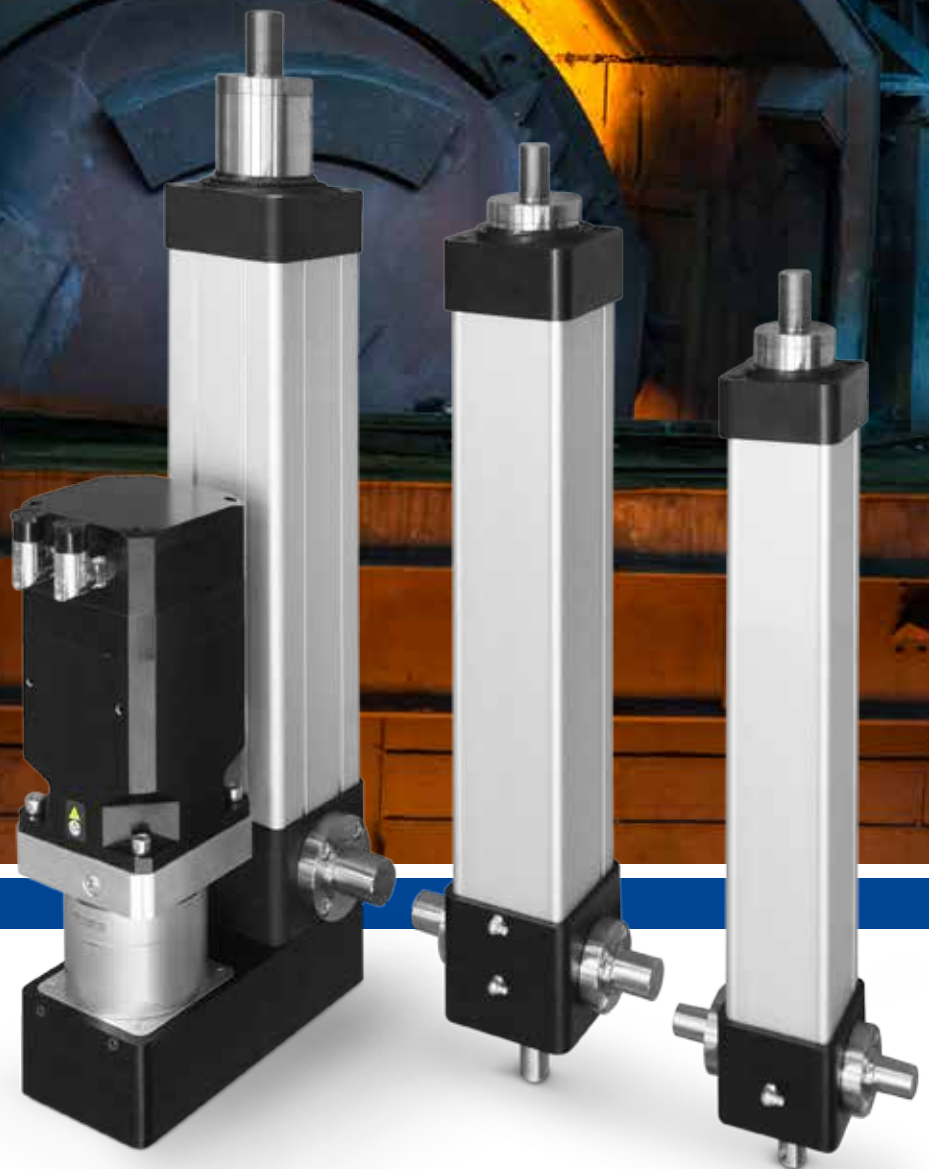


# Mech Plus Automationware



**Mech Plus Automationware,**  
Linear Electrical Actuators:  
the real alternative to pneumatic or hydraulic cylinders



# Mech Plus

## Automationware

50 63 80  
100 125 160

The ideal solution for  
heavy loads on a compact size

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## Automationware a long history of innovation

Since 2005, **Automationware** has developed Electrically Powered Linear Actuators maintaining the highest level of innovation and constantly improving the price-performance ratio of its products.

Today, the **Mech Plus**, product line delivers a unique combination of extreme force and high precision positioning, in a solid and compact size enclosure, offering a great product alternative to the market.

Our cylinders are a solid alternative for hydraulic or pneumatic systems.

The **Mech Plus** product line combines the best design practices with excellent quality of roller screw with sub-components and offers the longest life at the highest force.

**Mech Plus** products are available in six ISO 15542 compatible versions (**50, 63, 80, 100, 125, 160**) with in line and parallel drive systems and also inclusive of anti-rotational system.



