requirement. The production cycle is simulated through a fastening system, adjustable inserts, various elements and centering pins integrated to the base, which can repeat exactly equipment conditions, assuring the absence of torsion / deformation of the component to be measured.
For simplicity and clearness means, car manufacturers usually associate the following abbreviations to meisterbock project in order to identify the main supply components:

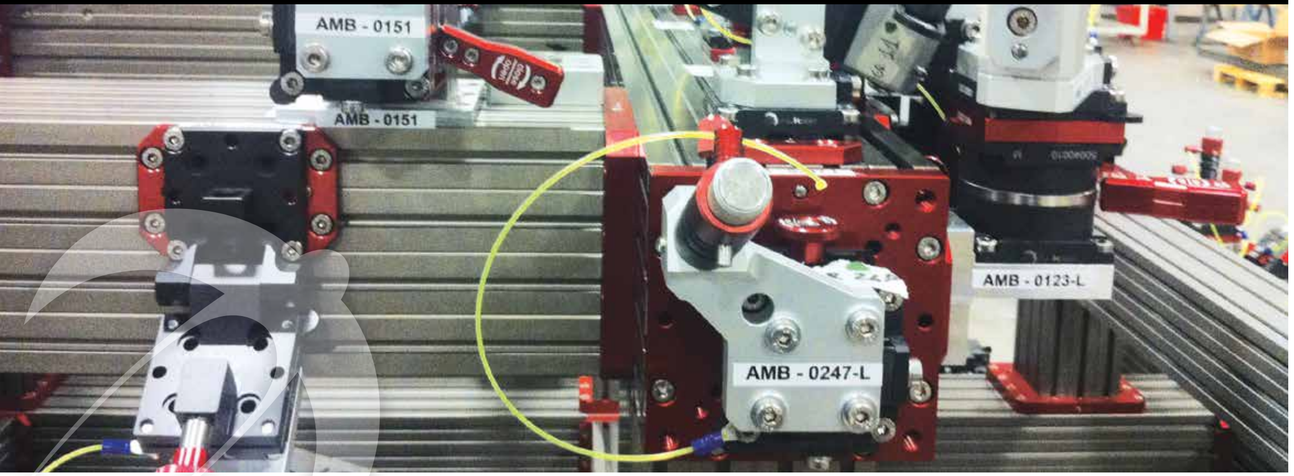
FMB - Fugemeisterbock: complete structure for parts and sub-groups of Chassis-Underbody.
AMB - AussenMeisterbock: complete structure for external parts of complete Body in white, Closures, Bumpers and Lights.
SMB - SideMeisterbock: complete structure for parts and sub-groups of the external Side Panel LH-RH, which can be integrated with an inner side panel.
FRMB - Front-rail Meisterbock: complete structure for parts and sub-groups of Front Rail LH-RH.
GMB - General Assembly Meisterbock: complete structure for vehicle roof parts and configuration for final assembly.
CLOSURES: complete structure for parts and sub-groups of the doors, hood, fender, liftgate.

For automotive subcontracting of sheet metal components, we can supply specific projects which can theoretically represent a "mini-meisterbock" for a reduced reference points RPS linked on single or assembled component.
This type of "mini-meisterbock" projects are industrialized with the same components as entire meisterbock projects.



milestone chain

- Project Managment and Planning
- Engineering / Design
- Manufacturing / Structure Assembly
- Interactive manuals
- Check / Certification / Installation
- Training
- Technical Assistance to improve, analyses and Start of Production



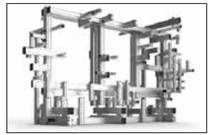
technical features

When to use it:
our target is to realise a light structure from simplified engineering in order to guarantee simple management of the Meisterbock in the development and improvement process of a production line, using first level hardware-materials to assure the complete technical features requested by the customer.
Meisterbock concerns the following activities:

- Product technical development
- Sample quality control and reference to requested tolerances
- Standard quality warranty (problem analysis)
- Check of the standard production parts (internal and external of the vehicle)
- Surfaces check
- Tolerances analysis (Gap and Flush Analysis)
- Management checks
- Check reports and activities analysis
- Check the best fit from all the closures

