



PNEUMAX



AUTOMOTIVE

PRODUCT OVERVIEW

Product overview

The ultimate clamping technology

Innovation begins with Research and Development and extends to industrial processes and business activities, with the ultimate aim of total customer satisfaction.



Pneumax

Smart Technologies and Human Competence

Founded in 1976, **PNEUMAX S.p.A.** is today one of the leading, international manufacturers of components and systems for industrial automation. It is at the fore front of a group of 23 companies, with over 660 employees worldwide.

Ongoing investment in research and development has allowed **Pneumax** to continually expand its range of standard products and customised solutions, adding to the well-established pneumatic technology, a range of electric drive actuators and fluid control components.



Pneumatic
Technology



Electric
Actuation



Fluid
Control



INDUSTRIAL AUTOMATION



PROCESS
AUTOMATION



AUTOMOTIVE

The ability to provide various technologies and solutions for our clients' applications is the main objective of our company, making us the ideal strategic partner.

What defines us is "**Pneumax Business Attitude**", born out of the capacity to combine industry sectors, technology and our application skills via client collaboration with our business sector and product sector specialists. This represents the main distinguishing factor of what Pneumax offers.



Product range

Automotive series



Clamping

C1P25 nano	C1D25 nano	C2P50 NAAMS	HE1P0	HE2P1 NAAMS
C1P32 nano	C1D32 nano	C2P63 NAAMS	HE1P1	HE2P2 NAAMS
C1P40	C1D40	C2P80 NAAMS	HE1P2	HE2P3 NAAMS
C1P45	C1D50	C2D50 NAAMS	HE1P3	
C1P50	C1D63	C2D63 NAAMS	HE1P4	
C1P63	C1D80	C2D80 NAAMS		
C1P80	C1M			
CB40				

Our clamping series features the widest range in clamping moment & stepless adjustable opening in the industry.

Extensive Product Range covering **Clamping, Locating, Handling, Pivoting** functions, with all options required in the **BIW** production lines.

Special Clamping products:

Double workpiece identification > Product Series+X

Example: C1X..., C2X..., HE1X..., HE2X...

Sealed > Product Series+S

Example: C1S..., C2S..., HE1S..., HE2S...



Locating

RP50



HP50



RP63



FP40



RC50



CNOMO

FP63



RC63



CNOMO

RD50

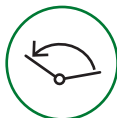


Handling

JP40



JD40



Pivoting

P63



P80



P100



P125



Complementary products

Fittings



Tubes



Shims



Spacers



Sensors



Sensor cables



Auto-retaining devices



The Automotive division

Product development

The Automotive division of Pneumax **designs and manufactures a complete range of products dedicated to the production lines of the automotive field, focusing on Body in White applications.**



Pneumax offers a comprehensive range of clamping units, pivot units, pin packages as well as grippers and complete multi-axis positioning systems. Developed by a team of specialized technicians, the product is designed to ensure maximum reliability, precision and repeatability in compliance with the latest international mounting standards.

Particular attention has been paid to energy efficiency which through patented designs provides the largest energy saving solutions available in this market.

Every stage of manufacturing and product testing is carried within our specially equipped departments at our headquarters in Lurano (BG).

The worldwide presence of Pneumax ensures optimized and coordinated project management: the highest level of service is provided to all of our international customers.

Market requirement evaluation and product specs definition by product management. The project team analyzes the technical feasibility and sets a general timeline.



Electronic components are developed and manufactured **in-house** by Pneumax to be integrated in any system or as interface to any protocol.



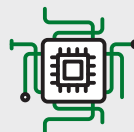
1 CONCEPT



2 PROTOTYPING

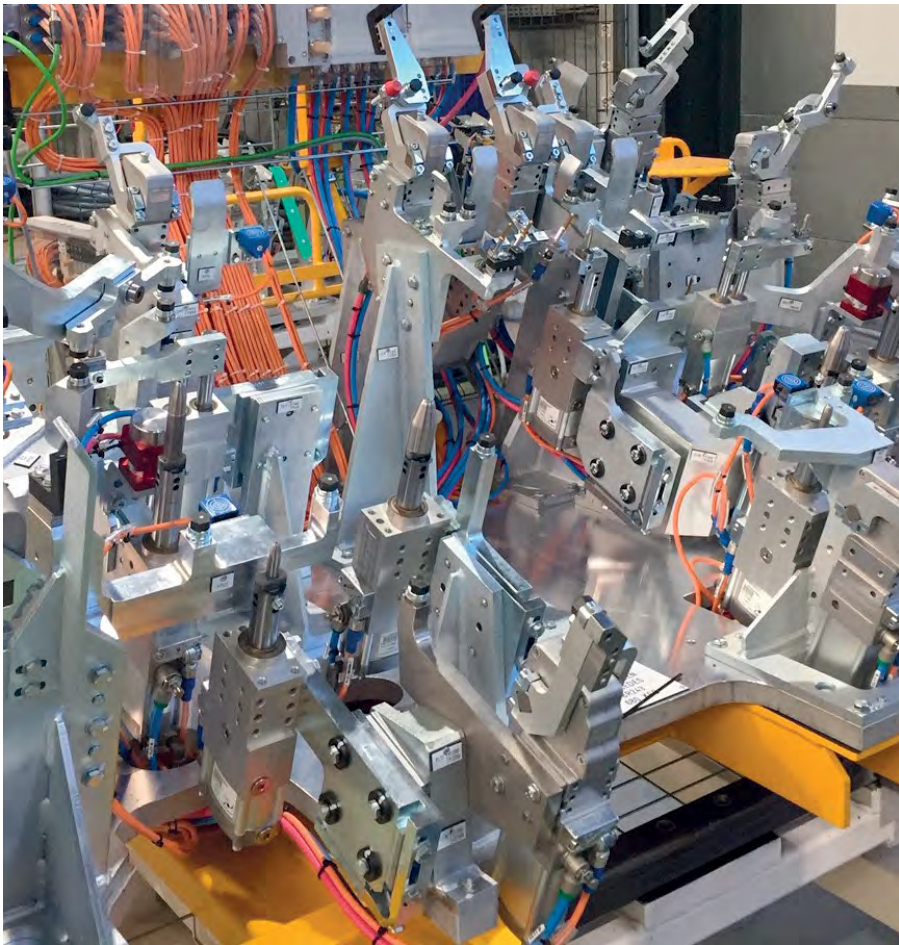
After a **structural mechanics simulation analysis**, the R&D team prepares a CAD model which is used with a **3 axis printing-moulding machine** to manufacture the first prototypal batches.

