



**PNEUMAX**



# **AUTOMOTIVE ELECTRIC DEVICES**

E-Range CATALOGUE



# E-Range

Electric devices fo BiW applications

A wide range of advanced electric components  
for Body in White applications including  
clamping, locating, handling and pivoting



## PNEUMAX AUTOMOTIVE

Pneumax Automotive is a business unit of Pneumax Spa. The Italian company was founded in 1976 and today is at the head of Pneumax Group, one of the main players in the industrial and process automation industry worldwide. The Pneumax Automotive BU offers a complete range of products dedicated to the production lines of the industry, with a special focus on **Body in White applications**.

The Pneumax range includes **clamping units, pin packages, gripper units, power pivots** and complete multi axes positioning systems developed to guarantee maximum reliability and the highest accuracy and repeatability.

Each product series integrates extremely **innovative technical solutions**, without compromising on compliance with the various international mounting standards. Special attention was placed in energy efficiency, with devices that allow the highest savings offered on the market. Pneumax's extensive network across the globe allows optimal and coordinated management of projects with automotive companies internationally. Every stage of production and product testing is carried out in our specially equipped departments in the Italian headquarters located in Lurano (BG) to ensure maximum reliability and the highest quality standards.

## Safety & green Automation

- Operator and equipment safety
- Flexibility and reduction of setup times
- Connectivity
- Energy savings
- Standardisation



## Pneumax Group

- Headquarters
- Companies
- Distributors

**PNEUMAX**  
Headquarters

  
INDUSTRIAL  
AUTOMATION

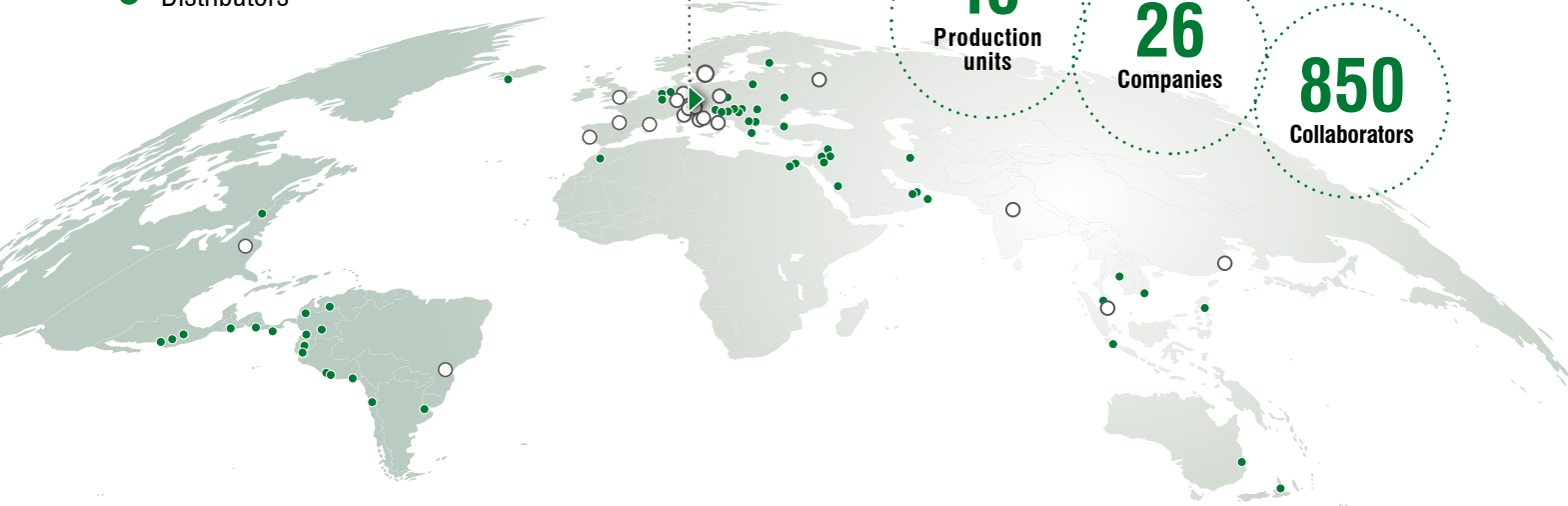
  
PROCESS  
AUTOMATION

  
AUTOMOTIVE

**10**  
Production  
units

**26**  
Companies

**850**  
Collaborators



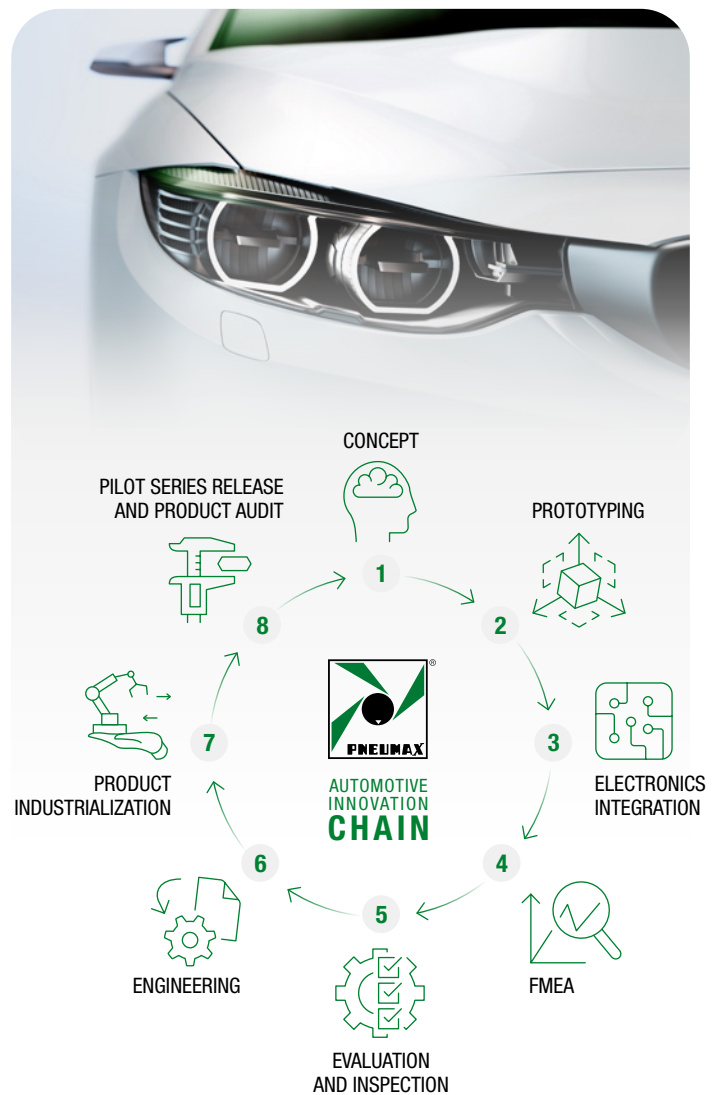


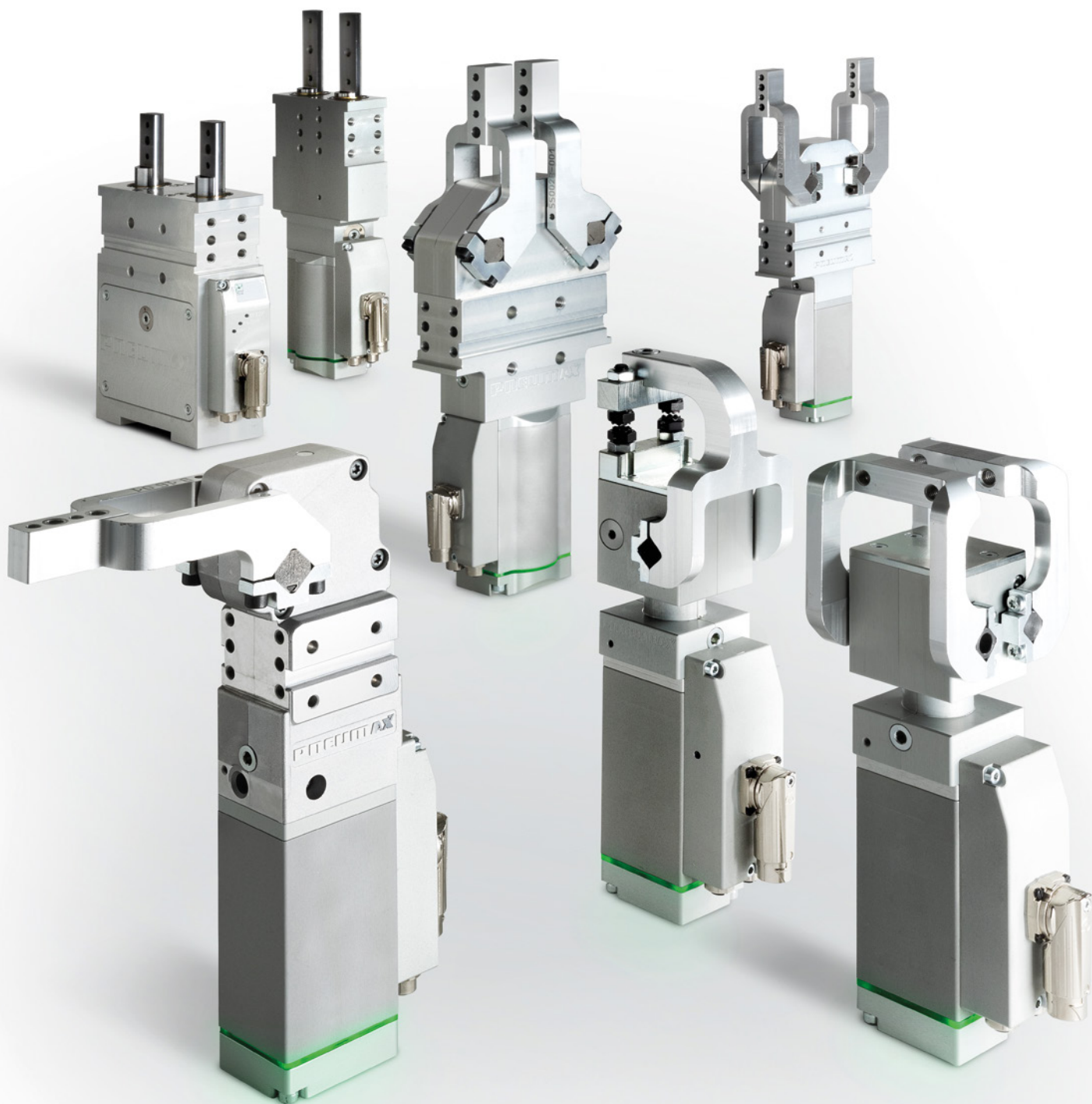
## A WIDE RANGE OF SOLUTIONS

In order to face the current challenges in BIW production lines, **Pneumax's product range is constantly evolving, with a specific focus on sustainability, flexibility of the control systems and energy efficiency.**

Today, in addition to the consolidated range of pneumatic solutions, Pneumax further expands its offer by introducing E-Range, a new line of **electrical devices.**

Thanks to the experience gained in the industrial automation sector and a constant commitment to innovation, the company establishes itself as a reference point not only in pneumatics, but also in electrical integration, offering advanced and high-performance solutions to meet the needs of a constantly evolving market.





# Index

## E-Range

|   |           |
|---|-----------|
| <b>E48-Smart product overview .....</b>                               | <b>8</b>  |
| <b>CLAMPING E48-Smart .....</b>                                       | <b>9</b>  |
| C1E25-Series – Nano Electric power clamps – International Mount ..... | 12        |
| C1E40-Series – International Mount .....                              | 17        |
| C1E50-Series – International Mount .....                              | 18        |
| C1E63-Series – International Mount .....                              | 19        |
| C1E80-Series – International Mount .....                              | 20        |
| C2E50-Series – NAAMS Standard .....                                   | 21        |
| C2E63-Series – NAAMS Standard .....                                   | 22        |
| C2E80-Series – NAAMS Standard .....                                   | 23        |
| CBE40-Series .....  | 25        |
| CBE63-Series .....  | 26        |
| Quick Installation Guide .....  | 27        |
| <b>LOCATING E48-Smart .....</b>                                       | <b>28</b> |
| RE50-Series .....   | 31        |
| FE63-Series .....   | 33        |
| FTE50-Series .....  | 36        |
| <b>HANDLING E48-Smart .....</b>                                       | <b>38</b> |
| GE401-Series .....  | 40        |
| GE402-Series .....  | 41        |

# E-Range

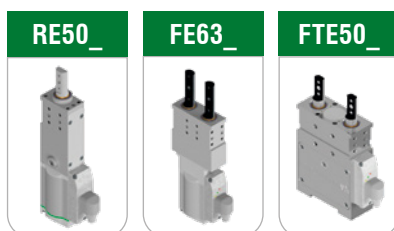
## Product Overview

**E48-Smart**  
**48Vdc powered electric smart range**

### Clamping - E48-Smart



### Locating - E48-Smart



### Handling - E48-Smart



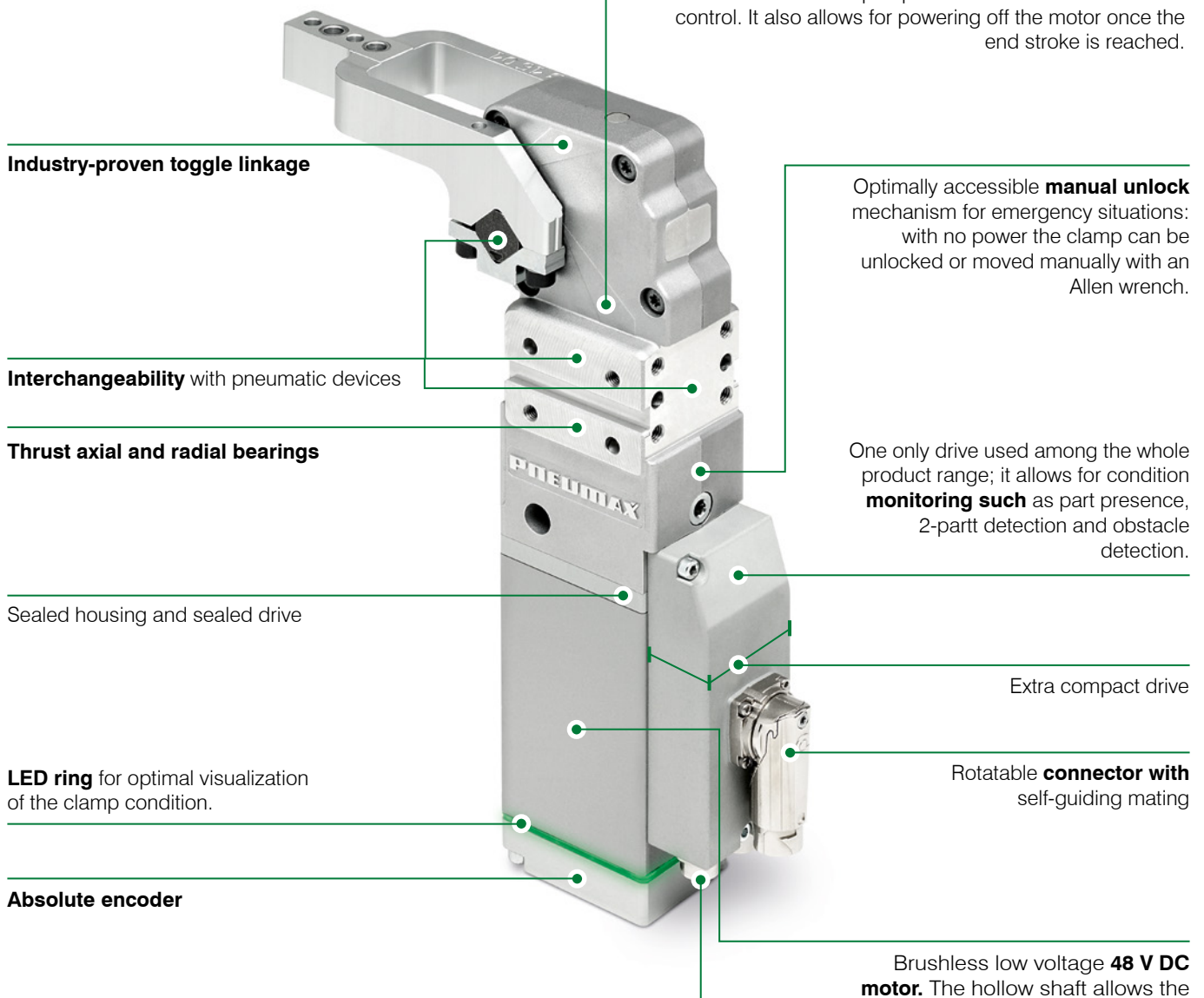


# Clamping

## E48-Smart Highlights



Patented



Industry-proven toggle linkage

Interchangeability with pneumatic devices

Thrust axial and radial bearings

Sealed housing and sealed drive

LED ring for optimal visualization of the clamp condition.

Absolute encoder

**Backlash-free trapezoidal stainless steel screw** with optimal compromise between cycle time and load capacity; the irreversibility of the screw allows for an integrated **auto-retain** of the open position and enhances the load control. It also allows for powering off the motor once the end stroke is reached.

Optimally accessible **manual unlock** mechanism for emergency situations: with no power the clamp can be unlocked or moved manually with an Allen wrench.

One only drive used among the whole product range; it allows for condition **monitoring such** as part presence, 2-part detection and obstacle detection.