# Key Features

- High Performance up to 120 KN force (160 KN peak), long life and lower operating costs
- Designed to control Position, Speed and Force at any time
- Axial speed up to 1m/sec, Direct or high efficiency parallel drive
- Low maintenance innovative lubrication system and protection (IP65)
- Very low operating noise, compact size Anti-Rotation System
- Easy to control thanks to **Automationware EASY™** application tool

The **Mech Plus** product line offers the user an opportunity for great innovation on new project's design by increasing productivity and reducing the overall cost of maintenance and downtime.

## Automationware

offers a full range of motors capability combined with an efficient and compact engineering design while keeping the flexibility to choose among several different drive control systems.

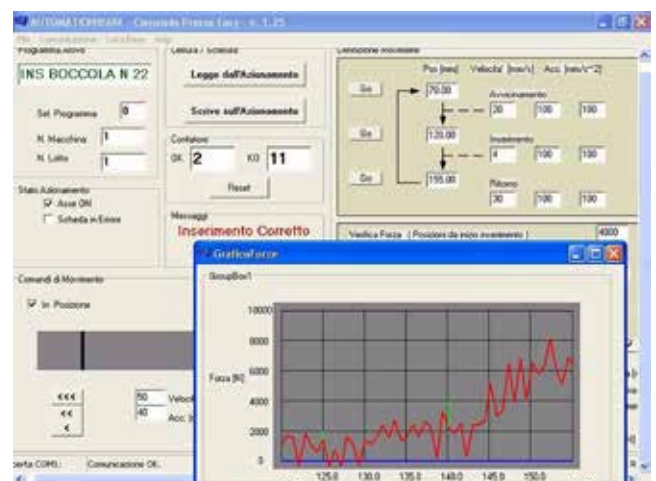
**Automationware** offers a full set of Brush-less Motors, Stepper motors with closed loop control and Cylinder options for hostile and wet environments.

These solutions are easily controllable via the **Automationware EASY™** application tool.

# Benefits

- Most Compact Design on the market at the optimum Force
- Higher Productivity and cost effective
- Reliable and longest life cycle at full force
- Velocity modulation and accurate point positioning
- More adaptability to hostile environments than pneumatic or hydraulic solution
- Clean and Simple maintenance (oil and waste free)
- Controllable directly from **EtherCat**

Above an example of application of Easy Insert. In this case we are using the Cylinder to emulate a **Press System**, graph is showing the force applied in each position. There are 3 different windows to verify the total force vs position.



# Applications

## Automotive and heavy loads motions

Automotive production or maintenance applications. Good adaptability applications vs. buses, trains, vessels and other transportation Systems. Simplicity of installation makes easy the replacement of Pneumatic or Hydraulic redundant solutions.

## Healthcare and Diagnostic

Excellent solution for diagnostic systems where speed and accuracy may be required (i.e. Body scan systems). Disable aid product such Wheelchairs lifts or similar lit system that may require new technological approach.

## Packaging and Material Motion

Large variety of applications from blistering to packaging. Essential in heavy packaging systems or material lifts.

## Motion in Food applications

Our Electrical cylinders are perfect for this application due to the oil/waste free and clean maintenance requirement.

In addition, the possibility of speed modulation is offering an innovative way to move fragile material, such food or pharmacological elements, on complex systems. Units works nicely also in wet environments.



## Defense or Task Simulation systems

Several defense applications may not require to be MIL compliant. Air/Navy simulators or non-critical application may require industrial cylinder solutions to maintain reasonable costs and good performance.

## Factory's Motion

Warehouse or material handling require electrical cylinders to optimize the loading without the need for pneumatic or hydraulic systems. In these type of factory applications, high performance and compact size impose a new way to define production and material handling.

## Energy

Electrical cylinder may be used to adjust water flow in Electricity Turbo propellers. Turbo Gas systems may need similar solution to deviate the gas flow. Application fits also Oil extraction and flow distribution.

## Machine tools

One of the fastest growing segment which requires powerful electrical cylinders with high level of accuracy and speed. Popular applications are: shaping/press metal or other rigid materials, cutting, boring, grinding, shearing, and all other forms of metal deformation.