3 ELECTRONICS INTEGRATION



4 FMEA

The first close-to-series samples are machined, using the **latest generation machinery**. The first **FMEA** is prepared.



Life test and approval.
The products are
subjected to **functional,
performance,
temperature tests**
for millions of cycles.



5

EVALUATION AND INSPECTION



6

ENGINEERING

The engineering department
evaluates and adopts
the most suitable
manufacturing technology
and assembly procedure
to implement, using
3D simulation programs.



7

PRODUCT INDUSTRIALIZATION

The industrialization team
together with the technical
department develop any
**specific equipment and
tool required.** Suppliers'
evaluation is accomplished.



8

PILOT SERIES RELEASE AND PRODUCT AUDIT

**Verification
and validation** that
the product meets
the requirements.

Clamping

Our rigid linkage prevents the unwilling clamping of two workpieces together, thus enabling the clamp to detect such anomalies in the process. Stepless adjustment with the quickest set-up time in the market.



The lightest and most compact



Patented

The lightest and most compact

An internal hard stop and a rigid linkage secure **a precise and backlash-free positioning thus enhancing the repeatability of the closed position.**

The toggle mechanism is fully encapsulated within the lightweight aluminum body construction.

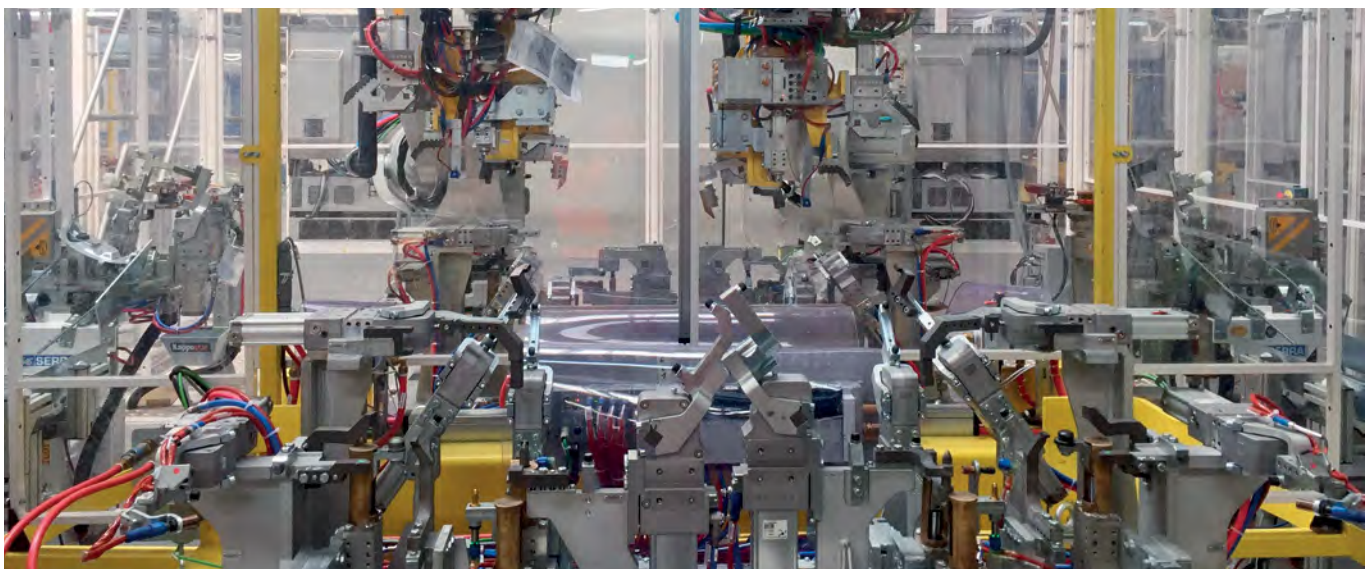
Superior needle roller bearings with joints for high load capacity and protection. Protection against any contamination of weld spatter, welding debris and coolants enabling clamps to operate continuously in extreme environments.

3 MLN
CYCLES

AR system to maintain the load in the open position without air supply.

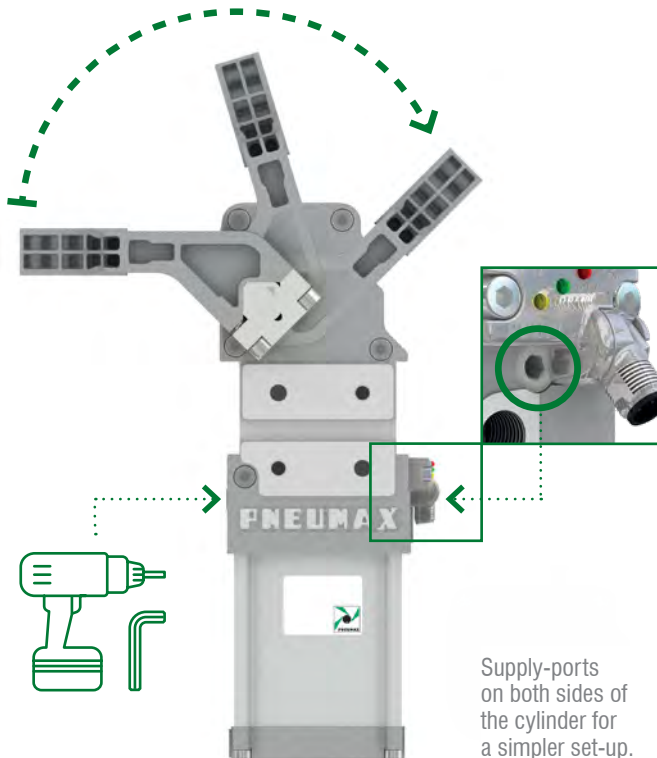


Maximum structural resistance and fatigue strength.