Extra compact drive

Rotatable **connector with** self-guiding mating

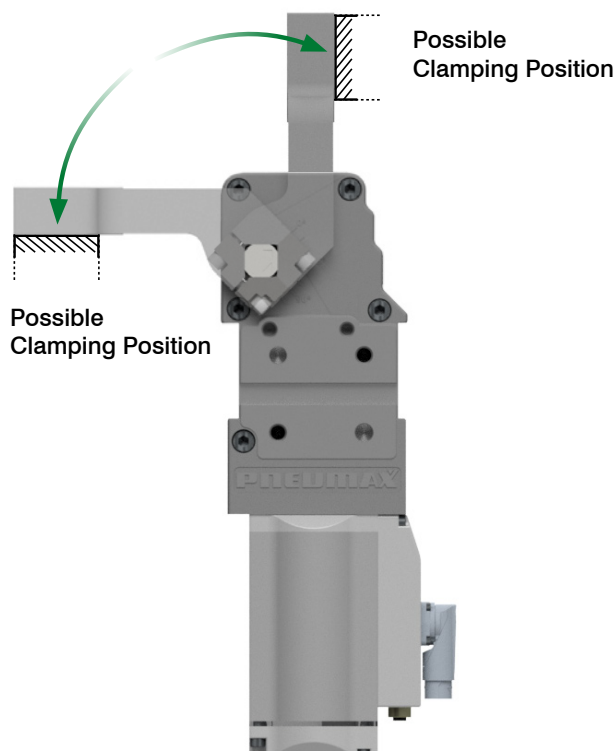
**EtherCAT** communication:

- quick and cable length saving installation through **daisy-chaining**
- Thanks to the CSP (Cyclic Synchronous Position) mode DC, the EtherCAT master is able to send desired positions to the clamp. In this mode, the trajectory generator is located in the master control device, not in the clamp. In acyclic synchronous manner, it provides a target position to the clamp device, which performs position control.

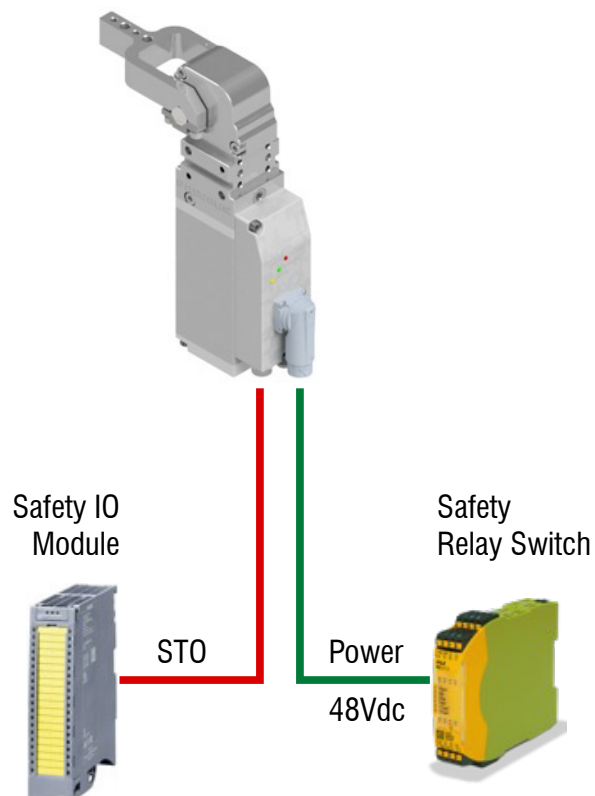
Brushless low voltage **48 V DC motor**. The hollow shaft allows the rotor and the nut screw to be coaxial with the stator, thus reducing friction and allowing the motor torque to be optimally used.

## Double clamping position

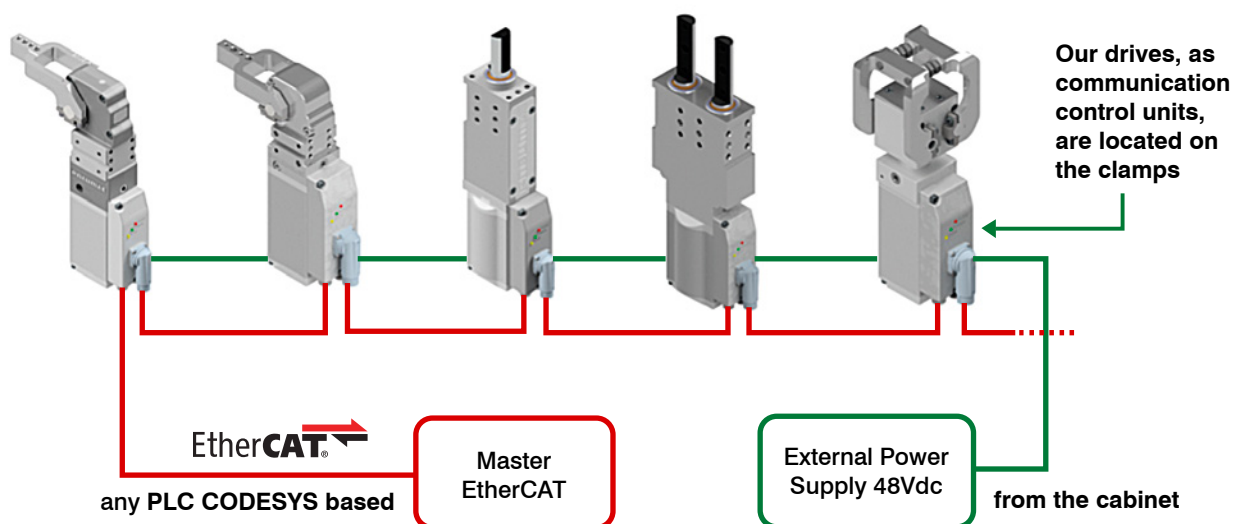
Thanks to the irreversibility of the screw, the open position can be managed as closed position. The clamping moment values in such a configuration are available upon request.



## Safe signal handling STO

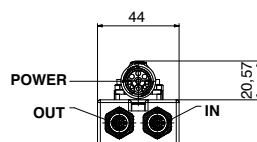
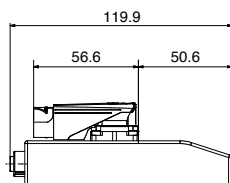
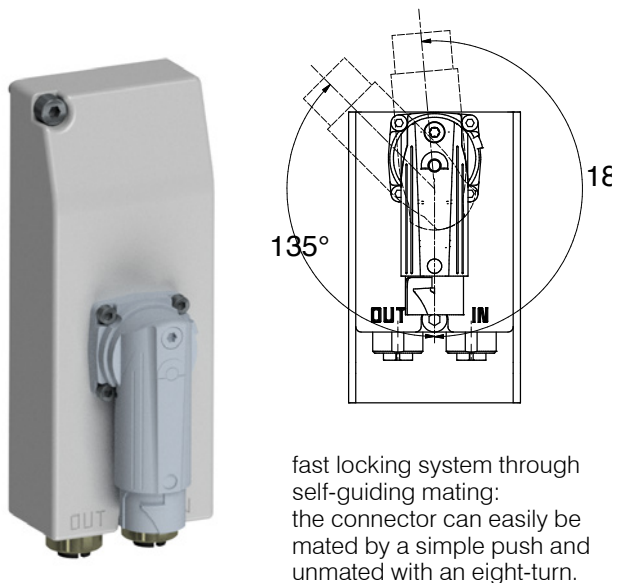


## Installation concept for electrical clamping technology direct to the PLC

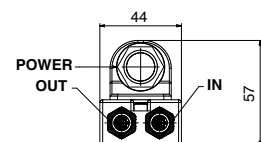
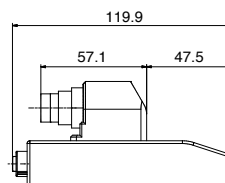
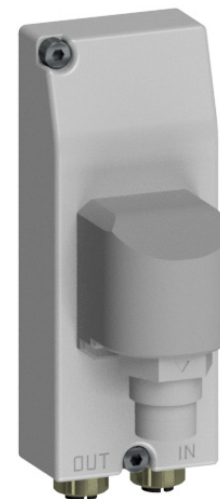


## Connector types

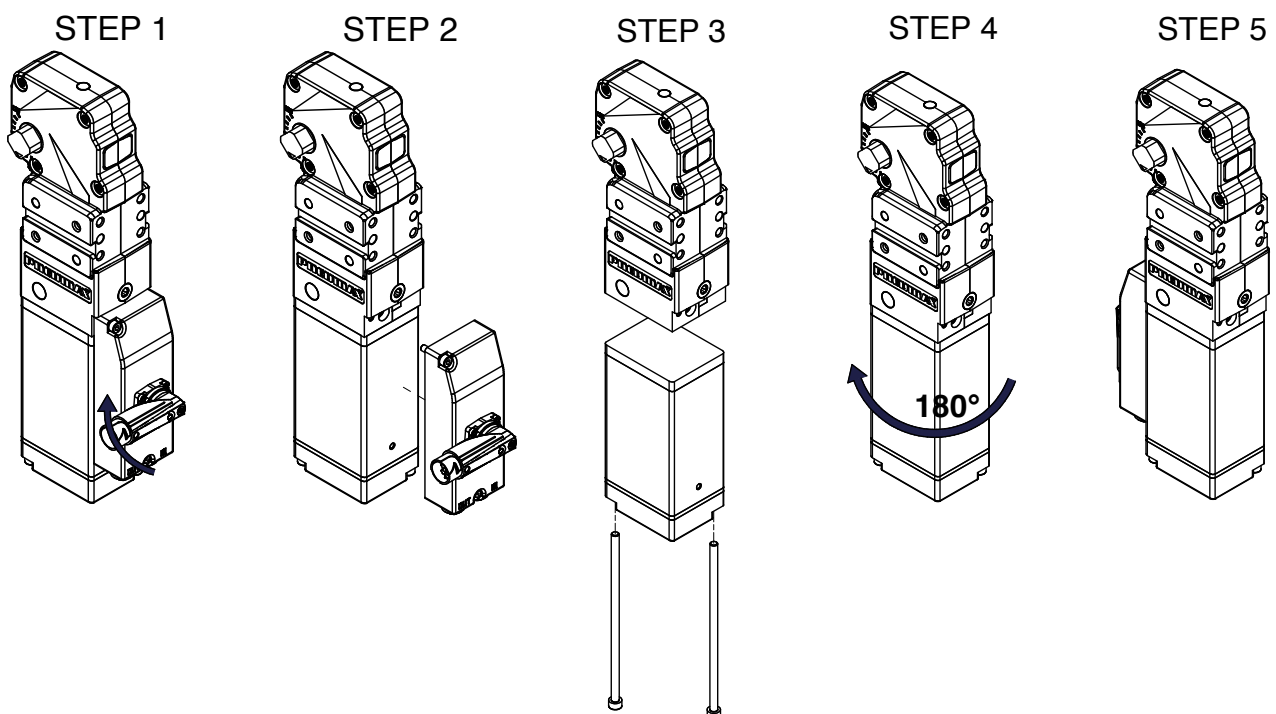
### Connector with rotatable housing and fast locking system



### Connector for Vario X Murr controller and power supply



### How to change side position of the drive



# C1E25-Series

## Nano Electric power clamps

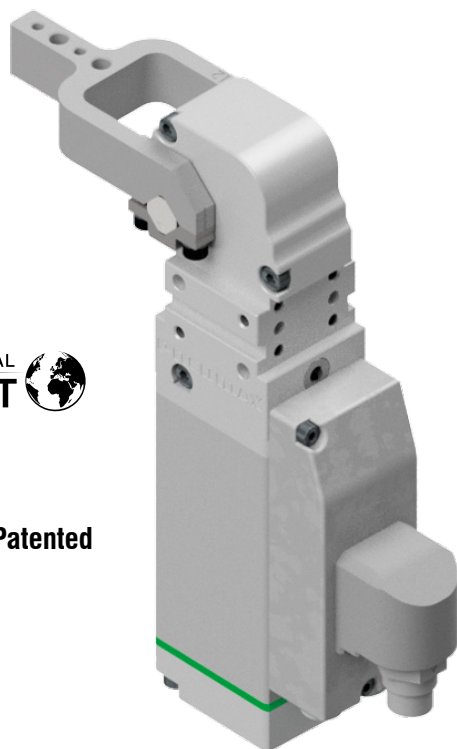
International mount

CLAMPING

INTERNATIONAL  
**MOUNT**



**Patented**



### Industry-proven toggle linkage

- Same functional dimensions of pneumatic clamps
- Same clamping and holding moments as pneumatic devices
- Stepless adjustable opening angle  
Optimally accessible manual unlock mechanism for emergency situations, which can also be used as manual operation
- Backlash-free trapezoidal screw with optimal compromise between cycle time and load; the irreversibility of the screw allows for an integrated auto-retain of the open position and enhances the load control
- Brushless low voltage motors with absolute encoder
- Extra-compact drive can be rotated by 180°
- Cable lengths can be reduced by daisy-chaining the drives

### Condition monitoring

- Obstacle detection
- Part presence; Part missing
- Multiple part detection

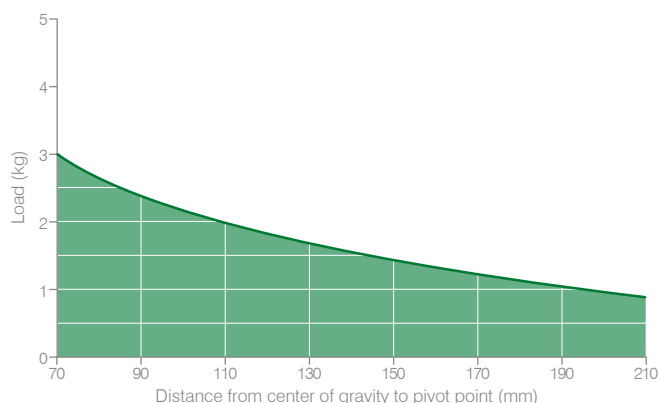
### Operating features

|                |         |
|----------------|---------|
| Supply tension | 48 VDC  |
| Peak current   | 0.7 A   |
| Noise level    | < 20 dB |

### Functional charts

## Size 25

#### • Tooling weight chart



#### • Clamping moment

**50 N m / 36 lb·ft**

#### • Holding moment





**75 N m / 55 lb·ft**



## Ordering string

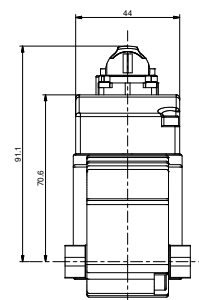
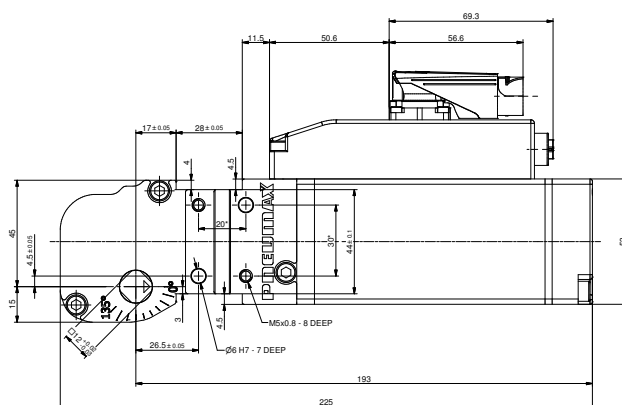
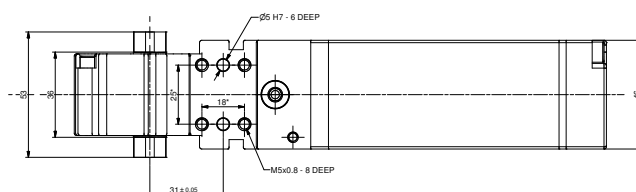
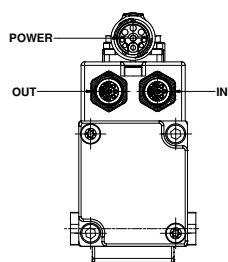
## Nano Power Clamps

C 1 E 25 1 A 01

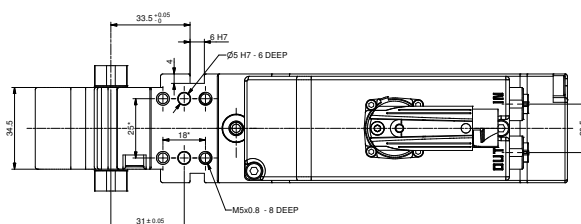
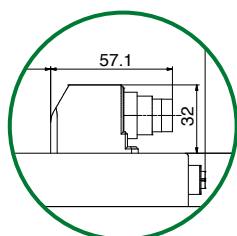
|           |                         |   |
|-----------|-------------------------|---|
| <b>C</b>  | <b>VERSION</b>          | <b>C</b> = clamp with toggle linkage  |
| <b>1</b>  | <b>MOUNTING PATTERN</b> | <b>1</b> = international mount  |
| <b>E</b>  | <b>OPERATION</b>        | <b>E</b> = brushless motor, 48 VDC, with drive<br>The clamp is supplied with the drive mounted on the rear side, it can easily be rotated to the front size by untightening the tie rods  |
| <b>25</b> | <b>SIZE</b>             | <b>25</b> = equivalent to size 25 (pn)  |
| <b>1</b>  | <b>ARM MOUNT</b>        | <b>1</b> =  <b>2</b> =  <b>3</b> =  <b>4</b> =  |
| <b>A</b>  | <b>ARM MATERIAL</b>     | <b>A</b> = aluminum   |
| <b>01</b> | <b>CLAMP ARM TYPE</b>   | <b>01</b> = wishbone, central, 0 mm offset <b>13</b> = H, 0 mm offset<br><b>04</b> = wishbone, central, 10 mm offset <b>14</b> = H, 10 mm offset  |
| <b>-</b>  | <b>CONNECTOR</b>        | <b>v</b> = connector with rotatable housing<br><b>v̄</b> = connector for vario-X control  |

