

Rotac Plus Automationware

48 | 65 | 85 | 100 | 130 | 200



AwareVu™

Precision, structural solidity and positioning repeatability wide range of engineered solutions

 **AutomationWare™**
One step ahead on the future

Rotac Plus

Automationware

48 65 85
100 130 200

**Precision, structural solidity and
positioning repeatability
wide range of engineered solutions**

Supported by continuous innovation

A new range of Rotary Actuators is the complement to the range of **Automationware** products.

Renewed range on the basis of our experience in the design of custom products, allowing the adaptability for a wide range of Rotation Motion applications, also with high stiffness and high load capacity.

Various introduced novelties, such as the double bearings with shafts, the long lasting, high performance belt-drive transmission system, coupled with Pulley with 0 Backlash, micrometre regulation of the tensioning system.

The new **Rotac Plus** can be motorized by the customer, leaving the characteristics of the precision repeatability unchanged, thanks to the stability of the mechanical transmission solution.

Available in 6 sizes: **48, 65, 85, 100, 130, and 200**, they are structured in aluminium with precision processing on all surfaces, anodized and with Holes for the easy placement on all sides.



- Very good positioning repeatability
- High performance belt transmission in Kevlar Aramid with mechanic for the micrometre regulation
- Inextensible to the nominal torque also with bi-directional movement
- Precision in the positioning system coupled with Pulley with 0 Backlash
- Can be used in hostile environments (*Belt specification -30° + 100° C*)
- Wide holes for cables and connections
- Mandrel with different connection-layouts and pin references
- Optional, direct stepper or brushless motorization, or with planetary high efficiency gearbox
- Incremental encoder up to 10000 Pulse/Round. Absolute encoder (*Optional*)
- Option available on request, HPR with high resolution Encoder
- Planetary gearbox 4-6-8, or on Application-specific, available.

The use of innovative transmission techniques invalidates the expansionary and the contractive effects of the belt, giving the possibility of micrometre calibration for a very accurate and stable positioning.

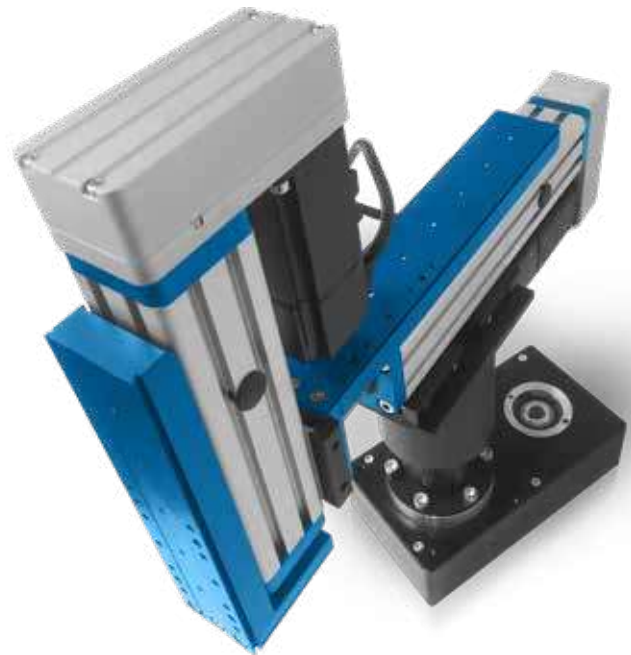
The mechanical layout ensures also with motorisations chosen by the customer a very good positioning repeatability and gives a good alternative to the complete embedded solutions.

The available motorisations are Brushless or Stepper with incremental encoder control or absolute encoder (*optional*).

The Package control Software is also available, with the possibility to program up to 64 positions (**Rotac EASY™**): Rotac can also accommodate the new **AwareVu** to control the system vibrations. (*Page 8*)

Benefits

- **Excellent price-to-performance ratio**, alternative solution, low maintenance
- **Applicability** in situations with essential speed and accuracy
- **Versatility**. Supporting base for the **AW Mini-SCARA** configuration
- Use in hostile environments (*thermal excursions of the belt -30° a +100° C*)
- Motorisation chosen by the customer, **Brushless or Stepper AW motor** solutions with drivers and high precision encoder
- **Easy coupling** with gearboxes, motor an both surfaces
- **Configurable** with other **Automationware** products (*Linear axes or SM-series slide*)
- Control Software for the easy system programmation



Application

Electronics production

Very useful for the positioning of the electronic components or silicon wafers. They can be coupled to Pick and Place systems, for the high precision and high speed rotation. The HPR option (*High Precision Rotac*) allows a very high positioning repeatability.