Stepless opening angle adjustment

Easily accessible and simple field adjustment from the rear or front side of the device, with an Allen wrench or a screw gun. A built-in, single-touch opening adjustment, with external access through a recessed detent: no disassembly is ever required.

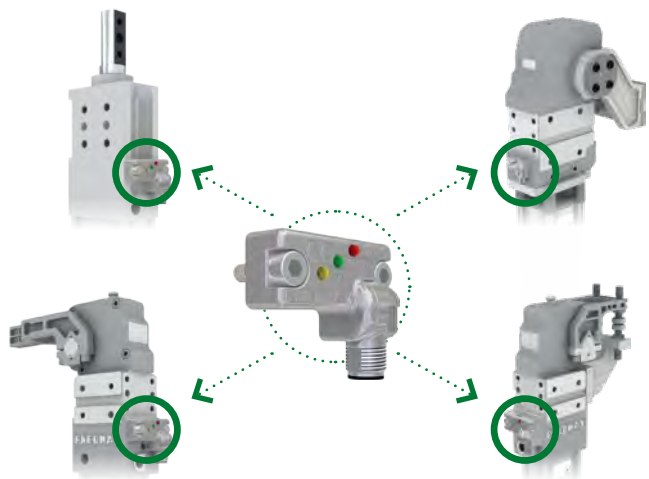


Reliable opening adjustment

The opening position is repeatable thanks to an **anti-rotation device** integrated in the piston. The arm selection remains secure. A **retain mechanism** secures the adjustment tool in its seat and prevents the Allen wrench to fall down during the adjustment procedure.

Electronic sensor

One only sensor is used for all products, all sizes and serie - EMC compliance to EN 60947-5-2:2007 + A1:2012. Swivel connector 0°-90°



Efficient cushioning system

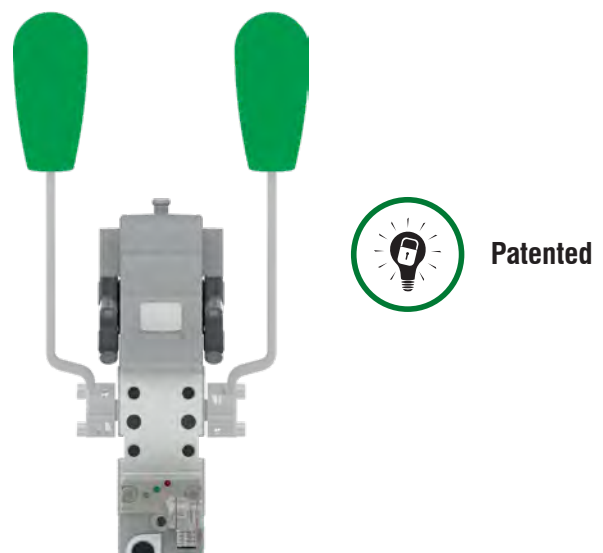
- **Shorter cycle time**
- **Controlled movements**
- **Longer lifetime**
- **Less noise**
- **Less abrupt movements**
no slamming - no shocks
- **Less impact forces generated**
by dynamics stress factor



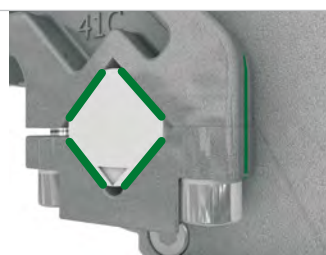
Robust & versatile hand lever

Dual shaft output

Sturdy & durable solution with extremely compact and flat dimensions. The integrated manual operation guarantees that the toggle joint is engaged and requires a very low force to reach the irreversible condition.

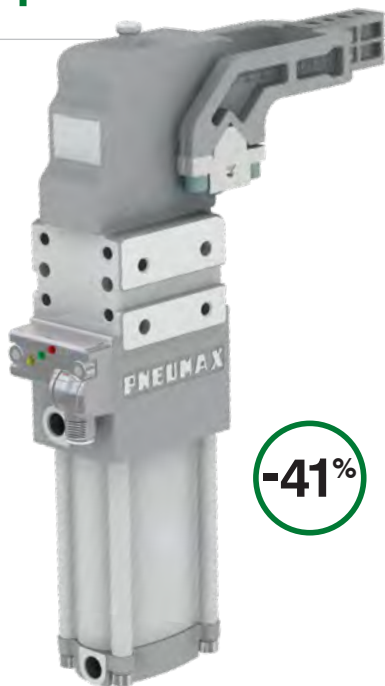


Optimal clamping arm-shaft connection and arm structure



Clamping products

CLAMPING



-41% Air
consumption

High efficiency clamps

Air consumption saving up to 41%

The perfect combination between **functionality** and **efficiency**: same clamping moment, same holding moment, same overall and functional dimensions, same load capacity of a standard clamp with European and NAAMS mounts available.

The **€CO** clamps
FRIENDLY
Ecologic + Economic benefits

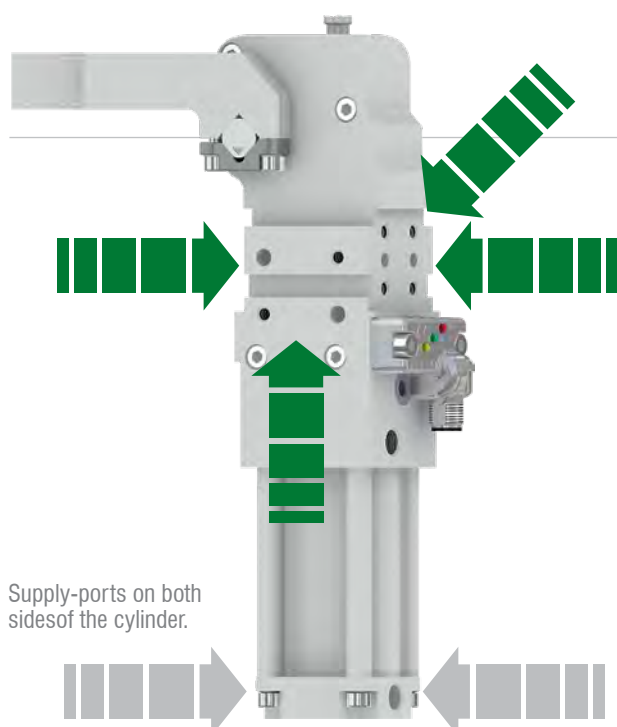
Clamps with integrated device for double workpiece identification

For critical applications, where it is required to identify the unwilling presence of two metal sheets in the process and to avoid their clamping.