## C1E25 / Nano Electric power clamps - International mount

**WEIGHT 1.98 kg**



### Dimensions of connector -V version



\* DIMENSIONAL TOLERANCE  
FOR DOWEL HOLES:  $\pm 0.02$

DIMENSIONAL TOLERANCE  
FOR THREADED HOLES:  $\pm 0.1$

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## C\_E-Series

### Electric power clamps

International mount

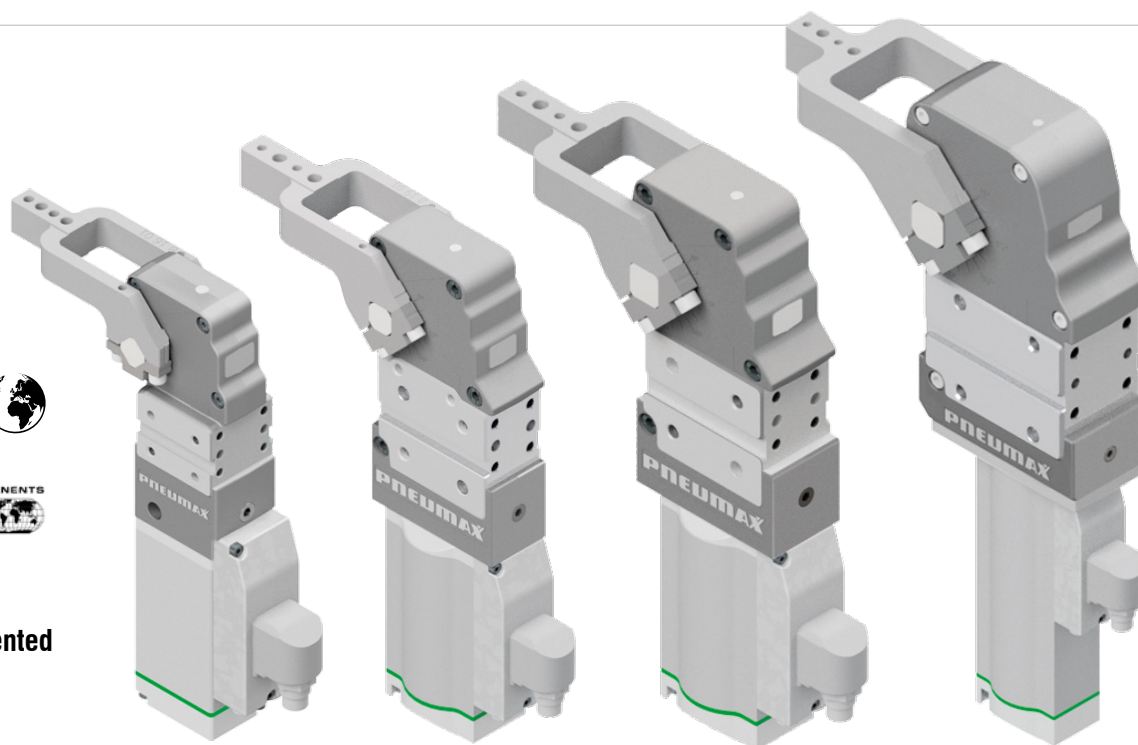
CLAMPING

INTERNATIONAL  
**MOUNT**

GLOBAL STANDARD COMPONENTS  
**NAAMS**



**Patented**



#### Industry-proven toggle linkage

- Same functional dimensions of pneumatic clamps for complete interchangeability
- Same clamping and holding moments as pneumatic devices
- Stepless adjustable opening angle
- Optimally accessible manual unlock mechanism for emergency situations, which can also be used as manual operation
- Backlash-free trapezoidal screw with optimal compromise between cycle time and load; the irreversibility of the screw allows for an integrated auto-retain of the open position and enhances the load control

- Brushless low voltage motors with absolute encoder and optimized cable cross-sections
- Extra-compact drive can be rotated by 180°; the smart drive automatically identifies the load and adapts the cycle time
- Cable lengths can be reduced by daisy-chaining the drives

#### Condition monitoring

- Obstacle detection
- Part presence; Part missing
- Multiple part detection

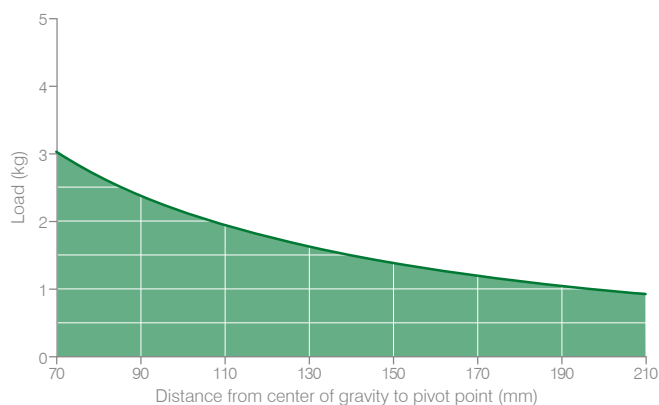
#### Operating features

|                |                                |                                |
|----------------|--------------------------------|--------------------------------|
| Supply tension | 48 VDC                         |                                |
| Peak current   | 0.8 A size 40<br>0.7 A size 50 | 0.7 A size 63<br>1.4 A size 80 |
| Noise level    | < 20 dB                        |                                |

## Functional charts

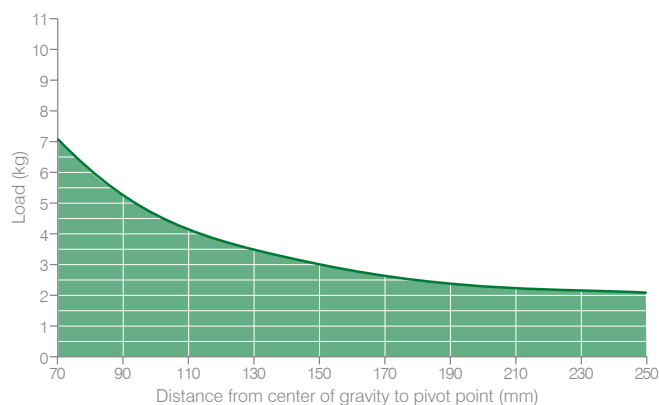
## Size 40

## • Tooling weight chart

• Clamping moment  
150 N m / 110 lb·ft• Holding moment  
380 N m / 2800 lb·ft

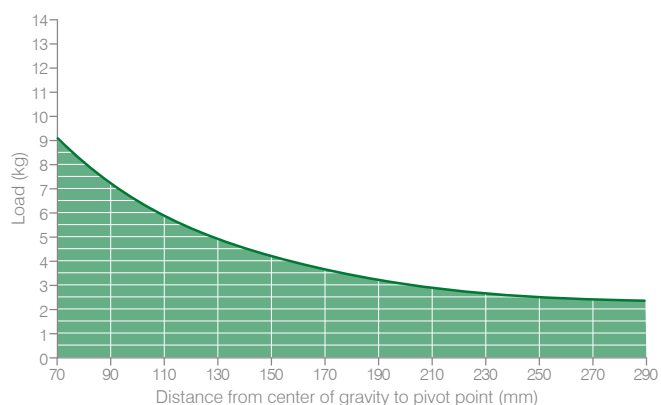
## Size 50

## • Tooling weight chart

• Clamping moment  
200 N m / 147 lb·ft• Holding moment  
800 N m / 590 lb·ft

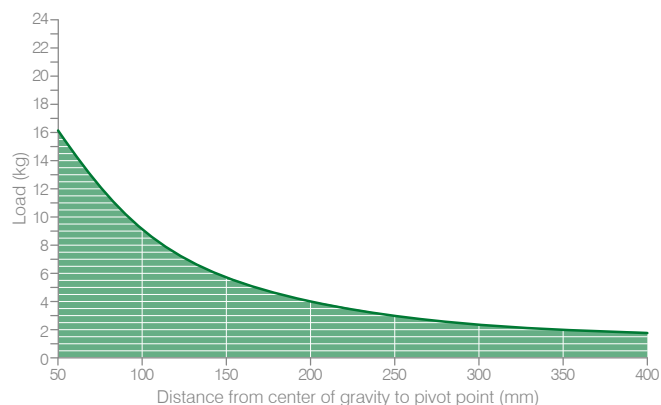
## Size 63

## • Tooling weight chart

• Clamping moment  
400 N m / 295 lb·ft• Holding moment  
1.500 N m / 1.100 lb·ft

## Size 80

## • Tooling weight chart





• Clamping moment  
600 N m / 442 lb·ft• Holding moment  
2.500 N m / 1.840 lb·ft

## Ordering string

Please see the charts in the datasheets for arm position as well as for max. opening angle

### C1E-Series

**C** **1** **E** **40** **4** **A** **01** **-**

|    |  |  |   |   |   |
|----|--|--|---|---|---|
| C  | VERSION  | C = clamp with toggle linkage  |   |   |   |
| 1  | MOUNTING PATTERN   | 1 = International mount  |   |   |   |
| E  | OPERATION  | E = brushless motor, 48 VDC, with drive  |   |   |   |
|    | The clamp is supplied with the drive mounted on the rear side, it can easily be rotated to the front size by untightening the tie rods |  |   |   |   |
| 40 | SIZE   | 40 = equivalent to size 40 (pn)<br>50 = equivalent to size 50 (pn)   |   | 63 = equivalent to size 63 (pn)<br>80 = equivalent to size 80 (pn)  |   |
| 4  | ARM MOUNT  | 1 =                               | 2 =  | 3 =                          | 4 =  |
| A  | ARM MATERIAL   | A = aluminum   |   | S = steel   |   |
| 01 | CLAMP ARM TYPE   | 01 = wishbone, central, 15 mm offset*<br>02 = wishbone, right, 15 mm offset*<br>03 = wishbone, left, 15 mm offset* |   | 04 = wishbone, central, 45 mm offset<br>05 = wishbone, right, 45 mm offset<br>06 = wishbone, left, 45 mm offset |   |
|    | * for size 80 mm = 20 mm offset<br>only aluminium  |  |   |   |   |
| —  | CONNECTOR  | V̄ = connector with rotatable housing<br>V̄ = connector for vario-X control  |   |   |   |

### C2E-Series

GLOBAL STANDARD COMPONENTS  
**NAAMS** 

**C** **2** **E** **50** **D** **-**

C

VERSION

C = clamp with toggle linkage

2

MOUNTING PATTERN

1 = Naams mount

E

OPERATION

E = brushless motor, 48 VDC, with drive

The clamp is supplied with the drive mounted on the rear side, it can easily be rotated to the front size by untightening the tie rods

50

SIZE

50 = equivalent to size 50 (pn)  
63 = equivalent to size 63 (pn)

80 = equivalent to size 80 (pn)

D

SHAFT OUTPUT

D = dual output    L = single output\_left    R = single output\_right

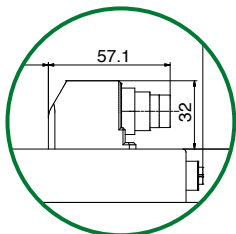
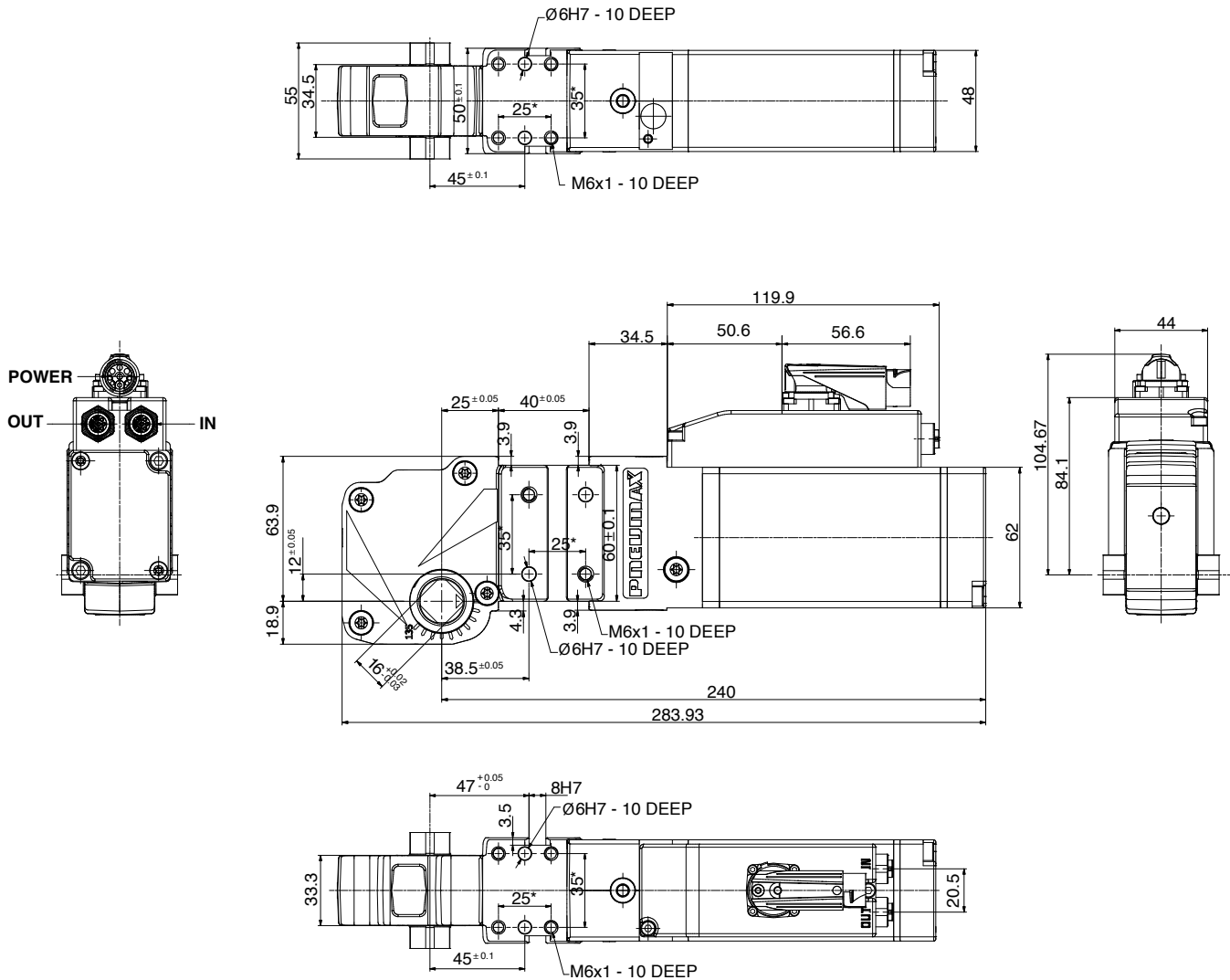
-