Diagnostic and quality control

If the rotating movement can be combined with scanning systems for the quality control requiring the accurate positioning without fluctuations (*ringing*) or anomalous vibrations

Laser Scanning

Ideal system for the installation of a laser for 2-3D applications for geographic, archaeological scanning and for reverse engineering. Possibilities for Bar code systems applications of the production or storage systems.

Production and filling

Very useful in the production, to modulate the movement of the containers with liquid, and it is necessary to accelerate or decelerate with pre-established curves; impossible with pneumatic actuators.



Packaging and/or Material Motion

Extremely useful for the packaging, also combined with the Automationware SM series (*high speed electric slides*), if scalable torque, high precision and positioning reliability are necessary.

Aerospace and Defense

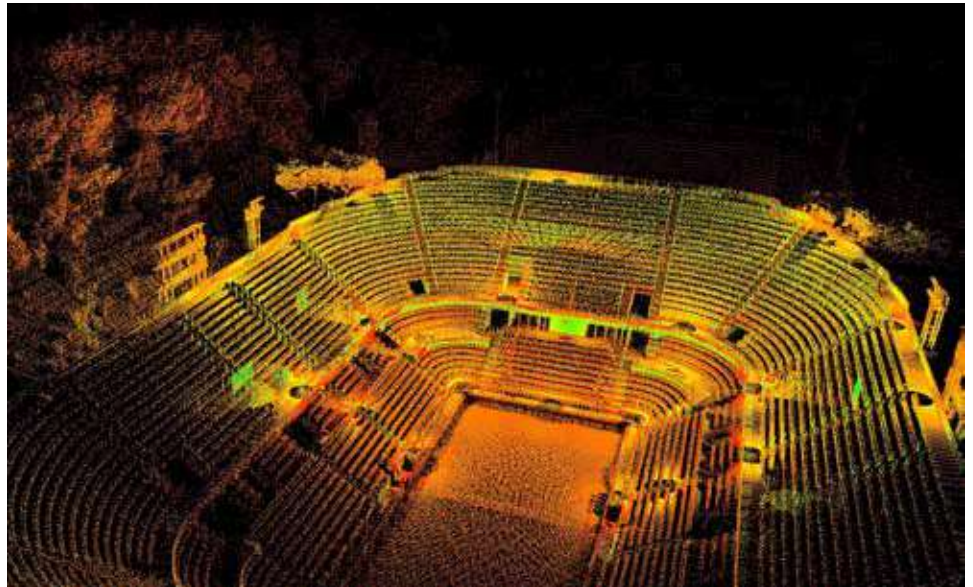
For the applications of "Digital Sentinel" with installation of fast cameras or laser systems to identify territory violations. They can be also used on board of aircrafts for territorial scan applications.

Factory automation

Excellent for the industrial production chains, to find a rapid solution for eventual line problems (*glass insertion for the manufacturing application in the automotive sector*).

Machine tools

Useful to move elements of the machine tools as support of automation systems, thanks to the high speed and precision (*manufacturing and processing machines for the production of small mechanical components such as keys and automotive components*).



Rotac Plus

Automationware

High Performance Rotary actuator based on a solid monolithic system, providing precise accurate and repeatable positioning.
(Up to 70 Nm)