This built-in device **allows a reliable double workpiece identification**.



Simple, single-touch adjustment with external access.



Supply-ports on both sides of the cylinder.

Nano clamps

Compact, light power clamps in sizes 25 and 32 mm

With toggle action mechanism for automotive manufacturing and metal processing industry.

- **4-sided mounting pattern**
- **Efficient cushioning system**
- **Maintenance-friendly solution.** No lubrication neither preventive maintenance is required.
- **Fully enclosed housings**

Clamps with double arms

- Stepless adjustable opening angle from 0° to 90°
- Toggle lock mechanism
- Unlock manual override > in case of air loss the clamp can be opened manually
- Pneumatic ports on both sides of the cylinder
- Extremely compact dimensions
- 4-sided mounting pattern

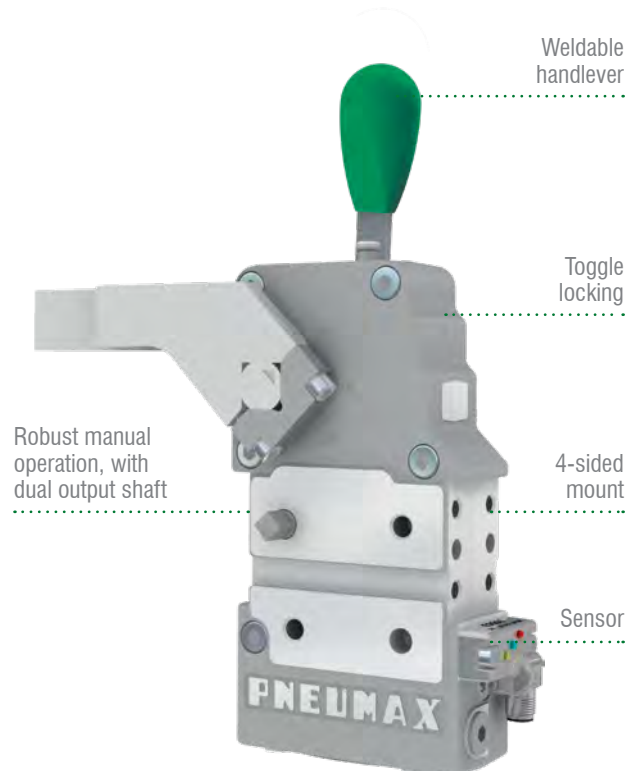


Manual clamps

Mainly used for prototypes and material processing

Same mounting pattern as conventional pneumatic clamps to allow a **consecutive automatization of the tooling without replacing the mountings.**

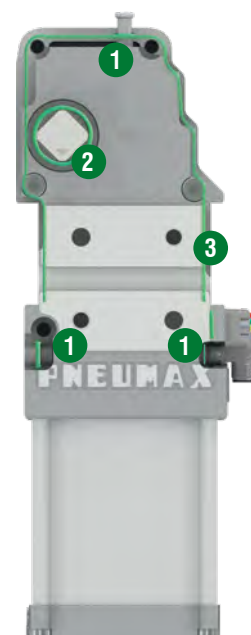
Fully enclosed aluminum body. Slag resistance.



Sealed clamps

- Weld-contamination proven
- Suitable for laser welding applications
- No dimensional change from conventional clamps

- 1 The manual unlock button and the adjustment access are sealed with an O-ring
- 2 The toggle mechanism is fully sealed
- 3 Acrylic-based Loctite® for full sealing

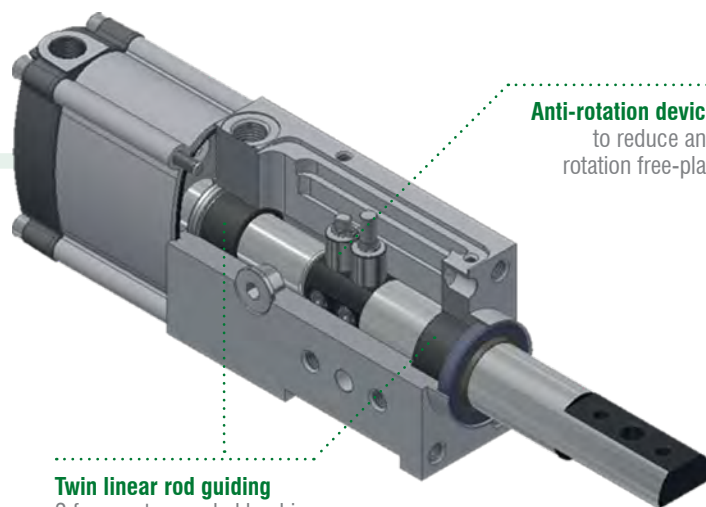


Locating

High locating accuracy.
Best corrosion and weld
spray resistance.



**Extra-light
products**



Anti-rotation device
to reduce any
rotation free-play

Twin linear rod guiding
2 far apart spreaded bushing
limit any deflection and improve
the pin package accuracy
over a long period of time.



High positioning accuracy level

Precise guiding through 2 far-apart spreaded bushings
for an optimal support of the rods > twin piston rod guide

- Low deflection
- Efficient anti rotation mechanism

Long life built-in components in rust prevention

- No weld covers or bellows required
- Steel and brass rod scraper to prevent welding debris from entering the pin package
- Chrome rod coating as a protection against adhering weld sparks

Resistance to laser dust

Anti-rotation system to reduce any rotation free-play

Locating products

Dual rods

- Extra-light products
- Short body length
- Clear design with user-friendly surfaces and no dirt or welding deposit traps



Nano pin packages



2-sided mounting option

Supply ports on 3 sides



Front
mount

Rear
mount



Supply ports

High performance pin package

The heat generated from any welding process can cause a localized deformation in the workpiece when the metal cools, some parts could contract more than others, leaving residual stress.

To improve the process reliability, a higher level of pull force to disengage the pin can be required to overcome the tensions in the workpiece.

Pull force:
1960N



Cnomo

Pin packages according to Cnomo standard also available with manual operation.