CONNECTOR

̄ = connector with rotatable housing  
̄V = connector for vario-X control

## C1E40 / Electric power clamps - International mount

**WEIGHT 2.44 kg**



### Dimensions of connector -V version

\* DIMENSIONAL TOLERANCE  
FOR DOWEL HOLES:  $\pm 0.02$

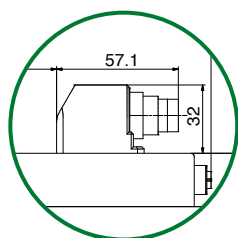
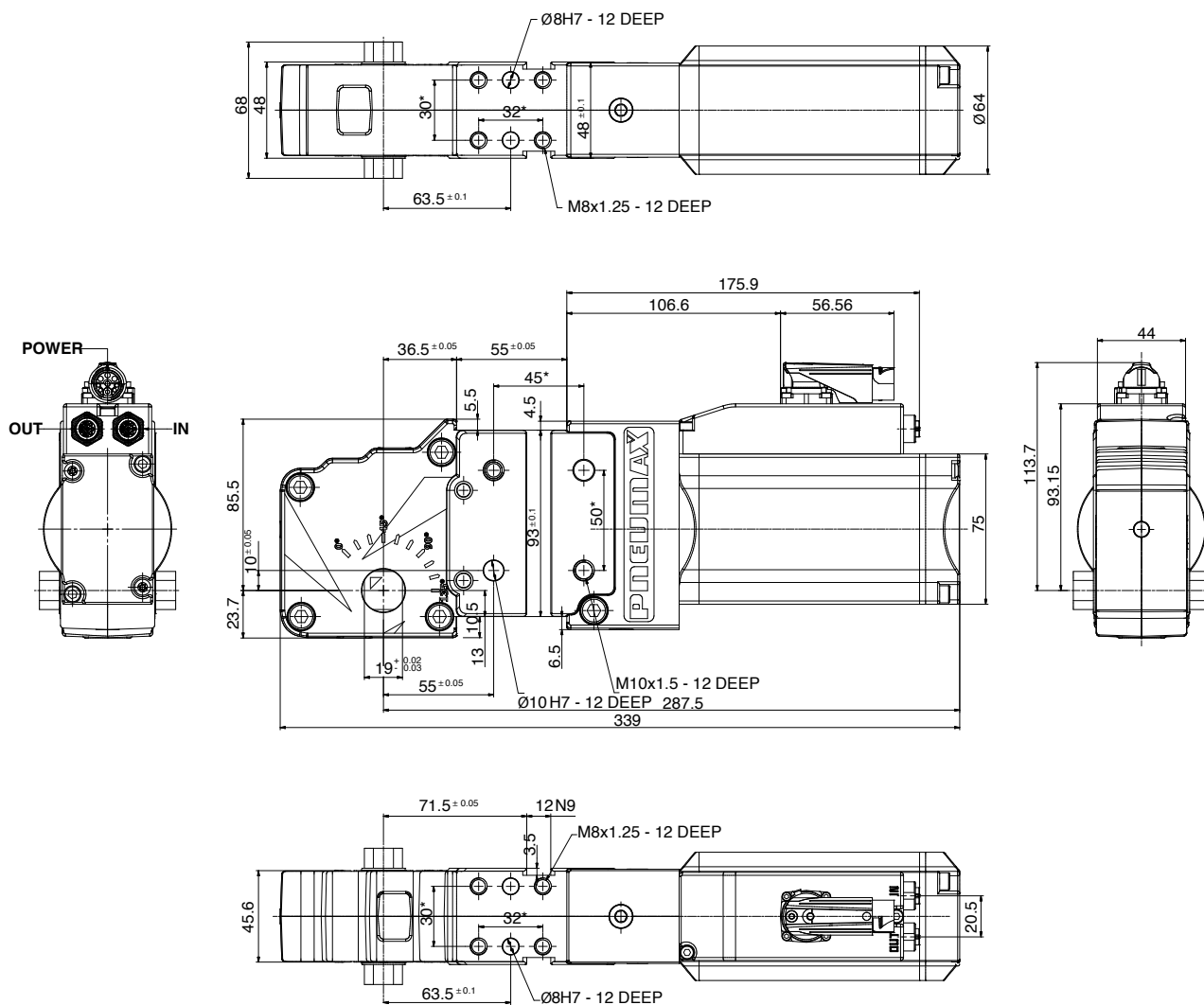
DIMENSIONAL TOLERANCE  
FOR THREADED HOLES:  $\pm 0.1$

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## C1E50 / Electric power clamps - International mount

WEIGHT 3.90 kg

CLAMPING



Dimensions of  
connector -V version

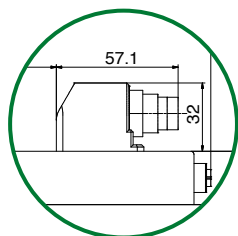
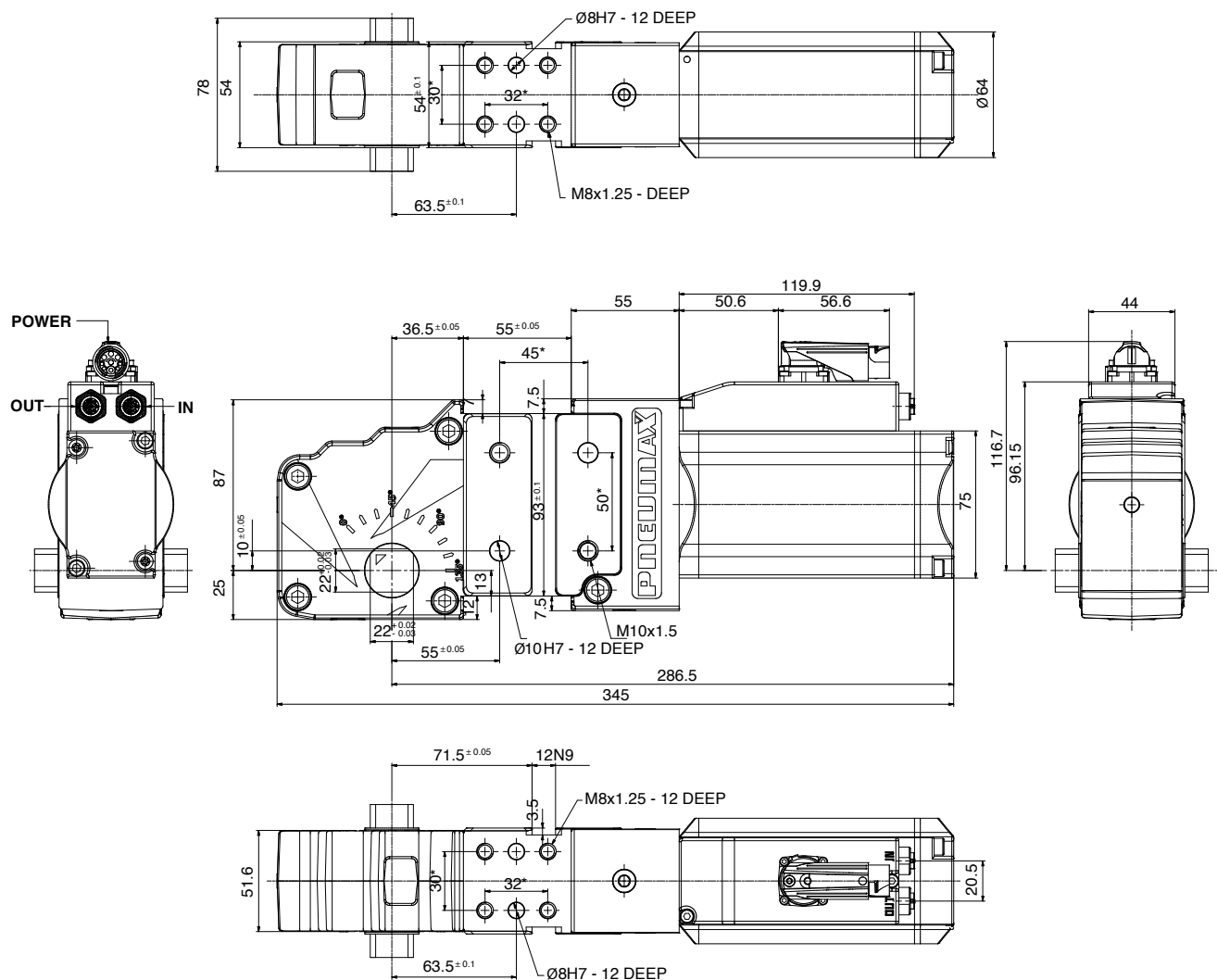
\* DIMENSIONAL TOLERANCE  
FOR DOWEL HOLES: ±0.02

DIMENSIONAL TOLERANCE  
FOR THREADED HOLES: ±0.1

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## C1E63 / Electric power clamps - International mount

**WEIGHT 4.45 kg**



### Dimensions of connector -V version

\* DIMENSIONAL TOLERANCE  
FOR DOWEL HOLES:  $\pm 0.02$

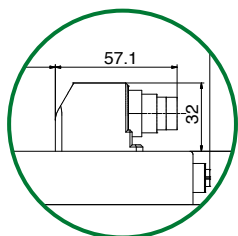
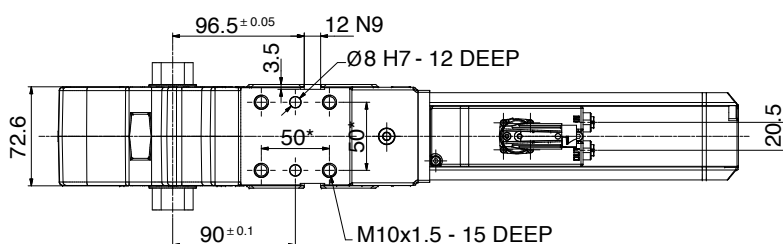
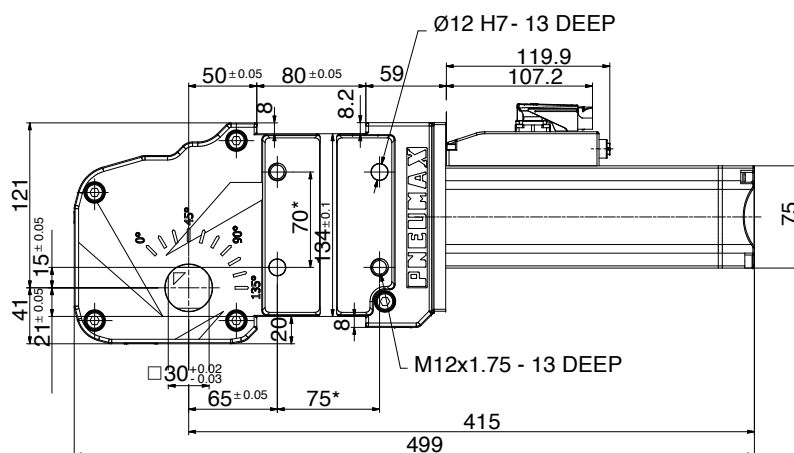
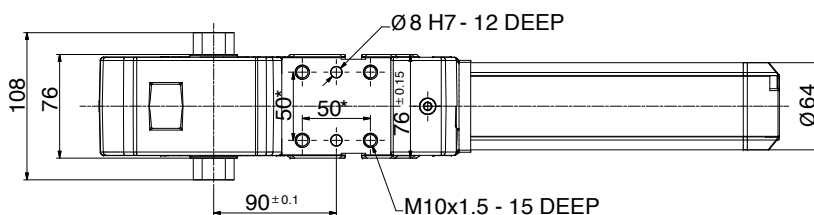
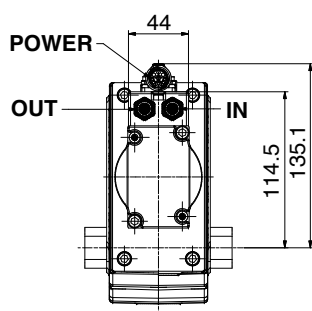
DIMENSIONAL TOLERANCE  
FOR THREADED HOLES:  $\pm 0.1$

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## C1E80 / Electric power clamps - International mount

WEIGHT 9 kg

CLAMPING



Dimensions of  
connector -V version

\* DIMENSIONAL TOLERANCE  
FOR DOWEL HOLES:  $\pm$ 0.02

DIMENSIONAL TOLERANCE  
FOR THREADED HOLES:  $\pm$ 0.1

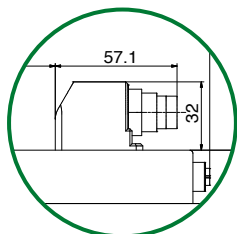
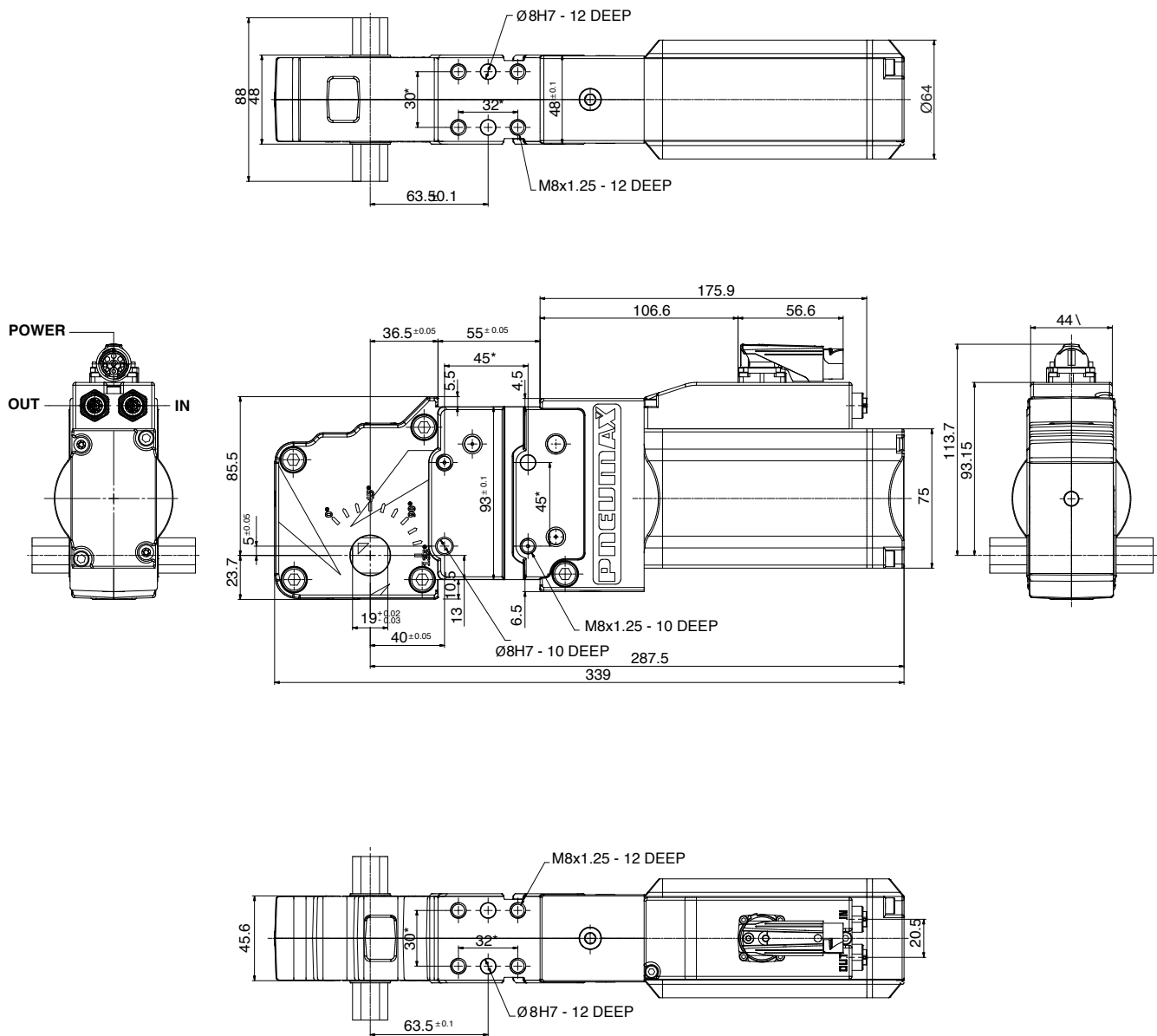
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## C2E50 / Electric power clamps - NAAMS mount

WEIGHT 4 kg

CLAMPING



Dimensions of  
connector -V version

\* DIMENSIONAL TOLERANCE  
FOR DOWEL HOLES:  $\pm 0.02$

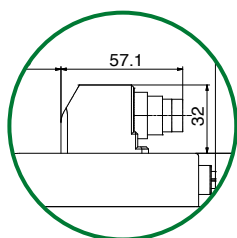
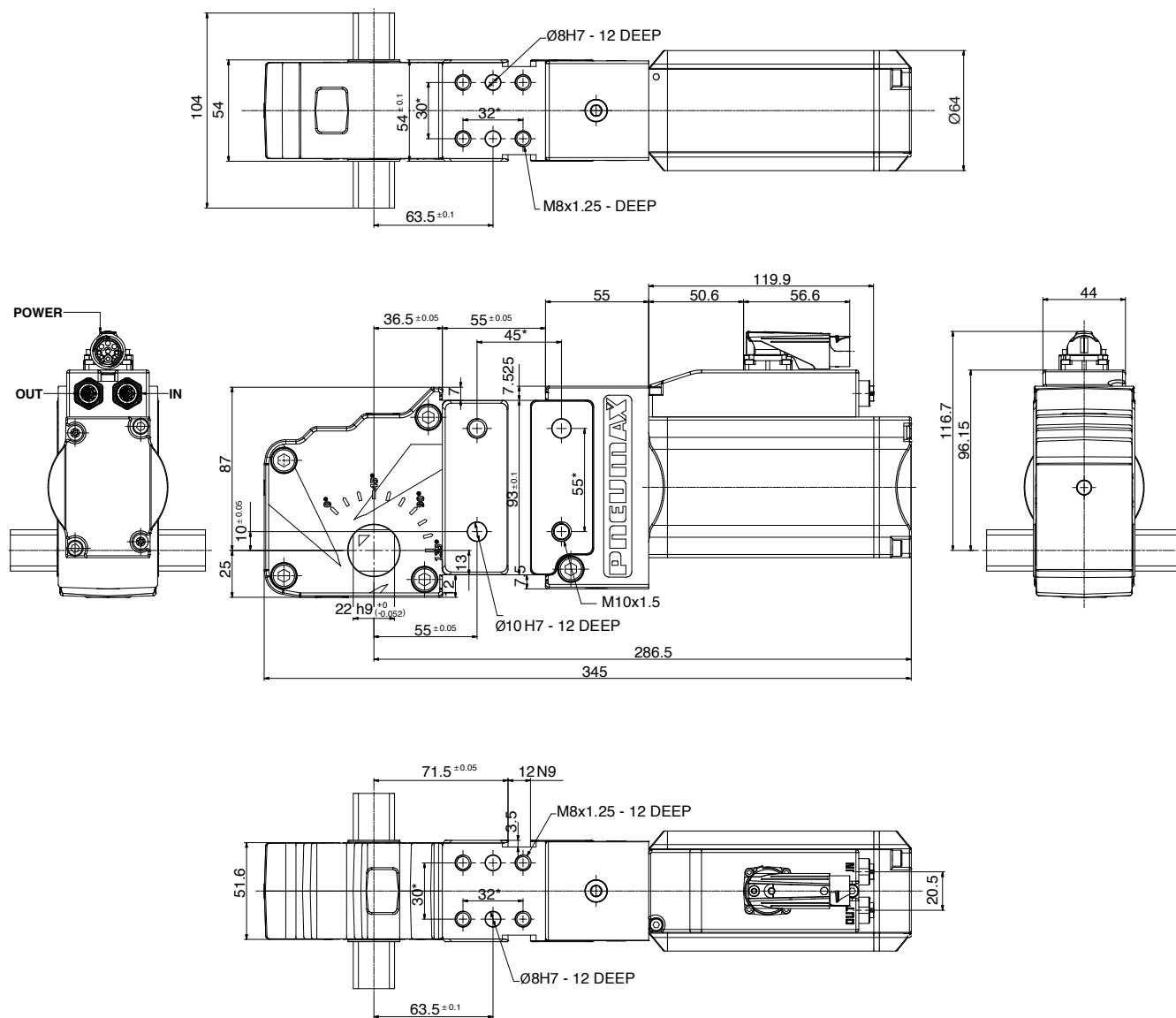
DIMENSIONAL TOLERANCE  
FOR THREADED HOLES:  $\pm 0.1$