## Models

Characteristic / Models	UM	Mech Plus 50	Mech Plus 63	Mech Plus 80	Mech Plus 100	Mech Plus 125	Mech Plus 160	Mech Plus 160
Dimensions flanges	mm	Flangia 65	Flangia 75	Flangia 100	Flangia 120	Flangia 140	Flangia 180	Flangia 180
Screw diameter and lead	mm	25P10	32P10	40P10	50P10	63P10	80P10	80P20
Max Torque Motor	Nm	1,2 to 2,2	1,8 to 4,4	3 to 9,6	6,1 to 14	10,9 to 22,5	14,6 to 45	24 to 45
Reduction Ratio	i	All models: 1 - 3 - 4 - 5 - 7 - 10 - 16 - 20						
Gearbox ratio	PG	according to above						
Max torque gearbox output (Cm)	Nm	2,2 to 24,3	4,4 to 36,4	9,6 to 60,7	14,0 to 121,4	22 to 218,4	45 to 291	45 to 485
Max torque screw input (Cin max)	Nm	2 to 19,7	4 to 29,5	7,78 to 49,1	11,34 to 98,3	17,82 to 177	108 to 236	110 to 393
Max axial in line force (Cin max)	N	1,1K to 10K	2,3K to 15K	5,4K to 25K	7,8K to 50K	12,3K to 90K	25K to 120K	12,6K to 100K
Max Motor speed	rpm	4500	4500	4500	4500	4000	3000	3000
Max screw speed	rpm	4500 to 225	4500 to 225	4500 to 225	4500 to 225	4000 to 200	3000 to 150	3000 to 150
Max axial speed	mm/sec	750 to 38	750 to 38	750 to 38	750 to 38	667 to 33	500 to 25	1000 to 50
Available Stroke	mm	50 to 500	50 to 600	50 to 800	50 to 1000	50 to 1000	50 to 1200	50 to 1200

# Mech Plus

## Automationware

Designed to offer the best force performance in combination with a very compact and solid chassis

### Gearbox

With very high efficiency using a best performance helicoidal planetary system for long life and low noise level (Backlash  $\leq 5$ )

### Permanent Magnetic

System included on the roller screw ball system to optimize the accurate positioning

### Magnetic detectors

Inserted on chassis (no external wires)

### Head bearing

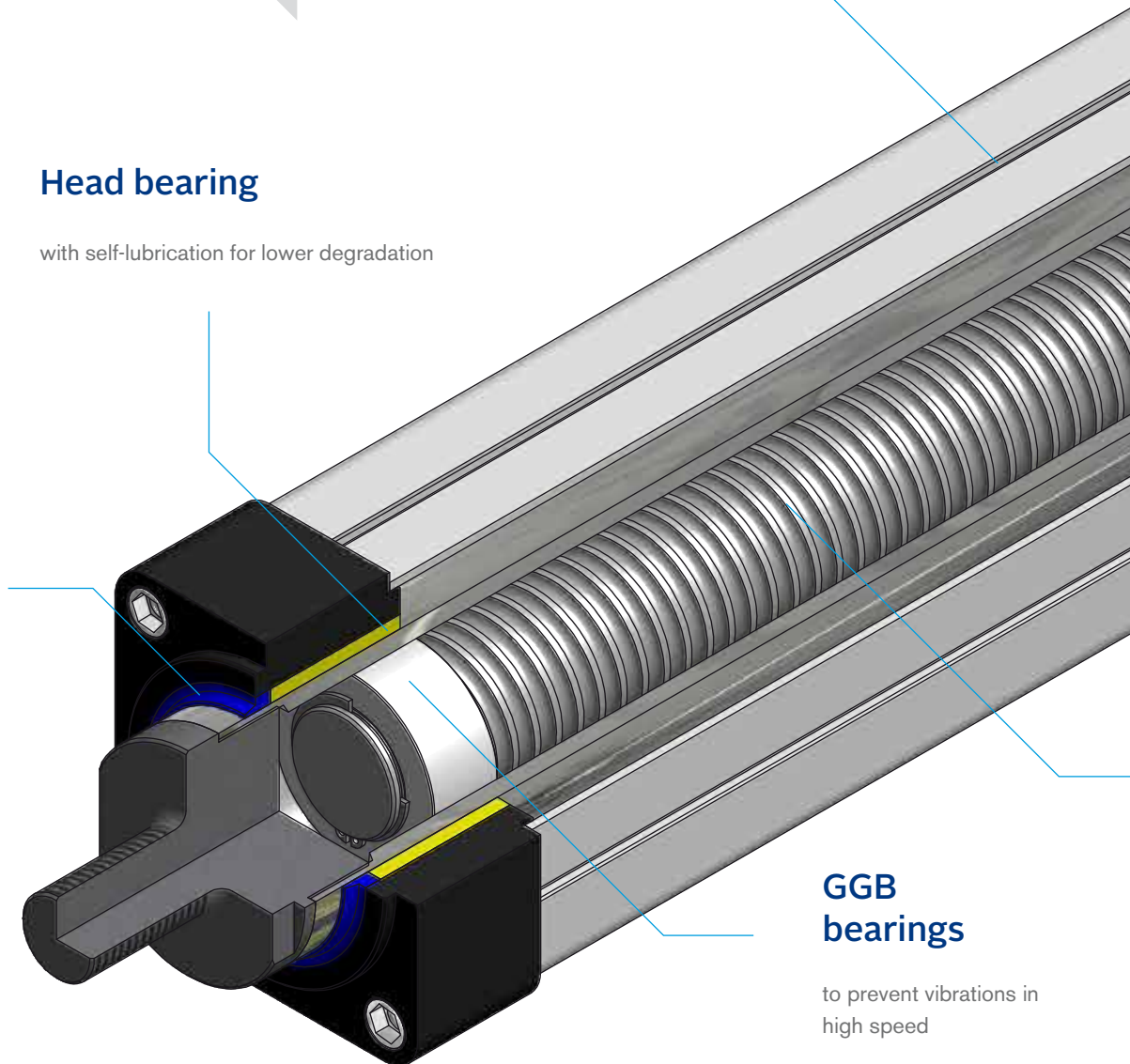
with self-lubrication for lower degradation