CNOMO



Handling

Pneumatic gripper clamps with fully adjustment opening angle



Quick set-up



No flow valve required



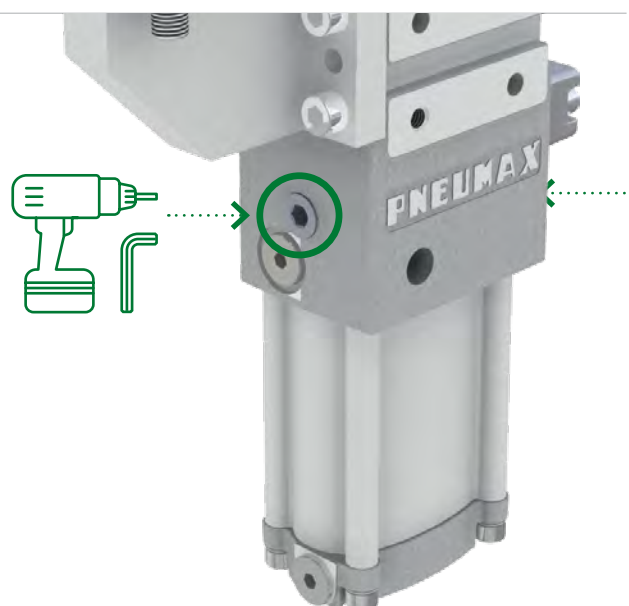
Toggle-joint mechanism

Compact gripper clamps with toggle-joint mechanism, to secure the workpiece clamping in case of air loss: the jaws remain locked in closed position.

Mainly used to **hold the workpiece on edges or through holes – from above or below – and to transfer parts.**

The shortest set-up time in the market

Easy field adjustment of the opening angle, from the rear or front side of the gripper clamp with the shortest set-up time in the market.



Handling products

J-Series

Complete reliability of the angle adjustment over time integrated mechanism secures the adjusted position and prevents any sliding or opening angle displacement. A **retain mechanism** secures the **adjustment tool in its seat** and prevents the Allen wrench to fall down during the adjustment procedure.

Even without air, the clamp can be toggle-locked through the adjustment means.



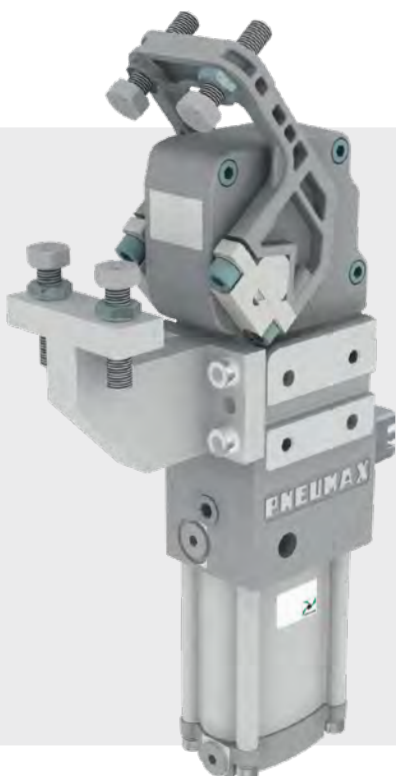
Sealed roller bearings

Lightweight design, which does not compromise the stiffness and strength of the housings.

Equipped with sealed roller bearings, to ensure a high protection degree against contaminants > **fully encapsulated housing**.

No flow valve required

No slamming towards the opening position due to an optimal integrated cushioning system.



Pivoting

Robust and reliable pivot units to accurately position and/or rotate tooling or parts to work condition



Quick set-up



Robust conical roller bearings

Easy set-up and quick installation time

The orientation of the ports can be easily achieved by untightening the tie rods.

No external limit stop required

Pneumatic cushioning of both end positions: fixed orifices and integrated cushioning provide for smooth operation in the closing and opening cycles.

Robust conical roller bearings

Drive shaft connections are all equipped with robust conical roller bearings for a **high load capacity and side load acceptance**.