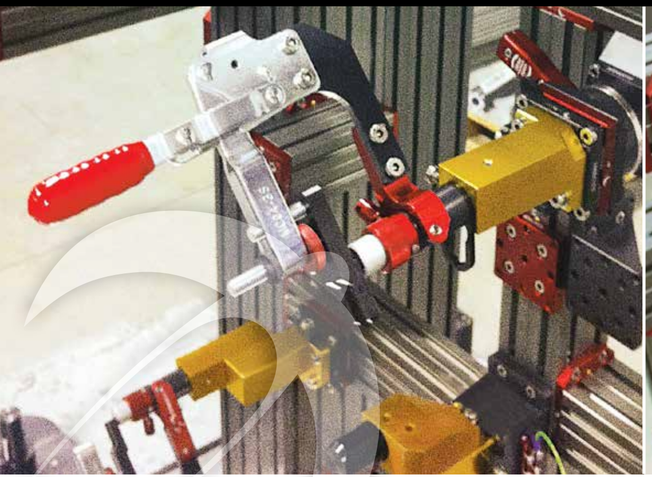
Difference between Cubing (Master) and Meisterbock:
Meisterbock doesn't foresee surfaces or reference components but reference points, defined as RPS.
The structure-gauge of Meisterbock is designed and built with the scope to simulate production assembly process.
Meisterbock is positioned on the pilot-system in the first phase, at the moment of the approval for pre-series production.
For the customer, Meisterbock is used to solve design, process and quality critical situations referred to metal sheet part or sub-groups and chassis of a new vehicle.
Meisterbock is usually delivered 8-10 months before the SOP in order to check the mounting of pre-series metal sheet components (P-0 phase).
Cubing is installed at the customer's plant 6-8 months before the SOP for process check (phase P-1). Reference points are defined in the project and don't change for the whole life of the vehicle.
All assembly process of the metal sheets are driven by the above-mentioned reference points.

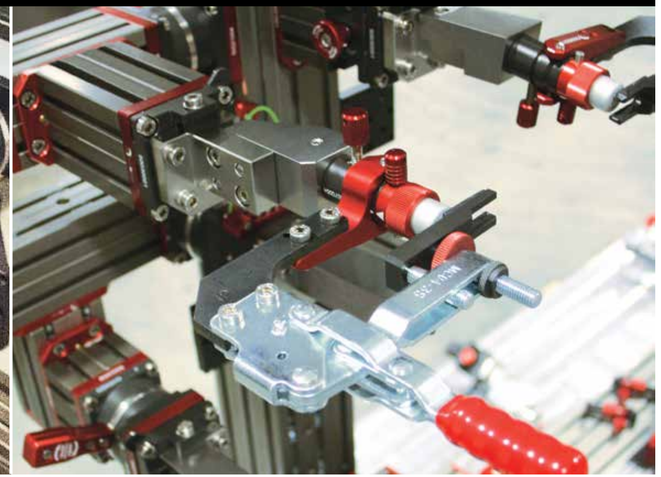
profile features

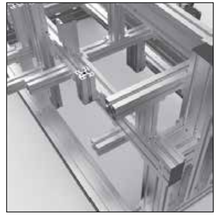


Composition:
As mentioned in the introduction, Meisterbock frame is composed by a tubular structure of aluminium profiles. The extruded profile section is of our engineering and production with the above average strength and stability results. Engineering reference points (centering or clamping) are made of our production and standard components. The entire structure is composed by aluminium profiles with technical features listed here below, but we can anticipate how during advances research phases a technological development step carbon fibre for some components / structures can further improve its already excellent technical features.
Thanks to Anhui Shangzhan Mold Industrial experience of Cubing activity, all the fastening parts which are not manufactured in aluminium as for example screws and bushes, are supplied with long duration anticorrosion material (Aisi 304).

Technical features:
Tolerance position of reference ball: ±0.05 mm
Tolerance Centering Pin Reference Points RPS: ±0.05 mm
Tolerance contact Surfaces Meisterbock Screws Reference Points PRS: ±0.05 mm
Profile Structure Parallelism & Perpendicularity / Length : ±0.05 mm / 500 mm
Overall Structure Tolerance: ±0.15 mm
Assembly Repeatability: ±0.1 mm
Dimensions and Tolerances of Centering Pin Reference Points RPS:
Diameter: Ø-0.05 mm / -0.014 mm, concentricity: ±0.1 mm
Dimensions and Tolerances of Centering Holes Reference Points RPS:
Diameter: Ø 0/+0.015mm, concentricity: ±0.1 mm;
Centering dowels and hole tolerances: H7/g6.
Used Material: Aluminium alloy EN AW 7075, EN AW 6082, EN AW 6026
Certified material, extruded in Italy by a primary company following to our drawing.
Technical features and property are available for customer consultancy.