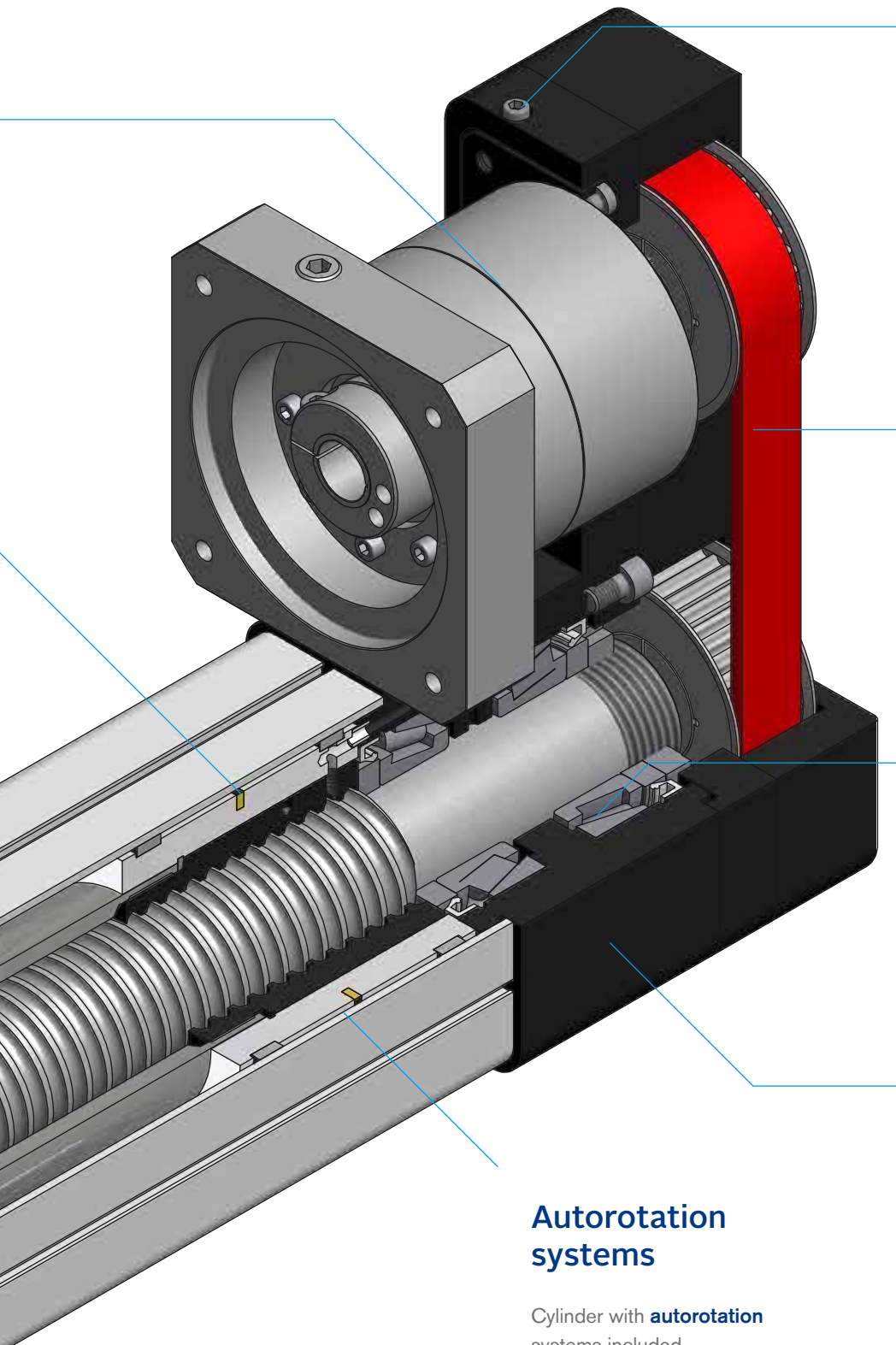
### Dust scraper

Seal to avoid contamination from external and selected for severe temperature variation (degree of protection IP 65) – Double protection for hostile situation