Micrometric
Calibration System



Solid Double Bearings

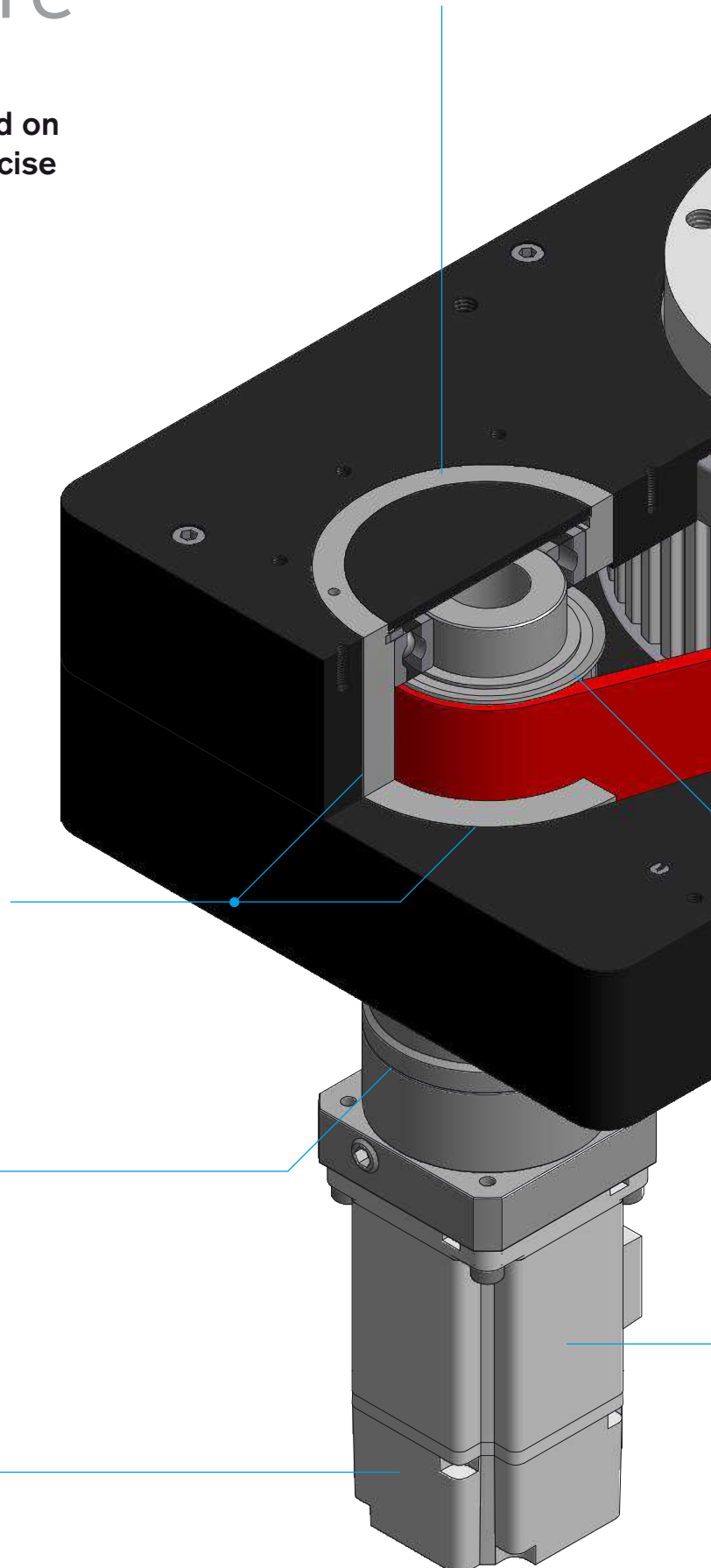
System with lubrications free
Isolated IP65