6000-CNC Series Profile features
Used Typology and available in list (maximum lenght 4500 mm):
Code 6000100C dimension 48x48 mm
Code 6000200C dimension 48x98 mm
Code 6000300C dimension 48x148 mm
Code 6000400C dimension 98x98 mm
Code 6000500C dimension 98x148 mm
Code 6000600C dimension 98x198 mm

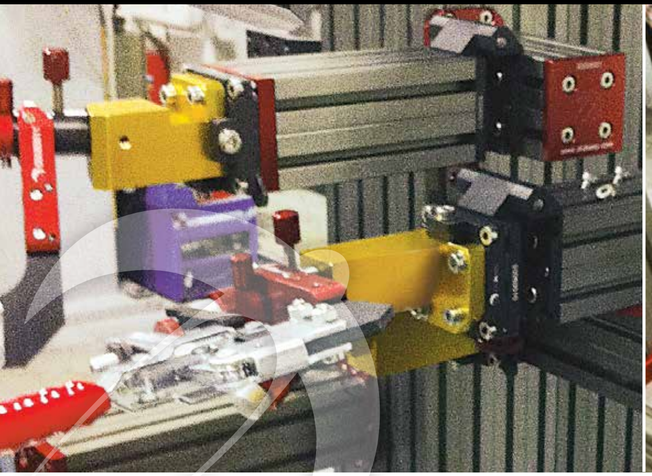
6000-CNC Series Profile Length
From 10 to 4500mm depending on the project

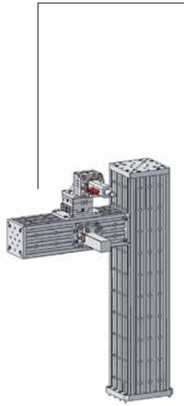
6000-CNC Series Profile Drilling Map
Depending on the offer specification of the customer, we can offer different types of drilling 5001-CNC Series profile:
A. Drilling as per drawing of the four sections and standard drilling of the heads.
B. Pitch every, 100 mm distance of the four sections and standard drilling of the heads.
C. Standard drilling of the heads only

Used Material for 6000-CNC Series Profile
AL Mg 0,7Si HOT HARDENED, high mechanical strength
Certified material, extruded in Italy by a primary company following to our drawing.
Technical features and property available for customer consultancy.

6000-CNC Series Profiles Machining Process
All base surfaces are machined with CNC technology with the achievement of parallelism, perpendicularity and flatness in relief in order to obtain excellent assembly positions with the minimum deviations to engineering.
Quality reports with certification of geometry features of some sample profiles are usually delivered within the project technical documentation.

profile features

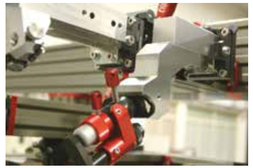




6000-CNC Series Profile Geometry features
Surface Planarity: 0.05/500 and 0.02/100
Parallelism profile faces: 0.03/500 and 0.02/100
Orthogonality profile faces: 0.05/500 and 0.02/100
Profiles and components roughness: Ra <1,6

Remark: during assembly, check and certification phase it is possible to make stiffening intervention focused on the achievement of better strength conditions of the structure using standard modular elements or customized parts realized from the bar and specific for the application.
The flexibility of the bar modular system Alukeep allows to make various adjustments and possible modifications from the customer referring to metal sheet components to be loaded on the Meisterbock.

general features



general features

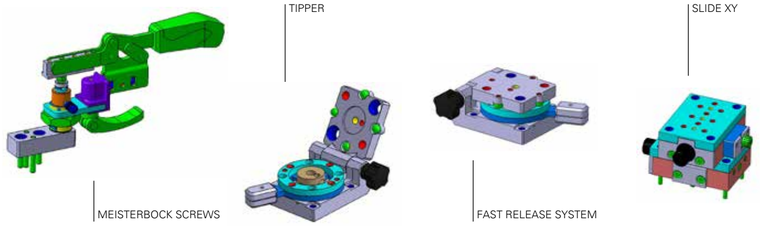
Surfaces Treatment:
Profiles and components in general: hard anode oxidation, thickness 40/50 micron.
Under request:
black anode oxidation
Interfaces plates – profile and points link:
Standard surface anodizing with red colour (under request: black color).
Customising parts on the Point:
Standard surface anodizing with colour selection for the visual identification of the unit.
Typology of Misterbock to be defined with the customer during engineering phase.
Profiles and components roughness: Ra <1,6

Micro-adjustment parts:
All reference pins are equipped with a micro-metric adjustment unit in order to assure the adjustment in the range of ±5 mm.
Adjustment devises in the X-Y axes have a graduated scale to analyse with precision and directly eventual gaps.