### GGB bearings

to prevent vibrations in high speed





## Belt tension

System with factory pre-setup for the best efficiency and accuracy

## High performance belt

for high durability stiffness

## Lubrication system

Tapered roller bearings, with high capacity torque with centralized **lubrication system**

## Lateral pins

Possibility of optional **lateral pins** for heavy loads operations

## Autorotation systems

Cylinder with **autorotation** systems included

## Roller balls screw ISO 7

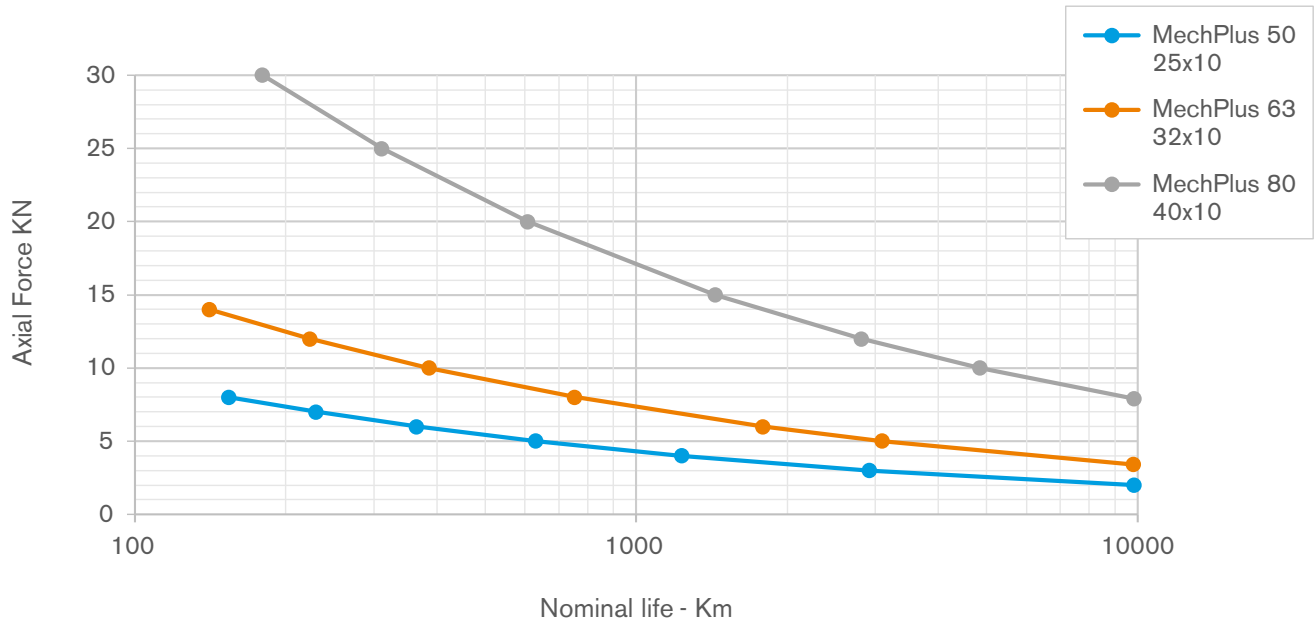
High quality and duration **Roller balls screw ISO 7**. For high duration and heavy load

# Specifications

## Duration of Service

### MechPlus 50, MechPlus 63 e MechPlus 80

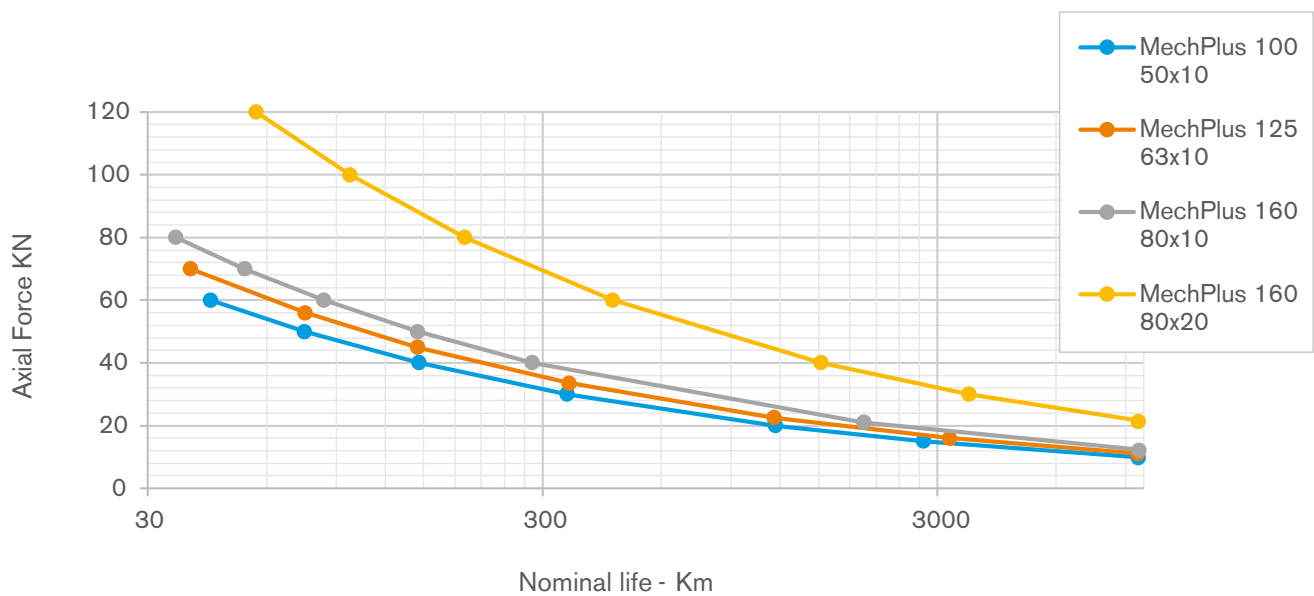
Nominal life specified as a function of the applied axial force.