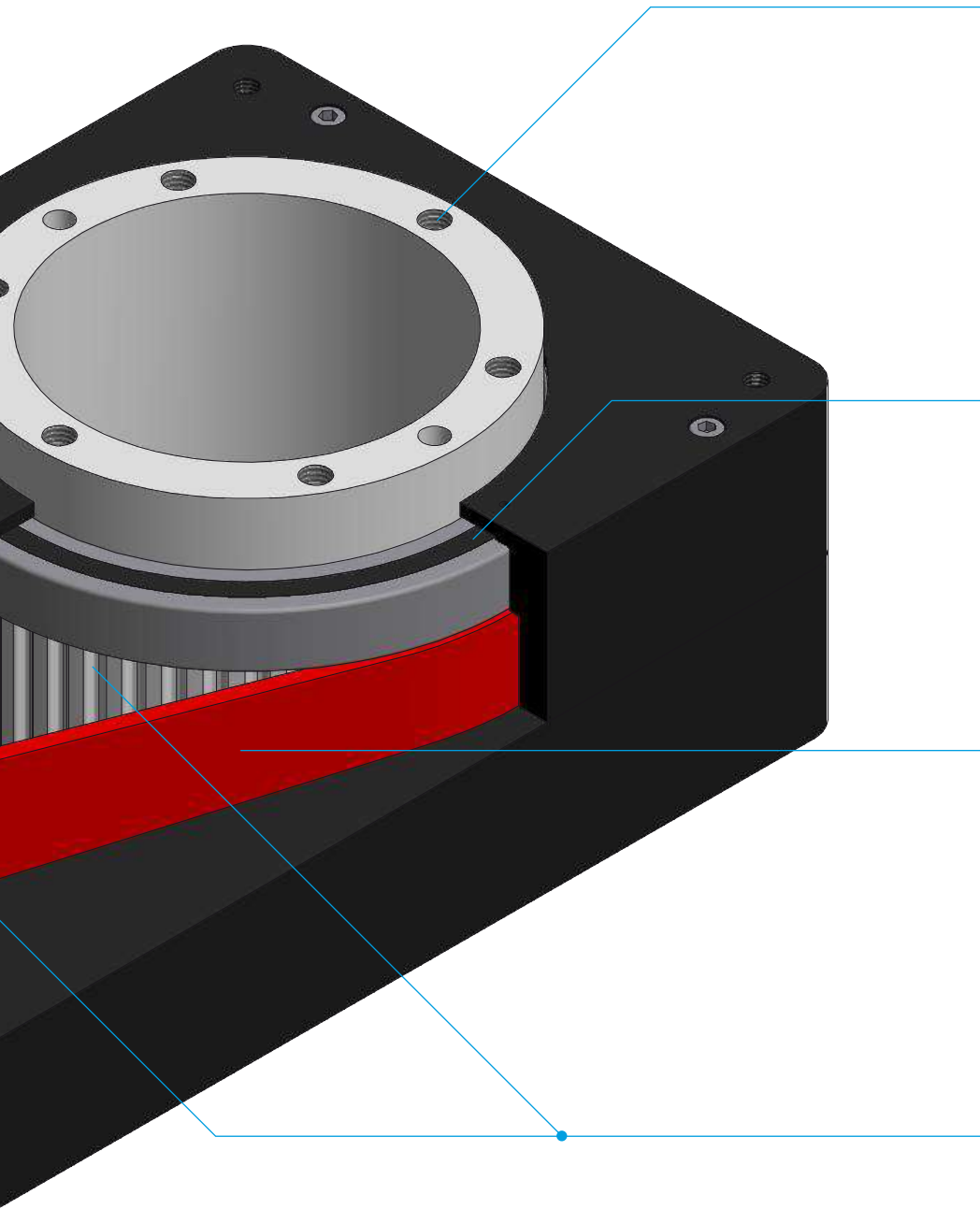
Planetary

High efficiency gearbox

Encoder

High resolution encoder for precise and accurate positioning **Option HPR** (*High Position Repeatability up to 0,002°*)





Mandrel

with pin references and several holes for an easy connectivity to tables or accessories

Solide Double Bearing

System with high possibility of heavy radial payload, lubrications free
Isolated IP65

High performance Aramid of Kevlar Belting

system, offering high level protection for Hostile environment
(-30° + 100° C.)

Pulley with Backlash 0

Stepper or Brushless motor driver

Rotac Plus Automationware

Configuration of the Rotary Actuator with the ROTAC EASY software

The control software **Easy Motion** can be installed on a normal PC or on a tablet, it can be connected through a normal USB interface or serial interface to the control electronics.

The main window of the **Easy** program is displayed in the figure above.



The control software **Easy Motion** can be installed on a normal PC or on a tablet, it can be connected through a normal USB interface or serial interface to the control electronics.

It is possible to set up 64 different positions, each one characterized by speed and acceleration.

The position data can be defined absolutely or relatively, in relation to the current position.

The selection of the controls for the different positions (*in succession or random*) allows the automatic functional simulation of the actuator.

In the figure is displayed the main window of the easy system.

This control moves the actuator to the indicated position, and gives a graphical indication of the reached position, a second method to define the position to reach, is the interactive motion of the table, the table can be moved with a clockwise or counterclockwise movement.

For each movement it is possible to set up the corresponding speed and acceleration.