REV.02 - 26/07/2024

## C2E63 / Electric power clamps - NAAMS mount

WEIGHT 3.90 kg

CLAMPING



Dimensions of  
connector -V version

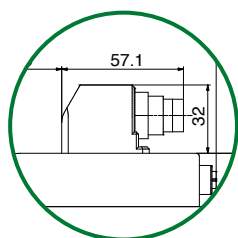
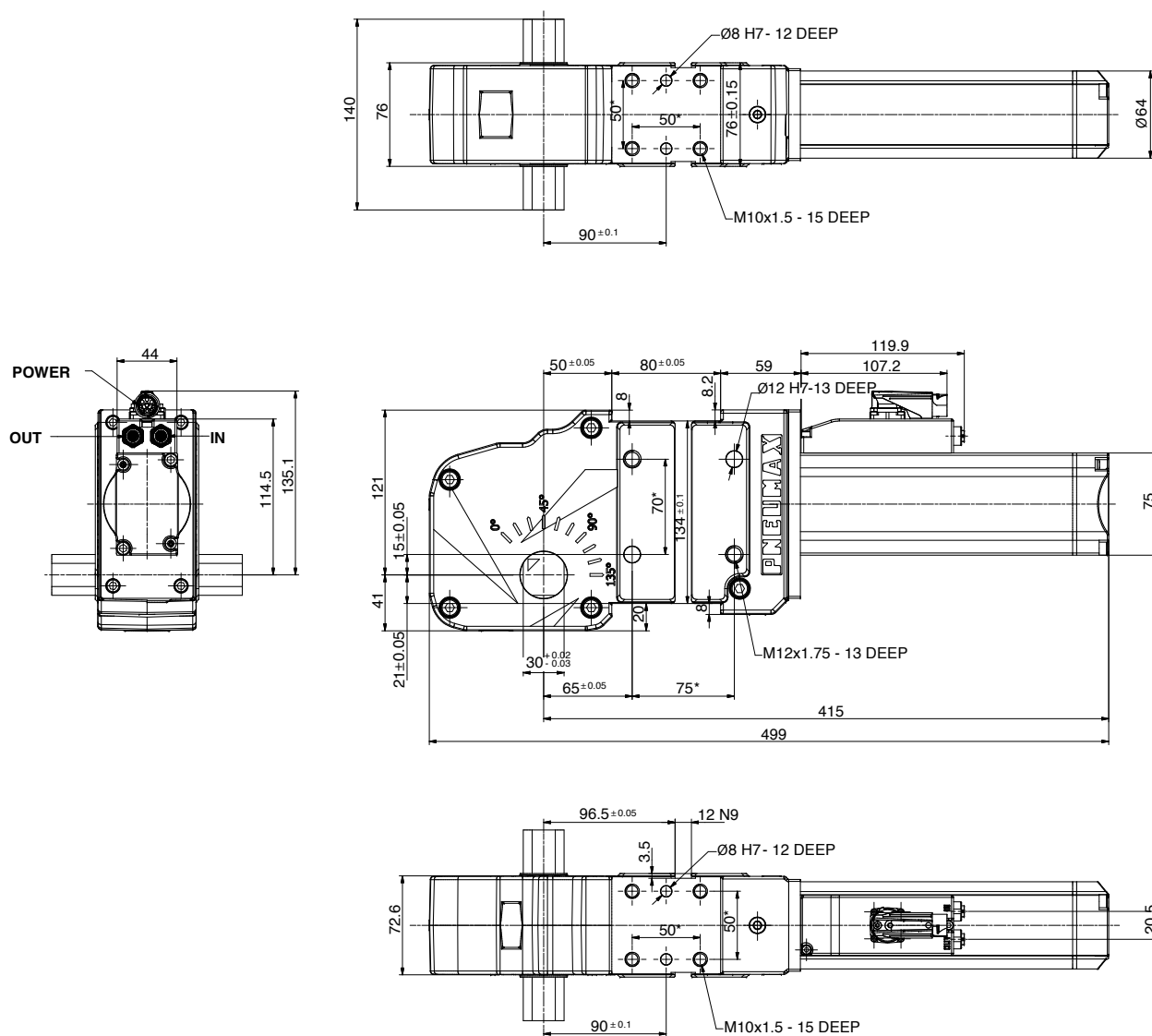
\* DIMENSIONAL TOLERANCE  
FOR DOWEL HOLES:  $\pm 0.02$

DIMENSIONAL TOLERANCE  
FOR THREADED HOLES:  $\pm 0.1$

REV.02 29/07/2024

## C2E80 / Electric power clamps - NAAMS mount

**WEIGHT 2.44 kg**



### Dimensions of connector -V version

\* DIMENSIONAL TOLERANCE  
FOR DOWEL HOLES:  $\pm 0.02$

DIMENSIONAL TOLERANCE  
FOR THREADED HOLES:  $\pm 0.1$

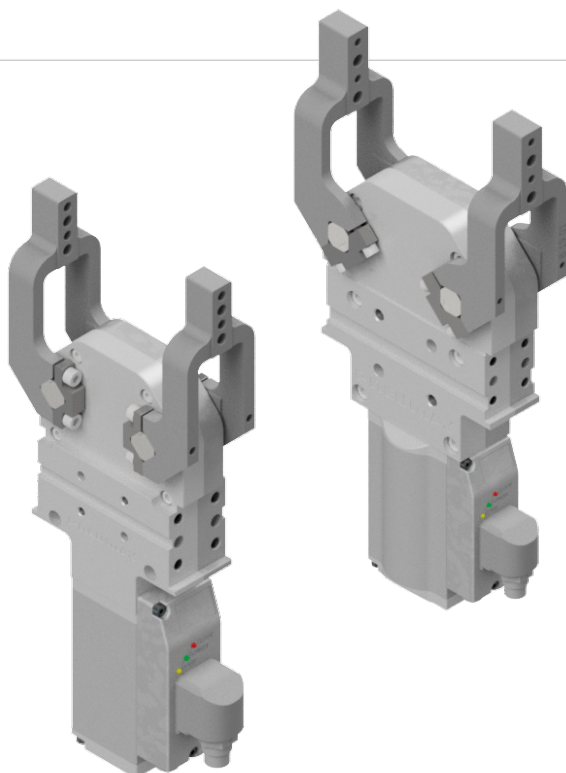
REV.02 - 26/07/2024

## CLAMPING

## CBE-Series

## Power clamp with dual arm

CLAMPING



### Industry-proven toggle linkage

- Same functional dimensions of pneumatic clamps
- Same clamping and holding moments as pneumatic devices
- Stepless adjustable opening angle
- Optimally accessible manual unlock mechanism for emergency situations, which can also be used as manual operation
- Backlash-free trapezoidal screw with optimal compromise between cycle time and load; the irreversibility of the screw allows for an integrated auto-retain of the open position and enhances the load control
- Brushless low voltage motors with absolute encoder and optimized cable cross-sections
- Extra-compact drive can be rotated by 180°
- Cable lengths can be reduced by daisy-chaining the drives

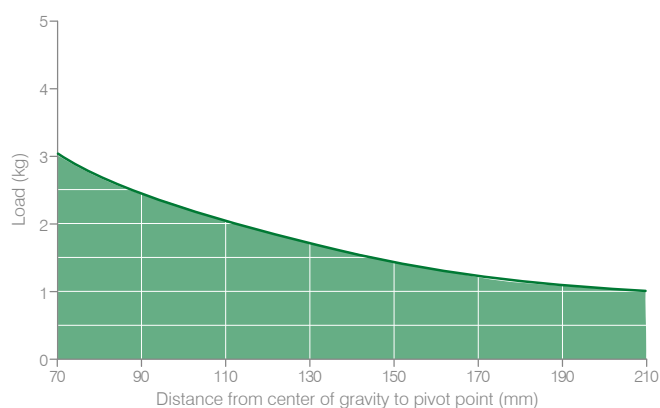
### Conditioning monitoring

- Obstacle detection
- Part presence; Part missing
- Multiple part detection

### Functional charts

#### Size 40

##### • Tooling weight chart

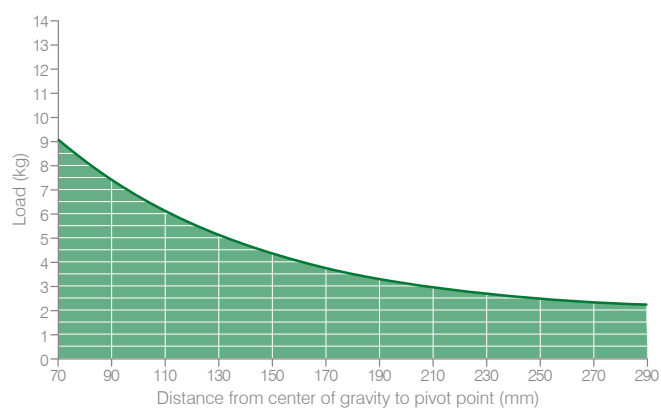


The max allowed load is to be divided on the 2 arms

- **Clamping moment**  
**85 N m / 62,69 lb·ft**
- **Cycle time**  
**0.8 s at 90°**
- **Holding moment**  
**110 N m**

#### Size 63

##### • Tooling weight chart



The max allowed load is to be divided on the 2 arms

- **Clamping moment**  
**170 N m / 125,39 lb·ft**
- **Cycle time**  
**0.8 s at 90°**
- **Holding moment**  
**280 N m**

The above data are meant for correct working conditions of the clamp with the same performance level during its life time.  
For applications which exceed the above data, please contact our sales representatives.

## Ordering string

### CBE-Series

**CB**

**E**

**40**

**5**

**A**

**01**

**-**

**CB**

#### VERSION

**CB** = double arm clamp

**E**

#### OPERATION

**E** = brushless motor, 48 VDC, with drive

**40**

#### SIZE

**40** = Ø 40 mm

**63** = Ø 63 mm

**5**

#### ARM MOUNT

**5** =



**6\*** =



**A**

#### ARM MATERIAL

**A** = aluminum

\* only for size 63 mm

**01**

#### CLAMP ARM TYPE

**01** = wishbone, central, 15 mm offset

**02** = wishbone, right, 15 mm offset

**03** = wishbone, left, 15 mm offset

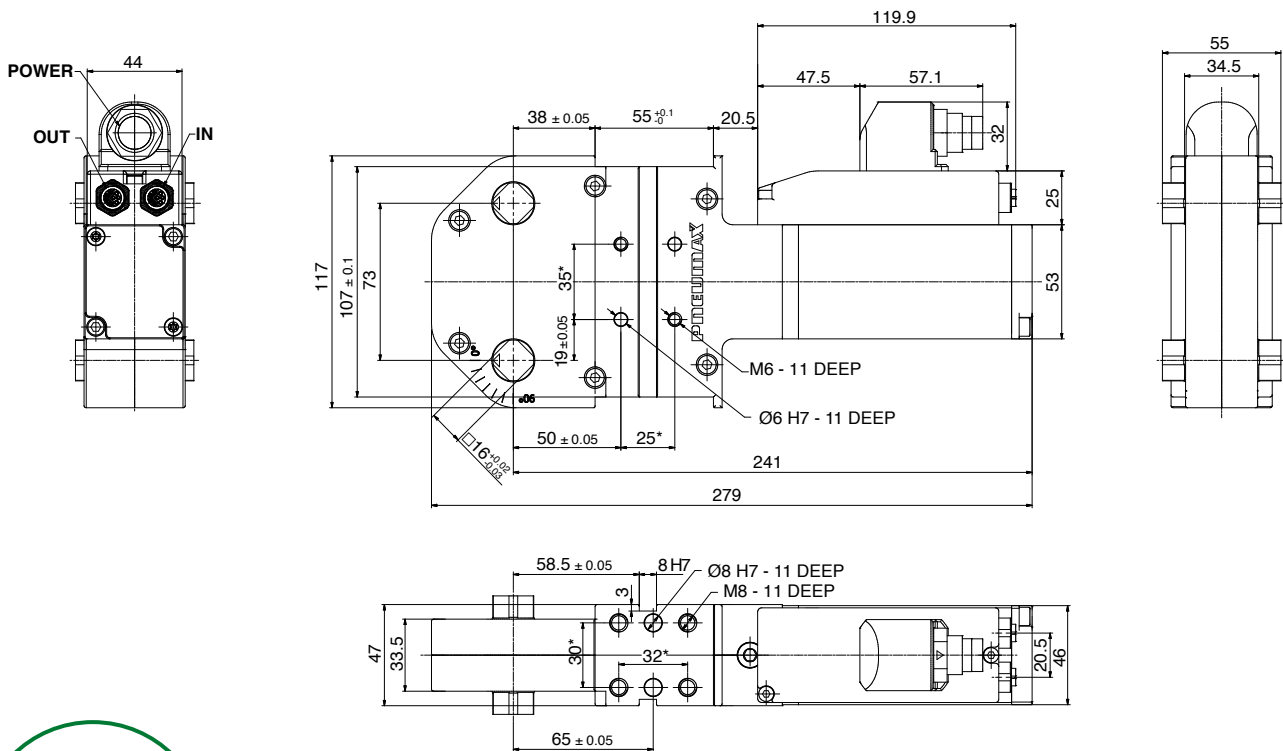
**61** = wishbone, 10 mm offset specific for CB40 clamp

#### CONNECTOR

**̄** = connector with rotatable housing

**V** = connector for vario-X control

### CBE40 / Power clamp with double arm - 40 mm bore



Dimensions of  
connector with  
rotatable housing

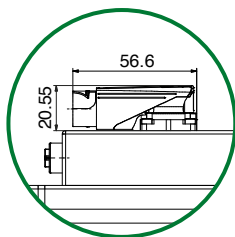
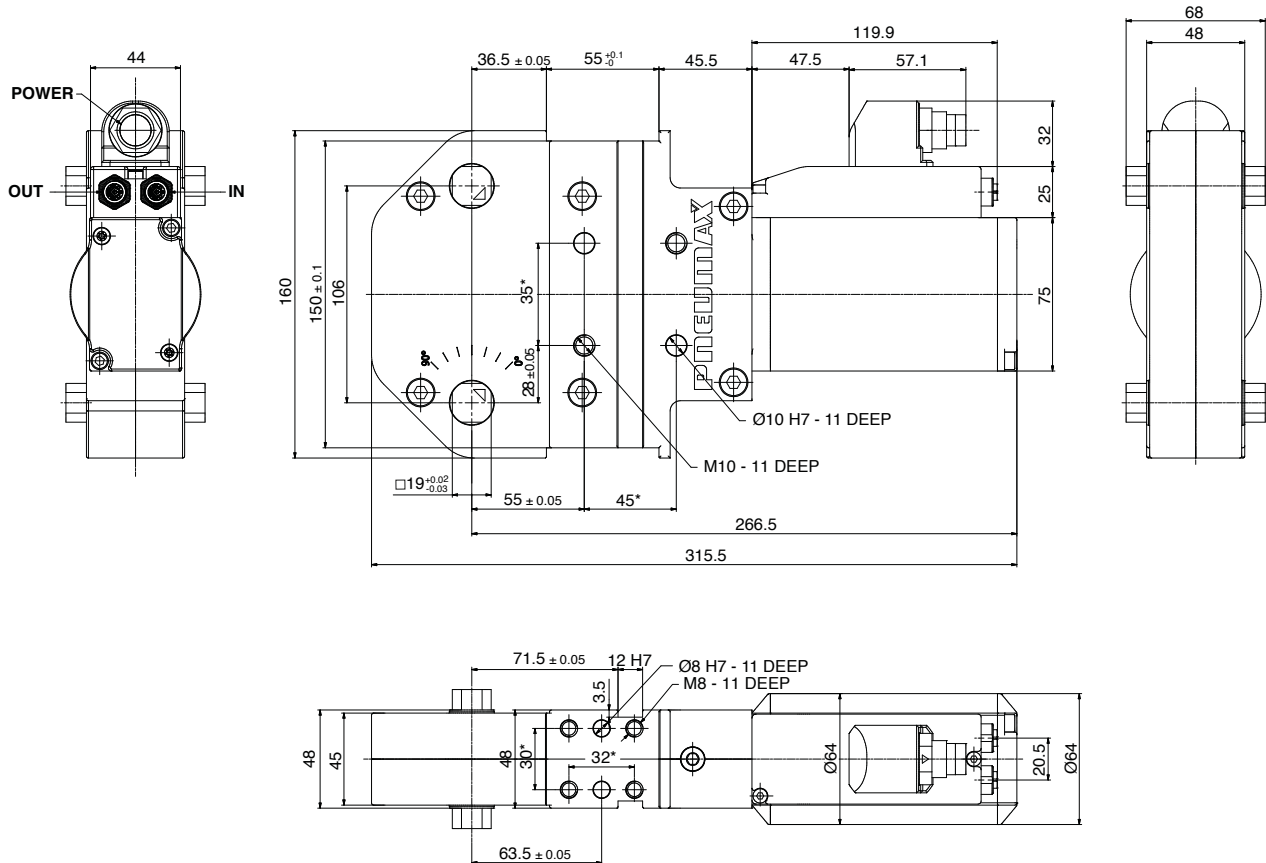
\* DIMENSIONAL TOLERANCE  
FOR DOWEL HOLES: ±0.02

DIMENSIONAL TOLERANCE  
FOR THREADED HOLES: ±0.1

REV.02 - 01/08/2024

## CBE63 / Power clamp with double arm - 63 mm bore

CLAMPING



Dimensions of  
connector with  
rotatable housing

\* DIMENSIONAL TOLERANCE  
FOR DOWEL HOLES: ±0.02

DIMENSIONAL TOLERANCE  
FOR THREADED HOLES: ±0.1

REV.02 - 01/08/2024

# Clamping

## Quick installation guide



### Caution

Any maintenance operation may only be carried out by qualified and authorized personnel. For any reason, do not reach into the pivoting range of the clamping arms, when the clamps are in operation. Disconnect electric supply lines before operating on or around clamps.