## Duration of Service

### MechPlus 100, MechPlus 125 e MechPlus 160

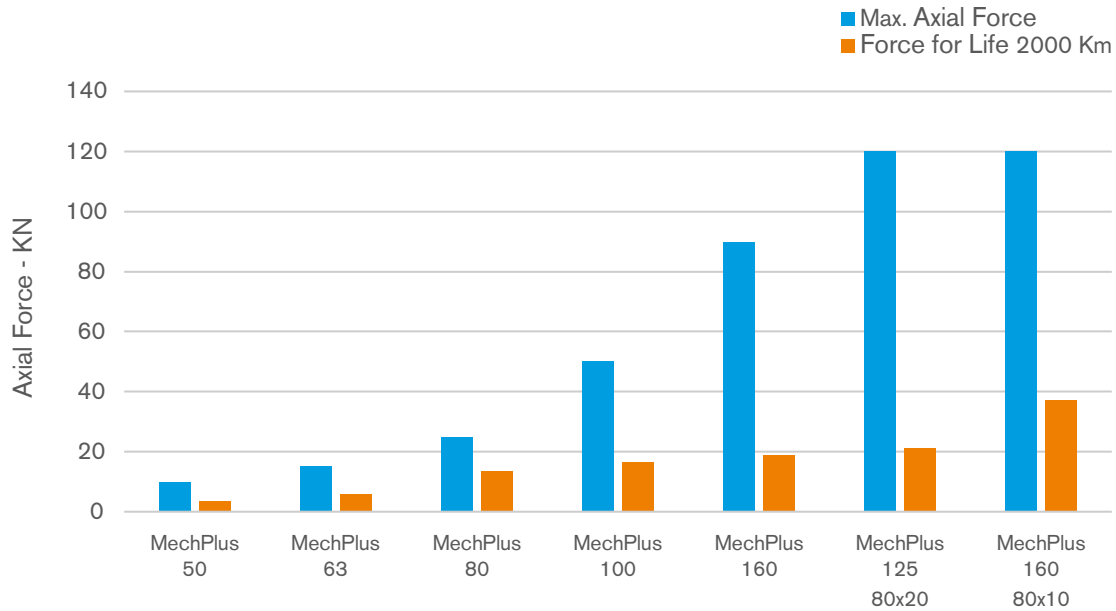
Nominal life specified as a function of the applied axial force.





## Comparing Actuators

For each product of the **MechPlus** product line, we specify the maximum axial force and the maximum axial force and the recommended for a span life above 2500 km.