The chosen position can be saved in one of the 64 positions in the cabinet.

A third method to define the positions is possible, if these are increasing remote each other; in this case with only one control on the cabinet **“default settings”**, all movements for a 360°-rotation of the actuator can be set up. (*Ex. selecting 45° it is possible to select 45° from Pos. 1 to Pos. 8*).

When the configuration has been made, the different positions can be recalled and controlled through the available digital I/O from the drive.



AwareVu™

Automationware considers the new **market trends ind. 4.0**, develops a new control platform called **AwareVu**.

The new product can be applied on each Rotac or combined with other **Automationware** components to control the vibration profile of the system during the processing cycle, activating an alarm in case of malfunction.

The alarm can be visible through a local LED light or recognised via Wi-Fi in the machine computer on the **AW application**.

Models and Specifications

Stepper : ROTAC PLUS - Hollow Rotary Actuator

Description	Nm	1,2	3	3,6	9	22	40
Maximun Torque	Nm	1,2	3	3,6	9	22	40
Belt Ratio	ic	3	3	2,5	3	3	3
Motor Type/Model STEPPER (450rpm)	Nm	0,4 -Nema 17	1,0-Nema 23	1,8-Nema 23	3,0-Nema 24	7,0-Nema 34	12,8-Nema 34
Encoder Resolution	Pulses/Round	10000	10000	10000	10000	10000	10000
Motor Inertia	kgcm2	0,05	0,48	0,48	0,84	2,00	2,90
Max Output speed	rpm	150	150	180	150	150	150
Max load inertia	kgcm2	4,86	43,2	30	75,6	180	261
Permissive Thrust Load	N	860	880	1360	2560	4000	7800
Position repeatability	°	0,012	0,012	0,012	0,012	0,012	0,012
Position repeatability (Option HRP-S)	°	0,006	0,006	0,006	0,006	0,006	0,006
Hall Home Sensor	-	PNP	PNP	PNP	PNP	PNP	PNP
Driver Control Model	-	AW DPC 48	AW DPC 48	AW DPC 48	AW DPC 48	AW RS	AW RS
Software & Network	-	Easy Rot	Easy Rot	Easy Rot	Easy Rot	Easy Rot	Easy Rot

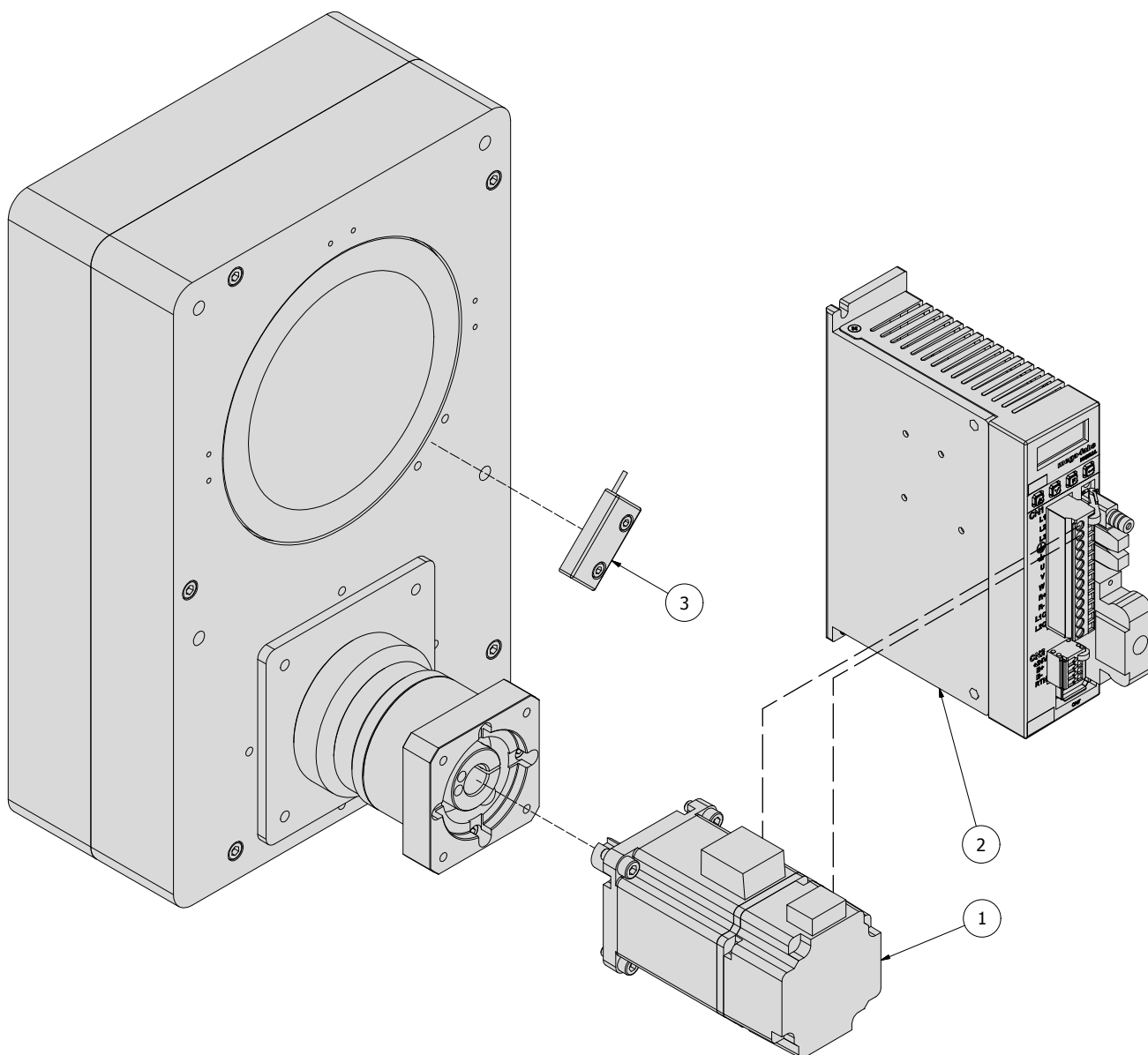
Brushless : ROTAC PLUS - Hollow Rotary Actuator