A worksheet for the right sizing of the clamp is available upon request. Visit our website for technical documents

<http://automotive.pneumax.it/>



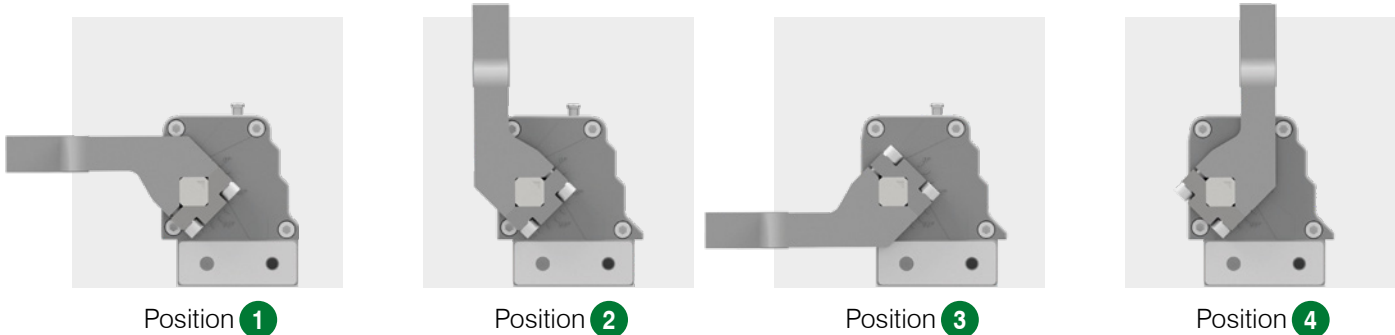
### Clamp installation to the tool

The clamp can be installed by one of its four mounting surfaces, using dowels and screws according to its datasheet. The tightening torques to be set are:

|            |                      |
|------------|----------------------|
| <b>M5</b>  | 5 N m / 3.68 lb·ft   |
| <b>M6</b>  | 10 N m / 7.37 lb·ft  |
| <b>M8</b>  | 25 N m / 18.43 lb·ft |
| <b>M10</b> | 35 N m / 25.81 lb·ft |
| <b>M12</b> | 50 N m / 36.87 lb·ft |

Use the key support surfaces, where available. Always use all the bores on the mounting pattern.

### Arm mount options



The above pictures show the closed position.

The max. opening angle according to the arm mount option is indicated on each clamp arm's datasheet. In order to achieve a right or left arm mount in configurations 2 or 3, the clamping arm should be rotated by 180°, therefore to achieve

**C\_\_ 2A03 a right clamp arm is required, i.e. B/Q \_\_02**

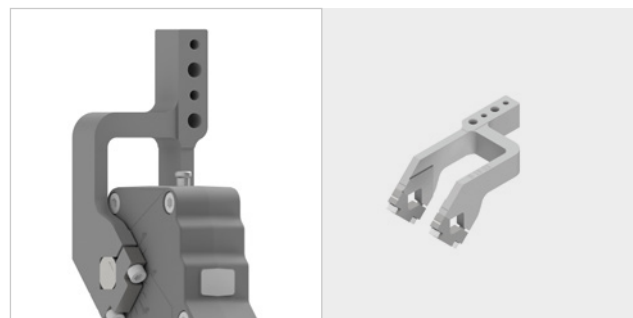
**C\_\_ 2A02 a left clamp arm is required, i.e. B/Q \_\_03**

**C\_\_ 2A05 a right clamp arm is required, i.e. B/Q \_\_06**

**C\_\_ 2A06 a left clamp arm is required, i.e. B/Q \_\_05**



**C1\_\_ \_\_2A03** using a right \_\_02 arm



**C1\_\_ \_\_2A02** using a left \_\_03 arm

# Locating

## E48-Smart Highlights



**Patented**

**Interchangeability** with pneumatic devices

**Backlash-free trapezoidal stainless steel screw** with optimal compromise between cycle time and load capacity; the irreversibility of the screw allows for an integrated auto-retain of the open position and enhances the load control. It also allows for powering off the motor once the end stroke is reached.

Optimally accessible **manual unlock** mechanism for emergency situations: with no power the pin package can be unlocked or moved manually with an Allen wrench

**Sealed** housing and sealed drive

**LED ring** for optimal visualization of the clamp condition.

**EtherCAT** communication:

- quick and cable length saving installation through **daisy-chaining**
- Thanks to the CSP (Cyclic Synchronous Position) mode DC, the EtherCAT master is able to send desired positions to the clamp. In this mode, the trajectory generator is located in the master control device, not in the clamp. In acyclic synchronous manner, it provides a target position to the clamp device, which performs position control.

Chrome rod coating as a protection against adhering weld sparks

**Steel and brass rods**craper to prevent welding debris from entering the pin packages

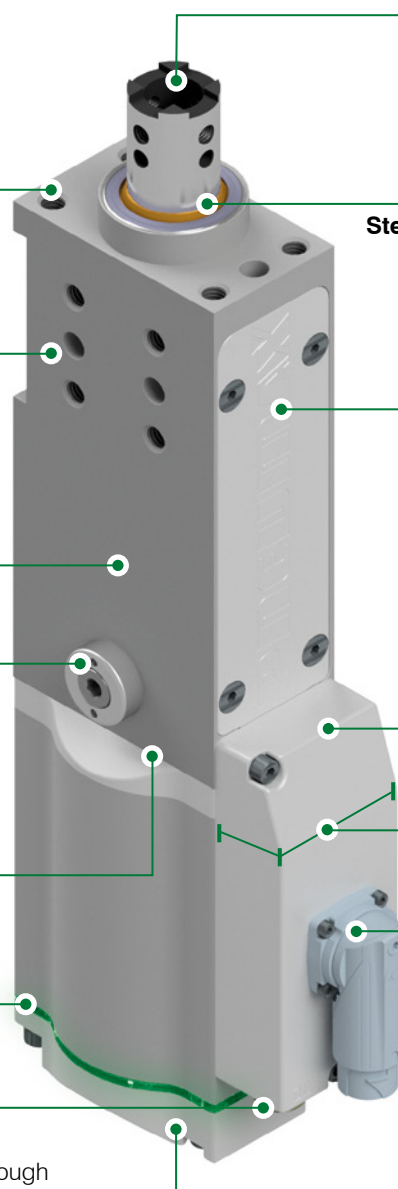
**Crossed-rollers** guide to prevent deflection

One only drive used among the whole product range; it allows for **condition monitoring** such obstacle detection

Extra compact drive

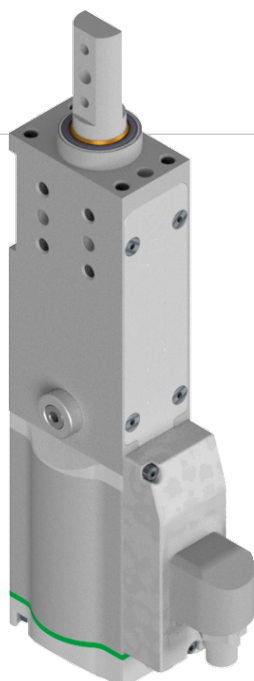
**Rotatable connector** with self-guiding mating

**Absolute encoder**





# RE-Series



## Electric retractable locating pin packages

### Crossed-rollers guides prevent deflection of the rods

- Same functional dimensions of pneumatic pin packages
- Same thrust and pull forces as pneumatic devices
- Adjustable strokes up to 60 mm
- Brushless low voltage motors with absolute encoder and optimized cable cross-sections
- Extra-compact drive can be rotated by 180°
- Optimally accessible manual unlock mechanism for emergency situations, which can also be used as manual operation
- Cable lengths can be reduced by daisy-chaining the drives

### Condition monitoring

- Obstacle detection

### Operating features

|                |         |
|----------------|---------|
| Supply tension | 48 VDC  |
| Cycle time     | 1 s     |
| Noise level    | < 20 dB |

### Functional charts

## Size 50

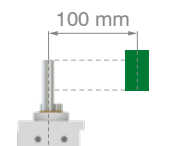
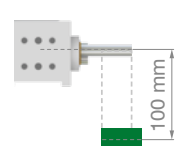
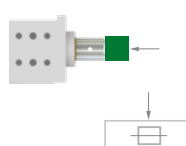
### • Max deflection

| Stroke | Load (kg) | Load position <b>A</b><br>deviation (mm) | Load position <b>B</b><br>deviation (mm) | Load position <b>C</b><br>deviation (mm) |
|--------|-----------|--|--|--|
| 60 mm  | 0.5       | 0.007                                    | 0.012                                    | 0.01                                     |
|        | 1         | 0.013                                    | 0.025                                    | 0.023                                    |
|        | 1.5       | 0.02                                     | 0.04                                     | 0.036                                    |
|        | 2         | 0.03                                     | 0.053                                    | 0.049                                    |
|        | 2.5       | 0.038                                    | 0.067                                    | 0.064                                    |
|        | 3         | 0.045                                    | 0.082                                    | 0.075                                    |
| 50 mm  | 0.5       | 0.006                                    | 0.009                                    | 0.007                                    |
|        | 1         | 0.013                                    | 0.02                                     | 0.018                                    |
|        | 1.5       | 0.021                                    | 0.032                                    | 0.028                                    |
|        | 2         | 0.026                                    | 0.047                                    | 0.043                                    |
|        | 2.5       | 0.032                                    | 0.66                                     | 0.057                                    |
|        | 3         | 0.037                                    | 0.075                                    | 0.068                                    |
| 40 mm  | 0.5       | 0.004                                    | 0.009                                    | 0.004                                    |
|        | 1         | 0.009                                    | 0.02                                     | 0.009                                    |
|        | 1.5       | 0.013                                    | 0.032                                    | 0.013                                    |
|        | 2         | 0.018                                    | 0.047                                    | 0.018                                    |
|        | 2.5       | 0.022                                    | 0.66                                     | 0.022                                    |
|        | 3         | 0.026                                    | 0.075                                    | 0.026                                    |
| 25 mm  | 0.5       | 0  | 0.005                                    | 0  |
|        | 1         | 0.005                                    | 0.015                                    | 0.005                                    |
|        | 1.5       | 0.007                                    | 0.032                                    | 0.007                                    |
|        | 2         | 0.011                                    | 0.047                                    | 0.011                                    |
|        | 2.5       | 0.012                                    | 0.66                                     | 0.012                                    |
|        | 3         | 0.014                                    | 0.075                                    | 0.014                                    |
| 15 mm  | 0.5       | 0  | 0.005                                    | 0  |
|        | 1         | 0.002                                    | 0.018                                    | 0  |
|        | 1.5       | 0.004                                    | 0.025                                    | 0.002                                    |
|        | 2         | 0.007                                    | 0.033                                    | 0.006                                    |
|        | 2.5       | 0.012                                    | 0.043                                    | 0.009                                    |
|        | 3         | 0.014                                    | 0.052                                    | 0.013                                    |

### • Functional data

|  |                    |
|--|--------------------|
| Thrust force                                 | 825 N              |
| Pull force                                   | 980 N              |
| Max bending moment                           | 3 N m / 2.21 lb-ft |
| Max distance from the load centre to the rod | 200 mm             |

| Load position <b>A</b>  | Load position <b>B</b>   | Load position <b>C</b>   |
|---|--|--|
| Horizontal mounting position of the retractable locating pin/load centre on the rod | Horizontal mounting position of the retractable locating pin/load centre at 100 mm from the rod axis | Vertical mounting position of the retractable locating pin/load centre at 100 mm from the rod axis |



## Ordering string

### RE-Series

**R** **E** **50** **3** **1** **-**

**R**

#### VERSION

**R** = retractable locating pin package with adjustable stroke till 60mm

**E**

#### OPERATION

**E** = brushless motor, 48 VDC, with drive

The pin package is supplied with the drive mounted on the rear side, it can easily be rotated to the front side by untightening the tie rod

**50**

#### SIZE

**50** = equivalent to size 50

**3**

#### ROD TERMINATION

- 1** = iØ 16 mm cross-cut key rod termination
- 2** = iØ 10 mm cross-cut key rod termination
- 3** = rod termination for offset pins
- 4** = rod termination with key
- 5** = rod with flat termination dia. 10 mm
- 6** = rod with flat termination dia. 12 mm
- 7** = iØ 12 mm CNOMO termination
- 8** = iØ 20 mm CNOMO termination



**Rod 1**



**Rod 2**



**Rod 3**



**Rod 4**



**Rod 5**



**Rod 6**



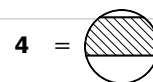
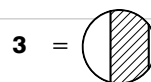
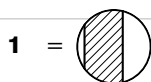
**Rod 7**



**Rod 8**

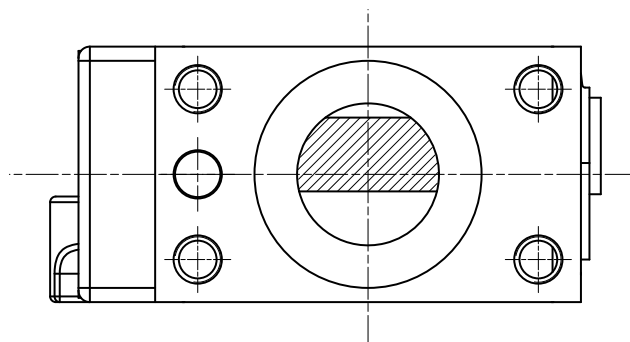
**1**

#### ROD ORIENTATION (for termination type 3)

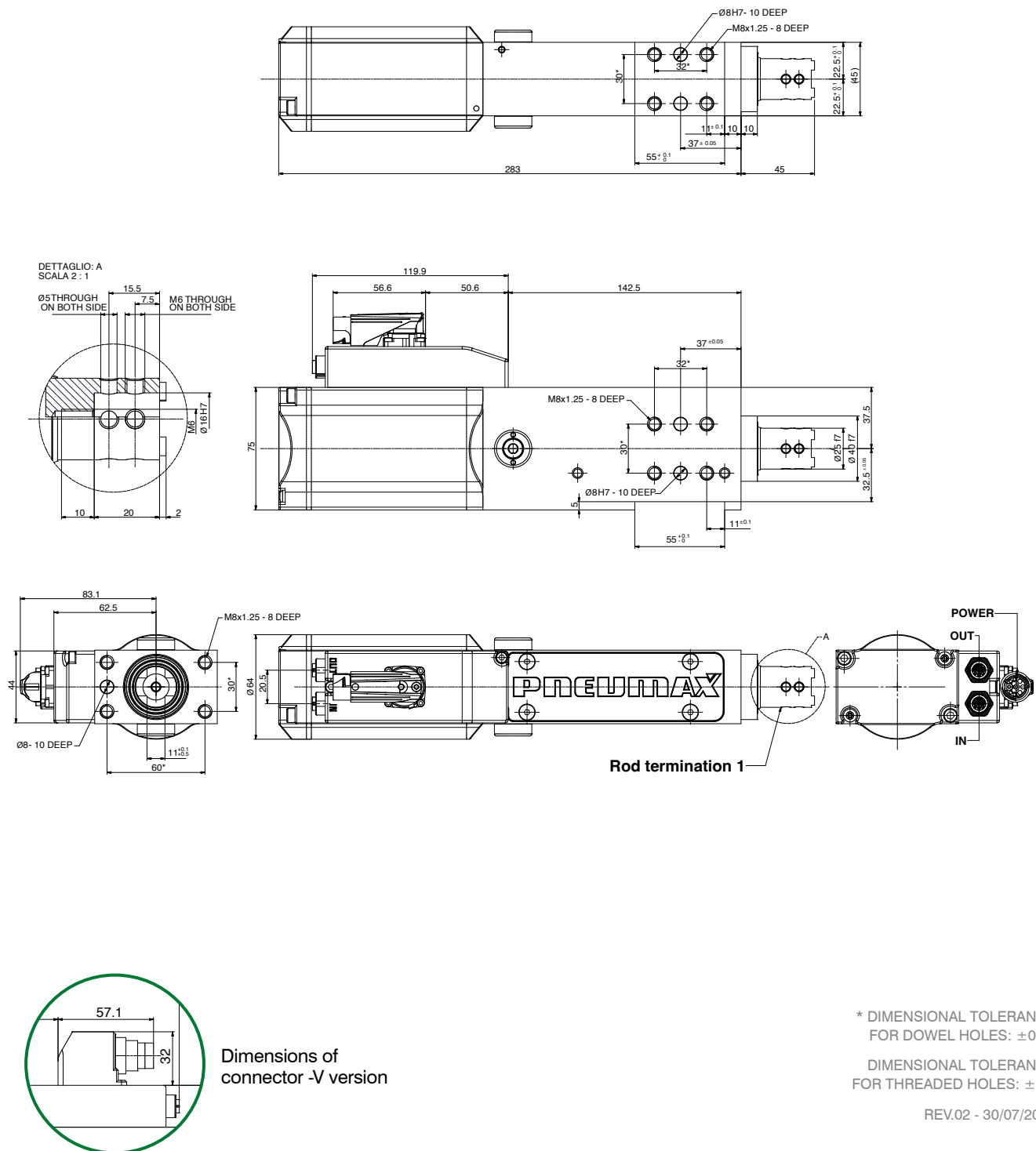


#### CONNECTOR

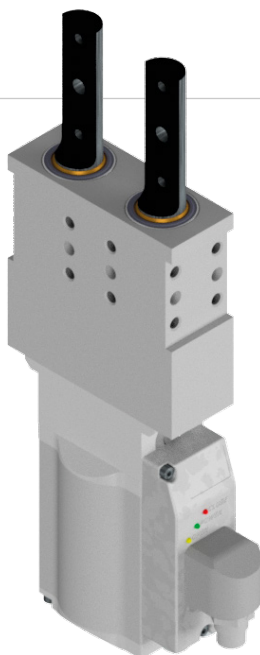
- ̄** = connector with rotatable housing
- ̄V** = connector for vario-X control