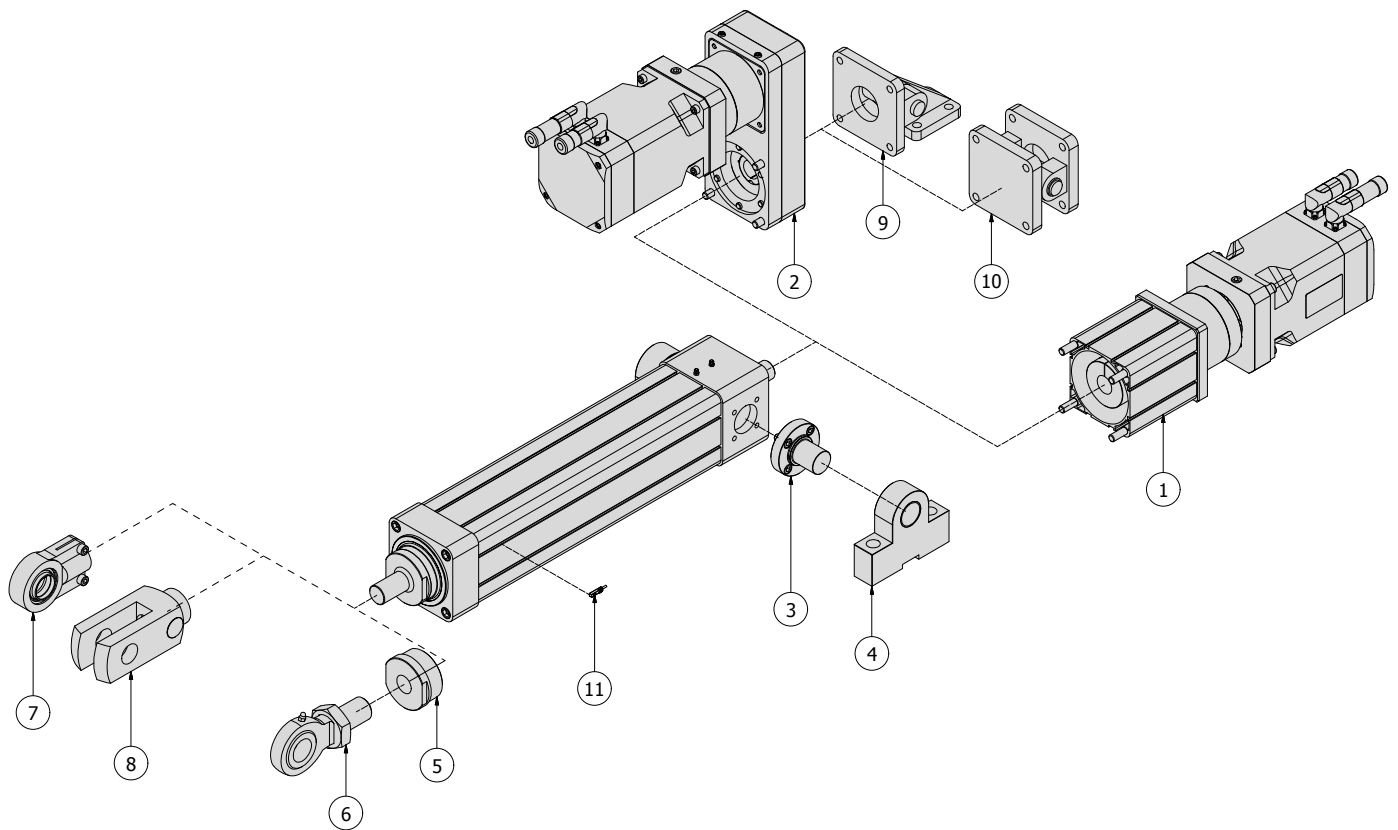


Features / Model AW	UM	Mech Plus 50	Mech Plus 63	Mech Plus 80	Mech Plus 100	Mech Plus 125	Mech Plus 160	Mech Plus 160
Diameter / Pitch Screw RS	mm	25P10	32P10	40P10	50P10	63P10	80-P10	80-P20
Maximum axial force to Cin max	N	10 KN	15 KN	25 KN	50 KN	90 KN	120 KN	100 KN
Maximum force Life 2500 km		3,15 KN	5,36 KN	12,47 KN	15,5 KN	17,4 KN	19,3 KN	33,8 KN