Description	MU	Rotac 48	Rotac 65	Rotac 85	Rotac 100	Rotac 130	Rotac 200
Maximun Torque	Nm	1,2	3	3,6	9	22	70
Belt Ratio	ic	3	3	2,5	3	3	3
Planetary Gearbox	-	/	/	AWRL50	AWRL50	AWRL70	AWRL90
Gear Ratio	ig	/	/	4-6-8	4-6-8	4-6-8	4-6-8
Motore Type/Model Brushless (1000rpm)	W	200	400	400	400	750	1000
Max Torque vs ratio factor	Nm	0,47	1,18	0,42-0,28-0,21	0,88-0,58-0,44	2,1-1,4-1,1	6,9-4,6-3,4
Motor Inertia	kgcm2	0,177	0,277	0,277	0,277	1,13	8,41
Max Output speed	rpm	1000	1000	300-200-150	250-165-125	250-165-125	250-165-125
Max load inertia	kgm2	0,0016	0,0025	0,028-0,062-0,11	0,04-0,09-0,16	0,163-0,366-0,65	1,21-2,72-4,84
Position repeatability (res. 2000 i/g)	°	0,06	0,06	0,018-0,012-0,009	0,015-0,01-0,008	0,015-0,01-0,008	0,015-0,01-0,008
Position repeatability (Option HRP-B)	°	0,012	0,012	0,004-0,002-0,002	0,003-0,002-0,002	0,003-0,002-0,002	0,003-0,002-0,002
Backlash	°	0	0	0,008-0,006-0,004	0,007-0,005-0,003	0,007-0,005-0,003	0,007-0,005-0,003
Permissive Trust Load	N	860	880	1360	2560	4000	7800
Hall Home Sensor	-	PNP	PNP	PNP	PNP	PNP	PNP
Control Driver	-	AW RB	AW RB	AW RB	AW RB	AW RB	AW RB
Software & Network	-	Easy Rot	Easy Rot	Easy Rot	Easy Rot	Easy Rot	Easy Rot