## RE50-3 / Electric retractable locating PIN PACKAGE - Rod termination 3



# FE-Series



## Electric retractable locating pin packages with dual rods

- Same functional dimensions of pneumatic pin packages
- Same thrust and pull forces as pneumatic devices
- Adjustable strokes up to 60 mm
- Brushless low voltage motors with absolute encoder and optimized cable cross-sections
- Extra-compact drive can be rotated by 180°
- Optimally accessible manual unlock mechanism for emergency situations, which can also be used as manual operation
- Cable lengths can be reduced by daisy-chaining the drive

### Condition monitoring

- Obstacle detection

### Operating features

|                |        |
|----------------|--------|
| Supply tension | 48 VDC |
| Cycle time     | 1 s    |

### Functional charts

## Size 63

### • Max deflection

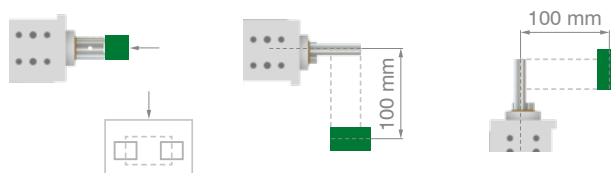
| Stroke | Load (kg) | Load position <b>A</b><br>deviation (mm) | Load position <b>B</b><br>deviation (mm) | Load position <b>C</b><br>deviation (mm) |
|--------|-----------|--|--|--|
| 60 mm  | 0.5       | 0.003                                    | 0.009                                    | 0  |
|        | 1         | 0.007                                    | 0.026                                    | 0.001                                    |
|        | 1.5       | 0.013                                    | 0.043                                    | 0.007                                    |
|        | 2         | 0.017                                    | 0.063                                    | 0.009                                    |
|        | 2.5       | 0.022                                    | 0.085                                    | 0.018                                    |
|        | 3         | 0.026                                    | 0.109                                    | 0.023                                    |
|        | 3.5       | 0.031                                    | 0.129                                    | 0.033                                    |
|        | 4         | 0.036                                    | 0.148                                    | 0.042                                    |

### • Functional data

|  |                    |
|--|--------------------|
| Thrust force                                 | 1,350 N            |
| Pull force                                   | 1,550 N            |
| Max bending moment                           | 4 N m / 2.95 lb-ft |
| Max distance from the load centre to the rod | 200 mm             |

### • Cycle time for max stroke < 1 s

| Load position <b>A</b>  | Load position <b>B</b>   | Load position <b>C</b>   |
|---|--|--|
| Horizontal mounting position of the retractable locating pin/load centre on the rod | Horizontal mounting position of the retractable locating pin/load centre at 100 mm from the rod axis | Vertical mounting position of the retractable locating pin/load centre at 100 mm from the rod axis |



## Ordering string

## FE-Series 63

F E 63 3 -

F

## VERSION

F = Retractable locating pin package with dual rod

E

## OPERATION

D = brushless motor, 48 VDC, with drive

The pin package is supplied with the drive mounted on the rear side, it can easily be rotated to the front side by untightening the tie rod

63

## SIZE

63 = equivalent to size 63 (pn)

3

## ROD TERMINATION

3 = rod termination for offset pins

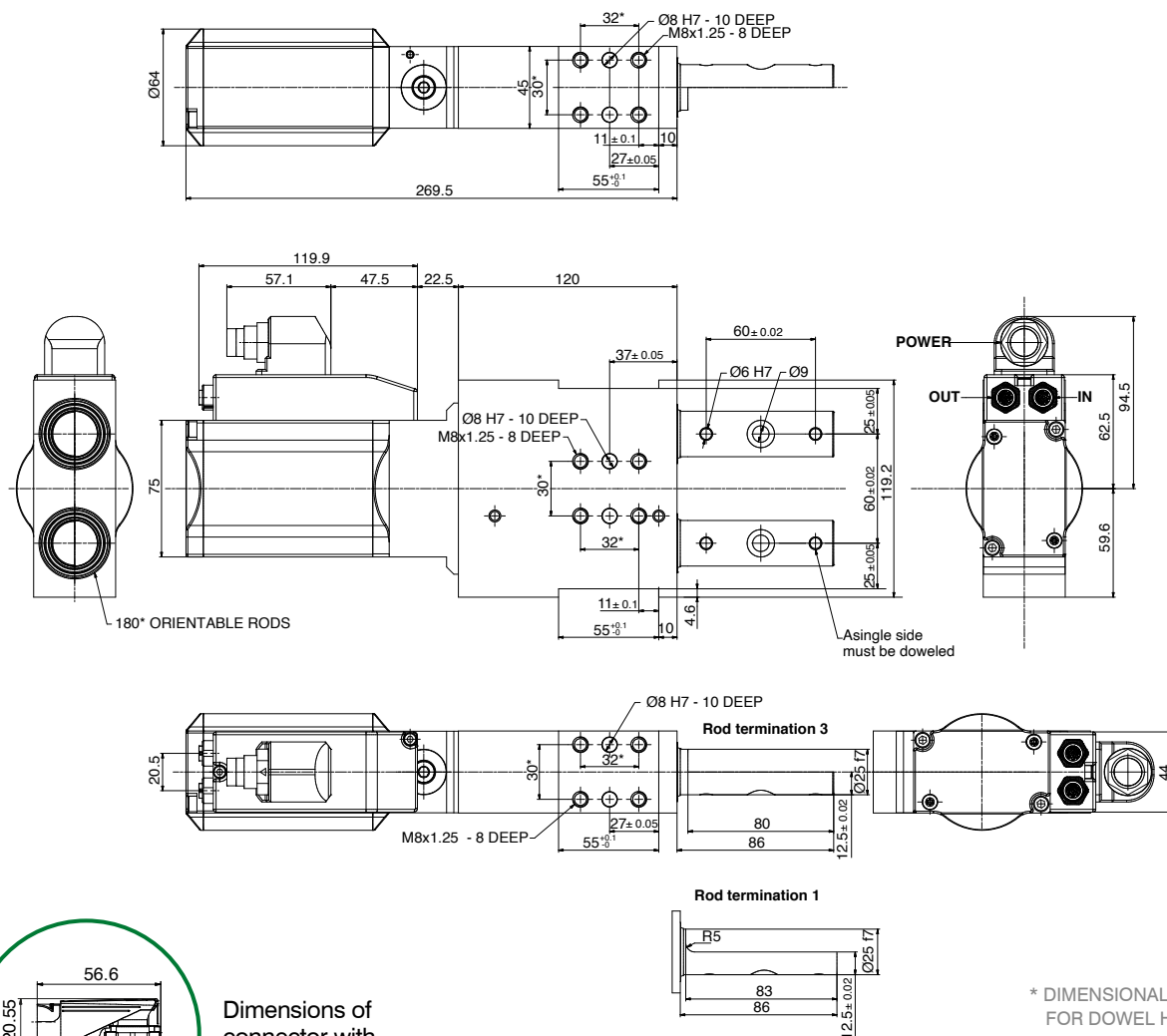
## CONNECTOR

V = connector with rotatable housing

V̄ = connector for vario-X control

LOCATING

## FE63-3 / Electric retractable locating PIN PACKAGE - Rod termination 3



Dimensions of  
connector with  
rotatable housing

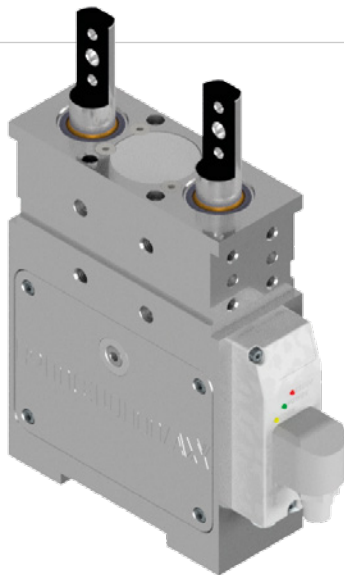
\* DIMENSIONAL TOLERANCE  
FOR DOWEL HOLES: ±0.02

DIMENSIONAL TOLERANCE  
FOR THREADED HOLES: ±0.1

REV.02 - 01/08/2024

## FTE-Series

## Electric retractable locating pin packages with toggle lock



- Same functional dimensions of pneumatic pin packages for complete interchangeability
- Same thrust and pull forces as pneumatic devices
- Brushless low voltage motors with absolute encoder and optimized cable cross-sections
- Extra-compact drive can be rotated by 180°
- Cable lengths can be reduced by daisy-chaining the drive

### Condition monitoring

- Obstacle detection

### Operating features

|                |        |
|----------------|--------|
| Supply tension | 48 VDC |
| Cycle time     | 1 s    |

### Functional charts

## Size 50

### • Max deflection

| Stroke | Load (kg) | Load position <b>B</b><br>deviation (mm) | Load position <b>C</b><br>deviation (mm) |
|--------|-----------|--|--|
| 40 mm  | 0.5       | 0.001                                    | 0.002                                    |
|        | 1         | 0.001                                    | 0.002                                    |
|        | 1.5       | 0.001                                    | 0.002                                    |
|        | 2         | 0.001                                    | 0.002                                    |
|        | 2.5       | 0.001                                    | 0.004                                    |
|        | 3         | 0.001                                    | 0.004                                    |
|        | 3.5       | 0.002                                    | 0.004                                    |
|        | 4         | 0.002                                    | 0.004                                    |

### • Functional data

|  |               |
|--|---------------|
| Thrust force                                 | <b>4900 N</b> |
| Pull force                                   | <b>2000 N</b> |
| Max distance from the load centre to the rod | <b>200 mm</b> |

The thrust and pull forces (retraction) are only available with the last 2 mm stroke of working (extracting) position. In the other range of the stroke, the forces are 30% of the above values.

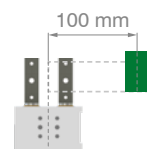
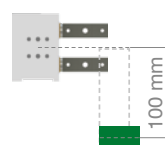
### • Cycle time < 0.8 s

#### Load position **B**

Horizontal mounting position of the retractable locating pin/load centre at 100 mm from the rod axis

#### Load position **C**

Vertical mounting position of the retractable locating pin/load centre at 100 mm from the rod axis



## Ordering string

## FTE\_50-series

FT

E

50

5

2

-

FT

## VERSION

**FT** = Retractable locating pin packages with dual rods and toggle lock

E

## OPERATION

**E** = brushless motor, 48 VDC, with drive

The pin package is supplied with the drive mounted on the rear side, it can easily be rotated to the front side by untightening the tie rod

50

## SIZE

**50** = equivalent to size 50 (pn)

3

## ROD TERMINATION

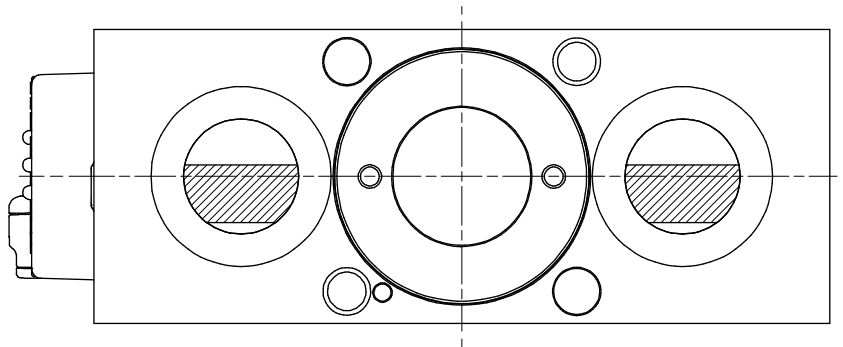
**3** = Mounting surface on the rods corresponds to the pin package axis  
**5** = 2.5 mm out of the axis mounting surface

2

## ROD ORIENTATION

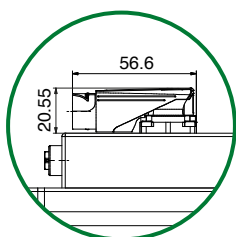
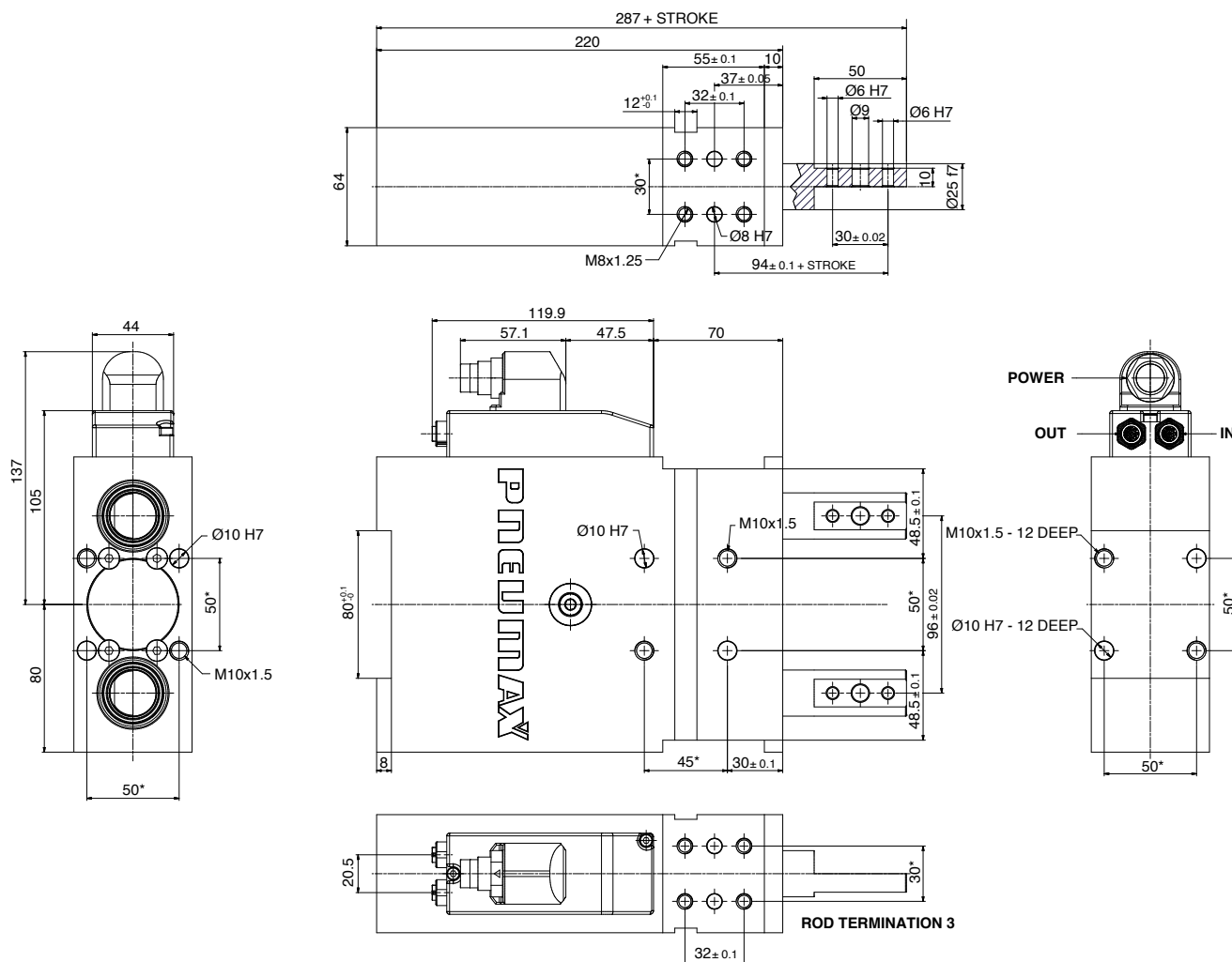
**2** =**4** =