The adjustment is equipped with a **fastening dowel** with the possibility to fix the position once it is adjusted so that it can shift from its nominal position.
This adjustment doesn't compromise in anyway the stability of the referring unit.

reference points

reference points



The parts to be analysed are incorporated on reference points/holes (main reference inserts) coherently with the assemble plan.

Tolerances for reference points are:
- Adjustment direction ± 0,1 mm
- Remaining coordinates ± 0,2 mm
- Pin coordinates on 3 axes ± 0,2 mm

Adjustment slides used in the reference pin units (two or singular direction) assure a strength which can guarantee the repeatability of measurement and the tolerances of the point described here above.

During check phase with measurement machine, it is possible to verify and eventually to install support parts to limit torsions within parameters requested by specification – flexions of various bumping fastening points.

Ono Lean Logistics

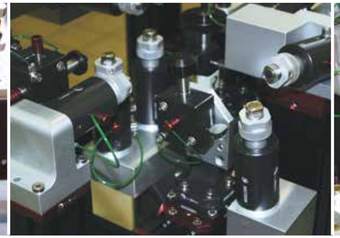
You can integrate the Meisterbock experience using our automated warehouse that solves the storage problem of the unused sub-groups.

ONO Lean Logistics offers the first scalable automatic and omnidirectional warehouses, natives 4.0, designed for the company of the future.
Our ONO Racks represent a truly revolutionary solution in the field of warehouse logistics: their capacity, shape and structure can be expanded over time with minimal and low-cost interventions, thus allowing to schedule and recover the initial investment already made and adapting the warehouse to the current needs of the company.
They are the perfect solution for companies that need to store and move goods and production materials frequently, with the desire to eliminate waste of time and resources, as well as automate the movement of materials.

Moreover, thanks to our international patent, you can connect every warehouse of the system and more operators can access and handle different materials simultaneously by using different bays. This also allows you to have real-time inventory control of the entire system, at any time.
Dimension 2mt x 3mt height 4mt (max 300kg), the best solution to save space.

mac structures

checking structure



checking structure

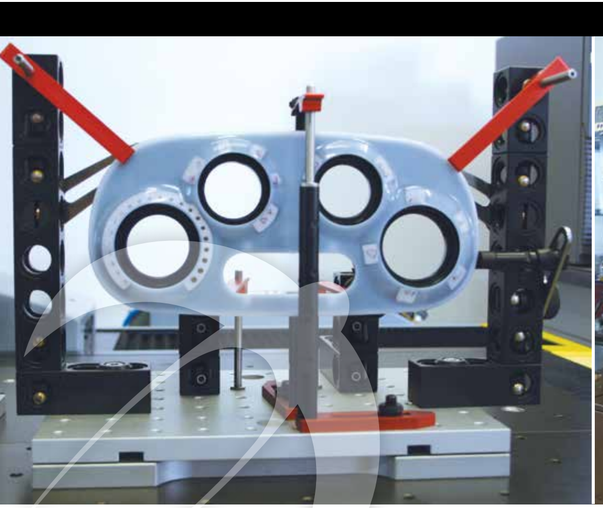
Holding Fixtures LASER SCAN FIXTURES / CHECKING STRUCTURES are generally used for dimensional check of metal sheet and plastic elements. These types of structure are used by car manufacturers / suppliers as analysing tools in the production cycle calibration and later as checking tools during the whole production life of the model.
Our constructive philosophy has the purpose of the use of modular material of our drawing and production, with first-level technical features as geometries, tolerances and finishing.
Usually Laser scan fixtures are made up by an assembled structure with modular section bars in order to assure maximum rigidity.
Components to be measured are blocked with clamping systems and inserts following to RPS points underlined by specification, assuring the repeatability of the position and at the same time avoiding the deformation of the material.
The structures are designed and assembled using a range of listed parts.
Color: all black to avoid the scanlaser refraction problems.

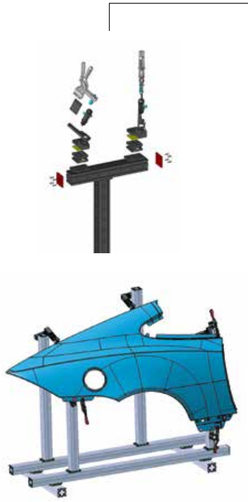
In these years, we achieved to combine modularity and flexibility:

- **Modular** for possible reuse by the customer, easy to be improved for other applications.
- **Flexible and recycable**

Engineering and production of checking fixtures are know-how of our own property. Thanks to the collaboration with our dealers / distributors located in 25 countries, we can assure an assistance that goes from the evaluation and engineering phase to installation phase, calibration activity and post-sales in worldwide main markets.

modular fixturing system





modular fixturing system

our main customers

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