All enclosed mechanism

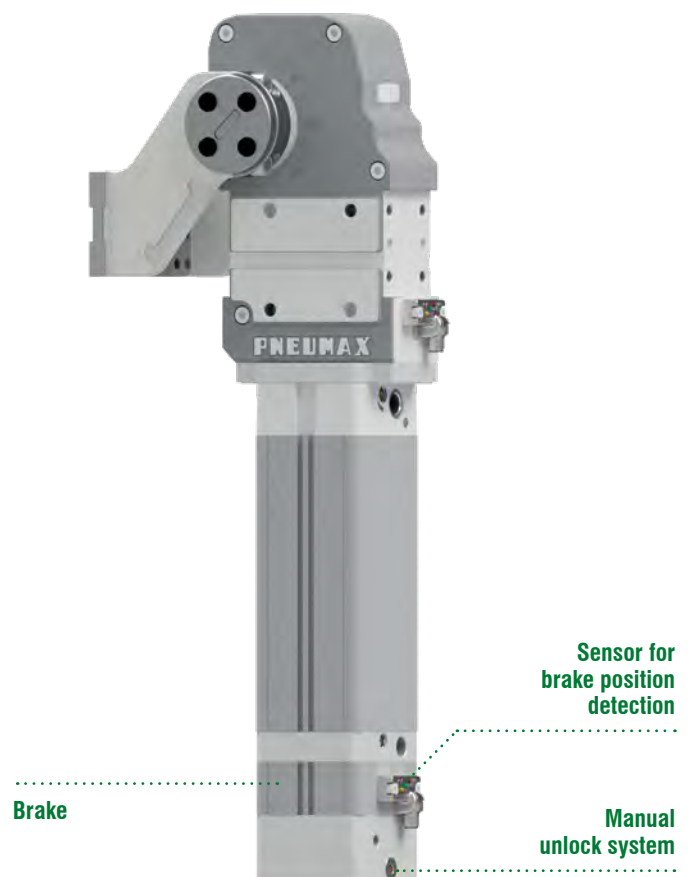
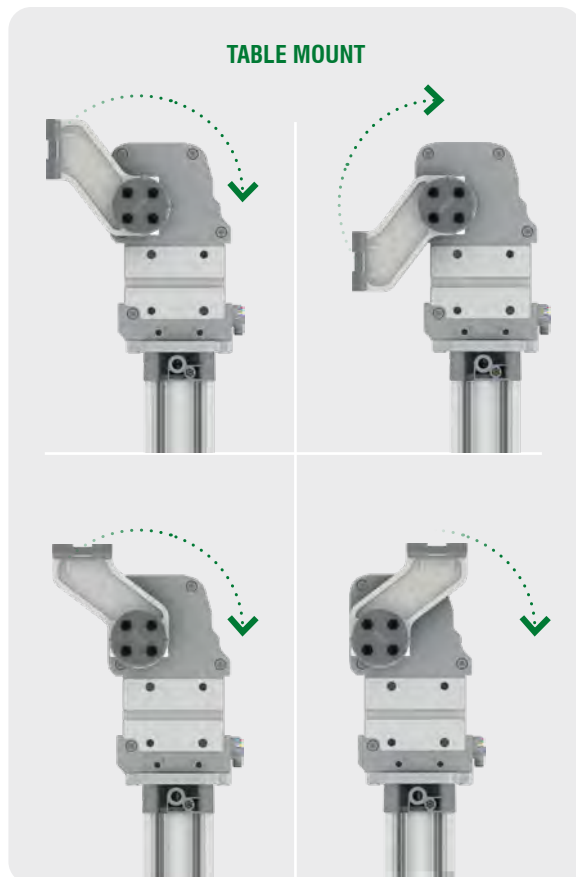
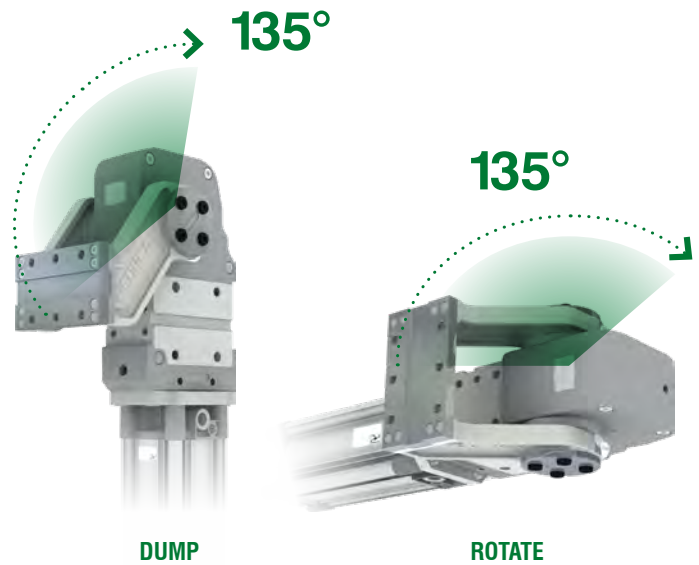
to ensure a high protection degree against contaminants and years of service life **without maintenance** to minimize downtime associated with contamination.

Power pivots

P-Series

The P series can be mounted by its rear or front mount and can be used as a **DUMP** device. By mounting the pivot units by their lateral mounts, they can be used to **ROTATE** parts, tooling and clamps' assemblies.

- Remains locked even after loss of air pressure
- Front, rear and side mounting surfaces
- Four table mounting positions available
- 1 sensor for all sizes and opening angle with adjustable connector
- Extra light products

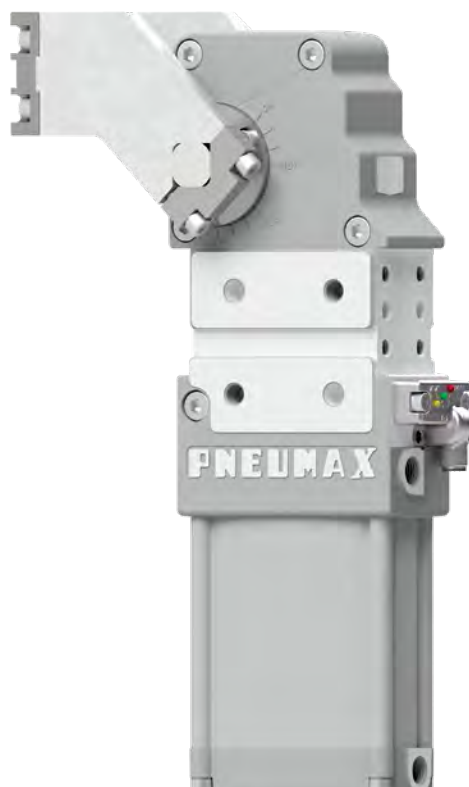
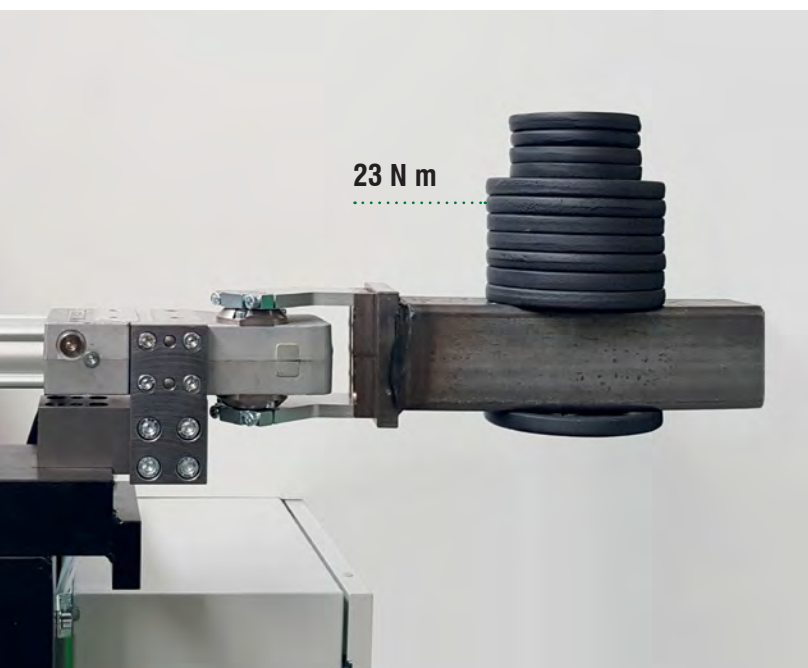


P63-Series

Pneumax guarantees high reliability of all products though a 100% testing procedure made by the Automotive division Quality Department.