## CONNECTOR

**̄** = connector with rotatable housing**̄V** = connector for vario-X control

## FTE50-3 / Electric retractable locating PIN PACKAGE - Rod termination 3

LOCATING



Dimensions of  
connector with  
rotatable housing

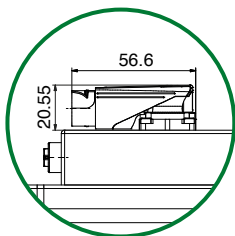
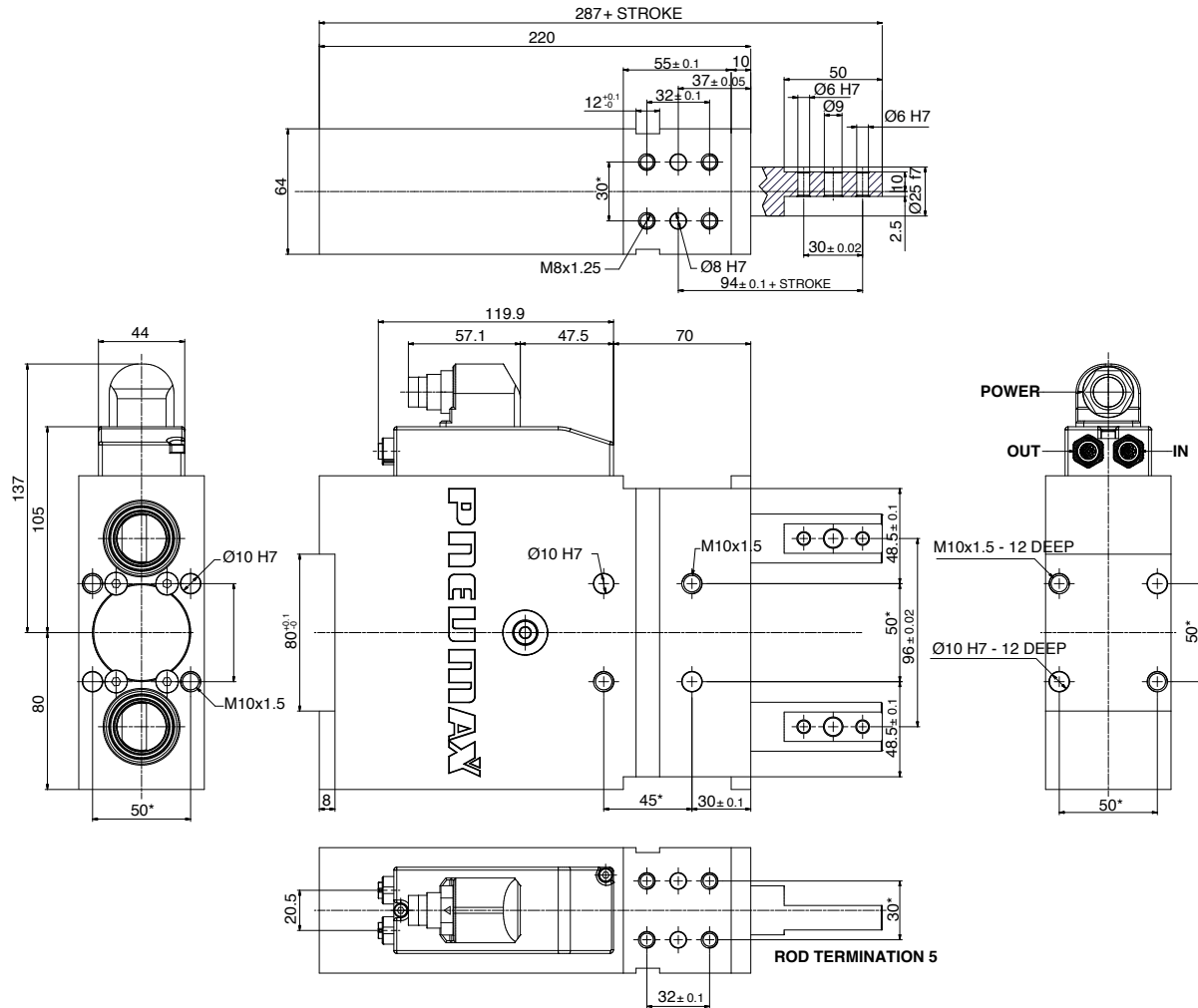
\* DIMENSIONAL TOLERANCE  
FOR DOWEL HOLES:  $\pm 0.02$

DIMENSIONAL TOLERANCE  
FOR THREADED HOLES:  $\pm 0.1$

REV.02 - 01/08/2024



## FTE50-5 / Electric retractable locating PIN PACKAGE - Rod termination 5



Dimensions of  
connector with  
rotatable housing

\* DIMENSIONAL TOLERANCE  
FOR DOWEL HOLES: ±0.02

DIMENSIONAL TOLERANCE  
FOR THREADED HOLES: ±0.1

REV.02 - 01/08/2024

# Handling

## E48-Smart Highlights



**Patented**

**Industry-proven  
toggle linkage**

**Sealed housing and sealed drive**

**Brushless low voltage 48 V DC motor.** The hollow shaft allows the rotor and the nut screw to be coaxial with the stator, thus reducing friction and allowing the motor torque to be optimally used.

**LED ring** for optimal visualization of the clamp condition.

**Absolute encoder**

**EtherCAT** communication:

- quick and cable length saving installation through **daisy-chaining**
- Thanks to the CSP (Cyclic Synchronous) Positionmode DC, the EtherCAT master is able to send desired positions to the clamp. In this mode, the trajectory generator is located in the master control device, not in the clamp. In acyclic synchronous manner, it provides a target position to the clamp device, which performs position control.

Double movement,  
2 tips

Single movement,  
2 tips

**Backlash-free trapezoidal stainless steel screw** with optimal compromise between cycle time and load capacity; the irreversibility of the screw allows for an integrated **auto-retain** of the open position and enhances the load control. It also allows for powering off the motor once the end stroke is reached.

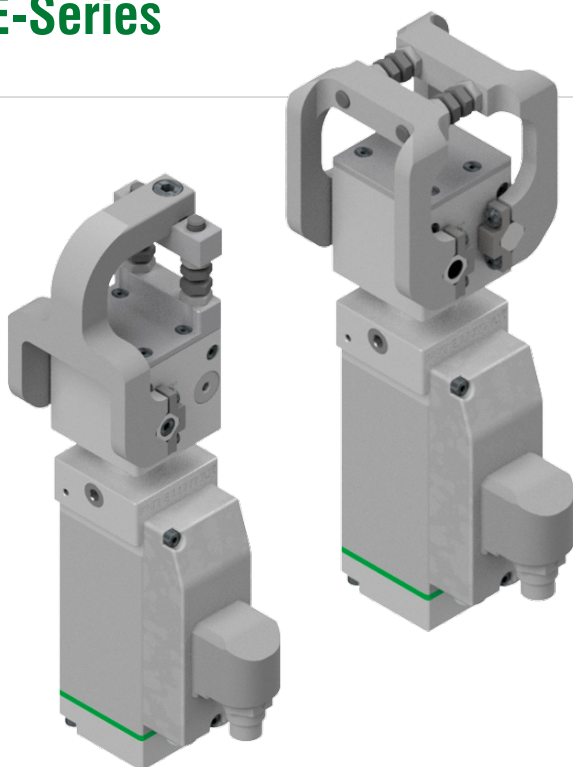
Optimally accessible **manual unlock** mechanism for emergency situations: with no power the clamp can be unlocked or moved manually with an Allen wrench.

One only drive used among the whole product range; it allows for condition **monitoring** such as part presence, 2-part detection and obstacle detection.

Extra compact drive

## GE-Series

## Electric gripper clamps



- Stepless adjustable opening angle
- The drive can be installed on all 4 sides
- Completely enclosed design
- Optimally accessible manual unlock mechanism for emergency situations, which can also be used as manual operation
- Backlash-free trapezoidal screw with optimal compromise between cycle time and load; the irreversibility of the screw allows for an integrated auto-retain of the open position and enhances the load control
- Brushless low voltage motors with absolute encoder and optimized cable cross-sections
- Cable lengths can be reduced by daisy-chaining the drive

### Functional charts

#### Size 40

• Cycle time for max opening angle  
< 0.8 s

• Holding moment  
75 N m / 55 lb·ft

• Clamping moment  
50 N m / 36 lb·ft

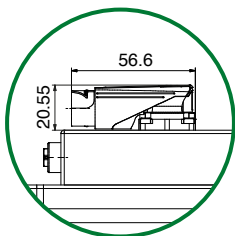
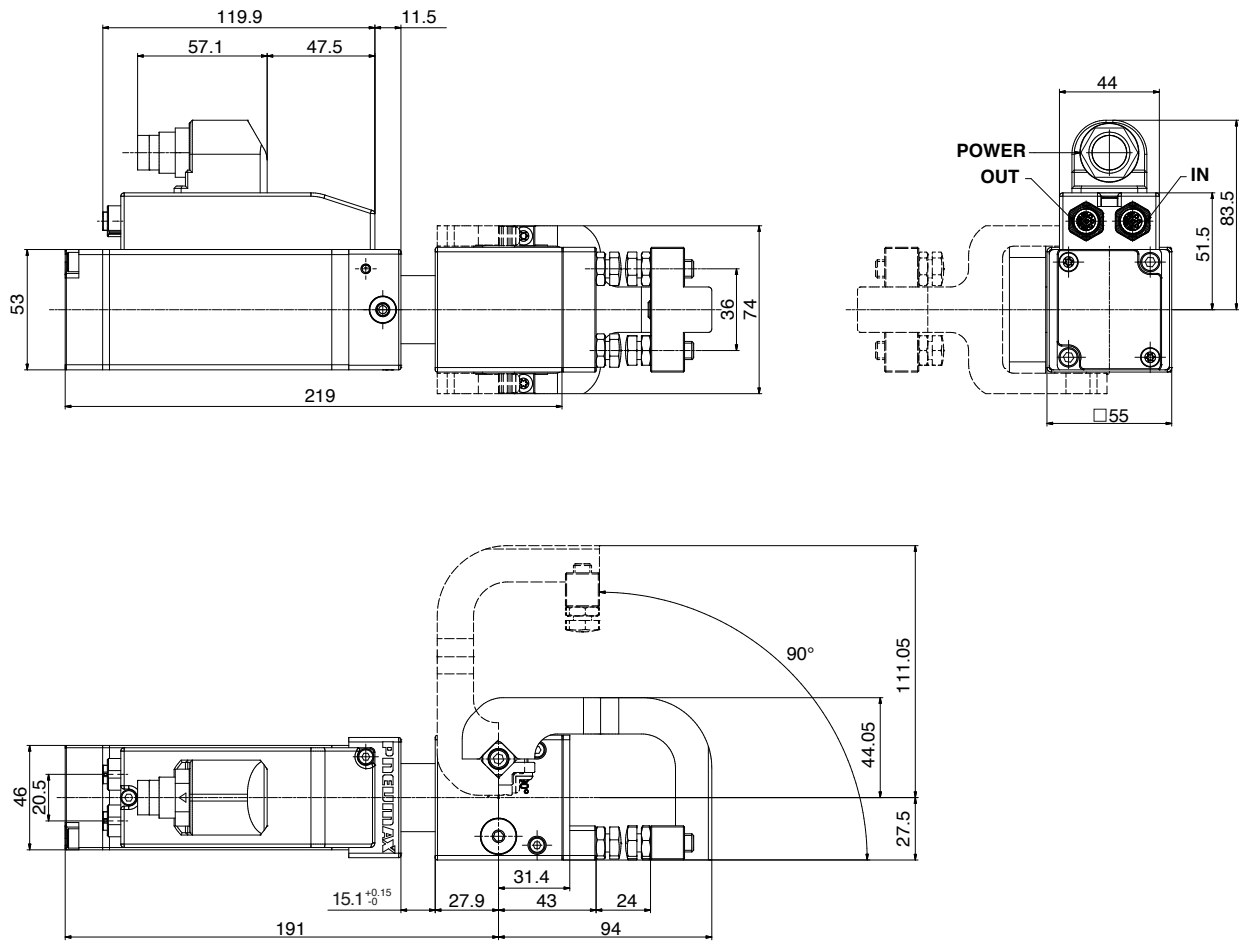
### Ordering string

#### GE-Series

**G** **E** **40** **1** **A** **-**

|           |                       |  |
|-----------|-----------------------|--|
| <b>G</b>  | <b>VERSION</b>        | <b>G</b> = gripper clamp   |
| <b>E</b>  | <b>OPERATION</b>      | <b>E</b> = brushless motor, 48 VDC, with drive   |
| <b>40</b> | <b>SIZE</b>           | <b>40</b> = equivalent to size 40 (pn)   |
| <b>1</b>  | <b>ARM MOVEMENT</b>   | <b>1</b> = single jaw moving<br><b>2</b> = two jaws moving                               |
| <b>A</b>  | <b>CLAMP ARM TYPE</b> | <b>A</b> = adjustable mount<br><b>B</b> = base mount                                     |
| <b>-</b>  | <b>CONNECTOR</b>      | <b>V</b> = connector with rotatable housing<br><b>V̄</b> = connector for vario-X control |

## GE401 / Electric gripper clamp



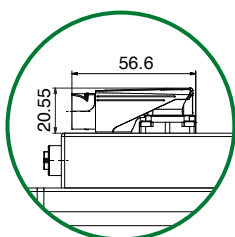
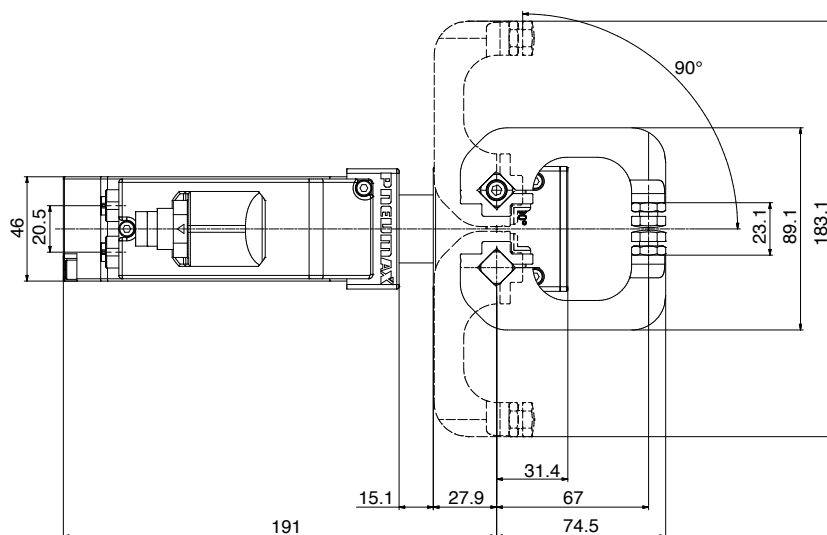
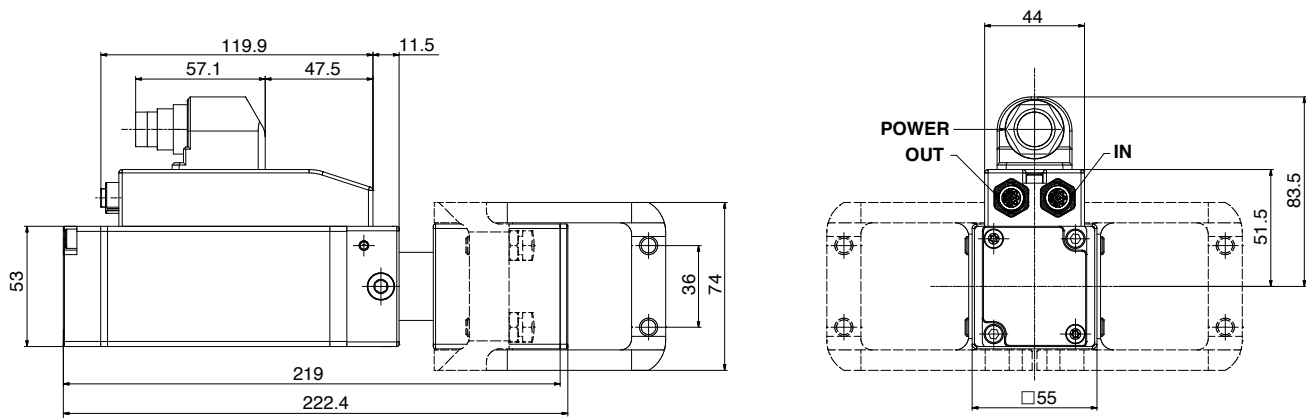
Dimensions of  
connector with  
rotatable housing

\* DIMENSIONAL TOLERANCE  
FOR DOWEL HOLES:  $\pm 0.02$

DIMENSIONAL TOLERANCE  
FOR THREADED HOLES:  $\pm 0.1$

REV.02 - 26/07/2024

## GE402 / Electric gripper clamp



Dimensions of  
connector with  
rotatable housing

\* DIMENSIONAL TOLERANCE  
FOR DOWEL HOLES:  $\pm 0.02$

DIMENSIONAL TOLERANCE  
FOR THREADED HOLES:  $\pm 0.1$

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**PNEUMAX**

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