# Mech Plus

## Automationware

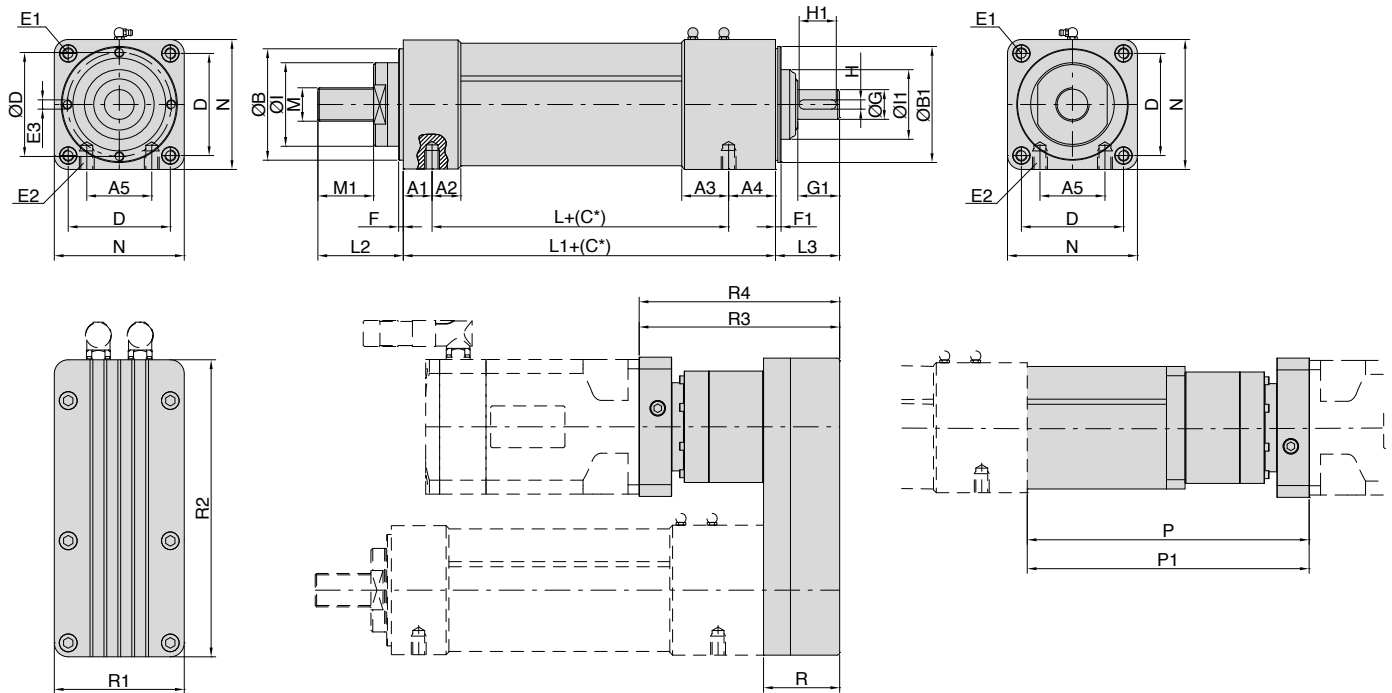
### Accessories



#### ACCESSORIES MECH PLUS

POSITION	DESCRIPTION
1	Direct Drive Kit
2	Parallel Drive Kit
3	Lateral Pins Kit
4	Lateral Flange Support For Pins Kit
5	Female Threaded
6	Spherical Rod End
7	Clevis Rod End
8	Fork Rod End
9	90°Backward Joint Swinging Kit
10	Backward Joint Swinging Kit
11	Hall Sensor

# Components



SUMMARY OF DIMENSION: for basic in line and parallel version

Cylinder size	UM	PLUS 050	PLUS 063	PLUS 080	PLUS 100	PLUS 125	PLUS 160	
Screw lead	mm	P10	P10	P10	P10	P10	P10	P20
A1		17	20	23	28,5	30,5	45	45
A2		17	20	23	28,5	30,5	45	45
A3		27	30	41	55,5	50,5	60	60
A4		27	30	39	47,5	50,5	60	60
A5		24	34	40	50	70	80	80
ØB		50 g6	70 g6	80 g6	100 g6	120 g6	160g6	160g6
ØB1		50 g6	63 g6	80 g6	100 g6	125 g6	160g6	160g6
D		46,5	56,5	72	89	110	140	140
ØD		45	58	71	88,8	112	140	140
E1		M8x18	M8x18	M10x20	M10x20	M12x20	M16x30	M16x30
E2		M8x10	M8x10	M12x12	M16x20	M16x20	M20x30	M20x30
E3		N°6 M4x12	N°8 M4x12	N°8 M4x12	N°8 M5x12	N°4 M10x20	N°8 M10x20	N°8 M10x20
F		3	3	5	6	6	10	10
F1		3	6	6	6	6	13	13
ØG		14 h7	16 h7	22 h7	25 h7	32 h7	35 h7	35 h7
G1		22	25	28	38	45	46	46
H		5	6	8	10	10	10	10
H1		16	20	20	36	40	40	40
ØI		40	55	65	80	90	120	120
ØI1		28	38	44	56	75	85	85
L		132	147	178	216	219,5	270	325
L1		176	197	240	292	300,5	375	430
L2		56	64	70	76	90	118	118
L3		36,5	46,5	49	63	69	80	80
M		M20x1,5	M20x1,5	M27x2	M27x2	M33x2	M42x2	M42x2
M1		35	40	45	45	60	80	80
N		65	75	100	120	140	180	180
P		157	204,5	243	283,7	302	356	363,5
P1		189	225,5	231	311,5	239,5	390,5	398
R		43	58	58	70	78	107	107
R1		65	75	100	120	139	180	180
R2		150	190	227	305	320	415	415
R3		110	152	177	211	212	264	264
R4		142	168	165	238,5	328,5	298,5	298,5

## Know How

**Automationware** founders developed a multi-years experience in the automation industry. **Automationware** has been founded more than 10 years ago. During these years activities have been focused on components for automatic packaging, displacement and movement of materials.

Solutions offered by **Automationware** include both single mechanical components and integrated packaged solutions for linear and rotary applications, based on componenets provided by top tier industrial partners.



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