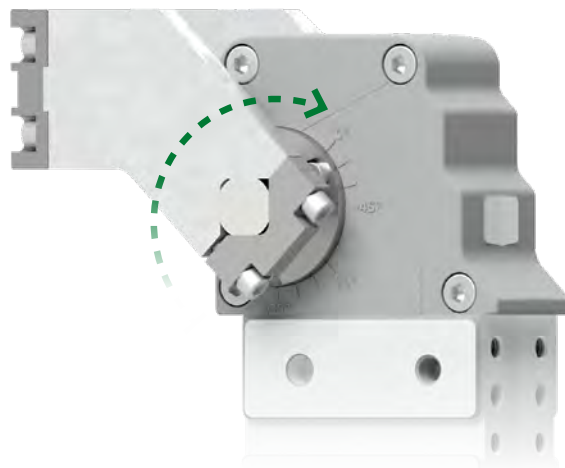
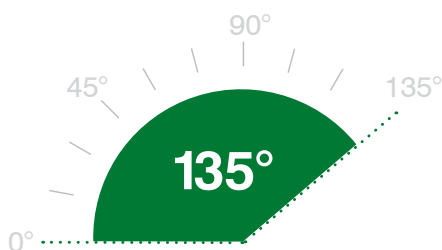
Conforming to standard

GLOBAL STANDARD COMPONENTS
NAAMS 



Max swivel angle: 135°

The only fully adjustable opening angle from 0° to 135° in the market.

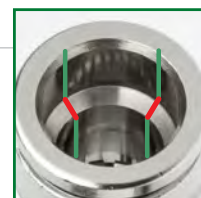


Complementary products

Fittings



Fully guided sleeve



Sensor

M12 or M8 connector;
PNP or NPN



Patented



Tubes

External layer:
Flame resistant V-0
Middle layer:
Aluminun foil
Inner layer:
Polyurethane



Auto-retaining device

for opening position an extremely light device which maintains the clamping arm in its defined opening position in case of air loss. The AR-series has been designed for **maximum load capacity** and due to its compact dimensions, it can be used on the same side of the manual operation handle.



Patented

EC001

Sensor cable



Shims and spacers



NC Locator

MLGA Multi-Axes Locator for Geometric Alignments

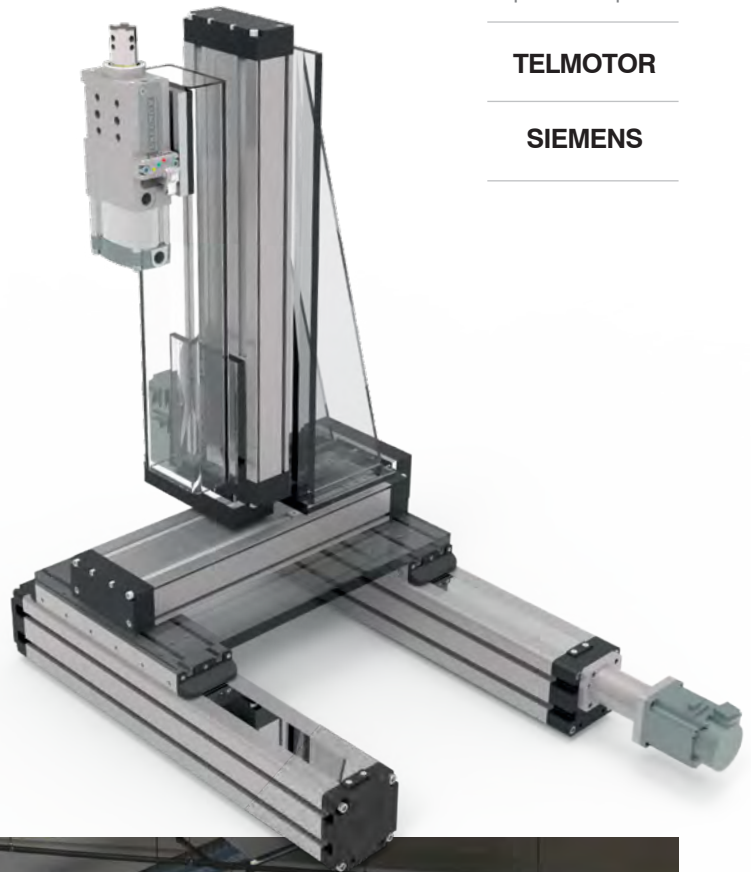
Positioning locator with interpolated electric actuators with ball bushings and brushless servo motors, all controlled by a digital driver system to provide the geometric alignments.

- **Compact design:** the MLGA can be used on grounded toolings or on end effectors with robots
- **High repeatability** and high location accuracy
- **High protection** level against contamination: all components are protected against welding spatter and deposits of debris from on-going mechanical processes. Suitable for harsh environments, as Body In White
- **User-friendly interface** - Simplified HMI, augmented reality and cloud connection