Rotac Plus

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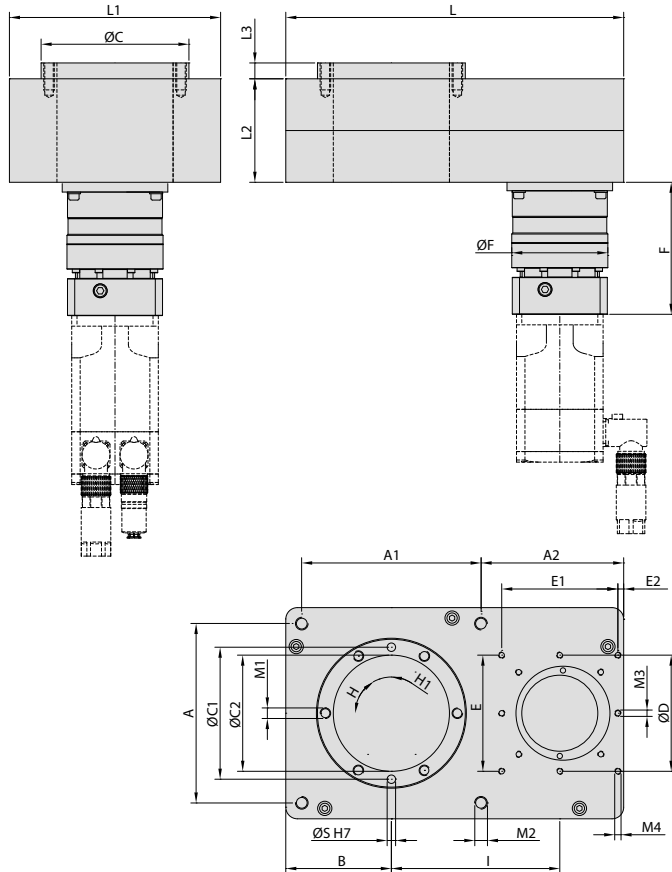
System Accessories



AVAILABLE OPTIONS ROTAC PLUS

POSITION	DESCRIPTION
1	Motor and Encoder (Stepper or Brushless)
2	Electronics Control
3	Hall Effect Sensor

Components



DIMENSIONS: Rotac Plus Series

Rotac Plus	MU	Rotac 48	Rotac 65	Rotac 85	Rotac 100	Rotac 130	Rotac 200
INPUT SHAFT	mm	5	8	12	12	16	22
A	mm	40	50	70	80	110	170
A1	mm	40	50	70	80	110	170
A2	mm	45,5	70	52,5	95	93	135
B	mm	24,5	35	42,5	50	67	100
ØC	mm	40	58	70	75	100	140
ØC1	mm	32	50	62,5	65	90	125
ØC2	mm	16	25	30	55	80	110
ØD	mm	-	-	-	-	79	110
E	mm	-	-	45	50	70	-
E1	mm	-	-	40	50	70	-
E2	mm	-	-	7,5	17	13	-
F	mm	*F	*F	*F	*F	*F	*F
ØF	mm	-	-	50	50	70	90
H	mm	60°	60°	60°	60°	60°	60°
H1	mm	30°	30°	30°	30°	30°	30°
I	mm	42	62,7	60	94	100	159,5
L	mm	90	130	130	185	215	320
L1	mm	48	65	85	100	130	200
L2	mm	28	28	30	48	63	78
L3	mm	10	12	13	12	10	15
M1	mm	N°6 M4x8	N°6 M5x10	N°6 M4x10	N°6 M6x12	N°6 M8x16	N°6 M10x25
M2	mm	N°4 M4x12	N°4 M5x12	N°4 M6x12	N°4 M6x12	N°4 M8x16	N°4 M12x25
M3	mm	-	-	-	-	N°4 M5x10	N°8 M6x12
M4	mm	-	-	N°4 M4x12	N°4 M4x12	N°4 M5x10	-
ØS H7	mm	N°2 4x5	N°2 4x5	N°2 4x10	N°2 5x12	N°2 6x12	N°2 8x12

*F = Force according with GearBox reduction

Automationware

Is a consolidated fact in the field of components and Automation systems.

Founded in 2002, on the plant of Dolo (VE) designs, manufactures, and integrates Positioning solutions and linear or rotary motion solutions for the Factory Automation.

It has know-how and leadership for mechatronic applications, thanks to the planning experience of the founders, with technological packaging systems (*strong mechanical, electronical integration, control Firmware*).



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