In partnership with

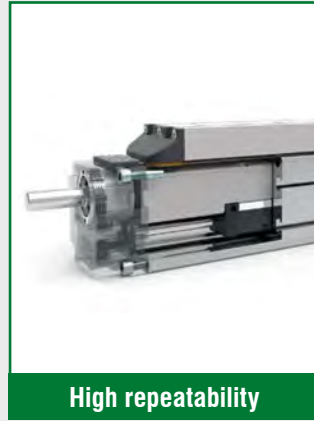
TELMOTOR

SIEMENS

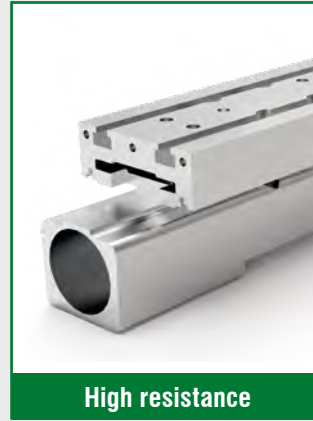




Compactness



High repeatability



High resistance



User-friendly Interface

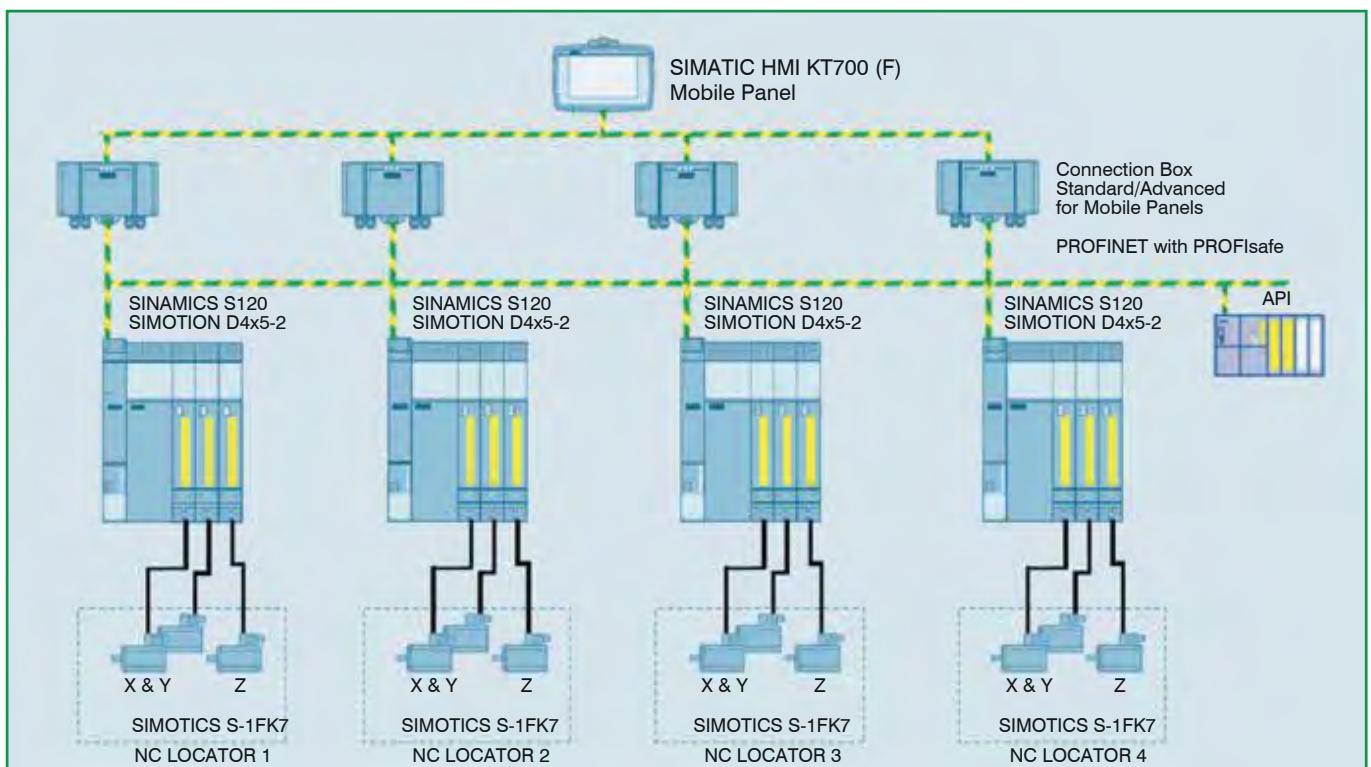
General features

- **DIGITAL TWIN** for commissioning, testing, training and customer specific adoption
- **RECONFIGURABILITY**: the system allows the operator to adjust the location in order to quickly and easily adapt to different geometric alignments of different models
- **SINAMICS S120** drives with extended safety functions
- **SIMATIC IoT2040 PLATFORM**: in Cloud accurate monitoring of functional parameters and data analytics
- **SINEMA REMOTE CONNECT** for secure maintenance and connection
- **AUGMENTED REALITY** for easy to use interoperability with the machine and production line



Interpolation of different systems

Possible configuration for process time reduction



Components for the automotive industry

Pneumax is a **one-source supplier** for the Automotive Industry with a comprehensive line of:

- **Pneumatic drives**
- **Valves**
- **Valve terminals**
- **Communication control blocks**
- **Compressed air preparation**
- **Grippers**
- **Exhaustive range of clamping, locating, handling and pivoting devices for BIW.**

ECOMPACT

Compact cylinders



SHORT STROKE

Compact cylinders



ECOLIGHT ISO 15552

Standard-based
light cylinders



ISO 6432

Standard-Based
microcylinders



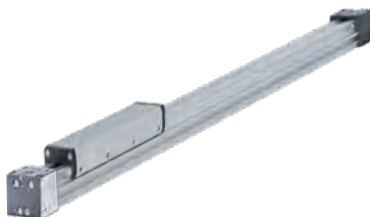
ECOFLAT

Flat cylinders



RODLESS

Cylinders



GUIDED

Compact cylinders



GUIDED COMPACT CYLINDERS

Metal Rod Scrapers

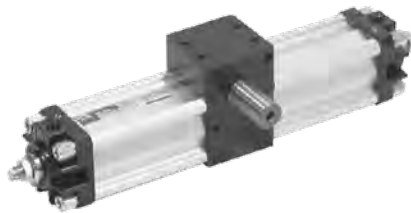


Serial connections with:

- **CAN**open
- Ether**CAT**➔
- **DeviceNet**™
- **IO-Link**
- **PROFI**®
BUS
- **PROFI**®
NET
- **EtherNet/IP**™

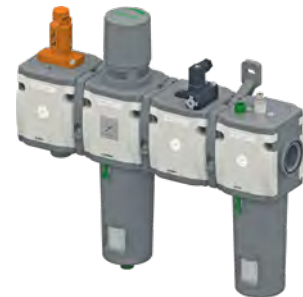
ROTARY ACTUATORS

Cylinders



AIRPLUS

Modular Air Service Units



OPTYMA

Valve Manifold series



PARALLEL GRIPPERS

Compact cylinders



Radial grippers
(180°)



Three-points
grippers



Angle
grippers



Mini slides

CABINETS AND SYSTEMS



ISO 15407

Valve Manifold series



SERIE 1700

Proportional regulators



SPECIAL SOLUTION

Cooling water intake cylinder





HEADQUARTERS



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